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## A Framework For The Assessment And Analysis Of Multi-hazardsinduced Risk Resulting From Space Vehicles Operations

Serge Sala-Diakanda  
*University of Central Florida*



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A FRAMEWORK FOR THE ASSESSMENT AND ANALYSIS OF MULTI-HAZARDS  
INDUCED RISK RESULTING FROM SPACE VEHICLES OPERATIONS

by

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy  
in the Department of Industrial Engineering and Management Systems  
in the College of Engineering and Computer Science  
at the University of Central Florida  
Orlando, Florida

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2007

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## **ABSTRACT**

With the foreseeable increase in traffic frequency to and from orbit, the safe operation of current and future space vehicles at designated spaceports has become a serious concern. Due to their high explosive energy potential, operating those launch vehicles presents a real risk to: (1) the spaceport infrastructure and personnel, (2) the communities surrounding the spaceport and (3) the flying aircrafts whose routes could be relatively close to spaceport launch and reentry routes. Several computer models aimed at modeling the effects of the different hazards generated by the breakup of such vehicles (e.g., fragmentation of debris, release of toxic gases, propagation of blast waves, etc.) have been developed, and are used to assist in Go-No Go launch decisions. They can simulate a total failure scenario of the vehicle and, estimate a number of casualties to be expected as a result of such failure.

However, as all of these models – which can be very elaborate and complex – consider only one specific explosion hazard in their simulations, the decision of whether or not a launch should occur is currently based on the evaluation of several estimates of an expected number of casualties. As such, current practices ignore the complex, nonlinear interactions between the different hazards as well as the interdependencies between the estimates.

In this study, we developed a new framework which makes use of information fusion theory, hazards' dispersion modeling and, geographical statistical analysis and visualization capabilities of geographical information systems to assess the risk generated by the operation of space launch vehicles. A new risk metric, which effectively addresses the lack of a common risk

metric with current methods, is also proposed. A case study, based on a proposed spaceport in the state of Oklahoma showed that the estimates we generate through our framework consistently outperform estimates provided by any individual hazard, or by the independent combination of those hazards. Furthermore, the study revealed that using anything else than fusion could provide seriously misleading results, with potentially catastrophic consequences.

I dedicate this work to my beloved parents, Daniel and Marie-Jose Sala-Diakanda

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## LIST OF ACRONYMS AND SYMBOLS

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
B-CD	Belief Cumulative Distribution
BLEVE	boiling liquid expansion vapor explosions
BRAMA	Blast Risk Assessment Model for Arena
BST	Baker-Strehlow-Tang model
CAIB	Columbia Accident Investigation Board
CCD	census county subdivision
$C_D$	drag coefficient
CDC	Center for Disease Control and Prevention
cdf	Cumulative distribution function
COM	component object model
COTS	commercial off-the-shelf
CRTF	Common Real-Time Footprint
DEM	Digital Elevation Model
DEnv	Distribution Envelope Determination
DLL	dynamically linked libraries
DRAMA	Debris Risk Assessment Model for Arena
D-S	Dempster-Shafer
$E_C$	expectation of casualties
$E_{CFUS}$	fused expectation of casualties
EFM	Entropy Fusion Model
ELV	expendable launch vehicle
EPA	Environmental Protection Agency
ET	external tank
EWR	Eastern and Western Range
FAA AST	Federal Aviation Administration Office of the Associate Administrator for Commercial Space Transportation
GIS	geographical information system
HCl	hydrogen chloride
IDLH	immediately dangerous to life and health
KSC	Kennedy Space Center
LARA	Launch Area Risk Analysis
LP	linear programming
MEM	Multi-Energy Model
MFCO	Mission Flight Control Officer
NAAQS	national ambient air quality standards

NASA	National Aeronautics and Space Administration
NIOSH	National Institute of Occupational Safety and Health
NWS	National Weather Services
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
$P_0$	Blast overpressure
QRAS	Quantitative Risk Assessment System
REEDM	Rocket Exhaust Effluent Diffusion Model
RLV	reusable launch vehicle
SRB	solid rocket booster
SSME	Space Shuttle main engine
TNT	Trinitrotoluene
TSM	transportation simplex method
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
V&V	Verification and Validation
VCE	vapor (and gas) cloud explosions
$\beta$	ballistic coefficient
$\bar{R}$	combustion energy scaled distance

# CHAPTER 1 INTRODUCTION

## 1.1 Problem Statement

Operating a spaceport such as NASA's Kennedy Space Center (KSC) or a launch vehicle such as the Space Shuttle is a complex task. It involves addressing a number of safety issues, such as the safety of: (1) the public on the ground, (2) the astronauts, (3) the workforce and surrounding infrastructure, (4) the other airborne aircraft and when applicable, (5) seafaring vessels in the vicinity of the spaceport. Currently on U.S. soil, there are only two spaceports in operation; both operated by the federal government: Kennedy Space Center (also known as the Eastern Range) located in Florida and, Vandenberg Air Force Base (also known as the Western Range) located in California.

However, if the recent increase in activities at the Federal Aviation Administration Office of the Associate Administrator for Commercial Space Transportation (FAA AST), and the signing by President George W. Bush of the Commercial Space Launch Amendment Act are any indications, the projected growth of the commercial space transportation industry will prompt the development of new private and state-operated spaceports. Indeed, while the commercial space transportation industry is commonly associated with the use of expendable launch vehicles (ELV) – which carry payloads owned by private companies to and from orbit – sources indicate that a growing part of this industry is in the development of reusable launch vehicles (RLV), and the

development of private or state-operated launch, re-entry, and processing sites ( FAA Office of Commercial Space Transportation, 2004).

Therefore, with the foreseeable increase in commercial launch/return rates in the next few years and the resulting growing capacity demand on the National Airspace System (Van Suetendael 2003), there is a need to rigorously investigate the safety impact of any future spaceport site on the populated areas and infrastructure in its vicinity. This is supported by the FAA/AST since its first criterion in issuing a license to applicants to operate a launch site is the public health and safety (FAA Licensing Regulations and Regulatory Activity, 2005).

The risk to the public associated with the loss (breakup) of a launch vehicle (accidental or instructed) is expressed in terms of an expectation of casualty ( $E_C$ ). It is formally defined as *a mean value from a statistical analysis of the probability and consequence of all foreseen outcomes of flight* (Risk and Lethality Commonality Team, 2002). For example, NASA uses a critical value of  $E_C = 30 \times 10^{-6}$  when making a GO-NOGO launch decision (i.e., thirty casualties expected in a million launches). The general formulation of  $E_C$  is as follows

$$E_C = E_{PH} \times P_{C/E} \times P_E \quad (1.1)$$

Where:

$E_C$  is the expected number of casualties

$E_{PH}$  (Expected Population Hazardred) is the parameter that represents the number of people in an impacted area. If there is no population in that area, then  $E_{PH}$  and  $E_C$  for that area are zero.

$P_{C/E}$  (Probability of casualty given an event) is the probability of having a casualty following the breakup of the launch vehicle; and

$P_E$  is the probability of loss of the launch vehicle

In the above equation,  $E_{PH}$  is derived from population information obtained from sources like the Census and, the LandScan population databases developed from Oak Ridge National Laboratory (ORNL). The probability of loss of a launch vehicle ( $P_E$ ) is a complex vehicle-dependent term provided by its manufacturer. It is determined throughout the mission of the vehicle and for specific time increments (Strom & Newton 2001).  $P_{C/E}$  on the other hand, which is the probability of having a casualty given an event, is obtained from evaluating the effects of different hazards produced during the vehicle breakup. Three main hazards are generally produced: (1) an explosion blast, (2) a large number of pieces of debris resulting from the fragmentation of the vehicle and, (3) rocket fuel released in the form of gases such as hydrogen chloride (HCl) which could be harmful if released in large quantities. If the explosion occurs close enough to the launch pad, then the thermal effect of the fireball generated by the explosion constitutes an additional hazard.

However, because of the very complex nature of an explosion in terms of the physics and the interactions taking place between the hazards just mentioned, there has been, according to the published literature, no solution provided to estimate  $E_C$  as a function of the combined effects of those hazards. In fact, although the hazards mentioned earlier are well identified, the computation of  $E_C$  only considers the debris hazard (Calpuff vs Reedm). Therefore, the approach to assessing the risk, as we present in the next chapter, has been to develop hazards-specific

models, *i.e.*, debris dispersion model, blast propagation model and, gas dispersion model, and to draw independent conclusions from each of them.

## 1.2 Research Objective

In this study we seek to develop a framework aimed at assessing and analyzing the risk generated by the operation of space launch vehicles – whether they operate from coastal or inland spaceports – in which all the hazards they produce can be seamlessly integrated to provide a cohesive picture of the nature of that risk. Based on advances in information fusion theory, hazards modeling and geographical statistics, this study aims at developing a framework which will address (1) the lack of a unifying and truly informative risk metric, (2) the assumption of independence between the hazards' effects, which is rarely appropriate and, (3) the lack of a single platform from which this complex interdisciplinary problem can be confidently addressed. Enterprises such as the (1) selection, development and operation of spaceport sites, (2) the selection of new launch and return routes, or (3) the design of future launch vehicles are just some that would benefit from such a framework. However, the benefits of such a framework would extend beyond the space industry, finding use in any enterprise where the use of spatial information and, the need for consensus between highly heterogeneous information sources are critical.



### 1.3 Organization of this Document

This document is organized as follows: In Chapter 2, we review the three main hazards generated during a launch vehicle breakup. In Chapter 3, we discuss some of the information fusion theories developed and described in the literature. In Chapter 4, the implementation of a fusion methodology is proposed. In Chapter 5, we describe an early concept of a tool for such a framework. Chapters 6 and 7 discuss in detail the modeling approach and, the experiment conducted as proof of concept. In Chapter 6 we discuss the data preparation stage. Chapter 7 discusses the design of the experiment and the results generated. In Chapter 8 we conclude this study, highlighting its significance, suggesting possible directions for future research and, placing the importance of this work within the larger context of risk assessment, management and mitigation.

## **CHAPTER 2      REVIEW OF PROSPECTIVE HAZARDS MODELING**

The objective of this chapter is to provide to the reader a brief overview of the vast field of prospective hazards modeling. Specifically, we will describe the current state of the art in debris fragmentation and dispersion modeling, the major methodologies by which blast propagation properties are determined, and the state of knowledge in gas dispersion and toxicity modeling.

### **2.1      Fragmentation and Debris Dispersion Modeling**

For a brief review of what has been accomplished in the modeling of fragmentation and debris impact dispersion resulting from the breakup of a space vehicle in flight, we describe the Common Real-Time Footprint (CRTF). CRTF is a state-of-the-art debris model developed by ACTA, Inc. for the National Aeronautics and Space Administration (NASA) to analyze and predict the impact dispersion of debris resulting from the explosion of a space vehicle in flight. Recently, CRTF was used to help determine the level of risk to the public associated with the thousands of debris (more than 80,000), which resulted from the Columbia breakup during its last reentry, on February 1, 2003.

For a more detailed description of CRTF, the reader is referred to CAIB Report 2003 where most of the information given in this section is found.

### 2.1.1 Physics of Debris Trajectory

When a space vehicle explodes in the air, whether during its ascent phase or its reentry phase, thousands of fragments of different shapes and sizes may be generated. Each of these free-falling fragments follows a trajectory which obeys Newton's Second Law. The law states that the acceleration of an object is dependent upon the net force acting upon the object and the mass of the object. This dependency is formulated as:

$$\sum F_i = ma_i \quad (2.1)$$

where  $F_i$  is the sum of forces in the  $i^{th}$  direction acting on the fragment of mass  $m$  causing an acceleration  $a_i$  in the same direction. Among those forces are those caused by gravity and wind as well as those due to the aerodynamic properties of the fragment (e.g., forces of lift and drag). Often, the inertial effects and drag effects are combined to form a ballistic coefficient  $\beta$  which is computed as:

$$\beta = \frac{W}{C_D A} \quad (2.2)$$

where  $W$  is the weight of the fragment,  $C_D$  is the drag coefficient and  $A$  is a characteristic area of the fragment associated with the drag coefficient. Figure 2.1 illustrates the effects these forces may have on the trajectory of each fragment.

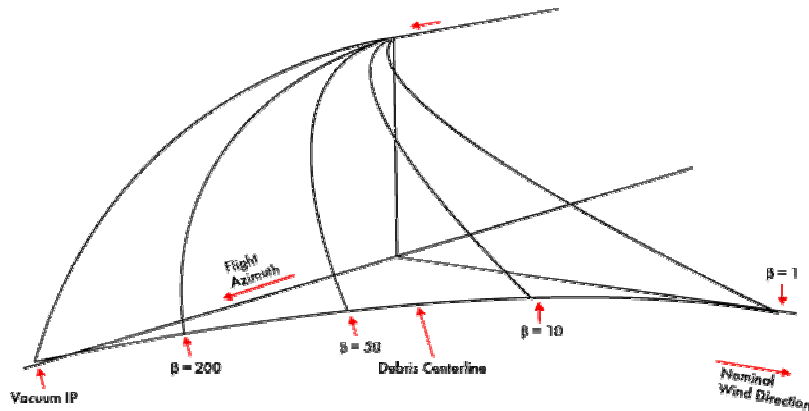


Figure 2.1 The effects of ballistic coefficient  $\beta$  and wind direction upon the nominal trajectory of a debris. Objects with high ballistic coefficients are less affected by wind forces than those with low ballistic coefficients Source: (CAIB Report 2003)

### 2.1.2 Common Real-Time Debris Footprint (CRTF)

CRTF was developed under the joint sponsorship of the Eastern and Western Ranges<sup>1</sup> to assist the Mission Flight Control Officer (MFCO) in its decision to abort a launch. It is a probabilistically-based dispersion model that uses the actual state vector of the vehicle to perform the dispersion analysis of the fragments in real time. Although the CRTF program is designed to simulate impact dispersions resulting from a commanded destruct breakup mode, it has been proven capable of generating reliable results for other breakup modes, such as those due to aerodynamic pressure (CAIB Report 2003).

<sup>1</sup> These are the two US spacelift ranges, located at Patrick Air Force Base, Florida (ER) and Vandenberg Air Force Base, California (WR). They provide tracking, telemetry, command and control, communications and other support when space vehicles (Space shuttle, Delta rocket *etc*) are launched.

### 2.1.2.1 The Six CRTF Uncertainty Modules

The program is composed of six uncertainty modules that attempt to quantify the uncertainties associated with: (1) the location of the vehicle at the moment of breakup, (2) the type of debris fragments generated (*i.e.* to which ballistic coefficient range the debris belongs, whether the debris are inert or contain burning propellant, *etc.*), and (3) the wind conditions during free-fall. Four of the modules use Monte Carlo routines for the handling of uncertainties and the development of impact distributions that contribute to the total uncertainty.

The first module estimates the real-time state vector of the vehicle while the third model estimates the state vector of each fragment at breakup by augmenting the state vector of the first model with an impulse effect. Malfunction tumble turn effects are handled by the second module while the last three modules deal with the trajectory of the fragment debris during free fall.

#### *Module 1: Estimation of the Real-Time Vehicle State Vector*

To account for the errors in measurement provided by the tracking system<sup>2</sup>, the program models the position and velocity of the vehicle at breakup with the assumption that in each of the three orthogonal directions, the uncertainties surrounding the two parameters follow a normal distribution. This information is then gathered in a Kalman filter covariance matrix as

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<sup>2</sup> The tracking system is composed of multiple sensors, each of them having a degree of inaccuracy in their measurements.

$$\Sigma_{(x,y,z,\dot{x},\dot{y},\dot{z})} = \begin{bmatrix} \sigma_x^2 & \rho_{xy}\sigma_x\sigma_y & \rho_{xz}\sigma_x\sigma_z & \rho_{xt}\sigma_x\sigma_{\dot{x}} & \rho_{xy}\sigma_x\sigma_{\dot{y}} & \rho_{xz}\sigma_x\sigma_{\dot{z}} \\ \rho_{yx}\sigma_y\sigma_x & \sigma_y^2 & \rho_{yz}\sigma_y\sigma_z & \rho_{yt}\sigma_y\sigma_{\dot{y}} & \rho_{yz}\sigma_y\sigma_{\dot{z}} & \rho_{yt}\sigma_y\sigma_{\dot{t}} \\ \rho_{zx}\sigma_z\sigma_x & \rho_{zy}\sigma_z\sigma_y & \sigma_z^2 & \rho_{zt}\sigma_z\sigma_{\dot{z}} & \rho_{zy}\sigma_z\sigma_{\dot{y}} & \rho_{zt}\sigma_z\sigma_{\dot{t}} \\ \rho_{xt}\sigma_x\sigma_{\dot{x}} & \rho_{xy}\sigma_x\sigma_{\dot{y}} & \rho_{xz}\sigma_x\sigma_{\dot{z}} & \sigma_{\dot{x}}^2 & \rho_{xy}\sigma_x\sigma_{\dot{y}} & \rho_{xz}\sigma_x\sigma_{\dot{z}} \\ \rho_{yx}\sigma_y\sigma_{\dot{y}} & \rho_{yy}\sigma_y\sigma_{\dot{y}} & \rho_{yz}\sigma_y\sigma_{\dot{z}} & \rho_{yt}\sigma_y\sigma_{\dot{y}} & \sigma_{\dot{y}}^2 & \rho_{yz}\sigma_y\sigma_{\dot{z}} \\ \rho_{zx}\sigma_z\sigma_{\dot{z}} & \rho_{zy}\sigma_z\sigma_{\dot{y}} & \rho_{zz}\sigma_z\sigma_{\dot{z}} & \rho_{zt}\sigma_z\sigma_{\dot{z}} & \rho_{zy}\sigma_z\sigma_{\dot{y}} & \sigma_{\dot{z}}^2 \end{bmatrix}$$

where the  $\sigma$ 's are the standard deviations of position and speed and the  $\rho$ 's are the correlation coefficients between any combination of two variables.

### *Module 2: Estimation of the Tumble Turn direction*

A malfunction tumble turn may occur during flight, with the effect of deviating the launch vehicle away from its nominal trajectory. CRTF accounts for this uncertainty by assuming that all the tumble turn rates and directions are equally likely unless specified otherwise by the manufacturer.<sup>3</sup>

### *Module 3: Estimation of Initial Velocity Vector of Each Fragment*

At the moment of explosion, the fragment debris experiences an impulse away from the explosion causing a perturbation in the state velocity determined in the first model. CRTF models this phenomenon by making the following two assumptions: (1) the impulse speed along each of the three orthogonal axes follows a normal distribution and, (2) the standard deviation of this distribution is one-third the maximum explosion speed.

#### *Module 4: Estimation of Fragment's Type*

Given the potentially large number of fragments an explosion can produce, with their highly irregular shapes and sizes, CRTF assigns a ballistic coefficient to a group of fragments rather than to each fragment. It does it by randomly generating a  $\beta$  from a normal distribution whose parameters are specified by the user.

#### *Module 5: Estimation of Lift Effects*

The lift generated by the surface of a fragment may be just as important as  $\beta$  in determining the impact location of the fragment if its value is large. However, during the fall, the surface perpendicular to the direction of motion constantly changes making the lift for any fragment impossible to estimate. CRTF accounts for the effects of lift by computing two impact points, one with the assumption of no lift and the other with the assumption of a constant lift, which is determined by a ratio between lift and drag determined by the user.

#### *Module 6: Estimation of Wind Effects*

The estimation of wind effects in CRTF is a very complex procedure, which calculates the time a fragment, traveling at terminal velocity, passes through an altitude band. At terminal velocity, the fragment experiences no acceleration as the drag force is now equal to its weight. When the fragment passes through an altitude band, the fully-embedded fragment is assumed to travel laterally at the velocity of the wind.

For each fragment group, the output generated from the six modules is combined into three covariance matrices and then summed to determine the impact dispersion of the group, as

shown in Figure 2.2. When the program is executed, as many as 50 of those distributions may be generated (50 different ballistic classes), allowing one to analyze the effect an explosion may have on the surrounding area.

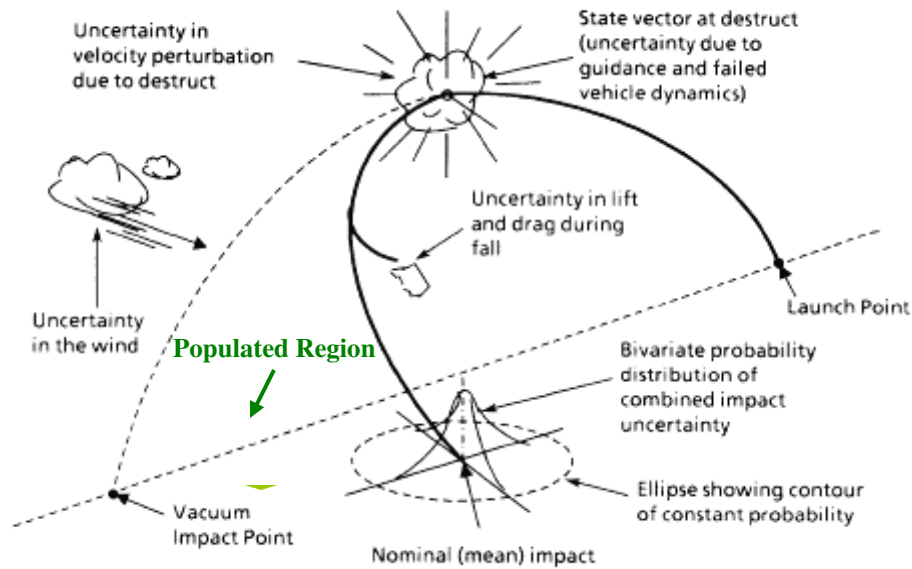


Figure 2.2 Debris impact dispersion obtained from CRTF. For each fragment group, the uncertainties in aerodynamic coefficients, wind's direction and strength, and initial state vector contribute to the bi-variate normal distribution of the impact location.

In this section, we briefly describe CRTF, a sophisticated program for debris modeling. However, because the many factors that contribute to the final trajectory of the fragment debris generated at breakup are for the most part very difficult to accurately estimate, a number of assumptions must be made, possibly limiting the applicability of the results. With the Columbia accident, the analysts could only reproduce the breakup mode by refining a number of times the ballistic coefficient values so that the generated footprint would match what was actually



observed on the debris field. Fusing the output generated by all three hazard models (i.e., debris, blast and gas) would render the final estimation of the expectation of casualties less dependent upon any one of those models, potentially reducing the influence of the inherent assumptions made by those models.

## 2.2 Blast Modeling

An explosion is generally defined as a rapid release of energy into the atmosphere. This energy generates blast waves that can significantly damage the area surrounding the source of the explosion. Among other characteristics, explosions are identified as being either confined, partially-confined or unconfined. Some explosion phenomena are known as boiling liquid expansion vapor explosions (BLEVE), or vapor and gas cloud explosions (VCE) (Cozzani & Salzano 2004) .

In conventional launcher designs, the weight of the propellant carried by the vehicle can represent up to 90% of its total gross weight at launch. Therefore, it is important to understand the explosion potential of this propellant to reliably assess the level of risk to the public and the surrounding infrastructure (which may extend beyond the spaceport) associated with the use of a launch vehicle. However, literature associated with the study of consequences of fuel explosion concentrate in such industries as gas and chemical processing, and offshore oil drilling, where explosion potentials are elevated.

The explosion potential of a fuel is usually quantified in terms of its blast characteristics. An explosion produces a blast wave because the explosive event displaces the surrounding air

rapidly. Blast waves move air away from the point of detonation at velocities that reach up to 1,100 feet per second and pressure up to 1.5 million pounds per square inch, which makes them the single most devastating effect generated by an explosion (Pierorazio, *et al.*, 2005).

As the shock front expands into increasingly larger volumes of the medium, the peak incident pressure at the front decreases and the duration of the pressure increases. Also as the blast pressure decays exponentially, it eventually becomes negative as shown in Figure 2.2. This phenomenon affects buildings, which are subject to pressures acting in the direction opposite to that of the original shock front.

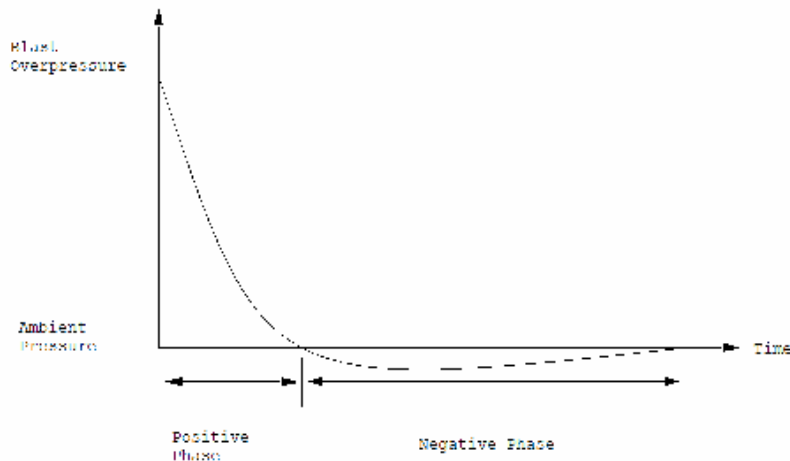


Figure 2.3 Blast overpressure curve (Amptiac Report, 2001)

The Center for Disease Control and Prevention (CDC) has information on explosions and blast-related injuries as Table 1 below illustrates. In the next subsections, we briefly review the three major blast modeling approaches implemented in most blast software currently available. In Section 2.2.2, we describe Trinitrotoluene (TNT) equivalency which is based on TNT charge detonation. In Sections 2.2.3 and 2.2.4, respectively, we review the TNO multi-energy model (MEM) and the Baker-Strehlow-Tang model (BST), which are based on gas charge explosions.

Table 2.1 Mechanism of blast injury (CDC<sup>3</sup>, 2003)

Category	Characteristics	Body Part Affected	Types of Injuries
<b>Primary</b>	Unique to High Order Explosive, results from the impact of the over-pressurization wave with body surfaces.	Gas filled structures are most susceptible - lungs, Gastrointestinal tract, and middle ear.	<ul style="list-style-type: none"> <li>▪ Blast lung (pulmonary barotrauma)</li> <li>▪ TM rupture and middle ear damage</li> <li>▪ Abdominal hemorrhage and perforation</li> <li>▪ Globe (eye) rupture</li> <li>▪ Concussion (Traumatic brain injury without physical signs of head injury)</li> </ul>
<b>Secondary</b>	Results from flying debris and bomb fragments.	Any body part may be affected.	<ul style="list-style-type: none"> <li>▪ Penetrating ballistic (fragmentation) or blunt injuries</li> <li>▪ Eye penetration (can be occult)</li> </ul>
<b>Tertiary</b>	Results from individuals being thrown by the blast wind.	Any body part may be affected.	<ul style="list-style-type: none"> <li>▪ Fracture and traumatic amputation</li> <li>▪ Closed and open brain injury</li> </ul>
<b>Quaternary</b>	<ul style="list-style-type: none"> <li>▪ All explosion-related injuries, illnesses, or diseases not due to primary, secondary, or tertiary mechanisms.</li> <li>▪ Includes exacerbation or complications of existing conditions.</li> </ul>	Any body part may be affected.	<ul style="list-style-type: none"> <li>▪ Burns (flash, partial, and full thickness)</li> <li>▪ Crush injuries</li> <li>▪ Closed and open brain injury</li> <li>▪ Asthma, COPD, or other breathing problems from dust, smoke, or toxic fumes</li> <li>▪ Angina</li> <li>▪ Hyperglycemia, hypertension</li> </ul>

### 2.2.1 TNT Equivalency

Perhaps the best known blast modeling approach is TNT equivalency. The objective of this model is to find, for any explosive, an equivalent weight charge of TNT. The U.S. Army and the United Kingdom Health & Safety Executive (HSE) have conducted a number of large-scale

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<sup>3</sup> Center for Disease Control and Prevention

experiments from which the damage patterns associated with TNT explosions are well-documented (Haz Professional, 2004).

Among its applications in the aerospace industry, it is worth noting that NASA used the TNT equivalency method in 1993 to formulate its Safety Standard for Explosives, Propellants and Pyrotechnics which are still used today (Office of Safety and Mission Assurance 1993).

### 2.2.1.1 Methodology

For any explosive, the equivalent TNT mass is obtained from Equation (2.3)

$$W_{TNT} = \frac{(W_{gas})(\Delta H_{c(gas)})(Y)}{(\Delta H_{d(TNT)})} \quad (2.3)$$

where

$W_{TNT}$  is the equivalent mass of TNT, in kg

$W_{gas}$  is the mass of gas in the VCE generated by the explosive, in kg

$\Delta H_{c(gas)}$  is the heat of combustion of the gas, in J/kg

$\Delta H_{d(TNT)}$  is the heat of detonation of TNT, in J/kg

$Y$  is an efficiency factor which is typically between 1 and 2% for VCE (Tang & Baker 1999).

Given  $W_{TNT}$ , one can determine the blast peak overpressure at any distance from the source of explosion using the cube root scaling law, which states that this distance is directly proportional to the cube root of the mass of the explosive involved in the explosion as shown in Equation 2.4 (The Quest Quarterly, 1999)

$$R = ZW_{TNT}^{1/3} \quad (2.4)$$

where

$R$  is the distance to a given peak overpressure, in m

$Z$  is the scaled distance measured, in  $\text{m/kg}^{1/3}$

$W_{TNT}$  is the equivalent mass of TNT, in kg

The scale distance  $Z$  for any peak overpressure  $P_0$  and the resulting damages can be determined using the curve shown in Figure 2.3. This curve is the result of the extensive large-scale experiments mentioned earlier.

#### 2.2.1.2 Limitations of TNT

Due to the assumptions there is growing opposition toward the use of TNT to model VCE phenomena. The MEM and the BST approaches described next are known to be better alternatives.

1. The TNT equivalency method does not differentiate between combustion modes of vapor cloud explosions. They are all treated as detonations.
2. The efficiency factor  $Y$  is only a function of the amount of fuel burned while it has been shown experimentally that there is almost no correlation between those two factors.

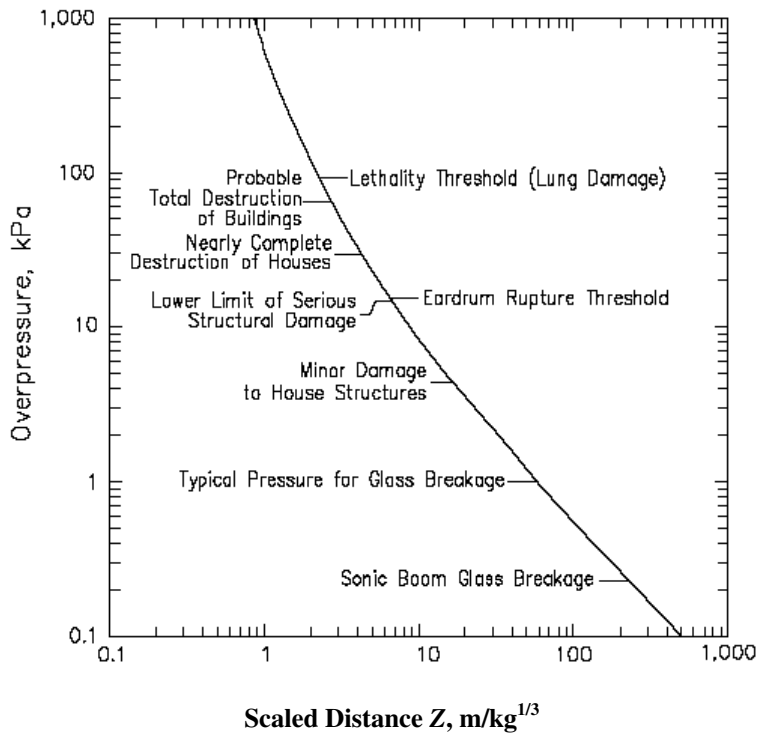


Figure 2.4 Peak side-on overpressure versus scaled distance for TNT explosions (The Quest Quarterly, 1999)

3. Due to the various combustion modes of VCE, the blast waves generated should be represented by a family of curves. However TNT blasts are only represented by a single curve.
4. The blast overpressure of TNT at close distances is generally much higher than the one generated by a VCE, making TNT equivalency a bad model for this case. However, for the far-field, TNT equivalency proves to be an adequate predictive model of VCE behavior under certain conditions (Bogosian, *et al.* 2002; Tang & Baker 1999).

### 2.2.2 TNO Multi-Energy

Although TNT equivalency is widely used in practical applications, the Multi-Energy-Model – and the Baker-Strehlow-Tang method as well – is now widely accepted as a better alternative (Mercx & Van den Berg 1997). MEM has gained considerable attention in the last decade and is now the adopted standard blast prediction model in the well-respected CPR 14E manual, also known as the yellow book, published by the Dutch Ministry of Social Affairs and Environment.

The major difference between MEM and TNT equivalency is that MEM considers that a VCE can only occur within that part of the flammable cloud that is confined to the portion of the vapor cloud that is not completely free to expand (Pierorazio *et al.* 2005). Therefore, the energy  $E$  available for a VCE is limited by the volume of the confined region, as opposed to TNT where the volume of the entire cloud is considered.

#### 2.2.2.1 *Methodology*

In order to use the MEM chart developed by TNO (shown in Figure 2.4), the overpressure  $P_0$  and the total combustion energy  $E$  – the two parameters which characterize the source of explosion – need to be determined (Mercx, et al. 1998).

1. To obtain  $E$  in Equation 2.5, the confined volume is first converted to a hemisphere of equivalent volume  $V_C$  and the fuel and air mixture is assumed to be homogeneous and stoichiometric<sup>4</sup> with a combustion energy of 3.5 million Joules per cubic meter:

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<sup>4</sup> This refers to a perfect mixture between a fuel and air

$$E = 3.5 \times 10^6 V_c \quad (2.5)$$

where

$E$  is the total available energy for the explosion, in J

$V_c$  is the confined volume, in  $m^3$

$3.5 \times 10^6 J/m^3$  is the average heat of combustion of a stoichiometric mixture of hydrocarbon gas and air

2. For any distance  $R$  from the center of the explosion (the hemisphere), compute combustion energy scaled distance  $\bar{R}$  as follows:

$$\bar{R} = R \left( \frac{P_a}{E} \right)^{1/3} \quad (2.6)$$

where

$\bar{R}$  is the combustion energy scaled distance, dimensionless

$R$  is the distance from the center of the hemisphere, in m

$P_a$  is the ambient atmospheric pressure in,  $J/m^3$

$E$  is the total available energy in J found in Equation 2.5



3. Given  $\bar{R}$ , determine for any combustion mode – from mild deflagrations to detonations represented as curve 1 to 10 respectively in Figure 2.5<sup>5</sup> – the corresponding scaled overpressure  $\bar{P}_0$  from the MEM chart.
4. Determine the blast peak side-on overpressure  $P_0$  at  $R$  as f

$$P_0 = \bar{P}_0 \times P_a \quad (2.7)$$

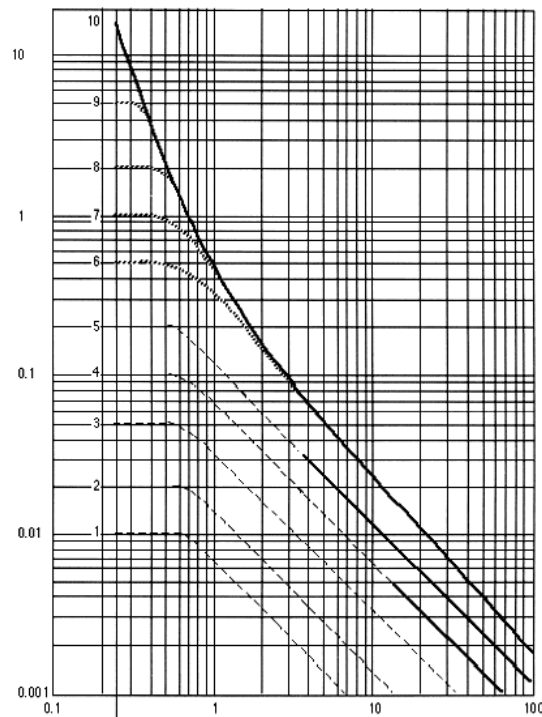


Figure 2.5 Blast side-on overpressure versus scaled distance – MEM model

<sup>5</sup> The ten curves are derived by TNO (A.J.Pierorazio *et al.* 2005b). Also, note that the single curve in Figure 2.4 for TNT represents a detonation combustion mode which is the considered highest level of severity according to TNO.

### 2.2.3 Baker-Strehlow-Tang

The BST method is very similar to MEM as it is also based on the premise that a VCE can only occur within that portion of a flammable cloud that is congested or partially-confined. Both the scaled distance  $\bar{R}$  and the total energy  $E$  are obtained using Equations 2.5 and 2.6. However, the blast curves developed are based on the flame speed  $M_f$ , (shown in Figure 2.6) which is measured in an Eulerian coordinate system<sup>6</sup> (Tang & Baker 1999). Flame speeds are measured in Mach number. As opposed to MEM where the confined is modeled as a hemisphere, the BST models the clouds as a sphere.

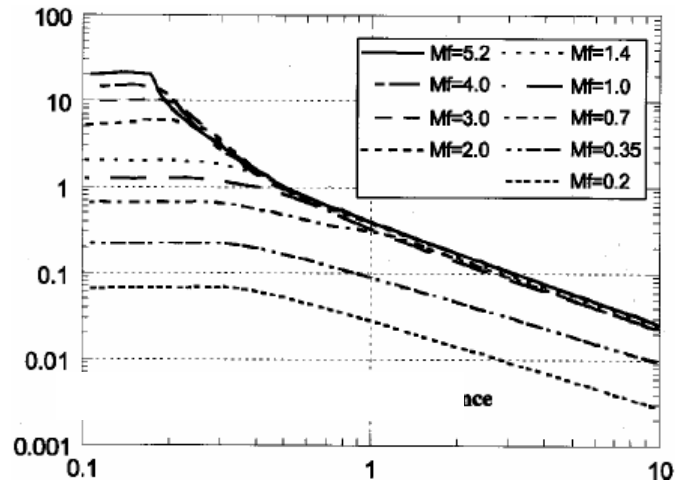


Figure 2.6 Blast positive side-on overpressure versus scaled distance  $\bar{R}$  – BST model (Tang & Baker 1999)

<sup>6</sup> The flame velocity is measured relative to a fixed observer.

#### 2.2.4 Blast Software

The three methodologies described in this chapter are sometimes classified as simplified models (Pierorazio *et al.* 2005; Clutter & Luckritz 2000) to differentiate them from more complex models such as FLACS and EXSIM, which do not limit the user to such assumptions as the shape of the cloud or the chemical reaction (stoichiometric mixture) taking place. However, it is the end goal of the study to determine the appropriate blast model for the user. Figure 2.7 below shows BlastDFO currently being developed by ACTA, Inc. The software seeks to determine the effects of launch vehicle explosions on off-base structures and occupants. Table 2.2 below is a partial list of blast modeling software currently available<sup>7</sup>.

Table 2.2 Blast modeling tools

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▪ FLACS	▪ BLASTCX
▪ EXSIM	▪ SHOCK
▪ BlastDFO (In development)	▪ ConWep
▪ BLASTX	▪ Blast/FX
▪ CEBAM	

For the reader interested in blast effects studies, the Blast Mitigation Action Group (BMAG) of the US Army Corps of Engineers is a good source to find a number of organizations involved in blast mitigation. In addition, there are a number of manufacturers of commercial-off-the shelf (COTS) structural blast mitigation products (Blast Mitigation Action Group 2005).

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<sup>7</sup> Some of these software are proprietary and therefore are only available through special conditions such as government contracts.

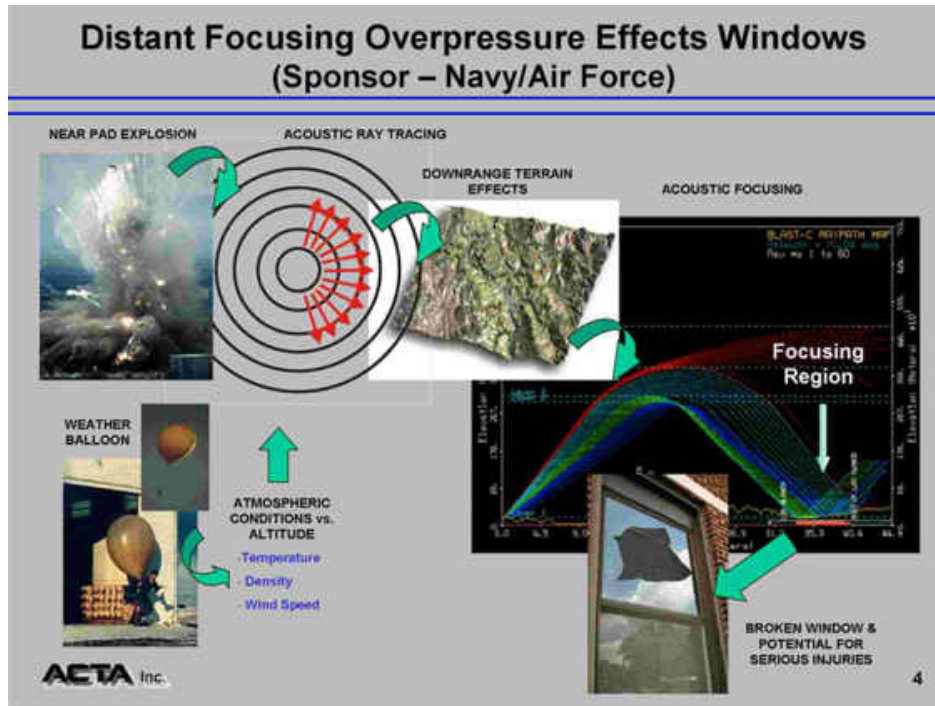


Figure 2.7 BlastDFO software currently under development with ACTA, Inc. BlastDFO is an advanced Blast modeling tool which will account for focusing sound waves, which can cause strong overpressure effects on localized regions at large distances from the blast source (Acta Inc., 2005).

### 2.3 Gas Dispersion and Toxicity Modeling

For a brief review of what has been accomplished in the modeling of gas dispersion and toxic effects that may result from the breakup (due to an explosion for example) of a space vehicle in flight, we will describe CALPUFF, an advanced non-steady-state meteorological and air quality modeling system developed and distributed by Earth Tech, Inc (CALPUFF Modeling System 2005). We have selected CALPUFF to introduce the state-of-the-art in gas dispersion modeling for two main reasons.

First, it can be considered the acknowledged standard in that domain as the U.S. Environmental Protection Agency (U.S. EPA) uses it in its *Guideline on Air Quality Models* (EPA, 2007). The U.S. EPA uses CALPUFF to assess long-range transport of pollutants and their impacts on certain areas and for certain near-field applications involving complex meteorological conditions (CALPUFF Modeling System 2005). Secondly, a recent study conducted by NASA recommended that CALPUFF be used in place of REEDM, NASA's current gas dispersion model developed by the U.S. Air Force. Its assessment of gas-related risk associated with the operation of space vehicles (such as the Delta rockets and the Space shuttle) is considerably more advanced and realistic approach (Anderson and McCaleb, 2004).

Depending on – among other factors – the release mode (proximity to the ground, quantity released, *etc.*), the toxicity of the gas released, and the meteorological conditions at the time after the release, the gas dispersion impact on the public health can be significant. For example, the effect of exposure to hydrochloric acid (HCl) – a major toxicant released at the loss of a space vehicle – may range from mild irritation and headache to incapacitation due to constriction of the airway and lack of oxygen delivery to the brain. Therefore, the objective of any gas dispersion model is to predict the ground concentration of a toxicant at specific locations and time intervals.

### 2.3.1 Dispersion Modeling Approach<sup>8</sup>

The approach by which a continuous plume is modeled as a number of discrete packets of pollutant materials is known as puff modeling. Traditionally, puff modeling is executed using a

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<sup>8</sup> For a more in-depth discussion of the gas dispersion modeling and CALPUFF, we refer the reader to CALPUFF Modeling System (2005), where most of this information is found.

snapshot sampling function, in which each puff model is “frozen” at particular time intervals (typically one hour), and its gas concentration recorded. The total concentration of the toxicant at a particular receptor is then defined as the sum of the contributions of all nearby puffs averaged for all sampling steps within the basic time step. However, to represent a continuous plume close to a source, a large amount of puffs must be released, increasing the computational complexity of this type of model. To overcome this shortcoming, CALPUFF uses either: (1) a sampling scheme that employs radially symmetric Gaussian puffs (Integrated Puff sampling function) for the far-field, or (2) a scheme that uses a non-circular puff (slug sampling function), elongated in the direction of the wind during release to eliminate the need for frequent releases of puffs, for the near-field (CALPUFF Modeling System 2005).

The basic equations for the contribution of a puff are

$$C = \frac{Q}{2\pi\sigma_x\sigma_y} g \exp\left[-\frac{d_a^2}{2\sigma_x^2}\right] \exp\left[-\frac{d_c^2}{2\sigma_y^2}\right] \quad (2.8)$$

$$g = \frac{2}{(2\pi)^{1/2}\sigma_z} \sum_{n=-\infty}^{\infty} \exp\left[-\frac{(H_e + 2nh)^2}{2\sigma_z^2}\right] \quad (2.9)$$

For the far-field formulation,

where,

$C$  is the ground-level concentration ( $\text{g}/\text{m}^3$ ),

$Q$  is the pollutant mass (g) in the puff,

$\sigma_x$  is the standard deviation (m) of the Gaussian distribution in the along-wind direction,

$\sigma_y$  is the standard deviation (m) of the Gaussian distribution in the cross-wind direction,  
 $\sigma_z$  is the standard deviation (m) of the Gaussian distribution in the vertical direction,  
 $d_a$  is the distance (m) from the puff center to the receptor in the along-wind direction,  
 $d_c$  is the distance (m) from the puff center to the receptor in the cross-wind direction,  
 $g$  is the vertical term (m) of the Gaussian equation,  
 $H$  is the effective height (m) above the ground of the puff center, and  
 $h$  is the mixed-layer height (m).

$$C(t) = \frac{Fq}{(2\pi)^{1/2} u' \sigma_y} g \exp\left[-\frac{d_c^2}{2\sigma_y^2} \frac{u^2}{u'^2}\right] \quad (2.10)$$

$$F = \frac{1}{2} \left\{ \operatorname{erf}\left[\frac{d_{a2}}{\sqrt{2}\sigma_{y2}}\right] - \operatorname{erf}\left[\frac{d_{a1}}{\sqrt{2}\sigma_{y1}}\right] \right\} \quad (2.11)$$

For the near-field formulation,

where,

$u$  is the vector mean wind speed (m/s)  
 $u'$  is the scalar wind speed (defined as  $u' = (u^2 + \sigma_v^2)^{1/2}$  with  $\sigma_v$  = wind speed variance),  
 $q$  is the source emission rate (g/s)  
 $F$  is a “causality” function, and  
 $g$  is the vertical term (m) of the Gaussian equation,

### 2.3.2 CALPUFF

CALPUFF represents the state of the art in gas dispersion and toxic effects modeling. It simulates the effects of time and space varying meteorological conditions on pollutant transport, transformation (e.g., chemical reaction *etc.*), and removal under inhomogeneous and non-stationary conditions with a one-hour time step. The CALPUFF system is composed of three main modules (CALMET, CALPUFF, and CALPOST) and includes several preprocessing programs to interface the model to standard, routinely-available, meteorological, and geophysical datasets.

Those modules interact to assess toxic effects of specific gases by accounting for factors such as variability of meteorological conditions, dry deposition and dispersion over a variety of spatially varying land surfaces, low wind speed dispersion, or pollutant wet removal.

CALMET is a meteorological model that develops hourly wind and temperature fields on a three-dimensional gridded modeling domain with associated two-dimensional fields such as mixing height, surface characteristics, and dispersion properties. As input, it requires surface meteorological data, upper-air data, over-water observations, and geophysical data (CALPUFF Modeling System 2005). The generated information are the inputs for CALPUFF.

CALPUFF is a multi-layer, multi-species non-steady-state puff dispersion model which can simulate the effects of time- and space-varying meteorological conditions on pollutant transport, transformation, and removal. CALPUFF accounts for a number of factor which can affect the dispersion of the plume near and far from the source, some of which are mentioned in Table 2.3. The primary output files from CALPUFF contain either hourly concentrations or hourly deposition fluxes evaluated at selected receptor locations.



Table 2.3 Factors determining the pollutant dispersion and concentration at the surface

<ul style="list-style-type: none"> <li>• Building Downwash</li> </ul>	<ul style="list-style-type: none"> <li>• This factor is included in the form of a variable which is function of the building height</li> </ul>
<ul style="list-style-type: none"> <li>• Plume Rise</li> </ul>	This is a function of: <ul style="list-style-type: none"> <li>• Plume Buoyancy and momentum</li> <li>• Stable atmospheric stratification</li> <li>• Partial penetration of the plume into an elevated stable inversion layer</li> <li>• Vertical wind shear</li> </ul>
<ul style="list-style-type: none"> <li>• Overwater and Coastal Dispersion</li> </ul>	<ul style="list-style-type: none"> <li>• This factor is included in terms of the heat flux over water (significantly higher than the one over land)</li> </ul>
<ul style="list-style-type: none"> <li>• Complex Terrain</li> </ul>	<ul style="list-style-type: none"> <li>• This factor is included by modeling the terrain according to some models such as CTDM, the complex terrain model developed by EPA.</li> </ul>
<ul style="list-style-type: none"> <li>• Dry Deposition Rates</li> </ul>	<ul style="list-style-type: none"> <li>• Refers to the deposition of pollutant at the surface. This factor is included by accounting for such variables as gas properties, the surface characteristics and the atmospheric variables.</li> </ul>
<ul style="list-style-type: none"> <li>• Chemical Transformation</li> </ul>	<ul style="list-style-type: none"> <li>• Account for any chemical transformation that may occur in the plume during its dispersion</li> </ul>
<ul style="list-style-type: none"> <li>• Wet Removal</li> </ul>	<ul style="list-style-type: none"> <li>• Refers to the scavenging effect of rain on reactive pollutant. The main factors include the solubility and reactivity of the pollutant, and the nature of the precipitation</li> </ul>

CALPOST is used to process the output files produced by CALPUFF and summarize the results of the simulation. When performing visibility-related modeling, CALPOST uses concentrations from CALPUFF to compute extinction coefficients and related measures of visibility, reporting these for selected averaging times and locations.

## 2.4 Summary

In this chapter, we briefly review the state of knowledge in the modeling of the three main prospective hazards resulting from the loss of space vehicle, whether that loss was due to an accident or was a commanded destruct. In Section 2.1, we describe CRTF, a state of the art

debris model developed by ACTA, Inc. for NASA to analyze and predict the impact dispersion of debris resulting from the explosion of a space vehicle in flight. In Section 2.2, we discuss the different models used to describe blast propagation characteristics resulting from an explosion. Finally in Section 2.3, we briefly introduce, CALPUFF, a state of the art gas dispersion model used by the EPA and currently being considered by NASA to model the dispersion and toxicity effects of gases released from the loss of the space vehicle.

These models have been very useful in a variety of fields as they are used to analyze a disaster which already occurred or to predict the destructive potential of a particular design configuration. However, these models are limited by a number of constraints and assumptions which are either made during their conceptualization or are made by the user as an input for their execution. Those assumptions are made for a variety of reasons such as poor understanding of the phenomenon to be modeled, improvement in execution speed and decrease in computer memory load, to name a few. Furthermore, since these models focus on one hazard at a time, they assume that there is no interaction between the hazard being modeled and the other hazards generated by the same explosion.

In the next chapter, we review some of the techniques which have been developed over the years for the fusion of information, techniques which have the potential to minimize the effects of those assumptions and constraints.

## **CHAPTER 3      REVIEW OF INFORMATION FUSION**

In this chapter, we present the concept of information fusion and discuss some of the techniques that have been developed in this domain. Many other fusion techniques which are currently being developed are not discussed in this chapter.

### **3.1      A Framework for Information Fusion**

Over the past two decades, interest in information fusion – also known as multi-source data fusion – has grown tremendously. It is widely used in various Department of Defense (DoD) research areas such as automated target recognition, battlefield surveillance, and guidance and control of autonomous vehicles. Also, it is being used increasingly in a number of non-DoD applications such as monitoring of complex machinery and medical diagnosis, to name a few (Hall & Llinas 1997).

However, what exactly is information fusion and why is it needed? Are there different types of fusion of information? What are the characteristics of a good information fusion algorithm?

### 3.1.1 A Definition

Given the variety of applications where this concept is being used, providing a concise definition to this terminology is not straightforward. Hall and Llinas (1997) provide one of the most comprehensive definitions of data fusion:

“Data fusion is a formal framework in which are expressed means and tools for the alliance of data originating from different sources. It aims at obtaining information of greater quality; the exact definition of ‘greater quality’ will depend upon the application.”

In the literature, however, most definitions reflect the type of applications in which the information fusion process is to be applied. Fassinut-Mombot & Choquel (2004) describe it as “a process that combines a set of heterogeneous measurements (numerical and/or symbolic) from multiple information sources in order to access a more reliable global and complete information with a reduced uncertainty.” Comparing these definitions, one can readily see that “information of greater quality” in the more general definition is interpreted as “information that is more reliable, complete and with a reduced uncertainty.”

The concept of information fusion is not new as humans and animals have evolved the capability to use multiple senses to improve their ability to survive (Hall & Llinas 1997). In this sense, the field of information fusion can be described as an attempt to mimic, through the development of methodologies and algorithms of varied complexity, our natural ability to process heterogeneous information.

### 3.1.2 Levels of Information Fusion

Traditionally the fusion of information has been identified to occur at: (1) a feature level and, (2) a decision level. However, some authors have pointed to the fact that such categorization misses the important features that separate the different types of information fusion systems being developed. In an attempt to address this issue Kokar *et al.* (2004) propose a formal theoretical framework based on category theory to define the various levels of information fusion and the interrelationships between these types.

### 3.1.3 The Need for Data Fusion

The following is extracted from Clark & Yuille (1990). It illustrates the need to fuse information.

“...in human vision illusions can occur when the assumptions used by the visual system are wrong. Nevertheless the human visual system is rarely fooled by illusions since a mistake made by one sensory information processing module is usually corrected by another module. Thus we could argue that, in order to obtain a *domain independent sensory system*, it is necessary to combine, or fuse the results obtained from a number of modules. In this way, the constraints used by individual modules can be, to some extent, factored out in the fused sensory system so that the fused sensory system does not depend, or only weakly depends, on the assumptions made by its components modules. The idea here is that *data fusion can reduce the dependence of the solution of a sensory information problem on invalid a priori natural constraints.*”

Data fusion is needed because, when properly implemented, it can reduce the dependence that the information needed may have on a particular information source. In this thesis, one of the benefits of using information fusion is that we can expect the fused expectation of casualties

resulting from the three prospective hazards described in Chapter 2 to be more robust to the assumptions (constraints) made their modeling approaches.

#### 3.1.4 Framework for Data Fusion

Little has been published in the literature about formal frameworks by which an information fusion system should be designed and evaluated. One of those exceptions is an article by Yager (2004b), where the author develops a basic framework which imposes a number of properties that should be satisfied by a rational data fusion technology. In particular, the author derives some conditions on the fused value depending on some underlying compatibility relationships between it and the information provided by a source.

## 3.2 Bayesian Inference

### 3.2.1 Definition

Within the framework of probability theory applied to information fusion, Bayesian inference fusion – which we refer to as Bayesian fusion – has generated considerable interest in the literature and in a wide variety of practical applications. Applications vary from military-related areas such as tactical air defense and intelligence, to pattern recognition areas such as image processing, robotic map building (Moshiri, et al. 2002) and, human-computer interaction, to name a few.

Bayesian fusion is a statistical approach in which all forms of uncertainty in the information provided by the different sources are expressed in terms of probability measures. This allows the information provided by the sources to be of different physical meanings. Bayesian fusion allows that uncertain information to be fused and the dependencies between those sources to be expressed through the Bayes rule for decision-making.

Suppose we have  $N$  sources of information  $S_i$ , i.e.  $S_i \in \{S_1, \dots, S_i, \dots, S_N\}$  producing  $N$  output vectors  $X_i$ , i.e.  $X_i \in \{X_1, \dots, X_i, \dots, X_N\}$ . Also, suppose we have two mutually-exclusive and exhaustive hypotheses  $H_1$  and  $H_2$  – so that  $X_i$  belongs to either  $H_1$  or  $H_2$  – as a result of an event  $E$ .

For our purpose, we could have for example as an event  $E$ : “The space vehicle has exploded 15 seconds after liftoff”. Two hypotheses could be:

$H_1$ : There is at least one casualty as a result of  $E$

$H_2$ : There is no casualty

The objective of the Bayesian rule for decision making is to determine which of the two hypotheses the combined output vectors support. The rule is expressed as

$$p(H_j | X_1, \dots, X_N) = \frac{p(X_1, \dots, X_N | H_j) P(H_j)}{p(X_1, \dots, X_N)} \text{ for } j = 1, 2 \quad (3.1)$$

and

$$p(X_1, \dots, X_N) = \sum_{j=1}^2 p(X_1, \dots, X_N | H_j) P(H_j) \quad (3.2)$$

where

$p(H_j | X_1, \dots, X_N)$  represents the probability of the hypothesis  $H_j$  given the output vector observed from each source. This term is known as the *a posteriori probability*.

$p(X_1, \dots, X_N | H_j)$  represents the conditional probability that the output vector mentioned above from the different sources is observed given that the hypothesis is indeed  $H_j$ . This term is known as the *likelihood* or the *prior joint probability*.

$P(H_j)$  represents how likely the Hypothesis  $H_j$  is before the output vectors above are measured. This is referred to as the *a priori probability*.

$p(X_1, \dots, X_N)$  is a normalization factor. It represents the probability of the event  $E$  taking place.

If the sources of information can be considered independent of each other – or weakly coupled in physicists' term – the *likelihood* in the Equation 3.1 simply reduces to

$$p(X_1, \dots, X_N | H_j) = p(X_1 | H_j) \times p(X_2 | H_j) \times \dots \times p(X_N | H_j) \quad (3.3)$$

If instead, the sources cannot or should not be considered independent, *i.e.*, the sources are tightly coupled, then Equation 3.1 must be used, otherwise any information about the intersources correlations will be lost.



### 3.2.2 Limitations of Bayesian Inference Fusion

Although Bayesian fusion has been extensively used in many real-world applications, two significant limitations to its implementation are recognized:

1. Because of the very high dimensionality of the joint data space  $(X_1, \dots, X_i, \dots, X_N)$ , the likelihood is difficult to estimate. Conventional dimension-reduction methods such as principal component analysis (PCA) cannot be used for this effort since in our case (Pan 2001), those output vectors may have different physical meanings and ranges as mentioned earlier (one could be the blast overpressure, and the others the gas concentration and the debris footprint). Pan (2001) proposes to optimally estimate this likelihood in the sense of maximum entropy principle by creating mapping functions for each individual source to describe their intrasource correlations. However, this approach is only valid for two sources as the maximum mutual information criterion can only be applied between two random vectors.
2. In Bayesian fusion, there is no means by which the imprecision around the uncertainty about the information provided by the sources can be expressed (Boudraa *et al.* 2004). In other words, in Bayesian fusion, it is assumed that we can determine the prior probability  $P(H_j)$  with absolute certainty.

## 3.3 Interval-Based Dependency Bounds Analysis

### 3.3.1 Definition

We describe here distribution envelope determination (DEnv), also known as interval based dependency bounds analysis, developed by Berleant and Goodman-Strauss (Daniel & Chaim 1998) . DEnv is an uncertainty propagation convolution-based method for determining dependency bounds on cumulative distribution functions (cdfs) for the results of binary arithmetic operations on random variables ( $A$  and  $B$ ) when the inputs' cdfs may themselves be uncertain (Regan *et al.* 2004). The merit of this discretization method<sup>9</sup> resides in the fact that it is developed to address cases where the dependencies between the random variables (or sources in information fusion terms) to be fused are not fully specified. Some of the key points in favor of this approach are the following:

1. When one cannot (or should not) assume independence between the sources to be fused, DEnv is able to fuse those sources whether their dependency structure is only partially-known or completely unknown.
2. In the case where the dependency structure is completely unknown, DEnv generates bounds that are not “too conservative”. The issue concerning bounds which are excessively wide, or “hyperconservative” is discussed in Ferson & Long (1995).

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<sup>9</sup> Discretization is an alternative method to Monte Carlo simulation in problems requiring fusion of independent sources. For more information on this, we refer the interest reader to (Daniel 1993;Ferson 1996)

### 3.3.2 Methodology

Suppose there are two random variables whose measurements can be represented as probability density functions (pdfs)  $f_A(x)$  and  $f_B(y)$ <sup>10</sup>. The objective is to construct an upper and a lower bound on the distribution of a new variable  $Z$  defined as  $Z = A * B$  where  $*$   $\in \{+, -, \times, \div\}$ .

1. Discretize  $f_A(x)$  and  $f_B(y)$  using histograms. This discretization can be done by partitioning the range of values of  $A$  and  $B$  into intervals ( $A_i$ 's and  $B_j$ 's) and calculating the probability under the curves  $f_A(x)$  and  $f_B(y)$ . Similar to a copula-based approach, this discretization is information-losing rather than approximating since, as illustrated in Figure 3.1, there is no information on how the probability mass is distributed *within* each bar of the histogram.

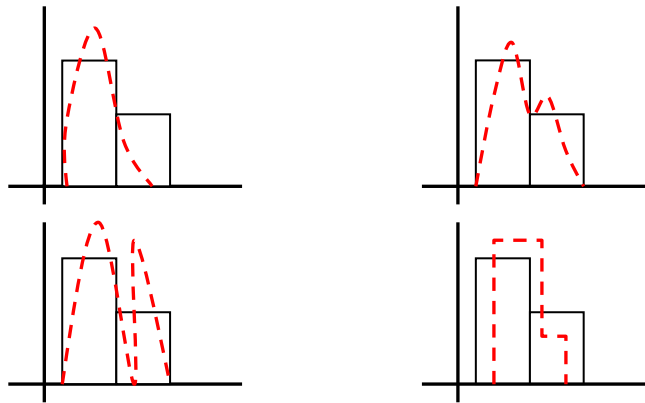


Figure 3.1 The dotted lines show a few members of the family of density functions corresponding to the same discretization (Daniel 1993). Therefore, by performing this discretization, some information provided by the source is lost.

<sup>10</sup> Berleant *et al.* (Daniel & Chaim 1998; Daniel, et al. 2003) show that this methodology also works when the sources present their information in forms other than pdfs.

2. As histograms, we may therefore reformulate these density functions as  $f_A(x) = \{P(x \in A_i) = p_i : i = 1, \dots, n\}$  and  $f_B(y) = \{P(x \in B_j) = p_j : j = 1, \dots, m\}$  where the  $p_i$ 's and  $p_j$ 's are probabilities associated with each interval  $A_i$  and  $B_j$  respectively.
3. A generated range of intervals with accompanying probabilities as shown in Figure 3.2 is called a *thicket* to suggest that those intervals may overlap (Regan et al. 2004).
4. Since different dependency relationships between the sources  $A$  and  $B$  will lead to different assignments of probability masses to the joint distribution matrix cells of the variable  $Z$ , which in turn will generate different pairs of bounding curves, the objective is to bound the space of *all these curves* by dependency bounds. Therefore, those dependency bounds will conservatively describe the space of all the possible results of a binary operation between  $A$  and  $B$ .

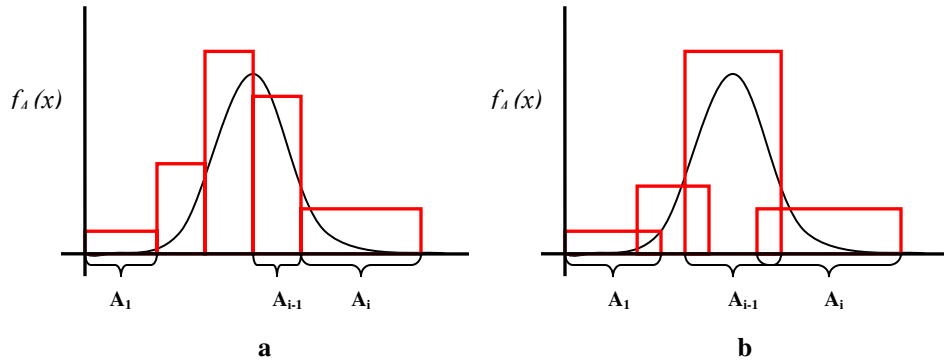


Figure 3.2 Pdf discretization a) Interval partition and b) Overlapping intervals (Regan et al. 2004)

5. For a joint distribution matrix, as shown in Table 3.1, of a random variable  $Z$  defined as  $Z = A * B$  where  $*$   $\in \{+, -, \times, \div\}$ , the following constraints are imposed:

Column Constraints	Row Constraints
$p_{1*} = p_{11} + p_{12} + p_{13}$	$p_{*1} = p_{11} + p_{21}$
$p_{2*} = p_{21} + p_{22} + p_{23}$	$p_{*2} = p_{12} + p_{22}$
	$p_{*3} = p_{13} + p_{23}$

6. To derive the two dependency bounds mentioned in 4 above, one must know, for each point  $z$  on the domain of  $Z$ , the highest and lowest cumulative probabilities (the extremes) that are possible for any dependency relationship between the sources  $A$  and  $B$ .
  7. Since the extremes have staircase shapes, one only needs to select the  $z$  at which discontinuities occur.
  8. It can be shown that the discontinuities can only occur at the endpoints of the intervals  $z_{ij}$  of  $Z$ .
- Given those facts, the number of candidate points  $z$  can be significantly reduced.

Table 3.1 Joint distribution matrix for random variable  $Z$

Each cell contains a probability mass determined by the dependency between sources  $A$  and  $B$ . Measurements from Source  $A$  were divided in three intervals and those from Source  $B$  in two

$Z_{ij} = A_i * B_j$ (Interval, associated mass)		Source B		
		$(B_1, p_{b1})$	$(B_2, p_{b2})$	
Source A	$(A_1, p_{a1})$	$(Z_{11}, p_{11})$	$(Z_{21}, p_{21})$	$P_{*1}$
	$(A_2, p_{a2})$	$(Z_{12}, p_{12})$	$(Z_{22}, p_{22})$	$p_{*2}$
	$(A_3, p_{a3})$	$(Z_{13}, p_{13})$	$(Z_{23}, p_{23})$	$p_{*3}$
		$p_{1*}$	$p_{2*}$	$1$

9. For each point  $z$  selected, determine the highest vertex  $\bar{d}$  and lowest vertex  $\underline{d}$ .<sup>11</sup>

*Definition 1:* A joint distribution matrix  $m \times n$  is called a vertex if at least  $(m-1) \times (n-1)$  of its entries are equal to zero.

*Definition 2:* Given two joint distribution matrices  $d_1$  and  $d_2$  with entries  $p_{ij}^1$  and  $p_{ij}^2$  respectively, that  $d_1$  is said to be *higher* than  $d_2$  if

$$\sum_{(i,j) \in M} p_{ij}^1 > \sum_{(i,j) \in M} p_{ij}^2$$

where  $M$  is a subset of the entries in  $d_1$  and  $d_2$

i.e.  $M \subseteq \{(i, j) / 1 \leq i \leq n, 1 \leq j \leq m\}$ .

*Selection of  $M$ :* Consider the case where we are interested in  $z \leq a$  where  $a \in \mathfrak{R}$ . For  $\bar{d}$ ,  $M$  will consist of all the cells in which this situation may occur. For  $\underline{d}$ ,  $M$  will consist of all the cells in which this situation must occur. Table 3.2 and Table 3.3 are for  $z \leq 4$ . Only the marginal probabilities, marginal intervals and the intervals of  $Z$  are known

Table 3.2 Vertex  $\bar{d}$ .

The shaded cells represent  $M$  if we want to maximize the probability of  $z \leq 4$ .

		<i>Source B</i>	
		[1, 2] 1/2	[2, 4] 1/2
<i>Source A</i>	[2, 3] 1/4	[2, 6] *	[4, 12] *
	[3, 4] 1/2	[3, 8] *	[6, 16] *
	[4, 5] 1/4	[4, 10] *	[8, 20] *

<sup>11</sup> Daniel *et al.* describe in details the linear programming algorithm by which those vertices are found.

Table 3.3 Vertex  $d$ .

The shaded cells represent  $M$  if we want to minimize the probability of  $z \leq 4$

		<i>Source B</i>	
		[1, 2] 1/2	[2, 4] 1/2
<i>Source A</i>	[2, 3] 1/4	[2, 6] *	[4, 12] *
	[3, 4] 1/2	[3, 8] *	[6, 16] *
	[4, 5] 1/4	[4, 10] *	[8, 20] *

10. For each point  $z$  selected, determine the highest and lowest cumulative probabilities by summing the probabilities contained in  $M$ .
11. Connect all the minima and maxima to form the lower and upper dependency bounds.

Berleant *et al.* (Daniel, *et al.* 2003) describe Statool, a DEnv software. Figure 3.3 shows typical output of this software.

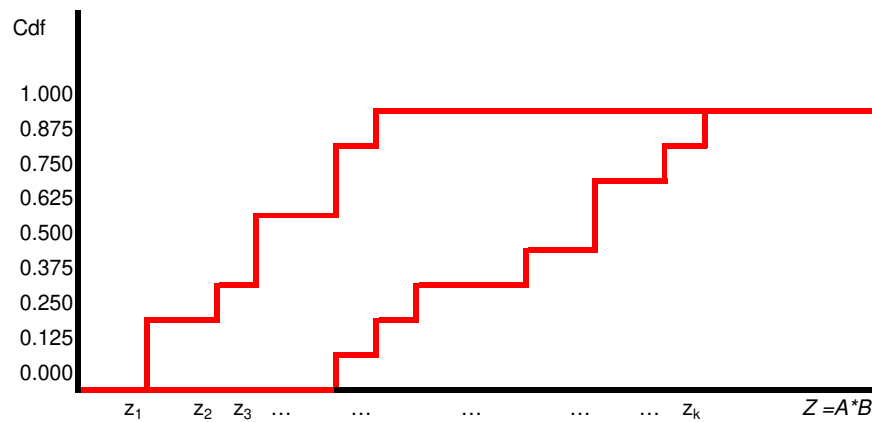


Figure 3.3 Typical Statool graphical output. Upper and lower envelopes on the distribution of a variable  $Z = A*B$ . As we can see, the upper bound rises faster than the lower bound. Under no assumption about the dependency, those envelopes are the maximum upper and lower limits of the distribution of  $Z$ .

### 3.4 Entropy Fusion Model

Here we describe the Entropy Fusion Model (EFM), one of the latest fusion methodology, proposed by Fassinut-Mombot *et al.* (2004). One of the problems in information fusion is the high computational complexity when the number of information sources is large (Fassinut-Mombot & Choquel 2004; Haenni & Lehmann 2002). To address this problem, EFM reduces the combination space by exploiting the redundancies and complementarities between the sources which it explicitly represents in the form of entropy measures. As the authors point out, the main advantage of this fusion approach is that it optimizes the choice of measurements provided by information sources in order to improve the performance of the information fusion system (Fassinut-Mombot & Choquel 2004).

EFM is a probabilistic fusion model based on Bayesian theory. However, the main difference between the two fusion approaches is that EFM provides a means to quantify the imprecision about the uncertainty of a hypothesis, while in Bayesian theory, imprecision is assumed to be null. To quantify imprecision, the authors to use Shannon's entropy measure, a measure of uncertainty in purely probabilistic systems.

For a discrete random variable  $P$  (in this case the probability that a given hypothesis is true), Shannon's entropy describes the randomness (imprecision) of  $P$  as follows (Shannon 1948):

$$H(P) = -\sum P \log P \quad (3.4)$$



### 3.4.1 Methodology

Given the following:

1. A set of  $N$  hypotheses  $\Theta = \{H_1, H_2, \dots, H_N\}$  where each  $H_i$ , characterized by  $M$  parameters  $z_m^i$ , is evaluated by  $S$  sources of information  $x_s$ , each producing a set of measurement vectors  $d^s = \{d_i^s\}_{i=1}^N$ .
2. A fusion system  $\Sigma = (X, Y)$  as shown in Figure 3.4 where  $Y$  (the output) is the hypothesis  $H_i$  supported by the vector  $X$  (input) composed of the measurements provided by the  $S$  information sources.

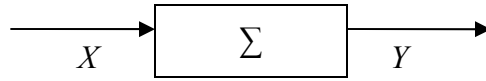


Figure 3.4 The fusion system

Then, according to Bayesian theory, the *uncertainty* that a source  $x_s$  associates to the parameter  $z_m^i$  of hypothesis  $H_i$  can be described as a conditional probability as

$$P(z_m^i / d_i^s) = \frac{P(d_i^s, z_m^i)}{\sum_{m=1}^M P(d_i^s, z_m^i)} \quad (3.5)$$

While according to Shannon's entropy (1948), the *imprecision* around that uncertainty can be formulated as follows

$$H(H_i / d_i^s) = - \sum_{m=1}^M P(z_m^i / d_i^s) \log P(z_m^i / d_i^s) \quad (3.6)$$

where  $P(z_m^i / d_i^s)$  is the *a posteriori* probability distribution of the parameter  $z_m^i$  of the hypothesis  $H_i$  given the measurement  $d_i^s$  obtained from the source  $x_s$ , and  $P(d_i^s, z_m^i)$  is the *joint* probability distribution of  $d_i^s$  and  $z_m^i$ .

As the Bayesian rule to combine the *a posteriori* probabilities – calculated in Eg. 3.5 – of all the  $S$  information sources can prove very difficult and, sometime even impossible practically – since it requires the estimation of the *a priori* probability  $P(H_i)$  and especially the likelihood  $P(d_i^1, \dots, d_i^s / H_i)$ <sup>12</sup> – Fassinut-Mombot *et al.* (2004) propose an entropy combination rule which is briefly described below<sup>13</sup>:

### 3.4.1.1 Entropy-Based Combination Rule

This combination makes use of entropy measures whose relationships are illustrated in Figure 3.5.

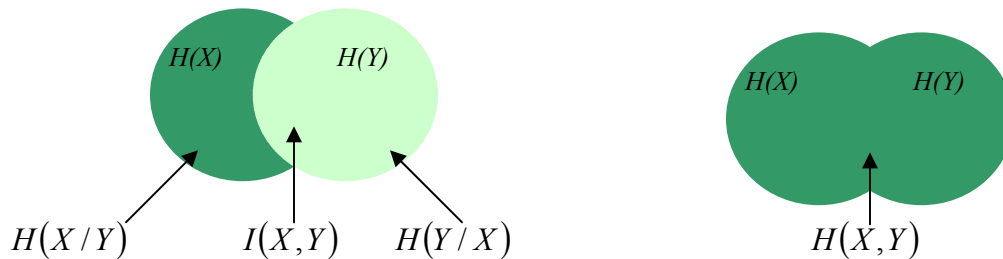


Figure 3.5 Venn diagram: Relationship between simple entropy, joint entropy and mutual information

$H(X), H(Y)$ : Simple entropy measure of  $X$  and  $Y$

<sup>12</sup> See Section 3.2 for Bayesian inference rule of combination

<sup>13</sup> This is only an overview. For a complete description, the interested reader is referred to Fassinut-Mombot *et al.* (2004).

$H(X, Y)$ : Joint entropy of  $X$  and  $Y$

$H(Y/X)$ : Entropy of  $Y$  given that  $X$  has been measured

$I(X, Y)$ : Mutual information between  $X$  and  $Y$ . (Measure of the degree of dependency between  $X$  and  $Y$ )

The following relationship can be deduced from Figure 3.5

$$I(X, Y) + H(Y/X) = H(Y) = \text{constant} \quad (3.7)$$

*Objective:* Find the reduced *optimal* subset  $\tilde{X}^*$  of  $X$  (composed of vector measurements  $\{d_i^*\}_{i=1}^N$ ) that contains as much information as possible about the *most probable* hypothesis  $\tilde{H}_i^*$  (which is equivalent to maximizing  $I(X, Y)$  in Figure 3.5) while *minimizing the imprecision* around it (which is equivalent to minimizing the conditional entropy  $H(Y/X)$  in Figure 3.5). This objective can be formulated as

$$\tilde{H}_i^* = \arg \min_i \{H(H_i / \tilde{d}_i^*)\} \quad (3.8)$$

To ensure the quality of the solution proposed in Equation 3.8 – which is based on the *minimization of the conditional entropy* – a second quality factor is defined based on *mutual information maximization* as

$$q(H_i / \tilde{d}_i^*) = \frac{I(\tilde{d}_i^*, H_i)}{\sum_{k=1}^{k=N} I(\tilde{d}_k^*, H_k)} \quad (3.9)$$

where the denominator is the sum of the mutual information between each potential hypothesis and the optimal subset measurements.

Therefore, the optimal subset of measurements  $\tilde{d}_i^*$  corresponding to the most probable hypothesis  $\tilde{H}_i^*$  is found if and only if

$$H(\tilde{H}_i^*, \tilde{d}_i^*) = \min_i \{H(H_i / \tilde{d}_i^*)\} \quad (3.10)$$

and

$$q(\tilde{H}_i^* / \tilde{d}_i^*) = \max_i \{q(H_i / \tilde{d}_i^*)\} \quad (3.1)$$

However, the evaluation of Equations (3.10) and (3.11) necessitates the computation of the joint probabilities  $P(d_i^s, z_m^i)$  in Equation (3.6). Using the maximum entropy principle (E.T.Jaynes 1957) with two observable functions  $\phi_1(d_i^s, z_m^i)$  and  $\phi_2(d_i^s, z_m^i)$ , the joint probabilities are estimated as follows:

$$\hat{P}(d_i^s, z_m^i) = \frac{1}{N(\lambda)} \cdot \exp - [\lambda_1 \phi_1(d_i^s, z_m^i) + \lambda_2 \phi_2(d_i^s, z_m^i)] \quad (3.2)$$

Where

$$\phi_1(d_i^s, z_m^i) = z_m^i \cdot d_i^s \quad (3.3)$$

$$\phi_2(d_i^s, z_m^i) = d_i^s \log d_i^s \quad (3.4)$$

### 3.5 Dempster-Shafer Inference

Within the framework of evidence theory, Dempster-Shafer (D-S) fusion methodology, also known as the theory of belief functions, is a popular uncertainty propagation method. It is a generalization of Bayesian probability calculus as any Bayesian model of uncertainty is a special case of a belief function model.

Belief functions are probabilities that are constructed from evidence. However, a fundamental difference between traditional probability – which includes Bayesian probability – and belief theory is that in the former, evidence can only be assigned to a single hypothesis while in the latter, evidence can be assigned to a set of hypotheses. The theory of belief functions is based on two ideas:

1. The idea of obtaining degrees of belief for one question from subjective probabilities for a related question, and
2. Dempster's rule for combining (or “fusing”) such degrees of belief when they are based on independent sources of evidence (Shafer 1990).

Although the D-S theory is developed to fuse sources only under the assumption of independence between them – an assumption which is sometimes unrealistic in some applications – some authors have recently shown that this assumption can be relaxed (Regan et al 2004; Pieczynski 2000) . Regan *et al.* (2004) for example, have shown that belief functions

perform similarly to dependency bounds convolutions, distribution envelope determination (DEnv) and interval probabilities when they are restricted to cumulative distributions on the positive reals.

### 3.5.1 Theory of Belief

#### 3.5.1.1 *Belief and Plausibility Measures*

The main advantage of the D-S theory is its ability to effectively quantify the uncertainty (or ignorance) of a source about a given hypothesis. This ignorance is generally quantified with three fuzzy measures: the belief measure (*Bel*), the plausibility measure (*Pl*), and the basic probability assignment (*m*). A fuzzy measure  $\mu$  on  $\Theta$  is a mapping from subsets of  $\Theta$  into the unit interval (Yager 1999; Yager 2004a),  $\mu: 2^\Theta \rightarrow [0,1]$ , such that

1.  $\mu(\emptyset) = 0$
2.  $\mu(\Theta) = 1$
3.  $\mu(A) \geq \mu(B)$  if  $B \subset A$

The basic probability assignment (bpa), belief and, plausibility are defined within the following framework: Given a set  $\Theta$  of  $N$  exhaustive and mutually exclusive hypotheses, also called the *frame of discernment*, defined as

$$\Theta = \{H_1, H_2, \dots, H_N\}$$

for which the power set is formulated as

$$2^\Theta = \underbrace{\{\emptyset, H_1, \dots, H_N\}}_{\text{Hypotheses}}, \underbrace{\{(H_1 \cup H_2), \dots, (H_1 \cup \dots \cup H_{N-1}), \Theta\}}_{\text{Set of Hypotheses}}$$

The bpa function or *m-function*  $m_i: 2^\Theta \rightarrow [0,1]$  assigns a mass  $m_i(A_j)$  from a source of information  $i$  to a single hypothesis or set of hypotheses<sup>14</sup>  $A_j$  of  $2^\Theta$ . This probability mass represents how strongly the evidence from source  $i$  supports  $A_j$  (Colot et al., 2002). An information source assigns mass values only to those hypotheses for which it has direct evidence. That is, if an information source cannot distinguish between two propositions  $A_j$  and  $A_k$ , it assigns a mass value to the set including both propositions, i.e.  $A_j \cup A_k$  (Valerie Kaftandjian *et al.* 2003). The m-function verifies the fuzzy properties mentioned above:

1.  $m_i(\emptyset) = 0$  (3.5)

2.  $\sum_{A \subseteq 2^\Theta} m_i(A) \leq 1$ <sup>15</sup> (3.6)

The *belief measure*  $Bel_i(A_j)$  and the *plausibility measure*  $Pl_i(A_j)$  on hypothesis  $A_j$  of source  $i$  can be seen, respectively, as the lower and upper bounds on the probability  $m_i(A_j)$ , and are obtained as follows:

$$Bel_i(A_j) = \sum_{B \subseteq A_j} m_j(B) \tag{3.7}$$

$$Pl_i(A_j) = \sum_{A_j \cap B \neq \emptyset} m_j(B) \tag{3.8}$$

where any  $B$ , subset of  $A_j$ , is called a focal element provided  $m_i(B) > 0$ .

---

<sup>14</sup> Recall that evidence can be assigned to a single hypothesis as well as to a set of hypotheses in D-S theory.

<sup>15</sup> Note that the *m-function* differs from basic probabilities as it sums does not necessarily add up to 1

Considering the power set  $2^\Theta$  instead of the frame of discernment  $\Theta$  only, as in the Bayesian inference case (section 3.2), allows for the quantification of uncertainties (*ambiguities*) between or *ignorance* about a set of hypotheses.

### 3.5.1.2 Rule of Combination

The objective in any information fusion technique is to combine, through the use of combination rules, the beliefs of all the sources toward a given proposition  $A$ . Suppose we have  $S$  sources of information.

If the combined mass assignment of all the  $S$  sources toward the proposition  $A$  can be

$$m_\oplus = m_1 \oplus m_2 \oplus \dots \oplus m_S \quad (3.19)$$

where  $\oplus$  is the operator of combination (Colot et al., 2002), then, in D-S theory, the combined belief of all those sources toward proposition  $A$  is expressed as

$$m_\oplus(A) = \frac{m_\cap(A)}{1 - m(\emptyset)} \quad \forall A \subseteq 2^\Theta \quad (3.20)$$

where

$$m_\cap(A) = \sum_{B \cap C = A} m_1(B) m_2(C) \quad \forall A \subseteq 2^\Theta \quad (3.21)$$

$$m(\emptyset) = \sum_{B \cap C = \emptyset} m_1(B) m_2(C) \quad (3.22)$$

where  $1 - m(\emptyset)$  is a normalizing factor assuming that the sum of all the masses from the  $S$  sources for proposition  $A$  is equal to 1 (A special case of Equation (3.16)).



### 3.5.2 Conflict Management

In practical applications, the information provided by the different sources may conflict with each other. For example, a conflict could originate if for two of three prospective hazards sources (blast propagation, debris dispersion and toxicity level and dispersion), one concludes that there will be no casualties in a given area while the other concludes that all living in that area will be killed. One may take a conservative approach and choose to believe that everyone will be killed. However, practically, the actions to be taken based on this assumption might be very costly. The spaceport site is judged unsafe and therefore is disqualified; the resources (ambulance, emergency personnel and infrastructure, *etc.*) necessary to operate the spaceport might be overestimated, the number of cancelled launches because of potential consequences is much higher than it should be, *etc.*). Clearly, conflict is one criterion by which a fusion process robustness should be measured.

In the Dempster-Shafer rule of combination introduced earlier in Equation 3.19, conflict handling is reflected by the factor  $m(\emptyset)$ . However this combination rule has been heavily criticized in the literature because it can only work if the two sources are not totally conflicting. In other words, there exists at least two set hypotheses that intersect  $B \cap C \neq \emptyset$ ). In our example above, the information provided by the two sources conflict totally. Therefore in this case, this combination rule cannot be used.

Several solutions to this problem have been proposed in the literature such as the hypothesis of non-exhaustivity of the frame of discernment proposed by Smets (1990) or the redistribution of the conflicting mass over the remaining focal elements of the frame of discernment proposed by Yager (1987). However, Colot et al. (2002) describe all the approaches

and subsequently propose a more generic framework from which all those solutions can be derived. We will not discuss the details of their approach. However, their main idea is to express the total belief toward a proposition  $A$  in terms of the two contributors:

1. The conjunctive rule of combination  $m_{\cap}(A)$ , as defined in Equation 3.21
2. The portion of the conflicting mass assigned to subset  $A$ ,  $m^c(A)$ , which is defined as

$$m^c(A) = w(A, M) \times m(\emptyset) \quad \forall A \subseteq P \quad (3.23)$$

$$m^c(A) = 0 \text{ Otherwise} \quad (3.24)$$

$$\text{Subject to } \sum_{A \subseteq P} w(A, M) = 1$$

where

$w(A, M)$  is a weighting factor which is a function of  $A$  and the sources of conflict

$P$  is  $\{\Theta\}$  in Yager's case and  $\{\emptyset\}$  in Smets' case for example.

Therefore, according to Colot et al. (2002) the combined belief toward proposition  $A$  should be expressed as

$$m(A) = m_{\cap}(A) + m^c(A) \quad \forall A \subseteq P \quad (3.25)$$

### 3.5.3 Mass Assignment

In evidence theory, one of the main difficulties lies in modeling the knowledge of the problem by initializing the belief functions  $m_i$  as well as possible (Colot et al., 2002).

### 3.5.4 Cumulative Distribution Representation

One of the latest propositions for knowledge representation, is the idea of cumulative distribution functions induced by a Dempster-Shafer belief structure (a belief cumulative distribution or B-CD) introduced by Yager (2004a). The following are the main results from this work:

1. When a source represents its knowledge using a B-CD belief structure, it provides an *imprecise description of the cumulative distribution* associated with the assumed underlying probability distribution. On the contrary, when a source represents its knowledge using D-S belief functions, it provides an *imprecise description of the underlying probability distribution*.
2. The main difference between a B-CD  $F(x)$  and a classical cumulative distribution function  $F(x)$  of variable  $x$  is on the *uniqueness of the relationship* between those cumulative distributions and their associated density or mass functions. While for each cumulative distribution there is only one probability distribution in classical probability, a B-CD corresponds to a family of belief structures. This information losing scheme is analogous to the DEnv case presented earlier where a histogram may represent a family of pdfs.
3. As a result, B-CDs are a less informative way of source knowledge representation than belief structure. However, they may be easier to characterize (Yager 2004a)

### 3.5.4.1 Methodology

Suppose:

1. An *ordered* frame of discernment  $\Theta = \{B_1, B_2, \dots, B_N\}$ <sup>16</sup> where  $B_i$  are the focal elements of this frame, each of them assigned a bpa  $m(B_i)$
2. Suppose the  $B_i$ s are convex, that is the  $B_i$ s can be formulated as intervals  $B_i = [a_i, b_i)$

Then, all the elements  $x_i \in [a_i, b_i)$  are assigned the same weight  $m(B_i)$ , resulting for example in the *belief structure* below for 4 focal elements  $B_1, B_2, B_3$  and  $B_4$  (Figure 3.6)

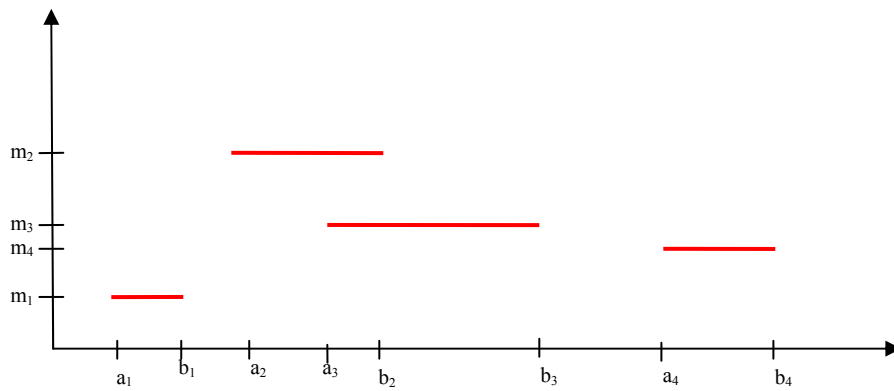


Figure 3.6 D-S belief structure

3. For  $L_x = \{y | y \in \Theta, y \leq x\}$ , the subset of elements of  $\Theta$  less than or equal to  $x$ , the cumulative distribution function of  $x$  can be defined as  $F(x) = \Pr(L_x)$ .

Since in D-S theory, the probability of a hypothesis is bounded by its belief and its plausibility, we have the relationship  $Bel(L_x) \leq \Pr(L_x) \leq Pl(L_x)$ . Therefore

<sup>16</sup> This ordered frame of discernment can be seen as a subset of the real line.

$$F(x) \in [Bel(L_x), Pl(L_x)] \quad (3.26)$$

where, according to Equations 3.17 and 3.18,

$$Bel(L_x) = \sum_{B_i \subseteq L_x} m(B_i) \quad (3.27)$$

$$Pl(L_x) = \sum_{B_i \cap L_x \neq \emptyset} m(B_i) \quad (3.28)$$

Using the relations described above, the B-CD corresponding to the belief structure of Figure 3.6 can be derived as follows (Table 3.4). The graphical representation of this B-CD is shown in Figure 3.7.

Table 3.4 Lower and upper bounds for distribution function of  $x$ .

Disjoint Intervals	$L_x$	$Bel(L_x)$	$Pl(L_x)$
If $x < a_1$	$0$	$0$	$0$
If $a_1 \leq x < b_1$	$x < b_1$	$0$	$m_1$
If $b_1 \leq x < a_2$	$x < a_2$	$m_1$	$m_1$
If $a_2 \leq x < a_3$	$x < a_3$	$m_1$	$m_1 + m_2$
If $a_3 \leq x < b_2$	$x < b_2$	$m_1$	$m_1 + m_2 + m_3$
If $b_2 \leq x < b_3$	$x < b_3$	$m_1 + m_2$	$m_1 + m_2 + m_3$
If $b_3 \leq x < a_4$	$x < a_4$	$m_1 + m_2 + m_3$	$m_1 + m_2 + m_3$
If $a_4 \leq x < b_4$	$x < b_4$	$m_1 + m_2 + m_3$	$1$
If $x \geq b_4$	$x \geq b_4$	$1$	$1$

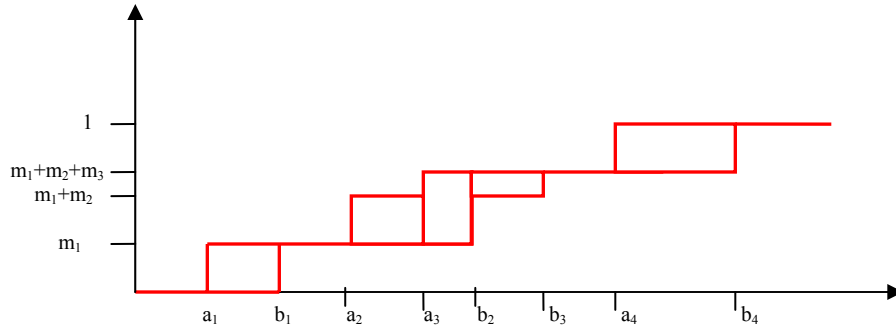


Figure 3.7 B-CD of belief structure of Table 3.4<sup>17</sup>

As an alternative way of knowledge representation, the author proposes those B-CDs where human agents, for example, could express their knowledge in the form of Figure 3.8 or as tuples  $\mathcal{F} = \{(C_i, D_i), i = 1 \text{ to } q\}$ , where  $C_i$  are disjoint intervals forming a partitioning of  $\Theta$  and,  $D_i$  are intervals  $[g_i, h_i] \subseteq [0, 1]$ .

$\mathcal{F}$  must satisfy the following monotonicity condition:

$$\text{If } C_i > C_j, \text{ then } g_i > g_j \text{ and } h_i > h_j$$

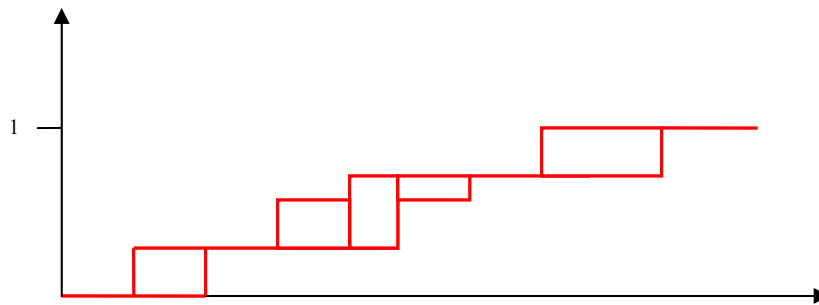


Figure 3.8 Typical agent supplied B-CD function

<sup>17</sup> This B-CD is constructed assuming a complete belief structure *i.e.*  $\sum_{A \subseteq 2^\Theta} m_i(A) = 1$ . However, the author addresses the case of an incomplete belief structure as well.

## CHAPTER 4 FUSION METHODOLOGY

In this chapter we describe our approach to solving the problem stated in Chapter 1. We first establish a set of criteria for the selection of an appropriate fusion scheme in Section 4.1. In Section 4.2, we expand on the theory of the selected scheme and illustrate how it would be used to fuse the three hazards outputs described in Chapter 3. A comparison between current practices and the approach proposed in this research is then presented in Section 4.3. However, to be used, such a tool should be appropriately implemented.

### 4.1 Criteria for Selecting an Appropriate Fusion Scheme

#### 4.1.1 Interactions Between Hazards

An important criterion to consider in the selection of an appropriate fusion scheme should be its ability to account for the interactions between the effects of the hazards being studied. For example, how a blast impulse affects the different sizes of falling debris on one hand, and how it impacts the dispersion of a toxicant plume on the other are certainly very complex phenomena. Therefore, it results from these facts that failing to account for these effects and interactions, especially if they are significant can certainly invalidate the outcome of any fusion process between them.

#### 4.1.2 Interdependency of Events

Considering, following a vehicle explosion, all the human casualties in a geographical area of interest, one can identify three events which can be defined as follows: Event 1: {The individual is a casualty of falling debris}, Event 2: {The individual is a casualty due of the explosion blast} and Event 3: {The individual is a casualty of the toxicant plume}. If only fatalities are considered casualties, then those events are obviously mutually exclusive. Furthermore, those events are also necessarily dependent because they are defined for the same geographical area. This observation imposes, therefore, the following second criterion the fusion scheme must satisfy: The fusion scheme should be able to account for the fact that the events (in terms of the type of casualties) resulting from the explosion of a launch vehicle may not necessarily be independent of each other.

#### 4.1.3 Verification and Validation

##### *4.1.3.1 Verification and Validation Issues*

Verification is formally defined by the IEEE Standard Glossary of Software Engineering Terminology as “The process of evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase.” On the other hand, validation is “The process of evaluating a system or component during or at the end of the development process to determine whether it satisfies specified requirements.” Given the nature of the problem under study in this research, verification and validation (V&V)



is perhaps the most difficult criterion a fusion scheme should satisfy. This is the case because the problem under study comes with at least three major issues which must be addressed.

1. Scarcity of data related to a rare event: The explosion of a launch vehicle is an extremely rare event for which casualty data is scarce. Furthermore, accessibility to that limited amount of data can also prove problematic given the security concerns surrounding the operation of launch vehicles. Therefore, this issue is primarily of concern for the validation of the fusion scheme, as there may not be concrete data against which the fusion output could be compared.

2. Flaws with current methods for estimating  $E_C$ : We explained earlier that the methods currently used to estimate the expectation of casualties do not combine the outcomes of all the hazards in order to reach a consensus on the total number of casualties caused by a vehicle explosion. In order to properly verify a fusion scheme, one should formulate a set of conditions (such as independence between the events) under which, both the current methodology on one hand, and the fusion scheme being considered on the other, will be tested. Verification would be attained if the fusion scheme generates outputs similar to the current methodology. However, as current practices do not provide a single estimate while fusion does (current practices generate a separate estimate for each hazard), comparing the outputs of both approaches is problematic.

3. Complexity of interactions between hazards: This issue, which was introduced earlier as a criterion for the selection of a fusion scheme poses a V&V problem. How can a fusion scheme reliably account for the potentially complex interactions between the effects of all the hazards produced?

#### *4.1.3.2 Verification and Validation Approach*

In light of the issues discussed above, how one intends to verify and validate the fusion scheme should be clearly stated. To overcome the problem posed by the scarcity of data, a fusion scheme is given consideration if it has been (or can be) validated in a different problem setting, where the availability of data was not (or is) an issue. The assumption here is that if a fusion scheme has been proven to work elsewhere, then it is safe to assume that it will work here as well.

Evaluating a fusion scheme against current practices is problematic because it involves comparing one output on one hand to three on the other. However, this could be overcome provided the assumption is made that if current practices were combining their three estimates to generate a single one, it would be with the underlying assumption that the events corresponding to those estimates (as defined in Section 4.1.2) are independent of each other. This imposes therefore an additional criterion to the fusion scheme which we formulate as follows: The fusion scheme should allow for the combination of estimates whether their corresponding events are assumed to be independent or dependent. The independency case would simulate current practices (which we now refer as the base case) while the dependency case would represent what is being proposed in this research (which we now refer as the alternative case).

In addition to the two issues mentioned above, the V&V of a fusion scheme requires it to account, however it may be, for the potentially complex interactions between all the hazards. A solution to this issue can be found by properly selecting the level at which the fusion should take place. Information fusions are generally performed at either the feature level (data fusion) or at

the decision level (decision fusion). In light of the problem being addressed here, the difference between the two levels can be represented graphically as shown in Figure 4.1.

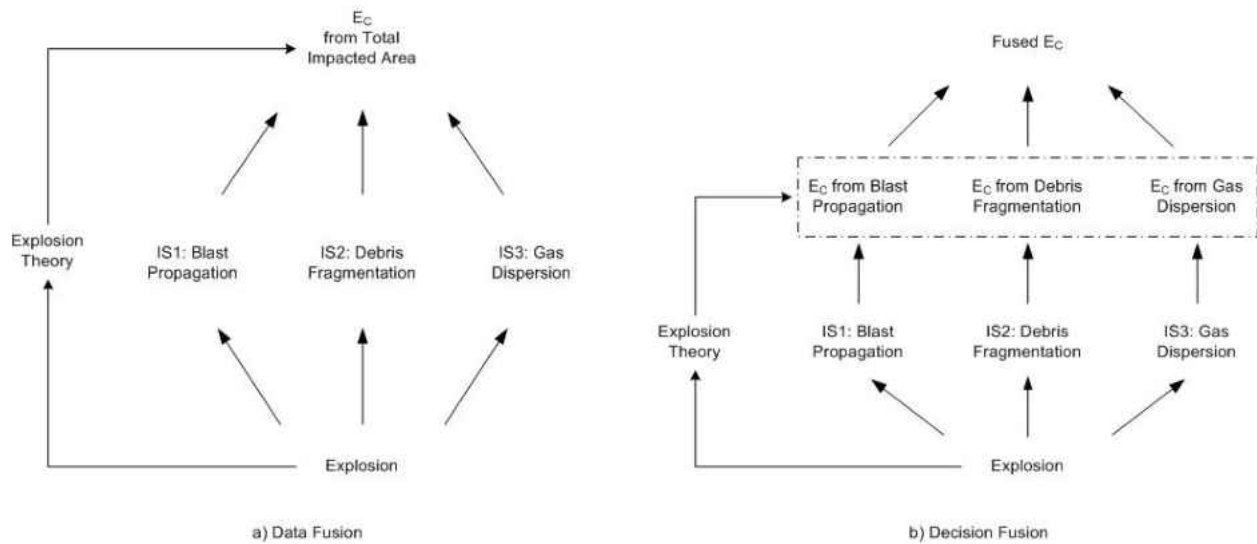


Figure 4.1 The fusion of information sources (IS1, IS2 and IS3) after an explosion may be performed at the feature or at the decision level

Treating each hazard as a source of information, Figure 4.1 illustrates the following: In data fusion, once each source provides a set of features (such as number of fragments, explosion energy and quantity of toxicant released), explosion theory is used to determine the total impacted area from which an expectation of casualty can be estimated. In decision fusion, however, each information source uses explosion theory to determine an impacted area from which it estimates an expectation of casualties. The three expectations of casualties are then fused into a single estimate. Therefore, while in data fusion the handling of interactions between the hazards' effects is assigned to the fusion scheme through its implementation of explosion theory, in decision fusion this complex task is delegated to each hazard model, thereby greatly

reducing the requirement of the fusion scheme. However, it must be noted that by delegating such responsibility, the decision fusion approach is less robust than data fusion as it is more sensitive to the quality of (i.e. the proper implementation of explosion theory in) each hazard model. The following subsections formulate two additional criteria relating to the interpretation of the fusion output and its implementation.

#### 4.1.4 Output Interpretation

The output produced by the fusion process should not be difficult to interpret. This criterion favors the fusion scheme that produces outputs (fused data) that require a minimum amount of, or no post-processing before being of value to the decision maker. In other words, a fusion scheme is considered according to this criterion if it greatly simplifies the transformation process from fused data to usable information. In view of the larger application development effort undertaken in this research, this criterion falls into the usability category. We discuss usability criteria in more details in Section 5.1, where the most appropriate fusion scheme implementation approach is identified.

#### 4.1.5 Ease of Implementation

The difficulty with which a theory can be implemented and used in practical situations often limits its tangible benefits and appeal. Among the major barriers for the use of a theory, one can cite the high cost associated to implement it, or the large amount of computing resources it requires to perform as claimed. This leads to the formulation of an additional criterion: The fusion scheme should be such that the complete application in which it is embedded is able to

run on an average desktop computer (CPU of 1000 MHz and 1 GB of memory) without significant computation time penalty.

## 4.2 Distribution Envelope Determination (DEnv)

### 4.2.1 Fusion Techniques Evaluation

The criteria developed in the previous section were used to evaluate the fusion techniques presented in Chapter 3. From the evaluation results, summarized in Table 4.1 below, it was concluded that distribution envelope determination (DEnv) was the most suitable fusion techniques for the problem under study. A suitability scale (low, moderate and high) was used with the Dempster-Shafer theory of belief (DST) rated as moderate, and both the Bayesian Inference (BI) and the Entropy Fusion Model (EFM) rated as low.

Table 4.1 Assessment of fusion techniques

Fusion Scheme Criteria		Fusion Techniques			
		BI	DEnv	EFM	DST
Interaction Between Hazards		•	•	•	•
Interdependency of Events			•		
Verification and Validation	Scarcity of Data		•		•
	Flaws with current methods	•	•		•
	Interactions Between hazards	•	•	•	•
Output Interpretation		•	•	•	•
Ease of Implementation			•	•	
Suitability		Low	Low	High	Low

Bayesian fusion has been used extensively in real world applications, and therefore using it comes with the benefits of having a great amount of resources published in the literature. However, to use Bayesian fusion, one must assume that the *a priori* probabilities of all the hypotheses in the hypothesis space are known with absolute certainty. Furthermore, the joint likelihood is traditionally very difficult given the high dimensionality of the joint data space. Therefore the criteria relating to the interdependency of events (for the joint likelihood) and the scarcity of data (for *a priori* probabilities) cannot be satisfied. The EFM is best suited when the number of information sources is large, as it specifically addresses the high computational complexity problem in those cases by exploiting the redundancies and complementarities between the sources. While this fusion scheme may prove attractive from an implementation standpoint, it does not respond to the objective of our study as we do not seek to reduce the number of information sources (hazards). DST's poor handling of conflicting information on the other hand limits its ability to address the interdependency between events.

#### 4.2.2 Implementing DEnv

DEnv is a convolution-based method for determining dependency bounds of binary arithmetic operations on random variables (RVs), even when their corresponding cdfs may be uncertain. This is in contrast to Monte Carlo simulation which assumes that the distributions of the random variables are known. Furthermore, in cases where the dependency relationship between the RVs is not specified, DEnv can produce result bounds which include the entire range of possible dependencies.

To implement this method through decision fusion, we treat the expectation of casualties generated by the hazard models as RVs. We therefore define  $E_{CB}$ ,  $E_{CD}$  and  $E_{CG}$  as the expectations of casualties' random variables generated respectively by blast propagation, debris fragmentation and gas dispersion. We also define  $E_{CFUS}$  as the fused expectation of casualties RV generated by DEnv. We recall from Chapter 1 the general formulation of  $E_C$ .

$$E_C = E_{PH} \times P_{C/E} \times P_E \quad (4.1)$$

Where:

$E_C$  is the expected casualties

$E_{PH}$  is the expected population hazarded (or the number of people expected to be a casualties)

$P_{C/E}$  is the probability of having a casualty following an explosion of the vehicle; and

$P_E$  is the probability that an explosion of the vehicle will occur.

As it is not possible to determine with absolute certainty the exact number of people in a given area at any given time or, their exact location (whether they are outside or in some kind of shelter, such as home, office building etc.), the true distributions of  $E_{CB}$ ,  $E_{CD}$ , or  $E_{CG}$  cannot be found. However, by performing a set of  $N$  simulations to represent selections of random conditions<sup>18</sup>, a histogram can be produced for each of them. Those histograms can then be used as input for the use of DEnv.

### 4.2.3 Functionalities of Statool

DEnv has been implemented as software named Statool. Figure 4.2 below shows its graphical interface. Given two RVs, the software can perform 4 binary operations (+, -, /, ×) and

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<sup>18</sup> Wind profile, explosion speed, position of vehicle, time of day, etc.

4 types of relational operations: greater than, greater than or equal to, less than, and less than or equal to. The Min ( ) and Max ( ) operations are also supported. The user also has the option of selecting whether the RVs should be treated as independent or dependent. In the latter case, the user can set a correlation value (button labeled as “known dep.”) or make no assumption on the dependency structure between the two RVs (button labeled “unknown dep.”). When opting for a correlation setting, the software has built-in capability to assist the user in specifying a correlation value by determining an acceptable range of values given the two RVs. However, as it uses the Pearson correlation coefficient (noted  $\rho$ ) the software only supports correlations of a linear type.

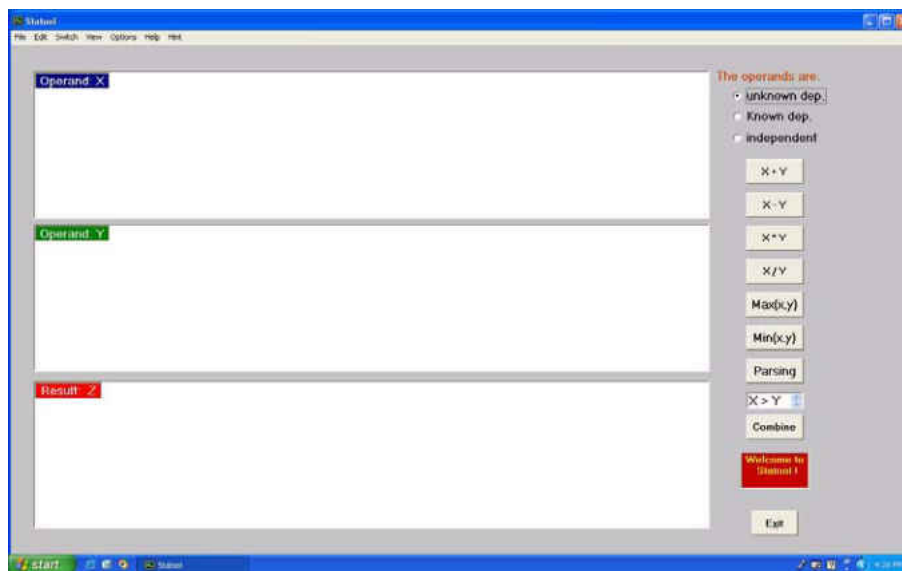


Figure 4.2 Statool graphical user interface

Given two RVs  $X$  and  $Y$ , the Pearson correlation coefficient is defined as

$$\rho = \frac{E[(X - E(X))(Y - E(Y))]}{\sqrt{V(X)V(Y)}}$$



Where  $V(X)$  and  $V(Y)$  are variances of  $X$  and  $Y$ , respectively, and  $E$  is the expectation operator. As there is no reason for assuming that the dependency between any two hazards effects<sup>19</sup> is linear, we implement DEnv with the option of not making any assumption about the dependency relationships.

#### 4.2.4 The DEnv Algorithm

Suppose  $E_{CFUS} = E_{Ci} + E_{Cj}$  where  $E_{Ci}$  and  $E_{Cj}$  are RVs – corresponding to the effects of 2 known hazards – whose distributions are represented as histograms<sup>20</sup> (a set of intervals with their corresponding probabilities). These distributions can be represented in a “joint distribution tableau” in order to (1) determine (if the 2 RVs are considered independent of each other) or (2) bound (if the 2 RVs are dependent of each other) the joint distribution of  $E_{Ci}$  and  $E_{Cj}$  (in other words,  $E_{CFUS}$ ). Using interval-based arithmetic<sup>21</sup>, a “joint distribution tableau” as shown in Table 4.2 conveniently displays the relationship between a joint distribution and its associated marginals. If  $E_{Ci}$  and  $E_{Cj}$  are independent, then the joint probabilities are obtained by multiplying the marginals (e.g.  $p_{11} = p_{j1} \times p_{i1}$ ). However, if  $E_{Ci}$  and  $E_{Cj}$  are dependent, and the nature of that dependency is unknown, then the joint probabilities cannot be determined. In such case, DEnv makes an inference about the joint distribution by identifying the possible range of the joint probabilities.

---

<sup>19</sup> Section 4.7 shows how our implementation is designed to accommodate additional hazards effects beyond the 3 considered in this study.

<sup>20</sup> As discussed in Section 4.3.2

<sup>21</sup> In interval analysis, if  $Z = X+Y$  where  $X$  is the interval  $[i, j]$  and  $Y$  the interval  $[k, l]$ , then  $Z$  is the interval  $[i+k, j+l]$

Table 4.2 Joint distribution tableau of  $E_{CFUS} = E_{Ci} + E_{Cj}$

$E_{CFUS} \in [i_1 + k_1, j_1 + l_1]$ $p_{11}=?$	$E_{CFUS} \in [i_2 + k_1, j_2 + l_1]$ $p_{12}=?$	$E_{CFUS} \in [i_3 + k_1, j_3 + l_1]$ $p_{13}=?$	$E_{Cj} \in [k_1, l_1]$ $p_{1j}$
$E_{CFUS} \in [i_1 + k_2, j_1 + l_2]$ $p_{21}=?$	$E_{CFUS} \in [i_2 + k_2, j_2 + l_2]$ $p_{22}=?$	$E_{CFUS} \in [i_3 + k_2, j_3 + l_2]$ $p_{23}=?$	$E_{Cj} \in [k_2, l_2]$ $p_{2j}$
$E_{CFUS} \in [i_1 + k_3, j_1 + l_3]$ $p_{31}=?$	$E_{CFUS} \in [i_2 + k_3, j_2 + l_3]$ $p_{32}=?$	$E_{CFUS} \in [i_3 + k_3, j_3 + l_3]$ $p_{33}=?$	$E_{Cj} \in [k_3, l_3]$ $p_{3j}$
$E_{Ci} \in [i_1, j_1]$ $p_{i1}$	$E_{Ci} \in [i_2, j_2]$ $p_{i2}$	$E_{Ci} \in [i_3, j_3]$ $p_{i3}$	$\leftrightarrow$ $E_{Ci}$ $\updownarrow$ $E_{Cj}$

In other words, for every value of the random variable  $E_{CFUS}$ , we are interested in the minimum and maximum cumulative probability possible. For example, given Table 4.3 below, if we are interested in  $e_{CFUS} \leq 0.057$ , then<sup>22</sup> only the grey cells should be considered.

Table 4.3 Joint distribution tableau of  $E_{CFUS} = E_{Ci} + E_{Cj}$

$E_{CFUS} \in [0.021, 0.055]$ $p_{11}=?$	$E_{CFUS} \in [0.025, 0.057]$ $p_{12}=?$	$E_{CFUS} \in [0.027, 0.06]$ $p_{13}=?$	$E_{Cj} \in [0.02, 0.05]$ 0.5
$E_{CFUS} \in [0.031, 0.065]$ $p_{21}=?$	$E_{CFUS} \in [0.035, 0.067]$ $p_{22}=?$	$E_{CFUS} \in [0.037, 0.07]$ $p_{23}=?$	$E_{Cj} \in [0.03, 0.06]$ 0.3
$E_{CFUS} \in [0.061, 0.125]$ $p_{31}=?$	$E_{CFUS} \in [0.065, 0.127]$ $p_{32}=?$	$E_{CFUS} \in [0.067, 0.13]$ $p_{33}=?$	$E_{Cj} \in [0.06, 0.12]$ 0.2
$E_{Ci} \in [0.001, 0.005]$ 0.25	$E_{Ci} \in [0.005, 0.007]$ 0.5	$E_{Ci} \in [0.007, 0.01]$ 0.25	$\leftrightarrow$ $E_{Ci}$ $\updownarrow$ $E_{Cj}$

<sup>22</sup>  $e_{CFUS}$  is a sample value of the random variable  $E_{CFUS}$ .

Among those cells, the maximum cumulative probability at  $0.057$  can be found by maximizing the sum of the probabilities of the cells in which  $e_{CFUS} \leq 0.057$  may occur. On the other hand, the minimum cumulative probability at  $0.057$  is found by minimizing the sum of the probabilities of the cells in which  $e_{CFUS} \leq 0.057$  must occur. As Table 4.2 imposes the following constraints,

$$\text{Row constraints: } \sum_{b=1}^3 p_{ab} = p_{aj} \text{ for } a = 1 \text{ to } 3$$

$$\text{Column constraints: } \sum_{a=1}^3 p_{ab} = p_{ib} \text{ for } b = 1 \text{ to } 3$$

finding the maximum and minimum cumulative probabilities at  $e_{CFUS} = 0.057$  becomes equivalent to solving a set of two optimization questions, which can be done through linear programming (LP):

$$\begin{array}{ll}
 \text{Maximize } (p_{11} + p_{21} + p_{31} + p_{12} + p_{22} + p_{32}) & \text{Minimize } (p_{11} + p_{12}) \\
 \text{subject to} & \text{subject to} \\
 \sum_{b=1}^3 p_{ab} = p_{aj} \text{ for } a = 1 \text{ to } 3 & \sum_{b=1}^3 p_{ab} = p_{aj} \text{ for } a = 1 \text{ to } 3 \\
 \sum_{a=1}^3 p_{ab} = p_{ib} \text{ for } b = 1 \text{ to } 3 & \sum_{a=1}^3 p_{ab} = p_{ib} \text{ for } b = 1 \text{ to } 3 \\
 p_{ij} \geq 0 & p_{ij} \geq 0
 \end{array} \tag{4.2}$$

In Equation 4.2 above, what needs to be maximized or minimized is referred to as the objective function. Therefore, for each value of  $E_{CFUS}$ , two LP problems must be solved. Connecting all the cumulative probabilities produces a maximum and a minimum curve within which all the possible cumulative distribution functions of  $E_{CFUS}$  must belong. Figure 4.3 is a screenshot of Statool.

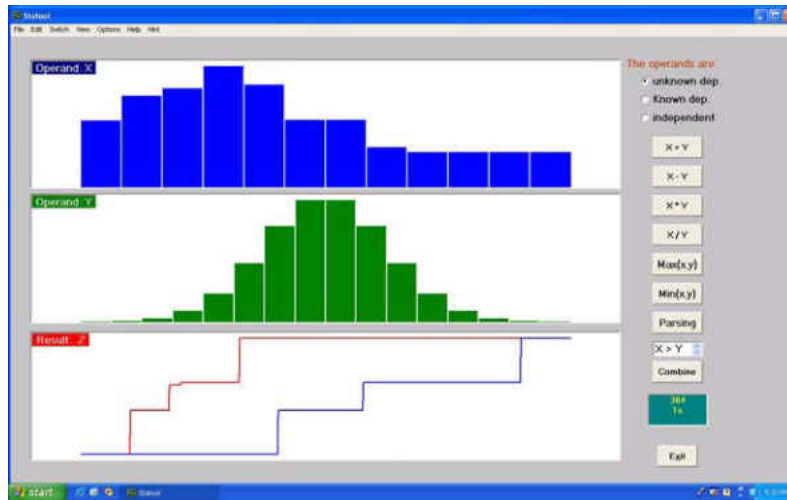


Figure 4.3 An output of Statool. The 3<sup>rd</sup> pane displays the bounding curves of all the possible CDF of the joint distribution of two RVs,  $X$  and  $Y$ .

LP problems can be solved through the traditional simplex method. However, given a joint distribution tableau of  $R$  rows and  $C$  columns, the corresponding simplex tableau could be large as it consists of  $(R+C+I)$  rows and  $(R+I) \times (C+I)$  columns. The transportation simplex method (TSM), which is a more efficient method for solving larger LP problems, can be used if the joint distribution tableau can be transformed into a transportation tableau. We limit the length of our discussion by omitting explanation of the simplex method, concentrating instead on how DEnv applies the TSM.

#### 4.2.5 DEnv Implementation of the TSM

To transform Table 4.2 into a transportation tableau, the two marginals  $E_{Cj}$  and  $E_{Ci}$  are treated respectively as sources and destinations, where the total supply and the total demand are both equal to 1. The TSM is a two-phase procedure; it involves first finding an initial feasible

solution (IFS) and then proceeding iteratively to make improvements in the solution until an optimal solution is reached (Anderson et. al., 2000).

In the search of an IFS, DEnv implements both the Northwest corner method and Russell's approximation method, leaving the choice of using one or the other to the user. While the Northwest corner method is better suited to handle degeneracy<sup>23</sup> in the IFS, Russell's approximation strength resides in its ability to generate an IFS which is very close to the best solution, thereby diminishing subsequent computation efforts (Zhang & Berleant, 2003). The optimal solution is then found using an implementation of the modified distribution method (MODI) and the stepping stone method.

It must be noted however, that the objective of the TSM is to minimize the objective function. Therefore, for the upper bound cases (such as the left side of Equation 4.2) the goal of maximization must be transformed into one of minimization. DEnv does this by setting the costs  $C_{ab}$ 's of the cells contributing to the objective function to -1. For the lower bound cases (such as the right side of Equation 4.2), the  $C_{ab}$ 's are set to 1, while the costs of non-contributing cells are set to 0. Using Equation 4.2 to illustrate the transformation, DEnv actually solves the following:

$$\begin{array}{ll}
 \text{Minimize } (-p_{11} - p_{21} - p_{31} - p_{12} - p_{22} - p_{32}) & \text{Minimize } (p_{11} + p_{12}) \\
 \text{subject to} & \text{subject to} \\
 \sum_{b=1}^3 p_{ab} = p_{aj} \text{ for } a = 1 \text{ to } 3 & \sum_{b=1}^3 p_{ab} = p_{aj} \text{ for } a = 1 \text{ to } 3 \\
 \sum_{a=1}^3 p_{ab} = p_{ib} \text{ for } b = 1 \text{ to } 3 & \sum_{a=1}^3 p_{ab} = p_{ib} \text{ for } b = 1 \text{ to } 3 \\
 C_{11} = C_{21} = C_{31} = C_{12} = C_{22} = C_{32} = -1 & C_{11} = 1 \\
 \text{other } C_{ab} = 0, p_{ij} \geq 0 & \text{other } C_{ab} = 0, p_{ij} \geq 0
 \end{array} \tag{4.3}$$

---

<sup>23</sup> Degeneracy occurs whenever the IFS has less than  $R+C-I$  cells with probabilities different than 0.

Table 4.4 below is the transportation tableau corresponding Table 4.3 when the objective is to find the maximum cumulative probability<sup>24</sup> at  $e_{CFUS} = 0.057$ .

Table 4.4 Transportation tableau for maximum cumulative probability at  $e_{CFUS} = 0.057$

Source	Destination			Supply
	$E_{Ci} \in [0.001, 0.005]$	$E_{Ci} \in [0.005, 0.007]$	$E_{Ci} \in [0.007, 0.01]$	
$E_{Cj} \in [0.02, 0.05]$	$E_{CFUS} \in [0.021, 0.055]$ $C_{11} = -1 \quad p_{11} = ?$	$E_{CFUS} \in [0.025, 0.057]$ $C_{12} = -1 \quad p_{12} = ?$	$E_{CFUS} \in [0.027, 0.06]$ $C_{13} = -1 \quad p_{13} = ?$	0.5
$E_{Cj} \in [0.03, 0.06]$	$E_{CFUS} \in [0.031, 0.065]$ $C_{21} = -1 \quad p_{21} = ?$	$E_{CFUS} \in [0.035, 0.067]$ $C_{22} = -1 \quad p_{22} = ?$	$E_{CFUS} \in [0.037, 0.07]$ $C_{23} = -1 \quad p_{23} = ?$	0.3
$E_{Cj} \in [0.06, 0.12]$	$E_{CFUS} \in [0.061, 0.125]$ $C_{31} = 0 \quad p_{31} = ?$	$E_{CFUS} \in [0.065, 0.127]$ $C_{32} = 0 \quad p_{32} = ?$	$E_{CFUS} \in [0.067, 0.13]$ $C_{33} = 0 \quad p_{33} = ?$	0.2
Demand	0.25	0.5	0.25	1

<sup>24</sup> The transportation tableau to find the minimum cumulative probability at  $e_{CFUS} = 0.057$  has  $C_{11} = 1$  and all other  $C_{ab}$ 's equal to 0.

### 4.3 Fusion by DEnv versus Current Practices

Before discussing any implementation issues related to solving the problem under study, we make in Table 4.5, a comparison summary between the approach used by the decision level fusion being proposed and the one used in current practices, in estimating the expectation of casualties resulting from a launch vehicle explosion.

Table 4.5 Decision fusion by DEnv versus current practices

	<b>Decision Level Fusion</b>	<b>Current Practices</b>
<b>Interaction Between Hazards</b>	Dependent upon the quality of the individual hazard models	Dependent upon the quality of the individual hazard models
<b>Interdependency of Events</b>	Accounted for, whether the events are considered interdependent or not	Not available
<b>Number of estimates to analyze before making a decision</b>	1 (The fusion of all the hazard models' outputs)	Number of hazards considered in the analysis
<b>Metric of estimate(s)</b>	Upper and Lower probabilities of exceeding (or not exceeding) a pre-specified tolerance limit (E.g. probability of exceeding the tolerance limit is at least 30%)	Mean $E_C$ Mean Expectation of Casualties (E.g. 24 casualties in 1 million launches or $24 \times 10^{-6}$ )
<b>Quality of metric</b>	Provides a range in which the true probability of exceeding the tolerance limit falls (If the upper limit is 0, then it is known for certainty that the tolerance limit cannot be reached) <sup>25</sup>	– Lack of confidence interval around the means erodes the validity of the estimates. – No information on the possibility of reaching or exceeding the pre-specified tolerance limit
<b>Metric Interpretation</b>	Requires no post processing – this information can be easily understood by the decision maker and the general public	Requires no post processing – However, the physical meaning of $E_C$ may not be easy to understand by the general public. – With more than 1 estimate to analyze, proper interpretation is problematic

<sup>25</sup> It should be reminded that this depends on the quality of hazard models and, on the quality of the sheltering model which is discussed in Section 4.6.

Figure 4.4 below provides a graphical representation of the new metric being used with the decision level fusion approach.

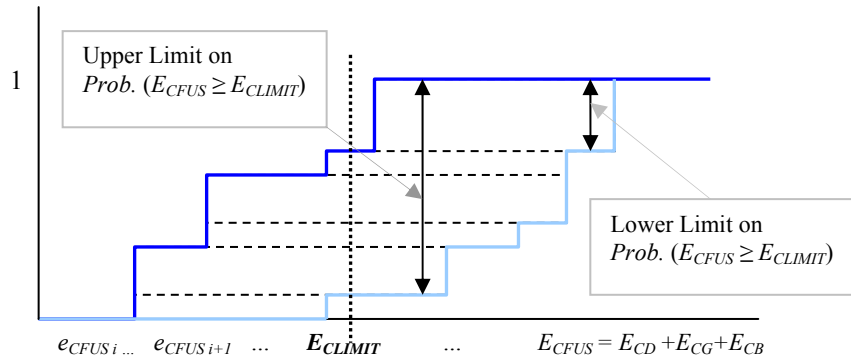


Figure 4.4 Curves bounding the true cdf of the fused output  $E_{CFUS}$



## CHAPTER 5      SYSTEM DESIGN

While the previous chapter concentrated on establishing the theory on which the fusion of multiple hazards can be performed, here we discuss the development of a tool which would allow its user to design and perform simulations of launch vehicle disasters (explosions), and to analyze their outputs in terms of the risk likely to be inflicted on the population on the ground, should such disasters indeed occur. We establish a set of criteria for this tool in Section 5.1 and describe it in Section 5.2. Section 5.3 and 5.4 then discuss some key functionalities of the tool.

### 5.1      Criteria for Selecting an Appropriate Design Philosophy

#### 5.1.1    Modularity and Expendability

We mentioned in Section 4.1.3.2 that a decision fusion approach was more sensitive (less robust) to the quality of the hazard models because it delegates to them the responsibility of implementing explosion theories. It is therefore desirable that the risk analysis tool that will implement the fusion scheme allows for the substitution of better, more advanced hazard models as they become available. In other words, the tool to be developed should have a modular architecture, one that allows individual components to be unplugged and replaced.

Along with being modular, the tool should be expandable. The present study concentrates on the three main hazards generated by the explosion of vehicles currently in operation, such as the space shuttle, the launcher Ariane 5 or, the Delta IV rocket. To ensure the viability of such a

tool, it should be designed to accommodate any additional hazard that could be produced by future vehicles. One may think of new fuels and new materials as being sources of new type of hazards.

### 5.1.2 Functionality

Since the expectation of casualties is a function of the distribution of people on the ground – irrespective of the nature of the hazard – the risk analysis tool should be able to build exposure and sheltering models for any geographical region under study. Among the many factors to be included in sheltering models, one may cite the population’s distribution according to building types (whether they are outside, in a mobile home or in multi-story building) and, the age distribution of the population (to estimate their resistance to toxic gases for example). Issues related to the construction of sheltering models are discussed in Section 5.3. An additional desirable functionality of this tool should be the ability to graphically display its output on a geographical information system (GIS). This functionality is particular of importance for communicating any risk to the user, upper management and, the general public.

### 5.1.3 Usability

Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. Although a full usability study is not conducted in this study, it is necessary to acknowledge its importance in ensuring that the tool being developed is indeed, usable. The definition above translates into a risk analysis tool that is at least easy to learn and that allows for different experiments to be conducted with

relative ease. Variables in an experiment include the geographical location to study, the vehicle and the hazards to consider, and the dependency assumptions to make.

## 5.2 Development of an ArcGIS Extension

Based on the criteria identified above, we determined that ArcGIS Desktop 9.1, a geographical information system developed by ESRI, provided the best environment for the development and deployment of a launch vehicle risk analysis tool. The objectives of this section are (1) to introduce what are known as “extensions” in ArcGIS and, (2) to describe the risk analysis tool developed for this study.

### 5.2.1 ArcGIS Extensions

We use ArcView, which is one the four ArcGIS Desktop geographical information system software products developed by ESRI. It gives access to a suite of integrated applications such as ArcMap, ArcCatalog and ModelBuilder which allow the user to perform a number of GIS tasks of various complexities. The rich resources and the application framework it offers allows for the development of plug-in components which can be used to extend those applications in virtually any direction. Those capabilities (and the richness of the user interface ArcMap provides for communication purposes) fulfill well the criteria established in Section 5.1.

Since ArcGIS applications are component object model-based (or COM-based), they allow for custom components to be developed from COM-compliant environments (such as Visual Basic 6 and Visual C++) as dynamically linked libraries (DLLs) or as object linking and embedding control extensions (OCXs). Components that are developed for a specific task can

then be grouped into an extension which, when plugged into the ArcGIS Desktop framework, augments the functionalities of any application of interest (ArcMap in our case). A number of extensions, such as Spatial Analyst, 3D Analyst have been developed to extend the capabilities of ArcGIS in some specific areas. We call our risk analysis tool *Risk Analyst* and describe it in the next section. Information on how to build an extension can be downloaded from the ESRI website.

### 5.2.2 Risk Analyst

*Risk Analyst's* function is to allow its users to design and perform simulations of launch vehicle disasters (explosions), and to analyze their outputs in terms of the risk likely to be inflicted on the population on the ground, should such disasters indeed occur. Standard simulations will typically consist of (1) selecting a geographical area of interest, (2) constructing a sheltering and exposure model for that area, (3) simulating vehicle explosions at various state vectors<sup>26</sup>, (4) collecting the output from each hazard models, (5) fusing those outputs and, (6) displaying the fused output as a layer on ArcMap. Figure 5.5 illustrates the routine of such an experiment. Figure 5.1 shows the structure of *Risk Analyst*. It is composed of a toolbar (*RiskToolbar*) and a toolbox (*RiskToolbox*), as most ArcGIS extensions.

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<sup>26</sup> Different speeds, angles, altitudes and, downranges.

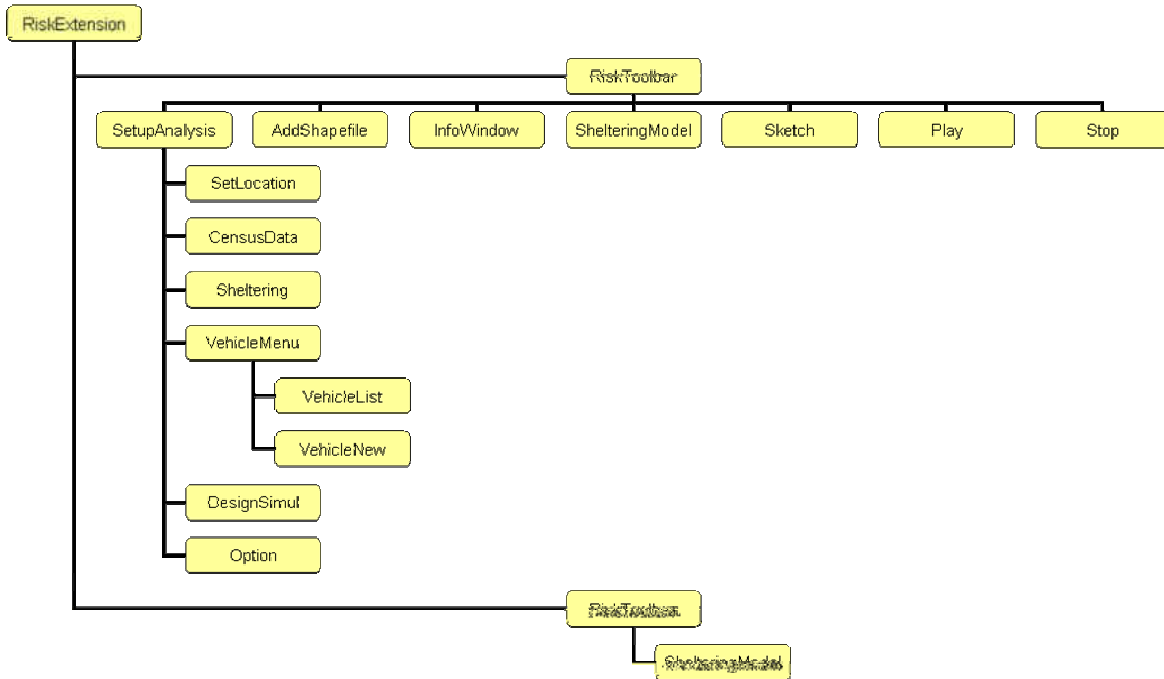


Figure 5.1 Structure of the extension *Risk Analyst*

The main user interface of *Risk Analyst* is its toolbar, shown in Figure 5.2 below. From it, the user can perform a series of tasks such as selecting and loading an area map, choosing a launch vehicle from a list, or designing a simulation experiment. The user can also launch the sheltering building tool located in the toolbox. We discuss the sheltering model in Section 5.3.

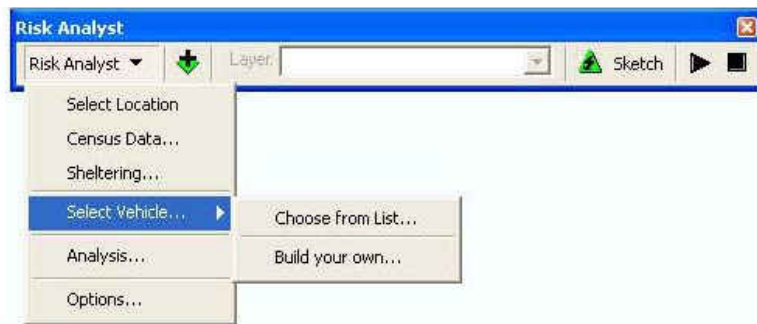


Figure 5.2 *Risk Analyst* toolbar

The form shown in Figure 5.3 below allows the user to specify such options as the types of hazards to be considered in the analysis, the fusion scheme (independent or dependent) to be adopted and, the tolerance level for the total expectation of casualties.

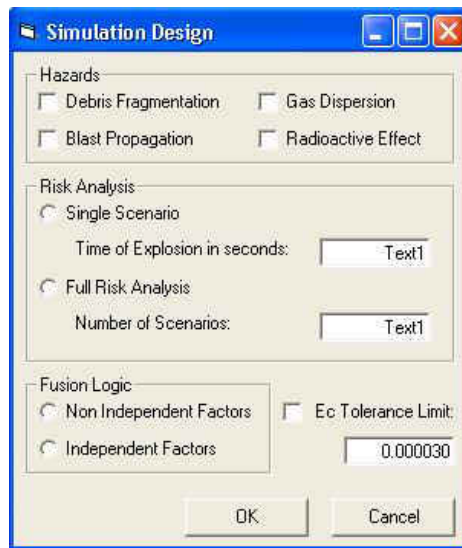


Figure 5.3 Analysis window

Figure 5.4 shows the census data input window, where the user can load census tables. Each of these tables is described in Section 5.3.

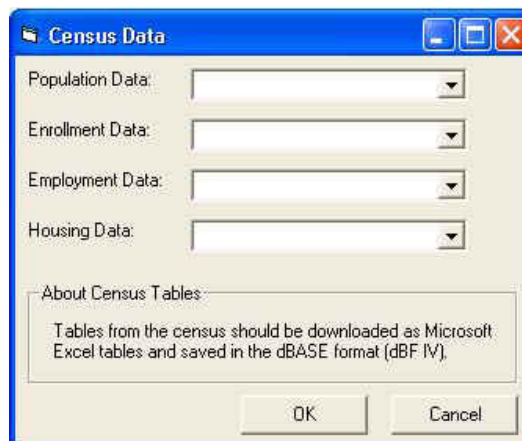


Figure 5.4 Census data window

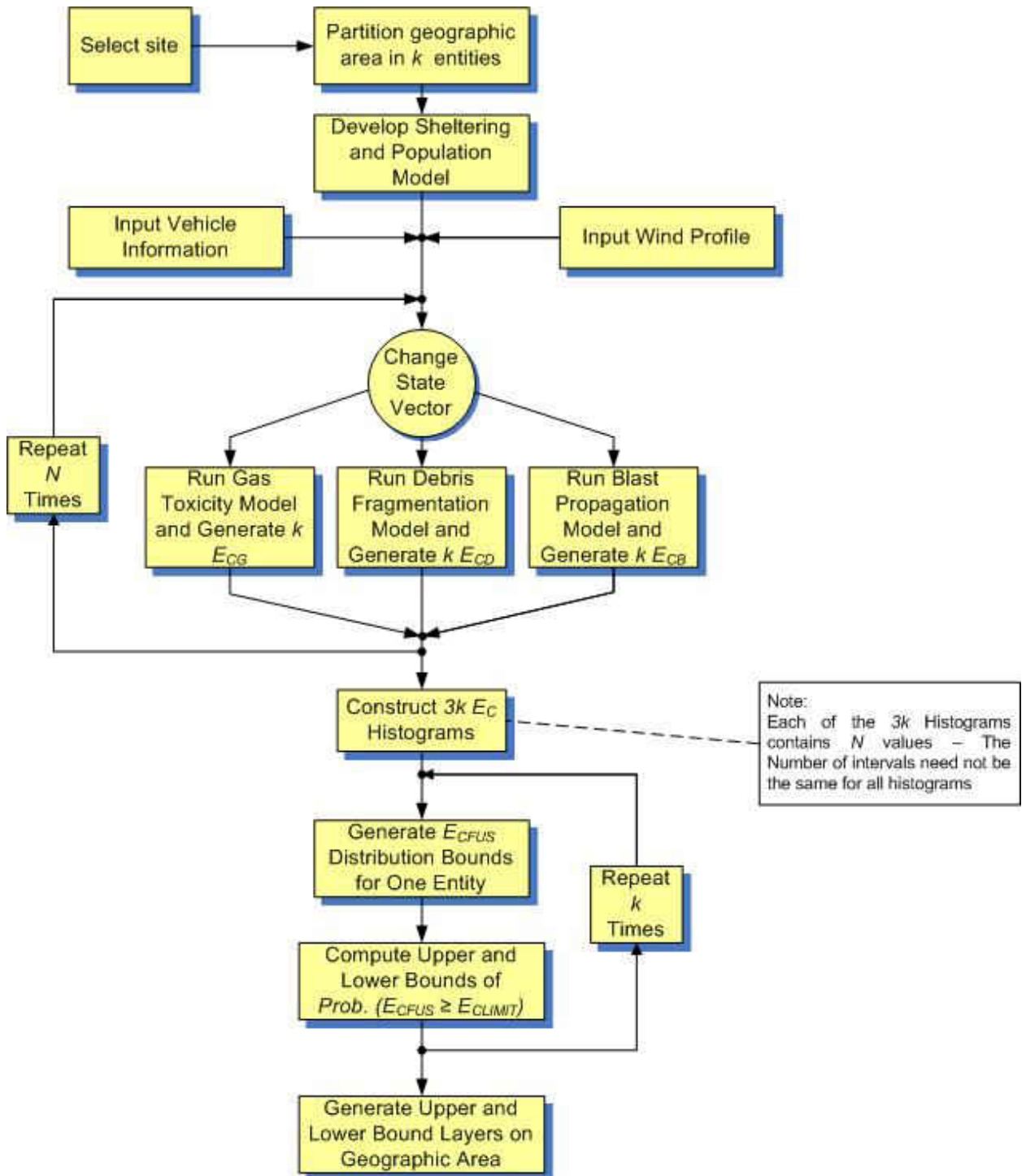


Figure 5.5 Simulation to estimate the risk incurred by the public as a result of a launch vehicle explosion.

## 5.3 Sheltering Model

### 5.3.1 Mathematical Model

The sheltering model introduced above is an implementation of a mathematical model derived from previous work by Larson and Jerold (Larson and Jerold, 2001). The original model was used by the Columbia Accident Investigation Board (CAIB) to develop the population sheltering model of the states of Texas and Louisiana to assess the debris impact of space shuttle Columbia in 2003 (Larson and Jerold, 2001). The only difference between this model and the one by Larson and Jerold is that the contribution of people living in group quarters<sup>27</sup> is clearly expressed (terms involving  $gG$ ). Not only does this model compute the distribution of people by population center – which we address in the next section – in the area of interest (such as a state), it also provides degrees of sheltering offered by roofs and upper floors for categories of structures most likely to be found in that area. The sheltering distribution of people in a population center  $c$  is expressed in Equation 5.1 below while Table 5.1 describes each of its variables.

$$\bar{c} = p \left\{ eE\underline{O}\bar{o} + sS\bar{s} + gG\bar{g} + (1 - eE - sS - gG) \left[ (1 - d)\underline{H}\bar{h} + (0 \ 0 \ \dots \ d)^T \right] \right\} \quad (5.1)$$

Or in its expanded form<sup>28</sup>

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<sup>27</sup> The Census Bureau classifies all people not living in households as living in group quarters. There are two types of group quarters: institutional (for example, correctional facilities, nursing homes, and mental hospitals) and non-institutional (for example, college dormitories, military barracks, group homes, missions, and shelters (FactFinder.com)).

<sup>28</sup> We note the matrix  $\underline{O}$  as  $\underline{O}$  and the vector  $\underline{o}$  as  $\bar{o}$



$$\begin{pmatrix} c_1 \\ c_2 \\ \vdots \\ c_i \end{pmatrix} = p \left[ eE \begin{pmatrix} O_{11} & O_{12} & \dots & O_{1j} \\ O_{21} & O_{22} & \dots & O_{2j} \\ \vdots & \vdots & \ddots & \vdots \\ O_{i1} & O_{i2} & \dots & O_{ij} \end{pmatrix} \begin{pmatrix} o_1 \\ o_2 \\ \vdots \\ o_j \end{pmatrix} + sS \begin{pmatrix} s_1 \\ s_2 \\ \vdots \\ s_i \end{pmatrix} + gG \begin{pmatrix} g_1 \\ g_2 \\ \vdots \\ g_i \end{pmatrix} + (1 - eE - sS - gG) (1 - d) \begin{pmatrix} H_{11} & H_{12} & \dots & H_{1k} \\ H_{21} & H_{22} & \dots & H_{2k} \\ \vdots & \vdots & \ddots & \vdots \\ H_{i1} & H_{i2} & \dots & H_{ik} \end{pmatrix} \begin{pmatrix} h_1 \\ h_2 \\ \vdots \\ h_k \end{pmatrix} + \begin{pmatrix} 0 \\ 0 \\ \vdots \\ d \end{pmatrix} \right]$$

Where

Table 5.1 Sheltering mathematical model variables

Variable Type	Variable	Description
Census Data	$p$	Population in a given population center
	$s$	Percentage of people enrolled in school
	$e$	Percentage of people employed
	$g$	Percentage of population registered in Group Quarters
	$o$ vector	Percentage of people who are at work who are in each occupation category
	$h$ vector	Percentage of housing units in each of the $k$ housing structure categories
User Assumptions	$D$	Percentage of people at home who are outside (1-d is the percentage of people at home who are inside)
	$S$	Percentage of enrolled students actually in school
	$E$	Percentage of employed people actually at work
	$G$	Percentage of registered Group Quarter people actually in group Quarters
Sheltering Structure Distribution by Census Categories  Engineering Judgment	$O$ matrix	Percentage of people in each occupation of the $j$ category who are assigned to each of the $i$ sheltering types
	$s$ vector	Percentage of students in school who are assigned to each of the $i$ sheltering types
	$g$ vector	Percentage of people in Group Quarters who are assigned to each of the $i$ sheltering types
	$H$ matrix	Percentage of each housing structure category which are assigned to each of the $i$ sheltering types

### 5.3.2 Sheltering Data

As described in Table 5.1, the variables in Equation 5.1 are determined from a variety of data. In order to extract census data related to the demographic statistics of any geographical area, a decision had to be made to determine the census resolution for our population center. Data

from the census can be retrieved by geographic entity. The largest entities are the national and state levels while the smallest are identified as block groups and blocks. Given that the land area requirement for a spaceport and the likely impact on its surroundings will likely exceed the size of a census block or block group, this entity has a level of detail which may not be necessary for decision making. We selected as a default setting the census county subdivision level (known as CCD level), as our population center size for the following reasons:

- This level provides a good balance between entities that are too large (state and counties) and of little value for risk analysis and, entities that are too small (blocks) which may provide unnecessary detail for risk estimation. The state of Florida, for example, contains 299 census county subdivisions. Building a sheltering model for all of them can be done without significant time penalty on an average desktop.

- CCDs are named after counties and well-known local places, making them ideal for conveying information to the decision makers and the general public. For example, the subdivision where NASA's<sup>29</sup> Kennedy Space Center is located is simply called Space Center, which is how the general public calls that area as well. Figure 5.6 illustrates this point for Central Florida.

- CCDs provide a better resolution than the county level as any county may be composed of several CCDs (e.g. Brevard County, where KSC is located has 11 subdivisions).

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<sup>29</sup> National Aeronautics and Space Administration

While we selected the CCD as a default population center size, the computer model we developed is capable of constructing sheltering models at other entity levels as well (block, block group, county) since all tables provided by the census follow the same format<sup>30</sup>.

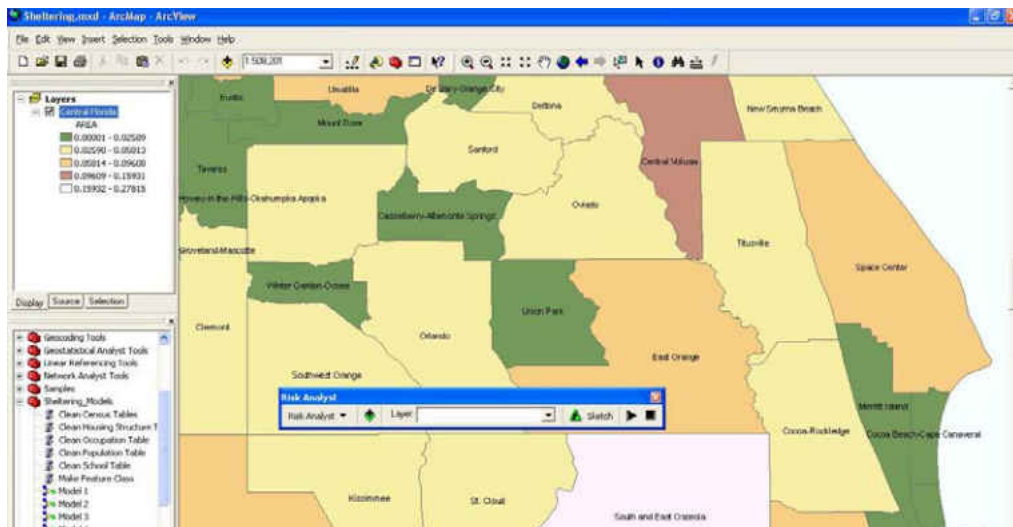


Figure 5.6 Central Florida census county subdivisions

With the default population center size selected, we chose the 2000 census summary file 3 (SF3)<sup>31</sup> since it contains most of the tables suitable for estimating the variables from Table 5.1. The 2000 census is also the latest comprehensive census available. The tables extracted from the census are described in Table 5.2. For variables  $p$  and  $g$ , we use Table P9, while for the occupation variables ( $\mathbf{o}$  vector and  $e$ ) we use Table P50. Table P36 was used to extract school enrollment data (variable  $s$ ) while Table H30 provided the necessary data to construct the  $\mathbf{h}$  vector for each CCD.

<sup>30</sup> Figure B-1 in Appendix B-1 shows the geography types of the United States according to the Census Bureau.

<sup>31</sup> The Summary File 3 presents detailed population and housing data (such as place of birth, education, employment status, income, value of housing unit, year structure built) collected from a 1-in-6 sample and weighted to represent the total population (FactFinder.com).

Table 5.2 Census and translation tables' description

H30. Units in Structures
P9. Household Type by Relationship
P36. Sex by School Enrollment by Level of School by Type of School for the Population 3+ Years
P50. Sex by Occupation for the Employed Civilian Population 16+ Years
CAIB Table 5.3. Translation Table for Houses/Apartments
CAIB Table 5.4. Translation Table for Occupations
CAIB Table 5.5. Translation Table for Schools and Group Quarters

To determine the sheltering structure distribution according to the each of the four population categories identified (people at school, work, home or group quarters we used the translation tables 5-3 (to develop the *H* matrices), 5-4 (to develop the *O* matrices) and 5-5 (to develop the *g* and *s* vectors) which were developed by a group of engineering experts for the analysis of the 2003 Space Shuttle Columbia accident. Table 5.3 defines the 16 roof types identified for the roof penetration model. Table 5-3, 5-4 and 5-5 can be found in Appendix A.

Table 5.3 Roof penetration models

Index	Name	Building Description
0	Open	Exposed people without benefit of an overhead roof
1	Wood-Roof	Wood roof
2	Wood-1 <sup>st</sup>	1 <sup>st</sup> floor beneath roof of wood framed structure
3	Wood-2 <sup>nd</sup>	2 <sup>nd</sup> floor beneath roof of wood framed structure
4	Steel-Roof	Steel roof
5	Steel-1 <sup>st</sup>	1 <sup>st</sup> floor beneath roof of steel roof structure
6	Steel-2 <sup>nd</sup>	2 <sup>nd</sup> floor beneath roof of steel roof structure
7	Concrete-Roof	Reinforced concrete roof
8	Concrete-1 <sup>st</sup>	1 <sup>st</sup> floor beneath concrete roof
9	Concrete-2 <sup>nd</sup>	2 <sup>nd</sup> floor beneath concrete roof
10	Light-Metal	Roof of pre-engineered metal structure (or vehicle)
11	Composite	Layered roof made of light weight, non-metallic materials
12	Tile-Roof	Tile roof
13	Tile-1 <sup>st</sup>	1 <sup>st</sup> floor beneath tile roof of wood-framed structure
14	Tile-2 <sup>nd</sup>	2 <sup>nd</sup> floor beneath tile roof of wood-framed structure
15	Car	People traveling in cars

### 5.3.3 Sheltering Computer Model

Using ModelBuilder® in ArcGIS 9.1, we implemented the sheltering mathematical model to automate the construction of sheltering models for any state of interest. The source codes were written in Python, which is the default programming language ArcGIS uses to develop scripts. As Figure 5.7 indicates, major steps in building a sheltering model involve cleaning the census tables and extracting the necessary information to perform the matrix calculations as required by Equation 5.1.

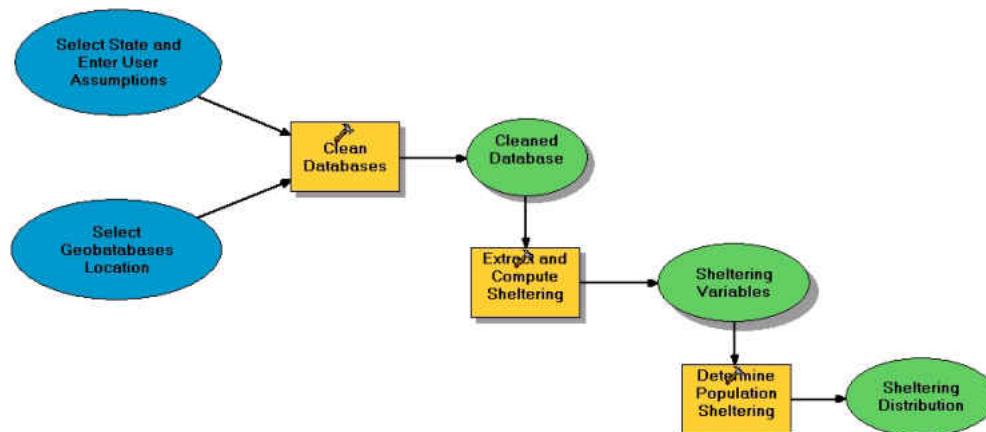


Figure 5.7 Sheltering model built with modelBuilder® from ArcGIS 9.1

The user interacts with the sheltering model above by accessing its user interface, shown in Figure 5.8, through the Risk Analyst or its toolbox. This interface allows the user to (1) make his or her assumptions in accordance with Table 5.1, (2) select the folder where the census tables are stored and (3) specify where the outputs of the model (population distribution, per CCD, per structure types) should be placed.

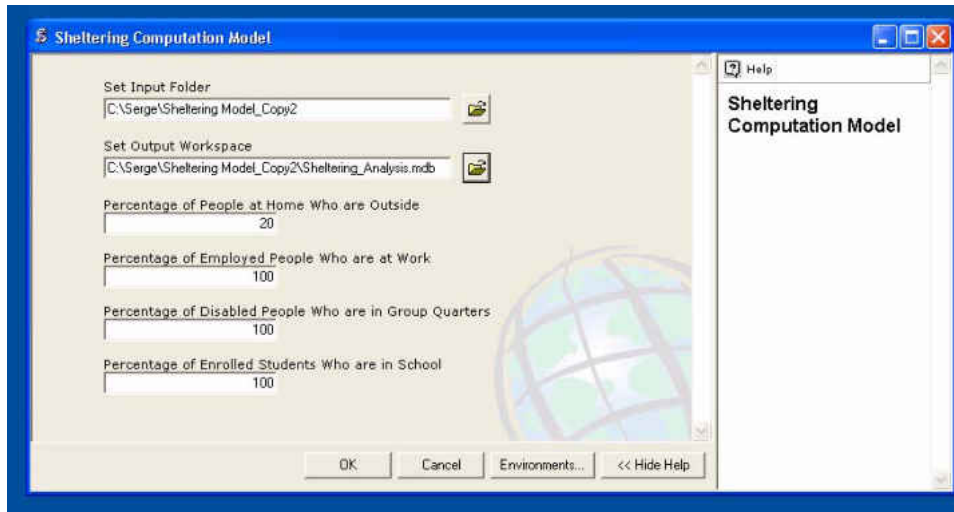


Figure 5.8 Sheltering model user interface

## 5.4 Fusion Model

In section 4.2, we explained in detail the DEnv algorithm and, how it is implemented in Statool. We also determined that of all the functionalities of Statool, only the “+” operator and two of the three dependency options (independent and unknown dependency) were of interest to this study. One can also notice from Figure 4.3 that Statool allows at most two RVs to be fused at one time, while *Risk Analyst* should be able to fuse 3 or more at any time, depending on the number of hazards being modeled. Figure 5.5 also suggests that the number of fusions to be performed could be significantly large if the number of geographic entities is large. It is therefore evident that the usability criterion established in Section 5.1.3 (ease of learning and ease of experiment design) can not be achieved if the user is required to interact with Statool. Instead,

what is desired is a seamless integration of the DEnv algorithm into *Risk Analyst*, with only the Statool functionalities of interest retained.

Implementing DEnv in *Risk Analyst* as described above could only have been possible by altering the Statool source codes, which the author was willing to provide. The layer design used to develop the architecture of Statool, as shown in Figure 5.9, significantly reduced the amount of work that would have had to be done if such design was not adopted.

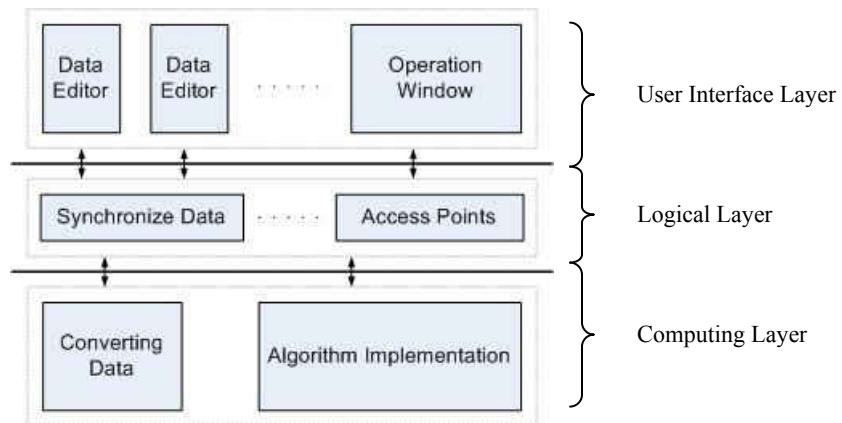


Figure 5.9 Statool architecture

The user interface layer – responsible for receiving the user settings and displaying the results – was removed and some its functions automated to respond to specific user interactions with the *Risk Analyst* toolbar. Some changes were also done to the logical layer – which transforms the user input to fit the algorithms in the computer layer – to better respond to the intended functionalities of *Risk Analyst*. No code in the computing layer, where the transportation algorithm is implemented was changed. However, since the author implemented

this layer as a series of independent DLLs, the libraries handling all the linear correlation settings were removed.

Consideration was also given to allow *Risk Analyst* users to fuse more than 2 hazards' outputs at a time. Not only was this capability necessary for our study, it also allowed for more hazards to be added in the future, should such need arises. Figure 5.10 is the algorithm implemented to generate this capability. We used a random testing approach<sup>32</sup> to ensure that the integrity of the DEnv algorithm was maintained during its translation from Statool to *Risk Analyst*.

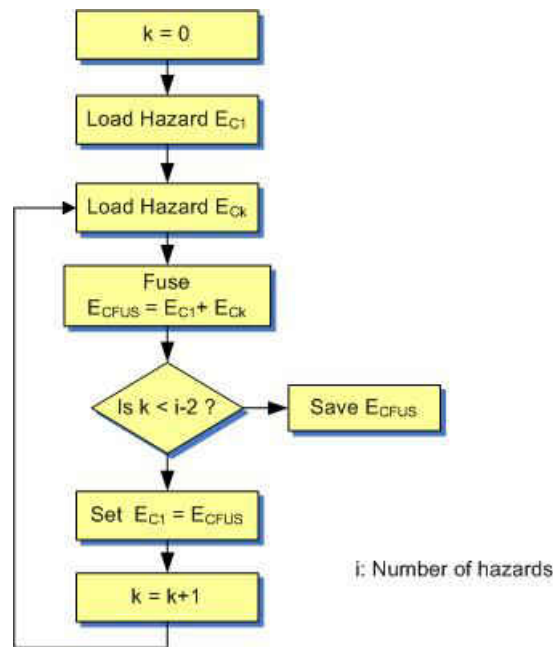


Figure 5.10 Algorithm to allow for the fusion of additional hazards

<sup>32</sup> A testing that freely chooses test cases among the set of all possible test cases. The use of randomly determined inputs can detect faults that go undetected by other systematic testing techniques. The purpose was to ensure that the newly built fusion model produced identical results to Statool.



## CHAPTER 6      EXPERIMENT: DATA PREPARATION

We perform, in Chapters 6 and 7 a full experiment which makes use of the DEnv-based fusion approach proposed in Chapter 4. In the present chapter, we discuss the important issues related to data preparation, and describe how these data were produced for the three hazards of concern in this study. All the assumptions and the reasons for making them are also listed and explained. However, to preserve the readability of this document, most of the data produced can be found in Appendices B, C and D.

### 6.1      Debris Dispersion Data Preparation

#### 6.1.1      Developing a Debris Model

In Chapter 2 we described CRTF, the common real-time debris footprint used by NASA to propagate the fragments generated by a launch vehicle during its breakup. However, this model could not be obtained for our study for proprietary reasons. A more recent, Java3D debris dispersion model, described by Rajkumar and Bardina (Rajkumar and Bardina, 2004) was also considered. However, the model, being still under development, could not be used. We, therefore, set to develop a debris model for our study. Validation was evidently the biggest concern for this model. The model was developed in the simulation software package ARENA, using detailed description of debris modeling practices available in the literature (Baeker, Cavalli, Morris, 2005) and, as a template, the CRTF program modular approach in handling the uncertainties in debris

trajectories (Section 2.1.2). In an effort to validate it, the Debris Risk Assessment Model in Arena (DRAMA) we describe here was used to simulate the debris dispersion of the 2003 Space Shuttle Columbia accident. Using the coordinates of more than 4,000 actual debris recovered from that accident, DRAMA's stochastic parameters such as the fragments' ballistic coefficients could be calibrated. Also, some parameters were estimated from historical data (e.g. imparted velocity magnitude) while others were assumed in accordance to the literature (e.g. the lift-to-drag ratio was assumed to be 0.25). However, as described in Section 2.1, given the large amount of uncertainties surrounding the number of debris fragments generated, and their respective trajectories, it is clear that the validation of debris dispersion models – including the validation of the models we first considered – is very difficult to achieve. Therefore DRAMA was considered validated (acceptable for use) if it could propagate the Columbia debris in a similar fashion (downrange and crossrange spread of fragments), while (1) obeying the governing equations of motion, (2) using the last recorded state vector (position and velocity) of Columbia and, (3) maintaining its parameters within the boundaries of historical data. Figure 6.1 compares the debris location as estimated by DRAMA and, the actual locations of debris recovered from the Columbia accident.

The geographical area on the map covers parts of the states of Texas, Oklahoma, Arkansas and Louisiana. The Loss of Signal<sup>33</sup> (LOS) location  $-99.0413^{\circ}$  E,  $32.956^{\circ}$  N, which we consider as the point of origin for our study, is shown on the map with an aircraft icon. The actual fragments' locations are represented as brown points. The red points however, represent the more than 4,000 mean locations of fragments as estimated by DRAMA. Each of these mean

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<sup>33</sup> The last recorded location of the Space Shuttle

locations is the center of an uncertainty area – represented as a pink circle – indicating that the particular debris could have well fallen anywhere else in the circular region.

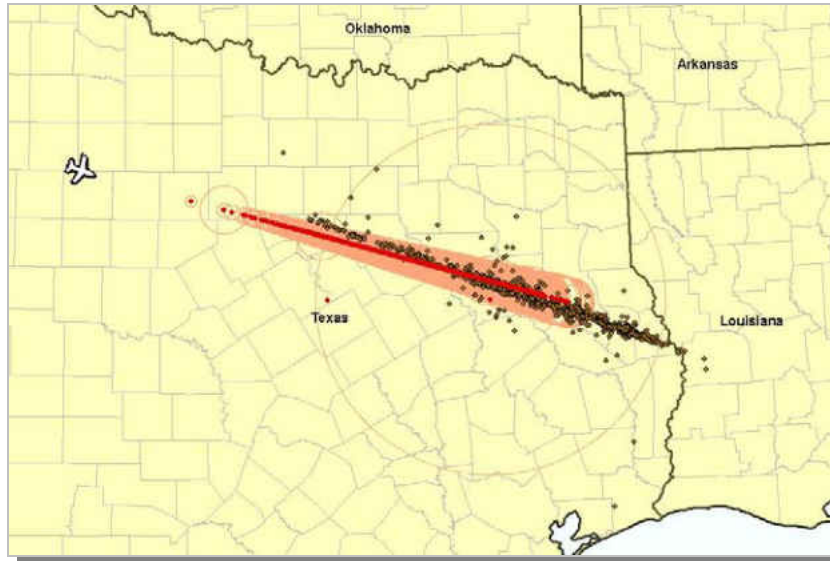


Figure 6.1 Comparison between DRAMA’s outputs and actual locations of debris recovered from Space Shuttle Columbia

Although the pink areas and the Columbia debris do not completely overlap, the overlap is visually around 75% to 80% and, both the crossrange and downrange spreads are very similar to the ones of the recovered debris. In addition, Figure 6.2 shows similarity between DRAMA’s outputs (Figure 6.1) and the CRTF initial fragment trajectories’ estimations (red lines)<sup>34</sup>. Given this output and the lack of additional information, we judged DRAMA to be an acceptable debris model.

<sup>34</sup> Space Shuttle Columbia progressively broke up over a period of approximately 120 seconds. The multiple reference trajectories in CRTF are meant to capture this phenomenon. DRAMA assumes that the complete breakup took place at the original location of LOS.

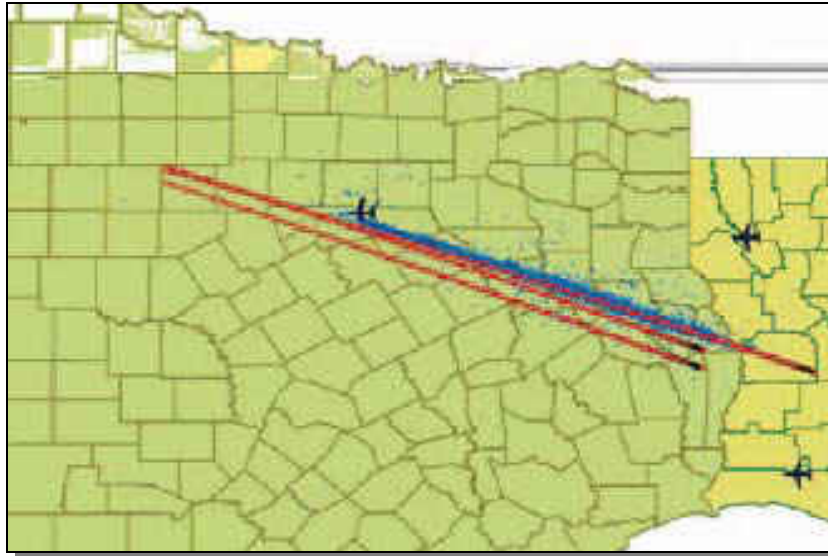


Figure 6.2 CRTF reference trajectories (CAIB Report)

#### 6.1.2 DRAMA: Model Conceptualization

DRAMA was developed in Arena, a discrete-event simulation software package widely used in a variety of industries and, in academia for research and educational purposes. The package was selected for its availability, ease of use and, the Visual Basic for Application editor (VBA) it provides to extend its basic functionalities. Not unlike any other simulation package, an Arena model consists of entities that are first generated, then routed to be processed through a variety of modules and later, disposed of at the end of the model logic.

DRAMA generates two entities: a “time” entity and a “debris group” entity. As its name suggests, the time entity generates the breakup events of the vehicle. From this entity, a pre-

specified number of breakups (1 or more) are simulated, as shown in Figure 6.3. Stochasticity is introduced by modeling the time of breakup as a uniform distribution<sup>35</sup> over a specified range.

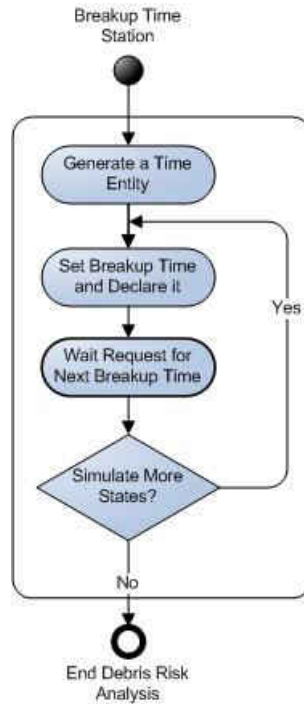


Figure 6.3 DRAMA Breakup Time station

The debris group entity on the other hand is processed through a variety of modules, to account for the uncertainties associated with its trajectory, as identified in CRTF (Section 2.1). This entity is referred to as a debris “group” entity since each entity actually represents a group of debris having similar characteristics (i.e. same ballistic coefficient) to simulate a very large number of fragments (e.g. more than 80,000 fragments of Columbia were recovered). A duplicate of this entity is produced each time the model is ready to simulate a new group. The debris group entity starts from the initial state vector station (Figure 6.4) where the vehicle’s

<sup>35</sup> Each breakup is given the same probability of occurrence as the emphasis of the study is on the effects of each breakup rather than on the probability of occurrence of those breakups.

position and velocity at the specified breakup time are computed from high-order polynomial expressions. Using historical data (Appendix B) from one of three space shuttle missions – STS-114, STS-115 and STS-121 – the DataFit statistical software was used to derive high-order polynomial expressions for the vehicle altitude, downrange, velocity magnitude and direction as a function of time.

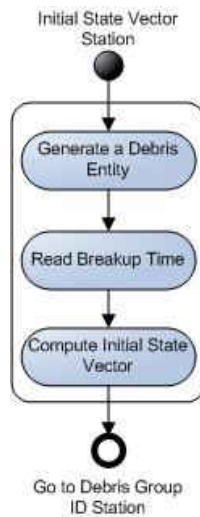


Figure 6.4 DRAMA Initial State Vector Station

The entity is then routed to the Debris Group ID station where its ballistic coefficient is determined from an empirical probability distribution (as obtained from the DRAMA validation stage<sup>36</sup>). As Figure 6.5 shows, this station is also responsible for triggering the simulation of the next debris group by generating a duplicate entity. Once all the debris group have been simulated for a specific breakup time, a request is sent for a new breakup time to be issued if multiple breakups are to be simulated. For our study, we assumed that 80,000 fragments were generated.

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<sup>36</sup> In the absence of additional information, the debris were assumed to have characteristics similar to those of Columbia.

We classified them in 100 groups of equal numbers of fragments. From this point, a nominal trajectory for the debris can be estimated.

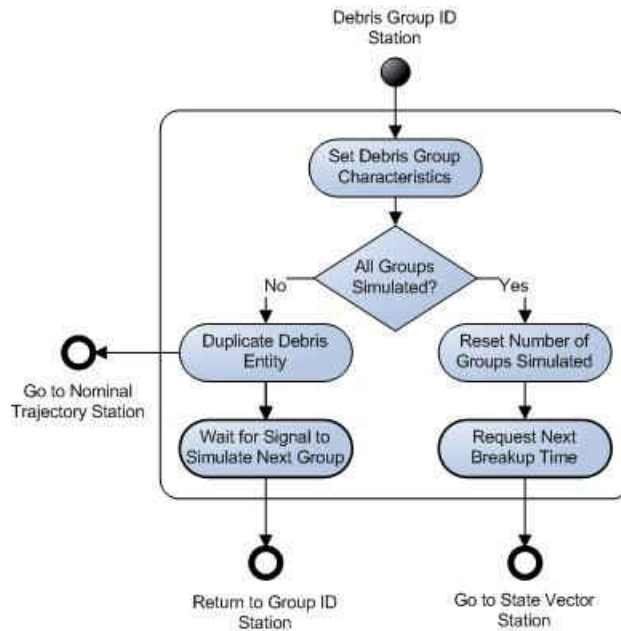


Figure 6.5 DRAMA Debris Group ID Station

#### 6.1.2.1 Nominal Trajectory Computation

In accordance to debris trajectory analysis practices (Baeker, Cavalli, Morris, 2005), the nominal trajectory is computed by taking into account the debris' ballistic coefficient estimated earlier, its lift (assumed via the lift-to-drag ratio parameter), and a nominal wind speed and direction<sup>37</sup>. The wind that a fragment will experience can only be defined statistically in terms of a mean wind and a complex wind covariance matrix (Baeker, Cavalli, Morris, 2005). DRAMA simplifies this approach by considering that the wind remains constant during the flight of the fragment. However, as modeled in CRTF, the wind effect is computed once the fragment has reached terminal velocity (no vertical acceleration). The fragment then moves laterally at the

<sup>37</sup> We assume the nominal wind is in the same direction of the vehicle flight path

velocity of the wind and vertically at terminal velocity. The sample outputs from DRAMA in Figure 6.6 illustrate the effects of lift and wind on the fragment's trajectory.

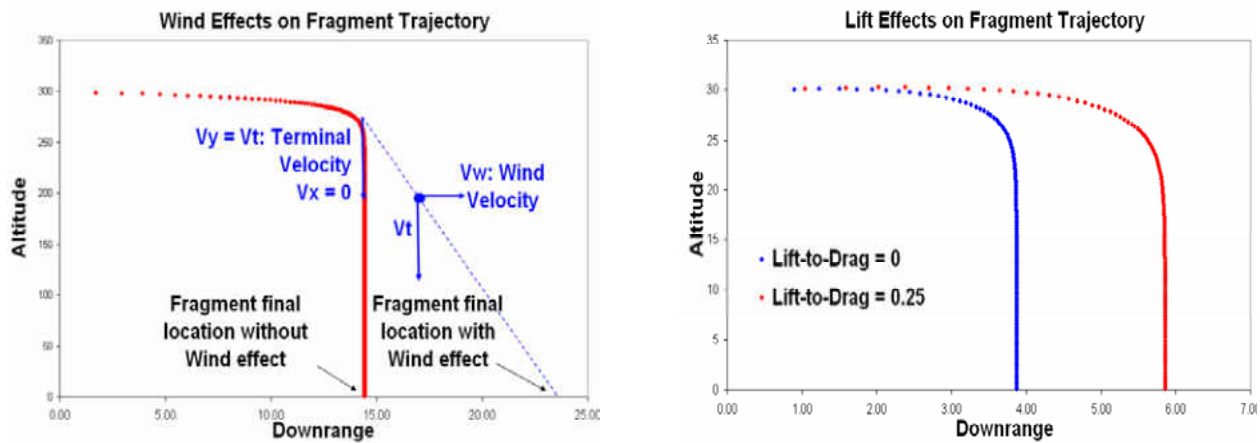


Figure 6.6 Illustration: Physics of debris trajectory<sup>38</sup>

### 6.1.2.2 Uncertainty Analysis

Once the nominal trajectory has been computed, and the nominal point of impact determined, the entity is routed to the uncertainty station (Figure 6.7) where the effects of the sources of uncertainty affecting the trajectory of the debris are estimated. Five of the six uncertainty sources described in Section 2.1 are accounted for in DRAMA. They are:

- Real time state vector (or Guidance and Performance ) uncertainty
- Fragment initial velocity (or Imparted Velocity) uncertainty
- Drag uncertainty
- Lift uncertainty
- Wind uncertainty

<sup>38</sup> The lift effects and wind effects are shown for two different debris, explaining the different altitudes and downranges.



DRAMA does not account for tumble turn malfunctions as this uncertainty requires extensive and detailed information on the vehicle being modeled. This information could not be obtained. However, DRAMA follows the procedures in the literature (CAIB, 2003, Baeker, Cavalli, Morris, 2005) in estimating the effects of the sources it accounts for. To explain briefly, each factor is allowed to deviate from its nominal value by a certain amount. For instance, for the drag uncertainty, the ballistic coefficient estimated in the Debris Group ID station is treated as the mean of a normal distribution with a standard deviation ( $\sigma$ ) equal to one-third of that mean. Then two impact points on the downrange axis are computed – one corresponding to the mean beta minus 3 sigma and the other, the mean beta plus 3 sigma – to determine a shift in the nominal location found earlier and its associated uncertainty. Lift and wind effects are estimated similarly.

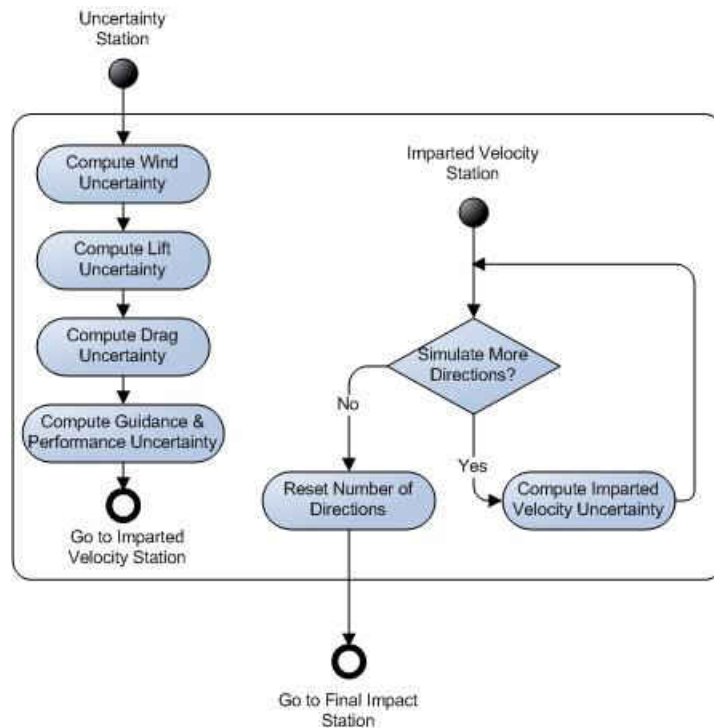


Figure 6.7 DRAMA Uncertainty Station

However, as the vehicle may deviate from its initial trajectory not only in the downrange direction but also, in the crossrange, the real time state vector uncertainty may shift the debris nominal location in both directions. The same applies to the uncertainty due to the velocity imparted to a debris fragment, as this velocity vector can be directed in any direction. We refer the reader to the literature (Baeker, Cavalli, Morris, 2005) for more information.

Upon leaving the uncertainty station, the entity is sent to the final impact station shown in Figure 6.8. Here the different shifts and uncertainties are combined to determine a new mean impact location and its associated uncertainty.

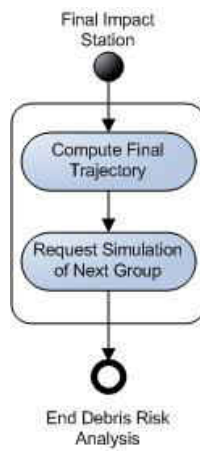


Figure 6.8 Final Impact Station

Figure 6.9 and 6.10 show the 3 sigma debris areas for 3 simulated breakups scenarios from a space shuttle launch out of KSC Launch Pad 39B. As the two maps illustrate, because KSC and its launch pads are located on the coast, most breakups simulated result in debris falling on the ocean, thereby posing limited or no risk to populated areas on land. However, the same may not be said for those spaceports sites located inland (Figure 6.11) which are being proposed by a number of states. Therefore, understanding the implications of locating a spaceport inland is

of critical importance in this study. To address this, the Clinton-Sherman Spaceport of Oklahoma (35.34° N, -99.20° E) located in the Northwest Washita CCD was selected for our experiment. The selection process was facilitated by the fact that as opposed to the other sites, there is already an infrastructure at Clinton-Sherman, making Oklahoma the forerunner among the candidate states.

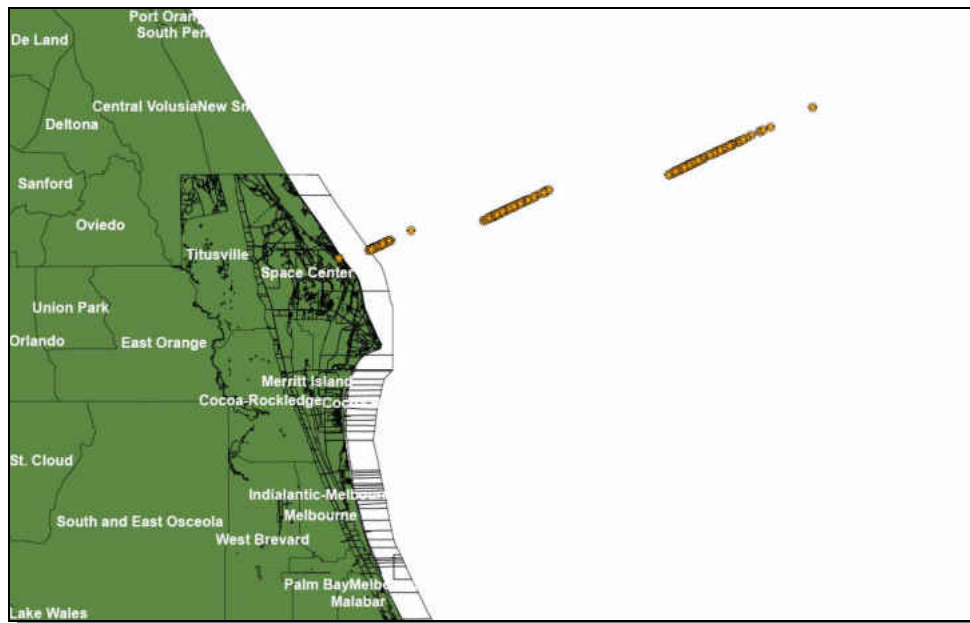


Figure 6.9 Example of debris mean locations three different breakup times from a launch out of KSC

DRAMA was then run to simulate 89 breakup states, each producing a debris field composed of 100 groups, each composed of 800 fragments. The outputs tables can be found in Appendix B. In those tables, the debris coordinates X and Y are referenced to the launch pad. To be displayed on a map, those coordinates must be translated to the proper coordinate system (UTM-14N for Clinton-Sherman spaceport). The map in Figure 6.12 shows the overlapping

debris fields for all the breakup states simulated. The debris impact areas from the different breakup scenarios are the debris hazards' input features for the experiment.

