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Archean detrital zircons in the Proterozoic Vishnu Schist of the Grand Canyon, Arizona : implications for crustal architecture and Nuna reconstructions

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ARCHEAN DETRITAL ZIRCONS IN THE PROTEROZOIC VISHNU SCHIST OF THE GRAND CANYON, ARIZONA: IMPLICATIONS FOR CRUSTAL ARCHITECTURE AND NUNA RECONSTRUCTIONS

BY

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However, money is inconsequential when compared to the paramount support and assistance of numerous institutions and individuals. First, I would like to thank my advisor, Dr. Karl Karlstrom, not only for always fitting me into his overloaded schedule, but also for putting up with my various antics. I would also like to thank my committee members: Dr. Laurie Crossey for her insightful input and readiness to lend a hand in the field; Dr. Steve Whitmeyer for putting me on the right path and remaining a mentor and friend; and Dr. Yemane Asmerom for all his help. Many thanks also go to the following people: the 2008-2010 UNM Grand Canyon research crew, Victor Valencia, Gayland Simpson, and the rest of the UA Laserchron staff, and Graham Begg for an informal review of the paper. Special thanks to Josh Feldman, Tony Salem, and Matt Zimmerer for help with marathon sessions on the laser. I would also like to grudgingly thank Ryan Crow for everything he has done during my stay at UNM.

Lastly, I would not be where I am without the eternal support and love of my parents and family. Thank you all, from the bottom of my heart.

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ABSTRACT

U-Pb dating of 1035 detrital zircons from twelve spatially-distributed samples of the Paleoproterozoic Vishnu Schist reveals a bimodal $^{207}Pb/^{206}Pb$ age probability diagram with peaks at 1.8 Ga and 2.5 Ga. Surprisingly, only 13% of detrital zircon ages overlap with the published depositional age range of 1750–1741 Ma. The similarity of the age distributions in all samples constrains possible suturing of crustal blocks to pre-Vishnu Schist deposition rather than during the peak 1710-1680 Ma deformation. Of all grains analyzed, 15% overlap at 2σ with the 1.84 ± 1 Ga Elves Chasm orthogneiss of western Grand Canyon. This supports field evidence that Vishnu Schist was deposited on 1.84 Ga arc basement rather than in a juvenile 1.75 Ga arc setting. Archean grains of 3.8–2.5 Ga comprise 30% of all grains. A comparison of the > 2.2 Ga ages from the Vishnu

Schist (495 grains) with compilations of zircon ages from other cratons does not support provenances in the Wyoming, South China, or Siberian cratons; instead sources may be located in Gawler craton of Australia, North China craton, or Antarctica. If the detrital zircons were far-traveled, this is a new constraint for viable reconstructions of the Nuna supercontinent. However, given the high percentage of pre-1.8 Ga zircons, unexposed proximal basement sources are more likely, resulting in a model by which Vishnu sediments were derived from Mojave crust that consists of Archean and 1.9-1.8 Ga crust, now in the subsurface, that was unroofed during Vishnu deposition.

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PREFACE

This manuscript has been accepted for publication in the Geological Society of America's peer-reviewed journal, Geology. The following thesis is a slightly expanded version of the submitted manuscript of the same title. For the most recent version of this manuscript, refer to the Geology article Shufeldt et al. (2010). As the first author, I, Owen P. Shufeldt, performed the majority of the research and work on the paper. The manuscript is multi-authored by: Owen P. Shufeldt and Karl E. Karlstrom (Department of Earth and Planetary Sciences, University of New Mexico); George E. Gehrels (Department of Geosciences, University of Arizona, Tucson, Arizona, 85721, USA); and Katherine E. Howard (School of Earth and Environmental Sciences, University of Adelaide, Adelaide, SA 5005, Australia). As required by the Department of Earth and Planetary Sciences, this introduction outlines the roles of the different coauthors.

As first author, my role included: field sampling and mapping, crushing samples and performing mechanical, gravitational, magnetic and heavy liquid separations, analyzing detrital and igneous zircons on the LA-MC-ICPMS at the University of Arizona, data reduction and manipulation using Microsoft Excel macros, drafting all figures, review of related literature, compilation of U-Pb data for comparison, and writing and revising the manuscript. I am listed as corresponding author for the Geology submission.

My advisor Karl Karlstrom helped formulate the research based on past work in the Grand Canyon, provided funding of the work through numerous research grants, organized river trips for collection of samples, provided edits of various drafts, and helped with data interpretation.

George Gehrels provided access to the University of Arizona Laserchron Center, provided Microsoft Excel macros and directed me towards useful resources, helped with data reduction, and provided edits and input.

Katherine Howard compiled zircon age data from the Gawler craton and was present on a sampling trip.

INTRODUCTION

The discovery of the 1.84 Ga Elves Chasm gneiss of the Upper Gorge of the Grand Canyon revealed the presence of older crust beneath parts of the 1.8-1.7 Ga Yavapai province (Ilg et al., 1996; Hawkins et al., 1996), a region thought to have been built by accretion of juvenile island arcs of 1.8-1.7 Ga age. Similar to the Indonesian arc system today, this was interpreted to indicate that older basement blocks were present as microplate fragments that were assembled by arc collisions to form the dominantly juvenile Yavapai province (Ilg et al., 1996; Whitmeyer and Karlstrom, 2007). Alternative models for accretion and assembly of the lithosphere of the southwestern U.S. involve crustal growth via rifting of older crust, development of mafic rift basin sequences, then closing of rift basins (Wooden and DeWitt, 1991; Duebendorfer et al., 2006), perhaps implying the presence of pervasive 1.9- 1.8 Ga crust in subcrop beneath southern Laurentia (Bickford and Hill, 2007). While not mutually exclusive, distinguishing between and refining these models for lithospheric growth requires a better understanding of the age and extent of older crustal materials and blocks within the 1.8-1.6 Ga Paleoproterozoic orogens of the southwestern U.S. (Karlstrom et al., 2007).

Geological setting and previous work

Previous isotopic studies of the Mojave province of southwestern Laurentia have suggested the presence of older crust within the dominantly juvenile 1.75 Ga orogens. Nd model ages (T_{DM}) of 2.6- 2.1 Ga in Death Valley (Ramo and Calzia, 1998) and mixed Nd model ages of 2.3-2.0 Ga elsewhere in the Mojave were interpreted to be the result of mixing of 10-25% Archean material into the Proterozoic juvenile arcs (province 1 of

Bennett and DePaolo, 1987). Nd model ages of 1.95-1.85 for four Grand Canyon plutonic samples was attributed to incorporation of lower volumes of older material in the dominantly juvenile Yavapai province (zone II of Bennett and DePaolo, 1987, p. 684). This was supported by elevated whole rock $^{207}Pb/^{206}Pb$ ratios in the Mojave province (Wooden and Miller, 1990, p. 20,141; Wooden and DeWitt, 1991). Sharp westerly increases in $^{207}Pb/^{206}Pb$ ratios were observed across the Crystal (Hawkins et al., 1996) and Gneiss Canyon (Karlstrom et al., 2003) shear zones. This lead to the interpretations of these zones as being province boundaries and possible paleosutures (Ilg et al., 1996; Karlstrom et al., 2003) and/or a wide isotopically mixed domain between the Yavapai and Mojave crustal provinces (Fig. 1; Duebendorfer et al., 2006). A continuing uncertainty has been the extent to which the older crustal material in the Mojave province came from the subduction of Archean clastic material subsequently mixed with and incorporated into 1.75-1.71 Ga arc magmatic rocks (Ramo and Calzia, 1988; Wooden and Miller, 1990) and associated arc metasedimentary basins (Bennett and DePaolo, 1987). Alternatively, the older material may have been derived from proximal older crustal blocks in outcrop (1.84 Ga; Hawkins et al., 1996) and/or subcrop (Wooden and Miller, 1990).

This paper examines a 200-km-long cross-strike transect of Paleoproterozoic basement rocks in Grand Canyon. As shown in Figure 1, from east to west, this transect crosses the western Yavapai province (Nd T_{DM} = 1.88-1.85 Ga; Bennett and DePaolo, 1987), a proposed crustal province boundary at the Crystal shear zone (Ilg et al., 1996; Hawkins et al., 1996), a wide isotopic transition zone (Nd T_{DM} = 1.95-1.91 Ga; Bennett and DePaolo, 1987; Wooden and DeWitt, 1991; Duebendorfer et al., 2006), another possible suture boundary at the Gneiss Canyon shear zone (Karlstrom et al., 2003; Duebendorfer et al., 2006; Whitmeyer and Karlstrom, 2007), and the eastern Mojave province (Nd T_{DM} = 2.2-2.0 Ga; Bennett and DePaolo, 1987). Our motivation is to examine the detrital zircons within the oldest metasedimentary rocks of the region, the Vishnu Schist, to evaluate the nature of the oldest crustal components of the orogen. In addition to testing models for the age and extent of older crust reworked into the 1.75-1.74 Ga Granite Gorge Metamorphic Suite, detrital zircon data can also evaluate the potentially conflicting interpretations that: 1) all the metasedimentary rocks of the Grand Canyon transect can be considered the same lithotectonic unit, the Vishnu Schist, and 2) that there are major lithotectonic and crustal province boundaries (paleosuture zones) at Crystal and/or Gneiss Canyon shear zones (Ilg et al., 1996).

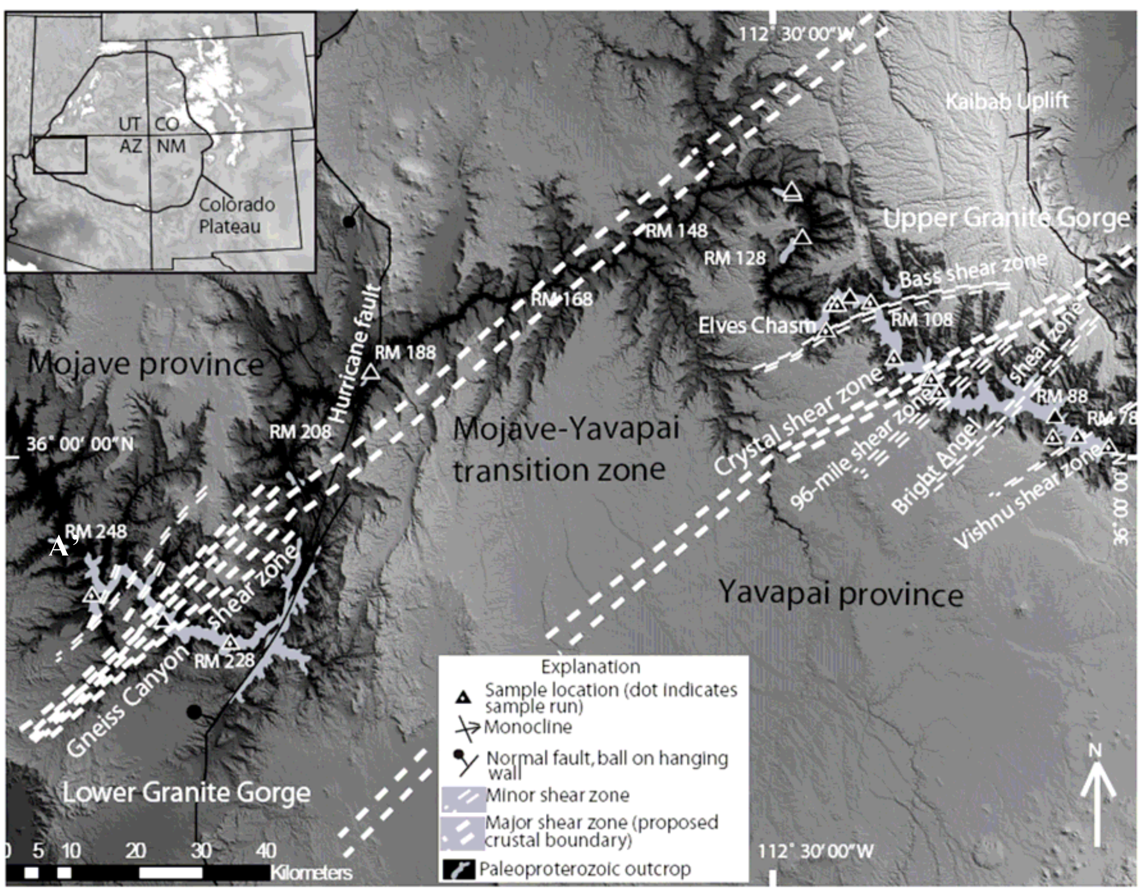


Figure 1. Map of Colorado River transect showing locations of proposed crustal provinces and boundaries, Proterozoic outcrop, detrital zircon sample locations, shear zones and selected Cenozoic structural features. RM= river mile downstream of Lee's Ferry.

We used laser ablation multi-collector inductively coupled plasma mass spectrometry (LA-MC-ICPMS) to date 1048 detrital zircons contained within twelve samples of the Paleoproterozoic Vishnu Schist, plus 89 igneous zircons from one sample of the Rama Schist. Samples were taken from RM 78 to 246 along the Colorado River (RM= river miles downstream from Lees Ferry). The Vishnu Schist is composed of highly folded sections of lithic psammitic and pelitic schist (Fig. 2b; Ilg et al., 1996). The Rama Schist is a quartzofedspathic schist of metavolcanic origin. Due to metamorphism to upper amphibolite grade (500-700º C, 700 MPa; Dumond et al., 2008), primary sedimentary structures in the Vishnu Schist are rarely preserved. Locally preserved sedimentary structures include cm-to-m-scale graded bedding (Fig. 2a), scour surfaces, and minor cross bedding; these are interpreted to represent Bouma sequences that were deposited distally in submarine basins of eroding island arcs (Ilg et al., 1996; Karlstrom et al., 2003). No paleocurrent data are available from the Vishnu Schist due to a scarcity of indicators and complex deformation. A metafelsite interlayered with Vishnu and Brahma schists at RM 84.4 was dated at 1750 ± 2 Ma, and was interpreted to overlap the deposition of the Vishnu Schist (Hawkins et al., 1996). A quartzofeldpathic gneissic sample of the Rama Schist, collected from the core of an anticline at RM 79, yielded an age of 1741 ± 1 Ma. These ages together were interpreted to reflect a minimum duration of 8 million years for arc-related volcanism and sedimentation (Hawkins et al., 1996).

Figure 2. Outcrop photographs of the Vishnu Schist. A) Outcrop photograph of the Vishnu Schist displaying fining upward sequences indicating younging to the left of the photo (marker for scale). B) Outcrop photograph of a folded section of the Vishnu Schist taken in Vishnu Canyon (picture taken by Laurie Crossey). Original bedding (S_0) can be seen in the lower left of the picture, making the tectonic foliation S_1 and the axial plane to these folds S_2.

METHODS

Samples were taken from all outcrops showing known features of the Vishnu Schist, including graded bedding and scour surfaces. These samples span the entire transect of Proterozoic outcrop (Fig. 1), from the first lithotectonic block, the Mineral Canyon block (RM 78), to the last, the Surprise-Quartermaster block (RM 247). Samples were taken directly out of outcrop, washed in the Colorado River, and bagged into Ziploc bags to be taken to the University of Arizona where they were crushed to a fine powder and zircons were separated from the mix using a series of hydraulic, magnetic, and heavy liquid separations.

Dating of detrital and igneous zircons was performed at the Arizona LaserChron center at the University of Arizona using a laser ablation multi-collector inductively coupled plasma mass spectrometer (Fig. 3; LA-MC-ICPMS). This process uses a laser beam with a wavelength of ~193 nm to create a series of 25-35 micron spots with a depth of ~15 microns in about 100 randomly-selected zircon crystals per sample. These zircons are mounted on epoxy plugs and polished to half size. The ablated material from the pits is carried in helium gas to the plasma source of a multi-collector inductively-coupled plasma mass spectrometer where it is ionized and then, using the Isoprobe instrument, analyzed to simultaneously measure ^{238}U, ^{232}Th, ^{208}Pb, ^{206}Pb, ^{207}Pb isotopes with twelve Faraday collectors and an ion counting channel to measure ^{204}Pb. Some of the samples were run on the Nu Plasma HR MC-ICPMS, which is a more precise instrument that uses twelve Faraday collectors to measure ^{238}U, ^{232}Th, and mass numbers 180-171 (for Hf, Lu, and Yb), and four low-side ion counters to measure $^{208\text{-}204}Pb$. For a comprehensive description of the analytical techniques for the Isoprobe instrument, including the methods utilized for ^{204}Pb corrections and fractionation of Pb/U and Th/U in the laser pit, see Gehrels et al., 2008.

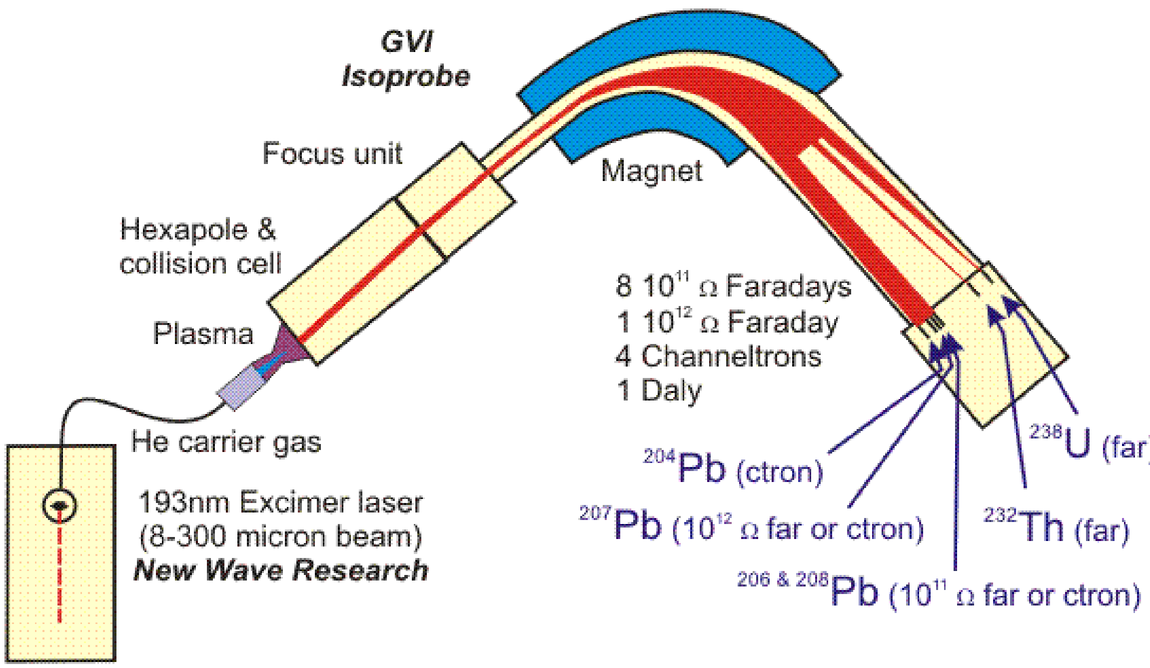


Figure 3. Configuration of the LA-MC-ICPMS (from (geo.arizona.edu/alc/Analytical_Methods)

Following analysis, about 150 grains were removed from the raw data because they had >10% error and >30% discordance. These relatively liberal cutoffs were used because Pb-loss and inheritance can move individual analyses along concordia, making age clusters a more reliable indicator of significant ages than concordance. Also, with a large range of ages to be compared (Eoarchean to Paleoproterozoic), a strict discordance filter can not be used because older ages would be removed from the dataset as a result of a higher percentage of discordance due to Pb-loss as a result of crystal lattice damage over time. We excluded 18 grains from all subsequent plots and tests that had ages significantly younger than 1660 Ma, the age of the youngest crosscutting Paleoproterozoic pluton (Karlstrom et al., 2003); their origin was likely sampling contamination from river sand. However, these young grains have been included in Appendix I.

Age probability plots acted as the main tool for comparison between the ages contained in each sample. Age probability plots are constructed by calculating the number of ages that fall within a certain age range and plotting this as a histogram. A relative frequency curve is then fitted to the plot by summing the probability distributions of sample ages with normally-distributed errors. These were constructed using the Excel macro Isoplot (Ludwig, 2003).

A cumulative probability plot was also constructed for each sample's age distribution. Cumulative probability plots are constructed by ranking the ages from oldest to youngest, and dividing the rank by the total number of observations (Davis, 2002). These were plotted on the same set of axes for comparison using an Excel macro (Gehrels, 2007).

AgePick (Gehrels, 2009) was used to manually filter ages based on U/Th, U concentration, and concordance to find the youngest, non-metamorphic (U/Th <10), non-metamict (low U concentrations) grains to estimate maximum depositional age for the schists.

The Kolmogorov-Smirnoff (K-S) test, was used to test the null hypothesis that two sample distributions are the same, or come from the same parent population (Guynn, 2006). A P-value greater than 0.05 for two cumulative distribution functions indicates at the 95% confidence level that the null hypothesis is **not** rejected, and therefore, the populations are not statistically different from each other (Guynn, 2006).

RESULTS

Isotopic data, concordia diagrams, and age probability plots for each detrital sample are reported in Appendix I. The one sample of the Rama Schist gave a weighted mean age of 1750 ± 1.6 Ma (Fig. 4), which extends the age range for the Rama Schist from 1750 Ma (this study) to 1741 Ma (Hawkins et al., 1996). Figure 5 compares the combined age spectra from all Vishnu Schist samples west (Fig. 5A) and east (Fig. 5B) of the Crystal shear zone. Figure 5C is the age probability diagram and Figure 5D is the cumulative probability diagram (Gehrels, 2007) for all twelve samples (1035 zircons). The range of $^{207}Pb/^{206}Pb$ ages for all samples was 3797-1660 Ma. All twelve samples spanning the entire 200 km cross-strike transect show similar bimodal age distributions, with variation in the dominance of the modes (Fig. 5D).

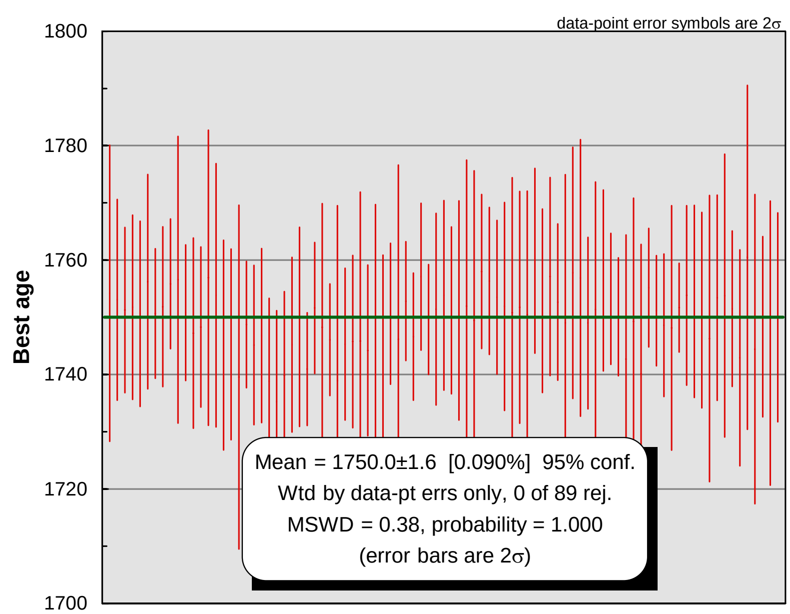


Figure 4. Weighted mean plot of zircon crystallization ages for the Rama Schist sample taken from RM 128 (n= 89). Data plotted using Isoplot (Ludwig, 2003).

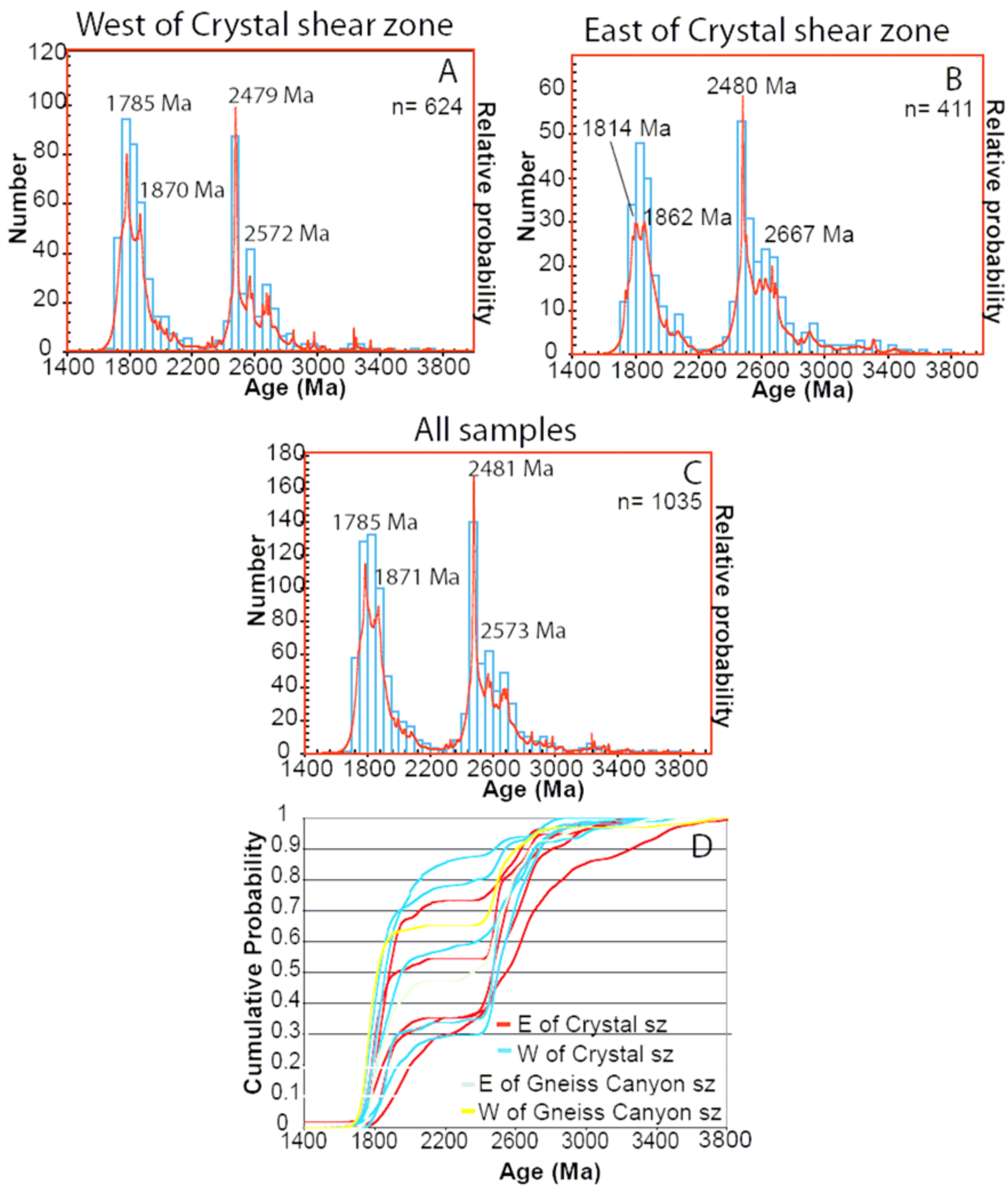


Figure 5. ^{207}Pb/ ^{206}Pb age histograms and age probability diagrams for detrital zircon samples: A) west of Crystal shear zone, B) east of Crystal shear zone, C) combined, D) cumulative probability diagram of all samples. Data plotted using Isoplot (Ludwig, 2003)

Agepick (Gehrels, 2009) was applied to all 1035 acceptable detrital zircon ages, resulting in 79 of the youngest grains giving a maximum depositional age of 1749 ± 19.5

Ma for the Vishnu Schist. This is in agreement with the 1750-1741 Ma age range for Vishnu Schist deposition (Hawkins et al., 1996). Surprisingly, only 13% of total grains overlap this age range (at 2σ); these are interpreted to come from first-cycle, arc-derived zircons. With the exception of the Elves Chasm gneiss, the oldest plutons from Grand Canyon are 1.74 Ga, but 1.75 Ga plutons are found in central Arizona to the south (Karlstrom et al., 1987) and the Mojave to the west (Wooden and Miller, 1990). Vishnu Schist west of the Crystal shear zone has a higher percentage of post-1.8 Ga grains and hence a younger peak Proterozoic age (1.78 Ga) relative to east of the Crystal shear zone (1.81 Ga). 848 grains are 3.8-1.8 Ga, and hence, indicate that a predominance (81%) of detritus in the Vishnu Schist comes from older (pre-1.75 Ga) crust. When the entire dataset is combined, the main age probability peaks are 1785 Ma and 2481 Ma (Fig. 5C).

Table 1. Maximum depositional age for each sample determined using the Excel macro AgePick (Gehrels, 2009).

River Mile (RM) of Sample	Maximum depositional age (AgePick final age) in (Ma)	# Grains used for age
78	1735.5 ± 35.3	2
81	1754.9 ± 34.0	1
84	1783 ± 33	1
84	1736.3 ± 16.9	4
96.7	1730.7 ± 59.4	5
97.8	1749.3 ± 33.0	6
102.7	1777.5 ± 15.4	2
108.4	1718.6 ± 34.2	4
110.8	1713.9 ± 55.9	2
112.1	1747.7 ± 53.2	2
228.8	1742.0 ± 16.7	2
246	1727.3 ± 29.6	5

AgePick was used to find the youngest grains in each individual sample, which are representative of the maximum depositional age for the sample (Dickinson and Gehrels, 2009). For samples where more than one grain was used to constrain the maximum depositional age, the youngest ages overlapped at 1σ and the final age is a weighted mean of these youngest grains. The results of this analysis are listed in Table 1, ordered from the easternmost to westernmost sample. While the samples do record different maximum depositional ages, no consistent pattern, such as an unroofing sequence, is easily discerned. This is not surprising, given the complex fold patterns present in the Granite Gorges of the Grand Canyon. In addition, the youngest maximum depositional ages, from samples located near each other at RM 108.4 and 110.8, are questionable because they contain relatively large uncertainties. However, if truly representative of the depositional age for the Vishnu Schist at these locations, these samples may reveal a younger turbidite unit. In addition, these samples come from one of the few areas in the Upper Gorge where the depositional contact between the Vishnu Schist and Elves Chasm gneissic basement is exposed (Karlstrom et al., 2003). This is also one of the few areas not intruded by younger plutons or pegmatites; these samples are located between the 1716 ± 0.5 Ma Ruby pluton and the 1697 ± 1 Ma Garnet pegmatite complex (Karlstrom et al., 2003). As a result of the younger depositional ages and exposed contact, this area is targeted for further isotopic work and more detailed mapping to distinguish whether there are outcrops of a unique, younger turbidite package than the ~1750 Ma Vishnu Schist, and the nature of the contact between the Vishnu Schist and Elves Chasm gneiss.

Additionally, in agreement with the observed paucity of such ages in the global dataset (Condie et al., 2009), there are only a few grains (~40) that are 2.45- 2.2 Ga. This reinforces previous interpretations that 2.2-2.0 Ga Nd T_{DM} ages represent a mixture of Archean and 1.8-1.7 Ga crust rather than giving a mantle separation age (Bennett and DePaolo, 1987).

The 721 Paleoproterozoic grains make up 70% of the detrital zircons in the samples. Applying the K-S test to these reveals that, of the 66 possible pairings between samples, only 27 pairs were not significantly different from each other and had P-values >0.05 (Appendix II). Therefore, only a few of the samples were statistically indistinguishable from each other in terms of their Proterozoic ages. The dissimilar samples are from river miles 84, 102.7 and 246. 150 of the 721 Proterozoic ages (21% of Proterozoic ages, 15% of all ages) also overlap at 2σ with the 1.84 ± 1 Ga Elves Chasm pluton (Hawkins et al., 1996, p. 1173). This reinforces field mapping that shows a transposed depositional contact between Vishnu Schist and underlying Elves Chasm basement near RM 112.5 (Ilg et al., 1996; Karlstrom et al., 2003).

A surprising 314 detrital zircons (30% of all grains) are Archean in age, 3.8 to 2.5 Ga, with an additional 140 grains of earliest Paleoproterozoic age (2500-2450 Ma) contributing to the 2.48 Ga mode (Fig. 5C). The K-S test for the grains contributing to the Archean (pre- 2.45 Ga) age probability peak shows that, of the 66 possible combinations of samples, 52 have P > 0.05, and therefore most samples statistically came from the same population in terms of their Archean grains (Appendix II). It is interesting that the younger, Paleoproterozoic grains result in more statistical dissimilarity between the samples than the Archean grains. Possible explanations for this will be discussed in the implications section.

A qualitative analysis of zircon roundness in each main age group (~1.7 Ga, ~1.8 Ga, >2.4 Ga) revealed that the youngest grains are commonly subhedral, whereas 1.84 Ga and Archean grains are mixtures of rounded, subrounded, and subhedral grains. Therefore, there is no observed correlation between zircon morphology and age.

DISCUSSION AND IMPLICATIONS

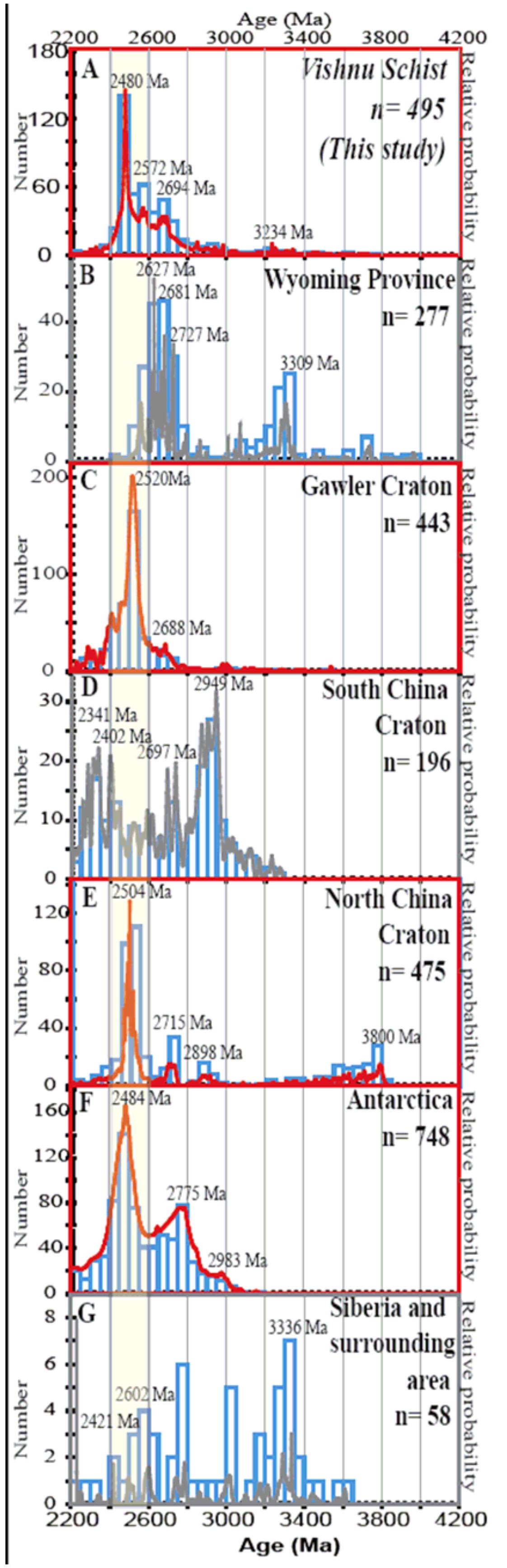
The new detrital zircon data for the oldest metasedimentary rocks in Grand Canyon provide constraints on the nature of the earliest tectonosedimentary systems in the Paleoproterozoic orogens of the Southwest. The similarity of the bimodal age spectra across the transect is consistent with using the lithotectonic term "Vishnu Schist" for all the metasedimentary rocks in the Grand Canyon (Ilg et al., 1996). However, samples west of Crystal shear zone (Fig. 5A) have more ~1.75 Ga grains, fewer 1.84 Ga grains, and a subequal Archean component compared to those east (Fig. 5B). The Lower Gorge samples (RM 228.8 and 246) possess statistically different Proterozoic age spectra from other samples (Fig. 5D; Appendix II). The RM 108-110 turbidites could be a slightly younger package based on youngest grain analysis, although more precision is needed to confirm this. Hence, while detrital zircon data do not strongly support tectonic models for paleosutures located at Crystal and/or Gneiss Canyon shear zones, there are enough differences that these data are weakly permissive of such models. These data highlight the need for specific tests using the Nu Plasma HR MC-ICPMS to obtain more precise U-Pb ages of the youngest zircons in the samples and couple this with the Hf isotopic composition and model ages of the zircons.

