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Development of an H-Alpha Index for the Detection of PMS Candidates in Young Open Clusters

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by

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GRADUATE COMMITTEE APPROVAL

of a dissertation submitted by

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This dissertation has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory

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ABSTRACT

DEVELOPMENT OF AN Hα INDEX FOR THE DETECTION OF PMS CANDIDATES IN YOUNG OPEN CLUSTERS

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Doctor of Philosophy

One phase of formation of medium- and low-mass stars is the optically visible phase known as the pre-main-sequence or PMS phase. In order to further the understanding of this phase, more of these PMS objects need to be identified and classified. Previous techniques have used photometry to identify possible PMS objects by their characteristic Hα emission. Once identified these objects can be studied spectroscopically yielding complete PMS classification.

This study develops a method to locate these emission objects that overcomes two limitations of previous techniques. The first limitation is the need for the creation of

reddening maps. It is eliminated by the creation of a reddening free Hα wide/narrow index for the selection of emission objects. The second limitation is the requirement of the creation of mosaics to study the entire region of interest. This limitation is overcome by the construction of a wide-angle observation facility. This makes it possible to obtain the entire region of interest in a single frame.

Once tested to ensure the validity of the method, the wide-angle Hα wide/narrow procedure is applied to several young open clusters. The development of the index and the results of its application to the clusters are presented. Also, an examination into how the results can be used to address some of the questions currently surrounding the PMS is included. Finally, a guideline for the implementation of the method into future studies is discussed.

ACKNOWLEDGEMENTS

I would like to acknowledge all the professors and fellow students who assisted me in the completion of this project. It is truly a collaboration of many talented individuals. I would like to thank my biggest support throughout the duration of this project, my husband Ben. Thanks for always believing in me and the countless sacrifices made to make this possible. Finally, I dedicate this work to my father. May he receive peace knowing I achieved his dreams for me.

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1. Introduction

To a beginning astronomy student, the life cycle of a solar-type star is explained as a straightforward three step cycle: formation, main-sequence life, and death. Formation occurs with the collapse of a giant cloud. The central object gains mass and heats as it collapses. If the temperature becomes sufficient to ignite fusion in the core of the object, the outward pressure of the fusion stops the collapse and marks the beginning of main-sequence life. This main-sequence phase passes with little change in the star until it depletes its fusion materials and death commences. No longer sustained by the balance of fusion pressure and gravity, a star ends its life in the collapse of the core and the atmosphere escaping into space.

While this story is sufficient for beginning students, as with most scientific concepts, it quickly gets much more complicated and contains many as yet unanswered questions when it is looked at more closely. Focusing on the formation phase alone, it can be further subdivided into the collapse, protostar, and pre-main-sequence (PMS) phases. It is during this last phase that medium- and low-mass objects become optically visible. Previous studies of these now visible objects have led to some questions about the nature of this phase such as: what are the sources of the temporal photometric variability, are there different formation processes for different masses, and are there different formation epochs? In order to address these and the other questions surrounding

stellar formation, more objects in the PMS phase of formation need to be found and studied.

Originally, these young objects were found by happenstance. Surveys of stellar systems to assess membership or other details would result in the detection of a few of these young objects. As interest in stellar formation grew, spectroscopic surveys (for example Joy (1946) and Herbig (1954)) of star forming regions specifically designed to locate young objects were performed. These surveys identified PMS objects by emission line features that disappear by the time a star reaches the main-sequence phase.

These surveys, however, have the usual difficulties of spectroscopy versus photometry. For example, spectroscopy requires bigger telescopes, longer exposure times, and often can be performed on only one star at a time. So, more recently, photometric survey methods (for example Adams et al. (1983) and Lamm et al. (2004)) have been developed to direct the spectroscopic work. These methods focus on the most prominent emission line (Hα) by identifying emitters using an appropriate color-index. Spectroscopic efforts are then focused on these candidates to see if they are PMS objects. In this way it is not necessary to survey all the objects in the cluster.

However, some difficulties remain with the current photometry methods. One difficulty is the need for reddening maps of the clusters in order to properly correct the color-index. This can be time consuming and adds steps to the analysis process. Another difficulty is the small area of a cluster that is obtained in a single exposure using a traditional telescope. This means that several images must be taken and added together in a mosaic to obtain data for the entire cluster. This adds to the amount of time needed at the telescope and in the reduction process.

This study facilitates the photometric method of locating Hα emitters, and thereby PMS candidates, by developing a reddening free Hα wide/narrow color-index that can be used in wide-angle photometry. These improvements eliminate the need for the creation of reddening maps and mosaics of multiple images of the stellar system. Thus the time required to obtain and analyze the data are greatly reduced and simplified.

In the following we present the development of our method and apply it to several star systems. Chapter 2 discusses the background of PMS objects. Chapter 3 summarizes the previous spectroscopic and photometric surveys for these objects. Chapter 4 outlines the development of the improved photometry survey method. This is followed in Chapter 5 with a presentation of the application of the method to several star systems. This also includes a section illustrating how this study aides in addressing some of the questions facing the PMS phase as well as suggestions to guide future work. The study is concluded in Chapter 6.

2. Background on Pre-Main-Sequence Stars

Recent years have seen many developments in the study of stellar formation. A textbook on the subject entitled "Stellar Evolution" was written by Stahler and Palla (ref). A summary from this text which includes a discussion on young stellar systems and diagnostic tools has been included in Appendix A. We provide here a short background on the PMS phase in order to understand the questions surrounding this phase most relevant to this study. Additional details on the PMS phase are given in Appendix A.

It is important to know that pre-main-sequence stars have been divided into two types according to mass. Those of about 2 solar masses and below and of spectral types G0 and later are placed in the T Tauri class. Herbig Ae/Be stars contain stars of 2 to 10 solar masses and, despite the name, include spectral types B,A, and F so that a separate class has not been formed for just the F-type stars. Each class presents its own set of questions regarding stellar formation for their respective mass ranges.

2.1 T Tauri Stars

T Tauri stars are divided into two classes. Classical T Tauri stars (CTTS) have strong optical emission lines. Those without strong emission lines are known as weak-lined T Tauri stars (WTTS) (Bertout, 1989). Table 1 outlines the similarities and difference between the two classes.

	Classical	Weak-lined
Hα emission	$W_{H\alpha} \gtrsim 10$ Å	$W_{H\alpha} \lesssim 10$ Å
other permitted emission lines	very strong and broad	moderately strong and narrow
forbidden-line emission	yes	no
Li absorption	yes	yes
optical veiling	yes	no
infrared excess	yes	no
X-ray emission	yes	yes
radio emission	free-free extended	nonthermal compact
photometric variability	periodic/aperiodic	periodic

Table 1: Classical vs. Weak-lined T Tauri Stars Table 17.2 in Stahler and Palla. The equivalent width of the Hα line is given in the first row of the table. Thus, the classical T Tauri stars have strong Hα emission while the weak-lined T Tauri stars do not.

The difference in the strength of the optical emission lines is seen specifically in the Hα equivalent widths given in the first row. The equivalent width (EW) is defined as the width of a rectangle having the height of the continuum centered on a spectral line that, on a plot of intensity against wavelength, has the same area as the line. When the rectangle height is normalized to one the equivalent width has units of wavelength. A stronger line results in a larger equivalent width. Therefore, the Hα line is strong in CTTS stars while weak in WTTS. This makes the CTTS good candidates for this study.

Also shown in the table although not exploited by this study is the fact that CTTS also have infrared excesses that are lacking in weak-lined stars. This excess radiation results from incident stellar photons reprocessed into the infrared by dust in a

circumstellar disk. It appears that in some cases the disk may be adding to the energy, but if so, the physics of how this happens is still unclear.

Additionally, both classes of T Tauri stars exhibit x-ray activity. This is the main means of identifying weak-lined stars. The x-ray flux is closely related to the stellar magnetic field and remains mostly steady in time. This steady flux is accented by occasional strong flares. (Feigelson and Montmerle, 1999 and Gudel, 2002)

Another aspect of the T Tauri phase is temporal photometric variability. (Herbig et al., 1994 and Menard and Bertout, 1999) In fact it was one of the original defining characteristics of the class. This variability occurs on all times scales from hours to decades and is detectable in both weak-lined and classical stars. It is unknown why the unstable nature of the Hα emission does not match the photometric variability. However, addressing the question of the sources of temporal photometric variability common among young objects leads to further understanding of this phase of evolution.

One type of photometric variation is periodic, occurs in weak-lined stars and has periods of days to weeks. It can be stable over observations spaced years apart. The fluctuations in amplitude in the V-band are less than 1-mag. The intensity fall-off is gradual which leads to the physical interpretation that the changes in brightness are due to a rotation into the field of view of relatively cool surface regions known as cool spots. These cool spots are caused by bundles of concentrated magnetic field penetrating the stellar surface. (Johns-Krull et al., 2001)

Another type of variation occurs in classical T Tauri stars and has a greater brightness change at shorter wavelengths. Also, while they may be periodic for a while (usually no longer than a few months), most tend to be irregular. The physical

interpretation here is hot spots which are areas where external matter falls onto the stellar surface creating elevated temperatures through shock heating.

Hot spots are not as well understood as cool spots. Currently the most widely accepted theory says they come from gas flowing along magnetic loops down to the surface of the star. Since magnetic loops create cool spots, models containing both hot and cool spots may best fit the data. In these models, some loops contain flowing gas while others do not. Both types of spots should rotate with the surface. Changes in the rotation period would then be the result of migration of the spots and differential rotation. (Herbst et al., 1906, Menard et al., 1999, and Johns-Krull et al., 2001)

A third type of variability that occurs in PMS objects is aperiodic or random fluctuations that can sometimes increase the luminosity by two orders of magnitude. These are believed to be due to very energetic flares. In a sub-class known as FU Orionis stars this change takes place over approximately a year.

2.2 Herbig Ae/Be

Herbig Ae/Be stars are the intermediate mass PMS objects. While they have unique characteristics, they do share some of their characteristics with their low and high mass counterparts. Accordingly, the questions regarding these objects overlap those previously discussed. However, the study of Herbig Ae/Be stars is less advanced than that of the low-mass T Tauri stars because of the scarcity of Herbig Ae/Be objects. Even though Herbig Ae/Be stars are brighter which facilitates their discovery, the number of stars produced in this mass range is only 3 percent the number of those produced in the lower mass range. (See the initial mass function section in Appendix A.)

Even with this difficulty, there are now more than 100 known sources. These sources are all of spectral type B, A, or F. They are located near gas clouds, and display optical emission lines as indicated by the extra "e" in the nomenclature. Originally, Herbig Ae/Be stars were also required to illuminate optical reflection nebulae to ensure the object was physically associated with cloud material, indicating its youth. This association can also be shown with millimeter observations. (Perez & Grady, 1997 and Waters & Waelkens, 1998)

Another issue to address with intermediate-mass stars is formation. It is believed that massive stars are formed through the coalescence of previously formed stars as indicated by the finding that the youngest massive stars are invariably located at the crowded centers of clusters. Low-mass stars are formed through the process of dense core build up to the point of gravitational collapse. How then are intermediate-mass stars formed? The only answer so far is that intermediate-mass objects show evidence for both formation modes.

2.3 Mass Segregations

A final topic that can be addressed by the classification of more PMS objects is the topic of mass segregation. So far less than two dozen systems have been examined in sufficient detail for conclusions to be drawn. From these systems it has been noted that in most average stellar clusters the mass drops steadily from the center outwards indicating a single onset of stellar formation. This can be contrasted with a few clusters in which there is more than one area around which stellar formation seems to have been

initiated. NGC 2264 is a prime example of this phenomenon. Stellar density in NGC 2264 reveals two concentrations of mass – one surrounding S Mon and another associated with a star that is again the most massive in its local region (see Figure 30). This is known as mass segregation and raises the question of whether there are different formation epochs in clusters.

One may also ask what initiates formation and how this mass segregation affects the mass and luminosity functions. See Appendix A for further discussion on these functions. These ideas warrant further study. An intent of this work is to develop an easier method to increase the sample size of these objects in order to provide more data for researchers investigating these and other questions.

3. Previous PMS Surveys

Exploiting the Hα emission of PMS objects as a means to their detection is not a new idea. Both spectroscopic and photometric surveys of Hα emitters have been performed previously. As already mentioned, the spectroscopic surveys have the usual difficulties of doing spectroscopy in that they require large telescopes, long integration times, and often can only be done one star at a time – a very laborious process. Therefore, methods for identifying possible PMS objects from other survey methods have been necessary. Photometric imaging is especially efficient because it allows multiple stars to be studied in the same integration and can be done on smaller telescopes. Once identified from photometric surveys as possible PMS objects by their Hα emission, spectroscopic studies can observe the most promising candidates instead of trying to observe every star in an entire cluster.

One limitation in identifying possible PMS objects from photometric surveys is the difference between CTTS and WTTS. The CTTS have strong emission lines and WTTS do not. Therefore the two types of T Tauri stars are best found by different methods. It has been recognized that the CTTS can be identified photometrically in visible passbands by their emission lines (e.g. Hα) and the WTTS are best found by their x-ray excess described in Chapter 2.

Therefore this study, which finds objects through their emission, along with many of the previous searches for PMS objects, is limited to finding the CTTS. As mentioned

in Chapter 2, Herbig Ae/Be stars will also be detected. However, since they will be found in much smaller numbers the focus will remain on the CTTS.

The precise passband combination for the CTTS identification has been examined in many previous studies. The success of these studies in identifying true PMS objects by their Hα emission has been addressed and tested through follow up spectroscopic studies. A brief history of spectroscopic and photometric PMS surveys is given below.

3.1 Spectroscopic Surveys

As the nature of PMS objects was first being studied in the 1940s and 1950s, surveys were begun to identify more of these objects to aid in the classification. The following is a list of several spectroscopic studies dating to the very first ones.

- Joy (1946): found 40 strong emission stars in Taurus cloud.
- Struve and Rudkjobing (1949): observed Oph and Sco clouds with slit spectrograph on 82-inch reflector at McDonald observatory; 6 of the 27 objects studied showed hydrogen emission
- Herbig (1954): observed NGC 2264 using a grating slitless spectrograph on the Crossley reflector at Lick Observatory. He found 84 Hα emission stars (V = 14 – 19.5) in a 44’ x 54’ field. This work established the T Tauri characteristics. Herbig (1957) established a main-sequence from O7-A0.
- Dolidze and Arakelyan (1959): observed ρ Oph cloud with objective prism on a 70-cm telescope; found 88 Hα emitters.

- Cohen and Kuhi (1979): studied 500 Hα emission stars from photometric observations with an optical scanner between 4270 to 6710 Å having a resolution of 7 Å.
- Marcy (1980): found 11 new emitters using the same instrument as Herbig. He also had a dozen emitters that were not found by Herbig.
- Ogura (1984): performed objective-prism survey on the Mon OB1 and R1 associations; found 135 new emission-line stars and that several of the Herbig and Marcy's candidates showed no emission.
- Kun (1986): performed an objective prism survey for emission stars in Trumpler 37 (in IC1396) covering 5 degrees, found 155 Hα emission objects fainter than V = 13, Finder charts and estimates of intensity (Weak, Medium, Strong, and Doubtful) were given along with a map of the surface distribution.
- Wilking et al. (1987): obtained two Hα objective prism plates covering 40 square degrees of ρ Oph cloud, gave finder charts for 86 Hα sources.
- Li et al (2002): obtained low-resolution spectra of ROSAT X-ray emitters in NGC2244.
- Reipurth, Pettersson, Armond, Bally, and Vaz (2004): applied a wide-field objective prism (3 degree x 3 degree) centered on Cone in NGC2264 with ESO 152 cm telescope, increased Hα emission-line stars from 113 to 357, listed emitters on a strength scale from 1-5, limiting EW(Hα) ~ 5 Å.
- Dahm and Simon: (2005a) observed NGC2264 with U of Hawaii 2.2m Wide Field Grism Spectrograph (WFGS) with limit V = 21.0, determined EW(Hα) for 490 T Tauri candidates, also performed Gemini Moderate-Resolution

Spectroscopy (GMOS) for 150 candidates chosen from photometric Hα, x-ray, or CMD location, used wavelengths of 6000-8000 Å and a resolution ~ 3000. (2005b) observed NGC2362 with WFGS as above giving a field of 11'x11', found 130 emitters, using GMOS obtained about 200 PMS spectra.

- Wilking et al. (2005): observed 139 stars with Hydra Multi Objects Spectrograph selected from narrowband images to have Hα emission in ρ Ophiuchi molecular cloud.

3.2 Photometric Surveys

Photometric surveys were begun around the same time as their spectroscopic counterparts. However, determining the best passband combinations for locating PMS objects is a question that is still being pursued. Early studies used the standard UBVRI filters until it was determined that the Hα emission could be used to find the CTTS. Studies then tested the possibilities of an Hα filter used with the UBVRI. A lot of work determining the best combination to use with Hα has been done by a group of Koreans (Sung, Park, Bessel, Chun, Lee, and Lee) and their results are included below along with the work of their predecessors.

- Walker (1956): obtained UBV photoelectric and photographic data of NGC2264, showed the PMS sequence lies above the MS for spectral types later than A0 in a V vs. B-V, also noted PMS variability and UV excess.
- Rydgren (1979): obtained UBVRI photometry ($12 < V < 15.5$) of 25 late-type emission stars shown to Hα emission by spectra from Herbig (1954) and Herbig

and Rao (1972), noted that in V vs. V-R diagram emission stars lie in a well-defined PMS band.

- Adams et al. (1983): observed NGC 2264 and selected 300 PMS candidates between V = 17 and 22 mag by either Hα emission, irregular variability in B, or UV excess, Hα emission from photoelectric photometry, used an Hα λ = 6563 Å, FWHM 60 Å and a continuum λ = 6660 Å, also obtained video observations with a FWHM 100 Å, found the clearest separation indicating emission from Hα vs. Hα-r with Hα-r< 0.75, however this study is later criticized for not clearly separating emission and non-emission objects due to large errors in the data.
- Hillenbrand et al. (1993): observed NGC 6611 and suggested only 5% of PMS stars are active (have circumstellar material) and show Hα emission but Sung pointed out that most of their sample were foreground stars.
- Vazquez et al. (1996): determined PMS objects from several color-magnitude diagrams simultaneously but didn't yield satisfactory results.
- Wilking et al. (1997): performed observations with the 0.9m Curtis Schmidt Telescope at Cerro Tololo-Interamerican Observatory with a field 69.3' squared, used Hα λ = 6593 Å, FWHM = 64 Å and standard R and I, however PMS selection process not described.
- Lamm et al. (2004): performed photographic monitoring of 10,600 stars with $9.8<I_c<21$, field of view 34' x 33' mosaic, λ = 6588 Å, and FWHM = 74 Å, performed PMS selection by two tests: Test 1- used the color-magnitude diagram to determine the PMS region, Test 2 – used the $(R_c - H\alpha)$ vs. $(R_c - I_c)$ color-color diagram to discriminate between (background) giants and PMS stars, found 400

new PMS stars. Also studied the variability of PMS stars, 405 periodic and 184 irregular variables.

- Makidon et al. (2004): studied the light curves of 201 periodic variables.
- Sung, Park, Bessel, Chun, Lee, and Lee:

  In their studies, Sung, Park, Bessel, Chun, Lee, and Lee assume that all objects showing Hα emission by their location in color-magnitude or color-color diagrams are PMS objects/candidates without further confirmation from spectroscopic observations. Refinement of their PMS selection process follows.

  - (1995) studied IC 1805, selected PMS from B-V vs. V-I but not a satisfactory method.
  - (1997) obtained UBVRI Hα of NGC 2264 with a field of 20.5' on a side, used Hα 6563 Å/55 Å wide centered on S Mon, studied 609 stars brighter than V = 17, found 83 PMS objects and 30 candidates using PMS selection of (R-Hα) vs. (V-I) to determine MS and $\Delta(R-H\alpha)=[(R-H\alpha)-(R-H\alpha)_{ms}]> 0.21$ (7 sigma) for PMS objects and ½ that for candidates.
  - (1998) observed NGC 6231 with the same procedure as NGC 2264 but with selection $\Delta(R-H\alpha)>0.15$ for PMS and 0.08 for candidates which yielded 12 PMS members and 7 candidates, 852 stars brighter than V = 16 mag were studied, weak Hα emission was difficult to determine because of differential reddening across the cluster (The reddening map is included as Figure 5. See Chapter 3 for a complete discussion on how these maps are created and used.), also noted that color-magnitude diagrams showed separation of PMS and MS but that V vs. R-Hα was the best, color-color

diagrams also showed separation between MS and PMS. See Figures below.

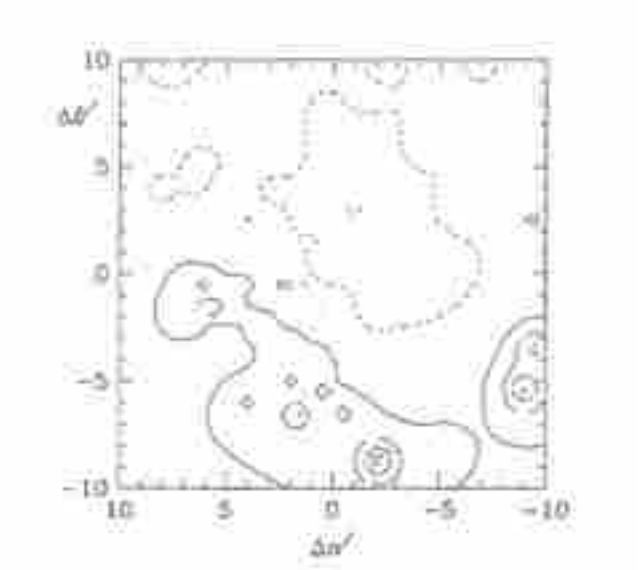

Figure 1: Figure 5 in Sung 1998. Reddening distribution of NGC6231. The dotted (upper section), solid, dashed, dot-dashed, and long-dashed lines represent E(B-V) = 0.45, 0.50, 0.55, 0.60, and 0.65 mag, respectively. In practice a map such as this is very difficult and time consuming to create. Once made however, the location of a star in a certain region allows for the proper reddening correction (E[B-V]) to be determined and used in calculating the color for that star.

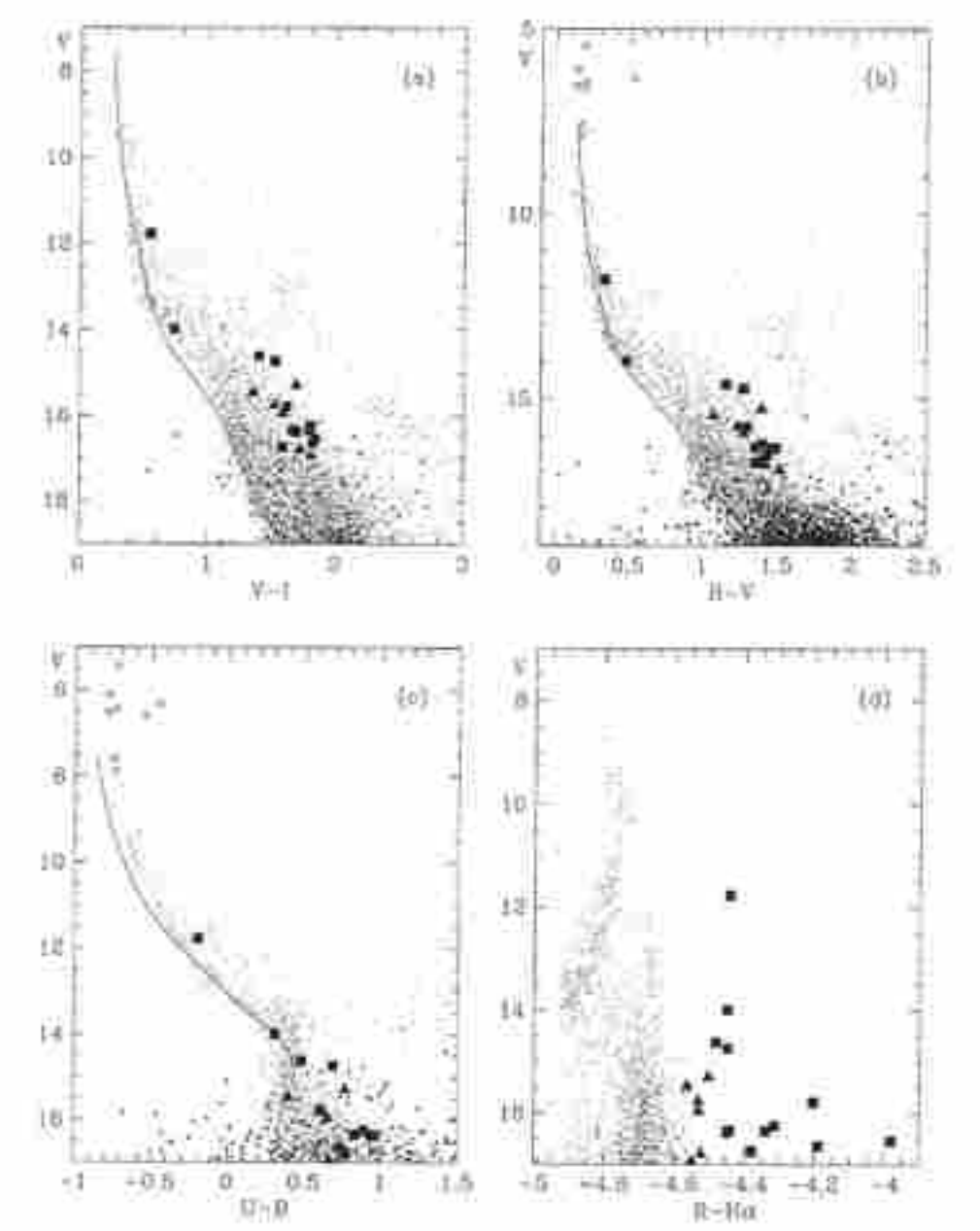

Figure 2: Figure 3 in Sung 1998. Color-magnitude diagrams. The solid lines represent the reddened ZAMS (zero age main-sequence) relation. Dots, crosses, circles, squares, and triangles represent, respectively, stars with good photometric quality (error < 0.1 mag), bad quality, data from photoelectric photometry of previous investigators, PMS stars, and PMS candidates. It is seen in (d) of the figure that a color-index of R-H**α** gives a linear and thereby easily distinguishable division between the MS and PMS objects. Therefore, it was this index that was chosen for establishing the PMS selection criteria.

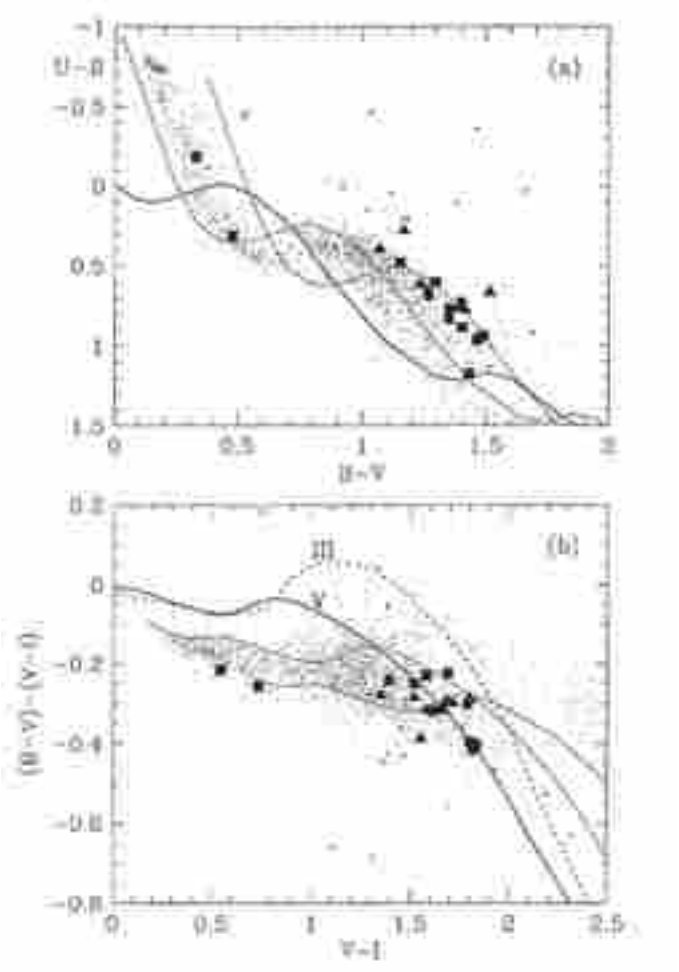

Figure 3: Figure 4 in Sung 1998. Color-color diagrams. The thick lines represent the ZAMS relation, while the two thin solid lines represent reddened ZAMS relations for E(B – V) = 0.35 and 0.7 mag, respectively. The other symbols are the same as in Figure 6. These color-color diagrams were used to attempt to determine the locus of the MS. As the locus of the MS is not clearly visible these combinations were abandoned for those of Figure 8.

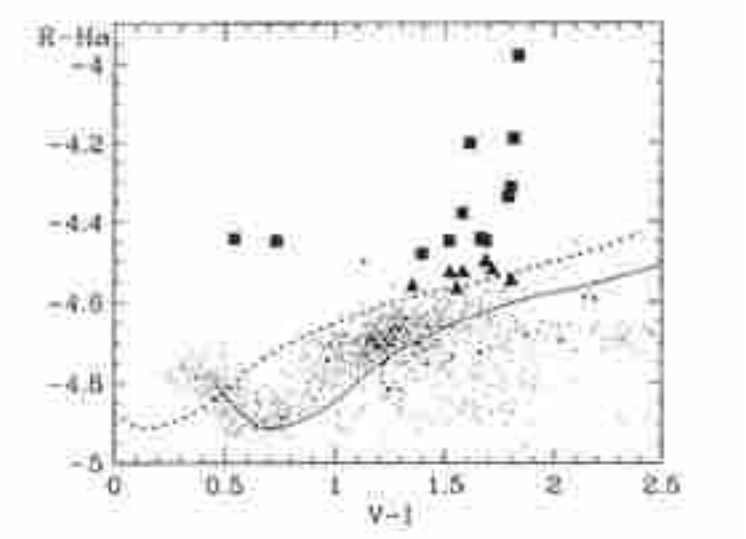

Figure 4: Figure 7 in Sung 1998. R – Hα vs. V – I diagram. The dotted line represents the normal MS line for NGC 2264, while the solid line represents the reddened [E(B – V) = 0.466 mag] line for NGC 6231. It is apparent that this combination of color provides the desired separation between the MS and PMS objects and allowed for the determination of the locus of the MS to aide in the development of the PMS selection criteria.

- (2000) observed NGC 6530 with the Siding Spring Observatory 40 inch telescope giving a field 20.5' on a side, studied 887 stars brighter than V = 17mag, created reddening maps, performed PMS selection by Δ(R-Hα) > 0.36 mag and candidates 80% above that level, included color-color and color-magnitude diagrams similar to NGC 6231 above, also examined HST images with V = 17.5-21, R was not available so used average of V and I giving Hα=$m_{H\alpha}$- (V+I)/2, PMS selection performed by Hα < -0.5 for PMS and candidates < -0.15 yielding 21 PMS objects and 8 candidates.
- (2000) NGC 2264, southern region around Cone, narrower Hα filter $\Delta\lambda$ = 40 Å, with database to include northern region areal coverage of 65 pc^2 209 stars brighter than V = 17, find MS locus in R-Hα vs. V-I, PMS selection Δ(R-Hα)=[(R-Hα)-(R-Hα)$_{ms}$] > 0.2, candidates > 0.1, yielded 39 PMS objects and 16 candidates.

- (2002) observed NGC 2244, used a narrower Hα filter (FWHM = 40 Å) which improved results, studied 577 stars brighter than V = 17 mag, used same selection criteria as just above which yield 14 PMS objects and 7 candidates.
- (2004) studied NGC 2264 with the Canada-France-Hawaii 3.6m telescope, obtained 3 regions adding to a total area of 43' x 80' with a limiting V ~ 24 mag, obtained VRI and Hα data, selection criteria same criterion as 2000 NGC 2264.

The key studies have been summarized in Table 2. The first column gives the reference with the last six all being Sung et al. The second column is the region studied. Column 3 is the details of the Hα filter with the other filters used given in Column 4. The fifth column gives the selection criteria used to select the objects totaled in Column 6 (the number of objects and candidates have been summed). Column 7 is the limiting V magnitude for the study and the final column gives comments.

Ref	Area	Hα	Filters	Selection	Objs	V	Comments
Walker (1956)	NGC 2264		V vs. B-V				PMS sequence above MS
Rydgren (1979)	Emis. spectra objects from Herbig		V vs. V-R				Emission stars in well defined PMS band
Adams et al. (1983)	NGC 2264	FWHM = 60 Å, video = 100 Å	Hα vs. Hα-R	Hα-R < 0.75	300	22	Large errors in data
Wilking et al. (1997)		λ=6593 Å FWHM = 64 Å	R and I	Not given			
Lamm et al. (2004)		λ=6588 Å FWHM = 74 Å	(Rc- Hα) vs. (Rc-Ic)		400		Also studied variability
Sung et al. (1995)	IC 1805		(B-V) vs. (V-I)				Not satisfactory method
(1997)	NGC 2264	λ=6563 Å FWHM = 55 Å	V vs. (R-Hα)	Δ(R-Hα) > 0.21	103	17	
(1998)	NGC 6231	Same as above	Same	Δ(R-Hα) > 0.15	19	16	
(2000)	NGC 6530	Same as above	Same	Δ(R-Hα) > 0.36	29	17	
		HST	V and I	Hα < -0.5		21	
(2000)	NGC 2264	FWHM = 40 Å	V vs. (R-Hα)	Δ(R-Hα) > 0.2	55	17	
(2002)	NGC 2244	Same as above	Same	Same	21	17	
(2004)	NGC 2264	Same as above	Same	Same		24	

Table 2: A summary of the previous photometry surveys. The first column gives the reference with last six all being Sung et al. The second column is the region studied. Column 3 is the details of the Hα filter with the other filters used given in Column 4. The fifth column gives the selection criteria used to select the objects totaled in Column 6 (the number of objects and candidates have been summed). Column 7 is the limiting V magnitude for the study and the final column gives comments.

Some important conclusions can be drawn from these pioneering works. First of all, the overall method of using color-magnitude and color-color diagrams to separate PMS stars from the locus of the main-sequence is successful. The criteria used are listed in Column 5 in Table 2. The best combinations to use are V vs. R-Hα or R-Hα vs. V-I as seen Column 4. Using a narrower Hα filter of FWHM = 40 Å (see column 3) further improved the results.

Some limitations remain however. First of all, reddening maps like the one in Figure 1 were still required to correct the data. Also, in order to cover the entire region of interest, mosaics have to be created of several smaller images. Both of these limitations add to the time needed and the difficultly in obtaining and analyzing the data. The current study builds on the results of the previous studies and further improves the method by using an Hα wide/narrow filter combination to eliminate the need for reddening maps and by using a wide-angle telescope to obtain images of the entire cluster in one frame.

4. Hα Index Development

4.1 Introduction

A first step to being able to address the issues discussed in Chapter 2 is to increase the number of catalogued early formation objects. As seen in the presentation of previous PMS survey work, candidates for one group of these objects, CTTS, can be located using photometry through their Hα emission. While this earlier work has been successful in locating Hα emission objects, this study further improves upon that method.

The summary of previous PMS studies shows that the use of a V observation along with an R - Hα index successfully detects Hα emission objects. Narrowing the Hα filter to FWHM = 40 Å further improves the results by making the emitters more distinguishable from the main-sequence. However, as previously noted even with the narrower Hα filter, using the R – Hα index requires the creation of reddening maps to properly correct the data.

The need for reddening maps arises because the gas and dust between the observer and the cluster absorbs the R and Hα wavelengths differently. Since an index (also known as a color) is made from the difference in two filters. When the effects of the gas and dust are not properly accounted for when making an index (also known as a color), which is the difference between two filters, this alters the index making it useless by leading to improper classifications. From maps such as the one in Figure 5, a value of the extinction correction for the color (in this example B-V) is determined. This value

can then be used to correct the color index for the effect of the gas and dust. This entire process is time consuming and can be very difficult to do accurately.

To make an index reddening free, two filters were chosen to be centered on the same wavelength, $\lambda = 6563$ Å. By being centered on the same wavelength, both filters are equally affected by the gas and dust. Therefore, no correction to the index to account for reddening is needed and a reddening map does not need to be created.

Once chosen to center on the same wavelength the next step is examining the width of the two filters. By making them different widths each filter measures a different amount of continuum but the same amount of emission. Therefore the narrower filter has more relative counts from the emission than the broad filter does. When measuring a weak emission line, the counts in the two filters will be roughly proportional to the filter widths. When measuring a strong emission line the counts in the two filters will be dominated by the line and will be closer in magnitude to each other. Therefore a smaller difference between the counts in each filter indicates the possibility of emission.
With this in mind an initial set of filters was designed with a narrow and wide filter. The narrow filter (called N, FWHM = 30 Å, see Figure 9) was narrower than the FWHM = 40 Å used in previous PMS studies. This was based on the finding of previous studies that narrowing the Hα filter to 40 Å gave improved results. Therefore, it was assumed that making the filter even narrower would increase the sensitivity of the index. It was later decided that becoming very narrow increases the exposure times on normal stars too much. Also the filter itself would lose repeatability. For the wide filter (called W, see Figure 10), the first filter used had a FWHM = 160 Å.

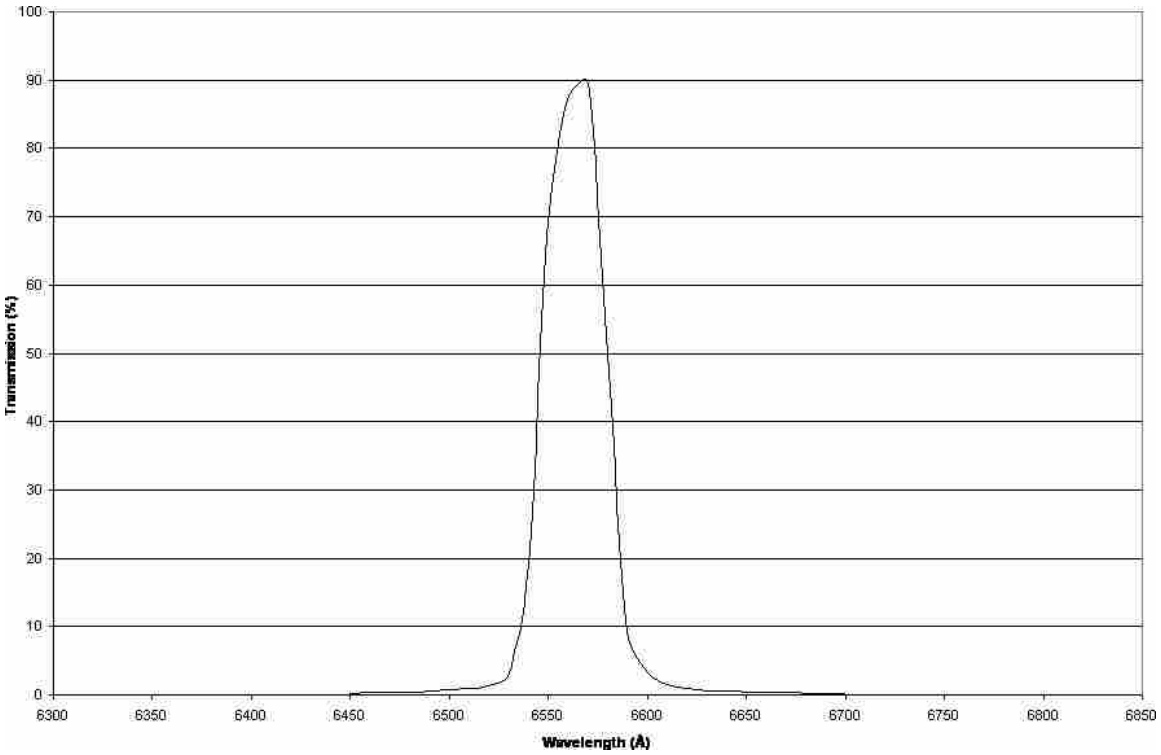

Figure 5: Transmission tracing of narrow (N) Hα filter. The filter is centered on 6563 Å with a FWHM of 30 Å. Wavelength units on figure are given in nanometers.

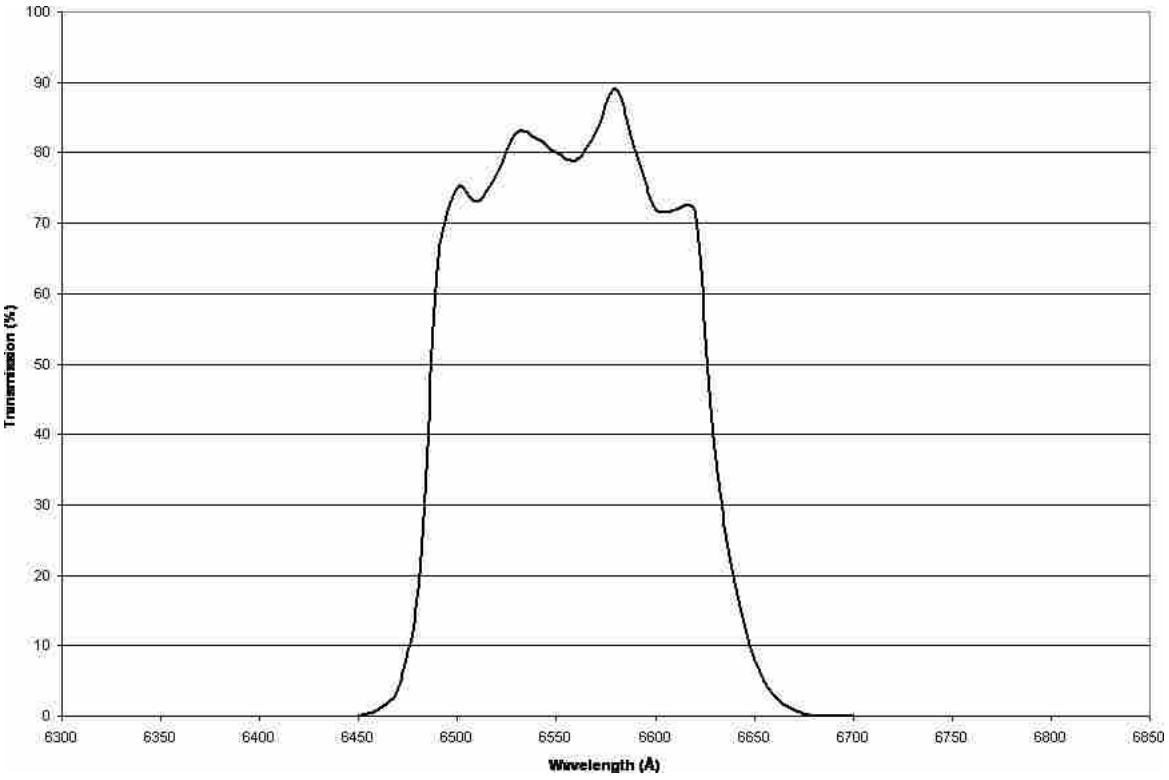

Figure 6: Transmission tracing of wide (W) Hα filter. The filter is centered on 6563 Å with a FWHM of 160 Å. Wavelength units on figure are given in nanometers.

The Hα index is defined as follows. Starting with the standard definition using photon flux:

$$\text{Hα index} = -2.5 \log [\text{photon flux(narrow)}/\text{photon flux(wide)}] \quad (1)$$

When converted to magnitudes, which uses an inverted scale, this becomes:

$$\text{Hα index} = N-W \quad (2)$$

By defining the index in this way, the Hα index is always positive. As a consequence, when plotted on the horizontal axis with larger indices to the left, the emission objects will be located to the right of the main-sequence. This is consistent with standard plots used in astronomy.

4.2 Photometric and Spectroscopic Tests

4.2.1 Photometry

To test the filter combination and definition of the Hα index some preliminary observations were obtained at the Tenagra Observatory in Arizona. This facility offers a 0.8-meter Richey-Chritien Telescope and a SITe based, thermo-electrically cooled CCD yielding a plate scale of 0.87 arcseconds per pixel with a field of view of 14.8 arcminutes.

With the N and W filters described above, the Tenagra observations were made of the central region of NGC 2264 as shown in Figure 7. After standard zero, dark, and flat reductions were made with IRAF, another IRAF package, apphot, was used to perform aperture photometry on each of the frames. Instrumental N and W magnitudes for each of the frames were obtained in this manner.

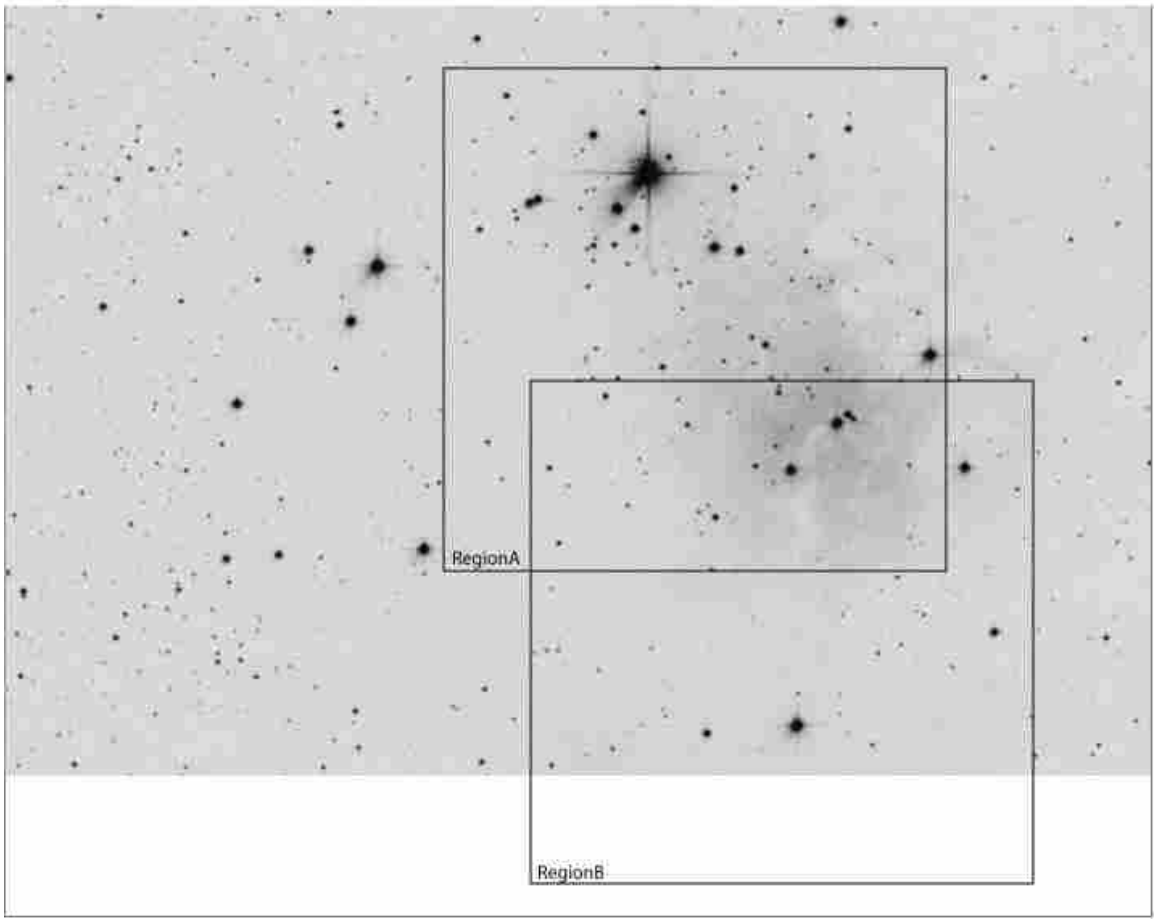

Figure 7: The NGC 2264 as observed from Tenagra Observatory. Two separate regions, as indicated, were observed. For the stars in the overlapping region, the observations were averaged.

With the N and W magnitudes thus obtained from Tenagra for NGC 2264, the Hα index was calculated as defined above in Eq. (2). The results are plotted in Figure 8. For the vertical axis of this color-magnitude plot, V magnitudes for each of the observed stars needed to be obtained. This was done by taking the positions of the stars observed in the Tenagra frames and comparing them with a map of the cluster from the online open cluster database WEBDA. The database contained V magnitudes for each of these stars which were then plotted versus the calculated Hα index.

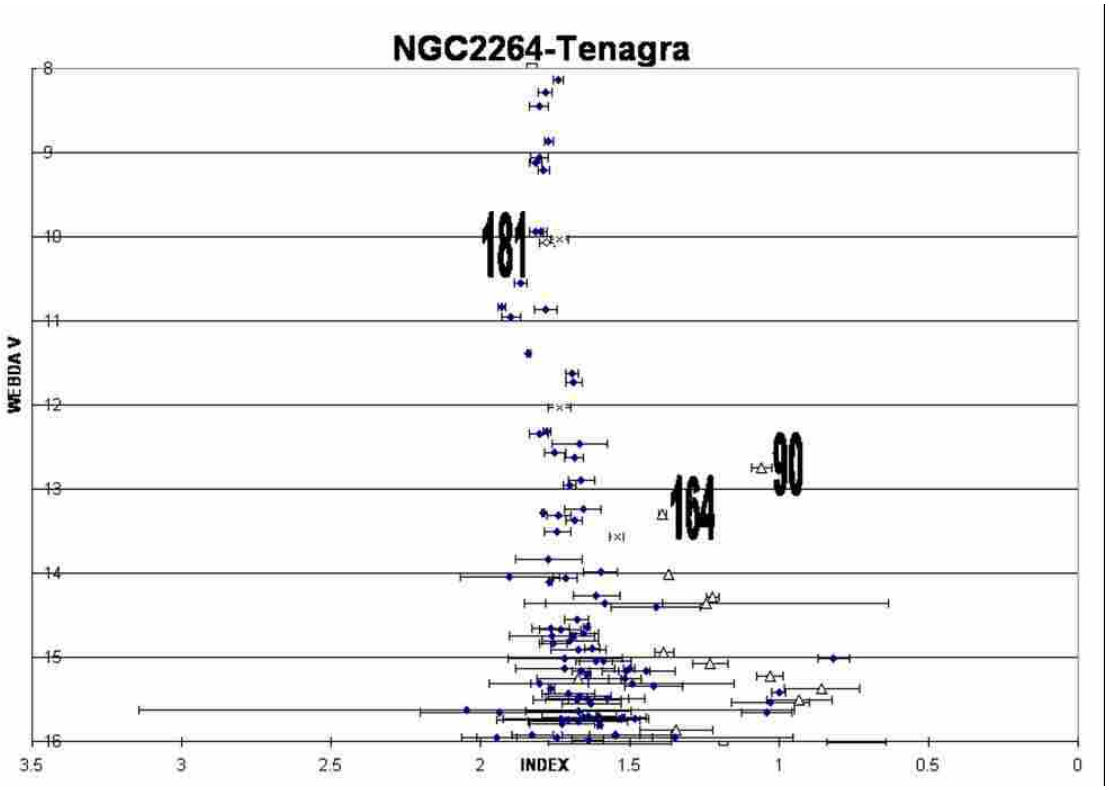

Figure 8: NGC 2264 Tenagra data. The horizontal axis is the Hα index defined as N-W. The vertical axis is the V values obtained for the stars from the WEBDA database. Open triangles were identified as emission objects by Sung et al. (1997) and emission candidates are shown by an x. Spectra were obtained for the three numbered stars (181-open circle, 90, and 164).

Figure 8 illustrates the validity of the Hα wide/narrow index method. The main-sequence objects are located in a nearly vertical line centered on Hα index ≈ 1.6. Eleven emission objects from Sung et al. (1997) are represented by open triangles. All are to the right of the main-sequence with index values less than 1.4. As a first cut all objects with indices less than 1.4 are therefore possible PMS objects.

The fact that objects found to be in emission by Sung et al. were also found to be in emission in this study as well is a confirmation that the wide/narrow Hα index is successful in identifying Hα emitters. Also, as seen in Figure 8, some additional Hα emission objects were found as well. It could be that this study is more sensitive than

that of Sung et al. However, it is possible that these objects are either beyond the area observed by Sung et al. or were not emission objects at that time. A variation in emission objects is to be expected due to the high level of variability in these young objects as discussed in the Background Chapter. As star formation regions like NGC 2264 evolve, it needs to be realized that any one survey will only capture the emission objects of that epoch. If desired, surveys over a longer baseline can be performed to examine the nature and time scales of the variability.

4.2.2 Spectroscopy

To further examine the index, spectra were obtained in Canada at the Dominion Astrophysical Observatory (DAO) on the 1.8 meter telescope with the 2141 spectrograph and the SITe CCD. Two emission candidates and one main-sequence candidate were observed. The three stars for which spectra were obtained are indicated in Figure 8 by their WEBDA ID. The spectra obtained from DAO are presented in Figures 9-11.

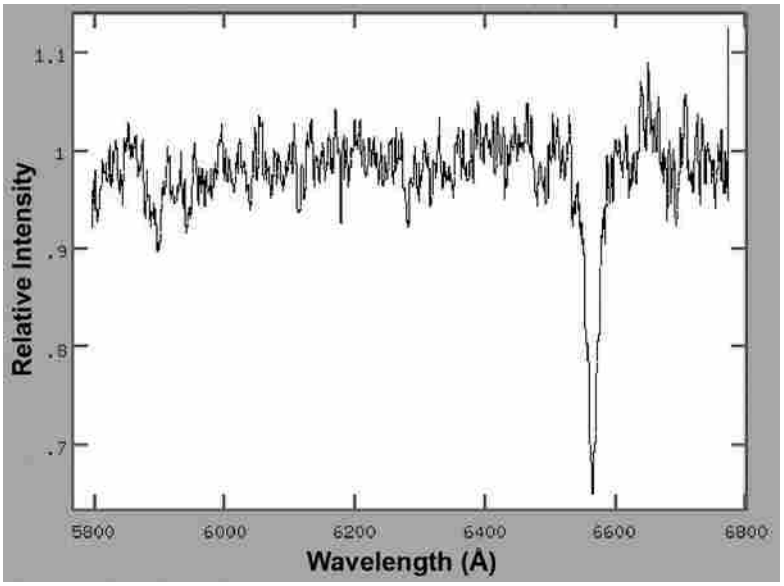

Figure 9: NGC2264-181. Spectra obtained at DAO indicating Hα absorption as identified by the Hα index calculated from the Tenagra data (N-W = 1.734).

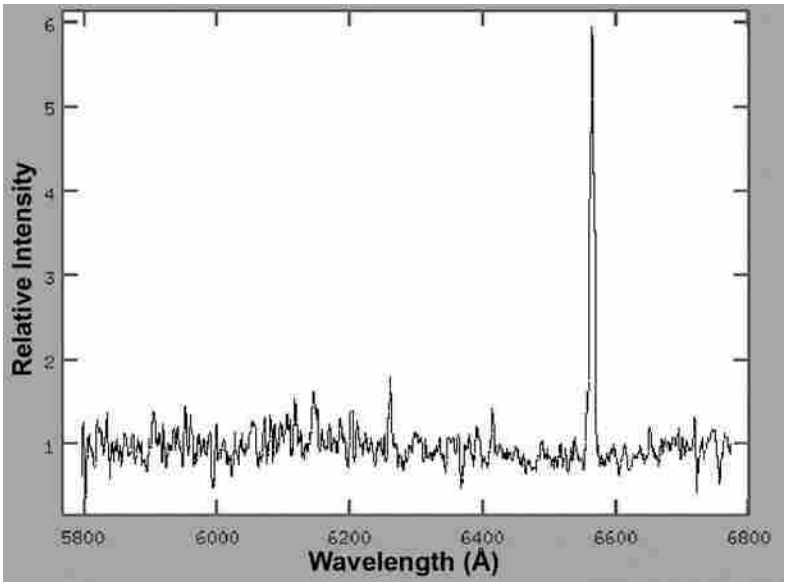

Figure 10: NGC2264-90. Spectra obtained at DAO indicating Hα emission as identified by the Hα index calculated from the Tenagra data. Compare the strength of the emission to star 164 in Figure 15. This emission is stronger as indicated by the Hα index (N-W = 1.058)**.**

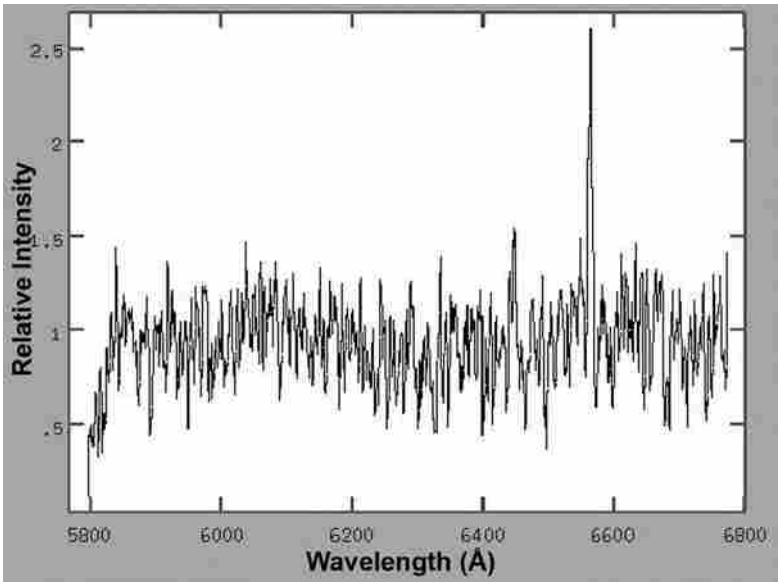

Figure 11: NGC 2264-164. Spectra obtained at DAO indicating Hα emission as identified by the Hα index calculated from the Tenagra data. Compare the strength of the emission to star 90 in Figure 14. This emission is weaker as indicated by the Hα index (N-W = 1.390)**.**

These spectra further confirm that the Hα index is a good indicator of Hα emission. Beginning with star 181, it is located along the locus of the main-sequence in Figure 8 (shown there as an open diamond). From this location it is expected that the spectra would show the Hα line (λ = 6563 Å) in absorption. This is indeed the case (Figure 9).

The other two stars, for which spectra were obtained, 90 and 164, are found in the emission region of Figure 8. Star 90 is further to the right than 164 and should have stronger emission. Comparing the relative intensity in the graphs of two spectra, Figures 10 and 11, it is seen that star 90 does exhibit stronger emission than star 164 as expected. This serves as a confirmation to the success of the wide/narrow Hα index.

To further understand the wide/narrow Hα index, these three spectra and additional spectra were analyzed for their theoretical index values. See Figures 12 and 13. The additional main-sequence spectra were obtained from an online database (http://www.sc.eso.org/santiago/uvespop/interface.html). Additional emission spectra were created in Excel using the equation for the standard emission line profile (Lorentzian) shown below.

$$\Phi_i(\nu) = \frac{\frac{\beta_i}{\pi}}{(\nu - \nu_0)^2 + \beta_i^2} \tag{3}$$

This equation calculates the width of the profile about ν_o using β which depends on the broadening mechanisms present. Both the absorption and emission spectra were convolved with the filter tracings to determine the feature's equivalent width (EW) from which a value for the Hα index was calculated. Recall, the equivalent width (EW) is defined as the width of a rectangle having the height of the continuum centered on a spectral line that, on a plot of intensity against wavelength, has the same area as the line. When the rectangle height is normalized to one the equivalent width has units of wavelength. A stronger line results in a larger equivalent width.

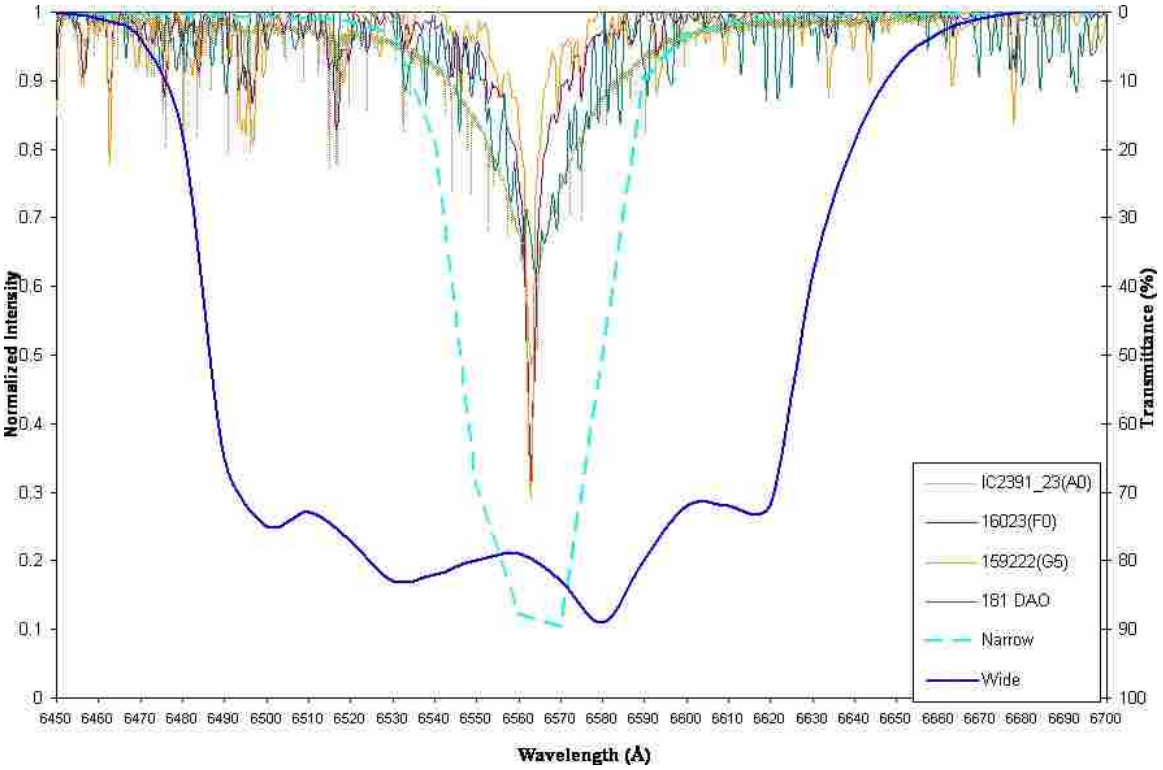

Figure 12: Absorption spectra obtained from an online database and DAO. Spectra are identified in the legend on the graph. These spectra were convolved with the W and N filters (W in solid dark blue and N shown here in dashed light blue) to determine their EW through each filter. From the EWs, a value of Hα index was calculated for each star.

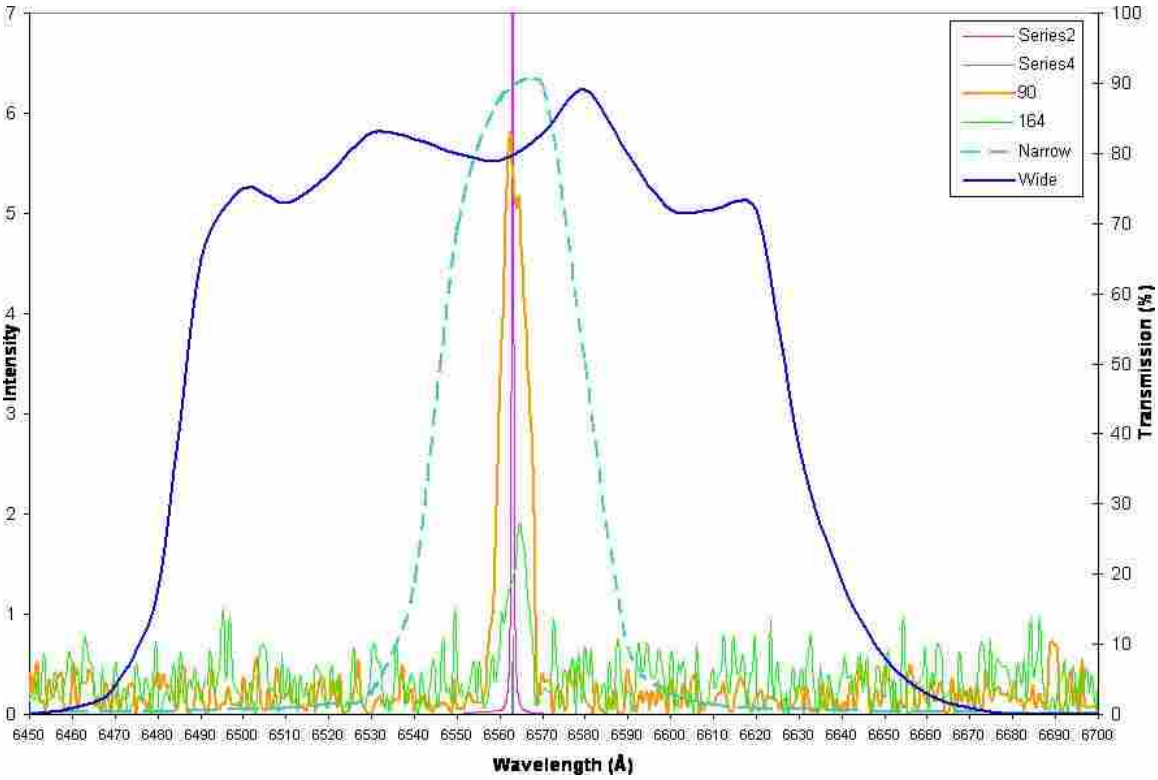

Figure 13: Emission spectra obtained from DAO and created in Excel (labeled Series 2 and 4). Each spectrum is identified in the legend on the graph. The continuum level is shown here to be at zero. These spectra were convolved with the W and N filters (W shown in solid dark blue and N shown here in dashed light blue) to determine their EW through each filter. From the EWs, a value of Hα index was calculated for each star.

To convolve the filters with the absorption objects, the area of the absorption feature is subtracted from the area of the filter as absorption removes photons from the continuum. This is done for each filter as shown with a representative feature in Figures 14 and 15 below. In these figures the standard procedure of displaying the absorption feature normalized to a continuum level of 1 is being employed. Also, the filter transmission axis has been inverted for demonstration purposes. The resulting EWs are given as shaded rectangles. They have been off-centered to simplify the figures.

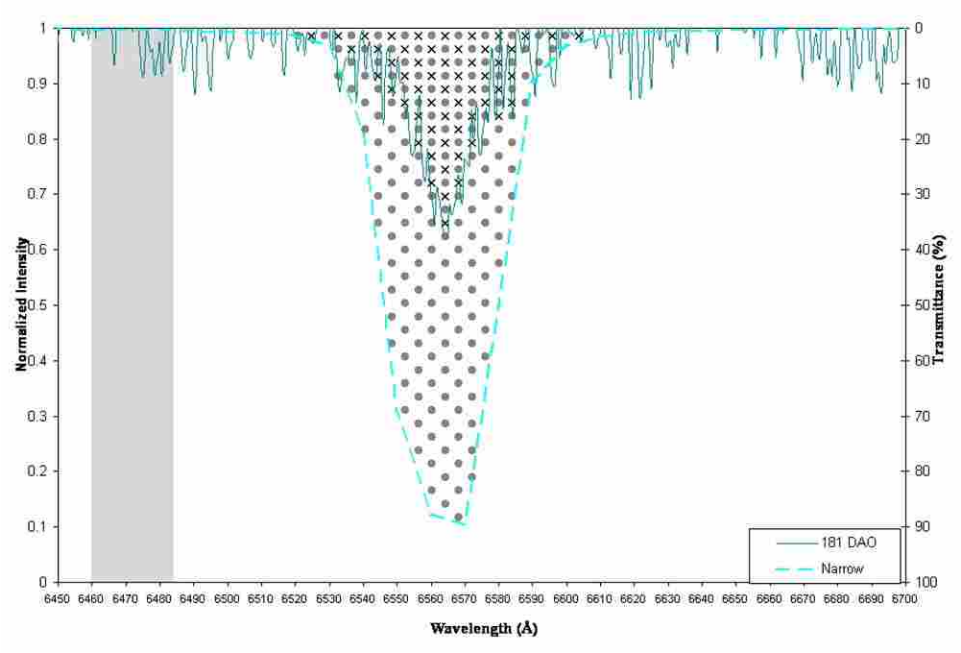

Figure 14: Convolution of representative absorption feature (181) with narrow (N) filter. The area of the absorption feature (shown in crosses) has been subtracted from the area of the filter (shown in dots). The rectangular area is the resulting equivalent width of the feature when observed through this filter. It has been off-centered to simplify the figure.

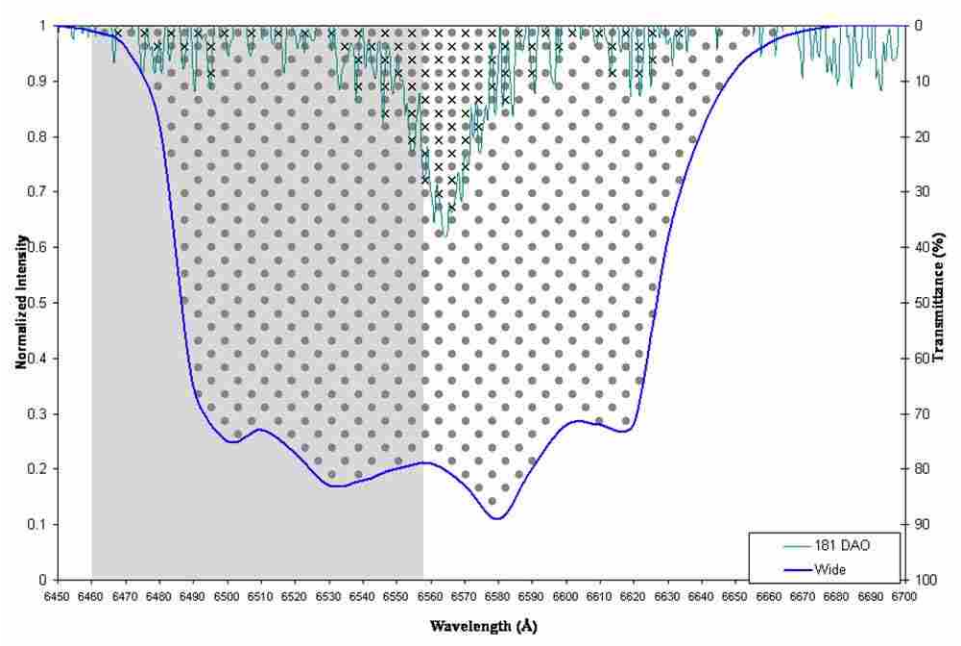

Figure 15: Convolution of representative absorption feature (181) with narrow (W) filter. The area of the absorption feature (shown in crosses) has been subtracted from the area of the filter (shown by dots). The rectangular area is the resulting equivalent width of the feature when observed through this filter. It has been off-centered to simplify the figure.

For the emission features the area of the feature was added to the area of the filter as emission adds to the continuum. The process is displayed graphically in Figures 16.

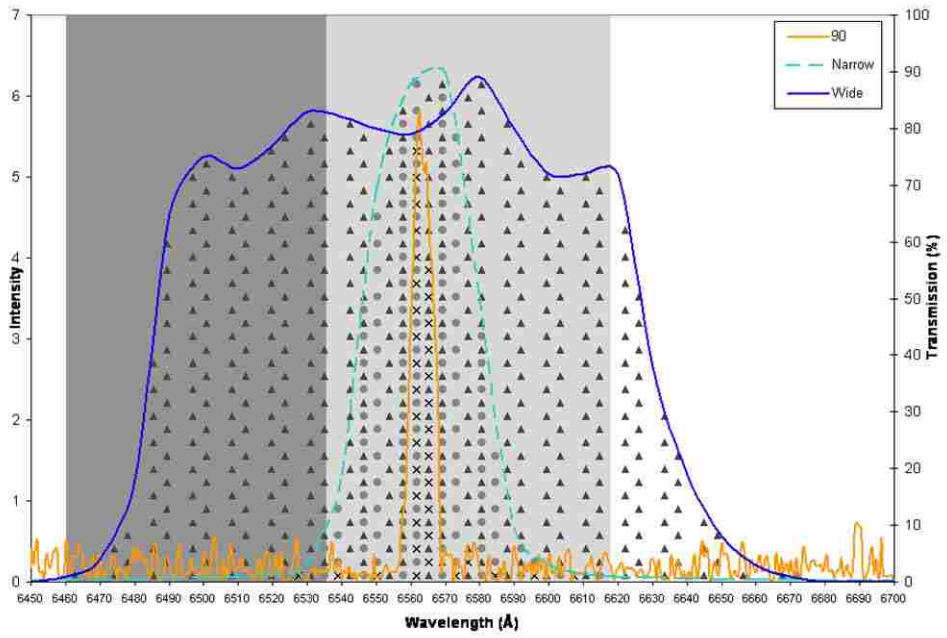

Figure 16: Convolution of representative emission feature (90) with narrow and wide filters. The continuum level is shown here to be at zero. The area of the emission feature (shown in crosses) has been added to the area of the filter (area filled in). The shaded areas are the equivalent widths of the feature when observed through these filters. They have been off-centered to simplify the figure. The darker region is the EW(N) and the EW(W) is the darker region plus the lighter region.

For each of the spectra, the value from the convolution of the feature with each filter is used to determine the Hα index as defined in Eq. 1 with the flux being given as the EW. The resulting indices are presented in Table 3. Column 1 is the name of the feature except for the last three entries. The last three entries are: filters-the value obtained for the index using just the areas of the filters with no feature, sensitivity-the difference in the index between an A0 and G9 star, and response limit-the limiting value of the index for emission. The second column is labeled Description and contains the spectral type or a description of how the spectrum was obtained. Asterisks indicate the

spectral type listed was obtained from the Simbad database and differed from that listed on the website from which the spectrum was obtained. Column 3 is the value of the EW determined in the W filter and Column 4 is the value of the EW determined in the N filter. The next column is the Hα index determined according to the definitions in Eq. 1 except for the last two entries which are the sensitivity and response limit as indicated. Column 6 contains the values of the index obtained from the Tenagra photometry data for the three spectra observed at DAO.

ID	Description	EW W	EW N	Index	Tenagra	EW W mod	Index mod
IC2391_23	A0V	102.19	21.48	1.693		125.67	1.918
65810	A1V	103.89	23.34	1.621		127.37	1.842
145689	A5V	101.69	21.29	1.698		125.17	1.923
39060	A9V	99.98	21.10	1.689		123.46	1.918
109931	F0V	107.05	26.42	1.519		130.53	1.734
40136	F1V	107.98	26.07	1.543		131.46	1.757
33256	F2V	108.68	28.15	1.467		132.16	1.679
37495	F4V	109.59	28.56	1.460		133.07	1.671
18466	F*	81.67	25.65	1.257		105.15	1.532
179422	F5V	76.27	27.43	1.110		99.75	1.402
167588	F8V	111.19	29.71	1.433		134.67	1.641
10647	F9V	110.45	29.37	1.438		133.93	1.647
59967	G4V	115.30	31.65	1.404		138.78	1.605
159222	G5V	104.47	28.31	1.418		127.95	1.638
10623	G5V*	76.22	26.83	1.134		99.7	1.425
140901	G6V	103.99	28.28	1.414		127.47	1.635
25069	G9V	113.61	31.90	1.379		137.09	1.583
181	DAO	96.72	23.85	1.520	1.734	125.9033	1.806
green	Series 4	118.86	35.86	1.301		148.035	1.540
pink	Series 2	1572.76	1489.75	0.059		1601.94	0.079
90	DAO	157.65	74.65	0.812	1.058	186.8327	0.996
164	DAO	129.12	46.12	1.118	1.390	158.2953	1.339
filters	no feature	117.40	34.40	1.333		146.58	1.574
sensitivity				0.314			
response limit				-0.100			

Table 3: Hα index values obtained from the convolution of the area of the feature with each of the filters. Column 1 is the name of the feature except for the last three entries. The last three entries are: filters-the value obtained for the index using just the areas of the filters with no feature, sensitivity-the difference in the index between an A0 and G9 star, and response limit-the limiting value of the index for emission. The second column is labeled Description and contains the spectral type or a description of how the spectrum was obtained. Asterisks indicate the spectral type listed was obtained from the Simbad database and differed from that listed on the website from which the spectrum was obtained. Column 3 is the value of the EW (in Å) determined in the W filter and Column 4 is the value of the EW (in Å) determined in the N filter. The next column is the Hα index determined according to the definitions in Eq.s 1 except for the last two entries which are the sensitivity and response limit as indicated. Column 6 contains the values of the index obtained from the Tenagra photometry data for the three spectra observed at DAO. Column 7 is the modified EW for the wide filter with the final column containing the modified indices.

Of note are the values of the Hα indices for the main-sequence stars which correspond to photometry values in Figure 8 from the Tenagra data for NGC 2264. The indices are larger for the A stars and decrease for later spectral types. This trend is

expected as the strength of the Hα feature decreases with spectral type from A0 to G9. Also note that in Table 3 the values of the indices for the emission objects are smaller than the main-sequence values as expected.

The values obtained from the convolution of the spectra are in agreement with the trend in those for which Tenagra data were obtained. There is however a systematic shift of 0.2 in the data. This can be explained by an incorrect tracing of the filter or a shift in its characteristics since it was made as can happen with interference filters. Unfortunately the filter is now unavailable to retrace. So, a modified set of EWs for the wide filter were obtained by increasing the area of the filter. From these values a set of modified indices were calculated. When the area increased by 25% the calculated indices were in agreement with the Tenagra data to within the errors of the observations. (See Table 3 columns 7&8) As this discrepancy was discovered after the fact and this was not the filter used for the final results (which are in good agreement), further explanation was deemed unnecessary.

Two more numbers given in Table 3 are the filter value and the response limit. The filter value is the index obtained using the areas of the two filters with no feature. The response limit is the value of the index corresponding to the maximum emission limit. For this value the response of each filter at 6563 Å was used to calculate the Hα index value. As the response for the wide filter is less than for the narrow filter at the central wavelength the limit in this case is negative. No stars should be observed to have a value smaller than this limit. This was indeed the case with the NGC 2264 Tenagra data (see Figure 8).

A final number given in Table 3 is labeled as the sensitivity. This is the value of the difference between A0 and G9 indices. This shows the ability of the index to distinguish among spectral types. Larger sensitivity yields a larger difference in the index between spectral types making them easier to distinguish. This wide/narrow combination yielded a sensitivity of 0.314.

4.3 Increasing the sensitivity

Upon examination of the sensitivity of the index established in Chapter 2, it was decided to increase the sensitivity by increasing the width of the wide filter. This was chosen over narrowing the narrow filter due to the difficulty in maintaining repeatability in really narrow filters. Therefore, a new W filter with a width FWHM = 210 Å compared to FWHM = 160 Å was manufactured. A plot of the filter transmission is given in Figure 17.

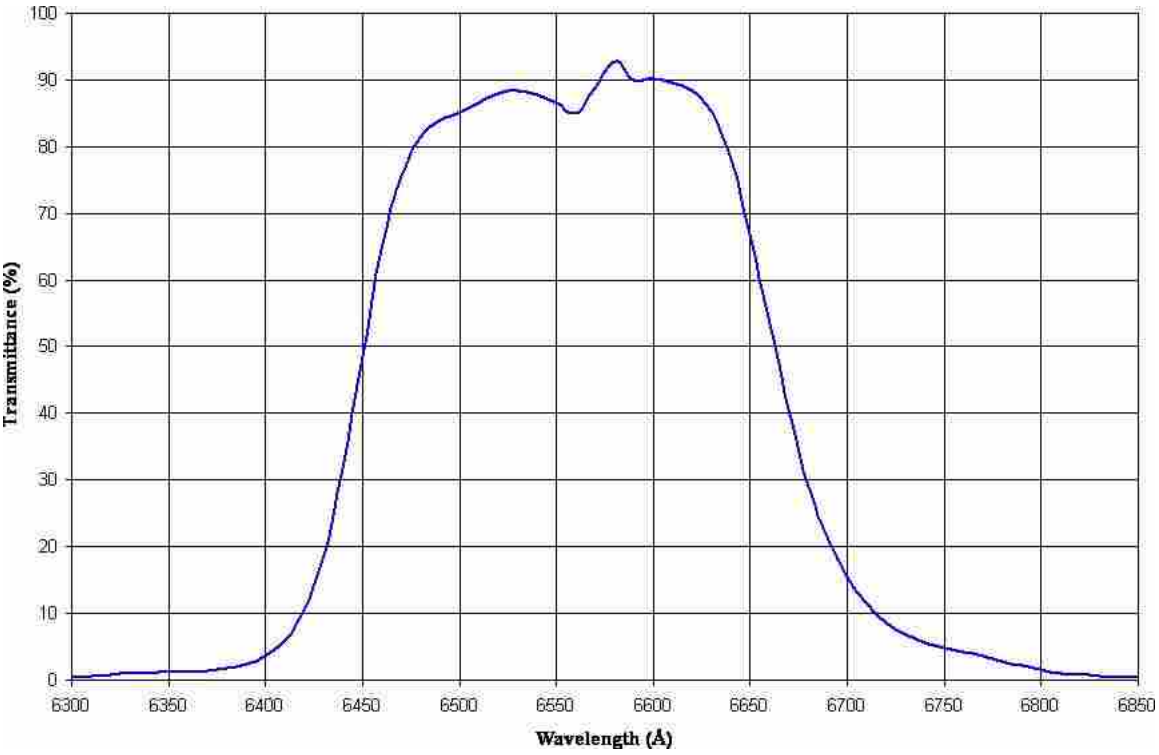

Figure 17: Filter transmission for the wider W filter. Centered on Hα (λ = 6563 Å), the FWHM of the filter is 210 Å compared to the 160 Å of the first wide filter.

Applying this filter to the same spectra as above, the sensitivity of the Hα index is increased from 0.314 to 0.365 as seen below in Table 4. This increases the difference between an A0 and G9 star by 0.051. This makes it that much easier to distinguish spectral types. Also seen in the table are the new values for the absorption and emission spectra as well as the filter and response limit values. The final column gives the indices obtained from the photometry done at WMO (to be described in Chapter 5). Note the good agreement between these values and those obtained from the spectra. This indicates the ability of the photometry method to measure indices accurately.

ID	Description	EW W	EW N	Index	WMO
IC2391_23	A0V	187.540	21.480	2.353	
65810	A1V	189.240	23.340	2.272	
145689	A5V	187.040	21.290	2.359	
39060	A9V	185.330	21.100	2.359	
109931	F0V	192.400	26.420	2.156	
40136	F1V	193.330	26.070	2.175	
33256	F2V	194.030	28.150	2.096	
37495	F4V	194.940	28.560	2.085	
18466	F*	167.020	25.650	2.034	
179422	F5V	161.620	27.430	1.926	
167588	F8V	196.540	29.710	2.051	
10647	F9V	195.800	29.370	2.060	
59967	G4V	200.650	31.650	2.005	
159222	G5V	189.820	28.310	2.066	
10623	G5V*	161.570	26.830	1.949	
140901	G6V	189.340	28.280	2.064	
25069	G9V	198.960	31.900	1.987	
181	DAO	182.073	23.849	2.207	2.039
Green	Series 4	204.205	35.855	1.889	
Pink	Series 2	1658.110	1489.750	0.116	
90	DAO	243.003	74.653	1.281	1.151
164	DAO	214.465	46.115	1.669	1.677
Filters	no feature	202.750	34.400	1.926	
Sensitivity				0.365	
Response limit				-0.035	

Table 4: Hα index values obtained from the convolution of the area of the feature with each of the filters using the wider W filter. Columns are the same as those described in Table 3.

In summary, a combination of preliminary photometry on NGC 2264 and convolution of filter tracings with spectra led to the successful development of an Hα wide/narrow index capable of separating emission objects from the main-sequence. The combination of a wide (FWHM = 210 Å) and a narrow (FWHM = 30 Å) filter yields a sensitivity between A0 and G9 of 0.365 and a response limit of -0.035. With the Hα index defined as Hα index = N-W, the main-sequence spreads from A0 = 2.353 to G9 = 1.987. In a color-magnitude plot of V vs. Hα index, with A0 to the left of G9 (as is standard in astronomy), the emission objects can then be identified by their location to

the right of the main-sequence (smaller Hα indices). The index thus developed is now ready to be applied to star formation regions to locate possible PMS objects by their Hα emission.

5. Application

While it was being confirmed that the Hα index is successful at identifying Hα emitters without the use of reddening maps, the second improvement to the method was achieved by the completion of the West Mountain Observatory (WMO) wide-angle facility. This facility is comprised of an 8 inch f/4 telescope mounted on a Paramount mount. Attached to this telescope was a ST 10 CCD. This yielded a field of view of 62 min x 42 min, with 1.7 arcsec/pixel. The large field of view allows for an entire cluster and its surrounding region to be imaged in a single frame. As mentioned previously, this eliminates the need for the creation of mosaics which requires more telescope time and time consuming reduction processes.

The combination of both improvements to the method of locating potential PMS objects through their Hα emission is demonstrated by the application of this setup to several young open clusters. The clusters used in this study were open clusters visible from West Mountain in the late summer and early fall of 2005. They are NGC 2244, NGC 2264, NGC 6530, NGC 6604, and Trumpler 37 which is also known as IC 1396.

For each of the clusters short (on average the exposure time was: V filter-30 sec., W filter-60 sec., and N filter-180 sec.) and long (on average the exposure time was: V filter-90 sec., W filter-180 sec., and N filter-900 sec.) observations were obtained in each of the three filters. For these images the cluster was positioned as close to the center of the frame as possible while maintaining a bright guide star in the autoguide camera located in the same casing as the main camera. Overlays of the positions of the 30

brightest stars observed with a Digitized Sky Survey 60 arcmin^2 are provided later for orientation purposes.

Details of the application of the Hα index to the clusters with the wide-angle facility and the basic reduction processes are given in Chapter 5.1. Chapter 5.2 contains the resulting plots and tables for each cluster in their respective subsections. Chapter 5.3 summarizes the results. This chapter also includes an examination of the questions introduced in the Background Chapter in light of the findings from these clusters.

5.1 Photometry Reduction Process

Each night of data was reduced using the standard reduction procedures in IRAF. For this reduction, sixteen zeros, a set of twilight flats in each filter, and a set of darks were obtained on each night of observing. After examination to confirm high quality, zero and dark frames were subtracted and flats divided.

Point spread photometry was then performed using DAOphot. This is a very powerful program designed by Peter Stetson (1987). This program has an automatic algorithm to locate stars in each frame. Synthetic aperture photometry is then performed with a range of aperture sizes. A model stellar-light profile is then defined. This model accounts for position on the frame as well as other factors such as magnitude and color. This is then used to match the actual image data by determining the optimum spatial arrangement and intensity scaling and point spread photometry is performed. Next the positioned and scaled profiles are subtracted from the data array and residuals are calculated. These are then examined to determine the goodness of the procedure and adjustments are made as necessary.

Once the photometry was performed the files for each cluster were then matched up with DAOmaster. This program produced a file of the star identifiers (ID) with the raw magnitude and photometry error for each observation in which the star was found.

This file is then put into Excel. In Excel, the exposure time for each observation was accounted for. This was done using a frame of the same length exposure in each filter. The average of the bright stars was then used to correct the magnitudes of all the other frames. Frames of the same exposure length in each filter were examined to verify consistency. Then the different filter observations and their respective errors are averaged for each star. The number of observations in each of the filters is also counted. Those with less than two observations in any filter are eliminated. The final number of stars used for each cluster is given in Column 2 of the table below. The number of stars observed in the previous study is given along with its reference in Column 3.

Cluster	**Number of stars in this study**	**Number of stars in previous studies**
NGC 2244	1383	577 (Sung et al., 2002)
NGC 2264	1201	209 (Sung et al., 2000)
NGC 6530	630	887 (Sung et al., 2000)
NGC 6611	673	None available
Trumpler 37	2118	None available

Table 5: The number of stars used for each of the clusters in the study. The number of stars is related to the density of the region but also the number of observations obtained. The final column gives the number of stars observed in previous studies in given where available. See Chapter 2.2.2 for more details on those studies.

While the number of stars observed is inherently related to the density of the observed regions it is also a factor of the length and number of exposures. The limiting factor is the narrowest filter which in this case was N. The number and length of the long exposures (on average 900 seconds) obtained in the N filter determined the depth of the data. See the table of observations and error plots given for each cluster in the respective subsections.

Even with these limitations the number of stars observed in each region is impressive. We observed 2.5 times as many stars in NGC 2244 and 6 times as many in NGC 2264 as Sung et al. (see Table 5). This increase was achieved by the increase in area observed and not by integrating longer.

Returning to the reduction process, the V data for each cluster is standardized using observations of the Landolt Selected Area 114 (Landolt, 1992). A magnitude shift of -1.56 was determined to be necessary to bring the average instrumental V values onto scale with the standard V values. This level of standardization is sufficient for this study. The Hα data could not be standardized on an absolute scale as standard values have yet to be developed for these filters. Therefore the N and W magnitudes use an arbitrary zero point. This is not a problem since the index does not need an absolute scale. The average of all the observations on the instrumental system, defined by the N and W filters, for each clusters are presented.

Once all the data for each cluster are compiled, the Hα index is then computed. This is calculated by the equation developed in Chapter 4, Hα index = N – W. A sample of the resulting data set is given in the table below. This table gives the identifier assigned the star from DAOPhot, the x and y coordinates of the star, the corrected V

magnitude with its photometric error value, the N and W magnitudes with their associated errors, and finally the Hα index obtained as explained above. Complete data tables for each cluster are given in Appendix B.

ID	X	Y	N	err	V	err	W	err	N-W
148	217.742	799.902	11.491	0.074	7.104	0.087	9.685	0.073	1.806
418	627.201	1967.710	13.097	0.061	7.537	0.118	10.530	0.083	2.567
798	1138.656	263.330	11.286	0.037	7.579	0.119	9.500	0.042	1.786
730	1079.483	254.083	13.133	0.029	7.834	0.067	11.193	0.040	1.939
311	457.041	980.047	11.356	0.063	7.865	0.166	9.328	0.072	2.028
1019	1422.583	1023.791	11.466	0.027	7.901	0.084	9.558	0.031	1.908
633	978.324	687.703	12.056	0.031	8.036	0.063	10.030	0.038	2.026
589	921.665	1035.399	12.263	0.039	8.045	0.058	10.135	0.033	2.129
103	163.387	566.714	11.799	0.078	8.054	0.068	9.872	0.073	1.927
582	915.612	571.897	11.418	0.039	8.424	0.078	9.587	0.051	1.831
1169	1620.247	1365.764	11.708	0.060	8.505	0.056	9.728	0.055	1.980
640	992.329	960.392	12.486	0.030	8.562	0.052	10.488	0.029	1.999
377	562.377	18.865	11.004	0.088	8.585	0.071	9.393	0.106	1.611
1054	1487.436	290.995	13.054	0.040	8.681	0.084	10.985	0.050	2.069
553	872.592	941.915	13.035	0.032	8.708	0.086	10.980	0.031	2.056
1593	2104.171	1433.210	12.276	0.079	8.776	0.086	10.201	0.077	2.075
847	1183.805	1429.824	12.819	0.065	8.783	0.067	10.788	0.057	2.031

Table 6: Sample of a data set for a cluster. Column 1 gives the identifier assigned the star from DAOPhot. Columns 2 an 3 are the x and y coordinates of the star. Column 4 gives the corrected V magnitude with its photometric error value in Column 5. The N and W magnitudes with their associated errors are in Columns 6-9, and finally Column 10 contains the Hα index. Complete data tables for each cluster given in Appendix B.

Since the coordinates presented here were developed independent of other studies, the subsection for each cluster contains a plot of the x and y coordinates of the 30 brightest stars overlaid on a Digitized Sky Survey quick V image centered on the cluster. This can be used to match the coordinates given herein with the stars in the region.

To demonstrate the nature of the data the errors for each filter have been plotted in the subsections as well. Each of the error plots has the characteristic exponentially increasing shape expected for this type of data. A V error plot was also used to determine

the limiting depth of the data. This was taken to be V magnitude at which the bottom of the error curve increased above 0.1 magnitudes. Only data brighter than this level was used in subsequent analysis.

5.2 Analysis and Selection Criteria

Data sets thus obtained were then used to analyze the results obtained for each cluster. With the lower magnitude limit determined from the error plots, a color-magnitude plot of V vs. N-W (the Hα index) was made for each cluster and is provided. From each of these plots, given in the subsections, the Hα emission candidate objects were identified.

In practice the data contain observational errors that must be taken into account. It was decided to determine the locus of the main-sequence and then set selection criteria for the emission objects relative to it. The locus of the main-sequence varies with spectral type (see Chapter 3) and the errors increase for fainter magnitudes. Therefore, the method of separation of the emission from the main-sequence objects is magnitude dependent. Taking this into account, a discussion of the selection process follows. It was applied to each whole V magnitude bin (for example $8.0<V<9.0$).

First the statistical outliers needed to be removed from the data sets before the locus of the main-sequence could be determined. To remove the outliers a robust Z statistic was used. So, for each of the whole V magnitudes ranges the sample median of the Hα indices (xm) was calculated. The absolute value of each data point (xi) minus this median was then determined. The median of these new values (MAD) was them

calculated and used in Eq. 4 given below to determine the robust Z value for each data point.

$$Z = 0.6745*[abs(xi-xm)/MAD] \quad (4)$$

Stars having a Z value greater than 3 were classified as statistical outliers and are given on the plots as dashes.

Those outliers to the right of the main-sequence can be catalogued as emission object candidates. This method is not expected to locate all the emission objects. To identify additional emission objects, the median of the indices in a V magnitude range is calculated with the outliers removed. The 2σ value of the indices is also determined. Stars with an Hα index (N-W) smaller than this value not already identified as outliers are then classified as additional emission candiates. It is noted that this method contains both Type 1 and Type 2 statistical errors. This means that stars could be misclassified either as emitters or non emitters. This is especially true of those stars closer to the selection limit.

A graphical representation of the selection process is seen in the second V vs. N-W plot provided for each cluster (Figures 23, 31, 39, 47, and 55). On this plot the outliers are given as dashes. The 2σ selection region is marked by a pink vertical line. Those stars then located to the right of the pink line are the additional candidates and are identified by dots.

The selection method outlined above, while being a good method for identifying emission objects, is not the only possible method. Different ranges could be used for averaging and a selection range other than 2σ could be used. However, the selection method used here is sufficient for compiling a list of emission objects for the clusters

with a reasonable certainty of correct classification. The total number of candidates found in each cluster is given in Table 7.

Cluster	Number of emitters found in this study.	Number of emitters found in previous photometry studies.
NGC 2244	72	14 (Sung et al., 2002)
NGC 2264	103	39 (Sung et al., 2000)
NGC 6530	63	21 (Sung et al., 2000)
NGC 6611	53	None
Trumpler 37	62	None

Table 7: The number of emission objects found in each cluster. The final column lists the number of emission objects found in previous studies for comparison. Further details on the previous studies is located in Chapter 3.

These numbers represent a large increase over the number of emitters found in previous studies as seen in the final column of the table.

Once the candidates were identified, their coordinates are plotted over a representative Hα image of the cluster. This is done to test the segregation. It is seen that the emission candidates are concentrated in the gas clouds as would be expected for PMS objects. This is consistent with stellar formation ideas discussed in the Background Chapter and supports the premise that Hα emitters are likely PMS objects.

5.3 Results

The following subsections give data and results obtained for each cluster. Each subsection begins with a basic description of the cluster including a reddening value,

followed by a BVW composite image and a table of the VWN observations both obtained from WMO. As discussed above, this is then followed by plots of the photometric errors and a plot of V vs. Hα Index with the main-sequence and PMS regions indicated. A second plot is given of V vs. Hα Index with the emission objects identified. The next figure is of the coordinates of the 30 brightest stars studied and the emission objects overlaid on the Digitized Sky Survey image. It is followed by an overlay of the coordinates of the emission objects with a representative Hα image of the cluster. Each subsection ends with a brief discussion about the results.

5.3.1 NGC 2244

RA = 06:31:55 and Dec = +04:56:30, distance modulus = 12.23 mag, log age = 6.896, part of Rosette nebula, nucleus of Monoceros OB2 association, E(B-V) = 0.47 (Park and Sung, 2002)

Figure 18: WMO BVW composite image of NGC 2244

	Short	**Long**
V	9	6
W	6	7
N	6	6

Table 8: WMO observations of NGC 2244.

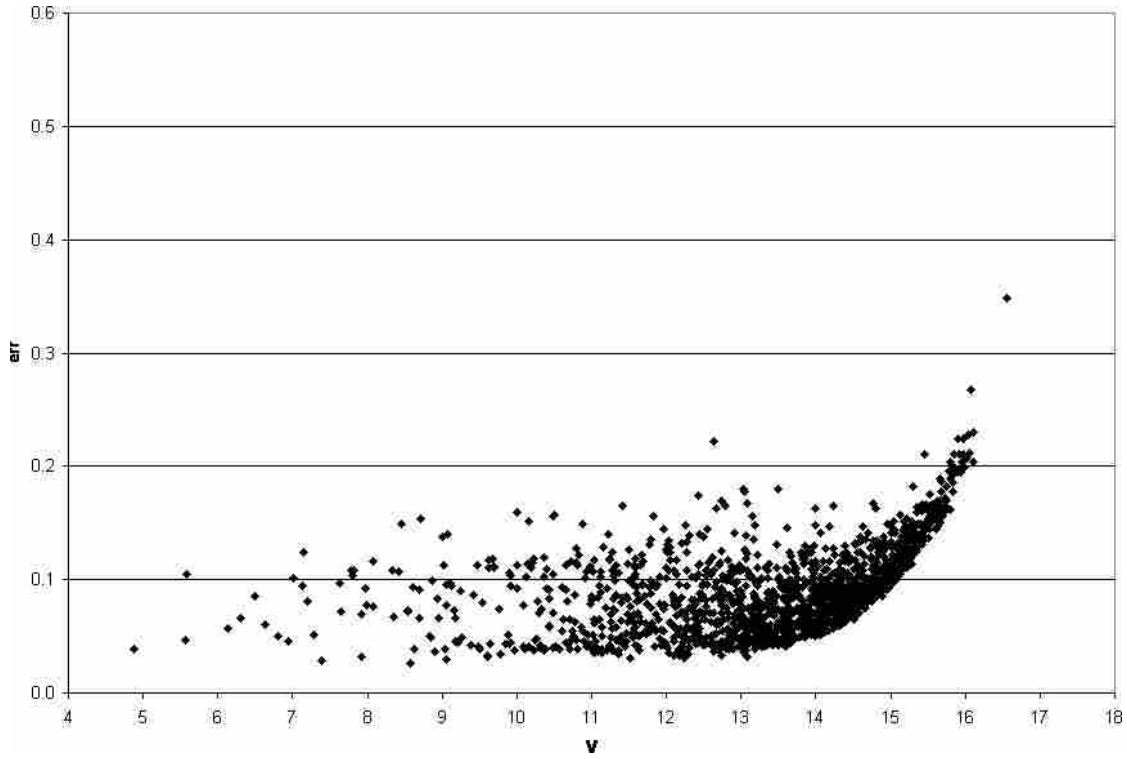

Figure 19: Photometric errors for V observations of NGC 2244. Data down to 15th magnitude was used for the color-magnitude plots.

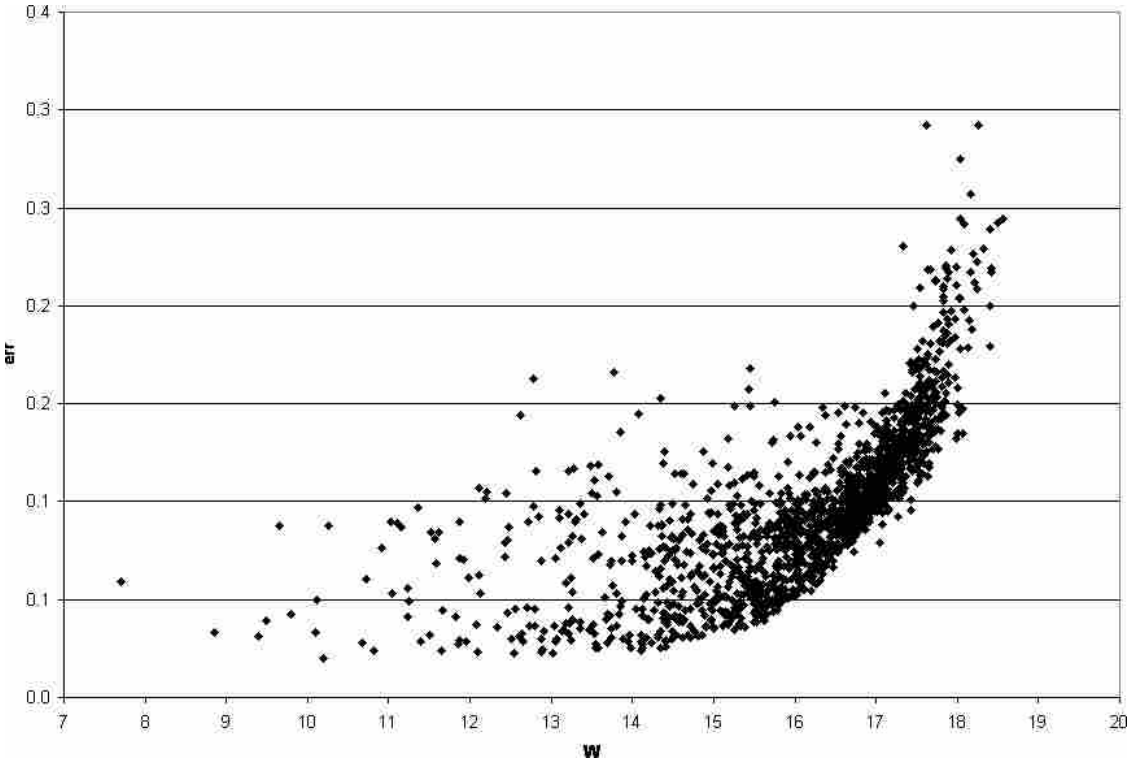

Figure 20: Photometric errors for W observations of NGC 2244.

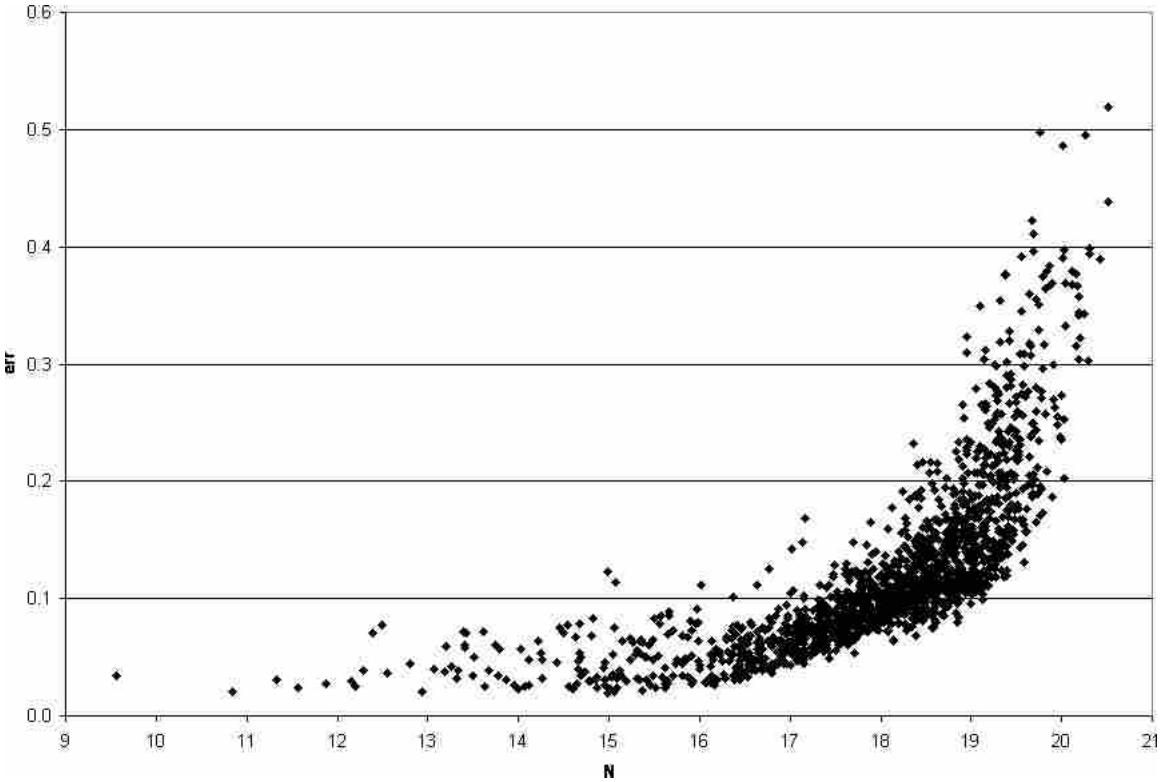

Figure 21: Photometric errors for N observations of NGC 2244.

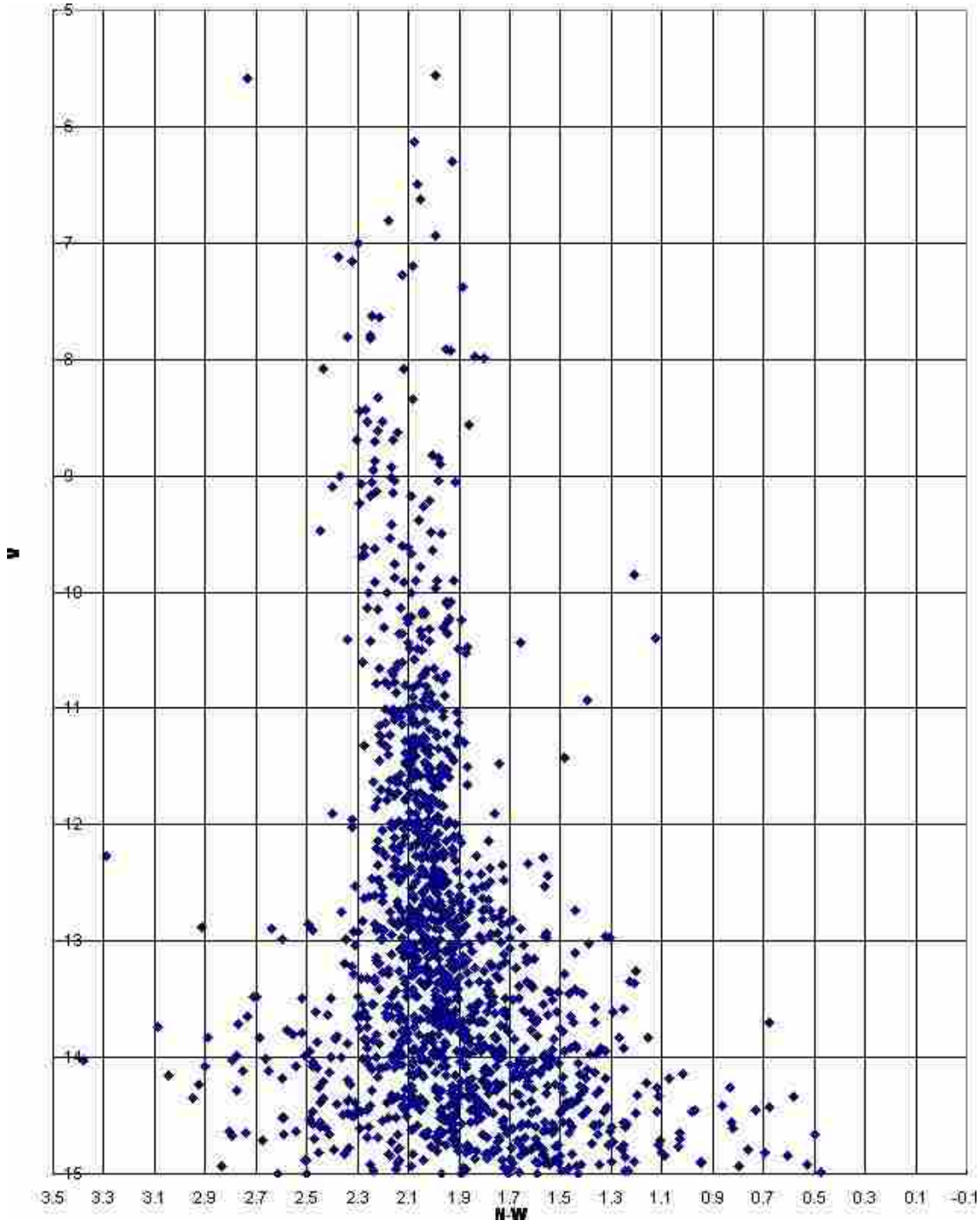

Figure 22: V vs. N-W color-magnitude plot for NGC 2244. The main-sequence is visible as the vertical locus of data points.