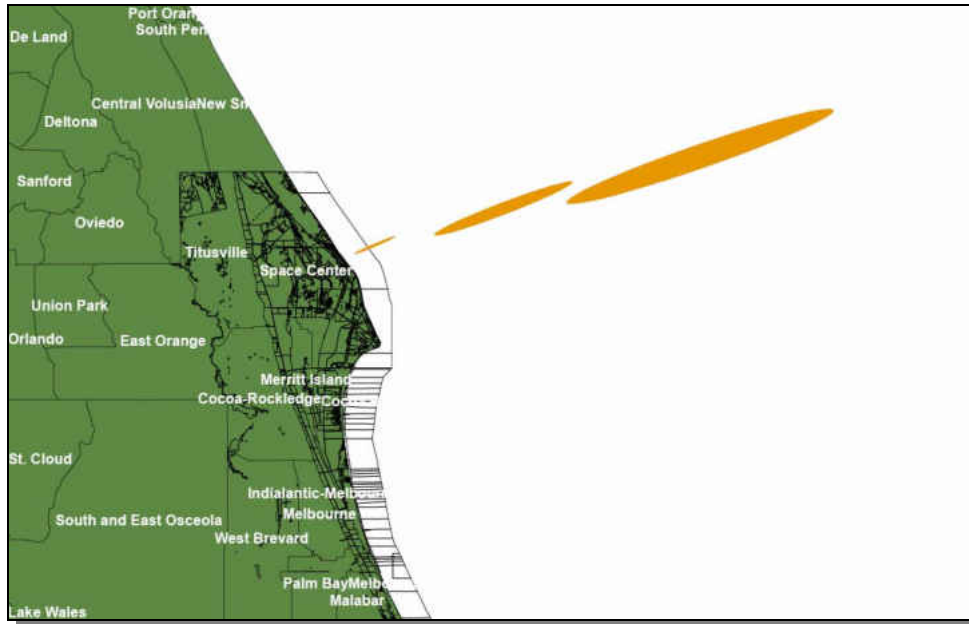


Figure 6.10 Corresponding debris uncertainty areas for the three different breakup times of Figure 6.9.

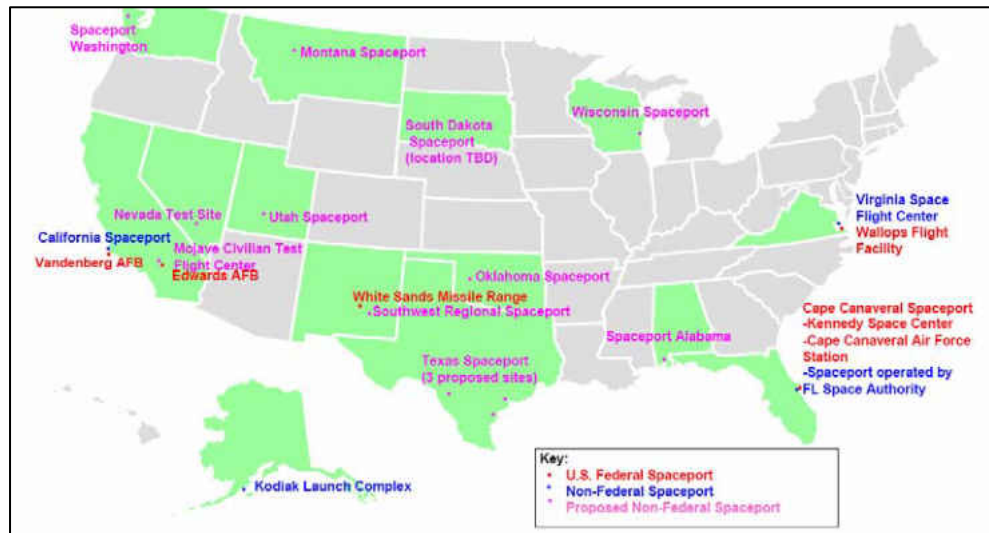


Figure 6.11 Commercial and government active and proposed launch and reentry Sites

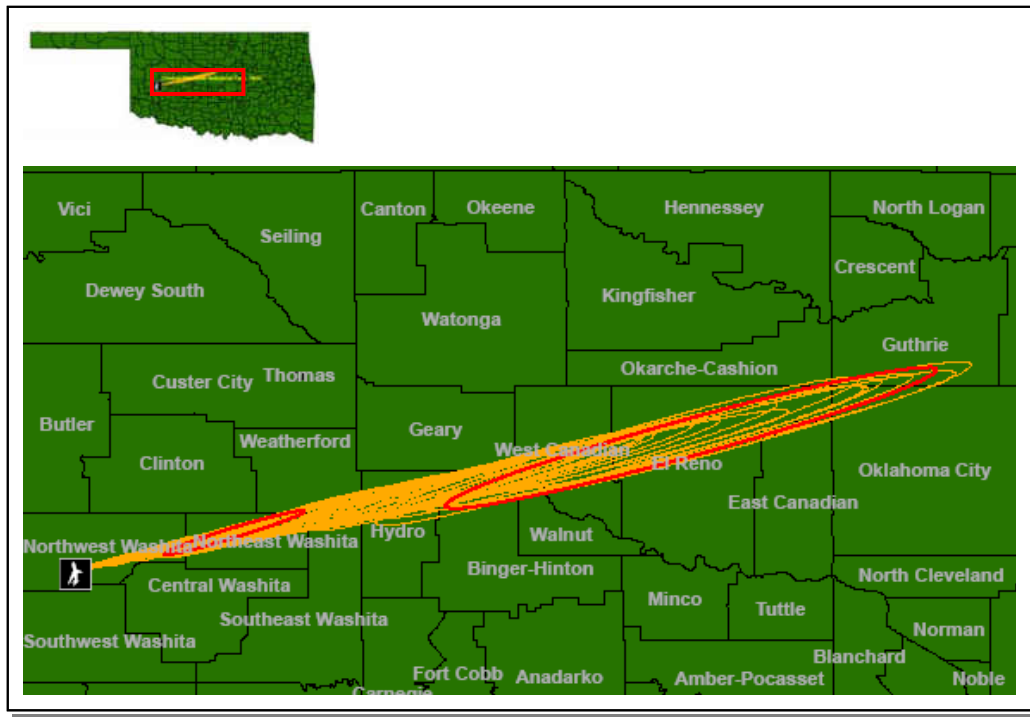


Figure 6.12 Debris impact areas from multiple breakup scenarios in Oklahoma. Two of the scenarios are highlighted in red

## 6.2 Gas Dispersion Data Preparation

We considered three air quality models to determine the dispersion and effects of pollutants released by a space shuttle during its eventual breakup. The first, REEDM was developed early in the space shuttle program for projecting air quality and acid rain out from nominal launches (B. Jeffrey Anderson and Rebecca C. McCaleb, 2004). The next two models, CALPUFF (Section 2.3) and AERMOD are U.S. EPA-recommended state-of-the-art dispersion models for determining compliance with National Ambient Air Quality Standards (NAAQS). In 2004, a comparative study conducted by NASA concluded that CALPUFF was significantly superior to REEDM. The report recommended that REEDM no longer be used for spaceflight

risk analysis as it often considerably underestimates the effects of an accidental release of pollutant into the atmosphere (Anderson and McCaleb, 2004). Since AERMOD is the latest of the two models to be recommended by the EPA (EPA, 2007), we selected it for our work.

### 6.2.1 Preparing Complex Terrain Data

AERMOD is a modeling system designed to calculate air pollutant concentration in all types of terrain, from flat surfaces to complex, mountainous terrains. AERMAP, AERMOD terrain preprocessor processes commercially available digital elevation data from the United States Geological Survey (USGS) and other commercial sites to produce terrain elevation data files used by AERMOD. Using this preprocessor, the user can also specify a layout of receptors. The user may design Cartesian and/or polar grid(s) of receptor networks, or even specify discrete receptor locations for locations that may be of particular interest.

The digital elevation data collected were of type Digital Elevation Model (DEM) 7.5-minutes. A total of 128 DEM files were downloaded, covering an area of approximately 200 kilometers in the east-west direction by 95 kilometers in the north-south direction. The area is shown in Figure 6.13. AERMAP also requires a modeling domain inside the area covered by the DEM files. In UTM-14N coordinates, we specified a domain with the southwest corner at 470,000 E and 3,895,000 N<sup>39</sup>, and the northeast corner of the domain at 660,000 E and 3,965,000 N. The area and domain of study were designed to include the Clinton-Sherman spaceport and at least, all the CCDs affected by the blast and debris hazards.

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<sup>39</sup> E: Easting, N: Northing

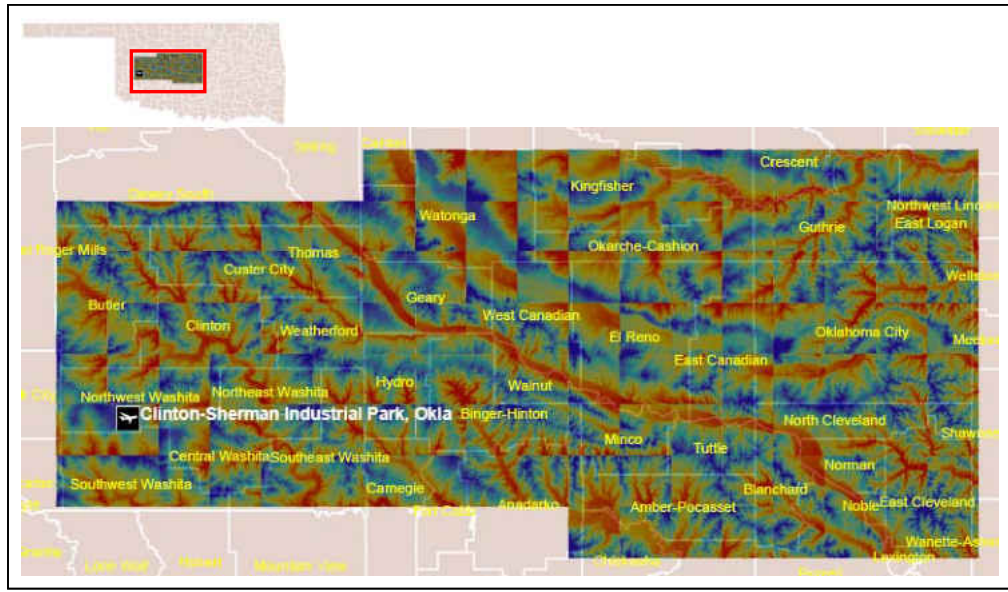


Figure 6.13 Terrain elevations for some of the CCDs of Oklahoma state

We then specified 10 Cartesian grids of receptors, each made of 2,500 receptors spaced at regular intervals of 720 meters in the east-west direction and 680 meters in the north-south direction. Therefore, a total of 25,000 receptors – the maximum currently permissible in AERMAP – were specified for this study. Figure 6.14 below shows the receptors' networks definition section of the input file prepared for AERMAP. For example, the first grid, defined as CART0 starts from 472,000 E and 3,896,000 N. There are 50 receptors in the eastern direction spaced at 720 meters each and, 50 receptors in the northern direction spaced at regular intervals of 680 meters. The input file developed for AERMAP can be found in Appendix C. The AERMAP output file is not included in this document given its size and format (designed to be read by another computer program).

```

RE STARTING
  GRIDCART CART0 STA
    XYINC 472000 50 720 3896000 50 680
  END
  CART1 STA
    XYINC 508000 50 720 3896000 50 680
  END
  CART2 STA
    XYINC 544000 50 720 3896000 50 680
  END
  CART3 STA
    XYINC 580000 50 720 3896000 50 680
  END
  CART4 STA
    XYINC 616000 50 720 3896000 50 680
  END
  CART5 STA
    XYINC 472000 50 720 3930000 50 680
  END
  CART6 STA
    XYINC 508000 50 720 3930000 50 680
  END
  CART7 STA
    XYINC 544000 50 720 3930000 50 680
  END
  CART8 STA
    XYINC 580000 50 720 3930000 50 680
  END
  CART9 STA
    XYINC 616000 50 720 3930000 50 680
  END
RE FINISHED

```

Figure 6.14 Receptors network grids defined in AERMAP Input File

### 6.2.2 Preparing Meteorological Data

The second type of input AERMOD needs is meteorological data. Using observations data from the National Weather Services (NWS), the meteorological processor AERMET produces two files for AERMOD: a file of hourly boundary layer parameter estimates and a file of multiple-level observations of wind speed and direction, temperature, and standard deviation of the fluctuating components of the wind.



An AERMET input file requires at least two types of data, which are first extracted and then assessed for quality: Hourly surface observations and twice-daily upper air soundings. On-site measurement data, such as from an instrumented tower can also be processed if necessary. Figure 6.15 shows the processes AERMET performs to produce the necessary input files needed by AERMOD.

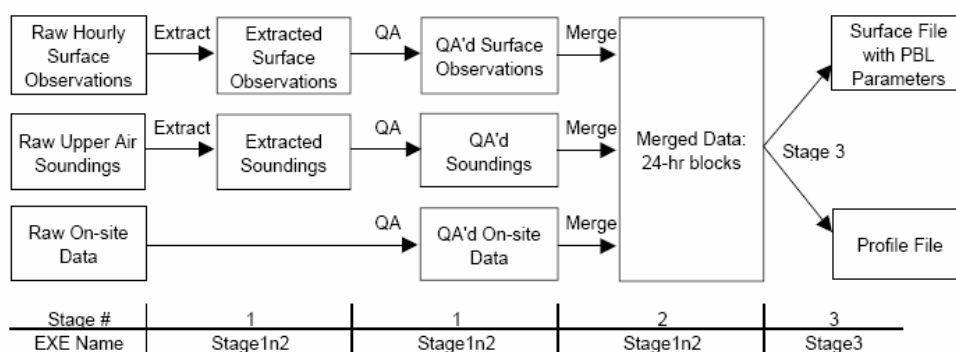


Figure 6.15 AERMET processing (EPA, 2007)

For our experiment, we collected both types of data from the *Will Rogers World Airport* station in Oklahoma City (station #13967), located in polar coordinates at latitude 35.389° N and longitude 97.600° W (Webmet, 2007). Each of the two data types comes in a variety of formats. We collected data for the year 1989 (the latest available dataset for hourly data in the area). The hourly surface observations archive dataset was collected in the National Climatic Data Center (NCDC) TD-6201 format (archive file 13967\_89.UA), while the upper air soundings archive dataset was collected in the NCDC's SAMSON format (archive file 13967\_89.SAM). Although both datasets are available for a full calendar year, the user may request AERMET to extract and assess the quality for a specific range of dates only, within that year. The parameter "XDATES" in our AERMET input file shown Figure 6.16 shows that both datasets were extracted and

checked for the entire year 1989. This allowed for any of the days of 1989 to be considered for the experiment.

JOB	
REPORT Okla_S1.RPT	<i>Note: File for all messages</i>
MESSAGES Okla_S1.MSG	<i>Note: File for the run summary</i>
UPPERAIR	
DATA 13967_89.UA 6201FB 1	<i>Note: Archive file name</i>
EXTRACT Okla_UA.IQA	<i>Note: File to which the extracted data are written</i>
QAOUT OKla_UA.OQA	<i>Note: File for output from the Quality Assessment</i>
XDATES 89/1/1 TO 89/12/31	<i>Note: Data to extract from file</i>
LOCATION 00013967 97.60W 35.389N 6	<i>Note: Station Identifier</i>
AUDIT UATT UAWS UALR	<i>Note: Upper Air Variables for Quality Assessment</i>
SURFACE	
DATA 13967_89.SAM SAMSON 1	<i>Note: Archive file name</i>
EXTRACT Okla_SF.IQA	<i>Note: File to which the extracted data are written</i>
QAOUT Okla_SF.OQA	<i>Note: File for output from the Quality Assessment</i>
XDATES 89/1/1 TO 89/12/31	<i>Note: Data to extract from file</i>
LOCATION 13967 97.600W 35.389N 6	<i>Note: Station Identifier</i>

Figure 6.16 AERMET input file for processing NWS hourly surface observations and upper air sounding data

Subsequent steps then included – as shown in Figure 6.15 – (1) merging the hourly surface observations and upper air soundings into a single file and (2) generating the input meteorological files for AERMOD. The 3 AERMET input files (one for each of the 3 processes) and their corresponding report files (.RPT file extension in Figure 6.16) are shown in Appendix C (OKLA\_S1-3 RPT and INP).

### 6.2.3 Developing the AERMOD Input File

The AERMOD input files (one for each scenario) contains all the information pertaining to the experiment to be conducted. The input files, which specify a number of options, can be found in Appendix C. The list below shows the options we selected for our experiment. Each of the AERMOD keywords listed is followed by a brief description. The interested reader may find the complete list in the AERMOD user guide (EPA, 2007):

1. MODELOPT: Used to determine that concentration values are to be collected, that the terrain is complex and that the analysis should follow standard EPA regulatory procedures.
2. AVERTIME: Used to indicate the time period(s) over which average concentration values should be recorded. We use a 4-hour time average.
3. POLLUTID: Used to identify the type of pollutant to be modeled. The major pollutant of concern here is HCl.
4. LOCATION: Used to specify the locations of the sources of pollutant emission. The modeling approach is explained in 6.2.3.1.
5. HOUREMIS: Used to specify hourly emission rates from a separate file. The modeling approach is explained in 6.2.3.2.
6. RE (INCLUDED): Used to specify the receptors grid networks file produced by AERMAP.
7. SURFFILE: Used to specify the input meteorological surface data file produced by AERMET.

8. PROFILE: Used to specify the input meteorological profile data file produced by AERMET.
9. UAIRDATA: Used to specify the station from which the meteorological data was collected.
10. PROFBASE: Used to specify the meteorological station base elevation.
11. STARTEND: Used to specify the start and end dates to be read and processed from the meteorological data files. We simulated a launch on March 15 in the morning (10:00AM). A different date could have been chosen. This particular date was selected since, as the time of our experiment, the next Space Shuttle launch, STS-117, was scheduled for that day in 2007.
12. MAXIFILE: Used to record all instances where a specified concentration threshold value has been exceeded. A number of exposure criteria are available in the literature (Anderson and McCaleb, 2004) and which one is selected depends on how restrictive the criterion should be, given the purpose of the experiment. The National Institute of Occupational Safety and Health (NIOSH)/Occupational Safety and Health Administration (OSHA) uses a dangerous to life and health (IDLH) value of 50 ppm HCl. The American Industrial Hygiene Association (AIHA) Emergency Response Planning Guideline-3 (ERPG-3) uses a level (IDLH level) of 100 ppm. On the other hand, the American Conference of Governmental Industrial Hygienists (ACGIH) use a threshold limit value of 5 ppm. We use a 4-hour average threshold value of 5 ppm (7.46 mg/m<sup>3</sup>) for our experiment.

### 6.2.3.1 Emission Sources Modeling Approach

To run, AERMOD requires the user – through its LOCATION and HOUREMIS parameters – to define one or multiple sources from which the pollutant will be emitted. For a breakup of the Space Shuttle, those sources are the multiple burning solid propellant fragments originating from the two SRBs (Anderson and McCaleb, 2004). Experience with the Challenger accident (NASA, 1986) indicates that burning propellant fragments that fall into the ocean will be quenched by the cooling capability of the water. At KSC, this has the effect of significantly reducing the hazardous effects of toxic gas dispersion beyond 25 seconds after launch, since most the fragments would land in the ocean. However, the Clinton-Sherman spaceport is an inland spaceport, with very few large water surfaces in its surrounding area. Therefore, as the probability of a fragment landing over water is significantly smaller than its probability of landing over land, we make the reasonable assumption that all burning propellant fragments fall on land.

*Assumption on the two SRBs:* Since the SRBs are sufficiently robust to withstand the overpressures generated by a deflagration of the orbiter and external tank, they may continue to fly away from the nominal trajectory until a commanded destruct is given (Anderson and McCaleb, 2004). This has the consequence of producing debris fields which may be remotely located from one another. In this study, we only consider cases where the debris fields produced by the SRBs significantly overlap each other, and treat the effects of the two SRBs as a single unit having twice the capability of a single SRB (propellant mass and number of fragments generated).

*Assumption on size and number of fragments:* Due to the complex phenomenon taking place during a breakup, the number of fragments produced and their sizes cannot be estimated. Historical data (Anderson and McCaleb, 2004) indicates that for a breakup at 15 seconds after launch, the mean fragment size burning surface is around 0.41 m<sup>2</sup>. In the absence of additional information, we used this mean to be the fragment size burning surface, regardless of the breakup scenario. This surface was also assumed to be square, so as to be modeled in AERMOD as an AREA source type having a side length of 0.64 m.

We also made the reasonable assumption that the percentage of all the fragments produced which are also burning propellant is proportional to the volume of the two SRBs with respect to the complete Space Shuttle vehicle (orbiter, external tank and the 2 SRBs). We estimated this proportion to be around 25%. In other words, 25% of all fragments groups produced by DRAMA are considered groups of burning propellant fragments.

We made no assumption on the location of those fragments within the debris fields. The burning fragments groups were selected randomly within each debris field, using a random number table.

#### *6.2.3.2 Modeling Hourly Sources Emission Rates*

In AERMOD, sources emission rates can only be varied in 1-hour increment. If no additional information is specified in the AERMOD input file, then this emission rate is assumed to occur every hour for the length of the experiment, such as pollutant released at a constant rate from a stack. For our study we used, through the HOUREMIS keyword a variable emission rate modeling approach by indicating that the fragments are only burning during the first hour after

the breakup has occurred. Figure 6.17 illustrates the variable emission rate entry in the AERMOD input file. The case shown here is for a breakup occurring 19.21 seconds after launch.

**		1	2	3	4	5	6	7	8	9	<b>10</b>	11	12
*****	FRAG1-FRAG25 HROFDY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>34.504</b>	0.0	0.0
**													
**		13	14	15	16	17	18	19	20	21	22	23	24
*****	FRAG1-FRAG25 HROFDY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 6.17 Definition of sources variable emission rate in an AERMOD input file

Although a 1-hour burn time may be longer than what has been historically observed<sup>40</sup>, the emission rates, which were made to vary by time of breakup, were calculated such that all the propellant contained in the fragment group would take 1 hour to burn. The following example illustrates how the emission rate of 34.504 g/s-m<sup>2</sup> in Figure 6.17 was obtained.

Initial Mass of Propellant in SRBs (M<sub>0</sub>): 1,179,340 kg

Propellant Consumption Rate (q<sub>b</sub>): 8,369 kg/s

Time of Breakup (t): 19.21 seconds

Mass of Propellant at Breakup (M<sub>t</sub>):

$$M_t = M_0 - q_b t = 1,179,340 - 8,369 \times 19.21$$

$$M_t = 1,018,571.51 \text{ kg}$$

Total Mass of Propellant in each Burning Fragment Group (M<sub>G</sub>):

$$M_G = \frac{M_t}{25} = \frac{1,018,571.51 \text{ kg}}{25}$$

$$M_G = 40,742.86 \text{ kg}$$

<sup>40</sup> Fragments provided by the US Air Force (USAF) in a previous study had burn times of less than 15 minutes (Anderson and McCaleb, 2004)

Hourly Emission Rate for Fragment Group ( $e_H$ ):

$$e_H = \frac{40,742.86 \text{ kg}}{3600 \text{ s}} = 11.317 \text{ kg/s}$$

Number of Fragments in Group: 800

Hourly Emission Rate for Fragment Group per Unit Area ( $e_U$ ):

$$e_U = \frac{11317 \text{ g/s}}{(800 \cdot 0.41) \text{ m}^2} = 34.504 \text{ g/s.m}^2$$

The AERMOD outputs files (instances of concentration threshold violations) produced for each of the breakup scenarios simulated can be found in Appendix C. The concentration values in the output files are in micrograms/m<sup>3</sup> (10<sup>-3</sup> mg/m<sup>3</sup>) explaining the large figures. Figure 6.18 shows the map generated from the output files of two breakups simulated at t = +21 seconds and t = +43 seconds. Of the 25,000 receptors placed in the domain of study, only those which have recorded a high concentration value (above the threshold) are displayed.

Since the 10 Cartesian grids were designed such that the discrete receptors would be closely spaced to each other (680 m easting and 720 m northing), thereby providing a realistic picture of the pollutant dispersion, it is reasonable to assume that if the concentration threshold is exceeded at two adjacent receptors, then it is also exceeded in the area between the two receptors. This was accounted for by defining a buffer zone around two such receptors such that the area between them would be covered. This operation was applied only to cases where the receptors were immediately adjacent to each other. Figure 6.19 shows the map with the buffering applied, with the breakups of Figure 6.18 highlighted.



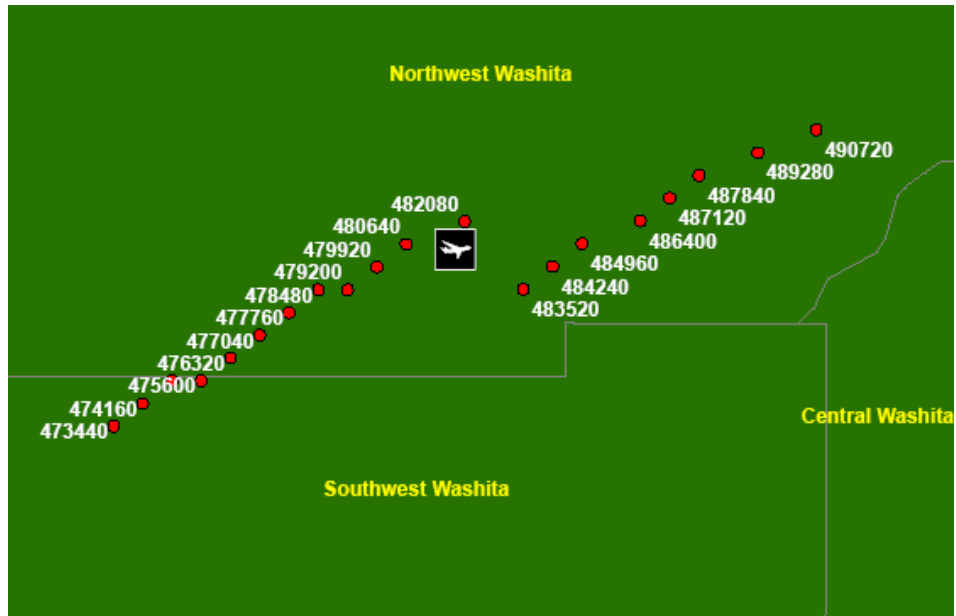


Figure 6.18 Receptors recording a 4-hour average HCl concentration value above the threshold from a breakup at  $t = +21$  seconds and  $t = +43$  seconds.

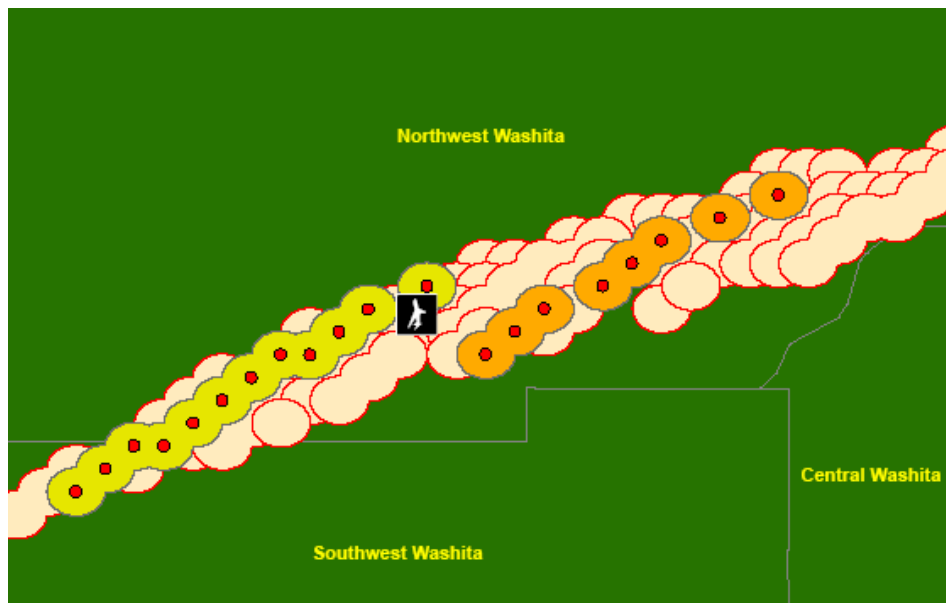


Figure 6.19 Buffering Operation on the Receptors from the Breakup at  $t = +21$  seconds and  $t = +43$  seconds.

The buffering operation allowed for the discrete receptors to be converted into pollutant clouds, thereby forming pollutant high risk areas. Similarly to the overlapping debris fields (Figure 6.12), Figure 6.20 shows the overlapping pollutant clouds for all the breakup scenarios. The HCl clouds from the different breakup scenarios are the gas hazards' input features for the experiment.

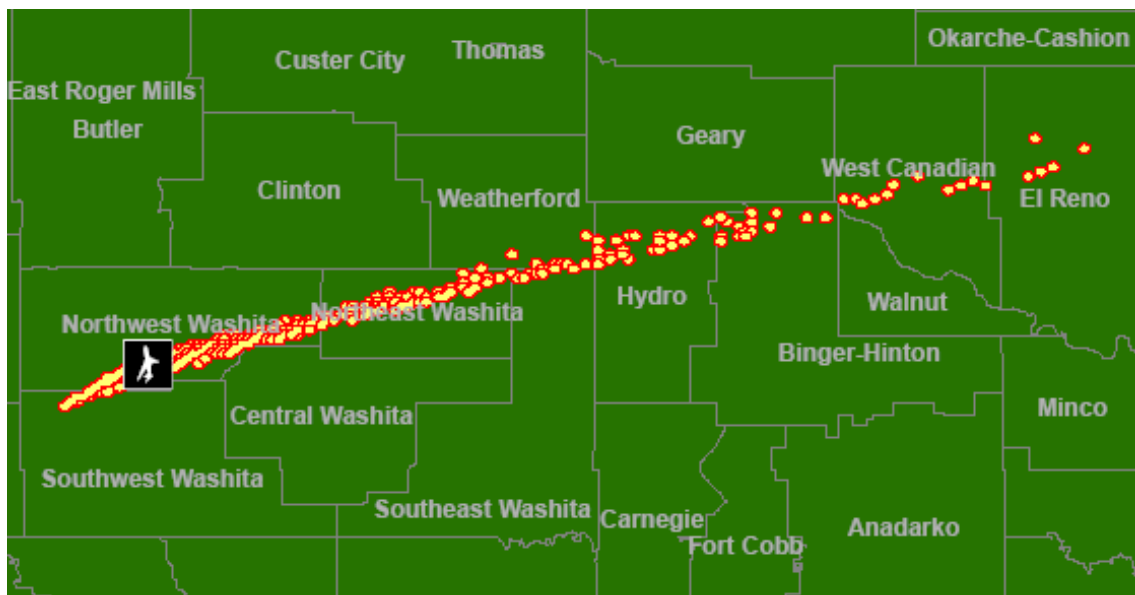


Figure 6.20 Overlapping HCl clouds from multiple breakup scenarios

### 6.3 Blast Dispersion Data Preparation

#### 6.3.1 Developing a Blast Model

Of the nine blast models identified in Section 2.2.4, Blast/FX was the only one we could have access to, due to proprietary privileges. Developed by Northrop Grumman Mission Systems,

Blast/FX was designed to simulate close proximity explosions (less than 600 m) using the TNT equivalency method of blast overpressure prediction (Section 2.2.1). Blast/FX strength resides in its ability to simulate effects on people inside single or multistory buildings. However, Blast/FX could not be used since its modeling environment – a square with a maximum side length of 600 m – is significantly less than the geographical domain under study (200 kms by 95 kms).

Using the TNT equivalency method, we developed a simple Blast Risk Assessment Model in ARENA (BRAMA). The model implements the cube root scaling law (Section 2.2.1.1) to determine the radius of the blast for a given peak overpressure. Since Figure 2.4 indicates eardrum rupture as the first type of damage an individual may experience if too close to an explosion, we used the overpressure at which this phenomenon occurs as the threshold value for our study. This value is around 10 kPa, corresponding to a scaled distance  $Z$  of approximately  $9 \text{ m/kg}^{1/3}$ .

After the liquid propellant remaining at the time of breakup has been converted to its TNT equivalent, BRAMA uses the cube root scaling law to find the radius of the blast sphere within which the overpressure is equal or greater than 10 kPa. This radius is then compared to the altitude of the vehicle at the time of breakup. If the blast radius is greater than the altitude, then the blast reaches the ground and the circular area representing the intersection between the blast sphere and the ground is calculated. Figure 6.21 is a graphical representation of the logic.

Figure 6.22 shows how the ground blast radius changes according to the breakup time. It indicates that from around 12 seconds after launch, the blast is no longer a hazard to the population on the ground. BRAMA's outputs, corresponding to the breakup times used in the

debris and gas analysis, can be found in Appendix D. Figure 6.23 shows a map of the non-concentric blast areas from the blast analysis.

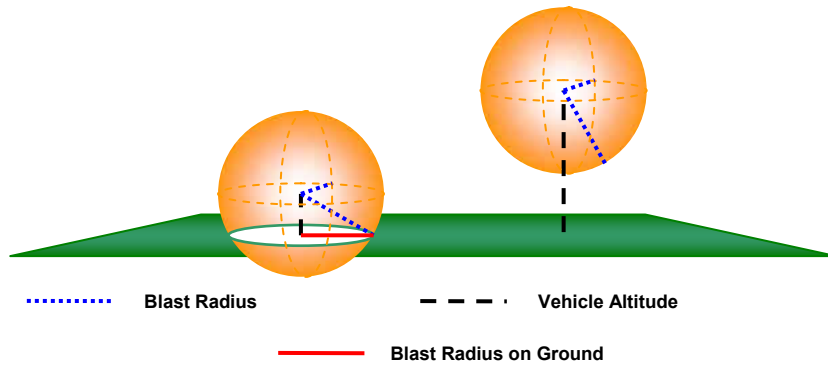


Figure 6.21 Estimation of the overpressure blast radius on the ground

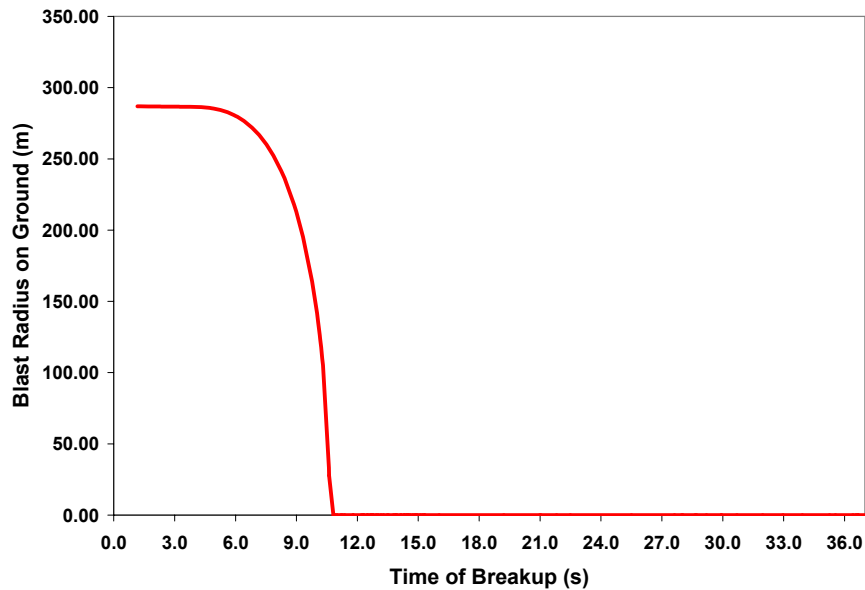


Figure 6.22 Ground blast radius versus time of breakup

When comparing the impact areas generated by the three hazards, the gas dispersion and the debris fragmentation have significantly larger effects than the propagation of blast. While the

overall areas of influence from the gas dispersion and, the debris fragmentation may span several CCDs, the effect of blast is limited to a small area inside Northwest Washita, the CCD in which the spaceport is located.

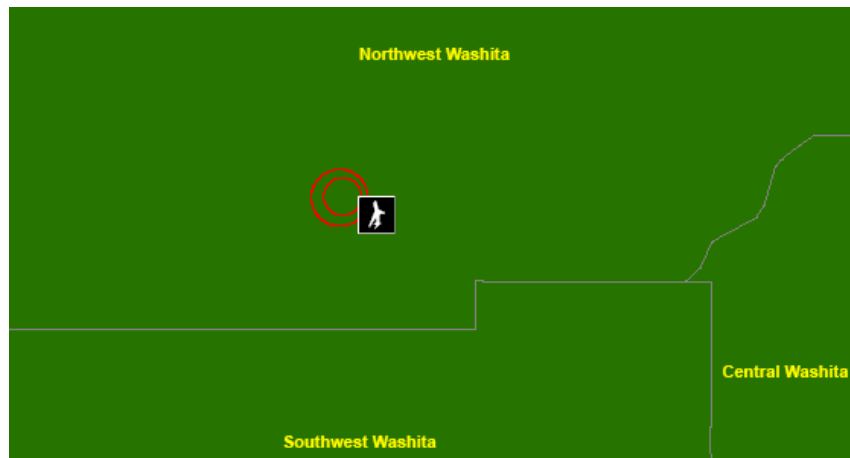


Figure 6.23 Blast areas from Space Shuttle breakups less than 12 seconds after launch

It should be mentioned that even if the SRBs were assumed to be contributing to the blast strength by exploding with the external tank and the orbiter (i.e. if we added the solid propellant as well), although the maximum blast radius would have increased (from around 290 m to around 990 m), the blast impact would have remained significantly small compared to the other two hazards. On the other hand, we did not model secondary blast effects that may result from high velocity impacts of fragments with the ground. Refining the blast modeling by accounting for those secondary effects may alter the outcome of a particular breakup. However, given that the fragments are generally small (mean of  $0.41 \text{ m}^2$ ) and, that most of them are inert (75% of the fragments are assumed not to contain any propellant) it is highly unlikely that the basic conclusion stated earlier would have been altered.

The modeling and description of the features produced by the three hazards (blast waves, gas clouds and debris impact areas) reveal that the areas being impacted by them are not congruent, with degrees of overlaps which are highly irregular, as shown in Figures 6.24 and 6.25. Furthermore, while the gas clouds and the blast waves are continuous features over their impact areas, the same cannot be said about the discrete pieces of debris. In Chapter 7, we show that those complexities and, the uncertainties associated with them can be captured in the fusion methodology described in Chapter 4 to generate an informative, although not overly conservative picture of the combined risk generated by those hazards.

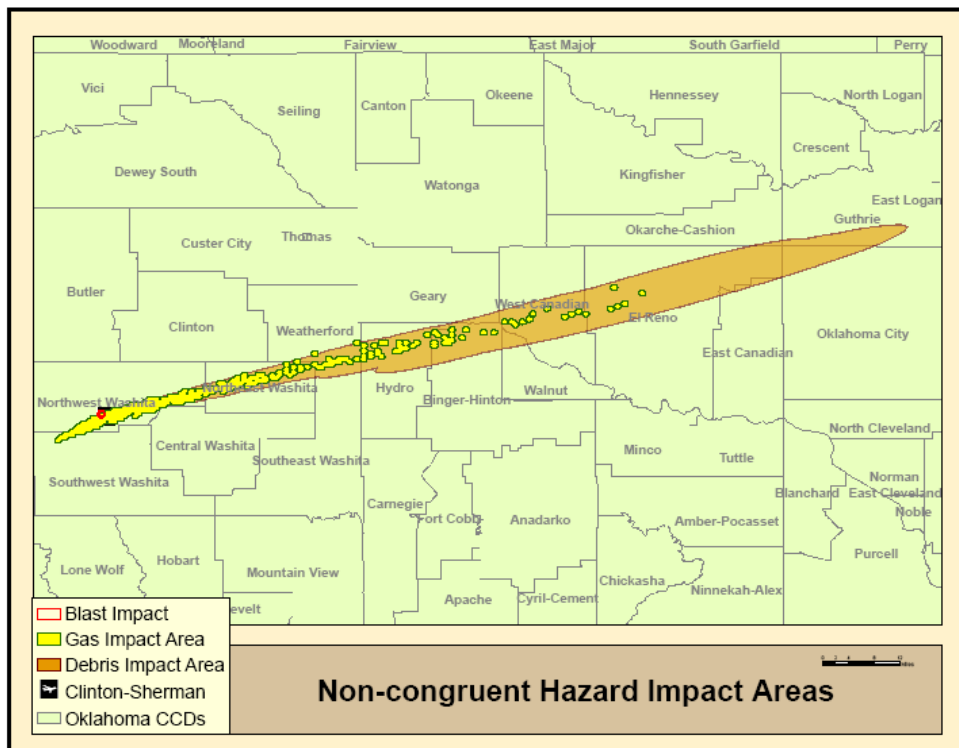


Figure 6.24 Debris, gas and blast non-congruent impact areas for all breakup scenarios simulated

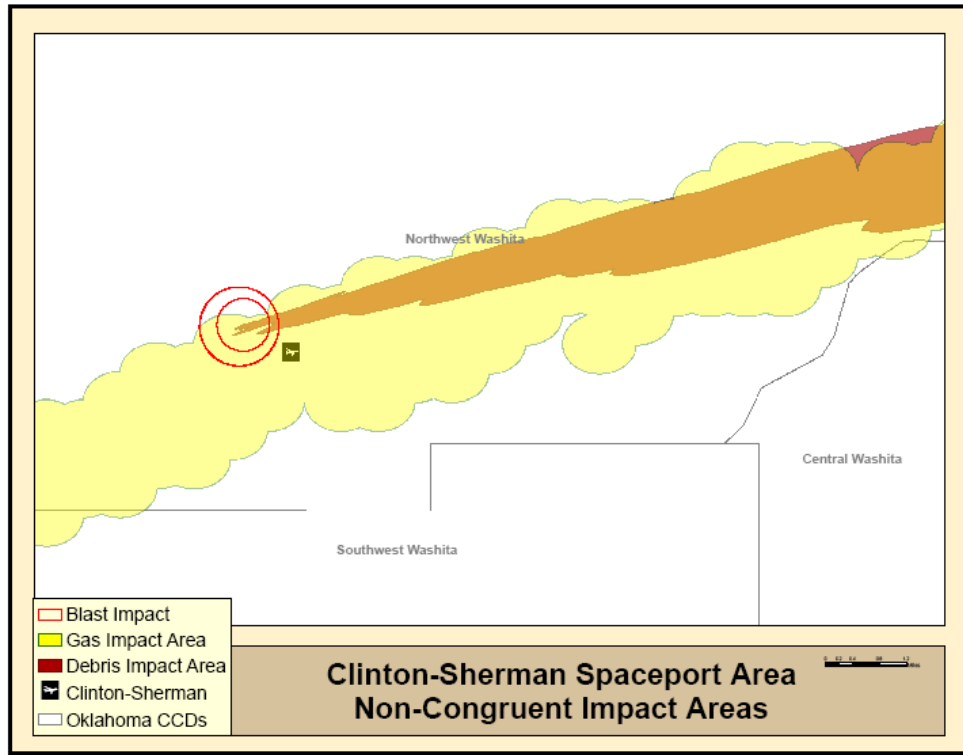


Figure 6.25 Close-up on impact areas for the 3 hazards around Clinton-Sherman airport

## CHAPTER 7      EXPERIMENT: SETUP AND ANALYSIS

The three types of features developed in Chapter 6 should be used in conjunction with population distribution data to generate the empirical probability distributions of casualties necessary to perform the fusion. We use the LandScan™ 2005 dataset, the most recent worldwide population database, developed by Oak Ridge National Laboratory (ORNL). Released in October 2006, LandScan™ 2005 is a population database compiled on a 30" X 30" latitude/longitude grid which includes the best available census counts at sub-national levels for each country. The census counts are allocated to rural and urban population distributions based on likelihood coefficients, which are calculated from factors such as proximity to roads, slope, land cover and, nighttime lights. Figure 7.1 shows the North America portion of the dataset.

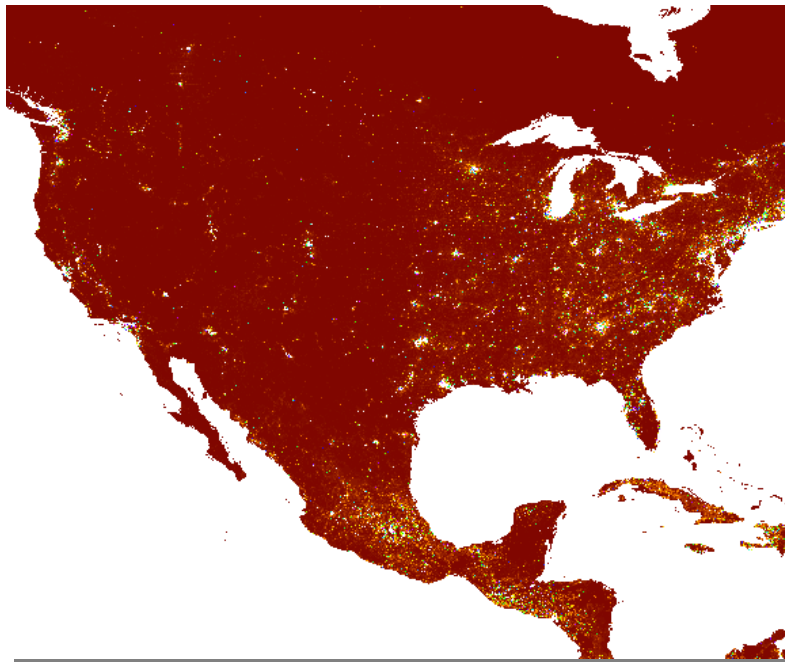


Figure 7.1 North America ambient population, 2005 (LandScan™ 2005)



We first describe how the different empirical probability distributions of casualties were generated, and then analyze and discuss the experiment results.

## 7.1 Debris Casualties' Probability Distributions

### 7.1.1 Using a Poisson Process Modeling Approach

Although debris impact areas were developed in the previous chapter, the features involved in the debris analysis – the debris themselves – are discrete. It is therefore unreasonable to assume that everyone inside a given debris area – a person exposed – is automatically a casualty. The Columbia accident attests of this fact. Although more than 80,000 pieces of debris fell over more than 10 counties, resulting in a large number of people exposed, there was no casualty reported. Therefore, we propose the following approach to estimating the number of debris casualties.

Consider a small area such that it is either occupied by one person, or it is empty. For our experiment, this area is set to a realistic  $A_S = 1 \text{ m}^2$ . In other words, no hugging is allowed. Then, the series of trials: {Checking whether or not one was hit by a fragment<sup>41</sup>} are Bernoulli trials because:

1. There are only two possible outcomes for each trial: A person is either hit by a fragment (is a casualty) or is not.
2. The outcomes from the different trials are independent: Whether a person was hit by a fragment gives no indication as to whether the next person to be visited was also hit.

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<sup>41</sup> Understanding that some of those people may no longer be alive!

3. The probability of success is the same for each trial: Considering a success as having been hit by a fragment, we consider each person in the area of impact to have the same probability of being hit.
4. There is a fixed number of Bernoulli trials conducted: The number of trials corresponds to the population inside the debris area (the population being exposed).

Therefore, we proceed as follows:

Consider an area of interest  $A$  (the debris impact area in  $m^2$ ), where there are  $n$  people and where  $f$  fragments fall. If we define the following events:

$E_1$ : {a person is in a given small area,  $A_S$ }

$E_2$ : {a fragment falls in a given small area,  $A_S$ }

$E_3$ : {a person is hit by a fragment}

Then

$$\begin{aligned}
 \text{prob}(E_1) &= \frac{\text{population in area}}{\text{number of small areas}} = \frac{n}{\binom{A}{A_S}} = \frac{n}{A} \quad (A_S = 1 m^2) \\
 \text{prob}(E_2) &= \frac{\text{fragments in area}}{\text{number of small areas}} = \frac{f}{\binom{A}{A_S}} = \frac{f}{A} \quad (A_S = 1 m^2) \\
 \text{prob}(E_3) &= \text{prob}(E_1 \cap E_2) = \text{prob}(E_1) \times \text{prob}(E_2) = \frac{nf}{A^2}
 \end{aligned} \tag{7.1}$$

Let  $X$  be the random variable that equals the number of successes (number of persons hit by fragments) in  $n$  trials. Then  $x = 0, 1, 2, \dots, m$   $m \leq n$  and the probability distribution of  $X$  is binomial

$$b(x; n, p) = \binom{n}{x} p^x (1-p)^{n-x} \tag{7.2}$$

Where  $p$  is the probability of event  $E_3$ . We first applied this approach to the Columbia accident to verify that its prediction is what was actually observed (no casualty reported).

#### 7.1.1.1 Probability of Observing a Casualty from the Columbia Accident

For the Columbia accident, the parameters defined above take on the following values:

$$A = 69,315,861,959.00 \text{ m}^2, A_S = 1 \text{ m}^2, n = 1,575,966, f = 84,900^{42}$$

Therefore

$$\begin{aligned} \text{prob}(E_1) &= \frac{n}{A} = \frac{1,575,966}{69,315,861,959.00} = 2.2736 \times 10^{-5} \\ \text{prob}(E_2) &= \frac{f}{A} = \frac{84,900}{69,315,861,959.00} = 1.2248 \times 10^{-6} \\ \text{prob}(E_3) &= \frac{nf}{A^2} = \frac{1,575,966 \times 84,900}{(69,315,861,959.00)^2} = 2.784 \times 10^{-11} \end{aligned}$$

We are interested in the probability that at least one person exposed would have been hit, i.e.  $\text{prob}(X > 1)$ . Since  $p = 2.784 \times 10^{-11}$  is less than 0.05 and  $n$  is greater than 20, we use the Poisson approximation to the binomial where the mean  $\lambda = np = 4.388 \times 10^{-5}$ .

We therefore have

$$\begin{aligned} \text{prob}(X > 1) &= 1 - \text{prob}(X = 0) \\ \text{prob}(X > 1) &= 1 - \frac{\lambda^0 e^{-\lambda}}{0!} = 1 - e^{-4.3887 \times 10^{-5}} = 4.38861 \times 10^{-5} \end{aligned}$$

Since the Poisson approach determined that the probability that at least one person exposed would have been a casualty was less than 0.00005% (i.e. it was highly unlikely that a

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<sup>42</sup> This is the number of fragment that were recovered from Columbia during the search effort immediately following the accident.

person would have been hit by a fragment), it agrees with what was observed. We therefore used this approach for the debris analysis. Both the Poisson and the normal approximations to the binomial were used throughout the debris analysis. Table 7.1 lists the conditions under which either one of the two approximations should be used.

Table 7.1 Approximation schemes

Poisson Approximation	Normal Approximation
$n \geq 20$ and $p \leq 0.05$ Or $n \geq 100$ and $np \leq 10$	$np \geq 15$ and $n(1-p) \geq 15$

### 7.1.2 Developing Debris Casualties Probability Distributions

Since, as opposed to the Columbia accident, our study involves multiple breakup scenarios simulated, the probability of observing a success (a specified number of casualties) is the average of the probabilities of observing that success in each breakup. For example, suppose there are only 2 breakup scenarios possible for a launch, and each of the breakups has a 50% probability of occurring (i.e. the vehicle is certain to break). If  $prob(X > 3) = 0.7$  for *Breakup 1* and 0.6 for *Breakup 2*, then the probability of observing more than 3 casualties for that launch is  $prob(X > 3) = (0.6+0.7)/2 = 0.65$ . This is the case since, although multiple breakups are simulated only one breakup can actually occur per launch.

The map of Figure 7.2 shows the map of Figure 6.12 with the population layer added. Therefore, it contains three layers: the CCDs layer, the LandScan population layer and, the layer

of the debris fields of all the breakup scenarios simulated. A close-up around Hydro and Binger-Hinton (Figure 7.3) reveal the degree of overlap between the debris fields. In GIS terms, those fields are shapes of type polygon. To generate a probability distribution of casualties, one must first determine the number of people exposed in each of these polygons. The Zonal Statistics tool from the ArcGIS extension Spatial Analyst was developed for this purpose. It calculates statistics on values of a raster<sup>43</sup> within the zones of another dataset. Each debris field polygon was modeled as one zone.

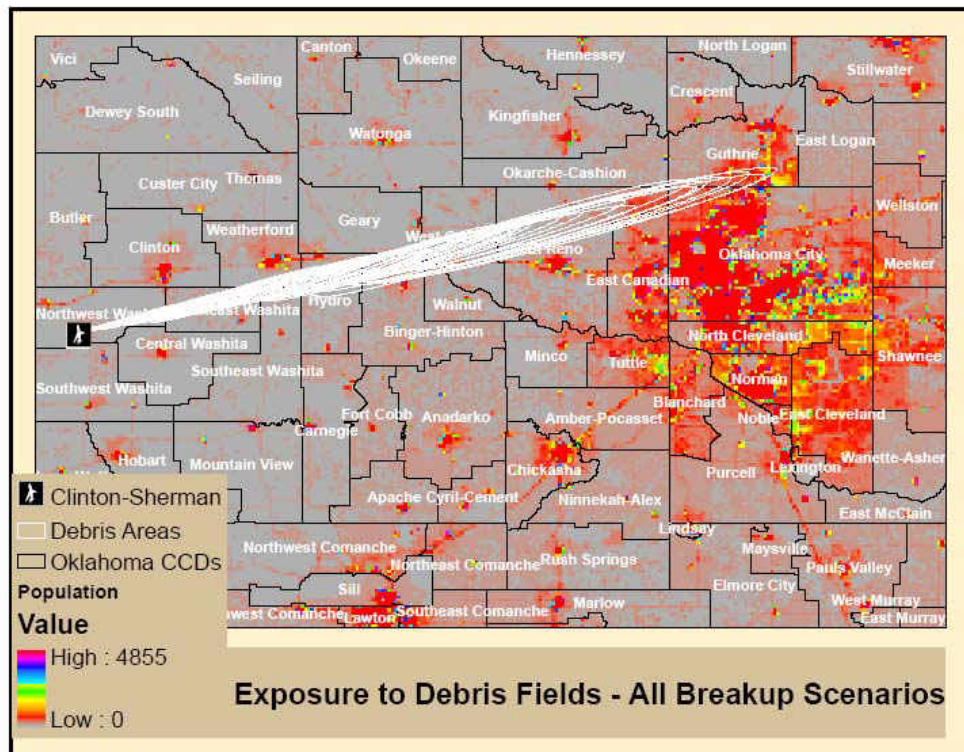


Figure 7.2 Oklahoma population distribution and exposure to debris fields for all breakup scenarios

<sup>43</sup> The LandScan™ 2005 population dataset is a raster dataset.

However, this tool<sup>44</sup> can only work if the polygons are not overlapping. Therefore, we used instead Zonal Statistics++, one of Hawth's Analysis tools (Hawths Analysis Tools, 2006<sup>45</sup>), developed specifically to overcome this problem. The frequency distribution of the number of people exposed across the 89 debris fields, which is the frequency distribution of the parameter  $n$ , is shown in Figure 7.4. Figure 7.5 shows the frequency distribution  $A$ , the debris impact areas.

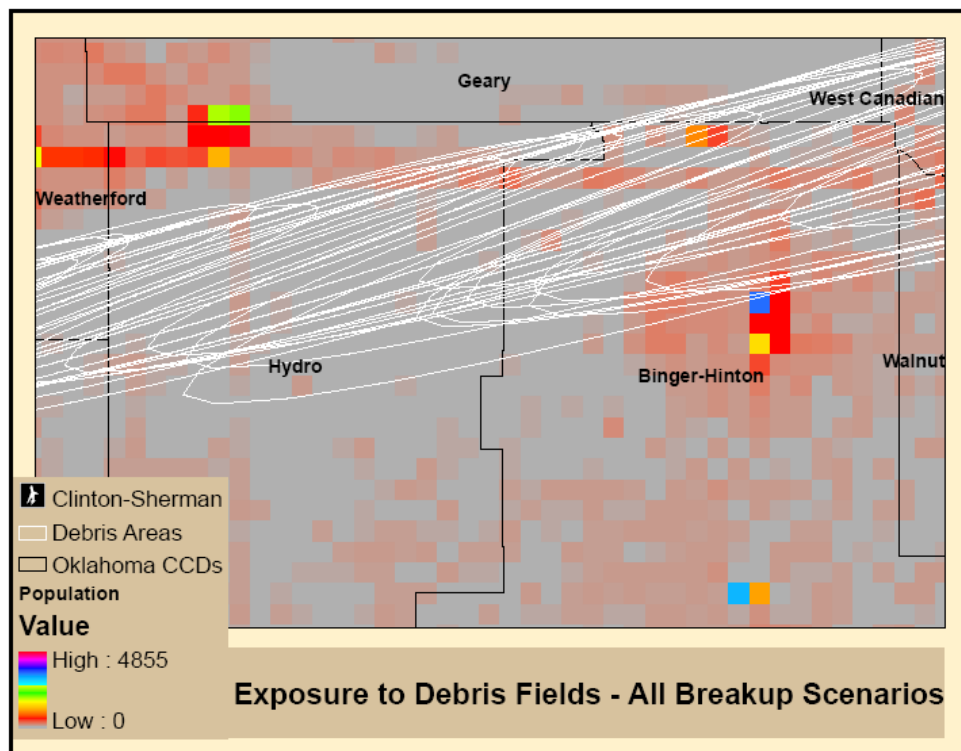


Figure 7.3 Close-up on overlapping debris fields and Oklahoma population distribution

<sup>44</sup> In ArcGIS 9.1.

<sup>45</sup> <http://www.spatial ecology.com/htools/tool desc.php>

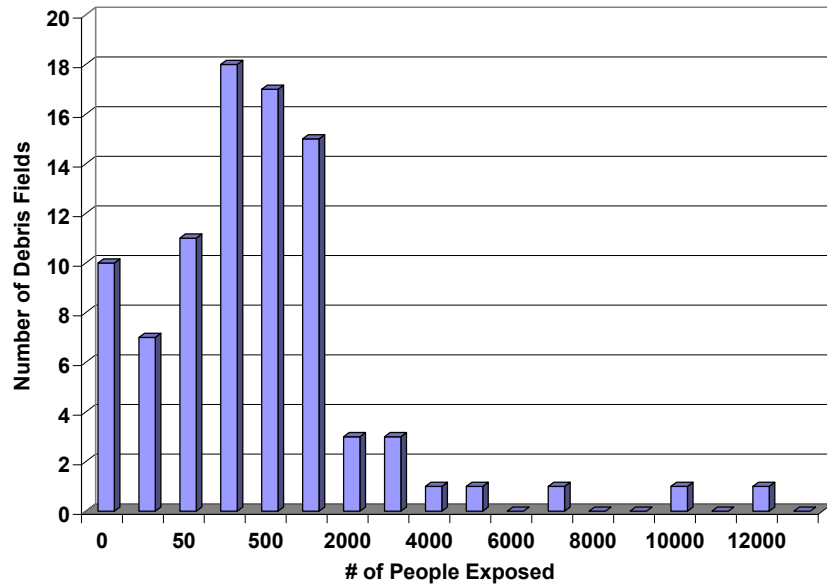


Figure 7.4 Frequency distribution of number of people exposed to debris fields – Distribution of  $n$

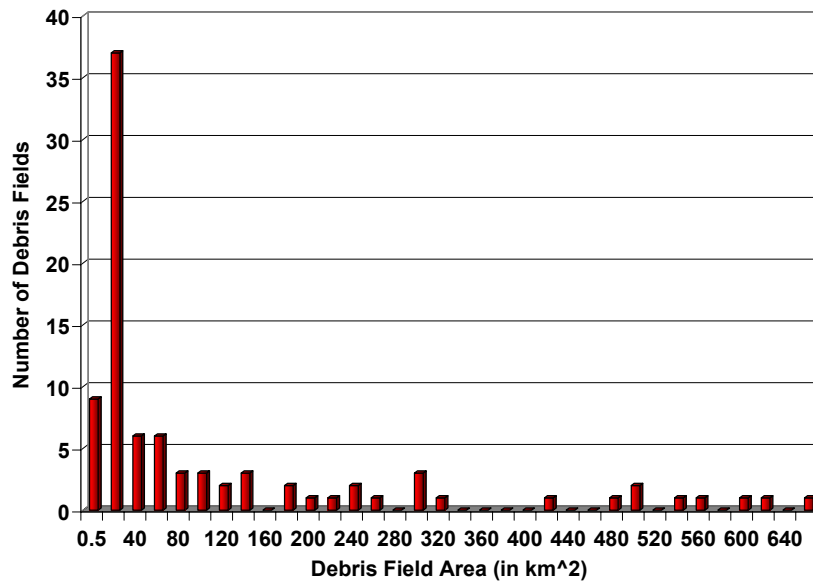


Figure 7.5 Frequency distribution of debris impact areas (in square kilometers) – Distribution of  $A$

We then set  $X$ , the random variable of the number of casualties among the people exposed to take on the following values:  $x = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 40, 100, 500$ . The resulting probability distribution is shown in table 7.2.

Table 7.2 Probability distribution of debris casualties

$X$		Probability
$\geq$	$<$	
0	1	9.9367E-01
1	2	6.1619E-03
2	3	1.6119E-04
3	4	3.3407E-06
4	5	5.6920E-08
5	6	8.2814E-10
6	7	1.0521E-11
7	8	1.1836E-13
8	9	1.1227E-15
9	10	0.0000E+00
10	20	0.0000E+00
20	40	0.0000E+00
40	100	0.0000E+00
100	500	0.0000E+00
500	>500	0.0000E+00

## 7.2 Gas and Blast Casualties' Probability Distributions

As opposed to the dispersion of pieces of debris which is discrete, the dispersion of a gas is continuous over its area of impact. This is also the case with the blast wave. In other words, anyone exposed to (anyone inside the areas of impact of) those hazards is experiencing a pollutant concentration (for the case of gas) and/or a blast overpressure (for the case of blast) which are/is above the threshold(s) value(s) specified in Chapter 6. Therefore, anyone exposed to one or both of those hazards is a casualty. As for the debris case Zonal Statistics++ was used here. The number of casualties per breakup scenario was then summarized in the distribution



shown in Table 7.3 (for gas) and 7.4 (for blast). Those distributions are the three hazard inputs to the fusion scheme.

Table 7.3 Probability distribution of gas casualties

$X$		Probability
$\geq$	$<$	
0	1	0.22727
1	10	0.17045
10	50	0.22727
50	100	0.05682
100	200	0.09091
200	500	0.04545
500	800	0.10227
800	1100	0.01136
1100	1300	0.06818

Table 7.4 Probability distribution of blast casualties

$X$		Probability
$\geq$	$<$	
0	1	0.96591
1	10	0.01136
10	20	0.02273

### 7.3 Experiment Objectives

The types of tests conducted for the experiment were aimed at answering critical questions pertaining to the necessity of adopting a fusion based-approach to assessing and analyzing the risk generated by the operation of space launch vehicles, as they go to or return from space. From this point, we will refer to the unknown dependency fusion, described in Chapter 4, simply as fusion. The fusion made under the assumption of independence is now

referred to as independent. Listed below are the questions which motivated the design of our tests:

1. Is there a significant difference between the risk predicted by Fusion and the one predicted by Independent?
2. If yes, what is the nature of that difference? Does either one of the two have a tendency to under predict or over predict the risk being assessed?
3. How significant is that difference, if it exists? Is the significance of that difference dependent upon the threshold value on the number of casualties (e.g. observing at least one casualty)?
4. Does Fusion generate additional useful and critical information which cannot be obtained from Independent?

Similarly, when considering the different hazards, but now analyzed separately as in current practices, the following questions should be answered:

5. Are there significant differences between the risk predicted by Fusion and the ones predicted by each hazard?
6. What are the natures of those differences, if they exist? Does either one of the three hazards have a tendency to under predict or over predict the risk being assessed?
7. How significant are those differences, if they exist? Are the significances of those differences dependent upon the threshold value on the number of casualties (e.g. observing at least one casualty, or observing at least 100 casualties)?
8. Does Fusion generate additional useful information which cannot be obtained from any of those hazards?

To answer these questions, we first selected a series of number of casualties' threshold values to compare the risk estimates from each of the different predictors (Fusion, Independent, Debris, Gas and Blast). Those threshold values are:

$$X = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 40, 100, 500, 1000, 2000, 5000\}$$

Then, a series of matched-pairs comparisons which are listed in Tables 7.5, 7.6, 7.7 and, 7.8, were performed. All tests were performed at a level of confidence of 95%. Since the observations used in those tests may not be assumed of having been drawn from normally distributed populations, we used the nonparametric Wilcoxon rank sum test (also known as the Mann-Whitney U test or the Wilcoxon-Mann-Whitney test) to perform the matched-pairs tests.

The first set of tests, 16 in total as listed in Table 7.5, seek to determine if there is a significant difference between the fusion's estimates and the other predictors' estimates of the probability of either exceeding, or not exceeding<sup>46</sup> a particular number of casualties threshold value ( $x$ ). If there are differences, then the remaining tests seek to determine whether any of those predictors has a tendency to over predict, when compared to Fusion. However, as opposed to the Debris, Gas, Blast and, Independent predictors where only a single cumulative distribution function (cdf) is derived, the Fusion derives a family of cdfs, bounded by an upper bound and, a lower bound. Those bounds contain within them every cdf resulting from the fusion of the effects of the three hazards (factors) under consideration in this study.

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<sup>46</sup> Both cases are valid since they do not necessarily complement of each other. While for the Independent and the three hazard cases the probability of not exceeding is the complement of the probability of exceeding, arithmetically this is not the case with Fusion, since fusion has overlapping intervals (Figure 3.2). As a result, one interval may contribute to both cases in Fusion.

Table 7.5 First set of matched-pairs comparisons between predictors

Test #	Predictors	Matched-Pairs Test Type	Test	Observations being Paired	
				Probability of Observing at Least $x$	Probability of Observing Less than $x$
1, 2	Fusion Average ⊕ Independent	Two-Tailed Test	$H_0: \eta_A - \eta_I = 0$ $H_a: \eta_A - \eta_I \neq 0$	Test 1	Test 2
3, 4 <sup>47</sup>	Fusion Average ⊕ Independent	One-Tailed Test	$H_0: \eta_A - \eta_I = 0$ $H_a: \eta_A - \eta_I > 0$	Test 3	Test 4
5, 6	Fusion Average ⊕ Debris	Two-Tailed Test	$H_0: \eta_A - \eta_D = 0$ $H_a: \eta_A - \eta_D \neq 0$	Test 5	Test 6
7, 8	Fusion Average ⊕ Debris	One-Tailed Test	$H_0: \eta_A - \eta_D = 0$ $H_a: \eta_A - \eta_D > 0$	Test 7	Test 8
9, 10	Fusion Average ⊕ Gas	Two-Tailed Test	$H_0: \eta_A - \eta_G = 0$ $H_a: \eta_A - \eta_G \neq 0$	Test 9	Test 10
11, 12 <sup>48</sup>	Fusion Average ⊕ Gas	One-Tailed Test	$H_0: \eta_A - \eta_G = 0$ $H_a: \eta_A - \eta_G > 0$	Test 11	Test 12
13, 14	Fusion Average ⊕ Blast	Two-Tailed Test	$H_0: \eta_A - \eta_B = 0$ $H_a: \eta_A - \eta_B \neq 0$	Test 13	Test 14
15, 16	Fusion Average ⊕ Blast	One-Tailed Test	$H_0: \eta_A - \eta_B = 0$ $H_a: \eta_A - \eta_B > 0$	Test 15	Test 16

Therefore, although we may not know which type of dependencies between those factors being fused would generate a cdf which equals the midpoint between the upper and lower bounds, we may use this average distribution as a representative of the Fusion predictor to perform the comparisons in Table 7.5. This is particularly important when comparing Fusion with Independent. Since Independent is one form of dependency, its shape is necessarily contained within the bounds of the fusion. Therefore, comparing it to either the upper or the lower bound would always produce results which are biased: The outcome would be either that the Independent overpredicts (if compared to the lower bound) or underpredicts (if compared to the upper bound). Using the average distribution removes such bias.

<sup>47</sup> Those tests are not necessary if  $H_0$  can not be rejected in Tests # 1 and 2

<sup>48</sup> Those tests are not necessary if  $H_0$  can not be rejected in Tests # 9 and 10

The second set of tests, 136 in total as listed in Table 7.6, seek to determine whether the significances of the differences identified in the first sets of tests (if any) are dependent upon the threshold values being specified. In other words, these tests seek to determine whether the differences identified earlier remain just as significant regardless of the value of  $x$ . This is important for the following reason:

Suppose that the significance varies from very significant to insignificant, depending on the value of  $x$ . Then, for those values of  $x$  where the difference is insignificant, one may not need being strict about which predictor to use to assess the risk. However, for those values of  $x$  where the difference is very significant, the assessment of the risk will depend on the predictor being used, with potentially devastating consequences if the predictor selected is not the one which should have been selected.

To perform those tests however, Table 7.6 indicates that the observations being paired are the probabilities of observing at least (or less than)  $x$  in each of the CCDs being impacted by the hazards. This is necessary since each test involves comparing two predictors' estimates for a particular value of  $x$ . The p-values from these tests can then be plotted, with the values of  $x$  on the horizontal axis, to help identify any trend (dependency) on  $x$ . Therefore, for each CCD impacted by at least two hazards<sup>49</sup> the steps of Sections 7.1 and 7.2 had to be performed. The casualties' distributions obtained for each CCD are listed in Appendix E. The remaining two sets of tests, each containing 102 tests compare the estimate of each hazard with either the upper bound (Table 7.7) or the lower bound (Table 7.8) of the fusion. The rationale behind those tests follows:

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<sup>49</sup> This is necessary to perform the fusion.

Table 7.6 Second Set of matched-pairs comparisons between predictors – significance of difference as function of threshold value

Test #	Predictors	Matched-Pairs Test Type	Test	Observations being Paired	
				Probability of Observing at Least $x$ in each CCD	Probability of Observing Less than $x$ in each CCD
17 - 50	Fusion Average ⊕ Independent	Two-Tailed Test	$H_0: \eta_A - \eta_I = 0$ $H_a: \eta_A - \eta_I \neq 0$	Tests 17-33	Tests 34-50
51 - 84	Fusion Average ⊕ Debris	Two-Tailed Test	$H_0: \eta_A - \eta_D = 0$ $H_a: \eta_A - \eta_D \neq 0$	Tests 51- 67	Tests 68-84
85 - 118	Fusion Average ⊕ Gas	Two-Tailed Test	$H_0: \eta_A - \eta_G = 0$ $H_a: \eta_A - \eta_G \neq 0$	Tests 85 - 101	Tests 102 - 118
119 - 152	Fusion Average ⊕ Blast	Two-Tailed Test	$H_0: \eta_A - \eta_B = 0$ $H_a: \eta_A - \eta_B \neq 0$	Tests 119 - 135	Tests 136 - 152

#### Rationale for tests of Table 7.7

Suppose the following question is asked: What are the chances that we incur at least a casualty if we launch? The fusion response to this question would take the shape: The probability that we incur at least a casualty is at a minimum Min% but could be as high as Max%. The response from any of the hazards would take the shape: The probability that we incur at least a casualty is P%. Two cases emerge:

1. If P% is greater than the upper bound Max%, then the particular hazard is being over conservative, ignoring the fact that the true probability may be in fact much lower.
2. However, if P% is less than the upper bound Max%, then the particular hazard underestimates the risk of incurring a casualty.

We are interested in seeing whether or not the second case may occur. A decision based on a single hazard in such a case may have devastating consequences, as one would decide on the assumption that the risk is at a particular level while in fact it could be higher. If the second case happens to occur, we also compare the hazard's estimate to the fusion lower bound.

Table 7.7 Third set of matched-pairs comparisons between predictors – observing at least  $x$

Test #	Predictors	Matched-Pairs Test Type	Test	Observations being Paired
One test for each value of $x$				Probability of Observing at Least $x$ in each CCD
153 - 169	Fusion Upper Bound ⊕ Debris	One-Tailed Test	$H_0: \eta_D - \eta_{UB} = 0$ $H_a: \eta_D - \eta_{UB} < 0$	All 17 Tests
170 - 186	Fusion Lower Bound ⊕ Debris	One-Tailed Test	$H_0: \eta_D - \eta_{LB} = 0$ $H_a: \eta_D - \eta_{LB} < 0$	All 17 Tests
187 - 203	Fusion Upper Bound ⊕ Gas	One-Tailed Test	$H_0: \eta_G - \eta_{UB} = 0$ $H_a: \eta_G - \eta_{UB} < 0$	All 17 Tests
204 - 220 <sup>50</sup>	Fusion Lower Bound ⊕ Gas	One-Tailed Test	$H_0: \eta_G - \eta_{LB} = 0$ $H_a: \eta_G - \eta_{LB} < 0$	All 17 Tests
221 - 237	Fusion Upper Bound ⊕ Blast	One-Tailed Test	$H_0: \eta_B - \eta_{UB} = 0$ $H_a: \eta_B - \eta_{UB} < 0$	All 17 Tests
238 - 254	Fusion Lower Bound ⊕ Blast	One-Tailed Test	$H_0: \eta_B - \eta_{LB} = 0$ $H_a: \eta_B - \eta_{LB} < 0$	All 17 Tests

#### Rationale for tests Table 7.8

Suppose the following question is asked: What are the chances that we incur no casualty if we launch? The fusion response to this question would take the shape: The probability that we incur no casualty is at the very least Min% and could be as high as Max%. The response from any of the hazards would take the shape: The probability that we incur no casualty is P%. Two cases emerge:

1. If P% is less than the lower bound Min%, then the particular hazard is being over conservative, ignoring the fact that the true probability may be in fact higher.

<sup>50</sup> Those tests are not necessary if  $H_0$  can not be rejected in Tests # 187 - 203

2. However, if P% is greater than the lower bound Max%, then the particular hazard overestimates the fortune of not incurring a casualty.

Table 7.8 Fourth sets of matched-pairs comparisons between predictors – observing less than x

Test #	Predictors	Matched-Pairs Test Type	Test	Observations being Paired
One test for each value of x				Probability of Observing Less than x in each CCD
255 - 271	Fusion Lower Bound ⊕ Debris	One-Tailed Test	$H_0: \eta_D - \eta_{LB} = 0$ $H_a: \eta_D - \eta_{LB} > 0$	All 17 Tests
272 - 288	Fusion Upper Bound ⊕ Debris	One-Tailed Test	$H_0: \eta_D - \eta_{UB} = 0$ $H_a: \eta_D - \eta_{UB} > 0$	All 17 Tests
289 - 305	Fusion Lower Bound ⊕ Gas	One-Tailed Test	$H_0: \eta_G - \eta_{LB} = 0$ $H_a: \eta_G - \eta_{LB} > 0$	All 17 Tests
306 - 322 <sup>51</sup>	Fusion Upper Bound ⊕ Gas	One-Tailed Test	$H_0: \eta_G - \eta_{UB} = 0$ $H_a: \eta_G - \eta_{UB} > 0$	All 17 Tests
323 - 339	Fusion Lower Bound ⊕ Blast	One-Tailed Test	$H_0: \eta_B - \eta_{LB} = 0$ $H_a: \eta_B - \eta_{LB} > 0$	All 17 Tests
340 - 356	Fusion Upper Bound ⊕ Blast	One-Tailed Test	$H_0: \eta_B - \eta_{UB} = 0$ $H_a: \eta_B - \eta_{UB} > 0$	All 17 Tests

We are interested in seeing whether or not the second case may occur. A decision based on a single hazard in such a case may have devastating consequences, as one would decide on the assumption that the probability of not incurring a casualty is at a particular level while in fact it could be lower. If the second case happens to occur, we also compare the hazard's estimate to the fusion upper bound.

<sup>51</sup> Those tests are not necessary if  $H_0$  can not be rejected in Tests # 289 - 305



## 7.4 Experiment Results

The following tables and figures report the tests results. We analyze and discuss those results in Section 7.5. Figures 7.6, 7.7, 7.8 and 7.9 are graphical representations of the observations used to perform the first set of tests. The tabular forms of those observations can be found in Appendix E.

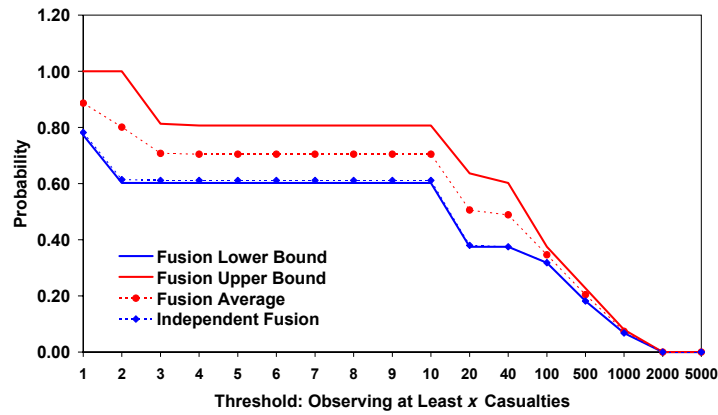


Figure 7.6 Prediction comparison between fusion and independent – observing at least  $x$

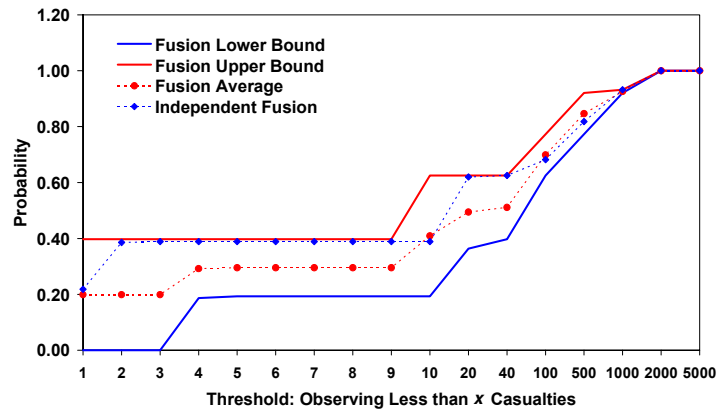


Figure 7.7 Prediction comparison between fusion and independent – observing less than  $x$

Table 7.9 Results from tests of Table 7.4 (Tests # 1 – 16)

Test #		Test Type	95% CI for Mean Difference	Wilcoxon Statistic W	p-value
1	Fusion Average ⊕ Independent	Two-Tailed Test	(-0.0773,0.2750)	343.0	0.1183
2	Fusion Average ⊕ Independent	Two-Tailed Test	(-0.1898,0.0773)	262.0	0.2251
3	Fusion Average ⊕ Independent	One-Tailed Test	(-0.0773,0.2750)	343.0	0.0591
4	Fusion Average ⊕ Independent	One-Tailed Test	(-0.1898,0.0773)	< 297.5	
5	Fusion Average ⊕ Debris	Two-Tailed Test	(0.4886,0.7046)	422.0	0.0000
6	Fusion Average ⊕ Debris	Two-Tailed Test	(-0.7046,-0.4886)	173.0	0.0000
7	Fusion Average ⊕ Debris	One-Tailed Test	(0.4886,0.7046)	422.0	0.000
8	Fusion Average ⊕ Debris	One-Tailed Test	(-0.7046,-0.4886)	< 297.5	-
8a <sup>52</sup>	Fusion Average ⊕ Debris	One-Tailed Test	(-0.7046,-0.4886)	173.0	0.0000
9	Fusion Average ⊕ Gas	Two-Tailed Test	(-0.1081,0.1025)	274.0	0.4222
10	Fusion Average ⊕ Gas	Two-Tailed Test	(-0.1023,0.1820)	319.0	0.4647
11	Fusion Average ⊕ Gas	One-Tailed Test	(-0.1081,0.1025)	< 297.5	-
12	Fusion Average ⊕ Gas	One-Tailed Test	(-0.1023,0.1820)	319.0	0.2323
13	Fusion Average ⊕ Blast	Two-Tailed Test	(0.4546,0.7045)	415.0	0.0000
14	Fusion Average ⊕ Blast	Two-Tailed Test	(-0.7046,-0.4546)	180.0	0.0000
15	Fusion Average ⊕ Blast	One-Tailed Test	(0.4546,0.7045)	415.0	0.0000
16	Fusion Average ⊕ Blast	One-Tailed Test	(-0.5113,-0.2613)	< 297.5	-
16a	Fusion Average ⊕ Blast	One-Tailed Test	(-0.5113,-0.2613)	153.0	0.0000

<sup>52</sup> The alternative hypotheses for Tests 8a and 16a are:  $H_a: \eta_A - \eta_D < 0$  and  $H_a: \eta_A - \eta_B < 0$  respectively

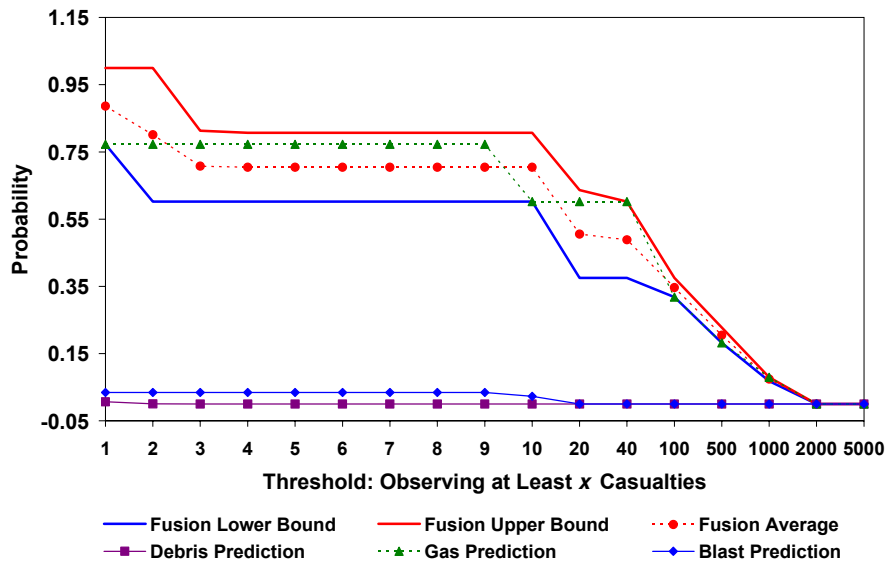


Figure 7.8 Prediction comparisons between fusion and the 3 hazards – observing at Least  $x$

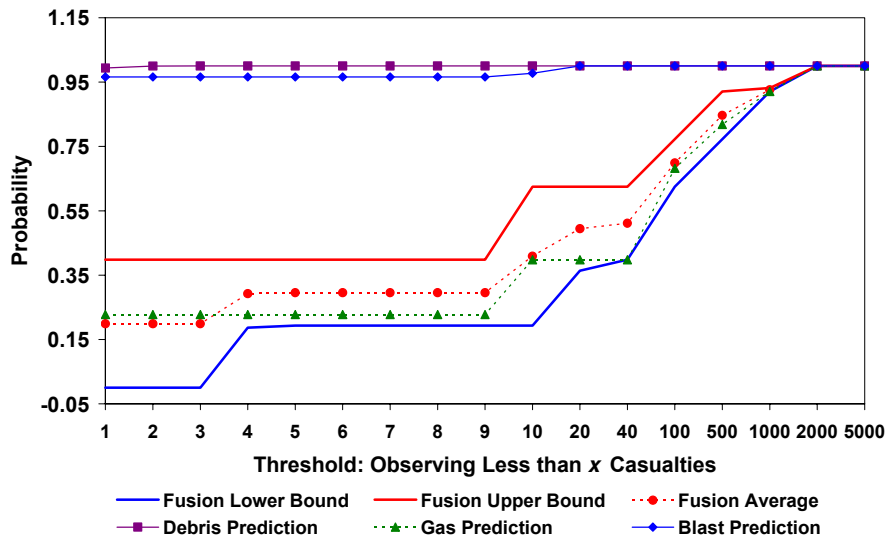


Figure 7.9 Prediction comparisons between fusion and the 3 hazards – observing less than  $x$

Figure 7.10 shows graphically the outcomes of tests 17 to 50 from the second set of tests.

Figure 7.11 shows graphically the outcomes of tests 51 to 84 from the second set of tests. The

outcomes of tests 85 to 118 are shown in Figure 7.12 while those of tests 119 to 152 are shown in Figure 7.13.

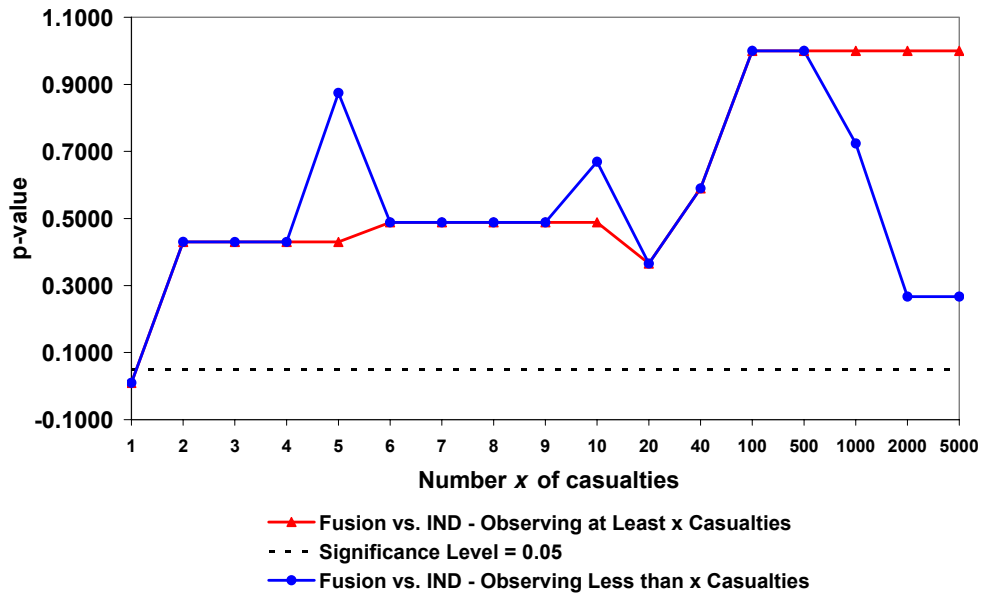


Figure 7.10 Significance of difference between fusion and independent as a function of threshold value (Tests # 17 – 50)

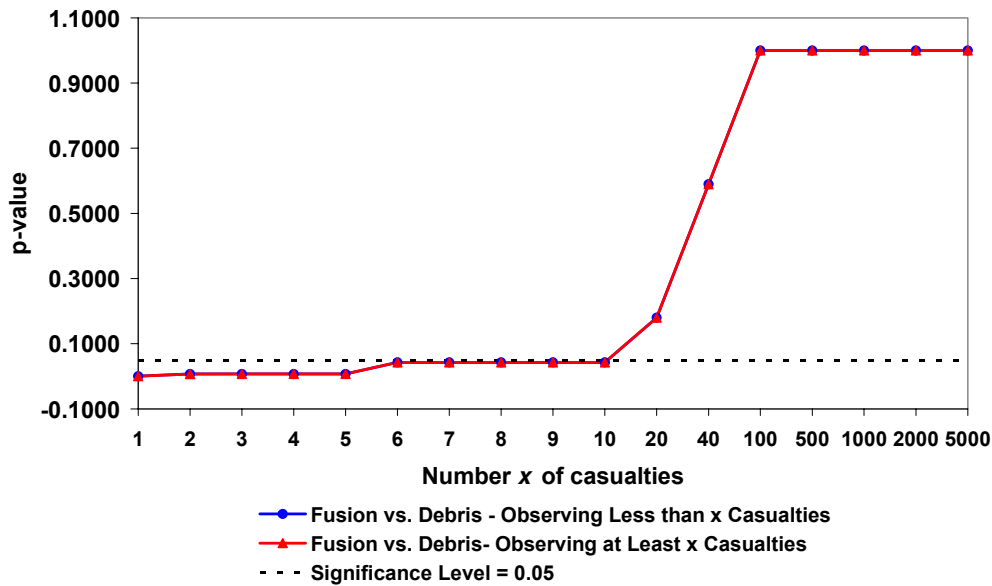


Figure 7.11 Significance of difference between fusion and debris as a function of threshold value (Tests # 51 – 84)

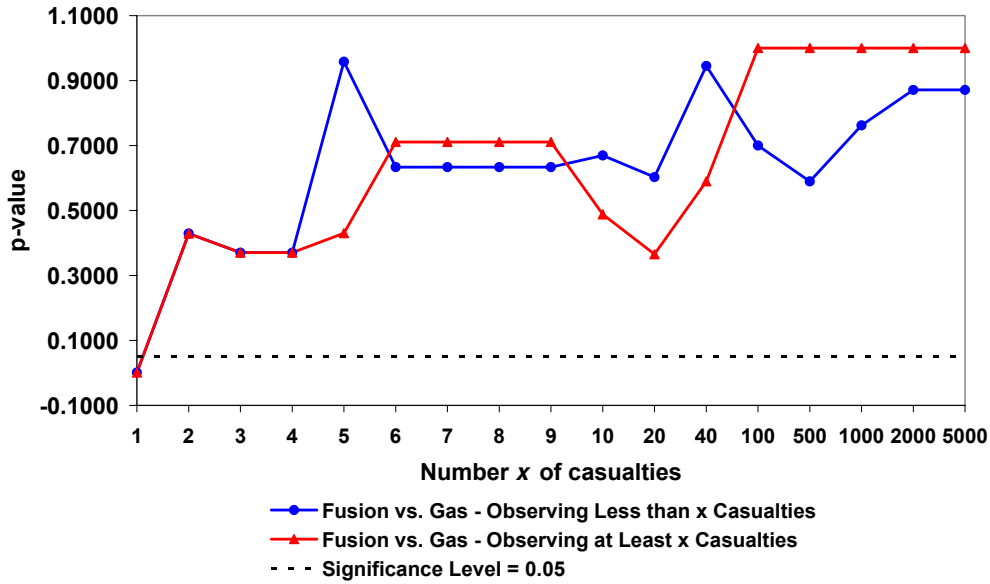


Figure 7.12 Significance of difference between fusion and gas as a function of threshold value (Tests # 85 – 118)

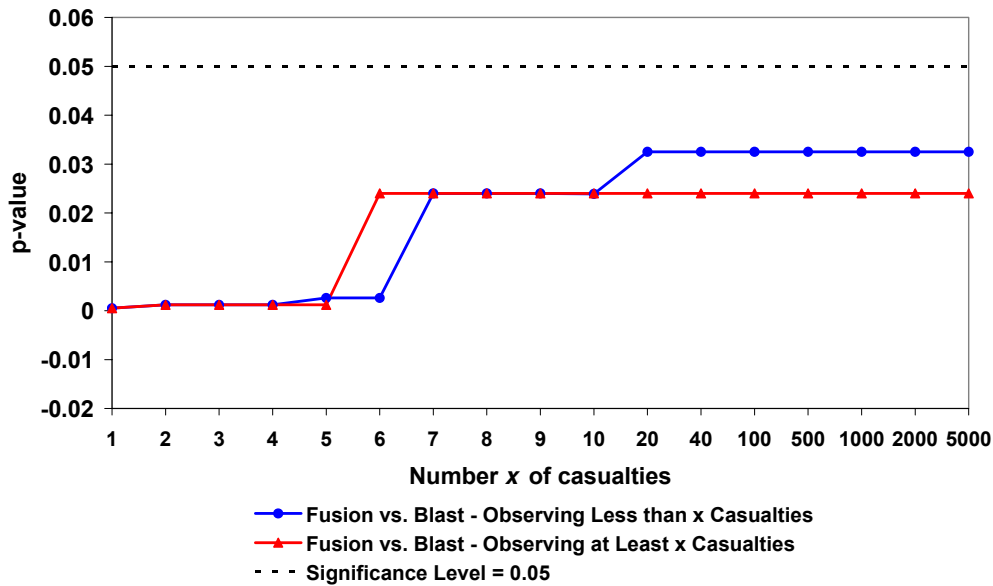


Figure 7.13 Significance of difference between fusion and blast as a function of threshold value (Tests # 119 – 152)

Figure 7.14 to 7.16 shows graphically the outcomes of tests 153 to 254 from the third sets of tests.

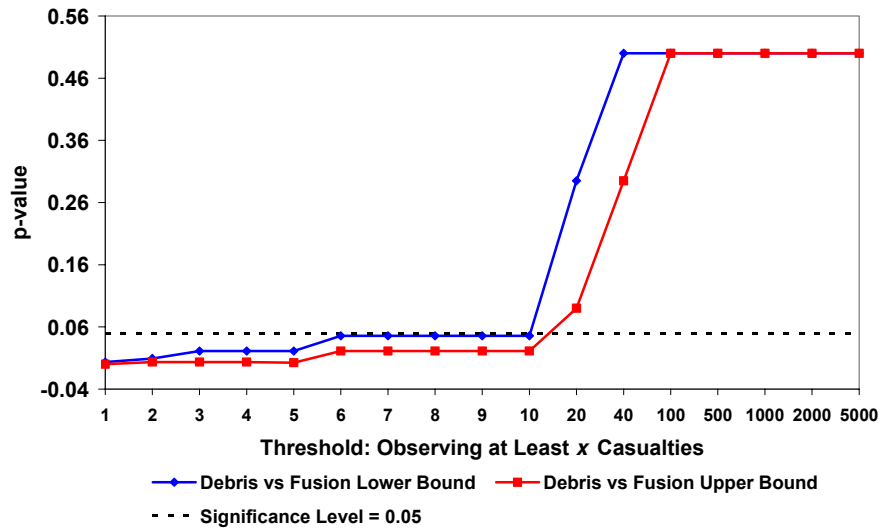


Figure 7.14 Hypothesis: Debris underestimates risk of incurring  $x$  casualties or more (Tests # 153 – 186)

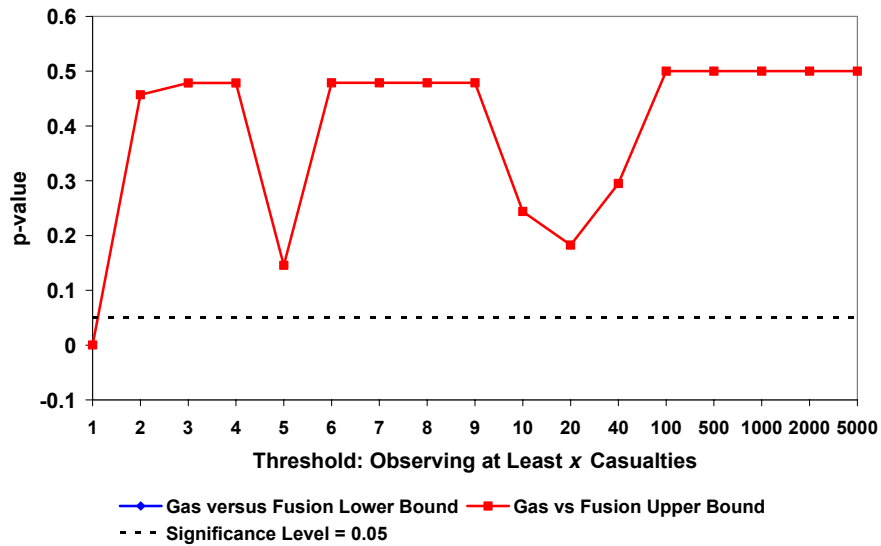


Figure 7.15 Hypothesis: Gas underestimates risk of incurring  $x$  casualties or more (Tests # 187 – 220)

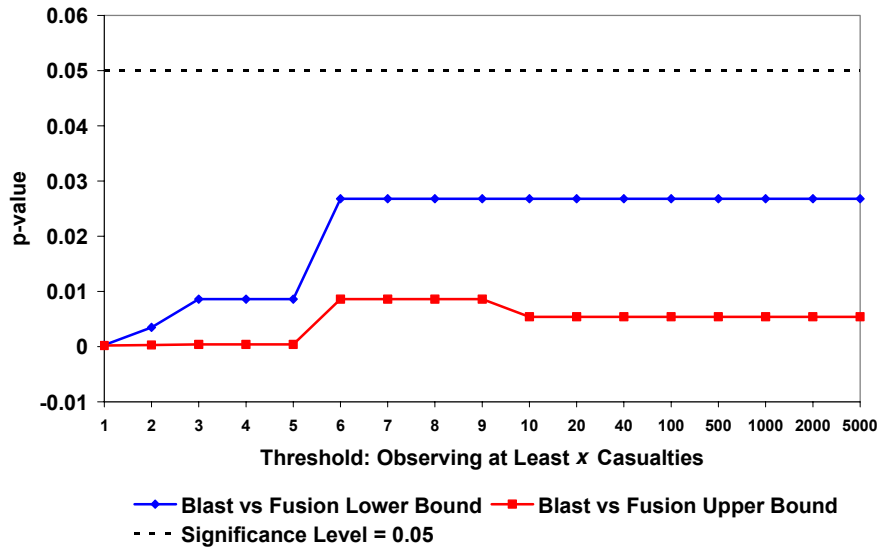


Figure 7.16 Hypothesis: Blast underestimates risk of incurring  $x$  casualties or more (Tests # 238 – 254)

Figure 7.17 to 7.19 shows the graphical representations of the outcomes of tests 153 to 254 from the third sets of tests.

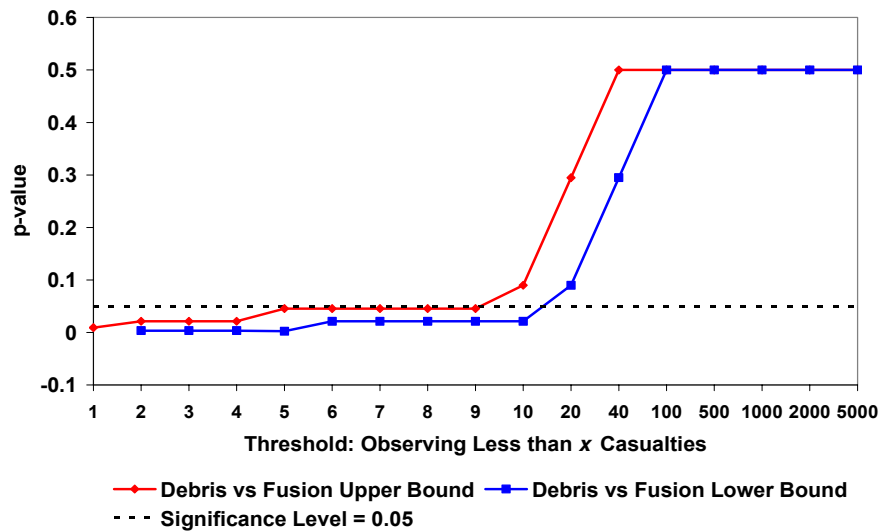


Figure 7.17 Hypothesis: Debris overestimates risk of incurring less than  $x$  casualties (Tests # 255 – 288)

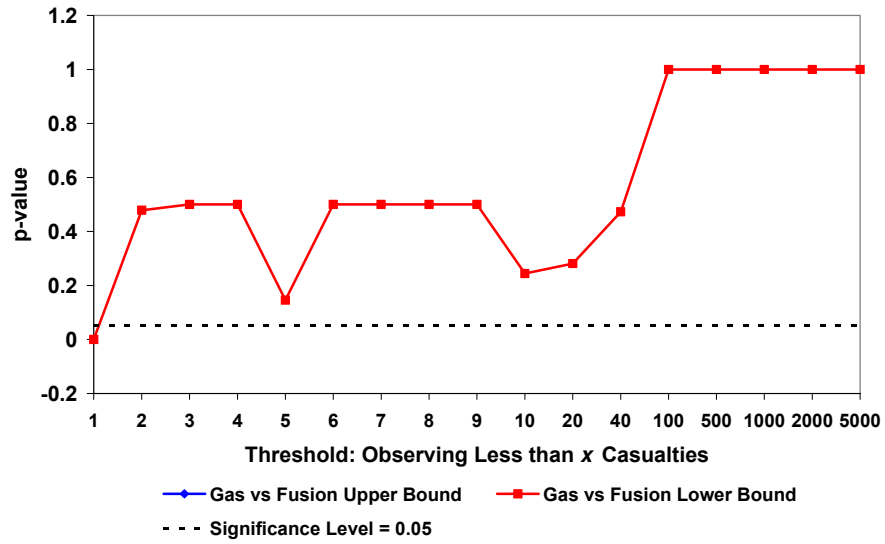


Figure 7.18 Hypothesis: Gas overestimates risk of incurring less than  $x$  casualties (Tests # 289 – 322)

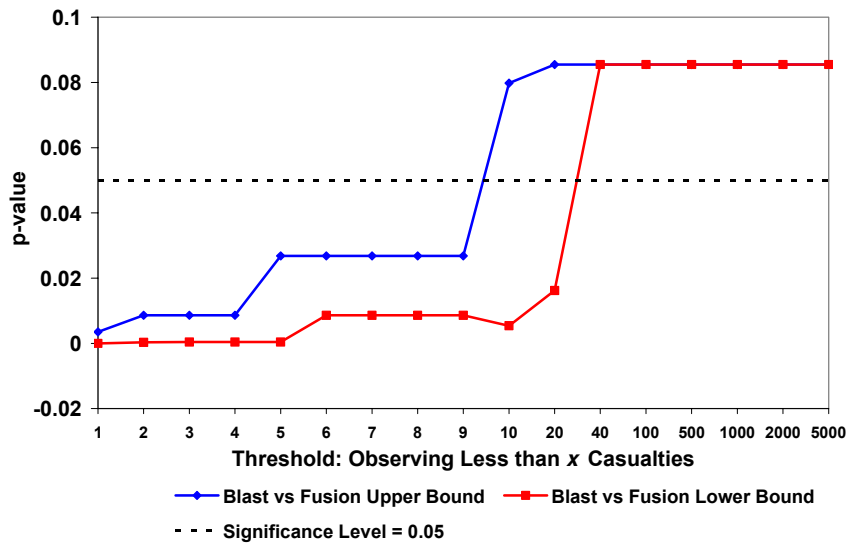


Figure 7.19 Hypothesis: Blast overestimates risk of incurring less than  $x$  casualties (Tests # 323 – 356)

The data used to perform the first set of tests are shown in Table 7.10 and 7.11. The tables used to perform the second, third and fourth sets of tests can be found in Appendix E. As a



sample, we show Tables 7.12 and 7.13 which were used to find the two p-values, at  $x = 3$  in each of the Figures 7.10 to 7.13.

Table 7.10 Overall probability of observing at least  $x$

Threshold: $x$	LB <sup>53</sup>	UB	AVG	IND	DEBRIS	GAS	BLAST
1	7.727E-01	1.000E+00	8.864E-01	7.819E-01	6.326E-03	7.727E-01	3.409E-02
2	6.023E-01	1.000E+00	8.011E-01	6.144E-01	1.646E-04	7.727E-01	3.409E-02
3	6.023E-01	8.131E-01	7.077E-01	6.114E-01	3.398E-06	7.727E-01	3.409E-02
4	6.023E-01	8.070E-01	7.046E-01	6.113E-01	5.776E-08	7.727E-01	3.409E-02
5	6.023E-01	8.068E-01	7.046E-01	6.113E-01	8.388E-10	7.727E-01	3.409E-02
6	6.023E-01	8.068E-01	7.045E-01	6.113E-01	1.064E-11	7.727E-01	3.409E-02
7	6.023E-01	8.068E-01	7.045E-01	6.113E-01	1.200E-13	7.727E-01	3.409E-02
8	6.023E-01	8.068E-01	7.045E-01	6.113E-01	0.000E+00	7.727E-01	3.409E-02
9	6.023E-01	8.068E-01	7.045E-01	6.113E-01	0.000E+00	7.727E-01	3.409E-02
10	6.023E-01	8.068E-01	7.045E-01	6.113E-01	0.000E+00	6.023E-01	2.273E-02
20	3.750E-01	6.364E-01	5.057E-01	3.802E-01	0.000E+00	6.023E-01	0.000E+00
40	3.750E-01	6.023E-01	4.886E-01	3.750E-01	0.000E+00	6.023E-01	0.000E+00
100	3.182E-01	3.750E-01	3.466E-01	3.182E-01	0.000E+00	3.182E-01	0.000E+00
500	1.818E-01	2.273E-01	2.046E-01	1.818E-01	0.000E+00	1.818E-01	0.000E+00
1000	6.820E-02	7.956E-02	7.388E-02	6.820E-02	0.000E+00	7.954E-02	0.000E+00
2000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5000	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Table 7.11 Overall probability of observing less than  $x$

Threshold: $x$	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
1	0.000E+00	3.977E-01	1.989E-01	2.181E-01	9.937E-01	2.273E-01	9.659E-01
2	0.000E+00	3.977E-01	1.989E-01	3.856E-01	9.998E-01	2.273E-01	9.659E-01
3	0.000E+00	3.977E-01	1.989E-01	3.886E-01	1.000E+00	2.273E-01	9.659E-01
4	1.869E-01	3.977E-01	2.923E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
5	1.930E-01	3.977E-01	2.954E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
6	1.932E-01	3.977E-01	2.954E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
7	1.932E-01	3.977E-01	2.955E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
8	1.932E-01	3.977E-01	2.955E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
9	1.932E-01	3.977E-01	2.955E-01	3.887E-01	1.000E+00	2.273E-01	9.659E-01
10	1.932E-01	6.250E-01	4.091E-01	3.887E-01	1.000E+00	3.977E-01	9.773E-01
20	3.636E-01	6.250E-01	4.943E-01	6.198E-01	1.000E+00	3.977E-01	1.000E+00
40	3.977E-01	6.250E-01	5.114E-01	6.250E-01	1.000E+00	3.977E-01	1.000E+00
100	6.250E-01	7.727E-01	6.989E-01	6.818E-01	1.000E+00	6.818E-01	1.000E+00
500	7.727E-01	9.204E-01	8.466E-01	8.182E-01	1.000E+00	8.182E-01	1.000E+00
1000	9.204E-01	9.318E-01	9.261E-01	9.318E-01	1.000E+00	9.204E-01	1.000E+00
2000	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00
5000	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00	1.000E+00

<sup>53</sup> LB: Fusion Lower Bound, UB: Fusion Upper Bound, AVG: Average, IND: Independent

Table 7.12 Probabilities of observing at least 3 casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.022730	0.056820	0.039775	0.022730	0.000000	0.056810	0.000000
NE Washita	0.159089	0.181819	0.170454	0.159090	0.000000	0.181820	0.000000
NW Washita	0.375000	0.729030	0.552015	0.513659	0.201566	0.443170	0.034090
SE Washita	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
W Canadian	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
El Reno	0.000000	0.011360	0.005680	0.000000	0.000000	0.011360	0.000000
Weatherford	0.000000	0.045450	0.022725	0.000000	0.000000	0.045450	0.000000

Table 7.13 Probabilities of observing less than 3 casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.943180	0.977270	0.960225	0.977270	1.000000	0.943180	1.000000
NE Washita	0.818180	0.840910	0.829545	0.840910	1.000000	0.818180	1.000000
NW Washita	0.270970	0.625000	0.447985	0.486341	0.798434	0.556820	0.965910
SE Washita	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
W Canadian	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
El Reno	0.988640	1.000000	0.994320	1.000000	1.000000	0.988640	1.000000
Weatherford	0.954550	1.000000	0.977275	1.000000	1.000000	0.954550	1.000000

## 7.5 Results Interpretation and Discussion

### 7.5.1 Results Interpretation

The first set of tests was designed to compare the estimates generated by the Independent predictor and by each individual hazard, with the estimate of the Fusion average. The results shown in Table 7.9 indicate the following:

1. There is no significant difference between the Fusion average estimates and the Independent estimates.
2. There is a significant difference between the Debris estimates and the Fusion average estimates. In fact, Test 7 indicates that when the objective of the analysis is to estimate

the probability of observing at least a number  $x$  of casualties, the Debris estimates are generally lower than those of the Fusion midpoint. On the other hand, when the objective of the analysis is to estimate the probability of observing less than a number  $x$  of casualties, the Debris estimates are generally higher than the Fusion average (Test 8a).

3. There is no significant difference between the Fusion average estimates and the Gas estimates.
4. There is a significant difference between the Blast estimates and the Fusion average estimates. In fact, similarly to the debris case, Test 15 indicates that when the objective of the analysis is to estimate the probability of observing at least a number  $x$  of casualties, the Blast estimates are generally lower than those of the Fusion midpoint. On the other hand, when the objective of the analysis is to estimate the probability of observing less than a number  $x$  of casualties, the Blast estimates are generally higher than the Fusion average (Test 16a).

The second set of tests was designed to determine whether the threshold values of  $x$  have any effect on the significances observed in the first set of tests. The results shown in Figure 7.10 to 7.13 indicate the following:

1. The differences between the Fusion midpoint estimates and the Independent estimates remain insignificant, regardless of  $x$ . This is expected as in the first set of tests, no significant difference was detected between the two types of estimates. However, Figure 7.10 indicates that this is only true as long as  $x$  is greater than 1. In other words, Tests 17 and 84<sup>54</sup> indicate that when the objective of the analysis is to estimate the probability of

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<sup>54</sup> In which the hypotheses are tested at  $x = 1$

observing either no or at least 1 casualty, the Fusion average and the Independent provide different estimates.

2. When it comes to the Fusion midpoint and the Debris, Figure 7.11 indicates that the significance of the differences between the two predictors depends on the value of  $x$ . The differences are significant for threshold values up to 10 casualties, but become increasingly insignificant as the threshold value is raised.
3. The differences between the Fusion midpoint estimates and the Gas estimates remain insignificant, regardless of  $x$ . This, as in the Independent case, is expected as in the first set of tests, no significant difference was detected between the two types of estimates. However, just as in the Independent case, Figure 7.12 indicates that this is only true as long as  $x$  is greater than 1. In other words, Tests 85 and 102<sup>55</sup> indicate that when the objective of the analysis is to estimate the probability of observing either no or at least 1 casualty, the Fusion average and the Gas provide different estimates.
4. When it comes to the Fusion average and the Blast, Figure 7.13 indicates that although the significance of the differences between the two predictors depends on the value of  $x$ , it remains high across the range of  $x$ .

The third set of tests was designed to determine whether the hazards' estimates are lower than the Fusion upper bound, when the objective is to estimate the probability of observing at least a number  $x$  of casualties. The results shown in Figure 7.14 to 7.16 indicate the following:

1. Statistically, the Debris estimates are lower than the Fusion upper bound when the threshold value is equal or less than 10, as shown in Figure 7.14. The same conclusion is

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<sup>55</sup> In which the hypotheses are tested at  $x = 1$

reached when compared with the Fusion lower bound. In other words, when the objective of the analysis is to estimate the probability of observing at least  $x$  casualties, the estimates from the Debris hazard are significantly lower than both the Fusion upper and lower bounds. There is however, no sufficient evidence to indicate that this is also the case when the threshold value is greater than 10.

2. As long as the threshold value is greater than 1, there is no sufficient evidence to support the hypothesis that the Gas estimates are lower than the Fusion upper bound.
3. Statistically, the Blast estimates are lower than the Fusion upper bound regardless of the threshold value, as shown in Figure 7.16. The same conclusion is reached when compared with the Fusion lower bound. In other words, when the objective of the analysis is to estimate the probability of observing at least  $x$  casualties, the estimates from the Blast hazard are significantly lower than both the Fusion upper and lower bounds.

The fourth set of tests was designed to determine whether the hazards' estimates are higher than the Fusion lower bound, when the objective is to estimate the probability of observing less than a number  $x$  of casualties. The results shown in Figures 7.17 to 7.19 indicate the following:

1. Statistically, the Debris estimates are higher than the Fusion lower bound when the threshold value is equal or less than 10, as shown in Figure 7.17. The same conclusion is reached when compared with the Fusion upper bound, however, only when the threshold is less or equal to 9. In other words, when the objective of the analysis is to estimate the probability of observing less than  $x$  casualties, the estimates from the Debris hazard are significantly higher than both the Fusion upper and lower bounds. There is however, no

sufficient evidence to indicate that this is also the case when the threshold value is greater than 9.

2. Figure 7.18 indicates that as long as the threshold value is greater than 1, there is not sufficient evidence to support the hypothesis that the Gas estimates are higher than the Fusion lower bound.
3. Statistically, the Blast estimates are higher than the Fusion lower bound when the threshold value is equal or less than 20 (or 9 when compared to the upper bound), as shown in Figure 7.19. In other words, when the objective of the analysis is to estimate the probability of observing at least  $x$  casualties, the estimates from the Blast hazard are significantly lower than both the Fusion upper and lower bounds for threshold values which may be as high as 20.

### 7.5.2 Discussion

The experiment just conducted generated interesting results in terms of the performance of each of the predictors in assessing the risk associated with the use of space vehicles. There is enough evidence to suggest that both the debris and the blast hazards are very poor predictors of the risk being estimated, when taken alone. When compared to the bounds of the fusion, they tend to under predict the probability of incurring a number of casualties above a pre-specified threshold on one hand, while on the other hand they tend to over predict the probability of incurring a number of casualties below that threshold. Considering the probability of incurring at least 3 casualties, as shown in Table 7.12, as an example, Figure 7.20 shows the difference between the estimates. In all the CCDs except Northwest Washita, both the debris and the blast

indicate that it is impossible to incur 3 casualties or more. The fusion on the other hand, by means of either its upper or its lower bound, indicates that there is some probability of incurring at least 3 casualties in each of the same CCDs.

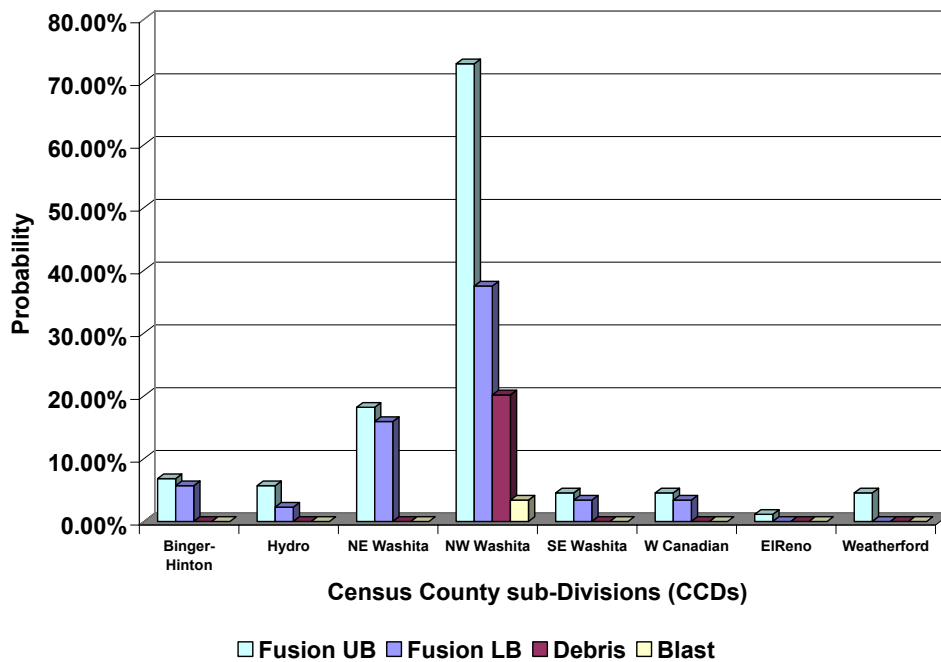


Figure 7.20 Estimates comparison of debris, blast and fusion for  $prob(x \geq 3)$

The gas hazard however, being the dominant factor among the three hazards shows more agreement with the fusion estimates. In fact, both the gas cdf and the independent cdf behave more like an average cdf of a fusion which makes no assumption on the nature of the dependencies between the hazards (both show no significant difference with the average). However, our experiment indicates that as long as the threshold value is greater than 1 casualty, neither the gas nor the independent fusion has either a tendency to under predict (when compared to the upper bound) the probability of incurring more than a pre-specified number of casualties

or, over predict (when compared to the lower bound) the probability of incurring less than that number of casualties. The opposite should have been expected since their cdfs, being very similar to an average cdf of an unknown dependency fusion, should always be between the two bounds. This can be explained when we look at the case  $x = 3$  as with the debris and the blast. Figure 7.20 indicates that both the debris and the blast estimate the probability of observing at least 3 casualties at zero for all the CCDs, except Northwest Washita. Therefore, those hazards, except for the case of Northwest Washita should not contribute to the computation of the fusion upper bound. Rather, they should contribute exclusively to the lower bound. Therefore, the gas being the only contributor to the upper bound at this threshold, we should expect it to estimate exactly the same probability as does the fusion upper bound. This is shown in Figure 7.21.

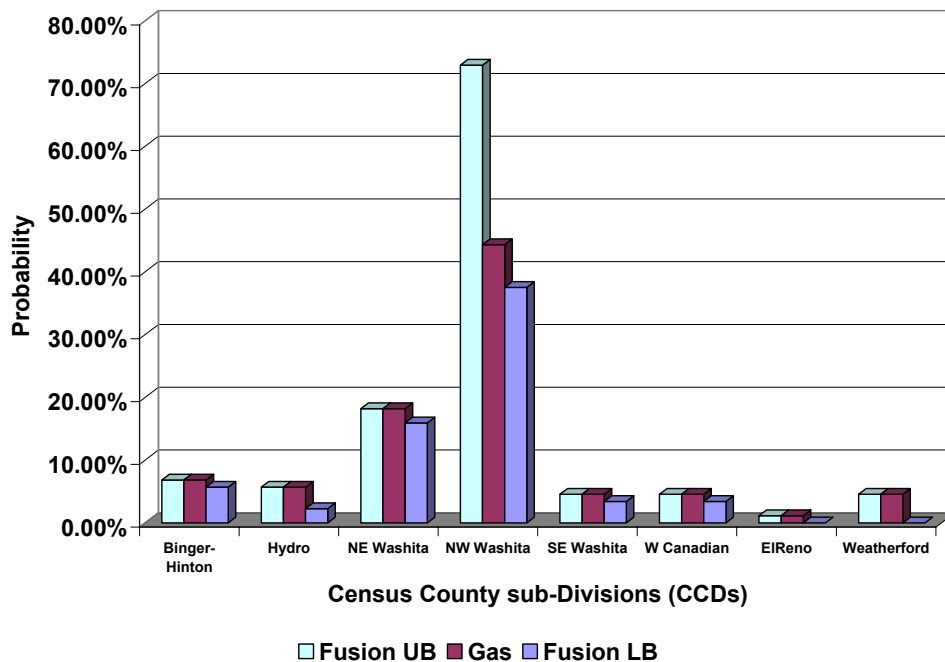
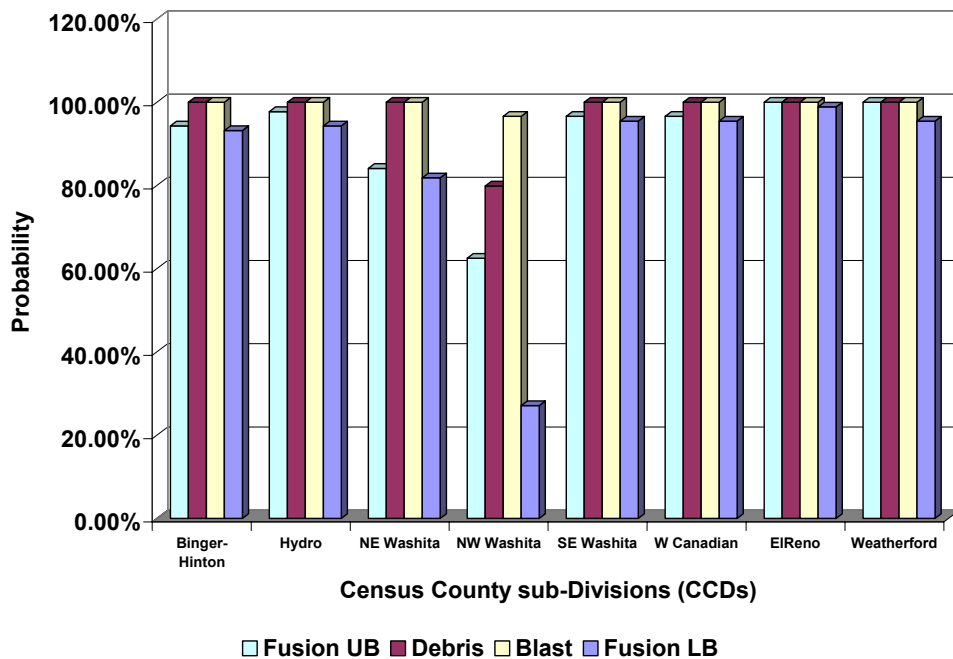


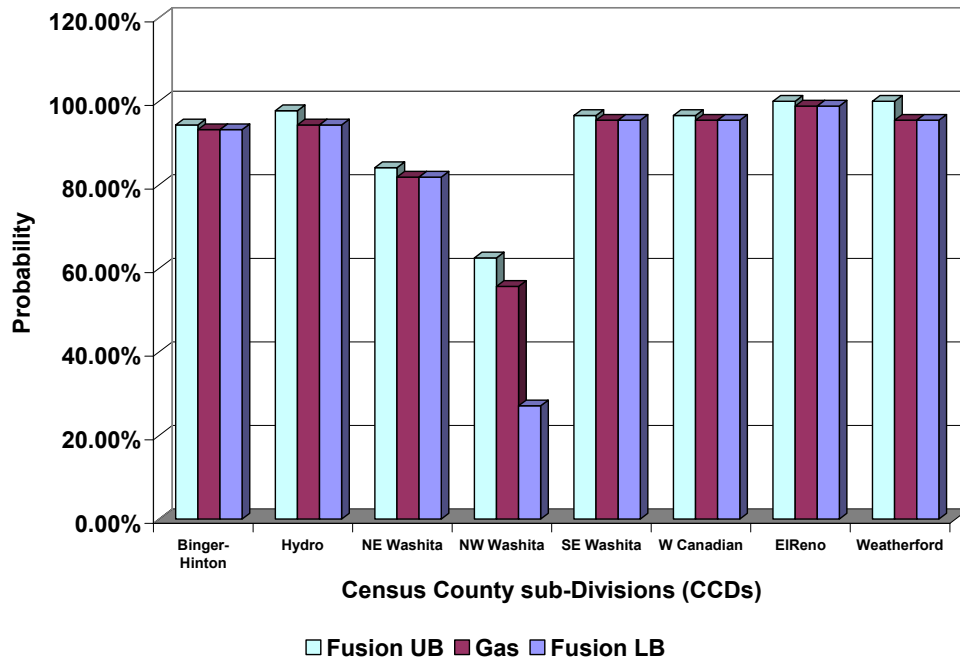
Figure 7.21 Estimates comparison of gas and fusion for  $prob(x \geq 3)$



When the objective is to estimate the probability of observing less than 3 casualties (the complement of the former case), the same phenomenon occurs. Since both the debris and blast estimate that probability at 100% for all but Northwest Washita, they do not contribute to the computation of the fusion lower bound. Rather, they contribute exclusively to the upper bound in those CCDs. The gas being the only contributor to the lower bound at this threshold, we should expect it to estimate exactly the same probability as does the fusion lower bound. This is shown in Figure 7.22.



7.22a



7.22b

Figure 7.22 Estimates comparison of debris, blast and fusion (7.22a) and gas and fusion (7.22b) for  $prob(x < 3)$

When assessing the risk generated by the operation of launch vehicles, a fusion approach which makes no assumption about the nature of the dependency between the factors being fused has significant advantages over any single hazard or, over a fusion which assumes independence between the factors. The debris and blast clearly do not provide information which can be confidently used for decision making. The gas, although the factor with the most influence on the bounds of the fusion, is equally an inadequate predictor. This is the case since, by being equal either to the lower bound or the upper bound, it always gives the most optimistic estimate of the risk. Therefore, the real magnitude of the risk may never be known when gas is used alone. Fusion provides a bound, within which the probabilities of incurring a certain risk are uniformly distributed. Especially in those situations where the bounds are not too wide, the decision maker

has, through fusion, information which can be confidently used. Depending on the objective of the analysis, fusion leaves the option to the individual to make a decision based on either its upper bound (for example, when interested in incurring more than a certain number of casualties), its lower bound (for example, when interested in incurring less than a certain number of casualties) or any probability within those bounds, be it appropriate.

#### 7.5.2.1 The Case of $x = 1$

The significance of what has just been discussed increases even more when the objective of the analysis is simply to determine whether or not there will be a casualty; in other words, when the threshold value is set to 1 ( $x < 1$ ). This is particularly relevant since raising the probability of not incurring a casualty ought always to be the first priority in risk mitigation efforts. The experiment indicates that at such threshold, not only the debris and the blast, but also the gas and the independent cdfs significantly differ from the hypothetical fusion average cdf. At this threshold, the bounds of the fusion are the largest, resulting in an average which is significantly different from any other estimate. Table 7.14 shows the probabilities for  $x < 1$ .

Table 7.14 Probabilities of observing no casualty ( $x < 1$ ) in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.943180	0.471590	0.931820	1.000000	0.931820	1.000000
Hydro	0.000000	0.977270	0.488635	0.943180	1.000000	0.943180	1.000000
NE Washita	0.000000	0.840910	0.420455	0.818180	0.999999	0.818180	1.000000
NW Washita	0.000000	0.625000	0.312500	0.402432	0.748240	0.556820	0.965910
SE Washita	0.000000	0.965910	0.482955	0.954550	1.000000	0.954550	1.000000
W Canadian	0.000000	0.965910	0.482955	0.954550	1.000000	0.954550	1.000000
El Reno	0.000000	0.988640	0.494320	0.965910	1.000000	0.965910	1.000000
Weatherford	0.000000	1.000000	0.500000	0.954550	1.000000	0.954550	1.000000

The three hazards indicate that, in most CCDs there is a high probability that there will be no casualty. It therefore results that the independent fusion of those hazards also indicates the same. When it comes to the unknown dependency fusion however, one must recall how its bounds are calculated. Suppose an interval  $[0, b]$  where  $b > 1$ . In computing the probability of the upper bound of  $x > 1$ , the probability of  $[0, b]$  contributes to the upper bound probability, since  $x > 1$  could occur. Since 0 is included in the interval, it results in the upper bound being just as high as the hazards and the independent estimates. On the other hand, in computing the lower bound, the probability of  $[0, b]$  is discarded since only those intervals in which  $x > 1$  must occur contributes. This results in a lower bound which is extremely low.

Having bounds that are extremely wide such as in the case above is not necessarily desirable. However, it is better than having only probabilities that are close (sometimes higher) to the upper bound, as those probabilities could be misleading to the decision maker. As shown in Table 7.14, while the average fusion estimates the probability of not incurring a casualty at a more conservative 45.7% on average, the independent, debris, gas and blast estimates this probability at 86.6%, 96.9%, 88.5% and 99.6% respectively. Therefore, using the fusion average estimate in cases where the bounds are wide may be a reasonable approach.

#### *7.5.2.2 Hazards Effects as Function of Breakup Time*

The discussion above has established the inadequacy of any single hazard as a risk predictor. This was accomplished by comparing the risk estimates at different casualty threshold values. However, this inadequacy becomes even more apparent when, rather than considering a particular casualty threshold value, the emphasis is placed on the vehicle time of breakup. In

Figure 7.23, 7.24 and 7.25, the gas and debris impact areas are plotted for four different breakup times,  $t = +21.81s$ ,  $+43.07s$ ,  $+70.74s$  and,  $+100.12s$ . The maps in those figures indicate that which hazard generates the largest impact area for a particular breakup scenario depends on the time of that breakup. The gas impact areas are the most significant earlier in the launch phase (here  $t = +21.81s$  and  $+43.07s$ ), where the amounts of propellant being released are the largest. Breakups which occur much later in the launch phase (here  $t = +70.74s$  and  $+100.12s$ ) result in smaller gas impact areas since most of the propellant has already been consumed. On the contrary, the debris impact areas are the largest for breakups in the later stages of the launch and the smallest in the earliest, where the debris fields are much more concentrated. Therefore, no single hazard can be considered adequate when the risk to be generated by a vehicle launch is to be estimated.

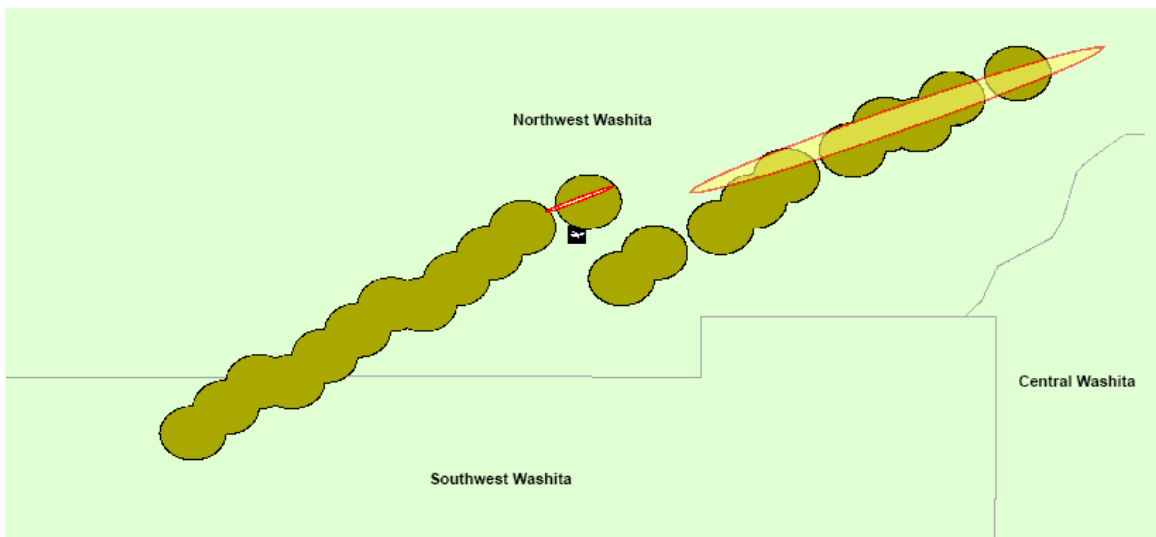


Figure 7.23 Debris and gas impact areas at  $t = +21.81s$  and  $+43.07s$ . The gas effects are most significant in the earliest phases of the launch, as opposed to the debris.

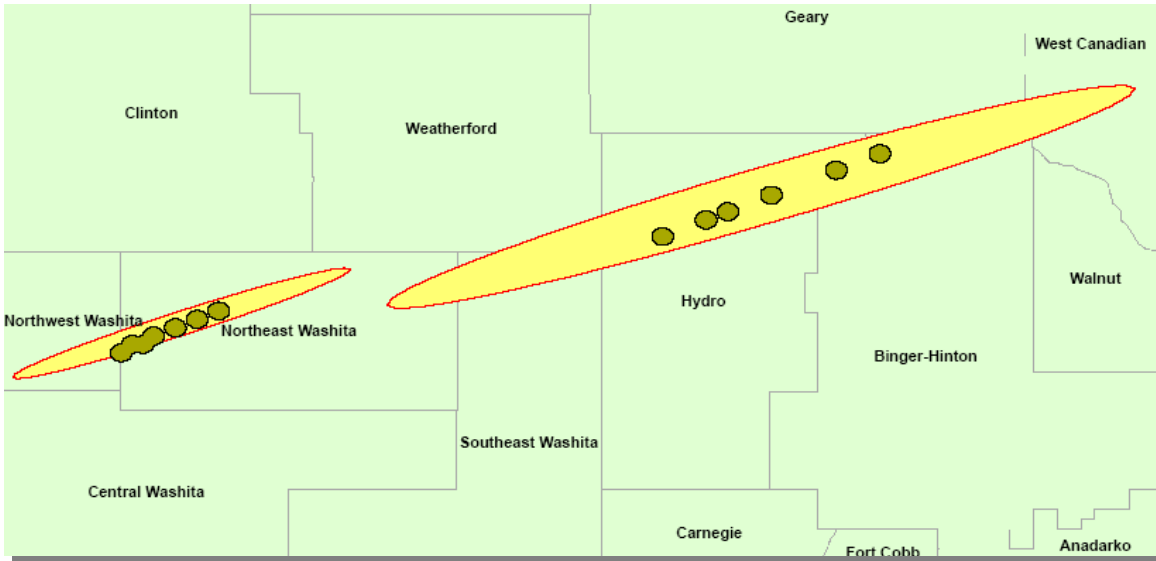


Figure 7.24 Debris and gas impact areas at  $t = +70.74s$  and  $+100.12s$ . The debris effects are most significant in the latest phases of the launch as opposed to the gas.

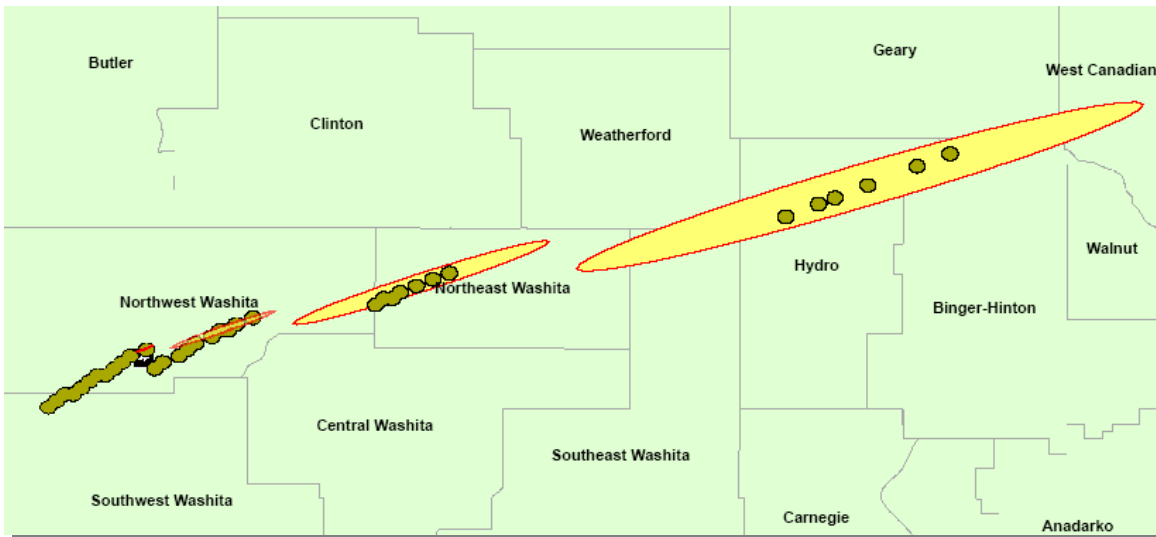
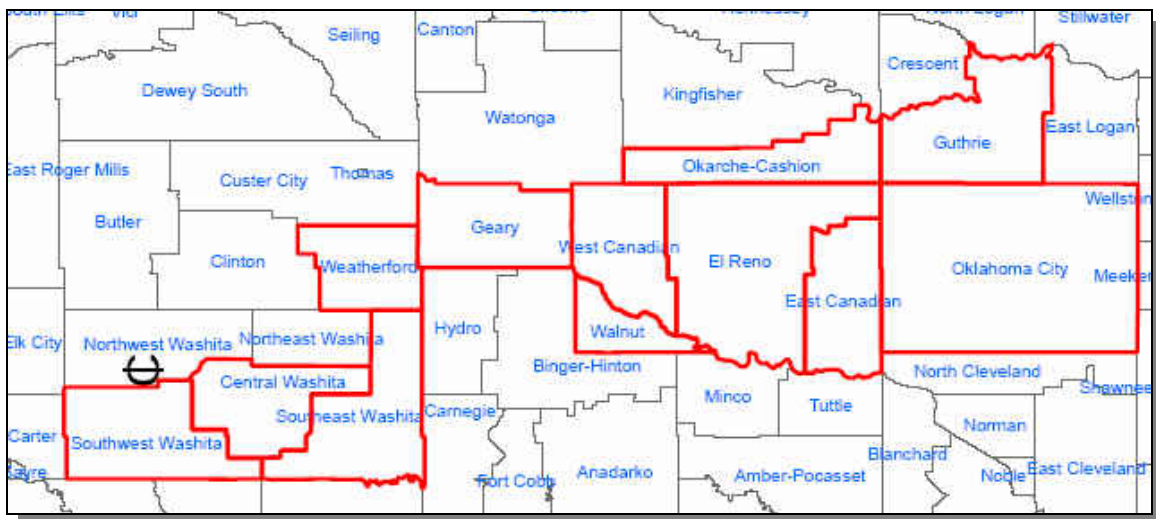


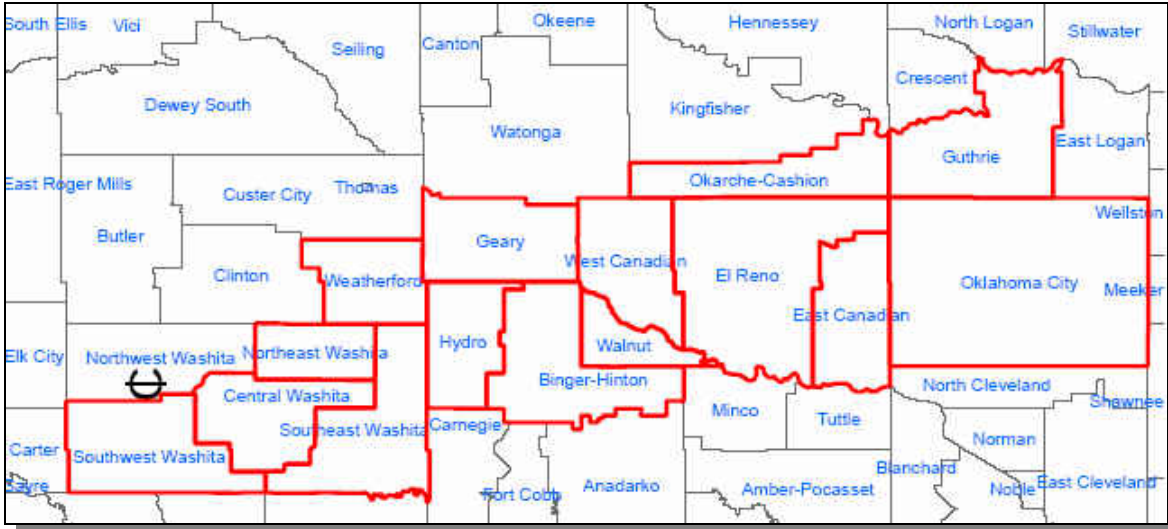
Figure 7.25 Dynamic of debris and gas impact areas as function of breakup time:  $t = +21.81s$ ,  $+43.07s$ ,  $+70.74s$  and  $+100.12s$ .

### 7.5.2.3 Geographical Maps Comparison of Risk Estimates

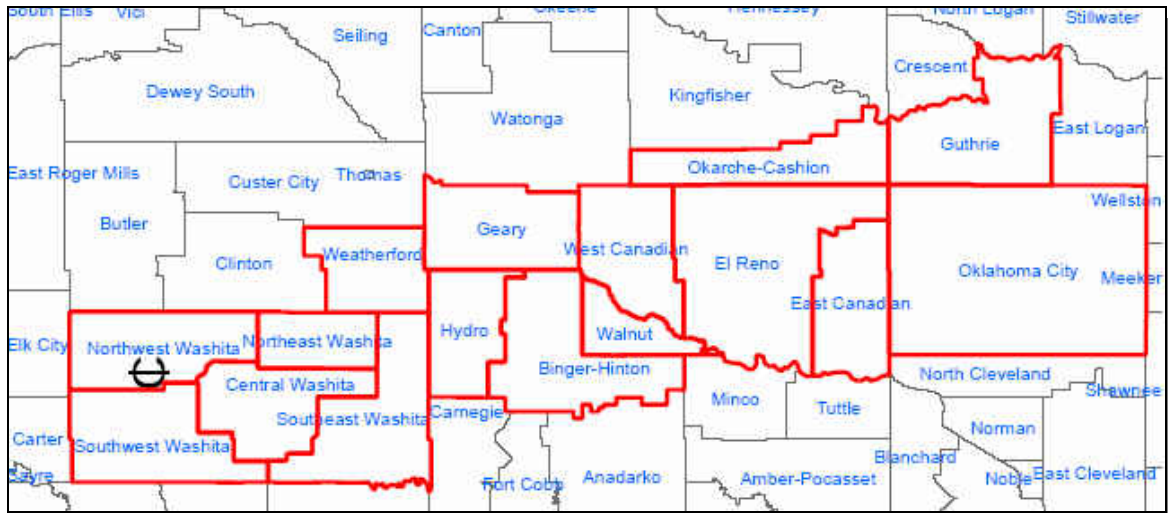
A series of maps were developed to illustrate the differences in predictions between the three hazards, the independent and the fusion. In the first set of maps shown in Figure 7.26, the CCDs highlighted in red are those in which the probability of observing less than 3 casualties is estimated to be more than 95%. In accordance with the testing logic of our experiment, the lower bound of the fusion was used. In the second set of maps shown in Figure 7.27, the CCDs highlighted in red are those in which the probability of observing more than 3 casualties is estimated to be at least 10%. In accordance with the testing logic of our experiment, the upper bound of the fusion was used.



7.26a) Lower bound

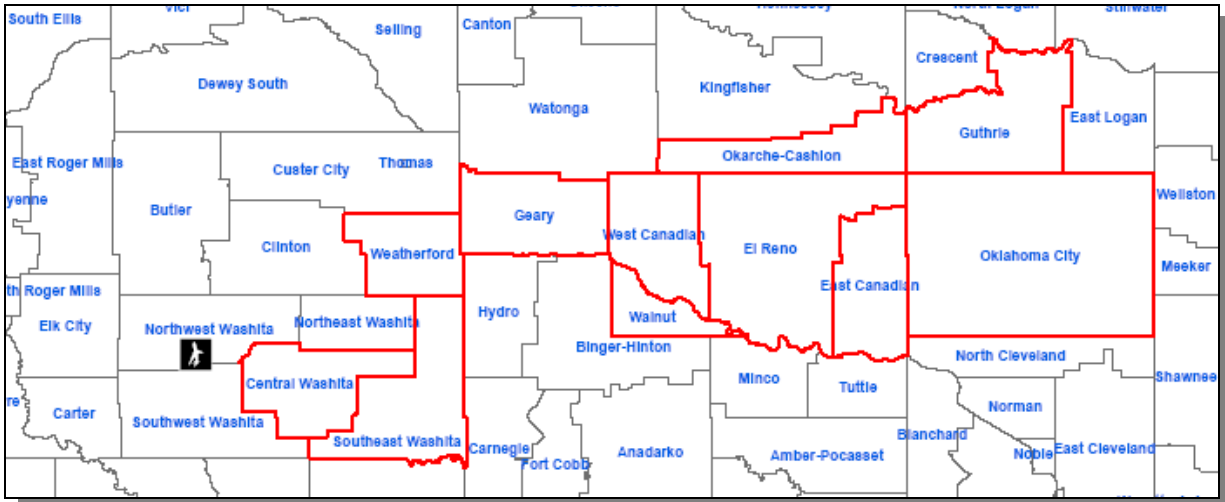


7.26b) Debris: Northeast Washita, Binger-Hinton and, Hydro added compared to Fusion lower bound

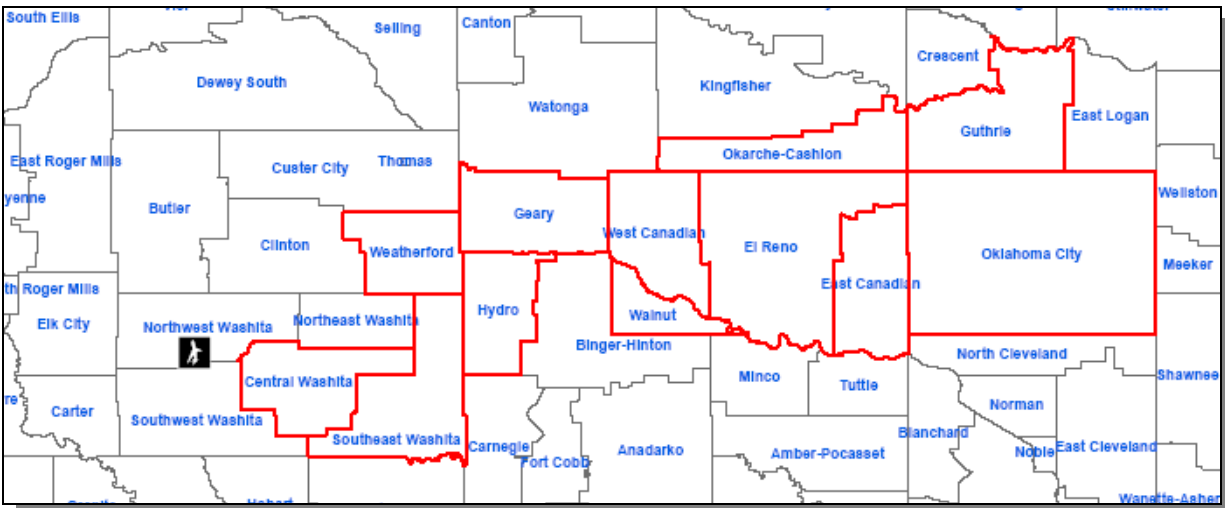


7.26c) Blast: Northwest Washita, Northeast Washita, Binger-Hinton and, Hydro added compared to Fusion lower bound



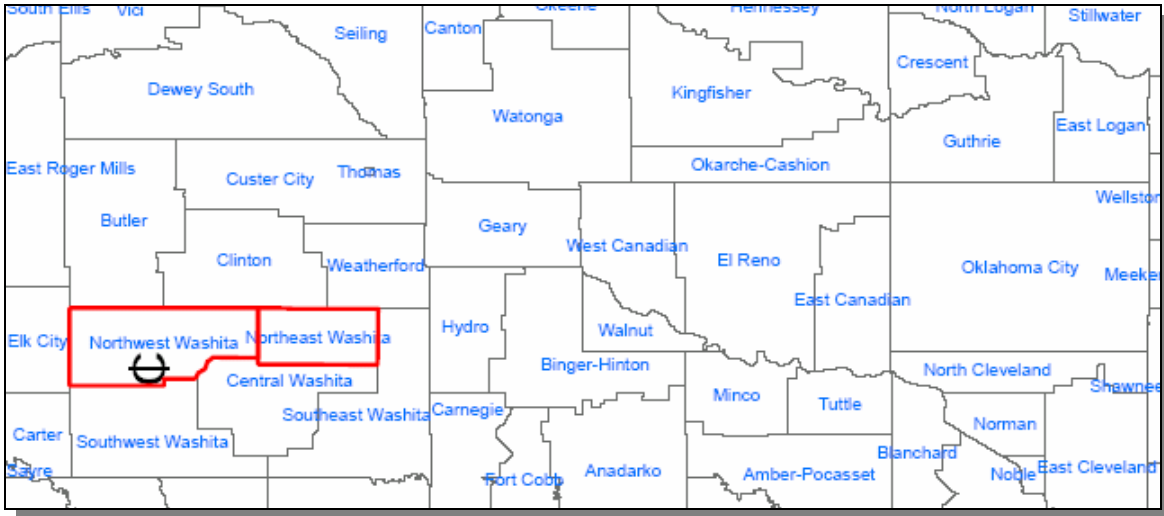


7.26d) Gas: Southwest Washita removed compared to Fusion lower bound

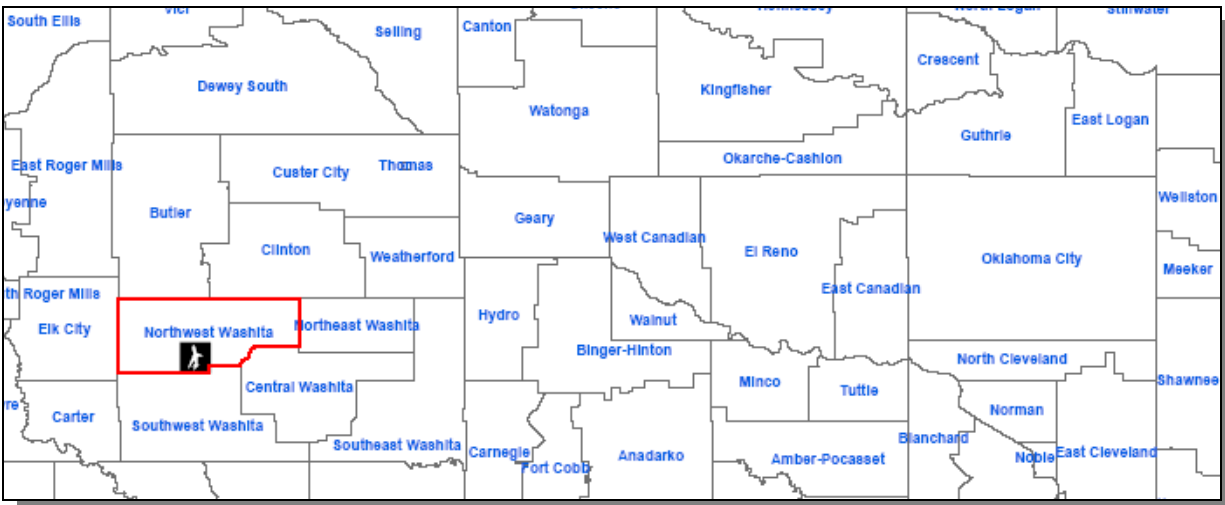


7.26e) Independent: Hydro added, Southwest Washita removed compared to Fusion lower bound

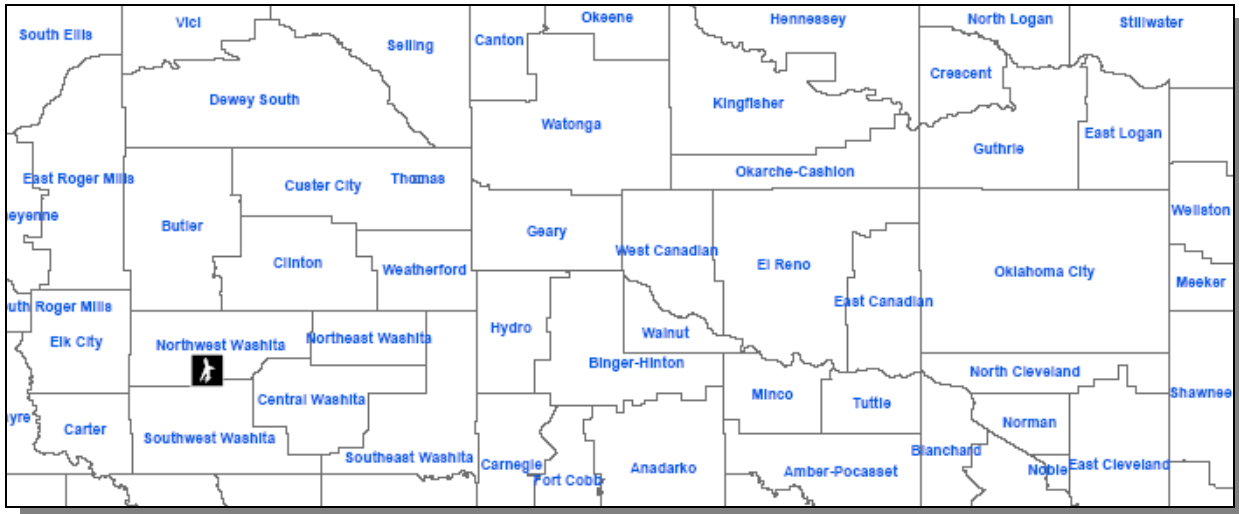
Figure 7.26 CCDs for which the probability of observing less than 3 casualties is more than 95%



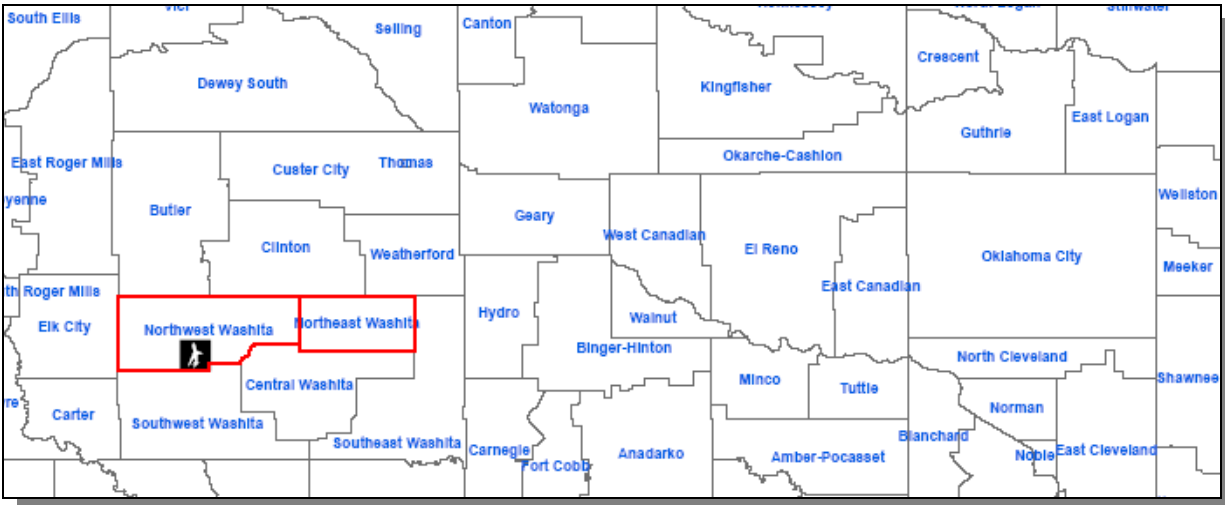
7.27a) Upper bound



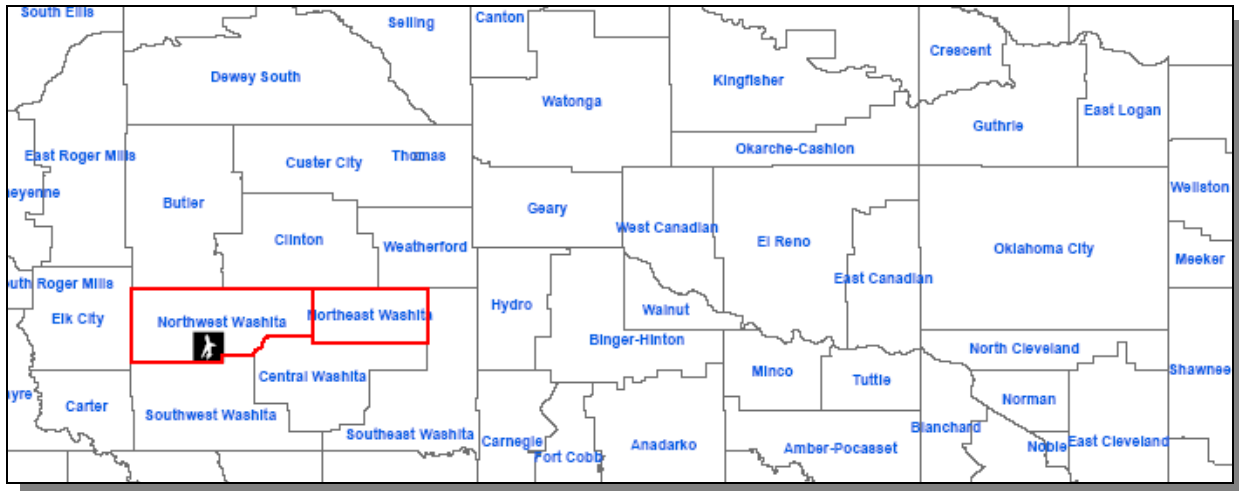
7.27b) Debris: Northeast Washita missing from Fusion upper bound



7.27c) Blast: All CCDs missing from Fusion upper bound



7.27d) Gas: Identical to Fusion upper bound



7.27e) Independent: Identical to from Fusion upper bound

Figure 7.27 CCDs for which the probability of observing at least 3 casualties is more than 10%

## CHAPTER 8 CONCLUSION

### 8.1 Summary

In this study, the assessment through fusion of the risk generated by the operation of space launch vehicles, to and from spaceports, was investigated. Detailed reviews of the literature on the state of the art in hazards modeling and, on the latest developments in information fusion were performed. Using Clinton-Sherman, a facility proposed as a future spaceport by the state of Oklahoma and NASA's Space Shuttle, this study performed a detailed study to assess the risk of operating launch vehicles from an inland site. The complexities of hazard modeling and the comprehensive approach which must be used for the evaluation of a site were illustrated. The fusion technique known as DEnv was then used as a proof of concept to illustrate the benefits of using information fusion in this type of problems.

Through 356 nonparametric statistical tests, the study indicated that fusion possesses characteristics which are highly desirable for this type of risk analysis. In fact when compared to risk estimates provided by any individual hazard, or by the independent combination of those hazards, our study shows that the fusion estimates consistently outperform those individual and independent estimates. Fusion estimates were found to be significantly more informative, generating upper and lower bounds around the true estimates, while at the same time being less conservative than the other estimates. A comparison of the maps generated by the different hazards and their independent combination with the fusion map showed that using anything else

than fusion could provide seriously misleading, with potentially catastrophic consequences. The maps showed that:

1. When one is interested in locating the areas in which the probability of observing less than a certain number of casualties is very high (i.e the safest areas), the individual hazards and their independent combination each can indicate more geographical areas than fusion, overestimating the number and location of the safest geographical areas.

2. When one is interested in locating the areas in which the probability of observing more than a certain number of casualties is high (i.e the areas most at risk), the individual hazards and their independent combination each can indicate less geographical areas than fusion, underestimating the number and location of the geographical areas at risk.

## 8.2 Significance of Work

In this study, we have successfully addressed the complex problem of confidently assessing the risk associated with the operation of launch vehicles. Considering the projected growth of the commercial space industry<sup>56</sup>, the outcomes of this study are of significance, as they support our claim that current practices fail to rigorously investigate the safety impact of any future spaceport site on the populated areas and infrastructure in its vicinity. Through information fusion, our framework leaves the decision makers with the option of selecting a preferred level of conservatism to make a decision, ranging from the pessimistic to the optimistic, without however falling into the extremes (overly pessimistic or optimistic), which

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<sup>56</sup> Which involves both the development of new launch vehicle and, the development of new spaceports.

are the only options available with current practices. Figure 8.1 illustrates the decision process with this framework, as applied to launch vehicle risk analysis.

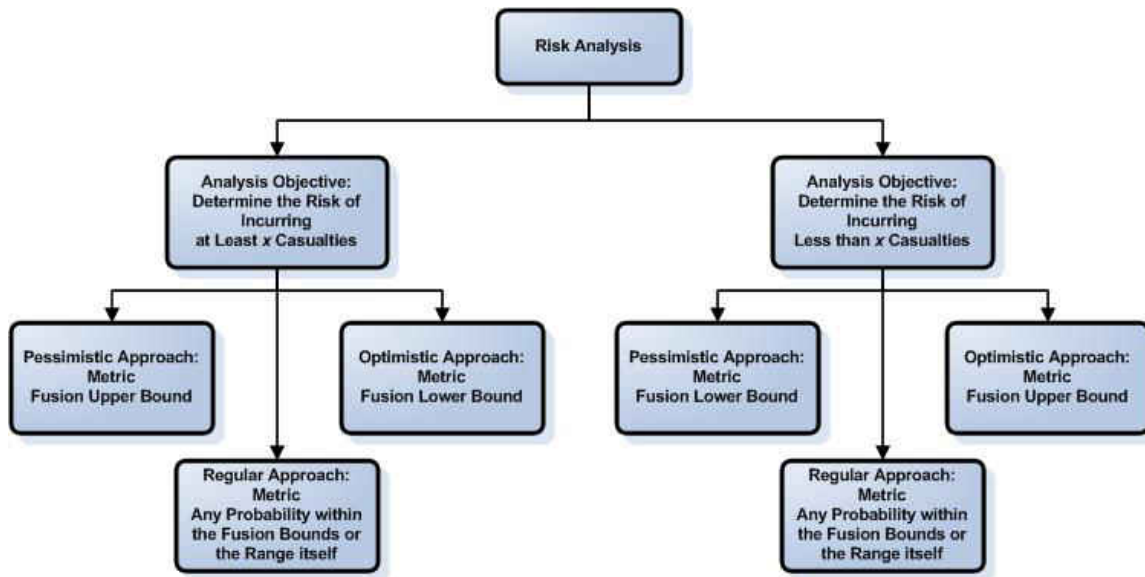


Figure 8.1 Decision making process within the proposed framework

### 8.2.1 Limitations

Some assumptions had to be made when performing the complex hazards' modeling processes. The complexities of debris, blast and gas dispersion, combined with the limited amount of historical data are the primary reasons for those assumptions. However, most of those assumptions, for which we provide a clear explanation for making them, are similar to those made in current practices. Therefore, it is highly unlikely that the conclusions reached in this work could be altered because of them.

Also, in designing our case, the assumption was made that the spaceport proposed by the state Oklahoma is intended to operate a vehicle as large as the Space Shuttle. Clearly, there is no

basis for this. Instead, our study focused on the modeling approach and, on the differences between estimates rather on the estimates themselves. This study addresses the real problem of licensing inland spaceports by providing a framework within which such a spaceport could be evaluated.

A computer implementation of a mathematical sheltering model was performed in this study. However, since this sheltering did not address the gas or the blast hazard, sheltering was not considered in the case study. However, as sheltering would have had to be implemented in all cases (whether individual hazards, independent combination of hazards or fusion), it is only a factor on the value of the estimates, not on the relationship between those estimates, which as we mentioned earlier was the focus of this study.

This study concentrated on a single launch trajectory, analyzing a large number of breakup scenarios within that trajectory. To evaluate a spaceport (or the adequacy of a vehicle to be operated from that spaceport), the same analyzing should be performed for all the realistic launch and return trajectories.

### 8.3 Directions for Future Research

The framework being proposed in this study opens a number of research avenues in assessing and analyzing the risk generated by the operations of launch vehicles, two of which are described below.



### 8.3.1 Risk on Infrastructure

In this study, the only risk which has been considered is the one incurred by the populations on the ground. Although the risk of human casualties should be the prime concern to the decision makers, the risk posed on the integrity of the infrastructure on land and, in the air (flying aircrafts) should also be considered. In other words, a decision of whether to operate a launch vehicle, or open a spaceport site for business should not be based solely on the risk it could pose to the populations on the ground, but also on the infrastructure, as their destruction could have far reaching economical and even psychological impacts.

This framework could be used to model the effects of those hazards on all types of infrastructures, whether they be man-made, such as office buildings, manufacturing plants and private homes or nature's landmarks, such as water resources, vegetations and, the air we breathe. The integration of geographical information systems capabilities within our framework is particularly well-suited for extending the assessment and analysis of risk in those directions.

### 8.3.2 Interdisciplinary Software Solution

Given the complexity of the problem being addressed and, its inherent interdisciplinary nature, there is a need for a software or a suite of software solutions which could implement the framework proposed in this study. The primary objectives of such a tool would be to reduce the interdisciplinary knowledge requirement from the analyst(s) while providing this individual or group of individuals with the best platform from which a comprehensive risk analysis can be performed and, risk mitigation procedures developed. The extension of the framework in the directions mentioned in Section 8.3.1 only reinforces the need for such a tool as the

interdisciplinary nature of the problem would only be enlarged. To serve its purpose, as envisioned in this study, this risk assessment suite of software would need to offer its users with key options:

1. Hazard Modeling: The user should be given the option of selecting a hazard model from a list of available models for each hazard of interest to the user. The same should be the case for sheltering models for each of hazard under study.

2. Fusion: As the number of fusion approaches being developed increases, all presenting their own sets of strengths and weaknesses, the user should be given the option of choosing from a variety of fusion schemes. As was discussed in Chapter 3, while some schemes are particularly suited to address the complexities of interactions between the sources of information being fused, others are preferable schemes when there is a need to identify those information sources which are redundant. On the other hand, both types could be used in a multiple fusion stages process to take advantage of the strength of each.

3. GIS: Our study used ArcGIS, the acknowledged standard, at the time of this study, among GIS software. However, being not the only GIS software available and, with the emergence of other GIS solutions such as Google Earth, the user should be given the option of selecting the GIS solution best suited for his or her analysis.

Evidently, given the requirements described above, the approach used to develop such a software solution is critical. A web-based, distributed system approach is attractive, as it will address the obvious computer resources requirement, the need for communication standard within the suite and, equally important, the need for protecting proprietary privileges.

## 8.4 Contribution to the Body of Knowledge

Our study contributes to the body of knowledge in several categories. From our extensive review of the published literature, each of the contributions, which we grouped in four categories, constitutes a “first” either in terms of its application or its development. Each contribution described below builds on and expands the scope of impact of the contribution described before it.

### 8.4.1 A New Application for DEnv

We provided in this study a new application for the DEnv fusion scheme. Risk analysis in the space vehicle operation industry is a significantly different application from the ones in which DEnv has been applied so far. Those applications have concentrated primarily on reliability and economic dispatch problems in the electric power generation industry.

### 8.4.2 First Application of Fusion for Space Ranges

To our knowledge, our study provides the first application of fusion in general for space vehicle ranges. Proposing the use of fusion theory to combine in a seamless manner the effects of the different hazards produced by launch vehicles, is a significant contribution. We showed in our study that fusion, when properly implemented, provides results which are significantly better (more informative while being less conservative) than those that are generated with current methods.

#### 8.4.3 A New Metric for Space Vehicles Risk Analysis

With the use of fusion, we developed and are proposing a new risk metric for space vehicle risk analysis. Our study has shown that this metric, effectively addresses the lack of a common risk metric with current methods. This new risk metric focuses on the range of probabilities of exceeding or not exceeding a pre-specified expected number of casualties, rather than on the mean value of this number. We showed in our discussion (Section 7.5.2) how easily this metric can be shown graphically, on a map.

We have selected the Census County Subdivision (CCD) as the default geographical unit for our analysis. Clearly, a smaller level, such as a census tract or block group or a larger one, such the county level could have been selected. Selecting one census level versus another should depend on the level of accuracy required for the analysis. For example, a risk analysis aimed at selecting a spaceport site may only need focusing on the larger census levels, as we did in our study. However, a risk analysis aimed as developing a risk mitigation procedure, where communicating with rescue crews on the ground may need more accuracy. For such analysis, a smaller level such as block groups may be preferable. However, regardless of the type of risk analysis, the risk metric we propose, based on fusion would perform equally well.

#### 8.4.4 A Framework for Risk Analysis

In this study, a new framework aimed at assessing the risk generated by the operation of space launch vehicles – as they fly to or return from orbit – which makes use of information fusion theory, hazards’ dispersion modeling and, geographical statistical analysis and visualization capabilities of geographical information systems was developed. Within this

framework, as we mentioned earlier, a new risk metric, which focuses on the range of probabilities of exceeding or not exceeding a pre-specified expected number of casualties, rather than on the mean value of this number, has been proposed. This framework, along with its metric provides a way to seamlessly integrate as many hazard factors as could be produced by a launch vehicle, regardless of the nature of their effects (whether some of them are discrete and others continuous over their impact areas), or the nature of their impact areas (whether they are highly congruent or even non-congruent) in order to estimate the overall risk they generate on populated areas.

Risk analysis and mitigation has gained great interest in recent years. Ranging from widely diversified industries such as the manufacturing industry or service industry to fields such as natural or man-made disaster management and homeland security, risk assessment, management and, mitigation efforts have taken center stages, increasingly gaining greater priority over the faster-better-cheaper philosophy in high-risk enterprises. Whenever critical spatial information is needed, and there are a large number of highly heterogeneous and uncertain factors contributing to the risk being considered, our framework provides a basis from which risk assessment, management and mitigation efforts can be initiated.

The following example illustrates the point just made. In an earthquake or flood disaster, the effectiveness of the response, the number of people having access to care shortly after the event has taken place and the speed with which life comes back to normal depends greatly on such factors as the shape of the disaster area, its size, its location – whether is located in densely populated areas – and on the emergency capacities of shelters and hospitals in and around the disaster area. Furthermore, secondary disasters generally occur after such an event, such as the

rupture of gas pipelines, or the falling on the ground of electrical power lines which are still active. Another, equally important factor is the decision making process itself, where local, state and federal authorities could all be involved. Clearly, the ability to use critical spatial information, such as population densities and demographics, road access, land topologies and, the ability to account for all possible scenarios, from the most pessimistic, to the most optimistic, as provided by the framework being proposed, is a significant advantage toward handling the complexities resulting from such a disaster. However, as shown in this study, a disaster need not be occurring for this framework to be of used. In fact, quite the contrary, as illustrated in Figure 8.2, this framework is most valued in mitigation efforts, where it can be used in the design, testing and implementation of emergency procedures.

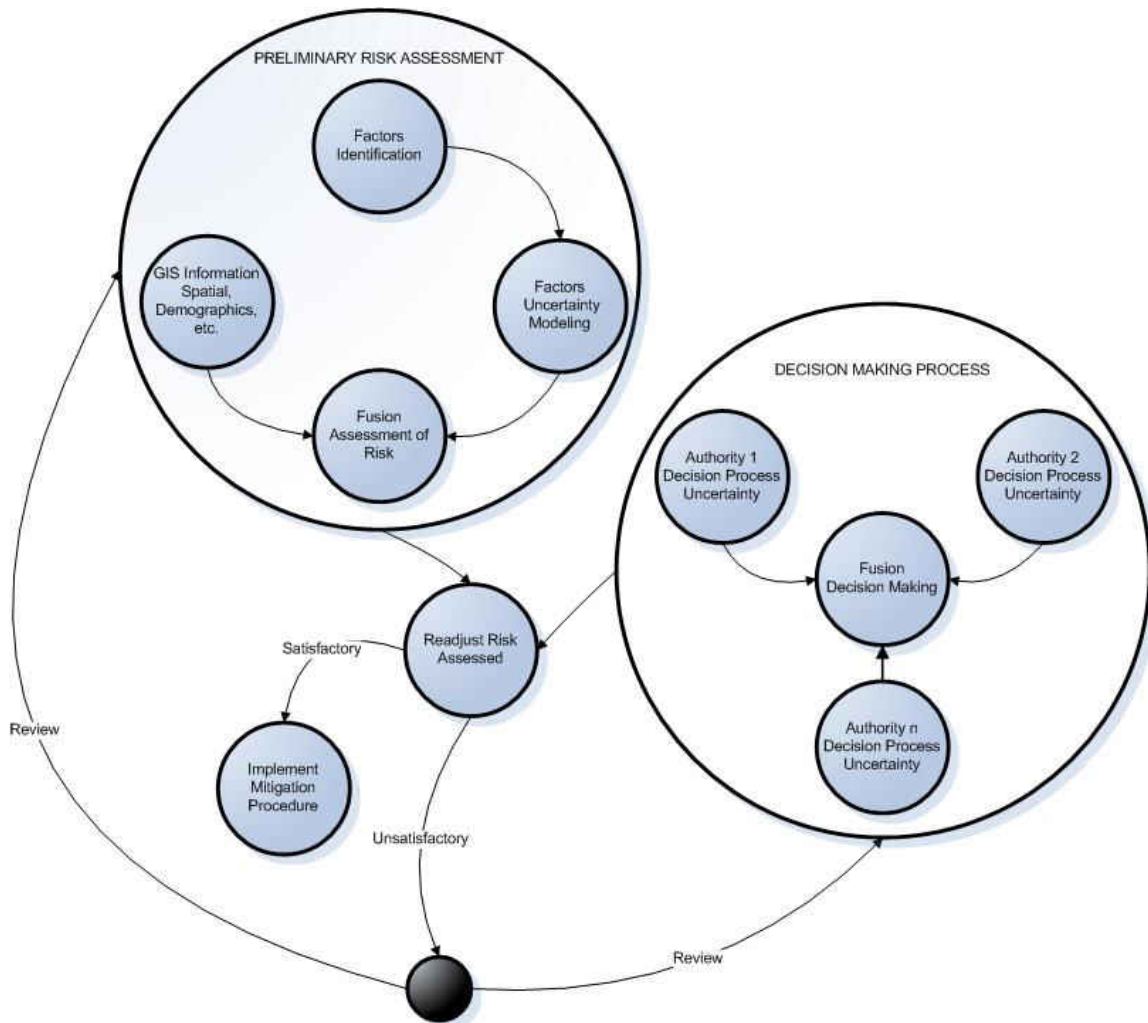
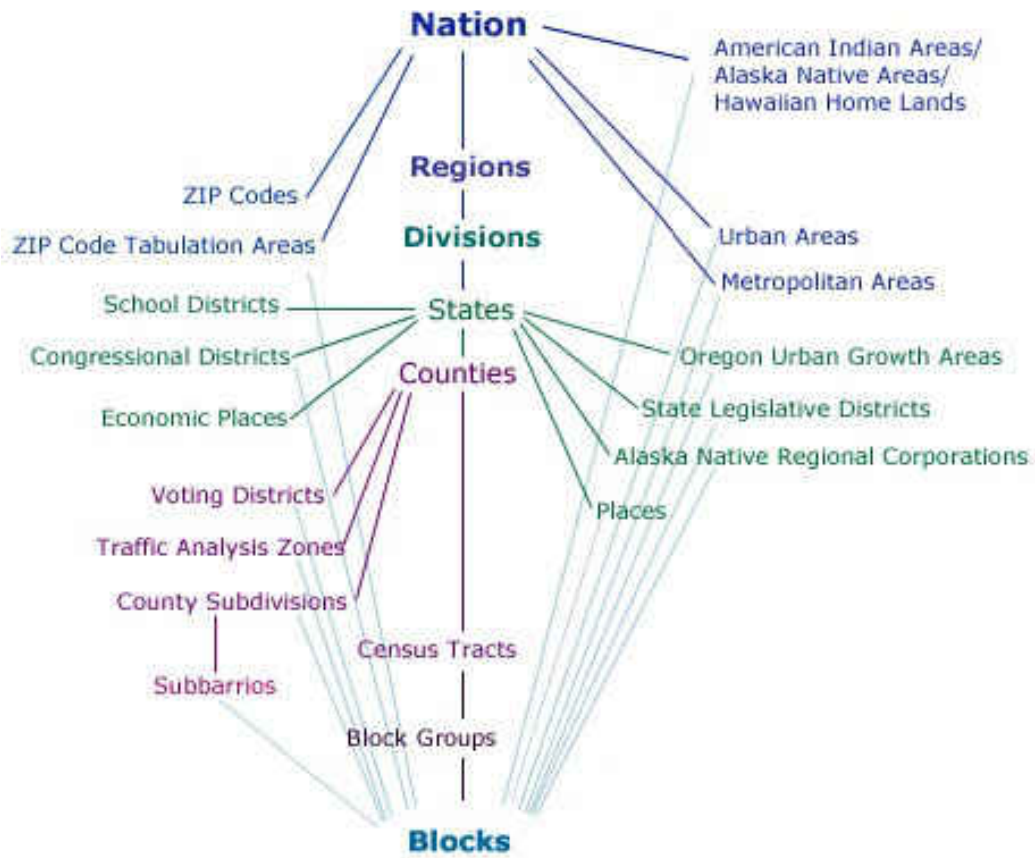


Figure 8.2 Framework for the design, testing and implementation of risk mitigation procedures in spatially critical, highly uncertain multi-factors and decision making process environments

## **APPENDIX A    CENSUS DATA AND SHELTERING MATRICES**





Census Geographic Types in the United States (www.FactFinder.com)

Note: The following paragraph was copied verbatim from the 2003 Columbia Accident Investigation Board report.

Engineering judgment was applied in order to develop translations from demographic data to building distributions. Using their experience from looking at buildings and developing sheltering models, several experts independently estimated building distributions for each census category. In order to simplify the process, each expert chose several roof types and a height distribution for each roof type. These estimates were compared, and discrepancies discussed. The resulting translations from demographic data item to structure distributions are shown in the four tables in this Appendix.

## Translation Table for Occupations

Census Category	Roof Type															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Car
Management occupations, except farmers and farm managers	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Farmers and farm managers	0.0	28.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	20.0	0.0	0.0	0.0	25.0
Business operation specialist	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Financial specialists	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Computer and mathematical Occupations	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Architects, surveyors, cartographers, and engineers	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Drafters, engineering, and mapping technicians	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Life, physical, and social science occupations	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Community and social services occupations	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Legal occupations	0.0	11.7	6.5	1.8	7.7	6.4	10.9	9.0	7.0	9.0	0.0	20.0	5.6	3.0	0.3	1.0
Education, training, and library occupations	0.0	20.9	5.3	3.8	16.3	8.4	5.2	16.3	8.4	5.2	0.0	5.0	2.7	1.2	0.2	1.0
Arts, design, entertainment, sports, and media occupations	20.0	17.7	2.4	0.0	8.7	7.0	9.3	8.7	7.0	9.3	0.0	0.0	0.0	0.0	0.0	10.0
Health diagnosing and treating practitioners and technical occupations	0.0	12.0	6.8	1.3	8.6	7.4	13.9	8.7	7.0	9.3	0.0	15.0	5.6	3.1	0.3	1.0
Health technologists and technicians	0.0	12.0	6.8	1.3	8.6	7.4	13.9	8.7	7.0	9.3	0.0	15.0	5.6	3.1	0.3	1.0
Healthcare support occupations	0.0	12.0	6.8	1.3	8.6	7.4	13.9	8.7	7.0	9.3	0.0	15.0	5.6	3.1	0.3	1.0
Fire fighting, prevention, and law enforcement workers, including supervisors	20.0	1.3	0.6	0.1	9.9	4.3	0.8	16.6	7.2	1.3	0.0	2.0	0.7	0.3	0.1	35.0
Other protective service workers, including supervisors	10.0	1.3	0.6	0.1	16.6	7.2	1.3	26.5	11.5	2.0	0.0	2.0	0.7	0.3	0.1	20.0
Food preparation and serving related occupations	0.0	34.6	4.2	0.2	8.5	5.5	6.0	8.5	5.5	6.0	0.0	5.0	13.2	1.7	0.1	1.0
Building and grounds cleaning and maintenance occupations	20.0	24.4	2.6	0.1	7.7	5.0	5.4	7.7	5.0	5.4	0.0	1.0	0.7	0.3	0.1	15.0
Personal care and service occupations	0.0	34.6	4.2	0.2	8.5	5.5	6.0	8.5	5.5	6.0	0.0	5.0	13.2	1.7	0.1	1.0
Sales and related occupations	0.0	33.8	5.0	0.2	7.6	5.6	6.9	7.6	5.6	6.9	0.0	5.0	12.9	2.0	0.1	1.0
Office and administrative support occupations	0.0	12.7	6.0	1.4	10.3	7.8	11.9	10.2	6.9	7.9	0.0	15.0	5.9	2.7	0.4	1.0
Farming, fishing, and forestry occupations	50.0	4.8	0.3	0.0	0.5	0.0	0.0	0.5	0.0	0.0	5.0	5.0	4.8	0.3	0.0	29.0
Supervisors, construction and extraction workers	0.0	12.7	6.0	1.4	10.3	7.8	11.9	10.2	6.9	7.9	0.0	15.0	5.9	2.7	0.4	1.0
Construction trade workers	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	40.0
Extraction workers	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	40.0
Installation, maintenance, and repair occupations	20.0	24.9	4.6	0.5	7.2	4.7	5.1	6.8	4.4	4.8		1.0	0.7	0.3	0.1	15.0
Production occupations	0.0	3.2	1.6	0.2	10.8	2.9	0.3	15.4	4.2	0.4	50.0	5.0	5.0	1.6	0.2	1.0
Supervisors, transportation and material moving workers	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	20.0
Aircraft and traffic control occupations	10.0	0.0	0.0		23.6	5.6	0.8	23.6	5.6	0.8		0.0	0.0	0.0	0.0	30.0
Motor vehicle operators	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0
Rail, water and other transportation occupations	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	50.0
Material moving workers	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.4	0.0	0.0	0.0	0.0	33.3

Translation Table for House/Apartments

	Roof Type															
Census Category	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Car
1-detached	0.0	57.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.5	1.5	0.0	10.0
1-attached	0.0	57.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.5	1.5	0.0	10.0
2 units	0.0	54.8	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4	2.6	0.0	10.0
3 or 4 units	0.0	48.6	9.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.3	4.8	0.9	10.0
5 to 9 units	0.0	29.8	12.9	2.3	5.4	2.8	1.7	5.4	2.8	1.7	0.0	0.0	16.6	7.2	1.3	10.0
10 to 19 units	0.0	26.5	11.5	2.0	8.2	4.2	2.6	8.2	4.2	2.6	0.0	0.0	13.3	5.8	1.0	10.0
20 to 49 units	0.0	20.2	8.2	1.6	11.1	6.9	7.0	11.1	6.9	7.0	0.0	0.0	6.7	2.7	0.5	10.0
50+ units	0.0	12.6	6.6	0.8	7.3	6.7	15.9	9.2	7.5	13.3	0.0	0.0	6.3	3.3	0.4	10.0
Mobile home	0.0	42.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	10.0
Boat, RV, van, etc.	0.0	42.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	10.0

Translation Table for Schools

	Roof Type															
Census Category	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Car
School	15.0	34.2	3.3	0.0	9.3	4.8	3.0	9.3	4.8	3.0	0.0	4.3	7.7	0.8	0.0	0.9

Translation Table for Group Quarters

	Roof Type															
Census Categories	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Car
Group Quarters	0.0	29.8	12.9	2.3	4.3	2.8	3.0	6.4	4.1	4.5	0.0	0.0	16.6	7.2	1.3	5.0

## **APPENDIX B    DEBRIS MODELING OUTPUTS**

The tables in this appendix are the outputs generated by DRAMA for 89 simulated breakup scenarios. In each breakup, the trajectories of 100 groups of debris are estimated. The definitions of the parameters and, their units are listed below.

