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Age, Tectonic Geography and Provenance of the Renner Group, Tomkinson Province, Northern Territory

Thesis submitted in accordance with the requirements of the University of
Adelaide for an Honours Degree in Geology

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THE UNIVERSITY
of ADELAIDE

AGE, TECTONIC GEOGRAPHY AND PROVENANCE OF THE RENNER GROUP, TOMKINSON PROVINCE, NORTHERN TERRITORY

TECTONIC GEOGRAPHY OF THE RENNER GROUP

ABSTRACT

The informally termed greater McArthur Basin is a Paleoproterozoic to Mesoproterozoic multiphase basin system that records a billion years of Earth's history within the Northern Territory. Sedimentary successions that make up the basin preserve evidence for events that surround the basin during its formation. In this study we present LA-ICP-MS detrital zircon U–Pb, Lu–Hf and REE data that provide new constraints on the Renner Group and reveals provenance variations that exemplify the evolution of the basin. Using the youngest, near-concordant, zircon grains, the maximum depositional age for each formation is determined. The maximum depositional age for the Gleeson Formation has been constrained to being deposited after 1600 ± 42 Ma. Whereas the grains from the Sweetwater Member, Grayling Member and Powell Formation provide maximum depositional ages of 1624 ± 37 Ma, 1554 ± 77 Ma and 1714 ± 50 Ma, respectively. As well as using U–Pb in zircon, we also look at U–Pb in detrital rutile. These data yielded ages of 1731 ± 39 Ma (Sweetwater Member), 1811 ± 45 Ma (Grayling Member) and 1703 ± 32 Ma (Powell Formation, determined by the youngest, near concordant grain. Age variations within stratigraphy propose a subtle change from older, Paleoproterozoic sources to additional input from younger sources. Formations in the Renner Group record age peaks that are consistent with rocks of the Aileron Province, Mount Isa Inlier and the Gawler Craton. By comparing U–Pb and Lu–Hf data, the Renner Group correlates with the Roper Group (McArthur Basin), South Nicholson Group (South Nicholson Basin) and the Tjunna Group (Birindudu Basin). In particular, the Powell Formation of the Renner Group is equivalent to the Bessie Creek Sandstone of the Roper Group, and shares similarities with the Wondoan Hill Formation of the Tjunna Group. Whereas the Grayling Member, Sweetwater Member and Gleeson Formation are equivalent to the older formations of the Lower Roper Group such as the Arnold Sandstone and Crawford Sandstone. I suggest that the variation in provenance records the exhumation and exposure of these regions as a result of intracratonic rifting and magmatism from 1.5 – 1.4 Ga. The increase in 1860–1650 Ma detritus suggests uplift of the Arunta region.

KEYWORDS

Renner Group, Tomkinson, Northern Territory, U–Pb, Hf, zircon, geochronology, tectonic geography

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INTRODUCTION

The Mesoproterozoic is an interesting, yet poorly known time in Earth's history; it is an era that encompasses the amalgamation of Nuna and its transformation to Rodinia (Kirscher et al. 2020) as well as vast shifts in redox resulting in changes to the atmospheric and ocean chemistry (Planavsky et al. 2018). Evidence of this ancient developing Earth system is preserved within sedimentary rocks in intracontinental basins; however, uncertainty surrounds how these basins remain depocenters over extended periods of time (Yang et al. 2019).

The informally named greater McArthur Basin is one of the more studied and accessible of these cratonic basins, which records nearly a billion years of Earth's history from ca. 1.82 Ga to 0.9 Ga (Ahmad and Scrimgeour 2013, Munson 2016a, Munson et al. 2018, Rawlings 1999, Yang 2019). We are able to date and understand deposition of the greater McArthur Basin by using detrital chronology and linking the provenance changes in the McArthur Basin, relating to changes in the tectonic history of the source regions that surround the basin; there, in turn, may relate to major plate tectonic changes (Allen et al. 2015, Sandiford et al. 2001, Yang et al. 2019). Better constraints of sediment age and more knowledge of spatial and stratigraphic changes in provenance can allow a better understanding on the formation of the greater McArthur basin. It has been suggested by Yang et al. (2020) that the ancestral Daly Waters Fault Zone was a palaeo-bathymetric high, separating the Mesoproterozoic Wilton package depocenters in the west (Birrindudu Basin) from the east (East Beetaloo Sub-basin, McArthur Basin and South Nicholson Basin).

The greater McArthur Basin has been subdivided into five distinct sedimentary packages from the Paleoproterozoic to Neoproterozoic (Rawlings 1999), comprising of

successions from the Tomkinson Province, Birrindudu Basin and the McArthur Basin.

The focus of this study is the northern Tomkinson Province region that hosts the Gleeson Formation, Sweetwater Member, Grayling Member and Powell Formation of the Renner Group within the Mesoproterozoic Wilton Package.

To constrain the age and possible source of the Renner Group sediments, detrital zircons are used due to their resilience and ability to preserve their radiometric clocks (Cawood et al. 2012, Dickinson and Gehrels 2009, Gehrels 2014, Yang et al. 2018). By using isotopic proxies such as U-Pb and Lu-Hf in zircons, the maximum depositional age, age peaks of major detrital input and therefore provenance of the sands within the Renner Group can be determined. These data will assist in understanding the Mesoproterozoic landscape at the time when the Renner group was being deposited. These data will also allow us to correlate the Renner Group with other Coeval sedimentary rock packages in the Birrindudu Basin and Beetaloo Sub-basin.

GEOLOGICAL SETTING/BACKGROUND

Proterozoic North Australian Craton

Precambrian Australia consists of three cratons, the North Australian Craton, the West Australian Craton and the South Australian Craton (P. A. Cawood & R. J. Korsch, 2008; Myers, 1990; Myers, Shaw, & Tyler, 1996). The North Australian Craton (Figure 2) extends across the northern parts of Queensland, the Northern Territory and Western Australia (Cawood and Korsch 2008). Sharing similar characteristics with the SAC, several researchers believe that the two cratons (NAC and SAC) were linked during some of their Archean to Paleoproterozoic evolution (Ahmad & Scrimgeour, 2013; Betts & Giles, 2006; Betts, Giles, Lister, & Frick, 2002; Giles, Betts, & Lister, 2004;

Reddy & Evans, 2009). Yang et al. (2019) suggested that the West Australian Craton collided with the amalgamated North Australian Craton and South Australian Craton by ca. 1200 Ma.

Prior to the final collision, Betts and Giles (2006) interpret a combination of slab rollback and back stepping of a subduction system, behind accreted continental terranes resulting in the southwards migration of the plate margin. This is thought to have led to extension of the North Australian Craton, opening an oceanic basin situated along the eastern margin of the continent (ca. 1660 Ma). At a similar time, in the late Paleoproterozoic, exhumation and divergence along the eastern side of the NAC was occurring due to lithospheric extension related with the rifting of Proterozoic Australia and Laurentia in Nuna (Foster & Ehlers, 1998; B. Yang et al., 2019). The closure of the ocean basin during ca. 1350–1250 Ma resulted in the uplift of the southern margin of the North Australian Craton. The southern regions of the NAC became topographic highs, filling in the basin through north-flowing drainage systems.

Greater McArthur basin

The greater McArthur Basin (Close, 2014) is an informally termed Paleoproterozoic to Mesoproterozoic multiphase basin system (Figure 1). The basin is a ~5-15km thick platform cover sequence made up of a siliciclastic carbonate succession with bimodal igneous rocks as part of the early basin fill (Jackson et al. 1987, Plumb 1979a, Plumb 1979b, Rawlings 1999). It includes the sedimentary successions of the ‘McArthur Basin’ itself, which is exposed on the eastern margin of the NAC. In addition, the

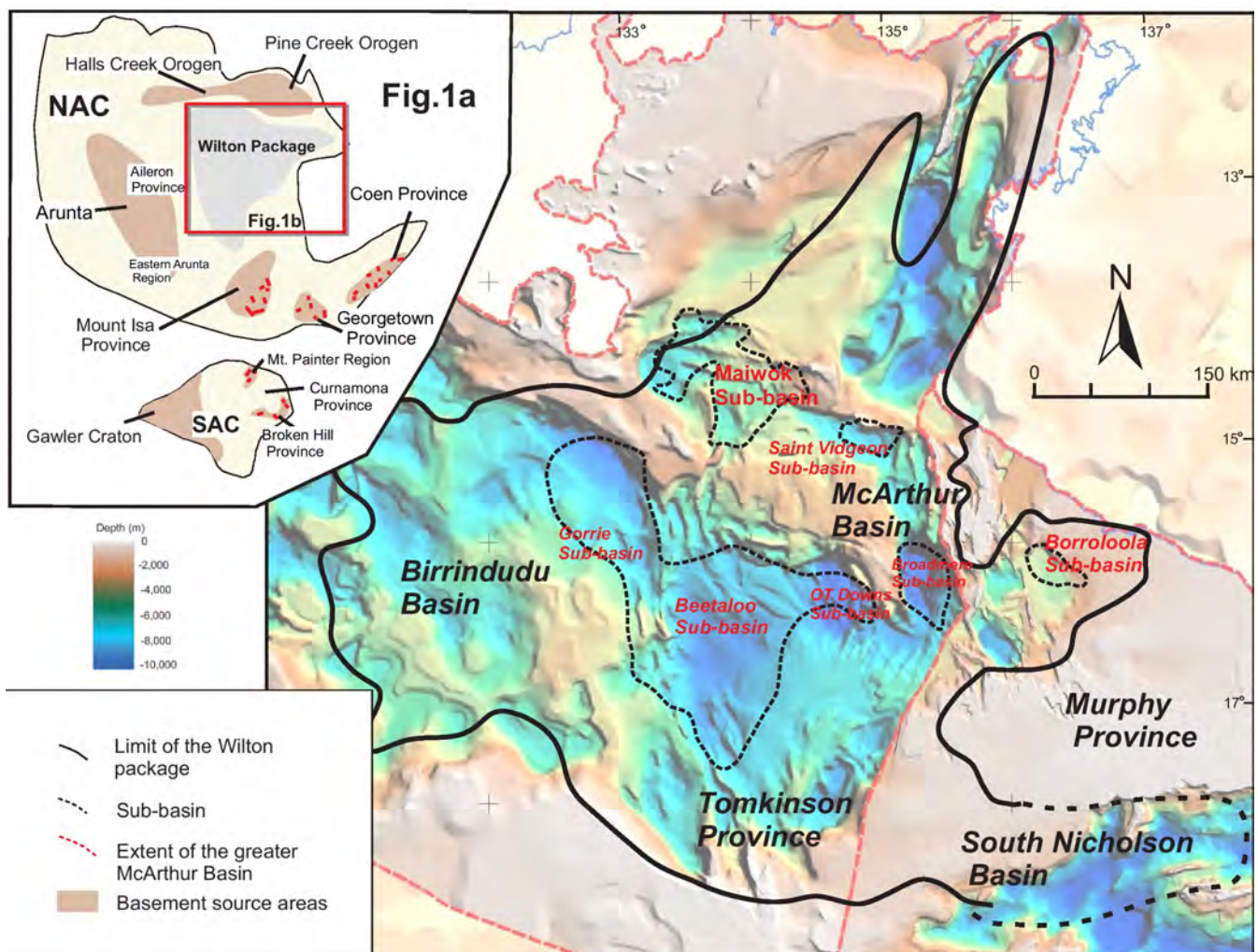


Figure 1. Location map of the greater McArthur Basin and the extent of the Wilton Package showing the top-to-basement (SEEBASE™) basement surface image after Frogtech Geoscience). Modified after Yang et al. 2018.

Birrindudu Basin and the Tomkinson Province are also exposed and thought to correlate.

The greater McArthur Basin comprises of five coherent basin phases that have been sectioned into five sedimentary packages. Formally known as supersequences, these packages include the Redbank, Goyder, Glyde, Favenc, and Wilton Packages (Rawlings, 1999).

The Derim Derim Dolerite plays an important part in the formation of the McArthur basin. Bodorkos et al. (2020) used U-Pb dating to date the Derim Derim with a mean $^{207}\text{Pb}/^{206}\text{Pb}$ date of 1320.1 ± 5.3 Ma, where Yang et al. (2019) presented a baddeleyite age of 1312.9 ± 0.7 Ma. Melville (2010) reported a SHRIMP U-Pb baddeleyite age of 1295 ± 14 Ma from a gabbro intruding the Renner Group in the Tomkinson Province. The gabbro intrusion is in relation to the contemporaneous intraplate mafic magmatism extending across the NAC at this time. The intrusion of the ca. 1.31 Ga Derim Derim LIP gradually uplifted the basin from the north due to its emplacement with the Galiwinku LIP. At the same time, the increased weathering of the rocks increased nutrient supply to the basin, resulting in an enhancement in the primary production in the shallow marine settings (Yang et al. 2020).

Wilton package

The Wilton package (Rawlings, 1999) is characterised by a group of siliciclastic successions that show subsurface continuity but may have been deposited in numerous geographically separated sub-basins (Yang et al. 2019). The package is one the best sedimentary records for analysing the Mesoproterozoic earths system. The Wilton package (Figure 1) encompass the youngest of the Mesoproterozoic sedimentary successions of the greater McArthur Basin dating at ca. 1500–1400 Ma (Jackson et al.

1987, Powell et al. 1987). The package is interpreted to include the Roper Group (McArthur Basin), Tjunna Group (Birrindudu Basin), South Nicholson Group (South Nicholson Basin) and the Renner Group (Tomkinson Province) (Rawlings, 1999). Widely distributed, the package displays a cyclic sequence of fine and coarse-grained siliciclastic rocks, interpreted to have been deposited in a shallow-marine, near-shore to shelf environment (Jackson et al. 1987, Powell et al. 1987, Rawlings 1999). Age constraints for the Wilton package are limited. SHRIMP U-Pb overlapping ages of ca. 1492 Ma from the lower Mainoru Formation are constraining deposition to being younger than these ages (Jackson et al. 1999, Southgate et al. 2000). More recently a U-Pb TIMS baddeleyite age of 1312.9 ± 0.7 Ma (2SD) was obtained from the Derim Derim Dolerite by (Yang et al. 2020).

Tomkinson Province

The Tomkinson Province (Blake et al. 1987) makes up the northern area of the Tennant Region including the Davenport and Warramunga provinces.

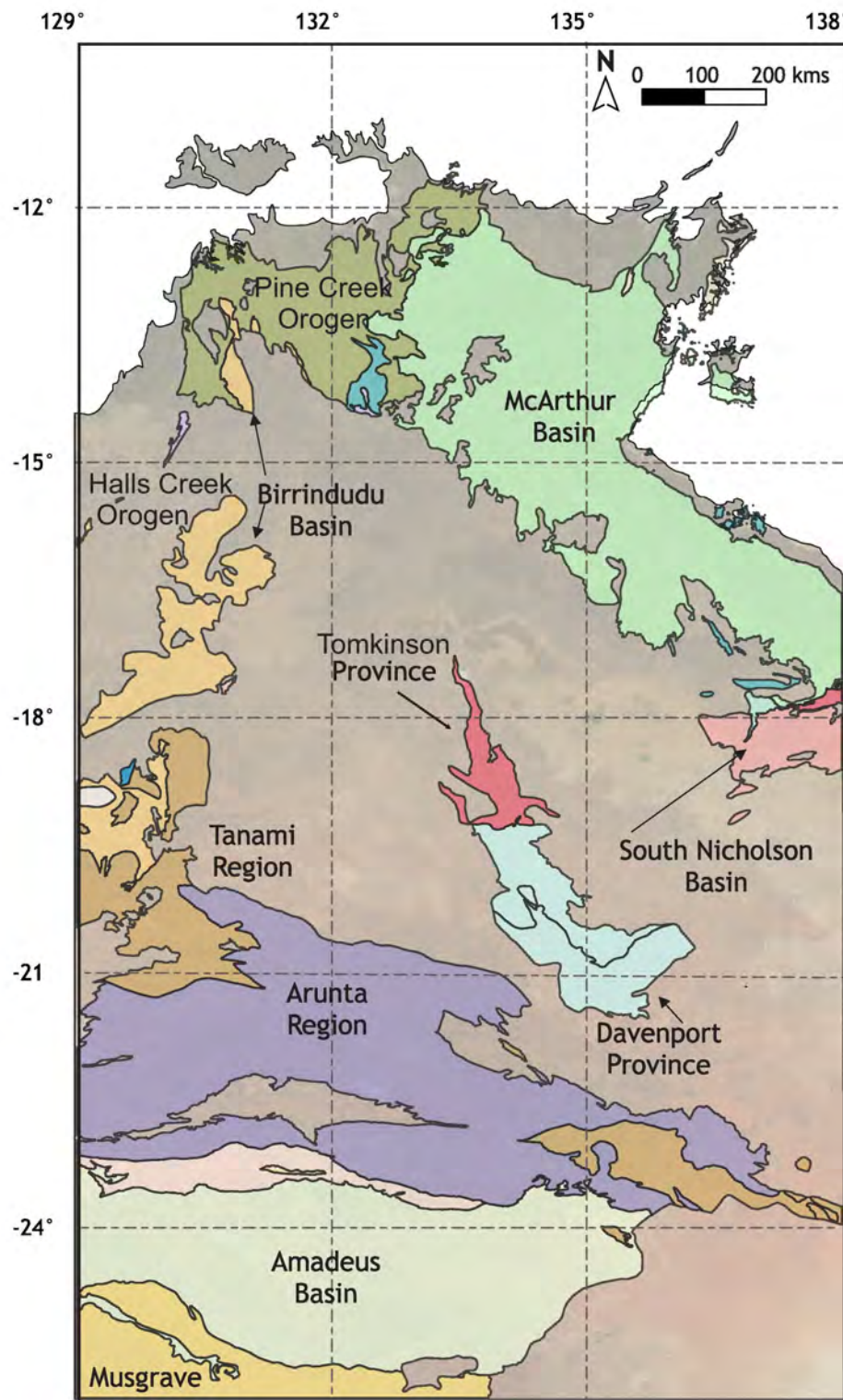


Figure 2. Location map of the North Australian Craton and its associated provinces. Modified after Blades et al, (2018; in prep).

The Tomkinson Province is comprised by three groups (Donnellan et al. 2013); the Tomkinson Creek Group (ca. 1810–1660 Ma), the Namerinni Group (ca. 1660–1610 Ma) and the Renner Group (ca. 1500–1430 Ma). Previous works have suggested that the Tomkinson Province are correlatives of other sedimentary successions within North Australia. The Tomkinson Creek Group (Tomkinson Province) is interpreted to correlate with the Redbank Package (McArthur Basin) and the Hatches Creek Group (Davenport Province) (Blake et al. 1987, Donnellan et al. 2001, Donnellan et al. 2013); The Namerinni Group) is interpreted to correlate with the McArthur Basin (Hussey et al. 2001, Jones et al. 1996, Ward 1983); And the Renner Group (Tomkinson Province) is interpreted to correlate with the Roper Group (McArthur Basin), Tjunna Group (Birrindudu Basin), and the South Nicholson Group (South Nicholson Basin) (Yang et al. 2020).

Renner Group

The Renner Group, the main focus of this study, is a predominately siliciclastic succession, comprising in ascending stratigraphic order (Figure 3), of the Gleeson, Baralandji, Powell, Wiernty and Jangirulu formations (Ahmad & Munson, 2013). The Renner Group is a part of the Tomkinson Province located within the northern area of the Tennant region. The Renner Group accumulated during ca 1500 to 1430 Ma as regional tilting, faulting, and erosion occurred a succession of more than 3500m of fluvial and shallow-marine sedimentary rocks were deposited (Ahmad & Munson, 2013). Previous work done by Munson (2018) analysed four samples from the Gleeson Formation, Grayling Member, Powell Formation and the Jangirulu Formation. Three samples produced U-Pb isotope maximum deposition ages of ca. 1796 Ma (Gleeson

Formation), ca. 1650 Ma (Grayling Member) and ca. 1584 Ma (Jangirulu Formation).
The sample from the Powell Formation resulted in zircons showing young Palaeozoic ages, which was interpreted as contamination (Munson et al. 2018).

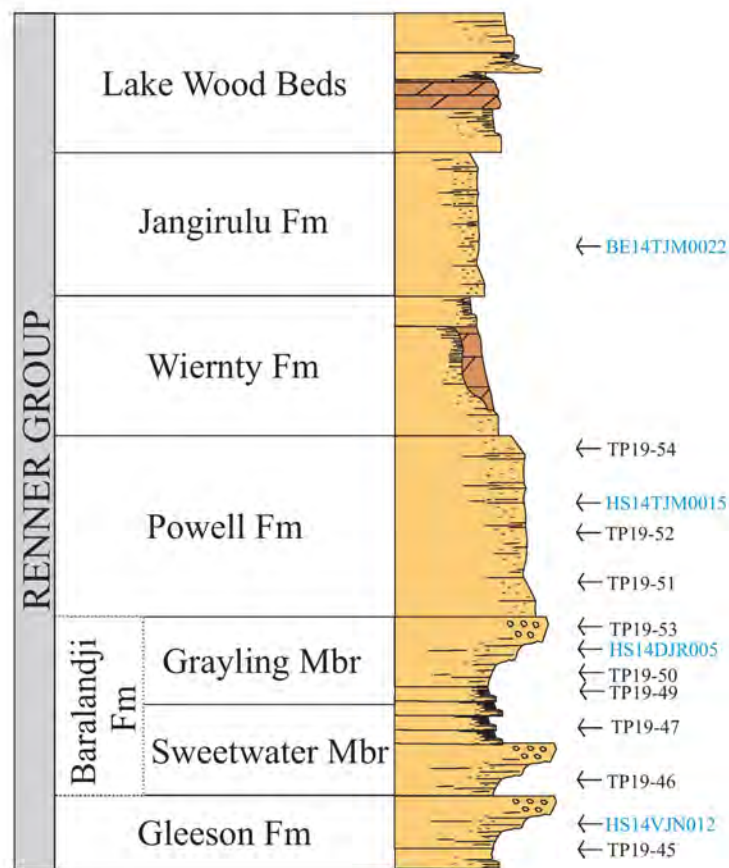


Figure 3. Composite stratigraphic log of the Renner Group with associated samples collected modified after Blades (in prep). Samples highlighted in blue are from (Munson et al. 2018).

METHODS

Geological mapping

Geological mapping was undertaken to outline the structural features and lithologies of the Newcastle Waters region. Structural data were recorded on both a transparent overlay, forming the basis of the geological map, as well as in a field notebook.

Measurements were also recorded on an iPad using the application 'Field Move'. The recorded data included GPS coordinates of locations, rock and mineral identification, structural features, bedding readings and gamma-ray spectrometer (GRS) values.

Selection and sampling

Nine samples used in this study were obtained from the locations seen in Figure 4.

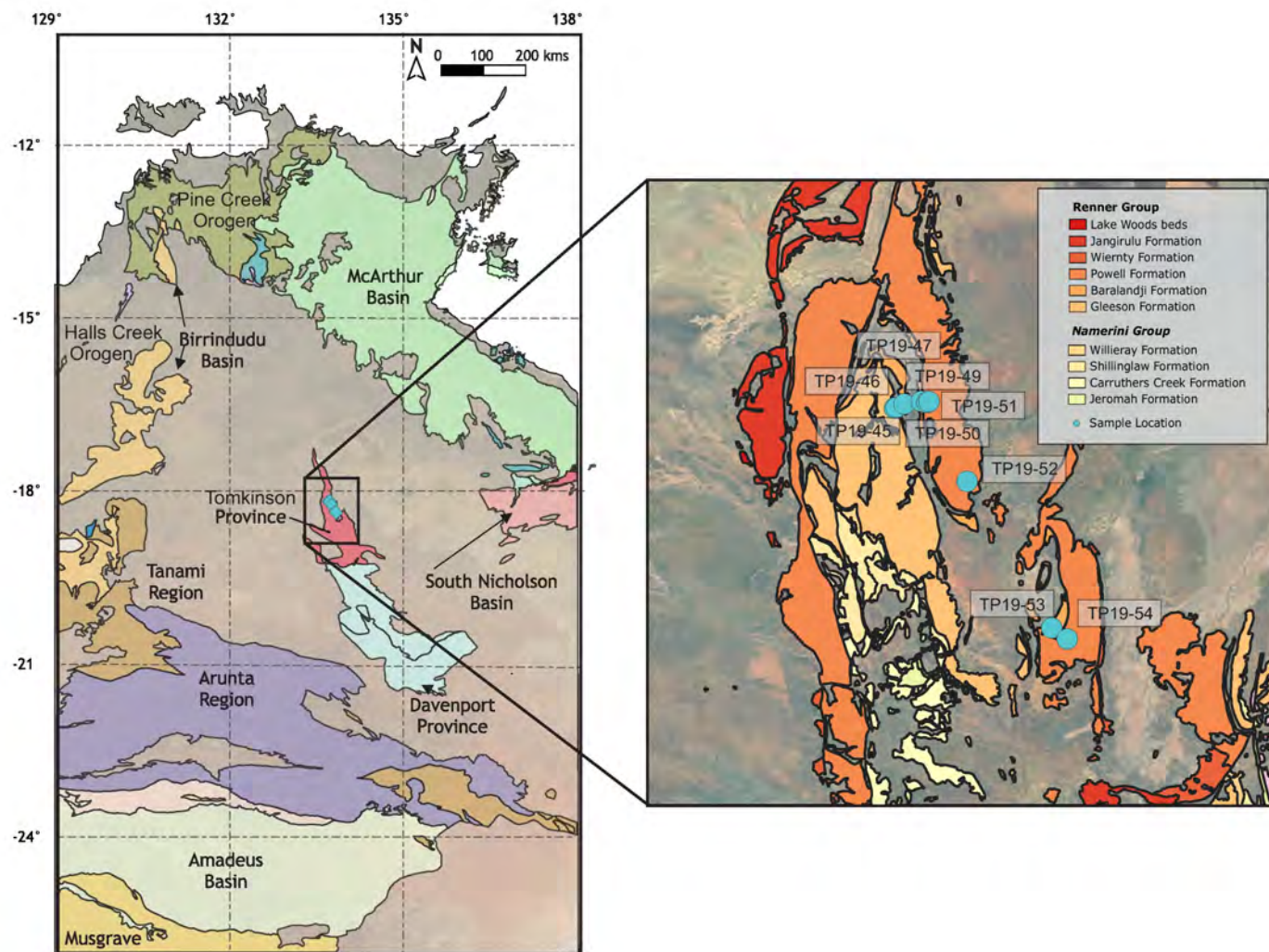


Figure 4. Location Map of samples collected from the Renner Group, Tomkinson Provenance, Northern Territory. Map is modified after Blades, 2018 (In Prep).

U-Pb zircon geochronology

Zircon grains were separated from the host sandstone by crushing and milling in the Adelaide University Laboratory. From the crushed samples, standard panning, neodymium magnet and heavy liquid techniques were applied to separate the grains. Mineral separates were then handpicked and mounted in epoxy resin which were polished to expose the surface of the zircons. Polished mounts were carbon coated and the grains were imaged using cathodoluminescence (CL) on a FEI Quanta 600 Scanning Electron Microscope (SEM) with an attached Gatan CL detector and examined using a Laser Ablation Inductively Coupled Plasma-Mass Spectrometer (LA ICP-MS) at Adelaide Microscopy. A 30µm spot size was used on the zircons with a typical pit depth of 30-50µm. Frequency of the laser was 5Hz with 70% intensity and an ablation period of 30 seconds.

GEMOC GJ-1 zircon was used as a primary standard to correct instrumental fractionation. The standard has a published, $^{207}\text{Pb}/^{206}\text{Pb}$ age of 607.7 ± 4.3 Ma, $^{206}\text{Pb}/^{238}\text{U}$ age of 600.7 ± 1.1 Ma and $^{207}\text{Pb}/^{235}\text{U}$ age of 602.0 ± 1.0 Ma (Jackson et al. 2004). The Plešovice zircon was used as an internal standard to assess the accuracy before and during the analysis of the unknowns, it has a published $^{206}\text{Pb}/^{238}\text{U}$ age of 337.13 ± 0.37 Ma (Sláma et al. 2008). The Plešovice zircon yields a weighted average mean of $^{206}\text{Pb}/^{238}\text{U}$ age of 339.38 ± 0.95 (n=44, MSWD = 0.90) and a $^{207}\text{Pb}/^{206}\text{Pb}$ age of 343 ± 13 (n=44, MSWD = 18).

Data was processed in the software package LADR 1.1.05 (Norris & Donyushevsky., 2018). Concordia diagrams, and weighted average means were calculated using ISOPLOT 4.15 for excel (Ludwig 2008).

Hafnium isotope determination

Based on Hartnady et al. (2020), analytical methods for zircon Lu-Hf isotope analysis on zircon grains were selected for ablation and analysis based on concordance and age populations within each sample. Analyses were undertaken using a New Wave/Merchantek LUV213 laser ablation microprobe attached to a Nu Plasma multi-collector LA-MC-ICPMS by Professor Chris Clark at Curtin University. A beam diameter of $\sim 55\mu\text{m}$ was used during the analysis. A repetition rate of 5 Hz resulted in ablation pits to be $\sim 40\text{--}60\mu\text{m}$ deep. Zircons were ablated in a helium atmosphere. Interference of ^{176}Lu on ^{176}Hf was corrected by using the interference-free ^{175}Lu , and using the invariant $^{176}\text{Lu}/^{175}\text{Lu}$ correction factor 1/40.02669 (De Bièvre and Taylor 1993). Interference of ^{176}Yb on ^{176}Hf was corrected by measuring the interference free ^{172}Yb isotope and using the $^{176}\text{Yb}/^{172}\text{Yb}$ ratio to obtain the interference free $^{176}\text{Yb}/^{177}\text{Hf}$ ratio. The primary zircon standard was Mud Tank, which yielded an average mean of 0.2825071 ± 0.0000082 ($n=20$, MSWD = 0.97). This compares to the published value by Sláma et al. (2008) of 0.282482 ± 0.00001 .

Zircon REE analysis

In addition to the U-Pb analysis and hafnium isotope determination, the abundance of 23 elemental masses were measured: ^{29}Si , ^{31}P , ^{47}Ti , ^{49}Ti , ^{89}Y , ^{91}Zr , ^{93}Nb , ^{139}La , ^{140}Ce , ^{141}Pr , ^{146}Nd , ^{147}Sm , ^{153}Eu , ^{157}Gd , ^{159}Tb , ^{163}Dy , ^{165}Ho , ^{166}Er , ^{169}Tm , ^{172}Yb , ^{175}Lu , ^{177}Hf and ^{202}Hg . Trace element abundances were collected simultaneously with U-Pb isotopic ratios. The trace element collected was standardised with the primary standard NIST610, and a secondary standard 91500. Results were normalised to chondrite values taken from Boynton (1984). Data were plotted in the GCDkit package as spider plots to identify changes in REE trends in each of the formations.

RESULTS

U-Pb Detrital Zircon Geochronology

U-Pb detrital zircon geochronology was undertaken on nine samples from four formations throughout the lower Renner Group. Samples analysed are listed in Table 1, with location data and a brief outcrop description. A cut off of 10% was used for concordance on all samples; this ensures that quoted ages are more accurate by filtering out Pb loss and discordant data. All geochronology data are plotted from U-Pb are plotted on Wetherill plots with their corresponding kernel density estimate (Figure 6 and Figure 7). Table 2 shows characteristics of zircons within each sample. The youngest population was calculated with three or more ages that yield a mean with a MSWD less than one, however we quote the youngest single grain as the maximum depositional ages due to there being no real reason that any two detrital zircon grains should have the same age within any particular sample (Dickinson et al. 2010, Spencer et al. 2016). Cathodoluminescence (CL) imaging on the zircons can be seen in Figure 5. Figure 9 indicates the density of $^{207}\text{Pb}/^{206}\text{Pb}$ ages for each formation shown through a multiple independent probability density plot.

Sample Number:	Location	GPS Coordinates (DMS)	Formation	Description
TP19-52	10km N of Renner Springs on the left side of the highway where it bends	18°14'30.1", 133°45'16.6"	Powell Formation (Top)	Clean, quartz rich, medium grained sandstone. Weathering orange/red, white in fresh sample. Moving up the unit. It is interbedded with muds moving back into a fine-medium grained sandstone.
TP19-54	12km S of Renner Springs bend goes to the right.	18°22'01.4", 133°50'03.3"	Powell Formation	Medium to coarse grained sandstone. Weathers red/orange, white in fresh sample. Mapped as the Powell Formation at the base of the formation - boundary between that and the Baralandji Formation.
TP19-51	On Stuart Highway on side of road 20km from Renner	18°10'40.8", 133°43'27.6"	Powell Formation	Medium grained sandstone. Abundant large scale cross beds, perhaps trough cross bedding. Contains layers that weather more prominently - orange/yellow. Very similar to samples just west. Contains beds of coarser grained sands. Laminations are well defined.
TP19-50	100m W of Stuart Highway	18°10'43.4", 133°43'22.0"	Graying Member (Top)	Coarse grained beds - yellow/orange in colour - containing large cross beds. Interbedded with a cleaner sandstone - white in colour. Bedding is well defined at meter scale.
TP19-53	10km S of Renner at significant bend in the Stuart Highway, left hand side.	18°21'29.4", 133°49'19.2"	Grayling Member	Quartz rich medium-fine grained sandstone with 5% lithics. Well defined laminations. Beds dipping to the east. Interbedded with mud and silts.
TP19-49	1km from Stuart Highway W. On a ridge adjacent to a small isolated hill.	18°10'40.4", 133°43'06.0"	Grayling Member	Quartz rich arenite with 5% lithics. Well defined bedding with laminations at a centimeter scale. Cross-bedding present, indicating young to the east. Intraformational conglomerates which are thin, ~20cm width.
TP19-47	4km W of Stuart Highway (see original Stuart Highway position)	18°10'47.5", 133°42'16.5"	Sweetwater Member	Medium grained lithic rich sandstone - lithic arenite, chemically immature. Purple and pink in colour-same as in the previous sample. Topologically separated by a depression, therefore shale or less competent unit is separating the sandstone
TP19-46	5km transect just W of creek near oldest unit	18°10'57.8", 133°41'54.4"	Sweetwater Member	Medium to coarse grained sandstone. 10% lithics present. Boundary between the Gleeson and Sweetwater Member. Mud rip-up clasts present in the unit. Purple in colour weathers pink.
TP19-45	20km N of Renner Spring, 5km transect N from roadside outcrop.	18°10'59.9", 133°41'49"	Gleeson Formation	Medium grained - coarse/pebbly layers. Lithic rich (magnetite). Lithics 15%? Feldspar 5% Quartz 75% (lithic arenite). Mineralogically immature. Mud rip-up clasts, pebbly conglomerate layers. Increase in energy. Cross bedding

Table 1. List of samples from the Renner Group, Tomkinson Province, which were analysed for U-Pb, REE and Lu-Hf isotope analysis in zircon. Samples are listed in stratigraphic order of oldest at the base and youngest at the top.

GLEESON FORMATION

Sample: TP19-45

One hundred and fifty-four zircons were analysed (U-Pb). Of these 154 analyses, 41 are within the 10% concordance bracket. These near concordant zircon grains yielded a range of $^{207}\text{Pb}/^{206}\text{Pb}$ ages between ca. 3501 Ma to 1600 Ma, with major peaks forming at ca. 1800 Ma and 2000 Ma. Minor age peaks are present at ca. 2500 Ma and 3500 Ma. These peaks can be seen in Figure 8. The youngest, near concordant grain is 1600 ± 42 Ma; this displays an aspect ratio of 3:1, it is prismatic in shape and displays slight rounding along the edges. The youngest statistically significant population has a weighted mean of 1775 ± 11 Ma ($n=9$, MSWD=0.97).

SWEETWATER MEMBER (BARALANDJI FORMATION)

Sample: TP19-46

Of the 154 analyses undertaken, 43 were within 10% of concordance with a $^{207}\text{Pb}/^{206}\text{Pb}$ age range of ca. 2628 Ma to 1624 Ma. There is one major peak forming at ca. 1800 Ma and a minor peak at ca. 2500 Ma (Figure 8). The youngest, near concordant grain is 1624 ± 37 Ma, whilst the youngest population calculated by the weighted mean average is 1759 ± 19 Ma ($n=4$, MSWD = 0.75).

Sample: TP19-47

The U-Pb analysis looked at 159 zircons. Forty-one zircons are within 10% concordance with a $^{207}\text{Pb}/^{206}\text{Pb}$ age range of ca. 2738 Ma to 1626 Ma. There is a major peak occurring at ca. 1850 Ma along with minor peaks at ca. 1650 Ma, 2150 Ma, 2500

Ma and 2700 Ma (figure 8). The youngest, near concordant grain is 1626 ± 38 Ma, with the youngest population calculated by the weighted average is 1799 ± 12 Ma ($n=8$, MSWD=0.12).

GRAYLING MEMBER (BARALANDJI FORMATION)

Sample: TP19-49

From the 159 analyses, 43 zircons were in the 10% concordance bracket. Near concordant grains yielded a range of $^{207}\text{Pb}/^{206}\text{Pb}$ ages between ca. 2578 Ma to 1582 Ma with major peaks at ca. 1800 Ma and 2000 Ma. Minor age peaks are present at ca. 1750 Ma and 2500 Ma (Figure 8). The youngest, near concordant grain is 1582 ± 54 Ma and a weighted average of the youngest population is 1622 ± 26 ($n=3$, MSWD=0.82).

Sample: TP19-50

Out of 155 zircons were analysed, only 34 grains were within 10% concordance. There is a $^{207}\text{Pb}/^{206}\text{Pb}$ age range between ca. 2017 Ma and 1718 Ma with a major age peak present at ca. 1800 Ma. There is a minor age peak at ca. 2000 Ma (Figure 8). The youngest, near concordant grain is 1718 ± 32 Ma, whilst the youngest population calculated by the weighted average is 1728 ± 16 Ma ($n=5$, MSWD=0.13).

Sample: TP19-53

From the U-Pb analysis 170 zircons were analysed with 52 grains being within 10% concordance. There is a $^{207}\text{Pb}/^{206}\text{Pb}$ age range between ca. 2786 Ma and 1554 Ma with a major age peak at ca. 1850 Ma and a minor age peak at ca. 2500 Ma (Figure 8). The youngest grain is 1554 ± 77 Ma and a weighted average of the youngest population is 1717 ± 39 ($n=3$, MSWD=0.36).

POWELL FORMATION

Sample: TP19-51

Twenty-eight zircon analyses out of 155 were within 10% concordance. There is a $^{207}\text{Pb}/^{206}\text{Pb}$ age range between ca. 2565 Ma and 1740 Ma with a major age peak at ca. 1800 Ma and a minor peak at ca. 2500 Ma (Figure 8). The youngest, near concordant grain is 1740 ± 49 Ma and a weighted average of the youngest population is 1760 ± 10 Ma ($n=4$, MSWD=1.23).

Sample: TP19-52

Out of 159 zircons analysed, 74 were within 10% concordance. There is a $^{207}\text{Pb}/^{206}\text{Pb}$ age range between ca. 2502 Ma and 1652 Ma. There is a unimodal major age peak at ca. 1770 Ma and no other major or minor age peaks are present (Figure 8). The youngest, near concordant grain is 1714 ± 50 Ma, with the youngest population calculated by the weighted average being 1767 ± 10 ($n=5$, MSWD=1.62).

Sample: TP19-54

One hundred and fifty-five zircons were targeted yielding 56 concordant (within 10%) analyses. There is a $^{207}\text{Pb}/^{206}\text{Pb}$ age range between ca. 3526 Ma and 1734 Ma. A major age peak is present at ca. 1800 Ma with a minor age peak at ca. 2500 Ma (Figure 8). The youngest, near concordant grain is 1734 ± 36 Ma, with the youngest population calculated by the weighted average being 1748 ± 10 Ma ($n=5$, MSWD=0.63).



Figure 5. Cathodoluminescence (CL) images of zircons from the Renner Group with their associated $^{207}\text{Pb}/^{206}\text{Pb}$ age. The red circles show the location of U-Pb spots and the yellow represents the Lu-Hf spots.

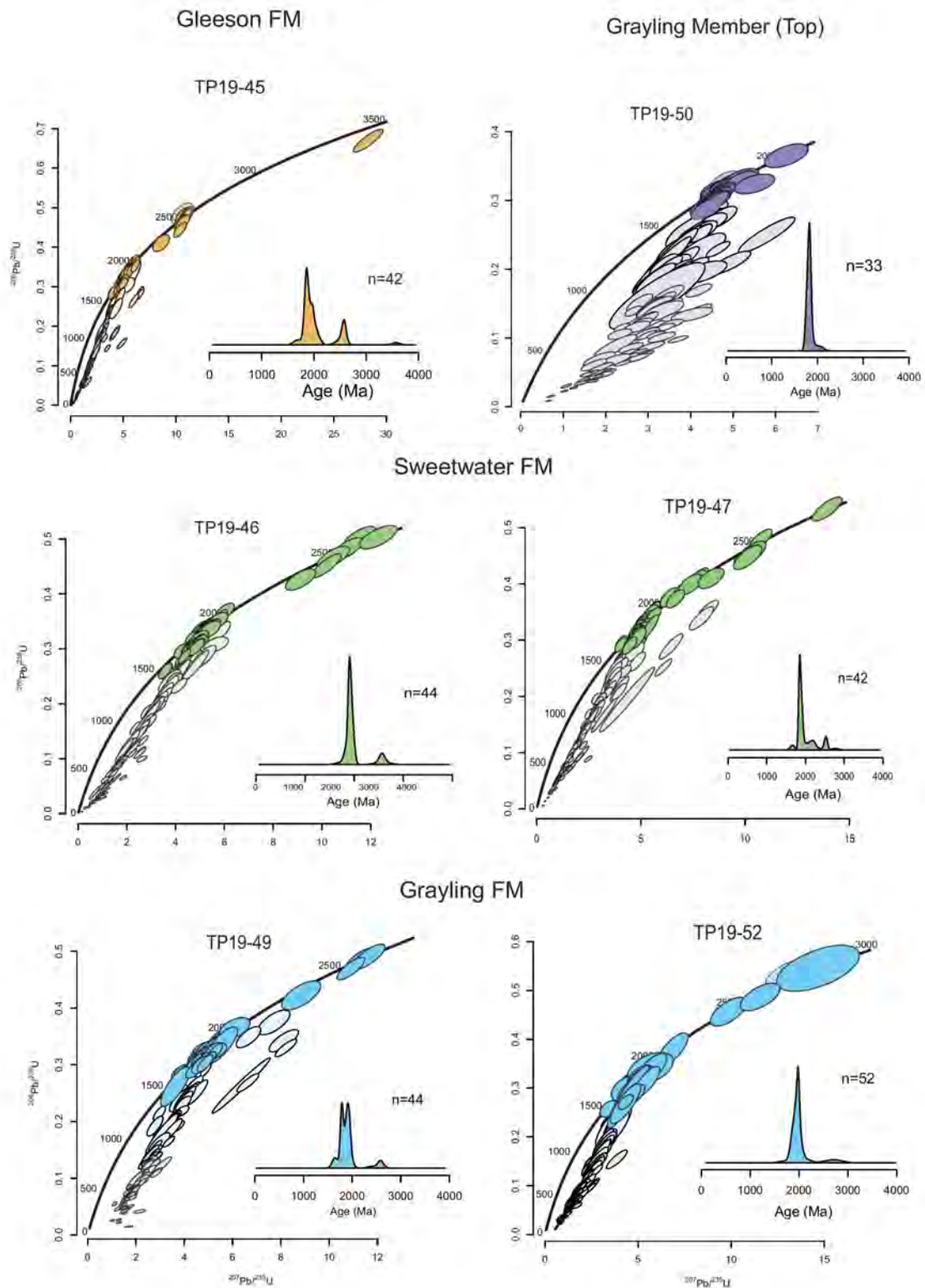


Figure 6. U-Pb Wetherill Concordia plots of detrital zircon grains from the Renner Group (grains within 10% concordance are marked with a deeper colour). Associated kernel density estimation (KDE) plots are presented showing detrital zircon age from peaks from the Gleeson Formation, Sweetwater, Grayling and Grayling (Top) members with only data >90% concordant displayed.

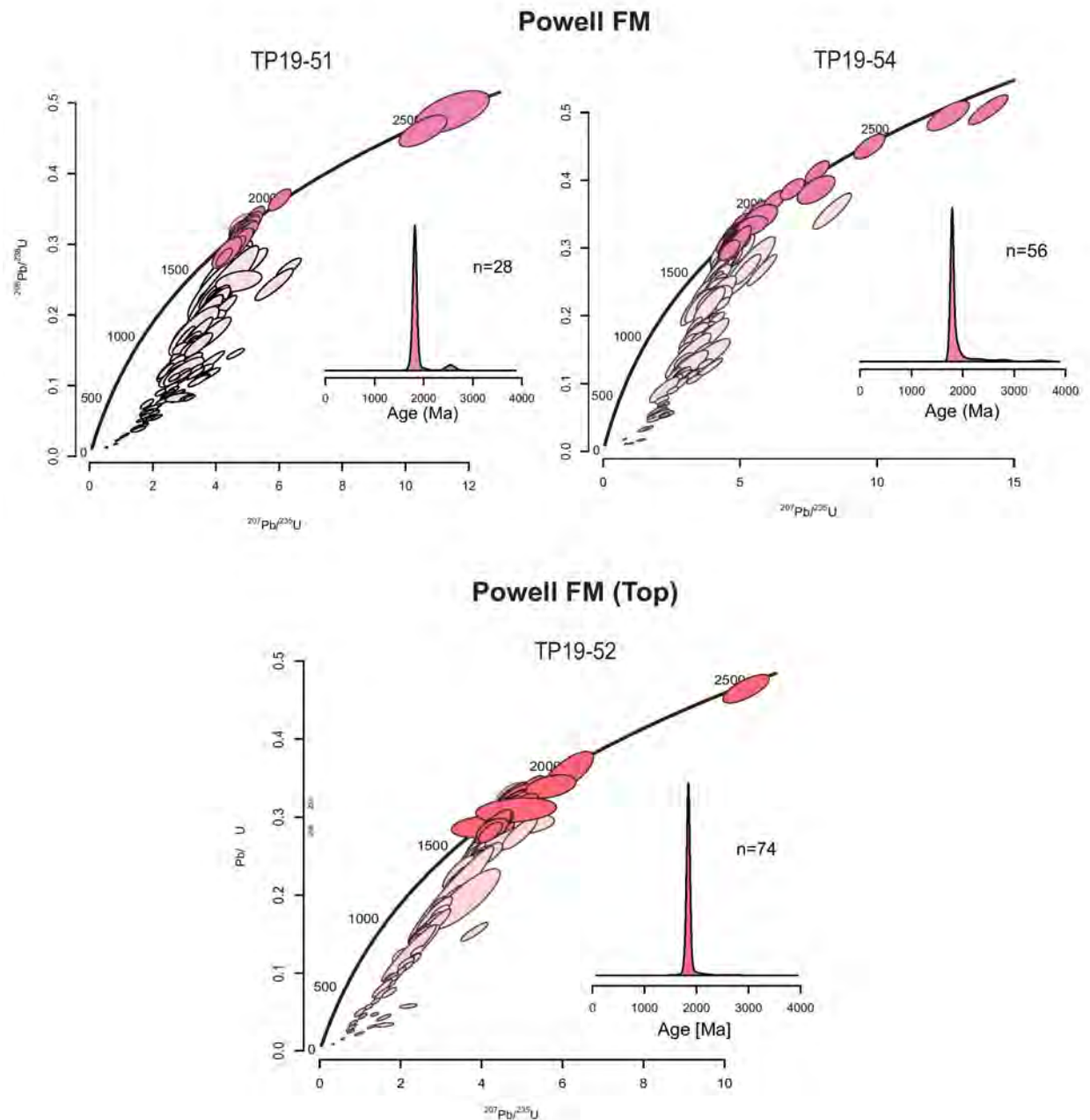


Figure 7. U-Pb Wetherill Concordia plots of detrital zircon grains from the Renner Group (grains within 10% concordance are marked with a deeper colour). Associated kernel density estimation (KDE) plots are presented showing detrital zircon age from peaks from the Powell and Powell (Top) formations, only showing 10% concordance.

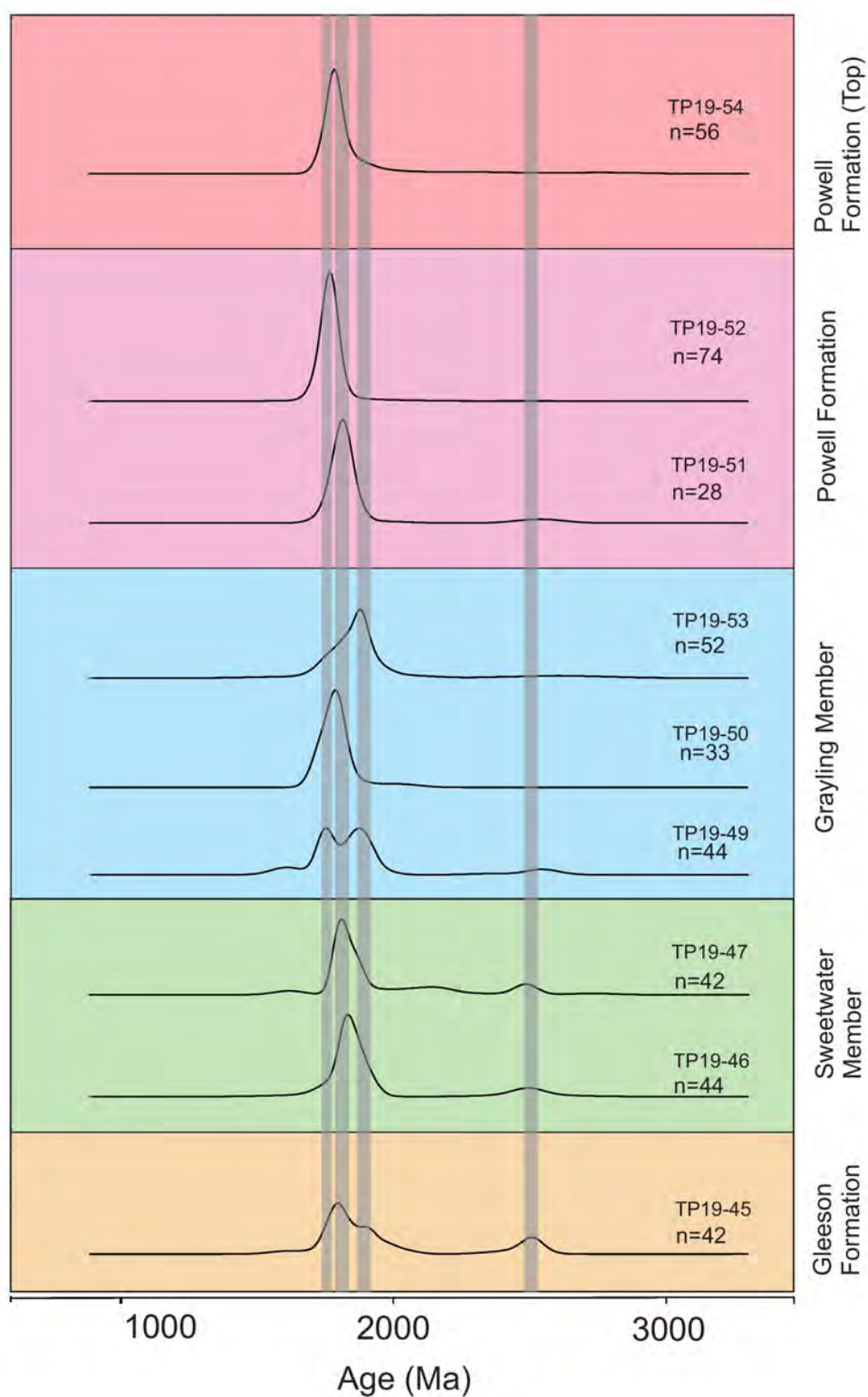


Figure 8. Kernel Density Estimate (KDE) plot for Renner Group samples within each of the targeted formations. Major peaks have been highlighted with grains only within 10% concordance included in the plot.

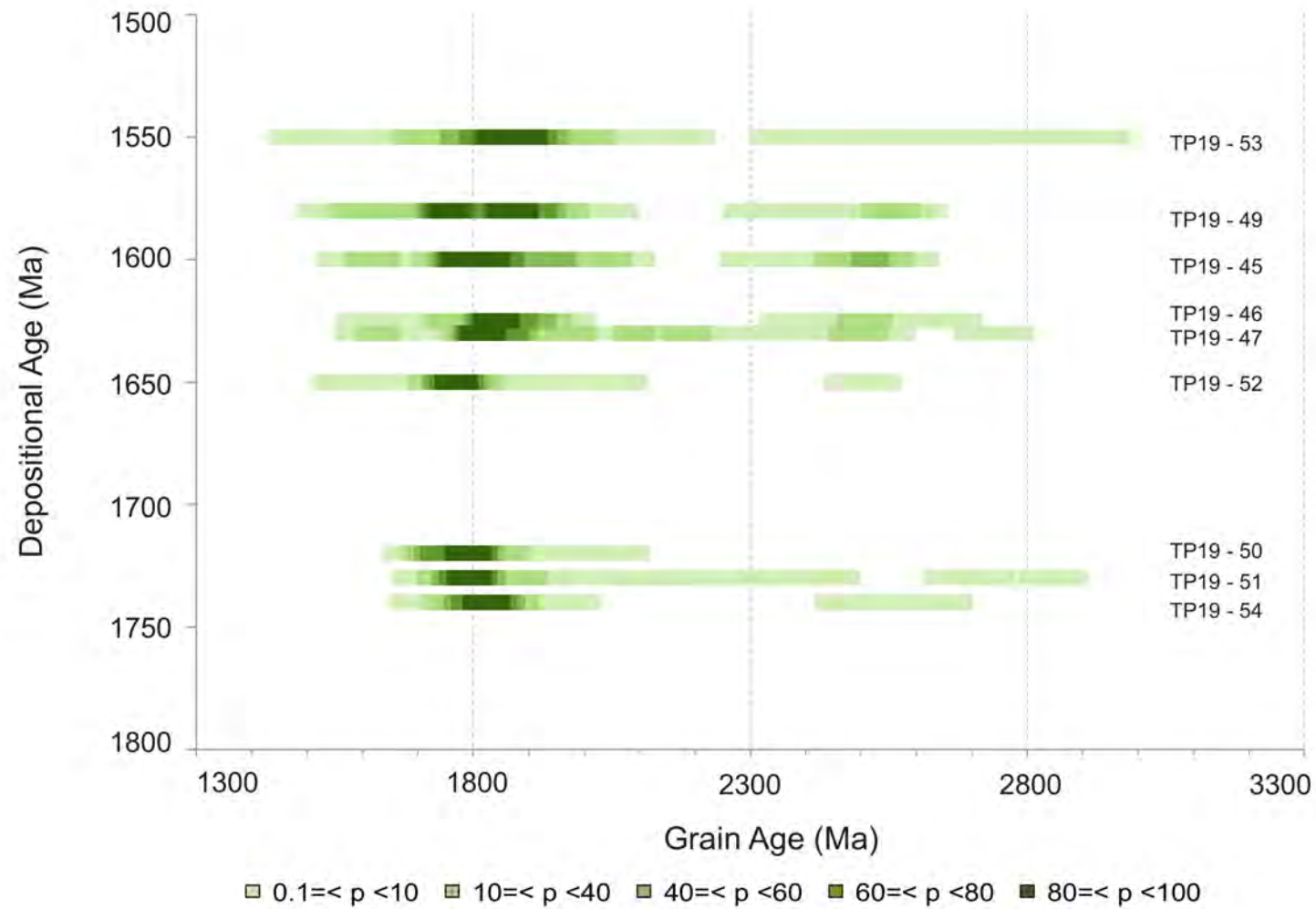


Figure 9. Multiple independent probability density plot as per Eglington (2016) of the Renner Group, Tomkinson Province, Northern Territory, based on their stratigraphic age hierarchy. Vertical spread is defined by interpreted age of deposition.