The source of the Archean detritus within the Vishnu Schist (Fig. 6A) remains unresolved. The current most proximal Archean terrane is the Wyoming Province. To evaluate whether this was the provenance, an age probability diagram (Fig. 6B) was compiled from Wyoming U-Pb crystallization ages and detrital zircon ages of pre-1.7 Ga metasedimentary rocks. The Wyoming data show ~2.6 and pre- 3.0 Ga peaks, similar to minor peaks in our data, but are not a good match for the ~2.5 Ga peak in our data. A

Wyoming Province source would require denudation of the central Wyoming province to acquire the pre-3.0 Ga grains, and >1000 km "southerly" transport (present coordinates) to the Vishnu basins. While there was tectonic interleaving of ~2.7 Ga Archean basement with Proterozoic rocks in southern Wyoming during 1.8-1.7 Ga tectonism (Morozova et al., 2005), the central Wyoming province may have been buried by thrust sheets (Karlstrom and Houston, 1984) such that it is difficult to envision denudation of the central Wyoming Province at this time.

An alternative is that a block of the southern Wyoming province was rifted from the craton at 2.3-2.0 Ga (Karlstrom et al., 1983) and was unroofed during assembly of a tectonic collage and 1.75 Ga deposition of the Vishnu Schist. This alternative could explain the 2.5-2.4 Ga peak in our data, as being derived from rocks similar to the Baggot Rocks granite and other late Archean to early Proterozoic rocks along the southern Wyoming Province (Premo and Van Schmus, 1989), but does not explain the pre-3.0 Ga zircons.

Figure 6. $^{207}Pb/^{206}Pb$ histograms and age probability plots of the oldest grains (> 2.2 Ga) in: A) Vishnu Schist samples; B) Wyoming craton; C) Gawler craton of Australia; D) South China craton; E) North China craton; F) Antarctica; G) Siberian craton. Compiled data were taken from zircon crystallization ages of plutonic rocks as well as any detrital zircon data from ~1.7 Ga and older metasedimentary rocks. See Appendix III for all compiled ages and the sources from which they were taken.



Other possible Archean sources for Vishnu Schist detritus are cratons and blocks that were once adjacent to southwestern Laurentia (within 100s of km) within the postulated Proterozoic supercontinent of Nuna/ Columbia (Fig. 7; Reddy and Evans, 2009; Zhao et al., 2004). Competing supercontinent models (for Rodinia as well as Nuna), propose that once-adjacent cratonic blocks may have been: 1) Gawler craton of Australia, 2) South China craton, 3) North China craton, 4) east Antarctica, 5) and the Siberian craton (Li et al., 2008 and references therein; Goodge et al., 2008). Figures 6C through 6G show comparative U-Pb crystallization and detrital zircon data from these cratons compiled for this study.

Figure 6. Comparative age probability diagrams

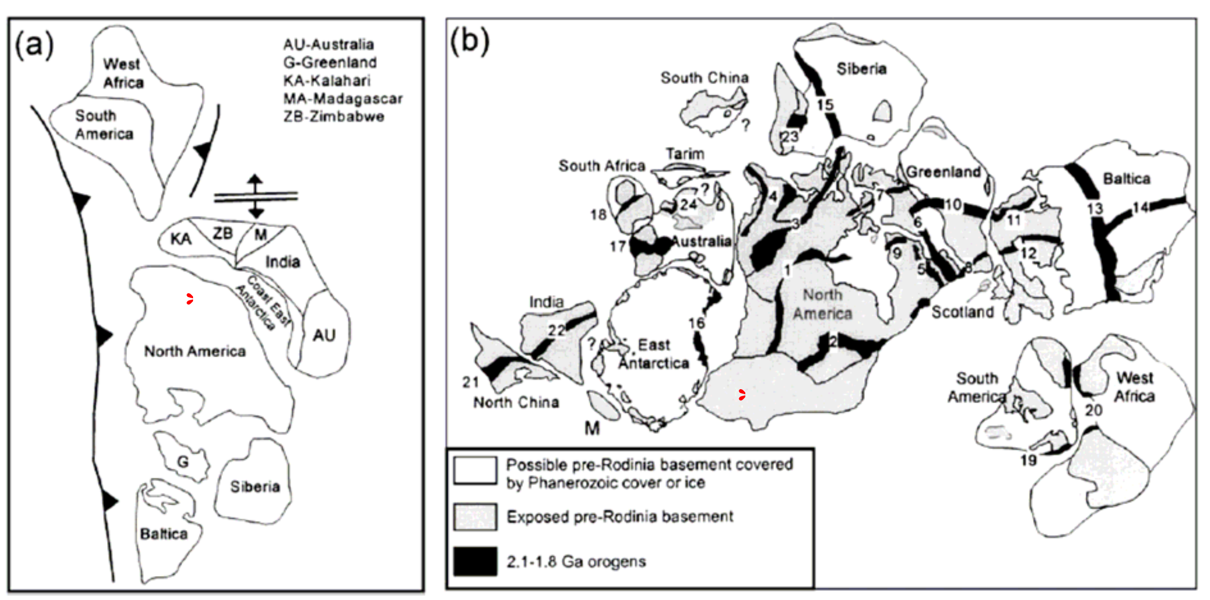


Figure 7. Two possible configurations of the Paleo-Mesoproterozoic supercontinent of Nuna/Columbia (from Zhao et al., 2004 and references therein). * indicates approximate location of the Grand Canyon.

South China ages are mainly from detrital zircon studies of 1675-1665 Ma (Greentree and Li, 2008) and 2.8-2.6 Ma (Qui and Gau, 2000) aged metasedimentary rocks. Similar to our samples, there is a group of 2.4-2.1 Ga grains of unknown provenance (Greentree and Li, 2008), but there is not a match for our 2.6-2.45 Ga peak (Fig. 6D). Likewise, zircon age peaks from the Siberian craton (Fig. 6G) do not seem to match well with the pre-2.2 Ga ages in our samples. The other block of the South China craton, Cathaysia, contains mainly Mesoproterozoic and Grenvillian-aged zircons (Li et al., 2002). Additionally, Cathaysia was most likely not joined with the Yangtze block until ~800 Ma (Wang et al., 2007), and hence is an unlikely provenance for the Vishnu Schist.

Other cratons show similar peaks to our prominent peak at ~2480 Ma. The Gawler craton possesses a peak at ~2520 Ma (Fig. 6C), the North China craton has a dominant peak at ~2504 Ma (Fig. 6E), and Antarctica's major peak is at ~2484 Ma (Fig.

6F). With such similar age distributions, it is possible that material was shed from these cratons and mixed with detritus from juvenile arcs and the Elves Chasm terrane. While improbable, this is included as a possible model given evidence in modern systems for thousands of kilometers of transport in detrital systems from source to depositional basin. For example, modern Himalayan detritus is transported >3000 km in submarine fans and slides from the head of the Sunda trench to the Sunda Strait (Moore et al., 1982). However, it is difficult to envision a scenario in which such a large proportion of this far-traveled detritus (30% of zircons) made it from the trench into arc-sedimentary basins.

Alternatively, Archean crust may have been exposed during deposition of the Vishnu Schist that is potentially still present in the subsurface of the Southwest (Fig. 8). Xenocrystic inherited zircons >2178 Ma are present as sub- and euhedral grains in the 1.75-1.71 Ga Tuna Creek granodioritic pluton (RM 99.2; Hawkins et al., 1996). Given that calc-alkaline plutons are unlikely to have assimilated significant metasedimentary material, this raises the possibility that subcrop of Archean crust may have been sampled during melt evolution of this arc pluton and that other such Archean blocks may have existed in thrust sheets of the orogenic collage that were denuded during deposition of the Vishnu Schist.

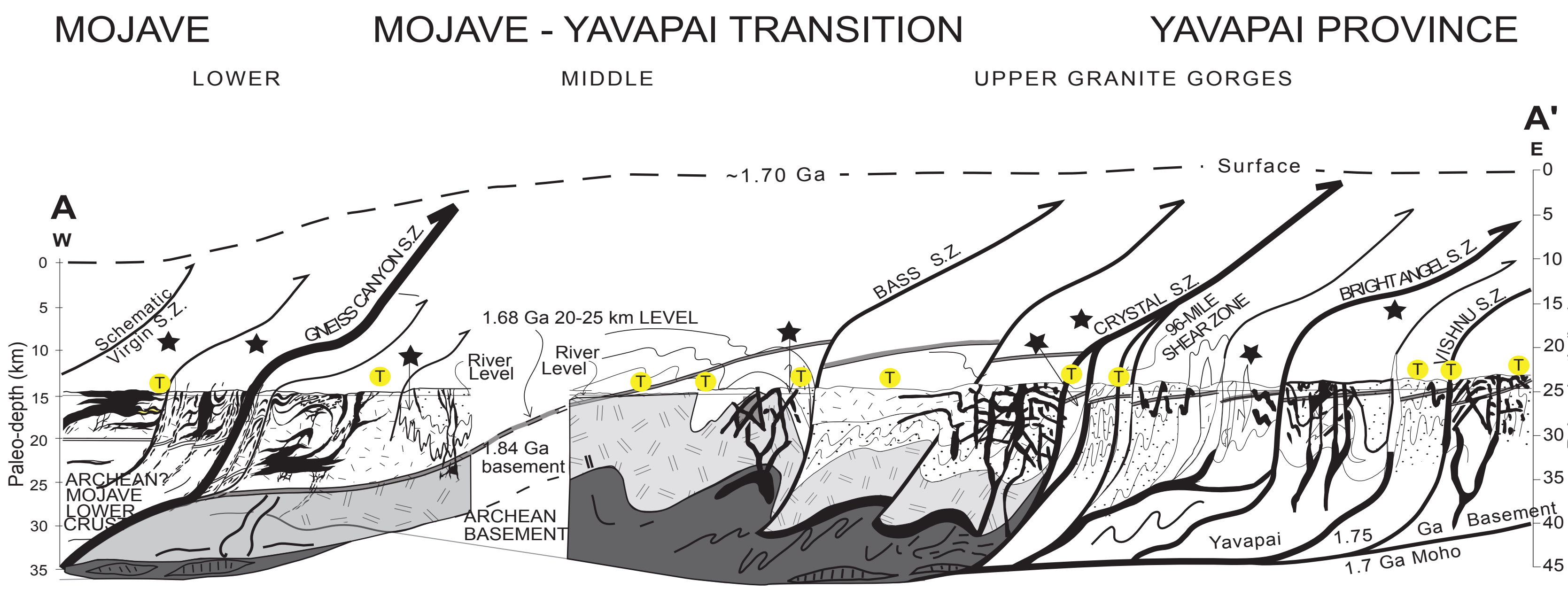


Figure 8. Schematic cross section of the Granite Gorges of the Grand Canyon in which proposed Archean crust (dark gray) exists in the subsurface (modified from Karlstrom and Williams, 2005).

The 2.4-2.0 Ga zircon population (~6 % of total grains) may have been derived from: 1) 2.4-2.0 Ga presently-eroded imbricate thrust sheets; 2) rift-related mafic rocks of the southern Wyoming province (Bowers and Chamberlain, 2006); 3) basement of the Alberta Basin (Ross and Eaton, 2002); 4) metasedimentary rocks of the Gawler craton (Fig. 6C; Howard et al., 2009); and/or 5) the South China craton (Fig. 6D; Greentree and Li, 2008). Future Hf isotopic analysis of these important grains may narrow down their potential provenances.

CONCLUSION

Our results show a complex provenance for the Vishnu Schist that was dominated by 1.84 Ga and Archean crust, with relatively little detritus (13%) derived from contemporaneous 1.75 Ga juvenile arc plutons. The 1.84 Ga Elves Chasm terrane was basement for Vishnu Schist in western Grand Canyon and a dominant detrital source throughout the transect. Earliest Paleoproterozoic (2.4-2.2 Ga) detritus is low in volume (6%), but is present throughout the transect. Archean detritus (as old as 3.8 Ga) constitutes 30% of detrital grains. Although non-unique and subject to sampling bias, age probability plots of Archean grains more closely resemble the Gawler craton of Australia, North China craton, and Antarctica than the Wyoming craton, South China craton and Siberian craton. Thus, these cratons may have been sources for far-traveled detrital zircons. However, our favored interpretation, based on the large percentage of Archean zircons, the variable roundness of these grains, and the presence of xenocrystic grains in granodioritic plutons, is that there were Laurentian Archean crustal rocks in the orogenic collage and some may still exist in middle- and lower-crustal subcrop.

Overall, the detrital zircon data lead to a new model for crustal assembly and architecture in southwestern Laurentia. The heterogeneity of detrital zircons implies that both Mojave and Yavapai crustal provinces are made up of a mixture of juvenile 1.75 Ga crust, built in part on 1.84 Ga crust, and mixed with abundant Archean crustal material during the assembly of Paleoproterozoic lithosphere of the southwestern U.S.A.

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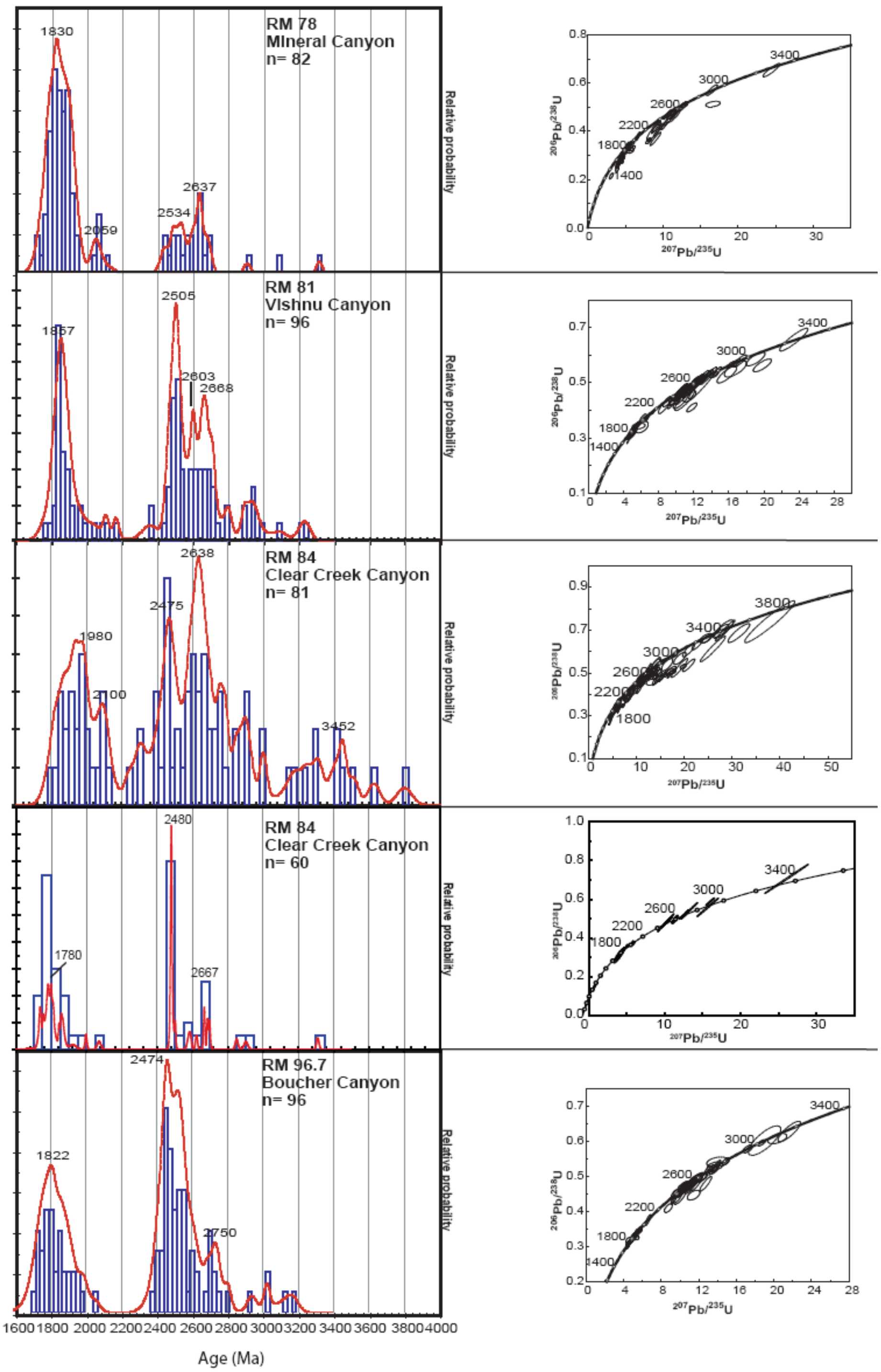
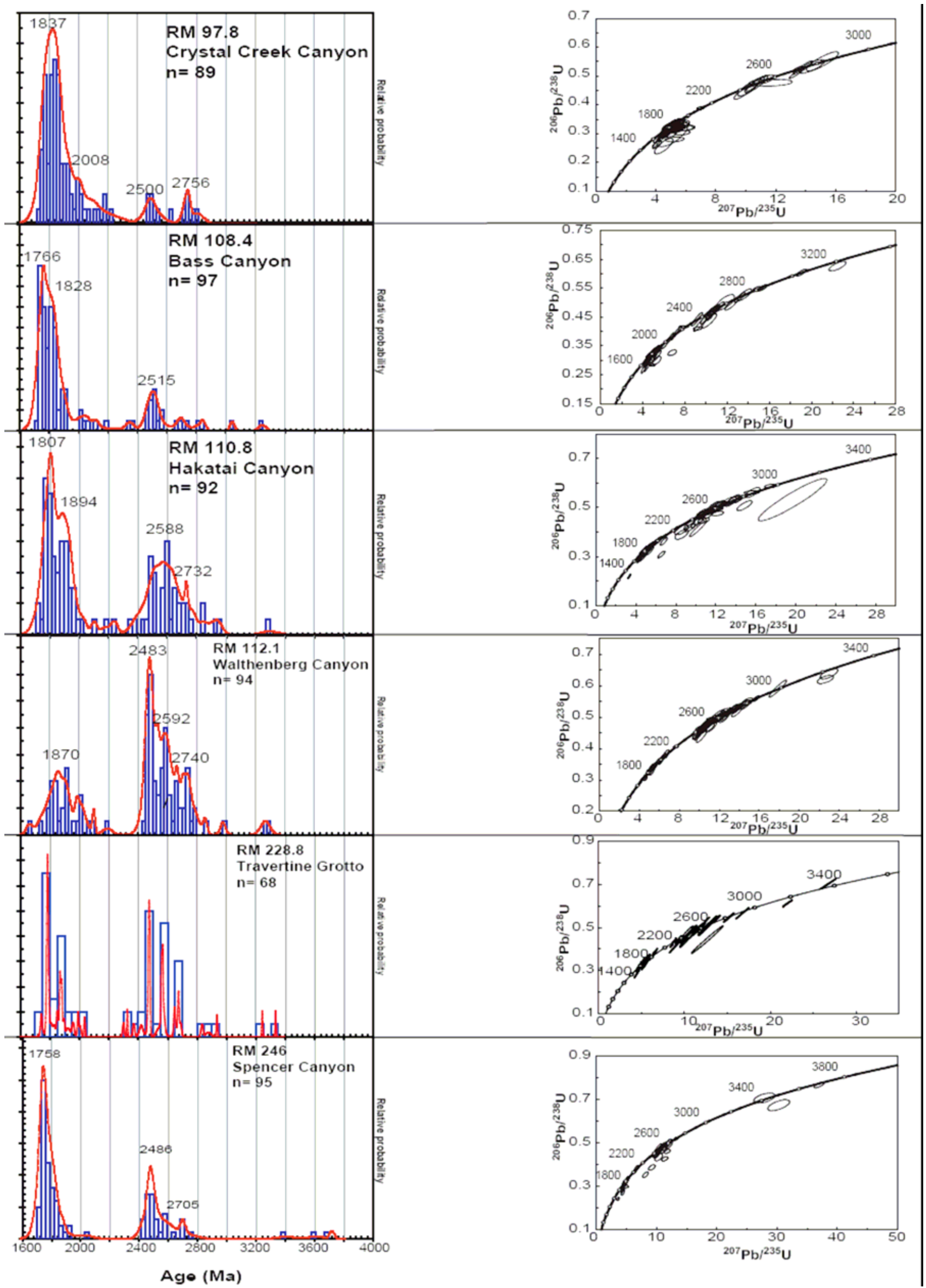
APPENDIX I

Age probability and U-Pb concordia diagrams for all samples, ordered from eastern to western Grand Canyon.




RM 97.8
Crystal Creek Canyon
n= 89
1837
2008
2500
2756
RM 108.4
Bass Canyon
n= 97
1766
1828
2515
RM 110.8
Hakatai Canyon
n= 92
1807
1894
2588
2732
RM 112.1
Walthenberg Canyon
n= 94
2483
2592
1870
2740
RM 228.8
Travertine Grotto
n= 68
RM 246
Spencer Canyon
n= 95
1758
2486
2705
Relative probability
Age (Ma)
206Pb/238U
207Pb/235U

Sample locations

GPS Coordinates UTM NAD 83		12S		
E	N	Uncertainty (+/- m)	Sample #	Location Name
0415338	3989417	7	OS 08 78-1	Mineral Canyon
0410384	3990684	8	OS 08 81-1	Vishnu Canyon
0407095	3993846	100	OS 08 84-1, 2	Clear Creek
0389232	3997475	100	K0696.7-1	Boucher Canyon
0388238	3999626	50	K0597.8	Crystal Creek
0382341	4002740	26	OS 08 102.7-1	
0379140	4011162	7	OS 08 108.4-1	Bass Canyon
0375786	4012036	50	K05-110.8 (AB)	above Hakatai mouth
0373819	4011287	7	K 06 112.1	Walthenberg Canyon
0281085	3959092	2	OS 08 228.8	Near Travertine Grotto
0259903	3966810	100	K06-246-1	Spencer canyon

U-Pb Isotopic Data

Analysis	U	U/Th	±	207Pb*	±	206Pb*	±	error	Best age	±	Conc
	(ppm)		(%)	235U*	(%)	238U	(%)	corr.	(Ma)	(Ma)	(%)
OS0878-1-2	237	5.3	2.9	11.4908	5.4	0.4697	4.6	0.84	2629.1	48.6	94.4
OS0878-1-3	316	2.6	6.1	5.5834	6.6	0.3200	2.5	0.38	2050.8	107.9	87.3
OS0878-1-4	325	4.0	2.3	5.2329	2.4	0.3323	0.6	0.25	1867.6	41.2	99.0
OS0878-1-5	244	3.7	2.2	4.6946	2.2	0.3138	0.5	0.23	1774.4	39.3	99.2
OS0878-1-11	230	3.1	1.9	4.8359	3.2	0.3192	2.5	0.79	1797.5	35.1	99.3
OS0878-1-12	139	5.3	1.9	5.2078	3.4	0.3214	2.9	0.84	1918.9	33.4	93.6
OS0878-1-13	162	1.6	2.1	4.8872	2.6	0.3219	1.6	0.59	1801.1	38.8	99.9
OS0878-1-14	106	1.8	2.5	5.1807	2.7	0.3289	0.8	0.30	1867.7	45.7	98.2
OS0878-1-15	316	2.5	1.7	5.0463	1.9	0.3296	1.0	0.49	1816.4	30.7	101.1
OS0878-1-16	242	2.1	1.1	10.1490	2.6	0.4223	2.4	0.91	2599.4	17.5	87.4
OS0878-1-17	188	2.4	0.9	4.6500	3.4	0.3097	3.3	0.96	1780.9	16.2	97.7
OS0878-1-18	289	1.3	1.7	5.1708	2.3	0.3248	1.5	0.66	1887.3	31.1	96.1
OS0878-1-19	235	1.9	1.0	3.9298	1.6	0.2678	1.2	0.76	1739.4	18.5	87.9
OS0878-1-21	350	3.4	3.5	4.2410	4.6	0.2764	2.9	0.64	1820.2	63.7	86.4
OS0878-1-22	239	1.7	2.5	11.2361	4.3	0.4757	3.5	0.82	2570.5	41.1	97.6
OS0878-1-24	60	0.4	1.3	5.5125	1.7	0.3401	1.0	0.61	1919.1	23.9	98.3
OS0878-1-25	226	2.5	2.2	4.9161	2.7	0.3221	1.5	0.57	1810.7	40.0	99.4
OS0878-1-26	269	2.0	2.7	4.9616	3.1	0.3198	1.4	0.45	1840.4	49.7	97.2
OS0878-1-27	238	1.6	1.5	16.5194	2.9	0.5718	2.5	0.87	2901.9	23.7	100.5
OS0878-1-28	200	4.7	1.5	5.3567	2.2	0.3385	1.6	0.74	1876.4	26.1	100.2
OS0878-1-29	50	1.1	1.3	6.5882	3.6	0.3772	3.4	0.93	2052.4	22.8	100.5
OS0878-1-30	184	3.3	2.4	4.9498	2.6	0.3271	1.0	0.38	1795.0	44.3	101.6
OS0878-1-31	819	5.8	3.5	16.6633	3.8	0.5133	1.5	0.39	3089.3	56.3	86.5
OS0878-1-32	205	2.3	1.8	4.8097	2.8	0.3220	2.2	0.78	1771.5	32.0	101.6
OS0878-1-33	193	2.0	2.2	3.9142	2.7	0.2638	1.6	0.57	1759.6	40.7	85.8
OS0878-1-34	146	1.4	1.1	5.1580	2.0	0.3313	1.6	0.82	1846.7	20.6	99.9
OS0878-1-35	208	1.1	1.4	5.4588	2.3	0.3412	1.8	0.80	1896.1	24.3	99.8
OS0878-1-36	508	2.1	3.0	9.1493	4.4	0.4195	3.2	0.74	2436.2	50.0	92.7
OS0878-1-37	280	1.7	1.0	4.5466	1.7	0.3036	1.4	0.80	1776.1	18.7	96.2
OS0878-1-38	189	4.8	1.8	4.9393	2.7	0.3212	2.1	0.75	1824.2	32.9	98.4
OS0878-1-40	154	1.0	1.8	4.3214	4.3	0.2804	4.0	0.92	1828.7	31.8	87.1
OS0878-1-41	102	4.6	3.6	5.0318	4.2	0.3212	2.2	0.52	1858.0	64.7	96.6
OS0878-1-43	83	1.4	1.3	24.4603	3.0	0.6551	2.8	0.91	3310.7	20.1	98.1
OS0878-1-44	127	1.8	1.1	4.8008	1.4	0.3160	0.8	0.57	1802.3	20.7	98.2
OS0878-1-45	263	3.8	5.9	4.4859	6.5	0.2880	2.8	0.42	1848.0	106.8	88.3
OS0878-1-46	297	2.7	1.8	4.2353	4.8	0.2667	4.5	0.93	1882.8	32.6	80.9
OS0878-1-47	302	3.2	3.5	5.0957	3.8	0.3254	1.6	0.42	1857.5	62.7	97.8
OS0878-1-48	121	2.8	1.5	5.5322	1.9	0.3440	1.1	0.57	1905.4	27.3	100.0
OS0878-1-49	224	3.3	1.7	10.7085	3.7	0.4469	3.3	0.89	2594.5	28.0	91.8
OS0878-1-50	78	2.5	1.2	5.8800	4.7	0.3403	4.5	0.96	2033.1	22.0	92.9
OS0878-1-51	179	2.1	1.6	10.9134	2.4	0.4777	1.9	0.76	2514.7	26.2	100.1
OS0878-1-52	177	2.8	3.2	5.1757	3.9	0.3257	2.2	0.57	1883.6	58.2	96.5
OS0878-1-53	1247	3.9	2.5	3.9352	2.6	0.2733	0.5	0.19	1704.5	46.4	91.4
OS0878-1-54	531	7.7	3.7	8.7565	6.7	0.3953	5.6	0.84	2462.7	61.7	87.2

OS0878-1-55	305	1.1	2.1	12.8281	2.5	0.5100	1.4	0.55	2675.2	34.3	99.3
OS0878-1-56	304	4.1	2.5	5.0375	6.4	0.3265	5.9	0.92	1830.5	45.0	99.5
OS0878-1-57	165	3.6	1.2	5.3382	2.8	0.3368	2.5	0.90	1879.3	22.0	99.6
OS0878-1-58	277	1.7	2.7	5.9541	3.4	0.3287	2.1	0.63	2116.3	46.6	86.6
OS0878-1-59	181	2.3	1.3	4.8803	2.6	0.3170	2.3	0.86	1826.4	24.0	97.2
OS0878-1-60	236	4.2	1.1	5.0112	1.6	0.3261	1.2	0.74	1823.3	19.8	99.8
OS0878-1-61	176	1.1	1.5	4.4646	3.0	0.2885	2.5	0.86	1835.9	27.2	89.0
OS0878-1-62	49	1.8	1.2	10.7684	1.9	0.4717	1.5	0.77	2513.4	20.8	99.1
OS0878-1-63	1159	2.0	2.1	8.1459	2.5	0.3649	1.3	0.50	2475.6	36.1	81.0
OS0878-1-64	262	4.0	1.2	9.0120	3.8	0.4140	3.6	0.95	2432.9	20.2	91.8
OS0878-1-65	148	1.1	1.3	13.0046	1.6	0.5164	0.8	0.52	2677.1	22.0	100.2
OS0878-1-66	84	2.5	0.7	4.9783	2.7	0.3244	2.6	0.97	1820.6	12.5	99.5
OS0878-1-68	142	1.5	1.3	5.4750	2.8	0.3413	2.4	0.88	1901.0	23.7	99.6
OS0878-1-69	299	3.9	2.0	5.3241	2.6	0.3321	1.6	0.61	1899.7	36.7	97.3
OS0878-1-70	131	1.7	1.6	5.6919	2.5	0.3495	1.9	0.76	1928.0	29.2	100.2
OS0878-1-71	265	3.4	1.6	4.7081	3.6	0.2879	3.2	0.89	1935.2	28.7	84.3
OS0878-1-72	430	4.0	1.9	4.8380	2.7	0.3231	2.0	0.73	1775.9	34.1	101.6
OS0878-1-73	563	2.0	1.0	9.3858	4.6	0.4059	4.5	0.98	2534.8	17.0	86.6
OS0878-1-75	115	2.3	1.8	6.5588	2.8	0.3736	2.1	0.76	2061.5	31.8	99.3
OS0878-1-77	153	2.2	1.4	11.5639	3.5	0.4731	3.2	0.92	2627.4	23.4	95.1
OS0878-1-79	440	2.3	1.7	4.4171	2.7	0.3034	2.2	0.79	1724.8	30.3	99.0
OS0878-1-80	82	1.1	1.4	12.6513	2.8	0.5038	2.5	0.87	2672.4	23.2	98.4
OS0878-1-81	133	1.6	2.5	11.1780	2.9	0.4767	1.4	0.50	2558.4	41.8	98.2
OS0878-1-82	187	1.9	0.7	11.6161	2.2	0.4728	2.1	0.94	2636.1	12.1	94.7
OS0878-1-83	179	2.0	3.3	4.5607	4.0	0.3028	2.3	0.56	1786.5	61.0	95.5
OS0878-1-84	258	2.1	1.8	4.6513	4.2	0.3063	3.8	0.91	1801.7	32.0	95.6
OS0878-1-85	104	1.6	2.0	5.4544	2.2	0.3450	0.8	0.36	1874.5	36.4	101.9
OS0878-1-86	102	3.0	1.1	4.3706	2.0	0.2919	1.8	0.86	1775.9	19.2	93.0
OS0878-1-87	549	6.5	1.6	4.8008	3.6	0.3015	3.3	0.90	1887.4	28.7	90.0
OS0878-1-88	312	3.9	1.1	5.0365	1.5	0.3219	1.0	0.67	1855.8	20.4	96.9
OS0878-1-90	1173	10.7	2.8	3.8958	3.3	0.2550	1.9	0.57	1812.4	50.0	80.8
OS0878-1-91	172	2.3	1.2	4.9753	3.3	0.3234	3.0	0.92	1825.3	22.5	99.0
OS0878-1-92	212	2.3	3.1	4.5398	4.8	0.2901	3.7	0.77	1855.9	55.5	88.5
OS0878-1-95	361	4.3	2.6	5.4674	3.1	0.3443	1.7	0.54	1882.6	46.7	101.3
OS0878-1-96	366	1.8	0.8	10.3473	1.9	0.4618	1.7	0.90	2481.9	14.2	98.6
OS0878-1-98	118	1.7	0.8	11.4495	2.4	0.4677	2.3	0.95	2630.0	12.6	94.1
OS0878-1-99	488	1.1	3.8	4.2097	7.8	0.2729	6.8	0.88	1830.3	68.0	85.0
OS0878-1-100	100	1.2	2.0	5.2481	2.3	0.3345	1.1	0.47	1860.8	36.0	100.0
OS0881-1-1	151	3.1	1.5	9.5651	3.7	0.4283	3.4	0.91	2476.2	25.1	92.8
OS0881-1-3	353	1.3	1.2	5.4462	1.9	0.3426	1.5	0.77	1884.2	22.2	100.8
OS0881-1-4	324	2.8	1.8	12.6013	1.8	0.5101	0.5	0.27	2645.1	29.2	100.5
OS0881-1-5	395	4.0	1.5	5.1569	1.8	0.3325	0.9	0.49	1840.0	28.0	100.6
OS0881-1-6	275	1.5	2.0	11.7732	3.3	0.4109	2.6	0.80	2888.4	32.0	76.8
OS0881-1-7	187	1.5	0.6	11.8128	2.3	0.4920	2.3	0.96	2597.6	10.3	99.3
OS0881-1-8	444	1.5	1.9	5.4664	2.8	0.3416	2.1	0.75	1896.5	33.3	99.9
OS0881-1-9	418	2.4	0.8	4.8417	6.6	0.3105	6.5	0.99	1849.6	14.3	94.2
OS0881-1-10	268	1.2	3.5	10.9606	6.9	0.4395	6.0	0.86	2661.0	58.2	88.2
OS0881-1-11	138	1.7	1.0	12.1566	4.3	0.4875	4.2	0.97	2660.7	16.1	96.2

OS0881-1-12	219	2.7	1.5	10.7044	2.9	0.4757	2.5	0.86	2489.2	24.8	100.8
OS0881-1-13	207	3.4	1.9	4.6889	3.9	0.3106	3.4	0.88	1790.8	33.9	97.4
OS0881-1-14	197	1.7	1.7	14.3276	2.3	0.5302	1.5	0.68	2793.0	27.0	98.2
OS0881-1-15	283	2.1	0.6	10.2654	2.5	0.4521	2.4	0.97	2504.3	10.8	96.0
OS0881-1-16	279	1.2	3.2	11.5115	4.3	0.4512	2.9	0.66	2698.6	53.5	89.0
OS0881-1-17	497	4.6	3.7	5.0689	6.6	0.3234	5.4	0.83	1858.8	66.9	97.2
OS0881-1-18	586	5.3	2.8	4.9876	4.6	0.3216	3.7	0.80	1839.8	50.2	97.7
OS0881-1-19	217	2.4	2.2	10.9173	2.4	0.4759	1.1	0.45	2521.6	36.3	99.5
OS0881-1-20	155	2.2	0.8	10.5148	4.5	0.4643	4.4	0.98	2500.0	14.0	98.3
OS0881-1-21	405	2.1	3.0	6.2296	4.1	0.3710	2.7	0.67	1982.7	53.9	102.6
OS0881-1-22	397	2.9	2.4	8.9752	3.7	0.4321	2.8	0.76	2353.4	41.0	98.4
OS0881-1-23	391	1.3	2.1	19.8018	3.4	0.5633	2.7	0.79	3215.8	33.6	89.6
OS0881-1-24	34	1.4	1.6	12.8567	4.3	0.5132	4.0	0.93	2668.4	26.5	100.1
OS0881-1-25	65	1.0	1.5	17.2380	2.9	0.5792	2.5	0.86	2950.0	24.2	99.8
OS0881-1-26	242	2.7	1.6	11.6115	4.9	0.4775	4.7	0.95	2619.1	26.0	96.1
OS0881-1-27	386	2.6	1.8	5.2848	2.9	0.3385	2.4	0.80	1852.0	32.2	101.5
OS0881-1-28	303	2.1	1.4	5.1574	2.9	0.3323	2.5	0.87	1841.2	25.5	100.5
OS0881-1-29	272	36.1	7.1	6.0510	8.2	0.3395	4.0	0.49	2088.1	125.1	90.2
OS0881-1-30	419	2.1	1.2	11.9453	3.3	0.4988	3.1	0.93	2593.5	19.8	100.6
OS0881-1-31	383	2.4	2.6	10.5830	2.8	0.4677	1.1	0.38	2498.3	43.8	99.0
OS0881-1-32	207	1.6	1.1	13.3173	3.2	0.5208	3.1	0.94	2702.4	18.3	100.0
OS0881-1-33	323	3.2	2.7	5.2035	4.5	0.3234	3.6	0.80	1906.1	48.6	94.8
OS0881-1-35	380	1.1	1.5	12.2456	2.1	0.5049	1.4	0.69	2614.4	25.1	100.8
OS0881-1-36	215	1.1	0.8	13.4906	2.4	0.5251	2.3	0.94	2709.9	13.7	100.4
OS0881-1-37	131	2.9	1.0	4.8164	2.0	0.3162	1.8	0.87	1807.3	18.4	98.0
OS0881-1-38	541	2.6	1.1	11.8479	2.9	0.4967	2.7	0.93	2586.7	18.0	100.5
OS0881-1-39	169	1.7	0.9	10.6348	2.6	0.4695	2.5	0.94	2500.1	15.5	99.3
OS0881-1-41	221	3.1	1.7	5.6461	2.5	0.3496	1.8	0.73	1912.7	30.5	101.1
OS0881-1-42	1149	1.6	1.1	10.7368	3.2	0.4735	3.0	0.94	2502.0	18.5	99.9
OS0881-1-43	80	4.9	2.0	4.7148	4.0	0.3187	3.5	0.87	1753.9	35.7	101.7
OS0881-1-44	603	1.3	1.6	5.4666	3.3	0.3441	3.0	0.88	1883.2	28.3	101.2
OS0881-1-45	162	2.0	2.5	13.0118	8.0	0.4986	7.6	0.95	2735.9	41.3	95.3
OS0881-1-47	157	1.7	1.1	12.9813	2.1	0.5157	1.8	0.84	2676.2	18.9	100.2
OS0881-1-46	380	1.7	1.7	5.9027	2.5	0.3573	1.8	0.71	1953.2	30.9	100.8
OS0881-1-48	229	3.5	1.4	5.1014	3.6	0.3295	3.3	0.92	1836.8	25.5	100.0
OS0881-1-49	692	3.3	0.7	12.5753	1.7	0.5080	1.6	0.92	2648.6	11.1	100.0
OS0881-1-50	158	2.3	1.2	10.4122	2.7	0.4697	2.4	0.89	2463.9	20.8	100.7
OS0881-1-51	277	1.9	1.7	5.3379	3.8	0.3390	3.4	0.90	1867.2	29.8	100.8
OS0881-1-52	632	2.1	2.8	4.8298	4.6	0.3139	3.7	0.79	1825.3	51.0	96.4
OS0881-1-53	340	1.4	0.7	12.8316	2.2	0.5122	2.1	0.95	2668.2	11.6	99.9
OS0881-1-54	216	2.0	0.9	6.8013	2.9	0.3778	2.7	0.95	2105.4	16.3	98.1
OS0881-1-55	272	1.8	0.9	10.9052	2.3	0.4754	2.2	0.92	2521.5	15.1	99.4
OS0881-1-56	242	2.4	1.2	12.1988	3.9	0.5005	3.8	0.95	2622.7	19.8	99.7
OS0881-1-57	129	3.8	1.4	5.3051	2.9	0.3365	2.5	0.88	1869.4	24.9	100.0
OS0881-1-58	473	4.2	2.7	8.5797	4.7	0.4134	3.9	0.82	2352.0	46.3	94.8
OS0881-1-59	264	1.7	3.5	16.7391	5.0	0.5506	3.5	0.71	2984.4	57.0	94.7
OS0881-1-60	261	2.2	0.7	10.0689	3.1	0.4538	3.0	0.97	2465.3	12.0	97.8
OS0881-1-61	159	3.2	1.0	16.1883	1.8	0.5650	1.4	0.81	2888.5	16.7	100.0