<b>BALCOEF:</b>	Ballistic Coefficient (unit: $\text{kg/m}^2$ )
<b>XF:</b>	x - Impact point coordinate with respect to the launch pad (unit: meters)
<b>YF:</b>	y - Impact point coordinate with respect to the launch pad (unit: meters)
<b>SIGDR:</b>	standard deviation (uncertainty) in the downrange direction (unit: meters)
<b>SIGCR:</b>	standard deviation (uncertainty) in the crossrange direction (unit: meters)
<b>TIME:</b>	Time of breakup (unit: seconds after launch) – recorded in the first row of each table
<b>X:</b>	x - impact point coordinate with respect to the launch pad in UTM-14N coordinates (unit: meters)
<b>Y:</b>	y - impact point coordinate with respect to the launch pad in UTM-14N coordinates (unit: meters)

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
87.31	3788.08	1311.12	260.88	614.98	<b>29.93</b>	484604.00	3912692.00
55.30	4332.12	1574.14	409.68	643.59	0.00	485148.00	3912955.00
271.40	2833.16	861.71	324.75	716.07	0.00	483649.00	3912242.00
103.31	3614.04	1230.05	366.56	712.73	0.00	484430.00	3912611.00
178.66	3129.05	1006.94	318.25	643.78	0.00	483945.00	3912388.00
326.87	2712.58	801.83	295.47	724.76	0.00	483529.00	3912183.00
173.73	3152.74	1017.21	321.90	689.58	0.00	483969.00	3912398.00
333.65	2695.96	801.04	348.77	696.94	0.00	483512.00	3912182.00
247.23	2893.42	891.87	347.47	751.10	0.00	483710.00	3912273.00
421.86	2581.77	733.17	292.27	604.64	0.00	483398.00	3912114.00
181.89	3115.07	998.57	327.37	690.48	0.00	483931.00	3912379.00
137.29	3339.25	1104.66	285.11	667.03	0.00	484156.00	3912485.00
198.07	3055.18	968.84	342.39	627.73	0.00	483871.00	3912350.00
84.81	3814.69	1335.15	385.93	629.22	0.00	484631.00	3912716.00
105.55	3587.30	1219.32	224.26	640.57	0.00	484404.00	3912600.00
436.58	2551.33	726.48	324.17	638.01	0.00	483368.00	3912107.00
362.10	2652.75	776.36	302.70	645.00	0.00	483469.00	3912157.00
243.13	2905.63	897.31	309.27	712.63	0.00	483722.00	3912278.00
230.37	2946.71	911.38	318.32	623.02	0.00	483763.00	3912292.00
227.25	2951.80	917.46	275.37	658.07	0.00	483768.00	3912298.00
52.09	4412.82	1610.82	363.18	765.03	0.00	485229.00	3912992.00
280.38	2815.45	852.76	396.27	607.46	0.00	483632.00	3912234.00
315.31	2738.65	813.93	301.07	673.74	0.00	483555.00	3912195.00
631.48	2368.14	629.22	331.72	692.47	0.00	483184.00	3912010.00
241.28	2907.12	897.51	283.30	652.32	0.00	483723.00	3912278.00
338.71	2701.61	798.25	352.11	598.88	0.00	483518.00	3912179.00
396.02	2598.48	753.53	282.09	472.72	0.00	483415.00	3912134.00
146.30	3292.50	1078.11	338.56	650.99	0.00	484109.00	3912459.00
432.23	2542.79	725.93	280.15	607.03	0.00	483359.00	3912107.00
187.96	3093.51	981.43	248.81	614.12	0.00	483910.00	3912362.00
407.86	2583.94	748.57	374.02	557.17	0.00	483400.00	3912129.00
611.54	2368.30	642.30	325.66	624.85	0.00	483185.00	3912023.00
97.47	3671.33	1259.53	309.83	661.53	0.00	484488.00	3912640.00
286.60	2798.72	847.46	357.23	611.92	0.00	483615.00	3912228.00
405.98	2586.72	740.96	333.86	697.85	0.00	483403.00	3912122.00
422.35	2564.88	730.54	292.01	636.94	0.00	483381.00	3912111.00
260.06	2864.85	873.73	300.92	621.23	0.00	483681.00	3912255.00
346.35	2681.15	784.80	274.08	631.18	0.00	483497.00	3912166.00
336.48	2699.52	793.25	301.89	594.14	0.00	483516.00	3912174.00
552.13	2418.75	666.82	322.11	546.16	0.00	483235.00	3912048.00
487.25	2495.01	697.03	330.60	642.66	0.00	483311.00	3912078.00
53.67	4372.43	1589.51	328.59	678.20	0.00	485189.00	3912970.00
50.59	4453.98	1631.60	377.46	634.14	0.00	485270.00	3913012.00
120.06	3464.53	1165.60	331.46	715.66	0.00	484281.00	3912546.00
88.89	3763.52	1304.42	304.63	720.05	0.00	484580.00	3912685.00
363.42	2643.72	765.56	300.58	671.28	0.00	483460.00	3912146.00
30.17	5266.38	2009.70	343.21	685.13	0.00	486083.00	3913390.00
92.87	3717.12	1281.16	289.69	677.48	0.00	484533.00	3912662.00
222.34	2971.04	931.34	300.22	526.03	0.00	483787.00	3912312.00
306.84	2748.70	823.57	325.28	674.57	0.00	483565.00	3912204.00

690.67	2322.19	612.20	282.69	679.51	0.00	483138.00	3911993.00
325.20	2716.80	809.97	332.38	673.27	0.00	483533.00	3912191.00
298.05	2771.67	832.33	291.94	591.56	0.00	483588.00	3912213.00
229.13	2946.49	914.22	361.15	720.04	0.00	483763.00	3912295.00
417.32	2575.67	736.76	346.03	582.86	0.00	483392.00	3912118.00
210.64	3004.47	942.30	350.12	655.14	0.00	483821.00	3912323.00
223.50	2959.75	926.60	318.32	622.83	0.00	483776.00	3912307.00
57.51	4281.40	1542.90	310.23	724.95	0.00	485098.00	3912924.00
168.53	3181.15	1027.64	320.66	657.69	0.00	483997.00	3912408.00
434.37	2554.70	729.24	330.41	590.89	0.00	483371.00	3912110.00
322.24	2723.68	807.52	303.21	641.25	0.00	483540.00	3912188.00
261.10	2861.70	872.84	286.78	560.54	0.00	483678.00	3912254.00
669.23	2329.52	617.04	355.94	641.00	0.00	483146.00	3911998.00
253.57	2875.43	885.86	277.77	530.25	0.00	483692.00	3912267.00
150.42	3264.99	1071.73	318.62	589.50	0.00	484081.00	3912453.00
323.70	2717.27	810.65	345.22	645.60	0.00	483534.00	3912191.00
394.05	2599.28	752.62	276.77	621.80	0.00	483416.00	3912133.00
241.54	2905.23	899.63	306.54	720.93	0.00	483722.00	3912280.00
281.00	2806.97	852.49	351.41	686.68	0.00	483623.00	3912233.00
232.08	2935.04	918.45	397.88	597.69	0.00	483751.00	3912299.00
296.51	2771.98	836.30	285.99	559.28	0.00	483588.00	3912217.00
91.48	3736.72	1293.31	331.55	618.39	0.00	484553.00	3912674.00
320.26	2730.69	812.88	325.04	587.15	0.00	483547.00	3912194.00
304.06	2759.98	825.77	280.00	629.00	0.00	483576.00	3912207.00
599.53	2395.87	642.95	249.17	532.07	0.00	483212.00	3912024.00
67.17	4085.91	1454.59	317.32	629.14	0.00	484902.00	3912835.00
159.74	3207.85	1050.58	360.12	612.65	0.00	484024.00	3912431.00
107.60	3573.53	1213.20	317.05	708.77	0.00	484390.00	3912594.00
218.50	2974.67	934.71	344.95	701.48	0.00	483791.00	3912315.00
300.74	2762.42	827.14	265.69	683.20	0.00	483579.00	3912208.00
275.90	2819.31	855.59	339.68	634.97	0.00	483636.00	3912236.00
37.38	4904.26	1842.10	349.31	768.83	0.00	485721.00	3913223.00
360.45	2661.47	775.41	318.42	624.19	0.00	483478.00	3912156.00
179.94	3121.24	1001.63	303.06	659.54	0.00	483938.00	3912382.00
330.58	2712.20	804.49	335.61	511.77	0.00	483528.00	3912185.00
371.92	2637.26	768.85	380.59	646.05	0.00	483454.00	3912150.00
156.25	3237.18	1054.75	322.05	705.70	0.00	484053.00	3912436.00
933.00	2208.45	546.57	379.79	646.13	0.00	483025.00	3911927.00
189.88	3076.08	985.42	355.61	580.05	0.00	483892.00	3912366.00
58.06	4267.93	1542.51	339.46	629.62	0.00	485084.00	3912923.00
460.77	2509.45	708.11	309.51	644.56	0.00	483326.00	3912089.00
308.33	2758.97	817.00	315.92	629.65	0.00	483575.00	3912198.00
186.41	3095.20	983.85	335.94	631.04	0.00	483911.00	3912365.00
390.24	2621.22	752.20	324.99	758.06	0.00	483438.00	3912133.00
301.05	2761.94	829.63	324.79	624.92	0.00	483578.00	3912210.00
328.82	2702.67	805.69	333.60	561.93	0.00	483519.00	3912186.00
128.82	3400.03	1132.00	302.80	587.82	0.00	484216.00	3912513.00
61.10	4206.76	1513.55	331.48	712.82	0.00	485023.00	3912894.00
99.63	3647.19	1254.45	358.26	489.43	0.00	484463.00	3912635.00
474.24	2502.14	703.46	312.61	584.22	0.00	483318.00	3912084.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
104.48	27920.13	8740.48	1954.32	2053.11	<b>69.79</b>	508736.00	3920121.00
146.95	26315.12	7983.91	1488.84	2252.68	0.00	507131.00	3919365.00
311.04	23643.65	6692.82	865.28	1312.28	0.00	504460.00	3918074.00
116.65	27372.50	8479.38	1317.59	1511.60	0.00	508189.00	3919860.00
708.66	21743.71	5765.65	775.63	821.24	0.00	502560.00	3917146.00
131.56	26808.09	8198.98	1274.58	2121.33	0.00	507624.00	3919580.00
215.76	24823.49	7273.33	931.83	1188.58	0.00	505640.00	3918654.00
296.20	23783.06	6784.57	1044.26	1286.53	0.00	504599.00	3918165.00
62.59	30920.36	10132.41	2071.10	2472.82	0.00	511737.00	3921513.00
220.67	24737.80	7243.79	893.42	926.27	0.00	505554.00	3918625.00
307.74	23674.92	6724.29	886.34	1034.91	0.00	504491.00	3918105.00
343.75	23360.08	6571.29	832.02	1018.47	0.00	504176.00	3917952.00
437.36	22740.46	6270.49	707.46	648.11	0.00	503557.00	3917651.00
242.05	24420.26	7082.21	931.80	1259.78	0.00	505237.00	3918463.00
378.61	23097.51	6436.19	864.28	1142.57	0.00	503914.00	3917817.00
367.42	23174.56	6485.51	830.87	923.93	0.00	503991.00	3917866.00
177.23	25548.18	7621.00	1063.97	1201.49	0.00	506364.00	3919002.00
357.28	23251.84	6513.94	845.24	1088.48	0.00	504068.00	3917895.00
187.39	25329.73	7515.45	1302.42	1685.60	0.00	506146.00	3918896.00
214.95	24831.28	7275.06	1056.27	1489.95	0.00	505648.00	3918656.00
167.35	25779.30	7716.59	1027.15	1413.77	0.00	506596.00	3919097.00
460.08	22617.70	6207.10	736.44	728.20	0.00	503434.00	3917588.00
700.44	21768.28	5773.79	703.04	769.64	0.00	502585.00	3917155.00
161.67	25908.36	7790.92	1301.12	1753.62	0.00	506725.00	3919172.00
122.30	27149.92	8388.69	1367.60	1547.74	0.00	507966.00	3919769.00
78.71	29483.92	9468.93	1297.99	1835.60	0.00	510300.00	3920850.00
233.02	24549.23	7146.58	982.44	1222.47	0.00	505366.00	3918527.00
64.98	30675.15	10022.25	2083.84	2364.88	0.00	511491.00	3921403.00
174.47	25609.72	7643.55	1237.71	1768.51	0.00	506426.00	3919024.00
138.57	26568.08	8098.62	1359.24	1985.18	0.00	507384.00	3919479.00
403.38	22940.22	6361.73	794.70	967.91	0.00	503757.00	3917743.00
295.86	23785.43	6784.80	1147.78	1388.06	0.00	504602.00	3918166.00
41.55	33938.18	11551.62	2262.60	3419.37	0.00	514754.00	3922932.00
51.01	32350.53	10813.51	2119.55	2835.85	0.00	513167.00	3922194.00
205.18	25000.44	7354.40	994.99	1193.39	0.00	505817.00	3918735.00
328.86	23485.35	6629.72	739.01	776.57	0.00	504302.00	3918011.00
372.63	23140.94	6460.90	836.55	1110.90	0.00	503957.00	3917842.00
554.97	22205.20	5997.34	774.98	933.55	0.00	503021.00	3917378.00
418.86	22843.89	6319.35	828.68	956.85	0.00	503660.00	3917700.00
81.77	29260.68	9353.35	1364.84	2207.38	0.00	510077.00	3920734.00
367.39	23182.92	6482.24	859.99	1051.99	0.00	503999.00	3917863.00
107.05	27801.58	8684.09	1930.05	2222.18	0.00	508618.00	3920065.00
224.21	24683.91	7204.81	1009.40	1324.13	0.00	505500.00	3918586.00
128.58	26912.30	8258.50	1464.38	1936.79	0.00	507729.00	3919639.00
256.57	24228.98	6992.72	1136.59	1356.24	0.00	505045.00	3918373.00
34.83	35439.95	12246.01	2365.41	4495.22	0.00	516256.00	3923627.00
72.02	30024.16	9717.34	1582.81	2348.60	0.00	510840.00	3921098.00
194.90	25188.85	7444.37	948.31	1381.48	0.00	506005.00	3918825.00
318.72	23572.74	6669.18	891.70	1174.45	0.00	504389.00	3918050.00
509.74	22385.83	6094.58	932.42	1136.23	0.00	503202.00	3917475.00

53.56	31994.41	10645.34	2514.83	3534.26	0.00	512811.00	3922026.00
147.38	26299.96	7978.14	1221.92	1604.65	0.00	507116.00	3919359.00
171.96	25664.10	7668.01	953.80	1355.58	0.00	506480.00	3919049.00
352.10	23291.76	6545.15	786.59	796.02	0.00	504108.00	3917926.00
379.24	23096.48	6447.98	904.22	1076.97	0.00	503913.00	3917829.00
306.03	23687.83	6725.18	731.39	870.83	0.00	504504.00	3918106.00
348.88	23317.04	6551.58	906.23	1161.29	0.00	504133.00	3917932.00
373.15	23135.47	6462.06	906.71	1037.08	0.00	503952.00	3917843.00
346.51	23334.10	6564.41	968.54	1079.86	0.00	504150.00	3917945.00
194.19	25201.52	7453.31	1156.98	1614.29	0.00	506018.00	3918834.00
164.52	25840.29	7762.95	1542.60	1777.56	0.00	506657.00	3919144.00
459.54	22621.16	6204.07	786.80	903.90	0.00	503437.00	3917585.00
281.45	23943.99	6853.42	1004.77	1289.91	0.00	504760.00	3918234.00
347.24	23328.81	6560.03	906.58	1093.98	0.00	504145.00	3917941.00
303.08	23712.86	6746.48	1009.10	1333.16	0.00	504529.00	3918127.00
243.42	24403.20	7072.80	980.20	1156.15	0.00	505219.00	3918454.00
236.83	24495.55	7110.00	895.36	1117.00	0.00	505312.00	3918491.00
350.64	23302.09	6539.77	756.03	977.77	0.00	504118.00	3917921.00
496.84	22444.64	6123.34	816.18	905.25	0.00	503261.00	3917504.00
213.86	24847.10	7285.43	966.53	1226.32	0.00	505663.00	3918666.00
183.75	25405.57	7556.29	1071.19	1319.90	0.00	506222.00	3918937.00
200.31	25083.43	7391.71	1015.39	1477.52	0.00	505900.00	3918772.00
493.70	22460.91	6126.92	763.04	831.70	0.00	503277.00	3917508.00
160.60	25941.94	7788.08	1154.02	1734.95	0.00	506758.00	3919169.00
381.85	23074.36	6439.44	787.68	847.31	0.00	503891.00	3917820.00
79.92	29394.38	9419.91	1354.81	2107.10	0.00	510211.00	3920801.00
393.99	22993.33	6395.06	864.01	1039.19	0.00	503810.00	3917776.00
332.07	23453.15	6614.10	890.29	1218.51	0.00	504269.00	3917995.00
177.66	25540.46	7622.53	1398.36	1674.00	0.00	506357.00	3919003.00
319.02	23565.16	6674.92	962.33	1128.42	0.00	504381.00	3918056.00
118.98	27275.03	8445.09	1322.11	1527.79	0.00	508091.00	3919826.00
202.44	25045.04	7363.06	984.97	1667.62	0.00	505861.00	3918744.00
494.35	22454.10	6133.53	880.51	1007.50	0.00	503270.00	3917514.00
221.69	24721.03	7228.53	1111.40	1314.11	0.00	505537.00	3918609.00
271.02	24058.26	6913.32	1160.42	1361.38	0.00	504875.00	3918294.00
411.92	22887.09	6336.47	779.24	972.02	0.00	503703.00	3917717.00
872.41	21407.04	5575.94	630.73	582.71	0.00	502223.00	3916957.00
195.07	25184.74	7449.25	1123.51	1359.93	0.00	506001.00	3918830.00
304.01	23706.74	6729.22	951.65	1459.18	0.00	504523.00	3918110.00
201.20	25071.34	7384.54	887.32	1151.56	0.00	505888.00	3918765.00
252.56	24276.81	7019.71	1303.68	1529.76	0.00	505093.00	3918400.00
187.34	25337.45	7522.00	1206.77	1445.85	0.00	506154.00	3918903.00
212.98	24862.23	7287.77	1090.80	1726.68	0.00	505679.00	3918669.00
125.80	27016.58	8318.57	1317.84	1480.17	0.00	507833.00	3919699.00
250.20	24317.11	7033.28	935.76	1124.44	0.00	505133.00	3918414.00
310.80	23646.95	6703.92	717.22	717.45	0.00	504463.00	3918085.00
632.40	21942.68	5867.50	761.04	897.08	0.00	502759.00	3917248.00
91.95	28597.72	9048.90	1389.86	2031.48	0.00	509414.00	3920430.00
486.00	22487.89	6145.05	814.04	939.26	0.00	503304.00	3917526.00
489.40	22473.32	6135.85	745.85	846.48	0.00	503290.00	3917517.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
96.51	85817.82	25425.71	2023.01	2033.94	<b>106.49</b>	566634.00	3936806.00
636.59	70728.27	18237.97	1388.09	945.93	0.00	551545.00	3929619.00
179.80	79101.07	22267.07	1751.77	1664.24	0.00	559917.00	3933648.00
51.37	95183.07	29807.12	2655.01	2958.52	0.00	575999.00	3941188.00
361.56	73753.34	19721.24	1534.94	1280.16	0.00	554570.00	3931102.00
73.00	89599.82	27188.47	2541.75	3126.50	0.00	570416.00	3938569.00
268.22	75794.24	20696.95	1555.38	1277.68	0.00	556611.00	3932078.00
629.52	70777.44	18258.51	1384.55	927.58	0.00	551594.00	3929639.00
317.36	74603.81	20129.03	1528.56	1255.83	0.00	555420.00	3931510.00
292.73	75162.09	20396.98	1575.44	1345.72	0.00	555978.00	3931778.00
327.17	74401.06	20031.57	1534.15	1231.35	0.00	555217.00	3931412.00
278.04	75530.47	20570.97	1573.40	1348.44	0.00	556347.00	3931952.00
277.63	75543.29	20577.92	1635.43	1502.69	0.00	556360.00	3931959.00
121.15	83109.64	24152.99	2094.70	2316.29	0.00	563926.00	3935534.00
770.41	69939.29	17836.39	1328.31	735.64	0.00	550756.00	3929217.00
214.73	77545.25	21528.90	1714.67	1626.31	0.00	558362.00	3932910.00
474.48	72171.06	18955.85	1381.41	848.68	0.00	552987.00	3930337.00
370.05	73607.98	19642.28	1452.25	1065.05	0.00	554424.00	3931023.00
303.44	74910.13	20282.72	1541.14	1245.05	0.00	555726.00	3931664.00
390.81	73274.00	19487.22	1423.34	960.64	0.00	554090.00	3930868.00
506.46	71826.25	18783.51	1410.30	979.04	0.00	552643.00	3930164.00
811.53	69741.61	17730.81	1367.75	900.11	0.00	550558.00	3929112.00
122.92	82947.35	24083.12	2008.02	1997.87	0.00	563764.00	3935464.00
230.73	76958.28	21260.41	1618.81	1383.21	0.00	557775.00	3932641.00
381.71	73417.21	19557.75	1497.90	1200.60	0.00	554233.00	3930939.00
121.61	83067.67	24138.22	2022.56	2109.38	0.00	563884.00	3935519.00
269.58	75757.89	20683.31	1625.74	1438.07	0.00	556574.00	3932064.00
186.53	78766.51	22099.99	1801.05	1919.58	0.00	559583.00	3933481.00
602.77	70974.23	18363.35	1361.22	831.26	0.00	551791.00	3929744.00
155.54	80476.24	22924.01	1833.41	1751.92	0.00	561293.00	3934305.00
734.55	70128.62	17932.91	1394.58	1003.73	0.00	550945.00	3929314.00
320.34	74540.97	20093.54	1581.43	1437.96	0.00	555357.00	3931474.00
390.73	73274.60	19488.90	1453.19	1056.15	0.00	554091.00	3930870.00
245.61	76463.01	21013.82	1688.17	1623.45	0.00	557279.00	3932395.00
257.08	76112.20	20850.64	1589.27	1347.56	0.00	556928.00	3932231.00
396.37	73188.85	19455.10	1449.84	1041.04	0.00	554005.00	3930836.00
257.11	76113.82	20848.59	1624.53	1438.60	0.00	556930.00	3932229.00
147.83	80983.96	23147.97	1943.82	2083.78	0.00	561800.00	3934529.00
464.71	72281.52	19012.32	1429.23	1011.43	0.00	553098.00	3930393.00
513.53	71754.60	18748.88	1445.29	1109.74	0.00	552571.00	3930130.00
89.42	86799.49	25886.23	2210.54	2389.00	0.00	567616.00	3937267.00
466.75	72259.72	18994.11	1399.23	922.88	0.00	553076.00	3930375.00
627.77	70786.79	18270.05	1397.39	967.45	0.00	551603.00	3929651.00
119.25	83288.76	24236.55	1911.96	1830.11	0.00	564105.00	3935617.00
401.04	73120.06	19415.43	1515.44	1253.11	0.00	553936.00	3930796.00
107.73	84468.03	24779.81	2068.70	2169.73	0.00	565284.00	3936161.00
435.95	72635.66	19181.85	1415.57	967.19	0.00	553452.00	3930563.00
293.19	75150.92	20393.99	1623.77	1493.00	0.00	555967.00	3931775.00
198.11	78233.76	21871.51	1916.20	1944.45	0.00	559050.00	3933252.00
226.40	77111.12	21320.86	1613.34	1375.54	0.00	557927.00	3932702.00

181.84	78996.43	22214.50	1698.16	1509.05	0.00	559813.00	3933595.00
125.92	82679.87	23935.62	1882.52	1857.53	0.00	563496.00	3935316.00
655.08	70599.45	18177.46	1338.45	740.05	0.00	551416.00	3929558.00
208.28	77803.48	21658.22	1699.14	1570.81	0.00	558620.00	3933039.00
348.51	73986.65	19838.35	1489.53	1118.53	0.00	554803.00	3931219.00
180.89	79045.29	22241.87	1899.13	2022.75	0.00	559862.00	3933623.00
355.22	73864.93	19774.55	1464.67	1071.34	0.00	554681.00	3931155.00
153.59	80600.17	22967.78	1942.33	2123.74	0.00	561416.00	3934349.00
176.55	79268.10	22345.89	1741.62	1637.55	0.00	560084.00	3933727.00
127.96	82503.79	23862.39	2012.00	2214.39	0.00	563320.00	3935243.00
116.09	83592.83	24387.73	1902.81	1769.49	0.00	564409.00	3935769.00
107.00	84549.28	24808.63	2224.36	2755.56	0.00	565366.00	3936189.00
435.36	72644.38	19185.05	1425.76	990.44	0.00	553461.00	3930566.00
564.01	71289.73	18519.19	1404.75	975.46	0.00	552106.00	3929900.00
197.18	78275.10	21874.67	1663.36	1443.59	0.00	559091.00	3933255.00
107.21	84526.20	24810.25	1995.03	2015.37	0.00	565342.00	3936191.00
331.56	74309.62	19992.92	1536.73	1254.72	0.00	555126.00	3931374.00
62.56	91931.55	28280.87	2650.76	2963.55	0.00	572748.00	3939662.00
331.74	74307.47	19989.48	1575.99	1372.55	0.00	555124.00	3931370.00
432.95	72675.51	19201.59	1475.24	1134.79	0.00	553492.00	3930582.00
174.12	79396.95	22412.06	1729.03	1530.51	0.00	560213.00	3933793.00
316.66	74618.75	20134.09	1577.88	1407.38	0.00	555435.00	3931515.00
109.69	84254.13	24705.93	2312.16	2601.77	0.00	565070.00	3936087.00
455.21	72395.91	19063.73	1427.55	1015.85	0.00	553212.00	3930445.00
178.48	79168.58	22316.00	1822.12	1731.67	0.00	559985.00	3933697.00
65.15	91301.39	27990.51	2701.46	2943.82	0.00	572118.00	3939371.00
127.29	82561.01	23889.78	1988.13	2185.96	0.00	563377.00	3935271.00
326.66	74408.32	20044.11	1665.31	1542.48	0.00	555225.00	3931425.00
174.63	79369.69	22405.72	1837.74	1783.28	0.00	560186.00	3933787.00
72.61	89676.61	27232.78	2241.02	2211.77	0.00	570493.00	3938614.00
392.54	73247.43	19479.08	1512.60	1228.37	0.00	554064.00	3930860.00
448.81	72474.96	19095.11	1515.25	1295.90	0.00	553291.00	3930476.00
632.71	70755.46	18250.62	1428.14	1062.52	0.00	551572.00	3929631.00
319.95	74548.30	20108.56	1541.93	1240.28	0.00	555365.00	3931489.00
174.51	79375.26	22404.73	1700.50	1479.42	0.00	560192.00	3933786.00
217.15	77453.01	21490.99	1611.63	1329.76	0.00	558269.00	3932872.00
181.32	79022.31	22228.50	1771.93	1716.36	0.00	559839.00	3933609.00
192.12	78504.47	21990.43	1647.57	1363.06	0.00	559321.00	3933371.00
777.66	69902.59	17817.05	1373.87	922.95	0.00	550719.00	3929198.00
74.67	89271.39	27044.93	2351.45	2610.49	0.00	570088.00	3938426.00
286.91	75304.53	20469.67	1576.42	1326.25	0.00	556121.00	3931850.00
177.46	79219.84	22330.39	1838.08	1876.42	0.00	560036.00	3933711.00
543.24	71470.95	18608.11	1397.96	959.25	0.00	552287.00	3929989.00
188.62	78667.79	22061.02	1733.10	1609.27	0.00	559484.00	3933442.00
806.47	69763.56	17747.55	1309.18	651.11	0.00	550580.00	3929128.00
281.06	75452.59	20539.96	1617.01	1417.40	0.00	556269.00	3931921.00
154.99	80509.18	22932.44	1930.45	2000.23	0.00	561325.00	3934313.00
328.65	74370.20	20016.91	1589.55	1440.52	0.00	555186.00	3931398.00
132.90	82094.85	23681.52	1882.60	1792.48	0.00	562911.00	3935062.00
570.21	71236.22	18489.20	1425.10	1082.38	0.00	552053.00	3929870.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
357.35	2150.59	629.53	251.90	528.32	<b>27.98</b>	482967.00	3912010.00
75.13	3290.73	1173.10	270.52	528.24	0.00	484107.00	3912554.00
191.75	2525.26	812.81	244.66	482.99	0.00	483342.00	3912194.00
452.57	2042.71	576.47	277.65	491.29	0.00	482859.00	3911957.00
352.52	2166.04	637.65	265.34	476.91	0.00	482982.00	3912018.00
423.18	2075.31	592.41	281.14	526.81	0.00	482892.00	3911973.00
137.72	2757.84	916.62	207.31	484.30	0.00	483574.00	3912297.00
334.56	2189.34	649.18	246.26	575.09	0.00	483006.00	3912030.00
69.56	3370.07	1208.68	259.69	590.96	0.00	484186.00	3912589.00
318.35	2220.39	661.16	227.82	531.44	0.00	483037.00	3912042.00
181.17	2561.54	833.03	262.64	372.33	0.00	483378.00	3912214.00
416.23	2078.36	597.40	297.84	560.19	0.00	482895.00	3911978.00
167.25	2619.48	853.54	265.35	572.19	0.00	483436.00	3912234.00
650.52	1881.39	495.78	264.57	458.46	0.00	482698.00	3911877.00
209.29	2469.85	780.11	262.98	544.25	0.00	483286.00	3912161.00
195.31	2514.71	803.61	252.10	532.08	0.00	483331.00	3912184.00
362.85	2151.78	627.31	243.59	529.93	0.00	482968.00	3912008.00
403.34	2095.05	600.12	293.18	585.64	0.00	482911.00	3911981.00
255.79	2340.88	722.94	245.65	487.48	0.00	483157.00	3912104.00
284.08	2276.79	692.09	237.02	541.16	0.00	483093.00	3912073.00
103.03	2997.41	1035.81	219.00	569.77	0.00	483814.00	3912417.00
316.21	2219.49	668.48	280.86	491.03	0.00	483036.00	3912049.00
439.53	2054.36	580.33	283.87	514.75	0.00	482871.00	3911961.00
623.73	1895.22	502.56	275.07	530.54	0.00	482711.00	3911883.00
123.56	2842.49	961.71	274.07	606.53	0.00	483659.00	3912342.00
274.56	2296.34	703.73	252.26	589.45	0.00	483113.00	3912085.00
223.43	2423.92	764.42	152.31	380.80	0.00	483240.00	3912145.00
258.18	2342.49	717.67	258.18	528.44	0.00	483159.00	3912098.00
84.78	3172.21	1117.11	279.00	619.03	0.00	483988.00	3912498.00
249.63	2356.78	729.54	261.47	574.71	0.00	483173.00	3912110.00
574.49	1929.21	518.22	228.83	493.14	0.00	482745.00	3911899.00
175.83	2584.47	835.48	237.30	584.77	0.00	483401.00	3912216.00
244.76	2373.49	737.33	258.38	595.12	0.00	483190.00	3912118.00
337.84	2190.69	647.46	235.81	431.18	0.00	483007.00	3912028.00
167.15	2618.28	855.94	243.56	518.09	0.00	483435.00	3912237.00
367.26	2139.53	624.70	240.54	569.92	0.00	482956.00	3912005.00
242.34	2379.90	736.82	300.94	553.25	0.00	483196.00	3912118.00
235.53	2393.22	750.63	240.11	581.67	0.00	483210.00	3912131.00
434.64	2057.40	583.82	288.77	512.42	0.00	482874.00	3911965.00
176.19	2583.06	839.53	258.08	548.36	0.00	483399.00	3912220.00
219.42	2435.81	770.60	270.74	454.99	0.00	483252.00	3912151.00
105.62	2973.61	1021.76	245.86	545.93	0.00	483790.00	3912403.00
223.94	2424.52	761.51	263.36	571.25	0.00	483241.00	3912142.00
79.85	3228.32	1149.43	267.08	530.76	0.00	484045.00	3912530.00
444.28	2053.25	575.64	211.67	537.18	0.00	482870.00	3911956.00
97.09	3045.87	1054.11	193.45	449.28	0.00	483862.00	3912435.00
328.91	2207.09	653.22	277.44	482.12	0.00	483023.00	3912034.00
302.28	2249.80	679.62	274.15	481.70	0.00	483066.00	3912060.00
455.04	2034.67	573.37	290.98	568.49	0.00	482851.00	3911954.00

366.83	2152.18	627.91	260.85	552.01	0.00	482968.00	3912009.00
129.24	2808.12	946.93	250.12	579.55	0.00	483624.00	3912328.00
125.87	2825.68	956.22	273.55	491.85	0.00	483642.00	3912337.00
370.47	2129.20	625.39	257.64	498.23	0.00	482945.00	3912006.00
153.92	2675.57	880.12	269.50	546.65	0.00	483492.00	3912261.00
260.11	2330.87	718.70	250.26	506.04	0.00	483147.00	3912099.00
191.02	2531.25	811.67	246.84	482.08	0.00	483348.00	3912192.00
99.33	3022.16	1050.07	246.84	520.50	0.00	483838.00	3912431.00
34.44	4236.91	1617.71	314.04	577.65	0.00	485053.00	3912998.00
79.30	3234.60	1151.12	258.98	533.40	0.00	484051.00	3912532.00
122.10	2853.83	968.08	300.19	552.13	0.00	483670.00	3912349.00
156.21	2654.94	873.13	243.68	531.65	0.00	483471.00	3912254.00
60.60	3517.15	1282.92	314.34	523.02	0.00	484333.00	3912664.00
675.80	1857.05	490.02	186.22	503.57	0.00	482673.00	3911871.00
539.38	1963.41	534.91	280.96	462.02	0.00	482780.00	3911916.00
289.33	2263.29	689.40	291.23	644.82	0.00	483080.00	3912070.00
182.15	2562.05	829.00	246.44	543.89	0.00	483378.00	3912210.00
65.58	3429.81	1243.51	311.30	509.10	0.00	484246.00	3912624.00
53.24	3665.30	1347.75	255.40	571.66	0.00	484482.00	3912729.00
62.08	3493.50	1270.34	244.13	485.36	0.00	484310.00	3912651.00
538.87	1961.71	531.15	229.84	495.60	0.00	482778.00	3911912.00
156.31	2665.95	878.02	271.94	478.35	0.00	483482.00	3912259.00
500.29	1987.21	556.42	276.06	483.84	0.00	482803.00	3911937.00
421.97	2065.05	591.05	209.85	539.53	0.00	482881.00	3911972.00
227.61	2409.33	760.14	239.18	352.29	0.00	483226.00	3912141.00
149.00	2693.86	891.61	235.22	516.31	0.00	483510.00	3912272.00
583.92	1932.77	518.40	296.32	472.23	0.00	482749.00	3911899.00
118.07	2878.12	982.60	308.25	536.89	0.00	483694.00	3912363.00
217.52	2439.03	774.46	271.68	514.65	0.00	483255.00	3912155.00
70.36	3357.50	1206.65	255.88	502.01	0.00	484174.00	3912587.00
411.76	2085.68	597.09	273.92	561.67	0.00	482902.00	3911978.00
302.77	2250.02	674.17	274.26	514.22	0.00	483066.00	3912055.00
285.69	2277.05	690.02	224.41	488.08	0.00	483093.00	3912071.00
117.52	2884.68	976.76	253.17	492.51	0.00	483701.00	3912358.00
317.20	2216.99	664.63	266.05	497.47	0.00	483033.00	3912045.00
221.89	2429.47	764.64	266.20	551.28	0.00	483246.00	3912145.00
54.80	3633.73	1338.95	276.69	408.82	0.00	484450.00	3912720.00
365.29	2146.84	624.82	253.19	476.75	0.00	482963.00	3912006.00
347.29	2176.11	638.86	248.10	515.62	0.00	482992.00	3912020.00
220.79	2436.27	770.46	316.41	525.60	0.00	483253.00	3912151.00
178.40	2573.36	838.38	252.86	522.02	0.00	483390.00	3912219.00
181.95	2562.95	824.79	265.84	526.67	0.00	483379.00	3912206.00
315.29	2222.01	667.53	312.43	543.52	0.00	483038.00	3912048.00
174.29	2588.64	837.68	295.87	602.70	0.00	483405.00	3912218.00
190.34	2529.58	817.34	277.41	490.95	0.00	483346.00	3912198.00
176.36	2588.66	837.46	284.50	565.86	0.00	483405.00	3912218.00
325.88	2208.47	658.95	288.54	509.12	0.00	483025.00	3912040.00
298.28	2252.46	680.66	261.53	592.79	0.00	483069.00	3912061.00
83.50	3187.63	1128.75	278.42	497.75	0.00	484004.00	3912510.00
613.34	1902.84	505.19	283.50	499.75	0.00	482719.00	3911886.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
429.83	67536.80	17913.67	1396.33	1021.34	<b>103.85</b>	548353.00	3929294.00
328.06	69118.98	18672.91	1496.73	1339.28	0.00	549935.00	3930054.00
338.39	68924.96	18574.39	1427.80	1110.89	0.00	549741.00	3929955.00
159.34	74688.16	21326.52	1738.25	1679.86	0.00	555504.00	3932707.00
289.74	69929.42	19058.46	1565.95	1497.16	0.00	550746.00	3930439.00
1085.48	63777.89	15997.96	1250.94	652.42	0.00	544594.00	3927379.00
297.81	69746.07	18978.69	1489.02	1216.71	0.00	550562.00	3930359.00
132.64	76473.39	22163.74	1774.25	1681.32	0.00	557290.00	3933545.00
269.26	70435.09	19306.82	1520.68	1303.22	0.00	551251.00	3930688.00
280.23	70159.02	19175.49	1591.62	1520.70	0.00	550975.00	3930556.00
522.78	66534.64	17419.73	1366.62	1026.97	0.00	547351.00	3928801.00
320.36	69268.04	18749.39	1405.66	1017.42	0.00	550084.00	3930130.00
411.61	67773.58	18024.60	1374.81	994.53	0.00	548590.00	3929405.00
411.90	67769.13	18019.59	1405.35	1122.80	0.00	548585.00	3929400.00
87.63	81180.93	24378.45	2125.89	2257.50	0.00	561997.00	3935759.00
79.96	82362.12	24927.98	2861.85	3337.66	0.00	563178.00	3936309.00
124.79	77105.21	22450.25	1861.91	1893.24	0.00	557921.00	3933831.00
406.92	67835.61	18057.76	1469.68	1271.84	0.00	548652.00	3929439.00
275.53	70272.73	19230.18	1524.47	1346.65	0.00	551089.00	3930611.00
60.12	86407.82	26813.10	2488.36	2939.17	0.00	567224.00	3938194.00
365.93	68447.16	18356.37	1410.00	1115.23	0.00	549263.00	3929737.00
264.04	70573.60	19378.09	1634.07	1576.72	0.00	551390.00	3930759.00
373.52	68325.23	18291.70	1426.14	1149.24	0.00	549142.00	3929672.00
558.96	66219.54	17266.05	1333.12	900.67	0.00	547036.00	3928647.00
528.61	66482.81	17389.23	1349.30	978.30	0.00	547299.00	3928770.00
81.79	82065.19	24762.16	2132.27	2617.56	0.00	562881.00	3936143.00
330.66	69067.50	18644.63	1436.13	1151.77	0.00	549884.00	3930025.00
409.85	67795.39	18034.35	1431.70	1162.13	0.00	548612.00	3929415.00
116.56	77834.95	22797.57	1987.14	2095.64	0.00	558651.00	3934178.00
432.81	67498.19	17892.87	1363.49	986.74	0.00	548314.00	3929274.00
330.09	69079.43	18653.94	1413.84	1066.80	0.00	549896.00	3930035.00
155.52	74913.30	21429.15	1681.03	1517.83	0.00	555730.00	3932810.00
81.44	82122.45	24810.12	2442.40	2856.09	0.00	562939.00	3936191.00
603.17	65877.68	17093.11	1317.32	864.50	0.00	546694.00	3928474.00
393.65	68025.31	18147.73	1465.01	1248.47	0.00	548842.00	3929529.00
111.64	78311.43	23034.26	1960.53	1949.31	0.00	559128.00	3934415.00
269.14	70439.98	19303.32	1481.94	1236.72	0.00	551256.00	3930684.00
74.93	83233.10	25328.42	2320.41	2716.20	0.00	564049.00	3936709.00
235.72	71406.62	19755.25	1682.61	1749.31	0.00	552223.00	3931136.00
157.22	74813.62	21370.39	1708.67	1638.19	0.00	555630.00	3932751.00
609.63	65829.63	17073.69	1333.45	936.15	0.00	546646.00	3928454.00
319.25	69290.57	18759.99	1531.05	1395.66	0.00	550107.00	3930141.00
271.72	70372.50	19279.97	1596.11	1510.83	0.00	551189.00	3930661.00
221.69	71876.86	19989.78	1495.61	1188.71	0.00	552693.00	3931371.00
119.48	77567.01	22674.29	1782.11	1662.43	0.00	558383.00	3934055.00
166.69	74278.50	21132.26	1634.63	1428.81	0.00	555095.00	3932513.00
85.35	81514.60	24529.65	2284.08	2655.86	0.00	562331.00	3935910.00
932.79	64235.39	16243.74	1319.09	930.82	0.00	545052.00	3927625.00
223.52	71813.55	19948.44	1618.36	1597.83	0.00	552630.00	3931329.00
380.93	68212.77	18246.19	1421.24	1091.26	0.00	549029.00	3929627.00

331.71	69048.73	18649.79	1502.98	1288.58	0.00	549865.00	3930031.00
61.69	86018.18	26636.70	2717.54	3246.58	0.00	566834.00	3938017.00
304.87	69590.77	18900.68	1499.33	1320.95	0.00	550407.00	3930281.00
97.21	79909.08	23774.56	2035.87	2129.85	0.00	560725.00	3935155.00
134.35	76342.20	22099.09	1890.39	2005.31	0.00	557158.00	3933480.00
630.72	65682.06	16997.54	1318.49	869.52	0.00	546498.00	3928378.00
333.46	69017.43	18623.35	1476.01	1252.68	0.00	549834.00	3930004.00
326.45	69148.05	18689.75	1499.14	1293.69	0.00	549964.00	3930071.00
335.84	68971.04	18606.46	1511.16	1330.75	0.00	549787.00	3929987.00
449.00	67303.19	17796.58	1347.09	925.34	0.00	548119.00	3929177.00
145.24	75567.63	21735.73	1835.38	1879.60	0.00	556384.00	3933117.00
289.48	69936.20	19066.59	1564.65	1466.61	0.00	550752.00	3930447.00
392.70	68039.09	18153.41	1463.62	1270.94	0.00	548855.00	3929534.00
98.04	79806.71	23733.68	2157.26	2340.56	0.00	560623.00	3935114.00
393.67	68024.08	18146.74	1383.63	1001.17	0.00	548840.00	3929528.00
644.66	65587.62	16942.93	1315.79	896.13	0.00	546404.00	3928324.00
293.48	69842.49	19022.83	1489.02	1249.12	0.00	550659.00	3930404.00
418.31	67683.98	17990.77	1486.96	1327.96	0.00	548500.00	3929372.00
107.30	78757.11	23223.08	1876.04	1839.87	0.00	559573.00	3934604.00
54.75	87870.13	27501.85	2749.25	3070.17	0.00	568686.00	3938883.00
225.23	71753.29	19930.41	1636.83	1578.52	0.00	552570.00	3931311.00
243.69	71155.27	19654.82	1623.18	1585.41	0.00	551972.00	3931036.00
828.41	64633.33	16452.40	1276.41	774.01	0.00	545450.00	3927833.00
507.23	66680.61	17491.52	1420.34	1178.32	0.00	547497.00	3928872.00
291.68	69881.57	19046.45	1543.14	1413.10	0.00	550698.00	3930427.00
338.47	68922.19	18583.28	1441.47	1139.61	0.00	549738.00	3929964.00
52.38	88583.79	27830.51	2870.53	3477.84	0.00	569400.00	3939211.00
132.29	76499.83	22173.38	1798.53	1757.85	0.00	557316.00	3933554.00
305.95	69567.78	18892.49	1526.59	1364.90	0.00	550384.00	3930273.00
293.16	69850.99	19028.76	1560.67	1439.03	0.00	550667.00	3930410.00
83.79	81751.75	24628.65	2428.44	2913.12	0.00	562568.00	3936009.00
299.60	69704.87	18963.12	1529.97	1317.74	0.00	550521.00	3930344.00
169.05	74151.55	21070.34	1730.00	1650.44	0.00	554968.00	3932451.00
453.06	67254.55	17771.42	1381.70	1048.12	0.00	548071.00	3929152.00
313.79	69402.18	18814.92	1513.93	1342.21	0.00	550218.00	3930196.00
164.80	74377.47	21170.93	1858.94	1954.71	0.00	555194.00	3932552.00
96.17	80038.30	23831.53	2067.29	2211.54	0.00	560855.00	3935212.00
294.24	69825.64	19023.92	1564.86	1407.51	0.00	550642.00	3930405.00
283.70	70076.38	19133.82	1604.83	1552.77	0.00	550893.00	3930515.00
688.40	65327.57	16813.08	1262.77	670.24	0.00	546144.00	3928194.00
273.88	70316.56	19248.30	1459.97	1141.42	0.00	551133.00	3930629.00
122.96	77260.52	22529.90	1868.86	1889.20	0.00	558077.00	3933911.00
185.74	73326.09	20682.72	1677.78	1578.23	0.00	554142.00	3932064.00
77.74	82736.19	25110.26	2445.58	2837.58	0.00	563552.00	3936491.00
355.38	68624.84	18435.38	1421.84	1118.49	0.00	549441.00	3929816.00
499.65	66755.89	17523.13	1418.85	1209.15	0.00	547572.00	3928904.00
637.84	65633.62	16966.72	1316.28	882.97	0.00	546450.00	3928348.00
339.53	68902.14	18570.62	1435.26	1142.16	0.00	549718.00	3929951.00
501.58	66736.67	17522.38	1350.71	948.00	0.00	547553.00	3928903.00
47.36	90271.34	28618.24	2631.74	2885.82	0.00	571088.00	3939999.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
429.47	26690.35	7331.03	941.13	1095.06	<b>74.33</b>	507507.00	3918712.00
207.54	29150.25	8516.12	1065.81	1291.24	0.00	509967.00	3919897.00
195.07	29411.62	8641.38	1385.21	1654.40	0.00	510228.00	3920022.00
403.00	26867.47	7420.22	827.82	908.99	0.00	507684.00	3918801.00
248.69	28446.20	8191.01	1065.38	1188.58	0.00	509262.00	3919572.00
358.29	27211.56	7592.94	827.55	781.69	0.00	508028.00	3918974.00
122.07	31640.83	9695.41	1229.78	1567.27	0.00	512457.00	3921076.00
667.40	25638.92	6801.17	797.75	768.32	0.00	506455.00	3918182.00
207.07	29163.78	8518.57	1032.54	1364.89	0.00	509980.00	3919899.00
237.85	28613.37	8263.26	923.75	1116.05	0.00	509430.00	3919644.00
519.78	26187.69	7092.58	857.42	903.09	0.00	507004.00	3918473.00
245.14	28498.27	8210.24	879.81	977.06	0.00	509315.00	3919591.00
232.66	28700.92	8299.94	1170.43	1749.42	0.00	509517.00	3919681.00
198.62	29332.47	8597.77	1156.23	1646.10	0.00	510149.00	3919979.00
362.66	27174.93	7571.18	904.19	1180.98	0.00	507991.00	3918952.00
99.14	32827.60	10242.51	1606.47	2426.64	0.00	513644.00	3921623.00
297.09	27815.24	7877.82	853.02	1035.48	0.00	508632.00	3919259.00
619.50	25787.90	6883.02	804.43	868.25	0.00	506604.00	3918264.00
306.67	27713.24	7832.13	1021.23	1182.38	0.00	508530.00	3919213.00
182.91	29687.76	8765.89	1191.85	1816.34	0.00	510504.00	3920147.00
434.25	26656.18	7323.80	881.52	946.12	0.00	507472.00	3918705.00
25.85	44291.05	15622.16	3223.66	4330.76	0.00	525107.00	3927003.00
485.86	26366.98	7171.43	868.11	994.30	0.00	507183.00	3918552.00
294.78	27837.21	7900.66	1035.05	1129.67	0.00	508653.00	3919281.00
258.21	28310.43	8119.95	914.22	1095.04	0.00	509127.00	3919501.00
149.25	30615.94	9209.91	1688.05	2361.95	0.00	511432.00	3920591.00
109.75	32231.86	9994.71	1361.26	1409.52	0.00	513048.00	3921375.00
341.63	27361.86	7670.09	1045.31	1223.39	0.00	508178.00	3919051.00
167.71	30075.40	8956.76	1304.92	1620.13	0.00	510892.00	3920338.00
248.35	28451.95	8188.06	1030.06	1154.34	0.00	509268.00	3919569.00
551.77	26049.61	7020.55	802.44	754.92	0.00	506866.00	3918401.00
307.36	27698.77	7827.61	943.48	1061.93	0.00	508515.00	3919208.00
306.09	27720.29	7833.65	952.46	1107.25	0.00	508537.00	3919214.00
403.91	26866.93	7419.67	877.82	1018.50	0.00	507683.00	3918800.00
246.21	28482.75	8202.46	993.02	1167.37	0.00	509299.00	3919583.00
353.11	27258.22	7616.58	1065.75	1246.49	0.00	508074.00	3918997.00
245.22	28499.52	8212.88	942.32	996.51	0.00	509316.00	3919594.00
93.75	33164.89	10414.64	1638.27	1992.38	0.00	513981.00	3921795.00
209.39	29114.80	8509.69	1168.82	1495.81	0.00	509931.00	3919890.00
595.47	25874.31	6929.47	825.46	844.41	0.00	506691.00	3918310.00
203.71	29229.39	8558.81	1208.96	1611.59	0.00	510046.00	3919940.00
140.70	30907.77	9338.78	1125.59	1524.89	0.00	511724.00	3920720.00
387.24	26979.70	7482.89	878.74	978.72	0.00	507796.00	3918864.00
47.56	38134.62	12729.27	2185.29	3275.36	0.00	518951.00	3924110.00
175.93	29856.79	8860.25	1219.17	1368.02	0.00	510673.00	3920241.00
330.55	27464.70	7716.56	880.32	944.03	0.00	508281.00	3919097.00
108.44	32299.84	10014.36	1340.82	1545.20	0.00	513116.00	3921395.00
247.94	28459.75	8187.81	1093.80	1433.83	0.00	509276.00	3919569.00
615.44	25805.14	6885.58	819.73	885.59	0.00	506621.00	3918266.00
329.37	27473.86	7713.15	932.13	1067.69	0.00	508290.00	3919094.00

340.97	27364.34	7669.89	1026.79	1360.06	0.00	508181.00	3919051.00
531.19	26141.09	7065.13	744.69	667.33	0.00	506957.00	3918446.00
306.69	27709.65	7831.26	920.63	1019.58	0.00	508526.00	3919212.00
82.37	33983.00	10806.57	1739.30	2068.73	0.00	514799.00	3922187.00
447.96	26575.78	7279.16	885.58	1018.84	0.00	507392.00	3918660.00
201.48	29274.05	8588.50	1382.65	1673.58	0.00	510090.00	3919969.00
381.45	27026.11	7491.58	1009.67	1256.79	0.00	507842.00	3918872.00
264.81	28217.96	8070.91	1020.99	1271.56	0.00	509034.00	3919452.00
117.36	31857.05	9802.09	1422.16	1745.48	0.00	512673.00	3921183.00
317.45	27596.83	7772.27	1007.11	1393.09	0.00	508413.00	3919153.00
190.98	29502.36	8681.72	1240.30	1656.96	0.00	510319.00	3920063.00
255.01	28353.26	8135.08	855.27	954.77	0.00	509170.00	3919516.00
163.88	30172.74	9000.66	1121.88	1603.37	0.00	510989.00	3920381.00
130.69	31284.21	9511.61	1251.46	1819.02	0.00	512100.00	3920892.00
446.96	26582.16	7280.73	768.48	707.32	0.00	507398.00	3918662.00
66.30	35492.51	11510.27	1892.05	2334.35	0.00	516309.00	3922891.00
263.99	28227.25	8087.10	1250.52	1503.97	0.00	509044.00	3919468.00
219.20	28928.80	8404.92	989.42	1233.07	0.00	509745.00	3919786.00
324.45	27524.64	7747.11	1030.04	1231.45	0.00	508341.00	3919128.00
101.56	32679.40	10188.54	1883.95	2903.38	0.00	513496.00	3921569.00
93.81	33159.81	10405.17	1336.93	1815.33	0.00	513976.00	3921786.00
182.06	29707.64	8776.89	1121.96	1568.19	0.00	510524.00	3920158.00
360.25	27200.76	7581.14	892.46	1002.92	0.00	508017.00	3918962.00
457.95	26516.11	7251.80	824.74	826.50	0.00	507332.00	3918633.00
176.22	29850.61	8857.19	1144.93	1287.70	0.00	510667.00	3920238.00
76.49	34479.74	11021.15	1164.67	1443.01	0.00	515296.00	3922402.00
171.65	29968.89	8901.37	1238.35	1650.19	0.00	510785.00	3920282.00
482.04	26383.40	7180.45	928.93	1110.67	0.00	507200.00	3918561.00
583.20	25920.46	6949.98	786.95	818.10	0.00	506737.00	3918331.00
154.50	30450.71	9135.87	1375.32	1900.55	0.00	511267.00	3920517.00
288.10	27915.80	7934.62	921.05	1013.10	0.00	508732.00	3919315.00
208.19	29138.66	8520.88	1157.28	1319.02	0.00	509955.00	3919902.00
160.38	30273.83	9049.28	943.65	1184.75	0.00	511090.00	3920430.00
151.64	30542.00	9186.70	1477.49	1907.29	0.00	511358.00	3920567.00
235.22	28657.03	8279.95	949.82	1219.92	0.00	509473.00	3919661.00
234.14	28671.93	8283.52	934.21	1190.20	0.00	509488.00	3919664.00
411.09	26805.31	7394.86	868.62	885.76	0.00	507622.00	3918776.00
420.75	26751.10	7362.82	882.09	1021.82	0.00	507567.00	3918744.00
34.33	41193.71	14165.31	2620.95	3773.89	0.00	522010.00	3925546.00
376.81	27060.64	7518.97	1026.34	1212.52	0.00	507877.00	3918900.00
439.28	26624.93	7308.41	970.15	1091.52	0.00	507441.00	3918689.00
304.00	27740.64	7840.67	962.08	1135.01	0.00	508557.00	3919221.00
78.66	34290.98	10960.85	2255.95	2696.06	0.00	515107.00	3922342.00
203.43	29233.49	8557.89	935.33	1032.16	0.00	510050.00	3919939.00
417.88	26765.66	7374.62	972.09	1114.48	0.00	507582.00	3918755.00
150.95	30560.87	9195.79	1357.60	1646.51	0.00	511377.00	3920577.00
434.69	26656.46	7322.66	919.37	993.99	0.00	507473.00	3918703.00
136.57	31060.34	9434.45	1251.16	1527.99	0.00	511877.00	3920815.00
278.36	28040.75	7985.45	894.64	978.65	0.00	508857.00	3919366.00
160.50	30271.88	9058.44	1203.10	1423.94	0.00	511088.00	3920439.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
230.28	3568.52	1103.48	412.13	852.25	<b>31.97</b>	484385.00	3912484.00
627.99	2912.27	784.79	300.11	803.19	0.00	483729.00	3912166.00
280.52	3414.83	1033.59	460.53	778.23	0.00	484231.00	3912414.00
224.57	3583.20	1105.88	311.49	675.07	0.00	484399.00	3912487.00
339.01	3283.99	967.00	361.96	877.17	0.00	484100.00	3912348.00
293.11	3385.58	1019.72	343.86	742.42	0.00	484202.00	3912401.00
228.38	3576.97	1103.03	366.82	767.29	0.00	484393.00	3912484.00
321.99	3323.23	991.11	452.54	518.91	0.00	484140.00	3912372.00
362.48	3233.64	944.75	241.15	575.88	0.00	484050.00	3912326.00
1964.29	3438.00	994.73	431.01	717.46	0.00	484254.00	3912376.00
303.13	3357.19	1002.67	290.88	666.57	0.00	484173.00	3912383.00
281.29	3414.11	1030.30	285.77	771.74	0.00	484230.00	3912411.00
711.09	2859.25	758.61	430.02	780.50	0.00	483676.00	3912139.00
912.39	2750.37	697.77	354.51	644.93	0.00	483567.00	3912079.00
213.07	3627.46	1134.02	482.32	780.24	0.00	484444.00	3912515.00
122.72	4133.80	1371.54	345.87	760.86	0.00	484950.00	3912752.00
277.20	3419.79	1035.06	400.45	818.72	0.00	484236.00	3912416.00
478.84	3059.04	859.27	449.29	906.99	0.00	483875.00	3912240.00
291.21	3390.23	1011.69	316.77	675.56	0.00	484207.00	3912392.00
405.60	3160.34	911.80	447.21	729.96	0.00	483977.00	3912293.00
267.58	3453.77	1041.62	321.22	770.34	0.00	484270.00	3912422.00
134.95	4038.15	1325.64	295.89	856.63	0.00	484854.00	3912706.00
507.01	3032.77	850.75	310.53	438.36	0.00	483849.00	3912232.00
169.11	3824.06	1226.49	377.92	811.86	0.00	484640.00	3912607.00
197.15	3692.07	1162.36	375.02	705.57	0.00	484508.00	3912543.00
250.95	3507.78	1075.53	403.95	793.65	0.00	484324.00	3912456.00
128.09	4090.28	1352.45	417.25	803.01	0.00	484907.00	3912733.00
113.60	4215.69	1415.13	410.28	679.15	0.00	485032.00	3912796.00
275.89	3428.47	1034.52	366.45	793.48	0.00	484245.00	3912415.00
498.42	3038.70	850.18	486.69	746.15	0.00	483855.00	3912231.00
263.81	3461.33	1045.32	414.82	785.20	0.00	484278.00	3912426.00
144.94	3970.11	1299.54	444.27	666.74	0.00	484786.00	3912680.00
314.49	3328.79	990.79	350.97	842.66	0.00	484145.00	3912372.00
480.42	3061.71	856.31	303.58	631.54	0.00	483878.00	3912237.00
237.12	3540.80	1088.54	353.49	715.93	0.00	484357.00	3912469.00
366.72	3224.58	939.85	463.84	852.64	0.00	484041.00	3912321.00
166.19	3847.17	1229.37	317.08	785.40	0.00	484663.00	3912610.00
99.50	4370.97	1483.60	394.04	751.44	0.00	485187.00	3912864.00
332.33	3290.67	976.13	434.73	695.59	0.00	484107.00	3912357.00
161.82	3864.88	1243.22	421.60	837.08	0.00	484681.00	3912624.00
201.45	3675.14	1157.57	440.99	735.62	0.00	484491.00	3912538.00
389.67	3188.90	927.69	447.43	634.50	0.00	484005.00	3912308.00
214.72	3620.50	1124.57	421.67	865.01	0.00	484437.00	3912505.00
582.41	2966.67	801.51	335.61	698.58	0.00	483783.00	3912182.00
38.65	5746.15	2130.01	433.04	841.71	0.00	486562.00	3913511.00
489.99	3042.91	853.90	416.88	824.36	0.00	483859.00	3912235.00
133.15	4048.70	1334.65	322.21	736.83	0.00	484865.00	3912715.00
286.71	3396.39	1023.40	492.05	881.75	0.00	484213.00	3912404.00
67.77	4852.57	1709.37	363.02	790.78	0.00	485669.00	3913090.00
422.65	3133.92	897.55	399.56	709.75	0.00	483950.00	3912278.00

281.13	3412.75	1026.65	355.08	868.21	0.00	484229.00	3912407.00
529.25	3013.83	831.08	365.43	665.66	0.00	483830.00	3912212.00
229.45	3568.98	1099.59	406.11	773.30	0.00	484385.00	3912480.00
363.85	3236.13	944.66	325.92	682.05	0.00	484052.00	3912325.00
538.11	2995.59	824.91	339.93	807.18	0.00	483812.00	3912206.00
122.70	4135.27	1375.65	371.79	804.85	0.00	484952.00	3912756.00
334.54	3293.96	971.74	382.53	766.77	0.00	484110.00	3912353.00
161.77	3865.33	1243.08	377.10	761.51	0.00	484682.00	3912624.00
27.51	6418.79	2444.16	445.11	838.28	0.00	487235.00	3913825.00
400.68	3163.80	915.96	420.04	804.05	0.00	483980.00	3912297.00
592.19	2945.30	801.39	324.71	665.88	0.00	483762.00	3912182.00
90.48	4483.23	1534.20	399.46	845.98	0.00	485300.00	3912915.00
389.44	3194.44	920.46	384.89	767.82	0.00	484011.00	3912301.00
177.05	3791.51	1215.17	446.00	665.11	0.00	484608.00	3912596.00
345.66	3267.93	961.37	382.97	716.30	0.00	484084.00	3912342.00
358.03	3248.18	950.75	448.89	807.32	0.00	484064.00	3912332.00
320.66	3322.59	988.29	318.63	604.48	0.00	484139.00	3912369.00
236.54	3541.95	1096.27	388.42	705.41	0.00	484358.00	3912477.00
51.82	5253.24	1897.89	359.52	889.52	0.00	486070.00	3913279.00
252.87	3492.12	1066.48	334.60	774.77	0.00	484308.00	3912447.00
235.02	3549.76	1085.79	378.77	904.24	0.00	484366.00	3912467.00
736.66	2840.40	746.79	299.05	689.13	0.00	483657.00	3912128.00
213.31	3628.76	1130.09	404.01	942.79	0.00	484445.00	3912511.00
106.25	4292.49	1444.09	362.52	819.97	0.00	485109.00	3912825.00
42.59	5574.64	2045.99	416.54	759.49	0.00	486391.00	3913427.00
189.17	3731.68	1181.02	360.53	726.21	0.00	484548.00	3912562.00
221.91	3591.71	1113.53	440.64	847.45	0.00	484408.00	3912494.00
192.92	3712.27	1169.48	417.20	917.37	0.00	484529.00	3912550.00
431.95	3137.35	889.79	365.00	840.89	0.00	483954.00	3912271.00
28.10	6371.53	2419.15	447.29	781.30	0.00	487188.00	3913800.00
83.65	4580.34	1574.07	374.40	858.80	0.00	485397.00	3912955.00
360.92	3244.34	946.82	376.41	791.68	0.00	484061.00	3912328.00
184.56	3748.42	1188.58	401.75	825.95	0.00	484565.00	3912569.00
111.60	4240.42	1421.20	364.11	673.28	0.00	485057.00	3912802.00
103.68	4315.05	1458.82	389.63	897.29	0.00	485131.00	3912840.00
530.85	3012.31	831.27	280.25	708.78	0.00	483829.00	3912212.00
555.80	2970.21	818.68	398.98	751.67	0.00	483786.00	3912199.00
229.48	3568.09	1108.52	448.38	707.58	0.00	484384.00	3912489.00
400.28	3180.18	915.30	396.30	734.73	0.00	483996.00	3912296.00
416.47	3143.17	905.92	383.18	595.50	0.00	483959.00	3912287.00
327.11	3310.73	979.74	361.92	691.54	0.00	484127.00	3912361.00
333.60	3292.52	972.75	406.64	753.03	0.00	484109.00	3912354.00
136.54	4026.47	1320.21	379.09	808.18	0.00	484843.00	3912701.00
291.02	3386.08	1023.62	451.72	708.87	0.00	484202.00	3912404.00
277.16	3431.64	1030.95	356.27	773.86	0.00	484248.00	3912412.00
211.86	3638.66	1139.92	366.30	552.39	0.00	484455.00	3912521.00
368.19	3233.83	940.00	297.72	722.25	0.00	484050.00	3912321.00
223.97	3585.07	1117.20	368.45	678.87	0.00	484401.00	3912498.00
234.25	3544.63	1098.07	380.89	675.57	0.00	484361.00	3912479.00
153.88	3907.59	1269.92	411.67	758.30	0.00	484724.00	3912651.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
139.05	87634.25	25058.44	2113.32	2307.98	<b>109.19</b>	568451.00	3936439.00
588.19	76573.63	19782.38	1454.53	962.53	0.00	557390.00	3931163.00
73.04	96016.97	29008.61	2682.52	3101.64	0.00	576833.00	3940389.00
244.71	82250.11	22531.83	1705.87	1502.99	0.00	563066.00	3933913.00
239.85	82415.07	22601.44	1729.81	1542.83	0.00	563231.00	3933982.00
240.38	82397.80	22592.73	1773.88	1682.29	0.00	563214.00	3933974.00
86.83	93489.51	27816.12	2453.63	2734.49	0.00	574306.00	3939197.00
156.79	86353.91	24459.90	1919.24	1899.14	0.00	567170.00	3935841.00
208.85	83603.72	23174.18	1790.38	1619.12	0.00	564420.00	3934555.00
324.94	80099.46	21498.57	1590.87	1241.12	0.00	560916.00	3932879.00
186.34	84649.93	23656.73	1906.54	1948.33	0.00	565466.00	3935038.00
38.05	107790.00	34509.73	3902.64	4877.66	0.00	588606.00	3945891.00
386.46	78941.70	20941.19	1601.62	1347.27	0.00	559758.00	3932322.00
271.14	81434.15	22140.27	1638.06	1325.11	0.00	562250.00	3933521.00
247.07	82171.75	22490.22	1707.97	1474.23	0.00	562988.00	3933871.00
169.64	85559.50	24082.21	1926.61	1954.12	0.00	566376.00	3935463.00
304.86	80553.36	21722.16	1656.03	1433.73	0.00	561370.00	3933103.00
289.37	80938.04	21908.48	1625.18	1323.23	0.00	561754.00	3933289.00
263.71	81651.37	22236.83	1648.23	1365.69	0.00	562468.00	3933618.00
320.77	80189.28	21539.21	1596.48	1299.01	0.00	561006.00	3932920.00
597.50	76496.09	19744.54	1454.36	964.89	0.00	557312.00	3931125.00
224.06	82988.85	22878.04	1717.49	1502.29	0.00	563805.00	3934259.00
251.38	82032.79	22417.67	1642.32	1340.35	0.00	562849.00	3933798.00
357.72	79441.93	21181.25	1557.57	1192.85	0.00	560258.00	3932562.00
296.44	80759.12	21814.38	1533.80	1039.75	0.00	561575.00	3933195.00
128.75	88496.98	25474.94	1908.65	1766.20	0.00	569313.00	3936856.00
202.15	83896.67	23308.48	1706.70	1417.42	0.00	564713.00	3934689.00
256.78	81861.70	22335.36	1635.40	1332.71	0.00	562678.00	3933716.00
122.04	89118.21	25767.23	2169.89	2331.43	0.00	569934.00	3937148.00
142.51	87365.81	24943.08	1882.80	1693.83	0.00	568182.00	3936324.00
138.02	87715.21	25102.35	2033.38	2070.89	0.00	568531.00	3936483.00
393.21	78831.41	20889.82	1557.56	1207.76	0.00	559648.00	3932271.00
304.41	80566.05	21727.54	1684.35	1481.55	0.00	561382.00	3933108.00
433.73	78229.75	20598.18	1490.34	1030.18	0.00	559046.00	3931979.00
281.11	81156.46	22013.45	1647.40	1349.66	0.00	561973.00	3933394.00
466.52	77804.77	20387.39	1499.71	1080.14	0.00	558621.00	3931768.00
312.07	80385.50	21632.19	1565.67	1185.83	0.00	561202.00	3933013.00
372.93	79170.69	21052.47	1519.66	1065.41	0.00	559987.00	3932433.00
566.64	76758.59	19872.27	1448.80	947.85	0.00	557575.00	3931253.00
419.69	78426.76	20698.31	1544.17	1179.47	0.00	559243.00	3932079.00
575.79	76678.59	19828.15	1424.17	858.83	0.00	557495.00	3931209.00
65.87	97633.25	29763.80	2726.51	3004.42	0.00	578450.00	3941145.00
208.67	83611.44	23171.01	1732.36	1503.10	0.00	564428.00	3934552.00
225.09	82950.97	22854.68	1650.55	1309.01	0.00	563767.00	3934235.00
213.09	83426.84	23084.37	1709.61	1423.73	0.00	564243.00	3934465.00
872.61	74873.01	18910.32	1382.89	740.56	0.00	555689.00	3930291.00
134.98	87963.37	25215.57	2242.12	2662.15	0.00	568780.00	3936596.00
222.82	83037.87	22895.02	1759.20	1612.32	0.00	563854.00	3934276.00
377.33	79093.71	21013.58	1601.41	1361.98	0.00	559910.00	3932394.00
458.17	77907.50	20439.80	1524.65	1152.50	0.00	558724.00	3931821.00

277.10	81267.04	22059.82	1678.51	1443.55	0.00	562083.00	3933441.00
190.93	84421.84	23554.58	1757.10	1528.37	0.00	565238.00	3934935.00
165.62	85798.32	24202.20	1888.15	1823.26	0.00	566615.00	3935583.00
154.53	86503.74	24537.62	1933.69	1893.04	0.00	567320.00	3935918.00
95.28	92221.52	27224.39	2233.51	2299.80	0.00	573038.00	3938605.00
150.55	86777.88	24677.00	2130.30	2224.09	0.00	567594.00	3936058.00
102.40	91277.89	26788.83	2251.69	2365.38	0.00	572094.00	3938170.00
242.59	82322.08	22565.16	1778.43	1692.96	0.00	563138.00	3933946.00
226.49	82897.43	22836.78	1758.91	1595.89	0.00	563714.00	3934218.00
201.13	83943.62	23322.84	1751.02	1531.90	0.00	564760.00	3934704.00
42.51	105508.86	33426.53	2838.48	3218.88	0.00	586325.00	3944807.00
397.82	78756.99	20854.14	1545.44	1214.92	0.00	559573.00	3932235.00
404.92	78646.53	20792.56	1521.15	1143.77	0.00	559463.00	3932173.00
173.78	85321.73	23979.82	1848.48	1704.50	0.00	566138.00	3935361.00
73.74	95872.51	28939.17	2536.49	2736.58	0.00	576689.00	3940320.00
203.17	83851.73	23290.01	1838.89	1767.86	0.00	564668.00	3934671.00
243.60	82289.49	22541.86	1714.94	1514.58	0.00	563106.00	3933923.00
281.05	81158.77	22006.52	1716.06	1544.26	0.00	561975.00	3933387.00
257.52	81840.28	22334.17	1693.14	1483.40	0.00	562657.00	3933715.00
553.76	76874.94	19934.61	1484.72	1053.57	0.00	557691.00	3931315.00
236.76	82523.40	22648.90	1729.50	1540.88	0.00	563340.00	3934030.00
736.35	75551.79	19270.04	1421.63	874.15	0.00	556368.00	3930651.00
76.97	95226.92	28622.46	2472.31	2810.60	0.00	576043.00	3940003.00
314.69	80325.43	21605.06	1605.57	1287.51	0.00	561142.00	3932986.00
259.48	81778.97	22295.80	1644.68	1338.14	0.00	562595.00	3933677.00
149.86	86826.00	24698.44	1873.48	1657.95	0.00	567642.00	3936079.00
152.56	86637.38	24607.67	2090.46	2152.30	0.00	567454.00	3935988.00
125.78	88765.04	25607.59	2266.78	2511.89	0.00	569581.00	3936988.00
614.76	76357.58	19677.11	1434.39	897.00	0.00	557174.00	3931058.00
114.19	89914.48	26129.87	2148.68	2317.90	0.00	570731.00	3937511.00
459.37	77893.82	20432.24	1497.08	1055.60	0.00	558710.00	3931813.00
246.72	82182.79	22491.81	1668.95	1407.84	0.00	562999.00	3933873.00
219.10	83183.31	22971.86	1796.74	1667.58	0.00	564000.00	3934353.00
137.20	87782.22	25137.34	1993.16	1973.47	0.00	568599.00	3936518.00
223.23	83021.93	22902.17	1774.09	1613.71	0.00	563838.00	3934283.00
329.27	80006.51	21454.15	1606.68	1320.06	0.00	560823.00	3932835.00
632.19	76224.68	19610.40	1404.37	774.15	0.00	557041.00	3930991.00
193.67	84290.27	23490.19	1745.10	1500.29	0.00	565107.00	3934871.00
266.87	81557.22	22191.28	1609.91	1261.19	0.00	562373.00	3933572.00
250.33	82066.80	22439.77	1722.53	1607.47	0.00	562883.00	3933821.00
304.23	80569.79	21713.53	1671.20	1493.68	0.00	561386.00	3933094.00
35.54	109261.51	35174.78	3154.16	3639.27	0.00	590078.00	3946556.00
162.95	85958.55	24278.71	1932.54	1935.85	0.00	566775.00	3935659.00
530.28	77103.86	20046.50	1452.33	935.81	0.00	557920.00	3931427.00
363.16	79342.70	21134.89	1614.17	1368.46	0.00	560159.00	3932516.00
204.88	83775.86	23246.13	1747.63	1549.45	0.00	564592.00	3934627.00
316.93	80276.38	21580.15	1657.34	1439.36	0.00	561093.00	3932961.00
423.51	78373.78	20662.01	1527.99	1145.94	0.00	559190.00	3932043.00
122.25	89098.05	25753.46	2195.62	2392.91	0.00	569914.00	3937134.00
153.05	86603.50	24577.01	1974.63	2102.91	0.00	567420.00	3935958.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
227.70	70178.64	19501.11	1645.53	1637.86	<b>103.10</b>	550995.00	3930882.00
362.44	67059.85	18011.43	1403.46	1095.63	0.00	547876.00	3929392.00
308.33	68057.06	18490.18	1465.56	1256.52	0.00	548873.00	3929871.00
119.64	75978.22	22247.50	1951.61	2035.13	0.00	556795.00	3933628.00
238.49	69832.29	19331.53	1542.39	1422.56	0.00	550649.00	3930712.00
201.07	71156.03	19963.22	1602.26	1457.21	0.00	551972.00	3931344.00
552.23	64863.85	16932.25	1276.41	766.39	0.00	545680.00	3928313.00
219.21	70471.75	19641.68	1656.01	1665.54	0.00	551288.00	3931022.00
312.53	67969.53	18442.76	1412.16	1128.09	0.00	548786.00	3929824.00
106.54	77243.95	22827.29	1820.07	1716.84	0.00	558060.00	3934208.00
279.06	68720.52	18804.04	1474.79	1254.83	0.00	549537.00	3930185.00
393.10	66594.40	17783.87	1407.00	1134.48	0.00	547411.00	3929165.00
419.10	66242.95	17613.03	1332.55	907.55	0.00	547059.00	3928994.00
90.03	79219.63	23775.02	2182.25	2347.87	0.00	560036.00	3935156.00
270.76	68925.76	18908.35	1530.54	1370.10	0.00	549742.00	3930289.00
132.69	74908.93	21732.85	2007.79	2265.84	0.00	555725.00	3933114.00
58.71	85064.15	26497.93	2478.21	2889.01	0.00	565880.00	3937879.00
184.92	71847.93	20296.21	1675.10	1574.48	0.00	552664.00	3931677.00
322.38	67774.05	18353.08	1424.58	1132.71	0.00	548590.00	3929734.00
61.07	84471.68	26231.17	2419.19	2715.15	0.00	565288.00	3937612.00
184.32	71875.28	20311.68	1624.92	1480.38	0.00	552692.00	3931692.00
220.65	70419.82	19619.55	1651.40	1625.14	0.00	551236.00	3931000.00
409.19	66371.84	17674.28	1367.61	1028.18	0.00	547188.00	3929055.00
99.10	78073.09	23223.00	2125.59	2399.33	0.00	558889.00	3934604.00
215.26	70611.15	19703.17	1556.70	1361.11	0.00	551427.00	3931084.00
213.03	70694.40	19744.87	1622.47	1520.38	0.00	551511.00	3931126.00
697.61	63879.01	16441.23	1325.84	967.80	0.00	544695.00	3927822.00
257.43	69276.82	19072.51	1507.35	1293.70	0.00	550093.00	3930453.00
83.63	80138.44	24170.03	2116.06	2325.19	0.00	560955.00	3935551.00
82.87	80256.82	24236.44	2236.13	2552.29	0.00	561073.00	3935617.00
340.40	67437.92	18196.34	1417.38	1116.72	0.00	548254.00	3929577.00
183.15	71930.45	20331.02	1684.00	1658.97	0.00	552747.00	3931712.00
213.97	70660.24	19727.81	1604.68	1481.64	0.00	551477.00	3931109.00
252.16	69428.57	19143.78	1513.66	1296.27	0.00	550245.00	3930525.00
148.72	73795.61	21212.27	1782.40	1772.17	0.00	554612.00	3932593.00
209.31	70833.29	19801.45	1708.32	1747.46	0.00	551650.00	3931182.00
111.60	76728.55	22589.19	2061.66	2363.84	0.00	557545.00	3933970.00
149.93	73719.19	21165.26	1726.11	1697.11	0.00	554535.00	3932546.00
393.33	66591.51	17781.87	1428.34	1223.82	0.00	547408.00	3929163.00
272.29	68885.44	18883.16	1505.00	1336.77	0.00	549702.00	3930264.00
452.19	65837.31	17414.03	1341.24	960.63	0.00	546654.00	3928795.00
44.55	89560.50	28602.40	2885.77	3406.64	0.00	570377.00	3939983.00
111.73	76715.17	22584.09	2058.03	2231.37	0.00	557531.00	3933965.00
331.61	67597.42	18272.57	1470.16	1261.20	0.00	548414.00	3929653.00
103.92	77526.70	22960.28	2106.24	2316.49	0.00	558343.00	3934341.00
381.25	66768.47	17876.99	1399.85	1084.57	0.00	547585.00	3929258.00
242.70	69701.95	19268.51	1510.23	1328.13	0.00	550518.00	3930649.00
214.05	70653.56	19729.71	1598.85	1458.45	0.00	551470.00	3931110.00
246.99	69575.29	19216.41	1592.98	1485.24	0.00	550392.00	3930597.00

393.06	66594.56	17782.20	1379.77	1058.23	0.00	547411.00	3929163.00
178.90	72133.18	20424.24	1575.74	1359.47	0.00	552949.00	3931805.00
202.06	71114.55	19933.66	1530.97	1314.95	0.00	551931.00	3931314.00
178.33	72157.82	20447.89	1851.34	1994.10	0.00	552974.00	3931829.00
291.27	68429.95	18671.82	1430.44	1117.64	0.00	549246.00	3930053.00
412.13	66334.72	17658.07	1391.21	1098.43	0.00	547151.00	3929039.00
329.72	67633.38	18288.85	1541.07	1465.43	0.00	548450.00	3929670.00
454.83	65808.53	17409.54	1386.53	1095.99	0.00	546625.00	3928790.00
95.95	78452.81	23392.14	2174.82	2511.38	0.00	559269.00	3934773.00
251.19	69454.75	19163.43	1524.90	1329.05	0.00	550271.00	3930544.00
378.79	66805.79	17883.16	1413.62	1146.88	0.00	547622.00	3929264.00
338.60	67469.79	18205.28	1485.37	1340.09	0.00	548286.00	3929586.00
138.95	74450.92	21519.16	1846.04	1910.28	0.00	555267.00	3932900.00
543.29	64940.12	16971.84	1296.18	835.65	0.00	545756.00	3928353.00
252.76	69409.77	19132.82	1514.48	1309.97	0.00	550226.00	3930514.00
558.10	64816.10	16915.06	1304.00	872.56	0.00	545632.00	3928296.00
314.32	67935.79	18431.11	1481.85	1291.63	0.00	548752.00	3929812.00
111.07	76780.51	22609.63	1893.99	1877.58	0.00	557597.00	3933990.00
104.46	77467.09	22933.87	1898.09	1921.36	0.00	558283.00	3934315.00
95.83	78467.18	23410.17	2084.39	2239.81	0.00	559283.00	3934791.00
202.14	71113.65	19942.68	1550.72	1387.80	0.00	551930.00	3931323.00
351.43	67244.37	18096.73	1440.34	1193.61	0.00	548061.00	3929478.00
202.83	71084.71	19946.37	1612.79	1442.88	0.00	551901.00	3931327.00
226.71	70213.99	19514.13	1551.04	1399.78	0.00	551030.00	3930895.00
401.38	66479.45	17727.93	1414.77	1181.99	0.00	547296.00	3929109.00
68.28	82854.55	25459.70	2684.79	3252.59	0.00	563671.00	3936840.00
188.59	71682.15	20213.54	1668.62	1609.60	0.00	552498.00	3931594.00
316.24	67895.61	18408.23	1423.39	1128.81	0.00	548712.00	3929789.00
848.01	63165.51	16069.28	1252.24	728.08	0.00	543982.00	3927450.00
178.01	72173.88	20448.67	1724.72	1815.52	0.00	552990.00	3931829.00
355.82	67170.83	18058.56	1470.89	1333.72	0.00	547987.00	3929439.00
335.21	67528.83	18237.70	1461.06	1233.31	0.00	548345.00	3929618.00
31.62	96084.69	31607.44	3210.42	4352.48	0.00	576901.00	3942988.00
186.07	71795.74	20259.75	1678.68	1636.52	0.00	552612.00	3931641.00
266.69	69029.33	18951.34	1479.46	1232.49	0.00	549846.00	3930332.00
285.57	68560.79	18734.43	1541.61	1442.46	0.00	549377.00	3930115.00
262.59	69139.28	19009.26	1539.28	1410.19	0.00	549956.00	3930390.00
220.62	70421.05	19622.98	1521.62	1270.73	0.00	551237.00	3931004.00
147.85	73852.27	21241.41	1768.88	1743.70	0.00	554669.00	3932622.00
307.25	68080.27	18503.93	1413.00	1094.14	0.00	548897.00	3929885.00
295.02	68344.59	18635.92	1551.65	1401.49	0.00	549161.00	3930017.00
171.63	72491.70	20589.61	1670.88	1640.47	0.00	553308.00	3931970.00
162.07	72996.09	20834.85	1802.69	1830.41	0.00	553812.00	3932216.00
175.10	72316.80	20513.71	1719.94	1723.58	0.00	553133.00	3931894.00
344.04	67371.89	18165.59	1569.52	1506.55	0.00	548188.00	3929546.00
320.04	67820.28	18380.85	1478.52	1248.99	0.00	548637.00	3929762.00
248.20	69541.32	19194.96	1479.80	1178.09	0.00	550358.00	3930576.00
361.27	67081.03	18019.47	1445.77	1221.65	0.00	547897.00	3929400.00
522.63	65122.05	17059.98	1364.23	1066.33	0.00	545938.00	3928441.00
251.48	69447.28	19155.36	1571.85	1417.12	0.00	550264.00	3930536.00
161.49	73031.31	20848.58	1688.06	1635.24	0.00	553848.00	3932229.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
444.30	4624.27	1316.68	542.50	721.36	<b>36.66</b>	485441.00	3912697.00
358.11	4803.65	1393.05	523.22	1091.12	0.00	485620.00	3912774.00
388.63	4735.31	1370.48	665.48	920.73	0.00	485552.00	3912751.00
336.69	4852.49	1424.11	591.02	814.42	0.00	485669.00	3912805.00
133.56	5843.09	1888.00	587.95	1154.78	0.00	486659.00	3913269.00
312.71	4919.13	1447.87	488.30	1091.83	0.00	485735.00	3912829.00
306.22	4935.99	1461.03	517.99	768.88	0.00	485752.00	3912842.00
309.86	4926.20	1456.38	506.37	1205.53	0.00	485742.00	3912837.00
355.21	4797.54	1396.12	566.57	1077.87	0.00	485614.00	3912777.00
263.12	5070.55	1529.07	661.81	1254.59	0.00	485887.00	3912910.00
320.95	4895.90	1436.02	492.36	1022.27	0.00	485712.00	3912817.00
114.05	6057.83	1983.02	690.74	1208.10	0.00	486874.00	3913364.00
502.20	4540.61	1269.84	635.61	941.12	0.00	485357.00	3912651.00
225.50	5223.03	1605.23	484.78	1061.88	0.00	486039.00	3912986.00
280.20	5019.01	1491.89	650.79	1101.18	0.00	485835.00	3912873.00
143.37	5749.03	1844.46	609.41	1122.44	0.00	486565.00	3913225.00
398.35	4721.81	1350.15	440.71	928.00	0.00	485538.00	3912731.00
273.22	5043.18	1515.24	593.47	1143.14	0.00	485859.00	3912896.00
709.82	4332.50	1151.82	263.96	662.78	0.00	485149.00	3912533.00
414.54	4681.48	1337.13	466.84	779.03	0.00	485498.00	3912718.00
56.86	7234.11	2547.98	673.26	1226.35	0.00	488050.00	3913929.00
151.13	5686.68	1818.48	527.19	1084.25	0.00	486503.00	3913199.00
369.26	4778.34	1381.50	451.57	777.17	0.00	485595.00	3912762.00
486.83	4555.29	1275.74	332.08	747.04	0.00	485372.00	3912657.00
443.19	4627.43	1315.24	599.16	892.02	0.00	485444.00	3912696.00
2487.52	4980.04	1384.46	375.37	452.71	0.00	485796.00	3912765.00
503.31	4534.58	1262.96	597.41	974.69	0.00	485351.00	3912644.00
138.75	5794.34	1869.63	625.64	1124.21	0.00	486611.00	3913250.00
105.60	6167.16	2036.63	406.72	978.87	0.00	486983.00	3913417.00
183.50	5454.25	1711.88	654.43	1007.40	0.00	486271.00	3913093.00
244.47	5145.58	1560.10	499.20	938.18	0.00	485962.00	3912941.00
56.31	7256.94	2548.37	620.08	1302.86	0.00	488073.00	3913929.00
100.51	6246.43	2070.61	554.91	1184.26	0.00	487063.00	3913451.00
408.43	4694.48	1343.93	493.73	890.42	0.00	485511.00	3912725.00
391.93	4733.49	1359.43	476.38	932.62	0.00	485550.00	3912740.00
479.01	4570.23	1281.30	493.91	831.86	0.00	485387.00	3912662.00
428.29	4656.08	1323.14	602.38	1222.50	0.00	485472.00	3912704.00
400.39	4705.31	1349.06	656.61	1158.58	0.00	485522.00	3912730.00
559.51	4458.20	1232.76	552.72	951.91	0.00	485274.00	3912614.00
229.24	5211.53	1590.32	605.95	1264.94	0.00	486028.00	3912971.00
280.95	5017.15	1492.15	600.02	1155.51	0.00	485833.00	3912873.00
216.01	5281.79	1615.49	594.44	1200.48	0.00	486098.00	3912996.00
180.50	5467.48	1719.67	618.46	1016.51	0.00	486284.00	3913100.00
110.96	6095.54	2020.19	578.93	995.54	0.00	486912.00	3913401.00
185.83	5441.24	1696.86	514.04	1182.90	0.00	486258.00	3913078.00
27.04	9017.09	3375.89	636.47	1466.62	0.00	489833.00	3914757.00
272.13	5042.26	1515.19	565.16	980.58	0.00	485859.00	3912896.00
343.05	4838.13	1412.24	356.42	856.28	0.00	485654.00	3912793.00
154.66	5652.41	1810.22	618.63	1033.58	0.00	486469.00	3913191.00

269.77	5055.42	1517.71	535.68	944.23	0.00	485872.00	3912898.00
169.24	5543.31	1745.13	550.51	1285.97	0.00	486360.00	3913126.00
270.45	5052.53	1512.29	333.06	929.99	0.00	485869.00	3912893.00
76.20	6695.18	2280.76	467.39	1109.98	0.00	487511.00	3913662.00
357.24	4807.19	1390.35	567.34	1171.43	0.00	485623.00	3912771.00
255.26	5101.23	1540.91	497.66	997.09	0.00	485918.00	3912922.00
233.79	5190.04	1581.75	553.96	1143.61	0.00	486006.00	3912963.00
110.30	6108.28	2021.54	593.28	912.43	0.00	486925.00	3913402.00
325.06	4889.25	1434.97	456.87	1047.40	0.00	485706.00	3912816.00
363.64	4784.66	1387.52	639.54	1164.13	0.00	485601.00	3912768.00
506.25	4522.16	1264.81	581.08	981.29	0.00	485338.00	3912646.00
461.92	4597.73	1298.65	487.67	758.58	0.00	485414.00	3912679.00
84.78	6512.59	2197.25	494.83	1028.57	0.00	487329.00	3913578.00
84.91	6512.85	2200.99	641.24	1192.86	0.00	487329.00	3913582.00
339.98	4848.80	1413.38	599.67	949.30	0.00	485665.00	3912794.00
183.54	5457.58	1699.93	626.18	1227.81	0.00	486274.00	3913081.00
310.91	4924.67	1458.33	674.54	1140.29	0.00	485741.00	3912839.00
159.75	5611.44	1781.81	571.12	1136.53	0.00	486428.00	3913163.00
414.57	4680.76	1339.71	657.92	896.24	0.00	485497.00	3912720.00
242.60	5159.45	1571.18	693.28	983.06	0.00	485976.00	3912952.00
54.99	7305.72	2570.91	433.39	1175.32	0.00	488122.00	3913952.00
277.31	5018.37	1498.98	557.86	1039.48	0.00	485835.00	3912880.00
382.67	4745.26	1361.96	506.19	1148.45	0.00	485562.00	3912743.00
172.83	5528.33	1739.05	498.50	904.71	0.00	486345.00	3913120.00
279.32	5023.97	1497.03	649.15	1094.76	0.00	485840.00	3912878.00
121.78	5962.08	1943.53	444.33	959.44	0.00	486778.00	3913324.00
63.75	7015.26	2437.45	502.43	1220.95	0.00	487832.00	3913818.00
405.03	4709.87	1345.41	412.52	829.80	0.00	485526.00	3912726.00
271.57	5043.69	1517.38	546.20	943.97	0.00	485860.00	3912898.00
262.36	5088.68	1528.05	515.19	843.09	0.00	485905.00	3912909.00
134.66	5825.67	1890.15	631.45	1041.60	0.00	486642.00	3913271.00
223.77	5234.18	1606.96	701.01	886.11	0.00	486050.00	3912988.00
313.97	4907.07	1444.39	405.54	1014.52	0.00	485723.00	3912825.00
195.41	5385.90	1677.38	624.76	941.01	0.00	486202.00	3913058.00
132.75	5845.83	1885.92	655.38	1128.05	0.00	486662.00	3913267.00
573.88	4448.16	1214.80	543.51	1140.97	0.00	485264.00	3912596.00
151.33	5679.57	1818.80	602.15	982.07	0.00	486496.00	3913200.00
106.66	6157.85	2028.55	543.87	1244.43	0.00	486974.00	3913409.00
324.56	4884.96	1431.92	384.84	988.25	0.00	485701.00	3912813.00
213.58	5284.26	1624.80	638.34	1265.84	0.00	486101.00	3913006.00
130.60	5869.20	1894.13	527.22	1210.57	0.00	486685.00	3913275.00
231.42	5207.94	1584.38	547.85	1158.39	0.00	486024.00	3912965.00
409.74	4690.17	1341.89	598.26	982.37	0.00	485506.00	3912723.00
347.50	4822.32	1403.06	604.98	1229.54	0.00	485639.00	3912784.00
215.22	5280.27	1621.69	524.02	1069.17	0.00	486097.00	3913002.00
481.93	4568.38	1281.36	454.66	929.44	0.00	485385.00	3912662.00
340.69	4839.18	1415.33	422.02	1012.55	0.00	485655.00	3912796.00
173.57	5518.55	1739.17	691.00	1112.45	0.00	486335.00	3913120.00
440.22	4635.08	1315.59	410.02	874.48	0.00	485451.00	3912696.00
290.41	4978.88	1487.56	602.69	995.90	0.00	485795.00	3912868.00
136.72	5809.97	1877.21	669.69	1121.02	0.00	486626.00	3913258.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
502.58	11742.43	3245.43	828.69	923.79	53.20	492559.00	3914626.00
501.12	11747.03	3243.07	578.74	713.27	0.00	492563.00	3914624.00
295.26	12572.24	3643.30	698.97	1108.78	0.00	493389.00	3915024.00
145.90	14095.28	4375.61	1443.93	1906.86	0.00	494912.00	3915756.00
187.90	13487.99	4090.98	1105.52	1168.08	0.00	494304.00	3915472.00
244.20	12936.95	3825.64	1054.04	1456.99	0.00	493753.00	3915206.00
137.24	14258.43	4449.09	1027.36	1750.52	0.00	495075.00	3915830.00
191.87	13442.66	4058.57	1176.95	1863.32	0.00	494259.00	3915439.00
201.77	13330.32	4004.53	1122.93	2112.24	0.00	494147.00	3915385.00
161.77	13842.62	4254.90	1089.35	1500.34	0.00	494659.00	3915636.00
569.06	11583.47	3154.98	670.60	956.54	0.00	492400.00	3914536.00
123.64	14540.82	4581.25	1095.83	1463.12	0.00	495357.00	3915962.00
293.25	12586.36	3654.91	921.10	1208.71	0.00	493403.00	3915036.00
274.89	12705.00	3708.55	780.72	1360.72	0.00	493521.00	3915089.00
487.02	11783.12	3270.37	794.13	858.55	0.00	492599.00	3914651.00
100.10	15168.47	4866.58	1100.54	2138.07	0.00	495985.00	3916247.00
136.03	14281.70	4458.26	977.79	1590.72	0.00	495098.00	3915839.00
596.20	11518.17	3129.93	628.32	795.08	0.00	492334.00	3914511.00
323.25	12408.93	3570.08	922.73	1297.19	0.00	493225.00	3914951.00
122.04	14576.69	4610.13	1533.55	1781.18	0.00	495393.00	3915991.00
133.46	14332.03	4479.09	981.43	1978.72	0.00	495148.00	3915860.00
421.82	11986.28	3356.73	631.45	941.85	0.00	492803.00	3914738.00
128.28	14437.63	4528.59	1360.49	2298.69	0.00	495254.00	3915909.00
471.09	11826.99	3275.83	531.95	931.97	0.00	492643.00	3914657.00
652.86	11413.31	3074.28	477.62	547.22	0.00	492230.00	3914455.00
264.59	12779.08	3756.77	1040.69	1242.31	0.00	493595.00	3915138.00
79.29	15936.50	5213.22	921.02	2358.50	0.00	496753.00	3916594.00
294.29	12575.98	3656.98	961.46	1087.32	0.00	493392.00	3915038.00
151.83	13996.60	4337.32	1357.19	1464.25	0.00	494813.00	3915718.00
282.59	12653.09	3688.02	1090.27	1329.90	0.00	493469.00	3915069.00
222.88	13114.94	3906.40	933.81	1466.13	0.00	493931.00	3915287.00
513.16	11711.98	3222.99	550.03	818.16	0.00	492528.00	3914604.00
291.82	12586.82	3656.49	802.09	1687.54	0.00	493403.00	3915037.00
361.31	12227.35	3473.23	688.22	1097.02	0.00	493044.00	3914854.00
587.29	11533.96	3145.36	748.46	861.50	0.00	492350.00	3914526.00
336.94	12338.72	3540.95	884.94	1054.58	0.00	493155.00	3914922.00
256.85	12836.08	3775.01	937.89	1262.23	0.00	493652.00	3915156.00
138.30	14237.66	4445.60	1178.49	1392.99	0.00	495054.00	3915826.00
346.99	12293.67	3520.50	719.02	918.88	0.00	493110.00	3914901.00
176.40	13635.11	4156.09	1181.84	1407.48	0.00	494451.00	3915537.00
180.10	13580.23	4130.73	1513.84	2101.05	0.00	494397.00	3915512.00
800.42	11210.26	2969.15	584.25	662.89	0.00	492027.00	3914350.00
268.69	12744.24	3731.54	864.99	1475.44	0.00	493561.00	3915112.00
62.48	16818.92	5625.52	1481.78	3000.15	0.00	497635.00	3917006.00
473.80	11815.39	3278.86	659.57	1134.81	0.00	492632.00	3914660.00
80.69	15875.18	5200.19	1273.80	2097.86	0.00	496691.00	3916581.00
487.05	11783.62	3265.56	773.09	829.66	0.00	492600.00	3914646.00
273.95	12711.55	3706.43	954.73	1538.91	0.00	493528.00	3915087.00
209.15	13254.91	3980.49	950.93	1086.84	0.00	494071.00	3915361.00

251.99	12863.95	3791.88	991.97	1351.01	0.00	493680.00	3915173.00
229.29	13063.24	3879.62	676.61	1106.09	0.00	493880.00	3915260.00
395.50	12077.81	3410.75	753.61	973.87	0.00	492894.00	3914792.00
141.44	14176.45	4406.69	974.71	1547.71	0.00	494993.00	3915787.00
250.27	12884.52	3803.32	1037.61	1370.63	0.00	493701.00	3915184.00
436.10	11944.93	3332.51	823.96	1186.85	0.00	492761.00	3914713.00
293.30	12585.10	3660.23	934.80	1025.93	0.00	493401.00	3915041.00
199.44	13360.28	4021.52	988.73	1373.12	0.00	494177.00	3915402.00
599.57	11513.23	3121.27	513.71	844.38	0.00	492330.00	3914502.00
299.19	12553.17	3631.89	672.67	1034.26	0.00	493369.00	3915013.00
239.93	12961.01	3847.51	1323.64	1612.66	0.00	493777.00	3915228.00
297.31	12554.68	3642.59	1203.68	1556.03	0.00	493371.00	3915023.00
637.18	11448.21	3090.36	643.55	757.19	0.00	492264.00	3914471.00
345.88	12289.98	3506.58	528.53	974.78	0.00	493106.00	3914887.00
30.91	20129.20	7195.82	1686.67	2567.63	0.00	500945.00	3918577.00
119.28	14640.06	4638.34	1437.85	2065.97	0.00	495456.00	3916019.00
164.89	13793.85	4221.20	1232.67	2285.47	0.00	494610.00	3915602.00
336.25	12350.84	3539.15	1086.65	1241.90	0.00	493167.00	3914920.00
56.51	17224.49	5824.77	1391.78	2928.96	0.00	498041.00	3917206.00
161.61	13841.75	4251.77	764.23	1188.79	0.00	494658.00	3915633.00
328.77	12375.95	3554.83	619.92	901.11	0.00	493192.00	3914936.00
307.20	12500.92	3617.82	641.43	995.92	0.00	493317.00	3914999.00
358.16	12245.10	3486.95	777.42	1092.85	0.00	493061.00	3914868.00
281.60	12651.66	3688.72	773.45	1371.72	0.00	493468.00	3915070.00
173.46	13677.00	4172.97	1520.36	1739.68	0.00	494493.00	3915554.00
169.82	13729.35	4198.91	1133.40	1797.63	0.00	494546.00	3915580.00
96.25	15285.03	4912.16	1223.57	2632.08	0.00	496101.00	3916293.00
246.57	12905.09	3805.79	913.72	1617.20	0.00	493721.00	3915187.00
171.63	13696.74	4162.88	1200.50	1989.57	0.00	494513.00	3915544.00
274.27	12700.77	3713.33	1039.28	1379.36	0.00	493517.00	3915094.00
360.61	12233.90	3481.62	709.79	982.52	0.00	493050.00	3914862.00
386.70	12123.42	3426.65	814.91	883.08	0.00	492940.00	3914807.00
261.12	12802.91	3766.20	1185.86	1363.36	0.00	493619.00	3915147.00
270.73	12732.09	3729.04	1108.53	1511.94	0.00	493548.00	3915110.00
222.35	13125.36	3919.20	1098.34	1191.61	0.00	493942.00	3915300.00
113.32	14788.49	4702.18	1523.28	2798.10	0.00	495605.00	3916083.00
189.86	13471.57	4073.36	1254.42	1410.63	0.00	494288.00	3915454.00
311.98	12473.00	3598.97	698.22	1236.41	0.00	493289.00	3914980.00
186.69	13502.88	4093.78	1227.89	1665.32	0.00	494319.00	3915475.00
243.76	12940.71	3826.88	844.21	1162.81	0.00	493757.00	3915208.00
168.53	13742.36	4179.06	961.95	2533.80	0.00	494559.00	3915560.00
249.58	12886.88	3804.38	937.97	965.18	0.00	493703.00	3915185.00
530.13	11675.85	3210.35	709.81	724.33	0.00	492492.00	3914591.00
222.61	13126.82	3909.67	754.21	1047.76	0.00	493943.00	3915290.00
349.76	12284.35	3508.64	775.30	1085.91	0.00	493101.00	3914889.00
236.37	12995.93	3845.33	757.49	1442.58	0.00	493812.00	3915226.00
120.84	14605.82	4624.72	1407.44	1591.67	0.00	495422.00	3916005.00
314.24	12458.64	3600.96	905.03	1254.71	0.00	493275.00	3914982.00
816.36	11185.12	2947.92	683.15	1007.31	0.00	492001.00	3914329.00
353.16	12262.65	3493.69	715.38	1119.84	0.00	493079.00	3914874.00
411.76	12024.21	3382.79	776.42	977.16	0.00	492840.00	3914764.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
77.42	106073.52	31619.94	2807.99	3199.12	<b>113.57</b>	586890.00	3943001.00
111.23	100775.87	29159.95	2466.11	2625.34	0.00	581592.00	3940541.00
296.99	90529.00	24306.31	1722.50	1336.09	0.00	571345.00	3935687.00
415.88	88083.38	23139.54	1635.15	1174.74	0.00	568900.00	3934520.00
189.37	94581.85	26241.88	2048.06	1998.87	0.00	575398.00	3937623.00
204.18	93835.47	25878.71	1950.29	1862.26	0.00	574652.00	3937259.00
258.08	91690.56	24861.91	1893.88	1768.91	0.00	572507.00	3936243.00
266.22	91426.46	24738.46	1786.16	1490.47	0.00	572243.00	3936119.00
141.99	97720.43	27711.35	2222.13	2314.53	0.00	578537.00	3939092.00
346.08	89359.71	23750.39	1649.45	1158.22	0.00	570176.00	3935131.00
483.55	87133.35	22668.16	1603.13	1114.12	0.00	567950.00	3934049.00
310.47	90179.99	24149.20	1761.25	1442.44	0.00	570996.00	3935530.00
223.75	92965.10	25470.81	1842.31	1556.84	0.00	573781.00	3936852.00
577.33	86121.76	22173.05	1565.06	1017.35	0.00	566938.00	3933554.00
177.24	95262.97	26561.56	1887.52	1569.30	0.00	576079.00	3937942.00
156.70	96590.27	27176.09	1997.48	1817.97	0.00	577407.00	3938557.00
318.48	89982.27	24051.78	1683.03	1242.01	0.00	570799.00	3935433.00
134.48	98368.51	28020.54	2119.87	2002.86	0.00	579185.00	3939401.00
465.17	87369.27	22786.64	1592.34	1058.62	0.00	568186.00	3934167.00
284.47	90875.65	24475.34	1745.47	1395.66	0.00	571692.00	3935856.00
432.69	87825.39	23010.90	1666.60	1274.82	0.00	568642.00	3934392.00
112.54	100621.85	29074.56	2335.68	2469.00	0.00	581438.00	3940455.00
407.28	88222.48	23200.05	1634.43	1164.75	0.00	569039.00	3934581.00
158.29	96478.09	27131.53	1999.23	1805.71	0.00	577294.00	3938512.00
130.84	98702.15	28166.30	2134.26	2053.55	0.00	579518.00	3939547.00
296.89	90529.70	24312.37	1728.82	1342.48	0.00	571346.00	3935693.00
52.64	112887.10	34816.25	3293.13	3719.74	0.00	593703.00	3946197.00
266.70	91411.50	24731.02	1818.19	1578.28	0.00	572228.00	3936112.00
203.72	93855.39	25888.54	1967.12	1900.38	0.00	574672.00	3937269.00
212.96	93429.57	25692.46	1841.87	1520.02	0.00	574246.00	3937073.00
125.02	99265.84	28432.28	2242.53	2310.28	0.00	580082.00	3939813.00
450.97	87563.47	22879.99	1670.55	1331.02	0.00	568380.00	3934261.00
291.64	90674.15	24385.29	1770.31	1461.12	0.00	571490.00	3935766.00
293.65	90619.72	24354.80	1709.46	1293.74	0.00	571436.00	3935736.00
378.81	88715.27	23433.69	1602.41	1047.32	0.00	569532.00	3934814.00
477.88	87203.43	22699.46	1621.24	1183.98	0.00	568020.00	3934080.00
372.63	88830.97	23495.46	1806.82	1636.25	0.00	569647.00	3934876.00
223.57	92972.59	25464.48	1861.19	1657.80	0.00	573789.00	3936845.00
75.46	106487.53	31824.60	2540.94	2588.80	0.00	587304.00	3943205.00
128.05	98966.28	28280.23	2245.89	2394.84	0.00	579783.00	3939661.00
604.65	85872.49	22046.61	1566.49	1045.07	0.00	566689.00	3933427.00
302.42	90383.96	24235.34	1720.72	1354.32	0.00	571200.00	3935616.00
124.31	99337.47	28470.99	2186.92	2213.28	0.00	580154.00	3939852.00
317.86	89997.51	24052.80	1794.11	1605.53	0.00	570814.00	3935434.00
406.95	88228.24	23206.90	1623.79	1133.37	0.00	569045.00	3934588.00
712.75	85067.04	21640.15	1521.30	903.26	0.00	565883.00	3933021.00
198.24	94123.44	26023.81	1898.79	1695.74	0.00	574940.00	3937405.00
313.50	90104.51	24108.06	1664.40	1175.16	0.00	570921.00	3935489.00
213.50	93405.45	25673.96	1875.06	1634.68	0.00	574222.00	3937055.00
85.58	104508.84	30900.86	2682.59	2877.87	0.00	585325.00	3942282.00

646.27	85531.67	21872.94	1557.55	1027.36	0.00	566348.00	3933254.00
551.14	86372.79	22293.20	1584.65	1090.98	0.00	567189.00	3933674.00
169.58	95732.35	26776.71	2183.89	2272.25	0.00	576549.00	3938157.00
500.34	86928.84	22560.24	1593.86	1117.13	0.00	567745.00	3933941.00
328.93	89739.39	23931.22	1744.64	1442.99	0.00	570556.00	3935312.00
277.18	91089.22	24579.78	1795.33	1525.14	0.00	571906.00	3935961.00
494.46	86999.70	22605.90	1562.00	964.77	0.00	567816.00	3933987.00
422.91	87974.59	23087.86	1611.08	1084.25	0.00	568791.00	3934469.00
45.64	115764.19	36167.64	3219.44	3462.92	0.00	596580.00	3947548.00
179.99	95102.81	26475.37	1927.26	1693.62	0.00	575919.00	3937856.00
440.90	87704.38	22941.91	1623.93	1167.73	0.00	568521.00	3934323.00
405.85	88246.32	23208.55	1598.01	1042.49	0.00	569063.00	3934589.00
157.12	96560.69	27172.28	2199.41	2263.72	0.00	577377.00	3938553.00
206.58	93721.84	25831.78	1873.19	1603.23	0.00	574538.00	3937213.00
227.42	92814.13	25394.99	1817.76	1530.02	0.00	573630.00	3936776.00
74.87	106613.67	31867.07	2774.39	3296.36	0.00	587430.00	3943248.00
469.84	87307.70	22750.82	1627.18	1197.49	0.00	568124.00	3934132.00
814.41	84467.74	21331.17	1495.27	816.28	0.00	565284.00	3932712.00
259.24	91652.88	24846.63	1785.41	1478.59	0.00	572469.00	3936227.00
24.67	130801.90	43164.17	3834.54	4318.44	0.00	611618.00	3954545.00
354.55	89184.23	23676.00	1705.99	1323.90	0.00	570001.00	3935057.00
210.11	93558.43	25739.69	1908.57	1736.19	0.00	574375.00	3937120.00
79.66	105620.63	31421.91	2705.66	2933.85	0.00	586437.00	3942803.00
746.98	84848.53	21530.70	1538.43	985.91	0.00	565665.00	3932911.00
196.72	94199.28	26052.92	1848.65	1528.02	0.00	575016.00	3937434.00
33.05	123072.41	39560.05	3577.80	4008.16	0.00	603889.00	3950941.00
393.17	88460.98	23320.02	1700.07	1366.98	0.00	569277.00	3934701.00
139.01	97970.44	27825.22	2050.67	1854.68	0.00	578787.00	3939206.00
136.46	98191.41	27938.43	2279.26	2410.29	0.00	579008.00	3939319.00
183.38	94908.91	26390.63	1979.57	1842.24	0.00	575725.00	3937771.00
246.80	92079.97	25041.64	1905.50	1828.32	0.00	572896.00	3936422.00
201.86	93946.65	25922.95	1881.02	1662.83	0.00	574763.00	3937304.00
253.86	91834.05	24928.12	1904.44	1771.74	0.00	572650.00	3936309.00
303.46	90358.47	24230.92	1772.96	1476.11	0.00	571175.00	3935612.00
120.16	99769.03	28676.96	2142.12	1993.98	0.00	580585.00	3940058.00
518.46	86720.22	22469.16	1618.26	1181.98	0.00	567537.00	3933850.00
677.65	85308.51	21766.78	1552.48	1007.79	0.00	566125.00	3933148.00
46.29	115467.53	36018.89	3293.56	3984.42	0.00	596284.00	3947400.00
201.75	93950.72	25939.61	2001.32	1916.36	0.00	574767.00	3937320.00
582.85	86069.57	22140.55	1568.97	1058.36	0.00	566886.00	3933521.00
399.98	88343.75	23252.42	1686.69	1358.50	0.00	569160.00	3934633.00
137.71	98082.88	27881.01	2133.05	2090.28	0.00	578899.00	3939262.00
259.19	91652.17	24844.17	1835.97	1612.98	0.00	572468.00	3936225.00
341.88	89450.52	23788.99	1695.35	1325.29	0.00	570267.00	3935170.00
368.48	88910.91	23528.54	1623.50	1105.91	0.00	569727.00	3934909.00
285.28	90853.08	24459.38	1742.62	1391.58	0.00	571669.00	3935840.00
406.43	88236.00	23210.81	1669.15	1290.98	0.00	569052.00	3934592.00
207.33	93685.67	25807.86	1993.23	1929.31	0.00	574502.00	3937189.00
139.94	97892.23	27792.91	2142.83	2145.27	0.00	578709.00	3939174.00
438.74	87737.62	22971.27	1606.37	1087.17	0.00	568554.00	3934352.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
325.59	54064.33	14791.12	1318.31	1222.47	<b>95.38</b>	534881.00	3926172.00
227.02	56190.76	15802.98	1529.18	1628.88	0.00	537007.00	3927184.00
291.11	54678.41	15078.40	1322.09	1304.16	0.00	535495.00	3926459.00
132.06	60249.36	17718.86	1713.14	2055.50	0.00	541066.00	3929100.00
88.87	64026.51	19504.47	2091.37	2460.75	0.00	544843.00	3930885.00
217.84	56459.57	15937.56	1542.73	1742.21	0.00	537276.00	3927318.00
123.76	60819.14	17997.45	1771.48	1931.68	0.00	541635.00	3929378.00
271.22	55087.30	15280.85	1354.52	1311.76	0.00	535904.00	3926662.00
92.37	63622.85	19300.05	1879.43	2197.78	0.00	544439.00	3930681.00
235.93	55939.86	15686.93	1380.09	1342.61	0.00	536756.00	3927068.00
467.33	52314.66	13948.28	1192.82	972.69	0.00	533131.00	3925329.00
184.50	57612.01	16472.40	1649.08	1939.75	0.00	538428.00	3927853.00
715.31	50709.08	13135.08	1115.52	758.69	0.00	531525.00	3924516.00
178.70	57843.26	16591.69	1733.98	2039.67	0.00	538660.00	3927972.00
393.36	53105.67	14322.68	1206.25	1006.64	0.00	533922.00	3925703.00
280.03	54901.28	15188.76	1321.30	1286.01	0.00	535718.00	3926570.00
382.85	53237.25	14398.68	1251.99	1082.23	0.00	534054.00	3925779.00
451.02	52475.59	14016.33	1214.35	1084.03	0.00	533292.00	3925397.00
446.36	52523.45	14043.32	1199.57	978.83	0.00	533340.00	3925424.00
222.72	56315.49	15855.88	1389.21	1432.27	0.00	537132.00	3927237.00
197.43	57131.94	16258.63	1550.48	1638.01	0.00	537948.00	3927639.00
189.46	57420.77	16393.32	1434.95	1448.83	0.00	538237.00	3927774.00
274.20	55023.36	15252.08	1363.97	1326.24	0.00	535840.00	3926633.00
125.32	60706.94	17927.62	1652.70	1823.87	0.00	541523.00	3929308.00
405.53	52959.14	14256.34	1216.89	1022.16	0.00	533775.00	3925637.00
210.28	56695.68	16044.72	1299.75	1095.75	0.00	537512.00	3927426.00
144.35	59499.96	17365.19	1578.04	1772.73	0.00	540316.00	3928746.00
173.79	58052.70	16691.78	1584.21	1744.76	0.00	538869.00	3928073.00
364.68	53476.20	14510.40	1220.17	998.01	0.00	534292.00	3925891.00
196.76	57154.07	16261.43	1514.95	1599.73	0.00	537970.00	3927642.00
175.03	57998.69	16667.22	1603.39	1694.22	0.00	538815.00	3928048.00
342.94	53790.36	14653.23	1203.14	962.41	0.00	534607.00	3926034.00
27.08	81141.80	27480.55	3592.19	4510.05	0.00	561958.00	3938861.00
159.32	58710.25	17008.22	1707.35	1885.53	0.00	539527.00	3928389.00
156.82	58834.19	17049.47	1564.75	1797.08	0.00	539650.00	3928430.00
176.38	57943.20	16637.78	1561.41	1675.21	0.00	538759.00	3928019.00
475.35	52245.32	13905.46	1213.21	1021.74	0.00	533062.00	3925286.00
361.22	53526.96	14525.59	1216.42	1016.68	0.00	534343.00	3925906.00
352.66	53646.46	14591.15	1320.95	1262.28	0.00	534463.00	3925972.00
240.38	55825.24	15641.11	1313.62	1107.13	0.00	536642.00	3927022.00
342.75	53794.85	14656.70	1265.00	1137.59	0.00	534611.00	3926037.00
217.47	56472.26	15947.09	1430.85	1409.03	0.00	537289.00	3927328.00
380.96	53259.81	14399.01	1379.79	1453.19	0.00	534076.00	3925780.00
1266.12	49196.89	12314.94	1060.22	556.31	0.00	530013.00	3923696.00
231.42	56067.99	15744.72	1461.44	1535.21	0.00	536884.00	3927126.00
432.17	52665.69	14113.00	1185.88	944.37	0.00	533482.00	3925494.00
337.12	53878.86	14703.18	1304.24	1154.12	0.00	534695.00	3926084.00
359.85	53543.83	14534.03	1182.56	916.29	0.00	534360.00	3925915.00
69.54	66774.46	20787.16	2325.96	2973.37	0.00	547591.00	3932168.00
496.09	52069.62	13818.06	1142.67	823.76	0.00	532886.00	3925199.00

274.17	55023.22	15246.19	1260.79	1041.95	0.00	535840.00	3926627.00
1031.30	49659.54	12581.91	1096.13	702.38	0.00	530476.00	3923963.00
438.51	52602.46	14081.27	1214.29	998.38	0.00	533419.00	3925462.00
98.03	63019.26	19032.43	1931.21	2161.96	0.00	543836.00	3930413.00
559.54	51581.24	13572.31	1116.63	768.16	0.00	532398.00	3924953.00
233.17	56016.28	15716.41	1380.08	1421.47	0.00	536833.00	3927097.00
433.06	52657.77	14110.29	1161.88	827.96	0.00	533474.00	3925491.00
161.64	58597.82	16940.27	1459.53	1440.43	0.00	539414.00	3928321.00
253.35	55498.20	15479.62	1292.97	1130.26	0.00	536314.00	3926860.00
383.72	53225.23	14384.23	1251.54	1085.87	0.00	534042.00	3925765.00
325.57	54062.94	14793.49	1232.76	1009.30	0.00	534879.00	3926174.00
193.43	57274.61	16324.21	1482.67	1561.89	0.00	538091.00	3927705.00
106.30	62225.18	18653.13	1850.09	2159.59	0.00	543041.00	3930034.00
496.10	52064.21	13818.96	1184.82	934.08	0.00	532880.00	3925200.00
578.59	51453.47	13511.95	1118.18	756.72	0.00	532270.00	3924893.00
323.07	54104.53	14808.82	1238.10	1036.69	0.00	534921.00	3926190.00
208.61	56750.58	16075.15	1404.29	1388.67	0.00	537567.00	3927456.00
158.43	58755.90	17019.12	1675.65	1919.29	0.00	539572.00	3928400.00
158.46	58751.65	17031.88	1525.27	1461.20	0.00	539568.00	3928413.00
72.62	66264.69	20551.17	2205.35	2534.40	0.00	547081.00	3931932.00
243.55	55742.56	15598.60	1363.07	1309.57	0.00	536559.00	3926979.00
141.26	59681.44	17460.33	1790.95	1978.35	0.00	540498.00	3928841.00
174.69	58012.37	16674.86	1480.98	1497.71	0.00	538829.00	3928056.00
394.24	53097.02	14325.27	1216.28	975.14	0.00	533913.00	3925706.00
114.64	61511.51	18312.39	1732.80	2017.06	0.00	542328.00	3929693.00
542.97	51697.98	13636.01	1133.13	789.09	0.00	532514.00	3925017.00
186.38	57540.94	16441.42	1498.34	1579.51	0.00	538357.00	3927822.00
484.23	52166.18	13877.79	1217.84	1002.98	0.00	532982.00	3925259.00
552.14	51634.09	13595.63	1137.97	848.36	0.00	532450.00	3924976.00
193.00	57289.67	16329.38	1404.74	1312.45	0.00	538106.00	3927710.00
251.74	55537.03	15491.21	1339.75	1235.27	0.00	536353.00	3926872.00
83.47	64696.60	19796.56	1973.12	2412.57	0.00	545513.00	3931177.00
354.26	53621.41	14579.23	1275.48	1130.84	0.00	534438.00	3925960.00
147.85	59305.50	17274.41	1575.10	1667.88	0.00	540122.00	3928655.00
280.29	54895.42	15184.17	1381.86	1408.84	0.00	535712.00	3926565.00
220.42	56382.83	15897.53	1382.50	1335.95	0.00	537199.00	3927278.00
561.31	51566.44	13572.04	1157.28	882.68	0.00	532383.00	3924953.00
305.73	54404.65	14943.80	1217.73	996.01	0.00	535221.00	3926325.00
166.46	58377.62	16841.75	1577.53	1653.11	0.00	539194.00	3928223.00
314.40	54250.92	14882.20	1367.91	1386.82	0.00	535067.00	3926263.00
605.09	51286.28	13429.73	1094.39	669.62	0.00	532103.00	3924811.00
82.20	64863.74	19891.72	2041.19	2537.02	0.00	545680.00	3931273.00
194.98	57216.80	16294.12	1445.17	1403.93	0.00	538033.00	3927675.00
189.88	57405.27	16376.05	1694.50	1982.17	0.00	538222.00	3927757.00
112.93	61652.17	18382.31	1745.50	1930.26	0.00	542468.00	3929763.00
287.10	54759.80	15124.20	1362.73	1382.83	0.00	535576.00	3926505.00
248.93	55607.16	15527.78	1360.76	1292.69	0.00	536423.00	3926909.00
317.41	54198.46	14849.12	1280.32	1180.08	0.00	535015.00	3926230.00
516.15	51905.09	13738.62	1154.19	847.87	0.00	532721.00	3925119.00
179.64	57806.32	16572.18	1407.57	1290.20	0.00	538623.00	3927953.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
182.12	32316.06	9521.37	1214.43	1537.72	<b>76.86</b>	513132.00	3920902.00
356.93	29663.43	8256.08	984.27	1175.76	0.00	510480.00	3919637.00
57.50	39659.90	12965.81	2175.81	3401.54	0.00	520476.00	3924347.00
473.35	28813.37	7842.81	821.64	750.80	0.00	509630.00	3919224.00
510.29	28615.36	7736.16	888.07	871.04	0.00	509432.00	3919117.00
551.96	28404.59	7636.00	765.23	617.64	0.00	509221.00	3919017.00
260.85	30783.11	8793.53	1096.76	1315.95	0.00	511599.00	3920174.00
576.52	28299.22	7580.07	826.66	804.65	0.00	509115.00	3918961.00
106.56	35200.09	10878.83	1413.52	1959.62	0.00	516016.00	3922260.00
151.26	33223.44	9954.03	1484.74	1890.71	0.00	514040.00	3921335.00
439.35	29026.79	7939.32	818.92	772.04	0.00	509843.00	3919320.00
152.23	33191.77	9933.06	1435.50	1943.59	0.00	514008.00	3921314.00
279.01	30522.83	8667.71	1020.05	1246.02	0.00	511339.00	3920048.00
319.16	30042.18	8433.48	1027.46	1238.26	0.00	510858.00	3919814.00
237.39	31156.67	8975.98	1033.54	1087.41	0.00	511973.00	3920357.00
270.78	30636.97	8725.71	963.98	982.35	0.00	511453.00	3920106.00
248.91	30962.45	8886.48	1060.19	1164.24	0.00	511779.00	3920267.00
242.80	31062.23	8929.64	1087.74	1260.24	0.00	511879.00	3920310.00
435.82	29050.83	7949.76	828.11	848.77	0.00	509867.00	3919331.00
346.03	29766.84	8308.38	976.32	1058.99	0.00	510583.00	3919689.00
202.54	31830.38	9291.83	1139.38	1472.73	0.00	512647.00	3920673.00
142.87	33522.80	10093.65	1332.21	1717.38	0.00	514339.00	3921474.00
395.22	29342.51	8095.00	935.15	1072.67	0.00	510159.00	3919476.00
226.46	31352.47	9065.90	1138.70	1428.61	0.00	512169.00	3920447.00
297.44	30289.69	8559.18	880.19	874.92	0.00	511106.00	3919940.00
530.12	28515.44	7686.60	915.51	963.62	0.00	509332.00	3919067.00
117.38	34617.05	10619.73	1384.14	1743.64	0.00	515433.00	3922001.00
78.42	37241.46	11840.15	1849.12	2358.11	0.00	518058.00	3923221.00
237.34	31158.94	8968.99	1099.49	1302.50	0.00	511975.00	3920350.00
302.86	30225.56	8521.19	983.11	1093.83	0.00	511042.00	3919902.00
344.18	29781.19	8309.60	987.06	1187.29	0.00	510597.00	3919690.00
413.08	29205.04	8031.86	1008.39	1115.65	0.00	510021.00	3919413.00
122.83	34350.73	10481.76	1501.05	2202.89	0.00	515167.00	3921863.00
356.21	29666.85	8264.14	1006.70	1091.47	0.00	510483.00	3919645.00
415.95	29188.36	8021.77	953.22	1059.17	0.00	510005.00	3919403.00
188.92	32140.43	9437.78	1268.41	1665.50	0.00	512957.00	3920819.00
378.00	29478.33	8164.64	929.74	990.53	0.00	510295.00	3919545.00
219.00	31490.33	9135.43	1061.66	1213.73	0.00	512307.00	3920516.00
141.23	33580.94	10124.92	1304.44	1477.64	0.00	514397.00	3921506.00
127.44	34146.58	10376.31	1362.34	1871.97	0.00	514963.00	3921757.00
288.21	30405.76	8611.43	1007.46	1126.56	0.00	511222.00	3919992.00
53.44	40286.22	13243.23	2119.26	3430.84	0.00	521103.00	3924624.00
401.53	29290.35	8075.33	886.57	900.57	0.00	510107.00	3919456.00
518.39	28567.37	7714.73	798.57	764.13	0.00	509384.00	3919096.00
288.92	30395.76	8604.59	904.31	1026.26	0.00	511212.00	3919985.00
163.03	32841.45	9768.60	1363.71	1799.41	0.00	513658.00	3921149.00
457.48	28906.92	7885.38	837.43	794.43	0.00	509723.00	3919266.00
316.18	30072.62	8448.11	959.25	1116.47	0.00	510889.00	3919829.00
135.82	33790.13	10224.94	1282.61	1396.23	0.00	514606.00	3921606.00
257.24	30837.73	8810.17	1159.49	1721.55	0.00	511654.00	3920191.00

405.66	29264.64	8063.13	925.52	963.82	0.00	510081.00	3919444.00
484.50	28748.15	7801.71	914.80	1014.78	0.00	509564.00	3919182.00
304.52	30206.58	8515.32	936.52	972.63	0.00	511023.00	3919896.00
338.53	29838.02	8335.14	927.14	1053.43	0.00	510654.00	3919716.00
230.55	31275.23	9024.14	921.59	962.20	0.00	512092.00	3920405.00
104.91	35293.49	10930.16	1699.29	2198.97	0.00	516110.00	3922311.00
398.65	29312.09	8084.51	911.13	939.39	0.00	510128.00	3919465.00
524.45	28535.72	7699.72	761.72	627.78	0.00	509352.00	3919081.00
221.10	31449.75	9111.08	1162.36	1436.92	0.00	512266.00	3920492.00
283.87	30462.95	8633.63	1050.97	1266.43	0.00	511279.00	3920014.00
245.52	31015.56	8898.61	942.71	1141.18	0.00	511832.00	3920279.00
78.40	37243.49	11845.56	1651.41	2117.71	0.00	518060.00	3923226.00
275.00	30580.31	8696.72	1054.17	1148.91	0.00	511397.00	3920077.00
272.07	30624.14	8716.49	1073.60	1289.34	0.00	511440.00	3920097.00
622.99	28108.01	7484.53	763.29	646.82	0.00	508924.00	3918865.00
305.22	30197.88	8512.50	1091.90	1381.76	0.00	511014.00	3919893.00
660.52	27976.12	7419.18	835.01	800.98	0.00	508792.00	3918800.00
200.35	31878.10	9314.43	991.71	1054.49	0.00	512694.00	3920695.00
306.35	30185.36	8507.10	1076.92	1212.74	0.00	511002.00	3919888.00
232.39	31242.87	9011.86	1173.02	1489.38	0.00	512059.00	3920393.00
193.30	32039.55	9391.69	1194.81	1481.77	0.00	512856.00	3920772.00
227.26	31335.36	9053.11	1106.21	1422.21	0.00	512152.00	3920434.00
105.85	35240.54	10910.69	1527.76	1696.27	0.00	516057.00	3922291.00
540.35	28455.30	7657.01	861.73	904.06	0.00	509272.00	3919038.00
414.59	29189.46	8023.75	980.03	1111.23	0.00	510006.00	3919405.00
557.82	28380.01	7616.29	830.89	843.27	0.00	509196.00	3918997.00
202.57	31828.94	9283.56	1163.89	1567.10	0.00	512645.00	3920664.00
375.56	29498.94	8170.40	940.91	1044.80	0.00	510315.00	3919551.00
503.50	28643.60	7757.73	992.72	1166.55	0.00	509460.00	3919139.00
919.83	27325.18	7074.46	742.57	540.93	0.00	508141.00	3918455.00
98.00	35726.40	11132.89	1402.05	1644.95	0.00	516543.00	3922514.00
294.71	30326.90	8581.00	995.44	967.02	0.00	511143.00	3919962.00
368.17	29564.84	8202.12	951.83	1110.88	0.00	510381.00	3919583.00
155.20	33089.28	9887.53	1177.26	1349.54	0.00	513906.00	3921268.00
342.64	29799.26	8318.12	1099.90	1269.62	0.00	510616.00	3919699.00
179.16	32389.68	9552.92	1146.99	1452.68	0.00	513206.00	3920934.00
192.18	32065.79	9403.16	1168.66	1399.71	0.00	512882.00	3920784.00
144.49	33461.34	10063.00	1416.00	1827.20	0.00	514278.00	3921444.00
370.40	29545.00	8186.12	900.51	1015.76	0.00	510361.00	3919567.00
184.48	32251.90	9492.49	1110.12	1321.40	0.00	513068.00	3920873.00
46.47	41548.70	13833.79	1851.00	2888.38	0.00	522365.00	3925215.00
369.51	29554.73	8196.48	916.92	1005.75	0.00	510371.00	3919577.00
239.71	31115.85	8950.74	982.45	1056.21	0.00	511932.00	3920332.00
364.64	29599.68	8216.41	942.60	992.35	0.00	510416.00	3919597.00
225.55	31366.11	9071.47	1089.29	1231.67	0.00	512182.00	3920452.00
453.97	28930.39	7897.13	914.78	954.16	0.00	509747.00	3919278.00
167.36	32717.62	9712.52	1254.38	1358.01	0.00	513534.00	3921093.00
302.12	30231.26	8536.20	1046.95	1095.71	0.00	511048.00	3919917.00
439.68	29024.09	7940.23	837.42	818.54	0.00	509840.00	3919321.00
843.57	27489.58	7159.26	760.48	623.36	0.00	508306.00	3918540.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
104.04	3867.61	1311.59	352.12	834.57	<b>30.70</b>	484684.00	3912692.00
235.69	3154.83	972.72	359.26	721.43	0.00	483971.00	3912354.00
16.46	6946.59	2759.28	419.02	771.91	0.00	487763.00	3914140.00
305.49	2972.52	886.68	319.86	816.15	0.00	483789.00	3912267.00
81.95	4128.65	1433.19	371.24	604.44	0.00	484945.00	3912814.00
92.48	3989.10	1371.08	346.59	647.18	0.00	484805.00	3912752.00
207.46	3248.26	1030.59	384.91	637.93	0.00	484065.00	3912411.00
249.77	3108.19	955.79	307.84	680.82	0.00	483924.00	3912337.00
250.72	3107.64	958.24	381.61	641.16	0.00	483924.00	3912339.00
276.76	3039.94	920.37	328.76	639.72	0.00	483856.00	3912301.00
57.97	4571.84	1647.29	424.72	765.45	0.00	485388.00	3913028.00
570.66	2612.52	709.52	272.36	635.04	0.00	483429.00	3912090.00
363.73	2864.24	838.62	281.81	568.22	0.00	483681.00	3912219.00
88.35	4039.83	1395.44	323.74	674.70	0.00	484856.00	3912776.00
528.20	2648.21	735.33	375.81	731.97	0.00	483464.00	3912116.00
118.26	3731.74	1253.64	416.30	747.25	0.00	484548.00	3912634.00
227.12	3177.99	983.25	342.84	782.18	0.00	483994.00	3912364.00
248.36	3114.03	959.09	394.30	741.63	0.00	483930.00	3912340.00
425.36	2767.65	789.46	339.65	676.57	0.00	483584.00	3912170.00
181.21	3352.55	1067.53	371.67	745.44	0.00	484169.00	3912448.00
1263.97	2275.06	540.18	332.80	401.04	0.00	483091.00	3911921.00
233.35	3165.54	977.87	301.23	650.02	0.00	483982.00	3912359.00
90.35	4018.18	1387.45	305.17	701.72	0.00	484834.00	3912768.00
46.97	4871.98	1790.85	421.13	650.78	0.00	485688.00	3913172.00
104.40	3866.46	1318.71	418.14	651.99	0.00	484683.00	3912699.00
267.65	3063.80	931.21	264.96	668.11	0.00	483880.00	3912312.00
859.60	2436.86	624.35	364.27	443.08	0.00	483253.00	3912005.00
250.45	3105.17	954.18	282.58	597.30	0.00	483921.00	3912335.00
382.43	2830.97	822.58	286.68	679.68	0.00	483647.00	3912203.00
110.70	3802.92	1283.03	259.27	696.36	0.00	484619.00	3912664.00
342.74	2898.13	853.58	303.78	676.85	0.00	483714.00	3912234.00
508.16	2680.40	745.15	347.72	593.99	0.00	483497.00	3912126.00
341.87	2901.09	853.26	295.12	629.75	0.00	483717.00	3912234.00
151.27	3506.53	1145.96	363.99	756.76	0.00	484323.00	3912527.00
884.74	2413.01	613.75	352.53	538.68	0.00	483229.00	3911995.00
186.15	3332.58	1062.11	393.39	770.11	0.00	484149.00	3912443.00
193.72	3305.33	1044.00	378.86	733.92	0.00	484122.00	3912425.00
79.55	4169.23	1456.31	332.96	768.77	0.00	484986.00	3912837.00
296.62	2992.41	904.43	335.84	646.86	0.00	483809.00	3912285.00
698.77	2523.77	667.74	223.74	441.60	0.00	483340.00	3912049.00
465.73	2727.38	768.86	313.39	635.10	0.00	483544.00	3912150.00
319.37	2948.48	881.24	374.45	522.52	0.00	483765.00	3912262.00
143.49	3548.98	1169.10	359.98	658.41	0.00	484365.00	3912550.00
209.02	3242.35	1022.05	354.37	626.72	0.00	484059.00	3912403.00
101.12	3898.61	1326.28	354.00	760.66	0.00	484715.00	3912707.00
175.24	3389.73	1086.81	346.29	706.68	0.00	484206.00	3912468.00
444.53	2747.03	776.53	319.24	753.96	0.00	483563.00	3912157.00
955.60	2398.20	592.76	390.37	708.97	0.00	483214.00	3911974.00
346.61	2887.78	855.77	379.57	643.23	0.00	483704.00	3912237.00
143.65	3549.88	1167.17	343.99	666.48	0.00	484366.00	3912548.00

671.44	2536.87	677.17	296.29	531.66	0.00	483353.00	3912058.00
263.79	3074.83	942.65	376.69	698.66	0.00	483891.00	3912323.00
140.58	3567.26	1178.57	412.98	686.45	0.00	484384.00	3912559.00
89.29	4029.12	1395.28	326.89	643.98	0.00	484845.00	3912776.00
324.82	2936.31	874.53	398.43	597.00	0.00	483753.00	3912255.00
472.84	2713.34	762.79	359.89	621.38	0.00	483530.00	3912144.00
285.65	3027.91	906.64	376.36	742.47	0.00	483844.00	3912287.00
149.05	3518.00	1150.61	380.47	757.82	0.00	484334.00	3912531.00
290.93	3011.11	901.30	319.84	757.66	0.00	483827.00	3912282.00
231.22	3169.64	991.77	426.92	465.41	0.00	483986.00	3912373.00
105.54	3855.03	1303.88	331.20	700.02	0.00	484671.00	3912685.00
227.05	3176.07	987.60	362.89	690.91	0.00	483992.00	3912368.00
25.83	5921.91	2278.22	389.04	906.09	0.00	486738.00	3913659.00
658.26	2540.11	675.64	325.69	656.19	0.00	483356.00	3912056.00
124.62	3680.18	1227.72	377.53	695.10	0.00	484496.00	3912609.00
272.19	3049.95	929.61	350.78	585.34	0.00	483866.00	3912310.00
369.51	2849.95	830.76	351.04	778.81	0.00	483666.00	3912212.00
164.21	3432.52	1111.08	340.50	711.01	0.00	484249.00	3912492.00
66.37	4390.49	1558.85	351.30	740.66	0.00	485207.00	3912940.00
441.34	2753.11	788.43	383.80	605.21	0.00	483569.00	3912169.00
227.65	3183.68	987.51	366.76	793.29	0.00	484000.00	3912368.00
247.75	3116.18	958.73	317.15	707.25	0.00	483932.00	3912340.00
248.63	3116.96	960.02	341.99	695.86	0.00	483933.00	3912341.00
282.73	3024.44	915.37	268.86	566.11	0.00	483841.00	3912296.00
178.28	3366.06	1078.02	381.78	725.00	0.00	484182.00	3912459.00
375.67	2848.81	828.07	328.03	766.68	0.00	483665.00	3912209.00
395.86	2810.38	815.63	336.53	551.73	0.00	483627.00	3912196.00
355.09	2874.71	842.61	392.29	803.29	0.00	483691.00	3912223.00
336.00	2915.85	858.29	312.59	707.16	0.00	483732.00	3912239.00
200.14	3279.25	1041.01	344.35	481.15	0.00	484096.00	3912422.00
382.56	2838.83	818.41	270.86	606.68	0.00	483655.00	3912199.00
277.50	3047.11	919.42	346.61	644.82	0.00	483863.00	3912300.00
175.15	3386.48	1092.68	347.49	641.11	0.00	484203.00	3912473.00
526.71	2658.79	736.95	375.96	639.92	0.00	483475.00	3912118.00
419.31	2782.65	790.76	325.62	717.83	0.00	483599.00	3912172.00
410.99	2788.70	797.46	336.18	769.91	0.00	483605.00	3912178.00
434.45	2753.69	782.57	301.38	687.26	0.00	483570.00	3912163.00
326.64	2934.63	865.80	308.58	787.09	0.00	483751.00	3912247.00
375.78	2844.63	822.87	342.01	623.94	0.00	483661.00	3912204.00
148.34	3519.08	1153.87	326.13	682.63	0.00	484335.00	3912535.00
221.09	3202.31	998.49	223.89	658.65	0.00	484019.00	3912379.00
287.94	3012.09	910.10	353.21	697.53	0.00	483828.00	3912291.00
235.18	3154.98	974.59	397.84	729.51	0.00	483971.00	3912355.00
194.41	3302.66	1041.81	363.17	762.60	0.00	484119.00	3912423.00
157.73	3471.37	1125.35	311.30	704.98	0.00	484288.00	3912506.00
49.79	4785.48	1745.75	371.76	685.86	0.00	485602.00	3913127.00
256.41	3099.54	945.45	300.00	664.70	0.00	483916.00	3912326.00
637.28	2566.64	689.28	295.02	544.61	0.00	483383.00	3912070.00
409.94	2793.06	800.74	357.13	720.95	0.00	483609.00	3912182.00
202.08	3273.38	1044.41	417.02	475.20	0.00	484090.00	3912425.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
334.44	4818.99	1402.34	548.27	1233.95	<b>36.56</b>	485635.00	3912783.00
76.41	6641.40	2272.15	528.65	1093.45	0.00	487458.00	3913653.00
326.91	4836.03	1417.68	453.98	1026.30	0.00	485652.00	3912798.00
214.43	5241.84	1608.26	550.85	1343.83	0.00	486058.00	3912989.00
80.29	6559.54	2232.08	525.75	1217.81	0.00	487376.00	3913613.00
352.92	4767.99	1388.22	444.90	884.51	0.00	485584.00	3912769.00
509.28	4494.77	1257.19	574.88	768.27	0.00	485311.00	3912638.00
288.73	4956.86	1478.01	524.41	735.84	0.00	485773.00	3912859.00
262.23	5045.38	1514.09	516.12	1120.58	0.00	485862.00	3912895.00
286.16	4956.96	1477.52	487.23	887.51	0.00	485773.00	3912858.00
291.48	4939.83	1463.40	474.95	1150.54	0.00	485756.00	3912844.00
353.99	4772.72	1388.72	416.07	878.21	0.00	485589.00	3912770.00
331.07	4831.43	1416.05	416.61	913.64	0.00	485648.00	3912797.00
279.77	4974.25	1492.41	507.09	898.24	0.00	485791.00	3912873.00
296.18	4924.72	1466.15	570.16	688.89	0.00	485741.00	3912847.00
255.66	5064.62	1534.96	699.27	1050.49	0.00	485881.00	3912916.00
166.61	5530.12	1738.67	597.09	1207.21	0.00	486346.00	3913119.00
53.37	7315.57	2588.08	593.51	1184.07	0.00	488132.00	3913969.00
382.01	4714.86	1359.84	505.72	985.99	0.00	485531.00	3912741.00
465.96	4561.84	1283.46	407.42	692.87	0.00	485378.00	3912664.00
189.68	5380.38	1665.41	563.48	1221.30	0.00	486197.00	3913046.00
114.03	6013.86	1966.31	496.27	1159.62	0.00	486830.00	3913347.00
234.19	5154.38	1568.32	533.23	1194.89	0.00	485971.00	3912949.00
80.59	6551.28	2230.30	516.82	1082.29	0.00	487368.00	3913611.00
251.26	5080.95	1532.87	542.83	1046.43	0.00	485897.00	3912914.00
163.90	5539.07	1748.63	494.43	1388.96	0.00	486355.00	3913129.00
227.41	5182.29	1585.26	555.39	1016.19	0.00	485999.00	3912966.00
397.24	4686.28	1349.81	626.08	710.14	0.00	485503.00	3912731.00
259.24	5055.32	1521.03	606.11	1168.36	0.00	485872.00	3912902.00
342.63	4804.68	1399.49	549.09	940.79	0.00	485621.00	3912780.00
337.38	4810.07	1403.22	519.56	1248.14	0.00	485626.00	3912784.00
315.72	4872.85	1431.51	592.92	1248.81	0.00	485689.00	3912812.00
71.11	6770.50	2327.19	629.50	1143.65	0.00	487587.00	3913708.00
453.34	4575.85	1298.57	559.09	901.48	0.00	485392.00	3912679.00
17.23	10396.61	4018.26	720.40	1401.90	0.00	491213.00	3915399.00
433.88	4614.38	1314.10	426.09	762.36	0.00	485431.00	3912695.00
259.93	5047.99	1515.29	477.50	1166.97	0.00	485864.00	3912896.00
262.47	5043.09	1510.40	383.72	1025.06	0.00	485859.00	3912891.00
161.18	5558.99	1762.14	426.14	1055.09	0.00	486375.00	3913143.00
398.13	4670.70	1343.53	567.84	1067.67	0.00	485487.00	3912724.00
205.48	5288.21	1629.61	539.95	1293.60	0.00	486104.00	3913010.00
145.58	5687.34	1818.65	469.57	1085.52	0.00	486504.00	3913199.00
280.63	4981.13	1498.10	537.40	566.27	0.00	485797.00	3912879.00
705.51	4291.83	1156.63	504.77	594.62	0.00	485108.00	3912537.00
520.49	4476.60	1236.56	379.03	942.74	0.00	485293.00	3912617.00
125.38	5888.28	1921.75	621.57	1012.78	0.00	486705.00	3913303.00
388.13	4704.02	1360.85	630.37	839.23	0.00	485520.00	3912742.00
180.23	5433.57	1710.06	549.14	923.51	0.00	486250.00	3913091.00
285.66	4966.99	1479.74	614.67	1051.65	0.00	485783.00	3912861.00
661.35	4308.70	1156.80	508.66	1067.65	0.00	485125.00	3912538.00

222.09	5209.00	1596.16	622.06	1222.71	0.00	486025.00	3912977.00
334.01	4826.24	1411.04	546.05	1087.74	0.00	485643.00	3912792.00
165.01	5532.50	1738.35	534.43	1087.11	0.00	486349.00	3913119.00
267.98	5019.10	1501.11	463.10	1134.30	0.00	485835.00	3912882.00
187.72	5390.13	1681.40	542.25	1161.52	0.00	486206.00	3913062.00
101.09	6192.60	2057.83	545.01	1169.10	0.00	487009.00	3913439.00
385.26	4698.95	1344.58	486.25	1120.75	0.00	485515.00	3912725.00
280.89	4978.08	1482.53	576.01	1147.40	0.00	485794.00	3912863.00
45.62	7648.43	2745.66	671.43	1199.90	0.00	488465.00	3914126.00
107.87	6096.61	2020.42	667.25	1120.51	0.00	486913.00	3913401.00
211.32	5262.13	1622.97	626.96	1113.29	0.00	486078.00	3913004.00
174.24	5476.26	1725.58	432.34	682.01	0.00	486293.00	3913106.00
134.81	5784.84	1861.31	630.92	1121.85	0.00	486601.00	3913242.00
245.37	5111.02	1549.79	603.43	1112.06	0.00	485927.00	3912931.00
245.35	5113.99	1549.74	419.30	913.03	0.00	485930.00	3912931.00
343.66	4801.98	1399.65	636.84	1183.18	0.00	485618.00	3912780.00
432.31	4609.83	1318.59	589.95	947.73	0.00	485426.00	3912699.00
318.11	4872.31	1436.02	492.80	729.90	0.00	485689.00	3912817.00
189.30	5382.61	1677.09	618.59	1266.55	0.00	486199.00	3913058.00
581.97	4397.92	1209.76	518.13	698.66	0.00	485214.00	3912591.00
169.62	5507.94	1731.38	406.01	970.07	0.00	486324.00	3913112.00
218.36	5224.23	1607.98	536.87	1004.56	0.00	486041.00	3912989.00
188.04	5390.70	1683.37	609.10	1036.09	0.00	486207.00	3913064.00
279.75	4985.16	1483.92	434.40	983.94	0.00	485801.00	3912865.00
476.90	4534.59	1269.75	377.36	894.08	0.00	485351.00	3912651.00
225.74	5192.47	1593.23	554.02	868.23	0.00	486009.00	3912974.00
482.14	4536.53	1270.98	440.12	767.91	0.00	485353.00	3912652.00
366.57	4747.85	1371.94	468.60	1015.26	0.00	485564.00	3912753.00
204.71	5295.73	1644.41	638.81	867.18	0.00	486112.00	3913025.00
185.74	5398.76	1686.82	677.99	1316.11	0.00	486215.00	3913068.00
228.76	5180.13	1578.77	494.08	1201.80	0.00	485996.00	3912960.00
272.16	5012.04	1505.71	577.55	843.44	0.00	485828.00	3912886.00
426.15	4626.20	1314.69	439.87	884.22	0.00	485442.00	3912695.00
153.10	5624.21	1789.68	478.42	1239.08	0.00	486440.00	3913170.00
190.51	5377.35	1683.33	679.09	909.26	0.00	486194.00	3913064.00
490.57	4522.33	1268.21	453.86	795.56	0.00	485339.00	3912649.00
156.04	5607.84	1783.43	417.83	791.60	0.00	486424.00	3913164.00
274.41	5000.65	1502.65	568.19	745.71	0.00	485817.00	3912883.00
32.28	8477.06	3133.56	569.67	1068.54	0.00	489293.00	3914514.00
40.39	7921.95	2876.93	616.64	1071.86	0.00	488738.00	3914258.00
193.91	5359.54	1667.45	520.00	790.41	0.00	486176.00	3913048.00
143.52	5713.41	1820.03	510.24	1187.12	0.00	486530.00	3913201.00
990.81	4110.30	1048.80	338.99	530.27	0.00	484927.00	3912430.00
251.43	5087.28	1546.54	497.41	798.48	0.00	485904.00	3912927.00
210.51	5270.98	1620.21	520.12	1127.16	0.00	486087.00	3913001.00
324.41	4851.72	1423.69	636.66	1105.91	0.00	485668.00	3912804.00
513.98	4491.26	1250.10	520.25	867.71	0.00	485308.00	3912631.00
211.60	5261.57	1622.54	575.81	991.26	0.00	486078.00	3913003.00
129.30	5838.95	1893.95	678.11	1365.02	0.00	486655.00	3913275.00
107.15	6106.31	2021.85	612.04	1023.08	0.00	486923.00	3913403.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
99.55	11103.54	3599.01	852.52	1999.82	<b>46.38</b>	491920.00	3914980.00
373.47	8775.64	2521.03	899.78	670.14	0.00	489592.00	3913902.00
520.58	8405.71	2318.25	479.47	621.92	0.00	489222.00	3913699.00
351.74	8846.80	2552.80	943.52	939.55	0.00	489663.00	3913934.00
364.77	8802.31	2520.88	529.56	889.75	0.00	489619.00	3913902.00
142.41	10308.62	3238.55	1247.08	2183.09	0.00	491125.00	3914619.00
247.49	9340.77	2786.77	1196.81	1712.72	0.00	490157.00	3914168.00
667.19	8165.82	2204.75	597.71	871.93	0.00	488982.00	3913586.00
364.86	8806.78	2526.74	737.94	934.91	0.00	489623.00	3913908.00
460.26	8532.76	2391.67	657.27	846.73	0.00	489349.00	3913772.00
221.64	9514.82	2867.28	1200.08	1337.78	0.00	490331.00	3914248.00
225.36	9491.75	2857.92	1014.27	1194.55	0.00	490308.00	3914239.00
70.25	12018.52	4026.15	967.39	2165.84	0.00	492835.00	3915407.00
268.04	9225.08	2721.72	761.00	1314.70	0.00	490041.00	3914103.00
232.25	9443.12	2822.52	880.07	1956.41	0.00	490259.00	3914203.00
250.45	9324.20	2779.44	1124.35	1404.42	0.00	490140.00	3914160.00
246.08	9357.02	2791.04	730.37	993.89	0.00	490173.00	3914172.00
517.42	8393.07	2321.17	887.18	1107.74	0.00	489209.00	3913702.00
441.69	8580.80	2413.55	647.73	724.20	0.00	489397.00	3913794.00
211.73	9587.36	2897.37	856.73	1546.02	0.00	490404.00	3914278.00
342.55	8885.54	2561.71	775.09	931.75	0.00	489702.00	3913942.00
156.60	10126.06	3143.93	825.60	1848.94	0.00	490942.00	3914525.00
609.31	8243.47	2244.08	566.26	670.78	0.00	489060.00	3913625.00
294.94	9083.95	2658.83	1038.87	1198.39	0.00	489900.00	3914040.00
467.58	8519.24	2375.87	411.49	805.74	0.00	489336.00	3913757.00
268.92	9225.24	2717.48	785.36	1656.59	0.00	490042.00	3914098.00
279.78	9159.03	2688.42	525.56	1038.79	0.00	489975.00	3914069.00
160.88	10072.82	3130.27	1062.17	1640.12	0.00	490889.00	3914511.00
383.17	8744.80	2489.76	553.24	1153.80	0.00	489561.00	3913871.00
318.91	8977.86	2603.95	553.33	959.77	0.00	489794.00	3913985.00
199.22	9690.14	2948.43	1012.09	1530.21	0.00	490506.00	3914329.00
285.25	9133.96	2675.31	835.49	1384.43	0.00	489950.00	3914056.00
102.03	11046.50	3581.92	989.86	2042.22	0.00	491863.00	3914963.00
549.34	8347.58	2291.99	454.60	693.84	0.00	489164.00	3913673.00
277.89	9177.53	2696.68	655.71	1331.24	0.00	489994.00	3914077.00
100.15	11096.50	3597.74	846.03	1980.73	0.00	491913.00	3914979.00
317.15	8990.80	2617.23	733.93	780.99	0.00	489807.00	3913998.00
75.46	11816.21	3938.47	1185.80	2141.60	0.00	492632.00	3915319.00
229.76	9462.41	2842.94	694.04	876.65	0.00	490279.00	3914224.00
116.50	10741.05	3436.92	1053.05	1681.35	0.00	491557.00	3914818.00
26.84	15532.00	5656.54	1122.20	2223.45	0.00	496348.00	3917037.00
307.81	9028.39	2626.70	832.05	1233.57	0.00	489845.00	3914007.00
406.42	8670.72	2452.68	442.68	722.50	0.00	489487.00	3913833.00
1368.16	7657.23	1916.40	400.48	497.59	0.00	488474.00	3913297.00
108.90	10894.20	3503.06	940.74	1885.13	0.00	491710.00	3914884.00
59.11	12532.82	4276.92	925.14	2214.32	0.00	493349.00	3915658.00
197.42	9708.74	2949.28	999.76	1907.26	0.00	490525.00	3914330.00
246.71	9345.67	2778.59	969.93	1384.16	0.00	490162.00	3914159.00
399.45	8696.24	2461.89	760.30	1398.00	0.00	489513.00	3913843.00

227.41	9482.28	2846.73	829.83	1043.59	0.00	490299.00	3914228.00
264.85	9246.29	2724.10	905.33	1666.70	0.00	490063.00	3914105.00
379.73	8755.93	2495.09	697.52	1341.23	0.00	489572.00	3913876.00
303.13	9047.45	2629.83	769.80	1529.85	0.00	489864.00	3914011.00
256.16	9289.23	2762.79	807.67	901.68	0.00	490106.00	3914144.00
60.51	12461.54	4237.29	1087.26	2333.90	0.00	493278.00	3915618.00
378.76	8754.16	2502.58	809.22	925.98	0.00	489570.00	3913883.00
223.44	9506.49	2865.32	1031.46	1207.68	0.00	490323.00	3914246.00
255.22	9283.27	2756.25	1046.76	1763.90	0.00	490100.00	3914137.00
1177.40	7731.75	1967.46	512.91	624.12	0.00	488548.00	3913348.00
176.18	9913.73	3051.77	738.70	1242.12	0.00	490730.00	3914433.00
49.11	13135.20	4574.17	1282.82	1765.96	0.00	493951.00	3915955.00
520.37	8393.28	2323.19	627.64	1001.74	0.00	489210.00	3913704.00
136.86	10391.41	3270.74	885.90	1794.50	0.00	491208.00	3914652.00
80.96	11623.64	3840.00	1033.06	2123.11	0.00	492440.00	3915221.00
122.80	10626.49	3389.33	1077.32	1551.34	0.00	491443.00	3914770.00
455.74	8541.10	2382.85	602.81	1198.95	0.00	489357.00	3913764.00
157.66	10111.45	3133.87	1006.42	1981.05	0.00	490928.00	3914515.00
184.68	9822.80	3001.59	1147.31	1732.51	0.00	490639.00	3914382.00
346.16	8872.84	2551.94	886.98	1366.50	0.00	489689.00	3913933.00
248.17	9346.15	2788.35	976.97	1076.11	0.00	490162.00	3914169.00
314.74	9004.14	2624.82	732.77	701.22	0.00	489820.00	3914006.00
147.36	10252.32	3217.95	1157.96	1757.19	0.00	491069.00	3914599.00
492.69	8450.96	2354.47	821.56	1082.58	0.00	489267.00	3913735.00
626.61	8217.64	2225.77	851.79	937.57	0.00	489034.00	3913607.00
80.10	11657.16	3859.28	799.53	2038.20	0.00	492473.00	3915240.00
256.69	9289.28	2746.28	822.28	1342.63	0.00	490106.00	3914127.00
523.39	8386.89	2318.02	686.40	1041.25	0.00	489203.00	3913699.00
228.01	9468.47	2846.06	777.20	1466.83	0.00	490285.00	3914227.00
116.05	10749.24	3453.41	1156.63	1392.64	0.00	491566.00	3914834.00
142.37	10312.79	3239.22	663.13	1506.84	0.00	491129.00	3914620.00
322.35	8966.53	2596.54	822.35	1143.33	0.00	489783.00	3913977.00
133.75	10442.74	3293.96	870.05	1615.23	0.00	491259.00	3914675.00
124.14	10599.68	3356.82	862.82	1992.84	0.00	491416.00	3914738.00
171.58	9957.84	3069.75	841.70	1985.14	0.00	490774.00	3914451.00
253.26	9309.32	2764.62	731.47	1485.48	0.00	490126.00	3914145.00
240.00	9395.23	2796.77	841.78	1846.82	0.00	490212.00	3914178.00
639.31	8182.89	2218.59	596.05	856.51	0.00	488999.00	3913599.00
425.12	8618.14	2431.85	713.77	1150.57	0.00	489434.00	3913813.00
542.92	8356.01	2299.73	920.34	1000.04	0.00	489172.00	3913681.00
372.77	8784.48	2505.42	599.79	910.77	0.00	489601.00	3913886.00
490.49	8468.14	2351.96	639.26	810.24	0.00	489284.00	3913733.00
559.88	8326.22	2286.53	682.74	1025.24	0.00	489143.00	3913667.00
217.87	9545.74	2872.69	1126.10	1755.73	0.00	490362.00	3914253.00
388.50	8720.95	2484.93	775.24	1287.42	0.00	489537.00	3913866.00
714.91	8111.56	2169.97	565.39	744.00	0.00	488928.00	3913551.00
266.74	9231.56	2737.37	886.50	1123.10	0.00	490048.00	3914118.00
90.10	11346.93	3713.79	918.65	2049.36	0.00	492163.00	3915095.00
349.66	8858.03	2553.90	784.90	918.79	0.00	489674.00	3913935.00
269.93	9225.42	2710.34	886.70	1272.33	0.00	490042.00	3914091.00
347.34	8867.81	2554.96	571.90	742.43	0.00	489684.00	3913936.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
480.22	474.03	109.20	82.97	174.55	19.21	481290.00	3911490.00
440.09	508.25	123.21	88.65	155.12	0.00	481325.00	3911504.00
289.68	640.93	186.31	96.98	179.91	0.00	481457.00	3911567.00
172.71	794.96	269.54	74.91	150.77	0.00	481611.00	3911650.00
497.75	484.08	104.73	90.00	208.32	0.00	481300.00	3911486.00
233.95	704.14	217.89	75.93	153.24	0.00	481520.00	3911599.00
595.50	705.31	211.66	92.00	170.22	0.00	481522.00	3911592.00
276.44	649.04	192.22	87.64	180.76	0.00	481465.00	3911573.00
142.86	857.15	300.98	87.32	165.49	0.00	481673.00	3911682.00
299.20	625.77	179.98	70.77	170.49	0.00	481442.00	3911561.00
239.37	686.94	214.62	82.85	166.71	0.00	481503.00	3911595.00
344.00	584.67	157.61	81.58	151.42	0.00	481401.00	3911538.00
370.62	559.75	148.16	79.28	180.45	0.00	481376.00	3911529.00
116.12	945.24	339.03	90.18	132.91	0.00	481762.00	3911720.00
1116.86	969.88	327.77	106.12	188.57	0.00	481786.00	3911709.00
373.14	564.89	148.48	109.31	161.13	0.00	481381.00	3911529.00
490.80	484.10	105.95	67.70	160.48	0.00	481300.00	3911487.00
193.99	765.60	249.06	73.84	145.27	0.00	481582.00	3911630.00
172.10	805.24	270.44	86.52	152.60	0.00	481622.00	3911651.00
401.18	547.27	136.85	87.55	182.57	0.00	481364.00	3911518.00
140.10	877.40	303.69	93.59	164.52	0.00	481694.00	3911684.00
392.22	545.65	139.95	92.91	146.61	0.00	481362.00	3911521.00
88.28	1062.46	395.42	80.28	151.83	0.00	481879.00	3911776.00
308.85	618.50	175.04	84.22	199.16	0.00	481435.00	3911556.00
335.60	595.14	163.01	89.82	189.12	0.00	481411.00	3911544.00
111.22	963.01	348.77	99.00	160.32	0.00	481779.00	3911730.00
405.65	538.33	135.69	97.02	139.77	0.00	481355.00	3911516.00
281.70	638.70	189.53	84.97	169.30	0.00	481455.00	3911570.00
240.93	688.93	213.97	71.71	126.14	0.00	481505.00	3911595.00
187.50	774.03	254.72	81.30	160.37	0.00	481590.00	3911636.00
389.46	553.03	141.60	98.67	176.69	0.00	481369.00	3911522.00
198.89	759.64	244.79	83.25	160.20	0.00	481576.00	3911626.00
195.44	763.81	247.14	77.98	148.48	0.00	481580.00	3911628.00
907.64	818.05	251.23	114.59	179.77	0.00	481634.00	3911632.00
428.71	512.86	125.52	83.29	148.92	0.00	481329.00	3911506.00
418.45	521.60	130.60	89.50	169.28	0.00	481338.00	3911511.00
297.60	620.18	181.09	85.20	159.51	0.00	481436.00	3911562.00
277.91	648.53	190.54	73.48	153.24	0.00	481465.00	3911571.00
444.16	506.07	121.90	93.58	169.88	0.00	481322.00	3911503.00
61.75	1226.94	477.65	89.66	140.78	0.00	482043.00	3911858.00
117.02	944.73	337.11	75.57	160.03	0.00	481761.00	3911718.00
472.36	498.45	112.48	84.51	180.88	0.00	481315.00	3911493.00
394.61	544.27	139.63	63.43	153.76	0.00	481361.00	3911520.00
105.89	976.74	356.51	82.92	140.10	0.00	481793.00	3911737.00
140.57	872.39	302.76	77.57	162.11	0.00	481689.00	3911684.00
236.20	703.73	217.98	104.17	171.64	0.00	481520.00	3911599.00
354.01	569.87	154.45	83.70	168.84	0.00	481386.00	3911535.00
450.29	503.18	119.56	74.67	173.19	0.00	481319.00	3911500.00
120.67	927.00	331.56	81.34	134.95	0.00	481743.00	3911712.00

230.67	703.20	220.23	76.58	158.32	0.00	481519.00	3911601.00
512.65	469.25	102.19	100.11	185.50	0.00	481286.00	3911483.00
350.31	578.47	156.57	87.67	179.97	0.00	481395.00	3911537.00
251.25	685.70	206.52	91.34	163.48	0.00	481502.00	3911587.00
334.53	595.63	163.31	88.56	173.00	0.00	481412.00	3911544.00
300.43	630.38	180.35	96.01	161.09	0.00	481447.00	3911561.00
190.29	772.58	252.23	82.94	167.84	0.00	481589.00	3911633.00
168.80	814.39	273.62	93.84	165.47	0.00	481631.00	3911654.00
148.75	854.84	291.98	80.88	143.66	0.00	481671.00	3911673.00
207.40	750.52	239.58	103.41	167.48	0.00	481567.00	3911620.00
413.45	525.79	132.28	98.61	169.15	0.00	481342.00	3911513.00
168.82	815.19	273.01	96.55	174.93	0.00	481631.00	3911654.00
375.33	554.04	148.31	102.15	145.89	0.00	481370.00	3911529.00
161.14	830.13	277.37	84.09	155.92	0.00	481646.00	3911658.00
369.66	565.60	148.52	101.92	197.07	0.00	481382.00	3911529.00
161.11	819.41	277.81	86.28	163.96	0.00	481636.00	3911659.00
422.43	526.32	129.70	93.95	168.17	0.00	481343.00	3911510.00
395.39	541.48	138.26	77.15	168.78	0.00	481358.00	3911519.00
453.21	498.45	118.00	102.26	157.59	0.00	481315.00	3911499.00
208.64	737.91	235.70	73.98	159.51	0.00	481554.00	3911616.00
301.74	629.71	177.74	86.27	184.57	0.00	481446.00	3911559.00
401.12	540.39	137.15	111.20	165.05	0.00	481357.00	3911518.00
202.00	748.18	242.76	91.24	145.54	0.00	481564.00	3911624.00
321.83	608.67	170.73	107.29	156.04	0.00	481425.00	3911552.00
497.23	464.78	104.70	83.18	189.54	0.00	481281.00	3911485.00
312.41	612.30	173.73	86.62	190.07	0.00	481429.00	3911555.00
264.49	652.96	199.24	85.42	182.78	0.00	481469.00	3911580.00
146.89	847.11	294.87	62.38	138.30	0.00	481663.00	3911676.00
188.30	774.39	254.61	94.82	164.35	0.00	481591.00	3911635.00
385.64	567.56	143.65	95.41	161.72	0.00	481384.00	3911524.00
516.81	477.31	99.51	94.78	183.60	0.00	481294.00	3911480.00
276.01	659.23	191.80	93.27	170.79	0.00	481476.00	3911573.00
51.96	1321.09	521.57	89.84	164.08	0.00	482137.00	3911902.00
172.67	799.31	268.93	85.04	150.17	0.00	481616.00	3911650.00
172.06	807.34	270.00	89.85	170.09	0.00	481624.00	3911651.00
443.92	516.66	120.26	80.81	168.61	0.00	481333.00	3911501.00
383.50	556.32	143.64	95.97	147.79	0.00	481373.00	3911524.00
327.99	595.74	166.40	96.03	186.47	0.00	481412.00	3911547.00
594.95	630.15	170.11	102.71	157.14	0.00	481446.00	3911551.00
397.36	547.45	138.19	106.76	177.08	0.00	481364.00	3911519.00
460.05	500.27	116.00	97.65	170.91	0.00	481317.00	3911497.00
370.01	559.03	148.29	70.77	175.51	0.00	481375.00	3911529.00
316.26	610.99	171.46	83.40	183.86	0.00	481427.00	3911552.00
253.51	681.32	205.70	86.72	166.04	0.00	481498.00	3911586.00
207.63	733.48	237.59	88.14	157.61	0.00	481550.00	3911618.00
364.58	558.01	151.43	88.87	160.67	0.00	481374.00	3911532.00
148.08	852.16	293.14	89.45	166.52	0.00	481668.00	3911674.00
148.16	846.56	292.26	68.91	151.51	0.00	481663.00	3911673.00
406.38	528.09	134.47	95.97	168.51	0.00	481344.00	3911515.00
693.56	550.78	128.12	89.80	202.10	0.00	481367.00	3911509.00
215.64	730.69	231.93	83.76	162.93	0.00	481547.00	3911613.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
253.77	35114.94	9994.97	1035.25	1162.35	80.74	515931.00	3921376.00
655.39	31921.80	8434.93	849.77	753.27	0.00	512738.00	3919816.00
249.30	35194.32	10042.94	1169.25	1327.55	0.00	516011.00	3921424.00
242.25	35315.26	10089.74	1031.06	1230.67	0.00	516132.00	3921471.00
83.34	41660.98	13096.30	1676.09	2167.25	0.00	522477.00	3924477.00
136.02	38315.24	11511.10	1325.56	1768.22	0.00	519132.00	3922892.00
314.89	34227.37	9569.74	1028.48	1194.73	0.00	515044.00	3920951.00
491.22	32707.12	8834.98	854.29	695.91	0.00	513523.00	3920216.00
41.25	48167.98	16142.81	2440.68	3743.12	0.00	528984.00	3927524.00
153.51	37609.22	11170.55	1173.47	1508.31	0.00	518426.00	3922551.00
217.20	35821.13	10333.74	1259.07	1577.92	0.00	516637.00	3921715.00
292.89	34513.64	9709.38	1083.07	1327.15	0.00	515330.00	3921090.00
316.75	34204.91	9563.98	1038.84	1059.24	0.00	515021.00	3920945.00
408.59	33288.84	9112.84	911.53	844.12	0.00	514105.00	3920494.00
306.42	34336.48	9623.84	950.60	910.58	0.00	515153.00	3921005.00
472.40	32825.40	8893.30	1027.58	1197.60	0.00	513642.00	3920274.00
451.46	32965.98	8963.88	911.82	864.42	0.00	513782.00	3920345.00
139.16	38179.55	11455.75	1362.50	1551.06	0.00	518996.00	3922837.00
511.67	32584.20	8779.88	969.01	944.01	0.00	513400.00	3920161.00
270.91	34829.89	9867.39	1032.21	1068.56	0.00	515646.00	3921248.00
323.15	34129.90	9534.03	1055.75	1126.29	0.00	514946.00	3920915.00
147.79	37824.58	11295.25	1215.15	1313.21	0.00	518641.00	3922676.00
779.66	31518.35	8229.18	839.47	666.76	0.00	512335.00	3919610.00
322.30	34139.45	9531.12	979.13	955.26	0.00	514956.00	3920912.00
139.70	38153.63	11437.03	1321.94	1644.57	0.00	518970.00	3922818.00
358.23	33750.07	9344.27	1057.56	1150.79	0.00	514566.00	3920725.00
168.74	37092.58	10945.11	1318.53	1568.61	0.00	517909.00	3922326.00
416.90	33223.47	9092.59	902.36	807.47	0.00	514040.00	3920473.00
331.85	34029.64	9481.65	1063.91	1088.76	0.00	514846.00	3920862.00
248.21	35212.93	10047.48	1094.95	1186.78	0.00	516029.00	3921428.00
650.64	31942.63	8449.97	837.12	675.74	0.00	512759.00	3919831.00
307.87	34318.65	9620.72	994.24	1034.97	0.00	515135.00	3921002.00
61.96	44130.32	14247.86	1867.07	2717.06	0.00	524947.00	3925629.00
375.48	33580.72	9259.14	979.85	1024.73	0.00	514397.00	3920640.00
101.50	40212.18	12397.43	1526.41	2020.73	0.00	521028.00	3923778.00
390.55	33440.45	9195.19	952.17	912.76	0.00	514257.00	3920576.00
147.74	37826.74	11276.39	1232.92	1624.29	0.00	518643.00	3922657.00
387.96	33462.48	9210.51	984.83	964.42	0.00	514279.00	3920591.00
432.14	33106.18	9033.87	939.61	952.17	0.00	513922.00	3920415.00
304.92	34357.34	9631.22	1017.96	1135.46	0.00	515174.00	3921012.00
356.25	33766.03	9349.00	911.11	867.78	0.00	514582.00	3920730.00
222.30	35707.75	10279.34	1255.91	1597.60	0.00	516524.00	3921660.00
399.23	33371.34	9156.74	966.58	1061.27	0.00	514188.00	3920538.00
124.13	38877.37	11801.68	1592.22	1812.66	0.00	519694.00	3923182.00
67.58	43369.50	13884.60	1574.03	2226.34	0.00	524186.00	3925265.00
152.98	37630.07	11186.87	1282.56	1642.24	0.00	518446.00	3922568.00
398.54	33370.07	9163.24	926.31	883.48	0.00	514186.00	3920544.00
174.30	36922.75	10860.04	1200.24	1500.36	0.00	517739.00	3922241.00
136.41	38299.52	11499.27	1334.88	1600.68	0.00	519116.00	3922880.00

543.66	32413.33	8685.43	917.86	892.04	0.00	513230.00	3920066.00
159.06	37409.93	11085.41	1359.45	1876.27	0.00	518226.00	3922466.00
383.88	33504.70	9232.27	1033.81	1145.24	0.00	514321.00	3920613.00
356.10	33764.59	9353.78	1077.02	1234.48	0.00	514581.00	3920735.00
178.79	36782.21	10790.55	1230.81	1582.72	0.00	517598.00	3922171.00
226.74	35615.93	10241.31	985.43	951.57	0.00	516432.00	3921622.00
467.38	32857.52	8912.13	966.99	1013.03	0.00	513674.00	3920293.00
399.38	33366.34	9156.15	986.84	1074.07	0.00	514183.00	3920537.00
351.51	33818.22	9381.94	1075.89	1113.07	0.00	514634.00	3920763.00
94.64	40711.18	12649.43	1725.27	2170.49	0.00	521527.00	3924030.00
468.15	32854.96	8912.24	976.70	1000.77	0.00	513671.00	3920293.00
146.24	37888.09	11316.79	1277.78	1507.35	0.00	518704.00	3922698.00
998.29	31026.02	7966.08	825.02	648.29	0.00	511842.00	3919347.00
256.96	35059.24	9967.76	1068.89	1292.69	0.00	515876.00	3921349.00
175.22	36890.42	10845.66	1226.05	1442.12	0.00	517707.00	3922226.00
61.90	44134.99	14278.13	2311.57	3213.74	0.00	524951.00	3925659.00
242.39	35316.36	10095.64	1121.76	1191.74	0.00	516133.00	3921476.00
382.05	33517.18	9237.08	1018.95	1058.90	0.00	514333.00	3920618.00
321.78	34146.55	9533.72	967.72	1000.89	0.00	514963.00	3920915.00
163.54	37256.21	11022.28	1436.41	1785.12	0.00	518072.00	3922403.00
315.35	34219.92	9572.74	1004.10	1071.25	0.00	515036.00	3920954.00
227.06	35611.41	10240.35	1147.45	1289.02	0.00	516428.00	3921621.00
269.71	34850.59	9872.98	1064.77	1244.61	0.00	515667.00	3921254.00
335.96	33981.23	9463.78	1002.28	1001.99	0.00	514798.00	3920845.00
97.04	40531.94	12558.63	1540.53	2045.80	0.00	521348.00	3923939.00
112.72	39502.74	12075.99	1341.26	1595.44	0.00	520319.00	3923457.00
277.16	34738.16	9823.93	1194.38	1373.17	0.00	515554.00	3921205.00
230.64	35541.91	10210.28	1113.87	1194.73	0.00	516358.00	3921591.00
321.45	34151.48	9534.33	1035.34	1092.54	0.00	514968.00	3920915.00
217.57	35808.61	10339.57	1139.19	1261.63	0.00	516625.00	3921720.00
359.04	33737.89	9340.87	1018.05	1052.81	0.00	514554.00	3920722.00
208.00	36021.28	10434.80	1066.33	1090.69	0.00	516838.00	3921816.00
92.49	40878.52	12741.75	2277.86	2614.84	0.00	521695.00	3924123.00
574.27	32262.04	8613.27	866.20	757.68	0.00	513078.00	3919994.00
150.24	37728.74	11239.22	1230.29	1446.65	0.00	518545.00	3922620.00
67.84	43334.58	13880.60	1697.56	1964.45	0.00	524151.00	3925261.00
415.55	33236.35	9089.35	921.98	947.69	0.00	514053.00	3920470.00
426.19	33150.54	9054.46	961.55	975.42	0.00	513967.00	3920435.00
395.12	33398.00	9176.32	925.83	915.35	0.00	514214.00	3920557.00
525.01	32514.58	8738.13	838.24	644.52	0.00	513331.00	3920119.00
317.51	34192.17	9561.72	1102.88	1187.77	0.00	515008.00	3920942.00
100.73	40268.36	12434.48	1547.75	1817.32	0.00	521085.00	3923815.00
541.87	32427.65	8686.99	902.74	906.51	0.00	513244.00	3920068.00
128.27	38676.51	11687.75	1588.73	1949.12	0.00	519493.00	3923069.00
154.21	37583.40	11163.91	1266.09	1567.47	0.00	518400.00	3922545.00
260.99	34993.83	9944.84	1192.81	1370.84	0.00	515810.00	3921326.00
366.33	33666.38	9308.93	1027.74	1062.96	0.00	514483.00	3920690.00
61.98	44126.43	14238.75	1829.68	2282.99	0.00	524943.00	3925620.00
179.73	36758.51	10778.28	1172.14	1338.58	0.00	517575.00	3922159.00
151.00	37700.21	11221.75	1294.87	1534.05	0.00	518516.00	3922603.00
46.19	46962.35	15566.91	1959.47	2699.50	0.00	527779.00	3926948.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
261.44	2503.95	768.72	246.74	476.61	<b>28.64</b>	483320.00	3912150.00
29.80	4727.05	1818.20	356.55	643.79	0.00	485543.00	3913199.00
673.08	2027.36	532.91	265.28	477.39	0.00	482844.00	3911914.00
546.37	2111.44	574.61	247.49	497.55	0.00	482928.00	3911955.00
16.16	5895.10	2367.65	398.23	648.74	0.00	486711.00	3913748.00
240.99	2551.50	792.05	267.10	588.00	0.00	483368.00	3912173.00
60.28	3755.76	1362.30	295.87	616.22	0.00	484572.00	3912743.00
75.21	3505.05	1251.80	344.10	565.39	0.00	484321.00	3912633.00
353.44	2330.18	683.95	281.45	509.12	0.00	483146.00	3912065.00
332.03	2358.63	698.75	213.35	435.57	0.00	483175.00	3912080.00
445.92	2205.53	623.39	243.57	593.67	0.00	483022.00	3912004.00
287.42	2440.52	735.88	254.48	602.31	0.00	483257.00	3912117.00
236.80	2560.53	797.05	263.65	604.09	0.00	483377.00	3912178.00
135.97	2962.86	987.06	310.37	630.65	0.00	483779.00	3912368.00
109.86	3139.92	1075.47	319.46	592.79	0.00	483956.00	3912456.00
134.36	2962.95	990.45	270.92	571.12	0.00	483779.00	3912371.00
333.21	2357.35	698.11	277.05	592.88	0.00	483174.00	3912079.00
179.10	2754.21	886.03	257.59	529.49	0.00	483570.00	3912267.00
249.19	2535.15	785.19	315.05	535.97	0.00	483351.00	3912166.00
440.17	2212.44	622.92	256.62	568.63	0.00	483029.00	3912004.00
161.32	2828.35	922.69	271.99	614.89	0.00	483645.00	3912303.00
266.56	2481.49	757.56	270.99	582.42	0.00	483298.00	3912138.00
346.64	2344.63	691.72	295.57	581.52	0.00	483161.00	3912073.00
262.56	2500.68	767.95	276.01	495.36	0.00	483317.00	3912149.00
395.13	2267.78	655.19	285.96	625.18	0.00	483084.00	3912036.00
98.25	3246.04	1115.85	267.29	565.42	0.00	484062.00	3912497.00
277.82	2463.10	755.45	307.15	472.69	0.00	483279.00	3912136.00
121.67	3049.27	1025.91	252.90	597.48	0.00	483866.00	3912407.00
104.43	3186.42	1094.29	349.27	591.78	0.00	484003.00	3912475.00
30.24	4705.51	1811.32	299.97	566.28	0.00	485522.00	3913192.00
380.45	2280.32	666.22	260.33	466.11	0.00	483097.00	3912047.00
295.16	2435.01	734.14	300.44	490.07	0.00	483251.00	3912115.00
215.12	2623.37	832.18	325.15	525.01	0.00	483440.00	3912213.00
490.29	2151.03	602.67	212.34	460.74	0.00	482967.00	3911983.00
371.74	2300.97	673.47	299.92	494.00	0.00	483117.00	3912054.00
295.43	2431.98	735.46	336.53	583.31	0.00	483248.00	3912116.00
195.46	2691.99	858.22	258.75	589.80	0.00	483508.00	3912239.00
149.49	2882.76	952.59	243.19	434.62	0.00	483699.00	3912333.00
70.20	3580.62	1282.60	264.43	529.60	0.00	484397.00	3912663.00
119.45	3058.85	1041.53	263.58	575.53	0.00	483875.00	3912422.00
39.56	4293.67	1617.78	306.87	582.95	0.00	485110.00	3912999.00
433.65	2213.87	634.13	285.22	556.33	0.00	483030.00	3912015.00
438.14	2206.83	629.48	243.62	506.55	0.00	483023.00	3912010.00
166.92	2805.93	915.42	279.85	614.71	0.00	483622.00	3912296.00
215.21	2625.86	831.58	307.70	526.91	0.00	483442.00	3912212.00
156.99	2841.26	937.76	254.43	510.31	0.00	483658.00	3912319.00
193.90	2699.39	864.65	265.50	565.59	0.00	483516.00	3912245.00
463.05	2195.43	615.48	291.03	546.96	0.00	483012.00	3911996.00
266.38	2488.14	760.94	312.13	631.69	0.00	483304.00	3912142.00