Sample:	Size μm (long axis)	Aspect Ratio	Crystal Habit	CL Zoning	Characteristics
TP19-45	~ 110 – 200 μm	2:1, 5:2, 3:2, 5:3, 3:1, 1:1, 3:2	Mostly pyramidal, some prismatic and little irregularity.	Predominantly complex growth zoning with some patchy and sector zoning.	Zircons within this sample were very similar in shape with slightly rounded edges. Due to the zircons being quite elongated the cores were aimed for, however the rim was also incorporated in the analysis.
TP19-46	~ 70 – 260 μm	2:1, 4:3, 3:2, 3:1, 1:1, 5:2, 5:3	A variety of pyramidal, tabular and prismatic crystal habits. Some equant and irregular zircons.	Mostly complex growth zoning. Zoning is hard to distinguish on several zircons. Minimal patchy and sector zoning.	Zircons showed slightly rounded edges with some being very elongated and large in size. Cores were aimed for however there is a few samples where the rim was shot. Some grains were very dark and did not show zoning.
TP19-47	~ 75 – 180 μm	3:2, 5:4, 2:1, 1:1, 3:1	Predominately prismatic and pyramidal habits along with equant and irregularity to the zircons.	Complex growth zoning is a common trend within the sample, minor sector zoning.	Slightly rounded to rounded edges. A few grains were quit irregular in shape associated with patchy zoning. Cores were targeted as best as possible.
TP19-49	~ 60 – 200 μm	2:1, 4:3, 5:2, 1:1, 3:1, 3:2, 5:3	Mostly prismatic shaped zircons, some pyramidal and minor equant habits.	Complex growth zoning is the most common zoning with very minor patchy zoning.	Zircons are quite elongated with slightly rounded to rounded edges. There is a variety of crystal habits and a few grains displaying no zoning. Cores where aimed for where possible.
TP19-50	~ 80 – 250 μm	5:1, 5:3, 2:1, 3:1, 4:1, 6:1	Mainly pyramidal with minor prismatic and tabular crystal habits.	Predominantly complex growth zoning, very minor patchy and sector zoning.	Very elongated zircons. Most grains have rounded edges and are pyramidal in shape. Cores were targeted but due to the zircons being elongated the rims were sometimes included in the analysis.
TP19-51	~ 60 – 210 μm	3:1, 3:2, 5:2, 1:1, 2:1, 5:4, 4:1	A variety of pyramidal, prismatic and tabular crystal habits.	Mostly complex growth zoning as well as zoning being patchy or non-existent on several grains.	Zircons display slightly rounded edges and have no consistency with the crystal habit between grains. Cores were targeted as best as possible.
TP19-52	~ 70 – 280 μm	5:2, 2:1, 3:1, 3:2, 7:4, 1:1, 6:1	Mostly pyramidal crystal habits, also several tabular and equant grains.	Complex growth zoning occurs on majority of the grains with minor patchy zoning.	Grains are slightly larger than other samples. Slightly rounded to rounded edges. A variety of crystal habits with complex growth zoning. Cores were targeted as best as possible.
TP19-53	~ 30 – 110 μm	3:1, 1:1, 5:2, 2:1, 3:2, 4:3, 5:3	A variety of prismatic, tabular, equant and pyramidal crystal habits.	Most grains display complex growth zoning with a few grains not showing zoning or being patchy.	Zircons within the sample were considerably smaller than other samples. Slightly rounded edges and no distinct crystal habits. Core was targeted but due to the size of grains the rim was often included in the laser spot.
TP19-54	~ 40 – 260 μm	4:1, 2:1, 5:2, 1:1, 5:3, 4:3, 13:4, 6:1, 3:1	Various crystal habits including tabular, pyramidal, prismatic, equant and some cylindrical crystal habits.	Complex growth zoning occurs on almost all grains. Others contain patchy to no zoning.	A few very elongated grains. Sub-rounded to rounded and no distinct crystal habits. Cores were targeted as best as possible.

Table 2. Zircon morphologies from Renner Group samples. Aspect ratio, crystal habits, zoning and features of the zircon grains are described above.

REE analysis in detrital zircon

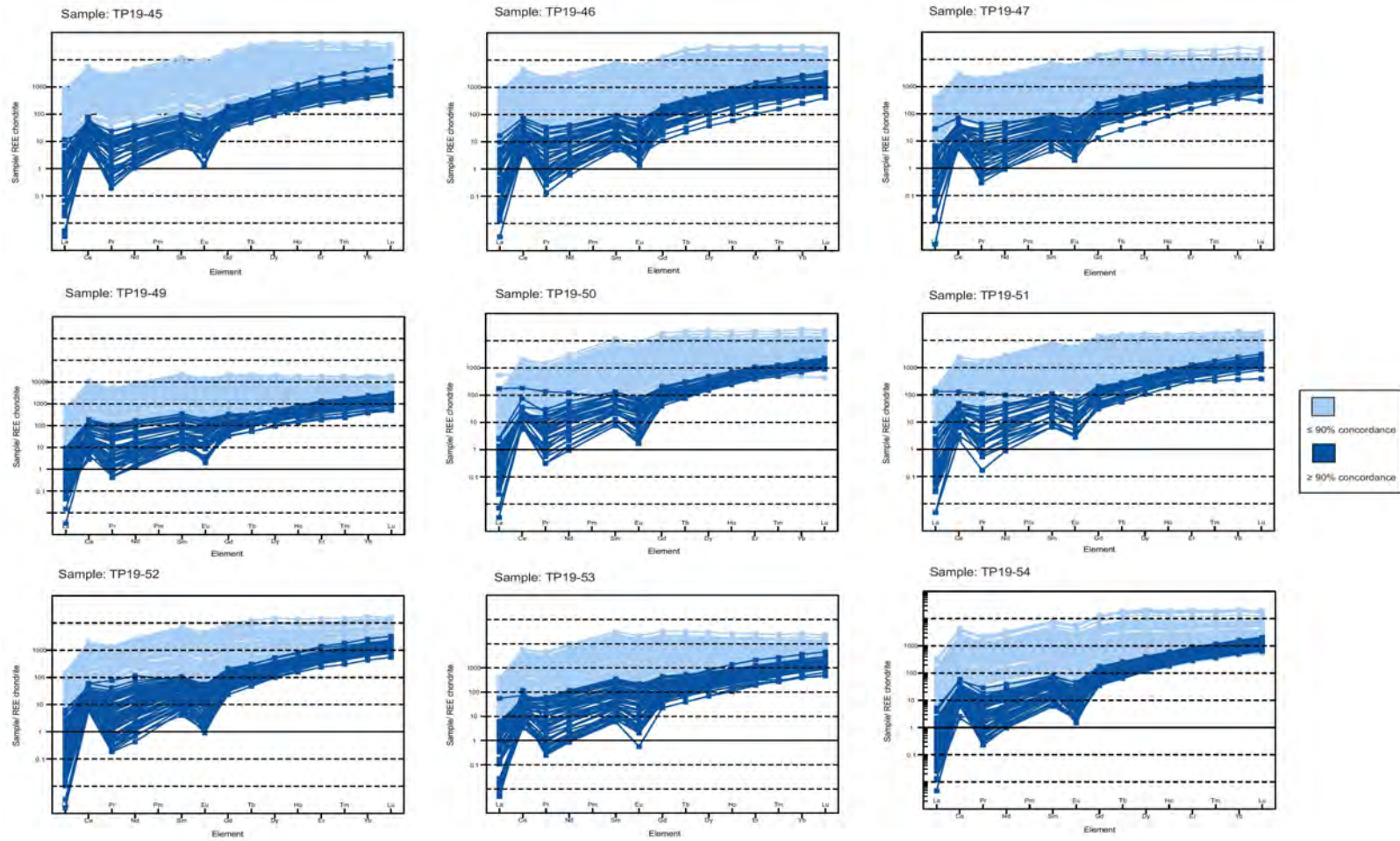


Figure 10. Chondrite-normalised rare earth element patterns for detrital zircons from the Renner Group. Trends are coloured based on concordance to identify correlations. Chondrite values are from Boynton (1984).

Rare earth elements were collected simultaneously with U-Pb to assist in the characterisation of the source rock lithology and to compliment the geochronology data. REEs are incompatible in most igneous minerals meaning that they are often incorporated in late crystallising minerals such as zircon, which is particularly able to host the heavy REEs (Belousova et al. 2002). Their high abundance and ratios mean that when they used with the correct proxies they can act as good provenance tools and determine the natures of the magma they grew in. All data, both concordant and discordant were plotted in Figure 10 to determine the relationship between concordance and the loss of REEs.

Figure 10 displays the overall correlation between REE trends and concordance, which suggests that the discordant grains do not reflect the composition of the original grains at the time of crystallisation, because of this I have only used the >10% concordant data in further interpretation. Ce is enriched with respect to the adjacent light REEs, the degree of enrichment is quantified in the Ce anomaly (Nicklas et al. 2019). Ce has two oxidation states (Ce^{3+} and Ce^{4+}), which makes it different from all the other REEs except europium (which can also be used as Eu^{4+}). Ce^{4+} is highly compatible in zircon where it can substitute for Zr^{4+} , so a pronounced cerium anomaly records zircon growth in an oxidised magma (Trail et al. 2012).

As can be seen in Figure 10, Zircon REE patterns do not vary systematically and so the abundance range measured for a single population completely or significantly overlaps

the range for all other populations. Due to these not containing significant variation between samples, the REE data will be discussed collectively.

Zircon REE chondrite normalised patterns seen in Figure 10 are characterised by relatively shallow light REE patterns ($[\text{Sm}/\text{Pr}]_{\text{M}} = 6.9$). Their heavy REE patterns (Figure 11a) are enriched compared to the light REE with a median slope (Lu/Gd) of 16.1. These data are characterised by positive Ce anomalies (Ce/Ce^*) that range between 1.05 and 266.3 seen in Figure 11b. Characteristic negative Eu anomalies (Eu/Eu^*) between 0.03 and 0.74 are seen in Figure 11c. A graph of Ce anomaly versus age displays a major Ce anomaly cluster between ~ 0 –50 and spread of data between ~ 50 –260 at ca. 1750 Ma and 1950 Ma. There is a minor cluster at ~ 2500 Ma between

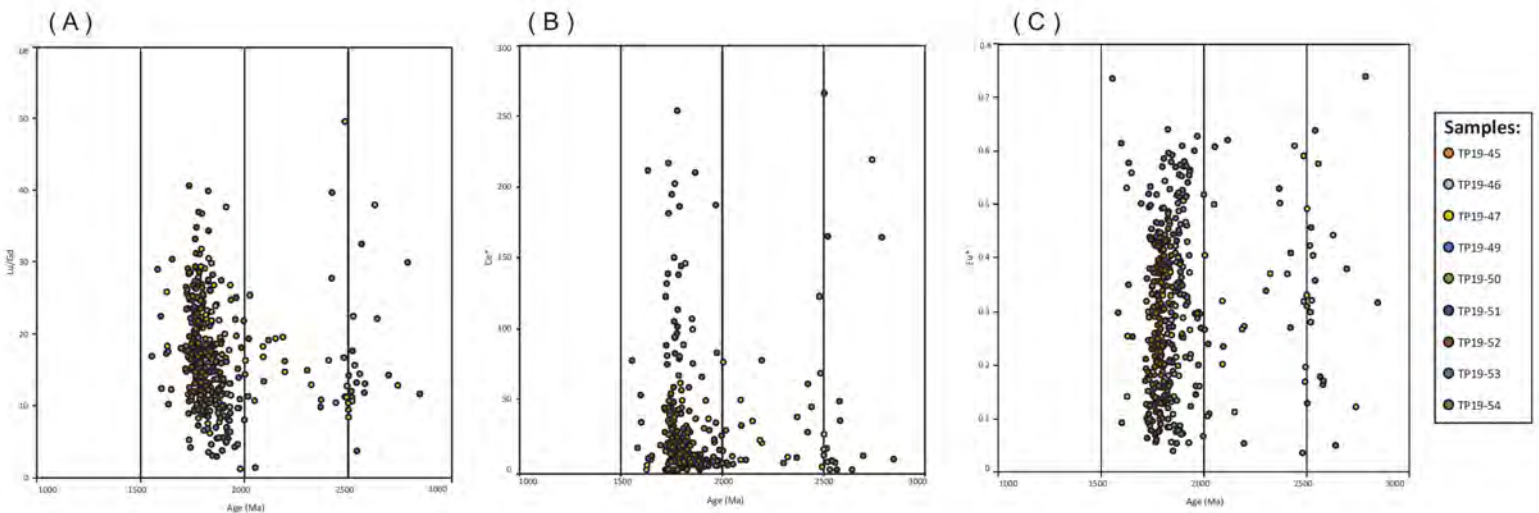


Figure 11. (A) Heavy REE (Lu/Gd) plotted against age. (B) Calculated Ce* using Taylor and McLennan (1985) values plotted against age. (C) Calculated Eu* using Taylor and McLennan (1985) values plotted against age.

~ 0 –25 and a spread of data from ~ 25 –270. The negative Eu anomalies graph presents a major spread between 0.05 and 0.75 at ~ 1800 Ma and a minor spread at ~ 2500 Ma between ~ 0.05 and 0.65.

Detrital Zircon Lu-Hf Isotopic Analysis

Lu-Hf isotopes were analysed on nine samples from the Renner Group; the results are presented in Figure 12. The Lu-Hf isotope system is used in this study to track the history of chemical differentiation between the crust and mantle from the fractionation of Lu from Hf occurring during magma generation (Kinny and Maas 2003). In zircons, the Hf isotopic system records the $^{176}\text{Hf}/^{177}\text{Hf}$ ratios of the environment in which it grew in during crystallisation and therefore is used to assist in provenance identification (Hawkesworth and Kemp 2006).

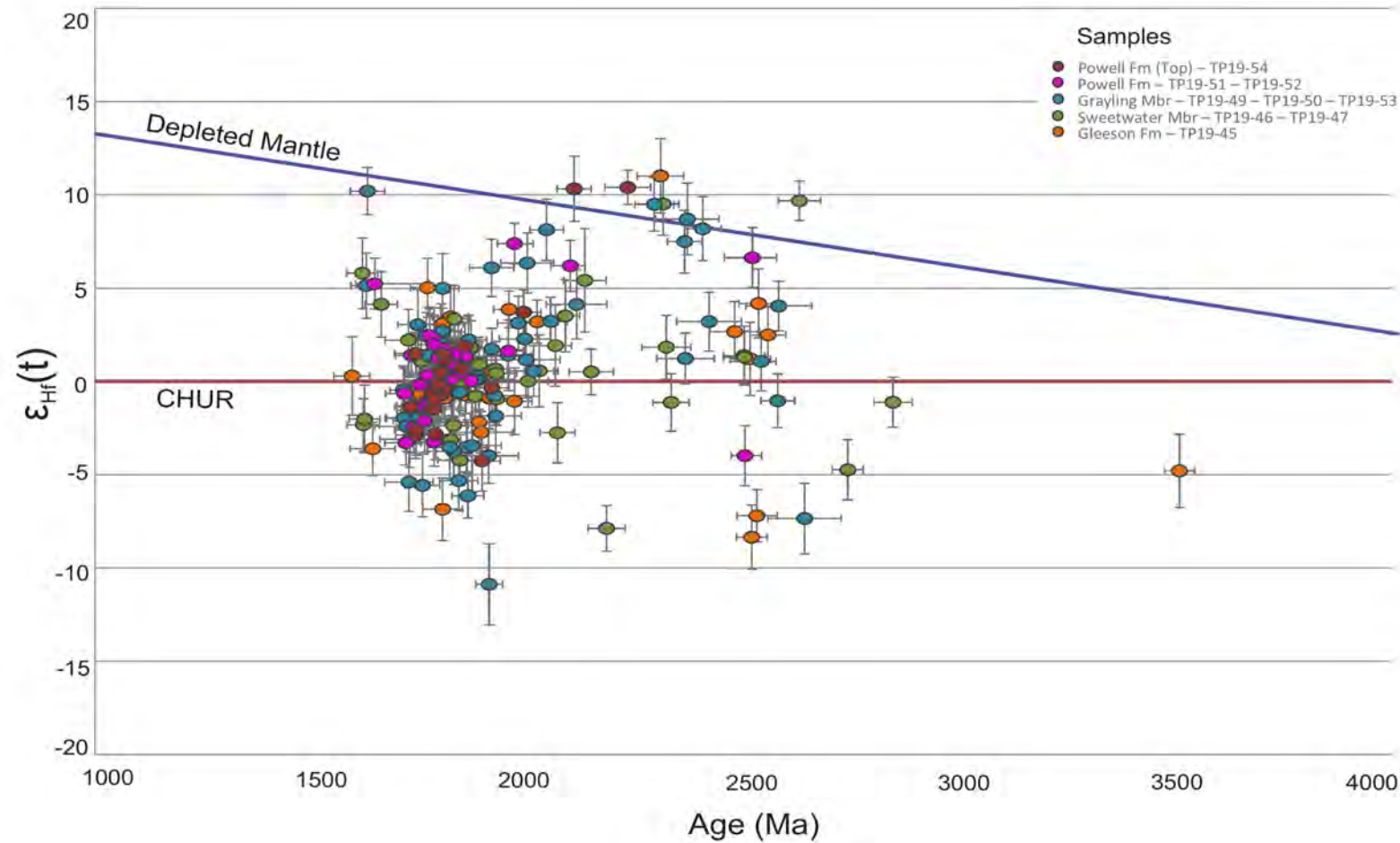


Figure 12. Epsilon Hf (t) values for samples TP19-45 (Gleeson Formation), TP19-46 and TP19-47 (Sweetwater Member), TP19-49, TP19-50 and TP19-53 (Grayling Member), TP19-51, TP19-52, and TP19-54 (Powell Formation) using grains within 10% concordance and plotted against the corresponding analysed $^{207}\text{Pb}/^{206}\text{Pb}$ age.

GLEESON FORMATION

Thirty hafnium analyses were collected from the Gleeson Formation (TP19-45). Sample TP19-45 yielded a range of $\epsilon_{\text{Hf}}(t)$ values of -8.32 to +11.02. The six youngest grains, in the age range of ca. 1793–1600 Ma have $\epsilon_{\text{Hf}}(t)$ values ranging from +5.04 to -3.59. The oldest zircons range from ca. 3500 Ma to 2500 Ma with $\epsilon_{\text{Hf}}(t)$ values ranging from +4.20 to -8.32. There is a large spread in the $\epsilon_{\text{Hf}}(t)$ data within the 2000–1700 Ma zircons with values ranging from +3.88 to -6.82.

SWEETWATER MEMBER (BARALANDJI FORMATION)

Forty-four zircons were analysed in the Sweetwater Member (TP19-46 and TP19-47). These give a range of $\epsilon_{\text{Hf}}(t)$ values of -7.84 to +16.33. The three youngest grains (ca. 1629 Ma, 1626 Ma and 1624 Ma) have $\epsilon_{\text{Hf}}(t)$ values from -2.30 to +5.81. Four of the oldest grains (ca. 2843 Ma–2628 Ma) have $\epsilon_{\text{Hf}}(t)$ values between +16.33 and -4.71.

GRAYLING MEMBER (BARALANDJI FORMATION)

Sixty-three Lu–Hf analyses were collected from the Grayling Member (TP19-49, TP19-50, and TP19-53). The $\epsilon_{\text{Hf}}(t)$ values ranged from -10.84 to +10.21. The two youngest zircons (ca. 1635 Ma and 1633 Ma) have $\epsilon_{\text{Hf}}(t)$ values of +5.15 and +10.21, respectively, suggesting that these zircons were derived from a juvenile protolith. The four oldest grains (ca. 2640 Ma – 2540 Ma) had $\epsilon_{\text{Hf}}(t)$ values from -7.32 to +4.05. There is a continuous spread from ca. 2540 Ma to 1959 Ma with $\epsilon_{\text{Hf}}(t)$ values ranging from +0.58 to +8.71.

POWELL FORMATION

Sixty-nine zircons were analysed for Lu-Hf in the Powell Formation (TP19-51, TP19-52, and TP19-54). These samples yielded a range of $\epsilon_{\text{Hf}}(t)$ values from -4.23 to +15.98. The four youngest grains, ca. 1734 Ma to 1652 Ma, have an $\epsilon_{\text{Hf}}(t)$ range of -3.26 to +5.25. Three of the oldest grains, ca. 2879 Ma to 2507 Ma, show $\epsilon_{\text{Hf}}(t)$ values from +6.64 to +15.98, suggesting these zircons were sourced from an older dominantly juvenile protolith.

Rutile Data Analysis

Rutile U-Pb analysis was undertaken on six samples from four formations throughout the lower Renner Group. A cut off of 10% was used for concordance on all samples; this ensures the data are more accurate by filtering out lead loss and discordant data. The U-Pb of rutile is used to further improve the understanding of the provenance, as rutile is commonly found as both an accessory phase in igneous rocks, but also as a metamorphic mineral. The chemistry of U-Pb ages from rutile can be used to differentiate between these two origins, so U-Pb ages from rutile can be used to determine metamorphic events in the source region, this is something that can be hard to determine from zircon data alone (Bracciali 2019). Results are displayed in Table 3, with an associated U-Pb Wetherill Concordia plot (Figure 13).

Sample no.	Formation	Number of rutiles analysed:	Rutiles <10% concordance:	Range of $^{207}\text{Pb}/^{206}\text{Pb}$ ages:	Youngest, near concordant grain $^{207}\text{Pb}/^{206}\text{Pb}$ age:	Comments
TP19-45	Gleeson Formation	5	0	-	-	No samples were within 10% concordance and so a $^{207}\text{Pb}/^{206}\text{Pb}$ age was not determined.
TP19-46	Sweetwater Member (Baralandji Formation)	16	2	ca. 4836 Ma to 1731 Ma	1731 $\pm$ 39 Ma	The ca. 4836 Ma age is likely to be full of common Pb and not a real age.
TP19-47	Sweetwater Member (Baralandji Formation)	16	2	ca. 4528 Ma to 1783 Ma	1783 $\pm$ 72 Ma	The ca. 4528 Ma age is likely to be full of common Pb and not a real age.
TP19-49	Grayling Member	17	12	ca. 4279 Ma to 1811 Ma	1811 $\pm$ 45 Ma	The ca. 4279 Ma age is likely to be full of common Pb and not a real age.
TP19-52	Powell Formation	5	2	ca. 1974 Ma to 1703 Ma	1703 $\pm$ 32 Ma	The $^{207}\text{Pb}/^{206}\text{Pb}$ age is very similar to the U-Pb age from detrital zircons.
TP19-54	Powell Formation	5	1	ca. 3627 Ma to 1971 Ma	1971 $\pm$ 55 Ma	The ca. 3627 Ma age is likely to be full of common Pb and not a real age.

Table 3. Rutile analysis on numerous samples from the Renner Group. Number of rutiles analysed, concordance, range, youngest, near concordant grains and general comments are described above.

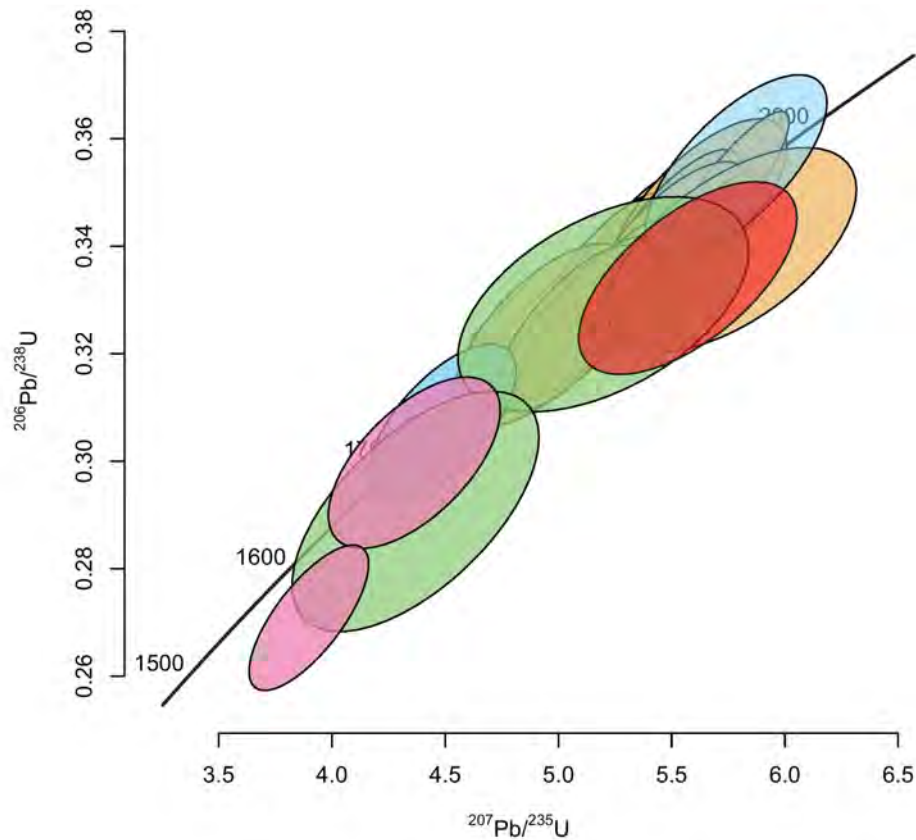


Figure 13. U-Pb Wetherill Concordia plots of detrital rutile grains from the Renner Group. Samples in the Figure include TP19-46 (Blue), TP19-47 (Green), TP19-49 (Orange), TP19-52 (Pink) and TP19-54 (Red).

Structural and Field Relationships

LITHOLOGY

A geological map of the Newcastle Waters region is presented in Figure 14. Within the Newcastle Waters region three lithological units were identified in the research area.

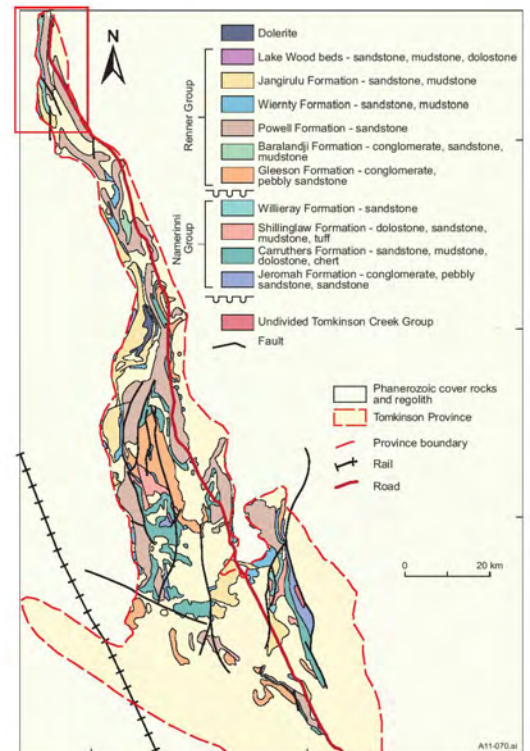
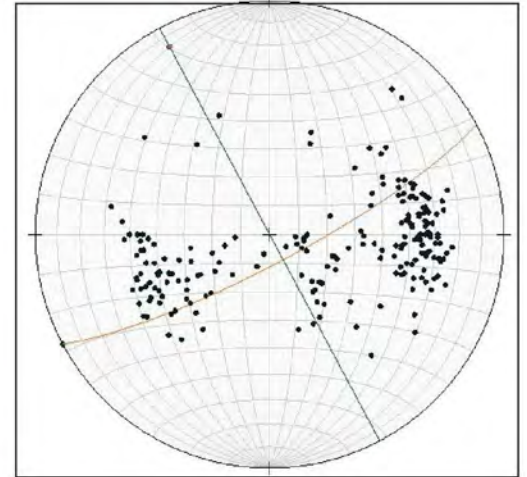
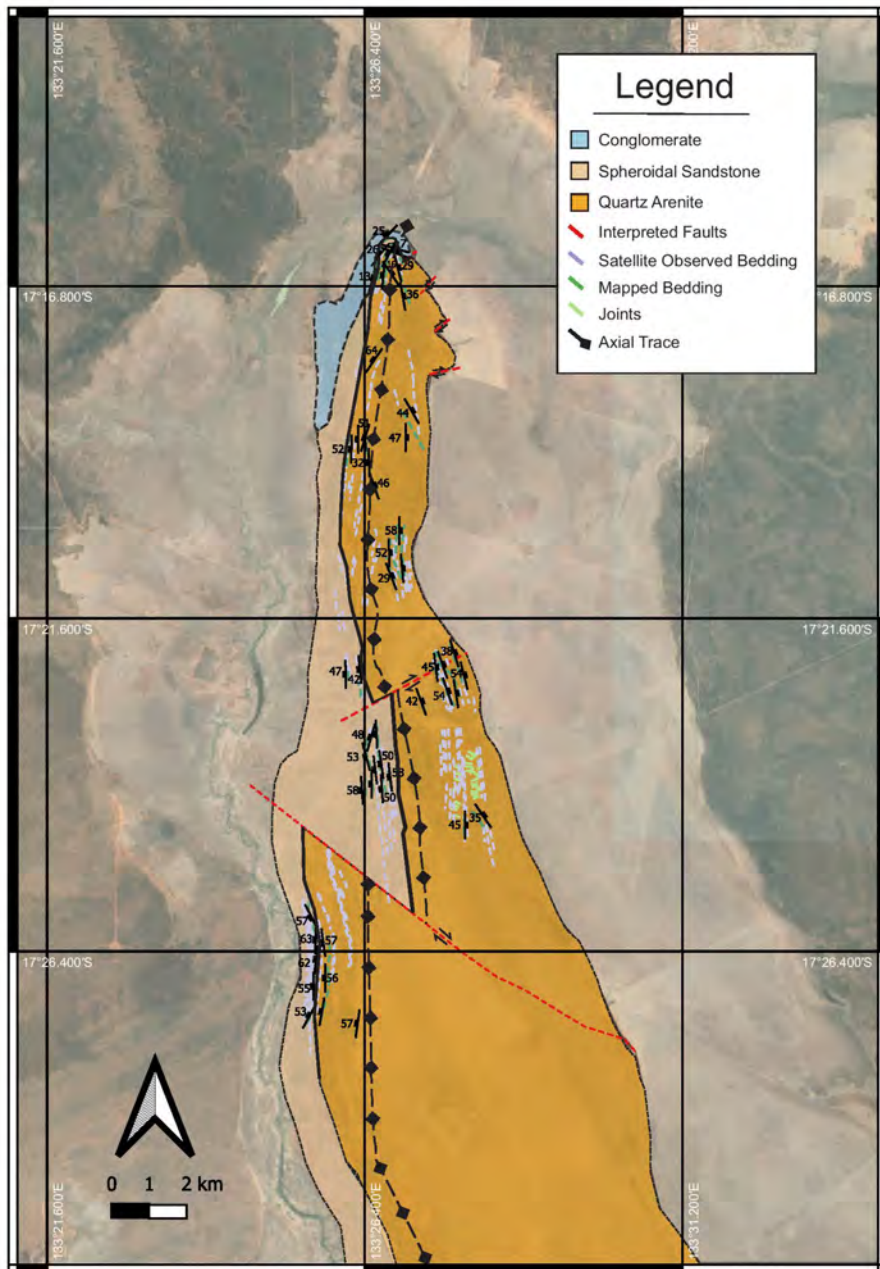


Figure 14. Geological Map of the Renner Group in the Newcastle Waters region, Northern Territory. Alongside is a stereonet of the collected data with the red line representing the profile plane of the Newcastle Waters anticline and the blue line representing the axial plane; beneath is a simplified outcrop geology map for Namerinni and Renner Groups based on the second edition HELEN SPRINGS geological map (Hussey *et al* 2001). Unpublished mapping in ELLIOTT by KJ Hussey and photo interpretation in LAKE WOODS by N Donnellan. Red box refers to the Newcastle Waters mapping region.

Quartz Arenite

One of these units is a fine to medium grained quartz arenite (Figure 15 C, D & E). The unit was only present on the western side of the fold and formed as large ridges. It was strongly planar cross bedded (~5 cm – 50 cm) and rippled sandstone with occasional trough cross beds (younging to the W). The unit weathered spheroidally and had occurrences of granular medium grained sand as interbeds. Coarse laminations were seen with 15 cm intervals of granular quartz grains ~0.5mm in size. Bedding is defined by a change in grain size and cross beds. Donnellan et al. (2013) suggests that the quartz arenite is the Powell Sandstone, seen in Figure 14.

Spheroidal Sandstone

The other unit is a spheroidal white massive sandstone (Figure 15F&G), which has very sparse outcrop and mainly forms sub-crop across the mapping area. Within these areas there is a lot of quartzite float but very little outcrop that is in-situ. The unit is very quartz rich with minimal lithics and fine grained. There are little sedimentary structures in the unit, including bedding, which is difficult to define due to the rocks being massive. The spheroidal sandstone is interpreted to be the Wiernty Formation by Donnellan et al. (2013) (Figure 14).

Conglomerate

The conglomerate was identified in the most northern region of the mapping area. The conglomerate lies above both the quartz arenite and spheroidal sandstone and was separated from them by an erosional irregular boundary. The conglomerate was made up of coarse-grained sands that were red/orange in colour (Figure 15A&B). Pebbles,

cobbles and boulders sit in the matrix at a random orientation and are not homogeneously disturbed. White quartz boulders are present within the matrix, which have a similar composition to the quartz-rich sandstone. Areas of the conglomerate have been brecciated and slightly altered by a fluid. The conglomerate is interpreted to be equivalent to the Jamison sandstone from the Roper Group, or a young conglomerate of the Georgina Basin.



Figure 15. Plate of photos taken in the Newcastle Waters mapping region. (A) and (B): Conglomerate in outcrop and up close. (C), (D) and (E) represent the quartz arenite in ridges, and outcrop displaying the crossbedding and ripple features. (F) and (G) display the spheroidal white sandstone in outcrop and up close.

STRUCTURE

A total of 86 bedding measurements were taken using a compass clinometer and drawn onto tracing paper and 207 measurements were taken using the app 'Field Move' on an iPad.

Faults

Within the mapping area at Newcastle Waters three faults were identified that crosscut the research area (Figure 14). The three faults are located within the southern region of the map. The fault furthest to the east is a dextral strike-slip which has a small displacement of 20m. In the valley in the middle of the map there is another strike-slip sinistral fault which has a small displacement of ~30m and has disrupted stratigraphy. The fault to the far east is interpreted to be a very large dextral strike-slip that has a displacement of ~3km. However, there was no evidence in the field to indicate the presence of this fault and this has been inferred using data collected and the satellite imagery.

Folding

In conjunction with structural measurements and observations the mapping area The older units in the mapping area define a tight antiform with an axial plane that dips 90/332 and an interlimb angle of ~ 95°, the hinge of the fold plunges 10 → 332. The fold closes to the N and the axial plane is broadly parallel with the trend of the Daly Waters Fault Zone (Williams, 2019). The axial trace seen in Figure 14 is trending towards NNE.

Gamma-ray spectrometry data

Along with lithology and structural data, a gamma-ray spectrometer (GRS) was used throughout the Newcastle Waters mapping area to understand the potassium, thorium and uranium contents of the rocks within the area. Seen in Figure 16, a nearest neighbour interpolation of the U and Th contents was constructed from these data.

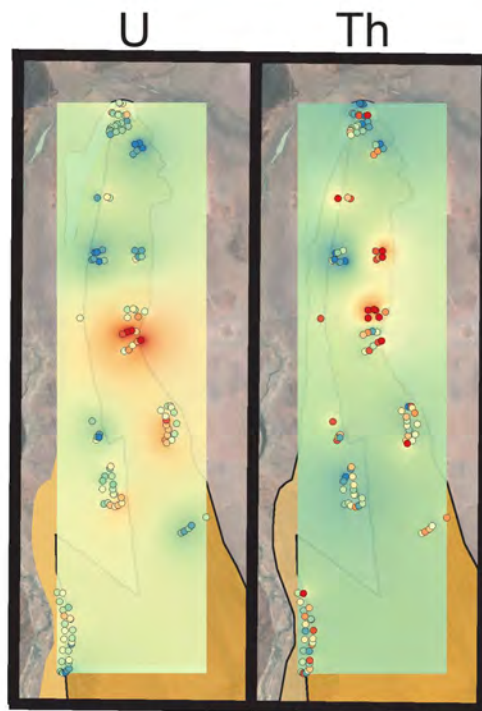


Figure 16. Gamma-ray spectrometry (GRS) data from the Newcastle Waters mapping region. The GRS data displays values from uranium (U) and thorium (Th). Blue areas indicate low values where red represents high values.

There is a high in U and Th on the right side of the mapping area. This area was made up of spheroidal white massive sandstone, however due to the sparse amounts of outcrop majority of the GRS results from this area were on soil. Uranium values varied throughout the region resulting in an average of 2.45ppm. There are U lows located on the left side of the hinge within the quartz arenite. Thorium was the highest content throughout the area with an average of 3.83ppm. There are minor Th lows located at the top of the Newcastle Waters region and along the left side of the hinge.

Discussion

Detrital zircon analysis

WHAT ARE THE DEPOSITIONAL AGE CONSTRAINTS ON THE RENNER GROUP?

This study has provided the following maximum depositional ages based on the youngest single grain $^{207}\text{Pb}/^{206}\text{Pb}$ ages. The Renner group is constrained previously by published U-Pb ages (Munson et al. 2018) from the Gleeson Formation (1796 ± 10 Ma), Grayling Member (1650 ± 21 Ma), and the Jangirulu Formation (1584 ± 18 Ma).

Prior to this study no age constraint was available for the Sweetwater Member and the Powell Formation. Therefore, a maximum depositional age for the Sweetwater Member has been identified to be 1624 ± 35 Ma and a maximum depositional age of 1652 ± 125 Ma for the Powell formation.

The youngest concordant grain identified for the Gleeson Formation is 1600 ± 41 Ma (TP19-45). This value represents a younger maximum depositional age compared to the recorded age by Munson et al. (2018), at 1796 ± 10 Ma. The maximum depositional age for the Grayling Member is 1554 ± 76 Ma which is slightly younger than what Munson et al. (2018) reported (1650 ± 21 Ma); the value falls within uncertainty however the error is large. The Powell Formation yields a maximum depositional age of 1714 ± 50 Ma. Munson et al. (2018) also analysed the Powell Formation, however, did not determine the maximum depositional age due to his results demonstrating large amounts of contamination.

Limited detrital rutile U-Pb analysis usually yielded youngest grains that were slightly older than the more extensive zircon data. The exception was for the Powell Formation, where a detrital rutile $^{207}\text{Pb}/^{206}\text{Pb}$ age of 1703 ± 32 Ma provides the maximum depositional age constraint for this formation (Figure 17).

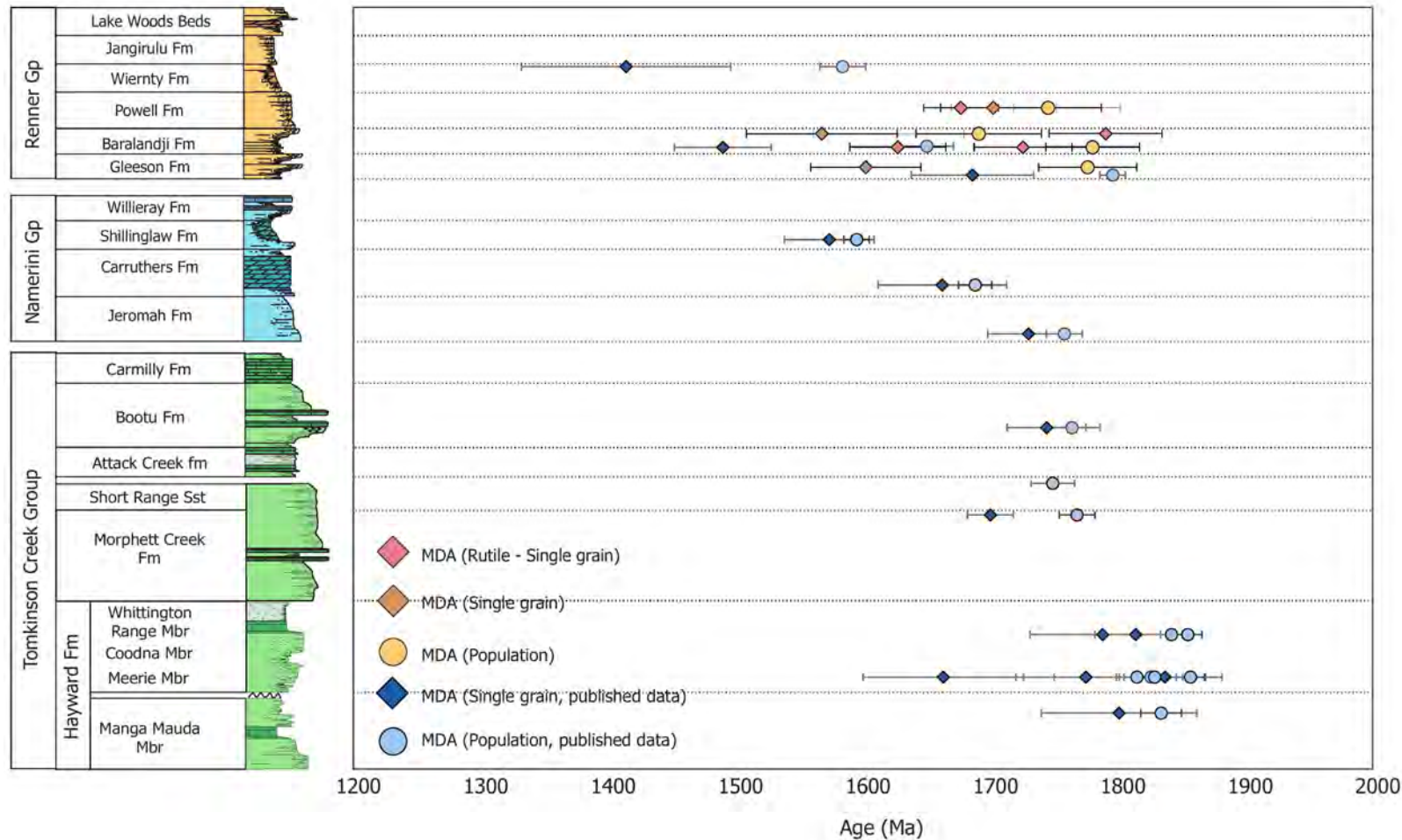


Figure 17. Compilation of U-Pb data from the Tomkinson Province including the youngest concordant grain and the youngest detrital zircon population ($n > 3$). The youngest, near concordant rutile grain determined from this research is plotted. Previously published data by Munson (2018) and Blades (in prep) is also displayed. The maximum depositional age has been constrained by the youngest, concordant grain (diamond). Modified after Blades (in prep).

Provenance of the Renner Group

A compilation of U-Pb age data from this research and previous publications (Munson et al. 2018, Yang et al. 2019) are coupled with hafnium isotope data in order to further understand the source-sink relationships between the deposition of the Renner Group and surrounding source regions.

By comparing the Renner Groups age distributions using the KDE plot (Figure 8), the formations within the Renner Group appear to be almost identical to one another with very similar minor and major peaks. There are three main peaks at ca. 1800 Ma, 1950 Ma and 2500 Ma. In the Gleeson Formation, Sweetwater Member and the Grayling Member there is a minor peak at ca. 1700 Ma, but this is derived from less than three grains, so no large-scale interpretations can be made. From these formations it suggests that they may be sourced from similar provenance regions.

HOW DOES THE RENNER GROUP CORRELATE WITH ELSEWHERE IN THE GREATER MCARTHUR BASIN (THE ROPER GROUP, SOUTH NICHOLSON GROUP AND TIJUNNA GROUP?)

The Renner Group has often been interpreted to associate with other groups within the greater McArthur Basin. The MDS plot (Multidimensional Scaling) developed by Vermeesch (2013), is a provenance analysis tool that compares the similarities and differences of large U-Pb age data sets. To quantify the dissimilarity between different age distributions the Kolmogorov-Smirnov (K-S) test is performed. Groups with similarity will plot closer together, whereas dissimilar groups will plot further away.

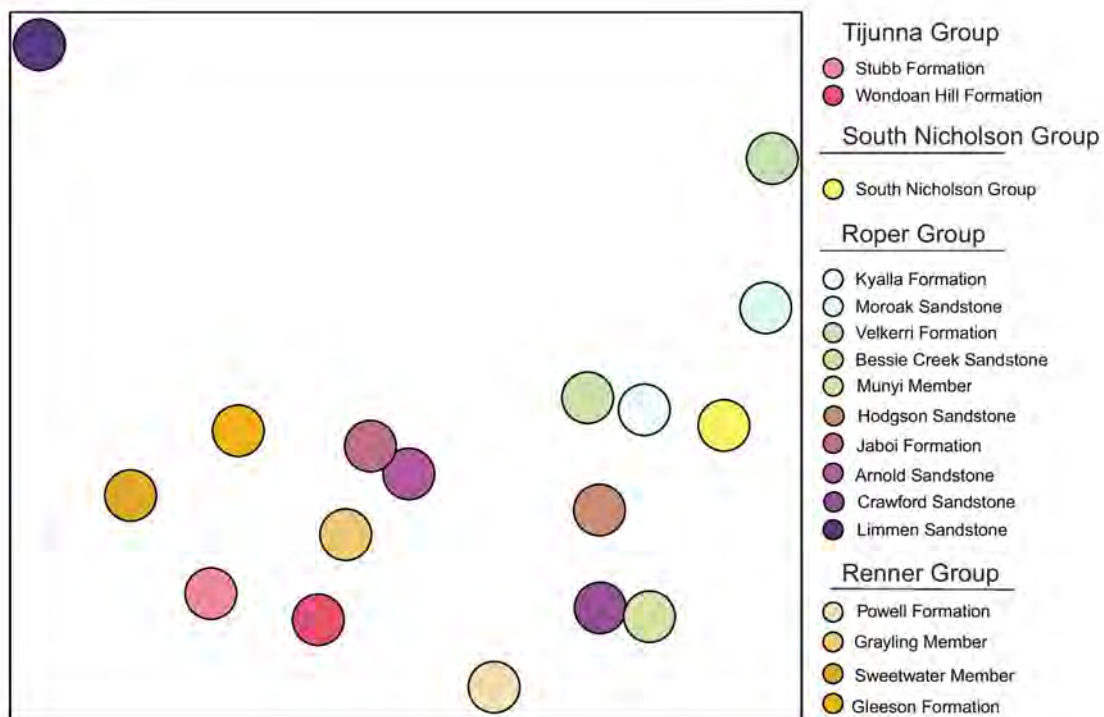


Figure 18. Multidimensional scaling (MDS) plot of sedimentary samples from the Tjunna Group (Wondoan Hill Formation and Stubbs Formation), South Nicholson Group (undifferentiated formation), Renner Group (Gleeson Formation, Sweetwater Member, Grayling Member and Powell Formation) and Roper Group (Limmen Sandstone, Crawford Sandstone, Arnold Sandstone, Jaboi Formation, Hodgson Sandstone, Munyi Member, Bessie Creek Sandstone, Velkerri Formation, Moroak Sandstone and Kyalla Formation). Data from the Renner Group was collected in this study and other data sets are collected from (Cassidy et al. in prep, Munson et al. 2018, Yang et al. 2018).

Figure 18 shows an MDS plot between formations within the Renner Group, Roper Group, South Nicholson Group and the Tjunna Group. The Powell Formation of the Renner Group is closely associated with the Bessie Creek Sandstone of the Roper Group and the Wondoan Hill Formation of the Tjunna Group. The Sweetwater is similar to the Jaboi Formation, with the Gleeson Formation also being associated with the older Roper Group formations. The Grayling Member is similar to the Arnold Sandstone from the Roper Group.

The Roper Group is a siliciclastic succession characterised by alternating mudrock-rich and cross-bedded sandstone formations (Munson 2016a). It is located within the

McArthur Basin and is a part of the Wilton Package. Previous work by Munson (2016b) shows correlation between the Renner Group formations and Roper Group units; this relationship can be observed through $\epsilon_{\text{Hf}}(t)$ data in Figure 19g where the Renner and Roper Groups are almost identical.

The South Nicholson Group unconformity overlies the Paleoproterozoic Murphy Metamorphics and is made up of quartz sandstone interstratified with siltstone and shale. In Figure 19 there does not seem to be any direct link with the Roper Group, however in Figure 21e, the relationship between the Renner Group and South Nicholson Basin is very strong.

The Tjunna Group comprises sandstone and mudstone assemblages and is divided into two formations. Figure 18 shows the Wondoan Hill Formation and Stubb Formation being closely associated with the older Renner Formations (Gleeson Formation, Sweetwater Member and Grayling Member).

The Derim Derim Dolerite intrusion with the Roper Group was dated using by Bodorkos et al. (2020) and yielded a maximum $^{207}\text{Pb}/^{206}\text{Pb}$ depositional age of 1324 ± 4 Ma, where Yang et al. (2019) presented a baddeleyite age of 1312.9 ± 0.7 Ma. Within the Tomkinson Province a dolerite intrusion dated at 1295 ± 14 Ma was dated by Melville (2010). Both intrusions are around a similar time to one another, suggesting that both the Renner Group and Roper Group pre-dated ca. 1300 Ma.

The rocks within the Roper Group are essentially flat lying with minor deformation throughout (Williams 2019). Post Roper deformation resulted in a gradual rotation from E-W to N-S under the influence of the N-S faults associated with the Batten Fault Zone (King 2011). Whereas the Renner Group displays open folding caused by block movement, postdating the dolerite sills (Hussey et al. 2001). This deformation is also

observed in Figure 14, where there is a large antiform fold across the Newcastle Waters region. Seismic data from Sweetpea Petroleum, provided by Logan *et al*, (personal communication) seen in Figure 19 interprets the Daly Waters Fault Zone cutting the Roper Group as well as a strike-slip fault system associated with the Daly Waters high. Within Newcastle Waters, the Renner Group is tightly folded along axial planes that are parallel to the Daly Waters Fault Zone faults.

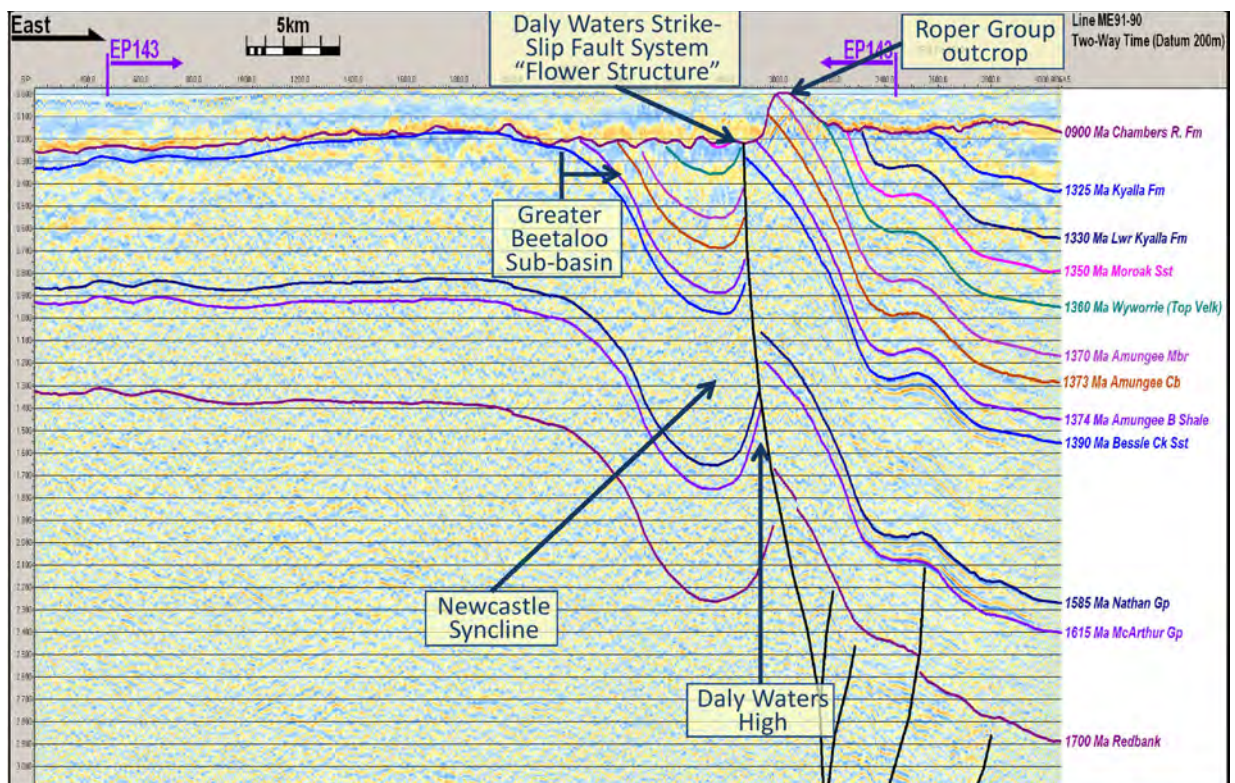


Figure 19. Interpreted seismic line of the Daly Waters strike-slip fault system. Seismic line cuts through the top of the Newcastle Waters mapping region. Seismic line provided by Logan *et al*; personal communication.

WHAT ARE THE POTENTIAL PROVENANCE SOURCE REGIONS OF THE RENNER GROUP?