OS0881-1-62	533	11.7	0.9	7.2963	1.4	0.3926	1.0	0.75	2161.5	16.1	98.8
OS0881-1-63	171	3.0	1.0	10.4724	2.0	0.4687	1.8	0.87	2477.3	16.7	100.0
OS0881-1-64	128	1.3	2.4	19.0479	3.7	0.5865	2.8	0.76	3090.1	38.5	96.3
OS0881-1-65	295	2.9	1.7	5.3360	3.4	0.3387	2.9	0.86	1868.4	30.7	100.6
OS0881-1-66	89	1.1	1.6	12.5593	3.1	0.5111	2.7	0.86	2636.4	25.9	100.9
OS0881-1-67	201	0.6	1.2	12.9697	2.0	0.5151	1.6	0.80	2676.6	20.0	100.1
OS0881-1-68	184	1.7	1.6	10.8175	3.1	0.4766	2.6	0.85	2503.5	26.9	100.4
OS0881-1-69	89	2.8	1.6	4.8796	3.1	0.3208	2.6	0.85	1804.9	29.6	99.4
OS0881-1-70	193	1.6	1.5	5.2527	3.5	0.3374	3.1	0.90	1846.8	27.5	101.5
OS0881-1-71	369	2.0	0.8	11.0317	1.9	0.4803	1.7	0.90	2523.7	13.3	100.2
OS0881-1-72	135	2.4	1.8	5.1946	4.4	0.3336	4.0	0.91	1847.3	32.9	100.5
OS0881-1-73	261	2.3	1.1	14.6725	2.3	0.5418	2.0	0.88	2796.7	18.0	99.8
OS0881-1-74	214	0.8	1.9	23.3912	4.5	0.6570	4.1	0.91	3235.9	29.5	100.6
OS0881-1-75	307	1.4	3.5	9.8243	4.0	0.4327	1.9	0.47	2504.2	59.4	92.6
OS0881-1-76	144	3.5	1.5	5.0262	2.7	0.3258	2.2	0.83	1830.4	27.0	99.3
OS0881-1-77	92	3.3	1.4	11.3326	2.1	0.4859	1.6	0.76	2549.2	22.6	100.2
OS0881-1-78	163	3.2	2.2	10.8929	4.0	0.4687	3.4	0.84	2543.3	36.9	97.4
OS0881-1-79	181	2.5	1.7	11.0765	2.3	0.4822	1.6	0.69	2523.8	28.2	100.5
OS0881-1-80	180	1.9	1.8	10.5115	3.7	0.4557	3.2	0.87	2530.8	30.2	95.6
OS0881-1-81	174	2.2	0.9	10.6385	2.8	0.4730	2.7	0.95	2488.4	15.0	100.3
OS0881-1-82	163	2.2	1.7	10.6602	3.6	0.4736	3.2	0.89	2489.6	28.3	100.4
OS0881-1-83	119	1.5	2.2	6.3883	2.8	0.3695	1.7	0.61	2034.5	39.6	99.6
OS0881-1-84	369	2.4	1.6	13.4638	3.7	0.5210	3.4	0.90	2719.7	26.5	99.4
OS0881-1-85	268	8.0	1.5	5.1779	2.1	0.3333	1.4	0.69	1843.0	27.0	100.6
OS0881-1-86	312	1.2	1.7	10.6679	4.3	0.4484	3.9	0.92	2582.7	28.4	92.5
OS0881-1-87	356	6.1	2.9	4.9078	3.5	0.3155	2.0	0.56	1845.3	53.0	95.8
OS0881-1-88	211	4.6	8.1	5.7096	8.4	0.3434	2.0	0.24	1964.8	145.5	96.9
OS0881-1-90	205	2.7	0.9	10.4451	3.0	0.4643	2.8	0.95	2488.8	15.3	98.8
OS0881-1-91	321	1.6	2.6	12.3640	3.5	0.5061	2.3	0.66	2626.6	43.4	100.5
OS0881-1-92	195	2.1	0.8	10.0949	2.0	0.4605	1.9	0.92	2445.1	13.7	99.9
OS0881-1-93	276	5.9	1.2	5.3160	3.1	0.3349	2.9	0.93	1882.0	21.1	98.9
OS0881-1-94	216	2.5	2.0	10.6153	3.0	0.4583	2.3	0.74	2537.6	34.1	95.8
OS0881-1-95	395	0.9	3.3	10.5237	5.5	0.4361	4.5	0.81	2606.1	54.3	89.5
OS0881-1-96	283	2.9	1.2	5.0962	2.7	0.3284	2.4	0.90	1841.3	21.5	99.4
OS0881-1-97	301	1.5	2.7	15.7737	4.7	0.5303	3.8	0.81	2949.0	44.1	93.0
OS0881-1-98	272	2.6	2.0	9.6679	3.4	0.4368	2.7	0.80	2461.2	34.3	94.9
OS0881-1-99	200	1.4	1.2	13.0915	1.9	0.5127	1.5	0.79	2699.9	19.6	98.8
OS0881-1-100	77	1.6	1.3	16.7898	1.9	0.5727	1.4	0.74	2925.7	20.9	99.8
OS0884-1-11	311	4.1	2.2	5.9729	2.6	0.3259	1.3	0.51	2136.9	38.8	85.1
OS0884-1-18	226	2.9	3.2	4.9307	5.6	0.3055	4.6	0.82	1911.7	57.5	89.9
OS0884-1-19	89	2.9	1.8	13.9194	2.5	0.4824	1.6	0.67	2900.0	29.8	87.5
OS0884-1-20	825	3.8	1.8	25.9689	6.7	0.6124	6.4	0.96	3508.7	28.0	87.8
OS0884-1-21	19	0.4	1.5	13.8470	2.4	0.4827	1.8	0.77	2890.3	24.4	87.9
OS0884-1-22	118	5.2	1.6	5.9873	2.4	0.3342	1.9	0.77	2096.9	27.6	88.6
OS0884-1-23	380	1.4	1.5	14.6320	2.5	0.5026	2.0	0.79	2914.2	24.8	90.1
OS0884-1-24	225	4.6	2.1	10.0118	4.3	0.4400	3.8	0.88	2507.6	34.7	93.7
OS0884-1-25	339	2.3	4.0	5.9038	8.1	0.3467	7.1	0.87	2007.5	70.9	95.6
OS0884-1-26	87	0.7	1.4	14.1915	2.5	0.5077	2.1	0.84	2848.2	22.3	92.9

OS0884-1-27	181	3.7	1.5	5.6787	3.3	0.3373	2.9	0.89	1987.0	27.4	94.3
OS0884-1-28	232	2.7	1.3	11.6384	3.8	0.4729	3.5	0.94	2639.1	21.9	94.6
OS0884-1-29	193	2.6	2.7	9.8846	3.1	0.4485	1.5	0.48	2454.2	46.0	97.3
OS0884-1-30	322	2.0	3.2	6.3054	3.8	0.3665	2.2	0.56	2025.9	56.2	99.4
OS0884-1-31	556	1.7	1.5	10.2563	2.5	0.4626	2.0	0.80	2464.0	25.7	99.5
OS0884-1-32	133	2.6	1.7	10.0762	3.6	0.4578	3.3	0.89	2451.7	27.9	99.1
OS0884-1-33	53	0.9	2.4	11.9706	2.6	0.4983	1.1	0.42	2598.7	39.2	100.3
OS0884-1-34	128	2.3	2.0	8.8700	3.9	0.4138	3.3	0.86	2407.0	33.7	92.7
OS0884-1-35	195	1.7	2.7	13.5296	7.0	0.5226	6.5	0.92	2722.7	43.8	99.5
OS0884-1-36	163	1.2	1.0	12.2236	2.6	0.5004	2.4	0.93	2626.6	16.0	99.6
OS0884-1-38	194	2.3	1.1	5.6953	2.6	0.3483	2.4	0.91	1935.2	18.8	99.5
OS0884-1-39	469	2.0	2.0	5.3757	3.5	0.3422	2.8	0.82	1862.8	35.9	101.9
OS0884-1-40	241	3.7	3.4	4.7860	4.1	0.3020	2.3	0.56	1878.9	60.6	90.5
OS0884-1-41	252	0.9	2.2	15.2421	2.5	0.5504	1.3	0.50	2833.0	35.9	99.8
OS0884-1-42	180	0.8	2.0	27.7321	3.5	0.6976	2.9	0.81	3408.6	31.6	100.1
OS0884-1-43	784	3.0	2.2	8.9588	6.9	0.4048	6.5	0.95	2461.0	37.6	89.0
OS0884-1-44	161	3.2	1.8	11.6229	5.2	0.4648	4.9	0.94	2665.2	30.3	92.3
OS0884-1-45	267	3.5	1.5	5.9633	4.1	0.3412	3.8	0.93	2053.6	27.2	92.1
OS0884-1-46	176	2.2	0.9	13.1780	2.3	0.4894	2.1	0.92	2787.3	14.7	92.1
OS0884-1-47	291	7.9	3.8	8.6168	5.8	0.4015	4.4	0.76	2408.9	64.2	90.3
OS0884-1-48	274	3.4	2.8	37.8543	9.1	0.7394	8.7	0.95	3796.7	42.1	94.0
OS0884-1-49	228	4.3	1.5	7.3674	2.0	0.3790	1.3	0.65	2239.3	26.6	92.5
OS0884-1-50	74	0.7	3.2	5.5423	5.6	0.3340	4.6	0.82	1961.5	56.8	94.7
OS0884-1-51	237	2.5	3.3	6.3523	4.5	0.3567	3.0	0.67	2086.6	58.4	94.2
OS0884-1-52	124	0.8	2.2	31.3801	4.8	0.6864	4.2	0.89	3624.3	33.9	93.0
OS0884-1-53	192	1.1	3.0	13.4182	4.2	0.5039	3.0	0.71	2768.9	48.9	95.0
OS0884-1-54	101	2.9	3.4	16.3786	4.8	0.5388	3.5	0.72	2984.1	54.3	93.1
OS0884-1-55	484	4.0	3.0	19.0403	4.4	0.5679	3.3	0.73	3140.7	47.8	92.3
OS0884-1-56	616	3.2	3.4	5.7504	4.2	0.3377	2.4	0.58	2007.6	60.4	93.4
OS0884-1-57	407	3.1	4.4	8.5516	6.9	0.3981	5.3	0.76	2410.4	75.3	89.6
OS0884-1-58	309	3.8	2.7	4.7284	6.9	0.3047	6.4	0.92	1840.8	48.4	93.1
OS0884-1-59	318	1.9	1.2	12.7176	2.6	0.4827	2.3	0.89	2751.6	19.6	92.3
OS0884-1-60	178	2.1	1.4	11.4455	3.9	0.4609	3.7	0.93	2654.0	23.5	92.1
OS0884-1-61	536	5.7	1.6	4.9945	5.0	0.3122	4.7	0.94	1896.1	29.4	92.4
OS0884-1-63	442	4.6	2.4	5.2732	3.5	0.3261	2.6	0.74	1915.2	42.4	95.0
OS0884-1-64	260	2.0	1.2	13.1041	2.7	0.5120	2.4	0.89	2703.9	20.1	98.6
OS0884-1-65	125	3.7	2.2	5.8245	4.7	0.3553	4.2	0.89	1939.7	39.2	101.0
OS0884-1-66	471	3.4	1.4	5.2664	2.8	0.3364	2.5	0.88	1857.0	24.6	100.7
OS0884-1-67	141	2.3	2.7	28.1328	4.8	0.7048	4.0	0.83	3414.9	41.5	100.7
OS0884-1-68	256	3.8	1.2	4.8470	3.2	0.3165	3.0	0.93	1816.9	21.2	97.6
OS0884-1-69	166	3.2	3.0	8.0618	5.1	0.3821	4.2	0.81	2380.0	50.8	87.6
OS0884-1-70	68	0.8	2.1	12.1455	3.1	0.4830	2.4	0.75	2674.5	34.4	95.0
OS0884-1-71	191	4.5	1.6	7.8386	3.8	0.3906	3.5	0.91	2294.1	26.7	92.7
OS0884-1-72	107	1.5	1.5	6.5906	3.8	0.3671	3.5	0.92	2100.7	26.0	96.0
OS0884-1-73	92	1.5	2.0	10.9474	2.7	0.4714	1.9	0.68	2542.1	33.9	97.9
OS0884-1-74	84	2.5	3.7	14.0345	5.2	0.5368	3.6	0.69	2738.7	61.2	101.1
OS0884-1-75	250	4.1	1.5	6.0727	2.4	0.3627	1.9	0.79	1977.4	26.4	100.9
OS0884-1-76	244	2.2	1.2	11.7751	6.9	0.4934	6.8	0.98	2587.7	19.9	99.9

OS0884-1-77	150	0.9	1.8	11.7384	4.1	0.4829	3.7	0.89	2618.2	30.3	97.0
OS0884-1-79	204	3.1	1.2	14.1456	2.2	0.5350	1.8	0.83	2757.4	19.9	100.2
OS0884-1-80	129	3.3	1.8	10.4219	3.6	0.4691	3.1	0.87	2467.7	29.6	100.5
OS0884-1-81	182	3.0	2.1	20.8973	4.0	0.6066	3.4	0.84	3183.9	33.9	96.0
OS0884-1-82	173	1.5	1.7	24.5759	2.6	0.6590	1.9	0.75	3308.9	26.5	98.6
OS0884-1-83	210	1.8	1.8	8.5524	2.3	0.4210	1.4	0.62	2315.3	30.9	97.8
OS0884-1-84	120	1.0	2.0	11.5073	3.8	0.4822	3.3	0.85	2587.5	33.4	98.1
OS0884-1-85	738	14.7	4.1	11.1546	5.9	0.4725	4.3	0.72	2569.4	67.7	97.1
OS0884-1-86	229	3.1	1.7	12.0535	3.4	0.5009	3.0	0.87	2601.4	28.0	100.6
OS0884-1-87	173	3.5	1.4	12.4615	2.9	0.4938	2.6	0.88	2680.4	23.3	96.5
OS0884-1-88	214	3.1	5.8	9.3051	6.8	0.4192	3.6	0.53	2466.1	97.9	91.5
OS0884-1-89	312	3.4	2.4	10.3488	3.1	0.4508	2.0	0.64	2522.6	39.5	95.1
OS0884-1-90	443	2.7	1.8	4.8198	2.8	0.3206	2.2	0.77	1783.2	32.6	100.5
OS0884-1-91	133	2.6	1.5	10.2886	4.5	0.4597	4.3	0.94	2480.1	25.6	98.3
OS0884-1-92	200	2.7	1.2	28.5121	4.7	0.6983	4.6	0.97	3450.2	18.3	99.0
OS0884-1-93	123	4.5	1.2	18.1051	2.4	0.5899	2.1	0.88	2999.7	18.5	99.6
OS0884-1-94	234	1.3	1.8	22.6634	3.2	0.6332	2.7	0.83	3244.2	27.9	97.5
OS0884-1-95	400	2.1	1.7	11.9197	2.2	0.4950	1.5	0.65	2602.6	28.3	99.6
OS0884-1-96	399	1.7	2.5	5.5243	3.7	0.3429	2.8	0.75	1908.4	44.2	99.6
OS0884-1-97	319	1.4	2.7	11.1467	3.8	0.4533	2.7	0.71	2637.6	44.5	91.4
OS0884-1-98	217	3.2	2.7	24.5203	3.5	0.6622	2.2	0.62	3297.6	43.0	99.3
OS0884-1-99	200	1.3	1.3	10.4856	3.3	0.4223	3.0	0.91	2653.5	21.9	85.6
OS0884-1-100	225	1.3	1.3	5.3493	3.2	0.3185	2.9	0.91	1982.8	23.2	89.9
OS08842-1	51	0.8	0.6	6.5803	2.0	0.3728	1.9	0.96	2070.8	10.3	98.6
OS08842-3	432	1.9	0.3	4.6927	3.8	0.3148	3.8	1.00	1767.6	6.3	99.8
OS08842-5	45	3.0	0.5	13.7695	6.1	0.5419	6.1	1.00	2691.8	9.0	103.7
OS08842-6	165	2.3	0.2	12.6915	1.6	0.5076	1.6	0.99	2665.1	3.8	99.3
OS08842-7	137	2.6	0.3	10.2586	1.0	0.4582	0.9	0.94	2480.7	5.3	98.0
OS08842-8	131	3.0	0.3	10.6077	1.6	0.4745	1.6	0.98	2478.1	5.8	101.0
OS08842-9	196	1.8	0.2	5.0934	1.4	0.3277	1.4	0.99	1844.1	3.8	99.1
OS08842-10	286	2.1	0.7	4.3751	2.9	0.2948	2.9	0.97	1759.9	12.2	94.6
OS08842-11	236	2.2	0.2	10.4686	1.9	0.4672	1.9	0.99	2481.9	3.6	99.6
OS08842-13	292	2.5	0.2	10.0146	2.7	0.4480	2.7	1.00	2477.8	3.3	96.3
OS08842-14	138	3.0	0.4	10.8978	1.3	0.4872	1.3	0.96	2479.0	6.0	103.2
OS08842-15	338	4.3	0.3	5.1312	0.9	0.3361	0.8	0.96	1811.2	4.6	103.1
OS08842-16	219	1.8	0.2	10.7256	1.9	0.4786	1.9	0.99	2482.1	3.3	101.6
OS08842-18	258	2.7	0.5	16.4459	2.6	0.5877	2.6	0.98	2850.1	7.9	104.6
OS08842-19	232	3.1	0.3	5.0684	2.0	0.3345	1.9	0.99	1797.7	4.6	103.5
OS08842-22	304	1.9	0.5	5.0287	5.6	0.3180	5.6	1.00	1875.1	9.7	94.9
OS08842-23	286	3.1	0.2	5.2429	1.6	0.3352	1.6	0.99	1855.0	4.0	100.5
OS08842-24	147	3.0	0.2	10.6045	2.1	0.4740	2.1	0.99	2479.3	4.0	100.9
OS08842-25	122	2.0	1.8	5.0299	3.0	0.3296	2.4	0.80	1810.4	33.0	101.5
OS08842-27	287	2.0	0.2	10.5695	2.0	0.4724	2.0	1.00	2479.6	2.9	100.6
OS08842-28	109	3.8	0.3	5.1601	2.4	0.3282	2.4	0.99	1864.8	6.3	98.1
OS08842-29	120	2.0	0.2	11.1723	2.7	0.4925	2.7	1.00	2502.6	3.5	103.2
OS08842-33	116	2.6	0.2	10.9410	1.7	0.4889	1.7	0.99	2479.9	3.9	103.5
OS08842-37	143	3.3	0.7	16.1280	6.9	0.5580	6.9	1.00	2902.8	10.6	98.5
OS08842-38	384	1.9	0.7	4.4953	4.2	0.2998	4.1	0.98	1778.3	13.6	95.1

OS08842-43	196	2.0	0.3	4.4891	0.9	0.3065	0.9	0.95	1735.6	5.1	99.3
OS08842-45	157	3.1	0.5	5.1799	2.6	0.3406	2.5	0.98	1804.5	8.5	104.7
OS08842-47	140	1.8	1.1	4.7835	3.1	0.3136	2.9	0.93	1809.9	20.3	97.1
OS08842-48	181	2.1	0.3	10.7088	1.5	0.4788	1.4	0.97	2479.0	5.9	101.7
OS08842-50	85	1.9	1.7	2.2098	2.2	0.2042	1.3	0.61	1159.6	33.9	103.3
OS08842-51	193	2.2	0.7	11.1995	1.5	0.4985	1.3	0.88	2486.3	12.2	104.9
OS08842-52	391	6.9	0.3	6.3658	1.6	0.3761	1.6	0.98	1996.6	5.4	103.1
OS08842-53	278	4.0	0.3	4.6850	1.8	0.3120	1.7	0.99	1781.2	5.2	98.3
OS08842-55	242	1.7	0.2	13.3128	2.3	0.5261	2.3	1.00	2685.0	3.4	101.5
OS08842-57	1193	2.7	4.4	0.4011	7.9	0.0518	6.6	0.83	325.6	21.0	NA
OS08842-58	134	2.2	0.3	4.6635	2.2	0.3181	2.2	0.99	1737.6	5.1	102.5
OS08842-59	444	1.3	0.7	4.4444	3.3	0.3012	3.2	0.98	1749.3	12.1	97.0
OS08842-60	172	1.7	0.5	10.9160	2.8	0.4857	2.7	0.99	2487.0	7.7	102.6
OS08842-61	141	2.4	0.3	4.9288	2.1	0.3262	2.1	0.99	1792.6	6.1	101.5
OS08842-62	387	1.6	0.7	5.0667	2.7	0.3346	2.6	0.97	1796.6	12.4	103.6
OS08842-64	51	0.6	0.5	12.0976	1.0	0.5102	0.9	0.88	2576.9	8.1	103.1
OS08842-65	37	2.4	5.0	1.6025	9.7	0.1587	8.3	0.85	949.6	73.1	93.1
OS08842-66	123	2.8	0.5	11.1468	4.3	0.4969	4.3	0.99	2483.9	9.2	104.7
OS08842-67	155	2.0	2.4	0.7269	2.7	0.0893	1.4	0.50	551.3	7.2	96.9
OS08842-68	398	1.5	1.0	5.8153	1.7	0.3583	1.4	0.81	1921.6	18.3	102.7
OS08842-69	228	3.8	0.8	4.7416	2.7	0.3143	2.5	0.95	1789.5	14.9	98.5
OS08842-72	166	1.6	0.5	26.3134	8.6	0.7051	8.6	1.00	3309.8	7.2	103.9
OS08842-74	153	1.0	0.4	11.8381	2.5	0.4962	2.5	0.99	2587.1	6.8	100.4
OS08842-78	128	1.4	0.4	5.4120	4.7	0.3447	4.7	1.00	1862.0	6.8	102.5
OS08842-81	174	2.5	0.2	10.5532	1.5	0.4716	1.5	0.99	2479.8	3.6	100.4
OS08842-83	292	1.9	0.4	11.7533	1.5	0.4822	1.5	0.97	2622.8	5.9	96.7
OS08842-85	356	1.9	0.3	4.9178	0.7	0.3273	0.7	0.93	1782.5	4.7	102.4
OS08842-91	535	3.3	0.6	5.2307	1.9	0.3410	1.8	0.95	1820.1	11.2	103.9
OS08842-92	320	3.6	0.3	4.8780	1.7	0.3257	1.7	0.99	1776.2	5.4	102.3
OS08842-94	455	4.1	0.2	4.8310	1.6	0.3265	1.5	0.99	1754.1	4.4	103.9
OS08842-95	143	1.6	4.8	4.6025	10.5	0.3071	9.4	0.89	1777.8	88.2	97.1
OS08842-96	174	2.6	0.5	4.4366	2.6	0.3042	2.6	0.98	1727.8	8.7	99.1
OS08842-98	383	2.0	0.4	4.8280	3.7	0.3184	3.7	0.99	1799.1	7.8	99.0
OS08842-99	250	1.2	0.2	13.3982	1.4	0.5349	1.4	0.99	2668.0	3.3	103.5
OS08842-100	263	1.5	0.2	13.0062	1.8	0.5103	1.8	0.99	2697.0	3.8	98.5
KO69671-11	151	1.5	N/A	4.48446	3.3	0.30869	1.8	0.53	1720.6	52.0	100.8
KO69671-10	168	1.3	N/A	4.63276	5.6	0.31797	2.0	0.36	1726.0	95.6	103.1
KO69671-3	166	1.4	N/A	4.37956	2.5	0.29975	1.2	0.46	1731.1	41.3	97.6
KO69671-69	113	0.8	N/A	4.48993	3.1	0.30729	1.0	0.33	1731.2	52.9	99.8
KO69671-81	100	1.5	N/A	4.47089	2.3	0.30527	1.2	0.54	1735.5	35.4	99.0
KO69671-58	150	1.3	N/A	4.61013	2.8	0.31226	1.0	0.38	1750.2	46.7	100.1
KO69671-99	132	2.4	N/A	4.68643	1.7	0.31502	1.0	0.57	1764.2	26.0	100.1
KO69671-91	152	0.7	N/A	4.72633	2.4	0.31660	1.7	0.73	1770.5	29.8	100.1
KO69671-4	244	1.9	N/A	4.74140	2.4	0.31664	1.3	0.53	1776.1	37.1	99.8
KO69671-61	146	1.5	N/A	4.73418	2.8	0.31533	1.6	0.57	1780.9	42.3	99.2
KO69671-52	218	2.3	N/A	4.77662	2.7	0.31785	1.0	0.36	1782.6	46.7	99.8
KO69671-8	509	3.2	N/A	4.84962	3.0	0.32106	1.7	0.55	1792.0	46.3	100.2
KO69671-64	81	1.7	N/A	4.81560	2.8	0.31863	2.1	0.73	1793.0	35.2	99.4

KO69671-87	93	2.5	N/A	4.92052	3.3	0.32331	1.8	0.54	1805.7	51.0	100.0
KO69671-90	532	3.3	N/A	4.78058	1.6	0.31411	1.0	0.64	1805.7	21.6	97.5
KO69671-77	122	1.5	N/A	4.97093	1.9	0.32436	1.2	0.60	1818.3	28.2	99.6
KO69671-32	375	4.1	N/A	5.03676	3.9	0.32797	2.2	0.56	1822.1	59.0	100.4
KO69671-26	294	2.3	N/A	5.06716	2.1	0.32951	1.5	0.74	1824.5	25.0	100.6
KO69671-15	56	0.6	N/A	5.02979	1.5	0.32693	1.1	0.73	1825.3	18.8	99.9
KO69671-47	241	1.8	N/A	5.09595	3.1	0.33004	2.1	0.67	1831.8	42.0	100.4
KO69671-6	282	1.5	N/A	5.28162	2.6	0.33722	1.9	0.72	1857.7	32.5	100.8
KO69671-50	288	1.1	N/A	5.20953	2.7	0.33259	1.6	0.61	1857.8	38.1	99.6
KO69671-97	96	0.9	N/A	5.31964	2.7	0.33796	2.5	0.92	1866.7	18.3	100.5
KO69671-38	124	1.2	N/A	5.31548	1.7	0.33643	1.0	0.61	1873.4	24.2	99.8
KO69671-79	134	1.3	N/A	5.37759	2.8	0.33965	1.5	0.53	1877.2	42.4	100.4
KO69671-98	320	1.9	N/A	5.33831	3.3	0.33373	2.9	0.89	1895.7	26.6	97.9
KO69671-84	54	1.0	N/A	5.47204	2.3	0.34080	2.1	0.89	1902.4	18.9	99.4
KO69671-63	136	0.8	N/A	5.54929	3.3	0.34551	1.1	0.34	1903.0	55.5	100.5
KO69671-23	69	2.2	N/A	5.62881	3.1	0.34557	2.3	0.74	1928.2	37.7	99.2
KO69671-27	192	1.1	N/A	5.70745	1.8	0.34981	1.4	0.76	1931.2	20.5	100.1
KO69671-93	435	1.0	N/A	5.39789	2.7	0.32408	1.0	0.37	1968.1	45.1	92.0
KO69671-7	171	1.9	N/A	5.77917	2.1	0.34641	1.2	0.60	1971.0	29.3	97.3
KO69671-71	288	0.9	N/A	6.13076	1.6	0.36175	1.0	0.63	1999.0	21.7	99.6
KO69671-36	151	0.8	N/A	6.57728	3.2	0.37554	2.7	0.84	2057.2	30.9	99.9
KO69671-20	138	0.9	N/A	9.60123	3.6	0.45089	2.1	0.57	2395.7	50.5	100.1
KO69671-55	120	1.8	N/A	8.75884	3.1	0.41018	2.0	0.63	2400.4	41.5	92.3
KO69671-96	273	1.2	N/A	9.38410	2.6	0.43658	2.3	0.88	2411.6	21.1	96.8
KO69671-17	125	1.8	N/A	9.81619	3.8	0.45367	1.4	0.38	2422.8	59.4	99.5
KO69671-13	228	2.0	N/A	9.94528	2.3	0.45572	2.0	0.87	2437.3	19.5	99.3
KO69671-16	288	1.4	N/A	10.11103	2.7	0.46327	2.1	0.80	2437.5	27.4	100.7
KO69671-53	135	1.8	N/A	9.65461	3.6	0.44065	2.4	0.67	2444.1	44.6	96.3
KO69671-19	98	1.7	N/A	9.97351	2.9	0.45346	1.6	0.56	2450.5	41.3	98.4
KO69671-88	155	1.8	N/A	10.12255	2.5	0.45809	2.2	0.91	2458.4	16.9	98.9
KO69671-41	110	1.6	N/A	10.40269	4.0	0.46971	1.4	0.36	2462.2	62.9	100.8
KO69671-95	189	1.4	N/A	10.12977	1.5	0.45682	1.1	0.72	2464.3	17.4	98.4
KO69671-94	157	1.7	N/A	10.29462	1.8	0.46412	1.0	0.54	2464.8	26.2	99.7
KO69671-89	145	1.9	N/A	10.24425	3.6	0.46168	2.9	0.81	2465.4	35.1	99.3
KO69671-68	135	1.5	N/A	10.19326	2.1	0.45916	1.0	0.47	2466.2	31.6	98.8
KO69671-80	174	1.4	N/A	10.29983	2.5	0.46395	2.1	0.87	2466.3	20.5	99.6
KO69671-83	214	1.8	N/A	10.41544	1.4	0.46774	1.0	0.71	2471.4	16.9	100.1
KO69671-30	145	2.0	N/A	10.38658	3.6	0.46617	1.8	0.49	2472.4	52.5	99.8
KO69671-9	158	1.8	N/A	10.62139	3.4	0.47590	1.5	0.44	2475.3	51.8	101.4
KO69671-43	133	1.5	N/A	10.55568	3.6	0.47107	1.9	0.52	2482.0	52.2	100.3
KO69671-100	182	2.2	N/A	9.95185	4.4	0.44281	3.2	0.72	2487.0	50.9	95.0
KO69671-42	164	1.2	N/A	10.53548	3.6	0.46825	1.9	0.53	2488.9	51.6	99.5
KO69671-25	252	2.0	N/A	10.57050	2.4	0.46912	1.0	0.42	2491.4	36.9	99.5
KO69671-70	162	1.9	N/A	10.61539	1.8	0.46995	1.0	0.55	2495.5	25.4	99.5
KO69671-37	138	1.6	N/A	10.78378	2.2	0.47687	1.1	0.50	2497.4	32.0	100.6
KO69671-76	149	2.2	N/A	10.68529	2.3	0.47214	1.9	0.81	2498.8	23.1	99.8
KO69671-54	211	1.3	N/A	10.80714	2.6	0.47393	1.1	0.41	2511.4	40.5	99.6
KO69671-75	180	1.3	N/A	10.91571	4.3	0.47786	1.3	0.31	2514.4	69.3	100.1

KO69671-51	117	1.6	N/A	10.88471	3.0	0.47625	1.0	0.33	2515.3	48.3	99.8
KO69671-1	137	1.6	N/A	11.02165	2.2	0.48038	1.0	0.45	2521.8	33.6	100.3
KO69671-92	234	1.5	N/A	10.89519	1.5	0.47462	1.0	0.68	2522.7	18.0	99.3
KO69671-24	156	1.6	N/A	10.85824	2.6	0.47187	1.0	0.38	2526.7	40.5	98.6
KO69671-85	111	2.0	N/A	10.99406	2.6	0.47652	1.2	0.47	2531.1	38.4	99.2
KO69671-34	243	2.4	N/A	11.08559	3.1	0.47906	2.0	0.65	2536.1	38.9	99.5
KO69671-33	278	1.3	N/A	11.23703	2.0	0.48406	1.7	0.86	2541.5	16.8	100.1
KO69671-28	104	0.4	N/A	10.93460	3.0	0.47094	2.1	0.72	2541.8	34.4	97.9
KO69671-12	114	1.8	N/A	11.09164	2.6	0.47558	1.3	0.50	2549.2	37.3	98.4
KO69671-44	124	1.5	N/A	11.27496	2.7	0.48217	2.3	0.88	2553.7	20.8	99.3
KO69671-40	189	1.0	N/A	10.97242	3.3	0.46779	2.3	0.71	2558.8	38.1	96.7
KO69671-56	152	1.6	N/A	11.53500	2.7	0.49152	1.3	0.50	2559.7	38.5	100.7
KO69671-49	320	1.3	N/A	11.62812	2.1	0.49394	1.4	0.68	2564.9	26.1	100.9
KO69671-18	185	1.2	N/A	11.35446	2.8	0.48225	1.2	0.43	2565.1	41.7	98.9
KO69671-29	198	2.2	N/A	11.27953	2.7	0.47840	1.4	0.50	2567.4	39.0	98.2
KO69671-66	226	0.9	N/A	11.75956	3.2	0.49271	1.9	0.61	2587.8	42.4	99.8
KO69671-60	313	1.0	N/A	11.80977	2.8	0.49025	1.0	0.36	2603.3	43.7	98.8
KO69671-2	300	0.8	N/A	12.12696	1.9	0.49887	1.3	0.71	2618.4	22.1	99.6
KO69671-46	289	1.2	N/A	11.73397	3.6	0.48180	3.0	0.83	2621.5	33.3	96.7
KO69671-72	472	1.5	N/A	12.22194	3.6	0.49965	1.6	0.45	2628.8	53.4	99.4
KO69671-78	225	2.4	N/A	12.29197	2.6	0.49678	1.7	0.66	2647.8	31.9	98.2
KO69671-22	80	2.3	N/A	13.34059	1.7	0.52255	1.3	0.77	2699.6	18.3	100.4
KO69671-14	174	1.9	N/A	11.43895	3.9	0.44702	2.1	0.53	2703.5	54.7	88.1
KO69671-35	159	0.8	N/A	13.36889	3.5	0.51956	1.8	0.51	2712.6	49.8	99.4
KO69671-73	92	0.3	N/A	14.02496	5.6	0.54168	1.7	0.30	2722.8	88.6	102.5
KO69671-65	322	1.3	N/A	13.72989	4.1	0.52995	1.5	0.37	2723.9	62.5	100.6
KO69671-39	355	2.1	N/A	13.74413	2.8	0.52699	2.5	0.91	2734.8	18.6	99.8
KO69671-5	394	6.1	N/A	13.85305	2.2	0.52681	1.8	0.84	2748.4	19.4	99.3
KO69671-45	241	1.0	N/A	12.72575	3.2	0.47935	2.9	0.89	2764.0	24.0	91.3
KO69671-82	142	0.5	N/A	14.89006	1.6	0.54429	1.2	0.75	2813.2	17.7	99.6
KO69671-31	181	1.7	N/A	17.19956	2.0	0.57903	1.2	0.61	2946.9	25.2	99.9
KO69671-57	157	1.0	N/A	18.70681	1.4	0.59690	1.0	0.70	3033.1	16.2	99.5
KO69671-48	309	0.9	N/A	18.99607	6.0	0.60288	4.6	0.77	3041.7	61.9	100.0
KO69671-74	325	1.5	N/A	20.35547	3.3	0.60865	1.6	0.49	3136.8	45.6	97.7
KO69671-67	75	0.5	N/A	21.62343	3.6	0.62889	3.0	0.83	3180.8	31.9	98.9
K05-97-8-1	312	0.9	2.8	5.1434	3.9	0.3313	2.7	0.70	1841.9	50.5	100.1
K05-97-8-2	125	2.2	2.5	14.4034	3.8	0.5341	2.9	0.76	2789.6	40.8	98.9
K05-97-8-3	157	1.3	1.4	5.0904	5.1	0.3260	4.9	0.96	1852.2	25.7	98.2
K05-97-8-4	466	15.0	3.6	4.0606	5.0	0.2628	3.4	0.68	1833.1	65.5	82.1
K05-97-8-7	323	2.0	1.9	5.2433	4.1	0.3338	3.7	0.89	1863.1	34.3	99.6
K05-97-8-6	151	2.0	1.6	5.2553	2.2	0.3332	1.6	0.70	1870.2	28.5	99.1
K05-97-8-8	98	2.1	1.8	4.6720	2.6	0.3146	1.9	0.74	1760.7	32.0	100.2
K05-97-8-9	169	1.4	1.9	4.8613	2.8	0.3206	2.1	0.74	1798.8	34.6	99.7
K05-97-8-10	200	2.0	1.3	5.2475	2.1	0.3332	1.6	0.78	1867.8	22.9	99.2
K05-97-8-11	111	1.8	3.2	5.4027	3.3	0.3441	1.1	0.32	1861.9	57.1	102.4
K05-97-8-12	153	1.4	1.6	4.7645	2.8	0.3180	2.3	0.83	1777.2	28.6	100.2
K05-97-8-13	502	1.8	3.3	5.2149	3.6	0.3381	1.3	0.37	1830.0	60.2	102.6
K05-97-8-14	138	2.9	2.2	5.3743	2.5	0.3405	1.4	0.53	1871.5	38.8	100.9