136.83	2957.12	984.38	318.43	599.25	0.00	483773.00	3912365.00
268.83	2491.16	765.56	230.34	481.68	0.00	483307.00	3912146.00
370.20	2314.05	669.79	265.23	576.80	0.00	483130.00	3912051.00
306.77	2403.38	718.95	283.89	597.29	0.00	483220.00	3912100.00
162.34	2817.27	922.50	316.54	547.12	0.00	483634.00	3912303.00
204.06	2657.76	846.34	268.94	613.56	0.00	483474.00	3912227.00
139.30	2941.52	973.18	266.33	652.61	0.00	483758.00	3912354.00
239.52	2555.12	796.96	252.87	569.31	0.00	483371.00	3912178.00
107.94	3154.71	1082.81	285.85	541.32	0.00	483971.00	3912464.00
201.40	2675.55	849.40	289.04	656.54	0.00	483492.00	3912230.00
47.68	4040.26	1495.35	273.59	567.75	0.00	484857.00	3912876.00
134.57	2971.16	991.77	237.06	562.91	0.00	483787.00	3912373.00
201.47	2675.14	851.65	212.88	491.11	0.00	483491.00	3912232.00
167.89	2803.37	912.97	274.40	642.48	0.00	483620.00	3912294.00
203.36	2663.68	846.68	276.69	650.70	0.00	483480.00	3912227.00
431.88	2217.56	635.22	285.72	512.49	0.00	483034.00	3912016.00
620.58	2055.81	547.63	277.44	490.96	0.00	482872.00	3911928.00
339.40	2350.68	697.70	255.24	333.75	0.00	483167.00	3912078.00
429.38	2223.69	636.43	317.40	590.51	0.00	483040.00	3912017.00
313.03	2400.17	718.41	243.74	490.67	0.00	483216.00	3912099.00
212.49	2634.63	827.78	229.64	594.23	0.00	483451.00	3912209.00
351.87	2329.36	682.96	238.92	574.50	0.00	483146.00	3912064.00
762.19	1959.29	502.82	256.72	590.31	0.00	482776.00	3911884.00
249.75	2529.30	783.83	305.48	567.08	0.00	483346.00	3912165.00
291.09	2441.88	740.59	271.67	512.48	0.00	483258.00	3912121.00
178.88	2758.74	888.44	281.06	566.91	0.00	483575.00	3912269.00
107.68	3155.22	1079.70	251.35	586.73	0.00	483972.00	3912460.00
270.64	2481.32	756.07	305.28	538.29	0.00	483298.00	3912137.00
230.21	2573.84	809.28	253.90	673.66	0.00	483390.00	3912190.00
48.73	4012.80	1489.15	298.29	550.20	0.00	484829.00	3912870.00
203.72	2663.46	851.20	343.97	585.69	0.00	483480.00	3912232.00
208.13	2650.66	839.23	276.26	544.01	0.00	483467.00	3912220.00
433.87	2223.13	635.10	268.00	458.71	0.00	483039.00	3912016.00
366.25	2301.62	674.15	296.81	591.64	0.00	483118.00	3912055.00
152.85	2868.46	940.98	262.36	589.10	0.00	483685.00	3912322.00
474.15	2181.25	611.77	338.47	573.02	0.00	482998.00	3911993.00
379.30	2293.69	666.46	295.97	531.05	0.00	483110.00	3912047.00
138.32	2946.29	979.05	266.90	564.12	0.00	483763.00	3912360.00
767.52	1960.18	502.60	230.36	565.05	0.00	482776.00	3911883.00
1068.26	1810.03	438.57	316.49	503.99	0.00	482626.00	3911819.00
382.03	2285.03	664.61	306.46	504.25	0.00	483101.00	3912045.00
318.66	2383.51	712.79	287.80	591.99	0.00	483200.00	3912094.00
204.92	2657.40	845.53	260.34	554.82	0.00	483474.00	3912226.00
1227.79	1775.53	407.27	251.37	495.73	0.00	482592.00	3911788.00
254.50	2517.39	774.03	254.98	484.15	0.00	483334.00	3912155.00
63.25	3696.49	1333.30	260.53	555.95	0.00	484513.00	3912714.00
590.14	2075.14	554.83	308.24	577.04	0.00	482891.00	3911936.00
515.44	2130.00	590.45	257.91	576.22	0.00	482946.00	3911971.00
350.09	2341.52	687.28	282.58	605.81	0.00	483158.00	3912068.00
405.96	2252.90	643.44	215.83	501.23	0.00	483069.00	3912024.00
587.63	2080.38	557.67	219.21	513.67	0.00	482897.00	3911938.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
245.81	22055.87	6397.83	968.29	1404.12	<b>66.96</b>	502872.00	3917779.00
379.17	20874.54	5845.20	868.46	1023.93	0.00	501691.00	3917226.00
61.39	28212.52	9322.16	1458.44	1621.12	0.00	509029.00	3920703.00
409.85	20689.75	5749.70	802.29	980.21	0.00	501506.00	3917130.00
145.15	23895.87	7287.14	1236.23	1516.91	0.00	504712.00	3918668.00
398.48	20760.04	5781.45	861.85	1090.45	0.00	501576.00	3917162.00
500.25	20258.08	5534.69	827.31	959.16	0.00	501074.00	3916915.00
400.81	20742.43	5767.83	898.16	1242.38	0.00	501559.00	3917149.00
531.49	20141.09	5481.82	711.47	767.99	0.00	500957.00	3916863.00
818.06	19408.66	5097.34	614.20	556.69	0.00	500225.00	3916478.00
103.15	25385.07	7983.92	1660.18	2028.49	0.00	506201.00	3919365.00
120.18	24687.84	7647.16	1075.98	1759.06	0.00	505504.00	3919028.00
107.02	25211.37	7919.27	1619.80	1455.89	0.00	506028.00	3919300.00
162.60	23455.70	7076.66	1247.43	1609.02	0.00	504272.00	3918457.00
405.15	20717.14	5765.58	834.71	1048.13	0.00	501533.00	3917146.00
94.81	25800.97	8185.77	1509.32	1942.31	0.00	506617.00	3919567.00
124.24	24542.15	7585.59	1332.92	1779.65	0.00	505358.00	3918966.00
366.50	20960.78	5885.72	949.79	1217.91	0.00	501777.00	3917266.00
195.37	22800.22	6761.47	1215.56	1603.60	0.00	503616.00	3918142.00
212.24	22519.02	6639.42	1219.15	1452.52	0.00	503335.00	3918020.00
211.82	22523.81	6637.68	1043.78	1715.01	0.00	503340.00	3918018.00
176.52	23157.04	6929.70	1055.10	1494.51	0.00	503973.00	3918310.00
366.93	20958.00	5878.43	840.32	944.49	0.00	501774.00	3917259.00
259.58	21890.42	6333.70	892.77	1071.13	0.00	502707.00	3917714.00
155.51	23626.93	7148.88	1003.05	1334.47	0.00	504443.00	3918530.00
309.03	21399.38	6099.20	1023.29	1201.09	0.00	502216.00	3917480.00
200.50	22710.01	6723.70	1216.55	1629.11	0.00	503526.00	3918104.00
262.60	21854.81	6316.32	834.80	984.59	0.00	502671.00	3917697.00
329.30	21230.41	6011.60	870.64	1212.54	0.00	502047.00	3917392.00
372.80	20912.13	5856.17	841.53	1039.65	0.00	501728.00	3917237.00
209.49	22563.53	6652.19	1007.92	1306.92	0.00	503380.00	3918033.00
321.57	21287.88	6041.71	816.60	1044.45	0.00	502104.00	3917422.00
814.28	19402.25	5101.08	643.85	643.78	0.00	500219.00	3916482.00
257.97	21905.99	6340.72	1048.13	1442.24	0.00	502722.00	3917722.00
301.37	21462.96	6113.45	784.56	1214.64	0.00	502279.00	3917494.00
339.03	21152.45	5969.95	819.41	1117.38	0.00	501969.00	3917351.00
323.48	21279.39	6040.20	890.38	1079.79	0.00	502096.00	3917421.00
218.04	22433.09	6589.70	1133.37	1375.23	0.00	503249.00	3917970.00
1077.61	19047.65	4890.60	625.15	602.76	0.00	499864.00	3916271.00
104.31	25338.92	7970.03	1850.22	2088.48	0.00	506155.00	3919351.00
359.45	21004.56	5901.86	799.17	978.79	0.00	501821.00	3917283.00
49.77	29577.08	9947.51	2252.43	3261.58	0.00	510393.00	3921328.00
201.65	22686.64	6705.20	1001.19	1436.76	0.00	503503.00	3918086.00
465.40	20407.85	5609.89	868.40	1099.55	0.00	501224.00	3916991.00
77.27	26866.44	8671.94	1653.84	3016.94	0.00	507683.00	3920053.00
123.12	24583.90	7604.89	1507.53	2125.05	0.00	505400.00	3918986.00
162.02	23461.39	7072.64	1263.08	1991.13	0.00	504278.00	3918453.00
451.72	20472.13	5644.68	928.85	1115.31	0.00	501288.00	3917025.00
157.93	23565.54	7115.53	1189.84	1631.83	0.00	504382.00	3918496.00

197.81	22753.24	6743.85	1045.47	1423.73	0.00	503570.00	3918125.00
256.40	21928.05	6356.88	1044.72	1153.00	0.00	502744.00	3917738.00
276.70	21704.94	6229.01	936.12	1270.10	0.00	502521.00	3917610.00
453.36	20466.14	5638.29	806.55	1021.32	0.00	501282.00	3917019.00
123.03	24588.76	7601.43	1303.64	1984.27	0.00	505405.00	3918982.00
96.99	25687.49	8151.50	1885.07	1631.34	0.00	506504.00	3919532.00
392.08	20796.21	5799.28	759.22	887.24	0.00	501612.00	3917180.00
343.97	21117.63	5961.91	828.40	892.48	0.00	501934.00	3917343.00
738.66	19560.33	5180.18	642.08	620.61	0.00	500377.00	3916561.00
88.04	26174.04	8347.13	1659.47	2527.63	0.00	506990.00	3919728.00
283.83	21634.95	6206.06	987.04	1363.99	0.00	502451.00	3917587.00
332.29	21208.29	6005.25	894.71	1018.02	0.00	502025.00	3917386.00
101.68	25458.20	8018.56	1371.92	1954.99	0.00	506274.00	3919399.00
127.81	24416.64	7539.24	1240.95	1603.92	0.00	505233.00	3918920.00
99.07	25582.52	8076.42	1613.31	2281.57	0.00	506399.00	3919457.00
197.21	22764.21	6752.55	1232.36	1755.02	0.00	503580.00	3918133.00
291.26	21561.40	6174.41	1051.53	1467.31	0.00	502378.00	3917555.00
147.28	23839.89	7257.47	1370.29	1927.85	0.00	504656.00	3918638.00
435.62	20551.14	5683.71	831.87	951.56	0.00	501367.00	3917064.00
223.43	22352.42	6556.83	975.02	1182.36	0.00	503169.00	3917938.00
483.64	20325.68	5572.99	679.27	672.84	0.00	501142.00	3916954.00
275.84	21712.88	6248.05	886.44	1133.60	0.00	502529.00	3917629.00
164.13	23421.77	7056.64	1101.49	1468.29	0.00	504238.00	3918437.00
401.77	20739.88	5771.39	829.63	1065.11	0.00	501556.00	3917152.00
407.06	20707.33	5759.35	832.50	971.71	0.00	501524.00	3917140.00
269.48	21777.63	6277.27	1063.48	1477.51	0.00	502594.00	3917658.00
331.55	21207.76	6003.08	998.98	1300.28	0.00	502024.00	3917384.00
342.05	21132.61	5962.05	695.77	738.06	0.00	501949.00	3917343.00
208.43	22578.11	6666.92	1122.37	1303.26	0.00	503394.00	3918048.00
258.35	21902.57	6333.39	868.80	1383.15	0.00	502719.00	3917714.00
415.60	20666.36	5736.60	779.86	880.48	0.00	501483.00	3917117.00
513.92	20202.49	5496.19	735.31	1009.36	0.00	501019.00	3916877.00
67.82	27611.23	9043.20	2243.03	2148.68	0.00	508428.00	3920424.00
216.88	22447.63	6597.55	842.71	1056.83	0.00	503264.00	3917978.00
112.38	24986.04	7794.16	1183.02	1622.20	0.00	505802.00	3919175.00
538.57	20109.35	5459.30	725.46	800.25	0.00	500926.00	3916840.00
390.86	20804.67	5798.58	837.06	1173.07	0.00	501621.00	3917179.00
216.71	22450.50	6596.60	1073.32	1282.04	0.00	503267.00	3917977.00
428.37	20586.10	5703.98	881.34	1111.03	0.00	501402.00	3917085.00
118.85	24736.34	7677.92	1248.68	1573.48	0.00	505553.00	3919059.00
103.23	25383.12	7985.86	1921.85	1890.07	0.00	506199.00	3919367.00
73.88	27117.86	8806.31	1999.63	2171.36	0.00	507934.00	3920187.00
82.62	26506.32	8518.58	1803.18	2743.31	0.00	507323.00	3919899.00
547.49	20081.72	5445.55	740.19	859.44	0.00	500898.00	3916826.00
327.13	21246.98	6013.33	1040.80	1470.13	0.00	502063.00	3917394.00
369.28	20941.15	5872.93	808.96	810.21	0.00	501757.00	3917254.00
477.92	20353.54	5579.21	716.88	808.59	0.00	501170.00	3916960.00
159.05	23536.93	7108.32	1024.60	1495.08	0.00	504353.00	3918489.00
132.65	24262.74	7473.46	1405.11	1554.17	0.00	505079.00	3918854.00
174.42	23196.27	6952.66	1215.28	1570.90	0.00	504013.00	3918333.00
133.60	24234.91	7433.25	1074.52	1744.84	0.00	505051.00	3918814.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
540.63	2439.10	672.39	326.12	675.49	29.94	483255.00	3912053.00
324.75	2722.69	808.02	302.66	711.34	0.00	483539.00	3912189.00
166.34	3192.09	1034.86	321.62	568.48	0.00	484008.00	3912416.00
77.05	3932.12	1381.82	317.60	645.24	0.00	484748.00	3912763.00
171.94	3162.15	1010.26	258.37	585.19	0.00	483978.00	3912391.00
235.93	2928.58	904.11	278.08	658.38	0.00	483745.00	3912285.00
414.50	2581.57	738.92	310.36	611.91	0.00	483398.00	3912120.00
272.13	2837.09	864.40	355.71	653.06	0.00	483653.00	3912245.00
166.02	3193.74	1034.18	356.47	665.31	0.00	484010.00	3912415.00
93.32	3715.71	1287.21	295.24	661.83	0.00	484532.00	3912668.00
151.29	3262.29	1068.56	322.47	652.18	0.00	484079.00	3912449.00
250.22	2886.91	892.39	281.42	533.38	0.00	483703.00	3912273.00
323.20	2730.25	812.10	237.27	618.42	0.00	483547.00	3912193.00
269.88	2839.27	866.47	331.77	680.79	0.00	483656.00	3912247.00
75.91	3946.60	1394.99	348.39	587.87	0.00	484763.00	3912776.00
299.97	2767.08	834.77	351.59	580.77	0.00	483583.00	3912216.00
58.19	4270.99	1543.58	371.85	668.22	0.00	485087.00	3912924.00
222.68	2968.38	932.92	384.00	640.75	0.00	483785.00	3912314.00
88.66	3765.93	1311.03	270.14	647.28	0.00	484582.00	3912692.00
166.83	3181.84	1025.20	279.59	624.64	0.00	483998.00	3912406.00
731.95	2312.96	601.54	342.29	597.49	0.00	483129.00	3911982.00
294.54	2781.82	837.65	335.94	648.82	0.00	483598.00	3912218.00
549.95	2423.27	671.24	313.36	443.96	0.00	483240.00	3912052.00
333.10	2708.27	800.34	341.59	745.36	0.00	483525.00	3912181.00
160.86	3212.10	1045.96	293.18	582.57	0.00	484028.00	3912427.00
356.84	2659.22	780.21	200.82	536.02	0.00	483475.00	3912161.00
344.89	2687.14	787.62	359.77	791.03	0.00	483503.00	3912168.00
56.17	4320.42	1563.85	343.27	743.54	0.00	485137.00	3912945.00
510.94	2472.19	681.99	353.52	724.71	0.00	483288.00	3912063.00
182.71	3117.08	1003.02	358.32	597.70	0.00	483933.00	3912384.00
369.38	2634.35	771.86	311.70	608.37	0.00	483451.00	3912153.00
112.64	3529.36	1190.91	340.93	659.07	0.00	484346.00	3912572.00
278.55	2826.60	861.56	333.23	583.55	0.00	483643.00	3912242.00
695.45	2336.84	611.65	244.79	673.55	0.00	483153.00	3911992.00
129.28	3402.63	1136.26	310.12	635.03	0.00	484219.00	3912517.00
223.72	2972.22	930.11	312.57	551.95	0.00	483789.00	3912311.00
136.77	3350.12	1107.44	358.70	720.40	0.00	484166.00	3912488.00
142.14	3314.12	1096.03	374.77	561.76	0.00	484130.00	3912477.00
698.22	2325.89	612.98	243.03	531.32	0.00	483142.00	3911994.00
168.54	3179.04	1023.01	245.39	628.97	0.00	483995.00	3912404.00
120.73	3463.56	1167.01	355.22	716.20	0.00	484280.00	3912548.00
239.99	2917.02	906.66	392.93	611.30	0.00	483733.00	3912287.00
116.89	3492.80	1178.62	340.23	767.45	0.00	484309.00	3912559.00
156.60	3232.13	1053.36	292.88	595.34	0.00	484048.00	3912434.00
415.10	2586.98	739.02	298.51	669.24	0.00	483403.00	3912120.00
492.54	2496.20	698.19	348.95	524.06	0.00	483312.00	3912079.00
222.96	2965.89	928.55	316.48	645.68	0.00	483782.00	3912309.00
232.55	2940.64	908.15	242.33	637.02	0.00	483757.00	3912289.00
217.88	2982.60	934.31	297.83	611.00	0.00	483799.00	3912315.00

297.54	2779.22	835.03	290.82	619.98	0.00	483596.00	3912216.00
543.97	2438.07	670.33	345.62	568.71	0.00	483254.00	3912051.00
363.18	2659.24	775.96	356.09	618.35	0.00	483476.00	3912157.00
219.30	2988.45	933.07	369.69	647.14	0.00	483805.00	3912314.00
201.37	3048.18	962.46	319.84	684.87	0.00	483864.00	3912343.00
455.99	2521.88	715.26	313.88	670.23	0.00	483338.00	3912096.00
472.29	2497.88	701.29	308.72	622.31	0.00	483314.00	3912082.00
210.45	3016.16	945.52	284.50	657.84	0.00	483832.00	3912326.00
272.79	2834.07	860.62	263.62	636.25	0.00	483650.00	3912241.00
178.72	3136.20	1004.22	337.85	745.16	0.00	483952.00	3912385.00
270.30	2834.10	868.90	302.22	604.83	0.00	483650.00	3912250.00
55.48	4335.10	1573.39	319.85	662.77	0.00	485151.00	3912954.00
309.24	2756.77	824.53	285.47	615.38	0.00	483573.00	3912205.00
796.56	2262.80	583.65	317.73	526.49	0.00	483079.00	3911964.00
336.61	2706.32	798.99	370.71	673.03	0.00	483523.00	3912180.00
95.79	3695.29	1267.51	273.57	690.46	0.00	484512.00	3912648.00
415.84	2566.55	734.21	291.03	734.24	0.00	483383.00	3912115.00
368.30	2648.76	773.96	333.14	596.78	0.00	483465.00	3912155.00
426.69	2560.85	731.42	313.48	613.43	0.00	483377.00	3912112.00
207.96	3022.55	953.55	364.94	668.00	0.00	483839.00	3912334.00
89.15	3766.78	1309.94	327.36	602.09	0.00	484583.00	3912691.00
545.77	2431.01	668.76	331.50	608.71	0.00	483247.00	3912050.00
173.65	3155.54	1015.54	402.23	715.38	0.00	483972.00	3912396.00
221.36	2973.82	927.41	339.72	755.06	0.00	483790.00	3912308.00
406.53	2592.09	745.13	339.05	613.73	0.00	483408.00	3912126.00
228.65	2945.98	921.26	324.09	682.48	0.00	483762.00	3912302.00
120.47	3467.78	1166.80	317.99	623.91	0.00	484284.00	3912548.00
263.90	2852.32	866.84	339.82	724.05	0.00	483669.00	3912248.00
120.70	3463.88	1161.47	332.98	735.24	0.00	484280.00	3912542.00
105.11	3593.79	1226.83	310.24	691.52	0.00	484410.00	3912608.00
170.51	3171.43	1022.05	381.01	734.37	0.00	483988.00	3912403.00
60.67	4219.26	1516.70	366.50	647.85	0.00	485036.00	3912897.00
761.99	2288.55	590.54	271.72	575.64	0.00	483105.00	3911971.00
314.40	2743.11	817.89	347.73	679.81	0.00	483559.00	3912199.00
437.37	2550.35	727.52	399.91	656.19	0.00	483367.00	3912108.00
167.01	3189.31	1032.52	297.49	646.17	0.00	484006.00	3912413.00
252.90	2887.50	886.92	299.05	584.49	0.00	483704.00	3912268.00
558.32	2427.61	663.44	365.17	605.72	0.00	483244.00	3912044.00
329.38	2711.93	806.53	253.46	526.74	0.00	483528.00	3912187.00
133.83	3362.21	1119.81	307.40	737.14	0.00	484178.00	3912501.00
364.24	2658.88	775.44	330.07	539.37	0.00	483475.00	3912156.00
591.05	2398.31	650.52	383.54	584.58	0.00	483215.00	3912031.00
636.59	2365.51	631.13	268.83	535.87	0.00	483182.00	3912012.00
447.30	2542.08	720.25	382.81	647.60	0.00	483358.00	3912101.00
381.20	2630.87	761.63	354.73	611.38	0.00	483447.00	3912142.00
385.17	2632.27	763.03	351.18	551.72	0.00	483449.00	3912144.00
230.80	2946.71	916.02	365.05	701.32	0.00	483763.00	3912297.00
273.90	2835.79	866.57	385.41	578.19	0.00	483652.00	3912247.00
400.97	2600.37	749.92	347.97	574.56	0.00	483417.00	3912131.00
563.52	2424.78	656.07	279.36	607.52	0.00	483241.00	3912037.00
303.11	2765.36	828.45	328.40	604.06	0.00	483582.00	3912209.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
457.26	55929.75	14888.48	1184.36	789.55	97.54	536746.00	3926269.00
186.97	61271.67	17449.27	1606.80	1761.68	0.00	542088.00	3928830.00
510.62	55439.51	14647.53	1219.96	920.82	0.00	536256.00	3926028.00
522.87	55338.49	14593.75	1218.65	946.22	0.00	536155.00	3925975.00
185.33	61338.61	17477.58	1464.49	1349.96	0.00	542155.00	3928858.00
351.36	57239.13	15523.03	1345.25	1240.44	0.00	538055.00	3926904.00
572.52	54965.77	14410.59	1217.37	953.18	0.00	535782.00	3925791.00
176.90	61694.18	17651.16	1659.40	1769.71	0.00	542510.00	3929032.00
187.69	61242.85	17433.82	1600.06	1636.88	0.00	542059.00	3928815.00
147.10	63189.93	18346.23	1663.26	1813.51	0.00	544006.00	3929727.00
487.82	55639.57	14742.86	1256.42	1056.48	0.00	536456.00	3926124.00
79.39	69365.50	21255.33	2208.23	2577.80	0.00	550182.00	3932636.00
294.77	58228.98	15989.11	1385.67	1380.93	0.00	539045.00	3927370.00
104.61	66362.01	19845.71	1723.73	1748.18	0.00	547178.00	3931226.00
242.19	59452.06	16579.72	1344.51	1167.19	0.00	540268.00	3927961.00
432.20	56194.36	15013.56	1244.36	980.84	0.00	537011.00	3926394.00
190.37	61136.91	17377.54	1611.17	1642.61	0.00	541953.00	3928758.00
158.77	62550.20	18055.63	1540.98	1474.62	0.00	543366.00	3929436.00
381.78	56806.45	15310.94	1283.34	1090.71	0.00	537623.00	3926692.00
275.68	58628.76	16193.61	1389.06	1283.08	0.00	539445.00	3927574.00
29.72	84182.02	28185.75	3081.09	3520.68	0.00	564998.00	3939567.00
82.68	68896.89	21022.92	2222.57	2741.20	0.00	549713.00	3932404.00
156.69	62659.46	18104.68	1529.41	1430.16	0.00	543476.00	3929485.00
192.91	61036.37	17333.74	1546.53	1595.97	0.00	541853.00	3928715.00
136.66	63827.25	18651.94	1800.24	2011.26	0.00	544644.00	3930033.00
200.39	60761.21	17208.14	1581.04	1643.17	0.00	541577.00	3928589.00
249.48	59259.37	16490.94	1389.96	1268.78	0.00	540076.00	3927872.00
303.53	58056.56	15914.91	1328.60	1171.58	0.00	538873.00	3927296.00
227.14	59879.67	16788.09	1575.70	1679.15	0.00	540696.00	3928169.00
869.51	53520.98	13663.44	1106.37	584.10	0.00	534337.00	3925044.00
706.88	54186.64	14014.59	1134.17	687.58	0.00	535003.00	3925395.00
200.42	60759.09	17199.21	1453.97	1366.84	0.00	541575.00	3928580.00
198.38	60832.74	17244.02	1376.57	1133.48	0.00	541649.00	3928625.00
526.10	55311.97	14583.60	1193.30	857.35	0.00	536128.00	3925964.00
151.36	62946.09	18239.77	1608.53	1605.49	0.00	543762.00	3929621.00
438.57	56127.42	14983.82	1246.90	997.46	0.00	536944.00	3926365.00
321.51	57726.44	15757.70	1293.05	1088.61	0.00	538543.00	3927138.00
764.80	53922.57	13880.41	1197.93	916.47	0.00	534739.00	3925261.00
190.56	61129.03	17384.32	1547.73	1524.44	0.00	541945.00	3928765.00
129.26	64328.13	18878.63	1601.01	1642.85	0.00	545144.00	3930259.00
321.45	57729.32	15754.86	1390.46	1337.55	0.00	538546.00	3927136.00
199.46	60791.35	17225.95	1580.78	1615.10	0.00	541608.00	3928607.00
619.96	54660.36	14251.84	1169.97	819.85	0.00	535477.00	3925633.00
264.25	58894.05	16316.19	1399.91	1297.82	0.00	539710.00	3927697.00
292.67	58269.62	16026.89	1358.23	1216.45	0.00	539086.00	3927408.00
554.92	55094.24	14475.30	1230.62	969.48	0.00	535911.00	3925856.00
440.46	56104.05	14971.44	1258.15	1058.48	0.00	536920.00	3926352.00
113.58	65544.81	19458.66	1919.09	2155.12	0.00	546361.00	3930839.00
486.86	55649.86	14756.41	1196.14	834.20	0.00	536466.00	3926137.00

36.65	80381.44	26415.69	3319.87	3840.99	0.00	561198.00	3937796.00
436.34	56147.92	14994.84	1246.65	1023.75	0.00	536964.00	3926376.00
185.77	61322.73	17462.05	1619.47	1790.53	0.00	542139.00	3928843.00
531.94	55265.95	14560.49	1210.58	897.62	0.00	536082.00	3925941.00
251.93	59194.53	16463.69	1456.83	1434.65	0.00	540011.00	3927844.00
334.57	57506.09	15652.51	1404.76	1383.23	0.00	538322.00	3927033.00
97.79	67059.46	20180.57	1991.84	2173.30	0.00	547876.00	3931561.00
87.04	68316.38	20775.98	2007.15	2210.16	0.00	549133.00	3932157.00
116.71	65281.52	19333.67	1788.56	1996.80	0.00	546098.00	3930714.00
195.84	60927.22	17286.57	1579.98	1681.92	0.00	541743.00	3928667.00
339.24	57430.60	15619.31	1328.39	1148.48	0.00	538247.00	3927000.00
176.63	61705.48	17656.42	1593.62	1673.02	0.00	542522.00	3929037.00
150.24	63009.35	18263.02	1546.61	1543.36	0.00	543826.00	3929644.00
393.80	56648.69	15240.60	1221.60	890.92	0.00	537465.00	3926621.00
479.67	55714.19	14782.39	1229.07	934.47	0.00	536530.00	3926163.00
576.21	54944.15	14406.32	1220.05	933.04	0.00	535760.00	3925787.00
314.84	57848.23	15814.17	1272.34	1020.99	0.00	538665.00	3927195.00
149.06	63076.91	18288.87	1672.06	1788.05	0.00	543893.00	3929670.00
151.26	62952.88	18241.68	1767.25	1930.62	0.00	543769.00	3929622.00
230.24	59789.65	16746.30	1474.30	1450.74	0.00	540606.00	3928127.00
435.16	56163.05	14996.51	1237.24	970.48	0.00	536979.00	3926377.00
169.15	62045.94	17808.62	1745.77	1977.04	0.00	542862.00	3929189.00
491.62	55604.30	14725.69	1160.45	730.24	0.00	536421.00	3926106.00
240.48	59499.93	16600.78	1587.12	1654.16	0.00	540316.00	3927982.00
119.94	65022.14	19213.09	1820.07	2143.65	0.00	545838.00	3930594.00
337.67	57456.68	15621.99	1272.72	1053.75	0.00	538273.00	3927003.00
699.48	54223.54	14035.32	1125.23	642.39	0.00	535040.00	3925416.00
189.01	61191.63	17413.17	1517.19	1437.73	0.00	542008.00	3928794.00
110.73	65793.29	19573.44	1765.53	2041.25	0.00	546610.00	3930954.00
261.92	58946.76	16341.56	1502.27	1529.84	0.00	539763.00	3927722.00
1011.27	53098.46	13436.09	1124.31	658.75	0.00	533915.00	3924817.00
332.95	57533.71	15661.99	1305.08	1154.23	0.00	538350.00	3927043.00
314.91	57844.78	15817.52	1328.50	1155.63	0.00	538661.00	3927198.00
685.93	54295.98	14074.94	1133.03	660.88	0.00	535112.00	3925456.00
272.33	58707.74	16228.66	1354.71	1183.62	0.00	539524.00	3927609.00
183.41	61418.75	17507.70	1414.94	1269.75	0.00	542235.00	3928888.00
261.29	58961.98	16355.73	1330.72	1105.42	0.00	539778.00	3927737.00
289.25	58341.91	16052.17	1404.67	1326.03	0.00	539158.00	3927433.00
375.87	56885.94	15348.74	1217.47	873.87	0.00	537702.00	3926730.00
83.79	68743.94	20964.10	2110.84	2505.38	0.00	549560.00	3932345.00
72.78	70403.45	21731.29	2043.18	2276.11	0.00	551220.00	3933112.00
214.43	60278.96	16976.87	1406.67	1241.92	0.00	541095.00	3928358.00
113.11	65585.27	19480.92	1878.82	2162.69	0.00	546402.00	3930862.00
98.89	66940.28	20109.53	1935.01	2225.60	0.00	547757.00	3931490.00
216.31	60217.32	16941.04	1391.70	1229.04	0.00	541034.00	3928322.00
358.04	57141.18	15475.68	1238.07	924.50	0.00	537957.00	3926856.00
312.30	57893.92	15835.54	1453.26	1497.10	0.00	538710.00	3927216.00
265.52	58863.53	16301.94	1323.93	1108.17	0.00	539680.00	3927683.00
209.72	60432.96	17054.56	1513.64	1510.54	0.00	541249.00	3928435.00
341.35	57395.14	15603.57	1320.85	1172.65	0.00	538211.00	3926984.00
297.51	58174.13	15971.93	1317.72	1126.67	0.00	538990.00	3927353.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
471.86	14191.47	3921.28	578.76	712.40	57.48	495008.00	3915302.00
365.13	14626.67	4141.55	757.57	835.81	0.00	495443.00	3915522.00
83.90	18703.08	6068.68	1483.59	2336.20	0.00	499519.00	3917449.00
195.06	16003.57	4804.43	1086.38	1217.15	0.00	496820.00	3916185.00
473.32	14168.16	3923.91	618.86	766.78	0.00	494984.00	3915305.00
441.76	14288.55	3986.65	986.12	1075.28	0.00	495105.00	3915367.00
331.76	14813.94	4228.75	749.04	1001.90	0.00	495630.00	3915610.00
597.32	13838.57	3746.78	558.16	668.87	0.00	494655.00	3915128.00
39.38	22313.20	7751.23	1795.42	2791.77	0.00	503129.00	3919132.00
355.87	14673.61	4160.30	582.91	818.22	0.00	495490.00	3915541.00
124.66	17293.08	5414.54	1578.05	1951.65	0.00	498109.00	3916795.00
245.55	15439.60	4536.12	892.54	1212.23	0.00	496256.00	3915917.00
165.34	16436.32	5012.00	1385.17	1863.27	0.00	497253.00	3916393.00
156.63	16590.61	5079.26	1040.07	1606.38	0.00	497407.00	3916460.00
245.31	15443.63	4534.39	766.53	1269.54	0.00	496260.00	3915915.00
298.64	15014.31	4318.82	859.46	1424.38	0.00	495831.00	3915700.00
212.29	15789.33	4700.68	961.49	1378.58	0.00	496606.00	3916081.00
98.87	18081.51	5777.54	1528.47	3048.40	0.00	498898.00	3917158.00
69.97	19451.10	6410.29	1544.48	2836.80	0.00	500267.00	3917791.00
332.78	14803.86	4226.73	820.43	1152.83	0.00	495620.00	3915608.00
102.10	17972.11	5741.82	1712.06	1729.66	0.00	498788.00	3917123.00
220.03	15705.95	4663.11	1122.67	1422.48	0.00	496522.00	3916044.00
317.23	14898.81	4284.66	942.85	980.44	0.00	495715.00	3915665.00
190.88	16057.28	4828.37	1180.51	1719.23	0.00	496874.00	3916209.00
134.83	17039.73	5296.00	1280.15	2056.80	0.00	497856.00	3916677.00
458.95	14223.20	3949.47	717.84	867.50	0.00	495039.00	3915330.00
77.92	18999.69	6191.34	1688.13	2868.61	0.00	499816.00	3917572.00
110.85	17682.44	5593.05	1091.70	2285.19	0.00	498499.00	3916974.00
396.02	14476.08	4068.19	737.41	967.88	0.00	495292.00	3915449.00
130.74	17139.58	5344.44	1233.55	1385.23	0.00	497956.00	3916725.00
238.21	15515.02	4586.41	1089.62	1073.44	0.00	496331.00	3915967.00
160.43	16522.48	5055.30	1197.44	2079.27	0.00	497339.00	3916436.00
2007.11	12760.05	3110.16	472.78	418.77	0.00	493576.00	3914491.00
428.68	14339.45	4000.20	898.58	1173.45	0.00	495156.00	3915381.00
145.05	16815.25	5204.66	1659.38	1416.61	0.00	497632.00	3916585.00
239.64	15500.03	4561.06	904.52	1186.66	0.00	496316.00	3915942.00
136.88	16998.22	5279.46	1360.59	1567.34	0.00	497815.00	3916660.00
391.18	14492.20	4078.82	732.02	950.37	0.00	495308.00	3915460.00
345.90	14729.69	4184.80	775.54	1355.65	0.00	495546.00	3915566.00
361.37	14641.01	4155.60	895.87	1066.99	0.00	495457.00	3915536.00
71.30	19369.75	6357.14	1609.93	3614.83	0.00	500186.00	3917738.00
189.55	16074.26	4837.88	1092.33	1818.23	0.00	496891.00	3916219.00
79.42	18919.11	6153.21	1473.44	3949.12	0.00	499735.00	3917534.00
239.92	15494.73	4564.63	891.89	1356.42	0.00	496311.00	3915945.00
362.53	14638.64	4147.55	755.31	1017.89	0.00	495455.00	3915528.00
307.78	14957.30	4312.58	1104.17	1199.94	0.00	495774.00	3915693.00
401.95	14458.91	4057.72	671.61	832.68	0.00	495275.00	3915438.00
79.65	18910.90	6164.96	1232.83	1843.36	0.00	499727.00	3917546.00
231.43	15577.07	4596.76	948.32	1556.24	0.00	496393.00	3915978.00

343.61	14741.99	4191.01	902.39	1354.03	0.00	495558.00	3915572.00
721.60	13594.18	3623.77	667.16	826.73	0.00	494410.00	3915005.00
365.34	14621.97	4136.12	757.22	1198.25	0.00	495438.00	3915517.00
260.72	15312.21	4480.44	1052.93	1366.52	0.00	496128.00	3915861.00
540.67	13971.17	3816.37	508.75	563.60	0.00	494787.00	3915197.00
414.35	14396.08	4033.43	672.66	845.09	0.00	495212.00	3915414.00
190.02	16072.46	4838.22	1094.42	1692.40	0.00	496889.00	3916219.00
16.06	28800.32	10767.48	2050.53	3917.29	0.00	509617.00	3922148.00
408.56	14423.53	4043.11	760.08	1117.97	0.00	495240.00	3915424.00
451.71	14257.74	3958.98	798.26	1107.45	0.00	495074.00	3915340.00
389.75	14498.43	4083.21	942.77	1334.66	0.00	495315.00	3915464.00
395.64	14480.86	4074.21	784.56	1025.20	0.00	495297.00	3915455.00
140.42	16918.30	5230.58	1037.58	2072.83	0.00	497735.00	3916611.00
332.01	14803.91	4224.72	845.08	1460.52	0.00	495620.00	3915606.00
267.16	15257.07	4447.30	1095.32	1327.57	0.00	496073.00	3915828.00
127.31	17223.61	5366.51	1196.69	2102.22	0.00	498040.00	3916747.00
181.86	16185.61	4900.36	1203.89	1316.60	0.00	497002.00	3916281.00
220.26	15701.14	4657.59	824.69	1149.43	0.00	496517.00	3916038.00
316.24	14904.54	4273.79	798.87	1031.34	0.00	495721.00	3915655.00
190.87	16054.47	4835.18	1632.18	1687.08	0.00	496871.00	3916216.00
278.52	15168.08	4398.85	872.27	1339.73	0.00	495984.00	3915780.00
173.37	16309.68	4956.29	1335.78	1760.43	0.00	497126.00	3916337.00
144.58	16833.35	5195.97	1054.14	1440.31	0.00	497650.00	3916577.00
411.94	14412.40	4029.04	673.21	1069.77	0.00	495229.00	3915410.00
242.42	15471.29	4554.50	1019.14	1251.04	0.00	496288.00	3915935.00
181.44	16194.77	4884.15	904.04	1412.82	0.00	497011.00	3916265.00
250.82	15398.41	4514.58	974.91	1144.66	0.00	496215.00	3915895.00
150.05	16713.92	5135.62	1675.45	2074.75	0.00	497530.00	3916516.00
479.99	14156.43	3907.21	587.13	747.92	0.00	494973.00	3915288.00
290.85	15074.50	4351.53	1022.89	1526.83	0.00	495891.00	3915732.00
156.25	16601.23	5086.93	1093.25	1481.12	0.00	497418.00	3916468.00
262.90	15289.08	4459.82	818.78	1107.53	0.00	496105.00	3915841.00
542.48	13969.55	3821.40	856.60	1000.39	0.00	494786.00	3915202.00
164.94	16446.18	5003.29	992.90	2078.50	0.00	497262.00	3916384.00
338.69	14767.16	4210.41	967.40	1255.44	0.00	495583.00	3915591.00
245.60	15440.91	4537.94	991.61	1398.96	0.00	496257.00	3915919.00
205.03	15876.45	4743.64	847.30	1191.89	0.00	496693.00	3916124.00
625.84	13766.03	3715.92	627.77	739.10	0.00	494582.00	3915097.00
1221.91	13053.51	3323.34	476.70	490.79	0.00	493870.00	3914704.00
253.48	15370.71	4502.51	1289.45	1912.19	0.00	496187.00	3915883.00
167.87	16399.40	4988.90	911.37	1401.03	0.00	497216.00	3916370.00
349.31	14713.30	4185.17	876.37	1246.26	0.00	495530.00	3915566.00
293.28	15052.32	4358.90	905.67	1137.99	0.00	495869.00	3915740.00
417.47	14384.77	4026.07	798.11	973.20	0.00	495201.00	3915407.00
363.06	14638.70	4140.90	911.53	1372.72	0.00	495455.00	3915522.00
35.02	23009.71	8073.34	1828.42	3236.00	0.00	503826.00	3919454.00
69.47	19483.57	6408.81	1574.05	3489.12	0.00	500300.00	3917790.00
113.56	17601.02	5543.52	1244.95	2720.40	0.00	498417.00	3916924.00
566.12	13907.61	3779.66	693.61	1086.61	0.00	494724.00	3915160.00
302.03	14990.74	4318.11	1015.65	1461.75	0.00	495807.00	3915699.00
160.51	16522.84	5054.04	1432.44	1333.56	0.00	497339.00	3916435.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
31.20	51001.03	17502.14	2860.17	3807.62	<b>80.44</b>	531817.00	3928883.00
299.37	34092.82	9579.04	1081.68	1315.45	0.00	514909.00	3920960.00
188.34	36165.56	10561.15	1069.97	1260.72	0.00	516982.00	3921942.00
324.11	33789.30	9434.16	928.86	888.25	0.00	514606.00	3920815.00
595.41	31855.88	8482.58	846.59	730.25	0.00	512672.00	3919863.00
284.99	34292.06	9681.70	1236.65	1471.92	0.00	515108.00	3921062.00
43.02	47281.75	15782.30	2651.49	3661.91	0.00	528098.00	3927163.00
54.43	44914.79	14693.80	2489.29	2778.14	0.00	525731.00	3926075.00
292.60	34184.45	9624.63	1138.07	1291.38	0.00	515001.00	3921005.00
139.20	37820.00	11345.73	1577.08	2045.78	0.00	518636.00	3922727.00
370.72	33298.41	9196.55	960.13	1007.60	0.00	514115.00	3920577.00
100.49	39909.79	12329.09	1645.19	2054.55	0.00	520726.00	3923710.00
222.65	35359.92	10183.51	1025.65	1088.62	0.00	516176.00	3921564.00
467.09	32541.05	8824.36	888.36	856.64	0.00	513357.00	3920205.00
173.15	36601.98	10776.15	1360.86	1643.42	0.00	517418.00	3922157.00
337.80	33635.72	9359.82	1044.94	1106.72	0.00	514452.00	3920741.00
51.60	45429.05	14928.40	2088.70	2656.63	0.00	526245.00	3926309.00
404.96	32996.75	9049.79	1074.53	1221.94	0.00	513813.00	3920431.00
327.07	33754.62	9413.34	1015.86	1221.78	0.00	514571.00	3920794.00
196.02	35967.62	10479.74	1189.71	1239.77	0.00	516784.00	3921861.00
322.16	33814.90	9443.53	1064.28	1243.59	0.00	514631.00	3920824.00
325.34	33775.47	9422.03	1046.44	1180.31	0.00	514592.00	3920803.00
415.97	32906.96	9009.71	1061.22	1130.88	0.00	513723.00	3920390.00
527.80	32183.28	8650.70	892.28	771.59	0.00	513000.00	3920031.00
811.32	31131.43	8109.96	803.31	597.52	0.00	511948.00	3919491.00
482.92	32443.92	8773.02	866.81	756.38	0.00	513260.00	3920154.00
314.23	33907.55	9499.16	1000.98	1005.69	0.00	514724.00	3920880.00
180.69	36380.99	10672.11	1238.13	1341.11	0.00	517197.00	3922053.00
249.73	34844.57	9941.21	1080.35	1187.26	0.00	515661.00	3921322.00
335.78	33655.75	9368.86	1034.45	1084.60	0.00	514472.00	3920750.00
210.80	35617.22	10297.00	997.15	1078.94	0.00	516434.00	3921678.00
569.43	31974.84	8540.08	904.58	902.80	0.00	512791.00	3919921.00
280.18	34361.00	9709.39	1155.43	1278.28	0.00	515177.00	3921090.00
354.63	33457.36	9273.51	979.88	993.13	0.00	514274.00	3920654.00
233.19	35147.77	10084.67	1101.88	1232.60	0.00	515964.00	3921465.00
229.36	35228.59	10122.40	1111.21	1309.73	0.00	516045.00	3921503.00
110.75	39247.40	12023.55	1459.28	1809.49	0.00	520064.00	3923404.00
423.63	32852.99	8974.13	940.02	995.64	0.00	513669.00	3920355.00
260.93	34657.32	9849.95	1036.06	1134.28	0.00	515474.00	3921231.00
277.90	34393.67	9734.47	1033.70	1071.15	0.00	515210.00	3921115.00
258.94	34690.53	9869.87	1062.03	1104.34	0.00	515507.00	3921251.00
51.26	45492.87	14953.90	2411.20	2895.12	0.00	526309.00	3926335.00
16.37	60542.98	21974.03	2471.62	4523.75	0.00	541359.00	3933355.00
408.39	32970.92	9033.72	878.64	814.62	0.00	513787.00	3920414.00
341.94	33586.15	9328.13	897.90	875.89	0.00	514402.00	3920709.00
242.15	34981.93	10010.13	1190.50	1331.70	0.00	515798.00	3921391.00
387.81	33142.58	9125.22	1008.37	1041.63	0.00	513959.00	3920506.00
223.83	35337.66	10171.81	1275.93	1460.56	0.00	516154.00	3921553.00
214.68	35532.98	10272.49	1152.07	1365.91	0.00	516349.00	3921653.00

122.46	38599.74	11711.99	1510.27	2092.37	0.00	519416.00	3923093.00
404.28	33003.50	9049.21	921.49	895.77	0.00	513820.00	3920430.00
261.91	34642.87	9841.52	964.84	934.62	0.00	515459.00	3921222.00
216.27	35496.79	10254.10	1163.77	1237.69	0.00	516313.00	3921635.00
80.47	41549.42	13102.71	1804.41	2284.82	0.00	522366.00	3924483.00
49.60	45818.60	15108.54	2309.21	3119.59	0.00	526635.00	3926489.00
122.80	38583.17	11714.78	1436.79	1727.35	0.00	519399.00	3923096.00
111.94	39177.53	11991.64	1537.94	1776.37	0.00	519994.00	3923372.00
253.86	34778.16	9910.11	1192.11	1390.12	0.00	515594.00	3921291.00
87.25	40927.88	12804.48	1507.67	1967.69	0.00	521744.00	3924185.00
199.06	35895.31	10446.63	1155.74	1255.00	0.00	516712.00	3921827.00
246.04	34912.10	9968.29	1114.84	1293.26	0.00	515728.00	3921349.00
183.31	36306.72	10635.36	1221.64	1385.71	0.00	517123.00	3922016.00
658.93	31592.72	8353.70	912.71	842.76	0.00	512409.00	3919734.00
140.86	37747.99	11318.25	1445.65	1700.77	0.00	518564.00	3922699.00
538.67	32124.13	8619.18	824.71	626.58	0.00	512940.00	3920000.00
26.84	52962.23	18461.67	3871.62	4399.31	0.00	533779.00	3929842.00
1325.26	30280.96	7625.82	815.94	620.24	0.00	511097.00	3919007.00
212.86	35572.27	10287.89	1193.43	1330.37	0.00	516389.00	3921669.00
358.18	33420.69	9260.74	1052.85	1128.05	0.00	514237.00	3920642.00
108.51	39387.85	12091.13	1271.64	1459.76	0.00	520204.00	3923472.00
217.80	35464.83	10239.37	1317.17	1582.70	0.00	516281.00	3921620.00
447.37	32674.27	8890.06	999.34	1176.37	0.00	513491.00	3920271.00
238.82	35042.12	10039.45	1221.37	1508.37	0.00	515858.00	3921420.00
66.25	43138.96	13861.81	2069.64	2702.75	0.00	523955.00	3925243.00
332.13	33699.31	9390.59	1110.93	1255.13	0.00	514516.00	3920771.00
166.46	36814.67	10880.28	1225.52	1377.67	0.00	517631.00	3922261.00
853.96	31022.86	8053.02	819.89	632.05	0.00	511839.00	3919434.00
420.93	32871.26	8985.61	931.31	934.12	0.00	513688.00	3920366.00
124.50	38493.51	11661.03	1345.44	1849.45	0.00	519310.00	3923042.00
234.57	35123.37	10074.75	1280.62	1630.97	0.00	515940.00	3921456.00
147.79	37471.02	11183.13	1449.38	1974.21	0.00	518287.00	3922564.00
266.33	34568.64	9810.30	1288.51	1684.08	0.00	515385.00	3921191.00
405.06	32995.52	9051.08	985.49	993.44	0.00	513812.00	3920432.00
347.01	33535.95	9310.55	952.58	951.00	0.00	514352.00	3920691.00
221.84	35377.11	10200.14	1148.55	1233.83	0.00	516193.00	3921581.00
298.80	34100.50	9585.53	1111.28	1266.11	0.00	514917.00	3920966.00
342.97	33578.84	9330.29	999.74	1111.70	0.00	514395.00	3920711.00
153.45	37255.86	11090.24	1270.34	1463.68	0.00	518072.00	3922471.00
523.51	32203.53	8658.09	948.38	951.66	0.00	513020.00	3920039.00
490.91	32394.05	8746.43	857.59	795.13	0.00	513210.00	3920127.00
326.08	33763.56	9427.99	1162.61	1322.33	0.00	514580.00	3920809.00
99.90	39949.95	12349.18	1443.54	1832.72	0.00	520766.00	3923730.00
358.05	33422.02	9257.53	939.41	882.44	0.00	514238.00	3920638.00
259.59	34679.34	9863.81	1098.28	1210.41	0.00	515496.00	3921245.00
562.74	32005.94	8557.20	919.74	927.28	0.00	512822.00	3919938.00
875.42	30972.09	8023.22	810.98	625.82	0.00	511788.00	3919404.00
408.37	32967.10	9036.63	924.30	901.09	0.00	513783.00	3920417.00
178.72	36438.06	10700.04	1190.94	1429.67	0.00	517254.00	3922081.00
374.35	33267.69	9179.00	919.00	915.51	0.00	514084.00	3920560.00
190.19	36118.52	10552.53	1370.46	1670.89	0.00	516935.00	3921933.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
279.36	104059.52	27866.93	1923.81	1575.51	<b>119.04</b>	584876.00	3939248.00
269.81	104375.30	28007.69	1962.68	1703.76	0.00	585192.00	3939388.00
234.69	105703.33	28649.53	2025.98	1798.63	0.00	586520.00	3940030.00
647.90	98034.48	24943.84	1651.42	937.84	0.00	578851.00	3936325.00
251.37	105037.79	28329.07	1976.81	1660.55	0.00	585854.00	3939710.00
193.96	107684.73	29586.55	2118.86	1940.53	0.00	588501.00	3940967.00
142.17	111365.24	31310.90	2334.25	2383.53	0.00	592182.00	3942692.00
359.32	101942.98	26847.52	1835.23	1422.32	0.00	582759.00	3938228.00
515.21	99389.78	25614.35	1695.58	1050.22	0.00	580206.00	3936995.00
146.63	110970.97	31128.67	2133.42	1805.41	0.00	591787.00	3942509.00
56.11	126629.72	38471.99	3411.85	4023.69	0.00	607446.00	3949853.00
435.75	100511.48	26166.12	1776.87	1270.45	0.00	581328.00	3937547.00
364.86	101823.93	26800.66	1802.52	1280.21	0.00	582640.00	3938181.00
100.92	116174.69	33569.55	2470.12	2385.23	0.00	596991.00	3944950.00
207.36	106968.38	29249.32	1980.24	1588.99	0.00	587785.00	3940630.00
117.49	113936.70	32520.10	2676.48	2990.07	0.00	594753.00	3943901.00
280.56	104021.15	27853.35	1851.64	1330.84	0.00	584837.00	3939234.00
182.67	108351.80	29895.04	2176.22	2039.83	0.00	589168.00	3941276.00
133.57	112178.72	31706.09	2324.30	2219.45	0.00	592995.00	3943087.00
137.83	111765.86	31514.05	2400.30	2402.66	0.00	592582.00	3942895.00
368.59	101744.74	26758.16	1806.21	1300.83	0.00	582561.00	3938139.00
420.45	100764.18	26285.55	1804.94	1364.65	0.00	581580.00	3937666.00
351.40	102119.15	26935.55	1889.61	1568.64	0.00	582935.00	3938316.00
199.24	107394.85	29446.75	2063.37	1806.61	0.00	588211.00	3940828.00
116.23	114089.09	32595.34	2578.30	2864.86	0.00	594905.00	3943976.00
291.17	103689.75	27686.22	1891.45	1491.68	0.00	584506.00	3939067.00
115.99	114119.86	32611.07	2438.66	2467.95	0.00	594936.00	3943992.00
222.72	106227.83	28911.28	2026.34	1728.73	0.00	587044.00	3940292.00
497.56	99615.74	25724.84	1738.67	1200.84	0.00	580432.00	3937106.00
558.91	98886.64	25370.14	1790.76	1398.34	0.00	579703.00	3936751.00
356.32	102008.48	26872.92	1819.50	1361.86	0.00	582825.00	3938254.00
135.23	112016.18	31633.22	2556.26	2762.07	0.00	592832.00	3943014.00
203.27	107180.24	29338.82	2038.14	1774.25	0.00	587997.00	3940720.00
80.37	119864.57	35316.67	2755.88	2872.17	0.00	600681.00	3946697.00
386.83	101376.21	26573.27	1836.19	1449.73	0.00	582192.00	3937954.00
203.19	107184.18	29348.02	2058.86	1790.44	0.00	588000.00	3940729.00
354.07	102058.59	26905.93	1835.10	1403.92	0.00	582875.00	3938287.00
254.70	104912.44	28276.49	1997.58	1716.51	0.00	585729.00	3939657.00
237.75	105576.09	28587.03	2009.19	1743.81	0.00	586392.00	3939968.00
208.75	106898.15	29212.83	2004.30	1651.99	0.00	587714.00	3940594.00
870.03	96578.92	24203.79	1622.21	862.27	0.00	577395.00	3935585.00
154.49	110320.62	30823.23	2265.26	2202.63	0.00	591137.00	3942204.00
230.49	105882.53	28734.19	1978.46	1628.42	0.00	586699.00	3940115.00
42.39	132823.47	41353.56	3818.78	4518.79	0.00	613640.00	3952734.00
253.59	104954.80	28296.08	2040.68	1855.89	0.00	585771.00	3939677.00
159.50	109931.40	30646.18	2153.09	1908.16	0.00	590748.00	3942027.00
342.30	102328.67	27036.38	1848.90	1453.71	0.00	583145.00	3938417.00
171.54	109072.99	30233.38	2283.78	2344.72	0.00	589889.00	3941614.00
243.02	105362.65	28482.90	2124.80	2080.93	0.00	586179.00	3939864.00

283.04	103941.74	27807.72	1986.25	1757.00	0.00	584758.00	3939189.00
713.55	97531.42	24691.10	1686.48	1086.99	0.00	578348.00	3936072.00
292.23	103659.14	27681.08	2004.76	1812.29	0.00	584475.00	3939062.00
253.03	104974.25	28303.84	1944.29	1596.36	0.00	585791.00	3939685.00
158.74	109989.40	30659.91	2191.36	2077.90	0.00	590806.00	3942041.00
99.31	116421.75	33699.19	2617.13	2666.29	0.00	597238.00	3945080.00
279.49	104054.58	27859.08	1935.44	1594.39	0.00	584871.00	3939240.00
444.35	100374.81	26094.55	1816.55	1409.22	0.00	581191.00	3937475.00
298.62	103469.98	27581.65	1921.00	1594.93	0.00	584286.00	3938962.00
25.50	146527.35	47767.62	4647.91	5766.19	0.00	627344.00	3959148.00
291.11	103693.11	27685.34	1951.94	1685.14	0.00	584509.00	3939066.00
405.43	101028.34	26406.12	1754.93	1194.33	0.00	581845.00	3937787.00
391.75	101280.74	26535.65	1755.92	1193.33	0.00	582097.00	3937916.00
328.38	102664.92	27196.09	1917.25	1654.61	0.00	583481.00	3938577.00
368.01	101756.76	26764.47	1837.25	1392.74	0.00	582573.00	3938145.00
55.36	126905.40	38589.77	3219.56	3677.30	0.00	607722.00	3949971.00
191.96	107798.59	29640.08	2236.81	2258.72	0.00	588615.00	3941021.00
295.23	103568.62	27633.66	1891.88	1508.12	0.00	584385.00	3939014.00
43.37	132282.88	41105.67	3613.53	4161.94	0.00	613099.00	3952486.00
105.71	115473.41	33253.24	2541.30	2519.30	0.00	596290.00	3944634.00
297.30	103507.98	27615.66	1883.10	1443.74	0.00	584324.00	3938996.00
41.95	133068.18	41486.88	3729.26	4399.84	0.00	613884.00	3952868.00
322.76	102809.35	27270.50	1868.40	1470.44	0.00	583626.00	3938651.00
944.59	96220.39	24012.19	1636.96	950.41	0.00	577037.00	3935393.00
71.74	121873.52	36243.70	2676.49	2577.48	0.00	602690.00	3947624.00
118.54	113811.00	32466.68	2422.49	2371.11	0.00	594627.00	3943847.00
184.94	108212.97	29850.87	2137.18	1918.22	0.00	589029.00	3941232.00
152.86	110451.77	30889.35	2242.54	2137.52	0.00	591268.00	3942270.00
206.26	107024.21	29286.69	2159.84	2059.85	0.00	587840.00	3940667.00
445.39	100358.27	26087.93	1788.74	1344.89	0.00	581175.00	3937469.00
131.04	112433.34	31825.30	2434.48	2486.20	0.00	593250.00	3943206.00
691.83	97690.60	24769.37	1671.25	1035.73	0.00	578507.00	3936150.00
144.98	111114.94	31199.49	2277.63	2172.81	0.00	591931.00	3942580.00
274.99	104201.96	27934.67	2016.05	1806.23	0.00	585018.00	3939315.00
344.06	102287.23	27014.17	1941.86	1711.09	0.00	583104.00	3938395.00
217.64	106464.26	29004.90	2085.50	1910.08	0.00	587281.00	3940386.00
146.20	111008.58	31157.16	2305.38	2212.03	0.00	591825.00	3942538.00
77.96	120392.05	35548.48	2913.21	3248.24	0.00	601208.00	3946929.00
629.58	98192.84	25020.45	1632.17	832.17	0.00	579009.00	3936401.00
709.73	97558.54	24705.16	1678.89	1068.20	0.00	578375.00	3936086.00
136.89	111855.06	31560.44	2346.59	2265.81	0.00	592671.00	3942941.00
268.61	104414.98	28034.01	1885.93	1435.64	0.00	585231.00	3939415.00
192.39	107774.67	29629.43	2127.16	1947.28	0.00	588591.00	3941010.00
354.83	102041.37	26900.11	1805.53	1294.23	0.00	582858.00	3938281.00
281.27	103997.96	27846.05	1990.93	1728.99	0.00	584814.00	3939227.00
386.30	101387.20	26582.54	1901.09	1603.44	0.00	582203.00	3937963.00
38.67	135045.77	42360.01	3789.07	4498.53	0.00	615862.00	3953741.00
344.88	102267.83	27007.00	1888.03	1599.76	0.00	583084.00	3938388.00
194.33	107665.42	29574.37	2206.98	2161.87	0.00	588482.00	3940955.00
292.62	103646.56	27671.42	1833.91	1300.50	0.00	584463.00	3939052.00
204.20	107130.90	29329.86	2042.45	1716.53	0.00	587947.00	3940711.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
228.72	49470.81	14001.06	1384.97	1512.46	91.18	530287.00	3925382.00
427.58	46345.80	12496.34	1154.29	1028.44	0.00	527162.00	3923877.00
117.95	54127.23	16203.87	1875.51	2221.29	0.00	534944.00	3927585.00
112.47	54527.03	16380.63	1581.11	1806.08	0.00	535343.00	3927761.00
205.40	50124.66	14304.59	1261.91	1197.59	0.00	530941.00	3925685.00
265.80	48619.40	13595.20	1254.15	1201.31	0.00	529436.00	3924976.00
366.47	47016.96	12820.85	1171.74	1099.65	0.00	527833.00	3924202.00
319.21	47671.94	13140.23	1223.45	1161.86	0.00	528488.00	3924521.00
531.14	45495.58	12070.06	1086.45	922.93	0.00	526312.00	3923451.00
371.12	46959.72	12793.97	1164.03	1036.19	0.00	527776.00	3924175.00
121.84	53860.96	16069.94	1642.73	1895.44	0.00	534677.00	3927451.00
385.09	46797.29	12717.62	1154.27	1042.26	0.00	527614.00	3924098.00
76.06	58210.70	18095.86	1789.42	2290.93	0.00	539027.00	3929477.00
544.31	45407.08	12032.25	1066.39	860.10	0.00	526223.00	3923413.00
175.91	51129.19	14779.13	1485.94	1787.16	0.00	531945.00	3926160.00
427.85	46341.43	12491.28	1106.31	911.80	0.00	527158.00	3923872.00
484.81	45841.50	12253.55	1094.70	871.14	0.00	526658.00	3923634.00
141.13	52703.14	15534.04	1639.82	1915.92	0.00	533519.00	3926915.00
254.65	48854.34	13712.88	1254.97	1162.29	0.00	529671.00	3925094.00
341.17	47350.33	12980.30	1165.08	1090.02	0.00	528167.00	3924361.00
412.33	46494.94	12575.22	1244.29	1200.13	0.00	527311.00	3923956.00
203.92	50168.91	14328.72	1391.26	1516.83	0.00	530985.00	3925710.00
194.94	50451.60	14460.51	1403.09	1512.74	0.00	531268.00	3925841.00
341.73	47342.94	12984.86	1117.26	884.28	0.00	528159.00	3924366.00
247.38	49018.01	13789.97	1393.15	1478.16	0.00	529834.00	3925171.00
348.38	47252.09	12942.72	1114.03	886.67	0.00	528068.00	3924323.00
140.93	52712.05	15533.01	1669.12	1981.63	0.00	533528.00	3926914.00
412.07	46498.36	12573.08	1175.13	1100.70	0.00	527315.00	3923954.00
195.58	50432.90	14458.73	1380.16	1433.27	0.00	531249.00	3925840.00
269.46	48544.24	13558.77	1289.49	1305.29	0.00	529361.00	3924940.00
233.72	49341.80	13937.56	1330.92	1392.95	0.00	530158.00	3925318.00
252.65	48899.12	13721.69	1202.70	1101.88	0.00	529715.00	3925102.00
165.97	51530.53	14952.74	1460.44	1830.80	0.00	532347.00	3926334.00
502.98	45699.79	12174.11	1075.60	845.23	0.00	526516.00	3923555.00
263.39	48668.22	13619.51	1202.73	1083.95	0.00	529485.00	3925000.00
118.90	54060.48	16172.61	1774.27	2078.86	0.00	534877.00	3927553.00
457.24	46068.97	12362.11	1119.73	963.55	0.00	526885.00	3923743.00
74.26	58463.21	18224.75	2149.55	2420.16	0.00	539279.00	3929606.00
116.32	54244.12	16251.70	1581.53	1755.66	0.00	535060.00	3927632.00
219.57	49714.69	14107.17	1360.19	1509.12	0.00	530531.00	3925488.00
221.40	49663.20	14092.15	1380.59	1454.98	0.00	530479.00	3925473.00
481.84	45864.23	12257.34	1082.01	900.39	0.00	526681.00	3923638.00
181.33	50922.40	14689.74	1507.27	1722.49	0.00	531739.00	3926071.00
22.20	75897.17	26380.09	3687.53	5393.49	0.00	556713.00	3937761.00
102.35	55349.40	16767.68	1803.71	2025.49	0.00	536166.00	3928148.00
369.43	46981.99	12802.70	1233.58	1247.68	0.00	527798.00	3924183.00
276.18	48410.84	13493.31	1230.61	1185.33	0.00	529227.00	3924874.00
208.40	50032.18	14270.29	1331.95	1342.01	0.00	530848.00	3925651.00
147.29	52383.92	15367.01	1545.61	1837.58	0.00	533200.00	3926748.00

309.56	47825.60	13205.55	1150.85	1003.77	0.00	528642.00	3924586.00
213.97	49873.00	14186.95	1375.51	1519.83	0.00	530689.00	3925568.00
184.62	50808.36	14632.04	1603.36	1783.39	0.00	531625.00	3926013.00
187.07	50720.30	14595.50	1417.81	1509.75	0.00	531537.00	3925976.00
154.99	52008.14	15204.50	1408.65	1420.44	0.00	532824.00	3926585.00
223.68	49602.91	14053.90	1268.39	1314.20	0.00	530419.00	3925435.00
471.51	45947.69	12297.90	1101.04	933.58	0.00	526764.00	3923679.00
401.55	46610.63	12631.89	1217.04	1185.31	0.00	527427.00	3924013.00
397.92	46651.79	12641.39	1102.78	895.62	0.00	527468.00	3924022.00
300.77	47967.44	13279.21	1254.09	1263.73	0.00	528784.00	3924660.00
1152.12	43326.70	10940.31	971.55	522.07	0.00	524143.00	3922321.00
963.54	43718.62	11153.91	983.14	593.29	0.00	524535.00	3922535.00
346.78	47273.33	12941.90	1107.45	924.98	0.00	528090.00	3924323.00
92.17	56313.11	17207.22	1842.41	2268.20	0.00	537129.00	3928588.00
298.54	48007.34	13305.85	1236.03	1174.06	0.00	528824.00	3924687.00
157.29	51904.03	15154.55	1617.29	1947.85	0.00	532720.00	3926535.00
347.09	47267.79	12940.31	1150.81	1001.07	0.00	528084.00	3924321.00
96.89	55847.73	17002.76	1496.79	1436.78	0.00	536664.00	3928384.00
283.33	48274.86	13430.67	1237.97	1215.96	0.00	529091.00	3924811.00
336.96	47409.90	13008.83	1203.03	1132.52	0.00	528226.00	3924390.00
177.81	51059.60	14747.23	1385.59	1503.08	0.00	531876.00	3926128.00
276.41	48413.03	13497.65	1264.90	1197.56	0.00	529229.00	3924878.00
71.13	58920.12	18443.09	2168.34	2752.83	0.00	539736.00	3929824.00
413.81	46481.36	12557.49	1104.91	921.64	0.00	527298.00	3923938.00
225.99	49543.33	14032.48	1390.55	1493.62	0.00	530360.00	3925413.00
423.70	46382.78	12514.54	1161.03	1012.29	0.00	527199.00	3923895.00
24.64	73943.48	25455.89	3552.89	4671.34	0.00	554760.00	3936837.00
410.30	46521.44	12575.02	1113.48	1009.26	0.00	527338.00	3923956.00
149.90	52253.44	15318.71	1565.42	1796.61	0.00	533070.00	3926699.00
184.73	50803.97	14632.20	1477.28	1515.73	0.00	531620.00	3926013.00
546.35	45393.52	12029.70	1078.58	862.54	0.00	526210.00	3923410.00
317.08	47705.93	13148.27	1187.83	1128.89	0.00	528522.00	3924529.00
522.83	45558.51	12108.46	1046.93	757.63	0.00	526375.00	3923489.00
416.98	46449.58	12549.83	1091.14	850.03	0.00	527266.00	3923931.00
257.92	48784.59	13668.19	1257.50	1282.84	0.00	529601.00	3925049.00
717.20	44512.05	11573.30	1030.20	746.38	0.00	525328.00	3922954.00
225.14	49562.20	14042.39	1391.57	1507.22	0.00	530378.00	3925423.00
384.11	46806.21	12716.68	1197.54	1159.60	0.00	527622.00	3924097.00
378.42	46875.07	12744.88	1116.06	1017.63	0.00	527691.00	3924126.00
68.74	59290.24	18634.30	2197.74	2472.17	0.00	540107.00	3930015.00
634.82	44882.91	11767.97	1097.51	919.88	0.00	525699.00	3923149.00
252.44	48905.51	13723.87	1303.83	1363.61	0.00	529722.00	3925105.00
449.57	46138.43	12402.37	1144.56	974.46	0.00	526955.00	3923783.00
261.84	48701.80	13626.79	1394.16	1563.36	0.00	529518.00	3925008.00
55.12	61840.66	19807.95	2530.49	3291.17	0.00	542657.00	3931189.00
171.90	51286.14	14858.96	1527.42	1718.37	0.00	532102.00	3926240.00
166.34	51515.74	14964.17	1422.93	1522.50	0.00	532332.00	3926345.00
320.66	47648.01	13127.62	1224.36	1163.70	0.00	528464.00	3924508.00
168.34	51431.93	14921.40	1365.68	1354.51	0.00	532248.00	3926302.00
310.38	47810.30	13209.50	1191.19	1071.01	0.00	528627.00	3924590.00
108.96	54798.34	16514.77	1667.70	1975.94	0.00	535615.00	3927896.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
385.48	24589.34	6835.71	775.45	856.69	<b>71.63</b>	505406.00	3918216.00
233.33	26164.18	7596.02	926.15	1081.76	0.00	506980.00	3918977.00
174.90	27274.03	8131.03	1469.04	1635.66	0.00	508090.00	3919512.00
224.14	26310.13	7674.27	1240.07	1399.67	0.00	507126.00	3919055.00
98.22	30060.58	9449.51	1631.14	1622.73	0.00	510877.00	3920830.00
257.78	25818.09	7427.36	1049.34	1281.18	0.00	506634.00	3918808.00
587.61	23575.29	6339.09	812.97	843.09	0.00	504392.00	3917720.00
258.72	25809.35	7426.17	999.73	1183.00	0.00	506626.00	3918807.00
571.54	23636.32	6367.32	764.38	725.50	0.00	504453.00	3917748.00
256.51	25837.68	7440.72	1075.45	1286.46	0.00	506654.00	3918822.00
459.21	24138.57	6615.62	782.01	823.10	0.00	504955.00	3917996.00
331.01	25023.67	7046.99	849.98	1010.31	0.00	505840.00	3918428.00
383.28	24605.03	6844.96	929.74	990.88	0.00	505421.00	3918226.00
526.13	23815.94	6457.49	828.42	924.29	0.00	504632.00	3917838.00
236.46	26117.51	7573.78	1042.11	1275.78	0.00	506934.00	3918955.00
495.42	23957.04	6526.11	773.74	894.59	0.00	504773.00	3917907.00
176.40	27240.26	8096.91	1195.63	1847.74	0.00	508057.00	3919478.00
412.54	24414.85	6754.08	921.66	1044.31	0.00	505231.00	3918135.00
333.76	25001.27	7038.06	989.94	1279.85	0.00	505818.00	3918419.00
185.55	27036.73	8017.08	1086.41	1294.54	0.00	507853.00	3919398.00
388.61	24571.52	6829.47	867.83	1049.34	0.00	505388.00	3918210.00
282.43	25516.43	7283.75	951.96	1219.20	0.00	506333.00	3918665.00
191.55	26908.85	7941.36	990.36	1283.52	0.00	507725.00	3919322.00
190.39	26931.80	7963.46	1463.16	1919.23	0.00	507748.00	3919344.00
253.92	25871.74	7458.61	996.47	1180.71	0.00	506688.00	3918839.00
111.59	29371.37	9122.29	1938.16	2161.42	0.00	510188.00	3920503.00
143.68	28131.88	8523.93	1216.55	1596.57	0.00	508948.00	3919905.00
289.82	25430.21	7243.86	857.29	935.48	0.00	506246.00	3918625.00
311.63	25206.49	7136.49	954.33	991.40	0.00	506023.00	3918517.00
390.89	24554.68	6825.04	919.40	1061.82	0.00	505371.00	3918206.00
287.56	25459.47	7246.79	885.62	1259.40	0.00	506276.00	3918628.00
551.09	23717.34	6404.92	845.91	986.29	0.00	504534.00	3917786.00
241.75	26042.25	7534.03	1126.96	1382.71	0.00	506859.00	3918915.00
351.59	24853.07	6965.84	880.54	1073.79	0.00	505669.00	3918347.00
569.83	23640.67	6365.18	819.20	980.11	0.00	504457.00	3917746.00
209.51	26561.13	7779.67	891.78	1144.76	0.00	507377.00	3919160.00
227.90	26243.47	7622.50	1057.22	1550.70	0.00	507060.00	3919003.00
165.12	27512.15	8232.52	1174.22	1671.28	0.00	508328.00	3919613.00
169.07	27416.69	8189.71	1341.42	1864.18	0.00	508233.00	3919570.00
156.56	27744.55	8356.01	1442.25	1886.18	0.00	508561.00	3919737.00
86.01	30824.95	9794.76	1838.06	2132.20	0.00	511641.00	3921176.00
100.15	29949.73	9376.49	1413.12	1741.82	0.00	510766.00	3920757.00
397.24	24515.35	6800.24	873.04	978.19	0.00	505332.00	3918181.00
202.52	26694.61	7832.37	1172.66	1732.58	0.00	507511.00	3919213.00
269.31	25675.99	7364.61	1060.72	1239.79	0.00	506492.00	3918745.00
29.37	39304.54	13734.70	3187.29	4537.91	0.00	520121.00	3925115.00
888.39	22831.47	5936.27	740.41	865.20	0.00	503648.00	3917317.00
429.89	24304.01	6699.54	859.69	942.79	0.00	505120.00	3918080.00
20.84	43124.12	15508.37	2717.83	6726.25	0.00	523940.00	3926889.00

179.66	27164.30	8078.20	1147.99	1310.63	0.00	507981.00	3919459.00
318.96	25135.49	7102.54	911.43	1176.88	0.00	505952.00	3918483.00
253.58	25877.03	7454.84	860.65	955.75	0.00	506693.00	3918836.00
144.19	28116.49	8515.11	1419.49	2062.64	0.00	508933.00	3919896.00
237.48	26097.95	7558.99	842.50	1118.30	0.00	506914.00	3918940.00
167.88	27448.61	8215.71	1390.95	1693.74	0.00	508265.00	3919596.00
248.87	25943.22	7483.99	880.97	1000.49	0.00	506760.00	3918865.00
315.00	25174.70	7120.89	897.82	1037.36	0.00	505991.00	3918502.00
125.10	28791.66	8842.29	1209.03	1448.36	0.00	509608.00	3920223.00
129.25	28633.62	8762.86	1475.09	1933.90	0.00	509450.00	3920144.00
292.38	25405.08	7237.38	1033.04	1370.14	0.00	506221.00	3918618.00
237.47	26101.71	7561.01	990.37	1324.49	0.00	506918.00	3918942.00
740.99	23130.26	6105.69	734.31	738.36	0.00	503947.00	3917486.00
219.61	26381.73	7706.73	1227.28	1556.48	0.00	507198.00	3919088.00
287.76	25452.41	7259.55	1050.03	1272.68	0.00	506269.00	3918640.00
186.74	27006.48	7995.62	1176.33	1424.69	0.00	507823.00	3919376.00
86.31	30804.71	9765.09	1416.77	2419.36	0.00	511621.00	3921146.00
401.92	24480.23	6783.17	829.44	919.78	0.00	505297.00	3918164.00
104.12	29739.20	9287.86	1783.04	2177.71	0.00	510555.00	3920669.00
546.00	23728.63	6413.98	697.43	650.28	0.00	504545.00	3917795.00
291.08	25418.03	7248.66	962.81	1134.03	0.00	506234.00	3918629.00
959.41	22714.31	5880.08	703.92	651.61	0.00	503531.00	3917261.00
75.65	31614.37	10159.72	1427.11	2187.42	0.00	512431.00	3921541.00
403.99	24465.84	6780.44	788.85	727.60	0.00	505282.00	3918161.00
126.92	28717.31	8800.29	1430.71	1721.81	0.00	509534.00	3920181.00
285.07	25486.90	7271.05	884.50	1025.42	0.00	506303.00	3918652.00
166.83	27476.13	8214.98	1407.92	1810.67	0.00	508292.00	3919596.00
185.86	27025.52	8013.89	1105.54	1352.52	0.00	507842.00	3919395.00
169.62	27402.82	8190.46	1197.63	1776.87	0.00	508219.00	3919571.00
105.74	29653.40	9250.10	1391.39	1549.15	0.00	510470.00	3920631.00
393.68	24535.59	6806.69	850.64	1041.75	0.00	505352.00	3918187.00
70.19	32099.82	10378.34	1360.00	2016.76	0.00	512916.00	3921759.00
308.92	25234.53	7155.20	1036.97	1205.65	0.00	506051.00	3918536.00
204.44	26653.79	7817.84	1023.13	1414.12	0.00	507470.00	3919199.00
118.82	29051.67	8966.80	1423.52	1806.58	0.00	509868.00	3920348.00
301.93	25301.79	7173.84	870.74	1082.80	0.00	506118.00	3918555.00
278.91	25558.92	7302.89	1061.37	1384.18	0.00	506375.00	3918684.00
165.43	27503.58	8224.24	1189.03	1727.82	0.00	508320.00	3919605.00
329.27	25041.26	7064.97	1044.71	1185.69	0.00	505858.00	3918446.00
140.41	28238.26	8571.52	1320.44	1953.17	0.00	509055.00	3919952.00
515.61	23867.11	6479.45	871.16	978.05	0.00	504683.00	3917860.00
94.03	30306.07	9554.13	1459.96	2012.45	0.00	511122.00	3920935.00
444.00	24223.57	6651.16	790.75	898.82	0.00	505040.00	3918032.00
285.84	25478.78	7276.22	1054.77	1186.46	0.00	506295.00	3918657.00
288.00	25451.31	7256.03	961.64	1209.03	0.00	506268.00	3918637.00
187.01	27001.99	7994.81	1131.54	1436.80	0.00	507818.00	3919376.00
268.96	25681.73	7367.65	920.07	1015.10	0.00	506498.00	3918748.00
405.08	24462.02	6767.70	801.68	921.33	0.00	505278.00	3918148.00
129.60	28617.42	8763.00	1505.83	1531.43	0.00	509434.00	3920144.00
88.76	30637.27	9698.90	1396.13	2274.91	0.00	511454.00	3921080.00
523.69	23828.08	6458.57	731.38	735.69	0.00	504644.00	3917839.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
934.48	13758.46	3587.46	678.45	752.42	<b>58.30</b>	494575.00	3914968.00
204.49	16408.90	4900.80	1309.13	1347.38	0.00	497225.00	3916282.00
583.16	14335.52	3890.14	648.29	825.09	0.00	495152.00	3915271.00
888.46	13815.88	3614.57	561.25	733.02	0.00	494632.00	3914995.00
750.57	14009.67	3720.00	604.47	660.49	0.00	494826.00	3915101.00
194.31	16539.18	4966.67	1157.81	1598.42	0.00	497355.00	3916347.00
82.83	19361.14	6288.84	1543.33	2477.29	0.00	500177.00	3917670.00
219.76	16220.06	4802.89	787.94	1302.31	0.00	497036.00	3916184.00
392.50	14979.73	4218.97	1002.90	1170.57	0.00	495796.00	3915600.00
386.68	15004.48	4223.78	596.11	737.45	0.00	495821.00	3915605.00
895.51	13807.70	3613.05	721.08	863.80	0.00	494624.00	3914994.00
93.22	18888.09	6062.51	1217.38	2674.71	0.00	499704.00	3917443.00
219.89	16224.90	4803.65	929.62	1370.79	0.00	497041.00	3916184.00
386.31	15008.88	4223.90	778.12	1000.99	0.00	495825.00	3915605.00
440.18	14779.63	4111.75	848.15	1270.15	0.00	495596.00	3915493.00
302.32	15492.53	4458.05	796.55	1145.96	0.00	496309.00	3915839.00
136.99	17542.76	5427.00	1254.35	2346.91	0.00	498359.00	3916808.00
154.05	17186.55	5260.22	1091.79	1695.61	0.00	498003.00	3916641.00
115.61	18105.27	5695.47	1327.56	1796.18	0.00	498922.00	3917076.00
261.86	15810.45	4609.09	841.10	1210.17	0.00	496627.00	3915990.00
167.99	16941.83	5157.20	1181.90	1626.68	0.00	497758.00	3916538.00
297.64	15524.15	4483.45	920.64	1256.27	0.00	496340.00	3915864.00
434.68	14799.12	4126.56	1044.67	1098.68	0.00	495615.00	3915507.00
125.71	17824.61	5578.94	1156.35	1464.01	0.00	498641.00	3916960.00
292.37	15564.04	4500.61	865.56	1073.36	0.00	496380.00	3915881.00
118.87	18010.54	5652.76	1367.42	1761.91	0.00	498827.00	3917034.00
325.65	15340.27	4387.48	741.70	972.01	0.00	496157.00	3915768.00
118.99	18011.73	5663.65	1469.42	2125.09	0.00	498828.00	3917044.00
303.91	15487.25	4458.13	915.56	1059.65	0.00	496304.00	3915839.00
267.20	15757.46	4601.43	947.80	978.38	0.00	496574.00	3915982.00
297.70	15525.81	4480.95	944.40	1233.41	0.00	496342.00	3915862.00
148.72	17292.18	5319.03	1226.28	2079.20	0.00	498108.00	3916700.00
274.29	15699.28	4561.97	808.80	1099.62	0.00	496516.00	3915943.00
369.43	15093.02	4267.76	785.87	1039.99	0.00	495909.00	3915649.00
651.68	14186.52	3808.21	622.57	804.23	0.00	495003.00	3915189.00
337.51	15260.97	4354.72	761.82	991.23	0.00	496077.00	3915736.00
679.21	14132.85	3786.95	715.72	971.29	0.00	494949.00	3915168.00
630.58	14234.04	3838.32	638.95	684.49	0.00	495050.00	3915219.00
352.52	15177.10	4312.86	748.09	819.23	0.00	495993.00	3915694.00
332.53	15295.67	4366.66	921.66	1013.23	0.00	496112.00	3915747.00
173.12	16853.71	5115.44	1297.34	1545.69	0.00	497670.00	3916496.00
140.78	17454.48	5393.52	1206.92	2079.35	0.00	498271.00	3916774.00
293.26	15556.66	4496.10	1016.98	1393.78	0.00	496373.00	3915877.00
223.93	16174.40	4791.02	901.34	1068.72	0.00	496991.00	3916172.00
209.65	16341.09	4862.25	1007.12	1398.42	0.00	497157.00	3916243.00
415.58	14876.29	4168.39	846.59	858.87	0.00	495693.00	3915549.00
81.72	19409.46	6313.35	1884.44	3139.79	0.00	500226.00	3917694.00
197.21	16498.70	4950.82	1393.84	1499.62	0.00	497315.00	3916332.00
70.53	20037.21	6587.32	1041.26	2211.69	0.00	500853.00	3917968.00

52.70	21419.87	7259.89	1856.24	3182.29	0.00	502236.00	3918641.00
274.09	15702.08	4556.92	708.83	1001.48	0.00	496518.00	3915938.00
137.62	17531.23	5431.94	1440.37	1964.36	0.00	498348.00	3916813.00
479.36	14627.95	4044.23	621.95	675.44	0.00	495444.00	3915425.00
186.56	16646.88	5022.28	1249.12	1999.03	0.00	497463.00	3916403.00
156.79	17130.72	5239.24	1158.89	1723.62	0.00	497947.00	3916620.00
585.26	14331.51	3886.05	592.91	769.67	0.00	495148.00	3915267.00
277.62	15672.92	4539.05	684.04	1159.89	0.00	496489.00	3915920.00
435.81	14795.96	4119.96	692.47	955.69	0.00	495612.00	3915501.00
171.57	16878.33	5121.67	1249.73	1344.86	0.00	497695.00	3916502.00
328.19	15326.03	4378.05	770.67	995.08	0.00	496142.00	3915759.00
56.58	21060.75	7086.43	1885.51	2915.64	0.00	501877.00	3918467.00
88.44	19090.35	6147.91	1580.00	2876.68	0.00	499907.00	3917529.00
364.34	15116.63	4280.86	868.81	1079.22	0.00	495933.00	3915662.00
751.47	14008.08	3721.54	672.88	784.35	0.00	494824.00	3915102.00
280.05	15654.65	4546.97	738.61	871.50	0.00	496471.00	3915928.00
185.40	16661.00	5029.10	969.63	1531.43	0.00	497477.00	3916410.00
331.29	15303.74	4369.97	899.19	1403.61	0.00	496120.00	3915751.00
754.75	13997.65	3712.60	510.58	605.30	0.00	494814.00	3915093.00
393.31	14976.60	4214.25	730.82	893.48	0.00	495793.00	3915595.00
355.98	15162.06	4302.28	1097.18	1284.18	0.00	495978.00	3915683.00
220.95	16211.74	4805.33	884.48	1499.30	0.00	497028.00	3916186.00
282.89	15639.18	4525.34	793.95	1299.72	0.00	496455.00	3915906.00
213.79	16290.51	4843.44	865.29	1282.17	0.00	497107.00	3916224.00
482.82	14621.19	4037.29	863.53	1035.31	0.00	495437.00	3915418.00
244.87	15958.02	4680.74	1072.03	1369.37	0.00	496774.00	3916062.00
189.05	16615.70	4989.13	1092.45	1658.60	0.00	497432.00	3916370.00
258.06	15839.56	4614.15	681.49	1176.86	0.00	496656.00	3915995.00
323.32	15343.21	4391.03	677.04	870.31	0.00	496159.00	3915772.00
419.58	14859.80	4151.33	664.79	862.45	0.00	495676.00	3915532.00
582.37	14340.62	3889.36	763.11	1023.88	0.00	495157.00	3915270.00
374.99	15062.87	4257.12	957.68	1356.01	0.00	495879.00	3915638.00
166.73	16959.68	5159.52	1042.25	1232.67	0.00	497776.00	3916540.00
375.72	15053.57	4249.03	836.74	1145.84	0.00	495870.00	3915630.00
346.78	15214.96	4320.32	704.15	1092.81	0.00	496031.00	3915701.00
373.82	15066.45	4256.67	778.64	1051.98	0.00	495883.00	3915637.00
229.42	16120.08	4749.62	731.68	1370.22	0.00	496936.00	3916130.00
70.83	20020.00	6609.03	1446.92	1443.47	0.00	500836.00	3917990.00
507.67	14526.69	3998.20	641.53	794.74	0.00	495343.00	3915379.00
499.50	14568.37	4005.12	637.54	961.98	0.00	495385.00	3915386.00
285.65	15607.77	4524.13	1011.26	1247.10	0.00	496424.00	3915905.00
159.78	17077.33	5215.08	1113.92	1825.07	0.00	497894.00	3916596.00
266.87	15768.02	4593.56	1121.79	1201.68	0.00	496584.00	3915974.00
770.22	13980.45	3700.55	614.16	852.40	0.00	494797.00	3915081.00
277.91	15677.49	4549.97	811.34	1116.03	0.00	496494.00	3915931.00
196.81	16499.39	4957.75	1344.79	1129.58	0.00	497316.00	3916339.00
468.93	14673.98	4062.69	698.84	755.33	0.00	495490.00	3915443.00
244.17	15970.00	4690.22	836.96	1327.91	0.00	496786.00	3916071.00
530.86	14467.78	3965.24	836.20	898.70	0.00	495284.00	3915346.00
211.56	16314.22	4849.97	826.34	1900.66	0.00	497131.00	3916231.00
91.46	18961.19	6096.58	1587.15	2707.69	0.00	499777.00	3917477.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
465.58	4114.54	1154.15	350.06	877.68	35.26	484931.00	3912535.00
300.80	4447.89	1321.20	443.81	988.18	0.00	485264.00	3912702.00
425.63	4178.61	1193.47	578.42	957.42	0.00	484995.00	3912574.00
92.52	5765.26	1941.81	538.80	1084.06	0.00	486582.00	3913323.00
255.51	4595.63	1384.06	591.41	1071.57	0.00	485412.00	3912765.00
122.89	5377.40	1768.63	526.17	956.88	0.00	486194.00	3913149.00
262.29	4567.17	1376.37	473.08	989.47	0.00	485383.00	3912757.00
360.32	4300.32	1247.28	469.84	1058.67	0.00	485117.00	3912628.00
416.47	4188.68	1198.01	505.67	1174.28	0.00	485005.00	3912579.00
265.34	4560.58	1370.48	540.02	831.26	0.00	485377.00	3912751.00
273.02	4537.09	1361.22	469.44	1071.81	0.00	485353.00	3912742.00
295.22	4473.72	1325.74	339.12	830.78	0.00	485290.00	3912707.00
98.08	5683.48	1902.22	452.72	981.76	0.00	486500.00	3913283.00
268.29	4546.25	1353.48	517.67	1046.88	0.00	485363.00	3912734.00
527.65	4048.73	1117.67	383.20	706.05	0.00	484865.00	3912498.00
195.98	4851.17	1510.96	503.64	1047.79	0.00	485667.00	3912892.00
339.80	4346.76	1267.89	420.87	1063.00	0.00	485163.00	3912649.00
307.74	4429.49	1311.69	552.61	949.44	0.00	485246.00	3912692.00
563.37	3986.69	1100.36	542.50	976.48	0.00	484803.00	3912481.00
218.53	4741.59	1462.23	596.24	1086.02	0.00	485558.00	3912843.00
61.23	6433.94	2258.85	623.92	1264.45	0.00	487250.00	3913640.00
308.03	4436.93	1322.87	490.47	715.95	0.00	485253.00	3912704.00
323.38	4387.98	1298.43	480.11	986.71	0.00	485204.00	3912679.00
196.46	4849.50	1511.50	496.95	832.22	0.00	485666.00	3912892.00
321.29	4398.81	1295.66	364.03	829.93	0.00	485215.00	3912676.00
34.31	7616.70	2810.19	536.51	1125.28	0.00	488433.00	3914191.00
197.91	4842.10	1498.00	429.60	1120.39	0.00	485658.00	3912879.00
594.04	3951.84	1080.09	407.04	805.25	0.00	484768.00	3912461.00
1009.21	3673.25	935.37	402.85	559.95	0.00	484490.00	3912316.00
410.05	4202.33	1205.10	499.00	878.16	0.00	485019.00	3912586.00
254.10	4605.85	1382.28	503.05	1086.52	0.00	485422.00	3912763.00
558.23	3990.38	1095.67	360.25	893.30	0.00	484807.00	3912476.00
541.07	4017.13	1104.56	412.01	844.72	0.00	484833.00	3912485.00
510.88	4049.05	1124.53	356.83	680.65	0.00	484865.00	3912505.00
207.69	4789.54	1477.97	470.58	1049.13	0.00	485606.00	3912859.00
327.41	4376.69	1286.03	475.56	899.90	0.00	485193.00	3912667.00
321.33	4387.73	1286.04	467.70	1054.52	0.00	485204.00	3912667.00
336.88	4357.40	1273.39	490.57	1006.42	0.00	485174.00	3912654.00
171.02	4993.73	1574.49	462.25	1102.27	0.00	485810.00	3912955.00
439.25	4160.48	1181.32	498.08	940.56	0.00	484977.00	3912562.00
267.91	4544.89	1371.25	526.65	872.93	0.00	485361.00	3912752.00
281.49	4510.77	1347.80	571.75	1170.78	0.00	485327.00	3912729.00
52.10	6732.97	2396.72	564.47	1040.42	0.00	487549.00	3913777.00
617.44	3922.15	1068.82	498.35	749.13	0.00	484738.00	3912450.00
85.78	5875.92	1996.00	544.58	1097.34	0.00	486692.00	3913377.00
335.36	4365.07	1284.10	566.48	853.89	0.00	485181.00	3912665.00
523.75	4032.61	1116.19	445.47	914.59	0.00	484849.00	3912497.00
415.85	4194.59	1199.14	511.71	885.31	0.00	485011.00	3912580.00
245.54	4629.73	1407.67	448.89	984.47	0.00	485446.00	3912788.00

104.78	5591.95	1860.14	480.77	988.65	0.00	486408.00	3913241.00
411.84	4198.07	1200.47	443.25	968.16	0.00	485014.00	3912581.00
179.72	4937.44	1546.99	501.92	1137.07	0.00	485754.00	3912928.00
173.40	4978.25	1566.56	363.00	993.92	0.00	485795.00	3912947.00
278.71	4512.43	1351.15	467.30	1124.93	0.00	485329.00	3912732.00
234.95	4660.94	1432.68	520.42	745.26	0.00	485477.00	3912813.00
167.22	5015.16	1588.02	511.56	1105.28	0.00	485831.00	3912969.00
199.54	4838.14	1492.38	550.92	1172.89	0.00	485654.00	3912873.00
297.34	4459.65	1326.17	506.20	997.47	0.00	485276.00	3912707.00
414.30	4191.21	1202.11	511.55	869.92	0.00	485007.00	3912583.00
706.33	3864.63	1036.40	538.96	640.21	0.00	484681.00	3912417.00
184.39	4913.47	1537.73	670.96	1026.22	0.00	485730.00	3912919.00
142.21	5200.11	1684.69	580.22	1059.81	0.00	486016.00	3913065.00
367.90	4291.92	1247.75	379.29	630.62	0.00	485108.00	3912629.00
355.53	4303.60	1255.12	470.48	1034.88	0.00	485120.00	3912636.00
127.47	5329.33	1735.49	492.24	1119.37	0.00	486146.00	3913116.00
309.75	4427.02	1315.22	477.16	658.27	0.00	485243.00	3912696.00
286.28	4494.50	1340.81	456.09	913.44	0.00	485311.00	3912722.00
310.15	4428.60	1314.47	542.67	798.02	0.00	485245.00	3912695.00
414.48	4198.07	1204.67	558.52	897.68	0.00	485014.00	3912585.00
127.86	5327.90	1735.47	556.00	1218.63	0.00	486144.00	3913116.00
360.07	4306.71	1257.05	533.50	693.75	0.00	485123.00	3912638.00
140.08	5217.87	1678.84	481.12	1008.26	0.00	486034.00	3913060.00
226.87	4703.11	1445.75	404.63	717.35	0.00	485519.00	3912827.00
848.34	3744.35	980.64	524.40	992.08	0.00	484561.00	3912361.00
281.84	4505.74	1349.97	548.76	991.15	0.00	485322.00	3912731.00
564.98	3990.00	1094.86	495.30	887.76	0.00	484806.00	3912476.00
372.84	4281.00	1242.42	443.99	703.68	0.00	485097.00	3912623.00
650.59	3898.41	1048.53	302.92	631.03	0.00	484715.00	3912429.00
119.76	5407.80	1770.55	487.53	965.34	0.00	486224.00	3913151.00
152.10	5124.26	1643.14	608.61	955.15	0.00	485941.00	3913024.00
905.03	3738.80	965.96	308.83	404.77	0.00	484555.00	3912347.00
83.35	5924.21	2019.48	549.76	1093.06	0.00	486740.00	3913400.00
390.54	4236.81	1218.65	542.13	996.36	0.00	485053.00	3912599.00
417.97	4193.06	1192.45	430.99	1022.85	0.00	485009.00	3912573.00
66.31	6295.41	2195.85	549.13	989.85	0.00	487112.00	3913577.00
40.88	7225.86	2624.65	555.64	1071.32	0.00	488042.00	3914005.00
355.73	4309.13	1256.57	483.44	932.98	0.00	485125.00	3912637.00
206.51	4794.35	1478.56	464.74	1103.10	0.00	485611.00	3912859.00
171.92	4991.23	1582.98	517.60	946.54	0.00	485808.00	3912964.00
314.63	4415.04	1299.44	423.08	900.16	0.00	485231.00	3912680.00
639.78	3918.47	1051.60	358.70	785.56	0.00	484735.00	3912432.00
163.35	5043.20	1605.94	448.25	917.28	0.00	485859.00	3912987.00
292.76	4482.05	1329.75	484.86	1014.26	0.00	485298.00	3912711.00
162.86	5038.69	1599.08	585.14	1168.20	0.00	485855.00	3912980.00
232.73	4681.90	1435.13	531.69	1054.49	0.00	485498.00	3912816.00
460.94	4118.24	1168.51	431.53	599.61	0.00	484935.00	3912549.00
491.29	4080.29	1140.73	368.64	747.58	0.00	484897.00	3912522.00
310.72	4420.51	1312.32	410.63	817.94	0.00	485237.00	3912693.00
245.75	4629.69	1408.78	459.61	960.94	0.00	485446.00	3912790.00
72.91	6135.05	2119.97	560.78	1007.79	0.00	486951.00	3913501.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
255.41	2664.41	818.79	347.04	648.99	<b>29.20</b>	483481.00	3912200.00
341.49	2494.22	734.73	345.07	610.07	0.00	483311.00	3912116.00
250.70	2682.10	827.53	282.27	598.05	0.00	483498.00	3912208.00
388.94	2418.35	704.74	317.98	616.82	0.00	483235.00	3912086.00
138.23	3110.21	1028.11	329.78	598.59	0.00	483926.00	3912409.00
358.88	2468.04	718.42	371.31	618.86	0.00	483284.00	3912099.00
675.58	2154.33	570.16	262.79	555.99	0.00	482971.00	3911951.00
238.29	2707.44	842.77	274.62	602.27	0.00	483524.00	3912224.00
313.86	2533.80	757.90	251.41	629.33	0.00	483350.00	3912139.00
369.31	2445.75	714.24	324.77	517.20	0.00	483262.00	3912095.00
185.11	2888.31	925.62	271.25	537.15	0.00	483705.00	3912306.00
451.83	2341.72	657.72	312.76	651.86	0.00	483158.00	3912039.00
131.88	3154.46	1048.21	327.37	659.80	0.00	483971.00	3912429.00
96.99	3429.20	1181.61	306.85	588.69	0.00	484245.00	3912562.00
474.49	2305.81	648.13	333.21	580.85	0.00	483122.00	3912029.00
240.13	2706.64	838.94	260.21	593.41	0.00	483523.00	3912220.00
353.07	2466.72	725.01	278.48	586.51	0.00	483283.00	3912106.00
134.03	3136.45	1048.07	353.85	529.67	0.00	483953.00	3912429.00
130.49	3156.31	1056.28	236.22	542.31	0.00	483973.00	3912437.00
363.62	2455.80	717.86	303.51	562.36	0.00	483272.00	3912099.00
142.38	3081.18	1018.64	318.35	670.47	0.00	483897.00	3912399.00
157.68	3008.56	980.42	262.94	514.15	0.00	483825.00	3912361.00
119.95	3230.42	1091.02	272.31	566.47	0.00	484047.00	3912472.00
53.34	4105.93	1503.26	348.67	612.13	0.00	484922.00	3912884.00
87.85	3529.62	1227.95	319.06	619.96	0.00	484346.00	3912609.00
189.62	2870.48	917.56	297.37	679.92	0.00	483687.00	3912298.00
240.93	2705.94	842.06	282.92	541.76	0.00	483522.00	3912223.00
273.48	2620.42	802.52	300.40	622.31	0.00	483437.00	3912183.00
84.41	3566.66	1246.05	334.40	669.11	0.00	484383.00	3912627.00
148.11	3054.01	1008.45	324.82	576.84	0.00	483870.00	3912389.00
78.60	3643.46	1286.61	307.02	664.16	0.00	484460.00	3912667.00
475.97	2320.04	649.39	318.56	630.58	0.00	483136.00	3912030.00
379.08	2432.10	706.38	286.47	538.70	0.00	483248.00	3912087.00
401.24	2404.28	697.62	315.09	451.11	0.00	483221.00	3912078.00
212.41	2790.37	881.24	321.20	657.25	0.00	483607.00	3912262.00
220.63	2764.29	864.00	316.57	650.25	0.00	483581.00	3912245.00
244.62	2698.59	833.97	316.28	567.08	0.00	483515.00	3912215.00
161.93	2981.96	974.68	316.68	646.58	0.00	483798.00	3912355.00
358.19	2468.52	719.75	265.99	664.65	0.00	483285.00	3912101.00
174.78	2927.15	945.11	323.80	596.28	0.00	483743.00	3912326.00
166.50	2971.56	963.33	268.93	587.80	0.00	483788.00	3912344.00
393.78	2418.51	693.75	221.02	478.05	0.00	483235.00	3912075.00
123.60	3205.53	1078.60	266.44	509.73	0.00	484022.00	3912459.00
228.16	2744.36	854.64	331.59	655.35	0.00	483561.00	3912235.00
441.33	2340.13	665.95	197.28	613.50	0.00	483156.00	3912047.00
665.03	2145.74	571.73	278.25	642.62	0.00	482962.00	3911953.00
542.68	2247.85	614.46	250.61	568.06	0.00	483064.00	3911995.00
267.12	2633.33	804.89	262.60	583.39	0.00	483450.00	3912186.00
180.76	2902.88	935.98	292.49	624.54	0.00	483719.00	3912317.00

638.67	2155.35	577.10	300.89	594.19	0.00	482972.00	3911958.00
188.06	2877.83	920.71	326.88	699.88	0.00	483694.00	3912301.00
233.33	2724.94	848.29	276.48	611.99	0.00	483541.00	3912229.00
134.44	3139.00	1044.47	291.39	604.18	0.00	483955.00	3912425.00
63.51	3890.80	1401.71	306.35	573.69	0.00	484707.00	3912782.00
173.38	2939.06	943.42	298.06	653.83	0.00	483755.00	3912324.00
170.53	2952.49	957.56	337.05	563.98	0.00	483769.00	3912338.00
261.99	2648.37	808.98	329.67	653.68	0.00	483465.00	3912190.00
1264.38	1903.19	432.94	316.24	551.84	0.00	482719.00	3911814.00
315.36	2536.76	758.78	337.44	617.17	0.00	483353.00	3912140.00
237.85	2712.93	848.55	298.37	441.46	0.00	483529.00	3912229.00
382.75	2425.57	704.87	354.86	654.83	0.00	483242.00	3912086.00
566.07	2232.51	610.89	345.56	454.70	0.00	483049.00	3911992.00
263.03	2642.17	808.46	234.64	559.88	0.00	483458.00	3912189.00
367.71	2451.94	715.83	295.27	559.71	0.00	483268.00	3912097.00
614.77	2190.32	582.71	279.80	603.46	0.00	483007.00	3911963.00
22.19	5504.60	2158.13	367.29	596.29	0.00	486321.00	3913539.00
85.72	3556.25	1243.34	327.01	569.25	0.00	484373.00	3912624.00
163.07	2974.59	970.58	312.05	686.80	0.00	483791.00	3912351.00
30.42	4931.88	1883.74	311.20	616.04	0.00	485748.00	3913265.00
227.38	2736.99	860.74	290.47	539.43	0.00	483553.00	3912242.00
222.63	2754.53	863.82	326.55	615.81	0.00	483571.00	3912245.00
214.07	2791.93	882.20	352.43	499.03	0.00	483608.00	3912263.00
425.35	2367.11	677.05	217.30	497.33	0.00	483183.00	3912058.00
180.34	2901.60	933.39	279.81	569.64	0.00	483718.00	3912314.00
313.85	2541.88	760.71	255.48	558.67	0.00	483358.00	3912141.00
122.13	3224.48	1081.34	274.31	661.04	0.00	484041.00	3912462.00
619.10	2177.36	585.87	313.38	582.80	0.00	482994.00	3911967.00
252.45	2674.66	823.77	290.55	608.36	0.00	483491.00	3912205.00
317.43	2532.36	757.18	298.29	651.18	0.00	483349.00	3912138.00
476.67	2320.38	651.19	324.41	573.53	0.00	483137.00	3912032.00
130.51	3163.05	1054.66	305.94	664.09	0.00	483979.00	3912435.00
68.70	3799.36	1352.84	281.86	662.53	0.00	484616.00	3912734.00
205.11	2812.88	893.09	324.86	577.80	0.00	483629.00	3912274.00
394.51	2415.78	697.27	288.93	568.62	0.00	483232.00	3912078.00
112.37	3290.06	1120.02	333.19	609.76	0.00	484106.00	3912501.00
385.89	2418.39	705.80	339.75	546.33	0.00	483235.00	3912087.00
346.94	2476.36	727.82	246.55	591.93	0.00	483293.00	3912109.00
329.50	2505.04	746.72	298.64	633.87	0.00	483321.00	3912128.00
459.91	2327.33	654.80	248.94	537.27	0.00	483144.00	3912036.00
336.84	2497.45	741.89	274.01	572.94	0.00	483314.00	3912123.00
304.20	2560.85	768.71	219.37	488.66	0.00	483377.00	3912149.00
283.73	2603.84	788.24	311.48	663.67	0.00	483420.00	3912169.00
396.41	2409.11	694.79	311.80	597.77	0.00	483225.00	3912076.00
446.66	2352.68	667.74	296.21	530.71	0.00	483169.00	3912049.00
556.94	2241.81	615.80	290.77	405.53	0.00	483058.00	3911997.00
473.69	2306.18	645.74	259.91	626.07	0.00	483122.00	3912027.00
229.99	2730.93	852.40	321.02	608.99	0.00	483547.00	3912233.00
211.50	2792.60	878.70	268.30	591.33	0.00	483609.00	3912259.00
610.52	2187.27	588.69	219.31	398.67	0.00	483004.00	3911969.00
77.13	3663.42	1297.22	331.38	632.20	0.00	484480.00	3912678.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
302.27	5214.79	1551.25	647.22	869.31	<b>37.37</b>	486031.00	3912932.00
121.48	6271.62	2043.19	530.98	1203.29	0.00	487088.00	3913424.00
290.53	5251.95	1558.70	487.58	1109.39	0.00	486068.00	3912939.00
246.60	5412.93	1637.58	632.66	1095.99	0.00	486229.00	3913018.00
637.74	4623.62	1248.98	519.50	1040.56	0.00	485440.00	3912630.00
63.87	7357.67	2556.96	660.99	1241.61	0.00	488174.00	3913938.00
163.64	5868.98	1855.91	669.93	1164.66	0.00	486685.00	3913237.00
177.04	5780.50	1816.64	461.37	1037.64	0.00	486597.00	3913197.00
265.69	5338.44	1599.27	515.98	944.93	0.00	486155.00	3912980.00
195.35	5664.09	1757.68	424.38	934.71	0.00	486480.00	3913138.00
255.10	5373.26	1610.18	539.74	1274.18	0.00	486190.00	3912991.00
179.44	5769.36	1809.47	565.88	1024.58	0.00	486586.00	3913190.00
703.59	4570.60	1228.60	480.31	677.96	0.00	485387.00	3912609.00
84.90	6833.05	2304.06	637.20	1317.49	0.00	487649.00	3913685.00
285.16	5274.79	1568.69	597.81	1087.47	0.00	486091.00	3912949.00
396.15	4974.87	1426.24	492.29	1016.62	0.00	485791.00	3912807.00
423.99	4918.35	1398.00	538.28	1201.46	0.00	485735.00	3912779.00
166.42	5856.65	1844.03	647.88	1302.18	0.00	486673.00	3913225.00
281.97	5279.03	1562.74	380.43	875.14	0.00	486095.00	3912944.00
25.72	9593.01	3594.80	673.79	1437.08	0.00	490409.00	3914976.00
384.25	5007.93	1439.54	603.32	1096.88	0.00	485824.00	3912820.00
235.85	5458.84	1654.60	457.16	1013.57	0.00	486275.00	3913035.00
137.16	6105.90	1955.03	585.40	1232.49	0.00	486922.00	3913336.00
412.37	4934.90	1413.72	593.44	988.88	0.00	485751.00	3912794.00
566.37	4700.05	1285.53	434.81	1147.69	0.00	485516.00	3912666.00
210.04	5584.34	1721.87	738.91	1289.16	0.00	486401.00	3913103.00
161.69	5885.54	1857.33	654.76	1349.88	0.00	486702.00	3913238.00
336.90	5114.33	1491.99	575.72	975.94	0.00	485931.00	3912873.00
240.58	5432.45	1650.60	469.98	917.53	0.00	486249.00	3913031.00
220.63	5530.10	1686.29	504.40	1157.34	0.00	486346.00	3913067.00
61.10	7445.00	2597.76	722.86	1132.77	0.00	488261.00	3913979.00
557.74	4716.14	1299.90	462.84	775.71	0.00	485532.00	3912681.00
266.84	5338.76	1588.70	534.73	1252.84	0.00	486155.00	3912969.00
351.34	5080.74	1468.30	610.53	1212.29	0.00	485897.00	3912849.00
174.21	5801.35	1830.87	593.60	826.95	0.00	486618.00	3913212.00
365.43	5042.15	1457.27	579.89	955.95	0.00	485858.00	3912838.00
76.34	7023.22	2387.12	695.67	1330.83	0.00	487840.00	3913768.00
316.18	5169.55	1520.75	481.64	957.91	0.00	485986.00	3912902.00
177.81	5777.84	1807.39	568.95	1087.70	0.00	486594.00	3913188.00
206.31	5607.36	1729.00	550.07	1232.51	0.00	486424.00	3913110.00
196.98	5653.48	1737.03	702.03	1282.92	0.00	486470.00	3913118.00
309.65	5195.22	1538.18	617.89	889.81	0.00	486012.00	3912919.00
206.31	5611.03	1731.11	411.00	860.83	0.00	486427.00	3913112.00
713.11	4557.47	1218.54	618.16	1004.73	0.00	485374.00	3912599.00
282.05	5279.92	1571.61	523.25	928.89	0.00	486096.00	3912952.00
153.20	5962.34	1895.05	631.69	1278.33	0.00	486779.00	3913276.00
182.90	5744.41	1796.21	580.46	1176.87	0.00	486561.00	3913177.00
381.49	5007.02	1440.24	511.22	1060.75	0.00	485823.00	3912821.00
751.53	4530.03	1205.67	594.36	763.04	0.00	485346.00	3912586.00

264.25	5342.46	1601.69	547.36	1144.24	0.00	486159.00	3912982.00
285.39	5271.38	1572.54	607.09	865.28	0.00	486088.00	3912953.00
265.22	5335.98	1595.27	528.87	1270.24	0.00	486152.00	3912976.00
361.39	5055.28	1464.68	587.72	995.42	0.00	485872.00	3912845.00
70.13	7176.11	2466.48	683.68	1328.18	0.00	487992.00	3913847.00
27.91	9350.92	3477.76	736.00	1414.45	0.00	490167.00	3914859.00
197.17	5660.31	1738.45	565.54	1401.53	0.00	486477.00	3913119.00
296.48	5231.72	1543.05	493.01	1140.22	0.00	486048.00	3912924.00
413.83	4938.43	1411.63	603.79	1241.15	0.00	485755.00	3912792.00
61.46	7435.59	2583.31	655.15	1279.58	0.00	488252.00	3913964.00
576.63	4693.94	1286.31	408.80	855.41	0.00	485510.00	3912667.00
169.63	5828.87	1848.30	696.60	717.45	0.00	486645.00	3913229.00
313.50	5181.09	1530.12	560.63	880.62	0.00	485997.00	3912911.00
363.13	5051.63	1463.86	595.73	1063.68	0.00	485868.00	3912845.00
333.35	5124.79	1499.01	566.77	1057.93	0.00	485941.00	3912880.00
168.95	5846.87	1827.59	497.69	1192.62	0.00	486663.00	3913208.00
302.73	5209.91	1540.93	576.86	1134.00	0.00	486026.00	3912922.00
251.38	5391.92	1623.07	565.40	1036.05	0.00	486208.00	3913004.00
292.65	5243.77	1559.13	621.11	987.76	0.00	486060.00	3912940.00
303.37	5215.28	1536.68	569.31	1074.44	0.00	486032.00	3912917.00
120.67	6281.63	2046.71	656.66	1315.01	0.00	487098.00	3913427.00
105.22	6489.24	2140.83	554.60	1212.09	0.00	487306.00	3913522.00
197.64	5652.52	1745.52	523.98	1160.63	0.00	486469.00	3913126.00
211.20	5574.85	1709.79	586.47	1091.40	0.00	486391.00	3913091.00
59.57	7494.92	2607.50	493.21	1247.10	0.00	488311.00	3913988.00
360.25	5056.21	1463.00	516.57	1165.60	0.00	485872.00	3912844.00
414.80	4936.49	1403.65	348.97	901.15	0.00	485753.00	3912784.00
477.68	4834.63	1357.69	403.87	666.17	0.00	485651.00	3912738.00
264.35	5344.61	1603.43	377.00	890.50	0.00	486161.00	3912984.00
537.20	4743.25	1315.44	657.24	927.33	0.00	485560.00	3912696.00
267.73	5335.73	1596.28	479.71	1179.76	0.00	486152.00	3912977.00
487.69	4801.44	1337.28	660.93	1274.02	0.00	485618.00	3912718.00
310.55	5180.49	1526.59	544.67	1086.16	0.00	485997.00	3912907.00
129.67	6174.46	1995.61	426.24	1261.83	0.00	486991.00	3913376.00
94.06	6666.51	2229.46	562.47	1201.19	0.00	487483.00	3913610.00
213.52	5569.00	1710.58	554.39	1038.34	0.00	486385.00	3913091.00
652.59	4605.68	1247.20	457.93	719.85	0.00	485422.00	3912628.00
405.11	4952.19	1425.97	693.34	1028.30	0.00	485768.00	3912807.00
382.49	5013.11	1445.86	495.79	862.47	0.00	485829.00	3912827.00
536.42	4746.21	1319.27	500.10	493.35	0.00	485562.00	3912700.00
392.24	4978.53	1432.78	564.04	1084.97	0.00	485795.00	3912814.00
121.18	6278.09	2051.25	599.24	1074.03	0.00	487094.00	3913432.00
468.56	4845.06	1363.36	491.05	731.86	0.00	485661.00	3912744.00
219.43	5537.30	1696.28	640.31	1244.78	0.00	486354.00	3913077.00
415.96	4931.09	1414.50	548.54	651.53	0.00	485747.00	3912795.00
217.78	5540.07	1699.90	680.43	1402.93	0.00	486356.00	3913081.00
230.05	5481.33	1664.20	494.97	1199.90	0.00	486298.00	3913045.00
145.59	6024.60	1928.28	649.21	1138.54	0.00	486841.00	3913309.00
188.85	5709.76	1773.98	355.09	999.48	0.00	486526.00	3913155.00
138.54	6085.15	1961.06	663.25	1082.48	0.00	486901.00	3913342.00
47.73	7966.42	2832.59	509.78	1197.85	0.00	488783.00	3914213.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
403.43	2409.83	688.10	250.96	660.27	29.20	483226.00	3912069.00
117.94	3250.34	1099.08	329.39	609.78	0.00	484067.00	3912480.00
549.38	2255.62	613.20	304.61	600.42	0.00	483072.00	3911994.00
124.50	3201.70	1082.73	364.37	593.59	0.00	484018.00	3912464.00
545.02	2237.39	618.32	336.27	567.89	0.00	483054.00	3911999.00
22.67	5466.79	2142.14	362.64	688.31	0.00	486283.00	3913523.00
330.93	2502.48	744.52	339.01	536.61	0.00	483319.00	3912125.00
250.63	2680.24	827.09	297.41	588.74	0.00	483497.00	3912208.00
259.54	2663.48	819.10	285.75	524.36	0.00	483480.00	3912200.00
768.60	2109.63	541.22	304.93	548.51	0.00	482926.00	3911922.00
204.94	2809.64	894.24	251.54	520.20	0.00	483626.00	3912275.00
352.43	2477.60	726.89	336.75	557.19	0.00	483294.00	3912108.00
127.60	3185.36	1070.53	301.00	545.13	0.00	484002.00	3912451.00
154.90	3017.02	991.79	310.29	572.65	0.00	483833.00	3912373.00
182.73	2895.66	933.83	281.17	615.02	0.00	483712.00	3912315.00
136.00	3128.39	1038.58	318.04	609.60	0.00	483945.00	3912419.00
160.65	2991.76	972.44	276.24	617.20	0.00	483808.00	3912353.00
222.19	2765.61	865.11	302.24	612.01	0.00	483582.00	3912246.00
491.83	2290.90	643.86	335.99	636.90	0.00	483107.00	3912025.00
297.32	2562.58	771.51	284.11	650.38	0.00	483379.00	3912152.00
547.38	2235.22	613.25	276.20	572.25	0.00	483051.00	3911994.00
126.17	3194.71	1065.53	271.58	646.67	0.00	484011.00	3912446.00
174.86	2933.74	948.04	260.08	554.62	0.00	483750.00	3912329.00
246.28	2693.08	831.95	307.37	649.27	0.00	483509.00	3912213.00
168.01	2960.92	961.28	303.17	670.43	0.00	483777.00	3912342.00
694.31	2134.80	561.77	284.44	616.30	0.00	482951.00	3911943.00
139.25	3108.32	1030.75	323.07	652.50	0.00	483925.00	3912412.00
121.00	3227.80	1085.25	282.49	547.19	0.00	484044.00	3912466.00
235.25	2724.25	851.63	295.92	528.85	0.00	483541.00	3912232.00
128.27	3178.49	1063.80	302.76	597.69	0.00	483995.00	3912445.00
336.46	2502.25	739.56	315.41	659.54	0.00	483319.00	3912120.00
368.37	2441.89	715.34	248.79	525.35	0.00	483258.00	3912096.00
654.55	2163.56	572.86	289.32	606.62	0.00	482980.00	3911954.00
197.47	2846.05	906.08	341.73	579.12	0.00	483662.00	3912287.00
282.29	2602.06	791.42	325.10	522.02	0.00	483418.00	3912172.00
407.59	2400.97	686.25	262.17	518.59	0.00	483217.00	3912067.00
503.94	2287.51	628.90	246.52	576.06	0.00	483104.00	3912010.00
340.46	2491.63	735.59	276.85	645.98	0.00	483308.00	3912116.00
94.78	3455.13	1198.02	301.24	525.48	0.00	484271.00	3912579.00
322.73	2523.55	749.39	269.73	646.10	0.00	483340.00	3912130.00
415.30	2393.21	683.44	313.69	609.53	0.00	483209.00	3912064.00
143.02	3081.40	1018.27	235.56	619.02	0.00	483898.00	3912399.00
539.18	2244.11	616.63	346.51	599.24	0.00	483060.00	3911997.00
274.57	2622.07	798.72	291.70	665.08	0.00	483438.00	3912180.00
173.11	2943.28	949.44	300.31	596.60	0.00	483760.00	3912330.00
139.12	3107.65	1030.31	294.17	647.07	0.00	483924.00	3912411.00
616.17	2174.93	591.12	387.62	535.82	0.00	482991.00	3911972.00
150.11	3043.60	996.74	299.75	631.91	0.00	483860.00	3912378.00
311.84	2544.31	760.96	328.66	673.94	0.00	483361.00	3912142.00

219.77	2769.70	874.51	328.45	599.73	0.00	483586.00	3912255.00
128.26	3181.00	1060.47	220.85	561.68	0.00	483997.00	3912441.00
153.40	3025.93	993.11	287.40	601.08	0.00	483842.00	3912374.00
151.11	3044.84	1000.18	276.72	546.78	0.00	483861.00	3912381.00
80.32	3620.60	1279.07	272.85	457.57	0.00	484437.00	3912660.00
260.81	2651.00	814.43	260.34	590.05	0.00	483467.00	3912195.00
399.30	2401.34	692.16	280.23	627.68	0.00	483218.00	3912073.00
483.59	2304.26	645.83	293.19	493.70	0.00	483121.00	3912027.00
311.54	2549.67	765.00	265.40	554.55	0.00	483366.00	3912146.00
238.41	2710.56	844.70	303.12	552.77	0.00	483527.00	3912225.00
131.50	3153.40	1054.61	301.57	640.80	0.00	483970.00	3912435.00
371.76	2442.49	713.16	304.96	611.88	0.00	483259.00	3912094.00
326.55	2518.72	752.17	333.76	604.91	0.00	483335.00	3912133.00
393.84	2419.49	702.47	299.94	473.79	0.00	483236.00	3912083.00
410.72	2385.52	681.45	246.64	639.23	0.00	483202.00	3912062.00
38.20	4569.55	1714.82	333.21	674.05	0.00	485386.00	3913096.00
235.43	2718.15	849.55	308.28	511.69	0.00	483534.00	3912230.00
344.84	2496.35	734.29	324.56	612.42	0.00	483313.00	3912115.00
251.94	2688.88	826.26	311.89	620.61	0.00	483505.00	3912207.00
192.81	2862.08	918.95	302.86	459.10	0.00	483678.00	3912300.00
801.66	2071.83	529.11	260.92	628.83	0.00	482888.00	3911910.00
373.42	2442.43	713.42	333.95	596.97	0.00	483259.00	3912094.00
68.07	3811.44	1361.53	324.85	698.11	0.00	484628.00	3912742.00
471.68	2318.45	652.28	287.49	595.88	0.00	483135.00	3912033.00
224.67	2756.76	859.16	282.84	677.92	0.00	483573.00	3912240.00
260.62	2657.49	815.01	260.57	565.20	0.00	483474.00	3912196.00
119.75	3239.73	1093.16	252.61	543.65	0.00	484056.00	3912474.00
356.43	2461.38	720.74	218.52	539.65	0.00	483278.00	3912102.00
207.79	2799.97	885.58	271.54	645.12	0.00	483616.00	3912266.00
382.15	2432.86	704.23	251.38	537.91	0.00	483249.00	3912085.00
213.91	2787.40	876.39	313.02	563.96	0.00	483604.00	3912257.00
284.09	2601.77	791.90	337.43	569.29	0.00	483418.00	3912173.00
105.86	3349.91	1140.74	224.89	456.05	0.00	484166.00	3912522.00
61.06	3936.62	1424.90	329.59	622.54	0.00	484753.00	3912806.00
248.33	2688.41	828.00	273.91	644.51	0.00	483505.00	3912209.00
210.42	2800.13	878.83	275.20	623.98	0.00	483616.00	3912260.00
61.75	3924.40	1416.51	316.21	657.15	0.00	484741.00	3912797.00
347.94	2481.75	731.40	290.30	623.69	0.00	483298.00	3912112.00
468.38	2321.82	652.91	256.39	637.79	0.00	483138.00	3912034.00
210.58	2800.83	884.31	220.34	581.05	0.00	483617.00	3912265.00
332.07	2502.68	741.85	269.55	545.00	0.00	483319.00	3912123.00
340.92	2500.48	738.55	341.72	630.86	0.00	483317.00	3912119.00
537.59	2262.17	617.69	311.09	658.68	0.00	483078.00	3911998.00
54.01	4089.30	1495.11	317.37	648.03	0.00	484906.00	3912876.00
221.18	2758.85	863.52	290.49	653.80	0.00	483575.00	3912244.00
158.67	2999.41	978.71	302.40	715.24	0.00	483816.00	3912359.00
31.42	4880.06	1863.83	345.08	641.69	0.00	485696.00	3913245.00
57.82	4004.47	1453.22	306.81	612.13	0.00	484821.00	3912834.00
199.06	2833.56	900.22	290.19	635.18	0.00	483650.00	3912281.00
157.68	3000.86	980.74	248.66	663.70	0.00	483817.00	3912362.00
335.30	2495.52	744.77	342.60	425.95	0.00	483312.00	3912126.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
268.35	5309.34	1582.49	479.38	1348.62	<b>37.32</b>	486126.00	3912963.00
158.11	5901.70	1873.19	617.04	1112.22	0.00	486718.00	3913254.00
289.04	5245.36	1555.98	496.65	1098.50	0.00	486062.00	3912937.00
635.13	4602.38	1253.73	435.76	639.13	0.00	485419.00	3912635.00
23.75	9814.94	3696.69	735.31	1423.02	0.00	490631.00	3915077.00
227.38	5484.59	1672.29	542.49	1226.33	0.00	486301.00	3913053.00
326.74	5123.96	1506.88	664.73	1034.56	0.00	485940.00	3912888.00
373.57	5000.34	1437.69	555.20	1282.58	0.00	485817.00	3912818.00
212.21	5559.40	1713.67	567.52	975.38	0.00	486376.00	3913094.00
21.05	10205.57	3886.21	656.58	1320.35	0.00	491022.00	3915267.00
170.61	5814.93	1828.81	636.33	1161.40	0.00	486631.00	3913210.00
794.49	4481.89	1185.25	518.57	711.24	0.00	485298.00	3912566.00
224.22	5498.99	1679.60	660.71	1137.71	0.00	486315.00	3913060.00
459.12	4842.31	1366.76	542.56	927.13	0.00	485659.00	3912748.00
265.75	5323.19	1601.87	455.61	850.75	0.00	486139.00	3912983.00
316.18	5153.22	1514.40	581.70	1171.43	0.00	485970.00	3912895.00
252.01	5373.27	1617.00	582.77	1129.15	0.00	486190.00	3912998.00
502.60	4780.74	1331.39	439.82	824.71	0.00	485597.00	3912712.00
420.06	4912.69	1398.51	493.81	1073.48	0.00	485729.00	3912779.00
453.36	4850.77	1375.05	482.22	722.79	0.00	485667.00	3912756.00
291.48	5228.42	1546.20	544.87	1143.62	0.00	486045.00	3912927.00
141.75	6037.09	1937.25	604.96	1191.44	0.00	486853.00	3913318.00
384.05	4981.00	1435.10	613.88	1268.55	0.00	485797.00	3912816.00
453.35	4837.76	1372.91	478.14	725.04	0.00	485654.00	3912754.00
442.19	4868.06	1368.01	556.88	1195.47	0.00	485684.00	3912749.00
131.12	6142.71	1992.64	667.91	1111.21	0.00	486959.00	3913373.00
40.21	8342.53	3016.68	620.44	1147.46	0.00	489159.00	3914397.00
252.03	5369.83	1610.86	516.01	1225.10	0.00	486186.00	3912992.00
154.92	5920.86	1890.77	668.84	957.11	0.00	486737.00	3913272.00
325.75	5128.92	1501.87	582.10	1190.39	0.00	485945.00	3912883.00
246.52	5395.35	1636.23	546.76	925.93	0.00	486212.00	3913017.00
149.89	5962.17	1897.77	604.23	1251.22	0.00	486778.00	3913279.00
272.91	5291.46	1581.40	472.42	1136.67	0.00	486108.00	3912962.00
287.29	5243.19	1556.27	577.53	1091.41	0.00	486059.00	3912937.00
546.83	4716.19	1303.06	448.88	871.47	0.00	485532.00	3912684.00
206.32	5586.23	1726.49	647.06	1086.53	0.00	486403.00	3913107.00
183.02	5723.42	1776.90	557.76	1215.79	0.00	486540.00	3913158.00
503.88	4768.20	1327.43	565.66	1164.42	0.00	485584.00	3912708.00
296.14	5220.32	1540.25	488.84	1084.17	0.00	486037.00	3912921.00
416.72	4911.00	1398.80	563.80	1175.46	0.00	485727.00	3912780.00
700.03	4558.77	1221.99	399.76	668.78	0.00	485375.00	3912603.00
322.44	5137.73	1510.51	660.03	1068.26	0.00	485954.00	3912891.00
441.81	4872.45	1372.42	452.60	1119.13	0.00	485689.00	3912753.00
294.50	5221.70	1550.38	666.58	1183.29	0.00	486038.00	3912931.00
539.00	4722.82	1308.92	470.32	739.26	0.00	485539.00	3912690.00
574.58	4667.09	1273.46	541.23	1152.45	0.00	485483.00	3912654.00
152.59	5946.15	1891.24	456.15	1007.35	0.00	486762.00	3913272.00
159.49	5889.70	1865.76	584.05	1242.79	0.00	486706.00	3913247.00
265.88	5325.97	1600.18	589.83	811.90	0.00	486142.00	3912981.00

461.33	4839.57	1356.98	552.88	1238.65	0.00	485656.00	3912738.00
256.86	5353.80	1614.79	747.86	1200.37	0.00	486170.00	3912996.00
227.67	5477.57	1659.57	506.24	1115.54	0.00	486294.00	3913040.00
181.79	5729.79	1786.54	614.97	1236.61	0.00	486546.00	3913167.00
147.45	5984.12	1911.28	640.70	1372.90	0.00	486800.00	3913292.00
250.41	5378.58	1614.87	592.33	1192.18	0.00	486195.00	3912996.00
198.38	5629.78	1744.95	658.71	1098.48	0.00	486446.00	3913126.00
405.61	4941.67	1413.07	531.99	1022.15	0.00	485758.00	3912794.00
441.99	4868.08	1382.66	515.54	743.82	0.00	485684.00	3912763.00
283.56	5256.24	1561.96	543.44	1153.81	0.00	486073.00	3912943.00
268.77	5299.93	1588.86	614.34	1079.32	0.00	486116.00	3912970.00
259.08	5334.07	1615.72	627.08	901.34	0.00	486150.00	3912997.00
213.62	5550.74	1712.87	676.89	909.05	0.00	486367.00	3913094.00
319.70	5141.68	1509.37	762.42	1182.00	0.00	485958.00	3912890.00
300.58	5202.89	1535.25	388.16	964.98	0.00	486019.00	3912916.00
199.75	5622.02	1737.43	699.14	1358.06	0.00	486438.00	3913118.00
177.28	5764.31	1802.32	613.93	1258.98	0.00	486581.00	3913183.00
232.74	5452.39	1654.97	595.69	1264.98	0.00	486269.00	3913036.00
294.85	5220.85	1548.50	610.22	1047.18	0.00	486037.00	3912929.00
178.83	5753.00	1799.31	579.62	857.45	0.00	486569.00	3913180.00
316.68	5146.05	1513.51	583.69	1138.66	0.00	485962.00	3912894.00
315.93	5157.74	1519.25	575.41	947.84	0.00	485974.00	3912900.00
209.64	5575.52	1719.46	490.22	907.99	0.00	486392.00	3913100.00
603.93	4640.66	1264.93	423.35	958.10	0.00	485457.00	3912646.00
301.05	5199.16	1536.17	605.71	1150.59	0.00	486015.00	3912917.00
207.31	5582.12	1724.22	476.30	862.77	0.00	486398.00	3913105.00
246.97	5395.67	1621.17	553.86	1156.81	0.00	486212.00	3913002.00
173.82	5787.53	1813.55	486.11	1050.25	0.00	486604.00	3913194.00
308.96	5170.46	1527.80	491.58	810.60	0.00	485987.00	3912909.00
82.81	6858.45	2316.89	620.59	1390.78	0.00	487675.00	3913698.00
531.00	4728.59	1313.12	502.49	969.31	0.00	485545.00	3912694.00
367.34	5025.80	1458.51	553.50	600.68	0.00	485842.00	3912839.00
193.33	5657.33	1759.24	646.55	1305.12	0.00	486474.00	3913140.00
127.81	6178.26	1999.65	624.64	1321.17	0.00	486995.00	3913380.00
486.77	4791.82	1342.16	416.10	786.41	0.00	485608.00	3912723.00
166.73	5828.94	1839.98	539.72	1077.26	0.00	486645.00	3913221.00
937.15	4395.92	1132.11	388.30	689.38	0.00	485212.00	3912513.00
662.71	4605.61	1246.07	542.30	687.44	0.00	485422.00	3912627.00
69.27	7175.64	2469.96	565.18	1323.88	0.00	487992.00	3913851.00
72.88	7085.55	2432.26	659.10	1345.69	0.00	487902.00	3913813.00
769.64	4497.23	1190.72	433.22	787.21	0.00	485314.00	3912571.00
509.97	4749.19	1317.69	382.19	957.78	0.00	485565.00	3912698.00
345.42	5071.30	1480.49	618.97	1015.13	0.00	485888.00	3912861.00
338.88	5092.98	1490.43	556.91	1097.65	0.00	485909.00	3912871.00
99.94	6545.85	2171.63	692.69	1415.29	0.00	487362.00	3913552.00
386.22	4978.46	1439.51	645.93	727.23	0.00	485795.00	3912820.00
550.04	4712.29	1300.94	328.07	557.77	0.00	485529.00	3912682.00
203.13	5606.36	1730.46	690.19	1354.63	0.00	486423.00	3913111.00
142.07	6037.23	1938.51	606.45	1019.16	0.00	486854.00	3913319.00
74.09	7054.53	2414.77	728.02	1291.30	0.00	487871.00	3913796.00
371.25	5007.25	1442.59	562.09	1192.58	0.00	485824.00	3912823.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
79.04	42640.60	13454.06	2266.00	2756.40	81.16	523457.00	3924835.00
462.91	33355.62	9047.39	954.54	949.64	0.00	514172.00	3920428.00
223.68	36177.04	10402.37	1222.20	1630.41	0.00	516993.00	3921783.00
199.09	36739.41	10680.54	1234.53	1376.43	0.00	517556.00	3922061.00
658.21	32366.49	8549.44	865.97	689.76	0.00	513183.00	3919930.00
361.04	34194.85	9454.76	1016.36	1083.55	0.00	515011.00	3920836.00
387.51	33940.94	9329.29	994.54	1100.70	0.00	514757.00	3920710.00
352.91	34275.53	9502.02	995.56	984.84	0.00	515092.00	3920883.00
345.43	34354.63	9534.06	1037.67	1108.96	0.00	515171.00	3920915.00
81.69	42379.81	13334.87	1724.76	2278.20	0.00	523196.00	3924716.00
407.58	33770.01	9249.77	946.67	903.29	0.00	514586.00	3920631.00
344.51	34364.01	9543.02	1080.64	1150.62	0.00	515180.00	3920924.00
238.21	35885.26	10272.01	1111.47	1177.84	0.00	516702.00	3921653.00
476.95	33260.73	8995.00	895.21	797.16	0.00	514077.00	3920376.00
644.54	32420.42	8574.69	917.92	871.83	0.00	513237.00	3919955.00
97.03	41082.79	12716.33	1619.79	1878.28	0.00	521899.00	3924097.00
347.79	34331.38	9521.26	981.71	982.92	0.00	515148.00	3920902.00
138.71	38721.32	11617.97	1506.34	1790.20	0.00	519538.00	3922999.00
61.25	44820.86	14482.90	2347.98	2823.42	0.00	525637.00	3925864.00
350.06	34306.23	9510.22	944.43	904.94	0.00	515123.00	3920891.00
426.81	33618.68	9181.06	1105.17	1211.07	0.00	514435.00	3920562.00
213.86	36390.80	10508.06	1150.79	1318.68	0.00	517207.00	3921889.00
264.80	35422.42	10043.53	992.23	995.09	0.00	516239.00	3921424.00
152.52	38164.28	11362.29	1213.84	1239.61	0.00	518981.00	3922743.00
481.10	33231.61	8991.53	945.44	888.02	0.00	514048.00	3920372.00
188.15	37024.49	10803.83	1131.57	1371.05	0.00	517841.00	3922185.00
179.30	37276.74	10932.08	1175.15	1292.08	0.00	518093.00	3922313.00
314.91	34705.92	9705.48	1017.13	1099.01	0.00	515522.00	3921086.00
117.00	39790.26	12109.05	1477.89	1951.94	0.00	520607.00	3923490.00
113.86	39970.68	12203.24	1597.75	2065.05	0.00	520787.00	3923584.00
199.85	36719.73	10674.81	1305.66	1420.01	0.00	517536.00	3922056.00
118.21	39726.11	12081.77	1495.83	1830.67	0.00	520542.00	3923463.00
480.56	33237.97	8993.39	918.44	867.69	0.00	514054.00	3920374.00
84.44	42119.46	13213.68	1739.30	2084.49	0.00	522936.00	3924594.00
604.95	32586.00	8661.76	921.78	853.36	0.00	513402.00	3920043.00
104.13	40578.71	12485.09	1559.36	2309.02	0.00	521395.00	3923866.00
516.04	33024.67	8883.70	924.48	886.76	0.00	513841.00	3920264.00
31.47	52015.37	17824.10	2266.09	4170.92	0.00	532832.00	3929205.00
445.97	33470.83	9100.93	1116.93	1325.90	0.00	514287.00	3920482.00
198.32	36756.66	10682.66	1176.56	1296.85	0.00	517573.00	3922063.00
73.51	43233.97	13739.90	1578.80	1713.21	0.00	524050.00	3925121.00
179.82	37262.98	10918.81	1210.49	1408.21	0.00	518079.00	3922300.00
189.77	36980.72	10791.62	1172.23	1381.04	0.00	517797.00	3922172.00
34.70	50804.47	17254.95	2093.54	2842.09	0.00	531621.00	3928636.00
334.92	34472.32	9586.88	1017.72	1071.06	0.00	515289.00	3920968.00
511.14	33054.05	8898.85	917.65	898.99	0.00	513870.00	3920280.00
465.20	33335.80	9036.12	876.15	806.59	0.00	514152.00	3920417.00
211.48	36442.58	10539.53	1325.28	1612.31	0.00	517259.00	3921920.00
247.26	35720.23	10182.66	1144.33	1345.62	0.00	516537.00	3921563.00

244.93	35757.30	10218.05	1080.82	1120.50	0.00	516574.00	3921599.00
182.61	37181.01	10883.82	1176.99	1365.60	0.00	517997.00	3922265.00
151.66	38195.75	11361.73	1143.28	1366.54	0.00	519012.00	3922743.00
771.21	32002.62	8355.83	826.38	636.33	0.00	512819.00	3919737.00
317.78	34670.85	9687.76	936.58	842.92	0.00	515487.00	3921069.00
360.06	34202.05	9464.49	1012.32	1028.03	0.00	515018.00	3920845.00
268.14	35363.53	10020.75	1090.79	1214.11	0.00	516180.00	3921402.00
343.03	34380.48	9541.46	1079.42	1264.83	0.00	515197.00	3920922.00
156.03	38032.78	11286.05	1355.35	1567.98	0.00	518849.00	3922667.00
168.08	37625.95	11097.54	1232.65	1408.53	0.00	518442.00	3922478.00
431.09	33582.85	9156.83	1062.53	1206.00	0.00	514399.00	3920538.00
606.94	32570.37	8655.04	849.53	685.19	0.00	513387.00	3920036.00
245.45	35749.90	10206.40	1094.75	1148.34	0.00	516566.00	3921587.00
322.12	34619.87	9664.77	921.59	811.33	0.00	515436.00	3921046.00
399.07	33841.49	9282.19	1090.81	1217.79	0.00	514658.00	3920663.00
449.36	33446.16	9091.67	896.56	814.73	0.00	514262.00	3920472.00
176.79	37352.73	10961.03	1358.17	1730.64	0.00	518169.00	3922342.00
461.07	33365.49	9051.25	962.66	1013.62	0.00	514182.00	3920432.00
386.62	33948.87	9334.80	1116.77	1285.84	0.00	514765.00	3920716.00
268.68	35355.24	10012.35	1024.37	1085.49	0.00	516172.00	3921393.00
171.60	37513.04	11034.61	1184.67	1446.83	0.00	518329.00	3922415.00
418.77	33678.64	9201.63	931.10	906.77	0.00	514495.00	3920582.00
245.55	35748.54	10208.59	1102.68	1228.83	0.00	516565.00	3921589.00
691.43	32253.48	8495.69	867.11	704.03	0.00	513070.00	3919876.00
128.61	39185.63	11834.41	1337.65	1579.43	0.00	520002.00	3923215.00
101.48	40761.80	12579.78	1457.97	1667.05	0.00	521578.00	3923961.00
135.11	38878.92	11676.15	1354.66	1838.32	0.00	519695.00	3923057.00
78.86	42659.10	13475.71	1536.30	1735.30	0.00	523475.00	3924856.00
288.66	35056.72	9874.53	1011.97	1041.83	0.00	515873.00	3921255.00
711.61	32181.70	8452.82	837.80	662.45	0.00	512998.00	3919834.00
535.78	32915.96	8825.88	874.75	780.27	0.00	513732.00	3920207.00
64.25	44390.62	14277.27	1931.29	2629.99	0.00	525207.00	3925658.00
306.63	34812.51	9760.96	998.44	972.32	0.00	515629.00	3921142.00
149.39	38282.52	11399.89	1353.97	1576.76	0.00	519099.00	3922781.00
167.11	37656.37	11109.73	1415.85	1743.94	0.00	518473.00	3922491.00
151.69	38194.63	11364.75	1186.75	1310.26	0.00	519011.00	3922746.00
391.88	33905.04	9318.72	1036.68	1080.96	0.00	514721.00	3920700.00
260.72	35485.84	10073.48	1008.04	1062.12	0.00	516302.00	3921454.00
247.86	35708.98	10179.61	1254.23	1529.42	0.00	516525.00	3921560.00
239.39	35864.37	10251.85	1017.37	1051.92	0.00	516681.00	3921633.00
514.66	33034.32	8885.24	898.75	827.74	0.00	513851.00	3920266.00
331.48	34511.52	9607.70	944.82	935.49	0.00	515328.00	3920988.00
254.82	35582.75	10124.75	1105.95	1232.50	0.00	516399.00	3921506.00
573.49	32727.72	8734.00	878.24	758.98	0.00	513544.00	3920115.00
560.67	32786.33	8763.19	895.10	841.44	0.00	513603.00	3920144.00
296.85	34942.45	9823.32	1121.72	1262.81	0.00	515759.00	3921204.00
122.39	39499.39	11975.02	1647.26	2211.59	0.00	520316.00	3923356.00
157.98	37962.46	11243.59	1226.59	1551.34	0.00	518779.00	3922624.00
78.74	42671.92	13460.66	1989.38	2549.06	0.00	523488.00	3924841.00
56.01	45652.02	14855.95	2092.10	2712.69	0.00	526468.00	3926237.00
50.94	46577.83	15299.67	2013.10	2396.46	0.00	527394.00	3926680.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
243.04	2285.34	709.35	230.36	530.18	<b>27.63</b>	483102.00	3912090.00
245.49	2271.95	705.81	187.78	445.47	0.00	483088.00	3912087.00
1034.53	1620.95	380.08	250.38	436.45	0.00	482437.00	3911761.00
348.01	2083.83	615.75	232.71	446.61	0.00	482900.00	3911997.00
393.55	2017.95	582.93	234.41	510.02	0.00	482834.00	3911964.00
386.44	2034.29	586.71	247.16	488.19	0.00	482851.00	3911967.00
258.72	2246.63	693.87	287.90	559.05	0.00	483063.00	3912075.00
243.01	2283.63	711.72	230.59	463.27	0.00	483100.00	3912092.00
162.68	2540.19	829.93	266.67	590.58	0.00	483356.00	3912211.00
1065.95	1613.02	373.43	208.54	495.64	0.00	482429.00	3911754.00
328.56	2116.92	628.79	312.78	548.44	0.00	482933.00	3912010.00
272.73	2217.13	676.50	234.85	573.92	0.00	483033.00	3912057.00
121.28	2753.31	937.58	284.84	469.56	0.00	483570.00	3912318.00
958.15	1641.39	394.28	309.11	491.30	0.00	482458.00	3911775.00
109.60	2831.44	978.08	277.05	542.80	0.00	483648.00	3912359.00
330.14	2119.27	626.01	248.07	517.37	0.00	482936.00	3912007.00
676.08	1779.89	467.63	263.17	401.77	0.00	482596.00	3911848.00
53.23	3543.98	1309.33	290.24	516.99	0.00	484360.00	3912690.00
295.91	2171.67	653.95	221.05	460.56	0.00	482988.00	3912035.00
249.46	2270.53	703.25	241.63	544.12	0.00	483087.00	3912084.00
255.42	2253.53	696.75	226.93	459.63	0.00	483070.00	3912078.00
221.18	2337.24	734.90	268.43	525.80	0.00	483154.00	3912116.00
190.64	2437.12	785.18	233.44	433.12	0.00	483253.00	3912166.00
979.90	1635.92	390.94	218.50	502.14	0.00	482452.00	3911772.00
9.77	6561.28	2729.79	393.65	460.85	0.00	487378.00	3914111.00
276.27	2208.53	677.08	263.87	459.59	0.00	483025.00	3912058.00
303.20	2158.11	649.91	251.18	565.37	0.00	482974.00	3912031.00
237.02	2295.11	721.96	262.31	414.30	0.00	483111.00	3912103.00
332.10	2104.04	627.13	214.99	463.50	0.00	482920.00	3912008.00
186.63	2458.50	789.01	259.51	546.02	0.00	483275.00	3912170.00
352.23	2088.90	614.43	261.64	443.58	0.00	482905.00	3911995.00
362.98	2056.99	602.37	195.00	444.03	0.00	482873.00	3911983.00
275.82	2212.42	677.12	232.55	486.24	0.00	483029.00	3912058.00
87.24	3034.35	1072.74	248.35	517.40	0.00	483851.00	3912454.00
329.81	2108.86	621.75	202.36	524.28	0.00	482925.00	3912003.00
262.21	2236.14	687.68	242.31	512.52	0.00	483052.00	3912068.00
293.56	2172.55	656.47	233.38	574.49	0.00	482989.00	3912037.00
488.15	1918.32	534.96	296.27	488.45	0.00	482735.00	3911916.00
586.46	1842.43	493.64	245.67	571.90	0.00	482659.00	3911874.00
171.52	2506.08	817.32	256.64	525.02	0.00	483322.00	3912198.00
398.30	2014.86	583.95	237.10	447.07	0.00	482831.00	3911965.00
514.55	1901.81	519.70	263.64	504.51	0.00	482718.00	3911900.00
263.79	2236.17	688.16	275.19	576.93	0.00	483052.00	3912069.00
247.97	2264.72	701.60	244.10	509.17	0.00	483081.00	3912082.00
688.98	1770.35	457.55	220.86	428.59	0.00	482587.00	3911838.00
544.68	1869.23	505.54	270.01	532.50	0.00	482686.00	3911886.00
576.91	1845.38	496.78	292.75	534.57	0.00	482662.00	3911878.00
625.59	1817.61	477.75	229.35	582.17	0.00	482634.00	3911859.00
319.71	2130.13	636.31	229.90	494.36	0.00	482946.00	3912017.00

332.60	2102.21	623.40	233.24	536.75	0.00	482918.00	3912004.00
390.64	2041.83	583.32	281.66	582.40	0.00	482858.00	3911964.00
335.03	2095.11	626.85	229.10	456.82	0.00	482911.00	3912008.00
698.63	1768.65	458.04	230.93	517.64	0.00	482585.00	3911839.00
268.81	2216.86	679.56	173.79	486.94	0.00	483033.00	3912060.00
169.28	2509.69	818.02	256.20	516.57	0.00	483326.00	3912199.00
438.62	1968.33	555.09	222.48	484.43	0.00	482785.00	3911936.00
304.67	2156.88	646.75	256.64	487.37	0.00	482973.00	3912028.00
238.70	2292.87	716.90	245.83	542.27	0.00	483109.00	3912098.00
60.71	3399.52	1242.22	276.26	584.43	0.00	484216.00	3912623.00
128.38	2712.07	916.70	263.76	527.22	0.00	483528.00	3912297.00
105.00	2870.63	991.10	244.22	564.61	0.00	483687.00	3912372.00
744.21	1750.40	446.27	233.30	382.59	0.00	482567.00	3911827.00
244.26	2281.59	709.87	268.24	540.91	0.00	483098.00	3912091.00
251.27	2261.17	702.19	242.04	494.70	0.00	483077.00	3912083.00
373.71	2046.54	596.01	214.77	460.45	0.00	482863.00	3911977.00
409.11	2005.98	576.85	248.68	487.95	0.00	482822.00	3911958.00
121.83	2746.24	932.69	257.52	551.47	0.00	483563.00	3912313.00
132.98	2684.06	899.65	223.54	574.06	0.00	483500.00	3912280.00
420.98	1992.77	566.38	276.46	559.13	0.00	482809.00	3911947.00
102.71	2889.41	1001.17	255.63	474.25	0.00	483706.00	3912382.00
62.90	3359.07	1220.11	219.73	480.02	0.00	484175.00	3912601.00
334.69	2103.52	621.72	235.06	489.17	0.00	482920.00	3912003.00
478.24	1937.42	538.20	262.34	517.41	0.00	482754.00	3911919.00
171.58	2498.46	817.17	225.13	468.52	0.00	483315.00	3912198.00
266.24	2237.97	684.12	242.47	487.89	0.00	483054.00	3912065.00
282.28	2200.27	667.76	254.09	503.95	0.00	483017.00	3912049.00
265.42	2235.95	687.19	302.85	520.61	0.00	483052.00	3912068.00
406.32	2020.59	575.49	205.52	437.96	0.00	482837.00	3911956.00
124.13	2737.66	924.88	235.51	546.10	0.00	483554.00	3912306.00
437.65	1967.10	558.17	264.84	468.35	0.00	482783.00	3911939.00
129.10	2708.26	915.43	300.12	544.82	0.00	483525.00	3912296.00
106.03	2862.86	987.65	250.08	465.00	0.00	483679.00	3912368.00
68.41	3267.60	1182.89	289.33	586.24	0.00	484084.00	3912564.00
573.51	1845.67	500.34	321.40	484.21	0.00	482662.00	3911881.00
292.01	2181.43	663.06	226.16	459.45	0.00	482998.00	3912044.00
228.43	2319.60	726.67	227.54	464.52	0.00	483136.00	3912107.00
598.66	1833.50	489.68	264.71	459.24	0.00	482650.00	3911870.00
378.23	2036.84	593.75	236.60	486.11	0.00	482853.00	3911975.00
297.71	2170.22	654.28	267.12	453.49	0.00	482987.00	3912035.00
254.88	2259.97	698.77	279.21	517.14	0.00	483076.00	3912080.00
477.04	1931.46	537.35	210.72	490.97	0.00	482748.00	3911918.00
371.11	2056.52	601.23	248.62	468.29	0.00	482873.00	3911982.00
468.34	1949.47	543.34	255.95	456.47	0.00	482766.00	3911924.00
268.11	2235.51	684.95	236.64	494.09	0.00	483052.00	3912066.00
416.61	1989.89	573.29	244.17	454.76	0.00	482806.00	3911954.00
183.63	2460.90	791.25	234.39	508.34	0.00	483277.00	3912172.00
27.29	4447.69	1733.16	277.33	562.54	0.00	485264.00	3913114.00
283.86	2198.44	668.61	232.79	477.62	0.00	483015.00	3912049.00
418.30	1993.16	568.08	227.73	450.16	0.00	482809.00	3911949.00
182.46	2461.48	799.29	287.93	506.49	0.00	483278.00	3912180.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
227.12	76.28	7.39	26.46	53.46	9.78	480893.00	3911388.00
168.42	62.98	7.49	22.73	36.39	0.00	480879.00	3911388.00
812.58	114.17	7.93	47.72	73.47	0.00	480930.00	3911389.00
128.58	48.57	6.31	20.50	22.55	0.00	480865.00	3911387.00
350.81	69.21	1.34	31.40	56.63	0.00	480885.00	3911382.00
362.33	74.27	1.30	34.87	56.94	0.00	480891.00	3911382.00
107.63	52.54	9.16	18.55	23.74	0.00	480869.00	3911390.00
168.75	51.33	4.49	21.82	34.78	0.00	480868.00	3911385.00
218.43	61.10	6.28	26.37	40.03	0.00	480877.00	3911387.00
170.02	63.05	6.60	25.32	30.57	0.00	480879.00	3911387.00
325.54	84.81	6.15	38.40	54.54	0.00	480901.00	3911387.00
242.03	66.87	6.26	26.98	43.54	0.00	480883.00	3911387.00
234.32	65.84	5.64	27.05	41.99	0.00	480882.00	3911386.00
200.13	63.47	5.38	29.07	38.30	0.00	480880.00	3911386.00
230.20	65.07	5.73	29.57	43.03	0.00	480881.00	3911387.00
536.90	86.59	6.30	35.90	57.31	0.00	480903.00	3911387.00
724.54	117.36	6.54	53.92	77.55	0.00	480934.00	3911387.00
74.86	101.57	35.66	15.37	17.58	0.00	480918.00	3911416.00
185.48	95.62	19.88	24.50	35.57	0.00	480912.00	3911401.00
333.67	106.31	20.30	34.42	54.43	0.00	480923.00	3911401.00
204.38	99.04	19.53	23.11	47.71	0.00	480915.00	3911400.00
105.04	52.15	10.95	18.79	19.93	0.00	480868.00	3911392.00
374.06	95.49	11.76	34.40	56.19	0.00	480912.00	3911393.00
61.99	126.38	49.73	16.23	15.64	0.00	480943.00	3911431.00
364.20	183.12	48.76	38.30	62.40	0.00	480999.00	3911430.00
112.01	49.37	6.36	14.99	28.75	0.00	480866.00	3911387.00
106.14	55.53	10.30	18.09	28.86	0.00	480872.00	3911391.00
257.79	89.83	11.84	32.47	50.12	0.00	480906.00	3911393.00
367.35	121.90	12.41	40.61	66.43	0.00	480938.00	3911393.00
273.43	83.29	11.71	31.00	42.73	0.00	480900.00	3911392.00
343.45	99.40	12.30	36.34	62.80	0.00	480916.00	3911393.00
217.67	87.34	11.52	28.42	46.82	0.00	480904.00	3911392.00
450.00	101.95	12.62	43.87	59.84	0.00	480918.00	3911393.00
171.78	73.76	12.04	21.54	34.80	0.00	480890.00	3911393.00
214.21	68.48	5.03	25.85	46.66	0.00	480885.00	3911386.00
109.83	53.55	7.70	17.38	31.24	0.00	480870.00	3911388.00
360.54	100.95	13.96	33.38	57.29	0.00	480917.00	3911395.00
81.94	86.54	28.93	16.52	19.68	0.00	480903.00	3911410.00
332.82	151.36	30.29	34.81	69.81	0.00	480968.00	3911411.00
171.50	115.39	30.06	26.35	36.33	0.00	480932.00	3911411.00
281.34	72.86	5.08	24.18	54.88	0.00	480889.00	3911386.00
164.55	57.38	4.78	22.99	38.66	0.00	480874.00	3911386.00
369.49	90.84	8.57	37.60	55.92	0.00	480907.00	3911389.00
396.12	102.75	9.08	37.48	58.09	0.00	480919.00	3911390.00
307.48	90.89	8.46	32.88	55.09	0.00	480907.00	3911389.00
36.70	206.87	89.99	14.97	15.73	0.00	481023.00	3911471.00
279.93	210.36	74.63	36.02	37.40	0.00	481027.00	3911455.00
236.79	213.07	74.22	31.83	41.60	0.00	481029.00	3911455.00
43.08	182.53	78.01	15.37	15.47	0.00	480999.00	3911459.00

164.50	199.53	71.51	24.11	35.39	0.00	481016.00	3911452.00
186.60	68.65	8.06	26.53	41.69	0.00	480885.00	3911389.00
253.57	77.26	8.31	26.54	51.62	0.00	480894.00	3911389.00
160.69	61.77	8.18	22.80	36.49	0.00	480878.00	3911389.00
401.83	81.49	10.46	38.48	45.57	0.00	480898.00	3911391.00
192.33	77.38	9.59	24.78	49.14	0.00	480894.00	3911390.00
280.96	80.08	10.06	33.45	47.08	0.00	480896.00	3911391.00
95.62	64.53	17.64	14.30	25.68	0.00	480881.00	3911398.00
808.38	164.80	29.65	52.09	82.76	0.00	480981.00	3911410.00
331.04	131.22	28.12	34.08	53.15	0.00	480948.00	3911409.00
557.22	161.01	29.18	52.94	68.25	0.00	480977.00	3911410.00
141.87	98.32	27.56	20.51	36.16	0.00	480915.00	3911408.00
174.92	50.79	2.16	24.14	38.20	0.00	480867.00	3911383.00
284.76	73.82	4.13	31.88	48.88	0.00	480890.00	3911385.00
440.35	98.18	4.47	40.88	66.20	0.00	480914.00	3911385.00
364.87	80.68	4.04	33.84	57.09	0.00	480897.00	3911385.00
288.77	68.81	3.86	33.12	56.22	0.00	480885.00	3911385.00
316.21	55.55	3.86	30.39	40.75	0.00	480872.00	3911385.00
417.06	82.13	4.06	45.02	61.10	0.00	480898.00	3911385.00
264.15	60.58	3.39	28.49	36.28	0.00	480877.00	3911384.00
405.92	83.36	4.23	41.32	57.37	0.00	480900.00	3911385.00
358.49	77.31	3.84	36.08	45.93	0.00	480894.00	3911385.00
247.42	63.44	3.72	26.84	48.60	0.00	480880.00	3911384.00
473.21	91.14	4.69	40.33	67.06	0.00	480907.00	3911385.00
199.12	58.05	3.68	24.09	36.99	0.00	480874.00	3911384.00
353.54	85.97	4.28	37.59	58.78	0.00	480902.00	3911385.00
480.81	102.92	4.17	36.09	75.41	0.00	480919.00	3911385.00
230.95	70.23	3.64	22.54	49.14	0.00	480887.00	3911384.00
94.41	69.75	18.52	17.79	23.17	0.00	480886.00	3911399.00
172.58	95.14	24.73	23.34	32.72	0.00	480911.00	3911406.00
180.55	50.99	4.52	18.23	36.17	0.00	480867.00	3911385.00
176.93	48.24	0.92	21.36	35.94	0.00	480865.00	3911382.00
219.36	61.63	2.75	32.07	31.60	0.00	480878.00	3911384.00
278.57	70.99	2.92	28.29	57.46	0.00	480887.00	3911384.00
171.60	48.74	2.56	22.93	32.78	0.00	480865.00	3911383.00
543.30	99.13	5.59	41.36	71.65	0.00	480915.00	3911386.00
393.19	80.41	5.78	40.42	52.84	0.00	480897.00	3911387.00
281.84	73.43	5.25	36.69	47.35	0.00	480890.00	3911386.00
231.76	64.44	5.11	31.09	38.78	0.00	480881.00	3911386.00
665.29	115.26	5.58	48.83	81.25	0.00	480932.00	3911386.00
390.33	82.36	5.32	42.88	54.29	0.00	480899.00	3911386.00
160.77	50.39	5.03	20.56	35.16	0.00	480867.00	3911386.00
60.00	137.32	52.14	15.65	21.77	0.00	480954.00	3911433.00
165.52	155.81	48.99	24.56	38.64	0.00	480972.00	3911430.00
427.64	90.79	8.45	44.80	47.69	0.00	480907.00	3911389.00
332.37	86.44	7.93	39.42	51.04	0.00	480903.00	3911389.00
303.03	95.81	7.65	33.68	52.90	0.00	480912.00	3911388.00
295.79	84.18	7.87	27.94	59.06	0.00	480900.00	3911389.00
194.49	74.15	7.84	28.94	47.91	0.00	480890.00	3911389.00
357.55	88.72	8.23	34.47	57.62	0.00	480905.00	3911389.00
72.72	99.13	37.74	14.41	17.28	0.00	480915.00	3911419.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
144.24	110961.70	31174.13	2295.83	2216.57	<b>118.96</b>	591778.00	3942555.00
400.11	100918.77	26406.35	1819.13	1384.76	0.00	581735.00	3937787.00
262.87	104405.56	28069.71	1902.10	1498.53	0.00	585222.00	3939450.00
98.67	116294.82	33684.34	2634.66	2664.13	0.00	597111.00	3945065.00
50.62	128558.61	39420.39	3511.45	4150.25	0.00	609375.00	3950801.00
585.60	98405.74	25180.16	1692.36	1073.93	0.00	579222.00	3936561.00
194.19	107459.00	29522.70	2109.66	1907.39	0.00	588275.00	3940903.00
197.19	107292.15	29441.52	1993.40	1605.36	0.00	588108.00	3940822.00
310.57	102924.62	27365.17	1821.41	1321.71	0.00	583741.00	3938746.00
432.40	100360.45	26139.55	1837.81	1455.88	0.00	581177.00	3937520.00
328.93	102444.33	27134.01	1844.82	1432.83	0.00	583261.00	3938515.00
326.92	102494.88	27166.96	1868.02	1450.16	0.00	583311.00	3938548.00
529.10	99021.40	25481.52	1717.69	1151.82	0.00	579838.00	3936862.00
288.53	103561.49	27675.38	1942.72	1633.42	0.00	584378.00	3939056.00
237.64	105369.03	28543.85	2058.20	1842.64	0.00	586185.00	3939925.00
172.04	108822.75	30163.97	2065.80	1742.89	0.00	589639.00	3941545.00
84.98	118692.91	34795.13	2642.11	2744.84	0.00	599509.00	3946176.00
263.08	104398.25	28073.21	2044.29	1863.90	0.00	585215.00	3939454.00
532.38	98983.09	25458.89	1729.44	1190.47	0.00	579799.00	3936840.00
302.59	103147.72	27472.50	1871.68	1459.88	0.00	583964.00	3938853.00
538.55	98911.17	25429.83	1675.59	983.34	0.00	579727.00	3936811.00
204.91	106879.72	29249.66	2033.78	1748.15	0.00	587696.00	3940630.00
300.99	103192.72	27497.77	1935.75	1657.11	0.00	584009.00	3938879.00
215.07	106374.77	29002.93	1970.59	1593.38	0.00	587191.00	3940384.00
92.38	117329.37	34171.56	2540.56	2421.19	0.00	598146.00	3945552.00
133.03	112012.72	31658.66	2447.59	2562.06	0.00	592829.00	3943039.00
23.67	148577.44	48744.05	4688.27	5598.37	0.00	629394.00	3960125.00
112.32	114358.14	32765.68	2533.17	2679.01	0.00	595174.00	3944146.00
148.21	110618.10	31005.31	2284.35	2235.34	0.00	591434.00	3942386.00
108.10	114916.54	33035.49	2452.02	2397.74	0.00	595733.00	3944416.00
203.73	106941.40	29282.51	2028.16	1695.55	0.00	587758.00	3940663.00
330.77	102398.40	27121.34	1926.13	1638.62	0.00	583215.00	3938502.00
504.04	99329.46	25638.00	1791.21	1386.52	0.00	580146.00	3937019.00
264.98	104331.68	28054.02	1896.52	1447.58	0.00	585148.00	3939435.00
146.08	110800.22	31098.20	2312.00	2279.35	0.00	591617.00	3942479.00
606.15	98207.43	25084.60	1695.30	1082.27	0.00	579024.00	3936465.00
553.45	98743.13	25348.04	1712.30	1136.64	0.00	579559.00	3936729.00
461.93	99902.99	25917.60	1752.51	1238.36	0.00	580719.00	3937298.00
249.15	104911.82	28310.49	2024.14	1855.33	0.00	585728.00	3939691.00
546.51	98820.70	25382.83	1766.37	1329.42	0.00	579637.00	3936764.00
284.85	103676.04	27727.99	1940.23	1619.95	0.00	584492.00	3939109.00
176.72	108513.06	30024.12	2154.85	1993.47	0.00	589329.00	3941405.00
485.36	99574.58	25758.44	1717.92	1103.64	0.00	580391.00	3937139.00
597.88	98286.56	25117.42	1675.53	1018.84	0.00	579103.00	3936498.00
295.53	103352.23	27579.52	1931.11	1616.86	0.00	584169.00	3938960.00
82.64	119160.23	35010.41	2783.21	3026.14	0.00	599977.00	3946391.00
350.05	101942.45	26900.21	1788.40	1249.20	0.00	582759.00	3938281.00
313.08	102856.52	27341.66	1841.34	1367.91	0.00	583673.00	3938722.00
456.46	99985.95	25953.44	1812.86	1410.64	0.00	580802.00	3937334.00

409.88	100743.28	26325.31	1762.85	1194.52	0.00	581560.00	3937706.00
327.23	102486.93	27165.90	1888.01	1512.58	0.00	583303.00	3938547.00
422.94	100516.51	26215.13	1764.52	1232.96	0.00	581333.00	3937596.00
422.24	100528.36	26220.92	1859.67	1526.44	0.00	581345.00	3937602.00
366.89	101574.51	26726.91	1828.43	1389.58	0.00	582391.00	3938108.00
163.60	109408.87	30441.04	2323.00	2356.43	0.00	590225.00	3941822.00
438.66	100259.74	26093.37	1720.88	1087.10	0.00	581076.00	3937474.00
179.14	108356.94	29947.26	2216.25	2063.47	0.00	589173.00	3941328.00
489.75	99514.79	25721.43	1743.52	1235.19	0.00	580331.00	3937102.00
222.83	106011.15	28846.20	2062.23	1861.38	0.00	586827.00	3940227.00
359.14	101738.92	26802.04	1841.42	1458.33	0.00	582555.00	3938183.00
380.84	101288.10	26590.06	1767.02	1203.18	0.00	582104.00	3937971.00
262.61	104415.25	28081.94	1958.71	1641.72	0.00	585232.00	3939463.00
1791.86	94013.99	22806.51	1544.49	489.12	0.00	574830.00	3934187.00
185.98	107934.93	29750.58	2012.86	1623.43	0.00	588751.00	3941131.00
453.77	100024.33	25981.54	1770.12	1264.27	0.00	580841.00	3937362.00
451.13	100063.77	25997.83	1802.99	1369.58	0.00	580880.00	3937379.00
112.16	114378.54	32777.49	2587.51	2747.46	0.00	595195.00	3944158.00
529.86	99009.76	25484.91	1745.44	1242.89	0.00	579826.00	3936866.00
331.29	102386.50	27119.30	1853.63	1416.38	0.00	583203.00	3938500.00
246.80	105001.93	28365.28	2047.23	1827.17	0.00	585818.00	3939746.00
264.86	104336.68	28038.04	2010.35	1820.31	0.00	585153.00	3939419.00
205.44	106853.72	29239.99	2030.22	1717.34	0.00	587670.00	3940621.00
285.49	103656.42	27721.09	1934.81	1579.52	0.00	584473.00	3939102.00
24.02	148119.04	48543.71	4360.13	5001.92	0.00	628935.00	3959924.00
169.16	109019.05	30261.20	2150.82	1943.67	0.00	589835.00	3941642.00
116.69	113810.91	32514.33	2582.99	2737.12	0.00	594627.00	3943895.00
454.86	100009.94	25966.72	1758.96	1233.30	0.00	580826.00	3937348.00
197.62	107267.94	29435.22	2116.49	1942.49	0.00	588084.00	3940816.00
219.69	106155.54	28912.73	2146.74	2049.59	0.00	586972.00	3940294.00
869.78	96378.45	24155.17	1615.02	842.58	0.00	577195.00	3935536.00
178.46	108400.81	29960.68	2184.42	2072.09	0.00	589217.00	3941341.00
269.28	104184.14	27968.02	1972.88	1702.32	0.00	585000.00	3939349.00
129.49	112373.02	31843.26	2313.50	2159.84	0.00	593189.00	3943224.00
356.21	101804.41	26838.81	1842.77	1421.89	0.00	582621.00	3938220.00
151.17	110370.99	30885.22	2304.26	2292.95	0.00	591187.00	3942266.00
492.06	99483.90	25713.95	1738.76	1179.04	0.00	580300.00	3937095.00
267.19	104255.24	28015.24	1906.88	1475.09	0.00	585072.00	3939396.00
505.75	99306.03	25616.35	1681.80	997.66	0.00	580122.00	3936997.00
440.45	100230.54	26077.58	1787.05	1316.03	0.00	581047.00	3937458.00
439.45	100247.32	26077.62	1736.89	1156.21	0.00	581064.00	3937458.00
281.08	103794.29	27786.77	1895.46	1480.63	0.00	584611.00	3939168.00
236.16	105430.95	28567.79	1939.29	1527.12	0.00	586247.00	3939949.00
237.71	105365.87	28535.24	2016.57	1787.51	0.00	586182.00	3939916.00
191.68	107601.82	29591.94	2139.47	1944.17	0.00	588418.00	3940973.00
73.97	121087.88	35911.60	2963.80	3272.52	0.00	601904.00	3947292.00
113.14	114252.91	32700.05	2486.47	2587.81	0.00	595069.00	3944081.00
314.33	102822.66	27314.90	1867.77	1466.46	0.00	583639.00	3938696.00
260.05	104506.76	28120.36	1984.54	1725.61	0.00	585323.00	3939501.00
211.92	106527.06	29081.83	2068.20	1870.61	0.00	587343.00	3940463.00
430.08	100398.01	26152.11	1768.87	1282.84	0.00	581214.00	3937533.00

240.03	25278.21	7323.68	806.45	949.03	<b>70.75</b>	506094.00	3918704.00
207.25	25802.13	7577.51	1172.76	1517.74	0.00	506618.00	3918958.00
239.75	25283.38	7326.29	1067.59	1411.73	0.00	506100.00	3918707.00
97.40	29222.28	9188.79	1310.55	2107.97	0.00	510039.00	3920570.00
804.49	22285.88	5845.31	663.03	598.64	0.00	503102.00	3917226.00
201.38	25913.34	7629.86	1014.11	1220.82	0.00	506730.00	3919011.00
163.38	26735.30	8022.12	1461.35	2008.14	0.00	507552.00	3919403.00
117.14	28260.75	8751.27	1472.78	1775.71	0.00	509077.00	3920132.00
270.07	24886.87	7131.08	797.69	1067.64	0.00	505703.00	3918512.00
336.95	24215.72	6821.35	894.95	1037.69	0.00	505032.00	3918202.00
47.76	33902.66	11412.48	2364.69	2243.68	0.00	514719.00	3922793.00
334.24	24236.46	6825.39	875.78	1083.15	0.00	505053.00	3918206.00
366.38	23982.18	6696.47	837.93	1158.50	0.00	504798.00	3918077.00
201.45	25908.81	7622.54	1099.80	1562.03	0.00	506725.00	3919003.00
157.39	26896.80	8107.57	1250.99	1414.92	0.00	507713.00	3919488.00
133.32	27637.67	8441.23	1271.90	1684.08	0.00	508454.00	3919822.00
144.92	27257.39	8242.79	1171.57	1978.94	0.00	508074.00	3919624.00
354.15	24078.58	6742.47	799.69	1026.98	0.00	504895.00	3918123.00
154.52	26974.03	8135.07	1152.15	1547.19	0.00	507790.00	3919516.00
364.86	23991.88	6706.16	907.20	1062.42	0.00	504808.00	3918087.00
233.12	25378.64	7380.87	998.63	1409.66	0.00	506195.00	3918762.00
311.63	24441.29	6928.22	950.29	1282.20	0.00	505258.00	3918309.00
182.71	26287.90	7802.67	1027.67	1390.34	0.00	507104.00	3919183.00
314.39	24417.12	6911.60	808.93	909.32	0.00	505233.00	3918292.00
26.95	39070.94	13792.24	2535.36	3772.37	0.00	519887.00	3925173.00
432.93	23543.68	6490.75	833.94	932.85	0.00	504360.00	3917872.00
158.37	26870.29	8078.33	1252.86	2212.21	0.00	507687.00	3919459.00
586.77	22855.28	6144.84	780.36	854.54	0.00	503672.00	3917526.00
259.43	25017.28	7191.58	913.22	1303.53	0.00	505834.00	3918572.00
362.66	24014.81	6715.80	818.06	906.33	0.00	504831.00	3918097.00
309.91	24459.29	6930.49	894.57	1166.60	0.00	505276.00	3918311.00
83.70	30085.61	9602.50	1979.32	2289.59	0.00	510902.00	3920983.00
219.53	25593.27	7477.23	1111.54	1453.59	0.00	506410.00	3918858.00
376.53	23903.96	6671.38	899.35	1054.37	0.00	504720.00	3918052.00
586.76	22853.56	6139.50	885.42	1089.36	0.00	503670.00	3917520.00
420.24	23611.83	6531.82	906.47	985.37	0.00	504428.00	3917913.00
332.40	24250.27	6831.60	1013.06	1323.76	0.00	505067.00	3918212.00
322.91	24335.63	6869.08	929.58	1305.10	0.00	505152.00	3918250.00
434.02	23541.74	6489.35	914.60	1046.96	0.00	504358.00	3917870.00
93.80	29432.35	9287.83	1913.24	2572.38	0.00	510249.00	3920669.00
376.11	23909.75	6670.32	1154.87	1418.94	0.00	504726.00	3918051.00
368.55	23960.76	6691.37	950.93	1145.51	0.00	504777.00	3918072.00
114.55	28371.09	8789.66	1378.11	2115.58	0.00	509187.00	3920170.00
202.91	25883.72	7628.70	1292.81	1396.57	0.00	506700.00	3919009.00
371.50	23947.44	6684.18	890.71	1072.68	0.00	504764.00	3918065.00
111.24	28518.21	8851.39	1112.75	1746.24	0.00	509334.00	3920232.00
236.87	25323.90	7354.46	1007.91	1244.12	0.00	506140.00	3918735.00
591.41	22842.55	6138.37	768.46	846.02	0.00	503659.00	3917519.00
133.01	27648.86	8443.17	1314.72	1798.21	0.00	508465.00	3919824.00
144.45	27270.54	8281.00	1512.71	1991.34	0.00	508087.00	3919662.00

406.53	23708.32	6566.45	833.76	1184.75	0.00	504525.00	3917947.00
96.69	29264.33	9196.52	1354.64	2208.20	0.00	510081.00	3920577.00
198.48	25966.30	7647.44	1002.33	1571.59	0.00	506783.00	3919028.00
247.58	25171.95	7282.12	1198.88	1495.22	0.00	505988.00	3918663.00
778.11	22339.64	5876.77	694.16	633.61	0.00	503156.00	3917258.00
381.83	23865.66	6644.91	852.45	1071.95	0.00	504682.00	3918026.00
437.45	23518.05	6479.14	903.26	1052.05	0.00	504334.00	3917860.00
175.35	26449.48	7877.10	1071.43	1549.35	0.00	507266.00	3919258.00
389.15	23815.84	6622.04	787.31	879.25	0.00	504632.00	3918003.00
275.98	24817.29	7107.12	1067.72	1340.25	0.00	505634.00	3918488.00
324.53	24320.24	6874.58	971.91	1136.73	0.00	505137.00	3918255.00
538.66	23031.33	6235.73	777.51	858.66	0.00	503848.00	3917617.00
195.88	26017.19	7681.23	1184.71	1598.08	0.00	506833.00	3919062.00
54.21	32945.77	10943.25	1850.91	2178.73	0.00	513762.00	3922324.00
329.93	24278.27	6839.53	876.21	1118.49	0.00	505095.00	3918220.00
563.63	22940.82	6189.85	757.86	785.93	0.00	503757.00	3917571.00
381.82	23871.23	6646.77	767.62	824.17	0.00	504688.00	3918028.00
144.31	27276.71	8268.30	1258.65	1872.12	0.00	508093.00	3919649.00
329.42	24284.03	6850.13	860.10	1052.48	0.00	505100.00	3918231.00
823.89	22239.92	5826.73	681.59	618.32	0.00	503056.00	3917208.00
289.49	24666.29	7038.31	906.17	976.72	0.00	505483.00	3918419.00
141.38	27366.05	8322.46	1420.86	1922.22	0.00	508182.00	3919703.00
152.86	27023.32	8161.15	1262.82	1546.35	0.00	507840.00	3919542.00
158.11	26879.39	8080.12	1348.31	1918.75	0.00	507696.00	3919461.00
632.87	22702.17	6069.69	728.68	676.00	0.00	503518.00	3917450.00
190.70	26122.18	7728.48	1019.89	1412.12	0.00	506938.00	3919109.00
227.92	25453.13	7413.66	1018.31	1277.59	0.00	506269.00	3918794.00
522.49	23109.82	6272.34	811.84	892.69	0.00	503926.00	3917653.00
427.65	23580.45	6506.11	835.04	927.15	0.00	504397.00	3917887.00
394.15	23779.52	6609.53	815.83	902.05	0.00	504596.00	3917990.00
164.18	26719.94	7999.56	1149.68	1750.23	0.00	507536.00	3919380.00
109.70	28591.57	8880.71	1482.25	2414.17	0.00	509408.00	3920261.00
41.02	35134.79	11948.76	1901.82	3642.75	0.00	515951.00	3923330.00
688.65	22554.87	5990.65	718.09	731.50	0.00	503371.00	3917371.00
210.15	25750.00	7559.46	873.75	930.25	0.00	506566.00	3918940.00
353.88	24077.64	6742.85	909.38	1171.24	0.00	504894.00	3918124.00
422.07	23608.73	6518.68	892.99	975.37	0.00	504425.00	3917899.00
277.63	24802.91	7094.28	834.71	956.64	0.00	505619.00	3918475.00
361.32	24020.69	6721.47	950.24	1156.34	0.00	504837.00	3918102.00
91.69	29554.62	9345.07	1246.83	1929.15	0.00	510371.00	3920726.00
141.14	27375.48	8316.04	1218.93	1670.93	0.00	508192.00	3919697.00
341.09	24180.17	6803.27	948.59	1083.76	0.00	504996.00	3918184.00
327.32	24300.30	6854.01	824.79	919.12	0.00	505117.00	3918235.00
155.93	26941.22	8105.71	1099.56	1713.40	0.00	507758.00	3919486.00
247.03	25178.05	7282.24	1326.85	1826.33	0.00	505994.00	3918663.00
229.24	25438.70	7398.84	988.55	1301.26	0.00	506255.00	3918780.00
238.89	25293.25	7340.05	1026.75	1321.05	0.00	506110.00	3918721.00
73.73	30856.24	9954.94	2073.55	2544.59	0.00	511673.00	3921336.00
606.80	22791.36	6108.95	702.45	663.14	0.00	503608.00	3917490.00
378.68	23891.91	6656.04	847.30	1099.74	0.00	504708.00	3918037.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
237.85	20794.03	6063.54	798.10	1103.36	65.19	501610.00	3917444.00
241.75	20746.86	6058.13	1042.19	1209.60	0.00	501563.00	3917439.00
179.47	21692.22	6505.14	1215.25	1528.10	0.00	502509.00	3917886.00
233.98	20844.37	6103.80	1098.33	1221.14	0.00	501661.00	3917485.00
240.20	20769.70	6063.43	1117.75	1501.82	0.00	501586.00	3917444.00
443.46	19239.50	5314.51	653.10	749.13	0.00	500056.00	3916695.00
215.21	21096.24	6221.94	1118.96	1423.13	0.00	501913.00	3917603.00
268.93	20440.01	5912.42	1108.13	1400.50	0.00	501256.00	3917293.00
436.37	19269.80	5336.03	903.59	1184.31	0.00	500086.00	3916717.00
262.64	20510.07	5931.33	841.89	1313.99	0.00	501326.00	3917312.00
124.48	23056.05	7141.72	1323.85	1962.61	0.00	503872.00	3918523.00
409.34	19411.06	5401.74	789.33	985.75	0.00	500227.00	3916783.00
254.20	20598.90	5977.10	844.19	1108.84	0.00	501415.00	3917358.00
68.82	25891.44	8467.92	1824.51	2867.53	0.00	506708.00	3919849.00
518.99	18920.10	5159.47	631.49	671.47	0.00	499736.00	3916540.00
336.37	19859.13	5622.02	933.79	1322.44	0.00	500675.00	3917003.00
389.14	19520.68	5455.51	881.23	1273.90	0.00	500337.00	3916836.00
161.33	22053.36	6678.81	1143.75	1499.92	0.00	502870.00	3918060.00
663.34	18495.45	4946.91	660.28	720.15	0.00	499312.00	3916328.00
310.16	20061.03	5727.48	974.79	1175.33	0.00	500877.00	3917108.00
250.85	20638.82	6005.32	1021.89	1346.12	0.00	501455.00	3917386.00
436.72	19271.16	5341.32	1087.99	1396.37	0.00	500087.00	3916722.00
207.26	21218.04	6266.48	913.09	1343.66	0.00	502034.00	3917647.00
231.75	20866.59	6108.23	1017.43	1392.24	0.00	501683.00	3917489.00
249.48	20654.24	6011.77	1077.48	1270.70	0.00	501471.00	3917393.00
365.25	19660.62	5533.31	837.57	947.94	0.00	500477.00	3916914.00
269.06	20443.63	5903.40	889.76	1061.18	0.00	501260.00	3917284.00
193.08	21442.12	6383.48	1232.00	1862.81	0.00	502258.00	3917764.00
628.51	18572.73	4978.97	614.18	698.79	0.00	499389.00	3916360.00
513.51	18942.52	5171.14	697.27	752.81	0.00	499759.00	3916552.00
246.88	20685.14	6027.65	1157.31	1306.11	0.00	501501.00	3917408.00
160.35	22075.21	6679.29	1358.76	1619.17	0.00	502891.00	3918060.00
287.03	20268.11	5816.21	884.42	1196.17	0.00	501084.00	3917197.00
203.82	21272.15	6301.77	983.11	1335.22	0.00	502088.00	3917683.00
222.75	20989.05	6176.59	1092.33	1138.65	0.00	501805.00	3917557.00
104.81	23793.28	7489.94	1650.43	2023.12	0.00	504610.00	3918871.00
197.86	21362.39	6335.99	1182.91	1729.45	0.00	502179.00	3917717.00
474.59	19095.46	5246.33	605.09	618.46	0.00	499912.00	3916627.00
426.41	19319.76	5362.03	783.20	959.05	0.00	500136.00	3916743.00
243.06	20730.67	6044.42	1391.84	1584.19	0.00	501547.00	3917425.00
257.53	20564.27	5953.93	779.74	1026.63	0.00	501381.00	3917335.00
265.90	20473.47	5924.51	871.82	1129.75	0.00	501290.00	3917305.00
285.70	20278.07	5830.14	930.67	1050.99	0.00	501094.00	3917211.00
308.56	20077.33	5732.58	724.87	823.18	0.00	500894.00	3917113.00
392.54	19497.53	5446.36	782.73	1054.84	0.00	500314.00	3916827.00
637.86	18552.12	4972.28	716.08	849.99	0.00	499368.00	3916353.00
153.84	22224.82	6756.74	1198.16	1845.24	0.00	503041.00	3918138.00
185.86	21571.66	6442.95	937.04	1168.68	0.00	502388.00	3917824.00
468.48	19121.64	5265.28	747.54	849.40	0.00	499938.00	3916646.00