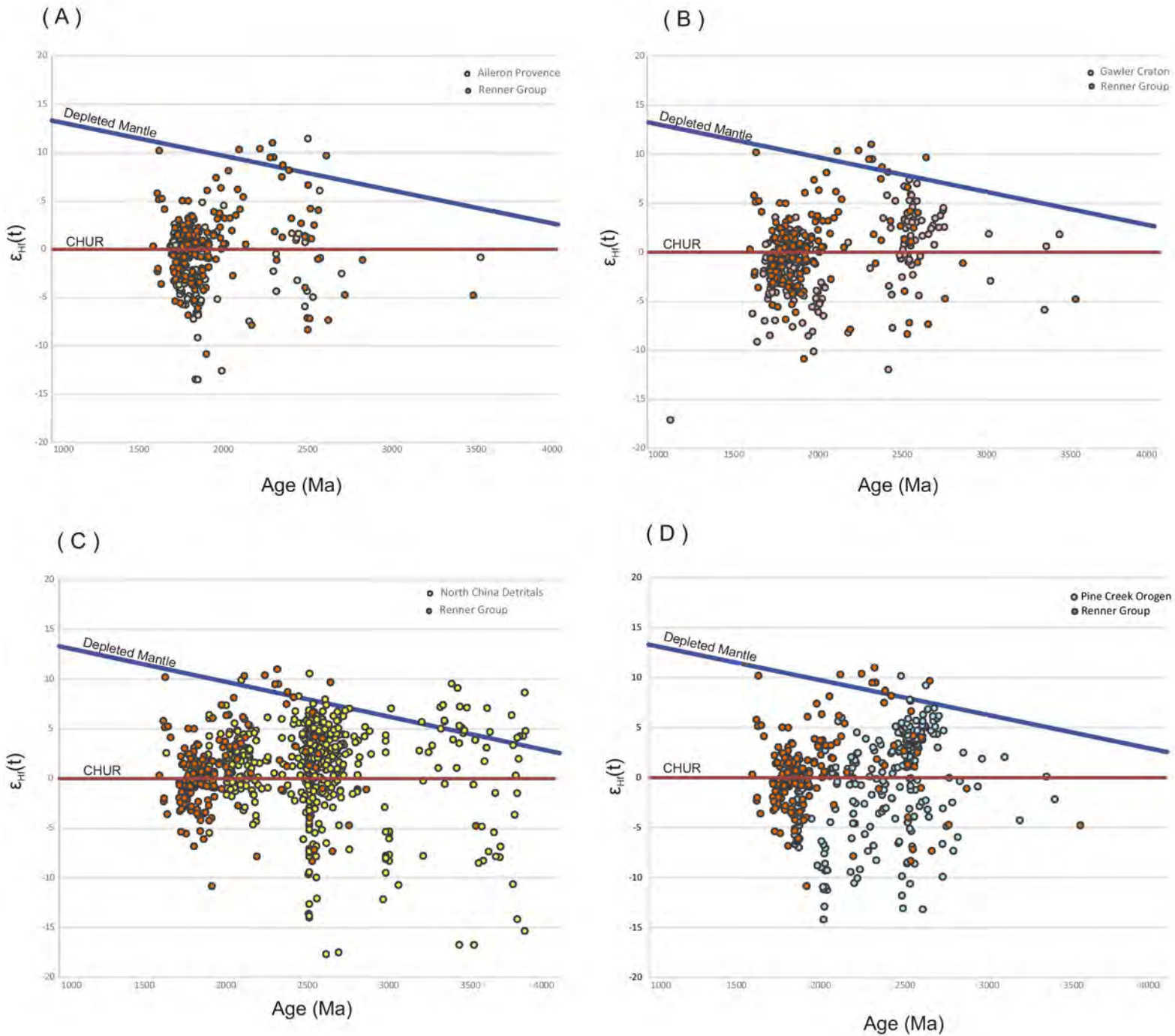


Figure 20. Epsilon Hf (t) values for the Renner Group and (a) Eastern Arunta (Aileron Province), (b) Gawler Craton, (c) North China, and (d) Pine Creek, to show the correlation between the Renner Group and potential source regions.

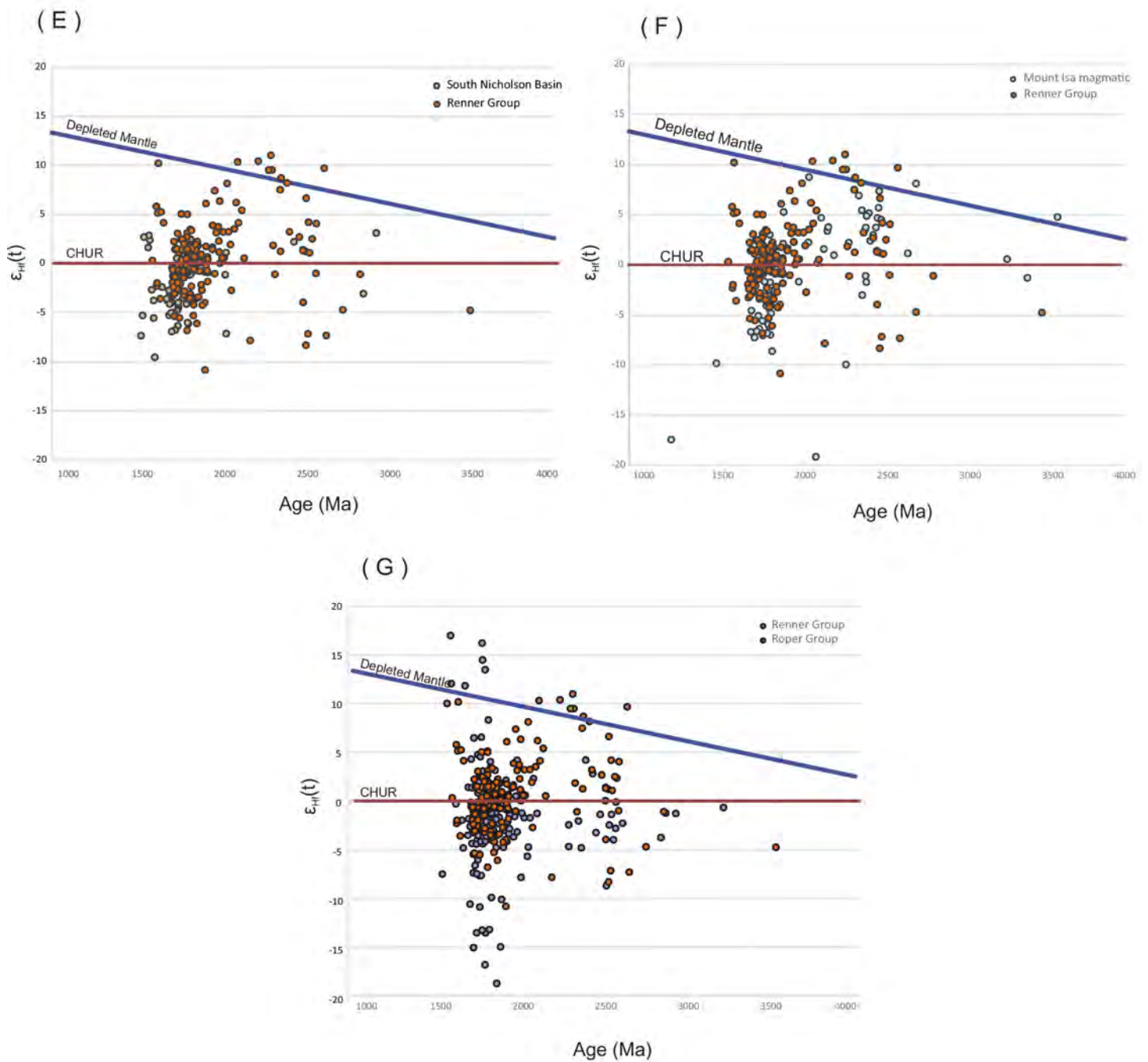


Figure 21. Epsilon Hf (t) values for the Renner Group and (e) South Nicholson Basin, (f) Mount Isa Inlier, and (g) Roper Group to show the correlation between the Renner Group and potential source regions and relationships.

The Arunta Region

The Arunta Region spans over 200,000km² located to the south of the Tomkinson Province. The region comprises of deformed, Proterozoic rocks, which record a series of geological events spread over a 1.5 billion year period (Claoué-Long and Hoatson 2005). It is comprised of three terranes, all which contain distinct protolith ages and histories: 1800–1790 Ma Aileron Province, 1690–1600 Ma Warumpi Province and the Irindina Province (Scrimgeour and Raith 2001). As seen in Figure 20 (a), both U-Pb and $\epsilon_{\text{Hf}}(t)$ suggest the Aileron Province from the Arunta region is a likely source region during the deposition of the Renner Group due to the moderately evolved hafnium signatures and significant age peak at ca. 1750 Ma.

The Gawler Craton

The Gawler Craton is located in central South Australia and is a major crustal province tool to understanding the evolution of Proterozoic Australia (Hand et al. 2007). It covers an area approximately 440,000km² and is made up of predominantly Paleoproterozoic sediments, volcanic rocks and intrusives. Figure 20 (b) displays a cluster of Gawler Craton zircons (similar to Renner) at ca. 1800Ma; however, the Renner Group with age becomes more juvenile ($\epsilon_{\text{Hf}}(t)$ values of ~ 5 –12) unlike the Gawler Craton zircons ($\epsilon_{\text{Hf}}(t)$ values of ~ 2 –7).

North China Craton

Containing one of the longest and most complex records of magmatism, sedimentation and deformation on earth, the North China Craton (NCC) spans from 3.8 Ga to present times (Kusky et al. 2007). During the Paleoproterozoic there was much collision and

amalgamation occurring between the North China Craton and the North Australian Craton (Zhao and Zhai 2013). From the $\epsilon_{\text{Hf}}(t)$ data in Figure 20 (c) there appears to be some correlation between 2500–2000 Ma as well as 1500–1900 Ma. Previous authors have proposed a paleogeographic link between the NCC and NAC. The Velkerri Formation in the McArthur Basin is thought to correlate with the Xiamaling Formation in the NCC, both being ca. 1400 Ma carbonaceous shale deposits recording the intrusion of ca. 1300 Ma dolerite sills (Mitchell et al. 2020).

Pine Creek Orogen

The Pine Creek Orogen is a Paleoproterozoic inlier that covers 66,000km² of the North Australian Craton (Worden et al. 2008). Zircon ages determined by SHRIMP U-Pb yielded ages 2520–1545 Ma and 2470 ± 47 Ma for the Nanambu Complex (East) and the Rum Jungle (Central Domain) basement rocks (Worden et al. 2008). From the Renner Group data, the age of these terranes are consistent with the older, Neoarchean detrital zircon cluster. However, Figure 20 (d) suggests the $\epsilon_{\text{Hf}}(t)$ values of Pine Creek display a more juvenile cluster at ca. 2500 Ma, whereas in this study there is no cluster identified within the same age bracket.

South Nicholson basin

The South Nicholson Basin is located between the Mount Isa Province in the east and the McArthur Basin to the northwest (Carson et al. 2020). The basin represents a succession of sandstone and siltstone with little deformation (Ahmad and Munson 2013). Rawlings (1999), has interpreted the age of the South Nicholson Group to be in the range ca. 1500 – 1400 Ma, which is consistent with the age range of the Wilton Package. Figure 21 (e) shows correlation between the South Nicholson Group and the

Renner Group around ca. 1800Ma. The age cluster at ca. 2500Ma is only from the Renner Group $\epsilon_{\text{Hf}}(t)$ values and very few South Nicholson. The Renner Group appears to be overall more juvenile as the South Nicholson Basin only appears to have a maximum $\epsilon_{\text{Hf}}(t)$ of ~ 3 .

Mount Isa Inlier

The Mount Isa Inlier is positioned in the southeast of the McArthur Basin and is made up of $\sim 61,000\text{Km}^2$ of Proterozoic crust preserved on the Australian continent (Blenkinsop et al. 2008). It consists of polydeformed and metamorphosed sedimentary, volcanic and igneous rocks, all of which have been intruded during extension and sedimentation resulting in deformation and metamorphism during crustal shortening (Connors and Page 1995). Yang et al. (2018), identified within the Bessie Creek sandstone a major peak of ca. 1560 Ma, which is consistent with the age of the Isan Orogeny. As seen in Figure 21 (f), both U-Pb and $\epsilon_{\text{Hf}}(t)$ suggest the Mount Isa Inlier is potentially a likely source region during the Renner Group deposition due to the moderately evolved hafnium signatures and significant age peak at ~ 1800 Ma and $\sim 2450\text{Ma}$.

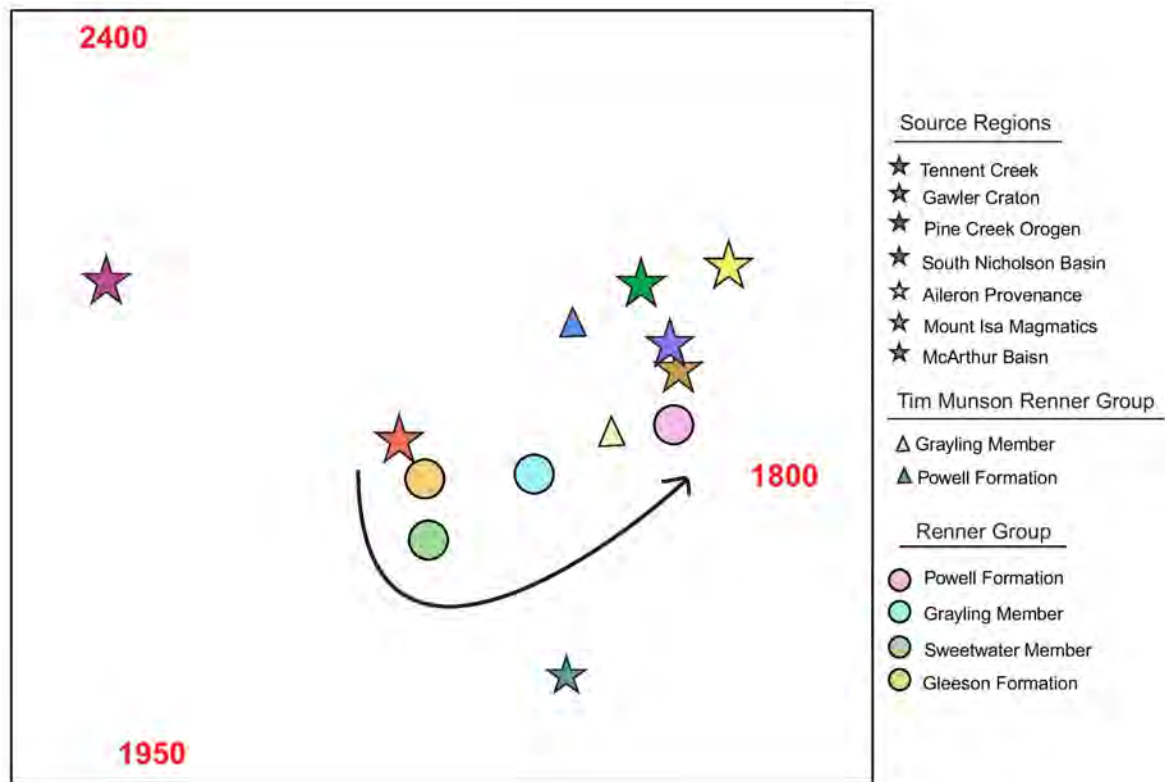


Figure 22. Multidimensional scaling (MDS) plot of sedimentary samples from the Renner Group, Tennant Creek region, Gawler Craton, Pine Creek Orogen, South Nicholson Basin, Aileron Provenance, Mount Isa Inlier and the McArthur Basin. Similar samples plot closer together whereas the more dissimilar samples are the further apart they are.

Figure 22 shows the sedimentary units of the Renner Group compared with possible provenance sources from the south (Aileron Provenance, Tennant Creek region, Mount Isa and Gawler Craton) and north (Pine Creek Orogen, South Nicholson Basin and McArthur Basin) of the basin systems. The MDS plot (Figure 22) shows that the older formations are most similar to data from the distal Gawler Craton. As the formations get younger, their detritus gets more similar to the older McArthur Basin detrital zircons as well as the Aileron Province. This may indicate uplift and erosion of these more proximal regions and inversion of the McArthur Basin, possibly due to tectonism associated with the Isan Orogeny, or the closure of the Mirning Ocean as the WAC collided with the NAC (Yang et al. 2018; in press). Ages from the Renner Group are

consistent with the Arunta region, Gawler Craton and the South Nicholson Basin which is observed through the epsilon Hf (t) plots (Figures 20 and 21). In particular the Aileron Province of the Arunta region where silicate melts were thought to be intruded between ca. 1.86 Ga and 1.79 Ga (Reno et al. 2017).

Trace element geochemistry from detrital zircon has been used in this study to explore the provenance and parental melts of zircon grains. Igneous melts display a heavy REE depletion in zircon, reflecting its competition with garnet during crystallisation; whereas if there is a negative Eu anomaly in zircon it infers that it coexisted with plagioclase and is a known sink for Eu during crystallisation. There are three main hypotheses about the growth of the detrital zircons which we can see through their rare earth elements; the magma in which the zircons grew in was governed by garnet, zircon and garnet crystallised at the same time in the magma or the magma is coming from a metamorphic source. The increase in slope with time (Figure 11a) suggests that the magmas may have had garnet stable when the zircon was crystallising. This is likely to be deep crystallisation or similarly deep melting, so it seems to show decreasing pressure of the magma source/crystallisation with time.

The Eu anomalies (Figure 11c) span the same range in the zircons in both the Neoarchean/early Paleoproterozoic and in the late Proterozoic population. Detrital zircon data from McKenzie et al. (2018) shows zircons collected from the Indian Craton is similar to the Renner Group data collected, as the global record has higher values for Eu anomaly, which may suggest that contemporaneous tectono-magmatic processes in India and Australia may have been different from the rest of the world; producing zircons with more negative Eu anomalies, possibly due to more feldspar fractionation in

magmas at lower pressures (Holder et al. 2020). An increase in the Ce anomaly with time (Figure 11b) may reflect increased magma oxia with time as Ce^{4+} is the oxic ion and is easily incorporated into zircon; this can be supported by the mantle also being increasingly oxidised (Nicklas et al. 2019).

WHAT IS THE TECTONIC GEOGRAPHY DURING THE DEPOSITION OF THE RENNER GROUP?

By analysing the U-Pb age data with associated $\epsilon_{\text{Hf}}(t)$ values, we can try to constrain the tectonic geography and its evolution throughout the deposition of the Renner Group.

Data from across all formations suggests an early source from Gawler Craton followed by increasing derivation from the Aileron Provenance in the Arunta region.

Yang et al. (2018; in press) documented a transition to southern (Aileron Province) derived sources during deposition of the Wilton Package in both the Beetaloo Sub-basin (Upper Roper Group) and Birrindudu Basin (Tijunna Group). We suggest the data here also supports this interpretation.

Widespread magmatism is seen between the Australian Cratons and Laurentia at 1.45 Ga (Morrissey et al. (2019). It is suggested by Cawood and Korsch (2008) that continuous subduction off the southern margin of the NAC prompted the building and magmatism of the Aileron Provenance. The rifting between the Australian Cratons and Laurentia caused extension and uplift of the Arunta region, leading to the deposition of the Renner Group (Figure 23).

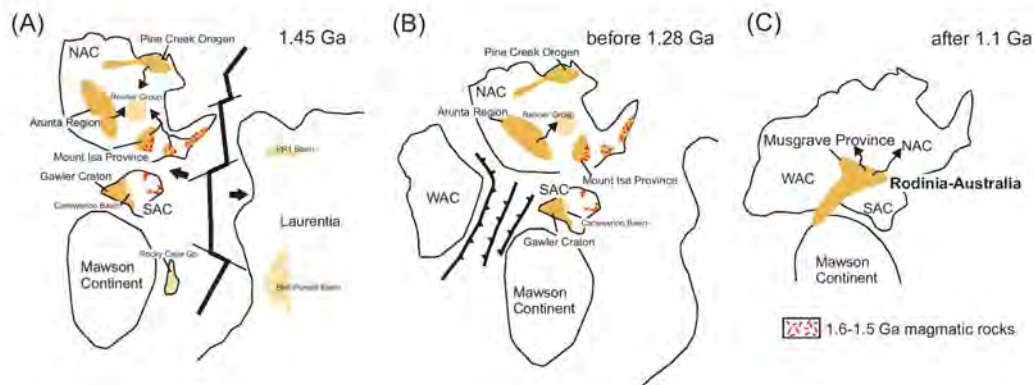


Figure 23. Tectonic scenario showing the collision of the North Australian Craton (NAC), West Australian Craton (WAC) and the South Australian Craton (SAC) and the associated deposition history between 1.45Ga and after 1.1Ga. (A) Rifting between the North Australia Craton and Laurentia, forming a number of extensional basins. (B) Collision between the West Australia Craton and the combined North Australian Craton and South Australian Craton, uplifting and exposing the Arunta region. (C) Exhumation of the Musgrave Province after final amalgamation of the Australian part of Rodinia and emplacement of the Warakurna igneous province. (Modified after Yang et al., 2019)

Conclusions

Analysing U-Pb and Lu-Hf data from detrital zircons, this study provides new constraints on the provenance, age, and tectonic geography of the Renner Group. Main conclusions from this study include:

- New U-Pb detrital zircon age data which provides constraints on the maximum depositional ages for sands within the Renner Group. The youngest unit, the Gleeson Formation yielded a maximum depositional age of 1600 ± 41 Ma, 1624 ± 35 Ma for the Sweetwater Member, 1554 ± 76 Ma for the Grayling Member and 1652 ± 125 Ma for the Powell Formation.
- Subtle provenance changes occur within formations with a spread of data from ca. 2.5 Ga to ca. 2.0 – 1.8 Ga within the Renner Group. We interpret the age spectra from ca 2.0 – 1.8 Ga detritus to be related to the Aileron Province, Mount Isa Inlier and Gawler Craton, consistent with intracratonic rifting during the Mesoproterozoic. The older ca. 2.5 Ga cluster is predicted to be associated

with the north regions of the NAC as the $\varepsilon_{\text{HF}}(t)$ signatures appear to be related with the Pine Creek Orogen and North China Craton.

- The rifting of the Australia Cratons (NAC and SAC) lead to exhumation, uplift and erosion of these regions post 1.45 Ga, leading to the deposition of the Renner Group.

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References

AHMAD M. & MUNSON T. 2013 Chapter 19: South Nicholson Basin, *Geology and mineral resources of the Northern Territory, Special Publication*, vol. 5.

- AHMAD M. & SCRIMGEOUR I. R. 2013 Geological Framework. Geology and Mineral Resources of the Northern Territory. pp. 1-16.
- ALLEN P., *et al.* 2015 Classification of basins, with special reference to Proterozoic examples, *Geological Society, London, Memoirs*, vol. 43, no. 1, pp. 5-28.
- BELOUSOVA E., *et al.* 2002 Igneous zircon: trace element composition as an indicator of source rock type, *Contributions to mineralogy and petrology*, vol. 143, no. 5, pp. 602-622.
- BLAKE D. H., *et al.* 1987 Geology of the Proterozoic Davenport Province, central Australia., *Bureau of Mineral Resources, Australia, Bulletin*, vol. 226, p. 70.
- BLINKINSOP T. G., *et al.* 2008 The crustal scale architecture of the Eastern Succession, Mount Isa: The influence of inversion, *Precambrian Research*, vol. 163, no. 1-2, pp. 31-49.
- BODORKOS S., *et al.* 2020 Precise U–Pb baddeleyite dating of the Derim Derim Dolerite, McArthur Basin, Northern Territory: old and new SHRIMP and ID-TIMS constraints, *Australian Journal of Earth Sciences*, pp. 1-15.
- BOYNTON W. V. 1984 Cosmochemistry of the rare earth elements: meteorite studies. Developments in geochemistry. pp. 63-114. Elsevier.
- BRACCIALI L. 2019 Coupled zircon-rutile U–Pb chronology: LA ICP-MS dating, geological significance and applications to Sediment Provenance in the Eastern Himalayan-Indo-Burman Region, *Geosciences*, vol. 9, no. 11, p. 467.
- CARSON C., *et al.* 2020 New U–Pb geochronology for the South Nicholson region and implications for stratigraphic correlations, *Exploring for the Future: extended abstracts, Geoscience Australia, Canberra*, pp. 1-4.
- CAWOOD P. A., HAWKESWORTH C. & DHUIME B. 2012 Detrital zircon record and tectonic setting, *Geology*, vol. 40, no. 10, pp. 875-878.
- CAWOOD P. A. & KORSCH R. J. 2008 Assembling Australia: Proterozoic building of a continent., *Precambrian Research*, vol. 166 (1-4), pp. 1-35.
- CLAQUÉ-LONG J. C. & HOATSON D. M. 2005 Proterozoic mafic–ultramafic intrusions in the Arunta Region, central Australia: Part 2: Event chronology and regional correlations, *Precambrian Research*, vol. 142, no. 3-4, pp. 134-158.
- CONNORS K. A. & PAGE R. W. 1995 Relationships between magmatism, metamorphism and deformation in the western Mount Isa Inlier, Australia, *Precambrian Research*, vol. 71, no. 1-4, pp. 131-153.
- DE BIEVRE P. & TAYLOR P. 1993 Table of the isotopic compositions of the elements, *International Journal of Mass Spectrometry and Ion Processes*, vol. 123, no. 2, pp. 149-166.
- DICKINSON W. R. & GEHRELS G. E. 2009 Use of U–Pb ages of detrital zircons to infer maximum depositional ages of strata: a test against a Colorado Plateau Mesozoic database, *Earth and Planetary Science Letters*, vol. 288, no. 1-2, pp. 115-125.
- DICKINSON W. R., GEHRELS G. E. & MARZOLF J. E. 2010 Detrital zircons from fluvial Jurassic strata of the Michigan basin: Implications for the transcontinental Jurassic paleoriver hypothesis, *Geology*, vol. 38, no. 6, pp. 499-502.
- DONNELLAN N., AHMAD M. & MUNSON T. J. 2013 Tomkinson Province. Geology and Mineral Resources of the Northern Territory. Northern Territory Government.

- DONNELLAN N., HUSSEY K. J. & MORRISON R. S. 2001 Short Range, Northern Territory (First Edition). 1:100000 geological map series explanatory notes, 5659.: Northern Territory Geological Survey.
- GEHRELS G. 2014 Detrital zircon U-Pb geochronology applied to tectonics, *Annual Review of Earth and Planetary Sciences*, vol. 42, pp. 127-149.
- HAND M., REID A. & JAGODZINSKI L. 2007 Tectonic framework and evolution of the Gawler Craton, Southern Australia, *Economic Geology*, vol. 102, no. 8, pp. 1377-1395.
- HARTNADY M. I., *et al.* 2020 Zircon oxygen and hafnium isotope decoupling during regional metamorphism: implications for the generation of low $\delta^{18}\text{O}$ magmas, *Contributions to Mineralogy and Petrology*, vol. 175, no. 1, p. 9.
- HAWKESWORTH C. & KEMP A. 2006 Using hafnium and oxygen isotopes in zircons to unravel the record of crustal evolution, *Chemical Geology*, vol. 226, no. 3-4, pp. 144-162.
- HOLDER R., YAKYMCHUK C. & VIETE D. 2020 Accessory Mineral Eu Anomalies in Suprasolidus Rocks: Beyond Feldspar, *Geochemistry, Geophysics, Geosystems*, vol. 21, no. 8, p. e2020GC009052.
- HUSSEY K. J., *et al.* 2001 Helen Springs, Northern Territory (second edition). 1:250000 geological map series and explanatory notes, SE 53-10, *Northern Territory Geological Survey, Darwin*.
- JACKSON M., MUIR M. & PLUMB K. 1987 Geology of the southern McArthur Basin, Northern Territory. Bureau of Mineral Resources, Geology and Geophysics Bulletin (220). Canberra: Government of Australia, Bureau of Mineral Resources, *Geology and Geophysics*.
- JACKSON M., *et al.* 1999 The South Nicholson and Roper Groups: evidence for the early Mesoproterozoic Roper Superbasin, *Integrated Basin Analysis of the Isa Superbasin using Seismic, Well-log, and Geopotential Data: An Evaluation of the Economic Potential of the Northern Lawn Hill Platform: Canberra, Australia, Australian Geological Survey Organisation Record*, vol. 19.
- JACKSON S. E., *et al.* 2004 The application of laser ablation-inductively coupled plasma-mass spectrometry to in situ U-Pb zircon geochronology, *Chemical geology*, vol. 211, no. 1-2, pp. 47-69.
- JONES B. N., WARD D. F. & PANRICH D. 1996 Third annual report for the period 11-12-1994 to 10-12-1995, Exploration Licence 7948 Carmilly Creek, Helen Springs area, Tennant Creek Block, NT. In NORTHERN TERRITORY GEOLOGICAL SURVEY O. F. C. R. ed.
- KINNY P. D. & MAAS R. 2003 Lu-Hf and Sm-Nd isotope systems in zircon, *Reviews in mineralogy and geochemistry*, vol. 53, no. 1, pp. 327-341.
- KIRSCHER U., *et al.* 2020 Paleomagnetic constraints on the duration of the Australia-Laurentia connection in the core of the Nuna supercontinent, *Geology*.
- KUSKY T. M., WINDLEY B. & ZHAI M.-G. 2007 Tectonic evolution of the North China Block: from orogen to craton to orogen, *Geological Society, London, Special Publications*, vol. 280, no. 1, pp. 1-34.
- LUDWIG K. 2008 Isoplot version 4.15: a geochronological toolkit for microsoft Excel, *Berkeley Geochronology Center, Special Publication*, no. 4.
- MCKENZIE N. R., *et al.* 2018 Continental growth histories revealed by detrital zircon trace elements: A case study from India, *Geology*, vol. 46, no. 3, pp. 275-278.

- MELVILLE P. 2010 Geophysics and drilling collaboration final report for drilling program, Lake Woods Project, EL23687, EL24520, EL25631, EL27317, EL27318, *Open File Report CR2010-0226, Northern Territory Geological Survey, Darwin*, pp. 1-24.
- MITCHELL R. N., *et al.* 2020 Gulf of Nuna: Astrochronologic correlation of a Mesoproterozoic oceanic euxinic event, *Geology*.
- MORRISSEY L. J., *et al.* 2019 Magmatism and metamorphism at ca. 1.45 Ga in the northern Gawler Craton: The Australian record of rifting within Nuna (Columbia), *Geoscience Frontiers*, vol. 10, no. 1, pp. 175-194.
- MUNSON T. J. 2016a Sedimentary characterisation and correlation of the Wilton package, greater McArthur Basin. Annual Geoscience Exploration Seminar (AGES) presentations, Alice Springs, Northern Territory. pp. 15-16.
- MUNSON T. J. 2016b Sedimentary characterisation of the Wilton package, greater McArthur Basin, Northern Territory (Record 2016-003). *Northern Territory Geological Survey*.
- MUNSON T. J., *et al.* 2018 Summary of results. NTGS laser ablation ICP-MS U-Pb and Lu-Hf geochronology project: Roper Group (McArthur Basin), overlying ungrouped units (Beetaloo Sub-basin), Renner Group (Tomkinson Province), and Tijunna Group (Birrindudu Basin).
- NICKLAS R. W., *et al.* 2019 Secular mantle oxidation across the Archean-Proterozoic boundary: Evidence from V partitioning in komatiites and picrites, *Geochimica et Cosmochimica Acta*, vol. 250, pp. 49-75.
- PLANAVSKY N. J., *et al.* 2018 Evidence for episodic oxygenation in a weakly redox-buffered deep mid-Proterozoic ocean, *Chemical Geology*, vol. 483, pp. 581-594.
- PLUMB K. 1979a Structure and tectonic style of the Precambrian shields and platforms of northern Australia, *Tectonophysics*, vol. 58, no. 3-4, pp. 291-325.
- 1979b The tectonic evolution of Australia, *Earth-Science Reviews*, vol. 14, no. 3, pp. 205-249.
- POWELL T., *et al.* 1987 Petroleum geology and geochemistry, middle Proterozoic McArthur Basin, *Bureau of Mineral Resources Record*, vol. 48, p. 286.
- RAWLINGS D. J. 1999 Stratigraphic resolution of a multiphase intracratonic basin system: the McArthur Basin, Northern Australia, *Australian Journal of Earth Sciences*, vol. 46, pp. 703-723.
- RENO B. L., *et al.* 2017 Proterozoic tectonothermal evolution of the northeastern sector of the Aileron Province: in ' . Annual Geoscience Exploration Seminar (AGES) 2017. Proceedings, Alice Springs, Northern Territory 28-29 March 2017. pp. 36-41.
- SANDIFORD M., HAND M. & MCLAREN S. 2001 Tectonic feedback, intraplate orogeny and the geochemical structure of the crust: a central Australian perspective, *Geological Society, London, Special Publications*, vol. 184, no. 1, pp. 195-218.
- SCRIMGEOUR I. R. & RAITH J. 2001 Tectonic and thermal events in the northeastern Arunta Province. Northern Territory Geological Survey.
- SLÁMA J., *et al.* 2008 Plešovice zircon—a new natural reference material for U-Pb and Hf isotopic microanalysis, *Chemical Geology*, vol. 249, no. 1-2, pp. 1-35.

- SOUTHGATE P., *et al.* 2000 Chronostratigraphic basin framework for Palaeoproterozoic rocks (1730–1575 Ma) in northern Australia and implications for base-metal mineralisation, *Australian Journal of Earth Sciences*, vol. 47, no. 3, pp. 461-483.
- SPENCER C. J., KIRKLAND C. L. & TAYLOR R. J. 2016 Strategies towards statistically robust interpretations of in situ U–Pb zircon geochronology, *Geoscience Frontiers*, vol. 7, no. 4, pp. 581-589.
- TRAIL D., WATSON E. B. & TAILBY N. D. 2012 Ce and Eu anomalies in zircon as proxies for the oxidation state of magmas, *Geochimica et Cosmochimica Acta*, vol. 97, pp. 70-87.
- VERMEESCH P. 2013 Multi-sample comparison of detrital age distributions, *Chemical Geology*, vol. 341, pp. 140-146.
- WARD D. F. 1983 Report on geological mapping and geochemical survey on EL 2835 and 3607, and drill testing targets in EL 3607, Helen Springs, Esso Australia Ltd., *Northern Territory Geological Survey, Company Report*, vol. CR1983-0299A, B.
- WORDEN K., *et al.* 2008 A revised Palaeoproterozoic chronostratigraphy for the Pine Creek Orogen, northern Australia: Evidence from SHRIMP U–Pb zircon geochronology, *Precambrian Research*, vol. 166, no. 1-4, pp. 122-144.
- YANG B. 2019 Tectonic geography of Mesoproterozoic Wilton package, north Australia.
- YANG B., *et al.* 2019 Middle–late Mesoproterozoic tectonic geography of the North Australia Craton: U–Pb and Hf isotopes of detrital zircon grains in the Beetaloo Sub-basin, Northern Territory, Australia, *Journal of the Geological Society*, vol. 176, no. 4, p. 771.
- YANG B., *et al.* 2020 Tectonic controls on sedimentary provenance and basing geography of the Mesoproterozoic Wilton package, McArthur Basin, northern Australia, *Geological Magazine*.
- YANG B., *et al.* 2018 Spatial and temporal variation in detrital zircon age provenance of the hydrocarbon-bearing upper Roper Group, Beetaloo Sub-basin, Northern Territory, Australia, *Precambrian Research*, vol. 304, pp. 140-155.
- ZHAO G. & ZHAI M. 2013 Lithotectonic elements of Precambrian basement in the North China Craton: review and tectonic implications, *Gondwana Research*, vol. 23, no. 4, pp. 1207-1240.

Appendix A: Supplementary Tables: U-Pb in detrital zircons for all samples.

Analysis	206Pb/238U Age (Ma)	206Pb/238U Age (Ma)	207Pb/206Pb Age (Ma)	207Pb/206Pb Age (Ma)	207Pb/235U(calc) Age (Ma)	207Pb/235U(calc) Age (Ma)	Concordance %	207Pb/235U(calc)	207Pb/235U(calc)	206Pb/238U	206Pb/238U
TP19-45 - 6	< DL	14144.7	< DL	3535.5	< DL	7957.9	#VALUE!	< DL	385.5819437	< DL	5.430155988
TP19-45 - 155	2552.0	61.6	2440.5	80.5	2501.6	109.1	105	10.74812044	0.4687767	0.485699456	0.011722661
TP19-45 - 147	1983.2	39.0	1918.8	42.6	1961.5	73.4	103	5.90204152	0.220904683	0.360221943	0.007076032
TP19-45 - 30	1909.1	38.0	1850.1	41.8	1891.2	70.9	103	5.440027098	0.203807375	0.344679125	0.006860454
TP19-45 - 142	1849.1	37.0	1793.3	39.3	1833.4	72.3	103	5.083965581	0.200542258	0.332218854	0.006644898
TP19-45 - 27	1874.6	40.3	1822.6	41.7	1857.8	70.0	103	5.231963988	0.196995969	0.337502367	0.00725075
TP19-45 - 92	1804.4	35.0	1757.7	40.3	1793.3	67.5	103	4.847936696	0.182428165	0.323000378	0.006257962
TP19-45 - 55	2010.4	38.3	1961.0	35.5	1995.9	70.9	103	6.139818233	0.218085623	0.365974683	0.006968775
TP19-45 - 47	1838.3	34.3	1798.4	33.9	1829.1	65.0	102	5.057771148	0.179627632	0.329990762	0.006165083
TP19-45 - 23	2532.1	53.2	2479.0	56.9	2513.0	91.5	102	10.8805359	0.39618302	0.481108096	0.010107301
TP19-45 - 135	1803.0	34.8	1765.8	38.0	1797.4	66.3	102	4.871949018	0.179602426	0.32272797	0.006229867
TP19-45 - 58	1894.9	37.3	1860.6	31.6	1888.0	67.5	102	5.42013349	0.1937179	0.341716102	0.00672024
TP19-45 - 150	1773.9	31.4	1758.9	24.0	1777.1	59.3	101	4.755902921	0.15876718	0.316765847	0.005600228
TP19-45 - 138	2535.6	50.2	2514.9	47.2	2536.5	91.9	101	11.15892972	0.404244708	0.481911764	0.0095316
TP19-45 - 34	1785.9	34.8	1773.9	39.1	1790.3	67.5	101	4.83068901	0.182203025	0.319226451	0.006221764
TP19-45 - 85	1817.6	37.5	1808.6	47.7	1823.9	75.7	100	5.027294567	0.2087691	0.325718331	0.006715691
TP19-45 - 105	1607.7	30.3	1600.6	41.9	1614.9	62.1	100	3.905919234	0.150094191	0.283248333	0.005342385
TP19-45 - 51	1899.6	36.0	1892.3	46.2	1906.5	76.0	100	5.538180148	0.220852114	0.342693706	0.006503395
TP19-45 - 89	1800.3	36.0	1793.5	42.6	1807.7	68.9	100	4.931983911	0.187894895	0.322161025	0.006440735
TP19-45 - 112	1734.5	37.0	1729.5	41.6	1743.2	66.6	100	4.566552586	0.174545767	0.308742293	0.006589134
TP19-45 - 24	2515.9	49.9	2518.6	35.0	2527.9	84.7	100	11.05692593	0.370557703	0.477403241	0.009472206
TP19-45 - 116	1879.2	42.7	1897.0	72.5	1897.4	89.7	99	5.479668305	0.259149706	0.33845348	0.007695788
TP19-45 - 44	1888.4	38.9	1910.5	50.3	1909.6	79.0	99	5.557953193	0.230020944	0.340360953	0.007018598
TP19-45 - 67	2454.7	47.4	2501.0	46.7	2489.5	88.2	98	10.60957528	0.375974837	0.463441772	0.008945705
TP19-45 - 145	1938.6	39.0	1978.1	39.8	1968.5	70.9	98	5.949754513	0.214165265	0.350835855	0.007051836
TP19-45 - 81	1612.7	39.3	1648.0	51.6	1636.7	74.2	98	4.012271082	0.181880742	0.284236406	0.006931644
TP19-45 - 144	1977.1	39.7	2025.7	47.6	2010.2	76.9	98	6.24096911	0.238645296	0.358935429	0.007214055
TP19-45 - 80	2447.9	48.4	2530.7	46.7	2504.0	88.8	97	10.77549893	0.38222945	0.461892666	0.009124912
TP19-45 - 7	1747.2	36.0	1813.6	35.0	1786.2	66.3	96	4.807448646	0.178425147	0.311319225	0.006406263
TP19-45 - 64	1741.5	36.2	1808.5	45.5	1781.2	69.3	96	4.778676289	0.185965068	0.310169458	0.006444317
TP19-45 - 68	1890.4	41.0	1973.4	40.4	1940.6	73.4	96	5.761004612	0.217842906	0.340776293	0.00739263
TP19-45 - 43	1759.7	35.4	1849.7	39.3	1809.9	66.4	95	4.944793621	0.181541004	0.313876133	0.006314792
TP19-45 - 136	1948.0	39.1	2049.1	38.0	2008.0	71.0	95	6.225263591	0.220176127	0.352807023	0.007090136
TP19-45 - 131	3303.2	64.9	3501.3	34.8	3439.6	113.3	94	28.59155826	0.941703402	0.669307723	0.013156177
TP19-45 - 52	1714.6	35.5	1827.0	42.3	1774.3	68.6	94	4.739721661	0.183198674	0.304713981	0.006299981
TP19-45 - 101	1684.5	34.4	1795.3	37.3	1744.1	64.3	94	4.571627367	0.168459674	0.298629304	0.006103659
TP19-45 - 122	1658.3	31.4	1767.4	31.2	1717.0	61.6	94	4.424972537	0.158667244	0.293358454	0.005546832
TP19-45 - 28	2218.1	51.5	2369.1	72.4	2308.0	100.0	94	8.708342174	0.377241845	0.410699406	0.009541447

TP19-45 - 10	1739.8	34.6	1868.2	34.4	1807.9	64.0	93	4.932862707	0.174704564	0.309822003	0.006153227
TP19-45 - 77	2365.6	46.4	2556.0	41.2	2481.2	87.2	93	10.51401498	0.369694882	0.443348441	0.008703049
TP19-45 - 2	1699.9	32.1	1838.0	28.1	1770.7	61.0	92	4.719623321	0.162660107	0.301744125	0.005706335
TP19-45 - 99	1761.7	39.4	1916.1	52.6	1844.7	72.7	92	5.152128647	0.20296845	0.314283883	0.00703637
TP19-45 - 143	1732.6	33.8	1921.7	48.2	1830.7	68.7	90	5.067361853	0.190054284	0.308359623	0.006022864
TP19-45 - 40	1619.1	38.5	1814.6	42.6	1714.5	65.5	89	4.411455234	0.168458698	0.285524804	0.006784559
TP19-45 - 17	1580.2	38.9	1772.1	32.1	1672.6	62.7	89	4.192721401	0.157164049	0.277791199	0.006843401
TP19-45 - 154	1623.7	33.4	1862.7	59.3	1739.9	76.2	87	4.548779648	0.199264552	0.286433944	0.005899811
TP19-45 - 153	1816.5	72.9	2128.6	43.9	1978.6	97.0	85	6.019324506	0.295147543	0.325491972	0.013071511
TP19-45 - 111	1625.3	40.8	1926.2	43.7	1771.1	70.7	84	4.721711252	0.188357435	0.286754424	0.007193669
TP19-45 - 90	1568.5	35.6	1860.2	31.6	1707.1	63.4	84	4.37219936	0.162278651	0.275461533	0.006253507
TP19-45 - 66	1707.8	33.9	2041.8	50.6	1873.0	70.7	84	5.325832012	0.201158623	0.303340534	0.006018189
TP19-45 - 95	1577.8	37.1	1889.2	62.2	1724.6	74.4	84	4.465614616	0.192592132	0.277303826	0.006517613
TP19-45 - 56	1713.3	46.6	2088.9	93.3	1898.2	123.7	82	5.484358118	0.357402085	0.30443508	0.008281187
TP19-45 - 88	1475.7	58.0	1864.6	63.8	1652.4	94.3	79	4.090598348	0.233384979	0.257245181	0.010110888
TP19-45 - 106	1428.4	56.7	1847.4	55.8	1614.9	85.1	77	3.905739692	0.20583363	0.248043084	0.009848798
TP19-45 - 87	1549.3	50.0	2013.4	50.9	1773.7	75.6	77	4.736617664	0.201789466	0.271678863	0.008767196
TP19-45 - 60	1391.1	31.9	1851.6	39.6	1593.4	62.2	75	3.803192516	0.148437493	0.240844708	0.005516108
TP19-45 - 146	1439.4	34.1	1988.6	41.4	1680.3	67.8	72	4.232031954	0.170882162	0.250175051	0.005932566
TP19-45 - 73	1369.0	28.1	1893.5	33.6	1597.5	55.8	72	3.822423519	0.133620109	0.236602437	0.004860334
TP19-45 - 45	1367.5	41.5	1925.6	47.7	1609.8	66.5	71	3.881362412	0.160389438	0.23632224	0.007176375
TP19-45 - 13	1317.4	27.3	1900.3	30.2	1565.3	53.7	69	3.672039454	0.126074661	0.226750432	0.004692214
TP19-45 - 74	1266.5	36.2	1858.4	28.8	1513.7	60.7	68	3.440566872	0.137950767	0.217101176	0.006208399
TP19-45 - 72	1408.4	60.1	2077.1	70.3	1707.8	82.2	68	4.375682844	0.210512204	0.244176256	0.010417305
TP19-45 - 31	1237.0	39.1	1875.5	37.8	1497.6	70.8	66	3.370729223	0.159383801	0.211529994	0.006684872
TP19-45 - 71	2030.0	94.1	3125.5	416.5	2635.1	487.6	65	12.39950381	2.294179536	0.370127565	0.017158118
TP19-45 - 127	1625.6	32.9	2520.1	29.3	2066.9	73.0	65	6.656533696	0.234949989	0.286807596	0.005808654
TP19-45 - 120	1591.8	33.8	2557.5	36.5	2065.3	72.8	62	6.644556675	0.234252453	0.280095268	0.005948571
TP19-45 - 18	1164.9	52.9	1922.0	49.7	1467.1	71.4	61	3.241456966	0.157744876	0.19806018	0.008992604
TP19-45 - 151	1075.1	59.5	1774.7	40.3	1342.0	81.7	61	2.749593658	0.167316343	0.181491218	0.010039285
TP19-45 - 42	1511.5	42.5	2506.9	39.1	1986.7	78.5	60	6.075082203	0.240187133	0.264245209	0.007423322
TP19-45 - 9	1177.7	25.8	1998.6	31.9	1508.8	54.1	59	3.419230001	0.122544326	0.200445837	0.004392002
TP19-45 - 126	1007.5	46.3	1885.7	45.6	1338.5	58.5	53	2.736874756	0.119593494	0.169168093	0.007765893
TP19-45 - 152	1065.2	39.9	2032.4	35.1	1442.1	68.5	52	3.138147714	0.149118201	0.179675472	0.006729584
TP19-45 - 54	1004.8	40.8	1923.8	36.0	1347.9	65.7	52	2.771476645	0.135027431	0.16867206	0.006855337
TP19-45 - 20	1050.7	43.5	2014.9	46.0	1426.6	71.0	52	3.075622891	0.153097475	0.17702443	0.007327025
TP19-45 - 37	1060.1	21.5	2067.9	41.4	1452.8	52.8	51	3.181968833	0.115717745	0.178741798	0.003632748
TP19-45 - 114	1008.5	25.7	2207.6	50.4	1473.1	61.2	46	3.266447581	0.135620263	0.169351385	0.004317509
TP19-45 - 84	884.0	59.6	1950.3	56.1	1257.4	92.3	45	2.449872937	0.179840175	0.146974897	0.00991015
TP19-45 - 82	1078.9	44.1	2525.0	51.6	1680.9	87.0	43	4.235460105	0.219117891	0.182185285	0.007453862
TP19-45 - 123	1075.4	34.1	2534.3	44.9	1682.3	72.2	42	4.242414211	0.18214155	0.181536566	0.005759516
TP19-45 - 49	796.0	18.9	1929.0	44.8	1169.5	45.8	41	2.163678127	0.08469136	0.131428253	0.003124263
TP19-45 - 50	770.0	17.4	1881.3	38.4	1127.4	41.3	41	2.035334991	0.074615827	0.126878229	0.002859044
TP19-45 - 36	845.2	18.6	2130.4	51.5	1295.2	51.7	40	2.58072668	0.102956392	0.140088229	0.003084725
TP19-45 - 141	757.0	31.0	1911.0	36.2	1123.6	56.2	40	2.023954545	0.101163361	0.124600944	0.005099787
TP19-45 - 86	810.8	22.3	2092.4	37.7	1248.8	52.8	39	2.420665981	0.102296475	0.134028716	0.003693774
TP19-45 - 4	800.5	18.0	2097.9	32.9	1241.5	44.0	38	2.396221643	0.084897015	0.132219712	0.002970905

TP19-45 - 70	677.7	32.4	1945.6	55.9	1061.4	59.0	35	1.844328589	0.102496501	0.110850051	0.005299842
TP19-45 - 79	750.3	15.9	2160.9	43.0	1218.5	46.4	35	2.320200501	0.088436295	0.123441183	0.002620628
TP19-45 - 75	678.7	14.2	1963.2	37.6	1069.5	39.0	35	1.86717357	0.068125906	0.11102298	0.002322727
TP19-45 - 46	711.9	78.9	2079.5	70.7	1159.1	113.7	34	2.13148696	0.209072071	0.116770484	0.012940515
TP19-45 - 65	870.9	22.1	2616.8	47.4	1538.3	58.3	33	3.549314826	0.134450894	0.144652249	0.003669236
TP19-45 - 76	672.4	23.6	2022.3	39.5	1084.6	48.3	33	1.910094605	0.08512636	0.109935578	0.003857757
TP19-45 - 134	638.6	22.0	1988.7	51.9	1036.6	42.4	32	1.775647097	0.072614026	0.104129956	0.003590142
TP19-45 - 148	708.1	14.7	2221.6	34.8	1199.8	42.6	32	2.259714928	0.080253108	0.116112648	0.002413657
TP19-45 - 94	935.4	34.5	3025.1	49.3	1804.9	84.4	31	4.915380159	0.229835659	0.15615859	0.005760485
TP19-45 - 149	630.1	16.7	2106.9	43.9	1071.1	39.4	30	1.871616495	0.068839744	0.10268195	0.002720929
TP19-45 - 63	655.7	30.9	2194.9	41.0	1132.3	59.2	30	2.049906223	0.107146683	0.10706251	0.00504485
TP19-45 - 97	624.4	11.5	2106.5	36.8	1064.8	37.3	30	1.853965537	0.064951126	0.101699529	0.001876423
TP19-45 - 78	581.9	13.6	2136.8	50.2	1027.0	40.2	27	1.749493835	0.068408183	0.094475475	0.002208118
TP19-45 - 107	549.6	28.6	2034.5	54.6	952.8	61.6	27	1.555869909	0.100628839	0.088988633	0.004633128
TP19-45 - 41	594.2	15.7	2315.4	47.4	1108.7	41.7	26	1.980043993	0.074456093	0.096563962	0.002548534
TP19-45 - 129	543.7	12.8	2208.3	43.0	1008.7	37.8	25	1.700391888	0.063659072	0.088006428	0.002078078
TP19-45 - 29	516.4	11.7	2103.0	39.1	935.4	35.4	25	1.512387055	0.057270671	0.083399572	0.001895904
TP19-45 - 103	503.3	18.8	2152.3	49.9	936.6	45.1	23	1.515316542	0.072920559	0.08120803	0.003035433
TP19-45 - 1	495.5	14.4	2122.3	30.6	916.6	34.1	23	1.466239302	0.054550822	0.079902634	0.002317475
TP19-45 - 62	504.3	12.2	2199.2	46.1	956.3	37.4	23	1.564687104	0.061130013	0.081370863	0.001974844
TP19-45 - 133	464.7	17.1	2139.8	56.1	884.1	41.2	22	1.38855313	0.064641868	0.07474082	0.002745754
TP19-45 - 38	451.8	11.1	2173.6	46.6	877.6	35.9	21	1.373251934	0.056198968	0.07260472	0.001776957
TP19-45 - 125	488.0	22.4	2355.2	49.9	995.9	51.2	21	1.66658217	0.085633577	0.07864042	0.003614297
TP19-45 - 128	473.5	13.1	2344.3	45.8	967.6	34.4	20	1.593230856	0.056683665	0.076209054	0.0021098
TP19-45 - 137	408.5	25.7	2289.9	62.9	856.9	47.2	18	1.325395823	0.072973038	0.065424924	0.004122887
TP19-45 - 104	373.4	31.4	2120.0	55.4	748.8	59.1	18	1.090700902	0.086066162	0.059634545	0.005018977
TP19-45 - 14	411.0	10.0	2438.0	55.8	910.3	32.6	17	1.451124818	0.051894562	0.065829107	0.001595367
TP19-45 - 12	384.5	9.7	2458.6	38.9	877.4	33.0	16	1.372917988	0.05161017	0.061468586	0.001549564
TP19-45 - 96	363.0	9.3	2324.6	47.2	799.1	30.3	16	1.196680789	0.045417042	0.057925598	0.001488273
TP19-45 - 69	349.1	18.6	2260.1	56.5	757.1	43.9	15	1.107700955	0.064178039	0.055641525	0.002964798
TP19-45 - 98	372.8	7.7	2444.9	45.4	855.5	29.8	15	1.322219297	0.046005311	0.059539107	0.001225892
TP19-45 - 102	346.8	22.8	2308.8	53.5	774.1	57.2	15	1.143375408	0.084438658	0.055264971	0.003629522
TP19-45 - 100	324.0	15.5	2445.0	66.1	773.5	35.0	13	1.142113317	0.051672728	0.051540596	0.002463852
TP19-45 - 35	303.0	9.5	2299.2	42.5	692.7	27.6	13	0.978213655	0.038951651	0.048118789	0.001507001
TP19-45 - 32	361.6	31.2	2812.5	115.5	966.7	61.5	13	1.591042634	0.101275181	0.057693376	0.004982681
TP19-45 - 83	304.6	7.3	2743.7	46.5	837.5	28.1	11	1.281416381	0.042944471	0.048380952	0.001164401
TP19-45 - 48	260.8	8.4	2470.5	60.0	666.8	31.5	11	0.92836852	0.043793792	0.041279983	0.001325737
TP19-45 - 109	232.1	6.7	2421.3	59.0	597.1	24.1	10	0.800497031	0.032301397	0.036663682	0.001054812
TP19-45 - 33	217.6	4.7	2323.1	41.9	544.1	20.8	9	0.708918919	0.02708057	0.034326232	0.000737041
TP19-45 - 93	231.3	13.1	2529.7	64.4	625.9	32.8	9	0.852262529	0.044635722	0.03653388	0.002071125
TP19-45 - 130	216.6	9.3	2413.6	64.1	564.5	30.4	9	0.743567944	0.039995062	0.034165024	0.001472622
TP19-45 - 26	197.3	17.4	2507.7	144.7	548.9	34.9	8	0.717023887	0.045571857	0.031086261	0.00273644
TP19-45 - 110	191.9	6.6	2450.8	57.2	521.5	25.2	8	0.671232945	0.032377901	0.030216424	0.001033148
TP19-45 - 124	189.8	6.6	2620.4	43.7	560.0	23.5	7	0.735841053	0.030910158	0.029884296	0.001042077
TP19-45 - 57	177.0	10.1	2567.1	61.8	516.8	29.4	7	0.663595263	0.037752171	0.027832911	0.001586327
TP19-45 - 22	171.9	7.8	2673.3	65.5	529.6	27.2	6	0.684752288	0.03522659	0.027026434	0.001231733
TP19-45 - 25	168.3	3.8	2732.1	78.0	536.0	20.8	6	0.695306593	0.026923561	0.026448346	0.000604932