K05-97-8-15	205	1.3	1.9	5.0367	2.3	0.3284	1.3	0.55	1819.6	34.5	100.6
K05-97-8-16	164	1.5	1.1	5.3823	2.1	0.3377	1.8	0.86	1889.0	19.8	99.3
K05-97-8-17	235	1.0	2.1	5.2486	3.0	0.3368	2.1	0.72	1848.6	37.3	101.2
K05-97-8-18	443	1.9	1.8	4.9870	2.4	0.3264	1.6	0.66	1812.5	32.9	100.5
K05-97-8-19	96	2.1	2.2	4.7186	2.5	0.3155	1.2	0.48	1773.7	39.5	99.7
K05-97-8-21	205	2.2	2.8	4.7722	3.9	0.3228	2.7	0.70	1752.6	50.9	102.9
K05-97-8-22	133	2.3	3.0	4.7305	3.5	0.3185	1.9	0.54	1761.3	53.9	101.2
K05-97-8-23	183	2.1	2.0	5.1721	3.4	0.3328	2.7	0.81	1843.5	35.9	100.5
K05-97-8-24	262	2.6	2.0	6.9927	2.2	0.3892	0.9	0.41	2102.0	35.6	100.8
K05-97-8-25	150	2.0	1.6	4.8000	2.8	0.3209	2.3	0.82	1773.9	29.0	101.2
K05-97-8-26	213	2.6	5.0	5.4594	5.4	0.3393	2.1	0.38	1906.2	90.1	98.8
K05-97-8-27	389	1.8	3.2	4.9505	5.7	0.3235	4.6	0.82	1815.7	58.9	99.5
K05-97-8-28	341	4.7	1.3	5.6778	1.4	0.3484	0.6	0.40	1929.2	23.1	99.9
K05-97-8-29	235	2.1	6.6	5.2443	7.4	0.3284	3.3	0.44	1892.7	119.5	96.7
K05-97-8-30	144	1.9	2.2	5.0803	3.4	0.3202	2.6	0.76	1880.8	39.8	95.2
K05-97-8-31	162	2.4	2.2	10.6987	4.7	0.4726	4.1	0.88	2499.2	37.7	99.8
K05-97-8-32	103	2.3	8.0	11.6525	8.1	0.4773	1.7	0.20	2625.4	132.5	95.8
K05-97-8-33	161	2.2	1.6	5.0722	2.1	0.3293	1.4	0.66	1827.6	28.3	100.4
K05-97-8-34	149	2.5	2.4	11.3778	3.1	0.4895	2.0	0.64	2543.4	39.9	101.0
K05-97-8-35	169	2.9	7.4	5.5739	8.1	0.3308	3.4	0.42	1988.8	131.4	92.6
K05-97-8-36	344	1.9	5.6	5.0743	5.9	0.3113	1.7	0.29	1929.3	101.0	90.6
K05-97-8-37	188	1.2	1.7	4.7638	3.3	0.3146	2.8	0.86	1796.8	31.0	98.1
K05-97-8-38	251	1.0	5.0	6.0199	5.3	0.3194	1.8	0.34	2185.5	86.4	81.8
K05-97-8-39	151	1.1	1.7	5.2134	3.8	0.3191	3.4	0.90	1933.5	29.6	92.3
K05-97-8-40	385	2.9	1.1	6.1686	1.8	0.3623	1.4	0.77	2007.3	19.9	99.3
K05-97-8-41	180	1.9	2.1	5.0113	2.5	0.3270	1.3	0.53	1818.4	38.0	100.3
K05-97-8-42	159	4.5	2.4	5.5501	2.8	0.3298	1.5	0.52	1986.6	43.1	92.5
K05-97-8-43	99	2.0	2.6	4.6255	3.2	0.3123	1.8	0.56	1756.4	47.9	99.7
K05-97-8-44	145	1.6	0.9	13.4210	2.5	0.5109	2.4	0.94	2746.6	14.0	96.9
K05-97-8-46	234	5.3	1.8	4.8855	3.7	0.3150	3.2	0.87	1840.2	33.2	95.9
K05-97-8-47	225	1.5	2.2	4.7947	3.1	0.3194	2.1	0.69	1780.7	40.7	100.3
K05-97-8-48	437	2.0	2.1	4.7600	2.9	0.3185	2.1	0.71	1772.8	37.6	100.5
K05-97-8-49	233	2.1	8.2	5.8548	8.4	0.3206	2.0	0.24	2130.8	143.4	84.1
K05-97-8-52	172	0.7	2.3	4.7214	2.5	0.3157	0.9	0.36	1773.7	42.0	99.7
K05-97-8-53	349	1.2	3.9	5.5615	4.1	0.3224	1.3	0.31	2030.5	69.6	88.7
K05-97-8-54	387	5.2	3.3	4.6596	3.8	0.2987	2.0	0.52	1850.7	59.1	91.0
K05-97-8-55	159	1.8	2.8	4.7676	4.9	0.3033	4.0	0.82	1864.3	50.9	91.6
K05-97-8-56	116	2.2	1.1	5.1467	3.5	0.3307	3.3	0.95	1846.3	19.2	99.7
K05-97-8-57	579	0.8	1.2	13.5080	1.7	0.5240	1.2	0.69	2715.7	20.1	100.0
K05-97-8-58	179	3.0	2.5	10.1097	5.8	0.4558	5.2	0.90	2464.9	41.6	98.2
K05-97-8-59	163	1.5	5.7	4.8566	6.0	0.2966	1.7	0.28	1937.3	102.5	86.4
K05-97-8-60	316	3.6	2.4	5.0904	2.6	0.3243	1.0	0.38	1861.6	43.9	97.3
K05-97-8-61	193	1.5	8.7	5.3988	9.4	0.3263	3.7	0.39	1956.2	155.3	93.1
K05-97-8-63	190	1.9	2.0	4.7505	6.2	0.3119	5.9	0.95	1806.8	35.5	96.9
K05-97-8-64	336	1.3	1.3	4.8745	3.1	0.3193	2.8	0.90	1811.1	24.4	98.6
K05-97-8-65	90	1.7	2.4	15.1162	4.6	0.5513	4.0	0.85	2816.9	39.4	100.5
K05-97-8-67	111	1.3	1.9	4.5085	2.5	0.3062	1.6	0.65	1745.6	34.8	98.6
K05-97-8-68	379	7.6	1.5	5.0332	4.5	0.3264	4.3	0.94	1829.3	27.0	99.6

K05-97-8-69	151	1.2	1.4	4.9617	3.2	0.3171	2.9	0.90	1856.1	24.5	95.7
K05-97-8-70	373	2.1	1.8	4.7498	2.2	0.3153	1.4	0.61	1786.8	32.3	98.9
K05-97-8-71	291	2.2	5.3	5.3563	5.9	0.3229	2.6	0.44	1960.7	94.2	92.0
K05-97-8-72	214	1.3	9.8	5.0781	13.6	0.2977	9.3	0.69	2010.7	175.0	83.5
K05-97-8-73	153	2.5	1.5	10.6353	3.8	0.4728	3.5	0.92	2488.6	24.4	100.3
K05-97-8-74	193	1.9	1.8	4.4638	3.4	0.2984	2.9	0.85	1774.4	32.5	94.9
K05-97-8-75	161	1.7	3.0	4.0941	4.3	0.2823	3.1	0.73	1717.5	54.4	93.3
K05-97-8-76	192	2.3	5.7	4.5216	8.9	0.2572	6.9	0.77	2063.5	100.1	71.5
K05-97-8-77	334	1.8	1.7	4.5088	4.8	0.3054	4.4	0.93	1750.1	31.5	98.2
K05-97-8-78	330	2.2	3.7	5.5038	3.9	0.3231	1.2	0.31	2008.2	66.1	89.9
K05-97-8-79	260	1.7	2.4	4.7128	3.9	0.3034	3.1	0.79	1842.6	43.2	92.7
K05-97-8-80	148	1.8	2.5	4.6884	7.4	0.3057	7.0	0.94	1819.4	45.2	94.5
K05-97-8-81	177	2.0	1.8	4.0462	4.4	0.2657	4.0	0.91	1806.5	32.4	84.1
K05-97-8-82	136	1.8	5.2	5.7996	5.5	0.3034	1.7	0.31	2210.1	89.8	77.3
K05-97-8-83	155	1.7	2.5	5.5410	4.4	0.3333	3.6	0.82	1964.8	45.4	94.4
K05-97-8-84	72	1.5	1.1	13.8000	3.1	0.5297	2.9	0.94	2732.9	17.6	100.3
K05-97-8-85	395	2.2	2.0	4.8047	3.9	0.3170	3.3	0.85	1798.2	37.0	98.7
K05-97-8-88	199	3.1	1.6	4.4627	4.9	0.2993	4.6	0.95	1768.2	28.7	95.5
K05-97-8-89	609	3.1	1.7	4.9088	2.1	0.3224	1.2	0.57	1806.3	30.9	99.7
K05-97-8-90	121	2.6	1.2	4.4660	2.5	0.3020	2.2	0.88	1753.4	21.6	97.0
K05-97-8-92	249	2.0	2.3	4.8963	4.3	0.3167	3.7	0.85	1834.5	41.7	96.7
K05-97-8-93	162	1.9	5.3	4.9829	5.6	0.3112	1.7	0.31	1897.4	95.3	92.1
K05-97-8-94	347	7.6	2.9	4.6608	3.7	0.3033	2.3	0.61	1823.1	53.2	93.7
K05-97-8-95	159	2.7	2.6	10.0871	4.1	0.4531	3.2	0.78	2471.0	43.1	97.5
K05-97-8-96	300	2.2	8.3	5.1570	8.9	0.3235	3.2	0.36	1889.7	150.0	95.6
K05-97-8-97	336	1.8	3.3	5.2120	5.1	0.3220	3.9	0.76	1916.7	58.6	93.9
K05-97-8-98	211	2.3	7.7	5.2537	7.9	0.2805	1.9	0.24	2174.8	134.6	73.3
K05-97-8-100	262	0.8	9.2	5.1569	9.9	0.3190	3.6	0.36	1914.6	165.5	93.2
OS081027-106	268	2.1	0.5	13.0336	3.7	0.5181	3.7	0.99	2675.2	7.7	100.6
OS081027-107	235	2.7	0.3	9.6007	6.9	0.4317	6.9	1.00	2469.2	5.5	93.7
OS081027-108	307	0.5	0.3	11.6640	2.7	0.4885	2.7	0.99	2588.7	5.0	99.0
OS081027-109	213	2.2	0.3	5.5253	2.0	0.3483	2.0	0.99	1880.7	6.0	102.4
OS081027-110	332	2.9	0.4	10.1386	2.1	0.4631	2.0	0.98	2442.6	6.3	100.4
OS081027-115	1065	2.1	0.2	4.8261	1.5	0.3195	1.5	0.99	1792.2	3.4	99.7
OS081027-118	147	2.8	0.2	10.2649	2.6	0.4593	2.6	1.00	2477.5	3.1	98.3
OS081027-120	313	2.6	0.3	9.6909	1.9	0.4412	1.9	0.99	2448.2	5.3	96.2
OS081027-121	201	1.9	0.5	5.1087	3.3	0.3279	3.2	0.99	1848.1	9.2	98.9
OS081027-123	229	2.0	1.9	9.6816	4.9	0.4479	4.5	0.93	2421.0	31.4	98.6
OS081027-124	68	1.5	0.5	5.0404	1.8	0.3313	1.7	0.96	1805.1	9.6	102.2
OS081027-125	146	2.3	0.4	5.1843	1.5	0.3345	1.5	0.96	1838.9	7.7	101.1
OS081027-126	207	3.3	0.2	4.8370	1.4	0.3220	1.4	0.99	1782.1	3.6	101.0
OS081027-128	81	3.2	0.5	5.1216	2.2	0.3254	2.1	0.98	1866.4	8.6	97.3
OS081027-130	133	1.3	0.3	11.9812	1.3	0.5016	1.2	0.96	2589.1	5.8	101.2
OS081027-131	204	1.2	0.2	5.7890	1.8	0.3584	1.7	0.99	1913.0	4.1	103.2
OS081027-132	295	0.9	0.3	5.6714	5.9	0.3405	5.9	1.00	1968.0	4.7	96.0
OS081027-133	122	1.5	0.2	13.0961	2.2	0.5205	2.1	1.00	2675.4	2.7	101.0
OS081027-134	136	2.4	1.4	10.4464	7.5	0.4754	7.3	0.98	2449.1	24.1	102.4
OS081027-3	578	2.8	0.2	12.8718	2.0	0.5151	2.0	0.99	2664.3	3.6	100.5

OS081027-4	116	2.9	0.2	10.6781	2.5	0.4751	2.5	1.00	2487.1	4.0	100.8
OS081027-6	169	2.6	0.3	10.9102	2.0	0.4867	1.9	0.99	2482.8	5.3	103.0
OS081027-9	141	2.7	0.2	10.5596	1.6	0.4699	1.6	0.99	2486.7	3.5	99.9
OS081027-10	211	2.9	0.3	4.8185	1.2	0.3233	1.1	0.97	1767.7	5.1	102.1
OS081027-12	168	2.0	0.3	11.0358	2.0	0.4904	2.0	0.99	2489.2	5.2	103.3
OS081027-13	198	1.9	0.4	5.2854	2.2	0.3341	2.2	0.98	1875.8	6.9	99.1
OS081027-14	268	3.1	0.3	5.2680	1.1	0.3345	1.1	0.97	1867.7	4.8	99.6
OS081027-S16	133	2.2	0.2	10.3185	1.6	0.4634	1.6	0.99	2471.3	3.9	99.3
OS081027-17	204	2.5	0.2	11.1672	2.0	0.4968	2.0	1.00	2487.3	2.9	104.5
OS081027-18	68	0.9	0.3	13.3370	2.0	0.5235	2.0	0.99	2696.1	4.4	100.7
OS081027-22	170	2.3	0.7	16.5131	1.6	0.5439	1.4	0.90	2982.2	11.0	93.9
OS081027-25	158	2.1	0.3	10.9381	2.9	0.4887	2.9	1.00	2480.0	4.8	103.4
OS081027-28	214	5.0	1.9	7.0924	3.4	0.3545	2.8	0.83	2288.8	32.3	85.5
OS081027-29	132	1.6	0.2	12.4652	2.3	0.4905	2.2	1.00	2692.1	2.9	95.6
OS081027-31	84	1.6	0.1	17.9949	1.5	0.5930	1.5	1.00	2981.3	2.4	100.7
OS081027-32	319	2.0	0.5	10.4520	2.8	0.4669	2.7	0.99	2480.4	7.7	99.6
OS081027-33	200	2.7	0.2	12.8798	1.5	0.5189	1.5	0.99	2653.2	2.8	101.6
OS081027-34	107	2.6	0.5	10.5568	3.1	0.4727	3.1	0.99	2476.5	7.9	100.8
OS081027-35	241	2.0	0.2	10.5945	1.2	0.4754	1.2	0.99	2472.8	3.2	101.4
OS081027-37	134	4.4	0.9	18.2833	2.8	0.5836	2.7	0.95	3032.7	13.7	97.7
OS081027-38	333	4.7	0.7	10.7783	9.2	0.4561	9.2	1.00	2571.3	11.5	94.2
OS081027-39	175	2.5	0.2	10.9075	2.1	0.4887	2.1	0.99	2475.4	4.0	103.6
OS081027-40	191	1.4	0.6	5.3021	3.2	0.3368	3.1	0.98	1866.7	10.8	100.3
OS081027-42	471	1.7	0.2	5.1648	3.0	0.3297	3.0	1.00	1858.0	2.9	98.9
OS081027-44	139	1.3	0.2	13.1736	2.4	0.5186	2.4	1.00	2691.3	3.0	100.1
OS081027-47	289	1.4	0.3	5.4999	3.6	0.3506	3.6	1.00	1860.5	6.0	104.1
OS081027-49	265	2.1	0.3	5.1313	2.0	0.3263	2.0	0.99	1865.2	5.4	97.6
OS081027-50	69	2.3	0.7	5.0260	3.6	0.3235	3.6	0.98	1843.1	12.0	98.0
OS081027-52	183	2.4	0.1	10.3864	1.7	0.4650	1.7	1.00	2476.8	2.5	99.4
OS081027-53	453	0.6	0.4	4.6012	3.5	0.2919	3.4	0.99	1869.3	8.0	88.3
OS081027-54	107	3.2	2.2	18.9735	4.0	0.5537	3.4	0.83	3175.4	35.4	89.5
OS081027-55	49	1.6	0.4	6.5383	1.9	0.3669	1.8	0.97	2087.9	7.4	96.5
OS081027-56	276	3.1	0.6	10.0416	3.1	0.4410	3.0	0.98	2508.8	9.7	93.9
OS081027-57	225	2.1	0.4	9.8707	4.6	0.4386	4.5	1.00	2489.2	6.5	94.2
OS081027-58	136	2.9	0.3	10.2705	1.2	0.4557	1.2	0.96	2491.8	5.5	97.1
OS081027-59	145	1.6	0.5	5.4035	2.0	0.3404	1.9	0.97	1881.7	8.5	100.4
OS081027-60	61	1.4	0.5	12.8139	3.1	0.5081	3.1	0.99	2679.3	8.0	98.9
OS081027-61	84	1.9	0.5	5.1137	1.9	0.3373	1.9	0.97	1798.9	8.5	104.1
OS081027-62	132	2.6	0.7	10.3014	1.5	0.4673	1.4	0.90	2454.5	11.3	100.7
OS081027-63	496	2.0	1.4	11.8522	6.0	0.4818	5.8	0.97	2638.1	23.5	96.1
OS081027-64	283	3.3	0.3	5.4906	2.8	0.3435	2.8	0.99	1894.6	6.1	100.5
OS081027-65	264	2.0	0.2	10.4074	2.6	0.4652	2.6	1.00	2479.4	4.1	99.3
OS081027-67	291	2.9	0.2	5.6797	3.4	0.3536	3.4	1.00	1903.2	3.6	102.6
OS081027-68	165	1.9	0.2	10.5666	1.4	0.4722	1.4	0.99	2479.8	3.2	100.5
OS081027-69	168	2.5	0.2	10.4762	2.1	0.4689	2.0	0.99	2477.0	3.7	100.1
OS081027-71	128	2.5	0.3	10.8735	1.6	0.4868	1.6	0.98	2476.8	5.7	103.2
OS081027-73	204	4.1	0.5	5.1432	2.1	0.3387	2.1	0.97	1801.8	9.3	104.3
OS081027-74	150	1.7	0.4	5.2873	1.7	0.3396	1.7	0.98	1846.6	6.7	102.1

OS081027-76	152	2.2	0.4	10.5222	1.0	0.4685	0.9	0.90	2486.0	7.4	99.6
OS081027-77	260	2.7	0.9	27.3026	1.3	0.6629	1.0	0.74	3463.5	13.6	94.7
OS081027-78	169	1.9	0.6	10.6488	2.5	0.4767	2.4	0.97	2476.6	10.0	101.5
OS081027-79	195	2.4	0.3	10.5444	2.2	0.4706	2.1	0.99	2481.7	5.5	100.2
OS081027-82	244	1.6	0.2	10.8307	1.3	0.4840	1.2	0.99	2479.8	3.2	102.6
OS081027-83	125	1.4	0.1	23.7865	1.3	0.6688	1.3	1.00	3234.3	1.6	102.1
OS081027-85	50	0.7	0.5	10.9837	4.7	0.4642	4.7	1.00	2573.2	7.8	95.5
OS081027-86	305	1.8	0.2	13.4636	2.2	0.5261	2.2	1.00	2703.5	2.8	100.8
OS081027-88	378	2.4	0.2	11.0874	7.3	0.4740	7.2	1.00	2554.2	3.3	97.9
OS081027-89	186	2.7	0.4	10.6794	3.2	0.4760	3.2	0.99	2484.2	6.7	101.0
OS081027-90	165	1.3	0.8	12.0714	3.5	0.4843	3.4	0.97	2660.0	13.2	95.7
OS081027-91	240	2.9	0.3	6.5977	2.8	0.3721	2.8	1.00	2078.7	4.7	98.1
OS081027-95	188	2.3	0.8	5.6049	2.7	0.3547	2.6	0.95	1873.9	14.6	104.4
OS081027-96	146	2.1	0.3	11.0169	3.5	0.4921	3.5	1.00	2480.6	5.2	104.0
OS081027-97	263	3.4	0.3	12.0408	6.9	0.5051	6.9	1.00	2585.9	4.5	101.9
OS081027-98	100	2.4	0.8	5.3869	4.8	0.3427	4.8	0.99	1864.4	14.5	101.9
OS081027-100	150	2.8	0.2	11.0124	1.5	0.4923	1.4	0.99	2479.1	3.3	104.1
OS081027-101	163	1.6	0.2	16.3733	2.1	0.5854	2.1	1.00	2849.4	2.8	104.3
OS081027-102	136	3.8	0.5	5.2982	2.1	0.3336	2.0	0.97	1882.9	8.6	98.6
OS081027-104	279	1.9	0.3	10.9060	1.8	0.4866	1.8	0.99	2482.2	4.4	103.0
OS081027-105	271	3.1	0.2	5.5352	1.5	0.3512	1.5	0.99	1868.8	4.2	103.8
OS081084-1	191	2.3	0.9	5.0566	1.3	0.3270	0.9	0.71	1834.6	16.9	99.4
OS081084-2	512	1.5	1.9	4.3498	4.1	0.2907	3.6	0.88	1774.9	35.2	92.7
OS081084-3	196	1.7	1.2	4.8180	1.8	0.3192	1.4	0.77	1790.4	21.0	99.8
OS081084-4	162	1.8	1.3	4.7206	3.4	0.3153	3.1	0.92	1775.9	23.7	99.5
OS081084-5	431	2.2	0.9	5.0410	1.8	0.3268	1.5	0.87	1829.8	15.8	99.6
OS081084-6	148	1.3	0.6	4.6358	2.4	0.3116	2.3	0.96	1764.2	11.5	99.1
OS081084-7	134	1.6	2.0	4.5302	2.4	0.3089	1.4	0.58	1738.3	35.9	99.8
OS081084-8	179	0.9	4.5	4.3995	4.6	0.2886	1.0	0.21	1808.8	81.6	90.4
OS081084-9	283	1.6	1.2	13.1995	2.5	0.5183	2.1	0.87	2695.5	20.5	99.9
OS081084-10	184	3.8	0.9	19.0501	1.6	0.6041	1.3	0.81	3043.0	14.9	100.1
OS081084-11	179	1.3	2.0	4.3821	3.7	0.2936	3.2	0.85	1770.1	36.0	93.8
OS081084-12	245	2.4	1.8	4.4918	2.2	0.3078	1.2	0.55	1728.8	33.6	100.1
OS081084-13	316	2.3	2.8	9.1987	3.0	0.4106	0.9	0.30	2481.7	47.9	89.4
OS081084-14	219	3.2	1.1	4.4936	2.6	0.2938	2.3	0.90	1814.6	20.6	91.5
OS081084-15	120	3.1	1.5	9.9576	3.2	0.4451	2.8	0.89	2479.2	24.6	95.7
OS081084-16	133	1.2	1.6	4.6507	2.3	0.3156	1.7	0.74	1746.7	28.6	101.2
OS081084-18	353	2.5	2.8	4.7064	3.6	0.3186	2.3	0.63	1751.0	51.6	101.8
OS081084-19	135	2.8	1.9	10.3574	2.1	0.4643	1.0	0.48	2474.6	31.7	99.3
OS081084-20	332	2.3	2.5	5.2006	3.8	0.3261	2.8	0.74	1890.1	45.7	96.3
OS081084-21	182	1.7	1.2	10.9356	1.8	0.4798	1.3	0.73	2510.6	20.9	100.6
OS081084-22	165	2.2	1.5	9.4484	4.2	0.4257	3.9	0.94	2466.0	24.5	92.7
OS081084-23	192	1.4	1.7	12.4086	3.3	0.4953	2.8	0.85	2668.4	28.7	97.2
OS081084-24	272	3.6	1.8	5.0407	2.2	0.3274	1.2	0.57	1826.8	32.3	99.9
OS081084-25	269	2.1	1.0	4.5645	2.2	0.3105	1.9	0.89	1742.1	18.7	100.1
OS081084-26	128	2.4	1.2	5.3345	2.1	0.3364	1.8	0.82	1879.9	22.0	99.4
OS081084-27	184	2.2	0.7	4.8029	2.1	0.3180	1.9	0.94	1791.5	12.8	99.4
OS081084-28	502	1.9	2.1	4.6849	7.5	0.2938	7.2	0.96	1890.0	37.5	87.9

OS081084-29	227	2.5	1.4	4.9537	1.9	0.3257	1.3	0.69	1804.7	25.3	100.7
OS081084-30	177	3.5	0.9	4.9878	2.2	0.3258	2.0	0.92	1816.6	16.0	100.1
OS081084-31	265	2.4	1.4	4.5152	2.2	0.3062	1.7	0.77	1748.1	25.5	98.5
OS081084-32	284	1.9	4.0	5.3138	5.1	0.2995	3.2	0.62	2080.2	70.7	81.2
OS081084-33	654	3.0	3.4	6.7952	4.0	0.3263	2.1	0.52	2357.6	58.3	77.2
OS081084-34	214	4.6	1.7	5.1006	2.2	0.3315	1.3	0.60	1825.3	31.6	101.1
OS081084-35	101	2.7	1.1	4.8609	1.7	0.3216	1.3	0.78	1793.2	19.5	100.2
OS081084-36	215	1.8	1.2	4.5665	2.5	0.3111	2.2	0.87	1739.8	22.4	100.4
OS081084-37	243	1.1	1.1	4.2444	2.6	0.2937	2.3	0.90	1711.0	20.8	97.0
OS081084-38	530	1.8	2.1	10.3352	4.3	0.4372	3.7	0.87	2571.7	35.8	90.9
OS081084-39	276	3.0	2.5	4.9587	3.5	0.3264	2.5	0.71	1802.4	44.9	101.0
OS081084-40	227	2.0	2.3	5.4806	2.9	0.3438	1.8	0.61	1889.6	40.9	100.8
OS081084-41	129	2.1	1.3	4.7106	4.5	0.3108	4.3	0.96	1798.1	23.1	97.0
OS081084-42	171	4.5	1.0	5.2282	3.2	0.3326	3.0	0.95	1864.4	18.4	99.3
OS081084-43	190	2.1	1.5	4.8824	3.1	0.3225	2.7	0.88	1795.9	27.3	100.3
OS081084-44	301	1.9	1.4	9.1594	3.7	0.4431	3.5	0.93	2345.0	23.6	100.8
OS081084-45	295	1.3	1.4	5.5309	1.9	0.3446	1.3	0.68	1901.7	24.4	100.4
OS081084-46	612	4.8	3.5	4.8681	4.1	0.3005	2.1	0.52	1918.3	63.5	88.3
OS081084-47	369	1.4	2.0	4.6065	2.8	0.3129	2.0	0.72	1745.1	35.7	100.6
OS081084-48	364	5.2	3.0	5.0538	4.7	0.3278	3.6	0.77	1829.3	54.6	99.9
OS081084-49	304	1.2	3.5	11.8019	5.0	0.5008	3.6	0.71	2566.7	58.7	102.0
OS081084-50	530	0.7	1.6	22.4652	2.4	0.6265	1.8	0.74	3247.1	25.5	96.6
OS081084-51	94	1.8	1.6	5.0900	3.4	0.3307	3.0	0.88	1826.0	29.6	100.9
OS081084-52	202	3.0	2.8	5.0327	3.7	0.3288	2.4	0.65	1816.3	50.3	100.9
OS081084-53	121	1.4	1.4	4.6687	3.0	0.3138	2.7	0.88	1764.1	25.8	99.7
OS081084-54	146	2.0	1.3	5.0928	2.1	0.3288	1.7	0.79	1837.6	23.4	99.7
OS081084-56	351	1.6	1.0	15.4085	1.6	0.5519	1.2	0.76	2846.3	16.9	99.5
OS081084-57	109	2.4	0.7	4.6688	2.7	0.3144	2.7	0.96	1760.7	13.2	100.1
OS081084-58	103	3.1	1.8	10.5962	3.0	0.4714	2.4	0.80	2487.4	30.5	100.1
OS081084-59	337	1.4	2.5	4.6087	3.2	0.3161	2.0	0.63	1727.3	45.2	102.5
OS081084-60	101	1.2	1.3	6.5951	3.6	0.3762	3.4	0.93	2058.8	23.3	100.0
OS081084-61	103	2.6	1.1	7.0828	3.6	0.3913	3.4	0.95	2115.1	19.3	100.7
OS081084-63	131	2.7	1.1	5.2168	1.5	0.3351	1.1	0.70	1846.6	19.7	100.9
OS081084-64	155	1.7	1.0	4.6908	1.4	0.3163	1.0	0.73	1758.7	17.4	100.7
OS081084-65	144	1.6	1.2	5.2639	2.2	0.3370	1.8	0.82	1852.5	22.4	101.1
OS081084-66	328	1.9	3.0	4.4819	3.9	0.3027	2.5	0.64	1755.5	54.7	97.1
OS081084-67	401	1.6	1.3	4.5234	2.3	0.3069	2.0	0.84	1747.1	23.1	98.8
OS081084-68	342	1.8	3.5	4.6283	4.0	0.3153	1.9	0.49	1739.8	63.3	101.5
OS081084-69	251	1.0	2.4	4.6312	3.0	0.3157	1.8	0.59	1738.7	44.2	101.7
OS081084-70	180	2.1	1.9	13.6923	3.1	0.5279	2.5	0.80	2725.6	30.6	100.3
OS081084-71	259	2.1	1.8	5.4221	3.7	0.3176	3.3	0.87	2011.8	32.5	88.4
OS081084-72	258	2.4	1.7	4.3745	3.1	0.2984	2.7	0.84	1737.1	31.0	96.9
OS081084-73	159	2.3	1.3	4.6554	2.4	0.3149	2.0	0.85	1752.8	22.9	100.7
OS081084-74	193	3.1	2.2	4.9156	2.9	0.3178	2.0	0.66	1835.3	39.7	96.9
OS081084-75	285	6.5	1.3	4.9886	2.0	0.3246	1.6	0.78	1823.6	22.9	99.4
OS081084-76	261	2.5	3.0	5.5181	3.3	0.3410	1.5	0.44	1916.7	53.2	98.7
OS081084-77	233	2.5	1.6	4.6569	2.4	0.3153	1.8	0.74	1751.3	29.8	100.9
OS081084-78	195	2.4	3.0	4.8812	3.1	0.3223	0.8	0.27	1796.9	54.3	100.2

OS081084-79	295	2.4	1.4	10.2724	2.0	0.4485	1.4	0.69	2519.0	23.9	94.8
OS081084-80	79	1.5	2.3	4.1928	5.2	0.2752	4.7	0.90	1807.9	42.2	86.7
OS081084-81	387	2.4	1.1	4.6743	1.7	0.3162	1.4	0.78	1752.8	20.1	101.0
OS081084-82	253	1.1	1.8	4.8291	3.1	0.3182	2.6	0.82	1800.6	32.0	98.9
OS081084-83	221	2.1	2.0	4.5366	2.4	0.3091	1.4	0.57	1739.2	36.5	99.8
OS081084-84	404	2.8	1.3	4.4965	3.3	0.3054	3.1	0.92	1745.3	23.5	98.4
OS081084-85	521	3.3	3.9	7.9056	3.9	0.4169	0.5	0.14	2196.4	66.9	102.3
OS081084-86	143	1.3	2.3	4.4702	2.6	0.3020	1.3	0.48	1754.7	42.3	97.0
OS081084-87	112	2.8	0.9	5.1732	3.4	0.3321	3.3	0.96	1847.8	16.5	100.0
OS081084-88	92	1.8	2.2	4.3842	3.1	0.3010	2.1	0.70	1725.4	40.0	98.3
OS081084-89	412	2.7	1.5	4.9369	2.1	0.3260	1.4	0.69	1796.7	27.1	101.2
OS081084-90	291	2.1	1.6	4.9099	2.5	0.3230	1.9	0.78	1803.6	28.4	100.0
OS081084-91	216	1.3	1.4	4.5403	3.5	0.3081	3.2	0.92	1747.1	25.1	99.1
OS081084-92	297	5.0	1.3	5.5154	1.7	0.3439	1.1	0.66	1900.1	23.0	100.3
OS081084-93	323	2.6	2.1	4.9568	2.3	0.3256	0.9	0.41	1806.0	37.3	100.6
OS081084-94	227	2.8	2.0	10.6310	3.9	0.4693	3.4	0.87	2500.4	32.8	99.2
OS081084-95	133	2.0	1.5	10.9436	2.0	0.4799	1.3	0.66	2511.4	25.7	100.6
OS081084-96	498	2.4	3.7	4.8921	3.8	0.2831	0.8	0.20	2033.7	65.4	79.0
OS081084-97	369	5.5	1.9	6.0900	3.3	0.3557	2.7	0.81	2017.3	33.7	97.2
OS081084-98	340	3.2	1.8	14.9456	2.1	0.5476	1.1	0.53	2809.3	29.6	100.2
OS081084-99	133	2.5	1.3	11.1989	3.0	0.4831	2.8	0.91	2539.0	21.6	100.1
OS081084-100	386	1.8	2.8	4.5642	3.5	0.2999	2.1	0.61	1805.9	50.4	93.6
K05110-8-1	193	1.3	3.1	15.5932	3.2	0.5616	0.8	0.24	2837.3	51.2	101.3
K05110-8-2	394	1.7	2.0	17.4720	2.2	0.5873	0.8	0.38	2949.3	32.9	101.0
K05110-8-3	575	4.9	1.9	6.7902	3.4	0.3622	2.8	0.82	2176.4	33.5	91.6
K05110-8-4	266	0.8	3.0	10.7734	3.4	0.4476	1.6	0.48	2602.0	49.7	91.6
K05110-8-6	346	1.9	2.1	10.3019	3.3	0.4487	2.6	0.78	2522.8	34.9	94.7
K05110-8-7	206	0.6	2.4	13.9488	3.1	0.5326	1.9	0.61	2741.7	40.1	100.4
K05110-8-8	206	2.1	1.6	11.5200	3.0	0.4892	2.5	0.85	2565.4	26.4	100.1
K05110-8-9	230	3.0	1.6	5.8678	3.1	0.3543	2.6	0.85	1958.0	28.9	99.8
K05110-8-10	111	1.9	1.6	4.7125	4.4	0.3149	4.1	0.93	1775.3	28.5	99.4
K05110-8-11	317	1.3	2.8	5.1602	3.9	0.3262	2.8	0.71	1875.6	50.0	97.0
K05110-8-12	269	2.3	2.1	5.2561	2.9	0.3347	2.0	0.69	1862.3	38.1	99.9
K05110-8-13	163	2.8	1.6	10.6768	2.9	0.4691	2.4	0.83	2508.3	27.4	98.9
K05110-8-14	279	0.6	2.3	5.2773	3.4	0.3386	2.5	0.74	1848.8	41.5	101.7
K05110-8-15	384	1.5	3.0	12.1696	3.2	0.4759	1.3	0.39	2702.4	49.4	92.9
K05110-8-16	486	2.0	2.9	10.6318	3.5	0.4730	2.0	0.55	2487.2	49.6	100.4
K05110-8-17	233	1.4	2.7	4.5717	3.6	0.3019	2.3	0.66	1796.8	48.8	94.6
K05110-8-18	584	2.9	4.0	8.5692	5.2	0.3904	3.3	0.64	2447.0	67.4	86.8
K05110-8-19	157	1.2	1.3	5.9019	1.8	0.3578	1.3	0.70	1950.6	23.6	101.1
K05110-8-20	122	2.0	1.3	6.3894	2.7	0.3701	2.4	0.88	2031.9	23.2	99.9
K05110-8-21	195	0.9	2.8	5.5482	3.9	0.3455	2.7	0.69	1902.6	50.3	100.6
K05110-8-22	276	4.6	1.1	6.8792	1.6	0.3832	1.2	0.73	2100.6	19.7	99.6
K05110-8-23	237	2.1	1.7	11.8232	2.4	0.4953	1.7	0.69	2588.2	29.0	100.2
K05110-8-24	80	3.2	1.6	11.0529	2.3	0.4803	1.6	0.71	2526.7	27.0	100.1
K05110-8-25	772	6.8	2.5	10.1624	4.3	0.4427	3.5	0.81	2522.5	42.0	93.7
K05110-8-26	304	2.0	1.9	4.9333	3.3	0.3266	2.8	0.82	1792.0	34.4	101.7
K05110-8-27	206	2.8	1.0	5.5660	2.7	0.3435	2.5	0.93	1918.9	17.6	99.2