443.16	19231.27	5319.23	764.55	1050.51	0.00	500048.00	3916700.00
318.33	19999.56	5695.56	984.72	1264.26	0.00	500816.00	3917076.00
471.24	19106.55	5254.15	781.50	961.02	0.00	499923.00	3916635.00
265.24	20483.07	5919.04	799.54	1047.47	0.00	501299.00	3917300.00
93.85	24302.54	7733.37	1519.83	1845.45	0.00	505119.00	3919114.00
211.06	21151.40	6250.53	960.36	1225.65	0.00	501968.00	3917631.00
148.61	22357.87	6825.40	1340.07	1711.54	0.00	503174.00	3918206.00
117.71	23288.22	7269.39	1536.19	1828.26	0.00	504105.00	3918650.00
214.83	21100.55	6224.69	999.38	1103.67	0.00	501917.00	3917605.00
273.94	20393.01	5886.54	1104.83	1324.12	0.00	501209.00	3917267.00
137.85	22647.04	6950.70	1523.27	2286.93	0.00	503463.00	3918331.00
263.26	20504.98	5926.25	731.11	864.66	0.00	501321.00	3917307.00
324.03	19954.79	5672.50	844.12	1088.02	0.00	500771.00	3917053.00
194.66	21411.76	6372.57	1039.34	1431.14	0.00	502228.00	3917753.00
179.30	21692.40	6496.53	956.03	1292.21	0.00	502509.00	3917877.00
301.66	20140.87	5753.76	922.39	1339.68	0.00	500957.00	3917135.00
118.81	23246.70	7219.08	1009.70	1794.34	0.00	504063.00	3918600.00
328.61	19917.39	5650.68	820.45	1081.70	0.00	500734.00	3917031.00
119.04	23240.82	7237.45	1276.74	1772.23	0.00	504057.00	3918618.00
78.63	25180.76	8155.09	2235.18	2706.93	0.00	505997.00	3919536.00
352.06	19748.55	5569.12	768.35	876.12	0.00	500565.00	3916950.00
215.35	21096.47	6211.22	849.76	1085.70	0.00	501913.00	3917592.00
286.21	20281.77	5825.82	921.64	1058.73	0.00	501098.00	3917207.00
259.78	20542.52	5951.31	1076.39	1411.04	0.00	501359.00	3917332.00
162.83	22022.83	6667.82	1327.31	1287.80	0.00	502839.00	3918049.00
377.13	19587.15	5498.75	948.50	1135.77	0.00	500403.00	3916880.00
386.12	19537.12	5460.19	778.13	1083.65	0.00	500353.00	3916841.00
204.63	21251.36	6291.97	993.42	1249.83	0.00	502068.00	3917673.00
449.64	19199.53	5304.94	823.76	980.03	0.00	500016.00	3916686.00
385.13	19548.47	5469.90	774.69	907.25	0.00	500365.00	3916851.00
79.70	25108.97	8124.32	2023.60	2414.99	0.00	505925.00	3919505.00
281.85	20314.43	5834.05	861.31	1252.72	0.00	501131.00	3917215.00
448.22	19212.83	5301.51	746.82	899.32	0.00	500029.00	3916682.00
569.61	18742.36	5077.76	700.75	762.58	0.00	499559.00	3916459.00
44.83	28537.53	9695.99	2239.84	4491.40	0.00	509354.00	3921077.00
201.13	21310.68	6320.29	1288.26	1568.21	0.00	502127.00	3917701.00
591.79	18684.47	5035.23	643.58	735.53	0.00	499501.00	3916416.00
574.79	18726.57	5066.97	744.44	862.40	0.00	499543.00	3916448.00
270.00	20435.42	5903.58	1006.89	1467.67	0.00	501252.00	3917284.00
367.33	19648.86	5516.14	843.07	1129.49	0.00	500465.00	3916897.00
216.54	21075.37	6205.41	951.97	1371.25	0.00	501892.00	3917586.00
421.72	19341.51	5369.12	832.65	990.35	0.00	500158.00	3916750.00
255.75	20589.54	5968.32	987.53	1420.40	0.00	501406.00	3917349.00
380.31	19570.81	5483.31	940.22	1174.24	0.00	500387.00	3916864.00
188.87	21516.83	6423.23	911.12	1118.46	0.00	502333.00	3917804.00
57.55	26925.40	8969.64	1816.49	2627.14	0.00	507742.00	3920350.00
77.13	25280.40	8180.25	1916.72	3034.16	0.00	506097.00	3919561.00
394.70	19489.37	5440.30	681.62	749.66	0.00	500306.00	3916821.00
393.19	19495.82	5445.25	819.67	1032.78	0.00	500312.00	3916826.00
426.94	19312.84	5349.46	730.41	1023.57	0.00	500129.00	3916730.00
349.63	19764.68	5582.96	1013.00	1364.04	0.00	500581.00	3916964.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
334.03	4774.19	1388.63	562.11	1176.32	<b>36.41</b>	485590.00	3912769.00
356.59	4722.03	1370.72	589.68	1174.39	0.00	485538.00	3912751.00
327.36	4800.46	1407.64	610.49	794.29	0.00	485617.00	3912788.00
234.78	5099.98	1544.86	591.00	1208.29	0.00	485916.00	3912926.00
314.34	4822.50	1412.83	505.24	1203.37	0.00	485639.00	3912794.00
329.39	4780.84	1406.67	446.49	762.83	0.00	485597.00	3912787.00
146.14	5622.84	1808.82	647.53	1089.31	0.00	486439.00	3913190.00
300.29	4860.26	1442.59	543.42	1079.78	0.00	485677.00	3912823.00
384.01	4653.69	1345.13	605.41	909.15	0.00	485470.00	3912726.00
118.39	5899.12	1934.90	549.58	1063.33	0.00	486715.00	3913316.00
290.82	4894.84	1462.21	565.10	909.04	0.00	485711.00	3912843.00
122.80	5854.95	1914.88	644.58	1127.45	0.00	486671.00	3913296.00
68.61	6765.85	2340.13	403.83	933.21	0.00	487582.00	3913721.00
360.12	4703.78	1366.00	436.61	929.38	0.00	485520.00	3912747.00
272.94	4953.76	1486.63	506.72	1096.64	0.00	485770.00	3912867.00
55.18	7174.85	2519.88	462.13	1168.12	0.00	487991.00	3913901.00
177.02	5397.03	1690.32	620.72	1284.96	0.00	486213.00	3913071.00
354.31	4715.38	1366.89	439.66	971.65	0.00	485532.00	3912748.00
119.74	5886.58	1926.62	620.33	1358.06	0.00	486703.00	3913307.00
663.36	4273.50	1157.20	469.99	595.86	0.00	485090.00	3912538.00
222.60	5152.14	1584.65	564.87	742.94	0.00	485968.00	3912965.00
367.28	4690.00	1357.86	573.73	1057.78	0.00	485506.00	3912739.00
217.21	5179.61	1592.70	517.45	1268.54	0.00	485996.00	3912973.00
152.65	5575.86	1769.05	594.01	1244.82	0.00	486392.00	3913150.00
135.48	5720.18	1848.39	580.97	1302.10	0.00	486536.00	3913229.00
163.49	5495.45	1740.99	568.53	1089.55	0.00	486312.00	3913122.00
114.80	5947.14	1965.05	587.80	931.02	0.00	486763.00	3913346.00
307.17	4842.86	1424.73	563.16	1227.82	0.00	485659.00	3912806.00
581.87	4343.49	1192.02	472.48	897.39	0.00	485160.00	3912573.00
192.33	5301.18	1646.54	662.01	1222.91	0.00	486117.00	3913027.00
254.24	5023.41	1517.28	529.74	995.19	0.00	485840.00	3912898.00
109.68	6006.30	1980.31	583.91	1252.80	0.00	486823.00	3913361.00
329.86	4784.07	1407.55	525.30	867.36	0.00	485600.00	3912788.00
134.77	5723.80	1844.49	569.84	1216.00	0.00	486540.00	3913225.00
328.95	4778.55	1397.85	509.11	1101.83	0.00	485595.00	3912779.00
259.01	4998.80	1500.92	471.14	1214.76	0.00	485815.00	3912882.00
298.39	4866.90	1439.90	594.65	1129.85	0.00	485683.00	3912821.00
263.05	4990.72	1498.38	511.19	969.19	0.00	485807.00	3912879.00
207.83	5222.84	1616.10	625.98	1127.86	0.00	486039.00	3912997.00
355.24	4721.34	1369.31	577.32	1135.59	0.00	485538.00	3912750.00
105.50	6065.89	2015.43	477.71	909.82	0.00	486882.00	3913396.00
306.84	4852.67	1426.40	527.93	1015.60	0.00	485669.00	3912807.00
397.14	4634.48	1330.19	494.16	854.84	0.00	485451.00	3912711.00
130.78	5772.38	1869.28	652.67	1254.86	0.00	486589.00	3913250.00
475.09	4498.15	1262.28	437.55	913.23	0.00	485314.00	3912643.00
423.08	4573.48	1301.50	516.98	1070.50	0.00	485390.00	3912682.00
166.30	5474.22	1727.86	482.38	1176.13	0.00	486291.00	3913109.00
249.70	5039.90	1525.54	566.62	1129.77	0.00	485856.00	3912906.00
573.11	4366.44	1198.10	544.66	876.46	0.00	485183.00	3912579.00

135.15	5722.78	1842.49	569.82	1278.02	0.00	486539.00	3913223.00
225.21	5137.97	1564.04	434.36	1081.25	0.00	485954.00	3912945.00
219.01	5176.09	1591.93	501.28	1087.83	0.00	485992.00	3912973.00
323.09	4798.67	1409.85	626.43	1055.70	0.00	485615.00	3912791.00
287.63	4900.02	1453.09	474.67	1174.40	0.00	485716.00	3912834.00
27.63	8814.49	3300.22	739.85	1312.36	0.00	489631.00	3914681.00
72.22	6674.51	2299.30	658.70	1324.94	0.00	487491.00	3913680.00
85.09	6394.91	2166.69	585.78	1197.70	0.00	487211.00	3913547.00
315.09	4820.00	1422.96	576.03	1158.25	0.00	485636.00	3912804.00
181.53	5369.71	1685.39	617.07	1001.32	0.00	486186.00	3913066.00
264.58	4979.57	1494.98	649.22	1267.70	0.00	485796.00	3912876.00
390.14	4638.69	1339.74	639.16	951.67	0.00	485455.00	3912721.00
161.60	5502.11	1742.07	504.49	1061.39	0.00	486318.00	3913123.00
336.55	4761.25	1394.96	463.92	736.41	0.00	485578.00	3912776.00
118.58	5897.11	1925.66	556.55	1260.81	0.00	486713.00	3913306.00
202.87	5257.34	1617.40	423.23	952.00	0.00	486074.00	3912998.00
250.92	5032.61	1518.47	530.54	1207.90	0.00	485849.00	3912899.00
174.58	5413.84	1708.49	513.97	1071.18	0.00	486230.00	3913089.00
137.46	5703.78	1834.17	576.07	1142.09	0.00	486520.00	3913215.00
61.72	6958.13	2430.35	634.95	1182.11	0.00	487774.00	3913811.00
475.35	4493.85	1263.05	452.90	860.09	0.00	485310.00	3912644.00
211.63	5202.31	1604.58	600.12	1117.90	0.00	486019.00	3912985.00
541.70	4409.59	1212.86	457.57	1097.56	0.00	485226.00	3912594.00
829.30	4141.64	1088.98	432.16	629.99	0.00	484958.00	3912470.00
510.39	4440.05	1233.48	418.83	667.33	0.00	485256.00	3912614.00
665.26	4294.85	1152.28	284.46	708.73	0.00	485111.00	3912533.00
64.59	6873.94	2390.63	546.06	1161.32	0.00	487690.00	3913771.00
183.95	5357.84	1680.72	584.41	1056.66	0.00	486174.00	3913061.00
203.61	5244.26	1626.12	556.02	1247.61	0.00	486061.00	3913007.00
399.06	4628.24	1323.30	337.33	726.17	0.00	485445.00	3912704.00
83.65	6423.26	2178.47	647.47	1230.66	0.00	487240.00	3913559.00
359.24	4710.35	1363.96	510.60	1053.43	0.00	485527.00	3912745.00
417.42	4594.48	1309.97	540.49	978.21	0.00	485411.00	3912691.00
687.68	4262.25	1141.37	487.09	1042.36	0.00	485079.00	3912522.00
291.68	4887.83	1449.29	498.36	1117.67	0.00	485704.00	3912830.00
291.20	4887.30	1453.81	532.71	1052.73	0.00	485704.00	3912835.00
349.55	4731.52	1373.22	545.65	1030.98	0.00	485548.00	3912754.00
363.86	4696.98	1358.77	653.91	1165.56	0.00	485513.00	3912740.00
239.34	5072.64	1549.35	562.07	1150.07	0.00	485889.00	3912930.00
310.57	4840.85	1431.10	580.29	885.01	0.00	485657.00	3912812.00
409.88	4602.36	1317.27	372.79	787.17	0.00	485419.00	3912698.00
431.65	4573.94	1297.98	466.70	794.09	0.00	485390.00	3912679.00
258.92	5002.84	1504.31	564.67	1084.33	0.00	485819.00	3912885.00
156.17	5547.05	1767.95	566.03	1164.30	0.00	486363.00	3913149.00
117.23	5918.16	1931.61	464.36	1150.58	0.00	486734.00	3913312.00
326.91	4785.89	1411.30	476.42	916.84	0.00	485602.00	3912792.00
90.73	6298.35	2115.57	623.24	1284.82	0.00	487115.00	3913496.00
109.17	6019.77	1993.39	590.28	916.62	0.00	486836.00	3913374.00
225.07	5139.25	1571.46	485.01	976.55	0.00	485956.00	3912952.00
138.06	5698.39	1834.29	549.78	1070.70	0.00	486515.00	3913215.00
87.95	6346.01	2137.90	589.85	1108.74	0.00	487162.00	3913519.00



284.54	1132.83	339.93	147.70	278.77	<b>22.49</b>	481949.00	3911721.00
172.67	1333.22	443.69	121.17	285.33	0.00	482149.00	3911824.00
183.61	1307.21	429.04	127.49	277.47	0.00	482123.00	3911810.00
372.12	1024.20	291.93	146.32	265.01	0.00	481840.00	3911673.00
461.53	946.72	254.02	146.57	314.65	0.00	481763.00	3911635.00
155.97	1374.90	465.54	125.94	285.98	0.00	482191.00	3911846.00
39.99	2250.25	885.76	168.82	232.56	0.00	483067.00	3912267.00
150.83	1394.00	473.43	152.04	303.06	0.00	482210.00	3911854.00
609.32	862.91	205.70	140.35	312.41	0.00	481679.00	3911586.00
145.26	1413.56	484.08	151.16	288.69	0.00	482230.00	3911865.00
434.63	965.43	263.00	132.30	268.66	0.00	481782.00	3911644.00
566.90	867.15	219.39	133.10	231.93	0.00	481683.00	3911600.00
268.85	1147.19	351.50	136.69	301.03	0.00	481963.00	3911732.00
277.38	1130.18	345.67	132.66	280.66	0.00	481946.00	3911726.00
197.43	1266.45	412.57	122.59	241.36	0.00	482083.00	3911793.00
614.45	838.85	200.92	120.36	242.38	0.00	481655.00	3911582.00
260.86	1153.71	357.65	126.77	256.65	0.00	481970.00	3911738.00
186.12	1308.43	428.54	141.80	291.63	0.00	482125.00	3911809.00
169.04	1347.23	451.12	145.10	280.56	0.00	482164.00	3911832.00
424.47	963.98	270.09	156.32	261.96	0.00	481780.00	3911651.00
393.53	1007.23	282.50	144.39	237.18	0.00	481824.00	3911663.00
257.62	1163.37	359.11	113.61	280.42	0.00	481980.00	3911740.00
220.22	1222.94	392.50	122.09	269.53	0.00	482039.00	3911773.00
146.85	1409.67	481.74	143.66	302.62	0.00	482226.00	3911863.00
247.90	1178.14	369.83	126.51	230.68	0.00	481994.00	3911751.00
440.86	958.52	258.38	129.64	312.14	0.00	481775.00	3911639.00
432.21	958.85	264.43	106.55	250.34	0.00	481775.00	3911645.00
150.44	1395.36	476.85	140.68	215.48	0.00	482212.00	3911858.00
277.45	1133.01	345.54	146.20	280.96	0.00	481949.00	3911726.00
186.30	1299.00	429.53	130.57	247.24	0.00	482115.00	3911810.00
442.61	952.88	256.20	131.47	243.02	0.00	481769.00	3911637.00
246.26	1189.40	369.04	132.18	261.50	0.00	482006.00	3911750.00
162.47	1362.52	455.84	138.43	264.49	0.00	482179.00	3911837.00
299.99	1105.39	332.39	144.68	273.15	0.00	481922.00	3911713.00
581.98	869.84	213.38	157.14	256.96	0.00	481686.00	3911594.00
323.79	1075.56	315.78	155.90	293.81	0.00	481892.00	3911697.00
284.31	1122.08	341.96	134.54	271.45	0.00	481938.00	3911723.00
145.48	1411.48	482.06	134.92	275.84	0.00	482228.00	3911863.00
326.01	1074.25	315.93	161.11	299.65	0.00	481891.00	3911697.00
154.44	1389.70	470.29	142.48	288.18	0.00	482206.00	3911851.00
318.89	1078.65	319.75	148.25	270.37	0.00	481895.00	3911701.00
124.35	1497.02	523.53	138.12	249.08	0.00	482313.00	3911904.00
484.59	933.92	244.93	131.95	275.66	0.00	481750.00	3911626.00
90.20	1669.86	606.20	147.56	267.98	0.00	482486.00	3911987.00
297.80	1113.89	333.55	138.62	301.79	0.00	481930.00	3911714.00
219.94	1227.69	393.22	108.58	229.33	0.00	482044.00	3911774.00
117.53	1512.97	537.02	137.10	231.80	0.00	482329.00	3911918.00
306.04	1081.98	327.85	130.38	253.29	0.00	481898.00	3911709.00
161.24	1364.44	460.44	156.85	254.06	0.00	482181.00	3911841.00
472.71	937.42	248.23	145.44	258.58	0.00	481754.00	3911629.00

378.41	1016.09	288.79	148.79	278.26	0.00	481832.00	3911670.00
198.31	1267.99	417.52	145.24	232.33	0.00	482084.00	3911798.00
440.45	975.86	261.70	149.57	244.86	0.00	481792.00	3911642.00
499.69	908.72	238.87	105.33	241.32	0.00	481725.00	3911620.00
235.24	1195.25	378.31	94.75	223.77	0.00	482012.00	3911759.00
117.17	1526.24	536.04	121.41	245.32	0.00	482343.00	3911917.00
162.21	1365.04	458.24	135.13	245.09	0.00	482181.00	3911839.00
250.30	1174.14	366.88	142.91	266.07	0.00	481990.00	3911748.00
95.21	1640.10	591.81	139.88	287.81	0.00	482456.00	3911973.00
119.37	1510.99	531.39	153.73	280.73	0.00	482327.00	3911912.00
551.02	887.23	221.53	164.65	296.81	0.00	481704.00	3911602.00
407.97	998.69	273.31	154.69	298.94	0.00	481815.00	3911654.00
336.07	1051.59	307.72	134.55	296.71	0.00	481868.00	3911688.00
193.97	1288.30	421.59	156.91	265.96	0.00	482105.00	3911802.00
185.57	1306.80	429.54	147.84	302.87	0.00	482123.00	3911810.00
313.08	1085.18	321.21	128.11	273.32	0.00	481901.00	3911702.00
254.56	1164.71	363.05	158.58	296.28	0.00	481981.00	3911744.00
452.99	954.45	255.08	124.69	288.03	0.00	481771.00	3911636.00
291.00	1118.48	336.82	130.68	256.81	0.00	481935.00	3911718.00
275.18	1131.31	348.09	149.83	280.56	0.00	481948.00	3911729.00
392.67	999.28	281.53	150.58	290.90	0.00	481816.00	3911662.00
394.06	1006.06	280.59	147.09	237.64	0.00	481822.00	3911661.00
206.17	1252.15	406.38	144.17	270.12	0.00	482068.00	3911787.00
166.11	1348.20	453.06	119.90	274.84	0.00	482164.00	3911834.00
234.34	1199.46	380.95	133.59	243.12	0.00	482016.00	3911762.00
429.68	974.63	260.61	126.87	212.11	0.00	481791.00	3911641.00
338.78	1053.47	308.06	145.73	290.37	0.00	481870.00	3911689.00
98.12	1621.25	583.06	129.28	253.41	0.00	482438.00	3911964.00
343.34	1052.03	305.01	109.52	272.53	0.00	481868.00	3911686.00
233.52	1205.78	381.37	149.03	274.77	0.00	482022.00	3911762.00
703.53	817.21	184.53	123.43	312.21	0.00	481633.00	3911565.00
79.43	1745.86	643.29	144.42	236.47	0.00	482562.00	3912024.00
228.94	1200.72	384.55	149.09	279.83	0.00	482017.00	3911765.00
340.44	1055.39	305.87	141.04	291.21	0.00	481872.00	3911687.00
280.56	1132.39	342.13	119.46	258.15	0.00	481949.00	3911723.00
278.42	1130.53	343.66	132.02	283.94	0.00	481947.00	3911724.00
173.17	1331.07	443.19	149.92	279.21	0.00	482147.00	3911824.00
366.80	1022.73	292.44	137.19	312.18	0.00	481839.00	3911673.00
352.59	1034.45	302.51	122.94	253.42	0.00	481851.00	3911683.00
185.07	1298.26	429.28	133.78	288.00	0.00	482115.00	3911810.00
427.79	974.47	262.52	131.11	280.05	0.00	481791.00	3911643.00
634.35	821.30	197.27	115.13	268.16	0.00	481638.00	3911578.00
363.11	1031.30	294.50	136.78	297.18	0.00	481848.00	3911675.00
230.17	1206.77	384.79	125.99	214.09	0.00	482023.00	3911766.00
192.31	1289.74	421.27	124.02	235.01	0.00	482106.00	3911802.00
102.91	1590.96	568.12	120.17	248.19	0.00	482407.00	3911949.00
313.03	1092.09	323.45	148.58	315.93	0.00	481908.00	3911704.00
110.76	1548.00	549.45	132.88	268.90	0.00	482364.00	3911930.00
327.27	1071.20	315.98	111.55	226.99	0.00	481887.00	3911697.00
395.58	1007.93	280.79	129.97	263.84	0.00	481824.00	3911662.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
183.05	20725.97	6212.40	1058.07	1257.47	<b>64.03</b>	501542.00	3917593.00
199.77	20451.30	6074.00	998.83	1223.14	0.00	501268.00	3917455.00
162.79	21114.79	6386.87	1152.43	2104.28	0.00	501931.00	3917768.00
127.27	22024.61	6820.68	1227.22	1779.74	0.00	502841.00	3918201.00
51.69	26493.63	8896.20	2134.49	3923.35	0.00	507310.00	3920277.00
309.71	19221.39	5489.20	903.08	1298.93	0.00	500038.00	3916870.00
328.92	19078.42	5421.63	885.91	1424.13	0.00	499895.00	3916802.00
99.01	23068.65	7324.69	1923.91	2495.80	0.00	503885.00	3918705.00
231.54	20004.26	5865.42	905.46	1062.68	0.00	500821.00	3917246.00
95.91	23214.37	7375.92	1203.54	2402.27	0.00	504031.00	3918757.00
159.98	21174.19	6423.98	1323.52	1561.71	0.00	501990.00	3917805.00
203.14	20393.09	6049.65	1150.39	1609.96	0.00	501209.00	3917430.00
134.17	21816.62	6740.62	1685.71	2020.12	0.00	502633.00	3918121.00
459.27	18348.79	5065.92	853.22	1050.61	0.00	499165.00	3916447.00
232.12	19996.66	5863.95	1052.45	1454.02	0.00	500813.00	3917245.00
343.74	18974.91	5367.49	723.26	1029.90	0.00	499791.00	3916748.00
97.48	23143.90	7326.95	1211.87	2452.86	0.00	503960.00	3918708.00
77.33	24245.50	7856.46	1494.12	2664.90	0.00	505062.00	3919237.00
233.91	19972.30	5856.64	961.55	1026.20	0.00	500789.00	3917237.00
333.13	19051.17	5410.29	948.30	1199.22	0.00	499867.00	3916791.00
314.93	19185.16	5472.55	904.18	1188.70	0.00	500001.00	3916853.00
544.62	18034.31	4902.35	682.55	801.31	0.00	498851.00	3916283.00
277.57	19506.53	5626.92	972.88	1306.04	0.00	500323.00	3917008.00
401.83	18624.69	5210.80	877.38	971.45	0.00	499441.00	3916592.00
186.69	20658.12	6177.03	962.88	1257.69	0.00	501474.00	3917558.00
358.87	18874.10	5313.79	755.55	1038.67	0.00	499690.00	3916695.00
96.78	23174.62	7363.45	1292.69	2025.61	0.00	503991.00	3918744.00
200.65	20435.28	6069.93	1044.18	1627.28	0.00	501252.00	3917451.00
303.29	19279.78	5510.29	880.15	1292.39	0.00	500096.00	3916891.00
291.67	19372.22	5565.24	1105.97	1458.60	0.00	500189.00	3916946.00
358.58	18871.69	5324.53	806.70	927.45	0.00	499688.00	3916705.00
345.80	18963.13	5364.80	1068.48	1407.24	0.00	499779.00	3916746.00
244.52	19846.01	5784.93	803.37	1377.42	0.00	500662.00	3917166.00
188.99	20623.08	6149.67	1010.49	1436.60	0.00	501439.00	3917530.00
969.62	17184.21	4457.55	635.71	656.92	0.00	498000.00	3915838.00
439.42	18433.94	5108.39	895.88	1059.64	0.00	499250.00	3916489.00
162.35	21119.01	6393.63	1203.00	2036.34	0.00	501935.00	3917774.00
309.35	19231.73	5486.88	890.46	1229.81	0.00	500048.00	3916868.00
106.03	22771.52	7179.33	1409.28	1994.66	0.00	503588.00	3918560.00
277.47	19508.53	5627.53	873.03	1090.75	0.00	500325.00	3917008.00
228.52	20042.31	5881.21	993.53	1400.71	0.00	500859.00	3917262.00
272.69	19553.09	5646.07	820.87	1139.51	0.00	500369.00	3917027.00
433.97	18460.84	5111.02	704.88	950.88	0.00	499277.00	3916492.00
62.00	25421.20	8407.02	1666.05	3081.92	0.00	506237.00	3919788.00
493.09	18211.37	4996.20	693.35	791.81	0.00	499028.00	3916377.00
513.85	18139.07	4950.27	650.17	834.10	0.00	498955.00	3916331.00
427.80	18495.64	5140.26	770.59	880.68	0.00	499312.00	3916521.00
352.91	18919.35	5343.26	756.35	883.42	0.00	499736.00	3916724.00
659.34	17707.46	4740.79	646.03	648.39	0.00	498524.00	3916122.00

252.22	19764.02	5746.94	951.81	1399.97	0.00	500580.00	3917128.00
154.41	21296.52	6490.57	1742.26	1881.96	0.00	502113.00	3917871.00
101.64	22958.00	7257.66	1100.57	1507.70	0.00	503774.00	3918638.00
260.40	19678.45	5709.76	1024.50	1257.19	0.00	500495.00	3917091.00
382.81	18729.44	5250.55	737.12	917.28	0.00	499546.00	3916631.00
246.28	19826.90	5783.30	1118.40	1498.59	0.00	500643.00	3917164.00
105.00	22814.71	7204.13	1892.29	1806.10	0.00	503631.00	3918585.00
632.85	17777.45	4773.70	669.70	722.95	0.00	498594.00	3916154.00
165.27	21062.60	6363.76	1011.03	1592.65	0.00	501879.00	3917745.00
427.14	18494.97	5145.28	861.52	1093.77	0.00	499311.00	3916526.00
254.56	19734.50	5740.20	1134.79	1405.05	0.00	500551.00	3917121.00
426.26	18502.40	5131.50	744.57	905.67	0.00	499319.00	3916512.00
58.10	25793.82	8587.14	2357.95	3084.36	0.00	506610.00	3919968.00
274.36	19534.07	5637.93	890.59	1428.30	0.00	500350.00	3917019.00
198.81	20457.08	6082.09	1153.88	1622.15	0.00	501273.00	3917463.00
141.55	21617.89	6617.22	1093.17	1686.82	0.00	502434.00	3917998.00
555.85	17994.77	4882.53	776.06	970.84	0.00	498811.00	3916263.00
233.73	19977.66	5847.67	838.00	1120.45	0.00	500794.00	3917228.00
67.78	24933.25	8176.32	1782.54	2766.39	0.00	505750.00	3919557.00
385.65	18715.40	5246.68	858.72	1022.77	0.00	499532.00	3916627.00
143.19	21570.37	6616.25	1215.53	1667.40	0.00	502387.00	3917997.00
146.69	21484.65	6564.23	1050.76	1833.21	0.00	502301.00	3917945.00
149.10	21425.27	6542.70	1210.36	1424.99	0.00	502242.00	3917923.00
156.33	21260.55	6457.89	1127.48	1644.36	0.00	502077.00	3917839.00
35.82	28973.86	10069.80	2289.84	3707.78	0.00	509790.00	3921451.00
145.10	21525.47	6588.39	1044.55	1540.48	0.00	502342.00	3917969.00
224.14	20099.72	5914.40	954.67	1060.34	0.00	500916.00	3917295.00
169.21	20985.13	6332.10	1132.19	1466.30	0.00	501801.00	3917713.00
475.74	18278.24	5030.74	671.65	728.24	0.00	499095.00	3916412.00
222.70	20118.60	5914.00	825.86	1091.48	0.00	500935.00	3917295.00
319.23	19153.39	5457.59	905.82	1166.19	0.00	499970.00	3916838.00
282.70	19457.71	5606.26	938.66	1092.96	0.00	500274.00	3916987.00
220.96	20134.10	5926.73	892.31	1324.63	0.00	500950.00	3917308.00
105.97	22773.30	7160.18	1048.49	2214.67	0.00	503590.00	3918541.00
291.91	19376.08	5567.87	911.52	1338.72	0.00	500192.00	3916949.00
95.19	23246.74	7405.95	1426.75	1631.28	0.00	504063.00	3918787.00
126.09	22060.64	6843.58	1591.54	1904.39	0.00	502877.00	3918224.00
469.67	18307.20	5042.20	789.90	934.99	0.00	499123.00	3916423.00
609.89	17834.54	4807.05	772.24	774.93	0.00	498651.00	3916188.00
346.99	18954.61	5354.11	874.95	1238.09	0.00	499771.00	3916735.00
290.94	19384.23	5562.18	725.53	951.37	0.00	500201.00	3916943.00
340.56	18994.67	5375.38	764.73	1074.02	0.00	499811.00	3916756.00
176.96	20837.59	6263.57	1222.96	1571.08	0.00	501654.00	3917644.00
243.85	19855.95	5788.46	833.23	1339.49	0.00	500672.00	3917169.00
437.36	18447.88	5115.79	730.39	783.41	0.00	499264.00	3916497.00
273.63	19539.71	5653.59	1133.88	1258.71	0.00	500356.00	3917034.00
220.48	20148.45	5931.33	1134.63	1770.63	0.00	500965.00	3917312.00
82.46	23926.20	7711.90	1691.65	2793.05	0.00	504742.00	3919093.00
299.23	19312.51	5533.23	894.49	1154.79	0.00	500129.00	3916914.00
44.94	27391.17	9321.91	1633.99	2380.55	0.00	508207.00	3920703.00
389.73	18686.85	5230.35	682.56	806.19	0.00	499503.00	3916611.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
190.91	5964.52	1852.04	680.36	1308.90	<b>38.06</b>	486781.00	3913233.00
477.32	5073.67	1427.45	615.42	888.96	0.00	485890.00	3912808.00
310.48	5447.68	1594.71	723.52	1338.93	0.00	486264.00	3912975.00
700.62	4818.94	1295.34	479.79	582.39	0.00	485635.00	3912676.00
255.13	5651.45	1693.53	577.94	1252.49	0.00	486468.00	3913074.00
512.25	5024.40	1389.03	480.45	1205.17	0.00	485841.00	3912770.00
398.90	5221.02	1501.17	548.41	794.15	0.00	486037.00	3912882.00
178.91	6047.73	1885.42	658.62	1306.22	0.00	486864.00	3913266.00
297.87	5486.59	1629.05	559.94	922.88	0.00	486303.00	3913010.00
344.33	5354.40	1552.00	459.10	1107.65	0.00	486171.00	3912933.00
189.55	5976.83	1857.94	571.63	1079.37	0.00	486793.00	3913239.00
52.81	8099.28	2850.48	639.15	1325.66	0.00	488916.00	3914231.00
754.77	4760.10	1270.21	569.24	690.86	0.00	485576.00	3912651.00
108.42	6748.67	2207.77	487.52	1299.85	0.00	487565.00	3913589.00
146.90	6301.96	2006.73	656.80	1377.44	0.00	487118.00	3913388.00
81.22	7235.58	2444.51	614.07	1322.14	0.00	488052.00	3913825.00
231.78	5747.23	1739.58	631.84	1313.87	0.00	486564.00	3913120.00
591.29	4925.30	1346.91	533.86	1036.12	0.00	485742.00	3912728.00
207.91	5876.58	1813.27	663.14	1061.18	0.00	486693.00	3913194.00
520.02	5015.44	1401.36	769.26	757.34	0.00	485832.00	3912782.00
160.22	6181.81	1956.34	700.25	1060.14	0.00	486998.00	3913337.00
145.05	6319.73	2015.84	527.09	1008.83	0.00	487136.00	3913397.00
543.41	4976.66	1366.38	570.76	1203.37	0.00	485793.00	3912747.00
231.62	5748.71	1747.74	807.80	1244.04	0.00	486565.00	3913129.00
503.35	5032.32	1408.32	741.34	942.06	0.00	485849.00	3912789.00
422.69	5184.08	1467.23	453.01	909.34	0.00	486000.00	3912848.00
227.16	5764.40	1754.83	760.89	1237.62	0.00	486581.00	3913136.00
101.20	6856.61	2273.34	757.13	1233.82	0.00	487673.00	3913654.00
181.72	6028.74	1875.35	583.39	1354.64	0.00	486845.00	3913256.00
282.36	5541.81	1653.08	599.51	1166.82	0.00	486358.00	3913034.00
307.15	5448.73	1617.02	556.16	661.29	0.00	486265.00	3912998.00
160.65	6180.98	1956.23	630.74	1259.53	0.00	486997.00	3913337.00
293.88	5502.99	1627.15	644.27	1191.03	0.00	486319.00	3913008.00
173.62	6086.18	1906.27	581.07	1279.69	0.00	486902.00	3913287.00
450.91	5123.86	1444.99	524.54	1001.85	0.00	485940.00	3912826.00
436.29	5150.36	1454.43	438.24	1025.09	0.00	485967.00	3912835.00
120.29	6582.35	2144.92	643.74	1130.82	0.00	487399.00	3913526.00
101.05	6859.08	2268.40	602.17	1121.07	0.00	487675.00	3913649.00
230.75	5752.24	1744.90	546.41	1166.14	0.00	486569.00	3913126.00
279.93	5554.96	1646.14	453.86	1231.35	0.00	486371.00	3913027.00
157.36	6206.44	1961.67	624.31	1342.06	0.00	487023.00	3913342.00
23.40	10323.50	3879.31	740.92	1580.18	0.00	491140.00	3915260.00
380.79	5257.55	1518.33	605.58	1152.39	0.00	486074.00	3912899.00
369.66	5294.75	1530.35	461.72	673.93	0.00	486111.00	3912911.00
173.32	6085.94	1911.48	650.61	1204.07	0.00	486902.00	3913292.00
188.34	5986.33	1859.88	384.11	945.83	0.00	486803.00	3913241.00
304.64	5464.21	1605.57	678.53	1286.87	0.00	486280.00	3912986.00
507.35	5023.26	1398.66	592.56	1164.29	0.00	485840.00	3912779.00
236.09	5731.13	1737.65	570.74	1152.34	0.00	486547.00	3913118.00

135.96	6408.53	2062.38	757.48	1261.90	0.00	487225.00	3913443.00
331.03	5395.08	1581.50	584.38	869.21	0.00	486211.00	3912962.00
373.50	5282.05	1519.21	498.00	1041.93	0.00	486098.00	3912900.00
447.79	5120.78	1446.54	563.10	1035.41	0.00	485937.00	3912827.00
457.30	5115.10	1448.79	628.12	488.96	0.00	485931.00	3912830.00
122.54	6560.01	2123.46	622.09	1134.70	0.00	487376.00	3913504.00
1076.52	4569.73	1163.33	435.52	697.23	0.00	485386.00	3912544.00
456.50	5105.16	1442.76	683.58	1246.43	0.00	485921.00	3912824.00
430.95	5156.05	1467.87	593.83	1018.70	0.00	485972.00	3912849.00
409.97	5206.70	1489.91	523.12	710.59	0.00	486023.00	3912871.00
277.61	5565.42	1657.00	762.80	1144.24	0.00	486382.00	3913038.00
260.81	5622.73	1688.54	599.61	1281.26	0.00	486439.00	3913069.00
339.24	5362.97	1558.74	549.09	1211.24	0.00	486179.00	3912940.00
652.32	4844.67	1311.77	640.94	925.37	0.00	485661.00	3912693.00
63.09	7717.63	2678.05	765.17	1305.60	0.00	488534.00	3914059.00
111.32	6704.24	2197.14	569.41	1349.08	0.00	487521.00	3913578.00
161.47	6172.60	1946.02	663.56	1425.67	0.00	486989.00	3913327.00
268.39	5591.39	1669.88	604.45	1058.90	0.00	486408.00	3913051.00
51.82	8141.24	2868.26	545.03	1326.70	0.00	488958.00	3914249.00
217.68	5818.90	1774.50	732.10	1339.22	0.00	486635.00	3913155.00
268.80	5591.30	1669.90	524.49	1156.27	0.00	486408.00	3913051.00
200.09	5916.79	1823.48	502.36	1253.20	0.00	486733.00	3913204.00
309.38	5451.76	1601.15	710.18	1357.05	0.00	486268.00	3912982.00
329.88	5390.03	1578.88	689.25	1008.29	0.00	486206.00	3912960.00
136.23	6410.57	2062.11	757.82	1266.78	0.00	487227.00	3913443.00
538.60	4981.50	1381.28	488.66	646.19	0.00	485798.00	3912762.00
277.26	5557.11	1661.81	591.52	983.20	0.00	486373.00	3913043.00
143.30	6333.89	2024.09	574.49	1140.79	0.00	487150.00	3913405.00
395.11	5225.48	1492.06	502.30	1197.54	0.00	486042.00	3912873.00
308.29	5452.42	1610.33	623.16	988.94	0.00	486269.00	3912991.00
422.37	5171.25	1468.47	536.02	1253.27	0.00	485988.00	3912849.00
83.65	7180.86	2421.68	603.75	1269.05	0.00	487997.00	3913802.00
74.58	7389.86	2510.92	571.95	1231.67	0.00	488206.00	3913892.00
551.18	4958.16	1366.15	636.31	1394.26	0.00	485774.00	3912747.00
106.19	6780.44	2234.31	711.07	1335.70	0.00	487597.00	3913615.00
460.90	5098.19	1435.18	479.31	889.87	0.00	485914.00	3912816.00
130.38	6469.69	2087.60	774.94	1501.72	0.00	487286.00	3913468.00
541.01	4974.80	1373.84	627.62	820.60	0.00	485791.00	3912755.00
114.48	6660.39	2173.90	647.45	1358.91	0.00	487477.00	3913555.00
158.82	6194.53	1964.26	699.95	1208.28	0.00	487011.00	3913345.00
359.23	5309.20	1532.14	541.93	1129.64	0.00	486125.00	3912913.00
399.86	5217.76	1494.60	510.46	1014.66	0.00	486034.00	3912875.00
31.47	9408.52	3464.37	726.46	1377.20	0.00	490225.00	3914845.00
258.51	5636.25	1692.90	656.91	1191.87	0.00	486453.00	3913074.00
181.00	6034.25	1884.37	735.09	1332.36	0.00	486851.00	3913265.00
1144.52	4532.53	1140.89	602.50	902.86	0.00	485349.00	3912522.00
374.05	5276.50	1520.26	621.58	919.12	0.00	486093.00	3912901.00
184.13	6018.05	1877.83	700.55	1149.42	0.00	486834.00	3913259.00
367.40	5289.92	1527.61	669.81	1175.35	0.00	486106.00	3912908.00
421.16	5175.14	1477.22	639.13	1162.91	0.00	485991.00	3912858.00
608.63	4890.59	1337.63	740.39	1078.16	0.00	485707.00	3912718.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
222.58	9379.03	2835.82	1064.02	1007.19	<b>46.11</b>	490195.00	3914217.00
261.78	9127.37	2706.17	961.12	1603.29	0.00	489944.00	3914087.00
348.99	8731.96	2516.19	743.81	1057.67	0.00	489548.00	3913897.00
281.56	9019.80	2656.71	936.68	1364.37	0.00	489836.00	3914037.00
69.26	11899.03	4020.09	1076.74	1552.81	0.00	492715.00	3915401.00
87.75	11263.75	3695.03	1001.90	2077.14	0.00	492080.00	3915076.00
378.74	8635.92	2467.49	744.11	1125.17	0.00	489452.00	3913848.00
130.35	10349.63	3268.94	879.17	2007.70	0.00	491166.00	3914650.00
254.45	9165.79	2706.00	703.30	1925.02	0.00	489982.00	3914087.00
686.30	8023.81	2157.51	516.76	818.68	0.00	488840.00	3913538.00
275.82	9055.02	2665.06	640.28	1278.63	0.00	489871.00	3914046.00
120.07	10526.13	3344.37	908.44	2312.86	0.00	491342.00	3914725.00
273.74	9067.87	2674.66	958.31	1753.96	0.00	489884.00	3914055.00
285.81	8999.39	2647.96	945.66	1304.00	0.00	489816.00	3914029.00
261.33	9128.56	2694.24	527.67	1328.76	0.00	489945.00	3914075.00
460.08	8403.17	2357.99	830.11	925.27	0.00	489219.00	3913739.00
103.06	10874.93	3517.19	1168.53	1822.53	0.00	491691.00	3914898.00
380.63	8622.64	2463.09	757.72	1232.98	0.00	489439.00	3913844.00
284.68	9012.70	2635.43	745.16	1618.86	0.00	489829.00	3914016.00
395.65	8581.15	2436.53	529.47	826.14	0.00	489397.00	3913817.00
266.39	9108.93	2696.54	797.87	1318.28	0.00	489925.00	3914077.00
193.25	9606.70	2935.72	1065.96	1523.08	0.00	490423.00	3914317.00
189.49	9644.98	2941.86	900.30	1636.79	0.00	490461.00	3914323.00
138.99	10220.15	3206.77	983.33	1979.01	0.00	491036.00	3914588.00
89.11	11223.54	3692.00	968.99	2033.82	0.00	492040.00	3915073.00
349.99	8731.85	2515.38	783.77	928.04	0.00	489548.00	3913896.00
319.85	8852.85	2571.61	923.58	1300.30	0.00	489669.00	3913952.00
275.69	9055.91	2665.11	799.23	1287.80	0.00	489872.00	3914046.00
159.02	9959.56	3099.20	900.05	1893.59	0.00	490776.00	3914480.00
240.57	9262.31	2747.36	853.51	1844.42	0.00	490079.00	3914128.00
167.87	9861.58	3046.51	944.47	1580.49	0.00	490678.00	3914427.00
430.57	8477.12	2390.47	527.64	891.95	0.00	489293.00	3913771.00
252.32	9182.57	2738.55	935.42	1080.09	0.00	489999.00	3914119.00
270.83	9075.00	2678.59	896.63	1543.13	0.00	489891.00	3914059.00
226.24	9358.00	2816.74	859.04	1223.87	0.00	490174.00	3914198.00
173.41	9807.37	3019.14	828.35	1702.33	0.00	490624.00	3914400.00
266.24	9100.82	2682.03	820.38	1652.47	0.00	489917.00	3914063.00
276.56	9045.28	2660.42	872.13	1612.42	0.00	489862.00	3914041.00
213.17	9447.19	2849.89	871.00	1528.25	0.00	490263.00	3914231.00
1292.25	7578.49	1906.43	446.62	561.24	0.00	488395.00	3913287.00
391.81	8598.32	2443.68	870.29	1202.61	0.00	489415.00	3913824.00
161.42	9924.67	3096.35	1020.14	1149.35	0.00	490741.00	3914477.00
232.95	9306.79	2784.29	860.40	1527.45	0.00	490123.00	3914165.00
535.64	8254.61	2268.93	412.36	705.80	0.00	489071.00	3913650.00
329.17	8811.15	2545.00	706.47	1406.10	0.00	489627.00	3913926.00
393.22	8590.34	2442.29	666.27	1065.60	0.00	489407.00	3913823.00
146.65	10112.71	3164.05	787.41	1677.37	0.00	490929.00	3914545.00
479.12	8359.81	2337.44	927.64	862.69	0.00	489176.00	3913718.00
265.18	9107.77	2701.45	778.49	1117.88	0.00	489924.00	3914082.00

218.06	9409.60	2826.76	891.32	2032.59	0.00	490226.00	3914208.00
45.82	13201.91	4611.10	1104.98	2277.42	0.00	494018.00	3915992.00
413.92	8527.33	2415.35	651.47	610.68	0.00	489344.00	3913796.00
199.91	9553.89	2897.20	788.66	1358.05	0.00	490370.00	3914278.00
372.20	8652.45	2474.37	722.40	1376.53	0.00	489469.00	3913855.00
104.07	10853.81	3513.30	1256.82	2047.83	0.00	491670.00	3914894.00
186.47	9675.66	2970.07	947.05	1605.34	0.00	490492.00	3914351.00
192.07	9624.28	2932.09	900.61	1990.34	0.00	490441.00	3914313.00
174.08	9799.45	3005.64	473.30	1427.05	0.00	490616.00	3914386.00
78.27	11563.13	3844.36	1048.45	1876.32	0.00	492379.00	3915225.00
261.19	9127.05	2706.13	964.53	1193.67	0.00	489943.00	3914087.00
89.59	11213.87	3673.16	747.17	1658.06	0.00	492030.00	3915054.00
217.42	9413.53	2857.08	1172.12	1278.86	0.00	490230.00	3914238.00
484.20	8347.77	2331.82	763.29	1007.36	0.00	489164.00	3913713.00
269.89	9078.98	2691.18	1057.59	1061.23	0.00	489895.00	3914072.00
405.71	8548.04	2426.99	834.94	892.67	0.00	489364.00	3913808.00
347.18	8733.47	2498.41	609.74	1452.15	0.00	489550.00	3913879.00
276.19	9053.12	2661.36	761.23	1442.54	0.00	489869.00	3914042.00
127.97	10397.21	3300.26	914.01	1465.10	0.00	491213.00	3914681.00
83.21	11399.92	3763.33	1189.31	2213.65	0.00	492216.00	3915144.00
451.20	8428.05	2365.11	765.75	1252.18	0.00	489244.00	3913746.00
439.14	8459.40	2377.47	495.59	907.67	0.00	489276.00	3913758.00
385.30	8612.56	2445.90	638.78	1123.45	0.00	489429.00	3913827.00
197.69	9571.65	2901.75	606.39	1571.15	0.00	490388.00	3914283.00
125.63	10433.98	3316.50	1030.96	1905.83	0.00	491250.00	3914697.00
42.74	13447.74	4723.99	849.86	1906.63	0.00	494264.00	3916105.00
792.10	7897.75	2086.49	386.53	791.75	0.00	488714.00	3913467.00
101.91	10897.46	3533.50	817.78	1739.52	0.00	491714.00	3914914.00
383.39	8618.34	2457.83	762.56	1264.12	0.00	489435.00	3913839.00
391.19	8596.48	2451.55	645.70	726.88	0.00	489413.00	3913832.00
156.87	9983.82	3111.57	753.30	1706.22	0.00	490800.00	3914492.00
412.86	8522.21	2414.41	631.66	893.13	0.00	489338.00	3913795.00
1351.92	7554.98	1891.26	440.72	568.96	0.00	488371.00	3913272.00
62.66	12189.17	4150.22	1142.80	1806.98	0.00	493005.00	3915531.00
134.79	10280.64	3247.07	893.22	1845.05	0.00	491097.00	3914628.00
412.25	8532.59	2410.71	741.96	1008.43	0.00	489349.00	3913791.00
138.33	10229.05	3230.77	1236.82	1639.36	0.00	491045.00	3914612.00
91.68	11152.34	3651.35	1126.48	2260.98	0.00	491969.00	3915032.00
232.32	9310.03	2790.03	1110.94	1517.35	0.00	490126.00	3914171.00
490.25	8333.78	2324.11	660.58	707.68	0.00	489150.00	3913705.00
197.61	9570.23	2909.09	812.27	1630.65	0.00	490387.00	3914290.00
296.55	8949.33	2611.65	735.64	1502.48	0.00	489766.00	3913992.00
194.54	9605.08	2924.64	886.71	1733.00	0.00	490421.00	3914305.00
394.37	8589.81	2440.67	631.65	1122.86	0.00	489406.00	3913821.00
329.23	8805.74	2552.44	1126.93	1462.54	0.00	489622.00	3913933.00
303.18	8918.80	2598.66	965.88	1635.88	0.00	489735.00	3913979.00
673.68	8041.07	2170.71	700.16	669.77	0.00	488857.00	3913551.00
527.62	8261.00	2282.08	760.38	1006.24	0.00	489077.00	3913663.00
282.01	9025.76	2646.56	708.94	1105.34	0.00	489842.00	3914027.00
162.41	9912.20	3077.00	1069.72	1933.73	0.00	490728.00	3914458.00
165.89	9886.28	3058.85	748.56	1586.01	0.00	490703.00	3914440.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
453.78	21510.42	5918.71	737.93	757.61	<b>68.33</b>	502327.00	3917299.00
195.84	23921.04	7085.80	1121.52	1422.27	0.00	504737.00	3918467.00
488.48	21342.20	5840.48	845.58	935.35	0.00	502158.00	3917221.00
327.84	22309.64	6307.88	1012.34	1393.96	0.00	503126.00	3917689.00
305.55	22505.25	6405.07	868.11	1116.73	0.00	503322.00	3917786.00
317.82	22397.37	6342.10	828.16	1096.47	0.00	503214.00	3917723.00
446.08	21547.11	5940.12	874.89	947.60	0.00	502363.00	3917321.00
258.88	22994.58	6647.53	836.23	866.74	0.00	503811.00	3918028.00
166.18	24535.90	7372.48	934.66	1093.24	0.00	505352.00	3918753.00
312.27	22448.78	6372.94	810.70	904.34	0.00	503265.00	3917754.00
586.10	20976.47	5643.24	669.46	712.32	0.00	501793.00	3917024.00
117.47	26005.76	8071.50	1349.88	1851.60	0.00	506822.00	3919452.00
36.88	33293.84	11494.00	2850.01	3055.35	0.00	514110.00	3922875.00
339.97	22213.16	6272.09	974.33	1119.51	0.00	503029.00	3917653.00
341.95	22195.42	6255.65	888.17	1113.03	0.00	503012.00	3917636.00
503.88	21277.08	5807.06	805.96	915.40	0.00	502093.00	3917188.00
221.15	23501.38	6886.08	1155.90	1518.52	0.00	504318.00	3918267.00
143.23	25131.92	7641.58	1321.79	1832.33	0.00	505948.00	3919022.00
554.15	21082.67	5701.94	703.11	788.23	0.00	501899.00	3917083.00
219.96	23516.52	6893.93	1045.87	1461.52	0.00	504333.00	3918275.00
225.97	23434.93	6840.51	1048.15	1395.90	0.00	504251.00	3918221.00
176.61	24301.57	7266.16	990.72	1191.64	0.00	505118.00	3918647.00
337.44	22231.97	6275.11	823.06	967.32	0.00	503048.00	3917656.00
326.01	22322.78	6323.37	849.73	941.71	0.00	503139.00	3917704.00
98.07	26876.84	8486.45	1579.48	1893.76	0.00	507693.00	3919867.00
35.66	33573.49	11624.52	2213.24	3144.16	0.00	514390.00	3923005.00
311.70	22450.70	6388.37	888.52	975.60	0.00	503267.00	3917769.00
175.18	24330.33	7275.42	1258.05	1691.52	0.00	505147.00	3918656.00
66.23	29085.75	9499.74	1753.50	3058.87	0.00	509902.00	3920881.00
241.16	23218.97	6747.50	949.34	1201.44	0.00	504035.00	3918128.00
410.43	21739.18	6033.30	695.93	757.84	0.00	502555.00	3917414.00
130.05	25544.41	7850.65	1331.35	1681.46	0.00	506361.00	3919231.00
344.19	22183.58	6249.21	752.01	858.96	0.00	503000.00	3917630.00
223.86	23461.06	6864.52	1000.45	1356.07	0.00	504277.00	3918245.00
228.89	23387.73	6827.18	1038.51	1177.67	0.00	504204.00	3918208.00
249.48	23108.18	6695.99	1003.67	1382.10	0.00	503924.00	3918077.00
351.39	22128.57	6221.70	818.23	971.59	0.00	502945.00	3917602.00
505.29	21268.10	5804.86	705.66	719.04	0.00	502084.00	3917186.00
398.57	21803.04	6070.05	857.36	985.22	0.00	502619.00	3917451.00
177.80	24277.06	7248.21	1029.36	1306.39	0.00	505093.00	3918629.00
25.94	36483.42	12952.10	2382.11	4598.45	0.00	517300.00	3924333.00
728.95	20590.93	5443.90	637.92	650.64	0.00	501407.00	3916825.00
39.96	32640.13	11147.40	1956.61	3878.55	0.00	513456.00	3922528.00
396.36	21826.40	6073.66	806.22	1017.19	0.00	502643.00	3917454.00
382.04	21910.78	6118.74	922.14	1117.82	0.00	502727.00	3917500.00
278.85	22773.01	6527.99	902.89	1271.65	0.00	503589.00	3917909.00
605.24	20913.43	5616.75	666.89	651.88	0.00	501730.00	3916998.00
171.31	24417.58	7306.16	1011.90	1569.13	0.00	505234.00	3918687.00
717.44	20614.33	5462.98	694.79	781.76	0.00	501431.00	3916844.00

204.06	23776.35	7013.46	1170.62	1733.41	0.00	504593.00	3918394.00
147.38	25009.89	7583.82	1163.61	1824.95	0.00	505826.00	3918965.00
48.19	31217.82	10524.29	2709.23	3530.74	0.00	512034.00	3921905.00
267.42	22893.37	6598.45	787.89	840.74	0.00	503710.00	3917979.00
410.77	21734.74	6026.80	786.29	930.28	0.00	502551.00	3917408.00
529.75	21176.78	5749.24	742.97	826.50	0.00	501993.00	3917130.00
344.61	22179.62	6244.19	777.04	1023.82	0.00	502996.00	3917625.00
514.02	21230.58	5780.23	713.33	760.19	0.00	502047.00	3917161.00
236.46	23280.65	6774.98	1113.70	1351.11	0.00	504097.00	3918156.00
279.86	22764.10	6531.25	897.35	1089.95	0.00	503580.00	3917912.00
279.02	22770.41	6528.74	920.97	1167.89	0.00	503587.00	3917910.00
591.92	20950.18	5636.44	734.70	873.43	0.00	501766.00	3917017.00
255.62	23032.82	6661.68	1062.89	1298.49	0.00	503849.00	3918042.00
447.07	21537.84	5931.18	721.16	792.92	0.00	502354.00	3917312.00
183.19	24162.94	7193.63	1047.92	1521.86	0.00	504979.00	3918574.00
80.92	27905.14	8946.00	1408.94	2036.53	0.00	508721.00	3920327.00
219.89	23521.59	6891.69	1035.03	1525.12	0.00	504338.00	3918272.00
121.64	25845.21	7991.65	1516.24	1934.60	0.00	506661.00	3919372.00
97.71	26900.17	8492.77	1643.03	2031.71	0.00	507716.00	3919874.00
240.87	23220.21	6754.01	1142.10	1504.48	0.00	504036.00	3918135.00
131.07	25513.80	7841.68	1237.32	1333.78	0.00	506330.00	3919222.00
397.43	21810.14	6065.69	811.31	1013.22	0.00	502626.00	3917446.00
152.52	24874.16	7538.17	1343.22	1604.72	0.00	505690.00	3918919.00
399.37	21808.79	6063.14	741.41	881.94	0.00	502625.00	3917444.00
807.66	20417.16	5363.73	636.88	591.66	0.00	501233.00	3916745.00
458.26	21481.85	5908.33	869.50	947.79	0.00	502298.00	3917289.00
556.92	21065.84	5711.70	822.48	840.57	0.00	501882.00	3917092.00
159.49	24693.38	7448.81	1149.03	1452.75	0.00	505510.00	3918830.00
177.85	24275.41	7251.30	1455.12	1600.86	0.00	505092.00	3918632.00
316.01	22412.05	6351.93	898.33	1247.15	0.00	503228.00	3917733.00
136.01	25349.96	7759.09	1397.15	1966.00	0.00	506166.00	3919140.00
59.37	29781.20	9822.97	1521.26	2766.37	0.00	510597.00	3921204.00
176.20	24313.81	7277.21	1368.04	1557.09	0.00	505130.00	3918658.00
269.10	22881.64	6581.17	1037.60	1342.34	0.00	503698.00	3917962.00
288.38	22673.97	6492.98	1106.76	1299.45	0.00	503490.00	3917874.00
239.40	23237.40	6765.11	874.02	1002.87	0.00	504054.00	3918146.00
222.26	23482.77	6875.45	1143.93	1390.33	0.00	504299.00	3918256.00
67.93	28929.56	9416.79	1663.98	3522.38	0.00	509746.00	3920798.00
109.56	26331.96	8211.18	1592.65	2104.65	0.00	507148.00	3919592.00
68.27	28897.30	9425.20	1789.55	2489.80	0.00	509714.00	3920806.00
430.54	21627.09	5980.03	743.43	784.39	0.00	502443.00	3917361.00
461.63	21467.72	5903.80	798.66	843.41	0.00	502284.00	3917285.00
198.91	23868.43	7058.14	1169.43	1667.04	0.00	504685.00	3918439.00
401.73	21789.27	6058.48	799.61	921.66	0.00	502606.00	3917439.00
449.70	21527.05	5930.35	877.88	983.57	0.00	502343.00	3917311.00
1096.78	20009.11	5128.74	641.56	639.42	0.00	500825.00	3916510.00
138.90	25260.49	7707.89	1026.74	1444.79	0.00	506077.00	3919089.00
268.51	22886.45	6590.52	1018.26	1337.68	0.00	503703.00	3917971.00
116.25	26052.20	8096.35	1384.70	1934.16	0.00	506868.00	3919477.00
272.87	22840.61	6558.43	995.19	1419.15	0.00	503657.00	3917939.00
337.56	22235.34	6279.06	874.60	1027.66	0.00	503052.00	3917660.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
453.14	11243.49	3140.45	1034.82	1082.27	51.99	492060.00	3914521.00
253.77	12181.02	3597.82	1173.73	1257.65	0.00	492997.00	3914979.00
278.41	12012.83	3505.06	1197.81	1676.92	0.00	492829.00	3914886.00
548.62	10998.72	3016.20	592.12	880.05	0.00	491815.00	3914397.00
317.76	11788.20	3398.33	1037.56	1263.56	0.00	492604.00	3914779.00
290.24	11945.12	3476.88	875.38	1036.45	0.00	492761.00	3914858.00
355.67	11613.16	3308.17	881.41	1230.10	0.00	492429.00	3914689.00
325.47	11743.60	3382.70	851.40	1113.03	0.00	492560.00	3914763.00
154.38	13234.06	4100.94	1165.00	1507.85	0.00	494050.00	3915482.00
334.86	11698.83	3362.70	935.38	1228.17	0.00	492515.00	3914743.00
144.37	13398.96	4172.18	1112.49	1571.50	0.00	494215.00	3915553.00
134.02	13583.05	4259.35	1170.41	2318.93	0.00	494399.00	3915640.00
373.66	11537.77	3277.67	877.56	1202.60	0.00	492354.00	3914658.00
200.25	12649.04	3816.00	1100.84	1427.27	0.00	493465.00	3915197.00
95.93	14523.90	4691.14	1144.83	1879.92	0.00	495340.00	3916072.00
87.01	14823.19	4827.66	1420.69	2685.22	0.00	495639.00	3916208.00
390.43	11456.97	3251.40	833.48	1107.92	0.00	492273.00	3914632.00
98.23	14449.88	4646.28	1304.57	2630.16	0.00	495266.00	3916027.00
262.54	12120.97	3553.31	836.06	1571.96	0.00	492937.00	3914934.00
316.22	11791.55	3403.88	1081.94	1431.81	0.00	492608.00	3914785.00
211.88	12541.52	3756.46	863.38	1348.45	0.00	493358.00	3915137.00
163.26	13103.95	4018.70	862.60	1926.03	0.00	493920.00	3915399.00
376.24	11523.04	3269.47	784.06	1150.67	0.00	492339.00	3914650.00
102.15	14333.66	4599.88	1410.79	2355.44	0.00	495150.00	3915981.00
390.74	11467.56	3244.91	611.33	1005.73	0.00	492284.00	3914626.00
216.84	12491.40	3729.10	852.17	1294.51	0.00	493308.00	3915110.00
71.28	15497.89	5144.79	1371.37	2263.39	0.00	496314.00	3916526.00
163.88	13089.70	4019.35	1374.58	2195.24	0.00	493906.00	3915400.00
288.71	11950.87	3470.82	973.71	1592.05	0.00	492767.00	3914852.00
181.95	12859.66	3909.91	950.79	1601.66	0.00	493676.00	3915291.00
525.59	11051.19	3044.06	718.35	1141.20	0.00	491867.00	3914425.00
234.36	12332.13	3675.73	1105.38	1520.52	0.00	493148.00	3915057.00
164.19	13091.39	4014.97	1288.54	1721.55	0.00	493908.00	3915396.00
137.11	13531.23	4220.10	1137.22	1580.96	0.00	494348.00	3915601.00
371.38	11545.10	3287.68	965.11	966.45	0.00	492361.00	3914668.00
27.72	19744.00	7131.60	1571.99	2351.22	0.00	500560.00	3918512.00
277.42	12023.04	3509.64	748.67	1118.66	0.00	492839.00	3914890.00
217.00	12480.69	3742.42	1101.74	1303.81	0.00	493297.00	3915123.00
77.54	15204.77	4994.09	1238.16	2400.24	0.00	496021.00	3916375.00
562.81	10978.61	2998.61	686.18	678.83	0.00	491795.00	3914379.00
171.08	12997.10	3981.14	874.41	1552.02	0.00	493813.00	3915362.00
209.46	12561.75	3757.84	991.45	1977.75	0.00	493378.00	3915139.00
287.37	11951.71	3488.46	891.25	985.06	0.00	492768.00	3914869.00
154.03	13238.72	4077.69	961.30	2210.48	0.00	494055.00	3915458.00
380.02	11502.08	3263.92	693.02	1046.68	0.00	492318.00	3914645.00
49.26	16925.98	5804.55	1476.68	3013.15	0.00	497742.00	3917185.00
44.58	17359.94	6000.45	1510.32	2759.10	0.00	498176.00	3917381.00
481.92	11167.23	3103.77	761.11	830.77	0.00	491984.00	3914485.00
305.67	11852.01	3439.70	953.43	1076.92	0.00	492668.00	3914820.00

116.47	13959.48	4424.00	1127.88	2213.81	0.00	494776.00	3915805.00
100.13	14392.48	4637.21	1220.28	1945.41	0.00	495209.00	3916018.00
593.18	10917.05	2964.37	501.17	741.01	0.00	491733.00	3914345.00
428.43	11330.42	3177.27	748.05	1005.69	0.00	492147.00	3914558.00
316.53	11799.68	3398.28	638.65	1210.36	0.00	492616.00	3914779.00
718.97	10701.63	2858.04	453.30	579.41	0.00	491518.00	3914239.00
42.03	17625.92	6144.17	1626.29	2868.63	0.00	498442.00	3917525.00
319.31	11781.34	3386.45	600.48	1396.82	0.00	492598.00	3914767.00
339.32	11685.78	3349.94	703.77	1053.61	0.00	492502.00	3914731.00
157.49	13179.19	4074.53	1288.15	1829.92	0.00	493995.00	3915455.00
311.15	11817.70	3418.77	1096.23	1432.72	0.00	492634.00	3914800.00
182.27	12860.70	3913.06	928.44	1512.19	0.00	493677.00	3915294.00
409.17	11395.83	3215.83	862.84	1017.70	0.00	492212.00	3914597.00
352.05	11623.20	3317.26	723.49	1055.74	0.00	492439.00	3914698.00
369.44	11546.07	3282.59	872.94	1367.78	0.00	492362.00	3914663.00
156.06	13206.06	4083.35	1242.80	1460.24	0.00	494022.00	3915464.00
259.61	12145.81	3569.46	879.11	1491.36	0.00	492962.00	3914950.00
160.67	13135.56	4038.64	809.38	1638.18	0.00	493952.00	3915419.00
60.55	16095.05	5403.43	1238.15	2858.51	0.00	496911.00	3916784.00
235.56	12335.39	3654.41	785.85	1217.75	0.00	493152.00	3915035.00
388.80	11465.90	3241.81	807.69	1119.59	0.00	492282.00	3914623.00
241.43	12272.89	3645.27	954.06	1098.24	0.00	493089.00	3915026.00
117.28	13941.81	4420.12	1350.21	2037.99	0.00	494758.00	3915801.00
246.85	12233.22	3621.18	1138.17	1276.26	0.00	493050.00	3915002.00
67.19	15708.40	5264.09	1355.25	1491.61	0.00	496525.00	3916645.00
412.40	11379.40	3201.77	753.03	1202.71	0.00	492196.00	3914583.00
217.39	12474.75	3729.25	815.09	1691.47	0.00	493291.00	3915110.00
66.12	15765.27	5261.62	1133.68	2457.19	0.00	496582.00	3916642.00
440.90	11280.10	3161.95	744.83	997.44	0.00	492096.00	3914543.00
118.17	13916.03	4416.30	1571.45	2297.55	0.00	494732.00	3915797.00
143.64	13407.36	4161.97	1072.88	2738.78	0.00	494224.00	3915543.00
240.43	12290.23	3634.15	998.02	1597.81	0.00	493107.00	3915015.00
392.20	11457.28	3241.37	618.95	799.84	0.00	492274.00	3914622.00
226.68	12400.79	3691.76	857.58	1689.35	0.00	493217.00	3915073.00
308.19	11837.57	3421.69	871.99	1321.38	0.00	492654.00	3914802.00
105.32	14243.40	4565.82	1005.45	1672.93	0.00	495060.00	3915947.00
273.10	12048.05	3529.79	785.07	1295.78	0.00	492864.00	3914911.00
409.87	11385.79	3206.49	546.24	878.29	0.00	492202.00	3914587.00
341.61	11672.16	3344.00	868.75	1459.95	0.00	492488.00	3914725.00
487.08	11150.48	3087.34	510.52	779.61	0.00	491967.00	3914468.00
293.21	11924.47	3466.41	757.46	802.75	0.00	492741.00	3914847.00
53.61	16572.50	5644.64	1444.30	2846.49	0.00	497389.00	3917025.00
483.47	11153.97	3087.78	565.56	891.79	0.00	491970.00	3914469.00
39.02	17968.85	6271.61	1186.28	2885.05	0.00	498785.00	3917652.00
210.88	12544.97	3765.54	855.07	1103.09	0.00	493361.00	3915146.00
333.82	11712.47	3363.25	1059.03	1215.00	0.00	492529.00	3914744.00
197.97	12674.94	3833.19	1083.55	1549.75	0.00	493491.00	3915214.00
405.31	11407.29	3209.10	666.06	1071.85	0.00	492224.00	3914590.00
218.95	12469.41	3731.70	701.26	1178.87	0.00	493286.00	3915112.00
236.61	12312.17	3663.76	1189.17	1363.36	0.00	493128.00	3915045.00
115.53	13983.34	4435.42	1254.55	2303.54	0.00	494800.00	3915816.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
198.17	65544.81	18495.60	1505.32	1377.88	<b>100.12</b>	546361.00	3929876.00
305.56	62567.58	17077.01	1476.77	1400.29	0.00	543384.00	3928458.00
97.48	72133.41	21598.74	1822.42	1857.91	0.00	552950.00	3932980.00
604.57	59121.23	15401.68	1246.28	879.73	0.00	539938.00	3926782.00
328.58	62133.06	16872.30	1406.00	1264.41	0.00	542949.00	3928253.00
359.03	61629.38	16624.74	1337.03	1092.40	0.00	542446.00	3928006.00
368.65	61478.94	16554.27	1331.80	1076.36	0.00	542295.00	3927935.00
339.73	61938.29	16779.10	1448.75	1384.41	0.00	542755.00	3928160.00
463.89	60295.40	15982.71	1338.45	1158.57	0.00	541112.00	3927363.00
308.29	62513.60	17050.61	1367.17	1162.75	0.00	543330.00	3928431.00
108.47	70981.81	21065.31	1777.36	1769.76	0.00	551798.00	3932446.00
170.98	66724.86	19061.06	1676.88	1726.98	0.00	547541.00	3930442.00
165.51	66996.07	19188.19	1619.19	1619.30	0.00	547812.00	3930569.00
490.76	60029.42	15852.81	1231.52	791.24	0.00	540846.00	3927234.00
252.24	63800.52	17662.97	1504.06	1484.29	0.00	544617.00	3929044.00
447.29	60472.87	16067.84	1288.77	982.05	0.00	541289.00	3927449.00
401.97	61012.68	16340.22	1364.79	1145.35	0.00	541829.00	3927721.00
295.53	62769.98	17175.22	1452.19	1389.48	0.00	543586.00	3928556.00
279.02	63135.30	17357.26	1475.72	1405.20	0.00	543952.00	3928738.00
371.04	61442.73	16541.79	1324.93	1041.16	0.00	542259.00	3927923.00
130.33	69140.83	20190.17	1774.06	1895.00	0.00	549957.00	3931571.00
455.79	60380.16	16026.77	1312.00	1051.92	0.00	541196.00	3927408.00
553.80	59490.22	15575.91	1249.82	919.39	0.00	540307.00	3926957.00
182.37	66196.96	18803.59	1604.98	1605.68	0.00	547013.00	3930184.00
304.08	62595.61	17097.35	1346.10	1053.72	0.00	543412.00	3928478.00
218.85	64799.42	18144.39	1526.34	1488.14	0.00	545616.00	3929525.00
254.36	63742.98	17641.39	1447.93	1276.56	0.00	544559.00	3929022.00
141.77	68354.44	19820.48	1666.57	1685.25	0.00	549171.00	3931201.00
97.70	72109.72	21588.31	1909.56	2050.62	0.00	552926.00	3932969.00
52.41	80215.59	25391.69	2774.56	3386.30	0.00	561032.00	3936772.00
770.55	58217.73	14939.81	1209.62	783.35	0.00	539034.00	3926321.00
417.11	60822.89	16235.20	1357.69	1205.74	0.00	541639.00	3927616.00
491.26	60024.80	15844.12	1268.51	943.86	0.00	540841.00	3927225.00
234.03	64317.61	17920.51	1478.20	1319.22	0.00	545134.00	3929301.00
187.39	65979.86	18703.36	1534.19	1421.97	0.00	546796.00	3930084.00
277.57	63168.16	17369.93	1461.72	1375.02	0.00	543984.00	3928751.00
453.16	60409.97	16034.26	1277.01	952.01	0.00	541226.00	3927415.00
560.82	59434.94	15557.20	1293.16	1029.16	0.00	540251.00	3926938.00
135.20	68791.04	20030.85	1782.25	1882.59	0.00	549607.00	3931412.00
205.69	65257.78	18369.17	1493.26	1297.70	0.00	546074.00	3929750.00
199.86	65478.72	18474.96	1694.69	1748.95	0.00	546295.00	3929856.00
294.95	62783.04	17184.64	1417.97	1284.02	0.00	543599.00	3928565.00
310.70	62466.05	17035.27	1376.34	1147.03	0.00	543282.00	3928416.00
432.10	60643.81	16157.59	1290.92	948.54	0.00	541460.00	3927538.00
190.54	65848.37	18637.40	1689.26	1929.30	0.00	546665.00	3930018.00
495.94	59981.69	15823.74	1274.17	957.93	0.00	540798.00	3927205.00
317.71	62331.60	16962.89	1424.72	1328.20	0.00	543148.00	3928344.00
52.56	80172.34	25356.39	2430.50	2848.28	0.00	560989.00	3936737.00
397.96	61067.09	16352.40	1336.98	1137.74	0.00	541883.00	3927733.00

666.31	58745.55	15208.26	1208.11	762.37	0.00	539562.00	3926589.00
379.60	61320.14	16479.72	1418.99	1322.07	0.00	542136.00	3927861.00
444.55	60503.72	16088.09	1257.58	857.98	0.00	541320.00	3927469.00
162.67	67137.11	19245.86	1631.26	1636.50	0.00	547953.00	3930627.00
499.25	59952.45	15819.06	1243.59	834.59	0.00	540769.00	3927200.00
143.43	68246.15	19765.63	1704.18	1803.43	0.00	549062.00	3931146.00
641.60	58880.56	15279.78	1240.89	865.40	0.00	539697.00	3926661.00
57.54	78831.95	24730.55	2506.70	3052.59	0.00	559648.00	3936111.00
64.16	77298.46	24011.26	2383.66	2925.71	0.00	558115.00	3935392.00
225.68	64575.51	18034.73	1690.16	1861.04	0.00	545392.00	3929416.00
56.44	79112.92	24857.35	2324.25	2612.97	0.00	559929.00	3936238.00
569.61	59365.10	15525.76	1280.12	978.69	0.00	540181.00	3926907.00
253.39	63768.31	17656.72	1421.93	1222.69	0.00	544585.00	3929038.00
342.90	61883.12	16750.42	1403.90	1274.69	0.00	542699.00	3928131.00
386.57	61222.95	16429.04	1388.62	1245.90	0.00	542039.00	3927810.00
321.71	62257.52	16927.40	1347.64	1116.58	0.00	543074.00	3928308.00
165.86	66977.22	19177.51	1664.64	1681.35	0.00	547793.00	3930558.00
394.10	61117.91	16386.42	1301.56	1000.45	0.00	541934.00	3927767.00
305.76	62561.21	17076.60	1341.55	1061.77	0.00	543377.00	3928457.00
113.27	70530.56	20855.46	1899.71	2074.60	0.00	551347.00	3932236.00
84.15	73826.12	22411.02	1975.58	1942.19	0.00	554642.00	3933792.00
304.89	62580.32	17089.24	1390.14	1166.18	0.00	543397.00	3928470.00
122.47	69744.59	20477.60	1874.96	2042.97	0.00	550561.00	3931858.00
388.65	61193.44	16420.05	1299.96	985.28	0.00	542010.00	3927801.00
257.58	63660.28	17611.41	1433.25	1232.62	0.00	544477.00	3928992.00
127.69	69338.01	20278.40	1704.45	1718.74	0.00	550154.00	3931659.00
203.99	65321.07	18390.59	1696.60	1874.13	0.00	546137.00	3929771.00
271.30	63317.64	17444.71	1349.18	1031.35	0.00	544134.00	3928825.00
791.23	58130.21	14894.20	1209.22	790.30	0.00	538946.00	3926275.00
259.40	63612.09	17573.64	1445.45	1331.48	0.00	544428.00	3928954.00
216.79	64868.11	18185.23	1603.54	1629.52	0.00	545684.00	3929566.00
83.40	73935.54	22439.92	2268.61	2781.51	0.00	554752.00	3933821.00
398.91	61055.71	16348.62	1305.34	1030.97	0.00	541872.00	3927729.00
429.26	60676.42	16166.65	1287.99	964.99	0.00	541493.00	3927547.00
451.88	60423.38	16047.12	1314.52	1061.78	0.00	541240.00	3927428.00
217.62	64841.92	18165.54	1496.01	1375.40	0.00	545658.00	3929546.00
937.23	57595.20	14611.64	1160.97	592.15	0.00	538411.00	3925992.00
253.99	63752.45	17651.54	1473.73	1340.74	0.00	544569.00	3929032.00
356.72	61659.95	16645.68	1353.37	1117.78	0.00	542476.00	3928026.00
276.70	63190.63	17380.87	1515.39	1499.93	0.00	544007.00	3928762.00
655.47	58800.60	15237.13	1211.31	779.97	0.00	539617.00	3926618.00
101.14	71727.38	21404.38	2102.43	2329.96	0.00	552544.00	3932785.00
230.29	64430.75	17967.16	1460.45	1338.44	0.00	545247.00	3929348.00
43.32	83246.05	26806.35	3072.70	4367.70	0.00	564062.00	3938187.00
252.16	63801.83	17665.16	1462.33	1377.56	0.00	544618.00	3929046.00
349.07	61782.88	16704.69	1352.64	1127.26	0.00	542599.00	3928085.00
138.63	68559.47	19914.98	1850.11	2089.31	0.00	549376.00	3931296.00
463.51	60298.14	15980.49	1281.15	951.62	0.00	541114.00	3927361.00
213.69	64974.11	18234.13	1494.20	1333.19	0.00	545790.00	3929615.00
277.36	63173.60	17372.61	1393.55	1185.01	0.00	543990.00	3928753.00
183.65	66140.31	18780.61	1691.08	1769.09	0.00	546957.00	3930161.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
597.06	1919.10	512.04	289.25	526.73	<b>28.03</b>	482735.00	3911893.00
544.06	1971.54	534.98	277.33	546.05	0.00	482788.00	3911916.00
138.28	2770.41	922.63	263.95	589.91	0.00	483587.00	3912303.00
168.48	2625.46	858.72	284.18	553.32	0.00	483442.00	3912239.00
983.68	1731.72	416.94	282.64	479.18	0.00	482548.00	3911798.00
136.33	2782.45	935.93	341.67	475.49	0.00	483599.00	3912317.00
350.65	2185.59	643.04	254.33	523.55	0.00	483002.00	3912024.00
411.07	2098.50	600.17	275.25	553.68	0.00	482915.00	3911981.00
253.90	2367.13	728.63	276.20	605.19	0.00	483183.00	3912109.00
260.11	2348.42	721.53	267.11	552.19	0.00	483165.00	3912102.00
114.99	2919.34	990.75	231.01	553.53	0.00	483736.00	3912372.00
130.04	2812.77	950.40	306.50	521.84	0.00	483629.00	3912331.00
881.33	1786.12	433.80	274.03	514.36	0.00	482602.00	3911815.00
258.00	2356.21	726.21	287.64	512.30	0.00	483172.00	3912107.00
217.72	2458.70	772.78	266.60	571.60	0.00	483275.00	3912154.00
192.60	2532.74	811.39	272.21	564.33	0.00	483349.00	3912192.00
386.74	2128.13	616.66	309.83	549.61	0.00	482944.00	3911997.00
481.75	2028.39	562.38	235.80	539.78	0.00	482845.00	3911943.00
207.40	2494.47	794.94	298.04	418.39	0.00	483311.00	3912176.00
408.05	2101.24	603.49	259.36	530.54	0.00	482918.00	3911984.00
331.60	2205.39	656.37	242.62	563.99	0.00	483022.00	3912037.00
591.31	1921.09	520.21	296.89	441.93	0.00	482737.00	3911901.00
272.76	2315.55	707.52	212.22	432.47	0.00	483132.00	3912088.00
113.28	2929.37	1000.15	249.55	551.93	0.00	483746.00	3912381.00
87.26	3164.31	1111.09	293.11	568.99	0.00	483981.00	3912492.00
292.50	2280.63	690.37	259.11	526.54	0.00	483097.00	3912071.00
212.05	2470.07	780.44	263.29	577.69	0.00	483286.00	3912161.00
121.77	2870.23	972.90	263.08	590.74	0.00	483687.00	3912354.00
119.54	2884.89	977.88	246.68	492.24	0.00	483701.00	3912359.00
281.33	2302.49	698.33	230.40	536.00	0.00	483119.00	3912079.00
436.48	2068.30	589.85	279.08	483.58	0.00	482885.00	3911971.00
91.55	3117.26	1089.65	277.79	540.96	0.00	483934.00	3912470.00
199.16	2515.34	801.19	275.69	571.50	0.00	483332.00	3912182.00
241.09	2395.04	743.29	198.09	483.49	0.00	483211.00	3912124.00
302.38	2262.51	678.73	270.53	557.69	0.00	483079.00	3912060.00
266.82	2332.03	712.38	236.81	555.54	0.00	483148.00	3912093.00
368.98	2150.80	627.68	277.14	474.78	0.00	482967.00	3912008.00
357.37	2167.62	634.81	239.01	528.78	0.00	482984.00	3912016.00
249.19	2369.97	735.16	272.59	522.31	0.00	483186.00	3912116.00
469.57	2030.95	569.72	291.74	578.18	0.00	482847.00	3911951.00
619.66	1903.65	500.16	225.30	476.96	0.00	482720.00	3911881.00
59.64	3554.87	1294.40	296.98	563.53	0.00	484371.00	3912675.00
54.08	3668.46	1350.95	278.66	541.33	0.00	484485.00	3912732.00
248.08	2371.77	733.29	240.71	496.01	0.00	483188.00	3912114.00
256.78	2361.47	725.80	295.11	534.54	0.00	483178.00	3912107.00
524.37	1975.24	545.99	254.48	403.90	0.00	482792.00	3911927.00
182.20	2580.81	833.23	223.65	514.11	0.00	483397.00	3912214.00
708.13	1858.96	482.14	303.04	529.93	0.00	482675.00	3911863.00
202.54	2494.65	799.22	266.56	459.05	0.00	483311.00	3912180.00

240.37	2387.56	746.39	243.91	508.15	0.00	483204.00	3912127.00
31.46	4391.26	1693.83	305.41	528.45	0.00	485208.00	3913075.00
247.04	2382.52	736.61	287.98	560.96	0.00	483199.00	3912117.00
1255.96	1657.51	368.36	312.46	533.40	0.00	482474.00	3911749.00
213.85	2466.22	780.93	239.44	545.88	0.00	483282.00	3912162.00
104.03	3005.31	1034.73	283.96	596.41	0.00	483822.00	3912416.00
53.56	3678.59	1350.41	281.43	526.85	0.00	484495.00	3912731.00
287.99	2285.79	698.60	282.69	420.72	0.00	483102.00	3912079.00
416.34	2093.20	600.67	257.67	494.41	0.00	482909.00	3911981.00
520.88	1979.61	544.66	236.51	512.05	0.00	482796.00	3911925.00
13.31	6019.42	2453.14	384.84	572.76	0.00	486836.00	3913834.00
523.77	1975.66	541.92	286.11	575.21	0.00	482792.00	3911923.00
470.68	2031.29	568.21	229.36	541.98	0.00	482848.00	3911949.00
193.27	2534.52	810.45	266.43	630.43	0.00	483351.00	3912191.00
105.67	2988.98	1026.68	216.50	515.33	0.00	483805.00	3912407.00
37.29	4139.45	1569.64	259.52	549.82	0.00	484956.00	3912950.00
339.33	2191.52	651.69	253.25	541.75	0.00	483008.00	3912032.00
820.84	1805.87	451.32	217.27	517.00	0.00	482622.00	3911832.00
128.71	2825.21	956.29	265.85	543.65	0.00	483641.00	3912337.00
321.37	2230.00	665.58	260.13	518.81	0.00	483046.00	3912046.00
557.39	1954.51	530.81	240.62	525.90	0.00	482771.00	3911912.00
235.74	2405.17	745.09	266.64	511.75	0.00	483221.00	3912126.00
150.25	2698.29	892.86	245.12	573.94	0.00	483515.00	3912274.00
335.34	2206.69	655.98	227.51	421.58	0.00	483023.00	3912037.00
238.92	2401.29	747.77	275.61	552.16	0.00	483218.00	3912129.00
277.28	2314.11	707.33	263.75	444.80	0.00	483130.00	3912088.00
323.67	2223.47	664.42	265.14	547.50	0.00	483040.00	3912045.00
219.70	2455.03	771.49	290.73	527.77	0.00	483271.00	3912152.00
496.37	2007.84	559.05	276.45	436.01	0.00	482824.00	3911940.00
387.72	2134.49	618.54	302.64	547.18	0.00	482951.00	3911999.00
295.13	2281.07	686.39	298.95	616.04	0.00	483097.00	3912067.00
406.49	2104.90	606.18	204.63	465.31	0.00	482921.00	3911987.00
150.83	2702.47	897.12	230.62	468.98	0.00	483519.00	3912278.00
197.87	2517.91	804.97	273.89	528.00	0.00	483334.00	3912186.00
697.66	1851.08	486.39	291.15	511.60	0.00	482667.00	3911867.00
249.41	2372.41	735.39	303.96	582.22	0.00	483189.00	3912116.00
438.79	2070.32	583.96	257.89	487.49	0.00	482887.00	3911965.00
458.14	2047.05	578.11	278.98	535.39	0.00	482863.00	3911959.00
158.26	2663.18	877.11	298.17	536.71	0.00	483479.00	3912258.00
67.95	3412.18	1232.74	296.54	527.45	0.00	484228.00	3912614.00
354.41	2170.89	636.21	264.35	612.92	0.00	482987.00	3912017.00
82.49	3210.57	1136.73	231.66	496.02	0.00	484027.00	3912518.00
95.75	3073.56	1069.29	270.21	596.95	0.00	483890.00	3912450.00
112.41	2937.46	1003.43	275.38	550.90	0.00	483754.00	3912384.00
359.03	2174.64	636.66	247.92	503.80	0.00	482991.00	3912017.00
403.79	2104.16	608.90	306.77	403.13	0.00	482920.00	3911990.00
290.93	2297.10	691.12	276.15	581.23	0.00	483113.00	3912072.00
260.09	2342.26	720.82	248.34	565.40	0.00	483159.00	3912102.00
93.08	3104.56	1081.23	273.28	539.87	0.00	483921.00	3912462.00
59.75	3550.45	1300.08	278.87	432.79	0.00	484367.00	3912681.00
257.56	2354.03	725.15	313.94	589.72	0.00	483170.00	3912106.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
1011.74	25486.27	6556.14	739.57	694.88	75.00	506303.00	3917937.00
545.32	26689.96	7195.15	830.73	847.26	0.00	507506.00	3918576.00
120.99	32410.77	9944.12	1560.20	1565.49	0.00	513227.00	3921325.00
229.62	29410.82	8518.38	1177.60	1464.52	0.00	510227.00	3919899.00
238.72	29260.94	8429.09	1009.72	1434.05	0.00	510077.00	3919810.00
221.33	29559.38	8572.75	1037.26	1347.61	0.00	510376.00	3919954.00
149.82	31295.78	9414.62	1176.33	1418.10	0.00	512112.00	3920795.00
106.84	33118.14	10256.35	1088.53	1314.66	0.00	513934.00	3921637.00
42.08	40081.93	13481.09	1684.00	3794.03	0.00	520898.00	3924862.00
420.75	27367.75	7530.32	884.13	938.38	0.00	508184.00	3918911.00
207.65	29821.90	8711.32	1090.32	1153.00	0.00	510638.00	3920092.00
349.41	27924.38	7793.90	918.45	1099.71	0.00	508741.00	3919175.00
372.10	27734.66	7704.43	917.11	1012.29	0.00	508551.00	3919085.00
291.99	28523.16	8081.47	1047.98	1529.90	0.00	509339.00	3919462.00
155.70	31109.62	9316.77	1201.22	1508.97	0.00	511926.00	3920698.00
240.58	29228.51	8429.63	1126.00	1352.94	0.00	510045.00	3919810.00
179.42	30456.18	9009.16	1166.55	1391.31	0.00	511272.00	3920390.00
528.83	26772.73	7229.92	788.29	753.98	0.00	507589.00	3918611.00
466.06	27092.47	7393.00	842.51	886.52	0.00	507909.00	3918774.00
495.80	26929.81	7312.76	838.55	783.05	0.00	507746.00	3918694.00
86.30	34437.36	10879.26	1556.98	2503.13	0.00	515254.00	3922260.00
193.90	30109.28	8847.82	1236.80	1424.03	0.00	510926.00	3920229.00
272.61	28765.87	8193.27	930.56	1307.56	0.00	509582.00	3919574.00
294.36	28494.04	8077.35	933.99	963.19	0.00	509310.00	3919458.00
160.93	30954.30	9242.01	1001.29	1094.10	0.00	511771.00	3920623.00
85.80	34474.73	10909.75	1983.92	2176.55	0.00	515291.00	3922291.00
376.34	27700.96	7687.09	909.06	965.37	0.00	508517.00	3919068.00
212.08	29730.85	8663.07	1067.95	1281.09	0.00	510547.00	3920044.00
331.17	28097.39	7886.01	966.75	1172.69	0.00	508914.00	3919267.00
50.96	38372.71	12726.47	2228.20	2899.02	0.00	519189.00	3924107.00
80.75	34877.55	11096.66	1731.97	2405.49	0.00	515694.00	3922477.00
258.96	28950.15	8288.11	1141.47	1531.11	0.00	509766.00	3919669.00
38.29	40982.05	13953.93	2924.63	3617.80	0.00	521798.00	3925335.00
494.22	26941.32	7317.47	800.89	771.23	0.00	507758.00	3918698.00
251.66	29056.54	8353.67	1130.57	1255.71	0.00	509873.00	3919734.00
324.56	28165.34	7907.96	1056.88	1387.78	0.00	508982.00	3919289.00
346.44	27952.19	7817.15	970.86	1059.45	0.00	508768.00	3919198.00
312.78	28285.15	7974.31	970.23	1129.86	0.00	509101.00	3919355.00
448.48	27197.91	7440.10	833.74	848.11	0.00	508014.00	3918821.00
156.87	31071.00	9296.76	1131.42	1522.21	0.00	511887.00	3920678.00
70.71	35804.52	11521.19	1835.24	2864.93	0.00	516621.00	3922902.00
179.19	30457.16	9012.77	1075.50	1280.21	0.00	511273.00	3920394.00
224.92	29493.92	8546.58	1152.39	1461.18	0.00	510310.00	3919927.00
182.09	30386.91	8963.07	1098.98	1428.56	0.00	511203.00	3920344.00
220.58	29571.72	8594.44	992.18	1107.24	0.00	510388.00	3919975.00
125.51	32210.93	9834.18	1526.34	2075.50	0.00	513027.00	3921215.00
178.83	30465.90	9019.90	1214.74	1597.98	0.00	511282.00	3920401.00
535.81	26735.08	7212.70	812.61	805.17	0.00	507551.00	3918593.00
289.50	28552.87	8100.34	832.87	832.75	0.00	509369.00	3919481.00

436.75	27267.30	7475.17	844.01	894.92	0.00	508084.00	3918856.00
336.47	28046.52	7859.89	955.93	1152.99	0.00	508863.00	3919241.00
235.73	29309.24	8470.80	1176.92	1415.09	0.00	510126.00	3919852.00
120.83	32416.17	9919.88	1333.74	1992.41	0.00	513232.00	3921301.00
352.85	27898.17	7790.72	985.69	1123.39	0.00	508714.00	3919171.00
417.74	27392.27	7545.28	947.72	1035.04	0.00	508209.00	3918926.00
303.15	28389.43	8020.39	889.58	1019.87	0.00	509206.00	3919401.00
372.23	27735.74	7711.33	920.03	972.83	0.00	508552.00	3919092.00
217.20	29636.97	8624.33	1209.90	1421.92	0.00	510453.00	3920005.00
507.13	26872.17	7277.13	873.54	1016.58	0.00	507688.00	3918658.00
264.18	28877.13	8262.56	1143.24	1383.21	0.00	509693.00	3919643.00
154.84	31135.50	9329.16	1197.22	1610.15	0.00	511952.00	3920710.00
374.90	27712.75	7693.28	869.70	1003.23	0.00	508529.00	3919074.00
275.61	28725.12	8194.24	1133.91	1341.26	0.00	509541.00	3919575.00
277.90	28694.64	8173.69	979.10	1150.81	0.00	509511.00	3919554.00
354.71	27874.93	7774.85	903.26	1074.54	0.00	508691.00	3919156.00
198.62	30007.83	8809.48	1138.27	1151.25	0.00	510824.00	3920190.00
84.63	34564.22	10938.13	1607.56	2305.12	0.00	515381.00	3922319.00
769.70	25956.32	6808.64	736.68	692.03	0.00	506773.00	3918189.00
96.41	33733.85	10551.55	1311.39	1749.86	0.00	514550.00	3921932.00
326.31	28146.33	7910.00	867.04	895.41	0.00	508963.00	3919291.00
349.74	27925.60	7797.47	890.42	1066.08	0.00	508742.00	3919178.00
253.87	29024.79	8324.15	950.04	1129.17	0.00	509841.00	3919705.00
555.33	26648.78	7171.38	811.19	860.39	0.00	507465.00	3918552.00
80.55	34894.09	11088.68	1638.77	2321.23	0.00	515710.00	3922469.00
387.06	27613.07	7650.05	1006.66	1180.94	0.00	508429.00	3919031.00
108.36	33032.76	10235.26	1443.04	1897.90	0.00	513849.00	3921616.00
224.91	29495.17	8543.81	1003.42	1312.17	0.00	510311.00	3919925.00
464.03	27103.22	7394.85	794.70	759.76	0.00	507920.00	3918776.00
345.76	27960.37	7814.50	920.18	1064.70	0.00	508777.00	3919195.00
21.50	47542.37	16997.41	2848.49	4646.71	0.00	528359.00	3928378.00
53.28	37998.02	12545.43	1663.02	2432.38	0.00	518814.00	3923926.00
284.98	28605.43	8135.35	1031.22	1173.46	0.00	509422.00	3919516.00
326.70	28145.04	7908.48	904.76	950.32	0.00	508961.00	3919289.00
104.40	33252.37	10320.46	1391.50	2058.48	0.00	514069.00	3921701.00
76.70	35229.80	11245.26	1670.71	2417.57	0.00	516046.00	3922626.00
398.16	27530.64	7616.78	950.37	936.06	0.00	508347.00	3918998.00
92.39	33998.59	10672.16	1530.17	2040.33	0.00	514815.00	3922053.00
250.52	29077.52	8352.47	1056.04	1343.12	0.00	509894.00	3919733.00
519.21	26811.11	7257.15	858.22	991.74	0.00	507627.00	3918638.00
220.65	29570.78	8595.77	992.48	1084.54	0.00	510387.00	3919977.00
229.58	29411.27	8511.24	1052.44	1385.29	0.00	510228.00	3919892.00
321.83	28191.86	7935.58	1048.25	1186.26	0.00	509008.00	3919316.00
341.74	27995.35	7833.95	970.88	1119.47	0.00	508812.00	3919215.00
111.72	32856.58	10156.07	1756.49	2112.15	0.00	513673.00	3921537.00
110.32	32928.41	10176.09	1284.28	1862.11	0.00	513745.00	3921557.00
177.29	30502.56	9030.79	1216.77	1588.03	0.00	511319.00	3920412.00
182.27	30380.81	8968.04	995.25	1174.58	0.00	511197.00	3920349.00
109.98	32947.02	10192.45	1724.75	2059.15	0.00	513763.00	3921573.00
119.60	32475.83	9962.56	1369.14	1668.61	0.00	513292.00	3921343.00
330.41	28108.14	7883.73	921.15	1160.23	0.00	508924.00	3919265.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
143.50	1294.37	444.25	141.31	221.74	21.82	482111.00	3911825.00
87.36	1549.28	568.04	134.79	223.79	0.00	482366.00	3911949.00
495.37	812.03	209.48	120.01	275.61	0.00	481628.00	3911590.00
250.26	1061.99	331.14	123.80	250.72	0.00	481878.00	3911712.00
395.47	895.64	246.78	154.87	254.34	0.00	481712.00	3911628.00
636.03	736.64	169.79	129.83	236.65	0.00	481553.00	3911551.00
329.39	964.02	279.79	125.71	225.22	0.00	481780.00	3911661.00
751.95	696.23	146.60	157.46	235.31	0.00	481513.00	3911527.00
444.47	855.51	230.28	134.75	210.76	0.00	481672.00	3911611.00
273.71	1037.43	312.46	107.99	264.76	0.00	481854.00	3911693.00
354.38	938.17	265.35	144.05	234.06	0.00	481754.00	3911646.00
364.23	919.49	261.84	130.14	196.33	0.00	481736.00	3911643.00
136.65	1310.32	454.55	134.33	250.94	0.00	482127.00	3911835.00
167.34	1229.15	412.64	136.83	231.20	0.00	482045.00	3911793.00
291.86	998.13	301.74	113.40	276.71	0.00	481814.00	3911683.00
365.69	923.30	261.39	102.60	234.07	0.00	481740.00	3911642.00
391.17	892.07	248.17	110.43	244.51	0.00	481708.00	3911629.00
162.86	1225.10	413.67	113.91	259.02	0.00	482041.00	3911794.00
238.70	1088.56	341.62	136.51	242.60	0.00	481905.00	3911722.00
135.14	1314.08	457.40	136.20	253.62	0.00	482130.00	3911838.00
621.72	746.53	169.85	139.28	269.36	0.00	481563.00	3911551.00
302.25	995.72	294.03	131.23	267.33	0.00	481812.00	3911675.00
332.82	957.49	277.83	126.56	205.86	0.00	481774.00	3911659.00
216.59	1120.70	358.51	134.83	234.35	0.00	481937.00	3911739.00
72.92	1651.91	617.65	121.90	211.16	0.00	482468.00	3911998.00
66.16	1709.95	648.02	133.37	211.42	0.00	482526.00	3912029.00
180.95	1188.85	395.53	139.53	238.84	0.00	482005.00	3911776.00
157.31	1247.75	422.05	123.70	235.88	0.00	482064.00	3911803.00
68.46	1691.35	636.57	121.47	251.19	0.00	482508.00	3912017.00
301.80	993.84	294.27	132.85	260.89	0.00	481810.00	3911675.00
191.72	1165.42	383.08	117.00	244.52	0.00	481982.00	3911764.00
64.48	1728.68	655.74	124.51	246.15	0.00	482545.00	3912037.00
460.78	845.19	220.95	141.19	238.31	0.00	481661.00	3911602.00
454.55	855.60	223.02	109.65	256.98	0.00	481672.00	3911604.00
578.31	775.89	185.83	149.83	250.55	0.00	481592.00	3911567.00
353.38	938.50	267.78	135.58	245.01	0.00	481755.00	3911649.00
858.92	975.37	270.23	118.60	282.39	0.00	481792.00	3911651.00
170.19	1212.26	408.44	124.96	211.05	0.00	482029.00	3911789.00
252.80	1068.74	330.36	144.39	241.34	0.00	481885.00	3911711.00
248.66	1064.74	330.99	105.50	221.32	0.00	481881.00	3911712.00
331.20	949.68	279.32	114.24	212.32	0.00	481766.00	3911660.00
287.92	1012.19	304.70	138.28	266.12	0.00	481828.00	3911685.00
292.80	1002.12	299.48	121.37	265.32	0.00	481818.00	3911680.00
521.81	800.37	201.62	140.29	265.10	0.00	481617.00	3911582.00
484.93	818.32	211.71	120.62	253.14	0.00	481635.00	3911592.00
344.60	935.02	271.67	107.73	205.30	0.00	481751.00	3911652.00
96.47	1489.83	540.52	117.77	219.97	0.00	482306.00	3911921.00
353.49	928.96	265.94	125.11	246.58	0.00	481745.00	3911647.00
143.08	1297.13	444.31	117.70	214.30	0.00	482113.00	3911825.00

442.92	863.41	227.06	118.35	250.85	0.00	481680.00	3911608.00
167.31	1230.41	411.67	120.03	245.63	0.00	482047.00	3911792.00
447.92	847.90	224.39	104.02	233.75	0.00	481664.00	3911605.00
543.15	800.14	193.98	136.58	300.82	0.00	481616.00	3911575.00
289.99	1002.05	301.80	108.67	204.03	0.00	481818.00	3911683.00
418.44	867.58	238.18	110.66	248.14	0.00	481684.00	3911619.00
169.59	1210.60	408.43	108.65	226.72	0.00	482027.00	3911789.00
208.47	1135.80	364.56	122.09	250.14	0.00	481952.00	3911745.00
194.75	1160.72	379.86	127.64	274.31	0.00	481977.00	3911761.00
300.09	994.44	297.35	117.50	242.35	0.00	481811.00	3911678.00
402.26	886.30	244.71	136.91	221.47	0.00	481703.00	3911625.00
137.59	1310.04	452.56	95.85	242.64	0.00	482126.00	3911833.00
177.06	1201.36	400.81	115.10	222.67	0.00	482018.00	3911782.00
939.03	1260.11	405.47	111.79	259.52	0.00	482076.00	3911786.00
211.28	1130.06	362.38	138.33	238.23	0.00	481946.00	3911743.00
344.77	939.15	270.22	124.33	261.21	0.00	481755.00	3911651.00
231.02	1094.40	344.99	106.87	243.55	0.00	481911.00	3911726.00
267.53	1024.34	317.48	118.45	221.29	0.00	481841.00	3911698.00
252.74	1054.28	328.62	110.53	263.81	0.00	481871.00	3911709.00
585.93	759.64	181.53	129.28	239.79	0.00	481576.00	3911562.00
306.13	980.13	290.76	105.91	254.16	0.00	481796.00	3911672.00
448.94	851.71	226.84	120.49	278.98	0.00	481668.00	3911608.00
147.79	1278.49	435.93	108.72	228.09	0.00	482095.00	3911817.00
326.64	956.46	280.71	113.51	237.27	0.00	481773.00	3911661.00
572.22	758.38	183.65	107.78	234.93	0.00	481575.00	3911564.00
281.60	1012.65	307.33	132.00	248.97	0.00	481829.00	3911688.00
108.56	1425.89	508.22	141.84	214.16	0.00	482242.00	3911889.00
279.26	1014.37	309.81	116.44	216.29	0.00	481831.00	3911691.00
265.48	1039.62	320.00	101.49	206.38	0.00	481856.00	3911701.00
572.80	767.65	184.42	111.00	266.76	0.00	481584.00	3911565.00
240.69	1077.53	337.91	111.68	212.76	0.00	481894.00	3911719.00
202.14	1147.84	372.45	115.27	263.91	0.00	481964.00	3911753.00
112.59	1412.00	501.80	140.00	240.42	0.00	482228.00	3911883.00
316.99	970.16	287.28	128.11	255.61	0.00	481786.00	3911668.00
304.71	986.68	292.47	92.37	235.04	0.00	481803.00	3911673.00
189.44	1171.75	384.95	124.00	221.81	0.00	481988.00	3911766.00
96.66	1491.70	539.47	152.34	247.03	0.00	482308.00	3911920.00
103.64	1453.43	520.28	118.26	262.71	0.00	482270.00	3911901.00
212.61	1125.50	363.20	115.32	239.83	0.00	481942.00	3911744.00
222.87	1113.76	351.07	111.45	242.76	0.00	481930.00	3911732.00
168.53	1222.97	411.14	116.32	234.87	0.00	482039.00	3911792.00
366.97	921.32	258.90	111.89	236.76	0.00	481738.00	3911640.00
272.57	1032.87	312.92	110.86	272.28	0.00	481849.00	3911694.00
287.27	1015.21	306.41	126.53	239.74	0.00	481831.00	3911687.00
300.40	991.19	295.83	125.75	271.18	0.00	481807.00	3911677.00
631.98	755.00	169.90	132.27	277.00	0.00	481571.00	3911551.00
239.94	1075.16	339.43	126.41	242.69	0.00	481891.00	3911720.00
355.58	932.84	266.02	138.03	241.86	0.00	481749.00	3911647.00
256.05	1050.24	325.33	126.23	260.88	0.00	481867.00	3911706.00
202.03	1144.15	371.27	113.26	251.78	0.00	481960.00	3911752.00
162.37	1229.94	415.93	113.47	232.77	0.00	482046.00	3911797.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
576.48	32306.27	8616.13	907.24	937.10	<b>80.79</b>	513123.00	3919997.00
156.40	37560.93	11156.69	1506.84	1737.37	0.00	518377.00	3922537.00
390.71	33491.55	9209.96	1112.45	1272.13	0.00	514308.00	3920591.00
510.47	32645.08	8797.61	915.50	818.54	0.00	513461.00	3920178.00
139.91	38208.81	11461.65	1239.70	1399.85	0.00	519025.00	3922842.00
540.26	32485.52	8714.16	948.39	954.04	0.00	513302.00	3920095.00
364.20	33739.63	9329.73	1009.95	1093.97	0.00	514556.00	3920711.00
168.41	37160.42	10964.61	1345.20	1570.53	0.00	517977.00	3922345.00
202.80	36203.57	10497.95	1183.43	1480.15	0.00	517020.00	3921879.00
154.03	37648.39	11197.26	1402.62	1747.52	0.00	518465.00	3922578.00
211.80	35993.45	10412.00	1399.05	1725.17	0.00	516810.00	3921793.00
60.16	44458.80	14397.27	2130.98	2722.50	0.00	525275.00	3925778.00
246.86	35287.02	10064.03	1009.59	1163.27	0.00	516103.00	3921445.00
215.63	35907.29	10367.14	1101.33	1241.65	0.00	516724.00	3921748.00
387.35	33524.47	9227.22	972.59	996.72	0.00	514341.00	3920608.00
168.69	37149.06	10948.35	1342.81	1767.18	0.00	517965.00	3922329.00
513.01	32633.98	8784.59	914.77	878.49	0.00	513450.00	3920165.00
503.76	32681.70	8807.86	942.27	937.90	0.00	513498.00	3920189.00
425.48	33214.38	9069.49	940.07	948.27	0.00	514031.00	3920450.00
467.53	32909.94	8926.23	868.51	711.89	0.00	513726.00	3920307.00
322.57	34189.39	9547.25	998.61	984.28	0.00	515006.00	3920928.00
512.78	32631.80	8786.53	925.70	878.53	0.00	513448.00	3920167.00
95.61	40700.24	12626.84	1574.91	1929.11	0.00	521517.00	3924008.00
176.31	36913.60	10844.54	1100.22	1140.10	0.00	517730.00	3922225.00
406.60	33360.39	9142.11	947.93	976.62	0.00	514177.00	3920523.00
233.67	35535.86	10194.64	1052.38	1056.40	0.00	516352.00	3921575.00
87.97	41311.40	12927.01	1771.60	2105.71	0.00	522128.00	3924308.00
402.50	33392.75	9161.39	922.73	872.61	0.00	514209.00	3920542.00
915.12	31240.25	8071.91	844.65	697.54	0.00	512057.00	3919453.00
295.37	34533.34	9710.22	999.56	1044.96	0.00	515350.00	3921091.00
322.91	34187.78	9541.27	996.32	1061.47	0.00	515004.00	3920922.00
449.41	33033.27	8991.49	967.01	931.36	0.00	513850.00	3920372.00
99.65	40402.79	12497.70	1871.89	2128.06	0.00	521219.00	3923878.00
140.99	38161.49	11439.94	1496.98	1831.37	0.00	518978.00	3922821.00
435.43	33136.80	9032.16	956.21	955.37	0.00	513953.00	3920413.00
183.11	36716.70	10760.89	1250.12	1417.75	0.00	517533.00	3922142.00
117.91	39262.47	11973.70	1537.80	1880.59	0.00	520079.00	3923354.00
348.33	33901.61	9405.57	990.14	1057.44	0.00	514718.00	3920786.00
101.56	40269.88	12444.07	1731.91	2013.74	0.00	521086.00	3923825.00
316.20	34265.30	9581.25	1001.89	1112.57	0.00	515082.00	3920962.00
243.78	35343.97	10100.08	1181.25	1318.73	0.00	516160.00	3921481.00
58.00	44796.51	14542.65	1863.57	2300.43	0.00	525613.00	3925923.00
382.94	33567.33	9245.63	939.32	887.96	0.00	514384.00	3920626.00
881.17	31315.10	8107.46	818.87	627.21	0.00	512131.00	3919488.00
134.62	38435.85	11572.01	1246.72	1389.68	0.00	519252.00	3922953.00
100.00	40381.28	12464.88	1350.88	1850.87	0.00	521198.00	3923846.00
152.45	37705.61	11218.51	1309.26	1605.03	0.00	518522.00	3922599.00
333.25	34068.51	9483.72	1032.44	1145.29	0.00	514885.00	3920865.00
58.55	44707.60	14498.22	2012.43	3273.65	0.00	525524.00	3925879.00

307.62	34373.70	9635.84	1014.90	1060.75	0.00	515190.00	3921017.00
381.12	33580.78	9249.20	1081.20	1306.12	0.00	514397.00	3920630.00
694.15	31838.13	8386.99	917.49	882.90	0.00	512654.00	3919768.00
384.68	33548.19	9236.74	1006.06	1067.96	0.00	514364.00	3920618.00
347.38	33910.13	9412.26	1076.63	1230.38	0.00	514726.00	3920793.00
521.05	32583.72	8756.88	891.91	847.47	0.00	513400.00	3920138.00
314.98	34282.57	9590.45	968.37	958.04	0.00	515099.00	3920971.00
58.27	44754.18	14514.75	1938.80	2620.11	0.00	525570.00	3925896.00
218.74	35840.19	10326.58	1077.82	1360.22	0.00	516656.00	3921707.00
245.96	35307.08	10086.13	1030.42	1045.84	0.00	516123.00	3921467.00
55.06	45283.82	14783.82	2374.17	2682.01	0.00	526100.00	3926165.00
320.46	34213.98	9557.63	1058.30	1183.30	0.00	515030.00	3920938.00
249.17	35243.31	10051.85	1172.39	1389.79	0.00	516060.00	3921433.00
567.80	32341.48	8640.63	858.86	735.69	0.00	513158.00	3920021.00
449.77	33032.99	8979.59	1061.42	1174.36	0.00	513849.00	3920360.00
187.99	36585.07	10692.04	1173.71	1323.53	0.00	517401.00	3922073.00
323.59	34177.03	9544.48	1036.66	1122.95	0.00	514993.00	3920925.00
246.87	35286.02	10069.91	982.41	1060.52	0.00	516102.00	3921451.00
206.66	36109.92	10462.73	1209.12	1492.23	0.00	516926.00	3921844.00
103.01	40171.97	12367.34	1419.30	2165.78	0.00	520988.00	3923748.00
241.99	35377.60	10108.48	1186.14	1503.29	0.00	516194.00	3921489.00
174.67	36964.28	10858.73	1141.20	1365.25	0.00	517781.00	3922240.00
76.70	42380.67	13430.50	1850.58	2303.09	0.00	523197.00	3924811.00
101.51	40274.49	12423.60	1451.54	1846.69	0.00	521091.00	3923804.00
242.52	35366.76	10117.78	1090.16	1137.19	0.00	516183.00	3921499.00
311.97	34316.54	9612.86	1117.91	1213.95	0.00	515133.00	3920994.00
296.52	34520.41	9703.04	1065.45	1151.73	0.00	515337.00	3921084.00
483.81	32808.79	8871.41	841.55	650.33	0.00	513625.00	3920252.00
102.21	40226.45	12412.05	1419.95	1870.78	0.00	521043.00	3923793.00
426.62	33200.61	9060.47	932.27	930.01	0.00	514017.00	3920441.00
348.46	33901.26	9400.86	1027.87	1138.10	0.00	514718.00	3920782.00
113.32	39524.77	12069.21	1630.93	2318.25	0.00	520341.00	3923450.00
67.42	43451.10	13918.09	1833.84	2508.13	0.00	524267.00	3925299.00
458.35	32972.30	8954.11	897.62	826.52	0.00	513789.00	3920335.00
350.85	33875.15	9391.58	947.60	925.77	0.00	514691.00	3920772.00
180.71	36788.08	10787.22	1330.49	1451.73	0.00	517604.00	3922168.00
295.97	34525.50	9707.65	1032.13	1122.96	0.00	515342.00	3921088.00
414.56	33297.57	9111.74	941.28	967.24	0.00	514114.00	3920493.00
344.45	33940.78	9428.43	1097.62	1234.93	0.00	514757.00	3920809.00
62.26	44153.13	14248.06	1953.43	2575.83	0.00	524969.00	3925629.00
79.60	42082.83	13279.55	2198.70	2806.00	0.00	522899.00	3924660.00
241.66	35381.74	10124.33	1161.13	1258.63	0.00	516198.00	3921505.00
437.01	33122.11	9029.45	918.34	880.32	0.00	513938.00	3920410.00
559.37	32381.98	8659.78	835.66	676.39	0.00	513198.00	3920041.00
93.96	40827.74	12681.60	1405.52	1743.21	0.00	521644.00	3924062.00
149.41	37820.36	11274.76	1395.53	1734.70	0.00	518637.00	3922656.00
282.95	34704.16	9795.52	1047.39	1128.97	0.00	515520.00	3921176.00
376.45	33625.42	9277.08	996.20	1077.39	0.00	514442.00	3920658.00
120.68	39117.07	11872.16	1468.98	1971.58	0.00	519933.00	3923253.00
330.23	34100.37	9502.61	975.26	1031.17	0.00	514917.00	3920883.00
249.65	35239.51	10050.54	1181.64	1398.28	0.00	516056.00	3921431.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
59.18	748.08	298.66	46.74	75.57	<b>16.03</b>	481564.00	3911679.00
74.32	667.14	259.59	48.98	84.04	0.00	481483.00	3911640.00
405.47	734.93	266.82	61.37	128.18	0.00	481551.00	3911648.00
190.37	412.04	126.83	55.41	100.07	0.00	481228.00	3911508.00
542.73	425.00	122.23	51.57	118.38	0.00	481241.00	3911503.00
343.12	267.70	55.42	66.28	75.97	0.00	481084.00	3911436.00
316.49	289.60	64.18	69.81	95.16	0.00	481106.00	3911445.00
349.82	261.51	51.29	64.41	111.42	0.00	481078.00	3911432.00
113.80	537.01	194.51	47.34	88.15	0.00	481353.00	3911575.00
170.36	427.74	141.76	57.35	91.57	0.00	481244.00	3911523.00
173.94	433.49	138.19	58.53	104.00	0.00	481250.00	3911519.00
133.48	493.32	171.74	47.91	98.47	0.00	481310.00	3911553.00
281.41	310.05	77.87	58.41	110.76	0.00	481126.00	3911459.00
303.98	289.56	67.74	48.57	94.61	0.00	481106.00	3911449.00
203.79	384.28	117.86	49.92	99.35	0.00	481201.00	3911499.00
371.66	245.51	42.91	62.11	103.67	0.00	481062.00	3911424.00
519.63	257.17	39.60	64.49	134.75	0.00	481073.00	3911420.00
422.88	276.24	52.84	57.72	123.94	0.00	481093.00	3911434.00
367.04	247.76	45.52	59.01	106.67	0.00	481064.00	3911426.00
259.12	339.74	88.67	57.67	116.62	0.00	481156.00	3911469.00
237.97	351.09	98.48	53.59	96.02	0.00	481167.00	3911479.00
631.69	368.69	97.03	68.36	111.28	0.00	481185.00	3911478.00
178.50	427.16	134.44	60.07	102.03	0.00	481243.00	3911515.00
243.36	346.80	96.04	49.66	92.48	0.00	481163.00	3911477.00
230.57	356.83	102.04	50.84	104.92	0.00	481173.00	3911483.00
512.17	374.33	98.23	69.60	97.85	0.00	481191.00	3911479.00
420.28	277.59	55.55	72.43	111.85	0.00	481094.00	3911436.00
177.57	424.22	135.42	56.60	97.74	0.00	481241.00	3911516.00
158.50	445.97	148.12	50.99	84.03	0.00	481262.00	3911529.00
496.25	500.46	153.82	67.41	123.71	0.00	481317.00	3911535.00
233.19	355.67	101.48	59.61	91.25	0.00	481172.00	3911482.00
260.47	328.41	87.02	51.28	105.54	0.00	481145.00	3911468.00
163.53	440.85	143.60	56.42	99.64	0.00	481257.00	3911524.00
319.59	286.32	62.29	69.00	111.35	0.00	481103.00	3911443.00
232.72	358.20	101.24	53.27	102.15	0.00	481174.00	3911482.00
334.91	267.10	56.05	45.44	92.92	0.00	481083.00	3911437.00
68.28	694.43	274.33	54.81	84.82	0.00	481511.00	3911655.00
275.96	305.05	80.22	48.85	87.82	0.00	481121.00	3911461.00
205.25	385.34	116.78	49.30	104.23	0.00	481202.00	3911498.00
266.58	325.00	84.29	61.00	96.84	0.00	481141.00	3911465.00
531.47	279.54	60.49	57.39	102.12	0.00	481096.00	3911441.00
135.23	488.82	169.90	53.57	83.59	0.00	481305.00	3911551.00
194.94	400.93	123.15	56.65	95.52	0.00	481217.00	3911504.00
210.44	379.98	114.56	55.46	92.66	0.00	481196.00	3911495.00
311.28	289.92	65.43	52.00	111.00	0.00	481106.00	3911446.00
448.70	274.88	56.31	49.87	91.94	0.00	481091.00	3911437.00
272.69	311.18	81.77	57.93	103.83	0.00	481127.00	3911463.00
175.53	417.72	137.45	45.97	80.51	0.00	481234.00	3911518.00
328.72	268.20	58.86	61.26	98.25	0.00	481084.00	3911440.00

234.62	348.94	100.26	57.35	96.71	0.00	481165.00	3911481.00
171.25	432.16	139.59	49.07	99.94	0.00	481248.00	3911520.00
611.15	485.40	146.86	77.37	108.88	0.00	481302.00	3911528.00
604.23	483.16	146.70	58.51	126.33	0.00	481299.00	3911527.00
178.58	424.93	135.74	59.38	97.99	0.00	481241.00	3911517.00
186.68	403.82	129.27	51.05	75.12	0.00	481220.00	3911510.00
229.82	358.76	103.27	60.58	104.57	0.00	481175.00	3911484.00
449.19	349.46	89.78	70.17	107.45	0.00	481166.00	3911471.00
192.50	399.47	125.21	51.57	101.18	0.00	481216.00	3911506.00
132.21	498.60	172.24	54.30	93.11	0.00	481315.00	3911553.00
305.35	286.24	67.55	57.70	88.12	0.00	481103.00	3911448.00
182.03	415.10	132.07	44.58	90.63	0.00	481231.00	3911513.00
447.33	424.39	125.58	60.55	109.59	0.00	481241.00	3911506.00
260.93	325.07	87.12	49.43	87.73	0.00	481141.00	3911468.00
672.55	374.48	92.09	71.97	112.79	0.00	481191.00	3911473.00
157.28	450.05	149.50	48.85	98.91	0.00	481266.00	3911530.00
206.95	384.26	115.84	56.51	103.87	0.00	481201.00	3911497.00
143.58	473.52	161.87	49.27	88.42	0.00	481290.00	3911543.00
288.02	307.54	75.60	61.03	100.71	0.00	481124.00	3911456.00
59.16	746.57	298.27	53.28	76.80	0.00	481563.00	3911679.00
443.52	819.31	305.53	82.70	101.59	0.00	481636.00	3911686.00
80.40	635.97	247.13	50.73	82.20	0.00	481452.00	3911628.00
863.69	729.46	251.84	83.23	145.98	0.00	481546.00	3911633.00
256.32	325.02	90.13	59.37	66.97	0.00	481141.00	3911471.00
243.19	349.49	95.61	46.38	118.38	0.00	481166.00	3911476.00
472.95	357.85	95.62	61.34	120.87	0.00	481174.00	3911476.00
108.90	553.93	200.29	48.31	89.32	0.00	481370.00	3911581.00
233.64	344.55	101.29	53.95	84.98	0.00	481161.00	3911482.00
324.34	269.10	60.92	56.97	102.29	0.00	481085.00	3911442.00
249.90	334.03	93.55	61.53	72.55	0.00	481150.00	3911474.00
288.46	309.05	74.47	60.74	107.76	0.00	481125.00	3911455.00
148.60	464.71	156.64	48.06	100.40	0.00	481281.00	3911537.00
247.84	336.39	93.40	51.47	103.13	0.00	481153.00	3911474.00
179.30	419.37	134.58	52.56	102.03	0.00	481236.00	3911515.00
145.43	462.54	159.28	41.44	79.16	0.00	481279.00	3911540.00
202.18	393.36	119.14	53.42	106.31	0.00	481210.00	3911500.00
104.19	565.34	206.96	55.56	90.96	0.00	481382.00	3911588.00
364.40	264.28	45.77	54.61	130.93	0.00	481081.00	3911427.00
83.86	628.52	240.09	51.39	84.41	0.00	481445.00	3911621.00
400.44	677.06	246.51	56.11	110.23	0.00	481493.00	3911627.00
529.67	256.69	41.53	66.83	117.99	0.00	481073.00	3911422.00
584.35	270.50	52.33	58.70	121.81	0.00	481087.00	3911433.00
245.75	340.91	94.60	50.74	93.36	0.00	481157.00	3911475.00
429.49	346.92	84.21	62.17	124.13	0.00	481163.00	3911465.00
216.63	378.13	110.20	49.43	106.77	0.00	481194.00	3911491.00
288.18	307.47	75.20	57.87	102.33	0.00	481124.00	3911456.00
169.79	444.70	141.06	42.66	93.08	0.00	481261.00	3911522.00
240.44	360.48	97.16	59.17	115.57	0.00	481177.00	3911478.00
188.59	405.37	128.51	54.10	107.70	0.00	481222.00	3911509.00
602.18	437.50	124.77	63.90	113.49	0.00	481254.00	3911506.00
419.52	418.67	122.55	53.95	125.89	0.00	481235.00	3911503.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
157.77	4233.87	1363.99	324.06	713.87	<b>32.98</b>	485050.00	3912745.00
220.42	3935.13	1217.50	437.59	869.70	0.00	484751.00	3912598.00
185.16	4080.39	1286.28	366.54	884.58	0.00	484897.00	3912667.00
369.05	3537.50	1032.38	451.39	815.57	0.00	484354.00	3912413.00
274.55	3758.76	1133.22	397.73	808.32	0.00	484575.00	3912514.00
249.10	3829.57	1172.91	365.99	645.32	0.00	484646.00	3912554.00
190.58	4059.56	1285.81	496.13	855.32	0.00	484876.00	3912667.00
88.59	4892.16	1672.75	375.81	743.94	0.00	485708.00	3913054.00
181.06	4112.42	1301.20	531.03	980.49	0.00	484929.00	3912682.00
131.02	4426.55	1447.85	435.23	993.20	0.00	485243.00	3912829.00
186.37	4076.92	1292.23	393.60	674.05	0.00	484893.00	3912673.00
595.13	3239.33	887.44	334.72	412.50	0.00	484056.00	3912268.00
317.75	3633.52	1076.97	370.07	739.57	0.00	484450.00	3912458.00
173.90	4143.81	1311.99	435.55	840.20	0.00	484960.00	3912693.00
234.25	3880.16	1186.74	368.51	902.58	0.00	484696.00	3912568.00
401.91	3475.59	1003.73	417.20	817.24	0.00	484292.00	3912385.00
400.03	3486.19	1005.32	388.72	795.37	0.00	484302.00	3912386.00
278.31	3737.19	1127.89	375.10	823.34	0.00	484553.00	3912509.00
388.83	3502.81	1006.21	427.69	853.63	0.00	484319.00	3912387.00
178.13	4118.65	1309.64	337.05	815.37	0.00	484935.00	3912690.00
202.83	3996.28	1251.92	337.94	870.03	0.00	484813.00	3912633.00
76.33	5094.95	1769.82	470.43	859.42	0.00	485911.00	3913151.00
137.94	4373.14	1418.78	387.09	845.67	0.00	485189.00	3912800.00
593.02	3226.06	878.76	332.78	797.48	0.00	484042.00	3912260.00
126.66	4461.50	1470.35	392.02	868.13	0.00	485278.00	3912851.00
320.54	3640.08	1086.83	503.72	644.41	0.00	484456.00	3912468.00
195.45	4041.12	1268.82	369.46	830.40	0.00	484857.00	3912650.00
137.14	4381.00	1425.27	383.58	948.17	0.00	485197.00	3912806.00
214.35	3955.23	1230.58	428.74	853.39	0.00	484772.00	3912611.00
733.93	3152.84	832.35	305.76	685.37	0.00	483969.00	3912213.00
339.66	3591.66	1051.92	273.26	667.04	0.00	484408.00	3912433.00
255.60	3812.28	1153.13	409.46	889.15	0.00	484629.00	3912534.00
463.33	3387.98	957.28	345.99	601.50	0.00	484204.00	3912338.00
496.65	3339.52	932.71	433.80	911.63	0.00	484156.00	3912313.00
201.33	4004.15	1252.11	337.89	820.47	0.00	484820.00	3912633.00
366.10	3539.05	1026.99	306.15	815.15	0.00	484355.00	3912408.00
297.53	3684.51	1097.19	409.12	932.83	0.00	484501.00	3912478.00
295.32	3692.48	1107.01	383.49	839.43	0.00	484509.00	3912488.00
524.51	3305.96	917.72	449.54	871.25	0.00	484122.00	3912299.00
89.66	4879.03	1665.41	386.34	901.75	0.00	485695.00	3913046.00
48.95	5783.56	2089.47	449.91	924.31	0.00	486600.00	3913470.00
385.66	3509.05	1011.42	393.57	781.05	0.00	484325.00	3912392.00
356.30	3563.61	1046.58	416.42	653.25	0.00	484380.00	3912427.00
331.50	3618.87	1062.45	370.42	932.20	0.00	484435.00	3912443.00
242.46	3849.25	1181.95	483.55	691.57	0.00	484666.00	3912563.00
474.61	3376.03	950.40	485.00	804.58	0.00	484192.00	3912331.00
165.22	4188.82	1336.32	368.90	908.02	0.00	485005.00	3912717.00
186.21	4078.69	1292.62	480.76	822.38	0.00	484895.00	3912673.00
356.98	3558.06	1040.28	375.78	805.99	0.00	484374.00	3912421.00

126.99	4460.59	1470.37	443.27	835.56	0.00	485277.00	3912851.00
370.78	3533.24	1027.22	478.00	808.63	0.00	484350.00	3912408.00
314.02	3649.21	1080.58	407.20	863.37	0.00	484465.00	3912461.00
309.01	3657.41	1085.56	398.20	853.22	0.00	484474.00	3912466.00
373.38	3524.59	1018.05	441.07	843.62	0.00	484341.00	3912399.00
230.20	3896.69	1205.45	414.01	936.81	0.00	484713.00	3912586.00
123.92	4493.62	1486.98	504.37	863.47	0.00	485310.00	3912868.00
335.41	3601.74	1060.22	389.43	772.99	0.00	484418.00	3912441.00
298.42	3687.79	1099.81	423.37	825.49	0.00	484504.00	3912481.00
327.11	3615.44	1073.19	468.11	752.82	0.00	484432.00	3912454.00
297.29	3686.47	1097.57	421.07	864.29	0.00	484503.00	3912478.00
293.66	3695.85	1102.36	344.87	908.64	0.00	484512.00	3912483.00
373.06	3535.52	1022.43	449.70	841.97	0.00	484352.00	3912403.00
191.08	4063.29	1279.55	465.78	719.08	0.00	484880.00	3912660.00
323.03	3631.31	1071.50	478.15	877.50	0.00	484448.00	3912452.00
159.02	4233.26	1359.75	481.78	824.96	0.00	485050.00	3912741.00
456.91	3392.79	960.53	503.77	1029.38	0.00	484209.00	3912341.00
348.17	3576.51	1046.10	384.42	841.21	0.00	484393.00	3912427.00
162.34	4206.83	1356.83	472.27	658.63	0.00	485023.00	3912738.00
269.70	3767.58	1139.38	463.39	841.23	0.00	484584.00	3912520.00
324.81	3620.81	1071.02	379.11	731.60	0.00	484437.00	3912452.00
318.43	3641.20	1079.24	385.02	820.47	0.00	484457.00	3912460.00
174.95	4142.83	1317.20	326.10	907.83	0.00	484959.00	3912698.00
241.87	3853.06	1175.88	351.56	820.62	0.00	484669.00	3912557.00
467.55	3381.02	952.47	441.34	795.81	0.00	484197.00	3912333.00
627.17	3214.27	867.40	396.43	896.77	0.00	484031.00	3912248.00
265.09	3779.39	1147.03	409.81	803.55	0.00	484596.00	3912528.00
291.88	3709.71	1113.41	367.06	592.25	0.00	484526.00	3912494.00
204.11	3998.14	1250.04	434.13	781.57	0.00	484814.00	3912631.00
394.94	3502.27	1005.76	380.55	703.57	0.00	484319.00	3912387.00
186.70	4077.46	1285.26	456.02	950.93	0.00	484894.00	3912666.00
312.28	3647.08	1078.67	375.20	913.53	0.00	484463.00	3912459.00
278.51	3734.83	1127.54	387.84	945.04	0.00	484551.00	3912508.00
443.87	3410.56	964.88	348.92	794.38	0.00	484227.00	3912346.00
321.57	3641.19	1079.08	432.95	846.37	0.00	484457.00	3912460.00
491.76	3344.96	933.04	298.68	767.64	0.00	484161.00	3912314.00
473.40	3375.32	946.11	367.02	784.08	0.00	484192.00	3912327.00
109.05	4639.90	1548.58	417.90	870.72	0.00	485456.00	3912929.00
279.67	3738.81	1122.80	436.84	958.84	0.00	484555.00	3912504.00
499.72	3332.39	931.11	386.23	818.23	0.00	484149.00	3912312.00
323.49	3620.58	1072.31	383.11	746.84	0.00	484437.00	3912453.00
88.95	4888.02	1664.62	437.02	1015.55	0.00	485704.00	3913045.00
398.73	3486.13	995.29	383.14	923.61	0.00	484302.00	3912376.00
297.28	3697.46	1103.41	414.17	945.19	0.00	484514.00	3912484.00
378.64	3521.31	1013.53	281.97	735.51	0.00	484338.00	3912394.00
502.05	3349.65	929.27	464.53	839.26	0.00	484166.00	3912310.00
306.12	3673.29	1096.59	407.29	599.64	0.00	484490.00	3912477.00
337.13	3597.44	1053.16	403.42	926.75	0.00	484414.00	3912434.00
442.30	3414.13	971.56	312.06	575.94	0.00	484230.00	3912352.00
64.27	5345.27	1886.16	422.01	830.13	0.00	486162.00	3913267.00
658.06	3176.22	854.76	414.25	654.88	0.00	483993.00	3912236.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
144.63	15504.81	4797.92	1054.43	1672.27	55.45	496321.00	3916179.00
199.24	14680.31	4411.78	936.92	1371.31	0.00	495497.00	3915793.00
343.37	13548.95	3866.66	902.83	1291.85	0.00	494365.00	3915247.00
463.13	13058.26	3626.43	704.67	893.89	0.00	493875.00	3915007.00
362.17	13455.72	3830.30	925.23	916.54	0.00	494272.00	3915211.00
191.66	14777.42	4460.32	1037.83	1275.06	0.00	495594.00	3915841.00
416.50	13236.71	3707.54	795.76	1109.82	0.00	494053.00	3915088.00
327.58	13642.10	3913.85	896.75	1120.46	0.00	494458.00	3915295.00
574.72	12757.21	3469.65	658.98	1043.42	0.00	493573.00	3914850.00
657.89	12573.35	3380.87	524.25	630.02	0.00	493390.00	3914762.00
201.56	14657.70	4399.81	923.73	1181.51	0.00	495474.00	3915781.00
106.87	16419.16	5228.01	1279.50	2266.89	0.00	497235.00	3916609.00
413.17	13233.97	3710.07	710.24	1263.49	0.00	494050.00	3915091.00
83.50	17279.09	5640.75	1302.40	1530.13	0.00	498095.00	3917022.00
423.42	13208.04	3690.84	638.83	1046.56	0.00	494024.00	3915072.00
152.69	15358.75	4724.23	1444.91	2118.75	0.00	496175.00	3916105.00
752.42	12437.25	3298.02	507.58	671.37	0.00	493254.00	3914679.00
276.50	13967.25	4080.51	787.34	806.27	0.00	494784.00	3915461.00
364.26	13449.45	3822.08	978.89	1284.59	0.00	494266.00	3915203.00
448.85	13111.80	3646.07	690.42	926.26	0.00	493928.00	3915027.00
1004.78	12140.67	3141.76	492.68	554.55	0.00	492957.00	3914523.00
523.78	12878.27	3533.63	787.90	981.40	0.00	493695.00	3914914.00
135.31	15697.08	4871.49	1231.22	2306.13	0.00	496513.00	3916252.00
149.92	15408.63	4753.25	938.00	1530.01	0.00	496225.00	3916134.00
522.55	12882.39	3535.40	672.96	1026.00	0.00	493699.00	3914916.00
178.64	14950.96	4546.32	1088.08	1514.71	0.00	495767.00	3915927.00
212.67	14528.53	4346.98	1156.41	1289.65	0.00	495345.00	3915728.00
602.09	12691.62	3443.21	697.68	816.02	0.00	493508.00	3914824.00
34.13	21427.97	7555.15	1544.26	3289.58	0.00	502244.00	3918936.00
205.51	14607.19	4375.67	1226.41	2135.08	0.00	495423.00	3915756.00
223.70	14419.67	4285.67	874.57	1351.69	0.00	495236.00	3915666.00
130.04	15813.33	4931.02	1136.42	2152.69	0.00	496630.00	3916312.00
574.65	12750.34	3470.15	519.92	580.43	0.00	493567.00	3914851.00
120.06	16055.84	5057.03	1746.61	2401.99	0.00	496872.00	3916438.00
332.51	13610.41	3898.72	872.01	1129.66	0.00	494427.00	3915279.00
682.26	12552.43	3357.91	453.98	563.96	0.00	493369.00	3914739.00
486.52	12991.05	3587.09	566.72	894.69	0.00	493807.00	3914968.00
209.46	14566.90	4347.37	983.10	1406.07	0.00	495383.00	3915728.00
169.49	15082.03	4596.39	1185.71	2153.49	0.00	495898.00	3915977.00
38.19	20796.17	7243.93	1409.67	3436.31	0.00	501612.00	3918625.00
62.41	18430.58	6147.20	1583.59	3647.30	0.00	499247.00	3917528.00
601.33	12691.63	3432.11	584.92	1022.19	0.00	493508.00	3914813.00
211.53	14537.62	4345.07	1330.46	1582.42	0.00	495354.00	3915726.00
89.18	17037.37	5514.75	1369.14	2728.99	0.00	497854.00	3916896.00
152.76	15357.63	4735.75	1420.63	1985.95	0.00	496174.00	3916117.00
121.41	16016.15	5051.50	1262.32	1881.55	0.00	496832.00	3916432.00
506.83	12919.11	3564.83	839.20	1055.28	0.00	493735.00	3914946.00
483.21	13000.71	3595.33	600.60	671.87	0.00	493817.00	3914976.00
343.94	13555.12	3862.36	827.67	1407.68	0.00	494371.00	3915243.00

165.27	15144.80	4641.35	1420.18	1712.27	0.00	495961.00	3916022.00
465.17	13054.94	3620.02	676.69	996.10	0.00	493871.00	3915001.00
280.23	13940.39	4053.75	1046.01	1410.99	0.00	494757.00	3915435.00
339.53	13566.15	3877.89	826.85	1252.97	0.00	494382.00	3915259.00
303.72	13782.83	3976.99	869.01	1414.82	0.00	494599.00	3915358.00
195.93	14721.54	4430.17	789.79	1096.17	0.00	495538.00	3915811.00
130.30	15804.44	4930.70	1300.34	3022.73	0.00	496621.00	3916311.00
346.34	13535.62	3861.60	639.65	859.12	0.00	494352.00	3915242.00
250.77	14168.88	4169.28	994.58	1256.69	0.00	494985.00	3915550.00
192.73	14762.17	4453.69	1429.74	1738.91	0.00	495578.00	3915834.00
412.41	13246.31	3719.64	715.03	911.11	0.00	494063.00	3915100.00
378.92	13384.84	3780.29	784.55	1177.64	0.00	494201.00	3915161.00
257.14	14114.68	4137.29	1039.27	1185.08	0.00	494931.00	3915518.00
233.66	14318.08	4244.06	1107.25	1292.60	0.00	495134.00	3915625.00
717.78	12486.90	3331.41	461.83	533.82	0.00	493303.00	3914712.00
229.46	14366.49	4258.90	878.43	1057.90	0.00	495183.00	3915640.00
136.11	15679.37	4885.48	1409.36	1703.75	0.00	496496.00	3916266.00
226.58	14387.22	4264.89	1225.13	1962.23	0.00	495204.00	3915646.00
235.42	14309.91	4219.13	776.62	1357.38	0.00	495126.00	3915600.00
353.14	13511.02	3841.84	821.97	1082.61	0.00	494327.00	3915223.00
66.75	18151.90	6022.62	1292.02	2495.99	0.00	498968.00	3917403.00
354.00	13499.35	3839.64	903.95	1050.71	0.00	494316.00	3915220.00
135.67	15693.75	4891.26	1077.16	1509.92	0.00	496510.00	3916272.00
321.25	13680.03	3926.31	680.60	1400.94	0.00	494496.00	3915307.00
382.58	13373.70	3768.72	736.07	1275.37	0.00	494190.00	3915150.00
158.91	15246.59	4675.39	1387.25	2119.98	0.00	496063.00	3916056.00
141.68	15567.67	4828.20	1371.11	2162.40	0.00	496384.00	3916209.00
492.86	12970.76	3579.56	682.31	928.46	0.00	493787.00	3914960.00
274.18	13982.66	4082.99	1005.77	1321.41	0.00	494799.00	3915464.00
278.85	13950.03	4061.87	790.90	1066.34	0.00	494766.00	3915443.00
449.41	13104.27	3651.29	831.61	983.93	0.00	493921.00	3915032.00
367.16	13433.99	3808.47	848.04	1210.19	0.00	494250.00	3915189.00
893.86	12256.59	3208.40	578.12	676.21	0.00	493073.00	3914589.00
410.73	13247.01	3721.88	936.74	1235.27	0.00	494063.00	3915103.00
147.40	15450.67	4774.28	1468.20	2164.67	0.00	496267.00	3916155.00
162.15	15198.74	4656.18	1325.03	1591.63	0.00	496015.00	3916037.00
166.83	15123.87	4617.24	1088.27	1681.57	0.00	495940.00	3915998.00
374.00	13402.84	3794.12	682.55	1007.19	0.00	494219.00	3915175.00
254.87	14133.89	4148.34	1236.61	1328.88	0.00	494950.00	3915529.00
156.18	15293.37	4693.40	1180.39	2271.30	0.00	496110.00	3916074.00
438.27	13147.18	3662.96	663.96	1030.28	0.00	493963.00	3915044.00
547.12	12819.24	3506.00	779.10	934.22	0.00	493636.00	3914887.00
44.23	20029.53	6887.66	1894.04	3514.00	0.00	500846.00	3918268.00
504.23	12931.22	3567.14	629.98	792.17	0.00	493748.00	3914948.00
398.52	13288.23	3746.63	878.83	1009.39	0.00	494105.00	3915127.00
328.37	13638.24	3906.13	829.26	1116.54	0.00	494455.00	3915287.00
403.35	13280.48	3730.63	873.45	1145.72	0.00	494097.00	3915111.00
370.01	13425.17	3807.51	908.22	1222.87	0.00	494241.00	3915188.00
320.80	13683.10	3927.41	704.35	957.08	0.00	494499.00	3915308.00
131.38	15776.58	4916.25	1357.05	2526.63	0.00	496593.00	3916297.00
230.87	14347.49	4252.07	1288.83	1431.43	0.00	495164.00	3915633.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
703.63	11195.94	2989.83	463.31	676.26	<b>52.92</b>	492012.00	3914371.00
179.39	13425.98	4086.86	1268.19	2254.54	0.00	494242.00	3915468.00
214.86	13036.55	3895.62	1138.43	1293.25	0.00	493853.00	3915276.00
128.52	14259.23	4477.17	1453.84	2381.78	0.00	495076.00	3915858.00
263.30	12633.75	3708.64	1017.65	1097.00	0.00	493450.00	3915089.00
120.80	14431.31	4550.90	909.06	2217.79	0.00	495248.00	3915932.00
576.21	11418.93	3113.90	755.73	835.41	0.00	492235.00	3914495.00
164.76	13621.26	4172.72	1029.15	1687.98	0.00	494438.00	3915553.00
252.29	12706.60	3744.51	1091.06	1878.59	0.00	493523.00	3915125.00
155.87	13756.12	4237.39	1418.94	2124.22	0.00	494572.00	3915618.00
271.28	12569.79	3667.60	584.99	1350.55	0.00	493386.00	3915048.00
312.06	12321.92	3550.43	943.41	1938.33	0.00	493138.00	3914931.00
81.13	15670.18	5133.51	1362.88	2714.73	0.00	496486.00	3916514.00
134.53	14127.42	4412.59	1232.06	2479.15	0.00	494944.00	3915793.00
286.80	12472.32	3624.93	738.89	1217.22	0.00	493289.00	3915006.00
330.29	12218.32	3505.63	690.58	1365.25	0.00	493035.00	3914886.00
64.67	16487.91	5515.47	1246.82	2426.09	0.00	497304.00	3916896.00
160.71	13685.10	4198.81	1027.19	2368.82	0.00	494501.00	3915580.00
582.42	11405.12	3105.35	698.61	849.70	0.00	492221.00	3914486.00
311.16	12321.40	3555.89	615.96	862.10	0.00	493138.00	3914937.00
288.11	12459.01	3624.26	762.73	933.79	0.00	493275.00	3915005.00
188.68	13316.46	4041.95	1213.75	1777.05	0.00	494133.00	3915423.00
211.74	13060.98	3912.63	1223.47	1586.62	0.00	493877.00	3915293.00
455.94	11727.90	3268.60	645.17	822.07	0.00	492544.00	3914649.00
1505.58	10572.92	2634.89	417.15	423.11	0.00	491389.00	3914016.00
718.45	11169.56	2982.55	487.63	603.27	0.00	491986.00	3914363.00
226.44	12925.88	3840.05	1033.97	1827.80	0.00	493742.00	3915221.00
124.68	14341.68	4516.27	1051.34	1946.46	0.00	495158.00	3915897.00
106.37	14801.00	4743.58	1432.07	1827.60	0.00	495617.00	3916124.00
119.04	14472.26	4577.34	1458.23	2233.03	0.00	495289.00	3915958.00
182.55	13390.00	4078.90	1261.25	1350.42	0.00	494206.00	3915460.00
105.44	14824.45	4766.28	1770.04	2298.98	0.00	495641.00	3916147.00
218.57	13000.05	3875.12	773.62	1204.88	0.00	493816.00	3915256.00
244.43	12768.41	3772.65	980.61	1597.38	0.00	493585.00	3915153.00
336.82	12189.10	3500.02	929.62	1211.19	0.00	493005.00	3914881.00
109.23	14724.92	4679.10	1236.61	3058.55	0.00	495541.00	3916060.00
249.42	12732.79	3755.76	1193.68	1395.65	0.00	493549.00	3915137.00
287.88	12464.05	3622.18	903.63	1269.58	0.00	493280.00	3915003.00
354.28	12102.64	3450.28	611.18	884.41	0.00	492919.00	3914831.00
220.17	12977.33	3871.26	946.20	1415.70	0.00	493794.00	3915252.00
625.68	11320.06	3062.28	626.47	795.53	0.00	492136.00	3914443.00
229.82	12897.20	3832.44	998.04	1493.99	0.00	493713.00	3915213.00
531.91	11509.27	3157.61	620.41	897.83	0.00	492326.00	3914538.00
209.33	13083.72	3924.28	1266.37	1697.97	0.00	493900.00	3915305.00
233.81	12858.42	3805.31	953.35	1842.93	0.00	493675.00	3915186.00
329.50	12224.67	3513.91	719.49	1008.39	0.00	493041.00	3914895.00
316.91	12296.45	3541.54	812.57	1056.77	0.00	493113.00	3914922.00
185.21	13359.22	4057.59	1187.36	1435.86	0.00	494176.00	3915438.00
270.57	12579.92	3700.02	1149.66	1191.77	0.00	493396.00	3915081.00

264.86	12612.44	3703.53	813.55	1393.26	0.00	493429.00	3915084.00
377.51	12006.61	3403.09	665.32	999.53	0.00	492823.00	3914784.00
153.31	13799.75	4253.60	964.94	1547.19	0.00	494616.00	3915634.00
400.14	11911.42	3369.29	1166.89	1251.64	0.00	492728.00	3914750.00
288.53	12463.93	3619.39	620.52	1128.02	0.00	493280.00	3915000.00
269.04	12585.48	3684.16	983.64	1405.49	0.00	493402.00	3915065.00
106.70	14788.59	4729.74	1265.10	2160.49	0.00	495605.00	3916111.00
417.90	11847.62	3330.59	983.50	1319.34	0.00	492664.00	3914711.00
146.47	13915.54	4317.25	1425.98	1943.77	0.00	494732.00	3915698.00
205.38	13128.26	3938.47	973.69	1301.23	0.00	493945.00	3915319.00
401.15	11920.35	3358.31	658.07	835.60	0.00	492737.00	3914739.00
65.81	16423.29	5492.50	1297.30	1723.35	0.00	497240.00	3916873.00
389.28	11958.28	3379.12	951.92	1181.47	0.00	492775.00	3914760.00
468.53	11683.69	3245.71	637.68	966.25	0.00	492500.00	3914626.00
364.96	12060.50	3439.02	744.40	742.39	0.00	492877.00	3914820.00
379.87	11995.02	3396.80	850.87	1093.87	0.00	492811.00	3914778.00
275.96	12541.32	3670.32	1109.87	1210.50	0.00	493358.00	3915051.00
56.50	17022.36	5760.91	1590.36	2604.84	0.00	497839.00	3917142.00
120.57	14435.42	4561.98	902.85	1804.24	0.00	495252.00	3915943.00
256.72	12676.37	3729.16	788.77	1555.70	0.00	493493.00	3915110.00
424.31	11830.26	3312.57	504.98	734.43	0.00	492647.00	3914693.00
395.94	11932.65	3374.18	1028.13	1147.34	0.00	492749.00	3914755.00
609.52	11345.60	3074.78	500.17	619.97	0.00	492162.00	3914456.00
638.76	11294.29	3042.96	604.74	950.00	0.00	492111.00	3914424.00
336.48	12191.98	3494.93	752.25	1091.21	0.00	493008.00	3914876.00
190.87	13287.44	4016.32	990.23	1795.75	0.00	494104.00	3915397.00
246.65	12753.37	3764.10	732.04	1386.24	0.00	493570.00	3915145.00
330.50	12220.36	3513.79	1090.52	1157.83	0.00	493037.00	3914895.00
437.46	11786.25	3295.40	794.55	1137.33	0.00	492603.00	3914676.00
116.48	14534.39	4596.73	1055.06	2384.75	0.00	495351.00	3915978.00
301.84	12378.33	3586.29	668.67	897.67	0.00	493195.00	3914967.00
214.82	13032.84	3905.00	1338.10	1341.26	0.00	493849.00	3915286.00
263.13	12631.41	3705.74	1033.35	1711.95	0.00	493448.00	3915087.00
328.98	12230.09	3516.69	911.54	1043.11	0.00	493046.00	3914897.00
134.00	14145.08	4427.76	1384.58	2509.92	0.00	494961.00	3915809.00
79.26	15746.16	5171.90	1447.78	2365.00	0.00	496562.00	3916553.00
82.91	15594.49	5113.04	1531.73	1825.63	0.00	496411.00	3916494.00
260.33	12651.09	3709.95	807.35	1233.98	0.00	493467.00	3915091.00
316.58	12294.79	3547.86	835.04	1253.68	0.00	493111.00	3914929.00
372.31	12031.86	3420.14	748.14	945.56	0.00	492848.00	3914801.00
59.71	16795.08	5660.31	1382.49	2797.60	0.00	497611.00	3917041.00
489.66	11625.25	3215.25	815.96	981.22	0.00	492442.00	3914596.00
299.76	12394.07	3586.04	875.78	1413.30	0.00	493210.00	3914967.00
1499.06	10575.65	2637.46	470.05	493.56	0.00	491392.00	3914018.00
252.97	12700.69	3748.30	1095.43	1590.99	0.00	493517.00	3915129.00
29.01	20252.51	7249.10	1292.59	3424.46	0.00	501069.00	3918630.00
354.34	12111.88	3455.15	706.16	991.90	0.00	492928.00	3914836.00
135.44	14122.47	4425.47	1276.63	1771.79	0.00	494939.00	3915806.00
212.15	13050.52	3905.91	902.64	1523.78	0.00	493867.00	3915287.00
105.08	14835.98	4745.69	1421.47	2709.86	0.00	495652.00	3916126.00
364.43	12064.27	3432.14	755.23	1071.90	0.00	492881.00	3914813.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
128.74	126640.91	35623.79	2537.98	2465.08	<b>124.36</b>	607457.00	3947005.00
387.58	114392.79	29825.32	1900.46	1277.63	0.00	595209.00	3941206.00
396.19	114215.48	29738.29	1939.52	1411.30	0.00	595032.00	3941119.00
182.01	122007.38	33443.86	2412.40	2375.70	0.00	602824.00	3944825.00
402.26	114093.46	29678.25	2022.47	1688.95	0.00	594910.00	3941059.00
500.76	112453.37	28878.60	1900.32	1379.21	0.00	593270.00	3940259.00
547.97	111838.41	28581.96	1833.91	1161.90	0.00	592655.00	3939963.00
153.59	124173.47	34474.73	2418.29	2234.70	0.00	604990.00	3945856.00
209.21	120363.72	32669.82	2202.45	1895.28	0.00	601180.00	3944051.00
246.73	118567.10	31814.65	2185.34	1952.82	0.00	599383.00	3943195.00
160.85	123563.40	34174.16	2421.01	2321.83	0.00	604380.00	3945555.00
282.19	117216.79	31172.79	2039.66	1589.09	0.00	598033.00	3942554.00
381.73	114517.12	29877.23	1935.52	1416.72	0.00	595333.00	3941258.00
226.54	119477.92	32257.79	2163.59	1806.29	0.00	600294.00	3943639.00
203.94	120655.82	32809.32	2170.57	1763.28	0.00	601472.00	3944190.00
298.66	116675.28	30917.54	2098.67	1768.04	0.00	597492.00	3942298.00
414.74	113851.22	29561.95	1980.38	1549.44	0.00	594668.00	3940943.00
422.90	113699.85	29495.94	1913.20	1348.26	0.00	594516.00	3940877.00
272.12	117573.68	31343.64	2087.41	1703.41	0.00	598390.00	3942724.00
424.43	113671.51	29478.57	1943.95	1426.64	0.00	594488.00	3940859.00
47.74	145497.11	44455.37	3489.66	3735.98	0.00	626313.00	3955836.00
28.62	159579.14	51040.55	4776.72	5448.99	0.00	640395.00	3962421.00
195.47	121150.49	33042.18	2255.43	1993.04	0.00	601967.00	3944423.00
533.51	112018.37	28667.24	1874.77	1313.68	0.00	592835.00	3940048.00
285.36	117108.34	31125.66	2155.32	1936.20	0.00	597925.00	3942506.00
372.88	114710.28	29974.11	1961.24	1484.33	0.00	595527.00	3941355.00
388.74	114367.20	29815.40	1997.88	1612.69	0.00	595183.00	3941196.00
75.41	135631.91	39828.84	2906.90	2930.09	0.00	616448.00	3951210.00
279.48	117310.31	31206.53	2040.32	1594.76	0.00	598127.00	3942587.00
121.13	127546.52	36031.86	2656.46	2759.42	0.00	608363.00	3947413.00
83.21	133788.20	38979.95	2880.55	2977.23	0.00	614604.00	3950361.00
243.30	118713.90	31890.21	2113.99	1722.63	0.00	599530.00	3943271.00
217.76	119912.99	32446.56	2164.43	1836.79	0.00	600729.00	3943827.00
316.55	116136.41	30672.70	2085.00	1729.25	0.00	596953.00	3942053.00
331.37	115725.48	30458.99	1976.65	1486.88	0.00	596542.00	3941840.00
311.70	116278.35	30723.49	1981.58	1451.63	0.00	597095.00	3942104.00
152.01	124311.92	34525.09	2375.98	2169.16	0.00	605128.00	3945906.00
190.63	121448.05	33180.99	2320.21	2135.88	0.00	602264.00	3944562.00
397.70	114184.34	29725.87	2059.05	1761.24	0.00	595001.00	3941107.00
236.47	119015.48	32028.37	2202.94	1987.03	0.00	599832.00	3943409.00
47.17	145786.76	44577.61	3823.60	4266.17	0.00	626603.00	3955958.00
608.33	111167.79	28249.60	1770.83	934.47	0.00	591984.00	3939630.00
133.75	126087.41	35365.13	2699.11	2921.25	0.00	606904.00	3946746.00
317.97	116096.43	30643.51	2035.46	1626.86	0.00	596913.00	3942024.00
942.19	108823.33	27063.78	1744.42	928.62	0.00	589640.00	3938445.00
483.22	112705.85	29012.24	1898.69	1348.86	0.00	593522.00	3940393.00
170.89	122791.14	33829.68	2312.63	2031.61	0.00	603607.00	3945210.00
93.98	131633.22	37963.82	2998.94	3235.49	0.00	612450.00	3949345.00
284.80	117127.75	31127.84	2036.40	1589.32	0.00	597944.00	3942509.00

847.74	109327.17	27327.86	1731.39	841.44	0.00	590143.00	3938709.00
607.12	111179.52	28257.27	1868.11	1321.32	0.00	591996.00	3939638.00
295.06	116789.83	30965.92	2016.45	1554.10	0.00	597606.00	3942347.00
400.99	114118.48	29693.62	2031.23	1705.51	0.00	594935.00	3941074.00
385.77	114430.52	29842.26	1912.10	1313.89	0.00	595247.00	3941223.00
170.04	122854.15	33840.03	2404.49	2359.14	0.00	603670.00	3945221.00
153.19	124207.94	34478.78	2521.37	2574.42	0.00	605024.00	3945860.00
211.82	120224.29	32603.31	2212.56	1930.14	0.00	601041.00	3943984.00
433.24	113513.75	29401.81	1850.17	1132.49	0.00	594330.00	3940783.00
576.12	111511.09	28417.16	1838.38	1195.09	0.00	592327.00	3939798.00
135.21	125932.58	35299.02	2529.85	2432.04	0.00	606749.00	3946680.00
154.48	124095.45	34426.71	2384.88	2218.27	0.00	604912.00	3945807.00
276.72	117407.83	31266.78	2050.31	1632.47	0.00	598224.00	3942648.00
188.74	121566.77	33235.93	2243.21	1946.45	0.00	602383.00	3944617.00
323.93	115927.45	30570.57	1975.02	1426.97	0.00	596744.00	3941951.00
196.65	121079.63	32998.22	2200.84	1857.87	0.00	601896.00	3944379.00
694.00	110393.31	27865.34	1767.42	969.05	0.00	591210.00	3939246.00
92.64	131880.75	38069.95	2749.23	2755.70	0.00	612697.00	3949451.00
121.68	127478.34	36009.96	2504.46	2373.04	0.00	608295.00	3947391.00
240.59	118832.01	31949.20	2179.87	1863.67	0.00	599648.00	3943330.00
74.79	135790.79	39917.68	3160.00	3413.86	0.00	616607.00	3951298.00
579.29	111476.53	28399.35	1858.89	1281.59	0.00	592293.00	3939780.00
352.41	115187.51	30209.73	1931.37	1313.72	0.00	596004.00	3941591.00
218.66	119866.98	32425.63	2217.09	2023.34	0.00	600683.00	3943806.00
394.29	114253.12	29755.91	1939.00	1424.36	0.00	595069.00	3941137.00
392.80	114283.76	29769.84	1909.27	1313.30	0.00	595100.00	3941151.00
187.48	121647.56	33284.66	2245.36	1918.80	0.00	602464.00	3944665.00
212.00	120213.76	32596.77	2318.94	2193.05	0.00	601030.00	3943978.00
301.68	116580.32	30875.94	2042.81	1630.61	0.00	597397.00	3942257.00
155.83	123980.52	34374.89	2447.98	2348.07	0.00	604797.00	3945756.00
612.52	111125.33	28228.93	1795.06	1049.16	0.00	591942.00	3939610.00
533.92	112013.01	28669.54	1830.19	1136.86	0.00	592829.00	3940050.00
240.95	118815.92	31930.60	2030.38	1460.49	0.00	599632.00	3943311.00
342.83	115424.88	30319.80	1970.41	1463.77	0.00	596241.00	3941701.00
20.69	170584.25	56149.56	5734.36	7301.78	0.00	651401.00	3967530.00
201.80	120778.37	32859.65	2209.66	1908.40	0.00	601595.00	3944240.00
278.93	117329.46	31239.94	2077.32	1667.79	0.00	598146.00	3942621.00
298.18	116689.87	30927.32	2075.05	1712.61	0.00	597506.00	3942308.00
120.33	127645.82	36081.56	2555.79	2544.86	0.00	608462.00	3947462.00
501.52	112442.95	28881.18	1862.17	1240.92	0.00	593259.00	3940262.00
313.98	116211.26	30690.25	2019.49	1591.45	0.00	597028.00	3942071.00
168.15	122996.26	33909.95	2546.71	2671.29	0.00	603813.00	3945291.00
512.58	112292.16	28807.08	1861.97	1236.99	0.00	593108.00	3940188.00
69.42	137253.65	40582.59	3235.95	3665.83	0.00	618070.00	3951963.00
268.61	117701.51	31415.35	2028.41	1513.88	0.00	598518.00	3942796.00
1065.89	108285.97	26771.81	1722.20	854.06	0.00	589102.00	3938153.00
150.75	124424.43	34589.46	2306.67	1953.85	0.00	605241.00	3945970.00
785.86	109712.43	27522.36	1748.88	912.88	0.00	590529.00	3938903.00
709.79	110264.49	27798.43	1798.33	1104.43	0.00	591081.00	3939179.00
211.77	120225.23	32600.78	2161.83	1803.92	0.00	601042.00	3943982.00
203.92	120656.89	32813.69	2231.73	1950.32	0.00	601473.00	3944194.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
163.15	4540.22	1444.34	459.02	963.42	33.92	485356.00	3912825.00
335.23	3904.37	1147.65	345.53	897.59	0.00	484721.00	3912528.00
51.02	6140.46	2201.54	476.79	952.51	0.00	486957.00	3913582.00
176.95	4462.87	1416.92	566.23	958.03	0.00	485279.00	3912798.00
251.19	4141.46	1262.07	529.97	941.41	0.00	484958.00	3912643.00
297.42	4003.16	1194.11	503.76	908.57	0.00	484819.00	3912575.00
177.88	4456.35	1409.34	390.49	818.88	0.00	485273.00	3912790.00
654.19	3466.58	935.52	540.47	880.53	0.00	484283.00	3912316.00
325.78	3924.77	1158.87	469.37	955.20	0.00	484741.00	3912540.00
519.85	3609.59	1005.75	504.77	798.42	0.00	484426.00	3912387.00
574.34	3556.19	972.30	349.59	831.67	0.00	484372.00	3912353.00
129.02	4795.87	1574.30	548.09	1005.48	0.00	485612.00	3912955.00
270.04	4073.82	1233.08	321.91	628.41	0.00	484890.00	3912614.00
414.81	3761.22	1072.54	327.34	853.39	0.00	484578.00	3912453.00
250.63	4141.68	1257.76	389.43	808.46	0.00	484958.00	3912639.00
220.05	4250.52	1311.11	393.31	854.66	0.00	485067.00	3912692.00
228.33	4218.44	1301.37	471.60	850.38	0.00	485035.00	3912682.00
79.21	5430.87	1869.74	397.85	933.99	0.00	486247.00	3913251.00
286.11	4025.55	1210.75	542.28	782.79	0.00	484842.00	3912592.00
390.83	3800.07	1096.20	396.69	834.53	0.00	484616.00	3912477.00
771.86	3387.45	894.77	449.73	666.49	0.00	484204.00	3912276.00
350.47	3873.49	1135.48	495.10	823.62	0.00	484690.00	3912516.00
518.71	3607.99	997.18	395.00	864.64	0.00	484424.00	3912378.00
191.65	4379.49	1371.92	494.10	1082.91	0.00	485196.00	3912753.00
270.58	4069.30	1231.90	434.99	823.08	0.00	484886.00	3912613.00
383.62	3813.36	1105.61	434.84	831.91	0.00	484630.00	3912486.00
516.62	3613.20	1002.32	428.42	941.65	0.00	484429.00	3912383.00
236.09	4198.05	1285.61	373.39	866.95	0.00	485014.00	3912666.00
292.23	4019.61	1199.74	365.33	711.36	0.00	484836.00	3912581.00
493.76	3637.14	1019.09	434.04	791.77	0.00	484453.00	3912400.00
327.14	3925.01	1155.72	414.65	928.73	0.00	484741.00	3912536.00
450.45	3699.37	1055.74	445.90	678.34	0.00	484516.00	3912437.00
404.10	3778.24	1086.51	419.00	778.23	0.00	484595.00	3912467.00
370.73	3834.03	1114.74	385.39	835.09	0.00	484650.00	3912496.00
287.56	4038.27	1202.48	469.10	900.89	0.00	484855.00	3912583.00
176.14	4467.45	1413.68	420.19	927.90	0.00	485284.00	3912794.00
252.60	4136.95	1260.17	456.95	988.14	0.00	484953.00	3912641.00
398.54	3775.54	1087.21	402.32	794.08	0.00	484592.00	3912468.00
91.77	5228.01	1773.52	530.78	1004.27	0.00	486044.00	3913154.00
165.58	4526.58	1443.39	424.57	964.71	0.00	485343.00	3912824.00
408.28	3764.84	1085.92	467.77	601.37	0.00	484581.00	3912467.00
49.57	6191.84	2232.33	504.53	918.27	0.00	487008.00	3913613.00
43.98	6418.93	2331.88	470.04	1024.64	0.00	487235.00	3913713.00
93.99	5192.71	1748.59	461.59	966.61	0.00	486009.00	3913129.00
695.61	3449.41	923.30	354.42	650.34	0.00	484266.00	3912304.00
285.38	4038.16	1204.47	509.26	964.73	0.00	484854.00	3912585.00
162.73	4544.41	1446.75	421.18	891.01	0.00	485361.00	3912828.00
151.06	4623.15	1490.90	564.37	985.50	0.00	485439.00	3912872.00
732.91	3435.65	903.59	334.04	683.98	0.00	484252.00	3912284.00

356.19	3865.97	1127.51	496.85	863.59	0.00	484682.00	3912508.00
363.97	3847.63	1122.33	506.90	794.87	0.00	484664.00	3912503.00
307.57	3976.26	1176.22	419.39	1013.21	0.00	484793.00	3912557.00
462.21	3683.59	1036.40	418.86	857.39	0.00	484500.00	3912417.00
290.31	4022.59	1204.93	432.34	692.53	0.00	484839.00	3912586.00
143.13	4683.73	1512.39	492.91	1103.08	0.00	485500.00	3912893.00
323.46	3941.37	1162.19	404.63	749.64	0.00	484758.00	3912543.00
475.09	3662.11	1030.46	452.08	758.63	0.00	484478.00	3912411.00
206.19	4313.98	1346.71	449.89	918.06	0.00	485130.00	3912727.00
366.80	3840.71	1112.74	458.66	921.20	0.00	484657.00	3912494.00
528.93	3596.01	996.14	445.24	869.52	0.00	484412.00	3912377.00
151.25	4621.46	1484.03	495.69	903.74	0.00	485438.00	3912865.00
252.39	4135.54	1253.83	346.29	807.47	0.00	484952.00	3912635.00
294.08	4011.16	1195.04	513.62	957.34	0.00	484827.00	3912576.00
169.70	4502.11	1427.94	431.76	1013.33	0.00	485318.00	3912809.00
490.54	3645.85	1018.29	429.82	801.55	0.00	484462.00	3912399.00
245.80	4158.75	1267.72	513.03	1134.57	0.00	484975.00	3912649.00
168.46	4511.02	1429.74	366.81	813.62	0.00	485327.00	3912811.00
297.99	3997.18	1190.45	426.61	917.77	0.00	484813.00	3912571.00
423.39	3745.66	1063.65	386.42	836.17	0.00	484562.00	3912444.00
186.44	4411.58	1388.20	492.61	1025.74	0.00	485228.00	3912769.00
41.57	6524.71	2387.75	558.23	902.12	0.00	487341.00	3913769.00
226.73	4232.41	1301.17	369.73	862.16	0.00	485049.00	3912682.00
279.56	4048.76	1217.49	443.34	875.17	0.00	484865.00	3912598.00
164.52	4532.21	1439.72	479.58	1054.85	0.00	485348.00	3912820.00
573.99	3530.06	969.29	414.96	823.44	0.00	484346.00	3912350.00
126.09	4821.62	1581.51	477.92	973.64	0.00	485638.00	3912962.00
342.05	3896.12	1141.69	414.43	864.41	0.00	484712.00	3912522.00
451.37	3703.59	1046.67	420.73	930.12	0.00	484520.00	3912427.00
286.65	4031.59	1208.76	476.42	857.79	0.00	484848.00	3912590.00
150.38	4625.27	1496.76	479.32	887.02	0.00	485442.00	3912878.00
486.61	3644.43	1021.20	328.22	815.54	0.00	484461.00	3912402.00
315.26	3956.57	1177.88	503.60	669.36	0.00	484773.00	3912559.00
166.34	4522.68	1442.24	468.91	1071.55	0.00	485339.00	3912823.00
317.12	3950.26	1166.82	537.94	988.24	0.00	484767.00	3912548.00
829.78	3358.66	878.17	365.39	629.83	0.00	484175.00	3912259.00
547.88	3571.27	990.94	348.92	608.89	0.00	484388.00	3912372.00
231.78	4203.37	1289.80	330.58	810.14	0.00	485020.00	3912671.00
233.92	4199.61	1284.15	432.01	936.23	0.00	485016.00	3912665.00
163.90	4530.36	1444.92	436.62	1030.06	0.00	485347.00	3912826.00
96.90	5150.30	1741.51	454.74	797.07	0.00	485967.00	3913122.00
203.23	4330.73	1343.86	396.47	922.05	0.00	485147.00	3912725.00
281.40	4045.82	1206.72	469.86	878.08	0.00	484862.00	3912587.00
395.23	3790.61	1086.27	504.43	1057.41	0.00	484607.00	3912467.00
121.86	4863.84	1598.48	508.35	899.07	0.00	485680.00	3912979.00
510.68	3612.50	1001.29	410.36	970.92	0.00	484429.00	3912382.00
234.32	4200.04	1296.70	445.57	616.59	0.00	485016.00	3912677.00
306.09	3977.75	1187.21	503.50	910.38	0.00	484794.00	3912568.00
88.17	5279.63	1790.64	375.39	1029.38	0.00	486096.00	3913171.00
540.44	3576.52	990.27	466.06	855.98	0.00	484393.00	3912371.00
383.70	3812.69	1101.37	399.37	664.80	0.00	484629.00	3912482.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
671.55	98549.52	25017.35	1655.91	943.33	119.34	579366.00	3936398.00
124.90	113856.40	32335.73	2330.09	2191.07	0.00	594673.00	3943717.00
350.39	102861.33	27132.96	1912.62	1588.39	0.00	583678.00	3938514.00
313.76	103770.29	27566.91	1965.62	1719.63	0.00	584587.00	3938948.00
333.06	103272.66	27325.83	1854.24	1422.77	0.00	584089.00	3938707.00
391.15	102010.13	26710.15	1756.57	1163.74	0.00	582826.00	3938091.00
342.24	103051.32	27224.62	1833.25	1345.16	0.00	583868.00	3938605.00
189.20	108706.58	29911.81	2168.19	1985.83	0.00	589523.00	3941293.00
23.08	150596.35	49491.77	4788.62	5639.31	0.00	631413.00	3960873.00
82.41	120239.82	35320.17	2530.24	2330.06	0.00	601056.00	3946701.00
478.63	100577.10	26031.20	1748.34	1189.37	0.00	581393.00	3937412.00
663.35	98615.46	25061.14	1651.28	897.65	0.00	579432.00	3936442.00
644.94	98762.00	25130.34	1659.81	941.83	0.00	579578.00	3936511.00
339.61	103114.25	27243.57	1909.08	1592.61	0.00	583931.00	3938624.00
247.60	105916.87	28589.65	2002.61	1686.75	0.00	586733.00	3939970.00
154.86	111049.41	31002.12	2176.84	1974.33	0.00	591866.00	3942383.00
446.42	101054.37	26256.50	1785.78	1292.10	0.00	581871.00	3937637.00
317.27	103676.99	27523.10	1991.68	1792.02	0.00	584493.00	3938904.00
94.07	118059.73	34295.42	2590.94	2698.28	0.00	598876.00	3945676.00
132.42	113061.37	31946.27	2422.03	2541.08	0.00	593878.00	3943327.00
138.35	112482.17	31693.70	2252.09	2031.87	0.00	593298.00	3943074.00
279.52	104783.71	28043.02	1924.62	1586.49	0.00	585600.00	3939424.00
315.30	103729.42	27547.27	1913.63	1588.71	0.00	584546.00	3938928.00
218.09	107183.15	29186.71	1990.99	1630.83	0.00	587999.00	3940567.00
611.81	99058.98	25277.77	1674.97	988.67	0.00	579875.00	3936659.00
234.44	106451.27	28843.09	2075.89	1876.19	0.00	587268.00	3940224.00
391.52	102002.91	26721.13	1858.75	1473.77	0.00	582819.00	3938102.00
74.97	121888.48	36094.82	2782.38	2878.77	0.00	602705.00	3947476.00
307.14	103953.52	27651.27	1819.03	1259.65	0.00	584770.00	3939032.00
340.56	103090.19	27237.69	1830.29	1350.12	0.00	583906.00	3938618.00
350.80	102853.05	27126.11	1828.31	1358.20	0.00	583669.00	3938507.00
825.31	97514.09	24496.62	1645.70	929.29	0.00	578330.00	3935877.00
430.74	101304.39	26378.52	1757.95	1193.53	0.00	582121.00	3937759.00
114.82	115040.71	32894.93	2598.08	2702.98	0.00	595857.00	3944276.00
335.73	103207.56	27293.18	1842.53	1392.52	0.00	584024.00	3938674.00
53.55	128438.57	39159.56	3311.95	3762.15	0.00	609255.00	3950540.00
130.56	113251.84	32056.04	2276.80	2050.15	0.00	594068.00	3943437.00
580.84	99360.51	25428.26	1719.50	1129.11	0.00	580177.00	3936809.00
146.55	111739.89	31337.44	2255.57	2106.85	0.00	592556.00	3942718.00
373.62	102358.14	26886.82	1855.31	1448.59	0.00	583174.00	3938268.00
124.30	113922.93	32353.13	2383.18	2345.49	0.00	594739.00	3943734.00
223.09	106950.79	29081.08	2068.18	1855.98	0.00	587767.00	3940462.00
270.97	105067.05	28176.74	1927.59	1556.79	0.00	585883.00	3939558.00
450.18	100996.20	26227.20	1753.18	1176.75	0.00	581812.00	3937608.00
124.95	113850.65	32322.64	2476.14	2564.06	0.00	594667.00	3943703.00
209.06	107624.68	29383.32	1985.35	1617.29	0.00	588441.00	3940764.00
790.01	97720.06	24598.19	1686.57	1091.51	0.00	578536.00	3935979.00
335.57	103209.71	27297.31	1833.99	1346.83	0.00	584026.00	3938678.00
154.61	111069.21	31020.01	2185.91	1942.76	0.00	591885.00	3942401.00

277.59	104846.49	28077.72	1894.36	1443.18	0.00	585663.00	3939459.00
194.17	108421.93	29768.41	2033.46	1700.71	0.00	589238.00	3941149.00
301.77	104105.09	27727.34	1956.31	1678.40	0.00	584921.00	3939108.00
81.11	120512.08	35457.19	2751.49	2816.63	0.00	601328.00	3946838.00
372.07	102389.30	26900.87	1915.78	1624.34	0.00	583206.00	3938282.00
235.32	106413.22	28828.70	1977.05	1617.18	0.00	587230.00	3940209.00
69.16	123360.38	36777.75	3113.09	3505.00	0.00	604177.00	3948159.00
160.33	110625.08	30808.21	2182.21	1999.93	0.00	591441.00	3942189.00
106.45	116151.84	33393.62	2696.05	3045.06	0.00	596968.00	3944774.00
504.55	100233.31	25848.91	1723.03	1135.09	0.00	581050.00	3937230.00
46.37	131599.38	40629.36	3426.41	3774.04	0.00	612416.00	3952010.00
336.55	103187.85	27286.94	1850.95	1397.15	0.00	584004.00	3938668.00
275.84	104903.91	28105.30	1877.09	1394.02	0.00	585720.00	3939486.00
106.55	116137.48	33419.58	2503.17	2446.62	0.00	596954.00	3944800.00
179.07	109327.48	30201.02	2079.73	1773.78	0.00	590144.00	3941582.00
541.64	99783.45	25632.70	1699.32	1055.48	0.00	580600.00	3937013.00
101.62	116855.67	33729.61	2525.54	2539.64	0.00	597672.00	3945110.00
381.53	102197.04	26816.34	1792.89	1259.58	0.00	583013.00	3938197.00
449.03	101013.94	26246.50	1806.66	1352.74	0.00	581830.00	3937627.00
310.27	103866.06	27615.46	1909.78	1527.79	0.00	584682.00	3938996.00
429.24	101328.41	26392.85	1740.17	1123.62	0.00	582145.00	3937774.00
379.42	102239.98	26840.82	1861.97	1480.98	0.00	583056.00	3938222.00
292.66	104372.84	27857.98	1961.49	1671.44	0.00	585189.00	3939239.00
239.39	106244.88	28740.72	2137.83	2050.57	0.00	587061.00	3940122.00
406.40	101725.42	26590.79	1774.84	1206.93	0.00	582542.00	3937972.00
148.87	111541.57	31237.25	2425.84	2637.81	0.00	592358.00	3942618.00
160.24	110631.62	30811.76	2260.97	2172.72	0.00	591448.00	3942193.00
208.07	107675.95	29415.20	2033.22	1734.75	0.00	588492.00	3940796.00
315.78	103716.56	27545.64	1944.30	1621.92	0.00	584533.00	3938926.00
194.10	108423.07	29780.88	2088.62	1861.24	0.00	589239.00	3941162.00
550.49	99683.24	25589.11	1681.64	981.43	0.00	580500.00	3936970.00
362.88	102584.98	26993.81	1815.05	1338.85	0.00	583401.00	3938375.00
342.61	103041.97	27218.51	1866.04	1451.44	0.00	583858.00	3938599.00
177.34	109439.61	30258.66	2257.87	2190.57	0.00	590256.00	3941639.00
207.26	107716.54	29448.08	2049.43	1734.13	0.00	588533.00	3940829.00
96.43	117668.69	34111.13	2515.47	2467.65	0.00	598485.00	3945492.00
236.08	106382.57	28815.08	2042.99	1785.71	0.00	587199.00	3940196.00
321.84	103557.26	27466.45	2008.50	1833.41	0.00	584374.00	3938847.00
477.99	100589.68	26033.32	1773.80	1278.22	0.00	581406.00	3937414.00
279.74	104776.19	28049.43	1854.67	1320.72	0.00	585592.00	3939430.00
140.22	112307.10	31596.72	2246.25	2086.69	0.00	593123.00	3942978.00
175.88	109534.17	30294.63	2283.28	2330.43	0.00	590350.00	3941675.00
789.05	97725.81	24604.03	1643.53	923.10	0.00	578542.00	3935985.00
173.83	109670.21	30365.39	2261.11	2189.00	0.00	590486.00	3941746.00
149.15	111517.77	31238.71	2206.37	1956.85	0.00	592334.00	3942619.00
320.68	103586.53	27472.45	1960.08	1767.17	0.00	584403.00	3938853.00
403.25	101782.79	26605.66	1806.27	1341.42	0.00	582599.00	3937986.00
261.09	105412.17	28356.11	2023.89	1761.19	0.00	586228.00	3939737.00
302.90	104072.35	27714.56	1926.70	1612.77	0.00	584889.00	3939095.00
223.82	106918.22	29067.15	2090.88	1936.28	0.00	587734.00	3940448.00
626.66	98922.01	25214.00	1705.12	1115.20	0.00	579738.00	3936595.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
349.76	37392.96	10332.87	1002.47	963.13	<b>83.80</b>	518209.00	3921714.00
448.11	36486.20	9889.64	987.23	927.97	0.00	517302.00	3921270.00
358.93	37295.57	10282.02	1041.28	1051.00	0.00	518112.00	3921663.00
46.01	51613.66	17028.55	2267.85	3154.19	0.00	532430.00	3928409.00
227.81	39296.83	11239.29	1152.48	1350.41	0.00	520113.00	3922620.00
386.30	37016.35	10151.44	1065.44	1047.39	0.00	517833.00	3921532.00
268.77	38510.06	10860.06	1214.45	1531.21	0.00	519326.00	3922241.00
315.65	37810.15	10527.21	1054.18	1081.63	0.00	518626.00	3921908.00
264.89	38574.49	10897.44	1055.43	1074.29	0.00	519391.00	3922278.00
95.82	44724.20	13817.34	1734.08	2052.06	0.00	525540.00	3925198.00
136.54	42207.91	12617.32	1455.03	1780.06	0.00	523024.00	3923998.00
159.05	41256.28	12173.87	1347.54	1656.28	0.00	522073.00	3923555.00
353.23	37358.10	10318.52	1058.36	1062.24	0.00	518174.00	3921699.00
269.96	38489.77	10864.09	1044.33	1022.53	0.00	519306.00	3922245.00
215.89	39566.79	11372.31	1176.09	1312.70	0.00	520383.00	3922753.00
161.99	41146.32	12119.82	1412.88	1708.30	0.00	521963.00	3923501.00
213.55	39625.16	11402.13	1073.46	1066.13	0.00	520441.00	3922783.00
215.52	39577.40	11377.26	1333.65	1454.93	0.00	520394.00	3922758.00
263.42	38602.19	10910.89	1018.03	1002.71	0.00	519418.00	3922292.00
301.57	38004.54	10624.76	1136.89	1182.72	0.00	518821.00	3922006.00
645.45	35369.95	9335.14	932.63	827.63	0.00	516186.00	3920716.00
361.39	37264.39	10276.29	1117.76	1128.07	0.00	518081.00	3921657.00
151.98	41533.21	12308.01	1613.51	2170.32	0.00	522349.00	3923689.00
138.02	42138.37	12577.19	1315.40	1576.12	0.00	522955.00	3923958.00
170.35	40857.78	11989.15	1545.86	1748.51	0.00	521674.00	3923370.00
269.74	38497.35	10865.25	998.22	896.67	0.00	519314.00	3922246.00
336.17	37552.71	10412.22	1112.84	1176.65	0.00	518369.00	3921793.00
398.25	36903.38	10088.36	970.86	914.77	0.00	517720.00	3921469.00
187.06	40328.57	11728.76	1296.74	1553.83	0.00	521145.00	3923110.00
166.63	40984.31	12032.81	1226.82	1589.17	0.00	521801.00	3923414.00
264.79	38577.50	10908.37	1137.21	1141.34	0.00	519394.00	3922289.00
146.54	41756.24	12414.69	1402.22	1808.24	0.00	522573.00	3923795.00
188.81	40280.01	11703.92	1204.69	1346.31	0.00	521096.00	3923085.00
298.76	38042.87	10640.78	1039.67	1072.11	0.00	518859.00	3922022.00
66.81	47792.54	15243.96	1758.90	2218.79	0.00	528609.00	3926625.00
266.78	38544.32	10886.71	1104.68	1134.87	0.00	519361.00	3922267.00
344.89	37453.41	10366.61	1162.73	1202.06	0.00	518270.00	3921747.00
170.35	40856.64	11975.55	1225.92	1493.91	0.00	521673.00	3923356.00
202.05	39913.71	11541.75	1252.19	1383.05	0.00	520730.00	3922923.00
227.04	39314.98	11251.98	1257.23	1401.76	0.00	520131.00	3922633.00
436.47	36580.57	9930.65	939.37	818.50	0.00	517397.00	3921311.00
359.11	37289.52	10286.52	1023.34	1005.99	0.00	518106.00	3921667.00
690.83	35203.93	9247.39	937.52	825.08	0.00	516020.00	3920628.00
342.96	37471.26	10373.71	1024.60	1030.44	0.00	518288.00	3921754.00
603.38	35561.85	9427.75	926.79	803.37	0.00	516378.00	3920809.00
236.41	39111.86	11151.12	1223.38	1478.96	0.00	519928.00	3922532.00
434.84	36587.50	9948.79	1008.38	951.94	0.00	517404.00	3921330.00
70.41	47311.13	15013.84	1769.04	2458.39	0.00	528127.00	3926395.00
143.09	41907.18	12483.63	1357.91	1622.42	0.00	522723.00	3923864.00