TP19-45 - 21	162.9	6.9	2716.3	41.5	518.9	24.9	6	0.666950638	0.031980879	0.025589482	0.001076235
TP19-45 - 91	154.5	3.8	2603.7	48.8	472.1	18.3	6	0.591910694	0.022905298	0.024256252	0.000594619
TP19-45 - 115	138.7	3.7	2768.1	60.7	468.1	18.6	5	0.585684893	0.023268472	0.021753634	0.000577259
TP19-45 - 61	137.7	6.2	2803.1	67.8	472.7	23.5	5	0.592793544	0.029421687	0.021588185	0.000974277
TP19-45 - 11	132.2	12.8	2710.8	67.7	435.5	38.1	5	0.535574759	0.046838264	0.020724678	0.002007125
TP19-45 - 117	116.5	7.3	2929.3	100.3	439.5	28.0	4	0.541631647	0.034450588	0.018235726	0.00114707
TP19-45 - 108	119.3	5.7	3010.2	87.8	468.7	24.4	4	0.586660682	0.030560904	0.018679465	0.000898222
TP19-45 - 113	97.3	3.5	3044.9	85.6	401.8	19.9	3	0.485492905	0.024077144	0.015205164	0.000540704
TP19-45 - 140	96.4	2.4	3243.8	58.0	441.8	15.8	3	0.54513519	0.019460148	0.01506319	0.000382745
TP19-45 - 53	86.9	5.0	3122.8	109.9	380.0	21.3	3	0.453895299	0.025400976	0.013566057	0.000777467
TP19-45 - 121	68.4	3.2	3121.9	68.3	309.4	16.3	2	0.356224088	0.018728124	0.010660456	0.000503822
TP19-45 - 5	69.2	2.9	3289.0	74.7	342.8	13.3	2	0.401578694	0.015572098	0.010790893	0.000456058
TP19-45 - 8	57.8	1.5	2988.2	64.4	248.4	9.6	2	0.27712133	0.010661522	0.009012438	0.000230585
TP19-45 - 119	57.7	2.0	3342.8	64.2	303.0	12.3	2	0.347651882	0.014077528	0.008996759	0.000312297
TP19-45 - 59	50.6	1.7	3118.6	84.0	237.5	9.1	2	0.263486283	0.010129471	0.007875758	0.000263722
TP19-45 - 118	43.3	1.4	3747.8	96.8	295.7	13.2	1	0.338084474	0.015107219	0.006744917	0.000219773
TP19-45 - 19	34.2	1.0	3864.6	157.4	256.3	12.0	1	0.287117646	0.013462136	0.005317004	0.000163266
TP19-45 - 16	29.2	0.9	3693.3	90.0	201.6	10.0	1	0.219682889	0.010869077	0.004546007	0.000142028
TP19-45 - 132	29.3	1.2	3939.1	85.4	233.3	10.4	1	0.25824464	0.011539573	0.004553105	0.000192103
TP19-45 - 3	23.9	0.8	3625.5	118.9	160.5	6.8	1	0.171240188	0.00722031	0.003711276	0.000119925
TP19-45 - 139	25.5	0.6	4002.8	104.9	215.0	9.1	1	0.235862416	0.00995953	0.003968998	9.99233E-05
TP19-45 - 15	22.9	0.7	3728.8	86.8	165.0	7.8	1	0.176399691	0.008360333	0.003566286	0.000112641
TP19-45 - 39	8.5	0.3	3556.9	192.6	57.7	3.3	0	0.058518161	0.003359021	0.001324292	5.03175E-05
TP19-46 - 52	1873.0	36.8	1784.8	42.6	1842.1	70.3	105	5.136214358	0.195939907	0.337154597	0.006632479
TP19-46 - 154	2018.9	40.5	1935.5	39.6	1988.0	72.2	104	6.08401569	0.221026582	0.367764108	0.007372901
TP19-46 - 117	2626.6	50.1	2524.2	42.0	2580.0	89.2	104	11.69181161	0.404349345	0.502978765	0.00958829
TP19-46 - 33	1847.5	37.2	1778.7	40.6	1825.4	68.9	104	5.036171694	0.190123549	0.331886045	0.00667652
TP19-46 - 82	1894.8	36.1	1833.3	40.4	1875.1	68.8	103	5.338961142	0.1958	0.341700832	0.006513467
TP19-46 - 68	1878.7	33.3	1827.1	23.1	1864.2	61.8	103	5.27130703	0.174798634	0.338344142	0.006004058
TP19-46 - 151	1796.9	34.9	1752.0	40.5	1785.6	67.4	103	4.803901999	0.181358601	0.321468852	0.00625231
TP19-46 - 27	1969.0	36.0	1926.6	28.9	1959.0	67.6	102	5.885052212	0.202935485	0.357218493	0.006526105
TP19-46 - 24	1880.1	36.3	1841.2	39.6	1871.7	69.0	102	5.317318877	0.19606306	0.338630344	0.006544968
TP19-46 - 19	1903.4	39.2	1865.1	45.1	1896.5	72.7	102	5.47386038	0.20940925	0.343484762	0.007076768
TP19-46 - 67	1913.9	37.6	1883.4	42.2	1909.7	71.3	102	5.558550002	0.20766531	0.345663948	0.006785676
TP19-46 - 119	1852.5	34.8	1823.3	30.2	1848.4	63.7	102	5.174274705	0.178389941	0.332926871	0.006261438
TP19-46 - 124	1870.1	33.9	1841.5	26.5	1865.9	62.5	102	5.28138614	0.176971654	0.336570152	0.006097386
TP19-46 - 32	1862.3	35.7	1834.7	38.2	1853.3	68.9	102	5.240930184	0.194199743	0.334945978	0.006418995
TP19-46 - 140	1846.3	37.0	1821.1	38.7	1845.0	68.3	101	5.153956626	0.190726552	0.331638852	0.006644623
TP19-46 - 45	1869.5	35.0	1849.2	34.4	1869.7	67.0	101	5.304927319	0.190153042	0.336447021	0.006293952
TP19-46 - 125	2543.3	48.6	2519.7	41.3	2541.9	88.2	101	11.22333501	0.389552354	0.483691164	0.009249476
TP19-46 - 132	1842.1	36.4	1833.7	33.0	1847.5	64.2	100	5.169090517	0.179712988	0.330774063	0.006540337
TP19-46 - 26	1940.5	38.9	1931.7	46.5	1947.0	75.3	100	5.803709443	0.224331609	0.351243812	0.007049903
TP19-46 - 2	1885.1	34.1	1877.9	33.2	1892.1	66.9	100	5.445565593	0.19257619	0.339676394	0.006150618
TP19-46 - 48	2630.8	52.1	2628.3	48.8	2640.6	93.5	100	12.47237605	0.4414054	0.503960688	0.009984186
TP19-46 - 145	1824.7	44.4	1828.2	31.3	1836.2	69.5	100	5.100353731	0.192928371	0.327183592	0.007959962
TP19-46 - 123	2474.8	49.7	2484.3	46.3	2489.9	88.4	100	10.61348015	0.376852559	0.467994421	0.009393168
TP19-46 - 70	1894.8	34.3	1905.9	28.6	1910.1	64.6	99	5.561116167	0.188023592	0.341687542	0.006181818

TP19-46 - 54	1812.5	33.7	1832.7	33.0	1830.1	65.2	99	5.063936411	0.180404687	0.324681086	0.006039334
TP19-46 - 71	1889.3	36.3	1930.0	27.5	1917.9	66.6	98	5.611955724	0.194748359	0.340543346	0.006549779
TP19-46 - 143	1866.6	39.0	1911.6	49.8	1897.3	74.8	98	5.478921541	0.215970541	0.335829956	0.00701831
TP19-46 - 53	1680.6	38.7	1729.8	53.8	1711.5	74.1	97	4.39537686	0.190226706	0.297842275	0.006861008
TP19-46 - 69	1703.7	31.0	1760.0	29.0	1739.0	60.6	97	4.543568776	0.158381941	0.302503129	0.005498846
TP19-46 - 102	2407.1	51.0	2494.3	32.9	2465.4	86.6	97	10.33704871	0.363139709	0.452672524	0.009590854
TP19-46 - 43	1769.8	44.7	1848.2	51.0	1816.8	82.1	96	4.985092058	0.225154101	0.315924171	0.007981707
TP19-46 - 3	2289.3	45.7	2405.9	49.2	2362.4	86.8	95	9.24300764	0.33975554	0.426372462	0.00851871
TP19-46 - 35	1753.4	36.6	1862.1	27.8	1814.8	64.5	94	4.973133864	0.176696456	0.312586016	0.006516361
TP19-46 - 116	1733.1	36.1	1841.9	40.5	1792.6	72.5	94	4.844344106	0.195890721	0.308449323	0.006426318
TP19-46 - 55	1743.9	34.1	1860.5	37.3	1808.2	65.2	94	4.934616161	0.177946174	0.31065383	0.006066357
TP19-46 - 29	1687.1	32.3	1811.2	36.6	1753.2	64.7	93	4.621976442	0.170475008	0.299162549	0.005725087
TP19-46 - 12	1730.9	41.2	1861.2	39.8	1800.7	67.2	93	4.891231594	0.182655891	0.308001464	0.007337497
TP19-46 - 63	1750.7	33.6	1889.7	37.9	1824.9	67.4	93	5.03288587	0.185799571	0.312042886	0.005987258
TP19-46 - 66	1494.9	35.2	1624.3	35.6	1558.8	61.1	92	3.642092381	0.142794732	0.26098435	0.006138224
TP19-46 - 99	1703.6	40.5	1877.1	26.5	1792.6	66.6	91	4.844123191	0.180055197	0.302478917	0.007182657
TP19-46 - 93	1721.4	33.7	1898.6	28.1	1812.5	61.4	91	4.959575319	0.168031172	0.306080245	0.005985503
TP19-46 - 107	1697.3	35.8	1874.7	37.0	1787.7	66.5	91	4.816283942	0.179110571	0.301209555	0.006353539
TP19-46 - 150	1715.6	36.4	1897.7	35.8	1808.6	65.3	90	4.937188523	0.178139467	0.304911511	0.006461051
TP19-46 - 127	1628.1	32.4	1809.6	26.8	1718.6	59.2	90	4.433378997	0.152712716	0.287318298	0.005719089
TP19-46 - 40	1833.5	45.5	2063.1	41.1	1955.0	77.0	89	5.857598719	0.230785999	0.328986571	0.008173198
TP19-46 - 22	1474.9	30.4	1667.7	37.3	1565.5	59.2	88	3.672750425	0.138941324	0.257091474	0.005295496
TP19-46 - 56	1604.4	38.2	1816.0	41.2	1708.6	67.5	88	4.380143854	0.172962552	0.282592933	0.006728957
TP19-46 - 109	1620.0	34.2	1879.0	33.6	1745.2	64.0	86	4.577748844	0.167935265	0.285699594	0.006032922
TP19-46 - 95	1597.1	44.5	1856.0	35.3	1724.9	69.5	86	4.46697768	0.179863233	0.281141428	0.007837762
TP19-46 - 138	2635.6	166.1	3069.1	460.3	2900.6	712.3	86	16.40277608	4.028338404	0.505092034	0.031826253
TP19-46 - 1	1547.5	33.4	1850.5	38.3	1690.2	63.0	84	4.283316063	0.159555649	0.271324537	0.005855514
TP19-46 - 152	1578.7	64.0	1920.0	39.1	1741.4	78.5	82	4.557019835	0.205384667	0.277493685	0.011242686
TP19-46 - 72	1537.0	41.5	1886.5	38.8	1700.9	62.2	81	4.339428601	0.158807688	0.269252136	0.007273906
TP19-46 - 73	1468.7	33.0	1811.8	38.7	1624.7	60.4	81	3.953284158	0.146914371	0.255883822	0.00574112
TP19-46 - 122	1735.8	35.9	2141.9	67.3	1938.4	100.8	81	5.746866178	0.298778932	0.309004983	0.006392233
TP19-46 - 65	1596.6	41.0	2000.4	34.8	1788.7	67.9	80	4.821754278	0.182974696	0.281033616	0.007224037
TP19-46 - 133	1532.7	28.1	1925.2	31.6	1715.2	59.7	80	4.415070117	0.153652112	0.268406743	0.004926938
TP19-46 - 31	1493.1	45.1	1881.3	32.5	1671.7	64.6	79	4.188189484	0.161852451	0.260642841	0.007877165
TP19-46 - 120	1466.9	32.9	1848.8	31.0	1639.9	61.3	79	4.028066792	0.150691986	0.25551503	0.005731635
TP19-46 - 136	1460.3	33.2	1898.4	29.6	1658.4	61.4	77	4.120651703	0.152615463	0.254230996	0.005775398
TP19-46 - 50	1490.6	52.1	1939.7	48.6	1695.9	76.3	77	4.313160774	0.193930582	0.260142935	0.009087745
TP19-46 - 39	1618.2	46.3	2117.5	51.1	1858.9	77.9	76	5.238259144	0.219602316	0.285338584	0.008168962
TP19-46 - 57	1453.0	59.8	1927.7	34.1	1666.7	75.0	75	4.16283248	0.18742195	0.252811246	0.010411437
TP19-46 - 6	1385.5	52.7	1856.1	62.0	1595.8	78.8	75	3.814237304	0.188326966	0.239775744	0.009114934
TP19-46 - 23	1412.2	30.6	1892.7	39.5	1626.0	61.3	75	3.95984245	0.149344238	0.244911573	0.00531012
TP19-46 - 85	1883.0	45.3	2527.6	34.8	2218.6	78.1	74	7.890785996	0.277705833	0.339237684	0.008155209
TP19-46 - 78	1536.3	69.8	2095.1	35.7	1796.2	89.5	73	4.864939334	0.242516552	0.26912113	0.012229568
TP19-46 - 134	1332.3	29.5	1871.5	32.3	1563.9	59.0	71	3.665434909	0.138241556	0.229582235	0.005086595
TP19-46 - 98	1368.7	43.6	1950.6	44.8	1626.6	64.1	70	3.962791906	0.15609599	0.23654769	0.007537491
TP19-46 - 46	2058.6	49.9	3041.7	59.9	2603.6	99.3	68	11.98907445	0.457222839	0.376211251	0.009113511
TP19-46 - 139	1296.5	62.5	1921.4	53.7	1559.7	91.8	67	3.646154041	0.214706183	0.222773168	0.010746765

TP19-46 - 113	1664.1	35.6	2512.7	35.9	2085.1	75.5	66	6.794878907	0.246156405	0.294526803	0.006300876
TP19-46 - 104	1260.4	49.8	1918.8	44.4	1535.8	65.2	66	3.538004226	0.150101502	0.215945232	0.008527659
TP19-46 - 47	1347.0	33.6	2089.0	41.2	1672.9	63.6	64	4.19442216	0.159545243	0.23238372	0.005790169
TP19-46 - 8	1245.1	38.6	1965.6	35.1	1546.7	63.8	63	3.587334364	0.148078447	0.213068565	0.00660751
TP19-46 - 49	1207.8	44.0	1930.3	44.0	1503.8	71.0	63	3.397548536	0.160374126	0.20605815	0.007509261
TP19-46 - 147	1555.6	89.6	2527.5	49.9	2023.8	137.0	62	6.338863608	0.429029484	0.272927518	0.015719558
TP19-46 - 83	1102.3	28.8	1804.9	28.4	1374.1	52.6	61	2.870139743	0.109792623	0.18649086	0.004864866
TP19-46 - 114	1100.7	31.5	1819.7	47.6	1379.2	61.2	60	2.889431349	0.128121177	0.186194538	0.005328666
TP19-46 - 129	1139.4	49.7	1897.3	38.9	1440.6	78.8	60	3.132072514	0.171397232	0.193327449	0.008426749
TP19-46 - 11	1178.4	33.0	2015.2	30.7	1520.6	58.9	58	3.470755769	0.134378798	0.200578812	0.005617282
TP19-46 - 64	1127.3	23.8	1955.8	40.2	1458.8	52.9	58	3.206898386	0.116317408	0.191097741	0.004039305
TP19-46 - 44	1149.3	25.4	2009.5	49.4	1497.5	61.0	57	3.370358719	0.137283927	0.195171101	0.004306319
TP19-46 - 77	1107.9	54.1	1952.1	42.6	1439.5	70.0	57	3.127733918	0.152065504	0.187513241	0.009158941
TP19-46 - 100	1049.4	61.1	1913.6	37.7	1376.7	84.6	55	2.879961864	0.177059131	0.176785207	0.010298941
TP19-46 - 149	1025.0	82.7	1914.3	31.6	1359.0	109.9	54	2.812909097	0.227565032	0.172349666	0.013899859
TP19-46 - 76	931.0	27.7	1774.0	31.9	1227.7	48.8	52	2.350525462	0.093364636	0.155373523	0.004629519
TP19-46 - 20	997.3	87.2	1935.6	42.9	1345.9	108.9	52	2.76416992	0.223645205	0.167306918	0.014623874
TP19-46 - 130	1005.8	34.2	1976.0	30.5	1370.9	56.8	51	2.857881718	0.118492577	0.168856406	0.005748709
TP19-46 - 101	993.7	32.1	2072.6	40.4	1401.5	60.6	48	2.976125123	0.128620691	0.166655631	0.005390747
TP19-46 - 16	910.3	48.9	2011.4	44.7	1305.3	80.8	45	2.616736148	0.161958118	0.151668982	0.008145511
TP19-46 - 75	876.7	75.6	2001.3	51.3	1271.1	103.9	44	2.496897604	0.204009438	0.145676784	0.01256491
TP19-46 - 13	894.1	21.3	2075.9	35.8	1319.0	48.6	43	2.665656692	0.098281703	0.148783805	0.003538848
TP19-46 - 38	852.0	35.5	2022.7	53.4	1247.5	58.5	42	2.416483052	0.113296949	0.141302387	0.005887855
TP19-46 - 58	866.2	36.6	2060.1	39.6	1279.1	61.0	42	2.524442974	0.120478153	0.143822545	0.006069559
TP19-46 - 111	764.0	70.9	1950.1	62.8	1148.8	103.3	39	2.099940444	0.188914254	0.125824817	0.01168436
TP19-46 - 142	794.7	18.6	2030.0	34.2	1208.6	45.5	39	2.288054641	0.086146478	0.131199747	0.003075469
TP19-46 - 87	709.8	60.0	1940.7	46.0	1092.8	99.7	37	1.933606734	0.176449504	0.116393499	0.009846907
TP19-46 - 86	768.1	22.3	2178.2	42.5	1242.7	47.9	35	2.400202368	0.092479463	0.126548086	0.003674329
TP19-46 - 34	801.3	23.2	2295.7	35.3	1326.1	48.5	35	2.691441269	0.098521407	0.132365822	0.00382899
TP19-46 - 21	704.4	37.3	2208.1	38.2	1194.5	65.4	32	2.242654556	0.122751326	0.115458847	0.006113414
TP19-46 - 153	618.0	17.9	2069.6	38.9	1042.9	43.9	30	1.792850375	0.075421769	0.100615092	0.002910008
TP19-46 - 25	671.6	19.9	2315.2	35.6	1199.3	44.6	29	2.258099962	0.083942351	0.109796191	0.003248141
TP19-46 - 121	708.2	15.3	2493.8	33.4	1315.0	46.7	28	2.651204714	0.09423634	0.116117861	0.002503933
TP19-46 - 118	578.8	30.6	2103.7	52.5	1009.2	56.6	28	1.701894873	0.095514128	0.093947065	0.00496621
TP19-46 - 9	674.6	23.8	2532.2	39.1	1294.2	57.4	27	2.577230158	0.114327735	0.110318965	0.003892868
TP19-46 - 128	581.4	27.8	2193.3	52.6	1046.4	54.2	27	1.8026721	0.093428185	0.094382314	0.004509144
TP19-46 - 74	580.7	12.7	2197.9	34.3	1049.0	39.0	26	1.809875914	0.067246029	0.094267094	0.002060366
TP19-46 - 59	510.2	39.8	2089.7	50.8	924.4	73.4	24	1.485380569	0.117859364	0.0823635	0.006418837
TP19-46 - 126	523.3	38.3	2150.2	50.2	965.5	59.8	24	1.587888721	0.098360503	0.084555413	0.006195964
TP19-46 - 148	511.2	18.1	2104.7	43.2	930.4	41.5	24	1.500098816	0.066980348	0.082527743	0.002917733
TP19-46 - 15	530.3	13.5	2273.3	36.2	1015.9	41.3	23	1.719615057	0.069954612	0.085742122	0.002185308
TP19-46 - 60	498.3	33.8	2184.4	44.7	943.3	57.6	23	1.531922346	0.093505469	0.080373031	0.005446308
TP19-46 - 94	612.9	14.6	2743.8	58.5	1314.7	51.4	22	2.650218675	0.103618829	0.099740233	0.002378249
TP19-46 - 112	441.9	14.4	2051.2	48.2	824.5	33.7	22	1.252420771	0.051246373	0.070951465	0.00231902
TP19-46 - 137	481.5	13.7	2256.3	38.6	946.4	39.6	21	1.539852505	0.064376149	0.077548924	0.002201302
TP19-46 - 62	445.3	28.9	2282.4	54.0	907.4	51.3	20	1.443949958	0.081607348	0.071516658	0.004635843
TP19-46 - 14	380.8	16.4	2111.1	88.3	760.7	47.8	18	1.115332846	0.070150782	0.060844861	0.002626639

TP19-46 - 81	666.0	58.4	3857.8	78.8	1947.2	193.6	17	5.805178622	0.577132427	0.10884706	0.009543664
TP19-46 - 144	398.3	14.8	2359.8	49.1	864.2	40.2	17	1.342340045	0.06244972	0.063730075	0.002370671
TP19-46 - 106	360.1	10.0	2282.9	43.8	781.3	32.8	16	1.158545388	0.048711833	0.05745592	0.001593675
TP19-46 - 96	386.0	28.5	2598.2	32.2	930.4	69.6	15	1.499993362	0.112275353	0.061703152	0.004548328
TP19-46 - 5	409.7	11.8	2870.4	40.2	1074.0	42.7	14	1.879708103	0.074650213	0.065618063	0.001896251
TP19-46 - 61	335.3	8.0	2444.5	58.5	793.0	29.8	14	1.183606805	0.044479316	0.053397127	0.001277651
TP19-46 - 51	306.0	17.8	2248.9	60.5	681.5	38.4	14	0.95653687	0.053935	0.048612512	0.002832272
TP19-46 - 155	306.3	14.8	2512.5	55.1	765.8	35.5	12	1.125942454	0.052208433	0.048662287	0.00235781
TP19-46 - 28	238.4	31.3	2097.9	79.5	529.2	62.2	11	0.683998038	0.080394028	0.037669685	0.004953141
TP19-46 - 146	290.0	5.9	2789.5	33.2	825.7	27.8	10	1.255096818	0.042243281	0.046014091	0.000936522
TP19-46 - 41	270.7	11.8	2614.5	51.4	729.9	32.0	10	1.052104693	0.046096554	0.0428922	0.001875497
TP19-46 - 88	245.7	5.8	2839.4	40.2	749.4	25.4	9	1.091932785	0.037075794	0.038851883	0.000917952
TP19-46 - 37	223.1	7.1	2652.1	43.4	643.2	25.6	8	0.884140455	0.035188204	0.035210011	0.001122974
TP19-46 - 92	239.1	5.9	2926.9	52.8	763.9	31.7	8	1.122017687	0.046505208	0.037791985	0.000927823
TP19-46 - 91	224.9	15.0	2785.4	43.9	687.7	43.0	8	0.968547242	0.060608255	0.035508523	0.002364178
TP19-46 - 36	221.7	6.5	2749.7	45.3	667.9	27.2	8	0.930588768	0.037876091	0.034991089	0.001032351
TP19-46 - 108	237.8	5.9	2982.6	54.4	779.3	27.5	8	1.154327382	0.040799238	0.037584654	0.000934501
TP19-46 - 97	207.7	8.0	2651.9	51.4	608.7	27.0	8	0.821160333	0.036406255	0.032746529	0.001264921
TP19-46 - 105	193.6	7.9	2781.6	55.4	612.0	29.6	7	0.827042529	0.039959742	0.030481763	0.001244828
TP19-46 - 30	189.7	6.3	3121.7	178.5	703.8	55.3	6	1.000038054	0.07863882	0.029864214	0.000995816
TP19-46 - 131	181.6	11.5	3069.0	155.7	666.1	72.3	6	0.927003781	0.100580557	0.028569588	0.001813544
TP19-46 - 90	162.6	5.7	2810.4	46.7	542.2	22.5	6	0.705779114	0.029294567	0.025546989	0.000896232
TP19-46 - 84	169.1	4.5	2973.5	55.7	603.4	23.2	6	0.811615804	0.031246576	0.026583136	0.000701323
TP19-46 - 10	167.9	6.7	3002.7	53.1	608.4	24.9	6	0.820608151	0.033608632	0.026383561	0.001057637
TP19-46 - 18	164.2	5.8	3046.3	62.3	610.8	26.2	5	0.82491773	0.035376469	0.025802196	0.000910564
TP19-46 - 141	166.1	5.7	3182.3	40.7	656.8	28.4	5	0.909491489	0.039281785	0.02610829	0.000893254
TP19-46 - 115	139.3	6.7	2677.6	57.0	449.0	23.5	5	0.556102146	0.029092181	0.021843461	0.001052565
TP19-46 - 80	124.2	2.5	3176.3	41.8	523.4	17.6	4	0.674493015	0.022625524	0.019450104	0.000387865
TP19-46 - 17	114.2	4.4	2966.2	69.8	440.8	19.5	4	0.543673637	0.024068175	0.01786611	0.000695862
TP19-46 - 103	105.1	3.6	2982.9	65.5	414.8	17.7	4	0.50455622	0.021476582	0.016431839	0.000566952
TP19-46 - 4	105.9	4.0	3026.2	79.3	426.5	22.2	3	0.522077371	0.027209112	0.016564627	0.000623362
TP19-46 - 42	104.4	4.4	3032.6	53.4	423.5	19.8	3	0.517517929	0.024240058	0.016332495	0.000684564
TP19-46 - 7	81.9	1.9	3215.2	74.7	379.7	14.9	3	0.453438208	0.017749658	0.012779569	0.000290799
TP19-46 - 89	67.3	6.9	2894.6	124.1	273.2	17.9	2	0.308718925	0.020220507	0.010494438	0.001075737
TP19-46 - 135	72.3	2.8	3259.2	66.2	350.2	15.4	2	0.411853272	0.01805743	0.011272715	0.00043242
TP19-46 - 110	22.6	0.7	3691.4	83.2	159.1	6.8	1	0.169603473	0.007249564	0.003509821	0.000103918
TP19-46 - 79	19.6	0.6	3717.1	94.3	141.0	6.3	1	0.149010667	0.006660633	0.003038281	9.68139E-05
TP19-47 - 10	1958.0	38.3	1873.9	33.6	1927.1	67.6	104	5.671951675	0.199056692	0.354918289	0.006937395
TP19-47 - 105	1855.2	34.2	1793.5	33.2	1835.2	64.6	103	5.094646036	0.179309287	0.333484823	0.006147665
TP19-47 - 4	2065.5	42.8	2005.1	46.3	2044.3	79.8	103	6.48841305	0.2533393	0.377692111	0.007817725
TP19-47 - 89	1917.2	43.3	1864.6	43.3	1901.0	73.2	103	5.502653321	0.211847286	0.346370181	0.007826705
TP19-47 - 72	1672.2	33.0	1626.5	37.5	1660.8	62.6	103	4.132615166	0.155849944	0.296154803	0.005839516
TP19-47 - 157	1876.6	36.4	1825.5	39.2	1860.9	68.7	103	5.250975386	0.193731867	0.337904889	0.006553354
TP19-47 - 41	1859.9	33.7	1817.4	30.2	1849.3	63.9	102	5.179766731	0.178981276	0.33445829	0.006053692
TP19-47 - 150	1848.6	35.0	1814.5	37.5	1841.7	67.1	102	5.133530459	0.186993293	0.332103586	0.006295313
TP19-47 - 91	2529.1	46.7	2484.5	34.1	2514.2	83.8	102	10.8948313	0.36323832	0.480415446	0.008875414
TP19-47 - 159	1886.3	37.4	1853.6	34.5	1879.3	65.8	102	5.364866558	0.187901804	0.339919885	0.006741793

TP19-47 - 8	1653.7	33.7	1629.0	35.1	1652.4	60.6	102	4.090359061	0.150018099	0.292445753	0.005957235
TP19-47 - 70	2121.3	39.2	2090.6	32.6	2115.9	72.1	101	7.035289226	0.239566753	0.389661359	0.007206034
TP19-47 - 108	2225.1	44.1	2195.2	37.7	2218.6	77.8	101	7.890375543	0.276591897	0.412219917	0.008164682
TP19-47 - 114	2209.8	43.6	2185.4	42.3	2206.4	81.9	101	7.784615677	0.289019887	0.40888361	0.008071394
TP19-47 - 77	2171.1	44.4	2149.5	50.9	2169.4	82.6	101	7.47013079	0.284411247	0.40045002	0.008191258
TP19-47 - 144	2763.4	51.5	2738.9	35.5	2758.7	91.2	101	14.13275422	0.467301123	0.535212385	0.009969164
TP19-47 - 6	1809.4	34.2	1796.1	35.0	1812.6	67.2	101	4.960574873	0.183869847	0.324037217	0.006131616
TP19-47 - 109	1805.8	34.7	1802.2	35.1	1812.8	64.4	100	4.961779295	0.176200918	0.323288697	0.006218005
TP19-47 - 146	1803.2	35.9	1800.9	34.6	1810.4	67.4	100	4.947633165	0.18424469	0.322767779	0.006424319
TP19-47 - 96	1801.1	37.1	1800.0	40.4	1809.2	68.6	100	4.940399923	0.187415487	0.322327303	0.006633859
TP19-47 - 56	1879.2	35.1	1881.4	25.1	1889.1	63.6	100	5.426749369	0.18261533	0.338453638	0.006315612
TP19-47 - 11	1780.9	33.2	1790.8	28.3	1794.9	62.5	99	4.85713284	0.169090007	0.318202066	0.005937655
TP19-47 - 16	1911.3	34.9	1932.4	37.1	1931.1	69.3	99	5.698286852	0.204619254	0.345135644	0.006303594
TP19-47 - 9	1774.8	36.9	1803.1	45.9	1797.8	70.2	98	4.873967869	0.190425726	0.316945137	0.006598381
TP19-47 - 126	2052.4	40.6	2089.8	42.0	2080.9	76.6	98	6.763379454	0.249123744	0.374890713	0.007411929
TP19-47 - 107	1770.1	33.1	1806.6	27.8	1795.7	61.0	98	4.862066689	0.16503189	0.315989657	0.00590303
TP19-47 - 155	1785.2	36.1	1842.1	46.4	1820.4	75.1	97	5.006567804	0.206557221	0.319064708	0.006447406
TP19-47 - 25	2421.0	50.7	2501.5	48.8	2474.9	89.7	97	10.44307129	0.378449359	0.455808942	0.009547404
TP19-47 - 103	2400.9	48.0	2491.7	49.7	2459.8	91.8	96	10.27459775	0.383606739	0.451264729	0.009017821
TP19-47 - 139	2222.1	45.4	2322.3	56.2	2284.7	87.6	96	8.48865664	0.325620555	0.411572037	0.008416313
TP19-47 - 88	1815.9	37.3	1900.6	41.2	1864.4	68.9	96	5.272234117	0.194763256	0.325378293	0.006688075
TP19-47 - 93	2385.9	51.5	2500.2	46.9	2458.0	87.8	95	10.25489357	0.36613795	0.447899191	0.009670454
TP19-47 - 90	1788.8	34.7	1875.5	35.6	1838.4	65.4	95	5.113599488	0.181998852	0.319800791	0.006211018
TP19-47 - 149	1737.9	39.0	1824.4	40.9	1785.4	71.6	95	4.803096436	0.192555584	0.309424118	0.006947385
TP19-47 - 127	1761.2	34.8	1850.3	35.4	1810.8	65.2	95	4.949498991	0.178185634	0.314179565	0.006200149
TP19-47 - 123	1694.1	32.0	1837.1	30.9	1768.3	61.6	92	4.705867875	0.163999483	0.300573186	0.005681059
TP19-47 - 100	1668.0	37.4	1823.7	45.7	1746.4	71.5	91	4.584047496	0.187700129	0.295305023	0.006626969
TP19-47 - 111	1809.0	48.3	1980.0	32.0	1898.7	75.5	91	5.487571251	0.218266392	0.323945158	0.008649542
TP19-47 - 86	1713.1	50.8	1879.5	35.4	1798.2	75.3	91	4.876677533	0.204143515	0.30441252	0.009032069
TP19-47 - 73	1663.8	33.0	1833.7	31.3	1748.9	62.4	91	4.597986522	0.164058438	0.294467154	0.005840878
TP19-47 - 42	1703.7	46.0	1883.5	50.4	1797.9	75.1	90	4.874781137	0.203705212	0.302509975	0.008169357
TP19-47 - 17	1647.3	38.6	1824.7	40.8	1736.4	67.2	90	4.529246793	0.175179926	0.291147598	0.006823952
TP19-47 - 140	1729.6	37.7	1935.8	38.7	1832.9	70.8	89	5.080741825	0.196390504	0.30775484	0.006702201
TP19-47 - 64	1695.7	42.0	1904.3	30.6	1801.9	67.6	89	4.898007246	0.183851008	0.300891286	0.00744965
TP19-47 - 63	1594.8	33.2	1814.5	32.5	1700.7	62.0	88	4.338508734	0.158069895	0.280681013	0.005843683
TP19-47 - 76	1585.5	44.8	1851.4	30.6	1712.3	64.3	86	4.39963165	0.165113719	0.278845211	0.007877139
TP19-47 - 151	1547.0	31.7	1813.4	43.5	1673.8	64.9	85	4.198800971	0.162809988	0.271215392	0.005562101
TP19-47 - 21	1666.5	58.5	1953.7	45.4	1804.7	84.2	85	4.914059079	0.229265901	0.295010015	0.010362353
TP19-47 - 154	1586.3	30.4	1869.0	34.2	1720.0	61.4	85	4.440766235	0.158535707	0.278993728	0.005338559
TP19-47 - 112	1524.5	31.1	1801.5	45.6	1651.9	65.4	85	4.088015186	0.161750519	0.266785552	0.005441461
TP19-47 - 148	1519.9	27.9	1806.3	31.2	1652.3	57.6	84	4.089842277	0.142468477	0.26588283	0.004884085
TP19-47 - 152	1504.2	33.0	1788.5	32.9	1636.5	59.9	84	4.011547247	0.146839406	0.262804559	0.005765588
TP19-47 - 47	1566.7	38.0	1865.4	30.7	1707.5	63.5	84	4.374225716	0.162696067	0.275107144	0.006668614
TP19-47 - 134	1600.3	43.6	1982.7	60.9	1781.6	77.9	81	4.781194843	0.209018691	0.281783642	0.007670209
TP19-47 - 141	1431.3	53.0	1790.4	47.8	1590.0	84.5	80	3.786908797	0.201139271	0.248602137	0.009202577
TP19-47 - 125	1957.3	42.7	2543.5	37.2	2267.8	78.5	77	8.332038317	0.288269312	0.354756046	0.007742928
TP19-47 - 118	1445.3	44.8	1904.3	41.5	1651.6	70.4	76	4.086596462	0.174275999	0.251330842	0.007798537

TP19-47 - 71	1367.7	55.0	1828.7	45.9	1567.4	74.7	75	3.6817168	0.175401718	0.236359605	0.009508309
TP19-47 - 68	1885.7	51.1	2550.0	43.0	2232.9	86.2	74	8.016931769	0.309458587	0.339794408	0.009209322
TP19-47 - 14	1373.8	37.6	1872.2	39.9	1591.5	61.9	73	3.793936296	0.147507865	0.237516569	0.006503436
TP19-47 - 147	1507.1	44.0	2142.8	46.0	1799.9	80.3	70	4.886400636	0.218007336	0.263380817	0.007695988
TP19-47 - 51	1272.6	32.0	1821.4	30.5	1501.5	59.2	70	3.387596713	0.133652258	0.218247249	0.005485502
TP19-47 - 83	1413.4	27.7	2039.4	45.4	1692.9	61.7	69	4.297385801	0.156536976	0.245144797	0.0047967
TP19-47 - 145	1288.6	27.7	1887.8	38.1	1540.6	57.1	68	3.559704578	0.131838255	0.221274507	0.004763308
TP19-47 - 113	1160.4	25.2	1730.6	41.2	1383.9	52.7	67	2.907510768	0.110810951	0.197231294	0.004277505
TP19-47 - 81	1641.8	52.4	2475.5	39.3	2051.7	89.4	66	6.542637109	0.285209406	0.290060326	0.009261505
TP19-47 - 143	1283.7	53.2	1942.8	42.0	1561.7	77.8	66	3.655422432	0.182042085	0.220336981	0.009125764
TP19-47 - 160	1244.3	39.1	1952.2	35.6	1537.8	67.2	64	3.54720364	0.154904584	0.212916459	0.006690982
TP19-47 - 35	1218.7	24.5	1954.3	37.7	1521.6	54.2	62	3.475224681	0.123865038	0.208095422	0.004175141
TP19-47 - 102	1159.2	26.4	1872.6	45.0	1442.6	57.0	62	3.140266735	0.124054351	0.197008809	0.004481536
TP19-47 - 119	1123.4	27.1	1857.2	37.9	1410.8	51.1	60	3.012638795	0.109115269	0.19036822	0.004589666
TP19-47 - 74	1252.8	47.2	2163.4	42.3	1641.1	76.2	58	4.034183836	0.187261942	0.214503594	0.008074707
TP19-47 - 115	1009.8	23.1	1762.8	41.8	1284.3	48.0	57	2.542568816	0.095045496	0.16957494	0.003880333
TP19-47 - 50	1048.5	28.5	1878.9	37.5	1363.9	53.9	56	2.831348195	0.111965013	0.176618664	0.004793886
TP19-47 - 124	1225.1	37.3	2204.3	42.1	1639.7	71.7	56	4.027064872	0.176150743	0.209304941	0.00637759
TP19-47 - 60	1449.7	38.3	2611.2	31.1	1999.8	77.7	56	6.166788899	0.239515625	0.252174558	0.006659772
TP19-47 - 138	1056.3	37.1	1906.9	31.7	1380.5	61.3	55	2.89452061	0.128513833	0.178044627	0.006256462
TP19-47 - 65	1067.2	26.2	1950.7	37.6	1409.1	50.5	55	3.006030355	0.107739095	0.180039643	0.004424644
TP19-47 - 75	1078.2	29.9	1974.4	34.8	1426.7	54.7	55	3.075980447	0.117844692	0.182056659	0.005052229
TP19-47 - 130	1019.8	27.8	1988.5	43.8	1386.4	60.8	51	2.917333366	0.127940706	0.171388827	0.004678359
TP19-47 - 156	972.6	25.4	1930.2	31.7	1323.8	51.6	50	2.683042245	0.104601838	0.16285545	0.004260243
TP19-47 - 52	922.2	22.0	1867.9	30.1	1257.1	47.8	49	2.449037769	0.093196817	0.153790278	0.003667337
TP19-47 - 13	950.6	18.9	1949.5	35.4	1314.0	47.4	49	2.647789789	0.095426914	0.158898197	0.003163354
TP19-47 - 28	903.7	27.8	1881.2	63.2	1246.7	62.0	48	2.413779577	0.120131707	0.150488353	0.004635758
TP19-47 - 132	1158.2	114.5	2474.5	65.5	1715.4	194.4	47	4.416357863	0.500533916	0.196813643	0.019461247
TP19-47 - 2	879.8	27.2	1904.9	42.0	1235.2	54.0	46	2.375291331	0.103831148	0.146235441	0.004521084
TP19-47 - 120	865.3	23.6	1898.6	41.0	1219.8	51.9	46	2.324604213	0.098986982	0.143654338	0.003923197
TP19-47 - 7	880.3	71.3	1940.4	38.4	1249.0	99.4	45	2.421468166	0.192757292	0.146326205	0.011843542
TP19-47 - 94	890.4	23.1	1963.3	34.3	1268.0	50.1	45	2.486283038	0.09821343	0.148109681	0.003847916
TP19-47 - 106	988.4	90.6	2243.0	37.9	1471.4	132.9	44	3.259109128	0.294445549	0.165699935	0.015193914
TP19-47 - 66	900.2	19.6	2093.4	37.3	1330.4	47.0	43	2.707086644	0.095687785	0.149859465	0.003259856
TP19-47 - 104	840.0	21.2	1971.6	30.2	1226.9	46.8	43	2.347790761	0.089631575	0.139173635	0.003507677
TP19-47 - 79	829.9	39.1	1990.5	41.3	1226.8	59.6	42	2.347408644	0.11412441	0.137387572	0.006481191
TP19-47 - 133	794.8	20.1	1915.7	33.6	1163.7	43.2	41	2.145890493	0.079683101	0.131225003	0.00331493
TP19-47 - 87	802.6	24.8	1966.6	38.7	1190.0	48.3	41	2.228194101	0.090482078	0.132586287	0.004096883
TP19-47 - 122	740.5	16.1	1962.4	36.1	1129.6	43.6	38	2.041844579	0.0787823	0.121726575	0.002639518
TP19-47 - 5	724.8	19.5	1952.9	50.4	1111.3	48.5	37	1.987649305	0.086720759	0.118997352	0.003204538
TP19-47 - 95	721.5	42.8	2018.4	49.9	1132.7	68.8	36	2.051214433	0.124522204	0.118429708	0.007019596
TP19-47 - 57	694.4	21.6	1974.6	34.0	1089.0	42.9	35	1.922696945	0.075703481	0.113731034	0.003539325
TP19-47 - 39	692.2	31.2	2001.3	38.2	1097.9	55.3	35	1.948300237	0.098158172	0.11335597	0.005106914
TP19-47 - 26	696.7	20.8	2015.9	38.2	1107.2	45.8	35	1.975456333	0.081726535	0.114125165	0.003414632
TP19-47 - 97	693.4	16.4	2037.4	38.6	1111.7	40.8	34	1.988903115	0.072933906	0.113570595	0.002680627
TP19-47 - 22	656.2	26.3	1974.5	46.5	1048.5	48.8	33	1.808285755	0.084091283	0.1071475	0.004286613
TP19-47 - 1	620.7	13.6	1955.5	42.3	1003.8	39.0	32	1.687338285	0.065568715	0.101076353	0.002213675

TP19-47 - 29	620.4	17.6	2003.1	45.6	1022.0	44.8	31	1.736122873	0.076088884	0.101029771	0.002872503
TP19-47 - 34	607.6	20.5	1964.8	39.5	994.5	41.3	31	1.662892285	0.06901972	0.098840543	0.003342583
TP19-47 - 80	694.3	18.7	2271.0	43.6	1204.7	45.4	31	2.275564121	0.085782468	0.113723475	0.003061073
TP19-47 - 153	582.6	18.7	2054.7	38.2	999.1	39.8	28	1.67507191	0.066717896	0.094593117	0.003040222
TP19-47 - 53	569.1	19.7	2047.5	34.1	979.6	42.9	28	1.624028017	0.071136621	0.092300886	0.003199901
TP19-47 - 98	556.4	11.5	2014.2	45.7	952.6	35.5	28	1.555193089	0.057907979	0.090154228	0.001858643
TP19-47 - 12	527.5	37.5	2034.7	40.9	927.0	63.3	26	1.491698204	0.101885176	0.085270995	0.006065896
TP19-47 - 43	537.9	12.8	2197.9	40.3	997.3	35.5	24	1.670312428	0.059414679	0.087025749	0.002067533
TP19-47 - 61	479.8	14.4	1987.1	40.6	852.8	33.1	24	1.316083627	0.051139729	0.077273893	0.002322411
TP19-47 - 135	493.7	12.1	2061.5	52.0	893.2	39.1	24	1.410144144	0.061805384	0.079587679	0.001955364
TP19-47 - 36	588.7	43.2	2470.4	49.0	1165.7	88.2	24	2.151941144	0.162903207	0.095618016	0.007011483
TP19-47 - 19	482.3	11.4	2097.5	37.5	891.7	33.7	23	1.406465791	0.053127078	0.077682981	0.001841583
TP19-47 - 37	560.6	24.2	2470.1	39.0	1130.7	58.6	23	2.045064835	0.105992882	0.090852411	0.003926361
TP19-47 - 31	485.5	10.9	2148.0	45.7	912.5	33.8	23	1.456406696	0.053972886	0.078218665	0.001758755
TP19-47 - 54	422.3	18.0	2067.8	37.3	802.8	34.7	20	1.204880988	0.052125264	0.067702404	0.002884264
TP19-47 - 85	432.3	13.0	2166.2	38.4	846.3	32.1	20	1.301420237	0.049405489	0.069365598	0.002079599
TP19-47 - 46	454.2	10.6	2344.8	35.4	940.3	34.3	19	1.524634596	0.055569491	0.072999363	0.001711672
TP19-47 - 32	550.3	14.5	2843.1	44.1	1275.3	51.0	19	2.511235084	0.100351348	0.089112769	0.002346107
TP19-47 - 92	409.2	12.2	2126.2	42.4	802.6	32.5	19	1.204349848	0.048761362	0.065529948	0.001948415
TP19-47 - 128	453.8	17.3	2417.1	51.9	965.1	49.2	19	1.586969372	0.080894476	0.072938911	0.002775571
TP19-47 - 59	463.0	29.1	2484.2	47.2	1002.3	77.1	19	1.683583262	0.129464958	0.074460503	0.004675088
TP19-47 - 15	443.8	12.4	2463.0	42.6	969.1	40.6	18	1.59707512	0.066969287	0.07127549	0.001991028
TP19-47 - 117	370.2	11.8	2135.4	48.7	750.6	31.7	17	1.094419108	0.04623701	0.059116184	0.001891963
TP19-47 - 78	354.2	9.6	2110.4	36.9	719.2	28.7	17	1.030504951	0.041142778	0.05647901	0.001535774
TP19-47 - 44	404.2	9.9	2427.8	48.6	896.7	36.7	17	1.41843422	0.058117516	0.064705113	0.001582588
TP19-47 - 99	359.3	8.0	2162.1	38.7	742.4	28.7	17	1.077388265	0.041587775	0.057319948	0.001269199
TP19-47 - 131	346.8	10.2	2182.9	47.4	728.7	31.9	16	1.049562553	0.045895775	0.055274184	0.001631263
TP19-47 - 20	324.4	10.4	2117.1	33.6	675.8	27.2	15	0.945648455	0.038030152	0.051616817	0.001662174
TP19-47 - 116	329.1	7.2	2154.7	48.1	692.7	29.9	15	0.978245252	0.04219713	0.05237225	0.00115114
TP19-47 - 137	340.2	10.9	2251.6	44.2	739.3	33.6	15	1.071162112	0.048666677	0.054184971	0.001744044
TP19-47 - 30	317.8	10.4	2172.1	40.9	681.2	26.3	15	0.955892186	0.036926339	0.050528331	0.001650936
TP19-47 - 69	317.2	7.1	2173.8	36.3	680.5	23.6	15	0.95459179	0.033149428	0.050443279	0.001123759
TP19-47 - 58	336.3	16.3	2333.3	41.4	762.0	41.8	14	1.117940585	0.061277226	0.053552142	0.00259808
TP19-47 - 3	347.6	14.9	2465.3	56.0	819.3	39.9	14	1.240969143	0.060480907	0.055409605	0.002376821
TP19-47 - 158	310.5	9.2	2215.5	46.6	680.2	28.9	14	0.953951874	0.040543949	0.049338999	0.001463557
TP19-47 - 48	311.9	8.6	2238.2	52.8	690.9	26.0	14	0.974635836	0.036612363	0.049576593	0.001363675
TP19-47 - 82	307.4	8.6	2250.6	37.0	686.0	26.0	14	0.965250578	0.036643308	0.048842448	0.001360008
TP19-47 - 55	289.7	13.0	2195.3	44.4	640.7	27.6	13	0.879566185	0.037861198	0.045963622	0.002065111
TP19-47 - 49	288.3	5.8	2271.9	36.3	660.1	23.7	13	0.915745778	0.032833009	0.045738282	0.00091819
TP19-47 - 33	285.7	8.1	2253.2	42.3	650.7	25.6	13	0.898116567	0.035345687	0.045312842	0.001284242
TP19-47 - 40	289.3	7.7	2315.3	36.7	674.2	25.8	12	0.942578043	0.036126462	0.045896769	0.001214779
TP19-47 - 45	283.0	6.4	2293.7	29.9	657.2	23.4	12	0.910346073	0.032426248	0.044881876	0.001015294
TP19-47 - 101	284.0	10.1	2360.5	47.1	677.4	27.7	12	0.948682862	0.038833031	0.045042946	0.001597217
TP19-47 - 136	279.0	8.5	2381.2	46.4	674.5	24.6	12	0.943142735	0.034451023	0.04422182	0.001351582
TP19-47 - 142	269.5	13.8	2332.3	49.3	643.6	33.2	12	0.884868309	0.045653035	0.042685742	0.002182434
TP19-47 - 38	263.3	7.0	2308.3	39.9	625.9	24.7	11	0.852335989	0.033683839	0.041691748	0.001114575
TP19-47 - 62	220.1	8.6	2354.9	44.7	556.9	23.8	9	0.730557994	0.031188268	0.034730805	0.001352559

TP19-47 - 129	221.8	15.4	2384.9	75.7	568.1	34.0	9	0.749744526	0.044855422	0.035005123	0.002424294
TP19-47 - 84	225.5	8.5	2687.2	44.6	657.8	27.3	8	0.911390276	0.037848871	0.035592095	0.001344798
TP19-47 - 67	200.9	4.9	2408.1	42.1	530.5	19.0	8	0.686208354	0.024621112	0.031650074	0.000770858
TP19-47 - 110	203.9	5.4	2507.9	58.0	561.2	22.3	8	0.737851122	0.029360523	0.032141036	0.000857099
TP19-47 - 24	197.6	7.7	2453.3	57.3	534.5	23.6	8	0.692884291	0.030649067	0.031129266	0.001208775
TP19-47 - 23	177.2	6.5	2660.8	51.9	539.9	25.4	7	0.701908863	0.032985559	0.027870046	0.001015042
TP19-47 - 121	129.0	3.5	2814.8	59.3	450.8	18.2	5	0.55892835	0.022571899	0.02021185	0.000546089
TP19-47 - 18	88.4	2.2	2931.8	66.6	349.9	13.8	3	0.411442438	0.016205562	0.013810894	0.000348103
TP19-47 - 27	35.8	1.9	3906.2	143.3	274.0	12.1	1	0.309708516	0.01368981	0.00556315	0.000290662
TP19-49 - 18	7583.9	1983.1	4533.8	854.4	5337.0	1402.1	167	190.7418369	50.11058639	2.242866605	0.586472812
TP19-49 - 99	1819.0	40.6	1751.5	45.8	1795.8	73.4	104	4.862533798	0.198658701	0.325999985	0.007277153
TP19-49 - 153	1812.4	42.0	1746.4	60.7	1789.9	80.8	104	4.828351664	0.217909446	0.324656132	0.007523351
TP19-49 - 53	1826.4	38.1	1766.4	45.7	1807.0	71.1	103	4.927770233	0.193839652	0.327527632	0.006829356
TP19-49 - 36	1893.9	35.5	1840.7	32.6	1876.7	66.7	103	5.348741413	0.190131975	0.341504443	0.006408247
TP19-49 - 97	1623.2	34.1	1582.4	53.7	1613.2	71.2	103	3.897516771	0.171914343	0.286336973	0.006017607
TP19-49 - 43	1793.9	32.9	1750.2	29.7	1782.2	63.0	102	4.784692416	0.169066635	0.320852272	0.005884647
TP19-49 - 80	1922.4	40.2	1878.9	49.7	1910.0	74.0	102	5.560668385	0.21557317	0.347456131	0.007264236
TP19-49 - 155	1787.3	35.0	1748.4	32.3	1776.9	62.8	102	4.754753103	0.168101653	0.319500978	0.006262064
TP19-49 - 144	1631.5	34.9	1597.4	46.6	1624.8	66.3	102	3.95370716	0.161362408	0.287987232	0.00616045
TP19-49 - 1	1885.0	36.3	1847.5	36.6	1876.5	68.4	102	5.347794211	0.195033881	0.339651472	0.006545837
TP19-49 - 52	1903.4	35.7	1866.4	36.4	1894.3	67.9	102	5.459606916	0.195573601	0.343481523	0.006442271
TP19-49 - 84	2009.2	47.9	1973.2	73.0	1999.9	95.0	102	6.167781951	0.292836448	0.365710034	0.008724127
TP19-49 - 6	1872.4	39.4	1845.6	43.9	1867.5	71.2	101	5.291698861	0.201663296	0.337028842	0.007087508
TP19-49 - 40	1787.1	35.8	1762.2	40.0	1784.1	66.9	101	4.795179136	0.179865306	0.319463462	0.006393788
TP19-49 - 16	1754.8	39.1	1731.3	55.7	1752.0	75.9	101	4.61529172	0.200069517	0.312865353	0.006969958
TP19-49 - 124	1755.3	35.9	1735.7	47.0	1754.3	73.1	101	4.628049818	0.192906997	0.312979046	0.006398884
TP19-49 - 156	2563.2	46.6	2540.0	34.0	2559.2	86.0	101	11.43380126	0.384237632	0.488281868	0.008868139
TP19-49 - 39	1828.6	41.8	1813.5	64.7	1830.3	85.0	101	5.065386094	0.235199135	0.327975722	0.007499733
TP19-49 - 132	1799.4	36.6	1789.5	41.9	1802.6	67.0	101	4.901829514	0.182327738	0.321988311	0.006545423
TP19-49 - 146	2579.5	54.5	2578.3	38.6	2587.3	87.6	100	11.78255872	0.398711391	0.492038201	0.010393211
TP19-49 - 14	1876.8	39.9	1876.3	39.0	1885.2	71.8	100	5.402169025	0.20567761	0.337958476	0.007186251
TP19-49 - 158	1629.2	31.6	1633.2	35.6	1639.0	61.6	100	4.023585114	0.151114159	0.287533507	0.005574965
TP19-49 - 148	1826.2	35.1	1835.6	39.3	1838.7	67.1	99	5.115682815	0.18666511	0.327490869	0.006287313
TP19-49 - 7	1752.9	36.8	1767.1	45.8	1767.7	69.8	99	4.702369889	0.185712591	0.31247788	0.006567516
TP19-49 - 50	1698.7	31.5	1723.0	35.0	1717.8	63.9	99	4.429371204	0.164751389	0.301499619	0.00559457
TP19-49 - 90	1712.2	38.0	1739.6	41.4	1733.0	66.7	98	4.511145946	0.173693732	0.304219125	0.006749734
TP19-49 - 130	2488.7	48.4	2541.5	32.5	2527.3	84.3	98	11.04904719	0.368448648	0.471179529	0.009163341
TP19-49 - 160	1732.3	34.2	1772.6	37.0	1759.0	64.2	98	4.654047384	0.169864713	0.308297188	0.00608836
TP19-49 - 30	1864.6	42.3	1914.1	68.5	1896.7	90.4	97	5.475041194	0.261016829	0.335412017	0.007605618
TP19-49 - 120	1829.4	36.8	1886.1	37.4	1864.1	67.1	97	5.27067576	0.189652786	0.328150179	0.006607752
TP19-49 - 83	1845.0	38.6	1918.1	45.2	1887.6	72.4	96	5.417216421	0.207680193	0.331367403	0.00693358
TP19-49 - 76	2276.3	59.2	2366.6	66.4	2334.9	92.3	96	8.969178325	0.354531555	0.423486843	0.0110058
TP19-49 - 82	1867.1	77.6	1953.3	61.7	1917.5	102.9	96	5.609393216	0.300999523	0.335494621	0.013971096
TP19-49 - 42	1815.6	37.4	1913.0	68.1	1870.1	87.2	95	5.307518701	0.247622415	0.325307085	0.006707574
TP19-49 - 58	1782.0	44.1	1881.3	39.1	1837.2	69.2	95	5.106517016	0.192294431	0.318422138	0.007886352
TP19-49 - 25	1701.4	33.0	1805.2	35.1	1756.7	63.1	94	4.640917012	0.166710335	0.30202836	0.005863244
TP19-49 - 9	1781.9	48.7	1891.4	46.1	1840.5	79.0	94	5.126669572	0.220167797	0.31838903	0.008698216