K05110-8-29	139	3.2	2.2	9.3322	3.6	0.4296	2.9	0.79	2429.5	37.5	94.8
K05110-8-30	585	2.0	1.3	5.3273	2.6	0.3382	2.3	0.86	1867.9	24.2	100.5
K05110-8-31	292	0.9	0.6	13.6085	1.2	0.5236	1.1	0.87	2729.0	9.9	99.5
K05110-8-32	354	1.7	1.9	5.3567	3.3	0.3395	2.7	0.81	1871.0	34.3	100.7
K05110-8-33	344	4.7	1.0	5.2998	3.5	0.3345	3.4	0.96	1878.4	17.1	99.0
K05110-8-34	182	2.4	1.9	10.4798	3.0	0.4684	2.3	0.77	2479.6	32.7	99.9
K05110-8-35	250	3.6	1.1	5.4018	4.4	0.3372	4.3	0.97	1898.1	19.2	98.7
K05110-8-36	195	2.1	2.2	4.7458	4.6	0.3154	4.0	0.87	1784.9	40.9	99.0
K05110-8-38	853	5.4	3.6	5.3022	5.3	0.3252	3.9	0.73	1929.9	65.0	94.1
K05110-8-37	295	5.7	1.1	4.9198	2.1	0.3238	1.8	0.85	1802.9	20.0	100.3
K05110-8-39	907	3.6	3.4	4.7584	3.7	0.3101	1.5	0.40	1820.4	61.2	95.7
K05110-8-40	32	1.9	1.7	10.2278	5.5	0.4145	5.2	0.95	2643.1	27.4	84.6
K05110-8-41	73	2.2	2.2	5.3633	2.8	0.3315	1.7	0.61	1916.2	39.5	96.3
K05110-8-42	151	2.6	2.6	10.7719	2.9	0.4763	1.3	0.44	2497.6	43.6	100.5
K05110-8-43	185	1.8	1.4	4.9384	3.3	0.3240	2.9	0.90	1808.2	26.2	100.1
K05110-8-44	205	1.8	0.9	4.9245	1.7	0.3235	1.4	0.86	1806.0	15.5	100.0
K05110-8-46	41	0.6	2.2	11.2022	3.5	0.4704	2.7	0.78	2584.1	36.1	96.2
K05110-8-47	808	3.7	1.8	5.0002	3.8	0.3153	3.4	0.89	1879.9	31.9	94.0
K05110-8-48	597	1.8	1.3	4.9070	2.5	0.3217	2.1	0.85	1809.9	23.8	99.3
K05110-8-49	338	1.8	2.9	4.8412	4.6	0.3237	3.6	0.78	1773.8	52.8	101.9
K05110-8-50	164	2.3	1.3	4.7334	4.3	0.3169	4.1	0.95	1771.8	24.5	100.1
K05110-8-51	303	2.7	2.3	5.1077	2.9	0.3333	1.8	0.62	1818.2	41.1	102.0
K05110-8-52	537	2.1	4.1	8.5383	5.2	0.4093	3.3	0.63	2360.6	69.7	93.7
K05110-8-53	358	6.3	4.2	19.6855	11.5	0.5321	10.7	0.93	3296.1	65.8	83.4
K05110-8-54	735	2.1	2.3	12.2177	2.5	0.4936	0.9	0.35	2648.5	38.5	97.6
K05110-8-55	227	1.8	2.6	10.7124	3.7	0.4766	2.6	0.71	2487.2	43.5	101.0
K05110-8-56	242	1.7	1.7	12.6305	2.0	0.5099	1.1	0.54	2649.6	28.5	100.3
K05110-8-57	217	4.3	1.4	4.9016	4.4	0.3210	4.2	0.95	1811.6	25.1	99.1
K05110-8-60	333	1.8	2.1	4.3723	4.2	0.2912	3.6	0.86	1781.2	39.0	92.5
K05110-8-61	140	1.5	1.6	11.5181	2.5	0.4899	1.9	0.78	2562.7	26.1	100.3
K05110-8-62	136	3.9	1.2	4.9925	2.6	0.3259	2.3	0.89	1817.6	21.8	100.0
K05110-8-63	185	3.9	1.6	5.4763	3.4	0.3441	3.0	0.89	1886.5	28.1	101.1
K05110-8-64	607	3.9	1.3	8.0275	2.2	0.4130	1.9	0.83	2239.3	21.6	99.5
K05110-8-65	246	1.6	3.3	12.0328	4.6	0.5008	3.1	0.68	2599.2	55.5	100.7
K05110-8-66	118	3.4	1.2	5.6781	3.6	0.3476	3.4	0.95	1933.4	20.8	99.5
K05110-8-68	93	1.7	2.2	13.0213	2.4	0.5175	0.8	0.33	2675.7	37.1	100.5
K05110-8-69	154	2.4	1.3	5.5364	1.5	0.3459	0.9	0.57	1897.0	22.5	100.9
K05110-8-71	232	2.0	2.5	5.0069	2.8	0.3275	1.2	0.44	1814.1	45.2	100.7
K05110-8-72	746	2.8	2.5	9.3883	3.6	0.4186	2.6	0.72	2483.4	42.7	90.8
K05110-8-73	147	2.4	1.2	4.6678	4.3	0.3159	4.1	0.96	1751.9	22.3	101.0
K05110-8-74	93	2.6	4.7	4.7607	5.9	0.3173	3.6	0.61	1779.6	84.9	99.8
K05110-8-75	267	1.1	3.0	11.8004	4.7	0.4993	3.6	0.76	2571.6	50.8	101.5
K05110-8-76	134	1.4	1.8	4.7878	3.0	0.3186	2.4	0.80	1782.5	32.5	100.0
K05110-8-77	512	1.5	1.3	5.1253	2.4	0.3314	2.0	0.83	1834.9	23.6	100.6
K05110-8-78	380	4.3	1.3	14.2994	2.2	0.5357	1.8	0.81	2772.9	21.0	99.7
K05110-8-79	215	3.4	1.3	4.8395	4.5	0.3214	4.3	0.96	1786.1	24.4	100.6
K05110-8-80	119	2.4	1.2	5.7376	1.6	0.3505	1.0	0.61	1937.2	22.2	100.0
K05110-8-81	428	1.5	2.0	4.4494	4.2	0.2999	3.7	0.88	1759.1	36.9	96.1

K05110-8-82	1209	3.1	1.3	3.3545	2.8	0.2208	2.5	0.89	1802.5	23.4	71.3
K05110-8-83	223	2.8	1.4	4.6312	2.2	0.3099	1.6	0.76	1772.3	25.7	98.2
K05110-8-84	92	1.2	1.2	5.5912	2.8	0.3460	2.5	0.90	1914.0	22.1	100.1
K05110-8-85	196	3.6	1.8	13.6525	3.5	0.5284	3.0	0.86	2719.3	29.7	100.6
K05110-8-86	301	4.3	1.7	6.1568	3.1	0.3650	2.6	0.84	1990.8	29.9	100.7
K05110-8-87	78	1.8	1.8	4.4567	3.7	0.3078	3.3	0.87	1714.4	33.1	100.9
K05110-8-88	275	5.1	1.9	12.1858	3.7	0.5045	3.1	0.86	2607.9	31.5	101.0
K05110-8-89	793	8.4	2.0	6.5612	3.5	0.3093	2.9	0.82	2389.4	34.3	72.7
K05110-8-90	586	5.0	2.4	4.4397	5.2	0.2966	4.6	0.89	1775.5	43.4	94.3
K05110-8-91	279	1.7	2.6	13.3482	3.4	0.5256	2.3	0.66	2690.9	42.3	101.2
K05110-8-92	114	1.2	3.2	4.6949	5.6	0.3023	4.6	0.82	1842.2	57.6	92.4
K05110-8-93	131	1.2	2.5	4.2683	3.4	0.2950	2.4	0.69	1712.9	45.9	97.3
K05110-8-94	160	3.9	1.8	5.8519	2.7	0.3539	2.0	0.75	1955.1	32.0	99.9
K05110-8-95	110	1.8	2.5	12.1030	3.3	0.5016	2.2	0.67	2606.0	41.0	100.6
K05110-8-97	119	1.3	2.1	15.6223	3.3	0.5604	2.5	0.76	2843.8	34.2	100.9
K05110-8-98	187	4.2	2.1	14.8683	3.3	0.5078	2.6	0.78	2923.6	33.7	90.5
K05110-8-99	339	1.7	1.9	12.1163	2.2	0.4999	1.0	0.47	2613.6	31.8	100.0
K05110-8-100	305	2.1	1.3	5.1868	3.5	0.3317	3.2	0.93	1855.0	23.1	99.5
K061121-1	109	4.5	2.2	4.5788	2.6	0.3042	1.4	0.54	1785.7	40.5	95.9
K061121-2	142	2.7	1.7	10.4995	2.6	0.4679	1.9	0.75	2484.4	28.5	99.6
K061121-3	296	3.0	2.0	10.4871	3.0	0.4692	2.3	0.75	2477.5	33.9	100.1
K061121-4	51	2.8	1.9	22.9754	2.5	0.6372	1.7	0.68	3255.8	29.4	97.6
K061121-4B	38	2.7	1.9	22.6152	2.3	0.6193	1.4	0.58	3275.8	30.2	94.9
K061121-5	316	2.8	1.0	5.1056	1.6	0.3254	1.2	0.77	1861.1	18.1	97.6
K061121-7	168	2.2	2.7	4.5965	3.2	0.3070	1.7	0.55	1776.1	48.5	97.2
K061121-8	227	2.3	1.9	10.4388	2.5	0.4675	1.5	0.63	2475.9	32.2	99.9
K061121-9	358	1.5	2.0	11.1553	3.3	0.4857	2.7	0.80	2523.5	33.4	101.1
K061121-11	103	1.2	1.7	12.4787	2.6	0.4978	2.0	0.77	2669.5	27.7	97.6
K061121-13	164	1.0	1.6	14.5860	2.5	0.5393	1.9	0.76	2794.4	26.4	99.5
K061121-14	264	1.8	1.1	12.9544	1.8	0.5131	1.5	0.80	2681.2	18.2	99.6
K061121-15	119	0.8	2.2	11.1922	3.5	0.4701	2.7	0.76	2583.7	37.4	96.1
K061121-16	262	2.7	0.7	6.0431	1.0	0.3597	0.6	0.66	1983.2	12.8	99.9
K061121-17	178	1.9	2.0	10.3335	2.5	0.4582	1.6	0.61	2493.0	34.0	97.5
K061121-19	136	1.7	1.3	5.4480	2.5	0.3387	2.1	0.86	1905.7	22.6	98.7
K061121-20	154	2.1	1.4	10.3317	2.7	0.4649	2.3	0.86	2468.2	23.1	99.7
K061121-21	67	0.9	1.4	10.1323	4.3	0.4598	4.0	0.94	2453.7	24.2	99.4
K061121-22	184	1.7	1.3	6.2239	2.8	0.3651	2.5	0.89	2009.3	23.3	99.9
K061121-23	268	2.1	1.5	6.2716	3.6	0.3663	3.3	0.91	2017.1	27.3	99.7
K061121-25	241	5.9	1.1	4.1472	2.5	0.2949	2.2	0.89	1660.5	21.1	100.3
K061121-26	51	2.4	1.7	11.0731	2.5	0.4679	1.9	0.73	2573.6	28.9	96.1
K061121-27	212	2.9	1.1	10.5912	1.8	0.4730	1.5	0.80	2480.7	18.9	100.6
K061121-28	180	3.0	0.9	9.9472	2.7	0.4431	2.5	0.94	2485.3	15.8	95.1
K061121-29	184	1.9	1.3	10.0042	1.9	0.4471	1.4	0.75	2479.6	21.4	96.1
K061121-31	68	4.0	1.5	14.0335	3.6	0.5268	3.3	0.91	2769.5	25.3	98.5
K061121-32	49	2.2	1.9	5.4047	4.4	0.3347	3.9	0.90	1912.8	34.5	97.3
K061121-33	139	3.0	2.0	10.1914	2.5	0.4608	1.5	0.61	2459.9	33.8	99.3
K061121-34	119	3.0	1.0	10.4142	2.9	0.4668	2.7	0.93	2474.5	17.6	99.8
K061121-35	276	2.2	1.9	10.8490	2.8	0.4775	2.1	0.74	2505.3	31.5	100.4

K061121-38	187	2.7	1.7	10.0200	2.1	0.4554	1.2	0.57	2451.0	29.3	98.7
K061121-39	191	2.9	1.2	10.2904	2.6	0.4593	2.4	0.89	2481.9	20.1	98.2
K061121-40	196	2.2	1.0	12.4696	1.4	0.5055	1.0	0.72	2642.8	16.3	99.8
K061121-41	121	2.7	0.9	11.0517	1.7	0.4780	1.5	0.87	2534.7	14.4	99.4
K061121-43	136	3.4	2.2	11.8749	2.3	0.4970	0.7	0.30	2589.7	36.2	100.4
K061121-44	58	0.8	3.6	12.9273	3.7	0.5201	1.0	0.26	2655.3	59.5	101.7
K061121-45	159	2.8	2.4	5.2630	3.3	0.3387	2.3	0.69	1843.3	42.7	102.0
K061121-46	115	2.6	1.4	10.1092	3.0	0.4531	2.6	0.88	2474.9	23.3	97.3
K061121-47	145	4.1	1.1	5.1795	1.4	0.3329	0.8	0.60	1845.6	19.5	100.4
K061121-49	126	3.0	1.6	10.7099	2.6	0.4730	2.0	0.77	2499.5	27.6	99.9
K061121-50	168	2.4	1.6	5.6905	1.9	0.3507	1.0	0.51	1921.4	29.2	100.9
K061121-51	184	2.5	1.8	4.9949	2.7	0.3262	2.0	0.74	1816.9	33.2	100.2
K061121-52	245	2.8	2.5	10.9065	3.5	0.4798	2.5	0.71	2506.1	41.4	100.8
K061121-53	187	2.3	2.2	9.9769	4.2	0.4534	3.6	0.85	2451.5	36.5	98.3
K061121-55	229	1.8	2.5	10.0322	2.8	0.4616	1.2	0.44	2430.3	42.2	100.7
K061121-56	225	1.5	1.5	12.6643	2.9	0.5076	2.5	0.85	2661.4	25.0	99.4
K061121-57	71	2.5	3.6	5.0278	3.7	0.3288	0.8	0.21	1814.5	64.9	101.0
K061121-58	137	1.9	2.2	5.2197	3.0	0.3363	2.0	0.67	1841.5	40.4	101.5
K061121-59	189	2.1	1.7	12.1400	2.4	0.4992	1.7	0.72	2619.1	27.5	99.7
K061121-61	126	3.2	1.7	5.3526	1.9	0.3384	0.9	0.47	1875.5	30.1	100.2
K061121-62	194	1.9	1.5	10.9428	2.2	0.4770	1.6	0.73	2521.5	25.0	99.7
K061121-63	211	2.4	1.9	12.0180	2.1	0.5013	1.1	0.51	2595.4	30.9	100.9
K061121-64	171	2.3	1.3	11.9794	1.8	0.4995	1.3	0.71	2596.0	20.8	100.6
K061121-65	188	2.2	1.4	12.1511	2.2	0.5014	1.8	0.79	2613.4	22.6	100.2
K061121-67	148	1.1	1.0	13.8237	1.5	0.5270	1.1	0.74	2744.2	16.9	99.4
K061121-68	113	0.5	2.3	13.8076	2.6	0.5309	1.2	0.45	2730.3	38.5	100.5
K061121-69	119	2.6	1.9	6.6365	3.2	0.3805	2.6	0.81	2050.0	32.9	101.4
K061121-70	130	1.7	1.6	5.4979	2.3	0.3456	1.6	0.70	1885.9	28.8	101.5
K061121-71	214	1.5	1.3	13.8969	1.7	0.5320	1.0	0.60	2737.3	21.7	100.5
K061121-73	125	4.3	2.1	5.1738	3.9	0.3340	3.2	0.84	1837.8	38.0	101.1
K061121-75	200	2.7	1.9	10.0664	2.1	0.4508	1.0	0.47	2476.1	31.9	96.9
K061121-76	257	1.7	1.2	10.3789	1.5	0.4591	0.9	0.62	2496.8	19.7	97.6
K061121-77	576	26.8	1.4	11.9807	2.2	0.4966	1.7	0.79	2605.7	22.7	99.7
K061121-79	411	4.0	1.5	4.9120	1.8	0.3226	1.0	0.53	1806.6	28.0	99.8
K061121-80	96	1.4	2.6	4.8578	2.7	0.3197	0.7	0.28	1802.5	46.8	99.2
K061121-81	310	1.0	1.6	11.9851	3.0	0.4993	2.5	0.84	2597.4	27.0	100.5
K061121-83	372	3.6	0.6	12.7845	1.3	0.5112	1.2	0.88	2665.4	10.3	99.9
K061121-85	159	2.5	1.3	11.4934	1.8	0.4895	1.2	0.66	2560.6	22.1	100.3
K061121-86	164	2.0	1.6	11.8582	2.0	0.4960	1.2	0.61	2590.7	27.2	100.2
K061121-87	148	2.4	1.9	7.6608	2.0	0.4048	0.6	0.29	2192.9	32.9	99.9
K061121-88	289	2.0	1.1	11.5935	2.4	0.4917	2.2	0.89	2567.5	18.1	100.4
K061121-89	52	1.6	1.1	17.8652	3.2	0.5902	3.0	0.94	2977.2	17.6	100.4
K061121-91	279	2.1	1.9	5.6050	2.2	0.3478	1.0	0.47	1909.2	34.8	100.8
K061121-92	225	2.0	1.2	13.7497	2.1	0.5275	1.7	0.82	2733.8	20.2	99.9
K061121-93	111	1.9	1.9	13.7498	2.3	0.5302	1.4	0.61	2725.4	30.5	100.6
K061121-94	100	0.8	0.9	15.6679	1.3	0.5578	1.0	0.74	2856.2	14.0	100.0
K061121-95	77	2.3	1.6	11.9020	1.9	0.4981	1.0	0.51	2589.9	27.0	100.6
K061121-97	140	1.6	1.6	5.6282	2.2	0.3480	1.5	0.69	1915.4	28.2	100.5

K061121-98	403	2.8	0.5	6.8238	1.7	0.3803	1.6	0.95	2099.7	9.0	99.0
K061121-99	369	2.8	0.8	10.1336	1.8	0.4602	1.6	0.89	2452.7	14.2	99.5
K061121-100	158	2.2	1.6	11.4431	2.1	0.4901	1.4	0.66	2551.1	26.3	100.8
K061121-101	73	1.4	2.0	5.9352	2.6	0.3594	1.7	0.66	1952.6	35.4	101.4
K061121-105	221	3.3	1.6	4.5572	1.9	0.3108	1.0	0.54	1737.4	29.3	100.4
K061121-106	146	2.3	1.8	10.2293	2.3	0.4573	1.5	0.62	2478.9	30.9	97.9
K061121-109	220	1.8	0.7	13.2849	1.0	0.5185	0.6	0.64	2705.4	12.0	99.5
K061121-111	367	2.5	1.3	13.4170	1.7	0.5181	1.0	0.60	2723.0	22.1	98.8
K061121-112	729	1.3	1.5	6.2041	2.6	0.3639	2.2	0.83	2009.4	26.1	99.6
K061121-113	117	3.2	1.2	10.3485	1.6	0.4643	1.1	0.67	2473.2	20.6	99.4
K061121-114	511	1.4	1.6	10.2524	3.5	0.4390	3.1	0.88	2551.5	27.5	92.0
K061121-115	188	1.9	0.7	11.0332	1.6	0.4781	1.5	0.91	2531.4	11.2	99.5
K061121-117	130	2.1	2.8	11.8887	3.9	0.5008	2.8	0.70	2578.9	47.3	101.5
K061121-118	147	2.7	3.7	11.3759	3.7	0.4931	0.8	0.21	2531.0	61.4	102.1
K061121-119	108	2.6	1.7	13.0501	2.1	0.5176	1.2	0.57	2679.1	28.3	100.4
K061121-120	63	0.8	2.0	14.8085	2.5	0.5477	1.5	0.60	2793.9	33.1	100.8
OS082288-111	392	2.2	0.4	5.2212	2.1	0.3385	2.1	0.98	1829.9	7.7	102.7
OS082288-114	276	2.6	0.4	6.4040	4.6	0.3766	4.6	1.00	2005.1	7.9	102.7
OS082288-115	265	3.6	0.3	4.7669	2.0	0.3179	2.0	0.99	1778.8	4.6	100.0
OS082288-116	194	6.8	0.2	6.5599	1.1	0.3789	1.0	0.97	2036.7	4.2	101.7
OS082288-118	140	1.1	0.3	4.5908	2.0	0.3125	1.9	0.99	1741.2	5.0	100.7
OS082288-119	58	0.9	0.4	13.7407	1.9	0.5408	1.9	0.97	2691.7	7.3	103.5
OS082288-120	99	2.6	0.4	10.5649	2.7	0.4734	2.6	0.99	2475.2	6.3	100.9
OS082288-121	118	2.9	0.2	10.8533	2.1	0.4854	2.1	0.99	2478.4	3.6	102.9
OS082288-122	453	2.6	1.3	11.6904	2.1	0.4980	1.7	0.78	2560.2	22.4	101.8
OS082288-123	166	2.3	0.2	10.7075	1.6	0.4781	1.6	0.99	2480.9	3.1	101.5
OS082288-125	176	3.2	0.4	8.8600	1.5	0.4393	1.5	0.97	2302.7	6.1	101.9
OS082288-129	151	0.7	0.7	5.6740	2.9	0.3496	2.8	0.97	1921.8	12.6	100.6
OS082288-131	202	2.5	0.3	10.5189	2.0	0.4717	1.9	0.98	2474.0	5.7	100.7
OS082288-133	153	1.5	0.2	21.9921	1.5	0.6123	1.5	0.99	3249.8	3.2	94.7
OS082288-135	202	3.0	0.2	4.8890	2.8	0.3253	2.8	1.00	1782.7	4.4	101.8
OS082288-137	104	1.4	0.3	12.4866	2.4	0.5038	2.4	0.99	2650.4	4.9	99.2
OS082288-138	201	1.6	0.3	11.1055	3.1	0.4724	3.1	1.00	2562.7	5.0	97.3
OS082288-140	243	2.1	0.4	11.9052	2.5	0.5009	2.4	0.99	2580.8	6.2	101.4
OS082288-142	167	4.2	0.3	5.0562	3.4	0.3362	3.4	1.00	1783.8	4.8	104.7
OS082288-144	269	4.9	0.3	4.6898	1.5	0.3121	1.5	0.97	1782.2	6.3	98.3
OS082288-147	351	13.4	1.2	12.6813	9.5	0.4444	9.4	0.99	2881.8	19.2	82.3
OS082288-150	233	2.1	0.3	5.4489	1.8	0.3405	1.7	0.99	1896.4	5.3	99.6
OS082288-7	97	1.7	0.4	15.1846	2.6	0.5464	2.5	0.99	2838.7	7.0	99.0
OS082288-12	142	2.6	0.4	10.4331	5.5	0.4689	5.5	1.00	2470.1	7.6	100.3
OS082288-17	262	1.7	0.4	4.8777	2.2	0.3196	2.2	0.98	1810.6	7.9	98.7
OS082288-21	218	1.8	0.3	5.3854	1.8	0.3403	1.8	0.99	1876.4	5.7	100.6
OS082288-22	246	2.8	1.4	10.2499	4.9	0.4716	4.7	0.96	2430.3	23.1	102.5
OS082288-24	268	3.3	0.6	4.4325	3.9	0.2827	3.8	0.99	1859.4	10.3	86.3
OS082288-32	275	6.2	0.3	5.5661	4.8	0.3508	4.7	1.00	1881.2	5.7	103.0
OS082288-35	289	3.0	0.2	5.0854	1.6	0.3226	1.6	0.99	1869.2	2.9	96.4
OS082288-44	418	5.1	0.2	8.5101	1.1	0.4155	1.1	0.99	2329.4	3.0	96.2
OS082288-47	270	1.5	0.3	4.9983	1.7	0.3308	1.7	0.98	1792.7	6.0	102.8

OS082288-48	282	1.7	0.2	6.3183	1.8	0.3743	1.8	0.99	1991.9	3.9	102.9
OS082288-49	194	2.1	0.7	4.6709	4.3	0.3169	4.2	0.99	1747.4	12.7	101.5
OS082288-51	310	1.4	0.2	12.3596	1.9	0.4903	1.9	0.99	2678.6	3.9	96.0
OS082288-53	163	1.2	0.1	11.7739	1.5	0.4982	1.5	1.00	2571.3	2.4	101.4
OS082288-54	146	2.1	0.2	10.8029	1.7	0.4821	1.7	0.99	2482.0	3.9	102.2
OS082288-55	225	3.0	0.6	9.0377	5.5	0.4176	5.5	0.99	2423.1	10.6	92.8
OS082288-56	355	5.8	0.3	4.8228	1.7	0.3203	1.7	0.99	1786.1	4.9	100.3
OS082288-58	120	1.1	0.2	26.7760	2.1	0.7034	2.1	1.00	3340.9	3.2	102.8
OS082288-59	223	1.5	0.2	5.3472	2.5	0.3370	2.5	1.00	1881.2	4.0	99.5
OS082288-62	169	2.5	0.2	16.7561	2.9	0.5663	2.9	1.00	2940.6	3.8	98.4
OS082288-63	307	4.1	0.7	4.8696	2.1	0.3224	2.0	0.95	1791.6	12.6	100.6
OS082288-65	75	2.0	0.3	5.5490	2.4	0.3516	2.4	0.99	1871.4	6.0	103.8
OS082288-67	36	0.5	0.4	11.5034	2.6	0.4882	2.6	0.99	2566.4	7.3	99.9
OS082288-70	140	1.0	0.3	11.3459	1.5	0.4803	1.4	0.98	2570.7	5.2	98.4
OS082288-72	309	1.4	0.2	4.9644	1.3	0.3298	1.3	0.99	1785.6	3.9	102.9
OS082288-73	21	0.6	1.0	11.7199	4.2	0.4959	4.0	0.97	2571.4	17.4	101.0
OS082288-75	150	2.7	0.1	10.9564	2.8	0.4883	2.8	1.00	2484.3	2.3	103.2
OS082288-76	172	1.7	0.4	10.4644	2.7	0.4676	2.6	0.99	2479.7	6.1	99.7
OS082288-77	244	2.4	0.4	9.3124	2.5	0.4433	2.4	0.99	2372.4	6.5	99.7
OS082288-78	183	1.4	0.2	11.6343	1.9	0.4948	1.9	0.99	2563.0	4.0	101.1
OS082288-79	239	2.9	0.3	4.8374	2.7	0.3217	2.7	0.99	1783.6	5.0	100.8
OS082288-80	82	1.0	1.1	12.7356	2.7	0.5085	2.5	0.91	2668.0	18.4	99.3
OS082288-81	223	3.4	0.3	4.9920	3.9	0.3321	3.9	1.00	1783.3	4.9	103.6
OS082288-82	234	0.7	0.6	5.2938	1.9	0.3360	1.8	0.96	1868.2	10.0	100.0
OS082288-84	133	0.5	1.0	9.9732	3.2	0.4300	3.1	0.95	2540.0	16.0	90.8
OS082288-85	186	1.7	0.4	5.9596	1.2	0.3597	1.1	0.94	1958.8	7.2	101.1
OS082288-89	209	2.0	0.2	5.4042	2.3	0.3467	2.3	0.99	1849.0	4.5	103.8
OS082288-90	231	3.7	0.2	5.0638	1.8	0.3366	1.8	0.99	1784.6	4.2	104.8
OS082288-92	278	2.7	0.3	4.7167	3.7	0.3135	3.6	1.00	1784.5	5.8	98.5
OS082288-94	229	0.9	1.5	5.4028	5.0	0.3285	4.8	0.95	1945.4	26.8	94.1
OS082288-97	209	1.6	0.2	10.3689	2.5	0.4646	2.4	1.00	2475.2	3.1	99.4
OS082288-101	180	0.7	0.3	12.0153	4.9	0.5099	4.9	1.00	2566.5	4.6	103.5
OS082288-104	250	1.3	0.3	11.8983	1.3	0.4726	1.3	0.98	2676.7	4.4	93.2
OS082288-107	157	3.1	0.2	10.5654	2.3	0.4732	2.3	1.00	2476.0	3.5	100.9
OS082288-108	288	4.4	0.3	4.8896	2.8	0.3261	2.8	1.00	1778.6	5.0	102.3
OS082288-110	102	0.8	0.5	12.6785	5.6	0.5102	5.6	1.00	2654.8	7.8	100.1
k06246-1-1	229	2.9	1.7	4.6010	2.4	0.3122	1.7	0.70	1746.9	30.8	100.3
k06246-1-2	342	2.3	1.8	4.1390	2.6	0.2817	1.9	0.72	1741.3	33.2	91.9
k06246-1-3	533	2.1	1.7	4.3914	3.0	0.3011	2.4	0.82	1727.6	31.6	98.2
k06246-1-4	180	2.7	1.6	10.2249	4.5	0.4597	4.2	0.94	2469.4	26.3	98.7
k06246-1-5	406	3.5	1.2	13.3159	1.4	0.5204	0.7	0.50	2703.3	20.3	99.9
k06246-1-6	276	1.9	2.1	11.1176	3.2	0.4851	2.4	0.75	2519.9	34.9	101.2
k06246-1-7	252	2.5	2.3	4.4080	3.3	0.2944	2.4	0.71	1776.0	42.4	93.7
k06246-1-8	267	1.4	2.2	5.0785	3.6	0.3301	2.8	0.79	1825.5	39.6	100.7
k06246-1-9	527	1.9	1.2	4.6034	1.6	0.3128	1.1	0.69	1744.6	21.6	100.6
k06246-1-10	128	3.6	0.9	5.0716	1.6	0.3281	1.4	0.84	1833.9	15.6	99.7
k06246-1-11	418	4.2	3.6	27.9019	4.1	0.7061	2.1	0.51	3399.2	55.5	101.3
k06246-1-12	332	2.3	0.8	4.1376	2.0	0.2789	1.8	0.91	1759.4	14.9	90.1

k06246-1-13	173	2.5	1.0	10.4241	1.9	0.4681	1.6	0.84	2471.4	17.2	100.2
k06246-1-14	365	2.2	1.6	10.3804	1.9	0.4584	0.9	0.49	2499.9	27.3	97.3
k06246-1-15	164	3.0	2.1	10.4281	2.3	0.4676	1.0	0.43	2473.8	35.8	100.0
k06246-1-16	301	2.3	1.9	4.5452	3.1	0.3084	2.5	0.80	1746.8	34.1	99.2
k06246-1-17	309	2.1	1.5	4.5153	3.4	0.3066	3.1	0.90	1745.6	27.1	98.8
k06246-1-18	280	2.4	1.8	5.0540	2.4	0.3277	1.7	0.69	1829.7	31.7	99.9
k06246-1-19	500	5.3	2.8	11.3503	3.1	0.4257	1.4	0.43	2771.2	46.3	82.5
k06246-1-20	236	3.1	1.6	4.5278	2.3	0.3053	1.7	0.73	1758.2	29.1	97.7
k06246-1-21	423	1.3	1.2	4.4980	1.7	0.3033	1.2	0.70	1758.4	22.5	97.1
k06246-1-22	307	2.9	1.4	4.5614	2.0	0.3092	1.4	0.71	1748.6	26.0	99.3
k06246-1-23	473	1.3	2.3	4.6406	2.9	0.3081	1.9	0.63	1786.5	41.3	96.9
k06246-1-24	360	1.9	1.9	4.8600	3.5	0.3214	2.9	0.83	1793.9	35.2	100.2
k06246-1-25	327	2.5	1.4	4.4782	1.9	0.3045	1.3	0.67	1743.3	25.8	98.3
k06246-1-27	216	2.9	1.7	5.1688	2.7	0.3323	2.2	0.78	1845.1	30.8	100.2
k06246-1-29	339	1.7	2.8	4.3106	3.3	0.2958	1.8	0.55	1726.4	50.9	96.8
k06246-1-30	343	2.0	1.0	4.6243	2.2	0.3139	2.0	0.89	1746.4	18.1	100.8
k06246-1-31	370	2.4	0.9	4.4438	2.7	0.2983	2.6	0.94	1766.9	16.8	95.2
k06246-1-32	340	2.1	1.7	4.5239	2.2	0.3075	1.4	0.64	1743.9	31.5	99.1
k06246-1-33	365	2.2	0.9	4.3716	1.7	0.2951	1.4	0.84	1756.7	17.0	94.9
k06246-1-34	308	2.2	4.0	10.8972	4.6	0.4667	2.4	0.51	2551.1	66.2	96.8
k06246-1-35	451	3.7	1.4	4.6617	2.2	0.3059	1.8	0.78	1808.1	25.6	95.2
k06246-1-36	519	4.5	2.8	4.4083	4.2	0.2707	3.2	0.75	1927.7	49.9	80.1
k06246-1-37	123	2.4	1.8	10.9564	2.5	0.4818	1.8	0.70	2506.7	30.5	101.1
k06246-1-38	204	1.4	2.0	11.9322	3.2	0.4978	2.5	0.77	2595.1	34.0	100.4
k06246-1-39	262	2.6	1.1	10.5047	2.8	0.4690	2.6	0.92	2481.1	18.6	99.9
k06246-1-40	149	2.2	1.6	9.7920	3.0	0.4522	2.5	0.84	2424.2	27.0	99.2
k06246-1-41	221	2.9	1.1	4.6359	1.5	0.3132	0.9	0.64	1755.2	20.5	100.1
k06246-1-42	350	2.0	1.7	4.6834	2.6	0.3145	1.9	0.74	1765.8	31.6	99.8
k06246-1-43	589	0.7	3.2	3.5891	3.7	0.2402	1.9	0.50	1772.2	59.2	78.3
k06246-1-44	143	2.4	1.1	10.5273	1.9	0.4709	1.5	0.82	2477.9	18.1	100.4
k06246-1-45	270	3.9	1.2	4.7676	1.8	0.3079	1.3	0.75	1836.9	20.8	94.2
k06246-1-46	131	3.3	1.2	10.6531	1.4	0.4744	0.8	0.57	2485.8	19.4	100.7
k06246-1-48	358	2.6	1.4	4.8562	4.3	0.3204	4.1	0.95	1798.3	25.1	99.6
k06246-1-49	375	1.9	2.5	6.5489	4.1	0.3766	3.2	0.79	2044.6	43.9	100.8
k06246-1-50	416	2.0	2.8	4.4172	5.3	0.2891	4.5	0.85	1812.9	51.2	90.3
k06246-1-51	273	3.2	7.0	4.7952	7.2	0.2969	1.3	0.18	1913.1	126.6	87.6
k06246-1-52	308	3.4	2.7	4.3531	3.5	0.2907	2.3	0.65	1775.9	48.9	92.6
k06246-1-54	219	2.1	2.6	10.2279	3.2	0.4610	1.9	0.58	2465.3	43.8	99.1
k06246-1-55	276	2.2	1.1	4.7855	1.9	0.3175	1.5	0.81	1788.1	20.0	99.4
k06246-1-56	264	2.7	1.7	4.5611	2.3	0.3129	1.6	0.68	1726.7	30.7	101.6
k06246-1-57	174	2.8	1.5	10.6533	2.5	0.4743	2.1	0.81	2486.0	25.1	100.7
k06246-1-58	238	3.1	1.2	4.5468	2.7	0.3078	2.5	0.90	1751.5	21.2	98.8
k06246-1-59	198	2.1	1.6	10.4404	3.6	0.4683	3.2	0.89	2473.6	27.2	100.1
k06246-1-60	296	2.7	2.4	10.1422	4.6	0.4667	4.0	0.85	2430.1	40.9	101.6
k06246-1-61	386	1.9	1.3	4.5883	3.2	0.3131	2.9	0.91	1736.7	24.4	101.1
k06246-1-62	282	2.3	1.2	4.7867	2.8	0.3189	2.6	0.91	1780.4	21.2	100.2
k06246-1-63	332	2.2	1.3	4.9439	1.9	0.3238	1.4	0.74	1811.6	23.6	99.8
k06246-1-64	419	1.5	1.1	4.6660	2.3	0.3136	2.1	0.89	1764.3	19.2	99.7