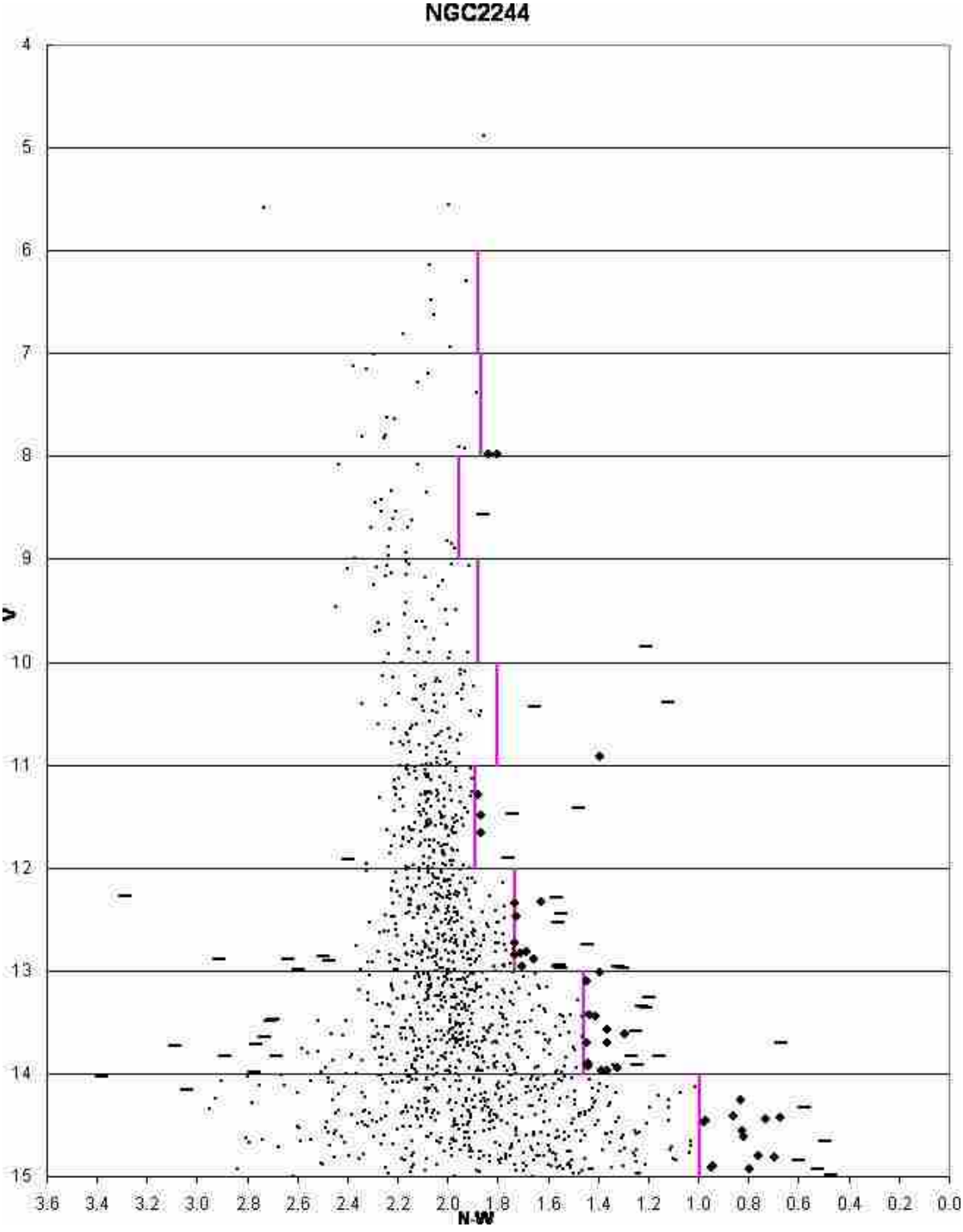

Figure 23: V vs. N-W for NGC 2244. Outliers are shown with dashes. Those outliers are to the right of the main-sequence are emission candidates. Additional emission candidates are given as dots. These are objects located to the right of the pink selection lines. The selection lines are drawn at 2σ from the mean of the main-sequence for that V magnitude range.

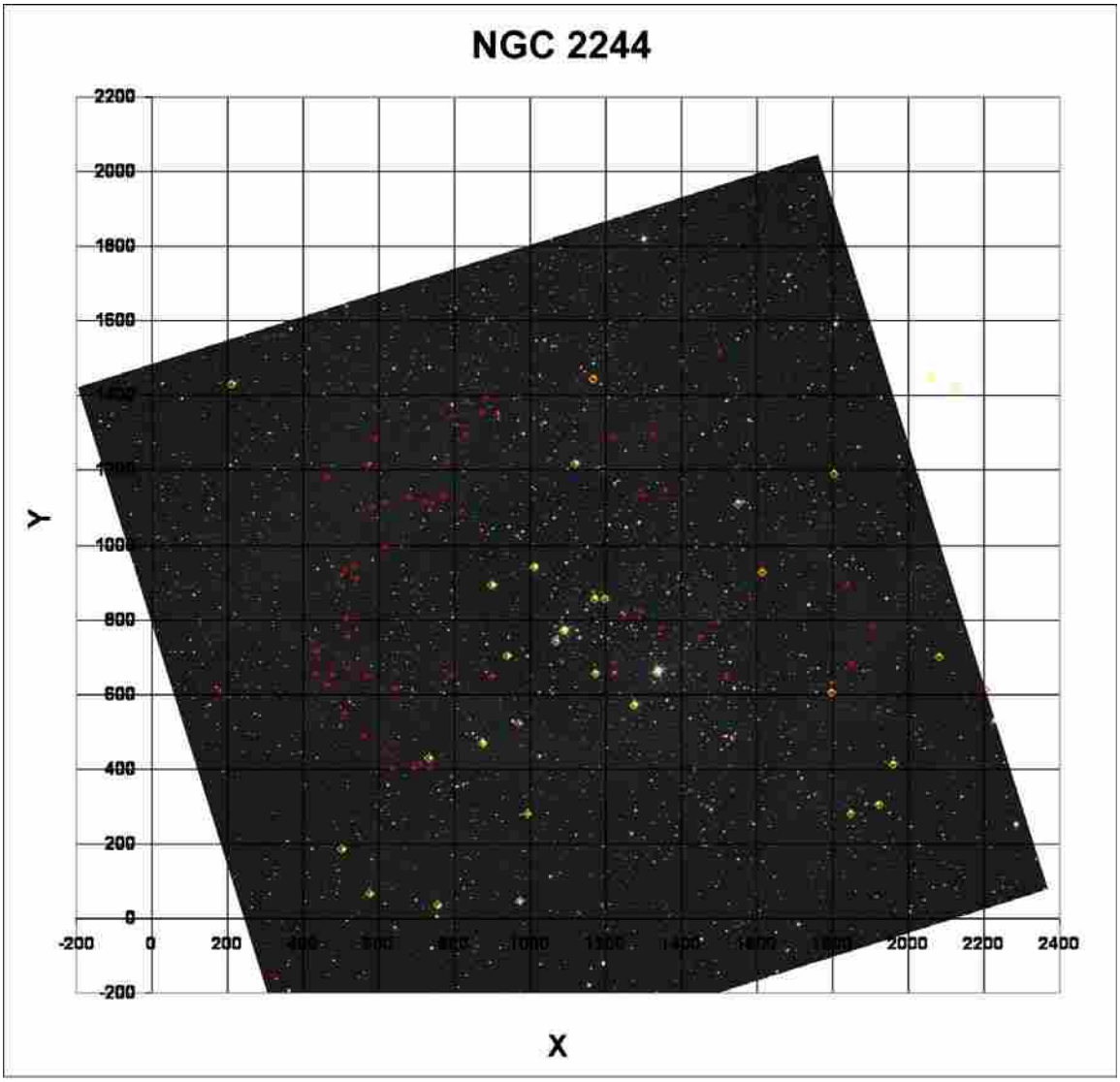

Figure 24: A Digitized Sky Survey quick V image of NGC 2244. The yellow diamonds are the coordinates of the 30 brightest stars given in Appendix B. This image can be used to determine the location of the other stars studied. The red stars are the Hα emission candidates. The same objects are plotted in the following figure.

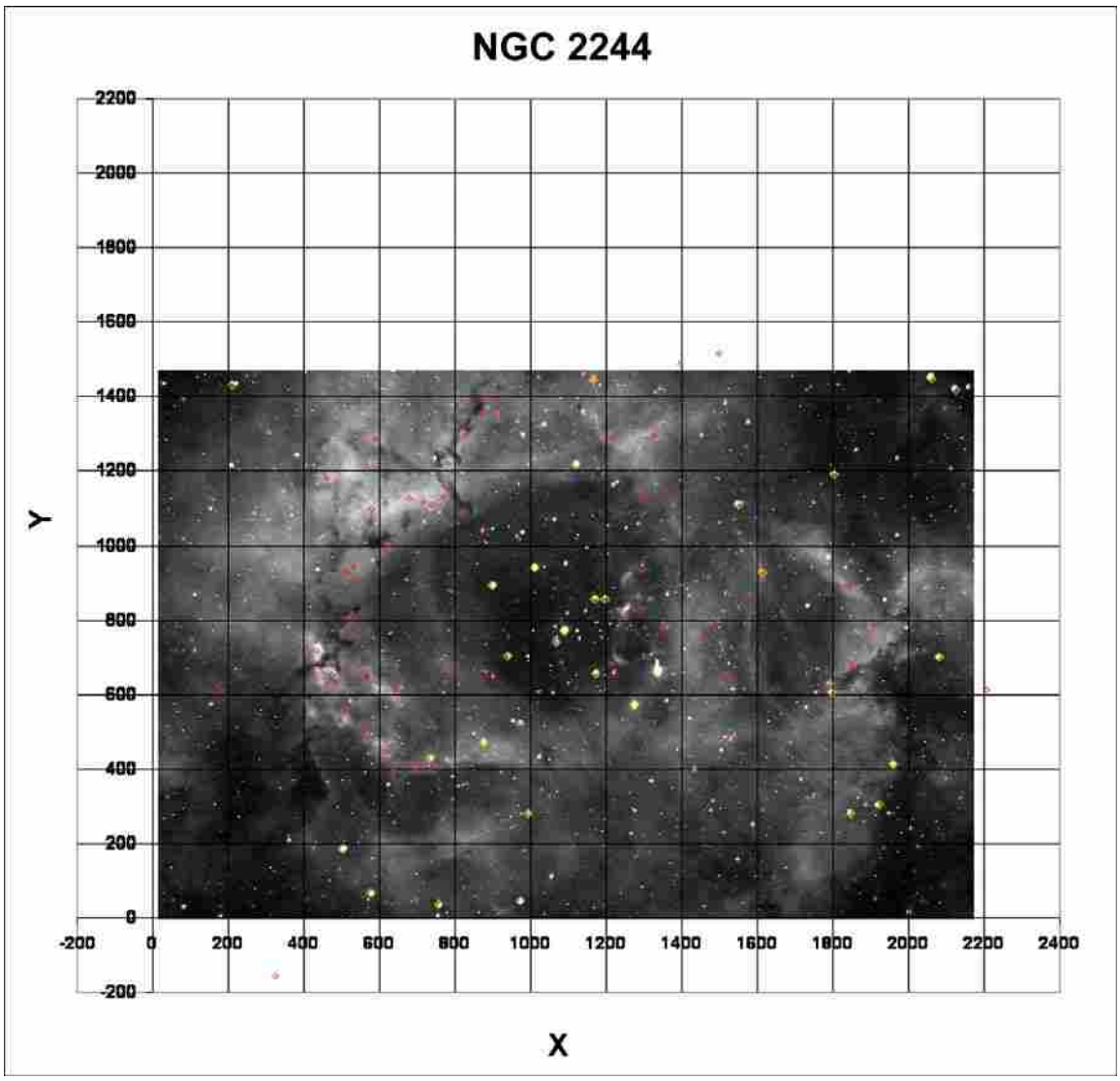

Figure 25: Coordinates of emission candidates for NGC 2244. Coordinates have been overlaid with a representative Hα image of the cluster. Symbols are the same as those in the previous figure.

Based on the V error plot, the data down to 15th magnitude is used for NGC 2244. The 1382 stars in the V vs. N-W plot show a nearly vertical main-sequence as expected. From this plot 29 outliers were found to the right on the main-sequence and 43 more candidates were identified by the methods described in Chapter 5.2. Therefore, the total number of emitters for NGC 2244 is increased from 14 (Sung et al., 2002) to as much as 72 objects.

These 72 stars are plotted as red diamonds in the overlay plots. As seen in Figure 25, these Hα emission candidates are located in the gaseous region of NGC 2244. As it is probable that a majority of these objects are indeed PMS objects their location is consistent with ideas from the theory of stellar formation theory.

5.3.2 NGC 2264

RA = 06:40:58 and Dec = +09:53:42, distance modulus = 9.28 mag, log age = 6.954, open cluster in Monoceros OBI, E(B-V) = 0.07 (Sung et al., 1997), small amount of differential reddening

Figure 26: WMO BVW composite image of NGC 2264.

	Short	**Long**
V	11	12
W	6	15
N	6	15

Table 9: WMO observations of NGC 2264.

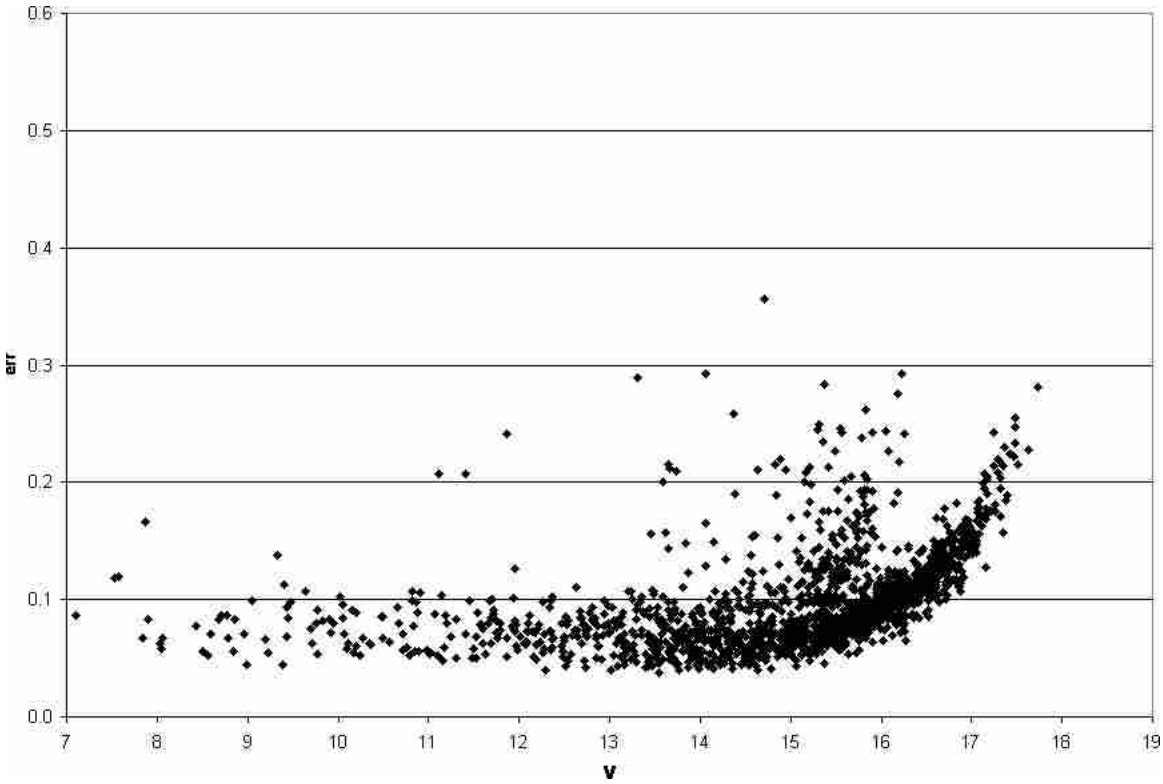

Figure 27: Photometric errors for V observations of NGC 2264. Data down to 16th magnitude was used for the color-magnitude plots.

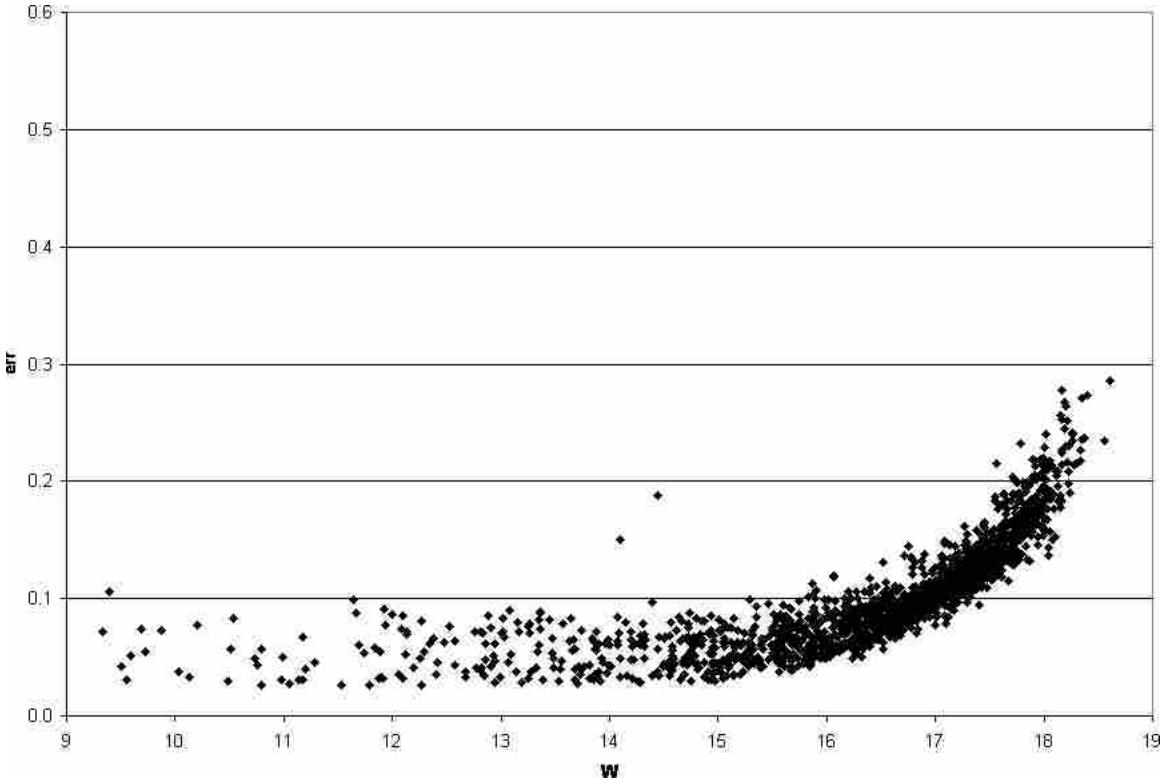

Figure 28: Photometric errors for W observations of NGC 2264.

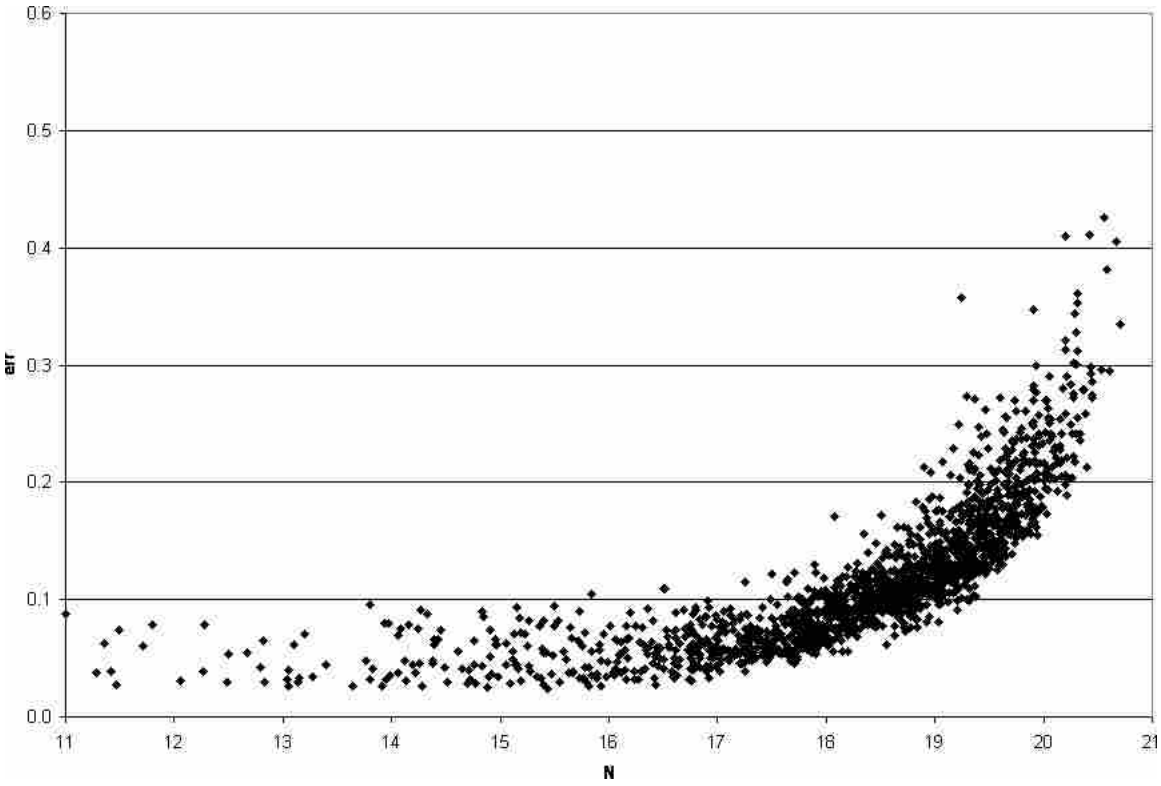

Figure 29: Photometric errors for N observations of NGC 2264.

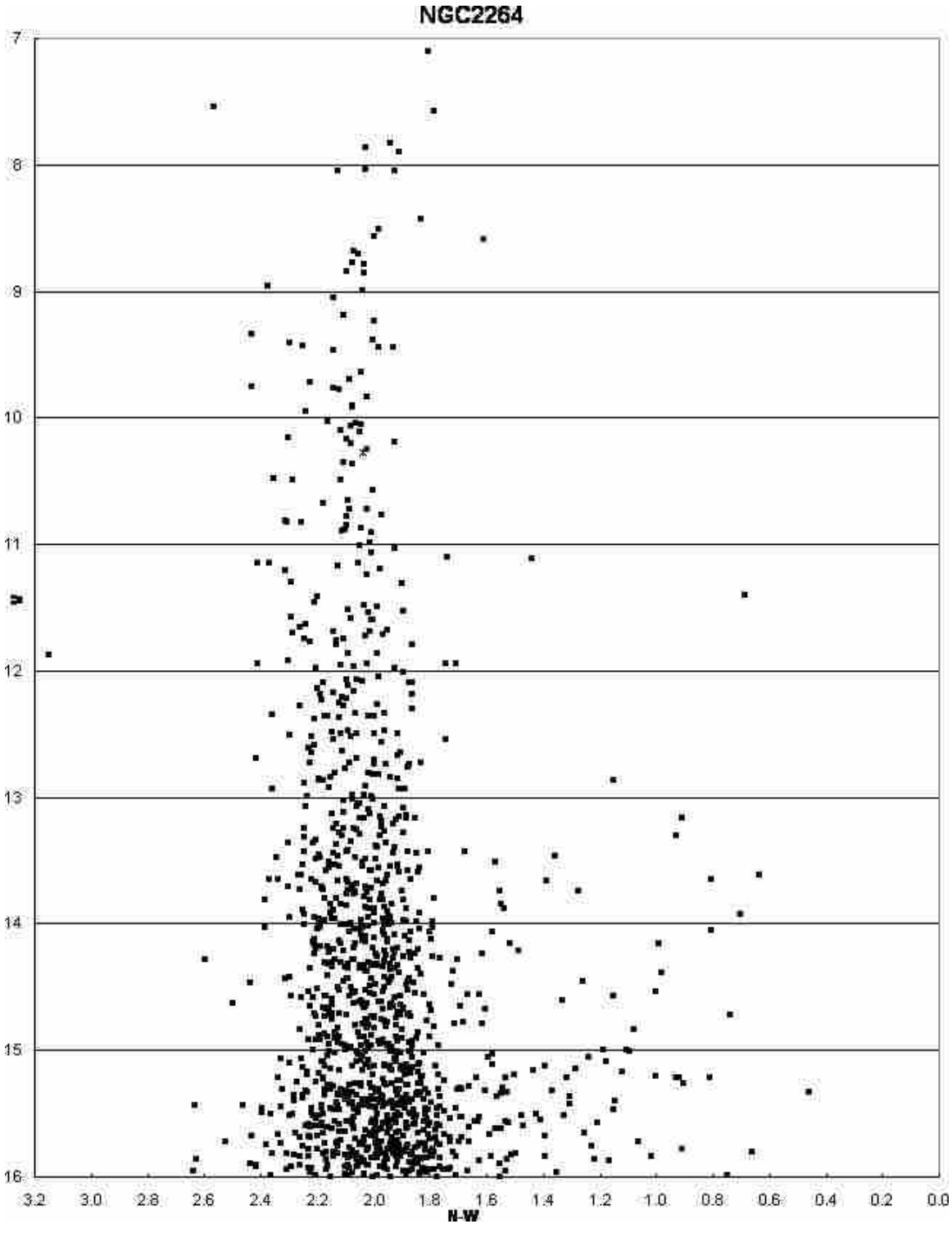

Figure 30: V vs. N-W color-magnitude plot for NGC 2264. The main-sequence is visible as the vertical locus of data points.

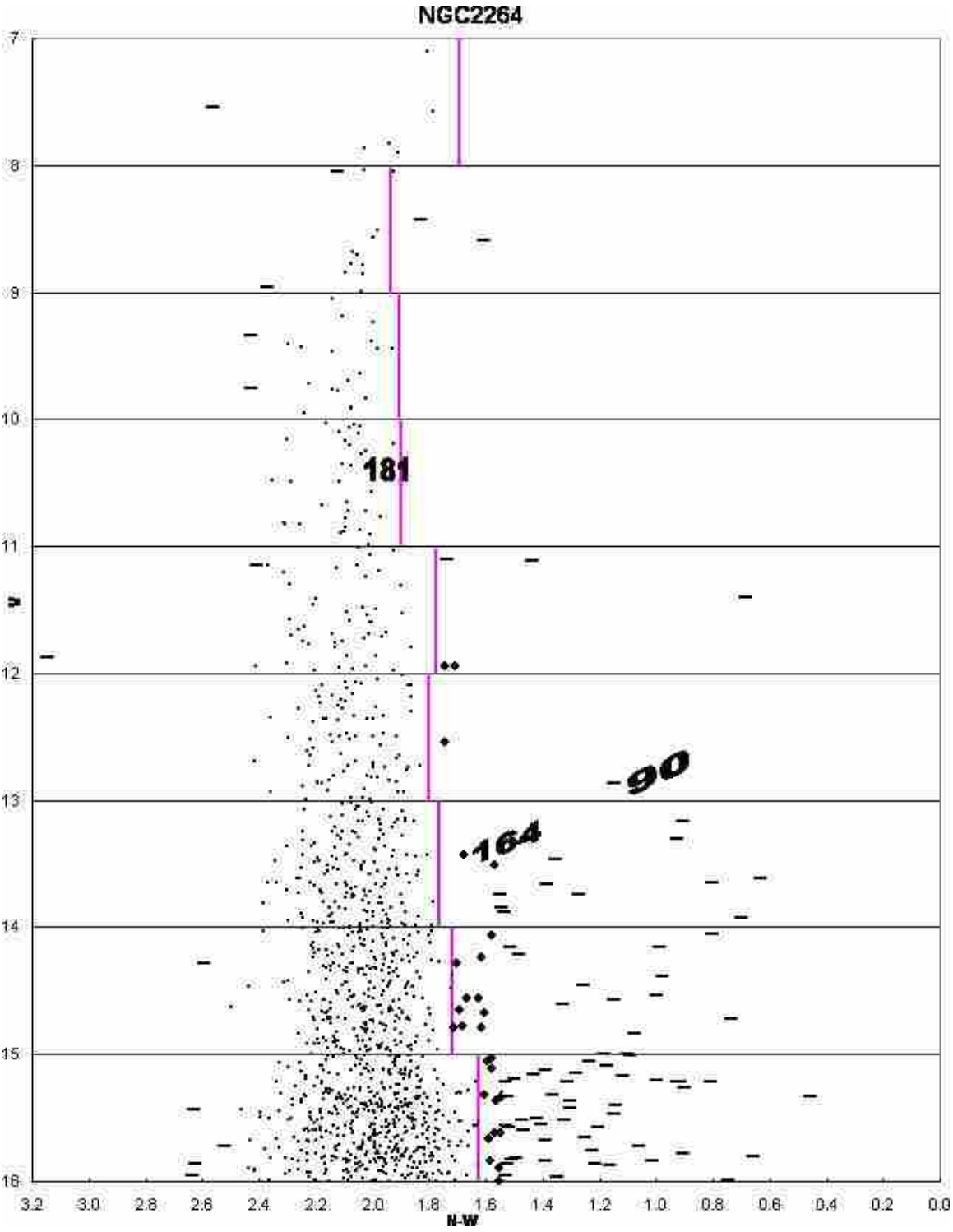

Figure 31: V vs. N-W for NGC 2264. Outliers are shown with dashes. Those outliers to the right of the main-sequence are emission candidates. Additional emission candidates are given as dots. These are candidates located to the right of the pink selection lines. The selection lines are drawn at 2σ from the mean of the main-sequence for that V magnitude range. The three numbered stars are those for which spectra were obtained at DAO.

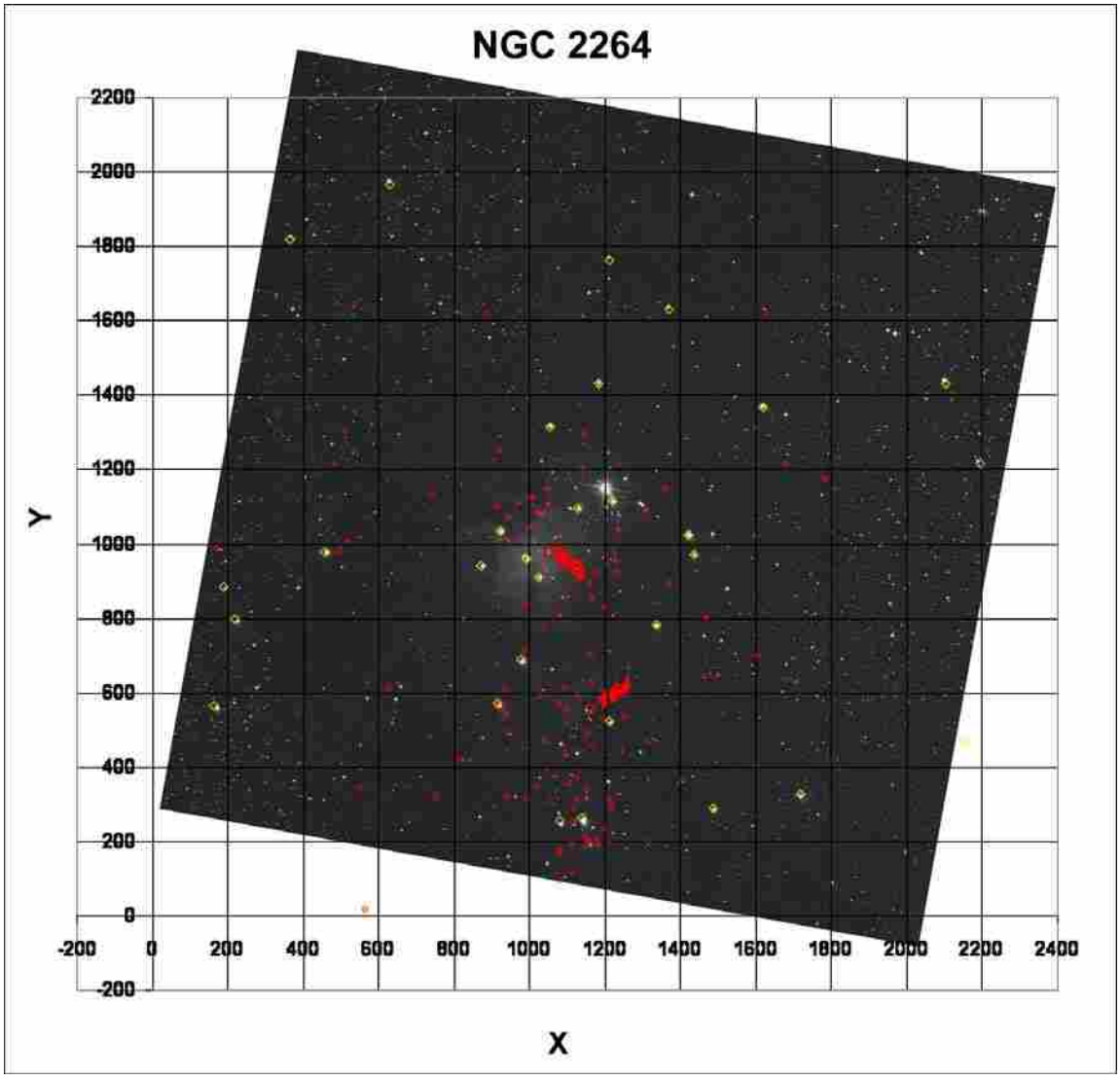

Figure 32: A Digitized Sky Survey quick V image of NGC 2264. The yellow diamonds show the location of the 30 brightest stars given in Appendix B. This image can be used to determine the location of the other stars studied. The red squares are the Hα emission candidates. The two numbered stars are those for which spectra were obtained at DAO. The same objects are plotted in the following figure.

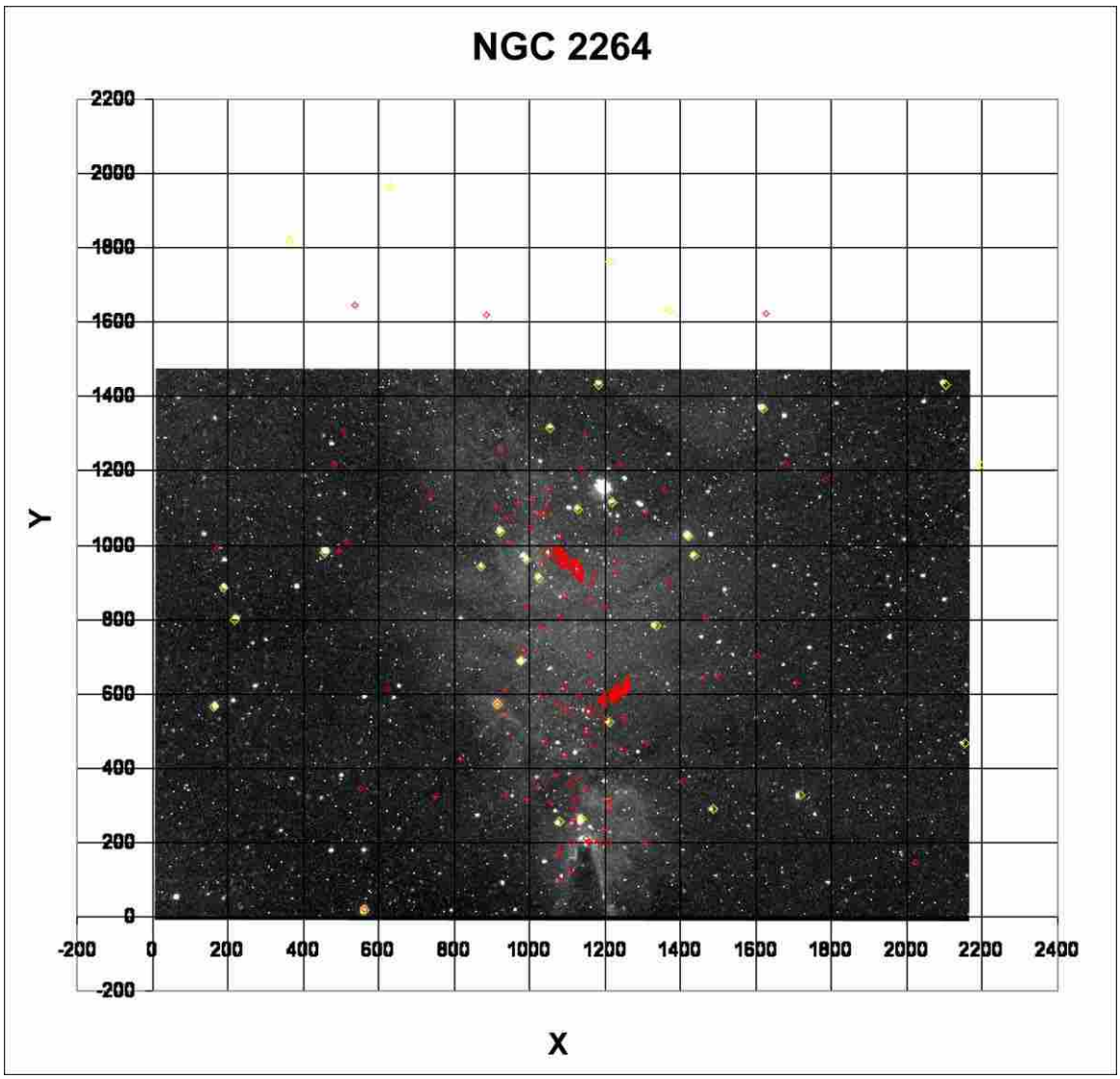

Figure 33: Coordinates of objects for NGC 2264. Coordinates have been overlaid with a representative Hα image of the cluster. Yellow stars are the 30 brightest main-sequence objects and red squares indicate emission candidates. The two numbered stars are those for which spectra were obtained at DAO.

Based on the V error plot the data down to 16th magnitude is used for NGC 2264. The 1201 stars in the V vs. N-W plot shows a nearly vertical main-sequence as expected. From this plot 76 outliers were found to the right on the main-sequence and 27 more emitters were identified by the methods described in Chapter 5.2. Therefore, the total number of emitters for NGC 2264 may increase from 39 found from a data set of 209

stars brighter than V = 17 in a region 65 pc^2 (Sung et al., 2000) to 103 candidates. It is important to note that both studies classified two stars examined in common between the studies as emitters. This points to the success of this study.

These 103 stars are plotted as red diamonds in the overlay plots. As seen in Figure 33, these Hα emission candidates are located in the gaseous region of NGC 2264. Also, the emission candidates do appear in two concentrations as seen in other studies. One concentration is near the brightest star, S Mon, and one is near the cone. This supports the formation idea that there can be different epochs of formation. In addition the distance between these concentrations indicates these epochs would have to have independent triggers.

5.3.3 NGC 6530

RA = 18:04:31 and Dec = -24:21:30, distance modulus = 11.65 mag, log age = 6.867, core cluster of the Sagitarius OBI association, eastern part of Lagoon Nebula (M8), E(B-V) = 0.35 (Sung et al., 2000)

Figure 34: WMO BVW composite image of NGC 6530

	Short	**Long**
V	11	7
W	2	9
N	5	4

Table 10: WMO observations of NGC 6530

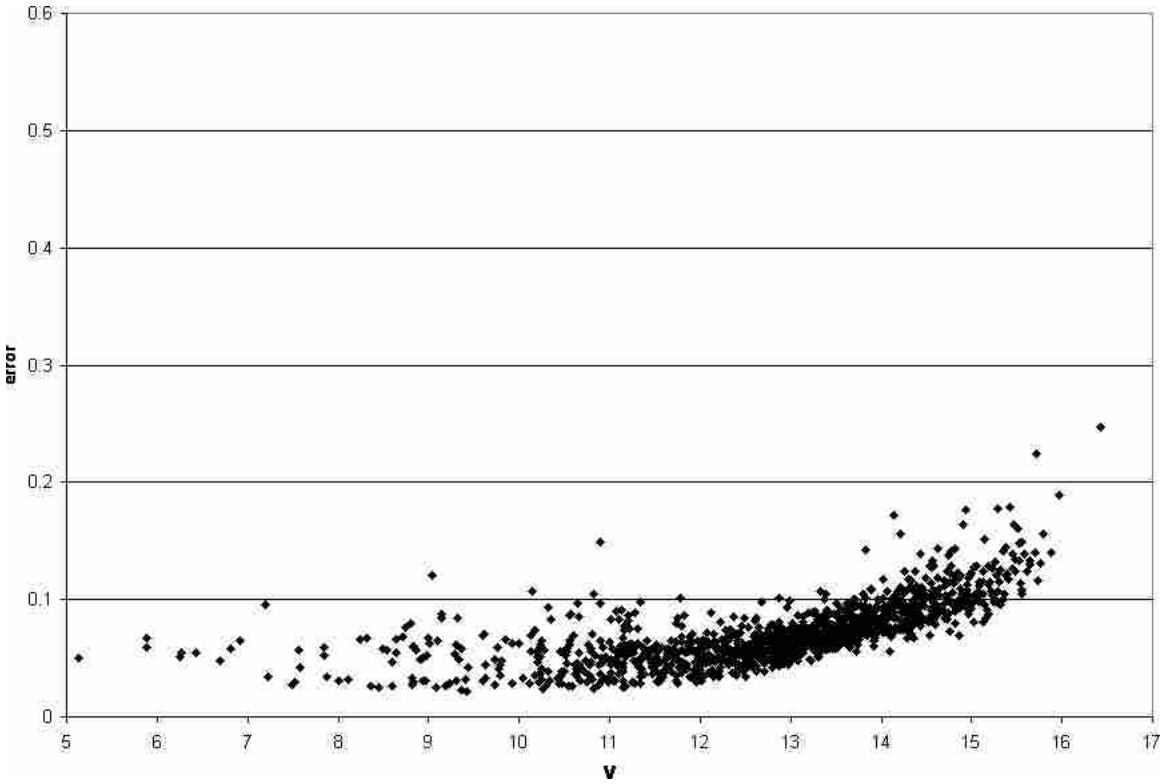

Figure 35: Photometric errors for V observations of NGC 6530. Data down to 13th magnitude was used for the color-magnitude plots.

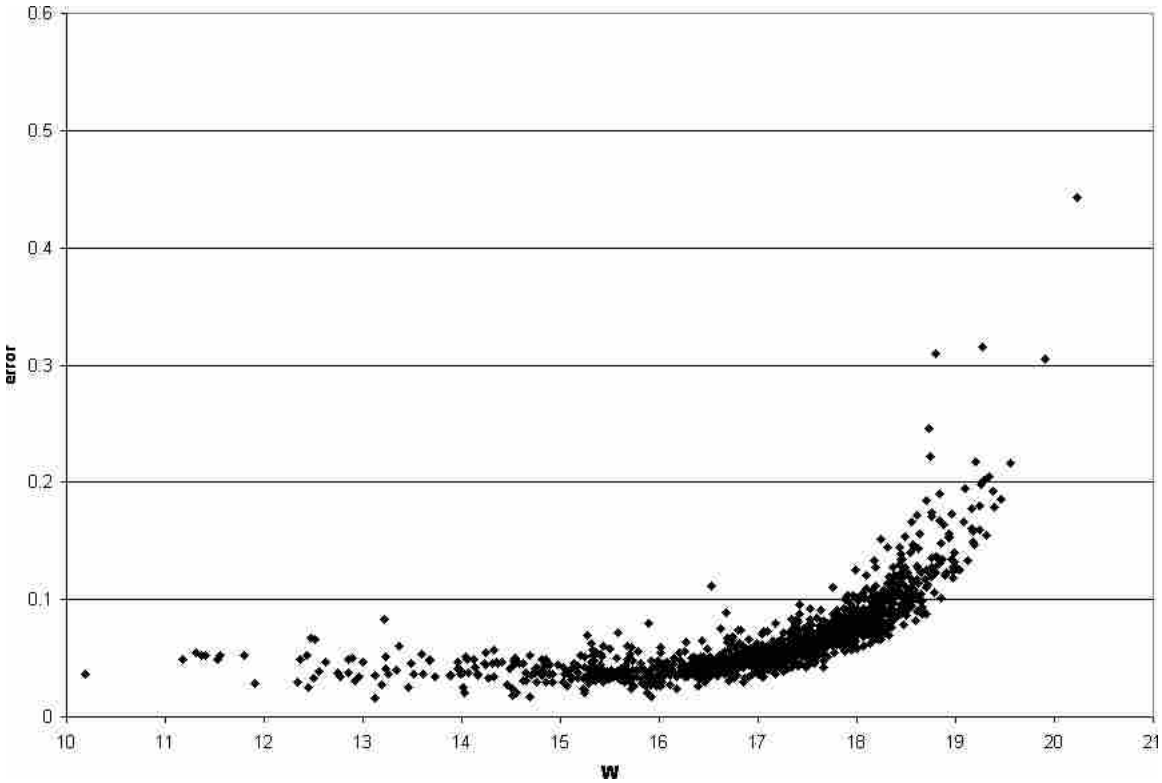

Figure 36: Photometric errors for V observations of NGC 6530.

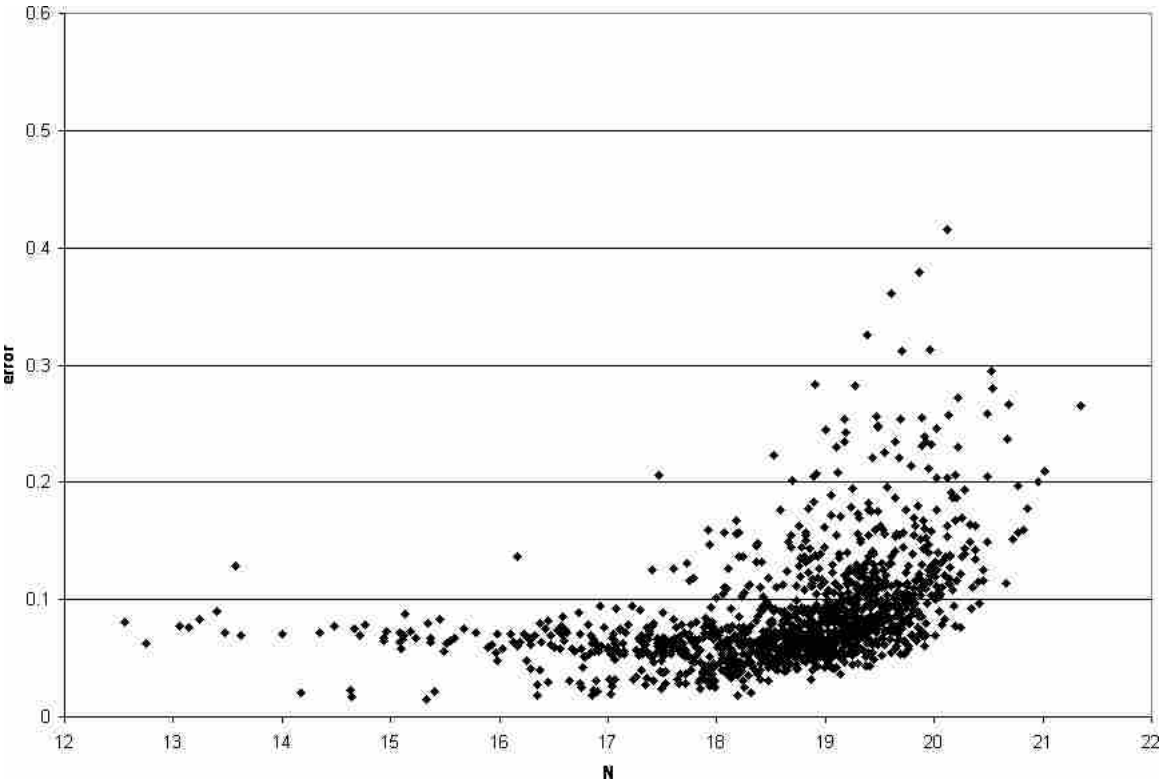

Figure 37: Photometric error for N observations of NGC 6530

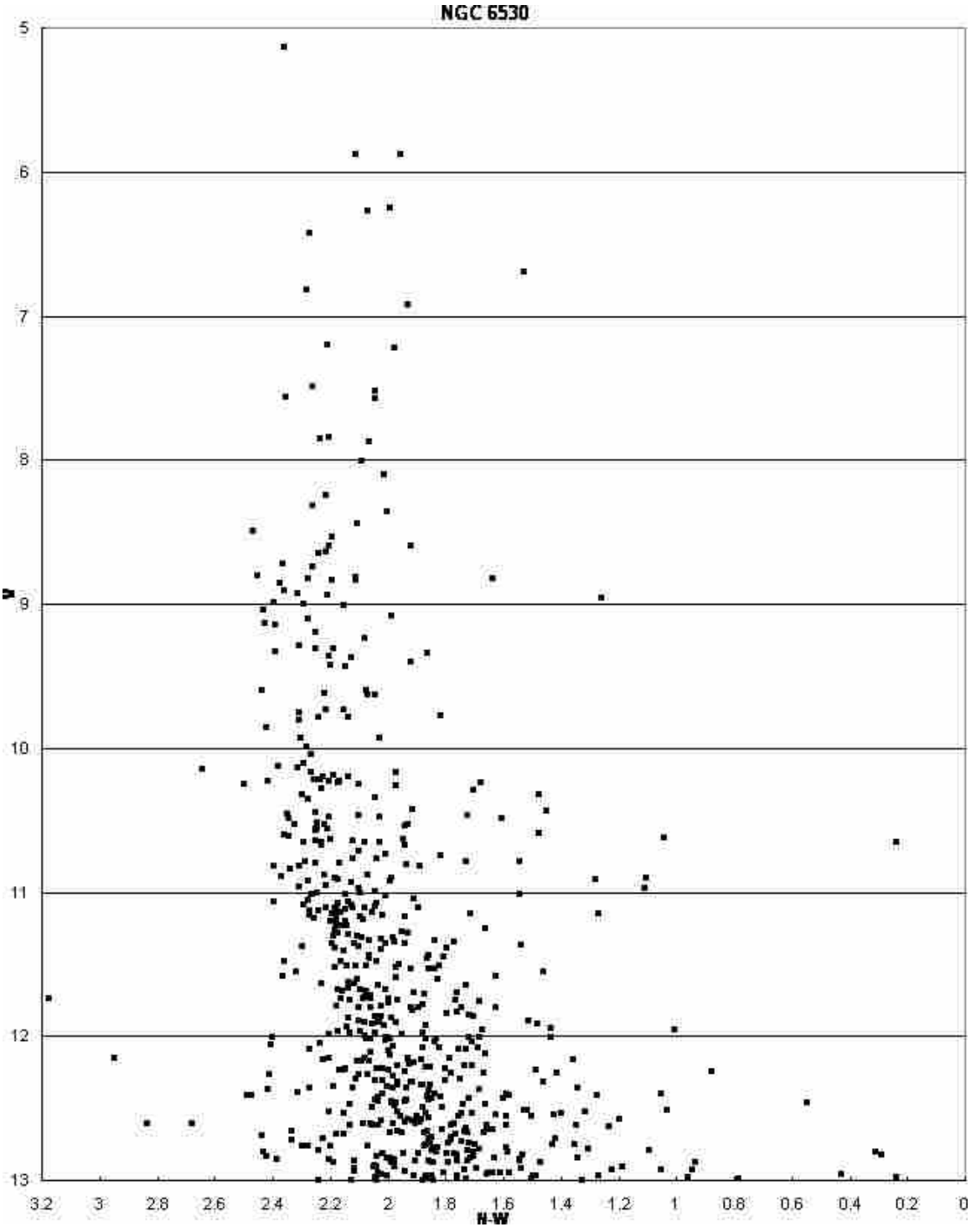

Figure 38: V vs. N-W color-magnitude plot for NGC 6530. The main-sequence is visible as the vertical locus of the data points.

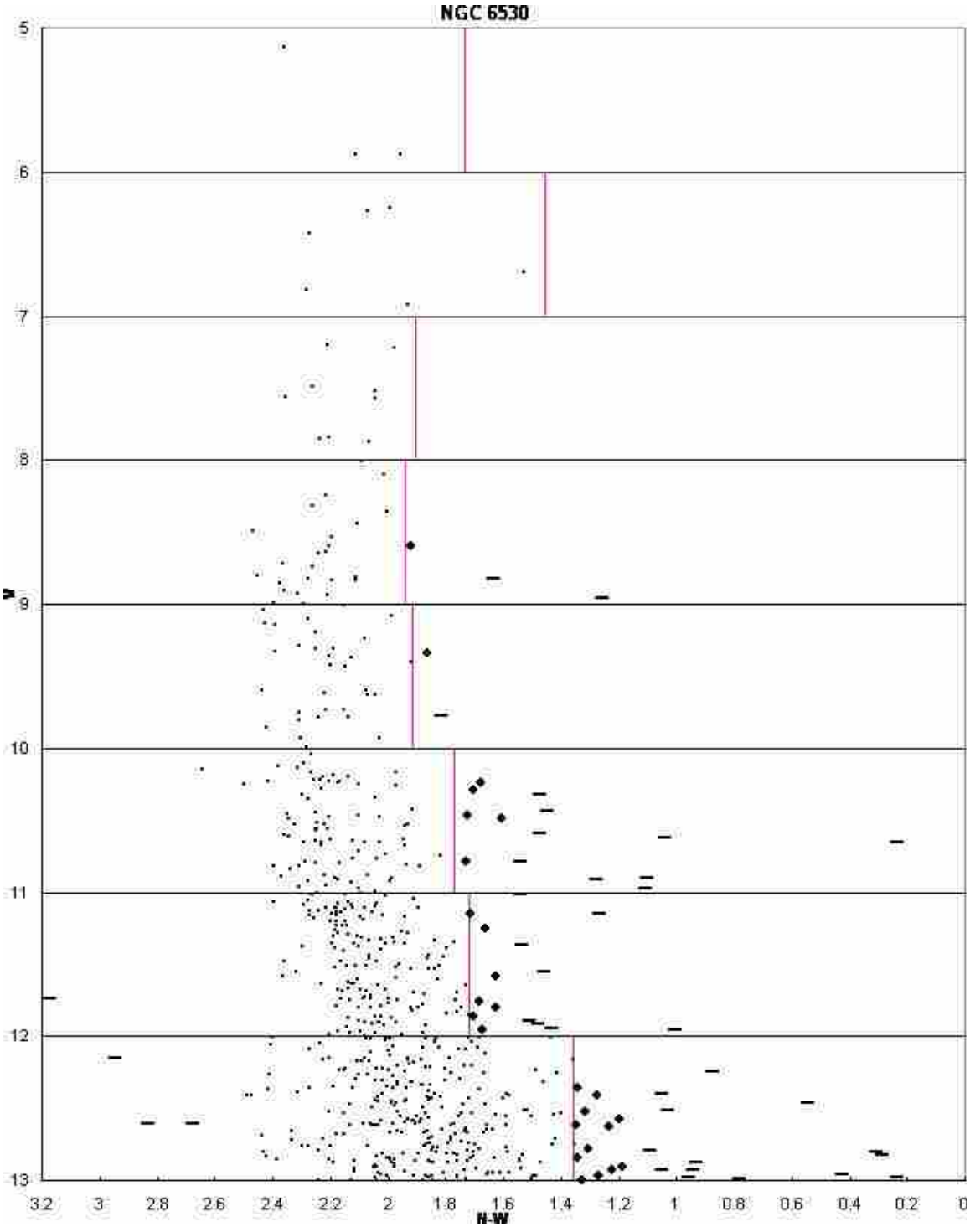

Figure 39: V vs. N-W for NGC 6530. Outliers are shown with dashes. Those outliers to the right of the main-sequence are emission candidates. Additional emission candidates are given as dots. These are objects located to the right of the pink selection lines. The selection lines are drawn at 2σ from the mean of the main-sequence for that V magnitude range.

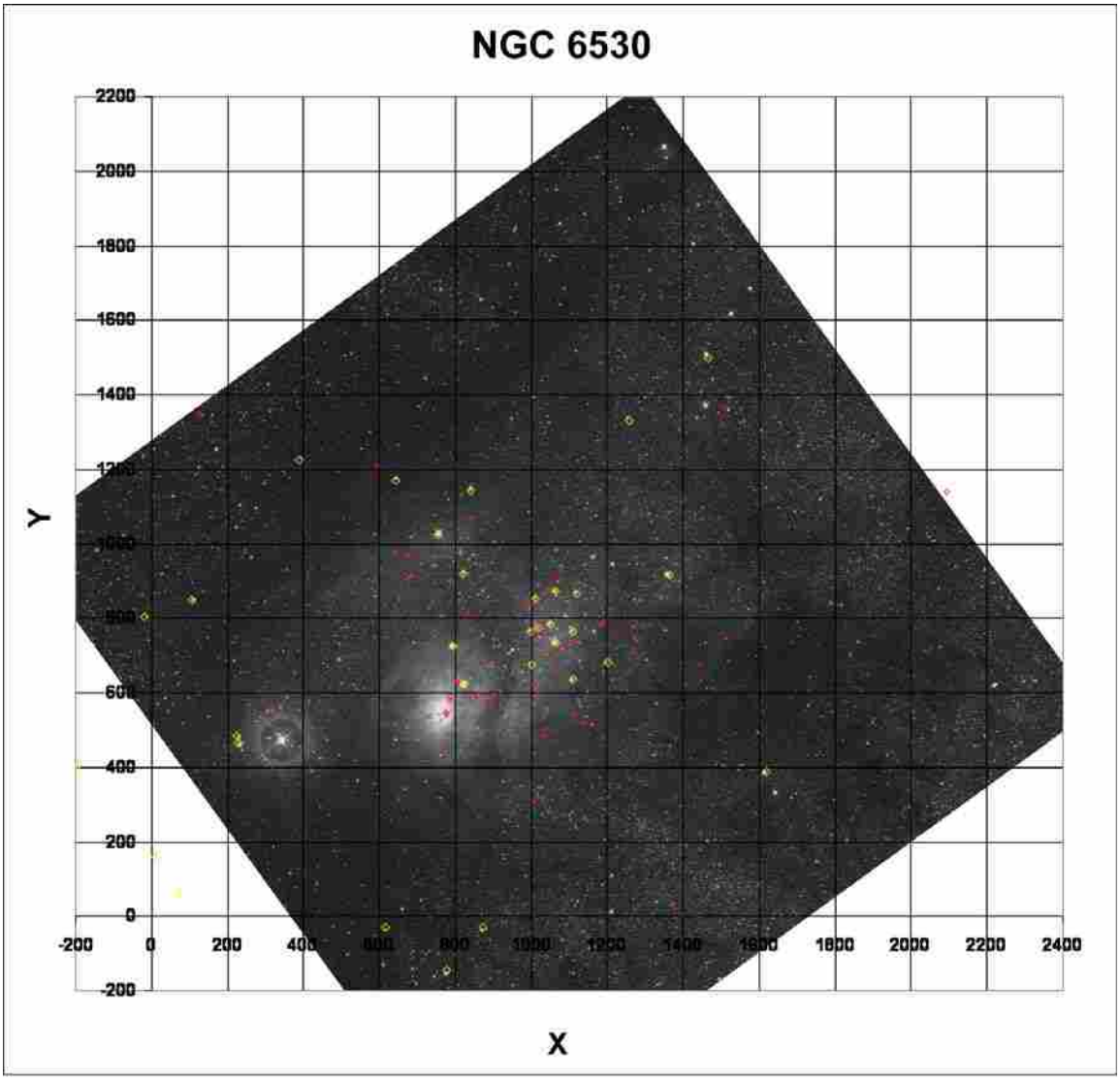

Figure 40: A Digitized Sky Survey quick V image of NGC 6530. The yellow diamonds show the location of the 30 brightest stars given in Appendix B. This image can be used to determine the location of the other stars studied. The red stars are the Hα emission candidates. The same objects are plotted in the following figure.

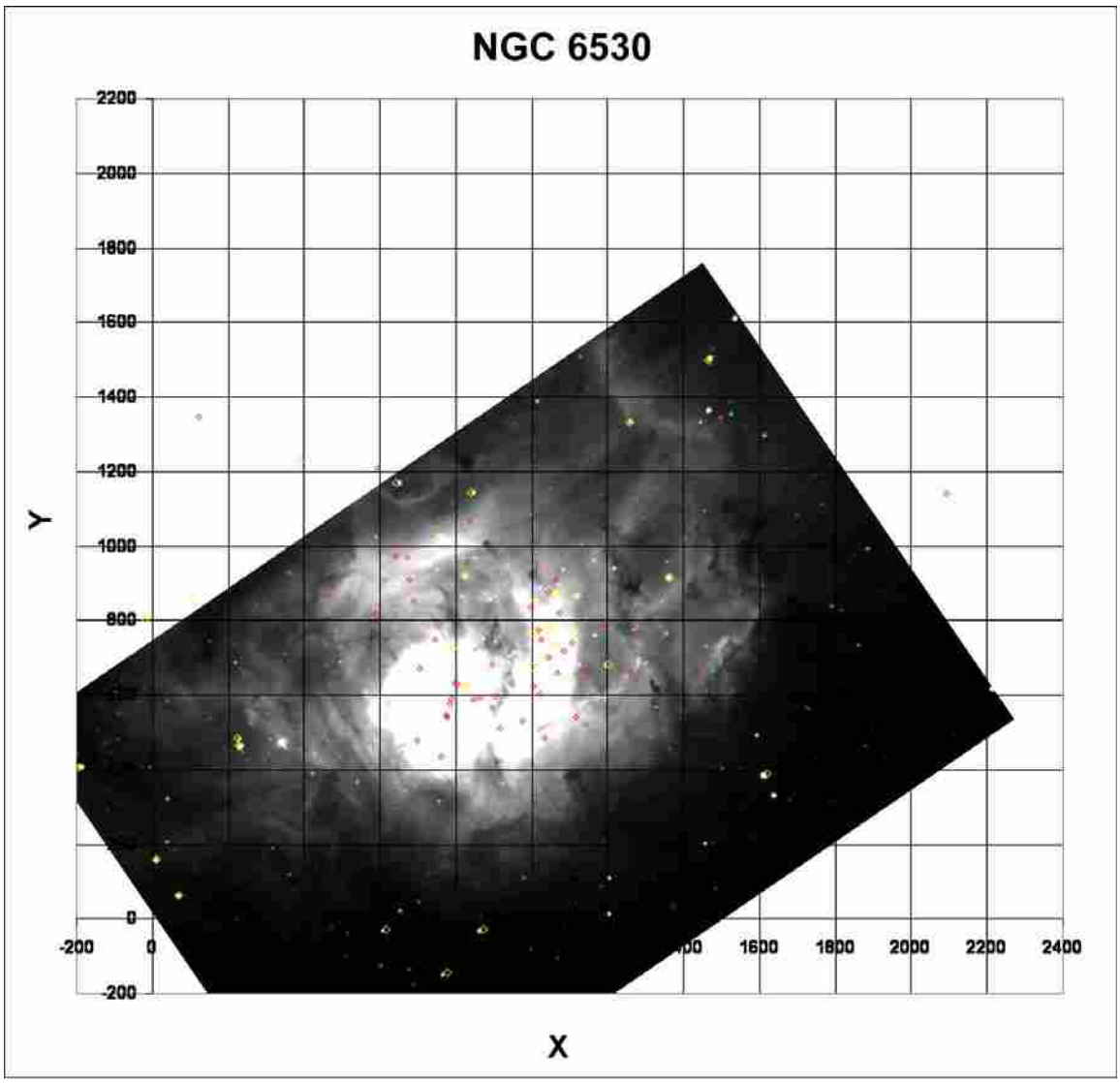

Figure 41: Coordinates of emission candidates for NGC 6530. Coordinates have been overlaid with a representative Hα image of the cluster. Symbols are the same as those in the previous figure.

Based on the V error plot, the data down to 13th magnitude is used for NGC 6530. The 630 stars in the V vs. N-W plot shows a nearly vertical main-sequence as expected. From this plot 35 outliers were found to the right on the main-sequence and 26 more emitters were identified by the methods described in Chapter 5.2. Therefore, the total number of emitters for NGC 6530 may increase from 21 candidates found from a study of 887 stars in a field that was 20.5' on a side (Sung et al., 2000) to 63 candidates.

These 63 stars are plotted as red diamonds in the overlay plots. As seen in Figure 41, these Hα emission candidates are located in the gaseous region of NGC 6530. Very few emission candidates were found outside this area indicating a possible lack of current star formation outside the nebula. As it is probable that a majority of these objects are indeed PMS objects their location is consistent with ideas of the theory of stellar formation.

5.3.4 NGC 6611

RA = 18:18:48 and Dec = -13:48:24, distance modulus = 13.64 mag, log age = 6.884, open cluster in Serpens OBI association, ionizes M16 and Eagle Nebula, E(B-V) = 0.70 (Kharchenko et al., 2005)

Figure 42: WMO BVW composite of NGC 6611

	Short	**Long**
V	17	13
W	4	11
N	12	4

Table 11: WMO observations of NGC 6611

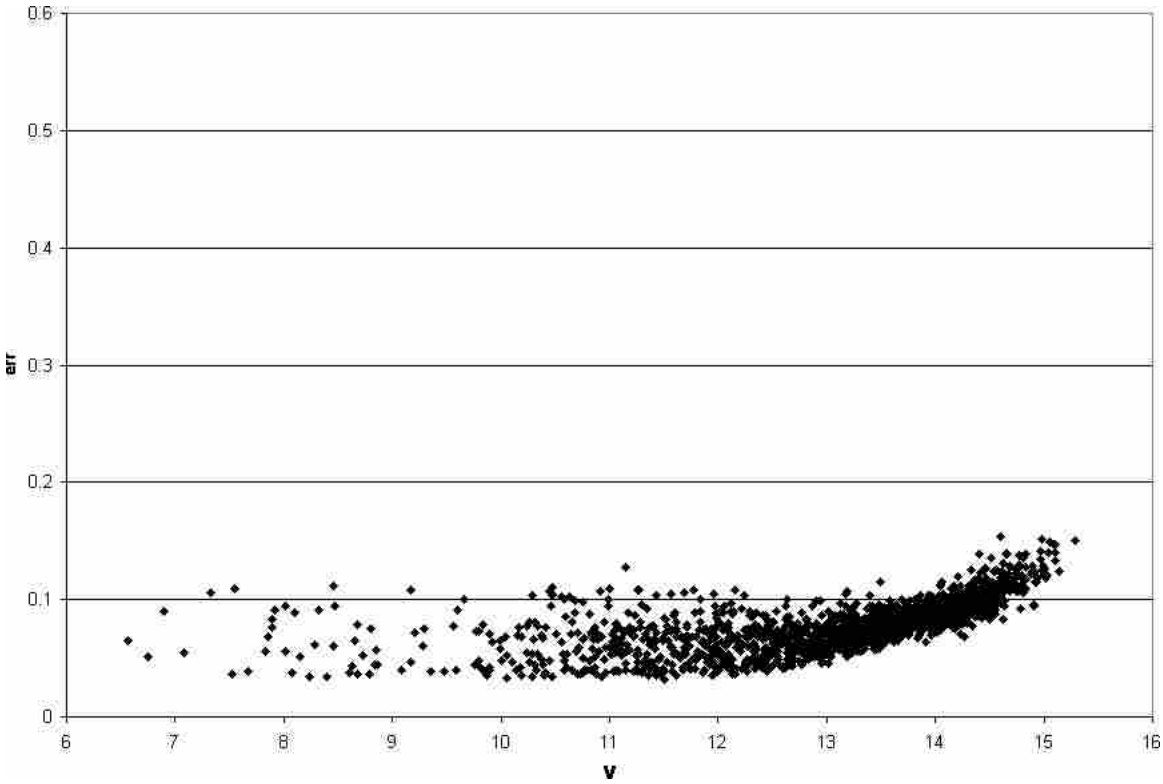

Figure 43: Photometric errors for V observations of NGC 6611. Data down to 13th magnitude was used for the color-magnitude plots.

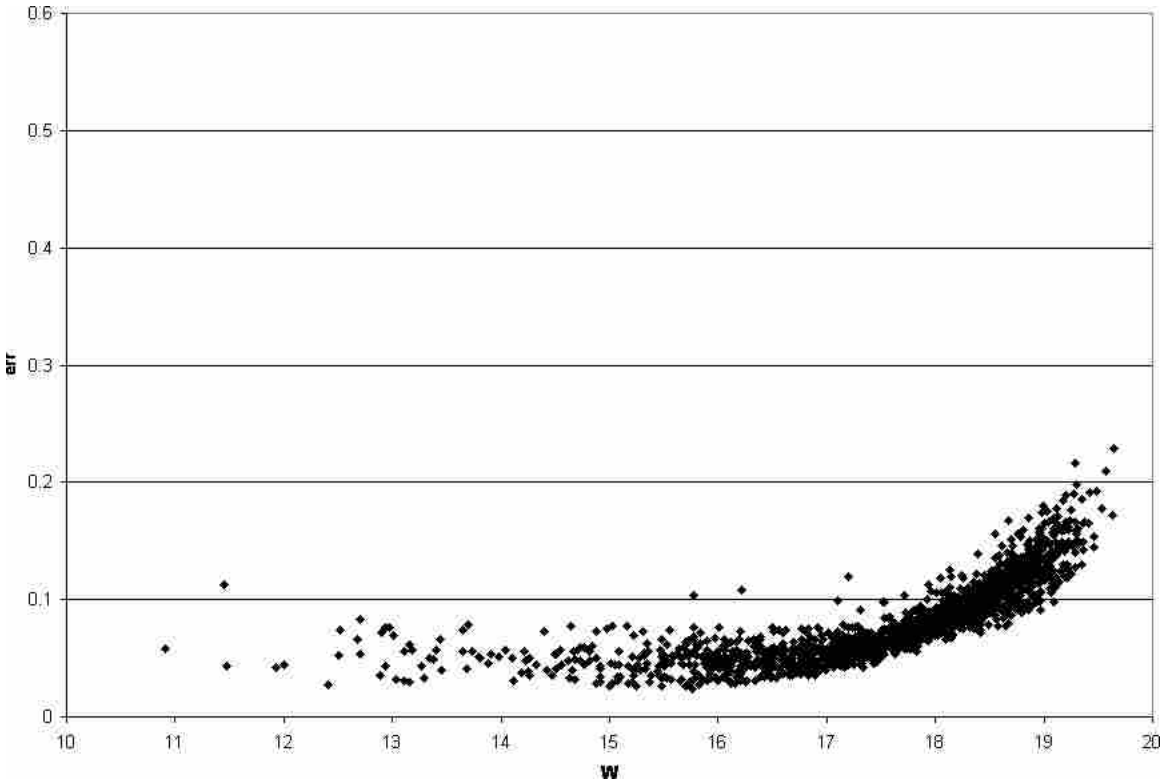

Figure 44: Photometric errors for V observations of NGC 6611.

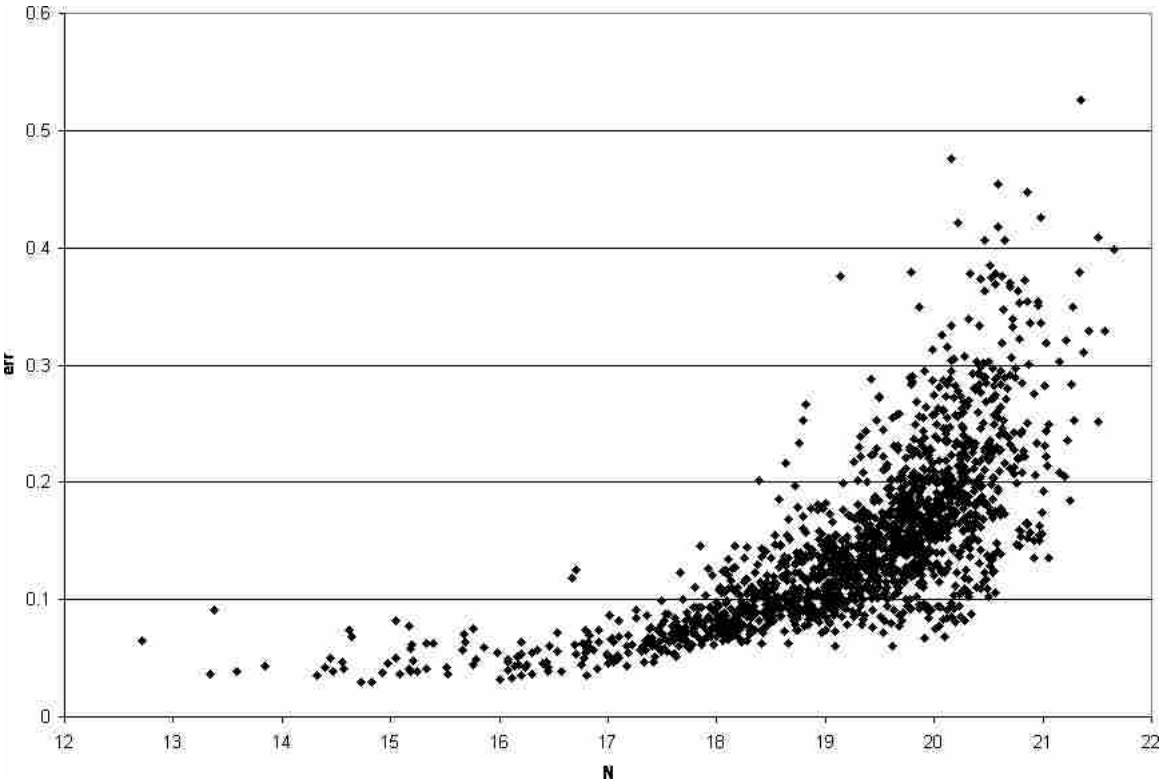

Figure 45: Photometric error for N observations of NGC 6611.

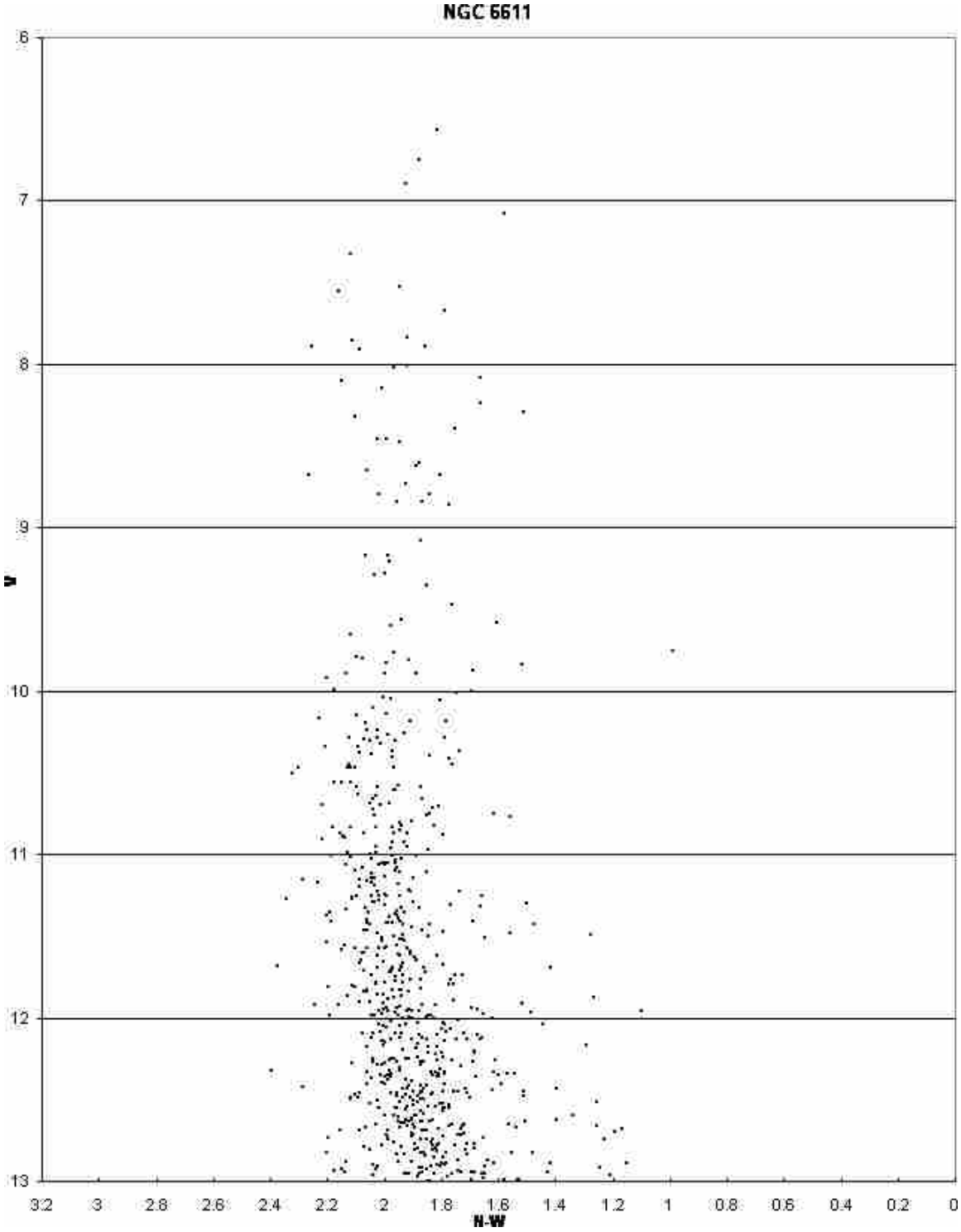

Figure 46: V vs. N-W color-magnitude plot for NGC 6611. The main-sequence is visible as the vertical locus of the data points.

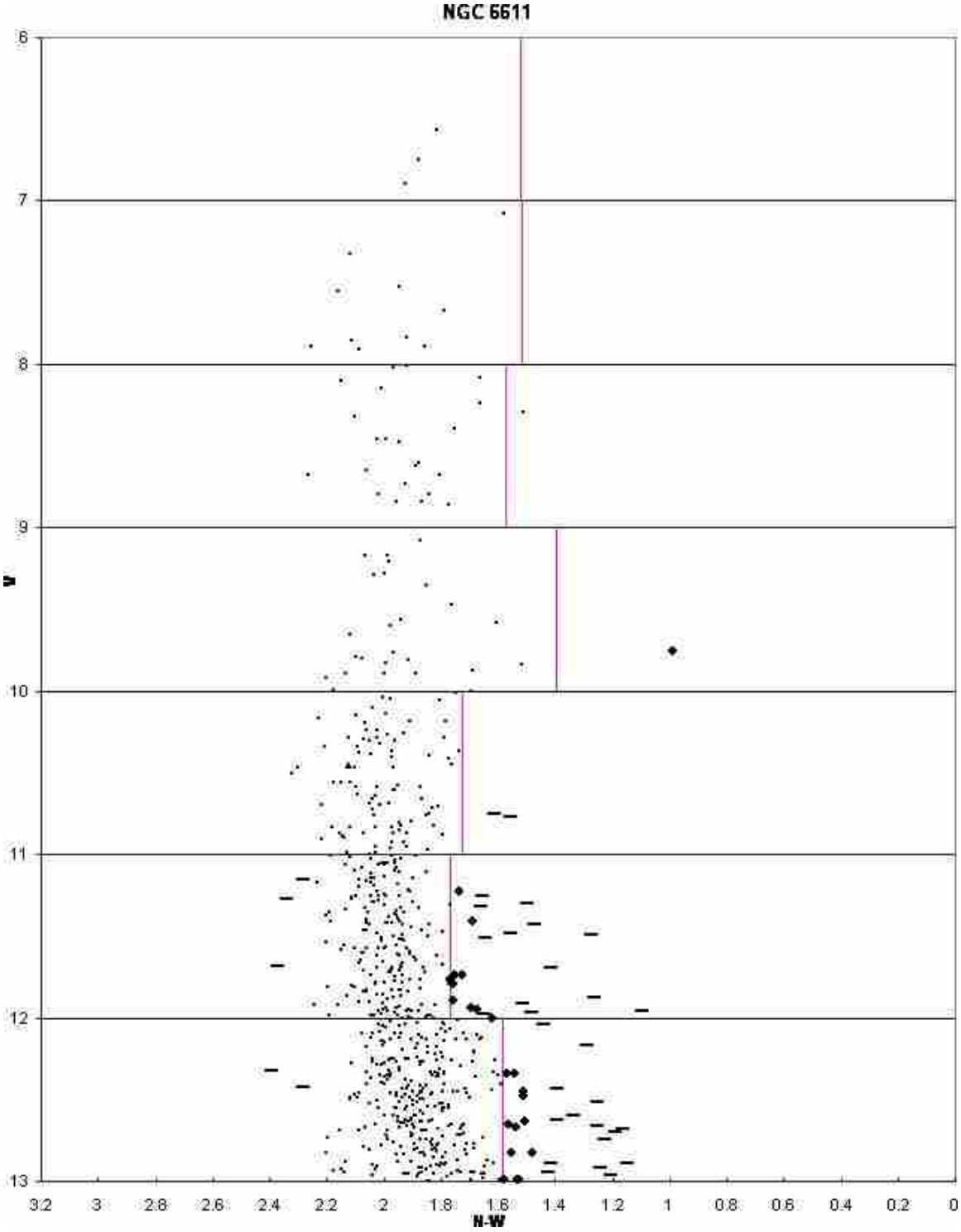

Figure 47: V vs. N-W for NGC 6611. Outliers are shown with dashes. Those outliers are to the right of the main-sequence are emission candidates. Additional emission candidates are given as dots. These are objects located to the right of the pink selection lines. The selection lines are drawn at 2σ from the mean of the main-sequence for that V magnitude range.

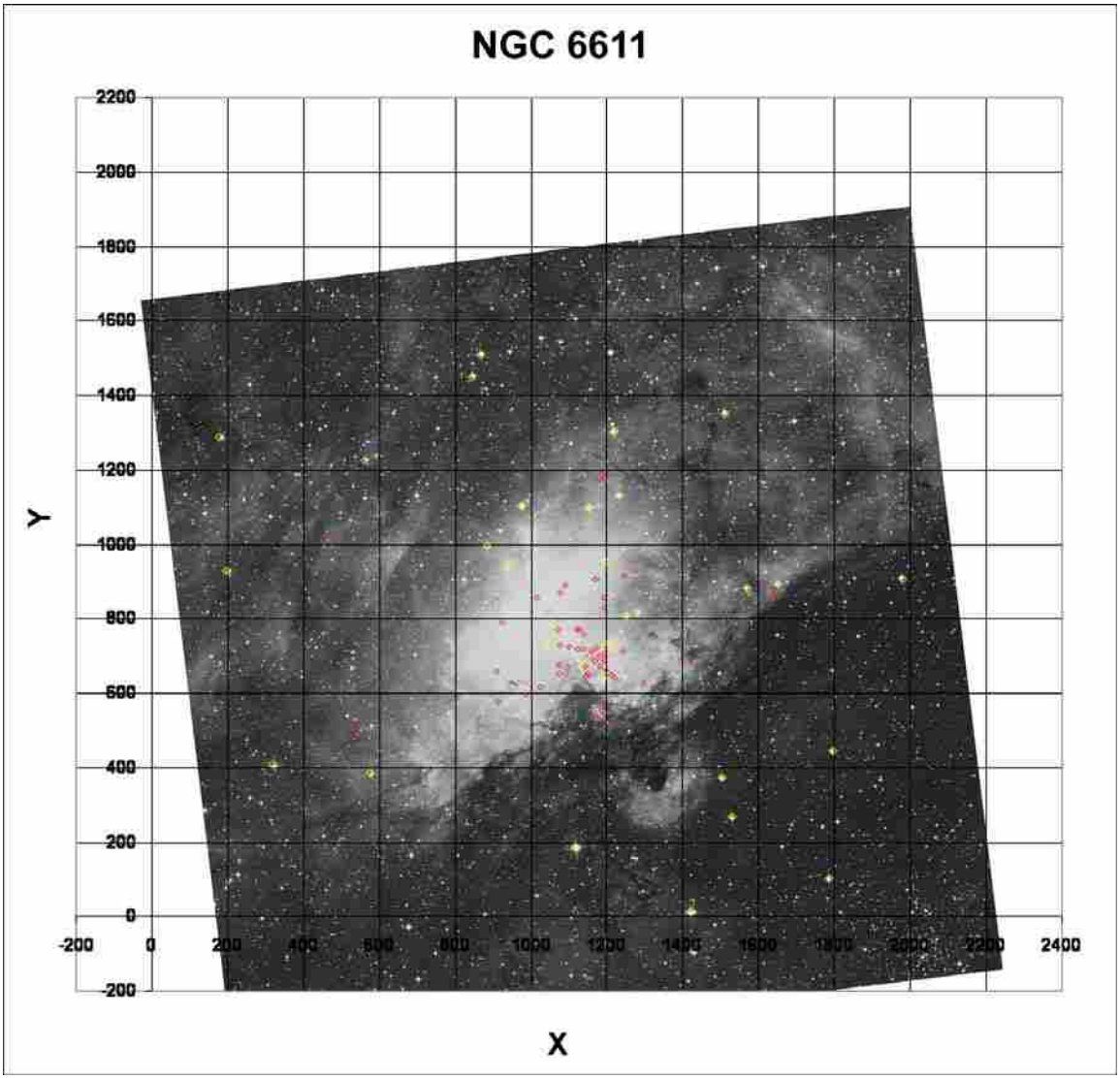

Figure 48: A Digitized Sky Survey quick V image of NGC 6611. The yellow diamonds show the location of the 30 brightest stars given in Appendix B. This image can be used to determine the location of the other stars studied. The red stars are the Hα emission candidates. The same objects are plotted in the following figure.

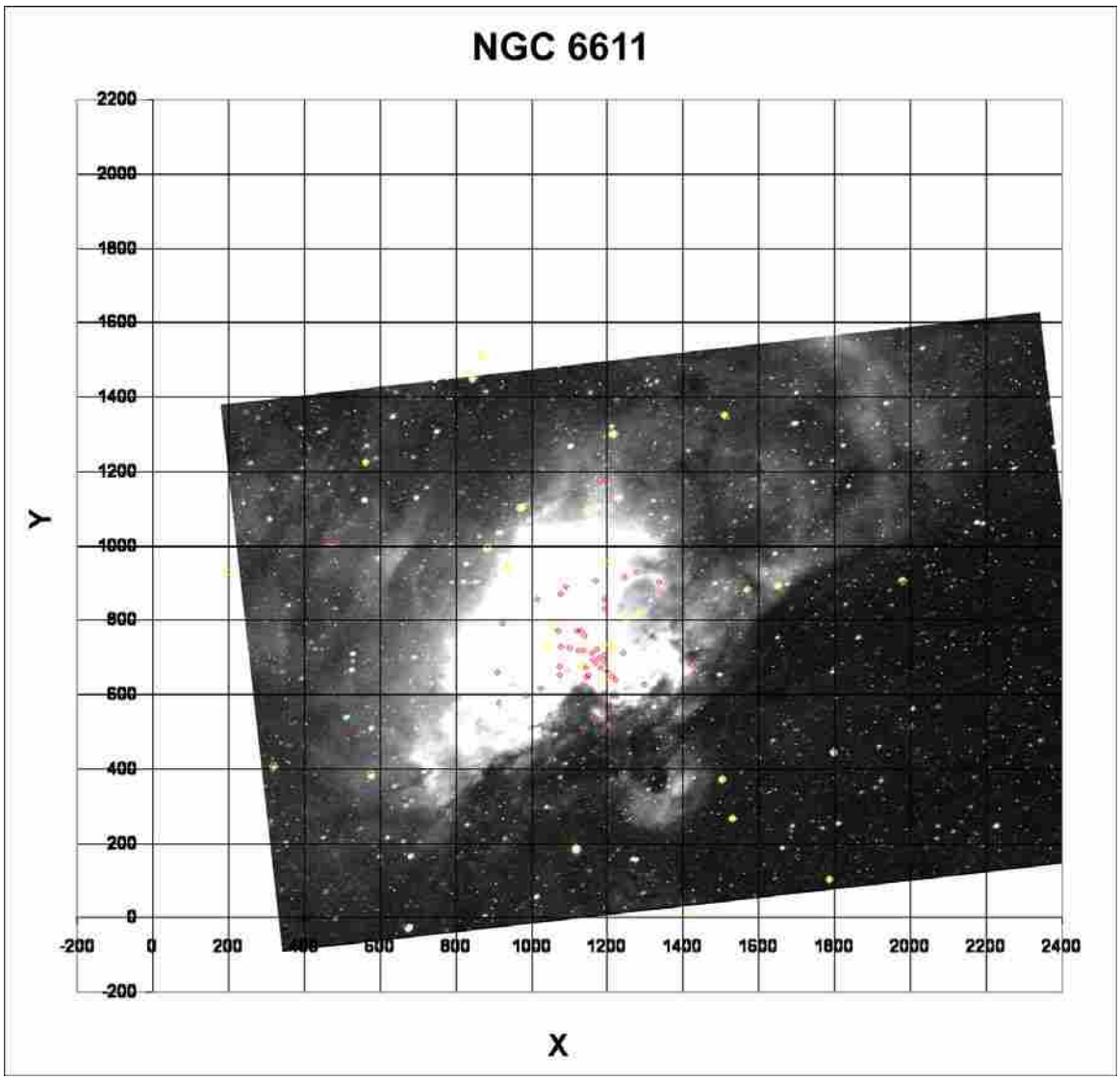

Figure 49: Coordinates of emission candidates for NGC 6611. Coordinates have been overlaid with a representative Hα image of the cluster. Symbols are the same as those in the previous figure.

Based on the V error plot, the data down to 13th magnitude is used for NGC 6611. The 673 stars in the V vs. N-W plot shows a nearly vertical main-sequence as expected. From this plot 30 outliers were found to the right on the main-sequence and 23 more emitters were identified by the methods described in Chapter 5.2. This yields a total of 53 emission candidates. There are no previous works in this wavelength region to compare with these results.

These 53 stars are plotted as red diamonds in the overlay plots. As seen in Figure 49, these Hα emission candidates are located in the gaseous region of NGC 6611. Very few emission candidates were found outside this area indicating a lack of current star formation outside the nebula. As it is probable that a majority of these objects are indeed PMS objects there location is consistent with ideas from the theory of stellar formation.

5.3.5 Trumpler 37

RA = 21:39:06 and Dec = +57:30:00, distance modulus = 11.07 mag, log age = 7.054, open cluster associated with the HII region IC 1396, also known as the Elephant Trunk nebula, E(B-V) = 0.470 (Kharchenko et al., 2005)

Figure 50: WMO BVW composite image of Trumpler 37

	Short	**Long**
V	14	10
W	12	17
N	14	16

Table 12: WMO observations of Trumpler 37

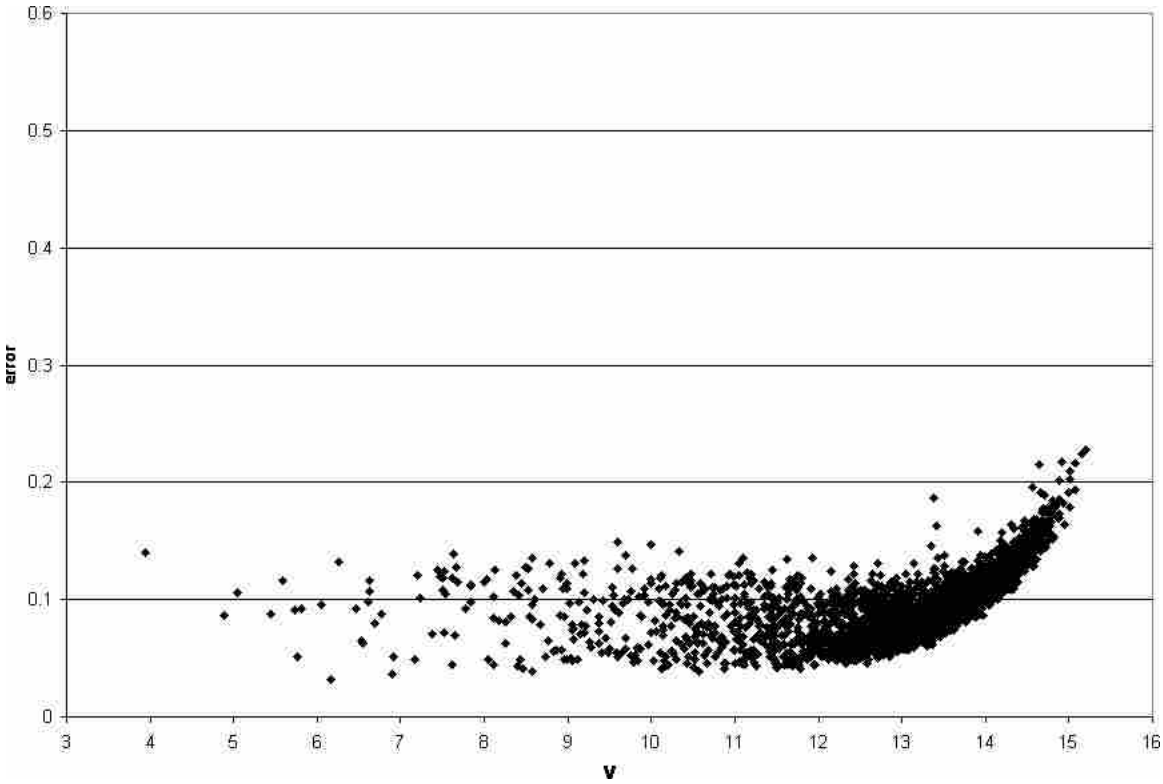

Figure 51: Photometric errors for V observations of Trumpler 37. Data down to 14th magnitude were used for the color-magnitude plots.

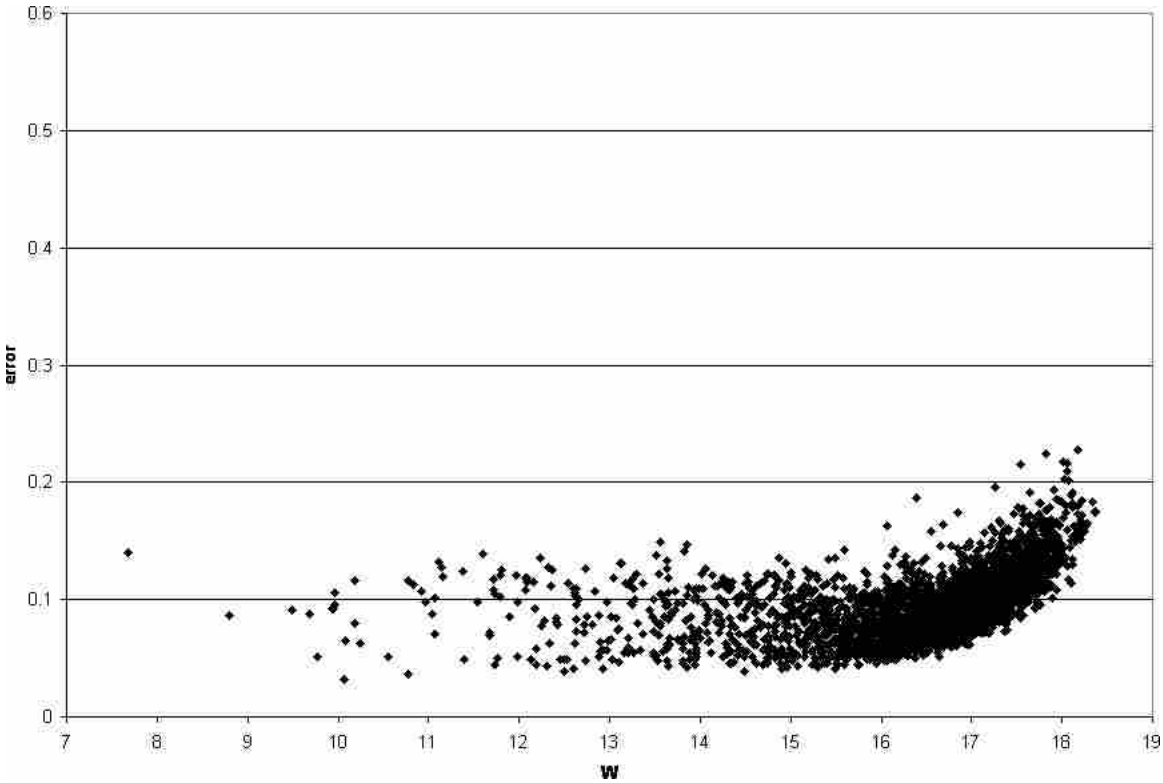

Figure 52: Photometric errors for W observations of Trumpler 37.

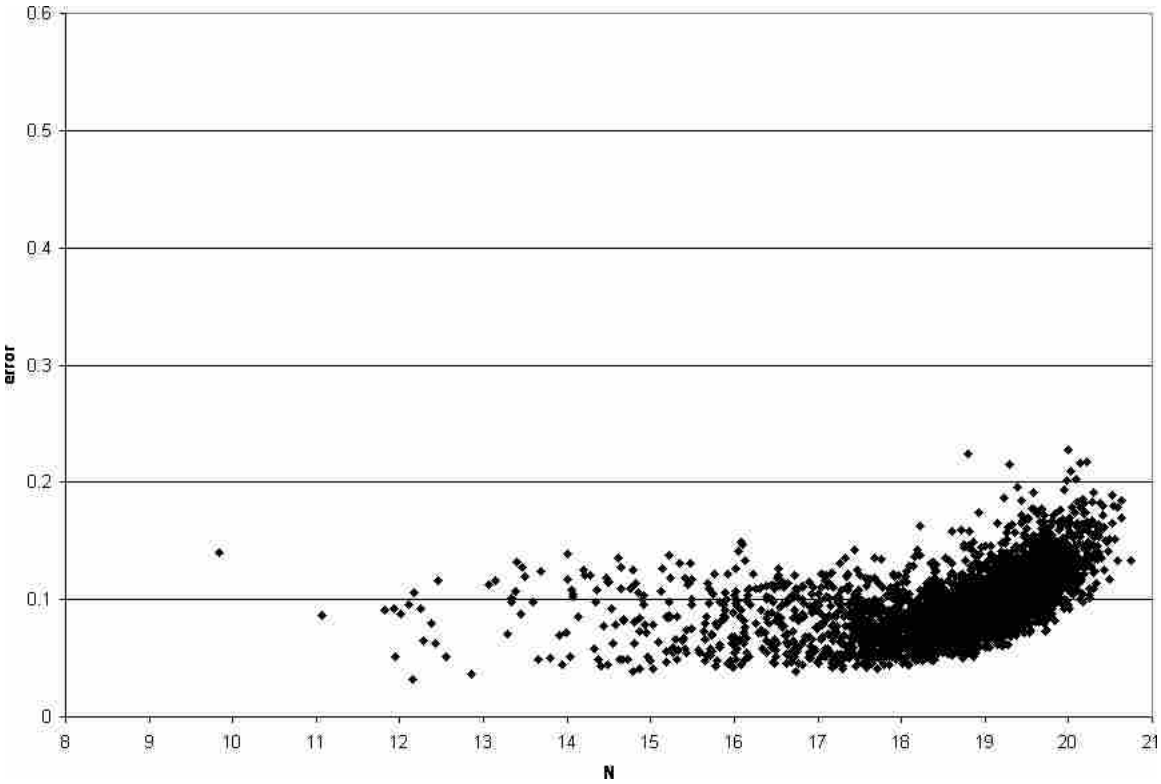

Figure 53: Photometric errors for N observations of Trumpler 37.

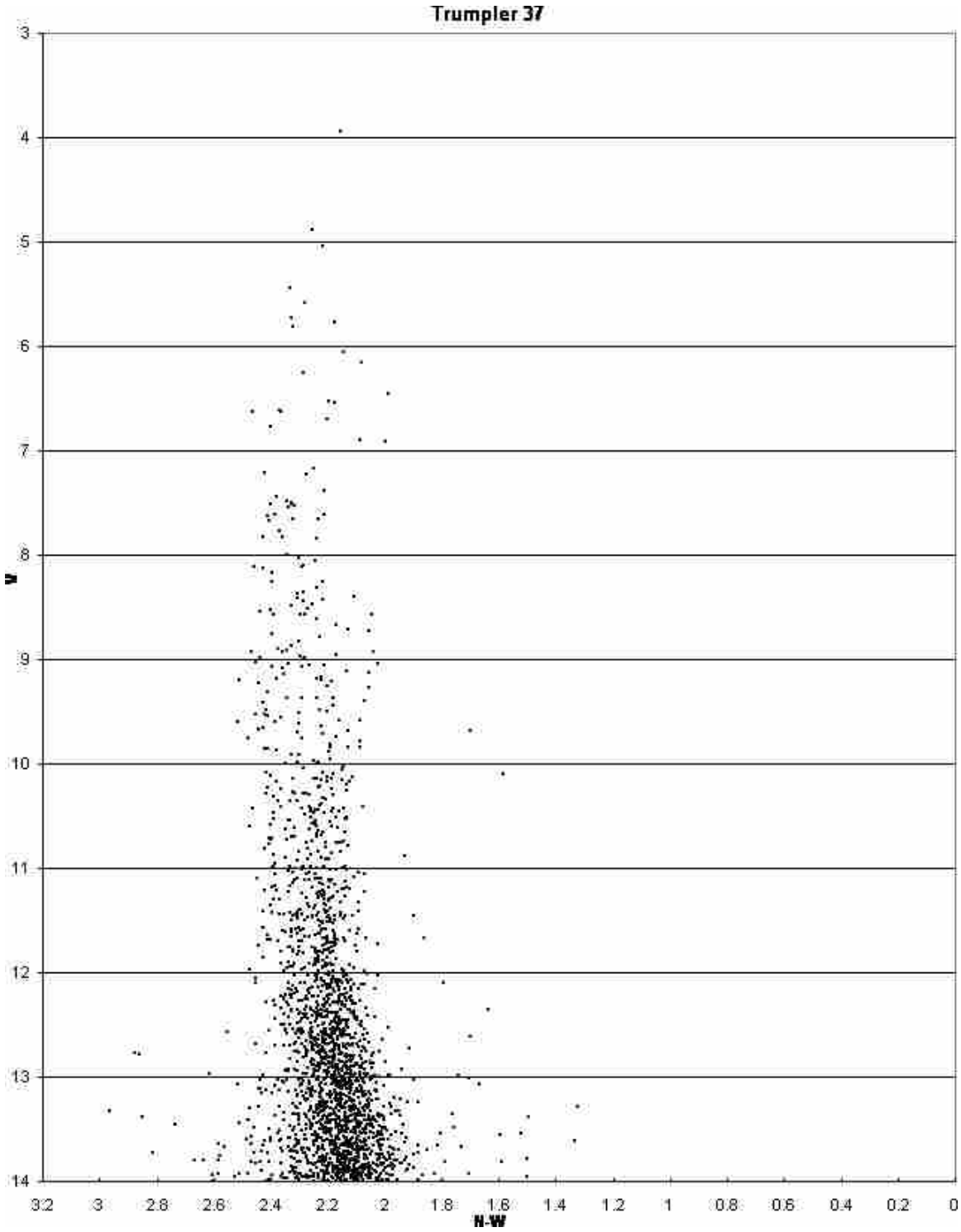

Figure 54: V vs. N-W color-magnitude plot for Trumpler 37. The main-sequence is visible as the vertical locus of data points.

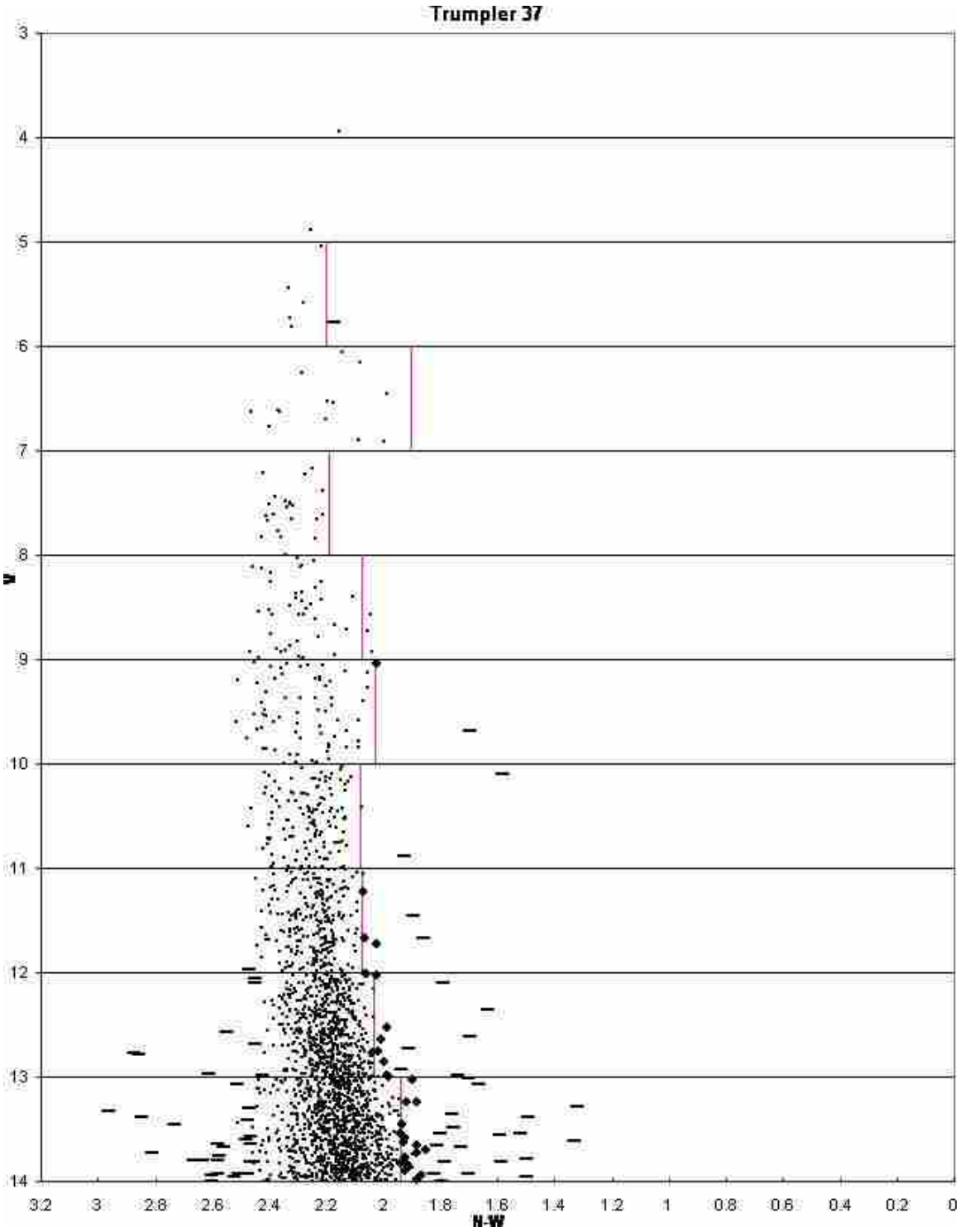

Figure 55: V vs. N-W for Trumpler 37. Outliers are shown with dashes. Those outliers to the right of the main-sequence are emission candidates. Additional emission candidates are given as dots. These are objects located to the right of the pink selection lines. The selection lines are drawn at 2σ from the mean of the main-sequence for that V magnitude range.

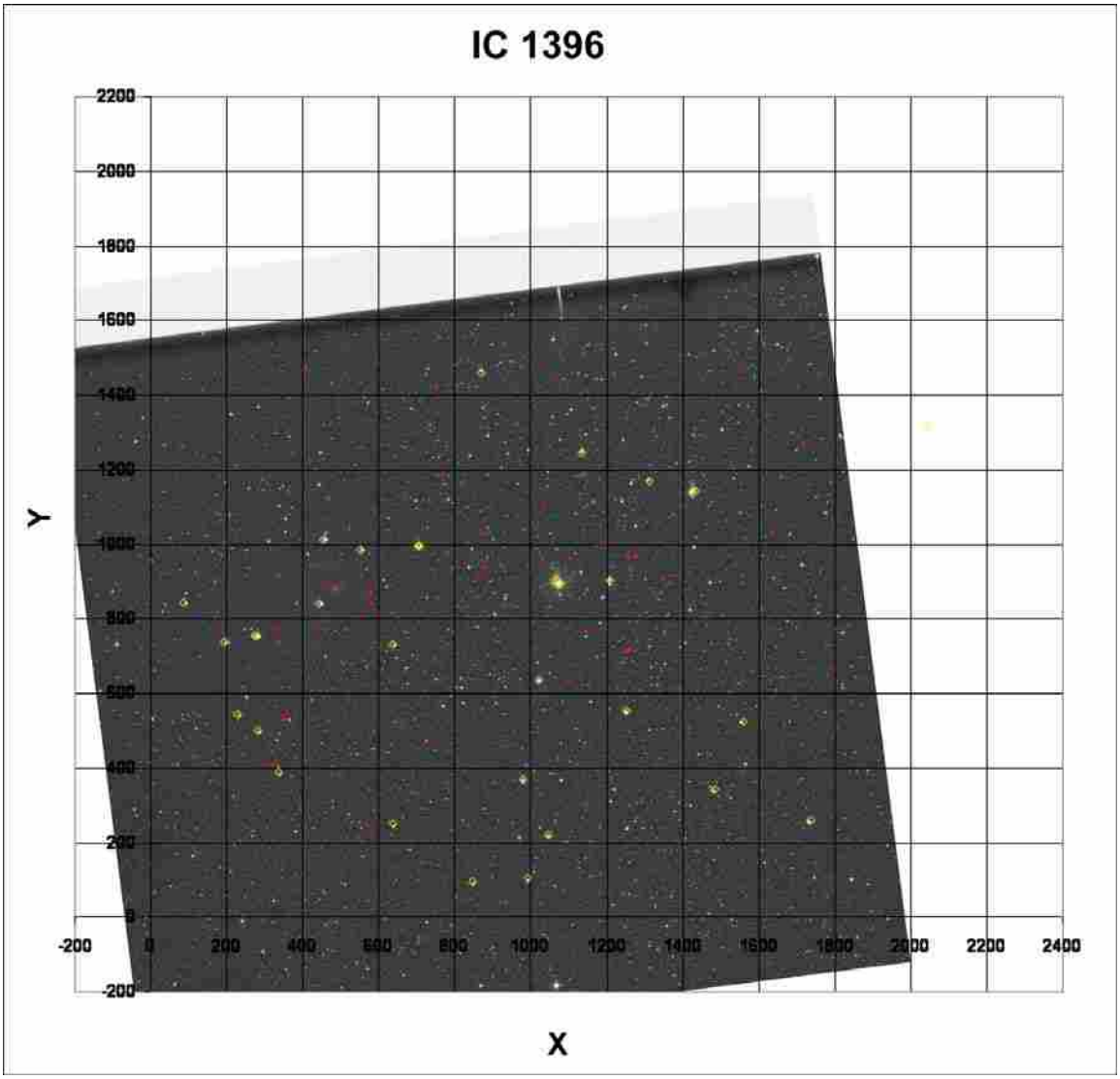

Figure 56: A Digitized Sky Survey quick V image of the Trumpler 37. The yellow diamonds show the location of the 30 brightest stars given in Appendix B. This image can be used to determine the location of the other stars studied. The red stars are the Hα emission candidates. The same objects are plotted in the following figure.