TP19-49 - 55	1738.2	35.9	1845.5	34.4	1795.5	63.2	94	4.860703208	0.170985389	0.309491725	0.006399662
TP19-49 - 142	1812.6	35.5	1932.0	29.6	1876.8	64.7	94	5.349593414	0.184384645	0.324689754	0.006354272
TP19-49 - 89	1505.3	76.6	1634.5	67.4	1567.3	87.0	92	3.681281678	0.204250448	0.263026359	0.01338941
TP19-49 - 154	1643.4	34.5	1797.8	42.9	1720.4	65.4	91	4.442787322	0.16883707	0.290384961	0.006092279
TP19-49 - 91	1696.7	39.3	1862.7	50.8	1780.5	74.1	91	4.775148244	0.198761199	0.301082565	0.006977654
TP19-49 - 147	1739.1	37.1	1921.3	32.4	1831.6	63.3	91	5.073237648	0.175403133	0.309676536	0.006604488
TP19-49 - 151	1709.0	38.4	1905.2	33.5	1807.2	63.3	90	4.928646466	0.172763939	0.303566923	0.006827208
TP19-49 - 86	2057.3	51.7	2337.3	60.8	2210.7	97.3	88	7.82173042	0.344342898	0.375946149	0.009447819
TP19-49 - 139	1934.4	45.6	2208.7	49.4	2078.5	76.5	88	6.744572582	0.248183803	0.349968995	0.008244712
TP19-49 - 136	1619.5	32.3	1862.5	30.2	1736.5	59.6	87	4.529838329	0.155387985	0.285593974	0.005687746
TP19-49 - 109	1641.8	34.1	1891.0	33.2	1762.1	61.2	87	4.671374825	0.162297323	0.290056033	0.006021624
TP19-49 - 29	1649.5	41.1	1921.1	51.2	1779.5	73.8	86	4.769503515	0.197686259	0.291602812	0.007257036
TP19-49 - 34	1574.2	36.3	1871.0	46.5	1712.6	67.4	84	4.401569333	0.173171525	0.276599713	0.006375023
TP19-49 - 104	2382.7	53.6	2854.5	36.2	2655.0	93.9	83	12.66482547	0.447879227	0.447182302	0.010062354
TP19-49 - 75	1529.1	34.0	1873.7	58.8	1688.5	79.1	82	4.274496775	0.200160318	0.267701542	0.005944445
TP19-49 - 137	1446.7	36.4	1793.1	56.9	1599.9	70.1	81	3.833737129	0.168076661	0.251594312	0.006328108
TP19-49 - 60	1254.6	33.0	1635.9	39.3	1410.7	52.0	77	3.012006112	0.110975387	0.214849928	0.00565339
TP19-49 - 69	3251.1	1654.2	4311.2	2366.7	3970.7	2103.8	75	48.92568434	25.92283844	0.655870953	0.333716423
TP19-49 - 32	1476.4	57.8	1980.7	47.3	1704.3	74.8	75	4.357653099	0.191213531	0.257376675	0.010082362
TP19-49 - 28	1436.7	33.4	1934.1	41.9	1660.7	69.2	74	4.132295269	0.172170885	0.249660547	0.005810412
TP19-49 - 64	1416.3	29.7	1915.5	30.8	1637.0	56.9	74	4.013615602	0.139602342	0.245716388	0.00514704
TP19-49 - 21	1905.3	48.5	2577.7	50.9	2257.4	89.7	74	8.236803033	0.327281421	0.343884396	0.008758161
TP19-49 - 72	1375.6	45.7	1893.3	48.9	1600.3	61.7	73	3.835996595	0.14779522	0.237872849	0.007900674
TP19-49 - 31	1459.5	39.4	2014.7	36.1	1710.9	71.2	72	4.392384761	0.182717777	0.254084429	0.006865282
TP19-49 - 67	1392.6	58.7	1993.8	55.3	1656.6	98.6	70	4.111347625	0.244656455	0.241135652	0.010159032
TP19-49 - 101	1844.6	39.3	2658.5	30.8	2267.1	77.5	69	8.325542632	0.284437312	0.33128591	0.007059758
TP19-49 - 59	1455.5	53.5	2100.6	43.9	1747.4	79.6	69	4.589709758	0.20914928	0.253300304	0.009313585
TP19-49 - 112	1373.1	57.9	1995.1	40.3	1643.2	73.0	69	4.044522978	0.179716901	0.23739639	0.010005464
TP19-49 - 129	1361.5	44.5	1996.7	43.0	1636.7	66.4	68	4.012285797	0.162764415	0.235153925	0.007690103
TP19-49 - 114	1348.5	34.5	2016.0	45.5	1639.0	64.4	67	4.023920879	0.158181331	0.232673159	0.005947391
TP19-49 - 145	1137.4	45.5	1722.5	52.9	1364.2	75.5	66	2.832492153	0.15685325	0.192971149	0.007720211
TP19-49 - 95	1278.3	25.9	2099.9	47.4	1628.6	62.7	61	3.972489325	0.152849979	0.219322764	0.004438586
TP19-49 - 113	1218.7	33.9	2014.5	34.2	1548.1	60.7	60	3.593624511	0.140989631	0.208102428	0.005793571
TP19-49 - 128	1225.6	27.2	2047.5	38.5	1567.3	57.1	60	3.681093352	0.13409149	0.209401421	0.004644361
TP19-49 - 44	1204.0	30.1	2041.8	36.9	1549.1	59.5	59	3.598080827	0.13825622	0.20534601	0.005140017
TP19-49 - 157	1515.9	105.4	2606.5	37.5	2039.7	148.8	58	6.454359504	0.470920129	0.265107933	0.018425679
TP19-49 - 159	1536.8	41.1	2647.9	35.1	2075.9	82.7	58	6.724709844	0.267762835	0.26920615	0.007202022
TP19-49 - 143	1071.2	30.4	1940.8	40.3	1406.0	57.0	55	2.993489361	0.121394142	0.18077962	0.005129364
TP19-49 - 11	1113.9	24.7	2056.6	38.6	1490.9	54.1	54	3.341971944	0.121268612	0.188628126	0.004177096
TP19-49 - 127	1116.1	23.3	2106.7	36.6	1513.4	52.9	53	3.439066353	0.120206541	0.189023754	0.003948009
TP19-49 - 47	1088.4	24.7	2059.1	41.3	1471.0	54.0	53	3.257633136	0.119538789	0.183920753	0.004166367
TP19-49 - 12	1107.5	27.9	2125.0	36.3	1515.4	57.2	52	3.447853199	0.130252588	0.187439877	0.004717692
TP19-49 - 51	1054.1	82.2	2034.4	64.7	1433.7	100.2	52	3.104183316	0.216865357	0.177637523	0.013856115
TP19-49 - 2	1132.3	26.0	2254.1	39.9	1593.5	59.1	50	3.803691874	0.141067994	0.192018919	0.004413672
TP19-49 - 133	1095.4	50.5	2189.1	49.0	1533.9	69.2	50	3.529577247	0.159164346	0.185210441	0.008544413
TP19-49 - 98	1023.9	23.0	2121.4	33.7	1446.6	50.9	48	3.15639506	0.111121571	0.172134881	0.003874529
TP19-49 - 119	1022.1	22.4	2151.4	34.5	1458.5	51.3	48	3.205652571	0.112856801	0.171821655	0.003761468

TP19-49 - 77	971.7	53.6	2139.5	80.6	1410.7	90.9	45	3.01195474	0.194119086	0.16269481	0.008977756
TP19-49 - 65	934.6	30.0	2124.2	38.0	1374.4	58.4	44	2.871121815	0.122000446	0.156014418	0.00500089
TP19-49 - 111	986.7	26.0	2326.0	38.9	1506.7	59.9	42	3.410004528	0.13564233	0.16539785	0.004366446
TP19-49 - 19	847.6	37.3	2094.7	41.0	1283.6	58.7	40	2.539978989	0.116076573	0.140520153	0.006183794
TP19-49 - 70	894.2	27.4	2218.4	47.1	1375.2	61.3	40	2.874432063	0.128201089	0.148790517	0.004554491
TP19-49 - 37	830.8	53.6	2142.8	54.7	1288.3	79.3	39	2.556520013	0.157448635	0.137548567	0.008867916
TP19-49 - 116	865.6	22.8	2234.3	41.7	1359.2	51.6	39	2.813791804	0.106822841	0.143714944	0.003791757
TP19-49 - 10	849.1	18.7	2262.9	49.1	1351.1	50.1	38	2.783594527	0.103302326	0.140788246	0.003098534
TP19-49 - 57	819.5	17.2	2235.9	37.5	1316.9	47.2	37	2.658167082	0.095249106	0.135566091	0.002837476
TP19-49 - 150	843.0	18.9	2364.2	38.9	1394.6	47.6	36	2.948900183	0.100675106	0.139711633	0.003137878
TP19-49 - 49	778.4	19.7	2225.2	67.6	1270.7	51.5	35	2.495524204	0.101168335	0.128344136	0.003245195
TP19-49 - 62	774.2	23.3	2269.8	52.4	1285.8	55.9	34	2.54785983	0.110794918	0.127614648	0.003847645
TP19-49 - 8	781.5	28.1	2327.4	48.4	1317.8	58.9	34	2.66134568	0.118864205	0.128883317	0.00464033
TP19-49 - 74	757.6	24.0	2313.2	67.2	1288.5	57.6	33	2.55725473	0.114412286	0.124711623	0.003954962
TP19-49 - 61	776.2	15.3	2433.6	52.1	1359.9	51.9	32	2.816428302	0.107558287	0.127965562	0.002515086
TP19-49 - 54	738.2	24.9	2320.0	48.3	1271.0	49.4	32	2.49633395	0.096942145	0.121328059	0.004096935
TP19-49 - 26	765.8	19.9	2468.0	45.1	1363.6	51.1	31	2.830461161	0.106128357	0.126133175	0.003280065
TP19-49 - 22	697.0	16.9	2409.8	42.9	1264.9	49.0	29	2.475484172	0.09594615	0.114178967	0.00277258
TP19-49 - 66	740.6	44.2	2662.0	59.8	1415.8	90.8	28	3.032390759	0.194380251	0.12174217	0.00726875
TP19-49 - 138	690.7	25.1	2500.3	56.7	1297.7	64.2	28	2.589758317	0.128045596	0.11309534	0.004104614
TP19-49 - 149	637.9	32.5	2314.5	39.9	1160.2	65.8	28	2.134963164	0.121150401	0.104020076	0.0052939
TP19-49 - 87	656.5	22.7	2422.0	59.6	1224.2	53.6	27	2.339032332	0.102473103	0.107207052	0.003704527
TP19-49 - 100	646.6	15.4	2426.3	54.0	1215.7	49.3	27	2.311143633	0.093728189	0.105508765	0.002513713
TP19-49 - 123	624.4	15.7	2406.1	42.2	1180.2	43.2	26	2.19746586	0.080386085	0.101699356	0.00255248
TP19-49 - 118	589.9	40.3	2308.6	63.2	1101.3	78.7	26	1.958328873	0.139923652	0.095824251	0.006546257
TP19-49 - 56	686.1	18.7	2714.4	44.5	1387.4	53.5	25	2.921149887	0.11256503	0.112308089	0.003058663
TP19-49 - 94	669.0	19.5	2733.3	43.2	1375.6	55.2	24	2.875699035	0.115502347	0.109352695	0.003187274
TP19-49 - 122	622.9	20.7	2564.7	46.7	1245.0	51.0	24	2.408058387	0.098722167	0.101441816	0.00337209
TP19-49 - 88	610.3	32.3	2518.4	77.9	1211.3	63.3	24	2.296763258	0.11994177	0.099302931	0.00526211
TP19-49 - 103	618.4	15.6	2553.0	56.7	1234.9	44.9	24	2.374187513	0.086240444	0.100688767	0.002534267
TP19-49 - 41	529.2	11.7	2300.2	33.4	1023.1	37.1	23	1.739042081	0.062997278	0.085556556	0.001888658
TP19-49 - 141	565.1	13.0	2478.1	44.1	1137.7	44.9	23	2.066342816	0.081532001	0.091619711	0.002101983
TP19-49 - 93	588.2	12.6	2659.7	38.5	1243.3	43.8	22	2.402420109	0.084700389	0.095543744	0.002048211
TP19-49 - 63	563.3	22.0	2615.9	42.4	1191.6	55.8	22	2.233321455	0.104580091	0.091311808	0.003560531
TP19-49 - 5	524.7	13.2	2561.3	46.7	1119.0	44.8	20	2.010425289	0.080466113	0.084792961	0.00212807
TP19-49 - 45	516.0	17.8	2551.3	43.7	1102.9	49.0	20	1.962974989	0.087196955	0.083342846	0.002873918
TP19-49 - 71	499.3	12.2	2563.5	47.3	1085.1	42.9	19	1.911460775	0.075544187	0.080532949	0.001969422
TP19-49 - 13	490.1	11.9	2544.6	45.1	1066.2	42.0	19	1.857891834	0.073204906	0.07899465	0.001915731
TP19-49 - 78	465.5	13.7	2465.9	71.9	999.9	43.7	19	1.677031133	0.073310403	0.074882606	0.002197232
TP19-49 - 92	489.4	25.1	2602.1	56.0	1086.2	53.5	19	1.914731819	0.094294946	0.078870674	0.004050968
TP19-49 - 46	477.7	11.5	2555.0	39.0	1051.9	40.3	19	1.817922192	0.069582635	0.076924413	0.001845784
TP19-49 - 15	478.0	15.7	2628.5	50.9	1080.5	45.2	18	1.898363125	0.079327146	0.076967522	0.002531789
TP19-49 - 125	484.3	11.0	2678.8	44.7	1110.8	40.0	18	1.986082661	0.071447233	0.078025398	0.001777764
TP19-49 - 140	473.7	11.7	2628.7	46.9	1075.4	38.4	18	1.883868044	0.06728317	0.076255896	0.001881647
TP19-49 - 68	468.4	31.2	2653.1	61.5	1077.8	64.4	18	1.890612625	0.112896635	0.075365679	0.005027679
TP19-49 - 96	430.3	12.2	2574.7	52.5	988.9	38.0	17	1.648265969	0.063378839	0.0690245	0.001953914
TP19-49 - 105	442.9	14.0	2652.0	57.0	1037.4	38.5	17	1.777809598	0.066000936	0.071126435	0.002241892

TP19-49 - 115	445.1	14.0	2763.7	58.5	1088.9	41.1	16	1.922481751	0.072507172	0.07147889	0.002251498
TP19-49 - 35	425.5	10.3	2654.7	55.3	1012.2	36.9	16	1.709726833	0.062336045	0.068235127	0.001650829
TP19-49 - 4	428.9	18.1	2728.9	63.7	1047.4	45.4	16	1.805282092	0.078177169	0.068791632	0.002902872
TP19-49 - 81	397.8	10.9	2609.8	62.9	954.6	41.1	15	1.560430339	0.067193425	0.063657134	0.001749199
TP19-49 - 102	344.9	9.6	2318.1	48.9	766.8	28.3	15	1.127925515	0.041689705	0.054967877	0.001526511
TP19-49 - 134	414.4	8.9	2813.7	48.9	1057.7	39.3	15	1.833833311	0.06818194	0.066401129	0.001432531
TP19-49 - 3	415.2	11.6	2862.0	63.0	1078.6	40.2	15	1.8929514	0.070475194	0.066523761	0.001860637
TP19-49 - 85	388.0	12.8	2705.2	65.4	971.4	44.6	14	1.603096106	0.073525045	0.062030951	0.002041965
TP19-49 - 117	389.1	11.8	2716.2	47.0	976.0	41.6	14	1.614934445	0.068902555	0.062209989	0.001884801
TP19-49 - 108	367.7	8.3	2677.6	49.2	926.8	32.3	14	1.491066694	0.051895312	0.058699182	0.001331064
TP19-49 - 131	507.5	14.7	3709.6	124.3	1633.6	99.5	14	3.997310484	0.243413198	0.081910518	0.002364873
TP19-49 - 38	347.3	10.8	2777.6	45.8	929.1	40.1	13	1.496840379	0.064541701	0.055346532	0.001718399
TP19-49 - 152	335.8	8.5	2768.2	51.7	904.1	36.3	12	1.436106185	0.057704319	0.053470194	0.001358135
TP19-49 - 23	338.5	8.1	2874.3	49.1	948.2	34.4	12	1.544336189	0.056017344	0.053913556	0.00128549
TP19-49 - 73	300.8	10.1	2856.5	88.4	870.1	43.5	11	1.355961401	0.067817187	0.047760933	0.001600547
TP19-49 - 110	293.4	11.7	2787.8	62.6	830.3	32.7	11	1.265430344	0.049867224	0.046567804	0.001852724
TP19-49 - 48	304.7	6.4	2973.1	59.1	919.8	34.0	10	1.474072947	0.054429337	0.048397271	0.001012523
TP19-49 - 17	303.5	9.0	3073.6	58.5	956.6	34.0	10	1.565279425	0.055609583	0.048209209	0.001434368
TP19-49 - 126	315.3	9.1	3210.5	72.2	1035.4	38.6	10	1.772375074	0.066016766	0.050131565	0.001440587
TP19-49 - 121	285.2	9.0	3248.9	60.6	988.5	40.2	9	1.647215714	0.066998429	0.045235375	0.00142302
TP19-49 - 107	267.8	11.1	3249.2	70.2	944.8	37.7	8	1.535836964	0.061353998	0.042422406	0.001754232
TP19-49 - 106	240.9	5.0	3427.4	57.4	949.7	37.8	7	1.547975939	0.061634314	0.038078549	0.000796143
TP19-49 - 135	264.0	8.0	3818.6	132.9	1176.7	75.9	7	2.186346897	0.140948734	0.04181042	0.001261981
TP19-49 - 20	163.1	4.4	3415.0	69.6	720.4	27.0	5	1.032891073	0.038719291	0.025620081	0.000690005
TP19-49 - 27	169.7	4.6	3708.2	73.3	845.6	30.5	5	1.299718473	0.046866137	0.026680018	0.000720211
TP19-49 - 24	139.3	3.6	4031.0	81.0	854.4	30.0	3	1.319688768	0.046344754	0.021844363	0.000556913
TP19-49 - 79	94.2	2.8	4998.1	145.6	1018.7	41.2	2	1.727284493	0.069898171	0.014716488	0.000437572
TP19-50 - 115	1839.7	37.8	1733.3	41.5	1798.4	68.7	106	4.877575583	0.186458498	0.330264454	0.00678205
TP19-50 - 10	1773.1	34.7	1719.9	43.8	1756.7	70.1	103	4.641121215	0.185188162	0.316607518	0.006200017
TP19-50 - 86	1783.4	34.7	1736.6	32.6	1769.8	62.5	103	4.714221478	0.166544372	0.318710206	0.006205839
TP19-50 - 34	1813.5	34.6	1770.9	32.7	1802.0	64.5	102	4.898398316	0.175358114	0.324886818	0.006200986
TP19-50 - 70	1756.5	33.0	1718.6	31.9	1747.6	61.8	102	4.591045698	0.162448667	0.31321924	0.005889591
TP19-50 - 17	1767.5	33.9	1736.0	31.7	1761.2	61.5	102	4.666375205	0.162917955	0.315447362	0.006049092
TP19-50 - 74	1759.2	34.8	1728.2	35.2	1753.1	63.1	102	4.621070632	0.16638	0.313761419	0.006201936
TP19-50 - 44	1749.9	32.5	1720.5	34.1	1744.6	63.5	102	4.574166574	0.16654208	0.311880031	0.00580023
TP19-50 - 50	1788.7	34.3	1761.8	36.1	1784.6	66.5	102	4.798126572	0.178827326	0.319791518	0.006134269
TP19-50 - 69	2009.7	44.0	2017.8	55.4	2023.6	81.6	100	6.336745369	0.255421502	0.365815482	0.008018192
TP19-50 - 22	1799.8	34.9	1808.7	36.8	1812.3	66.5	100	4.958600051	0.181847851	0.322068868	0.006251981
TP19-50 - 155	1846.8	39.9	1856.5	51.2	1858.7	75.1	99	5.237325186	0.21152438	0.331732635	0.007172046
TP19-50 - 103	1777.2	41.0	1790.3	35.5	1791.4	65.7	99	4.83752673	0.177505587	0.31744209	0.007320551
TP19-50 - 92	1764.8	33.5	1783.9	31.4	1781.7	62.2	99	4.781615693	0.166991231	0.314913125	0.005978104
TP19-50 - 20	1835.5	37.4	1868.5	41.3	1859.0	72.0	98	5.239224476	0.203033632	0.329412742	0.00671699
TP19-50 - 62	1741.4	32.4	1773.8	30.6	1764.3	63.1	98	4.683464223	0.167540697	0.310137847	0.005765234
TP19-50 - 150	1762.5	34.0	1796.1	35.3	1786.2	64.1	98	4.807536932	0.172513854	0.314436401	0.006069157
TP19-50 - 105	1709.4	32.9	1748.9	36.0	1735.7	63.1	98	4.525613221	0.164596288	0.303657627	0.005838014
TP19-50 - 5	1749.0	34.0	1802.8	38.1	1782.0	64.2	97	4.783568166	0.172431295	0.311678369	0.006056094
TP19-50 - 18	1736.3	32.7	1800.5	27.2	1773.8	61.0	96	4.736965042	0.16283729	0.309115916	0.005813668

TP19-50 - 97	1656.2	34.7	1733.7	31.1	1698.3	59.6	96	4.325606339	0.151722275	0.292946215	0.006143265
TP19-50 - 21	1727.8	34.1	1809.8	32.5	1773.2	64.6	95	4.733562177	0.172453487	0.307389552	0.006071769
TP19-50 - 113	1684.8	40.4	1768.2	35.0	1730.4	66.6	95	4.496856978	0.17306562	0.29869289	0.007162493
TP19-50 - 116	1710.7	33.0	1807.9	43.3	1762.2	65.4	95	4.671713879	0.173471149	0.30391786	0.005859649
TP19-50 - 77	1678.1	34.9	1785.8	37.6	1734.3	64.1	94	4.518023317	0.16695852	0.297347792	0.006191833
TP19-50 - 143	1692.4	35.6	1818.3	40.9	1756.6	66.4	93	4.640751435	0.175460887	0.300217851	0.006316894
TP19-50 - 135	1648.2	32.4	1777.3	33.8	1714.3	63.1	93	4.410265637	0.162411513	0.291336925	0.005721252
TP19-50 - 142	1647.5	33.9	1792.3	36.1	1720.8	62.8	92	4.445082041	0.16212824	0.291200055	0.005988537
TP19-50 - 47	1630.6	34.2	1778.5	35.3	1704.4	64.9	92	4.357885439	0.165982654	0.287809866	0.006028019
TP19-50 - 85	1662.5	47.6	1826.1	33.5	1743.8	67.0	91	4.570127526	0.175547257	0.294195084	0.008423993
TP19-50 - 25	1813.9	36.1	2003.0	60.7	1911.7	87.7	91	5.571662649	0.255508052	0.324969091	0.00647101
TP19-50 - 99	1631.1	38.8	1804.3	43.3	1716.5	65.6	90	4.422180373	0.168993552	0.287913671	0.006849736
TP19-50 - 16	1635.7	32.7	1825.0	38.8	1727.6	62.4	90	4.481964203	0.161837976	0.288840419	0.005781064
TP19-50 - 54	1623.3	32.6	1817.0	41.6	1716.8	65.2	89	4.42354001	0.167902068	0.286352508	0.005747312
TP19-50 - 146	1615.5	31.2	1826.1	41.3	1718.0	63.8	88	4.430243535	0.164411683	0.284802334	0.005500858
TP19-50 - 123	1559.2	57.3	1839.1	41.5	1695.0	69.3	85	4.308559027	0.176254638	0.273629734	0.01005988
TP19-50 - 121	1597.4	47.6	1889.1	48.2	1735.4	70.9	85	4.523913097	0.184749007	0.281204041	0.008372365
TP19-50 - 126	1558.8	38.1	1897.5	41.0	1716.7	63.1	82	4.423233121	0.162558638	0.27356124	0.006681552
TP19-50 - 109	1506.8	37.9	1858.1	30.7	1667.2	64.2	81	4.165219466	0.160492339	0.263327944	0.006614663
TP19-50 - 145	1900.0	69.8	2373.4	260.3	2143.6	341.2	80	7.257315904	1.155297024	0.342769249	0.01259255
TP19-50 - 57	1530.9	47.6	1928.1	49.8	1714.5	66.0	79	4.411409198	0.169766846	0.268059695	0.008334688
TP19-50 - 151	1462.4	54.0	1846.3	70.7	1634.1	63.0	79	3.999744349	0.154257244	0.254657475	0.009395898
TP19-50 - 87	1540.5	45.4	1960.2	37.2	1736.3	65.8	79	4.529069936	0.171723111	0.269942019	0.007953309
TP19-50 - 102	1571.5	41.3	2015.5	45.4	1778.4	69.2	78	4.763152897	0.18525028	0.276069277	0.007248268
TP19-50 - 139	1537.9	33.1	1982.3	47.8	1743.1	62.3	78	4.566085246	0.16322784	0.269430613	0.005803087
TP19-50 - 147	1441.1	34.2	1919.4	51.3	1653.6	63.2	75	4.09646813	0.156603099	0.250513641	0.005939094
TP19-50 - 73	1437.3	52.5	1918.7	45.7	1651.8	64.3	75	4.087654997	0.159227962	0.249780309	0.009124468
TP19-50 - 31	1469.3	40.5	1973.6	49.4	1696.4	62.5	74	4.316087948	0.158989029	0.25599234	0.00705624
TP19-50 - 136	1422.2	44.8	1922.9	48.2	1639.2	68.2	74	4.024878948	0.167519575	0.246853772	0.00776826
TP19-50 - 33	1437.6	41.9	1973.3	34.9	1675.4	65.4	73	4.207029052	0.164167656	0.249822693	0.007282779
TP19-50 - 78	1334.2	43.0	1854.8	44.0	1550.4	67.7	72	3.603868476	0.157460117	0.22993817	0.007416007
TP19-50 - 26	1396.3	36.6	1964.5	35.2	1646.0	62.7	71	4.058595745	0.154538014	0.2418587	0.006342463
TP19-50 - 104	1371.8	65.9	1979.4	48.6	1639.7	71.8	69	4.027370678	0.176369664	0.237139187	0.01138538
TP19-50 - 149	1329.9	35.3	1935.6	36.1	1588.2	63.5	69	3.778478838	0.151125296	0.229126435	0.006079365
TP19-50 - 58	1284.1	72.0	1889.7	45.6	1537.1	85.7	68	3.543853132	0.197635994	0.220416311	0.012363586
TP19-50 - 68	1327.5	30.3	2019.9	38.9	1626.0	57.1	66	3.959881038	0.13905883	0.228669998	0.005216504
TP19-50 - 111	1291.7	31.9	1977.1	41.8	1581.8	59.7	65	3.748718864	0.141471536	0.221869271	0.005487258
TP19-50 - 23	1211.3	76.9	1907.3	46.0	1496.6	99.2	64	3.366200295	0.223038391	0.206716814	0.013123925
TP19-50 - 36	1211.8	41.6	1927.7	46.0	1503.2	66.6	63	3.395025217	0.150429637	0.206805237	0.007100762
TP19-50 - 1	1311.1	64.1	2160.8	81.6	1685.0	60.3	61	4.256698018	0.152370247	0.225547493	0.011019593
TP19-50 - 24	1240.3	55.9	2088.8	47.5	1595.5	73.5	59	3.813257474	0.175667665	0.212152264	0.009557891
TP19-50 - 55	1196.3	46.1	2063.9	65.9	1551.7	61.2	58	3.609886787	0.142275598	0.203904607	0.007857144
TP19-50 - 49	1333.9	29.5	2312.8	32.5	1768.4	62.4	58	4.706341668	0.165957288	0.22987804	0.005086645
TP19-50 - 30	1161.1	48.3	2016.6	49.0	1507.4	61.9	58	3.41285649	0.1400448	0.197361259	0.008208293
TP19-50 - 19	1157.5	23.6	2011.1	54.6	1501.4	58.5	58	3.38688484	0.132056441	0.196689797	0.004004118
TP19-50 - 110	1165.7	28.4	2031.8	41.0	1517.3	54.7	57	3.456379387	0.12457097	0.198202676	0.004829202
TP19-50 - 152	1152.1	22.4	2024.9	39.7	1503.7	55.0	57	3.396817757	0.124143767	0.195677283	0.003801069

TP19-50 - 154	1437.7	61.3	2539.6	50.9	1954.6	84.9	57	5.855100371	0.254381311	0.249852952	0.010661068
TP19-50 - 14	1193.6	28.6	2169.5	48.3	1599.7	67.4	55	3.832927398	0.161377494	0.203413476	0.004874995
TP19-50 - 61	1090.7	52.8	1989.0	61.4	1438.4	63.6	55	3.123068034	0.138062839	0.184355207	0.008927346
TP19-50 - 67	1096.1	65.6	2016.0	64.0	1457.9	73.8	54	3.202898461	0.16224174	0.185338698	0.011099087
TP19-50 - 106	1208.4	29.3	2290.6	46.2	1669.8	61.5	53	4.178347397	0.153926098	0.206182465	0.004996515
TP19-50 - 63	1168.6	30.0	2251.8	62.7	1619.6	62.0	52	3.928632675	0.150441458	0.198743654	0.005105335
TP19-50 - 71	1094.8	29.7	2158.4	32.1	1521.0	58.9	51	3.472701007	0.134502853	0.185097293	0.005024523
TP19-50 - 81	1096.7	57.6	2189.7	43.0	1535.3	86.2	50	3.536024282	0.198562253	0.185459167	0.00974103
TP19-50 - 64	1115.3	37.1	2253.3	63.6	1580.0	61.1	49	3.739917966	0.144604507	0.188881628	0.006278442
TP19-50 - 130	1058.1	64.7	2161.1	49.7	1491.2	87.8	49	3.343248623	0.196768924	0.178370297	0.010906475
TP19-50 - 41	1103.6	52.5	2291.6	70.9	1587.7	77.2	48	3.776040785	0.183549226	0.186731036	0.00887745
TP19-50 - 7	1231.2	40.3	2564.1	60.2	1818.6	71.4	48	4.996012084	0.196108694	0.210444515	0.006886732
TP19-50 - 80	1037.9	23.2	2162.1	45.7	1475.4	54.5	48	3.276113604	0.12102239	0.174691089	0.003909295
TP19-50 - 11	1157.5	41.0	2446.5	100.3	1704.2	67.7	47	4.356652948	0.172949947	0.196688785	0.006960187
TP19-50 - 134	997.5	31.3	2122.0	58.0	1424.9	64.7	47	3.068833941	0.13939683	0.167344345	0.005257737
TP19-50 - 108	995.6	42.4	2266.5	84.1	1487.7	51.5	44	3.328147447	0.115131927	0.167002981	0.007111004
TP19-50 - 9	964.0	72.5	2214.1	87.6	1437.3	74.9	44	3.11858257	0.162602152	0.161302104	0.012131372
TP19-50 - 13	999.0	31.3	2295.2	44.7	1503.1	55.8	44	3.394322813	0.125977139	0.167625949	0.005249954
TP19-50 - 118	935.1	67.8	2183.3	45.6	1398.7	98.7	43	2.964819761	0.209172664	0.15611535	0.011314175
TP19-50 - 82	974.8	90.7	2282.4	168.7	1473.8	81.3	43	3.269533148	0.180373069	0.163246327	0.015185245
TP19-50 - 35	908.2	33.2	2156.9	59.7	1364.4	49.7	42	2.833446037	0.103277854	0.151291132	0.005538037
TP19-50 - 76	970.8	34.2	2397.1	66.0	1525.9	62.6	40	3.494082155	0.143307769	0.162528142	0.005722978
TP19-50 - 144	961.9	18.4	2416.8	37.9	1528.0	52.9	40	3.503457394	0.121271244	0.160930279	0.003070329
TP19-50 - 53	914.1	21.2	2367.6	57.7	1462.3	52.5	39	3.221114173	0.115743934	0.152339322	0.003528534
TP19-50 - 84	840.6	19.2	2206.2	47.6	1323.5	52.4	38	2.682110604	0.106131168	0.139274933	0.003188767
TP19-50 - 140	1009.0	25.0	2650.4	51.7	1681.7	61.0	38	4.239452454	0.153711707	0.169433777	0.004195377
TP19-50 - 100	879.8	35.6	2388.9	60.6	1439.2	55.3	37	3.126217768	0.120189766	0.146225084	0.005919653
TP19-50 - 32	854.8	18.1	2365.8	39.7	1406.6	51.0	36	2.996085554	0.108538306	0.141788465	0.003004591
TP19-50 - 141	873.0	40.2	2434.1	68.9	1453.9	55.7	36	3.186678871	0.122105747	0.145027764	0.006683181
TP19-50 - 43	890.7	18.6	2524.0	42.8	1512.6	56.7	35	3.435677347	0.12884928	0.148166355	0.003089283
TP19-50 - 48	899.3	22.2	2581.5	44.0	1548.1	54.9	35	3.59368161	0.127360171	0.149701705	0.003695207
TP19-50 - 83	853.0	18.7	2481.8	38.9	1456.9	52.7	34	3.198797809	0.115648397	0.141476251	0.003107877
TP19-50 - 153	860.8	23.1	2568.0	90.0	1505.3	69.1	34	3.404105059	0.156244831	0.14286162	0.003840185
TP19-50 - 39	842.4	38.0	2597.5	108.6	1499.2	55.1	32	3.377692932	0.124121262	0.139594075	0.006292848
TP19-50 - 117	789.7	22.0	2518.4	41.6	1410.3	58.1	31	3.010595497	0.1239256	0.130324459	0.003630366
TP19-50 - 46	747.9	31.3	2490.8	68.3	1355.5	57.3	30	2.799772543	0.118324729	0.123017408	0.005152419
TP19-50 - 37	702.7	15.9	2353.3	53.1	1247.5	47.3	30	2.416277698	0.091678586	0.115163937	0.002600049
TP19-50 - 79	757.4	34.4	2540.5	62.9	1387.2	59.9	30	2.920246259	0.126170963	0.124672814	0.00566302
TP19-50 - 101	744.4	16.8	2553.8	66.8	1378.4	51.4	29	2.886557197	0.107559013	0.122399051	0.002765129
TP19-50 - 128	850.5	24.7	2952.1	50.6	1681.5	68.0	29	4.238233685	0.171280516	0.1410385	0.004102059
TP19-50 - 98	788.3	21.4	2839.0	73.6	1562.7	54.9	28	3.659912279	0.128527575	0.130075053	0.003532134
TP19-50 - 148	711.2	23.0	2566.2	92.8	1348.7	50.3	28	2.774652724	0.103578403	0.116646706	0.003779871
TP19-50 - 127	814.3	25.6	2964.7	112.9	1650.6	64.7	27	4.081209244	0.159960273	0.134635946	0.004231315
TP19-50 - 94	1149.1	119.4	4318.0	340.8	2771.3	459.6	27	14.3229138	2.375536135	0.195123963	0.020271656
TP19-50 - 90	650.6	20.6	2460.1	95.2	1230.4	55.7	26	2.359343316	0.106798836	0.106195762	0.003368375
TP19-50 - 129	730.1	14.8	2791.3	41.2	1473.5	52.5	26	3.268136328	0.11635076	0.119917055	0.002429601
TP19-50 - 65	735.9	17.2	2929.4	70.8	1546.9	58.6	25	3.588223052	0.135917787	0.120934812	0.002829676

TP19-50 - 137	706.1	15.4	2927.6	59.2	1511.2	51.8	24	3.429788271	0.11750051	0.115755537	0.002529071
TP19-50 - 120	669.7	17.6	2831.1	53.8	1421.9	63.0	24	3.05674188	0.135367971	0.109481064	0.002876106
TP19-50 - 29	651.5	26.0	2838.2	78.3	1402.5	54.2	23	2.980055491	0.115077692	0.10634116	0.004239883
TP19-50 - 6	652.7	14.6	2913.5	44.4	1439.3	50.7	22	3.126948285	0.110161068	0.106546156	0.00238434
TP19-50 - 28	641.0	17.7	2879.0	45.4	1408.7	54.0	22	3.004432577	0.115240256	0.104551069	0.002888644
TP19-50 - 38	645.5	13.6	2990.8	58.7	1465.0	49.9	22	3.232646518	0.110001539	0.10531829	0.00222098
TP19-50 - 89	565.4	14.2	2748.8	58.4	1253.2	43.2	21	2.435544335	0.084046299	0.091677019	0.002294531
TP19-50 - 91	544.8	53.7	2689.5	125.3	1200.3	79.3	20	2.261225289	0.14934922	0.088181664	0.008692051
TP19-50 - 45	624.3	21.7	3107.3	82.4	1496.4	86.2	20	3.365412454	0.193958087	0.101687555	0.003530366
TP19-50 - 122	545.9	14.2	2940.7	42.0	1311.9	53.4	19	2.640180002	0.107413328	0.088374154	0.002302578
TP19-50 - 132	606.5	13.9	3327.1	46.8	1582.8	56.8	18	3.753019148	0.134793008	0.098647819	0.002266818
TP19-50 - 72	537.1	11.5	2987.0	46.1	1320.7	46.1	18	2.671983524	0.093215593	0.08689067	0.001859252
TP19-50 - 119	531.8	18.9	2976.1	91.3	1308.3	55.4	18	2.627229428	0.111278558	0.085986353	0.003063411
TP19-50 - 15	545.1	18.9	3206.5	80.2	1436.0	56.5	17	3.113430119	0.122560345	0.088229039	0.003057251
TP19-50 - 4	495.0	12.1	3078.6	56.5	1299.8	52.2	16	2.597029736	0.104389759	0.079818153	0.001946916
TP19-50 - 59	431.1	28.3	2780.9	152.5	1071.8	48.0	16	1.873652823	0.083975635	0.069153117	0.004546432
TP19-50 - 8	483.1	17.3	3214.2	65.0	1343.6	75.0	15	2.755543092	0.153851466	0.077825489	0.002792113
TP19-50 - 107	481.0	13.9	3293.9	44.1	1378.6	50.5	15	2.887413571	0.105727001	0.07746556	0.002233814
TP19-50 - 131	461.0	10.7	3213.0	63.2	1308.0	50.1	14	2.626018564	0.100512173	0.074132951	0.001724163
TP19-50 - 66	478.4	12.4	3350.6	43.8	1402.2	52.3	14	2.978660924	0.111152486	0.077042738	0.001989356
TP19-50 - 133	423.7	27.2	3092.3	148.0	1189.9	76.4	14	2.228160507	0.143084452	0.067936108	0.00435762
TP19-50 - 42	382.0	21.3	2872.1	125.3	1024.1	49.0	13	1.741698283	0.083318893	0.061041645	0.003401181
TP19-50 - 112	442.3	16.0	3361.0	75.9	1347.8	51.0	13	2.771282473	0.104901982	0.071017382	0.002562842
TP19-50 - 52	397.6	10.7	3331.8	53.1	1251.0	48.2	12	2.42837265	0.093557859	0.063623453	0.001718014
TP19-50 - 60	362.4	17.0	3122.1	62.4	1095.7	63.2	12	1.941979675	0.112086071	0.057829626	0.002713838
TP19-50 - 88	356.1	19.6	3123.0	89.7	1081.3	47.7	11	1.900688466	0.083867034	0.056797492	0.003133679
TP19-50 - 27	336.0	6.7	3349.8	40.9	1138.0	39.1	10	2.067156182	0.070942934	0.053507074	0.001060119
TP19-50 - 93	314.1	9.3	3167.6	55.5	1016.1	41.3	10	1.720303485	0.069899034	0.049928574	0.001484609
TP19-50 - 56	296.1	8.5	3124.5	78.8	960.5	45.9	9	1.575251598	0.075310892	0.047005632	0.001356207
TP19-50 - 3	308.3	16.6	3441.1	72.1	1117.4	64.3	9	2.005530288	0.115401876	0.048992681	0.002633345
TP19-50 - 12	290.2	14.4	3476.9	118.7	1092.8	41.9	8	1.933545711	0.074089259	0.046052385	0.002286254
TP19-50 - 51	274.4	10.0	3447.6	66.8	1041.7	52.9	8	1.789715769	0.090921468	0.043481602	0.001587962
TP19-50 - 114	261.4	11.9	3371.3	79.4	977.7	41.0	8	1.619199528	0.067950038	0.04138804	0.001879287
TP19-50 - 125	246.6	10.0	3325.9	56.4	923.8	41.2	7	1.483814048	0.066146064	0.038996667	0.001576292
TP19-50 - 2	237.6	5.2	3612.5	77.7	1015.7	42.1	7	1.719091249	0.071217241	0.037539745	0.000826765
TP19-50 - 40	219.9	8.0	3462.6	92.5	906.0	43.5	6	1.440694085	0.0692384	0.034701971	0.001265917
TP19-50 - 124	192.3	7.6	3235.0	71.5	746.9	29.4	6	1.086745439	0.042797124	0.030275751	0.001201947
TP19-50 - 95	177.8	4.6	3597.5	52.5	831.9	32.7	5	1.268930532	0.049846033	0.0279727	0.000728659
TP19-50 - 96	146.3	4.1	3603.9	58.7	725.9	27.0	4	1.044055781	0.038794155	0.022961217	0.000645269
TP19-50 - 138	98.1	4.9	3656.1	80.1	550.0	31.3	3	0.718938482	0.040904739	0.015330839	0.000765205
TP19-50 - 75	55.4	1.9	4384.9	84.6	516.1	20.4	1	0.662428596	0.026145094	0.00863555	0.000291042
TP19-51 - 147	5356.5	237.9	4380.5	113.6	4678.7	298.9	122	99.26175591	6.341212053	1.295454103	0.057535028
TP19-51 - 64	1834.5	38.4	1740.1	48.6	1798.3	74.2	105	4.876954907	0.201139524	0.329204969	0.00689847
TP19-51 - 63	1889.5	35.8	1827.4	31.9	1868.0	66.0	103	5.294948976	0.187024024	0.340585659	0.006454268
TP19-51 - 74	1798.0	35.2	1759.2	41.7	1788.4	67.9	102	4.819960229	0.183026107	0.321690606	0.006298876
TP19-51 - 86	1823.4	34.7	1788.3	31.3	1814.7	63.5	102	4.972914246	0.17392412	0.326914504	0.006219344
TP19-51 - 145	1996.4	39.9	1959.9	33.4	1988.6	70.4	102	6.088534023	0.215400149	0.363013339	0.007255867

TP19-51 - 103	1846.3	38.6	1829.7	40.4	1847.2	68.6	101	5.167156228	0.192005435	0.331645017	0.006936074
TP19-51 - 44	1836.9	34.7	1820.8	37.2	1838.2	66.7	101	5.112437448	0.185549093	0.329692582	0.006222563
TP19-51 - 142	1781.8	34.5	1778.9	38.4	1788.9	67.8	100	4.822833493	0.182673121	0.318383067	0.006168628
TP19-51 - 81	1819.1	34.4	1818.9	26.2	1826.9	61.3	100	5.045104195	0.169291596	0.32602644	0.006158766
TP19-51 - 131	2564.4	71.4	2565.2	86.8	2572.8	114.9	100	11.60114182	0.517889088	0.488551861	0.013610606
TP19-51 - 39	1799.2	36.4	1807.8	45.4	1811.5	71.8	100	4.954055242	0.196411198	0.321942467	0.006510413
TP19-51 - 4	1791.6	32.9	1806.9	31.1	1807.3	63.7	99	4.929398761	0.17376517	0.320394473	0.005882521
TP19-51 - 72	1822.9	35.3	1844.8	36.0	1841.3	67.6	99	5.13102047	0.188377447	0.326817596	0.006334978
TP19-51 - 8	1791.4	37.1	1834.2	28.6	1819.5	65.0	98	5.000817632	0.178539542	0.320336712	0.006626978
TP19-51 - 62	1791.1	36.2	1837.9	40.0	1821.1	70.1	97	5.010560191	0.192745455	0.320288942	0.006464998
TP19-51 - 98	1736.3	32.1	1786.9	36.4	1767.7	63.1	97	4.702838818	0.16795045	0.309114081	0.00571236
TP19-51 - 28	2446.5	53.9	2520.4	54.7	2496.8	97.3	97	10.69227872	0.416720903	0.461564431	0.010164427
TP19-51 - 106	1718.3	32.4	1774.1	31.9	1751.5	61.7	97	4.612247108	0.162580943	0.305459151	0.005751846
TP19-51 - 10	1744.9	39.0	1812.4	41.3	1784.5	65.9	96	4.797692221	0.17719138	0.31085576	0.006943022
TP19-51 - 113	1763.7	35.2	1833.5	34.4	1803.9	63.3	96	4.909412026	0.172168586	0.314691253	0.006277443
TP19-51 - 140	1791.4	32.4	1873.5	33.1	1837.3	64.4	96	5.10690395	0.179080193	0.320349862	0.005798332
TP19-51 - 65	1739.9	33.7	1876.2	34.6	1810.5	62.3	93	4.947930684	0.17013245	0.30983592	0.005998855
TP19-51 - 40	1713.8	34.6	1854.2	34.3	1785.4	63.8	92	4.803030964	0.171607928	0.304537222	0.006148252
TP19-51 - 7	1668.1	38.0	1824.6	36.5	1746.7	63.7	91	4.585610508	0.167162905	0.295326549	0.006724615
TP19-51 - 70	1702.9	44.8	1867.0	42.8	1785.7	66.2	91	4.804487755	0.178001297	0.302338558	0.007956829
TP19-51 - 129	1682.2	36.4	1850.2	32.1	1766.0	62.7	91	4.692914401	0.166554228	0.298166646	0.006449404
TP19-51 - 136	1626.7	52.1	1791.9	55.1	1706.5	70.7	91	4.368803106	0.181086279	0.287042743	0.009195647
TP19-51 - 79	1606.1	32.6	1794.2	29.0	1694.9	58.1	90	4.307984088	0.147600285	0.282928085	0.005747057
TP19-51 - 3	1642.8	44.8	1851.7	36.8	1743.6	66.8	89	4.568694935	0.17490617	0.29025479	0.007920432
TP19-51 - 144	1635.3	34.1	1867.1	34.9	1748.0	61.9	88	4.593217573	0.16258438	0.28876484	0.00602808
TP19-51 - 118	1603.1	63.2	1848.6	47.7	1720.7	87.5	87	4.444620592	0.225944605	0.282340184	0.011135513
TP19-51 - 15	1621.0	51.2	1886.3	41.9	1747.9	76.8	86	4.592394979	0.20179953	0.285901318	0.009035607
TP19-51 - 139	1648.3	36.0	1953.4	43.0	1794.7	65.5	84	4.856446133	0.177155197	0.29135922	0.006354725
TP19-51 - 143	1613.2	35.5	1936.2	39.2	1766.0	65.0	83	4.69311393	0.172730255	0.28435123	0.006261797
TP19-51 - 154	1517.7	52.3	1850.3	44.1	1670.3	66.0	82	4.181200283	0.165322523	0.265454391	0.009139952
TP19-51 - 138	1614.6	35.1	1987.9	34.7	1791.1	61.7	81	4.835633138	0.166466119	0.28462709	0.006185731
TP19-51 - 37	1538.3	41.5	1968.7	46.9	1737.6	73.0	78	4.535927653	0.190490539	0.269517556	0.007268205
TP19-51 - 108	1445.0	29.5	1879.6	31.1	1638.4	57.7	77	4.02092079	0.141707371	0.251263457	0.005126309
TP19-51 - 137	1436.2	33.1	1883.8	35.7	1632.3	59.1	76	3.990632674	0.144497691	0.249562407	0.005755178
TP19-51 - 120	1453.4	69.7	1917.9	76.3	1659.5	68.0	76	4.12599151	0.168990078	0.252905563	0.01212795
TP19-51 - 47	1435.6	37.3	1944.6	63.6	1662.5	58.5	74	4.141250788	0.145782466	0.249438403	0.006476841
TP19-51 - 141	1460.2	41.1	1993.4	44.7	1699.9	67.2	73	4.334234077	0.171426432	0.254212054	0.007156867
TP19-51 - 155	1573.8	46.6	2185.1	43.3	1861.1	72.4	72	5.252242574	0.204244056	0.276516057	0.008180614
TP19-51 - 135	1409.4	41.9	1973.6	43.0	1659.5	71.2	71	4.126040473	0.177073295	0.244382671	0.007262918
TP19-51 - 133	1417.2	35.6	2002.1	44.4	1676.3	68.4	71	4.211514176	0.171854398	0.245887656	0.006174396
TP19-51 - 126	1342.3	34.7	1941.6	44.6	1600.7	60.1	69	3.837514614	0.14408478	0.231494636	0.005985045
TP19-51 - 24	1367.5	62.7	1983.5	48.6	1635.9	70.7	69	4.008400189	0.173289655	0.236319579	0.010843149
TP19-51 - 110	1356.1	85.7	1971.6	88.1	1621.0	84.9	69	3.935624862	0.206171931	0.23413664	0.014801328
TP19-51 - 38	1319.9	26.4	1928.2	36.7	1579.6	57.1	68	3.738066401	0.135161247	0.22722098	0.00453888
TP19-51 - 80	1356.5	33.4	1985.4	30.9	1629.6	60.4	68	3.977362921	0.1473129	0.234201859	0.00575851
TP19-51 - 121	1391.0	110.1	2071.8	88.7	1689.0	101.5	67	4.277304217	0.256952856	0.240825093	0.019058838
TP19-51 - 29	1333.9	43.7	2033.9	43.9	1637.1	65.7	66	4.014147591	0.161046668	0.229885528	0.007535765

TP19-51 - 48	1316.2	48.4	2019.0	48.8	1618.2	69.5	65	3.921779032	0.16850336	0.226510553	0.00832646
TP19-51 - 11	1431.4	36.1	2204.4	128.5	1782.0	113.5	65	4.783710925	0.304584792	0.248625274	0.00626974
TP19-51 - 95	1323.7	32.4	2052.0	41.2	1635.0	60.2	65	4.004051319	0.147510011	0.22794483	0.005586228
TP19-51 - 117	1331.8	33.5	2104.4	41.3	1667.8	60.4	63	4.168002721	0.151067961	0.229494459	0.005772767
TP19-51 - 18	1296.2	26.8	2069.4	35.0	1627.2	58.4	63	3.965828283	0.142288146	0.222722308	0.004610388
TP19-51 - 123	1297.8	38.2	2114.4	54.3	1648.9	66.7	61	4.072964925	0.164751437	0.223023643	0.006561184
TP19-51 - 50	1277.1	29.7	2117.8	37.5	1636.0	61.2	60	4.008952302	0.149988686	0.2190942	0.00509155
TP19-51 - 104	1229.4	26.0	2063.5	38.2	1577.2	57.8	60	3.727200609	0.136680125	0.210112881	0.004438707
TP19-51 - 54	1527.8	35.2	2573.5	36.0	2031.1	71.2	59	6.391259825	0.223893847	0.26744716	0.006157378
TP19-51 - 22	1253.4	30.9	2143.0	75.5	1631.7	72.4	58	3.987495908	0.176976114	0.214631366	0.005297114
TP19-51 - 91	1196.0	27.0	2079.1	50.0	1560.0	62.7	58	3.647663711	0.146577674	0.203861626	0.004596847
TP19-51 - 153	1231.6	67.0	2141.6	65.3	1616.9	69.6	58	3.915735388	0.168617782	0.210524699	0.011459306
TP19-51 - 92	1247.2	26.4	2228.8	34.6	1667.0	57.9	56	4.164177091	0.144697737	0.213463185	0.004524308
TP19-51 - 58	1160.8	55.4	2083.6	44.8	1535.9	63.1	56	3.538488662	0.145461496	0.197291829	0.009412147
TP19-51 - 114	1174.9	73.1	2122.5	67.9	1567.8	76.7	55	3.683658726	0.180197896	0.19992087	0.012436338
TP19-51 - 36	1203.2	25.0	2209.0	43.6	1625.5	55.1	54	3.957451101	0.134215212	0.205200573	0.004255179
TP19-51 - 56	1519.8	60.0	2795.2	197.8	2147.0	214.4	54	7.285065818	0.727493754	0.265877029	0.010494329
TP19-51 - 109	1402.2	56.6	2601.5	48.2	1962.2	88.2	54	5.906697632	0.26541023	0.242991851	0.009809904
TP19-51 - 89	1239.9	38.7	2308.8	41.0	1699.8	63.4	54	4.33380212	0.161687253	0.212081062	0.006619814
TP19-51 - 32	1105.5	28.4	2128.1	35.2	1514.5	55.6	52	3.4439066	0.126443203	0.187077186	0.004808826
TP19-51 - 88	1036.9	42.7	2012.7	54.5	1409.6	61.5	52	3.007919542	0.13124003	0.174506453	0.007192157
TP19-51 - 151	1162.8	25.0	2308.8	60.6	1641.4	63.3	50	4.035749966	0.155596788	0.197680787	0.00425108
TP19-51 - 43	1062.3	26.7	2166.1	51.3	1496.7	54.6	49	3.366687305	0.122731375	0.17914199	0.004503131
TP19-51 - 116	1031.8	23.2	2119.6	37.6	1451.9	54.0	49	3.178376131	0.118207586	0.173588515	0.00390873
TP19-51 - 41	1041.7	74.2	2170.9	119.9	1483.4	71.7	48	3.310054999	0.160076341	0.175383563	0.012488937
TP19-51 - 73	1004.7	39.8	2102.3	34.2	1422.9	67.8	48	3.060785879	0.145939919	0.16866504	0.006680129
TP19-51 - 14	1080.2	29.3	2309.6	41.7	1571.9	58.2	47	3.702567397	0.136982065	0.18243303	0.004954481
TP19-51 - 87	1041.9	27.1	2228.6	48.0	1509.1	58.4	47	3.420285096	0.132446699	0.175418736	0.004560053
TP19-51 - 60	1112.3	22.2	2381.6	56.0	1637.5	64.6	47	4.01635247	0.158410217	0.18833212	0.003753905
TP19-51 - 19	1047.5	25.9	2297.9	37.7	1546.1	55.0	46	3.584632949	0.12744025	0.176438916	0.004361181
TP19-51 - 94	971.6	60.3	2255.9	63.6	1463.0	80.6	43	3.224419469	0.177525091	0.162665195	0.010088393
TP19-51 - 122	959.3	35.8	2260.1	56.6	1460.3	56.6	42	3.213005287	0.124533492	0.160452237	0.005994016
TP19-51 - 66	963.3	24.8	2275.3	31.7	1465.9	57.1	42	3.236170577	0.125989011	0.161167333	0.004154834
TP19-51 - 93	919.0	22.8	2180.2	57.4	1382.4	50.9	42	2.901806416	0.106783836	0.153218433	0.003807859
TP19-51 - 84	1036.9	59.7	2483.0	72.6	1622.8	76.5	42	3.9442855	0.185980153	0.174503943	0.010041366
TP19-51 - 90	991.5	26.6	2382.5	41.6	1537.4	56.2	42	3.545149994	0.129643147	0.166273483	0.00446738
TP19-51 - 115	963.7	22.2	2350.1	55.2	1495.7	56.9	41	3.362263319	0.12796667	0.16124456	0.003717492
TP19-51 - 1	921.4	25.5	2324.7	46.6	1449.8	56.0	40	3.169492409	0.122373132	0.15366057	0.004254569
TP19-51 - 134	943.2	43.7	2442.4	69.2	1523.7	58.7	39	3.484411139	0.134143135	0.15756259	0.007304295
TP19-51 - 52	807.1	20.1	2415.8	37.7	1381.6	53.0	33	2.898693471	0.111109692	0.133375947	0.003316324
TP19-51 - 21	770.1	41.4	2324.0	52.2	1304.5	72.3	33	2.613808917	0.144777245	0.126896301	0.006816591
TP19-51 - 6	837.7	17.0	2598.0	58.4	1495.2	56.3	32	3.360400141	0.12653945	0.138768597	0.002813515
TP19-51 - 2	756.5	48.9	2351.4	87.2	1302.6	60.5	32	2.607057438	0.121046159	0.124522633	0.008043294
TP19-51 - 25	734.7	28.3	2294.6	46.7	1256.5	52.3	32	2.446967106	0.101814365	0.120717716	0.004643167
TP19-51 - 23	821.5	27.4	2585.0	71.9	1471.5	75.4	32	3.259528256	0.167083216	0.135909937	0.004537118
TP19-51 - 59	759.8	25.0	2446.8	61.9	1346.9	48.3	31	2.767843928	0.099196127	0.125085094	0.004121651
TP19-51 - 127	999.7	25.5	3310.5	243.1	2021.8	170.6	30	6.324149403	0.533592643	0.167747741	0.004271353