496.24	36146.88	9726.87	1015.92	987.22	0.00	516963.00	3921108.00
23.87	60332.47	21099.37	3007.82	4366.78	0.00	541149.00	3932480.00
129.43	42560.65	12796.40	1499.39	1592.48	0.00	523377.00	3924177.00
709.59	35131.78	9210.58	951.69	848.75	0.00	515948.00	3920591.00
142.39	41936.46	12505.16	1460.11	1576.75	0.00	522753.00	3923886.00
418.43	36724.27	10003.07	1047.17	1155.39	0.00	517541.00	3921384.00
445.29	36510.67	9900.90	948.79	822.67	0.00	517327.00	3921282.00
115.56	43336.75	13160.16	1457.72	1552.78	0.00	524153.00	3924541.00
211.50	39674.42	11425.72	1300.83	1620.08	0.00	520491.00	3922807.00
93.88	44880.96	13878.79	1615.92	2054.53	0.00	525697.00	3925260.00
141.90	41958.89	12511.79	1624.49	1991.29	0.00	522775.00	3923893.00
375.81	37117.63	10195.93	1057.87	1149.37	0.00	517934.00	3921577.00
119.30	43112.01	13039.12	1555.14	1954.58	0.00	523928.00	3924420.00
774.89	34919.99	9096.97	900.30	735.37	0.00	515736.00	3920478.00
98.51	44510.74	13709.14	1560.74	2042.88	0.00	525327.00	3925090.00
127.55	42657.35	12832.29	1500.09	1908.52	0.00	523474.00	3924213.00
319.07	37763.92	10511.75	1156.18	1239.12	0.00	518580.00	3921893.00
20.81	62550.35	22133.67	3020.55	4232.94	0.00	543367.00	3933514.00
293.29	38122.41	10682.71	1019.67	966.27	0.00	518939.00	3922063.00
76.41	46584.48	14677.55	1773.67	2397.03	0.00	527401.00	3926058.00
210.65	39694.47	11425.83	1342.29	1671.47	0.00	520511.00	3922807.00
661.70	35306.80	9293.56	878.45	706.78	0.00	516123.00	3920674.00
101.99	44245.41	13581.74	1503.22	1888.49	0.00	525062.00	3924963.00
198.01	40019.75	11595.86	1309.27	1355.69	0.00	520836.00	3922977.00
494.22	36160.97	9728.21	916.36	736.89	0.00	516977.00	3921109.00
62.04	48495.07	15592.69	2346.22	2636.00	0.00	529311.00	3926973.00
376.79	37107.43	10192.28	930.15	782.12	0.00	517924.00	3921573.00
461.90	36382.57	9841.21	989.96	961.84	0.00	517199.00	3921222.00
384.93	37031.67	10153.26	1075.70	1129.84	0.00	517848.00	3921534.00
203.80	39867.77	11523.25	1256.06	1398.74	0.00	520684.00	3922904.00
139.30	42078.50	12547.60	1273.45	1574.02	0.00	522895.00	3923928.00
261.27	38641.12	10929.24	1185.83	1304.05	0.00	519457.00	3922310.00
430.07	36630.07	9956.22	993.52	996.23	0.00	517446.00	3921337.00
208.21	39755.84	11450.58	1227.70	1488.13	0.00	520572.00	3922831.00
22.63	61173.22	21462.84	3361.88	5383.64	0.00	541989.00	3932844.00
474.81	36294.40	9792.74	995.19	977.64	0.00	517111.00	3921174.00
1420.34	33793.92	8461.15	843.07	522.27	0.00	514610.00	3919842.00
162.41	41131.66	12111.83	1325.15	1558.15	0.00	521948.00	3923493.00
432.48	36609.67	9949.03	942.62	826.96	0.00	517426.00	3921330.00
940.03	34488.79	8871.95	890.99	685.92	0.00	515305.00	3920253.00
266.47	38548.98	10886.17	1100.84	1219.76	0.00	519365.00	3922267.00
291.06	38153.65	10700.12	1200.60	1378.37	0.00	518970.00	3922081.00
149.09	41651.74	12358.04	1498.25	1988.87	0.00	522468.00	3923739.00
403.31	36856.58	10074.34	1020.46	975.05	0.00	517673.00	3921455.00
261.13	38647.09	10930.12	1162.28	1303.32	0.00	519463.00	3922311.00
74.16	46847.44	14788.60	1977.02	2770.26	0.00	527664.00	3926169.00
222.53	39413.46	11296.67	1056.40	1014.94	0.00	520230.00	3922677.00
340.26	37505.93	10382.15	1021.62	1011.43	0.00	518322.00	3921763.00
225.73	39339.99	11260.80	1197.11	1400.92	0.00	520156.00	3922642.00
750.64	34991.43	9135.94	849.50	582.51	0.00	515808.00	3920517.00
298.63	38045.41	10645.46	1137.91	1247.07	0.00	518862.00	3922026.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
485.01	26462.44	7194.92	807.87	903.58	74.44	507279.00	3918576.00
31.10	42362.98	14703.53	3194.06	4351.23	0.00	523179.00	3926084.00
239.22	28694.30	8279.80	1166.96	1553.01	0.00	509511.00	3919661.00
153.31	30600.00	9199.40	1381.78	1562.03	0.00	511416.00	3920580.00
136.25	31180.30	9452.28	1434.05	2042.83	0.00	511997.00	3920833.00
186.34	29711.96	8758.16	981.38	1194.58	0.00	510528.00	3920139.00
368.10	27230.68	7575.97	903.28	1096.74	0.00	508047.00	3918957.00
249.19	28539.04	8218.83	1107.38	1282.43	0.00	509355.00	3919600.00
252.66	28489.41	8189.92	1075.41	1298.35	0.00	509306.00	3919571.00
303.85	27841.34	7874.99	993.38	1149.85	0.00	508658.00	3919256.00
639.41	25814.63	6875.29	837.70	848.98	0.00	506631.00	3918256.00
251.83	28499.96	8185.10	881.14	1039.57	0.00	509316.00	3919566.00
618.00	25884.82	6910.18	786.44	758.41	0.00	506701.00	3918291.00
149.68	30713.38	9245.08	1178.67	1523.79	0.00	511530.00	3920626.00
317.60	27696.12	7797.76	858.59	964.63	0.00	508512.00	3919179.00
491.71	26429.54	7188.65	832.89	826.65	0.00	507246.00	3918569.00
266.95	28292.03	8091.68	1077.02	1231.88	0.00	509108.00	3919472.00
176.74	29944.65	8870.66	1032.39	1374.01	0.00	510761.00	3920251.00
138.16	31110.65	9429.36	1147.27	1509.55	0.00	511927.00	3920810.00
97.82	33021.65	10324.33	1393.92	2056.93	0.00	513838.00	3921705.00
454.40	26636.48	7280.93	744.27	672.20	0.00	507453.00	3918662.00
155.55	30528.87	9153.52	1235.83	1606.12	0.00	511345.00	3920534.00
192.09	29582.05	8710.73	1104.86	1251.36	0.00	510398.00	3920092.00
181.59	29824.88	8812.97	1089.65	1495.46	0.00	510641.00	3920194.00
321.20	27658.46	7789.64	930.88	980.09	0.00	508475.00	3919170.00
124.25	31660.42	9690.83	1662.30	2141.45	0.00	512477.00	3921072.00
39.68	39905.75	13525.70	2436.80	4042.29	0.00	520722.00	3924906.00
364.19	27266.95	7596.23	865.87	920.10	0.00	508083.00	3918977.00
39.77	39881.74	13516.26	1894.35	3792.58	0.00	520698.00	3924897.00
133.52	31283.62	9508.25	1529.95	2037.00	0.00	512100.00	3920889.00
370.99	27208.25	7566.75	859.66	951.26	0.00	508025.00	3918948.00
331.31	27561.62	7731.43	823.84	903.61	0.00	508378.00	3919112.00
152.49	30622.40	9194.40	1123.78	1434.94	0.00	511439.00	3920575.00
100.36	32866.59	10250.02	1617.78	2279.73	0.00	513683.00	3921631.00
432.15	26767.30	7351.87	805.82	791.93	0.00	507584.00	3918733.00
228.46	28873.12	8369.08	1050.45	1257.47	0.00	509689.00	3919750.00
303.92	27842.45	7868.39	892.44	1013.09	0.00	508659.00	3919249.00
60.28	36327.66	11873.21	2210.20	2894.97	0.00	517144.00	3923254.00
115.63	32053.44	9875.00	1284.78	1597.98	0.00	512870.00	3921256.00
403.12	26968.04	7445.98	861.38	979.84	0.00	507784.00	3918827.00
323.36	27634.86	7776.73	944.24	1027.52	0.00	508451.00	3919158.00
186.83	29702.28	8753.77	1399.81	1858.99	0.00	510519.00	3920135.00
299.62	27886.15	7903.96	1117.32	1228.71	0.00	508702.00	3919285.00
330.64	27565.59	7742.17	859.71	920.24	0.00	508382.00	3919123.00
690.24	25666.33	6794.21	756.93	747.57	0.00	506483.00	3918175.00
345.08	27428.32	7678.29	902.76	1051.69	0.00	508245.00	3919059.00
119.31	31882.44	9784.97	1227.91	1540.57	0.00	512699.00	3921166.00
315.75	27713.48	7807.14	837.65	920.73	0.00	508530.00	3919188.00
153.55	30585.79	9178.65	1085.87	1366.64	0.00	511402.00	3920559.00

128.48	31485.24	9604.27	1487.06	2179.48	0.00	512302.00	3920985.00
298.23	27903.49	7915.86	1025.43	1091.48	0.00	508720.00	3919297.00
434.87	26751.24	7344.57	881.18	954.04	0.00	507568.00	3918725.00
224.75	28940.29	8395.98	1069.88	1350.26	0.00	509757.00	3919777.00
190.88	29608.63	8723.91	1351.01	1588.06	0.00	510425.00	3920105.00
496.01	26407.24	7170.32	839.25	917.39	0.00	507224.00	3918551.00
422.11	26837.65	7385.56	905.54	1037.76	0.00	507654.00	3918766.00
236.68	28734.36	8290.90	1029.44	1588.46	0.00	509551.00	3919672.00
361.47	27284.42	7605.40	1102.32	1373.56	0.00	508101.00	3918986.00
646.11	25784.62	6861.58	781.34	749.99	0.00	506601.00	3918242.00
251.71	28503.10	8197.80	1169.84	1527.33	0.00	509319.00	3919579.00
196.67	29482.19	8647.23	1133.05	1395.05	0.00	510298.00	3920028.00
77.70	34494.30	11019.65	1540.68	2124.26	0.00	515311.00	3922400.00
266.02	28303.01	8092.74	1043.59	1475.62	0.00	509119.00	3919474.00
253.32	28480.84	8176.52	1054.24	1277.37	0.00	509297.00	3919557.00
481.76	26481.03	7211.81	900.78	1038.51	0.00	507297.00	3918593.00
426.11	26806.13	7377.13	859.03	907.16	0.00	507622.00	3918758.00
321.11	27654.92	7787.88	969.23	1096.94	0.00	508471.00	3919169.00
213.20	29150.13	8494.11	1097.04	1490.54	0.00	509966.00	3919875.00
879.87	25213.51	6554.34	723.82	615.54	0.00	506030.00	3917935.00
435.47	26749.40	7341.73	907.32	951.46	0.00	507566.00	3918723.00
392.13	27041.74	7486.19	1010.22	1220.74	0.00	507858.00	3918867.00
253.60	28473.35	8176.01	1223.26	1649.04	0.00	509290.00	3919557.00
299.52	27889.42	7886.05	952.94	1246.35	0.00	508706.00	3919267.00
238.09	28713.11	8291.98	1045.61	1190.38	0.00	509529.00	3919673.00
37.76	40382.86	13767.91	2382.30	3282.93	0.00	521199.00	3925149.00
113.92	32138.80	9899.80	1409.20	1861.30	0.00	512955.00	3921281.00
161.91	30341.03	9070.94	1328.66	1590.91	0.00	511157.00	3920452.00
165.84	30234.15	9011.41	1414.44	1942.94	0.00	511050.00	3920392.00
135.06	31226.57	9484.77	1567.29	1940.02	0.00	512043.00	3920866.00
213.14	29151.58	8497.55	995.64	1131.87	0.00	509968.00	3919878.00
420.38	26844.57	7397.80	806.40	744.60	0.00	507661.00	3918779.00
234.95	28763.46	8316.19	1015.11	1259.58	0.00	509580.00	3919697.00
80.42	34262.38	10897.19	1566.50	2227.57	0.00	515079.00	3922278.00
196.51	29486.71	8660.88	1236.44	1381.28	0.00	510303.00	3920042.00
432.54	26770.68	7349.25	895.91	970.69	0.00	507587.00	3918730.00
315.56	27714.79	7811.58	897.94	1010.83	0.00	508531.00	3919192.00
437.24	26738.17	7338.95	778.54	720.28	0.00	507554.00	3918720.00
310.83	27766.24	7838.19	1040.06	1343.97	0.00	508583.00	3919219.00
330.74	27559.74	7736.24	946.57	1150.24	0.00	508376.00	3919117.00
408.21	26927.36	7431.68	940.79	1158.58	0.00	507744.00	3918812.00
173.57	30024.09	8912.90	1202.17	1618.79	0.00	510840.00	3920294.00
256.59	28432.33	8158.10	1090.51	1270.88	0.00	509249.00	3919539.00
589.88	25998.62	6964.83	716.45	599.01	0.00	506815.00	3918346.00
618.42	25883.03	6909.22	855.32	916.89	0.00	506699.00	3918290.00
295.43	27930.55	7925.28	969.89	1059.01	0.00	508747.00	3919306.00
316.54	27702.66	7806.00	1037.50	1319.46	0.00	508519.00	3919187.00
317.92	27689.28	7802.90	927.22	1126.07	0.00	508506.00	3919184.00
261.42	28362.85	8123.66	1160.37	1454.54	0.00	509179.00	3919504.00
394.73	27023.95	7474.52	885.58	1062.06	0.00	507840.00	3918855.00
194.51	29524.59	8669.90	1064.31	1352.12	0.00	510341.00	3920051.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
118.62	106558.25	30513.87	2321.77	2396.09	<b>116.23</b>	587375.00	3941895.00
252.79	98130.91	26544.55	1865.47	1548.94	0.00	578947.00	3937925.00
207.31	100031.00	27457.20	1950.56	1654.19	0.00	580847.00	3938838.00
370.05	95005.66	25060.99	1792.70	1489.46	0.00	575822.00	3936442.00
90.41	110482.08	32380.12	2787.08	3064.38	0.00	591298.00	3943761.00
380.49	94801.83	24964.05	1873.97	1705.10	0.00	575618.00	3936345.00
33.83	130151.25	41550.13	4160.40	5430.98	0.00	610968.00	3952931.00
756.01	90730.19	22952.70	1589.70	965.96	0.00	571546.00	3934333.00
305.43	96496.38	25774.20	1794.41	1414.39	0.00	577313.00	3937155.00
532.76	92584.47	23882.38	1656.43	1127.92	0.00	573401.00	3935263.00
332.70	95812.82	25454.25	1795.66	1405.93	0.00	576629.00	3936835.00
1620.95	88065.57	21478.76	1519.69	699.12	0.00	568882.00	3932860.00
178.10	101623.90	28214.13	2021.40	1767.19	0.00	582440.00	3939595.00
196.86	100559.13	27707.12	2020.06	1824.55	0.00	581375.00	3939088.00
222.93	99311.35	27106.19	1914.34	1655.93	0.00	580128.00	3938487.00
230.35	98996.29	26962.01	1853.79	1457.35	0.00	579813.00	3938343.00
62.22	116841.93	35317.26	2850.67	3230.27	0.00	597658.00	3946698.00
265.31	97697.61	26353.55	1903.60	1622.29	0.00	578514.00	3937734.00
27.85	135326.59	43978.37	4133.90	4938.48	0.00	616143.00	3955359.00
1107.04	89168.94	22130.19	1528.76	745.32	0.00	569985.00	3933511.00
185.08	101208.78	28015.24	2059.03	1867.23	0.00	582025.00	3939396.00
200.47	100371.66	27613.93	1969.13	1700.99	0.00	581188.00	3938995.00
639.28	91562.73	23376.52	1613.48	1009.04	0.00	572379.00	3934757.00
443.10	93744.85	24451.58	1682.22	1160.36	0.00	574561.00	3935832.00
221.60	99368.69	27138.00	1858.47	1454.00	0.00	580185.00	3938519.00
354.10	95333.91	25217.72	1764.83	1356.59	0.00	576150.00	3936599.00
441.05	93774.35	24464.10	1697.35	1205.79	0.00	574591.00	3935845.00
140.96	104337.09	29484.43	2190.70	2096.81	0.00	585153.00	3940865.00
233.64	98860.98	26900.39	1973.32	1746.14	0.00	579677.00	3938281.00
405.53	94348.55	24742.87	1703.54	1215.81	0.00	575165.00	3936124.00
91.65	110272.27	32260.13	2478.44	2500.80	0.00	591089.00	3943641.00
296.90	96733.12	25889.24	1834.78	1484.42	0.00	577549.00	3937270.00
360.22	95206.29	25158.38	1732.15	1269.07	0.00	576023.00	3936539.00
128.43	105510.92	30038.94	2199.55	2046.59	0.00	586327.00	3941420.00
76.37	113207.08	33636.69	2846.58	3270.09	0.00	594023.00	3945017.00
333.13	95803.09	25442.27	1778.38	1388.97	0.00	576619.00	3936823.00
409.71	94276.39	24704.42	1734.22	1332.09	0.00	575093.00	3936085.00
182.18	101378.86	28085.07	2036.86	1887.65	0.00	582195.00	3939466.00
356.38	95285.93	25189.77	1810.43	1515.47	0.00	576102.00	3936571.00
156.46	103084.74	28901.36	2093.02	1848.61	0.00	583901.00	3940282.00
83.80	111678.64	32926.99	2625.95	2818.45	0.00	592495.00	3944308.00
153.56	103303.08	28989.14	2159.60	2136.63	0.00	584119.00	3940370.00
391.44	94598.15	24869.70	1762.73	1362.61	0.00	575414.00	3936250.00
529.59	92620.30	23898.37	1679.48	1217.92	0.00	573437.00	3935279.00
526.03	92661.12	23918.89	1654.36	1118.34	0.00	573477.00	3935300.00
107.63	107902.66	31160.34	2484.57	2588.63	0.00	588719.00	3942541.00
44.96	123431.51	38413.86	3862.30	4558.48	0.00	604248.00	3949795.00
188.91	100991.96	27909.92	2026.51	1830.47	0.00	581808.00	3939291.00
642.65	91531.76	23362.72	1568.28	824.79	0.00	572348.00	3934744.00

208.91	99953.24	27411.35	2118.45	2147.04	0.00	580770.00	3938792.00
292.74	96849.50	25934.20	1782.06	1362.86	0.00	577666.00	3937315.00
452.91	93600.84	24380.13	1689.99	1196.74	0.00	574417.00	3935761.00
386.74	94683.67	24905.80	1721.97	1258.23	0.00	575500.00	3936287.00
201.25	100332.54	27591.07	1992.82	1806.27	0.00	581149.00	3938972.00
333.14	95802.66	25446.52	1815.40	1480.26	0.00	576619.00	3936827.00
18.05	148863.59	50292.85	5641.46	6647.83	0.00	629680.00	3961674.00
739.34	90837.50	23008.17	1582.28	927.57	0.00	571654.00	3934389.00
407.55	94313.13	24726.10	1686.34	1144.95	0.00	575129.00	3936107.00
123.02	106074.05	30292.02	2500.65	2725.63	0.00	586890.00	3941673.00
440.05	93790.94	24468.18	1684.82	1193.18	0.00	574607.00	3935849.00
244.97	98418.08	26684.72	1956.20	1836.04	0.00	579234.00	3938066.00
40.37	125861.32	39548.89	3347.76	3765.10	0.00	606678.00	3950930.00
69.15	114919.70	34438.49	3188.99	3776.27	0.00	595736.00	3945819.00
221.62	99369.37	27128.63	2028.38	1921.68	0.00	580186.00	3938509.00
525.25	92670.76	23925.84	1715.01	1301.32	0.00	573487.00	3935307.00
336.54	95723.57	25406.93	1918.65	1763.88	0.00	576540.00	3936788.00
219.32	99470.44	27188.12	1966.39	1740.43	0.00	580287.00	3938569.00
116.64	106786.58	30636.60	2230.21	2039.16	0.00	587603.00	3942017.00
252.40	98145.46	26548.80	1895.27	1634.24	0.00	578962.00	3937930.00
320.79	96100.69	25583.91	1812.60	1462.18	0.00	576917.00	3936965.00
172.81	101956.76	28368.64	2087.44	1929.21	0.00	582773.00	3939749.00
129.27	105427.24	29993.66	2283.07	2332.95	0.00	586244.00	3941374.00
877.48	90064.98	22608.93	1543.41	779.37	0.00	570881.00	3933990.00
329.97	95877.65	25478.44	1732.28	1231.81	0.00	576694.00	3936859.00
63.97	116327.01	35094.37	3208.70	3943.47	0.00	597143.00	3946475.00
328.99	95902.74	25485.17	1770.22	1356.91	0.00	576719.00	3936866.00
106.15	108098.40	31250.20	2277.61	2140.58	0.00	588915.00	3942631.00
152.43	103390.05	29043.15	2121.08	1938.42	0.00	584206.00	3940424.00
286.50	97033.42	26025.96	1835.25	1514.16	0.00	577850.00	3937407.00
155.79	103133.75	28920.96	2079.39	1850.69	0.00	583950.00	3940302.00
313.22	96293.39	25680.24	1756.70	1287.99	0.00	577110.00	3937061.00
347.88	95468.83	25282.61	1708.26	1165.77	0.00	576285.00	3936663.00
84.93	111464.74	32840.58	2664.70	2914.23	0.00	592281.00	3944221.00
126.25	105732.80	30142.42	2402.42	2584.86	0.00	586549.00	3941523.00
677.20	91271.26	23229.17	1620.99	1056.26	0.00	572088.00	3934610.00
495.70	93024.41	24093.34	1710.97	1297.45	0.00	573841.00	3935474.00
339.64	95652.41	25376.50	1789.92	1418.93	0.00	576469.00	3936757.00
549.78	92401.96	23785.66	1662.09	1174.87	0.00	573218.00	3935166.00
258.24	97938.34	26469.74	1866.84	1529.20	0.00	578755.00	3937851.00
266.58	97655.87	26338.39	1859.77	1514.62	0.00	578472.00	3937719.00
131.35	105222.18	29907.22	2248.42	2170.06	0.00	586038.00	3941288.00
253.80	98093.74	26529.76	1884.41	1605.09	0.00	578910.00	3937911.00
18.96	147177.81	49506.53	5251.79	6177.42	0.00	627994.00	3960887.00
236.34	98753.12	26845.15	1910.59	1655.93	0.00	579569.00	3938226.00
544.15	92458.36	23821.58	1679.80	1216.49	0.00	573275.00	3935202.00
128.33	105521.18	30041.11	2342.84	2390.96	0.00	586337.00	3941422.00
293.35	96831.97	25935.00	1765.32	1298.35	0.00	577648.00	3937316.00
239.60	98624.48	26785.98	1895.24	1616.36	0.00	579441.00	3938167.00
380.05	94809.94	24969.75	1731.11	1275.22	0.00	575626.00	3936351.00
322.65	96056.33	25570.31	1828.50	1494.69	0.00	576873.00	3936951.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
309.01	84758.91	22775.53	1623.35	1189.92	<b>111.16</b>	565575.00	3934156.00
254.46	86289.36	23498.56	1711.97	1409.50	0.00	567106.00	3934879.00
556.19	81028.59	20958.71	1545.18	1118.86	0.00	561845.00	3932339.00
270.33	85795.71	23269.52	1770.39	1570.65	0.00	566612.00	3934650.00
144.10	91791.46	26086.71	2003.33	1988.33	0.00	572608.00	3937467.00
150.95	91277.15	25864.10	2022.68	1966.65	0.00	572093.00	3937245.00
345.75	83945.67	22375.68	1636.36	1323.20	0.00	564762.00	3933756.00
557.12	81019.36	20957.25	1527.52	1059.64	0.00	561836.00	3932338.00
441.58	82341.75	21602.20	1575.81	1178.20	0.00	563158.00	3932983.00
61.58	103693.40	31674.90	2554.63	2559.00	0.00	584510.00	3943056.00
306.39	84823.90	22799.69	1653.06	1303.59	0.00	565640.00	3934180.00
106.91	95398.03	27811.53	2225.36	2160.42	0.00	576214.00	3939192.00
163.29	90437.75	25468.53	1959.01	1816.99	0.00	571254.00	3936849.00
137.36	92332.71	26357.97	2104.68	2131.40	0.00	573149.00	3937739.00
356.51	83733.58	22278.83	1614.00	1223.84	0.00	564550.00	3933660.00
200.46	88402.05	24508.01	1898.08	1782.61	0.00	569218.00	3935889.00
455.53	82152.95	21512.66	1572.54	1172.83	0.00	562969.00	3932893.00
552.44	81064.12	20977.80	1538.98	1105.43	0.00	561880.00	3932359.00
181.59	89357.39	24955.78	1919.74	1838.27	0.00	570174.00	3936337.00
236.48	86909.99	23790.83	1718.96	1382.80	0.00	567726.00	3935172.00
124.89	93450.71	26865.42	2102.05	2168.75	0.00	574267.00	3938246.00
208.05	88055.46	24333.70	1766.39	1489.16	0.00	568872.00	3935714.00
529.41	81294.39	21095.43	1468.43	818.83	0.00	562111.00	3932476.00
350.03	83860.98	22337.70	1595.52	1173.47	0.00	564677.00	3933718.00
366.40	83544.83	22185.39	1576.80	1123.85	0.00	564361.00	3933566.00
100.54	96210.81	28190.77	2218.92	2152.46	0.00	577027.00	3939572.00
168.46	90116.69	25306.37	1967.74	1955.25	0.00	570933.00	3936687.00
225.98	87308.75	23984.23	1799.67	1600.08	0.00	568125.00	3935365.00
162.04	90517.20	25496.17	2069.27	2166.22	0.00	571333.00	3936877.00
306.23	84828.44	22792.59	1607.00	1170.06	0.00	565645.00	3934173.00
52.68	106488.87	32981.34	2929.81	3341.49	0.00	587305.00	3944362.00
610.55	80546.78	20722.21	1520.83	1054.19	0.00	561363.00	3932103.00
81.10	99264.68	29618.34	2645.93	2899.53	0.00	580081.00	3940999.00
207.35	88086.12	24345.73	1878.46	1813.57	0.00	568902.00	3935727.00
388.45	83155.77	22000.59	1607.86	1221.60	0.00	563972.00	3933381.00
280.21	85511.56	23128.41	1770.99	1600.01	0.00	566328.00	3934509.00
210.87	87930.55	24274.29	1778.91	1532.76	0.00	568747.00	3935655.00
300.73	84963.06	22871.80	1612.68	1166.61	0.00	565779.00	3934253.00
102.14	95998.24	28077.08	2197.92	2181.47	0.00	576815.00	3939458.00
863.26	79018.74	19934.25	1448.42	845.18	0.00	559835.00	3931315.00
395.13	83043.95	21946.98	1598.19	1224.12	0.00	563860.00	3933328.00
307.22	84802.77	22798.59	1702.14	1426.48	0.00	565619.00	3934179.00
56.97	105059.44	32326.29	2954.98	3328.97	0.00	585876.00	3943707.00
199.14	88462.75	24537.17	1895.71	1806.13	0.00	569279.00	3935918.00
125.89	93355.19	26840.52	2076.34	1977.72	0.00	574171.00	3938221.00
162.28	90500.76	25481.45	1862.28	1658.93	0.00	571317.00	3936862.00
355.09	83761.11	22290.62	1715.43	1538.57	0.00	564577.00	3933671.00
165.60	90294.05	25392.52	1999.75	1947.06	0.00	571110.00	3936773.00
186.91	89074.03	24813.47	1921.47	1905.05	0.00	569890.00	3936194.00

240.06	86782.05	23732.63	1746.35	1494.72	0.00	567598.00	3935113.00
441.33	82346.64	21610.26	1576.65	1158.79	0.00	563163.00	3932991.00
239.39	86805.70	23739.86	1802.44	1691.23	0.00	567622.00	3935121.00
138.95	92200.72	26290.55	2117.74	2145.76	0.00	573017.00	3937671.00
795.77	79344.61	20107.24	1429.75	748.99	0.00	560161.00	3931488.00
498.56	81627.43	21256.32	1518.85	1002.86	0.00	562444.00	3932637.00
215.24	87743.17	24187.99	1937.87	1966.35	0.00	568559.00	3935569.00
146.80	91583.50	26010.09	2213.96	2389.83	0.00	572400.00	3937391.00
126.23	93321.51	26825.26	2124.78	2128.74	0.00	574138.00	3938206.00
795.37	79346.61	20109.17	1448.27	832.11	0.00	560163.00	3931490.00
149.29	91398.55	25916.23	2087.28	2166.68	0.00	572215.00	3937297.00
314.51	84628.82	22703.32	1704.62	1475.59	0.00	565445.00	3934084.00
247.63	86517.57	23610.25	1835.37	1721.82	0.00	567334.00	3934991.00
353.10	83799.06	22310.24	1628.03	1256.66	0.00	564615.00	3933691.00
121.80	93753.52	27013.78	2109.43	2252.28	0.00	574570.00	3938395.00
331.56	84244.12	22520.94	1707.81	1483.09	0.00	565060.00	3933902.00
394.23	83059.41	21949.41	1593.14	1216.36	0.00	563876.00	3933330.00
297.59	85044.41	22900.48	1660.43	1326.35	0.00	565861.00	3934281.00
513.59	81460.85	21176.20	1644.99	1395.41	0.00	562277.00	3932557.00
346.08	83940.44	22382.91	1601.38	1153.08	0.00	564757.00	3933764.00
397.05	83010.97	21926.09	1580.26	1166.20	0.00	563827.00	3933307.00
426.59	82554.71	21704.29	1605.24	1271.96	0.00	563371.00	3933085.00
565.18	80942.24	20914.70	1540.32	1118.26	0.00	561759.00	3932295.00
597.27	80657.98	20779.86	1485.08	912.59	0.00	561474.00	3932161.00
333.72	84195.25	22507.01	1599.62	1145.48	0.00	565012.00	3933888.00
118.93	94046.91	27158.78	2156.73	2274.48	0.00	574863.00	3938540.00
381.82	83267.82	22054.27	1585.72	1156.63	0.00	564084.00	3933435.00
84.73	98614.23	29295.60	2486.59	2758.89	0.00	579431.00	3940676.00
340.64	84051.81	22426.77	1753.03	1649.51	0.00	564868.00	3933808.00
348.46	83892.20	22351.92	1623.29	1254.96	0.00	564708.00	3933733.00
54.13	105986.93	32756.50	3022.33	3352.07	0.00	586803.00	3944137.00
621.98	80456.31	20675.01	1491.20	962.38	0.00	561273.00	3932056.00
250.82	86412.04	23552.55	1784.49	1599.52	0.00	567228.00	3934933.00
335.33	84163.38	22483.76	1610.30	1211.61	0.00	564980.00	3933865.00
210.72	87936.71	24287.25	1784.93	1498.21	0.00	568753.00	3935668.00
157.05	90849.42	25648.09	2081.45	2117.87	0.00	571666.00	3937029.00
68.59	101884.95	30824.65	2719.25	3073.12	0.00	582701.00	3942205.00
411.33	82784.69	21823.30	1650.50	1373.60	0.00	563601.00	3933204.00
290.00	85242.66	23004.23	1795.32	1629.37	0.00	566059.00	3934385.00
408.32	82833.00	21841.13	1608.32	1251.74	0.00	563649.00	3933222.00
69.42	101688.51	30738.29	2923.00	3499.97	0.00	582505.00	3942119.00
142.56	91910.79	26138.65	2099.91	2257.71	0.00	572727.00	3937519.00
209.28	87999.28	24307.18	1778.27	1542.83	0.00	568816.00	3935688.00
317.77	84552.32	22667.19	1632.29	1275.97	0.00	565369.00	3934048.00
276.25	85623.60	23181.13	1798.24	1671.16	0.00	566440.00	3934562.00
318.31	84540.54	22668.40	1606.08	1154.09	0.00	565357.00	3934049.00
133.00	92705.59	26517.79	2054.42	2036.21	0.00	573522.00	3937899.00
631.28	80382.67	20638.60	1486.58	929.56	0.00	561199.00	3932019.00
65.85	102558.00	31151.77	2584.07	2742.64	0.00	583374.00	3942533.00
183.40	89259.70	24908.52	1860.53	1661.21	0.00	570076.00	3936289.00
240.47	86767.49	23720.69	1745.77	1518.94	0.00	567584.00	3935101.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
171.91	20108.63	6066.80	1438.73	1627.53	<b>62.93</b>	500925.00	3917448.00
801.26	16706.71	4403.63	553.61	566.83	0.00	497523.00	3915784.00
459.52	17604.81	4856.03	752.58	1016.58	0.00	498421.00	3916237.00
191.11	19772.11	5895.12	905.99	1372.37	0.00	500588.00	3917276.00
694.36	16921.93	4508.58	576.37	598.01	0.00	497738.00	3915889.00
730.17	16836.94	4467.18	640.10	810.30	0.00	497653.00	3915848.00
119.14	21416.36	6670.39	1036.09	2266.26	0.00	502233.00	3918051.00
1729.99	15968.88	3957.01	584.52	546.31	0.00	496785.00	3915338.00
384.56	17967.17	5040.14	708.09	880.82	0.00	498783.00	3916421.00
289.25	18625.33	5347.50	814.66	1345.03	0.00	499442.00	3916728.00
193.79	19734.04	5895.49	895.87	1110.81	0.00	500550.00	3917276.00
148.66	20596.76	6297.60	1100.24	1562.22	0.00	501413.00	3917678.00
211.79	19462.06	5754.18	1000.91	1615.48	0.00	500278.00	3917135.00
49.91	25698.36	8681.41	1605.65	3303.31	0.00	506515.00	3920062.00
174.71	20055.31	6036.19	1228.32	1563.93	0.00	500872.00	3917417.00
128.20	21133.84	6551.49	1244.55	1606.80	0.00	501950.00	3917932.00
143.87	20704.90	6337.57	1231.81	2231.74	0.00	501521.00	3917718.00
179.18	19976.43	5994.16	968.77	1505.63	0.00	500793.00	3917375.00
259.59	18899.28	5491.31	1026.76	1456.67	0.00	499716.00	3916872.00
201.23	19614.16	5837.96	1086.58	1344.58	0.00	500430.00	3917219.00
381.38	17988.54	5046.04	811.10	975.82	0.00	498805.00	3916427.00
152.07	20513.72	6245.63	894.56	1973.38	0.00	501330.00	3917626.00
581.66	17189.11	4643.41	680.99	849.85	0.00	498005.00	3916024.00
445.56	17664.32	4891.42	807.65	1022.94	0.00	498481.00	3916272.00
162.84	20285.49	6151.30	1079.60	1400.79	0.00	501102.00	3917532.00
110.69	21711.66	6830.45	1366.86	1531.39	0.00	502528.00	3918211.00
70.92	23739.71	7762.88	1804.40	3452.62	0.00	504556.00	3919144.00
426.75	17755.75	4936.99	728.79	935.77	0.00	498572.00	3916318.00
476.09	17538.44	4826.81	802.61	1026.40	0.00	498355.00	3916208.00
348.99	18182.14	5141.77	680.90	804.94	0.00	498998.00	3916523.00
150.72	20548.80	6268.95	1245.78	1923.19	0.00	501365.00	3917650.00
175.54	20033.85	6036.79	966.79	1055.22	0.00	500850.00	3917418.00
578.33	17197.86	4657.55	719.79	860.79	0.00	498014.00	3916038.00
217.36	19389.49	5728.35	1262.00	1611.34	0.00	500206.00	3917109.00
498.51	17452.56	4789.49	653.57	692.24	0.00	498269.00	3916170.00
340.18	18240.46	5164.67	750.40	1170.77	0.00	499057.00	3916545.00
118.30	21445.54	6687.23	926.27	1533.93	0.00	502262.00	3918068.00
143.96	20703.81	6348.03	915.64	1958.34	0.00	501520.00	3917729.00
152.33	20508.87	6258.26	1613.11	2307.72	0.00	501325.00	3917639.00
105.82	21897.07	6909.94	1837.00	2620.94	0.00	502713.00	3918291.00
391.48	17926.63	5022.42	902.37	1108.47	0.00	498743.00	3916403.00
474.80	17544.47	4829.74	1038.67	1284.97	0.00	498361.00	3916211.00
171.09	20120.43	6074.42	1652.29	2080.49	0.00	500937.00	3917455.00
530.27	17340.36	4732.03	663.32	743.68	0.00	498157.00	3916113.00
258.67	18910.51	5492.08	908.80	1085.28	0.00	499727.00	3916873.00
215.84	19409.98	5731.36	854.12	1038.31	0.00	500226.00	3917112.00
141.49	20766.83	6375.80	1155.57	1696.19	0.00	501583.00	3917757.00
135.80	20917.88	6449.72	1625.09	2020.74	0.00	501734.00	3917830.00
157.38	20395.01	6208.29	1171.38	1382.13	0.00	501211.00	3917589.00

160.10	20342.76	6168.59	980.13	1753.00	0.00	501159.00	3917549.00
146.81	20639.81	6306.36	916.73	1690.43	0.00	501456.00	3917687.00
927.50	16530.37	4301.45	629.53	750.46	0.00	497347.00	3915682.00
130.63	21061.32	6519.26	1379.57	1813.77	0.00	501878.00	3917900.00
292.27	18592.61	5342.23	732.23	1008.70	0.00	499409.00	3916723.00
725.00	16853.11	4479.73	696.09	823.23	0.00	497669.00	3915861.00
250.07	18995.56	5543.90	944.55	1249.57	0.00	499812.00	3916925.00
263.63	18858.87	5479.02	1365.31	1447.45	0.00	499675.00	3916860.00
67.61	23984.61	7884.20	1893.40	3154.93	0.00	504801.00	3919265.00
374.81	18020.57	5064.23	801.00	1163.64	0.00	498837.00	3916445.00
127.88	21144.31	6566.11	1325.27	1651.93	0.00	501961.00	3917947.00
474.12	17545.89	4836.98	727.61	797.35	0.00	498362.00	3916218.00
420.69	17775.34	4943.84	771.76	1028.46	0.00	498592.00	3916325.00
129.39	21098.53	6529.04	909.77	1551.81	0.00	501915.00	3917910.00
370.02	18048.74	5078.99	774.54	1018.77	0.00	498865.00	3916460.00
296.12	18565.18	5328.84	753.37	919.03	0.00	499381.00	3916710.00
127.86	21145.05	6551.60	1394.57	1606.45	0.00	501961.00	3917932.00
624.21	17061.32	4587.76	606.14	805.49	0.00	497878.00	3915969.00
264.35	18854.86	5462.05	890.15	1371.60	0.00	499671.00	3916843.00
434.94	17718.92	4920.19	719.82	763.93	0.00	498535.00	3916301.00
363.08	18086.83	5092.43	671.02	980.07	0.00	498903.00	3916473.00
267.73	18822.47	5449.61	823.70	1073.46	0.00	499639.00	3916830.00
425.58	17749.06	4937.57	714.78	871.69	0.00	498565.00	3916318.00
347.27	18185.88	5144.71	762.96	1091.20	0.00	499002.00	3916525.00
230.30	19224.85	5650.28	932.23	1170.55	0.00	500041.00	3917031.00
625.12	17067.49	4590.19	688.84	861.34	0.00	497884.00	3915971.00
247.67	19022.59	5557.86	1388.66	1689.18	0.00	499839.00	3916939.00
93.76	22414.50	7155.69	1424.81	1775.07	0.00	503231.00	3918536.00
243.56	19066.34	5572.26	1032.21	1739.16	0.00	499883.00	3916953.00
177.33	20002.81	6021.44	1202.57	1601.45	0.00	500819.00	3917402.00
113.33	21613.02	6764.00	1001.34	1765.63	0.00	502429.00	3918145.00
131.31	21047.54	6513.33	1449.18	1808.62	0.00	501864.00	3917894.00
374.44	18026.75	5073.89	808.87	912.04	0.00	498843.00	3916455.00
271.06	18789.10	5431.29	895.44	1321.72	0.00	499605.00	3916812.00
464.01	17588.53	4848.70	719.78	953.19	0.00	498405.00	3916229.00
438.30	17698.81	4907.28	663.18	828.27	0.00	498515.00	3916288.00
490.45	17482.49	4800.51	658.35	839.30	0.00	498299.00	3916181.00
792.18	16727.52	4412.11	616.00	699.17	0.00	497544.00	3915793.00
136.59	20898.82	6430.90	1008.44	1681.57	0.00	501715.00	3917812.00
68.12	23948.38	7860.56	1447.63	2316.83	0.00	504765.00	3919241.00
363.77	18085.61	5094.01	867.97	1154.35	0.00	498902.00	3916475.00
219.79	19354.06	5703.43	1008.11	1486.54	0.00	500170.00	3917084.00
147.97	20608.21	6306.21	1465.31	1853.81	0.00	501424.00	3917687.00
47.13	26050.61	8856.37	1888.06	2808.03	0.00	506867.00	3920237.00
537.85	17319.33	4716.35	678.77	814.63	0.00	498136.00	3916097.00
328.53	18315.85	5206.73	689.31	832.23	0.00	499132.00	3916588.00
361.49	18098.53	5098.90	636.74	877.89	0.00	498915.00	3916480.00
653.98	17002.24	4552.50	667.03	769.22	0.00	497819.00	3915933.00
273.57	18766.40	5430.76	1033.71	1427.51	0.00	499583.00	3916812.00
158.44	20373.65	6199.08	1368.70	1824.96	0.00	501190.00	3917580.00
163.38	20271.39	6131.31	912.91	1747.61	0.00	501088.00	3917512.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
89.90	133024.15	38474.68	2989.52	3329.09	<b>124.59</b>	613840.00	3949855.00
271.24	118178.36	31507.24	2017.87	1474.92	0.00	598995.00	3942888.00
252.90	118887.57	31837.07	2129.43	1803.06	0.00	599704.00	3943218.00
759.14	110444.95	27748.06	1772.01	978.15	0.00	591261.00	3939129.00
312.56	116820.60	30864.55	2035.86	1612.46	0.00	597637.00	3942245.00
669.59	111150.59	28101.14	1814.20	1127.69	0.00	591967.00	3939482.00
55.69	142568.08	42958.48	3541.07	3983.14	0.00	623384.00	3954339.00
255.67	118774.57	31793.44	2084.01	1646.66	0.00	599591.00	3943174.00
181.00	122662.39	33639.56	2213.15	1800.05	0.00	603479.00	3945020.00
299.20	117228.59	31048.88	2040.38	1603.81	0.00	598045.00	3942430.00
305.81	117023.96	30952.74	2076.08	1717.62	0.00	597840.00	3942334.00
371.66	115301.29	30126.00	1968.03	1489.70	0.00	596118.00	3941507.00
165.87	123761.36	34139.95	2314.74	2072.79	0.00	604578.00	3945521.00
82.24	134627.83	39242.18	3031.18	3242.61	0.00	615444.00	3950623.00
86.15	133782.41	38850.98	2865.43	2768.72	0.00	614599.00	3950232.00
154.14	124718.38	34606.64	2388.08	2176.45	0.00	605535.00	3945987.00
392.40	114854.15	29909.98	1944.86	1425.32	0.00	595670.00	3941291.00
293.01	117426.43	31153.10	1998.42	1441.14	0.00	598243.00	3942534.00
368.89	115363.39	30164.49	2023.90	1668.25	0.00	596180.00	3941545.00
339.20	116085.15	30506.74	1943.96	1340.01	0.00	596901.00	3941888.00
100.08	131184.55	37622.21	2870.04	3153.31	0.00	612001.00	3949003.00
269.97	118224.26	31515.08	2053.44	1618.77	0.00	599041.00	3942896.00
312.61	116819.32	30851.40	2029.52	1616.64	0.00	597636.00	3942232.00
299.74	117211.75	31042.34	2023.43	1548.46	0.00	598028.00	3942423.00
187.53	122230.65	33426.94	2383.09	2315.23	0.00	603047.00	3944808.00
201.19	121396.38	33032.11	2331.23	2180.52	0.00	602213.00	3944413.00
279.91	117867.70	31356.34	2168.52	1933.95	0.00	598684.00	3942737.00
238.78	119488.88	32133.46	2129.38	1735.54	0.00	600305.00	3943514.00
277.04	117969.68	31401.53	2166.81	1921.93	0.00	598786.00	3942782.00
240.44	119414.56	32095.07	2121.28	1715.90	0.00	600231.00	3943476.00
226.69	120049.91	32394.41	2182.69	1889.07	0.00	600866.00	3943775.00
199.26	121509.14	33094.69	2274.00	2022.65	0.00	602325.00	3944475.00
306.39	117006.63	30948.61	2091.21	1740.21	0.00	597823.00	3942329.00
351.41	115776.71	30356.95	1963.75	1440.87	0.00	596593.00	3941738.00
262.94	118489.41	31640.84	2075.39	1662.37	0.00	599306.00	3943022.00
175.94	123014.25	33793.60	2415.50	2379.22	0.00	603831.00	3945174.00
380.13	115114.25	30044.62	2011.39	1612.64	0.00	595931.00	3941425.00
73.22	136833.65	40265.98	3114.28	3449.25	0.00	617650.00	3951647.00
325.19	116460.91	30687.12	2049.34	1644.58	0.00	597277.00	3942068.00
287.04	117622.80	31247.41	2125.38	1816.32	0.00	598439.00	3942628.00
364.04	115475.18	30206.73	1963.95	1464.60	0.00	596291.00	3941588.00
278.64	117912.32	31382.81	2080.20	1671.19	0.00	598729.00	3942764.00
119.23	128391.18	36340.69	2678.49	2693.54	0.00	609207.00	3947721.00
75.24	136305.24	40017.85	3210.97	3585.95	0.00	617122.00	3951399.00
587.78	111936.05	28493.25	1795.69	998.17	0.00	592752.00	3939874.00
339.79	116069.53	30498.69	1943.61	1337.74	0.00	596886.00	3941879.00
531.36	112600.16	28816.81	1818.64	1073.53	0.00	593416.00	3940198.00
220.29	120365.12	32551.01	2215.94	1937.99	0.00	601181.00	3943932.00
400.17	114695.25	29836.85	1878.50	1186.12	0.00	595512.00	3941218.00

374.79	115231.35	30092.42	1977.03	1527.39	0.00	596048.00	3941473.00
212.60	120763.06	32729.27	2219.16	1946.06	0.00	601579.00	3944110.00
155.10	124636.07	34559.04	2319.74	2018.28	0.00	605452.00	3945940.00
343.60	115971.85	30450.40	2055.17	1717.12	0.00	596788.00	3941831.00
103.73	130592.68	37356.46	2847.06	2954.96	0.00	611409.00	3948737.00
125.57	127612.07	35953.47	2748.50	2911.58	0.00	608428.00	3947334.00
262.64	118500.92	31657.92	2131.43	1781.83	0.00	599317.00	3943039.00
263.29	118476.70	31646.63	2013.39	1443.40	0.00	599293.00	3943027.00
83.66	134314.52	39096.39	2824.50	2772.68	0.00	615131.00	3950477.00
261.41	118548.60	31683.39	2107.86	1729.66	0.00	599365.00	3943064.00
124.00	127798.40	36050.71	2528.05	2391.77	0.00	608615.00	3947431.00
108.42	129877.47	37008.58	2839.07	3063.37	0.00	610694.00	3948389.00
417.39	114362.53	29684.39	1918.89	1336.24	0.00	595179.00	3941065.00
226.38	120064.27	32411.22	2205.07	1945.82	0.00	600881.00	3943792.00
274.18	118071.87	31451.64	2095.63	1713.18	0.00	598888.00	3942832.00
109.85	129667.72	36922.67	2787.20	2937.37	0.00	610484.00	3948303.00
528.26	112639.04	28847.00	1922.67	1427.51	0.00	593455.00	3940228.00
235.27	119647.35	32204.50	2143.66	1769.60	0.00	600464.00	3943585.00
451.34	113763.20	29393.10	1888.45	1280.60	0.00	594579.00	3940774.00
280.43	117849.56	31344.14	2235.44	2150.01	0.00	598666.00	3942725.00
179.73	122748.95	33665.37	2312.01	2098.83	0.00	603565.00	3945046.00
47.70	146178.20	44660.38	3877.41	4287.54	0.00	626994.00	3956041.00
587.68	111938.05	28495.45	1849.41	1219.54	0.00	592754.00	3939876.00
141.05	125934.44	35172.49	2557.90	2532.53	0.00	606751.00	3946553.00
171.92	123304.93	33927.14	2459.95	2472.02	0.00	604121.00	3945308.00
194.11	121817.70	33235.26	2203.32	1816.63	0.00	602634.00	3944616.00
214.02	120688.27	32689.53	2306.98	2214.07	0.00	601505.00	3944070.00
437.24	114003.58	29514.48	1927.80	1385.56	0.00	594820.00	3940895.00
177.07	122933.91	33758.92	2466.32	2402.48	0.00	603750.00	3945140.00
259.38	118627.35	31716.72	2238.85	2097.24	0.00	599444.00	3943097.00
61.28	140473.58	41963.84	3353.23	3623.48	0.00	621290.00	3953345.00
57.27	141941.91	42669.18	3703.35	4295.31	0.00	622758.00	3954050.00
269.15	118254.29	31553.01	2175.79	1904.98	0.00	599071.00	3942934.00
131.71	126910.45	35628.22	2713.30	2791.34	0.00	607727.00	3947009.00
321.11	116574.35	30732.70	2055.53	1673.08	0.00	597391.00	3942113.00
233.33	119735.70	32246.77	2249.30	2033.66	0.00	600552.00	3943628.00
219.21	120419.49	32569.23	2159.49	1772.50	0.00	601236.00	3943950.00
120.26	128260.06	36255.10	2635.36	2658.78	0.00	609076.00	3947636.00
182.89	122534.01	33568.42	2360.78	2212.73	0.00	603350.00	3944949.00
293.59	117407.30	31140.95	2087.48	1729.79	0.00	598224.00	3942522.00
444.11	113884.78	29457.63	1965.45	1509.83	0.00	594701.00	3940838.00
276.88	117973.66	31399.32	2119.13	1810.24	0.00	598790.00	3942780.00
220.55	120351.57	32537.56	2232.65	1976.47	0.00	601168.00	3943918.00
402.56	114648.40	29816.80	1968.63	1483.81	0.00	595465.00	3941198.00
190.70	122028.02	33322.78	2284.80	2069.24	0.00	602844.00	3944704.00
524.87	112683.19	28859.49	1874.13	1282.83	0.00	593499.00	3940240.00
418.36	114344.14	29671.75	1883.09	1214.13	0.00	595160.00	3941053.00
391.69	114869.87	29930.77	1961.07	1452.98	0.00	595686.00	3941312.00
129.90	127112.08	35721.15	2574.92	2551.09	0.00	607928.00	3947102.00
349.68	115819.67	30377.64	1967.62	1436.39	0.00	596636.00	3941758.00
315.37	116739.34	30825.18	2073.30	1709.37	0.00	597556.00	3942206.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
78.43	73.29	21.15	14.61	25.35	9.32	480890.00	3911402.00
289.93	87.16	10.77	27.63	51.07	0.00	480903.00	3911392.00
292.67	78.13	10.91	26.67	49.39	0.00	480894.00	3911392.00
578.19	120.11	12.20	51.56	67.47	0.00	480936.00	3911393.00
82.18	62.05	18.08	14.97	16.57	0.00	480878.00	3911399.00
164.98	59.57	7.32	20.56	36.15	0.00	480876.00	3911388.00
387.98	47.13	-1.02	31.93	44.74	0.00	480863.00	3911380.00
367.98	64.26	-1.46	38.35	50.87	0.00	480881.00	3911379.00
49.26	132.81	53.91	12.79	14.97	0.00	480949.00	3911435.00
651.55	168.77	38.55	49.86	66.02	0.00	480985.00	3911419.00
280.11	143.48	37.78	29.83	40.68	0.00	480960.00	3911419.00
702.11	172.05	38.74	58.51	64.43	0.00	480988.00	3911420.00
400.57	164.29	38.66	32.45	64.18	0.00	480981.00	3911419.00
842.44	182.54	39.85	49.66	82.61	0.00	480999.00	3911421.00
74.50	71.01	24.68	14.69	16.04	0.00	480887.00	3911405.00
243.21	122.40	31.33	31.11	45.14	0.00	480939.00	3911412.00
323.76	124.60	31.52	25.58	51.96	0.00	480941.00	3911412.00
237.19	122.42	31.19	27.72	40.29	0.00	480939.00	3911412.00
266.70	114.36	31.04	28.24	41.29	0.00	480931.00	3911412.00
259.78	134.32	31.19	26.63	53.77	0.00	480951.00	3911412.00
183.88	110.69	31.22	27.77	27.33	0.00	480927.00	3911412.00
369.63	69.89	-1.20	39.72	54.52	0.00	480886.00	3911380.00
201.11	32.75	-1.46	20.90	31.28	0.00	480849.00	3911379.00
325.59	70.24	-1.59	37.07	50.68	0.00	480887.00	3911379.00
219.30	43.50	-1.27	27.23	29.92	0.00	480860.00	3911380.00
182.95	45.31	-1.81	22.26	42.43	0.00	480862.00	3911379.00
346.24	53.63	-1.30	30.20	47.56	0.00	480870.00	3911379.00
158.67	39.62	-1.75	20.63	33.39	0.00	480856.00	3911379.00
91.20	47.75	10.82	15.49	24.45	0.00	480864.00	3911392.00
218.27	57.82	7.81	25.20	33.53	0.00	480874.00	3911389.00
256.87	70.31	8.06	32.58	38.03	0.00	480887.00	3911389.00
271.11	82.79	7.97	31.37	41.34	0.00	480899.00	3911389.00
281.56	77.43	8.26	30.30	52.11	0.00	480894.00	3911389.00
404.98	75.62	8.48	42.17	43.04	0.00	480892.00	3911389.00
276.73	82.30	8.07	26.67	55.15	0.00	480899.00	3911389.00
254.39	78.39	7.82	28.84	52.89	0.00	480895.00	3911389.00
141.10	54.00	7.66	20.66	29.55	0.00	480870.00	3911388.00
61.14	101.83	38.49	13.26	14.58	0.00	480918.00	3911419.00
193.11	117.72	35.93	25.51	34.04	0.00	480934.00	3911417.00
113.64	110.61	35.54	17.54	29.33	0.00	480927.00	3911416.00
64.42	93.43	34.75	15.09	16.40	0.00	480910.00	3911416.00
724.18	147.24	21.58	51.33	87.54	0.00	480964.00	3911402.00
145.70	85.52	20.79	18.57	30.34	0.00	480902.00	3911402.00
248.99	70.67	6.85	29.91	49.08	0.00	480887.00	3911388.00
95.57	46.96	7.67	14.06	28.28	0.00	480863.00	3911388.00
157.78	56.62	12.53	21.52	20.00	0.00	480873.00	3911393.00
101.80	35.40	3.19	16.83	21.67	0.00	480852.00	3911384.00
185.08	67.19	10.63	25.21	32.97	0.00	480883.00	3911391.00
457.32	112.89	11.04	42.47	58.03	0.00	480929.00	3911392.00

616.98	120.64	11.44	48.88	68.71	0.00	480937.00	3911392.00
362.59	90.09	11.42	36.30	53.50	0.00	480906.00	3911392.00
71.21	79.51	27.80	13.60	18.56	0.00	480896.00	3911409.00
466.17	111.25	13.47	40.19	51.56	0.00	480928.00	3911394.00
112.89	60.96	12.69	18.03	30.36	0.00	480877.00	3911393.00
98.98	35.97	5.17	16.35	15.00	0.00	480852.00	3911386.00
214.82	77.93	11.45	27.93	38.62	0.00	480894.00	3911392.00
255.60	83.55	11.32	26.45	47.53	0.00	480900.00	3911392.00
293.23	86.11	11.61	33.93	56.08	0.00	480902.00	3911392.00
299.75	92.99	11.51	31.88	53.97	0.00	480909.00	3911392.00
578.64	113.33	11.87	44.01	65.12	0.00	480930.00	3911393.00
45.55	142.92	59.62	13.54	13.40	0.00	480959.00	3911440.00
151.02	157.33	53.17	21.93	35.56	0.00	480974.00	3911434.00
122.36	39.62	3.82	18.27	23.00	0.00	480856.00	3911385.00
663.85	85.62	-0.31	45.68	77.18	0.00	480902.00	3911380.00
79.80	66.23	20.09	15.36	14.69	0.00	480883.00	3911401.00
164.90	75.03	14.09	23.34	30.75	0.00	480891.00	3911395.00
516.21	62.08	-1.25	40.56	48.12	0.00	480878.00	3911380.00
79.27	69.06	20.42	14.24	23.33	0.00	480885.00	3911401.00
277.73	92.85	19.20	29.40	45.25	0.00	480909.00	3911400.00
128.39	72.08	18.59	18.93	26.50	0.00	480888.00	3911399.00
443.38	112.62	16.23	41.49	53.08	0.00	480929.00	3911397.00
373.87	101.75	15.79	28.33	51.37	0.00	480918.00	3911397.00
692.50	139.48	16.44	55.86	93.35	0.00	480956.00	3911397.00
349.75	93.51	15.86	35.59	47.43	0.00	480910.00	3911397.00
486.41	101.72	15.89	32.02	66.29	0.00	480918.00	3911397.00
321.70	93.13	16.16	31.81	53.54	0.00	480909.00	3911397.00
572.13	109.94	16.72	46.76	66.45	0.00	480926.00	3911398.00
163.83	70.28	15.20	20.88	26.92	0.00	480887.00	3911396.00
365.00	55.05	-1.02	26.01	52.07	0.00	480871.00	3911380.00
344.94	74.78	-0.24	36.45	54.35	0.00	480891.00	3911381.00
253.98	56.55	-0.85	29.56	47.03	0.00	480873.00	3911380.00
139.25	35.25	-1.32	16.86	33.07	0.00	480852.00	3911379.00
250.10	81.62	9.65	28.93	45.78	0.00	480898.00	3911390.00
284.86	82.89	10.30	30.60	50.22	0.00	480899.00	3911391.00
263.61	79.65	10.06	31.94	42.19	0.00	480896.00	3911391.00
77.86	63.93	21.70	13.00	15.77	0.00	480880.00	3911402.00
454.76	105.14	4.44	31.95	83.00	0.00	480921.00	3911385.00
326.09	86.42	4.22	38.57	57.18	0.00	480903.00	3911385.00
108.61	29.42	-1.15	14.84	28.97	0.00	480846.00	3911380.00
23.36	243.22	111.92	15.51	14.38	0.00	481060.00	3911493.00
221.33	268.41	98.94	26.82	49.80	0.00	481085.00	3911480.00
482.58	289.85	99.79	29.95	72.22	0.00	481106.00	3911481.00
169.16	252.47	98.61	23.66	35.94	0.00	481069.00	3911479.00
305.65	273.72	98.49	38.23	42.38	0.00	481090.00	3911479.00
439.95	282.96	99.47	42.21	59.98	0.00	481099.00	3911480.00
485.92	292.88	99.06	41.49	65.20	0.00	481109.00	3911480.00
459.92	294.28	99.30	39.28	67.88	0.00	481111.00	3911480.00
326.98	271.78	99.06	34.86	53.53	0.00	481088.00	3911480.00
341.08	281.72	98.91	36.83	56.50	0.00	481098.00	3911480.00
375.98	286.94	99.03	37.37	66.79	0.00	481103.00	3911480.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
666.24	32317.61	8530.94	814.75	611.83	<b>81.14</b>	513134.00	3919912.00
465.80	33313.08	9032.74	909.14	813.68	0.00	514129.00	3920414.00
25.70	54686.88	19094.49	2989.65	4598.67	0.00	535503.00	3930475.00
484.33	33193.95	8963.89	1001.41	1102.53	0.00	514010.00	3920345.00
141.78	38561.28	11545.04	1345.98	1598.68	0.00	519378.00	3922926.00
201.89	36644.38	10632.47	1147.91	1242.52	0.00	517461.00	3922013.00
234.80	35926.09	10294.90	1064.55	1148.81	0.00	516742.00	3921676.00
434.49	33530.94	9141.20	1012.67	1015.86	0.00	514347.00	3920522.00
409.46	33728.15	9235.74	822.26	574.64	0.00	514544.00	3920617.00
113.68	39950.89	12195.99	1538.66	1809.18	0.00	520767.00	3923577.00
646.84	32384.76	8560.61	860.00	755.57	0.00	513201.00	3919941.00
181.02	37196.21	10891.31	1177.26	1536.08	0.00	518012.00	3922272.00
437.73	33507.29	9121.07	1014.00	1155.68	0.00	514324.00	3920502.00
289.74	35009.83	9853.16	1168.54	1405.97	0.00	515826.00	3921234.00
457.47	33365.34	9051.81	953.52	952.96	0.00	514182.00	3920433.00
402.81	33782.51	9265.85	943.56	905.52	0.00	514599.00	3920647.00
283.18	35107.31	9904.24	1060.60	1134.07	0.00	515924.00	3921285.00
333.29	34460.90	9592.93	1004.99	1007.03	0.00	515277.00	3920974.00
303.24	34833.93	9767.75	995.39	1062.30	0.00	515650.00	3921149.00
413.59	33696.56	9218.52	963.10	1018.74	0.00	514513.00	3920599.00
751.50	32035.72	8385.24	888.75	818.29	0.00	512852.00	3919766.00
68.27	43827.23	14005.70	1758.96	2597.40	0.00	524644.00	3925386.00
422.60	33627.17	9185.06	960.48	954.13	0.00	514443.00	3920566.00
58.58	45197.40	14653.66	2019.81	2635.97	0.00	526014.00	3926034.00
285.21	35079.93	9888.94	1184.84	1447.97	0.00	515896.00	3921270.00
400.72	33800.37	9268.99	999.15	1043.83	0.00	514617.00	3920650.00
286.24	35064.40	9879.49	1001.49	1041.65	0.00	515881.00	3921260.00
229.63	36023.93	10344.38	1107.50	1160.98	0.00	516840.00	3921725.00
289.45	35018.94	9863.58	1096.35	1124.35	0.00	515835.00	3921244.00
332.92	34472.86	9593.20	1073.10	1238.40	0.00	515289.00	3920974.00
69.76	43640.45	13934.47	2112.86	2820.96	0.00	524457.00	3925315.00
301.42	34854.91	9784.48	985.14	1050.00	0.00	515671.00	3921165.00
372.18	34058.05	9397.19	1042.95	1075.54	0.00	514874.00	3920778.00
452.47	33402.99	9072.47	929.85	891.65	0.00	514219.00	3920453.00
287.68	35041.23	9876.23	1167.66	1357.81	0.00	515858.00	3921257.00
182.52	37155.72	10878.08	1174.26	1286.50	0.00	517972.00	3922259.00
356.66	34211.22	9472.29	982.76	970.21	0.00	515027.00	3920853.00
352.10	34256.60	9491.83	934.37	918.66	0.00	515073.00	3920873.00
326.03	34547.36	9632.61	1002.71	1063.01	0.00	515364.00	3921013.00
269.28	35321.72	10003.23	1176.90	1376.03	0.00	516138.00	3921384.00
61.46	44755.22	14446.16	2070.44	2692.46	0.00	525572.00	3925827.00
707.49	32171.03	8454.13	891.99	838.85	0.00	512987.00	3919835.00
30.21	52505.87	18034.24	2232.20	4252.54	0.00	533322.00	3929415.00
195.43	36805.03	10708.70	1229.15	1509.33	0.00	517621.00	3922089.00
122.14	39483.55	11985.24	1574.68	1888.48	0.00	520300.00	3923366.00
73.16	43240.06	13745.22	1862.58	2517.95	0.00	524056.00	3925126.00
62.92	44546.56	14339.87	1743.17	2315.85	0.00	525363.00	3925721.00
76.54	42869.57	13553.24	1914.91	2526.55	0.00	523686.00	3924934.00
193.71	36850.00	10736.18	1424.43	1816.34	0.00	517666.00	3922117.00

232.75	35965.36	10315.40	1135.87	1367.64	0.00	516782.00	3921696.00
53.90	45988.70	15044.01	2684.03	3081.40	0.00	526805.00	3926425.00
130.28	39076.96	11784.18	1789.04	2065.57	0.00	519893.00	3923165.00
228.61	36046.39	10348.91	1110.61	1276.40	0.00	516863.00	3921730.00
168.25	37590.90	11087.73	1420.25	1867.23	0.00	518407.00	3922469.00
156.31	37992.83	11273.00	1327.77	1693.82	0.00	518809.00	3922654.00
316.84	34656.08	9689.02	1160.84	1306.84	0.00	515472.00	3921070.00
493.93	33130.80	8944.43	916.73	821.65	0.00	513947.00	3920325.00
448.11	33433.61	9086.08	884.46	803.13	0.00	514250.00	3920467.00
217.94	36273.26	10456.52	1138.40	1248.04	0.00	517090.00	3921837.00
86.90	41869.36	13080.10	1358.17	2256.64	0.00	522686.00	3924461.00
180.17	37225.75	10911.70	1093.47	1142.88	0.00	518042.00	3922292.00
264.03	35402.46	10047.95	1085.51	1142.39	0.00	516219.00	3921429.00
212.68	36389.24	10515.54	1257.15	1432.30	0.00	517206.00	3921896.00
459.58	33351.71	9054.01	872.91	734.50	0.00	514168.00	3920435.00
414.12	33689.26	9217.12	950.29	908.26	0.00	514506.00	3920598.00
45.28	47756.99	15848.58	2223.72	2850.59	0.00	528573.00	3927229.00
201.93	36640.88	10627.99	1057.52	1182.46	0.00	517457.00	3922009.00
91.04	41518.54	12933.78	1546.85	1863.47	0.00	522335.00	3924315.00
229.55	36028.26	10344.26	1248.76	1540.67	0.00	516845.00	3921725.00
290.10	35008.21	9865.10	1080.74	1180.16	0.00	515824.00	3921246.00
909.14	31628.68	8167.41	800.32	528.43	0.00	512445.00	3919548.00
161.82	37798.73	11178.95	1178.20	1388.40	0.00	518615.00	3922560.00
45.81	47632.96	15804.88	2625.92	3635.86	0.00	528449.00	3927186.00
390.37	33889.77	9314.68	978.11	1008.26	0.00	514706.00	3920695.00
336.46	34428.07	9573.80	1022.82	1108.44	0.00	515244.00	3920955.00
223.51	36154.63	10395.78	1126.34	1279.54	0.00	516971.00	3921777.00
109.36	40213.75	12318.43	1497.17	1886.25	0.00	521030.00	3923699.00
54.13	45948.95	15008.69	1857.31	2585.80	0.00	526765.00	3926389.00
122.05	39487.73	11974.20	1497.93	1935.22	0.00	520304.00	3923355.00
420.61	33638.69	9198.86	941.64	881.63	0.00	514455.00	3920580.00
224.90	36123.63	10387.57	1151.91	1300.41	0.00	516940.00	3921768.00
390.35	33888.36	9308.43	996.79	1165.12	0.00	514705.00	3920689.00
222.46	36177.26	10414.27	1149.46	1331.79	0.00	516994.00	3921795.00
458.87	33357.54	9050.57	932.65	950.33	0.00	514174.00	3920431.00
581.41	32667.53	8707.97	913.51	881.33	0.00	513484.00	3920089.00
162.08	37791.34	11185.64	1447.87	1701.54	0.00	518608.00	3922566.00
528.19	32932.29	8833.67	833.38	680.17	0.00	513749.00	3920214.00
287.17	35050.06	9873.71	980.30	980.51	0.00	515866.00	3921254.00
91.74	41460.21	12914.75	1608.22	1806.08	0.00	522276.00	3924296.00
57.55	45365.63	14736.38	2161.19	2890.89	0.00	526182.00	3926117.00
143.66	38484.85	11504.01	1502.74	1817.36	0.00	519301.00	3922885.00
290.92	34995.69	9848.04	995.97	1057.97	0.00	515812.00	3921229.00
284.53	35086.28	9895.57	1084.65	1207.89	0.00	515903.00	3921276.00
275.82	35215.22	9952.11	1125.13	1302.88	0.00	516031.00	3921333.00
429.89	33566.79	9149.00	952.83	1004.46	0.00	514383.00	3920530.00
445.09	33455.22	9096.70	990.54	1042.80	0.00	514272.00	3920477.00
319.37	34626.47	9669.98	1089.33	1316.66	0.00	515443.00	3921051.00
193.53	36850.47	10740.09	1212.07	1287.27	0.00	517667.00	3922121.00
88.03	41769.61	13051.50	1825.63	2262.38	0.00	522586.00	3924432.00
60.23	44939.96	14541.53	1922.19	2350.60	0.00	525756.00	3925922.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
422.68	95087.54	24856.57	1699.98	1184.51	<b>116.66</b>	575904.00	3936237.00
217.28	100627.59	27503.08	1895.76	1533.62	0.00	581444.00	3938884.00
688.26	92195.08	23435.98	1586.25	880.31	0.00	573011.00	3934817.00
445.81	94726.85	24687.86	1671.78	1085.80	0.00	575543.00	3936069.00
304.52	97565.44	26051.06	1910.33	1728.26	0.00	578382.00	3937432.00
260.30	98919.51	26689.01	1872.42	1552.86	0.00	579736.00	3938070.00
385.26	95741.34	25176.59	1761.22	1354.42	0.00	576558.00	3936557.00
302.61	97617.26	26084.40	1775.83	1291.67	0.00	578434.00	3937465.00
512.49	93834.65	24256.49	1754.70	1400.28	0.00	574651.00	3935637.00
245.22	99466.02	26960.39	1831.25	1372.22	0.00	580282.00	3938341.00
320.93	97137.10	25853.02	1774.16	1304.55	0.00	577953.00	3937234.00
339.77	96685.91	25631.76	1764.90	1296.34	0.00	577502.00	3937013.00
380.30	95835.64	25227.63	1793.93	1416.27	0.00	576652.00	3936608.00
115.55	108033.27	30990.89	2314.09	2266.67	0.00	588850.00	3942372.00
259.80	98936.16	26708.72	1869.54	1518.17	0.00	579752.00	3938090.00
465.59	94441.53	24541.60	1670.40	1132.00	0.00	575258.00	3935922.00
260.92	98898.35	26681.24	1797.37	1324.59	0.00	579715.00	3938062.00
135.99	105884.55	29983.82	2283.74	2268.49	0.00	586701.00	3941365.00
329.41	96929.85	25743.12	1800.59	1440.13	0.00	577746.00	3937124.00
469.48	94386.96	24516.85	1686.18	1178.05	0.00	575203.00	3935898.00
193.54	101809.94	28072.49	1954.88	1602.46	0.00	582626.00	3939453.00
231.03	100027.15	27233.35	2017.75	1868.30	0.00	580843.00	3938614.00
337.87	96729.04	25653.30	1818.95	1488.42	0.00	577545.00	3937034.00
399.48	95481.30	25047.17	1764.04	1372.41	0.00	576298.00	3936428.00
359.07	96263.39	25425.92	1842.34	1550.21	0.00	577080.00	3936807.00
436.57	94866.58	24752.97	1674.91	1105.83	0.00	575683.00	3936134.00
104.99	109383.29	31628.78	2563.86	2854.49	0.00	590200.00	3943010.00
297.31	97764.13	26149.38	1814.80	1432.79	0.00	578580.00	3937530.00
557.65	93330.00	24000.39	1640.49	1049.44	0.00	574146.00	3935381.00
533.89	93587.06	24127.71	1681.63	1180.23	0.00	574403.00	3935508.00
191.12	101942.69	28135.20	2072.01	1942.90	0.00	582759.00	3939516.00
392.48	95608.43	25104.86	1790.81	1487.96	0.00	576425.00	3936486.00
202.39	101344.67	27840.85	2063.74	1961.49	0.00	582161.00	3939222.00
151.49	104556.02	29368.77	2256.29	2197.25	0.00	585372.00	3940750.00
266.08	98723.12	26603.53	1892.26	1603.66	0.00	579539.00	3937984.00
491.89	94088.93	24377.73	1670.07	1114.72	0.00	574905.00	3935759.00
213.19	100816.25	27603.26	2125.51	2042.54	0.00	581633.00	3938984.00
121.05	107402.04	30693.30	2399.17	2479.83	0.00	588218.00	3942074.00
287.33	98053.17	26288.30	1809.45	1388.26	0.00	578869.00	3937669.00
482.46	94214.04	24435.95	1683.26	1157.05	0.00	575030.00	3935817.00
56.82	119776.99	36490.36	2851.58	2933.77	0.00	600593.00	3947871.00
315.11	97285.97	25916.58	1880.07	1646.32	0.00	578102.00	3937297.00
194.46	101759.67	28040.31	2170.82	2218.99	0.00	582576.00	3939421.00
113.71	108254.06	31085.81	2392.09	2499.89	0.00	589070.00	3942467.00
203.44	101290.12	27815.76	2056.81	1949.73	0.00	582106.00	3939197.00
475.16	94310.39	24484.62	1720.05	1281.40	0.00	575127.00	3935865.00
259.94	98932.21	26700.63	1940.94	1740.95	0.00	579748.00	3938081.00
205.29	101197.85	27781.68	1921.60	1554.01	0.00	582014.00	3939162.00
265.78	98732.59	26603.49	1924.87	1719.67	0.00	579549.00	3937984.00

534.03	93584.42	24128.55	1646.47	1054.90	0.00	574401.00	3935509.00
249.84	99293.06	26866.87	1884.54	1567.50	0.00	580109.00	3938248.00
95.38	110803.32	32288.75	2478.38	2531.68	0.00	591620.00	3943670.00
254.80	99112.69	26787.06	1933.35	1696.21	0.00	579929.00	3938168.00
520.22	93742.61	24205.18	1659.67	1105.44	0.00	574559.00	3935586.00
534.05	93586.08	24127.49	1637.45	1017.44	0.00	574402.00	3935508.00
368.40	96070.39	25339.25	1786.45	1386.21	0.00	576887.00	3936720.00
107.64	109026.18	31451.81	2447.64	2586.20	0.00	589842.00	3942833.00
226.08	100238.18	27321.61	1998.22	1828.53	0.00	581054.00	3938702.00
167.77	103371.84	28795.04	2208.87	2240.13	0.00	584188.00	3940176.00
518.41	93764.45	24215.63	1655.76	1086.12	0.00	574581.00	3935596.00
316.88	97239.14	25900.67	1842.77	1519.87	0.00	578055.00	3937281.00
150.82	104609.93	29379.65	2300.51	2396.15	0.00	585426.00	3940760.00
368.44	96069.19	25332.97	1822.47	1524.16	0.00	576885.00	3936714.00
585.31	93049.96	23860.60	1663.52	1150.57	0.00	573866.00	3935241.00
141.67	105371.80	29749.38	2113.10	1845.51	0.00	586188.00	3941130.00
156.34	104182.48	29182.47	2087.68	1881.00	0.00	584999.00	3940563.00
250.22	99280.04	26868.79	1834.06	1388.30	0.00	580096.00	3938250.00
247.70	99372.61	26915.56	1911.56	1620.95	0.00	580189.00	3938296.00
582.60	93079.90	23876.08	1659.29	1135.68	0.00	573896.00	3935257.00
577.21	93131.26	23896.96	1623.06	1000.84	0.00	573948.00	3935278.00
601.02	92904.96	23786.55	1653.07	1120.25	0.00	573721.00	3935167.00
264.44	98777.89	26633.54	1945.98	1719.05	0.00	579594.00	3938014.00
83.42	112903.92	33273.84	2605.03	2700.17	0.00	593720.00	3944655.00
194.91	101735.29	28036.49	2136.17	2049.00	0.00	582552.00	3939417.00
235.51	99844.27	27134.74	1936.30	1670.76	0.00	580661.00	3938516.00
342.56	96623.16	25595.15	1728.09	1200.95	0.00	577439.00	3936976.00
305.61	97536.71	26037.04	1838.32	1534.82	0.00	578353.00	3937418.00
311.95	97367.16	25956.95	1737.85	1189.04	0.00	578183.00	3937338.00
345.78	96550.89	25563.24	1750.04	1270.24	0.00	577367.00	3936944.00
216.06	100682.14	27530.76	1936.63	1626.63	0.00	581498.00	3938912.00
476.10	94297.28	24467.75	1702.32	1234.30	0.00	575114.00	3935849.00
496.12	94035.25	24346.94	1738.62	1362.13	0.00	574852.00	3935728.00
333.49	96831.55	25699.35	1798.71	1418.06	0.00	577648.00	3937080.00
251.47	99231.87	26859.98	1897.32	1551.20	0.00	580048.00	3938241.00
94.69	110913.01	32344.37	2500.75	2612.68	0.00	591729.00	3943725.00
443.24	94765.92	24705.88	1692.65	1184.95	0.00	575582.00	3936087.00
403.86	95404.83	25015.27	1746.13	1325.67	0.00	576221.00	3936396.00
632.99	92622.15	23646.11	1650.34	1112.32	0.00	573438.00	3935027.00
155.61	104237.01	29219.23	2258.32	2339.74	0.00	585053.00	3940600.00
204.90	101217.13	27782.18	2012.54	1836.41	0.00	582033.00	3939163.00
412.94	95250.19	24940.29	1748.97	1335.33	0.00	576066.00	3936321.00
259.72	98939.88	26708.96	1870.38	1522.33	0.00	579756.00	3938090.00
479.72	94247.03	24451.70	1719.13	1281.52	0.00	575063.00	3935832.00
317.12	97232.62	25895.74	1848.93	1523.23	0.00	578049.00	3937277.00
475.73	94301.07	24478.11	1662.88	1086.69	0.00	575117.00	3935859.00
93.18	111159.10	32478.67	2634.28	2744.87	0.00	591975.00	3943859.00
476.40	94291.52	24468.54	1685.16	1175.20	0.00	575108.00	3935849.00
340.20	96677.13	25631.39	1828.57	1489.62	0.00	577493.00	3937012.00
148.87	104765.69	29463.59	2143.56	1962.43	0.00	585582.00	3940844.00
113.02	108339.33	31147.77	2289.31	2088.89	0.00	589156.00	3942529.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
263.12	917.43	279.17	121.08	246.55	<b>21.00</b>	481734.00	3911660.00
336.90	828.95	238.90	117.21	204.08	0.00	481645.00	3911620.00
362.54	785.74	225.39	84.55	210.69	0.00	481602.00	3911606.00
270.91	887.34	274.76	79.82	157.66	0.00	481704.00	3911656.00
361.60	800.86	226.90	132.63	208.84	0.00	481617.00	3911608.00
346.85	817.16	233.53	124.07	213.84	0.00	481633.00	3911614.00
485.14	705.29	177.50	103.14	236.44	0.00	481522.00	3911558.00
130.45	1190.05	416.45	132.19	206.69	0.00	482006.00	3911797.00
374.63	793.94	220.43	115.04	205.16	0.00	481610.00	3911601.00
417.07	745.42	203.05	112.71	217.30	0.00	481562.00	3911584.00
1451.83	832.24	210.64	123.79	220.81	0.00	481649.00	3911591.00
174.33	1065.68	358.39	108.34	212.31	0.00	481882.00	3911739.00
532.16	691.16	161.64	117.75	260.05	0.00	481507.00	3911542.00
393.15	769.58	211.77	111.71	242.01	0.00	481586.00	3911593.00
280.22	889.85	269.69	127.04	234.17	0.00	481706.00	3911650.00
246.83	936.93	292.36	101.50	210.71	0.00	481753.00	3911673.00
67.53	1527.45	577.79	117.03	190.73	0.00	482344.00	3911959.00
250.96	934.79	287.61	107.30	230.85	0.00	481751.00	3911668.00
527.35	694.67	163.95	107.21	239.63	0.00	481511.00	3911545.00
307.90	871.37	252.61	104.57	232.56	0.00	481688.00	3911633.00
418.79	757.90	200.86	110.69	232.65	0.00	481574.00	3911582.00
165.18	1088.40	365.14	103.50	193.38	0.00	481905.00	3911746.00
315.00	837.67	249.30	107.71	233.04	0.00	481654.00	3911630.00
411.12	760.20	204.10	97.98	223.04	0.00	481576.00	3911585.00
346.78	812.47	232.51	119.63	222.55	0.00	481629.00	3911613.00
542.62	668.66	157.09	103.81	224.18	0.00	481485.00	3911538.00
354.94	814.03	228.02	112.70	225.24	0.00	481630.00	3911609.00
417.59	746.49	201.26	104.41	213.09	0.00	481563.00	3911582.00
536.57	676.19	160.19	109.21	221.46	0.00	481492.00	3911541.00
292.59	868.49	260.84	113.86	211.27	0.00	481685.00	3911642.00
66.79	1533.79	582.62	121.16	214.53	0.00	482350.00	3911963.00
237.67	951.61	298.13	93.71	218.33	0.00	481768.00	3911679.00
416.46	768.12	200.27	95.44	215.20	0.00	481584.00	3911581.00
372.99	789.45	219.51	114.01	218.57	0.00	481606.00	3911600.00
332.28	832.68	239.19	106.89	238.71	0.00	481649.00	3911620.00
266.69	902.02	279.18	117.97	189.73	0.00	481718.00	3911660.00
296.14	880.57	257.89	101.38	220.79	0.00	481697.00	3911639.00
41.83	1839.79	726.84	118.62	211.52	0.00	482656.00	3912108.00
360.19	820.14	224.15	121.30	217.92	0.00	481636.00	3911605.00
315.75	852.92	248.78	106.45	205.80	0.00	481669.00	3911630.00
55.95	1640.08	633.15	122.77	214.59	0.00	482456.00	3912014.00
419.84	760.67	202.28	132.72	245.17	0.00	481577.00	3911583.00
234.26	952.24	302.79	113.88	175.29	0.00	481769.00	3911684.00
216.03	983.26	316.90	107.15	201.17	0.00	481800.00	3911698.00
43.56	1809.68	715.07	119.21	202.23	0.00	482626.00	3912096.00
183.03	1050.64	347.15	104.79	205.51	0.00	481867.00	3911728.00
284.63	890.89	264.77	99.15	193.94	0.00	481707.00	3911646.00
125.23	1206.42	424.29	115.80	225.45	0.00	482023.00	3911805.00
330.79	834.30	240.51	104.52	231.55	0.00	481651.00	3911621.00

206.68	1002.31	326.21	117.45	170.65	0.00	481819.00	3911707.00
366.47	793.75	223.01	103.33	240.08	0.00	481610.00	3911604.00
243.20	952.02	294.80	114.33	218.59	0.00	481768.00	3911676.00
325.16	840.17	244.12	122.00	199.26	0.00	481656.00	3911625.00
281.94	879.37	267.93	106.23	199.49	0.00	481696.00	3911649.00
10.43	3268.44	1400.57	183.10	238.53	0.00	484085.00	3912781.00
128.55	1190.12	419.06	114.34	212.27	0.00	482006.00	3911800.00
294.90	868.19	261.16	120.89	229.44	0.00	481684.00	3911642.00
191.42	1029.61	339.27	109.59	229.41	0.00	481846.00	3911720.00
363.32	815.95	223.38	101.89	210.31	0.00	481632.00	3911604.00
247.01	941.71	290.93	122.27	217.56	0.00	481758.00	3911672.00
36.43	1940.43	777.40	134.77	199.86	0.00	482757.00	3912158.00
284.16	882.79	266.97	112.30	188.71	0.00	481699.00	3911648.00
242.16	946.37	294.89	105.97	220.53	0.00	481763.00	3911676.00
380.19	775.74	218.25	104.90	191.33	0.00	481592.00	3911599.00
325.47	828.59	243.64	110.50	224.82	0.00	481645.00	3911624.00
226.48	969.40	307.68	88.46	192.33	0.00	481786.00	3911688.00
566.52	658.58	152.98	112.50	241.35	0.00	481475.00	3911534.00
664.46	635.37	130.95	101.35	240.73	0.00	481452.00	3911512.00
180.49	1049.81	349.20	102.76	223.25	0.00	481866.00	3911730.00
218.11	979.29	313.20	112.09	221.76	0.00	481796.00	3911694.00
376.94	786.49	218.88	118.23	247.16	0.00	481603.00	3911600.00
399.43	781.69	209.84	112.87	230.50	0.00	481598.00	3911591.00
282.00	886.98	268.06	100.64	219.23	0.00	481703.00	3911649.00
417.33	754.85	203.08	99.55	203.78	0.00	481571.00	3911584.00
376.76	790.20	217.30	94.15	259.07	0.00	481606.00	3911598.00
65.39	1543.04	588.32	116.26	199.62	0.00	482359.00	3911969.00
170.93	1071.68	361.89	108.59	220.42	0.00	481888.00	3911743.00
426.98	730.79	198.64	111.85	206.58	0.00	481547.00	3911579.00
224.92	970.79	307.63	99.44	197.45	0.00	481787.00	3911688.00
433.21	753.31	195.24	114.65	209.62	0.00	481570.00	3911576.00
159.43	1105.66	372.12	95.70	213.03	0.00	481922.00	3911753.00
119.89	1228.91	435.25	111.10	202.55	0.00	482045.00	3911816.00
277.07	890.53	271.50	100.38	207.42	0.00	481707.00	3911652.00
466.24	710.27	184.93	110.09	215.28	0.00	481527.00	3911566.00
482.23	698.39	178.49	117.25	199.48	0.00	481515.00	3911559.00
324.03	833.75	243.62	117.60	240.46	0.00	481650.00	3911624.00
599.55	627.99	143.56	109.40	215.52	0.00	481444.00	3911524.00
165.66	1090.01	366.14	109.89	233.77	0.00	481906.00	3911747.00
2112.97	1179.84	381.41	119.85	241.80	0.00	481996.00	3911762.00
196.37	1020.84	334.60	109.88	219.01	0.00	481837.00	3911715.00
230.11	956.58	303.31	75.47	204.30	0.00	481773.00	3911684.00
69.04	1513.10	572.04	111.64	200.96	0.00	482329.00	3911953.00
221.65	968.70	311.88	116.17	185.86	0.00	481785.00	3911693.00
57.74	1619.49	622.72	104.72	202.27	0.00	482436.00	3912004.00
299.99	865.64	259.04	109.09	229.57	0.00	481682.00	3911640.00
84.16	1397.22	519.39	111.01	230.34	0.00	482213.00	3911900.00
287.46	875.22	265.57	116.45	205.73	0.00	481691.00	3911646.00
127.17	1200.49	420.78	92.30	200.23	0.00	482017.00	3911802.00
465.71	733.43	183.86	107.14	213.52	0.00	481550.00	3911565.00
267.41	902.01	277.28	115.27	230.12	0.00	481718.00	3911658.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
331.53	7435.34	2163.91	851.24	1163.54	<b>43.07</b>	488252.00	3913545.00
264.07	7708.54	2285.89	869.58	1554.40	0.00	488525.00	3913667.00
310.63	7507.98	2194.30	710.87	1301.13	0.00	488324.00	3913575.00
346.21	7385.89	2134.46	862.76	1237.32	0.00	488202.00	3913515.00
283.24	7628.80	2253.75	766.90	910.71	0.00	488445.00	3913635.00
228.36	7905.76	2393.20	750.06	1418.56	0.00	488722.00	3913774.00
194.42	8136.93	2484.12	720.10	1651.91	0.00	488953.00	3913865.00
301.19	7548.71	2210.12	854.51	1387.55	0.00	488365.00	3913591.00
313.27	7496.69	2185.41	669.44	1421.83	0.00	488313.00	3913566.00
54.29	10800.71	3743.60	877.64	1716.89	0.00	491617.00	3915124.00
429.86	7146.11	2005.87	693.65	1608.53	0.00	487962.00	3913387.00
240.98	7837.47	2353.98	751.82	1306.71	0.00	488654.00	3913735.00
195.25	8136.45	2496.79	863.93	1575.06	0.00	488953.00	3913878.00
139.43	8679.37	2748.69	568.05	1324.31	0.00	489496.00	3914129.00
15.66	15614.11	5986.49	1128.43	2089.02	0.00	496430.00	3917367.00
467.92	7067.99	1978.13	621.54	1055.08	0.00	487884.00	3913359.00
382.36	7269.06	2087.61	864.04	1166.77	0.00	488085.00	3913468.00
237.18	7865.82	2364.93	754.84	1210.42	0.00	488682.00	3913746.00
289.16	7601.51	2243.20	849.42	894.26	0.00	488418.00	3913624.00
457.14	7088.54	1994.97	638.89	1019.53	0.00	487905.00	3913376.00
392.02	7252.75	2063.00	434.26	984.77	0.00	488069.00	3913444.00
79.10	9834.42	3280.27	851.25	1904.02	0.00	490651.00	3914661.00
383.38	7267.86	2078.10	823.82	1461.72	0.00	488084.00	3913459.00
375.46	7296.54	2082.10	743.59	1508.13	0.00	488113.00	3913463.00
252.51	7764.14	2322.37	932.59	1690.75	0.00	488580.00	3913703.00
635.36	6793.22	1843.46	704.04	1050.33	0.00	487610.00	3913224.00
321.53	7469.98	2175.47	618.91	978.84	0.00	488286.00	3913556.00
472.30	7062.52	1974.46	672.54	1158.76	0.00	487879.00	3913355.00
361.02	7334.31	2118.11	719.97	841.93	0.00	488151.00	3913499.00
163.26	8406.21	2622.76	898.79	1781.88	0.00	489222.00	3914004.00
393.09	7248.82	2063.00	813.19	1261.75	0.00	488065.00	3913444.00
246.13	7807.53	2343.41	676.03	1009.45	0.00	488624.00	3913724.00
225.96	7926.83	2392.04	641.48	1403.72	0.00	488743.00	3913773.00
82.54	9737.21	3246.06	822.37	1607.29	0.00	490553.00	3914627.00
620.44	6825.67	1855.17	447.15	514.59	0.00	487642.00	3913236.00
79.39	9828.15	3275.38	784.14	1745.96	0.00	490644.00	3914656.00
91.27	9516.95	3143.08	838.43	1657.82	0.00	490333.00	3914524.00
244.98	7803.00	2345.22	1149.06	1669.28	0.00	488619.00	3913726.00
333.10	7425.30	2154.67	722.17	1179.37	0.00	488242.00	3913535.00
509.76	6982.33	1942.37	854.60	1217.05	0.00	487799.00	3913323.00
220.56	7958.54	2404.68	678.31	1359.39	0.00	488775.00	3913785.00
402.21	7221.67	2057.56	616.02	1005.69	0.00	488038.00	3913438.00
231.50	7890.72	2379.38	809.82	1376.00	0.00	488707.00	3913760.00
326.02	7461.07	2167.74	499.91	719.37	0.00	488277.00	3913549.00
434.36	7146.53	2019.42	743.87	1090.72	0.00	487963.00	3913400.00
182.17	8240.63	2547.94	743.05	1380.57	0.00	489057.00	3913929.00
47.90	11162.53	3898.81	1008.74	2114.56	0.00	491979.00	3915280.00
160.02	8441.98	2627.77	672.06	1525.18	0.00	489258.00	3914009.00
608.11	6832.18	1857.09	521.73	821.93	0.00	487648.00	3913238.00

250.68	7781.81	2320.65	932.64	1894.96	0.00	488598.00	3913701.00
120.11	8952.53	2886.65	801.12	1478.11	0.00	489769.00	3914267.00
61.57	10454.85	3584.58	955.17	1676.58	0.00	491271.00	3914965.00
170.94	8341.67	2576.75	892.22	1923.72	0.00	489158.00	3913958.00
449.43	7094.57	1990.70	757.57	1520.40	0.00	487911.00	3913371.00
111.40	9096.69	2941.05	806.09	1542.87	0.00	489913.00	3914322.00
331.28	7428.78	2164.60	619.68	977.20	0.00	488245.00	3913545.00
94.09	9446.33	3105.62	628.02	1508.63	0.00	490263.00	3914486.00
190.67	8170.37	2507.56	624.52	1314.57	0.00	488987.00	3913888.00
980.70	6488.83	1679.10	490.58	698.72	0.00	487305.00	3913060.00
102.20	9272.47	3019.80	965.69	1613.65	0.00	490089.00	3914401.00
168.05	8364.01	2595.56	911.48	1762.08	0.00	489180.00	3913976.00
249.09	7789.96	2331.24	772.56	1138.18	0.00	488606.00	3913712.00
254.21	7770.86	2318.99	777.36	1176.00	0.00	488587.00	3913700.00
457.92	7100.37	1987.99	676.62	1223.30	0.00	487917.00	3913369.00
299.16	7555.01	2215.12	634.28	1410.90	0.00	488371.00	3913596.00
345.63	7383.84	2138.29	733.25	1079.38	0.00	488200.00	3913519.00
89.14	9565.87	3150.21	920.03	1792.27	0.00	490382.00	3914531.00
176.30	8299.42	2564.68	717.95	1583.52	0.00	489116.00	3913945.00
234.13	7872.12	2374.64	872.37	1058.39	0.00	488688.00	3913755.00
130.28	8797.60	2795.02	840.05	2124.80	0.00	489614.00	3914176.00
243.82	7820.57	2336.99	746.42	1259.66	0.00	488637.00	3913718.00
198.26	8115.67	2469.86	489.22	1416.40	0.00	488932.00	3913851.00
135.79	8724.00	2777.82	805.85	1484.38	0.00	489540.00	3914159.00
394.77	7243.67	2060.84	679.47	1195.54	0.00	488060.00	3913442.00
58.69	10584.75	3632.70	929.26	1943.28	0.00	491401.00	3915013.00
78.88	9845.61	3286.19	808.51	1832.89	0.00	490662.00	3914667.00
111.73	9095.09	2946.27	800.95	1269.13	0.00	489911.00	3914327.00
461.83	7075.16	1986.82	546.93	1038.93	0.00	487891.00	3913368.00
316.27	7495.31	2192.38	858.91	1045.98	0.00	488312.00	3913573.00
405.92	7214.54	2050.30	638.80	867.83	0.00	488031.00	3913431.00
499.97	7004.90	1940.57	534.88	1029.47	0.00	487821.00	3913321.00
599.29	6839.78	1868.42	774.77	1025.93	0.00	487656.00	3913249.00
407.84	7200.45	2056.80	910.33	961.42	0.00	488017.00	3913438.00
376.82	7295.04	2088.56	552.59	995.85	0.00	488111.00	3913469.00
379.76	7273.55	2080.14	478.98	1000.93	0.00	488090.00	3913461.00
312.52	7503.00	2192.49	755.82	1213.69	0.00	488319.00	3913573.00
177.71	8270.76	2560.50	1056.44	1775.14	0.00	489087.00	3913941.00
55.67	10730.89	3702.96	1068.15	2001.09	0.00	491547.00	3915084.00
341.57	7401.60	2147.42	715.76	999.87	0.00	488218.00	3913528.00
187.11	8206.87	2528.90	907.02	1483.42	0.00	489023.00	3913910.00
82.51	9737.37	3251.39	982.34	1740.01	0.00	490554.00	3914632.00
497.37	7015.96	1944.41	705.14	1068.34	0.00	487832.00	3913325.00
198.82	8111.11	2483.74	799.50	1170.18	0.00	488927.00	3913865.00
396.84	7244.33	2055.27	413.94	974.08	0.00	488061.00	3913436.00
736.93	6694.39	1783.41	449.61	715.50	0.00	487511.00	3913164.00
129.73	8811.95	2814.45	842.64	1361.31	0.00	489628.00	3914195.00
94.43	9437.43	3110.25	799.77	1567.06	0.00	490254.00	3914491.00
250.11	7784.01	2323.50	553.77	1164.42	0.00	488600.00	3913704.00
457.50	7097.94	1992.04	471.15	669.23	0.00	487914.00	3913373.00
486.91	7029.63	1963.81	864.65	962.59	0.00	487846.00	3913345.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
492.25	18065.88	4955.00	728.47	892.99	63.81	498882.00	3916336.00
240.11	19745.03	5769.57	877.23	1241.93	0.00	500561.00	3917150.00
389.26	18540.81	5189.18	726.24	862.34	0.00	499357.00	3916570.00
250.73	19620.28	5717.88	1127.77	1441.36	0.00	500437.00	3917099.00
333.61	18896.56	5363.98	830.37	1048.90	0.00	499713.00	3916745.00
246.88	19667.66	5729.65	1058.15	1340.72	0.00	500484.00	3917110.00
525.48	17954.52	4897.88	647.67	723.53	0.00	498771.00	3916279.00
111.66	22381.75	7019.81	1588.55	2010.75	0.00	503198.00	3918401.00
163.37	20935.35	6345.51	1276.25	1385.01	0.00	501752.00	3917726.00
165.29	20899.90	6311.12	1201.00	1502.83	0.00	501716.00	3917692.00
155.06	21117.47	6413.89	1021.64	1959.76	0.00	501934.00	3917795.00
515.85	17988.51	4918.65	694.94	743.36	0.00	498805.00	3916299.00
586.65	17752.24	4803.38	765.40	866.92	0.00	498569.00	3916184.00
306.42	19102.10	5461.67	737.82	910.58	0.00	499918.00	3916842.00
293.68	19201.58	5514.12	987.21	1338.11	0.00	500018.00	3916895.00
89.86	23335.15	7464.86	1435.73	2643.26	0.00	504151.00	3918846.00
100.06	22850.40	7233.07	1604.36	2020.04	0.00	503667.00	3918614.00
573.55	17787.34	4816.24	722.62	955.67	0.00	498604.00	3916197.00
249.90	19633.29	5709.86	794.45	1105.62	0.00	500450.00	3917091.00
364.42	18690.35	5263.73	839.38	1022.60	0.00	499507.00	3916645.00
305.97	19104.76	5458.82	947.29	1418.47	0.00	499921.00	3916840.00
490.12	18078.54	4961.20	721.44	849.55	0.00	498895.00	3916342.00
231.18	19851.99	5824.35	1019.51	1344.76	0.00	500668.00	3917205.00
96.06	23028.76	7353.07	1606.93	1539.62	0.00	503845.00	3918734.00
120.84	22055.40	6862.86	1064.09	1728.47	0.00	502872.00	3918244.00
385.11	18567.47	5205.38	802.59	999.01	0.00	499384.00	3916586.00
121.62	22033.09	6857.18	1333.08	1957.37	0.00	502849.00	3918238.00
406.03	18456.28	5146.64	811.98	1005.76	0.00	499273.00	3916527.00
104.35	22666.44	7149.58	1295.69	1730.80	0.00	503483.00	3918530.00
134.92	21627.72	6675.09	1942.98	2052.48	0.00	502444.00	3918056.00
106.08	22594.83	7118.45	1153.17	1511.98	0.00	503411.00	3918499.00
323.97	18971.01	5401.23	792.80	958.10	0.00	499787.00	3916782.00
281.15	19316.42	5566.20	696.49	784.70	0.00	500133.00	3916947.00
463.54	18189.41	5017.69	744.63	874.86	0.00	499006.00	3916398.00
421.59	18372.59	5110.81	898.49	1100.84	0.00	499189.00	3916492.00
142.99	21410.74	6560.28	1225.64	1714.26	0.00	502227.00	3917941.00
65.45	24933.98	8213.38	1171.08	1539.94	0.00	505750.00	3919594.00
67.93	24728.52	8091.10	2244.80	4006.50	0.00	505545.00	3919472.00
402.56	18477.73	5153.95	978.83	1241.53	0.00	499294.00	3916535.00
281.77	19310.85	5566.78	887.16	1171.91	0.00	500127.00	3916948.00
395.68	18508.71	5173.32	632.84	705.47	0.00	499325.00	3916554.00
266.12	19465.56	5642.64	1087.51	1250.67	0.00	500282.00	3917023.00
427.42	18347.73	5089.92	723.42	951.68	0.00	499164.00	3916471.00
200.29	20277.69	6027.17	976.42	1453.07	0.00	501094.00	3917408.00
165.04	20903.41	6316.51	970.71	1328.15	0.00	501720.00	3917697.00
398.60	18493.61	5164.25	700.30	913.95	0.00	499310.00	3916545.00
146.20	21332.54	6520.59	1267.36	1865.18	0.00	502149.00	3917901.00
48.92	26636.80	8981.75	1685.31	4004.53	0.00	507453.00	3920363.00
477.19	18128.66	4989.91	685.80	781.60	0.00	498945.00	3916371.00

109.14	22473.39	7056.40	1520.59	2338.77	0.00	503290.00	3918437.00
178.13	20653.24	6203.99	1179.05	1457.84	0.00	501470.00	3917585.00
266.76	19450.89	5635.76	887.95	1190.80	0.00	500267.00	3917017.00
125.34	21908.07	6794.06	1151.66	1626.02	0.00	502724.00	3918175.00
360.99	18712.52	5275.52	831.47	1130.58	0.00	499529.00	3916656.00
413.15	18422.95	5124.89	726.20	948.95	0.00	499239.00	3916506.00
137.74	21548.30	6621.43	1226.59	2009.03	0.00	502365.00	3918002.00
121.93	22018.95	6840.37	1535.44	2632.82	0.00	502835.00	3918221.00
257.16	19554.04	5683.51	923.98	1159.42	0.00	500370.00	3917064.00
301.72	19139.06	5476.10	814.37	1090.28	0.00	499955.00	3916857.00
908.42	17116.12	4466.01	606.91	607.54	0.00	497932.00	3915847.00
184.24	20541.35	6142.73	1015.75	1661.99	0.00	501358.00	3917524.00
79.76	23905.49	7738.34	1888.95	2690.90	0.00	504722.00	3919119.00
78.39	23991.77	7784.82	1765.28	2471.06	0.00	504808.00	3919166.00
481.40	18114.98	4978.74	725.01	866.84	0.00	498931.00	3916360.00
358.43	18730.94	5285.13	980.10	1268.65	0.00	499547.00	3916666.00
250.51	19624.47	5712.02	795.38	1004.84	0.00	500441.00	3917093.00
179.02	20636.72	6194.02	1162.18	1416.58	0.00	501453.00	3917575.00
297.06	19177.09	5495.64	931.36	1245.74	0.00	499993.00	3916876.00
167.46	20857.51	6300.55	1015.91	1282.29	0.00	501674.00	3917681.00
559.40	17831.50	4840.12	634.31	661.60	0.00	498648.00	3916221.00
146.66	21317.13	6518.01	1044.80	1341.28	0.00	502133.00	3917899.00
116.45	22205.87	6950.48	1591.13	2089.35	0.00	503022.00	3918331.00
338.19	18864.74	5353.83	790.46	892.99	0.00	499681.00	3916735.00
414.50	18413.20	5125.62	701.59	830.32	0.00	499229.00	3916506.00
196.81	20327.39	6043.84	974.49	1567.93	0.00	501144.00	3917425.00
170.42	20800.27	6260.33	850.91	1447.95	0.00	501617.00	3917641.00
536.39	17914.39	4874.07	666.84	794.02	0.00	498731.00	3916255.00
369.98	18660.43	5244.09	878.62	1337.44	0.00	499477.00	3916625.00
360.33	18712.52	5273.08	914.34	1165.59	0.00	499529.00	3916654.00
251.49	19613.31	5708.69	1103.58	1418.91	0.00	500430.00	3917089.00
360.28	18719.46	5277.74	857.92	1062.59	0.00	499536.00	3916659.00
271.87	19404.99	5616.99	1152.56	1390.10	0.00	500221.00	3916998.00
383.47	18576.80	5207.38	792.41	1019.77	0.00	499393.00	3916588.00
377.77	18609.87	5221.60	804.54	961.99	0.00	499426.00	3916602.00
192.72	20399.54	6089.54	983.90	1250.32	0.00	501216.00	3917470.00
265.31	19470.53	5634.81	821.96	1269.76	0.00	500287.00	3917016.00
364.82	18687.65	5262.96	926.60	1207.83	0.00	499504.00	3916644.00
339.45	18852.21	5346.92	894.81	924.21	0.00	499668.00	3916728.00
188.58	20462.17	6119.29	1357.73	1915.44	0.00	501278.00	3917500.00
418.89	18390.55	5118.45	745.26	805.89	0.00	499207.00	3916499.00
266.21	19459.89	5632.22	969.61	1544.41	0.00	500276.00	3917013.00
369.64	18658.43	5235.49	691.96	1032.57	0.00	499475.00	3916616.00
56.14	25797.60	8588.07	1684.47	3473.80	0.00	506614.00	3919969.00
394.56	18518.53	5174.85	804.60	1023.22	0.00	499335.00	3916556.00
302.08	19133.99	5473.44	1066.47	1358.99	0.00	499950.00	3916854.00
196.17	20338.96	6060.90	950.87	1179.10	0.00	501155.00	3917442.00
123.40	21975.56	6834.38	1095.80	1652.31	0.00	502792.00	3918215.00
122.93	21990.29	6842.98	1469.37	1967.11	0.00	502807.00	3918224.00
169.30	20819.61	6293.86	1318.18	1322.50	0.00	501636.00	3917675.00
59.36	25476.03	8474.32	2135.17	3341.87	0.00	506292.00	3919855.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
279.82	906.12	271.17	120.99	253.62	<b>21.04</b>	481722.00	3911652.00
286.99	892.13	267.40	125.34	231.14	0.00	481708.00	3911648.00
133.73	1186.34	413.09	104.00	206.96	0.00	482003.00	3911794.00
305.70	866.68	255.24	93.28	247.86	0.00	481683.00	3911636.00
361.06	814.20	227.04	113.30	228.90	0.00	481630.00	3911608.00
207.74	1011.39	325.32	103.20	234.07	0.00	481828.00	3911706.00
341.70	814.04	236.81	117.31	248.26	0.00	481630.00	3911618.00
518.46	694.85	169.72	119.46	256.70	0.00	481511.00	3911551.00
152.55	1121.45	384.79	91.80	185.90	0.00	481938.00	3911766.00
258.17	918.65	285.56	115.19	201.87	0.00	481735.00	3911666.00
180.77	1060.68	353.09	116.49	210.35	0.00	481877.00	3911734.00
108.15	1286.62	459.86	120.76	209.22	0.00	482103.00	3911841.00
260.30	925.93	284.05	106.84	218.18	0.00	481742.00	3911665.00
84.27	1408.33	522.38	111.96	224.82	0.00	482225.00	3911903.00
517.26	695.99	169.24	117.83	259.00	0.00	481512.00	3911550.00
134.78	1181.74	411.42	116.34	210.21	0.00	481998.00	3911792.00
403.86	762.72	208.49	91.21	215.81	0.00	481579.00	3911589.00
229.62	963.39	306.11	104.39	210.78	0.00	481780.00	3911687.00
352.85	815.48	231.96	127.49	224.95	0.00	481632.00	3911613.00
443.23	750.68	194.08	106.75	211.65	0.00	481567.00	3911575.00
450.02	725.85	189.46	90.19	198.00	0.00	481542.00	3911570.00
147.43	1144.71	392.02	110.94	213.98	0.00	481961.00	3911773.00
211.70	997.53	322.65	134.83	222.25	0.00	481814.00	3911703.00
316.17	856.64	249.58	124.03	240.62	0.00	481673.00	3911630.00
392.13	787.60	212.65	123.19	246.87	0.00	481604.00	3911593.00
164.48	1094.87	368.78	104.68	211.68	0.00	481911.00	3911750.00
114.77	1247.13	446.23	111.71	223.46	0.00	482063.00	3911827.00
108.97	1282.75	458.49	121.84	207.61	0.00	482099.00	3911839.00
331.47	837.04	239.40	110.09	229.24	0.00	481653.00	3911620.00
402.21	771.75	211.82	128.63	215.78	0.00	481588.00	3911593.00
221.48	975.88	312.24	115.39	230.93	0.00	481792.00	3911693.00
377.13	797.22	220.48	115.73	231.82	0.00	481613.00	3911601.00
487.96	705.79	178.21	115.31	241.69	0.00	481522.00	3911559.00
463.26	734.31	187.46	113.17	204.65	0.00	481551.00	3911568.00
395.79	772.08	211.49	106.88	221.27	0.00	481588.00	3911592.00
616.09	639.07	141.08	138.99	242.68	0.00	481455.00	3911522.00
347.08	813.61	234.58	113.06	183.72	0.00	481630.00	3911615.00
182.31	1056.96	351.05	111.15	213.73	0.00	481873.00	3911732.00
327.38	834.67	244.01	93.55	205.80	0.00	481651.00	3911625.00
139.29	1167.80	403.97	114.08	212.40	0.00	481984.00	3911785.00
174.46	1074.08	357.75	101.16	220.94	0.00	481890.00	3911739.00
129.37	1190.65	419.58	110.26	202.48	0.00	482007.00	3911800.00
84.53	1408.78	519.17	111.20	227.89	0.00	482225.00	3911900.00
303.71	869.02	257.81	83.17	163.12	0.00	481685.00	3911639.00
471.47	713.33	183.97	111.65	187.32	0.00	481530.00	3911565.00
306.16	863.17	255.08	121.37	234.47	0.00	481679.00	3911636.00
330.31	829.19	242.18	105.07	226.90	0.00	481645.00	3911623.00
517.97	694.08	167.68	110.15	274.97	0.00	481510.00	3911548.00
399.13	767.92	211.13	111.27	216.91	0.00	481584.00	3911592.00

441.07	743.75	196.62	133.34	214.15	0.00	481560.00	3911577.00
298.21	879.40	260.61	127.62	208.46	0.00	481696.00	3911641.00
189.11	1041.83	344.56	115.36	208.02	0.00	481858.00	3911725.00
478.76	711.55	181.82	117.02	245.67	0.00	481528.00	3911563.00
573.58	672.30	150.16	106.91	226.35	0.00	481489.00	3911531.00
126.35	1208.11	423.83	103.04	210.46	0.00	482024.00	3911805.00
375.61	801.59	221.52	140.29	221.32	0.00	481618.00	3911602.00
352.90	823.02	230.32	119.17	243.36	0.00	481639.00	3911611.00
533.32	684.90	163.05	92.65	231.24	0.00	481501.00	3911544.00
71.44	1501.23	565.69	113.60	219.70	0.00	482318.00	3911946.00
482.95	713.75	179.80	106.86	232.96	0.00	481530.00	3911561.00
362.12	796.66	225.19	91.63	199.74	0.00	481613.00	3911606.00
66.45	1544.64	586.54	114.49	225.56	0.00	482361.00	3911967.00
190.60	1036.24	342.27	105.76	237.21	0.00	481853.00	3911723.00
315.18	855.26	249.85	119.18	243.22	0.00	481672.00	3911631.00
244.72	947.47	295.96	110.29	184.74	0.00	481764.00	3911677.00
279.26	900.25	271.98	96.66	209.79	0.00	481717.00	3911653.00
405.93	761.79	208.40	108.77	205.86	0.00	481578.00	3911589.00
239.71	950.40	296.19	114.72	197.02	0.00	481767.00	3911677.00
176.52	1069.67	358.96	115.73	166.21	0.00	481886.00	3911740.00
230.10	968.42	305.04	117.08	234.51	0.00	481785.00	3911686.00
263.45	907.47	281.47	131.76	220.26	0.00	481724.00	3911662.00
259.95	921.77	284.38	110.86	226.93	0.00	481738.00	3911665.00
504.89	693.03	173.46	127.58	194.91	0.00	481509.00	3911554.00
524.74	687.69	165.39	124.95	239.68	0.00	481504.00	3911546.00
291.36	873.65	264.97	105.65	220.82	0.00	481690.00	3911646.00
222.54	983.23	311.24	116.51	199.67	0.00	481800.00	3911692.00
191.71	1037.67	340.06	88.61	235.68	0.00	481854.00	3911721.00
230.58	966.79	306.45	119.34	256.61	0.00	481783.00	3911687.00
123.22	1218.87	430.16	119.17	215.21	0.00	482035.00	3911811.00
334.07	836.55	239.33	103.78	225.69	0.00	481653.00	3911620.00
121.69	1228.06	434.48	123.24	225.31	0.00	482044.00	3911815.00
45.52	1786.23	702.98	118.45	189.51	0.00	482603.00	3912084.00
607.82	651.54	142.01	117.94	250.05	0.00	481468.00	3911523.00
376.29	789.00	220.48	98.48	204.46	0.00	481605.00	3911601.00
96.05	1339.45	489.63	117.31	206.11	0.00	482156.00	3911870.00
585.13	649.40	150.64	116.33	217.35	0.00	481466.00	3911531.00
94.96	1346.58	490.25	114.52	239.99	0.00	482163.00	3911871.00
237.61	964.96	299.35	92.32	216.07	0.00	481781.00	3911680.00
157.04	1110.90	377.83	91.41	178.83	0.00	481927.00	3911759.00
461.93	736.29	186.26	134.31	252.26	0.00	481553.00	3911567.00
207.47	1010.14	324.85	94.29	220.65	0.00	481826.00	3911706.00
345.58	817.71	234.54	98.78	245.52	0.00	481634.00	3911615.00
433.97	752.55	196.67	129.11	208.12	0.00	481569.00	3911577.00
330.95	840.48	243.58	115.22	197.26	0.00	481657.00	3911624.00
354.83	809.78	231.55	105.66	173.27	0.00	481626.00	3911612.00
49.67	1724.49	674.87	127.21	206.71	0.00	482541.00	3912056.00
116.87	1246.31	442.24	112.50	255.55	0.00	482063.00	3911823.00
275.71	897.21	271.14	112.56	216.24	0.00	481713.00	3911652.00
266.95	908.71	278.65	100.29	208.41	0.00	481725.00	3911659.00
164.59	1093.07	366.89	79.64	189.95	0.00	481909.00	3911748.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
115.44	47542.20	14364.00	1554.72	1839.66	<b>86.79</b>	528358.00	3925745.00
402.55	40574.68	11046.23	976.35	759.46	0.00	521391.00	3922427.00
123.27	47049.83	14140.22	1631.92	1791.36	0.00	527866.00	3925521.00
171.13	44840.32	13098.41	1596.33	1928.71	0.00	525657.00	3924479.00
449.68	40164.93	10847.15	973.14	762.86	0.00	520981.00	3922228.00
213.15	43555.19	12486.08	1400.23	1585.68	0.00	524371.00	3923867.00
536.36	39552.05	10544.02	988.42	832.04	0.00	520368.00	3921925.00
254.19	42624.10	12041.92	1265.86	1315.55	0.00	523440.00	3923423.00
549.75	39468.37	10503.40	1063.94	1020.01	0.00	520285.00	3921884.00
291.59	41959.56	11715.13	1222.15	1361.73	0.00	522776.00	3923096.00
380.94	40797.33	11156.08	1085.16	1097.37	0.00	521614.00	3922537.00
1012.02	37873.13	9669.38	913.78	620.22	0.00	518689.00	3921050.00
214.25	43522.17	12461.36	1278.82	1517.37	0.00	524338.00	3923842.00
247.57	42758.87	12103.64	1174.87	1249.60	0.00	523575.00	3923484.00
347.19	41180.59	11345.13	1098.06	1058.45	0.00	521997.00	3922726.00
242.58	42862.27	12157.46	1378.80	1383.02	0.00	523679.00	3923538.00
528.54	39598.16	10568.64	989.93	832.95	0.00	520414.00	3921949.00
522.20	39637.72	10582.27	969.67	791.26	0.00	520454.00	3921963.00
638.40	39005.30	10266.85	953.94	730.56	0.00	519822.00	3921648.00
464.93	40040.98	10785.07	1025.13	899.89	0.00	520857.00	3922166.00
202.79	43833.57	12615.38	1140.59	1033.72	0.00	524650.00	3923996.00
494.66	39825.39	10674.03	957.36	762.61	0.00	520642.00	3922055.00
508.59	39726.78	10629.11	1019.74	933.16	0.00	520543.00	3922010.00
428.10	40343.43	10939.47	1050.46	953.38	0.00	521160.00	3922320.00
414.49	40463.94	10993.55	1026.58	940.46	0.00	521280.00	3922374.00
342.54	41237.18	11372.47	1069.08	944.12	0.00	522053.00	3922753.00
270.04	42324.74	11893.86	1161.51	1145.80	0.00	523141.00	3923275.00
229.86	43144.47	12277.79	1240.66	1381.85	0.00	523961.00	3923659.00
241.25	42890.52	12175.44	1298.02	1576.85	0.00	523707.00	3923556.00
41.70	57646.74	19081.74	2359.38	3309.76	0.00	538463.00	3930463.00
165.79	45040.04	13180.41	1331.74	1554.15	0.00	525856.00	3924561.00
140.85	46106.27	13686.41	1473.05	1592.33	0.00	526923.00	3925067.00
653.35	38942.47	10238.26	1015.31	902.74	0.00	519759.00	3921619.00
272.64	42279.62	11872.99	1199.17	1249.77	0.00	523096.00	3923254.00
409.30	40514.19	11015.86	1088.88	1079.47	0.00	521330.00	3922397.00
322.86	41494.48	11489.91	1040.90	897.51	0.00	522311.00	3922871.00
237.58	42970.44	12203.94	1145.32	1107.20	0.00	523787.00	3923585.00
382.21	40779.43	11148.84	1130.01	1157.76	0.00	521596.00	3922530.00
189.67	44219.53	12796.67	1359.02	1498.03	0.00	525036.00	3924177.00
434.62	40287.24	10912.03	1022.33	856.96	0.00	521104.00	3922293.00
128.06	46774.98	14002.76	1464.60	1587.80	0.00	527591.00	3925384.00
311.02	41660.56	11585.07	1236.21	1265.70	0.00	522477.00	3922966.00
443.10	40217.43	10876.33	1077.98	1032.30	0.00	521034.00	3922257.00
122.35	47106.67	14164.02	1680.99	1978.67	0.00	527923.00	3925545.00
191.52	44164.05	12777.48	1449.01	1610.82	0.00	524980.00	3924158.00
248.53	42740.25	12081.31	1151.68	1232.52	0.00	523557.00	3923462.00
267.26	42373.28	11916.41	1253.47	1332.09	0.00	523190.00	3923297.00
62.56	52992.62	16905.32	2024.86	2650.84	0.00	533809.00	3928286.00
463.89	40048.90	10795.59	1003.81	820.28	0.00	520865.00	3922176.00

211.54	43598.33	12499.93	1231.33	1269.04	0.00	524415.00	3923881.00
366.27	40958.03	11236.74	1038.21	906.67	0.00	521774.00	3922618.00
72.79	51484.85	16214.41	2036.30	2554.58	0.00	532301.00	3927595.00
230.41	43135.80	12280.21	1323.39	1428.12	0.00	523952.00	3923661.00
195.32	44047.09	12720.55	1389.70	1576.90	0.00	524863.00	3924101.00
53.59	54657.67	17698.01	2319.28	3077.97	0.00	535474.00	3929079.00
56.30	54112.90	17424.30	2224.09	3245.40	0.00	534929.00	3928805.00
253.36	42640.24	12042.01	1268.57	1464.16	0.00	523457.00	3923423.00
31.13	61632.73	20933.92	3244.14	4447.90	0.00	542449.00	3932315.00
363.65	40985.12	11254.32	1102.38	1030.22	0.00	521801.00	3922635.00
332.09	41372.84	11433.04	1076.11	1039.34	0.00	522189.00	3922814.00
220.80	43360.80	12389.41	1317.09	1449.94	0.00	524177.00	3923770.00
474.61	39965.37	10745.97	1066.55	1028.28	0.00	520782.00	3922127.00
594.56	39226.23	10378.44	989.88	837.88	0.00	520043.00	3921759.00
341.44	41253.07	11378.74	1126.21	1163.13	0.00	522069.00	3922760.00
320.65	41525.24	11503.76	1033.10	919.21	0.00	522342.00	3922885.00
204.16	43795.03	12593.78	1221.28	1268.69	0.00	524611.00	3923975.00
313.38	41631.16	11554.09	1098.23	1093.67	0.00	522447.00	3922935.00
342.92	41232.05	11363.29	1253.08	1453.97	0.00	522048.00	3922744.00
470.23	40001.28	10764.65	1027.47	958.53	0.00	520818.00	3922145.00
300.40	41819.53	11652.51	1195.86	1231.96	0.00	522636.00	3923033.00
96.94	48927.96	14983.19	1742.33	2594.10	0.00	529744.00	3926364.00
172.18	44801.38	13063.37	1461.49	1947.68	0.00	525618.00	3924444.00
419.49	40419.09	10971.23	1157.43	1249.63	0.00	521235.00	3922352.00
267.06	42381.77	11911.19	1090.59	1034.29	0.00	523198.00	3923292.00
133.91	46457.74	13846.75	1500.58	1736.28	0.00	527274.00	3925228.00
174.93	44704.34	13013.94	1286.78	1521.91	0.00	525521.00	3924395.00
330.42	41391.57	11435.93	1186.50	1341.18	0.00	522208.00	3922817.00
502.75	39767.48	10648.68	959.09	752.32	0.00	520584.00	3922029.00
221.01	43355.84	12387.73	1243.23	1350.82	0.00	524172.00	3923769.00
286.37	42046.33	11755.57	1108.98	1076.61	0.00	522863.00	3923136.00
294.20	41917.82	11701.95	1165.58	1210.89	0.00	522734.00	3923083.00
221.75	43337.23	12368.64	1343.29	1608.23	0.00	524154.00	3923749.00
476.07	39957.85	10739.87	1105.33	1134.23	0.00	520774.00	3922121.00
422.01	40397.04	10958.51	1135.45	1191.12	0.00	521213.00	3922339.00
433.25	40299.62	10913.71	1053.63	992.67	0.00	521116.00	3922294.00
451.00	40151.34	10842.77	1047.21	955.27	0.00	520968.00	3922224.00
42.36	57446.22	19003.87	2569.89	3013.08	0.00	538262.00	3930385.00
203.83	43806.44	12589.53	1128.65	1089.80	0.00	524623.00	3923970.00
364.55	40978.04	11243.87	1102.59	1117.28	0.00	521794.00	3922625.00
399.25	40609.91	11062.91	1058.47	1001.54	0.00	521426.00	3922444.00
229.40	43154.56	12288.75	1238.81	1311.99	0.00	523971.00	3923670.00
153.68	45520.74	13419.48	1516.15	1620.15	0.00	526337.00	3924800.00
316.25	41587.88	11539.95	1094.70	1021.94	0.00	522404.00	3922921.00
46.10	56405.97	18503.33	2214.75	2935.14	0.00	537222.00	3929884.00
442.08	40221.74	10879.65	1092.70	1073.51	0.00	521038.00	3922260.00
216.30	43472.79	12443.11	1173.68	1144.98	0.00	524289.00	3923824.00
375.10	40862.11	11188.33	1073.33	1015.63	0.00	521678.00	3922569.00
283.71	42087.94	11777.55	1192.11	1298.74	0.00	522904.00	3923158.00
434.66	40289.42	10901.97	995.29	838.35	0.00	521106.00	3922283.00
613.20	39128.22	10331.27	981.11	813.10	0.00	519945.00	3921712.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
264.42	4671.39	1405.66	477.95	967.65	35.55	485488.00	3912786.00
235.26	4774.44	1448.22	374.50	1062.49	0.00	485591.00	3912829.00
342.99	4449.87	1301.28	556.99	849.53	0.00	485266.00	3912682.00
262.64	4669.45	1405.93	425.37	895.41	0.00	485486.00	3912787.00
140.53	5330.44	1719.78	446.37	1107.57	0.00	486147.00	3913101.00
266.13	4666.41	1409.29	468.29	761.64	0.00	485483.00	3912790.00
76.89	6177.97	2114.89	611.27	975.56	0.00	486994.00	3913496.00
259.00	4680.04	1416.08	578.19	1106.74	0.00	485496.00	3912797.00
113.53	5602.44	1842.10	495.37	997.28	0.00	486419.00	3913223.00
235.16	4773.29	1455.42	515.88	1025.95	0.00	485590.00	3912836.00
301.57	4552.53	1354.63	488.57	857.84	0.00	485369.00	3912735.00
332.20	4468.65	1315.55	467.38	794.37	0.00	485285.00	3912696.00
186.40	5015.72	1568.77	476.81	1183.12	0.00	485832.00	3912950.00
308.73	4532.70	1342.56	456.78	691.84	0.00	485349.00	3912723.00
428.89	4268.38	1217.26	565.70	928.30	0.00	485085.00	3912598.00
216.91	4856.57	1494.71	626.05	1138.09	0.00	485673.00	3912875.00
133.30	5392.98	1749.47	589.27	1154.16	0.00	486209.00	3913130.00
477.01	4213.25	1180.56	467.46	822.62	0.00	485030.00	3912561.00
350.93	4426.91	1284.61	526.05	1100.16	0.00	485243.00	3912665.00
159.14	5183.79	1652.35	494.20	826.47	0.00	486000.00	3913033.00
511.03	4148.55	1154.69	532.27	942.83	0.00	484965.00	3912535.00
284.34	4608.85	1376.94	515.42	1030.60	0.00	485425.00	3912758.00
374.24	4367.18	1267.84	500.24	946.45	0.00	485183.00	3912649.00
152.02	5230.87	1676.59	371.16	959.87	0.00	486047.00	3913057.00
189.51	4992.61	1560.02	490.71	1022.91	0.00	485809.00	3912941.00
586.48	4048.85	1107.57	571.32	876.06	0.00	484865.00	3912488.00
380.21	4361.19	1259.07	407.84	761.59	0.00	485177.00	3912640.00
439.20	4251.18	1210.27	293.43	576.36	0.00	485067.00	3912591.00
387.42	4350.34	1255.85	425.47	732.73	0.00	485167.00	3912637.00
234.19	4779.03	1459.95	483.56	1014.38	0.00	485595.00	3912841.00
227.70	4807.93	1467.79	498.67	1042.25	0.00	485624.00	3912849.00
303.99	4544.55	1342.26	499.69	1257.42	0.00	485361.00	3912723.00
387.47	4350.27	1242.86	506.71	1160.47	0.00	485167.00	3912624.00
256.73	4693.59	1418.70	451.63	945.65	0.00	485510.00	3912799.00
103.74	5725.40	1904.08	457.92	1065.86	0.00	486542.00	3913285.00
462.52	4215.97	1186.81	577.63	1105.67	0.00	485032.00	3912568.00
161.05	5168.03	1638.12	386.84	945.48	0.00	485984.00	3913019.00
399.08	4328.64	1239.21	570.68	978.81	0.00	485145.00	3912620.00
319.64	4494.77	1330.91	529.45	980.44	0.00	485311.00	3912712.00
214.70	4866.99	1502.22	481.38	1018.25	0.00	485683.00	3912883.00
584.45	4061.23	1117.97	499.35	667.06	0.00	484878.00	3912499.00
190.84	4983.59	1555.59	479.51	961.05	0.00	485800.00	3912936.00
50.39	6937.08	2472.67	523.15	1115.62	0.00	487753.00	3913853.00
263.68	4673.79	1406.16	435.18	970.17	0.00	485490.00	3912787.00
221.06	4835.98	1479.78	467.28	1137.02	0.00	485652.00	3912861.00
624.32	4021.15	1087.40	394.72	873.54	0.00	484837.00	3912468.00
91.47	5908.00	1992.81	554.92	1072.56	0.00	486724.00	3913374.00
485.48	4184.14	1171.26	372.33	983.65	0.00	485000.00	3912552.00
506.62	4145.99	1157.26	501.12	890.99	0.00	484962.00	3912538.00

216.86	4859.66	1504.80	632.10	794.28	0.00	485676.00	3912886.00
403.65	4325.72	1240.39	503.92	935.76	0.00	485142.00	3912621.00
281.23	4608.30	1377.73	422.42	901.96	0.00	485425.00	3912759.00
298.13	4556.71	1352.25	596.58	1110.78	0.00	485373.00	3912733.00
673.83	3983.70	1072.24	312.70	642.34	0.00	484800.00	3912453.00
226.86	4807.09	1468.52	520.66	1171.61	0.00	485623.00	3912849.00
561.34	4085.77	1127.20	443.08	620.89	0.00	484902.00	3912508.00
371.39	4374.89	1273.92	441.17	473.25	0.00	485191.00	3912655.00
366.13	4405.93	1271.42	536.95	877.95	0.00	485222.00	3912652.00
331.28	4462.89	1313.01	398.81	745.40	0.00	485279.00	3912694.00
626.91	4017.17	1088.61	464.98	738.48	0.00	484833.00	3912469.00
453.18	4231.82	1196.16	454.54	888.35	0.00	485048.00	3912577.00
349.82	4431.33	1291.55	506.69	905.95	0.00	485248.00	3912672.00
747.85	3927.85	1041.14	519.90	831.09	0.00	484744.00	3912422.00
335.70	4461.23	1308.27	496.54	994.19	0.00	485278.00	3912689.00
311.86	4514.70	1342.58	444.37	739.96	0.00	485331.00	3912723.00
337.47	4453.89	1304.55	516.11	1001.33	0.00	485270.00	3912685.00
22.50	8896.73	3384.80	596.12	1211.61	0.00	489713.00	3914766.00
253.10	4704.08	1425.34	551.46	1209.68	0.00	485520.00	3912806.00
341.73	4445.95	1297.91	501.14	1194.64	0.00	485262.00	3912679.00
372.42	4372.79	1262.40	463.35	1165.31	0.00	485189.00	3912643.00
421.63	4290.35	1216.66	468.34	959.29	0.00	485107.00	3912597.00
394.43	4335.84	1242.97	504.31	1034.15	0.00	485152.00	3912624.00
432.11	4269.63	1214.22	441.11	743.87	0.00	485086.00	3912595.00
352.76	4425.21	1285.10	466.77	941.05	0.00	485241.00	3912666.00
235.62	4773.37	1457.90	459.57	963.74	0.00	485590.00	3912839.00
219.68	4846.46	1482.86	444.33	1123.63	0.00	485663.00	3912864.00
257.99	4693.32	1421.96	502.29	1013.40	0.00	485510.00	3912803.00
319.28	4494.63	1325.20	573.06	954.02	0.00	485311.00	3912706.00
395.66	4329.01	1244.31	585.92	1129.20	0.00	485145.00	3912625.00
267.85	4651.17	1404.96	497.13	829.94	0.00	485467.00	3912786.00
492.87	4169.42	1173.35	494.58	690.84	0.00	484986.00	3912554.00
450.77	4227.66	1195.05	546.77	1100.97	0.00	485044.00	3912576.00
299.42	4556.27	1354.11	581.40	1086.93	0.00	485373.00	3912735.00
121.88	5512.30	1806.00	614.67	1179.62	0.00	486329.00	3913187.00
431.65	4268.89	1207.33	391.67	879.03	0.00	485085.00	3912588.00
279.42	4627.41	1389.53	550.38	605.64	0.00	485444.00	3912770.00
172.07	5098.58	1610.57	420.63	895.04	0.00	485915.00	3912991.00
645.12	4011.87	1081.92	326.47	544.10	0.00	484828.00	3912463.00
231.10	4790.15	1461.00	427.06	988.03	0.00	485606.00	3912842.00
167.78	5126.59	1623.61	315.41	942.54	0.00	485943.00	3913004.00
465.16	4211.73	1182.06	517.98	1134.12	0.00	485028.00	3912563.00
639.69	4009.76	1085.28	578.21	1015.88	0.00	484826.00	3912466.00
367.03	4387.48	1261.90	383.28	1026.98	0.00	485204.00	3912643.00
523.85	4124.95	1145.81	428.99	870.30	0.00	484941.00	3912527.00
235.98	4778.57	1463.18	647.78	933.26	0.00	485595.00	3912844.00
169.08	5114.33	1626.19	592.93	979.91	0.00	485931.00	3913007.00
122.56	5500.04	1796.59	552.37	1135.36	0.00	486316.00	3913177.00
297.15	4566.30	1366.99	609.45	719.58	0.00	485383.00	3912748.00
812.01	3874.92	1023.23	606.77	836.75	0.00	484691.00	3912404.00
245.22	4734.92	1440.54	501.96	1021.21	0.00	485551.00	3912821.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
248.45	5139.39	1551.40	444.02	1040.71	<b>36.68</b>	485956.00	3912932.00
162.65	5595.91	1773.89	531.10	987.18	0.00	486412.00	3913155.00
175.76	5515.63	1725.40	512.07	1150.78	0.00	486332.00	3913106.00
203.49	5350.44	1648.54	703.53	1277.26	0.00	486167.00	3913029.00
232.50	5210.16	1592.04	489.11	964.34	0.00	486026.00	3912973.00
251.97	5130.61	1548.55	464.10	892.28	0.00	485947.00	3912929.00
300.65	4969.64	1474.42	536.29	940.23	0.00	485786.00	3912855.00
319.24	4898.56	1450.50	640.63	1134.76	0.00	485715.00	3912831.00
193.68	5409.76	1683.65	523.21	1142.56	0.00	486226.00	3913064.00
243.14	5165.36	1567.05	543.42	1138.77	0.00	485982.00	3912948.00
422.12	4676.49	1335.28	554.17	808.55	0.00	485493.00	3912716.00
78.48	6654.84	2274.59	606.19	855.37	0.00	487471.00	3913655.00
192.26	5410.03	1681.83	541.54	1015.51	0.00	486226.00	3913063.00
31.69	8595.60	3171.14	613.87	1274.79	0.00	489412.00	3914552.00
254.66	5114.96	1554.20	671.99	1070.64	0.00	485931.00	3912935.00
273.89	5041.30	1512.95	491.12	816.94	0.00	485858.00	3912894.00
288.56	4997.10	1492.52	510.79	1029.91	0.00	485813.00	3912873.00
136.42	5819.87	1872.00	460.27	1112.89	0.00	486636.00	3913253.00
267.70	5070.30	1519.34	513.09	1109.00	0.00	485887.00	3912900.00
412.29	4692.63	1349.39	576.20	714.38	0.00	485509.00	3912730.00
197.57	5381.00	1671.84	557.51	968.55	0.00	486197.00	3913053.00
369.38	4785.99	1387.38	620.00	912.56	0.00	485602.00	3912768.00
558.01	4468.19	1228.54	520.73	866.15	0.00	485284.00	3912609.00
295.73	4982.41	1480.23	548.15	1043.59	0.00	485799.00	3912861.00
271.27	5054.74	1519.84	563.63	944.57	0.00	485871.00	3912901.00
218.23	5272.74	1616.95	519.90	1033.54	0.00	486089.00	3912998.00
429.28	4658.75	1327.15	554.95	829.46	0.00	485475.00	3912708.00
123.70	5952.40	1936.76	488.50	993.92	0.00	486769.00	3913318.00
321.16	4899.71	1442.39	617.81	988.44	0.00	485716.00	3912823.00
43.34	7824.76	2820.33	545.14	1290.13	0.00	488641.00	3914201.00
504.45	4539.63	1259.46	482.45	1206.58	0.00	485356.00	3912640.00
195.99	5393.00	1682.90	628.60	843.83	0.00	486209.00	3913064.00
386.68	4740.99	1367.05	503.34	1055.55	0.00	485557.00	3912748.00
508.39	4533.72	1266.48	444.15	659.79	0.00	485350.00	3912647.00
905.41	4174.48	1084.94	572.65	736.22	0.00	484991.00	3912466.00
302.72	4960.48	1462.05	569.69	1181.17	0.00	485777.00	3912843.00
165.41	5583.77	1769.91	649.16	969.19	0.00	486400.00	3913151.00
127.44	5911.98	1917.38	489.72	913.68	0.00	486728.00	3913298.00
272.43	5055.38	1513.15	641.67	1216.09	0.00	485872.00	3912894.00
324.31	4894.51	1445.63	582.28	784.58	0.00	485711.00	3912826.00
153.92	5671.25	1819.39	639.61	892.14	0.00	486488.00	3913200.00
284.16	5013.68	1494.53	583.12	1090.00	0.00	485830.00	3912875.00
290.48	4988.25	1479.38	620.64	1220.56	0.00	485805.00	3912860.00
405.13	4701.31	1346.71	527.36	1150.55	0.00	485518.00	3912727.00
336.13	4865.97	1422.97	546.86	1109.10	0.00	485682.00	3912804.00
149.60	5698.20	1828.27	525.72	1034.76	0.00	486514.00	3913209.00
357.26	4806.50	1394.09	456.96	1102.25	0.00	485623.00	3912775.00
212.66	5302.60	1629.36	422.16	975.62	0.00	486119.00	3913010.00
372.83	4770.45	1379.73	556.50	1081.59	0.00	485587.00	3912761.00

390.43	4740.30	1352.78	462.33	1069.86	0.00	485557.00	3912734.00
130.46	5882.62	1893.42	486.28	1159.26	0.00	486699.00	3913274.00
46.57	7666.13	2728.76	584.22	1219.61	0.00	488482.00	3914110.00
223.47	5250.39	1610.73	563.56	944.58	0.00	486067.00	3912992.00
168.99	5557.80	1757.61	571.19	993.39	0.00	486374.00	3913138.00
158.78	5632.06	1784.35	449.76	1119.91	0.00	486448.00	3913165.00
285.96	5013.39	1493.26	552.77	1120.32	0.00	485830.00	3912874.00
492.30	4548.80	1275.44	427.70	883.13	0.00	485365.00	3912656.00
150.07	5699.51	1810.30	450.99	1216.90	0.00	486516.00	3913191.00
696.39	4334.15	1164.60	635.48	1098.65	0.00	485150.00	3912545.00
487.30	4567.54	1277.91	409.81	909.52	0.00	485384.00	3912659.00
390.04	4734.27	1358.56	494.73	1143.12	0.00	485551.00	3912739.00
226.56	5236.99	1598.56	484.01	893.53	0.00	486053.00	3912979.00
157.35	5644.60	1789.58	641.67	1275.92	0.00	486461.00	3913170.00
462.46	4605.20	1299.85	540.75	954.70	0.00	485421.00	3912681.00
205.89	5335.23	1639.96	501.50	1161.40	0.00	486152.00	3913021.00
102.91	6216.34	2063.33	578.63	1228.94	0.00	487033.00	3913444.00
272.05	5050.22	1511.23	479.37	1016.86	0.00	485867.00	3912892.00
113.81	6073.24	1989.24	543.32	1180.75	0.00	486890.00	3913370.00
208.02	5323.59	1636.39	612.72	1294.95	0.00	486140.00	3913017.00
104.09	6198.92	2040.41	615.54	1250.51	0.00	487015.00	3913421.00
181.26	5486.01	1710.97	704.81	1115.82	0.00	486302.00	3913092.00
502.48	4544.31	1265.15	392.08	867.22	0.00	485361.00	3912646.00
351.53	4818.94	1397.13	434.68	1080.38	0.00	485635.00	3912778.00
258.75	5100.96	1542.66	587.87	980.80	0.00	485917.00	3912923.00
468.27	4593.18	1289.30	543.83	966.15	0.00	485409.00	3912670.00
217.04	5279.34	1622.82	622.33	1054.89	0.00	486096.00	3913004.00
797.66	4242.65	1127.19	500.53	734.86	0.00	485059.00	3912508.00
446.93	4633.77	1311.71	513.19	809.98	0.00	485450.00	3912692.00
361.45	4800.96	1394.60	610.28	867.21	0.00	485617.00	3912775.00
121.30	5983.05	1949.37	571.07	1144.70	0.00	486799.00	3913330.00
164.96	5587.40	1760.01	527.25	1197.02	0.00	486404.00	3913141.00
94.83	6345.63	2119.64	397.55	951.59	0.00	487162.00	3913500.00
297.03	4972.82	1475.91	485.52	1089.49	0.00	485789.00	3912857.00
148.25	5716.12	1817.58	548.08	1265.24	0.00	486532.00	3913198.00
338.93	4850.13	1415.85	419.07	1095.87	0.00	485666.00	3912797.00
197.26	5381.69	1665.21	636.46	1187.79	0.00	486198.00	3913046.00
216.28	5283.20	1626.71	608.33	1114.56	0.00	486099.00	3913007.00
201.26	5360.09	1667.98	518.49	788.42	0.00	486176.00	3913049.00
269.06	5064.69	1525.92	466.57	765.57	0.00	485881.00	3912907.00
107.31	6158.88	2026.34	575.28	1318.76	0.00	486975.00	3913407.00
67.55	6918.51	2392.60	633.42	1224.97	0.00	487735.00	3913773.00
430.56	4654.23	1322.24	472.48	1061.77	0.00	485471.00	3912703.00
264.76	5073.58	1531.96	511.78	939.90	0.00	485890.00	3912913.00
350.71	4824.67	1410.74	621.09	790.80	0.00	485641.00	3912792.00
616.66	4409.15	1194.56	386.80	865.00	0.00	485225.00	3912575.00
121.80	5974.63	1945.24	562.39	1083.18	0.00	486791.00	3913326.00
272.34	5057.50	1510.39	600.06	1138.71	0.00	485874.00	3912891.00
281.56	5016.75	1500.18	573.41	1016.47	0.00	485833.00	3912881.00
234.16	5204.20	1587.63	568.24	1008.33	0.00	486020.00	3912968.00
251.43	5130.34	1549.30	591.56	1154.24	0.00	485947.00	3912930.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
169.14	9448.92	2925.45	1155.58	1712.63	<b>45.31</b>	490265.00	3914306.00
189.72	9251.77	2834.07	804.41	1709.14	0.00	490068.00	3914215.00
253.83	8793.43	2619.63	852.90	1073.32	0.00	489610.00	3914000.00
331.65	8427.35	2429.70	834.03	1823.77	0.00	489244.00	3913810.00
60.58	11809.97	4023.20	1027.23	1886.41	0.00	492626.00	3915404.00
108.36	10323.68	3345.70	1225.46	1761.27	0.00	491140.00	3914726.00
336.84	8416.78	2431.39	666.12	1217.54	0.00	489233.00	3913812.00
343.59	8382.49	2416.28	637.20	1310.22	0.00	489199.00	3913797.00
208.57	9088.27	2749.25	851.20	1793.14	0.00	489905.00	3914130.00
124.08	10034.58	3194.56	893.15	2056.00	0.00	490851.00	3914575.00
46.17	12662.56	4420.22	1267.02	2400.19	0.00	493479.00	3915801.00
167.28	9470.36	2929.46	843.49	1632.88	0.00	490287.00	3914310.00
45.64	12699.97	4451.37	1070.03	2036.98	0.00	493516.00	3915832.00
52.49	12247.14	4235.85	910.44	1794.59	0.00	493063.00	3915617.00
216.46	9043.50	2730.91	1004.16	1273.93	0.00	489860.00	3914112.00
293.13	8594.44	2523.85	901.99	1266.13	0.00	489411.00	3913905.00
207.66	9102.53	2761.89	748.53	1389.52	0.00	489919.00	3914143.00
133.34	9889.00	3128.73	884.55	1772.87	0.00	490705.00	3914510.00
94.24	10646.55	3481.13	1059.22	2017.08	0.00	491463.00	3914862.00
140.10	9785.04	3061.33	664.32	1728.67	0.00	490601.00	3914442.00
552.54	7869.63	2166.83	662.40	862.50	0.00	488686.00	3913548.00
386.05	8252.44	2352.46	883.36	1268.33	0.00	489069.00	3913733.00
356.43	8339.28	2401.41	945.25	1083.51	0.00	489156.00	3913782.00
31.99	14010.97	5047.56	1044.36	2002.67	0.00	494827.00	3916428.00
216.73	9036.02	2726.38	745.55	1530.99	0.00	489852.00	3914107.00
285.94	8626.82	2530.58	667.13	1274.44	0.00	489443.00	3913911.00
218.25	9017.70	2712.23	809.81	1802.10	0.00	489834.00	3914093.00
218.16	9024.91	2721.02	1004.09	1744.22	0.00	489841.00	3914102.00
309.16	8522.57	2486.91	771.54	842.46	0.00	489339.00	3913868.00
428.15	8123.23	2291.00	794.12	1231.37	0.00	488940.00	3913672.00
368.57	8301.97	2378.00	756.99	1303.81	0.00	489118.00	3913759.00
153.68	9615.59	3004.84	1039.33	1642.90	0.00	490432.00	3914386.00
60.66	11802.91	4036.93	1101.36	1868.23	0.00	492619.00	3915418.00
225.64	8973.86	2695.65	1076.81	1582.19	0.00	489790.00	3914076.00
352.44	8350.56	2406.98	560.75	695.99	0.00	489167.00	3913788.00
243.32	8857.79	2640.83	902.86	1700.55	0.00	489674.00	3914022.00
516.59	7926.99	2192.99	820.67	953.28	0.00	488743.00	3913574.00
241.60	8864.26	2645.57	694.00	1709.69	0.00	489681.00	3914026.00
513.64	7931.23	2200.53	718.10	835.75	0.00	488748.00	3913581.00
227.52	8952.44	2686.15	970.04	1666.41	0.00	489769.00	3914067.00
416.45	8157.08	2308.97	673.57	1074.60	0.00	488973.00	3913690.00
112.36	10242.77	3293.47	1003.38	2022.62	0.00	491059.00	3914674.00
401.32	8196.52	2339.10	1032.70	992.03	0.00	489013.00	3913720.00
82.87	10952.94	3638.84	1195.46	2051.17	0.00	491769.00	3915020.00
602.40	7786.11	2124.18	712.57	692.29	0.00	488602.00	3913505.00
107.30	10342.62	3336.20	1069.30	1920.85	0.00	491159.00	3914717.00
82.33	10970.53	3642.78	1073.71	1924.06	0.00	491787.00	3915024.00
649.82	7715.59	2082.83	557.23	785.13	0.00	488532.00	3913464.00
246.04	8837.46	2632.29	741.25	1616.26	0.00	489654.00	3914013.00

285.32	8628.02	2526.89	793.68	1703.78	0.00	489444.00	3913908.00
299.02	8564.56	2510.41	764.69	1097.50	0.00	489381.00	3913891.00
313.82	8504.79	2480.58	578.10	958.44	0.00	489321.00	3913861.00
384.11	8255.83	2353.97	685.05	1270.16	0.00	489072.00	3913735.00
307.12	8533.97	2488.45	583.43	806.85	0.00	489350.00	3913869.00
88.67	10790.35	3543.63	1162.60	1962.50	0.00	491607.00	3914924.00
391.31	8225.21	2341.93	678.21	1193.92	0.00	489041.00	3913723.00
458.11	8055.95	2257.24	763.80	986.14	0.00	488872.00	3913638.00
76.95	11147.29	3722.93	1000.22	1860.39	0.00	491964.00	3915104.00
532.29	7893.87	2182.19	602.09	763.40	0.00	488710.00	3913563.00
699.47	7661.18	2056.08	507.74	731.87	0.00	488477.00	3913437.00
217.13	9026.49	2723.79	555.75	1173.10	0.00	489843.00	3914105.00
44.43	12791.78	4487.62	1145.43	2002.67	0.00	493608.00	3915868.00
243.46	8850.74	2648.05	1133.17	1822.59	0.00	489667.00	3914029.00
164.66	9486.65	2954.07	1072.59	1618.02	0.00	490303.00	3914335.00
238.45	8889.30	2666.06	856.26	1044.17	0.00	489706.00	3914047.00
138.06	9822.69	3102.87	995.69	1379.38	0.00	490639.00	3914484.00
220.82	9000.52	2720.00	979.44	1420.41	0.00	489817.00	3914101.00
262.71	8744.44	2582.79	814.59	1811.59	0.00	489561.00	3913964.00
536.75	7887.43	2176.07	557.47	855.07	0.00	488704.00	3913557.00
113.22	10228.12	3291.21	845.66	1338.04	0.00	491044.00	3914672.00
653.20	7705.89	2080.23	467.34	625.31	0.00	488522.00	3913461.00
331.47	8432.07	2440.38	938.56	1614.51	0.00	489248.00	3913821.00
220.32	9005.31	2718.21	702.33	1211.63	0.00	489822.00	3914099.00
207.58	9104.15	2762.71	871.10	1204.77	0.00	489920.00	3914143.00
505.98	7951.33	2201.83	652.42	1125.66	0.00	488768.00	3913583.00
221.96	8994.16	2712.56	1020.68	1699.30	0.00	489810.00	3914093.00
412.10	8161.48	2314.20	787.39	1474.44	0.00	488978.00	3913695.00
56.30	12027.80	4130.78	1016.29	1937.91	0.00	492844.00	3915512.00
388.59	8245.47	2351.95	727.96	1079.18	0.00	489062.00	3913733.00
258.34	8771.95	2603.01	939.12	1533.04	0.00	489588.00	3913984.00
274.08	8688.18	2563.68	862.50	1412.66	0.00	489504.00	3913944.00
496.88	7971.53	2219.21	637.29	1013.09	0.00	488788.00	3913600.00
215.25	9044.10	2728.85	1033.82	1634.34	0.00	489860.00	3914110.00
113.09	10227.84	3273.74	974.60	2109.55	0.00	491044.00	3914655.00
128.79	9958.82	3158.23	743.15	1796.65	0.00	490775.00	3914539.00
207.87	9097.93	2756.60	629.20	1401.60	0.00	489914.00	3914137.00
434.28	8113.85	2285.20	865.19	1411.73	0.00	488930.00	3913666.00
111.20	10267.66	3314.37	1098.03	1674.16	0.00	491084.00	3914695.00
112.65	10239.68	3288.25	965.57	2138.69	0.00	491056.00	3914669.00
465.87	8029.69	2251.33	834.06	979.35	0.00	488846.00	3913632.00
178.16	9354.03	2873.17	831.93	1609.89	0.00	490170.00	3914254.00
110.42	10280.72	3316.36	795.20	1592.98	0.00	491097.00	3914697.00
245.61	8841.80	2628.76	785.87	1603.95	0.00	489658.00	3914010.00
347.89	8376.02	2414.32	572.96	1212.22	0.00	489192.00	3913795.00
244.66	8838.21	2642.25	656.79	1225.94	0.00	489654.00	3914023.00
243.65	8854.17	2643.54	807.80	1451.31	0.00	489670.00	3914024.00
183.35	9296.74	2842.53	855.48	1922.48	0.00	490113.00	3914223.00
154.48	9607.53	2998.56	677.86	1345.54	0.00	490424.00	3914379.00
184.28	9295.81	2864.61	893.90	1230.11	0.00	490112.00	3914245.00
996.32	7396.93	1908.12	403.50	645.99	0.00	488213.00	3913289.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
282.70	2476.47	746.62	280.15	659.69	<b>28.72</b>	483293.00	3912127.00
267.10	2506.94	768.13	317.95	582.89	0.00	483323.00	3912149.00
93.48	3312.54	1147.97	291.40	570.62	0.00	484129.00	3912529.00
262.03	2511.59	777.12	323.22	562.68	0.00	483328.00	3912158.00
452.80	2219.26	627.92	309.94	511.85	0.00	483036.00	3912009.00
377.59	2312.65	674.88	253.46	567.76	0.00	483129.00	3912056.00
180.80	2767.25	890.51	273.06	624.27	0.00	483584.00	3912271.00
175.49	2789.58	905.72	320.84	617.63	0.00	483606.00	3912287.00
545.03	2130.46	581.44	298.81	515.90	0.00	482947.00	3911962.00
316.59	2405.37	718.16	285.38	620.93	0.00	483222.00	3912099.00
215.63	2640.93	835.77	269.94	558.84	0.00	483457.00	3912217.00
232.24	2593.09	811.20	299.60	637.23	0.00	483409.00	3912192.00
165.26	2831.45	917.74	312.78	671.65	0.00	483648.00	3912299.00
547.08	2126.87	581.68	314.18	515.25	0.00	482943.00	3911962.00
114.04	3132.08	1065.13	268.90	626.16	0.00	483948.00	3912446.00
93.61	3318.57	1147.55	261.70	561.93	0.00	484135.00	3912528.00
483.03	2175.47	612.67	257.80	407.41	0.00	482992.00	3911993.00
59.01	3802.27	1382.86	310.77	633.10	0.00	484619.00	3912764.00
435.44	2238.70	636.25	268.32	490.35	0.00	483055.00	3912017.00
180.05	2768.67	892.57	306.69	606.05	0.00	483585.00	3912273.00
89.57	3354.10	1168.56	292.40	598.76	0.00	484170.00	3912549.00
264.08	2511.91	771.10	304.11	586.07	0.00	483328.00	3912152.00
329.78	2389.10	703.39	309.94	641.50	0.00	483205.00	3912084.00
205.62	2689.89	849.27	284.58	589.47	0.00	483506.00	3912230.00
304.81	2430.55	730.80	246.33	492.17	0.00	483247.00	3912112.00
155.30	2871.18	944.48	284.22	494.95	0.00	483687.00	3912325.00
870.84	1919.82	483.20	237.47	379.91	0.00	482736.00	3911864.00
430.06	2245.20	638.13	287.62	602.76	0.00	483061.00	3912019.00
724.13	2009.78	522.39	317.25	490.32	0.00	482826.00	3911903.00
47.74	4069.58	1507.02	290.65	596.14	0.00	484886.00	3912888.00
133.55	2993.05	1003.71	209.73	387.27	0.00	483809.00	3912384.00
127.76	3033.05	1021.78	290.86	520.24	0.00	483849.00	3912403.00
264.64	2520.67	767.45	249.78	573.78	0.00	483337.00	3912148.00
154.58	2883.28	945.81	308.79	600.60	0.00	483700.00	3912327.00
318.97	2408.42	717.97	269.96	578.59	0.00	483225.00	3912099.00
205.76	2679.37	852.05	286.46	574.19	0.00	483496.00	3912233.00
402.75	2281.09	655.11	256.02	507.85	0.00	483097.00	3912036.00
126.59	3036.75	1023.30	274.90	521.12	0.00	483853.00	3912404.00
329.95	2389.63	707.43	294.67	531.98	0.00	483206.00	3912088.00
350.34	2346.33	691.72	283.08	530.37	0.00	483163.00	3912072.00
806.99	1956.41	497.05	274.71	505.05	0.00	482773.00	3911878.00
404.96	2276.72	656.86	276.01	544.61	0.00	483093.00	3912038.00
29.54	4775.34	1838.75	343.12	613.10	0.00	485592.00	3913220.00
497.73	2173.69	608.83	320.17	436.53	0.00	482990.00	3911990.00
352.70	2339.42	690.00	237.66	566.55	0.00	483156.00	3912071.00
316.29	2408.93	716.01	262.45	593.35	0.00	483225.00	3912097.00
306.57	2431.33	728.69	310.02	541.88	0.00	483248.00	3912109.00
375.53	2319.12	676.11	331.12	589.70	0.00	483135.00	3912057.00
282.73	2467.68	753.53	321.82	586.16	0.00	483284.00	3912134.00

416.95	2263.03	645.22	258.31	525.80	0.00	483079.00	3912026.00
299.65	2437.55	731.13	293.66	596.63	0.00	483254.00	3912112.00
407.38	2264.04	657.75	263.41	388.68	0.00	483080.00	3912039.00
103.40	3218.79	1109.75	285.58	468.61	0.00	484035.00	3912491.00
178.20	2783.29	899.29	298.21	524.50	0.00	483600.00	3912280.00
156.13	2870.46	939.38	281.36	572.57	0.00	483687.00	3912320.00
124.83	3046.16	1029.07	339.23	566.07	0.00	483862.00	3912410.00
268.65	2509.15	765.99	251.11	545.39	0.00	483325.00	3912147.00
122.47	3067.45	1035.54	240.19	532.66	0.00	483884.00	3912416.00
967.63	1892.90	462.97	290.58	476.33	0.00	482709.00	3911844.00
139.17	2958.77	981.42	265.11	621.81	0.00	483775.00	3912362.00
230.25	2607.52	814.85	247.60	511.86	0.00	483424.00	3912196.00
245.12	2561.73	794.52	316.56	592.43	0.00	483378.00	3912175.00
299.10	2445.24	737.85	318.07	618.48	0.00	483262.00	3912119.00
200.12	2699.17	860.45	295.51	581.47	0.00	483515.00	3912241.00
308.50	2419.73	727.79	287.97	624.61	0.00	483236.00	3912109.00
365.32	2333.31	682.48	218.70	594.91	0.00	483150.00	3912063.00
297.84	2443.75	739.00	327.45	539.06	0.00	483260.00	3912120.00
437.43	2233.88	634.28	206.22	480.39	0.00	483050.00	3912015.00
225.56	2620.29	821.66	295.59	597.43	0.00	483437.00	3912202.00
480.11	2196.88	613.26	252.83	591.53	0.00	483013.00	3911994.00
258.94	2520.31	780.14	256.94	536.14	0.00	483337.00	3912161.00
187.65	2734.19	885.52	242.50	404.08	0.00	483550.00	3912266.00
295.96	2449.63	737.31	283.87	584.07	0.00	483266.00	3912118.00
236.86	2580.27	804.06	281.66	558.62	0.00	483397.00	3912185.00
589.32	2099.32	564.27	256.26	577.16	0.00	482916.00	3911945.00
434.54	2232.86	638.82	291.14	504.95	0.00	483049.00	3912020.00
255.84	2543.64	778.47	310.55	594.64	0.00	483360.00	3912159.00
343.86	2361.74	695.60	249.39	526.46	0.00	483178.00	3912076.00
317.85	2411.00	719.37	213.23	589.82	0.00	483227.00	3912100.00
135.30	2991.88	999.99	328.29	543.77	0.00	483808.00	3912381.00
237.02	2589.05	806.70	268.36	606.76	0.00	483405.00	3912187.00
540.16	2130.34	580.56	261.61	571.71	0.00	482947.00	3911961.00
543.13	2139.87	581.44	253.15	530.03	0.00	482956.00	3911962.00
105.70	3198.34	1096.91	276.97	647.94	0.00	484015.00	3912478.00
317.84	2410.18	714.42	208.93	566.81	0.00	483226.00	3912095.00
238.96	2578.48	801.37	270.94	571.12	0.00	483395.00	3912182.00
344.36	2359.25	697.84	256.58	563.84	0.00	483176.00	3912079.00
526.63	2145.52	590.52	259.00	484.83	0.00	482962.00	3911971.00
340.83	2368.33	699.90	299.88	624.23	0.00	483185.00	3912081.00
151.60	2894.94	952.44	338.76	550.11	0.00	483711.00	3912333.00
190.01	2733.86	871.47	302.09	574.35	0.00	483550.00	3912252.00
354.37	2342.88	692.03	262.58	487.29	0.00	483159.00	3912073.00
87.17	3378.89	1184.74	299.14	542.11	0.00	484195.00	3912566.00
77.71	3493.47	1238.48	252.95	561.42	0.00	484310.00	3912619.00
268.80	2513.05	762.75	242.29	583.30	0.00	483329.00	3912144.00
228.76	2604.49	818.86	291.67	522.64	0.00	483421.00	3912200.00
342.08	2363.01	698.29	253.54	630.84	0.00	483179.00	3912079.00
435.76	2242.08	632.44	227.35	505.31	0.00	483058.00	3912013.00
493.01	2181.19	603.17	297.98	668.19	0.00	482997.00	3911984.00
363.13	2327.31	677.76	298.08	659.02	0.00	483144.00	3912059.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
313.63	107981.96	28634.74	1974.84	1630.05	<b>121.05</b>	588798.00	3940016.00
129.87	117784.49	33252.15	2461.78	2497.70	0.00	598601.00	3944633.00
396.53	106063.30	27703.66	1861.53	1385.14	0.00	586880.00	3939084.00
104.05	121041.09	34787.43	2572.50	2584.35	0.00	601857.00	3946168.00
48.03	135732.67	41658.59	3463.38	3956.08	0.00	616549.00	3953039.00
90.23	123335.26	35858.67	2808.83	2950.23	0.00	604152.00	3947239.00
385.28	106285.51	27811.88	1794.15	1139.93	0.00	587102.00	3939193.00
364.79	106718.25	28022.13	1851.47	1326.50	0.00	587535.00	3939403.00
196.84	112597.04	30818.21	2054.19	1641.37	0.00	593413.00	3942199.00
477.98	104710.05	27041.94	1810.05	1290.11	0.00	585526.00	3938423.00
486.54	104588.54	26987.39	1770.30	1135.89	0.00	585405.00	3938368.00
145.94	116214.64	32521.25	2298.52	2121.68	0.00	597031.00	3943902.00
88.68	123626.77	35999.52	3135.06	3606.77	0.00	604443.00	3947380.00
244.90	110290.50	29728.69	2078.35	1843.54	0.00	591107.00	3941109.00
135.85	117167.49	32972.21	2541.35	2620.25	0.00	597984.00	3944353.00
317.53	107873.57	28582.75	1941.43	1525.62	0.00	588690.00	3939964.00
324.02	107700.27	28493.43	1872.73	1337.54	0.00	588517.00	3939874.00
130.06	117765.44	33243.04	2387.87	2305.49	0.00	598582.00	3944624.00
204.08	112197.68	30622.98	2193.21	2081.50	0.00	593014.00	3942004.00
374.80	106502.33	27912.65	1907.48	1524.35	0.00	587319.00	3939293.00
78.98	125636.38	36941.32	2997.70	3243.63	0.00	606453.00	3948322.00
256.59	109830.90	29504.74	2014.32	1695.84	0.00	590647.00	3940886.00
118.25	119117.46	33883.24	2573.41	2627.28	0.00	599934.00	3945264.00
116.56	119326.90	33984.50	2455.38	2381.03	0.00	600143.00	3945365.00
407.85	105850.81	27601.79	1840.93	1340.47	0.00	586667.00	3938983.00
180.88	113565.30	31278.70	2310.46	2268.25	0.00	594382.00	3942659.00
522.37	104115.33	26757.05	1792.59	1255.59	0.00	584932.00	3938138.00
149.45	115905.62	32377.54	2353.73	2287.32	0.00	596722.00	3943758.00
100.93	121516.48	35012.36	2569.19	2531.69	0.00	602333.00	3946393.00
322.77	107732.86	28502.62	1889.24	1420.59	0.00	588549.00	3939883.00
537.91	103927.81	26671.70	1823.20	1343.28	0.00	584744.00	3938052.00
312.88	108001.85	28634.04	1901.41	1419.72	0.00	588818.00	3940015.00
30.86	147097.15	46937.81	4628.27	5854.87	0.00	627913.00	3958319.00
157.02	115275.60	32079.86	2350.65	2416.96	0.00	596092.00	3943461.00
294.77	108531.76	28880.94	1889.29	1369.70	0.00	589348.00	3940262.00
301.55	108328.20	28794.70	1942.62	1514.85	0.00	589144.00	3940175.00
308.10	108137.97	28706.10	2001.83	1702.74	0.00	588954.00	3940087.00
520.30	104142.31	26774.45	1788.03	1223.11	0.00	584959.00	3938155.00
198.05	112529.43	30789.26	2096.95	1778.47	0.00	593346.00	3942170.00
372.12	106558.11	27945.85	1874.16	1419.88	0.00	587374.00	3939327.00
159.87	115050.06	31982.48	2319.17	2230.18	0.00	595866.00	3943363.00
250.73	110055.95	29605.83	2062.69	1811.85	0.00	590872.00	3940987.00
55.93	132369.11	40085.77	3494.49	4136.55	0.00	613185.00	3951467.00
80.20	125363.29	36803.96	2946.03	3238.86	0.00	606180.00	3948185.00
507.62	104304.41	26851.63	1727.12	983.71	0.00	585121.00	3938232.00
498.40	104426.36	26910.27	1774.80	1173.59	0.00	585243.00	3938291.00
244.57	110303.39	29728.97	2035.64	1697.28	0.00	591120.00	3941110.00
398.39	106029.18	27693.48	1812.32	1215.92	0.00	586845.00	3939074.00
269.47	109361.49	29278.67	2019.03	1749.65	0.00	590178.00	3940659.00

432.78	105412.86	27392.93	1803.30	1218.28	0.00	586229.00	3938774.00
46.46	136502.43	42014.13	3756.13	4505.52	0.00	617319.00	3953395.00
174.03	114021.08	31486.68	2149.65	1869.55	0.00	594837.00	3942867.00
447.54	105171.18	27270.30	1798.47	1224.11	0.00	585987.00	3938651.00
446.44	105188.60	27288.36	1834.19	1342.97	0.00	586005.00	3938669.00
273.17	109232.53	29227.41	1972.42	1581.16	0.00	590049.00	3940608.00
369.63	106611.84	27972.28	1818.47	1215.95	0.00	587428.00	3939353.00
230.56	110901.76	30012.73	2007.84	1592.05	0.00	591718.00	3941394.00
201.75	112324.88	30701.72	2215.32	2084.73	0.00	593141.00	3942082.00
403.03	105940.74	27645.13	1848.46	1366.97	0.00	586757.00	3939026.00
221.44	111321.17	30209.78	2137.10	1942.42	0.00	592137.00	3941591.00
440.63	105280.63	27328.07	1799.31	1215.35	0.00	586097.00	3938709.00
329.98	107544.52	28414.77	1954.31	1599.72	0.00	588361.00	3939796.00
142.00	116574.61	32684.12	2296.39	2137.34	0.00	597391.00	3944065.00
79.83	125445.66	36832.96	2791.68	2939.55	0.00	606262.00	3948214.00
679.76	102547.95	25987.23	1729.35	1072.85	0.00	583364.00	3937368.00
172.13	114152.24	31552.24	2250.27	2075.75	0.00	594969.00	3942933.00
290.42	108666.23	28956.73	1989.88	1669.30	0.00	589483.00	3940338.00
78.00	125860.92	37048.51	3023.56	3370.04	0.00	606677.00	3948429.00
82.66	124833.40	36573.40	3029.21	3403.84	0.00	605650.00	3947954.00
235.99	110662.75	29905.49	2033.97	1680.99	0.00	591479.00	3941286.00
411.51	105783.02	27576.44	1821.64	1259.74	0.00	586599.00	3938957.00
237.53	110596.34	29867.01	2025.42	1678.08	0.00	591413.00	3941248.00
185.50	113271.59	31138.83	2273.67	2196.59	0.00	594088.00	3942520.00
250.30	110073.31	29623.47	2088.49	1854.95	0.00	590890.00	3941004.00
532.96	103987.67	26700.30	1757.49	1123.14	0.00	584804.00	3938081.00
139.52	116808.91	32792.05	2315.62	2168.12	0.00	597625.00	3944173.00
545.18	103842.10	26629.14	1761.66	1128.19	0.00	584658.00	3938010.00
422.72	105584.19	27474.08	1808.55	1236.82	0.00	586400.00	3938855.00
368.22	106642.19	27995.97	1955.04	1624.26	0.00	587458.00	3939377.00
105.95	120761.35	34647.57	2593.34	2651.36	0.00	601578.00	3946028.00
333.41	107458.10	28378.88	1878.80	1375.41	0.00	588274.00	3939760.00
503.69	104356.02	26876.84	1810.83	1293.49	0.00	585172.00	3938258.00
657.25	102724.91	26077.65	1710.96	995.74	0.00	583541.00	3937458.00
121.96	118671.18	33678.05	2465.78	2406.38	0.00	599487.00	3945059.00
253.55	109946.55	29557.42	2091.26	1883.65	0.00	590763.00	3940938.00
87.09	123933.53	36125.12	2714.53	2811.00	0.00	604750.00	3947506.00
318.25	107853.90	28571.55	1958.18	1575.14	0.00	588670.00	3939952.00
318.49	107848.93	28564.51	1906.77	1440.27	0.00	588665.00	3939945.00
345.52	107159.30	28234.17	1952.28	1615.89	0.00	587976.00	3939615.00
272.34	109261.19	29238.40	1954.37	1511.02	0.00	590077.00	3940619.00
462.48	104937.82	27160.32	1864.58	1472.15	0.00	585754.00	3938541.00
461.43	104954.03	27166.99	1784.17	1182.06	0.00	585770.00	3938548.00
335.88	107394.92	28344.58	1975.89	1728.10	0.00	588211.00	3939725.00
419.10	105647.45	27509.13	1791.96	1166.46	0.00	586464.00	3938890.00
81.42	125097.14	36695.25	2902.04	3123.16	0.00	605913.00	3948076.00
341.42	107259.59	28285.38	1926.63	1515.39	0.00	588076.00	3939666.00
526.37	104068.07	26735.18	1760.08	1133.33	0.00	584884.00	3938116.00
216.25	111571.45	30345.36	2186.31	2015.08	0.00	592388.00	3941726.00
45.20	137147.45	42315.62	3601.22	4077.65	0.00	617964.00	3953696.00
56.39	132193.64	39998.16	3256.55	3642.67	0.00	613010.00	3951379.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
235.43	14847.54	4385.84	1100.57	1438.13	<b>56.36</b>	495664.00	3915767.00
372.94	13932.16	3947.07	805.43	1037.59	0.00	494748.00	3915328.00
117.49	16722.82	5270.75	1420.81	2440.82	0.00	497539.00	3916652.00
194.89	15295.89	4586.41	1342.81	2320.79	0.00	496112.00	3915967.00
63.38	19040.32	6343.52	1804.87	3055.76	0.00	499857.00	3917724.00
82.34	17970.83	5855.63	1465.87	2874.85	0.00	498787.00	3917236.00
389.05	13859.03	3902.20	751.12	1113.01	0.00	494675.00	3915283.00
295.61	14367.48	4157.70	812.46	1042.27	0.00	495184.00	3915538.00
676.54	13051.09	3506.44	615.86	688.63	0.00	493867.00	3914887.00
29.34	23130.27	8269.17	2140.62	3084.93	0.00	503947.00	3919650.00
141.64	16150.17	5009.35	1468.24	1811.25	0.00	496966.00	3916390.00
282.59	14454.98	4200.32	766.26	984.42	0.00	495271.00	3915581.00
367.70	13961.52	3951.48	657.05	879.47	0.00	494778.00	3915332.00
200.06	15231.22	4576.82	1198.60	1248.79	0.00	496048.00	3915958.00
82.59	17957.42	5823.39	1380.74	2819.22	0.00	498774.00	3917204.00
145.36	16076.32	4971.23	1204.71	1439.66	0.00	496893.00	3916352.00
89.42	17662.40	5712.21	1255.76	2003.39	0.00	498479.00	3917093.00
105.43	17079.13	5433.78	1316.70	2516.90	0.00	497895.00	3916815.00
28.26	23370.16	8361.03	2000.94	3135.65	0.00	504186.00	3919742.00
616.22	13164.02	3559.25	688.95	739.47	0.00	493980.00	3914940.00
62.88	19076.43	6368.25	1559.27	2809.86	0.00	499893.00	3917749.00
316.89	14239.66	4093.66	783.66	1008.92	0.00	495056.00	3915474.00
343.53	14080.27	4009.80	746.06	1028.55	0.00	494897.00	3915391.00
309.10	14283.37	4111.29	772.79	1003.05	0.00	495100.00	3915492.00
207.88	15141.79	4526.26	944.92	1083.96	0.00	495958.00	3915907.00
473.82	13543.76	3749.45	639.71	754.68	0.00	494360.00	3915130.00
158.07	15840.06	4861.20	1384.22	1446.12	0.00	496656.00	3916242.00
111.97	16880.77	5335.93	1052.92	2264.15	0.00	497697.00	3916717.00
24.93	24215.04	8760.06	1832.52	3311.76	0.00	505031.00	3920141.00
536.85	13348.30	3656.09	644.74	768.47	0.00	494165.00	3915037.00
90.91	17602.74	5696.31	1402.87	1716.03	0.00	498419.00	3917077.00
796.32	12863.08	3400.05	497.80	493.87	0.00	493679.00	3914781.00
325.14	14180.16	4064.76	845.18	1377.27	0.00	494996.00	3915446.00
47.62	20380.24	6982.70	1800.33	3013.86	0.00	501197.00	3918363.00
122.02	16606.46	5226.65	1407.02	1755.57	0.00	497423.00	3916607.00
198.55	15254.27	4571.96	1028.12	1728.06	0.00	496071.00	3915953.00
283.12	14454.63	4191.92	703.66	1120.31	0.00	495271.00	3915573.00
249.21	14725.06	4321.86	828.20	1371.08	0.00	495541.00	3915703.00
100.81	17235.74	5507.48	1613.15	2316.43	0.00	498052.00	3916888.00
302.81	14328.14	4129.19	727.35	1142.49	0.00	495144.00	3915510.00
334.38	14135.01	4037.58	1002.20	1288.41	0.00	494951.00	3915418.00
846.24	12800.57	3363.82	553.02	738.98	0.00	493617.00	3914745.00
591.21	13221.69	3585.98	651.16	764.60	0.00	494038.00	3914967.00
116.09	16764.45	5286.94	1292.47	2538.44	0.00	497581.00	3916668.00
612.61	13162.44	3572.02	571.58	515.79	0.00	493979.00	3914953.00
193.08	15321.97	4611.07	900.36	1252.25	0.00	496138.00	3915992.00
147.98	16031.71	4930.93	1000.06	1624.93	0.00	496848.00	3916312.00
417.85	13739.13	3846.29	716.20	842.46	0.00	494555.00	3915227.00
148.60	16013.41	4932.06	793.98	1866.54	0.00	496830.00	3916313.00