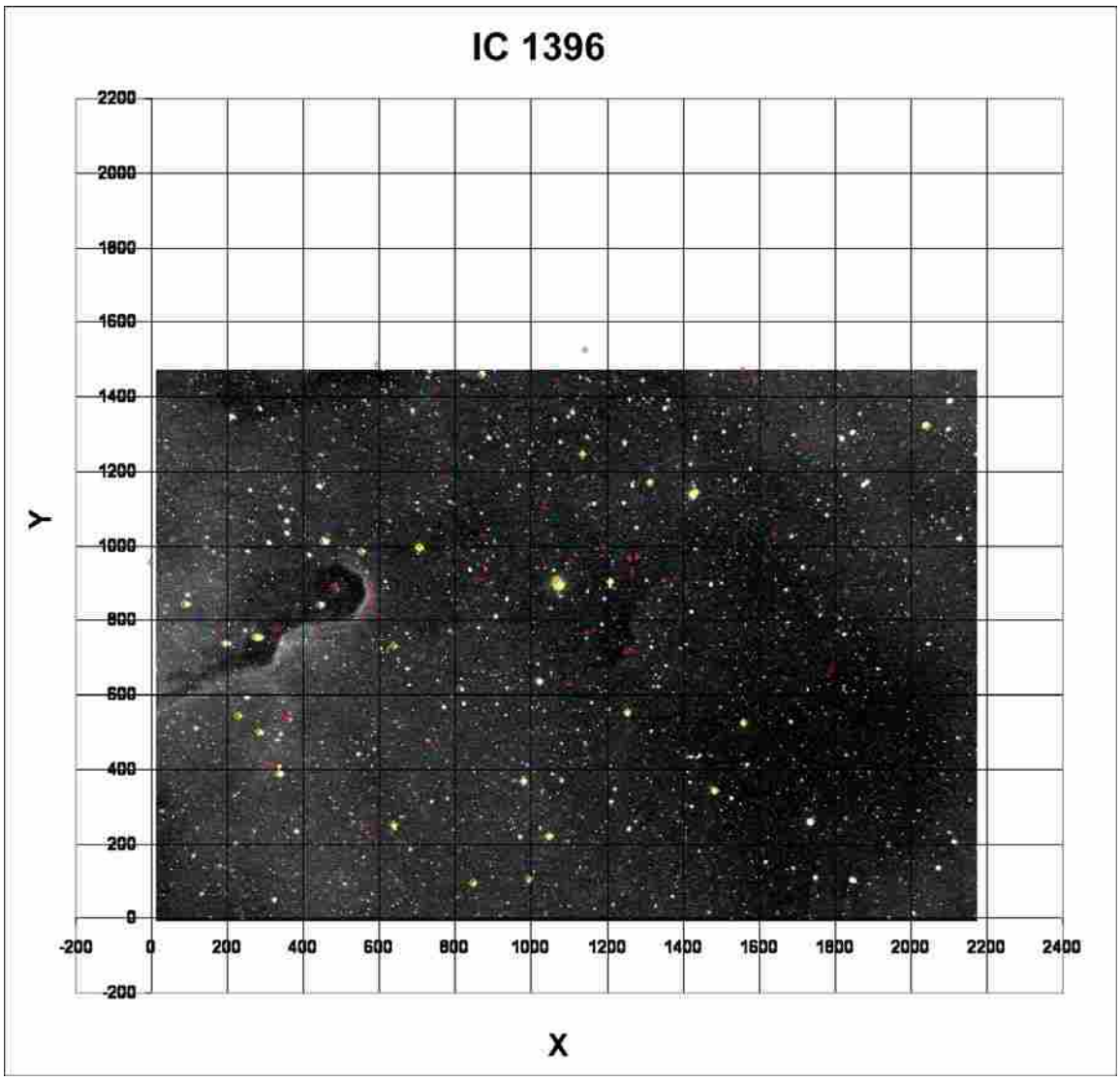

Figure 57: Coordinates of emission candidates for NGC 2244. Coordinates have been overlaid with a representative Hα image of the cluster. Symbols are the same as those in the previous figure.

Based on the V error plot, the data down to 14th magnitude is used for Trumpler 37 (also known as IC 1396). The 2118 stars in the V vs. N-W plot shows a nearly vertical main-sequence as expected. From this plot 31 outliers were found to the right on the main-sequence and 31 more emitters were identified by the methods described in Chapter 5.2. This yields a total of 62 emission candidates. There are no previous works in this wavelength region to compare directly with these results.

These 62 stars are plotted as red diamonds in the overlay plots. As seen in Figure 57, some of these Hα emission candidates are located around the gaseous feature to the left of the image of Trumpler 37. This feature is known as the Elephant Trunk. As it is probable that a majority of these objects are indeed PMS objects that they trace the Elephant Trunk is consistent with the ideas of stellar formation theory.

5.4 Summary and Suggestions for Future Work

A summary of the results for each cluster is as follows:

NGC 2244: From a study of 1383 stars, 72 emission objects were identified. These objects are evenly distributed through out the Rosette nebula.

NGC 2264: From a study of 1201 stars, 103 emission objects were identified. Two regions of clustering of the emission objects were identified. One is found around the center of NGC 2264 itself, S Mon, and one around The Cone.

NGC 6530: From a study of 630 stars, 63 emission objects were identified. These objects were found to be concentrated in the Lagoon nebula.

NGC 6611: With no previous Hα study to compare to, this study of 673 stars found 53 emission objects. Once again these objects show a concentration towards the gas at the center of the region.

Trumpler 37: From the 2118 stars studied, 62 were found to be emission objects. The Elephant Trunk nebula for which this region is named is traced by some of these emission objects.

With the results given above some of the questions regarding the PMS phase of formation can be addressed. First, it is important to recall that the method developed in this study identifies Hα emission objects. While most of these objects are probably PMS objects, spectroscopy is required for complete PMS classification. However, taking the Hα emission objects as PMS objects is a reasonable assumption for preliminary examination of the questions regarding the phase.

Now, the usefulness of this method in addressing some of the questions of formation can be examined. Following each question is a discussion on how the

development of the improved method has yielded data to address the questions and/or, where data are currently insufficient to do so, how to use the method to do so in the future.

- Is the process of stellar formation the same for all mass ranges? The details for formation described previously do not appear to apply to more massive stars.

More massive stars do not have an optically visible phase and therefore can not be studied with this method. The method has and will continue to increase the number of catalogued PMS objects. This will lead to greater understanding of medium- and low-mass stellar formation which can be contrasted with the formation of high-mass stars. These results can then be compared and contrasted with those for high-mass formation processes.

- What are the sources of the temporal photometric variability that is common among young objects? As the variability comes on different time scales with different levels of periodicity, multiple sources are needed for its explanation.

This study obtained data in one observing season and, while establishing a baseline of observations for the five clusters observed, the data are as yet insufficient to examine the many types of variability known to exist in these young PMS objects. However, as the method developed in this study eases the observing process it can be used to obtain a longer baseline of data with less telescope time and greater ease than possible with previous methods. Also, the use of the wide-angle facility allows for examination of variability on the short scale as time need not be spent moving the telescope to create a mosaic.

- Are there different formation epochs in clusters (mass segregation)? The story of one epoch of star formation in a cloud doesn't explain the groupings of young objects observed in some clusters.

This study confirmes the existence of two groups of young objects in the NGC 2264 region. This seems to indicate the existence of different formation epochs in that region. The location of the young objects corresponds with the gas in the other regions as well. The method developed in this study can be used on additional formation regions to examine the concentration of young objects and hopefully find other clusters such as NGC 2264. This would allow for further development of the ideas of multiple formation epochs.

Therefore, the improved Hα photometry method developed by this study has and will continue to improve the path to understanding stellar formation. This is due to fact that the method reduces the required telescope time to locate possible PMS objects by their characteristic Hα emission. It also simplifies the reduction process. These emission objects can then used to direct future studies aimed at answering the questions facing stellar formation.

Specifically, spectroscopic observations of all the emission objects should be performed for complete classification of these objects as PMS objects. From these spectra, profiles can also be examined. Continued photometric observations of these objects should be performed to examine their variability.

The method developed here should also be applied to the many other star formation regions known to exist. It can be applied exactly as done here but could also

be improved upon. The improvements are those for which observational astronomers always seek: a larger telescope and longer/deeper exposure.

One additional suggestion for future work is to standardize the Hα index. Standardization would expand the usefulness of the index. In addition to being able to identify emitters, the results could be directly compared between different researchers and facilities and exact selection criteria established.

6. Conclusion

In order to facilitate future studies of PMS objects more stars need to be catalogued. One method of locating potential PMS objects, specifically CTTS stars, is through their Hα emission. Previous studies have used color-magnitude plots to do just that. Two limitations to these earlier studies were: first, the index used was reddening dependent and second, a mosaic of multiple images were required to image the entire cluster. This study has removed those two limitations.

The first limitation comes from the fact that gas and dust absorption is wavelength dependent. Therefore when creating a color or index, subtracting the amount of light at two different wavelengths, the results need to be corrected for this reddening. This correction can be made if the location and density of the gas are determined. This is known as a reddening map. These maps are very time consuming and difficult to make.

The need for this map is eliminated by the development of a reddening-free Hα index. The index takes the difference between two filters of different widths centered on the same wavelength, $\lambda = 6563$ Å, which are thus affected the same by the gas and dust. Therefore a reddening map need not be created.

By preliminary photometry of NGC 2264 and convolution of the filter tracings with spectra, a good FWHM for each of the two filters was determined to be 160 Å for the W filter and 30 Å for the N filter. The Hα index was then defined to be:

$$H\alpha = N-W$$

This resulted in the desired sensitivity among spectral types of the index and a significant deviation of the Hα emission object from the main-sequence.

A second limitation to the method is addressed by the construction of a wide-angle facility at West Mountain Observatory maintained by Brigham Young University. This included an 8-inch f/4 telescope with a CCD to yield a field of view of about 60 x 40 arcminutes. With this field of view an entire young cluster and its surrounding area can be observed in a single frame. This eliminates the very time consuming process of obtaining multiple observations and creating a mosaic of the cluster.

Making use of these two improvements, VWN observations of five young open clusters were obtained at WMO in the late summer/early fall of 2005. These observations were used to make V vs. Hα Index plots of each cluster. Selection criteria are then established and used to identify Hα emission objects by their location to the right of the main-sequence. Through this process the number of known Hα emission objects has been greatly increased. Complete data sets as well as tables of the emission objects have been included. Also, the coordinates of the emission objects were overlaid with images of the regions and location of the emission objects examined. These results are consistent with current formation theory.

A final look at the data used the results of the application of the improved method to address, where possible, the questions currently surrounding stellar formation. Where the data were not sufficient to address the question directly suggestions for how to use the results to guide future research were included. In summary, this method can be used to search more star formation regions for possible PMS objects with greater ease than the

previous method. This increases the number of known objects available for study to address questions of star formation.

Suggestions for future studies are: first to apply the method to the additional cluster to locate their emission objects and second, to continue observations of all regions to examine the nature of the variability of these objects. Some suggestions for additional improvements to this study are to use a larger telescope for the wide-angle observations to deepen the data and also to standardize the index to future increase its utility.

7. Bibliography

Adams, M. T., Strom, K. M., & Strom, S. E., 1983, *ApJS*, **53**, 893

Alencar, S. H. P. and Basri, G., 2000, *ApJ*, **119**, 1881

Barbon, R., Carraro, G., Munari, U., Zwitter, T., and Tomasella, L., 2000, *AASS*, **144**, 451

Bertout, C., 1989, *ARAA*, **27**, 351

Black, J. H., 1987, in *Interstellar Processes*, ed. D. J. Hollenbach and H. A. Thronson (Dordrecht: Reidel), p. 731

Bohm, T. and Balona, L. A., 2000, in *The Be Phenomenon in Early-Type Stars*, ed. M. A. smith, H. F. Hendricks, and J. Fabregat (San Francisco: ASP), p. 103

Bonnell, I. A., Bate, M. R., and Zinnecker, H., 1998, *MNRAS*, **298**, 93

Cohen, M. and Kuhi, L. V., 1979, *AJSS*, **41**, 743

Dahm, S. E. and Simon, T., 2005a, *AJ*, **129**, 829

Dahm, S. E., 2005b, *AJ*, **130**, 1805

Doldize, M. V. and Arakelyan, M. A., 1959, *SvA*, **3**, 434

Edwards, S., Ray, T. P., and Mundt, R., 1993, in *Protostars and Planets III*, ed. E. H. Levy and J. I. Lunine (Tucson: U. of Arizona), p. 567

Feigelson, E. D. and Montmerle, T., 1999, *ARAA*, **37**, 363

Fletcher, A. B. and Stahler, S. W., 1994a, *ApJ*, **435,** 313

Fletcher, A. B. and Stahler, S. W., 1994b, *ApJ*, **435,** 329

Gudel, M., 2002, *ARAA*, **40**, 217

Haro, G., 1952, *ApJ*, **115**, 572

Herbig, G. H., 1951, *ApJ*, **113**, 697

Herbig, G. H., 1954, *ApJ*, **119**, 483

Herbig, G. H., 1957, *ApJ*, **125**, 654

Herbig, G. H. and Rao, N. K., 1972, *AJ*, **174**, 401

Herbst, W., Herbst, D. K., and Grossman, E. J., and Weinstein, D., 1994, *AJ*, **108**, 1906

Hillenbrand, L. A., Massey, P., Strom, S. E., and Merrill, K. M., 1993, *AJ*, **106**, 1906

Hirth, G. A., Mundt, R., and Solf, J., 1997, *AAS*, **126**, 437

Hollweg, J. W., 1973, *ApJ*, **181**, 547

Jijina, T. and Adams, F. C., 1996, *ApJ*, **462**, 874

Johns-Krull, C. M., Valenti, J. A., Piskunov, N. E., Saar, S. H., & Hatzes, A. P. 2001, in *Magnetic Fields Across the HR Diagram*, ed. G. Mathys, S. K. Solankik, & D. T. Wickramasinghe (San Francisco: ASP), p. 527.

Joy, A., 1946, *PASP*, **58**, 244

Kharchenko, N. V., Piskunov, A. E., Roser, S., Schilbach, E., Scholz, R.-D., 2005, *A&A*, **438**, 1163

Klessen, R. S., 2001, *ApJ*, **556**, 837

Kroupa, P., 2002, *Science*, **295**, 82

Kun, M., 1986, *Ap&SS*, **125**, 13

Lamm, M. H., Bailer-Jones, C. A. L., Mundt, R., Herbst, W., and Scholz, A., 2004, *A&A*, **417**, 557

Landolt, A. U., 1992, *AJ*, **104**, 340

Li, J. Z., Wu, C. H., Chen, W. P., Rector, T., Chu, Y. H., and Ip, W. H., 2002, *AJ*, **123**, 2590

Makidon, R. B., Rebull, L. M., Strom, S. E., Adams, M. T., and Patten, B. M., 2004, *AJ*, **127**, 2228

Marcy, G. W., 1980, *AJ*, **85**, 230

Menard, F. and Bertout, C., 1999, in *The Origin of Stars and Planetary System*, ed. C. J. Lada and N. D. Kylafis (Dordrecht: Reidel), p. 341

Mufson, S. L., McCollough, M. L., Dickel, J. R., Petre, R., White, R., and Chevalier, R., 1986, *AJ*, **92**, 1349

Ogura, K., 1984, 1984, *PASJ*, **36**, 139

Park, B.-G. and Sung, H., 2002, *AJ*, **123**, 892

Penston, M. V., 1969, *MNRAS*, **144**, 425

Perez, M. & Grady, C. A. 1997, Sp. Sci. Rev., **82**, 407

Reipurth, B. and Bally, J., 2001, *ARAA*, **39**, 403

Reipurth, B., Pettersson, B., Armond, T., Bally, J., and Vaz, L. P. R., 2004, *AJ*, **127**, 1117

Rydgren, A. E., 1979, *ApJ*, **84**, 90

Salpeter, E. E., 1955, *ApJ*, **121**, 161

Scalo, J. M., 1986, *Fund. Cosm. Phys*, **11**, 1

Shu, F. H., 1977, *ApJ*, **214**, 488

Stahler, S. W., 1983a, *ApJ*, **268**, 155

Stahler, S. W., 1983b, *ApJ*, **268**, 165

Stahler, S. W., 1988, *ApJ*, **332**, 804

Stahler, S. W., 1988, *PASP*, **100**, 1474

Stahler, S. W. and Palla, F. 2004, *The Formation of Stars* (Weinheim: Wiley-VCH)

Stahler, S. W., Palla, F., and Ho, P. T. P., 2000, in *Protostars and Planets IV*, ed. V. Mannings, A. P. Boss, and S. S. Russell (Tucson: U. of Arizona Press), p.327

Stahler, S. W., Korycansky, D. G., Brothers, M. J., and Touma, T., 1994, *ApJ*, **431**, 341

Stetson, P. B., 1987, *PASP*, **99**, 191

Struve, O. and Rudkjobing, M., 1949, *AJ*, **109**, 92

Sung, H., and Lee, S.-W., 1995, *JKAS*, **28**, 119

Sung, H., Bessell, M. S., and Lee, S.-W., 1997, *AJ*, **114**, 2644

Sung, H., Bessell, M. S., and Lee, S.-W., 1998, *AJ*, **115**, 734

Sung, H., Chun, M.-Y., and Bessell, M. S., 2000, *AJ*, **120**, 333

Sung, H., and Bessell, M. S., 2000, *PASA*, **17**, 244

Sung, H., Bessell, M. S., Lee, S.-W., and Lee, S.-G., 2002, *AJ*, **123**, 290

Sung, H., Bessell, M. S., and Chun, M.-Y., 2004, *AJ*, **128**, 1684

Terlevich, E., 1987, *MNRAS*, **224**, 193

Vazquez, R. A., Baume, G., Feinstein, A., and Prado, P., 1996, *A&AS*, **116**, 75

Walker, M. F., 1956, *ApJS*, **2**, 365

Waters, L. B. F. M. & Waelkens, C. 1998, ARAA, **36**, 233

Wilking, B. A., Schwartz, R. D., & Blackwell, J. H., 1987, *AJ*, **94**, 106

Wilking, B. A., Schwartz, R. D., Fanetti, T. M., & Friel, E. D., 1997, *PASP*, **109**, 549

Wilking, B. A., Meyer, M. R., Robinson, J. G., and Greene, T. P., 2005, *AJ*, **130**, 1733

Woltzer, L., 1972, *ADAA*, **10**, 129

Yorke, H. W. and Krugel, E., 1977, *AA*, **54**, 183

A. Summary of Stellar Evolution and Diagnostic Tools

(The content for the Stellar Evolution, and Diagnostic Tools sections has been taken from the text Stellar Evolution by Stahler and Palla. It is hoped that the meaning of the authors' ideas have not been lost in the paraphrasing.)

A.1 Stellar Evolution

A.1.1 Overview

To begin a study of stellar evolution to understand the role of the PMS phase, an essential device for any astronomer is the HR diagram - so named because of the initials of the two scientists who independently developed it: Elnar Hertzsprung and Henry Norris Russell. Plotting luminosity versus temperature, a stars position in the HR diagram also indicates its mass, radius, and phase in evolution. While the paths of all stars in an HR diagram are similar, the exact path a star follows in an HR diagram is given by its mass. An example is given by following a 1 solar mass star in the diagram as seen below.

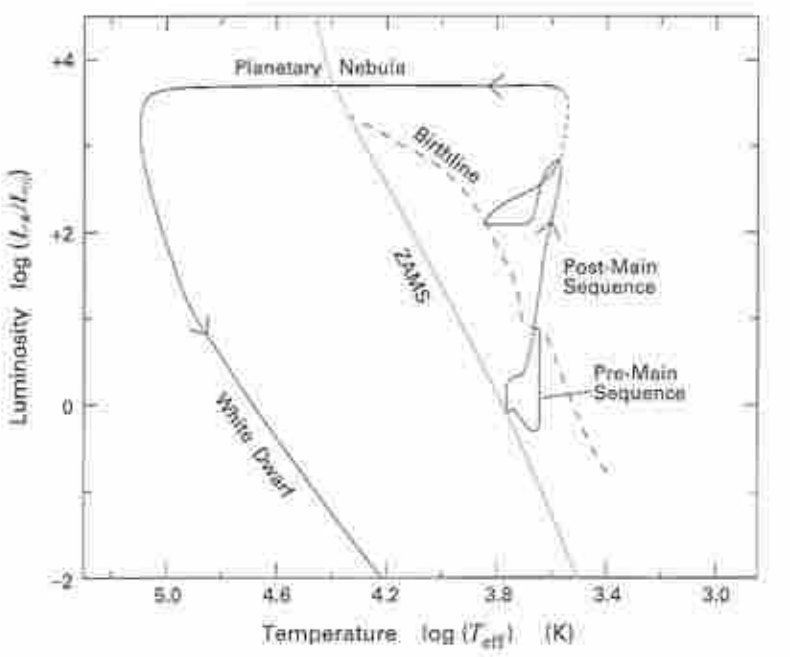

Figure 58: Evolutionary track of a 1 solar mass star in the theoretical HR diagram. The grey solid line represents the zero-age main sequence (ZAMS), while the dashed curve is the birthline. Figure 1.15 in Stahler and Palla

Examining Figure 62, the *birthline* shows when a forming star becomes optically visible. Before this the object, known as a *protostar*, is so obscured by interstellar dust that the emitted radiation is in the infrared and longer wavelengths and the object is not optically visible. Once it becomes optically visible, the object is known as a *pre-main-sequence (PMS)* object. This phase of evolution is examined more closely in the PMS evolutionary tracks for several different masses shown in Figure 58. As seen from the paths in the HR diagram, the PMS is characterized by contraction and heating.

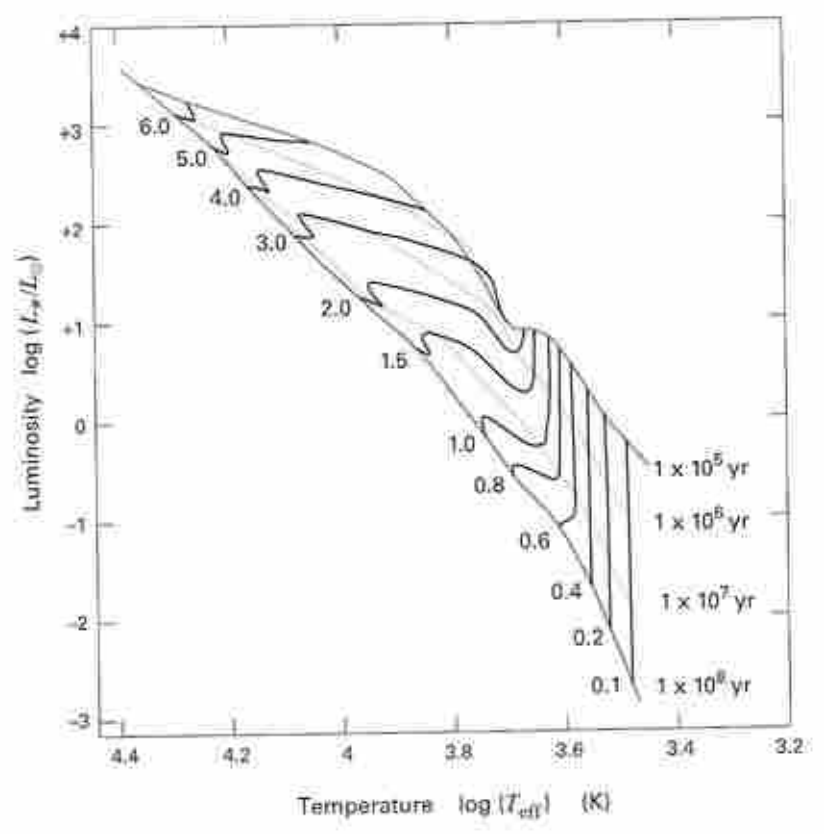

Figure 59: Pre-main-sequence evolutionary tracks. Each track is labeled by the stellar mass in units of solar mass. The grey curves are isochrones, labeled in years. The t = 0 isochrone coincides with the birthline, the lighter solid curve at the top. Note that the t = 1 x 10^8 yr isochrone nearly matches the ZAMS, the lighter solid curve at the bottom. Figure 1.18 in Stahler and Palla

Returning to Figure 59, when the core reaches 10^7 K hydrogen fusion ignites and the *zero-age-main-sequence (ZAMS)* is reached. Although not shown in this diagram, the *main-sequence* is located just to the right of the ZAMS and is where the star will spend the majority of its life, fusing hydrogen to helium in its core.

Once a helium-rich core has been built up in a one solar mass star, nuclear reactions cease to take place in the core. However, surrounding the core is a thick shell in which hydrogen fusion begins to take place. This shell adds helium to the core which contracts due to the increased pressure and releases energy that expands the envelope. This is seen in the HR diagram (Figure 58) by departure of the star from the main-

sequence and the rapid movement of the star to the right. The envelope then becomes convectively unstable and the star moves quickly nearly vertically up along the *red giant branch*. Along the giant branch the star is comprised of a contracting, inert core of helium, a hydrogen shell, and the expanding envelope that gives this kind of star its name.

The energy from the collapse of the core eventually raises its temperature high enough to fuse helium into ^{12}C. The star then moves to the left in the diagram tracing the *horizontal branch*. Once helium burning is depleted in the core, this helium fusion also shifts to an outer shell. With two burning shells the star follows a second vertical branch in the HR diagram that is so similar to the giant branch that it is known as the *asymptotic giant branch*.

The way in which a star ends its life depends on the initial mass of the star. In the case of a 1 solar mass star, the giant sheds its outer layer in a massive wind and the central inert core becomes exposed. This core is so dense that it is no longer supported by ordinary gas pressure but from electron degeneracy pressure (the mutual repulsion of the electrons' quantum mechanical wavefunctions) and is now known as a *white dwarf*. This white dwarf gradually fades from view as it cools. The outer layers, known as a planetary nebula, disperse into the surrounding environment.

More massive stars have sufficient gravitational compression energy to continue successive shell burning layers and core collapse sequences while in the upper part of the HR diagram. Each sequence creates heavier elements until iron is reached in the core. This core then undergoes a violent collapse and becomes a *neutron star* or, for even more massive stars, a *black hole*. This collapse releases so much energy that it liberates to

outer layers of the star in an explosive-type event known as a *supernova*. This burst can rival the brightness of an entire galaxy. The supernova remnant gradually disperses and dims and the core becomes detectable only through its gravitating mass or as a rapidly rotating pulsar with its beacon-like beaming.

A.1.2 Young Stellar Systems

Additional insight into the formation phases is gained in the realization that, while the previous Chapter discusses the life cycle of a single star, stars generally form in systems. This is because a single giant molecular cloud forms multiple stars of varying masses. The classification of more young objects will aid with determining the details of this process which currently remain unclear.

Starting with the issue of triggering collapse of the giant cloud, it is noted that massive clumps owe their full three-dimensional shapes to the mechanical support from magnetohydrodynamic (MHD) waves. These MHD waves are significant local deviations arising in the magnetic field. Any impulsive disturbance to a fluid element is transmitted to its embedded magnetic field which is resisted by magnetic tension. In acting to remove the local distortion in the magnetic field, tension also causes the disturbance to propagate along the field line as an MHD wave.

Before collapse the clouds are in near equilibrium between this MHD wave support and self-gravity, and therefore contract if there is a slight imbalance in favor of gravity. What ultimately drives any such quasi-static evolution is a net loss of energy, which plausibly results in this case from turbulent dissipation. The way in which this dissipation arises in detail is not well understood. Certainly the non-neutral drift invoked

for MHD wave damping is ineffective over typical clump dimensions. Nor is it clear how quiescent dense cores separate out from this turbulent medium on relatively small length scales. (Preston, 1969, Shu, 1977, and Klesson, 2001) Thus two to arise are:

- What if anything triggers the collapse of giant clouds?
- What conditions are necessary in a collapsing cloud to ignite stellar formation?

Starting with the first question and backtracking to the classical ideas of how to trigger collapse, it had been the understanding that pressure from the creation of O and B stars in one area induces collapse in the neighboring region. Current data indicate that while massive stars can terminate formation in a large area by blowing off material, there is little to indicate that they also initiate formation. This theory therefore is being disregarded.

Theoretical models have shed doubt on another suspected trigger as well. (Woltjer, 1972 and Mufson et al., 1986) While supernovae within a certain shock speed range can initiate collapse it does not follow that new stars are formed as a result. Indeed, much of the compression in the supernova is not from ram pressure *per se*, but from the enhanced temperature behind the shock front. Therefore, the resultant collapse is unlikely to yield stellar densities unless the applied pressure marginally exceeds the maximum allowed for gravitational stability. Without such a delicate combination of supernova energy, distance, and the density of the medium surrounding the cloud, the outcome would be dynamical fragmentation.

Currently it seems that star formation can occur without an external trigger but instead, purely through the gravitational contraction of a large cloud region. So, how does the collapse of a cloud proceed? A simple model of a cloud is a uniform-

temperature sphere supported by internal pressure against self-gravity. If this cloud's mass exceeds the Bonnor-Ebert (or Jeans) value, the cloud is not in force balance and will collapses gravitationally. Models including rotation and magnetic field result in flattened structures that become thin slabs in the strong-field limit. (Stahler, 1983a and Stahler, 1983b) These shapes however are not found observationally by radio mapping.

Some additional mechanical support which may alleviate the problem of cloud shapes comes from Alfven waves which are transverse disturbances in the field but the situation is far from resolved. (Hollweg, 1973) An additional source of heat in these clouds comes from the grains. (Black, 1987) Electrons ejected by the ultraviolet radiation from field stars are absorbed by the dust grains. This raises their temperatures affecting the collapse. And, finally, a complete theory must identify which properties of a clump dictate which type of cluster forms.

Though the details of collapse histories are unknown, it is known that there are several types of systems that form from the collapse of a giant molecular cloud. The groups are roughly divided into associations and clusters, the difference being the eventual fate of the grouping. Clusters are entities with a high space density that are usually gravitationally bound that persist while associations are looser, can extend over 100 pc or more, and dissipate relatively quickly. Classification guidelines are given in the following subsections; however, the current classification of any given system of stars is usually more a matter of tradition than in accordance with any definition.

A.1.2.1 Associations

Associations are further grouped according to the classification of its most prominent members. Therefore the three types of associations are OB, T, and R associations. Examining the distribution of different masses of stars in these associations gives rise to another question.

- Is the process of stellar evolution the same for all mass ranges?

To begin with, recall that the fate of an embedded cluster depends partially on how its gas is dispersed. In many cases, one or more high-mass stars drive off the interstellar matter relatively quickly. The result is an OB association. The O and B stars in these systems are too massive to have formed in the same manner as the intermediate- and low-mass stars to be described in the protostar section. Their increased density towards the center of the association suggests that the high-mass stars may have formed from the coalescence of previously formed members. (Bonnell et al., 1998 and Stahler et al., 2000)

The next group, T associations, is born in dark cloud complexes that never contained massive stars. Most of the members are the young low-mass T Tauri stars, a class discovered in 1945 by A.H. Joy and named in 1949 by V. Ambartsumian. T Tauri stars are divided into two types. Classical T Tauri stars (CTTS) show strong emission lines in Hα as well as in the H and K lines of Ca II. Weak-lined T Tauri stars lack strong emission lines. While the disappearance of emission lines is generally a sign of evolution, the two types overlap in age. This can be seen in the examples of HR diagrams of four stellar associations are given in Figure 60. The closed and open circles represent classical and weak-lined stars, respectively.

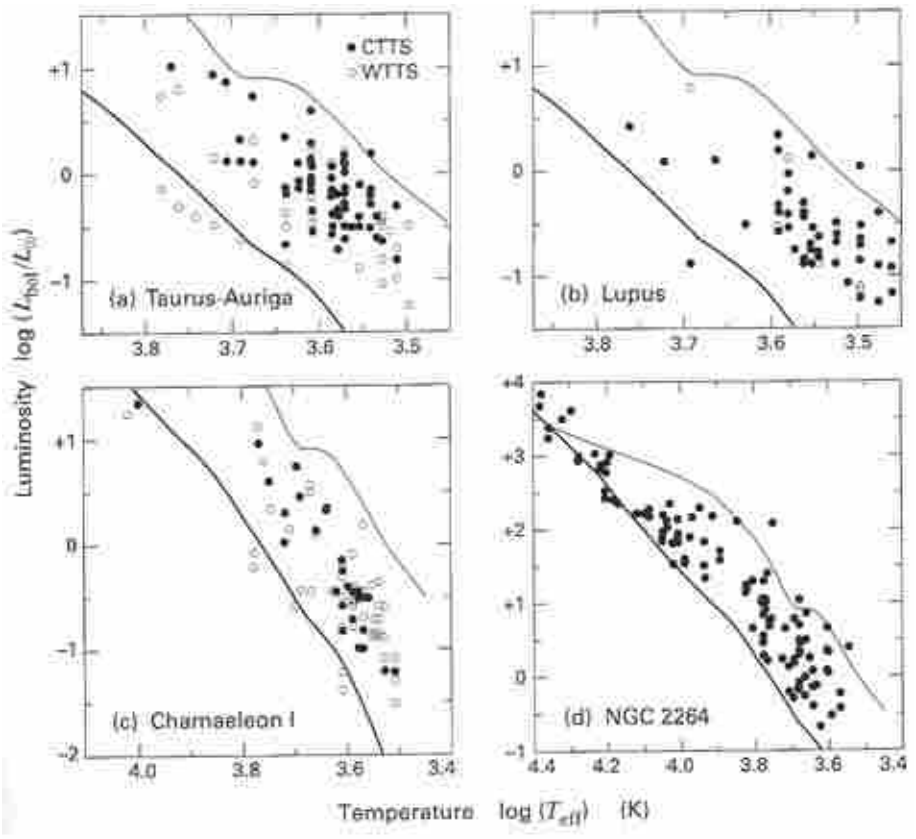

Figure 60: HR diagrams for four stellar associations. In panels (a)-(c), closed circles represent classical T Tauri stars, while open circles are weak-lined and post-T Tauri stars. For NGC 2264, we show both classical T Tauri and Herbig Ae/Be stars, as well as main-sequence objects. The upper and lower solid curves in each panel are the birthline and ZAMS, respectively. Figure 4.9 in Stahler and Palla

Spatially, the distribution of stars in a T association is not from dispersal, but instead reflects the initial extent of the parent cloud. This is apparent both because most of the stars are too young to have spread far and because a significant number of even younger, embedded sources are commingled spatially with the others. As these associations have densities just above the background, when they expand and simultaneously dissipate the parent cloud's gas their identity as a young star system fades and their PMS stars become harder to identify.

A third type of association, the R association, is made of mostly intermediate-mass stars that are close to the ZAMS and lack prominent emission lines. However, there are some stars in the association in which the emission lines characteristic of the PMS phase still exist. The contraction times for the intermediate-mass stars are so short that they still frequently illuminate nearby molecular gas and dust. The dust is seen in optical photometry as a reflection nebula, which give the associations their name. The nebula appears as a fuzzy patch that is bluer in color than the hot stars since the reflection of visible light from dust grains is more efficient at shorter wavelengths.

A.1.2.2 Clusters

Turning to systems of higher space density, clusters, like associations, are also further sub-classified. One type is the open cluster in which individual members can often be clearly distinguished. They contain little molecular gas and are not currently forming protostars. Half of them reach ages of 1×10^8 yr while only 10 percent survive as long as 1×10^9 yr. Even at 10^8 yr all stars less than 0.5 solar masses are still in the PMS phase. This introduces another question about stellar formation:

- What conditions are necessary in a giant cloud for each of the different types of stellar systems to form?

Observationally, optically visible clusters account for only about 10 percent of the galactic total of visible stellar systems. The remainder occurs primarily in OB associations. However, many systems are not currently visible but exist as embedded systems, which are defined as any group of physically related stars so obscured by ambient molecular gas and dust that most of the stars can be detected only at infrared or

longer wavelengths. From observational evidence, then, it is apparent that most embedded systems are *not* destined to form open clusters. This follows because in low-mass clouds, the gas dissipates. In high mass clouds, the self-gravitating contraction quickly accelerates and paradoxically leads to an expanding OB association. Only intermediate mass clouds can contract and lose mass at roughly the same rate and evolve to become gravitationally bound clusters.

For example, NGC 2264 (Figure 61) represents a transition from a fully embedded cluster to an open cluster. Due to the small color excess observed, it is apparent that the cluster is just in front of the cloud. This is further supported by the presence of embedded infrared stars - some with molecular outflows - extending further behind the main body of the cluster. The location of the cluster helps to isolate cluster members because the cloud (25 pc long and a mass of 3×10^4 solar masses) blocks background starlight at optical wavelengths and so prevents contamination from background objects.

Figure 61: NGC 2264

Once formed, even open clusters will not remain intact indefinitely. One possible explanation for this is dynamical relaxation. Each cluster member has a velocity and therefore a crossing time for the cluster. As these members move around they are affected by the gravity of the cluster as a whole but also interact with each other. Each of these interactions changes the orbit of the star. By this means the system relaxes to a state in which the energy is equally divided among its members. With this being the case, the least massive stars have the highest speed and fill the largest volume, while the massive stars are concentrated in the middle. The relaxation time is within the age range of open clusters. From this argument, it is then expected that older clusters would have a steeper falloff in radius in the average mass of their members. This, however, is not seen observationally.

Through dynamical relaxation the lighter cluster members can also get far enough from the center with enough energy to escape. While this is a tempting argument for the destruction of these systems, it does not match the time scale. It would take many more crossing times than the average life of a cluster which is 10^9 years. Therefore another question is:

- Are giant clouds the source of the evaporation of clusters?

Current theory is proposing that these systems are destroyed by encounters with molecular clouds. While the rate of such encounters is low – about one for each rotation of the cluster around the galaxy – the effect is devastating. As the cloud passes the cluster it gives energy to each cluster member, similar to dynamical relaxation for the cluster as a whole. The effect is felt most strongly by the cluster members closest to the

passing cloud and the cluster is stretched. Often just one pass can disrupt the cluster entirely. The irony cannot be missed that the same objects from which all clusters are formed may also be the source of their ruin.

An additional note on clusters is that while they remain intact they are very useful tools in the attempts to understand stellar evolution. To see how, we return to the HR diagram. Assuming all the stars in the cluster formed at the same time (see mass segregation section), then the mass of the stars on the main-sequence is an indication of the age of the cluster. This is because massive stars evolve to the main-sequence more quickly than lower-mass stars and then consume nuclear fuel more rapidly. As a result they will reach and subsequently leave the HR diagram faster than less massive stars. The point on the main-sequence above which more massive stars have evolved off is known as the main-sequence turnoff. As T associations do not contain massive members, the lower end, or turnon point must be used to determine the age. This is the point on the main-sequence below which less massive stars have not had sufficient time to evolve to the main-sequence stage. In fact it was the discovery of the main-sequence turnon point that enabled M. Walker in 1956 to prove the existence of the pre-main-sequence phase.

Open clusters are especially useful for determining age as they may display both main-sequence turnoffs and turnons within a single cluster. This is seen in the four clusters shown in Figure 62. Knowing how long it takes for the stars of mass equal to either the turnoff or turnon point to evolve to that phase, an age for the cluster can be determined.

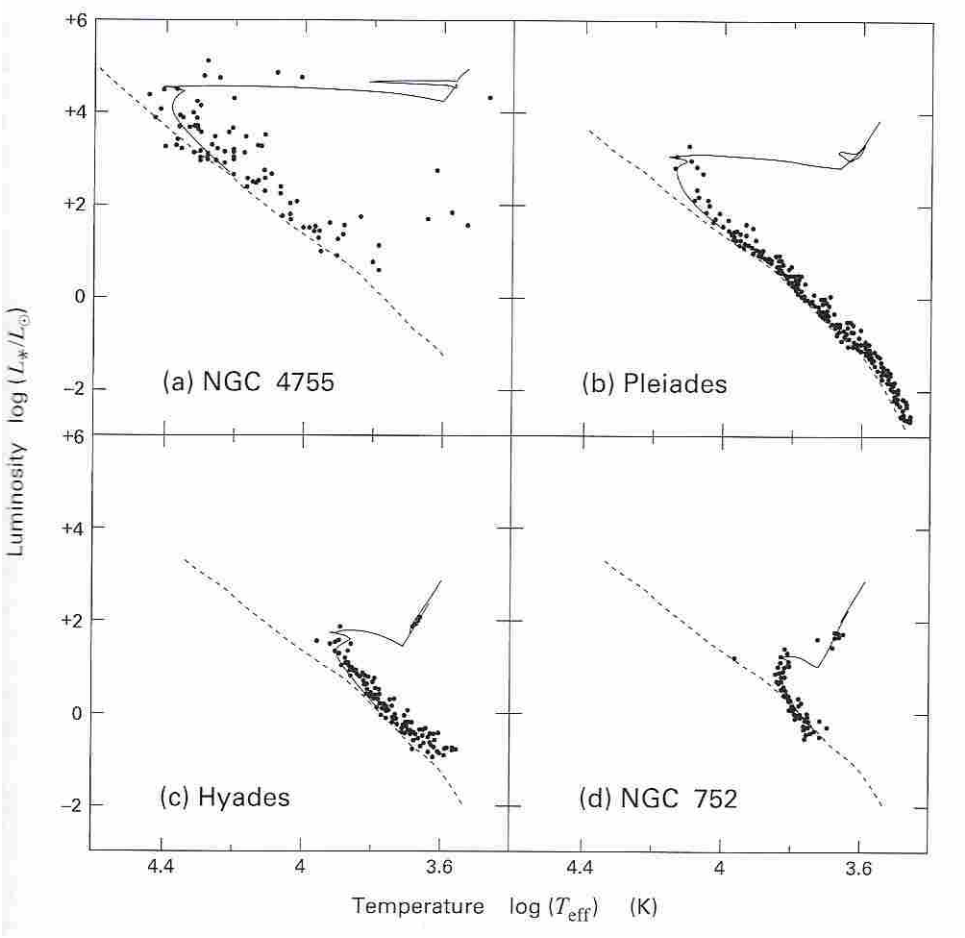

Figure 62: HR diagram of four open clusters, arranged by age. For each system, both the ZAMS (*dashed curve*) and the best-fit isochrone (*solid curve*) are also displayed. Figure 4.20 in Stahler and Palla

A.1.3 Protostars

Returning to individual star formation, the phase preceding the PMS phase is known as the protostar phase. Discussion of this protostar phase leads to understanding of the nature of the PMS objects just before it becomes optically visible. Also, in addition to the questions involving collapse and star formation, another question arises involving the transition between the protostar and the PMS phase.

- Once a protostar is formed, what causes the infall of material to cease?

To begin with, observationally, the majority of the luminosity of a protostar comes from the accretion and is generated close to the surface. The contributions to the luminosity from the nuclear fusion of deuterium and from quasi-static contraction of the interior are small. From this perception stems the conventional definition of a protostar as a mass accreting star whose luminosity stems mainly from external accretion. The radiation escapes the cloud by being degraded down into the infrared regime as it works its way outward. It is only these infrared photons that can transverse the large column density of dust between the core and stellar surface. Therefore, protostars are optically invisible objects that should appear as compact sources at longer wavelengths. (Stahler, 1988)

Indeed, young stars exhibit infrared excesses whose source is circumstellar as opposed to interstellar. A measure of the infrared excess can be used to indicate how embedded a young object is. A deeply embedded object is known as a Class 0, and the classes become less embedded as the range moves up to Class III. Infrared and also x-ray studies of young objects can be very instructive but will not be dwelt on heavily here as they are beyond the wavelength range of the available facilities.

Turning to formation, arguments similar to those that have been applied to the formation of stellar systems from giant clouds have also been applied to the formation of a protostar around a dense core and similar difficulties arise. When modeled by an idealized spherical, nonmagnetic cloud (magnetic fields add to the difficulties), infall starts at the center and spreads out at the sound speed. The gas that approaches the protostellar surface is traveling at free-fall velocity (much faster than local sound speed). The rise in the mass gradually inflates the supersonic infall region and the cloud collapse

continues in the usual inside-out manner. The temperature of the original dense core indicates how fast mass will accumulate on the protostar.

As the object grows in both size and mass, deuterium eventually ignites and drives convection. If accretion continues, the protostar will contract and heat up until hydrogen fusion ignites. Recalling an earlier question, this, however can not be how massive O and B stars form as their winds and radiation pressure would repel the infalling envelope. (Yorke and Krugel, 1977 and Jijina and Adams, 1996)

More difficulties arise even for intermediate mass stars when a more realistic model that includes a magnetic field is sought. The MHD waves disrupt the outermost material and decouple from the material in the infalling region. If rotation is added as well, the Alfven waves can brake the cloud's angular speed and the result may be a rapidly growing circumstellar disk. (Stahler et al., 1994) These disks are currently growing in their popularity as a topic of study and dedicated research as they are also believed to be related to planet formation. The questions involving these two topics (circumstellar disks and planet formation) alone are very numerous and shall be omitted from the current discussions.

Continuing, the problems are not limited to the start of formation of a protostar, but also extend to the way in which the infall ceases. It is known that infall ceases before the star reaches the main-sequence as there is no evidence of it during that phase. How and when accretion ceases is unknown, and currently no compelling theories exist.

A.1.4 PMS Objects

For intermediate- and low-mass stars, the final phase of formation on the path to the main-sequence is known as the pre-main-sequence (PMS) phase. While more massive stars don't have an optically visible phase before they reach the main-sequence, these lower mass stars do have such a phase because they are no longer buried within an opaque dust cloud. They appear along the birthline in an HR diagram. Since only the low mass star can be studied optically, this raises the question:

- Is the process of stellar formation the same for all mass ranges?

It is believed that the formation process *is* different for massive stars.

The PMS phase is a quasi-static contraction phase in which accretion has ceased. Because it is known that protostars have accretion and PMS stars do not, by the PMS phase the accretion has ceased. Therefore, a logical question to follow is:

- Once a protostar is formed, what causes the infall of material to cease?

However it is understood that once the accretion has ceased the interior temperature rises, culminating in hydrogen fusion. Other light elements such as deuterium are consumed along the way. The presence of these lighter elements is used as an indication of the youth of an object. One such element that is commonly used in this way is lithium. Even if these lighter elements have not been completely exhausted but the mass of the star is greater than 0.075 solar masses, the contraction raises the central temperature to about 10^7 K and hydrogen fusion ignites. This releases nuclear energy which balances the collapse and the radius stabilizes to the ZAMS value. If the mass is insufficient hydrogen fusion does not start and the object does not reach the main-sequence. It then becomes known as a brown dwarf.

Focusing on stars that will eventually reach the main-sequence, the theory is again cluttered by their rotation and magnetic fields. Main-sequence stars have a well-documented rotation spin-down which is consistent with magnetic wind theory. While wind braking is present during the PMS phase, it is apparently less efficient and the theory requires work to match the observations, leaving researchers with the following question: (Stahler, 1988)

- What is the nature of rotation and magnetic fields in PMS stars?

A.1.4.1 Emission Line Profiles

Historically, classical T Tauri stars (CTTS) were discovered first and the presence of prominent emission lines is a basic defining property of the T Tauri class. As the objects found in this study are identified by their emission features a brief discussion of the emission line profiles follows.

First of all, while optical emission lines are also present in late-type main-sequence stars, in PMS stars the emission lines come from mechanical and magnetic energy in an extended chromosphere and corona above the stellar surface proper. In main-sequence stars these extended layers are not present and therefore are not the source of the observed emission lines. The level of activity in PMS stars is often greater than in main-sequence counterparts as well. Table 13 lists the main emission lines found in classical T Tauri stars along with their Einstein coefficients. Column 1 lists the name of the line and column two indicates the atomic transition from which the line originates. The third column gives the resulting wavelength of the transition and the final column is

the Einstein coefficient which is a measure of the likelihood of the transition.

Examination of the line profiles leads to a question as to their origin.

- What are the mechanisms behind the observed line profiles in CTTS stars?

Line	Transition	Wavelength (Å)	A_{ul} (s^{-1})
Infrared			
Br γ	$n = 7 \rightarrow 4$	21661	3.0×10^{5}
Pa β	$n = 5 \rightarrow 3$	12822	2.2×10^{6}
Ca II	$^2P_{1/2} \rightarrow {}^2D_{3/2}$	8662	2.8×10^{5}
Ca II	$^2P_{3/2} \rightarrow {}^2D_{5/2}$	8542	1.2×10^{6}
Ca II	$^2P_{3/2} \rightarrow {}^2D_{3/2}$	8498	6.3×10^{5}
Optical			
[S II]	$^2D_{3/2} \rightarrow {}^4S_{3/2}$	6731	8.8×10^{-4}
[S II]	$^2D_{5/2} \rightarrow {}^4S_{3/2}$	6716	2.6×10^{-4}
Hα	$n = 3 \rightarrow 2$	6563	1.0×10^{8}
[O I]	$^1D_2 \rightarrow {}^3P_2$	6300	6.3×10^{-3}
Na I D_1	$^2P_{1/2} \rightarrow {}^2S_{1/2}$	5896	6.2×10^{7}
Na I D_2	$^2P_{3/2} \rightarrow {}^2S_{1/2}$	5890	6.2×10^{7}
He I	$^3D_3 \rightarrow {}^3P_2$	5876	7.1×10^{7}
Fe II	$^6P_{3/2} \rightarrow {}^6S_{5/2}$	4924	3.3×10^{6}
Hβ	$n = 4 \rightarrow 2$	4861	3.8×10^{7}
Hγ	$n = 5 \rightarrow 2$	4340	1.6×10^{7}
Fe I	$^5F_3 \rightarrow {}^5F_2$	4132	1.2×10^{7}
[S II]	$^2P_{1/2} \rightarrow {}^4S_{3/2}$	4076	9.1×10^{-2}
Ca II H	$^2P_{1/2} \rightarrow {}^2S_{1/2}$	3969	1.4×10^{8}
Ca II K	$^2P_{3/2} \rightarrow {}^2S_{1/2}$	3934	1.5×10^{8}
Ultraviolet			
Mg II h	$^2P_{1/2} \rightarrow {}^2S_{1/2}$	2803	2.6×10^{8}
Mg II k	$^2P_{3/2} \rightarrow {}^2S_{1/2}$	2796	2.6×10^{8}
C IV	$^2P_{3/2} \rightarrow {}^2S_{1/2}$	1548	2.7×10^{8}
Si IV	$^2P_{1/2} \rightarrow {}^2S_{1/2}$	1403	7.6×10^{8}
O I	$^3S_1 \rightarrow {}^3P_1$	1305	2.0×10^{8}
S I	$^3P_1 \rightarrow {}^3P_2$	1296	4.9×10^{8}
Lyα	$2p \rightarrow 1s$	1216	6.3×10^{8}

Table 13: Main Emission Lines in Classical T Tauri Stars. Table 17.1 in Stahler and Palla. The final column in the table is the value of the Einstein coefficient for the transition. This is a measure of the likelihood the transition will occur and thereby corresponds to the strength on the line. It is seen that the Hα line has a large Einstein coefficient and therefore will be a prominent line.

The hydrogen lines used in the classification of T Tauri objects (Alencar and Basri, 2000), are those of the Balmer and Paschen series. As seen from the Einstein

coefficient, a prominent line is Hα at 6563 Å. To form the Hα line, the n=3 level of hydrogen needs to be populated but the temperature needs to be low enough to keep from ionizing the hydrogen. If the electron then falls to the n=2 level the Hα line is formed.

The characteristics of this line vary greatly among T Tauri stars. Figure 63 shows the Hα emission line of two T Tauri stars and an example of the variety that exists.

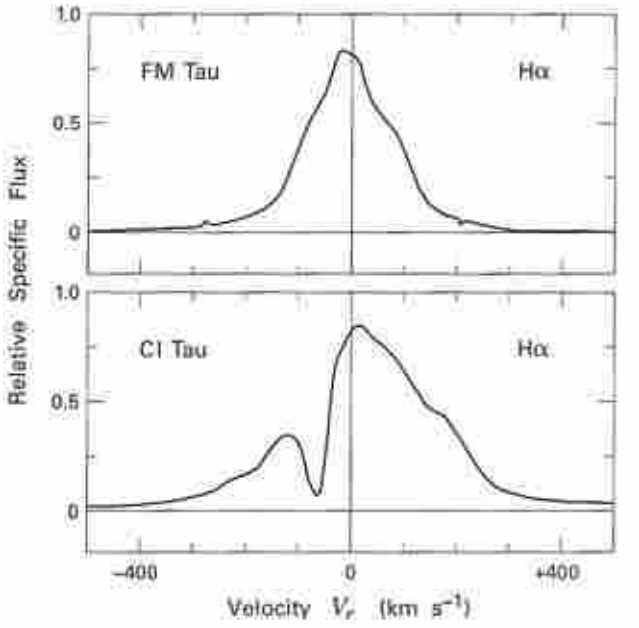

Figure 63: Two representative Hα profiles. Note that only *relative* specific flux is shown. Line center is indicated by a vertical line. Figure 17.8 in Stahler and Palla. These two representative features give an idea as to the possible diversity in the shape of the H**α** profiles for different stars.

One would assume that this emission is purely chromospheric. However, the width of profiles can not be due to thermal motion in the chromosphere alone since the required temperatures would ionize the gas, preventing formation of the line. Even higher temperatures are required for the x-ray emission discussed earlier so we know the x-ray and Hα features must originate from different regions of the star. The width of the Hα profiles therefore must arise from bulk motion within the emitting gas. Therefore a

purely chromospheric origin is unlikely. However, no other explanation has yet been established.

A deconvolution of the lower profile indicates it is the superposition of two profiles. First there is the nearly centered symmetric profile from the bulk motion. This is overlaid by a Doppler shifted dip, probably from a stellar wind moving away from the star. Powerful winds are a characteristic of PMS evolution and studies of younger more embedded objects have shown even more energetic outflows. A combination of inward motion near the star with outflow from the outer layers results in the profile shown.

Interestingly, other spectroscopic evidence has shown the presence of infalling material around young stellar objects. Further investigation has led to the discovery of objects that exhibit evidence of both infalling and outflowing material simultaneously. Therefore it is to be understood that the circumstellar environment is very complex.

More can be learned about the low density circumstellar region of these objects by examining the forbidden lines in T Tauri stars. (Edwards et al., 1993 and Hirth et al., 1997) Referring back to Table 13, the strongest forbidden line is that of [O I] at 6300 Å. The maximum width of this line is still an order of magnitude below that of Hα. Figure 64 shows two characteristic [O I] profiles. Forbidden lines are commonly blueshifted with no redshift seen. It has been inferred that the forbidden emission is from a rotating circumstellar disk. The lack of redshifted emission means that part of the emitting region is hidden from view.

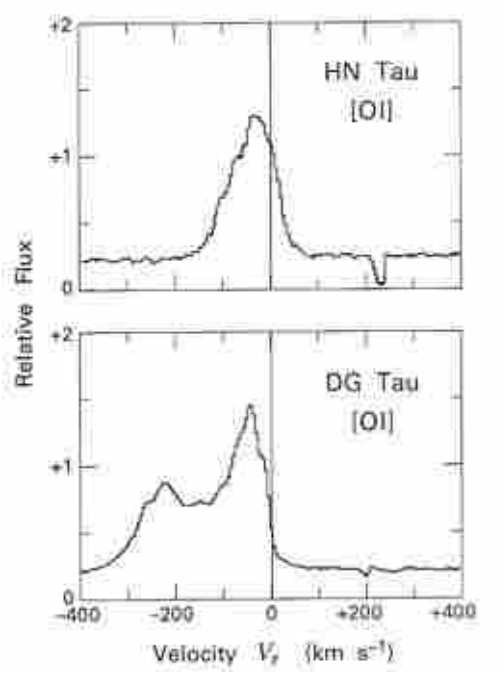

Figure 64: Two representative line profiles in [O I] 6300 Å. The thin vertical line demarcates the stellar rest velocity. Figure 17.10 in Stahler and Palla. The presence of blueshift with a lack of redshift in the features indicates that forbidden emission, such as these O I lines, originates from the rotating circumstellar disk.

A.1.4.2 Jets and Molecular Outflows

Another topic that concerns PMS phases and will be aided by this study arises from the effect these young energetic objects have on the gas around them. The influence is both mechanical and thermal. Of course gravitational collapse creates infall. But, it is also true that cloud material can be stirred into turbulent motion and expelled from the vicinity of a star or heated to high temperature and expelled that way. In cases of high obscuration such activity may be the best or the only means for revealing the presence of the stars themselves. So the question is:

- What is the nature of the environment surrounding these young objects including outflows, inflows, jets (Herbig-Haro objects), and circumstellar disks?

A PMS object class with outflow, the Herbig-Haro objects, was discovered by emission-line surveys designed to locate T Tauri stars. In 1950, two patches bright in Hα were independently noted by G. Herbig (1951) and G. Haro (1952). These patches were found near a region of Orion already known to contain many T Tauri stars. In addition to Hα, the objects emitted a broad continuum and a number of forbidden optical lines: [S II], [N II], [Fe II], [O I], [O II], and [O III]. It was later shown that Herbig-Haro objects are the result of the impact of high-velocity stellar winds from embedded, low-mass stars on cloud matter. Or, put another way, each optical knot represents wind material overtaking slower, previously ejected gas.

With the advent of infrared astronomy in the 1970s, it became clear that the objects powering the winds were not located with the original nebulae, but some distance away. By the early 1980s, sensitive CCD photometry had uncovered luminous strands of faint, optical emission that linked the glowing patches to their driving stars. The Herbig-Haro objects themselves were seen, in effect, to be tracers of these extended jets. (Reipurth and Bally, 2001) An example is shown in Figure 65.

Figure 65: Optical photograph of the HH ½ jet. The image is a composite of Hα (shown in green), [S II] (red), and a broadband, continuum filter (blue). Note the driving star VLA 1, shown by the cross. Plate 9 in Stahler and Palla

Far more common than optical or radio jets is another manifestation of winds, namely molecular outflows. These are broader regions of cloud gas stirred up and dragged forward by a central jet. They are mainly identified through millimeter emission lines of CO and again have a clumpy, bipolar appearance. Deeply embedded Class 0 sources drive outflows that are narrower and faster than those of Class I stars. The velocity within an outflow lobe is highest near the central line of the jet and falls off laterally, in a way that is characteristic of entrained matter. Shocks driven into the gas

heat it and create new molecules, such as SiO. On a larger scale, the multiple outflows in a T association help disperse the parent cloud.

It is now understood that stars of all masses and ages generate winds. Using the sun as an example, the winds of main-sequence stars are driven by thermal pressure in their extended corona. Neither this nor mechanical pressure from Alfven waves are sufficient to account for pre-main-sequence winds, though. Magnetic fields may again provide a key. Rotation of a magnetized star bends the field, creating a torque on gas that flings it outward. Such a centrifugal wind could also arise from the inner region of a circumstellar disk.

Whatever its specific point of origin, a magnetized, pre-main-sequence wind is at least weakly bipolar when launched. Such a flow can drive lateral crossing shocks in the surrounding medium. A sequence of crossing shocks may collimate the jet, as long as it remains within the parent cloud. Additional shocks, corresponding observationally to Herbig-Haro objects, arise from wind fluctuations. These weaker fronts, transverse to the flow, eject material sideways from the jet, facilitating the entrainment of cloud gas into molecular outflows.

By allowing for the identification of many additional young objects, the method developed by this study will aide in addressing these theories. Once identified, the environments can be examined in more detail. Then the results can be compared with ideas above.

A.2 Diagnostic Tools

Once stars in the process of formation have been identified further analysis of stellar formation can then be performed. Several tools are available for doing this such as the initial mass function, the initial luminosity function and age histograms, and mass segregation. Most of these techniques need only more data to be fully exploited. They can then be used to address the questions mentioned previously along with others, such as:

- What is the rate of stellar formation for different mass ranges, and what parameters control it?

A.2.1 Initial Mass Function

The first of these questions involves the distribution at birth of various stellar masses. This is defined as the initial mass function (IMF) which is the relative number of stars produced per unit mass interval. (Scalo, 1986 and Kroupa, 2002) Historically, E. E. Salpeter (1955) found a simple power law for the function that varies as M_*^{γ} with $\gamma = -2.35$. This has since been supplanted by other investigations with more data. Not surprisingly a much more complex function is needed to fit the data.

One example is seen in a plot of the IMF for the solar neighborhood, Figure 66. The IMF is plotted with the Salpeter power law and it is apparent that the IMF is flatter than Salpeter's function below 1.0 solar masses and approaches it for masses greater than 10 solar masses. Also, the simple power law does not capture the broad maximum near 0.1 solar masses but the true behavior at lower masses is unclear. Currently it appears

that the IMF is relatively flat near the brown-dwarf limit but establishing the precise form will require additional effort.

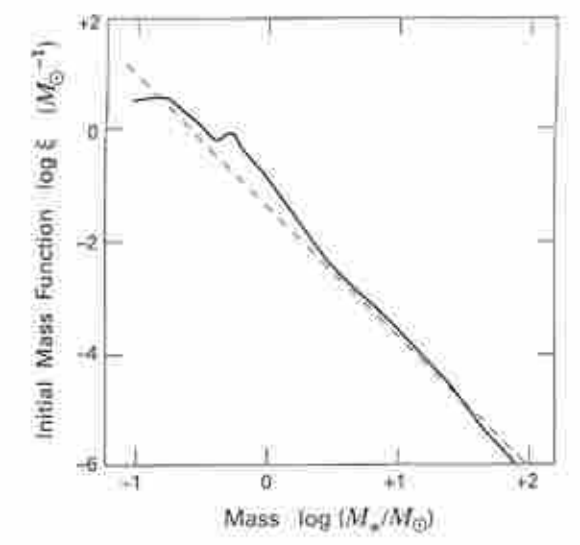

Figure 66: Initial mass function for solar neighborhood stars. The dashed line has the same slope as Salpeter's power law. Figure 4.22 in Stahler and Palla

Even with the uncertainties in Figure 66, some generalities can still be drawn. To begin with, the number of stars per unit mass falls rapidly above about 0.1 solar masses. If it is assumed that the IMF is constant below that value, half of all stars are produced with a mass greater than 0.2 solar masses, 12 percent have masses exceeding 1 solar mass, and only 0.3 percent have masses greater than 10 solar masses. Additionally, 70 percent of stars have masses greater than 0.1 solar masses. While there is currently no theory to explain these observations, it is apparent that *the star formation process yields objects with a characteristic mass of a few tenths of the solar mass*.

Along with the solar neighborhood, most stellar groups (NGC 752 is one exception) show similar trends in their IMFs. This is however an empirical result and lacks explanation. This requires further explanation of cluster formation and termination

of protostellar collapse which will be aided by increasing the number of known PMS objects.

A.2.2 Initial Luminosity Function

Another tool for probing stellar clusters that will be furthered by increasing the catalogue of PMS objects is the initial (ZAMS) luminosity function. (Fletcher and Stahler, 1994a and b) This function is defined to be the relative frequency with which stars of a given absolute magnitude or, by applying bolometric corrections, luminosity first appear on the zero-age main-sequence. Two examples are given in Figure 67.

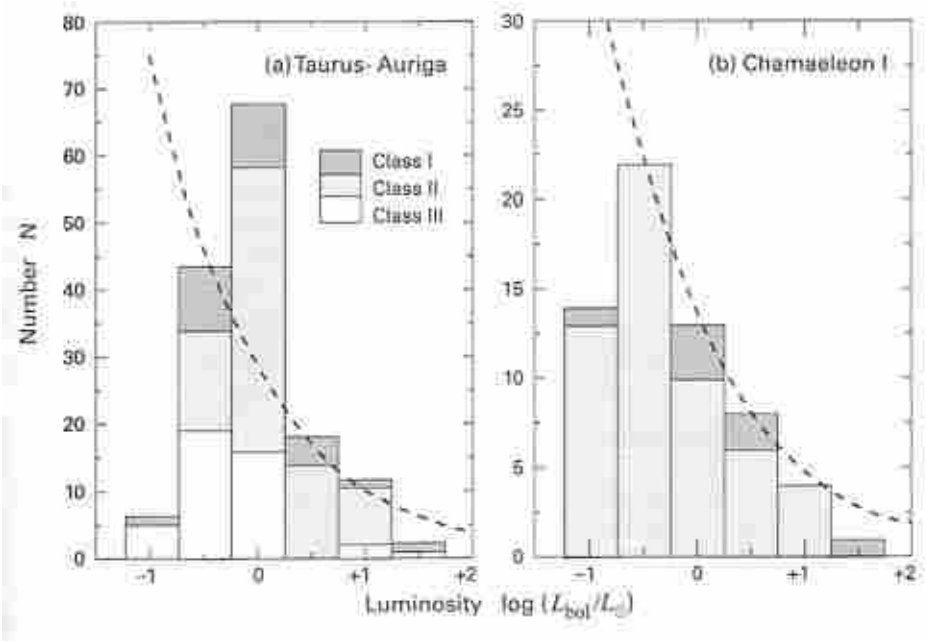

Figure 67: Bolometric luminosity functions for (a) Taurus-Auriga and (b) Chameleon I. The dashed curve is the initial luminosity function, defined here as the relative number of field stars per logarithmic unit of L_{bol}. Shading indicates different infrared classes, as explained in panel (a). Figure 4.13 in Stahler and Palla

Understanding of the evolution of stars comes from examining the evolution of the luminosity function. Figure 68 gives an example of a model cluster. For this diagram the rate of core collapse, once initiated, is constant from t = 0 to t =1 x 10^7 yr. The

protostellar mass accretion rate for each star was set to 1 x 10^{-5} solar masses per year. At early times, the luminosity function has two distinct maxima. The left hand one represents the steadily growing number of pre-main-sequence stars, while that on the right stems from accreting protostars. The protostellar contribution to the luminosity function is quite sharply peaked because the accretion luminosity is proportional to the mass over the radius. This ratio, in turn, is held nearly constant by the thermostatic action of deuterium burning. Hence, the luminosity varies little over a significant mass range.

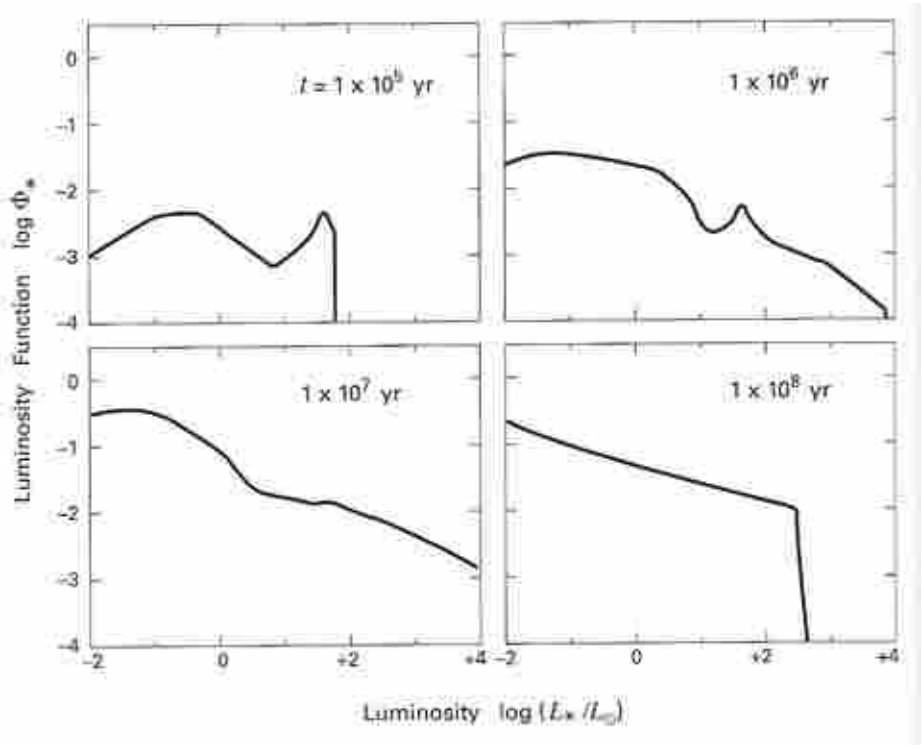

Figure 68: Evolution of the luminosity function in a model cluster. Figure 12.24 in Stahler and Palla

The assumed constancy of the rate of core collapse implies that the total cluster population increases linearly with time. After a brief transient period, this increase occurs entirely within the pre-main-sequence stars. That is, the total number of protostars

saturates to a steady-state level. Recall here that protostars are both created by the collapse of new cores and effectively destroyed by infall, which ultimately transforms them in pre-main-sequence stars.

Continuing with the evolution of the luminosity function, Figure 68 shows how the pre-main-sequence contribution dominates. The curve becomes quite broad, reflecting the large spread in masses and contraction ages. Although no new protostars appear after 1×10^7 yr, the luminosity function keeps evolving because of this contraction. The most massive stars reach the main sequence first. Correspondingly, the luminosity function approaches a featureless curve, beginning at relatively high luminosity values. This curve is the "initial" or ZAMS luminosity function. By 1×10^8 yr, the upper portion is severely truncated, as the most luminous stars evolve off the main sequence. In the numerical calculation, these were simply deleted from the cluster.

Testing this theory with observation is difficult as the number of stars in embedded clusters with measured bolometric luminosities is still small. However, L1688 gives promising results as seen in Figure 70. Using the curves from Figure 68, a best fit for the cluster is obtained by an age of 1×10^6 yr. This was obtained by fitting to the higher luminosities. The data set for the fainter stars is known to be incomplete due to the increased difficulty in good observations. For two other examples of luminosity function fitting return to Figure 67.

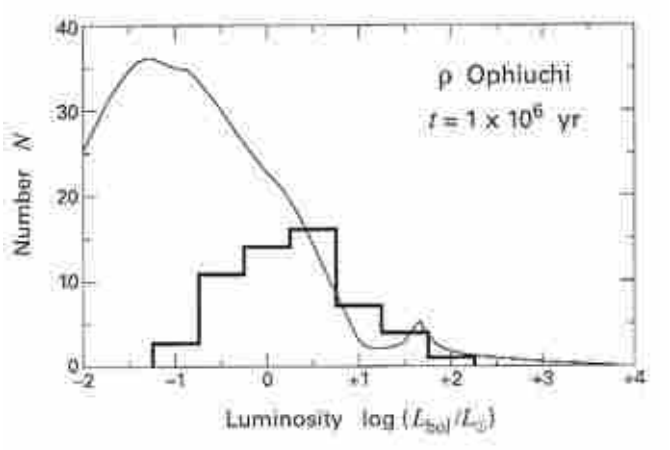

Figure 69: Comparison of the theoretical bolometric luminosity function (*lighter curve*) with the empirical one (*darker histogram*) for the ρ Ophiuchi cluster. The theoretical curve is for the indicated cluster age. Figure 12.25 in Stahler and Palla

A.2.3 Age Histograms

A more precise and direct diagnostic is obtained by placing the stars on the HR diagram and reading off their individual ages through comparison with pre-main-sequence evolutionary tracks. The result can be plotted in an age histogram. Only a handful of associations have been studied in sufficient detail to produce age histograms and two are shown in Figure 70. Focusing on panel (a), the Taurus-Auriga population, and reading from right to left, it is apparent that stellar birth began nearly 10^7 yr ago and has been accelerating to the present epoch. While this method is more detailed than the main-sequence turnons which quantify the onset of vigorous star formation, it still has difficulties when the crowding of isochrones close to the main-sequence makes it impossible to assign ages to some of the older, more massive stars.

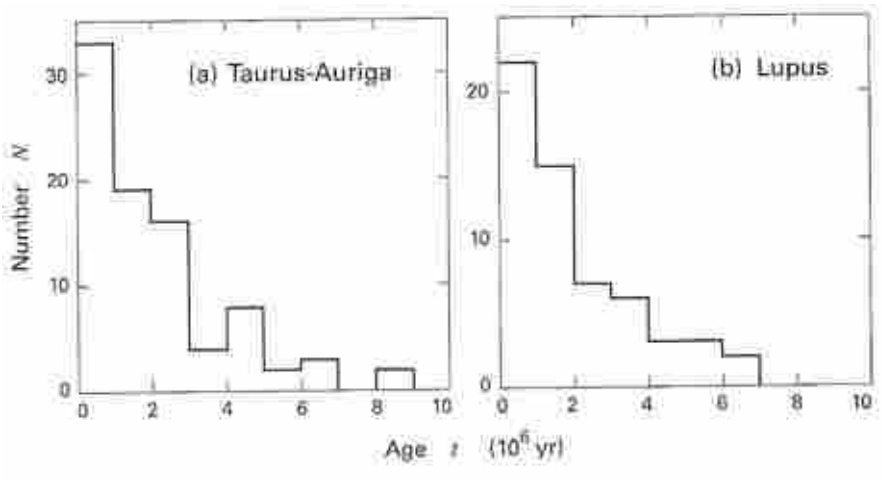

Figure 70: Age histograms for the T associations in (a) Taurus-Auriga, and (b) Lupus. Figure 12.26 in Stahler and Palla

B. WMO DATA

The following data tables contain the data for the WMO observations. These tables give the identifier assigned the star from DAOPhot, the x and y coordinates of the star, the corrected V magnitude with its photometric error value, the N and W magnitudes with their associated errors, and finally the Hα index.

B.1 NGC 2244

ID	X	Y	N	err	V	err	W	err	N-W
1501	1336.289	661.364	9.555	0.034	4.883	0.039	7.698	0.059	1.857
1040	1089.827	771.392	10.841	0.020	5.562	0.047	8.845	0.033	1.995
2366	2060.787	1449.978	12.391	0.070	5.579	0.105	9.658	0.088	2.733
904	1010.023	940.865	11.570	0.023	6.135	0.057	9.496	0.039	2.074
1374	1275.697	572.395	11.326	0.031	6.303	0.066	9.399	0.031	1.927
740	898.843	892.238	11.870	0.027	6.489	0.085	9.803	0.042	2.067
710	874.378	469.917	12.151	0.030	6.632	0.061	10.098	0.033	2.053
1091	1118.943	1216.927	12.286	0.039	6.807	0.051	10.106	0.050	2.179
1230	1197.000	856.221	12.193	0.026	6.934	0.046	10.200	0.020	1.993
843	971.230	46.762	13.202	0.060	7.009	0.101	10.906	0.076	2.296
2293	1960.953	413.031	13.398	0.072	7.124	0.095	11.021	0.090	2.377
560	756.466	35.568	13.427	0.071	7.152	0.124	11.104	0.089	2.323
1183	1168.972	857.301	12.809	0.044	7.200	0.080	10.729	0.060	2.080
788	939.478	703.314	12.931	0.020	7.277	0.051	10.810	0.024	2.122
1189	1171.241	657.148	12.556	0.037	7.381	0.028	10.673	0.028	1.883
303	502.380	187.247	12.494	0.078	7.630	0.096	10.253	0.088	2.242
1868	1547.715	1110.753	13.255	0.042	7.642	0.072	11.042	0.053	2.214
2168	1803.267	1192.321	13.404	0.060	7.791	0.108	11.155	0.087	2.249
2269	1921.150	304.708	14.217	0.064	7.805	0.103	11.877	0.089	2.340
364	575.749	67.580	13.610	0.072	7.823	0.108	11.357	0.097	2.252
842	970.866	521.611	13.186	0.037	7.914	0.070	11.232	0.041	1.954
999	1067.565	742.187	13.326	0.032	7.923	0.032	11.391	0.028	1.935
1948	1611.990	928.347	13.075	0.040	7.975	0.092	11.236	0.056	1.839
1174	1165.272	1445.810	13.411	0.059	7.985	0.077	11.610	0.084	1.801
877	993.301	280.370	13.782	0.034	8.079	0.076	11.661	0.044	2.121
112	211.767	1430.617	14.549	0.077	8.084	0.117	12.116	0.107	2.433
2212	1847.793	281.723	13.748	0.060	8.333	0.108	11.525	0.084	2.223
534	732.340	430.425	13.336	0.039	8.348	0.067	11.252	0.049	2.084
2377	2081.826	700.955	14.457	0.075	8.428	0.107	12.190	0.102	2.268
2406	2124.892	1418.043	14.492	0.070	8.451	0.150	12.201	0.105	2.291
2158	1796.798	606.067	14.245	0.054	8.538	0.072	11.982	0.061	2.263
852	977.218	1294.740	14.117	0.048	8.538	0.073	11.912	0.070	2.205
1264	1220.646	657.376	13.677	0.039	8.569	0.027	11.817	0.041	1.860
1803	1515.730	1380.997	13.793	0.057	8.615	0.094	11.574	0.081	2.220
1393	1284.536	1056.535	13.998	0.023	8.627	0.038	11.854	0.027	2.144
970	1051.703	113.203	14.267	0.048	8.697	0.092	12.105	0.063	2.162
2087	1735.523	836.086	14.427	0.046	8.697	0.066	12.123	0.053	2.304
2424	2161.801	1421.955	14.683	0.078	8.707	0.153	12.453	0.104	2.230
919	1022.008	433.459	13.958	0.026	8.828	0.050	11.956	0.029	2.003
1670	1433.677	397.688	13.495	0.034	8.852	0.049	11.512	0.032	1.984
1900	1574.825	1330.069	14.662	0.047	8.873	0.099	12.427	0.079	2.235
1044	1091.809	950.531	13.625	0.025	8.899	0.037	11.652	0.024	1.974
2152	1791.734	966.299	14.033	0.057	8.933	0.083	11.866	0.071	2.167
621	803.865	354.032	14.693	0.034	8.958	0.066	12.457	0.043	2.236
15	20.781	1430.923	15.579	0.085	9.000	0.138	13.208	0.116	2.371
706	870.536	474.505	14.958	0.045	9.024	0.113	12.794	0.045	2.164
1804	1516.736	485.684	13.861	0.031	9.045	0.039	11.878	0.029	1.983
557	751.498	5.889	14.638	0.067	9.049	0.096	12.482	0.087	2.156
1109	1126.999	750.424	14.256	0.032	9.058	0.029	12.340	0.036	1.915
936	1034.210	1324.326	14.675	0.053	9.062	0.077	12.431	0.071	2.245
2327	2003.994	16.619	15.062	0.076	9.074	0.140	12.778	0.098	2.284
2279	1941.305	851.979	15.242	0.065	9.100	0.096	12.843	0.092	2.399
549	742.689	1230.685	14.692	0.050	9.132	0.094	12.468	0.081	2.224
1351	1267.300	226.249	14.729	0.037	9.154	0.073	12.565	0.045	2.163
1748	1478.032	289.662	14.948	0.041	9.168	0.066	12.698	0.046	2.250
982	1059.553	1069.726	14.599	0.023	9.174	0.046	12.509	0.030	2.090
805	951.229	527.499	14.561	0.025	9.207	0.044	12.544	0.023	2.017
1870	1549.549	156.514	15.344	0.053	9.244	0.090	13.050	0.071	2.294
849	975.428	1033.247	14.119	0.026	9.262	0.049	12.080	0.037	2.039
1841	1533.563	477.204	14.663	0.040	9.387	0.042	12.604	0.031	2.059
1864	1545.165	1544.281	14.988	0.123	9.426	0.086	12.819	0.116	2.169
1041	1090.001	764.072	15.075	0.113	9.470	0.112	12.627	0.144	2.448
1550	1362.006	869.919	14.652	0.027	9.492	0.041	12.644	0.032	2.008
1847	1538.180	613.027	14.065	0.025	9.497	0.039	12.098	0.023	1.966
410	620.168	358.860	15.042	0.052	9.535	0.079	12.872	0.069	2.171
1317	1250.503	1044.152	15.016	0.023	9.607	0.033	12.891	0.025	2.125
1241	1205.051	1051.404	14.979	0.020	9.613	0.032	12.881	0.023	2.099
2307	1973.812	1230.570	15.372	0.062	9.618	0.117	13.096	0.096	2.277

2228	1865.228	1255.907	15.340	0.064	9.631	0.110	13.107	0.091	2.234
1545	1360.367	582.623	14.795	0.029	9.637	0.044	12.792	0.036	2.004
105	201.422	1212.620	14.803	0.068	9.670	0.119	12.716	0.090	2.088
2305	1973.320	1025.101	15.491	0.064	9.686	0.110	13.220	0.094	2.271
2213	1848.027	1466.385	15.649	0.070	9.701	0.112	13.361	0.099	2.288
2071	1718.008	372.654	15.405	0.051	9.761	0.074	13.250	0.061	2.155
1149	1148.488	992.771	15.066	0.020	9.784	0.034	13.014	0.023	2.052
1840	1533.320	482.633	13.858	0.030	9.846	0.043	12.648	0.028	1.210
792	939.851	1046.419	15.416	0.031	9.874	0.052	13.261	0.040	2.156
250	432.539	935.289	15.291	0.053	9.902	0.106	13.217	0.079	2.074
1648	1419.326	864.358	14.872	0.024	9.907	0.043	12.883	0.030	1.989
1306	1243.182	815.298	15.092	0.024	9.908	0.045	13.174	0.038	1.919
1172	1162.977	1481.241	15.483	0.047	9.910	0.094	13.366	0.081	2.117
603	787.941	1374.334	15.869	0.067	9.919	0.104	13.634	0.084	2.235
1096	1120.622	770.217	15.122	0.039	9.964	0.038	13.127	0.034	1.995
1203	1181.777	1426.255	15.839	0.049	10.003	0.092	13.585	0.073	2.254
2287	1950.703	280.530	15.349	0.065	10.007	0.112	13.261	0.082	2.088
106	202.122	1433.961	15.670	0.089	10.007	0.160	13.489	0.118	2.181
1653	1421.345	533.889	15.195	0.030	10.081	0.042	13.244	0.029	1.951
1707	1452.713	1292.384	13.517	0.050	10.087	0.077	11.584	0.068	1.933
1142	1145.906	823.735	15.175	0.030	10.114	0.039	13.227	0.038	1.948
2300	1970.191	667.488	16.131	0.063	10.131	0.103	13.871	0.082	2.261
79	147.157	573.822	15.701	0.072	10.138	0.114	13.570	0.103	2.132
45	75.041	30.318	15.495	0.083	10.154	0.152	13.275	0.117	2.220
1261	1218.625	1160.823	14.782	0.029	10.162	0.041	12.740	0.037	2.042
424	634.432	1469.298	14.826	0.083	10.186	0.115	12.777	0.163	2.049
218	376.951	1238.813	15.148	0.064	10.186	0.110	13.116	0.077	2.032
95	174.333	6.107	15.671	0.085	10.217	0.115	13.580	0.119	2.090
1048	1095.235	818.175	15.144	0.033	10.224	0.037	13.205	0.033	1.939
56	105.041	867.613	15.645	0.070	10.232	0.119	13.538	0.111	2.108
1233	1199.803	455.727	15.050	0.035	10.235	0.046	13.155	0.034	1.894
1455	1318.387	368.667	14.848	0.031	10.256	0.048	12.904	0.034	1.944
2036	1686.316	1574.162	15.804	0.069	10.269	0.081	13.706	0.113	2.098
1796	1512.230	231.339	15.991	0.047	10.301	0.070	13.797	0.053	2.195
968	1051.016	677.634	15.485	0.035	10.312	0.039	13.524	0.037	1.962
1785	1504.648	450.266	15.094	0.032	10.320	0.042	13.074	0.030	2.020
1922	1590.854	251.588	15.233	0.047	10.325	0.074	13.179	0.059	2.054
2332	2007.430	242.617	15.447	0.061	10.360	0.120	13.312	0.091	2.135
975	1056.337	601.032	15.307	0.032	10.362	0.038	13.362	0.035	1.945
1	-54.754	946.699	15.977	0.091	10.364	0.102	13.850	0.135	2.127
917	1020.475	605.055	15.585	0.033	10.385	0.039	13.536	0.033	2.049
837	968.867	518.613	14.855	0.030	10.393	0.110	13.731	0.068	1.124
2238	1876.419	930.085	16.492	0.052	10.405	0.093	14.149	0.072	2.343
1488	1330.905	1408.962	16.116	0.052	10.426	0.091	13.867	0.070	2.249
428	639.342	-20.818	15.315	0.056	10.429	0.083	13.300	0.090	2.015
701	867.782	1037.848	14.868	0.033	10.430	0.058	13.209	0.046	1.659
2083	1733.065	566.215	15.756	0.047	10.439	0.060	13.656	0.051	2.100
2324	1999.590	777.781	15.271	0.063	10.479	0.105	13.402	0.093	1.870
872	989.497	701.965	14.953	0.030	10.481	0.039	13.047	0.029	1.906
1828	1526.986	683.245	15.617	0.028	10.482	0.040	13.555	0.025	2.062
1955	1615.977	290.218	15.856	0.048	10.483	0.070	13.760	0.057	2.096
2399	2117.479	1204.944	15.908	0.072	10.483	0.156	13.811	0.105	2.097
2391	2100.920	1363.008	15.959	0.079	10.495	0.157	13.913	0.090	2.046
1192	1172.943	793.193	15.125	0.036	10.523	0.041	13.253	0.039	1.872
1001	1068.729	753.165	15.811	0.035	10.577	0.038	13.737	0.031	2.074
1908	1582.595	1325.322	16.456	0.053	10.608	0.094	14.177	0.067	2.279
575	767.017	601.656	15.924	0.029	10.609	0.055	13.801	0.037	2.123
1882	1559.928	1111.992	16.003	0.043	10.616	0.064	13.860	0.049	2.143
1513	1342.651	1418.079	16.150	0.052	10.652	0.091	14.000	0.072	2.149
821	962.187	1022.554	15.464	0.027	10.652	0.044	13.465	0.035	1.999
529	728.181	1471.712	15.981	0.080	10.655	0.113	13.766	0.166	2.215
1124	1138.468	1357.576	15.550	0.051	10.671	0.081	13.523	0.071	2.027
1751	1481.894	996.655	16.130	0.034	10.688	0.043	13.963	0.032	2.168
619	803.665	1055.470	16.326	0.046	10.705	0.065	14.167	0.052	2.160
1481	1327.708	524.327	15.623	0.041	10.708	0.046	13.673	0.040	1.950
1802	1515.714	872.449	15.616	0.024	10.710	0.038	13.581	0.025	2.035
206	353.545	207.918	15.555	0.079	10.726	0.116	13.506	0.104	2.050
1379	1277.414	288.362	15.024	0.033	10.741	0.055	13.035	0.036	1.989
1348	1265.105	782.167	15.813	0.044	10.756	0.050	13.851	0.047	1.963
823	962.721	1330.385	16.177	0.055	10.774	0.086	13.989	0.070	2.188
2113	1757.041	602.915	15.409	0.050	10.778	0.062	13.253	0.054	2.155
62	120.909	800.420	16.562	0.069	10.787	0.115	14.337	0.096	2.225
674	845.416	495.396	16.178	0.030	10.787	0.047	14.119	0.027	2.059

2414	2141.105	322.961	16.633	0.072	10.802	0.127	14.454	0.090	2.179
2246	1889.373	304.935	16.311	0.054	10.802	0.112	14.200	0.075	2.112
1675	1436.061	989.785	15.908	0.028	10.818	0.039	13.877	0.030	2.031
2346	2028.790	191.801	16.297	0.067	10.830	0.121	14.215	0.088	2.083
640	819.667	358.955	16.271	0.036	10.871	0.058	14.122	0.042	2.149
41	72.958	1391.078	16.359	0.073	10.872	0.149	14.350	0.099	2.010
1753	1483.505	315.064	15.743	0.045	10.880	0.055	13.717	0.042	2.026
1212	1185.383	752.877	16.000	0.039	10.897	0.045	14.045	0.045	1.955
109	207.287	-34.930	16.464	0.074	10.909	0.102	14.381	0.120	2.083
738	898.216	648.189	15.371	0.021	10.924	0.041	13.978	0.025	1.393
291	488.659	132.185	16.407	0.070	10.932	0.107	14.365	0.088	2.042
737	897.556	1042.084	15.704	0.034	10.947	0.052	13.693	0.042	2.011
1276	1228.417	1166.677	15.338	0.031	10.972	0.044	13.349	0.038	1.989
2412	2137.690	479.656	16.363	0.066	10.982	0.112	14.322	0.087	2.041
639	818.896	1195.642	16.364	0.053	10.985	0.079	14.280	0.064	2.084
940	1035.998	1053.772	16.170	0.026	10.985	0.041	14.102	0.028	2.069
319	518.280	581.405	16.222	0.054	10.993	0.082	14.217	0.074	2.004
719	880.543	660.048	16.158	0.028	11.004	0.042	14.124	0.025	2.034
2195	1835.300	940.201	15.921	0.051	11.006	0.085	13.732	0.070	2.189
1021	1078.858	794.860	16.054	0.028	11.007	0.039	13.950	0.028	2.104
403	614.474	42.384	16.459	0.064	11.012	0.107	14.359	0.082	2.100
1194	1177.207	1204.905	16.426	0.037	11.012	0.051	14.267	0.044	2.159
718	880.539	733.584	15.655	0.028	11.017	0.043	13.690	0.028	1.964
605	788.628	317.934	16.442	0.043	11.026	0.065	14.310	0.049	2.132
2115	1760.502	666.456	16.441	0.057	11.037	0.061	14.275	0.054	2.167
990	1061.884	781.535	14.962	0.026	11.038	0.036	13.054	0.029	1.907
2276	1937.847	188.712	16.682	0.063	11.042	0.117	14.525	0.075	2.158
687	855.213	483.730	16.399	0.041	11.051	0.046	14.310	0.031	2.089
1711	1453.380	492.010	16.368	0.034	11.067	0.040	14.236	0.028	2.132
787	939.360	752.419	15.520	0.024	11.067	0.040	13.556	0.027	1.965
1662	1424.856	1053.887	16.194	0.031	11.087	0.037	14.114	0.032	2.080
944	1038.528	1359.675	16.540	0.065	11.094	0.085	14.450	0.072	2.090
2283	1947.221	551.726	16.729	0.073	11.095	0.094	14.576	0.080	2.153
992	1062.617	1247.769	16.656	0.054	11.097	0.065	14.503	0.055	2.153
149	262.201	1084.612	16.528	0.062	11.117	0.107	14.496	0.082	2.032
916	1019.923	1451.265	16.494	0.054	11.118	0.102	14.409	0.076	2.084
426	635.636	256.511	16.469	0.058	11.121	0.089	14.389	0.070	2.080
1453	1317.324	706.462	16.101	0.032	11.129	0.059	14.195	0.040	1.905
1610	1399.015	1171.701	16.573	0.044	11.131	0.050	14.381	0.043	2.192
1740	1472.495	911.789	16.531	0.032	11.136	0.035	14.406	0.026	2.125
1246	1211.184	787.191	16.259	0.046	11.143	0.039	14.194	0.040	2.064
20	30.161	324.958	16.962	0.076	11.150	0.128	14.747	0.109	2.215
512	713.764	1063.859	16.341	0.048	11.182	0.075	14.326	0.062	2.015
2219	1852.635	956.579	16.482	0.064	11.207	0.092	14.492	0.075	1.990
1410	1295.053	945.627	16.123	0.029	11.214	0.038	14.172	0.030	1.951
1938	1602.456	528.758	16.606	0.048	11.223	0.040	14.431	0.037	2.175
2261	1916.453	56.881	16.897	0.073	11.224	0.140	14.683	0.086	2.213
1842	1533.918	723.656	16.627	0.039	11.240	0.042	14.418	0.029	2.209
44	73.277	1016.637	16.689	0.075	11.243	0.117	14.648	0.098	2.040
51	96.956	746.647	16.477	0.075	11.244	0.119	14.488	0.099	1.989
416	628.697	765.501	16.462	0.049	11.257	0.069	14.379	0.056	2.082
1628	1409.856	720.080	15.645	0.029	11.258	0.049	13.744	0.035	1.901
1090	1118.601	224.640	16.520	0.038	11.260	0.063	14.450	0.041	2.070
182	316.835	1202.222	16.944	0.079	11.267	0.108	14.856	0.076	2.088
82	151.924	1122.103	16.794	0.080	11.272	0.124	14.713	0.093	2.082
617	794.189	809.071	16.446	0.037	11.273	0.057	14.411	0.043	2.035
1850	1541.073	492.486	16.571	0.039	11.281	0.037	14.505	0.032	2.066
2241	1880.282	659.518	16.672	0.060	11.285	0.083	14.562	0.068	2.110
425	635.499	870.795	16.551	0.051	11.289	0.074	14.461	0.060	2.090
192	326.279	-157.048	16.871	0.091	11.292	0.103	14.992	0.120	1.879
1890	1565.405	615.280	16.694	0.044	11.293	0.037	14.488	0.030	2.206
2084	1733.303	1414.459	16.387	0.059	11.301	0.099	14.480	0.081	1.908
1476	1326.319	150.256	16.535	0.043	11.306	0.073	14.489	0.059	2.046
2064	1714.163	1148.179	16.986	0.055	11.320	0.086	14.715	0.062	2.271
846	972.556	277.982	16.417	0.042	11.330	0.058	14.401	0.039	2.016
2419	2150.791	593.804	16.768	0.075	11.331	0.113	14.688	0.091	2.080
1215	1188.480	1195.292	16.716	0.042	11.332	0.047	14.529	0.040	2.187
1181	1167.459	739.321	16.446	0.047	11.350	0.046	14.463	0.046	1.983
1092	1119.042	1016.804	16.390	0.031	11.355	0.035	14.354	0.025	2.036
243	419.710	189.404	16.565	0.080	11.363	0.106	14.614	0.091	1.951
973	1053.607	860.506	16.619	0.047	11.363	0.038	14.534	0.032	2.085
886	997.502	554.036	16.760	0.040	11.390	0.064	14.649	0.044	2.111
2089	1735.924	322.548	16.971	0.063	11.402	0.079	14.792	0.064	2.180

1239	1203.393	748.106	16.526	0.048	11.403	0.050	14.511	0.048	2.015
1805	1517.018	1323.410	16.673	0.050	11.410	0.084	14.604	0.061	2.068
102	196.938	1215.548	16.015	0.112	11.413	0.165	14.083	0.145	1.933
1771	1496.393	793.789	15.897	0.032	11.419	0.043	14.413	0.029	1.484
1750	1479.355	734.847	16.447	0.047	11.429	0.045	14.354	0.034	2.093
708	872.599	761.817	16.932	0.045	11.451	0.044	14.718	0.031	2.214
1984	1643.542	611.229	16.732	0.049	11.452	0.041	14.637	0.040	2.095
297	493.392	515.746	16.301	0.065	11.456	0.086	14.379	0.077	1.922
660	836.503	532.973	16.739	0.042	11.458	0.046	14.626	0.031	2.113
602	787.882	876.973	16.417	0.038	11.469	0.052	14.384	0.041	2.033
2161	1797.416	628.660	15.899	0.081	11.474	0.069	14.155	0.074	1.744
174	306.103	1298.659	16.955	0.069	11.476	0.114	14.869	0.083	2.086
309	512.297	-1.740	16.629	0.112	11.485	0.083	14.523	0.114	2.106
441	653.106	620.010	16.652	0.056	11.485	0.062	14.625	0.054	2.026
2389	2098.963	949.655	16.573	0.077	11.493	0.127	14.606	0.114	1.967
359	570.561	1216.269	16.530	0.068	11.496	0.099	14.661	0.074	1.869
860	980.023	181.618	16.437	0.041	11.510	0.067	14.423	0.048	2.014
1232	1198.977	1010.160	16.083	0.028	11.520	0.031	14.108	0.024	1.976
1893	1570.700	1262.855	16.755	0.063	11.522	0.076	14.732	0.063	2.023
1421	1302.323	776.748	16.513	0.039	11.525	0.053	14.568	0.047	1.945
438	649.835	486.840	16.839	0.065	11.538	0.063	14.769	0.057	2.070
1119	1130.567	1470.469	16.720	0.074	11.543	0.095	14.634	0.114	2.086
1875	1553.220	1031.383	16.550	0.054	11.552	0.049	14.587	0.041	1.964
559	755.606	344.697	16.942	0.054	11.561	0.062	14.810	0.050	2.133
466	670.968	1377.172	16.773	0.084	11.561	0.103	14.707	0.074	2.067
1381	1278.259	163.399	16.117	0.042	11.561	0.070	14.142	0.050	1.975
2086	1734.001	655.363	16.674	0.050	11.565	0.057	14.609	0.052	2.065
2244	1884.674	259.198	17.058	0.064	11.569	0.113	14.984	0.073	2.074
2171	1805.377	1462.007	16.816	0.064	11.575	0.101	14.730	0.083	2.086
1793	1511.979	485.912	16.153	0.048	11.579	0.058	14.130	0.045	2.022
94	173.783	832.730	16.987	0.071	11.585	0.110	14.936	0.095	2.050
553	746.755	1396.259	16.179	0.057	11.587	0.105	14.239	0.074	1.940
57	105.814	714.926	16.976	0.083	11.589	0.118	14.968	0.105	2.007
1598	1388.852	912.739	16.842	0.043	11.593	0.043	14.766	0.034	2.076
2050	1699.552	1170.689	17.035	0.051	11.601	0.081	14.882	0.062	2.153
282	478.362	-108.708	16.848	0.086	11.605	0.088	14.870	0.125	1.979
1128	1140.216	1459.196	16.225	0.052	11.606	0.093	14.137	0.074	2.088
591	779.846	771.249	16.573	0.043	11.607	0.051	14.570	0.039	2.003
981	1058.436	750.815	16.883	0.047	11.613	0.041	14.708	0.037	2.175
562	758.210	1088.882	16.863	0.054	11.619	0.070	14.853	0.062	2.011
1046	1094.960	1199.914	16.448	0.040	11.631	0.051	14.463	0.047	1.985
2030	1682.195	440.404	17.029	0.070	11.632	0.067	14.788	0.054	2.241
1231	1197.430	19.128	16.968	0.058	11.632	0.082	14.821	0.067	2.147
1816	1521.193	463.875	16.816	0.041	11.635	0.037	14.680	0.032	2.136
2394	2104.857	844.231	17.193	0.079	11.653	0.113	15.087	0.087	2.106
487	690.534	403.054	16.673	0.066	11.660	0.063	14.804	0.064	1.869
169	301.510	1066.971	16.810	0.067	11.665	0.096	14.832	0.080	1.978
78	144.647	1096.682	15.992	0.064	11.665	0.121	14.025	0.093	1.967
753	908.607	1350.445	16.973	0.076	11.689	0.096	14.976	0.094	1.997
117	216.811	1223.773	17.208	0.075	11.696	0.116	14.998	0.085	2.210
757	912.323	1332.757	17.291	0.072	11.708	0.086	15.112	0.073	2.180
1473	1325.267	630.146	16.699	0.038	11.712	0.053	14.524	0.042	2.175
892	1002.290	1152.573	17.091	0.052	11.719	0.053	14.948	0.048	2.143
1220	1191.921	193.335	16.840	0.044	11.727	0.061	14.787	0.048	2.053
752	908.441	277.264	16.949	0.056	11.727	0.061	14.859	0.044	2.089
1577	1377.585	653.126	16.684	0.041	11.738	0.053	14.612	0.039	2.072
1777	1499.371	1313.357	17.158	0.078	11.747	0.079	15.006	0.066	2.152
653	829.753	362.482	16.923	0.048	11.765	0.053	14.886	0.042	2.037
479	684.007	613.384	17.134	0.051	11.767	0.057	15.028	0.049	2.107
227	396.530	1464.561	16.375	0.076	11.774	0.131	14.363	0.088	2.012
521	723.162	1307.533	16.931	0.061	11.774	0.093	14.926	0.079	2.005
954	1044.227	283.002	17.083	0.047	11.786	0.054	14.970	0.039	2.113
1973	1633.610	244.945	17.408	0.059	11.787	0.075	15.185	0.059	2.223
2292	1960.863	427.555	17.192	0.073	11.788	0.099	15.122	0.082	2.070
2270	1925.525	1387.072	17.102	0.073	11.794	0.136	14.921	0.102	2.182
1280	1230.399	1427.130	17.027	0.065	11.797	0.088	15.002	0.073	2.025
1718	1457.454	237.153	16.842	0.046	11.817	0.061	14.857	0.051	1.985
2263	1918.678	1082.659	17.219	0.070	11.826	0.097	15.198	0.078	2.021
216	372.962	1241.383	16.371	0.101	11.826	0.156	14.394	0.126	1.977
492	695.415	52.055	17.158	0.070	11.832	0.096	15.104	0.076	2.053
1612	1400.808	891.842	16.282	0.031	11.835	0.041	14.322	0.032	1.960
1593	1385.661	244.976	17.022	0.058	11.846	0.057	14.967	0.045	2.055
2096	1743.301	1423.299	16.630	0.063	11.855	0.093	14.615	0.083	2.015

363	574.000	676.960	17.098	0.070	11.856	0.070	15.076	0.067	2.021
1904	1578.903	1095.046	17.400	0.058	11.859	0.055	15.167	0.051	2.233
367	578.135	160.062	16.522	0.063	11.875	0.096	14.507	0.081	2.015
458	665.830	905.900	16.526	0.053	11.891	0.065	14.433	0.057	2.094
404	614.723	994.489	16.792	0.080	11.907	0.078	15.032	0.078	1.760
1307	1243.282	530.503	16.895	0.050	11.908	0.048	14.824	0.049	2.071
2354	2042.421	452.134	17.727	0.078	11.911	0.102	15.327	0.082	2.399
1881	1558.638	982.116	16.700	0.057	11.928	0.042	14.720	0.045	1.981
1314	1248.784	1247.964	17.067	0.064	11.931	0.055	15.077	0.052	1.990
337	538.558	696.453	17.522	0.075	11.956	0.074	15.201	0.068	2.321
607	788.903	379.575	15.863	0.033	11.962	0.055	13.842	0.043	2.022
2107	1751.877	329.443	16.443	0.061	11.966	0.078	14.349	0.066	2.094
2355	2042.734	47.266	17.111	0.079	11.966	0.144	15.054	0.087	2.057
2007	1663.525	943.207	17.162	0.055	11.969	0.055	15.023	0.050	2.139
1327	1253.867	774.915	16.932	0.045	11.969	0.054	14.991	0.048	1.940
1776	1499.205	1060.845	16.403	0.035	11.970	0.043	14.419	0.039	1.984
2105	1750.174	1113.185	16.634	0.056	11.972	0.078	14.626	0.068	2.007
1173	1163.371	871.952	17.071	0.053	11.987	0.044	14.906	0.036	2.165
159	279.356	545.669	17.337	0.092	11.993	0.102	15.260	0.089	2.077
147	259.235	33.756	17.370	0.092	11.997	0.126	15.259	0.110	2.111
1636	1413.935	883.814	16.447	0.031	12.002	0.043	14.533	0.032	1.914
116	215.551	511.378	17.256	0.072	12.005	0.110	15.198	0.098	2.058
96	174.700	31.229	17.651	0.098	12.009	0.131	15.498	0.115	2.154
86	164.141	621.539	17.151	0.081	12.013	0.109	15.203	0.096	1.948
985	1060.128	881.088	17.346	0.060	12.019	0.039	15.181	0.037	2.165
2368	2062.782	1221.512	17.080	0.069	12.019	0.124	15.056	0.093	2.024
1920	1590.554	608.466	17.648	0.080	12.027	0.036	15.323	0.038	2.325
2362	2051.623	1371.244	17.185	0.077	12.034	0.135	15.108	0.085	2.077
2284	1949.361	329.847	17.264	0.068	12.036	0.109	15.148	0.077	2.116
1533	1352.653	708.412	17.053	0.063	12.042	0.062	15.029	0.054	2.024
101	194.581	114.042	17.430	0.088	12.044	0.124	15.352	0.111	2.077
1944	1606.990	21.341	17.348	0.073	12.048	0.128	15.143	0.070	2.205
2382	2092.510	221.395	17.432	0.079	12.056	0.117	15.374	0.094	2.058
777	928.514	1180.301	16.925	0.061	12.074	0.060	14.946	0.059	1.979
2249	1895.731	907.397	16.377	0.052	12.090	0.087	14.326	0.075	2.052
1576	1376.798	1072.521	17.028	0.055	12.099	0.033	15.110	0.037	1.919
368	578.585	959.087	16.435	0.059	12.101	0.077	14.534	0.070	1.901
1883	1561.827	984.649	17.378	0.072	12.103	0.049	15.267	0.048	2.111
1221	1192.423	1208.295	17.362	0.062	12.107	0.046	15.316	0.049	2.046
260	447.359	60.486	17.341	0.078	12.107	0.109	15.304	0.090	2.037
634	813.048	106.756	17.406	0.064	12.107	0.084	15.249	0.066	2.157
1238	1202.552	1389.365	16.438	0.052	12.109	0.081	14.518	0.071	1.920
771	923.216	261.618	17.181	0.052	12.112	0.057	15.179	0.043	2.002
485	688.360	840.117	17.150	0.061	12.118	0.058	15.135	0.052	2.016
673	845.026	98.916	17.298	0.069	12.125	0.077	15.307	0.066	1.991
2340	2021.094	1189.304	17.500	0.080	12.135	0.118	15.281	0.090	2.219
1978	1638.906	1146.884	17.240	0.059	12.137	0.069	15.225	0.062	2.015
1645	1417.763	731.339	16.965	0.045	12.138	0.057	14.966	0.040	1.999
2357	2049.529	715.846	17.077	0.079	12.140	0.105	15.295	0.092	1.782
1932	1599.999	673.948	17.292	0.060	12.140	0.035	15.341	0.040	1.952
1087	1116.716	617.975	16.844	0.044	12.146	0.052	14.954	0.048	1.890
643	821.989	82.657	17.064	0.062	12.153	0.081	15.002	0.066	2.062
1214	1187.805	37.409	17.378	0.062	12.161	0.078	15.342	0.063	2.035
1723	1459.496	917.965	17.389	0.055	12.169	0.039	15.266	0.035	2.123
1766	1492.934	85.612	17.366	0.065	12.173	0.096	15.377	0.071	1.989
1207	1182.345	1087.066	17.323	0.058	12.174	0.033	15.253	0.035	2.070
1283	1231.474	602.560	17.369	0.055	12.190	0.057	15.342	0.062	2.027
1007	1070.476	909.124	17.501	0.056	12.194	0.039	15.343	0.037	2.158
1081	1113.164	1324.735	17.451	0.066	12.196	0.070	15.363	0.059	2.089
2338	2019.020	126.848	17.211	0.074	12.205	0.132	15.071	0.083	2.140
2252	1907.565	593.358	17.348	0.085	12.205	0.084	15.419	0.077	1.929
1755	1485.066	1299.021	17.570	0.063	12.207	0.072	15.346	0.061	2.225
1578	1377.859	1105.968	17.095	0.056	12.211	0.036	15.172	0.042	1.923
1725	1462.010	723.298	17.359	0.080	12.221	0.049	15.136	0.042	2.223
1733	1467.002	578.265	17.004	0.060	12.226	0.041	15.008	0.036	1.996
2024	1676.838	750.448	17.578	0.069	12.228	0.044	15.376	0.047	2.202
1269	1223.689	1076.974	17.290	0.055	12.235	0.031	15.326	0.038	1.964
1338	1259.667	1087.014	17.528	0.063	12.236	0.032	15.390	0.036	2.139
2092	1738.674	1055.429	17.389	0.072	12.249	0.072	15.432	0.064	1.957
1079	1112.510	1300.175	17.289	0.062	12.251	0.070	15.243	0.064	2.046
2039	1689.166	469.110	16.878	0.053	12.254	0.054	14.887	0.052	1.991
1590	1384.962	221.045	17.487	0.072	12.259	0.057	15.513	0.052	1.974
168	300.687	1298.603	17.107	0.086	12.261	0.148	15.180	0.117	1.927