TP19-51 - 76	874.0	19.8	3058.6	38.8	1763.3	66.4	29	4.677889645	0.176162495	0.145206734	0.003284847
TP19-51 - 69	702.3	45.3	2561.6	117.7	1336.4	52.1	27	2.728931983	0.106326978	0.115092937	0.007431848
TP19-51 - 97	727.4	58.0	2662.3	138.2	1411.8	68.6	27	3.016458995	0.146493982	0.119451354	0.009523123
TP19-51 - 61	786.0	52.7	2879.4	56.8	1576.1	94.4	27	3.721786098	0.222874115	0.129679424	0.008690316
TP19-51 - 124	725.2	15.1	2688.4	51.3	1419.3	51.6	27	3.046204029	0.110809852	0.119066629	0.002481323
TP19-51 - 55	749.2	20.9	2803.6	42.5	1499.4	60.6	27	3.378316826	0.13643002	0.123237302	0.003433648
TP19-51 - 53	683.4	15.5	2600.4	44.6	1332.7	47.4	26	2.715505512	0.096575466	0.111844495	0.002534711
TP19-51 - 46	756.0	17.2	2940.2	54.6	1573.7	61.2	26	3.710714909	0.144292693	0.124422027	0.002831435
TP19-51 - 9	702.1	17.9	2744.4	41.2	1420.4	52.3	26	3.050491795	0.112307442	0.115058944	0.002939819
TP19-51 - 150	718.3	21.8	2892.5	44.8	1506.5	55.7	25	3.409024972	0.125978431	0.11787988	0.00357952
TP19-51 - 125	712.8	23.8	3096.1	54.6	1601.6	79.0	23	3.842091408	0.189488162	0.116909964	0.003904319
TP19-51 - 13	687.1	15.0	3040.2	43.3	1542.9	56.8	23	3.569894143	0.131529763	0.112476268	0.002454155
TP19-51 - 49	603.3	21.4	2758.6	43.8	1305.1	56.5	22	2.615891332	0.113278201	0.098112396	0.003486865
TP19-51 - 67	597.1	15.4	2734.9	56.6	1287.7	44.2	22	2.554458519	0.087608509	0.09704576	0.002498377
TP19-51 - 78	671.6	18.7	3094.7	36.3	1550.7	62.5	22	3.60518768	0.14528383	0.109803587	0.003054328
TP19-51 - 146	592.7	21.0	2763.1	68.4	1294.8	48.9	21	2.579186319	0.097431193	0.096299003	0.003406977
TP19-51 - 112	654.5	21.7	3074.9	59.6	1519.8	82.5	21	3.467247044	0.188314555	0.106865121	0.003549981
TP19-51 - 101	559.0	13.0	2656.7	54.4	1202.7	43.0	21	2.268946583	0.081049201	0.090593762	0.002114049
TP19-51 - 33	581.5	13.2	2861.8	48.0	1323.0	50.1	20	2.680158163	0.1014801	0.094402651	0.002136613
TP19-51 - 105	544.4	18.4	2855.3	54.1	1270.6	54.3	19	2.495069194	0.106611953	0.088118115	0.002973811
TP19-51 - 45	557.7	12.3	3049.8	48.3	1379.2	49.2	18	2.889782284	0.103089279	0.090362099	0.001995772
TP19-51 - 77	530.2	13.8	2909.7	73.0	1275.3	50.5	18	2.511125804	0.099359922	0.085720991	0.002228563
TP19-51 - 16	550.4	14.5	3034.7	41.8	1361.2	53.2	18	2.821427821	0.110222984	0.089133008	0.002346005
TP19-51 - 148	460.4	19.0	2634.6	72.7	1058.1	39.6	17	1.835061161	0.068599326	0.074031597	0.003053754
TP19-51 - 34	515.8	13.0	3002.1	40.4	1298.2	51.9	17	2.591298919	0.103548555	0.083307836	0.00210494
TP19-51 - 130	504.1	20.9	2956.2	60.1	1257.1	74.3	17	2.448857886	0.144691657	0.081331768	0.003367126
TP19-51 - 31	493.4	15.5	2909.9	49.1	1224.0	53.1	17	2.338236668	0.101445005	0.079545844	0.002493602
TP19-51 - 96	489.8	13.3	2968.8	52.6	1240.3	46.5	16	2.392274229	0.089744063	0.078940533	0.002148715
TP19-51 - 119	479.4	12.3	2935.0	63.0	1211.4	48.8	16	2.297173386	0.092456285	0.077207583	0.001973122
TP19-51 - 42	516.0	17.8	3173.1	178.2	1376.4	64.8	16	2.879041315	0.135463845	0.083339818	0.002870485
TP19-51 - 71	516.8	12.7	3273.4	34.5	1425.3	50.9	16	3.070383946	0.109655674	0.083462947	0.002049415
TP19-51 - 27	512.3	11.4	3348.0	45.9	1456.3	50.4	15	3.196557028	0.110701966	0.082705563	0.00183998
TP19-51 - 85	444.4	10.5	2976.9	43.4	1175.2	43.0	15	2.181669335	0.079826077	0.071368436	0.001692133
TP19-51 - 26	414.3	9.1	2982.3	40.8	1127.4	41.1	14	2.035386078	0.074114046	0.066386315	0.001458229
TP19-51 - 111	404.4	20.9	2916.6	113.2	1082.7	42.5	14	1.904722096	0.074829606	0.064748128	0.003351646
TP19-51 - 83	399.5	9.5	3001.4	114.0	1109.3	50.9	13	1.981800233	0.090919508	0.063928615	0.001519804
TP19-51 - 51	378.0	14.4	2975.6	86.3	1059.0	42.3	13	1.837558581	0.073411264	0.060384189	0.002298461
TP19-51 - 82	381.9	11.3	3141.6	61.5	1136.5	45.5	12	2.062789961	0.082560085	0.061034023	0.001802541
TP19-51 - 100	359.5	10.1	3018.7	71.9	1046.9	37.1	12	1.803844492	0.063884134	0.057356037	0.00161827
TP19-51 - 149	350.9	10.3	3204.9	46.1	1104.9	43.9	11	1.96878241	0.078174848	0.055941904	0.00164298
TP19-51 - 75	319.1	7.7	3048.6	53.0	978.0	36.8	10	1.620006434	0.060897931	0.05074865	0.001223379
TP19-51 - 57	346.9	12.0	3351.1	60.5	1160.7	42.7	10	2.136619419	0.07853269	0.055286734	0.001920112
TP19-51 - 5	332.3	14.9	3256.5	47.1	1089.2	57.9	10	1.923218619	0.102202152	0.052895315	0.00236749
TP19-51 - 30	281.1	6.2	3407.2	43.4	1041.0	36.2	8	1.787726317	0.062209951	0.044577183	0.000985321
TP19-51 - 132	272.6	8.8	3349.6	55.9	995.7	42.3	8	1.666134551	0.070822716	0.043189699	0.001387203
TP19-51 - 35	273.9	7.9	3382.1	84.2	1012.7	41.0	8	1.711033062	0.069355346	0.043402685	0.001258775
TP19-51 - 68	265.4	8.8	3310.2	55.7	962.2	42.4	8	1.57967286	0.069530779	0.042024951	0.001396043

TP19-51 - 102	261.4	7.3	3266.1	48.3	936.5	36.1	8	1.515091934	0.058417651	0.041383221	0.001153222
TP19-51 - 128	251.1	10.6	3308.1	90.4	928.2	38.5	8	1.494713536	0.061952271	0.039712697	0.001683682
TP19-51 - 107	242.0	10.5	3452.8	115.2	962.9	66.3	7	1.581448009	0.108873508	0.038260438	0.001655218
TP19-51 - 152	199.2	4.8	3328.5	46.3	798.8	27.2	6	1.196048143	0.040783816	0.031386216	0.000760662
TP19-51 - 20	180.1	7.2	3324.9	60.8	743.0	30.4	5	1.078730384	0.044135908	0.028328685	0.0011402
TP19-51 - 17	144.3	3.9	3376.8	59.8	646.2	26.3	4	0.889695437	0.036217901	0.022636786	0.00060947
TP19-51 - 12	113.1	2.9	3674.1	60.7	621.3	23.0	3	0.843817285	0.031299724	0.017691785	0.00045288
TP19-51 - 99	81.1	2.3	3514.7	78.6	440.8	17.1	2	0.543590584	0.021068851	0.01266512	0.000361073
TP19-52 - 79	1839.9	39.8	1714.4	50.2	1787.7	75.8	107	4.816285391	0.204100406	0.330316972	0.007140529
TP19-52 - 10	1821.1	35.5	1721.1	39.7	1782.4	66.7	106	4.78573087	0.178986598	0.326445356	0.006358554
TP19-52 - 112	1835.5	41.5	1759.4	45.9	1807.0	74.9	104	4.927383252	0.204373011	0.32940508	0.007439129
TP19-52 - 151	1782.8	32.8	1723.6	34.9	1761.6	64.0	103	4.668228831	0.169511237	0.318582694	0.005859124
TP19-52 - 18	1791.0	34.6	1742.3	35.2	1776.9	64.3	103	4.754647978	0.172070005	0.320254045	0.006195573
TP19-52 - 43	1887.1	36.9	1836.4	34.5	1870.7	66.6	103	5.31137736	0.189175667	0.340093219	0.006649448
TP19-52 - 42	1787.3	32.4	1739.4	28.5	1772.5	62.2	103	4.729450939	0.165866323	0.319511732	0.005800788
TP19-52 - 8	1779.5	32.5	1732.0	27.8	1765.9	60.5	103	4.692398707	0.160707935	0.317905313	0.005800058
TP19-52 - 97	1774.7	32.7	1728.3	37.5	1760.5	65.3	103	4.662155089	0.173000343	0.31692003	0.005836823
TP19-52 - 20	1773.5	33.8	1728.5	30.6	1760.3	61.6	103	4.661317393	0.163060797	0.316685534	0.006038599
TP19-52 - 113	1819.9	34.9	1775.5	40.0	1805.7	67.7	103	4.920135457	0.18452763	0.326201866	0.006262986
TP19-52 - 53	1801.5	33.8	1759.5	37.1	1789.4	65.7	102	4.825953618	0.177141668	0.322409591	0.006049752
TP19-52 - 23	1789.6	33.2	1749.5	37.1	1778.5	64.6	102	4.76329264	0.172948155	0.31997245	0.005942832
TP19-52 - 9	1796.4	33.8	1760.7	36.1	1787.8	65.7	102	4.816368583	0.177132078	0.321376213	0.006046315
TP19-52 - 44	1828.0	38.3	1799.6	56.8	1821.0	76.6	102	5.010191047	0.210740714	0.327863967	0.006862799
TP19-52 - 88	1780.1	33.2	1757.4	27.6	1777.1	60.9	101	4.755673721	0.162871514	0.318032528	0.005930763
TP19-52 - 66	1774.6	32.7	1752.5	33.0	1771.0	63.7	101	4.72129807	0.169767557	0.316897624	0.005838933
TP19-52 - 77	1791.3	34.7	1769.3	36.3	1789.0	66.0	101	4.823246776	0.17798837	0.320327718	0.006205596
TP19-52 - 29	1780.4	33.2	1759.8	29.0	1778.5	61.2	101	4.763288294	0.16398275	0.318082632	0.005925215
TP19-52 - 32	1776.4	32.1	1759.6	28.9	1776.1	61.5	101	4.749783424	0.164426721	0.317274016	0.005724392
TP19-52 - 89	1779.9	34.2	1763.0	36.6	1779.5	63.9	101	4.769400189	0.17130866	0.317980171	0.006106133
TP19-52 - 6	1774.3	33.6	1760.8	33.2	1775.7	63.6	101	4.747773603	0.17002782	0.316851489	0.005995431
TP19-52 - 142	1727.8	35.2	1716.9	49.3	1728.1	75.5	101	4.484662889	0.196010699	0.307376228	0.006256693
TP19-52 - 84	1777.4	33.7	1766.7	36.1	1779.4	66.4	101	4.768796763	0.1780045	0.317469755	0.006023147
TP19-52 - 122	1742.0	34.4	1734.6	31.6	1745.3	61.3	100	4.578092018	0.160711834	0.310273417	0.006123726
TP19-52 - 82	1786.7	36.7	1782.4	42.0	1790.8	68.1	100	4.83390684	0.183689109	0.31938451	0.006560016
TP19-52 - 14	1793.1	38.9	1789.2	38.1	1799.5	71.1	100	4.88404357	0.192886126	0.320694719	0.006962152
TP19-52 - 27	1738.3	35.1	1736.4	46.2	1745.4	67.5	100	4.578745058	0.176998177	0.309520845	0.006257724
TP19-52 - 83	1786.3	33.7	1787.1	32.9	1792.0	63.3	100	4.840790812	0.170925089	0.319308484	0.006017443
TP19-52 - 96	1754.5	31.8	1766.8	28.1	1766.7	60.7	99	4.6967825	0.161467087	0.312800983	0.005668857
TP19-52 - 24	1766.5	33.2	1780.0	32.1	1781.4	62.9	99	4.779907013	0.168861046	0.315257074	0.005932692
TP19-52 - 156	1759.8	35.8	1776.4	35.5	1773.3	64.5	99	4.734320467	0.172191802	0.313894786	0.006382799
TP19-52 - 33	1766.5	34.6	1784.1	41.8	1782.8	66.2	99	4.788169937	0.177888411	0.315254136	0.006170906
TP19-52 - 131	1756.2	34.0	1774.2	43.8	1771.2	68.1	99	4.722268301	0.181696876	0.31316255	0.006065918
TP19-52 - 160	1783.4	42.0	1803.7	51.4	1798.2	73.9	99	4.876256404	0.200364026	0.31870415	0.007509669
TP19-52 - 81	1745.5	33.2	1766.7	30.4	1762.0	62.1	99	4.67039336	0.164549863	0.31098537	0.005910608
TP19-52 - 150	1630.5	37.0	1652.5	125.8	1646.6	152.5	99	4.06136614	0.376179992	0.287798088	0.006534338
TP19-52 - 118	2462.7	45.3	2502.9	38.2	2491.6	87.1	98	10.63338792	0.371806276	0.465245999	0.008566097
TP19-52 - 30	1742.4	42.6	1773.0	61.7	1765.1	83.3	98	4.688084312	0.221178725	0.310335901	0.007583737

TP19-52 - 137	1708.6	35.8	1741.4	38.7	1728.8	64.3	98	4.488030325	0.166840384	0.303490875	0.006354744
TP19-52 - 146	1733.9	46.6	1767.3	34.9	1755.0	65.9	98	4.631958205	0.173941411	0.308617593	0.008290927
TP19-52 - 11	1977.2	59.8	2020.9	58.3	2007.0	82.5	98	6.21777938	0.255604639	0.35894645	0.010848681
TP19-52 - 21	1754.7	34.2	1796.9	40.2	1781.6	66.4	98	4.781185101	0.178314842	0.312842331	0.00609478
TP19-52 - 138	1729.5	37.6	1774.6	29.5	1755.6	62.0	97	4.635169456	0.16367407	0.307719153	0.006681539
TP19-52 - 31	1725.6	34.3	1779.6	36.4	1758.5	64.5	97	4.651298014	0.170671883	0.306932416	0.00610186
TP19-52 - 22	1734.0	33.9	1789.3	44.2	1766.7	67.7	97	4.696789188	0.180093324	0.30863379	0.006031999
TP19-52 - 41	1718.6	45.1	1775.2	39.4	1754.5	62.8	97	4.62868043	0.165671283	0.305523632	0.008008945
TP19-52 - 126	1685.5	32.5	1747.2	33.8	1719.3	61.9	96	4.437051007	0.159652069	0.298824504	0.005763453
TP19-52 - 134	1748.6	48.1	1818.6	41.5	1786.2	72.1	96	4.807541757	0.194055785	0.311597135	0.008574692
TP19-52 - 4	1718.0	45.6	1788.2	36.9	1757.2	64.9	96	4.644148505	0.171490598	0.305389783	0.008098806
TP19-52 - 158	1704.0	56.6	1774.7	42.5	1741.2	77.9	96	4.55555123	0.203851474	0.302560462	0.010049496
TP19-52 - 101	1705.5	33.8	1779.9	37.9	1745.7	65.3	96	4.58020422	0.171365125	0.302870611	0.006003897
TP19-52 - 65	1673.7	32.8	1755.9	33.8	1717.6	61.3	95	4.427851453	0.158043003	0.296447591	0.005807404
TP19-52 - 99	1887.8	38.2	1985.4	80.2	1940.8	99.0	95	5.76270609	0.29409603	0.340243285	0.006883518
TP19-52 - 105	1679.2	33.1	1766.7	49.4	1724.4	70.3	95	4.464325672	0.182049313	0.297561356	0.005857231
TP19-52 - 5	1665.7	35.0	1755.5	32.9	1712.0	63.4	95	4.398018212	0.162946466	0.294856814	0.006188193
TP19-52 - 25	1673.2	37.4	1766.2	35.6	1722.6	63.0	95	4.454931276	0.162951831	0.296356273	0.006617568
TP19-52 - 95	1682.8	33.5	1782.0	42.3	1734.2	66.4	94	4.517699837	0.172906491	0.298295953	0.005939398
TP19-52 - 13	1677.0	45.1	1776.8	35.0	1729.5	64.2	94	4.492024935	0.166867319	0.297119098	0.007998412
TP19-52 - 71	1695.2	37.2	1801.1	49.3	1749.1	71.4	94	4.598957806	0.187640746	0.300782635	0.006604292
TP19-52 - 127	1682.5	34.7	1791.3	40.9	1736.8	65.3	94	4.531726641	0.170439297	0.298235081	0.006145468
TP19-52 - 153	1769.4	38.1	1885.8	43.8	1828.4	73.4	94	5.054129808	0.202832978	0.315855056	0.006797079
TP19-52 - 114	1685.1	41.8	1798.3	34.9	1742.8	65.8	94	4.564310909	0.172324013	0.298753719	0.007418063
TP19-52 - 68	1738.0	39.0	1860.4	151.0	1801.4	165.9	93	4.895304606	0.450813343	0.309453444	0.006950067
TP19-52 - 87	1658.6	32.5	1777.4	35.4	1718.7	63.0	93	4.433728532	0.162583467	0.293430059	0.00574358
TP19-52 - 76	1668.0	35.0	1794.4	40.9	1731.7	65.0	93	4.50404994	0.168999007	0.295304277	0.006197408
TP19-52 - 7	1652.7	35.3	1781.1	47.2	1717.8	68.5	93	4.428879105	0.176670877	0.292229437	0.006241071
TP19-52 - 2	1666.4	32.4	1796.5	31.5	1732.4	61.1	93	4.507582315	0.159055006	0.294988091	0.005731482
TP19-52 - 34	1655.8	32.5	1787.9	38.1	1722.9	63.8	93	4.456418654	0.165031096	0.292856471	0.005753315
TP19-52 - 16	1625.1	36.6	1768.0	37.7	1695.3	62.9	92	4.310036506	0.159957628	0.286708163	0.006457783
TP19-52 - 159	1632.9	48.7	1777.8	43.7	1702.8	71.4	92	4.349612841	0.182401247	0.288276415	0.008589234
TP19-52 - 107	1596.1	32.2	1740.2	30.4	1666.0	57.7	92	4.159076052	0.144043301	0.280938514	0.005664139
TP19-52 - 119	1616.4	37.7	1777.9	55.6	1693.9	72.2	91	4.302991712	0.183287118	0.28497669	0.006653376
TP19-52 - 100	1596.5	33.8	1783.5	37.2	1684.6	65.8	90	4.254369034	0.166095106	0.281026816	0.005941597
TP19-52 - 157	1576.3	34.1	1777.3	42.4	1668.9	66.4	89	4.173620588	0.166047491	0.277006115	0.005994506
TP19-52 - 46	1608.7	38.9	1816.7	46.2	1708.1	68.9	89	4.37744272	0.176456765	0.283447571	0.006856562
TP19-52 - 124	1576.6	36.1	1814.6	38.5	1687.8	69.6	87	4.271119421	0.176020618	0.277070758	0.006337558
TP19-52 - 130	1548.9	33.8	1799.1	51.5	1663.4	68.4	86	4.145811733	0.170519901	0.271591818	0.00592647
TP19-52 - 145	1546.9	77.4	1801.7	41.4	1664.9	94.7	86	4.153670566	0.236133913	0.271199169	0.013575069
TP19-52 - 121	1500.1	29.7	1771.2	38.7	1624.3	60.0	85	3.951607411	0.146044382	0.262000686	0.005189696
TP19-52 - 52	1525.2	39.1	1804.1	34.8	1652.3	66.3	85	4.090012541	0.164185403	0.266934798	0.00685147
TP19-52 - 35	1480.5	32.2	1769.1	34.8	1611.0	61.3	84	3.887278284	0.14779266	0.258180056	0.00562098
TP19-52 - 37	1521.6	34.1	1819.7	38.4	1657.4	63.2	84	4.115505434	0.156877881	0.266225959	0.005962375
TP19-52 - 123	1536.7	106.0	1837.8	48.7	1672.6	119.8	84	4.192777368	0.300309373	0.269198076	0.018564921
TP19-52 - 48	1588.6	63.2	1907.1	79.5	1736.0	94.8	83	4.527114094	0.247246177	0.279450094	0.011118009
TP19-52 - 70	1490.4	74.4	1793.5	37.1	1626.0	92.4	83	3.959822487	0.224901718	0.260114604	0.012978308

TP19-52 - 80	1467.1	64.5	1791.8	40.7	1616.0	80.9	82	3.911208732	0.195726071	0.25557258	0.011234153
TP19-52 - 86	1653.8	33.9	2020.1	125.4	1827.7	131.2	82	5.049680115	0.362420801	0.292454149	0.005995527
TP19-52 - 15	1456.8	33.1	1800.4	33.3	1609.3	57.6	81	3.878869668	0.138760052	0.253560309	0.005769603
TP19-52 - 17	1489.5	34.5	1841.5	36.6	1647.6	61.6	81	4.066651271	0.152108574	0.25993716	0.006013657
TP19-52 - 64	1498.6	36.8	1862.4	36.4	1662.2	62.7	80	4.139911298	0.156280279	0.261705895	0.006425022
TP19-52 - 62	1549.2	36.7	1963.2	62.5	1740.5	68.1	79	4.551838264	0.178180747	0.271653825	0.00644368
TP19-52 - 104	1588.2	50.8	2073.4	40.0	1815.9	77.0	77	4.979723644	0.211286446	0.279366197	0.008931106
TP19-52 - 110	1400.0	36.7	1831.1	33.0	1587.7	59.7	76	3.776167077	0.142093757	0.2425572	0.006359088
TP19-52 - 40	1440.9	35.1	1899.4	49.5	1644.4	68.8	76	4.050700151	0.169462249	0.250466406	0.006108265
TP19-52 - 140	1401.0	35.0	1849.4	29.0	1595.2	57.8	76	3.8116386	0.138054075	0.242761243	0.006064093
TP19-52 - 60	1407.7	38.4	1871.4	40.9	1609.8	60.6	75	3.881115348	0.146164092	0.244038501	0.006663559
TP19-52 - 108	1412.7	35.6	1883.2	36.7	1618.3	60.6	75	3.922139226	0.146837606	0.245006229	0.006177387
TP19-52 - 133	1330.7	49.4	1776.1	47.2	1517.6	72.0	75	3.457439415	0.164051284	0.229270156	0.008512158
TP19-52 - 69	1457.5	36.8	1954.7	43.5	1681.1	66.8	75	4.236181213	0.168292005	0.253688367	0.006414098
TP19-52 - 74	1326.8	27.7	1855.2	38.4	1551.2	57.1	72	3.607596029	0.132796242	0.228542095	0.004763409
TP19-52 - 67	1323.2	30.4	1889.2	41.5	1561.4	60.1	70	3.653876638	0.14059979	0.22784917	0.005231407
TP19-52 - 38	1269.7	26.8	1818.9	35.2	1496.8	53.0	70	3.367388295	0.119307954	0.217693252	0.004587363
TP19-52 - 73	1267.9	26.5	1844.5	31.3	1506.4	52.0	69	3.408758487	0.117775294	0.217356994	0.004543523
TP19-52 - 120	1293.3	27.7	1889.0	53.4	1542.2	63.1	68	3.566847256	0.146025393	0.222173909	0.004760187
TP19-52 - 155	1277.0	41.8	1895.5	39.0	1534.0	59.2	67	3.530053063	0.13612655	0.219069973	0.007168937
TP19-52 - 58	1252.7	24.2	1880.6	35.4	1511.8	54.5	67	3.432160703	0.123707395	0.214484508	0.004144058
TP19-52 - 109	1280.4	35.2	1925.7	46.5	1550.6	62.3	66	3.605023584	0.14481834	0.219729721	0.006045747
TP19-52 - 139	1241.6	31.3	1880.1	30.9	1501.8	55.4	66	3.388669831	0.124933962	0.212399085	0.005359488
TP19-52 - 49	1188.6	55.0	1886.0	38.2	1464.3	75.4	63	3.229493722	0.166385984	0.202481196	0.009376521
TP19-52 - 93	1188.3	130.8	1918.4	69.2	1478.9	132.2	62	3.290695869	0.294243597	0.202414358	0.022277539
TP19-52 - 1	1114.6	27.0	1874.7	44.4	1408.0	57.4	59	3.00147152	0.122272007	0.188746819	0.004580672
TP19-52 - 56	1263.9	37.3	2147.8	50.1	1641.1	69.3	59	4.03390314	0.170416196	0.21660355	0.006397739
TP19-52 - 12	1073.8	36.3	1896.0	39.8	1389.1	65.2	57	2.927836156	0.137376854	0.181257098	0.006124795
TP19-52 - 90	1088.5	72.8	1958.3	49.8	1427.3	85.6	56	3.078481675	0.184714894	0.183953565	0.012308748
TP19-52 - 152	1160.2	78.7	2152.6	110.2	1562.4	77.7	54	3.658689156	0.181933774	0.197185925	0.013368055
TP19-52 - 85	1033.2	53.3	1928.0	55.6	1369.8	79.6	54	2.853913897	0.165931102	0.173843137	0.008962809
TP19-52 - 147	1051.1	28.3	1982.3	42.5	1405.2	56.2	53	2.990600028	0.119564065	0.177098629	0.004762126
TP19-52 - 19	946.1	52.6	1976.6	37.8	1321.2	70.3	48	2.673811205	0.142348942	0.158082015	0.008786576
TP19-52 - 91	969.5	49.3	2060.7	45.3	1374.7	68.7	47	2.872525766	0.143477077	0.162289937	0.008254979
TP19-52 - 72	901.2	30.9	1925.4	35.2	1261.3	59.4	47	2.463061566	0.115986342	0.150050006	0.00514696
TP19-52 - 132	902.4	30.7	1966.0	47.0	1276.2	52.0	46	2.51443232	0.102524915	0.150257275	0.005111113
TP19-52 - 36	900.8	24.0	1966.3	35.8	1277.4	54.2	46	2.518382649	0.106813662	0.149978186	0.003989785
TP19-52 - 75	865.3	18.4	1964.5	37.3	1245.7	45.4	44	2.410228769	0.087882213	0.143651198	0.003059794
TP19-52 - 148	841.6	37.3	2031.8	40.6	1250.0	55.4	41	2.424896393	0.107418715	0.139464075	0.006172647
TP19-52 - 78	748.2	22.9	1917.2	54.1	1117.7	49.4	39	2.006487242	0.088671118	0.123075408	0.003758743
TP19-52 - 92	794.4	15.9	2063.7	32.1	1219.6	44.0	38	2.323914277	0.083796025	0.131138538	0.002617847
TP19-52 - 47	798.0	91.8	2118.6	64.5	1250.7	110.0	38	2.42731744	0.213486486	0.131775288	0.015162495
TP19-52 - 149	768.7	61.2	2064.1	72.3	1192.0	87.3	37	2.23476293	0.163590468	0.12663728	0.010085492
TP19-52 - 57	777.5	17.3	2185.2	39.7	1253.4	46.5	36	2.436299019	0.090359785	0.128186014	0.002855195
TP19-52 - 39	914.8	29.3	2664.5	40.8	1606.0	65.9	34	3.863002039	0.158437058	0.152468858	0.004878955
TP19-52 - 59	716.5	20.1	2240.3	36.8	1214.6	45.3	32	2.307496172	0.086007233	0.117561888	0.003291683
TP19-52 - 128	716.2	19.7	2269.1	40.3	1225.1	46.2	32	2.341937527	0.088411201	0.117504267	0.00323632

TP19-52 - 125	684.9	21.0	2203.3	51.6	1165.2	42.2	31	2.150602582	0.077908999	0.112093288	0.003430948
TP19-52 - 144	663.2	15.8	2277.8	35.5	1172.6	41.1	29	2.17336741	0.076098021	0.108363478	0.002584663
TP19-52 - 45	609.0	22.0	2253.8	34.3	1102.0	47.5	27	1.960233377	0.084525462	0.099083816	0.00358447
TP19-52 - 136	578.2	15.6	2146.4	45.0	1023.3	40.1	27	1.739582172	0.068128626	0.093846344	0.002525125
TP19-52 - 51	564.8	20.9	2204.5	46.7	1030.8	44.0	26	1.759750493	0.075051972	0.091567754	0.003386184
TP19-52 - 135	566.0	17.9	2284.3	35.6	1060.4	40.3	25	1.841407604	0.069963575	0.09176954	0.002908205
TP19-52 - 94	523.5	30.3	2265.0	54.9	1000.7	56.5	23	1.679341768	0.094750388	0.084593496	0.004898747
TP19-52 - 117	533.8	11.3	2325.7	40.9	1036.8	37.4	23	1.776128601	0.06415241	0.086338735	0.001825257
TP19-52 - 129	500.0	28.6	2219.5	56.5	955.2	47.9	23	1.561950799	0.078316629	0.080656661	0.004613486
TP19-52 - 50	457.0	22.8	2369.5	54.8	951.1	41.3	19	1.551499837	0.067416433	0.073459063	0.003669508
TP19-52 - 111	467.0	15.6	2520.3	59.4	1021.2	41.8	19	1.733938105	0.07095631	0.075126743	0.002512395
TP19-52 - 28	399.7	10.4	2422.8	42.1	887.3	33.6	16	1.396168191	0.052847644	0.063965546	0.001666996
TP19-52 - 61	356.4	8.6	2399.6	52.9	810.9	31.0	15	1.222406595	0.046667453	0.056836084	0.001379277
TP19-52 - 103	312.3	15.3	2290.3	68.5	704.0	35.3	14	1.000464035	0.050155725	0.049631899	0.002437928
TP19-52 - 63	282.7	10.7	2584.7	53.7	742.4	30.2	11	1.077506888	0.043809349	0.044836198	0.00169378
TP19-52 - 55	361.4	7.3	3345.0	114.3	1186.9	59.6	11	2.218596289	0.111352595	0.057660276	0.001160771
TP19-52 - 98	295.1	5.8	2906.6	60.1	876.2	33.2	10	1.370162042	0.05189001	0.046844949	0.000924483
TP19-52 - 102	226.7	9.5	2542.5	65.9	617.2	29.5	9	0.836564632	0.03991794	0.035784668	0.001498536
TP19-52 - 115	269.7	12.4	3296.4	68.5	966.4	43.0	8	1.590366378	0.070798737	0.042728505	0.001959968
TP19-52 - 3	189.9	10.6	2749.9	71.5	593.4	30.1	7	0.793857807	0.040313613	0.029901857	0.001669857
TP19-52 - 143	212.5	6.8	3698.0	177.8	976.9	69.4	6	1.617199546	0.114914864	0.033516898	0.001066419
TP19-52 - 141	197.7	5.6	3464.8	66.7	842.4	30.2	6	1.29254455	0.046351169	0.031147801	0.000878665
TP19-52 - 154	160.5	6.5	2985.1	81.8	580.7	24.8	5	0.771626074	0.033009858	0.02520548	0.001018893
TP19-52 - 26	144.1	7.2	3554.1	66.4	700.8	35.0	4	0.994009665	0.04965876	0.022602979	0.001123816
TP19-52 - 116	99.9	2.6	3286.7	72.8	463.2	17.0	3	0.578073132	0.021207205	0.015622093	0.000413427
TP19-52 - 54	53.7	1.4	3336.0	80.5	281.7	10.4	2	0.319797824	0.011810567	0.008357742	0.000223274
TP19-53 - 71	26777.9	19483.4	5200.2	621.7	9161.4	6657.9	292	8287.721402	6022.938393	62.68365465	45.60812204
TP19-53 - 132	2754.1	67.3	2640.0	83.9	2693.4	159.2	102	13.19090997	0.779785934	0.533007693	0.013025772
TP19-53 - 110	1904.9	43.6	1854.6	52.4	1885.6	110.6	101	5.404444695	0.317093867	0.343803668	0.007871238
TP19-53 - 113	1860.7	54.2	1812.3	78.1	1842.8	122.2	101	5.140164254	0.340967362	0.334618761	0.00973826
TP19-53 - 104	1851.8	69.2	1824.7	79.5	1838.1	136.0	101	5.11169703	0.378250279	0.332770185	0.012438265
TP19-53 - 57	1766.9	41.1	1725.6	73.0	1754.3	115.2	101	4.627938379	0.303820546	0.315336664	0.007341805
TP19-53 - 2	1848.0	47.9	1800.1	53.5	1835.3	113.8	101	5.095173979	0.315840918	0.331985474	0.008611253
TP19-53 - 97	1860.5	39.3	1826.4	48.1	1848.4	106.9	101	5.174127073	0.299312567	0.33457771	0.007072214
TP19-53 - 139	1803.4	56.8	1769.8	67.2	1792.6	119.4	101	4.844034759	0.32268186	0.322808161	0.010171832
TP19-53 - 55	1859.6	40.0	1825.4	52.1	1849.5	108.6	101	5.181186668	0.304150063	0.334391577	0.00718623
TP19-53 - 163	1754.1	42.7	1733.3	69.1	1746.6	109.1	100	4.585355803	0.286546667	0.312716987	0.007605018
TP19-53 - 49	1796.7	48.8	1770.6	74.0	1791.7	117.7	100	4.838708974	0.317807282	0.321438467	0.008732761
TP19-53 - 54	2808.2	99.0	2786.2	142.0	2803.1	193.6	100	14.80918045	1.022770109	0.545931954	0.019238861
TP19-53 - 120	1794.7	43.4	1785.1	57.2	1793.4	108.4	100	4.848583866	0.292952693	0.321012614	0.007764003
TP19-53 - 141	2427.5	65.0	2420.7	74.7	2430.2	151.1	100	9.950845709	0.618496627	0.4572813	0.012248948
TP19-53 - 92	2567.5	60.7	2580.7	76.2	2581.0	152.6	99	11.70428163	0.691904775	0.489267868	0.011576372
TP19-53 - 16	1775.9	43.2	1780.0	63.4	1786.7	112.5	99	4.810510124	0.302980018	0.317165596	0.007712955
TP19-53 - 166	1843.1	48.9	1871.2	56.5	1859.8	111.4	99	5.244221248	0.314032193	0.330977775	0.008784049
TP19-53 - 127	2077.3	74.8	2115.9	69.8	2098.5	142.5	99	6.899063557	0.468570334	0.380210745	0.013699146
TP19-53 - 27	1834.0	41.5	1861.7	60.7	1856.2	111.7	99	5.22201882	0.314217014	0.329102065	0.007455293
TP19-53 - 36	1662.6	43.0	1694.6	66.8	1683.5	104.1	99	4.248973687	0.262823749	0.294234351	0.007614193

TP19-53 - 39	1717.0	43.4	1751.7	71.6	1740.1	122.2	99	4.549594321	0.319395031	0.305185493	0.007719975
TP19-53 - 24	1821.0	44.5	1867.2	69.9	1850.8	131.1	98	5.188862495	0.367647256	0.32641136	0.007985075
TP19-53 - 61	1691.2	60.7	1745.0	120.5	1721.5	144.3	98	4.449128083	0.372955765	0.299983378	0.010758778
TP19-53 - 138	1900.2	72.5	1968.1	154.8	1936.7	180.9	98	5.735362521	0.535646058	0.342810374	0.013087688
TP19-53 - 106	1821.0	41.6	1888.8	61.2	1857.1	114.5	98	5.227657205	0.322353381	0.326417522	0.007464016
TP19-53 - 131	1914.6	61.9	1999.9	78.2	1954.8	129.3	98	5.856628209	0.387328587	0.345828249	0.011187714
TP19-53 - 158	1803.2	47.0	1886.4	70.6	1845.5	118.4	98	5.156962345	0.330974079	0.322772266	0.008421306
TP19-53 - 82	1805.0	57.0	1886.1	89.1	1847.4	127.1	98	5.168079959	0.355603942	0.323122921	0.010206877
TP19-53 - 85	1791.4	51.0	1876.5	66.6	1834.4	114.0	98	5.089734477	0.316408035	0.320341043	0.009124762
TP19-53 - 60	1475.5	40.1	1554.9	76.7	1515.1	108.5	97	3.446720252	0.246928105	0.257197053	0.006987202
TP19-53 - 87	1793.5	40.0	1890.6	58.4	1844.0	109.9	97	5.147530312	0.306768813	0.320778923	0.007154001
TP19-53 - 124	1796.6	56.2	1901.3	72.5	1850.2	123.3	97	5.185313399	0.345484212	0.321412704	0.01006059
TP19-53 - 56	1736.7	65.0	1834.4	60.5	1789.1	119.6	97	4.823784057	0.322358353	0.309178781	0.01156659
TP19-53 - 91	1801.7	58.0	1928.1	77.2	1867.1	122.0	97	5.288794093	0.345552498	0.322458346	0.010386528
TP19-53 - 162	1736.2	39.8	1884.8	59.4	1806.6	109.4	96	4.925048725	0.298250879	0.309094924	0.007090294
TP19-53 - 51	1811.8	45.2	1956.4	61.9	1886.3	114.9	96	5.409137408	0.329407984	0.324530203	0.008098259
TP19-53 - 99	1772.6	51.0	1930.9	58.2	1850.4	113.4	96	5.186421338	0.317877201	0.316501419	0.009102077
TP19-53 - 33	1647.5	45.6	1788.5	62.3	1720.0	108.4	96	4.440779042	0.279878967	0.291194445	0.008060334
TP19-53 - 41	1729.8	51.2	1873.2	61.0	1806.0	109.5	96	4.921750948	0.298547907	0.307778854	0.009117943
TP19-53 - 76	1662.2	48.1	1827.2	52.6	1742.6	106.6	95	4.563401679	0.279285749	0.294138835	0.0085173
TP19-53 - 80	1686.0	39.5	1862.1	57.7	1770.8	109.1	95	4.720264161	0.290812618	0.29892364	0.006996509
TP19-53 - 43	1660.9	43.1	1832.5	48.3	1748.5	102.4	95	4.595828176	0.269034534	0.293873497	0.007631212
TP19-53 - 83	1707.4	44.1	1900.0	70.2	1801.5	115.6	95	4.895356754	0.314130532	0.303252278	0.007834237
TP19-53 - 75	1668.3	42.1	1896.2	58.2	1779.0	106.3	94	4.766312699	0.28472476	0.295367227	0.007455984
TP19-53 - 77	1684.4	42.8	1928.4	60.8	1802.7	112.4	93	4.902837919	0.30572324	0.29861235	0.007585515
TP19-53 - 170	1594.6	57.8	1840.8	53.8	1706.6	115.0	93	4.369694049	0.294395115	0.280643734	0.010178866
TP19-53 - 23	1618.7	108.5	1876.9	80.0	1738.0	145.6	93	4.53806451	0.380137247	0.285437379	0.019126883
TP19-53 - 18	1636.4	46.1	1912.7	60.1	1767.1	106.0	93	4.699212419	0.281915894	0.288969185	0.008148219
TP19-53 - 17	1755.8	72.7	2052.7	68.9	1907.0	139.8	92	5.540910287	0.406292911	0.313076909	0.012965765
TP19-53 - 66	1632.2	50.6	1967.5	78.6	1788.1	115.0	91	4.81829828	0.309932067	0.288127694	0.008935408
TP19-53 - 135	1558.7	82.8	1914.2	84.5	1720.9	128.6	91	4.445805346	0.332245506	0.273529255	0.014535793
TP19-53 - 3	1548.9	35.3	1893.6	56.6	1710.3	100.7	91	4.388975161	0.258506864	0.271589439	0.006183864
TP19-53 - 59	1451.3	32.9	1875.8	56.5	1640.2	98.1	88	4.029853128	0.24106384	0.252492292	0.00572182
TP19-53 - 101	1327.0	41.2	1788.7	74.8	1520.6	103.3	87	3.470594005	0.235874641	0.228568115	0.007089504
TP19-53 - 150	1355.0	51.5	1836.6	52.4	1555.5	97.9	87	3.626924704	0.228268086	0.233915594	0.008882714
TP19-53 - 32	1444.0	41.7	1978.4	72.9	1676.4	108.1	86	4.21229579	0.271500819	0.251073353	0.007243476
TP19-53 - 95	1362.5	38.4	1888.0	64.3	1585.4	98.8	86	3.765258347	0.234532284	0.235346221	0.006629002
TP19-53 - 116	1416.4	64.3	1986.0	45.8	1664.5	104.8	85	4.151451202	0.261472325	0.245731435	0.011156443
TP19-53 - 38	1329.2	28.6	1901.6	50.2	1572.6	90.8	85	3.705601402	0.213924055	0.228987521	0.004926821
TP19-53 - 103	1383.6	39.6	1977.4	53.2	1639.3	99.5	84	4.025143946	0.244343272	0.239411737	0.006847183
TP19-53 - 4	1290.4	84.6	1860.0	88.4	1532.3	127.8	84	3.522795814	0.29386154	0.221607066	0.014525519
TP19-53 - 29	1368.4	38.9	1977.2	59.2	1633.1	100.1	84	3.994613399	0.244831423	0.236492043	0.006722653
TP19-53 - 7	1338.6	33.7	1959.4	56.2	1605.8	94.2	83	3.861995062	0.226564853	0.230783916	0.005809381
TP19-53 - 31	1347.0	72.4	1999.3	97.7	1631.3	141.0	83	3.985739483	0.344423371	0.23238118	0.012484123
TP19-53 - 100	1297.2	39.6	1962.1	65.5	1577.0	97.6	82	3.726204091	0.230714452	0.22290581	0.006806782
TP19-53 - 84	1270.1	40.3	1957.6	70.0	1552.9	102.7	82	3.615342905	0.239074431	0.217773387	0.006906753
TP19-53 - 108	1249.1	37.9	1939.6	48.4	1532.1	95.4	82	3.521848603	0.219363271	0.213813993	0.006481176

TP19-53 - 21	1256.0	88.4	2078.3	82.0	1604.2	138.0	78	3.854348252	0.331614468	0.215105108	0.015139316
TP19-53 - 109	1149.9	48.1	2019.1	92.8	1497.3	104.2	77	3.369158945	0.234439731	0.195273666	0.008176096
TP19-53 - 40	1113.0	64.2	1965.3	71.6	1449.5	115.6	77	3.16852143	0.252773542	0.188457972	0.010871699
TP19-53 - 5	1092.8	34.0	1997.5	59.0	1449.8	94.0	75	3.169701331	0.205541063	0.184732509	0.005753513
TP19-53 - 126	1123.4	39.4	2074.3	93.0	1498.5	100.0	75	3.374386883	0.225265733	0.190371465	0.006671934
TP19-53 - 74	1128.6	33.4	2083.7	61.3	1509.8	91.6	75	3.423384784	0.207688689	0.191331061	0.005663515
TP19-53 - 136	1093.9	64.8	2062.7	88.0	1471.6	114.2	74	3.260265147	0.253100309	0.184931227	0.010957907
TP19-53 - 63	1071.0	37.0	2071.0	62.3	1460.9	90.6	73	3.21548205	0.199308993	0.18073294	0.006249759
TP19-53 - 34	1054.5	37.1	2104.0	56.7	1462.0	89.7	72	3.220093941	0.197479529	0.177711654	0.006251984
TP19-53 - 114	889.6	35.6	1921.3	62.2	1242.8	83.9	72	2.400517587	0.161995879	0.147977244	0.005922316
TP19-53 - 13	1024.5	87.3	2092.2	79.3	1434.9	127.1	71	3.108808684	0.275411132	0.17225768	0.014685814
TP19-53 - 133	1035.3	36.2	2122.1	70.7	1450.9	90.1	71	3.174009989	0.197089007	0.174222547	0.006091742
TP19-53 - 168	986.0	75.9	2102.2	70.0	1393.0	125.6	71	2.942861209	0.265372384	0.165278477	0.012720258
TP19-53 - 155	968.6	48.5	2083.8	68.6	1378.5	89.2	70	2.886963759	0.186752324	0.162131438	0.008112634
TP19-53 - 72	1028.9	34.1	2163.5	70.4	1469.1	92.4	70	3.249548434	0.204409307	0.17305862	0.005740971
TP19-53 - 52	901.9	29.9	1993.7	85.2	1290.5	84.3	70	2.564136983	0.167542782	0.150164078	0.004982746
TP19-53 - 81	960.2	82.2	2082.9	80.0	1381.9	121.0	69	2.900133477	0.254032587	0.160612524	0.013750734
TP19-53 - 96	951.6	28.3	2183.3	87.8	1408.8	94.4	68	3.004808018	0.201392099	0.159066783	0.004738522
TP19-53 - 22	881.3	23.4	2082.8	57.9	1309.1	76.7	67	2.630165234	0.154099017	0.146504863	0.003893267
TP19-53 - 156	821.5	38.6	2036.6	90.8	1231.8	89.2	67	2.363960583	0.171242718	0.135913648	0.006377847
TP19-53 - 26	890.9	61.4	2150.8	98.2	1344.9	103.8	66	2.760399711	0.21312522	0.148203423	0.010206266
TP19-53 - 151	904.1	42.4	2230.1	88.3	1388.1	108.6	65	2.923885499	0.228648847	0.150563348	0.007054205
TP19-53 - 10	792.5	31.7	2093.6	65.0	1229.1	86.1	64	2.355157713	0.164948381	0.130815636	0.005230166
TP19-53 - 37	804.9	36.8	2114.9	54.6	1250.5	84.3	64	2.426516827	0.163629591	0.132998795	0.006083288
TP19-53 - 144	808.7	21.9	2130.1	57.9	1256.8	76.3	64	2.447740672	0.148621948	0.133663548	0.003620694
TP19-53 - 35	829.5	46.0	2193.9	59.2	1305.7	96.4	64	2.617968779	0.193282197	0.137320857	0.007613149
TP19-53 - 70	834.6	60.2	2202.8	95.9	1315.8	121.1	63	2.653990725	0.244333718	0.138222848	0.00997076
TP19-53 - 58	786.4	27.5	2183.4	64.9	1261.3	81.4	62	2.46321667	0.158933464	0.12975016	0.004531036
TP19-53 - 122	831.8	53.5	2261.4	87.4	1341.4	99.2	62	2.747581806	0.203156782	0.137729259	0.008854921
TP19-53 - 62	821.6	41.2	2265.3	67.6	1331.9	88.1	62	2.712466439	0.179430503	0.135923318	0.006817847
TP19-53 - 44	726.8	39.4	2214.5	58.3	1210.8	95.9	60	2.295048938	0.181724228	0.119346285	0.006463798
TP19-53 - 143	762.2	25.5	2334.5	65.8	1297.6	78.8	59	2.589072642	0.157239689	0.125508796	0.004203932
TP19-53 - 134	798.7	26.5	2394.2	57.7	1360.5	81.6	59	2.818708655	0.169142481	0.131899794	0.004382574
TP19-53 - 94	918.6	53.9	2671.7	78.4	1616.7	118.9	57	3.914659916	0.287913489	0.153147742	0.008987513
TP19-53 - 15	674.8	25.3	2293.3	61.4	1191.3	73.1	57	2.232438241	0.136989968	0.1103559	0.004144509
TP19-53 - 79	621.9	19.1	2286.4	81.1	1128.0	71.7	55	2.037033782	0.129394892	0.101279959	0.003105491
TP19-53 - 105	572.5	31.1	2208.3	75.4	1039.5	74.0	55	1.78352225	0.12699799	0.092867972	0.005053176
TP19-53 - 115	629.0	19.2	2303.3	78.5	1143.3	71.5	55	2.083114383	0.130269587	0.102489576	0.003130766
TP19-53 - 19	578.4	39.9	2219.7	91.5	1054.3	78.6	55	1.824379893	0.135968601	0.093875528	0.006480152
TP19-53 - 148	553.9	35.7	2207.9	64.6	1014.5	76.2	55	1.715968722	0.128946396	0.089726545	0.005789194
TP19-53 - 117	674.4	38.6	2414.2	82.4	1236.4	89.9	55	2.379176861	0.173060537	0.110283894	0.006311483
TP19-53 - 121	632.8	25.1	2355.0	78.0	1169.6	77.7	54	2.16414597	0.143828954	0.103141144	0.004097601
TP19-53 - 157	595.1	32.1	2353.8	84.1	1117.2	72.3	53	2.004855035	0.129785051	0.096714154	0.005213408
TP19-53 - 167	566.7	18.5	2335.2	69.3	1079.6	66.8	52	1.895642315	0.117340963	0.091881045	0.003005868
TP19-53 - 64	567.3	40.2	2323.9	61.4	1081.6	81.9	52	1.901401196	0.143905495	0.091988597	0.006522188
TP19-53 - 159	519.0	17.3	2268.8	75.4	995.0	62.4	52	1.664233512	0.10441625	0.083844944	0.002791069
TP19-53 - 145	519.2	18.8	2309.4	56.5	1009.0	62.7	51	1.701307	0.105715748	0.08387589	0.003035095

TP19-53 - 161	536.8	20.0	2333.8	83.7	1045.1	63.9	51	1.798925758	0.110034494	0.086837115	0.003228723
TP19-53 - 111	632.1	19.8	2519.3	53.1	1233.5	74.0	51	2.369629227	0.142166734	0.103022047	0.003219823
TP19-53 - 89	530.9	23.5	2345.2	69.0	1041.7	63.4	51	1.789723011	0.108851974	0.085848957	0.003805136
TP19-53 - 123	549.2	16.4	2382.7	79.4	1077.9	65.4	51	1.890934995	0.114715071	0.088931954	0.002651343
TP19-53 - 160	438.2	35.2	2237.8	80.2	879.6	69.7	50	1.378099605	0.109124156	0.070334067	0.005654235
TP19-53 - 142	495.5	21.6	2347.1	65.6	995.1	69.0	50	1.664443065	0.115339005	0.079890467	0.003479833
TP19-53 - 47	442.1	17.3	2279.5	57.1	899.0	54.7	49	1.423844072	0.086651364	0.070992992	0.002782676
TP19-53 - 107	567.0	18.4	2536.7	72.5	1158.7	74.9	49	2.130390187	0.137646518	0.09193315	0.002980043
TP19-53 - 118	633.0	26.6	2669.9	63.3	1298.9	82.2	49	2.593906344	0.164187396	0.103184961	0.004338651
TP19-53 - 45	641.7	18.2	2695.3	52.0	1324.5	76.7	48	2.685604913	0.155520043	0.104672814	0.002970846
TP19-53 - 12	483.0	35.5	2416.0	81.0	1007.9	84.9	48	1.698365366	0.143129716	0.077809655	0.005722317
TP19-53 - 20	487.1	17.8	2432.1	80.1	1018.7	67.5	48	1.727215023	0.114502113	0.078491241	0.002864903
TP19-53 - 130	465.8	15.2	2404.3	80.0	974.8	60.9	48	1.611859355	0.100742235	0.074928843	0.002447922
TP19-53 - 90	495.8	15.1	2535.0	90.8	1066.1	70.6	47	1.857442288	0.12305917	0.07995174	0.002433157
TP19-53 - 1	415.8	16.9	2370.6	72.7	895.0	59.9	46	1.414425454	0.094645863	0.066628784	0.002715525
TP19-53 - 169	580.6	26.3	2713.7	58.8	1255.9	80.7	46	2.444991716	0.157178141	0.094242064	0.004272604
TP19-53 - 86	456.3	29.3	2476.5	110.4	991.7	62.8	46	1.655634526	0.104812857	0.073342566	0.00470194
TP19-53 - 78	440.2	12.8	2461.9	59.4	961.1	58.2	46	1.576752074	0.095543919	0.070677665	0.002060717
TP19-53 - 69	417.4	10.1	2424.4	72.0	914.2	54.3	46	1.460582716	0.086697809	0.066892525	0.001623783
TP19-53 - 28	475.1	24.8	2546.8	66.4	1046.6	67.3	45	1.803124591	0.115930112	0.07648222	0.003989063
TP19-53 - 25	439.5	12.3	2511.5	70.2	980.5	63.2	45	1.626520471	0.104906846	0.070561598	0.001981989
TP19-53 - 68	493.7	35.7	2653.1	84.3	1110.5	79.2	44	1.985276869	0.141567662	0.079600848	0.005756647
TP19-53 - 48	370.7	28.7	2439.4	88.0	846.8	68.7	44	1.302438879	0.105670721	0.059196684	0.004584217
TP19-53 - 149	414.8	11.5	2575.6	73.9	963.6	58.4	43	1.583142486	0.095874252	0.066460447	0.001839871
TP19-53 - 98	414.4	32.5	2634.1	103.0	986.5	86.6	42	1.642163573	0.1441841	0.066387484	0.005207646
TP19-53 - 147	399.3	11.7	2618.4	75.3	954.5	56.2	42	1.560053877	0.091798291	0.063907449	0.001879527
TP19-53 - 6	435.9	15.8	2734.2	74.6	1062.1	66.4	41	1.846145982	0.1153506	0.069950045	0.002543185
TP19-53 - 67	407.9	13.5	2682.2	85.0	995.2	62.0	41	1.664885482	0.103656671	0.06532028	0.002159453
TP19-53 - 73	343.1	18.0	2565.8	117.5	845.4	61.9	41	1.299291732	0.095197829	0.054663782	0.002863745
TP19-53 - 65	397.2	9.6	2739.3	61.7	998.5	57.6	40	1.673454756	0.096610853	0.063551115	0.001537561
TP19-53 - 164	315.0	14.9	2574.0	65.9	794.8	50.6	40	1.187561019	0.075603601	0.050080091	0.002374002
TP19-53 - 140	310.4	11.8	2592.0	68.4	792.6	46.7	39	1.182697771	0.069742256	0.049335618	0.00187344
TP19-53 - 128	357.9	17.8	2733.3	109.7	928.1	65.1	39	1.494315273	0.104742513	0.057093411	0.002842324
TP19-53 - 93	333.5	12.3	2723.0	78.8	880.6	52.3	38	1.380420142	0.081921823	0.053091223	0.00195494
TP19-53 - 53	323.4	17.7	2714.8	74.0	861.4	57.4	38	1.33574906	0.089015746	0.051445552	0.002817203
TP19-53 - 119	317.5	15.2	2718.5	78.7	849.6	57.4	37	1.30878989	0.088437885	0.050480923	0.002421939
TP19-53 - 46	215.3	13.0	2526.2	77.7	590.6	42.7	36	0.788988662	0.057051042	0.03396449	0.00205181
TP19-53 - 88	377.3	15.6	2937.4	70.7	1038.1	68.3	36	1.779713621	0.11713608	0.06028176	0.002488621
TP19-53 - 30	373.3	13.7	2929.2	111.1	1033.2	57.5	36	1.766373155	0.098285109	0.059620079	0.002180985
TP19-53 - 11	288.3	18.0	2728.8	95.9	799.5	53.6	36	1.197562061	0.080275886	0.045740858	0.00285765
TP19-53 - 50	292.9	11.9	2747.0	81.4	815.9	52.5	36	1.233328067	0.079303786	0.046484768	0.001883108
TP19-53 - 165	282.2	12.6	2726.2	67.5	786.6	51.6	36	1.169898523	0.076709034	0.044755328	0.001994134
TP19-53 - 146	264.3	8.3	2728.0	95.6	749.3	45.1	35	1.091725381	0.065756494	0.041844338	0.001311262
TP19-53 - 137	232.3	11.6	2788.7	66.2	699.9	46.8	33	0.992350204	0.066401114	0.036697373	0.001833699
TP19-53 - 102	262.9	17.9	2941.6	97.5	819.8	63.4	32	1.241951177	0.095976926	0.041631533	0.002831714
TP19-53 - 112	215.4	13.0	2967.6	90.3	717.0	55.3	30	1.026079338	0.079074206	0.033971483	0.002047714
TP19-53 - 125	234.2	6.5	3025.0	87.6	781.6	48.4	30	1.159293282	0.071753705	0.036995012	0.001019219