459.74	13582.58	3772.13	628.87	715.40	0.00	494399.00	3915153.00
300.71	14334.07	4133.72	818.94	1441.28	0.00	495150.00	3915515.00
290.30	14400.41	4168.60	981.89	1393.40	0.00	495217.00	3915549.00
323.30	14197.48	4065.36	721.94	1115.68	0.00	495014.00	3915446.00
155.36	15886.39	4871.14	1206.33	2110.52	0.00	496703.00	3916252.00
439.99	13646.20	3796.86	614.43	981.29	0.00	494462.00	3915178.00
154.91	15899.01	4886.86	1386.25	2059.11	0.00	496715.00	3916268.00
116.69	16746.19	5274.35	1345.53	2449.02	0.00	497562.00	3916655.00
54.12	19756.20	6696.79	1998.90	2913.09	0.00	500572.00	3918078.00
439.03	13654.26	3809.56	772.37	1170.05	0.00	494471.00	3915190.00
475.91	13531.21	3744.19	717.50	903.74	0.00	494347.00	3915125.00
291.38	14400.51	4166.98	891.70	1396.36	0.00	495217.00	3915548.00
95.46	17425.54	5591.01	1800.15	3183.89	0.00	498242.00	3916972.00
603.98	13184.48	3564.65	591.09	867.22	0.00	494001.00	3914945.00
814.17	12834.64	3387.63	579.59	735.41	0.00	493651.00	3914768.00
513.83	13415.31	3687.02	832.75	952.11	0.00	494232.00	3915068.00
234.05	14867.82	4393.52	811.71	1198.55	0.00	495684.00	3915774.00
167.48	15689.27	4780.86	1020.12	1742.64	0.00	496506.00	3916162.00
158.70	15832.88	4853.94	1373.37	1343.99	0.00	496649.00	3916235.00
451.56	13612.36	3780.34	728.69	1268.91	0.00	494429.00	3915161.00
425.41	13708.97	3836.06	804.77	1009.65	0.00	494525.00	3915217.00
477.47	13529.58	3737.34	666.04	910.21	0.00	494346.00	3915118.00
192.27	15336.31	4606.94	870.74	1312.70	0.00	496153.00	3915988.00
190.94	15345.73	4618.46	1267.03	2261.22	0.00	496162.00	3915999.00
49.69	20170.24	6875.92	1231.23	2025.25	0.00	500987.00	3918257.00
204.91	15171.37	4539.15	883.28	1251.68	0.00	495988.00	3915920.00
350.55	14045.72	4000.27	764.16	915.13	0.00	494862.00	3915381.00
299.88	14338.95	4142.42	804.65	885.84	0.00	495155.00	3915523.00
311.37	14269.98	4109.55	1052.22	1198.21	0.00	495086.00	3915490.00
238.89	14812.34	4366.07	900.31	1430.83	0.00	495629.00	3915747.00
182.68	15460.76	4670.99	1226.87	1763.86	0.00	496277.00	3916052.00
356.93	14011.37	3986.82	746.20	908.96	0.00	494828.00	3915368.00
146.70	16056.81	4953.61	1443.12	1551.01	0.00	496873.00	3916334.00
286.84	14430.00	4184.14	622.72	831.57	0.00	495246.00	3915565.00
275.11	14513.13	4221.69	896.63	1304.38	0.00	495329.00	3915602.00
278.39	14497.82	4209.09	892.23	1296.96	0.00	495314.00	3915590.00
476.58	13536.31	3745.23	660.25	823.22	0.00	494353.00	3915126.00
257.23	14654.54	4298.92	1050.60	1007.56	0.00	495471.00	3915680.00
121.16	16630.85	5240.12	1414.58	1410.45	0.00	497447.00	3916621.00
355.35	14023.94	3983.98	843.06	1183.22	0.00	494840.00	3915365.00
295.25	14376.56	4153.63	891.62	1388.11	0.00	495193.00	3915534.00
238.96	14819.70	4355.16	764.58	1260.32	0.00	495636.00	3915736.00
463.90	13567.89	3766.18	757.46	967.40	0.00	494384.00	3915147.00
69.80	18633.58	6134.12	1355.06	3009.84	0.00	499450.00	3917515.00
300.28	14340.29	4145.05	907.10	999.51	0.00	495157.00	3915526.00
162.34	15770.45	4831.87	1323.99	1808.65	0.00	496587.00	3916213.00
103.81	17138.23	5449.61	1227.09	2497.21	0.00	497955.00	3916830.00
93.48	17498.48	5612.60	869.12	2049.11	0.00	498315.00	3916993.00
612.30	13166.18	3557.11	595.95	972.43	0.00	493982.00	3914938.00
243.20	14776.99	4342.81	850.79	1658.82	0.00	495593.00	3915724.00
204.35	15186.08	4539.73	729.61	1428.60	0.00	496002.00	3915921.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
395.56	62860.40	16820.77	1323.64	993.23	<b>101.10</b>	543677.00	3928202.00
487.53	61799.34	16306.47	1315.59	1036.23	0.00	542616.00	3927687.00
189.50	67745.38	19151.15	1561.54	1495.74	0.00	548562.00	3930532.00
92.56	74706.02	22425.29	1978.06	2193.63	0.00	555522.00	3933806.00
515.18	61542.80	16182.01	1280.56	902.71	0.00	542359.00	3927563.00
996.05	59102.21	14933.13	1202.46	673.92	0.00	539918.00	3926314.00
231.31	66225.67	18430.35	1485.31	1375.80	0.00	547042.00	3929811.00
91.54	74835.01	22489.92	2275.84	2702.61	0.00	555651.00	3933871.00
360.76	63368.13	17068.03	1381.78	1166.30	0.00	544184.00	3928449.00
361.67	63353.64	17058.70	1353.43	1076.41	0.00	544170.00	3928439.00
104.07	73385.53	21804.12	1980.95	2299.03	0.00	554202.00	3933185.00
331.89	63852.92	17309.35	1482.47	1380.15	0.00	544669.00	3928690.00
429.17	62430.87	16610.21	1342.34	1100.39	0.00	543247.00	3927991.00
158.91	69222.04	19857.12	1633.06	1602.33	0.00	550038.00	3931238.00
144.37	70088.57	20267.65	1802.10	1945.72	0.00	550905.00	3931648.00
224.36	66448.07	18544.18	1541.10	1456.70	0.00	547264.00	3929925.00
254.29	65557.10	18120.31	1467.74	1342.35	0.00	546373.00	3929501.00
240.02	65959.69	18314.72	1525.05	1440.52	0.00	546776.00	3929695.00
422.79	62508.67	16654.55	1340.08	1074.98	0.00	543325.00	3928035.00
232.15	66198.95	18423.17	1468.23	1264.81	0.00	547015.00	3929804.00
366.56	63279.19	17025.09	1299.74	898.87	0.00	544095.00	3928406.00
465.49	62024.26	16416.00	1362.58	1168.72	0.00	542841.00	3927797.00
592.43	60925.76	15878.69	1251.56	817.33	0.00	541742.00	3927259.00
492.11	61753.69	16281.46	1286.13	925.01	0.00	542570.00	3927662.00
305.86	64348.52	17542.48	1494.33	1375.60	0.00	545165.00	3928923.00
541.23	61318.59	16069.78	1264.45	871.72	0.00	542135.00	3927451.00
339.52	63718.00	17240.35	1375.28	1113.39	0.00	544534.00	3928621.00
299.88	64474.15	17597.53	1443.40	1311.36	0.00	545290.00	3928978.00
171.15	68587.47	19555.78	1734.26	1842.08	0.00	549404.00	3930937.00
622.28	60720.63	15770.63	1280.91	952.74	0.00	541537.00	3927151.00
578.74	61026.73	15924.37	1353.38	1177.60	0.00	541843.00	3927305.00
311.01	64247.23	17494.91	1382.95	1126.02	0.00	545064.00	3928876.00
214.18	66794.64	18704.74	1530.87	1433.86	0.00	547611.00	3930086.00
262.68	65335.65	18012.65	1510.21	1393.94	0.00	546152.00	3929393.00
268.03	65201.05	17948.99	1467.95	1307.76	0.00	546017.00	3929330.00
189.20	67758.62	19166.09	1625.91	1633.60	0.00	548575.00	3930547.00
384.06	63020.01	16902.45	1407.19	1233.93	0.00	543836.00	3928283.00
327.01	63939.69	17347.50	1355.48	1055.53	0.00	544756.00	3928728.00
454.61	62140.89	16476.98	1294.18	933.90	0.00	542957.00	3927858.00
77.45	76872.86	23455.48	2175.56	2289.57	0.00	557689.00	3934836.00
227.69	66339.34	18483.34	1626.12	1684.47	0.00	547156.00	3929864.00
670.80	60434.34	15631.26	1227.52	740.79	0.00	541251.00	3927012.00
37.56	87961.99	28635.83	3519.59	4161.20	0.00	568778.00	3940017.00
119.17	71952.89	21141.06	1913.27	2054.73	0.00	552769.00	3932522.00
405.35	62728.71	16754.38	1301.95	949.23	0.00	543545.00	3928135.00
291.38	64656.38	17685.65	1455.92	1344.04	0.00	545473.00	3929066.00
192.26	67629.00	19105.37	1707.52	1788.91	0.00	548445.00	3930486.00
60.02	80329.16	25077.22	2648.22	3113.28	0.00	561145.00	3936458.00
142.06	70239.29	20318.53	1802.01	1988.19	0.00	551056.00	3931699.00

309.63	64273.78	17512.55	1378.43	1103.56	0.00	545090.00	3928893.00
505.29	61631.32	16222.53	1335.96	1076.92	0.00	542448.00	3927603.00
329.90	63887.23	17325.84	1432.00	1256.72	0.00	544704.00	3928707.00
184.66	67954.81	19256.15	1577.40	1488.84	0.00	548771.00	3930637.00
261.97	65356.60	18027.47	1528.61	1407.63	0.00	546173.00	3929408.00
325.32	63971.69	17356.76	1371.67	1123.04	0.00	544788.00	3928738.00
324.26	63991.04	17372.89	1343.42	1009.17	0.00	544807.00	3928754.00
568.13	61105.45	15963.20	1306.63	1029.99	0.00	541922.00	3927344.00
406.94	62706.64	16749.14	1326.82	1004.48	0.00	543523.00	3928130.00
326.73	63947.90	17348.33	1366.98	1085.78	0.00	544764.00	3928729.00
342.92	63658.47	17212.86	1383.29	1154.19	0.00	544475.00	3928594.00
142.88	70183.69	20298.74	1765.27	1961.17	0.00	551000.00	3931680.00
432.33	62393.84	16602.39	1309.37	954.73	0.00	543210.00	3927983.00
57.74	80893.70	25322.49	2460.04	2955.69	0.00	561710.00	3936703.00
326.12	63958.42	17356.66	1351.16	1031.47	0.00	544775.00	3928737.00
288.66	64715.72	17727.09	1426.02	1184.65	0.00	545532.00	3929108.00
364.98	63302.88	17039.28	1356.24	1049.81	0.00	544119.00	3928420.00
188.85	67774.14	19175.05	1669.50	1679.71	0.00	548590.00	3930556.00
422.32	62515.15	16658.16	1368.06	1124.64	0.00	543331.00	3928039.00
128.51	71196.59	20788.95	1982.38	2324.82	0.00	552013.00	3932170.00
368.24	63253.74	17014.34	1390.67	1195.92	0.00	544070.00	3928395.00
524.74	61458.04	16138.90	1260.16	840.74	0.00	542274.00	3927520.00
266.97	65227.17	17970.64	1491.28	1358.12	0.00	546043.00	3929351.00
224.09	66457.92	18554.54	1653.29	1704.60	0.00	547274.00	3929935.00
435.80	62353.16	16577.52	1328.34	1029.69	0.00	543169.00	3927958.00
407.81	62695.25	16749.72	1332.20	1022.22	0.00	543512.00	3928131.00
436.15	62347.82	16574.80	1386.08	1196.69	0.00	543164.00	3927956.00
306.77	64330.58	17530.97	1378.43	1109.13	0.00	545147.00	3928912.00
445.47	62243.44	16525.34	1347.89	1103.55	0.00	543060.00	3927906.00
660.17	60487.95	15655.00	1258.74	873.32	0.00	541304.00	3927036.00
422.08	62517.73	16655.99	1338.77	1068.53	0.00	543334.00	3928037.00
215.59	66743.25	18677.48	1538.58	1464.23	0.00	547560.00	3930058.00
69.29	78326.36	24121.59	2616.01	3243.47	0.00	559143.00	3935502.00
177.81	68265.20	19404.04	1623.14	1556.75	0.00	549081.00	3930785.00
319.32	64084.95	17416.88	1457.94	1290.04	0.00	544901.00	3928798.00
495.64	61721.76	16264.47	1298.90	990.73	0.00	542538.00	3927645.00
364.53	63308.65	17039.13	1400.09	1212.13	0.00	544125.00	3928420.00
103.89	73405.14	21810.45	2059.82	2474.34	0.00	554221.00	3933191.00
198.87	67362.82	18972.95	1635.74	1683.29	0.00	548179.00	3930354.00
177.43	68282.86	19408.96	1687.54	1775.74	0.00	549099.00	3930790.00
156.57	69353.07	19908.80	1612.90	1553.33	0.00	550169.00	3931290.00
276.21	65002.27	17844.69	1476.96	1392.30	0.00	545819.00	3929225.00
370.92	63212.18	16992.77	1436.63	1351.06	0.00	544028.00	3928374.00
156.54	69356.39	19908.38	1627.55	1581.46	0.00	550173.00	3931289.00
163.54	68971.78	19747.02	1769.24	1889.58	0.00	549788.00	3931128.00
200.12	67312.83	18962.15	1632.65	1656.43	0.00	548129.00	3930343.00
256.43	65501.34	18089.88	1544.10	1486.85	0.00	546318.00	3929471.00
127.49	71278.42	20821.12	1868.01	2078.90	0.00	552095.00	3932202.00
562.74	61143.38	15984.64	1311.70	1031.25	0.00	541960.00	3927365.00
207.22	67046.50	18822.17	1564.46	1502.71	0.00	547863.00	3930203.00
294.18	64593.89	17658.19	1469.27	1405.54	0.00	545410.00	3929039.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
386.45	108713.00	28409.09	1884.65	1397.16	<b>122.05</b>	589529.00	3939790.00
165.70	117191.47	32446.85	2206.83	1883.03	0.00	598008.00	3943828.00
226.04	113630.69	30760.51	2127.18	1835.04	0.00	594447.00	3942141.00
244.96	112799.70	30366.40	2104.07	1830.42	0.00	593616.00	3941747.00
81.23	127875.37	37454.78	2837.11	2950.61	0.00	608692.00	3948836.00
394.30	108556.10	28330.12	1820.24	1176.76	0.00	589372.00	3939711.00
246.80	112724.06	30320.86	2187.34	2072.39	0.00	593540.00	3941702.00
460.31	107402.97	27776.99	1821.32	1239.07	0.00	588219.00	3939158.00
244.35	112824.72	30368.75	2114.29	1886.77	0.00	593641.00	3941750.00
378.82	108870.99	28485.93	1924.62	1498.52	0.00	589687.00	3939867.00
337.33	109826.16	28947.45	1949.15	1555.58	0.00	590642.00	3940328.00
249.83	112600.58	30278.16	2028.80	1624.99	0.00	593417.00	3941659.00
102.00	124030.32	35652.34	2611.79	2613.66	0.00	604847.00	3947033.00
477.10	107149.38	27655.22	1793.44	1154.25	0.00	587966.00	3939036.00
183.58	115951.60	31849.90	2208.90	2010.55	0.00	596768.00	3943231.00
299.18	110881.75	29449.37	1930.88	1442.66	0.00	591698.00	3940830.00
146.28	118786.17	33177.55	2349.07	2243.20	0.00	599602.00	3944558.00
449.44	107573.49	27864.20	1846.43	1311.27	0.00	588390.00	3939245.00
336.46	109848.30	28951.35	1925.14	1465.97	0.00	590665.00	3940332.00
249.36	112621.27	30284.61	2017.88	1582.61	0.00	593438.00	3941665.00
118.26	121760.97	34590.56	2776.51	2977.36	0.00	602577.00	3945971.00
214.58	114187.44	31030.81	2210.88	2018.59	0.00	595004.00	3942412.00
670.04	105023.29	26610.35	1717.45	932.71	0.00	585840.00	3937991.00
75.99	129087.24	38004.50	2949.78	3204.04	0.00	609904.00	3949385.00
207.45	114557.50	31203.75	2147.39	1846.85	0.00	595374.00	3942585.00
79.63	128232.75	37609.24	3162.37	3724.92	0.00	609049.00	3948990.00
263.01	112092.98	30044.10	2027.80	1623.76	0.00	592909.00	3941425.00
180.34	116163.23	31949.91	2245.95	2059.31	0.00	596980.00	3943331.00
121.33	121385.42	34409.73	2446.85	2328.14	0.00	602202.00	3945791.00
495.99	106881.59	27533.34	1777.58	1081.88	0.00	587698.00	3938914.00
70.82	130414.05	38658.67	2982.80	2997.74	0.00	611230.00	3950039.00
303.16	110762.84	29397.11	2014.24	1667.44	0.00	591579.00	3940778.00
314.82	110426.17	29238.78	1941.45	1474.51	0.00	591242.00	3940620.00
102.57	123941.18	35609.86	2567.59	2488.27	0.00	604757.00	3946991.00
415.28	108157.50	28151.13	1817.65	1179.51	0.00	588974.00	3939532.00
689.41	104864.03	26531.49	1746.51	1070.11	0.00	585680.00	3937912.00
163.00	117390.85	32520.50	2242.08	2026.93	0.00	598207.00	3943901.00
464.30	107340.43	27743.30	1798.98	1164.58	0.00	588157.00	3939124.00
552.28	106173.90	27185.74	1801.58	1212.56	0.00	586990.00	3938567.00
285.54	111311.13	29659.54	2043.14	1745.36	0.00	592127.00	3941040.00
301.15	110822.89	29423.99	2020.71	1701.54	0.00	591639.00	3940805.00
534.04	106390.02	27281.62	1798.65	1218.61	0.00	587206.00	3938662.00
314.88	110424.40	29227.55	2088.31	1935.42	0.00	591241.00	3940608.00
426.76	107954.01	28049.41	1906.13	1486.22	0.00	588770.00	3939430.00
424.60	107992.16	28067.86	1819.97	1186.26	0.00	588808.00	3939449.00
498.51	106848.66	27513.82	1813.20	1231.92	0.00	587665.00	3938895.00
163.51	117351.42	32521.09	2327.21	2180.65	0.00	598168.00	3943902.00
114.26	122274.50	34824.21	2567.90	2571.18	0.00	603091.00	3946205.00
255.81	112367.62	30157.00	2155.73	2011.88	0.00	593184.00	3941538.00

379.25	108863.18	28490.25	1909.72	1432.81	0.00	589679.00	3939871.00
338.56	109796.57	28939.48	1985.35	1626.10	0.00	590613.00	3940320.00
626.58	105399.12	26795.85	1750.12	1061.83	0.00	586215.00	3938177.00
389.30	108655.55	28382.26	1848.89	1269.47	0.00	589472.00	3939763.00
369.35	109075.10	28592.61	1943.60	1553.68	0.00	589891.00	3939973.00
437.92	107762.44	27942.39	1863.04	1388.06	0.00	588579.00	3939323.00
365.38	109163.55	28629.26	1956.85	1591.96	0.00	589980.00	3940010.00
303.23	110759.60	29404.11	2058.25	1816.46	0.00	591576.00	3940785.00
540.92	106306.76	27248.90	1850.53	1363.00	0.00	587123.00	3938630.00
198.08	115075.04	31433.68	2269.88	2156.91	0.00	595891.00	3942814.00
19.23	165683.15	55083.04	5209.59	6488.82	0.00	646499.00	3966464.00
169.56	116906.47	32300.40	2219.03	1985.66	0.00	597723.00	3943681.00
267.20	111940.00	29970.98	2008.16	1563.24	0.00	592756.00	3941352.00
277.27	111587.67	29785.47	1936.61	1403.15	0.00	592404.00	3941166.00
312.91	110478.39	29272.81	2010.43	1640.84	0.00	591295.00	3940654.00
23.98	157970.17	51508.25	5235.81	6721.76	0.00	638786.00	3962889.00
275.37	111652.29	29825.41	1968.25	1486.17	0.00	592469.00	3941206.00
309.73	110569.68	29305.45	1982.39	1616.09	0.00	591386.00	3940686.00
394.17	108558.49	28341.95	1886.37	1398.82	0.00	589375.00	3939723.00
138.27	119542.14	33537.89	2549.85	2704.06	0.00	600358.00	3944919.00
240.77	112975.06	30440.93	2090.35	1833.12	0.00	593791.00	3941822.00
40.86	142548.33	44300.46	3924.92	4796.64	0.00	623365.00	3955681.00
103.03	123871.70	35570.34	2810.36	3009.20	0.00	604688.00	3946951.00
770.48	104272.87	26228.00	1716.30	978.97	0.00	585089.00	3937609.00
383.80	108767.64	28445.49	1902.10	1444.52	0.00	589584.00	3939826.00
148.90	118550.64	33090.73	2420.36	2350.08	0.00	599367.00	3944472.00
143.58	119032.72	33308.63	2347.04	2169.05	0.00	599849.00	3944689.00
292.46	111089.42	29554.15	1930.11	1400.96	0.00	591906.00	3940935.00
316.78	110371.33	29209.30	1964.94	1573.98	0.00	591188.00	3940590.00
48.45	138422.47	42373.13	3835.19	4668.55	0.00	619239.00	3953754.00
185.80	115810.96	31795.19	2193.65	1924.53	0.00	596627.00	3943176.00
430.35	107891.75	28028.06	1864.04	1352.16	0.00	588708.00	3939409.00
356.06	109374.54	28731.56	1931.15	1496.66	0.00	590191.00	3940112.00
251.76	112525.23	30239.00	2078.22	1767.72	0.00	593342.00	3941620.00
167.41	117062.98	32392.18	2147.88	1733.22	0.00	597879.00	3943773.00
106.41	123364.01	35349.73	2527.93	2344.06	0.00	604180.00	3946731.00
81.48	127819.05	37422.60	3190.17	3788.84	0.00	608635.00	3948803.00
357.27	109347.00	28714.24	1913.15	1462.19	0.00	590163.00	3940095.00
324.59	110156.30	29106.85	1918.43	1421.14	0.00	590973.00	3940488.00
125.63	120882.78	34182.55	2412.94	2249.92	0.00	601699.00	3945563.00
343.75	109667.59	28870.36	1931.61	1484.76	0.00	590484.00	3940251.00
167.03	117091.81	32386.19	2212.85	1934.66	0.00	597908.00	3943767.00
229.41	113475.14	30690.74	2078.13	1720.50	0.00	594291.00	3942072.00
148.01	118630.25	33108.16	2395.16	2324.36	0.00	599447.00	3944489.00
418.67	108096.73	28115.54	1858.90	1341.84	0.00	588913.00	3939496.00
480.70	107098.18	27634.64	1863.25	1398.42	0.00	587914.00	3939015.00
237.13	113131.78	30523.11	2077.57	1767.19	0.00	593948.00	3941904.00
185.30	115843.12	31811.21	2295.27	2177.42	0.00	596659.00	3943192.00
427.51	107940.91	28035.94	1831.97	1246.05	0.00	588757.00	3939417.00
161.60	117499.36	32591.16	2369.65	2253.71	0.00	598316.00	3943972.00
368.67	109090.45	28593.18	1916.12	1490.37	0.00	589907.00	3939974.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
311.28	49239.15	13582.58	1338.11	1395.96	<b>92.15</b>	530055.00	3924963.00
529.59	46898.88	12433.07	1130.31	1002.07	0.00	527715.00	3923814.00
144.92	54046.68	15854.14	1537.16	1752.03	0.00	534863.00	3927235.00
347.23	48701.02	13318.65	1137.30	911.69	0.00	529517.00	3924699.00
267.02	50052.82	13965.40	1325.07	1364.93	0.00	530869.00	3925346.00
277.93	49833.32	13861.25	1231.50	1145.98	0.00	530650.00	3925242.00
276.87	49856.35	13873.24	1296.03	1297.51	0.00	530673.00	3925254.00
245.43	50533.36	14192.27	1278.51	1275.47	0.00	531350.00	3925573.00
714.78	45892.31	11921.57	1046.05	751.82	0.00	526709.00	3923302.00
28.43	73385.36	24896.18	3081.44	4633.36	0.00	554202.00	3936277.00
685.73	46020.79	11998.43	1033.70	693.95	0.00	526837.00	3923379.00
287.80	49648.67	13777.01	1232.74	1162.42	0.00	530465.00	3925158.00
69.69	60831.86	19039.41	2328.16	3134.02	0.00	541648.00	3930420.00
181.63	52424.68	15092.14	1493.63	1670.79	0.00	533241.00	3926473.00
345.87	48718.01	13324.35	1205.27	1156.50	0.00	529534.00	3924705.00
75.83	59916.01	18613.58	1717.33	1845.68	0.00	540732.00	3929994.00
427.31	47758.21	12863.37	1127.13	923.84	0.00	528574.00	3924244.00
469.84	47366.18	12664.33	1108.83	900.27	0.00	528182.00	3924045.00
317.12	49146.20	13537.40	1226.04	1106.02	0.00	529962.00	3924918.00
161.54	53241.46	15472.05	1526.80	1794.47	0.00	534058.00	3926853.00
478.73	47288.84	12630.99	1164.03	1057.96	0.00	528105.00	3924012.00
215.50	51313.33	14569.14	1352.72	1373.00	0.00	532130.00	3925950.00
529.43	46900.96	12441.20	1090.48	838.06	0.00	527717.00	3923822.00
233.16	50832.42	14342.84	1395.30	1485.22	0.00	531649.00	3925724.00
534.56	46866.53	12418.34	1088.47	858.96	0.00	527683.00	3923799.00
330.17	48942.63	13432.26	1172.81	1054.93	0.00	529759.00	3924813.00
120.71	55514.80	16549.19	1584.34	1771.89	0.00	536331.00	3927930.00
319.55	49109.67	13516.40	1187.35	1051.69	0.00	529926.00	3924897.00
723.69	45854.35	11905.16	1018.15	644.35	0.00	526671.00	3923286.00
208.91	51508.04	14666.46	1533.19	1702.12	0.00	532324.00	3926047.00
92.26	57931.89	17685.24	1668.48	1907.82	0.00	538748.00	3929066.00
47.02	65654.75	21288.34	2438.56	3209.53	0.00	546471.00	3932669.00
333.33	48898.95	13413.16	1190.67	1073.67	0.00	529715.00	3924794.00
113.63	56029.51	16785.94	1789.00	2126.74	0.00	536846.00	3928167.00
98.45	57316.73	17394.48	1763.97	2049.71	0.00	538133.00	3928775.00
82.72	59011.97	18187.64	2020.00	2520.04	0.00	539828.00	3929568.00
337.43	48836.37	13393.18	1287.30	1223.63	0.00	529653.00	3924774.00
252.12	50375.90	14123.02	1310.68	1330.93	0.00	531192.00	3925504.00
123.59	55317.14	16465.03	1640.80	1820.08	0.00	536133.00	3927846.00
135.55	54569.51	16111.31	1663.93	1974.51	0.00	535386.00	3927492.00
117.74	55726.48	16662.16	1747.69	1912.60	0.00	536543.00	3928043.00
252.67	50364.36	14124.56	1290.82	1217.33	0.00	531181.00	3925505.00
239.62	50673.09	14264.73	1445.34	1507.79	0.00	531489.00	3925646.00
296.79	49485.55	13683.45	1278.00	1400.99	0.00	530302.00	3925064.00
352.39	48625.52	13283.92	1274.06	1255.74	0.00	529442.00	3924665.00
267.73	50040.43	13963.21	1226.96	1174.91	0.00	530857.00	3925344.00
343.27	48754.27	13346.01	1201.28	1080.05	0.00	529571.00	3924727.00
296.29	49493.67	13703.63	1184.98	1022.60	0.00	530310.00	3925084.00
299.79	49432.78	13676.52	1317.90	1313.90	0.00	530249.00	3925057.00

259.99	50206.08	14038.80	1218.63	1098.59	0.00	531022.00	3925420.00
707.06	45926.30	11948.09	1039.52	701.53	0.00	526743.00	3923329.00
247.76	50478.75	14173.34	1239.04	1148.38	0.00	531295.00	3925554.00
230.05	50912.67	14383.22	1439.67	1485.00	0.00	531729.00	3925764.00
100.78	57100.32	17291.76	1770.70	2206.18	0.00	537917.00	3928673.00
404.43	47997.56	12971.81	1144.85	980.01	0.00	528814.00	3924353.00
311.52	49234.93	13571.30	1340.17	1465.89	0.00	530051.00	3924952.00
362.39	48495.44	13217.65	1219.81	1156.93	0.00	529312.00	3924598.00
478.51	47292.44	12631.55	1160.06	1049.64	0.00	528109.00	3924012.00
218.47	51226.45	14527.95	1345.32	1370.69	0.00	532043.00	3925909.00
434.34	47690.92	12831.42	1143.62	982.25	0.00	528507.00	3924212.00
545.50	46793.74	12387.91	1150.56	1006.07	0.00	527610.00	3923769.00
410.67	47929.86	12949.61	1138.48	936.59	0.00	528746.00	3924330.00
413.45	47898.49	12928.26	1201.71	1127.67	0.00	528715.00	3924309.00
224.20	51069.08	14450.79	1292.85	1336.91	0.00	531885.00	3925832.00
140.43	54291.45	15983.04	1588.50	1786.39	0.00	535108.00	3927364.00
428.14	47752.22	12860.42	1094.18	814.53	0.00	528568.00	3924241.00
236.91	50739.22	14298.37	1318.38	1328.61	0.00	531556.00	3925679.00
310.16	49257.59	13591.03	1337.98	1342.68	0.00	530074.00	3924972.00
453.45	47512.46	12737.35	1100.88	884.01	0.00	528329.00	3924118.00
531.09	46893.47	12427.69	1060.85	749.29	0.00	527710.00	3923808.00
175.63	52655.78	15203.22	1355.88	1356.73	0.00	533472.00	3926584.00
143.50	54126.90	15891.23	1399.96	1446.95	0.00	534943.00	3927272.00
239.90	50666.22	14260.88	1249.34	1188.51	0.00	531483.00	3925642.00
318.28	49125.89	13522.11	1151.90	957.28	0.00	529942.00	3924903.00
879.31	45302.87	11617.09	1022.30	662.58	0.00	526119.00	3922998.00
501.25	47110.92	12542.13	1100.45	885.64	0.00	527927.00	3923923.00
261.27	50176.75	14033.49	1245.09	1140.73	0.00	530993.00	3925414.00
200.58	51769.35	14790.07	1446.54	1574.05	0.00	532586.00	3926171.00
83.62	58903.24	18137.37	1694.70	2065.10	0.00	539720.00	3929518.00
284.85	49702.36	13804.42	1179.47	973.01	0.00	530519.00	3925185.00
231.70	50873.47	14355.11	1344.98	1388.99	0.00	531690.00	3925736.00
47.68	65467.14	21196.92	2388.69	3093.93	0.00	546283.00	3932578.00
231.81	50870.11	14362.14	1290.99	1225.43	0.00	531686.00	3925743.00
260.67	50189.21	14036.91	1238.70	1089.64	0.00	531005.00	3925418.00
378.92	48290.67	13117.84	1159.78	1027.04	0.00	529107.00	3924499.00
411.43	47920.25	12935.05	1213.37	1197.23	0.00	528737.00	3924316.00
383.58	48234.57	13090.73	1115.71	899.21	0.00	529051.00	3924472.00
103.89	56822.14	17161.95	1930.35	2376.29	0.00	537638.00	3928543.00
327.31	48986.06	13461.40	1167.46	1006.82	0.00	529802.00	3924842.00
266.64	50062.86	13976.48	1414.05	1552.36	0.00	530879.00	3925357.00
227.03	50996.15	14416.31	1334.97	1353.10	0.00	531812.00	3925797.00
97.82	57376.91	17423.99	1885.52	2453.68	0.00	538193.00	3928805.00
79.46	59425.19	18392.08	2148.36	2768.28	0.00	540241.00	3929773.00
139.75	54330.10	15989.74	1537.22	1676.90	0.00	535146.00	3927371.00
134.47	54634.90	16132.70	1528.01	1654.86	0.00	535451.00	3927513.00
231.27	50882.95	14370.35	1252.97	1119.25	0.00	531699.00	3925751.00
105.05	56722.23	17112.66	1787.20	2225.11	0.00	537539.00	3928493.00
49.25	65036.91	21002.88	2269.88	2779.89	0.00	545853.00	3932384.00
278.83	49815.90	13862.13	1267.61	1191.06	0.00	530632.00	3925243.00
438.05	47656.40	12806.46	1194.00	1142.59	0.00	528473.00	3924187.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
262.40	34858.87	9902.16	1027.16	1124.97	<b>80.64</b>	515675.00	3921283.00
255.35	34978.20	9958.99	1190.92	1398.48	0.00	515794.00	3921340.00
479.28	32677.85	8846.35	978.65	1041.74	0.00	513494.00	3920227.00
267.44	34778.94	9861.02	1048.61	1179.97	0.00	515595.00	3921242.00
260.32	34894.84	9913.86	1090.78	1208.12	0.00	515711.00	3921295.00
103.88	39934.20	12296.28	1413.95	1802.66	0.00	520750.00	3923677.00
165.42	37080.07	10947.46	1234.96	1610.35	0.00	517896.00	3922328.00
320.63	34048.59	9515.06	1005.87	1050.34	0.00	514865.00	3920896.00
499.50	32556.86	8780.08	941.30	956.30	0.00	513373.00	3920161.00
559.12	32231.76	8619.15	984.00	1080.65	0.00	513048.00	3920000.00
685.85	31718.95	8357.85	803.60	599.95	0.00	512535.00	3919739.00
478.00	32687.14	8849.66	939.24	1004.32	0.00	513503.00	3920230.00
250.52	35057.80	10001.91	1167.65	1386.48	0.00	515874.00	3921383.00
337.38	33862.48	9418.52	1226.35	1544.47	0.00	514679.00	3920799.00
314.04	34130.25	9551.80	1111.81	1289.65	0.00	514947.00	3920933.00
182.64	36566.06	10711.45	1121.91	1224.77	0.00	517382.00	3922092.00
334.23	33888.98	9439.12	961.80	967.45	0.00	514705.00	3920820.00
393.16	33313.36	9156.08	1022.33	1147.59	0.00	514130.00	3920537.00
397.62	33277.17	9132.92	892.02	854.90	0.00	514093.00	3920514.00
399.19	33263.80	9131.91	966.74	975.31	0.00	514080.00	3920513.00
290.12	34445.20	9708.88	1121.00	1189.70	0.00	515261.00	3921090.00
482.78	32659.85	8825.12	911.63	990.67	0.00	513476.00	3920206.00
78.34	42023.68	13275.68	1473.80	1938.02	0.00	522840.00	3924656.00
227.07	35499.81	10206.14	1154.31	1321.14	0.00	516316.00	3921587.00
158.02	37329.31	11072.98	1309.78	1703.14	0.00	518146.00	3922454.00
194.03	36255.90	10557.94	1196.28	1440.45	0.00	517072.00	3921939.00
469.73	32741.89	8875.42	983.60	1061.16	0.00	513558.00	3920256.00
310.63	34176.88	9575.96	1016.47	1101.18	0.00	514993.00	3920957.00
225.87	35526.25	10213.27	1077.26	1213.14	0.00	516343.00	3921594.00
320.29	34056.57	9512.14	981.42	1065.38	0.00	514873.00	3920893.00
306.81	34222.61	9599.71	1000.04	991.17	0.00	515039.00	3920980.00
154.28	37465.40	11125.05	1157.74	1564.78	0.00	518282.00	3922506.00
145.07	37816.06	11308.02	1435.57	1713.84	0.00	518632.00	3922689.00
450.76	32868.72	8935.06	1014.98	1144.15	0.00	513685.00	3920316.00
274.77	34669.20	9800.32	975.60	1061.26	0.00	515485.00	3921181.00
338.86	33842.11	9407.05	899.71	838.45	0.00	514658.00	3920788.00
184.25	36514.83	10690.71	1337.54	1599.54	0.00	517331.00	3922071.00
585.00	32112.40	8559.99	955.59	973.27	0.00	512929.00	3919941.00
206.38	35954.16	10429.95	1016.69	970.46	0.00	516770.00	3921811.00
241.10	35227.39	10078.30	1127.03	1293.04	0.00	516044.00	3921459.00
420.12	33091.63	9041.93	926.32	976.29	0.00	513908.00	3920423.00
519.26	32444.42	8725.10	865.09	756.42	0.00	513261.00	3920106.00
576.56	32147.80	8580.39	920.68	926.58	0.00	512964.00	3919961.00
510.75	32492.19	8755.24	894.01	796.81	0.00	513308.00	3920136.00
46.73	46707.08	15452.48	2549.27	3810.15	0.00	527523.00	3926833.00
333.39	33908.20	9440.59	996.26	1063.09	0.00	514724.00	3920821.00
208.41	35904.99	10399.37	1136.69	1291.90	0.00	516721.00	3921780.00
270.37	34734.09	9853.65	1185.83	1228.70	0.00	515550.00	3921234.00
594.73	32069.70	8531.91	869.26	808.30	0.00	512886.00	3919913.00

332.21	33916.50	9444.30	1002.52	1052.14	0.00	514733.00	3920825.00
328.07	33963.05	9472.10	1039.24	1139.58	0.00	514779.00	3920853.00
706.79	31644.70	8318.64	814.74	654.10	0.00	512461.00	3919699.00
125.23	38706.81	11726.98	1254.66	1408.70	0.00	519523.00	3923108.00
90.40	40926.96	12763.47	1877.93	2569.04	0.00	521743.00	3924144.00
194.60	36240.98	10571.83	1330.17	1526.06	0.00	517057.00	3921953.00
494.28	32587.62	8800.95	953.40	966.43	0.00	513404.00	3920182.00
61.32	44093.73	14242.60	1870.72	2696.57	0.00	524910.00	3925623.00
401.15	33246.87	9122.40	956.05	983.43	0.00	514063.00	3920503.00
317.23	34096.02	9530.95	915.14	832.20	0.00	514912.00	3920912.00
229.18	35457.07	10196.69	1271.35	1443.67	0.00	516273.00	3921577.00
300.46	34307.70	9643.80	1091.91	1118.16	0.00	515124.00	3921025.00
168.88	36975.24	10914.26	1383.67	1611.31	0.00	517792.00	3922295.00
375.70	33471.29	9230.23	955.93	958.61	0.00	514288.00	3920611.00
386.39	33376.88	9195.42	877.42	717.75	0.00	514193.00	3920576.00
431.07	33010.24	9008.44	885.72	795.90	0.00	513827.00	3920389.00
216.63	35721.72	10305.58	1167.89	1373.42	0.00	516538.00	3921686.00
76.09	42253.95	13401.28	2102.66	2290.37	0.00	523070.00	3924782.00
117.42	39115.65	11900.96	1364.36	1742.73	0.00	519932.00	3923282.00
176.54	36742.05	10800.59	1391.16	1415.61	0.00	517558.00	3922181.00
184.96	36495.23	10681.58	1262.26	1537.54	0.00	517312.00	3922062.00
330.36	33939.58	9454.80	953.86	989.79	0.00	514756.00	3920836.00
394.01	33309.96	9154.23	920.97	836.64	0.00	514126.00	3920535.00
691.85	31697.61	8348.79	889.08	848.42	0.00	512514.00	3919730.00
513.34	32475.78	8737.77	904.51	883.20	0.00	513292.00	3920119.00
421.76	33082.99	9042.37	962.48	938.72	0.00	513899.00	3920423.00
192.11	36304.70	10586.88	1267.36	1535.19	0.00	517121.00	3921968.00
730.73	31572.81	8279.37	841.04	695.20	0.00	512389.00	3919660.00
357.77	33644.28	9328.20	1048.23	1084.29	0.00	514461.00	3920709.00
362.77	33592.80	9290.91	1041.47	1093.64	0.00	514409.00	3920672.00
275.50	34656.83	9796.65	1194.80	1451.34	0.00	515473.00	3921177.00
178.56	36677.72	10760.98	1303.43	1741.02	0.00	517494.00	3922142.00
389.31	33352.47	9169.15	932.45	947.17	0.00	514169.00	3920550.00
238.91	35269.92	10101.80	1067.48	1135.14	0.00	516086.00	3921483.00
840.45	31268.07	8118.79	868.06	746.27	0.00	512084.00	3919500.00
259.83	34902.45	9915.87	1096.11	1288.90	0.00	515719.00	3921297.00
131.78	38389.11	11571.21	1304.95	1424.45	0.00	519205.00	3922952.00
281.52	34568.13	9762.27	918.35	854.72	0.00	515384.00	3921143.00
404.69	33222.05	9104.52	943.00	935.18	0.00	514038.00	3920485.00
312.49	34149.39	9561.15	1069.87	1198.56	0.00	514966.00	3920942.00
283.43	34538.62	9749.65	1119.79	1156.62	0.00	515355.00	3921130.00
417.08	33120.01	9065.54	962.45	869.53	0.00	513936.00	3920446.00
227.18	35498.70	10198.84	1103.36	1312.63	0.00	516315.00	3921580.00
191.10	36330.89	10599.90	1060.44	1153.38	0.00	517147.00	3921981.00
397.03	33285.88	9140.35	923.90	891.36	0.00	514102.00	3920521.00
363.56	33592.13	9292.75	930.54	870.05	0.00	514408.00	3920674.00
448.38	32885.75	8950.80	922.66	818.68	0.00	513702.00	3920332.00
76.52	42208.77	13369.81	1810.93	2342.74	0.00	523025.00	3924751.00
506.77	32512.66	8758.41	939.22	954.21	0.00	513329.00	3920139.00
203.05	36030.27	10467.96	1288.48	1418.92	0.00	516847.00	3921849.00
209.17	35887.78	10383.26	1039.85	1251.56	0.00	516704.00	3921764.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
287.99	77091.58	20918.63	1567.44	1272.35	<b>107.36</b>	557908.00	3932299.00
574.74	72946.18	18911.37	1427.46	991.44	0.00	553762.00	3930292.00
849.38	71291.40	18064.72	1366.90	832.20	0.00	552108.00	3929446.00
280.31	77289.63	21016.83	1562.43	1226.75	0.00	558106.00	3932398.00
278.49	77337.17	21035.11	1718.11	1682.13	0.00	558153.00	3932416.00
402.54	74875.94	19855.26	1506.36	1194.20	0.00	555692.00	3931236.00
529.91	73348.47	19108.66	1415.73	946.66	0.00	554165.00	3930489.00
180.52	80939.02	22745.73	1882.64	1901.31	0.00	561755.00	3934127.00
249.09	78185.91	21446.62	1790.02	1780.04	0.00	559002.00	3932827.00
253.86	78037.83	21368.41	1591.46	1322.28	0.00	558854.00	3932749.00
770.90	71666.02	18258.35	1351.68	758.28	0.00	552482.00	3929639.00
116.97	85456.97	24869.16	2231.92	2524.39	0.00	566273.00	3936250.00
239.34	78503.84	21592.95	1636.09	1414.74	0.00	559320.00	3932974.00
602.74	72720.18	18798.19	1430.70	1013.61	0.00	553536.00	3930179.00
323.47	76276.19	20525.20	1517.19	1163.57	0.00	557092.00	3931906.00
171.22	81437.29	22990.13	1785.57	1601.67	0.00	562254.00	3934371.00
110.67	86108.63	25179.00	1990.43	1914.28	0.00	566925.00	3936560.00
411.57	74741.26	19785.74	1434.25	952.60	0.00	555558.00	3931167.00
386.80	75119.13	19973.80	1530.20	1238.09	0.00	555935.00	3931355.00
150.82	82685.01	23561.99	1869.38	1865.53	0.00	563501.00	3934943.00
108.39	86359.24	25292.81	2245.54	2546.84	0.00	567176.00	3936674.00
146.41	82991.64	23705.70	1906.91	1965.57	0.00	563808.00	3935086.00
109.06	86285.59	25269.53	2086.62	2113.39	0.00	567102.00	3936650.00
663.55	72291.82	18579.47	1361.73	783.89	0.00	553108.00	3929960.00
190.64	80439.11	22512.43	1722.62	1523.12	0.00	561255.00	3933893.00
77.59	90761.24	27362.90	2602.05	3243.64	0.00	571578.00	3938744.00
459.79	74107.98	19487.46	1479.97	1116.18	0.00	554924.00	3930868.00
525.04	73397.97	19132.49	1400.68	888.14	0.00	554214.00	3930513.00
287.76	77097.25	20926.85	1572.35	1270.07	0.00	557914.00	3932308.00
396.46	74966.96	19899.08	1472.25	1057.11	0.00	555783.00	3931280.00
127.24	84499.07	24414.79	2201.02	2516.15	0.00	565315.00	3935796.00
146.84	82960.47	23702.40	1938.02	1933.71	0.00	563777.00	3935083.00
140.09	83453.61	23921.78	1883.31	1856.02	0.00	564270.00	3935303.00
372.03	75361.19	20092.15	1523.67	1220.01	0.00	556177.00	3931473.00
438.28	74378.61	19608.15	1433.80	962.88	0.00	555195.00	3930989.00
621.85	72572.60	18719.28	1395.20	908.49	0.00	553389.00	3930100.00
77.27	90822.07	27379.53	2605.10	3072.42	0.00	571638.00	3938760.00
381.63	75198.14	20011.21	1485.13	1101.39	0.00	556014.00	3931392.00
101.48	87168.90	25669.57	2091.48	2168.82	0.00	567985.00	3937050.00
323.93	76266.69	20521.07	1559.43	1285.25	0.00	557083.00	3931902.00
368.11	75427.03	20124.27	1582.07	1380.26	0.00	556243.00	3931505.00
551.43	73148.68	19009.47	1398.23	895.90	0.00	553965.00	3930390.00
213.22	79458.56	22049.18	1690.81	1473.08	0.00	560275.00	3933430.00
693.97	72099.76	18480.74	1401.07	938.19	0.00	552916.00	3929862.00
308.04	76612.90	20694.18	1587.50	1328.43	0.00	557429.00	3932075.00
200.83	79975.34	22290.61	1845.25	1858.92	0.00	560792.00	3933671.00
359.75	75573.00	20191.69	1527.58	1207.17	0.00	556389.00	3931572.00
403.53	74859.93	19849.70	1465.84	1047.72	0.00	555676.00	3931230.00
496.54	73687.33	19278.62	1400.06	863.99	0.00	554504.00	3930659.00

88.41	88952.94	26518.19	2168.45	2217.15	0.00	569769.00	3937899.00
349.06	75768.18	20292.12	1598.41	1397.06	0.00	556584.00	3931673.00
107.84	86420.86	25325.19	2146.07	2267.33	0.00	567237.00	3936706.00
241.26	78438.28	21553.96	1702.77	1599.51	0.00	559255.00	3932935.00
154.83	82418.72	23445.90	1977.39	1978.78	0.00	563235.00	3934827.00
129.54	84300.19	24330.07	1983.28	1965.88	0.00	565116.00	3935711.00
469.85	73983.97	19419.31	1476.30	1119.58	0.00	554800.00	3930800.00
391.32	75046.37	19942.92	1492.31	1104.11	0.00	555863.00	3931324.00
384.08	75160.73	19995.50	1486.82	1106.65	0.00	555977.00	3931376.00
142.48	83275.06	23847.59	1918.38	1864.85	0.00	564091.00	3935228.00
333.57	76069.22	20430.33	1538.81	1239.03	0.00	556885.00	3931811.00
440.38	74349.62	19600.33	1480.36	1121.24	0.00	555166.00	3930981.00
429.87	74488.68	19664.57	1481.16	1128.15	0.00	555305.00	3931045.00
470.46	73978.10	19426.20	1495.33	1156.56	0.00	554794.00	3930807.00
877.94	71170.12	18003.96	1358.95	807.98	0.00	551986.00	3929385.00
95.50	87937.88	26017.35	2198.29	2428.05	0.00	568754.00	3937398.00
123.46	84836.92	24577.58	2140.20	2394.43	0.00	565653.00	3935958.00
377.00	75277.92	20042.59	1589.67	1464.76	0.00	556094.00	3931423.00
348.63	75775.12	20300.41	1607.92	1404.65	0.00	556591.00	3931681.00
306.37	76650.79	20706.79	1542.64	1226.68	0.00	557467.00	3932088.00
39.75	102141.95	32658.48	3225.26	4215.92	0.00	582958.00	3944039.00
128.42	84395.87	24376.71	2070.07	2242.93	0.00	565212.00	3935757.00
175.02	81229.14	22886.68	1855.96	1852.68	0.00	562045.00	3934267.00
122.81	84897.20	24614.01	2050.86	2069.21	0.00	565713.00	3935995.00
73.30	91588.10	27738.21	2651.51	3262.01	0.00	572404.00	3939119.00
295.03	76916.08	20833.25	1608.47	1406.66	0.00	557732.00	3932214.00
234.16	78678.95	21670.72	1678.31	1540.63	0.00	559495.00	3933051.00
422.15	74594.36	19715.75	1439.49	977.13	0.00	555411.00	3931097.00
243.72	78357.94	21525.42	1697.41	1550.81	0.00	559174.00	3932906.00
319.26	76366.00	20575.51	1557.76	1275.56	0.00	557182.00	3931956.00
177.91	81074.32	22798.49	1746.16	1625.37	0.00	561891.00	3934179.00
308.12	76609.82	20692.59	1581.84	1335.95	0.00	557426.00	3932073.00
420.00	74624.13	19728.54	1481.80	1117.12	0.00	555440.00	3931109.00
290.69	77025.67	20891.33	1657.74	1526.19	0.00	557842.00	3932272.00
157.37	82256.83	23361.36	1931.13	1978.17	0.00	563073.00	3934742.00
200.53	79989.36	22294.38	1783.68	1711.69	0.00	560806.00	3933675.00
328.86	76163.01	20469.70	1589.44	1420.22	0.00	556979.00	3931850.00
514.21	73504.95	19187.36	1427.84	973.54	0.00	554321.00	3930568.00
101.22	87200.56	25711.71	2211.47	2287.86	0.00	568017.00	3937092.00
271.57	77522.54	21134.78	1734.70	1679.71	0.00	558339.00	3932516.00
124.32	84759.81	24549.95	2060.35	2133.73	0.00	565576.00	3935931.00
243.82	78354.74	21520.27	1584.20	1235.15	0.00	559171.00	3932901.00
505.52	73593.55	19233.85	1436.04	993.31	0.00	554410.00	3930615.00
354.60	75667.54	20240.52	1611.20	1437.65	0.00	556484.00	3931621.00
605.76	72694.81	18786.25	1397.83	901.56	0.00	553511.00	3930167.00
304.29	76697.75	20727.54	1533.29	1197.37	0.00	557514.00	3932108.00
269.37	77585.90	21161.49	1695.52	1532.51	0.00	558402.00	3932542.00
66.48	93062.42	28436.65	2390.50	2505.81	0.00	573879.00	3939817.00
130.31	84233.71	24300.54	1860.14	1702.45	0.00	565050.00	3935681.00
271.55	77524.99	21134.24	1606.11	1348.40	0.00	558341.00	3932515.00
428.00	74514.54	19678.71	1459.78	1047.59	0.00	555331.00	3931059.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
399.61	71443.16	18996.37	1523.22	1329.19	<b>105.64</b>	552259.00	3930377.00
394.34	71520.55	19026.55	1491.90	1233.38	0.00	552337.00	3930407.00
144.61	79381.94	22776.47	2008.48	2105.30	0.00	560198.00	3934157.00
321.73	72790.70	19655.03	1539.04	1306.22	0.00	553607.00	3931036.00
337.91	72471.18	19485.37	1509.28	1246.88	0.00	553287.00	3930866.00
620.67	69180.66	17887.31	1392.97	1014.00	0.00	549997.00	3929268.00
694.59	68704.72	17642.57	1362.73	923.25	0.00	549521.00	3929023.00
181.22	77236.68	21761.84	1827.63	1893.38	0.00	558053.00	3933143.00
383.51	71687.70	19111.65	1488.20	1222.31	0.00	552504.00	3930492.00
33.33	101382.05	33068.81	3110.18	3572.80	0.00	582198.00	3944450.00
171.41	77744.49	21993.08	1739.10	1649.20	0.00	558561.00	3933374.00
479.10	70438.06	18502.61	1411.97	1038.96	0.00	551254.00	3929883.00
474.11	70491.13	18533.15	1410.21	1014.83	0.00	551307.00	3929914.00
235.63	75035.54	20712.77	1778.83	1847.41	0.00	555852.00	3932094.00
511.30	70102.54	18342.09	1361.98	853.01	0.00	550919.00	3929723.00
359.90	72073.61	19301.99	1474.53	1164.80	0.00	552890.00	3930683.00
327.18	72682.08	19596.44	1513.37	1232.22	0.00	553498.00	3930977.00
314.32	72945.70	19714.04	1490.56	1198.06	0.00	553762.00	3931095.00
252.58	74501.33	20458.79	1612.40	1465.01	0.00	555318.00	3931840.00
151.48	78918.68	22562.06	1815.47	1769.58	0.00	559735.00	3933943.00
279.47	73757.30	20098.70	1549.20	1325.54	0.00	554574.00	3931479.00
42.97	96324.12	30697.58	2734.19	2954.37	0.00	577140.00	3942078.00
69.87	88275.67	26921.82	2443.70	2912.32	0.00	569092.00	3938303.00
166.33	78025.40	22125.24	1983.36	2181.45	0.00	558842.00	3933506.00
407.19	71334.66	18941.10	1418.56	1016.93	0.00	552151.00	3930322.00
354.95	72160.29	19340.91	1473.33	1148.30	0.00	552977.00	3930722.00
553.86	69708.02	18145.07	1385.03	971.54	0.00	550524.00	3929526.00
271.78	73959.57	20204.94	1586.69	1447.49	0.00	554776.00	3931586.00
342.46	72387.30	19449.43	1445.99	1078.37	0.00	553204.00	3930830.00
363.67	72011.02	19269.90	1454.09	1106.80	0.00	552827.00	3930651.00
357.27	72119.42	19318.07	1457.59	1141.24	0.00	552936.00	3930699.00
221.31	75532.01	20952.80	1829.55	2003.38	0.00	556348.00	3932334.00
109.19	82434.59	24202.22	1927.22	1878.37	0.00	563251.00	3935583.00
42.25	96641.41	30847.39	2939.87	3440.09	0.00	577458.00	3942228.00
200.08	76370.16	21346.24	1735.11	1722.51	0.00	557186.00	3932727.00
309.83	73043.95	19760.90	1458.87	1069.75	0.00	553860.00	3931142.00
730.15	68504.11	17538.75	1377.33	964.63	0.00	549320.00	3928920.00
375.66	71812.97	19174.89	1459.23	1112.75	0.00	552629.00	3930556.00
215.68	75743.08	21050.79	1691.87	1573.21	0.00	556559.00	3932432.00
459.13	70664.89	18612.52	1391.96	971.04	0.00	551481.00	3929993.00
239.98	74890.58	20656.02	1654.53	1517.75	0.00	555707.00	3932037.00
478.98	70437.71	18511.56	1431.61	1058.94	0.00	551254.00	3929892.00
70.93	88057.71	26833.32	2493.60	2993.01	0.00	568874.00	3938214.00
65.25	89293.34	27408.91	2655.13	3180.33	0.00	570110.00	3938790.00
232.57	75137.52	20764.48	1571.20	1313.79	0.00	555954.00	3932145.00
273.00	73927.17	20187.15	1603.94	1473.20	0.00	554743.00	3931568.00
263.07	74198.20	20321.32	1626.89	1506.37	0.00	555014.00	3931702.00
378.09	71772.44	19154.25	1502.13	1254.46	0.00	552589.00	3930535.00
345.34	72332.01	19417.56	1434.49	1030.53	0.00	553148.00	3930798.00

469.79	70540.41	18554.02	1397.59	977.51	0.00	551357.00	3929935.00
417.93	71184.42	18871.35	1431.75	1075.50	0.00	552001.00	3930252.00
160.03	78386.72	22303.35	1977.49	2299.47	0.00	559203.00	3933684.00
282.06	73693.16	20079.22	1568.95	1341.90	0.00	554509.00	3931460.00
150.08	79011.03	22599.62	1928.83	2030.88	0.00	559827.00	3933980.00
195.94	76549.73	21432.00	1806.78	1870.94	0.00	557366.00	3932813.00
378.49	71766.32	19161.71	1477.97	1155.35	0.00	552583.00	3930542.00
277.12	73820.31	20138.17	1609.30	1464.30	0.00	554637.00	3931519.00
175.64	77520.69	21881.73	1818.31	1897.74	0.00	558337.00	3933263.00
144.74	79374.46	22773.51	1849.92	1810.58	0.00	560191.00	3934154.00
367.10	71952.68	19236.68	1468.83	1171.79	0.00	552769.00	3930617.00
93.75	84281.48	25076.11	2384.41	2772.67	0.00	565098.00	3936457.00
375.08	71820.46	19179.27	1527.78	1329.76	0.00	552637.00	3930560.00
31.81	102378.30	33508.88	3154.14	3977.47	0.00	583195.00	3944890.00
353.08	72193.02	19352.61	1525.84	1324.54	0.00	553009.00	3930733.00
210.08	75961.57	21148.07	1702.14	1615.31	0.00	556778.00	3932529.00
163.04	78208.29	22212.35	1931.99	2028.45	0.00	559025.00	3933593.00
757.46	68358.03	17465.79	1314.45	746.65	0.00	549174.00	3928847.00
246.09	74698.71	20551.69	1621.99	1498.63	0.00	55515.00	3931932.00
42.95	96334.71	30701.60	2997.01	3524.96	0.00	577151.00	3942082.00
240.96	74861.10	20636.78	1516.16	1128.51	0.00	555677.00	3932018.00
218.97	75619.24	20987.17	1747.74	1776.22	0.00	556436.00	3932368.00
101.87	83256.72	24581.54	2260.49	2750.08	0.00	564073.00	3935962.00
69.88	88274.09	26927.68	2277.21	2528.40	0.00	569090.00	3938308.00
161.49	78298.42	22263.33	1748.73	1573.59	0.00	559115.00	3933644.00
294.71	73385.67	19929.75	1575.03	1418.64	0.00	554202.00	3931311.00
377.95	71771.64	19151.27	1452.38	1116.24	0.00	552588.00	3930532.00
346.40	72313.07	19411.12	1451.15	1085.12	0.00	553129.00	3930792.00
229.53	75243.19	20819.01	1589.17	1319.36	0.00	556059.00	3932200.00
509.84	70117.73	18340.42	1449.78	1178.62	0.00	550934.00	3929721.00
263.61	74182.24	20311.79	1637.68	1507.99	0.00	554999.00	3931693.00
700.08	68671.98	17628.61	1340.86	841.07	0.00	549488.00	3929009.00
62.23	90018.29	27764.85	2845.69	3385.63	0.00	570835.00	3939146.00
564.97	69611.71	18098.47	1409.28	1042.45	0.00	550428.00	3929479.00
408.93	71309.13	18930.31	1492.86	1237.86	0.00	552125.00	3930311.00
312.01	72995.36	19746.04	1561.41	1350.22	0.00	553812.00	3931127.00
165.77	78057.36	22152.18	1794.22	1693.04	0.00	558874.00	3933533.00
504.43	70167.88	18373.93	1371.47	907.39	0.00	550984.00	3929755.00
357.75	72112.03	19316.86	1428.13	1011.70	0.00	552928.00	3930698.00
98.85	83624.50	24775.60	2386.00	2536.94	0.00	564441.00	3936156.00
402.70	71398.55	18973.86	1461.91	1154.44	0.00	552215.00	3930355.00
79.29	86485.45	26113.72	2706.95	3275.05	0.00	567302.00	3937495.00
274.88	73878.59	20166.36	1563.63	1336.72	0.00	554695.00	3931547.00
231.14	75185.87	20784.92	1592.91	1389.73	0.00	556002.00	3932166.00
150.36	78994.55	22585.76	1847.30	1840.54	0.00	559811.00	3933967.00
485.65	70364.46	18467.89	1412.34	1051.30	0.00	551181.00	3929849.00
274.83	73879.44	20167.13	1634.18	1554.11	0.00	554696.00	3931548.00
112.39	82100.87	24056.10	2060.66	2142.75	0.00	562917.00	3935437.00
354.85	72161.72	19340.92	1476.79	1174.85	0.00	552978.00	3930722.00
248.14	74635.34	20532.93	1671.33	1551.20	0.00	555452.00	3931914.00
347.81	72288.08	19403.38	1452.40	1087.07	0.00	553104.00	3930784.00



BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
374.03	28560.70	7929.96	992.35	1131.86	<b>75.89</b>	509377.00	3919311.00
154.62	32068.98	9592.73	1103.36	1471.26	0.00	512885.00	3920974.00
247.01	30005.85	8617.38	1173.30	1528.81	0.00	510822.00	3919998.00
625.12	27188.22	7249.08	886.72	943.93	0.00	508004.00	3918630.00
227.11	30343.00	8776.75	967.26	1224.08	0.00	511159.00	3920158.00
178.20	31392.24	9280.45	1128.34	1302.23	0.00	512209.00	3920661.00
154.04	32085.69	9606.83	1376.03	1841.60	0.00	512902.00	3920988.00
382.90	28488.43	7887.29	877.69	973.03	0.00	509305.00	3919268.00
53.82	39003.60	12855.27	2045.00	3018.90	0.00	519820.00	3924236.00
207.56	30713.72	8952.71	1227.41	1645.26	0.00	511530.00	3920333.00
362.43	28657.98	7972.82	962.25	1022.59	0.00	509474.00	3919354.00
360.42	28677.51	7982.07	915.58	1002.64	0.00	509494.00	3919363.00
418.19	28227.57	7761.17	887.63	875.57	0.00	509044.00	3919142.00
368.70	28607.57	7944.90	938.55	1221.03	0.00	509424.00	3919326.00
137.58	32662.94	9883.30	1415.68	1947.03	0.00	513479.00	3921264.00
34.04	43360.15	14886.23	2220.75	3144.28	0.00	524176.00	3926267.00
183.43	31257.21	9218.63	1101.12	1240.06	0.00	512073.00	3920599.00
298.91	29302.63	8284.12	933.99	1059.67	0.00	510119.00	3919665.00
475.72	27863.37	7583.46	853.72	913.34	0.00	508680.00	3918964.00
207.94	30709.31	8957.19	1155.62	1370.90	0.00	511526.00	3920338.00
203.60	30798.93	9011.60	1081.02	1070.43	0.00	511615.00	3920392.00
442.77	28063.94	7674.75	814.16	850.88	0.00	508880.00	3919056.00
401.59	28347.25	7824.89	972.61	1070.75	0.00	509164.00	3919206.00
178.51	31385.40	9271.49	946.25	1029.41	0.00	512202.00	3920652.00
258.77	29824.93	8533.56	999.95	1226.23	0.00	510641.00	3919914.00
292.50	29378.94	8319.99	988.71	1046.19	0.00	510195.00	3919701.00
62.01	37842.73	12310.17	2000.81	2200.71	0.00	518659.00	3923691.00
37.52	42347.02	14429.51	2708.05	3506.85	0.00	523163.00	3925810.00
119.14	33452.20	10239.63	1212.24	1798.32	0.00	514268.00	3921620.00
335.71	28906.41	8097.03	1039.67	1224.00	0.00	509723.00	3919478.00
327.28	28992.26	8128.47	840.17	913.39	0.00	509809.00	3919509.00
501.43	27726.66	7517.60	807.67	731.77	0.00	508543.00	3918898.00
283.95	29483.84	8379.02	1066.35	1262.30	0.00	510300.00	3919760.00
654.20	27083.48	7199.06	731.01	531.82	0.00	507900.00	3918580.00
329.41	28971.35	8122.07	917.15	967.26	0.00	509788.00	3919503.00
145.07	32391.04	9747.66	1321.02	1735.19	0.00	513207.00	3921128.00
544.56	27518.76	7407.73	789.87	738.32	0.00	508335.00	3918789.00
304.33	29242.88	8253.40	1018.15	1200.11	0.00	510059.00	3919634.00
399.69	28357.65	7830.93	878.39	934.18	0.00	509174.00	3919212.00
184.12	31241.21	9205.12	1177.53	1488.66	0.00	512057.00	3920586.00
774.25	26748.31	7013.49	748.20	655.48	0.00	507565.00	3918394.00
147.03	32322.98	9718.30	1103.24	1325.76	0.00	513139.00	3921099.00
268.61	29687.24	8473.41	1148.56	1343.68	0.00	510504.00	3919854.00
191.40	31070.25	9116.94	1160.43	1587.76	0.00	511887.00	3920498.00
351.18	28762.23	8016.70	964.13	1101.02	0.00	509579.00	3919397.00
122.07	33313.56	10166.13	1188.41	1795.41	0.00	514130.00	3921547.00
178.48	31386.87	9277.01	1185.81	1543.69	0.00	512203.00	3920658.00
259.33	29815.60	8525.37	1027.50	1277.25	0.00	510632.00	3919906.00
228.27	30325.88	8781.70	1189.47	1382.30	0.00	511142.00	3920162.00

222.71	30424.63	8817.82	1047.18	1369.40	0.00	511241.00	3920199.00
159.82	31903.65	9514.37	1312.02	2137.07	0.00	512720.00	3920895.00
332.16	28941.27	8113.07	1073.55	1299.28	0.00	509758.00	3919494.00
208.86	30687.06	8943.44	1166.98	1504.41	0.00	511503.00	3920324.00
388.83	28442.10	7867.57	951.24	1063.65	0.00	509258.00	3919248.00
167.73	31675.41	9410.22	1080.54	1283.08	0.00	512492.00	3920791.00
490.50	27785.43	7542.44	814.99	786.79	0.00	508602.00	3918923.00
184.50	31231.16	9208.50	1179.34	1328.72	0.00	512047.00	3920589.00
468.67	27909.63	7607.39	887.35	868.80	0.00	508726.00	3918988.00
517.59	27642.79	7477.48	798.82	725.39	0.00	508459.00	3918858.00
374.64	28552.75	7927.49	978.68	1072.77	0.00	509369.00	3919308.00
385.07	28476.31	7881.44	912.09	1042.95	0.00	509293.00	3919262.00
243.15	30065.74	8651.09	1076.81	1268.90	0.00	510882.00	3920032.00
246.91	30008.20	8616.42	980.54	1154.26	0.00	510824.00	3919997.00
373.59	28568.54	7920.53	1006.96	1297.92	0.00	509385.00	3919301.00
114.31	33693.16	10368.33	1322.48	1751.91	0.00	514509.00	3921749.00
331.98	28943.30	8113.21	970.04	1095.02	0.00	509760.00	3919494.00
85.17	35528.76	11221.82	1463.22	1973.26	0.00	516345.00	3922603.00
104.83	34202.38	10606.24	1812.46	2706.65	0.00	515019.00	3921987.00
558.38	27451.45	7379.71	861.98	934.41	0.00	508268.00	3918760.00
134.09	32802.54	9939.14	1329.16	1722.68	0.00	513619.00	3921320.00
289.77	29410.98	8322.49	895.14	1122.77	0.00	510227.00	3919703.00
162.96	31813.15	9483.49	1313.08	1683.06	0.00	512629.00	3920864.00
536.39	27551.07	7431.34	834.51	840.65	0.00	508367.00	3918812.00
321.21	29054.38	8165.94	983.42	1063.03	0.00	509871.00	3919547.00
319.44	29075.05	8176.16	1021.17	1233.18	0.00	509891.00	3919557.00
632.61	27160.86	7228.52	807.34	785.60	0.00	507977.00	3918609.00
341.39	28854.35	8065.74	958.86	1197.32	0.00	509671.00	3919447.00
134.59	32781.48	9939.07	1430.83	1901.73	0.00	513598.00	3921320.00
205.20	30768.89	8977.88	996.25	1185.58	0.00	511585.00	3920359.00
287.86	29432.93	8339.78	870.44	1018.08	0.00	510249.00	3919721.00
226.50	30353.53	8778.61	1004.11	1159.12	0.00	511170.00	3920159.00
76.77	36246.12	11554.20	1579.71	2504.98	0.00	517062.00	3922935.00
94.58	34843.21	10905.07	1805.83	2830.95	0.00	515659.00	3922286.00
585.32	27341.10	7313.73	797.41	846.93	0.00	508157.00	3918695.00
133.86	32812.60	9939.63	1320.21	1964.06	0.00	513629.00	3921320.00
429.07	28152.81	7729.36	900.15	977.35	0.00	508969.00	3919110.00
543.16	27524.09	7408.49	785.64	770.38	0.00	508340.00	3918789.00
116.87	33563.38	10300.74	1555.31	1795.26	0.00	514380.00	3921682.00
490.26	27783.37	7543.97	772.51	689.99	0.00	508600.00	3918925.00
495.16	27760.70	7533.16	796.26	714.55	0.00	508577.00	3918914.00
385.44	28471.15	7872.44	937.23	1166.36	0.00	509287.00	3919253.00
323.38	29033.37	8149.58	911.65	971.88	0.00	509850.00	3919530.00
125.50	33160.45	10121.19	1723.45	2107.76	0.00	513977.00	3921502.00
63.74	37626.63	12200.62	1761.34	2854.44	0.00	518443.00	3923581.00
198.59	30905.96	9046.75	1258.80	1822.38	0.00	511722.00	3920428.00
147.86	32293.05	9717.92	1455.43	1602.48	0.00	513109.00	3921099.00
311.82	29155.37	8212.40	867.56	911.33	0.00	509972.00	3919593.00
304.24	29241.92	8255.60	961.71	1006.89	0.00	510058.00	3919636.00
247.63	29997.60	8610.77	1099.69	1341.81	0.00	510814.00	3919992.00
363.95	28646.62	7965.86	848.94	873.33	0.00	509463.00	3919347.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
133.89	9680.14	3057.28	724.92	1802.47	<b>44.91</b>	490496.00	3914438.00
466.29	7860.09	2205.85	838.54	979.31	0.00	488676.00	3913587.00
341.46	8212.81	2371.68	836.75	1220.31	0.00	489029.00	3913752.00
434.87	7942.33	2242.39	577.45	866.15	0.00	488759.00	3913623.00
224.57	8789.64	2648.71	882.23	1255.64	0.00	489606.00	3914029.00
421.31	7965.03	2254.61	720.57	1172.00	0.00	488781.00	3913635.00
410.12	8008.96	2268.67	537.67	745.62	0.00	488825.00	3913649.00
310.92	8339.76	2427.14	592.06	1130.09	0.00	489156.00	3913808.00
319.95	8298.45	2417.04	926.97	957.52	0.00	489115.00	3913798.00
136.64	9641.12	3039.10	1005.35	1861.67	0.00	490457.00	3914420.00
187.44	9068.05	2772.48	933.67	1808.78	0.00	489884.00	3914153.00
168.29	9259.02	2866.52	573.42	1336.16	0.00	490075.00	3914247.00
397.84	8037.74	2284.72	613.39	892.79	0.00	488854.00	3913665.00
477.47	7839.26	2189.93	695.31	1073.79	0.00	488656.00	3913571.00
309.56	8335.59	2415.53	635.22	1625.55	0.00	489152.00	3913796.00
267.78	8526.46	2518.24	538.10	1388.17	0.00	489343.00	3913899.00
195.39	9007.73	2747.71	576.61	1216.15	0.00	489824.00	3914128.00
240.03	8685.43	2604.81	866.18	1213.53	0.00	489502.00	3913986.00
130.75	9723.07	3084.94	759.66	1691.33	0.00	490539.00	3914466.00
626.28	7566.34	2056.61	583.66	837.12	0.00	488383.00	3913437.00
464.46	7859.88	2200.25	688.71	1209.52	0.00	488676.00	3913581.00
259.27	8577.62	2549.38	950.66	1398.49	0.00	489394.00	3913930.00
549.31	7705.29	2123.54	594.06	914.49	0.00	488522.00	3913504.00
725.36	7443.22	2000.11	730.73	1002.08	0.00	488260.00	3913381.00
314.56	8317.27	2431.46	662.26	769.22	0.00	489134.00	3913812.00
283.37	8461.82	2489.31	730.16	1184.24	0.00	489278.00	3913870.00
413.77	7987.95	2261.41	554.44	1036.02	0.00	488804.00	3913642.00
250.97	8622.84	2569.91	1100.39	1137.74	0.00	489439.00	3913951.00
782.26	7394.78	1965.64	607.04	783.68	0.00	488211.00	3913346.00
267.76	8533.65	2517.23	530.86	1453.04	0.00	489350.00	3913898.00
225.51	8782.44	2640.05	667.50	1313.04	0.00	489599.00	3914021.00
422.90	7976.88	2257.63	706.59	792.60	0.00	488793.00	3913638.00
276.12	8490.50	2507.25	681.05	1149.86	0.00	489307.00	3913888.00
295.41	8397.07	2455.83	577.67	961.03	0.00	489213.00	3913837.00
207.64	8911.31	2709.22	1095.25	1366.88	0.00	489728.00	3914090.00
130.38	9725.71	3102.57	848.91	1690.95	0.00	490542.00	3914483.00
246.77	8647.11	2579.38	657.89	1220.01	0.00	489463.00	3913960.00
343.56	8205.47	2372.17	766.73	1044.00	0.00	489022.00	3913753.00
281.94	8466.37	2492.10	706.91	1281.88	0.00	489283.00	3913873.00
194.43	9016.02	2756.60	1018.47	1687.64	0.00	489832.00	3914137.00
110.65	10064.02	3242.05	838.80	1886.25	0.00	490880.00	3914623.00
141.58	9564.24	3008.89	815.95	1837.35	0.00	490381.00	3914390.00
355.01	8165.24	2355.41	774.08	1019.40	0.00	488982.00	3913736.00
249.94	8628.72	2564.50	971.89	1740.49	0.00	489445.00	3913945.00
284.13	8452.98	2490.23	837.69	1281.93	0.00	489269.00	3913871.00
222.11	8804.44	2654.26	751.96	1562.76	0.00	489621.00	3914035.00
303.29	8363.62	2446.07	753.64	1078.13	0.00	489180.00	3913827.00
545.80	7700.98	2116.63	584.89	932.09	0.00	488517.00	3913497.00
214.65	8854.79	2673.10	802.81	1315.35	0.00	489671.00	3914054.00

260.39	8577.30	2539.49	563.98	1166.04	0.00	489394.00	3913920.00
373.17	8106.29	2323.13	974.64	1116.59	0.00	488923.00	3913704.00
146.36	9506.57	2979.43	778.66	1640.14	0.00	490323.00	3914360.00
221.28	8814.54	2666.35	1055.37	1315.11	0.00	489631.00	3914047.00
566.11	7664.70	2098.57	638.02	1152.85	0.00	488481.00	3913479.00
352.21	8176.37	2353.80	586.78	1207.23	0.00	488993.00	3913735.00
87.53	10602.54	3511.53	1178.03	1607.70	0.00	491419.00	3914892.00
226.41	8776.92	2636.76	856.80	1417.10	0.00	489593.00	3914018.00
362.89	8142.64	2342.28	942.34	1024.64	0.00	488959.00	3913723.00
388.58	8064.80	2305.15	880.39	855.39	0.00	488881.00	3913686.00
433.66	7935.36	2243.68	798.87	892.84	0.00	488752.00	3913624.00
354.45	8169.78	2348.19	763.39	1349.26	0.00	488986.00	3913729.00
368.84	8119.71	2325.84	644.26	1181.36	0.00	488936.00	3913707.00
293.93	8406.41	2468.28	842.55	1125.14	0.00	489223.00	3913849.00
169.03	9250.13	2860.99	1066.68	1716.44	0.00	490066.00	3914242.00
191.80	9039.06	2758.34	928.75	1654.22	0.00	489855.00	3914139.00
983.76	7238.25	1867.84	393.24	676.17	0.00	488055.00	3913249.00
78.31	10875.76	3617.62	929.41	2030.46	0.00	491692.00	3914998.00
306.52	8357.31	2439.69	772.72	1031.19	0.00	489174.00	3913820.00
274.64	8497.85	2512.21	751.61	1036.47	0.00	489314.00	3913893.00
360.99	8144.51	2346.74	956.18	808.76	0.00	488961.00	3913728.00
86.23	10635.45	3505.05	961.81	1923.52	0.00	491452.00	3914886.00
169.39	9245.56	2857.30	1104.73	1908.73	0.00	490062.00	3914238.00
343.05	8208.67	2370.60	868.10	1300.80	0.00	489025.00	3913751.00
52.91	11973.06	4135.40	793.32	1993.46	0.00	492789.00	3915516.00
509.49	7779.69	2158.10	722.27	680.39	0.00	488596.00	3913539.00
21.43	15490.24	5771.68	1192.27	2096.44	0.00	496307.00	3917152.00
82.90	10735.35	3563.72	1038.53	2049.15	0.00	491552.00	3914944.00
480.71	7826.16	2189.61	659.85	703.99	0.00	488642.00	3913570.00
241.54	8679.43	2589.46	531.48	1290.45	0.00	489496.00	3913970.00
407.35	8010.22	2275.11	915.61	1472.12	0.00	488827.00	3913656.00
476.82	7835.55	2190.63	531.90	689.33	0.00	488652.00	3913571.00
625.66	7589.47	2053.48	690.20	762.38	0.00	488406.00	3913434.00
512.34	7757.28	2152.55	589.14	730.56	0.00	488574.00	3913533.00
498.86	7799.30	2164.44	544.89	929.34	0.00	488616.00	3913545.00
545.64	7702.80	2117.74	440.21	847.65	0.00	488519.00	3913499.00
231.24	8747.18	2616.38	719.01	1420.75	0.00	489563.00	3913997.00
600.97	7607.41	2074.12	493.95	690.89	0.00	488424.00	3913455.00
473.17	7841.46	2188.40	698.84	1251.24	0.00	488658.00	3913569.00
504.38	7784.89	2158.64	594.83	753.98	0.00	488601.00	3913539.00
518.89	7750.57	2141.28	621.52	1114.10	0.00	488567.00	3913522.00
303.91	8357.01	2433.22	618.06	1106.07	0.00	489173.00	3913814.00
54.80	11872.37	4101.33	949.25	1515.91	0.00	492689.00	3915482.00
352.62	8172.30	2340.72	618.39	1493.91	0.00	488989.00	3913722.00
167.86	9266.68	2866.41	842.15	1626.43	0.00	490083.00	3914247.00
395.08	8039.44	2294.10	810.16	985.84	0.00	488856.00	3913675.00
440.66	7919.36	2227.34	655.80	1191.93	0.00	488736.00	3913608.00
443.33	7918.54	2234.07	745.04	666.17	0.00	488735.00	3913615.00
385.92	8072.18	2300.51	662.09	1142.06	0.00	488888.00	3913681.00
110.10	10081.00	3243.26	1086.20	1958.62	0.00	490897.00	3914624.00
286.78	8443.37	2477.25	622.22	1255.16	0.00	489260.00	3913858.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
279.02	1712.65	526.46	186.33	349.15	25.50	482529.00	3911907.00
767.51	1294.12	316.14	167.97	412.18	0.00	482110.00	3911697.00
975.38	1218.68	275.51	208.26	316.41	0.00	482035.00	3911656.00
353.25	1604.78	468.00	195.47	424.00	0.00	482421.00	3911849.00
144.86	2069.69	693.69	195.33	450.79	0.00	482886.00	3912074.00
229.61	1809.49	573.45	152.66	334.99	0.00	482626.00	3911954.00
218.55	1840.66	581.81	177.33	410.41	0.00	482657.00	3911963.00
121.59	2178.17	749.22	192.74	347.56	0.00	482994.00	3912130.00
181.40	1943.63	634.93	227.23	376.07	0.00	482760.00	3912016.00
521.27	1451.02	388.16	193.07	411.42	0.00	482267.00	3911769.00
217.47	1839.84	583.58	181.47	406.65	0.00	482656.00	3911964.00
399.67	1546.01	444.25	210.12	466.40	0.00	482362.00	3911825.00
218.09	1843.25	583.65	199.96	375.19	0.00	482660.00	3911964.00
206.18	1867.62	601.94	208.21	357.94	0.00	482684.00	3911983.00
202.52	1878.95	604.64	200.72	396.14	0.00	482695.00	3911985.00
70.02	2602.01	948.63	191.41	381.71	0.00	483418.00	3912329.00
425.02	1518.04	430.11	155.10	364.30	0.00	482334.00	3911811.00
267.14	1734.85	532.21	198.65	363.47	0.00	482551.00	3911913.00
390.22	1560.44	449.22	196.51	363.54	0.00	482377.00	3911830.00
153.39	2029.09	677.06	198.34	419.23	0.00	482845.00	3912058.00
357.02	1597.39	470.30	241.65	366.08	0.00	482414.00	3911851.00
184.79	1928.67	629.73	194.55	384.38	0.00	482745.00	3912011.00
190.65	1908.69	622.19	215.70	440.06	0.00	482725.00	3912003.00
363.40	1588.20	463.27	203.97	420.21	0.00	482404.00	3911844.00
240.14	1800.23	562.91	242.62	415.58	0.00	482617.00	3911944.00
129.95	2135.20	728.11	161.18	354.67	0.00	482951.00	3912109.00
61.37	2719.84	1005.97	176.33	360.87	0.00	483536.00	3912387.00
589.72	1381.60	363.10	179.32	383.08	0.00	482198.00	3911744.00
253.10	1766.46	545.25	202.46	414.19	0.00	482583.00	3911926.00
240.94	1791.50	562.69	174.20	306.11	0.00	482608.00	3911943.00
54.05	2836.84	1063.38	221.49	408.49	0.00	483653.00	3912444.00
95.68	2356.31	832.71	206.23	422.01	0.00	483173.00	3912213.00
1089.78	2458.35	855.67	204.92	269.73	0.00	483275.00	3912236.00
388.77	1555.38	449.39	220.81	365.20	0.00	482372.00	3911830.00
219.96	1829.67	587.02	197.33	306.35	0.00	482646.00	3911968.00
89.18	2401.49	857.85	208.43	426.16	0.00	483218.00	3912239.00
226.91	1817.28	576.22	211.54	385.88	0.00	482634.00	3911957.00
104.33	2291.70	802.62	189.58	458.88	0.00	483108.00	3912183.00
352.81	1604.93	466.28	153.42	325.32	0.00	482421.00	3911847.00
193.52	1907.88	611.44	204.75	429.02	0.00	482724.00	3911992.00
324.07	1634.67	490.06	215.53	423.67	0.00	482451.00	3911871.00
244.17	1775.87	557.02	198.11	395.54	0.00	482592.00	3911938.00
333.95	1632.84	483.72	172.32	397.82	0.00	482449.00	3911864.00
448.71	1488.22	416.17	173.93	440.17	0.00	482305.00	3911797.00
97.44	2338.92	825.61	227.81	434.95	0.00	483155.00	3912206.00
261.59	1742.33	540.03	150.20	332.25	0.00	482559.00	3911921.00
134.44	2123.25	717.86	178.34	390.15	0.00	482940.00	3912099.00
351.50	1596.41	472.92	179.09	320.45	0.00	482413.00	3911854.00
566.98	1384.83	373.32	242.54	388.92	0.00	482201.00	3911754.00

252.07	1761.18	550.16	195.05	386.20	0.00	482577.00	3911931.00
292.24	1694.99	511.78	218.14	356.73	0.00	482511.00	3911893.00
345.02	1621.74	474.43	240.18	440.98	0.00	482438.00	3911855.00
139.25	2091.70	709.35	200.40	378.99	0.00	482908.00	3912090.00
322.12	1646.54	492.09	217.99	412.49	0.00	482463.00	3911873.00
281.65	1708.55	519.11	138.49	348.69	0.00	482525.00	3911900.00
566.26	1400.19	371.14	193.25	356.77	0.00	482216.00	3911752.00
202.28	1877.29	604.60	216.48	409.47	0.00	482694.00	3911985.00
104.46	2293.21	800.99	217.22	403.24	0.00	483109.00	3912182.00
443.61	1500.18	420.19	198.68	404.54	0.00	482316.00	3911801.00
245.81	1764.92	556.95	204.25	403.88	0.00	482581.00	3911938.00
122.88	2182.53	746.63	179.97	403.83	0.00	482999.00	3912127.00
205.80	1869.29	598.63	169.85	423.41	0.00	482686.00	3911979.00
690.45	1331.95	338.39	158.80	305.03	0.00	482148.00	3911719.00
343.47	1623.08	471.77	160.87	405.59	0.00	482439.00	3911853.00
163.10	1994.19	660.01	197.04	406.92	0.00	482810.00	3912041.00
81.74	2474.66	890.46	170.38	353.63	0.00	483291.00	3912271.00
80.81	2485.06	894.76	186.76	356.69	0.00	483301.00	3912276.00
364.13	1597.19	460.05	198.50	395.40	0.00	482413.00	3911841.00
102.04	2302.55	813.89	212.06	335.28	0.00	483119.00	3912195.00
325.36	1641.39	486.49	159.22	384.62	0.00	482458.00	3911867.00
150.73	2038.46	684.98	182.65	382.73	0.00	482855.00	3912066.00
189.66	1913.11	621.78	205.91	399.62	0.00	482729.00	3912003.00
256.97	1751.71	543.11	193.42	435.38	0.00	482568.00	3911924.00
410.80	1540.13	437.91	204.66	450.29	0.00	482356.00	3911819.00
326.78	1636.24	488.44	210.57	396.58	0.00	482453.00	3911869.00
273.60	1727.04	524.93	190.03	478.25	0.00	482543.00	3911906.00
172.07	1969.62	646.95	193.04	394.37	0.00	482786.00	3912028.00
378.35	1577.15	454.20	205.69	457.01	0.00	482393.00	3911835.00
303.75	1676.24	501.89	202.04	406.17	0.00	482493.00	3911883.00
1124.26	1767.08	523.75	245.88	362.71	0.00	482583.00	3911905.00
207.13	1863.60	600.09	198.74	411.99	0.00	482680.00	3911981.00
325.87	1636.04	487.58	143.65	326.56	0.00	482452.00	3911868.00
508.15	1450.56	389.45	170.99	364.18	0.00	482267.00	3911770.00
86.81	2430.66	867.69	238.27	391.09	0.00	483247.00	3912248.00
120.86	2186.87	752.27	209.71	415.60	0.00	483003.00	3912133.00
846.19	1242.35	298.75	212.16	459.73	0.00	482059.00	3911680.00
126.77	2148.88	738.17	199.00	439.16	0.00	482965.00	3912119.00
504.33	1442.06	394.92	179.50	341.31	0.00	482258.00	3911776.00
441.91	1509.71	422.85	185.06	319.97	0.00	482326.00	3911804.00
156.12	2029.27	674.68	148.77	287.20	0.00	482846.00	3912055.00
239.27	1789.17	561.42	206.68	410.03	0.00	482605.00	3911942.00
311.44	1645.47	496.67	204.76	404.13	0.00	482462.00	3911877.00
97.96	2337.11	822.56	206.60	411.96	0.00	483153.00	3912203.00
308.09	1665.68	499.20	143.23	332.96	0.00	482482.00	3911880.00
204.88	1873.81	602.68	228.29	387.35	0.00	482690.00	3911983.00
242.79	1782.24	556.50	216.15	410.71	0.00	482599.00	3911937.00
403.09	1544.61	441.23	169.40	361.68	0.00	482361.00	3911822.00
32.85	3380.98	1316.29	227.03	442.48	0.00	484197.00	3912697.00
412.81	1532.23	438.02	209.22	348.98	0.00	482349.00	3911819.00
117.97	2200.16	758.78	226.66	433.69	0.00	483016.00	3912140.00

BALCOEF	XF	YF	SIGDR	SIGCR	TIME	X	Y
357.35	2150.59	629.53	251.90	528.32	<b>27.98</b>	482967.00	3912010.00
75.13	3290.73	1173.10	270.52	528.24	0.00	484107.00	3912554.00
191.75	2525.26	812.81	244.66	482.99	0.00	483342.00	3912194.00
452.57	2042.71	576.47	277.65	491.29	0.00	482859.00	3911957.00
352.52	2166.04	637.65	265.34	476.91	0.00	482982.00	3912018.00
423.18	2075.31	592.41	281.14	526.81	0.00	482892.00	3911973.00
137.72	2757.84	916.62	207.31	484.30	0.00	483574.00	3912297.00
334.56	2189.34	649.18	246.26	575.09	0.00	483006.00	3912030.00
69.56	3370.07	1208.68	259.69	590.96	0.00	484186.00	3912589.00
318.35	2220.39	661.16	227.82	531.44	0.00	483037.00	3912042.00
181.17	2561.54	833.03	262.64	372.33	0.00	483378.00	3912214.00
416.23	2078.36	597.40	297.84	560.19	0.00	482895.00	3911978.00
167.25	2619.48	853.54	265.35	572.19	0.00	483436.00	3912234.00
650.52	1881.39	495.78	264.57	458.46	0.00	482698.00	3911877.00
209.29	2469.85	780.11	262.98	544.25	0.00	483286.00	3912161.00
195.31	2514.71	803.61	252.10	532.08	0.00	483331.00	3912184.00
362.85	2151.78	627.31	243.59	529.93	0.00	482968.00	3912008.00
403.34	2095.05	600.12	293.18	585.64	0.00	482911.00	3911981.00
255.79	2340.88	722.94	245.65	487.48	0.00	483157.00	3912104.00
284.08	2276.79	692.09	237.02	541.16	0.00	483093.00	3912073.00
103.03	2997.41	1035.81	219.00	569.77	0.00	483814.00	3912417.00
316.21	2219.49	668.48	280.86	491.03	0.00	483036.00	3912049.00
439.53	2054.36	580.33	283.87	514.75	0.00	482871.00	3911961.00
623.73	1895.22	502.56	275.07	530.54	0.00	482711.00	3911883.00
123.56	2842.49	961.71	274.07	606.53	0.00	483659.00	3912342.00
274.56	2296.34	703.73	252.26	589.45	0.00	483113.00	3912085.00
223.43	2423.92	764.42	152.31	380.80	0.00	483240.00	3912145.00
258.18	2342.49	717.67	258.18	528.44	0.00	483159.00	3912098.00
84.78	3172.21	1117.11	279.00	619.03	0.00	483988.00	3912498.00
249.63	2356.78	729.54	261.47	574.71	0.00	483173.00	3912110.00
574.49	1929.21	518.22	228.83	493.14	0.00	482745.00	3911899.00
175.83	2584.47	835.48	237.30	584.77	0.00	483401.00	3912216.00
244.76	2373.49	737.33	258.38	595.12	0.00	483190.00	3912118.00
337.84	2190.69	647.46	235.81	431.18	0.00	483007.00	3912028.00
167.15	2618.28	855.94	243.56	518.09	0.00	483435.00	3912237.00
367.26	2139.53	624.70	240.54	569.92	0.00	482956.00	3912005.00
242.34	2379.90	736.82	300.94	553.25	0.00	483196.00	3912118.00
235.53	2393.22	750.63	240.11	581.67	0.00	483210.00	3912131.00
434.64	2057.40	583.82	288.77	512.42	0.00	482874.00	3911965.00
176.19	2583.06	839.53	258.08	548.36	0.00	483399.00	3912220.00
219.42	2435.81	770.60	270.74	454.99	0.00	483252.00	3912151.00
105.62	2973.61	1021.76	245.86	545.93	0.00	483790.00	3912403.00
223.94	2424.52	761.51	263.36	571.25	0.00	483241.00	3912142.00
79.85	3228.32	1149.43	267.08	530.76	0.00	484045.00	3912530.00
444.28	2053.25	575.64	211.67	537.18	0.00	482870.00	3911956.00
97.09	3045.87	1054.11	193.45	449.28	0.00	483862.00	3912435.00
328.91	2207.09	653.22	277.44	482.12	0.00	483023.00	3912034.00
302.28	2249.80	679.62	274.15	481.70	0.00	483066.00	3912060.00
455.04	2034.67	573.37	290.98	568.49	0.00	482851.00	3911954.00

366.83	2152.18	627.91	260.85	552.01	0.00	482968.00	3912009.00
129.24	2808.12	946.93	250.12	579.55	0.00	483624.00	3912328.00
125.87	2825.68	956.22	273.55	491.85	0.00	483642.00	3912337.00
370.47	2129.20	625.39	257.64	498.23	0.00	482945.00	3912006.00
153.92	2675.57	880.12	269.50	546.65	0.00	483492.00	3912261.00
260.11	2330.87	718.70	250.26	506.04	0.00	483147.00	3912099.00
191.02	2531.25	811.67	246.84	482.08	0.00	483348.00	3912192.00
99.33	3022.16	1050.07	246.84	520.50	0.00	483838.00	3912431.00
34.44	4236.91	1617.71	314.04	577.65	0.00	485053.00	3912998.00
79.30	3234.60	1151.12	258.98	533.40	0.00	484051.00	3912532.00
122.10	2853.83	968.08	300.19	552.13	0.00	483670.00	3912349.00
156.21	2654.94	873.13	243.68	531.65	0.00	483471.00	3912254.00
60.60	3517.15	1282.92	314.34	523.02	0.00	484333.00	3912664.00
675.80	1857.05	490.02	186.22	503.57	0.00	482673.00	3911871.00
539.38	1963.41	534.91	280.96	462.02	0.00	482780.00	3911916.00
289.33	2263.29	689.40	291.23	644.82	0.00	483080.00	3912070.00
182.15	2562.05	829.00	246.44	543.89	0.00	483378.00	3912210.00
65.58	3429.81	1243.51	311.30	509.10	0.00	484246.00	3912624.00
53.24	3665.30	1347.75	255.40	571.66	0.00	484482.00	3912729.00
62.08	3493.50	1270.34	244.13	485.36	0.00	484310.00	3912651.00
538.87	1961.71	531.15	229.84	495.60	0.00	482778.00	3911912.00
156.31	2665.95	878.02	271.94	478.35	0.00	483482.00	3912259.00
500.29	1987.21	556.42	276.06	483.84	0.00	482803.00	3911937.00
421.97	2065.05	591.05	209.85	539.53	0.00	482881.00	3911972.00
227.61	2409.33	760.14	239.18	352.29	0.00	483226.00	3912141.00
149.00	2693.86	891.61	235.22	516.31	0.00	483510.00	3912272.00
583.92	1932.77	518.40	296.32	472.23	0.00	482749.00	3911899.00
118.07	2878.12	982.60	308.25	536.89	0.00	483694.00	3912363.00
217.52	2439.03	774.46	271.68	514.65	0.00	483255.00	3912155.00
70.36	3357.50	1206.65	255.88	502.01	0.00	484174.00	3912587.00
411.76	2085.68	597.09	273.92	561.67	0.00	482902.00	3911978.00
302.77	2250.02	674.17	274.26	514.22	0.00	483066.00	3912055.00
285.69	2277.05	690.02	224.41	488.08	0.00	483093.00	3912071.00
117.52	2884.68	976.76	253.17	492.51	0.00	483701.00	3912358.00
317.20	2216.99	664.63	266.05	497.47	0.00	483033.00	3912045.00
221.89	2429.47	764.64	266.20	551.28	0.00	483246.00	3912145.00
54.80	3633.73	1338.95	276.69	408.82	0.00	484450.00	3912720.00
365.29	2146.84	624.82	253.19	476.75	0.00	482963.00	3912006.00
347.29	2176.11	638.86	248.10	515.62	0.00	482992.00	3912020.00
220.79	2436.27	770.46	316.41	525.60	0.00	483253.00	3912151.00
178.40	2573.36	838.38	252.86	522.02	0.00	483390.00	3912219.00
181.95	2562.95	824.79	265.84	526.67	0.00	483379.00	3912206.00
315.29	2222.01	667.53	312.43	543.52	0.00	483038.00	3912048.00
174.29	2588.64	837.68	295.87	602.70	0.00	483405.00	3912218.00
190.34	2529.58	817.34	277.41	490.95	0.00	483346.00	3912198.00
176.36	2588.66	837.46	284.50	565.86	0.00	483405.00	3912218.00
325.88	2208.47	658.95	288.54	509.12	0.00	483025.00	3912040.00
298.28	2252.46	680.66	261.53	592.79	0.00	483069.00	3912061.00
83.50	3187.63	1128.75	278.42	497.75	0.00	484004.00	3912510.00
613.34	1902.84	505.19	283.50	499.75	0.00	482719.00	3911886.00
207.27	2479.09	785.66	279.47	485.92	0.00	483295.00	3912166.00



## **APPENDIX C    GAS MODELING INPUTS AND OUTPUTS**

## C.1 Gas Modeling Inputs (AERMOD)

This appendix includes the input and outputs files used for the gas analysis. The AERMOD input files only those section which differ according to the breakup scenario. We show below the common sections among those files.

```
CO STARTING
  TITLEONE Effects of Space Shuttle Breakup before Booster Separation
  MODELOPT DFAULT CONC
  **      Averaging Time to Process (4 hour)
  AVERTIME 4
  POLLUTID HCL
  RUNORNOT RUN
  ERRORFIL ERRORS.OUT
CO FINISHED
```

```
RE STARTING
** 25,000 receptors processed by AERMAP
  INCLUDED AERMAP.REC
RE FINISHED
```

```
ME STARTING
** The file Okla_MP.SFC contains a full year of data from the Oklahoma City
** Station. This was the closest station to Clinton-Sherman from which
** yearly data in the TD-6201 format was available.
**
  SURFFILE Okla_MP.SFC
  PROFFILE Okla_MP.PFL
  SURFDATA 13967 1989 Oklahoma_City
  UAIRDATA 00013967 1989 Oklahoma_City
**
** The base elevation of the Oklahoma City tower
** is 397.46 m (1304 ft)
  PROFBASE 397.46**
** Simulating a launch an early morning
** in March (as STS-117)
  STARTEND 89 03 15 10 89 03 15 24
** DAYRANGE 89 04 09 10 89 04 09 11
ME FINISHED
```

AERMOD Input File - Breakup Time: 9.32 seconds

CO STARTING

\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	480894	3911392	0.0
SO LOCATION	FRAG2	AREA	480863	3911380	0.0
SO LOCATION	FRAG3	AREA	480881	3911379	0.0
SO LOCATION	FRAG4	AREA	480886	3911380	0.0
SO LOCATION	FRAG5	AREA	480849	3911379	0.0
SO LOCATION	FRAG6	AREA	480862	3911379	0.0
SO LOCATION	FRAG7	AREA	480899	3911389	0.0
SO LOCATION	FRAG8	AREA	480918	3911419	0.0
SO LOCATION	FRAG9	AREA	480934	3911417	0.0
SO LOCATION	FRAG10	AREA	480927	3911416	0.0
SO LOCATION	FRAG11	AREA	480964	3911402	0.0
SO LOCATION	FRAG12	AREA	480902	3911402	0.0
SO LOCATION	FRAG13	AREA	480887	3911388	0.0
SO LOCATION	FRAG14	AREA	480894	3911392	0.0
SO LOCATION	FRAG15	AREA	480900	3911392	0.0
SO LOCATION	FRAG16	AREA	480974	3911434	0.0
SO LOCATION	FRAG17	AREA	480856	3911385	0.0
SO LOCATION	FRAG18	AREA	480929	3911397	0.0
SO LOCATION	FRAG19	AREA	480918	3911397	0.0
SO LOCATION	FRAG20	AREA	480909	3911397	0.0
SO LOCATION	FRAG21	AREA	480873	3911380	0.0
SO LOCATION	FRAG22	AREA	480852	3911379	0.0
SO LOCATION	FRAG23	AREA	480880	3911402	0.0
SO LOCATION	FRAG24	AREA	480903	3911385	0.0
SO LOCATION	FRAG25	AREA	481085	3911480	0.0

\*\*

SO HOUREMIS Emission9\_32.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

\*\*\*\*\*

RE FINISHED

ME STARTING

\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**	-----	-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max9_32.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 9.77 seconds

CO STARTING  
\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	480930	3911389	0.0
SO LOCATION	FRAG2	AREA	480869	3911390	0.0
SO LOCATION	FRAG3	AREA	480868	3911385	0.0
SO LOCATION	FRAG4	AREA	480868	3911392	0.0
SO LOCATION	FRAG5	AREA	480912	3911393	0.0
SO LOCATION	FRAG6	AREA	480866	3911387	0.0
SO LOCATION	FRAG7	AREA	480904	3911392	0.0
SO LOCATION	FRAG8	AREA	480903	3911410	0.0
SO LOCATION	FRAG9	AREA	480968	3911411	0.0
SO LOCATION	FRAG10	AREA	480932	3911411	0.0
SO LOCATION	FRAG11	AREA	480874	3911386	0.0
SO LOCATION	FRAG12	AREA	480907	3911389	0.0
SO LOCATION	FRAG13	AREA	480919	3911390	0.0
SO LOCATION	FRAG14	AREA	480896	3911391	0.0
SO LOCATION	FRAG15	AREA	480881	3911398	0.0
SO LOCATION	FRAG16	AREA	480867	3911383	0.0
SO LOCATION	FRAG17	AREA	480890	3911385	0.0
SO LOCATION	FRAG18	AREA	480894	3911385	0.0
SO LOCATION	FRAG19	AREA	480902	3911385	0.0
SO LOCATION	FRAG20	AREA	480919	3911385	0.0
SO LOCATION	FRAG21	AREA	480865	3911382	0.0
SO LOCATION	FRAG22	AREA	480878	3911384	0.0
SO LOCATION	FRAG23	AREA	480897	3911387	0.0
SO LOCATION	FRAG24	AREA	480881	3911386	0.0
SO LOCATION	FRAG25	AREA	480867	3911386	0.0

SO HOUREMIS Emission9\_77.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 0.64  
SO FINISHED

RE STARTING  
\*\*\*\*\*

RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max9_77.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 16.03 seconds

CO STARTING  
\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	481551	3911648	0.0
SO LOCATION	FRAG2	AREA	481106	3911445	0.0
SO LOCATION	FRAG3	AREA	481078	3911432	0.0
SO LOCATION	FRAG4	AREA	481185	3911478	0.0
SO LOCATION	FRAG5	AREA	481243	3911515	0.0
SO LOCATION	FRAG6	AREA	481191	3911479	0.0
SO LOCATION	FRAG7	AREA	481145	3911468	0.0
SO LOCATION	FRAG8	AREA	481121	3911461	0.0
SO LOCATION	FRAG9	AREA	481202	3911498	0.0
SO LOCATION	FRAG10	AREA	481141	3911465	0.0
SO LOCATION	FRAG11	AREA	481305	3911551	0.0
SO LOCATION	FRAG12	AREA	481217	3911504	0.0
SO LOCATION	FRAG13	AREA	481196	3911495	0.0
SO LOCATION	FRAG14	AREA	481175	3911484	0.0
SO LOCATION	FRAG15	AREA	481166	3911471	0.0
SO LOCATION	FRAG16	AREA	481241	3911506	0.0
SO LOCATION	FRAG17	AREA	481141	3911468	0.0
SO LOCATION	FRAG18	AREA	481452	3911628	0.0
SO LOCATION	FRAG19	AREA	481174	3911476	0.0
SO LOCATION	FRAG20	AREA	481370	3911581	0.0
SO LOCATION	FRAG21	AREA	481281	3911537	0.0
SO LOCATION	FRAG22	AREA	481153	3911474	0.0
SO LOCATION	FRAG23	AREA	481382	3911588	0.0
SO LOCATION	FRAG24	AREA	481445	3911621	0.0
SO LOCATION	FRAG25	AREA	481087	3911433	0.0

\*\*

SO HOUREMIS Emission16\_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
\*\*\*\*\*

RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max16_03.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 19.21 seconds

CO STARTING  
\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION FRAG1	AREA	481457	3911567	0.0	
SO LOCATION FRAG2	AREA	481522	3911592	0.0	
SO LOCATION FRAG3	AREA	481465	3911573	0.0	
SO LOCATION FRAG4	AREA	481362	3911521	0.0	
SO LOCATION FRAG5	AREA	481879	3911776	0.0	
SO LOCATION FRAG6	AREA	481779	3911730	0.0	
SO LOCATION FRAG7	AREA	481576	3911626	0.0	
SO LOCATION FRAG8	AREA	481465	3911571	0.0	
SO LOCATION FRAG9	AREA	481322	3911503	0.0	
SO LOCATION FRAG10	AREA	482043	3911858	0.0	
SO LOCATION FRAG11	AREA	481315	3911493	0.0	
SO LOCATION FRAG12	AREA	481361	3911520	0.0	
SO LOCATION FRAG13	AREA	481793	3911737	0.0	
SO LOCATION FRAG14	AREA	481589	3911633	0.0	
SO LOCATION FRAG15	AREA	481631	3911654	0.0	
SO LOCATION FRAG16	AREA	481370	3911529	0.0	
SO LOCATION FRAG17	AREA	481646	3911658	0.0	
SO LOCATION FRAG18	AREA	481357	3911518	0.0	
SO LOCATION FRAG19	AREA	481429	3911555	0.0	
SO LOCATION FRAG20	AREA	481469	3911580	0.0	
SO LOCATION FRAG21	AREA	481476	3911573	0.0	
SO LOCATION FRAG22	AREA	482137	3911902	0.0	
SO LOCATION FRAG23	AREA	481373	3911524	0.0	
SO LOCATION FRAG24	AREA	481446	3911551	0.0	
SO LOCATION FRAG25	AREA	481375	3911529	0.0	

\*\*

SO HOUREMIS Emission19\_21.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
\*\*\*\*\*

RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max19_21.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 20.99 seconds

CO STARTING  
\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	481602	3911606	0.0
SO LOCATION	FRAG2	AREA	481522	3911558	0.0
SO LOCATION	FRAG3	AREA	482006	3911797	0.0
SO LOCATION	FRAG4	AREA	481905	3911746	0.0
SO LOCATION	FRAG5	AREA	481654	3911630	0.0
SO LOCATION	FRAG6	AREA	481485	3911538	0.0
SO LOCATION	FRAG7	AREA	481768	3911679	0.0
SO LOCATION	FRAG8	AREA	482656	3912108	0.0
SO LOCATION	FRAG9	AREA	481636	3911605	0.0
SO LOCATION	FRAG10	AREA	481669	3911630	0.0
SO LOCATION	FRAG11	AREA	481577	3911583	0.0
SO LOCATION	FRAG12	AREA	481769	3911684	0.0
SO LOCATION	FRAG13	AREA	481800	3911698	0.0
SO LOCATION	FRAG14	AREA	482006	3911800	0.0
SO LOCATION	FRAG15	AREA	481684	3911642	0.0
SO LOCATION	FRAG16	AREA	481699	3911648	0.0
SO LOCATION	FRAG17	AREA	481763	3911676	0.0
SO LOCATION	FRAG18	AREA	481603	3911600	0.0
SO LOCATION	FRAG19	AREA	481606	3911598	0.0
SO LOCATION	FRAG20	AREA	482359	3911969	0.0
SO LOCATION	FRAG21	AREA	481922	3911753	0.0
SO LOCATION	FRAG22	AREA	482045	3911816	0.0
SO LOCATION	FRAG23	AREA	481650	3911624	0.0
SO LOCATION	FRAG24	AREA	481906	3911747	0.0
SO LOCATION	FRAG25	AREA	481773	3911684	0.0
**					

SO HOUREMIS Emission20\_99.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max20_99.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 21.03 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	482003	3911794	0.0
SO LOCATION	FRAG2	AREA	481630	3911618	0.0
SO LOCATION	FRAG3	AREA	481511	3911551	0.0
SO LOCATION	FRAG4	AREA	481961	3911773	0.0
SO LOCATION	FRAG5	AREA	481814	3911703	0.0
SO LOCATION	FRAG6	AREA	481911	3911750	0.0
SO LOCATION	FRAG7	AREA	481613	3911601	0.0
SO LOCATION	FRAG8	AREA	481873	3911732	0.0
SO LOCATION	FRAG9	AREA	481651	3911625	0.0
SO LOCATION	FRAG10	AREA	481984	3911785	0.0
SO LOCATION	FRAG11	AREA	482007	3911800	0.0
SO LOCATION	FRAG12	AREA	482225	3911900	0.0
SO LOCATION	FRAG13	AREA	481685	3911639	0.0
SO LOCATION	FRAG14	AREA	481618	3911602	0.0
SO LOCATION	FRAG15	AREA	481639	3911611	0.0
SO LOCATION	FRAG16	AREA	482361	3911967	0.0
SO LOCATION	FRAG17	AREA	481853	3911723	0.0
SO LOCATION	FRAG18	AREA	481724	3911662	0.0
SO LOCATION	FRAG19	AREA	481690	3911646	0.0
SO LOCATION	FRAG20	AREA	481800	3911692	0.0
SO LOCATION	FRAG21	AREA	482044	3911815	0.0
SO LOCATION	FRAG22	AREA	482603	3912084	0.0
SO LOCATION	FRAG23	AREA	481466	3911531	0.0
SO LOCATION	FRAG24	AREA	481781	3911680	0.0
SO LOCATION	FRAG25	AREA	481826	3911706	0.0

SO HOUREMIS Emission21\_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max21_03.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 21.81 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	481628	3911590	0.0
SO LOCATION	FRAG2	AREA	481780	3911661	0.0
SO LOCATION	FRAG3	AREA	481513	3911527	0.0
SO LOCATION	FRAG4	AREA	481812	3911675	0.0
SO LOCATION	FRAG5	AREA	481774	3911659	0.0
SO LOCATION	FRAG6	AREA	482526	3912029	0.0
SO LOCATION	FRAG7	AREA	482545	3912037	0.0
SO LOCATION	FRAG8	AREA	482029	3911789	0.0
SO LOCATION	FRAG9	AREA	481885	3911711	0.0
SO LOCATION	FRAG10	AREA	481881	3911712	0.0
SO LOCATION	FRAG11	AREA	481828	3911685	0.0
SO LOCATION	FRAG12	AREA	481818	3911680	0.0
SO LOCATION	FRAG13	AREA	481617	3911582	0.0
SO LOCATION	FRAG14	AREA	482027	3911789	0.0
SO LOCATION	FRAG15	AREA	481952	3911745	0.0
SO LOCATION	FRAG16	AREA	482018	3911782	0.0
SO LOCATION	FRAG17	AREA	482076	3911786	0.0
SO LOCATION	FRAG18	AREA	481668	3911608	0.0
SO LOCATION	FRAG19	AREA	481829	3911688	0.0
SO LOCATION	FRAG20	AREA	482242	3911889	0.0
SO LOCATION	FRAG21	AREA	481964	3911753	0.0
SO LOCATION	FRAG22	AREA	482228	3911883	0.0
SO LOCATION	FRAG23	AREA	482308	3911920	0.0
SO LOCATION	FRAG24	AREA	481942	3911744	0.0
SO LOCATION	FRAG25	AREA	481738	3911640	0.0

SO HOUREMIS Emission21\_81.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max21_81.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 22.49 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	482123	3911810	0.0
SO LOCATION	FRAG2	AREA	483067	3912267	0.0
SO LOCATION	FRAG3	AREA	482210	3911854	0.0
SO LOCATION	FRAG4	AREA	481980	3911740	0.0
SO LOCATION	FRAG5	AREA	482039	3911773	0.0
SO LOCATION	FRAG6	AREA	481775	3911639	0.0
SO LOCATION	FRAG7	AREA	482006	3911750	0.0
SO LOCATION	FRAG8	AREA	482228	3911863	0.0
SO LOCATION	FRAG9	AREA	481891	3911697	0.0
SO LOCATION	FRAG10	AREA	482206	3911851	0.0
SO LOCATION	FRAG11	AREA	482313	3911904	0.0
SO LOCATION	FRAG12	AREA	481750	3911626	0.0
SO LOCATION	FRAG13	AREA	482486	3911987	0.0
SO LOCATION	FRAG14	AREA	482343	3911917	0.0
SO LOCATION	FRAG15	AREA	482181	3911839	0.0
SO LOCATION	FRAG16	AREA	481815	3911654	0.0
SO LOCATION	FRAG17	AREA	481868	3911688	0.0
SO LOCATION	FRAG18	AREA	481816	3911662	0.0
SO LOCATION	FRAG19	AREA	482016	3911762	0.0
SO LOCATION	FRAG20	AREA	481791	3911641	0.0
SO LOCATION	FRAG21	AREA	481633	3911565	0.0
SO LOCATION	FRAG22	AREA	482562	3912024	0.0
SO LOCATION	FRAG23	AREA	481947	3911724	0.0
SO LOCATION	FRAG24	AREA	481839	3911673	0.0
SO LOCATION	FRAG25	AREA	481791	3911643	0.0

SO HOUREMIS Emission22\_49.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max22_49.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 25.50 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	482035	3911656	0.0
SO LOCATION	FRAG2	AREA	482657	3911963	0.0
SO LOCATION	FRAG3	AREA	482994	3912130	0.0
SO LOCATION	FRAG4	AREA	482745	3912011	0.0
SO LOCATION	FRAG5	AREA	482725	3912003	0.0
SO LOCATION	FRAG6	AREA	482951	3912109	0.0
SO LOCATION	FRAG7	AREA	483173	3912213	0.0
SO LOCATION	FRAG8	AREA	483108	3912183	0.0
SO LOCATION	FRAG9	AREA	482421	3911847	0.0
SO LOCATION	FRAG10	AREA	482724	3911992	0.0
SO LOCATION	FRAG11	AREA	482592	3911938	0.0
SO LOCATION	FRAG12	AREA	482449	3911864	0.0
SO LOCATION	FRAG13	AREA	482305	3911797	0.0
SO LOCATION	FRAG14	AREA	482216	3911752	0.0
SO LOCATION	FRAG15	AREA	482694	3911985	0.0
SO LOCATION	FRAG16	AREA	482686	3911979	0.0
SO LOCATION	FRAG17	AREA	482148	3911719	0.0
SO LOCATION	FRAG18	AREA	482855	3912066	0.0
SO LOCATION	FRAG19	AREA	482453	3911869	0.0
SO LOCATION	FRAG20	AREA	482543	3911906	0.0
SO LOCATION	FRAG21	AREA	482680	3911981	0.0
SO LOCATION	FRAG22	AREA	482452	3911868	0.0
SO LOCATION	FRAG23	AREA	482059	3911680	0.0
SO LOCATION	FRAG24	AREA	482605	3911942	0.0
SO LOCATION	FRAG25	AREA	482258	3911776	0.0

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SO HOUREMIS Emission25\_50.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max25_50.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 27.62 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	482437	3911761	0.0
SO LOCATION	FRAG2	AREA	483063	3912075	0.0
SO LOCATION	FRAG3	AREA	483100	3912092	0.0
SO LOCATION	FRAG4	AREA	483154	3912116	0.0
SO LOCATION	FRAG5	AREA	483253	3912166	0.0
SO LOCATION	FRAG6	AREA	483025	3912058	0.0
SO LOCATION	FRAG7	AREA	482873	3911983	0.0
SO LOCATION	FRAG8	AREA	482735	3911916	0.0
SO LOCATION	FRAG9	AREA	482659	3911874	0.0
SO LOCATION	FRAG10	AREA	483322	3912198	0.0
SO LOCATION	FRAG11	AREA	482718	3911900	0.0
SO LOCATION	FRAG12	AREA	483052	3912069	0.0
SO LOCATION	FRAG13	AREA	483081	3912082	0.0
SO LOCATION	FRAG14	AREA	482785	3911936	0.0
SO LOCATION	FRAG15	AREA	482973	3912028	0.0
SO LOCATION	FRAG16	AREA	482567	3911827	0.0
SO LOCATION	FRAG17	AREA	483098	3912091	0.0
SO LOCATION	FRAG18	AREA	484175	3912601	0.0
SO LOCATION	FRAG19	AREA	483054	3912065	0.0
SO LOCATION	FRAG20	AREA	483017	3912049	0.0
SO LOCATION	FRAG21	AREA	483525	3912296	0.0
SO LOCATION	FRAG22	AREA	483679	3912368	0.0
SO LOCATION	FRAG23	AREA	483136	3912107	0.0
SO LOCATION	FRAG24	AREA	482853	3911975	0.0
SO LOCATION	FRAG25	AREA	482748	3911918	0.0

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SO HOUREMIS Emission27\_62.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max27_62.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 27.98 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	483342	3912194	0.0
SO LOCATION	FRAG2	AREA	483574	3912297	0.0
SO LOCATION	FRAG3	AREA	483006	3912030	0.0
SO LOCATION	FRAG4	AREA	483036	3912049	0.0
SO LOCATION	FRAG5	AREA	482871	3911961	0.0
SO LOCATION	FRAG6	AREA	483113	3912085	0.0
SO LOCATION	FRAG7	AREA	483401	3912216	0.0
SO LOCATION	FRAG8	AREA	483210	3912131	0.0
SO LOCATION	FRAG9	AREA	482874	3911965	0.0
SO LOCATION	FRAG10	AREA	483399	3912220	0.0
SO LOCATION	FRAG11	AREA	483790	3912403	0.0
SO LOCATION	FRAG12	AREA	483241	3912142	0.0
SO LOCATION	FRAG13	AREA	484045	3912530	0.0
SO LOCATION	FRAG14	AREA	483348	3912192	0.0
SO LOCATION	FRAG15	AREA	483838	3912431	0.0
SO LOCATION	FRAG16	AREA	484333	3912664	0.0
SO LOCATION	FRAG17	AREA	482673	3911871	0.0
SO LOCATION	FRAG18	AREA	483482	3912259	0.0
SO LOCATION	FRAG19	AREA	483510	3912272	0.0
SO LOCATION	FRAG20	AREA	482749	3911899	0.0
SO LOCATION	FRAG21	AREA	483066	3912055	0.0
SO LOCATION	FRAG22	AREA	483093	3912071	0.0
SO LOCATION	FRAG23	AREA	484450	3912720	0.0
SO LOCATION	FRAG24	AREA	482992	3912020	0.0
SO LOCATION	FRAG25	AREA	483379	3912206	0.0

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SO HOUREMIS Emission27\_98.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max27_98.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 28.03 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	483587	3912303	0.0
SO LOCATION	FRAG2	AREA	483002	3912024	0.0
SO LOCATION	FRAG3	AREA	482915	3911981	0.0
SO LOCATION	FRAG4	AREA	482737	3911901	0.0
SO LOCATION	FRAG5	AREA	483132	3912088	0.0
SO LOCATION	FRAG6	AREA	483097	3912071	0.0
SO LOCATION	FRAG7	AREA	483934	3912470	0.0
SO LOCATION	FRAG8	AREA	482984	3912016	0.0
SO LOCATION	FRAG9	AREA	483186	3912116	0.0
SO LOCATION	FRAG10	AREA	482847	3911951	0.0
SO LOCATION	FRAG11	AREA	484371	3912675	0.0
SO LOCATION	FRAG12	AREA	484485	3912732	0.0
SO LOCATION	FRAG13	AREA	483188	3912114	0.0
SO LOCATION	FRAG14	AREA	484495	3912731	0.0
SO LOCATION	FRAG15	AREA	483102	3912079	0.0
SO LOCATION	FRAG16	AREA	482848	3911949	0.0
SO LOCATION	FRAG17	AREA	483351	3912191	0.0
SO LOCATION	FRAG18	AREA	483221	3912126	0.0
SO LOCATION	FRAG19	AREA	483130	3912088	0.0
SO LOCATION	FRAG20	AREA	483040	3912045	0.0
SO LOCATION	FRAG21	AREA	482921	3911987	0.0
SO LOCATION	FRAG22	AREA	483519	3912278	0.0
SO LOCATION	FRAG23	AREA	482887	3911965	0.0
SO LOCATION	FRAG24	AREA	483479	3912258	0.0
SO LOCATION	FRAG25	AREA	484027	3912518	0.0

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SO HOUREMIS Emission28\_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max28_03.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 28.64 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	482844	3911914	0.0
SO LOCATION	FRAG2	AREA	484572	3912743	0.0
SO LOCATION	FRAG3	AREA	484321	3912633	0.0
SO LOCATION	FRAG4	AREA	483298	3912138	0.0
SO LOCATION	FRAG5	AREA	483161	3912073	0.0
SO LOCATION	FRAG6	AREA	484062	3912497	0.0
SO LOCATION	FRAG7	AREA	483251	3912115	0.0
SO LOCATION	FRAG8	AREA	483699	3912333	0.0
SO LOCATION	FRAG9	AREA	484397	3912663	0.0
SO LOCATION	FRAG10	AREA	483875	3912422	0.0
SO LOCATION	FRAG11	AREA	483030	3912015	0.0
SO LOCATION	FRAG12	AREA	483023	3912010	0.0
SO LOCATION	FRAG13	AREA	483622	3912296	0.0
SO LOCATION	FRAG14	AREA	483758	3912354	0.0
SO LOCATION	FRAG15	AREA	483371	3912178	0.0
SO LOCATION	FRAG16	AREA	483491	3912232	0.0
SO LOCATION	FRAG17	AREA	483620	3912294	0.0
SO LOCATION	FRAG18	AREA	483146	3912064	0.0
SO LOCATION	FRAG19	AREA	483575	3912269	0.0
SO LOCATION	FRAG20	AREA	483972	3912460	0.0
SO LOCATION	FRAG21	AREA	483467	3912220	0.0
SO LOCATION	FRAG22	AREA	483039	3912016	0.0
SO LOCATION	FRAG23	AREA	483110	3912047	0.0
SO LOCATION	FRAG24	AREA	482776	3911883	0.0
SO LOCATION	FRAG25	AREA	483200	3912094	0.0

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SO HOUREMIS Emission28\_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max28_64.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 28.71 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	484129	3912529	0.0
SO LOCATION	FRAG2	AREA	483584	3912271	0.0
SO LOCATION	FRAG3	AREA	483606	3912287	0.0
SO LOCATION	FRAG4	AREA	483328	3912152	0.0
SO LOCATION	FRAG5	AREA	483205	3912084	0.0
SO LOCATION	FRAG6	AREA	483687	3912325	0.0
SO LOCATION	FRAG7	AREA	483849	3912403	0.0
SO LOCATION	FRAG8	AREA	483853	3912404	0.0
SO LOCATION	FRAG9	AREA	483206	3912088	0.0
SO LOCATION	FRAG10	AREA	483163	3912072	0.0
SO LOCATION	FRAG11	AREA	483093	3912038	0.0
SO LOCATION	FRAG12	AREA	485592	3913220	0.0
SO LOCATION	FRAG13	AREA	482990	3911990	0.0
SO LOCATION	FRAG14	AREA	483862	3912410	0.0
SO LOCATION	FRAG15	AREA	483325	3912147	0.0
SO LOCATION	FRAG16	AREA	483378	3912175	0.0
SO LOCATION	FRAG17	AREA	483262	3912119	0.0
SO LOCATION	FRAG18	AREA	483337	3912161	0.0
SO LOCATION	FRAG19	AREA	482916	3911945	0.0
SO LOCATION	FRAG20	AREA	483049	3912020	0.0
SO LOCATION	FRAG21	AREA	483405	3912187	0.0
SO LOCATION	FRAG22	AREA	482947	3911961	0.0
SO LOCATION	FRAG23	AREA	483395	3912182	0.0
SO LOCATION	FRAG24	AREA	482962	3911971	0.0
SO LOCATION	FRAG25	AREA	483550	3912252	0.0

SO HOUREMIS Emission28\_71.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max28_71.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 29.20 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	483072	3911994	0.0
SO LOCATION	FRAG2	AREA	483319	3912125	0.0
SO LOCATION	FRAG3	AREA	483497	3912208	0.0
SO LOCATION	FRAG4	AREA	484011	3912446	0.0
SO LOCATION	FRAG5	AREA	483750	3912329	0.0
SO LOCATION	FRAG6	AREA	482951	3911943	0.0
SO LOCATION	FRAG7	AREA	483258	3912096	0.0
SO LOCATION	FRAG8	AREA	483308	3912116	0.0
SO LOCATION	FRAG9	AREA	484271	3912579	0.0
SO LOCATION	FRAG10	AREA	483340	3912130	0.0
SO LOCATION	FRAG11	AREA	483898	3912399	0.0
SO LOCATION	FRAG12	AREA	483060	3911997	0.0
SO LOCATION	FRAG13	AREA	483438	3912180	0.0
SO LOCATION	FRAG14	AREA	483218	3912073	0.0
SO LOCATION	FRAG15	AREA	483121	3912027	0.0
SO LOCATION	FRAG16	AREA	483335	3912133	0.0
SO LOCATION	FRAG17	AREA	483236	3912083	0.0
SO LOCATION	FRAG18	AREA	483259	3912094	0.0
SO LOCATION	FRAG19	AREA	483474	3912196	0.0
SO LOCATION	FRAG20	AREA	484056	3912474	0.0
SO LOCATION	FRAG21	AREA	483418	3912173	0.0
SO LOCATION	FRAG22	AREA	484166	3912522	0.0
SO LOCATION	FRAG23	AREA	484741	3912797	0.0
SO LOCATION	FRAG24	AREA	483138	3912034	0.0
SO LOCATION	FRAG25	AREA	483317	3912119	0.0
**					

SO HOUREMIS Emission29\_20.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max29_20.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 29.92 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	483649	3912242	0.0
SO LOCATION	FRAG2	AREA	483969	3912398	0.0
SO LOCATION	FRAG3	AREA	483512	3912182	0.0
SO LOCATION	FRAG4	AREA	483632	3912234	0.0
SO LOCATION	FRAG5	AREA	483555	3912195	0.0
SO LOCATION	FRAG6	AREA	483518	3912179	0.0
SO LOCATION	FRAG7	AREA	483185	3912023	0.0
SO LOCATION	FRAG8	AREA	483497	3912166	0.0
SO LOCATION	FRAG9	AREA	483516	3912174	0.0
SO LOCATION	FRAG10	AREA	483235	3912048	0.0
SO LOCATION	FRAG11	AREA	485189	3912970	0.0
SO LOCATION	FRAG12	AREA	485270	3913012	0.0
SO LOCATION	FRAG13	AREA	484281	3912546	0.0
SO LOCATION	FRAG14	AREA	483821	3912323	0.0
SO LOCATION	FRAG15	AREA	483776	3912307	0.0
SO LOCATION	FRAG16	AREA	483678	3912254	0.0
SO LOCATION	FRAG17	AREA	483146	3911998	0.0
SO LOCATION	FRAG18	AREA	483588	3912217	0.0
SO LOCATION	FRAG19	AREA	483212	3912024	0.0
SO LOCATION	FRAG20	AREA	484902	3912835	0.0
SO LOCATION	FRAG21	AREA	483636	3912236	0.0
SO LOCATION	FRAG22	AREA	485721	3913223	0.0
SO LOCATION	FRAG23	AREA	483454	3912150	0.0
SO LOCATION	FRAG24	AREA	483025	3911927	0.0
SO LOCATION	FRAG25	AREA	483326	3912089	0.0

SO HOUREMIS Emission29\_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max29_92.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 29.94 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	484008	3912416	0.0
SO LOCATION	FRAG2	AREA	483398	3912120	0.0
SO LOCATION	FRAG3	AREA	483653	3912245	0.0
SO LOCATION	FRAG4	AREA	483598	3912218	0.0
SO LOCATION	FRAG5	AREA	483240	3912052	0.0
SO LOCATION	FRAG6	AREA	483475	3912161	0.0
SO LOCATION	FRAG7	AREA	484346	3912572	0.0
SO LOCATION	FRAG8	AREA	484130	3912477	0.0
SO LOCATION	FRAG9	AREA	483142	3911994	0.0
SO LOCATION	FRAG10	AREA	483995	3912404	0.0
SO LOCATION	FRAG11	AREA	483733	3912287	0.0
SO LOCATION	FRAG12	AREA	484309	3912559	0.0
SO LOCATION	FRAG13	AREA	484048	3912434	0.0
SO LOCATION	FRAG14	AREA	483314	3912082	0.0
SO LOCATION	FRAG15	AREA	483832	3912326	0.0
SO LOCATION	FRAG16	AREA	483573	3912205	0.0
SO LOCATION	FRAG17	AREA	483079	3911964	0.0
SO LOCATION	FRAG18	AREA	483247	3912050	0.0
SO LOCATION	FRAG19	AREA	483762	3912302	0.0
SO LOCATION	FRAG20	AREA	484284	3912548	0.0
SO LOCATION	FRAG21	AREA	485036	3912897	0.0
SO LOCATION	FRAG22	AREA	483105	3911971	0.0
SO LOCATION	FRAG23	AREA	483704	3912268	0.0
SO LOCATION	FRAG24	AREA	483528	3912187	0.0
SO LOCATION	FRAG25	AREA	483215	3912031	0.0

SO HOUREMIS Emission29\_94.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max29_94.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 30:70 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	487763	3914140	0.0
SO LOCATION	FRAG2	AREA	484065	3912411	0.0
SO LOCATION	FRAG3	AREA	483924	3912337	0.0
SO LOCATION	FRAG4	AREA	483982	3912359	0.0
SO LOCATION	FRAG5	AREA	484834	3912768	0.0
SO LOCATION	FRAG6	AREA	483880	3912312	0.0
SO LOCATION	FRAG7	AREA	483497	3912126	0.0
SO LOCATION	FRAG8	AREA	484986	3912837	0.0
SO LOCATION	FRAG9	AREA	483809	3912285	0.0
SO LOCATION	FRAG10	AREA	483340	3912049	0.0
SO LOCATION	FRAG11	AREA	483765	3912262	0.0
SO LOCATION	FRAG12	AREA	484365	3912550	0.0
SO LOCATION	FRAG13	AREA	484059	3912403	0.0
SO LOCATION	FRAG14	AREA	483530	3912144	0.0
SO LOCATION	FRAG15	AREA	483844	3912287	0.0
SO LOCATION	FRAG16	AREA	483992	3912368	0.0
SO LOCATION	FRAG17	AREA	486738	3913659	0.0
SO LOCATION	FRAG18	AREA	484000	3912368	0.0
SO LOCATION	FRAG19	AREA	484182	3912459	0.0
SO LOCATION	FRAG20	AREA	483665	3912209	0.0
SO LOCATION	FRAG21	AREA	483655	3912199	0.0
SO LOCATION	FRAG22	AREA	483863	3912300	0.0
SO LOCATION	FRAG23	AREA	483605	3912178	0.0
SO LOCATION	FRAG24	AREA	483751	3912247	0.0
SO LOCATION	FRAG25	AREA	484019	3912379	0.0
**					

SO HOUREMIS Emission30\_70.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max30_70.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 31:97 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	484231	3912414	0.0
SO LOCATION	FRAG2	AREA	484393	3912484	0.0
SO LOCATION	FRAG3	AREA	484140	3912372	0.0
SO LOCATION	FRAG4	AREA	484854	3912706	0.0
SO LOCATION	FRAG5	AREA	483849	3912232	0.0
SO LOCATION	FRAG6	AREA	484324	3912456	0.0
SO LOCATION	FRAG7	AREA	484786	3912680	0.0
SO LOCATION	FRAG8	AREA	485187	3912864	0.0
SO LOCATION	FRAG9	AREA	484107	3912357	0.0
SO LOCATION	FRAG10	AREA	484681	3912624	0.0
SO LOCATION	FRAG11	AREA	484005	3912308	0.0
SO LOCATION	FRAG12	AREA	484437	3912505	0.0
SO LOCATION	FRAG13	AREA	483783	3912182	0.0
SO LOCATION	FRAG14	AREA	484952	3912756	0.0
SO LOCATION	FRAG15	AREA	484110	3912353	0.0
SO LOCATION	FRAG16	AREA	485300	3912915	0.0
SO LOCATION	FRAG17	AREA	484011	3912301	0.0
SO LOCATION	FRAG18	AREA	484366	3912467	0.0
SO LOCATION	FRAG19	AREA	486391	3913427	0.0
SO LOCATION	FRAG20	AREA	484548	3912562	0.0
SO LOCATION	FRAG21	AREA	485397	3912955	0.0
SO LOCATION	FRAG22	AREA	484061	3912328	0.0
SO LOCATION	FRAG23	AREA	483829	3912212	0.0
SO LOCATION	FRAG24	AREA	484384	3912489	0.0
SO LOCATION	FRAG25	AREA	484127	3912361	0.0

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SO HOUREMIS Emission31\_97.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max31_97.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 32:97 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	484897	3912667	0.0
SO LOCATION	FRAG2	AREA	484876	3912667	0.0
SO LOCATION	FRAG3	AREA	485708	3913054	0.0
SO LOCATION	FRAG4	AREA	485911	3913151	0.0
SO LOCATION	FRAG5	AREA	485189	3912800	0.0
SO LOCATION	FRAG6	AREA	484456	3912468	0.0
SO LOCATION	FRAG7	AREA	484629	3912534	0.0
SO LOCATION	FRAG8	AREA	484509	3912488	0.0
SO LOCATION	FRAG9	AREA	484122	3912299	0.0
SO LOCATION	FRAG10	AREA	485695	3913046	0.0
SO LOCATION	FRAG11	AREA	484325	3912392	0.0
SO LOCATION	FRAG12	AREA	484380	3912427	0.0
SO LOCATION	FRAG13	AREA	484435	3912443	0.0
SO LOCATION	FRAG14	AREA	485310	3912868	0.0
SO LOCATION	FRAG15	AREA	484418	3912441	0.0
SO LOCATION	FRAG16	AREA	484352	3912403	0.0
SO LOCATION	FRAG17	AREA	484880	3912660	0.0
SO LOCATION	FRAG18	AREA	484457	3912460	0.0
SO LOCATION	FRAG19	AREA	484031	3912248	0.0
SO LOCATION	FRAG20	AREA	484596	3912528	0.0
SO LOCATION	FRAG21	AREA	484463	3912459	0.0
SO LOCATION	FRAG22	AREA	484551	3912508	0.0
SO LOCATION	FRAG23	AREA	484192	3912327	0.0
SO LOCATION	FRAG24	AREA	484555	3912504	0.0
SO LOCATION	FRAG25	AREA	485704	3913045	0.0

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SO HOUREMIS Emission32\_97.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max32_97.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 33:92 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	486957	3913582	0.0
SO LOCATION	FRAG2	AREA	485273	3912790	0.0
SO LOCATION	FRAG3	AREA	484283	3912316	0.0
SO LOCATION	FRAG4	AREA	484690	3912516	0.0
SO LOCATION	FRAG5	AREA	484424	3912378	0.0
SO LOCATION	FRAG6	AREA	484630	3912486	0.0
SO LOCATION	FRAG7	AREA	484516	3912437	0.0
SO LOCATION	FRAG8	AREA	484592	3912468	0.0
SO LOCATION	FRAG9	AREA	486044	3913154	0.0
SO LOCATION	FRAG10	AREA	485343	3912824	0.0
SO LOCATION	FRAG11	AREA	487008	3913613	0.0
SO LOCATION	FRAG12	AREA	487235	3913713	0.0
SO LOCATION	FRAG13	AREA	486009	3913129	0.0
SO LOCATION	FRAG14	AREA	484758	3912543	0.0
SO LOCATION	FRAG15	AREA	484478	3912411	0.0
SO LOCATION	FRAG16	AREA	484952	3912635	0.0
SO LOCATION	FRAG17	AREA	484827	3912576	0.0
SO LOCATION	FRAG18	AREA	487341	3913769	0.0
SO LOCATION	FRAG19	AREA	484346	3912350	0.0
SO LOCATION	FRAG20	AREA	485638	3912962	0.0
SO LOCATION	FRAG21	AREA	484461	3912402	0.0
SO LOCATION	FRAG22	AREA	484773	3912559	0.0
SO LOCATION	FRAG23	AREA	484388	3912372	0.0
SO LOCATION	FRAG24	AREA	485016	3912665	0.0
SO LOCATION	FRAG25	AREA	485147	3912725	0.0

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SO HOUREMIS Emission33\_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max33_92.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 35:26 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	484995	3912574	0.0
SO LOCATION	FRAG2	AREA	485383	3912757	0.0
SO LOCATION	FRAG3	AREA	485117	3912628	0.0
SO LOCATION	FRAG4	AREA	485253	3912704	0.0
SO LOCATION	FRAG5	AREA	485204	3912679	0.0
SO LOCATION	FRAG6	AREA	488433	3914191	0.0
SO LOCATION	FRAG7	AREA	484807	3912476	0.0
SO LOCATION	FRAG8	AREA	485174	3912654	0.0
SO LOCATION	FRAG9	AREA	485810	3912955	0.0
SO LOCATION	FRAG10	AREA	484977	3912562	0.0
SO LOCATION	FRAG11	AREA	485327	3912729	0.0
SO LOCATION	FRAG12	AREA	487549	3913777	0.0
SO LOCATION	FRAG13	AREA	484738	3912450	0.0
SO LOCATION	FRAG14	AREA	485831	3912969	0.0
SO LOCATION	FRAG15	AREA	485654	3912873	0.0
SO LOCATION	FRAG16	AREA	486016	3913065	0.0
SO LOCATION	FRAG17	AREA	485108	3912629	0.0
SO LOCATION	FRAG18	AREA	485123	3912638	0.0
SO LOCATION	FRAG19	AREA	485322	3912731	0.0
SO LOCATION	FRAG20	AREA	484806	3912476	0.0
SO LOCATION	FRAG21	AREA	484555	3912347	0.0
SO LOCATION	FRAG22	AREA	486740	3913400	0.0
SO LOCATION	FRAG23	AREA	488042	3914005	0.0
SO LOCATION	FRAG24	AREA	485611	3912859	0.0
SO LOCATION	FRAG25	AREA	484735	3912432	0.0

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SO HOUREMIS Emission35\_26.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max35_26.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 35:55 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	485266	3912682	0.0
SO LOCATION	FRAG2	AREA	486994	3913496	0.0
SO LOCATION	FRAG3	AREA	485496	3912797	0.0
SO LOCATION	FRAG4	AREA	485425	3912758	0.0
SO LOCATION	FRAG5	AREA	485183	3912649	0.0
SO LOCATION	FRAG6	AREA	484865	3912488	0.0
SO LOCATION	FRAG7	AREA	485361	3912723	0.0
SO LOCATION	FRAG8	AREA	485145	3912620	0.0
SO LOCATION	FRAG9	AREA	485311	3912712	0.0
SO LOCATION	FRAG10	AREA	485683	3912883	0.0
SO LOCATION	FRAG11	AREA	485800	3912936	0.0
SO LOCATION	FRAG12	AREA	487753	3913853	0.0
SO LOCATION	FRAG13	AREA	485490	3912787	0.0
SO LOCATION	FRAG14	AREA	484902	3912508	0.0
SO LOCATION	FRAG15	AREA	485191	3912655	0.0
SO LOCATION	FRAG16	AREA	485248	3912672	0.0
SO LOCATION	FRAG17	AREA	484744	3912422	0.0
SO LOCATION	FRAG18	AREA	485107	3912597	0.0
SO LOCATION	FRAG19	AREA	485590	3912839	0.0
SO LOCATION	FRAG20	AREA	485663	3912864	0.0
SO LOCATION	FRAG21	AREA	484986	3912554	0.0
SO LOCATION	FRAG22	AREA	485044	3912576	0.0
SO LOCATION	FRAG23	AREA	485444	3912770	0.0
SO LOCATION	FRAG24	AREA	484828	3912463	0.0
SO LOCATION	FRAG25	AREA	485028	3912563	0.0

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SO HOUREMIS Emission35\_55.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max35_55.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 36:41 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	485617	3912788	0.0
SO LOCATION FRAG2	AREA	486439	3913190	0.0
SO LOCATION FRAG3	AREA	485677	3912823	0.0
SO LOCATION FRAG4	AREA	485506	3912739	0.0
SO LOCATION FRAG5	AREA	485996	3912973	0.0
SO LOCATION FRAG6	AREA	486312	3913122	0.0
SO LOCATION FRAG7	AREA	486823	3913361	0.0
SO LOCATION FRAG8	AREA	485807	3912879	0.0
SO LOCATION FRAG9	AREA	486039	3912997	0.0
SO LOCATION FRAG10	AREA	485538	3912750	0.0
SO LOCATION FRAG11	AREA	485669	3912807	0.0
SO LOCATION FRAG12	AREA	485451	3912711	0.0
SO LOCATION FRAG13	AREA	486589	3913250	0.0
SO LOCATION FRAG14	AREA	487491	3913680	0.0
SO LOCATION FRAG15	AREA	487211	3913547	0.0
SO LOCATION FRAG16	AREA	486318	3913123	0.0
SO LOCATION FRAG17	AREA	485578	3912776	0.0
SO LOCATION FRAG18	AREA	486019	3912985	0.0
SO LOCATION FRAG19	AREA	485111	3912533	0.0
SO LOCATION FRAG20	AREA	487690	3913771	0.0
SO LOCATION FRAG21	AREA	485527	3912745	0.0
SO LOCATION FRAG22	AREA	485411	3912691	0.0
SO LOCATION FRAG23	AREA	485548	3912754	0.0
SO LOCATION FRAG24	AREA	485889	3912930	0.0
SO LOCATION FRAG25	AREA	485390	3912679	0.0

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SO HOUREMIS Emission36\_41.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max36_41.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 36:56 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	485652	3912798	0.0
SO LOCATION	FRAG2	AREA	485311	3912638	0.0
SO LOCATION	FRAG3	AREA	485773	3912859	0.0
SO LOCATION	FRAG4	AREA	486830	3913347	0.0
SO LOCATION	FRAG5	AREA	485971	3912949	0.0
SO LOCATION	FRAG6	AREA	486355	3913129	0.0
SO LOCATION	FRAG7	AREA	485689	3912812	0.0
SO LOCATION	FRAG8	AREA	485859	3912891	0.0
SO LOCATION	FRAG9	AREA	486375	3913143	0.0
SO LOCATION	FRAG10	AREA	485487	3912724	0.0
SO LOCATION	FRAG11	AREA	486504	3913199	0.0
SO LOCATION	FRAG12	AREA	485797	3912879	0.0
SO LOCATION	FRAG13	AREA	485108	3912537	0.0
SO LOCATION	FRAG14	AREA	487009	3913439	0.0
SO LOCATION	FRAG15	AREA	485515	3912725	0.0
SO LOCATION	FRAG16	AREA	486293	3913106	0.0
SO LOCATION	FRAG17	AREA	486601	3913242	0.0
SO LOCATION	FRAG18	AREA	486324	3913112	0.0
SO LOCATION	FRAG19	AREA	485351	3912651	0.0
SO LOCATION	FRAG20	AREA	486009	3912974	0.0
SO LOCATION	FRAG21	AREA	485996	3912960	0.0
SO LOCATION	FRAG22	AREA	485828	3912886	0.0
SO LOCATION	FRAG23	AREA	485339	3912649	0.0
SO LOCATION	FRAG24	AREA	485817	3912883	0.0
SO LOCATION	FRAG25	AREA	486176	3913048	0.0

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SO HOUREMIS Emission36\_56.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max36_56.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 36:65 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	485552	3912751	0.0
SO LOCATION	FRAG2	AREA	485752	3912842	0.0
SO LOCATION	FRAG3	AREA	485742	3912837	0.0
SO LOCATION	FRAG4	AREA	486503	3913199	0.0
SO LOCATION	FRAG5	AREA	485595	3912762	0.0
SO LOCATION	FRAG6	AREA	485796	3912765	0.0
SO LOCATION	FRAG7	AREA	488073	3913929	0.0
SO LOCATION	FRAG8	AREA	485522	3912730	0.0
SO LOCATION	FRAG9	AREA	485274	3912614	0.0
SO LOCATION	FRAG10	AREA	486028	3912971	0.0
SO LOCATION	FRAG11	AREA	486098	3912996	0.0
SO LOCATION	FRAG12	AREA	486284	3913100	0.0
SO LOCATION	FRAG13	AREA	486912	3913401	0.0
SO LOCATION	FRAG14	AREA	486006	3912963	0.0
SO LOCATION	FRAG15	AREA	486925	3913402	0.0
SO LOCATION	FRAG16	AREA	487329	3913578	0.0
SO LOCATION	FRAG17	AREA	487329	3913582	0.0
SO LOCATION	FRAG18	AREA	485835	3912880	0.0
SO LOCATION	FRAG19	AREA	486778	3913324	0.0
SO LOCATION	FRAG20	AREA	487832	3913818	0.0
SO LOCATION	FRAG21	AREA	486050	3912988	0.0
SO LOCATION	FRAG22	AREA	485723	3912825	0.0
SO LOCATION	FRAG23	AREA	486496	3913200	0.0
SO LOCATION	FRAG24	AREA	485701	3912813	0.0
SO LOCATION	FRAG25	AREA	486024	3912965	0.0

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SO HOUREMIS Emission36\_65.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max36_65.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 36:68 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	486332	3913106	0.0
SO LOCATION	FRAG2	AREA	485786	3912855	0.0
SO LOCATION	FRAG3	AREA	485715	3912831	0.0
SO LOCATION	FRAG4	AREA	485602	3912768	0.0
SO LOCATION	FRAG5	AREA	485284	3912609	0.0
SO LOCATION	FRAG6	AREA	486089	3912998	0.0
SO LOCATION	FRAG7	AREA	486209	3913064	0.0
SO LOCATION	FRAG8	AREA	486728	3913298	0.0
SO LOCATION	FRAG9	AREA	485872	3912894	0.0
SO LOCATION	FRAG10	AREA	485711	3912826	0.0
SO LOCATION	FRAG11	AREA	485830	3912875	0.0
SO LOCATION	FRAG12	AREA	485805	3912860	0.0
SO LOCATION	FRAG13	AREA	485518	3912727	0.0
SO LOCATION	FRAG14	AREA	485830	3912874	0.0
SO LOCATION	FRAG15	AREA	485365	3912656	0.0
SO LOCATION	FRAG16	AREA	486053	3912979	0.0
SO LOCATION	FRAG17	AREA	486461	3913170	0.0
SO LOCATION	FRAG18	AREA	486302	3913092	0.0
SO LOCATION	FRAG19	AREA	485409	3912670	0.0
SO LOCATION	FRAG20	AREA	486096	3913004	0.0
SO LOCATION	FRAG21	AREA	486404	3913141	0.0
SO LOCATION	FRAG22	AREA	487162	3913500	0.0
SO LOCATION	FRAG23	AREA	486198	3913046	0.0
SO LOCATION	FRAG24	AREA	486176	3913049	0.0
SO LOCATION	FRAG25	AREA	487735	3913773	0.0
**					

SO HOUREMIS Emission36\_68.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max36_68.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 37:32 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	486062	3912937	0.0
SO LOCATION FRAG2	AREA	485940	3912888	0.0
SO LOCATION FRAG3	AREA	485817	3912818	0.0
SO LOCATION FRAG4	AREA	486853	3913318	0.0
SO LOCATION FRAG5	AREA	485797	3912816	0.0
SO LOCATION FRAG6	AREA	486959	3913373	0.0
SO LOCATION FRAG7	AREA	486778	3913279	0.0
SO LOCATION FRAG8	AREA	485584	3912708	0.0
SO LOCATION FRAG9	AREA	486037	3912921	0.0
SO LOCATION FRAG10	AREA	485727	3912780	0.0
SO LOCATION FRAG11	AREA	485954	3912891	0.0
SO LOCATION FRAG12	AREA	485689	3912753	0.0
SO LOCATION FRAG13	AREA	486038	3912931	0.0
SO LOCATION FRAG14	AREA	486446	3913126	0.0
SO LOCATION FRAG15	AREA	485758	3912794	0.0
SO LOCATION FRAG16	AREA	486367	3913094	0.0
SO LOCATION FRAG17	AREA	485958	3912890	0.0
SO LOCATION FRAG18	AREA	485974	3912900	0.0
SO LOCATION FRAG19	AREA	486398	3913105	0.0
SO LOCATION FRAG20	AREA	486212	3913002	0.0
SO LOCATION FRAG21	AREA	485842	3912839	0.0
SO LOCATION FRAG22	AREA	486474	3913140	0.0
SO LOCATION FRAG23	AREA	485212	3912513	0.0
SO LOCATION FRAG24	AREA	487992	3913851	0.0
SO LOCATION FRAG25	AREA	485565	3912698	0.0

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SO HOUREMIS Emission37\_32.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max37_32.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 37:37 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	486068	3912939	0.0
SO LOCATION	FRAG2	AREA	486685	3913237	0.0
SO LOCATION	FRAG3	AREA	486597	3913197	0.0
SO LOCATION	FRAG4	AREA	486275	3913035	0.0
SO LOCATION	FRAG5	AREA	486922	3913336	0.0
SO LOCATION	FRAG6	AREA	486401	3913103	0.0
SO LOCATION	FRAG7	AREA	485532	3912681	0.0
SO LOCATION	FRAG8	AREA	485986	3912902	0.0
SO LOCATION	FRAG9	AREA	486594	3913188	0.0
SO LOCATION	FRAG10	AREA	486424	3913110	0.0
SO LOCATION	FRAG11	AREA	486012	3912919	0.0
SO LOCATION	FRAG12	AREA	486427	3913112	0.0
SO LOCATION	FRAG13	AREA	485374	3912599	0.0
SO LOCATION	FRAG14	AREA	486477	3913119	0.0
SO LOCATION	FRAG15	AREA	486048	3912924	0.0
SO LOCATION	FRAG16	AREA	485997	3912911	0.0
SO LOCATION	FRAG17	AREA	485868	3912845	0.0
SO LOCATION	FRAG18	AREA	487306	3913522	0.0
SO LOCATION	FRAG19	AREA	485872	3912844	0.0
SO LOCATION	FRAG20	AREA	485753	3912784	0.0
SO LOCATION	FRAG21	AREA	485618	3912718	0.0
SO LOCATION	FRAG22	AREA	485997	3912907	0.0
SO LOCATION	FRAG23	AREA	485422	3912628	0.0
SO LOCATION	FRAG24	AREA	485829	3912827	0.0
SO LOCATION	FRAG25	AREA	487094	3913432	0.0

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SO HOUREMIS Emission37\_37.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max37_37.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 38:06 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	486264	3912975	0.0
SO LOCATION FRAG2	AREA	486037	3912882	0.0
SO LOCATION FRAG3	AREA	486864	3913266	0.0
SO LOCATION FRAG4	AREA	487136	3913397	0.0
SO LOCATION FRAG5	AREA	485793	3912747	0.0
SO LOCATION FRAG6	AREA	486000	3912848	0.0
SO LOCATION FRAG7	AREA	486997	3913337	0.0
SO LOCATION FRAG8	AREA	487675	3913649	0.0
SO LOCATION FRAG9	AREA	486569	3913126	0.0
SO LOCATION FRAG10	AREA	486371	3913027	0.0
SO LOCATION FRAG11	AREA	491140	3915260	0.0
SO LOCATION FRAG12	AREA	486074	3912899	0.0
SO LOCATION FRAG13	AREA	486111	3912911	0.0
SO LOCATION FRAG14	AREA	485386	3912544	0.0
SO LOCATION FRAG15	AREA	485921	3912824	0.0
SO LOCATION FRAG16	AREA	486179	3912940	0.0
SO LOCATION FRAG17	AREA	485661	3912693	0.0
SO LOCATION FRAG18	AREA	486733	3913204	0.0
SO LOCATION FRAG19	AREA	485798	3912762	0.0
SO LOCATION FRAG20	AREA	486373	3913043	0.0
SO LOCATION FRAG21	AREA	487997	3913802	0.0
SO LOCATION FRAG22	AREA	488206	3913892	0.0
SO LOCATION FRAG23	AREA	487286	3913468	0.0
SO LOCATION FRAG24	AREA	487477	3913555	0.0
SO LOCATION FRAG25	AREA	486034	3912875	0.0

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SO HOUREMIS Emission38\_06.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max38_06.OUT
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OU FINISHED



AERMOD Input File - Breakup Time: 43:07 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	488324	3913575	0.0
SO LOCATION	FRAG2	AREA	488953	3913865	0.0
SO LOCATION	FRAG3	AREA	488365	3913591	0.0
SO LOCATION	FRAG4	AREA	490651	3914661	0.0
SO LOCATION	FRAG5	AREA	488084	3913459	0.0
SO LOCATION	FRAG6	AREA	487610	3913224	0.0
SO LOCATION	FRAG7	AREA	488624	3913724	0.0
SO LOCATION	FRAG8	AREA	488619	3913726	0.0
SO LOCATION	FRAG9	AREA	488242	3913535	0.0
SO LOCATION	FRAG10	AREA	487799	3913323	0.0
SO LOCATION	FRAG11	AREA	488038	3913438	0.0
SO LOCATION	FRAG12	AREA	488707	3913760	0.0
SO LOCATION	FRAG13	AREA	488277	3913549	0.0
SO LOCATION	FRAG14	AREA	488245	3913545	0.0
SO LOCATION	FRAG15	AREA	490263	3914486	0.0
SO LOCATION	FRAG16	AREA	488606	3913712	0.0
SO LOCATION	FRAG17	AREA	488587	3913700	0.0
SO LOCATION	FRAG18	AREA	488637	3913718	0.0
SO LOCATION	FRAG19	AREA	491401	3915013	0.0
SO LOCATION	FRAG20	AREA	490662	3914667	0.0
SO LOCATION	FRAG21	AREA	487821	3913321	0.0
SO LOCATION	FRAG22	AREA	487656	3913249	0.0
SO LOCATION	FRAG23	AREA	488319	3913573	0.0
SO LOCATION	FRAG24	AREA	491547	3915084	0.0
SO LOCATION	FRAG25	AREA	490554	3914632	0.0

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SO HOUREMIS Emission43\_07.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max43_07.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 44:92 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	489029	3919752	0.0
SO LOCATION FRAG2	AREA	488825.0	3913649.0	0.0
SO LOCATION FRAG3	AREA	489156.0	3913808.0	0.0
SO LOCATION FRAG4	AREA	489394.0	3913930.0	0.0
SO LOCATION FRAG5	AREA	488522.0	3913504.0	0.0
SO LOCATION FRAG6	AREA	489278.0	3913870.0	0.0
SO LOCATION FRAG7	AREA	488793.0	3913638.0	0.0
SO LOCATION FRAG8	AREA	489022.0	3913753.0	0.0
SO LOCATION FRAG9	AREA	489283.0	3913873.0	0.0
SO LOCATION FRAG10	AREA	489832.0	3914137.0	0.0
SO LOCATION FRAG11	AREA	490381.0	3914390.0	0.0
SO LOCATION FRAG12	AREA	488982.0	3913736.0	0.0
SO LOCATION FRAG13	AREA	489445.0	3913945.0	0.0
SO LOCATION FRAG14	AREA	491419.0	3914892.0	0.0
SO LOCATION FRAG15	AREA	489593.0	3914018.0	0.0
SO LOCATION FRAG16	AREA	488936.0	3913707.0	0.0
SO LOCATION FRAG17	AREA	489223.0	3913849.0	0.0
SO LOCATION FRAG18	AREA	491452.0	3914886.0	0.0
SO LOCATION FRAG19	AREA	488596.0	3913539.0	0.0
SO LOCATION FRAG20	AREA	496307.0	3917152.0	0.0
SO LOCATION FRAG21	AREA	488652.0	3913571.0	0.0
SO LOCATION FRAG22	AREA	488406.0	3913434.0	0.0
SO LOCATION FRAG23	AREA	489563.0	3913997.0	0.0
SO LOCATION FRAG24	AREA	488658.0	3913569.0	0.0
SO LOCATION FRAG25	AREA	489173.0	3913814.0	0.0

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SO HOUREMIS Emission44\_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max44_92.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 45:31 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	489610	3914000	0.0
SO LOCATION	FRAG2	AREA	489233	3913812	0.0
SO LOCATION	FRAG3	AREA	489199	3913797	0.0
SO LOCATION	FRAG4	AREA	489069	3913733	0.0
SO LOCATION	FRAG5	AREA	489156	3913782	0.0
SO LOCATION	FRAG6	AREA	489443	3913911	0.0
SO LOCATION	FRAG7	AREA	490432	3914386	0.0
SO LOCATION	FRAG8	AREA	489681	3914026	0.0
SO LOCATION	FRAG9	AREA	488748	3913581	0.0
SO LOCATION	FRAG10	AREA	489769	3914067	0.0
SO LOCATION	FRAG11	AREA	491059	3914674	0.0
SO LOCATION	FRAG12	AREA	489013	3913720	0.0
SO LOCATION	FRAG13	AREA	491769	3915020	0.0
SO LOCATION	FRAG14	AREA	489041	3913723	0.0
SO LOCATION	FRAG15	AREA	488872	3913638	0.0
SO LOCATION	FRAG16	AREA	493608	3915868	0.0
SO LOCATION	FRAG17	AREA	489667	3914029	0.0
SO LOCATION	FRAG18	AREA	488522	3913461	0.0
SO LOCATION	FRAG19	AREA	488768	3913583	0.0
SO LOCATION	FRAG20	AREA	489810	3914093	0.0
SO LOCATION	FRAG21	AREA	489504	3913944	0.0
SO LOCATION	FRAG22	AREA	488788	3913600	0.0
SO LOCATION	FRAG23	AREA	489914	3914137	0.0
SO LOCATION	FRAG24	AREA	491084	3914695	0.0
SO LOCATION	FRAG25	AREA	490170	3914254	0.0

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SO HOUREMIS Emission45\_31.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max45_31.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 46:11 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	489548	3913897	0.0
SO LOCATION FRAG2	AREA	489452	3913848	0.0
SO LOCATION FRAG3	AREA	491166	3914650	0.0
SO LOCATION FRAG4	AREA	490423	3914317	0.0
SO LOCATION FRAG5	AREA	490461	3914323	0.0
SO LOCATION FRAG6	AREA	489548	3913896	0.0
SO LOCATION FRAG7	AREA	489293	3913771	0.0
SO LOCATION FRAG8	AREA	489862	3914041	0.0
SO LOCATION FRAG9	AREA	490263	3914231	0.0
SO LOCATION FRAG10	AREA	488395	3913287	0.0
SO LOCATION FRAG11	AREA	490741	3914477	0.0
SO LOCATION FRAG12	AREA	490123	3914165	0.0
SO LOCATION FRAG13	AREA	489071	3913650	0.0
SO LOCATION FRAG14	AREA	490492	3914351	0.0
SO LOCATION FRAG15	AREA	490441	3914313	0.0
SO LOCATION FRAG16	AREA	490230	3914238	0.0
SO LOCATION FRAG17	AREA	489164	3913713	0.0
SO LOCATION FRAG18	AREA	489276	3913758	0.0
SO LOCATION FRAG19	AREA	494264	3916105	0.0
SO LOCATION FRAG20	AREA	488714	3913467	0.0
SO LOCATION FRAG21	AREA	489338	3913795	0.0
SO LOCATION FRAG22	AREA	488371	3913272	0.0
SO LOCATION FRAG23	AREA	491045	3914612	0.0
SO LOCATION FRAG24	AREA	490126	3914171	0.0
SO LOCATION FRAG25	AREA	489766	3913992	0.0

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SO HOUREMIS Emission46\_11.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max46_11.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 46:38 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	489222	3913699	0.0
SO LOCATION	FRAG2	AREA	490157	3914168	0.0
SO LOCATION	FRAG3	AREA	488982	3913586	0.0
SO LOCATION	FRAG4	AREA	490942	3914525	0.0
SO LOCATION	FRAG5	AREA	489060	3913625	0.0
SO LOCATION	FRAG6	AREA	490042	3914098	0.0
SO LOCATION	FRAG7	AREA	489950	3914056	0.0
SO LOCATION	FRAG8	AREA	492632	3915319	0.0
SO LOCATION	FRAG9	AREA	490279	3914224	0.0
SO LOCATION	FRAG10	AREA	491557	3914818	0.0
SO LOCATION	FRAG11	AREA	489845	3914007	0.0
SO LOCATION	FRAG12	AREA	489487	3913833	0.0
SO LOCATION	FRAG13	AREA	488474	3913297	0.0
SO LOCATION	FRAG14	AREA	489570	3913883	0.0
SO LOCATION	FRAG15	AREA	490323	3914246	0.0
SO LOCATION	FRAG16	AREA	489210	3913704	0.0
SO LOCATION	FRAG17	AREA	491208	3914652	0.0
SO LOCATION	FRAG18	AREA	489820	3914006	0.0
SO LOCATION	FRAG19	AREA	492473	3915240	0.0
SO LOCATION	FRAG20	AREA	490106	3914127	0.0
SO LOCATION	FRAG21	AREA	489783	3913977	0.0
SO LOCATION	FRAG22	AREA	491259	3914675	0.0
SO LOCATION	FRAG23	AREA	490212	3914178	0.0
SO LOCATION	FRAG24	AREA	489434	3913813	0.0
SO LOCATION	FRAG25	AREA	489284	3913733	0.0

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SO HOUREMIS Emission46\_38.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max46_38.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 51:98 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	492829	3914886	0.0
SO LOCATION FRAG2	AREA	492429	3914689	0.0
SO LOCATION FRAG3	AREA	492560	3914763	0.0
SO LOCATION FRAG4	AREA	493920	3915399	0.0
SO LOCATION FRAG5	AREA	492339	3914650	0.0
SO LOCATION FRAG6	AREA	493308	3915110	0.0
SO LOCATION FRAG7	AREA	493148	3915057	0.0
SO LOCATION FRAG8	AREA	493297	3915123	0.0
SO LOCATION FRAG9	AREA	496021	3916375	0.0
SO LOCATION FRAG10	AREA	491795	3914379	0.0
SO LOCATION FRAG11	AREA	493378	3915139	0.0
SO LOCATION FRAG12	AREA	492768	3914869	0.0
SO LOCATION FRAG13	AREA	494055	3915458	0.0
SO LOCATION FRAG14	AREA	498442	3917525	0.0
SO LOCATION FRAG15	AREA	492598	3914767	0.0
SO LOCATION FRAG16	AREA	492212	3914597	0.0
SO LOCATION FRAG17	AREA	492439	3914698	0.0
SO LOCATION FRAG18	AREA	493089	3915026	0.0
SO LOCATION FRAG19	AREA	492196	3914583	0.0
SO LOCATION FRAG20	AREA	493291	3915110	0.0
SO LOCATION FRAG21	AREA	493107	3915015	0.0
SO LOCATION FRAG22	AREA	492274	3914622	0.0
SO LOCATION FRAG23	AREA	492864	3914911	0.0
SO LOCATION FRAG24	AREA	492488	3914725	0.0
SO LOCATION FRAG25	AREA	497389	3917025	0.0

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SO HOUREMIS Emission51\_98.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max51_98.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 52:91 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	493853	3915276	0.0
SO LOCATION	FRAG2	AREA	492235	3914495	0.0
SO LOCATION	FRAG3	AREA	494438	3915553	0.0
SO LOCATION	FRAG4	AREA	494133	3915423	0.0
SO LOCATION	FRAG5	AREA	493877	3915293	0.0
SO LOCATION	FRAG6	AREA	491986	3914363	0.0
SO LOCATION	FRAG7	AREA	495641	3916147	0.0
SO LOCATION	FRAG8	AREA	493280	3915003	0.0
SO LOCATION	FRAG9	AREA	492919	3914831	0.0
SO LOCATION	FRAG10	AREA	493794	3915252	0.0
SO LOCATION	FRAG11	AREA	493713	3915213	0.0
SO LOCATION	FRAG12	AREA	492326	3914538	0.0
SO LOCATION	FRAG13	AREA	493900	3915305	0.0
SO LOCATION	FRAG14	AREA	495605	3916111	0.0
SO LOCATION	FRAG15	AREA	492664	3914711	0.0
SO LOCATION	FRAG16	AREA	492775	3914760	0.0
SO LOCATION	FRAG17	AREA	492500	3914626	0.0
SO LOCATION	FRAG18	AREA	492749	3914755	0.0
SO LOCATION	FRAG19	AREA	494104	3915397	0.0
SO LOCATION	FRAG20	AREA	493570	3915145	0.0
SO LOCATION	FRAG21	AREA	493849	3915286	0.0
SO LOCATION	FRAG22	AREA	493448	3915087	0.0
SO LOCATION	FRAG23	AREA	496411	3916494	0.0
SO LOCATION	FRAG24	AREA	493111	3914929	0.0
SO LOCATION	FRAG25	AREA	492442	3914596	0.0

\*\*

SO HOUREMIS Emission52\_91.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max52_91.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 53:20 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	493389	3915024	0.0
SO LOCATION FRAG2	AREA	495075	3915830	0.0
SO LOCATION FRAG3	AREA	494259	3915439	0.0
SO LOCATION FRAG4	AREA	492803	3914738	0.0
SO LOCATION FRAG5	AREA	495254	3915909	0.0
SO LOCATION FRAG6	AREA	493595	3915138	0.0
SO LOCATION FRAG7	AREA	492528	3914604	0.0
SO LOCATION FRAG8	AREA	495054	3915826	0.0
SO LOCATION FRAG9	AREA	493110	3914901	0.0
SO LOCATION FRAG10	AREA	494451	3915537	0.0
SO LOCATION FRAG11	AREA	492027	3914350	0.0
SO LOCATION FRAG12	AREA	493561	3915112	0.0
SO LOCATION FRAG13	AREA	497635	3917006	0.0
SO LOCATION FRAG14	AREA	493401	3915041	0.0
SO LOCATION FRAG15	AREA	494177	3915402	0.0
SO LOCATION FRAG16	AREA	492264	3914471	0.0
SO LOCATION FRAG17	AREA	493106	3914887	0.0
SO LOCATION FRAG18	AREA	493317	3914999	0.0
SO LOCATION FRAG19	AREA	494546	3915580	0.0
SO LOCATION FRAG20	AREA	496101	3916293	0.0
SO LOCATION FRAG21	AREA	492940	3914807	0.0
SO LOCATION FRAG22	AREA	493619	3915147	0.0
SO LOCATION FRAG23	AREA	494288	3915454	0.0
SO LOCATION FRAG24	AREA	494319	3915475	0.0
SO LOCATION FRAG25	AREA	493703	3915185	0.0

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SO HOUREMIS Emission53\_20.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max53_20.OUT
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OU FINISHED



AERMOD Input File - Breakup Time: 55:44 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	494365	3915247	0.0
SO LOCATION FRAG2	AREA	494053	3915088	0.0
SO LOCATION FRAG3	AREA	494458	3915295	0.0
SO LOCATION FRAG4	AREA	493695	3914914	0.0
SO LOCATION FRAG5	AREA	496513	3916252	0.0
SO LOCATION FRAG6	AREA	495767	3915927	0.0
SO LOCATION FRAG7	AREA	496630	3916312	0.0
SO LOCATION FRAG8	AREA	495383	3915728	0.0
SO LOCATION FRAG9	AREA	495898	3915977	0.0
SO LOCATION FRAG10	AREA	501612	3918625	0.0
SO LOCATION FRAG11	AREA	493508	3914813	0.0
SO LOCATION FRAG12	AREA	495354	3915726	0.0
SO LOCATION FRAG13	AREA	497854	3916896	0.0
SO LOCATION FRAG14	AREA	496621	3916311	0.0
SO LOCATION FRAG15	AREA	494352	3915242	0.0
SO LOCATION FRAG16	AREA	494931	3915518	0.0
SO LOCATION FRAG17	AREA	495134	3915625	0.0
SO LOCATION FRAG18	AREA	494316	3915220	0.0
SO LOCATION FRAG19	AREA	496063	3916056	0.0
SO LOCATION FRAG20	AREA	496384	3916209	0.0
SO LOCATION FRAG21	AREA	494250	3915189	0.0
SO LOCATION FRAG22	AREA	493073	3914589	0.0
SO LOCATION FRAG23	AREA	495940	3915998	0.0
SO LOCATION FRAG24	AREA	494950	3915529	0.0
SO LOCATION FRAG25	AREA	493636	3914887	0.0

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SO HOUREMIS Emission55\_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

** Parameters:	Period	Source	Value	Filename
**	-----	-----	-----	-----
MAXIFILE	4	ALL	7460	Max55_44.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 56:36 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	497539	3916652	0.0
SO LOCATION	FRAG2	AREA	494675	3915283	0.0
SO LOCATION	FRAG3	AREA	495184	3915538	0.0
SO LOCATION	FRAG4	AREA	495056	3915474	0.0
SO LOCATION	FRAG5	AREA	494897	3915391	0.0
SO LOCATION	FRAG6	AREA	494360	3915130	0.0
SO LOCATION	FRAG7	AREA	493679	3914781	0.0
SO LOCATION	FRAG8	AREA	495541	3915703	0.0
SO LOCATION	FRAG9	AREA	498052	3916888	0.0
SO LOCATION	FRAG10	AREA	495144	3915510	0.0
SO LOCATION	FRAG11	AREA	493617	3914745	0.0
SO LOCATION	FRAG12	AREA	494038	3914967	0.0
SO LOCATION	FRAG13	AREA	497581	3916668	0.0
SO LOCATION	FRAG14	AREA	496715	3916268	0.0
SO LOCATION	FRAG15	AREA	497562	3916655	0.0
SO LOCATION	FRAG16	AREA	498242	3916972	0.0
SO LOCATION	FRAG17	AREA	494001	3914945	0.0
SO LOCATION	FRAG18	AREA	494346	3915118	0.0
SO LOCATION	FRAG19	AREA	495988	3915920	0.0
SO LOCATION	FRAG20	AREA	494862	3915381	0.0
SO LOCATION	FRAG21	AREA	494828	3915368	0.0
SO LOCATION	FRAG22	AREA	496873	3916334	0.0
SO LOCATION	FRAG23	AREA	494353	3915126	0.0
SO LOCATION	FRAG24	AREA	497447	3916621	0.0
SO LOCATION	FRAG25	AREA	495636	3915736	0.0
**					

SO HOUREMIS Emission56\_36.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max56_36.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 57:48 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	499519	3917449	0.0
SO LOCATION	FRAG2	AREA	495630	3915610	0.0
SO LOCATION	FRAG3	AREA	494655	3915128	0.0
SO LOCATION	FRAG4	AREA	496522	3916044	0.0
SO LOCATION	FRAG5	AREA	495715	3915665	0.0
SO LOCATION	FRAG6	AREA	495039	3915330	0.0
SO LOCATION	FRAG7	AREA	497339	3916436	0.0
SO LOCATION	FRAG8	AREA	495308	3915460	0.0
SO LOCATION	FRAG9	AREA	495546	3915566	0.0
SO LOCATION	FRAG10	AREA	495457	3915536	0.0
SO LOCATION	FRAG11	AREA	496891	3916219	0.0
SO LOCATION	FRAG12	AREA	499735	3917534	0.0
SO LOCATION	FRAG13	AREA	496311	3915945	0.0
SO LOCATION	FRAG14	AREA	496889	3916219	0.0
SO LOCATION	FRAG15	AREA	509617	3922148	0.0
SO LOCATION	FRAG16	AREA	497735	3916611	0.0
SO LOCATION	FRAG17	AREA	495620	3915606	0.0
SO LOCATION	FRAG18	AREA	497126	3916337	0.0
SO LOCATION	FRAG19	AREA	497011	3916265	0.0
SO LOCATION	FRAG20	AREA	496215	3915895	0.0
SO LOCATION	FRAG21	AREA	496105	3915841	0.0
SO LOCATION	FRAG22	AREA	494786	3915202	0.0
SO LOCATION	FRAG23	AREA	496693	3916124	0.0
SO LOCATION	FRAG24	AREA	493870	3914704	0.0
SO LOCATION	FRAG25	AREA	495530	3915566	0.0

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SO HOUREMIS Emission57\_48.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max57_48.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 58:30 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	495152	3915271	0.0
SO LOCATION FRAG2	AREA	500177	3917670	0.0
SO LOCATION FRAG3	AREA	497036	3916184	0.0
SO LOCATION FRAG4	AREA	496340	3915864	0.0
SO LOCATION FRAG5	AREA	495615	3915507	0.0
SO LOCATION FRAG6	AREA	498827	3917034	0.0
SO LOCATION FRAG7	AREA	498108	3916700	0.0
SO LOCATION FRAG8	AREA	495050	3915219	0.0
SO LOCATION FRAG9	AREA	495993	3915694	0.0
SO LOCATION FRAG10	AREA	496112	3915747	0.0
SO LOCATION FRAG11	AREA	498271	3916774	0.0
SO LOCATION FRAG12	AREA	496373	3915877	0.0
SO LOCATION FRAG13	AREA	496991	3916172	0.0
SO LOCATION FRAG14	AREA	495148	3915267	0.0
SO LOCATION FRAG15	AREA	496489	3915920	0.0
SO LOCATION FRAG16	AREA	499907	3917529	0.0
SO LOCATION FRAG17	AREA	495933	3915662	0.0
SO LOCATION FRAG18	AREA	497028	3916186	0.0
SO LOCATION FRAG19	AREA	496774	3916062	0.0
SO LOCATION FRAG20	AREA	497432	3916370	0.0
SO LOCATION FRAG21	AREA	495879	3915638	0.0
SO LOCATION FRAG22	AREA	497776	3916540	0.0
SO LOCATION FRAG23	AREA	496936	3916130	0.0
SO LOCATION FRAG24	AREA	495343	3915379	0.0
SO LOCATION FRAG25	AREA	497894	3916596	0.0

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SO HOUREMIS Emission58\_30.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max58_30.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 62:92 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	498421	3916237	0.0
SO LOCATION	FRAG2	AREA	502233	3918051	0.0
SO LOCATION	FRAG3	AREA	496785	3915338	0.0
SO LOCATION	FRAG4	AREA	501330	3917626	0.0
SO LOCATION	FRAG5	AREA	498005	3916024	0.0
SO LOCATION	FRAG6	AREA	502528	3918211	0.0
SO LOCATION	FRAG7	AREA	500850	3917418	0.0
SO LOCATION	FRAG8	AREA	501520	3917729	0.0
SO LOCATION	FRAG9	AREA	501325	3917639	0.0
SO LOCATION	FRAG10	AREA	502713	3918291	0.0
SO LOCATION	FRAG11	AREA	498361	3916211	0.0
SO LOCATION	FRAG12	AREA	500937	3917455	0.0
SO LOCATION	FRAG13	AREA	498157	3916113	0.0
SO LOCATION	FRAG14	AREA	499812	3916925	0.0
SO LOCATION	FRAG15	AREA	499675	3916860	0.0
SO LOCATION	FRAG16	AREA	498592	3916325	0.0
SO LOCATION	FRAG17	AREA	501915	3917910	0.0
SO LOCATION	FRAG18	AREA	499639	3916830	0.0
SO LOCATION	FRAG19	AREA	497884	3915971	0.0
SO LOCATION	FRAG20	AREA	499839	3916939	0.0
SO LOCATION	FRAG21	AREA	501864	3917894	0.0
SO LOCATION	FRAG22	AREA	498843	3916455	0.0
SO LOCATION	FRAG23	AREA	498299	3916181	0.0
SO LOCATION	FRAG24	AREA	501715	3917812	0.0
SO LOCATION	FRAG25	AREA	500170	3917084	0.0

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SO HOUREMIS Emission62\_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max62_92.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 63:81 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	499357	3916570	0.0
SO LOCATION	FRAG2	AREA	498771	3916279	0.0
SO LOCATION	FRAG3	AREA	503198	3918401	0.0
SO LOCATION	FRAG4	AREA	498895	3916342	0.0
SO LOCATION	FRAG5	AREA	500668	3917205	0.0
SO LOCATION	FRAG6	AREA	499384	3916586	0.0
SO LOCATION	FRAG7	AREA	499787	3916782	0.0
SO LOCATION	FRAG8	AREA	505545	3919472	0.0
SO LOCATION	FRAG9	AREA	499294	3916535	0.0
SO LOCATION	FRAG10	AREA	500127	3916948	0.0
SO LOCATION	FRAG11	AREA	500282	3917023	0.0
SO LOCATION	FRAG12	AREA	499164	3916471	0.0
SO LOCATION	FRAG13	AREA	501094	3917408	0.0
SO LOCATION	FRAG14	AREA	502365	3918002	0.0
SO LOCATION	FRAG15	AREA	502835	3918221	0.0
SO LOCATION	FRAG16	AREA	504722	3919119	0.0
SO LOCATION	FRAG17	AREA	504808	3919166	0.0
SO LOCATION	FRAG18	AREA	502133	3917899	0.0
SO LOCATION	FRAG19	AREA	501144	3917425	0.0
SO LOCATION	FRAG20	AREA	501617	3917641	0.0
SO LOCATION	FRAG21	AREA	499536	3916659	0.0
SO LOCATION	FRAG22	AREA	500221	3916998	0.0
SO LOCATION	FRAG23	AREA	500287	3917016	0.0
SO LOCATION	FRAG24	AREA	499668	3916728	0.0
SO LOCATION	FRAG25	AREA	500276	3917013	0.0

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SO HOUREMIS Emission63\_81.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max63_81.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 64:02 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	501931	3917768	0.0
SO LOCATION	FRAG2	AREA	499895	3916802	0.0
SO LOCATION	FRAG3	AREA	503885	3918705	0.0
SO LOCATION	FRAG4	AREA	498851	3916283	0.0
SO LOCATION	FRAG5	AREA	500323	3917008	0.0
SO LOCATION	FRAG6	AREA	499690	3916695	0.0
SO LOCATION	FRAG7	AREA	499779	3916746	0.0
SO LOCATION	FRAG8	AREA	500048	3916868	0.0
SO LOCATION	FRAG9	AREA	503588	3918560	0.0
SO LOCATION	FRAG10	AREA	500325	3917008	0.0
SO LOCATION	FRAG11	AREA	500369	3917027	0.0
SO LOCATION	FRAG12	AREA	499277	3916492	0.0
SO LOCATION	FRAG13	AREA	506237	3919788	0.0
SO LOCATION	FRAG14	AREA	503631	3918585	0.0
SO LOCATION	FRAG15	AREA	498594	3916154	0.0
SO LOCATION	FRAG16	AREA	506610	3919968	0.0
SO LOCATION	FRAG17	AREA	500350	3917019	0.0
SO LOCATION	FRAG18	AREA	502301	3917945	0.0
SO LOCATION	FRAG19	AREA	502342	3917969	0.0
SO LOCATION	FRAG20	AREA	500916	3917295	0.0
SO LOCATION	FRAG21	AREA	500274	3916987	0.0
SO LOCATION	FRAG22	AREA	500950	3917308	0.0
SO LOCATION	FRAG23	AREA	502877	3918224	0.0
SO LOCATION	FRAG24	AREA	498651	3916188	0.0
SO LOCATION	FRAG25	AREA	499811	3916756	0.0

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SO HOUREMIS Emission64\_02.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max64_02.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 65:19 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	502509	3917886	0.0
SO LOCATION	FRAG2	AREA	501913	3917603	0.0
SO LOCATION	FRAG3	AREA	501256	3917293	0.0
SO LOCATION	FRAG4	AREA	500087	3916722	0.0
SO LOCATION	FRAG5	AREA	502034	3917647	0.0
SO LOCATION	FRAG6	AREA	500477	3916914	0.0
SO LOCATION	FRAG7	AREA	502891	3918060	0.0
SO LOCATION	FRAG8	AREA	499912	3916627	0.0
SO LOCATION	FRAG9	AREA	500136	3916743	0.0
SO LOCATION	FRAG10	AREA	501547	3917425	0.0
SO LOCATION	FRAG11	AREA	501290	3917305	0.0
SO LOCATION	FRAG12	AREA	501094	3917211	0.0
SO LOCATION	FRAG13	AREA	500894	3917113	0.0
SO LOCATION	FRAG14	AREA	503174	3918206	0.0
SO LOCATION	FRAG15	AREA	504105	3918650	0.0
SO LOCATION	FRAG16	AREA	500771	3917053	0.0
SO LOCATION	FRAG17	AREA	502228	3917753	0.0
SO LOCATION	FRAG18	AREA	501913	3917592	0.0
SO LOCATION	FRAG19	AREA	500403	3916880	0.0
SO LOCATION	FRAG20	AREA	500353	3916841	0.0
SO LOCATION	FRAG21	AREA	501131	3917215	0.0
SO LOCATION	FRAG22	AREA	500029	3916682	0.0
SO LOCATION	FRAG23	AREA	499501	3916416	0.0
SO LOCATION	FRAG24	AREA	501252	3917284	0.0
SO LOCATION	FRAG25	AREA	500158	3916750	0.0

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SO HOUREMIS Emission65\_19.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max65_19.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 68:33 seconds

CO STARTING  
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CO FINISHED

SO STARTING

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**          SrcID   Type    x(m)    y(m)    z(m)
**          -----  -----  -----  -----  -----
SO LOCATION FRAG1  AREA   502158  3917221  0.0
SO LOCATION FRAG2  AREA   502363  3917321  0.0
SO LOCATION FRAG3  AREA   503811  3918028  0.0
SO LOCATION FRAG4  AREA   505118  3918647  0.0
SO LOCATION FRAG5  AREA   503048  3917656  0.0
SO LOCATION FRAG6  AREA   514390  3923005  0.0
SO LOCATION FRAG7  AREA   506361  3919231  0.0
SO LOCATION FRAG8  AREA   502084  3917186  0.0
SO LOCATION FRAG9  AREA   502619  3917451  0.0
SO LOCATION FRAG10 AREA   505093  3918629  0.0
SO LOCATION FRAG11 AREA   501407  3916825  0.0
SO LOCATION FRAG12 AREA   513456  3922528  0.0
SO LOCATION FRAG13 AREA   502643  3917454  0.0
SO LOCATION FRAG14 AREA   502996  3917625  0.0
SO LOCATION FRAG15 AREA   502047  3917161  0.0
SO LOCATION FRAG16 AREA   503849  3918042  0.0
SO LOCATION FRAG17 AREA   502354  3917312  0.0
SO LOCATION FRAG18 AREA   502626  3917446  0.0
SO LOCATION FRAG19 AREA   502298  3917289  0.0
SO LOCATION FRAG20 AREA   501882  3917092  0.0
SO LOCATION FRAG21 AREA   510597  3921204  0.0
SO LOCATION FRAG22 AREA   505130  3918658  0.0
SO LOCATION FRAG23 AREA   504299  3918256  0.0
SO LOCATION FRAG24 AREA   507148  3919592  0.0
SO LOCATION FRAG25 AREA   502284  3917285  0.0
```

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SO HOUREMIS Emission68\_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