2013	1666.143	483.641	17.570	0.073	12.263	0.048	15.534	0.056	2.037
81	150.022	937.257	17.485	0.080	12.266	0.108	15.416	0.094	2.069
2321	1997.814	736.402	17.745	0.072	12.270	0.095	15.556	0.082	2.189
1517	1346.784	675.502	17.630	0.129	12.271	0.124	14.340	0.153	3.290
10	8.832	1020.820	17.492	0.128	12.271	0.133	15.489	0.113	2.003
1822	1523.336	577.133	17.531	0.070	12.271	0.035	15.499	0.038	2.032
1401	1288.113	1260.947	16.879	0.064	12.274	0.057	15.050	0.057	1.830
683	851.703	215.705	17.381	0.075	12.277	0.065	15.421	0.060	1.961
1028	1081.175	686.712	16.794	0.045	12.286	0.046	15.224	0.050	1.570
1072	1109.458	1082.108	16.877	0.044	12.287	0.034	14.855	0.032	2.022
328	527.838	572.582	17.536	0.084	12.296	0.074	15.531	0.078	2.005
1418	1299.647	217.738	17.416	0.063	12.297	0.058	15.371	0.052	2.045
1958	1619.758	367.420	17.593	0.073	12.300	0.057	15.438	0.058	2.155
840	969.536	1014.396	16.476	0.035	12.301	0.040	14.485	0.034	1.991
2054	1705.969	293.988	17.659	0.080	12.307	0.076	15.508	0.065	2.151
153	269.331	1435.068	17.491	0.077	12.312	0.139	15.344	0.099	2.147
1502	1336.763	1204.293	17.338	0.057	12.312	0.047	15.423	0.053	1.915
2203	1838.562	894.195	16.978	0.085	12.335	0.074	15.349	0.077	1.629
269	461.486	624.891	17.187	0.084	12.344	0.082	15.456	0.081	1.731
2335	2016.115	772.619	17.794	0.117	12.350	0.103	15.574	0.086	2.219
2022	1675.804	888.258	17.504	0.065	12.361	0.049	15.354	0.047	2.151
724	884.814	1027.501	17.715	0.065	12.363	0.049	15.559	0.055	2.156
1949	1612.161	1233.737	17.545	0.070	12.367	0.071	15.449	0.067	2.096
1728	1464.115	192.751	17.546	0.067	12.377	0.066	15.432	0.059	2.113
862	981.092	-12.319	17.535	0.060	12.378	0.059	15.760	0.086	1.776
1479	1327.118	735.777	17.373	0.062	12.379	0.059	15.376	0.053	1.997
624	806.833	629.689	17.461	0.071	12.380	0.082	15.415	0.062	2.046
1896	1572.378	1109.312	17.508	0.080	12.383	0.054	15.460	0.056	2.048
384	596.341	327.061	17.706	0.090	12.392	0.078	15.588	0.074	2.118
1930	1598.955	908.810	17.694	0.078	12.393	0.043	15.603	0.048	2.091
2079	1728.531	699.581	17.531	0.071	12.396	0.053	15.558	0.055	1.974
561	757.824	793.932	17.164	0.066	12.396	0.049	15.255	0.046	1.909
2318	1994.682	1101.195	17.590	0.085	12.400	0.102	15.548	0.082	2.042
412	623.359	331.722	17.633	0.075	12.401	0.081	15.518	0.066	2.115
1660	1423.834	1250.213	17.427	0.055	12.405	0.061	15.426	0.059	2.001
974	1055.278	618.450	17.108	0.051	12.419	0.045	15.073	0.044	2.034
2310	1977.155	264.124	17.526	0.087	12.422	0.105	15.490	0.085	2.036
749	905.656	1198.094	17.139	0.066	12.422	0.063	15.328	0.064	1.811
60	116.871	802.397	17.406	0.091	12.427	0.174	15.442	0.149	1.963
1027	1080.859	804.154	17.002	0.043	12.427	0.045	15.008	0.035	1.994
1736	1468.485	300.200	17.561	0.080	12.429	0.054	15.410	0.057	2.151
1663	1425.436	1513.952	17.686	0.093	12.430	0.070	15.827	0.099	1.859
103	197.542	163.906	17.659	0.105	12.433	0.113	15.687	0.104	1.971
807	952.324	1284.728	17.669	0.081	12.438	0.071	15.613	0.071	2.056
1309	1247.537	810.773	16.694	0.076	12.443	0.057	15.146	0.044	1.549
2333	2009.295	32.343	17.493	0.080	12.443	0.140	15.374	0.091	2.119
42	73.191	715.276	17.413	0.081	12.444	0.113	15.245	0.099	2.167
1854	1541.495	1436.392	17.427	0.086	12.447	0.087	15.417	0.074	2.011
211	363.205	1080.163	16.497	0.061	12.455	0.083	14.536	0.077	1.961
1058	1102.549	564.507	17.774	0.099	12.466	0.049	15.529	0.059	2.246
2170	1803.730	822.750	17.813	0.104	12.475	0.068	15.598	0.069	2.216
717	879.722	1391.328	17.409	0.086	12.477	0.086	15.682	0.089	1.727
2336	2016.543	540.314	17.914	0.080	12.482	0.094	15.692	0.088	2.222
2151	1791.371	1561.765	16.892	0.062	12.484	0.071	14.949	0.094	1.943
1686	1443.598	324.627	17.603	0.069	12.486	0.044	15.534	0.046	2.069
844	971.441	1106.939	17.793	0.087	12.488	0.046	15.657	0.051	2.136
347	553.824	1350.261	17.043	0.077	12.490	0.097	15.268	0.093	1.776
1003	1069.463	425.226	17.292	0.071	12.495	0.042	15.308	0.042	1.985
16	21.489	1119.777	17.574	0.097	12.498	0.137	15.565	0.108	2.009
1500	1336.171	760.190	17.288	0.064	12.518	0.065	15.329	0.053	1.958
963	1048.617	609.150	17.335	0.068	12.520	0.048	15.344	0.049	1.991
31	55.424	715.440	17.261	0.090	12.525	0.108	15.290	0.103	1.971
1332	1256.693	474.940	17.877	0.110	12.526	0.049	15.566	0.050	2.312
530	730.825	1092.800	17.317	0.099	12.526	0.076	15.511	0.089	1.806
651	828.233	494.650	17.619	0.068	12.528	0.043	15.595	0.044	2.023
1985	1644.891	111.177	16.898	0.065	12.533	0.104	15.103	0.073	1.796
755	911.462	1342.617	17.178	0.071	12.534	0.082	15.279	0.076	1.900
1773	1497.873	1515.324	17.055	0.053	12.535	0.071	15.494	0.096	1.562
2388	2098.804	87.878	17.623	0.068	12.542	0.144	15.536	0.091	2.087
525	727.271	1313.144	17.141	0.063	12.542	0.096	15.295	0.086	1.846
470	676.815	1457.972	17.886	0.166	12.549	0.105	15.681	0.089	2.205
232	402.717	50.289	17.576	0.077	12.551	0.109	15.577	0.099	1.999
320	519.146	1428.283	17.370	0.095	12.571	0.115	15.532	0.081	1.838

1710	1453.159	542.482	17.647	0.091	12.584	0.043	15.601	0.045	2.046
1779	1500.028	167.966	17.686	0.069	12.585	0.071	15.645	0.062	2.041
1781	1502.269	701.341	16.796	0.036	12.597	0.042	14.810	0.031	1.987
601	787.196	923.941	17.603	0.069	12.601	0.050	15.662	0.054	1.941
2413	2138.907	763.692	17.696	0.089	12.606	0.105	15.800	0.090	1.896
401	613.983	748.199	17.793	0.097	12.608	0.063	15.588	0.065	2.205
2167	1802.957	272.504	18.086	0.100	12.613	0.084	16.001	0.073	2.085
1754	1483.564	755.122	17.881	0.090	12.613	0.044	15.648	0.043	2.233
854	977.321	720.055	17.155	0.044	12.624	0.042	15.263	0.044	1.892
2404	2121.766	280.102	18.203	0.112	12.624	0.120	15.949	0.091	2.253
98	177.271	600.032	17.627	0.088	12.627	0.108	15.818	0.100	1.809
2393	2103.768	1367.228	17.327	0.086	12.627	0.222	15.426	0.157	1.902
1801	1515.110	989.478	17.965	0.089	12.628	0.043	15.693	0.048	2.271
1086	1116.673	530.394	17.647	0.076	12.636	0.051	15.571	0.052	2.076
332	536.509	774.122	17.955	0.087	12.641	0.071	15.921	0.079	2.035
1471	1324.690	1006.665	17.603	0.064	12.642	0.036	15.589	0.041	2.014
1790	1507.399	628.242	17.404	0.060	12.646	0.039	15.622	0.039	1.782
1073	1110.324	1274.199	17.102	0.071	12.655	0.062	15.175	0.056	1.927
186	320.455	847.949	18.115	0.107	12.659	0.093	15.914	0.077	2.201
1907	1582.216	541.686	17.907	0.082	12.661	0.039	15.762	0.050	2.145
684	851.992	1146.320	17.713	0.079	12.663	0.060	15.740	0.056	1.973
1788	1505.957	715.618	17.359	0.065	12.666	0.043	15.505	0.042	1.853
144	258.371	1086.916	17.615	0.090	12.667	0.163	15.718	0.130	1.898
104	200.124	595.354	17.977	0.092	12.667	0.098	15.956	0.096	2.021
2067	1715.809	700.754	17.705	0.094	12.668	0.053	15.785	0.068	1.920
2145	1785.241	658.401	17.773	0.111	12.683	0.064	15.789	0.067	1.983
2243	1883.528	1102.189	17.786	0.076	12.688	0.086	15.748	0.078	2.038
1678	1438.632	1006.502	17.728	0.075	12.697	0.038	15.583	0.044	2.144
1655	1421.705	341.814	17.156	0.047	12.701	0.043	15.188	0.039	1.968
1720	1457.752	207.954	17.720	0.066	12.704	0.060	15.714	0.058	2.006
246	427.064	773.164	17.605	0.081	12.704	0.086	15.750	0.082	1.855
21	32.777	935.263	17.200	0.084	12.710	0.113	15.189	0.108	2.011
1954	1614.881	151.362	17.882	0.083	12.716	0.092	15.787	0.076	2.095
2211	1847.383	1119.186	17.920	0.079	12.722	0.082	15.928	0.078	1.992
2375	2074.426	294.799	17.792	0.088	12.724	0.115	15.861	0.091	1.931
249	432.051	432.590	17.562	0.085	12.729	0.092	15.764	0.099	1.798
191	323.384	1339.565	17.754	0.077	12.733	0.125	15.693	0.075	2.061
180	313.165	1204.775	17.915	0.113	12.734	0.169	15.939	0.133	1.975
299	497.028	920.217	17.498	0.089	12.736	0.079	15.765	0.076	1.732
580	771.708	663.259	17.544	0.081	12.737	0.046	15.737	0.049	1.807
2256	1909.924	1054.118	17.883	0.079	12.738	0.086	15.917	0.084	1.966
1716	1456.351	926.783	17.876	0.088	12.740	0.039	15.786	0.045	2.090
1299	1238.915	818.054	16.802	0.059	12.740	0.064	15.027	0.050	1.775
923	1024.528	1319.440	17.322	0.070	12.743	0.071	15.438	0.070	1.885
308	512.209	804.686	17.104	0.084	12.743	0.078	15.660	0.087	1.445
1191	1172.406	1061.323	17.867	0.075	12.744	0.033	15.741	0.044	2.126
1245	1209.574	38.061	18.094	0.080	12.748	0.077	15.920	0.070	2.174
2387	2097.417	970.936	17.810	0.095	12.749	0.104	15.880	0.092	1.931
266	459.175	958.734	18.123	0.177	12.753	0.084	15.761	0.080	2.363
606	788.864	1369.288	17.528	0.099	12.754	0.087	15.659	0.084	1.869
2221	1855.485	245.070	17.769	0.086	12.760	0.100	15.810	0.077	1.959
1878	1555.277	826.867	17.849	0.089	12.762	0.055	15.764	0.056	2.085
1549	1361.757	916.792	17.151	0.057	12.764	0.044	15.218	0.041	1.933
449	658.365	945.424	17.409	0.067	12.778	0.065	15.318	0.061	2.091
27	48.743	49.704	17.535	0.094	12.792	0.166	15.463	0.100	2.072
2240	1878.314	336.108	17.725	0.124	12.793	0.088	15.986	0.090	1.739
152	267.526	550.348	17.969	0.108	12.798	0.099	16.075	0.100	1.894
380	590.959	1071.632	17.774	0.110	12.798	0.076	16.008	0.079	1.767
579	771.416	1010.228	17.641	0.072	12.798	0.056	15.739	0.063	1.902
613	792.615	1320.491	17.438	0.077	12.805	0.085	15.370	0.082	2.067
597	784.130	842.365	17.221	0.051	12.805	0.047	15.150	0.042	2.071
1843	1535.531	932.206	17.887	0.081	12.806	0.039	15.842	0.051	2.045
900	1006.355	1337.050	17.300	0.076	12.807	0.075	15.292	0.070	2.008
1616	1403.439	353.367	17.076	0.062	12.812	0.043	15.269	0.043	1.807
759	914.635	386.336	17.950	0.074	12.814	0.047	15.849	0.060	2.102
2401	2118.355	651.564	17.823	0.112	12.816	0.102	15.878	0.096	1.945
965	1048.926	1228.660	17.451	0.076	12.816	0.057	15.763	0.067	1.687
261	447.641	1404.124	17.798	0.116	12.817	0.117	15.821	0.086	1.976
1395	1285.147	437.940	17.973	0.092	12.822	0.046	15.838	0.053	2.135
1129	1141.082	1149.745	18.194	0.107	12.823	0.042	15.917	0.050	2.277
2052	1703.409	1332.999	17.979	0.073	12.828	0.083	15.985	0.079	1.994
2176	1806.798	465.871	17.862	0.076	12.828	0.071	15.888	0.072	1.973
671	844.812	1.220	18.082	0.105	12.830	0.066	16.040	0.075	2.042

623	804.904	561.735	16.820	0.042	12.832	0.044	14.902	0.037	1.918
1758	1487.187	510.863	18.010	0.095	12.833	0.039	15.844	0.049	2.166
2153	1792.427	1329.861	17.993	0.090	12.834	0.087	15.876	0.081	2.117
612	792.429	1345.308	17.553	0.082	12.835	0.085	15.846	0.084	1.707
1182	1167.514	677.525	17.570	0.080	12.841	0.054	15.462	0.054	2.108
2163	1800.827	1289.977	18.109	0.110	12.844	0.086	15.948	0.084	2.161
531	731.670	737.975	18.055	0.098	12.848	0.051	15.825	0.052	2.230
756	911.532	1348.190	17.538	0.085	12.851	0.099	15.807	0.113	1.732
1760	1487.658	590.456	17.951	0.080	12.854	0.055	15.898	0.060	2.054
1994	1652.743	654.216	18.288	0.164	12.857	0.043	15.791	0.052	2.497
795	942.332	795.563	17.681	0.064	12.861	0.040	15.630	0.043	2.050
2290	1959.744	206.506	17.795	0.085	12.861	0.107	15.654	0.082	2.141
358	567.049	1210.823	17.788	0.105	12.866	0.103	15.916	0.088	1.872
542	738.611	826.516	17.802	0.075	12.872	0.051	15.863	0.061	1.939
201	346.227	1313.702	17.980	0.079	12.873	0.111	15.902	0.087	2.078
1367	1273.814	903.134	17.873	0.084	12.873	0.049	15.814	0.053	2.058
1830	1527.557	506.290	17.892	0.090	12.886	0.039	15.868	0.051	2.024
273	470.158	941.054	18.954	0.310	12.887	0.082	16.039	0.079	2.915
618	801.295	1318.547	18.633	0.208	12.887	0.079	15.995	0.081	2.638
1542	1357.910	1236.850	18.048	0.106	12.890	0.053	15.838	0.056	2.209
1017	1075.054	123.116	17.935	0.086	12.891	0.066	16.024	0.069	1.911
1844	1535.629	889.995	17.808	0.095	12.891	0.038	15.925	0.051	1.883
97	176.796	613.285	17.719	0.096	12.891	0.105	16.062	0.114	1.656
644	822.322	746.011	17.241	0.052	12.895	0.051	15.320	0.045	1.921
1947	1609.564	1141.113	17.935	0.085	12.898	0.061	15.941	0.066	1.994
889	1000.048	344.683	17.933	0.090	12.900	0.047	15.831	0.051	2.102
2415	2145.319	1153.000	18.088	0.072	12.903	0.141	15.895	0.092	2.194
460	666.893	383.147	18.482	0.150	12.906	0.065	16.006	0.070	2.475
2202	1837.987	244.981	18.297	0.093	12.912	0.097	16.069	0.076	2.228
1450	1316.358	885.553	17.644	0.070	12.913	0.051	15.666	0.050	1.978
1570	1373.468	564.007	17.387	0.072	12.916	0.055	15.498	0.048	1.888
433	644.437	800.782	18.307	0.105	12.917	0.060	16.007	0.068	2.300
610	790.980	171.951	17.907	0.086	12.922	0.070	15.857	0.067	2.050
213	367.402	443.038	18.562	0.141	12.923	0.096	16.244	0.099	2.318
1160	1157.675	286.653	17.243	0.058	12.927	0.049	15.492	0.043	1.750
2431	2207.155	611.292	17.712	0.053	12.939	0.081	16.154	0.104	1.558
527	727.656	1091.897	17.700	0.148	12.941	0.109	15.921	0.104	1.779
66	126.224	683.204	18.044	0.079	12.942	0.109	16.137	0.101	1.907
2347	2030.244	473.624	18.402	0.100	12.948	0.090	16.237	0.091	2.165
1620	1405.923	608.892	17.921	0.087	12.951	0.056	15.880	0.055	2.041
2361	2051.484	884.358	17.081	0.078	12.952	0.098	15.308	0.091	1.773
1596	1387.419	887.578	17.618	0.070	12.955	0.048	15.801	0.047	1.817
1689	1445.226	650.591	17.311	0.064	12.959	0.041	15.536	0.039	1.775
626	808.425	-68.147	17.789	0.114	12.963	0.069	16.228	0.115	1.562
268	461.111	1180.690	17.146	0.102	12.964	0.087	15.820	0.098	1.326
351	558.902	490.308	17.005	0.104	12.967	0.073	15.303	0.077	1.702
370	580.966	1100.414	17.435	0.091	12.970	0.078	15.881	0.083	1.554
340	541.571	227.475	18.050	0.090	12.973	0.089	16.016	0.090	2.033
1989	1648.057	1136.143	18.099	0.091	12.974	0.065	16.068	0.071	2.031
637	817.755	1089.995	17.161	0.091	12.977	0.058	15.856	0.079	1.305
432	642.932	1245.063	18.156	0.118	12.977	0.083	16.029	0.087	2.126
177	308.218	68.904	18.094	0.120	12.981	0.113	16.073	0.096	2.021
378	589.949	302.975	18.383	0.110	12.982	0.081	16.183	0.088	2.200
585	776.879	3.938	18.315	0.185	12.982	0.081	15.968	0.077	2.348
1062	1104.798	780.269	17.642	0.086	12.983	0.109	15.045	0.109	2.597
342	546.779	215.622	18.029	0.081	12.987	0.090	16.055	0.075	1.973
275	471.910	1211.602	18.413	0.148	12.989	0.088	16.203	0.085	2.210
901	1007.981	1146.353	17.464	0.075	12.994	0.047	15.459	0.051	2.005
1604	1395.035	924.102	17.140	0.056	12.995	0.041	15.144	0.038	1.996
1611	1399.042	331.106	18.096	0.089	12.998	0.043	16.047	0.060	2.049
1820	1522.741	38.569	17.630	0.098	13.001	0.108	15.823	0.079	1.807
222	381.708	-23.308	18.455	0.127	13.007	0.084	16.411	0.119	2.044
2019	1674.844	1561.152	18.282	0.132	13.010	0.069	16.375	0.144	1.907
2074	1720.663	1389.667	18.002	0.086	13.012	0.086	16.013	0.087	1.990
392	606.877	680.686	17.640	0.089	13.014	0.062	15.903	0.077	1.737
1607	1398.123	1487.936	17.362	0.087	13.017	0.077	15.970	0.088	1.392
1376	1276.632	755.662	17.343	0.063	13.021	0.066	15.479	0.059	1.864
1496	1333.812	1162.735	16.912	0.056	13.024	0.044	14.979	0.044	1.933
2119	1765.961	499.396	17.527	0.074	13.026	0.066	15.617	0.064	1.910
443	654.696	994.566	18.208	0.113	13.028	0.074	16.114	0.077	2.094
604	788.270	805.023	18.113	0.095	13.030	0.059	16.037	0.065	2.075
100	183.659	395.975	18.131	0.078	13.030	0.109	16.127	0.104	2.004
2078	1724.449	769.526	18.079	0.096	13.032	0.051	15.960	0.060	2.119

1316	1250.311	1020.634	18.143	0.120	13.032	0.036	16.026	0.054	2.117
1811	1520.125	653.289	17.302	0.068	13.035	0.040	15.653	0.042	1.649
75	140.658	1099.172	17.151	0.101	13.038	0.180	15.253	0.149	1.898
113	213.135	1226.207	18.349	0.123	13.043	0.178	16.037	0.138	2.312
14	19.871	1154.655	18.103	0.093	13.053	0.127	16.094	0.101	2.008
2408	2126.306	78.590	18.021	0.083	13.056	0.139	16.005	0.094	2.017
1210	1184.888	798.529	17.524	0.066	13.062	0.053	15.604	0.058	1.921
1291	1233.700	1089.773	17.680	0.079	13.064	0.033	15.982	0.052	1.698
774	926.382	323.971	18.116	0.105	13.065	0.051	15.983	0.061	2.133
2352	2039.848	1361.152	18.152	0.095	13.066	0.119	16.039	0.101	2.113
1652	1420.981	972.380	17.597	0.068	13.066	0.037	15.523	0.041	2.074
2348	2031.141	502.409	18.006	0.082	13.070	0.094	16.069	0.090	1.937
933	1033.400	919.481	17.757	0.070	13.077	0.042	15.719	0.047	2.038
1709	1453.122	1195.317	18.200	0.105	13.081	0.054	16.067	0.061	2.133
2386	2096.196	210.241	17.925	0.086	13.082	0.123	15.939	0.102	1.985
1303	1242.046	982.032	17.599	0.070	13.084	0.032	15.613	0.041	1.986
550	744.088	1398.845	17.383	0.095	13.088	0.167	15.424	0.114	1.960
2358	2049.650	333.276	17.786	0.121	13.089	0.109	15.787	0.089	1.999
532	731.773	338.158	17.635	0.061	13.089	0.061	15.561	0.057	2.074
64	121.704	1005.019	18.195	0.127	13.091	0.104	16.245	0.106	1.950
1706	1452.232	304.054	17.566	0.062	13.093	0.050	15.635	0.053	1.931
1368	1274.139	823.575	17.133	0.055	13.094	0.064	15.286	0.053	1.847
305	508.405	551.130	17.081	0.090	13.102	0.076	15.635	0.084	1.446
1511	1342.265	1364.177	18.078	0.119	13.112	0.072	16.149	0.077	1.929
870	988.845	539.436	18.109	0.088	13.112	0.045	16.003	0.052	2.107
1304	1242.127	946.161	18.227	0.106	13.119	0.045	16.063	0.059	2.164
349	556.123	58.658	17.761	0.082	13.121	0.102	16.035	0.098	1.726
926	1027.031	338.209	18.043	0.083	13.121	0.049	16.030	0.064	2.013
1456	1318.512	578.512	18.074	0.124	13.125	0.062	16.006	0.071	2.069
1722	1459.292	820.256	17.858	0.078	13.131	0.047	15.971	0.055	1.888
2224	1858.682	164.520	18.494	0.088	13.135	0.104	16.269	0.088	2.225
2049	1699.419	503.752	17.778	0.107	13.143	0.058	16.141	0.078	1.636
448	657.674	791.471	18.278	0.077	13.144	0.057	16.198	0.072	2.081
1826	1526.037	405.470	17.832	0.085	13.145	0.044	15.716	0.050	2.116
2173	1805.580	946.865	17.899	0.080	13.145	0.072	15.879	0.075	2.020
167	297.645	1069.124	17.799	0.094	13.151	0.156	15.915	0.120	1.885
434	644.753	714.213	18.230	0.106	13.151	0.058	16.248	0.071	1.983
654	830.122	165.236	17.867	0.122	13.154	0.069	15.803	0.070	2.064
689	858.007	1454.569	17.617	0.106	13.154	0.101	16.010	0.084	1.607
215	368.174	727.299	18.194	0.099	13.159	0.088	16.214	0.092	1.979
2157	1796.751	381.095	18.107	0.110	13.160	0.078	16.241	0.081	1.866
1597	1388.835	905.315	17.555	0.065	13.161	0.044	15.673	0.047	1.881
2369	2066.247	81.112	18.134	0.102	13.163	0.135	15.908	0.084	2.226
1206	1182.182	872.282	17.862	0.084	13.164	0.047	15.638	0.053	2.223
582	772.044	633.434	17.435	0.049	13.172	0.045	15.505	0.045	1.930
1355	1268.075	339.435	17.901	0.077	13.173	0.045	16.017	0.052	1.884
2140	1780.768	279.743	17.825	0.110	13.176	0.083	16.193	0.095	1.632
2420	2151.171	1159.690	17.585	0.078	13.177	0.148	15.513	0.099	2.072
440	652.318	571.284	16.800	0.063	13.178	0.062	15.084	0.063	1.715
1584	1381.116	1087.289	18.014	0.088	13.184	0.039	16.112	0.055	1.902
1672	1435.168	1419.420	18.643	0.150	13.186	0.079	16.290	0.075	2.353
495	698.751	728.925	17.710	0.066	13.187	0.054	15.930	0.068	1.780
920	1022.200	1445.483	18.123	0.096	13.188	0.084	16.046	0.085	2.077
2273	1931.913	458.606	18.525	0.124	13.190	0.085	16.308	0.086	2.217
1583	1380.748	772.613	17.991	0.106	13.193	0.068	15.773	0.060	2.218
156	277.360	622.716	18.139	0.099	13.194	0.097	16.225	0.100	1.914
896	1004.178	1000.977	18.144	0.063	13.208	0.041	16.256	0.058	1.888
2097	1744.036	1165.677	17.962	0.076	13.210	0.076	16.020	0.075	1.942
951	1043.316	1134.801	18.234	0.100	13.214	0.047	16.206	0.072	2.028
175	306.352	106.709	18.342	0.083	13.216	0.110	16.258	0.097	2.084
161	281.938	688.189	18.026	0.093	13.217	0.095	16.283	0.105	1.743
2226	1861.265	71.545	18.400	0.091	13.217	0.122	16.081	0.086	2.319
572	763.623	262.207	17.240	0.078	13.218	0.067	15.468	0.066	1.772
2041	1689.484	966.602	17.970	0.102	13.227	0.057	16.295	0.080	1.674
1088	1117.641	880.581	17.899	0.075	13.230	0.045	15.981	0.054	1.918
1832	1528.740	1003.245	18.029	0.093	13.232	0.043	16.190	0.063	1.839
504	707.559	1046.885	18.201	0.112	13.232	0.070	16.228	0.083	1.973
802	946.898	918.980	18.282	0.112	13.241	0.042	16.231	0.062	2.051
1859	1543.828	1243.553	18.321	0.111	13.241	0.066	16.284	0.079	2.037
1384	1279.440	770.572	17.304	0.057	13.242	0.060	15.384	0.057	1.920
564	758.734	606.975	17.883	0.077	13.248	0.049	15.806	0.054	2.077
1059	1102.581	1196.529	17.968	0.086	13.250	0.051	15.792	0.063	2.176
2060	1710.821	703.725	18.066	0.128	13.251	0.052	16.037	0.064	2.029

1201	1181.018	406.171	18.215	0.102	13.254	0.049	16.076	0.058	2.139
1103	1124.493	966.873	18.147	0.065	13.256	0.072	16.160	0.078	1.987
1497	1335.210	383.762	18.101	0.085	13.256	0.044	16.085	0.056	2.016
1394	1284.861	871.881	16.958	0.094	13.257	0.055	15.756	0.055	1.202
728	887.042	1366.035	16.869	0.064	13.260	0.080	14.901	0.075	1.968
1020	1077.340	237.586	18.226	0.099	13.261	0.053	16.210	0.059	2.016
400	613.635	1400.976	17.879	0.116	13.263	0.101	16.079	0.084	1.800
1144	1147.022	405.588	18.145	0.100	13.264	0.048	16.174	0.061	1.971
847	972.864	463.614	18.080	0.100	13.266	0.047	16.215	0.061	1.865
2331	2005.584	1152.827	18.409	0.082	13.276	0.101	16.209	0.099	2.200
855	978.581	947.289	18.296	0.096	13.278	0.041	16.219	0.059	2.077
397	612.496	299.963	18.581	0.118	13.279	0.077	16.405	0.091	2.176
1435	1310.335	171.343	18.328	0.115	13.283	0.058	16.304	0.070	2.024
1383	1278.696	1384.327	18.674	0.138	13.285	0.076	16.357	0.078	2.317
1398	1286.478	1142.792	17.660	0.103	13.287	0.044	16.178	0.067	1.482
1240	1205.022	126.630	18.429	0.131	13.294	0.065	16.337	0.076	2.091
2094	1740.130	1157.862	18.372	0.125	13.297	0.078	16.363	0.094	2.009
2247	1893.706	661.730	18.029	0.092	13.298	0.077	16.278	0.086	1.752
883	995.487	980.640	18.231	0.088	13.300	0.041	16.286	0.065	1.945
727	886.398	1138.478	18.257	0.106	13.304	0.057	16.360	0.074	1.897
1825	1525.945	199.525	18.142	0.089	13.321	0.067	16.025	0.069	2.117
2365	2059.847	1100.847	18.470	0.115	13.323	0.111	16.211	0.094	2.260
465	670.183	684.576	18.353	0.107	13.326	0.059	16.118	0.068	2.234
1336	1259.016	232.031	18.526	0.126	13.326	0.055	16.241	0.065	2.285
2048	1696.916	652.082	18.263	0.106	13.327	0.050	16.301	0.070	1.962
1835	1531.787	1068.374	18.054	0.085	13.328	0.050	16.313	0.067	1.741
960	1047.227	759.118	18.203	0.079	13.330	0.045	16.251	0.067	1.952
801	946.291	1079.699	18.358	0.086	13.334	0.045	16.426	0.073	1.932
1564	1370.246	1087.990	18.065	0.102	13.343	0.042	16.149	0.063	1.916
1768	1494.270	713.897	17.627	0.083	13.345	0.049	15.604	0.046	2.023
471	677.130	1125.253	17.407	0.077	13.348	0.076	16.177	0.091	1.230
2230	1867.856	343.192	17.305	0.083	13.348	0.088	15.670	0.085	1.634
882	995.384	292.644	17.735	0.102	13.348	0.056	15.683	0.048	2.052
1939	1602.965	1455.119	18.564	0.120	13.352	0.089	16.332	0.079	2.231
1148	1147.803	1382.701	17.730	0.099	13.353	0.108	15.910	0.089	1.820
1155	1155.532	543.138	17.667	0.086	13.359	0.053	15.694	0.058	1.973
811	953.525	1387.615	18.201	0.131	13.360	0.083	16.415	0.105	1.786
120	220.066	651.135	17.939	0.103	13.360	0.102	16.005	0.099	1.934
286	485.327	785.084	18.159	0.089	13.362	0.076	16.174	0.081	1.985
307	511.420	933.705	17.528	0.103	13.363	0.080	16.318	0.101	1.210
2207	1844.758	1370.032	17.135	0.066	13.363	0.089	15.113	0.087	2.022
988	1060.959	1160.764	18.155	0.104	13.363	0.048	16.291	0.072	1.864
1925	1597.752	818.743	18.429	0.110	13.366	0.043	16.318	0.065	2.111
2277	1939.560	416.955	17.982	0.080	13.368	0.089	16.040	0.096	1.942
1837	1532.274	341.388	17.976	0.094	13.371	0.050	16.359	0.078	1.617
2320	1997.524	1156.906	17.875	0.091	13.373	0.114	15.907	0.107	1.968
664	839.729	56.411	18.284	0.095	13.388	0.078	16.356	0.089	1.927
502	704.767	893.023	17.855	0.102	13.391	0.060	16.194	0.080	1.661
2225	1860.477	933.774	18.448	0.193	13.391	0.077	16.410	0.087	2.037
2101	1747.033	1083.784	18.248	0.093	13.393	0.072	16.328	0.080	1.920
1491	1331.479	720.952	17.693	0.082	13.396	0.070	16.082	0.060	1.611
1562	1368.791	560.190	17.713	0.084	13.411	0.055	15.629	0.053	2.084
473	678.518	1147.586	18.229	0.118	13.412	0.076	16.440	0.094	1.790
436	649.141	338.121	18.335	0.101	13.416	0.073	16.432	0.090	1.904
1554	1364.893	258.073	18.584	0.158	13.419	0.054	16.368	0.068	2.217
334	537.932	1090.880	17.297	0.092	13.420	0.080	15.854	0.091	1.443
1166	1159.160	974.481	18.467	0.116	13.422	0.042	16.362	0.067	2.105
330	533.257	942.519	17.771	0.103	13.428	0.079	16.335	0.095	1.436
2339	2020.353	491.995	18.736	0.131	13.429	0.090	16.588	0.099	2.149
1357	1269.472	770.964	17.991	0.096	13.430	0.073	16.034	0.068	1.957
1731	1466.110	472.225	17.859	0.081	13.431	0.044	16.307	0.064	1.552
815	955.701	583.389	18.086	0.082	13.432	0.049	16.308	0.060	1.778
986	1060.607	1429.805	18.448	0.117	13.432	0.084	16.455	0.088	1.993
315	515.212	754.171	17.856	0.101	13.436	0.072	16.346	0.099	1.511
536	735.027	1110.533	17.831	0.124	13.442	0.069	16.289	0.092	1.541
322	519.737	670.764	17.557	0.094	13.449	0.079	16.145	0.092	1.412
1165	1158.717	1359.826	17.784	0.105	13.451	0.071	16.319	0.098	1.464
2149	1789.180	1106.750	17.933	0.089	13.461	0.073	16.152	0.084	1.781
2181	1813.785	987.296	18.550	0.122	13.469	0.072	16.474	0.083	2.077
832	967.192	723.850	18.342	0.076	13.471	0.048	16.349	0.067	1.993
2296	1967.683	20.809	19.005	0.116	13.473	0.131	16.308	0.089	2.697
1112	1129.644	566.342	18.547	0.160	13.473	0.059	16.441	0.079	2.106
503	705.420	854.997	18.586	0.105	13.474	0.056	16.523	0.083	2.063

453	661.288	1413.764	18.325	0.107	13.475	0.110	16.415	0.089	1.910
1654	1421.566	376.832	18.072	0.101	13.476	0.046	16.306	0.065	1.765
983	1059.991	1120.330	18.741	0.115	13.482	0.048	16.572	0.077	2.169
187	321.587	885.542	18.940	0.115	13.485	0.085	16.641	0.099	2.299
481	685.495	662.892	19.329	0.232	13.485	0.055	16.620	0.088	2.710
1827	1526.967	971.625	18.924	0.166	13.485	0.043	16.518	0.078	2.406
1416	1298.410	992.327	19.146	0.182	13.488	0.042	16.627	0.081	2.518
1613	1400.828	798.026	17.786	0.081	13.491	0.058	16.119	0.061	1.667
2073	1720.299	703.048	18.156	0.132	13.497	0.075	16.441	0.087	1.715
2012	1665.684	381.332	17.476	0.069	13.499	0.063	15.507	0.059	1.969
326	525.271	1315.475	18.130	0.104	13.500	0.100	16.440	0.094	1.689
2427	2166.008	1199.417	17.595	0.094	13.502	0.179	16.059	0.091	1.535
2025	1677.411	1021.477	18.529	0.146	13.509	0.059	16.536	0.085	1.992
189	321.952	121.675	18.434	0.088	13.510	0.103	16.531	0.127	1.903
1340	1259.821	439.952	18.284	0.132	13.512	0.043	16.331	0.069	1.954
1935	1601.473	1175.335	18.466	0.091	13.523	0.072	16.526	0.089	1.940
1839	1533.222	256.062	18.391	0.117	13.524	0.063	16.443	0.073	1.947
90	168.967	521.304	17.594	0.102	13.531	0.094	15.831	0.104	1.763
2237	1875.599	277.312	18.396	0.114	13.534	0.098	16.432	0.096	1.964
110	208.875	640.422	18.389	0.069	13.535	0.096	16.564	0.108	1.825
287	486.084	70.522	17.733	0.088	13.536	0.093	15.914	0.092	1.819
2216	1851.811	622.904	17.890	0.102	13.538	0.073	16.320	0.095	1.571
1574	1375.848	437.276	18.481	0.114	13.541	0.046	16.530	0.078	1.951
1489	1330.976	1092.472	18.576	0.153	13.543	0.044	16.338	0.063	2.238
998	1066.672	881.800	18.780	0.123	13.545	0.048	16.534	0.074	2.246
126	231.002	1067.893	18.937	0.105	13.548	0.095	16.656	0.109	2.281
1010	1071.281	1295.098	17.973	0.102	13.549	0.072	16.195	0.079	1.778
813	954.877	969.726	17.578	0.062	13.554	0.045	15.601	0.043	1.977
496	700.756	821.591	18.896	0.126	13.556	0.054	16.728	0.091	2.169
464	670.170	761.699	18.742	0.152	13.556	0.059	16.599	0.090	2.143
2139	1780.636	252.678	18.582	0.151	13.558	0.091	16.395	0.078	2.186
1369	1274.593	1455.110	17.482	0.079	13.561	0.084	15.649	0.077	1.833
1708	1452.899	194.255	18.716	0.113	13.564	0.067	16.565	0.094	2.151
1125	1138.479	342.177	17.866	0.072	13.566	0.049	16.011	0.052	1.855
1809	1519.757	646.056	17.842	0.088	13.570	0.047	16.477	0.076	1.365
2056	1707.951	389.665	17.538	0.083	13.575	0.082	15.550	0.067	1.988
969	1051.114	21.529	18.475	0.147	13.582	0.073	16.433	0.086	2.042
1786	1504.763	828.552	18.183	0.113	13.584	0.048	16.049	0.055	2.134
1520	1346.875	778.468	17.405	0.093	13.584	0.063	16.154	0.062	1.250
312	514.040	370.852	17.559	0.093	13.589	0.083	15.714	0.086	1.846
540	736.124	275.377	17.942	0.100	13.590	0.070	16.027	0.073	1.916
1085	1116.300	996.574	18.427	0.113	13.591	0.046	16.512	0.075	1.915
1057	1102.291	1036.006	18.188	0.097	13.592	0.041	16.471	0.067	1.717
1108	1126.825	874.117	18.641	0.116	13.592	0.056	16.615	0.093	2.026
962	1047.549	489.121	18.051	0.096	13.601	0.049	16.404	0.075	1.647
2128	1773.076	1135.130	17.878	0.096	13.602	0.092	15.911	0.082	1.967
49	86.463	1023.575	18.564	0.124	13.604	0.111	16.568	0.117	1.997
966	1049.328	375.215	18.316	0.100	13.604	0.048	16.370	0.067	1.946
119	219.548	663.716	17.727	0.100	13.606	0.098	15.892	0.093	1.835
1990	1649.365	1039.992	17.839	0.111	13.606	0.061	16.325	0.086	1.514
314	514.367	355.551	18.190	0.085	13.608	0.085	16.551	0.095	1.639
620	803.668	54.332	18.426	0.100	13.609	0.080	16.698	0.109	1.728
656	830.687	1383.584	17.473	0.120	13.610	0.086	16.181	0.112	1.292
22	39.502	873.845	18.907	0.213	13.611	0.108	16.632	0.120	2.275
301	499.925	890.331	19.219	0.223	13.615	0.075	16.754	0.084	2.465
209	359.895	1082.312	17.521	0.103	13.615	0.146	15.731	0.132	1.791
1171	1162.860	391.659	18.491	0.132	13.616	0.052	16.542	0.084	1.948
158	279.223	855.008	18.506	0.115	13.617	0.091	16.314	0.096	2.191
32	59.656	897.656	18.259	0.087	13.622	0.109	16.645	0.107	1.614
196	332.330	465.011	18.372	0.107	13.624	0.093	16.611	0.104	1.761
1356	1268.172	516.789	17.829	0.099	13.629	0.063	16.279	0.082	1.550
1400	1287.747	535.158	18.863	0.233	13.629	0.062	16.444	0.082	2.419
23	42.534	716.586	18.539	0.136	13.629	0.108	16.563	0.115	1.976
1110	1128.459	704.576	18.359	0.120	13.631	0.065	16.343	0.076	2.015
1409	1294.756	691.517	18.708	0.124	13.634	0.085	16.576	0.095	2.132
1643	1417.049	1334.433	18.320	0.115	13.638	0.073	16.398	0.078	1.922
235	409.196	214.064	17.907	0.091	13.643	0.100	16.445	0.116	1.462
1548	1360.959	611.859	19.322	0.354	13.644	0.075	16.589	0.103	2.733
30	52.016	1240.251	18.393	0.145	13.645	0.124	16.537	0.129	1.857
750	906.992	709.661	18.449	0.129	13.646	0.048	16.369	0.068	2.079
1569	1373.156	388.471	18.987	0.174	13.650	0.047	16.685	0.087	2.302
2143	1783.937	865.560	17.982	0.087	13.651	0.068	16.271	0.079	1.711
2239	1878.064	1053.994	18.849	0.116	13.652	0.083	16.560	0.086	2.289

878	993.489	1412.731	18.712	0.137	13.652	0.083	16.544	0.109	2.168
2014	1666.967	1238.526	18.709	0.129	13.660	0.074	16.449	0.091	2.260
826	964.830	854.056	17.798	0.082	13.660	0.044	15.834	0.052	1.965
863	983.206	326.814	18.626	0.112	13.662	0.054	16.647	0.082	1.978
1349	1265.322	879.055	18.851	0.171	13.665	0.060	16.669	0.092	2.182
627	810.005	609.669	18.710	0.172	13.666	0.049	16.771	0.090	1.939
2272	1929.974	1027.461	18.069	0.103	13.667	0.089	16.460	0.102	1.608
1047	1095.098	262.262	18.115	0.095	13.668	0.056	16.064	0.057	2.051
256	442.444	517.432	18.090	0.088	13.669	0.087	16.499	0.092	1.591
2370	2068.318	1127.877	18.584	0.102	13.671	0.120	16.473	0.122	2.111
478	682.734	645.040	18.737	0.106	13.673	0.061	16.712	0.088	2.025
1074	1110.858	709.983	18.377	0.104	13.674	0.060	16.422	0.078	1.955
461	667.032	267.955	18.703	0.115	13.676	0.084	16.712	0.094	1.991
77	142.484	261.996	18.383	0.080	13.677	0.115	16.534	0.145	1.849
1475	1325.358	1012.549	18.590	0.082	13.678	0.046	16.644	0.078	1.945
1852	1541.365	1136.234	18.196	0.087	13.680	0.057	16.230	0.073	1.965
1964	1625.319	1205.043	18.435	0.087	13.681	0.071	16.551	0.086	1.884
2147	1787.371	174.083	18.835	0.173	13.682	0.099	16.696	0.102	2.139
614	793.166	1047.043	18.193	0.099	13.684	0.061	16.333	0.073	1.860
446	656.352	998.064	18.721	0.167	13.686	0.087	16.648	0.096	2.073
1671	1434.452	907.887	18.333	0.119	13.688	0.051	16.522	0.078	1.811
884	996.837	129.435	18.281	0.127	13.692	0.070	16.420	0.086	1.861
1015	1074.155	1096.027	18.574	0.085	13.697	0.047	16.655	0.083	1.918
1821	1523.296	1441.482	18.356	0.109	13.697	0.085	16.454	0.098	1.901
151	265.478	1128.221	18.280	0.099	13.698	0.094	16.457	0.095	1.823
176	306.621	1085.069	18.612	0.104	13.701	0.091	16.649	0.099	1.963
1666	1428.463	633.326	17.587	0.068	13.702	0.059	15.785	0.050	1.802
1493	1331.956	416.460	18.584	0.077	13.702	0.051	16.584	0.087	2.000
1903	1578.015	476.694	18.505	0.160	13.703	0.052	16.539	0.093	1.967
1537	1356.119	1146.764	17.943	0.086	13.704	0.057	16.495	0.085	1.447
1411	1295.104	1130.174	18.019	0.090	13.705	0.049	16.656	0.091	1.364
251	435.078	716.827	16.421	0.078	13.706	0.091	15.745	0.151	0.676
1902	1577.822	866.669	18.045	0.136	13.706	0.046	16.445	0.089	1.600
9	7.926	452.304	19.679	0.250	13.718	0.108	16.908	0.108	2.770
2341	2023.002	934.046	18.017	0.129	13.721	0.096	16.282	0.104	1.735
2127	1772.371	1418.911	18.575	0.076	13.732	0.094	16.625	0.089	1.950
1514	1343.648	636.047	18.273	0.158	13.735	0.106	15.184	0.132	3.089
55	103.318	592.423	18.585	0.076	13.737	0.111	16.664	0.119	1.921
408	618.202	1328.955	17.843	0.098	13.740	0.099	16.125	0.090	1.718
1808	1519.626	1169.445	18.737	0.116	13.742	0.060	16.658	0.083	2.079
2429	2170.273	425.638	19.121	0.156	13.744	0.101	16.861	0.118	2.260
329	531.513	894.341	18.684	0.142	13.745	0.075	16.711	0.098	1.973
296	493.008	100.900	18.587	0.117	13.751	0.091	16.699	0.100	1.888
682	851.571	1438.157	18.052	0.103	13.752	0.101	16.551	0.093	1.501
2288	1954.951	1045.089	19.091	0.169	13.756	0.095	16.800	0.113	2.290
1039	1088.802	1329.300	18.347	0.116	13.757	0.073	16.237	0.074	2.109
1147	1147.684	839.700	18.312	0.105	13.763	0.058	16.437	0.078	1.875
1195	1177.744	473.901	18.761	0.159	13.763	0.061	16.634	0.090	2.127
1849	1540.495	562.605	19.328	0.237	13.764	0.049	16.746	0.085	2.582
1649	1419.429	1141.035	18.289	0.089	13.767	0.064	16.676	0.099	1.614
486	688.749	606.340	18.710	0.107	13.770	0.060	16.774	0.092	1.936
285	482.293	849.706	18.162	0.104	13.773	0.086	16.672	0.121	1.490
831	967.092	71.048	18.624	0.128	13.774	0.071	16.501	0.083	2.123
472	677.912	1080.216	18.479	0.144	13.778	0.073	16.775	0.105	1.705
2303	1971.701	604.860	18.760	0.103	13.785	0.084	16.657	0.092	2.103
853	977.253	1192.949	19.329	0.258	13.793	0.060	16.812	0.096	2.517
563	758.415	364.586	17.825	0.073	13.795	0.063	15.930	0.066	1.896
1180	1167.290	1259.055	18.392	0.136	13.798	0.062	16.230	0.075	2.161
1536	1354.898	157.042	18.090	0.085	13.800	0.069	16.108	0.069	1.982
1529	1351.449	309.026	19.421	0.233	13.800	0.060	16.864	0.097	2.557
758	913.369	65.790	18.759	0.118	13.801	0.073	16.698	0.089	2.061
1217	1190.738	31.981	17.828	0.088	13.808	0.124	15.821	0.082	2.006
1792	1508.437	684.536	18.334	0.104	13.810	0.050	16.109	0.055	2.225
1846	1537.872	621.924	18.452	0.111	13.812	0.050	16.690	0.088	1.763
34	61.073	295.204	19.182	0.133	13.813	0.122	16.800	0.111	2.381
615	793.596	805.112	18.101	0.123	13.817	0.118	16.216	0.084	1.885
979	1057.821	1395.189	18.244	0.115	13.822	0.082	16.654	0.093	1.590
1953	1614.080	319.768	18.512	0.126	13.824	0.064	16.695	0.080	1.817
229	399.715	359.970	19.718	0.166	13.824	0.093	16.825	0.112	2.893
2344	2023.942	1448.573	18.331	0.127	13.827	0.120	16.309	0.100	2.022
1265	1221.822	683.381	17.708	0.095	13.828	0.068	16.437	0.082	1.271
423	632.212	403.764	17.748	0.103	13.830	0.078	16.590	0.090	1.158
477	682.305	901.795	18.695	0.148	13.832	0.066	16.667	0.101	2.028

1113	1129.675	15.195	18.535	0.116	13.832	0.071	16.674	0.093	1.861
111	211.297	818.517	19.523	0.235	13.834	0.113	16.834	0.121	2.688
2314	1982.695	1213.601	18.843	0.152	13.837	0.100	16.725	0.106	2.118
879	994.131	622.184	18.490	0.102	13.839	0.055	16.478	0.070	2.012
720	881.058	372.657	18.347	0.093	13.839	0.058	16.665	0.099	1.682
35	61.434	1180.502	18.333	0.098	13.842	0.120	16.578	0.114	1.755
2037	1687.370	710.941	19.195	0.169	13.843	0.056	16.921	0.091	2.273
1402	1289.307	513.169	18.612	0.125	13.845	0.062	16.735	0.082	1.877
1505	1338.915	446.177	18.318	0.100	13.845	0.052	16.792	0.086	1.526
2417	2149.037	107.269	19.066	0.207	13.848	0.130	16.675	0.113	2.390
783	934.212	974.476	18.616	0.102	13.849	0.049	16.756	0.085	1.860
146	258.767	1284.640	18.856	0.122	13.850	0.118	16.755	0.113	2.101
1354	1268.022	591.725	18.335	0.124	13.851	0.120	16.074	0.133	2.260
793	941.614	1262.014	19.014	0.161	13.855	0.071	16.882	0.104	2.132
1123	1135.825	508.599	18.676	0.179	13.856	0.059	16.436	0.077	2.239
128	232.652	693.176	18.841	0.105	13.865	0.097	16.833	0.108	2.008
2430	2182.071	214.787	19.318	0.203	13.867	0.122	16.860	0.109	2.458
934	1033.711	522.657	18.728	0.168	13.870	0.055	16.604	0.096	2.124
533	732.126	910.191	18.595	0.140	13.871	0.061	16.640	0.088	1.954
1622	1406.276	500.358	18.731	0.203	13.871	0.053	16.693	0.082	2.038
1460	1319.786	807.545	18.943	0.153	13.877	0.076	16.731	0.094	2.212
885	997.053	320.127	18.816	0.151	13.877	0.056	16.683	0.088	2.133
1225	1194.551	1187.134	19.037	0.152	13.878	0.055	16.695	0.092	2.342
1951	1612.711	1189.353	17.633	0.067	13.883	0.071	15.777	0.065	1.856
374	586.781	1423.941	18.470	0.111	13.889	0.127	16.666	0.108	1.803
994	1063.487	206.552	18.190	0.129	13.890	0.061	16.239	0.068	1.950
1186	1170.277	1202.376	18.413	0.137	13.899	0.061	16.596	0.093	1.817
1910	1583.357	853.135	18.095	0.087	13.900	0.052	16.655	0.083	1.440
306	511.235	968.255	18.115	0.105	13.916	0.082	16.655	0.101	1.460
2267	1920.389	562.486	18.005	0.121	13.917	0.084	16.662	0.108	1.342
905	1012.878	212.725	18.977	0.154	13.918	0.065	16.832	0.097	2.145
1422	1302.607	1174.003	19.192	0.223	13.918	0.054	16.927	0.102	2.265
1157	1155.905	118.229	18.457	0.115	13.919	0.065	16.720	0.075	1.737
335	537.994	911.065	18.055	0.113	13.922	0.079	16.807	0.092	1.249
1312	1248.674	1404.575	18.491	0.096	13.923	0.082	16.850	0.126	1.641
357	566.673	650.728	18.230	0.115	13.924	0.072	16.791	0.101	1.438
890	1000.968	647.572	18.207	0.089	13.925	0.057	16.167	0.064	2.040
1333	1256.776	101.854	17.850	0.092	13.926	0.069	16.079	0.074	1.771
1980	1641.983	819.842	18.992	0.157	13.926	0.054	16.916	0.103	2.076
1538	1356.229	1142.257	18.252	0.145	13.929	0.057	16.718	0.093	1.534
773	925.464	1250.109	18.729	0.139	13.931	0.071	16.913	0.118	1.816
1909	1583.295	157.559	18.564	0.102	13.931	0.081	16.793	0.087	1.771
2410	2128.501	1349.008	18.389	0.117	13.932	0.125	16.397	0.101	1.992
1974	1634.188	191.487	18.581	0.115	13.937	0.082	16.704	0.097	1.877
2403	2120.748	1153.916	18.664	0.087	13.941	0.124	16.753	0.109	1.911
827	965.810	1391.222	18.316	0.097	13.942	0.084	16.667	0.108	1.650
181	315.591	784.733	18.947	0.151	13.944	0.092	16.806	0.118	2.141
162	282.224	1021.948	17.952	0.140	13.945	0.096	16.116	0.094	1.835
1824	1523.792	561.497	18.785	0.147	13.946	0.051	16.816	0.089	1.969
373	585.969	1417.154	18.563	0.142	13.946	0.115	16.752	0.104	1.811
166	297.030	159.653	18.844	0.152	13.947	0.109	16.763	0.118	2.081
157	278.862	1029.994	18.523	0.152	13.948	0.100	16.793	0.101	1.730
1407	1290.915	821.022	18.002	0.091	13.948	0.068	16.681	0.086	1.321
2156	1796.137	1041.202	18.332	0.103	13.949	0.080	16.846	0.100	1.485
2160	1797.125	1375.691	19.440	0.287	13.950	0.090	16.950	0.104	2.491
407	618.016	97.499	19.012	0.158	13.959	0.090	16.951	0.113	2.061
325	525.127	263.076	18.612	0.079	13.962	0.090	16.881	0.121	1.731
635	815.505	1062.464	19.204	0.204	13.963	0.062	17.072	0.088	2.132
2214	1848.683	214.718	18.944	0.155	13.966	0.103	16.939	0.110	2.006
611	791.322	651.543	18.158	0.111	13.969	0.056	16.796	0.102	1.362
1260	1217.666	1289.668	18.073	0.126	13.970	0.070	16.688	0.105	1.386
887	999.011	1442.974	18.513	0.104	13.970	0.085	16.641	0.111	1.872
371	581.561	1367.201	18.636	0.184	13.970	0.097	16.875	0.121	1.761
29	51.891	1046.425	18.734	0.106	13.971	0.130	16.869	0.118	1.864
1439	1311.000	1150.861	17.778	0.071	13.972	0.052	15.890	0.052	1.888
202	346.296	1191.909	18.323	0.140	13.974	0.106	16.761	0.123	1.562
993	1063.036	316.044	19.009	0.130	13.980	0.060	16.844	0.088	2.164
37	63.944	629.146	18.865	0.148	13.980	0.111	16.867	0.105	1.998
290	488.164	897.517	18.896	0.126	13.980	0.080	16.907	0.103	1.990
1274	1227.230	447.589	18.954	0.149	13.982	0.056	16.828	0.108	2.126
298	494.407	566.469	19.899	0.369	13.982	0.085	17.124	0.112	2.775
1465	1322.001	756.547	19.434	0.291	13.987	0.082	16.926	0.107	2.508
1556	1365.194	7.436	18.256	0.112	13.992	0.094	16.709	0.086	1.547

1780	1501.788	311.682	18.254	0.094	13.993	0.062	16.683	0.095	1.570
13	17.715	17.048	18.987	0.170	13.994	0.163	16.580	0.117	2.407
638	818.881	590.440	18.797	0.167	13.997	0.059	16.831	0.086	1.966
4	1.096	1272.855	19.153	0.266	14.000	0.148	16.926	0.100	2.227
2098	1744.193	1156.549	18.490	0.108	14.001	0.116	16.762	0.090	1.728
1898	1573.755	614.433	19.106	0.160	14.001	0.051	16.741	0.094	2.365
204	352.015	677.234	18.855	0.120	14.005	0.090	16.888	0.101	1.966
1794	1512.195	857.818	18.958	0.208	14.008	0.055	16.915	0.095	2.043
456	664.607	1397.669	18.933	0.140	14.011	0.110	16.786	0.108	2.147
1555	1365.182	171.960	18.682	0.087	14.011	0.069	16.940	0.110	1.742
1559	1368.219	708.118	18.946	0.223	14.011	0.078	16.669	0.107	2.277
1634	1411.935	739.205	18.344	0.119	14.013	0.069	16.593	0.081	1.750
2136	1777.003	1074.447	19.658	0.238	14.014	0.079	16.994	0.108	2.664
971	1052.954	869.854	19.199	0.181	14.016	0.062	16.934	0.098	2.265
1107	1125.578	348.627	18.829	0.088	14.018	0.059	16.874	0.102	1.954
972	1053.565	1276.602	19.159	0.312	14.021	0.071	17.105	0.120	2.054
1742	1473.404	803.320	18.363	0.136	14.021	0.062	16.750	0.096	1.613
7	4.895	509.015	17.907	0.088	14.023	0.112	16.372	0.115	1.535
1962	1623.585	406.741	18.627	0.098	14.024	0.062	16.965	0.101	1.661
1967	1627.399	803.920	19.795	0.296	14.025	0.053	16.999	0.119	2.796
1543	1357.968	648.235	18.827	0.190	14.026	0.084	15.445	0.168	3.382
1064	1106.801	902.930	18.963	0.137	14.027	0.060	16.809	0.094	2.154
761	917.227	582.799	19.049	0.219	14.028	0.054	16.889	0.095	2.159
2076	1722.153	784.231	18.846	0.080	14.038	0.064	16.763	0.094	2.083
1353	1267.620	705.717	19.402	0.243	14.042	0.086	16.923	0.117	2.479
2028	1681.144	701.740	18.797	0.135	14.043	0.062	16.900	0.105	1.897
2254	1909.451	203.656	18.581	0.107	14.048	0.102	16.943	0.108	1.638
1627	1409.711	395.351	18.294	0.072	14.051	0.057	16.786	0.112	1.507
1278	1229.910	736.897	17.915	0.080	14.053	0.073	16.482	0.078	1.434
1860	1544.356	844.050	18.908	0.182	14.055	0.052	16.894	0.096	2.014
1897	1573.434	762.012	18.405	0.187	14.058	0.053	16.849	0.089	1.556
241	416.535	1103.052	18.460	0.161	14.058	0.092	16.823	0.120	1.638
130	236.792	1009.868	18.721	0.195	14.059	0.102	16.849	0.120	1.872
1719	1457.584	194.219	18.912	0.203	14.059	0.094	16.771	0.093	2.141
2260	1914.947	439.229	19.085	0.139	14.060	0.080	16.959	0.102	2.126
1858	1543.769	1199.911	18.635	0.118	14.060	0.070	16.934	0.112	1.701
713	876.575	691.367	18.569	0.128	14.060	0.055	16.901	0.091	1.668
70	131.029	1346.233	18.827	0.132	14.062	0.141	16.746	0.111	2.081
2325	2000.064	1015.173	19.270	0.166	14.064	0.096	17.011	0.095	2.259
2231	1869.241	210.827	18.462	0.081	14.064	0.102	16.819	0.112	1.643
1767	1493.652	843.498	18.695	0.097	14.064	0.055	17.056	0.105	1.639
2112	1756.946	335.736	18.505	0.137	14.071	0.078	16.537	0.089	1.969
1509	1340.947	954.045	18.254	0.086	14.072	0.065	16.071	0.058	2.184
343	547.201	1111.052	18.443	0.186	14.074	0.087	16.899	0.117	1.543
2201	1837.712	319.879	18.754	0.120	14.075	0.086	16.802	0.099	1.952
2061	1711.270	1075.360	19.664	0.308	14.076	0.076	17.118	0.131	2.545
115	215.162	813.862	19.778	0.277	14.078	0.100	16.878	0.104	2.901
1362	1272.032	1027.767	18.706	0.142	14.081	0.054	16.951	0.105	1.756
667	841.511	1374.067	19.556	0.275	14.081	0.087	17.078	0.131	2.478
1845	1537.582	712.775	19.570	0.193	14.085	0.059	17.110	0.109	2.460
514	716.726	1338.076	19.227	0.249	14.086	0.089	17.027	0.116	2.200
2315	1983.290	946.080	18.593	0.092	14.088	0.094	16.797	0.110	1.796
353	562.284	867.865	19.306	0.200	14.089	0.074	17.154	0.127	2.152
6	3.766	851.000	19.223	0.119	14.090	0.116	17.007	0.138	2.217
1911	1583.741	258.717	18.816	0.168	14.090	0.071	16.940	0.111	1.875
2265	1919.261	1040.165	18.395	0.107	14.104	0.097	16.821	0.112	1.574
1899	1574.333	789.327	17.481	0.118	14.106	0.054	16.088	0.070	1.393
2020	1674.982	523.725	18.653	0.165	14.108	0.065	16.408	0.072	2.245
346	552.869	585.901	18.376	0.187	14.113	0.079	16.768	0.104	1.608
2085	1733.545	1263.782	19.081	0.139	14.113	0.093	17.020	0.107	2.061
1621	1406.259	190.628	19.874	0.368	14.116	0.069	17.123	0.117	2.751
511	713.592	30.133	18.457	0.098	14.116	0.086	16.849	0.103	1.608
1437	1310.603	352.711	19.575	0.283	14.119	0.058	16.925	0.094	2.649
68	126.672	461.665	18.835	0.104	14.120	0.108	17.031	0.113	1.803
1461	1319.806	1044.579	18.591	0.097	14.124	0.056	16.912	0.105	1.679
766	919.979	572.027	19.010	0.114	14.124	0.057	17.019	0.105	1.992
1937	1602.398	303.974	19.521	0.230	14.128	0.071	17.107	0.105	2.414
1895	1572.192	711.363	18.472	0.119	14.129	0.056	17.106	0.098	1.366
137	247.585	594.578	18.831	0.139	14.130	0.099	17.054	0.123	1.777
2057	1708.723	339.791	18.788	0.155	14.131	0.076	17.104	0.129	1.684
2373	2070.382	1405.089	17.889	0.109	14.134	0.128	16.239	0.095	1.649
1413	1296.922	1295.641	17.650	0.120	14.137	0.074	16.635	0.103	1.016
694	863.760	1053.253	18.684	0.126	14.138	0.061	16.591	0.084	2.092

1251	1212.965	1414.014	18.915	0.162	14.138	0.083	17.118	0.141	1.797
2104	1748.973	1248.028	19.045	0.177	14.139	0.086	16.975	0.112	2.070
1770	1496.369	1270.141	18.497	0.138	14.140	0.076	16.915	0.122	1.582
87	164.665	975.298	18.356	0.233	14.143	0.109	16.736	0.148	1.620
817	958.292	690.796	18.251	0.110	14.144	0.064	16.203	0.055	2.048
463	669.802	712.842	18.424	0.154	14.146	0.067	17.000	0.096	1.424
2008	1663.750	1256.439	18.135	0.120	14.148	0.088	16.054	0.073	2.081
569	760.945	439.684	18.949	0.163	14.153	0.068	17.032	0.095	1.917
2304	1972.730	692.445	17.450	0.102	14.153	0.093	15.812	0.094	1.638
1567	1372.312	651.144	19.384	0.376	14.156	0.088	16.338	0.096	3.046
1035	1086.835	385.470	18.472	0.122	14.159	0.062	16.397	0.069	2.076
809	952.723	925.999	18.780	0.125	14.159	0.054	16.827	0.099	1.953
700	867.710	1151.527	19.165	0.220	14.166	0.071	17.122	0.116	2.043
1459	1319.247	483.660	19.283	0.277	14.166	0.066	17.065	0.114	2.217
1863	1545.153	1401.817	18.372	0.129	14.167	0.086	16.881	0.097	1.491
150	264.065	494.799	18.227	0.097	14.174	0.103	16.561	0.097	1.667
1647	1419.098	649.416	18.347	0.115	14.177	0.070	16.945	0.099	1.401
36	62.361	925.952	18.622	0.122	14.180	0.116	16.934	0.141	1.688
217	374.687	478.203	18.233	0.094	14.180	0.091	16.907	0.110	1.326
848	973.910	1456.667	18.946	0.182	14.184	0.084	17.095	0.112	1.850
236	411.827	750.972	17.324	0.112	14.184	0.096	16.251	0.115	1.073
413	624.054	279.155	19.669	0.240	14.184	0.085	17.071	0.094	2.598
92	172.401	1432.046	19.330	0.124	14.190	0.147	16.990	0.109	2.340
2154	1793.871	865.151	18.000	0.097	14.194	0.077	16.192	0.076	1.809
616	794.005	1333.386	18.791	0.142	14.205	0.091	16.924	0.114	1.868
1735	1468.313	592.198	18.888	0.112	14.206	0.062	17.082	0.114	1.806
2210	1847.293	1269.546	19.574	0.168	14.207	0.092	17.136	0.104	2.438
1428	1306.041	1379.353	18.093	0.084	14.209	0.083	16.202	0.079	1.891
1255	1215.053	737.507	18.684	0.107	14.212	0.074	17.057	0.111	1.627
1118	1130.538	1451.307	18.820	0.176	14.213	0.089	17.068	0.108	1.751
194	328.146	1149.342	18.082	0.084	14.215	0.105	16.921	0.107	1.161
476	681.260	592.227	18.500	0.124	14.229	0.076	16.980	0.095	1.520
1650	1420.532	1111.771	18.639	0.130	14.229	0.064	16.857	0.096	1.783
2418	2150.005	8.331	19.303	0.181	14.236	0.128	16.973	0.104	2.330
1901	1575.128	581.482	20.185	0.344	14.237	0.057	17.259	0.126	2.926
2409	2126.946	1014.510	18.648	0.124	14.239	0.165	16.920	0.127	1.729
1921	1590.851	1202.618	19.193	0.118	14.240	0.080	17.103	0.138	2.090
1806	1518.625	640.076	18.433	0.115	14.240	0.063	17.009	0.108	1.424
510	712.709	966.612	18.626	0.132	14.242	0.073	17.073	0.114	1.553
1178	1166.267	810.268	18.600	0.104	14.245	0.079	16.742	0.100	1.858
2422	2155.573	1048.644	18.821	0.103	14.246	0.122	16.896	0.106	1.925
608	789.625	818.485	18.550	0.112	14.251	0.074	16.918	0.090	1.632
1474	1325.309	1294.980	17.337	0.098	14.255	0.079	16.507	0.100	0.830
2351	2038.145	855.523	18.908	0.180	14.255	0.097	17.118	0.105	1.790
40	72.422	664.615	18.697	0.086	14.257	0.106	16.952	0.104	1.746
721	881.238	708.645	19.060	0.145	14.258	0.064	17.067	0.111	1.993
1138	1145.029	776.699	18.357	0.095	14.259	0.076	16.517	0.085	1.841
1249	1212.494	580.476	19.256	0.299	14.259	0.082	16.800	0.113	2.456
2180	1813.224	1098.579	18.147	0.093	14.263	0.086	16.652	0.094	1.495
1136	1143.826	469.360	18.409	0.189	14.264	0.063	16.507	0.096	1.901
155	274.633	982.068	17.744	0.122	14.264	0.105	16.626	0.115	1.118
419	630.489	81.348	19.070	0.225	14.265	0.097	17.221	0.129	1.849
556	749.744	223.884	18.061	0.088	14.270	0.082	16.453	0.093	1.608
1438	1310.687	438.262	18.605	0.156	14.270	0.063	16.741	0.098	1.864
861	980.604	1055.100	19.228	0.118	14.272	0.065	17.116	0.114	2.112
830	966.759	1167.542	18.421	0.178	14.273	0.070	17.012	0.106	1.409
991	1062.325	766.146	18.496	0.121	14.279	0.099	16.569	0.133	1.927
1177	1166.257	767.764	19.040	0.169	14.279	0.079	16.960	0.104	2.080
1867	1547.429	1210.064	19.312	0.140	14.281	0.078	17.221	0.123	2.092
1862	1544.578	181.263	19.144	0.148	14.281	0.086	17.148	0.115	1.995
338	539.517	269.474	20.188	0.358	14.284	0.087	17.410	0.146	2.778
1237	1202.055	723.890	18.771	0.107	14.286	0.078	17.016	0.113	1.756
978	1057.027	644.818	18.801	0.105	14.287	0.072	16.833	0.096	1.968
2133	1774.853	1061.832	19.395	0.205	14.287	0.085	17.153	0.115	2.242
244	423.268	869.989	18.309	0.153	14.290	0.088	16.959	0.108	1.350
220	378.248	969.259	18.546	0.216	14.293	0.094	17.131	0.127	1.415
327	525.716	1007.821	18.529	0.140	14.302	0.085	17.037	0.111	1.493
669	843.372	453.200	18.270	0.079	14.308	0.064	16.909	0.094	1.360
1196	1178.656	1003.830	18.292	0.094	14.309	0.059	16.733	0.108	1.558
1140	1145.601	844.635	18.472	0.111	14.309	0.076	16.536	0.075	1.935
2206	1844.375	779.747	19.063	0.122	14.312	0.085	17.210	0.109	1.853
59	116.621	875.773	18.824	0.177	14.313	0.109	17.149	0.134	1.675
2384	2093.002	1001.981	18.899	0.152	14.314	0.107	17.115	0.156	1.784

281	476.524	262.886	19.018	0.176	14.319	0.097	17.169	0.119	1.849
952	1043.827	842.036	19.295	0.259	14.321	0.072	17.129	0.120	2.166
676	848.177	1073.976	18.955	0.227	14.321	0.072	17.293	0.126	1.662
38	65.405	864.034	18.550	0.114	14.322	0.115	17.126	0.137	1.424
1975	1635.641	1157.055	19.099	0.114	14.323	0.080	17.201	0.114	1.898
1253	1213.964	1185.158	18.212	0.110	14.325	0.071	17.017	0.105	1.195
1297	1237.287	263.087	19.282	0.141	14.328	0.065	17.116	0.102	2.166
1568	1372.741	187.100	19.052	0.121	14.329	0.077	17.161	0.125	1.891
276	473.223	654.194	16.764	0.125	14.331	0.091	16.184	0.138	0.580
2109	1753.055	449.234	18.127	0.098	14.332	0.083	16.290	0.081	1.836
636	817.430	1169.231	18.194	0.140	14.333	0.081	17.077	0.109	1.117
1694	1446.523	1000.052	19.268	0.125	14.337	0.060	17.125	0.121	2.142
1927	1598.273	1431.472	19.267	0.183	14.339	0.104	17.183	0.134	2.084
1888	1564.473	1462.729	18.947	0.236	14.343	0.098	17.088	0.130	1.859
588	778.988	1240.281	19.690	0.397	14.346	0.089	16.738	0.093	2.952
912	1019.072	1107.324	19.259	0.280	14.348	0.063	17.141	0.119	2.118
372	584.505	848.217	19.288	0.187	14.351	0.078	17.234	0.116	2.054
1889	1564.900	895.917	19.712	0.260	14.352	0.066	17.277	0.133	2.435
1624	1407.899	1461.313	19.374	0.204	14.353	0.094	17.291	0.119	2.083
1005	1069.715	1021.325	18.607	0.102	14.354	0.062	16.684	0.082	1.922
1127	1139.910	479.070	19.003	0.160	14.355	0.072	17.139	0.122	1.864
134	242.557	623.965	19.202	0.149	14.355	0.105	17.219	0.121	1.982
629	810.584	1425.478	18.200	0.105	14.359	0.121	16.768	0.111	1.432
1527	1351.270	886.936	19.394	0.280	14.363	0.077	17.062	0.112	2.332
776	927.928	536.063	18.565	0.136	14.364	0.063	16.740	0.092	1.825
1032	1085.013	1129.467	19.392	0.195	14.366	0.062	17.229	0.120	2.163
649	827.434	127.917	19.320	0.318	14.370	0.084	16.982	0.118	2.337
2166	1802.817	777.781	18.434	0.086	14.370	0.081	16.979	0.100	1.455
1769	1496.168	583.283	19.077	0.225	14.372	0.065	16.898	0.099	2.179
2102	1747.372	879.588	18.884	0.120	14.373	0.078	17.267	0.129	1.617
1216	1189.520	5.033	19.401	0.162	14.374	0.086	17.316	0.141	2.085
2235	1871.504	1362.612	18.957	0.159	14.377	0.107	17.042	0.107	1.915
1345	1263.283	170.125	19.084	0.188	14.383	0.076	17.251	0.128	1.832
170	301.935	1184.734	18.374	0.123	14.384	0.121	16.907	0.105	1.467
2425	2162.160	1152.511	19.294	0.132	14.386	0.130	17.109	0.107	2.184
1506	1338.954	273.640	19.317	0.147	14.389	0.069	17.259	0.119	2.058
888	999.772	242.071	19.735	0.212	14.389	0.072	17.287	0.127	2.448
1797	1512.431	806.043	18.540	0.102	14.390	0.066	17.062	0.109	1.478
2350	2037.375	1291.940	19.534	0.144	14.390	0.116	17.221	0.119	2.312
828	966.290	893.895	19.161	0.113	14.390	0.062	17.126	0.103	2.035
1323	1252.580	157.368	18.931	0.161	14.395	0.076	17.203	0.112	1.728
1287	1232.234	709.809	19.264	0.128	14.398	0.081	17.451	0.149	1.812
1120	1131.201	634.314	18.917	0.117	14.400	0.079	17.185	0.134	1.732
230	401.515	1457.027	19.203	0.143	14.401	0.124	16.820	0.102	2.383
295	492.870	1447.993	18.954	0.229	14.401	0.123	17.046	0.123	1.908
880	994.586	543.914	18.660	0.112	14.402	0.072	16.851	0.092	1.809
1200	1180.960	605.960	18.520	0.113	14.406	0.080	16.869	0.099	1.651
2349	2031.894	937.507	17.970	0.102	14.408	0.102	16.516	0.106	1.454
2217	1851.884	680.343	17.657	0.118	14.408	0.083	16.794	0.130	0.863
195	328.944	692.664	19.537	0.236	14.411	0.092	17.288	0.101	2.249
1810	1519.771	962.513	19.378	0.137	14.412	0.064	17.252	0.105	2.126
388	602.954	290.962	19.107	0.174	14.413	0.093	17.305	0.104	1.802
2120	1766.898	25.765	18.991	0.096	14.413	0.119	17.161	0.116	1.830
145	258.437	1162.325	19.149	0.158	14.416	0.122	17.208	0.125	1.941
733	889.853	977.751	18.861	0.084	14.417	0.069	17.059	0.098	1.802
1658	1422.646	669.791	18.482	0.144	14.420	0.076	17.009	0.104	1.473
2125	1772.005	261.054	19.301	0.160	14.421	0.088	17.200	0.102	2.101
1885	1562.188	518.652	18.275	0.145	14.422	0.070	16.365	0.078	1.910
238	413.359	113.067	19.012	0.111	14.425	0.105	17.211	0.120	1.801
1926	1598.086	788.900	19.438	0.153	14.426	0.070	17.374	0.145	2.064
1739	1469.765	477.263	18.189	0.104	14.428	0.068	16.875	0.086	1.315
248	431.994	656.200	17.025	0.142	14.431	0.103	16.349	0.148	0.676
567	760.746	318.679	18.918	0.185	14.433	0.083	17.215	0.129	1.703
1334	1257.082	660.532	19.329	0.156	14.437	0.105	17.210	0.132	2.119
53	98.277	659.979	19.174	0.185	14.447	0.114	17.204	0.129	1.970
1243	1209.393	512.439	18.150	0.087	14.449	0.079	16.653	0.090	1.498
1738	1469.548	194.977	18.985	0.139	14.449	0.099	16.721	0.095	2.264
650	827.608	1296.681	17.749	0.119	14.450	0.090	17.015	0.126	0.733
1101	1124.061	921.870	19.595	0.157	14.453	0.078	17.295	0.134	2.301
429	639.623	614.849	17.935	0.104	14.454	0.085	16.962	0.101	0.972
661	836.633	969.306	18.392	0.129	14.456	0.078	16.534	0.086	1.858
1855	1541.885	1390.533	18.424	0.091	14.457	0.096	17.027	0.111	1.397
666	840.827	262.469	18.521	0.091	14.458	0.077	16.701	0.089	1.820

1640	1415.566	675.564	18.742	0.093	14.458	0.088	17.147	0.110	1.595
906	1013.089	577.434	18.263	0.103	14.460	0.071	16.213	0.076	2.051
1158	1156.420	223.960	19.054	0.105	14.462	0.078	17.271	0.105	1.783
955	1044.289	1221.938	18.284	0.103	14.464	0.074	17.164	0.112	1.119
1311	1247.863	726.800	19.509	0.260	14.466	0.096	17.029	0.125	2.480
1695	1446.783	751.781	17.919	0.113	14.469	0.080	16.940	0.119	0.980
1266	1221.922	538.221	19.310	0.243	14.469	0.080	17.024	0.116	2.286
866	985.836	1240.333	18.524	0.102	14.470	0.080	17.193	0.132	1.331
868	988.295	659.619	19.125	0.103	14.473	0.073	17.153	0.121	1.973
987	1060.806	643.667	18.883	0.130	14.476	0.080	16.968	0.107	1.914
1592	1385.437	517.632	18.301	0.117	14.476	0.076	16.687	0.082	1.614
769	922.772	916.314	18.633	0.168	14.478	0.069	16.292	0.066	2.341
212	365.086	490.356	19.039	0.207	14.479	0.099	17.209	0.120	1.830
47	81.784	615.996	19.179	0.123	14.482	0.118	17.261	0.115	1.917
1732	1466.730	620.689	19.040	0.188	14.484	0.079	17.277	0.113	1.763
794	941.872	1212.547	17.894	0.102	14.486	0.084	16.688	0.108	1.206
190	323.325	912.557	18.799	0.111	14.486	0.100	17.295	0.114	1.503
668	842.907	174.111	19.724	0.280	14.489	0.085	17.365	0.132	2.359
383	594.250	698.049	18.217	0.092	14.497	0.091	16.804	0.096	1.413
1534	1352.790	728.454	19.491	0.268	14.498	0.091	17.163	0.146	2.328
2058	1708.845	825.495	18.716	0.093	14.498	0.076	16.755	0.098	1.961
1104	1124.649	994.769	19.413	0.175	14.506	0.068	17.477	0.139	1.936
253	436.104	1057.876	19.344	0.147	14.506	0.097	17.427	0.127	1.917
748	905.093	72.571	19.269	0.257	14.507	0.087	17.299	0.128	1.970
909	1015.408	1036.396	19.460	0.155	14.509	0.065	17.141	0.118	2.319
967	1050.334	1109.429	19.431	0.154	14.509	0.074	17.114	0.101	2.316
2002	1660.233	602.541	19.628	0.197	14.511	0.075	17.522	0.138	2.106
1490	1331.257	1069.188	19.554	0.345	14.514	0.067	17.407	0.126	2.147
1343	1260.858	1397.865	19.055	0.142	14.516	0.110	17.078	0.113	1.977
552	745.472	559.439	19.922	0.263	14.518	0.074	17.325	0.126	2.597
1156	1155.794	1432.957	18.908	0.265	14.518	0.132	16.732	0.111	2.176
1630	1410.878	1165.127	20.169	0.366	14.523	0.077	17.576	0.159	2.592
89	167.085	158.901	19.141	0.122	14.524	0.117	17.329	0.140	1.812
52	97.663	1098.950	18.858	0.113	14.534	0.130	17.132	0.147	1.726
1992	1651.190	758.562	20.034	0.398	14.535	0.075	17.543	0.145	2.491
1234	1200.185	1371.623	18.424	0.114	14.542	0.091	16.594	0.101	1.830
949	1041.534	1063.972	19.002	0.139	14.546	0.075	17.044	0.079	1.958
1293	1235.932	1048.477	19.761	0.498	14.550	0.069	17.559	0.133	2.203
517	720.005	1115.658	17.603	0.121	14.552	0.090	16.776	0.125	0.827
1737	1469.027	605.312	18.756	0.141	14.552	0.080	17.290	0.112	1.466
1417	1299.254	1405.829	19.754	0.234	14.553	0.095	17.306	0.117	2.448
1504	1338.601	186.030	19.061	0.106	14.555	0.081	17.333	0.125	1.728
1996	1655.517	71.604	18.583	0.153	14.555	0.113	17.095	0.107	1.488
2326	2002.737	901.560	17.606	0.125	14.563	0.109	16.353	0.106	1.253
2205	1843.618	454.036	18.533	0.163	14.563	0.095	16.968	0.108	1.565
2426	2164.490	722.328	19.291	0.269	14.564	0.103	17.435	0.130	1.856
2006	1662.814	436.305	18.394	0.095	14.566	0.087	17.157	0.096	1.237
2378	2084.423	238.567	18.372	0.134	14.567	0.124	16.745	0.108	1.628
1111	1129.227	1260.009	18.266	0.113	14.568	0.082	16.611	0.078	1.655
907	1013.161	810.770	18.819	0.122	14.569	0.070	16.885	0.094	1.933
645	823.905	1348.275	18.538	0.136	14.572	0.104	17.005	0.099	1.534
2398	2115.222	1341.001	18.457	0.104	14.572	0.133	17.111	0.135	1.346
864	984.113	552.697	19.134	0.136	14.572	0.075	17.241	0.132	1.893
543	739.282	1205.141	20.015	0.487	14.575	0.095	17.539	0.150	2.476
1222	1192.840	578.993	19.013	0.104	14.576	0.080	17.093	0.116	1.920
996	1065.487	1198.259	18.802	0.189	14.582	0.083	17.437	0.123	1.365
693	863.097	509.145	18.592	0.192	14.582	0.078	17.221	0.136	1.371
1093	1119.194	847.401	19.436	0.207	14.587	0.089	17.371	0.149	2.065
2208	1846.353	710.376	18.520	0.110	14.591	0.096	17.274	0.115	1.246
1519	1346.834	844.258	19.687	0.412	14.592	0.088	17.237	0.129	2.450
1641	1416.259	942.559	19.274	0.221	14.593	0.078	17.018	0.120	2.257
747	903.428	424.915	18.478	0.133	14.594	0.079	17.181	0.116	1.297
294	491.928	1416.880	18.077	0.072	14.596	0.124	16.419	0.086	1.658
2380	2091.905	1257.286	18.846	0.096	14.596	0.138	17.121	0.127	1.725
814	954.930	592.535	18.748	0.103	14.601	0.082	17.147	0.095	1.601
867	986.267	106.991	18.758	0.151	14.601	0.091	17.305	0.114	1.453
1571	1374.122	844.600	18.394	0.115	14.607	0.091	16.705	0.080	1.688
1364	1273.195	767.128	19.012	0.185	14.611	0.094	16.936	0.113	2.076
1211	1185.258	110.998	19.719	0.243	14.611	0.093	17.425	0.130	2.294
1373	1275.580	404.963	18.829	0.123	14.615	0.082	17.311	0.117	1.518
124	226.323	1364.509	19.512	0.218	14.615	0.134	17.086	0.136	2.426
377	589.817	1287.112	17.840	0.146	14.615	0.109	17.019	0.135	0.821
2077	1723.073	405.950	19.437	0.282	14.620	0.092	17.351	0.131	2.086

131	238.475	883.403	18.290	0.087	14.620	0.112	16.731	0.100	1.559
2114	1759.601	821.765	19.095	0.350	14.623	0.086	17.163	0.103	1.931
451	660.033	1395.836	19.149	0.165	14.626	0.147	17.172	0.117	1.976
396	610.542	165.714	19.439	0.180	14.631	0.108	17.522	0.168	1.917
1390	1282.831	102.064	19.528	0.177	14.631	0.093	17.505	0.118	2.024
1485	1330.494	347.323	18.812	0.103	14.633	0.079	17.245	0.116	1.567
1586	1382.499	1262.265	20.311	0.394	14.633	0.088	17.506	0.110	2.806
2209	1846.951	450.541	18.340	0.095	14.634	0.102	17.037	0.127	1.303
2316	1989.042	1271.270	20.029	0.202	14.642	0.120	17.483	0.158	2.546
1117	1130.341	1087.904	20.192	0.304	14.643	0.075	17.451	0.116	2.741
1137	1144.670	490.577	19.361	0.119	14.646	0.082	17.378	0.128	1.984
822	962.664	112.007	18.596	0.104	14.646	0.097	17.062	0.100	1.534
474	678.859	540.077	19.486	0.255	14.651	0.087	17.516	0.152	1.970
1170	1161.227	1340.946	17.984	0.118	14.652	0.092	16.956	0.122	1.028
91	171.827	918.837	19.412	0.160	14.652	0.114	17.446	0.127	1.966
1326	1253.567	1123.863	18.793	0.111	14.655	0.086	17.326	0.110	1.467
1943	1606.774	415.091	19.049	0.116	14.655	0.085	17.335	0.231	1.714
1055	1101.541	721.438	19.481	0.205	14.657	0.101	17.437	0.167	2.044
577	769.117	1131.218	17.520	0.104	14.658	0.093	17.021	0.138	0.499
984	1059.991	656.417	19.213	0.205	14.658	0.083	17.070	0.107	2.143
1851	1541.331	723.215	19.840	0.379	14.659	0.081	17.251	0.120	2.589
2381	2092.108	82.908	19.553	0.391	14.665	0.136	17.143	0.128	2.410
547	741.383	572.299	18.887	0.157	14.668	0.078	17.080	0.101	1.807
1053	1099.032	1038.672	18.489	0.084	14.668	0.085	17.138	0.106	1.351
1676	1437.289	729.730	18.928	0.144	14.669	0.098	16.898	0.103	2.030
1208	1182.875	318.504	20.158	0.377	14.669	0.076	17.363	0.147	2.795
1681	1441.409	1177.484	19.180	0.249	14.687	0.084	17.437	0.166	1.743
695	864.622	961.225	19.482	0.175	14.689	0.084	17.261	0.120	2.221
897	1004.186	1124.175	19.671	0.197	14.689	0.081	17.406	0.117	2.265
2423	2160.108	1231.304	18.764	0.108	14.692	0.141	17.125	0.106	1.639
898	1004.677	1316.405	19.612	0.177	14.692	0.097	17.619	0.146	1.993
1540	1357.578	830.217	19.203	0.168	14.694	0.094	17.411	0.132	1.791
339	541.090	446.134	19.285	0.235	14.697	0.100	17.356	0.125	1.929
1521	1347.765	1358.414	20.112	0.368	14.702	0.099	17.641	0.135	2.471
1637	1414.083	335.022	18.709	0.095	14.702	0.101	17.114	0.116	1.595
696	865.532	1114.215	19.545	0.309	14.706	0.089	17.633	0.135	1.912
596	783.709	1048.625	18.021	0.113	14.707	0.088	16.988	0.099	1.033
2223	1858.559	555.565	18.229	0.134	14.712	0.101	17.122	0.121	1.107
1999	1658.583	834.507	19.753	0.350	14.713	0.082	17.077	0.119	2.676
647	826.508	782.043	18.564	0.140	14.713	0.084	16.893	0.108	1.671
1700	1450.889	461.913	19.118	0.208	14.715	0.083	17.373	0.148	1.745
2126	1772.190	518.071	18.511	0.167	14.727	0.099	17.214	0.147	1.296
1884	1561.998	841.154	18.403	0.101	14.732	0.083	16.653	0.080	1.751
178	309.213	1278.026	18.773	0.139	14.733	0.120	16.791	0.113	1.982
71	133.348	947.325	19.686	0.206	14.733	0.128	17.518	0.172	2.168
961	1047.292	790.358	19.105	0.117	14.735	0.083	17.196	0.118	1.910
271	462.590	1430.138	18.877	0.119	14.738	0.128	17.284	0.130	1.593
1296	1237.009	1368.016	18.735	0.168	14.743	0.097	17.355	0.143	1.380
1617	1405.223	684.866	19.099	0.230	14.743	0.101	17.435	0.136	1.664
395	610.266	1379.072	18.507	0.113	14.748	0.120	17.393	0.120	1.114
2343	2023.723	1315.637	18.247	0.117	14.748	0.117	16.998	0.121	1.250
1468	1323.651	255.279	19.488	0.220	14.749	0.088	17.536	0.125	1.952
1705	1452.058	230.733	19.101	0.142	14.750	0.092	17.592	0.119	1.509
858	979.645	585.885	19.272	0.119	14.751	0.081	17.403	0.141	1.869
1279	1229.943	171.271	18.859	0.128	14.751	0.096	16.954	0.097	1.905
2124	1771.460	568.185	18.663	0.107	14.753	0.091	17.071	0.146	1.591
2291	1960.535	583.132	18.531	0.103	14.753	0.109	17.221	0.120	1.310
1106	1125.034	186.440	19.477	0.239	14.756	0.096	17.564	0.153	1.913
2095	1742.576	609.398	18.938	0.111	14.760	0.096	17.064	0.102	1.873
121	221.035	1439.439	19.070	0.109	14.762	0.167	17.056	0.123	2.014
1176	1165.710	402.046	18.561	0.115	14.764	0.082	17.040	0.111	1.521
300	498.318	1142.394	18.232	0.156	14.768	0.117	17.195	0.127	1.037
183	317.089	285.282	18.951	0.117	14.769	0.135	17.372	0.155	1.579
2282	1946.701	875.934	18.992	0.234	14.773	0.112	17.296	0.139	1.695
228	396.719	790.311	18.827	0.107	14.776	0.107	17.565	0.149	1.261
324	522.418	5.823	19.000	0.140	14.777	0.106	16.864	0.107	2.136
2068	1715.986	589.236	20.006	0.391	14.781	0.094	17.670	0.181	2.335
1734	1467.666	873.232	19.205	0.246	14.788	0.092	17.437	0.149	1.768
812	953.996	554.579	19.140	0.131	14.793	0.085	17.570	0.129	1.570
2271	1929.678	521.977	17.904	0.092	14.793	0.108	16.648	0.086	1.255
1879	1555.438	1277.625	19.483	0.167	14.793	0.099	17.340	0.113	2.143
382	593.905	1122.373	19.163	0.159	14.794	0.098	17.306	0.124	1.857
118	217.536	1298.135	18.823	0.163	14.795	0.131	17.176	0.127	1.647

1691	1445.654	1081.685	19.315	0.195	14.796	0.087	17.549	0.131	1.766
406	617.058	1113.793	18.099	0.109	14.796	0.105	17.336	0.152	0.764
663	839.278	158.713	18.672	0.097	14.797	0.091	17.054	0.123	1.618
379	590.251	1356.404	20.045	0.332	14.797	0.115	17.653	0.151	2.392
1657	1422.268	1432.843	19.375	0.375	14.797	0.105	17.627	0.160	1.749
698	866.366	773.856	19.307	0.207	14.800	0.085	17.474	0.121	1.833
5	2.803	179.450	18.717	0.156	14.801	0.163	17.082	0.137	1.635
11	9.844	818.851	19.052	0.279	14.805	0.134	17.067	0.128	1.985
537	735.265	767.395	19.081	0.179	14.808	0.089	17.175	0.115	1.906
1404	1289.641	931.666	17.650	0.116	14.812	0.088	16.954	0.104	0.696
744	900.799	51.851	19.913	0.299	14.820	0.102	17.459	0.128	2.454
1098	1121.287	727.431	18.988	0.117	14.822	0.111	17.221	0.127	1.767
1050	1097.377	176.811	18.370	0.149	14.823	0.094	17.268	0.124	1.102
171	302.304	449.218	19.156	0.161	14.824	0.115	17.281	0.118	1.874
589	779.330	43.924	18.907	0.111	14.825	0.110	17.337	0.137	1.570
65	124.668	1150.822	19.280	0.138	14.826	0.134	17.494	0.132	1.787
469	673.846	745.798	19.375	0.185	14.828	0.096	17.289	0.103	2.085
699	866.620	560.543	19.042	0.154	14.830	0.088	17.590	0.156	1.452
292	491.016	866.636	19.592	0.299	14.833	0.107	17.411	0.145	2.181
594	782.943	592.216	19.663	0.316	14.834	0.092	17.312	0.137	2.352
1226	1194.593	661.566	18.669	0.117	14.837	0.124	16.872	0.126	1.796
85	161.450	1026.451	19.098	0.197	14.839	0.121	17.596	0.157	1.502
409	618.418	445.559	17.838	0.115	14.842	0.101	17.234	0.129	0.604
2044	1692.810	986.976	18.387	0.107	14.846	0.092	17.297	0.108	1.090
73	139.024	751.382	18.784	0.114	14.847	0.126	17.129	0.131	1.656
1339	1259.788	1202.186	18.811	0.194	14.849	0.094	17.244	0.113	1.567
165	294.772	1273.798	19.751	0.329	14.850	0.132	17.581	0.123	2.170
730	887.701	597.747	18.640	0.126	14.858	0.089	17.395	0.141	1.245
439	649.973	888.095	18.753	0.158	14.864	0.095	16.918	0.118	1.835
2010	1664.473	954.081	19.143	0.214	14.869	0.095	17.443	0.130	1.700
1656	1422.192	555.800	19.126	0.206	14.875	0.091	17.337	0.133	1.789
386	601.482	242.799	19.600	0.272	14.877	0.107	17.092	0.112	2.508
675	846.888	291.282	18.814	0.179	14.879	0.096	17.301	0.147	1.513
1566	1371.396	910.254	19.372	0.196	14.881	0.096	17.641	0.175	1.731
599	785.296	387.587	19.273	0.298	14.883	0.096	17.139	0.101	2.135
977	1056.883	736.215	19.638	0.221	14.885	0.130	17.140	0.139	2.498
205	352.554	397.274	19.017	0.143	14.886	0.106	17.493	0.149	1.524
1034	1086.606	918.445	19.333	0.138	14.888	0.089	17.291	0.106	2.042
99	179.813	935.031	18.772	0.103	14.890	0.130	17.561	0.156	1.211
1541	1357.752	1011.474	19.130	0.137	14.892	0.086	17.535	0.122	1.595
707	871.776	1357.380	18.047	0.119	14.899	0.125	17.103	0.132	0.944
522	724.119	510.872	18.714	0.119	14.899	0.105	17.206	0.122	1.509
516	718.999	778.968	19.387	0.302	14.900	0.101	17.836	0.205	1.552
630	810.814	230.643	18.277	0.169	14.902	0.102	16.979	0.121	1.298
913	1019.330	423.301	18.948	0.323	14.903	0.112	17.261	0.118	1.687
2345	2027.197	1301.140	18.916	0.108	14.905	0.138	17.330	0.129	1.587
2131	1774.195	778.145	19.404	0.170	14.909	0.105	17.842	0.151	1.562
662	837.839	1433.550	18.681	0.132	14.910	0.121	17.172	0.112	1.509
535	734.669	400.920	18.044	0.117	14.915	0.102	17.095	0.104	0.950
731	889.378	926.941	19.796	0.173	14.915	0.095	17.654	0.135	2.142
538	735.639	784.656	18.774	0.099	14.917	0.096	17.427	0.095	1.347
1300	1240.028	555.473	19.787	0.374	14.920	0.109	17.538	0.209	2.249
590	779.543	1220.887	17.161	0.168	14.924	0.128	16.632	0.140	0.530
1680	1440.385	692.910	18.921	0.199	14.925	0.093	17.380	0.129	1.542
1268	1223.174	1386.284	18.910	0.192	14.926	0.109	17.489	0.138	1.421
506	708.468	413.410	17.681	0.123	14.929	0.107	16.883	0.130	0.797
1971	1631.350	636.541	19.813	0.365	14.935	0.091	16.975	0.102	2.838
1482	1328.789	1327.565	18.950	0.133	14.936	0.102	17.515	0.140	1.435
1151	1148.758	696.007	19.316	0.205	14.936	0.117	17.228	0.143	2.087
1131	1141.345	795.192	19.259	0.148	14.942	0.101	17.534	0.161	1.725
25	44.238	985.323	19.405	0.152	14.943	0.132	17.522	0.111	1.883
2111	1756.669	577.099	18.795	0.162	14.944	0.107	17.329	0.105	1.465
891	1002.270	1344.241	19.304	0.222	14.949	0.114	17.608	0.142	1.697
1077	1111.867	697.375	19.535	0.231	14.960	0.104	17.662	0.145	1.873
2411	2131.926	133.430	19.425	0.266	14.962	0.149	17.275	0.126	2.150
1510	1341.982	985.116	18.880	0.099	14.965	0.098	17.405	0.127	1.475
1957	1617.384	695.140	18.460	0.088	14.969	0.092	17.214	0.104	1.246
1263	1220.339	759.445	18.591	0.089	14.973	0.103	17.358	0.113	1.233
665	840.263	904.464	18.971	0.149	14.973	0.094	17.471	0.142	1.500
1352	1267.549	978.635	19.570	0.146	14.974	0.100	17.335	0.120	2.236
2251	1904.133	780.533	17.524	0.106	14.984	0.110	17.048	0.134	0.476
1019	1075.437	1009.047	19.210	0.174	14.993	0.096	17.549	0.159	1.661
1095	1119.952	698.073	19.392	0.124	14.996	0.106	17.422	0.146	1.970

1452	1316.863	1022.146	20.114	0.379	14.999	0.097	17.499	0.133	2.615	

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ID	X	Y	N	error	V	error	W	err	N-W
148	217.742	799.902	11.491	0.074	7.104	0.087	9.685	0.073	1.806
418	627.201	1967.710	13.097	0.061	7.537	0.118	10.530	0.083	2.567
798	1138.656	263.330	11.286	0.037	7.579	0.119	9.500	0.042	1.786
730	1079.483	254.083	13.133	0.029	7.834	0.067	11.193	0.040	1.939
311	457.041	980.047	11.356	0.063	7.865	0.166	9.328	0.072	2.028
1019	1422.583	1023.791	11.466	0.027	7.901	0.084	9.558	0.031	1.908
633	978.324	687.703	12.056	0.031	8.036	0.063	10.030	0.038	2.026
589	921.665	1035.399	12.263	0.039	8.045	0.058	10.135	0.033	2.129
103	163.387	566.714	11.799	0.078	8.054	0.068	9.872	0.073	1.927
582	915.612	571.897	11.418	0.039	8.424	0.078	9.587	0.051	1.831
1169	1620.247	1365.764	11.708	0.060	8.505	0.056	9.728	0.055	1.980
640	992.329	960.392	12.486	0.030	8.562	0.052	10.488	0.029	1.999
377	562.377	18.865	11.004	0.088	8.585	0.071	9.393	0.106	1.611
1054	1487.436	290.995	13.054	0.040	8.681	0.084	10.985	0.050	2.069
553	872.592	941.915	13.035	0.032	8.708	0.086	10.980	0.031	2.056
1593	2104.171	1433.210	12.276	0.079	8.776	0.086	10.201	0.077	2.075
847	1183.805	1429.824	12.819	0.065	8.783	0.067	10.788	0.057	2.031
1030	1437.290	970.649	13.275	0.034	8.842	0.056	11.180	0.030	2.095
889	1220.657	1113.353	12.790	0.042	8.854	0.083	10.758	0.043	2.033
987	1368.236	1630.334	14.255	0.045	8.955	0.071	11.881	0.055	2.374
971	1335.662	782.191	12.836	0.030	8.993	0.044	10.797	0.027	2.039
1631	2155.728	468.671	15.404	0.082	9.049	0.099	13.262	0.078	2.142
877	1212.685	524.395	13.394	0.044	9.194	0.066	11.286	0.046	2.108
664	1025.447	911.550	13.053	0.026	9.230	0.054	11.053	0.028	2.000
1654	2192.834	1217.032	14.424	0.066	9.334	0.138	11.993	0.087	2.431
785	1128.829	1095.052	13.148	0.033	9.385	0.044	11.143	0.031	2.005
262	364.636	1821.111	13.934	0.079	9.407	0.113	11.639	0.099	2.294
872	1210.822	1763.214	14.387	0.062	9.429	0.093	12.135	0.072	2.252
698	1054.590	1314.231	12.667	0.055	9.438	0.068	10.735	0.049	1.932
1254	1718.695	327.001	12.497	0.054	9.441	0.084	10.515	0.056	1.982
122	187.840	885.116	13.806	0.096	9.470	0.097	11.665	0.088	2.141
266	368.780	1627.627	13.972	0.080	9.642	0.107	11.929	0.091	2.043
865	1205.623	367.133	13.823	0.041	9.697	0.075	11.740	0.053	2.084
1222	1681.625	1343.938	14.061	0.069	9.718	0.062	11.834	0.059	2.227
825	1158.378	1669.677	14.902	0.051	9.752	0.080	12.471	0.062	2.432
1334	1801.012	96.345	14.080	0.076	9.768	0.091	11.938	0.077	2.142
1084	1523.943	879.608	13.646	0.026	9.779	0.053	11.527	0.026	2.119
1484	1964.166	753.973	13.193	0.071	9.831	0.082	11.170	0.067	2.023
801	1140.828	256.773	13.766	0.048	9.910	0.083	11.692	0.061	2.074
778	1122.829	442.702	14.194	0.044	9.918	0.072	12.120	0.052	2.074
593	929.480	92.123	14.334	0.088	9.951	0.080	12.097	0.085	2.237
491	762.619	1641.696	14.969	0.062	10.028	0.103	12.806	0.072	2.162
1642	2169.310	626.078	15.945	0.070	10.044	0.096	13.879	0.071	2.066
563	892.654	1550.675	14.391	0.066	10.058	0.084	12.347	0.062	2.044
728	1079.157	467.592	14.373	0.047	10.067	0.070	12.291	0.055	2.082
1053	1485.583	1026.414	13.906	0.026	10.096	0.058	11.791	0.026	2.114
862	1202.104	1098.811	13.954	0.031	10.109	0.063	11.906	0.031	2.048
463	713.261	1759.151	15.249	0.060	10.160	0.091	12.948	0.062	2.301
946	1292.390	1108.568	13.989	0.035	10.166	0.055	11.895	0.033	2.094
757	1106.167	1096.081	13.798	0.032	10.195	0.061	11.872	0.031	1.926
272	381.123	886.300	14.159	0.078	10.206	0.089	12.081	0.074	2.079
685	1042.446	149.546	14.222	0.038	10.248	0.053	12.197	0.041	2.025
950	1298.923	1103.914	14.130	0.030	10.273	0.067	12.091	0.032	2.039
319	472.861	180.905	14.242	0.075	10.351	0.063	12.137	0.069	2.105
376	562.212	182.027	14.456	0.074	10.361	0.061	12.380	0.067	2.075
1376	1852.842	1483.390	15.391	0.058	10.481	0.085	13.035	0.067	2.355
425	633.818	1820.988	15.117	0.056	10.488	0.085	12.831	0.070	2.286
524	820.018	801.825	14.512	0.030	10.497	0.067	12.398	0.035	2.114
920	1254.038	1174.329	14.063	0.038	10.571	0.064	12.059	0.035	2.004
514	802.574	1619.178	14.617	0.056	10.653	0.094	12.525	0.076	2.092
1477	1958.509	838.121	14.754	0.065	10.670	0.080	12.578	0.064	2.176
195	268.954	620.453	14.851	0.085	10.718	0.071	12.763	0.072	2.088
719	1073.308	283.976	14.695	0.029	10.722	0.057	12.674	0.038	2.022
857	1200.296	55.923	14.383	0.045	10.766	0.059	12.412	0.045	1.971
701	1056.552	666.073	14.920	0.037	10.783	0.053	12.826	0.041	2.094
285	407.477	1866.894	15.753	0.060	10.817	0.107	13.442	0.082	2.311
1656	2197.347	1290.336	15.662	0.068	10.821	0.099	13.353	0.082	2.309
875	1211.275	1705.852	15.611	0.049	10.827	0.078	13.354	0.060	2.258

338	501.504	380.644	14.952	0.066	10.845	0.056	12.858	0.061	2.093
341	504.376	1493.815	14.956	0.062	10.868	0.098	12.910	0.075	2.046
429	640.162	587.661	15.168	0.041	10.884	0.089	13.066	0.046	2.102
814	1147.824	557.034	15.050	0.044	10.897	0.055	12.940	0.047	2.110
273	382.065	1611.269	15.647	0.076	10.903	0.106	13.638	0.083	2.009
637	984.575	969.683	14.281	0.026	10.987	0.057	12.270	0.026	2.012
1039	1462.904	753.432	14.719	0.032	11.010	0.053	12.670	0.033	2.049
602	938.368	167.727	14.494	0.042	11.028	0.055	12.569	0.043	1.924
1644	2172.823	519.105	17.018	0.076	11.063	0.087	15.011	0.073	2.007
727	1078.259	99.248	14.645	0.041	11.101	0.052	12.908	0.042	1.737
855	1197.428	530.575	18.846	0.129	11.115	0.207	17.406	0.130	1.440
1070	1508.190	741.194	14.893	0.034	11.144	0.049	12.840	0.034	2.053
76	132.030	1025.573	15.732	0.090	11.146	0.104	13.362	0.088	2.370
1026	1432.890	1534.770	15.893	0.033	11.151	0.047	13.486	0.041	2.408
1310	1777.389	1129.012	15.059	0.063	11.171	0.059	12.934	0.052	2.125
435	653.191	621.695	14.831	0.043	11.192	0.087	12.854	0.048	1.977
632	977.577	1912.877	16.172	0.050	11.204	0.080	13.858	0.064	2.314
945	1291.879	445.027	15.118	0.049	11.246	0.068	13.094	0.053	2.024
547	862.210	1803.245	16.150	0.056	11.303	0.083	13.861	0.057	2.289
548	862.604	273.325	14.706	0.040	11.309	0.051	12.805	0.039	1.901
1158	1603.128	701.718	18.471	0.094	11.403	0.207	17.782	0.160	0.689
845	1182.559	1673.695	16.072	0.046	11.415	0.070	13.875	0.056	2.197
294	426.796	1825.515	15.227	0.070	11.456	0.099	13.017	0.084	2.210
1192	1657.191	943.292	14.974	0.034	11.483	0.050	12.941	0.029	2.034
1282	1750.260	722.632	14.757	0.044	11.495	0.058	12.771	0.041	1.986
777	1121.269	1150.546	15.342	0.034	11.522	0.068	13.252	0.032	2.090
833	1164.845	244.225	14.887	0.024	11.531	0.050	12.993	0.034	1.893
315	471.078	1268.006	15.265	0.082	11.538	0.089	13.245	0.076	2.020
452	698.294	1851.900	16.371	0.059	11.571	0.078	14.078	0.064	2.293
1297	1764.062	277.681	15.421	0.055	11.589	0.078	13.341	0.055	2.080
35	61.256	55.752	14.271	0.092	11.596	0.075	12.262	0.081	2.009
140	209.879	579.529	15.151	0.093	11.602	0.063	13.148	0.080	2.003
1116	1557.042	1475.371	16.051	0.035	11.634	0.054	13.812	0.044	2.239
1100	1544.449	1750.263	16.550	0.059	11.653	0.080	14.288	0.068	2.262
121	187.732	956.853	14.827	0.090	11.679	0.099	12.876	0.086	1.951
992	1371.892	1239.487	15.149	0.044	11.687	0.063	13.135	0.037	2.014
1516	2002.807	1013.822	15.775	0.071	11.690	0.084	13.634	0.064	2.140
235	325.217	1667.840	16.597	0.073	11.701	0.100	14.310	0.079	2.287
283	399.618	1181.891	15.534	0.082	11.715	0.091	13.569	0.079	1.965
1595	2111.415	852.828	15.193	0.071	11.719	0.088	13.165	0.072	2.028
1448	1932.270	993.470	15.919	0.061	11.744	0.071	13.676	0.057	2.243
406	605.861	1653.385	16.554	0.061	11.744	0.081	14.451	0.068	2.103
1044	1472.397	1603.493	16.461	0.050	11.765	0.067	14.332	0.065	2.129
1027	1433.849	1701.783	16.463	0.059	11.767	0.070	14.239	0.062	2.224
1560	2055.422	1384.547	15.494	0.078	11.795	0.080	13.361	0.074	2.133
660	1022.813	377.350	15.185	0.031	11.798	0.074	13.322	0.041	1.863
668	1030.475	1221.270	15.265	0.043	11.864	0.068	13.280	0.038	1.985
1156	1601.392	1308.248	15.583	0.055	11.866	0.051	13.490	0.050	2.093
858	1200.414	1128.382	17.249	0.115	11.870	0.241	14.099	0.151	3.150
1471	1951.295	1493.072	16.809	0.058	11.919	0.077	14.507	0.066	2.302
848	1183.899	1166.949	15.483	0.053	11.941	0.075	13.074	0.090	2.409
1648	2176.274	686.141	19.413	0.194	11.942	0.101	17.389	0.134	2.024
611	943.946	494.501	15.271	0.039	11.947	0.073	13.562	0.047	1.709
111	172.159	990.373	17.645	0.117	11.948	0.127	15.898	0.107	1.747
486	744.152	1615.800	16.764	0.056	11.954	0.082	14.650	0.063	2.114
510	793.659	18.866	15.722	0.065	11.966	0.061	13.654	0.056	2.068
446	675.711	1894.297	16.397	0.064	11.974	0.079	14.193	0.071	2.204
624	965.683	19.828	15.392	0.054	11.979	0.057	13.470	0.054	1.923
715	1068.497	1017.353	15.089	0.028	12.012	0.068	13.193	0.028	1.896
1046	1478.940	1141.578	15.372	0.034	12.051	0.063	13.392	0.031	1.980
1296	1762.914	593.157	15.780	0.042	12.073	0.064	13.718	0.043	2.062
245	337.991	234.688	15.845	0.104	12.075	0.062	13.748	0.073	2.097
573	902.518	1587.184	16.815	0.058	12.082	0.073	14.774	0.059	2.041
735	1084.276	857.499	15.401	0.028	12.091	0.064	13.530	0.030	1.872
1635	2161.916	610.501	18.104	0.116	12.097	0.080	16.243	0.083	1.862
723	1076.125	1734.957	15.842	0.056	12.099	0.073	13.665	0.065	2.177
1623	2143.767	1076.757	16.706	0.068	12.120	0.087	14.616	0.073	2.090
1327	1794.310	1557.638	16.100	0.052	12.141	0.073	13.900	0.062	2.199
1291	1758.286	812.662	15.812	0.043	12.163	0.052	13.741	0.040	2.071
473	723.234	1689.641	16.428	0.055	12.169	0.072	14.285	0.062	2.143
378	563.026	590.559	14.117	0.048	12.185	0.061	12.256	0.049	1.861
1103	1546.655	1390.625	16.113	0.063	12.186	0.049	13.926	0.049	2.187
1499	1979.913	1055.473	16.074	0.064	12.211	0.075	13.961	0.062	2.113