TP19-53 - 152	185.3	16.1	2956.1	126.6	638.5	47.2	29	0.875479574	0.064753967	0.029166799	0.002534967
TP19-53 - 42	170.7	6.1	3005.3	72.5	614.6	37.1	28	0.831709866	0.050262295	0.026827974	0.000959271
TP19-53 - 9	171.1	7.6	3126.1	104.3	654.2	40.5	26	0.904648371	0.056019935	0.026903384	0.00119543
TP19-53 - 8	153.0	7.0	3087.3	98.0	589.3	34.8	26	0.786703641	0.04639232	0.024020356	0.001096982
TP19-53 - 129	163.0	8.3	3188.5	99.1	647.0	39.2	25	0.891245702	0.054033782	0.025612434	0.001305721
TP19-53 - 14	144.7	4.9	3317.8	96.1	629.3	35.3	23	0.858419756	0.048205857	0.022702675	0.000761953
TP19-53 - 153	106.6	4.0	3409.6	114.6	517.5	29.9	21	0.664679344	0.038431094	0.016666347	0.000624864
TP19-53 - 154	74.4	3.4	3707.2	115.8	452.4	31.2	16	0.561390294	0.03875506	0.011605207	0.000537579
TP19-54 - 137	1942.7	38.3	1828.4	41.5	1891.9	70.7	106	5.444692785	0.203479757	0.351701356	0.006942192
TP19-54 - 17	1875.0	36.4	1784.1	41.6	1837.0	71.0	105	5.105527063	0.197394253	0.337574045	0.0065461
TP19-54 - 15	1960.0	39.1	1899.1	41.8	1937.3	71.9	103	5.739242128	0.213149601	0.355324706	0.007096879
TP19-54 - 32	1777.5	33.5	1734.7	36.3	1763.8	65.0	102	4.680955271	0.172621417	0.317498142	0.005987302
TP19-54 - 1	1801.3	34.0	1764.2	35.3	1789.8	64.3	102	4.828246844	0.173414313	0.322373269	0.006090807
TP19-54 - 62	1792.4	45.7	1761.1	48.5	1783.7	80.7	102	4.793145599	0.216907165	0.320551917	0.008165476
TP19-54 - 109	2230.4	40.8	2194.4	35.8	2215.8	75.9	102	7.866186498	0.269614387	0.413383841	0.00756511
TP19-54 - 87	2028.2	39.1	1996.2	39.6	2017.8	72.8	102	6.295636345	0.227062739	0.369745327	0.007128217
TP19-54 - 6	1890.0	38.0	1861.6	39.2	1882.0	69.9	102	5.382153317	0.199979433	0.340689438	0.006848966
TP19-54 - 66	1789.4	32.9	1763.8	29.8	1782.4	62.4	101	4.786022072	0.167428013	0.319932308	0.005879229
TP19-54 - 143	1775.4	33.6	1750.4	35.2	1767.3	62.6	101	4.700556622	0.166534886	0.317074269	0.006005997
TP19-54 - 50	1796.1	33.1	1774.5	32.2	1791.2	63.2	101	4.836075767	0.17050985	0.321304289	0.005917518
TP19-54 - 115	1811.3	36.1	1792.4	44.5	1807.2	69.9	101	4.929032161	0.190727578	0.324430247	0.006468555
TP19-54 - 121	1805.4	35.1	1788.4	42.0	1801.5	68.3	101	4.895512772	0.185602032	0.323215367	0.006290706
TP19-54 - 106	1770.3	33.8	1755.4	34.9	1767.7	63.9	101	4.702314875	0.170029291	0.316034407	0.006032388
TP19-54 - 79	2109.1	40.4	2093.5	42.4	2106.2	77.2	101	6.95870534	0.255153465	0.387038344	0.007406317
TP19-54 - 126	1813.9	33.0	1802.6	34.3	1812.5	63.2	101	4.959670867	0.172981458	0.324962807	0.005907551
TP19-54 - 35	3531.6	66.9	3526.8	40.9	3535.5	115.6	100	31.52108446	1.030309861	0.729505086	0.013809292
TP19-54 - 73	1780.2	34.2	1778.0	37.4	1784.1	66.9	100	4.795387158	0.179799477	0.318053601	0.006102225
TP19-54 - 11	1766.0	33.7	1766.8	31.4	1771.9	62.7	100	4.726225079	0.167312419	0.315149718	0.006019162
TP19-54 - 80	1741.2	34.8	1746.1	45.4	1749.2	68.6	100	4.599537316	0.180281501	0.310109123	0.006203354
TP19-54 - 19	1738.0	41.2	1747.8	48.8	1746.5	70.9	99	4.584863916	0.18619519	0.309456955	0.007335868
TP19-54 - 24	1775.1	35.8	1788.4	56.1	1785.9	75.2	99	4.805860607	0.202285093	0.317003571	0.006389223
TP19-54 - 123	1814.0	35.9	1829.9	38.4	1825.5	66.8	99	5.036372417	0.184360699	0.324976805	0.006437282
TP19-54 - 5	2393.3	45.2	2422.0	41.2	2414.9	83.7	99	9.786430913	0.339146294	0.449558953	0.008489008
TP19-54 - 97	1748.5	34.2	1775.3	46.4	1764.5	67.8	98	4.684758126	0.179987783	0.311590014	0.006093331
TP19-54 - 36	1718.0	35.5	1746.1	48.5	1737.2	68.7	98	4.533841714	0.179190763	0.305397767	0.006312385
TP19-54 - 118	1746.8	33.7	1779.0	36.1	1765.4	65.1	98	4.68983481	0.173065104	0.311230074	0.005999849
TP19-54 - 139	1750.8	34.3	1788.9	38.9	1771.8	66.8	98	4.725679448	0.178136915	0.312061317	0.006113212
TP19-54 - 27	1762.8	36.1	1803.9	37.2	1787.5	65.5	98	4.81514591	0.176554694	0.314489731	0.006437067
TP19-54 - 20	1745.3	32.7	1789.2	34.5	1771.2	63.2	98	4.722484763	0.168534648	0.310931446	0.005824307
TP19-54 - 103	1753.3	41.2	1803.8	45.8	1780.6	71.0	97	4.775581248	0.190322455	0.312560993	0.007349469
TP19-54 - 18	1909.8	46.8	1968.1	74.1	1943.9	92.2	97	5.782907582	0.274337449	0.344815139	0.008456751
TP19-54 - 128	1786.7	39.3	1841.4	38.3	1815.9	69.0	97	4.979585152	0.189261645	0.319380819	0.007026385
TP19-54 - 28	1735.6	38.4	1796.2	38.9	1769.7	68.6	97	4.714030388	0.182727726	0.308958556	0.006834084
TP19-54 - 155	1736.8	38.0	1799.4	39.8	1770.2	65.4	97	4.716915647	0.174310934	0.309216683	0.006762069
TP19-54 - 81	1732.7	37.4	1797.1	26.9	1768.6	59.7	96	4.707650622	0.159014144	0.308365501	0.00666492
TP19-54 - 117	2594.7	52.5	2694.5	46.5	2655.7	92.5	96	12.67368887	0.44134951	0.495562396	0.010030279
TP19-54 - 127	1738.7	33.4	1807.7	36.0	1773.6	63.9	96	4.735704776	0.170565383	0.309586563	0.005939415

TP19-54 - 25	1852.7	37.3	1935.8	72.0	1898.4	99.4	96	5.485944595	0.287328375	0.332949981	0.006709606
TP19-54 - 38	1720.8	32.3	1807.9	36.1	1766.0	66.0	95	4.692826341	0.175484497	0.305968757	0.00574995
TP19-54 - 136	1695.5	35.0	1791.7	39.5	1742.5	64.1	95	4.562608617	0.167929469	0.300849978	0.006207761
TP19-54 - 60	1706.7	34.9	1806.2	30.4	1756.9	60.7	94	4.642140475	0.160484599	0.303113374	0.006192016
TP19-54 - 89	1711.6	34.8	1814.9	41.9	1763.8	64.8	94	4.680562763	0.171863599	0.304104089	0.006180202
TP19-54 - 59	1682.5	32.2	1787.1	27.3	1734.1	58.8	94	4.516884545	0.153100949	0.298220136	0.005713753
TP19-54 - 23	1685.3	31.2	1791.8	32.9	1739.3	62.0	94	4.54533357	0.161954539	0.29878612	0.005533864
TP19-54 - 91	1683.3	33.6	1812.3	32.4	1745.5	63.0	93	4.579033721	0.165166002	0.298384913	0.005952328
TP19-54 - 111	1676.9	35.3	1811.1	40.9	1741.5	67.3	93	4.557592459	0.176058381	0.297104166	0.006247438
TP19-54 - 72	2632.1	52.3	2845.1	31.3	2759.7	91.5	93	14.14797799	0.469103168	0.504257967	0.010029155
TP19-54 - 41	1684.3	37.7	1826.1	46.4	1753.7	66.7	92	4.624721921	0.175800372	0.298586766	0.006691431
TP19-54 - 130	2116.4	50.2	2302.0	65.6	2216.3	90.7	92	7.870055176	0.322084101	0.388625248	0.009226731
TP19-54 - 26	1740.4	37.7	1893.9	57.8	1817.3	76.7	92	4.988321478	0.210463814	0.309947963	0.006720809
TP19-54 - 37	1734.2	64.3	1894.2	45.6	1806.8	92.7	92	4.926516467	0.252824601	0.308671669	0.011447771
TP19-54 - 145	1674.8	34.3	1836.6	43.0	1751.1	69.3	91	4.610382756	0.182581923	0.296673117	0.006069555
TP19-54 - 4	1677.4	38.1	1845.3	47.1	1760.2	81.8	91	4.660536526	0.21647721	0.297198612	0.00674866
TP19-54 - 12	1685.2	72.1	1882.8	103.0	1779.8	94.0	90	4.770783692	0.252002294	0.298773038	0.012789286
TP19-54 - 7	1591.3	31.2	1795.2	34.2	1685.4	60.0	89	4.258425399	0.151531172	0.27999521	0.005496666
TP19-54 - 108	1662.2	33.4	1890.4	36.9	1769.7	64.2	88	4.71361785	0.171029291	0.294147166	0.005917839
TP19-54 - 150	1604.7	33.7	1852.1	37.4	1718.2	60.2	87	4.431269632	0.155292093	0.28264421	0.005937845
TP19-54 - 67	1616.0	33.0	1882.1	38.1	1739.9	62.8	86	4.548762095	0.164302645	0.284897261	0.005825752
TP19-54 - 16	1540.7	33.2	1851.4	41.3	1681.7	62.0	83	4.239452936	0.156261929	0.269982326	0.005821879
TP19-54 - 77	1568.2	34.7	1888.0	48.2	1715.9	66.4	83	4.419020993	0.171085796	0.275408023	0.006094447
TP19-54 - 134	1626.5	35.7	1966.0	38.4	1783.6	65.0	83	4.792803932	0.174579348	0.287000184	0.006305642
TP19-54 - 10	1585.6	54.8	1923.6	38.7	1742.6	71.1	82	4.563534493	0.186278548	0.278861188	0.009630932
TP19-54 - 90	1554.3	73.8	1888.8	49.4	1704.3	98.1	82	4.35726806	0.250924316	0.272661775	0.012952968
TP19-54 - 120	1526.2	30.6	1859.8	38.3	1675.6	60.8	82	4.207931991	0.152701351	0.267119652	0.005358879
TP19-54 - 148	1480.4	59.4	1867.7	46.9	1651.4	79.9	79	4.085357739	0.197637178	0.258161961	0.010358272
TP19-54 - 133	1505.0	35.2	1921.2	34.4	1690.9	61.9	78	4.28706834	0.157048408	0.262970555	0.006146912
TP19-54 - 116	1466.7	34.5	1888.8	34.8	1651.9	57.6	78	4.087988632	0.142492642	0.255487532	0.006008349
TP19-54 - 70	1487.6	31.7	1921.4	39.8	1682.0	60.7	77	4.241021885	0.153141215	0.259562791	0.005539661
TP19-54 - 84	1502.5	32.8	1962.9	42.0	1709.2	66.2	77	4.383213548	0.169876914	0.262486038	0.005731624
TP19-54 - 93	1957.2	59.4	2569.7	39.7	2277.1	88.4	76	8.417476781	0.326936282	0.354743561	0.010759543
TP19-54 - 96	1349.9	49.0	1824.1	39.0	1549.6	68.3	74	3.600199208	0.158619868	0.232933948	0.008455145
TP19-54 - 100	1400.4	54.8	1931.0	35.2	1630.8	74.7	73	3.983198758	0.182390771	0.242639467	0.009489445
TP19-54 - 30	1427.3	34.5	1994.9	39.6	1679.8	57.5	72	4.229535634	0.144759776	0.247830726	0.005989052
TP19-54 - 110	1559.8	100.9	2243.8	75.2	1876.8	91.5	70	5.349399888	0.260702472	0.273744858	0.017710652
TP19-54 - 102	1535.5	50.7	2248.6	46.2	1865.6	65.9	68	5.279835089	0.186407229	0.268960725	0.008883927
TP19-54 - 140	1411.9	31.3	2073.3	89.5	1702.9	85.3	68	4.350162711	0.217798924	0.244858986	0.005428123
TP19-54 - 53	1330.4	31.2	1959.4	44.3	1597.6	58.2	68	3.82297323	0.139342392	0.229221104	0.005370399
TP19-54 - 39	1362.2	27.9	2024.0	36.5	1648.1	58.9	67	4.069079906	0.145378967	0.235296406	0.004825483
TP19-54 - 52	1233.6	56.2	1847.8	51.3	1482.3	74.9	67	3.305203674	0.167072117	0.2108974	0.009614487
TP19-54 - 152	1394.4	43.2	2130.0	65.5	1717.6	67.1	65	4.427804359	0.173078259	0.241483909	0.007474271
TP19-54 - 78	1252.4	53.2	1913.5	57.2	1521.7	65.8	65	3.475541222	0.150210316	0.214428332	0.009101647
TP19-54 - 151	1530.4	54.5	2426.3	32.9	1951.1	79.4	63	5.831654211	0.237430308	0.267948599	0.009536719
TP19-54 - 63	1289.9	54.5	2129.9	109.0	1653.9	78.8	61	4.097774161	0.195310713	0.221518594	0.00936147
TP19-54 - 54	1268.0	58.0	2101.4	69.2	1617.5	73.9	60	3.918626778	0.179039425	0.217383874	0.009948147

TP19-54 - 51	1270.1	25.3	2293.2	32.2	1711.0	58.3	55	4.392652557	0.149691053	0.217772714	0.004333576
TP19-54 - 95	1983.0	94.4	3766.4	228.8	2992.6	301.4	53	18.05454055	1.818386451	0.360167621	0.0171747888
TP19-54 - 144	1097.5	33.5	2110.9	39.1	1495.2	55.4	52	3.360298366	0.124536359	0.185605795	0.005664367
TP19-54 - 92	1126.0	25.6	2288.1	38.5	1600.9	56.4	49	3.838646937	0.135315413	0.190863617	0.004337075
TP19-54 - 98	1129.8	32.6	2340.8	57.8	1627.4	61.2	48	3.966439145	0.149086651	0.191549255	0.005522975
TP19-54 - 119	1095.9	27.0	2277.4	48.3	1571.3	56.4	48	3.699564566	0.132696282	0.185305921	0.004561952
TP19-54 - 142	1113.0	28.2	2324.3	61.1	1606.9	63.4	48	3.86723517	0.152481686	0.188454313	0.004781957
TP19-54 - 21	1138.8	31.2	2395.5	40.9	1663.1	68.3	48	4.144157209	0.170213584	0.193222659	0.005300755
TP19-54 - 71	1037.8	45.4	2186.2	53.8	1483.3	67.5	47	3.309698134	0.150577239	0.174665897	0.007637769
TP19-54 - 132	1771.6	76.3	3811.7	207.9	2904.2	276.7	46	16.46491994	1.568783504	0.316287134	0.013614222
TP19-54 - 122	1052.5	26.5	2283.1	48.5	1538.4	58.1	46	3.549861995	0.13398742	0.177359251	0.00446884
TP19-54 - 64	1026.4	59.0	2251.1	56.9	1503.8	78.6	46	3.397278242	0.177467866	0.172588884	0.009924859
TP19-54 - 9	1056.6	34.2	2370.7	62.8	1585.8	78.9	45	3.76725067	0.187461159	0.178106509	0.005762744
TP19-54 - 65	1004.2	51.8	2261.0	89.6	1489.1	63.2	44	3.334002125	0.141487622	0.168569149	0.008696208
TP19-54 - 76	986.7	21.5	2233.8	52.4	1461.8	57.9	44	3.219029735	0.12754736	0.16539838	0.0035995
TP19-54 - 124	1054.6	26.8	2450.7	58.6	1619.2	57.3	43	3.926658188	0.139040873	0.177738281	0.004517008
TP19-54 - 49	999.3	23.0	2337.6	40.8	1520.5	54.8	43	3.470542419	0.125161526	0.167679899	0.003851865
TP19-54 - 135	1026.8	56.7	2519.6	85.9	1628.8	79.3	41	3.973730037	0.19347281	0.172677627	0.009530328
TP19-54 - 131	914.5	22.5	2256.8	47.7	1408.7	53.0	41	3.004311238	0.113133287	0.15241463	0.003749349
TP19-54 - 125	885.4	22.0	2313.0	37.2	1408.0	48.6	38	3.001645396	0.103654865	0.147228497	0.003656914
TP19-54 - 2	938.2	23.9	2460.0	86.2	1524.4	81.0	38	3.487331836	0.185242889	0.156667353	0.003987781
TP19-54 - 149	868.4	35.9	2488.1	71.7	1470.7	55.1	35	3.256235375	0.121976666	0.144204282	0.00595752
TP19-54 - 34	828.8	19.2	2395.8	47.5	1392.6	51.2	35	2.941422105	0.108220447	0.13720565	0.00317683
TP19-54 - 114	844.3	81.2	2456.6	119.4	1432.0	85.3	34	3.097036328	0.184590455	0.139943826	0.013461275
TP19-54 - 48	873.4	37.2	2638.1	71.6	1550.2	63.3	33	3.602818735	0.147017196	0.145096224	0.006186377
TP19-54 - 85	811.1	26.2	2458.9	80.2	1401.8	59.4	33	2.97714341	0.126082639	0.134083811	0.004336964
TP19-54 - 57	833.0	23.2	2649.2	51.5	1512.3	54.1	31	3.434370481	0.122862804	0.137934546	0.003846797
TP19-54 - 69	788.9	33.1	2549.9	82.7	1421.4	48.3	31	3.054669334	0.103824228	0.130179877	0.005460879
TP19-54 - 141	863.5	62.6	2800.6	125.9	1613.3	78.5	31	3.898365541	0.18971709	0.143330166	0.010391241
TP19-54 - 46	735.3	18.2	2476.4	44.2	1332.5	47.4	30	2.714891313	0.096485416	0.120822111	0.002985056
TP19-54 - 31	769.9	59.5	2660.7	129.7	1451.4	59.1	29	3.176287211	0.129308702	0.126851019	0.009805005
TP19-54 - 86	688.6	28.1	2507.0	42.1	1296.1	65.2	27	2.583801493	0.129983052	0.112729822	0.004592449
TP19-54 - 55	783.9	18.7	2902.4	53.2	1583.4	59.6	27	3.756254059	0.141316131	0.129313322	0.00308621
TP19-54 - 68	711.8	18.0	2638.2	55.6	1378.6	54.5	27	2.887232882	0.114115598	0.116745689	0.002953156
TP19-54 - 113	683.4	17.4	2632.7	46.6	1343.0	54.6	26	2.753325736	0.111966259	0.111831788	0.002850428
TP19-54 - 83	687.3	34.2	2685.4	66.7	1371.4	61.8	26	2.859789008	0.128912083	0.112505368	0.005596201
TP19-54 - 29	690.1	18.0	2793.4	96.7	1426.9	56.9	25	3.076613142	0.122662963	0.112997538	0.002944188
TP19-54 - 43	751.4	35.9	3043.3	51.4	1618.0	76.3	25	3.920743975	0.184796278	0.123625153	0.005906849
TP19-54 - 8	649.3	19.4	2675.8	67.1	1323.9	50.0	24	2.683410801	0.101286878	0.105976939	0.003160144
TP19-54 - 94	694.6	18.3	2880.8	60.5	1471.9	50.2	24	3.261501572	0.111226046	0.113774968	0.003004894
TP19-54 - 45	682.0	19.5	2889.5	48.8	1461.6	53.6	24	3.218214079	0.118123212	0.111590633	0.003192317
TP19-54 - 14	589.2	14.1	2620.5	49.2	1225.6	46.0	22	2.343673906	0.087951962	0.095705601	0.00228611
TP19-54 - 42	633.3	18.3	2850.3	37.2	1383.8	54.3	22	2.907440335	0.114034044	0.103232744	0.002987896
TP19-54 - 88	594.2	17.2	2733.6	52.2	1279.8	60.1	22	2.526960953	0.118586614	0.096560752	0.002796714
TP19-54 - 101	653.1	17.7	3025.9	57.8	1491.2	56.4	22	3.343060876	0.126390563	0.106623047	0.002897657
TP19-54 - 22	606.2	14.4	2812.4	65.2	1331.9	57.2	22	2.712405963	0.116455643	0.098599432	0.002342692
TP19-54 - 154	607.6	24.2	2849.6	67.0	1349.4	57.3	21	2.777161659	0.118014757	0.098845892	0.003936315

TP19-54 - 58	559.4	47.5	2640.3	138.3	1196.4	69.3	21	2.248612753	0.130236285	0.090645507	0.007694733
TP19-54 - 61	555.9	14.4	2866.0	62.3	1286.7	49.0	19	2.550844486	0.097180688	0.090064532	0.002329295
TP19-54 - 75	473.7	15.7	2868.3	94.4	1169.6	48.1	17	2.164180088	0.089090737	0.076245582	0.002527691
TP19-54 - 153	440.6	12.9	3003.9	58.6	1175.7	43.1	15	2.183253916	0.079993321	0.070730434	0.00207822
TP19-54 - 40	433.0	8.9	3102.5	54.3	1208.4	40.8	14	2.287305529	0.07720248	0.0694738	0.001431786
TP19-54 - 147	424.0	9.8	3087.7	54.7	1186.1	43.3	14	2.21582927	0.080835815	0.067989847	0.001577876
TP19-54 - 47	413.7	17.4	3100.5	60.9	1177.2	51.6	13	2.187956886	0.095962021	0.066283559	0.002784202
TP19-54 - 33	401.7	10.3	3140.5	58.0	1170.6	48.6	13	2.167188007	0.09005633	0.064297563	0.001655015
TP19-54 - 112	363.0	17.6	3116.5	90.8	1088.5	46.1	12	1.921275516	0.081287675	0.057928691	0.00281471
TP19-54 - 146	363.7	17.7	3256.4	84.4	1148.8	50.6	11	2.099851594	0.092557297	0.058042401	0.002821558
TP19-54 - 104	334.9	8.4	3169.9	51.1	1055.6	42.3	11	1.828147867	0.07324348	0.053329715	0.00133055
TP19-54 - 74	354.7	10.4	3371.4	64.5	1183.3	44.8	11	2.207072849	0.083501979	0.05655898	0.001657437
TP19-54 - 107	332.4	25.8	3363.6	144.7	1131.8	57.4	10	2.04850621	0.103936937	0.052910477	0.004111288
TP19-54 - 13	314.9	7.7	3205.9	63.6	1029.9	35.7	10	1.757445754	0.060840158	0.050054243	0.001229866
TP19-54 - 138	341.6	12.8	3510.4	118.2	1218.2	42.6	10	2.319298799	0.081105897	0.054420031	0.002038664
TP19-54 - 129	336.1	8.7	3507.2	58.1	1204.9	44.7	10	2.275952951	0.08446009	0.053521101	0.001387349
TP19-54 - 82	213.0	10.7	3693.6	100.5	973.5	41.7	6	1.608322481	0.068825597	0.03359267	0.001692344
TP19-54 - 44	206.3	10.5	3599.6	80.3	919.0	43.4	6	1.47220417	0.069485273	0.03251653	0.001660535
TP19-54 - 56	113.2	3.1	3572.5	72.4	589.7	24.0	3	0.787373997	0.031990122	0.017714218	0.000485032
TP19-54 - 3	106.2	4.7	4522.7	108.4	888.6	43.1	2	1.399262021	0.067897013	0.016604152	0.000729456
TP19-54 - 105	76.4	2.7	4557.9	62.7	718.0	30.7	2	1.028123741	0.044008813	0.011918631	0.000418181
TP19-54 - 99	71.1	1.9	4409.2	93.5	631.0	21.6	2	0.861517231	0.029481098	0.011095439	0.000291677

Appendix B: Supplementary Tables: REEs in detrital Zircons within 10% concordance

Source Filename	CeN	PrN	LaN	Ce* (CeN/0.5*(la+pr))	EuN	Sm	Gd	Eu*	Lu	Slope LU/Gd REE	Yb	Yb/U	U/Yb	La	Slope Sm/La
TP19-45 - 10	46.2676	20.8043	6.0473	4.1250	53.9973	80.7044	135.365	0.516	748.7313	5.5312	628.5950	3.1984	0.312	6.0473	13.3456
TP19-45 - 101	17.5205	9.3246	2.5456	3.5961	27.8972	44.5172	124.119	0.375	4566.198	36.7888	3577.571	16.458	0.060	2.5456	17.4881
TP19-45 - 105	11.1219	1.9461	0.0567	33.4826	7.5021	40.6686	164.158	0.091	2045.669	12.4615	1700.834	7	0.141	0.0567	717.3234
TP19-45 - 112	19.8380	3.3591	0.6214	13.7308	8.0132	20.3865	51.8696	0.246	875.1605	16.8723	673.4827	3.7281	0.268	0.6214	32.8068
TP19-45 - 116	19.5319	7.5325	9.7578	2.2782	3.3221	27.1455	79.1918	0.071	928.8950	11.7297	730.0947	11.342	0.088	9.7578	2.7819
TP19-45 - 122	26.7056	7.5529	1.6491	7.5670	23.5344	35.6691	71.6066	0.465	978.4577	13.6644	738.6265	4.3101	0.232	1.6491	21.6296
TP19-45 - 131	30.8864	5.8916	0.9701	12.9195	21.3219	39.1457	108.739	0.326	1229.347	11.3054	1006.679	8.6136	0.116	0.9701	40.3530

TP19-45 - 135	6.9631	0.2648	0.0045	202.3565	1.2628	11.1507	46.2487	0.055 6	1350.988 3	29.2114	1001.373 0	6.0222	0.166 1	0.0045	2494.021 4
TP19-45 - 136	34.8817	8.8229	1.5366	9.4734	26.4064	39.4701	70.7986	0.499 5	762.5196	10.7703	591.6358	3.7475	0.266 8	1.5366	25.6862
TP19-45 - 138	21.6743	3.7146	0.5614	15.0084	15.5802	23.5011	57.9484	0.422 2	701.1383	12.0994	540.9621	4.6406	0.215 5	0.5614	41.8582
TP19-45 - 142	6.4422	1.0249	0.2015	14.1768	5.1322	10.7109	38.3314	0.253 3	1032.984 8	26.9488	793.9395	7.2108	0.138 7	0.2015	53.1635
TP19-45 - 143	36.6625	12.3006	2.1802	7.0796	33.6897	69.2101	163.111	0.317 1	1327.195 8	8.1367	1104.559 6	9.8760	0.101 3	2.1802	31.7444
TP19-45 - 144	19.6406	5.9657	6.0233	3.2765	3.1667	14.9039	56.9723	0.108 7	1448.707 9	25.4283	1099.342 8	6.6139	0.151 2	6.0233	2.4744
TP19-45 - 145	13.7967	4.9085	0.8722	6.6682	11.0180	38.6477	121.831	0.160 6	1338.250 5	10.9844	1108.814 4	6.1730	0.162 0	0.8722	44.3128
TP19-45 - 147	43.6890	2.5472	0.3124	48.9750	16.5456	23.8791	62.1235	0.429 6	728.3677	11.7245	558.8576	5.4664	0.182 9	0.3124	76.4348
TP19-45 - 150	14.1828	0.9140	0.0948	48.1782	3.4343	13.2707	54.2803	0.128 0	1229.549 9	22.6518	964.3265	4.4097	0.226 8	0.0948	139.9683
TP19-45 - 155	27.2224	2.5364	0.1476	44.4908	24.1706	24.1000	65.3579	0.609 0	685.7389	10.4921	531.8149	19.150 2	0.052 2	0.1476	163.2753
TP19-45 - 2	30.6415	8.5680	1.5746	8.3422	31.7924	56.9481	163.673	0.329 3	2057.280 3	12.5695	1660.339 3	5.9593	0.167 8	1.5746	36.1657
TP19-45 - 23	12.2725	0.6488	0.0154	122.6428	1.0482	14.1633	61.5283	0.035 5	1032.570 3	16.7820	862.3582	10.012 0	0.099 9	0.0154	917.7455
TP19-45 - 24	9.7831	3.8545	0.8456	5.4189	9.7747	21.7254	49.1563	0.299 1	551.8033	11.2255	414.4398	2.1383	0.467 7	0.8456	25.6922
TP19-45 - 27	4.5789	0.6659	0.0329	30.9298	2.4956	13.7740	64.4601	0.083 8	1485.804 2	23.0500	1151.305 9	7.0787	0.141 3	0.0329	418.5073
TP19-45 - 28	67.0710	5.8990	0.5467	37.3485	38.4899	49.0603	119.939	0.501 8	1305.427 6	10.8841	1014.806 6	20.426 4	0.049 0	0.5467	89.7395
TP19-45 - 30	13.2520	0.6799	0.0226	106.9219	1.2719	15.6156	67.0695	0.039 3	1042.348 0	15.5413	852.9467	5.2746	0.189 6	0.0226	691.2046
TP19-45 - 34	18.2711	0.4975	#VALUE!	#VALUE!	7.1607	11.4254	35.5296	0.355 4	560.1788	15.7665	435.5321	3.5123	0.284 7	#VALUE!	#VALUE!
TP19-45 - 43	20.6211	9.6711	1.7582	5.0008	20.7878	40.9258	106.723	0.314 5	1955.187 3	18.3201	1556.401 9	8.7149	0.114 7	1.7582	23.2768
TP19-45 - 44	7.9482	0.5865	0.1262	29.2198	2.7478	6.8522	23.9579	0.214 5	400.0228	16.6969	324.1594	2.7855	0.359 0	0.1262	54.3133
TP19-45 - 47	4.1862	0.3453	0.0160	56.3657	3.5908	8.5133	43.0905	0.187 5	967.1961	22.4457	750.7111	5.5795	0.179 2	0.0160	533.0253
TP19-45 - 51	19.3092	2.7310	1.2007	10.6632	8.7035	21.4341	55.2069	0.253 0	949.0369	17.1906	746.4667	3.2140	0.311 1	1.2007	17.8515
TP19-45 - 52	33.2706	11.4539	2.3874	6.3623	32.9593	44.9802	102.121	0.486 3	1295.275 1	12.6836	1058.349 3	5.3837	0.185 7	2.3874	18.8404
TP19-45 - 55	8.2857	1.4509	0.1247	19.4794	4.5175	15.6212	50.5624	0.160 7	1002.067 5	19.8184	767.5600	6.0215	0.166 1	0.1247	125.2680
TP19-45 - 58	26.1746	11.0139	2.0950	5.4489	33.7493	51.9144	131.264	0.408 8	2277.555 2	17.3509	1665.021 1	8.0600	0.124 1	2.0950	24.7796

TP19-45 - 64	52.9828	5.6005	0.8258	24.6372	20.7094	39.1272	75.2766	0.381	6	760.1068	10.0975	599.5225	5.7589	0.173	6	0.8258	47.3822
TP19-45 - 67	31.4922	7.3334	1.2704	10.3178	24.0472	46.3509	129.945	0.309	9	1234.779	9.5023	944.0620	6.7570	0.148	0	1.2704	36.4867
TP19-45 - 68	15.7389	7.4217	0.9543	5.9139	19.2356	42.6212	97.1156	0.299	0	945.9331	9.7403	760.9526	4.6844	0.213	5	0.9543	44.6600
TP19-45 - 7	16.8617	6.8750	2.7975	3.8448	17.6781	30.7871	77.4804	0.362	0	1502.746	19.3952	1117.567	3	0.162	4	2.7975	11.0051
TP19-45 - 77	22.6716	9.1769	2.2357	5.0052	21.3781	30.4058	45.3690	0.575	6	658.5016	14.5144	416.6128	2.9811	0.335	4	2.2357	13.6000
TP19-45 - 80	48.1222	0.2440	#VALUE!	#VALUE!	7.7872	9.8690	37.6736	0.403	9	591.7647	15.7077	440.6574	4.9549	0.201	8	#VALUE!	#VALUE!
TP19-45 - 81	47.1438	13.3004	3.2355	7.1866	42.1701	55.2406	103.228	0.558	4	1272.519	12.3272	966.0136	5.8141	0.172	0	3.2355	17.0735
TP19-45 - 85	6.0174	0.1916	0.0242	88.4468	2.8721	5.1528	27.8282	0.239	8	810.8524	29.1378	615.5705	6.4720	0.154	5	0.0242	213.3043
TP19-45 - 89	5.7625	1.6114	0.4845	6.5219	5.4784	17.5838	68.4990	0.157	9	1712.799	25.0047	1301.820	5	0.105	3	0.4845	36.2935
TP19-45 - 92	7.4370	0.1672	#VALUE!	#VALUE!	2.6886	6.4631	33.8838	0.181	7	790.2063	23.3211	610.0649	4.9138	0.203	5	#VALUE!	#VALUE!
TP19-45 - 99	25.8745	12.8543	3.2171	4.0236	28.3264	46.4676	81.5787	0.460	1	575.4906	7.0544	464.6150	3.0887	0.323	8	3.2171	14.4438
TP19-46 - 102	18.2723	8.9534	3.0476	3.4980	15.6224	48.5120	130.671	0.196	2	1674.494	12.8145	1299.827	6	0.135	4	3.0476	15.9180
TP19-46 - 107	42.0823	17.7073	4.4206	4.7565	46.7854	76.1650	177.672	0.402	2	1604.832	9.0325	1297.320	2	0.174	7	4.4206	17.2297
TP19-46 - 116	16.2442	7.5664	2.2282	3.9562	18.0496	33.0307	121.971	0.284	4	2829.407	23.1972	2254.679	13.215	0.075	7	2.2282	14.8238
TP19-46 - 117	18.4200	0.5986	0.0105	231.9669	6.9079	10.7405	43.1223	0.321	0	972.1245	22.5434	698.2997	6.5595	0.152	5	0.0105	1019.554
TP19-46 - 119	31.6890	0.8701	0.0687	129.5996	5.9992	12.4337	43.4426	0.258	1	694.5055	15.9867	527.8580	4.3616	0.229	3	0.0687	180.9536
TP19-46 - 12	18.4165	8.3591	2.4538	4.0664	21.3260	39.1496	120.381	0.310	6	2889.462	24.0025	2299.776	11.604	0.086	2	2.4538	15.9546
TP19-46 - 123	23.6313	4.4445	0.5992	14.4801	15.5077	30.3995	77.7752	0.318	9	880.0313	11.3151	685.5967	4.7474	0.210	6	0.5992	50.7294
TP19-46 - 124	3.4386	0.4576	0.0292	29.7380	2.1667	16.4810	92.3599	0.055	5	2757.910	29.8605	2135.963	10.522	0.095	0	0.0292	564.0602
TP19-46 - 125	23.7250	4.2120	0.2248	24.3810	17.9394	40.1352	102.047	0.280	9	1094.147	10.7219	857.2621	7.2569	0.137	8	0.2248	178.5290
TP19-46 - 127	63.1000	30.9301	14.3328	2.9969	58.9902	79.1708	148.958	0.543	2	1307.647	8.7786	1074.502	6	0.235	5	14.3328	5.5238
TP19-46 - 132	15.0292	3.3154	1.0249	8.1532	11.9249	18.3633	54.2808	0.377	7	1046.752	19.2840	810.2119	6.0165	0.166	2	1.0249	17.9173
TP19-46 - 140	7.7259	0.3393	0.0629	52.8928	2.5203	7.3665	37.2480	0.152	2	870.5602	23.3720	672.4694	6.0258	0.166	0	0.0629	117.1337
TP19-46 - 143	3.8167	0.6157	0.1394	13.0275	2.8661	4.0954	9.2246	0.466	3	347.6993	37.6925	216.7326	4.1470	0.241	1	0.1394	29.3795

TP19-46 - 145	12.4616	3.5480	0.7860	7.4620	9.8788	22.0170	75.6628	0.242	2309.498	1827.467	0.101	0.7860	28.0104
								0	3	30.5235	0		
TP19-46 - 150	31.3258	11.2947	3.5324	4.9594	23.3194	41.0617	90.5269	0.382	1255.416	1007.228	0.181	3.5324	11.6244
								5	8	13.8679	0		
TP19-46 - 151	5.1646	0.6202	0.0195	47.0188	5.0479	12.6343	57.5899	0.187	1022.136	10.159	0.098	0.0195	649.4446
								1	3	17.7485	792.8688		
TP19-46 - 154	9.6794	2.3300	0.2414	12.9054	8.6684	22.9237	67.9437	0.219			0.149	0.2414	94.9478
								6	782.5660	11.5179	615.2263		
TP19-46 - 19	3.6073	0.2510	#VALUE!	#VALUE!	3.7320	8.4868	35.5991	0.214			0.152	#VALUE!	#VALUE!
								7	860.8772	24.1826	620.9891		
TP19-46 - 2	6.7659	0.3147	0.0208	83.7005	2.3531	6.7320	25.4236	0.179			0.342	0.0208	324.1979
								9	559.4440	22.0049	437.6359		
TP19-46 - 24	3.5289	0.7025	0.0754	15.3318	3.5141	12.4085	57.8874	0.131	1252.991		0.124	0.0754	164.5480
								1	5	21.6453	942.3572		
TP19-46 - 26	9.2310	2.0276	0.2089	14.1853	8.5667	23.2213	69.8383	0.212			0.160	0.2089	111.1850
								7	919.1194	13.1607	708.8603		
TP19-46 - 27	8.1178	1.0656	0.0721	29.2899	2.3169	20.9640	86.0651	0.054	1535.037	1209.544	0.190	0.0721	290.8175
								5	4	17.8358	3		
TP19-46 - 29	15.3889	4.8358	0.8561	7.5633	22.5193	52.3485	165.899	0.241	1749.286	1399.933	0.086	0.8561	61.1473
								6	9	10.5443	0		
TP19-46 - 3	18.5652	1.9693	0.2516	26.3732	13.0768	21.0378	59.5570	0.369			0.118	0.2516	83.6055
								4	977.5549	16.4138	749.8434		
TP19-46 - 32	4.9677	0.2337	0.0179	76.8214	2.6783	5.4644	29.8783	0.209			0.125	0.0179	305.3243
								6	783.1532	26.2115	597.5124		
TP19-46 - 33	4.4546	0.1202	0.0103	126.6610	2.1109	4.4163	22.6332	0.211			0.133	0.0103	429.2640
								1	630.1124	27.8401	490.4350		
TP19-46 - 35	33.6917	8.9363	1.8765	8.2274	23.1496	35.5895	84.5490	0.422			0.268	1.8765	18.9656
								0	915.0847	10.8231	732.6713		
TP19-46 - 43	15.3794	4.7608	0.9874	7.0935	11.7032	29.0996	63.6085	0.272			0.152	0.9874	29.4718
								0	679.9420	10.6895	518.6824		
TP19-46 - 45	7.0875	0.3317	0.0122	111.5269	2.2755	10.3719	42.7206	0.108			0.160	0.0122	851.7813
								1	728.9528	17.0633	589.7960		
TP19-46 - 48	5.6176	0.7836	0.1791	14.9960	3.9092	5.1035	15.3395	0.441			0.156	0.1791	28.4984
								8	582.6649	37.9847	391.7457		
TP19-46 - 52	2.9620	0.5314	0.0185	29.8816	2.9709	13.9724	64.8809	0.098	1533.338	1191.587	0.106	0.0185	755.6157
								7	4	23.6331	1		
TP19-46 - 53	16.6844	5.2444	1.1353	6.8377	20.0753	39.3550	113.811	0.300	1326.388	1055.265	0.095	1.1353	34.6653
								0	7	11.6543	9		
TP19-46 - 54	7.2987	1.5041	0.3689	9.7983	5.1153	15.2221	61.8548	0.166	1611.665	1239.285	0.156	0.3689	41.2620
								4	7	26.0556	4		
TP19-46 - 55	19.5580	5.8656	1.2241	7.2988	18.1485	32.9632	88.0969	0.336	1009.565		0.206	1.2241	26.9278
								8	6	11.4597	828.7316		
TP19-46 - 63	15.8453	4.6831	4.3073	3.5280	10.9822	17.4409	56.1514	0.350	1072.290		0.163	4.3073	4.0492
								9	2	19.0964	849.0199		
TP19-46 - 66	42.5194	17.0154	8.3144	3.5748	36.5422	49.8931	95.2072	0.530	1651.860	1151.176	0.146	8.3144	6.0008
								2	4	17.3502	1		
TP19-46 - 67	3.8859	0.3360	0.0143	56.0891	1.1585	6.5899	27.4803	0.086			0.143	0.0143	461.2384
								1	537.4969	19.5594	420.7420		

TP19-46 - 68	6.8653	0.9334	0.0457	33.2428	7.5510	20.6939	84.8912	0.180	1116.448				0.245		
							176.702	2	5	13.1515	899.7337	4.0726	5	0.0457	452.9017
TP19-46 - 69	24.7359	8.5647	1.2213	7.6483	30.1535	60.9248	1	0.290	1699.615		1392.991		0.137		
								6	5	9.6185	3	7.2829	3	1.2213	49.8860
TP19-46 - 70	19.4870	0.5876	0.0623	101.8124	6.8959	10.4217	41.8824	0.330					0.218		
								1	841.0104	20.0803	627.4701	4.5731	7	0.0623	167.1675
TP19-46 - 71	12.9077	5.6079	1.0804	5.2439	16.2839	28.7380	66.6755	0.372					0.507		
								0	660.4915	9.9061	499.8868	1.9696	7	1.0804	26.5988
TP19-46 - 82	14.2121	0.6805	0.1351	46.8681	1.7209	10.4594	40.4243	0.083					0.251		
								7	761.2510	18.8315	600.1283	3.9702	9	0.1351	77.4069
TP19-46 - 93	21.4533	6.5500	2.7099	5.0921	16.0236	31.3265	98.4232	0.288	1325.950		1086.028		0.160		
								6	2	13.4719	7	6.2485	0	2.7099	11.5601
TP19-46 - 99	49.4227	26.6810	8.1365	3.3543	49.4270	75.3354	136.794	0.486	1709.554		1316.267		0.189		
								9	4	12.4973	9	5.2835	3	8.1365	9.2589
TP19-47 - 10	9.4095	3.8542	0.6149	6.1122	6.4414	17.9172	58.7436	0.198					0.204		
								5	807.7672	13.7507	626.5795	4.8840	8	0.6149	29.1388
TP19-47 - 100	60.6597	37.9282	23.8554	2.0166	36.5722	65.1029	92.0432	0.472					0.226		
								4	697.8559	7.5818	541.7509	4.4239	0	23.8554	2.7291
TP19-47 - 103	11.0975	5.7004	5.7542	1.9377	6.4917	22.5411	65.7386	0.168					0.096		
								6	739.2289	11.2450	570.6258	2	4	5.7542	3.9173
TP19-47 - 105	4.4990	0.3909	0.0138	61.3506	6.0625	12.3386	61.8110	0.219	1969.124		1445.469	10.053	0.099		
								5	8	31.8572	8	8	5	0.0138	896.8024
TP19-47 - 107	33.0294	17.4542	3.1732	4.4381	42.0893	73.2109	181.968	0.364	1937.479		1587.583		0.128		
								7	4	10.6473	7	7.7804	5	3.1732	23.0714
TP19-47 - 108	19.2060	2.5874	0.3947	19.0050	8.5859	18.0205	55.1702	0.272					0.170		
								3	815.5393	14.7822	632.9991	5.8614	6	0.3947	45.6545
TP19-47 - 109	9.0915	0.6355	0.0541	49.0214	3.1924	10.9781	49.1464	0.137	1057.257				0.163		
								4	1	21.5124	841.5369	6.1184	4	0.0541	202.8182
TP19-47 - 11	4.2934	2.6442	0.2461	5.3222	5.5132	13.1907	57.1900	0.200	1680.327		1286.154		0.145		
								7	6	29.3815	7	6.8752	4	0.2461	53.5969
TP19-47 - 111	24.9151	18.2821	3.6710	3.0413	35.4828	71.9114	200.010	0.295					0.730		
								9	252.1556	1.2607	305.2415	1.3688	6	3.6710	19.5889
TP19-47 - 114	14.0625	2.3078	0.1970	20.8580	6.3541	12.9175	43.8573	0.267					0.124		
								0	861.1749	19.6358	676.9144	8.0172	7	0.1970	65.5836
TP19-47 - 123	21.1051	9.9648	1.8536	4.9108	22.9736	39.0348	97.4455	0.372	1613.349		1251.192		0.144		
								5	8	16.5564	1	6.9247	4	1.8536	21.0594
TP19-47 - 126	21.3482	6.7359	1.4393	6.8564	14.3528	26.7189	75.3928	0.319	1383.354		1042.228		0.129		
								8	5	18.3486	1	7.7329	3	1.4393	18.5643
TP19-47 - 127	9.1978	4.0398	0.9009	4.8215	9.1823	26.3903	90.1004	0.188	1550.233		1218.408		0.118		
								3	3	17.2056	9	8.4564	3	0.9009	29.2948
TP19-47 - 139	15.9340	4.7952	0.6689	8.8970	14.2049	22.6951	65.0916	0.369					0.166		
								6	845.9925	12.9970	650.3831	6.0200	1	0.6689	33.9294
TP19-47 - 144	51.6423	1.5073	0.0368	219.2250	4.8573	23.0835	69.2714	0.121					0.165		
								5	894.0250	12.9061	702.3382	6.0264	9	0.0368	627.0143
TP19-47 - 146	8.6864	4.2527	0.7758	4.7821	7.4263	19.4824	72.9955	0.196	1789.784		1404.028		0.117		
								9	2	24.5191	7	8.5397	1	0.7758	25.1116
TP19-47 - 149	24.8056	13.8675	3.2189	3.7128	22.6340	37.1634	73.6615	0.432	1124.755				0.197		
								6	2	15.2692	889.1986	5.0545	8	3.2189	11.5453

TP19-47 - 150	7.6792	1.1738	0.1200	20.4625	9.0209	15.3876	65.6546	0.283	1493.151		1160.568	11.388	0.087		
								8	9	22.7425	2	1	8	0.1200	128.2523
TP19-47 - 155	13.0012	4.1547	0.8155	7.0633	9.9386	20.3707	74.0736	0.255	1623.782		1254.620	12.123	0.082		
								9	7	21.9212	1	9	5	0.8155	24.9804
TP19-47 - 157	5.4960	0.5689	0.1056	22.4206	2.5256	11.0736	59.1220	0.098	1613.276		1242.111	12.520	0.079		
								7	1	27.2872	5	0	9	0.1056	104.8424
TP19-47 - 159	13.3808	0.5102	0.0355	99.4876	2.3576	7.6365	36.6361	0.141					0.194		
								0	981.7037	26.7960	741.7119	5.1422	5	0.0355	215.3621
TP19-47 - 16	21.4783	1.6597	0.2146	35.9881	4.3940	9.8995	27.6208	0.265					0.227		
								7	740.2185	26.7993	534.1325	4.3913	7	0.2146	46.1275
TP19-47 - 17	12.1004	6.7136	0.8734	4.9970	18.7882	28.2279	80.7898	0.393	1197.603				0.111		
								4	2	14.8237	926.0825	8.9545	7	0.8734	32.3186
TP19-47 - 25	46.1453	6.3673	0.5321	25.0704	48.8586	56.8694	0	0.491	1472.771		1208.359	23.332	0.042		
								2	4	8.4669	5	5	9	0.5321	106.8806
TP19-47 - 4	20.5642	0.9581	0.0760	76.1972	7.5038	9.4397	36.5628	0.403					0.307		
								9	598.5805	16.3713	430.5439	3.2503	7	0.0760	124.1764
TP19-47 - 41	9.5736	0.4098	0.0105	145.8085	3.2642	10.1803	50.2689	0.144	1116.829				0.163		
								3	9	22.2171	877.5822	6.1185	4	0.0105	967.7832
TP19-47 - 42	21.1528	13.6938	2.3415	3.7356	29.7816	56.8760	2	0.332	1211.129		1004.654		0.129		
								3	0	8.5751	5	7.7300	4	2.3415	24.2906
TP19-47 - 56	4.4136	1.8445	0.6205	4.1254	3.1993	19.8260	83.3817	0.078	1579.164		1225.316		0.178		
								7	2	18.9390	1	5.6155	1	0.6205	31.9497
TP19-47 - 6	9.5949	6.2143	2.3166	2.5288	11.5154	22.3267	74.3655	0.282	1580.278		1224.288		0.130		
								6	5	21.2502	0	7.6673	4	2.3166	9.6379
TP19-47 - 70	9.8174	0.9879	0.0400	49.4093	6.5406	17.4528	60.4134	0.201	1019.382				0.157		
								4	4	16.8734	791.0322	6.3513	4	0.0400	436.7006
TP19-47 - 72	8.9655	0.2638	#VALUE!	#VALUE!	1.6777	5.3532	26.4547	0.141					0.182		
								0	683.8638	25.8504	521.5218	5.4916	1	#VALUE!	#VALUE!
TP19-47 - 73	31.9621	24.4319	4.2505	3.1364	52.8267	76.6308	1	0.462	1060.659				0.230		
								6	9	6.2326	900.0275	4.3348	7	4.2505	18.0285
TP19-47 - 77	12.4088	1.1082	0.1176	34.3746	2.6989	12.8313	45.2367	0.112				14.020	0.071		
								0	879.0552	19.4323	698.7369	4	3	0.1176	109.1195
TP19-47 - 8	6.9620	4.3671	1.0951	3.1835	8.6280	18.5733	62.0820	0.254	1141.114				0.169		
								1	4	18.3808	907.0236	5.8857	9	1.0951	16.9601
TP19-47 - 86	37.1793	19.6792	4.0997	4.1393	40.0140	58.7321	88.4124	0.555					0.339		
								3	689.4228	7.7978	547.0042	2.9423	9	4.0997	14.3261
TP19-47 - 88	21.1512	13.1771	2.2479	3.8863	30.2803	42.0830	85.0380	0.506					0.158		
								2	858.1034	10.0908	700.8592	6.3140	4	2.2479	18.7213
TP19-47 - 89	4.4730	2.8817	0.5322	3.6119	4.4213	29.2434	118.440	0.075	1903.403		1548.334	15.173	0.065		
								4	2	16.0706	2	0	9	0.5322	54.9462
TP19-47 - 9	13.8000	2.5587	0.4558	12.7779	12.7950	17.9469	69.0824	0.363	1071.057				0.109		
								4	4	15.5041	872.2694	9.1677	1	0.4558	39.3703
TP19-47 - 90	18.8447	9.9762	2.1288	4.0892	20.3448	33.0531	78.5044	0.399					0.224		
								4	890.9556	11.3491	688.7545	4.4614	1	2.1288	15.5264
TP19-47 - 91	12.0973	0.4103	0.0763	68.3853	3.7375	3.5924	11.1693	0.590					0.332		
								0	554.2117	49.6193	350.7566	3.0057	7	0.0763	47.1002
TP19-47 - 93	40.1463	7.3112	1.0666	14.3768	26.5514	48.6703	6	0.330	1385.156		1120.557	13.131	0.076		
								0	9	10.4110	1	9	2	1.0666	45.6334