k06246-1-65	158	2.2	1.8	11.1921	2.1	0.4852	1.0	0.49	2530.7	30.5	100.8
k06246-1-66	222	2.9	3.0	4.6867	3.2	0.3191	1.3	0.40	1740.8	54.1	102.6
k06246-1-67	196	2.8	0.9	4.4707	2.4	0.3028	2.3	0.94	1750.5	15.6	97.4
k06246-1-68	669	1.8	2.9	8.1454	3.7	0.3522	2.3	0.63	2535.3	48.5	76.7
k06246-1-69	327	2.2	1.5	4.8425	3.1	0.3212	2.7	0.88	1788.5	27.1	100.4
k06246-1-70	120	1.8	0.9	5.3575	1.8	0.3368	1.6	0.86	1885.8	16.8	99.2
k06246-1-71	590	2.4	1.0	36.9840	1.5	0.7663	1.1	0.74	3707.1	15.6	98.9
k06246-1-72	262	2.8	1.7	4.8675	2.7	0.3220	2.1	0.78	1793.4	31.0	100.3
k06246-1-73	388	2.3	0.7	4.8306	1.1	0.3184	0.9	0.76	1800.2	13.3	99.0
k06246-1-74	389	1.7	3.4	9.2067	4.0	0.3857	2.1	0.53	2587.9	56.9	81.3
k06246-1-75	116	1.0	0.9	13.1854	1.2	0.5176	0.8	0.67	2695.9	14.9	99.7
k06246-1-76	262	2.5	2.0	11.6397	4.0	0.4894	3.5	0.87	2581.9	32.6	99.5
k06246-1-77	233	2.8	1.5	4.4987	1.9	0.3071	1.2	0.62	1735.7	26.6	99.5
k06246-1-78	366	1.9	1.7	4.5840	2.0	0.3078	1.0	0.50	1765.9	31.6	98.0
k06246-1-79	254	1.0	3.1	30.2813	4.0	0.6729	2.5	0.62	3600.3	47.6	92.1
k06246-1-80	136	2.7	1.6	10.0104	1.9	0.4589	1.0	0.52	2436.7	27.3	99.9
k06246-1-82	237	2.8	0.7	4.5708	1.5	0.3116	1.4	0.88	1738.6	13.2	100.6
k06246-1-83	303	3.1	2.2	4.3418	3.4	0.2959	2.6	0.77	1738.7	39.8	96.1
k06246-1-84	240	0.9	2.2	5.0943	3.6	0.3246	2.8	0.78	1861.2	40.5	97.4
k06246-1-85	220	2.6	2.7	4.5763	3.1	0.3131	1.6	0.50	1731.8	49.6	101.4
k06246-1-86	359	2.3	1.5	4.5482	2.2	0.3112	1.6	0.73	1731.4	27.0	100.9
k06246-1-87	311	2.5	1.2	4.9940	2.8	0.3250	2.5	0.90	1823.2	22.0	99.5
k06246-1-88	939	3.5	2.7	11.7441	3.0	0.4602	1.2	0.42	2699.0	44.6	90.4
k06246-1-89	455	4.1	3.2	10.3762	4.2	0.4334	2.6	0.64	2593.1	53.6	89.5
k06246-1-90	234	2.8	1.1	4.6487	1.6	0.3145	1.2	0.76	1752.2	19.2	100.6
k06246-1-91	278	1.8	2.1	10.5662	2.7	0.4701	1.8	0.66	2487.3	34.7	99.9
k06246-1-92	232	2.7	1.4	4.4320	1.9	0.3037	1.2	0.64	1729.1	26.4	98.9
k06246-1-93	303	1.7	2.0	4.9076	3.1	0.3233	2.3	0.74	1801.1	37.1	100.2
k06246-1-94	270	2.6	1.4	4.7511	2.4	0.3167	2.0	0.83	1779.6	24.6	99.7
k06246-1-95	372	3.3	1.8	4.9390	3.4	0.3161	2.9	0.85	1853.2	32.9	95.6
k06246-1-96	238	2.8	1.1	10.5056	2.0	0.4705	1.6	0.83	2475.9	18.6	100.4
k06246-1-97	542	5.4	2.4	10.1255	3.6	0.4483	2.7	0.75	2495.3	40.1	95.7
k06246-1-98	386	1.9	2.5	4.5951	3.2	0.3120	2.1	0.64	1746.0	45.6	100.3
k06246-1-99	184	1.1	2.0	12.0758	2.9	0.4885	2.1	0.73	2646.1	33.2	96.9
k06246-1-100	238	2.5	2.1	4.4480	4.1	0.3055	3.5	0.86	1724.8	38.0	99.6

Notes:
Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <500 Ma.
Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age < 900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage > 900 Ma.
Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <500 Ma because of large uncertainty in 206Pb/207Pb age.
Analyses with 206Pb/238U age > 500 Ma and with >20% discordance (<80% concordance) are not included.
Analyses with 206Pb/238U age > 500 Ma and with >5% reverse discordance (<105% concordance) are not included.
All uncertainties are reported at the 1-sigma level, and include only measurement errors.

Systematic errors are shown as 206Pb/238U uncertainty, 206Pb/207Pb uncertainty to the right of each sample (at 2-sigma level).

U concentration and U/Th are calibrated relative to Sri Lanka zircon and are accurate to ~20%.

Common Pb correction is from 204Pb, with composition interpreted from Stacey and Kramers (1975).

Uncertainties of 1.5 for 206Pb/ 204Pb, 0.3 for 207Pb/ 204Pb, and 2.0 for 208Pb/ 204Pb are applied to common Pb composition.

U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of a large Sri Lanka zircon of 563.5 ± 3.2 Ma (2-sigma).

U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.88

Analytical methods as described by Gehrels et al. (2008).

APPENDIX II

K-S Test results for Proterozoic ages

Analysis run on: Tuesday, Apr 20, 2010 @ 03:33:04 PM. Version: 1.0.

K-S P-values using error in the CDF

RM	78	81	84	96.7	97.8	108.4	110.8	112.1	246-1	84-2	102.7	228.8
78		**0.459**	0.000	**0.996**	**0.931**	**0.108**	**0.983**	**0.498**	0.000	0.012	0.000	0.009
81	**0.459**		0.013	**0.200**	**0.286**	0.002	**0.348**	**0.998**	0.000	0.037	0.000	**0.113**
84-1	0.000	0.013		0.002	0.001	0.000	0.003	**0.132**	0.000	0.009	0.000	**0.100**
96.7	**0.996**	**0.200**	0.002		**1.000**	**0.822**	**1.000**	**0.518**	0.010	0.042	0.000	**0.067**
97.8	**0.931**	**0.286**	0.001	**1.000**		**0.150**	**1.000**	**0.609**	0.000	0.007	0.000	0.007
108.4	**0.108**	0.002	0.000	**0.822**	**0.150**		**0.183**	0.019	**0.066**	0.014	0.000	0.003
110.8	**0.983**	**0.348**	0.003	**1.000**	**1.000**	**0.183**		**0.804**	0.000	0.015	0.000	0.031
112.1	**0.498**	**0.998**	**0.132**	**0.518**	**0.609**	0.019	**0.804**		0.000	**0.063**	0.000	**0.056**
246-1	0.000	0.000	0.000	0.010	0.000	**0.066**	0.000	0.000		0.002	0.000	0.000
84-2	0.012	0.037	0.009	0.042	0.007	0.014	0.015	**0.063**	0.002		0.001	**0.610**
102.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001		0.035
228.8	0.009	**0.113**	**0.100**	**0.067**	0.007	0.003	0.031	**0.056**	0.000	**0.610**	0.035	

D-values using error in the CDF

RM	78	81	84	96.7	97.8	108.4	110.8	112.1	246-1	84-2	102.7	228.8
78		0.180	0.500	0.087	0.093	0.206	0.086	0.190	0.427	0.318	0.530	0.319
81	0.180		0.400	0.255	0.199	0.380	0.199	0.098	0.599	0.317	0.504	0.266
84-1	0.500	0.400		0.472	0.439	0.566	0.414	0.311	0.743	0.396	0.499	0.292
96.7	0.087	0.255	0.472		0.063	0.128	0.073	0.207	0.345	0.315	0.523	0.291
97.8	0.093	0.199	0.439	0.063		0.181	0.043	0.168	0.402	0.318	0.514	0.309
108.4	0.206	0.380	0.566	0.128	0.181		0.191	0.335	0.221	0.295	0.553	0.333
110.8	0.086	0.199	0.414	0.073	0.043	0.191		0.149	0.404	0.316	0.500	0.286
112.1	0.190	0.098	0.311	0.207	0.168	0.335	0.149		0.539	0.318	0.528	0.319
246-1	0.427	0.599	0.743	0.345	0.402	0.221	0.404	0.539		0.369	0.744	0.506
84-2	0.318	0.317	0.396	0.315	0.318	0.295	0.316	0.318	0.369		0.381	0.159
102.7	0.530	0.504	0.499	0.523	0.514	0.553	0.500	0.528	0.744	0.381		0.274
228.8	0.319	0.266	0.292	0.291	0.309	0.333	0.286	0.319	0.506	0.159	0.274	

K-S Test results for Archean ages

Analysis run on: Tuesday, Apr 20, 2010 @ 04:04:00 PM. Version: 1.0.

K-S P-values using error in the CDF

RM	78	81	84	96.7	97.8	108.4	110.8	112.1	246-1	84-2	102.7	228.8
78		**0.988**	**0.134**	**0.572**	**0.545**	**0.981**	**0.993**	**0.998**	**0.452**	**0.156**	**0.053**	**0.205**
81	**0.988**		**0.152**	**0.154**	**0.866**	**0.891**	**0.999**	**0.814**	**0.206**	**0.262**	0.038	**0.069**
84-1	**0.134**	**0.152**		0.002	**0.457**	**0.183**	**0.280**	0.021	0.007	**0.870**	**0.463**	**0.478**
96.7	**0.572**	**0.154**	0.002		**0.522**	**0.990**	**0.160**	**0.883**	**0.995**	0.009	0.000	0.001
97.8	**0.545**	**0.866**	**0.457**	**0.522**		**0.984**	**0.949**	**0.608**	**0.495**	**0.447**	**0.222**	**0.267**
108.4	**0.981**	**0.891**	**0.183**	**0.990**	**0.984**		**0.670**	**0.989**	**0.935**	**0.077**	0.014	0.025
110.8	**0.993**	**0.999**	**0.280**	**0.160**	**0.949**	**0.670**		**0.747**	**0.092**	**0.372**	**0.143**	**0.314**
112.1	**0.998**	**0.814**	0.021	**0.883**	**0.608**	**0.989**	**0.747**		**0.628**	**0.063**	0.004	0.012
246-1	**0.452**	**0.206**	0.007	**0.995**	**0.495**	**0.935**	**0.092**	**0.628**		0.010	0.000	0.001
84-2	**0.156**	**0.262**	**0.870**	0.009	**0.447**	**0.077**	**0.372**	**0.063**	0.010		**0.989**	**0.620**
102.7	**0.053**	0.038	**0.463**	0.000	**0.222**	0.014	**0.143**	0.004	0.000	**0.989**		**0.380**
228.8	**0.205**	**0.069**	**0.478**	0.001	**0.267**	0.025	**0.314**	0.012	0.001	**0.620**	**0.380**	

D-values using error in the CDF

RM	78	81	84	96.7	97.8	108.4	110.8	112.1	246-1	84-2	102.7	228.8
78		0.111	0.294	0.195	0.295	0.146	0.116	0.096	0.236	0.405	0.394	0.325
81	0.111		0.213	0.206	0.196	0.152	0.077	0.113	0.231	0.318	0.335	0.329
84-1	0.294	0.213		0.352	0.283	0.291	0.213	0.276	0.373	0.190	0.206	0.216
96.7	0.195	0.206	0.352		0.267	0.116	0.236	0.104	0.091	0.517	0.508	0.498
97.8	0.295	0.196	0.283	0.267		0.174	0.180	0.248	0.289	0.360	0.379	0.373
108.4	0.146	0.152	0.291	0.116	0.174		0.205	0.116	0.155	0.471	0.480	0.469
110.8	0.116	0.077	0.213	0.236	0.180	0.205		0.141	0.299	0.305	0.299	0.264
112.1	0.096	0.113	0.276	0.104	0.248	0.116	0.141		0.160	0.413	0.412	0.402
246-1	0.236	0.231	0.373	0.091	0.289	0.155	0.299	0.160		0.550	0.561	0.552
84-2	0.405	0.318	0.190	0.517	0.360	0.471	0.305	0.413	0.550		0.157	0.273
102.7	0.394	0.335	0.206	0.508	0.379	0.480	0.299	0.412	0.561	0.157		0.269
228.8	0.325	0.329	0.216	0.498	0.373	0.469	0.264	0.402	0.552	0.273	0.269	

APPENDIX III

$^{207}Pb/^{206}Pb$ Age (Ma)	+/- (Ma) 1σ	Location	Reference
3297.0	15.0	Wyoming Craton	Mueller et al. (1992)
2862.0	5.0	Wyoming Craton	Mueller et al. (1992)
3462.0	4.0	Wyoming Craton	Mueller et al. (1992)
2758.0	6.0	Wyoming Craton	Mueller et al. (1992)
3818.0	6.0	Wyoming Craton	Mueller et al. (1992)
3964.0	6.0	Wyoming Craton	Mueller et al. (1992)
3966.0	6.0	Wyoming Craton	Mueller et al. (1992)
3118.0	29.0	Wyoming Craton	Mueller et al. (1992)
3280.0	5.0	Wyoming Craton	Mueller et al. (1992)
3294.0	11.0	Wyoming Craton	Mueller et al. (1992)
3726.0	9.0	Wyoming Craton	Mueller et al. (1992)
3300.0	14.0	Wyoming Craton	Mueller et al. (1992)
2632.0	5.0	Wyoming Craton	Mueller et al. (1992)
3609.0	9.0	Wyoming Craton	Mueller et al. (1992)
3216.0	10.0	Wyoming Craton	Mueller et al. (1992)
3502.0	7.0	Wyoming Craton	Mueller et al. (1992)
3720.0	7.0	Wyoming Craton	Mueller et al. (1992)
3331.0	9.0	Wyoming Craton	Mueller et al. (1992)
3734.0	7.0	Wyoming Craton	Mueller et al. (1992)
3736.0	3.0	Wyoming Craton	Mueller et al. (1992)
3552.0	12.0	Wyoming Craton	Mueller et al. (1992)
3353.0	8.0	Wyoming Craton	Mueller et al. (1992)
3453.0	8.0	Wyoming Craton	Mueller et al. (1992)
2728.0	7.0	Wyoming Craton	Mueller et al. (1992)
3162.0	14.0	Wyoming Craton	Mueller et al. (1992)
2634.0	22.0	Wyoming Craton	Mueller et al. (1992)
3749.0	9.0	Wyoming Craton	Mueller et al. (1992)
3182.0	14.0	Wyoming Craton	Mueller et al. (1992)
3729.0	8.0	Wyoming Craton	Mueller et al. (1992)
3325.0	13.0	Wyoming Craton	Mueller et al. (1992)
3288.0	14.0	Wyoming Craton	Mueller et al. (1992)
2724.0	29.0	Wyoming Craton	Mueller et al. (1992)
3926.0	12.0	Wyoming Craton	Mueller et al. (1992)
3946.0	12.0	Wyoming Craton	Mueller et al. (1992)
3842.0	9.0	Wyoming Craton	Mueller et al. (1992)
2846.0	27.0	Wyoming Craton	Mueller et al. (1992)
3863.0	12.0	Wyoming Craton	Mueller et al. (1992)
3606.0	12.0	Wyoming Craton	Mueller et al. (1992)
3719.0	10.0	Wyoming Craton	Mueller et al. (1992)
3320.0	15.0	Wyoming Craton	Mueller et al. (1992)
3627.0	9.0	Wyoming Craton	Mueller et al. (1992)
3200.0	17.0	Wyoming Craton	Mueller et al. (1992)
3285.0	7.0	Wyoming Craton	Mueller et al. (1992)

2429.0	4.0	Wyoming Craton	Premo and Van Schmus (1989)
2547.0	3.0	Wyoming Craton	Zartman and Reed (1998)
2545.0	30.0	Wyoming Craton	Stuckless et al. (1985)
2549.0	11.0	Wyoming Craton	Gosselin et al. (1988)
2564.0	13.0	Wyoming Craton	Mogk et al. (1988)
2595.0	40.0	Wyoming Craton	Ludwig and Stuckless (1978)
2596.1	5.9	Wyoming Craton	Mueller et al. (1993)
2610.0	9.0	Wyoming Craton	Snyder et al. (1998)
2619.0	1.0	Wyoming Craton	Verts et al. (1996)
2622.0	7.0	Wyoming Craton	Langstaff (1995)
2637.0	10.0	Wyoming Craton	Snyder et al. (1988)
2640.0	20.0	Wyoming Craton	Ludwig and Stuckless (1978)
2642.0	13.0	Wyoming Craton	Naylor et al. (1970)
2670.5	2.9	Wyoming Craton	Mueller et al. (1993)
2670.0	13.0	Wyoming Craton	Aleinikoff et al. (1989)
2683.0	6.0	Wyoming Craton	Premo and Van Schmus (1989)
2699.0	7.0	Wyoming Craton	Aleinikoff et al. (1989)
2705.0	4.0	Wyoming Craton	Premo et al. (1990)
2710.0	10.0	Wyoming Craton	Premo and Van Schmus (1989)
2718.0	18.0	Wyoming Craton	Houston et al. (1993)
2729.0	62.0	Wyoming Craton	Snyder et al. (1997)
2748.0	25.0	Wyoming Craton	Wooden, Mueller, Mogk (1988)
2782.0	3.0	Wyoming Craton	Wooden, Mueller, Mogk (1988)
2789.0	5.0	Wyoming Craton	Wooden, Mueller, Mogk (1988)
2845.0	13.0	Wyoming Craton	Heimlich and Banks (1968)
2854.0	6.0	Wyoming Craton	Langstaff (1995)
2905.0	25.0	Wyoming Craton	Mueller et al. (1985)
3170.0	50.0	Wyoming Craton	Fisher and Stacey (1986)
3244.0	12.0	Wyoming Craton	Mueller et al. (1996)
3370.0	12.0	Wyoming Craton	Langstaff (1995)
3490.0	40.0	Wyoming Craton	Mueller et al. (1996)
2451.0	9.0	Wyoming Craton	Premo and Van Schmus (1989)
3346.0	2.0	Wyoming Craton	Grace et al. (2006)
3282.0	2.0	Wyoming Craton	Grace et al. (2006)
3323.0	1.0	Wyoming Craton	Grace et al. (2006)
3073.0	4.0	Wyoming Craton	Grace et al. (2006)
3070.0	1.0	Wyoming Craton	Grace et al. (2006)
3058.0	6.0	Wyoming Craton	Grace et al. (2006)
3069.0	2.0	Wyoming Craton	Grace et al. (2006)
2986.0	5.0	Wyoming Craton	Grace et al. (2006)
3044.0	2.0	Wyoming Craton	Grace et al. (2006)
2694.2	7.2	Wyoming Craton	Grace et al. (2006)
2686.5	4.0	Wyoming Craton	Grace et al. (2006)
2654.2	1.1	Wyoming Craton	Grace et al. (2006)
2656.9	1.0	Wyoming Craton	Grace et al. (2006)
2646.0	5.6	Wyoming Craton	Grace et al. (2006)

2650.4	1.4	Wyoming Craton	Grace et al. (2006)
2636.4	4.0	Wyoming Craton	Grace et al. (2006)
2648.6	2.9	Wyoming Craton	Grace et al. (2006)
3009.6	0.8	Wyoming Craton	Grace et al. (2006)
3296.0	11.0	Wyoming Craton	Grace et al. (2006)
3304.0	11.0	Wyoming Craton	Grace et al. (2006)
3228.0	12.0	Wyoming Craton	Grace et al. (2006)
3305.0	11.0	Wyoming Craton	Grace et al. (2006)
3311.0	11.0	Wyoming Craton	Grace et al. (2006)
3299.0	11.0	Wyoming Craton	Grace et al. (2006)
3287.0	11.0	Wyoming Craton	Grace et al. (2006)
3287.0	11.0	Wyoming Craton	Grace et al. (2006)
3289.0	11.0	Wyoming Craton	Grace et al. (2006)
3303.0	11.0	Wyoming Craton	Grace et al. (2006)
3271.0	11.0	Wyoming Craton	Grace et al. (2006)
3301.0	11.0	Wyoming Craton	Grace et al. (2006)
3287.0	21.0	Wyoming Craton	Grace et al. (2006)
3296.0	21.0	Wyoming Craton	Grace et al. (2006)
3310.0	21.0	Wyoming Craton	Grace et al. (2006)
3282.0	21.0	Wyoming Craton	Grace et al. (2006)
3312.0	20.0	Wyoming Craton	Grace et al. (2006)
3182.0	21.0	Wyoming Craton	Grace et al. (2006)
3300.0	21.0	Wyoming Craton	Grace et al. (2006)
3283.0	21.0	Wyoming Craton	Grace et al. (2006)
3111.0	13.0	Wyoming Craton	Grace et al. (2006)
3246.0	11.0	Wyoming Craton	Grace et al. (2006)
3256.0	30.0	Wyoming Craton	Grace et al. (2006)
3335.0	30.0	Wyoming Craton	Grace et al. (2006)
3175.0	31.0	Wyoming Craton	Grace et al. (2006)
3314.5	3.8	Wyoming Craton	Grace et al. (2006)
3312.2	4.0	Wyoming Craton	Grace et al. (2006)
3309.5	3.2	Wyoming Craton	Grace et al. (2006)
3309.4	3.9	Wyoming Craton	Grace et al. (2006)
3306.9	4.4	Wyoming Craton	Grace et al. (2006)
3306.3	5.0	Wyoming Craton	Grace et al. (2006)
3295.1	4.9	Wyoming Craton	Grace et al. (2006)
3283.1	4.5	Wyoming Craton	Grace et al. (2006)
3204.8	5.4	Wyoming Craton	Grace et al. (2006)
3066.3	5.8	Wyoming Craton	Grace et al. (2006)
3227.4	5.9	Wyoming Craton	Grace et al. (2006)
3205.6	8.3	Wyoming Craton	Grace et al. (2006)
3316.7	3.0	Wyoming Craton	Grace et al. (2006)
3304.9	3.8	Wyoming Craton	Grace et al. (2006)
3303.0	3.7	Wyoming Craton	Grace et al. (2006)
3302.6	3.6	Wyoming Craton	Grace et al. (2006)
3252.4	5.2	Wyoming Craton	Grace et al. (2006)
3233.7	4.8	Wyoming Craton	Grace et al. (2006)
3114.3	9.3	Wyoming Craton	Grace et al. (2006)

3200.4	7.2	Wyoming Craton	Grace et al. (2006)
3190.0	14.7	Wyoming Craton	Grace et al. (2006)
2649.0	2.8	Wyoming Craton	Grace et al. (2006)
3099.0	48.0	Wyoming Craton	Mueller et al. (1993)
3142.0	21.0	Wyoming Craton	Mueller et al. (1993)
3250.6	5.8	Wyoming Craton	Mueller et al. (1993)
2761.0	10.0	Wyoming Craton	Mueller et al. (1993)
2793.0	2.0	Wyoming Craton	Mueller et al. (1988)
2791.0	2.0	Wyoming Craton	Mueller et al. (1988)
2783.0	5.0	Wyoming Craton	Mueller et al. (1988)
2734.0	71.0	Wyoming Craton	Mueller et al. (1988)
2779.0	30.0	Wyoming Craton	Mueller et al. (1988)
2797.0	21.0	Wyoming Craton	Mueller et al. (1988)
2781.0	11.0	Wyoming Craton	Mueller et al. (1988)
2725.0	97.0	Wyoming Craton	Mueller et al. (1988)
2727.0	82.0	Wyoming Craton	Mueller et al. (1988)
2726.0	60.0	Wyoming Craton	Mueller et al. (1988)
2552.1	3.6	Wyoming Craton	McCombs et al. (2004)
2562.1	12.1	Wyoming Craton	McCombs et al. (2004)
2894.0	2.7	Wyoming Craton	McCombs et al. (2004)
2583.5	5.6	Wyoming Craton	McCombs et al. (2004)
2564.3	3.7	Wyoming Craton	McCombs et al. (2004)
2563.4	4.2	Wyoming Craton	McCombs et al. (2004)
2562.4	4.4	Wyoming Craton	McCombs et al. (2004)
2559.6	5.0	Wyoming Craton	McCombs et al. (2004)
2558.8	7.2	Wyoming Craton	McCombs et al. (2004)
2557.4	3.5	Wyoming Craton	McCombs et al. (2004)
2557.3	3.4	Wyoming Craton	McCombs et al. (2004)
2544.6	7.6	Wyoming Craton	McCombs et al. (2004)
2521.9	35.1	Wyoming Craton	McCombs et al. (2004)
2574.8	5.1	Wyoming Craton	McCombs et al. (2004)
2573.5	4.1	Wyoming Craton	McCombs et al. (2004)
2563.3	4.1	Wyoming Craton	McCombs et al. (2004)
2560.5	9.9	Wyoming Craton	McCombs et al. (2004)
2559.7	2.7	Wyoming Craton	McCombs et al. (2004)
2558.0	7.5	Wyoming Craton	McCombs et al. (2004)
2551.3	6.4	Wyoming Craton	McCombs et al. (2004)
2536.0	8.2	Wyoming Craton	McCombs et al. (2004)
2523.7	9.2	Wyoming Craton	McCombs et al. (2004)
2654.2	8.0	Wyoming Craton	McCombs et al. (2004)
2563.1	4.7	Wyoming Craton	McCombs et al. (2004)
2605.6	10.0	Wyoming Craton	McCombs et al. (2004)
2594.3	10.0	Wyoming Craton	McCombs et al. (2004)
2584.8	7.8	Wyoming Craton	McCombs et al. (2004)
2578.8	19.2	Wyoming Craton	McCombs et al. (2004)
2552.1	9.5	Wyoming Craton	McCombs et al. (2004)
2543.1	16.2	Wyoming Craton	McCombs et al. (2004)
2511.2	11.6	Wyoming Craton	McCombs et al. (2004)

2510.4	12.0	Wyoming Craton	McCombs et al. (2004)
2431.2	26.9	Wyoming Craton	McCombs et al. (2004)
2727.2	1.0	Wyoming Craton	Bowers and Chamberlain (2006)
2726.6	1.0	Wyoming Craton	Bowers and Chamberlain (2006)
2720.8	1.0	Wyoming Craton	Bowers and Chamberlain (2006)
2718.7	1.0	Wyoming Craton	Bowers and Chamberlain (2006)
2721.6	1.2	Wyoming Craton	Bowers and Chamberlain (2006)
2726.2	3.1	Wyoming Craton	Bowers and Chamberlain (2006)
2712.5	1.2	Wyoming Craton	Bowers and Chamberlain (2006)
2722.7	1.6	Wyoming Craton	Bowers and Chamberlain (2006)
2716.0	1.4	Wyoming Craton	Bowers and Chamberlain (2006)
2687.3	1.1	Wyoming Craton	Bowers and Chamberlain (2006)
2702.1	1.1	Wyoming Craton	Bowers and Chamberlain (2006)
2715.8	1.2	Wyoming Craton	Bowers and Chamberlain (2006)
2697.8	0.8	Wyoming Craton	Bowers and Chamberlain (2006)
2679.3	1.6	Wyoming Craton	Bowers and Chamberlain (2006)
2724.6	3.1	Wyoming Craton	Bowers and Chamberlain (2006)
2661.7	1.3	Wyoming Craton	Bowers and Chamberlain (2006)
2661.9	2.5	Wyoming Craton	Frost, C.D. et al. (2006)
2660.8	0.9	Wyoming Craton	Frost, C.D. et al. (2006)
2662.0	0.9	Wyoming Craton	Frost, C.D. et al. (2006)
2660.2	1.1	Wyoming Craton	Frost, C.D. et al. (2006)
2656.5	0.9	Wyoming Craton	Frost, C.D. et al. (2006)
2645.6	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2627.0	0.7	Wyoming Craton	Frost, C.D. et al. (2006)
2626.0	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2625.9	1.1	Wyoming Craton	Frost, C.D. et al. (2006)
2626.6	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2623.9	1.4	Wyoming Craton	Frost, C.D. et al. (2006)
2596.8	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2726.3	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2726.8	0.8	Wyoming Craton	Frost, C.D. et al. (2006)
2728.8	1.7	Wyoming Craton	Frost, C.D. et al. (2006)
2722.1	0.7	Wyoming Craton	Frost, C.D. et al. (2006)
2723.6	1.4	Wyoming Craton	Frost, C.D. et al. (2006)
2721.0	2.3	Wyoming Craton	Frost, C.D. et al. (2006)
2717.7	6.6	Wyoming Craton	Frost, C.D. et al. (2006)
2680.9	0.9	Wyoming Craton	Frost, C.D. et al. (2006)
2682.1	1.8	Wyoming Craton	Frost, B.R. et al. (2006)
2679.6	1.4	Wyoming Craton	Frost, B.R. et al. (2006)
2681.2	1.3	Wyoming Craton	Frost, B.R. et al. (2006)
2679.0	0.9	Wyoming Craton	Frost, B.R. et al. (2006)
2681.7	4.9	Wyoming Craton	Frost, B.R. et al. (2006)
2676.7	2.3	Wyoming Craton	Frost, B.R. et al. (2006)
2657.0	1.4	Wyoming Craton	Frost, B.R. et al. (2006)
2622.8	3.9	Wyoming Craton	Frost, B.R. et al. (2006)
2599.3	1.7	Wyoming Craton	Frost, B.R. et al. (2006)
2863.7	1.5	Wyoming Craton	Frost, B.R. et al. (2006)

2670.7	1.1	Wyoming Craton	Frost, B.R. et al. (2006)
2677.5	1.7	Wyoming Craton	Frost, B.R. et al. (2006)
2671.0	1.3	Wyoming Craton	Frost, B.R. et al. (2006)
2664.6	2.0	Wyoming Craton	Frost, B.R. et al. (2006)
2663.6	2.2	Wyoming Craton	Frost, B.R. et al. (2006)
2676.7	2.0	Wyoming Craton	Frost, B.R. et al. (2006)
2667.3	11.0	Wyoming Craton	Frost, B.R. et al. (2006)
2664.6	1.4	Wyoming Craton	Frost, B.R. et al. (2006)
2671.9	3.8	Wyoming Craton	Frost, B.R. et al. (2006)
2672.3	2.0	Wyoming Craton	Frost, B.R. et al. (2006)
2682.0	2.6	Wyoming Craton	Frost, B.R. et al. (2006)
2684.1	1.4	Wyoming Craton	Frost, B.R. et al. (2006)
2688.9	3.0	Wyoming Craton	Frost, B.R. et al. (2006)
2681.9	1.6	Wyoming Craton	Frost, B.R. et al. (2006)
2680.1	8.9	Wyoming Craton	Frost, B.R. et al. (2006)
2641.4	1.8	Wyoming Craton	Souders and Frost, C.D. (2006)
2650.0	1.8	Wyoming Craton	Souders and Frost, C.D. (2006)
2640.0	1.7	Wyoming Craton	Souders and Frost, C.D. (2006)
2642.2	1.6	Wyoming Craton	Souders and Frost, C.D. (2006)
2638.0	2.2	Wyoming Craton	Souders and Frost, C.D. (2006)
2650.4	1.7	Wyoming Craton	Souders and Frost, C.D. (2006)
2636.7	1.7	Wyoming Craton	Souders and Frost, C.D. (2006)
2679.4	1.7	Wyoming Craton	Souders and Frost, C.D. (2006)
2683.1	1.6	Wyoming Craton	Souders and Frost, C.D. (2006)
2627.7	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2627.8	1.2	Wyoming Craton	Frost, C.D. et al. (1998)
2628.9	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2629.4	1.2	Wyoming Craton	Frost, C.D. et al. (1998)
2626.7	1.0	Wyoming Craton	Frost, C.D. et al. (1998)
2627.2	1.0	Wyoming Craton	Frost, C.D. et al. (1998)
2627.9	2.8	Wyoming Craton	Frost, C.D. et al. (1998)
2628.5	1.2	Wyoming Craton	Frost, C.D. et al. (1998)
2629.8	1.2	Wyoming Craton	Frost, C.D. et al. (1998)
2630.4	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2635.6	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2619.3	0.9	Wyoming Craton	Frost, C.D. et al. (1998)
2615.7	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2641.4	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2617.7	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2621.2	1.1	Wyoming Craton	Frost, C.D. et al. (1998)
2615.7	2.2	Wyoming Craton	Frost, C.D. et al. (1998)
2617.7	1.4	Wyoming Craton	Frost, C.D. et al. (1998)
2621.8	2.0	Wyoming Craton	Frost, C.D. et al. (1998)
2613.6	5.2	Wyoming Craton	Frost, C.D. et al. (1998)
2546	116	Gawler Craton	Compiled by Howard, Katherine
2283	24	Gawler Craton	Compiled by Howard, Katherine
2431	34	Gawler Craton	Compiled by Howard, Katherine
2568	20	Gawler Craton	Compiled by Howard, Katherine

2723	59	Gawler Craton	Compiled by Howard, Katherine
2515	25	Gawler Craton	Compiled by Howard, Katherine
2523	19	Gawler Craton	Compiled by Howard, Katherine
2478	16	Gawler Craton	Compiled by Howard, Katherine
2394	30	Gawler Craton	Compiled by Howard, Katherine
2439	40	Gawler Craton	Compiled by Howard, Katherine
2387	47	Gawler Craton	Compiled by Howard, Katherine
2541	82	Gawler Craton	Compiled by Howard, Katherine
2721	100	Gawler Craton	Compiled by Howard, Katherine
2527	18	Gawler Craton	Compiled by Howard, Katherine
2862	47	Gawler Craton	Compiled by Howard, Katherine
2358	28	Gawler Craton	Compiled by Howard, Katherine
2701	138	Gawler Craton	Compiled by Howard, Katherine
2675	9	Gawler Craton	Compiled by Howard, Katherine
2284	6	Gawler Craton	Compiled by Howard, Katherine
2284	6	Gawler Craton	Compiled by Howard, Katherine
2655	28	Gawler Craton	Compiled by Howard, Katherine
2510	7	Gawler Craton	Compiled by Howard, Katherine
2583	27	Gawler Craton	Compiled by Howard, Katherine
2549	22	Gawler Craton	Compiled by Howard, Katherine
2522	6	Gawler Craton	Compiled by Howard, Katherine
2583	49	Gawler Craton	Compiled by Howard, Katherine
2549	24	Gawler Craton	Compiled by Howard, Katherine
2470	8	Gawler Craton	Compiled by Howard, Katherine
2601	8	Gawler Craton	Compiled by Howard, Katherine
2286	5	Gawler Craton	Compiled by Howard, Katherine
2456	5	Gawler Craton	Compiled by Howard, Katherine
2286	5	Gawler Craton	Compiled by Howard, Katherine
2400	8	Gawler Craton	Compiled by Howard, Katherine
2567	56	Gawler Craton	Compiled by Howard, Katherine
2528	40	Gawler Craton	Compiled by Howard, Katherine
2508	91	Gawler Craton	Compiled by Howard, Katherine
2632	61	Gawler Craton	Compiled by Howard, Katherine
2653	30	Gawler Craton	Compiled by Howard, Katherine
2582	35	Gawler Craton	Compiled by Howard, Katherine
2555	22	Gawler Craton	Compiled by Howard, Katherine
2431	8	Gawler Craton	Compiled by Howard, Katherine
2511	9	Gawler Craton	Compiled by Howard, Katherine
2540	9	Gawler Craton	Compiled by Howard, Katherine
2629	18	Gawler Craton	Compiled by Howard, Katherine
2522	92	Gawler Craton	Compiled by Howard, Katherine
2579	48	Gawler Craton	Compiled by Howard, Katherine
2495	8	Gawler Craton	Compiled by Howard, Katherine
2496	8	Gawler Craton	Compiled by Howard, Katherine
2444	11	Gawler Craton	Compiled by Howard, Katherine
2315	6	Gawler Craton	Compiled by Howard, Katherine
2314	6	Gawler Craton	Compiled by Howard, Katherine
2315	6	Gawler Craton	Compiled by Howard, Katherine