1141	1589.973	247.662	16.031	0.038	12.215	0.079	13.934	0.045	2.097
1226	1685.725	1448.804	16.252	0.077	12.229	0.063	14.069	0.060	2.183
154	224.612	1116.309	16.201	0.088	12.258	0.098	14.080	0.084	2.121
1220	1681.308	679.835	15.671	0.038	12.262	0.055	13.685	0.040	1.985
1351	1820.720	1377.875	15.128	0.070	12.275	0.070	13.023	0.071	2.105
979	1345.955	1643.485	17.009	0.065	12.283	0.058	14.748	0.056	2.261
621	957.237	325.636	15.549	0.030	12.296	0.040	13.684	0.031	1.865
550	870.014	484.044	15.971	0.034	12.332	0.073	14.010	0.043	1.961
1452	1937.158	995.153	16.803	0.093	12.338	0.093	14.737	0.087	2.067
1325	1791.679	1581.594	17.315	0.076	12.352	0.073	14.958	0.068	2.357
805	1142.567	1607.028	16.960	0.050	12.354	0.056	14.785	0.052	2.175
323	475.958	1971.040	16.311	0.076	12.358	0.099	14.149	0.080	2.162
265	368.643	372.472	16.007	0.078	12.361	0.059	13.990	0.065	2.017
543	847.760	1569.031	17.048	0.058	12.363	0.066	15.050	0.062	1.998
100	161.113	1335.451	15.491	0.095	12.372	0.103	13.367	0.089	2.123
1335	1801.498	1533.883	17.272	0.060	12.377	0.067	15.062	0.062	2.211
182	253.550	544.163	16.405	0.082	12.468	0.060	14.317	0.070	2.088
822	1155.197	981.108	15.817	0.026	12.470	0.079	13.854	0.031	1.963
1227	1686.794	1237.447	16.344	0.056	12.486	0.051	14.198	0.048	2.147
634	979.023	966.416	15.771	0.033	12.491	0.056	13.710	0.027	2.061
1207	1670.348	466.198	16.108	0.037	12.495	0.065	13.992	0.043	2.116
972	1336.709	1194.698	15.887	0.037	12.499	0.068	13.889	0.034	1.998
191	262.935	734.039	15.180	0.084	12.499	0.067	13.266	0.070	1.914
1675	2280.021	1365.266	17.640	0.103	12.512	0.085	15.346	0.093	2.294
996	1382.372	1526.282	17.311	0.048	12.520	0.044	15.094	0.044	2.217
1625	2147.659	613.101	17.712	0.089	12.521	0.079	15.632	0.073	2.080
1172	1625.146	1625.290	16.464	0.058	12.541	0.081	14.719	0.075	1.745
1034	1446.249	1470.841	17.298	0.071	12.542	0.048	15.155	0.058	2.144
305	446.992	320.331	16.185	0.067	12.571	0.053	14.211	0.060	1.974
1476	1957.988	913.397	16.649	0.063	12.586	0.070	14.439	0.057	2.210
631	975.129	1717.204	17.301	0.068	12.615	0.074	15.072	0.062	2.228
36	63.305	1391.248	16.501	0.110	12.636	0.111	14.391	0.097	2.110
495	766.728	1793.358	17.347	0.066	12.646	0.069	15.126	0.061	2.221
878	1214.200	1202.200	15.635	0.038	12.651	0.074	13.729	0.036	1.906
4	-2.829	397.844	16.361	0.093	12.674	0.084	14.445	0.188	1.916
902	1235.724	1076.797	15.729	0.033	12.675	0.090	13.811	0.032	1.917
667	1029.104	1461.389	16.057	0.066	12.689	0.063	13.996	0.060	2.061
1673	2256.690	1327.736	17.926	0.102	12.692	0.085	15.512	0.086	2.414
859	1200.601	946.318	16.154	0.032	12.699	0.079	14.155	0.034	1.999
1483	1962.817	355.816	16.281	0.064	12.718	0.078	14.285	0.060	1.996
914	1247.578	226.882	15.932	0.026	12.723	0.048	14.098	0.033	1.835
570	900.814	1925.866	17.402	0.073	12.731	0.071	15.316	0.069	2.086
1488	1966.611	889.582	16.801	0.070	12.731	0.070	14.577	0.056	2.223
337	498.079	941.631	16.325	0.062	12.735	0.073	14.325	0.059	2.000
740	1089.127	112.244	15.845	0.035	12.737	0.043	13.971	0.036	1.874
468	718.520	1521.896	17.354	0.070	12.743	0.069	15.396	0.064	1.958
1014	1414.189	182.724	15.793	0.030	12.760	0.075	13.912	0.029	1.881
1647	2173.990	736.005	17.976	0.118	12.775	0.089	15.877	0.082	2.099
1618	2134.150	174.165	19.037	0.108	12.804	0.093	17.021	0.114	2.017
1663	2224.602	1230.129	17.598	0.067	12.807	0.083	15.459	0.095	2.139
973	1338.651	1072.341	16.267	0.031	12.817	0.082	14.263	0.030	2.004
1636	2162.641	1131.107	16.758	0.074	12.823	0.081	14.774	0.067	1.984
1619	2135.583	1281.475	17.680	0.091	12.838	0.084	15.530	0.081	2.150
925	1257.085	102.449	16.330	0.041	12.846	0.050	14.388	0.034	1.943
1489	1966.611	1076.894	16.778	0.062	12.849	0.069	14.583	0.059	2.194
760	1107.637	385.495	16.237	0.039	12.858	0.067	14.320	0.049	1.917
693	1049.103	977.186	15.433	0.024	12.863	0.068	14.282	0.029	1.151
538	842.180	1778.590	16.927	0.062	12.867	0.060	14.732	0.063	2.195
330	487.549	1551.812	17.818	0.080	12.869	0.078	15.643	0.076	2.176
592	929.155	1572.153	17.854	0.088	12.888	0.060	15.609	0.067	2.245
1300	1765.708	893.798	15.924	0.048	12.915	0.049	13.896	0.038	2.028
1315	1780.699	1632.190	16.828	0.062	12.928	0.070	14.671	0.066	2.157
1559	2054.327	915.800	14.912	0.074	12.935	0.078	13.004	0.071	1.909
1677	2320.077	1295.558	18.340	0.112	12.936	0.099	15.982	0.099	2.358
290	416.451	1466.041	17.206	0.083	12.939	0.087	15.318	0.073	1.888
1457	1943.107	1466.497	16.163	0.078	12.982	0.094	14.086	0.070	2.076
884	1217.609	1081.001	16.237	0.032	12.985	0.079	14.203	0.032	2.034
117	185.822	51.917	16.803	0.091	12.990	0.071	14.567	0.080	2.236
1025	1429.511	378.521	16.602	0.046	12.997	0.071	14.595	0.049	2.006
916	1250.308	603.893	16.599	0.050	13.014	0.040	14.597	0.044	2.002
487	745.556	1893.989	15.917	0.057	13.021	0.074	13.840	0.066	2.077
1650	2178.079	400.784	19.400	0.125	13.025	0.093	17.294	0.133	2.106
1628	2151.833	1002.402	17.744	0.102	13.046	0.082	15.695	0.078	2.049

975	1341.380	1365.799	16.726	0.057	13.050	0.052	14.673	0.047	2.054
904	1238.624	874.088	16.415	0.033	13.072	0.076	14.455	0.034	1.959
1	-45.857	765.283	16.746	0.079	13.072	0.082	14.505	0.067	2.241
1402	1879.821	1020.863	16.800	0.059	13.074	0.062	14.740	0.054	2.060
989	1369.945	628.091	16.402	0.045	13.089	0.044	14.506	0.044	1.896
1154	1600.642	278.634	16.574	0.038	13.098	0.067	14.555	0.043	2.020
961	1321.635	1603.125	17.501	0.061	13.123	0.052	15.393	0.061	2.108
444	667.647	2004.317	17.807	0.079	13.128	0.086	15.657	0.077	2.149
300	440.068	1067.975	16.710	0.069	13.130	0.078	14.695	0.066	2.015
887	1218.592	230.903	16.431	0.028	13.140	0.052	14.549	0.034	1.883
1666	2231.576	1077.062	17.321	0.075	13.153	0.089	15.346	0.084	1.975
1101	1545.265	706.286	16.459	0.043	13.159	0.047	14.550	0.040	1.909
768	1113.296	253.426	14.772	0.029	13.161	0.044	13.865	0.035	0.907
1298	1764.633	683.127	16.747	0.050	13.161	0.061	14.715	0.043	2.032
1388	1861.811	110.118	18.055	0.075	13.161	0.064	16.200	0.080	1.855
1374	1852.113	48.798	16.697	0.075	13.164	0.059	14.810	0.064	1.886
434	650.478	1294.864	16.895	0.067	13.169	0.071	14.847	0.060	2.048
420	630.564	524.582	16.746	0.050	13.174	0.053	14.824	0.041	1.921
157	227.126	35.474	16.693	0.091	13.191	0.062	14.721	0.064	1.972
1660	2222.532	874.669	18.407	0.116	13.206	0.107	16.476	0.098	1.931
180	249.771	463.937	17.154	0.083	13.208	0.059	15.024	0.072	2.130
676	1032.820	611.065	16.653	0.049	13.235	0.049	14.682	0.044	1.971
169	237.672	530.029	16.999	0.083	13.241	0.059	14.928	0.073	2.071
1676	2304.677	1247.746	17.817	0.080	13.242	0.107	15.672	0.091	2.144
1412	1892.211	1469.551	18.017	0.092	13.247	0.073	15.771	0.075	2.246
128	198.476	1571.092	17.933	0.088	13.249	0.100	15.829	0.102	2.105
1355	1828.828	691.700	16.766	0.053	13.261	0.061	14.705	0.050	2.060
470	720.927	815.008	16.643	0.043	13.263	0.056	14.682	0.035	1.961
657	1020.107	1490.348	17.858	0.068	13.276	0.053	15.737	0.059	2.121
217	296.725	744.966	15.367	0.077	13.279	0.070	13.474	0.066	1.893
113	176.374	987.488	16.890	0.086	13.289	0.091	14.842	0.081	2.048
1128	1574.626	1302.844	16.920	0.057	13.293	0.046	14.870	0.046	2.050
1645	2172.870	1043.528	17.612	0.083	13.302	0.083	15.634	0.075	1.978
879	1214.321	287.583	18.760	0.087	13.304	0.289	17.832	0.154	0.928
183	253.905	1392.910	16.769	0.087	13.304	0.092	14.658	0.081	2.112
139	208.984	1404.676	17.260	0.088	13.312	0.095	15.012	0.082	2.248
162	234.159	1489.569	18.070	0.111	13.339	0.098	15.865	0.102	2.205
1556	2049.373	1153.279	17.137	0.074	13.351	0.074	15.057	0.066	2.080
705	1057.622	909.398	16.600	0.033	13.359	0.069	14.646	0.031	1.954
141	210.269	1675.582	17.511	0.083	13.360	0.102	15.296	0.099	2.215
1235	1698.076	1534.609	17.827	0.066	13.360	0.069	15.526	0.077	2.301
201	278.328	1678.968	17.068	0.072	13.370	0.089	14.938	0.086	2.130
1655	2193.051	947.828	17.589	0.071	13.386	0.087	15.596	0.076	1.994
277	385.667	331.452	16.945	0.077	13.396	0.053	14.958	0.063	1.987
456	707.709	380.817	16.882	0.041	13.397	0.042	14.958	0.036	1.924
1603	2119.193	100.375	17.147	0.080	13.424	0.070	15.055	0.078	2.092
1157	1602.155	1615.087	17.499	0.056	13.425	0.064	15.621	0.070	1.879
436	654.684	239.219	16.358	0.053	13.431	0.047	14.550	0.047	1.808
828	1159.869	552.796	16.436	0.051	13.432	0.043	14.758	0.047	1.677
1612	2126.919	114.648	19.329	0.127	13.435	0.092	17.233	0.123	2.095
588	920.370	1651.047	18.235	0.080	13.436	0.068	15.990	0.093	2.245
1144	1592.848	653.887	15.470	0.037	13.439	0.049	13.542	0.039	1.928
1149	1597.074	1021.135	16.896	0.044	13.440	0.049	14.754	0.030	2.141
893	1224.875	29.426	16.799	0.056	13.446	0.046	14.951	0.043	1.848
1668	2236.699	1121.160	18.267	0.103	13.448	0.085	16.074	0.090	2.193
782	1124.841	316.355	19.625	0.177	13.461	0.156	18.265	0.235	1.360
1244	1709.649	583.057	16.941	0.042	13.466	0.058	14.814	0.040	2.127
1266	1733.989	817.942	16.969	0.052	13.472	0.044	14.907	0.037	2.062
1312	1779.969	469.434	17.247	0.054	13.473	0.061	15.058	0.046	2.190
313	464.374	1833.620	18.093	0.106	13.479	0.108	15.748	0.098	2.345
1652	2185.517	1228.225	18.373	0.111	13.486	0.108	16.168	0.093	2.205
1658	2219.157	995.260	17.876	0.102	13.487	0.104	15.885	0.089	1.990
885	1218.010	809.213	16.839	0.050	13.488	0.068	14.809	0.044	2.030
744	1095.146	437.540	16.149	0.040	13.506	0.057	14.581	0.046	1.569
451	691.654	73.296	17.012	0.071	13.506	0.052	14.972	0.058	2.040
1260	1727.998	1482.913	17.827	0.085	13.510	0.064	15.668	0.074	2.158
1624	2147.142	752.162	17.949	0.107	13.516	0.088	15.911	0.077	2.038
153	224.030	885.813	17.119	0.086	13.524	0.083	15.082	0.076	2.037
304	446.504	618.032	16.858	0.063	13.528	0.054	14.946	0.052	1.912
253	354.532	1853.618	17.845	0.098	13.536	0.094	15.597	0.094	2.248
1633	2159.956	1168.438	18.015	0.097	13.539	0.081	15.876	0.084	2.139
496	767.837	241.904	16.934	0.050	13.543	0.038	15.017	0.041	1.917
1231	1690.972	1263.252	17.214	0.066	13.545	0.048	15.176	0.051	2.037

866	1205.631	1611.295	17.417	0.055	13.547	0.063	15.294	0.058	2.123
1016	1417.393	72.252	16.984	0.053	13.548	0.045	15.042	0.047	1.943
1096	1540.682	1628.524	17.960	0.078	13.558	0.064	15.800	0.077	2.160
308	450.825	1585.214	18.024	0.094	13.559	0.080	16.184	0.094	1.839
1051	1484.204	1152.033	16.971	0.057	13.562	0.059	14.989	0.045	1.982
1640	2167.232	1461.034	18.635	0.102	13.576	0.083	16.466	0.097	2.168
388	578.919	1320.907	17.192	0.069	13.578	0.071	15.185	0.063	2.007
1579	2078.923	961.919	16.537	0.068	13.580	0.078	14.522	0.067	2.015
923	1255.482	188.852	16.754	0.032	13.583	0.049	14.877	0.033	1.878
1002	1393.668	277.695	19.064	0.101	13.586	0.200	17.224	0.115	1.840
1657	2218.738	999.590	17.993	0.102	13.590	0.103	16.082	0.098	1.911
478	730.514	1639.756	18.387	0.090	13.614	0.075	16.119	0.080	2.268
870	1209.361	200.444	18.250	0.078	13.616	0.157	17.615	0.133	0.635
780	1124.045	934.445	16.921	0.033	13.619	0.064	14.969	0.029	1.952
1224	1684.281	1686.181	18.139	0.091	13.620	0.078	15.881	0.092	2.258
921	1254.347	1632.610	18.537	0.113	13.646	0.056	16.201	0.083	2.336
505	785.239	623.359	16.837	0.043	13.647	0.062	14.966	0.045	1.871
1018	1422.208	1368.130	20.199	0.259	13.649	0.215	17.833	0.162	2.367
819	1154.743	343.574	18.744	0.126	13.653	0.144	17.939	0.164	0.805
268	370.179	128.101	17.299	0.073	13.653	0.056	15.206	0.060	2.093
355	526.438	1991.509	18.286	0.117	13.654	0.097	16.068	0.119	2.218
77	132.076	1175.612	16.922	0.093	13.656	0.091	14.794	0.084	2.128
772	1117.751	488.347	17.163	0.055	13.660	0.054	15.177	0.051	1.986
922	1254.402	24.664	17.065	0.057	13.664	0.049	15.111	0.043	1.954
659	1020.960	350.154	19.384	0.134	13.665	0.212	17.993	0.183	1.391
1659	2219.409	1345.825	17.781	0.101	13.674	0.086	15.579	0.086	2.203
453	703.858	1892.573	17.745	0.073	13.678	0.083	15.652	0.082	2.093
49	84.249	351.368	16.609	0.089	13.682	0.074	14.645	0.084	1.965
276	383.269	418.707	17.369	0.075	13.689	0.050	15.308	0.061	2.061
861	1201.735	1807.338	18.084	0.091	13.695	0.073	16.009	0.099	2.075
213	295.071	1610.517	18.500	0.172	13.704	0.098	16.199	0.106	2.301
618	953.931	1360.601	17.119	0.055	13.707	0.058	15.090	0.050	2.030
1308	1775.767	1562.586	18.374	0.083	13.710	0.071	16.073	0.080	2.301
85	143.090	62.115	16.907	0.099	13.710	0.067	14.726	0.079	2.181
489	751.228	1041.327	17.360	0.060	13.713	0.050	15.333	0.044	2.027
1328	1795.034	1240.075	16.609	0.068	13.714	0.057	14.579	0.056	2.030
928	1259.477	668.499	17.255	0.058	13.718	0.045	15.249	0.049	2.006
1490	1968.877	61.970	19.174	0.106	13.718	0.088	16.989	0.104	2.185
1080	1515.361	46.312	17.367	0.068	13.727	0.046	15.279	0.050	2.088
1665	2231.226	976.924	18.774	0.111	13.727	0.092	16.515	0.105	2.259
1369	1847.488	572.824	17.224	0.057	13.730	0.061	15.047	0.047	2.177
732	1081.297	181.539	19.575	0.194	13.742	0.209	18.019	0.191	1.556
1038	1462.848	642.148	16.058	0.041	13.744	0.047	14.785	0.044	1.274
1653	2186.895	1377.217	18.658	0.116	13.746	0.082	16.588	0.101	2.070
1216	1678.995	123.572	16.821	0.059	13.746	0.071	14.924	0.054	1.897
1199	1665.520	1057.708	17.092	0.050	13.753	0.044	15.029	0.037	2.063
1277	1746.848	916.790	16.608	0.057	13.754	0.045	14.583	0.039	2.026
393	586.623	1086.956	17.270	0.069	13.762	0.066	15.298	0.061	1.972
1444	1928.744	1299.385	16.827	0.067	13.763	0.067	14.730	0.067	2.096
1535	2018.364	759.409	17.342	0.070	13.765	0.070	15.274	0.062	2.068
850	1188.161	612.423	17.270	0.057	13.769	0.040	15.299	0.050	1.971
1674	2276.319	1287.912	18.551	0.143	13.793	0.088	16.517	0.131	2.034
475	725.093	1676.499	18.133	0.084	13.795	0.072	16.002	0.084	2.130
706	1058.352	1190.873	16.789	0.045	13.796	0.064	15.001	0.039	1.788
163	234.311	24.553	17.417	0.093	13.803	0.064	15.244	0.071	2.174
344	507.139	1135.481	16.165	0.066	13.806	0.074	14.195	0.064	1.970
1160	1608.863	535.531	15.666	0.039	13.806	0.056	13.769	0.042	1.896
189	258.294	335.506	19.623	0.137	13.807	0.110	17.657	0.140	1.966
1510	1995.577	177.869	16.529	0.074	13.810	0.075	14.555	0.068	1.974
1313	1779.986	580.432	16.502	0.041	13.810	0.057	14.488	0.042	2.014
598	934.521	1561.663	18.939	0.141	13.811	0.069	16.556	0.091	2.383
552	872.061	1786.122	18.470	0.131	13.842	0.078	16.352	0.105	2.118
854	1196.399	830.508	19.256	0.135	13.845	0.148	17.706	0.204	1.550
868	1208.446	1243.562	17.035	0.049	13.848	0.067	15.097	0.040	1.937
1458	1943.332	642.157	17.566	0.072	13.851	0.064	15.415	0.057	2.151
532	831.494	1733.788	18.368	0.112	13.860	0.068	16.270	0.072	2.098
1015	1416.606	1280.137	16.978	0.067	13.867	0.055	15.018	0.045	1.961
908	1242.222	1318.597	17.096	0.057	13.873	0.058	15.070	0.047	2.027
1181	1637.675	1072.127	17.245	0.055	13.875	0.046	15.229	0.037	2.016
1375	1852.810	547.255	16.098	0.053	13.876	0.060	14.102	0.049	1.997
821	1155.077	535.329	17.139	0.055	13.876	0.042	15.254	0.051	1.885
699	1055.292	310.252	18.983	0.113	13.876	0.123	17.447	0.123	1.536
1552	2047.244	1183.528	17.779	0.097	13.893	0.072	15.636	0.079	2.143

940	1283.068	1623.308	18.488	0.116	13.895	0.062	16.236	0.081	2.252
356	527.402	1245.089	17.626	0.080	13.903	0.072	15.477	0.068	2.149
619	954.640	1670.646	18.131	0.096	13.905	0.069	16.180	0.077	1.951
102	162.016	-0.192	17.500	0.122	13.910	0.051	15.662	0.093	1.838
586	919.356	1287.996	16.951	0.056	13.912	0.059	14.952	0.045	1.999
1637	2162.982	875.356	18.388	0.140	13.917	0.085	16.238	0.085	2.150
455	707.439	1927.734	18.514	0.135	13.921	0.087	16.271	0.091	2.243
823	1155.933	201.261	15.141	0.045	13.921	0.057	14.437	0.038	0.704
1206	1670.319	604.502	17.217	0.045	13.937	0.050	15.273	0.042	1.943
467	717.413	1563.844	18.557	0.105	13.950	0.072	16.541	0.094	2.017
421	630.711	924.455	16.503	0.049	13.952	0.056	14.564	0.047	1.939
143	212.125	74.226	17.994	0.092	13.953	0.064	15.782	0.072	2.211
20	29.605	289.969	19.230	0.146	13.953	0.079	16.934	0.093	2.296
353	525.628	36.177	17.545	0.096	13.955	0.058	15.396	0.066	2.149
1345	1812.983	1593.863	18.462	0.148	13.958	0.078	16.268	0.091	2.193
1082	1519.729	1348.645	17.203	0.063	13.964	0.045	15.235	0.051	1.968
439	662.167	1781.373	18.421	0.126	13.965	0.081	16.282	0.085	2.139
301	441.047	1130.623	16.618	0.074	13.967	0.075	14.670	0.066	1.948
1664	2231.175	1279.700	18.814	0.137	13.967	0.092	16.641	0.106	2.173
985	1360.993	596.644	17.174	0.054	13.975	0.044	15.280	0.050	1.894
424	632.678	92.039	17.261	0.066	13.976	0.050	15.218	0.060	2.043
17	24.180	502.233	17.630	0.115	13.984	0.075	15.744	0.087	1.886
365	544.802	465.065	17.252	0.075	13.984	0.041	15.461	0.048	1.791
852	1192.800	963.717	16.757	0.031	13.988	0.075	14.911	0.031	1.845
518	812.150	1619.355	18.607	0.111	13.994	0.072	16.564	0.094	2.042
218	297.218	434.802	16.854	0.079	13.995	0.057	14.917	0.069	1.937
1382	1855.168	999.431	17.296	0.062	13.999	0.054	15.296	0.054	2.000
82	135.921	1200.219	17.702	0.123	14.000	0.091	15.621	0.085	2.081
24	32.373	691.441	16.985	0.087	14.001	0.074	15.040	0.075	1.945
512	794.993	1943.278	18.472	0.095	14.001	0.089	16.281	0.100	2.191
286	408.008	324.288	17.383	0.084	14.007	0.056	15.420	0.065	1.963
86	147.262	734.396	17.583	0.084	14.007	0.071	15.501	0.075	2.082
64	110.746	616.940	18.962	0.146	14.008	0.078	16.719	0.103	2.243
1621	2140.620	764.998	17.942	0.106	14.008	0.093	15.828	0.083	2.114
1661	2224.194	1271.453	18.728	0.097	14.011	0.089	16.627	0.110	2.101
1188	1650.199	1247.407	17.414	0.064	14.013	0.047	15.368	0.050	2.046
630	973.112	1619.873	18.030	0.099	14.018	0.078	16.014	0.088	2.016
328	483.631	1679.705	18.105	0.086	14.024	0.088	16.314	0.095	1.791
55	99.915	201.304	18.002	0.107	14.024	0.069	15.619	0.081	2.382
34	56.122	410.948	19.074	0.175	14.030	0.078	17.034	0.117	2.040
1183	1641.489	1288.933	17.438	0.064	14.032	0.047	15.251	0.051	2.186
408	612.772	99.054	17.583	0.070	14.038	0.055	15.532	0.063	2.051
1505	1988.206	781.937	17.553	0.073	14.041	0.066	15.483	0.060	2.070
901	1235.554	334.480	17.109	0.048	14.042	0.073	15.270	0.051	1.839
1478	1960.967	1167.395	17.754	0.079	14.044	0.064	15.553	0.069	2.201
948	1296.892	886.324	17.201	0.053	14.048	0.081	15.233	0.047	1.967
896	1229.403	926.233	18.559	0.103	14.055	0.292	17.754	0.182	0.805
1501	1984.976	1138.728	17.446	0.073	14.065	0.066	15.478	0.068	1.968
1361	1836.803	552.075	19.735	0.187	14.066	0.128	17.865	0.132	1.870
1531	2015.682	352.760	19.094	0.130	14.066	0.165	17.291	0.121	1.802
1236	1698.513	692.995	17.468	0.050	14.067	0.047	15.384	0.041	2.084
1060	1498.919	648.719	16.819	0.043	14.069	0.047	15.241	0.046	1.578
482	736.244	1435.508	17.692	0.072	14.086	0.066	15.646	0.066	2.046
919	1253.870	287.383	17.015	0.046	14.088	0.075	15.088	0.048	1.926
827	1159.446	531.009	17.536	0.077	14.092	0.043	15.577	0.058	1.959
1342	1811.217	1145.223	17.536	0.068	14.099	0.054	15.506	0.057	2.030
354	525.962	820.424	17.210	0.063	14.104	0.065	15.322	0.057	1.888
302	444.358	1990.445	17.893	0.130	14.111	0.101	15.896	0.100	1.997
22	31.711	100.910	18.114	0.099	14.116	0.073	15.905	0.087	2.209
299	439.451	1026.782	16.753	0.072	14.117	0.074	14.800	0.065	1.952
710	1066.137	1541.487	18.071	0.171	14.119	0.065	16.277	0.106	1.794
386	577.609	91.574	17.695	0.081	14.131	0.053	15.574	0.063	2.121
296	427.953	1494.647	18.341	0.097	14.132	0.089	16.470	0.086	1.872
1118	1558.037	812.302	17.649	0.052	14.134	0.047	15.608	0.042	2.041
1243	1709.341	859.993	17.955	0.069	14.143	0.042	15.741	0.043	2.214
498	771.637	597.530	17.506	0.056	14.144	0.064	15.556	0.049	1.950
1446	1931.283	1063.101	17.703	0.083	14.145	0.060	15.673	0.061	2.030
369	550.416	347.425	18.885	0.125	14.152	0.149	17.892	0.157	0.993
953	1307.625	1088.126	16.594	0.035	14.154	0.086	15.077	0.034	1.517
1319	1788.378	529.299	18.451	0.117	14.157	0.089	16.337	0.072	2.115
1670	2241.040	1036.495	18.945	0.119	14.159	0.107	16.881	0.126	2.064
160	230.080	146.305	18.088	0.098	14.169	0.063	15.878	0.076	2.210
459	711.052	975.823	17.519	0.064	14.178	0.049	15.331	0.046	2.188

1591	2102.428	593.611	17.798	0.091	14.183	0.069	15.635	0.070	2.164
629	973.081	1591.348	18.605	0.093	14.189	0.072	16.537	0.104	2.068
1086	1525.905	991.838	17.676	0.048	14.190	0.066	15.675	0.039	2.000
1121	1564.863	279.937	17.425	0.060	14.196	0.062	15.511	0.051	1.914
309	450.854	1288.007	16.830	0.083	14.198	0.078	14.907	0.070	1.923
627	970.897	1677.588	18.256	0.094	14.200	0.083	16.052	0.075	2.204
1632	2159.424	1338.760	18.743	0.134	14.204	0.090	16.599	0.099	2.144
316	471.186	325.433	18.634	0.125	14.206	0.096	16.790	0.091	1.844
613	944.764	1406.123	16.878	0.062	14.207	0.061	14.950	0.058	1.928
1299	1765.007	449.136	17.642	0.059	14.208	0.060	15.679	0.053	1.963
733	1081.436	1021.776	16.627	0.035	14.210	0.070	15.138	0.034	1.488
1607	2123.952	1380.653	17.869	0.102	14.212	0.075	15.761	0.080	2.108
306	447.419	1493.406	18.880	0.110	14.221	0.094	16.725	0.099	2.155
400	597.994	405.709	17.470	0.061	14.223	0.045	15.545	0.045	1.925
981	1357.336	1422.443	17.379	0.064	14.227	0.047	15.504	0.054	1.875
714	1066.887	380.409	16.769	0.040	14.232	0.076	15.152	0.048	1.617
1142	1590.009	960.768	16.932	0.043	14.234	0.051	14.940	0.031	1.992
2	-31.873	746.790	17.047	0.081	14.241	0.079	14.839	0.070	2.207
653	1010.066	1005.824	17.418	0.052	14.241	0.057	15.566	0.038	1.852
375	561.042	1524.502	18.411	0.110	14.250	0.085	16.455	0.094	1.957
1629	2152.156	1320.158	17.783	0.082	14.256	0.080	15.891	0.087	1.892
1000	1389.863	361.697	17.474	0.056	14.261	0.074	15.683	0.061	1.791
1287	1754.471	666.329	17.349	0.051	14.261	0.054	15.361	0.046	1.988
493	763.618	118.561	16.443	0.059	14.266	0.052	14.577	0.051	1.866
1063	1500.705	114.731	15.988	0.047	14.270	0.046	14.222	0.048	1.765
279	389.256	1631.582	18.538	0.140	14.274	0.100	16.605	0.105	1.932
32	51.643	499.804	16.802	0.091	14.275	0.071	14.872	0.081	1.930
114	179.070	637.731	19.691	0.165	14.277	0.134	17.556	0.124	2.136
289	415.644	1956.859	18.300	0.090	14.279	0.105	16.225	0.101	2.075
333	493.711	1547.025	19.722	0.172	14.284	0.094	17.125	0.124	2.597
1566	2059.598	1131.591	17.917	0.092	14.285	0.070	15.845	0.070	2.072
841	1180.070	198.242	16.741	0.032	14.289	0.050	15.040	0.031	1.701
317	471.370	1733.290	18.861	0.115	14.299	0.093	16.898	0.138	1.962
1191	1655.926	1560.992	18.430	0.106	14.307	0.074	16.410	0.109	2.020
192	264.111	174.199	17.783	0.097	14.309	0.063	15.668	0.067	2.115
1494	1971.245	591.425	17.773	0.069	14.309	0.065	15.627	0.066	2.146
331	488.348	1645.812	19.277	0.121	14.311	0.098	17.101	0.113	2.175
1472	1956.059	904.766	17.755	0.080	14.315	0.064	15.760	0.064	1.995
112	174.492	529.170	17.275	0.086	14.315	0.064	15.336	0.077	1.939
351	523.412	1541.721	18.959	0.127	14.316	0.093	16.970	0.121	1.988
1564	2058.226	1397.670	18.037	0.102	14.317	0.072	15.949	0.081	2.088
6	1.676	805.224	18.344	0.156	14.323	0.083	16.182	0.085	2.161
1240	1708.106	1198.223	16.752	0.060	14.324	0.050	14.747	0.048	2.006
412	621.725	894.932	17.881	0.065	14.325	0.059	15.895	0.054	1.986
1411	1890.489	482.687	16.987	0.061	14.325	0.066	14.945	0.053	2.042
321	474.944	15.462	17.866	0.101	14.327	0.059	15.816	0.072	2.049
970	1335.521	474.193	17.797	0.067	14.330	0.055	15.884	0.064	1.912
186	257.015	597.848	18.101	0.102	14.333	0.092	16.069	0.075	2.033
509	792.004	1772.600	18.421	0.104	14.337	0.086	16.274	0.091	2.147
1512	1997.669	170.469	17.112	0.092	14.337	0.081	15.147	0.083	1.965
204	284.029	240.705	17.658	0.089	14.338	0.058	15.558	0.072	2.100
159	228.723	1016.647	17.713	0.091	14.348	0.086	15.623	0.080	2.090
503	779.976	1608.614	18.953	0.123	14.349	0.091	17.030	0.127	1.923
793	1136.289	237.978	17.248	0.039	14.351	0.041	15.199	0.035	2.048
334	494.162	416.738	17.833	0.086	14.356	0.045	15.610	0.057	2.223
684	1041.362	398.880	16.984	0.043	14.357	0.060	15.143	0.050	1.842
98	160.098	480.392	17.053	0.090	14.366	0.066	15.114	0.075	1.939
1445	1930.669	459.894	17.075	0.073	14.372	0.069	15.052	0.060	2.023
75	128.485	182.594	17.212	0.087	14.372	0.070	15.183	0.073	2.029
1066	1505.825	601.901	19.723	0.175	14.373	0.258	18.003	0.177	1.720
770	1116.481	291.523	18.518	0.089	14.385	0.191	17.538	0.125	0.980
350	521.777	1682.676	18.543	0.103	14.391	0.108	16.635	0.096	1.908
965	1326.680	479.392	17.451	0.062	14.402	0.053	15.621	0.056	1.830
357	528.873	1613.661	19.029	0.146	14.415	0.095	16.869	0.132	2.160
1417	1897.008	1475.558	18.328	0.120	14.417	0.106	16.393	0.117	1.935
1475	1957.970	1091.054	17.894	0.075	14.421	0.063	15.932	0.069	1.962
1455	1942.836	1255.283	18.348	0.095	14.424	0.064	16.050	0.075	2.299
366	547.671	1018.678	17.985	0.073	14.429	0.064	15.894	0.065	2.091
604	939.186	1070.583	17.428	0.058	14.429	0.057	15.556	0.044	1.873
1555	2048.117	991.472	18.593	0.110	14.434	0.068	16.280	0.077	2.313
1671	2249.288	1110.855	19.319	0.211	14.434	0.100	17.222	0.139	2.097
433	645.791	1431.513	17.240	0.066	14.436	0.072	15.232	0.062	2.008
1486	1964.893	23.707	17.656	0.086	14.445	0.063	15.714	0.076	1.942

824	1158.215	198.191	16.392	0.064	14.450	0.058	15.132	0.052	1.261
50	86.425	1244.436	17.980	0.104	14.450	0.094	15.871	0.089	2.108
796	1137.185	636.791	17.518	0.059	14.461	0.045	15.641	0.052	1.877
560	891.173	162.976	17.730	0.059	14.466	0.046	15.870	0.050	1.860
11	8.799	314.176	18.584	0.138	14.469	0.073	16.148	0.088	2.436
216	296.089	669.177	17.762	0.087	14.471	0.061	15.814	0.069	1.948
278	386.848	1670.584	18.759	0.147	14.474	0.115	16.769	0.102	1.990
234	322.565	256.360	17.667	0.084	14.481	0.059	15.783	0.066	1.883
776	1120.942	509.159	17.459	0.070	14.484	0.050	15.733	0.062	1.726
220	298.205	470.992	18.096	0.091	14.494	0.053	16.081	0.070	2.015
78	132.170	1290.656	18.096	0.096	14.497	0.091	16.015	0.084	2.081
392	582.500	1267.750	17.798	0.075	14.498	0.068	15.669	0.068	2.129
1139	1588.035	675.709	17.862	0.080	14.505	0.053	15.898	0.059	1.963
199	275.652	625.233	18.079	0.086	14.519	0.055	15.880	0.066	2.200
1247	1714.653	1041.154	18.137	0.076	14.523	0.048	16.014	0.060	2.123
364	544.021	401.464	17.714	0.063	14.526	0.045	15.835	0.052	1.879
269	372.147	1812.728	17.902	0.123	14.530	0.124	15.873	0.113	2.029
672	1031.987	948.330	17.889	0.107	14.533	0.103	16.889	0.108	0.999
1069	1506.156	1238.566	17.927	0.064	14.534	0.054	15.961	0.054	1.966
43	78.855	495.387	19.748	0.204	14.541	0.104	17.684	0.155	2.064
572	902.077	1488.775	19.284	0.154	14.542	0.090	17.053	0.125	2.231
1089	1530.725	841.365	17.918	0.064	14.545	0.058	15.846	0.046	2.072
368	549.077	1651.222	18.975	0.124	14.545	0.098	16.961	0.114	2.014
1311	1778.687	1469.446	18.861	0.151	14.548	0.080	17.010	0.116	1.851
713	1066.525	123.065	18.018	0.060	14.554	0.045	15.944	0.049	2.074
557	886.917	1618.243	18.176	0.103	14.558	0.093	16.552	0.091	1.623
1198	1661.082	316.673	17.958	0.071	14.560	0.061	15.959	0.053	1.999
282	398.186	938.724	19.524	0.164	14.564	0.138	17.703	0.143	1.822
729	1079.266	810.904	17.223	0.046	14.564	0.063	15.558	0.045	1.665
1301	1766.782	687.159	17.841	0.072	14.567	0.073	15.936	0.068	1.904
1669	2236.927	1040.948	19.600	0.146	14.568	0.109	17.307	0.139	2.293
1592	2102.636	138.357	18.140	0.112	14.571	0.068	15.971	0.083	2.168
379	563.542	1934.798	18.527	0.123	14.573	0.122	16.354	0.093	2.173
211	292.569	367.276	18.047	0.086	14.575	0.056	15.959	0.070	2.087
958	1312.021	199.283	16.300	0.039	14.576	0.050	15.148	0.035	1.152
40	69.402	429.542	17.481	0.100	14.577	0.073	15.555	0.083	1.926
292	422.910	1854.298	19.040	0.160	14.578	0.113	16.786	0.109	2.254
932	1263.902	1138.038	19.666	0.179	14.584	0.154	17.453	0.165	2.213
1150	1597.433	756.135	17.986	0.063	14.598	0.045	15.841	0.047	2.145
73	123.502	402.706	19.641	0.138	14.601	0.155	17.599	0.129	2.042
680	1038.029	470.854	17.056	0.058	14.610	0.060	15.725	0.060	1.332
520	816.620	1159.230	17.763	0.070	14.614	0.053	15.793	0.054	1.970
1550	2045.372	711.185	17.700	0.078	14.615	0.071	15.719	0.068	1.981
480	731.858	486.613	17.900	0.054	14.619	0.053	15.852	0.045	2.048
96	156.359	517.555	18.339	0.123	14.623	0.061	16.401	0.095	1.937
1487	1966.504	654.893	18.012	0.078	14.626	0.065	15.943	0.066	2.069
595	931.278	20.256	18.017	0.088	14.628	0.044	15.996	0.058	2.021
580	912.080	162.507	18.061	0.055	14.631	0.040	16.028	0.051	2.033
559	890.388	562.529	19.585	0.167	14.634	0.211	17.089	0.127	2.496
1469	1949.691	1310.104	17.713	0.078	14.636	0.076	15.565	0.071	2.148
1620	2140.375	729.494	18.558	0.117	14.638	0.097	16.616	0.096	1.942
910	1244.412	376.823	17.495	0.064	14.638	0.063	15.693	0.061	1.803
1029	1436.140	419.026	17.153	0.052	14.639	0.062	15.250	0.054	1.902
5	1.398	1191.328	18.193	0.128	14.642	0.095	16.156	0.101	2.037
1432	1908.163	1121.727	19.261	0.125	14.651	0.080	17.039	0.101	2.222
1514	1998.759	879.991	17.531	0.071	14.653	0.070	15.502	0.060	2.029
1047	1479.135	654.205	17.435	0.057	14.656	0.050	15.506	0.050	1.929
899	1234.096	1039.935	17.424	0.053	14.657	0.090	15.731	0.049	1.693
1582	2082.497	1297.350	18.965	0.209	14.658	0.081	16.785	0.126	2.181
124	190.098	59.261	17.911	0.091	14.659	0.067	15.878	0.079	2.033
465	714.241	49.011	19.327	0.137	14.659	0.088	17.169	0.090	2.158
1427	1906.054	771.914	17.865	0.089	14.660	0.064	15.972	0.071	1.893
1197	1659.838	361.266	17.324	0.054	14.667	0.062	15.384	0.048	1.940
863	1202.879	1066.365	17.566	0.054	14.671	0.095	15.670	0.047	1.897
599	934.755	545.649	17.167	0.058	14.672	0.060	15.565	0.050	1.603
358	529.885	1328.609	18.074	0.088	14.672	0.073	15.911	0.072	2.162
1013	1412.909	218.757	17.840	0.062	14.674	0.064	15.873	0.048	1.967
399	597.541	84.770	17.924	0.080	14.678	0.054	15.756	0.064	2.168
264	366.702	1042.486	19.697	0.189	14.691	0.125	17.901	0.171	1.796
704	1057.588	989.023	17.899	0.057	14.696	0.075	15.986	0.049	1.913
45	81.197	1362.169	18.602	0.114	14.705	0.095	16.456	0.111	2.146
1617	2132.322	961.480	19.374	0.143	14.710	0.097	17.214	0.124	2.160
38	64.675	512.016	18.746	0.110	14.710	0.071	16.539	0.096	2.207

576	909.318	682.668	17.941	0.061	14.712	0.058	16.068	0.054	1.872
1323	1789.476	796.575	18.388	0.078	14.713	0.055	16.265	0.056	2.123
783	1128.189	596.525	19.350	0.164	14.717	0.357	18.611	0.286	0.740
1194	1659.083	1078.572	18.019	0.067	14.718	0.050	15.925	0.050	2.093
506	787.562	1073.898	17.316	0.053	14.720	0.048	15.410	0.042	1.907
1280	1749.564	468.048	18.173	0.079	14.723	0.059	16.014	0.055	2.159
445	675.405	261.610	16.931	0.058	14.725	0.048	15.052	0.046	1.879
1537	2023.451	1214.868	18.276	0.103	14.726	0.072	16.129	0.076	2.147
1602	2115.848	844.946	18.287	0.113	14.729	0.096	16.085	0.087	2.202
1278	1747.533	806.579	18.465	0.080	14.732	0.050	16.291	0.059	2.174
297	431.265	1372.665	17.501	0.084	14.732	0.080	15.493	0.073	2.008
687	1042.609	929.795	18.030	0.065	14.734	0.061	16.030	0.050	2.000
1031	1442.478	926.598	17.691	0.049	14.737	0.079	15.825	0.048	1.867
293	424.161	1577.719	19.009	0.148	14.738	0.112	17.088	0.149	1.921
1238	1701.869	744.555	18.208	0.082	14.740	0.052	16.213	0.061	1.995
194	268.684	118.195	18.378	0.101	14.750	0.063	16.232	0.078	2.146
650	1002.584	1538.640	19.310	0.182	14.752	0.110	17.287	0.155	2.023
1622	2142.013	1207.478	18.657	0.140	14.753	0.096	16.684	0.099	1.973
1363	1837.520	651.806	17.899	0.059	14.756	0.060	15.870	0.058	2.030
1393	1866.744	985.816	18.218	0.078	14.764	0.058	16.197	0.062	2.021
758	1106.936	484.011	17.683	0.066	14.772	0.058	15.869	0.060	1.814
1515	2000.291	1075.694	17.079	0.079	14.773	0.073	15.119	0.063	1.960
752	1101.777	995.897	17.916	0.061	14.778	0.085	15.964	0.051	1.951
1536	2021.584	146.666	19.239	0.142	14.779	0.106	17.558	0.139	1.680
869	1208.902	318.040	17.275	0.053	14.786	0.068	15.564	0.056	1.712
521	817.084	425.543	17.291	0.049	14.790	0.041	15.675	0.042	1.616
1498	1977.092	969.308	18.252	0.084	14.795	0.068	16.212	0.074	2.040
880	1214.753	959.914	17.764	0.059	14.796	0.086	15.842	0.050	1.921
1528	2010.822	892.319	18.212	0.108	14.800	0.068	16.183	0.071	2.029
1597	2113.232	921.081	18.168	0.097	14.800	0.079	16.152	0.085	2.016
1050	1484.157	1016.399	18.507	0.108	14.804	0.082	16.444	0.068	2.064
99	160.463	856.234	19.301	0.147	14.806	0.096	17.107	0.109	2.194
61	107.538	174.247	17.836	0.109	14.810	0.070	15.881	0.079	1.955
1059	1492.935	417.886	17.605	0.054	14.811	0.062	15.819	0.058	1.786
771	1117.727	261.937	17.672	0.051	14.820	0.060	15.546	0.068	2.126
1078	1515.055	1326.075	18.683	0.093	14.821	0.071	16.686	0.083	1.998
523	818.487	1614.368	18.833	0.153	14.824	0.105	16.809	0.131	2.024
834	1167.408	460.564	18.881	0.143	14.834	0.215	17.802	0.158	1.080
1641	2167.865	1010.578	19.596	0.157	14.837	0.093	17.334	0.121	2.262
530	830.125	496.054	20.069	0.254	14.841	0.189	18.169	0.213	1.899
999	1388.829	573.582	17.784	0.067	14.856	0.055	15.942	0.060	1.842
1667	2234.791	1048.191	19.183	0.115	14.863	0.153	17.049	0.128	2.135
1076	1513.380	763.885	18.245	0.083	14.864	0.051	16.188	0.060	2.057
63	109.093	1381.265	19.265	0.173	14.871	0.129	17.091	0.126	2.174
1336	1801.734	933.725	18.156	0.096	14.878	0.054	16.022	0.067	2.134
683	1040.461	1548.176	19.467	0.157	14.882	0.111	17.272	0.162	2.195
1365	1841.727	1010.652	17.998	0.084	14.883	0.061	15.989	0.063	2.009
60	106.999	533.787	18.545	0.117	14.890	0.066	16.385	0.090	2.161
261	363.818	352.699	17.775	0.087	14.892	0.058	15.726	0.073	2.048
526	824.296	576.161	20.300	0.328	14.894	0.220	18.268	0.240	2.032
224	301.360	699.225	17.993	0.108	14.896	0.066	16.193	0.076	1.800
243	330.064	290.946	18.174	0.091	14.896	0.068	16.253	0.080	1.921
215	295.502	91.409	18.701	0.104	14.898	0.066	16.578	0.088	2.123
65	111.434	1088.749	18.532	0.093	14.903	0.097	16.397	0.105	2.135
1522	2009.065	576.645	18.320	0.103	14.905	0.073	16.189	0.077	2.130
897	1233.642	1063.196	17.735	0.049	14.907	0.090	15.888	0.052	1.847
969	1333.216	842.841	17.945	0.072	14.910	0.080	16.044	0.056	1.901
1638	2164.298	1112.793	19.392	0.164	14.912	0.111	17.186	0.137	2.206
1109	1549.011	1258.270	18.220	0.079	14.916	0.055	16.255	0.064	1.965
68	119.653	257.196	18.803	0.097	14.917	0.070	16.614	0.092	2.189
1451	1936.526	589.104	18.632	0.095	14.922	0.065	16.401	0.081	2.231
1482	1961.858	730.505	18.581	0.105	14.922	0.067	16.376	0.082	2.206
92	153.659	957.034	18.200	0.106	14.925	0.080	16.283	0.087	1.917
427	637.170	555.545	18.198	0.056	14.927	0.056	16.334	0.057	1.864
237	326.752	829.079	17.298	0.077	14.927	0.071	15.315	0.070	1.984
1614	2128.791	1008.600	18.493	0.114	14.934	0.107	16.364	0.090	2.129
1545	2042.792	1013.400	18.452	0.099	14.938	0.070	16.427	0.077	2.025
775	1120.058	1502.908	19.036	0.177	14.939	0.101	17.064	0.136	1.973
549	868.227	1341.773	19.675	0.156	14.942	0.211	17.799	0.161	1.875
1329	1795.534	629.451	17.636	0.061	14.946	0.062	15.690	0.052	1.946
1317	1784.922	1321.573	18.028	0.082	14.949	0.067	15.915	0.067	2.113
525	823.404	931.349	18.274	0.100	14.952	0.052	16.299	0.065	1.974
345	508.651	1285.600	18.299	0.094	14.955	0.078	16.321	0.087	1.978

1221	1681.549	590.188	18.491	0.103	14.956	0.058	16.331	0.062	2.160
1339	1804.776	1028.974	17.982	0.089	14.957	0.058	15.975	0.059	2.007
1276	1746.734	331.201	19.214	0.110	14.959	0.100	17.169	0.103	2.046
585	919.291	764.108	18.045	0.085	14.961	0.061	16.272	0.074	1.773
616	953.129	1417.392	17.723	0.087	14.963	0.068	15.774	0.064	1.949
205	284.822	437.165	18.492	0.121	14.964	0.057	16.389	0.088	2.103
21	30.915	327.345	18.534	0.094	14.967	0.076	16.432	0.090	2.102
984	1360.234	195.167	17.705	0.046	14.968	0.057	15.843	0.042	1.862
1574	2072.792	451.856	18.394	0.103	14.969	0.076	16.315	0.077	2.079
888	1218.707	861.500	18.878	0.133	14.972	0.117	16.944	0.094	1.934
1463	1945.617	1478.997	19.020	0.123	14.977	0.098	17.003	0.126	2.017
1242	1708.719	630.500	16.898	0.038	14.992	0.056	15.795	0.048	1.103
1587	2093.874	1013.154	18.996	0.157	14.996	0.075	16.783	0.105	2.213
913	1245.735	451.411	17.038	0.054	14.998	0.061	15.849	0.062	1.189
1589	2095.366	1283.730	18.587	0.098	15.000	0.078	16.488	0.094	2.100
83	137.414	1271.149	17.999	0.088	15.008	0.088	16.056	0.084	1.943
179	249.665	187.431	16.891	0.085	15.008	0.071	14.860	0.065	2.031
56	100.775	649.117	18.442	0.094	15.009	0.083	16.507	0.099	1.934
19	27.636	676.857	18.687	0.111	15.009	0.082	16.530	0.093	2.157
1627	2150.156	1103.980	19.541	0.165	15.010	0.170	17.671	0.140	1.870
741	1090.156	614.799	16.837	0.053	15.011	0.054	15.743	0.057	1.093
1378	1853.237	963.997	17.913	0.087	15.011	0.065	15.999	0.063	1.914
1611	2126.754	435.766	18.246	0.077	15.011	0.066	16.187	0.071	2.059
762	1107.995	1304.020	17.908	0.070	15.012	0.066	16.033	0.059	1.875
1590	2096.257	609.937	18.567	0.104	15.015	0.076	16.430	0.079	2.136
534	837.484	666.090	17.786	0.062	15.016	0.065	15.883	0.054	1.903
79	134.025	629.762	17.735	0.101	15.020	0.072	15.910	0.079	1.824
956	1311.516	371.793	17.890	0.061	15.022	0.068	15.980	0.067	1.910
1214	1676.116	1216.095	17.624	0.078	15.027	0.052	16.044	0.062	1.580
494	764.413	699.423	18.013	0.076	15.031	0.067	16.095	0.059	1.918
1521	2008.692	1228.073	18.569	0.091	15.031	0.079	16.517	0.094	2.052
1390	1862.773	258.423	18.232	0.092	15.032	0.074	16.178	0.075	2.053
271	375.999	423.321	18.829	0.111	15.040	0.059	16.667	0.086	2.161
1237	1701.152	1079.209	19.257	0.123	15.047	0.080	17.217	0.125	2.040
1500	1983.901	16.344	18.401	0.122	15.051	0.073	16.537	0.092	1.865
606	940.071	325.456	17.018	0.039	15.058	0.043	15.782	0.044	1.236
1403	1879.882	472.690	18.274	0.103	15.058	0.068	16.356	0.075	1.918
759	1107.513	121.779	17.289	0.054	15.060	0.048	15.693	0.039	1.596
275	382.295	1448.404	18.255	0.110	15.063	0.082	16.328	0.091	1.927
974	1341.166	766.959	19.407	0.199	15.065	0.141	17.149	0.133	2.258
18	27.451	628.670	19.153	0.175	15.071	0.071	16.823	0.109	2.330
133	201.836	1398.478	18.585	0.109	15.073	0.112	16.541	0.114	2.044
1453	1938.618	895.189	18.508	0.101	15.077	0.080	16.492	0.089	2.016
415	625.025	1498.577	19.532	0.167	15.086	0.132	17.348	0.135	2.184
116	180.284	448.995	18.751	0.161	15.086	0.063	16.572	0.093	2.178
347	514.459	1011.024	17.318	0.068	15.089	0.073	16.143	0.070	1.175
1431	1907.868	1410.255	19.327	0.161	15.089	0.101	17.266	0.145	2.061
1290	1757.018	1285.009	18.757	0.103	15.094	0.093	16.836	0.105	1.921
1605	2122.549	1460.148	19.002	0.132	15.097	0.078	16.703	0.100	2.299
1419	1899.939	580.081	18.131	0.089	15.101	0.066	16.294	0.077	1.837
360	537.721	1644.740	19.035	0.160	15.107	0.136	17.454	0.161	1.582
1083	1519.896	243.016	17.201	0.046	15.114	0.071	15.316	0.046	1.885
529	828.362	1475.287	19.403	0.247	15.116	0.115	17.380	0.159	2.023
1368	1844.379	1224.089	18.518	0.105	15.117	0.066	16.492	0.080	2.026
1185	1645.854	776.020	18.452	0.077	15.117	0.052	16.488	0.071	1.963
712	1066.245	1226.244	18.248	0.072	15.117	0.075	16.404	0.076	1.844
1491	1969.626	1016.335	18.593	0.125	15.119	0.071	16.634	0.090	1.960
181	252.350	821.280	18.264	0.102	15.124	0.084	16.382	0.086	1.882
608	940.647	142.938	18.170	0.082	15.125	0.064	16.228	0.074	1.943
1583	2084.933	578.411	18.940	0.118	15.125	0.103	17.162	0.110	1.778
58	103.551	267.486	18.746	0.101	15.125	0.071	16.573	0.091	2.173
1662	2224.295	1037.545	19.349	0.225	15.126	0.152	17.276	0.149	2.073
1064	1502.155	721.480	17.982	0.073	15.126	0.054	16.080	0.056	1.901
820	1154.793	497.366	17.175	0.054	15.128	0.060	15.780	0.054	1.395
689	1045.475	1440.092	18.106	0.098	15.129	0.066	16.111	0.068	1.995
1643	2172.507	1155.069	19.864	0.217	15.131	0.115	17.615	0.124	2.249
1112	1553.099	118.802	18.123	0.070	15.135	0.068	16.260	0.064	1.863
900	1234.921	1083.673	18.166	0.082	15.139	0.098	16.154	0.070	2.013
14	18.150	445.968	18.700	0.112	15.142	0.080	16.762	0.093	1.939
1233	1692.712	639.305	18.009	0.069	15.146	0.064	15.857	0.052	2.152
915	1248.181	536.217	19.335	0.132	15.150	0.200	18.051	0.185	1.284
874	1211.078	712.992	18.165	0.099	15.152	0.060	16.263	0.068	1.903
1616	2129.512	521.488	18.356	0.107	15.157	0.125	16.472	0.090	1.884

380	565.679	633.108	18.401	0.084	15.157	0.072	16.508	0.076	1.893
1576	2077.656	442.390	18.738	0.129	15.157	0.077	16.699	0.089	2.039
807	1143.609	1294.696	19.283	0.145	15.160	0.209	17.847	0.177	1.436
172	241.600	508.665	18.401	0.104	15.161	0.074	16.465	0.100	1.936
700	1055.823	1078.674	18.119	0.086	15.161	0.077	16.251	0.063	1.867
1406	1884.923	582.466	18.654	0.089	15.164	0.066	16.534	0.082	2.121
57	101.556	1372.447	18.784	0.110	15.175	0.097	16.549	0.108	2.234
669	1030.556	1077.888	17.871	0.071	15.176	0.057	16.028	0.055	1.843
746	1096.411	558.324	18.645	0.136	15.176	0.173	17.524	0.155	1.121
1189	1654.867	1094.586	18.906	0.106	15.178	0.057	16.710	0.073	2.196
281	398.142	1311.273	18.223	0.108	15.180	0.081	16.353	0.086	1.870
173	243.787	512.589	18.116	0.098	15.190	0.082	16.115	0.079	2.002
894	1226.270	955.250	17.437	0.050	15.191	0.111	15.936	0.051	1.501
150	219.309	1354.281	19.419	0.198	15.191	0.131	17.532	0.117	1.887
1639	2164.857	1028.320	20.045	0.255	15.196	0.130	17.810	0.155	2.235
231	321.020	1304.635	19.062	0.142	15.196	0.105	17.294	0.123	1.768
457	710.147	719.389	17.991	0.069	15.200	0.067	16.165	0.063	1.827
579	910.605	1102.798	18.593	0.100	15.204	0.126	17.593	0.125	1.000
816	1149.117	212.004	16.518	0.109	15.213	0.048	15.591	0.062	0.928
934	1266.741	437.729	17.661	0.068	15.213	0.067	16.028	0.066	1.634
903	1236.902	1216.328	19.356	0.209	15.214	0.213	18.040	0.217	1.316
13	15.538	289.337	19.195	0.118	15.214	0.085	16.859	0.106	2.336
1480	1961.317	776.066	18.888	0.104	15.215	0.071	16.710	0.090	2.177
976	1343.153	838.484	18.128	0.077	15.216	0.086	16.297	0.061	1.832
614	945.310	1071.794	19.346	0.166	15.216	0.183	17.812	0.199	1.534
853	1195.880	237.961	16.748	0.041	15.217	0.052	15.939	0.053	0.809
826	1158.903	627.134	18.632	0.104	15.220	0.198	17.712	0.130	0.921
581	914.548	834.367	18.386	0.094	15.228	0.057	16.418	0.067	1.968
1395	1871.572	386.245	18.782	0.085	15.230	0.100	16.602	0.089	2.180
906	1241.020	1351.019	18.347	0.092	15.235	0.065	16.441	0.078	1.906
578	910.443	85.383	17.564	0.058	15.241	0.059	15.648	0.052	1.916
670	1030.998	1407.043	18.946	0.121	15.242	0.099	17.198	0.115	1.748
93	153.905	592.612	18.385	0.097	15.247	0.065	16.184	0.088	2.202
144	212.491	217.995	18.968	0.111	15.250	0.068	16.695	0.095	2.273
694	1049.596	983.041	18.124	0.084	15.258	0.097	16.292	0.068	1.832
207	285.941	1119.509	18.654	0.102	15.259	0.114	16.813	0.100	1.841
1479	1961.119	459.852	18.792	0.087	15.260	0.077	16.725	0.091	2.066
856	1197.694	1082.700	19.426	0.163	15.261	0.141	17.381	0.135	2.046
1062	1500.634	656.730	18.412	0.095	15.262	0.059	16.475	0.069	1.937
387	578.109	509.911	18.261	0.076	15.264	0.102	16.249	0.056	2.012
1117	1557.866	534.317	18.504	0.094	15.265	0.066	16.544	0.077	1.960
1009	1406.179	364.676	16.765	0.042	15.267	0.078	15.861	0.062	0.904
1626	2149.592	790.266	18.931	0.124	15.268	0.120	16.971	0.113	1.960
190	259.696	1284.714	19.623	0.140	15.271	0.115	17.472	0.127	2.151
187	257.314	823.356	17.818	0.092	15.271	0.084	15.864	0.078	1.954
322	475.197	1030.738	19.457	0.132	15.276	0.115	17.294	0.135	2.163
1177	1631.535	210.068	19.934	0.216	15.277	0.124	17.848	0.133	2.087
431	642.730	632.116	18.357	0.080	15.278	0.073	16.471	0.067	1.886
590	921.820	934.734	18.293	0.087	15.279	0.064	16.415	0.067	1.878
196	272.963	1230.398	18.710	0.109	15.286	0.087	16.664	0.097	2.046
320	474.261	377.453	18.080	0.066	15.289	0.054	16.416	0.078	1.664
1630	2152.877	1118.520	19.686	0.216	15.289	0.121	17.545	0.145	2.141
1424	1903.557	1025.946	18.874	0.094	15.289	0.069	16.726	0.084	2.147
249	340.041	280.907	18.129	0.112	15.292	0.055	16.128	0.076	2.000
790	1134.450	447.542	17.802	0.072	15.294	0.071	16.259	0.072	1.543
1513	1998.562	1019.478	18.716	0.162	15.294	0.109	16.709	0.137	2.007
646	995.793	632.571	20.087	0.227	15.295	0.244	18.394	0.273	1.693
336	497.939	1230.048	19.635	0.148	15.300	0.104	17.473	0.119	2.162
230	316.043	1297.127	19.480	0.164	15.303	0.244	17.711	0.165	1.769
1131	1580.229	170.728	17.511	0.071	15.304	0.072	15.602	0.057	1.909
643	993.307	1387.158	18.074	0.094	15.304	0.069	16.094	0.067	1.981
882	1216.759	986.545	17.854	0.063	15.305	0.098	16.149	0.057	1.705
716	1070.844	320.949	17.735	0.051	15.305	0.057	15.965	0.050	1.770
287	409.108	1364.935	19.132	0.128	15.306	0.124	17.314	0.122	1.818
26	36.375	670.233	18.777	0.116	15.307	0.077	16.663	0.095	2.114
1184	1644.779	1337.693	18.625	0.147	15.308	0.060	16.474	0.079	2.151
1350	1819.129	1250.957	19.364	0.153	15.310	0.123	17.441	0.145	1.922
84	137.708	1245.264	20.005	0.216	15.310	0.145	17.833	0.164	2.172
1275	1745.807	1265.128	19.312	0.165	15.311	0.103	17.624	0.142	1.688
383	569.365	1283.804	20.270	0.301	15.314	0.166	17.946	0.188	2.324
988	1368.821	895.174	19.601	0.151	15.318	0.250	17.997	0.184	1.603
658	1020.596	1084.287	17.499	0.054	15.319	0.069	16.131	0.056	1.369
516	809.470	591.744	18.555	0.097	15.321	0.071	16.634	0.080	1.920

174	247.189	723.158	19.033	0.113	15.322	0.070	16.792	0.120	2.241
1250	1716.630	1080.662	19.506	0.156	15.323	0.090	17.409	0.129	2.096
832	1163.418	853.541	17.747	0.057	15.326	0.086	16.221	0.058	1.526
236	326.227	1355.315	19.739	0.167	15.327	0.118	17.502	0.140	2.237
1423	1903.018	1271.730	18.308	0.075	15.328	0.078	16.196	0.077	2.112
335	495.416	993.818	17.972	0.079	15.331	0.078	15.977	0.072	1.994
225	302.962	690.879	18.475	0.112	15.332	0.071	16.631	0.089	1.844
937	1278.471	856.352	18.405	0.086	15.332	0.097	16.573	0.079	1.832
1467	1947.061	952.242	19.738	0.180	15.335	0.101	17.662	0.163	2.076
584	919.015	1255.695	17.684	0.069	15.337	0.160	17.224	0.116	0.460
949	1298.696	1298.040	18.201	0.076	15.338	0.069	16.361	0.068	1.840
1358	1833.180	1098.218	19.679	0.195	15.344	0.127	17.550	0.143	2.129
1195	1659.140	211.620	18.202	0.075	15.344	0.072	16.357	0.067	1.845
761	1107.977	198.097	17.815	0.067	15.346	0.056	16.267	0.054	1.548
226	303.602	1332.010	18.658	0.106	15.348	0.100	16.542	0.099	2.116
1386	1860.380	854.277	18.613	0.092	15.349	0.067	16.804	0.086	1.809
67	118.369	1332.079	18.796	0.147	15.349	0.098	16.669	0.098	2.127
1309	1777.042	706.958	19.902	0.165	15.349	0.129	17.622	0.148	2.280
1443	1928.713	1289.431	18.888	0.179	15.350	0.075	16.714	0.096	2.173
1441	1926.672	796.535	18.346	0.090	15.351	0.083	16.377	0.084	1.970
779	1123.037	518.758	18.419	0.093	15.355	0.063	16.506	0.079	1.913
927	1258.675	893.863	20.050	0.252	15.356	0.235	17.993	0.220	2.057
502	777.621	1181.521	18.047	0.076	15.357	0.071	16.163	0.059	1.884
241	328.883	1346.806	18.916	0.125	15.358	0.092	16.831	0.095	2.085
449	681.393	746.699	18.241	0.075	15.359	0.072	16.397	0.059	1.844
1182	1640.109	990.578	20.253	0.250	15.359	0.176	18.148	0.188	2.105
1187	1649.771	382.938	19.869	0.182	15.360	0.100	17.620	0.158	2.250
164	234.321	233.977	18.720	0.098	15.360	0.072	16.752	0.086	1.967
1405	1883.369	71.482	18.339	0.098	15.361	0.067	16.329	0.077	2.009
1646	2173.606	1143.399	19.911	0.283	15.362	0.134	17.820	0.177	2.092
905	1240.964	1072.570	18.306	0.084	15.363	0.096	16.542	0.079	1.764
1041	1469.557	802.505	17.952	0.064	15.367	0.072	16.388	0.061	1.565
835	1170.458	922.604	19.489	0.185	15.368	0.284	18.186	0.245	1.304
244	336.438	760.055	19.312	0.171	15.370	0.126	17.545	0.133	1.766
574	903.073	164.511	18.417	0.078	15.376	0.045	16.516	0.063	1.901
1496	1974.090	830.288	20.029	0.173	15.378	0.128	17.779	0.153	2.251
1534	2017.610	623.051	18.824	0.110	15.384	0.077	16.857	0.096	1.968
1392	1866.037	1023.189	18.772	0.124	15.385	0.071	16.731	0.091	2.041
955	1310.809	1094.543	18.213	0.093	15.385	0.098	16.348	0.068	1.865
873	1210.896	438.917	18.268	0.095	15.387	0.069	16.385	0.069	1.883
1409	1888.696	469.603	18.632	0.077	15.387	0.075	16.607	0.081	2.025
1324	1791.029	1383.031	18.329	0.099	15.388	0.078	16.300	0.085	2.029
72	122.884	214.432	18.338	0.084	15.388	0.080	16.238	0.083	2.100
340	504.096	1365.903	18.606	0.110	15.393	0.083	16.735	0.099	1.871
1356	1829.863	817.758	18.583	0.096	15.393	0.067	16.597	0.070	1.986
129	199.224	570.363	18.349	0.090	15.394	0.077	16.525	0.094	1.824
137	207.060	375.471	18.739	0.100	15.394	0.071	16.758	0.091	1.981
1165	1616.495	205.945	18.842	0.103	15.395	0.070	16.842	0.087	2.001
209	291.031	262.033	18.661	0.098	15.396	0.060	16.775	0.096	1.886
1473	1956.656	690.921	18.704	0.111	15.397	0.076	16.674	0.079	2.030
665	1026.877	591.326	17.302	0.053	15.402	0.068	16.158	0.061	1.144
1649	2177.799	1287.264	19.760	0.159	15.403	0.134	17.479	0.130	2.281
12	14.813	383.312	18.272	0.105	15.404	0.089	16.338	0.088	1.934
662	1024.005	1317.520	18.832	0.129	15.407	0.069	16.758	0.088	2.074
784	1128.422	1370.938	18.913	0.130	15.408	0.101	16.948	0.114	1.965
389	579.212	1122.361	18.777	0.119	15.408	0.072	16.799	0.088	1.978
1508	1989.281	1197.440	18.326	0.091	15.410	0.074	16.433	0.085	1.893
917	1250.707	1123.740	18.165	0.079	15.410	0.105	16.369	0.069	1.797
1068	1506.099	670.438	18.183	0.082	15.411	0.067	16.242	0.066	1.941
1442	1927.287	1163.359	19.629	0.245	15.412	0.140	17.717	0.147	1.912
149	218.578	385.549	18.401	0.098	15.413	0.065	16.425	0.087	1.976
118	186.362	107.140	18.185	0.119	15.413	0.076	16.167	0.082	2.018
566	898.636	70.187	17.487	0.058	15.414	0.062	15.614	0.051	1.873
994	1377.392	1217.628	19.482	0.136	15.418	0.213	17.350	0.116	2.132
692	1048.905	1147.653	17.445	0.060	15.420	0.070	16.139	0.061	1.306
671	1031.770	1084.440	19.870	0.179	15.423	0.176	17.787	0.232	2.083
1042	1470.614	382.847	17.862	0.078	15.424	0.076	15.941	0.061	1.921
499	773.969	732.661	19.201	0.091	15.424	0.107	17.246	0.109	1.955
52	94.048	978.806	18.936	0.165	15.430	0.096	16.753	0.098	2.184
1495	1973.593	1271.596	19.905	0.237	15.431	0.137	17.993	0.160	1.912
1430	1907.818	720.686	20.259	0.204	15.432	0.129	17.798	0.138	2.461
1037	1458.750	1165.491	18.466	0.107	15.433	0.082	16.436	0.065	2.030
193	268.569	1274.255	18.343	0.115	15.435	0.086	16.218	0.090	2.125

1283	1751.663	856.791	18.700	0.089	15.437	0.062	16.650	0.083	2.050
440	664.588	1386.296	20.077	0.239	15.437	0.102	17.444	0.134	2.633
178	248.489	345.955	18.285	0.131	15.443	0.067	16.270	0.083	2.015
1506	1988.338	1302.253	19.199	0.166	15.446	0.078	16.874	0.097	2.326
1273	1743.920	1247.412	19.553	0.207	15.446	0.113	17.789	0.158	1.764
1218	1680.596	675.129	18.132	0.105	15.447	0.120	16.165	0.070	1.967
931	1263.386	1376.805	18.678	0.122	15.448	0.072	16.680	0.085	1.998
202	281.559	1127.364	19.873	0.203	15.455	0.116	17.480	0.156	2.393
1316	1781.365	600.991	19.673	0.200	15.455	0.155	17.782	0.171	1.892
1581	2080.858	1144.942	19.020	0.099	15.457	0.083	16.869	0.099	2.151
806	1142.634	1268.436	18.769	0.092	15.457	0.078	16.779	0.088	1.990
41	77.397	590.510	18.687	0.121	15.461	0.075	16.872	0.097	1.815
214	295.126	1202.107	19.398	0.148	15.461	0.119	17.466	0.118	1.932
132	201.048	480.772	18.338	0.101	15.461	0.073	16.283	0.088	2.055
246	338.106	419.615	18.960	0.135	15.462	0.064	16.774	0.096	2.186
967	1331.573	760.502	18.515	0.114	15.463	0.074	16.445	0.073	2.070
374	557.019	891.326	18.281	0.110	15.463	0.078	16.505	0.081	1.777
251	344.996	1288.674	19.128	0.132	15.463	0.123	17.421	0.135	1.706
44	79.781	213.814	18.453	0.124	15.464	0.094	16.234	0.091	2.219
270	372.451	178.255	19.065	0.125	15.465	0.063	16.924	0.096	2.141
126	192.558	348.226	18.262	0.119	15.465	0.069	16.401	0.086	1.860
1305	1772.118	1078.154	19.707	0.178	15.465	0.152	17.898	0.184	1.809
556	884.968	805.873	18.593	0.107	15.466	0.069	16.527	0.076	2.067
74	127.782	1394.398	18.559	0.106	15.469	0.099	16.436	0.099	2.123
682	1039.265	1083.259	17.470	0.052	15.475	0.076	16.321	0.064	1.149
371	553.729	1339.868	19.034	0.106	15.485	0.112	17.282	0.127	1.752
108	168.123	294.211	19.371	0.111	15.489	0.068	17.149	0.099	2.221
142	211.552	1112.388	19.413	0.206	15.490	0.103	17.017	0.108	2.396
16	22.773	1346.265	18.633	0.116	15.492	0.100	16.758	0.144	1.875
867	1207.812	1217.219	19.771	0.199	15.494	0.226	17.859	0.196	1.912
1217	1680.361	640.730	18.053	0.076	15.495	0.072	16.139	0.059	1.914
603	938.726	451.033	18.683	0.099	15.497	0.075	16.628	0.089	2.055
1138	1586.583	346.984	20.279	0.222	15.500	0.147	17.992	0.160	2.286
62	108.819	1257.836	19.482	0.241	15.501	0.133	17.621	0.137	1.861
1088	1530.619	776.630	18.457	0.076	15.503	0.066	16.638	0.072	1.819
1437	1916.155	1393.594	19.974	0.188	15.505	0.110	17.611	0.130	2.363
422	631.812	344.388	17.468	0.063	15.506	0.060	15.599	0.046	1.869
352	525.340	1201.424	18.614	0.097	15.508	0.082	16.628	0.084	1.986
1429	1907.763	582.985	19.849	0.181	15.509	0.135	17.673	0.115	2.177
748	1099.610	859.634	17.755	0.064	15.510	0.086	16.331	0.075	1.424
208	288.893	566.739	19.407	0.130	15.511	0.062	17.110	0.113	2.297
622	960.320	1401.995	19.902	0.347	15.511	0.122	17.977	0.207	1.925
414	622.511	1399.506	18.538	0.111	15.512	0.081	16.761	0.095	1.776
1092	1534.008	1135.305	19.808	0.215	15.513	0.116	17.615	0.163	2.192
222	300.928	1452.210	18.995	0.118	15.516	0.096	16.782	0.136	2.213
1011	1408.607	642.753	18.496	0.100	15.516	0.065	16.590	0.085	1.906
960	1319.516	567.278	19.484	0.167	15.516	0.194	17.629	0.159	1.855
639	986.552	837.288	19.404	0.148	15.517	0.175	17.928	0.188	1.477
1547	2044.328	1038.721	18.892	0.112	15.519	0.077	16.939	0.095	1.953
1125	1569.508	1179.902	19.319	0.198	15.520	0.127	17.469	0.141	1.850
726	1077.283	571.822	17.626	0.063	15.521	0.075	16.298	0.074	1.328
361	537.836	1251.707	18.991	0.112	15.523	0.080	16.920	0.104	2.071
638	984.726	1000.379	18.243	0.078	15.523	0.073	16.549	0.071	1.693
519	813.036	510.275	18.620	0.125	15.524	0.077	16.764	0.085	1.856
1359	1834.411	887.438	19.561	0.166	15.525	0.124	17.874	0.168	1.688
535	838.102	426.026	17.862	0.055	15.532	0.069	16.234	0.049	1.628
1529	2011.527	716.989	18.411	0.086	15.532	0.078	16.460	0.078	1.951
135	205.125	64.661	19.115	0.098	15.534	0.082	16.912	0.103	2.203
1111	1551.989	687.265	18.685	0.089	15.538	0.067	16.766	0.082	1.919
849	1183.974	41.252	18.643	0.110	15.543	0.057	16.831	0.081	1.812
661	1023.213	985.951	18.395	0.080	15.543	0.084	16.668	0.082	1.727
1140	1589.583	1190.636	19.059	0.144	15.547	0.116	17.135	0.117	1.924
1105	1547.359	1368.406	19.920	0.172	15.547	0.156	17.929	0.184	1.991
753	1103.739	357.545	19.346	0.139	15.547	0.246	17.937	0.163	1.409
1137	1584.433	814.420	17.868	0.056	15.551	0.063	15.926	0.050	1.942
263	366.163	996.843	19.926	0.162	15.555	0.121	17.851	0.168	2.075
46	81.670	1115.038	18.531	0.115	15.555	0.101	16.526	0.106	2.005
1461	1943.673	471.165	19.025	0.107	15.560	0.078	16.888	0.099	2.136
483	738.362	1089.493	19.590	0.139	15.561	0.159	17.950	0.177	1.640
416	626.058	612.108	19.764	0.182	15.562	0.243	18.233	0.190	1.531
587	919.839	1012.486	18.518	0.096	15.562	0.076	16.423	0.085	2.096
1414	1895.212	42.091	18.588	0.090	15.563	0.068	16.735	0.090	1.853
1003	1396.600	34.006	18.525	0.101	15.564	0.058	16.701	0.073	1.824

1252	1718.335	928.741	19.317	0.213	15.565	0.129	17.684	0.153	1.633
1346	1815.288	1226.642	18.314	0.087	15.573	0.078	16.362	0.081	1.952
247	338.424	363.703	19.034	0.126	15.573	0.061	17.152	0.105	1.882
800	1139.293	1201.932	17.984	0.066	15.573	0.091	16.464	0.071	1.520
1634	2160.353	758.165	19.823	0.158	15.574	0.154	17.905	0.184	1.918
636	982.855	715.792	17.508	0.060	15.575	0.069	16.302	0.067	1.206
963	1322.488	1265.753	19.648	0.137	15.575	0.125	17.642	0.153	2.006
105	165.467	701.684	18.667	0.120	15.576	0.075	16.864	0.103	1.803
409	613.457	1291.625	19.002	0.138	15.578	0.078	16.817	0.094	2.185
941	1283.831	375.690	18.512	0.126	15.579	0.084	16.565	0.091	1.947
1180	1634.671	971.170	18.559	0.062	15.579	0.071	16.591	0.075	1.968
717	1071.238	1367.019	19.426	0.239	15.580	0.117	17.651	0.167	1.775
808	1145.640	1059.766	18.184	0.073	15.580	0.103	16.326	0.062	1.858
942	1285.080	647.552	18.727	0.128	15.583	0.068	16.873	0.101	1.854
359	533.634	1354.107	19.101	0.118	15.584	0.085	16.872	0.103	2.228
1387	1861.159	834.738	18.697	0.108	15.590	0.076	16.622	0.075	2.075
411	620.731	1171.794	19.231	0.143	15.590	0.121	17.110	0.105	2.121
1245	1712.408	386.341	19.917	0.201	15.592	0.134	17.706	0.146	2.211
1428	1906.471	1184.221	19.995	0.233	15.592	0.124	17.753	0.152	2.242
1341	1811.070	929.259	18.832	0.098	15.595	0.070	16.838	0.090	1.994
1251	1717.522	1253.341	20.171	0.280	15.595	0.153	17.975	0.177	2.196
747	1097.522	521.970	17.986	0.075	15.595	0.072	16.222	0.065	1.764
228	307.857	1326.303	18.989	0.121	15.596	0.099	16.803	0.104	2.185
8	4.617	528.219	18.871	0.115	15.600	0.084	17.066	0.107	1.805
597	934.377	611.792	19.388	0.195	15.601	0.201	17.919	0.176	1.469
1604	2119.199	610.213	19.071	0.217	15.603	0.085	16.906	0.108	2.165
1415	1895.989	1461.565	18.885	0.108	15.605	0.088	16.944	0.104	1.941
1264	1733.520	244.916	18.804	0.115	15.608	0.081	16.813	0.086	1.991
1538	2028.741	3.246	19.155	0.124	15.608	0.061	17.215	0.109	1.940
907	1241.244	442.648	18.188	0.079	15.608	0.079	16.525	0.080	1.663
119	186.505	1268.801	19.064	0.143	15.610	0.087	16.841	0.088	2.224
441	665.310	355.184	18.366	0.101	15.611	0.061	16.486	0.064	1.879
30	44.895	655.016	18.545	0.104	15.611	0.091	16.475	0.089	2.071
346	513.548	213.967	18.672	0.083	15.616	0.064	16.789	0.092	1.883
484	738.921	1132.345	19.269	0.122	15.619	0.167	17.721	0.135	1.548
1340	1805.644	1269.413	19.439	0.190	15.620	0.125	17.370	0.117	2.069
138	208.062	590.653	19.083	0.113	15.620	0.081	16.936	0.114	2.147
781	1124.736	372.657	17.880	0.064	15.621	0.083	16.310	0.063	1.570
1201	1667.329	1086.377	19.732	0.270	15.622	0.119	17.785	0.155	1.948
951	1304.320	1149.700	18.837	0.111	15.625	0.097	16.864	0.093	1.974
1110	1550.863	1228.500	18.405	0.086	15.626	0.070	16.378	0.069	2.027
594	930.103	1428.224	19.920	0.232	15.626	0.121	17.925	0.172	1.995
1609	2125.145	984.624	19.587	0.135	15.627	0.141	17.604	0.161	1.983
724	1076.308	602.541	18.380	0.099	15.632	0.073	16.599	0.084	1.782
720	1075.435	864.062	19.610	0.155	15.635	0.185	17.789	0.168	1.821
675	1032.749	43.649	18.872	0.131	15.636	0.054	16.887	0.085	1.985
1179	1634.446	114.518	17.752	0.068	15.638	0.072	15.844	0.060	1.908
1610	2125.427	50.557	19.203	0.108	15.638	0.085	17.100	0.105	2.103
239	327.636	587.348	18.965	0.128	15.643	0.074	16.867	0.097	2.099
155	226.055	1132.783	19.790	0.243	15.648	0.137	17.667	0.152	2.123
1608	2124.357	429.510	18.922	0.116	15.648	0.088	16.928	0.097	1.993
423	631.969	534.783	19.053	0.117	15.650	0.078	16.778	0.076	2.275
326	481.169	1214.818	18.541	0.091	15.651	0.133	17.289	0.123	1.253
1396	1872.471	919.841	19.049	0.187	15.655	0.078	17.096	0.108	1.953
1525	2009.977	10.651	18.723	0.101	15.656	0.075	16.881	0.096	1.842
1401	1877.403	1252.103	19.258	0.153	15.656	0.080	17.341	0.142	1.918
1546	2042.850	943.544	19.321	0.164	15.659	0.094	17.314	0.125	2.007
1557	2051.731	1323.225	19.492	0.156	15.659	0.086	17.313	0.115	2.179
1551	2046.151	895.077	20.100	0.203	15.664	0.140	17.764	0.162	2.336
628	971.113	1110.731	18.276	0.084	15.667	0.075	16.684	0.084	1.592
860	1201.480	714.727	18.680	0.143	15.668	0.080	16.669	0.082	2.011
575	904.768	473.732	19.641	0.243	15.670	0.204	17.890	0.164	1.751
1065	1504.505	959.874	19.572	0.169	15.671	0.140	17.766	0.190	1.806
256	356.202	1279.269	18.903	0.116	15.676	0.097	16.894	0.111	2.008
89	149.343	539.285	19.021	0.120	15.677	0.077	16.792	0.133	2.229
437	657.963	1401.344	20.203	0.321	15.678	0.163	17.773	0.186	2.430
1493	1971.029	216.667	18.171	0.081	15.680	0.087	16.278	0.073	1.893
1449	1934.840	1241.549	19.167	0.158	15.682	0.085	16.970	0.124	2.197
691	1047.745	1106.387	17.749	0.072	15.683	0.075	16.353	0.066	1.396
1147	1596.126	866.408	19.099	0.116	15.684	0.073	17.067	0.095	2.032
110	171.094	1425.294	19.303	0.125	15.684	0.110	17.080	0.147	2.223
1294	1761.259	877.462	18.513	0.077	15.684	0.070	16.521	0.073	1.991
1422	1901.946	1065.416	19.583	0.211	15.685	0.111	17.802	0.158	1.781

1518	2005.773	681.796	18.837	0.099	15.687	0.086	16.901	0.099	1.935
1208	1670.519	396.946	18.681	0.145	15.689	0.081	16.422	0.083	2.260
754	1104.038	1189.194	18.204	0.070	15.691	0.080	16.472	0.069	1.731
464	714.095	710.413	19.045	0.167	15.691	0.134	17.360	0.122	1.686
1204	1669.174	1019.910	18.632	0.098	15.695	0.072	16.568	0.070	2.064
1052	1484.413	258.671	18.244	0.078	15.706	0.071	16.442	0.076	1.801
3	-19.671	973.677	18.960	0.108	15.709	0.109	16.843	0.096	2.117
485	741.257	1029.828	19.706	0.235	15.713	0.162	17.715	0.167	1.991
185	256.129	995.996	19.049	0.140	15.716	0.090	17.132	0.121	1.916
95	155.485	197.171	17.845	0.096	15.717	0.090	15.811	0.072	2.034
1394	1870.383	903.320	19.949	0.155	15.723	0.160	17.976	0.163	1.973
130	200.952	59.860	18.946	0.124	15.724	0.098	16.819	0.100	2.127
1468	1949.632	1087.552	18.844	0.128	15.724	0.084	16.807	0.094	2.038
488	750.463	322.668	17.695	0.055	15.725	0.055	16.630	0.066	1.065
1464	1945.670	746.883	20.249	0.283	15.726	0.145	17.723	0.189	2.526
794	1136.332	955.106	18.400	0.091	15.727	0.095	16.671	0.080	1.729
571	900.861	1226.923	18.178	0.104	15.727	0.072	16.514	0.084	1.664
829	1159.986	1068.897	18.379	0.088	15.728	0.131	16.680	0.085	1.699
1213	1675.724	967.912	20.051	0.236	15.729	0.174	18.224	0.209	1.828
430	642.552	1165.456	20.075	0.213	15.730	0.165	18.133	0.183	1.942
799	1138.756	1102.718	18.632	0.106	15.730	0.118	16.817	0.102	1.815
115	179.317	429.223	18.287	0.090	15.730	0.073	16.450	0.091	1.838
789	1133.215	1178.876	19.920	0.206	15.731	0.157	17.925	0.202	1.995
655	1018.691	979.792	18.585	0.097	15.733	0.082	16.811	0.091	1.773
158	228.494	1236.734	19.527	0.167	15.733	0.095	17.200	0.110	2.327
382	567.556	157.365	18.891	0.106	15.734	0.069	16.842	0.090	2.048
1413	1892.954	936.117	19.400	0.123	15.735	0.080	17.225	0.113	2.175
1539	2030.019	1017.956	18.751	0.137	15.736	0.089	16.833	0.101	1.918
1462	1945.563	612.040	19.255	0.136	15.738	0.084	17.124	0.110	2.131
15	18.979	1022.178	18.720	0.102	15.743	0.093	16.680	0.109	2.040
1190	1655.472	1107.251	18.824	0.114	15.745	0.070	16.946	0.097	1.878
1210	1671.733	1045.462	20.431	0.292	15.745	0.153	18.049	0.158	2.382
695	1050.213	625.693	19.265	0.149	15.746	0.078	17.217	0.125	2.048
1504	1986.260	627.233	19.509	0.180	15.746	0.135	17.745	0.154	1.765
846	1182.710	1300.234	19.654	0.208	15.749	0.153	17.744	0.199	1.910
541	845.270	95.299	18.718	0.080	15.750	0.065	16.903	0.083	1.815
1379	1853.337	1218.288	19.741	0.161	15.753	0.142	17.816	0.170	1.925
343	506.378	1308.492	18.818	0.121	15.755	0.171	17.590	0.141	1.228
600	937.239	227.067	18.665	0.084	15.757	0.057	16.682	0.068	1.982
1366	1842.051	281.647	19.127	0.124	15.759	0.088	16.999	0.102	2.128
1020	1425.528	757.630	18.682	0.101	15.763	0.090	16.840	0.082	1.843
1292	1758.577	1216.273	19.171	0.128	15.763	0.076	16.921	0.099	2.250
255	355.026	480.203	19.171	0.115	15.764	0.082	17.152	0.113	2.019
688	1045.467	994.109	19.818	0.219	15.767	0.192	17.933	0.185	1.885
81	135.747	9.133	18.354	0.104	15.772	0.098	16.443	0.087	1.911
1558	2052.068	1315.210	19.460	0.173	15.773	0.087	17.374	0.132	2.087
791	1135.654	1107.774	18.915	0.140	15.773	0.108	16.987	0.102	1.928
1176	1631.497	488.188	18.575	0.104	15.774	0.083	16.722	0.079	1.854
1124	1567.690	1081.018	20.196	0.313	15.779	0.141	17.999	0.157	2.197
562	892.376	1018.534	18.767	0.127	15.779	0.088	16.816	0.098	1.951
171	241.408	50.492	19.054	0.111	15.780	0.098	16.827	0.081	2.228
1161	1610.121	270.991	18.898	0.116	15.781	0.078	16.911	0.097	1.987
610	943.293	1007.863	17.251	0.046	15.782	0.091	16.343	0.063	0.908
1281	1750.052	1318.779	20.018	0.194	15.783	0.130	18.040	0.143	1.978
1145	1593.225	602.255	19.924	0.193	15.783	0.238	18.133	0.196	1.791
774	1119.696	1327.731	19.464	0.177	15.788	0.141	17.570	0.176	1.894
1307	1772.914	782.812	19.127	0.129	15.788	0.073	17.053	0.103	2.074
938	1280.225	1373.141	19.566	0.141	15.794	0.158	17.750	0.169	1.815
1113	1553.645	400.150	18.774	0.130	15.798	0.081	16.752	0.092	2.022
1143	1592.442	1061.119	20.300	0.241	15.800	0.188	18.156	0.256	2.144
267	369.665	1457.164	18.967	0.162	15.801	0.095	17.073	0.133	1.895
1517	2005.266	975.869	19.076	0.135	15.802	0.088	17.176	0.126	1.901
738	1088.230	262.223	18.905	0.141	15.803	0.104	17.109	0.107	1.796
1265	1733.899	365.504	18.005	0.067	15.803	0.088	16.114	0.055	1.891
843	1181.378	193.797	16.967	0.053	15.804	0.069	16.306	0.063	0.661
966	1328.475	1175.638	18.195	0.083	15.805	0.096	16.478	0.076	1.718
9	4.683	1313.222	19.047	0.132	15.806	0.095	16.911	0.106	2.135
397	595.889	1295.803	18.815	0.125	15.807	0.082	16.951	0.114	1.864
232	321.689	48.935	19.081	0.156	15.809	0.072	16.913	0.087	2.168
809	1146.983	1232.858	18.530	0.105	15.809	0.084	16.742	0.085	1.788
127	193.892	728.946	19.265	0.140	15.810	0.089	17.208	0.097	2.058
166	235.267	292.625	18.994	0.147	15.811	0.078	17.027	0.094	1.967
1077	1514.688	1122.575	19.448	0.167	15.815	0.194	17.532	0.141	1.916

1571	2067.339	1052.328	19.246	0.130	15.816	0.094	17.117	0.110	2.129
53	94.075	682.329	19.221	0.154	15.817	0.102	17.040	0.098	2.180
295	426.955	1189.093	18.384	0.119	15.817	0.100	16.452	0.086	1.932
203	284.028	218.632	19.348	0.132	15.819	0.079	16.987	0.108	2.361
332	491.522	981.357	18.190	0.093	15.819	0.089	16.691	0.095	1.499
176	247.663	53.040	19.197	0.112	15.819	0.079	17.017	0.095	2.180
838	1175.086	992.311	19.703	0.164	15.820	0.181	17.726	0.150	1.977
29	41.077	337.756	19.407	0.124	15.820	0.088	17.099	0.079	2.308
678	1035.048	774.255	19.232	0.153	15.821	0.206	17.721	0.142	1.510
607	940.180	1390.547	18.271	0.074	15.824	0.094	16.403	0.079	1.867
912	1244.724	1126.267	18.710	0.124	15.826	0.111	16.609	0.094	2.101
291	421.379	1282.119	19.014	0.121	15.830	0.092	17.059	0.137	1.954
876	1212.592	1428.516	18.374	0.083	15.832	0.087	16.284	0.072	2.090
1398	1873.298	800.963	19.059	0.113	15.833	0.077	17.069	0.096	1.990
1170	1622.857	816.221	20.107	0.230	15.833	0.131	17.825	0.195	2.283
567	900.163	775.486	17.974	0.063	15.836	0.080	16.069	0.056	1.905
725	1076.451	167.236	17.590	0.053	15.836	0.067	16.575	0.067	1.015
1234	1694.160	1057.563	20.434	0.299	15.836	0.143	18.204	0.230	2.230
962	1322.262	1333.019	19.459	0.144	15.836	0.262	17.318	0.111	2.141
1318	1785.697	1175.043	19.604	0.272	15.837	0.174	18.212	0.252	1.392
1175	1630.296	704.819	18.553	0.093	15.838	0.076	16.765	0.079	1.788
1239	1704.496	1280.774	19.681	0.170	15.839	0.203	17.970	0.179	1.711
1228	1687.647	1283.161	19.684	0.207	15.839	0.193	17.761	0.164	1.922
918	1252.944	1107.180	18.836	0.076	15.839	0.113	16.757	0.093	2.078
248	339.007	1009.206	19.277	0.126	15.841	0.094	17.016	0.110	2.260
651	1003.652	1047.983	19.376	0.156	15.843	0.172	17.790	0.161	1.586
363	542.141	201.124	18.920	0.113	15.846	0.074	17.157	0.106	1.763
1074	1512.595	627.733	19.743	0.193	15.846	0.146	17.890	0.177	1.853
1540	2033.039	1169.233	18.805	0.116	15.848	0.096	16.820	0.096	1.986
1262	1731.172	1226.702	19.793	0.236	15.848	0.120	17.704	0.184	2.089
766	1110.104	1171.020	18.494	0.103	15.849	0.099	16.540	0.081	1.954
1212	1675.177	734.268	20.339	0.241	15.850	0.167	18.333	0.226	2.006
80	134.560	603.340	19.317	0.167	15.852	0.080	17.273	0.124	2.044
1268	1740.346	288.829	18.840	0.126	15.852	0.084	17.028	0.095	1.811
362	541.006	1240.276	18.911	0.136	15.855	0.086	17.078	0.105	1.833
1119	1563.083	222.751	19.055	0.114	15.857	0.082	17.000	0.078	2.054
1035	1449.012	990.314	20.318	0.312	15.861	0.174	17.691	0.152	2.627
644	993.522	316.266	17.836	0.057	15.863	0.075	16.619	0.069	1.218
831	1162.045	704.253	18.156	0.095	15.864	0.077	16.627	0.086	1.529
895	1229.136	647.037	18.901	0.136	15.864	0.071	17.068	0.127	1.833
109	168.236	1114.696	19.433	0.129	15.864	0.100	17.263	0.123	2.170
1049	1481.074	667.593	19.016	0.115	15.866	0.080	17.065	0.099	1.950
1380	1853.457	604.174	19.025	0.128	15.867	0.087	16.966	0.108	2.059
982	1358.282	1149.377	17.921	0.062	15.868	0.116	16.753	0.080	1.168
1285	1753.249	735.544	18.579	0.092	15.869	0.082	16.663	0.078	1.917
803	1141.549	357.626	18.334	0.078	15.870	0.083	16.706	0.077	1.628
403	600.286	1450.293	19.475	0.157	15.872	0.097	17.439	0.120	2.035
1091	1533.982	721.868	18.826	0.083	15.882	0.080	16.951	0.103	1.874
59	104.165	344.426	18.993	0.123	15.884	0.089	16.950	0.104	2.044
1114	1554.789	722.098	18.085	0.073	15.890	0.076	16.123	0.061	1.962
1255	1719.813	1224.282	19.793	0.174	15.892	0.093	17.358	0.122	2.435
381	566.140	1071.580	18.434	0.089	15.896	0.097	16.591	0.075	1.843
909	1244.102	593.145	19.357	0.177	15.897	0.157	17.801	0.166	1.556
1061	1499.541	253.056	18.638	0.091	15.898	0.096	16.780	0.075	1.858
531	830.510	113.404	18.831	0.183	15.903	0.064	16.811	0.093	2.020
802	1141.111	1002.134	20.216	0.290	15.905	0.243	18.164	0.253	2.052
815	1148.080	1132.183	20.147	0.254	15.905	0.192	17.732	0.156	2.415
1370	1848.871	950.113	20.151	0.231	15.911	0.161	18.058	0.218	2.092
1433	1908.310	708.789	19.293	0.273	15.912	0.089	17.271	0.120	2.022
1152	1598.441	1165.086	19.397	0.144	15.912	0.090	17.138	0.103	2.259
1357	1831.067	1383.989	19.540	0.163	15.913	0.091	17.380	0.146	2.160
1511	1995.750	523.429	18.607	0.089	15.914	0.095	16.686	0.094	1.920
1533	2017.443	1232.759	19.205	0.121	15.916	0.096	17.237	0.109	1.968
66	114.853	755.850	19.560	0.164	15.917	0.097	17.459	0.127	2.101
1248	1714.676	596.815	18.974	0.123	15.917	0.079	16.916	0.097	2.058
1570	2065.156	768.953	19.564	0.178	15.919	0.086	17.273	0.117	2.291
964	1323.770	534.258	18.993	0.119	15.919	0.082	16.833	0.101	2.161
1098	1543.791	650.232	18.476	0.092	15.919	0.086	16.709	0.080	1.767
342	505.563	562.342	18.896	0.213	15.919	0.076	16.921	0.105	1.975
1162	1611.744	1063.637	20.357	0.279	15.924	0.178	17.942	0.204	2.416
1173	1627.273	558.921	18.277	0.092	15.926	0.092	16.450	0.075	1.827
930	1262.046	1283.478	18.777	0.101	15.928	0.092	16.955	0.095	1.823
1372	1849.068	793.713	19.652	0.229	15.929	0.083	17.420	0.148	2.232

1331	1799.538	1078.202	19.921	0.218	15.933	0.154	17.962	0.178	1.959
742	1093.064	866.780	18.396	0.110	15.934	0.096	16.667	0.078	1.729
677	1034.833	1403.258	19.401	0.154	15.935	0.087	17.316	0.130	2.085
405	601.452	1319.122	19.267	0.134	15.936	0.096	17.048	0.113	2.219
104	163.864	1230.394	19.497	0.127	15.940	0.099	17.330	0.111	2.167
533	831.990	135.941	18.402	0.081	15.942	0.095	16.615	0.083	1.787
722	1076.011	999.732	18.502	0.126	15.942	0.127	16.697	0.100	1.805
257	357.803	859.582	18.669	0.107	15.942	0.100	16.934	0.106	1.735
767	1110.931	1161.708	18.805	0.128	15.942	0.110	17.048	0.108	1.757
47	82.341	530.530	19.662	0.161	15.943	0.090	17.356	0.113	2.307
1439	1922.929	916.795	19.444	0.160	15.944	0.093	17.492	0.130	1.951
681	1038.728	897.726	18.597	0.110	15.945	0.103	16.736	0.084	1.861
957	1311.668	468.647	18.330	0.081	15.950	0.086	16.795	0.087	1.535
818	1153.190	1056.112	18.723	0.103	15.954	0.111	16.848	0.091	1.875
167	235.308	859.208	19.230	0.136	15.955	0.099	17.338	0.126	1.892
125	190.719	801.103	19.532	0.134	15.955	0.106	16.895	0.121	2.637
168	235.484	1024.388	18.829	0.120	15.959	0.101	17.162	0.123	1.667
844	1181.842	515.767	18.473	0.101	15.963	0.081	16.659	0.083	1.814
1095	1540.520	138.335	18.772	0.077	15.965	0.085	16.937	0.088	1.835
1072	1510.063	551.039	18.651	0.104	15.965	0.089	16.839	0.090	1.812
25	34.302	777.409	19.746	0.152	15.966	0.107	17.523	0.139	2.224
830	1160.789	896.584	18.083	0.076	15.967	0.114	16.730	0.081	1.353
184	254.734	569.673	19.325	0.121	15.970	0.077	17.252	0.117	2.073
1209	1671.326	248.711	18.989	0.112	15.977	0.095	17.152	0.093	1.838
1397	1873.123	1151.460	19.477	0.177	15.978	0.089	17.376	0.128	2.101
1219	1680.872	452.392	19.196	0.148	15.979	0.094	17.312	0.119	1.884
1562	2056.691	1329.770	19.087	0.119	15.980	0.098	17.054	0.122	2.033
147	216.123	983.291	19.801	0.246	15.983	0.102	17.437	0.152	2.364
936	1277.919	1069.360	18.382	0.083	15.985	0.119	16.672	0.074	1.711
648	998.344	1429.261	19.043	0.122	15.987	0.086	16.838	0.095	2.204
652	1006.476	1124.250	17.246	0.055	15.987	0.094	16.498	0.077	0.749
1021	1425.805	1193.758	18.825	0.092	15.989	0.106	16.741	0.076	2.084
1385	1859.421	747.011	19.188	0.130	15.992	0.095	17.202	0.114	1.986
810	1147.212	1035.274	18.905	0.108	15.995	0.113	17.128	0.108	1.777
881	1214.885	301.885	18.023	0.092	15.998	0.090	16.467	0.082	1.556
612	944.360	1399.533	19.217	0.146	15.998	0.100	17.066	0.108	2.152
993	1376.036	247.676	19.033	0.096	15.998	0.075	17.093	0.094	1.940
70	119.974	614.448	18.597	0.115	15.999	0.087	16.595	0.091	2.002

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ID	X	Y	N	err	V	err	W	err	N-W
893	822.125	624.233	12.550	0.081	5.135	0.051	10.190	0.037	2.361
287	227.990	463.610	13.473	0.072	5.880	0.067	11.361	0.053	2.112
1808	1363.160	915.814	13.137	0.076	5.883	0.060	11.179	0.049	1.957
852	792.358	724.765	13.399	0.090	6.249	0.051	11.404	0.052	1.995
2157	1621.442	388.118	13.624	0.070	6.272	0.055	11.553	0.052	2.072
1949	1464.804	1500.001	14.175	0.021	6.424	0.054	11.902	0.029	2.273
1271	1063.836	734.449	13.051	0.078	6.691	0.048	11.526	0.049	1.525
14	-195.039	407.293	14.625	0.023	6.815	0.058	12.342	0.030	2.283
808	754.330	1024.096	13.243	0.083	6.921	0.065	11.313	0.055	1.930
155	68.249	64.674	14.005	0.070	7.196	0.095	11.795	0.053	2.210
1248	1049.289	784.080	14.346	0.072	7.225	0.035	12.367	0.049	1.979
915	840.374	1143.104	14.759	0.079	7.486	0.027	12.500	0.033	2.259
1269	1063.102	871.685	14.666	0.075	7.523	0.030	12.624	0.047	2.042
282	224.797	483.665	15.128	0.087	7.566	0.057	12.774	0.034	2.354
1499	1200.574	680.727	14.484	0.078	7.578	0.042	12.438	0.052	2.045
892	821.825	920.587	15.125	0.070	7.840	0.052	12.921	0.031	2.205
1362	1120.750	867.131	15.083	0.064	7.851	0.059	12.846	0.037	2.237
1343	1109.889	635.164	14.961	0.072	7.876	0.034	12.897	0.050	2.065
1150	998.235	764.880	15.088	0.072	8.005	0.031	12.999	0.047	2.089
1155	1001.707	676.347	15.228	0.067	8.105	0.032	13.213	0.083	2.014
1601	1256.540	1331.683	15.550	0.065	8.251	0.066	13.335	0.040	2.215
184	104.829	848.924	15.108	0.067	8.313	0.067	12.849	0.049	2.260
1346	1110.591	765.015	15.370	0.064	8.362	0.027	13.368	0.061	2.002
1185	1011.431	853.638	15.586	0.067	8.446	0.025	13.481	0.046	2.105
674	614.989	-28.549	15.981	0.070	8.493	0.058	13.513	0.036	2.468
337	276.027	-260.401	14.643	0.017	8.539	0.056	12.448	0.025	2.196
1197	1018.409	773.243	15.517	0.062	8.592	0.027	13.598	0.054	1.919
832	776.127	-145.139	15.331	0.014	8.597	0.047	13.127	0.016	2.204
702	642.856	1170.495	15.179	0.073	8.639	0.054	12.964	0.034	2.215
959	871.978	-29.121	15.364	0.068	8.648	0.065	13.127	0.035	2.238
78	-18.894	804.554	16.322	0.069	8.722	0.069	13.955	0.046	2.366
100	9.384	159.779	15.492	0.056	8.743	0.076	13.231	0.041	2.261
458	390.476	1224.738	16.417	0.075	8.799	0.080	13.966	0.041	2.451
1318	1094.423	803.879	15.789	0.072	8.815	0.028	13.677	0.049	2.112
844	784.352	578.411	15.098	0.058	8.825	0.033	13.462	0.025	1.637
1959	1471.188	206.579	15.890	0.059	8.827	0.060	13.612	0.036	2.278
1073	952.596	714.742	15.338	0.079	8.838	0.030	13.225	0.051	2.113
2181	1650.475	335.115	14.931	0.065	8.838	0.059	12.738	0.038	2.193
720	659.909	26.694	16.390	0.064	8.856	0.057	14.016	0.038	2.374
667	610.075	-121.749	16.368	0.039	8.909	0.049	14.008	0.025	2.360
560	499.343	-383.782	16.345	0.019	8.932	0.050	14.033	0.020	2.312
928	846.361	967.306	16.104	0.070	8.941	0.031	13.896	0.035	2.207
1208	1024.690	747.627	14.939	0.067	8.962	0.030	13.679	0.048	1.260
551	490.823	690.656	16.279	0.067	8.986	0.052	13.885	0.035	2.394
329	269.832	1091.849	16.279	0.066	9.001	0.067	13.985	0.040	2.293
1947	1463.774	1363.446	14.714	0.069	9.009	0.062	12.560	0.039	2.154
286	227.692	1099.946	16.571	0.078	9.044	0.121	14.142	0.042	2.429
1192	1014.356	799.734	16.025	0.058	9.081	0.025	14.038	0.051	1.987
2150	1612.167	1297.185	16.504	0.060	9.099	0.065	14.231	0.045	2.274
2276	1760.703	151.921	16.741	0.071	9.139	0.085	14.313	0.045	2.428
2446	2092.085	358.115	16.443	0.082	9.150	0.088	14.051	0.049	2.392
1183	1011.224	787.230	16.373	0.079	9.192	0.026	14.121	0.049	2.252
1449	1168.755	763.274	15.673	0.076	9.238	0.029	13.595	0.054	2.078
1170	1007.016	1386.317	16.576	0.070	9.286	0.053	14.270	0.033	2.306
1529	1215.500	19.487	15.448	0.083	9.309	0.061	13.258	0.036	2.189
1066	943.031	706.346	16.579	0.085	9.309	0.031	14.329	0.057	2.251
2348	1840.834	209.597	16.963	0.076	9.326	0.084	14.575	0.046	2.388
482	420.215	392.705	16.185	0.064	9.336	0.049	14.322	0.034	1.863
1533	1216.854	114.245	15.933	0.062	9.365	0.058	13.727	0.034	2.206
1203	1021.089	889.052	16.473	0.070	9.368	0.022	14.346	0.047	2.127
1275	1066.338	749.325	16.168	0.136	9.402	0.032	14.247	0.045	1.921
1295	1080.220	938.681	16.599	0.064	9.419	0.022	14.401	0.046	2.198
700	641.748	476.246	16.128	0.063	9.437	0.042	13.982	0.036	2.146
760	703.653	1362.151	17.184	0.079	9.597	0.070	14.748	0.041	2.436
1377	1129.612	684.825	16.618	0.072	9.602	0.030	14.544	0.050	2.074
2045	1531.972	1607.067	15.403	0.021	9.616	0.070	13.183	0.028	2.220
748	689.509	734.584	16.692	0.055	9.631	0.045	14.620	0.031	2.072
961	872.568	753.455	16.552	0.058	9.635	0.033	14.508	0.043	2.044
2137	1605.451	494.579	16.283	0.061	9.735	0.049	14.068	0.037	2.216
1402	1145.253	809.316	16.839	0.069	9.737	0.028	14.685	0.053	2.153
2035	1523.798	1352.714	16.477	0.061	9.759	0.060	14.169	0.037	2.308
756	699.020	476.742	15.981	0.048	9.773	0.041	14.166	0.036	1.815
753	697.756	-171.145	16.749	0.025	9.790	0.044	14.509	0.018	2.240
1800	1358.933	766.658	16.758	0.058	9.791	0.035	14.621	0.045	2.137
721	662.553	-258.944	16.861	0.023	9.805	0.048	14.554	0.021	2.306
2283	1769.513	1114.178	17.260	0.057	9.857	0.066	14.838	0.047	2.422
977	888.071	855.586	16.904	0.062	9.929	0.028	14.875	0.037	2.028
2378	1893.088	994.273	16.666	0.058	9.929	0.063	14.365	0.045	2.301
2218	1693.963	321.555	16.938	0.060	9.997	0.063	14.654	0.037	2.284

1041	927.971	365.417	17.369	0.066	10.045	0.033	15.102	0.041	2.268
1141	994.275	1081.616	17.387	0.070	10.111	0.029	15.093	0.040	2.294
388	317.409	192.398	17.268	0.056	10.129	0.055	14.891	0.036	2.377
122	34.119	321.882	16.773	0.051	10.136	0.070	14.463	0.028	2.310
2454	2121.791	1319.024	17.951	0.093	10.148	0.107	15.311	0.063	2.640
121	33.228	208.932	17.005	0.059	10.170	0.074	14.742	0.038	2.263
1705	1307.844	687.483	17.003	0.057	10.171	0.035	15.034	0.043	1.969
1694	1303.134	1385.371	17.297	0.054	10.190	0.056	15.108	0.034	2.189
2019	1512.533	405.956	17.020	0.053	10.199	0.051	14.794	0.037	2.226
1174	1007.988	-78.648	16.648	0.031	10.204	0.047	14.509	0.024	2.139
1768	1334.508	571.491	17.037	0.067	10.216	0.036	14.804	0.049	2.232
1376	1129.576	1003.045	17.380	0.073	10.220	0.029	15.126	0.043	2.254
2379	1895.591	465.528	17.454	0.066	10.228	0.061	15.038	0.037	2.416
601	540.762	367.911	16.862	0.066	10.232	0.051	14.656	0.037	2.206
1948	1464.373	732.800	17.320	0.054	10.233	0.037	15.150	0.040	2.169
1912	1441.456	1331.777	16.170	0.060	10.235	0.059	14.493	0.040	1.677
745	687.883	-131.001	16.856	0.018	10.245	0.041	14.685	0.017	2.171
281	223.918	2.404	17.698	0.072	10.247	0.065	15.201	0.052	2.497
879	810.523	865.503	17.331	0.065	10.250	0.032	15.231	0.034	2.100
1289	1073.191	897.412	17.112	0.054	10.261	0.024	15.138	0.045	1.973
2263	1737.427	566.973	17.062	0.057	10.284	0.057	14.830	0.039	2.232
1113	974.907	529.699	16.734	0.089	10.295	0.026	15.032	0.030	1.702
849	786.005	590.527	16.231	0.071	10.322	0.039	14.753	0.029	1.478
2405	1951.937	79.761	16.821	0.078	10.323	0.094	14.522	0.048	2.299
1412	1150.707	602.302	17.289	0.065	10.344	0.031	15.243	0.051	2.046
351	293.139	1159.900	17.453	0.063	10.350	0.083	15.176	0.043	2.277
1437	1163.454	960.353	17.282	0.068	10.422	0.033	15.368	0.054	1.914
1238	1044.403	701.474	16.769	0.042	10.440	0.029	15.318	0.057	1.451
765	709.187	50.398	17.059	0.065	10.447	0.055	14.807	0.035	2.252
1028	920.841	604.637	17.924	0.160	10.460	0.034	15.575	0.071	2.349
1802	1359.410	959.234	16.856	0.062	10.465	0.038	14.758	0.043	2.098
1356	1115.584	540.882	17.057	0.049	10.467	0.028	15.335	0.048	1.722
1001	902.501	744.863	17.354	0.065	10.475	0.029	15.324	0.043	2.030
1990	1492.247	209.560	17.662	0.055	10.478	0.056	15.460	0.034	2.202
814	761.972	434.854	16.248	0.048	10.486	0.037	14.645	0.030	1.603
1457	1173.620	1070.073	17.631	0.076	10.492	0.039	15.286	0.040	2.345
269	212.550	687.013	17.098	0.056	10.514	0.053	14.851	0.030	2.246
534	476.380	-19.752	17.836	0.057	10.525	0.056	15.511	0.035	2.325
2311	1797.637	839.721	17.056	0.063	10.526	0.058	14.836	0.045	2.221
484	425.173	442.595	17.344	0.057	10.534	0.045	15.414	0.030	1.930
1334	1104.389	774.308	17.328	0.062	10.541	0.026	15.390	0.043	1.938
2177	1645.788	1.368	17.604	0.126	10.560	0.086	15.353	0.042	2.251
2003	1499.234	85.688	17.530	0.062	10.561	0.065	15.322	0.036	2.208
2366	1869.810	735.408	17.075	0.061	10.563	0.062	14.832	0.042	2.243
2448	2095.461	994.337	17.677	0.054	10.570	0.088	15.427	0.060	2.251
1201	1020.391	604.002	16.840	0.055	10.591	0.026	15.361	0.039	1.478
292	233.330	449.112	17.772	0.049	10.597	0.069	15.412	0.051	2.360
421	353.420	588.806	17.968	0.066	10.615	0.044	15.623	0.033	2.345
866	802.381	629.430	15.967	0.055	10.621	0.037	14.923	0.030	1.044
1634	1275.202	846.878	17.347	0.062	10.628	0.036	15.402	0.044	1.945
775	721.933	364.813	17.883	0.076	10.632	0.041	15.682	0.038	2.201
1386	1139.178	1225.672	17.665	0.065	10.644	0.046	15.543	0.035	2.121
1361	1120.574	243.861	17.505	0.068	10.648	0.042	15.254	0.034	2.250
833	777.044	539.765	12.750	0.063	10.653	0.097	12.514	0.066	0.236
131	48.169	996.755	17.805	0.081	10.654	0.085	15.514	0.040	2.291
724	667.894	345.578	17.362	0.056	10.656	0.045	15.336	0.033	2.026
419	352.880	928.133	17.539	0.055	10.657	0.055	15.457	0.033	2.082
813	760.123	320.080	17.154	0.072	10.659	0.040	14.923	0.036	2.231
1465	1182.159	1138.454	17.753	0.071	10.670	0.042	15.525	0.039	2.228
1439	1163.853	516.024	16.829	0.053	10.672	0.031	14.890	0.044	1.939
1950	1469.054	611.756	17.717	0.051	10.713	0.038	15.618	0.041	2.099
541	481.659	754.198	17.628	0.059	10.735	0.048	15.619	0.032	2.009
1128	984.857	633.671	17.499	0.089	10.745	0.030	15.681	0.049	1.818
118	30.418	586.962	17.402	0.051	10.769	0.062	15.281	0.034	2.121
643	584.631	1023.132	17.141	0.062	10.772	0.045	15.102	0.032	2.039
987	894.633	682.002	17.345	0.065	10.784	0.036	15.618	0.037	1.727
2226	1701.231	1082.197	17.536	0.061	10.787	0.058	15.248	0.042	2.288
1003	903.233	596.065	16.915	0.056	10.789	0.033	15.373	0.038	1.541
1359	1119.778	1508.188	17.413	0.031	10.793	0.046	15.247	0.021	2.166
581	519.997	-36.020	17.571	0.065	10.799	0.056	15.324	0.035	2.248
1534	1216.932	635.410	17.641	0.060	10.813	0.032	15.706	0.054	1.935
2328	1812.990	319.438	18.155	0.067	10.814	0.070	15.851	0.038	2.305
2452	2109.595	139.272	18.064	0.111	10.823	0.105	15.671	0.060	2.393
1146	997.120	826.147	17.497	0.056	10.824	0.024	15.608	0.041	1.889
213	142.981	747.897	17.619	0.067	10.836	0.053	15.281	0.028	2.338
1000	901.753	1001.501	17.687	0.063	10.879	0.027	15.616	0.035	2.071
377	308.767	482.704	17.902	0.084	10.886	0.044	15.684	0.030	2.218
74	-27.596	1230.336	17.220	0.094	10.895	0.096	14.853	0.049	2.367
827	773.252	546.873	13.577	0.129	10.898	0.149	12.471	0.067	1.106
429	362.827	123.734	17.365	0.054	10.898	0.065	15.182	0.038	2.183
1729	1319.075	489.061	17.381	0.053	10.899	0.036	15.391	0.040	1.990
1628	1271.988	775.494	16.604	0.075	10.911	0.036	15.322	0.053	1.282