```
** Parameters:  Period  Source  Value  Filename
**          -----  -----  -----  -----
          MAXIFILE      4      ALL    7460  Max68_33.OUT
```

OU FINISHED

AERMOD Input File - Breakup Time: 68:95 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	509029	3920703	0.0
SO LOCATION	FRAG2	AREA	501074	3916915	0.0
SO LOCATION	FRAG3	AREA	501559	3917149	0.0
SO LOCATION	FRAG4	AREA	503973	3918310	0.0
SO LOCATION	FRAG5	AREA	501774	3917259	0.0
SO LOCATION	FRAG6	AREA	502216	3917480	0.0
SO LOCATION	FRAG7	AREA	502104	3917422	0.0
SO LOCATION	FRAG8	AREA	503249	3917970	0.0
SO LOCATION	FRAG9	AREA	499864	3916271	0.0
SO LOCATION	FRAG10	AREA	506155	3919351	0.0
SO LOCATION	FRAG11	AREA	510393	3921328	0.0
SO LOCATION	FRAG12	AREA	503503	3918086	0.0
SO LOCATION	FRAG13	AREA	501224	3916991	0.0
SO LOCATION	FRAG14	AREA	501612	3917180	0.0
SO LOCATION	FRAG15	AREA	501934	3917343	0.0
SO LOCATION	FRAG16	AREA	506274	3919399	0.0
SO LOCATION	FRAG17	AREA	505233	3918920	0.0
SO LOCATION	FRAG18	AREA	502529	3917629	0.0
SO LOCATION	FRAG19	AREA	502594	3917658	0.0
SO LOCATION	FRAG20	AREA	502024	3917384	0.0
SO LOCATION	FRAG21	AREA	501019	3916877	0.0
SO LOCATION	FRAG22	AREA	508428	3920424	0.0
SO LOCATION	FRAG23	AREA	501621	3917179	0.0
SO LOCATION	FRAG24	AREA	501402	3917085	0.0
SO LOCATION	FRAG25	AREA	507934	3920187	0.0

\*\*

SO HOUREMIS Emission68\_95.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max68_95.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 69:78 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	504460	3918074	0.0
SO LOCATION	FRAG2	AREA	505640	3918654	0.0
SO LOCATION	FRAG3	AREA	504599	3918165	0.0
SO LOCATION	FRAG4	AREA	503434	3917588	0.0
SO LOCATION	FRAG5	AREA	502585	3917155	0.0
SO LOCATION	FRAG6	AREA	510300	3920850	0.0
SO LOCATION	FRAG7	AREA	504602	3918166	0.0
SO LOCATION	FRAG8	AREA	503021	3917378	0.0
SO LOCATION	FRAG9	AREA	503660	3917700	0.0
SO LOCATION	FRAG10	AREA	510077	3920734	0.0
SO LOCATION	FRAG11	AREA	508618	3920065	0.0
SO LOCATION	FRAG12	AREA	505500	3918586	0.0
SO LOCATION	FRAG13	AREA	507729	3919639	0.0
SO LOCATION	FRAG14	AREA	504504	3918106	0.0
SO LOCATION	FRAG15	AREA	504133	3917932	0.0
SO LOCATION	FRAG16	AREA	503437	3917585	0.0
SO LOCATION	FRAG17	AREA	504760	3918234	0.0
SO LOCATION	FRAG18	AREA	506222	3918937	0.0
SO LOCATION	FRAG19	AREA	503891	3917820	0.0
SO LOCATION	FRAG20	AREA	510211	3920801	0.0
SO LOCATION	FRAG21	AREA	508091	3919826	0.0
SO LOCATION	FRAG22	AREA	505861	3918744	0.0
SO LOCATION	FRAG23	AREA	503703	3917717	0.0
SO LOCATION	FRAG24	AREA	506001	3918830	0.0
SO LOCATION	FRAG25	AREA	505093	3918400	0.0

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SO HOUREMIS Emission69\_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max69_78.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 70:74 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	506100	3918707	0.0
SO LOCATION	FRAG2	AREA	507552	3919403	0.0
SO LOCATION	FRAG3	AREA	509077	3920132	0.0
SO LOCATION	FRAG4	AREA	505258	3918309	0.0
SO LOCATION	FRAG5	AREA	507104	3919183	0.0
SO LOCATION	FRAG6	AREA	504360	3917872	0.0
SO LOCATION	FRAG7	AREA	510902	3920983	0.0
SO LOCATION	FRAG8	AREA	505152	3918250	0.0
SO LOCATION	FRAG9	AREA	504358	3917870	0.0
SO LOCATION	FRAG10	AREA	510249	3920669	0.0
SO LOCATION	FRAG11	AREA	504777	3918072	0.0
SO LOCATION	FRAG12	AREA	509187	3920170	0.0
SO LOCATION	FRAG13	AREA	506700	3919009	0.0
SO LOCATION	FRAG14	AREA	504682	3918026	0.0
SO LOCATION	FRAG15	AREA	504334	3917860	0.0
SO LOCATION	FRAG16	AREA	503848	3917617	0.0
SO LOCATION	FRAG17	AREA	506833	3919062	0.0
SO LOCATION	FRAG18	AREA	505483	3918419	0.0
SO LOCATION	FRAG19	AREA	503518	3917450	0.0
SO LOCATION	FRAG20	AREA	506938	3919109	0.0
SO LOCATION	FRAG21	AREA	507536	3919380	0.0
SO LOCATION	FRAG22	AREA	509408	3920261	0.0
SO LOCATION	FRAG23	AREA	504894	3918124	0.0
SO LOCATION	FRAG24	AREA	505619	3918475	0.0
SO LOCATION	FRAG25	AREA	508192	3919697	0.0

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SO HOUREMIS Emission70\_74.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max70_74.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 71:63 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	508090	3919512	0.0
SO LOCATION	FRAG2	AREA	504392	3917720	0.0
SO LOCATION	FRAG3	AREA	506626	3918807	0.0
SO LOCATION	FRAG4	AREA	506333	3918665	0.0
SO LOCATION	FRAG5	AREA	507725	3919322	0.0
SO LOCATION	FRAG6	AREA	510188	3920503	0.0
SO LOCATION	FRAG7	AREA	504534	3917786	0.0
SO LOCATION	FRAG8	AREA	508328	3919613	0.0
SO LOCATION	FRAG9	AREA	508233	3919570	0.0
SO LOCATION	FRAG10	AREA	508561	3919737	0.0
SO LOCATION	FRAG11	AREA	510766	3920757	0.0
SO LOCATION	FRAG12	AREA	505332	3918181	0.0
SO LOCATION	FRAG13	AREA	507511	3919213	0.0
SO LOCATION	FRAG14	AREA	506760	3918865	0.0
SO LOCATION	FRAG15	AREA	505991	3918502	0.0
SO LOCATION	FRAG16	AREA	503947	3917486	0.0
SO LOCATION	FRAG17	AREA	507198	3919088	0.0
SO LOCATION	FRAG18	AREA	503531	3917261	0.0
SO LOCATION	FRAG19	AREA	506303	3918652	0.0
SO LOCATION	FRAG20	AREA	508292	3919596	0.0
SO LOCATION	FRAG21	AREA	512916	3921759	0.0
SO LOCATION	FRAG22	AREA	506051	3918536	0.0
SO LOCATION	FRAG23	AREA	506375	3918684	0.0
SO LOCATION	FRAG24	AREA	505858	3918446	0.0
SO LOCATION	FRAG25	AREA	511122	3920935	0.0

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SO HOUREMIS Emission71\_63.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max71_63.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 74:33 seconds

CO STARTING

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CO FINISHED

SO STARTING

\*\* SrcID Type x(m) y(m) z(m)

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SO LOCATION FRAG1	AREA	510228	3920022	0.0
SO LOCATION FRAG2	AREA	512457	3921076	0.0
SO LOCATION FRAG3	AREA	506455	3918182	0.0
SO LOCATION FRAG4	AREA	525107	3927003	0.0
SO LOCATION FRAG5	AREA	507183	3918552	0.0
SO LOCATION FRAG6	AREA	511432	3920591	0.0
SO LOCATION FRAG7	AREA	508515	3919208	0.0
SO LOCATION FRAG8	AREA	513981	3921795	0.0
SO LOCATION FRAG9	AREA	509931	3919890	0.0
SO LOCATION FRAG10	AREA	506691	3918310	0.0
SO LOCATION FRAG11	AREA	511724	3920720	0.0
SO LOCATION FRAG12	AREA	507796	3918864	0.0
SO LOCATION FRAG13	AREA	518951	3924110	0.0
SO LOCATION FRAG14	AREA	510090	3919969	0.0
SO LOCATION FRAG15	AREA	507842	3918872	0.0
SO LOCATION FRAG16	AREA	509170	3919516	0.0
SO LOCATION FRAG17	AREA	510989	3920381	0.0
SO LOCATION FRAG18	AREA	513976	3921786	0.0
SO LOCATION FRAG19	AREA	510667	3920238	0.0
SO LOCATION FRAG20	AREA	515296	3922402	0.0
SO LOCATION FRAG21	AREA	508732	3919315	0.0
SO LOCATION FRAG22	AREA	509955	3919902	0.0
SO LOCATION FRAG23	AREA	509488	3919664	0.0
SO LOCATION FRAG24	AREA	507567	3918744	0.0
SO LOCATION FRAG25	AREA	507441	3918689	0.0

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SO HOUREMIS Emission74\_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

\*\* Parameters: Period Source Value Filename

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MAXIFILE	4	ALL	7460	Max74_33.OUT
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OU FINISHED

AERMOD Input File - Breakup Time: 74:44 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	509511.0	3919661.0	0.0
SO LOCATION	FRAG2	AREA	508047.0	3918957.0	0.0
SO LOCATION	FRAG3	AREA	509355.0	3919600.0	0.0
SO LOCATION	FRAG4	AREA	511345.0	3920534.0	0.0
SO LOCATION	FRAG5	AREA	510398.0	3920092.0	0.0
SO LOCATION	FRAG6	AREA	512477.0	3921072.0	0.0
SO LOCATION	FRAG7	AREA	508378.0	3919112.0	0.0
SO LOCATION	FRAG8	AREA	517144.0	3923254.0	0.0
SO LOCATION	FRAG9	AREA	512870.0	3921256.0	0.0
SO LOCATION	FRAG10	AREA	507784.0	3918827.0	0.0
SO LOCATION	FRAG11	AREA	510519.0	3920135.0	0.0
SO LOCATION	FRAG12	AREA	508702.0	3919285.0	0.0
SO LOCATION	FRAG13	AREA	508382.0	3919123.0	0.0
SO LOCATION	FRAG14	AREA	507654.0	3918766.0	0.0
SO LOCATION	FRAG15	AREA	509551.0	3919672.0	0.0
SO LOCATION	FRAG16	AREA	515311.0	3922400.0	0.0
SO LOCATION	FRAG17	AREA	509119.0	3919474.0	0.0
SO LOCATION	FRAG18	AREA	507858.0	3918867.0	0.0
SO LOCATION	FRAG19	AREA	521199.0	3925149.0	0.0
SO LOCATION	FRAG20	AREA	512955.0	3921281.0	0.0
SO LOCATION	FRAG21	AREA	507661.0	3918779.0	0.0
SO LOCATION	FRAG22	AREA	509580.0	3919697.0	0.0
SO LOCATION	FRAG23	AREA	508531.0	3919192.0	0.0
SO LOCATION	FRAG24	AREA	508583.0	3919219.0	0.0
SO LOCATION	FRAG25	AREA	510840.0	3920294.0	0.0

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SO HOUREMIS Emission74\_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max74_44.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 75:00 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	513227	3921325	0.0
SO LOCATION	FRAG2	AREA	512112	3920795	0.0
SO LOCATION	FRAG3	AREA	513934	3921637	0.0
SO LOCATION	FRAG4	AREA	510926	3920229	0.0
SO LOCATION	FRAG5	AREA	509582	3919574	0.0
SO LOCATION	FRAG6	AREA	515291	3922291	0.0
SO LOCATION	FRAG7	AREA	509766	3919669	0.0
SO LOCATION	FRAG8	AREA	509101	3919355	0.0
SO LOCATION	FRAG9	AREA	508014	3918821	0.0
SO LOCATION	FRAG10	AREA	511887	3920678	0.0
SO LOCATION	FRAG11	AREA	511273	3920394	0.0
SO LOCATION	FRAG12	AREA	510310	3919927	0.0
SO LOCATION	FRAG13	AREA	511203	3920344	0.0
SO LOCATION	FRAG14	AREA	509206	3919401	0.0
SO LOCATION	FRAG15	AREA	508552	3919092	0.0
SO LOCATION	FRAG16	AREA	508529	3919074	0.0
SO LOCATION	FRAG17	AREA	509541	3919575	0.0
SO LOCATION	FRAG18	AREA	508742	3919178	0.0
SO LOCATION	FRAG19	AREA	508429	3919031	0.0
SO LOCATION	FRAG20	AREA	513849	3921616	0.0
SO LOCATION	FRAG21	AREA	518814	3923926	0.0
SO LOCATION	FRAG22	AREA	509422	3919516	0.0
SO LOCATION	FRAG23	AREA	508347	3918998	0.0
SO LOCATION	FRAG24	AREA	509894	3919733	0.0
SO LOCATION	FRAG25	AREA	510228	3919892	0.0

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SO HOUREMIS Emission75\_00.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max75_00.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 75:88 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	510822	3919998	0.0
SO LOCATION	FRAG2	AREA	512902	3920988	0.0
SO LOCATION	FRAG3	AREA	509305	3919268	0.0
SO LOCATION	FRAG4	AREA	508880	3919056	0.0
SO LOCATION	FRAG5	AREA	509164	3919206	0.0
SO LOCATION	FRAG6	AREA	510195	3919701	0.0
SO LOCATION	FRAG7	AREA	508543	3918898	0.0
SO LOCATION	FRAG8	AREA	510059	3919634	0.0
SO LOCATION	FRAG9	AREA	509174	3919212	0.0
SO LOCATION	FRAG10	AREA	512057	3920586	0.0
SO LOCATION	FRAG11	AREA	513139	3921099	0.0
SO LOCATION	FRAG12	AREA	510504	3919854	0.0
SO LOCATION	FRAG13	AREA	511887	3920498	0.0
SO LOCATION	FRAG14	AREA	508602	3918923	0.0
SO LOCATION	FRAG15	AREA	512047	3920589	0.0
SO LOCATION	FRAG16	AREA	510882	3920032	0.0
SO LOCATION	FRAG17	AREA	510824	3919997	0.0
SO LOCATION	FRAG18	AREA	510227	3919703	0.0
SO LOCATION	FRAG19	AREA	509891	3919557	0.0
SO LOCATION	FRAG20	AREA	507977	3918609	0.0
SO LOCATION	FRAG21	AREA	511170	3920159	0.0
SO LOCATION	FRAG22	AREA	517062	3922935	0.0
SO LOCATION	FRAG23	AREA	508969	3919110	0.0
SO LOCATION	FRAG24	AREA	514380	3921682	0.0
SO LOCATION	FRAG25	AREA	509287	3919253	0.0

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SO HOUREMIS Emission75\_88.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max75_88.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 76:86 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	520476	3924347	0.0
SO LOCATION	FRAG2	AREA	511599	3920174	0.0
SO LOCATION	FRAG3	AREA	509115	3918961	0.0
SO LOCATION	FRAG4	AREA	514339	3921474	0.0
SO LOCATION	FRAG5	AREA	510159	3919476	0.0
SO LOCATION	FRAG6	AREA	509332	3919067	0.0
SO LOCATION	FRAG7	AREA	510021	3919413	0.0
SO LOCATION	FRAG8	AREA	512307	3920516	0.0
SO LOCATION	FRAG9	AREA	514397	3921506	0.0
SO LOCATION	FRAG10	AREA	514963	3921757	0.0
SO LOCATION	FRAG11	AREA	521103	3924624	0.0
SO LOCATION	FRAG12	AREA	510107	3919456	0.0
SO LOCATION	FRAG13	AREA	509384	3919096	0.0
SO LOCATION	FRAG14	AREA	516110	3922311	0.0
SO LOCATION	FRAG15	AREA	510128	3919465	0.0
SO LOCATION	FRAG16	AREA	518060	3923226	0.0
SO LOCATION	FRAG17	AREA	511397	3920077	0.0
SO LOCATION	FRAG18	AREA	512856	3920772	0.0
SO LOCATION	FRAG19	AREA	510006	3919405	0.0
SO LOCATION	FRAG20	AREA	509196	3918997	0.0
SO LOCATION	FRAG21	AREA	516543	3922514	0.0
SO LOCATION	FRAG22	AREA	511143	3919962	0.0
SO LOCATION	FRAG23	AREA	513206	3920934	0.0
SO LOCATION	FRAG24	AREA	514278	3921444	0.0
SO LOCATION	FRAG25	AREA	522365	3925215	0.0

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SO HOUREMIS Emission76\_86.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max76_86.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 80:44 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	516982	3921942	0.0
SO LOCATION	FRAG2	AREA	528098	3927163	0.0
SO LOCATION	FRAG3	AREA	525731	3926075	0.0
SO LOCATION	FRAG4	AREA	514592	3920803	0.0
SO LOCATION	FRAG5	AREA	513723	3920390	0.0
SO LOCATION	FRAG6	AREA	513260	3920154	0.0
SO LOCATION	FRAG7	AREA	512791	3919921	0.0
SO LOCATION	FRAG8	AREA	513669	3920355	0.0
SO LOCATION	FRAG9	AREA	515474	3921231	0.0
SO LOCATION	FRAG10	AREA	515210	3921115	0.0
SO LOCATION	FRAG11	AREA	526309	3926335	0.0
SO LOCATION	FRAG12	AREA	541359	3933355	0.0
SO LOCATION	FRAG13	AREA	513787	3920414	0.0
SO LOCATION	FRAG14	AREA	519399	3923096	0.0
SO LOCATION	FRAG15	AREA	519994	3923372	0.0
SO LOCATION	FRAG16	AREA	517123	3922016	0.0
SO LOCATION	FRAG17	AREA	512409	3919734	0.0
SO LOCATION	FRAG18	AREA	516281	3921620	0.0
SO LOCATION	FRAG19	AREA	514516	3920771	0.0
SO LOCATION	FRAG20	AREA	517631	3922261	0.0
SO LOCATION	FRAG21	AREA	518287	3922564	0.0
SO LOCATION	FRAG22	AREA	515385	3921191	0.0
SO LOCATION	FRAG23	AREA	514917	3920966	0.0
SO LOCATION	FRAG24	AREA	518072	3922471	0.0
SO LOCATION	FRAG25	AREA	514580	3920809	0.0

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SO HOUREMIS Emission80\_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max80_44.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 80:64 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	513494	3920227	0.0
SO LOCATION	FRAG2	AREA	519205	3922952	0.0
SO LOCATION	FRAG3	AREA	514038	3920485	0.0
SO LOCATION	FRAG4	AREA	513936	3920446	0.0
SO LOCATION	FRAG5	AREA	517896	3922328	0.0
SO LOCATION	FRAG6	AREA	514865	3920896	0.0
SO LOCATION	FRAG7	AREA	512929	3919941	0.0
SO LOCATION	FRAG8	AREA	516770	3921811	0.0
SO LOCATION	FRAG9	AREA	516044	3921459	0.0
SO LOCATION	FRAG10	AREA	513261	3920106	0.0
SO LOCATION	FRAG11	AREA	512964	3919961	0.0
SO LOCATION	FRAG12	AREA	513308	3920136	0.0
SO LOCATION	FRAG13	AREA	518282	3922506	0.0
SO LOCATION	FRAG14	AREA	513404	3920182	0.0
SO LOCATION	FRAG15	AREA	524910	3925623	0.0
SO LOCATION	FRAG16	AREA	517792	3922295	0.0
SO LOCATION	FRAG17	AREA	514288	3920611	0.0
SO LOCATION	FRAG18	AREA	513476	3920206	0.0
SO LOCATION	FRAG19	AREA	557732	3932214	0.0
SO LOCATION	FRAG20	AREA	517072	3921939	0.0
SO LOCATION	FRAG21	AREA	514756	3920836	0.0
SO LOCATION	FRAG22	AREA	513899	3920423	0.0
SO LOCATION	FRAG23	AREA	517121	3921968	0.0
SO LOCATION	FRAG24	AREA	517494	3922142	0.0
SO LOCATION	FRAG25	AREA	514169	3920550	0.0

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SO HOUREMIS Emission80\_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max80_64.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 80:73 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	516011	3921424	0.0
SO LOCATION	FRAG2	AREA	515044	3920951	0.0
SO LOCATION	FRAG3	AREA	513523	3920216	0.0
SO LOCATION	FRAG4	AREA	518641	3922676	0.0
SO LOCATION	FRAG5	AREA	512335	3919610	0.0
SO LOCATION	FRAG6	AREA	514566	3920725	0.0
SO LOCATION	FRAG7	AREA	515135	3921002	0.0
SO LOCATION	FRAG8	AREA	514279	3920591	0.0
SO LOCATION	FRAG9	AREA	513922	3920415	0.0
SO LOCATION	FRAG10	AREA	515174	3921012	0.0
SO LOCATION	FRAG11	AREA	516524	3921660	0.0
SO LOCATION	FRAG12	AREA	514188	3920538	0.0
SO LOCATION	FRAG13	AREA	519694	3923182	0.0
SO LOCATION	FRAG14	AREA	513674	3920293	0.0
SO LOCATION	FRAG15	AREA	514183	3920537	0.0
SO LOCATION	FRAG16	AREA	511842	3919347	0.0
SO LOCATION	FRAG17	AREA	515876	3921349	0.0
SO LOCATION	FRAG18	AREA	516428	3921621	0.0
SO LOCATION	FRAG19	AREA	520319	3923457	0.0
SO LOCATION	FRAG20	AREA	515554	3921205	0.0
SO LOCATION	FRAG21	AREA	516838	3921816	0.0
SO LOCATION	FRAG22	AREA	521695	3924123	0.0
SO LOCATION	FRAG23	AREA	514053	3920470	0.0
SO LOCATION	FRAG24	AREA	514214	3920557	0.0
SO LOCATION	FRAG25	AREA	521085	3923815	0.0

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SO HOUREMIS Emission80\_73.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max80_73.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 80:78 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	514308	3920591	0.0
SO LOCATION	FRAG2	AREA	514556	3920711	0.0
SO LOCATION	FRAG3	AREA	517977	3922345	0.0
SO LOCATION	FRAG4	AREA	513448	3920167	0.0
SO LOCATION	FRAG5	AREA	521517	3924008	0.0
SO LOCATION	FRAG6	AREA	516352	3921575	0.0
SO LOCATION	FRAG7	AREA	513850	3920372	0.0
SO LOCATION	FRAG8	AREA	514718	3920786	0.0
SO LOCATION	FRAG9	AREA	521086	3923825	0.0
SO LOCATION	FRAG10	AREA	515082	3920962	0.0
SO LOCATION	FRAG11	AREA	525613	3925923	0.0
SO LOCATION	FRAG12	AREA	514384	3920626	0.0
SO LOCATION	FRAG13	AREA	512131	3919488	0.0
SO LOCATION	FRAG14	AREA	515099	3920971	0.0
SO LOCATION	FRAG15	AREA	525570	3925896	0.0
SO LOCATION	FRAG16	AREA	516060	3921433	0.0
SO LOCATION	FRAG17	AREA	513158	3920021	0.0
SO LOCATION	FRAG18	AREA	517781	3922240	0.0
SO LOCATION	FRAG19	AREA	515133	3920994	0.0
SO LOCATION	FRAG20	AREA	515337	3921084	0.0
SO LOCATION	FRAG21	AREA	520341	3923450	0.0
SO LOCATION	FRAG22	AREA	524267	3925299	0.0
SO LOCATION	FRAG23	AREA	515342	3921088	0.0
SO LOCATION	FRAG24	AREA	514757	3920809	0.0
SO LOCATION	FRAG25	AREA	516198	3921505	0.0

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SO HOUREMIS Emission80\_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max80_78.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 81:13 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	535503	3930475	0.0
SO LOCATION	FRAG2	AREA	516742	3921676	0.0
SO LOCATION	FRAG3	AREA	514347	3920522	0.0
SO LOCATION	FRAG4	AREA	524644	3925386	0.0
SO LOCATION	FRAG5	AREA	514443	3920566	0.0
SO LOCATION	FRAG6	AREA	514617	3920650	0.0
SO LOCATION	FRAG7	AREA	515671	3921165	0.0
SO LOCATION	FRAG8	AREA	515073	3920873	0.0
SO LOCATION	FRAG9	AREA	515364	3921013	0.0
SO LOCATION	FRAG10	AREA	516138	3921384	0.0
SO LOCATION	FRAG11	AREA	512987	3919835	0.0
SO LOCATION	FRAG12	AREA	533322	3929415	0.0
SO LOCATION	FRAG13	AREA	517621	3922089	0.0
SO LOCATION	FRAG14	AREA	515472	3921070	0.0
SO LOCATION	FRAG15	AREA	513947	3920325	0.0
SO LOCATION	FRAG16	AREA	516219	3921429	0.0
SO LOCATION	FRAG17	AREA	517206	3921896	0.0
SO LOCATION	FRAG18	AREA	512445	3919548	0.0
SO LOCATION	FRAG19	AREA	515244	3920955	0.0
SO LOCATION	FRAG20	AREA	516971	3921777	0.0
SO LOCATION	FRAG21	AREA	516940	3921768	0.0
SO LOCATION	FRAG22	AREA	514705	3920689	0.0
SO LOCATION	FRAG23	AREA	518608	3922566	0.0
SO LOCATION	FRAG24	AREA	515866	3921254	0.0
SO LOCATION	FRAG25	AREA	519301	3922885	0.0

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SO HOUREMIS Emission81\_13.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max81_13.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 81:16 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	516993	3921783	0.0
SO LOCATION	FRAG2	AREA	514757	3920710	0.0
SO LOCATION	FRAG3	AREA	515092	3920883	0.0
SO LOCATION	FRAG4	AREA	517207	3921889	0.0
SO LOCATION	FRAG5	AREA	516239	3921424	0.0
SO LOCATION	FRAG6	AREA	517841	3922185	0.0
SO LOCATION	FRAG7	AREA	520542	3923463	0.0
SO LOCATION	FRAG8	AREA	532832	3929205	0.0
SO LOCATION	FRAG9	AREA	514287	3920482	0.0
SO LOCATION	FRAG10	AREA	517573	3922063	0.0
SO LOCATION	FRAG11	AREA	518079	3922300	0.0
SO LOCATION	FRAG12	AREA	517797	3922172	0.0
SO LOCATION	FRAG13	AREA	531621	3928636	0.0
SO LOCATION	FRAG14	AREA	516180	3921402	0.0
SO LOCATION	FRAG15	AREA	515197	3920922	0.0
SO LOCATION	FRAG16	AREA	516566	3921587	0.0
SO LOCATION	FRAG17	AREA	515436	3921046	0.0
SO LOCATION	FRAG18	AREA	514495	3920582	0.0
SO LOCATION	FRAG19	AREA	521578	3923961	0.0
SO LOCATION	FRAG20	AREA	519695	3923057	0.0
SO LOCATION	FRAG21	AREA	525207	3925658	0.0
SO LOCATION	FRAG22	AREA	515629	3921142	0.0
SO LOCATION	FRAG23	AREA	514721	3920700	0.0
SO LOCATION	FRAG24	AREA	516525	3921560	0.0
SO LOCATION	FRAG25	AREA	515328	3920988	0.0

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SO HOUREMIS Emission81\_16.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max81_16.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 83:80 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	518112	3921663	0.0
SO LOCATION	FRAG2	AREA	519326	3922241	0.0
SO LOCATION	FRAG3	AREA	518626	3921908	0.0
SO LOCATION	FRAG4	AREA	518081	3921657	0.0
SO LOCATION	FRAG5	AREA	522349	3923689	0.0
SO LOCATION	FRAG6	AREA	519314	3922246	0.0
SO LOCATION	FRAG7	AREA	522573	3923795	0.0
SO LOCATION	FRAG8	AREA	521673	3923356	0.0
SO LOCATION	FRAG9	AREA	520730	3922923	0.0
SO LOCATION	FRAG10	AREA	520131	3922633	0.0
SO LOCATION	FRAG11	AREA	518106	3921667	0.0
SO LOCATION	FRAG12	AREA	516020	3920628	0.0
SO LOCATION	FRAG13	AREA	518288	3921754	0.0
SO LOCATION	FRAG14	AREA	517327	3921282	0.0
SO LOCATION	FRAG15	AREA	524153	3924541	0.0
SO LOCATION	FRAG16	AREA	523928	3924420	0.0
SO LOCATION	FRAG17	AREA	515736	3920478	0.0
SO LOCATION	FRAG18	AREA	516123	3920674	0.0
SO LOCATION	FRAG19	AREA	529311	3926973	0.0
SO LOCATION	FRAG20	AREA	517924	3921573	0.0
SO LOCATION	FRAG21	AREA	519457	3922310	0.0
SO LOCATION	FRAG22	AREA	517446	3921337	0.0
SO LOCATION	FRAG23	AREA	514610	3919842	0.0
SO LOCATION	FRAG24	AREA	517426	3921330	0.0
SO LOCATION	FRAG25	AREA	518970	3922081	0.0

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SO HOUREMIS Emission83\_80.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max83_80.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 86:78 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	527866	3925521	0.0
SO LOCATION	FRAG2	AREA	520368	3921925	0.0
SO LOCATION	FRAG3	AREA	523440	3923423	0.0
SO LOCATION	FRAG4	AREA	520642	3922055	0.0
SO LOCATION	FRAG5	AREA	520543	3922010	0.0
SO LOCATION	FRAG6	AREA	522053	3922753	0.0
SO LOCATION	FRAG7	AREA	526923	3925067	0.0
SO LOCATION	FRAG8	AREA	521596	3922530	0.0
SO LOCATION	FRAG9	AREA	525036	3924177	0.0
SO LOCATION	FRAG10	AREA	521104	3922293	0.0
SO LOCATION	FRAG11	AREA	522477	3922966	0.0
SO LOCATION	FRAG12	AREA	521034	3922257	0.0
SO LOCATION	FRAG13	AREA	527923	3925545	0.0
SO LOCATION	FRAG14	AREA	534929	3928805	0.0
SO LOCATION	FRAG15	AREA	523457	3923423	0.0
SO LOCATION	FRAG16	AREA	520782	3922127	0.0
SO LOCATION	FRAG17	AREA	520043	3921759	0.0
SO LOCATION	FRAG18	AREA	529744	3926364	0.0
SO LOCATION	FRAG19	AREA	527274	3925228	0.0
SO LOCATION	FRAG20	AREA	525521	3924395	0.0
SO LOCATION	FRAG21	AREA	522734	3923083	0.0
SO LOCATION	FRAG22	AREA	524154	3923749	0.0
SO LOCATION	FRAG23	AREA	520968	3922224	0.0
SO LOCATION	FRAG24	AREA	524623	3923970	0.0
SO LOCATION	FRAG25	AREA	523971	3923670	0.0

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SO HOUREMIS Emission86\_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max86_78.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 90:43 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	526314	3923705	0.0
SO LOCATION	FRAG2	AREA	526754	3923918	0.0
SO LOCATION	FRAG3	AREA	527895	3924471	0.0
SO LOCATION	FRAG4	AREA	528553	3924784	0.0
SO LOCATION	FRAG5	AREA	527364	3924210	0.0
SO LOCATION	FRAG6	AREA	528307	3924675	0.0
SO LOCATION	FRAG7	AREA	529490	3925229	0.0
SO LOCATION	FRAG8	AREA	534356	3927536	0.0
SO LOCATION	FRAG9	AREA	529864	3925423	0.0
SO LOCATION	FRAG10	AREA	527977	3924506	0.0
SO LOCATION	FRAG11	AREA	528839	3924917	0.0
SO LOCATION	FRAG12	AREA	530266	3925596	0.0
SO LOCATION	FRAG13	AREA	526326	3923719	0.0
SO LOCATION	FRAG14	AREA	529295	3925141	0.0
SO LOCATION	FRAG15	AREA	536894	3928729	0.0
SO LOCATION	FRAG16	AREA	538341	3929402	0.0
SO LOCATION	FRAG17	AREA	527787	3924416	0.0
SO LOCATION	FRAG18	AREA	524516	3922815	0.0
SO LOCATION	FRAG19	AREA	529751	3925354	0.0
SO LOCATION	FRAG20	AREA	525495	3923303	0.0
SO LOCATION	FRAG21	AREA	528206	3924626	0.0
SO LOCATION	FRAG22	AREA	525865	3923479	0.0
SO LOCATION	FRAG23	AREA	531820	3926334	0.0
SO LOCATION	FRAG24	AREA	526369	3923726	0.0
SO LOCATION	FRAG25	AREA	526189	3923647	0.0

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SO HOUREMIS Emission90\_43.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max90_43.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 91:18 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	534944	3927585	0.0
SO LOCATION	FRAG2	AREA	527833	3924202	0.0
SO LOCATION	FRAG3	AREA	528488	3924521	0.0
SO LOCATION	FRAG4	AREA	530985	3925710	0.0
SO LOCATION	FRAG5	AREA	531268	3925841	0.0
SO LOCATION	FRAG6	AREA	528068	3924323	0.0
SO LOCATION	FRAG7	AREA	529715	3925102	0.0
SO LOCATION	FRAG8	AREA	539279	3929606	0.0
SO LOCATION	FRAG9	AREA	535060	3927632	0.0
SO LOCATION	FRAG10	AREA	530531	3925488	0.0
SO LOCATION	FRAG11	AREA	526681	3923638	0.0
SO LOCATION	FRAG12	AREA	531739	3926071	0.0
SO LOCATION	FRAG13	AREA	556713	3937761	0.0
SO LOCATION	FRAG14	AREA	526764	3923679	0.0
SO LOCATION	FRAG15	AREA	527427	3924013	0.0
SO LOCATION	FRAG16	AREA	528090	3924323	0.0
SO LOCATION	FRAG17	AREA	537129	3928588	0.0
SO LOCATION	FRAG18	AREA	529229	3924878	0.0
SO LOCATION	FRAG19	AREA	527199	3923895	0.0
SO LOCATION	FRAG20	AREA	554760	3936837	0.0
SO LOCATION	FRAG21	AREA	528522	3924529	0.0
SO LOCATION	FRAG22	AREA	526375	3923489	0.0
SO LOCATION	FRAG23	AREA	530378	3925423	0.0
SO LOCATION	FRAG24	AREA	527691	3924126	0.0
SO LOCATION	FRAG25	AREA	529722	3925105	0.0

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SO HOUREMIS Emission91\_18.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max91_18.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 92:15 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO	LOCATION FRAG1	AREA	534863	3927235	0
	LOCATION,FRAG2	AREA	530673	3925254	0
	LOCATION,FRAG3	AREA	531350	3925573	0
	LOCATION,FRAG4	AREA	532130	3925950	0
	LOCATION,FRAG5	AREA	527717	3923822	0
	LOCATION,FRAG6	AREA	529759	3924813	0
	LOCATION,FRAG7	AREA	546471	3932669	0
	LOCATION,FRAG8	AREA	531192	3925504	0
	LOCATION,FRAG9	AREA	536133	3927846	0
	LOCATION,FRAG10	AREA	535386	3927492	0
	LOCATION,FRAG11	AREA	531181	3925505	0
	LOCATION,FRAG12	AREA	531489	3925646	0
	LOCATION,FRAG13	AREA	530302	3925064	0
	LOCATION,FRAG14	AREA	530051	3924952	0
	LOCATION,FRAG15	AREA	529312	3924598	0
	LOCATION,FRAG16	AREA	528746	3924330	0
	LOCATION,FRAG17	AREA	528715	3924309	0
	LOCATION,FRAG18	AREA	533472	3926584	0
	LOCATION,FRAG19	AREA	526119	3922998	0
	LOCATION,FRAG20	AREA	527927	3923923	0
	LOCATION,FRAG21	AREA	531690	3925736	0
	LOCATION,FRAG22	AREA	546283	3932578	0
	LOCATION,FRAG23	AREA	528737	3924316	0
	LOCATION,FRAG24	AREA	537638	3928543	0
	LOCATION,FRAG25	AREA	531812	3925797	0

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SO HOUREMIS Emission92\_15.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max92_15.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 95:38 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	535495	3926459	0.0
SO LOCATION	FRAG2	AREA	541635	3929378	0.0
SO LOCATION	FRAG3	AREA	535904	3926662	0.0
SO LOCATION	FRAG4	AREA	538237	3927774	0.0
SO LOCATION	FRAG5	AREA	535840	3926633	0.0
SO LOCATION	FRAG6	AREA	537512	3927426	0.0
SO LOCATION	FRAG7	AREA	534607	3926034	0.0
SO LOCATION	FRAG8	AREA	534343	3925906	0.0
SO LOCATION	FRAG9	AREA	534463	3925972	0.0
SO LOCATION	FRAG10	AREA	536642	3927022	0.0
SO LOCATION	FRAG11	AREA	537289	3927328	0.0
SO LOCATION	FRAG12	AREA	534076	3925780	0.0
SO LOCATION	FRAG13	AREA	530013	3923696	0.0
SO LOCATION	FRAG14	AREA	536833	3927097	0.0
SO LOCATION	FRAG15	AREA	533474	3925491	0.0
SO LOCATION	FRAG16	AREA	538091	3927705	0.0
SO LOCATION	FRAG17	AREA	543041	3930034	0.0
SO LOCATION	FRAG18	AREA	536559	3926979	0.0
SO LOCATION	FRAG19	AREA	542328	3929693	0.0
SO LOCATION	FRAG20	AREA	532514	3925017	0.0
SO LOCATION	FRAG21	AREA	536353	3926872	0.0
SO LOCATION	FRAG22	AREA	545513	3931177	0.0
SO LOCATION	FRAG23	AREA	537199	3927278	0.0
SO LOCATION	FRAG24	AREA	535221	3926325	0.0
SO LOCATION	FRAG25	AREA	532103	3924811	0.0

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SO HOUREMIS Emission95\_38.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max95_38.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 97:54 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	536256	3926028	0.0
SO LOCATION	FRAG2	AREA	535782	3925791	0.0
SO LOCATION	FRAG3	AREA	542510	3929032	0.0
SO LOCATION	FRAG4	AREA	549713	3932404	0.0
SO LOCATION	FRAG5	AREA	543476	3929485	0.0
SO LOCATION	FRAG6	AREA	541577	3928589	0.0
SO LOCATION	FRAG7	AREA	541575	3928580	0.0
SO LOCATION	FRAG8	AREA	534739	3925261	0.0
SO LOCATION	FRAG9	AREA	541945	3928765	0.0
SO LOCATION	FRAG10	AREA	545144	3930259	0.0
SO LOCATION	FRAG11	AREA	541608	3928607	0.0
SO LOCATION	FRAG12	AREA	535477	3925633	0.0
SO LOCATION	FRAG13	AREA	539710	3927697	0.0
SO LOCATION	FRAG14	AREA	547876	3931561	0.0
SO LOCATION	FRAG15	AREA	549133	3932157	0.0
SO LOCATION	FRAG16	AREA	543826	3929644	0.0
SO LOCATION	FRAG17	AREA	537465	3926621	0.0
SO LOCATION	FRAG18	AREA	542862	3929189	0.0
SO LOCATION	FRAG19	AREA	538273	3927003	0.0
SO LOCATION	FRAG20	AREA	535040	3925416	0.0
SO LOCATION	FRAG21	AREA	538350	3927043	0.0
SO LOCATION	FRAG22	AREA	538661	3927198	0.0
SO LOCATION	FRAG23	AREA	539778	3927737	0.0
SO LOCATION	FRAG24	AREA	537702	3926730	0.0
SO LOCATION	FRAG25	AREA	541095	3928358	0.0

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SO HOUREMIS Emission97\_54.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max97_54.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 100:12 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	552950	3932980	0.0
SO LOCATION	FRAG2	AREA	542295	3927935	0.0
SO LOCATION	FRAG3	AREA	542755	3928160	0.0
SO LOCATION	FRAG4	AREA	541196	3927408	0.0
SO LOCATION	FRAG5	AREA	540307	3926957	0.0
SO LOCATION	FRAG6	AREA	545616	3929525	0.0
SO LOCATION	FRAG7	AREA	541639	3927616	0.0
SO LOCATION	FRAG8	AREA	540251	3926938	0.0
SO LOCATION	FRAG9	AREA	549607	3931412	0.0
SO LOCATION	FRAG10	AREA	546074	3929750	0.0
SO LOCATION	FRAG11	AREA	543599	3928565	0.0
SO LOCATION	FRAG12	AREA	543282	3928416	0.0
SO LOCATION	FRAG13	AREA	541460	3927538	0.0
SO LOCATION	FRAG14	AREA	539697	3926661	0.0
SO LOCATION	FRAG15	AREA	559648	3936111	0.0
SO LOCATION	FRAG16	AREA	544585	3929038	0.0
SO LOCATION	FRAG17	AREA	542699	3928131	0.0
SO LOCATION	FRAG18	AREA	543397	3928470	0.0
SO LOCATION	FRAG19	AREA	550154	3931659	0.0
SO LOCATION	FRAG20	AREA	546137	3929771	0.0
SO LOCATION	FRAG21	AREA	554752	3933821	0.0
SO LOCATION	FRAG22	AREA	541872	3927729	0.0
SO LOCATION	FRAG23	AREA	538411	3925992	0.0
SO LOCATION	FRAG24	AREA	542476	3928026	0.0
SO LOCATION	FRAG25	AREA	552544	3932785	0.0

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SO HOUREMIS Emission100\_12.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max100_12.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 101:1 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	548562	3930532	0.0
SO LOCATION	FRAG2	AREA	547042	3929811	0.0
SO LOCATION	FRAG3	AREA	555651	3933871	0.0
SO LOCATION	FRAG4	AREA	542841	3927797	0.0
SO LOCATION	FRAG5	AREA	541742	3927259	0.0
SO LOCATION	FRAG6	AREA	544756	3928728	0.0
SO LOCATION	FRAG7	AREA	542957	3927858	0.0
SO LOCATION	FRAG8	AREA	557689	3934836	0.0
SO LOCATION	FRAG9	AREA	542135	3927451	0.0
SO LOCATION	FRAG10	AREA	541251	3927012	0.0
SO LOCATION	FRAG11	AREA	568778	3940017	0.0
SO LOCATION	FRAG12	AREA	552769	3932522	0.0
SO LOCATION	FRAG13	AREA	545064	3928876	0.0
SO LOCATION	FRAG14	AREA	544807	3928754	0.0
SO LOCATION	FRAG15	AREA	541922	3927344	0.0
SO LOCATION	FRAG16	AREA	543210	3927983	0.0
SO LOCATION	FRAG17	AREA	561710	3936703	0.0
SO LOCATION	FRAG18	AREA	542274	3927520	0.0
SO LOCATION	FRAG19	AREA	543512	3928131	0.0
SO LOCATION	FRAG20	AREA	543164	3927956	0.0
SO LOCATION	FRAG21	AREA	547560	3930058	0.0
SO LOCATION	FRAG22	AREA	559143	3935502	0.0
SO LOCATION	FRAG23	AREA	544125	3928420	0.0
SO LOCATION	FRAG24	AREA	545819	3929225	0.0
SO LOCATION	FRAG25	AREA	548179	3930354	0.0

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SO HOUREMIS Emission101\_1.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max101_1.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 103:09 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	548873	3929871	0.0
SO LOCATION	FRAG2	AREA	545680	3928313	0.0
SO LOCATION	FRAG3	AREA	551288	3931022	0.0
SO LOCATION	FRAG4	AREA	551236	3931000	0.0
SO LOCATION	FRAG5	AREA	547188	3929055	0.0
SO LOCATION	FRAG6	AREA	551511	3931126	0.0
SO LOCATION	FRAG7	AREA	552747	3931712	0.0
SO LOCATION	FRAG8	AREA	554535	3932546	0.0
SO LOCATION	FRAG9	AREA	547408	3929163	0.0
SO LOCATION	FRAG10	AREA	549702	3930264	0.0
SO LOCATION	FRAG11	AREA	570377	3939983	0.0
SO LOCATION	FRAG12	AREA	557531	3933965	0.0
SO LOCATION	FRAG13	AREA	548414	3929653	0.0
SO LOCATION	FRAG14	AREA	548450	3929670	0.0
SO LOCATION	FRAG15	AREA	546625	3928790	0.0
SO LOCATION	FRAG16	AREA	555267	3932900	0.0
SO LOCATION	FRAG17	AREA	545756	3928353	0.0
SO LOCATION	FRAG18	AREA	548061	3929478	0.0
SO LOCATION	FRAG19	AREA	563671	3936840	0.0
SO LOCATION	FRAG20	AREA	552498	3931594	0.0
SO LOCATION	FRAG21	AREA	548345	3929618	0.0
SO LOCATION	FRAG22	AREA	576901	3942988	0.0
SO LOCATION	FRAG23	AREA	549956	3930390	0.0
SO LOCATION	FRAG24	AREA	554669	3932622	0.0
SO LOCATION	FRAG25	AREA	553308	3931970	0.0

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SO HOUREMIS Emission103\_09.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max103_09.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 103:84 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	549741	3929955	0.0
SO LOCATION	FRAG2	AREA	550562	3930359	0.0
SO LOCATION	FRAG3	AREA	557290	3933545	0.0
SO LOCATION	FRAG4	AREA	551390	3930759	0.0
SO LOCATION	FRAG5	AREA	549142	3929672	0.0
SO LOCATION	FRAG6	AREA	562881	3936143	0.0
SO LOCATION	FRAG7	AREA	555730	3932810	0.0
SO LOCATION	FRAG8	AREA	564049	3936709	0.0
SO LOCATION	FRAG9	AREA	552223	3931136	0.0
SO LOCATION	FRAG10	AREA	555630	3932751	0.0
SO LOCATION	FRAG11	AREA	550107	3930141	0.0
SO LOCATION	FRAG12	AREA	551189	3930661	0.0
SO LOCATION	FRAG13	AREA	552693	3931371	0.0
SO LOCATION	FRAG14	AREA	546498	3928378	0.0
SO LOCATION	FRAG15	AREA	549834	3930004	0.0
SO LOCATION	FRAG16	AREA	550752	3930447	0.0
SO LOCATION	FRAG17	AREA	548855	3929534	0.0
SO LOCATION	FRAG18	AREA	552570	3931311	0.0
SO LOCATION	FRAG19	AREA	550698	3930427	0.0
SO LOCATION	FRAG20	AREA	549738	3929964	0.0
SO LOCATION	FRAG21	AREA	562568	3936009	0.0
SO LOCATION	FRAG22	AREA	550521	3930344	0.0
SO LOCATION	FRAG23	AREA	555194	3932552	0.0
SO LOCATION	FRAG24	AREA	550642	3930405	0.0
SO LOCATION	FRAG25	AREA	551133	3930629	0.0

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SO HOUREMIS Emission103\_84.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**	-----	-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max103_84.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 105:64 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	560198	3934157	0.0
SO LOCATION	FRAG2	AREA	549521	3929023	0.0
SO LOCATION	FRAG3	AREA	558053	3933143	0.0
SO LOCATION	FRAG4	AREA	577140	3942078	0.0
SO LOCATION	FRAG5	AREA	569092	3938303	0.0
SO LOCATION	FRAG6	AREA	552977	3930722	0.0
SO LOCATION	FRAG7	AREA	556348	3932334	0.0
SO LOCATION	FRAG8	AREA	552629	3930556	0.0
SO LOCATION	FRAG9	AREA	556559	3932432	0.0
SO LOCATION	FRAG10	AREA	551481	3929993	0.0
SO LOCATION	FRAG11	AREA	551254	3929892	0.0
SO LOCATION	FRAG12	AREA	568874	3938214	0.0
SO LOCATION	FRAG13	AREA	570110	3938790	0.0
SO LOCATION	FRAG14	AREA	552583	3930542	0.0
SO LOCATION	FRAG15	AREA	554637	3931519	0.0
SO LOCATION	FRAG16	AREA	552637	3930560	0.0
SO LOCATION	FRAG17	AREA	583195	3944890	0.0
SO LOCATION	FRAG18	AREA	556436	3932368	0.0
SO LOCATION	FRAG19	AREA	554202	3931311	0.0
SO LOCATION	FRAG20	AREA	552588	3930532	0.0
SO LOCATION	FRAG21	AREA	549488	3929009	0.0
SO LOCATION	FRAG22	AREA	570835	3939146	0.0
SO LOCATION	FRAG23	AREA	558874	3933533	0.0
SO LOCATION	FRAG24	AREA	552928	3930698	0.0
SO LOCATION	FRAG25	AREA	567302	3937495	0.0

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SO HOUREMIS Emission105\_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max105_64.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 106:48 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	559917	3933648	0.0
SO LOCATION	FRAG2	AREA	556611	3932078	0.0
SO LOCATION	FRAG3	AREA	551594	3929639	0.0
SO LOCATION	FRAG4	AREA	550558	3929112	0.0
SO LOCATION	FRAG5	AREA	563764	3935464	0.0
SO LOCATION	FRAG6	AREA	563884	3935519	0.0
SO LOCATION	FRAG7	AREA	555357	3931474	0.0
SO LOCATION	FRAG8	AREA	561800	3934529	0.0
SO LOCATION	FRAG9	AREA	553098	3930393	0.0
SO LOCATION	FRAG10	AREA	552571	3930130	0.0
SO LOCATION	FRAG11	AREA	553076	3930375	0.0
SO LOCATION	FRAG12	AREA	551603	3929651	0.0
SO LOCATION	FRAG13	AREA	564105	3935617	0.0
SO LOCATION	FRAG14	AREA	559862	3933623	0.0
SO LOCATION	FRAG15	AREA	554681	3931155	0.0
SO LOCATION	FRAG16	AREA	565366	3936189	0.0
SO LOCATION	FRAG17	AREA	553461	3930566	0.0
SO LOCATION	FRAG18	AREA	560213	3933793	0.0
SO LOCATION	FRAG19	AREA	559985	3933697	0.0
SO LOCATION	FRAG20	AREA	572118	3939371	0.0
SO LOCATION	FRAG21	AREA	554064	3930860	0.0
SO LOCATION	FRAG22	AREA	553291	3930476	0.0
SO LOCATION	FRAG23	AREA	558269	3932872	0.0
SO LOCATION	FRAG24	AREA	559321	3933371	0.0
SO LOCATION	FRAG25	AREA	556121	3931850	0.0

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SO HOUREMIS Emission106\_48.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max106_48.OUT

OU FINISHED  
 AERMOD Input File - Breakup Time: 107:35 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**					
	FRAG1	AREA	552108	3929446	0.0
	FRAG2	AREA	554165	3930489	0.0
	FRAG3	AREA	561755	3934127	0.0
	FRAG4	AREA	563808	3935086	0.0
	FRAG5	AREA	567102	3936650	0.0
	FRAG6	AREA	556014	3931392	0.0
	FRAG7	AREA	567985	3937050	0.0
	FRAG8	AREA	557083	3931902	0.0
	FRAG9	AREA	553965	3930390	0.0
	FRAG10	AREA	560275	3933430	0.0
	FRAG11	AREA	552916	3929862	0.0
	FRAG12	AREA	571578	3938744	0.0
	FRAG13	AREA	563777	3935083	0.0
	FRAG14	AREA	554800	3930800	0.0
	FRAG15	AREA	555863	3931324	0.0
	FRAG16	AREA	555305	3931045	0.0
	FRAG17	AREA	554794	3930807	0.0
	FRAG18	AREA	565212	3935757	0.0
	FRAG19	AREA	557732	3932214	0.0
	FRAG20	AREA	559495	3933051	0.0
	FRAG21	AREA	557426	3932073	0.0
	FRAG22	AREA	555440	3931109	0.0
	FRAG23	AREA	556979	3931850	0.0
	FRAG24	AREA	559171	3932901	0.0
	FRAG25	AREA	568017	3937092	0.0

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 SO HOUREMIS Emission107\_35.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
 SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**					
	MAXIFILE	4	ALL	7460	Max107_35.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 109:18 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	576833	3940389	0.0
SO LOCATION	FRAG2	AREA	574306	3939197	0.0
SO LOCATION	FRAG3	AREA	567170	3935841	0.0
SO LOCATION	FRAG4	AREA	563805	3934259	0.0
SO LOCATION	FRAG5	AREA	562849	3933798	0.0
SO LOCATION	FRAG6	AREA	569313	3936856	0.0
SO LOCATION	FRAG7	AREA	559648	3932271	0.0
SO LOCATION	FRAG8	AREA	559987	3932433	0.0
SO LOCATION	FRAG9	AREA	557575	3931253	0.0
SO LOCATION	FRAG10	AREA	559243	3932079	0.0
SO LOCATION	FRAG11	AREA	578450	3941145	0.0
SO LOCATION	FRAG12	AREA	564428	3934552	0.0
SO LOCATION	FRAG13	AREA	563767	3934235	0.0
SO LOCATION	FRAG14	AREA	567594	3936058	0.0
SO LOCATION	FRAG15	AREA	572094	3938170	0.0
SO LOCATION	FRAG16	AREA	559573	3932235	0.0
SO LOCATION	FRAG17	AREA	559463	3932173	0.0
SO LOCATION	FRAG18	AREA	563340	3934030	0.0
SO LOCATION	FRAG19	AREA	562595	3933677	0.0
SO LOCATION	FRAG20	AREA	567642	3936079	0.0
SO LOCATION	FRAG21	AREA	558710	3931813	0.0
SO LOCATION	FRAG22	AREA	562999	3933873	0.0
SO LOCATION	FRAG23	AREA	560823	3932835	0.0
SO LOCATION	FRAG24	AREA	565107	3934871	0.0
SO LOCATION	FRAG25	AREA	561386	3933094	0.0

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SO HOUREMIS Emission109\_18.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max109_18.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 111:15 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	561845	3932339	0.0
SO LOCATION	FRAG2	AREA	564762	3933756	0.0
SO LOCATION	FRAG3	AREA	561836	3932338	0.0
SO LOCATION	FRAG4	AREA	568872	3935714	0.0
SO LOCATION	FRAG5	AREA	562111	3932476	0.0
SO LOCATION	FRAG6	AREA	577027	3939572	0.0
SO LOCATION	FRAG7	AREA	561363	3932103	0.0
SO LOCATION	FRAG8	AREA	565779	3934253	0.0
SO LOCATION	FRAG9	AREA	576815	3939458	0.0
SO LOCATION	FRAG10	AREA	559835	3931315	0.0
SO LOCATION	FRAG11	AREA	565619	3934179	0.0
SO LOCATION	FRAG12	AREA	585876	3943707	0.0
SO LOCATION	FRAG13	AREA	569279	3935918	0.0
SO LOCATION	FRAG14	AREA	568559	3935569	0.0
SO LOCATION	FRAG15	AREA	572400	3937391	0.0
SO LOCATION	FRAG16	AREA	567334	3934991	0.0
SO LOCATION	FRAG17	AREA	564615	3933691	0.0
SO LOCATION	FRAG18	AREA	563371	3933085	0.0
SO LOCATION	FRAG19	AREA	574863	3938540	0.0
SO LOCATION	FRAG20	AREA	564084	3933435	0.0
SO LOCATION	FRAG21	AREA	561273	3932056	0.0
SO LOCATION	FRAG22	AREA	567228	3934933	0.0
SO LOCATION	FRAG23	AREA	582701	3942205	0.0
SO LOCATION	FRAG24	AREA	566059	3934385	0.0
SO LOCATION	FRAG25	AREA	572727	3937519	0.0

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SO HOUREMIS Emission111\_15.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max111_15.OUT



OU FINISHED  
AERMOD Input File - Breakup Time: 113:57 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	571345	3935687	0.0
SO LOCATION	FRAG2	AREA	572507	3936243	0.0
SO LOCATION	FRAG3	AREA	572243	3936119	0.0
SO LOCATION	FRAG4	AREA	581438	3940455	0.0
SO LOCATION	FRAG5	AREA	569039	3934581	0.0
SO LOCATION	FRAG6	AREA	571346	3935693	0.0
SO LOCATION	FRAG7	AREA	568380	3934261	0.0
SO LOCATION	FRAG8	AREA	573789	3936845	0.0
SO LOCATION	FRAG9	AREA	587304	3943205	0.0
SO LOCATION	FRAG10	AREA	579783	3939661	0.0
SO LOCATION	FRAG11	AREA	571200	3935616	0.0
SO LOCATION	FRAG12	AREA	580154	3939852	0.0
SO LOCATION	FRAG13	AREA	570814	3935434	0.0
SO LOCATION	FRAG14	AREA	571906	3935961	0.0
SO LOCATION	FRAG15	AREA	567816	3933987	0.0
SO LOCATION	FRAG16	AREA	569063	3934589	0.0
SO LOCATION	FRAG17	AREA	577377	3938553	0.0
SO LOCATION	FRAG18	AREA	570001	3935057	0.0
SO LOCATION	FRAG19	AREA	575016	3937434	0.0
SO LOCATION	FRAG20	AREA	603889	3950941	0.0
SO LOCATION	FRAG21	AREA	572896	3936422	0.0
SO LOCATION	FRAG22	AREA	574763	3937304	0.0
SO LOCATION	FRAG23	AREA	567537	3933850	0.0
SO LOCATION	FRAG24	AREA	596284	3947400	0.0
SO LOCATION	FRAG25	AREA	569160	3934633	0.0

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SO HOUREMIS Emission113\_57.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max113_57.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 116:22 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	580847	3938838	0.0
SO LOCATION	FRAG2	AREA	610968	3952931	0.0
SO LOCATION	FRAG3	AREA	571546	3934333	0.0
SO LOCATION	FRAG4	AREA	581188	3938995	0.0
SO LOCATION	FRAG5	AREA	572379	3934757	0.0
SO LOCATION	FRAG6	AREA	576150	3936599	0.0
SO LOCATION	FRAG7	AREA	577549	3937270	0.0
SO LOCATION	FRAG8	AREA	582195	3939466	0.0
SO LOCATION	FRAG9	AREA	576102	3936571	0.0
SO LOCATION	FRAG10	AREA	583901	3940282	0.0
SO LOCATION	FRAG11	AREA	584119	3940370	0.0
SO LOCATION	FRAG12	AREA	575414	3936250	0.0
SO LOCATION	FRAG13	AREA	573437	3935279	0.0
SO LOCATION	FRAG14	AREA	629680	3961674	0.0
SO LOCATION	FRAG15	AREA	571654	3934389	0.0
SO LOCATION	FRAG16	AREA	606678	3950930	0.0
SO LOCATION	FRAG17	AREA	595736	3945819	0.0
SO LOCATION	FRAG18	AREA	582773	3939749	0.0
SO LOCATION	FRAG19	AREA	597143	3946475	0.0
SO LOCATION	FRAG20	AREA	576719	3936866	0.0
SO LOCATION	FRAG21	AREA	577110	3937061	0.0
SO LOCATION	FRAG22	AREA	576285	3936663	0.0
SO LOCATION	FRAG23	AREA	573841	3935474	0.0
SO LOCATION	FRAG24	AREA	573218	3935166	0.0
SO LOCATION	FRAG25	AREA	586038	3941288	0.0

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SO HOUREMIS Emission116\_22.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max116_22.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 116:66 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	573011	3934817	0.0
SO LOCATION	FRAG2	AREA	576558	3936557	0.0
SO LOCATION	FRAG3	AREA	578434	3937465	0.0
SO LOCATION	FRAG4	AREA	580843	3938614	0.0
SO LOCATION	FRAG5	AREA	577545	3937034	0.0
SO LOCATION	FRAG6	AREA	575683	3936134	0.0
SO LOCATION	FRAG7	AREA	576425	3936486	0.0
SO LOCATION	FRAG8	AREA	588218	3942074	0.0
SO LOCATION	FRAG9	AREA	578869	3937669	0.0
SO LOCATION	FRAG10	AREA	575030	3935817	0.0
SO LOCATION	FRAG11	AREA	578102	3937297	0.0
SO LOCATION	FRAG12	AREA	582576	3939421	0.0
SO LOCATION	FRAG13	AREA	589070	3942467	0.0
SO LOCATION	FRAG14	AREA	576887	3936720	0.0
SO LOCATION	FRAG15	AREA	589842	3942833	0.0
SO LOCATION	FRAG16	AREA	585426	3940760	0.0
SO LOCATION	FRAG17	AREA	576885	3936714	0.0
SO LOCATION	FRAG18	AREA	573721	3935167	0.0
SO LOCATION	FRAG19	AREA	580661	3938516	0.0
SO LOCATION	FRAG20	AREA	577439	3936976	0.0
SO LOCATION	FRAG21	AREA	575114	3935849	0.0
SO LOCATION	FRAG22	AREA	574852	3935728	0.0
SO LOCATION	FRAG23	AREA	575582	3936087	0.0
SO LOCATION	FRAG24	AREA	573438	3935027	0.0
SO LOCATION	FRAG25	AREA	576066	3936321	0.0

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SO HOUREMIS Emission116\_66.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max116_66.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 118:95 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	585222	3939450	0.0
SO LOCATION	FRAG2	AREA	588275	3940903	0.0
SO LOCATION	FRAG3	AREA	588108	3940822	0.0
SO LOCATION	FRAG4	AREA	587696	3940630	0.0
SO LOCATION	FRAG5	AREA	584009	3938879	0.0
SO LOCATION	FRAG6	AREA	592829	3943039	0.0
SO LOCATION	FRAG7	AREA	583215	3938502	0.0
SO LOCATION	FRAG8	AREA	580719	3937298	0.0
SO LOCATION	FRAG9	AREA	585728	3939691	0.0
SO LOCATION	FRAG10	AREA	579637	3936764	0.0
SO LOCATION	FRAG11	AREA	589329	3941405	0.0
SO LOCATION	FRAG12	AREA	580391	3937139	0.0
SO LOCATION	FRAG13	AREA	579103	3936498	0.0
SO LOCATION	FRAG14	AREA	581076	3937474	0.0
SO LOCATION	FRAG15	AREA	589173	3941328	0.0
SO LOCATION	FRAG16	AREA	585232	3939463	0.0
SO LOCATION	FRAG17	AREA	574830	3934187	0.0
SO LOCATION	FRAG18	AREA	585153	3939419	0.0
SO LOCATION	FRAG19	AREA	589835	3941642	0.0
SO LOCATION	FRAG20	AREA	594627	3943895	0.0
SO LOCATION	FRAG21	AREA	589217	3941341	0.0
SO LOCATION	FRAG22	AREA	585000	3939349	0.0
SO LOCATION	FRAG23	AREA	580300	3937095	0.0
SO LOCATION	FRAG24	AREA	580122	3936997	0.0
SO LOCATION	FRAG25	AREA	584611	3939168	0.0

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SO HOUREMIS Emission118\_95.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max118_95.OUT

OU FINISHED  
AERMOD Input File - Breakup Time: 119:04 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	586520	3940030	0.0
SO LOCATION	FRAG2	AREA	592182	3942692	0.0
SO LOCATION	FRAG3	AREA	582759	3938228	0.0
SO LOCATION	FRAG4	AREA	581580	3937666	0.0
SO LOCATION	FRAG5	AREA	582935	3938316	0.0
SO LOCATION	FRAG6	AREA	584506	3939067	0.0
SO LOCATION	FRAG7	AREA	592832	3943014	0.0
SO LOCATION	FRAG8	AREA	585729	3939657	0.0
SO LOCATION	FRAG9	AREA	586392	3939968	0.0
SO LOCATION	FRAG10	AREA	587714	3940594	0.0
SO LOCATION	FRAG11	AREA	591137	3942204	0.0
SO LOCATION	FRAG12	AREA	586699	3940115	0.0
SO LOCATION	FRAG13	AREA	613640	3952734	0.0
SO LOCATION	FRAG14	AREA	584871	3939240	0.0
SO LOCATION	FRAG15	AREA	581191	3937475	0.0
SO LOCATION	FRAG16	AREA	582097	3937916	0.0
SO LOCATION	FRAG17	AREA	583481	3938577	0.0
SO LOCATION	FRAG18	AREA	613884	3952868	0.0
SO LOCATION	FRAG19	AREA	594627	3943847	0.0
SO LOCATION	FRAG20	AREA	589029	3941232	0.0
SO LOCATION	FRAG21	AREA	578507	3936150	0.0
SO LOCATION	FRAG22	AREA	591931	3942580	0.0
SO LOCATION	FRAG23	AREA	591825	3942538	0.0
SO LOCATION	FRAG24	AREA	579009	3936401	0.0
SO LOCATION	FRAG25	AREA	585231	3939415	0.0

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SO HOUREMIS Emission119\_04.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max119_04.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 119:33 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	583678	3938514	0.0
SO LOCATION	FRAG2	AREA	583868	3938605	0.0
SO LOCATION	FRAG3	AREA	589523	3941293	0.0
SO LOCATION	FRAG4	AREA	585600	3939424	0.0
SO LOCATION	FRAG5	AREA	584546	3938928	0.0
SO LOCATION	FRAG6	AREA	587268	3940224	0.0
SO LOCATION	FRAG7	AREA	578330	3935877	0.0
SO LOCATION	FRAG8	AREA	580177	3936809	0.0
SO LOCATION	FRAG9	AREA	592556	3942718	0.0
SO LOCATION	FRAG10	AREA	583174	3938268	0.0
SO LOCATION	FRAG11	AREA	587767	3940462	0.0
SO LOCATION	FRAG12	AREA	585883	3939558	0.0
SO LOCATION	FRAG13	AREA	581812	3937608	0.0
SO LOCATION	FRAG14	AREA	604177	3948159	0.0
SO LOCATION	FRAG15	AREA	591441	3942189	0.0
SO LOCATION	FRAG16	AREA	585720	3939486	0.0
SO LOCATION	FRAG17	AREA	596954	3944800	0.0
SO LOCATION	FRAG18	AREA	583056	3938222	0.0
SO LOCATION	FRAG19	AREA	592358	3942618	0.0
SO LOCATION	FRAG20	AREA	591448	3942193	0.0
SO LOCATION	FRAG21	AREA	583401	3938375	0.0
SO LOCATION	FRAG22	AREA	583858	3938599	0.0
SO LOCATION	FRAG23	AREA	587199	3940196	0.0
SO LOCATION	FRAG24	AREA	581406	3937414	0.0
SO LOCATION	FRAG25	AREA	590350	3941675	0.0

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SO HOUREMIS Emission119\_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max119_33.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 121:05 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	586880	3939084	0.0
SO LOCATION	FRAG2	AREA	587102	3939193	0.0
SO LOCATION	FRAG3	AREA	587535	3939403	0.0
SO LOCATION	FRAG4	AREA	590647	3940886	0.0
SO LOCATION	FRAG5	AREA	599934	3945264	0.0
SO LOCATION	FRAG6	AREA	594382	3942659	0.0
SO LOCATION	FRAG7	AREA	588818	3940015	0.0
SO LOCATION	FRAG8	AREA	584959	3938155	0.0
SO LOCATION	FRAG9	AREA	593346	3942170	0.0
SO LOCATION	FRAG10	AREA	587374	3939327	0.0
SO LOCATION	FRAG11	AREA	590872	3940987	0.0
SO LOCATION	FRAG12	AREA	613185	3951467	0.0
SO LOCATION	FRAG13	AREA	606180	3948185	0.0
SO LOCATION	FRAG14	AREA	587428	3939353	0.0
SO LOCATION	FRAG15	AREA	591718	3941394	0.0
SO LOCATION	FRAG16	AREA	588361	3939796	0.0
SO LOCATION	FRAG17	AREA	597391	3944065	0.0
SO LOCATION	FRAG18	AREA	586599	3938957	0.0
SO LOCATION	FRAG19	AREA	584804	3938081	0.0
SO LOCATION	FRAG20	AREA	597625	3944173	0.0
SO LOCATION	FRAG21	AREA	588274	3939760	0.0
SO LOCATION	FRAG22	AREA	585172	3938258	0.0
SO LOCATION	FRAG23	AREA	604750	3947506	0.0
SO LOCATION	FRAG24	AREA	588665	3939945	0.0
SO LOCATION	FRAG25	AREA	585754	3938541	0.0

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SO HOUREMIS Emission121\_05.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max121_05.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 122:05 seconds

CO STARTING

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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	594447	3942141	0.0
SO LOCATION	FRAG2	AREA	593540	3941702	0.0
SO LOCATION	FRAG3	AREA	588219	3939158	0.0
SO LOCATION	FRAG4	AREA	595004	3942412	0.0
SO LOCATION	FRAG5	AREA	585840	3937991	0.0
SO LOCATION	FRAG6	AREA	609049	3948990	0.0
SO LOCATION	FRAG7	AREA	591579	3940778	0.0
SO LOCATION	FRAG8	AREA	588157	3939124	0.0
SO LOCATION	FRAG9	AREA	586990	3938567	0.0
SO LOCATION	FRAG10	AREA	592127	3941040	0.0
SO LOCATION	FRAG11	AREA	587206	3938662	0.0
SO LOCATION	FRAG12	AREA	591241	3940608	0.0
SO LOCATION	FRAG13	AREA	588770	3939430	0.0
SO LOCATION	FRAG14	AREA	589980	3940010	0.0
SO LOCATION	FRAG15	AREA	591576	3940785	0.0
SO LOCATION	FRAG16	AREA	592756	3941352	0.0
SO LOCATION	FRAG17	AREA	592404	3941166	0.0
SO LOCATION	FRAG18	AREA	623365	3955681	0.0
SO LOCATION	FRAG19	AREA	588708	3939409	0.0
SO LOCATION	FRAG20	AREA	590191	3940112	0.0
SO LOCATION	FRAG21	AREA	608635	3948803	0.0
SO LOCATION	FRAG22	AREA	599367	3944472	0.0
SO LOCATION	FRAG23	AREA	599849	3944689	0.0
SO LOCATION	FRAG24	AREA	590973	3940488	0.0
SO LOCATION	FRAG25	AREA	597908	3943767	0.0

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SO HOUREMIS Emission122\_05.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING

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RE FINISHED

ME STARTING

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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max122_05.OUT

OU FINISHED



AERMOD Input File - Breakup Time: 124:36 seconds

CO STARTING  
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CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	595032	3941119	0.0
SO LOCATION	FRAG2	AREA	592655	3939963	0.0
SO LOCATION	FRAG3	AREA	604990	3945856	0.0
SO LOCATION	FRAG4	AREA	640395	3962421	0.0
SO LOCATION	FRAG5	AREA	601967	3944423	0.0
SO LOCATION	FRAG6	AREA	595527	3941355	0.0
SO LOCATION	FRAG7	AREA	599530	3943271	0.0
SO LOCATION	FRAG8	AREA	602264	3944562	0.0
SO LOCATION	FRAG9	AREA	595001	3941107	0.0
SO LOCATION	FRAG10	AREA	599832	3943409	0.0
SO LOCATION	FRAG11	AREA	591984	3939630	0.0
SO LOCATION	FRAG12	AREA	606904	3946746	0.0
SO LOCATION	FRAG13	AREA	596913	3942024	0.0
SO LOCATION	FRAG14	AREA	605024	3945860	0.0
SO LOCATION	FRAG15	AREA	601041	3943984	0.0
SO LOCATION	FRAG16	AREA	598224	3942648	0.0
SO LOCATION	FRAG17	AREA	602383	3944617	0.0
SO LOCATION	FRAG18	AREA	592293	3939780	0.0
SO LOCATION	FRAG19	AREA	595100	3941151	0.0
SO LOCATION	FRAG20	AREA	602464	3944665	0.0
SO LOCATION	FRAG21	AREA	592829	3940050	0.0
SO LOCATION	FRAG22	AREA	599632	3943311	0.0
SO LOCATION	FRAG23	AREA	598146	3942621	0.0
SO LOCATION	FRAG24	AREA	608462	3947462	0.0
SO LOCATION	FRAG25	AREA	603813	3945291	0.0

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SO HOUREMIS Emission124\_36.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11  
SO FINISHED

RE STARTING  
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RE FINISHED

ME STARTING  
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ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max124_36.OUT

OU FINISHED

AERMOD Input File - Breakup Time: 124:59 seconds

CO STARTING  
\*\*\*\*\*

CO FINISHED

SO STARTING

**	SrcID	Type	x(m)	y(m)	z(m)
**	-----	-----	-----	-----	-----
SO LOCATION	FRAG1	AREA	599704	3943218	0.0
SO LOCATION	FRAG2	AREA	623384	3954339	0.0
SO LOCATION	FRAG3	AREA	599591	3943174	0.0
SO LOCATION	FRAG4	AREA	599041	3942896	0.0
SO LOCATION	FRAG5	AREA	597636	3942232	0.0
SO LOCATION	FRAG6	AREA	602213	3944413	0.0
SO LOCATION	FRAG7	AREA	602325	3944475	0.0
SO LOCATION	FRAG8	AREA	617650	3951647	0.0
SO LOCATION	FRAG9	AREA	597277	3942068	0.0
SO LOCATION	FRAG10	AREA	598439	3942628	0.0
SO LOCATION	FRAG11	AREA	598729	3942764	0.0
SO LOCATION	FRAG12	AREA	609207	3947721	0.0
SO LOCATION	FRAG13	AREA	617122	3951399	0.0
SO LOCATION	FRAG14	AREA	599317	3943039	0.0
SO LOCATION	FRAG15	AREA	599293	3943027	0.0
SO LOCATION	FRAG16	AREA	595179	3941065	0.0
SO LOCATION	FRAG17	AREA	600881	3943792	0.0
SO LOCATION	FRAG18	AREA	626994	3956041	0.0
SO LOCATION	FRAG19	AREA	602634	3944616	0.0
SO LOCATION	FRAG20	AREA	601505	3944070	0.0
SO LOCATION	FRAG21	AREA	622758	3954050	0.0
SO LOCATION	FRAG22	AREA	599071	3942934	0.0
SO LOCATION	FRAG23	AREA	601236	3943950	0.0
SO LOCATION	FRAG24	AREA	603350	3944949	0.0
SO LOCATION	FRAG25	AREA	598790	3942780	0.0

SO HOUREMIS Emission124\_59.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25 29.77 0.0 18.11

SO FINISHED

RE STARTING  
\*\*\*\*\*

RE FINISHED

ME STARTING  
\*\*\*\*\*

ME FINISHED

OU STARTING

**	Parameters:	Period	Source	Value	Filename
**		-----	-----	-----	-----
	MAXIFILE	4	ALL	7460	Max124_59.OUT

OU FINISHED

## C.2 Emission Rates Files

Emission Rate File	Emission Rate (g/s-m <sup>2</sup> )	Emission Rate File	Emission Rate (g/s-m <sup>2</sup> )
Emission9_32.SRC	37.308	Emission64_02.SRC	21.801
Emission9_77.SRC	37.181	Emission65_19.SRC	21.469
Emission16_03.SRC	35.406	Emission68_33.SRC	20.579
Emission19_21.SRC	34.504	Emission68_95.SRC	20.403
Emission20_99.SRC	34.000	Emission69_78.SRC	20.168
Emission21_03.SRC	33.988	Emission70_74.SRC	19.896
Emission21_81.SRC	33.767	Emission71_63.SRC	19.643
Emission22_49.SRC	33.575	Emission74_33.SRC	18.878
Emission25_50.SRC	32.721	Emission74_44.SRC	18.847
Emission27_62.SRC	32.120	Emission75_00.SRC	18.688
Emission27_98.SRC	32.018	Emission75_88.SRC	18.438
Emission28_03.SRC	32.004	Emission76_86.SRC	18.161
Emission28_64.SRC	31.831	Emission80_44.SRC	17.146
Emission28_71.SRC	31.811	Emission80_64.SRC	17.089
Emission29_20.SRC	31.672	Emission80_73.SRC	17.063
Emission29_92.SRC	31.468	Emission80_78.SRC	17.048
Emission29_94.SRC	31.462	Emission81_13.SRC	16.950
Emission30_70.SRC	31.247	Emission81_16.SRC	16.941
Emission31_97.SRC	30.887	Emission83_80.SRC	16.193
Emission32_97.SRC	30.603	Emission86_78.SRC	15.348
Emission33_92.SRC	30.334	Emission90_43.SRC	14.313
Emission35_26.SRC	29.954	Emission91_18.SRC	14.101
Emission35_55.SRC	29.872	Emission92_15.SRC	13.826
Emission36_41.SRC	29.628	Emission95_38.SRC	12.910
Emission36_56.SRC	29.586	Emission97_54.SRC	12.298
Emission36_65.SRC	29.560	Emission100_12.SRC	11.566
Emission36_68.SRC	29.552	Emission101_10.SRC	11.288
Emission37_32.SRC	29.370	Emission103_09.SRC	10.724
Emission37_37.SRC	29.356	Emission103_84.SRC	10.512
Emission38_06.SRC	29.163	Emission105_64.SRC	10.001
Emission43_07.SRC	27.740	Emission106_48.SRC	9.763
Emission44_92.SRC	27.216	Emission107_35.SRC	9.517
Emission45_31.SRC	27.105	Emission109_18.SRC	8.998
Emission46_11.SRC	26.878	Emission111_15.SRC	8.439
Emission46_38.SRC	26.802	Emission113_57.SRC	7.753
Emission51_98.SRC	25.214	Emission116_22.SRC	7.002
Emission52_91.SRC	24.950	Emission116_66.SRC	6.877
Emission53_20.SRC	24.868	Emission118_95.SRC	6.228
Emission55_44.SRC	24.233	Emission119_04.SRC	6.202
Emission56_36.SRC	23.972	Emission119_33.SRC	6.120
Emission57_48.SRC	23.655	Emission121_05.SRC	5.633
Emission58_30.SRC	23.422	Emission122_05.SRC	5.349
Emission62_92.SRC	22.113	Emission124_36.SRC	4.694

Emission63_81.SRC	21.860	Emission124_59.SRC	4.629
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### C.3 Gas Modeling Outputs (AERMOD)

The illustration below describes the AERMOD outputs files shown in this appendix.

**X:** x - coordinate of receptor in UTM-14N coordinates (unit: meters)

**Y:** y - coordinate of receptor in UTM-14N coordinates (unit: meters)

**ZELEV, ZHILL:** Terrain elevation based on terrain elevation DEM 7.5. files (unit: meters)

**AVERAGE CONC:** Average HCl concentration (unit:  $10^{-3}$  mg/m<sup>3</sup>)

**Threshold:** 7460  $\mu$ g/m<sup>3</sup>

Max9\_32.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	472000.00000	3904840.00000	546.00	546.00	0.00	8628.63965
4	ALL	89031512	472720.00000	3905520.00000	549.00	549.00	0.00	9496.31641
4	ALL	89031512	473440.00000	3906200.00000	537.00	537.00	0.00	9008.83984
4	ALL	89031512	474160.00000	3906880.00000	552.00	552.00	0.00	8222.59863
4	ALL	89031512	474880.00000	3906880.00000	566.00	566.00	0.00	12082.45312
4	ALL	89031512	475600.00000	3907560.00000	574.00	574.00	0.00	15648.18262
4	ALL	89031512	476320.00000	3908240.00000	584.00	584.00	0.00	15755.75391
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	8586.60059
4	ALL	89031512	477040.00000	3908920.00000	586.00	586.00	0.00	9666.46094
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	19060.36719
4	ALL	89031512	478480.00000	3909600.00000	593.00	593.00	0.00	38149.47656
4	ALL	89031512	479200.00000	3910280.00000	592.00	592.00	0.00	48757.37500

Max9\_77.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	472000.00000	3904840.00000	546.00	546.00	0.00	8609.07910
4	ALL	89031512	472720.00000	3905520.00000	549.00	549.00	0.00	9468.98340
4	ALL	89031512	473440.00000	3906200.00000	537.00	537.00	0.00	8981.61426
4	ALL	89031512	474160.00000	3906200.00000	552.00	552.00	0.00	8207.35449
4	ALL	89031512	474880.00000	3906880.00000	566.00	566.00	0.00	12078.05957
4	ALL	89031512	475600.00000	3907560.00000	574.00	574.00	0.00	15638.56738
4	ALL	89031512	476320.00000	3908240.00000	584.00	584.00	0.00	15788.01953
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	8490.72949
4	ALL	89031512	477040.00000	3908920.00000	586.00	586.00	0.00	9691.49902
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	18983.64062
4	ALL	89031512	478480.00000	3909600.00000	593.00	593.00	0.00	38220.60547
4	ALL	89031512	479200.00000	3910280.00000	592.00	592.00	0.00	49112.38672

Max16\_03.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	472000.00000	3904840.00000	546.00	546.00	0.00	8136.92188
4	ALL	89031512	472720.00000	3905520.00000	549.00	549.00	0.00	7959.20557
4	ALL	89031512	474160.00000	3906200.00000	552.00	552.00	0.00	9346.22949
4	ALL	89031512	474880.00000	3906880.00000	566.00	566.00	0.00	11876.64062
4	ALL	89031512	475600.00000	3907560.00000	574.00	574.00	0.00	12726.30176
4	ALL	89031512	476320.00000	3908240.00000	584.00	584.00	0.00	9964.74121
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	13385.56738
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	23190.35938
4	ALL	89031512	478480.00000	3909600.00000	593.00	593.00	0.00	29570.64062
4	ALL	89031512	479200.00000	3910280.00000	592.00	592.00	0.00	15702.65723
4	ALL	89031512	479920.00000	3910280.00000	589.00	589.00	0.00	8868.23535
4	ALL	89031512	480640.00000	3910960.00000	588.00	588.00	0.00	88687.38281

Max19\_21.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC                                DEFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE  GRP  DATE      X              Y              ZELEV  ZHILL  ZFLAG  AVERAGE CONC
*-----
4 ALL  89031512  473440.00000  3905520.00000  537.00  537.00  0.00  7736.73975
4 ALL  89031512  474160.00000  3906200.00000  552.00  552.00  0.00  9642.64160
4 ALL  89031512  474880.00000  3906880.00000  566.00  566.00  0.00  10559.09961
4 ALL  89031512  475600.00000  3907560.00000  574.00  574.00  0.00  9357.22363
4 ALL  89031512  476320.00000  3907560.00000  580.00  580.00  0.00  10014.16797
4 ALL  89031512  477040.00000  3908240.00000  582.00  582.00  0.00  16091.07422
4 ALL  89031512  477760.00000  3908920.00000  590.00  590.00  0.00  21179.25977
4 ALL  89031512  478480.00000  3909600.00000  593.00  593.00  0.00  17394.37305
4 ALL  89031512  479200.00000  3909600.00000  593.00  593.00  0.00  8792.09473
4 ALL  89031512  479920.00000  3910280.00000  589.00  589.00  0.00  32499.16211
4 ALL  89031512  480640.00000  3910960.00000  588.00  588.00  0.00  176756.60938

```

Max20\_99.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC                                DEFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE  GRP  DATE      X              Y              ZELEV  ZHILL  ZFLAG  AVERAGE CONC
*-----
4 ALL  89031512  473440.00000  3905520.00000  537.00  537.00  0.00  8165.18701
4 ALL  89031512  474160.00000  3906200.00000  552.00  552.00  0.00  9205.75684
4 ALL  89031512  474880.00000  3906880.00000  566.00  566.00  0.00  8951.89160
4 ALL  89031512  475600.00000  3906880.00000  571.00  571.00  0.00  7501.62354
4 ALL  89031512  476320.00000  3907560.00000  580.00  580.00  0.00  11671.89355
4 ALL  89031512  477040.00000  3908240.00000  582.00  582.00  0.00  16050.12598
4 ALL  89031512  477760.00000  3908920.00000  590.00  590.00  0.00  16819.25977
4 ALL  89031512  478480.00000  3909600.00000  593.00  593.00  0.00  9758.92773
4 ALL  89031512  479200.00000  3909600.00000  593.00  593.00  0.00  16862.87109
4 ALL  89031512  479920.00000  3910280.00000  589.00  589.00  0.00  44974.26953
4 ALL  89031512  480640.00000  3910960.00000  588.00  588.00  0.00  94429.75000
4 ALL  89031512  482080.00000  3911640.00000  582.00  582.00  0.00  12756.95020

```

Max21\_03.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	473440.00000	3905520.00000	537.00	537.00	0.00	8163.05664
4	ALL	89031512	474160.00000	3906200.00000	552.00	552.00	0.00	9122.82227
4	ALL	89031512	474880.00000	3906880.00000	566.00	566.00	0.00	8720.32715
4	ALL	89031512	475600.00000	3906880.00000	571.00	571.00	0.00	7741.27002
4	ALL	89031512	476320.00000	3907560.00000	580.00	580.00	0.00	11804.63184
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	15847.28027
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	16156.58105
4	ALL	89031512	478480.00000	3909600.00000	593.00	593.00	0.00	9072.19336
4	ALL	89031512	479200.00000	3909600.00000	593.00	593.00	0.00	17891.51758
4	ALL	89031512	479920.00000	3910280.00000	589.00	589.00	0.00	44606.32812
4	ALL	89031512	480640.00000	3910960.00000	588.00	588.00	0.00	83344.60156
4	ALL	89031512	482080.00000	3911640.00000	582.00	582.00	0.00	12525.77441

Max21\_81.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	473440.00000	3905520.00000	537.00	537.00	0.00	8210.54785
4	ALL	89031512	474160.00000	3906200.00000	552.00	552.00	0.00	8751.92676
4	ALL	89031512	474880.00000	3906880.00000	566.00	566.00	0.00	7918.69287
4	ALL	89031512	475600.00000	3906880.00000	571.00	571.00	0.00	8436.16016
4	ALL	89031512	476320.00000	3907560.00000	580.00	580.00	0.00	12216.75684
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	15215.53906
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	13952.61621
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	9566.87402
4	ALL	89031512	479200.00000	3909600.00000	593.00	593.00	0.00	21281.27148
4	ALL	89031512	479920.00000	3910280.00000	589.00	589.00	0.00	44503.98047
4	ALL	89031512	480640.00000	3910960.00000	588.00	588.00	0.00	52314.11328
4	ALL	89031512	482080.00000	3911640.00000	582.00	582.00	0.00	27143.64062

Max22\_49.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	473440.00000	3905520.00000	537.00	537.00	0.00	8103.93604
4	ALL	89031512	474160.00000	3906200.00000	552.00	552.00	0.00	8274.24902
4	ALL	89031512	475600.00000	3906880.00000	571.00	571.00	0.00	8993.79199
4	ALL	89031512	476320.00000	3907560.00000	580.00	580.00	0.00	12279.39355
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	14184.17285
4	ALL	89031512	477760.00000	3908920.00000	590.00	590.00	0.00	11691.27832
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	11661.11035
4	ALL	89031512	479200.00000	3909600.00000	593.00	593.00	0.00	23504.38086
4	ALL	89031512	479920.00000	3910280.00000	589.00	589.00	0.00	40703.52734
4	ALL	89031512	480640.00000	3910960.00000	588.00	588.00	0.00	29790.34570
4	ALL	89031512	482080.00000	3911640.00000	582.00	582.00	0.00	52377.89453

Max25\_50.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	474880.00000	3906200.00000	558.00	558.00	0.00	8188.43604
4	ALL	89031512	475600.00000	3906880.00000	571.00	571.00	0.00	9748.37598
4	ALL	89031512	476320.00000	3907560.00000	580.00	580.00	0.00	9909.93066
4	ALL	89031512	477040.00000	3908240.00000	582.00	582.00	0.00	7764.95312
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	11821.20605
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	17796.76367
4	ALL	89031512	479200.00000	3909600.00000	593.00	593.00	0.00	20453.54102
4	ALL	89031512	479920.00000	3910280.00000	589.00	589.00	0.00	12214.47363
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	14487.11426
4	ALL	89031512	481360.00000	3910960.00000	584.00	584.00	0.00	59324.53516
4	ALL	89031512	482080.00000	3911640.00000	582.00	582.00	0.00	617165.43750

Max27\_62.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	474880.00000	3906200.00000	558.00	558.00	0.00	8076.13330
4	ALL	89031512	475600.00000	3906880.00000	571.00	571.00	0.00	7760.97803
4	ALL	89031512	477040.00000	3907560.00000	584.00	584.00	0.00	10083.82910
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	13160.59375
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	13728.79688
4	ALL	89031512	479200.00000	3909600.00000	593.00	593.00	0.00	9011.75879
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	15122.21875
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	30656.07031
4	ALL	89031512	481360.00000	3910960.00000	584.00	584.00	0.00	50667.71484
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	11244.98340
4	ALL	89031512	483520.00000	3912320.00000	583.00	583.00	0.00	13843.92578

Max27\_98.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	476320.00000	3906880.00000	581.00	581.00	0.00	7750.46533
4	ALL	89031512	477040.00000	3907560.00000	584.00	584.00	0.00	10225.68652
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	11774.05176
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	10510.34570
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	9949.17871
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	17825.64258
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	27597.68555
4	ALL	89031512	481360.00000	3910960.00000	584.00	584.00	0.00	28022.23242
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	7834.00586
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	38664.09375



Max28\_03.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 476320.00000 3906880.00000 581.00 581.00 0.00 7620.97900  
 4 ALL 89031512 477040.00000 3907560.00000 584.00 584.00 0.00 10097.21777  
 4 ALL 89031512 477760.00000 3908240.00000 591.00 591.00 0.00 11778.79004  
 4 ALL 89031512 478480.00000 3908920.00000 594.00 594.00 0.00 10726.16992  
 4 ALL 89031512 479200.00000 3908920.00000 590.00 590.00 0.00 9565.57129  
 4 ALL 89031512 479920.00000 3909600.00000 591.00 591.00 0.00 17203.92188  
 4 ALL 89031512 480640.00000 3910280.00000 588.00 588.00 0.00 27882.68750  
 4 ALL 89031512 481360.00000 3910960.00000 584.00 584.00 0.00 30068.24219  
 4 ALL 89031512 482080.00000 3910960.00000 581.00 581.00 0.00 7971.60938  
 4 ALL 89031512 482800.00000 3911640.00000 581.00 581.00 0.00 27311.43164

Max28\_64.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 476320.00000 3906880.00000 581.00 581.00 0.00 7875.10303  
 4 ALL 89031512 477040.00000 3907560.00000 584.00 584.00 0.00 9640.79980  
 4 ALL 89031512 477760.00000 3908240.00000 591.00 591.00 0.00 10090.31152  
 4 ALL 89031512 478480.00000 3908920.00000 594.00 594.00 0.00 7972.88232  
 4 ALL 89031512 479200.00000 3908920.00000 590.00 590.00 0.00 11314.65332  
 4 ALL 89031512 479920.00000 3909600.00000 591.00 591.00 0.00 17946.76758  
 4 ALL 89031512 480640.00000 3910280.00000 588.00 588.00 0.00 22955.18750  
 4 ALL 89031512 481360.00000 3910960.00000 584.00 584.00 0.00 15909.60449  
 4 ALL 89031512 482080.00000 3910960.00000 581.00 581.00 0.00 13839.23340  
 4 ALL 89031512 482800.00000 3911640.00000 581.00 581.00 0.00 62812.70703

Max28\_71.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
*								
4	ALL	89031512	476320.00000	3906880.00000	581.00	581.00	0.00	8165.28760
4	ALL	89031512	477040.00000	3907560.00000	584.00	584.00	0.00	10217.20898
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	10902.23340
4	ALL	89031512	478480.00000	3908920.00000	594.00	594.00	0.00	8665.53418
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	11536.82812
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	19327.72852
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	25469.85938
4	ALL	89031512	481360.00000	3910960.00000	584.00	584.00	0.00	16292.85254
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	10675.59863
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	67791.17969

Max29\_20.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
*								
4	ALL	89031512	476320.00000	3906880.00000	581.00	581.00	0.00	8482.03613
4	ALL	89031512	477040.00000	3907560.00000	584.00	584.00	0.00	10128.10352
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	10155.59570
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	12733.97363
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	19765.56836
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	22830.43945
4	ALL	89031512	481360.00000	3910960.00000	584.00	584.00	0.00	10859.79395
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	15529.92188
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	86872.19531

Max29\_92.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	476320.00000	3906880.00000	581.00	581.00	0.00	8289.69824
4	ALL	89031512	477040.00000	3907560.00000	584.00	584.00	0.00	8949.52344
4	ALL	89031512	477760.00000	3908240.00000	591.00	591.00	0.00	7965.07861
4	ALL	89031512	478480.00000	3908240.00000	591.00	591.00	0.00	8731.33496
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	13373.07031
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	17710.70898
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	15678.22754
4	ALL	89031512	481360.00000	3910280.00000	585.00	585.00	0.00	8555.60547
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	24224.45117
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	141014.23438
4	ALL	89031512	484240.00000	3912320.00000	577.00	577.00	0.00	21105.03320

Max31\_97.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	477760.00000	3907560.00000	586.00	586.00	0.00	8734.81738
4	ALL	89031512	478480.00000	3908240.00000	591.00	591.00	0.00	10511.54395
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	10420.19238
4	ALL	89031512	479920.00000	3908920.00000	590.00	590.00	0.00	7720.55518
4	ALL	89031512	480640.00000	3909600.00000	588.00	588.00	0.00	13579.24219
4	ALL	89031512	481360.00000	3910280.00000	585.00	585.00	0.00	21805.84961
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	27247.05273
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	9831.54492
4	ALL	89031512	483520.00000	3911640.00000	581.00	581.00	0.00	19394.03516
4	ALL	89031512	484240.00000	3912320.00000	577.00	577.00	0.00	201498.14062

Max30\_70.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	476320.00000	3906880.00000	581.00	581.00	0.00	7794.71484
4	ALL	89031512	478480.00000	3908240.00000	591.00	591.00	0.00	10156.29688
4	ALL	89031512	479200.00000	3908920.00000	590.00	590.00	0.00	13477.19629
4	ALL	89031512	479920.00000	3909600.00000	591.00	591.00	0.00	13816.11328
4	ALL	89031512	480640.00000	3910280.00000	588.00	588.00	0.00	7832.27539
4	ALL	89031512	481360.00000	3910280.00000	585.00	585.00	0.00	15167.24902
4	ALL	89031512	482080.00000	3910960.00000	581.00	581.00	0.00	38330.12891
4	ALL	89031512	482800.00000	3911640.00000	581.00	581.00	0.00	90957.42969
4	ALL	89031512	484240.00000	3912320.00000	577.00	577.00	0.00	21160.47461
4	ALL	89031512	487120.00000	3913680.00000	547.00	547.00	0.00	11417.74316

Max31\_97.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 477760.00000 3907560.00000 586.00 586.00 0.00 8734.81738  
 4 ALL 89031512 478480.00000 3908240.00000 591.00 591.00 0.00 10511.54395  
 4 ALL 89031512 479200.00000 3908920.00000 590.00 590.00 0.00 10420.19238  
 4 ALL 89031512 479920.00000 3908920.00000 590.00 590.00 0.00 7720.55518  
 4 ALL 89031512 480640.00000 3909600.00000 588.00 588.00 0.00 13579.24219  
 4 ALL 89031512 481360.00000 3910280.00000 585.00 585.00 0.00 21805.84961  
 4 ALL 89031512 482080.00000 3910960.00000 581.00 581.00 0.00 27247.05273  
 4 ALL 89031512 482800.00000 3911640.00000 581.00 581.00 0.00 9831.54492  
 4 ALL 89031512 483520.00000 3911640.00000 581.00 581.00 0.00 19394.03516  
 4 ALL 89031512 484240.00000 3912320.00000 577.00 577.00 0.00 201498.14062

Max32\_97.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 477040.00000 3906880.00000 582.00 582.00 0.00 7500.49609  
 4 ALL 89031512 477760.00000 3907560.00000 586.00 586.00 0.00 8865.92676  
 4 ALL 89031512 478480.00000 3908240.00000 591.00 591.00 0.00 9087.97363  
 4 ALL 89031512 479920.00000 3908920.00000 590.00 590.00 0.00 10600.39746  
 4 ALL 89031512 480640.00000 3909600.00000 588.00 588.00 0.00 15879.18750  
 4 ALL 89031512 481360.00000 3910280.00000 585.00 585.00 0.00 19058.54688  
 4 ALL 89031512 482080.00000 3910960.00000 581.00 581.00 0.00 12560.18066  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 12622.55078  
 4 ALL 89031512 483520.00000 3911640.00000 581.00 581.00 0.00 44797.56250  
 4 ALL 89031512 484240.00000 3912320.00000 577.00 577.00 0.00 1144046.37500  
 4 ALL 89031512 485680.00000 3913000.00000 564.00 564.00 0.00 289259.28125

Max33\_92.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 7707.29639  
 4 ALL 89031512 479920.00000 3908920.00000 590.00 590.00 0.00 10703.69922  
 4 ALL 89031512 480640.00000 3909600.00000 588.00 588.00 0.00 13343.71973  
 4 ALL 89031512 481360.00000 3910280.00000 585.00 585.00 0.00 12157.14453  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 8821.35156  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 17989.09570  
 4 ALL 89031512 483520.00000 3911640.00000 581.00 581.00 0.00 59024.39453  
 4 ALL 89031512 484240.00000 3912320.00000 577.00 577.00 0.00 180969.23438  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 12626.48438  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 9011.85840  
 4 ALL 89031512 487120.00000 3913680.00000 547.00 547.00 0.00 49922.23828

Max35\_26.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 8989.64258  
 4 ALL 89031512 479920.00000 3908920.00000 590.00 590.00 0.00 10275.17480  
 4 ALL 89031512 480640.00000 3909600.00000 588.00 588.00 0.00 9129.51660  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 8910.01074  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 15687.79980  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 25511.60156  
 4 ALL 89031512 483520.00000 3911640.00000 581.00 581.00 0.00 28598.42188  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 37828.30859

Max35\_55.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 478480.00000 3907560.00000 588.00 588.00 0.00 7583.84814  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 9800.64160  
 4 ALL 89031512 479920.00000 3908920.00000 590.00 590.00 0.00 10832.78320  
 4 ALL 89031512 480640.00000 3909600.00000 588.00 588.00 0.00 8881.10059  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 10346.25488  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 18530.94727  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 27349.78125  
 4 ALL 89031512 483520.00000 3911640.00000 581.00 581.00 0.00 20414.51758  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 61524.91797  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 9768.58691

Max36\_41.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 478480.00000 3907560.00000 588.00 588.00 0.00 7791.67578  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 7922.83984  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 9175.57129  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 13082.32129  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 15499.56543  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 11391.13770  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 11429.25098  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 29589.46289  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 158490.89062  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 25771.14062

Max36\_56.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 478480.00000 3907560.00000 588.00 588.00 0.00 8003.85303  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 7948.57764  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 9755.94629  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 13637.50781  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 15417.58984  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 10635.18457  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 13577.03613  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 33871.09766  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 134939.17188  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 32597.97852

Max36\_65.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 9633.69824  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 12287.86328  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 12482.55176  
 4 ALL 89031512 482800.00000 3910280.00000 578.00 578.00 0.00 7914.07227  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 14778.60645  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 32772.86328  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 100319.38281  
 4 ALL 89031512 485680.00000 3912320.00000 568.00 568.00 0.00 9377.73047  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 52548.45703  
 4 ALL 89031512 487840.00000 3913680.00000 540.00 540.00 0.00 9182.10059

Max36\_68.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 478480.00000 3907560.00000 588.00 588.00 0.00 7800.75977  
 4 ALL 89031512 479200.00000 3908240.00000 588.00 588.00 0.00 7504.97314  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 9959.34180  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 13431.79688  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 14304.36426  
 4 ALL 89031512 482800.00000 3910960.00000 581.00 581.00 0.00 8758.70215  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 14711.37891  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 36087.62109  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 130442.62500  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 23183.56445

Max37\_32.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 478480.00000 3907560.00000 588.00 588.00 0.00 7473.42334  
 4 ALL 89031512 479920.00000 3908240.00000 589.00 589.00 0.00 7513.42578  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 10640.55957  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 13104.28809  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 11958.19238  
 4 ALL 89031512 482800.00000 3910280.00000 578.00 578.00 0.00 8969.24316  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 18633.21289  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 41290.94141  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 103028.80469  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 59322.83203  
 4 ALL 89031512 487840.00000 3913680.00000 540.00 540.00 0.00 18972.95117

Max37\_37.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 479920.00000 3908240.00000 589.00 589.00 0.00 7747.30029  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 10651.44922  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 12669.91309  
 4 ALL 89031512 482080.00000 3910280.00000 581.00 581.00 0.00 11114.53027  
 4 ALL 89031512 482800.00000 3910280.00000 578.00 578.00 0.00 10029.19824  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 19493.69336  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 38471.28516  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 79599.77344  
 4 ALL 89031512 485680.00000 3912320.00000 568.00 568.00 0.00 9740.81250  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 118122.44531

Max38\_06.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 479920.00000 3908240.00000 589.00 589.00 0.00 7822.38867  
 4 ALL 89031512 480640.00000 3908920.00000 590.00 590.00 0.00 9333.54590  
 4 ALL 89031512 481360.00000 3909600.00000 584.00 584.00 0.00 9457.12695  
 4 ALL 89031512 482080.00000 3910280.00000 578.00 578.00 0.00 11837.05762  
 4 ALL 89031512 483520.00000 3910960.00000 581.00 581.00 0.00 18880.37695  
 4 ALL 89031512 484240.00000 3911640.00000 581.00 581.00 0.00 28334.01367  
 4 ALL 89031512 484960.00000 3912320.00000 573.00 573.00 0.00 17578.58594  
 4 ALL 89031512 485680.00000 3912320.00000 568.00 568.00 0.00 19338.39844  
 4 ALL 89031512 486400.00000 3913000.00000 555.00 555.00 0.00 148230.29688  
 4 ALL 89031512 487840.00000 3913680.00000 540.00 540.00 0.00 125113.36719  
 4 ALL 89031512 490720.00000 3915040.00000 513.00 513.00 0.00 8830.68262

Max43\_07.OUT

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* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*   CONC                                DEFAULT ELEV
DRYDPL WETDPL
*   MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
*   FOR SOURCE GROUP: ALL
*   FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE  GRP  DATE      X          Y          ZELEV  ZHILL  ZFLAG  AVERAGE CONC
*-----
4 ALL  89031512  482800.00000  3909600.00000  576.00  576.00  0.00  8629.44922
4 ALL  89031512  483520.00000  3910280.00000  576.00  576.00  0.00  8552.65625
4 ALL  89031512  484960.00000  3910960.00000  579.00  579.00  0.00  11210.96191
4 ALL  89031512  485680.00000  3911640.00000  572.00  572.00  0.00  18680.34961
4 ALL  89031512  486400.00000  3912320.00000  554.00  554.00  0.00  26775.13086
4 ALL  89031512  487840.00000  3913000.00000  538.00  538.00  0.00  15163.60840
4 ALL  89031512  488560.00000  3913680.00000  526.00  526.00  0.00  3492998.75000
4 ALL  89031512  489280.00000  3913680.00000  524.00  524.00  0.00  12884.40137
4 ALL  89031512  490000.00000  3914360.00000  507.00  519.00  0.00  22209.71094
4 ALL  89031512  491440.00000  3915040.00000  511.00  513.00  0.00  109022.55469

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Max44\_92.OUT

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* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*   CONC                                DEFAULT ELEV
DRYDPL WETDPL
*   MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
*   FOR SOURCE GROUP: ALL
*   FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE  GRP  DATE      X          Y          ZELEV  ZHILL  ZFLAG  AVERAGE CONC
*-----
4 ALL  89031512  483520.00000  3909600.00000  574.00  574.00  0.00  7984.57275
4 ALL  89031512  484240.00000  3910280.00000  577.00  577.00  0.00  10259.74023
4 ALL  89031512  484960.00000  3910960.00000  579.00  579.00  0.00  10488.89355
4 ALL  89031512  486400.00000  3911640.00000  560.00  560.00  0.00  12405.57031
4 ALL  89031512  487120.00000  3912320.00000  549.00  549.00  0.00  26457.68750
4 ALL  89031512  487840.00000  3913000.00000  538.00  538.00  0.00  66918.11719
4 ALL  89031512  489280.00000  3913680.00000  524.00  524.00  0.00  17966.11523
4 ALL  89031512  490720.00000  3914360.00000  524.00  524.00  0.00  15908.94531

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Max45\_31.OUT

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* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*   CONC                                DEFAULT ELEV
DRYDPL WETDPL
*   MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
*   FOR SOURCE GROUP: ALL
*   FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE  GRP  DATE      X          Y          ZELEV  ZHILL  ZFLAG  AVERAGE CONC
*-----
4 ALL  89031512  483520.00000  3909600.00000  574.00  574.00  0.00  8388.35254
4 ALL  89031512  484240.00000  3910280.00000  577.00  577.00  0.00  9367.98438
4 ALL  89031512  484960.00000  3910960.00000  579.00  579.00  0.00  7975.64453
4 ALL  89031512  485680.00000  3910960.00000  573.00  573.00  0.00  8943.51172
4 ALL  89031512  486400.00000  3911640.00000  560.00  560.00  0.00  15292.32520
4 ALL  89031512  487120.00000  3912320.00000  549.00  549.00  0.00  25194.41992
4 ALL  89031512  487840.00000  3913000.00000  538.00  538.00  0.00  32869.14062
4 ALL  89031512  488560.00000  3913000.00000  537.00  537.00  0.00  10471.47852
4 ALL  89031512  489280.00000  3913680.00000  524.00  524.00  0.00  77675.24219
4 ALL  89031512  490720.00000  3914360.00000  524.00  524.00  0.00  24342.02539

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Max46\_11.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	483520.00000	3909600.00000	574.00	574.00	0.00	7716.68604
4	ALL	89031512	484960.00000	3910280.00000	578.00	578.00	0.00	7647.89795
4	ALL	89031512	485680.00000	3910960.00000	573.00	573.00	0.00	11362.30371
4	ALL	89031512	486400.00000	3911640.00000	560.00	560.00	0.00	15217.22754
4	ALL	89031512	487120.00000	3912320.00000	549.00	549.00	0.00	18405.17383
4	ALL	89031512	487840.00000	3912320.00000	543.00	543.00	0.00	10356.05176
4	ALL	89031512	487840.00000	3913000.00000	538.00	538.00	0.00	10438.77637
4	ALL	89031512	488560.00000	3913000.00000	537.00	537.00	0.00	24298.49023
4	ALL	89031512	489280.00000	3913680.00000	524.00	524.00	0.00	142702.89062
4	ALL	89031512	490720.00000	3914360.00000	524.00	524.00	0.00	44883.89062

Max46\_38.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	484960.00000	3910280.00000	578.00	578.00	0.00	8117.72119
4	ALL	89031512	485680.00000	3910960.00000	573.00	573.00	0.00	11548.28613
4	ALL	89031512	486400.00000	3911640.00000	560.00	560.00	0.00	14373.02344
4	ALL	89031512	487120.00000	3912320.00000	549.00	549.00	0.00	13075.91797
4	ALL	89031512	487840.00000	3912320.00000	543.00	543.00	0.00	10840.06934
4	ALL	89031512	488560.00000	3913000.00000	537.00	537.00	0.00	28295.40820
4	ALL	89031512	489280.00000	3913680.00000	524.00	524.00	0.00	219682.82812
4	ALL	89031512	490000.00000	3913680.00000	521.00	521.00	0.00	9099.72168
4	ALL	89031512	490720.00000	3914360.00000	524.00	524.00	0.00	78634.44531
4	ALL	89031512	492160.00000	3915040.00000	509.00	513.00	0.00	42282.29297

Max51\_98.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)

*AVE	GRP	DATE	X	Y	ZELEV	ZHILL	ZFLAG	AVERAGE CONC
4	ALL	89031512	488560.00000	3911640.00000	537.00	537.00	0.00	9191.40918
4	ALL	89031512	489280.00000	3912320.00000	541.00	541.00	0.00	13739.10156
4	ALL	89031512	490000.00000	3913000.00000	538.00	538.00	0.00	16275.51270
4	ALL	89031512	490720.00000	3913680.00000	526.00	526.00	0.00	10120.26562
4	ALL	89031512	491440.00000	3913680.00000	521.00	521.00	0.00	13692.41699
4	ALL	89031512	492160.00000	3914360.00000	518.00	518.00	0.00	58371.20312
4	ALL	89031512	493600.00000	3915040.00000	497.00	497.00	0.00	7484.72852
4	ALL	89031512	497920.00000	3917080.00000	482.00	482.00	0.00	7511.91943

Max52\_91.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 487840.00000 3910960.00000 542.00 542.00 0.00 7613.52686  
 4 ALL 89031512 488560.00000 3911640.00000 537.00 537.00 0.00 9632.82910  
 4 ALL 89031512 489280.00000 3912320.00000 541.00 541.00 0.00 10323.42480  
 4 ALL 89031512 490720.00000 3913000.00000 525.00 525.00 0.00 12209.72559  
 4 ALL 89031512 491440.00000 3913680.00000 521.00 521.00 0.00 21513.47656  
 4 ALL 89031512 492160.00000 3914360.00000 518.00 518.00 0.00 113472.71875  
 4 ALL 89031512 492880.00000 3914360.00000 513.00 513.00 0.00 8430.23535  
 4 ALL 89031512 493600.00000 3915040.00000 497.00 497.00 0.00 109874.03906  
 4 ALL 89031512 495040.00000 3915720.00000 483.00 483.00 0.00 22059.16992

Max53\_20.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 488560.00000 3911640.00000 537.00 537.00 0.00 8267.11621  
 4 ALL 89031512 490000.00000 3912320.00000 537.00 537.00 0.00 8669.44629  
 4 ALL 89031512 490720.00000 3913000.00000 525.00 525.00 0.00 13375.22754  
 4 ALL 89031512 491440.00000 3913680.00000 521.00 521.00 0.00 20756.75586  
 4 ALL 89031512 492160.00000 3914360.00000 518.00 518.00 0.00 96332.91406  
 4 ALL 89031512 492880.00000 3914360.00000 513.00 513.00 0.00 15183.56543  
 4 ALL 89031512 493600.00000 3915040.00000 497.00 497.00 0.00 35848.56641  
 4 ALL 89031512 495040.00000 3915720.00000 483.00 483.00 0.00 36060.00781

Max55\_44.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 491440.00000 3913000.00000 513.00 513.00 0.00 10263.54688  
 4 ALL 89031512 492160.00000 3913680.00000 515.00 515.00 0.00 14832.83301  
 4 ALL 89031512 492880.00000 3914360.00000 513.00 513.00 0.00 32726.13477  
 4 ALL 89031512 493600.00000 3914360.00000 503.00 503.00 0.00 12043.51855  
 4 ALL 89031512 494320.00000 3915040.00000 483.00 483.00 0.00 31687.10938  
 4 ALL 89031512 495760.00000 3915720.00000 479.00 479.00 0.00 27405.41992  
 4 ALL 89031512 497200.00000 3916400.00000 480.00 480.00 0.00 7991.54688

Max56\_36.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 490720.00000 3912320.00000 523.00 523.00 0.00 8465.90918  
 4 ALL 89031512 491440.00000 3913000.00000 513.00 513.00 0.00 11263.53223  
 4 ALL 89031512 492160.00000 3913680.00000 515.00 515.00 0.00 12371.94824  
 4 ALL 89031512 492880.00000 3913680.00000 507.00 507.00 0.00 7642.33545  
 4 ALL 89031512 493600.00000 3914360.00000 503.00 503.00 0.00 17465.82227  
 4 ALL 89031512 494320.00000 3915040.00000 483.00 483.00 0.00 67012.50000  
 4 ALL 89031512 495760.00000 3915720.00000 479.00 479.00 0.00 33770.42578  
 4 ALL 89031512 496480.00000 3915720.00000 482.00 482.00 0.00 8051.17920  
 4 ALL 89031512 497200.00000 3916400.00000 480.00 480.00 0.00 96935.50000

Max57\_48.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 492160.00000 3913000.00000 502.00 502.00 0.00 9759.65625  
 4 ALL 89031512 492880.00000 3913680.00000 507.00 507.00 0.00 12543.20020  
 4 ALL 89031512 493600.00000 3914360.00000 503.00 503.00 0.00 14743.75781  
 4 ALL 89031512 494320.00000 3914360.00000 490.00 490.00 0.00 10472.17773  
 4 ALL 89031512 495040.00000 3915040.00000 472.00 472.00 0.00 22969.07227  
 4 ALL 89031512 496480.00000 3915720.00000 482.00 482.00 0.00 8647.72656  
 4 ALL 89031512 497200.00000 3916400.00000 480.00 480.00 0.00 9764.02637

Max58\_30.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 491440.00000 3912320.00000 505.00 509.00 0.00 7669.75049  
 4 ALL 89031512 492160.00000 3913000.00000 502.00 502.00 0.00 8885.98047  
 4 ALL 89031512 492880.00000 3913680.00000 507.00 507.00 0.00 8020.76514  
 4 ALL 89031512 493600.00000 3913680.00000 486.00 486.00 0.00 9311.26953  
 4 ALL 89031512 494320.00000 3914360.00000 490.00 490.00 0.00 14692.40332  
 4 ALL 89031512 495040.00000 3915040.00000 472.00 472.00 0.00 32889.55859  
 4 ALL 89031512 495760.00000 3915040.00000 470.00 470.00 0.00 8455.42285  
 4 ALL 89031512 496480.00000 3915720.00000 482.00 482.00 0.00 34959.58594  
 4 ALL 89031512 499360.00000 3917080.00000 471.00 471.00 0.00 13578.55176

Max62\_92.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 495760.00000 3914360.00000 475.00 475.00 0.00 8930.11816  
 4 ALL 89031512 496480.00000 3915040.00000 474.00 474.00 0.00 14716.71777  
 4 ALL 89031512 497920.00000 3915720.00000 470.00 470.00 0.00 11858.62109  
 4 ALL 89031512 498640.00000 3915720.00000 476.00 476.00 0.00 7520.93213  
 4 ALL 89031512 499360.00000 3916400.00000 476.00 476.00 0.00 9344.35547  
 4 ALL 89031512 500800.00000 3917080.00000 472.00 472.00 0.00 16675.77344

Max63\_81.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 496480.00000 3914360.00000 472.00 472.00 0.00 9717.61816  
 4 ALL 89031512 497200.00000 3915040.00000 467.00 467.00 0.00 12850.23145  
 4 ALL 89031512 497920.00000 3915720.00000 470.00 470.00 0.00 12067.77441  
 4 ALL 89031512 498640.00000 3915720.00000 476.00 476.00 0.00 10388.91797  
 4 ALL 89031512 499360.00000 3916400.00000 476.00 476.00 0.00 35113.50391  
 4 ALL 89031512 500800.00000 3917080.00000 472.00 472.00 0.00 13568.96777  
 4 ALL 89031512 502240.00000 3917760.00000 481.00 481.00 0.00 11790.91406  
 4 ALL 89031512 505120.00000 3919120.00000 479.00 479.00 0.00 11296.89941

Max64\_02.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 496480.00000 3914360.00000 472.00 472.00 0.00 8765.98438  
 4 ALL 89031512 497200.00000 3915040.00000 467.00 467.00 0.00 10550.81348  
 4 ALL 89031512 497920.00000 3915720.00000 470.00 470.00 0.00 15160.11719  
 4 ALL 89031512 498640.00000 3915720.00000 476.00 476.00 0.00 13694.40625  
 4 ALL 89031512 499360.00000 3916400.00000 476.00 476.00 0.00 68308.27344  
 4 ALL 89031512 502240.00000 3917760.00000 481.00 481.00 0.00 10036.65918

Max65\_19.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 497200.00000 3914360.00000 463.00 463.00 0.00 9572.85938  
 4 ALL 89031512 497920.00000 3915040.00000 463.00 463.00 0.00 13703.69043  
 4 ALL 89031512 498640.00000 3915720.00000 476.00 476.00 0.00 18894.71680  
 4 ALL 89031512 499360.00000 3915720.00000 471.00 471.00 0.00 9203.78027  
 4 ALL 89031512 500080.00000 3916400.00000 464.00 464.00 0.00 22471.84375  
 4 ALL 89031512 500800.00000 3917080.00000 472.00 472.00 0.00 97592.75781  
 4 ALL 89031512 501520.00000 3917080.00000 477.00 477.00 0.00 7831.57275  
 4 ALL 89031512 502240.00000 3917760.00000 481.00 481.00 0.00 8687821.00000

Max68\_33.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 499360.00000 3915040.00000 459.00 459.00 0.00 9273.73340  
 4 ALL 89031512 500080.00000 3915720.00000 460.00 460.00 0.00 13858.40527  
 4 ALL 89031512 500800.00000 3916400.00000 467.00 467.00 0.00 17257.06641  
 4 ALL 89031512 502240.00000 3917080.00000 479.00 479.00 0.00 27316.70312  
 4 ALL 89031512 503680.00000 3917760.00000 479.00 479.00 0.00 9271.34082

Max68\_95.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 498640.00000 3915040.00000 460.00 460.00 0.00 9495.63965  
 4 ALL 89031512 499360.00000 3915720.00000 471.00 471.00 0.00 9519.97949  
 4 ALL 89031512 500800.00000 3916400.00000 467.00 467.00 0.00 13615.10449  
 4 ALL 89031512 501520.00000 3917080.00000 477.00 477.00 0.00 229987.70312  
 4 ALL 89031512 502960.00000 3917760.00000 474.00 474.00 0.00 36254.55469  
 4 ALL 89031512 505840.00000 3919120.00000 473.00 473.00 0.00 37738.16016  
 4 ALL 89031512 508720.00000 3920480.00000 437.00 437.00 0.00 25772.02148  
 4 ALL 89031512 510160.00000 3921160.00000 462.00 462.00 0.00 41622.16406

Max69\_78.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 500800.00000 3915720.00000 467.00 467.00 0.00 7542.05518  
 4 ALL 89031512 502240.00000 3916400.00000 480.00 480.00 0.00 8951.48145  
 4 ALL 89031512 502960.00000 3917080.00000 465.00 465.00 0.00 19373.25977  
 4 ALL 89031512 504400.00000 3917760.00000 481.00 481.00 0.00 10739.73926  
 4 ALL 89031512 508000.00000 3919800.00000 468.00 468.00 0.00 51823.21875

Max70\_74.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 502240.00000 3916400.00000 480.00 480.00 0.00 8812.25781  
 4 ALL 89031512 502960.00000 3917080.00000 465.00 465.00 0.00 12869.08203  
 4 ALL 89031512 503680.00000 3917080.00000 475.00 475.00 0.00 8989.00293  
 4 ALL 89031512 504400.00000 3917760.00000 481.00 481.00 0.00 46108.71875  
 4 ALL 89031512 505840.00000 3918440.00000 473.00 473.00 0.00 15853.54297  
 4 ALL 89031512 507280.00000 3919120.00000 454.00 454.00 0.00 16223.72168  
 4 ALL 89031512 508720.00000 3919800.00000 443.00 443.00 0.00 24022.68164

Max71\_63.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 503680.00000 3917080.00000 475.00 475.00 0.00 7804.00537  
 4 ALL 89031512 505120.00000 3917760.00000 485.00 485.00 0.00 16768.61719  
 4 ALL 89031512 505840.00000 3918440.00000 473.00 473.00 0.00 1805134.50000  
 4 ALL 89031512 506560.00000 3918440.00000 467.00 467.00 0.00 11388.46973  
 4 ALL 89031512 507280.00000 3919120.00000 454.00 454.00 0.00 10901.75879  
 4 ALL 89031512 510160.00000 3920480.00000 436.00 436.00 0.00 864544.56250

Max74\_33.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 505840.00000 3917760.00000 476.00 476.00 0.00 12446.14941  
 4 ALL 89031512 507280.00000 3918440.00000 465.00 465.00 0.00 21023.16211  
 4 ALL 89031512 508720.00000 3919120.00000 450.00 450.00 0.00 16404.16602  
 4 ALL 89031512 510160.00000 3919800.00000 438.00 438.00 0.00 11744.03125  
 4 ALL 89031512 524560.00000 3926600.00000 546.00 546.00 0.00 8879.81348

Max74\_44.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 506560.00000 3917760.00000 465.00 465.00 0.00 11591.71973  
 4 ALL 89031512 507280.00000 3918440.00000 465.00 465.00 0.00 46142.45703  
 4 ALL 89031512 508720.00000 3919120.00000 450.00 450.00 0.00 27287.73438  
 4 ALL 89031512 510160.00000 3919800.00000 438.00 438.00 0.00 15311.60547

Max75\_00.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 505840.00000 3917080.00000 476.00 476.00 0.00 7554.77686  
 4 ALL 89031512 506560.00000 3917760.00000 465.00 465.00 0.00 7939.70459  
 4 ALL 89031512 508000.00000 3918440.00000 452.00 452.00 0.00 12513.55566  
 4 ALL 89031512 508720.00000 3919120.00000 450.00 450.00 0.00 35522.95703  
 4 ALL 89031512 510160.00000 3919800.00000 438.00 438.00 0.00 90636.86719  
 4 ALL 89031512 511600.00000 3920480.00000 461.00 461.00 0.00 34869.56641  
 4 ALL 89031512 513040.00000 3921160.00000 462.00 462.00 0.00 37079.37109  
 4 ALL 89031512 518800.00000 3923880.00000 504.00 504.00 0.00 15445.22168

Max75\_88.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 507280.00000 3917760.00000 460.00 460.00 0.00 10343.79492  
 4 ALL 89031512 508000.00000 3918440.00000 452.00 452.00 0.00 26114.39258  
 4 ALL 89031512 508720.00000 3918440.00000 452.00 452.00 0.00 7792.28174  
 4 ALL 89031512 509440.00000 3919120.00000 441.00 441.00 0.00 23341.13867  
 4 ALL 89031512 510880.00000 3919800.00000 438.00 438.00 0.00 8237.57520  
 4 ALL 89031512 512320.00000 3920480.00000 441.00 441.00 0.00 8105.33594

Max76\_86.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 508720.00000 3918440.00000 452.00 452.00 0.00 11297.00879  
 4 ALL 89031512 510880.00000 3919800.00000 438.00 438.00 0.00 32181.36719  
 4 ALL 89031512 513760.00000 3921160.00000 469.00 469.00 0.00 9725.57715  
 4 ALL 89031512 520960.00000 3924560.00000 522.00 522.00 0.00 43795.08203

Max80\_44.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 511600.00000 3919120.00000 437.00 437.00 0.00 7519.35205  
 4 ALL 89031512 513040.00000 3919800.00000 465.00 465.00 0.00 13052.61719  
 4 ALL 89031512 514480.00000 3920480.00000 452.00 464.00 0.00 9157.62891

Max80\_64.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 510880.00000 3918440.00000 443.00 443.00 0.00 7487.99951  
 4 ALL 89031512 513040.00000 3919800.00000 465.00 465.00 0.00 24065.45508  
 4 ALL 89031512 515920.00000 3921160.00000 478.00 478.00 0.00 9048.17188  
 4 ALL 89031512 517360.00000 3921840.00000 491.00 491.00 0.00 7609.67334

Max80\_73.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 511600.00000 3919120.00000 437.00 437.00 0.00 18813.69727  
 4 ALL 89031512 512320.00000 3919120.00000 443.00 443.00 0.00 10087.50684  
 4 ALL 89031512 513040.00000 3919800.00000 465.00 465.00 0.00 24981.79492  
 4 ALL 89031512 514480.00000 3920480.00000 452.00 464.00 0.00 19197.28906  
 4 ALL 89031512 515920.00000 3921160.00000 478.00 478.00 0.00 11382.42676

Max81\_13.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 513760.00000 3919800.00000 463.00 463.00 0.00 9447.06738  
 4 ALL 89031512 514480.00000 3920480.00000 452.00 464.00 0.00 37539.89844  
 4 ALL 89031512 515920.00000 3921160.00000 478.00 478.00 0.00 26267.39844  
 4 ALL 89031512 517360.00000 3921840.00000 491.00 491.00 0.00 10967.08496  
 4 ALL 89031512 518800.00000 3922520.00000 516.00 516.00 0.00 9357.21387  
 4 ALL 89031512 533200.00000 3929320.00000 502.00 502.00 0.00 93231.34375

Max81\_16.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 513760.00000 3919800.00000 463.00 463.00 0.00 9319.82812  
 4 ALL 89031512 514480.00000 3920480.00000 452.00 464.00 0.00 49601.03125  
 4 ALL 89031512 515920.00000 3921160.00000 478.00 478.00 0.00 40796.67188  
 4 ALL 89031512 517360.00000 3921840.00000 491.00 491.00 0.00 33528.83203  
 4 ALL 89031512 520240.00000 3923200.00000 512.00 512.00 0.00 13584.90332

Max83\_80.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 514480.00000 3919800.00000 458.00 458.00 0.00 18591.33203  
 4 ALL 89031512 515920.00000 3920480.00000 478.00 478.00 0.00 20707.03125  
 4 ALL 89031512 516640.00000 3920480.00000 482.00 482.00 0.00 7779.10400  
 4 ALL 89031512 517360.00000 3921160.00000 494.00 494.00 0.00 24424.52344  
 4 ALL 89031512 518800.00000 3921840.00000 507.00 507.00 0.00 21839.92578  
 4 ALL 89031512 521680.00000 3923200.00000 516.00 516.00 0.00 8583.77930

Max86\_78.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 519520.00000 3921160.00000 513.00 513.00 0.00 10748.73145  
 4 ALL 89031512 520240.00000 3921840.00000 506.00 506.00 0.00 112348.58594  
 4 ALL 89031512 521680.00000 3922520.00000 522.00 522.00 0.00 14129.96387  
 4 ALL 89031512 523120.00000 3923200.00000 518.00 518.00 0.00 36304.96484  
 4 ALL 89031512 524560.00000 3923880.00000 518.00 518.00 0.00 27389.32227  
 4 ALL 89031512 527440.00000 3925240.00000 532.00 532.00 0.00 18480.64844  
 4 ALL 89031512 534640.00000 3928640.00000 499.00 499.00 0.00 15824.04004



Max90\_43.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 525280.00000 3923200.00000 510.00 510.00 0.00 17198.54102  
 4 ALL 89031512 526720.00000 3923880.00000 521.00 521.00 0.00 264376.68750  
 4 ALL 89031512 528160.00000 3924560.00000 519.00 519.00 0.00 110711.68750  
 4 ALL 89031512 529600.00000 3925240.00000 544.00 544.00 0.00 83331.44531  
 4 ALL 89031512 536800.00000 3928640.00000 499.00 499.00 0.00 73407.33594  
 4 ALL 89031512 538240.00000 3929320.00000 500.00 500.00 0.00 99471.71094

Max91\_18.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 526000.00000 3923200.00000 516.00 516.00 0.00 19638.07617  
 4 ALL 89031512 527440.00000 3923880.00000 510.00 511.00 0.00 29251.04492  
 4 ALL 89031512 528880.00000 3924560.00000 528.00 528.00 0.00 12202.74219  
 4 ALL 89031512 530320.00000 3925240.00000 554.00 554.00 0.00 9386.95410  
 4 ALL 89031512 534640.00000 3927280.00000 512.00 512.00 0.00 10955.54980  
 4 ALL 89031512 538960.00000 3929320.00000 492.00 492.00 0.00 8327.12793

Max92\_15.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 528160.00000 3923880.00000 527.00 527.00 0.00 18473.26953  
 4 ALL 89031512 529600.00000 3924560.00000 540.00 540.00 0.00 12216.95801  
 4 ALL 89031512 531040.00000 3925240.00000 549.00 549.00 0.00 15415.31348

Max95\_38.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 531760.00000 3924560.00000 517.00 525.00 0.00 15876.18262  
 4 ALL 89031512 533200.00000 3925240.00000 529.00 529.00 0.00 12461.43848  
 4 ALL 89031512 534640.00000 3925920.00000 519.00 519.00 0.00 9253.13184  
 4 ALL 89031512 536080.00000 3926600.00000 514.00 514.00 0.00 22448.99414  
 4 ALL 89031512 537520.00000 3927280.00000 512.00 512.00 0.00 9414.96094  
 4 ALL 89031512 541840.00000 3929320.00000 486.00 486.00 0.00 7599.60742

Max97\_54.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 534640.00000 3925240.00000 518.00 518.00 0.00 12701.00391  
 4 ALL 89031512 536080.00000 3925920.00000 515.00 515.00 0.00 38720.62109  
 4 ALL 89031512 537520.00000 3926600.00000 511.00 511.00 0.00 40225.98828  
 4 ALL 89031512 541840.00000 3928640.00000 490.00 490.00 0.00 16704.91602  
 4 ALL 89031512 543280.00000 3929320.00000 486.00 486.00 0.00 28681.65039  
 4 ALL 89031512 547600.00000 3931360.00000 477.00 477.00 0.00 18723.16992  
 4 ALL 89031512 549040.00000 3932040.00000 482.00 482.00 0.00 14142.33203

Max100\_12.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 538240.00000 3925920.00000 507.00 507.00 0.00 14401.71582  
 4 ALL 89031512 541120.00000 3927280.00000 490.00 490.00 0.00 21119.64648  
 4 ALL 89031512 542560.00000 3927960.00000 495.00 495.00 0.00 17607.50195  
 4 ALL 89031512 545440.00000 3929320.00000 465.00 477.00 0.00 10833.78125  
 4 ALL 89031512 549760.00000 3931360.00000 484.00 484.00 0.00 9072.28320  
 4 ALL 89031512 552640.00000 3932720.00000 464.00 464.00 0.00 10184.12402

Max101\_1.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 541840.00000 3927280.00000 497.00 497.00 0.00 133143.60938  
 4 ALL 89031512 543280.00000 3927960.00000 499.00 499.00 0.00 23592.46094  
 4 ALL 89031512 544720.00000 3928640.00000 487.00 487.00 0.00 23288.63477

Max103\_09.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 \_\_\_\_\_  
 \_\_\_\_\_

Max103\_84.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 549040.00000 3929320.00000 492.00 492.00 0.00 8865.08594  
 4 ALL 89031512 551200.00000 3930680.00000 459.00 467.00 0.00 12504.16504  
 4 ALL 89031512 552640.00000 3931360.00000 465.00 465.00 0.00 84668.53906  
 4 ALL 89031512 555520.00000 3932720.00000 461.00 461.00 0.00 21445.20117

Max105\_64.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 549040.00000 3928640.00000 494.00 494.00 0.00 9763.57520  
 4 ALL 89031512 551920.00000 3930000.00000 464.00 475.00 0.00 13494.55469

Max106\_48.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 551200.00000 3929320.00000 481.00 481.00 0.00 12746.70312  
 4 ALL 89031512 552640.00000 3930000.00000 475.00 475.00 0.00 13796.09863

Max107\_35.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 551920.00000 3929320.00000 481.00 481.00 0.00 28837.49023  
 4 ALL 89031512 554800.00000 3930680.00000 478.00 478.00 0.00 9807.96387  
 4 ALL 89031512 563440.00000 3934760.00000 445.00 465.00 0.00 7672.18115

Max109\_18.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 559120.00000 3932040.00000 464.00 464.00 0.00 13063.07129  
 4 ALL 89031512 564880.00000 3934760.00000 479.00 482.00 0.00 9309.57129  
 4 ALL 89031512 569200.00000 3936800.00000 468.00 468.00 0.00 46744.21484  
 4 ALL 89031512 572080.00000 3938160.00000 469.00 469.00 0.00 932308.00000

Max111\_15.OUT

\* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation  
 \* MODELING OPTIONS USED:  
 \* CONC DEFAULT ELEV  
 DRYDPL WETDPL  
 \* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.  
 \* FOR SOURCE GROUP: ALL  
 \* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)  
 \*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC  
 \*  
 4 ALL 89031512 561280.00000 3932040.00000 439.00 443.00 0.00 118904.53125  
 4 ALL 89031512 565600.00000 3934080.00000 458.00 458.00 0.00 16119.40527  
 4 ALL 89031512 567040.00000 3934760.00000 441.00 441.00 0.00 22972.11523  
 4 ALL 89031512 568480.00000 3935440.00000 462.00 463.00 0.00 9599.63672  
 4 ALL 89031512 585760.00000 3943600.00000 435.00 435.00 0.00 32269.46289

Max113\_57.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*

```

Max116\_22.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*

```

Max118\_95.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*
4 ALL 89031512 580000.00000 3936800.00000 424.00 424.00 0.00 7726.93750

```

Max119\_04.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*
4 ALL 89031512 591520.00000 3942240.00000 413.00 413.00 0.00 7938.75244

```

Max119\_33.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*
4 ALL 89031512 587200.00000 3940200.00000 407.00 407.00 0.00 3599787.00000

```

Max121\_05.OUT

```

* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*
4 ALL 89031512 585040.00000 3938160.00000 411.00 411.00 0.00 29558.05664
4 ALL 89031512 586480.00000 3938840.00000 408.00 408.00 0.00 21044.97070
4 ALL 89031512 587920.00000 3939520.00000 407.00 407.00 0.00 9949.85449

```

```

Max122_05.OUT
* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*

```

```

Max124_36.OUT
* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*

```

```

Max124_59.OUT
* AERMOD (06341): Effects of Space Shuttle Breakup before Booster Separation
* MODELING OPTIONS USED:
* CONC DFAULT ELEV
DRYDPL WETDPL
* MAXI-FILE FOR 4-HR VALUES >= A THRESHOLD OF 7460.
* FOR SOURCE GROUP: ALL
* FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE GRP DATE X Y ZELEV ZHILL ZFLAG AVERAGE CONC
*

```

## C.4 Gas Modeling Inputs (AERMET)

### AERMET 1<sup>st</sup> Input File: Okla\_S1.INP

JOB	
REPORT	Okla_S1.RPT
MESSAGES	Okla_S1.MSG
UPPERAIR	
DATA	13967_89.UA 6201FB 1
EXTRACT	Okla_UA.IQA
QAOUT	Okla_UA.OQA
XDATES	89/1/1 TO 89/12/31
LOCATION	00013967 97.60W 35.389N 6
AUDIT	UATT UAWS UALR
SURFACE	
DATA	13967_89.sam SAMSON 1
EXTRACT	Okla_SF.IQA
QAOUT	Okla_SF.OQA
XDATES	89/1/1 TO 89/12/31
LOCATION	13967 97.600W 35.389N 6

AERMET 2<sup>nd</sup> Input File: Okla\_S2.INP

JOB		
REPORT	Okla_S2.RPT	
MESSAGES	Okla_S2.MSG	
UPPERAIR		
QAOUT	Okla_UA.OQA	
SURFACE		
QAOUT	Okla_SF.OQA	
MERGE		
OUTPUT	Okla_MR.MET	
XDATES	89/3/15 TO 89/3/15	

AERMET 3<sup>rd</sup> Input File: Okla\_S3.INP

JOB		
REPORT	Okla_S3.RPT	
MESSAGES	Okla_S3.MSG	
METPREP		
DATA	Okla_MR.MET	
OUTPUT	Okla_MP.SFC	
PROFILE	Okla_MP.PFL	
LOCATION	Clinton 99.20W 35.34N 6	
METHOD	REFLEVEL SUBNWS	
METHOD	WIND_DIR RANDOM	
NWS_HGT	WIND 6.1	
FREQ_SECT	ANNUAL 1	
SECTOR	1 0 360	
SITE_CHAR	1 1 0.15 2.0 0.12	

## C.5 Gas Modeling Inputs (AERMAP)

AERMAP input file and summary file

\*\* AERMAP - VERSION 06341

\*\*

CO STARTING

TITLEONE Terrain and Receptor data for Oklahoma Experiment

TERRHGTS EXTRACT

DATATYPE DEM7

DATAFILE Bridgeport.dem

DATAFILE Greenfield.dem

DATAFILE EaklyNE.dem

DATAFILE SquawCreek.dem

DATAFILE EagleCity.dem

DATAFILE Hitchcock.dem

DATAFILE Watonga.dem

DATAFILE WatongaLake.dem

DATAFILE GearyNorth.dem

DATAFILE Hydro.dem

DATAFILE GearySouth.dem

DATAFILE OakwoodSE.dem

DATAFILE WatongaSE.dem

DATAFILE Aledo.dem

DATAFILE Clinton.dem

DATAFILE FossDam.dem

DATAFILE Putnam.dem

DATAFILE Weatherford.dem

DATAFILE Anthon.dem

DATAFILE RockMary.dem

DATAFILE ClintonNE.dem

DATAFILE Indianapolis.dem

DATAFILE Rhea.dem

DATAFILE WeatherfordNW.dem

DATAFILE Butler.dem

DATAFILE CusterCity.dem

DATAFILE Leedey.dem

DATAFILE RoughCreek.dem

DATAFILE Carpenter.dem

DATAFILE Fay.dem

DATAFILE McClure.dem

DATAFILE Stafford.dem

DATAFILE Cole.dem

DATAFILE Washington.dem

DATAFILE Newcastle.dem

DATAFILE Norman.dem

DATAFILE Alfalfa.dem

DATAFILE Eakly.dem

DATAFILE Hinton.dem

DATAFILE AnadarkoNW.dem

DATAFILE Binger.dem

DATAFILE FortCoddDam.dem

DATAFILE Sickles.dem

DATAFILE Cogar.dem

DATAFILE Gracemont.dem



DATAFILE AnadarkoNE.dem  
DATAFILE CogarSE.dem  
DATAFILE Pocasset.dem  
DATAFILE Blanchard.dem  
DATAFILE Dibble.dem  
DATAFILE Tabler.dem  
DATAFILE Chickasha.dem  
DATAFILE Minco.dem  
DATAFILE Tuttle.dem  
DATAFILE ChickashaNE.dem  
DATAFILE OklahomaCitySW.dem  
DATAFILE Verden.dem  
DATAFILE Arcadia.dem  
DATAFILE Edmond.dem  
DATAFILE Luther.dem  
DATAFILE BethanyNE.dem  
DATAFILE Harrah.dem  
DATAFILE MidwestCity.dem  
DATAFILE Britton.dem  
DATAFILE HorseshoeLake.dem  
DATAFILE OklahomaCity.dem  
DATAFILE Choctaw.dem  
DATAFILE Jones.dem  
DATAFILE Spencer.dem  
DATAFILE Bethany.dem  
DATAFILE ElRenoNE.dem  
DATAFILE MincoNE.dem  
DATAFILE PorcupineButte.dem  
DATAFILE CogarNE.dem  
DATAFILE FortReno.dem  
DATAFILE Mustang.dem  
DATAFILE Richland.dem  
DATAFILE CogarNW.dem  
DATAFILE FortRenoNE.dem  
DATAFILE Okarche.dem  
DATAFILE UnionCity.dem  
DATAFILE ElReno.dem  
DATAFILE FortRenoSW.dem  
DATAFILE Piedmont.dem  
DATAFILE Cashion.dem  
DATAFILE KingfisherSE.dem  
DATAFILE Omega.dem  
DATAFILE Dover.dem  
DATAFILE Loyal.dem  
DATAFILE Kingfisher.dem  
DATAFILE LoyalNW.dem  
DATAFILE KingfisherNE.dem  
DATAFILE LoyalSE.dem  
DATAFILE Bessie.dem  
DATAFILE Cordell.dem  
DATAFILE DillCity.dem  
DATAFILE Foss.dem  
DATAFILE Rocky.dem  
DATAFILE Canute.dem  
DATAFILE Corn.dem  
DATAFILE DillCityNE.dem

DATAFILE GoteboNW.dem  
DATAFILE Sentinel.dem  
DATAFILE CloudChief.dem  
DATAFILE Cowden.dem  
DATAFILE DillCitySE.dem  
DATAFILE LakeValley.dem  
DATAFILE Colony.dem  
DATAFILE CrowderLake.dem  
DATAFILE ElkCitySE.dem  
DATAFILE Retrop.dem  
DATAFILE Denver.dem  
DATAFILE Moore.dem  
DATAFILE Stella.dem  
DATAFILE Eason.dem  
DATAFILE OklahomaCitySE.dem  
DATAFILE Franklin.dem  
DATAFILE LittleAxe.dem  
DATAFILE Purcell.dem  
DATAFILE Coyle.dem  
DATAFILE GuthrieSE.dem  
DATAFILE Navina.dem  
DATAFILE Crescent.dem  
DATAFILE GuthrieSouth.dem  
DATAFILE CrescentNW.dem  
DATAFILE Langston.dem  
DATAFILE GuthrieNorth.dem  
DATAFILE Meridian.dem  
DOMAINXY 470000.0 3895000.0 14 660000.0 3965000.0 14  
ANCHORXY 565000.0 3930000.0 565000 3930000 14 1  
RUNORNOT RUN  
CO FINISHED

SO STARTING  
LOCATION SOURCE POINT 483721.74 3907288.67  
SO FINISHED

RE STARTING  
GRIDCART CART0 STA  
XYINC 472000 50 720 3896000 50 680  
END  
CART1 STA  
XYINC 508000 50 720 3896000 50 680  
END  
CART2 STA  
XYINC 544000 50 720 3896000 50 680  
END  
CART3 STA  
XYINC 580000 50 720 3896000 50 680  
END  
CART4 STA  
XYINC 616000 50 720 3896000 50 680  
END  
CART5 STA  
XYINC 472000 50 720 3930000 50 680  
END  
CART6 STA

XYINC 508000 50 720 3930000 50 680  
END  
CART7 STA  
XYINC 544000 50 720 3930000 50 680  
END  
CART8 STA  
XYINC 580000 50 720 3930000 50 680  
END  
CART9 STA  
XYINC 616000 50 720 3930000 50 680  
END  
RE FINISHED

OU STARTING  
RECEPTOR AERMAP.REC  
SOURCLOC AERMAP.SRC  
OU FINISHED

Default Data Grids  
# AREA NAME

- 
- 1 Conus
  - 2 Hawaii
  - 3 P.R. and V.I.
  - 4 St. Laurence I.
  - 5 St. George I.
  - 6 St. Paul I.
  - 7 Alaska

Finished Reading Input DEM Data

\*\*\*\*\*  
\*\*\* SETUP Finishes Successfully \*\*\*  
\*\*\*\*\*

1 \*\*\* AERMAP - VERSION 06341 \*\*\* \*\*\* Terrain and Receptor data for Oklahoma Experiment \*\*\*  
01/23/07  
\*\*\* 16:03:18

\*\*\* AERMAP SETUP OPTIONS SUMMARY \*\*\*

---

\*\*This Run Includes: 128 7.5-Minute DEM Files

\*\*This Run Includes: 25000 Receptor(s); and 1 Source(s)

\*\*The Input Receptors and Sources Were Assigned a NADA Value of 1: North American Datum of 1927

\*\*The Input Receptors and Sources Are Offset: 0.00 meters East; 0.00 meters North  
from the User-specified Anchor Point at: 565000.00 meters East; 3930000.00 meters North; Zone 14

\*\*Terrain heights were extracted from DEM data

\*\*The Following Debug Output Files Have Been Automatically Generated:

DOMDETAIL.OUT - Details of User-specified Domain and Relation to DEM Files

MAPDETAIL.OUT - Details Regarding Input DEM Files

MAPPARAMS.OUT - Summary of DEM File Parameters and DEM File Adjacency

1 \*\*\* AERMAP - VERSION 06341 \*\*\* \*\*\* Terrain and Receptor data for Oklahoma Experiment \*\*\*  
01/23/07

\*\*\*

\*\*\*

16:03:18

\*\*\* Message Summary For AERMAP Execution \*\*\*

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)  
A Total of 0 Warning Message(s)  
A Total of 0 Informational Message(s)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\*  
\*\*\* AERMAP Finishes Successfully \*\*\*  
\*\*\*\*\*

## **APPENDIX D    BLAST MODELING OUTPUTS**

Note: Blast Output file: A breakup at the launch pad ( $t = 0$  second) results in a blast radius of approximately 290 meters, as mentioned in Section 6.3.

Time (s)	Blast Radius (m)	Time (s)	Blast Radius (m)
9.32	195.31	64.02	0.00
9.77	163.94	65.19	0.00
16.03	0.00	68.33	0.00
19.21	0.00	68.95	0.00
20.99	0.00	69.78	0.00
21.03	0.00	70.74	0.00
21.81	0.00	71.63	0.00
22.49	0.00	74.33	0.00
25.50	0.00	74.44	0.00
27.62	0.00	75.00	0.00
27.98	0.00	75.88	0.00
28.03	0.00	76.86	0.00
28.64	0.00	80.44	0.00
28.71	0.00	80.64	0.00
29.20	0.00	80.73	0.00
29.92	0.00	80.79	0.00
29.94	0.00	81.13	0.00
30.70	0.00	81.16	0.00
31.97	0.00	83.80	0.00
32.97	0.00	86.78	0.00
33.92	0.00	90.43	0.00
35.26	0.00	91.18	0.00
35.55	0.00	92.15	0.00
36.41	0.00	95.38	0.00
36.56	0.00	97.54	0.00
36.65	0.00	100.12	0.00
36.68	0.00	101.10	0.00
37.32	0.00	103.09	0.00
37.37	0.00	103.84	0.00
38.05	0.00	105.64	0.00
43.07	0.00	106.48	0.00
44.92	0.00	107.35	0.00
45.31	0.00	109.18	0.00
46.11	0.00	111.15	0.00
46.38	0.00	113.57	0.00
51.98	0.00	116.22	0.00
52.91	0.00	116.66	0.00
53.20	0.00	118.95	0.00
55.44	0.00	119.04	0.00
56.36	0.00	119.33	0.00
57.48	0.00	121.05	0.00
58.30	0.00	122.05	0.00
62.92	0.00	124.36	0.00
63.81	0.00	124.59	0.00

## **APPENDIX E    EXPERIMENT INPUTS AND OUTPUTS**

## E.1 CCD Casualties Distribution

### CCD: Northeast Washita

Debris		
0	1	0.99999939675721
1	2	0.00000060324185
2	3	0.00000000000094
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

Gas		
0	1	0.81818
1	5	0.02273
5	10	0.05682
10	20	0.09091
20	30	0.00000
30	40	0.01136

### CCD: Northwest Washita

Debris		
0	1	0.74823953457500
1	2	0.03220995443153
2	3	0.01798450660579
3	4	0.01186182007568
4	5	0.00839589460036
5	6	0.00599040573373
6	7	0.00428165588537
7	8	0.00323549410608
8	9	0.00274481155503
9	10	0.00261361588884
10	20	0.02552789663583
20	40	0.03449168879843
40	100	0.06277971800950
100	500	0.03964300309883
500	501	0.00000000000000

Gas		
0	1	0.55682
1	10	0.06818
10	50	0.00000
50	100	0.05682
100	200	0.09091
200	500	0.04545
500	800	0.10227
800	1100	0.01136
1100	1300	0.06818

Blast		
0	1	0.96591
1	10	0.01136
10	20	0.02273



CCD: Binger-Hinton

Debris

0	1	0.99999993935372
1	2	0.00000006064627
2	3	0.00000000000001
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

Gas

0	1	0.93182
1	10	0.01136
10	15	0.03409
15	20	0.02273
20	30	0.00000

CCD: El Reno

Debris

0	1	0.99999971281266
1	2	0.00000028718671
2	3	0.00000000000063
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

Gas

0	1	0.96591
1	2	0.02273
2	5	0.01136

CCD: Hydro

Debris

0	1	0.99999999135992
1	2	0.00000000864008
2	3	0.000000000000000
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

Gas

0	1	0.94318
1	5	0.03409
5	10	0.01136
10	15	0.01136
15	20	0.00000

CCD: Southeast Washita

Debris

0	1	0.99999999650094
1	2	0.00000000349906
2	3	0.000000000000000
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

Gas

0	1	0.95455
1	5	0.01136
5	10	0.03409

CCD: West Canadian

Debris

0	1	0.99999985616171
1	2	0.00000014383822
2	3	0.000000000000006
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

Gas

0	1	0.95455
1	5	0.01136
5	10	0.02273
10	16	0.01136

CCD: Weatherford

Debris

0	1	0.99999999360354
1	2	0.00000000639646
2	3	0.000000000000000
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

Gas

0	1	0.95455
1	5	0.04545
5	10	0.00000

CCD: Guthrie – Debris

0	1	0.99999893808249
1	2	0.00000106189482
2	3	0.00000000002270
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

CCD: Geary – Debris

0	1	0.99999999997916
1	2	0.00000000002084
2	3	0.00000000000000
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

CCD: East Canadian – Debris

0	1	0.99999962250015
1	2	0.00000037749669
2	3	0.000000000000316
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

CCD: Oklahoma – Debris

0	1	0.99999974988834
1	2	0.00000025011066
2	3	0.000000000000100
3	4	0.00000000000000
4	5	0.00000000000000
5	6	0.00000000000000
6	7	0.00000000000000
7	8	0.00000000000000
8	9	0.00000000000000
9	10	0.00000000000000
10	20	0.00000000000000
20	40	0.00000000000000
40	100	0.00000000000000
100	500	0.00000000000000
500	501	0.00000000000000

CCD: Okarche-Cashion – Debris

0	1	0.999999999996361
1	2	0.00000000003640
2	3	0.000000000000000
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

CCD: Walnut – Debris

0	1	0.99999998995243
1	2	0.0000001004757
2	3	0.000000000000000
3	4	0.000000000000000
4	5	0.000000000000000
5	6	0.000000000000000
6	7	0.000000000000000
7	8	0.000000000000000
8	9	0.000000000000000
9	10	0.000000000000000
10	20	0.000000000000000
20	40	0.000000000000000
40	100	0.000000000000000
100	500	0.000000000000000
500	501	0.000000000000000

## E.2 CCD Data for Matched-Pairs Tests

Probabilities of Observing at Least 1 Casualty in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.068180	1.000000	0.534090	0.068180	0.000000	0.068180	0.000000
Hydro	0.056820	1.000000	0.528410	0.056820	0.000000	0.056810	0.000000
NE Washita	0.181819	0.999999	0.590909	0.181821	0.000001	0.181820	0.000000
NW Washita	0.443180	1.000000	0.721590	0.597568	0.251760	0.443170	0.034090
SE Washita	0.045450	1.000000	0.522725	0.045450	0.000000	0.045450	0.000000
W Canadian	0.045450	1.000000	0.522725	0.045450	0.000000	0.045450	0.000000
El Reno	0.034090	1.000000	0.517045	0.034090	0.000000	0.034090	0.000000
Weatherford	0.045450	1.000000	0.522725	0.045450	0.000000	0.045450	0.000000

Probabilities of Observing Less than 1 Casualty in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.943180	0.471590	0.931820	1.000000	0.931820	1.000000
Hydro	0.000000	0.977270	0.488635	0.943180	1.000000	0.943180	1.000000
NE Washita	0.000000	0.840910	0.420455	0.818180	0.999999	0.818180	1.000000
NW Washita	0.000000	0.625000	0.312500	0.402432	0.748240	0.556820	0.965910
SE Washita	0.000000	0.965910	0.482955	0.954550	1.000000	0.954550	1.000000
W Canadian	0.000000	0.965910	0.482955	0.954550	1.000000	0.954550	1.000000
El Reno	0.000000	0.988640	0.494320	0.965910	1.000000	0.965910	1.000000
Weatherford	0.000000	1.000000	0.500000	0.954550	1.000000	0.954550	1.000000

Probabilities of Observing at Least 2 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.022730	0.056820	0.039775	0.022730	0.000000	0.056810	0.000000
NE Washita	0.159089	0.181820	0.170455	0.159090	0.000000	0.181820	0.000000
NW Washita	0.375000	1.000000	0.687500	0.526236	0.219551	0.443170	0.034090
SE Washita	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
W Canadian	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
El Reno	0.011360	0.034090	0.022725	0.011360	0.000000	0.011360	0.000000
Weatherford	0.000000	0.045450	0.022725	0.000000	0.000000	0.045450	0.000000

Probabilities of Observing Less than 2 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.943180	0.977270	0.960225	0.977270	1.000000	0.943180	1.000000
NE Washita	0.818179	0.840910	0.829545	0.840910	1.000000	0.818180	1.000000
NW Washita	0.000000	0.625000	0.312500	0.473764	0.780449	0.556820	0.965910
SE Washita	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
W Canadian	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
El Reno	0.965910	1.000000	0.982955	0.988640	1.000000	0.988640	1.000000
Weatherford	0.954550	1.000000	0.977275	1.000000	1.000000	0.954550	1.000000

Probabilities of Observing at Least 3 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.022730	0.056820	0.039775	0.022730	0.000000	0.056810	0.000000
NE Washita	0.159089	0.181819	0.170454	0.159090	0.000000	0.181820	0.000000
NW Washita	0.375000	0.729030	0.552015	0.513659	0.201566	0.443170	0.034090
SE Washita	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
W Canadian	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
El Reno	0.000000	0.011360	0.005680	0.000000	0.000000	0.011360	0.000000
Weatherford	0.000000	0.045450	0.022725	0.000000	0.000000	0.045450	0.000000

Probabilities of Observing Less than 3 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.943180	0.977270	0.960225	0.977270	1.000000	0.943180	1.000000
NE Washita	0.818180	0.840910	0.829545	0.840910	1.000000	0.818180	1.000000
NW Washita	0.270970	0.625000	0.447985	0.486341	0.798434	0.556820	0.965910
SE Washita	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
W Canadian	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
El Reno	0.988640	1.000000	0.994320	1.000000	1.000000	0.988640	1.000000
Weatherford	0.954550	1.000000	0.977275	1.000000	1.000000	0.954550	1.000000

Probabilities of Observing at Least 4 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.022730	0.056820	0.039775	0.022730	0.000000	0.056810	0.000000
NE Washita	0.159089	0.181819	0.170454	0.159090	0.000000	0.181820	0.000000
NW Washita	0.375000	0.696820	0.535910	0.505956	0.189704	0.443170	0.034090
SE Washita	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
W Canadian	0.034090	0.045450	0.039770	0.034090	0.000000	0.045450	0.000000
El Reno	0.000000	0.011360	0.005680	0.000000	0.000000	0.011360	0.000000
Weatherford	0.000000	0.045450	0.022725	0.000000	0.000000	0.045450	0.000000

Probabilities of Observing Less than 4 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.943180	0.977270	0.960225	0.977270	1.000000	0.943180	1.000000
NE Washita	0.818180	0.840910	0.829545	0.840910	1.000000	0.818180	1.000000
NW Washita	0.303180	0.625000	0.464090	0.494044	0.810296	0.556820	0.965910
SE Washita	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
W Canadian	0.954550	0.965910	0.960230	0.965910	1.000000	0.954550	1.000000
El Reno	0.988640	1.000000	0.994320	1.000000	1.000000	0.988640	1.000000
Weatherford	0.954550	1.000000	0.977275	1.000000	1.000000	0.954550	1.000000

Probabilities of Observing at Least 5 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.022730	0.056820	0.039775	0.022730	0.000000	0.022720	0.000000
NE Washita	0.159089	0.181819	0.170454	0.159090	0.000000	0.159090	0.000000
NW Washita	0.375000	0.678836	0.526918	0.500570	0.181308	0.443170	0.034090
SE Washita	0.034090	0.045450	0.039770	0.034090	0.000000	0.034090	0.000000
W Canadian	0.034090	0.045450	0.039770	0.034090	0.000000	0.034090	0.000000
El Reno	0.000000	0.011360	0.005680	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.045450	0.022725	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 5 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.943180	0.988630	0.965905	0.977270	1.000000	0.977270	1.000000
NE Washita	0.818180	0.897730	0.857955	0.840910	1.000000	0.840910	1.000000
NW Washita	0.321164	0.625000	0.473082	0.499430	0.818692	0.556820	0.965910
SE Washita	0.954550	1.000000	0.977275	0.965910	1.000000	0.965910	1.000000
W Canadian	0.954550	0.988640	0.971595	0.965910	1.000000	0.965910	1.000000
El Reno	0.988640	1.000000	0.994320	1.000000	1.000000	1.000000	1.000000
Weatherford	0.954550	1.000000	0.977275	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 6 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.011370	0.022730	0.017050	0.011370	0.000000	0.022720	0.000000
NE Washita	0.102269	0.159090	0.130680	0.102270	0.000000	0.159090	0.000000
NW Washita	0.375000	0.666974	0.520987	0.496733	0.175318	0.443170	0.034090
SE Washita	0.000000	0.034090	0.017045	0.000000	0.000000	0.034090	0.000000
W Canadian	0.011360	0.034090	0.022725	0.011360	0.000000	0.034090	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 6 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.977270	0.988630	0.982950	0.988630	1.000000	0.977270	1.000000
NE Washita	0.840909	0.897730	0.869320	0.897730	1.000000	0.840910	1.000000
NW Washita	0.333026	0.625000	0.479013	0.503267	0.824682	0.556820	0.965910
SE Washita	0.965910	1.000000	0.982955	1.000000	1.000000	0.965910	1.000000
W Canadian	0.965910	0.988640	0.977275	0.988640	1.000000	0.965910	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000



Probabilities of Observing at Least 7 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.011370	0.022730	0.017050	0.011370	0.000000	0.022720	0.000000
NE Washita	0.102269	0.159089	0.130679	0.102270	0.000000	0.159090	0.000000
NW Washita	0.375000	0.658578	0.516789	0.493991	0.171036	0.443170	0.034090
SE Washita	0.000000	0.034090	0.017045	0.000000	0.000000	0.034090	0.000000
W Canadian	0.011360	0.034090	0.022725	0.011360	0.000000	0.034090	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 7 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.977270	0.988630	0.982950	0.988630	1.000000	0.977270	1.000000
NE Washita	0.840910	0.897730	0.869320	0.897730	1.000000	0.840910	1.000000
NW Washita	0.341422	0.625000	0.483211	0.506009	0.828964	0.556820	0.965910
SE Washita	0.965910	1.000000	0.982955	1.000000	1.000000	0.965910	1.000000
W Canadian	0.965910	0.988640	0.977275	0.988640	1.000000	0.965910	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 8 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.011370	0.022730	0.017050	0.011370	0.000000	0.022720	0.000000
NE Washita	0.102269	0.159089	0.130679	0.102270	0.000000	0.159090	0.000000
NW Washita	0.375000	0.652588	0.513794	0.491937	0.167801	0.443170	0.034090
SE Washita	0.000000	0.034090	0.017045	0.000000	0.000000	0.034090	0.000000
W Canadian	0.011360	0.034090	0.022725	0.011360	0.000000	0.034090	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 8 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.977270	0.988630	0.982950	0.988630	1.000000	0.977270	1.000000
NE Washita	0.840910	0.897730	0.869320	0.897730	1.000000	0.840910	1.000000
NW Washita	0.347412	0.625000	0.486206	0.508063	0.832199	0.556820	0.965910
SE Washita	0.965910	1.000000	0.982955	1.000000	1.000000	0.965910	1.000000
W Canadian	0.965910	0.988640	0.977275	0.988640	1.000000	0.965910	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 9 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.068180	0.000000
Hydro	0.011370	0.022730	0.017050	0.011370	0.000000	0.022720	0.000000
NE Washita	0.102269	0.159089	0.130679	0.102270	0.000000	0.159090	0.000000
NW Washita	0.375000	0.648306	0.511653	0.490224	0.165056	0.443170	0.034090
SE Washita	0.000000	0.034090	0.017045	0.000000	0.000000	0.034090	0.000000
W Canadian	0.011360	0.034090	0.022725	0.011360	0.000000	0.034090	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 9 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.943180	0.937500	0.943180	1.000000	0.931820	1.000000
Hydro	0.977270	0.988630	0.982950	0.988630	1.000000	0.977270	1.000000
NE Washita	0.840910	0.897730	0.869320	0.897730	1.000000	0.840910	1.000000
NW Washita	0.351694	0.625000	0.488347	0.509776	0.834944	0.556820	0.965910
SE Washita	0.965910	1.000000	0.982955	1.000000	1.000000	0.965910	1.000000
W Canadian	0.965910	0.988640	0.977275	0.988640	1.000000	0.965910	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 10 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.056820	0.068180	0.062500	0.056820	0.000000	0.056820	0.000000
Hydro	0.011370	0.022730	0.017050	0.011370	0.000000	0.011360	0.000000
NE Washita	0.102269	0.159089	0.130679	0.102270	0.000000	0.102270	0.000000
NW Washita	0.375000	0.645071	0.510035	0.488618	0.162442	0.374990	0.022730
SE Washita	0.000000	0.034090	0.017045	0.000000	0.000000	0.000000	0.000000
W Canadian	0.011360	0.034090	0.022725	0.011360	0.000000	0.011360	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 10 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.931820	0.977270	0.954545	0.943180	1.000000	0.943180	1.000000
Hydro	0.977270	0.999990	0.988630	0.988630	1.000000	0.988630	1.000000
NE Washita	0.840910	0.988640	0.914775	0.897730	1.000000	0.897730	1.000000
NW Washita	0.354929	0.625000	0.489965	0.511382	0.837558	0.625000	0.977270
SE Washita	0.965910	1.000000	0.982955	1.000000	1.000000	1.000000	1.000000
W Canadian	0.965910	1.000000	0.982955	0.988640	1.000000	0.988640	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 20 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.022730	0.011365	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000010	0.000005	0.000000	0.000000	0.000000	0.000000
NE Washita	0.011359	0.102269	0.056814	0.011360	0.000000	0.011360	0.000000
NW Washita	0.375000	0.574146	0.474573	0.460938	0.136914	0.374990	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 20 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.977270	1.000000	0.988635	1.000000	1.000000	1.000000	1.000000
Hydro	0.999990	1.000000	0.999995	1.000000	1.000000	0.999990	1.000000
NE Washita	0.897730	0.988640	0.943185	0.988640	1.000000	0.988640	1.000000
NW Washita	0.425854	0.625000	0.525427	0.539062	0.863086	0.625000	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 40 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.011359	0.005680	0.000000	0.000000	0.000000	0.000000
NW Washita	0.375000	0.534644	0.454822	0.439014	0.102423	0.374990	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 40 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.988640	0.999999	0.994320	1.000000	1.000000	1.000000	1.000000
NW Washita	0.465356	0.625000	0.545178	0.560986	0.897577	0.625000	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 100 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW Washita	0.318180	0.477423	0.397801	0.345290	0.039643	0.318170	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 100 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.999999	0.999999	0.999999	1.000000	1.000000	1.000000	1.000000
NW Washita	0.522577	0.772730	0.647654	0.654709	0.960357	0.681820	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 500 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW Washita	0.181820	0.266913	0.224366	0.181820	0.000000	0.181810	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 500 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.999999	0.999999	0.999999	1.000000	1.000000	1.000000	1.000000
NW Washita	0.733087	0.920450	0.826769	0.818180	1.000000	0.818180	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 1000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW Washita	0.068190	0.119193	0.093691	0.068190	0.000000	0.079540	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 1000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.999999	0.999999	0.999999	1.000000	1.000000	1.000000	1.000000
NW Washita	0.880807	0.931810	0.906308	0.931810	1.000000	0.920450	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 2000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 2000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.999999	0.999999	0.999999	1.000000	1.000000	1.000000	1.000000
NW Washita	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Probabilities of Observing at Least 5000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Hydro	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE Washita	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W Canadian	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
El Reno	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Weatherford	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Probabilities of Observing Less than 5000 Casualties in each CCD

CCD	LB	UB	AVG	IND	DEBRIS	GAS	BLAST
Binger-Hinton	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Hydro	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
NE Washita	0.999999	0.999999	0.999999	1.000000	1.000000	1.000000	1.000000
NW Washita	1.000000	1.000000	1.000000	1.000000	1.000000	0.999990	1.000000
SE Washita	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
W Canadian	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
El Reno	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Weatherford	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

### E.3 Matched-Pairs Tests Results

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 17 - 33

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
17	1	(0.3465,0.5228)	93.00	0.0096
18	2	(-0.0965,0.1363)	76.00	0.4299
19	3	(-0.0966,0.1137)	76.00	0.4299
20	4	(-0.0966,0.1137)	76.00	0.4299
21	5	(-0.0967,0.1137)	76.00	0.4299
22	6	(-0.0569,0.0738)	75.00	0.4884
23	7	(-0.0568,0.0738)	75.00	0.4884
24	8	(-0.0568,0.0739)	75.00	0.4884
25	9	(-0.0568,0.0738)	75.00	0.4884
26	10	(-0.0568,0.0739)	75.00	0.4884
27	20	(-0.0001,0.0569)	76.00	0.3654
28	40	(-0.0001,0.0056)	72.00	0.5897
29	100	(0.0000,0.0000)	68.50	1.0000
30	500	(0.0000,0.0000)	68.50	1.0000
31	1000	(0.00002,0.00001)	68.50	1.0000
32	2000			
33	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 34 - 50

Two Tailed Tests

Test #	Threshold d x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
34	1	(-0.5056,-0.3353)	43.00	0.0098
35	2	(-0.1363,0.0967)	60.00	0.4302
36	3	(-0.1137,0.0966)	60.00	0.4299
37	4	(-0.1137,0.0966)	60.00	0.4299
38	5	(-0.0852,0.0965)	66.00	0.8746
39	6	(-0.0738,0.0569)	61.00	0.4884
40	7	(-0.0738,0.0568)	61.00	0.4884
41	8	(-0.0739,0.0568)	61.00	0.4884
42	9	(-0.0738,0.0568)	61.00	0.4884
43	10	(-0.0455,0.0568)	63.50	0.6693
44	20	(-0.0569,0.0001)	60.00	0.3654
45	40	(-0.0056,0.0001)	64.00	0.5897
46	100	(-0.0000,0.0001)	67.50	1.0000
47	500	(-0.0000,0.0000)	68.50	1.0000
48	1000	(-0.0000,-0.0000)	64.50	0.7237
49	2000	(-0.0000,-0.0000)	57.00	0.2670
50	5000	(-0.0000,-0.0000)	57.00	0.2670

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 51 - 67

Two Tailed

Tests

Test #	Threshold d	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
51	1	(0.5170,0.5908)	100.00	0.0005
52	2	(0.0226,0.1704)	93.00	0.0071
53	3	(0.0056,0.1705)	93.00	0.0072
54	4	(0.0057,0.1704)	93.00	0.0072
55	5	(0.0057,0.1705)	93.00	0.0072
56	6	(-0.0001,0.1306)	86.00	0.0428
57	7	(0.0000,0.1306)	86.00	0.0428
58	8	(0.0000,0.1307)	86.00	0.0428
59	9	(-0.0001,0.1307)	86.00	0.0428
60	10	0.0000,0.1307)	86.00	0.0428
61	20	(-0.0000,0.0568)	79.00	0.1800
62	40	(-0.0001,0.0057)	72.00	0.5897
63	100	(0.0000,-0.0000)	68.50	1.0000
64	500			
65	1000			
66	2000			
67	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 68 - 84

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
68	1	(-0.5796,-0.5000)	36.00	0.0005
69	2	(-0.1704,-0.0170)	43.00	0.0072
70	3	(-0.1705,-0.0056)	43.00	0.0072
71	4	(-0.1704,-0.0057)	43.00	0.0072
72	5	(-0.1420,-0.0057)	43.00	0.0072
73	6	(-0.1306,0.0001)	50.00	0.0428
74	7	(-0.1306,-0.0000)	50.00	0.0428
75	8	(-0.1307,-0.0000)	50.00	0.0428
76	9	(-0.1307,0.0001)	50.00	0.0428
77	10	(-0.0853,-0.0001)	50.00	0.0427
78	20	(-0.0568,0.0000)	57.00	0.1800
79	40	(-0.0057,0.0001)	64.00	0.5897
80	100	(0.0000,-0.0000)	67.50	1.0000
81	500			
82	1000			
83	2000			
84	5000			



Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 85 - 101

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
85	1	(0.3465,0.5228)	100.00	0.0009
86	2	(-0.1195,0.1135)	60.00	0.4289
87	3	(-0.1193,0.1087)	59.00	0.3703
88	4	(-0.1193,0.1023)	59.00	0.3703
89	5	(-0.0966,0.1023)	76.00	0.4299
90	6	(-0.0966,0.0777)	64.00	0.7109
91	7	(-0.0967,0.0737)	64.00	0.7109
92	8	(-0.0965,0.0706)	64.00	0.7109
93	9	(-0.0967,0.0684)	64.00	0.7109
94	10	(-0.0568,0.1193)	75.00	0.4880
95	20	(-0.0000,0.0569)	76.00	0.3654
96	40	(0.0001,0.0057)	72.00	0.5897
97	100	(0.0000,0.0001)	68.50	1.0000
98	500	(0.0000,0.0000)	68.50	1.0000
99	1000	(-0.00001,0.00001)	68.50	1.0000
100	2000			
101	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 102- 118

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
102	1	(-0.5058,-0.3352)	36.00	0.0009
103	2	(-0.1136,0.1194)	76.00	0.4292
104	3	(-0.1087,0.1193)	77.00	0.3703
105	4	(-0.1023,0.1193)	77.00	0.3703
106	5	(-0.0836,0.0966)	67.00	0.9580
107	6	(-0.0777,0.0966)	73.00	0.6337
108	7	(-0.0737,0.0967)	73.00	0.6337
109	8	(-0.0706,0.0967)	73.00	0.6337
110	9	(-0.0684,0.0967)	73.00	0.6337
111	10	(-0.0738,0.0569)	63.50	0.6693
112	20	(-0.0569,0.0000)	63.00	0.6025
113	40	(-0.0057,-0.0000)	67.00	0.9450
114	100	(-0.0001,0.0000)	71.00	0.7001
115	500	(-0.0000,0.0000)	72.00	0.5897
116	1000	(-0.0000,0.0000)	71.00	0.7620
117	2000	(-0.0000,0.0000)	70.00	0.8710
118	5000	(-0.0000,0.0000)	70.00	0.8710

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 119 - 135

Two Tailed Tests

Test #	Threshold	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
119	1	(0.51708,0.59089)	100.00	0.0005
120	2	(0.0228,0.1703)	98.00	0.0012
121	3	(0.0228,0.1705)	98.00	0.0012
122	4	(0.0228,0.1705)	98.00	0.0012
123	5	(0.0227,0.1705)	98.00	0.0012
124	6	(0.0001,0.1307)	88.00	0.0240
125	7	(-0.0001,0.1307)	88.00	0.0240
126	8	(-0.0001,0.1307)	88.00	0.0240
127	9	(0.0000,0.1306)	88.00	0.0240
128	10	(0.0001,0.1307)	88.00	0.0240
129	20			
130	40			
131	100			
132	500			
133	1000			
134	2000			
135	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 136- 152

Two Tailed

Tests

Test #	Threshold	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
136	1	(-0.5796,-0.5000)	36	0.0005
137	2	(-0.1705,-0.0227)	38	0.0012
138	3	(-0.1705,-0.0228)	38	0.0012
139	4	(-0.1705,-0.0228)	40	0.0012
140	5	(-0.1420,-0.0227)	40	0.0026
141	6	(-0.1307,-0.0001)	48	0.0026
142	7	(-0.1307,0.0001)	48	0.024
143	8	(-0.1307,0.0001)	48	0.024
144	9	(-0.1306,-0.0000)	48	0.024
145	10	(-0.0853,0.0001)	48	0.0239
146	20	(-0.0569,0.0000)	52	0.0325
147	40			
148	100			
149	500			
150	1000			
151	2000			
152	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 153 - 169

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
153	1	(-1.0000,-1.0000)	36.00	0.0001
154	2	(-0.1818,-0.0341)	43.00	0.0035
155	3	(-0.1819,-0.0113)	43.00	0.0035
156	4	(-0.1818,-0.0113)	43.00	0.0035
157	5	(-0.1818,-0.0113)	42.00	0.0025
158	6	(-0.1590,0.0001)	50.00	0.0213
159	7	(-0.1591,-0.0000)	50.00	0.0213
160	8	(-0.1590,0.0001)	50.00	0.0213
161	9	(-0.1592,0.0000)	50.00	0.0213
162	10	(-0.1590,0.0000)	50.00	0.0213
163	20	(-0.1023,-0.0001)	57.00	0.0900
164	40	(-0.0114,-0.0001)	64.00	0.2949
165	100	(0.0000,0.0001)	67.50	0.5000
166	500			
167	1000			
168	2000			
169	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 170 - 186

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
170	1	(-0.1819,-0.0341)	43	0.0035
171	2	(-0.1591,0.0000)	46.5	0.0092
172	3	(-0.1591,0.0000)	50	0.0213
173	4	(-0.1591,-0.0001)	50	0.0213
174	5	(-0.1591,0.0000)	50	0.0213
175	6	(-0.1023,0.0001)	53.5	0.0456
176	7	(-0.1022,-0.0000)	53.5	0.0456
177	8	(-0.1023,0.0000)	53.5	0.0456
178	9	(-0.1023,-0.0000)	53.5	0.0456
179	10	(-0.1023,0.0000)	53.5	0.0456
180	20	(-0.0114,-0.0000)	64	0.2949
181	40	(0.0001,-0.0000)	67.5	0.5
182	100	(-0.0001,0.0000)	67.5	0.5
183	500			
184	1000			
185	2000			
186	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 187 - 203

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
187	1	(-0.9545,-0.8182)	36	0.0002
188	2	(-0.1252,0.1135)	66.5	0.457
189	3	(-0.1250,0.1136)	67	0.4785
190	4	(-0.1250,0.1136)	67	0.4785
191	5	(-0.1477,0.0910)	57.5	0.1456
192	6	(-0.1250,0.0908)	67	0.4787
193	7	(-0.1250,0.0908)	67	0.4787
194	8	(-0.1250,0.0908)	67	0.4787
195	9	(-0.1250,0.0908)	67	0.4787
196	10	(-0.1478,0.0568)	61	0.2439
197	20	(-0.1022,0.0000)	60	0.1827
198	40	(-0.0113,-0.0001)	64	0.2949
199	100	(-0.0000,0.0000)	67.5	0.5
200	500	(-0.0000,0.0000)	67.5	0.5
201	1000	(0.00001,0.00002)	67.5	0.5
202	2000			
203	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 221 - 237

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
221	1	(-1.0000,-1.0000)	36	0.0002
222	2	(-0.1817,-0.0342)	36.5	0.0003
223	3	(-0.1819,-0.0340)	37	0.0004
224	4	(-0.1817,-0.0341)	37	0.0004
225	5	(-0.1819,-0.0341)	37	0.0004
226	6	(-0.1590,-0.0000)	47	0.0086
227	7	(-0.1590,0.0001)	47	0.0086
228	8	(-0.1591,-0.0001)	47	0.0086
229	9	(-0.1590,0.0001)	47	0.0086
230	10	(-0.1591,0.0000)	45.5	0.0054
231	20			
232	40			
233	100			
234	500			
235	1000			
236	2000			
237	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 238 - 254

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
238	1	(-0.1819,-0.0341)	36.5	0.0003
239	2	(-0.1591,-0.0114)	43.5	0.0035
240	3	(-0.1591,-0.0000)	47	0.0086
241	4	(-0.1591,-0.0000)	47	0.0086
242	5	(-0.1591,-0.0000)	47	0.0086
243	6	(-0.1023,-0.0000)	51.5	0.0268
244	7	(-0.1023,-0.0000)	51.5	0.0268
245	8	(-0.1023,-0.0000)	51.5	0.0268
246	9	(-0.1023,-0.0000)	51.5	0.0268
247	10	(-0.1023,0.0001)	51.5	0.0268
248	20			
249	40			
250	100			
251	500			
252	1000			
253	2000			
254	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 255 - 271

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
255	1			
256	2	(0.0341,0.1818)	93	0.0035
257	3	(0.0113,0.1819)	93	0.0035
258	4	(0.0113,0.1818)	93	0.0035
259	5	(0.0113,0.1818)	94	0.0025
260	6	(-0.0001,0.1590)	86	0.0213
261	7	(0.0000,0.1591)	86	0.0213
262	8	(-0.0001,0.1590)	86	0.0213
263	9	(-0.0000,0.1592)	86	0.0213
264	10	(-0.0000,0.1590)	86	0.0213
265	20	(0.0001,0.1023)	79	0.09
266	40	(0.0001,0.0114)	72	0.2949
267	100	(-0.0001,-0.0000)	68.5	0.5
268	500			
269	1000			
270	2000			
271	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 272 - 288

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
272	1	(-0.0000,0.1591)	89.5	0.0092
273	2	(0.0000,0.1591)	86	0.0213
274	3	(-0.0000,0.1591)	86	0.0213
275	4	(0.0001,0.1591)	86	0.0213
276	5	(0.0000,0.1023)	82.5	0.0456
277	6	(-0.0001,0.1023)	82.5	0.0456
278	7	(0.0000,0.1022)	82.5	0.0456
279	8	(-0.0000,0.1023)	82.5	0.0456
280	9	(0.0000,0.1023)	82.5	0.0456
281	10	(-0.0000,0.0227)	79	0.09
282	20	(0.0000,0.0114)	72	0.2949
283	40	(0.0000,-0.0001)	68.5	0.5
284	100	(-0.0000,-0.0000)	68.5	0.5
285	500			
286	1000			
287	2000			
288	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 289 - 305

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
289	1			
290	2	(-0.1135,0.1252)	69.00	0.4785
291	3	(-0.1136,0.1250)	68.50	0.5000
292	4	(-0.1136,0.1250)	68.50	0.5000
293	5	(-0.0910,0.1477)	78.50	0.1456
294	6	(-0.0908,0.1250)	68.50	0.5000
295	7	(-0.0908,0.1250)	68.50	0.5000
296	8	(-0.0908,0.1250)	68.50	0.5000
297	9	(-0.0908,0.1250)	68.50	0.5000
298	10	(-0.0568,0.1478)	75.00	0.2440
299	20	(-0.0000,0.1023)	73.50	0.2812
300	40	(0.0001,0.0113)	69.00	0.4725
301	100	(-0.0000,0.0000)	65.00	1.0000
302	500	(-0.0000,-0.0000)	65.00	1.0000
303	1000	(-0.0000,-0.0000)	65.00	1.0000
304	2000	(-0.0000,0.0000)	66.00	1.0000
305	5000	(-0.0000,0.0000)	66.00	1.0000

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 323 - 339

Two Tailed Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
323	1			
324	2	(0.0342,0.1817)	99.50	0.0003
325	3	(0.0340,0.1819)	99.00	0.0004
326	4	(0.0341,0.1817)	99.00	0.0004
327	5	(0.0341,0.1819)	99.00	0.0004
328	6	(0.0000,0.1590)	89.00	0.0086
329	7	(-0.0001,0.1590)	89.00	0.0086
330	8	(0.0001,0.1591)	89.00	0.0086
331	9	(-0.0001,0.1590)	89.00	0.0086
332	10	(-0.0000,0.1591)	90.50	0.0054
333	20	(0.0000,0.1023)	84.00	0.0162
334	40			
335	100			
336	500			
337	1000			
338	2000			
339	5000			

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs

Test # 340 - 356

Two Tailed

Tests

Test #	Threshold x	95% CI for Mean Difference (Two-Tailed Tests)	Test Statistic W	p-value
340	1	(0.0114,0.1591)	92.5	0.0035
341	2	(0.0000,0.1591)	89	0.0086
342	3	(0.0000,0.1591)	89	0.0086
343	4	(0.0000,0.1591)	89	0.0086
344	5	(0.0000,0.1023)	84.5	0.0268
345	6	(0.0000,0.1023)	84.5	0.0268
346	7	(0.0000,0.1023)	84.5	0.0268
347	8	(0.0000,0.1023)	84.5	0.0268
348	9	(0.0000,0.1023)	84.5	0.0268
349	10	(-0.0000,0.0228)	79.5	0.0798
350	20	(0.0001,0.0114)	76	0.0855
351	40			
352	100			
353	500			
354	1000			
355	2000			
356	5000			

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