2314	6	Gawler Craton	Compiled by Howard, Katherine
2564	17	Gawler Craton	Compiled by Howard, Katherine
2540	55	Gawler Craton	Compiled by Howard, Katherine
2550	24	Gawler Craton	Compiled by Howard, Katherine
2477	12	Gawler Craton	Compiled by Howard, Katherine
2636	8	Gawler Craton	Compiled by Howard, Katherine
2352	5	Gawler Craton	Compiled by Howard, Katherine
2261	8	Gawler Craton	Compiled by Howard, Katherine
2352	5	Gawler Craton	Compiled by Howard, Katherine
2261	8	Gawler Craton	Compiled by Howard, Katherine
2541	17	Gawler Craton	Compiled by Howard, Katherine
2617	37	Gawler Craton	Compiled by Howard, Katherine
2488	9	Gawler Craton	Compiled by Howard, Katherine
2387	9	Gawler Craton	Compiled by Howard, Katherine
2322	6	Gawler Craton	Compiled by Howard, Katherine
2387	9	Gawler Craton	Compiled by Howard, Katherine
2322	6	Gawler Craton	Compiled by Howard, Katherine
2483	8	Gawler Craton	Compiled by Howard, Katherine
2616	21	Gawler Craton	Compiled by Howard, Katherine
2546	21	Gawler Craton	Compiled by Howard, Katherine
2603	17	Gawler Craton	Compiled by Howard, Katherine
2511	6	Gawler Craton	Compiled by Howard, Katherine
2654	14	Gawler Craton	Compiled by Howard, Katherine
2577	19	Gawler Craton	Compiled by Howard, Katherine
2483	34	Gawler Craton	Compiled by Howard, Katherine
2630	31	Gawler Craton	Compiled by Howard, Katherine
2534	21	Gawler Craton	Compiled by Howard, Katherine
2524	8	Gawler Craton	Compiled by Howard, Katherine
2539	10	Gawler Craton	Compiled by Howard, Katherine
2527	7	Gawler Craton	Compiled by Howard, Katherine
2553	17	Gawler Craton	Compiled by Howard, Katherine
2299	6	Gawler Craton	Compiled by Howard, Katherine
2299	6	Gawler Craton	Compiled by Howard, Katherine
2619	19	Gawler Craton	Compiled by Howard, Katherine
2552	17	Gawler Craton	Compiled by Howard, Katherine
2559	31	Gawler Craton	Compiled by Howard, Katherine
2532	31	Gawler Craton	Compiled by Howard, Katherine
2623	49	Gawler Craton	Compiled by Howard, Katherine
2572	32	Gawler Craton	Compiled by Howard, Katherine
2524	22	Gawler Craton	Compiled by Howard, Katherine
2520	10	Gawler Craton	Compiled by Howard, Katherine
1979	10	Gawler Craton	Compiled by Howard, Katherine
2470	5	Gawler Craton	Compiled by Howard, Katherine
2468	52	Gawler Craton	Compiled by Howard, Katherine
2548	46	Gawler Craton	Compiled by Howard, Katherine
2510	55	Gawler Craton	Compiled by Howard, Katherine
2564	18	Gawler Craton	Compiled by Howard, Katherine
2529	9	Gawler Craton	Compiled by Howard, Katherine

2509	14	Gawler Craton	Compiled by Howard, Katherine
2473	9	Gawler Craton	Compiled by Howard, Katherine
2499	5	Gawler Craton	Compiled by Howard, Katherine
2456	8	Gawler Craton	Compiled by Howard, Katherine
2519	17	Gawler Craton	Compiled by Howard, Katherine
2512	36	Gawler Craton	Compiled by Howard, Katherine
2533	38	Gawler Craton	Compiled by Howard, Katherine
2545	21	Gawler Craton	Compiled by Howard, Katherine
2504	132	Gawler Craton	Compiled by Howard, Katherine
2534	16	Gawler Craton	Compiled by Howard, Katherine
2540	18	Gawler Craton	Compiled by Howard, Katherine
2508	7	Gawler Craton	Compiled by Howard, Katherine
2531	15	Gawler Craton	Compiled by Howard, Katherine
2461	17	Gawler Craton	Compiled by Howard, Katherine
2384	13	Gawler Craton	Compiled by Howard, Katherine
2292	6	Gawler Craton	Compiled by Howard, Katherine
2383	7	Gawler Craton	Compiled by Howard, Katherine
2229	5	Gawler Craton	Compiled by Howard, Katherine
2467	8	Gawler Craton	Compiled by Howard, Katherine
2509	4	Gawler Craton	Compiled by Howard, Katherine
2384	13	Gawler Craton	Compiled by Howard, Katherine
2292	6	Gawler Craton	Compiled by Howard, Katherine
2383	7	Gawler Craton	Compiled by Howard, Katherine
2229	5	Gawler Craton	Compiled by Howard, Katherine
2525	10	Gawler Craton	Compiled by Howard, Katherine
2431	268	Gawler Craton	Compiled by Howard, Katherine
2430	15	Gawler Craton	Compiled by Howard, Katherine
2359	45	Gawler Craton	Compiled by Howard, Katherine
2848	75	Gawler Craton	Compiled by Howard, Katherine
2464	7	Gawler Craton	Compiled by Howard, Katherine
2560	14	Gawler Craton	Compiled by Howard, Katherine
2613	33	Gawler Craton	Compiled by Howard, Katherine
2536	44	Gawler Craton	Compiled by Howard, Katherine
3126	11	Gawler Craton	Compiled by Howard, Katherine
2482	6	Gawler Craton	Compiled by Howard, Katherine
2534	9	Gawler Craton	Compiled by Howard, Katherine
2535	7	Gawler Craton	Compiled by Howard, Katherine
2490	21	Gawler Craton	Compiled by Howard, Katherine
3286	12	Gawler Craton	Compiled by Howard, Katherine
2391	7	Gawler Craton	Compiled by Howard, Katherine
2686	5	Gawler Craton	Compiled by Howard, Katherine
2391	7	Gawler Craton	Compiled by Howard, Katherine
2497	5	Gawler Craton	Compiled by Howard, Katherine
2319	62	Gawler Craton	Compiled by Howard, Katherine
2495	19	Gawler Craton	Compiled by Howard, Katherine
2441	17	Gawler Craton	Compiled by Howard, Katherine
2536	10	Gawler Craton	Compiled by Howard, Katherine
2976	19	Gawler Craton	Compiled by Howard, Katherine

2644	12	Gawler Craton	Compiled by Howard, Katherine
2517	28	Gawler Craton	Compiled by Howard, Katherine
2537	39	Gawler Craton	Compiled by Howard, Katherine
2518	20	Gawler Craton	Compiled by Howard, Katherine
2425	7	Gawler Craton	Compiled by Howard, Katherine
2500	10	Gawler Craton	Compiled by Howard, Katherine
2508	7	Gawler Craton	Compiled by Howard, Katherine
2529	8	Gawler Craton	Compiled by Howard, Katherine
2537	7	Gawler Craton	Compiled by Howard, Katherine
2456	9	Gawler Craton	Compiled by Howard, Katherine
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1933	25	S. China Craton	Qiu et al., 2000

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2398	11	S. China Craton	Qiu et al., 2000
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2520	8	S. China Craton	Greentree and Li, 2008
2533	12	S. China Craton	Qiu et al., 2000
2533	12	S. China Craton	Qiu et al., 2000
2534	9	S. China Craton	Qiu et al., 2000
2539	13	S. China Craton	Qiu et al., 2000
2541	32	S. China Craton	Greentree and Li, 2008
2567	9	S. China Craton	Greentree and Li, 2008
2571	10	S. China Craton	Greentree and Li, 2008
2574	10	S. China Craton	Qiu et al., 2000
2583	17	S. China Craton	Qiu et al., 2000
2591	7	S. China Craton	Greentree and Li, 2008
2591	5	S. China Craton	Li et al., 2008
2594	8	S. China Craton	Qiu et al., 2000
2613	8	S. China Craton	Qiu et al., 2000
2617	9	S. China Craton	Greentree and Li, 2008
2617	7	S. China Craton	Qiu et al., 2000
2622	11	S. China Craton	Qiu et al., 2000
2625	9	S. China Craton	Greentree and Li, 2008
2644	8	S. China Craton	Qiu et al., 2000
2655	7	S. China Craton	Qiu et al., 2000
2661	6	S. China Craton	Li et al., 2008
2669	8	S. China Craton	Qiu et al., 2000
2688	8	S. China Craton	Qiu et al., 2000
2691	8	S. China Craton	Qiu et al., 2000
2694	4	S. China Craton	Qiu et al., 2000
2695	8	S. China Craton	Greentree and Li, 2008
2700	8	S. China Craton	Greentree and Li, 2008
2702	6	S. China Craton	Qiu et al., 2000
2702	8	S. China Craton	Qiu et al., 2000
2703	14	S. China Craton	Qiu et al., 2000
2727	8	S. China Craton	Qiu et al., 2000
2729	17	S. China Craton	Qiu et al., 2000
2733	6	S. China Craton	Qiu et al., 2000
2736	12	S. China Craton	Qiu et al., 2000
2738	4	S. China Craton	Qiu et al., 2000
2739	9	S. China Craton	Qiu et al., 2000
2739	8	S. China Craton	Qiu et al., 2000
2745	8	S. China Craton	Qiu et al., 2000
2746	8	S. China Craton	Qiu et al., 2000
2760	6	S. China Craton	Greentree and Li, 2008
2760	9	S. China Craton	Qiu et al., 2000
2785	6	S. China Craton	Greentree and Li, 2008
2787	41	S. China Craton	Qiu et al., 2000
2795	5	S. China Craton	Qiu et al., 2000
2799	9	S. China Craton	Qiu et al., 2000
2806	11	S. China Craton	Qiu et al., 2000
2811	5	S. China Craton	Qiu et al., 2000
2818	9	S. China Craton	Qiu et al., 2000

2824	22	S. China Craton	Qiu et al., 2000
2831	7	S. China Craton	Qiu et al., 2000
2832	11	S. China Craton	Qiu et al., 2000
2836	12	S. China Craton	Qiu et al., 2000
2842	8	S. China Craton	Greentree and Li, 2008
2848	5	S. China Craton	Qiu et al., 2000
2850	7	S. China Craton	Qiu et al., 2000
2851	8	S. China Craton	Greentree and Li, 2008
2863	7	S. China Craton	Qiu et al., 2000
2866	8	S. China Craton	Greentree and Li, 2008
2866	8	S. China Craton	Qiu et al., 2000
2868	7	S. China Craton	Qiu et al., 2000
2869	9	S. China Craton	Greentree and Li, 2008
2871	7	S. China Craton	Qiu et al., 2000
2874	9	S. China Craton	Qiu et al., 2000
2875	6	S. China Craton	Qiu et al., 2000
2879	8	S. China Craton	Qiu et al., 2000
2880	9	S. China Craton	Greentree and Li, 2008
2884	9	S. China Craton	Qiu et al., 2000
2884	18	S. China Craton	Qiu et al., 2000
2889	14	S. China Craton	Qiu et al., 2000
2891	8	S. China Craton	Qiu et al., 2000
2895	10	S. China Craton	Qiu et al., 2000
2896	19	S. China Craton	Qiu et al., 2000
2899	20	S. China Craton	Qiu et al., 2000
2900	16	S. China Craton	Qiu et al., 2000
2901	10	S. China Craton	Qiu et al., 2000
2901	4	S. China Craton	Qiu et al., 2000
2904	8	S. China Craton	Greentree and Li, 2008
2908	5	S. China Craton	Qiu et al., 2000
2911	6	S. China Craton	Qiu et al., 2000
2913	29	S. China Craton	Greentree and Li, 2008
2914	26	S. China Craton	Qiu et al., 2000
2914	13	S. China Craton	Qiu et al., 2000
2920	26	S. China Craton	Qiu et al., 2000
2920	12	S. China Craton	Qiu et al., 2000
2920	9	S. China Craton	Qiu et al., 2000
2922	12	S. China Craton	Qiu et al., 2000
2922	7	S. China Craton	Qiu et al., 2000
2923	22	S. China Craton	Qiu et al., 2000
2933	13	S. China Craton	Qiu et al., 2000
2936	8	S. China Craton	Qiu et al., 2000
2936	9	S. China Craton	Qiu et al., 2000
2937	10	S. China Craton	Qiu et al., 2000
2938	21	S. China Craton	Qiu et al., 2000
2938	14	S. China Craton	Qiu et al., 2000
2939	17	S. China Craton	Qiu et al., 2000
2939	7	S. China Craton	Qiu et al., 2000

2942	9	S. China Craton	Qiu et al., 2000
2947	4	S. China Craton	Qiu et al., 2000
2948	34	S. China Craton	Greentree and Li, 2008
2949	10	S. China Craton	Qiu et al., 2000
2950	7	S. China Craton	Qiu et al., 2000
2953	9	S. China Craton	Qiu et al., 2000
2954	7	S. China Craton	Qiu et al., 2000
2954	7	S. China Craton	Qiu et al., 2000
2960	11	S. China Craton	Qiu et al., 2000
2961	10	S. China Craton	Qiu et al., 2000
2961	8	S. China Craton	Qiu et al., 2000
2966	7	S. China Craton	Qiu et al., 2000
2968	11	S. China Craton	Qiu et al., 2000
2976	20	S. China Craton	Qiu et al., 2000
3003	10	S. China Craton	Qiu et al., 2000
3004	8	S. China Craton	Qiu et al., 2000
3012	17	S. China Craton	Qiu et al., 2000
3024	15	S. China Craton	Qiu et al., 2000
3030	7	S. China Craton	Qiu et al., 2000
3036	8	S. China Craton	Greentree and Li, 2008
3051	6	S. China Craton	Qiu et al., 2000
3070	10	S. China Craton	Qiu et al., 2000
3073	8	S. China Craton	Qiu et al., 2000
3105	11	S. China Craton	Qiu et al., 2000
3117	8	S. China Craton	Qiu et al., 2000
3118	23	S. China Craton	Qiu et al., 2000
3130	7	S. China Craton	Qiu et al., 2000
3169	6	S. China Craton	Qiu et al., 2000
3213	16	S. China Craton	Qiu et al., 2000
3234	6	S. China Craton	Qiu et al., 2000
3275	11	S. China Craton	Qiu et al., 2000
1580	11	N. China Craton	Zhao et al., (2002)
1633	18	N. China Craton	Zhao et al., (2002)
1765	36	N. China Craton	Zhao et al., (2002)
1767	11	N. China Craton	Zhao et al., (2002)
1785	39	N. China Craton	Zhao et al., (2008)
1795	86	N. China Craton	Zhao et al., (2002)
1795	9.1	N. China Craton	Zhao et al., (2008)
1797	8.3	N. China Craton	Zhao et al., (2008)
1798	88	N. China Craton	Zhao et al., (2002)
1805	18	N. China Craton	Zhao et al., (2002)
1806	16	N. China Craton	Wang et al. (2000)
1806	16	N. China Craton	Kroner et al. (1998)
1810	24	N. China Craton	Zhao et al., (2002)
1811	22	N. China Craton	Zhao et al., (2008)
1814	15	N. China Craton	Zhao et al., (2008)
1814	24	N. China Craton	Zhao et al., (2008)
1816	25	N. China Craton	Zhao et al., (2002)

1816	9	N. China Craton	Zhao et al., (2002)
1818	35	N. China Craton	Zhao et al., (2002)
1818	31	N. China Craton	Zhao et al., (2002)
1819	7.5	N. China Craton	Zhao et al., (2008)
1821	16	N. China Craton	Zhao et al., (2002)
1821	42	N. China Craton	Zhao et al., (2002)
1822	7.9	N. China Craton	Zhao et al., (2008)
1823	54	N. China Craton	Zhao et al., (2002)
1825	8	N. China Craton	Zhao et al., (2002)
1826	28	N. China Craton	Zhao et al., (2002)
1826	26	N. China Craton	Zhao et al., (2002)
1826	11	N. China Craton	Zhao et al., (2002)
1833	13	N. China Craton	Zhao et al., (2008)
1835	63	N. China Craton	Zhao et al., (2008)
1837	10	N. China Craton	Zhao et al., (2002)
1838	32	N. China Craton	Zhao et al., (2008)
1838	17	N. China Craton	Zhao et al., (2008)
1839	14	N. China Craton	Zhao et al., (2002)
1840	12	N. China Craton	Zhao et al., (2002)
1841	48	N. China Craton	Zhao et al., (2008)
1843	14	N. China Craton	Zhao et al., (2008)
1844	60	N. China Craton	Zhao et al., (2008)
1845	18	N. China Craton	Zhao et al., (2002)
1845	14	N. China Craton	Zhao et al., (2008)
1845	7.7	N. China Craton	Zhao et al., (2008)
1845	9	N. China Craton	Zhao et al., (2008)
1846	30	N. China Craton	Zhao et al., (2002)
1846	9.1	N. China Craton	Zhao et al., (2008)
1847	10	N. China Craton	Zhao et al., (2008)
1848	39	N. China Craton	Zhao et al., (2002)
1849	6.6	N. China Craton	Zhao et al., (2008)
1850	13	N. China Craton	Zhao et al., (2002)
1851	8	N. China Craton	Zhao et al., (2002)
1852	13	N. China Craton	Zhao et al., (2008)
1853	20	N. China Craton	Zhao et al., (2002)
1853	14	N. China Craton	Zhao et al., (2008)
1855	6.6	N. China Craton	Zhao et al., (2008)
1856	28	N. China Craton	Zhao et al., (2002)
1858	15	N. China Craton	Zhao et al., (2002)
1862	15	N. China Craton	Zhao et al., (2002)
1862	20	N. China Craton	Zhao et al., (2008)
1865	15	N. China Craton	Zhao et al., (2008)
1867	17	N. China Craton	Zhao et al., (2002)
1867	15	N. China Craton	Zhao et al., (2002)
1868	14	N. China Craton	Zhao et al., (2002)
1872	10	N. China Craton	Zhao et al., (2008)
1873	6	N. China Craton	Zhao et al., (2008)
1873	9.2	N. China Craton	Zhao et al., (2008)

1874	110	N. China Craton	Zhao et al., (2008)
1875	9	N. China Craton	Zhao et al., (2002)
1882	22	N. China Craton	Zhao et al., (2002)
1883	29	N. China Craton	Zhao et al., (2002)
1888	55	N. China Craton	Zhao et al., (2008)
1891	6	N. China Craton	Zhao et al., (2002)
1892	21	N. China Craton	Zhao et al., (2002)
1906	39	N. China Craton	Zhao et al., (2002)
1914	31	N. China Craton	Zhao et al., (2002)
1919	23	N. China Craton	Zhao et al., (2002)
1937	8	N. China Craton	Zhao et al., (2008)
1949	23	N. China Craton	Zhao et al., (2002)
1955	22	N. China Craton	Zhao et al., (2002)
1964	60	N. China Craton	Zhao et al., (2008)
1972	10	N. China Craton	Zhao et al., (2008)
1973	14	N. China Craton	Zhao et al., (2008)
1979	23	N. China Craton	Zhao et al., (2002)
1991	45	N. China Craton	Zhao et al., (2002)
1997	13	N. China Craton	Zhao et al., (2008)
2000	13	N. China Craton	Zhao et al., (2008)
2012	23	N. China Craton	Zhao et al., (2002)
2014	15	N. China Craton	Zhao et al., (2008)
2016	83	N. China Craton	Zhao et al., (2002)
2026	9	N. China Craton	Zhao et al., (2002)
2026	16	N. China Craton	Zhao et al., (2008)
2032	59	N. China Craton	Zhao et al., (2002)
2032	85	N. China Craton	Zhao et al., (2008)
2032	15	N. China Craton	Zhao et al., (2008)
2035	63	N. China Craton	Zhao et al., (2002)
2037	22	N. China Craton	Zhao et al., (2002)
2038	16	N. China Craton	Zhao et al., (2008)
2039	18	N. China Craton	Zhao et al., (2002)
2040	26	N. China Craton	Zhao et al., (2002)
2040	39	N. China Craton	Zhao et al., (2008)
2044	13	N. China Craton	Zhao et al., (2008)
2047	15	N. China Craton	Zhao et al., (2008)
2050	19	N. China Craton	Zhao et al., (2002)
2056	30	N. China Craton	Zhao et al., (2002)
2062	17	N. China Craton	Zhao et al., (2008)
2064	12	N. China Craton	Zhao et al., (2002)
2064	14	N. China Craton	Zhao et al., (2008)
2065	28	N. China Craton	Zhao et al., (2008)
2072	37	N. China Craton	Zhao et al., (2002)
2079	12	N. China Craton	Zhao et al., (2002)
2081	11	N. China Craton	Zhao et al., (2002)
2085	11	N. China Craton	Zhao et al., (2002)
2094	7	N. China Craton	Zhao et al., (2002)
2094	7	N. China Craton	Zhao et al., (2002)

2097	6	N. China Craton	Zhao et al., (2002)
2107	15	N. China Craton	references therein (Wilde et al., 1997)
2109	5	N. China Craton	Zhao et al., (2002)
2112	62	N. China Craton	Zhao et al., (2002)
2117	18	N. China Craton	references therein (Wilde et al., 1997)
2130	8	N. China Craton	Zhao et al., (2002)
2141	11	N. China Craton	Zhao et al., (2002)
2168	30	N. China Craton	Zhao et al., (2002)
2170	72	N. China Craton	Zhao et al., (2002)
2176	12	N. China Craton	references therein (Wilde et al., 1997)
2181	19	N. China Craton	Zhao et al., (2002)
2201	68	N. China Craton	Zhao et al., (2008)
2208	8	N. China Craton	Zhao et al., (2002)
2213	9	N. China Craton	Zhao et al., (2002)
2246	15	N. China Craton	Zhao et al., (2002)
2251	5	N. China Craton	Zhao et al., (2002)
2287	19	N. China Craton	Zhao et al., (2002)
2311	8	N. China Craton	Zhao et al., (2002)
2322	16	N. China Craton	Zhao et al., (2002)
2324	6	N. China Craton	Zhao et al., (2002)
2326	9	N. China Craton	Zhao et al., (2002)
2336	15	N. China Craton	Zhao et al., (2002)
2341	6	N. China Craton	Zhao et al., (2002)
2346	9	N. China Craton	Zhao et al., (2002)
2350	44	N. China Craton	Zhao et al., (2002)
2351	35	N. China Craton	Zhao et al., (2002)
2351	20	N. China Craton	Zhao et al., (2002)
2351	6	N. China Craton	Zhao et al., (2002)
2357	14	N. China Craton	Zhao et al., (2002)
2360	8	N. China Craton	Zhao et al., (2002)
2368	7	N. China Craton	Zhao et al., (2002)
2377	11	N. China Craton	Zhao et al., (2002)
2378	5	N. China Craton	Zhao et al., (2002)
2391	5	N. China Craton	Zhao et al., (2002)
2393	22	N. China Craton	Liu et al. (2008)
2396	18	N. China Craton	Zhao et al., (2002)
2398	6	N. China Craton	Zhao et al., (2002)
2401	26	N. China Craton	Zhao et al., (2008)
2405	10	N. China Craton	Zhao et al., (2002)
2405	13	N. China Craton	Zhao et al., (2008)
2414	15	N. China Craton	Zhao et al., (2002)
2415	13	N. China Craton	Zhao et al., (2008)
2420	9	N. China Craton	Zhao et al., (2002)
2420	30	N. China Craton	Zhao et al., (2008)
2422	30	N. China Craton	Zhao et al., (2008)
2425	8	N. China Craton	Zhao et al., (2002)
2433	10	N. China Craton	Zhao et al., (2002)
2433	8.2	N. China Craton	Zhao et al., (2008)

2436	12	N. China Craton	Zhao et al., (2008)
2438	7	N. China Craton	Zhao et al., (2002)
2442	8	N. China Craton	Zhao et al., (2002)
2442	7	N. China Craton	Zhao et al., (2002)
2445	16	N. China Craton	Zhao et al., (2002)
2445	8	N. China Craton	Zhao et al., (2002)
2448	8	N. China Craton	Zhao et al., (2002)
2450	9	N. China Craton	Zhao et al., (2002)
2450	4	N. China Craton	Zhao et al., (2002)
2453	23	N. China Craton	Zhao et al., (2002)
2455	8	N. China Craton	Zhao et al., (2002)
2456	10	N. China Craton	Zhao et al., (2008)
2460	14	N. China Craton	Zhao et al., (2002)
2461	5	N. China Craton	Zhao et al., (2002)
2468	20	N. China Craton	Zhao et al., (2008)
2469	4	N. China Craton	Zhao et al., (2002)
2469	7	N. China Craton	Zhao et al., (2002)
2469	6	N. China Craton	Jahn et al. (2008)
2470	9	N. China Craton	Zhao et al., (2002)
2471	7	N. China Craton	Zhao et al., (2002)
2471.9	0.8	N. China Craton	Kroner et al. (1998)
2472	10	N. China Craton	Zhao et al., (2008)
2472	24	N. China Craton	Zhao et al., (2008)
2472.2	1	N. China Craton	Kroner et al. (1998)
2473.2	0.6	N. China Craton	Kroner et al. (1998)
2474.3	0.9	N. China Craton	Kroner et al. (1998)
2474.3	1.1	N. China Craton	Kroner et al. (1998)
2475	5	N. China Craton	Zhao et al., (2002)
2475	14	N. China Craton	Zhao et al., (2008)
2475	2	N. China Craton	references therein (Kroner et al., 2005b)
2475	8	N. China Craton	references therein (Guan et al., 2002)
2477	13	N. China Craton	Zhao et al., (2002)
2477	7	N. China Craton	Zhao et al., (2002)
2477	8	N. China Craton	Zhao et al., (2002)
2479	3	N. China Craton	references therein (Kroner et al., 2005b)
2480	8	N. China Craton	Zhao et al., (2002)
2481	7	N. China Craton	Jahn et al. (2008)
2481	7.4	N. China Craton	Zhao et al., (2008)
2482	91	N. China Craton	Kroner et al. (1998)
2483	3	N. China Craton	Zhao et al., (2002)
2483	5.9	N. China Craton	Zhao et al., (2008)
2483.4	0.7	N. China Craton	Kroner et al. (1998)
2483.7	0.6	N. China Craton	Kroner et al. (1998)
2484	5	N. China Craton	Zhao et al., (2002)
2484	16	N. China Craton	Zhao et al., (2002)
2484	6	N. China Craton	Zhao et al., (2002)
2485	13	N. China Craton	Zhao et al., (2002)
2485.5	0.5	N. China Craton	Kroner et al. (1998)

2486	8	N. China Craton	Jahn et al. (2008)
2486	10	N. China Craton	Wang et al. (2000)
2486	12	N. China Craton	Wang et al. (2000)
2486	8	N. China Craton	Wang et al. (2000)
2486	10	N. China Craton	Kroner et al. (1998)
2486	12	N. China Craton	Kroner et al. (1998)
2486	8	N. China Craton	Kroner et al. (1998)
2486	50	N. China Craton	Kroner et al. (1998)
2486.7	0.7	N. China Craton	Kroner et al. (1998)
2486.8	0.6	N. China Craton	Kroner et al. (1998)
2487	8	N. China Craton	Zhao et al., (2002)
2487	12	N. China Craton	Wang et al. (2000)
2487	12	N. China Craton	Kroner et al. (1998)
2487.1	1.3	N. China Craton	Kroner et al. (1998)
2487.3	1.8	N. China Craton	Kroner et al. (1998)
2488	6	N. China Craton	Zhao et al., (2002)
2488	30	N. China Craton	Zhao et al., (2002)
2488	11	N. China Craton	Wang et al. (2000)
2488	11	N. China Craton	Kroner et al. (1998)
2489	11	N. China Craton	Wang et al. (2000)
2489	11	N. China Craton	Kroner et al. (1998)
2489.6	0.7	N. China Craton	Kroner et al. (1998)
2489.6	0.8	N. China Craton	Kroner et al. (1998)
2490	7	N. China Craton	Zhao et al., (2002)
2490	13	N. China Craton	Zhao et al., (2002)
2490	6	N. China Craton	Zhao et al., (2002)
2490	9	N. China Craton	Jahn et al. (2008)
2490	5	N. China Craton	Jahn et al. (2008)
2490	0.6	N. China Craton	Kroner et al. (1998)
2491	8	N. China Craton	Jahn et al. (2008)
2491.4	1	N. China Craton	Kroner et al. (1998)
2492	10	N. China Craton	Zhao et al., (2002)
2493	7	N. China Craton	Zhao et al., (2002)
2493	5	N. China Craton	Zhao et al., (2002)
2493	0.2	N. China Craton	Kroner et al. (1998)
2494	6	N. China Craton	Zhao et al., (2002)
2494	5	N. China Craton	Jahn et al. (2008)
2495	6	N. China Craton	Jahn et al. (2008)
2495.4	0.6	N. China Craton	Kroner et al. (1998)
2495.8	1.3	N. China Craton	Kroner et al. (1998)
2496	6	N. China Craton	Zhao et al., (2002)
2496	6	N. China Craton	Zhao et al., (2002)
2496	8	N. China Craton	Zhao et al., (2008)
2496.5	0.5	N. China Craton	Kroner et al. (1998)
2497	11	N. China Craton	Zhao et al., (2002)
2498	5	N. China Craton	Zhao et al., (2002)
2498	11	N. China Craton	Jahn et al. (2008)
2499	6	N. China Craton	Zhao et al., (2002)

2499	5	N. China Craton	Zhao et al., (2002)
2499	7	N. China Craton	Zhao et al., (2002)
2499	4	N. China Craton	references therein (Wilde, unpl data)
2499	18	N. China Craton	Jahn et al. (2008)
2499	6	N. China Craton	references therein (Kroner et al., 2005b)
2499	4	N. China Craton	references therein (Wilde, 2002)
2499.3	0.9	N. China Craton	Kroner et al. (1998)
2499.8	1	N. China Craton	Kroner et al. (1998)
2499.9	0.4	N. China Craton	Kroner et al. (1998)
2499.9	0.6	N. China Craton	Kroner et al. (1998)
2500	2	N. China Craton	Zhao et al., (2002)
2500.6	0.7	N. China Craton	Kroner et al. (1998)
2501	2	N. China Craton	Zhao et al., (2002)
2501	16	N. China Craton	Zhao et al., (2002)
2501	20	N. China Craton	Zhao et al., (2002)
2501	10	N. China Craton	Jahn et al. (2008)
2501	8.7	N. China Craton	Zhao et al., (2008)
2501	8.8	N. China Craton	Zhao et al., (2008)
2501	3	N. China Craton	references therein (Kroner et al., 2005b)
2501	42	N. China Craton	Kroner et al. (1998)
2501.5	1	N. China Craton	Kroner et al. (1998)
2501.5	0.6	N. China Craton	Kroner et al. (1998)
2501.6	1	N. China Craton	Kroner et al. (1998)
2502	2	N. China Craton	Zhao et al., (2002)
2502	4	N. China Craton	Zhao et al., (2002)
2502	5	N. China Craton	Zhao et al., (2002)
2502	38	N. China Craton	Zhao et al., (2002)
2502	9.3	N. China Craton	Zhao et al., (2008)
2502.5	0.4	N. China Craton	Kroner et al. (1998)
2502.8	0.9	N. China Craton	Kroner et al. (1998)
2503	6	N. China Craton	Zhao et al., (2002)
2503	0.8	N. China Craton	Kroner et al. (1998)
2503.1	0.9	N. China Craton	Kroner et al. (1998)
2503.6	0.6	N. China Craton	Kroner et al. (1998)
2503.8	0.9	N. China Craton	Kroner et al. (1998)
2503.9	1.1	N. China Craton	Kroner et al. (1998)
2503.9	0.7	N. China Craton	Kroner et al. (1998)
2504	1.3	N. China Craton	Kroner et al. (1998)
2504.3	1	N. China Craton	Kroner et al. (1998)
2504.3	1.4	N. China Craton	Kroner et al. (1998)
2504.6	0.5	N. China Craton	Kroner et al. (1998)
2505	6	N. China Craton	Zhao et al., (2002)
2505	32	N. China Craton	Kroner et al. (1998)
2505.3	1.1	N. China Craton	Kroner et al. (1998)
2506	7	N. China Craton	Zhao et al., (2002)
2506	10	N. China Craton	Zhao et al., (2002)
2506	5	N. China Craton	references therein (Kroner et al., 2005b)
2507	8	N. China Craton	Jahn et al. (2008)

2507	4	N. China Craton	references therein (Kroner et al., 2005b)
2508	35	N. China Craton	Zhao et al., (2002)
2509	6	N. China Craton	Zhao et al., (2002)
2509	34	N. China Craton	Kroner et al. (1998)
2510	5	N. China Craton	Zhao et al., (2002)
2510	12	N. China Craton	Zhao et al., (2002)
2511	6.3	N. China Craton	Zhao et al., (2008)
2512	7	N. China Craton	Zhao et al., (2002)
2513	8	N. China Craton	references therein (Wilde et al., 2004b)
2513	15	N. China Craton	references therein (Wilde, 2002)
2513	12	N. China Craton	references therein (Guan et al., 2002)
2514	13	N. China Craton	Zhao et al., (2002)
2515	7	N. China Craton	references therein (Liu and Geng, 1997)
2516	6	N. China Craton	Zhao et al., (2002)
2516	6	N. China Craton	Zhao et al., (2002)
2516	8	N. China Craton	references therein (Wilde et al., 1997)
2516	10	N. China Craton	references therein (Wilde et al., 2004b)
2517	15	N. China Craton	Zhao et al., (2002)
2517	12	N. China Craton	references therein (Wilde et al., 1997)
2517	12	N. China Craton	references therein (Wilde et al., 2005)
2518	21	N. China Craton	Zhao et al., (2002)
2520	10	N. China Craton	Zhao et al., (2002)
2520	15	N. China Craton	references therein (Wilde, unpl data)
2520	9	N. China Craton	references therein (Wilde et al., 1997)
2520	9	N. China Craton	references therein (Wilde et al., 2005)
2520	15	N. China Craton	references therein (Kroner et al., 2005b)
2520	10	N. China Craton	references therein (Kroner et al., 2005b)
2520	20	N. China Craton	references therein (Guan et al., 2002)
2520	11	N. China Craton	Wang et al. (2000)
2520	11	N. China Craton	Kroner et al. (1998)
2520.6	1.1	N. China Craton	Kroner et al. (1998)
2520.9	0.6	N. China Craton	Kroner et al. (1998)
2521	13	N. China Craton	Zhao et al., (2002)
2521.6	0.8	N. China Craton	Kroner et al. (1998)
2521.8	0.8	N. China Craton	Kroner et al. (1998)
2522	5	N. China Craton	Zhao et al., (2002)
2522	11	N. China Craton	Zhao et al., (2008)
2523	18	N. China Craton	references therein (Wilde et al., 1997)
2523	9	N. China Craton	references therein (Wilde et al., 2004b)
2524	5	N. China Craton	Zhao et al., (2002)
2524	8	N. China Craton	references therein (Wilde et al., 1997)
2524	10	N. China Craton	references therein (Wilde et al., 2004b)
2524	8	N. China Craton	references therein (Wilde et al., 2004b)
2524	8	N. China Craton	references therein (Kroner et al., 2005b)
2525	10	N. China Craton	Zhao et al., (2002)
2525	7.9	N. China Craton	Zhao et al., (2008)
2526	12	N. China Craton	references therein (Kroner et al., 2005b)
2526	4.7	N. China Craton	references therein (Kroner et al., 2005b)