1134	988.785	114.327	17.352	0.056	10.911	0.050	15.179	0.033	2.174
797	746.662	937.756	17.570	0.061	10.918	0.031	15.577	0.038	1.994
608	549.233	1249.615	18.209	0.086	10.927	0.059	15.935	0.041	2.274
575	515.480	-94.089	17.357	0.033	10.930	0.046	15.231	0.023	2.126
49	-88.521	641.203	18.131	0.036	10.952	0.051	15.919	0.027	2.212
279	223.320	-211.316	18.187	0.018	10.962	0.049	15.878	0.021	2.308
946	862.558	592.726	16.539	0.074	10.970	0.032	15.431	0.030	1.108
934	853.323	943.825	17.968	0.075	10.979	0.030	15.867	0.035	2.101
1536	1217.333	942.305	16.283	0.066	10.993	0.033	14.239	0.054	2.045
10	-208.054	443.819	17.889	0.036	11.005	0.064	15.642	0.030	2.247
1296	1081.603	-101.732	17.340	0.028	11.006	0.047	15.243	0.023	2.097
2418	2005.907	296.566	17.419	0.079	11.014	0.083	15.161	0.042	2.259
471	409.988	-255.460	17.978	0.025	11.016	0.048	15.712	0.024	2.266
553	493.645	730.020	17.502	0.065	11.018	0.044	15.353	0.034	2.149
728	673.136	969.250	17.416	0.047	11.020	0.038	15.870	0.030	1.546
368	303.698	480.891	17.735	0.052	11.025	0.058	15.728	0.033	2.007
858	795.023	949.206	17.677	0.059	11.042	0.030	15.768	0.034	1.910
1399	1143.906	799.324	18.296	0.111	11.058	0.031	16.020	0.060	2.276
958	871.963	-243.767	18.313	0.020	11.064	0.046	15.918	0.017	2.395
2168	1633.492	-26.820	17.108	0.074	11.067	0.090	14.969	0.044	2.139
455	387.554	459.033	18.037	0.046	11.080	0.045	15.998	0.035	2.039
2081	1563.604	409.624	18.092	0.066	11.081	0.050	15.920	0.041	2.172
1974	1482.551	1434.013	17.896	0.043	11.088	0.054	15.607	0.032	2.289
1938	1456.275	1092.610	17.445	0.055	11.093	0.046	15.316	0.038	2.128
2154	1618.666	894.779	17.779	0.046	11.101	0.042	15.735	0.040	2.044
950	864.873	267.348	17.589	0.057	11.105	0.045	15.696	0.035	1.893
613	554.200	90.050	18.300	0.062	11.107	0.054	16.116	0.041	2.184
947	862.711	97.337	18.111	0.063	11.107	0.045	15.931	0.035	2.180
2033	1523.279	1384.827	17.717	0.071	11.107	0.055	15.503	0.035	2.214
290	230.935	1324.175	17.813	0.052	11.108	0.083	15.730	0.047	2.082
886	816.041	1127.868	17.715	0.057	11.110	0.037	15.594	0.031	2.121
547	487.955	1189.947	17.930	0.077	11.112	0.060	15.808	0.040	2.122
2335	1824.678	831.809	17.460	0.060	11.114	0.061	15.314	0.046	2.147
16	-182.711	430.550	18.240	0.043	11.131	0.058	15.970	0.027	2.270
2416	2000.840	1035.596	17.573	0.063	11.131	0.092	15.334	0.056	2.239
2410	1961.149	441.362	18.226	0.069	11.140	0.067	16.048	0.039	2.179
1821	1371.217	459.301	17.817	0.059	11.142	0.039	15.764	0.040	2.053
905	835.866	917.244	18.197	0.069	11.142	0.031	16.037	0.042	2.160
1144	996.955	838.406	17.287	0.053	11.149	0.025	15.572	0.039	1.715
511	450.936	678.992	18.048	0.060	11.149	0.045	15.854	0.032	2.194
859	797.713	633.927	16.927	0.095	11.152	0.042	15.657	0.037	1.270
2384	1905.249	1123.049	17.671	0.078	11.159	0.074	15.402	0.054	2.269
409	342.461	1190.061	17.853	0.047	11.162	0.077	15.834	0.041	2.019
216	145.529	537.905	18.126	0.058	11.165	0.057	15.948	0.033	2.178
6	-239.474	737.768	16.796	0.051	11.168	0.061	14.702	0.036	2.094
994	897.542	946.383	17.598	0.060	11.176	0.027	15.660	0.035	1.938
411	344.024	712.790	17.742	0.068	11.184	0.052	15.488	0.032	2.254
1485	1192.157	91.454	17.481	0.058	11.190	0.055	15.395	0.033	2.086
2386	1908.244	521.714	18.335	0.062	11.199	0.061	16.135	0.037	2.200
2390	1915.249	160.838	18.226	0.060	11.203	0.087	16.077	0.047	2.149
223	154.132	1339.164	17.835	0.067	11.204	0.082	15.655	0.045	2.180
245	178.482	1138.004	17.956	0.081	11.228	0.076	15.816	0.045	2.140
1350	1111.315	49.169	18.063	0.063	11.233	0.055	15.906	0.035	2.157
2403	1946.395	435.222	17.570	0.063	11.235	0.063	15.393	0.035	2.176
50	-84.857	702.293	17.663	0.064	11.236	0.060	15.521	0.035	2.143
1287	1072.448	819.798	17.649	0.068	11.250	0.029	15.988	0.044	1.661
43	-108.775	607.961	17.257	0.035	11.261	0.055	15.074	0.026	2.183
454	384.824	357.907	18.180	0.040	11.270	0.048	16.231	0.038	1.950
1182	1010.771	440.668	18.023	0.069	11.287	0.028	16.095	0.036	1.929
2303	1787.914	12.925	18.239	0.074	11.287	0.089	16.064	0.044	2.174
443	377.433	84.992	18.365	0.055	11.297	0.061	16.229	0.041	2.136
1096	965.135	1275.309	17.979	0.070	11.301	0.046	15.876	0.034	2.103
1496	1199.003	209.713	18.093	0.076	11.305	0.044	15.905	0.039	2.189
227	159.702	230.841	18.323	0.044	11.310	0.063	16.340	0.037	1.983
404	336.057	492.248	17.356	0.076	11.315	0.075	15.265	0.070	2.091
1865	1403.661	1023.729	17.455	0.067	11.329	0.043	15.433	0.038	2.022
238	170.500	694.150	18.446	0.049	11.336	0.050	16.380	0.035	2.065
847	784.645	896.740	17.499	0.051	11.338	0.035	15.660	0.030	1.839
944	861.761	861.907	17.873	0.068	11.343	0.028	16.104	0.036	1.768
2440	2071.771	1003.925	18.120	0.044	11.346	0.098	16.141	0.045	1.979
1864	1402.899	557.274	18.094	0.063	11.355	0.037	16.087	0.041	2.007
475	411.915	579.472	17.963	0.041	11.357	0.049	16.022	0.033	1.941
926	845.956	7.303	18.280	0.046	11.360	0.050	16.166	0.037	2.114
1736	1321.394	1055.184	18.242	0.077	11.361	0.041	16.050	0.045	2.192
1998	1497.520	1343.764	17.142	0.056	11.363	0.059	15.603	0.040	1.539
1766	1333.341	115.629	18.453	0.063	11.372	0.052	16.353	0.040	2.100
530	468.978	-322.925	18.479	0.031	11.382	0.051	16.181	0.024	2.299
1785	1347.352	852.195	17.296	0.054	11.386	0.037	15.500	0.058	1.797
7	-218.422	374.786	18.640	0.040	11.391	0.054	16.457	0.029	2.184
709	648.871	1260.623	18.044	0.074	11.400	0.056	16.023	0.039	2.021
2271	1748.312	1192.221	18.130	0.047	11.413	0.065	15.979	0.043	2.151
324	264.199	840.672	17.869	0.039	11.435	0.057	16.009	0.027	1.860

2011	1504.319	1196.769	18.171	0.069	11.440	0.055	16.107	0.040	2.063
381	313.440	404.272	18.178	0.039	11.452	0.049	16.372	0.037	1.806
44	-99.851	481.003	17.935	0.026	11.459	0.057	15.868	0.026	2.067
1187	1012.181	775.878	17.760	0.078	11.463	0.047	15.897	0.079	1.863
1707	1308.601	355.736	18.617	0.090	11.475	0.042	16.260	0.042	2.357
2149	1611.738	980.085	18.245	0.061	11.476	0.043	16.082	0.041	2.162
801	747.137	1073.421	18.071	0.059	11.477	0.037	16.032	0.036	2.039
618	556.286	614.367	17.991	0.101	11.500	0.043	16.031	0.029	1.960
633	572.647	1294.578	17.771	0.063	11.510	0.060	15.695	0.039	2.076
28	-131.326	209.152	18.906	0.048	11.513	0.052	16.762	0.033	2.144
1122	979.711	1402.397	18.016	0.061	11.516	0.050	15.903	0.032	2.113
517	459.168	476.513	18.046	0.058	11.517	0.047	16.224	0.039	1.822
82	-12.392	409.570	17.530	0.029	11.522	0.061	15.348	0.030	2.182
47	-95.666	550.130	17.873	0.036	11.526	0.056	15.903	0.027	1.970
2037	1525.096	684.998	17.929	0.051	11.531	0.038	16.091	0.040	1.838
1324	1098.942	975.005	18.207	0.076	11.531	0.031	16.348	0.047	1.859
1327	1100.132	842.249	18.248	0.105	11.536	0.030	16.328	0.051	1.920
1231	1038.447	1292.170	18.605	0.082	11.554	0.047	16.287	0.037	2.318
1299	1083.840	718.410	17.724	0.131	11.555	0.031	16.263	0.056	1.460
54	-76.313	282.253	18.800	0.050	11.581	0.059	16.435	0.032	2.366
2029	1520.059	744.680	17.106	0.076	11.588	0.039	15.478	0.039	1.628
1040	927.623	641.825	18.234	0.102	11.596	0.034	16.264	0.064	1.970
1242	1045.827	1154.392	17.958	0.078	11.603	0.037	15.852	0.040	2.107
552	493.105	436.332	18.044	0.063	11.610	0.048	16.216	0.038	1.828
38	-118.507	444.861	17.878	0.038	11.625	0.058	15.739	0.026	2.139
1798	1357.120	1451.699	18.822	0.067	11.631	0.053	16.592	0.036	2.231
1952	1470.001	1526.263	17.956	0.031	11.634	0.051	15.828	0.028	2.128
1157	1002.025	1240.918	18.487	0.061	11.640	0.044	16.372	0.041	2.116
153	65.143	624.937	17.984	0.031	11.641	0.057	16.255	0.034	1.728
2155	1619.266	1225.866	18.485	0.068	11.645	0.058	16.450	0.047	2.035
784	731.994	6.385	18.119	0.075	11.672	0.053	15.981	0.036	2.138
2396	1927.255	878.014	18.471	0.044	11.676	0.065	16.297	0.043	2.174
726	672.182	509.230	17.932	0.147	11.681	0.039	15.923	0.048	2.008
1582	1249.372	1349.154	18.414	0.132	11.681	0.052	16.317	0.036	2.097
809	756.311	-92.491	18.743	0.054	11.682	0.044	16.583	0.035	2.160
957	871.715	13.175	18.123	0.053	11.685	0.052	16.050	0.035	2.073
1446	1168.087	962.595	17.323	0.057	11.693	0.050	15.565	0.050	1.758
355	295.463	424.682	18.290	0.073	11.701	0.049	16.381	0.035	1.909
268	209.306	734.334	18.311	0.046	11.709	0.052	16.440	0.038	1.871
2084	1565.234	1322.805	18.280	0.047	11.714	0.058	16.222	0.048	2.058
2356	1854.314	265.660	18.554	0.046	11.726	0.063	16.473	0.039	2.081
1280	1067.655	404.966	18.402	0.091	11.736	0.031	16.407	0.040	1.995
1027	919.824	726.675	19.605	0.361	11.740	0.036	16.429	0.065	3.176
394	325.183	1308.528	18.396	0.110	11.740	0.079	16.231	0.044	2.164
257	192.197	688.438	18.475	0.054	11.741	0.051	16.392	0.038	2.083
224	155.088	987.735	18.453	0.094	11.742	0.064	16.394	0.043	2.059
354	294.954	842.994	17.757	0.039	11.746	0.055	15.993	0.034	1.764
653	594.253	333.824	18.871	0.087	11.747	0.048	16.739	0.045	2.132
303	242.269	4.443	17.982	0.044	11.750	0.085	16.018	0.041	1.964
1239	1044.700	876.667	17.820	0.065	11.756	0.028	16.139	0.045	1.681
1979	1484.992	610.337	18.256	0.077	11.772	0.043	16.260	0.043	1.996
2441	2076.113	111.198	18.314	0.046	11.784	0.101	16.433	0.048	1.881
2439	2071.654	502.072	18.646	0.051	11.791	0.068	16.469	0.042	2.176
29	-130.795	473.148	17.921	0.030	11.792	0.057	15.900	0.027	2.021
380	312.851	554.616	18.088	0.037	11.797	0.046	16.462	0.036	1.626
1835	1381.890	899.549	18.209	0.136	11.798	0.038	16.316	0.039	1.894
491	433.556	96.152	18.433	0.051	11.799	0.056	16.334	0.040	2.099
194	118.213	1200.182	18.041	0.054	11.800	0.077	15.980	0.048	2.061
1370	1126.547	1216.699	18.132	0.065	11.801	0.045	16.213	0.043	1.919
110	21.372	918.752	18.243	0.053	11.802	0.064	16.496	0.049	1.747
1677	1294.324	1077.119	18.052	0.060	11.826	0.045	16.136	0.044	1.917
395	325.789	492.379	17.472	0.206	11.828	0.087	15.714	0.059	1.758
251	186.714	460.924	18.078	0.040	11.839	0.054	16.280	0.035	1.798
593	528.911	866.540	18.173	0.049	11.856	0.044	16.452	0.051	1.721
2202	1675.781	917.741	18.617	0.074	11.859	0.056	16.573	0.045	2.044
839	779.447	363.722	18.131	0.092	11.859	0.041	16.426	0.038	1.705
2322	1806.971	316.252	18.535	0.070	11.863	0.064	16.514	0.043	2.021
188	113.732	394.313	18.509	0.050	11.873	0.060	16.524	0.035	1.985
500	440.542	-483.579	18.250	0.025	11.875	0.056	16.113	0.028	2.137
151	64.826	-0.062	18.630	0.042	11.889	0.068	16.527	0.045	2.102
908	837.652	1065.963	17.919	0.082	11.889	0.034	16.407	0.032	1.512
23	-148.302	506.261	18.479	0.042	11.900	0.059	16.507	0.034	1.972
402	335.578	105.405	18.818	0.052	11.900	0.058	16.787	0.042	2.031
1320	1096.418	-13.189	18.434	0.061	11.903	0.057	16.353	0.036	2.081
2404	1948.661	357.818	18.474	0.044	11.906	0.064	16.448	0.041	2.026
2387	1909.857	1092.981	18.253	0.066	11.913	0.071	16.200	0.055	2.054
1272	1065.940	660.778	17.905	0.079	11.918	0.033	16.422	0.051	1.482
182	104.141	171.514	18.649	0.066	11.921	0.064	16.635	0.043	2.014
1755	1329.108	910.866	18.412	0.067	11.928	0.039	16.541	0.048	1.871
494	434.996	139.883	18.699	0.070	11.939	0.056	16.559	0.039	2.140
522	463.788	871.566	17.882	0.032	11.946	0.047	16.446	0.037	1.436
1162	1004.032	621.883	17.051	0.071	11.952	0.030	16.046	0.035	1.005

1632	1274.453	709.115	17.927	0.070	11.960	0.038	16.255	0.043	1.672
56	-72.161	698.199	18.881	0.072	11.963	0.053	16.709	0.030	2.172
1400	1144.706	273.359	18.513	0.082	11.969	0.041	16.418	0.038	2.095
1557	1233.073	588.617	18.365	0.082	11.973	0.035	16.486	0.058	1.879
2294	1778.793	1347.046	18.530	0.073	11.978	0.064	16.399	0.048	2.131
1769	1335.500	1010.259	18.304	0.065	11.982	0.041	16.261	0.045	2.043
635	578.518	-235.154	18.595	0.057	11.983	0.048	16.393	0.026	2.202
65	-42.330	583.651	18.494	0.081	11.990	0.058	16.543	0.039	1.951
1615	1263.553	371.424	18.735	0.092	12.001	0.040	16.653	0.045	2.082
1673	1292.014	846.931	17.795	0.066	12.005	0.043	15.790	0.056	2.004
1502	1201.847	1022.780	18.530	0.059	12.009	0.050	16.846	0.060	1.684
845	784.365	1239.559	18.303	0.047	12.009	0.047	16.586	0.037	1.716
923	844.717	1155.031	19.117	0.209	12.010	0.048	16.715	0.051	2.402
1651	1281.804	503.089	18.243	0.031	12.011	0.036	16.808	0.051	1.435
1617	1263.715	266.138	18.456	0.072	12.011	0.045	16.450	0.042	2.006
881	811.879	970.096	17.494	0.048	12.013	0.031	15.662	0.035	1.832
1212	1027.953	1428.708	19.044	0.059	12.013	0.047	16.982	0.062	2.061
2138	1606.251	92.512	18.396	0.045	12.014	0.064	16.528	0.042	1.868
2072	1556.052	1318.668	18.895	0.092	12.015	0.057	16.821	0.049	2.074
2192	1660.265	1319.221	18.486	0.051	12.022	0.065	16.493	0.044	1.993
2316	1799.768	222.473	18.660	0.080	12.029	0.065	16.655	0.040	2.006
1259	1058.357	1053.601	18.312	0.078	12.035	0.034	16.603	0.053	1.709
371	305.113	443.209	18.122	0.051	12.041	0.053	16.285	0.034	1.837
2	-256.165	497.143	19.138	0.037	12.054	0.059	16.903	0.034	2.234
996	898.461	-203.639	19.438	0.055	12.056	0.045	17.034	0.034	2.404
2363	1863.201	562.469	18.644	0.050	12.065	0.061	16.660	0.044	1.984
1709	1309.226	1233.118	18.700	0.062	12.076	0.052	16.875	0.046	1.824
99	9.104	1175.055	18.765	0.078	12.077	0.065	17.075	0.059	1.689
103	12.310	21.591	18.623	0.048	12.079	0.072	16.747	0.047	1.876
2023	1514.634	1481.357	19.242	0.045	12.085	0.053	16.970	0.042	2.273
1053	934.078	669.832	18.371	0.148	12.092	0.038	16.616	0.075	1.755
124	36.454	552.372	18.206	0.037	12.094	0.060	16.478	0.038	1.729
2198	1670.878	1208.623	18.592	0.056	12.106	0.062	16.597	0.051	1.996
804	748.051	1220.497	18.724	0.086	12.108	0.046	16.666	0.036	2.057
160	74.793	1317.171	18.710	0.077	12.125	0.089	17.046	0.054	1.664
841	781.358	1114.824	18.244	0.070	12.136	0.040	16.249	0.036	1.995
735	681.512	1014.988	19.433	0.221	12.148	0.039	16.485	0.041	2.948
1424	1155.068	492.889	18.422	0.095	12.154	0.035	16.636	0.051	1.787
1816	1367.316	1080.462	18.885	0.117	12.154	0.050	16.683	0.046	2.202
2455	2129.251	501.454	18.695	0.063	12.156	0.070	16.615	0.046	2.080
2359	1859.161	42.156	18.529	0.059	12.157	0.064	16.601	0.048	1.928
1204	1022.101	347.707	17.934	0.037	12.158	0.037	16.574	0.041	1.360
2281	1766.325	292.584	18.904	0.094	12.159	0.061	17.020	0.053	1.884
2278	1761.116	435.087	18.626	0.059	12.164	0.059	16.697	0.044	1.929
788	738.917	-228.473	19.072	0.040	12.165	0.046	16.845	0.029	2.227
2285	1770.248	1192.531	18.483	0.081	12.168	0.064	16.418	0.048	2.065
161	74.897	520.654	18.554	0.058	12.170	0.062	16.465	0.029	2.089
33	-128.565	614.500	18.534	0.041	12.177	0.060	16.427	0.034	2.107
790	739.517	842.962	18.856	0.143	12.178	0.036	16.946	0.049	1.909
472	410.102	834.345	19.019	0.082	12.198	0.051	17.094	0.052	1.925
2225	1701.107	1041.567	18.380	0.064	12.199	0.055	16.416	0.043	1.964
907	837.114	855.984	18.425	0.102	12.205	0.035	16.690	0.046	1.736
1100	968.489	717.253	18.028	0.063	12.206	0.035	16.318	0.046	1.710
1721	1316.021	465.893	18.281	0.075	12.212	0.038	16.412	0.047	1.870
2131	1600.190	697.490	18.308	0.053	12.217	0.050	16.453	0.040	1.855
405	336.749	565.596	18.234	0.072	12.220	0.042	16.213	0.039	2.021
2352	1847.207	1419.989	18.526	0.062	12.223	0.081	16.726	0.060	1.801
465	402.724	-52.110	18.713	0.051	12.225	0.054	16.676	0.089	2.037
706	647.919	-88.986	19.128	0.055	12.230	0.047	16.981	0.038	2.147
1542	1223.342	1306.767	18.284	0.047	12.230	0.051	16.796	0.045	1.488
35	-123.963	294.383	18.132	0.033	12.231	0.066	15.981	0.027	2.151
752	697.306	1310.127	18.808	0.135	12.238	0.058	16.810	0.049	1.998
1588	1251.123	1564.891	18.949	0.051	12.240	0.051	16.781	0.035	2.168
733	679.874	910.016	17.633	0.032	12.242	0.055	16.755	0.060	0.878
1515	1207.308	1174.653	18.830	0.080	12.244	0.048	16.889	0.048	1.941
362	302.171	552.809	17.478	0.039	12.253	0.050	15.699	0.029	1.779
343	282.359	537.275	18.199	0.040	12.253	0.051	16.786	0.041	1.413
874	807.140	1434.874	18.622	0.071	12.260	0.056	16.956	0.060	1.666
272	216.661	-78.265	19.254	0.052	12.267	0.054	17.182	0.036	2.071
274	218.323	1041.239	17.515	0.067	12.267	0.065	15.415	0.041	2.101
45	-99.298	221.295	19.446	0.049	12.269	0.061	17.034	0.035	2.412
2290	1773.523	88.669	18.612	0.113	12.281	0.075	16.631	0.046	1.981
2234	1707.268	8.669	18.690	0.069	12.293	0.068	16.580	0.050	2.110
855	793.293	1296.605	18.615	0.056	12.301	0.066	16.863	0.043	1.752
36	-122.650	484.535	19.064	0.054	12.307	0.059	17.019	0.039	2.045
1894	1427.047	426.965	18.646	0.055	12.307	0.046	16.845	0.046	1.801
836	777.580	-83.561	19.014	0.065	12.308	0.048	16.997	0.037	2.017
172	93.072	587.595	18.212	0.046	12.314	0.065	16.751	0.034	1.460
672	614.288	1058.007	18.951	0.111	12.314	0.044	17.035	0.047	1.916
195	119.178	347.484	18.858	0.055	12.316	0.067	16.945	0.036	1.914
185	109.938	131.616	18.223	0.046	12.320	0.068	16.255	0.043	1.968
373	306.126	1179.462	18.645	0.062	12.322	0.074	16.723	0.049	1.922

2121	1593.719	1138.713	18.473	0.049	12.334	0.054	16.597	0.044	1.876
544	484.321	232.317	18.715	0.088	12.334	0.054	16.829	0.043	1.885
217	145.553	1125.432	18.731	0.112	12.336	0.074	16.764	0.049	1.966
2159	1623.690	720.993	18.864	0.083	12.343	0.047	17.013	0.060	1.851
2008	1501.938	1404.122	18.859	0.081	12.347	0.057	16.668	0.044	2.190
1543	1224.099	-60.961	19.056	0.050	12.349	0.046	17.054	0.040	2.002
1440	1164.073	108.234	18.912	0.095	12.356	0.053	16.789	0.040	2.122
1020	914.993	512.331	17.789	0.119	12.356	0.038	16.447	0.039	1.341
2013	1505.466	109.342	18.839	0.086	12.357	0.054	16.902	0.048	1.937
510	450.534	734.819	18.766	0.136	12.362	0.050	16.784	0.050	1.982
619	556.312	-299.808	19.287	0.077	12.363	0.052	17.014	0.039	2.273
140	54.505	181.581	19.213	0.054	12.373	0.085	16.796	0.053	2.416
1429	1158.892	1237.711	18.486	0.072	12.374	0.050	16.802	0.044	1.684
2190	1658.938	822.097	18.653	0.056	12.383	0.047	16.798	0.045	1.855
1217	1029.822	-1.140	19.539	0.116	12.388	0.051	17.229	0.057	2.310
178	96.939	1223.309	18.721	0.067	12.396	0.070	16.884	0.054	1.838
219	149.547	70.662	18.576	0.047	12.402	0.069	16.556	0.042	2.020
956	871.681	872.320	17.546	0.061	12.403	0.035	15.955	0.033	1.590
929	847.509	585.904	17.295	0.091	12.404	0.038	16.241	0.041	1.054
652	592.457	1208.163	18.447	0.052	12.407	0.057	17.170	0.056	1.277
1211	1027.709	916.643	18.474	0.119	12.407	0.038	16.896	0.052	1.578
1313	1090.671	1150.675	19.454	0.160	12.411	0.043	16.966	0.052	2.488
785	737.976	4.511	19.513	0.112	12.415	0.070	17.039	0.054	2.474
2279	1763.545	1254.846	18.834	0.056	12.418	0.064	16.972	0.055	1.863
59	-60.879	710.680	18.754	0.082	12.419	0.059	16.935	0.046	1.818
145	61.416	705.137	18.957	0.068	12.420	0.062	16.924	0.044	2.033
1099	967.590	246.556	18.427	0.073	12.428	0.044	16.709	0.047	1.717
1875	1413.165	620.853	18.505	0.080	12.428	0.041	16.903	0.066	1.602
1547	1226.057	1492.340	18.990	0.042	12.429	0.052	17.137	0.045	1.853
1189	1012.414	1118.970	18.772	0.092	12.431	0.040	16.924	0.046	1.848
1859	1400.318	1223.891	18.851	0.066	12.441	0.054	16.808	0.047	2.043
2288	1772.345	1375.239	18.803	0.108	12.445	0.071	16.867	0.051	1.936
22	-151.259	576.807	18.635	0.050	12.446	0.063	16.777	0.036	1.857
228	160.346	413.014	18.659	0.061	12.448	0.060	16.675	0.038	1.985
101	9.779	572.517	18.648	0.060	12.452	0.077	16.707	0.039	1.941
2425	2026.455	598.139	19.002	0.064	12.454	0.064	16.971	0.060	2.032
796	744.051	749.457	17.009	0.032	12.462	0.042	16.460	0.037	0.549
72	-30.338	619.023	18.626	0.045	12.465	0.060	16.654	0.043	1.973
2041	1528.346	115.498	19.306	0.075	12.467	0.058	17.319	0.054	1.987
253	189.202	870.810	19.228	0.126	12.468	0.058	17.099	0.051	2.129
1274	1066.180	950.432	18.818	0.046	12.470	0.039	17.155	0.056	1.663
2026	1516.025	998.960	18.448	0.068	12.472	0.044	16.708	0.042	1.740
1034	925.505	172.814	18.962	0.117	12.483	0.059	16.987	0.050	1.975
2169	1633.496	1442.643	18.841	0.062	12.492	0.084	16.961	0.042	1.880
1606	1259.115	231.326	18.993	0.090	12.495	0.050	16.939	0.044	2.054
1982	1488.208	901.092	18.719	0.050	12.498	0.044	16.907	0.044	1.812
982	890.796	920.370	18.540	0.092	12.509	0.034	17.012	0.050	1.528
1216	1029.168	349.874	18.374	0.085	12.512	0.043	16.858	0.049	1.516
1173	1007.724	311.278	17.953	0.037	12.518	0.057	16.923	0.058	1.030
557	496.329	623.633	19.324	0.126	12.526	0.051	17.358	0.062	1.966
2108	1583.487	1450.006	19.179	0.063	12.526	0.054	16.975	0.042	2.205
197	122.235	1347.076	18.654	0.062	12.529	0.077	17.336	0.057	1.317
39	-116.798	654.167	18.903	0.045	12.530	0.061	16.751	0.037	2.152
430	363.168	754.289	18.763	0.068	12.533	0.058	17.056	0.054	1.708
1849	1389.994	479.028	18.782	0.094	12.537	0.043	17.038	0.052	1.744
258	193.569	884.977	18.881	0.111	12.538	0.058	17.013	0.048	1.868
572	511.227	750.540	18.599	0.053	12.540	0.044	17.199	0.056	1.401
382	313.983	1059.357	18.700	0.073	12.543	0.060	17.073	0.049	1.628
1640	1277.098	741.586	17.852	0.057	12.543	0.043	16.427	0.041	1.425
1560	1234.345	-13.546	18.682	0.093	12.552	0.061	16.780	0.042	1.902
1175	1009.300	243.228	18.379	0.036	12.552	0.045	16.875	0.047	1.504
1307	1088.753	1138.911	19.127	0.138	12.556	0.049	17.172	0.060	1.954
336	275.903	525.343	18.562	0.040	12.558	0.053	16.974	0.043	1.588
1598	1256.222	123.900	18.879	0.064	12.560	0.054	17.123	0.047	1.756
1929	1450.679	1400.545	18.504	0.079	12.566	0.062	16.643	0.043	1.860
631	569.122	1235.953	19.230	0.178	12.575	0.060	17.344	0.054	1.886
173	93.595	57.485	19.021	0.046	12.579	0.062	17.091	0.054	1.930
1548	1227.822	1365.519	18.086	0.048	12.581	0.055	16.889	0.050	1.197
307	245.845	799.862	19.176	0.093	12.584	0.055	17.266	0.049	1.910
1986	1491.359	408.348	19.061	0.130	12.590	0.058	17.149	0.062	1.912
68	-35.993	411.245	18.522	0.048	12.591	0.069	16.498	0.034	2.024
1655	1282.271	941.822	18.670	0.079	12.597	0.045	16.783	0.054	1.887
503	441.257	299.080	18.876	0.073	12.600	0.056	16.936	0.047	1.940
8	-217.246	766.708	19.063	0.093	12.602	0.067	17.083	0.041	1.981
663	604.077	273.302	19.415	0.175	12.605	0.054	17.329	0.061	2.086
2101	1579.260	1542.413	19.963	0.313	12.606	0.065	17.285	0.041	2.677
2122	1594.837	1358.628	19.290	0.110	12.608	0.061	17.230	0.056	2.060
2436	2058.488	1303.092	18.806	0.079	12.608	0.082	17.038	0.061	1.768
1	-273.997	611.268	18.652	0.057	12.609	0.071	16.745	0.035	1.906
271	213.910	322.619	20.223	0.272	12.610	0.059	17.388	0.054	2.834
2184	1653.579	276.718	19.659	0.099	12.614	0.051	17.607	0.062	2.052
1862	1402.165	678.093	18.501	0.080	12.616	0.041	16.845	0.047	1.656

1770	1335.859	1438.863	18.657	0.065	12.617	0.084	16.621	0.039	2.035
1921	1446.155	1589.619	19.151	0.054	12.617	0.064	17.108	0.040	2.043
375	307.207	451.254	18.584	0.069	12.617	0.060	16.993	0.049	1.591
526	466.491	277.371	19.260	0.100	12.619	0.052	17.129	0.053	2.131
622	561.892	31.943	19.148	0.066	12.620	0.061	17.098	0.053	2.050
1226	1034.135	485.959	18.203	0.157	12.620	0.039	16.857	0.044	1.346
951	866.677	941.401	18.862	0.112	12.621	0.040	17.080	0.048	1.781
1481	1189.620	787.229	18.231	0.038	12.626	0.043	16.997	0.059	1.235
2126	1597.839	218.443	18.893	0.080	12.639	0.056	17.162	0.047	1.731
147	62.808	1073.135	18.919	0.092	12.644	0.072	17.107	0.053	1.812
305	243.427	1346.270	18.403	0.058	12.647	0.077	16.676	0.049	1.727
766	709.328	187.569	18.854	0.077	12.648	0.052	17.219	0.049	1.635
302	242.073	982.388	18.593	0.057	12.649	0.060	16.935	0.047	1.658
3	-254.285	549.370	19.822	0.097	12.655	0.066	17.491	0.042	2.331
32	-128.954	795.820	18.726	0.071	12.657	0.069	16.758	0.035	1.969
1405	1148.462	201.059	18.851	0.060	12.659	0.050	17.116	0.056	1.735
2071	1555.756	1445.346	19.045	0.067	12.663	0.056	17.181	0.046	1.864
276	219.848	-57.076	18.926	0.043	12.664	0.065	16.936	0.052	1.990
1340	1108.811	203.292	18.933	0.058	12.666	0.050	17.211	0.056	1.722
1308	1089.385	161.256	19.203	0.113	12.667	0.052	17.330	0.053	1.873
525	465.079	615.547	18.823	0.057	12.672	0.053	17.158	0.049	1.665
2443	2083.870	876.665	18.901	0.065	12.674	0.098	16.948	0.057	1.953
1436	1163.258	349.672	19.265	0.077	12.678	0.047	17.111	0.054	2.153
1298	1082.852	113.894	19.168	0.083	12.680	0.054	16.992	0.046	2.176
2357	1857.001	972.041	18.711	0.054	12.681	0.068	16.946	0.056	1.765
774	718.046	-106.929	19.660	0.065	12.694	0.053	17.226	0.041	2.434
1932	1453.097	181.419	18.830	0.057	12.697	0.059	16.980	0.042	1.850
9	-216.375	702.689	19.307	0.070	12.697	0.067	17.528	0.047	1.779
363	302.383	147.317	19.003	0.050	12.706	0.064	17.146	0.047	1.857
1219	1030.603	277.955	18.001	0.060	12.711	0.045	16.584	0.040	1.418
2207	1681.678	1293.148	19.468	0.072	12.714	0.068	17.242	0.055	2.225
952	866.754	819.820	18.933	0.137	12.716	0.039	17.152	0.065	1.781
34	-125.110	347.865	19.198	0.078	12.719	0.071	16.865	0.033	2.333
1312	1090.343	1161.413	18.718	0.056	12.736	0.049	16.976	0.048	1.742
208	133.285	213.711	18.338	0.042	12.737	0.072	16.618	0.040	1.720
128	45.801	955.904	18.543	0.066	12.738	0.065	16.685	0.046	1.858
204	130.989	871.668	18.140	0.054	12.744	0.064	16.349	0.045	1.791
843	783.971	-17.956	19.194	0.086	12.745	0.057	17.340	0.050	1.854
2220	1695.304	1397.199	18.685	0.065	12.752	0.075	16.816	0.053	1.869
513	455.144	482.658	19.163	0.051	12.756	0.058	17.463	0.069	1.700
291	232.062	656.216	18.532	0.046	12.756	0.064	17.104	0.047	1.428
112	27.310	47.694	18.668	0.045	12.757	0.071	17.315	0.051	1.353
132	48.549	573.164	19.469	0.076	12.760	0.066	17.399	0.045	2.070
418	352.366	-369.610	19.431	0.050	12.761	0.062	17.153	0.040	2.278
563	502.398	1064.069	19.286	0.129	12.765	0.056	17.414	0.074	1.872
1958	1471.165	1564.972	19.672	0.066	12.766	0.066	17.376	0.047	2.296
338	276.833	-305.000	19.410	0.043	12.766	0.065	17.209	0.045	2.201
2456	2137.712	537.803	19.396	0.177	12.769	0.063	17.553	0.055	1.843
412	344.083	295.042	19.170	0.090	12.772	0.058	17.341	0.061	1.829
1285	1070.508	1230.452	18.656	0.085	12.772	0.049	17.068	0.049	1.588
417	351.748	832.304	19.025	0.073	12.784	0.059	17.343	0.054	1.682
2447	2094.648	1140.332	18.694	0.068	12.787	0.079	17.389	0.071	1.305
819	766.516	1421.131	19.191	0.084	12.789	0.062	17.343	0.042	1.848
119	30.677	935.583	19.195	0.114	12.790	0.070	17.469	0.061	1.726
701	642.502	971.673	18.191	0.035	12.796	0.050	17.095	0.052	1.096
762	706.573	672.705	16.905	0.022	12.797	0.049	17.096	0.060	-0.192
1910	1437.943	1695.103	19.638	0.074	12.798	0.069	17.399	0.062	2.239
901	830.839	955.725	17.718	0.037	12.802	0.042	17.408	0.061	0.309
2054	1538.114	822.493	18.743	0.041	12.802	0.048	17.039	0.049	1.703
210	137.350	405.802	19.793	0.087	12.803	0.069	17.363	0.055	2.430
2237	1710.351	751.091	19.018	0.096	12.805	0.070	17.187	0.054	1.830
512	452.396	226.685	18.666	0.044	12.805	0.059	17.080	0.043	1.586
817	763.672	805.078	18.693	0.201	12.810	0.046	16.924	0.054	1.769
2428	2039.492	418.280	19.336	0.072	12.816	0.056	17.391	0.060	1.945
2432	2052.036	299.276	18.927	0.118	12.816	0.079	17.133	0.056	1.794
67	-36.610	651.025	19.507	0.080	12.819	0.064	17.491	0.061	2.016
1719	1314.988	238.893	19.277	0.102	12.819	0.050	17.382	0.067	1.895
146	61.995	656.436	19.288	0.099	12.825	0.065	17.528	0.062	1.760
2110	1585.406	396.084	18.889	0.061	12.828	0.058	17.357	0.060	1.532
1336	1105.756	741.167	17.669	0.036	12.828	0.046	17.381	0.078	0.287
2048	1534.054	615.588	18.684	0.155	12.836	0.050	16.981	0.047	1.703
986	893.318	-55.061	18.954	0.052	12.838	0.068	16.914	0.047	2.041
772	715.637	-88.090	19.868	0.085	12.839	0.057	17.449	0.051	2.419
226	159.593	-102.384	19.422	0.094	12.846	0.076	17.430	0.053	1.992
41	-115.102	706.063	19.430	0.098	12.846	0.072	17.429	0.046	2.000
1823	1373.173	34.097	18.741	0.071	12.847	0.057	17.399	0.052	1.342
823	771.227	757.273	18.906	0.283	12.849	0.046	17.191	0.063	1.715
440	371.562	657.252	19.014	0.099	12.850	0.055	17.385	0.057	1.629
2255	1726.383	1391.204	19.135	0.171	12.852	0.073	17.145	0.058	1.990
1179	1010.383	-119.606	19.793	0.070	12.854	0.057	17.408	0.044	2.384
2085	1565.712	1317.341	19.548	0.062	12.854	0.063	17.346	0.070	2.202
727	672.824	903.865	18.062	0.051	12.855	0.049	16.521	0.040	1.541

2092	1570.592	1446.671	19.345	0.057	12.859	0.065	17.371	0.050	1.974
629	567.935	1259.719	19.092	0.096	12.861	0.065	17.233	0.066	1.859
1621	1266.456	1129.046	18.663	0.149	12.865	0.057	17.121	0.051	1.541
11	-207.904	460.589	19.370	0.043	12.866	0.081	17.252	0.048	2.117
1820	1370.764	1337.132	19.052	0.189	12.869	0.063	17.326	0.061	1.726
2451	2098.347	10.396	19.240	0.115	12.869	0.102	17.337	0.074	1.904
148	63.191	191.053	19.005	0.051	12.870	0.071	17.244	0.052	1.760
326	266.813	139.179	18.676	0.061	12.872	0.068	16.830	0.045	1.847
1845	1387.995	324.793	19.581	0.092	12.873	0.054	17.395	0.055	2.187
1738	1322.017	780.607	19.101	0.155	12.874	0.055	17.308	0.071	1.793
2422	2011.909	371.806	19.215	0.074	12.874	0.064	17.374	0.055	1.841
1469	1183.889	374.337	19.307	0.106	12.875	0.046	17.320	0.065	1.987
1018	913.429	1057.164	18.727	0.050	12.877	0.043	17.254	0.057	1.473
1270	1063.595	910.276	18.419	0.048	12.878	0.047	17.485	0.070	0.934
70	-31.588	862.997	18.748	0.076	12.886	0.069	16.769	0.048	1.979
1878	1414.527	1425.458	19.576	0.097	12.902	0.077	17.530	0.072	2.046
675	615.925	748.260	18.597	0.079	12.907	0.049	17.408	0.060	1.189
149	63.540	263.282	18.708	0.064	12.908	0.075	16.732	0.037	1.976
1156	1001.761	1059.229	18.467	0.097	12.909	0.045	16.427	0.041	2.040
1401	1144.973	941.232	18.808	0.137	12.911	0.049	16.757	0.060	2.051
1712	1311.048	517.940	18.801	0.108	12.913	0.046	17.109	0.046	1.692
590	528.043	321.400	18.715	0.068	12.916	0.058	17.178	0.062	1.537
610	550.061	-279.130	19.685	0.053	12.921	0.065	17.569	0.061	2.116
2144	1609.950	804.784	19.177	0.120	12.925	0.048	17.441	0.062	1.736
904	835.626	810.134	18.242	0.070	12.928	0.045	17.190	0.049	1.053
743	687.391	854.113	18.204	0.061	12.929	0.049	17.258	0.053	0.946
1382	1133.460	664.730	18.755	0.162	12.929	0.053	17.529	0.083	1.225
1300	1084.159	-54.107	18.905	0.080	12.935	0.061	16.791	0.074	2.114
2401	1941.022	390.338	19.275	0.060	12.936	0.058	17.335	0.054	1.940
2089	1568.388	1308.397	19.298	0.092	12.943	0.057	17.262	0.060	2.036
1380	1132.415	893.382	18.856	0.134	12.944	0.046	17.243	0.057	1.612
1035	925.866	-7.579	19.256	0.074	12.945	0.059	17.450	0.062	1.806
1199	1018.782	-0.167	18.837	0.057	12.946	0.059	17.199	0.058	1.638
152	64.914	920.068	18.843	0.072	12.948	0.073	17.193	0.050	1.650
1414	1150.962	614.669	18.957	0.139	12.951	0.046	17.376	0.069	1.581
1489	1193.701	65.762	19.346	0.082	12.954	0.059	17.322	0.055	2.024
1611	1261.477	661.461	17.487	0.024	12.956	0.047	17.059	0.048	0.429
2005	1500.425	477.581	19.029	0.068	12.962	0.056	17.371	0.066	1.658
647	587.414	818.747	18.263	0.063	12.965	0.052	16.995	0.045	1.268
20	-158.300	398.329	19.430	0.062	12.965	0.067	17.559	0.066	1.871
2450	2097.900	131.630	18.742	0.065	12.967	0.093	17.245	0.058	1.497
1555	1232.180	1385.900	18.485	0.066	12.969	0.064	16.997	0.053	1.489
46	-99.217	310.177	19.302	0.060	12.969	0.069	17.395	0.051	1.908
792	740.242	1423.429	19.118	0.081	12.970	0.067	17.269	0.041	1.849
1669	1291.398	233.317	18.714	0.065	12.973	0.055	16.712	0.044	2.002
502	441.088	427.217	17.578	0.053	12.974	0.056	15.820	0.032	1.758
2261	1736.907	1028.589	19.163	0.070	12.974	0.067	17.305	0.056	1.858
1394	1143.045	520.577	17.968	0.046	12.975	0.048	17.010	0.050	0.958
434	367.007	459.146	18.541	0.045	12.977	0.059	16.782	0.054	1.759
1463	1180.950	-102.598	19.702	0.091	12.980	0.049	17.655	0.056	2.046
989	895.309	567.162	17.237	0.032	12.982	0.045	17.001	0.054	0.236
1807	1362.882	851.733	17.889	0.072	12.987	0.053	17.104	0.053	0.785
273	217.367	750.203	19.285	0.076	12.988	0.071	17.555	0.055	1.730
1129	985.250	1211.131	18.809	0.065	12.993	0.056	17.307	0.057	1.503
2445	2088.067	721.170	19.422	0.087	12.996	0.100	17.541	0.078	1.881
2086	1566.218	1510.874	19.654	0.061	12.997	0.071	17.414	0.060	2.240
1922	1446.183	674.615	18.736	0.041	12.999	0.048	17.412	0.061	1.324
2408	1953.609	629.867	19.618	0.075	13.000	0.066	17.492	0.056	2.126
1873	1411.378	1646.254	19.096	0.042	13.000	0.070	17.055	0.042	2.041

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ID	X	Y	N	Nerr	V	Verr	W	Werr	N-W
869	1117.764	187.924	12.718	0.065	6.565	0.065	10.905	0.058	1.814
926	1151.866	1095.869	13.345	0.036	6.750	0.051	11.469	0.043	1.876
687	973.843	1102.416	13.847	0.043	6.897	0.090	11.924	0.043	1.923
1038	1205.919	736.510	13.581	0.039	7.081	0.054	12.002	0.045	1.579
1356	1429.515	-92.412	15.052	0.082	7.323	0.106	12.935	0.076	2.116
1046	1210.821	722.195	14.444	0.050	7.526	0.037	12.500	0.052	1.943
44	196.673	929.734	15.168	0.077	7.549	0.110	13.011	0.069	2.158
760	1040.595	732.470	14.467	0.038	7.677	0.039	12.680	0.066	1.787
1082	1231.494	1128.696	14.328	0.036	7.834	0.056	12.407	0.027	1.920
1453	1510.672	1349.745	15.052	0.050	7.851	0.068	12.940	0.043	2.112
1678	1786.634	103.032	15.691	0.064	7.887	0.083	13.439	0.066	2.252
1056	1216.631	1300.488	14.559	0.047	7.896	0.076	12.702	0.083	1.857
540	844.367	1449.540	15.186	0.059	7.910	0.091	13.102	0.056	2.084
1347	1421.184	13.278	13.370	0.091	8.009	0.094	11.451	0.113	1.919
650	936.566	937.918	15.078	0.036	8.021	0.056	13.113	0.031	1.965
797	1064.571	776.650	14.823	0.030	8.080	0.038	13.158	0.061	1.664
1783	1979.756	907.333	15.327	0.063	8.100	0.089	13.178	0.057	2.149
1587	1651.313	891.878	15.165	0.041	8.145	0.051	13.156	0.030	2.009
991	1187.087	639.856	14.565	0.041	8.239	0.034	12.900	0.072	1.665
586	883.323	996.051	14.400	0.042	8.291	0.062	12.889	0.035	1.512
105	317.783	407.590	14.620	0.074	8.324	0.091	12.517	0.074	2.103
1014	1194.965	953.636	14.723	0.030	8.399	0.034	12.971	0.076	1.752
1478	1531.073	267.010	15.396	0.062	8.454	0.060	13.405	0.057	1.991
39	179.125	1286.575	15.673	0.071	8.458	0.112	13.648	0.074	2.025
562	865.946	1507.584	14.646	0.068	8.475	0.095	12.702	0.054	1.944
1108	1251.167	808.492	15.324	0.041	8.606	0.037	13.448	0.040	1.876
1511	1568.352	881.507	14.921	0.037	8.626	0.043	13.035	0.032	1.886
1682	1797.261	445.349	15.852	0.059	8.648	0.065	13.792	0.052	2.060
893	1134.458	674.939	15.184	0.039	8.678	0.036	13.381	0.049	1.803
262	561.637	1226.906	16.167	0.051	8.680	0.079	13.904	0.054	2.263
1447	1503.245	372.822	15.197	0.062	8.729	0.053	13.273	0.043	1.924
1149	1281.665	816.799	15.526	0.037	8.793	0.037	13.683	0.041	1.843
277	574.905	386.164	15.661	0.057	8.798	0.075	13.644	0.056	2.017
1103	1248.413	643.617	15.204	0.048	8.841	0.045	13.339	0.050	1.866
628	916.944	1036.361	15.242	0.038	8.846	0.056	13.288	0.033	1.954
936	1158.502	689.464	15.508	0.042	8.858	0.045	13.733	0.056	1.775
1089	1237.359	766.724	15.758	0.044	9.078	0.040	13.888	0.046	1.870
1556	1617.415	-195.780	15.765	0.076	9.167	0.108	13.701	0.079	2.064
1440	1497.273	653.259	16.173	0.044	9.172	0.047	14.188	0.037	1.985
389	695.524	1130.310	15.789	0.049	9.212	0.071	13.808	0.051	1.980
509	819.441	906.611	16.242	0.042	9.277	0.061	14.246	0.039	1.996
435	751.804	1309.367	16.297	0.054	9.294	0.075	14.261	0.050	2.035
681	969.647	717.573	16.113	0.033	9.351	0.039	14.262	0.035	1.851
965	1175.045	692.325	16.084	0.046	9.473	0.039	14.323	0.044	1.761
373	680.147	170.029	15.982	0.055	9.565	0.078	14.042	0.057	1.940
688	976.545	551.522	16.079	0.040	9.582	0.040	14.473	0.035	1.606
656	941.956	1514.091	16.203	0.063	9.603	0.091	14.225	0.048	1.977
26	134.036	1083.747	17.098	0.082	9.656	0.100	14.980	0.075	2.118
1001	1191.626	689.770	14.967	0.045	9.760	0.045	13.981	0.051	0.986
259	557.721	1123.395	16.075	0.049	9.767	0.073	14.108	0.050	1.967
1690	1809.999	256.280	16.811	0.064	9.792	0.073	14.712	0.058	2.099
1588	1651.761	755.148	16.987	0.054	9.801	0.048	14.912	0.030	2.076
1025	1200.188	685.538	16.530	0.072	9.813	0.042	14.614	0.048	1.916
577	875.956	11.053	16.206	0.053	9.827	0.079	14.214	0.055	1.992
675	956.902	540.189	16.205	0.035	9.834	0.039	14.686	0.032	1.519
829	1087.381	727.750	16.453	0.039	9.871	0.035	14.766	0.045	1.687
629	917.187	798.966	16.003	0.032	9.891	0.040	14.115	0.031	1.888
689	977.985	968.314	17.004	0.046	9.894	0.043	14.872	0.028	2.131
1146	1277.494	158.964	16.831	0.069	9.896	0.071	14.836	0.061	1.995
1029	1202.076	730.549	17.017	0.087	9.920	0.064	14.814	0.056	2.203
1683	1797.509	660.658	17.344	0.065	9.990	0.058	15.167	0.043	2.177
1720	1865.274	751.295	16.711	0.053	9.999	0.065	15.015	0.045	1.696
1137	1271.833	575.338	16.142	0.044	10.011	0.048	14.394	0.073	1.748
1052	1213.982	1319.990	16.915	0.063	10.043	0.068	14.914	0.040	2.001
517	826.612	952.757	17.052	0.047	10.049	0.052	15.076	0.034	1.976
925	1148.829	954.471	16.804	0.035	10.053	0.033	15.001	0.026	1.802
827	1086.898	415.631	17.090	0.053	10.103	0.047	15.051	0.044	2.038
683	971.630	536.130	17.094	0.068	10.143	0.040	15.102	0.034	1.992
1591	1663.459	189.768	17.186	0.069	10.152	0.070	15.089	0.055	2.097
1761	1924.036	366.972	17.584	0.077	10.170	0.077	15.356	0.056	2.228
973	1179.142	645.266	16.785	0.074	10.183	0.042	14.879	0.050	1.906
772	1050.517	661.580	16.294	0.037	10.188	0.036	14.511	0.041	1.783
232	523.264	669.622	16.801	0.058	10.190	0.068	14.734	0.048	2.067
1582	1644.707	977.443	17.092	0.049	10.238	0.054	15.068	0.031	2.024
1793	2008.363	560.938	16.764	0.062	10.241	0.077	14.705	0.057	2.059
545	849.676	906.336	16.567	0.039	10.260	0.047	14.637	0.033	1.930
729	1013.602	60.921	16.538	0.056	10.268	0.081	14.549	0.057	1.989

1359	1431.369	15.475	16.673	0.119	10.282	0.104	14.649	0.077	2.024
759	1037.169	302.261	17.374	0.067	10.286	0.053	15.254	0.044	2.120
834	1091.033	705.907	16.444	0.042	10.288	0.034	14.657	0.040	1.787
1128	1268.309	161.340	16.802	0.072	10.300	0.066	14.733	0.060	2.069
580	877.593	844.953	17.167	0.043	10.306	0.044	15.206	0.029	1.961
98	307.842	1075.360	16.823	0.059	10.307	0.081	14.772	0.059	2.051
851	1104.065	682.402	17.029	0.066	10.326	0.040	15.014	0.046	2.015
1021	1198.926	1219.438	17.625	0.051	10.340	0.054	15.531	0.033	2.094
298	594.941	168.902	17.531	0.066	10.341	0.078	15.323	0.055	2.208
1243	1347.816	689.324	17.011	0.046	10.370	0.049	15.277	0.040	1.735
236	525.778	713.583	16.789	0.055	10.371	0.069	14.817	0.048	1.971
1612	1688.127	248.921	17.354	0.063	10.380	0.067	15.269	0.050	2.084
666	950.659	983.872	17.413	0.047	10.388	0.044	15.370	0.029	2.043
786	1058.049	605.312	16.400	0.045	10.393	0.035	14.559	0.045	1.842
1184	1307.165	1446.174	17.490	0.056	10.405	0.077	15.520	0.046	1.970
900	1138.267	724.634	17.094	0.050	10.412	0.038	15.321	0.052	1.773
1209	1324.054	567.082	16.439	0.046	10.449	0.048	14.678	0.049	1.761
1335	1414.483	-167.676	17.903	0.103	10.452	0.108	15.780	0.068	2.123
1619	1701.853	55.122	18.031	0.107	10.465	0.094	15.728	0.065	2.303
5	9.734	732.265	17.888	0.076	10.469	0.111	15.770	0.077	2.119
	-17.472	902.723	17.957	0.120	10.470	0.105	15.830	0.072	2.127
912	1141.650	869.854	17.415	0.064	10.471	0.035	15.451	0.035	1.964
30	148.904	604.899	17.260	0.091	10.471	0.104	15.157	0.078	2.103
1036	1205.336	719.564	17.662	0.123	10.504	0.071	15.340	0.062	2.322
1011	1194.335	-65.263	17.928	0.094	10.561	0.102	15.779	0.067	2.150
301	595.797	970.866	17.834	0.068	10.562	0.063	15.659	0.045	2.176
1520	1579.640	1103.850	17.648	0.061	10.564	0.053	15.528	0.033	2.120
700	989.114	1115.936	17.514	0.082	10.580	0.048	15.563	0.032	1.952
31	151.188	701.742	17.042	0.067	10.587	0.100	15.018	0.077	2.023
970	1177.631	1103.399	16.896	0.041	10.587	0.040	15.025	0.029	1.871
58	237.832	1119.278	17.775	0.073	10.590	0.085	15.680	0.059	2.095
1204	1322.282	1121.571	17.609	0.054	10.605	0.042	15.646	0.031	1.964
1269	1360.705	356.129	17.048	0.064	10.606	0.053	15.089	0.045	1.960
28	140.549	821.058	17.648	0.073	10.637	0.102	15.555	0.074	2.092
934	1155.639	1412.571	17.572	0.070	10.644	0.071	15.542	0.047	2.030
791	1061.369	496.818	16.782	0.050	10.658	0.040	14.917	0.043	1.865
171	439.192	1307.970	17.629	0.072	10.659	0.081	15.588	0.051	2.040
37	174.705	684.472	17.359	0.087	10.684	0.099	15.311	0.072	2.048
208	488.810	1454.465	17.788	0.079	10.686	0.089	15.806	0.059	1.982
1186	1309.170	347.773	17.673	0.071	10.696	0.056	15.660	0.050	2.013
1749	1910.404	350.444	18.009	0.079	10.700	0.072	15.793	0.052	2.216
701	990.465	684.055	17.316	0.060	10.703	0.036	15.509	0.034	1.807
850	1103.457	1269.495	16.251	0.044	10.718	0.060	14.423	0.040	1.828
845	1101.168	1011.174	17.743	0.063	10.729	0.036	15.705	0.026	2.038
470	779.393	551.475	16.758	0.045	10.749	0.050	14.916	0.034	1.842
943	1163.190	690.604	17.390	0.076	10.753	0.066	15.773	0.104	1.617
25	131.361	1124.276	16.910	0.074	10.759	0.097	14.878	0.073	2.032
778	1052.885	581.797	16.869	0.057	10.760	0.038	15.016	0.045	1.852
268	565.002	1273.270	17.658	0.069	10.765	0.067	15.625	0.054	2.033
913	1142.123	672.449	17.001	0.051	10.770	0.039	15.444	0.039	1.557
1427	1484.335	898.292	17.074	0.049	10.794	0.040	15.170	0.028	1.904
808	1074.479	381.298	17.473	0.063	10.810	0.048	15.528	0.046	1.945
68	257.349	1225.943	17.410	0.067	10.821	0.088	15.468	0.057	1.942
722	1009.001	988.055	17.073	0.050	10.824	0.040	15.250	0.027	1.823
632	921.377	1424.285	18.164	0.084	10.830	0.071	16.044	0.050	2.120
1706	1830.675	843.094	17.224	0.061	10.836	0.058	15.251	0.041	1.973
1670	1770.716	242.383	16.693	0.061	10.838	0.070	14.666	0.056	2.028
1199	1316.695	1432.175	17.964	0.076	10.839	0.073	15.782	0.057	2.182
223	511.048	542.495	16.457	0.061	10.857	0.066	14.512	0.054	1.945
776	1052.420	1029.302	17.841	0.067	10.867	0.042	15.923	0.034	1.918
641	928.704	1114.880	18.121	0.080	10.868	0.051	15.970	0.034	2.152
1824	2073.141	246.260	17.847	0.082	10.870	0.077	15.778	0.056	2.069
332	633.277	1350.096	17.176	0.060	10.872	0.072	15.209	0.051	1.967
727	1012.908	662.235	17.018	0.051	10.881	0.036	15.226	0.039	1.792
234	525.679	695.933	18.017	0.095	10.887	0.065	15.873	0.046	2.144
386	692.487	513.154	18.023	0.081	10.898	0.056	15.883	0.045	2.140
	-43.087	843.721	18.329	0.111	10.909	0.107	16.114	0.064	2.215
1649	1746.150	1170.294	17.308	0.056	10.927	0.068	15.335	0.041	1.973
1183	1305.198	1028.391	17.750	0.058	10.927	0.035	15.818	0.028	1.932
136	389.254	1320.738	17.748	0.083	10.950	0.080	15.718	0.054	2.030
560	862.717	1025.195	17.855	0.061	10.955	0.049	15.934	0.033	1.921
412	722.631	1160.818	17.718	0.071	10.963	0.060	15.741	0.045	1.977
1259	1355.568	1074.653	17.333	0.047	10.969	0.038	15.485	0.026	1.848
1473	1527.857	-252.983	17.257	0.084	10.989	0.100	15.226	0.069	2.031
1693	1818.521	14.757	17.967	0.089	10.993	0.095	15.839	0.062	2.128
1393	1452.835	-231.145	17.532	0.088	10.998	0.110	15.483	0.066	2.049
1709	1838.428	1160.117	17.431	0.052	11.006	0.059	15.458	0.043	1.972
1337	1416.588	1255.325	17.811	0.078	11.008	0.058	15.923	0.036	1.888
1471	1527.022	1163.098	18.347	0.074	11.009	0.054	16.163	0.034	2.183
376	681.887	321.438	18.038	0.087	11.021	0.064	15.918	0.046	2.120
1357	1429.877	376.784	17.928	0.072	11.030	0.053	15.986	0.046	1.942
200	481.592	835.888	18.082	0.087	11.031	0.071	16.039	0.050	2.044

679	966.712	604.466	17.820	0.084	11.037	0.039	15.859	0.032	1.961
1167	1295.317	71.410	17.711	0.077	11.051	0.074	15.709	0.056	2.001
371	679.123	1401.915	17.505	0.070	11.053	0.068	15.498	0.051	2.006
385	690.557	705.294	17.186	0.055	11.054	0.055	15.225	0.035	1.960
655	940.922	894.159	17.980	0.089	11.055	0.040	15.994	0.030	1.986
137	390.579	647.628	17.789	0.073	11.056	0.076	15.798	0.061	1.991
1804	2034.581	762.525	18.300	0.091	11.059	0.079	16.166	0.052	2.134
334	635.014	357.316	17.494	0.079	11.063	0.065	15.476	0.051	2.018
182	453.817	1316.574	17.604	0.065	11.064	0.078	15.607	0.053	1.997
522	828.800	253.445	17.300	0.056	11.078	0.060	15.342	0.046	1.958
1179	1303.895	868.745	18.192	0.089	11.085	0.039	16.118	0.043	2.074
1813	2047.373	942.365	18.236	0.078	11.100	0.075	16.136	0.052	2.100
1653	1750.289	989.571	17.342	0.057	11.100	0.058	15.383	0.035	1.959
279	575.583	515.264	16.352	0.057	11.107	0.063	14.499	0.054	1.853
1279	1373.859	604.659	17.873	0.079	11.109	0.052	15.928	0.048	1.945
1755	1918.410	461.340	17.615	0.071	11.113	0.068	15.573	0.052	2.042
582	880.785	1414.045	17.564	0.064	11.133	0.071	15.566	0.046	1.999
842	1099.496	951.862	18.071	0.089	11.141	0.073	16.026	0.048	2.045
4	-0.533	601.206	18.538	0.146	11.147	0.127	16.505	0.072	2.033
897	1135.894	430.024	17.382	0.075	11.149	0.046	15.486	0.046	1.896
1384	1447.730	1020.924	18.203	0.067	11.153	0.040	16.116	0.028	2.088
404	713.582	396.064	18.280	0.089	11.154	0.056	15.992	0.043	2.288
597	890.507	1291.775	18.283	0.085	11.164	0.061	16.222	0.043	2.061
1850	2302.196	773.248	18.620	0.137	11.176	0.089	16.385	0.061	2.235
322	618.643	220.063	17.572	0.071	11.176	0.073	15.528	0.061	2.044
400	707.508	944.107	18.061	0.065	11.183	0.057	16.112	0.039	1.949
124	365.085	975.580	18.298	0.070	11.188	0.077	16.265	0.055	2.034
1791	2004.346	509.680	18.135	0.092	11.197	0.072	16.049	0.058	2.086
539	843.930	1483.270	18.052	0.107	11.221	0.073	16.139	0.048	1.913
1206	1322.970	131.280	18.064	0.082	11.223	0.069	16.043	0.060	2.021
292	587.898	1237.281	17.916	0.068	11.225	0.068	16.008	0.049	1.908
902	1138.746	759.303	17.772	0.072	11.226	0.039	16.035	0.042	1.737
99	308.744	265.241	17.924	0.126	11.232	0.086	15.900	0.065	2.024
1423	1478.182	534.834	17.944	0.083	11.246	0.052	15.948	0.041	1.996
888	1130.957	514.498	18.335	0.091	11.251	0.041	16.239	0.052	2.096
556	861.575	425.384	18.115	0.072	11.252	0.046	16.068	0.035	2.047
1573	1638.975	476.084	17.494	0.071	11.252	0.054	15.502	0.043	1.993
1211	1327.669	1273.859	17.722	0.063	11.257	0.057	15.776	0.039	1.946
895	1135.803	718.997	17.670	0.069	11.258	0.039	16.010	0.041	1.660
474	786.198	1005.785	18.236	0.079	11.258	0.052	16.219	0.042	2.017
175	445.682	1678.949	18.313	0.106	11.263	0.109	16.203	0.073	2.110
411	722.040	401.631	18.444	0.111	11.273	0.054	16.100	0.042	2.344
11	53.851	730.972	18.717	0.091	11.274	0.109	16.602	0.071	2.115
1823	2071.033	991.635	17.658	0.067	11.286	0.081	15.639	0.058	2.019
1355	1428.588	47.903	18.164	0.088	11.288	0.077	16.124	0.056	2.039
751	1030.202	529.780	17.792	0.072	11.293	0.039	15.893	0.042	1.899
63	245.652	479.755	18.593	0.119	11.294	0.096	16.560	0.074	2.033
916	1144.773	647.576	17.404	0.060	11.298	0.037	15.903	0.045	1.501
1772	1952.111	840.297	18.065	0.077	11.305	0.066	16.069	0.047	1.996
887	1130.822	721.873	17.826	0.086	11.311	0.040	16.059	0.043	1.767
1019	1197.952	662.892	17.620	0.084	11.321	0.044	15.958	0.051	1.662
750	1029.262	1207.673	18.530	0.091	11.324	0.047	16.466	0.037	2.064
1221	1332.651	1441.463	17.730	0.073	11.326	0.071	15.789	0.044	1.941
1600	1676.453	897.728	17.538	0.056	11.327	0.049	15.660	0.032	1.878
370	678.186	1626.749	18.635	0.131	11.339	0.093	16.499	0.056	2.135
1439	1495.767	404.185	17.630	0.081	11.345	0.054	15.672	0.044	1.957
281	582.058	202.226	18.415	0.105	11.355	0.076	16.225	0.052	2.190
1245	1347.924	1031.198	18.077	0.069	11.356	0.035	16.150	0.029	1.927
663	947.753	1360.875	18.545	0.114	11.359	0.065	16.490	0.052	2.055
181	448.366	221.379	17.666	0.075	11.364	0.077	15.703	0.064	1.963
612	908.423	863.806	17.440	0.061	11.373	0.042	15.484	0.033	1.956
1719	1855.211	906.516	18.462	0.107	11.374	0.061	16.259	0.043	2.202
1483	1537.249	1066.874	18.027	0.077	11.384	0.046	16.046	0.034	1.981
102	314.201	1155.541	17.939	0.071	11.392	0.077	15.989	0.055	1.949
1827	2076.655	622.411	18.651	0.093	11.403	0.077	16.588	0.059	2.063
1441	1497.606	106.759	18.788	0.160	11.407	0.066	16.602	0.058	2.186
633	921.899	736.654	18.201	0.091	11.409	0.040	16.257	0.030	1.944
1007	1193.273	704.292	17.805	0.110	11.412	0.040	16.116	0.046	1.688
1497	1549.942	952.641	18.171	0.078	11.415	0.042	16.200	0.037	1.971
230	519.459	1064.539	18.420	0.075	11.415	0.064	16.360	0.049	2.060
640	928.385	218.189	17.709	0.082	11.416	0.058	15.724	0.051	1.985
238	526.855	1154.452	18.208	0.086	11.417	0.067	16.215	0.048	1.993
1431	1485.435	-155.661	18.650	0.123	11.424	0.103	16.599	0.063	2.051
338	640.584	1416.636	17.875	0.064	11.427	0.072	15.942	0.052	1.932
1020	1198.855	1038.603	17.598	0.053	11.427	0.036	15.758	0.024	1.840
732	1015.404	856.656	17.549	0.088	11.428	0.035	16.075	0.032	1.474
477	789.488	906.598	17.730	0.060	11.443	0.049	15.825	0.035	1.905
1328	1410.205	1173.794	18.466	0.084	11.461	0.049	16.405	0.035	2.062
1170	1296.982	991.185	18.064	0.073	11.467	0.037	16.200	0.030	1.865
553	859.988	1107.578	18.498	0.088	11.469	0.051	16.430	0.037	2.069
771	1050.415	677.867	17.997	0.098	11.477	0.039	16.202	0.043	1.795
924	1148.445	652.140	17.637	0.077	11.486	0.041	16.076	0.040	1.560

1470	1526.574	90.059	17.904	0.083	11.487	0.067	15.882	0.054	2.021
1645	1742.238	261.798	18.215	0.075	11.490	0.065	16.283	0.052	1.933
873	1119.970	772.505	17.449	0.074	11.496	0.038	16.173	0.034	1.276
433	746.513	1445.928	17.454	0.060	11.502	0.084	15.487	0.054	1.967
1102	1247.245	984.801	18.096	0.099	11.504	0.032	16.249	0.030	1.848
695	986.101	595.425	17.833	0.094	11.508	0.038	16.186	0.036	1.647
930	1152.988	131.238	18.215	0.081	11.508	0.066	16.207	0.054	2.008
81	278.445	1345.613	17.996	0.068	11.516	0.083	16.061	0.057	1.935
1764	1930.371	196.973	18.113	0.081	11.519	0.072	16.166	0.057	1.947
1366	1434.859	725.966	17.929	0.073	11.531	0.047	16.001	0.044	1.928
134	383.772	1186.685	18.489	0.100	11.531	0.077	16.482	0.058	2.007
1608	1684.422	235.443	18.566	0.101	11.535	0.065	16.365	0.055	2.201
1711	1840.342	893.762	18.457	0.103	11.559	0.060	16.318	0.044	2.139
112	338.879	668.493	18.463	0.077	11.560	0.073	16.507	0.060	1.955
868	1117.344	1309.692	18.514	0.086	11.570	0.060	16.523	0.043	1.991
1429	1485.136	-17.799	18.038	0.105	11.570	0.105	15.976	0.067	2.062
1675	1780.359	1039.239	18.528	0.113	11.572	0.059	16.427	0.042	2.101
127	373.181	528.669	18.367	0.089	11.573	0.074	16.348	0.061	2.020
547	850.951	811.221	17.815	0.070	11.573	0.044	15.899	0.031	1.917
999	1191.196	798.320	18.340	0.100	11.574	0.039	16.341	0.046	1.999
408	716.612	886.503	18.624	0.100	11.586	0.053	16.477	0.042	2.148
249	540.529	1607.952	18.076	0.097	11.595	0.087	16.167	0.064	1.909
377	682.051	588.659	18.561	0.103	11.598	0.055	16.489	0.041	2.071
42	193.712	1107.177	18.461	0.121	11.599	0.088	16.383	0.067	2.077
121	357.623	843.751	17.804	0.083	11.609	0.075	15.894	0.057	1.910
129	374.982	1188.217	18.148	0.077	11.609	0.081	16.195	0.055	1.953
1059	1217.934	861.643	18.047	0.074	11.617	0.035	16.231	0.039	1.817
395	700.853	1398.316	18.468	0.094	11.618	0.073	16.446	0.052	2.022
354	657.897	210.954	17.852	0.080	11.620	0.068	15.905	0.054	1.947
507	817.095	1144.948	18.233	0.063	11.627	0.053	16.341	0.042	1.892
1252	1350.889	1230.183	18.671	0.096	11.643	0.052	16.592	0.036	2.079
1047	1211.067	377.210	18.130	0.093	11.648	0.051	16.240	0.054	1.890
1611	1686.859	832.967	18.275	0.085	11.656	0.050	16.270	0.031	2.005
362	668.330	304.861	17.784	0.077	11.661	0.067	15.849	0.051	1.935
858	1108.024	76.278	18.550	0.099	11.666	0.069	16.465	0.053	2.085
1055	1215.615	586.351	17.698	0.074	11.678	0.042	15.905	0.056	1.793
672	953.812	635.307	19.133	0.376	11.681	0.040	16.760	0.059	2.373
705	992.898	1072.194	17.685	0.070	11.686	0.044	15.743	0.030	1.941
1177	1301.146	370.329	18.438	0.110	11.691	0.054	16.415	0.055	2.023
1644	1740.392	1218.958	18.159	0.070	11.693	0.059	16.219	0.040	1.940
317	608.087	1767.106	17.948	0.093	11.694	0.106	16.085	0.062	1.863
952	1167.848	686.604	17.724	0.089	11.695	0.053	16.305	0.043	1.419
1769	1945.740	878.369	18.082	0.077	11.697	0.065	16.111	0.047	1.972
1044	1207.867	711.972	18.197	0.110	11.705	0.057	16.225	0.041	1.972
122	359.565	470.735	18.000	0.083	11.711	0.079	16.057	0.066	1.943
215	493.552	1085.548	18.539	0.102	11.711	0.070	16.471	0.050	2.068
565	868.264	558.431	17.925	0.069	11.713	0.044	15.948	0.034	1.977
152	411.855	1265.474	18.153	0.081	11.717	0.077	16.174	0.055	1.980
892	1133.751	91.056	17.994	0.075	11.721	0.069	16.140	0.052	1.855
1780	1977.033	1092.814	18.745	0.092	11.722	0.062	16.763	0.050	1.982
464	776.338	291.308	18.662	0.094	11.725	0.059	16.684	0.051	1.977
1026	1200.467	522.222	17.706	0.065	11.737	0.047	15.978	0.055	1.728
1726	1870.798	338.131	18.209	0.092	11.740	0.067	16.164	0.054	2.045
384	689.064	1240.904	17.918	0.072	11.742	0.061	15.981	0.045	1.936
622	913.263	576.667	17.519	0.058	11.742	0.042	15.769	0.031	1.751
1233	1342.997	1120.656	18.499	0.085	11.751	0.041	16.539	0.033	1.960
165	428.697	726.077	18.062	0.071	11.766	0.068	16.155	0.052	1.908
482	797.282	664.585	18.337	0.104	11.767	0.049	16.464	0.035	1.873
625	916.559	1051.756	18.410	0.144	11.768	0.050	16.645	0.046	1.765
852	1104.077	0.912	18.743	0.139	11.777	0.108	16.780	0.061	1.963
1194	1315.617	1084.358	18.048	0.072	11.782	0.041	16.114	0.029	1.934
163	422.541	1545.730	18.882	0.103	11.787	0.089	16.852	0.067	2.031
1463	1519.188	1137.777	18.747	0.074	11.789	0.049	16.747	0.038	2.000
1115	1258.114	499.189	17.780	0.062	11.795	0.049	16.007	0.051	1.772
245	535.674	494.033	18.444	0.091	11.797	0.069	16.689	0.057	1.755
446	759.620	1033.459	18.666	0.099	11.798	0.053	16.635	0.044	2.031
1546	1609.724	561.409	18.821	0.093	11.806	0.051	16.711	0.044	2.110
1035	1204.650	319.109	18.831	0.146	11.812	0.053	16.730	0.055	2.100
1639	1733.889	475.551	19.050	0.134	11.812	0.055	16.855	0.047	2.194
1610	1685.125	1048.844	18.046	0.077	11.818	0.052	16.174	0.038	1.872
768	1049.724	299.795	18.478	0.097	11.828	0.051	16.504	0.051	1.973
140	391.902	1212.422	18.219	0.093	11.829	0.074	16.271	0.055	1.947
15	64.549	683.416	18.071	0.106	11.830	0.100	16.012	0.076	2.058
128	373.511	1438.917	19.051	0.133	11.834	0.089	17.113	0.067	1.939
297	594.034	1486.281	17.808	0.093	11.838	0.081	15.894	0.052	1.914
1208	1323.798	1261.300	18.721	0.079	11.842	0.054	16.650	0.038	2.071
1696	1820.238	322.574	19.040	0.093	11.844	0.064	16.981	0.055	2.059
803	1070.650	891.543	18.630	0.216	11.856	0.038	16.629	0.045	2.001
1348	1421.794	115.531	18.844	0.108	11.859	0.064	16.823	0.056	2.021
1815	2048.500	914.227	18.731	0.074	11.863	0.074	16.792	0.055	1.939
1630	1726.270	837.090	18.993	0.097	11.871	0.052	16.867	0.038	2.126
843	1100.527	724.509	17.692	0.100	11.873	0.040	16.426	0.037	1.266

1034	1204.632	1334.144	18.959	0.128	11.874	0.062	16.991	0.048	1.968
1822	2070.330	214.032	17.699	0.073	11.881	0.075	15.711	0.062	1.988
976	1179.405	1177.312	17.973	0.061	11.897	0.047	16.214	0.032	1.759
1820	2062.610	818.291	19.018	0.096	11.903	0.072	16.966	0.057	2.052
1729	1872.429	87.722	18.926	0.177	11.907	0.071	16.840	0.062	2.085
979	1180.760	673.409	18.024	0.108	11.910	0.048	16.508	0.046	1.517
594	886.973	179.663	18.685	0.087	11.913	0.060	16.681	0.054	2.003
571	870.792	551.053	18.967	0.156	11.919	0.045	16.723	0.041	2.244
844	1100.826	1201.395	19.101	0.154	11.920	0.050	16.943	0.039	2.158
1074	1227.508	187.690	17.941	0.073	11.923	0.064	16.074	0.052	1.867
109	332.592	764.920	18.697	0.099	11.923	0.073	16.876	0.060	1.821
1807	2037.538	973.200	18.649	0.116	11.931	0.075	16.703	0.057	1.946
1352	1425.178	679.744	18.343	0.107	11.936	0.052	16.648	0.042	1.695
1368	1435.729	1366.596	17.943	0.069	11.936	0.066	15.952	0.042	1.990
451	763.078	96.583	18.716	0.099	11.937	0.071	16.762	0.047	1.955
832	1089.245	891.285	18.258	0.115	11.948	0.036	16.585	0.039	1.673
1534	1590.177	1176.791	18.306	0.074	11.948	0.053	16.390	0.034	1.915
248	538.234	867.007	18.862	0.140	11.953	0.060	16.861	0.050	2.001
8	29.573	589.100	18.739	0.104	11.957	0.105	16.836	0.076	1.903
1280	1374.173	395.047	18.561	0.102	11.960	0.056	16.683	0.052	1.878
1383	1447.057	638.736	18.716	0.123	11.960	0.046	16.700	0.041	2.016
490	802.221	166.959	18.169	0.081	11.961	0.066	16.252	0.050	1.917
802	1070.259	769.576	17.493	0.099	11.961	0.047	16.395	0.044	1.098
1826	2076.490	566.724	18.392	0.104	11.963	0.074	16.408	0.057	1.984
809	1074.865	653.955	17.921	0.086	11.967	0.037	16.438	0.042	1.483
576	874.055	1416.672	18.875	0.142	11.968	0.094	16.916	0.076	1.960
782	1054.222	1395.727	19.083	0.125	11.979	0.084	17.074	0.068	2.009
613	908.560	658.797	18.079	0.081	11.981	0.042	16.426	0.035	1.653
950	1167.532	830.578	18.816	0.137	11.982	0.042	16.784	0.052	2.032
787	1058.083	1395.364	18.584	0.091	11.982	0.077	16.749	0.059	1.835
19	101.930	1057.384	19.060	0.146	11.982	0.088	17.014	0.072	2.046
78	269.746	448.090	19.142	0.135	11.983	0.088	16.952	0.069	2.190
180	448.273	995.132	18.831	0.115	11.985	0.068	16.880	0.054	1.950
1123	1262.369	1405.807	18.242	0.078	11.988	0.064	16.397	0.045	1.845
1333	1413.199	907.557	18.385	0.082	11.993	0.039	16.532	0.033	1.853
1258	1355.558	204.369	18.717	0.109	11.997	0.063	16.805	0.061	1.912
865	1114.930	353.804	18.098	0.079	12.000	0.053	16.271	0.048	1.827
1624	1707.912	440.290	18.512	0.091	12.002	0.055	16.576	0.049	1.937
1557	1617.619	1162.232	18.591	0.095	12.005	0.057	16.688	0.042	1.902
807	1074.333	675.662	18.312	0.084	12.006	0.040	16.692	0.044	1.621
144	397.331	293.263	18.525	0.082	12.011	0.081	16.782	0.065	1.743
1685	1798.490	756.916	18.751	0.101	12.019	0.054	16.774	0.046	1.978
1255	1353.726	-119.190	18.310	0.111	12.025	0.090	16.332	0.066	1.978
674	956.573	994.882	18.538	0.115	12.027	0.044	16.653	0.035	1.884
1312	1398.533	464.993	18.014	0.078	12.035	0.055	16.220	0.047	1.794
1650	1747.062	337.161	19.048	0.092	12.037	0.064	17.122	0.056	1.927
64	246.167	738.884	18.840	0.088	12.040	0.089	16.823	0.071	2.017
499	811.574	1476.295	18.892	0.139	12.042	0.074	17.101	0.061	1.791
875	1121.693	718.238	18.027	0.111	12.044	0.048	16.586	0.038	1.441
252	547.001	246.758	18.268	0.094	12.050	0.077	16.323	0.061	1.945
1662	1753.761	812.337	18.863	0.104	12.054	0.051	16.860	0.042	2.003
38	177.790	578.724	19.232	0.124	12.057	0.094	17.239	0.076	1.993
1825	2075.701	697.554	18.659	0.092	12.064	0.077	16.860	0.057	1.799
343	648.520	968.027	18.535	0.112	12.070	0.061	16.768	0.055	1.768
575	873.438	826.285	18.467	0.102	12.082	0.046	16.682	0.036	1.785
1487	1539.121	875.881	18.933	0.137	12.087	0.042	16.919	0.038	2.015
1844	2185.262	733.018	19.230	0.101	12.094	0.080	17.291	0.069	1.939
890	1132.888	287.921	18.930	0.104	12.096	0.054	16.853	0.054	2.077
1716	1850.363	218.954	18.989	0.091	12.096	0.068	17.028	0.059	1.961
224	511.379	1358.734	18.773	0.105	12.098	0.076	16.832	0.060	1.941
1456	1514.811	885.123	18.057	0.075	12.098	0.043	16.338	0.031	1.719
1533	1590.052	289.430	18.891	0.092	12.099	0.063	16.853	0.054	2.038
158	417.034	746.661	18.327	0.085	12.104	0.072	16.451	0.056	1.876
1754	1914.859	999.005	18.623	0.073	12.106	0.065	16.809	0.050	1.814
637	924.526	572.077	18.426	0.088	12.109	0.043	16.752	0.036	1.675
23	127.957	999.089	18.141	0.109	12.120	0.090	16.195	0.066	1.946
176	446.611	761.375	18.630	0.094	12.120	0.066	16.764	0.056	1.866
91	294.016	360.134	18.640	0.154	12.122	0.097	16.598	0.072	2.042
880	1126.245	690.638	18.306	0.077	12.125	0.041	16.647	0.043	1.658
1040	1207.034	611.889	18.414	0.136	12.128	0.049	16.561	0.055	1.853
953	1168.612	998.851	18.518	0.119	12.129	0.037	16.811	0.038	1.708
1575	1641.259	109.001	18.456	0.104	12.130	0.069	16.481	0.055	1.975
680	968.347	643.762	18.343	0.109	12.130	0.042	16.598	0.045	1.745
52	227.774	665.163	18.862	0.096	12.134	0.087	16.959	0.065	1.903
921	1146.445	638.679	18.148	0.126	12.135	0.043	16.488	0.057	1.661
1196	1315.897	856.132	18.200	0.075	12.139	0.041	16.411	0.043	1.789
1531	1586.820	1.450	18.503	0.135	12.142	0.090	16.495	0.076	2.008
1249	1350.235	949.705	18.991	0.133	12.155	0.037	16.993	0.040	1.998
246	536.013	1744.335	18.270	0.117	12.155	0.109	16.387	0.068	1.884
1646	1743.200	213.015	19.147	0.102	12.166	0.065	17.144	0.057	2.003
977	1180.090	697.890	18.054	0.124	12.169	0.060	16.764	0.066	1.290
1172	1297.754	1072.138	18.702	0.082	12.173	0.041	16.890	0.035	1.812

222	509.851	1189.156	19.029	0.103	12.176	0.069	17.182	0.055	1.847
1394	1453.019	1363.401	18.998	0.074	12.177	0.070	16.935	0.048	2.063
1070	1225.652	1391.908	18.117	0.081	12.183	0.066	16.228	0.046	1.889
1705	1830.454	789.143	18.843	0.100	12.193	0.057	16.909	0.045	1.934
378	684.076	438.876	18.042	0.087	12.203	0.056	16.356	0.048	1.686
330	631.844	432.574	18.840	0.083	12.214	0.060	17.043	0.055	1.797
753	1032.174	991.558	18.738	0.094	12.217	0.041	17.053	0.047	1.685
1136	1271.597	185.626	18.411	0.107	12.218	0.062	16.566	0.058	1.845
33	162.224	557.776	18.594	0.133	12.221	0.092	16.773	0.075	1.821
193	468.561	1212.944	18.485	0.095	12.243	0.074	16.602	0.056	1.882
195	473.170	1663.981	18.950	0.158	12.246	0.103	17.157	0.077	1.793
1406	1460.937	957.598	18.969	0.133	12.248	0.040	16.991	0.040	1.978
554	860.628	905.883	18.541	0.155	12.249	0.046	16.500	0.034	2.041
1540	1596.177	974.357	19.121	0.139	12.254	0.047	17.194	0.045	1.927
1812	2045.558	188.801	19.083	0.073	12.255	0.074	17.117	0.063	1.966
397	701.869	209.458	18.338	0.099	12.255	0.068	16.425	0.053	1.913
996	1190.729	756.444	18.282	0.117	12.256	0.046	16.521	0.054	1.761
347	653.010	115.630	18.879	0.092	12.261	0.069	16.898	0.066	1.981
1560	1619.529	923.432	18.404	0.102	12.261	0.049	16.795	0.042	1.609
264	562.068	932.721	18.661	0.063	12.263	0.061	16.846	0.051	1.815
1432	1485.836	858.825	18.189	0.074	12.264	0.043	16.425	0.034	1.764
149	409.733	730.940	18.213	0.075	12.265	0.067	16.352	0.056	1.861
1782	1979.254	296.981	19.368	0.151	12.269	0.072	17.326	0.061	2.042
796	1064.375	938.606	18.589	0.147	12.269	0.038	16.898	0.040	1.690
1767	1938.872	606.609	18.828	0.117	12.271	0.069	16.954	0.056	1.874
1818	2061.707	396.419	19.240	0.105	12.273	0.075	17.284	0.063	1.955
1465	1522.189	799.566	18.436	0.101	12.274	0.048	16.437	0.037	1.998
514	825.428	847.502	19.310	0.154	12.281	0.048	17.196	0.045	2.114
1522	1580.097	367.256	19.284	0.120	12.284	0.060	17.261	0.059	2.023
1517	1576.360	862.280	18.357	0.123	12.285	0.046	16.485	0.033	1.872
10	40.522	945.242	18.637	0.129	12.286	0.090	16.627	0.074	2.010
62	245.349	1363.961	18.506	0.082	12.293	0.086	16.776	0.063	1.730
1156	1285.574	614.227	18.653	0.169	12.300	0.049	16.921	0.045	1.732
150	410.476	855.985	18.915	0.103	12.307	0.069	16.971	0.057	1.944
325	620.342	1422.868	18.422	0.072	12.310	0.073	16.620	0.057	1.802
90	292.398	441.112	19.048	0.109	12.320	0.086	17.102	0.073	1.946
1713	1844.861	86.615	19.030	0.144	12.321	0.073	17.051	0.063	1.979
493	804.410	638.807	19.622	0.182	12.324	0.048	17.230	0.048	2.392
82	282.700	1133.744	19.090	0.155	12.330	0.076	17.256	0.068	1.834
1730	1873.106	492.955	18.936	0.085	12.330	0.063	17.145	0.059	1.791
1286	1382.186	549.428	18.058	0.075	12.331	0.056	16.441	0.047	1.617
530	834.229	1017.736	18.884	0.084	12.332	0.058	17.063	0.046	1.821
60	243.525	1009.614	19.162	0.115	12.337	0.078	17.102	0.072	2.059
1171	1297.729	625.319	18.007	0.093	12.338	0.051	16.436	0.050	1.571
744	1025.678	615.790	18.360	0.107	12.338	0.041	16.817	0.043	1.543
155	414.373	1164.804	18.416	0.063	12.339	0.073	16.605	0.052	1.811
665	950.284	1220.682	18.807	0.119	12.343	0.055	17.018	0.050	1.789
603	899.557	201.086	19.065	0.131	12.345	0.060	17.090	0.053	1.975
1803	2027.537	846.626	18.748	0.084	12.348	0.076	16.918	0.056	1.830
810	1076.332	423.350	18.989	0.143	12.355	0.051	16.977	0.049	2.012
929	1152.717	755.587	18.801	0.133	12.355	0.045	17.202	0.066	1.599
431	743.795	998.696	18.755	0.123	12.355	0.058	16.767	0.042	1.988
393	699.616	1164.646	19.027	0.115	12.357	0.057	17.213	0.053	1.814
1700	1823.412	58.398	19.206	0.117	12.357	0.089	17.229	0.063	1.977
649	936.386	397.404	18.585	0.086	12.360	0.050	16.906	0.045	1.679
1759	1922.590	807.391	19.127	0.105	12.361	0.068	17.130	0.055	1.997
294	590.965	1423.390	18.758	0.109	12.364	0.073	16.948	0.059	1.810
147	400.767	880.686	19.122	0.105	12.374	0.072	17.080	0.057	2.042
336	638.047	1356.880	18.626	0.101	12.376	0.076	16.700	0.064	1.926
598	893.201	742.449	19.234	0.170	12.380	0.048	17.248	0.057	1.986
1386	1448.913	1078.180	18.730	0.101	12.389	0.044	16.828	0.035	1.902
1788	1996.737	937.036	19.291	0.115	12.401	0.071	17.283	0.060	2.008
1327	1408.791	1097.181	19.203	0.113	12.403	0.042	17.144	0.043	2.059
1622	1703.823	942.111	18.696	0.094	12.404	0.051	17.105	0.050	1.591
790	1061.284	118.151	19.064	0.112	12.408	0.065	17.065	0.060	2.000
88	287.692	400.789	19.071	0.097	12.409	0.086	17.282	0.078	1.789
940	1160.925	752.781	19.016	0.150	12.414	0.046	17.163	0.062	1.852
947	1165.810	45.621	18.997	0.137	12.415	0.072	17.084	0.062	1.913
694	985.841	247.289	19.293	0.106	12.419	0.057	17.422	0.066	1.871
457	769.949	697.058	19.568	0.215	12.420	0.052	17.285	0.050	2.283
388	694.703	930.679	18.906	0.084	12.430	0.054	17.043	0.052	1.863
651	937.615	952.301	18.288	0.107	12.432	0.046	16.572	0.037	1.716
1002	1191.818	856.810	18.582	0.087	12.434	0.041	17.187	0.047	1.395
282	582.209	905.634	19.069	0.140	12.436	0.059	17.134	0.057	1.936
1451	1508.815	-12.531	18.748	0.136	12.437	0.087	16.831	0.065	1.918
763	1044.697	740.784	18.817	0.267	12.438	0.084	17.194	0.120	1.623
421	734.236	631.538	18.688	0.106	12.449	0.055	16.818	0.040	1.870
1643	1739.395	109.234	19.358	0.127	12.450	0.073	17.462	0.068	1.896
1699	1823.330	96.913	19.447	0.107	12.452	0.069	17.582	0.068	1.865
1833	2117.929	905.264	18.490	0.089	12.453	0.076	16.695	0.060	1.795
387	694.379	466.367	18.866	0.087	12.454	0.056	17.107	0.050	1.759
1142	1276.008	927.673	18.637	0.104	12.454	0.039	17.125	0.043	1.512

549	854.196	701.458	18.890	0.126	12.456	0.050	17.148	0.049	1.742
74	265.291	835.984	19.056	0.110	12.457	0.078	17.226	0.064	1.830
1681	1796.840	560.576	19.191	0.126	12.460	0.057	17.104	0.054	2.087
1512	1571.545	25.948	19.301	0.144	12.462	0.081	17.325	0.063	1.975
1154	1285.017	1213.936	18.913	0.118	12.462	0.076	17.201	0.077	1.712
1629	1724.926	780.981	19.100	0.102	12.465	0.055	17.142	0.046	1.958
49	210.697	717.573	19.315	0.104	12.465	0.081	17.445	0.068	1.870
1494	1545.897	599.463	18.498	0.096	12.467	0.056	16.572	0.040	1.926
1809	2040.415	867.581	19.240	0.146	12.473	0.071	17.406	0.063	1.834
1691	1811.192	1111.231	19.346	0.110	12.473	0.076	17.243	0.063	2.104
220	504.299	1223.632	19.191	0.122	12.476	0.069	17.233	0.060	1.958
961	1172.599	722.013	18.586	0.146	12.478	0.052	17.074	0.062	1.512
312	603.856	151.038	18.835	0.116	12.480	0.073	16.952	0.055	1.882
1745	1902.901	197.419	19.223	0.137	12.484	0.072	17.316	0.064	1.907
1305	1395.993	1023.705	19.321	0.117	12.484	0.042	17.204	0.045	2.116
1837	2137.168	433.842	19.228	0.131	12.486	0.079	17.292	0.065	1.936
166	428.940	923.864	19.083	0.118	12.492	0.068	17.386	0.064	1.698
1545	1607.385	342.226	19.366	0.165	12.493	0.063	17.275	0.058	2.091
531	834.640	138.107	19.095	0.111	12.498	0.066	17.233	0.059	1.862
1577	1642.920	1074.698	18.596	0.119	12.498	0.054	16.723	0.038	1.872
785	1056.843	322.350	19.479	0.147	12.501	0.053	17.362	0.054	2.117
1840	2170.645	641.557	19.491	0.156	12.503	0.081	17.470	0.067	2.021
303	597.314	1461.447	19.110	0.109	12.507	0.081	17.211	0.066	1.898
1378	1442.488	424.717	18.532	0.100	12.512	0.059	16.649	0.050	1.883
486	801.206	285.315	19.056	0.103	12.515	0.058	17.108	0.048	1.948
989	1185.365	553.032	17.864	0.093	12.519	0.046	16.609	0.046	1.255
1752	1912.512	564.445	19.319	0.136	12.522	0.070	17.272	0.060	2.047
804	1070.948	1327.427	19.164	0.100	12.525	0.061	17.359	0.061	1.806
427	741.167	1269.990	18.944	0.081	12.529	0.067	17.153	0.054	1.791
988	1185.151	302.577	19.088	0.145	12.532	0.058	17.189	0.056	1.899
72	261.820	439.045	18.700	0.100	12.537	0.090	16.930	0.075	1.771
516	826.557	1160.152	19.084	0.091	12.541	0.058	17.265	0.052	1.819
1235	1344.115	245.265	19.037	0.080	12.544	0.066	17.191	0.061	1.846
455	764.133	1070.942	19.143	0.113	12.548	0.056	17.223	0.050	1.920
1492	1544.510	878.754	18.855	0.106	12.548	0.051	17.063	0.042	1.791
864	1114.650	27.678	19.450	0.128	12.549	0.071	17.488	0.067	1.961
606	902.550	569.757	18.484	0.107	12.553	0.048	16.711	0.037	1.773
619	910.763	341.016	18.960	0.101	12.554	0.059	17.171	0.051	1.789
590	884.207	1400.935	19.420	0.122	12.554	0.074	17.402	0.063	2.018
1240	1346.596	1096.118	19.407	0.171	12.555	0.044	17.452	0.047	1.955
417	729.698	107.203	19.097	0.138	12.565	0.069	17.175	0.058	1.922
296	592.308	1077.060	19.222	0.120	12.569	0.062	17.348	0.062	1.874
752	1032.161	1483.168	18.657	0.136	12.575	0.072	16.862	0.050	1.794
1339	1417.040	943.613	19.293	0.114	12.591	0.041	17.430	0.046	1.864
250	543.629	310.427	19.236	0.135	12.597	0.074	17.346	0.064	1.890
1786	1986.087	960.177	19.423	0.122	12.597	0.072	17.457	0.064	1.965
563	867.528	1376.735	19.370	0.145	12.599	0.068	17.478	0.063	1.892
1224	1335.509	901.326	18.275	0.096	12.601	0.043	16.938	0.043	1.337
1073	1227.284	299.196	19.371	0.134	12.602	0.063	17.375	0.072	1.996
604	899.760	15.992	19.542	0.164	12.609	0.071	17.589	0.064	1.953
65	249.737	742.412	19.415	0.121	12.618	0.077	17.510	0.073	1.905
1841	2171.214	377.797	18.180	0.087	12.622	0.083	16.275	0.065	1.905
233	525.041	1661.248	19.040	0.173	12.622	0.094	17.114	0.071	1.926
521	828.707	8.338	19.208	0.122	12.623	0.069	17.376	0.066	1.832
1004	1192.389	830.177	18.740	0.088	12.627	0.043	17.345	0.052	1.395
1013	1194.822	1175.771	18.840	0.106	12.630	0.049	17.335	0.049	1.505
6	12.707	548.346	19.398	0.173	12.633	0.100	17.531	0.098	1.867
532	835.124	1125.420	19.343	0.147	12.634	0.055	17.393	0.056	1.950
1676	1784.179	52.252	19.426	0.144	12.635	0.085	17.588	0.078	1.839
1722	1865.927	992.597	19.242	0.129	12.636	0.064	17.330	0.056	1.912
265	562.252	1436.115	18.231	0.098	12.637	0.079	16.357	0.058	1.874
1695	1820.121	907.446	19.331	0.108	12.641	0.060	17.400	0.053	1.931
1593	1669.200	698.552	18.936	0.117	12.648	0.058	16.994	0.042	1.942
817	1079.609	525.414	18.948	0.123	12.651	0.050	17.188	0.055	1.760
1302	1393.661	916.936	19.210	0.146	12.653	0.045	17.489	0.050	1.720
957	1169.968	535.824	18.797	0.118	12.654	0.051	17.233	0.053	1.564
1250	1350.258	403.704	18.636	0.105	12.655	0.063	16.737	0.055	1.899
1553	1615.943	-34.841	18.971	0.126	12.656	0.086	16.940	0.060	2.031
211	492.652	1070.277	19.157	0.093	12.658	0.071	17.384	0.060	1.773
255	555.510	1265.519	19.343	0.208	12.660	0.081	17.424	0.068	1.919
89	289.931	1230.392	19.304	0.134	12.666	0.079	17.580	0.073	1.724
937	1159.993	712.444	18.480	0.080	12.666	0.050	17.225	0.056	1.256
1735	1885.456	680.537	19.061	0.166	12.668	0.069	16.997	0.053	2.064
1548	1610.805	1164.731	19.333	0.132	12.671	0.058	17.389	0.050	1.944
1048	1211.597	649.267	18.211	0.103	12.675	0.050	16.673	0.044	1.538
369	677.043	643.635	19.167	0.143	12.675	0.058	17.275	0.054	1.892
1482	1536.672	142.780	19.380	0.154	12.679	0.070	17.651	0.067	1.730
815	1078.445	869.506	18.105	0.134	12.681	0.044	16.940	0.048	1.165
126	372.470	945.834	19.251	0.111	12.683	0.077	17.442	0.068	1.808
1758	1921.762	191.674	19.448	0.135	12.685	0.074	17.363	0.064	2.086
1628	1722.384	626.422	19.209	0.131	12.685	0.052	17.358	0.052	1.851
1351	1424.015	886.453	19.743	0.183	12.686	0.046	17.590	0.061	2.153

907	1140.318	1187.360	19.457	0.170	12.687	0.053	17.472	0.054	1.985
1566	1631.040	80.228	19.541	0.126	12.688	0.070	17.676	0.072	1.865
1760	1922.594	262.314	19.435	0.101	12.691	0.077	17.578	0.083	1.858
635	922.894	792.540	18.212	0.093	12.695	0.049	17.022	0.050	1.190
1332	1412.943	724.078	19.026	0.111	12.710	0.055	17.306	0.054	1.720
1799	2020.494	442.496	19.389	0.201	12.710	0.075	17.486	0.068	1.902
1495	1547.299	446.396	19.604	0.153	12.718	0.063	17.612	0.066	1.992
1317	1400.652	290.694	18.878	0.122	12.719	0.064	17.146	0.060	1.732
1821	2066.843	294.565	19.657	0.171	12.720	0.078	17.761	0.074	1.896
436	752.055	245.455	19.369	0.125	12.721	0.066	17.630	0.065	1.739
1710	1838.867	563.270	19.196	0.079	12.725	0.062	17.404	0.054	1.792
104	317.182	678.122	19.315	0.131	12.728	0.080	17.411	0.067	1.904
1526	1581.950	790.892	19.488	0.133	12.732	0.069	17.294	0.055	2.195
1584	1646.515	1220.824	18.844	0.078	12.735	0.072	17.192	0.066	1.652
1635	1729.821	792.534	19.365	0.164	12.736	0.057	17.376	0.053	1.989
1744	1901.053	581.948	19.498	0.110	12.740	0.067	17.629	0.065	1.870
885	1128.876	771.342	18.575	0.185	12.745	0.048	17.347	0.063	1.228
572	870.996	1431.337	19.020	0.140	12.745	0.070	17.168	0.057	1.852
550	854.736	301.597	19.073	0.086	12.745	0.058	17.243	0.052	1.830
1330	1411.848	853.532	19.600	0.201	12.747	0.047	17.612	0.057	1.989
1666	1761.719	113.857	19.424	0.101	12.760	0.075	17.587	0.068	1.837
1188	1310.545	441.044	19.348	0.175	12.763	0.060	17.383	0.067	1.965
624	916.195	1504.262	19.058	0.146	12.768	0.070	17.373	0.068	1.685
1817	2052.722	400.477	18.991	0.121	12.770	0.089	17.099	0.065	1.892
1050	1212.048	1099.628	19.023	0.114	12.774	0.045	17.314	0.045	1.709
1810	2042.801	811.666	19.280	0.104	12.776	0.072	17.472	0.062	1.808
684	972.090	1182.200	18.946	0.087	12.777	0.055	17.193	0.050	1.753
1586	1650.963	1272.773	19.318	0.147	12.778	0.063	17.503	0.060	1.815
1193	1314.514	1364.666	19.416	0.137	12.781	0.064	17.584	0.068	1.832
1392	1452.531	626.887	19.500	0.167	12.782	0.059	17.495	0.059	2.005
1017	1196.171	546.163	19.025	0.114	12.784	0.054	17.272	0.056	1.753
1263	1358.281	881.504	19.652	0.257	12.792	0.048	17.580	0.059	2.072
492	803.910	1147.712	19.664	0.161	12.792	0.056	17.721	0.070	1.942
708	994.363	1130.378	19.320	0.169	12.798	0.054	17.636	0.058	1.684
306	598.924	897.805	19.407	0.157	12.798	0.061	17.586	0.058	1.821
747	1027.620	1212.939	19.407	0.164	12.800	0.077	17.522	0.064	1.884
1842	2172.991	841.607	19.398	0.108	12.806	0.083	17.567	0.075	1.831
418	730.912	544.992	19.699	0.147	12.807	0.058	17.647	0.057	2.052
1795	2015.756	276.597	19.735	0.142	12.811	0.074	17.840	0.076	1.895
1121	1261.294	370.028	19.115	0.116	12.812	0.060	17.399	0.061	1.716
1834	2119.502	767.845	19.341	0.100	12.816	0.083	17.528	0.076	1.813
1571	1637.111	857.858	18.801	0.078	12.823	0.051	17.250	0.044	1.551
1609	1684.698	146.474	19.482	0.110	12.824	0.070	17.622	0.066	1.860
284	583.730	1059.282	19.570	0.164	12.825	0.063	17.786	0.075	1.785
1762	1924.804	374.278	19.456	0.126	12.826	0.077	17.582	0.064	1.874
1830	2104.118	930.891	19.905	0.212	12.827	0.079	17.705	0.073	2.200
1094	1241.445	710.585	18.980	0.177	12.827	0.056	17.502	0.072	1.479
1442	1497.751	1024.787	19.024	0.124	12.830	0.049	17.156	0.042	1.868
956	1169.683	679.413	18.718	0.196	12.835	0.051	17.008	0.047	1.710
1819	2062.520	747.431	19.625	0.143	12.836	0.078	17.669	0.070	1.956
1454	1511.311	487.989	19.284	0.127	12.839	0.060	17.355	0.060	1.929
151	411.180	1215.738	19.447	0.225	12.840	0.079	17.593	0.075	1.854
1523	1580.390	232.563	19.383	0.137	12.851	0.068	17.589	0.066	1.793
1798	2019.855	674.674	18.972	0.136	12.856	0.068	17.148	0.069	1.824
1373	1440.046	847.040	19.047	0.106	12.870	0.052	17.411	0.050	1.635
14	58.225	626.204	19.357	0.153	12.871	0.094	17.618	0.077	1.740
1543	1604.632	198.194	19.484	0.148	12.877	0.070	17.581	0.066	1.904
1623	1707.012	693.229	19.003	0.113	12.878	0.061	17.051	0.044	1.952
316	606.946	1452.270	19.899	0.255	12.879	0.077	17.764	0.073	2.135
1626	1716.054	1130.897	19.306	0.130	12.886	0.066	17.508	0.059	1.797
777	1052.429	437.092	18.728	0.094	12.886	0.054	17.314	0.058	1.415
611	908.405	846.627	19.259	0.217	12.891	0.051	17.643	0.069	1.615
784	1055.223	1280.823	19.313	0.115	12.893	0.064	17.527	0.059	1.785
811	1077.399	727.897	18.108	0.066	12.893	0.051	16.958	0.055	1.150
3	-4.706	698.678	18.966	0.147	12.898	0.099	17.151	0.079	1.815
1000	1191.590	443.384	19.062	0.150	12.901	0.057	17.272	0.061	1.790
1784	1981.645	508.763	19.873	0.157	12.902	0.073	17.831	0.069	2.042
1104	1248.618	1400.272	19.436	0.139	12.905	0.077	17.601	0.063	1.836
194	471.331	958.957	19.385	0.159	12.906	0.080	17.736	0.081	1.649
831	1088.062	516.766	19.682	0.154	12.912	0.052	17.657	0.061	2.025
889	1131.822	229.741	19.447	0.183	12.913	0.064	17.643	0.076	1.805
1541	1598.654	134.063	19.793	0.130	12.916	0.069	17.917	0.080	1.877
1063	1221.238	641.090	18.444	0.095	12.919	0.053	17.201	0.054	1.243
243	533.868	533.933	19.726	0.153	12.920	0.078	17.858	0.075	1.868
463	773.802	1280.979	19.551	0.123	12.926	0.065	17.702	0.067	1.849
313	604.824	304.757	19.952	0.162	12.930	0.073	17.924	0.077	2.028
898	1136.665	420.549	19.782	0.183	12.931	0.056	17.632	0.063	2.150
1554	1616.631	429.899	19.360	0.087	12.935	0.062	17.616	0.063	1.744
1542	1599.228	119.993	20.097	0.236	12.936	0.069	17.924	0.073	2.173
7	26.836	867.609	19.325	0.143	12.941	0.099	17.628	0.079	1.696
1346	1420.751	980.855	19.013	0.123	12.945	0.049	17.329	0.042	1.684
762	1044.547	1371.473	19.418	0.136	12.946	0.069	17.687	0.073	1.731

205	485.679	685.285	19.755	0.145	12.947	0.068	17.618	0.064	2.137
1097	1244.425	915.491	18.743	0.108	12.948	0.046	17.315	0.049	1.428
1316	1400.345	401.395	19.420	0.147	12.949	0.067	17.554	0.073	1.866
1493	1545.758	496.613	19.206	0.121	12.950	0.062	17.290	0.052	1.916
761	1042.456	397.850	19.689	0.144	12.950	0.054	17.761	0.063	1.928
1703	1827.613	829.682	19.766	0.100	12.951	0.065	17.887	0.079	1.878
1298	1391.165	969.196	19.578	0.172	12.952	0.050	17.660	0.058	1.918
254	554.325	896.816	19.317	0.095	12.955	0.062	17.661	0.065	1.656
985	1184.770	751.164	19.026	0.152	12.955	0.056	17.380	0.056	1.646
1851	2351.461	808.968	19.082	0.122	12.955	0.086	17.259	0.066	1.823
659	942.695	42.540	19.432	0.127	12.956	0.075	17.668	0.066	1.764
555	860.647	1010.861	19.954	0.169	12.961	0.057	17.915	0.086	2.039
955	1169.226	905.273	18.376	0.130	12.963	0.047	17.171	0.053	1.205
1300	1392.877	43.683	19.627	0.150	12.972	0.076	17.848	0.081	1.778
1766	1935.927	239.118	19.655	0.155	12.974	0.075	17.774	0.073	1.881
184	457.141	1036.102	19.172	0.097	12.983	0.072	17.519	0.074	1.652
185	459.476	1012.557	18.797	0.090	12.987	0.074	17.218	0.060	1.579
241	532.533	1058.799	19.364	0.170	12.990	0.072	17.668	0.062	1.696
285	583.866	1281.916	18.931	0.107	12.991	0.076	17.396	0.065	1.534
536	841.698	926.154	19.335	0.155	12.995	0.058	17.808	0.060	1.527
1293	1386.309	858.521	19.471	0.133	12.998	0.053	17.623	0.059	1.848

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ID	X	Y	N	err	V	err	W	err	N-W
1375	1070.889	896.416	9.837	0.071	3.943	0.140	7.685	0.115	2.152
2150	1426.877	1137.354	11.059	0.038	4.886	0.086	8.805	0.046	2.254
102	192.202	738.659	12.174	0.094	5.048	0.106	9.957	0.086	2.217
2603	1737.623	261.712	12.008	0.081	5.445	0.087	9.678	0.081	2.330
313	454.389	1012.307	12.459	0.069	5.584	0.116	10.177	0.076	2.282
1382	1077.179	893.878	11.820	0.056	5.727	0.091	9.496	0.083	2.324
1368	1065.525	906.323	11.942	0.028	5.765	0.052	9.764	0.046	2.178
2156	1432.378	1141.867	12.255	0.042	5.815	0.093	9.936	0.060	2.319
630	702.217	995.456	12.104	0.048	6.050	0.096	9.958	0.064	2.146
1671	1208.494	903.679	12.146	0.028	6.157	0.032	10.066	0.027	2.080
151	272.135	754.873	13.398	0.107	6.258	0.132	11.115	0.113	2.283
1318	1046.653	222.336	11.933	0.071	6.462	0.092	9.947	0.086	1.986
1183	978.358	370.779	12.275	0.052	6.522	0.065	10.080	0.049	2.196
1498	1136.259	1246.150	12.420	0.040	6.543	0.063	10.247	0.048	2.173
294	444.235	841.870	13.334	0.067	6.608	0.098	10.966	0.079	2.369
154	277.949	755.267	13.138	0.076	6.622	0.116	10.773	0.083	2.365
941	869.231	1460.262	13.384	0.063	6.630	0.106	10.920	0.080	2.464
2247	1484.142	343.652	12.383	0.066	6.694	0.080	10.182	0.062	2.202
423	552.822	983.964	13.441	0.056	6.765	0.087	11.039	0.069	2.401
1268	1021.643	636.727	12.851	0.032	6.900	0.037	10.767	0.033	2.084
1769	1252.580	553.896	12.554	0.043	6.919	0.052	10.554	0.043	2.000
1907	1312.061	1169.063	13.648	0.031	7.172	0.049	11.400	0.038	2.248
41	85.299	843.196	14.208	0.092	7.208	0.120	11.787	0.104	2.421
897	846.469	97.605	13.341	0.072	7.234	0.101	11.066	0.078	2.274
2376	1559.932	525.712	13.283	0.056	7.379	0.071	11.070	0.055	2.212
128	226.758	545.125	14.189	0.089	7.438	0.125	11.811	0.098	2.378
2829	2044.854	1321.810	13.497	0.076	7.479	0.119	11.155	0.098	2.342
1202	992.357	106.844	14.046	0.069	7.502	0.108	11.722	0.076	2.324
156	280.548	501.957	14.467	0.081	7.509	0.119	12.070	0.095	2.397
534	637.353	731.679	13.992	0.046	7.518	0.072	11.667	0.054	2.325
198	334.321	389.785	13.687	0.085	7.525	0.124	11.371	0.095	2.316
532	635.688	251.233	14.077	0.070	7.536	0.105	11.738	0.077	2.339
635	706.335	996.510	14.466	0.068	7.616	0.118	12.083	0.091	2.383
2159	1433.113	991.555	13.943	0.027	7.618	0.045	11.730	0.038	2.212
3	-5.117	536.978	14.012	0.107	7.633	0.139	11.602	0.109	2.410
1390	1080.619	373.200	13.913	0.048	7.653	0.070	11.678	0.047	2.234
2863	2103.474	1310.643	13.469	0.071	7.657	0.127	11.149	0.095	2.321
2728	1887.745	1168.434	14.487	0.073	7.677	0.115	12.083	0.089	2.404
1156	968.868	220.794	14.536	0.059	7.770	0.092	12.168	0.064	2.368
2507	1655.272	1528.288	14.781	0.073	7.834	0.112	12.356	0.085	2.426
1774	1255.695	244.170	14.343	0.065	7.835	0.097	11.985	0.068	2.358
2700	1850.918	108.819	13.065	0.076	7.847	0.113	10.829	0.087	2.237
172	304.708	1008.436	14.497	0.075	8.001	0.115	12.157	0.085	2.341
2702	1852.642	1301.065	14.011	0.073	8.032	0.117	11.711	0.091	2.300
2235	1476.175	897.185	14.380	0.030	8.052	0.049	12.137	0.037	2.242
285	437.984	1157.657	14.074	0.061	8.104	0.102	11.790	0.079	2.283
1800	1267.541	1161.017	14.477	0.030	8.108	0.045	12.190	0.035	2.288
2390	1569.631	415.120	14.870	0.061	8.114	0.084	12.413	0.061	2.457
136	245.770	593.513	14.792	0.086	8.125	0.126	12.366	0.096	2.425
978	886.994	1287.790	14.680	0.048	8.172	0.082	12.283	0.060	2.397
879	835.907	937.690	14.545	0.038	8.252	0.062	12.329	0.053	2.216
1439	1107.329	1355.673	14.804	0.045	8.260	0.081	12.412	0.057	2.393
2405	1580.375	1205.442	14.133	0.052	8.313	0.086	11.893	0.063	2.240
2680	1827.607	762.993	15.122	0.077	8.355	0.107	12.838	0.080	2.284
108	205.356	1343.918	14.279	0.075	8.378	0.121	11.974	0.093	2.304
1639	1190.851	857.882	14.410	0.033	8.401	0.043	12.303	0.047	2.107
265	408.617	974.125	14.918	0.065	8.409	0.104	12.614	0.073	2.304
2141	1422.883	824.130	14.720	0.028	8.427	0.048	12.502	0.038	2.218
2726	1879.643	1161.507	14.820	0.070	8.439	0.114	12.536	0.085	2.284
1743	1243.034	1112.972	14.860	0.028	8.468	0.041	12.604	0.034	2.256
2877	2134.081	1019.254	14.643	0.079	8.492	0.127	12.317	0.102	2.326
210	348.999	1067.147	14.349	0.069	8.519	0.108	12.077	0.082	2.272
238	376.773	238.258	15.136	0.072	8.526	0.127	12.736	0.088	2.400
2283	1508.454	1303.397	15.185	0.053	8.540	0.085	12.748	0.063	2.437
2867	2109.758	1387.153	14.618	0.081	8.566	0.135	12.228	0.114	2.391
1831	1278.715	1046.903	14.782	0.025	8.566	0.039	12.501	0.033	2.281
2585	1719.863	943.974	14.922	0.061	8.576	0.096	12.626	0.070	2.296
2000	1352.684	1364.998	14.672	0.047	8.577	0.083	12.625	0.058	2.047
287	441.566	1242.542	14.901	0.059	8.610	0.100	12.665	0.069	2.237
775	781.821	1118.324	14.587	0.043	8.674	0.079	12.420	0.056	2.167
209	348.808	1032.578	14.761	0.068	8.707	0.109	12.634	0.079	2.127
1019	904.557	813.129	14.033	0.034	8.727	0.052	11.980	0.044	2.053
1537	1147.352	1290.368	15.375	0.042	8.764	0.065	12.980	0.049	2.395
2848	2077.083	139.205	15.351	0.081	8.788	0.131	13.125	0.094	2.225
1317	1046.350	1192.948	15.191	0.039	8.835	0.056	12.892	0.044	2.299
742	766.958	569.811	15.258	0.042	8.868	0.057	12.933	0.040	2.325
64	131.408	1559.023	15.418	0.080	8.903	0.118	13.045	0.105	2.373

2550	1688.846	1025.275	15.224	0.056	8.910	0.087	12.883	0.066	2.340
2834	2052.849	738.688	15.760	0.086	8.928	0.122	13.292	0.098	2.468
1912	1315.152	505.566	15.335	0.047	8.932	0.057	12.977	0.043	2.359
2616	1751.226	115.017	14.643	0.062	8.934	0.109	12.601	0.080	2.041
850	820.969	578.168	14.624	0.037	8.952	0.048	12.455	0.036	2.168
2144	1424.046	304.956	15.318	0.061	8.965	0.086	13.021	0.061	2.297
193	332.356	1102.177	15.699	0.067	8.988	0.110	13.264	0.076	2.435
155	278.467	1364.748	15.461	0.065	8.992	0.113	13.182	0.081	2.279
1565	1158.945	581.341	15.310	0.037	8.997	0.049	13.026	0.040	2.284
1708	1227.188	1503.480	15.692	0.065	9.024	0.097	13.238	0.071	2.454
1967	1335.510	624.682	13.790	0.038	9.041	0.051	11.767	0.040	2.023
1347	1059.080	1337.263	15.428	0.044	9.047	0.075	13.091	0.053	2.337
1672	1208.628	891.730	14.998	0.035	9.050	0.048	12.735	0.040	2.263
2538	1680.900	795.185	14.925	0.055	9.051	0.079	12.714	0.061	2.211
886	838.677	1234.864	15.497	0.046	9.065	0.075	13.102	0.056	2.395
2176	1445.011	441.000	15.300	0.057	9.067	0.066	13.010	0.052	2.290
2673	1820.899	1287.443	15.471	0.078	9.089	0.131	13.113	0.098	2.358
841	815.975	617.802	14.667	0.035	9.109	0.049	12.531	0.036	2.136
604	683.765	1359.696	13.592	0.059	9.126	0.098	11.535	0.074	2.057
1696	1221.135	348.362	15.722	0.053	9.149	0.071	13.371	0.049	2.351
2536	1674.772	882.390	15.028	0.052	9.170	0.079	12.808	0.061	2.220
2772	1945.667	199.932	15.920	0.071	9.183	0.122	13.542	0.091	2.378
591	678.216	189.244	14.855	0.063	9.193	0.105	12.617	0.072	2.239
52	111.406	512.236	16.134	0.089	9.194	0.133	13.627	0.095	2.507
2342	1539.019	1173.147	14.941	0.047	9.198	0.072	12.719	0.055	2.222
1678	1210.791	316.087	14.432	0.056	9.213	0.077	12.249	0.054	2.184
1875	1294.841	1443.990	15.888	0.059	9.226	0.091	13.447	0.066	2.441
1206	994.406	1249.390	15.092	0.041	9.253	0.064	12.892	0.049	2.201
923	858.028	779.833	15.260	0.036	9.276	0.059	13.204	0.042	2.056
2629	1759.349	1124.135	15.902	0.063	9.312	0.101	13.490	0.074	2.412
2157	1432.500	1288.412	14.872	0.046	9.366	0.073	12.634	0.056	2.238
1384	1077.848	1277.217	14.802	0.040	9.371	0.062	12.622	0.049	2.180
495	609.469	904.682	15.648	0.049	9.374	0.080	13.306	0.055	2.342
2065	1382.327	289.521	15.895	0.073	9.378	0.085	13.604	0.071	2.291
1620	1183.912	789.531	15.270	0.037	9.396	0.055	13.201	0.047	2.069
2132	1420.069	1502.662	16.041	0.064	9.418	0.099	13.614	0.068	2.426
892	843.073	987.138	15.389	0.041	9.446	0.068	13.211	0.050	2.178
1386	1078.644	865.691	15.581	0.038	9.479	0.055	13.166	0.043	2.414
1917	1315.916	727.330	15.564	0.035	9.489	0.057	13.334	0.043	2.230
1077	931.477	854.645	15.410	0.039	9.494	0.058	13.208	0.046	2.202
509	617.216	887.376	15.820	0.049	9.516	0.081	13.521	0.053	2.299
1901	1307.083	1532.633	16.039	0.064	9.530	0.094	13.617	0.067	2.422
2717	1870.643	1352.023	16.322	0.074	9.535	0.110	13.872	0.083	2.450
2652	1785.324	1081.795	15.999	0.072	9.544	0.104	13.586	0.084	2.413
466	582.452	455.941	16.087	0.060	9.559	0.091	13.724	0.061	2.364
2008	1356.815	681.404	15.430	0.037	9.587	0.054	13.269	0.040	2.161
1666	1205.777	563.277	14.971	0.043	9.591	0.051	12.885	0.042	2.085
42	86.004	870.171	16.015	0.089	9.593	0.127	13.633	0.098	2.382
49	101.956	172.876	16.080	0.091	9.597	0.149	13.564	0.126	2.516
442	568.763	1374.835	15.983	0.062	9.611	0.088	13.685	0.062	2.299
1492	1133.828	925.987	15.709	0.037	9.642	0.055	13.489	0.046	2.220
312	454.344	701.709	16.171	0.068	9.655	0.097	13.745	0.067	2.426
2233	1475.874	1458.019	16.377	0.062	9.669	0.100	13.936	0.072	2.441
6	-4.210	956.205	15.211	0.094	9.685	0.137	13.513	0.102	1.698
1749	1245.248	1274.365	14.318	0.039	9.691	0.058	12.188	0.046	2.130
585	672.223	628.983	15.969	0.047	9.696	0.067	13.661	0.046	2.308
1003	897.913	1528.518	15.498	0.055	9.717	0.100	13.283	0.077	2.215
1371	1069.003	986.926	15.658	0.036	9.750	0.052	13.490	0.047	2.168
2248	1485.362	1512.932	16.011	0.064	9.760	0.107	13.721	0.070	2.290
2846	2073.715	1538.120	16.531	0.092	9.764	0.127	14.055	0.091	2.476
2118	1410.384	737.096	15.194	0.034	9.793	0.047	13.107	0.039	2.087
838	814.188	643.495	15.711	0.040	9.808	0.052	13.520	0.037	2.191
1333	1052.832	390.137	15.826	0.050	9.839	0.059	13.634	0.043	2.192
1260	1017.720	685.639	15.651	0.037	9.842	0.047	13.526	0.040	2.126
1532	1146.515	753.859	15.717	0.039	9.842	0.058	13.629	0.049	2.088
205	342.156	1154.672	16.382	0.073	9.851	0.102	13.962	0.072	2.420
1541	1147.842	1446.994	16.511	0.061	9.864	0.087	14.098	0.061	2.413
704	749.986	639.725	16.340	0.045	9.870	0.059	13.961	0.041	2.378
2330	1530.243	325.097	15.663	0.067	9.885	0.085	13.465	0.061	2.197
1051	921.835	1481.172	16.156	0.063	9.909	0.103	13.855	0.067	2.301
2732	1894.016	95.920	16.313	0.068	9.915	0.109	13.983	0.081	2.329
1086	934.270	863.248	15.823	0.041	9.961	0.062	13.629	0.048	2.193
407	538.833	443.456	15.215	0.063	9.968	0.098	12.968	0.069	2.247
138	247.019	983.664	15.680	0.073	9.992	0.113	13.374	0.085	2.306
367	505.498	97.123	15.489	0.069	9.992	0.117	13.254	0.082	2.235
2675	1823.115	1283.857	16.094	0.096	10.002	0.147	13.855	0.114	2.239
542	643.929	698.024	16.328	0.058	10.002	0.072	13.980	0.053	2.347
1894	1304.050	906.815	15.947	0.033	10.031	0.048	13.804	0.041	2.144
1269	1022.546	246.945	16.120	0.054	10.046	0.082	13.836	0.055	2.284
619	695.369	1114.996	15.634	0.049	10.062	0.073	13.485	0.055	2.150
2654	1787.684	1108.839	16.658	0.071	10.085	0.099	14.244	0.071	2.414
2684	1829.510	1191.588	16.173	0.074	10.089	0.109	13.956	0.079	2.217

220	358.926	533.750	15.232	0.073	10.103	0.119	13.649	0.087	1.582
1544	1149.267	879.898	16.138	0.040	10.107	0.055	13.960	0.049	2.178
76	153.842	982.514	16.526	0.083	10.119	0.121	14.128	0.089	2.398
670	727.563	1465.770	15.822	0.063	10.127	0.098	13.620	0.069	2.202
1578	1166.145	1110.600	15.035	0.034	10.130	0.041	12.920	0.036	2.115
2232	1475.706	355.092	15.799	0.060	10.136	0.077	13.562	0.056	2.237
1841	1282.933	1375.624	16.316	0.056	10.139	0.074	13.993	0.055	2.323
1553	1153.668	1527.598	15.492	0.049	10.141	0.096	13.244	0.061	2.248
1417	1096.777	1345.134	15.736	0.047	10.145	0.070	13.552	0.052	2.184
2273	1502.366	899.345	15.786	0.037	10.154	0.047	13.635	0.036	2.151
1465	1120.136	508.821	16.183	0.047	10.164	0.051	13.961	0.041	2.223
1026	907.144	577.232	15.775	0.037	10.167	0.044	13.652	0.036	2.123
1478	1127.870	1452.501	15.874	0.057	10.170	0.086	13.673	0.064	2.201
2671	1816.945	806.268	16.547	0.083	10.178	0.112	14.169	0.088	2.378
1081	932.548	621.342	16.076	0.041	10.205	0.045	13.944	0.037	2.132
2580	1716.583	374.869	15.881	0.066	10.212	0.095	13.652	0.072	2.229
2398	1576.098	1363.826	16.318	0.060	10.222	0.091	14.085	0.067	2.233
2074	1387.276	1213.943	16.758	0.048	10.235	0.056	14.346	0.044	2.412
519	623.835	1068.315	16.595	0.060	10.237	0.077	14.233	0.054	2.362
2467	1619.924	154.065	15.740	0.064	10.245	0.105	13.557	0.071	2.183
1150	966.745	1159.433	15.729	0.040	10.253	0.056	13.595	0.048	2.134
2225	1470.742	1100.032	16.622	0.058	10.270	0.053	14.302	0.045	2.320
2744	1905.255	961.716	16.747	0.075	10.285	0.108	14.331	0.081	2.416
2632	1762.613	814.217	16.381	0.068	10.288	0.084	14.096	0.063	2.285
117	212.597	203.545	16.563	0.072	10.292	0.114	14.246	0.086	2.317
659	722.687	477.591	16.390	0.060	10.293	0.065	14.113	0.049	2.277
1312	1045.344	1152.277	16.130	0.042	10.296	0.049	13.951	0.042	2.179
2623	1757.159	859.361	16.445	0.064	10.302	0.089	14.180	0.067	2.265
2365	1552.337	1321.171	16.831	0.061	10.317	0.085	14.442	0.063	2.388
13	18.988	291.162	16.042	0.088	10.336	0.141	13.827	0.108	2.215
2555	1693.926	1295.552	16.013	0.063	10.349	0.097	13.804	0.073	2.209
2155	1430.420	1159.268	15.996	0.044	10.356	0.061	13.665	0.058	2.331
2569	1705.967	1247.854	16.582	0.065	10.359	0.096	14.278	0.071	2.304
147	262.892	239.723	16.901	0.076	10.364	0.114	14.528	0.087	2.373
2137	1421.452	1217.589	16.031	0.047	10.391	0.058	13.810	0.046	2.221
676	732.647	315.776	15.878	0.058	10.398	0.083	13.651	0.058	2.227
624	698.548	1095.174	16.007	0.049	10.409	0.068	13.929	0.050	2.078
2734	1896.824	1490.448	16.520	0.089	10.416	0.119	14.258	0.086	2.262
2678	1826.935	626.539	16.761	0.071	10.418	0.101	14.399	0.070	2.363
1082	932.811	1268.606	16.111	0.049	10.430	0.066	13.932	0.050	2.179
2545	1686.478	528.026	15.217	0.065	10.431	0.084	13.075	0.069	2.142
1589	1172.390	995.580	16.619	0.042	10.431	0.045	14.326	0.041	2.293
191	329.863	408.175	16.576	0.074	10.432	0.115	14.316	0.084	2.260
243	378.496	842.771	17.012	0.071	10.432	0.096	14.551	0.070	2.461
2090	1396.122	724.703	16.494	0.043	10.441	0.051	14.249	0.039	2.244
842	817.729	1425.616	16.563	0.058	10.444	0.084	14.333	0.063	2.230
1922	1318.746	1395.983	16.496	0.063	10.455	0.082	14.238	0.060	2.259
1094	939.589	1240.675	15.973	0.045	10.457	0.062	13.816	0.050	2.157
1823	1276.074	263.073	16.409	0.059	10.461	0.080	14.225	0.060	2.184
2779	1952.583	884.255	16.589	0.080	10.469	0.111	14.338	0.081	2.251
105	201.559	1078.519	17.095	0.090	10.477	0.116	14.705	0.079	2.390
2876	2132.594	484.989	16.227	0.107	10.478	0.122	14.013	0.085	2.214
2817	2024.853	292.714	16.472	0.070	10.484	0.111	14.191	0.086	2.281
661	723.283	1450.431	16.072	0.064	10.510	0.085	13.904	0.067	2.167
1070	929.399	548.969	15.992	0.042	10.513	0.043	13.860	0.035	2.131
1930	1320.176	624.236	16.386	0.046	10.520	0.055	14.127	0.042	2.259
2020	1361.477	1368.570	16.996	0.063	10.523	0.076	14.607	0.059	2.389
578	668.353	669.601	15.962	0.055	10.524	0.069	13.831	0.051	2.131
1389	1080.013	470.380	16.021	0.046	10.530	0.049	13.885	0.039	2.136
1011	900.487	1012.877	16.708	0.056	10.540	0.065	14.378	0.049	2.331
371	511.450	997.351	16.580	0.060	10.546	0.077	14.339	0.058	2.241
293	443.061	471.984	16.921	0.072	10.547	0.104	14.583	0.069	2.338
2357	1547.354	547.686	16.519	0.066	10.552	0.062	14.278	0.049	2.241
2131	1419.899	368.703	16.116	0.061	10.555	0.072	13.927	0.053	2.190
1705	1225.167	1117.319	16.736	0.048	10.574	0.039	14.485	0.037	2.251
2650	1780.890	553.805	17.014	0.067	10.580	0.095	14.615	0.069	2.399
424	552.978	170.546	15.893	0.066	10.589	0.106	13.649	0.078	2.244
2825	2036.663	1036.008	17.132	0.089	10.593	0.114	14.659	0.087	2.473
1628	1188.668	1436.357	16.256	0.055	10.597	0.080	14.069	0.061	2.188
188	325.862	480.367	15.450	0.075	10.600	0.112	13.213	0.089	2.237
663	724.182	858.161	16.646	0.053	10.613	0.070	14.330	0.048	2.316
932	864.405	1087.452	16.109	0.050	10.615	0.063	13.945	0.050	2.164
950	874.219	1361.713	17.050	0.069	10.623	0.079	14.702	0.061	2.348
1197	986.729	412.190	16.678	0.053	10.629	0.053	14.414	0.040	2.263
2756	1920.114	669.431	16.165	0.076	10.636	0.109	13.931	0.082	2.234
140	252.440	1149.103	16.256	0.077	10.637	0.110	14.025	0.082	2.231
1880	1297.248	1395.426	16.123	0.052	10.663	0.076	13.905	0.058	2.218
1294	1033.583	559.561	16.475	0.045	10.663	0.046	14.336	0.040	2.140
1928	1319.549	672.644	16.714	0.050	10.674	0.056	14.474	0.046	2.240
2021	1361.854	1391.017	15.782	0.049	10.687	0.080	13.560	0.059	2.223
1356	1062.288	92.055	16.809	0.061	10.696	0.100	14.572	0.065	2.237
361	501.861	682.367	16.934	0.076	10.698	0.089	14.608	0.062	2.326

754	773.431	1159.895	16.976	0.067	10.700	0.077	14.661	0.058	2.315
2827	2037.737	1561.972	17.156	0.085	10.707	0.122	14.762	0.090	2.394
2039	1369.673	1335.402	17.164	0.065	10.715	0.069	14.760	0.056	2.405
2679	1827.599	617.879	17.016	0.072	10.729	0.099	14.615	0.074	2.401
109	206.362	989.438	16.948	0.076	10.733	0.110	14.604	0.082	2.344
795	793.753	1109.931	16.147	0.043	10.737	0.067	14.005	0.051	2.142
2468	1620.237	1531.093	16.711	0.075	10.746	0.104	14.455	0.072	2.256
100	189.968	1164.199	16.817	0.074	10.754	0.111	14.542	0.081	2.275
1520	1142.102	471.129	16.668	0.046	10.755	0.051	14.496	0.041	2.171
1032	912.914	1344.291	16.281	0.053	10.756	0.072	14.074	0.058	2.207
2553	1693.158	138.831	16.142	0.061	10.757	0.099	13.978	0.068	2.164
481	597.093	724.396	16.367	0.064	10.759	0.072	14.211	0.054	2.156
396	532.137	1210.810	17.224	0.066	10.770	0.078	14.820	0.059	2.404
1343	1056.635	936.581	16.008	0.041	10.790	0.055	13.882	0.042	2.126
330	471.524	1427.281	16.897	0.075	10.807	0.094	14.690	0.070	2.206
2370	1557.013	1082.695	16.831	0.058	10.812	0.065	14.560	0.051	2.272
2670	1815.760	242.105	17.355	0.079	10.821	0.108	14.935	0.072	2.420
2688	1833.025	442.127	16.456	0.080	10.845	0.101	14.223	0.076	2.232
774	781.566	772.584	16.453	0.044	10.845	0.060	14.297	0.043	2.155
2163	1435.304	1306.656	16.890	0.055	10.847	0.069	14.589	0.055	2.301
196	333.001	498.148	16.486	0.080	10.853	0.109	14.302	0.084	2.184
1462	1118.812	1080.356	17.001	0.052	10.868	0.046	14.740	0.045	2.260
431	558.607	1389.072	16.754	0.068	10.872	0.085	14.496	0.064	2.258
1740	1241.318	1120.346	17.294	0.054	10.872	0.041	14.905	0.038	2.389
959	878.046	940.562	16.016	0.045	10.885	0.064	14.087	0.049	1.929
2282	1508.243	809.868	17.231	0.049	10.895	0.046	14.884	0.040	2.347
133	239.802	773.808	16.381	0.084	10.902	0.111	14.159	0.085	2.222
2640	1768.694	1384.210	16.411	0.067	10.909	0.101	14.204	0.079	2.208
1109	948.240	1484.876	16.402	0.066	10.911	0.087	14.208	0.066	2.194
16	29.597	1263.940	17.102	0.087	10.919	0.121	14.832	0.090	2.270
2851	2086.418	724.610	17.037	0.080	10.933	0.121	14.734	0.089	2.303
2413	1584.822	1246.201	17.367	0.066	10.955	0.078	14.983	0.062	2.384
1897	1305.133	1385.233	17.221	0.065	10.984	0.073	14.834	0.058	2.388
2858	2091.203	353.123	17.338	0.083	10.986	0.120	15.006	0.087	2.332
1920	1318.122	745.781	16.951	0.055	10.987	0.057	14.739	0.044	2.212
223	360.106	1285.877	16.190	0.068	10.987	0.096	14.051	0.070	2.139
1236	1007.088	128.872	16.966	0.062	10.988	0.095	14.710	0.062	2.256
70	137.284	1022.587	16.540	0.080	10.993	0.112	14.255	0.089	2.285
563	659.145	275.459	17.398	0.071	10.995	0.088	15.001	0.064	2.397
2647	1779.890	1083.355	16.404	0.065	10.997	0.081	14.184	0.063	2.220
2367	1554.563	628.377	16.934	0.062	10.999	0.057	14.695	0.049	2.239
2037	1369.536	895.784	16.771	0.041	11.001	0.046	14.624	0.041	2.147
2188	1451.478	667.153	17.170	0.064	11.002	0.045	14.882	0.044	2.289
2733	1894.217	396.698	17.084	0.071	11.007	0.101	14.769	0.076	2.315
2808	2000.472	816.251	17.124	0.080	11.010	0.112	14.832	0.086	2.293
576	667.654	765.881	16.063	0.047	11.011	0.066	13.891	0.049	2.172
2504	1652.299	612.298	16.627	0.067	11.013	0.071	14.437	0.056	2.190
975	885.607	1042.594	16.488	0.054	11.019	0.066	14.356	0.048	2.131
1366	1065.128	263.984	17.437	0.077	11.034	0.073	15.099	0.054	2.338
14	23.512	821.795	17.264	0.095	11.041	0.131	14.944	0.095	2.320
106	203.361	132.441	17.078	0.080	11.042	0.120	14.813	0.088	2.265
1977	1339.196	852.963	16.457	0.038	11.046	0.047	14.367	0.040	2.091
2713	1863.098	646.197	17.387	0.078	11.058	0.097	15.001	0.073	2.386
1602	1176.912	699.878	16.496	0.046	11.061	0.057	14.424	0.048	2.072
2493	1646.119	910.136	17.031	0.065	11.061	0.077	14.757	0.063	2.273
1013	903.248	870.088	16.630	0.049	11.062	0.063	14.560	0.047	2.070
2366	1553.489	1367.135	17.105	0.064	11.063	0.085	14.862	0.065	2.243
2240	1479.179	733.777	15.917	0.040	11.082	0.045	13.808	0.039	2.109
1	-9.541	421.104	17.320	0.097	11.094	0.135	14.872	0.102	2.448
536	639.011	529.028	17.263	0.064	11.098	0.069	14.956	0.054	2.307
1997	1350.717	507.333	16.989	0.057	11.100	0.047	14.746	0.042	2.243
2236	1476.730	439.416	16.634	0.056	11.102	0.061	14.411	0.052	2.223
66	132.800	999.225	16.447	0.080	11.107	0.113	14.212	0.089	2.235
2758	1921.199	301.573	17.006	0.076	11.108	0.105	14.818	0.080	2.188
2169	1439.301	1017.728	17.209	0.051	11.109	0.044	14.947	0.042	2.262
1395	1084.555	581.116	17.260	0.061	11.113	0.049	14.979	0.046	2.281
2685	1831.524	270.510	16.715	0.069	11.116	0.102	14.518	0.077	2.197
1481	1129.303	477.901	17.319	0.066	11.119	0.050	15.003	0.045	2.316
1322	1049.272	656.636	16.897	0.056	11.131	0.055	14.760	0.045	2.137
435	564.002	674.529	16.574	0.059	11.135	0.076	14.385	0.057	2.190
2710	1859.357	446.895	17.255	0.079	11.139	0.097	14.931	0.074	2.324
1458	1117.222	974.985	17.079	0.059	11.145	0.054	14.850	0.053	2.229
4	-4.956	1160.972	17.173	0.096	11.152	0.123	14.998	0.097	2.175
2113	1408.616	218.546	17.208	0.073	11.163	0.085	14.990	0.067	2.218
2706	1855.589	1010.967	17.506	0.096	11.168	0.094	15.119	0.073	2.387
2878	2141.460	937.844	17.574	0.089	11.171	0.118	15.191	0.086	2.383
1506	1138.045	1185.638	17.481	0.082	11.177	0.080	15.148	0.066	2.333
314	456.351	1029.217	17.519	0.079	11.186	0.086	15.122	0.071	2.397
386	525.470	261.167	17.231	0.081	11.186	0.098	14.975	0.074	2.256
89	173.424	144.371	16.719	0.089	11.191	0.120	14.526	0.084	2.194
1550	1153.145	624.660	16.969	0.051	11.192	0.057	14.835	0.049	2.135
2879	2155.157	1099.353	16.646	0.079	11.198	0.114	14.504	0.086	2.142

1428	1102.716	421.992	16.721	0.057	11.198	0.051	14.573	0.042	2.148
24	44.779	1016.422	17.354	0.094	11.199	0.121	15.229	0.094	2.125
1252	1013.271	166.294	17.546	0.066	11.216	0.084	15.127	0.058	2.420
1010	900.378	367.397	17.616	0.072	11.217	0.057	15.240	0.048	2.377
668	725.373	1042.686	16.932	0.065	11.220	0.066	14.717	0.052	2.216
2463	1617.665	966.968	17.509	0.070	11.222	0.066	15.171	0.055	2.338
1054	922.545	1201.410	16.689	0.047	11.223	0.056	14.524	0.048	2.166
1787	1260.473	155.291	16.721	0.058	11.224	0.091	14.509	0.065	2.212
2864	2107.309	1044.864	17.094	0.074	11.230	0.116	14.868	0.088	2.227
1635	1189.753	997.184	16.682	0.046	11.232	0.046	14.613	0.042	2.069
814	801.905	620.255	17.364	0.053	11.236	0.052	15.073	0.041	2.292
2429	1593.903	1439.294	17.318	0.077	11.244	0.090	15.082	0.069	2.236
945	870.277	560.011	17.288	0.056	11.253	0.043	15.077	0.038	2.211
1686	1215.899	1519.693	16.709	0.067	11.257	0.084	14.489	0.063	2.220
998	896.000	116.326	16.971	0.059	11.265	0.092	14.792	0.062	2.179
1903	1307.607	818.870	17.283	0.061	11.272	0.054	15.064	0.046	2.219
496	609.667	1411.052	16.768	0.075	11.277	0.082	14.632	0.071	2.136
1321	1048.352	1238.353	17.162	0.064	11.277	0.054	14.931	0.046	2.231
514	620.515	1037.036	17.058	0.068	11.280	0.068	14.827	0.056	2.231
508	617.170	716.125	17.121	0.058	11.282	0.071	14.937	0.053	2.185
2804	1992.015	960.634	16.729	0.074	11.285	0.109	14.545	0.083	2.183
1882	1297.529	245.649	17.320	0.064	11.286	0.078	15.046	0.057	2.274
677	732.678	1300.652	17.614	0.072	11.297	0.070	15.226	0.057	2.388
1119	951.106	260.306	17.572	0.070	11.300	0.072	15.202	0.055	2.370
1723	1234.497	741.509	17.181	0.057	11.302	0.065	14.971	0.051	2.209
342	484.182	882.836	16.554	0.062	11.306	0.079	14.358	0.063	2.195
971	884.084	961.338	17.182	0.054	11.311	0.068	14.986	0.052	2.196
434	562.925	931.874	16.603	0.056	11.322	0.069	14.511	0.055	2.092
1580	1166.617	1359.298	17.041	0.059	11.327	0.066	14.888	0.055	2.153
539	641.306	108.552	17.243	0.064	11.348	0.102	14.971	0.071	2.272
2874	2129.749	1199.088	16.574	0.069	11.350	0.115	14.362	0.090	2.212
185	323.854	1294.612	17.361	0.082	11.357	0.096	15.155	0.076	2.207
1473	1126.448	140.796	17.286	0.070	11.360	0.092	15.041	0.063	2.244
2434	1600.252	568.373	17.774	0.085	11.363	0.062	15.375	0.056	2.399
2081	1391.455	267.062	17.511	0.081	11.378	0.077	15.245	0.062	2.266
112	209.254	331.961	16.813	0.081	11.383	0.111	14.621	0.085	2.193
1811	1270.877	1398.957	17.310	0.071	11.390	0.070	15.060	0.060	2.251
2083	1393.346	312.883	17.481	0.080	11.395	0.071	15.186	0.058	2.294
813	801.716	1473.711	17.384	0.076	11.402	0.085	15.172	0.078	2.212
2790	1964.704	1087.825	17.469	0.081	11.402	0.104	15.171	0.080	2.299
1441	1107.733	237.199	17.412	0.076	11.409	0.076	15.210	0.056	2.202
2266	1498.286	568.430	17.086	0.051	11.414	0.052	14.883	0.047	2.202
516	622.904	447.375	17.849	0.078	11.418	0.075	15.421	0.058	2.428
1328	1051.836	701.490	17.082	0.057	11.418	0.059	14.989	0.053	2.093
1239	1007.729	395.928	17.229	0.057	11.423	0.051	15.021	0.042	2.208
2378	1560.872	913.570	17.690	0.077	11.423	0.055	15.357	0.051	2.334
2636	1766.528	818.421	17.118	0.080	11.428	0.114	14.966	0.087	2.152
332	472.895	318.643	17.617	0.078	11.430	0.095	15.222	0.074	2.395
2625	1758.233	1220.934	17.523	0.080	11.433	0.091	15.217	0.071	2.305
81	163.108	901.351	17.382	0.083	11.435	0.112	15.149	0.095	2.232
26	48.533	528.337	17.465	0.100	11.442	0.126	15.173	0.095	2.292
2440	1603.507	1324.959	17.828	0.093	11.446	0.082	15.462	0.069	2.366
2531	1672.944	646.410	17.744	0.080	11.448	0.086	15.389	0.070	2.355
1530	1145.316	165.826	17.494	0.067	11.448	0.086	15.183	0.060	2.311
1170	974.967	1281.054	16.907	0.055	11.450	0.061	14.768	0.052	2.139
1090	938.031	1074.417	16.732	0.051	11.452	0.062	14.618	0.049	2.114
276	423.321	245.599	17.425	0.093	11.453	0.100	15.120	0.075	2.304
1325	1049.828	832.482	15.646	0.041	11.456	0.066	13.749	0.051	1.897
301	450.722	1317.052	17.304	0.074	11.456	0.085	15.126	0.068	2.177
782	785.915	597.302	16.897	0.057	11.458	0.050	14.742	0.039	2.156
951	874.821	296.607	17.438	0.063	11.461	0.068	15.184	0.056	2.253
2173	1442.324	184.163	16.656	0.070	11.462	0.101	14.458	0.073	2.198
1821	1275.662	106.022	17.571	0.073	11.463	0.094	15.252	0.066	2.319
380	517.895	1040.261	17.424	0.062	11.464	0.072	15.184	0.064	2.240
1656	1202.650	730.108	17.401	0.054	11.465	0.064	15.129	0.052	2.272
1593	1175.008	1301.507	17.363	0.070	11.469	0.056	15.162	0.051	2.201
920	855.721	1418.384	17.556	0.081	11.470	0.077	15.301	0.063	2.255
2211	1467.136	785.241	17.543	0.067	11.475	0.046	15.292	0.045	2.251
1972	1337.620	646.025	17.163	0.059	11.479	0.048	15.020	0.043	2.143
215	356.038	1142.181	17.138	0.069	11.489	0.086	14.948	0.066	2.190
1525	1144.357	1151.108	17.582	0.069	11.492	0.046	15.278	0.045	2.304
2385	1566.492	389.646	17.625	0.075	11.495	0.075	15.297	0.059	2.328
1642	1193.367	1085.750	17.586	0.058	11.501	0.043	15.306	0.043	2.280
708	752.640	1274.738	17.267	0.071	11.503	0.064	15.092	0.056	2.175
2644	1771.204	1277.510	17.482	0.078	11.506	0.094	15.247	0.076	2.235
2505	1652.610	1090.237	17.166	0.065	11.509	0.077	14.945	0.065	2.221
1814	1271.745	1170.704	17.166	0.056	11.512	0.042	14.965	0.039	2.201
334	475.089	300.526	17.487	0.084	11.514	0.098	15.268	0.073	2.219
2666	1810.463	772.476	17.040	0.065	11.520	0.088	14.850	0.072	2.190
793	792.493	936.645	17.143	0.070	11.523	0.102	14.963	0.077	2.180
699	746.152	452.456	17.112	0.062	11.532	0.059	14.895	0.046	2.217
1490	1133.046	1398.957	17.569	0.062	11.553	0.070	15.344	0.057	2.225

1985	1344.089	1474.103	17.564	0.083	11.565	0.080	15.264	0.087	2.300
190	329.649	914.895	17.855	0.096	11.577	0.091	15.428	0.072	2.427
2462	1616.544	649.014	16.805	0.065	11.579	0.062	14.596	0.056	2.209
2621	1755.369	824.328	17.652	0.074	11.582	0.080	15.364	0.065	2.287
1825	1277.059	965.348	17.761	0.067	11.583	0.052	15.449	0.053	2.312
1164	971.652	640.885	16.915	0.052	11.587	0.050	14.826	0.045	2.089
2701	1851.301	674.926	17.725	0.081	11.589	0.093	15.400	0.074	2.324
583	672.093	672.154	17.331	0.067	11.589	0.062	15.113	0.057	2.218
1467	1121.119	1180.113	16.820	0.053	11.596	0.044	14.697	0.041	2.123
548	648.319	803.854	17.769	0.071	11.598	0.069	15.409	0.054	2.360
2802	1984.676	1271.944	17.780	0.107	11.601	0.110	15.485	0.092	2.294
446	572.395	349.268	17.528	0.081	11.601	0.085	15.350	0.069	2.178
2582	1717.256	465.493	17.415	0.080	11.607	0.084	15.194	0.067	2.222
2279	1507.013	1349.998	17.783	0.091	11.609	0.078	15.455	0.068	2.328
9	3.174	666.091	17.758	0.108	11.618	0.135	15.412	0.102	2.346
2611	1742.693	1476.581	17.257	0.089	11.622	0.100	15.082	0.081	2.175
1327	1051.573	1027.732	17.136	0.056	11.622	0.055	15.037	0.049	2.099
1543	1149.014	1104.213	17.465	0.057	11.623	0.044	15.236	0.044	2.228
2870	2116.029	1281.188	17.588	0.093	11.630	0.111	15.357	0.092	2.231
2387	1567.402	405.036	17.728	0.088	11.634	0.073	15.424	0.059	2.305
1940	1323.881	1196.809	17.639	0.079	11.637	0.045	15.397	0.045	2.242
2766	1933.584	285.031	18.054	0.102	11.643	0.105	15.646	0.079	2.408
1190	980.957	1037.632	17.417	0.063	11.650	0.055	15.241	0.053	2.176
468	583.174	502.200	17.177	0.071	11.650	0.078	14.974	0.059	2.202
2659	1796.778	1161.504	17.597	0.082	11.659	0.090	15.332	0.073	2.265
35	74.827	548.053	17.631	0.102	11.660	0.117	15.303	0.092	2.328
2633	1764.809	837.346	17.672	0.088	11.661	0.080	15.393	0.068	2.279
787	790.679	241.662	17.020	0.060	11.663	0.078	14.847	0.057	2.173
2527	1667.887	647.649	17.588	0.067	11.673	0.063	15.372	0.054	2.216
1783	1258.836	964.766	17.034	0.058	11.673	0.051	14.971	0.053	2.063
194	332.928	741.431	16.548	0.094	11.673	0.094	14.684	0.081	1.864
2481	1632.079	799.546	16.443	0.053	11.674	0.061	14.300	0.051	2.143
230	367.097	1096.385	17.079	0.084	11.675	0.085	14.904	0.067	2.175
994	892.067	654.826	17.584	0.062	11.675	0.051	15.371	0.047	2.212
54	113.098	246.448	17.185	0.098	11.680	0.111	14.985	0.094	2.200
2111	1406.956	999.187	17.460	0.060	11.682	0.043	15.296	0.042	2.165
408	540.321	224.144	18.074	0.100	11.689	0.087	15.676	0.074	2.398
163	291.057	1143.805	17.969	0.102	11.690	0.093	15.557	0.073	2.412
1175	976.607	1211.279	17.528	0.067	11.694	0.053	15.351	0.055	2.177
204	342.116	997.875	17.669	0.077	11.701	0.087	15.379	0.069	2.290
2875	2131.466	1428.008	17.614	0.099	11.702	0.118	15.473	0.097	2.141
1514	1140.558	460.644	17.806	0.083	11.704	0.050	15.504	0.049	2.302
2716	1865.516	1129.874	17.937	0.115	11.705	0.095	15.565	0.079	2.372
859	827.740	1096.217	17.537	0.059	11.709	0.062	15.334	0.054	2.203
2725	1877.632	1037.360	16.460	0.069	11.714	0.098	14.267	0.077	2.193
2855	2088.381	1071.409	17.139	0.087	11.720	0.113	14.961	0.088	2.177
1824	1276.134	716.485	17.660	0.058	11.721	0.063	15.472	0.051	2.188
1414	1095.931	208.756	16.622	0.060	11.723	0.096	14.417	0.060	2.205
2838	2058.029	764.042	17.280	0.081	11.730	0.108	15.112	0.085	2.168
162	287.759	1171.727	17.502	0.079	11.734	0.100	15.478	0.083	2.023
1501	1136.870	274.508	17.492	0.068	11.737	0.067	15.275	0.054	2.217
2086	1394.071	803.057	17.374	0.058	11.739	0.050	15.272	0.048	2.101
28	58.982	288.002	17.960	0.123	11.746	0.120	15.519	0.097	2.442
1519	1141.822	1097.748	17.541	0.062	11.749	0.046	15.366	0.047	2.175
1854	1287.632	1173.020	17.854	0.093	11.751	0.044	15.515	0.047	2.339
2595	1727.883	691.809	17.776	0.085	11.751	0.077	15.475	0.063	2.300
2842	2063.482	1173.593	17.037	0.084	11.751	0.111	14.849	0.088	2.188
322	466.035	1119.243	17.980	0.084	11.756	0.072	15.650	0.064	2.330
2775	1947.865	673.303	17.731	0.089	11.759	0.098	15.475	0.076	2.256
1906	1309.748	1060.443	17.785	0.078	11.767	0.044	15.590	0.048	2.196
820	805.468	186.209	17.762	0.079	11.772	0.083	15.521	0.064	2.241
1731	1237.249	162.920	17.650	0.068	11.779	0.088	15.442	0.064	2.208
1587	1171.186	1073.997	17.702	0.080	11.779	0.041	15.492	0.045	2.210
15	27.014	1140.654	17.730	0.103	11.780	0.114	15.407	0.093	2.324
97	179.990	971.878	17.232	0.080	11.784	0.102	15.037	0.082	2.195
2410	1583.366	1073.258	17.726	0.082	11.795	0.063	15.493	0.057	2.233
1076	930.615	646.296	17.744	0.076	11.799	0.052	15.517	0.050	2.228
381	518.763	283.377	17.211	0.084	11.800	0.085	15.031	0.074	2.180
2160	1433.728	1271.179	17.876	0.096	11.801	0.062	15.577	0.058	2.299
17	30.000	840.212	17.677	0.099	11.803	0.119	15.582	0.096	2.094
1745	1244.048	686.455	17.870	0.076	11.806	0.069	15.628	0.060	2.242
2165	1435.659	801.645	17.927	0.073	11.806	0.049	15.608	0.050	2.320
2658	1791.801	1128.701	18.128	0.097	11.807	0.088	15.763	0.073	2.365
961	879.010	1334.348	17.781	0.092	11.808	0.064	15.543	0.060	2.238
2314	1523.536	734.149	17.740	0.072	11.808	0.052	15.454	0.052	2.286
2687	1831.855	879.614	17.743	0.090	11.818	0.088	15.526	0.073	2.217
1262	1018.392	1018.653	17.642	0.076	11.819	0.056	15.451	0.055	2.191
135	241.085	917.316	17.758	0.100	11.822	0.099	15.452	0.082	2.306
722	757.843	581.363	17.791	0.081	11.838	0.056	15.560	0.053	2.231
2320	1525.890	230.824	18.062	0.096	11.860	0.087	15.636	0.075	2.426
2635	1766.074	1449.696	17.462	0.077	11.864	0.095	15.264	0.078	2.199
2192	1454.421	861.999	17.645	0.067	11.867	0.049	15.413	0.049	2.232

717	756.321	1230.305	17.876	0.103	11.867	0.068	15.641	0.072	2.236
1029	909.680	1318.210	17.283	0.060	11.875	0.062	15.113	0.054	2.170
2418	1587.052	1473.048	17.786	0.101	11.877	0.092	15.541	0.083	2.245
2597	1730.908	298.286	17.189	0.068	11.885	0.085	14.973	0.073	2.216
538	641.240	1231.151	17.717	0.079	11.889	0.063	15.471	0.060	2.246
2474	1622.806	1018.479	17.938	0.094	11.899	0.069	15.603	0.063	2.335
1895	1304.773	443.348	17.849	0.070	11.901	0.052	15.603	0.052	2.245
2201	1459.366	1181.483	17.852	0.069	11.903	0.058	15.618	0.058	2.234
2046	1374.574	508.987	18.057	0.076	11.904	0.051	15.720	0.053	2.336
2862	2102.834	1130.051	17.857	0.109	11.911	0.109	15.592	0.087	2.265
2022	1362.255	807.890	18.199	0.091	11.913	0.060	15.834	0.062	2.365
2311	1522.083	215.401	18.105	0.089	11.914	0.092	15.791	0.073	2.314
2388	1569.257	712.161	17.341	0.062	11.915	0.052	15.153	0.048	2.189
1121	951.258	668.164	17.751	0.066	11.917	0.053	15.561	0.055	2.189
957	877.866	1366.458	17.789	0.076	11.919	0.078	15.581	0.068	2.207
199	334.697	1146.677	17.357	0.072	11.922	0.086	15.174	0.070	2.183
340	480.389	769.455	17.735	0.075	11.923	0.077	15.494	0.063	2.242
404	535.420	660.406	17.831	0.076	11.923	0.077	15.631	0.064	2.200
1801	1267.579	917.333	17.654	0.065	11.932	0.056	15.530	0.056	2.124
1910	1312.798	1383.321	17.723	0.082	11.934	0.067	15.474	0.063	2.249
2	-9.437	546.672	17.678	0.092	11.935	0.135	15.493	0.108	2.184
1018	904.421	170.459	18.003	0.082	11.943	0.082	15.681	0.064	2.322
1403	1090.278	1437.032	17.790	0.083	11.944	0.074	15.584	0.066	2.206
613	690.991	337.440	17.443	0.083	11.946	0.076	15.228	0.060	2.215
2055	1378.620	1078.537	18.083	0.078	11.947	0.044	15.753	0.051	2.330
1406	1092.232	938.578	17.298	0.065	11.951	0.062	15.189	0.049	2.109
479	596.631	759.147	17.886	0.094	11.956	0.070	15.605	0.063	2.282
1764	1251.351	1074.626	18.086	0.078	11.963	0.045	15.746	0.051	2.340
1817	1273.907	1484.599	17.913	0.079	11.964	0.079	15.695	0.068	2.218
2379	1562.230	895.834	17.986	0.082	11.965	0.057	15.694	0.059	2.292
2503	1652.244	728.396	18.044	0.106	11.972	0.065	15.751	0.062	2.293
2258	1492.797	367.706	18.263	0.095	11.975	0.068	15.792	0.069	2.471
845	818.383	850.942	17.635	0.061	11.978	0.067	15.484	0.053	2.151
662	723.489	1244.865	17.352	0.070	11.979	0.060	15.174	0.056	2.179
846	818.474	266.265	16.706	0.056	11.980	0.073	14.560	0.055	2.145
2202	1461.074	715.377	18.116	0.080	11.982	0.056	15.763	0.054	2.354
1002	897.803	972.209	16.824	0.053	11.982	0.065	14.752	0.050	2.073
229	366.276	1242.762	17.743	0.078	11.984	0.087	15.513	0.072	2.230
226	364.499	385.222	17.881	0.108	11.987	0.101	15.646	0.088	2.235
2552	1692.435	176.163	18.277	0.096	11.997	0.097	15.923	0.080	2.354
1567	1159.246	209.545	17.797	0.078	11.999	0.080	15.602	0.064	2.195
1125	952.447	371.893	17.228	0.063	12.008	0.054	15.038	0.047	2.191
272	418.930	588.737	17.948	0.083	12.015	0.095	15.708	0.081	2.240
766	778.634	369.060	17.921	0.087	12.016	0.063	15.716	0.058	2.205
1797	1263.796	930.084	17.396	0.064	12.018	0.057	15.335	0.051	2.061
689	740.592	1229.526	17.897	0.085	12.022	0.060	15.702	0.059	2.195
389	526.975	1270.822	17.833	0.076	12.022	0.071	15.588	0.066	2.244
2841	2062.395	550.363	18.099	0.103	12.023	0.105	15.784	0.088	2.315
2323	1526.965	605.660	17.607	0.082	12.026	0.097	15.475	0.080	2.132
1840	1282.088	743.434	16.738	0.049	12.030	0.058	14.713	0.049	2.024
1036	914.315	639.335	17.387	0.057	12.030	0.068	15.246	0.047	2.141
2540	1681.413	1513.651	17.524	0.101	12.032	0.091	15.256	0.073	2.268
2196	1456.031	1326.737	17.899	0.083	12.039	0.070	15.661	0.065	2.238
844	817.957	1161.322	17.861	0.072	12.044	0.061	15.682	0.056	2.179
943	869.807	664.267	17.633	0.076	12.047	0.051	15.488	0.048	2.144
1837	1281.688	312.494	18.032	0.093	12.051	0.065	15.811	0.063	2.221
1511	1139.082	625.301	18.105	0.093	12.060	0.057	15.870	0.059	2.236
218	357.651	1387.096	18.205	0.139	12.061	0.090	15.751	0.085	2.454
2333	1532.539	358.088	17.656	0.076	12.065	0.074	15.498	0.060	2.157
1692	1219.989	727.706	17.602	0.074	12.065	0.062	15.470	0.057	2.132
333	473.124	411.056	17.937	0.088	12.067	0.087	15.716	0.072	2.221
1796	1263.789	304.624	17.746	0.077	12.069	0.075	15.578	0.062	2.168
1330	1052.206	1258.775	17.958	0.091	12.071	0.054	15.718	0.056	2.240
2278	1506.799	1456.986	17.883	0.082	12.073	0.082	15.706	0.071	2.177
331	472.689	1281.203	17.509	0.084	12.074	0.076	15.392	0.068	2.116
1703	1223.692	1446.929	17.851	0.072	12.076	0.074	15.694	0.066	2.157
2526	1667.564	963.216	17.151	0.060	12.077	0.070	14.964	0.059	2.187
911	851.290	900.702	17.701	0.085	12.081	0.075	15.544	0.057	2.157
2241	1479.819	1395.103	17.614	0.088	12.085	0.077	15.487	0.074	2.127
2715	1865.163	399.414	17.382	0.072	12.087	0.096	15.210	0.074	2.172
645	709.899	297.556	17.769	0.076	12.089	0.077	15.615	0.062	2.154
2120	1411.279	308.095	17.467	0.065	12.090	0.072	15.257	0.058	2.210
2581	1717.091	1104.412	18.045	0.087	12.090	0.077	15.804	0.073	2.241
1956	1332.136	220.431	18.429	0.101	12.096	0.097	16.089	0.070	2.340
1021	904.795	653.648	17.465	0.059	12.096	0.050	15.338	0.045	2.127
605	685.325	384.945	17.548	0.080	12.097	0.071	15.378	0.059	2.171
675	732.517	1318.815	18.178	0.090	12.098	0.073	15.897	0.066	2.281
2106	1405.327	1160.932	18.145	0.100	12.099	0.076	15.691	0.086	2.454
831	809.621	417.560	17.360	0.064	12.099	0.055	15.172	0.046	2.188
530	633.455	814.174	18.185	0.082	12.100	0.069	15.888	0.062	2.297
606	686.181	705.780	17.435	0.064	12.101	0.066	15.288	0.048	2.146
1998	1350.807	907.471	17.130	0.046	12.102	0.055	15.338	0.047	1.792

2344	1540.864	1198.953	17.985	0.087	12.109	0.066	15.777	0.061	2.208
995	893.292	901.389	16.854	0.054	12.112	0.068	14.772	0.051	2.081
1908	1312.342	1212.776	18.008	0.086	12.113	0.049	15.844	0.053	2.163
2005	1355.221	764.006	16.933	0.055	12.115	0.054	14.860	0.042	2.073
1957	1332.256	681.478	17.740	0.076	12.116	0.053	15.633	0.061	2.108
2543	1685.181	1488.135	17.225	0.085	12.119	0.089	15.022	0.072	2.203
2103	1403.901	439.764	17.900	0.090	12.119	0.061	15.709	0.058	2.191
2447	1606.052	540.559	17.812	0.089	12.122	0.064	15.649	0.059	2.163
2209	1466.476	1053.323	18.229	0.086	12.129	0.053	15.906	0.055	2.323
2546	1687.725	847.894	18.113	0.094	12.133	0.070	15.895	0.068	2.219
2077	1388.116	537.282	16.889	0.049	12.141	0.051	14.769	0.044	2.120
745	769.604	1159.507	18.023	0.115	12.142	0.089	15.790	0.078	2.233
1914	1315.517	1392.143	17.767	0.104	12.143	0.061	15.576	0.056	2.191
2682	1828.395	1278.762	18.069	0.104	12.144	0.124	15.816	0.097	2.253
650	717.159	1117.856	17.890	0.072	12.144	0.065	15.731	0.061	2.159
2334	1532.946	1509.389	18.049	0.078	12.150	0.081	15.849	0.067	2.200
857	827.603	835.202	17.778	0.077	12.152	0.070	15.617	0.054	2.161
2871	2118.433	763.342	18.031	0.101	12.158	0.107	15.940	0.093	2.091
562	657.798	1258.909	18.070	0.096	12.159	0.066	15.806	0.068	2.264
1750	1245.976	1280.132	16.812	0.071	12.161	0.087	14.775	0.062	2.036
2762	1924.516	1381.275	17.487	0.074	12.162	0.100	15.307	0.083	2.180
1744	1243.216	72.748	17.501	0.076	12.162	0.096	15.365	0.068	2.136
242	377.917	682.828	18.219	0.109	12.162	0.091	15.880	0.078	2.339
1785	1259.786	866.859	18.062	0.070	12.163	0.062	15.858	0.059	2.204
2455	1611.695	1403.485	18.336	0.109	12.164	0.085	16.023	0.084	2.313
2194	1455.448	1227.527	18.126	0.084	12.165	0.061	15.859	0.061	2.267
2403	1579.475	1001.306	17.919	0.078	12.168	0.059	15.761	0.056	2.158
2793	1970.563	1318.446	17.443	0.076	12.170	0.102	15.325	0.085	2.118
2295	1511.643	1424.381	18.356	0.092	12.175	0.081	16.031	0.077	2.325
2274	1503.003	532.040	18.157	0.095	12.179	0.054	15.934	0.059	2.223
2721	1874.641	699.077	17.563	0.084	12.181	0.092	15.386	0.074	2.177
2386	1566.500	1439.658	18.120	0.105	12.182	0.084	15.814	0.078	2.306
1560	1157.871	117.904	18.065	0.093	12.197	0.100	15.800	0.084	2.265
1958	1333.606	773.277	17.939	0.070	12.201	0.057	15.804	0.063	2.135
2509	1656.343	336.744	18.219	0.092	12.206	0.081	15.903	0.077	2.316
411	545.779	264.260	18.401	0.092	12.208	0.085	16.070	0.073	2.331
2234	1476.044	816.118	18.385	0.097	12.216	0.048	16.060	0.055	2.325
2803	1988.904	935.722	18.066	0.102	12.217	0.102	15.720	0.085	2.346
1664	1204.528	74.802	17.952	0.081	12.218	0.090	15.810	0.069	2.141
685	739.331	932.162	17.892	0.084	12.219	0.080	15.695	0.060	2.197
2522	1666.512	759.179	17.428	0.067	12.219	0.069	15.272	0.059	2.156
2752	1910.116	974.683	17.887	0.102	12.221	0.109	15.700	0.089	2.187
1245	1009.422	833.502	18.100	0.078	12.222	0.066	15.866	0.061	2.234
2329	1530.185	968.252	17.513	0.063	12.226	0.055	15.352	0.047	2.161
1776	1256.319	1331.843	18.241	0.126	12.227	0.062	15.995	0.067	2.246
987	890.106	1308.976	18.100	0.087	12.227	0.063	15.849	0.062	2.251
2747	1906.777	370.143	18.465	0.112	12.228	0.095	16.103	0.085	2.362
74	145.334	904.874	17.436	0.086	12.228	0.105	15.233	0.084	2.203
1791	1262.916	499.899	17.760	0.072	12.228	0.051	15.644	0.052	2.116
379	517.198	459.581	18.188	0.102	12.228	0.083	15.914	0.073	2.274
2288	1509.593	264.546	17.556	0.095	12.236	0.081	15.432	0.070	2.124
1690	1217.581	939.151	17.886	0.074	12.237	0.061	15.746	0.054	2.140
2656	1790.208	731.305	18.328	0.097	12.241	0.079	15.975	0.074	2.354
252	391.303	125.609	18.332	0.100	12.243	0.102	16.008	0.084	2.325
2471	1622.283	1000.179	18.255	0.092	12.251	0.062	15.976	0.063	2.280
1145	963.838	1318.770	18.200	0.078	12.251	0.062	15.925	0.066	2.275
864	829.319	445.992	18.103	0.087	12.251	0.053	15.907	0.055	2.195
614	691.089	534.273	18.160	0.096	12.253	0.061	15.949	0.060	2.211
695	744.591	697.935	17.304	0.070	12.254	0.061	15.144	0.045	2.160
1397	1085.951	207.725	18.381	0.131	12.255	0.081	16.110	0.074	2.271
2520	1665.699	1520.271	18.385	0.089	12.260	0.089	16.033	0.082	2.352
1255	1015.286	988.484	17.536	0.056	12.265	0.060	15.418	0.054	2.118
1305	1043.028	830.946	18.226	0.100	12.266	0.072	15.934	0.068	2.292
346	490.531	1334.591	18.304	0.100	12.269	0.076	16.004	0.077	2.300
1925	1319.209	1209.401	17.688	0.072	12.271	0.052	15.577	0.053	2.111
798	794.142	505.809	17.842	0.072	12.275	0.053	15.708	0.052	2.134
791	792.299	768.044	17.472	0.062	12.275	0.075	15.385	0.054	2.087
1994	1348.856	662.573	18.171	0.073	12.278	0.049	15.868	0.051	2.302
141	253.737	938.043	18.138	0.105	12.279	0.096	15.751	0.082	2.387
759	776.270	324.107	16.834	0.077	12.279	0.096	14.627	0.094	2.207
425	553.102	1258.442	17.534	0.089	12.284	0.070	15.363	0.062	2.172
2769	1941.498	488.686	18.124	0.089	12.286	0.098	15.925	0.084	2.199
1000	897.467	607.451	18.159	0.090	12.287	0.051	15.923	0.056	2.236
2537	1680.800	1174.236	18.146	0.092	12.288	0.080	15.941	0.076	2.205
764	777.537	978.192	17.526	0.061	12.290	0.070	15.367	0.053	2.159
1210	996.476	387.772	18.274	0.090	12.291	0.055	15.857	0.060	2.417
1893	1303.854	528.626	17.980	0.075	12.292	0.052	15.830	0.055	2.150
1354	1061.571	390.352	17.964	0.064	12.292	0.063	15.782	0.059	2.182
2753	1913.802	636.007	18.429	0.124	12.293	0.093	16.083	0.087	2.345
2502	1652.087	974.959	18.108	0.098	12.293	0.067	15.903	0.069	2.205
1833	1279.996	793.606	17.874	0.063	12.293	0.061	15.764	0.057	2.110
1334	1052.853	1320.830	18.018	0.099	12.294	0.098	15.853	0.092	2.166

776	782.390	1182.320	17.540	0.068	12.299	0.057	15.437	0.057	2.103
718	756.473	147.932	17.518	0.072	12.308	0.088	15.374	0.068	2.144
260	402.638	250.024	18.111	0.100	12.308	0.098	15.962	0.089	2.150
2052	1375.861	344.128	18.556	0.104	12.311	0.065	16.171	0.071	2.384
1443	1108.261	864.884	17.654	0.056	12.312	0.065	15.516	0.060	2.138
1682	1213.074	379.746	18.169	0.096	12.314	0.062	15.939	0.060	2.231
2799	1982.508	451.262	17.941	0.092	12.318	0.101	15.749	0.088	2.192
2518	1665.474	1179.738	17.658	0.089	12.318	0.096	15.443	0.078	2.215
1758	1247.957	1036.525	18.203	0.091	12.319	0.049	15.993	0.057	2.210
167	299.783	250.496	18.300	0.095	12.320	0.102	15.961	0.085	2.339
2102	1402.446	1500.247	18.112	0.093	12.324	0.088	15.898	0.079	2.214
2254	1489.903	1509.187	17.682	0.087	12.325	0.100	15.408	0.085	2.274
1487	1132.086	1132.649	17.653	0.071	12.329	0.046	15.513	0.049	2.140
2763	1924.732	1425.077	18.428	0.124	12.340	0.098	16.063	0.089	2.364
1808	1269.843	687.468	17.617	0.066	12.346	0.058	15.554	0.055	2.063
2375	1559.579	1141.904	18.303	0.092	12.346	0.068	16.042	0.068	2.261
575	667.587	1255.316	18.135	0.085	12.348	0.066	15.898	0.067	2.237
2586	1721.494	713.035	18.400	0.111	12.352	0.072	16.119	0.074	2.281
254	395.543	699.641	18.322	0.114	12.353	0.094	15.997	0.081	2.325
77	156.876	426.046	17.492	0.093	12.353	0.108	15.269	0.082	2.223
765	777.597	1260.086	17.412	0.068	12.355	0.077	15.260	0.060	2.152
2791	1965.232	169.256	17.598	0.089	12.358	0.117	15.474	0.087	2.124
1834	1280.078	970.568	17.100	0.062	12.359	0.054	15.461	0.054	1.639
656	720.922	664.082	17.426	0.072	12.362	0.059	15.300	0.052	2.126
2328	1529.767	1206.018	18.455	0.137	12.363	0.067	16.152	0.074	2.304
1331	1052.455	425.666	18.255	0.099	12.363	0.052	16.052	0.057	2.203
2336	1533.771	746.861	18.338	0.096	12.364	0.052	16.081	0.059	2.257
85	166.955	1131.234	18.211	0.101	12.368	0.101	15.978	0.088	2.232
1608	1179.518	80.957	18.471	0.100	12.369	0.091	16.145	0.074	2.326
887	839.113	639.188	18.227	0.084	12.371	0.055	16.027	0.059	2.199
73	143.654	421.056	18.298	0.113	12.374	0.107	16.052	0.094	2.247
1227	1004.069	1396.277	17.520	0.071	12.374	0.070	15.415	0.062	2.105
1756	1247.664	605.159	18.310	0.097	12.378	0.057	16.100	0.064	2.211
557	651.994	350.738	18.385	0.127	12.380	0.077	16.090	0.076	2.295
2040	1370.412	669.167	18.210	0.085	12.382	0.051	16.047	0.055	2.163
2177	1445.113	564.411	17.717	0.075	12.382	0.051	15.530	0.052	2.186
1790	1261.476	791.412	18.223	0.071	12.387	0.060	16.057	0.065	2.166
1234	1006.218	527.616	17.738	0.071	12.388	0.049	15.622	0.049	2.116
964	879.785	802.436	18.269	0.081	12.389	0.072	16.035	0.059	2.235
610	689.128	1298.190	18.156	0.114	12.390	0.063	15.986	0.074	2.170
1606	1179.170	398.669	18.195	0.110	12.391	0.055	16.002	0.057	2.194
719	756.746	1183.241	17.782	0.062	12.391	0.063	15.606	0.057	2.176
1426	1100.884	1149.618	18.390	0.097	12.391	0.049	16.146	0.065	2.244
1398	1086.360	1488.239	18.565	0.110	12.393	0.077	16.210	0.076	2.354
1079	932.291	658.788	17.738	0.072	12.394	0.054	15.633	0.052	2.105
2116	1409.257	193.011	18.267	0.098	12.396	0.084	16.047	0.077	2.220
57	122.736	702.713	18.408	0.111	12.397	0.110	16.132	0.101	2.276
227	364.681	270.397	17.145	0.074	12.403	0.095	14.973	0.079	2.172
2781	1953.478	263.035	18.598	0.119	12.404	0.103	16.313	0.094	2.285
2609	1741.989	994.075	18.363	0.122	12.405	0.079	16.087	0.080	2.275
679	733.765	513.293	18.438	0.093	12.406	0.057	16.138	0.064	2.299
2199	1458.017	805.123	18.212	0.088	12.407	0.053	15.973	0.055	2.239
2729	1888.937	914.180	18.178	0.128	12.409	0.096	15.940	0.082	2.239
2029	1366.061	811.388	18.158	0.086	12.409	0.056	15.958	0.058	2.200
2457	1611.791	1101.390	18.367	0.104	12.414	0.070	16.113	0.066	2.254
353	494.688	454.421	17.841	0.079	12.414	0.084	15.614	0.069	2.227
2001	1353.486	1101.529	18.261	0.089	12.418	0.048	16.060	0.057	2.201
21	39.628	922.585	17.900	0.113	12.418	0.121	15.839	0.098	2.061
2576	1712.429	257.533	18.325	0.126	12.422	0.088	15.988	0.087	2.336
1838	1281.820	273.244	18.222	0.086	12.423	0.070	16.018	0.072	2.204
525	629.146	469.266	17.825	0.086	12.427	0.072	15.663	0.062	2.162
2024	1362.475	564.336	18.270	0.085	12.427	0.054	16.046	0.057	2.224
7	-2.304	366.067	18.092	0.113	12.429	0.129	16.060	0.114	2.032
1275	1026.194	337.565	17.524	0.073	12.432	0.063	15.427	0.050	2.097
1287	1031.187	708.082	18.269	0.089	12.433	0.063	16.070	0.067	2.200
1919	1317.321	808.233	17.667	0.073	12.433	0.061	15.557	0.055	2.109
374	512.758	775.966	18.027	0.087	12.434	0.074	15.814	0.067	2.213
249	388.823	296.100	17.715	0.096	12.434	0.097	15.543	0.080	2.172
566	660.765	534.339	18.519	0.100	12.435	0.066	16.240	0.068	2.279
409	542.411	259.333	18.550	0.132	12.436	0.106	16.163	0.088	2.387
2873	2127.487	1297.439	18.305	0.125	12.438	0.114	16.069	0.100	2.236
2519	1665.552	1174.720	18.539	0.109	12.445	0.079	16.246	0.078	2.293
157	281.825	293.163	17.958	0.119	12.448	0.106	15.690	0.087	2.268
2837	2054.883	376.915	18.254	0.094	12.448	0.106	16.078	0.092	2.177
1049	920.719	939.425	17.948	0.090	12.448	0.070	15.848	0.062	2.100
2660	1799.011	962.658	18.147	0.097	12.454	0.083	16.019	0.077	2.128
1004	898.689	771.383	18.128	0.095	12.459	0.069	16.028	0.064	2.099
2013	1358.399	994.491	18.173	0.076	12.460	0.047	16.041	0.058	2.132
710	754.136	1347.028	18.320	0.109	12.460	0.069	16.162	0.073	2.158
807	799.392	832.260	17.714	0.091	12.463	0.069	15.569	0.058	2.145
2458	1611.909	189.629	17.605	0.074	12.464	0.098	15.452	0.072	2.153
922	856.933	858.480	17.748	0.061	12.464	0.074	15.666	0.059	2.083

2318	1525.185	758.554	18.302	0.133	12.466	0.050	16.115	0.062	2.186
1461	1118.142	433.621	18.418	0.085	12.468	0.056	16.172	0.057	2.245
2261	1495.517	907.403	17.762	0.068	12.476	0.053	15.588	0.046	2.174
2019	1361.224	890.660	18.549	0.110	12.477	0.054	16.256	0.063	2.293
2303	1518.256	1060.620	18.551	0.112	12.485	0.057	16.292	0.068	2.259
1933	1320.560	320.303	17.976	0.078	12.485	0.068	15.804	0.061	2.172
72	139.605	523.440	18.345	0.102	12.485	0.098	16.213	0.105	2.131
2424	1591.875	660.098	18.437	0.106	12.487	0.061	16.132	0.071	2.305
653	717.901	610.923	18.299	0.102	12.488	0.061	16.143	0.071	2.156
494	608.750	1310.842	18.543	0.089	12.489	0.071	16.330	0.082	2.213
1636	1190.261	1316.179	18.291	0.083	12.493	0.060	16.126	0.065	2.165
1482	1131.009	1182.871	18.136	0.087	12.497	0.050	16.001	0.055	2.135
2442	1603.907	865.433	18.416	0.099	12.500	0.061	16.201	0.068	2.215
796	793.809	389.449	18.218	0.080	12.501	0.061	16.025	0.062	2.193
2843	2064.815	300.642	18.215	0.100	12.501	0.108	16.055	0.093	2.161
1196	986.717	1036.962	17.776	0.091	12.503	0.065	15.689	0.061	2.088
480	596.638	1505.485	18.381	0.117	12.503	0.080	16.029	0.099	2.352
2324	1527.013	1304.844	18.486	0.121	12.505	0.074	16.153	0.073	2.333
531	635.034	894.723	18.677	0.104	12.506	0.073	16.315	0.076	2.362
143	258.523	775.288	17.526	0.098	12.513	0.099	15.444	0.084	2.083
400	533.862	472.900	17.066	0.070	12.516	0.081	14.932	0.062	2.134
2216	1468.146	125.009	17.768	0.084	12.517	0.092	15.604	0.073	2.164
2030	1366.277	1229.059	18.454	0.101	12.518	0.057	16.220	0.066	2.234
2298	1513.965	527.023	18.374	0.103	12.524	0.057	16.208	0.070	2.166
955	876.242	878.228	18.490	0.104	12.524	0.081	16.235	0.071	2.255
475	591.305	1484.954	17.562	0.080	12.524	0.083	15.574	0.075	1.989
420	550.613	209.526	17.950	0.085	12.524	0.082	15.821	0.081	2.129
427	553.478	496.049	18.273	0.097	12.526	0.082	16.090	0.073	2.183
1626	1188.116	436.426	17.929	0.069	12.526	0.057	15.750	0.051	2.180
489	605.055	1118.564	17.943	0.081	12.532	0.066	15.814	0.062	2.128
169	301.686	1395.293	18.240	0.107	12.536	0.095	15.916	0.084	2.324
2823	2035.967	1157.948	18.307	0.116	12.537	0.101	16.126	0.094	2.181
1950	1328.880	864.103	17.866	0.085	12.538	0.060	15.793	0.056	2.073
893	843.700	406.475	18.339	0.084	12.538	0.056	16.133	0.062	2.206
1623	1186.050	1046.015	18.315	0.107	12.539	0.052	16.104	0.063	2.211
561	657.750	519.616	17.758	0.073	12.540	0.066	15.615	0.059	2.144
1822	1276.018	204.187	18.585	0.112	12.540	0.097	16.236	0.075	2.348
1633	1189.540	1213.514	18.398	0.090	12.542	0.052	16.207	0.062	2.191
450	573.953	599.836	18.198	0.085	12.542	0.070	16.038	0.069	2.160
1813	1271.430	1088.245	17.891	0.081	12.542	0.051	15.723	0.048	2.168
629	702.112	796.711	18.285	0.082	12.543	0.067	16.025	0.065	2.260
2785	1957.676	1315.130	18.587	0.128	12.545	0.103	16.266	0.094	2.321
1374	1069.753	432.753	18.591	0.098	12.546	0.056	16.299	0.062	2.293
763	777.411	351.801	18.554	0.097	12.547	0.065	16.250	0.068	2.303
507	616.750	615.780	18.454	0.098	12.548	0.068	16.248	0.070	2.206
2605	1737.908	1338.094	18.705	0.132	12.551	0.084	16.298	0.086	2.407
2868	2111.644	338.384	18.512	0.111	12.551	0.108	16.254	0.097	2.257
523	626.400	1333.502	17.860	0.091	12.555	0.075	15.723	0.070	2.138
1257	1017.350	370.408	18.737	0.105	12.557	0.058	16.388	0.071	2.349
1008	899.357	472.706	18.612	0.117	12.560	0.052	16.306	0.064	2.306
808	799.412	855.021	18.159	0.085	12.561	0.084	16.011	0.065	2.147
684	735.751	1411.921	18.365	0.113	12.564	0.079	16.193	0.082	2.172
2525	1667.532	1461.233	17.964	0.099	12.565	0.091	15.779	0.079	2.185
567	661.104	1385.191	18.349	0.129	12.568	0.074	16.144	0.077	2.205
1845	1283.775	846.475	18.318	0.082	12.570	0.059	16.108	0.066	2.210
2402	1579.201	1464.351	18.498	0.121	12.571	0.082	16.273	0.082	2.225
1698	1221.465	890.710	18.329	0.095	12.571	0.065	15.780	0.068	2.549
1665	1205.300	613.397	18.125	0.081	12.573	0.062	15.974	0.064	2.151
122	219.308	1209.178	18.215	0.093	12.573	0.101	16.074	0.085	2.142
281	431.330	1199.063	18.427	0.112	12.574	0.076	16.245	0.078	2.182
2667	1812.084	514.128	18.367	0.103	12.574	0.084	16.193	0.082	2.174
1041	917.013	701.057	18.588	0.097	12.574	0.061	16.333	0.071	2.254
2592	1725.153	651.779	18.620	0.094	12.575	0.074	16.324	0.075	2.296
266	408.681	1219.918	18.443	0.101	12.576	0.078	16.157	0.074	2.286
438	564.462	254.814	18.296	0.071	12.577	0.089	16.140	0.083	2.156
2301	1515.493	1252.925	18.469	0.117	12.579	0.071	16.204	0.073	2.264
1213	997.242	501.995	18.011	0.065	12.579	0.046	15.951	0.055	2.060
363	503.403	660.960	18.569	0.113	12.581	0.080	16.258	0.076	2.311
1618	1183.374	122.915	18.643	0.091	12.588	0.086	16.299	0.076	2.343
2742	1903.336	335.202	18.664	0.096	12.589	0.095	16.373	0.090	2.291
1969	1336.542	1286.834	17.841	0.065	12.591	0.062	15.668	0.056	2.173
1205	994.260	1238.164	18.102	0.085	12.593	0.056	15.998	0.061	2.104
1937	1321.723	644.166	17.739	0.063	12.594	0.057	15.601	0.051	2.138
1918	1316.716	881.401	18.371	0.131	12.595	0.061	16.218	0.069	2.153
291	442.675	191.887	17.422	0.072	12.597	0.088	15.205	0.073	2.217
1415	1096.024	299.195	18.399	0.108	12.598	0.066	16.169	0.067	2.231
2350	1543.007	1253.567	18.230	0.094	12.599	0.072	16.017	0.068	2.213
819	804.328	269.367	18.574	0.139	12.599	0.073	16.379	0.101	2.196
2249	1486.338	162.236	17.426	0.074	12.600	0.098	15.274	0.066	2.153
63	131.405	493.767	18.553	0.117	12.600	0.106	16.296	0.098	2.257
2478	1629.565	669.570	18.338	0.095	12.601	0.066	16.190	0.070	2.148
800	795.399	763.307	18.223	0.091	12.603	0.068	16.091	0.061	2.132

1394	1083.147	187.652	18.285	0.086	12.604	0.101	16.208	0.068	2.077
1899	1305.677	983.703	18.411	0.094	12.604	0.057	16.208	0.067	2.202
476	594.178	1349.595	18.404	0.101	12.604	0.078	16.279	0.081	2.125
1721	1233.732	1061.172	18.350	0.103	12.605	0.049	16.166	0.061	2.184
781	784.762	1220.236	18.274	0.106	12.610	0.070	16.109	0.074	2.165
524	628.019	228.375	18.276	0.091	12.614	0.090	16.080	0.086	2.197
2051	1375.823	1449.007	18.347	0.119	12.614	0.080	16.196	0.084	2.151
2663	1806.810	726.545	18.533	0.106	12.617	0.083	16.277	0.078	2.257
455	576.007	871.178	17.702	0.102	12.619	0.076	16.003	0.077	1.699
1141	962.197	1078.720	18.374	0.090	12.621	0.065	16.188	0.065	2.185
2821	2028.320	803.812	17.882	0.092	12.621	0.102	15.695	0.085	2.187
299	450.166	1227.357	18.517	0.110	12.622	0.079	16.272	0.083	2.245
1515	1141.011	1035.264	18.295	0.103	12.622	0.059	16.186	0.065	2.109
1050	921.386	462.121	18.410	0.120	12.623	0.065	16.218	0.075	2.192
2422	1591.517	366.497	18.411	0.091	12.625	0.075	16.196	0.074	2.215
2718	1872.482	1287.937	18.339	0.099	12.629	0.116	16.078	0.106	2.261
2692	1842.238	786.491	18.553	0.125	12.630	0.084	16.300	0.080	2.253
2773	1946.655	468.112	18.694	0.098	12.634	0.096	16.395	0.088	2.299
715	755.562	957.041	17.808	0.074	12.635	0.079	15.688	0.058	2.119
1359	1063.881	645.547	18.289	0.094	12.637	0.064	16.221	0.075	2.068
1129	955.614	1483.466	18.541	0.090	12.640	0.075	16.310	0.075	2.231
1237	1007.177	1057.111	18.376	0.103	12.640	0.061	16.197	0.066	2.178
1297	1035.520	611.640	18.401	0.087	12.643	0.056	16.196	0.064	2.205
2648	1780.001	1557.836	18.729	0.145	12.644	0.122	16.479	0.093	2.251
1427	1102.508	960.457	17.876	0.069	12.645	0.067	15.866	0.064	2.010
1615	1182.834	247.812	17.610	0.072	12.648	0.083	15.446	0.065	2.164
829	808.880	1213.987	18.097	0.087	12.657	0.060	16.012	0.064	2.084
2757	1920.390	915.393	18.634	0.136	12.658	0.095	16.362	0.097	2.272
177	311.125	1502.283	18.001	0.104	12.659	0.101	15.782	0.090	2.219
336	477.053	616.943	18.488	0.097	12.660	0.080	16.274	0.081	2.214
1185	978.931	996.555	18.241	0.110	12.663	0.078	16.062	0.069	2.180
1231	1004.796	289.543	18.405	0.102	12.664	0.073	16.164	0.065	2.242
2748	1907.626	981.887	18.368	0.101	12.667	0.101	16.185	0.092	2.183
638	708.205	154.348	18.138	0.091	12.668	0.090	16.083	0.081	2.056
616	693.500	1442.939	18.565	0.101	12.669	0.078	16.511	0.093	2.054
2477	1629.166	958.206	18.777	0.105	12.670	0.065	16.468	0.077	2.309
2854	2088.248	379.766	18.402	0.092	12.673	0.112	16.221	0.096	2.181
1689	1216.554	423.705	18.560	0.100	12.673	0.058	16.302	0.071	2.257
2453	1607.825	1235.367	18.564	0.115	12.676	0.078	16.379	0.084	2.184
2362	1550.082	629.176	18.506	0.102	12.677	0.064	16.292	0.074	2.214
2373	1557.374	800.203	18.492	0.094	12.678	0.056	16.312	0.070	2.180
2743	1904.202	969.707	18.360	0.121	12.679	0.097	16.165	0.090	2.195
55	116.553	1238.616	18.482	0.117	12.680	0.105	16.311	0.105	2.171
1975	1338.969	608.717	18.899	0.085	12.681	0.055	16.448	0.071	2.451
878	835.015	904.546	18.333	0.112	12.683	0.086	16.127	0.070	2.206
1516	1141.167	867.919	18.373	0.121	12.684	0.070	16.199	0.075	2.174
2389	1569.585	578.315	17.785	0.075	12.684	0.063	15.671	0.059	2.113
264	406.136	1019.202	18.399	0.098	12.685	0.080	16.255	0.077	2.144
1702	1223.558	972.220	17.857	0.082	12.685	0.059	15.761	0.057	2.096
2714	1864.713	392.786	18.431	0.114	12.686	0.108	16.177	0.102	2.254
2332	1532.377	544.354	18.028	0.088	12.687	0.063	15.823	0.060	2.205
1280	1028.644	184.849	18.547	0.139	12.689	0.081	16.230	0.078	2.318
2101	1401.945	1007.345	18.419	0.082	12.690	0.052	16.289	0.062	2.130
1954	1330.357	831.982	18.626	0.096	12.692	0.061	16.389	0.070	2.237
1341	1056.381	796.257	18.608	0.127	12.693	0.080	16.320	0.077	2.288
2532	1673.223	279.712	18.604	0.119	12.695	0.084	16.378	0.087	2.227
2774	1947.547	1288.104	18.925	0.131	12.697	0.101	16.543	0.100	2.382
1409	1093.958	1227.080	17.909	0.078	12.697	0.054	15.766	0.055	2.143
2377	1560.121	217.737	18.657	0.100	12.699	0.091	16.414	0.091	2.243
1173	975.261	456.103	18.332	0.082	12.700	0.057	16.172	0.058	2.160
469	584.008	290.950	17.746	0.076	12.703	0.087	15.624	0.071	2.122
451	574.315	1194.686	17.978	0.083	12.704	0.068	15.841	0.066	2.137
1123	952.060	467.208	18.733	0.113	12.704	0.050	16.379	0.066	2.354
234	370.975	469.068	18.378	0.119	12.705	0.094	16.206	0.088	2.171
126	222.025	1078.244	18.595	0.096	12.706	0.099	16.358	0.094	2.238
2002	1353.766	768.685	18.756	0.111	12.707	0.064	16.426	0.078	2.330
2696	1845.546	781.647	17.957	0.104	12.707	0.113	15.846	0.085	2.111
2395	1571.901	405.993	18.611	0.096	12.710	0.131	16.357	0.109	2.254
501	611.631	688.818	18.545	0.099	12.710	0.074	16.314	0.068	2.231
803	796.400	986.258	17.594	0.063	12.711	0.076	15.505	0.054	2.089
248	387.931	306.571	18.129	0.115	12.712	0.095	16.053	0.086	2.076
2031	1366.844	1203.080	18.351	0.104	12.715	0.064	16.207	0.069	2.144
33	71.443	931.293	17.865	0.097	12.715	0.110	15.647	0.091	2.218
1453	1114.473	680.891	18.741	0.136	12.716	0.067	16.459	0.078	2.282
1701	1223.481	808.447	18.289	0.085	12.717	0.069	16.113	0.072	2.175
2665	1810.375	392.796	17.435	0.066	12.722	0.091	15.277	0.069	2.158
1971	1337.390	186.220	17.868	0.095	12.723	0.088	15.797	0.073	2.071
1148	966.401	834.278	18.299	0.080	12.724	0.071	16.165	0.067	2.135
953	874.948	1028.120	18.267	0.092	12.727	0.076	16.354	0.079	1.912
2088	1395.572	1065.884	18.748	0.135	12.741	0.054	16.502	0.072	2.246
2811	2010.981	451.394	18.427	0.106	12.741	0.103	16.266	0.093	2.161
236	373.088	441.353	18.652	0.111	12.741	0.090	16.397	0.091	2.255

2383	1565.623	636.824	18.020	0.079	12.742	0.063	15.798	0.058	2.222
212	350.476	1294.955	18.663	0.093	12.744	0.089	16.390	0.091	2.273
919	855.721	1193.635	18.467	0.105	12.745	0.063	16.294	0.074	2.174
2394	1571.700	1014.088	18.604	0.085	12.745	0.067	16.391	0.077	2.212
387	525.506	681.109	18.187	0.116	12.746	0.076	16.007	0.081	2.180
388	526.929	405.471	18.568	0.099	12.748	0.085	16.392	0.083	2.176
2860	2091.762	1065.285	17.500	0.101	12.748	0.121	15.278	0.100	2.222
38	76.296	1257.652	18.371	0.089	12.750	0.111	16.354	0.103	2.017
319	463.918	797.339	18.366	0.115	12.752	0.080	16.301	0.086	2.065
129	234.501	621.831	18.034	0.104	12.752	0.100	15.729	0.087	2.305
351	494.399	975.073	17.983	0.086	12.753	0.079	15.904	0.072	2.079
2577	1713.031	1191.773	18.576	0.117	12.754	0.083	16.352	0.088	2.223
2646	1778.622	451.854	18.605	0.087	12.758	0.086	16.414	0.082	2.191
2164	1435.323	590.064	17.871	0.071	12.759	0.073	15.660	0.054	2.212
873	833.449	354.740	18.645	0.087	12.760	0.066	16.415	0.075	2.230
2570	1706.503	568.403	18.528	0.083	12.761	0.078	16.347	0.078	2.181
2770	1942.075	1030.077	18.706	0.120	12.762	0.096	16.392	0.093	2.314
2264	1497.544	194.347	18.625	0.106	12.762	0.088	16.441	0.088	2.183
834	810.941	474.177	18.654	0.112	12.762	0.056	16.431	0.073	2.223
1631	1189.125	1529.254	18.507	0.061	12.764	0.110	16.237	0.064	2.270
2220	1469.508	803.332	18.494	0.085	12.766	0.055	16.286	0.063	2.208
2836	2054.879	1091.348	18.904	0.197	12.767	0.106	16.488	0.107	2.416
1130	955.855	501.968	18.764	0.123	12.768	0.052	16.465	0.073	2.299
2174	1443.106	906.448	18.619	0.088	12.769	0.056	16.382	0.067	2.237
416	549.504	247.380	17.141	0.078	12.770	0.087	15.104	0.073	2.037
2853	2086.941	389.700	17.346	0.094	12.774	0.110	15.193	0.089	2.153
2460	1612.870	823.327	18.712	0.112	12.774	0.063	16.504	0.081	2.209
2140	1422.812	1162.860	18.740	0.110	12.776	0.080	15.863	0.127	2.877
2238	1476.826	749.707	18.663	0.111	12.776	0.056	16.389	0.067	2.274
1979	1340.739	1333.549	18.297	0.091	12.778	0.066	16.145	0.067	2.151
1034	913.810	265.839	18.494	0.086	12.782	0.081	16.320	0.081	2.173
1290	1032.523	96.062	17.785	0.071	12.783	0.092	15.630	0.067	2.155
1418	1097.384	911.928	18.313	0.107	12.784	0.074	15.455	0.126	2.858
213	351.114	441.160	18.170	0.100	12.788	0.094	16.009	0.088	2.161
235	372.076	1237.460	18.502	0.104	12.788	0.087	16.273	0.079	2.229
515	622.835	725.595	18.091	0.074	12.791	0.075	15.959	0.070	2.132
1931	1320.223	245.118	18.076	0.087	12.796	0.071	15.970	0.071	2.106
2033	1367.992	1262.630	18.617	0.110	12.798	0.063	16.437	0.077	2.179
1864	1291.044	269.501	18.461	0.123	12.799	0.075	16.349	0.077	2.112
490	605.398	668.582	18.506	0.092	12.800	0.066	16.369	0.081	2.137
1852	1286.243	1181.633	18.602	0.096	12.801	0.067	16.326	0.077	2.276
1507	1138.106	1021.755	18.073	0.102	12.801	0.061	15.943	0.060	2.131
491	607.810	967.803	17.779	0.078	12.804	0.068	15.606	0.058	2.173
726	759.626	638.076	18.048	0.104	12.805	0.063	15.928	0.059	2.120
570	664.682	1120.751	18.037	0.093	12.805	0.064	15.908	0.062	2.129
182	315.381	215.958	18.107	0.099	12.805	0.098	16.063	0.090	2.044
464	581.771	1027.722	17.747	0.075	12.806	0.069	15.660	0.062	2.087
2026	1365.067	816.334	18.535	0.095	12.807	0.057	16.333	0.064	2.201
701	747.044	685.529	18.738	0.114	12.808	0.066	16.537	0.079	2.202
801	795.551	970.272	17.931	0.081	12.809	0.077	15.798	0.061	2.133
603	683.556	563.789	18.352	0.094	12.809	0.067	16.160	0.065	2.192
79	161.159	806.054	18.075	0.102	12.813	0.104	15.888	0.092	2.187
116	211.919	323.779	18.661	0.133	12.817	0.105	16.374	0.110	2.287
678	733.342	1312.871	18.667	0.093	12.818	0.067	16.454	0.080	2.214
2206	1464.071	841.332	18.675	0.103	12.818	0.055	16.452	0.069	2.223
2191	1452.952	589.699	17.975	0.080	12.822	0.057	15.767	0.062	2.208
1771	1253.407	1348.259	18.856	0.160	12.822	0.065	16.602	0.084	2.254
2668	1813.276	1070.069	18.096	0.096	12.822	0.085	15.877	0.077	2.219
1828	1277.386	1213.041	18.780	0.111	12.822	0.057	16.525	0.072	2.255
2170	1440.648	1494.433	18.600	0.167	12.824	0.088	16.419	0.099	2.180
1965	1334.610	506.364	18.703	0.110	12.825	0.055	16.451	0.076	2.252
46	92.277	341.882	18.659	0.130	12.826	0.110	16.540	0.095	2.118
1857	1288.545	810.680	18.060	0.084	12.827	0.065	15.976	0.062	2.083
1508	1138.369	129.853	18.445	0.090	12.827	0.092	16.333	0.080	2.112
2798	1980.921	1152.342	18.668	0.108	12.832	0.108	16.334	0.091	2.334
826	807.389	406.930	17.931	0.075	12.832	0.065	15.816	0.057	2.116
1203	993.206	944.642	18.560	0.130	12.832	0.073	16.387	0.078	2.174
2262	1495.623	627.260	18.580	0.106	12.834	0.056	16.376	0.073	2.205
309	453.444	524.035	17.821	0.077	12.835	0.088	15.709	0.072	2.113
1562	1158.349	691.707	18.518	0.102	12.839	0.074	16.272	0.070	2.246
2423	1591.545	1350.629	18.539	0.099	12.841	0.081	16.288	0.085	2.252
973	884.737	1183.365	18.610	0.109	12.841	0.075	16.360	0.080	2.250
1178	977.452	459.602	18.133	0.070	12.848	0.058	15.974	0.061	2.159
1468	1121.610	355.671	18.150	0.082	12.848	0.066	15.991	0.059	2.159
977	886.436	967.466	18.515	0.101	12.850	0.072	16.390	0.077	2.125
1843	1283.453	218.750	18.694	0.114	12.853	0.092	16.496	0.083	2.198
2602	1735.916	920.648	18.774	0.106	12.854	0.079	16.468	0.082	2.306
1627	1188.278	1234.604	18.572	0.093	12.854	0.056	16.390	0.070	2.183
2404	1580.069	1097.106	18.731	0.109	12.854	0.070	16.473	0.077	2.258
306	452.892	289.224	17.956	0.093	12.854	0.095	15.890	0.083	2.066
1059	924.202	490.237	18.865	0.085	12.856	0.051	16.642	0.077	2.224
2534	1673.618	517.603	18.529	0.133	12.857	0.074	16.380	0.079	2.149

1538	1147.463	767.259	17.902	0.089	12.858	0.078	15.904	0.068	1.998
356	497.164	972.482	18.466	0.104	12.859	0.070	16.331	0.078	2.135
2284	1508.719	1086.882	18.148	0.091	12.859	0.061	15.993	0.057	2.155
773	780.823	969.043	17.939	0.073	12.863	0.075	15.824	0.060	2.115
1603	1177.672	1440.292	18.444	0.106	12.864	0.092	16.394	0.087	2.050
822	805.827	1421.572	18.443	0.090	12.866	0.074	16.404	0.086	2.039
1344	1056.848	1004.007	18.699	0.121	12.866	0.064	16.507	0.079	2.192
2286	1509.300	622.763	18.066	0.077	12.867	0.060	15.871	0.055	2.195
2794	1972.005	996.637	18.611	0.106	12.868	0.095	16.388	0.103	2.222
1012	903.083	666.952	18.183	0.085	12.868	0.060	16.082	0.060	2.101
723	758.114	776.675	18.489	0.108	12.868	0.072	16.301	0.071	2.188
2313	1522.848	385.712	18.802	0.106	12.868	0.073	16.589	0.081	2.213
990	890.542	149.350	18.485	0.123	12.870	0.084	16.289	0.078	2.196
1479	1127.937	855.280	18.549	0.104	12.873	0.074	16.453	0.089	2.096
1611	1180.544	1197.360	18.490	0.096	12.874	0.058	16.415	0.066	2.075
2861	2091.967	1211.031	18.568	0.138	12.874	0.115	16.335	0.100	2.233
1486	1131.960	832.902	18.096	0.078	12.876	0.074	16.045	0.074	2.051
477	594.999	295.984	18.567	0.094	12.878	0.088	16.431	0.086	2.136
2322	1526.498	748.015	18.685	0.111	12.879	0.059	16.481	0.075	2.205
2048	1375.153	965.651	18.639	0.089	12.880	0.058	16.471	0.071	2.167
51	106.213	553.328	18.449	0.124	12.885	0.114	16.201	0.096	2.248
2287	1509.415	719.172	18.850	0.119	12.888	0.054	16.624	0.078	2.226
2187	1450.581	864.991	18.077	0.077	12.889	0.061	15.911	0.054	2.166
25	45.417	1197.005	18.660	0.169	12.891	0.111	16.405	0.105	2.255
1669	1207.569	551.956	18.034	0.086	12.893	0.058	15.940	0.061	2.095
852	822.870	1184.698	18.165	0.096	12.894	0.068	16.059	0.066	2.106
159	284.039	813.963	18.580	0.110	12.896	0.103	16.493	0.098	2.088
1595	1175.555	1249.934	18.584	0.098	12.898	0.058	16.505	0.074	2.079
2464	1617.868	281.714	18.721	0.117	12.900	0.081	16.555	0.091	2.166
2080	1391.171	576.330	18.839	0.095	12.902	0.060	16.599	0.078	2.239
93	177.231	1244.985	18.556	0.126	12.903	0.101	16.437	0.105	2.119
2219	1469.010	1034.519	17.989	0.065	12.905	0.060	15.805	0.052	2.183
546	646.285	185.332	18.058	0.102	12.905	0.089	15.915	0.083	2.143
540	641.310	1341.629	18.899	0.125	12.906	0.075	16.717	0.097	2.182
1160	969.893	1221.048	18.070	0.089	12.907	0.071	15.939	0.063	2.132
158	282.483	206.346	18.674	0.069	12.907	0.099	16.594	0.125	2.080
2129	1419.671	750.008	18.919	0.103	12.908	0.059	16.651	0.078	2.268
1005	898.821	591.454	18.622	0.100	12.911	0.059	16.452	0.076	2.170
1144	963.805	1378.466	18.110	0.093	12.913	0.072	15.978	0.068	2.132
2427	1593.343	1449.203	17.974	0.103	12.914	0.095	15.796	0.077	2.178
1816	1273.787	583.620	18.036	0.077	12.914	0.063	15.903	0.062	2.133
2054	1378.452	330.600	18.812	0.124	12.915	0.077	16.585	0.080	2.227
2594	1726.054	897.695	18.733	0.119	12.916	0.080	16.537	0.084	2.196
872	833.346	786.152	18.114	0.082	12.916	0.077	15.994	0.061	2.121
61	129.186	1408.702	18.382	0.104	12.918	0.108	16.335	0.098	2.047
761	776.334	717.967	18.148	0.081	12.919	0.066	16.028	0.059	2.120
1695	1220.915	1453.924	18.058	0.093	12.920	0.084	15.926	0.072	2.132
871	832.672	1065.575	17.648	0.061	12.921	0.071	15.563	0.057	2.085
2158	1432.869	1191.497	18.828	0.131	12.921	0.062	16.634	0.085	2.194
1044	917.769	740.472	19.017	0.127	12.922	0.070	16.699	0.090	2.319
1886	1299.378	549.964	18.570	0.099	12.923	0.061	16.632	0.083	1.939
666	724.442	1395.652	17.571	0.073	12.926	0.079	15.500	0.063	2.072
2222	1469.984	836.567	18.996	0.122	12.927	0.059	16.661	0.077	2.335
522	624.626	1263.138	18.669	0.097	12.928	0.074	16.507	0.084	2.162
2805	1992.111	392.641	18.922	0.088	12.929	0.105	16.586	0.100	2.336
32	70.424	483.660	18.402	0.134	12.931	0.118	16.274	0.104	2.129
1080	932.362	928.567	18.300	0.128	12.931	0.089	16.153	0.076	2.148
827	807.736	456.665	19.039	0.114	12.931	0.061	16.699	0.080	2.340
2484	1633.068	638.131	18.841	0.107	12.932	0.074	16.593	0.083	2.248
1020	904.584	773.323	18.699	0.090	12.936	0.076	16.533	0.078	2.165
2814	2014.485	882.881	18.946	0.127	12.938	0.105	16.639	0.103	2.308
368	506.477	1324.112	18.822	0.160	12.938	0.080	16.476	0.089	2.346
2719	1872.854	1050.809	18.779	0.125	12.939	0.092	16.542	0.091	2.237
2783	1956.784	283.619	18.703	0.156	12.939	0.114	16.534	0.119	2.169
709	753.183	1158.261	18.744	0.125	12.939	0.069	16.514	0.078	2.231
1102	941.935	463.374	18.691	0.104	12.940	0.055	16.528	0.075	2.163
537	640.255	1176.766	18.384	0.091	12.941	0.072	16.174	0.072	2.209
1454	1115.678	926.991	18.649	0.109	12.942	0.080	16.497	0.089	2.151
2449	1606.670	774.478	18.784	0.117	12.943	0.070	16.539	0.084	2.245
1027	907.888	595.318	18.188	0.080	12.945	0.057	16.072	0.060	2.115
874	833.821	646.444	18.642	0.094	12.946	0.063	16.476	0.077	2.166
1261	1017.733	510.707	18.856	0.099	12.947	0.056	16.521	0.075	2.335
2466	1619.373	829.097	18.711	0.104	12.949	0.067	16.510	0.076	2.201
2242	1480.928	1112.012	18.226	0.094	12.952	0.064	16.053	0.060	2.174
296	448.270	1065.641	18.716	0.086	12.957	0.080	16.596	0.091	2.120
1364	1064.554	605.577	18.905	0.103	12.959	0.062	16.701	0.095	2.204
2309	1521.781	1513.895	18.714	0.126	12.959	0.106	16.517	0.101	2.197
1401	1089.602	775.754	18.480	0.099	12.962	0.080	16.391	0.077	2.089
1714	1231.959	1050.516	18.289	0.088	12.962	0.057	16.158	0.063	2.131
2461	1614.215	182.378	18.453	0.104	12.966	0.107	16.382	0.100	2.071
170	302.899	357.649	18.712	0.104	12.968	0.102	16.611	0.105	2.101
2767	1935.915	1089.763	18.928	0.142	12.968	0.094	16.681	0.102	2.247

1440	1107.659	911.486	18.894	0.118	12.969	0.071	16.281	0.085	2.612
2432	1598.460	368.275	18.614	0.082	12.971	0.083	16.473	0.094	2.141
1599	1176.655	1054.055	18.828	0.124	12.973	0.060	16.556	0.076	2.273
2709	1859.163	1052.859	18.889	0.122	12.974	0.093	16.604	0.096	2.284
145	260.993	228.455	18.018	0.109	12.976	0.108	15.957	0.106	2.062
1676	1210.560	393.002	17.799	0.079	12.977	0.078	15.638	0.055	2.161
2317	1525.032	1328.232	18.620	0.144	12.978	0.077	16.493	0.088	2.127
200	337.273	274.706	18.731	0.118	12.979	0.098	16.624	0.102	2.107
263	405.235	1466.571	17.896	0.093	12.979	0.092	16.156	0.086	1.740
518	623.213	263.719	18.267	0.116	12.980	0.094	16.083	0.080	2.184
956	876.298	653.934	18.703	0.123	12.980	0.067	16.528	0.076	2.175
727	759.842	1133.364	18.681	0.100	12.984	0.070	16.564	0.080	2.116
82	164.339	328.853	17.828	0.099	12.984	0.104	15.848	0.092	1.981
1358	1063.163	949.907	19.002	0.137	12.987	0.071	16.574	0.081	2.427
110	206.903	1038.993	18.757	0.131	12.989	0.098	16.672	0.109	2.085
882	836.229	1222.574	18.757	0.094	12.989	0.066	16.555	0.084	2.203
735	763.670	742.678	18.175	0.103	12.990	0.075	16.186	0.067	1.989
2695	1844.111	215.928	18.436	0.112	12.992	0.111	16.401	0.098	2.034
2353	1544.808	747.511	18.070	0.083	12.993	0.076	16.088	0.066	1.981
472	587.094	1080.282	18.349	0.122	12.995	0.069	16.207	0.074	2.141
2212	1467.328	447.036	18.137	0.083	12.996	0.070	15.985	0.062	2.152
1256	1017.236	499.922	18.353	0.091	12.996	0.058	16.175	0.061	2.178
982	887.721	704.208	18.988	0.116	12.997	0.068	16.737	0.089	2.251
1941	1324.087	884.697	17.649	0.065	12.999	0.064	15.598	0.053	2.051
1720	1233.726	682.706	18.054	0.082	13.000	0.067	15.988	0.065	2.066
1184	978.429	1116.089	18.691	0.121	13.001	0.069	16.585	0.086	2.106
1601	1176.877	1436.388	18.670	0.120	13.001	0.075	16.652	0.085	2.018
219	357.836	1079.308	18.751	0.133	13.002	0.084	16.520	0.090	2.232
259	402.507	421.207	18.805	0.136	13.005	0.092	16.635	0.092	2.170
118	215.521	1201.747	18.700	0.156	13.005	0.102	16.655	0.118	2.045
2285	1508.730	659.179	18.580	0.090	13.006	0.058	16.330	0.065	2.250
179	313.657	453.269	18.684	0.124	13.006	0.096	16.599	0.104	2.084
2845	2070.245	478.033	18.589	0.113	13.009	0.106	16.382	0.094	2.207
2486	1635.464	773.856	19.078	0.119	13.010	0.069	16.786	0.096	2.292
2443	1604.583	649.675	18.237	0.092	13.011	0.068	16.092	0.063	2.145
335	476.420	205.292	19.039	0.145	13.012	0.089	16.800	0.107	2.239
1748	1245.191	865.119	18.567	0.103	13.014	0.080	16.485	0.083	2.082
1751	1246.475	746.935	17.946	0.083	13.015	0.071	15.779	0.067	2.167
1709	1229.528	690.272	18.737	0.099	13.015	0.070	16.588	0.082	2.149
426	553.341	624.130	18.342	0.106	13.016	0.079	16.297	0.075	2.045
2614	1749.904	936.507	18.718	0.091	13.018	0.079	16.543	0.089	2.175
1007	899.262	1356.232	18.315	0.096	13.019	0.072	16.129	0.070	2.186
1391	1081.343	1239.545	18.745	0.101	13.019	0.061	16.668	0.083	2.077
184	322.053	773.843	18.186	0.111	13.020	0.092	16.481	0.100	1.705
2355	1546.679	1186.101	19.067	0.119	13.022	0.074	16.766	0.095	2.301
391	528.895	602.748	18.980	0.107	13.022	0.081	16.739	0.102	2.240
939	868.585	1310.752	18.019	0.073	13.023	0.066	16.121	0.069	1.897
1139	961.515	1002.155	18.345	0.088	13.024	0.071	16.246	0.073	2.099
550	650.074	1088.887	18.719	0.093	13.027	0.070	16.594	0.082	2.125
2643	1770.711	931.186	19.090	0.129	13.028	0.093	16.714	0.098	2.376
305	452.864	765.022	18.935	0.123	13.028	0.083	16.595	0.092	2.340
968	880.996	1095.956	18.828	0.101	13.028	0.069	16.616	0.080	2.212
526	630.146	1018.110	18.538	0.113	13.028	0.072	16.486	0.080	2.052
2451	1607.504	1000.511	18.978	0.131	13.029	0.076	16.680	0.092	2.299
1884	1297.916	1294.597	18.247	0.077	13.029	0.067	16.065	0.062	2.182
2260	1494.349	236.721	18.917	0.111	13.031	0.085	16.681	0.088	2.235
1621	1184.789	523.824	18.517	0.103	13.034	0.059	16.379	0.069	2.138
1476	1127.735	1233.997	18.896	0.130	13.034	0.071	16.460	0.100	2.436
555	651.393	1412.785	18.016	0.082	13.036	0.081	15.900	0.070	2.116
1399	1087.459	80.526	18.809	0.109	13.037	0.096	16.524	0.083	2.285
1502	1136.892	411.130	18.756	0.106	13.038	0.063	16.605	0.077	2.150
86	169.598	1079.814	18.228	0.105	13.038	0.101	16.150	0.094	2.078
315	458.464	610.457	17.977	0.093	13.039	0.084	15.817	0.072	2.160
2482	1632.340	267.604	18.056	0.092	13.041	0.089	15.934	0.076	2.122
10	3.675	732.187	18.586	0.140	13.042	0.121	16.486	0.116	2.100
2807	1996.202	490.964	18.675	0.080	13.042	0.098	16.504	0.094	2.171
2300	1515.208	1243.763	18.904	0.120	13.044	0.071	16.642	0.102	2.262
2205	1462.512	296.939	18.902	0.125	13.044	0.078	16.783	0.098	2.118
2093	1396.844	612.945	19.046	0.122	13.045	0.059	16.688	0.081	2.358
900	847.346	803.834	18.636	0.124	13.045	0.085	16.544	0.082	2.092
173	305.594	464.105	18.499	0.095	13.045	0.100	16.421	0.114	2.078
2567	1705.065	777.489	19.013	0.114	13.049	0.087	16.751	0.109	2.262
2760	1922.588	425.835	18.519	0.104	13.053	0.098	16.337	0.086	2.183
2200	1458.909	646.315	18.514	0.101	13.053	0.062	16.337	0.067	2.177
1058	924.202	1039.957	18.255	0.096	13.054	0.074	16.124	0.070	2.131
622	697.669	519.575	18.918	0.129	13.054	0.068	16.693	0.084	2.225
1951	1329.549	394.301	18.672	0.105	13.054	0.065	16.511	0.079	2.161
2835	2054.420	797.920	17.107	0.086	13.055	0.103	15.077	0.086	2.030
2351	1543.057	894.285	19.129	0.142	13.056	0.063	16.779	0.089	2.351
370	511.335	223.162	18.619	0.092	13.057	0.097	16.495	0.102	2.124
422	551.566	1179.237	18.382	0.088	13.059	0.072	16.245	0.073	2.137
2321	1526.222	1494.218	19.000	0.108	13.060	0.094	16.646	0.088	2.354