2527	10	N. China Craton	references therein (Wilde, unpl data)
2527	9.1	N. China Craton	Zhao et al., (2008)
2528	6	N. China Craton	references therein (Wilde et al., 2004b)
2529	10	N. China Craton	references therein (Wilde et al., 2004b)
2531	5	N. China Craton	references therein (Wilde et al., 1997)
2531	4	N. China Craton	references therein (Wilde et al., 1997)
2531	4	N. China Craton	references therein (Wilde et al., 2005)
2531	5	N. China Craton	references therein (Wilde et al., 2005)
2533	3	N. China Craton	Zhao et al., (2002)
2533	8	N. China Craton	references therein (Wilde et al., 1997)
2533	8	N. China Craton	references therein (Wilde et al., 2004b)
2535	8	N. China Craton	Zhao et al., (2008)
2536	5	N. China Craton	Jahn et al. (2008)
2536	8	N. China Craton	Jahn et al. (2008)
2537	10	N. China Craton	references therein (Wilde et al., 1997)
2538	6	N. China Craton	references therein (Wilde et al., 1997)
2540	18	N. China Craton	references therein (Wilde et al., 2005)
2541	13	N. China Craton	Zhao et al., (2008)
2541	14	N. China Craton	references therein (Wilde et al., 2005)
2542	7	N. China Craton	references therein (Wilde et al., 1997)
2543	7	N. China Craton	references therein (Wilde et al., 2005)
2546	3	N. China Craton	references therein (Wilde et al., 1997)
2547	32	N. China Craton	Zhao et al., (2002)
2549	7	N. China Craton	Zhao et al., (2002)
2549	6	N. China Craton	Jahn et al. (2008)
2552	14	N. China Craton	Zhao et al., (2002)
2552	5	N. China Craton	references therein (Wilde et al., 1997)
2552	13	N. China Craton	Wang et al. (2000)
2552	13	N. China Craton	Kroner et al. (1998)
2553	8	N. China Craton	references therein (Wilde et al., 1997)
2553	14	N. China Craton	references therein (Wilde et al., 2005)
2554	10	N. China Craton	Zhao et al., (2002)
2555	6	N. China Craton	references therein (Wilde et al., 1997)
2555	12	N. China Craton	references therein (Wilde et al., 1997)
2556	11	N. China Craton	Zhao et al., (2008)
2558	14	N. China Craton	Zhao et al., (2002)
2558	6	N. China Craton	Zhao et al., (2002)
2566	13	N. China Craton	references therein (Wilde et al., 1997)
2572	9	N. China Craton	Zhao et al., (2002)
2581	10	N. China Craton	Zhao et al., (2008)
2584	10	N. China Craton	Wang et al. (2000)
2584	10	N. China Craton	Kroner et al. (1998)
2587	19	N. China Craton	Jahn et al. (2008)
2590	9	N. China Craton	Jahn et al. (2008)
2597	11	N. China Craton	Zhao et al., (2002)
2602	7	N. China Craton	Wang et al. (2000)
2602	7	N. China Craton	Kroner et al. (1998)
2629	5	N. China Craton	Jahn et al. (2008)

2633	12	N. China Craton	Jahn et al. (2008)
2644	7	N. China Craton	Jahn et al. (2008)
2646	5	N. China Craton	Jahn et al. (2008)
2650	10	N. China Craton	Jahn et al. (2008)
2660	10	N. China Craton	Jahn et al. (2008)
2661	5	N. China Craton	Jahn et al. (2008)
2663	5	N. China Craton	Jahn et al. (2008)
2670	10	N. China Craton	Jahn et al. (2008)
2685	8	N. China Craton	Jahn et al. (2008)
2686	6	N. China Craton	Zhao et al., (2002)
2693	11	N. China Craton	Jahn et al. (2008)
2694	14	N. China Craton	Jahn et al. (2008)
2694	6	N. China Craton	Jahn et al. (2008)
2695	9	N. China Craton	Zhao et al., (2002)
2699	5	N. China Craton	Jahn et al. (2008)
2700	9	N. China Craton	Jahn et al. (2008)
2701	8	N. China Craton	Jahn et al. (2008)
2701	6	N. China Craton	Jahn et al. (2008)
2703	6	N. China Craton	Jahn et al. (2008)
2704	8	N. China Craton	Jahn et al. (2008)
2704	7	N. China Craton	Jahn et al. (2008)
2708	8	N. China Craton	Jahn et al. (2008)
2708	8	N. China Craton	Jahn et al. (2008)
2709	13	N. China Craton	Jahn et al. (2008)
2710	5	N. China Craton	Jahn et al. (2008)
2710	7	N. China Craton	Jahn et al. (2008)
2711	10	N. China Craton	Jahn et al. (2008)
2714	5	N. China Craton	Jahn et al. (2008)
2717	9	N. China Craton	Jahn et al. (2008)
2717	6	N. China Craton	Jahn et al. (2008)
2719	10	N. China Craton	Jahn et al. (2008)
2721	8	N. China Craton	Jahn et al. (2008)
2722	7	N. China Craton	Jahn et al. (2008)
2723	9	N. China Craton	Jahn et al. (2008)
2725	10	N. China Craton	Jahn et al. (2008)
2725	8	N. China Craton	Jahn et al. (2008)
2727	9	N. China Craton	Jahn et al. (2008)
2730	10	N. China Craton	Jahn et al. (2008)
2732	7	N. China Craton	Jahn et al. (2008)
2733	5	N. China Craton	Jahn et al. (2008)
2733	7	N. China Craton	Jahn et al. (2008)
2733	8	N. China Craton	Jahn et al. (2008)
2733	8	N. China Craton	Jahn et al. (2008)
2734	7	N. China Craton	Jahn et al. (2008)
2736	8	N. China Craton	Jahn et al. (2008)
2736	7	N. China Craton	Jahn et al. (2008)
2738	9	N. China Craton	Jahn et al. (2008)
2741	5	N. China Craton	Jahn et al. (2008)

2747	6	N. China Craton	Jahn et al. (2008)
2819	10	N. China Craton	Jahn et al. (2008)
2820	15	N. China Craton	Jahn et al. (2008)
2827	8	N. China Craton	Zhao et al., (2002)
2854	19	N. China Craton	Jahn et al. (2008)
2862	30	N. China Craton	Jahn et al. (2008)
2864	11	N. China Craton	Jahn et al. (2008)
2870	15	N. China Craton	Jahn et al. (2008)
2876	11	N. China Craton	Jahn et al. (2008)
2879	17	N. China Craton	Jahn et al. (2008)
2881	13	N. China Craton	Jahn et al. (2008)
2883	18	N. China Craton	Jahn et al. (2008)
2887	19	N. China Craton	Jahn et al. (2008)
2887	12	N. China Craton	Jahn et al. (2008)
2888	10	N. China Craton	Jahn et al. (2008)
2890	25	N. China Craton	Jahn et al. (2008)
2892	15	N. China Craton	Jahn et al. (2008)
2894	15	N. China Craton	Jahn et al. (2008)
2894	13	N. China Craton	Jahn et al. (2008)
2899	13	N. China Craton	Jahn et al. (2008)
2912	6	N. China Craton	Jahn et al. (2008)
2916	7	N. China Craton	Jahn et al. (2008)
2916	4	N. China Craton	Jahn et al. (2008)
2918	23	N. China Craton	Jahn et al. (2008)
2926	26	N. China Craton	Jahn et al. (2008)
2927	16	N. China Craton	Jahn et al. (2008)
2928	28	N. China Craton	Jahn et al. (2008)
2940	10	N. China Craton	Jahn et al. (2008)
2954	18	N. China Craton	Jahn et al. (2008)
2970	21	N. China Craton	Jahn et al. (2008)
3087	5	N. China Craton	Liu et al. (2008)
3178	61	N. China Craton	Liu et al. (2008)
3203	18	N. China Craton	Liu et al. (2008)
3241	8	N. China Craton	Liu et al. (2008)
3246	28	N. China Craton	Liu et al. (2008)
3247	47	N. China Craton	Liu et al. (2008)
3258	49	N. China Craton	Liu et al. (2008)
3303	47	N. China Craton	Liu et al. (2008)
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3351	28	N. China Craton	Liu et al. (2008)
3360	4	N. China Craton	Liu et al. (2008)
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3399	12	N. China Craton	Liu et al. (2008)
3420	3	N. China Craton	Liu et al. (2008)

3443	4	N. China Craton	Liu et al. (2008)
3456	4	N. China Craton	Liu et al. (2008)
3457	5	N. China Craton	Liu et al. (2008)
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3586	39	N. China Craton	Liu et al. (2008)
3587	35	N. China Craton	Liu et al. (2008)
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3597	4	N. China Craton	Liu et al. (2008)
3599	4	N. China Craton	Liu et al. (2008)
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3667	6	N. China Craton	Liu et al. (2008)
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3682	4	N. China Craton	Liu et al. (2008)
3684	5	N. China Craton	Liu et al. (2008)

3686	3	N. China Craton	Liu et al. (2008)
3691	5	N. China Craton	Liu et al. (2008)
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3756	3	N. China Craton	Liu et al. (2008)
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3776	7	N. China Craton	Liu et al. (2008)
3782	5	N. China Craton	Liu et al. (2008)
3784	8	N. China Craton	Liu et al. (2008)
3786	6	N. China Craton	Liu et al. (2008)
3786	7	N. China Craton	Liu et al. (2008)
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3792	5	N. China Craton	Liu et al. (2008)
3792	14	N. China Craton	Liu et al. (2008)
3793	9	N. China Craton	Liu et al. (2008)
3794	10	N. China Craton	Liu et al. (2008)
3795	25	N. China Craton	Liu et al. (2008)
3797	6	N. China Craton	Liu et al. (2008)
3798	6	N. China Craton	Liu et al. (2008)
3799	9	N. China Craton	Liu et al. (2008)
3799	4	N. China Craton	Liu et al. (2008)
3800	4	N. China Craton	Liu et al. (2008)

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3809	7	N. China Craton	Liu et al. (2008)
3810	10	N. China Craton	Liu et al. (2008)
400	3.0	Siberia	Condie et al. (2009) and references therein
400	6.0	Siberia	Condie et al. (2009) and references therein
401	2.0	Siberia	Condie et al. (2009) and references therein
401	2.0	Siberia	Condie et al. (2009) and references therein
406	5.0	Siberia	Condie et al. (2009) and references therein
408	0.5	Siberia	Condie et al. (2009) and references therein
408.5	0.8	Siberia	Condie et al. (2009) and references therein
409	1.0	Siberia	Condie et al. (2009) and references therein
415	5.0	Siberia	Condie et al. (2009) and references therein
416	2.0	Siberia	Condie et al. (2009) and references therein
416	5.0	Siberia	Condie et al. (2009) and references therein
418	7.0	Siberia	Condie et al. (2009) and references therein
418	8.0	Siberia	Condie et al. (2009) and references therein
419	6.0	Siberia	Condie et al. (2009) and references therein
421	9.0	Siberia	Condie et al. (2009) and references therein
422	1.0	Siberia	Condie et al. (2009) and references therein
425	3.0	Siberia	Condie et al. (2009) and references therein
441	4.0	Siberia	Condie et al. (2009) and references therein
444	3.0	Siberia	Condie et al. (2009) and references therein
450	2.0	Siberia	Condie et al. (2009) and references therein
450	6.0	Siberia	Condie et al. (2009) and references therein
450.5	0.5	Siberia	Condie et al. (2009) and references therein
451	1.0	Siberia	Condie et al. (2009) and references therein
452	0.5	Siberia	Condie et al. (2009) and references therein
455	1.0	Siberia	Condie et al. (2009) and references therein
458	1.0	Siberia	Condie et al. (2009) and references therein
458	3.0	Siberia	Condie et al. (2009) and references therein
460	3.0	Siberia	Condie et al. (2009) and references therein
465	5.0	Siberia	Condie et al. (2009) and references therein
478	1.0	Siberia	Condie et al. (2009) and references therein
480	2.0	Siberia	Condie et al. (2009) and references therein
493	5.0	Siberia	Condie et al. (2009) and references therein
493	5.0	Siberia	Condie et al. (2009) and references therein
498	4.0	Siberia	Condie et al. (2009) and references therein
500	2.0	Siberia	Condie et al. (2009) and references therein
500	0.6	Siberia	Condie et al. (2009) and references therein
512.6	1.0	Siberia	Condie et al. (2009) and references therein
514	3.0	Siberia	Condie et al. (2009) and references therein
514	6.0	Siberia	Condie et al. (2009) and references therein
522	1.0	Siberia	Condie et al. (2009) and references therein
523	1.0	Siberia	Condie et al. (2009) and references therein
534	7.0	Siberia	Condie et al. (2009) and references therein
540	2.0	Siberia	Condie et al. (2009) and references therein
548	1.0	Siberia	Condie et al. (2009) and references therein
555	3.0	Siberia	Condie et al. (2009) and references therein

565	5.0	Siberia	Condie et al. (2009) and references therein
569	1.0	Siberia	Condie et al. (2009) and references therein
600	7.0	Siberia	Condie et al. (2009) and references therein
600	4.0	Siberia	Condie et al. (2009) and references therein
776	0.8	Siberia	Condie et al. (2009) and references therein
785	3.0	Siberia	Condie et al. (2009) and references therein
800	1.0	Siberia	Condie et al. (2009) and references therein
812	2.0	Siberia	Condie et al. (2009) and references therein
843	2.0	Siberia	Condie et al. (2009) and references therein
1365	14.0	Siberia	Condie et al. (2009) and references therein
1703	3.0	Siberia	Condie et al. (2009) and references therein
1727	6.0	Siberia	Condie et al. (2009) and references therein
1734	12.0	Siberia	Condie et al. (2009) and references therein
1743	0.4	Siberia	Condie et al. (2009) and references therein
1780	15.0	Siberia	Condie et al. (2009) and references therein
1835	8.0	Siberia	Condie et al. (2009) and references therein
1855	9.0	Siberia	Condie et al. (2009) and references therein
1861	8.0	Siberia	Condie et al. (2009) and references therein
1863	5.0	Siberia	Condie et al. (2009) and references therein
1864	11.0	Siberia	Condie et al. (2009) and references therein
1866	7.0	Siberia	Condie et al. (2009) and references therein
1866	3.0	Siberia	Condie et al. (2009) and references therein
1870	6.0	Siberia	Condie et al. (2009) and references therein
1876	6.0	Siberia	Condie et al. (2009) and references therein
1880	14.0	Siberia	Condie et al. (2009) and references therein
1880	17.0	Siberia	Condie et al. (2009) and references therein
1890	15.0	Siberia	Condie et al. (2009) and references therein
1895	4.0	Siberia	Condie et al. (2009) and references therein
1900	15.0	Siberia	Condie et al. (2009) and references therein
1910	3.0	Siberia	Condie et al. (2009) and references therein
1910	5.0	Siberia	Condie et al. (2009) and references therein
1916	10.0	Siberia	Condie et al. (2009) and references therein
1916	7	Siberia	Condie et al. (2009) and references therein
1918	2.0	Siberia	Condie et al. (2009) and references therein
1924	14.0	Siberia	Condie et al. (2009) and references therein
1924	14.0	Siberia	Condie et al. (2009) and references therein
1926	15.0	Siberia	Condie et al. (2009) and references therein
1929	9.0	Siberia	Condie et al. (2009) and references therein
1929	13.0	Siberia	Condie et al. (2009) and references therein
1929	9.0	Siberia	Condie et al. (2009) and references therein
1929	13.0	Siberia	Condie et al. (2009) and references therein
1930	8.0	Siberia	Condie et al. (2009) and references therein
1947	5.0	Siberia	Condie et al. (2009) and references therein
1950	5.0	Siberia	Condie et al. (2009) and references therein
1950	10.0	Siberia	Condie et al. (2009) and references therein
1950	2.0	Siberia	Condie et al. (2009) and references therein
1960	20.0	Siberia	Condie et al. (2009) and references therein
1960	12.0	Siberia	Condie et al. (2009) and references therein

1965	4.0	Siberia	Condie et al. (2009) and references therein
1970	20.0	Siberia	Condie et al. (2009) and references therein
1970	20.0	Siberia	Condie et al. (2009) and references therein
1980	3.0	Siberia	Condie et al. (2009) and references therein
2018	18.0	Siberia	Condie et al. (2009) and references therein
2037	20.0	Siberia	Condie et al. (2009) and references therein
2187	0.5	Siberia	Condie et al. (2009) and references therein
2230	0.4	Siberia	Condie et al. (2009) and references therein
2250	6.0	Siberia	Condie et al. (2009) and references therein
2343	8.2	Siberia	Condie et al. (2009) and references therein
2410	20	Siberia	Condie et al. (2009) and references therein
2420	2.0	Siberia	Condie et al. (2009) and references therein
2495	5.0	Siberia	Condie et al. (2009) and references therein
2500	9.0	Siberia	Condie et al. (2009) and references therein
2506	8.0	Siberia	Condie et al. (2009) and references therein
2520	5.0	Siberia	Condie et al. (2009) and references therein
2585	20.0	Siberia	Condie et al. (2009) and references therein
2586	6.0	Siberia	Condie et al. (2009) and references therein
2590	8.0	Siberia	Condie et al. (2009) and references therein
2592	14.0	Siberia	Condie et al. (2009) and references therein
2600	5.0	Siberia	Condie et al. (2009) and references therein
2605	6.0	Siberia	Condie et al. (2009) and references therein
2623	12.0	Siberia	Condie et al. (2009) and references therein
2738	8.0	Siberia	Condie et al. (2009) and references therein
2738	8.0	Siberia	Condie et al. (2009) and references therein
2751	8.0	Siberia	Condie et al. (2009) and references therein
2757	22.0	Siberia	Condie et al. (2009) and references therein
2760	20.0	Siberia	Condie et al. (2009) and references therein
2785	5.0	Siberia	Condie et al. (2009) and references therein
2785	5.0	Siberia	Condie et al. (2009) and references therein
2785	9.0	Siberia	Condie et al. (2009) and references therein
2826	16.0	Siberia	Condie et al. (2009) and references therein
2862	7.0	Siberia	Condie et al. (2009) and references therein
2901	13.0	Siberia	Condie et al. (2009) and references therein
2984	10.0	Siberia	Condie et al. (2009) and references therein
3000	20.0	Siberia	Condie et al. (2009) and references therein
3000	5.0	Siberia	Condie et al. (2009) and references therein
3016	8.0	Siberia	Condie et al. (2009) and references therein
3016	8.0	Siberia	Condie et al. (2009) and references therein
3018	10.0	Siberia	Condie et al. (2009) and references therein
3100	8.0	Siberia	Condie et al. (2009) and references therein
3164	13.0	Siberia	Condie et al. (2009) and references therein
3172	19.0	Siberia	Condie et al. (2009) and references therein
3174	6.0	Siberia	Condie et al. (2009) and references therein
3212	8.0	Siberia	Condie et al. (2009) and references therein
3212	8.0	Siberia	Condie et al. (2009) and references therein
3263	15.0	Siberia	Condie et al. (2009) and references therein
3275	8.0	Siberia	Condie et al. (2009) and references therein

3285	14.0	Siberia	Condie et al. (2009) and references therein
3289	16.0	Siberia	Condie et al. (2009) and references therein
3290	3.0	Siberia	Condie et al. (2009) and references therein
3300	10.0	Siberia	Condie et al. (2009) and references therein
3300	12.0	Siberia	Condie et al. (2009) and references therein
3300	12.0	Siberia	Condie et al. (2009) and references therein
3320	10.0	Siberia	Condie et al. (2009) and references therein
3325	14.0	Siberia	Condie et al. (2009) and references therein
3335	2.0	Siberia	Condie et al. (2009) and references therein
3335	3.0	Siberia	Condie et al. (2009) and references therein
3350	12.0	Siberia	Condie et al. (2009) and references therein
3390	15.0	Siberia	Condie et al. (2009) and references therein
3441	10.0	Siberia	Condie et al. (2009) and references therein
3460	16.0	Siberia	Condie et al. (2009) and references therein
3575	13.0	Siberia	Condie et al. (2009) and references therein
3610	5.0	Siberia	Condie et al. (2009) and references therein
1705	23	Antarctica	Condie et al. (2009) and references therein
1707	22	Antarctica	Condie et al. (2009) and references therein
1736	28	Antarctica	Condie et al. (2009) and references therein
1741	21	Antarctica	Condie et al. (2009) and references therein
1744	27	Antarctica	Condie et al. (2009) and references therein
1746	23	Antarctica	Condie et al. (2009) and references therein
1758	21	Antarctica	Condie et al. (2009) and references therein
1766	22	Antarctica	Condie et al. (2009) and references therein
1775	22	Antarctica	Condie et al. (2009) and references therein
1775	22	Antarctica	Condie et al. (2009) and references therein
1792	30	Antarctica	Condie et al. (2009) and references therein
1803	31	Antarctica	Condie et al. (2009) and references therein
1803	28	Antarctica	Condie et al. (2009) and references therein
1822	23	Antarctica	Condie et al. (2009) and references therein
1823	28	Antarctica	Condie et al. (2009) and references therein
1823	26	Antarctica	Condie et al. (2009) and references therein
1825	28	Antarctica	Condie et al. (2009) and references therein
1827	28	Antarctica	Condie et al. (2009) and references therein
1829	31	Antarctica	Condie et al. (2009) and references therein
1831	28	Antarctica	Condie et al. (2009) and references therein
1840	22	Antarctica	Condie et al. (2009) and references therein
1841	28	Antarctica	Condie et al. (2009) and references therein
1842	28	Antarctica	Condie et al. (2009) and references therein
1849	23	Antarctica	Condie et al. (2009) and references therein
1851	28	Antarctica	Condie et al. (2009) and references therein
1851	28	Antarctica	Condie et al. (2009) and references therein
1857	28	Antarctica	Condie et al. (2009) and references therein
1857	30	Antarctica	Condie et al. (2009) and references therein
1865	29	Antarctica	Condie et al. (2009) and references therein
1865	29	Antarctica	Condie et al. (2009) and references therein
1865	28	Antarctica	Condie et al. (2009) and references therein
1866	28	Antarctica	Condie et al. (2009) and references therein

1867	28	Antarctica	Condie et al. (2009) and references therein
1869	28	Antarctica	Condie et al. (2009) and references therein
1873	30	Antarctica	Condie et al. (2009) and references therein
1882	30	Antarctica	Condie et al. (2009) and references therein
1883	27	Antarctica	Condie et al. (2009) and references therein
1888	30	Antarctica	Condie et al. (2009) and references therein
1892	29	Antarctica	Condie et al. (2009) and references therein
1892	29	Antarctica	Condie et al. (2009) and references therein
1895	24	Antarctica	Condie et al. (2009) and references therein
1897	32	Antarctica	Condie et al. (2009) and references therein
1898	29	Antarctica	Condie et al. (2009) and references therein
1900	31	Antarctica	Condie et al. (2009) and references therein
1902	29	Antarctica	Condie et al. (2009) and references therein
1904	29	Antarctica	Condie et al. (2009) and references therein
1905	30	Antarctica	Condie et al. (2009) and references therein
1905	30	Antarctica	Condie et al. (2009) and references therein
1910	23	Antarctica	Condie et al. (2009) and references therein
1911	23	Antarctica	Condie et al. (2009) and references therein
1916	30	Antarctica	Condie et al. (2009) and references therein
1919	29	Antarctica	Condie et al. (2009) and references therein
1922	29	Antarctica	Condie et al. (2009) and references therein
1923	27	Antarctica	Condie et al. (2009) and references therein
1924	26	Antarctica	Condie et al. (2009) and references therein
1925	30	Antarctica	Condie et al. (2009) and references therein
1928	24	Antarctica	Condie et al. (2009) and references therein
1928	30	Antarctica	Condie et al. (2009) and references therein
1931	29	Antarctica	Condie et al. (2009) and references therein
1932	30	Antarctica	Condie et al. (2009) and references therein
1933	29	Antarctica	Condie et al. (2009) and references therein
1933	24	Antarctica	Condie et al. (2009) and references therein
1934	25	Antarctica	Condie et al. (2009) and references therein
1936	30	Antarctica	Condie et al. (2009) and references therein
1937	29	Antarctica	Condie et al. (2009) and references therein
1938	25	Antarctica	Condie et al. (2009) and references therein
1939	30	Antarctica	Condie et al. (2009) and references therein
1940	24	Antarctica	Condie et al. (2009) and references therein
1941	30	Antarctica	Condie et al. (2009) and references therein
1942	24	Antarctica	Condie et al. (2009) and references therein
1946	24	Antarctica	Condie et al. (2009) and references therein
1951	24	Antarctica	Condie et al. (2009) and references therein
1951	30	Antarctica	Condie et al. (2009) and references therein
1954	24	Antarctica	Condie et al. (2009) and references therein
1955	30	Antarctica	Condie et al. (2009) and references therein
1955	24	Antarctica	Condie et al. (2009) and references therein
1956	30	Antarctica	Condie et al. (2009) and references therein
1957	30	Antarctica	Condie et al. (2009) and references therein
1959	31	Antarctica	Condie et al. (2009) and references therein
1960	37	Antarctica	Condie et al. (2009) and references therein

1961	25	Antarctica	Condie et al. (2009) and references therein
1961	30	Antarctica	Condie et al. (2009) and references therein
1965	30	Antarctica	Condie et al. (2009) and references therein
1968	37	Antarctica	Condie et al. (2009) and references therein
1969	30	Antarctica	Condie et al. (2009) and references therein
1970	24	Antarctica	Condie et al. (2009) and references therein
1970	30	Antarctica	Condie et al. (2009) and references therein
1970	32	Antarctica	Condie et al. (2009) and references therein
1972	30	Antarctica	Condie et al. (2009) and references therein
1972	24	Antarctica	Condie et al. (2009) and references therein
1972	24	Antarctica	Condie et al. (2009) and references therein
1974	30	Antarctica	Condie et al. (2009) and references therein
1976	30	Antarctica	Condie et al. (2009) and references therein
1978	30	Antarctica	Condie et al. (2009) and references therein
1980	30	Antarctica	Condie et al. (2009) and references therein
1986	30	Antarctica	Condie et al. (2009) and references therein
1986	30	Antarctica	Condie et al. (2009) and references therein
1988	24	Antarctica	Condie et al. (2009) and references therein
1988	24	Antarctica	Condie et al. (2009) and references therein
1990	30	Antarctica	Condie et al. (2009) and references therein
1990	24	Antarctica	Condie et al. (2009) and references therein
1991	30	Antarctica	Condie et al. (2009) and references therein
1991	31	Antarctica	Condie et al. (2009) and references therein
1991	24	Antarctica	Condie et al. (2009) and references therein
1992	25	Antarctica	Condie et al. (2009) and references therein
1994	31	Antarctica	Condie et al. (2009) and references therein
1995	30	Antarctica	Condie et al. (2009) and references therein
1995	24	Antarctica	Condie et al. (2009) and references therein
1997	24	Antarctica	Condie et al. (2009) and references therein
1997	30	Antarctica	Condie et al. (2009) and references therein
1997	30	Antarctica	Condie et al. (2009) and references therein
1998	24	Antarctica	Condie et al. (2009) and references therein
1998	26	Antarctica	Condie et al. (2009) and references therein
1998	30	Antarctica	Condie et al. (2009) and references therein
2000	24	Antarctica	Condie et al. (2009) and references therein
2001	30	Antarctica	Condie et al. (2009) and references therein
2002	33	Antarctica	Condie et al. (2009) and references therein
2003	30	Antarctica	Condie et al. (2009) and references therein
2005	25	Antarctica	Condie et al. (2009) and references therein
2007	31	Antarctica	Condie et al. (2009) and references therein
2008	25	Antarctica	Condie et al. (2009) and references therein
2010	33	Antarctica	Condie et al. (2009) and references therein
2010	24	Antarctica	Condie et al. (2009) and references therein
2011	25	Antarctica	Condie et al. (2009) and references therein
2014	25	Antarctica	Condie et al. (2009) and references therein
2015	31	Antarctica	Condie et al. (2009) and references therein
2016	31	Antarctica	Condie et al. (2009) and references therein
2017	25	Antarctica	Condie et al. (2009) and references therein

2017	25	Antarctica	Condie et al. (2009) and references therein
2017	25	Antarctica	Condie et al. (2009) and references therein
2020	31	Antarctica	Condie et al. (2009) and references therein
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2025	31	Antarctica	Condie et al. (2009) and references therein
2025	25	Antarctica	Condie et al. (2009) and references therein
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2029	31	Antarctica	Condie et al. (2009) and references therein
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2032	25	Antarctica	Condie et al. (2009) and references therein
2032	31	Antarctica	Condie et al. (2009) and references therein
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2039	25	Antarctica	Condie et al. (2009) and references therein
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2040	25	Antarctica	Condie et al. (2009) and references therein
2041	26	Antarctica	Condie et al. (2009) and references therein
2041	31	Antarctica	Condie et al. (2009) and references therein
2041	31	Antarctica	Condie et al. (2009) and references therein
2042	31	Antarctica	Condie et al. (2009) and references therein
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2044	31	Antarctica	Condie et al. (2009) and references therein
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2045	25	Antarctica	Condie et al. (2009) and references therein
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2046	31	Antarctica	Condie et al. (2009) and references therein
2046	25	Antarctica	Condie et al. (2009) and references therein
2047	25	Antarctica	Condie et al. (2009) and references therein
2048	32	Antarctica	Condie et al. (2009) and references therein
2049	25	Antarctica	Condie et al. (2009) and references therein
2050	31	Antarctica	Condie et al. (2009) and references therein
2050	31	Antarctica	Condie et al. (2009) and references therein
2051	31	Antarctica	Condie et al. (2009) and references therein
2051	25	Antarctica	Condie et al. (2009) and references therein
2052	31	Antarctica	Condie et al. (2009) and references therein
2052	31	Antarctica	Condie et al. (2009) and references therein
2053	25	Antarctica	Condie et al. (2009) and references therein

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2057	32	Antarctica	Condie et al. (2009) and references therein
2059	25	Antarctica	Condie et al. (2009) and references therein
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2060	32	Antarctica	Condie et al. (2009) and references therein
2062	31	Antarctica	Condie et al. (2009) and references therein
2063	32	Antarctica	Condie et al. (2009) and references therein
2063	32	Antarctica	Condie et al. (2009) and references therein
2064	25	Antarctica	Condie et al. (2009) and references therein
2068	28	Antarctica	Condie et al. (2009) and references therein
2068	25	Antarctica	Condie et al. (2009) and references therein
2069	25	Antarctica	Condie et al. (2009) and references therein
2069	31	Antarctica	Condie et al. (2009) and references therein
2070	25	Antarctica	Condie et al. (2009) and references therein
2073	31	Antarctica	Condie et al. (2009) and references therein
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2074	32	Antarctica	Condie et al. (2009) and references therein
2076	31	Antarctica	Condie et al. (2009) and references therein
2077	25	Antarctica	Condie et al. (2009) and references therein
2077	27	Antarctica	Condie et al. (2009) and references therein
2077	25	Antarctica	Condie et al. (2009) and references therein
2078	25	Antarctica	Condie et al. (2009) and references therein
2079	32	Antarctica	Condie et al. (2009) and references therein
2079	67	Antarctica	Condie et al. (2009) and references therein
2080	32	Antarctica	Condie et al. (2009) and references therein
2080	31	Antarctica	Condie et al. (2009) and references therein
2080	25	Antarctica	Condie et al. (2009) and references therein
2081	25	Antarctica	Condie et al. (2009) and references therein
2082	26	Antarctica	Condie et al. (2009) and references therein
2082	31	Antarctica	Condie et al. (2009) and references therein
2084	25	Antarctica	Condie et al. (2009) and references therein
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2085	25	Antarctica	Condie et al. (2009) and references therein
2087	25	Antarctica	Condie et al. (2009) and references therein
2088	26	Antarctica	Condie et al. (2009) and references therein
2089	32	Antarctica	Condie et al. (2009) and references therein
2090	25	Antarctica	Condie et al. (2009) and references therein
2090	26	Antarctica	Condie et al. (2009) and references therein
2091	32	Antarctica	Condie et al. (2009) and references therein
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2091	25	Antarctica	Condie et al. (2009) and references therein
2092	33	Antarctica	Condie et al. (2009) and references therein
2093	26	Antarctica	Condie et al. (2009) and references therein
2093	26	Antarctica	Condie et al. (2009) and references therein
2094	25	Antarctica	Condie et al. (2009) and references therein
2095	25	Antarctica	Condie et al. (2009) and references therein
2096	25	Antarctica	Condie et al. (2009) and references therein

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2097	25	Antarctica	Condie et al. (2009) and references therein
2099	25	Antarctica	Condie et al. (2009) and references therein
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2099	25	Antarctica	Condie et al. (2009) and references therein
2100	32	Antarctica	Condie et al. (2009) and references therein
2103	25	Antarctica	Condie et al. (2009) and references therein
2103	27	Antarctica	Condie et al. (2009) and references therein
2103	26	Antarctica	Condie et al. (2009) and references therein
2103	32	Antarctica	Condie et al. (2009) and references therein
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2105	32	Antarctica	Condie et al. (2009) and references therein
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2105	32	Antarctica	Condie et al. (2009) and references therein
2105	32	Antarctica	Condie et al. (2009) and references therein
2108	26	Antarctica	Condie et al. (2009) and references therein
2108	32	Antarctica	Condie et al. (2009) and references therein
2109	26	Antarctica	Condie et al. (2009) and references therein
2110	25	Antarctica	Condie et al. (2009) and references therein
2110	32	Antarctica	Condie et al. (2009) and references therein
2111	25	Antarctica	Condie et al. (2009) and references therein
2111	26	Antarctica	Condie et al. (2009) and references therein
2112	25	Antarctica	Condie et al. (2009) and references therein
2113	28	Antarctica	Condie et al. (2009) and references therein
2113	28	Antarctica	Condie et al. (2009) and references therein
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2852	35	Antarctica	Condie et al. (2009) and references therein
2854	14.0	Antarctica	Condie et al. (2009) and references therein
2858	40	Antarctica	Condie et al. (2009) and references therein
2861	35	Antarctica	Condie et al. (2009) and references therein

2862	35	Antarctica	Condie et al. (2009) and references therein
2864	35	Antarctica	Condie et al. (2009) and references therein
2865	43	Antarctica	Condie et al. (2009) and references therein
2866	43	Antarctica	Condie et al. (2009) and references therein
2878	35	Antarctica	Condie et al. (2009) and references therein
2879	44	Antarctica	Condie et al. (2009) and references therein
2883	35	Antarctica	Condie et al. (2009) and references therein
2884	47	Antarctica	Condie et al. (2009) and references therein
2886	37	Antarctica	Condie et al. (2009) and references therein
2889	9.0	Antarctica	Condie et al. (2009) and references therein
2895	35	Antarctica	Condie et al. (2009) and references therein
2898	35	Antarctica	Condie et al. (2009) and references therein
2912	44	Antarctica	Condie et al. (2009) and references therein
2916	36	Antarctica	Condie et al. (2009) and references therein
2917	38	Antarctica	Condie et al. (2009) and references therein
2919	36	Antarctica	Condie et al. (2009) and references therein
2920	35	Antarctica	Condie et al. (2009) and references therein
2924	35	Antarctica	Condie et al. (2009) and references therein
2928	35	Antarctica	Condie et al. (2009) and references therein
2930	36	Antarctica	Condie et al. (2009) and references therein
2930	37	Antarctica	Condie et al. (2009) and references therein
2937	39	Antarctica	Condie et al. (2009) and references therein
2941	36	Antarctica	Condie et al. (2009) and references therein
2941	36	Antarctica	Condie et al. (2009) and references therein
2943	36	Antarctica	Condie et al. (2009) and references therein
2946	36	Antarctica	Condie et al. (2009) and references therein
2947	37	Antarctica	Condie et al. (2009) and references therein
2953	36	Antarctica	Condie et al. (2009) and references therein
2960	36	Antarctica	Condie et al. (2009) and references therein
2962	36	Antarctica	Condie et al. (2009) and references therein
2974	36	Antarctica	Condie et al. (2009) and references therein
2975	10.0	Antarctica	Condie et al. (2009) and references therein
2978	36	Antarctica	Condie et al. (2009) and references therein
2980	9.0	Antarctica	Condie et al. (2009) and references therein
2982	36	Antarctica	Condie et al. (2009) and references therein
2984	36	Antarctica	Condie et al. (2009) and references therein
2986	37	Antarctica	Condie et al. (2009) and references therein
2988	37	Antarctica	Condie et al. (2009) and references therein
2991	36	Antarctica	Condie et al. (2009) and references therein
3000	38	Antarctica	Condie et al. (2009) and references therein
3003	8.0	Antarctica	Condie et al. (2009) and references therein
3005	37	Antarctica	Condie et al. (2009) and references therein
3016	37	Antarctica	Condie et al. (2009) and references therein
3023	40	Antarctica	Condie et al. (2009) and references therein
3026	37	Antarctica	Condie et al. (2009) and references therein
3073	12.0	Antarctica	Condie et al. (2009) and references therein
3153	12.0	Antarctica	Condie et al. (2009) and references therein

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