231	367.693	514.132	18.154	0.091	13.061	0.091	16.083	0.081	2.071
1660	1203.715	1120.937	18.333	0.078	13.063	0.057	16.260	0.061	2.073
930	863.661	859.247	18.674	0.096	13.065	0.080	16.541	0.081	2.132
1067	927.913	1107.980	18.071	0.095	13.066	0.069	15.916	0.063	2.154
714	755.396	854.821	18.935	0.155	13.067	0.090	16.647	0.094	2.288
1071	929.761	1435.813	18.907	0.108	13.067	0.080	16.681	0.086	2.226
203	340.985	1458.627	18.696	0.144	13.068	0.102	16.555	0.103	2.141
2561	1699.879	1164.694	18.876	0.149	13.071	0.086	16.688	0.097	2.188
2091	1396.420	1170.785	18.390	0.108	13.072	0.062	16.279	0.068	2.112
1357	1062.484	1317.845	18.353	0.099	13.072	0.070	16.186	0.063	2.167
625	699.429	1013.203	18.630	0.113	13.073	0.102	16.116	0.106	2.515
2340	1538.285	996.481	18.968	0.141	13.073	0.068	16.759	0.081	2.209
1760	1248.672	612.040	18.347	0.090	13.073	0.059	16.219	0.066	2.129
2049	1375.222	758.526	18.894	0.145	13.075	0.066	16.688	0.084	2.206
2501	1651.933	311.543	18.932	0.084	13.075	0.087	16.669	0.089	2.263
2511	1656.975	868.019	19.125	0.153	13.075	0.075	16.828	0.103	2.297
1788	1260.559	721.871	17.891	0.084	13.077	0.070	16.225	0.064	1.667
693	744.181	1307.110	18.359	0.094	13.078	0.079	16.241	0.076	2.118
2280	1507.284	799.507	19.215	0.098	13.079	0.061	16.828	0.085	2.387
2135	1421.114	483.253	18.895	0.122	13.079	0.063	16.601	0.075	2.294
487	600.000	335.542	17.945	0.074	13.083	0.089	15.787	0.071	2.158
1835	1280.523	678.106	18.330	0.103	13.083	0.075	16.171	0.065	2.158
2857	2088.986	1268.328	18.304	0.099	13.085	0.111	16.134	0.100	2.171
601	682.512	344.021	18.844	0.120	13.086	0.081	16.703	0.090	2.140
27	54.867	748.490	18.067	0.098	13.087	0.115	16.065	0.103	2.001
1534	1146.697	802.854	18.907	0.117	13.089	0.077	16.678	0.091	2.228
2306	1521.213	930.067	18.446	0.091	13.089	0.063	16.300	0.069	2.146
2816	2019.216	895.338	18.793	0.113	13.091	0.108	16.788	0.115	2.005
1778	1256.362	884.408	18.276	0.093	13.091	0.072	16.192	0.075	2.085
1641	1193.051	698.860	18.170	0.081	13.091	0.073	16.006	0.065	2.165
868	831.814	1211.090	18.988	0.126	13.093	0.068	16.735	0.090	2.254
2079	1391.032	617.685	18.389	0.084	13.094	0.061	16.229	0.062	2.160
1830	1278.267	1124.906	18.350	0.102	13.094	0.058	16.269	0.063	2.081
612	690.667	873.386	17.896	0.082	13.095	0.077	15.750	0.058	2.147
2044	1372.754	1180.524	18.458	0.117	13.096	0.063	16.305	0.073	2.154
895	845.499	1209.075	18.364	0.095	13.100	0.063	16.217	0.068	2.147
789	791.717	210.202	18.658	0.100	13.100	0.092	16.494	0.074	2.163
1989	1346.048	871.388	18.558	0.098	13.101	0.076	16.440	0.091	2.118
2564	1701.308	269.946	18.581	0.097	13.104	0.090	16.460	0.088	2.120
2749	1907.949	1118.578	18.818	0.130	13.104	0.100	16.665	0.102	2.153
1684	1215.440	1166.336	18.926	0.130	13.105	0.059	16.776	0.089	2.150
1028	909.046	741.302	18.498	0.124	13.108	0.095	16.275	0.074	2.223
1006	899.043	905.669	18.288	0.109	13.108	0.083	16.138	0.066	2.150
2590	1723.826	978.796	18.768	0.134	13.111	0.089	16.689	0.101	2.079
1228	1004.327	581.779	18.355	0.100	13.114	0.064	16.260	0.065	2.095
1990	1346.935	1256.420	18.158	0.078	13.115	0.067	16.006	0.064	2.152
1488	1132.298	1304.019	18.216	0.098	13.116	0.066	16.119	0.061	2.097
672	729.875	1114.845	18.721	0.120	13.117	0.076	16.568	0.087	2.153
1713	1231.127	616.289	18.515	0.101	13.118	0.066	16.380	0.069	2.135
1614	1182.467	1094.264	19.280	0.163	13.119	0.062	16.844	0.082	2.436
1634	1189.689	731.626	18.777	0.125	13.120	0.069	16.510	0.078	2.267
2818	2025.358	696.045	18.853	0.138	13.120	0.107	16.729	0.112	2.123
2154	1429.776	1168.638	18.459	0.103	13.120	0.077	16.019	0.096	2.440
1072	929.794	1031.864	18.040	0.096	13.121	0.082	15.916	0.064	2.124
2641	1768.914	924.902	18.902	0.169	13.121	0.088	16.642	0.096	2.260
1299	1037.119	621.262	19.023	0.129	13.122	0.068	16.609	0.078	2.414
1531	1146.166	863.313	18.839	0.170	13.123	0.082	16.584	0.085	2.255
275	422.546	176.062	18.898	0.097	13.124	0.102	16.681	0.096	2.217
405	536.272	404.410	18.871	0.139	13.128	0.087	16.698	0.091	2.173
602	683.129	278.577	18.840	0.109	13.129	0.083	16.722	0.091	2.118
623	697.916	1399.374	18.728	0.124	13.130	0.083	16.692	0.093	2.036
1457	1117.076	954.249	18.405	0.093	13.130	0.073	16.374	0.076	2.031
655	720.764	1309.115	19.046	0.107	13.130	0.077	16.793	0.089	2.253
1491	1133.322	360.856	19.218	0.140	13.133	0.069	16.910	0.091	2.309
2125	1417.931	1108.913	18.804	0.133	13.135	0.063	16.435	0.098	2.369
738	765.445	545.235	18.932	0.125	13.136	0.065	16.739	0.085	2.193
1093	939.097	1330.268	18.840	0.085	13.136	0.075	16.665	0.096	2.175
1047	920.146	813.852	18.794	0.145	13.136	0.080	16.571	0.089	2.222
1274	1026.093	884.124	18.351	0.100	13.136	0.077	16.062	0.066	2.289
1707	1225.746	388.486	18.997	0.103	13.137	0.077	16.741	0.087	2.256
1168	974.838	1388.469	18.509	0.107	13.138	0.076	16.482	0.084	2.027
1517	1141.718	1505.327	18.980	0.114	13.140	0.080	16.736	0.084	2.244
1869	1292.537	477.123	18.344	0.124	13.141	0.063	16.251	0.067	2.093
1066	927.673	349.798	18.599	0.089	13.143	0.070	16.542	0.078	2.057
300	450.245	661.441	18.758	0.100	13.144	0.092	16.655	0.101	2.103
29	60.966	415.772	18.354	0.105	13.146	0.131	16.273	0.107	2.081
1866	1291.231	1221.227	18.379	0.112	13.146	0.059	16.310	0.069	2.069
2786	1958.393	289.882	18.606	0.120	13.150	0.104	16.529	0.101	2.077
1829	1277.850	393.397	19.046	0.127	13.150	0.068	16.707	0.086	2.339
824	806.129	568.658	19.369	0.127	13.150	0.070	16.935	0.110	2.434
593	678.397	1397.713	18.805	0.116	13.152	0.079	16.729	0.097	2.076
513	619.826	1203.891	19.168	0.122	13.152	0.075	16.940	0.093	2.228

1596	1175.952	1336.913	18.616	0.112	13.156	0.070	16.449	0.079	2.168
92	175.738	431.289	19.101	0.123	13.158	0.110	16.824	0.124	2.276
1855	1288.307	612.643	19.041	0.163	13.158	0.073	16.781	0.102	2.260
1586	1170.815	702.540	19.030	0.162	13.160	0.075	16.636	0.089	2.394
2664	1807.375	1007.755	18.877	0.125	13.162	0.088	16.725	0.102	2.152
1302	1038.483	778.071	18.743	0.117	13.162	0.090	16.620	0.088	2.123
1078	931.851	1007.279	18.899	0.122	13.163	0.082	16.708	0.093	2.191
2325	1527.399	1253.227	19.139	0.125	13.164	0.076	16.832	0.099	2.307
2653	1786.778	651.884	18.528	0.108	13.165	0.093	16.325	0.085	2.202
2143	1422.934	1254.098	18.953	0.116	13.165	0.071	16.803	0.090	2.150
690	742.325	1211.962	18.460	0.115	13.168	0.072	16.351	0.072	2.110
1057	923.188	1335.815	18.874	0.108	13.170	0.072	16.722	0.098	2.152
2722	1875.528	214.199	18.816	0.106	13.170	0.115	16.647	0.102	2.168
59	125.729	403.411	18.008	0.096	13.171	0.115	15.851	0.093	2.157
867	831.781	1457.497	19.065	0.108	13.175	0.080	17.017	0.109	2.048
2104	1404.240	813.643	18.888	0.118	13.176	0.067	16.692	0.077	2.195
934	866.228	231.477	18.980	0.143	13.177	0.082	16.796	0.097	2.185
1124	952.066	229.654	18.273	0.083	13.178	0.087	16.128	0.074	2.145
1335	1053.375	561.562	18.415	0.094	13.178	0.064	16.348	0.066	2.067
853	824.051	1074.124	18.714	0.103	13.179	0.082	16.638	0.090	2.075
1947	1326.668	1311.622	18.984	0.108	13.181	0.074	16.793	0.089	2.191
1377	1074.675	1419.819	19.045	0.126	13.183	0.080	16.877	0.099	2.168
251	389.927	663.998	18.535	0.141	13.184	0.097	16.401	0.098	2.134
1569	1159.758	384.533	18.967	0.111	13.184	0.069	16.709	0.080	2.258
809	799.568	200.839	18.908	0.096	13.184	0.082	16.751	0.093	2.157
2469	1621.100	702.892	18.528	0.098	13.184	0.070	16.356	0.073	2.172
1935	1321.591	234.128	19.140	0.157	13.185	0.080	16.915	0.106	2.225
1576	1164.125	1189.121	19.224	0.123	13.187	0.063	16.920	0.102	2.304
1699	1222.001	836.186	18.815	0.109	13.187	0.082	16.744	0.087	2.071
2070	1384.754	829.457	19.051	0.110	13.191	0.066	16.799	0.084	2.252
5	-4.626	1128.608	19.095	0.146	13.192	0.122	16.811	0.116	2.284
552	650.226	206.570	18.222	0.076	13.197	0.090	16.100	0.073	2.122
1832	1278.906	435.761	18.570	0.102	13.199	0.068	16.415	0.070	2.155
2789	1962.188	932.726	19.055	0.124	13.200	0.099	16.830	0.111	2.224
1574	1163.406	851.428	18.711	0.104	13.200	0.076	16.619	0.089	2.093
2360	1548.030	714.799	18.613	0.082	13.200	0.066	16.423	0.073	2.189
907	849.663	1104.787	18.841	0.112	13.203	0.080	16.671	0.089	2.170
1839	1281.948	1135.813	18.901	0.117	13.206	0.069	16.936	0.112	1.965
1114	949.992	1410.912	18.930	0.137	13.207	0.082	16.753	0.093	2.177
2839	2061.850	1003.846	18.896	0.175	13.209	0.111	16.720	0.105	2.175
1730	1237.020	664.116	19.081	0.125	13.210	0.072	16.905	0.099	2.177
189	328.629	649.620	19.054	0.165	13.210	0.095	16.775	0.103	2.278
2622	1756.021	1286.671	18.997	0.115	13.213	0.095	16.845	0.104	2.152
1754	1247.317	178.970	18.469	0.116	13.215	0.104	16.523	0.081	1.946
1777	1256.351	711.401	18.868	0.106	13.216	0.070	16.749	0.084	2.120
2736	1899.125	672.343	19.074	0.130	13.217	0.097	16.804	0.104	2.269
1781	1258.701	455.959	18.765	0.148	13.218	0.079	16.599	0.090	2.166
608	687.620	963.958	18.352	0.122	13.218	0.092	16.204	0.072	2.148
2066	1382.583	748.338	18.854	0.126	13.219	0.066	16.579	0.077	2.276
1233	1005.489	872.626	18.502	0.095	13.220	0.073	16.448	0.088	2.054
240	377.099	432.800	18.839	0.113	13.220	0.101	16.684	0.105	2.155
303	451.348	1370.852	18.700	0.106	13.221	0.092	16.675	0.098	2.025
1073	930.133	990.386	18.400	0.118	13.221	0.090	16.372	0.080	2.028
1218	998.586	1274.951	18.487	0.086	13.222	0.068	16.363	0.079	2.123
674	730.474	1120.457	18.808	0.068	13.224	0.079	16.698	0.087	2.109
366	504.593	772.802	18.328	0.076	13.225	0.084	16.156	0.074	2.172
1883	1297.542	1368.915	18.920	0.145	13.226	0.077	16.765	0.095	2.156
2018	1361.157	321.828	18.815	0.173	13.226	0.077	16.754	0.090	2.061
1100	941.155	776.324	18.694	0.143	13.226	0.078	16.647	0.095	2.047
2415	1585.006	1493.286	19.005	0.118	13.228	0.098	16.730	0.099	2.275
2299	1514.364	1220.380	18.975	0.120	13.231	0.078	16.858	0.094	2.118
2098	1401.029	948.760	19.171	0.118	13.234	0.065	16.894	0.093	2.277
75	150.776	373.094	18.907	0.113	13.234	0.115	16.691	0.104	2.217
488	600.598	628.243	18.496	0.097	13.235	0.079	16.375	0.083	2.121
2358	1547.914	777.641	18.339	0.102	13.235	0.067	16.279	0.070	2.061
2068	1383.543	994.689	18.918	0.165	13.238	0.067	16.757	0.086	2.161
207	344.863	534.051	18.668	0.095	13.238	0.099	16.751	0.104	1.918
2535	1673.693	1245.337	18.929	0.126	13.239	0.087	16.727	0.095	2.203
273	420.255	612.371	18.963	0.111	13.240	0.089	16.831	0.103	2.132
2657	1791.584	666.837	18.595	0.186	13.240	0.092	16.710	0.103	1.885
648	712.760	1383.083	18.230	0.113	13.242	0.083	16.096	0.076	2.134
2036	1369.469	1069.979	19.159	0.142	13.243	0.063	16.931	0.098	2.228
1638	1190.683	1513.928	18.731	0.094	13.244	0.086	16.578	0.077	2.152
2869	2112.298	776.333	19.152	0.189	13.244	0.112	16.941	0.121	2.211
2269	1499.212	378.369	18.816	0.119	13.245	0.076	16.628	0.088	2.188
60	128.582	1108.435	18.871	0.104	13.248	0.110	16.756	0.100	2.114
2820	2027.378	409.228	19.128	0.099	13.250	0.107	16.832	0.109	2.296
2214	1467.762	1168.527	19.123	0.145	13.252	0.067	16.899	0.095	2.224
948	873.931	1260.118	19.280	0.119	13.256	0.071	16.959	0.102	2.321
2431	1598.196	700.446	19.128	0.111	13.256	0.071	16.910	0.089	2.218
1240	1008.174	281.591	19.069	0.136	13.259	0.077	16.914	0.105	2.155
2213	1467.759	244.496	19.215	0.128	13.259	0.088	16.999	0.113	2.216

1637	1190.481	628.830	18.985	0.134	13.259	0.070	16.900	0.097	2.085
2221	1469.680	1344.439	18.869	0.100	13.259	0.080	16.814	0.103	2.055
2207	1464.757	904.635	18.400	0.108	13.261	0.072	16.247	0.062	2.153
131	238.346	255.094	18.916	0.087	13.261	0.106	16.778	0.101	2.138
2289	1510.065	1125.536	19.222	0.131	13.262	0.081	16.995	0.111	2.228
2812	2012.141	1369.117	18.812	0.142	13.264	0.113	16.830	0.120	1.982
584	672.159	360.960	18.315	0.078	13.267	0.086	16.208	0.075	2.107
1208	996.046	418.634	18.909	0.136	13.269	0.064	16.843	0.100	2.065
2181	1448.697	417.888	18.858	0.110	13.271	0.074	16.693	0.082	2.165
2676	1824.988	556.921	18.965	0.150	13.271	0.103	16.749	0.114	2.216
713	754.914	1387.954	18.340	0.102	13.275	0.091	16.276	0.090	2.063
1911	1312.822	1439.628	19.060	0.137	13.277	0.084	16.821	0.105	2.239
2698	1848.551	581.510	19.002	0.116	13.278	0.092	16.797	0.098	2.205
2114	1408.621	704.875	19.314	0.112	13.279	0.068	16.943	0.102	2.371
899	847.169	797.946	18.516	0.121	13.279	0.080	16.446	0.078	2.070
1779	1256.642	195.915	18.341	0.104	13.279	0.096	16.200	0.074	2.141
1497	1135.533	639.864	18.916	0.087	13.279	0.078	16.760	0.088	2.156
510	617.395	755.146	18.446	0.109	13.282	0.081	16.472	0.079	1.974
1061	925.331	938.776	17.535	0.071	13.283	0.096	16.212	0.083	1.323
1204	994.016	1137.491	19.550	0.145	13.284	0.074	17.109	0.109	2.441
2533	1673.270	389.401	19.041	0.135	13.284	0.087	16.842	0.102	2.199
2483	1632.383	1340.967	18.274	0.140	13.285	0.094	16.160	0.081	2.114
2121	1412.390	879.155	18.641	0.101	13.285	0.072	16.637	0.081	2.004
2281	1508.192	306.228	19.109	0.144	13.285	0.092	16.991	0.119	2.118
1232	1005.225	501.886	17.849	0.071	13.286	0.062	15.797	0.051	2.053
821	805.694	832.661	18.458	0.123	13.286	0.080	16.394	0.076	2.064
771	779.624	1249.362	19.037	0.115	13.288	0.079	16.821	0.106	2.215
2765	1932.439	808.013	19.147	0.126	13.289	0.100	16.838	0.111	2.309
2563	1700.105	587.492	17.920	0.081	13.290	0.085	15.795	0.069	2.125
1449	1110.588	923.924	18.783	0.092	13.291	0.090	16.548	0.085	2.236
1332	1052.724	130.029	18.916	0.120	13.291	0.098	16.690	0.093	2.226
2126	1418.660	507.685	19.237	0.117	13.292	0.085	16.976	0.109	2.261
1267	1020.146	1058.611	18.591	0.103	13.292	0.074	16.491	0.079	2.100
443	570.124	973.804	18.297	0.111	13.292	0.102	16.227	0.098	2.070
2792	1966.739	599.325	19.545	0.102	13.293	0.102	17.071	0.120	2.474
2296	1512.084	203.939	18.451	0.118	13.293	0.092	16.330	0.086	2.121
1711	1230.700	1199.340	19.143	0.160	13.294	0.061	16.954	0.098	2.190
463	581.421	1090.138	18.707	0.114	13.295	0.080	16.587	0.095	2.120
1675	1210.438	1127.842	18.530	0.098	13.295	0.061	16.452	0.072	2.078
2784	1957.409	793.273	18.495	0.131	13.296	0.106	16.322	0.103	2.172
733	763.178	1149.701	18.173	0.076	13.296	0.074	16.112	0.075	2.061
1557	1156.459	470.818	18.370	0.075	13.297	0.069	16.142	0.065	2.228
1503	1137.052	843.209	18.857	0.128	13.297	0.083	16.709	0.094	2.149
134	240.126	223.611	18.909	0.124	13.298	0.115	16.758	0.103	2.151
2184	1449.159	367.615	18.244	0.084	13.299	0.084	16.051	0.070	2.193
1577	1166.024	1241.330	19.022	0.138	13.300	0.070	16.812	0.090	2.210
931	864.400	669.352	18.406	0.103	13.301	0.069	16.268	0.067	2.138
2612	1746.815	540.320	19.102	0.140	13.302	0.086	16.894	0.108	2.208
571	665.278	1270.473	18.508	0.105	13.302	0.092	16.433	0.089	2.075
201	339.060	602.635	18.502	0.108	13.303	0.096	16.400	0.094	2.102
1528	1145.140	292.311	19.203	0.167	13.307	0.076	16.897	0.098	2.307
244	378.994	350.960	18.908	0.128	13.307	0.103	16.765	0.110	2.143
751	772.028	1450.522	19.090	0.094	13.308	0.090	16.907	0.100	2.182
1298	1036.101	1145.039	18.476	0.094	13.309	0.068	16.352	0.066	2.125
2197	1456.700	230.374	18.953	0.125	13.311	0.091	16.861	0.104	2.092
1978	1339.931	865.088	19.075	0.117	13.311	0.073	16.816	0.088	2.259
2312	1522.093	1366.352	18.829	0.105	13.312	0.086	16.736	0.099	2.093
2361	1548.457	614.871	19.084	0.106	13.316	0.068	16.848	0.094	2.236
58	123.635	545.941	18.563	0.114	13.318	0.116	16.456	0.105	2.107
640	709.174	821.072	18.834	0.117	13.324	0.087	16.742	0.090	2.093
1667	1207.177	405.680	19.007	0.124	13.325	0.090	16.848	0.110	2.160
1424	1100.083	885.173	18.631	0.120	13.325	0.101	15.664	0.130	2.967
1135	958.990	668.232	19.221	0.118	13.325	0.070	16.956	0.103	2.265
192	330.494	458.794	18.733	0.104	13.326	0.099	16.773	0.108	1.960
1281	1028.649	962.254	18.365	0.080	13.327	0.082	16.314	0.075	2.051
130	236.471	444.441	18.052	0.075	13.329	0.104	15.981	0.094	2.071
1573	1163.381	318.038	18.311	0.103	13.330	0.079	16.191	0.065	2.120
2168	1438.263	791.382	19.104	0.129	13.332	0.067	16.891	0.092	2.213
1448	1110.315	323.950	19.034	0.136	13.333	0.074	16.813	0.105	2.221
703	749.623	1091.942	18.874	0.128	13.334	0.084	16.923	0.098	1.951
856	827.325	807.544	18.465	0.100	13.335	0.091	16.372	0.077	2.093
1056	922.996	1019.523	19.226	0.181	13.337	0.083	16.871	0.103	2.355
1350	1060.486	1019.060	19.223	0.114	13.337	0.079	16.975	0.100	2.248
1118	950.952	1393.294	18.955	0.133	13.338	0.086	16.817	0.105	2.137
2723	1877.177	857.964	19.157	0.101	13.340	0.101	16.916	0.106	2.242
2720	1873.909	411.230	19.052	0.102	13.341	0.105	16.877	0.101	2.175
1983	1343.506	430.319	19.261	0.132	13.345	0.071	17.032	0.093	2.228
1504	1137.309	1380.725	19.244	0.175	13.347	0.079	17.071	0.107	2.174
1393	1082.824	1510.638	18.190	0.109	13.349	0.085	16.106	0.076	2.085
654	719.680	544.389	19.097	0.090	13.351	0.075	16.919	0.111	2.178
2642	1770.025	1520.944	19.017	0.110	13.352	0.094	16.828	0.103	2.189
797	794.072	1052.749	18.580	0.102	13.352	0.081	16.471	0.079	2.108

2610	1742.321	876.908	19.238	0.093	13.353	0.089	16.956	0.110	2.282
840	815.204	1026.153	18.938	0.135	13.354	0.088	16.798	0.101	2.140
1581	1167.186	1436.302	18.471	0.136	13.355	0.084	16.495	0.087	1.976
2690	1837.421	882.380	18.795	0.104	13.355	0.146	16.770	0.124	2.026
62	129.240	391.795	18.678	0.153	13.357	0.107	16.660	0.109	2.018
2231	1474.872	1236.879	19.263	0.159	13.358	0.082	16.940	0.108	2.323
1367	1065.199	285.772	18.507	0.132	13.360	0.081	16.410	0.077	2.097
2626	1758.531	555.391	19.269	0.180	13.361	0.092	16.957	0.106	2.312
1373	1069.630	423.347	19.231	0.121	13.361	0.068	17.001	0.096	2.230
454	575.886	843.091	18.421	0.078	13.362	0.083	16.658	0.095	1.763
984	889.480	1375.580	19.376	0.162	13.363	0.081	17.076	0.112	2.300
1591	1173.522	205.480	18.655	0.098	13.364	0.096	16.548	0.089	2.107
137	246.399	483.811	18.916	0.119	13.365	0.104	16.969	0.116	1.947
970	883.002	896.222	18.563	0.104	13.366	0.087	16.493	0.088	2.070
1055	922.752	1143.971	19.056	0.100	13.366	0.071	16.865	0.100	2.191
1542	1148.959	1162.551	19.002	0.103	13.368	0.061	16.978	0.099	2.024
316	459.528	535.429	19.232	0.084	13.369	0.098	16.957	0.114	2.275
2371	1557.228	696.222	18.734	0.112	13.369	0.070	16.539	0.072	2.195
1435	1106.097	786.630	18.444	0.099	13.370	0.089	16.360	0.077	2.083
2575	1712.345	787.697	19.151	0.075	13.371	0.086	16.920	0.113	2.232
1806	1269.241	1137.703	18.768	0.104	13.371	0.065	16.762	0.088	2.006
1283	1029.745	461.435	18.873	0.157	13.371	0.070	16.779	0.095	2.093
221	359.488	621.801	18.891	0.126	13.372	0.096	16.678	0.108	2.214
485	599.026	796.758	18.790	0.129	13.374	0.081	16.649	0.096	2.141
835	811.719	1481.066	19.057	0.079	13.375	0.107	16.888	0.104	2.169
1561	1157.909	539.236	19.525	0.113	13.376	0.072	17.142	0.108	2.383
39	77.520	535.431	19.013	0.180	13.376	0.118	16.894	0.114	2.119
255	396.448	429.104	18.394	0.104	13.377	0.107	16.382	0.098	2.012
1993	1348.799	873.128	18.706	0.143	13.378	0.081	16.653	0.098	2.053
2830	2045.574	157.125	18.399	0.115	13.378	0.123	16.279	0.098	2.120
1087	935.594	516.988	19.182	0.078	13.380	0.069	16.963	0.095	2.219
1873	1294.001	315.078	19.329	0.130	13.381	0.087	17.081	0.114	2.248
1238	1007.698	796.330	18.211	0.099	13.381	0.079	16.172	0.066	2.039
421	551.072	1429.235	18.839	0.129	13.382	0.096	16.821	0.112	2.018
1647	1197.129	909.031	19.234	0.164	13.384	0.186	16.387	0.146	2.847
1582	1167.775	120.454	18.090	0.086	13.384	0.098	15.890	0.065	2.199
2228	1472.383	542.296	19.140	0.170	13.384	0.072	16.981	0.105	2.159
2227	1471.378	366.516	19.186	0.103	13.384	0.079	16.886	0.109	2.300
11	3.857	454.922	18.938	0.111	13.385	0.126	16.935	0.136	2.003
2193	1455.323	1288.794	19.290	0.137	13.388	0.083	17.016	0.110	2.274
436	564.054	808.480	19.050	0.127	13.388	0.081	16.948	0.110	2.102
2369	1556.572	1472.210	17.941	0.107	13.388	0.099	16.445	0.093	1.495
1264	1019.386	989.189	19.429	0.161	13.391	0.100	17.182	0.148	2.247
1219	998.976	603.241	18.902	0.114	13.391	0.070	16.771	0.093	2.130
665	724.197	826.982	18.620	0.113	13.392	0.084	16.483	0.078	2.137
18	30.254	766.927	19.032	0.102	13.393	0.127	16.903	0.117	2.129
8	-0.079	984.187	18.594	0.118	13.394	0.122	16.346	0.095	2.248
574	667.541	1133.978	18.340	0.085	13.395	0.078	16.215	0.073	2.126
1988	1345.880	1417.162	18.267	0.086	13.400	0.086	16.214	0.073	2.053
2859	2091.700	1147.612	19.004	0.171	13.401	0.113	16.863	0.125	2.141
1235	1006.460	305.800	19.222	0.109	13.401	0.074	17.003	0.099	2.219
2161	1434.003	653.277	18.796	0.130	13.403	0.074	16.632	0.083	2.164
418	550.055	994.230	18.228	0.108	13.405	0.163	16.069	0.087	2.159
2872	2122.326	802.689	18.901	0.130	13.406	0.111	16.850	0.115	2.051
326	469.429	1179.400	19.050	0.150	13.407	0.088	16.885	0.102	2.165
164	293.274	1169.303	18.961	0.110	13.408	0.096	16.889	0.103	2.072
564	659.297	373.133	19.062	0.094	13.409	0.088	16.883	0.101	2.179
462	580.271	739.478	18.610	0.114	13.409	0.084	16.575	0.088	2.035
127	222.314	338.974	19.460	0.156	13.410	0.108	17.108	0.123	2.353
806	799.210	639.294	18.683	0.106	13.410	0.074	16.539	0.073	2.144
267	413.545	376.980	18.443	0.112	13.411	0.109	16.392	0.098	2.051
37	75.272	1439.753	19.417	0.113	13.412	0.116	16.936	0.121	2.481
1337	1053.849	405.100	18.730	0.111	13.412	0.071	16.538	0.073	2.192
1411	1094.873	771.778	19.122	0.130	13.413	0.083	17.015	0.109	2.108
1929	1319.969	695.316	19.033	0.157	13.413	0.080	16.831	0.100	2.201
2400	1576.643	1518.130	18.390	0.105	13.414	0.094	16.124	0.080	2.266
12	17.891	1101.352	18.345	0.108	13.414	0.112	16.241	0.097	2.104
2465	1619.229	1167.927	18.630	0.109	13.415	0.084	16.461	0.081	2.170
2391	1569.988	562.450	19.440	0.107	13.417	0.079	17.138	0.120	2.302
2290	1510.210	598.862	19.232	0.126	13.417	0.072	17.102	0.108	2.130
544	644.954	601.944	18.460	0.106	13.418	0.082	16.417	0.074	2.043
174	307.272	338.182	18.684	0.117	13.419	0.106	16.464	0.095	2.220
166	298.691	1263.125	18.481	0.112	13.420	0.115	16.479	0.102	2.002
1881	1297.298	459.059	19.057	0.134	13.421	0.069	16.999	0.107	2.058
1704	1224.051	1002.220	19.207	0.132	13.424	0.073	16.982	0.100	2.225
1526	1144.468	311.333	18.683	0.119	13.426	0.078	16.563	0.080	2.120
2110	1406.861	876.935	18.680	0.109	13.426	0.084	16.653	0.087	2.027
53	112.677	920.170	18.525	0.105	13.426	0.135	16.497	0.140	2.028
1244	1009.240	983.963	18.924	0.118	13.428	0.073	16.834	0.096	2.090
123	219.729	1413.612	18.482	0.102	13.429	0.109	16.388	0.097	2.093
504	613.008	1368.971	19.316	0.146	13.430	0.086	17.163	0.109	2.153
880	836.161	1097.226	19.024	0.100	13.432	0.078	16.884	0.098	2.140

20	35.290	1382.758	18.884	0.107	13.434	0.117	16.833	0.113	2.051
1404	1090.853	123.407	18.688	0.107	13.436	0.098	16.483	0.078	2.206
449	573.365	456.333	18.449	0.096	13.439	0.095	16.253	0.081	2.196
1871	1293.747	324.197	19.735	0.131	13.441	0.088	17.226	0.131	2.508
2397	1573.693	322.362	19.010	0.121	13.441	0.091	16.960	0.105	2.050
2349	1542.964	1422.699	19.407	0.150	13.442	0.091	17.206	0.120	2.200
1536	1147.186	1410.043	19.433	0.148	13.442	0.084	17.196	0.112	2.237
688	739.950	974.918	18.462	0.091	13.443	0.091	16.334	0.075	2.128
257	398.221	569.109	18.456	0.101	13.443	0.099	16.358	0.089	2.097
986	889.941	947.428	18.936	0.113	13.443	0.082	16.854	0.091	2.081
2542	1684.316	663.252	19.330	0.130	13.443	0.083	17.072	0.107	2.258
2417	1586.624	824.622	19.247	0.120	13.445	0.075	17.056	0.099	2.191
1171	975.135	1471.307	19.117	0.085	13.446	0.093	16.945	0.116	2.172
2450	1606.967	1141.785	19.052	0.170	13.448	0.084	16.918	0.103	2.134
146	262.791	1118.041	18.952	0.144	13.450	0.101	16.868	0.110	2.085
2485	1635.443	627.587	18.740	0.099	13.450	0.085	16.579	0.084	2.161
2761	1922.893	594.739	18.977	0.095	13.452	0.106	16.883	0.111	2.095
1408	1092.307	632.584	19.231	0.176	13.453	0.078	16.954	0.102	2.277
579	668.603	949.741	18.900	0.144	13.453	0.096	16.856	0.113	2.043
2075	1387.465	299.993	19.357	0.172	13.453	0.084	17.102	0.115	2.254
767	778.825	896.441	19.218	0.093	13.454	0.095	16.997	0.106	2.222
560	657.193	692.293	18.937	0.142	13.454	0.085	16.853	0.099	2.084
1982	1343.109	1091.849	18.810	0.124	13.455	0.068	16.718	0.083	2.092
1292	1032.991	1104.035	18.657	0.128	13.455	0.076	16.723	0.092	1.934
347	492.431	1323.203	19.260	0.245	13.458	0.090	16.960	0.108	2.300
2703	1852.775	573.851	18.528	0.117	13.461	0.106	16.430	0.085	2.098
153	275.578	1146.013	19.101	0.175	13.462	0.098	16.937	0.113	2.164
2587	1722.145	245.618	19.399	0.123	13.462	0.100	16.666	0.123	2.733
577	667.954	319.123	18.560	0.104	13.462	0.092	16.498	0.084	2.063
2574	1710.668	208.823	18.509	0.101	13.464	0.107	16.463	0.094	2.046
2243	1482.115	965.224	19.263	0.157	13.465	0.072	17.110	0.107	2.153
1987	1345.391	1049.055	19.100	0.131	13.466	0.073	17.011	0.103	2.089
582	671.502	1127.984	19.115	0.104	13.466	0.083	16.983	0.110	2.132
1742	1242.582	712.046	19.044	0.144	13.468	0.089	16.898	0.097	2.146
2589	1723.018	1210.674	19.168	0.130	13.471	0.099	17.020	0.121	2.149
551	650.109	541.174	19.044	0.137	13.472	0.086	16.957	0.104	2.087
993	891.956	831.388	19.244	0.133	13.473	0.090	16.987	0.099	2.257
1900	1306.704	1368.058	19.144	0.166	13.474	0.092	17.123	0.121	2.021
253	392.451	956.850	18.946	0.078	13.475	0.091	16.894	0.098	2.052
1133	957.392	908.373	19.453	0.134	13.475	0.091	17.120	0.114	2.333
1616	1182.864	1167.675	19.082	0.125	13.476	0.099	17.036	0.102	2.046
1681	1212.137	1269.689	18.667	0.135	13.476	0.076	16.602	0.081	2.065
2840	2062.072	416.582	19.246	0.119	13.477	0.111	16.990	0.119	2.256
1803	1268.131	179.611	19.104	0.117	13.478	0.097	16.887	0.097	2.217
1693	1220.249	442.592	19.213	0.083	13.478	0.078	17.042	0.105	2.172
2045	1372.931	991.257	19.245	0.190	13.479	0.077	17.113	0.108	2.132
1759	1248.435	444.669	19.183	0.120	13.479	0.079	17.077	0.109	2.106
607	687.373	984.681	18.740	0.115	13.479	0.108	16.282	0.101	2.458
1646	1196.657	1063.842	18.744	0.105	13.480	0.075	16.748	0.087	1.996
983	887.733	1186.458	19.234	0.088	13.481	0.087	17.018	0.111	2.216
1535	1146.976	1184.336	19.335	0.135	13.482	0.077	17.126	0.103	2.209
870	832.230	1005.918	18.312	0.088	13.483	0.090	16.556	0.080	1.756
2712	1860.246	866.732	19.219	0.169	13.483	0.102	17.015	0.125	2.204
1991	1346.958	571.015	19.122	0.147	13.483	0.076	17.029	0.108	2.093
2094	1398.313	1097.662	19.146	0.112	13.483	0.073	17.105	0.113	2.041
2338	1535.595	1333.769	18.667	0.116	13.483	0.086	16.576	0.091	2.091
261	402.902	1471.844	18.419	0.130	13.487	0.125	16.413	0.110	2.005
1752	1246.807	1047.257	19.132	0.180	13.487	0.072	17.034	0.111	2.098
410	542.701	1170.139	19.041	0.107	13.487	0.080	16.872	0.100	2.168
2750	1908.632	387.150	19.264	0.105	13.488	0.107	16.949	0.112	2.316
1030	910.091	422.817	19.347	0.149	13.490	0.071	17.180	0.104	2.167
329	470.856	442.917	18.327	0.103	13.491	0.097	16.227	0.075	2.100
1289	1031.871	439.756	18.807	0.108	13.491	0.074	16.659	0.075	2.148
1735	1238.373	510.791	19.537	0.180	13.493	0.081	17.311	0.128	2.226
896	845.812	1368.554	19.018	0.116	13.493	0.086	16.800	0.089	2.218
2724	1877.275	569.967	18.511	0.108	13.493	0.106	16.327	0.088	2.184
394	530.959	1372.262	18.718	0.122	13.494	0.095	16.519	0.086	2.199
2060	1381.016	1202.259	19.470	0.161	13.497	0.072	17.198	0.103	2.272
103	196.463	463.895	19.186	0.139	13.498	0.100	17.123	0.106	2.063
816	803.557	896.516	19.453	0.137	13.499	0.099	17.046	0.114	2.407
2599	1734.495	330.717	19.214	0.110	13.499	0.098	17.024	0.120	2.190
2797	1980.599	536.161	19.302	0.101	13.500	0.107	17.044	0.108	2.258
991	890.686	1097.273	19.058	0.081	13.503	0.080	16.980	0.101	2.078
2246	1482.916	1355.148	19.260	0.146	13.503	0.088	17.128	0.112	2.132
2727	1881.485	699.649	18.221	0.122	13.505	0.137	16.118	0.101	2.103
1768	1252.111	1474.276	18.652	0.082	13.505	0.094	16.550	0.086	2.102
757	775.158	1422.859	19.025	0.179	13.505	0.095	16.956	0.116	2.069
1143	963.333	712.796	19.283	0.216	13.506	0.088	17.158	0.122	2.126
1792	1263.124	1429.013	19.107	0.119	13.507	0.086	17.098	0.113	2.009
2368	1556.069	396.018	19.441	0.132	13.508	0.089	17.073	0.108	2.368
2204	1461.355	256.404	18.996	0.150	13.509	0.110	16.858	0.124	2.138
2061	1381.353	607.888	19.255	0.111	13.509	0.073	17.095	0.102	2.161

2831	2047.982	142.343	18.827	0.124	13.510	0.129	16.678	0.113	2.149
2265	1497.917	301.860	19.435	0.096	13.511	0.089	17.145	0.119	2.290
908	849.681	544.239	19.402	0.127	13.512	0.074	17.112	0.105	2.290
1747	1244.561	569.532	18.916	0.147	13.512	0.080	16.595	0.095	2.321
2426	1592.784	1291.609	18.678	0.103	13.513	0.090	16.687	0.091	1.992
1474	1127.238	711.532	19.341	0.144	13.513	0.080	17.230	0.124	2.111
256	397.487	199.308	19.224	0.130	13.519	0.105	17.119	0.113	2.104
2512	1658.309	1477.989	19.121	0.195	13.519	0.106	16.830	0.105	2.291
1063	925.799	834.469	18.959	0.101	13.519	0.110	16.820	0.096	2.139
2444	1605.375	1058.678	19.313	0.120	13.520	0.083	17.099	0.111	2.214
2651	1782.059	736.768	18.731	0.124	13.521	0.093	16.576	0.087	2.156
729	761.196	512.664	18.578	0.088	13.522	0.076	16.617	0.083	1.960
1187	979.849	762.388	18.984	0.128	13.522	0.094	16.932	0.110	2.051
980	887.430	811.184	18.772	0.110	13.522	0.091	16.655	0.082	2.117
2308	1521.669	499.925	19.226	0.118	13.523	0.082	17.077	0.100	2.149
1324	1049.604	1173.515	19.210	0.121	13.524	0.078	17.090	0.115	2.119
364	503.721	575.319	18.628	0.115	13.525	0.093	16.616	0.104	2.012
649	714.766	275.829	19.207	0.121	13.526	0.094	16.963	0.106	2.244
2562	1699.937	936.677	19.260	0.184	13.526	0.095	17.046	0.122	2.214
1867	1291.531	612.059	18.495	0.122	13.527	0.089	16.423	0.083	2.072
2437	1602.159	510.613	19.238	0.129	13.527	0.083	17.127	0.110	2.111
705	750.590	284.257	18.734	0.110	13.527	0.090	16.711	0.100	2.022
2777	1948.251	1461.749	19.369	0.150	13.528	0.114	17.166	0.132	2.203
1222	1000.780	597.365	19.288	0.113	13.528	0.073	17.090	0.102	2.198
180	314.500	1060.824	18.707	0.131	13.529	0.098	16.593	0.094	2.114
1946	1325.882	459.308	18.780	0.113	13.529	0.072	16.589	0.082	2.191
2244	1482.507	1380.498	18.584	0.110	13.530	0.099	16.450	0.086	2.133
2105	1404.530	1496.248	19.008	0.158	13.530	0.108	16.987	0.132	2.021
1856	1288.362	948.057	18.820	0.105	13.535	0.083	16.681	0.078	2.139
2549	1688.325	490.843	18.348	0.127	13.535	0.092	16.262	0.075	2.086
966	880.634	904.052	19.080	0.112	13.536	0.092	17.056	0.110	2.023
43	89.091	463.445	18.652	0.129	13.538	0.113	16.549	0.106	2.103
295	446.825	357.299	18.707	0.108	13.538	0.098	16.669	0.103	2.038
1513	1140.305	1523.812	18.377	0.080	13.539	0.091	16.575	0.081	1.802
278	427.126	260.652	18.981	0.090	13.542	0.109	16.916	0.109	2.065
453	574.960	217.293	18.613	0.161	13.542	0.113	16.675	0.117	1.938
337	477.493	888.553	17.919	0.091	13.542	0.120	16.397	0.101	1.522
1942	1325.044	1022.197	19.205	0.098	13.545	0.091	17.015	0.108	2.190
730	761.328	593.619	19.132	0.142	13.546	0.092	17.049	0.114	2.083
1795	1263.571	939.647	18.845	0.142	13.547	0.078	16.637	0.084	2.208
2179	1446.699	628.561	19.730	0.114	13.547	0.073	17.358	0.134	2.371
304	451.992	1379.460	19.031	0.099	13.548	0.101	17.009	0.126	2.023
2579	1714.135	1139.622	19.278	0.135	13.548	0.097	17.117	0.146	2.160
1224	1001.536	853.290	18.928	0.185	13.551	0.096	16.680	0.097	2.248
142	254.893	675.267	18.401	0.126	13.551	0.109	16.807	0.112	1.594
1670	1207.818	1400.109	19.402	0.101	13.552	0.085	17.123	0.106	2.279
1539	1147.658	974.816	19.033	0.081	13.552	0.083	17.023	0.112	2.010
1381	1077.126	740.895	18.996	0.122	13.554	0.082	16.979	0.110	2.017
642	709.594	594.573	18.817	0.085	13.555	0.079	16.840	0.100	1.977
493	608.656	453.164	19.504	0.100	13.559	0.092	17.191	0.118	2.313
2153	1429.588	233.575	19.412	0.097	13.562	0.106	17.159	0.125	2.253
1802	1267.594	934.354	19.271	0.180	13.563	0.079	17.030	0.103	2.241
1755	1247.351	1101.369	19.073	0.128	13.563	0.104	16.842	0.105	2.231
2628	1759.147	1204.006	19.646	0.143	13.566	0.100	17.177	0.122	2.469
1309	1044.496	572.701	19.319	0.144	13.566	0.073	17.155	0.110	2.164
348	492.579	760.808	19.662	0.137	13.566	0.087	17.196	0.116	2.466
1909	1312.522	720.130	19.352	0.125	13.570	0.091	17.208	0.127	2.145
1493	1134.113	1372.723	19.312	0.171	13.573	0.094	17.124	0.100	2.188
1064	926.044	634.843	19.218	0.096	13.575	0.078	17.050	0.099	2.168
2479	1630.593	698.602	19.246	0.097	13.576	0.085	17.156	0.113	2.089
241	377.856	552.387	19.256	0.118	13.576	0.099	17.229	0.121	2.027
2571	1707.834	1283.383	18.878	0.108	13.580	0.099	16.780	0.100	2.099
1523	1142.872	975.115	19.117	0.100	13.580	0.091	17.062	0.117	2.055
2439	1603.253	759.264	19.635	0.148	13.581	0.080	17.234	0.117	2.401
901	848.090	267.784	18.723	0.107	13.582	0.087	16.583	0.081	2.140
2705	1854.727	1531.461	18.820	0.113	13.582	0.100	16.648	0.101	2.172
1653	1200.169	785.467	18.735	0.121	13.582	0.094	16.696	0.090	2.039
83	164.508	415.806	19.390	0.117	13.583	0.119	17.060	0.123	2.330
1566	1159.199	1052.446	19.361	0.127	13.585	0.078	17.223	0.129	2.138
144	259.648	1285.439	18.653	0.125	13.586	0.119	16.540	0.096	2.113
2142	1422.912	1355.641	19.338	0.153	13.586	0.091	17.102	0.105	2.236
2751	1909.853	1053.370	18.331	0.123	13.586	0.104	16.102	0.083	2.228
587	673.865	1163.652	18.847	0.131	13.587	0.081	16.713	0.086	2.134
572	666.482	203.511	19.038	0.131	13.588	0.105	16.814	0.089	2.224
176	310.832	413.902	18.555	0.091	13.588	0.105	16.631	0.098	1.925
1369	1067.836	1154.601	19.734	0.158	13.589	0.074	17.399	0.121	2.335
1159	969.448	685.029	19.055	0.140	13.592	0.084	16.886	0.095	2.169
529	631.889	769.544	19.506	0.136	13.595	0.096	17.230	0.132	2.276
2832	2051.607	531.439	19.684	0.134	13.595	0.123	17.321	0.130	2.363
832	809.810	836.458	18.645	0.082	13.596	0.092	16.631	0.081	2.014
178	311.218	986.290	18.765	0.079	13.597	0.107	16.693	0.102	2.073
2305	1520.379	687.599	18.921	0.113	13.599	0.079	16.751	0.087	2.170

2487	1637.192	635.496	19.335	0.122	13.599	0.095	17.055	0.103	2.281
541	643.195	612.063	18.945	0.091	13.599	0.088	16.941	0.096	2.004
681	733.933	203.282	19.741	0.104	13.600	0.097	17.257	0.122	2.485
581	670.464	659.598	18.833	0.160	13.601	0.092	16.737	0.096	2.097
632	704.060	844.714	18.842	0.147	13.601	0.105	16.708	0.092	2.134
95	179.735	464.235	18.797	0.109	13.601	0.119	16.812	0.112	1.984
1798	1264.652	656.267	19.020	0.112	13.604	0.082	16.901	0.093	2.119
2639	1768.318	679.615	19.025	0.111	13.605	0.100	16.822	0.103	2.203
2084	1393.774	856.080	19.487	0.184	13.605	0.080	17.175	0.119	2.312
1697	1221.164	1085.353	19.530	0.126	13.606	0.078	17.372	0.122	2.158
419	550.528	920.576	17.672	0.118	13.608	0.091	16.339	0.092	1.334
2490	1644.484	1031.967	19.107	0.134	13.609	0.096	17.085	0.108	2.021
2596	1728.242	580.962	19.626	0.133	13.609	0.092	17.256	0.116	2.370
2430	1594.017	1157.050	19.313	0.169	13.610	0.086	17.102	0.116	2.211
2414	1584.992	957.254	19.689	0.158	13.610	0.081	17.267	0.112	2.422
270	417.791	996.485	18.787	0.110	13.610	0.102	16.701	0.095	2.086
2270	1500.104	330.179	18.772	0.140	13.611	0.113	16.472	0.116	2.300
2339	1536.295	207.680	19.390	0.148	13.612	0.099	17.154	0.117	2.236
1976	1339.092	1054.188	18.899	0.109	13.613	0.074	16.835	0.088	2.064
811	800.282	955.072	19.290	0.183	13.614	0.100	17.050	0.115	2.240
1310	1044.614	808.920	19.357	0.197	13.614	0.106	17.174	0.131	2.183
1809	1270.267	1093.150	18.930	0.122	13.614	0.077	16.739	0.085	2.191
618	693.817	1178.545	19.614	0.129	13.615	0.081	17.365	0.142	2.249
925	859.452	1226.472	19.221	0.099	13.618	0.086	17.100	0.102	2.120
2407	1581.439	423.617	19.369	0.184	13.619	0.097	17.061	0.108	2.308
40	81.053	1048.645	19.475	0.124	13.620	0.123	17.075	0.123	2.399
1905	1308.453	636.595	19.449	0.131	13.620	0.077	17.229	0.110	2.219
2028	1365.889	485.734	19.029	0.121	13.621	0.079	16.906	0.093	2.123
1662	1204.117	546.726	19.002	0.113	13.621	0.078	16.882	0.099	2.120
1472	1125.938	1340.933	19.287	0.134	13.624	0.089	17.113	0.110	2.175
132	239.523	564.349	18.759	0.140	13.629	0.109	16.567	0.106	2.192
916	853.196	724.247	19.379	0.120	13.630	0.097	17.277	0.126	2.102
1043	917.468	909.608	18.860	0.121	13.630	0.091	16.790	0.094	2.070
1996	1349.893	190.048	18.879	0.118	13.630	0.106	16.751	0.099	2.128
692	743.502	639.453	18.974	0.094	13.631	0.108	16.836	0.108	2.138
101	190.727	1005.263	18.879	0.117	13.631	0.109	16.952	0.125	1.927
1619	1183.905	356.062	18.977	0.114	13.632	0.081	16.848	0.094	2.129
1737	1240.187	1366.139	18.820	0.146	13.633	0.091	16.741	0.090	2.080
414	548.721	697.153	18.892	0.108	13.633	0.094	16.868	0.112	2.024
1037	914.769	756.172	19.506	0.188	13.634	0.088	17.260	0.131	2.246
349	492.845	291.355	19.187	0.115	13.634	0.104	17.061	0.121	2.126
397	532.178	185.955	17.888	0.086	13.635	0.105	15.813	0.076	2.074
376	515.299	495.929	19.540	0.115	13.635	0.099	17.232	0.110	2.308
2780	1952.802	1011.368	18.478	0.137	13.636	0.113	16.376	0.106	2.102
768	778.960	472.935	18.993	0.150	13.638	0.080	16.845	0.099	2.148
1084	933.630	596.423	18.783	0.104	13.639	0.077	16.614	0.075	2.169
1842	1283.232	1102.971	19.386	0.121	13.641	0.080	17.237	0.110	2.149
1644	1194.312	689.498	19.648	0.211	13.642	0.086	17.065	0.109	2.583
1455	1115.955	845.216	18.878	0.104	13.642	0.104	16.762	0.104	2.116
2245	1482.744	1056.151	19.830	0.138	13.644	0.082	17.364	0.137	2.466
929	862.215	689.799	19.451	0.138	13.644	0.082	17.151	0.108	2.299
2672	1818.965	1035.001	18.408	0.113	13.645	0.103	16.223	0.086	2.185
2100	1401.756	1223.551	18.841	0.143	13.646	0.090	16.742	0.090	2.098
898	847.079	1129.143	18.856	0.101	13.647	0.085	16.835	0.091	2.021
818	804.210	711.263	18.772	0.104	13.649	0.087	16.660	0.082	2.112
328	470.482	967.968	18.534	0.089	13.652	0.098	16.722	0.091	1.812
1444	1108.759	532.217	19.417	0.147	13.652	0.078	17.168	0.110	2.249
292	442.932	734.968	18.999	0.088	13.653	0.094	17.114	0.124	1.885
1762	1250.211	694.278	18.615	0.104	13.654	0.081	16.600	0.076	2.016
71	138.952	815.711	19.345	0.135	13.654	0.113	17.155	0.125	2.190
1960	1333.822	782.485	18.909	0.116	13.654	0.086	16.784	0.088	2.125
383	521.327	439.832	19.499	0.128	13.656	0.099	17.190	0.129	2.310
1111	948.617	334.748	19.401	0.173	13.657	0.083	17.334	0.130	2.067
1495	1135.212	1340.699	19.274	0.148	13.657	0.082	17.129	0.107	2.145
637	706.616	1338.840	18.950	0.142	13.659	0.096	16.811	0.098	2.139
1794	1263.314	1482.790	18.343	0.093	13.659	0.101	16.168	0.080	2.175
2737	1899.808	955.394	19.442	0.118	13.659	0.105	17.226	0.121	2.217
2655	1789.653	1278.565	19.178	0.191	13.660	0.111	17.168	0.131	2.010
1793	1263.142	805.421	19.707	0.127	13.660	0.091	17.283	0.124	2.424
914	852.985	970.691	19.342	0.185	13.662	0.104	17.188	0.121	2.153
1214	997.477	1081.229	19.295	0.142	13.663	0.085	17.164	0.113	2.130
1131	956.501	835.249	18.904	0.141	13.663	0.106	16.865	0.101	2.039
390	527.848	1405.834	18.538	0.115	13.665	0.101	16.442	0.088	2.096
56	120.177	959.823	19.237	0.153	13.666	0.123	17.123	0.122	2.114
2619	1753.618	1545.739	18.688	0.096	13.666	0.112	16.520	0.105	2.168
2393	1571.121	1283.094	19.447	0.151	13.668	0.099	17.213	0.125	2.234
746	769.684	1279.080	18.461	0.115	13.669	0.091	16.732	0.098	1.729
22	40.482	694.810	19.612	0.123	13.669	0.119	17.052	0.117	2.560
471	586.557	636.001	19.239	0.101	13.670	0.093	17.121	0.107	2.118
1688	1216.332	837.054	18.764	0.083	13.671	0.090	16.689	0.082	2.075
520	624.292	482.511	19.075	0.137	13.672	0.092	17.095	0.097	1.979
979	887.214	330.466	19.214	0.135	13.672	0.092	17.128	0.119	2.086

2146	1425.001	917.246	19.701	0.130	13.673	0.080	17.385	0.121	2.316
1736	1239.153	1267.113	18.995	0.128	13.674	0.080	16.869	0.093	2.126
2637	1766.734	795.454	18.962	0.125	13.675	0.101	16.840	0.092	2.122
119	217.580	1333.129	19.390	0.108	13.676	0.115	17.055	0.121	2.335
1763	1251.039	348.743	19.346	0.098	13.677	0.086	17.326	0.119	2.020
884	837.361	1257.608	18.920	0.094	13.677	0.083	16.749	0.087	2.170
875	834.695	811.352	19.356	0.182	13.679	0.111	17.188	0.129	2.168
441	568.326	609.586	18.952	0.072	13.680	0.096	16.896	0.099	2.057
2865	2109.314	894.264	19.445	0.140	13.681	0.119	17.177	0.120	2.268
1174	976.199	1487.169	19.295	0.105	13.684	0.093	17.221	0.109	2.074
1952	1329.725	1046.004	19.643	0.165	13.684	0.083	17.353	0.129	2.290
2529	1671.729	869.571	18.904	0.139	13.685	0.096	16.737	0.095	2.167
2741	1902.056	1287.971	18.501	0.102	13.686	0.104	16.388	0.095	2.113
1658	1203.578	410.958	19.398	0.113	13.688	0.083	17.222	0.116	2.176
2428	1593.681	602.024	18.530	0.103	13.688	0.091	16.370	0.073	2.160
2691	1839.436	1098.281	18.624	0.115	13.688	0.100	16.395	0.092	2.229
2801	1984.139	629.012	19.404	0.114	13.689	0.120	17.120	0.122	2.285
125	220.611	1015.172	19.438	0.169	13.690	0.110	17.146	0.116	2.291
2226	1471.161	1048.215	19.600	0.153	13.691	0.086	17.238	0.126	2.362
2047	1374.842	379.302	19.427	0.151	13.691	0.091	17.210	0.109	2.218
589	675.094	749.539	19.113	0.085	13.692	0.096	17.142	0.133	1.971
1761	1249.558	716.150	18.626	0.116	13.694	0.086	16.776	0.088	1.850
1753	1246.979	1075.244	19.629	0.174	13.695	0.096	17.366	0.131	2.263
748	770.009	769.366	19.577	0.173	13.696	0.102	17.250	0.132	2.326
905	849.389	680.987	18.708	0.111	13.696	0.096	16.611	0.084	2.098
2035	1369.383	786.545	19.634	0.166	13.697	0.084	17.399	0.131	2.235
2847	2074.971	332.299	19.324	0.114	13.697	0.126	17.152	0.124	2.172
181	314.819	645.955	19.345	0.160	13.697	0.109	17.160	0.131	2.185
483	598.296	261.724	18.824	0.096	13.697	0.104	16.754	0.089	2.070
1433	1105.514	1140.593	18.921	0.111	13.701	0.087	16.910	0.098	2.011
1127	955.093	1373.908	19.189	0.101	13.701	0.090	17.222	0.128	1.967
1522	1142.701	394.371	19.475	0.143	13.702	0.085	17.398	0.132	2.077
2558	1696.874	869.984	19.456	0.165	13.702	0.093	17.245	0.135	2.211
467	582.770	583.554	19.219	0.120	13.703	0.098	17.110	0.100	2.109
233	369.588	1023.205	19.637	0.141	13.703	0.104	17.349	0.139	2.288
2618	1751.963	347.242	18.670	0.092	13.706	0.100	16.613	0.094	2.058
785	789.047	1241.948	19.354	0.104	13.706	0.090	17.266	0.126	2.088
1564	1158.805	709.455	18.785	0.100	13.706	0.089	16.835	0.089	1.950
1132	956.968	601.658	19.746	0.214	13.709	0.102	17.426	0.137	2.320
2556	1694.965	1379.447	19.449	0.139	13.709	0.104	17.090	0.113	2.360
828	808.803	1117.399	19.264	0.125	13.709	0.088	17.085	0.114	2.179
1128	955.157	969.747	19.352	0.155	13.709	0.097	17.187	0.126	2.164
2649	1780.237	1261.664	19.377	0.131	13.712	0.103	17.195	0.125	2.182
1629	1188.941	374.239	19.800	0.112	13.714	0.087	17.469	0.141	2.331
1277	1027.496	938.149	18.919	0.124	13.714	0.103	16.776	0.105	2.143
2856	2088.772	905.869	19.282	0.135	13.714	0.114	17.240	0.127	2.042
2516	1663.803	636.937	19.712	0.131	13.714	0.090	17.398	0.128	2.314
1387	1078.649	859.498	18.887	0.128	13.717	0.132	16.454	0.134	2.433
1527	1144.805	237.526	19.376	0.189	13.718	0.090	17.251	0.128	2.126
1279	1028.541	1085.525	18.986	0.108	13.718	0.092	16.892	0.101	2.094
1680	1211.496	1106.609	18.781	0.130	13.718	0.090	16.646	0.085	2.135
373	512.613	348.321	19.616	0.137	13.724	0.108	17.336	0.132	2.280
921	856.931	980.070	19.233	0.114	13.724	0.101	17.139	0.115	2.094
1307	1044.193	870.912	18.934	0.112	13.726	0.098	16.479	0.119	2.455
1370	1068.938	1445.396	18.999	0.173	13.726	0.099	17.116	0.113	1.883
505	616.309	448.232	19.509	0.153	13.727	0.132	17.269	0.122	2.240
1217	998.525	883.383	19.020	0.108	13.728	0.100	16.928	0.103	2.092
2016	1359.208	184.105	18.935	0.140	13.728	0.114	16.777	0.119	2.158
944	870.173	1289.092	19.502	0.162	13.729	0.089	17.194	0.131	2.307
250	388.953	1012.764	18.775	0.100	13.730	0.104	16.786	0.100	1.989
2510	1656.478	921.723	19.380	0.101	13.730	0.095	17.192	0.118	2.188
1649	1197.572	921.084	19.652	0.198	13.732	0.091	16.840	0.118	2.812
1780	1257.722	972.467	19.056	0.140	13.733	0.086	16.938	0.089	2.117
2420	1589.359	1223.057	19.433	0.170	13.733	0.098	17.149	0.117	2.283
2359	1547.971	690.996	19.807	0.142	13.734	0.110	17.395	0.142	2.412
1896	1305.082	708.099	19.120	0.133	13.734	0.089	16.939	0.101	2.182
1313	1045.620	1282.665	19.094	0.159	13.736	0.108	16.916	0.108	2.177
412	546.352	301.571	19.413	0.136	13.736	0.107	17.294	0.132	2.119
2436	1601.587	1426.875	19.284	0.134	13.736	0.104	17.383	0.143	1.901
2059	1380.777	695.732	19.320	0.118	13.737	0.088	17.292	0.112	2.028
1117	950.903	1296.092	19.119	0.121	13.738	0.086	17.150	0.111	1.969
2819	2025.623	342.313	18.382	0.103	13.741	0.133	16.254	0.097	2.127
1959	1333.817	1192.483	19.415	0.148	13.741	0.085	17.251	0.122	2.164
2096	1399.961	586.580	19.471	0.126	13.743	0.087	17.327	0.119	2.144
2119	1410.647	233.348	19.427	0.144	13.743	0.095	17.275	0.128	2.152
2230	1473.856	248.665	18.813	0.094	13.743	0.104	16.743	0.094	2.070
343	487.826	335.949	19.272	0.117	13.744	0.102	17.254	0.128	2.018
429	555.309	1121.330	19.462	0.113	13.744	0.094	17.261	0.120	2.201
2198	1457.189	1508.389	18.796	0.091	13.745	0.097	16.786	0.091	2.010
1673	1210.215	966.975	19.359	0.165	13.746	0.083	17.311	0.122	2.048
1122	951.868	827.634	19.414	0.148	13.748	0.100	17.258	0.128	2.156
120	218.769	304.657	19.264	0.118	13.748	0.122	17.084	0.134	2.180

2058	1380.641	786.734	19.185	0.118	13.752	0.087	17.054	0.102	2.131
269	414.985	576.780	19.494	0.116	13.754	0.097	17.275	0.126	2.219
597	681.667	678.308	18.994	0.115	13.757	0.093	16.924	0.103	2.070
2492	1646.107	1022.150	19.575	0.112	13.758	0.092	17.329	0.149	2.246
1773	1254.163	570.658	19.266	0.138	13.758	0.103	16.993	0.135	2.273
2844	2069.888	1142.162	19.914	0.164	13.759	0.120	17.335	0.142	2.579
1053	922.511	948.039	19.339	0.145	13.760	0.096	17.248	0.124	2.090
2565	1702.019	1290.957	18.703	0.127	13.761	0.114	16.723	0.111	1.980
2446	1605.993	295.967	19.489	0.124	13.761	0.094	17.345	0.127	2.144
1484	1131.498	1120.469	19.373	0.172	13.761	0.081	17.216	0.123	2.157
1719	1233.346	1254.342	19.285	0.132	13.761	0.092	17.218	0.127	2.067
1095	940.218	641.429	19.753	0.138	13.762	0.084	17.535	0.139	2.218
2573	1710.441	1420.063	19.130	0.179	13.764	0.114	16.998	0.117	2.132
1694	1220.630	1473.531	19.354	0.173	13.765	0.094	17.353	0.127	2.001
1188	980.574	1495.649	18.885	0.081	13.767	0.099	16.868	0.096	2.017
1033	912.937	1288.955	18.835	0.121	13.770	0.096	16.855	0.099	1.980
1470	1122.715	970.779	19.529	0.179	13.770	0.090	17.300	0.129	2.230
96	179.753	780.253	18.885	0.184	13.771	0.114	16.959	0.127	1.926
2630	1759.563	1112.114	19.648	0.158	13.772	0.106	17.323	0.136	2.324
338	479.993	1230.065	19.438	0.134	13.773	0.100	17.161	0.114	2.276
202	339.523	619.161	19.383	0.117	13.774	0.109	17.283	0.125	2.101
2445	1605.492	700.829	19.589	0.083	13.774	0.094	17.373	0.127	2.216
317	460.394	771.965	19.448	0.121	13.775	0.112	17.242	0.120	2.207
208	345.028	207.699	19.017	0.137	13.775	0.111	16.870	0.097	2.147
2810	2009.761	1267.898	18.904	0.127	13.775	0.120	16.813	0.125	2.092
111	209.176	555.531	18.830	0.103	13.775	0.118	16.665	0.104	2.165
2073	1386.582	913.939	19.643	0.188	13.776	0.087	17.508	0.119	2.135
599	682.209	771.016	18.950	0.117	13.779	0.095	16.893	0.099	2.058
1110	948.369	1273.918	19.049	0.096	13.780	0.089	16.918	0.105	2.131
168	300.889	1162.201	19.491	0.102	13.780	0.110	17.301	0.120	2.190
547	646.969	1254.543	18.923	0.102	13.781	0.091	16.777	0.088	2.146
302	451.134	1466.774	18.768	0.108	13.781	0.115	16.636	0.095	2.133
960	878.866	284.491	19.344	0.092	13.783	0.095	17.229	0.116	2.115
1466	1120.622	1004.244	19.115	0.108	13.784	0.104	17.001	0.109	2.114
2746	1906.450	1013.602	19.342	0.149	13.785	0.113	17.318	0.133	2.024
683	734.851	467.336	18.813	0.110	13.786	0.086	17.314	0.109	1.499
967	880.871	1067.479	19.046	0.119	13.789	0.103	16.975	0.114	2.071
2489	1644.389	1125.354	19.569	0.156	13.789	0.098	17.402	0.130	2.167
45	91.438	351.840	18.812	0.113	13.791	0.115	16.795	0.113	2.017
762	776.853	613.592	19.305	0.089	13.791	0.086	17.324	0.126	1.982
2372	1557.350	292.215	18.910	0.103	13.792	0.106	16.913	0.100	1.997
517	623.131	1168.865	19.682	0.156	13.793	0.087	17.365	0.137	2.317
830	808.939	711.992	19.398	0.120	13.794	0.096	17.275	0.123	2.123
1425	1100.429	866.388	19.484	0.100	13.795	0.101	16.847	0.121	2.638
2498	1648.688	692.223	19.144	0.129	13.798	0.090	16.985	0.105	2.159
225	361.799	1152.061	18.821	0.151	13.799	0.113	16.867	0.117	1.953
1402	1090.178	1367.416	19.137	0.173	13.799	0.094	17.209	0.161	1.928
1226	1003.618	1302.432	19.468	0.114	13.799	0.086	17.196	0.113	2.272
1654	1201.515	885.381	19.191	0.119	13.800	0.099	16.526	0.100	2.666
1438	1106.869	986.565	19.343	0.167	13.801	0.093	17.322	0.129	2.021
34	72.707	992.403	19.256	0.140	13.801	0.115	17.139	0.131	2.117
459	578.077	1391.901	19.244	0.081	13.801	0.103	17.121	0.104	2.124
1810	1270.859	940.173	19.114	0.172	13.802	0.089	17.146	0.114	1.967
2745	1906.277	695.769	19.540	0.221	13.803	0.110	17.333	0.152	2.206
1147	966.301	1230.690	19.650	0.173	13.804	0.084	17.420	0.119	2.230
2809	2002.854	1338.342	19.086	0.146	13.804	0.117	17.091	0.137	1.995
894	844.721	1104.732	20.163	0.118	13.804	0.098	17.580	0.139	2.583
1661	1204.054	431.191	19.083	0.133	13.805	0.091	16.931	0.099	2.152
817	804.203	904.084	19.058	0.188	13.805	0.115	16.843	0.104	2.215
1924	1318.928	698.947	19.328	0.154	13.806	0.097	17.056	0.119	2.272
2441	1603.680	855.697	19.520	0.218	13.806	0.085	17.425	0.132	2.095
2326	1527.451	1361.422	19.462	0.127	13.806	0.094	17.352	0.124	2.110
378	517.061	585.725	18.521	0.103	13.807	0.101	16.931	0.108	1.589
2764	1930.578	1269.118	19.589	0.150	13.810	0.120	17.368	0.135	2.221
2697	1847.656	395.072	19.620	0.171	13.810	0.109	17.327	0.128	2.293
1477	1127.789	503.294	19.495	0.123	13.811	0.086	17.339	0.135	2.157
171	304.223	1155.259	19.391	0.100	13.812	0.111	17.224	0.118	2.167
2828	2037.965	622.183	19.790	0.115	13.812	0.116	17.352	0.133	2.438
2674	1822.607	1418.587	19.303	0.114	13.813	0.116	17.210	0.116	2.093
289	441.887	782.509	18.622	0.097	13.813	0.112	16.833	0.107	1.788
1075	930.553	833.208	19.492	0.122	13.813	0.109	17.283	0.125	2.210
1913	1315.381	989.223	19.409	0.169	13.813	0.093	17.273	0.133	2.137
568	661.551	1374.982	19.408	0.144	13.813	0.104	17.243	0.126	2.165
1422	1099.498	1247.381	19.017	0.082	13.814	0.090	16.925	0.096	2.092
1380	1075.913	1495.944	19.525	0.155	13.815	0.095	17.290	0.099	2.235
1088	935.656	443.125	19.543	0.132	13.816	0.088	17.385	0.127	2.157
2513	1661.092	411.417	19.914	0.130	13.818	0.101	17.508	0.138	2.406
1306	1044.082	1174.402	19.559	0.145	13.818	0.097	17.251	0.119	2.308
2297	1512.503	983.143	19.784	0.123	13.821	0.089	17.318	0.116	2.466
2412	1583.652	866.791	19.780	0.186	13.822	0.088	17.417	0.107	2.364
2152	1429.187	639.270	19.579	0.119	13.823	0.088	17.363	0.134	2.216
866	831.000	887.436	19.299	0.124	13.823	0.107	17.259	0.128	2.040

2107	1405.609	894.149	19.524	0.106	13.824	0.094	17.338	0.124	2.186
1625	1187.002	528.966	19.424	0.127	13.824	0.090	17.423	0.133	2.001
320	465.536	708.748	19.264	0.116	13.824	0.102	17.288	0.139	1.976
2183	1449.075	1007.330	18.987	0.122	13.824	0.090	16.862	0.090	2.125
778	783.805	318.057	19.424	0.114	13.825	0.096	17.288	0.118	2.136
1065	927.517	466.739	19.623	0.121	13.825	0.090	17.429	0.134	2.194
2145	1424.210	751.231	19.707	0.092	13.827	0.098	17.439	0.136	2.268
114	211.113	1442.524	18.048	0.113	13.827	0.120	16.034	0.095	2.013
1248	1011.724	1367.603	19.770	0.174	13.828	0.094	17.317	0.117	2.453
636	706.479	581.963	19.489	0.136	13.828	0.093	17.297	0.124	2.192
2017	1359.318	771.999	19.524	0.121	13.830	0.097	17.265	0.130	2.259
924	858.868	910.754	19.315	0.095	13.830	0.109	17.376	0.143	1.939
2566	1703.390	254.893	19.137	0.113	13.831	0.113	17.194	0.130	1.943
2252	1488.474	1314.927	18.856	0.119	13.833	0.104	16.709	0.090	2.147
1936	1321.692	1087.531	19.658	0.138	13.833	0.089	17.416	0.142	2.242
843	817.889	827.376	19.207	0.110	13.834	0.119	17.104	0.122	2.102
2374	1557.826	1158.396	19.016	0.152	13.835	0.102	16.873	0.094	2.143
1765	1251.377	1059.761	19.570	0.169	13.835	0.087	17.515	0.141	2.055
2708	1857.895	1019.806	19.433	0.117	13.835	0.118	17.291	0.133	2.142
1499	1136.447	485.600	19.528	0.135	13.836	0.087	17.341	0.120	2.187
2850	2082.989	645.762	19.374	0.138	13.836	0.127	17.309	0.129	2.065
1249	1012.349	719.741	19.355	0.214	13.836	0.096	17.442	0.158	1.913
474	589.508	765.818	18.984	0.112	13.836	0.098	16.925	0.105	2.059
2347	1542.811	914.093	19.642	0.136	13.838	0.087	17.428	0.121	2.215
239	377.055	170.738	18.396	0.089	13.838	0.126	16.330	0.096	2.067
2617	1751.313	409.141	18.915	0.102	13.840	0.110	16.807	0.098	2.108
556	651.456	514.736	19.476	0.095	13.842	0.098	17.225	0.132	2.250
2593	1725.287	206.342	19.343	0.117	13.842	0.119	17.335	0.152	2.008
385	522.934	330.298	19.439	0.200	13.843	0.106	17.282	0.122	2.157
2062	1381.583	917.395	18.815	0.114	13.845	0.098	16.738	0.088	2.077
1048	920.534	1271.346	18.993	0.129	13.846	0.097	17.021	0.107	1.972
345	490.199	1359.582	19.229	0.113	13.847	0.098	17.165	0.100	2.064
94	178.553	1062.077	18.697	0.098	13.848	0.120	16.669	0.106	2.028
1419	1097.687	554.412	19.314	0.146	13.849	0.092	17.303	0.136	2.011
2302	1516.490	228.585	19.666	0.184	13.851	0.116	17.471	0.158	2.195
1361	1064.206	1399.252	19.251	0.098	13.851	0.096	17.108	0.106	2.143
247	387.233	878.413	19.080	0.149	13.852	0.106	17.096	0.127	1.984
854	826.542	637.403	18.928	0.148	13.854	0.096	16.942	0.098	1.986
216	357.030	1130.737	19.479	0.116	13.854	0.109	17.297	0.103	2.182
1915	1315.602	342.639	19.529	0.166	13.854	0.099	17.362	0.129	2.167
2255	1490.733	930.531	18.689	0.112	13.854	0.088	16.640	0.080	2.049
849	819.567	959.424	19.081	0.135	13.855	0.102	17.024	0.119	2.057
1948	1326.809	1464.789	19.184	0.116	13.855	0.100	16.978	0.099	2.206
1388	1079.124	1430.338	19.613	0.159	13.855	0.103	17.486	0.145	2.126
891	841.542	871.205	19.434	0.137	13.855	0.104	17.468	0.144	1.966
165	297.579	1334.309	19.404	0.118	13.857	0.123	17.228	0.125	2.175
2327	1528.949	287.342	19.084	0.104	13.858	0.104	16.950	0.106	2.134
2472	1622.430	720.393	19.627	0.205	13.858	0.095	17.300	0.114	2.327
1820	1275.105	888.155	19.340	0.125	13.858	0.109	17.199	0.133	2.140
2419	1587.080	660.860	19.182	0.088	13.861	0.098	17.042	0.103	2.140
1617	1183.176	1209.122	19.054	0.114	13.863	0.095	16.973	0.090	2.081
2788	1960.014	1045.216	18.873	0.134	13.863	0.119	16.692	0.102	2.181
903	848.165	640.592	19.238	0.139	13.864	0.101	17.215	0.121	2.023
2711	1860.006	598.358	19.588	0.117	13.864	0.112	17.389	0.131	2.199
940	869.195	978.321	19.227	0.128	13.864	0.106	17.165	0.109	2.062
1630	1189.003	312.856	19.665	0.149	13.865	0.100	17.347	0.125	2.318
2210	1466.540	1328.659	19.630	0.141	13.865	0.097	17.447	0.144	2.183
403	534.912	649.766	19.195	0.137	13.866	0.104	17.295	0.119	1.900
1938	1322.293	1341.725	18.998	0.168	13.866	0.097	16.928	0.090	2.070
1594	1175.280	1328.515	19.679	0.131	13.867	0.089	17.441	0.124	2.238
161	287.052	566.901	19.272	0.130	13.868	0.120	17.097	0.110	2.176
988	890.184	1027.648	19.117	0.092	13.868	0.105	17.030	0.110	2.087
187	324.361	1333.553	18.738	0.088	13.868	0.115	16.740	0.101	1.998
1710	1230.482	809.058	19.589	0.168	13.868	0.098	17.353	0.137	2.237
2607	1738.093	1158.599	18.833	0.130	13.872	0.113	16.723	0.101	2.109
2134	1420.788	705.003	19.729	0.193	13.873	0.097	17.417	0.130	2.312
2215	1467.944	631.669	19.076	0.145	13.876	0.093	17.025	0.104	2.052
1878	1295.029	229.956	19.046	0.110	13.876	0.101	16.967	0.107	2.080
1862	1289.971	706.253	19.461	0.180	13.877	0.098	17.339	0.139	2.122
1968	1335.700	684.058	19.201	0.193	13.877	0.110	16.961	0.112	2.240
1099	941.105	1050.736	19.148	0.141	13.878	0.104	17.081	0.118	2.067
1211	996.568	545.349	19.272	0.121	13.879	0.086	17.105	0.108	2.167
321	465.706	529.810	19.054	0.155	13.880	0.121	17.009	0.109	2.045
2514	1661.716	1448.157	18.755	0.131	13.881	0.112	16.660	0.110	2.095
1316	1046.121	485.821	19.522	0.116	13.884	0.086	17.389	0.126	2.132
1786	1260.129	1111.651	19.760	0.194	13.884	0.091	17.440	0.112	2.320
680	733.895	1423.475	19.278	0.135	13.885	0.099	17.231	0.111	2.047
617	693.538	1350.725	18.818	0.127	13.885	0.105	16.898	0.119	1.920
1039	915.191	1233.758	19.086	0.106	13.886	0.096	17.031	0.098	2.056
1963	1334.207	1247.255	19.080	0.109	13.886	0.095	17.107	0.112	1.973
67	133.381	1045.896	18.601	0.113	13.887	0.123	16.681	0.116	1.920
634	705.514	1379.673	18.932	0.078	13.887	0.102	16.785	0.098	2.147

2229	1473.245	788.346	19.269	0.109	13.888	0.093	17.069	0.105	2.200
2203	1461.304	363.022	18.977	0.153	13.889	0.101	16.831	0.105	2.146
855	826.801	714.821	19.105	0.127	13.889	0.098	16.952	0.099	2.153
482	597.320	257.753	18.843	0.093	13.891	0.122	16.674	0.092	2.169
1782	1258.812	1309.847	19.122	0.152	13.891	0.115	17.048	0.110	2.074
2683	1828.790	1015.337	19.551	0.193	13.892	0.115	17.483	0.142	2.068
465	582.341	443.146	19.488	0.157	13.894	0.113	17.372	0.122	2.117
430	556.511	1190.026	18.947	0.097	13.894	0.102	16.858	0.097	2.089
307	452.979	506.447	18.985	0.111	13.896	0.117	16.907	0.108	2.078
2661	1802.699	1529.629	19.030	0.117	13.896	0.110	16.805	0.104	2.225
741	766.944	1169.563	19.689	0.178	13.897	0.095	17.430	0.122	2.259
2488	1638.640	1030.968	19.197	0.111	13.898	0.112	17.271	0.114	1.925
752	772.846	647.973	19.528	0.103	13.899	0.100	17.365	0.126	2.162
2669	1815.142	1376.784	19.102	0.132	13.899	0.119	16.883	0.111	2.219
440	568.264	682.362	19.407	0.175	13.900	0.107	17.292	0.118	2.115
2069	1384.004	1274.819	19.385	0.146	13.901	0.094	17.255	0.116	2.130
2050	1375.557	613.318	19.111	0.131	13.903	0.092	16.957	0.095	2.154
1554	1154.094	889.919	18.421	0.101	13.903	0.116	16.416	0.082	2.005
2730	1892.951	1261.900	19.509	0.131	13.903	0.113	17.409	0.133	2.100
783	786.318	1153.120	19.519	0.125	13.904	0.098	17.358	0.115	2.160
1420	1097.872	717.232	19.963	0.198	13.905	0.095	17.532	0.130	2.431
600	682.458	1124.773	19.022	0.094	13.905	0.092	16.990	0.099	2.032
1485	1131.872	939.312	19.320	0.143	13.905	0.099	17.209	0.112	2.111
720	757.251	1364.654	19.534	0.138	13.905	0.113	17.354	0.116	2.180
2530	1672.129	527.469	19.637	0.134	13.905	0.103	17.315	0.110	2.322
2267	1498.373	644.365	19.206	0.122	13.906	0.096	17.005	0.113	2.201
2352	1544.551	1265.791	19.561	0.170	13.907	0.103	17.434	0.128	2.128
473	588.660	891.390	19.827	0.168	13.909	0.101	17.517	0.145	2.310
1734	1237.742	229.442	19.115	0.174	13.910	0.106	17.085	0.123	2.030
2425	1592.218	477.748	19.780	0.141	13.911	0.106	17.448	0.129	2.332
2689	1836.682	875.488	18.599	0.121	13.912	0.158	16.546	0.109	2.053
1853	1287.430	345.538	19.162	0.115	13.913	0.108	17.014	0.112	2.148
36	75.166	1029.219	18.567	0.118	13.914	0.115	16.389	0.103	2.178
69	136.660	289.902	19.042	0.103	13.914	0.133	16.885	0.125	2.157
902	848.163	676.362	19.535	0.168	13.915	0.096	17.459	0.154	2.076
80	161.897	372.390	18.882	0.135	13.915	0.127	16.789	0.111	2.094
2433	1599.916	842.537	19.143	0.159	13.915	0.100	17.002	0.099	2.141
2620	1754.718	431.795	18.901	0.119	13.916	0.112	16.806	0.099	2.095
836	811.751	1039.545	19.539	0.149	13.916	0.105	17.385	0.141	2.154
2354	1546.513	943.684	18.792	0.107	13.920	0.095	16.663	0.079	2.128
1410	1093.981	1148.698	19.702	0.171	13.920	0.099	17.490	0.155	2.212
1295	1035.074	917.021	19.235	0.125	13.922	0.115	16.652	0.115	2.583
1230	1004.565	1214.284	20.012	0.170	13.922	0.093	17.535	0.154	2.477
206	343.539	1050.087	18.916	0.099	13.922	0.121	16.872	0.116	2.044
1276	1027.142	1171.238	19.958	0.130	13.922	0.097	17.448	0.118	2.510
918	854.907	371.781	19.761	0.159	13.923	0.098	17.591	0.151	2.171
2591	1723.945	1266.338	18.962	0.164	13.924	0.104	17.137	0.113	1.824
279	430.751	728.507	19.380	0.100	13.924	0.115	17.336	0.129	2.044
1885	1299.085	646.541	19.574	0.139	13.925	0.108	17.375	0.131	2.199
1861	1289.500	314.338	19.076	0.130	13.925	0.117	17.086	0.110	1.990
1346	1058.088	373.555	19.192	0.152	13.925	0.095	16.959	0.099	2.234
1612	1182.161	1245.133	19.716	0.124	13.928	0.093	17.704	0.163	2.012
447	572.961	899.590	18.882	0.096	13.929	0.110	17.180	0.109	1.702
1040	916.001	961.279	19.274	0.103	13.930	0.112	17.079	0.111	2.195
1962	1334.124	895.129	19.185	0.155	13.930	0.094	17.080	0.101	2.105
1385	1078.313	253.178	19.172	0.091	13.931	0.110	17.014	0.105	2.158
2454	1609.809	544.801	19.597	0.202	13.931	0.128	17.299	0.139	2.298
802	795.887	1164.627	19.716	0.167	13.932	0.101	17.469	0.148	2.247
2178	1445.764	650.932	19.939	0.246	13.933	0.092	17.708	0.183	2.231
1868	1291.729	1139.898	19.237	0.125	13.934	0.092	17.091	0.110	2.146
2435	1601.375	1017.929	19.836	0.187	13.934	0.103	17.519	0.130	2.317
1025	906.212	1003.246	19.447	0.128	13.935	0.111	17.398	0.137	2.049
1319	1046.982	701.981	19.798	0.132	13.935	0.122	17.441	0.151	2.357
2849	2082.177	915.801	19.558	0.152	13.935	0.123	17.256	0.139	2.302
1570	1161.097	750.726	19.271	0.094	13.935	0.105	17.157	0.119	2.114
976	886.168	283.179	19.557	0.142	13.935	0.100	17.399	0.156	2.157
1348	1060.164	1249.327	19.134	0.098	13.935	0.092	17.050	0.105	2.083
747	769.813	531.368	19.463	0.160	13.937	0.094	17.395	0.124	2.068
2548	1688.288	766.493	19.565	0.200	13.938	0.100	17.465	0.130	2.100
1161	970.952	600.342	19.343	0.136	13.939	0.095	17.275	0.120	2.068
1717	1232.800	1180.002	19.346	0.157	13.940	0.088	17.366	0.136	1.980
2600	1735.226	531.801	18.896	0.142	13.940	0.111	16.807	0.104	2.089
1863	1291.017	731.619	19.548	0.165	13.940	0.096	17.429	0.133	2.119
1879	1295.248	432.340	19.848	0.126	13.942	0.097	17.454	0.133	2.394
48	95.840	336.229	18.875	0.096	13.942	0.138	16.904	0.114	1.971
1112	949.383	1125.949	19.689	0.128	13.942	0.098	17.544	0.120	2.145
478	596.365	815.207	19.275	0.107	13.943	0.101	17.406	0.164	1.869
596	681.592	809.756	20.092	0.282	13.944	0.109	17.486	0.143	2.606
2824	2036.461	1008.791	19.424	0.166	13.945	0.126	17.211	0.128	2.213
1812	1271.170	1052.578	19.209	0.112	13.946	0.106	17.116	0.111	2.093
2082	1392.460	292.948	19.756	0.172	13.946	0.111	17.482	0.145	2.274
183	321.375	570.496	18.958	0.120	13.946	0.114	16.897	0.105	2.061

1921	1318.573	1002.714	19.298	0.119	13.946	0.093	17.203	0.106	2.095
2392	1570.455	1037.220	18.925	0.128	13.946	0.099	16.760	0.078	2.165
1166	973.977	167.439	19.052	0.097	13.948	0.114	16.993	0.105	2.059
810	799.757	931.289	19.478	0.095	13.949	0.109	17.424	0.145	2.054
2776	1947.939	692.007	19.036	0.115	13.949	0.124	16.804	0.107	2.231
1191	981.355	602.737	18.694	0.118	13.949	0.098	16.584	0.080	2.109
2411	1583.640	834.284	19.332	0.180	13.950	0.099	17.160	0.111	2.172
2541	1684.155	1214.667	20.012	0.235	13.950	0.115	17.484	0.145	2.528
1757	1247.745	252.384	19.110	0.151	13.951	0.119	17.049	0.122	2.061
1463	1119.288	619.256	19.370	0.136	13.952	0.103	17.088	0.102	2.282
2097	1400.918	716.852	19.288	0.108	13.952	0.092	17.102	0.101	2.185
2384	1566.019	787.060	19.307	0.116	13.952	0.092	17.121	0.104	2.185
1285	1030.213	1414.494	19.660	0.200	13.953	0.114	17.511	0.122	2.149
311	453.521	1068.207	19.602	0.112	13.953	0.114	17.452	0.123	2.150
946	872.492	199.500	19.360	0.158	13.953	0.113	17.095	0.106	2.265
2800	1983.105	640.232	19.442	0.094	13.955	0.128	17.392	0.147	2.050
954	875.955	950.573	19.883	0.123	13.957	0.124	17.591	0.142	2.292
1342	1056.583	505.528	19.803	0.181	13.957	0.092	17.543	0.151	2.260
740	766.070	1187.005	18.944	0.115	13.959	0.105	17.443	0.145	1.501
1870	1292.656	1127.327	19.795	0.143	13.960	0.098	17.715	0.188	2.080
569	662.627	253.106	19.064	0.105	13.960	0.112	16.963	0.126	2.101
2032	1367.287	326.166	19.730	0.144	13.961	0.100	17.427	0.134	2.303
2568	1705.865	762.421	19.381	0.125	13.961	0.109	17.363	0.136	2.018
883	837.162	1404.819	19.319	0.111	13.962	0.110	17.224	0.117	2.094
354	495.435	382.058	19.644	0.165	13.962	0.116	17.398	0.143	2.246
2237	1476.740	529.847	19.853	0.187	13.963	0.099	17.488	0.125	2.365
1545	1149.322	302.401	19.461	0.175	13.963	0.098	17.412	0.130	2.049
1980	1340.907	742.434	19.753	0.180	13.965	0.101	17.484	0.130	2.269
906	849.538	207.940	19.280	0.127	13.967	0.130	17.125	0.113	2.156
1904	1308.076	397.814	19.857	0.172	13.967	0.102	17.544	0.143	2.313
2496	1647.618	897.282	19.101	0.156	13.967	0.117	17.045	0.116	2.056
2499	1649.034	401.503	19.556	0.174	13.969	0.109	17.504	0.130	2.051
825	806.498	615.261	19.747	0.141	13.970	0.110	17.394	0.123	2.353
2010	1357.410	692.902	19.253	0.155	13.970	0.096	17.041	0.103	2.212
1650	1198.015	1155.985	19.694	0.140	13.971	0.099	17.579	0.152	2.115
2815	2016.901	670.742	19.779	0.246	13.971	0.122	17.435	0.139	2.344
2034	1369.014	662.613	19.316	0.169	13.971	0.096	17.138	0.107	2.178
2363	1551.648	283.294	19.316	0.123	13.972	0.111	17.086	0.110	2.231
284	436.788	1220.940	19.142	0.094	13.972	0.119	16.980	0.098	2.162
912	851.651	738.310	19.520	0.125	13.976	0.107	17.418	0.133	2.103
1311	1044.747	1254.955	19.279	0.120	13.976	0.097	17.162	0.106	2.117
1556	1155.546	524.303	19.602	0.169	13.978	0.087	17.573	0.135	2.029
2319	1525.606	314.340	19.145	0.099	13.980	0.120	17.042	0.108	2.103
355	495.501	1438.889	19.526	0.158	13.980	0.115	17.500	0.167	2.026
1035	914.239	271.190	19.115	0.101	13.981	0.110	17.021	0.110	2.094
660	722.834	457.289	19.441	0.169	13.983	0.102	17.304	0.116	2.137
2138	1421.700	881.808	19.509	0.168	13.983	0.107	17.356	0.125	2.154
2521	1665.961	310.673	19.190	0.105	13.983	0.112	17.055	0.124	2.135
2115	1409.109	336.128	19.439	0.149	13.984	0.110	17.361	0.128	2.078
2739	1900.800	846.711	19.252	0.119	13.985	0.119	16.953	0.114	2.299
2852	2086.551	690.152	19.481	0.166	13.985	0.136	17.454	0.137	2.027
2123	1416.117	854.189	19.918	0.137	13.986	0.097	17.512	0.145	2.406
1725	1235.556	1443.939	19.483	0.118	13.986	0.097	17.525	0.119	1.958
706	750.756	1419.358	18.147	0.117	13.987	0.129	16.263	0.093	1.885
2813	2012.495	957.302	19.278	0.123	13.988	0.119	17.289	0.132	1.989
1592	1174.317	1171.107	19.577	0.127	13.990	0.103	17.583	0.160	1.994
280	430.825	452.270	19.596	0.141	13.991	0.117	17.378	0.124	2.218
949	874.036	822.080	19.558	0.178	13.992	0.121	17.451	0.137	2.107
909	849.844	792.445	19.456	0.108	13.992	0.109	17.451	0.147	2.005
245	383.186	215.424	19.496	0.096	13.992	0.121	17.356	0.113	2.141
1149	966.552	991.678	19.240	0.162	13.993	0.109	17.137	0.113	2.103
651	717.161	743.056	19.645	0.156	13.993	0.104	17.630	0.137	2.015
1460	1117.542	199.448	19.246	0.120	13.994	0.116	17.074	0.113	2.171
195	332.976	1257.242	19.490	0.157	13.994	0.116	17.412	0.120	2.078
1177	977.340	913.733	19.632	0.213	13.995	0.113	17.483	0.152	2.148
1421	1098.220	633.733	19.529	0.181	13.995	0.105	17.731	0.193	1.798
401	534.258	859.975	20.242	0.242	13.996	0.109	17.641	0.145	2.602
716	755.641	878.559	19.614	0.116	13.996	0.113	17.517	0.149	2.097
545	646.003	341.033	19.212	0.120	13.997	0.113	17.117	0.119	2.095
2063	1381.677	1299.722	19.088	0.131	13.997	0.110	17.010	0.106	2.078
341	482.303	441.376	19.327	0.086	13.997	0.114	17.121	0.116	2.206
1136	959.724	1013.977	19.504	0.141	13.998	0.107	17.430	0.140	2.074
2782	1953.798	928.961	19.937	0.211	13.999	0.121	17.521	0.143	2.416

C. WMO EMISSION DATA

The following data tables contain the emission objects selected from the WMO observations. These tables give the identifier assigned the star from DAOPhot, the x and y coordinates of the star, the corrected V magnitude and the Hα index.

C.1 NGC 2244

ID	X	Y	V	N-W
1948	1611.990	928.347	7.975	1.839
1174	1165.272	1445.810	7.985	1.801
1264	1220.646	657.376	8.569	1.860
1840	1533.320	482.633	9.846	1.210
837	968.867	518.613	10.393	1.124
701	867.782	1037.848	10.430	1.659
738	898.216	648.189	10.924	1.393
192	326.279	-157.048	11.292	1.879
1771	1496.393	793.789	11.419	1.484
2161	1797.416	628.660	11.474	1.744
359	570.561	1216.269	11.496	1.869
487	690.534	403.054	11.660	1.869
404	614.723	994.489	11.907	1.760
1028	1081.175	686.712	12.286	1.570
2203	1838.562	894.195	12.335	1.629
269	461.486	624.891	12.344	1.731
1309	1247.537	810.773	12.443	1.549
717	879.722	1391.328	12.477	1.727
1773	1497.873	1515.324	12.535	1.562
299	497.028	920.217	12.736	1.732
308	512.209	804.686	12.743	1.445
965	1048.926	1228.660	12.816	1.687
612	792.429	1345.308	12.835	1.707
756	911.532	1348.190	12.851	1.732
97	176.796	613.285	12.891	1.656
2431	2207.155	611.292	12.939	1.558
626	808.425	-68.147	12.963	1.562
268	461.111	1180.690	12.964	1.326
351	558.902	490.308	12.967	1.702
370	580.966	1100.414	12.970	1.554
637	817.755	1089.995	12.977	1.305
1607	1398.123	1487.936	13.017	1.392
305	508.405	551.130	13.102	1.446
1394	1284.861	871.881	13.257	1.202
471	677.130	1125.253	13.348	1.230
307	511.420	933.705	13.363	1.210
330	533.257	942.519	13.428	1.436
322	519.737	670.764	13.449	1.412
1809	1519.757	646.056	13.570	1.365
1520	1346.875	778.468	13.584	1.250
656	830.687	1383.584	13.610	1.292
1537	1356.119	1146.764	13.704	1.447
1411	1295.104	1130.174	13.705	1.364
251	435.078	716.827	13.706	0.676
1265	1221.822	683.381	13.828	1.271
423	632.212	403.764	13.830	1.158
1910	1583.357	853.135	13.900	1.440

335	537.994	911.065	13.922	1.249
357	566.673	650.728	13.924	1.438
1407	1290.915	821.022	13.948	1.321
611	791.322	651.543	13.969	1.362
1260	1217.666	1289.668	13.970	1.386
1474	1325.309	1294.980	14.255	0.830
276	473.223	654.194	14.331	0.580
2217	1851.884	680.343	14.408	0.863
248	431.994	656.200	14.431	0.676
650	827.608	1296.681	14.450	0.733
429	639.623	614.849	14.454	0.972
1695	1446.783	751.781	14.469	0.980
517	720.005	1115.658	14.552	0.827
377	589.817	1287.112	14.615	0.821
577	769.117	1131.218	14.658	0.499
406	617.058	1113.793	14.796	0.764
1404	1289.641	931.666	14.812	0.696
409	618.418	445.559	14.842	0.604
707	871.776	1357.380	14.899	0.944
535	734.669	400.920	14.915	0.950
590	779.543	1220.887	14.924	0.530
506	708.468	413.410	14.929	0.797
2251	1904.133	780.533	14.984	0.476

C.2 NGC 2264

ID	X	Y	V	N-W
881	1214.885	301.885	15.998	1.556
652	1006.476	1124.250	15.987	0.749
830	1160.789	896.584	15.967	1.353
957	1311.668	468.647	15.950	1.535
909	1244.102	593.145	15.897	1.556
982	1358.282	1149.377	15.868	1.168
831	1162.045	704.253	15.864	1.529
644	993.522	316.266	15.863	1.218
651	1003.652	1047.983	15.843	1.586
1318	1785.697	1175.043	15.837	1.392
725	1076.451	167.236	15.836	1.015
678	1035.048	774.255	15.821	1.510
332	491.522	981.357	15.819	1.499
843	1181.378	193.797	15.804	0.661
610	943.293	1007.863	15.782	0.908
343	506.378	1308.492	15.755	1.228
488	750.463	322.668	15.725	1.065
691	1047.745	1106.387	15.683	1.396
628	971.113	1110.731	15.667	1.592
326	481.169	1214.818	15.651	1.253
781	1124.736	372.657	15.621	1.570
484	738.921	1132.345	15.619	1.548
597	934.377	611.792	15.601	1.469
636	982.855	715.792	15.575	1.206
800	1139.293	1201.932	15.573	1.520
416	626.058	612.108	15.562	1.531
753	1103.739	357.545	15.547	1.409
726	1077.283	571.822	15.521	1.328
639	986.552	837.288	15.517	1.477
748	1099.610	859.634	15.510	1.424
682	1039.265	1083.259	15.475	1.149
692	1048.905	1147.653	15.420	1.306
665	1026.877	591.326	15.402	1.144
835	1170.458	922.604	15.368	1.304
1041	1469.557	802.505	15.367	1.565
761	1107.977	198.097	15.346	1.548
584	919.015	1255.695	15.337	0.460
832	1163.418	853.541	15.326	1.526
658	1020.596	1084.287	15.319	1.369
988	1368.821	895.174	15.318	1.603
1009	1406.179	364.676	15.267	0.904
826	1158.903	627.134	15.220	0.921
853	1195.880	237.961	15.217	0.809
614	945.310	1071.794	15.216	1.534
903	1236.902	1216.328	15.214	1.316
816	1149.117	212.004	15.213	0.928
579	910.605	1102.798	15.204	1.000

894	1226.270	955.250	15.191	1.501
746	1096.411	558.324	15.176	1.121
807	1143.609	1294.696	15.160	1.436
915	1248.181	536.217	15.150	1.284
820	1154.793	497.366	15.128	1.395
360	537.721	1644.740	15.107	1.582
347	514.459	1011.024	15.089	1.175
759	1107.513	121.779	15.060	1.596
606	940.071	325.456	15.058	1.236
1214	1676.116	1216.095	15.027	1.580
741	1090.156	614.799	15.011	1.093
913	1245.735	451.411	14.998	1.189
1242	1708.719	630.500	14.992	1.103
834	1167.408	460.564	14.834	1.080
521	817.084	425.543	14.790	1.616
869	1208.902	318.040	14.786	1.712
1536	2021.584	146.666	14.779	1.680
783	1128.189	596.525	14.717	0.740
599	934.755	545.649	14.672	1.603
899	1234.096	1039.935	14.657	1.693
680	1038.029	470.854	14.610	1.332
958	1312.021	199.283	14.576	1.152
729	1079.266	810.904	14.564	1.665
557	886.917	1618.243	14.558	1.623
672	1031.987	948.330	14.533	0.999
824	1158.215	198.191	14.450	1.261
770	1116.481	291.523	14.385	0.980
841	1180.070	198.242	14.289	1.701
714	1066.887	380.409	14.232	1.617
733	1081.436	1021.776	14.210	1.488
953	1307.625	1088.126	14.154	1.517
369	550.416	347.425	14.152	0.993
1060	1498.919	648.719	14.069	1.578
896	1229.403	926.233	14.055	0.805
823	1155.933	201.261	13.921	0.704
699	1055.292	310.252	13.876	1.536
854	1196.399	830.508	13.845	1.550
1038	1462.848	642.148	13.744	1.274
732	1081.297	181.539	13.742	1.556
659	1020.960	350.154	13.665	1.391
819	1154.743	343.574	13.653	0.805
870	1209.361	200.444	13.616	0.635
744	1095.146	437.540	13.506	1.569
782	1124.841	316.355	13.461	1.360
828	1159.869	552.796	13.432	1.677
879	1214.321	287.583	13.304	0.928
768	1113.296	253.426	13.161	0.907
693	1049.103	977.186	12.863	1.151
1172	1625.146	1625.290	12.541	1.745
111	172.159	990.373	11.948	1.747

611	943.946	494.501	11.947	1.709
1158	1603.128	701.718	11.403	0.689
855	1197.428	530.575	11.115	1.440
727	1078.259	99.248	11.101	1.737
377	562.377	18.865	8.585	1.611
582	915.612	571.897	8.424	1.831

C.3 NGC 6530

ID	X	Y	V	N-W
756	699.020	476.742	9.773	1.815
844	784.352	578.411	8.825	1.637
728	673.136	969.250	11.020	1.546
1003	903.233	596.065	10.789	1.541
1998	1497.520	1343.764	11.363	1.539
908	837.652	1065.963	11.889	1.512
1272	1065.940	660.778	11.918	1.482
1201	1020.391	604.002	10.591	1.478
849	786.005	590.527	10.322	1.478
1299	1083.840	718.410	11.555	1.460
1238	1044.403	701.474	10.440	1.451
522	463.788	871.566	11.946	1.436
1628	1271.988	775.494	10.911	1.282
859	797.713	633.927	11.152	1.270
1208	1024.690	747.627	8.962	1.260
946	862.558	592.726	10.970	1.108
827	773.252	546.873	10.898	1.106
701	642.502	971.673	12.796	1.096
929	847.509	585.904	12.404	1.054
904	835.626	810.134	12.928	1.053
866	802.381	629.430	10.621	1.044
1173	1007.724	311.278	12.518	1.030
1162	1004.032	621.883	11.952	1.005
1394	1143.045	520.577	12.975	0.958
743	687.391	854.113	12.929	0.946
1270	1063.595	910.276	12.878	0.934
733	679.874	910.016	12.242	0.878
1807	1362.882	851.733	12.987	0.785
796	744.051	749.457	12.462	0.549
1611	1261.477	661.461	12.956	0.429
901	830.839	955.725	12.802	0.309
1336	1105.756	741.167	12.828	0.287
833	777.044	539.765	10.653	0.236
989	895.309	567.162	12.982	0.236
1197	1018.409	773.243	8.592	1.919
482	420.215	392.705	9.336	1.863
987	894.633	682.002	10.784	1.727
1356	1115.584	540.882	10.467	1.722
1144	996.955	838.406	11.149	1.715
839	779.447	363.722	11.859	1.705
1113	974.907	529.699	10.295	1.702
1239	1044.700	876.667	11.756	1.681
1912	1441.456	1331.777	10.235	1.677
1632	1274.453	709.115	11.960	1.672
1287	1072.448	819.798	11.250	1.661
2029	1520.059	744.680	11.588	1.628
380	312.851	554.616	11.797	1.626
814	761.972	434.854	10.486	1.603

1226	1034.135	485.959	12.620	1.346
1823	1373.173	34.097	12.847	1.342
1020	914.993	512.331	12.356	1.341
1922	1446.183	674.615	12.999	1.324
197	122.235	1347.076	12.529	1.317
2447	2094.648	1140.332	12.787	1.305
652	592.457	1208.163	12.407	1.277
647	587.414	818.747	12.965	1.268
1481	1189.620	787.229	12.626	1.235
1382	1133.460	664.730	12.929	1.225
1548	1227.822	1365.519	12.581	1.197
675	615.925	748.260	12.907	1.189

C.4 NGC 6611

ID	X	Y	V	N-W
1001	1191.626	689.770	9.760	0.986
943	1163.190	690.604	10.753	1.617
913	1142.123	672.449	10.770	1.557
902	1138.746	759.303	11.226	1.737
895	1135.803	718.997	11.258	1.660
916	1144.773	647.576	11.298	1.501
1019	1197.952	662.892	11.321	1.662
1007	1193.273	704.292	11.412	1.688
732	1015.404	856.656	11.428	1.474
924	1148.445	652.140	11.486	1.560
873	1119.970	772.505	11.496	1.276
695	986.101	595.425	11.508	1.647
952	1167.848	686.604	11.695	1.419
1026	1200.467	522.222	11.737	1.728
622	913.263	576.667	11.742	1.751
625	916.559	1051.756	11.768	1.765
245	535.674	494.033	11.797	1.755
843	1100.527	724.509	11.873	1.266
976	1179.405	1177.312	11.897	1.759
979	1180.760	673.409	11.910	1.517
1352	1425.178	679.744	11.936	1.695
832	1089.245	891.285	11.948	1.673
802	1070.259	769.576	11.961	1.098
809	1074.865	653.955	11.967	1.483
613	908.560	658.797	11.981	1.653
807	1074.333	675.662	12.006	1.621
875	1121.693	718.238	12.044	1.441
977	1180.090	697.890	12.169	1.290
1171	1297.729	625.319	12.338	1.571
744	1025.678	615.790	12.338	1.543
1002	1191.818	856.810	12.434	1.395
1142	1276.008	927.673	12.454	1.512
961	1172.599	722.013	12.478	1.512
989	1185.365	553.032	12.519	1.255
1224	1335.509	901.326	12.601	1.337
1004	1192.389	830.177	12.627	1.395
1013	1194.822	1175.771	12.630	1.505
957	1169.968	535.824	12.654	1.564
937	1159.993	712.444	12.666	1.256
1048	1211.597	649.267	12.675	1.538
815	1078.445	869.506	12.681	1.165
635	922.894	792.540	12.695	1.190
885	1128.876	771.342	12.745	1.228
1571	1637.111	857.858	12.823	1.551
1094	1241.445	710.585	12.827	1.479
777	1052.429	437.092	12.886	1.415
811	1077.399	727.897	12.893	1.150
1063	1221.238	641.090	12.919	1.243

1097	1244.425	915.491	12.948	1.428
955	1169.226	905.273	12.963	1.205
185	459.476	1012.557	12.987	1.579
285	583.866	1281.916	12.991	1.534
536	841.698	926.154	12.995	1.527

C.5 Trumpler 37

ID	X	Y	V	N-W
1368	1065.525	906.323	5.765	2.178
1967	1335.510	624.682	9.041	2.023
6	-4.210	956.205	9.685	1.698
220	358.926	533.750	10.103	1.582
959	878.046	940.562	10.885	1.929
1635	1189.753	997.184	11.232	2.069
1325	1049.828	832.482	11.456	1.897
1783	1258.836	964.766	11.673	2.063
194	332.928	741.431	11.673	1.864
162	287.759	1171.727	11.734	2.023
1797	1263.796	930.084	12.018	2.061
1840	1282.088	743.434	12.030	2.024
1998	1350.807	907.471	12.102	1.792
1834	1280.078	970.568	12.359	1.639
475	591.305	1484.954	12.524	1.989
455	576.007	871.178	12.619	1.699
1427	1102.508	960.457	12.645	2.010
953	874.948	1028.120	12.727	1.912
38	76.296	1257.652	12.750	2.017
416	549.504	247.380	12.770	2.037
1538	1147.463	767.259	12.858	1.998
1886	1299.378	549.964	12.923	1.939
263	405.235	1466.571	12.979	1.740
735	763.670	742.678	12.990	1.989
2353	1544.808	747.511	12.993	1.981
184	322.053	773.843	13.020	1.705
939	868.585	1310.752	13.023	1.897
1788	1260.559	721.871	13.077	1.667
207	344.863	534.051	13.238	1.918
2657	1791.584	666.837	13.240	1.885
1061	925.331	938.776	13.283	1.323
454	575.886	843.091	13.362	1.763
2369	1556.572	1472.210	13.388	1.495
1292	1032.991	1104.035	13.455	1.934
870	832.230	1005.918	13.483	1.756
1513	1140.305	1523.812	13.539	1.802
453	574.960	217.293	13.542	1.938
337	477.493	888.553	13.542	1.522
142	254.893	675.267	13.551	1.594
176	310.832	413.902	13.588	1.925
419	550.528	920.576	13.608	1.334
101	190.727	1005.263	13.631	1.927
328	470.482	967.968	13.652	1.812
292	442.932	734.968	13.653	1.885
746	769.684	1279.080	13.669	1.729
1761	1249.558	716.150	13.694	1.850
1370	1068.938	1445.396	13.726	1.883
96	179.753	780.253	13.771	1.926

683	734.851	467.336	13.786	1.499
1402	1090.178	1367.416	13.799	1.928
378	517.061	585.725	13.807	1.589
289	441.887	782.509	13.813	1.788
924	858.868	910.754	13.830	1.939
1249	1012.349	719.741	13.836	1.913
67	133.381	1045.896	13.887	1.920
2488	1638.640	1030.968	13.898	1.925
2591	1723.945	1266.338	13.924	1.824
447	572.961	899.590	13.929	1.702
478	596.365	815.207	13.943	1.869
740	766.070	1187.005	13.959	1.501
706	750.756	1419.358	13.987	1.885
1421	1098.220	633.733	13.995	1.798