TP19-47 - 96	8.9356	3.8123	1.0298	4.5098	8.0577	14.7469	40.3181	0.330 5	843.8827	20.9306	647.6893	7.2022	0.138 8	1.0298	14.3206
TP19-49 - 1	10.2160	3.6093	0.3125	9.6198	11.8421	25.1675	75.5839	0.271 5	2136.413 8	28.2655	1666.828 3	10.372 3	0.096 4	0.3125	80.5435
TP19-49 - 120	40.8141	26.7316	2.2478	5.2652	46.1073	96.9922	142.238 1	0.392 5	1801.509 5	12.6654	1363.039 3	8.8715	0.112 7	2.2478	43.1499
TP19-49 - 124	23.8642	6.2080	0.5819	12.5557	19.5299	33.7492	58.8760	0.438 1	742.6879	12.6144	582.5785	6.0146	0.166 3	0.5819	57.9969
TP19-49 - 130	73.3226	40.8643	3.4800	6.1486	86.7389	142.991 0	129.483 4	0.637 5	487.0888	3.7618	316.8559	1.6597	0.602 5	3.4800	41.0891
TP19-49 - 132	9.6019	0.9265	0.2777	18.9301	7.7864	18.6726	70.2904	0.214 9	1313.584 5	18.6880	983.6101	8.1299	0.123 0	0.2777	67.2443
TP19-49 - 14	7.7151	1.2367	0.4219	10.6808	2.7512	18.0490	70.8303	0.076 9	741.3586	10.4667	600.2781	5.8695	0.170 4	0.4219	42.7815
TP19-49 - 142	61.0534	31.5580	3.3591	5.9298	61.6016	101.008 4	118.184 1	0.563 8	1067.400 9	9.0317	844.7391	4.1156	0.243 0	3.3591	30.0697
TP19-49 - 144	23.6316	2.0013	0.0999	52.8388	21.0193	19.2281	61.0018	0.613 7	1375.045 7	22.5411	1031.162 5	13.014 2	0.076 8	0.0999	192.3818
TP19-49 - 146	9.2993	1.0220	0.0360	48.4711	7.2872	23.3562	85.3101	0.163 3	1013.561 9	11.8809	822.9133	9.0503	0.110 5	0.0360	648.5433
TP19-49 - 147	130.720 7	67.5704	5.8991	6.5475	135.464 1	232.231 5	270.521 2	0.540 5	1483.360 2	5.4833	1172.561 6	6.1120	0.163 6	5.8991	39.3674
TP19-49 - 148	7.6053	0.3988	0.0426	58.3195	2.4204	7.8754	39.5783	0.137 1	1030.383 6	26.0341	799.4480	6.2594	0.159 8	0.0426	184.6653
TP19-49 - 151	134.297 1	80.6393	6.6230	5.8112	168.939 9	297.346 0	285.727 5	0.579 6	1550.117 6	5.4252	1253.859 5	6.3812	0.156 7	6.6230	44.8957
TP19-49 - 153	3.8473	0.4262	0.0371	30.6136	3.1820	7.0492	27.2752	0.229 5	590.4713	21.6487	438.9606	10.365 2	0.096 5	0.0371	190.2291
TP19-49 - 154	71.7497	26.4248	2.1629	9.4906	69.3471	101.984 2	145.123 0	0.570 0	1321.788 9	9.1081	1050.230 4	8.2633	0.121 0	2.1629	47.1510
TP19-49 - 155	43.7790	2.0530	0.4848	43.8813	13.3250	21.2006	70.2679	0.345 2	1092.635 9	15.5496	847.5997	4.3479	0.230 0	0.4848	43.7288
TP19-49 - 156	31.5634	16.5678	1.4465	6.4475	33.3519	69.8657	124.789 0	0.357 2	1657.459 7	13.2821	1285.199 9	8.2773	0.120 8	1.4465	48.3004
TP19-49 - 158	45.2486	1.1399	0.0401	211.7663	25.5303	36.0619	148.436 2	0.348 9	2618.486 7	17.6405	2053.889 8	14.059 7	0.071 1	0.0401	900.3662
TP19-49 - 16	15.6411	4.0126	0.1699	18.9436	37.6924	40.0375	131.709 1	0.519 1	1184.953 5	8.9967	947.9705	21.015 7	0.047 6	0.1699	235.6605
TP19-49 - 160	35.6018	18.2095	2.0605	5.8122	36.6653	65.9892	94.3155	0.464 8	1327.222 9	14.0722	1058.033 5	6.7701	0.147 7	2.0605	32.0259
TP19-49 - 25	80.8358	42.8652	3.8669	6.2787	87.1248	138.820 4	159.771 9	0.585 0	1058.266 1	6.6236	849.1206	4.6718	0.214 1	3.8669	35.8999
TP19-49 - 30	25.9461	8.5524	0.3790	14.4116	41.2416	56.2149	114.141 0	0.514 9	805.3048	7.0553	629.1105	13.729 5	0.072 8	0.3790	148.3283
TP19-49 - 36	12.7855	1.8626	0.1230	26.7091	7.6199	14.5741	44.6131	0.298 8	822.7670	18.4423	623.5012	3.7077	0.269 7	0.1230	118.4662
TP19-49 - 39	2.3779	2.3862	0.0895	5.1452	19.9071	25.1917	84.4043	0.431 7	1023.717 0	12.1287	793.6681	20.651 3	0.048 4	0.0895	281.4431

TP19-49 - 40	13.0148	2.3238	0.1128	25.4257	10.9673	39.3087	118.743 7	0.160 5	1413.928 3	11.9074	1138.190 6	11.773 5	0.084 9	0.1128	348.6206
TP19-49 - 42	19.3397	8.1107	1.3125	5.9276	18.4508	40.1469	87.0999	0.312 0	1411.585 3	16.2065	1114.439 2	9.4624	0.105 7	1.3125	30.5890
TP19-49 - 43	10.9736	1.2415	0.1023	30.7886	3.2666	10.2054	44.7154	0.152 9	1054.839 8	23.5901	822.9227	4.6257	0.216 2	0.1023	99.7333
TP19-49 - 50	26.3570	5.3639	0.4624	16.7350	21.5918	38.4137	93.3462	0.360 6	1647.513 1	17.6495	1248.905 1	9.5217	0.105 0	0.4624	83.0659
TP19-49 - 52	18.2565	0.6011	0.0126	210.1729	1.6993	16.6371	60.9570	0.053 4	991.2072	16.2607	795.5083	6.5059	0.153 7	0.0126	1325.435 2
TP19-49 - 53	22.4209	0.3648	#VALUE!	#VALUE!	9.6674	10.8540	48.4743	0.421 5	868.4380	17.9154	665.1651	8.8120	0.113 5	#VALUE!	#VALUE!
TP19-49 - 55	76.2807	49.7155	6.0045	4.4150	84.9399	139.142 7	148.101 9	0.591 7	459.7405	3.1042	396.1680	2.1447	0.466 3	6.0045	23.1732
TP19-49 - 58	84.3890	43.7216	4.3224	6.1387	94.8672	162.074 9	210.130 8	0.514 1	2206.372 0	10.5000	1794.591 7	9.3963	0.106 4	4.3224	37.4962
TP19-49 - 6	10.4288	2.6358	0.1136	19.0607	9.9228	26.3885	89.3373	0.204 4	1059.665 3	11.8614	865.3773	9.4892	0.105 4	0.1136	232.3456
TP19-49 - 7	18.3320	7.9167	0.6955	7.8127	19.5997	34.4774	57.8405	0.438 9	928.9167	16.0600	721.9629	10.112 6	0.098 9	0.6955	49.5745
TP19-49 - 76	47.5796	21.9422	1.4196	8.5251	53.1383	89.5195	112.652 9	0.529 1	1114.144 5	9.8901	833.9557	7.7095	0.129 7	1.4196	63.0600
TP19-49 - 80	24.0742	10.4147	0.7887	8.3997	20.4666	36.0634	58.5855	0.445 3	693.8087	11.8427	559.6266	3.5536	0.281 4	0.7887	45.7231
TP19-49 - 82	156.102 6	98.0089	8.0430	5.5599	6	2	2	0.600 0	1204.241 2	4.3239	1011.887 9	4.5887	0.217 9	8.0430	35.5220
TP19-49 - 83	31.0238	18.9829	1.1991	6.5025	51.6697	109.276 4	229.028 9	0.326 6	1466.960 1	6.4051	1281.228 0	8.5885	0.116 4	1.1991	91.1298
TP19-49 - 84	12.2466	0.3809	0.0573	82.8636	3.0850	7.9579	29.8937	0.200 0	418.6254	14.0038	327.1073	4.2503	0.235 3	0.0573	138.7791
TP19-49 - 89	133.188 4	59.0218	4.6020	8.0814	8	154.706 2	192.050 4	0.576 6	2242.313 6	10.2794	1761.491 8	10.550 3	0.094 8	4.6020	41.7321
TP19-49 - 9	67.9754	41.3322	2.7023	6.4319	96.1462	209.864 2	257.144 4	0.552 6	2312.393 6	11.8192	1863.996 0	10.033 7	0.099 7	2.7023	57.2490
TP19-49 - 90	99.9464	62.6033	6.4579	4.9708	123.749 4	209.864 6	257.144 5	0.532 7	1091.159 7	4.2434	934.6004	4.4702	0.223 7	6.4579	32.4976
TP19-49 - 91	33.3720	19.7455	1.2906	6.6107	44.0470	78.9971	109.492 6	0.473 6	770.6230	7.0381	597.2906	7.3636	0.135 8	1.2906	61.2076
TP19-49 - 97	11.5446	1.0356	0.5388	15.4553	7.1620	11.5060	50.2859	0.297 7	1458.837 3	29.0109	1081.590 2	15.569 2	0.064 2	0.5388	21.3567
TP19-49 - 99	5.4609	1.3613	0.2361	9.6321	9.7803	17.2877	63.1330	0.296 0	946.1387	14.9864	738.9320	10.812 9	0.092 5	0.2361	73.2141
TP19-50 - 10	6.9431	0.4978	#VALUE!	#VALUE!	2.7352	10.6620	43.7847	0.126 6	1161.539 8	26.5284	898.9270	6.6663	0.150 0	#VALUE!	#VALUE!
TP19-50 - 103	12.9518	5.3450	0.3235	9.8491	21.6656	37.8353	72.3749	0.414 0	1059.498 5	14.6390	826.6651	5.6990	0.175 5	0.3235	116.9446
TP19-50 - 105	15.7739	3.9025	0.2867	14.9114	17.6089	32.0558	80.1383	0.347 4	935.8958	11.6785	748.6934	5.2641	0.190 0	0.2867	111.7902

TP19-50 - 113	15.7485	9.3489	0.3449	8.7700	40.6117	68.5011	130.613	0.429	1261.932	9.6616	1005.737	5.7349	0.174	0.3449	198.5983
							2	3	1		6				
TP19-50 - 115	15.5920	3.0216	0.0671	34.6356	17.0935	34.1115	102.391	0.289	1095.429	10.6984	881.8462	10.683	0.093	0.0671	508.6045
							9	2	5		6	6			
TP19-50 - 116	23.1677	7.4816	0.2101	18.4783	39.0502	63.2182	131.565	0.428	1282.626	9.7490	987.5182	6.1847	0.161	0.2101	300.8812
							4	2	4		7				
TP19-50 - 135	17.6773	7.5304	0.7099	7.6457	27.9227	64.2668	177.497	0.261	1706.596	9.6148	1406.773	8.5294	0.117	0.7099	90.5330
							3	4	4		2				
TP19-50 - 142	17.5311	7.2823	0.4942	9.2412	34.0874	52.9929	114.375	0.437	1847.647	16.1542	1418.073	8.6349	0.115	0.4942	107.2318
							7	8	3		2				
TP19-50 - 143	16.8094	14.3427	1.1394	4.1581	33.3095	63.9593	120.421	0.379	1486.377	12.3431	1138.584	6.5118	0.153	1.1394	56.1329
							4	5	4		0				
TP19-50 - 150	17.8176	2.1068	0.0958	39.6506	8.5856	18.0385	44.7277	0.302	764.7852	17.0987	588.3444	4.1701	0.239	0.0958	188.2009
							3	3							
TP19-50 - 155	4.7108	1.4277	0.0435	18.8999	7.5202	19.8297	85.1512	0.183	1168.426	13.7218	869.2786	9.3011	0.107	0.0435	455.7135
							0	9	9						
TP19-50 - 16	19.5616	10.2050	0.6946	7.3474	42.8558	68.4436	120.927	0.471	1037.786	8.5819	824.2483	4.5968	0.217	0.6946	98.5377
							4	1	3						
TP19-50 - 17	15.6584	2.9999	0.1329	24.7984	14.7006	25.5073	58.8498	0.379	1158.930	19.6930	880.4198	4.2303	0.236	0.1329	191.9216
							4	4	4						
TP19-50 - 18	16.0286	4.5556	0.2452	15.1661	24.1841	37.3449	92.3560	0.411	1388.108	15.0300	1092.865	4.7236	0.211	0.2452	152.3121
							8	5	4		7				
TP19-50 - 20	5.9398	0.8534	0.0318	36.0617	5.8534	20.6979	92.8280	0.133	1283.745	13.8293	1025.559	8.6111	0.116	0.0318	651.1060
							5	3	2		1				
TP19-50 - 21	18.1558	4.9551	0.2553	16.1410	24.8905	38.4527	82.2328	0.442	1107.938	13.4732	864.3884	5.2004	0.192	0.2553	150.5948
							6	3	3						
TP19-50 - 22	154.913	122.440	148.060	1.1506	16.5191	68.8626	69.7088	0.238	1055.119	15.1361	756.6551	5.9275	0.168	148.060	0.4651
							2	4	1						
TP19-50 - 25	19.9773	2.3670	0.9459	13.3510	10.5727	22.4352	70.1663	0.266	1014.151	14.4535	800.5364	6.2231	0.160	0.9459	23.7182
							5	0	7						
TP19-50 - 34	14.5093	4.0662	0.0731	26.6128	8.7322	25.3451	52.8218	0.238	1083.128	20.5053	845.6955	4.6731	0.214	0.0731	346.7159
							7	4	4						
TP19-50 - 44	11.8383	3.6776	0.2168	13.2591	20.2378	36.5562	109.896	0.319	1632.399	14.8540	1295.381	9.5142	0.105	0.2168	168.6478
							5	3	7		1				
TP19-50 - 47	16.8096	15.0077	0.4856	6.2269	53.0931	95.9185	146.494	0.447	1219.745	8.3262	954.1490	4.5015	0.222	0.4856	197.5331
							1	9	7						
TP19-50 - 5	18.5400	7.1260	0.4881	9.9407	27.4441	53.1638	96.7483	0.382	1222.679	12.6377	959.9234	5.4470	0.183	0.4881	108.9123
							7	3	3						
TP19-50 - 50	6.1525	0.2809	0.0060	149.8840	1.8878	6.5012	33.8490	0.127	926.1348	27.3608	721.2495	6.0621	0.165	0.0060	3
							3	3							
TP19-50 - 62	12.4894	6.2655	0.5667	6.6278	20.4753	38.7397	97.6363	0.332	1492.226	15.2835	1163.482	6.7669	0.147	0.5667	68.3554
							9	9	2		8				
TP19-50 - 69	6.6126	1.1133	0.0503	27.9367	4.7758	23.5080	89.3931	0.104	1015.798	11.3633	810.4086	14.627	0.068	0.0503	467.1137
							2	1	1		4				
TP19-50 - 70	13.1067	1.0748	0.0884	42.5272	6.7664	17.5674	69.9156	0.193	1285.005	18.3794	1007.542	6.0480	0.165	0.0884	198.7797
							1	6	8		3				
TP19-50 - 74	8.7920	0.6132	0.0193	80.7707	3.6429	11.0379	52.5767	0.151	1242.641	23.6348	964.4889	6.3674	0.157	0.0193	571.2355
							2	7	7						

TP19-50 - 77	16.0672	9.4891	0.6226	6.6106	37.0677	61.9672	126.274 4	0.419 0	1399.312 8	11.0815	1125.294 0	7.8145	0.128 0	0.6226	99.5372
TP19-50 - 85	63.6219	21.3602	2.1991	9.2829	58.5484	90.1416	163.918 9	0.481 7	1694.689 3	10.3386	1342.463 5	7.1228	0.140 4	2.1991	40.9903
TP19-50 - 86	7.3266	0.5888	0.0384	48.7009	2.1016	10.8057	53.7681	0.087 2	1338.008 8	24.8848	1023.351 1	6.4955	0.154 0	0.0384	281.1190
TP19-50 - 92	7.3852	0.2776	#VALUE!	#VALUE!	1.4222	7.9693	41.6302	0.078 1	1296.362 2	31.1399	976.1487	5.5581	0.179 9	#VALUE!	#VALUE!
TP19-50 - 97	31.1548	26.7465	2.0852	4.1718	66.0167	113.085	157.463	0.494 7	836.5916	5.3129	683.7845	2.5900	0.386 1	2.0852	54.2331
TP19-50 - 99	16.6365	11.5031	0.4513	7.3013	50.1985	88.1841	165.925 7	0.415 0	1963.435 2	11.8332	1506.543 3	9.4783	0.105 5	0.4513	195.3815
TP19-51 - 10	22.8155	13.7960	1.5677	4.9059	26.6748	46.2212	99.0566	0.394 2	1331.152 0	13.4383	1052.153 3	6.5213	0.153 3	1.5677	29.4827
TP19-51 - 103	5.9178	1.4644	0.0285	28.9470	9.8432	25.0674	91.3920	0.205 6	1206.151 2	13.1976	966.8587	8.6603	0.115 5	0.0285	878.3355
TP19-51 - 106	23.7183	7.1542	0.5366	12.1060	17.4442	35.3011	79.6660	0.328 9	1259.900 3	15.8148	1009.220 8	5.0819	0.196 8	0.5366	65.7925
TP19-51 - 113	7.7820	5.3943	0.1392	8.9814	7.6036	23.2344	88.1119	0.168 0	1866.154 1	21.1794	1449.315 3	7.1385	0.140 1	0.1392	166.9400
TP19-51 - 129	41.2560	29.7089	4.6015	3.5285	52.4768	89.3384	157.026 2	0.443 1	2672.629 9	17.0203	2070.611 3	10.619	0.094 2	4.6015	19.4149
TP19-51 - 131	1.9324	0.1531	#VALUE!	#VALUE!	2.4821	5.7445	33.8086	0.178 1	1100.261 8	32.5439	810.5565	37.007	0.027 0	#VALUE!	#VALUE!
TP19-51 - 136	38.4514	22.7744	2.1354	5.5138	50.3481	94.7792	173.897	0.392 2	1535.341 2	8.8290	1274.897 1	5.6744	0.176 2	2.1354	44.3855
TP19-51 - 140	23.1408	10.4830	1.5115	5.8134	25.3611	48.8597	105.562 8	0.353 1	1305.009 7	12.3624	1013.020 6	4.9146	0.203 5	1.5115	32.3252
TP19-51 - 142	23.7346	0.5948	0.0922	101.3754	3.1455	5.5599	26.0211	0.261 5	709.8088	27.2782	523.9258	4.3595	0.229 4	0.0922	60.3312
TP19-51 - 145	2.8090	0.7409	0.0233	21.3720	2.3860	8.1845	33.1956	0.144 8	833.5124	25.1091	655.1729	4.4054	0.227 0	0.0233	351.0365
TP19-51 - 28	30.9334	0.6810	0.0517	164.9112	11.9772	14.1305	48.7978	0.456 1	864.4509	17.7149	643.7730	9.3218	0.107 3	0.0517	273.5115
TP19-51 - 39	7.0214	1.2910	0.0448	29.2011	6.0969	24.0214	90.9330	0.130 5	1548.857 5	17.0330	1207.566 8	10.014	0.099 5	0.0448	536.3960
TP19-51 - 4	8.3012	1.9951	0.0661	22.8654	10.0486	34.4420	143.767 8	0.142 8	2120.889 6	14.7522	1671.518 4	9.2463	0.108 2	0.0661	521.3612
TP19-51 - 40	10.7120	4.8800	0.3784	7.8832	15.1516	37.2380	116.697 7	0.229 8	1732.209 2	14.8436	1390.442 7	8.4027	0.119 0	0.3784	98.4164
TP19-51 - 44	111.248 7	98.7448	111.885 7	1.0584	9.9443	61.1546	77.5705	0.144 4	994.1004	12.8155	759.0505	5.7660	0.173 4	111.885 7	0.5466
TP19-51 - 62	8.2463	2.5544	0.1928	11.7511	11.2915	21.3872	61.0488	0.312 5	898.5227	14.7181	695.9953	6.7247	0.148 7	0.1928	110.9372
TP19-51 - 63	5.2931	1.4830	0.0909	14.4199	4.2652	8.5619	29.0377	0.270 5	998.7227	34.3940	744.4266	4.9717	0.201 1	0.0909	94.2342
TP19-51 - 64	7.7691	0.8010	0.0495	39.0244	2.4853	9.2749	41.9223	0.126 0	933.9965	22.2792	723.2347	7.1407	0.140 0	0.0495	187.4448

TP19-51 - 65	17.9700	9.1569	0.7072	7.0616	33.9211	64.7707	155.829 7	0.337 6	1448.473 0	9.2952	1159.555 3	7.0708	0.141 4	0.7072	91.5877
TP19-51 - 7	35.6192	18.7025	1.2251	7.4413	32.9663	63.8733	128.462 6	0.363 9	1100.590 5	8.5674	838.5395	4.6998	0.212 8	1.2251	52.1372
TP19-51 - 70	16.3921	15.1255	1.2456	3.7766	36.7886	65.5329	110.952 1	0.431 4	332.8734	3.0002	311.9289	1.2467	0.802 1	1.2456	52.6127
TP19-51 - 72	7.8224	2.9485	0.2322	9.4538	11.6591	25.0149	96.0138	0.237 9	1471.596 0	15.3269	1139.974	8	0.116 2	0.2322	107.7328
TP19-51 - 74	6.6212	0.4638	#VALUE!	#VALUE!	2.3130	9.3227	38.4317 114.094	0.122 2	917.5241 1014.978	23.8742	706.6455	7.1940	0.139 0	#VALUE!	#VALUE!
TP19-51 - 79	24.1080	24.8459	1.3602	4.1470	43.1132	75.6757	129.611 1	0.389 0	2169.097 2	8.8960	796.0576	3.1497	0.156 5	1.3602	55.6355
TP19-51 - 8	33.1386	23.8972	3.8277	3.4649	38.3148	74.5730	129.627 4	0.158 7	1597.071 9	16.7354	1305.542	9	0.158 5	3.8277	19.4825
TP19-51 - 81	11.1748	2.5217	0.1207	20.2580	10.9740	36.9470	6	0.284 6	1093.971 6	12.3205	844.2375	1	0.167 3	0.1207	306.1822
TP19-51 - 86	9.7390	1.5367	0.1429	20.7819	6.9732	12.9797	46.3674	2	0.307 2	23.5935	1152.093	5.9605	0.148 8	0.1429	90.8223
TP19-51 - 98	15.3102	4.8709	0.3351	11.9831	15.7914	29.6280	89.1821	2	1036.338 2	16.5959	817.0049	6.7269	0.168 7	0.3351	88.4076
TP19-52 - 10	9.2700	0.3321	0.0173	122.4555	2.1029	10.0376	44.0182	0.100 0	1645.996 3	23.5434	1287.858	5.9274	0.233 7	0.0173	581.7721
TP19-52 - 100	50.5258	68.5635	1.2764	5.4010	22.6408	64.4708	96.3544 103.408	0.287 3	1753.350 9	17.0827	1328.641	4.2754	0.080 9	1.2764	50.5094
TP19-52 - 101	18.2441	5.8010	0.3298	13.1908	28.8165	43.8283	8	0.428 0	1122.036 7	16.9555	883.3560	9	0.167 4	0.3298	132.9112
TP19-52 - 105	17.1944	6.3278	0.1903	15.6695	20.5366	38.7717	79.0042 104.395	0.371 1	1725.719 9	14.2022	1337.813	5.9829	0.186 1	0.1903	203.7503
TP19-52 - 107	51.2757	37.4706	1.7758	6.2859	47.5003	87.1670	7	0.497 9	1819.760 7	16.5306	1448.493	10.378	0.096 5	1.7758	49.0864
TP19-52 - 11	8.6626	7.9716	0.3640	5.0855	14.7288	40.3725	93.7451	0.239 4	5 5	19.4118	9	9	0.096 3	0.3640	110.9190
TP19-52 - 112	7.1993	1.6296	0.0606	22.9044	6.7981	14.4188	47.6286	0.259 4	959.3223	20.1417	744.8487	7.4390	0.134 4	0.0606	237.8251
TP19-52 - 113	12.0868	2.8032	0.2264	15.1711	5.5419	13.5527	36.1312	0.250 4	660.3937	18.2777	528.3630	4.9003	0.204 1	0.2264	59.8526
TP19-52 - 114	20.0690	13.5775	0.5814	7.1428	23.7098	49.7454	92.3448	0.349 8	1584.797 2	17.1617	1239.956	9	0.173 2	0.5814	85.5566
TP19-52 - 118	18.1264	0.5189	0.0089	266.3039	2.2044	9.0049	32.7159 120.893	0.128 4	467.2367	14.2817	364.3619	3.5355	0.282 8	0.0089	1008.501 3
TP19-52 - 119	29.4999	16.3451	0.7226	8.5840	37.9755	76.3256	1	0.395 3	886.0943	7.3296	750.6316	5.4974	0.181 9	0.7226	105.6327
TP19-52 - 122	8.5848	0.2182	0.0103	181.4170	1.0066	3.4381	19.7219	0.122 2	802.1349	40.6722	608.1312	3.1794	0.314 5	0.0103	334.9546
TP19-52 - 126	14.0054	5.2087	0.2266	12.8915	12.6413	28.2678	62.1421	0.301 6	1067.160 8	17.1729	839.8219	6.1011	0.163 9	0.2266	124.7490
TP19-52 - 127	19.0058	8.8083	0.4558	9.4852	22.0158	43.4351	87.8137	0.356 5	1373.202 7	15.6377	1085.964	5	0.152 2	0.4558	95.2913

TP19-52 - 13	19.5063	14.7580	0.3610	8.4505	27.0382	57.9823	128.612 5	0.313 1	1716.141 4	13.3435	1378.234 9	7.9808	0.125 3	0.3610	160.5962
TP19-52 - 131	13.9085	5.6458	0.1765	13.9314	6.7213	17.7139	57.9873 178.883	0.209 7	1328.516 6	22.9105	1047.243 0	6.6865	0.149 6	0.1765	100.3393
TP19-52 - 134	36.0042	28.4167	1.0653	6.5439	44.2492	90.8675	0 115.908	0.347 1	1946.823 4	10.8832	1569.650 9	6.1943	0.161 4	1.0653	85.3008
TP19-52 - 137	30.6076	23.7082	1.1371	5.8950	40.9807	77.0914	0 0	0.433 5	1382.675 0	11.9291	1085.755 8	5.2713	0.189 7	1.1371	67.7968
TP19-52 - 138	13.1892	4.6433	0.1287	17.0595	13.3333	34.1044	94.5306 0.234	8 8	1758.542 8	18.6029	1396.599 1	8.5225	0.117 3	0.1287	264.9332
TP19-52 - 14	39.5977	8.0615	5.2876	6.0650	11.4460	27.1101	67.3743 0.267	8 8	967.1587 1505.891	14.3550	753.8315 1175.113	4.9280	0.202 9	5.2876	5.1271
TP19-52 - 142	15.3138	3.6785	0.0899	26.6265	11.4550	29.7643	98.9696 0.211	1 5	1505.891 5	15.2157	1175.113 5	8.7812	0.113 9	0.0899	331.0010
TP19-52 - 146	18.1863	17.4767	0.6520	5.3877	8.8690	29.1101	62.4999 0.207	9 2	1273.899 2	20.3824	1015.756 8	5.4644	0.183 0	0.6520	44.6495
TP19-52 - 150	34.0453	3.2344	3.7341	9.7965	6.7638	14.9489	47.8316 0.252	9 4	1455.047 4	30.4202	1104.215 4	11.404 7	0.087 7	3.7341	4.0033
TP19-52 - 151	7.3042	0.3422	0.0201	88.1277	1.4095	10.4500	47.6150 0.063	2 1	1222.562 1	25.6760	942.4099 2183.020	6.5985	0.151 5	0.0201	520.6222
TP19-52 - 153	25.3843	22.3442	1.1374	5.0353	39.1981	74.5764	147.751 0.373	7 4	2763.157 4	18.7014	2183.020 1	10.999 9	0.090 9	1.1374	65.5668
TP19-52 - 156	11.3938	0.3513	0.0397	96.4762	2.5143	8.3678	39.9703 0.137	5 5	849.1219 1450.836	21.2438	657.0065 1126.974	5.3871	0.185 6	0.0397	210.7812
TP19-52 - 158	17.8114	13.1406	0.4231	7.5541	15.6553	36.9145	74.5977 0.298	3 4	1450.836 4	19.4488	1126.974 1	4.9635	0.201 5	0.4231	87.2523
TP19-52 - 159	34.6889	8.0618	0.2012	27.2362	36.1033	63.0465	136.179 0.389	6 8	1297.587 8	9.5285	1059.659 0	7.4354	0.134 5	0.2012	313.3300
TP19-52 - 16	26.1530	25.8209	0.3262	9.0116	7.3182	27.3677	71.0143 0.166	0 7	1415.934 7	19.9387	1116.695 8	5.2012	0.192 3	0.3262	83.9012
TP19-52 - 160	27.1551	8.3966	2.3480	6.1157	20.9334	37.0461	64.1929 0.429	3 3	729.6328 1486.119	11.3663	559.8494 1130.158	4.8347	0.206 8	2.3480	15.7774
TP19-52 - 18	9.4124	1.1707	0.0696	32.9677	2.2548	14.3205	58.7155 0.077	8 2	1486.119 2	25.3105	1130.158 0	6.2806	0.159 2	0.0696	205.6762
TP19-52 - 2	28.9679	19.8063	1.3869	5.5270	30.8790	57.4511	68.5580 0.492	0 0	645.4651 1206.987	9.4149	512.1798 2.7106	2.7106	0.368 9	1.3869	41.4238
TP19-52 - 20	7.1015	0.3736	#VALUE!	#VALUE!	1.8878	9.8426	41.4542 0.093	5 9	1206.987 9	29.1162	919.2583 6.0671	6.0671	0.164 8	#VALUE!	#VALUE!
TP19-52 - 21	8.1966	0.3322	0.0098	143.9787	1.4145	6.8581	28.9639 0.100	4 100.235	693.6504 1255.088	23.9488	543.0416 1018.156	5.1148	0.195 5	0.0098	702.9025
TP19-52 - 22	11.6195	2.5713	0.1399	19.3725	11.9914	28.1835	2 0.225	6 1	1255.088 1	12.5214	1018.156 4	8.8979	0.112 4	0.1399	201.4420
TP19-52 - 23	7.4222	0.3553	#VALUE!	#VALUE!	2.0979	9.4506	51.6312 0.095	0 5	1279.903 5	24.7893	982.8096 6.6849	6.6849	0.149 6	#VALUE!	#VALUE!
TP19-52 - 24	5.0101	0.1637	0.0119	113.4351	0.8680	4.5619	29.1015 0.075	3 0	1076.727 0	36.9991	807.7958 4.3688	4.3688	0.228 9	0.0119	382.7991
TP19-52 - 25	23.3645	18.7990	0.7643	6.1639	27.9946	59.5226	90.2047 0.382	0 9	1332.891 9	14.7763	1040.654 3	4.9397	0.202 4	0.7643	77.8778

TP19-52 - 27	6.1284	0.6557	0.0297	43.9416	3.2005	11.9921	54.8888	0.124 7	1083.466 1	19.7393	832.3980	6.9113	0.144 7	0.0297	404.2356
TP19-52 - 29	21.4301	2.6966	0.0750	47.6609	7.0626	21.5798	60.2071	0.195 9	1103.906 6	18.3351	854.1380	4.8878	0.204 6	0.0750	287.8338
TP19-52 - 30	5.3762	2.2514	0.0591	14.7408	12.8767	32.1878	102.634	0.224 8	1046.312 4	10.1945	833.4279	20.009	0.050 9	0.0591	544.7999
TP19-52 - 31	13.9854	3.1464	0.1501	20.3485	11.6201	30.9273	109.645	0.199 0	1485.345 5	13.5469	1195.500	6	0.126 9	0.1501	206.0061
TP19-52 - 32	24.9623	2.7654	0.0661	58.3809	28.6680	41.6764	109.046	0.425 1	1013.914 3	9.2980	808.9161	4.1357	0.241 8	0.0661	630.4009
TP19-52 - 33	9.1823	0.3759	0.0118	137.7095	2.2309	5.6873	34.6456	0.158 9	860.0444 1	24.8241	665.8540	5.7845	0.172 9	0.0118	480.8223
TP19-52 - 34	21.4969	8.5154	0.3075	13.2844	27.5974	49.2098	97.3651	0.398 7	1181.700 0	12.1368	927.3989	6.1849	0.161 7	0.3075	160.0254
TP19-52 - 4	18.2243	8.2259	0.2033	14.0940	14.7529	36.4887	73.6633	0.284 6	1197.006 9	16.2497	923.7788	5.1386	0.194 6	0.2033	179.5186
TP19-52 - 41	13.1229	1.7636	0.0632	39.3142	7.8687	18.6398	43.9686	0.274 9	964.3763 1	21.9333	726.4853	4.5270	0.220 9	0.0632	295.0435
TP19-52 - 42	6.0796	1.9110	0.0634	17.4638	2.1481	11.4721	41.4295	0.098 5	1182.218 1	28.5357	916.3017	5.3207	0.187 9	0.0634	180.8974
TP19-52 - 43	11.8387	1.3433	0.0605	41.5341	6.6187	20.2588	78.9510	0.165 5	1398.576 3	17.7145	1092.431	4	0.146 0	0.0605	334.9667
TP19-52 - 44	17.1306	10.0518	0.9274	5.6106	11.7763	28.9582	87.1631	0.234 4	1586.231 9	18.1984	1246.835	3	0.145 3	0.9274	31.2241
TP19-52 - 5	26.9586	18.6855	0.5594	8.3386	34.8165	70.2398	124.799	0.371 1	1503.180 1	12.0448	1173.900	4	0.158 9	0.5594	125.5681
TP19-52 - 53	9.6575	0.2415	#VALUE!	#VALUE!	2.2755	7.5842	34.8153	0.140 0	922.4086 2	26.4944	696.9209	5.5175	0.181 2	#VALUE!	#VALUE!
TP19-52 - 6	11.2547	2.0504	0.0662	30.5456	9.7580	23.9746	84.6377	0.216 6	1422.859 2	16.8112	1119.986	9	0.120 4	0.0662	362.1008
TP19-52 - 65	17.9503	8.3280	0.3867	10.0029	15.1411	33.0016	55.0774	0.355 1	1001.420 0	18.1821	789.9837	4.1733	0.239 6	0.3867	85.3455
TP19-52 - 66	8.0327	1.5868	0.0810	22.4021	3.9651	14.7014	52.3357	0.142 9	1402.191 9	26.7923	1061.333	4	0.147 1	0.0810	181.4400
TP19-52 - 68	18.3368	4.1073	3.9799	4.5353	11.6710	22.9051	52.5329	0.336 5	867.0405 1	16.5047	663.5134	4.5021	0.222 1	3.9799	5.7551
TP19-52 - 7	14.3986	8.5938	0.4740	7.1338	17.4305	35.7209	82.6673	0.320 8	1018.008 9	12.3145	806.4836	7.2521	0.137 9	0.4740	75.3551
TP19-52 - 71	18.1175	12.1589	1.1220	4.9051	16.7722	45.1338	106.870	0.241 3	1509.848 7	14.1279	1205.822	6	0.123 3	1.1220	40.2246
TP19-52 - 76	17.8265	6.8368	0.1616	16.9611	20.2421	42.5573	98.9691	0.311 9	1035.708 5	10.4650	855.2891	7.8155	0.128 0	0.1616	263.3912
TP19-52 - 77	5.0340	0.1716	#VALUE!	#VALUE!	0.7727	5.6203	28.9410	0.060 6	1008.802 0	34.8572	775.4180	5.0859	0.196 6	#VALUE!	#VALUE!
TP19-52 - 79	17.3495	0.6165	0.2523	43.9896	3.2635	9.3793	39.1134	0.170 4	695.8449 2	17.7905	551.4901	4.9810	0.200 8	0.2523	37.1742
TP19-52 - 8	7.8844	0.3694	0.0088	138.4181	2.5326	10.9503	49.4392	0.108 8	1402.756 2	28.3733	1091.917	5	0.161 1	0.0088	1246.697

TP19-52 - 81	11.2124	3.1072	0.1044	19.6876	9.0670	18.3288	47.4880	0.307 3	1062.408 3	22.3721	803.5816	5.0505	0.198 0	0.1044	175.5860
TP19-52 - 82	14.9336	1.6813	0.0736	42.4669	5.5943	8.9099	25.5532	0.370 8	729.2909	28.5401	544.1301	4.1817	0.239 1	0.0736	121.1386
TP19-52 - 83	8.3871	1.0137	0.0112	78.6703	2.4386	11.5129	42.1856	0.110 7	892.8276	21.1643	708.0214	5.2080	0.192 0	0.0112	1026.846 9
TP19-52 - 84	5.8860	0.3724	0.0106	93.4895	1.1230	6.7413	34.5819	0.073 5	1080.070 2	31.2323	827.0230	5.4359	0.184 0	0.0106	633.3454
TP19-52 - 87	31.9702	8.0522	0.2418	22.9131	23.4334	41.4830	74.4440	0.421 7	776.4927	10.4306	604.6603	4.6743	0.213 9	0.2418	171.5782
TP19-52 - 88	13.1849	6.9839	0.2841	9.3606	12.1963	32.5863	84.0795	0.233 0	1721.448 3	20.4740	4	7.4760	0.133 8	0.2841	114.7070
TP19-52 - 89	5.8320	0.1999	0.0154	105.0331	1.0623	6.7229	34.3304	0.069 9	1141.235 2	33.2427	865.1190	5.5205	0.181 1	0.0154	435.8944
TP19-52 - 9	7.2631	0.6622	0.0504	39.7545	2.8977	9.0500	37.3556	0.157 6	940.6666	25.1814	718.2402	6.2668	0.159 6	0.0504	179.5340
TP19-52 - 95	30.1950	18.3834	0.7885	7.9309	30.0676	58.8117	87.3473	0.419 5	889.1952	10.1800	691.3387	5.0622	0.197 5	0.7885	74.5862
TP19-52 - 96	6.6285	0.4579	0.0141	82.3686	2.4715	9.5868	50.3624	0.112 5	1325.848 5	26.3261	1	6.2860	0.159 1	0.0141	677.9080
TP19-52 - 97	10.6207	0.9683	0.0209	74.5948	6.5036	17.8948	67.4651	0.187 2	1199.582 7	17.7808	959.9870	6.4618	0.154 8	0.0209	854.7993
TP19-52 - 99	14.9946	2.5377	0.4520	14.0010	12.0238	22.8229	87.2651	0.269 4	1585.164 3	18.1649	6	9.6264	0.103 9	0.4520	50.4970
TP19-53 - 104	18.8013	17.1350	1.3608	3.8936	62.8712	86.9974	111.052 7	0.639 6	765.8073	6.8959	591.4787	4.8691	0.205 4	1.3608	63.9311
TP19-53 - 106	3.1358	0.4473	#VALUE!	#VALUE!	2.1586	13.8122	68.1569	0.070 4	1872.248 8	27.4697	1455.539 0	11.468 8	0.087 2	#VALUE!	#VALUE!
TP19-53 - 110	5.6631	0.3424	0.0165	75.2557	1.9126	9.6787	49.3293	0.087 5	911.3703	18.4752	709.5524	5.8979	0.169 6	0.0165	585.2367
TP19-53 - 113	2.7324	1.9408	0.1167	5.7410	16.2476	27.9999	118.074 3	0.282 6	1814.834 1	15.3703	1411.286 1	17.043 4	0.058 7	0.1167	239.9041
TP19-53 - 120	7.6758	0.5846	0.0226	66.7961	2.1942	9.6005	40.0292	0.111 9	941.6363	23.5238	713.8770	6.1436	0.162 8	0.0226	425.0441
TP19-53 - 124	23.3523	22.0665	1.9812	3.5319	80.6681	115.978 4	172.523 2	0.570 3	1492.627 3	8.6517	1142.184 6	6.5371	0.153 0	1.9812	58.5408
TP19-53 - 127	14.1736	6.4509	0.6554	6.8931	25.6777	35.0353	49.0039	0.619 7	941.5248	19.2133	622.6613	6.8490	0.146 0	0.6554	53.4562
TP19-53 - 131	15.8423	11.4828	1.0469	4.5693	48.5042	75.8181	115.824 2	0.517 6	937.9018	8.0976	679.7837	5.0147	0.199 4	1.0469	72.4228
TP19-53 - 132	13.4148	0.2254	#VALUE!	#VALUE!	0.4765	4.9180	18.8217	0.049 5	418.2429	22.2213	335.3953	4.2155	0.237 2	#VALUE!	#VALUE!
TP19-53 - 135	50.2669	44.0969	3.3312	4.1474	176.736 9	273.532 8	350.311 7	0.570 9	1765.277 4	5.0392	1482.113 0	10.728 5	0.093 2	3.3312	82.1129
TP19-53 - 138	12.7250	1.5663	0.0936	33.2296	7.8750	17.7572	42.2113	0.287 6	410.8225	9.7325	331.7505	10.161 7	0.098 4	0.0936	189.6581
TP19-53 - 139	30.3301	11.5665	0.8939	9.4325	36.9134	57.4756	88.4341	0.517 8	908.6589	10.2750	697.6430	3.5769	0.279 6	0.8939	64.2966

TP19-53 - 141	8.3723	1.0891	0.0916	26.5031	5.5415	8.5654	49.1680	0.270	1364.925		1004.384	12.936	0.077		
							155.130	0	1	27.7604	8	4	3	0.0916	93.4773
TP19-53 - 158	18.1729	18.0014	2.1311	2.9341	39.8553	73.3717	6	0.373	2492.728		1915.695	15.947	0.062		
								6	2	16.0686	8	2	7	2.1311	34.4294
TP19-53 - 16	6.6856	0.5243	#VALUE!	#VALUE!	3.4310	10.5581	42.9240	0.161					0.138		
							134.023	2	840.6154	19.5838	645.1216	7.1990	9	#VALUE!	#VALUE!
TP19-53 - 162	26.5285	19.7808	2.0108	4.2064	87.7354	9	6	0.573	1458.935		1194.452		0.109		
								4	3	8.3528	0	9.1671	1	2.0108	66.6518
TP19-53 - 163	10.1867	0.3040	#VALUE!	#VALUE!	2.7087	8.2934	29.5322	0.173					0.192		
							111.691	1	744.5014	25.2099	563.3702	5.1904	7	#VALUE!	#VALUE!
TP19-53 - 166	7.5224	9.1448	0.7097	2.9528	26.4743	53.0046	5	0.344	1657.710		1320.497		0.133		
							159.108	1	2	14.8419	4	7.4719	8	0.7097	74.6873
TP19-53 - 17	43.3093	48.3684	2.5949	3.8658	3	2	4	0.607					0.480		
							144.139	4	394.9205	1.4207	330.1057	2.0808	6	2.5949	95.1348
TP19-53 - 170	41.2194	42.6137	3.1807	3.5405	2	4	6	0.579	1271.445		1059.255		0.174		
							162.752	0	5	4.6712	0	5.7275	6	3.1807	71.5920
TP19-53 - 18	39.3068	52.8881	5.1593	2.3795	6	6	9	0.513	1880.125		1535.920		0.145		
								8	8	4.9357	4	6.8684	6	5.1593	51.0635
TP19-53 - 2	4.6569	0.7811	0.0144	43.8894	5.2285	21.7667	77.2231	0.127	1414.539		1125.795		0.112		1510.077
							152.033	5	0	18.3176	4	8.9094	2	0.0144	8
TP19-53 - 23	28.1640	30.7648	2.2050	3.4195	94.9688	9	6	0.521	1221.167		1040.322		0.111		
								4	2	5.5960	9	8.9731	4	2.2050	68.9495
TP19-53 - 24	11.3022	4.1999	0.3237	9.6929	14.4373	21.7253	62.6057	0.391	1171.483				0.194		
								5	9	18.7121	911.1641	5.1324	8	0.3237	67.1099
TP19-53 - 27	10.1188	5.3770	1.1526	4.0647	11.5006	18.7558	58.2602	0.347	1088.788				0.181		
							189.637	9	1	18.6884	888.8555	5.5112	4	1.1526	16.2731
TP19-53 - 3	47.0071	55.4249	4.2589	3.0596	7	5	5	0.608	1233.401		1013.395		0.154		
							108.809	8	7	3.7949	3	6.4706	5	4.2589	70.0914
TP19-53 - 33	9.7287	9.2082	0.6613	3.9425	37.2671	64.0294	0	0.446	1257.459		1000.085	10.182	0.098		
								5	4	11.5566	1	5	2	0.6613	96.8267
TP19-53 - 36	22.8610	4.1242	0.4233	17.3029	22.5922	33.2377	61.1673	0.501	1107.438				0.156		
								1	3	18.1051	782.4768	6.3838	6	0.4233	78.5263
TP19-53 - 39	13.5418	2.4197	0.0914	28.7990	14.7017	21.3965	70.2873	0.379	1288.855		1003.750	12.689	0.078		
							119.411	1	4	18.3370	3	4	8	0.0914	234.1551
TP19-53 - 41	28.9906	33.2615	2.8293	2.9885	1	8	9	0.501	2430.226		1783.185		0.101		
							132.217	4	5	9.0912	5	9.8201	8	2.8293	74.9948
TP19-53 - 43	19.4207	20.0037	1.0789	4.1803	51.8188	92.6642	4	0.468	1386.156		1101.225		0.171		
								2	2	10.4839	4	5.8468	0	1.0789	85.8838
TP19-53 - 49	9.1317	0.2135	#VALUE!	#VALUE!	3.3800	6.8734	39.3412	0.205					0.143		
								5	816.6370	20.7578	618.8733	6.9855	2	#VALUE!	#VALUE!
TP19-53 - 51	8.8691	3.4083	0.2829	9.0328	14.9697	29.7176	86.0835	0.296	1902.348		1456.521	11.869	0.084		
								0	7	22.0989	6	8	2	0.2829	105.0597
TP19-53 - 54	9.0955	0.2901	0.0106	164.2763	7.3066	5.1849	18.8646	0.738				16.861	0.059		
								8	565.4004	29.9715	384.0861	3	3	0.0106	490.6067
TP19-53 - 55	2.9993	0.6888	#VALUE!	#VALUE!	1.7076	6.1792	33.0000	0.119	1318.064				0.174		
							140.211	6	1	39.9413	959.9970	5.7224	8	#VALUE!	#VALUE!
TP19-53 - 56	24.4677	23.2397	1.8854	3.6964	88.7408	7	9	0.527	1882.778		1467.773	11.229	0.089		
								9	1	9.3407	2	6	1	1.8854	74.3683

TP19-53 - 57	8.0810	0.2713	0.0139	131.4665	2.4749	5.5655	35.4710	0.176				0.168		
	100.584						231.149	1	928.2318	26.1688	691.1090	5.9253	8	0.0139
TP19-53 - 60	5	5.3794	0.3141	77.3748	88.6465	62.9755	6	0.734	3923.147		3024.206	29.823	0.033	
							121.260	7	0	16.9723	8	0	5	0.3141
TP19-53 - 61	29.1533	2.8928	0.1047	52.9629	30.2179	36.6341	4	0.453	1320.291		1075.646	40.644	0.024	0.1047
					155.141	231.742	264.315	4	0	10.8881	4	4	6	349.7580
TP19-53 - 66	33.8564	45.0623	3.3607	2.7512	0	5	8	0.626	1234.102				0.147	
					149.549	240.013	336.672	8	5	4.6690	961.1845	6.7917	2	3.3607
TP19-53 - 75	37.4208	45.5784	4.7135	2.5531	4	6	4	0.526	1890.310		1545.299		0.112	68.9574
					125.753	198.306	224.815	1	9	5.6147	5	8.8876	5	4.7135
TP19-53 - 76	37.7013	38.3175	3.3746	3.3155	2	6	7	0.595					0.313	50.9203
					115.553	179.633	242.207	6	804.7985	3.5798	643.1514	3.1942	1	3.3746
TP19-53 - 77	24.6365	30.2437	2.1856	3.0302	6	2	7	0.554	1939.293		1527.954		0.112	58.7650
							101.726	0	4	8.0067	0	8.8715	7	2.1856
TP19-53 - 80	17.1604	12.3413	1.0061	4.8700	48.8826	72.4891	9	0.569	1039.840				0.161	82.1880
								2	3	10.2219	797.6701	6.1998	3	1.0061
TP19-53 - 82	6.3733	5.2393	0.3280	4.8620	27.3515	41.8968	83.6197	0.462				11.823	0.084	72.0493
							127.740	1	960.3506	11.4847	747.6698	7	6	0.3280
TP19-53 - 83	15.8142	12.6255	1.4938	3.6415	51.0541	84.9298	9	0.490	1241.757				0.124	127.7486
						102.952	179.179	2	5	9.7209	970.8164	8.0239	6	1.4938
TP19-53 - 85	19.0059	16.8413	1.4890	3.7954	61.2360	8	4	0.450	1723.946		1364.447		0.135	56.8549
								9	2	9.6213	7	7.4075	0	1.4890
TP19-53 - 87	61.1178	40.9759	47.2904	1.3884	14.0225	30.1620	49.4946	0.362					0.195	69.1439
							136.880	9	792.2837	16.0075	643.1287	5.1163	5	47.2904
TP19-53 - 91	16.0533	11.8402	1.1748	4.3043	44.3163	87.9270	4	0.404	1802.392		1322.159		0.101	0.6378
								0	6	13.1676	1	9.8528	5	1.1748
TP19-53 - 92	18.2915	1.9297	0.1435	34.7586	7.2562	24.3823	74.4237	0.170					0.170	74.8452
								3	978.5891	13.1489	745.5554	5.8670	4	0.1435
TP19-53 - 97	4.7902	0.9664	0.1394	13.0529	3.3990	16.2670	72.8419	0.098	2005.357		1533.010		0.115	169.8959
						115.721	150.243	7	0	27.5303	4	8.6470	6	0.1394
TP19-53 - 99	20.7060	21.8499	2.9426	2.5823	73.9030	7	7	0.560					0.218	116.7305
								5	962.8446	6.4086	760.3942	4.5838	2	0.1394
TP19-54 - 1	5.0861	0.2552	0.0115	93.9044	1.7538	5.0840	31.1616	0.139					0.157	39.3266
								3	915.9072	29.3921	707.9058	6.3710	0	0.0115
TP19-54 - 103	19.4676	4.9536	0.5162	12.1739	21.0646	25.7898	70.7725	0.493	1252.617				0.105	442.3209
								1	2	17.6992	927.8053	9.4731	6	0.5162
TP19-54 - 106	13.1174	2.6536	0.2544	15.9651	8.1732	15.6787	44.7137	0.308					0.192	49.9576
								7	848.5221	18.9768	653.5315	5.2067	1	0.2544
TP19-54 - 109	13.5949	0.6627	0.0464	77.4908	1.2493	11.1580	49.2279	0.053					0.207	61.6302
								3	801.7880	16.2873	649.6835	4.8285	1	0.0464
TP19-54 - 11	23.8895	8.1203	1.4282	7.0151	10.9523	24.3711	55.9976	0.296	1165.366				0.193	240.2294
								5	6	20.8110	906.4016	5.1586	9	1.4282
TP19-54 - 111	22.7091	11.2669	1.4721	5.5760	20.8202	35.4285	86.7359	0.375	1607.621		1269.445		0.133	17.0647
							108.603	6	9	18.5347	5	7.5215	0	1.4721
TP19-54 - 115	2.1447	1.9841	0.0687	5.8087	10.1955	29.1943	7	0.181	1540.227		1210.467	12.472	0.080	24.0659
								1	1	14.1821	5	4	2	0.0687
TP19-54 - 117	10.8473	2.9399	0.4076	9.9092	15.5072	24.6258	68.1018	0.378					0.100	424.9116
								7	975.1719	14.3193	732.1138	9.9098	9	0.4076

TP19-54 - 118	9.5423	4.4153	0.1949	10.2861	9.8714	24.1222	71.1159	0.238 3	1335.310 7	18.7765	1035.265 9	7.1533 8	0.139 8	0.1949	123.7572
TP19-54 - 12	8.8777	3.3148	0.6010	6.2898	10.6904	16.8078	45.2422	0.387 7	664.5327	14.6884	511.9377	11.982 1	0.083 5	0.6010	27.9663
TP19-54 - 121	13.9661	2.5179	0.2968	16.1569	7.4490	14.9490	47.7133	0.278 9	1033.210 2	21.6546	808.2747	5.9615 7	0.167 7	0.2968	50.3741
TP19-54 - 123	7.4340	1.5293	0.1692	14.6162	4.6598	14.8527	56.5727	0.160 8	961.4681	16.9953	754.7103	7.7093 7	0.129 7	0.1692	87.8063
TP19-54 - 126	6.2580	2.0398	0.1234	12.4730	4.2344	11.2078	38.7872	0.203 1	986.4275	25.4318	770.7062	4.3133 8	0.231 8	0.1234	90.8168
TP19-54 - 127	20.4185	8.6565	0.8429	7.5588	11.8893	35.1775	99.0260	0.201 4	1731.615 2	17.4865	1373.639	6.7985 1	0.147 1	0.8429	41.7317
TP19-54 - 128	24.3678	5.5344	0.3713	16.9986	29.7068	42.3356	127.848	0.403 8	1548.263 0	12.1101	1235.029	11.632 3	0.086 0	0.3713	114.0172
TP19-54 - 130	13.8726	8.0804	1.0748	4.7075	15.9356	29.5314	75.3460	0.337 8	1130.686 5	15.0066	861.4783	16.783 8	0.059 6	1.0748	27.4775
TP19-54 - 136	19.7842	5.5144	0.6088	10.7979	14.0618	26.2840	60.2206	0.353 4	801.0105	13.3013	632.9014	5.6404 3	0.177 3	0.6088	43.1747
TP19-54 - 137	8.3959	0.7141	0.1426	26.3058	5.8672	9.8985	34.7396	0.316 4	541.7272	15.5939	422.2583	5.8351 4	0.171 4	0.1426	69.3934
TP19-54 - 139	11.0922	0.3524	0.0101	186.2095	1.7324	6.2294	29.5506	0.127 7	697.3849	23.5997	534.3270	4.4447 0	0.225 0	0.0101	618.6487
TP19-54 - 143	11.6545	0.3351	0.0107	194.7711	2.3316	6.9708	28.9409	0.164 2	733.0953	25.3308	562.2522	4.6646 4	0.214 4	0.0107	652.3450
TP19-54 - 145	32.4943	12.2661	1.3702	7.9262	26.9354	43.8831	93.3463	0.420 8	1025.024 3	10.9809	827.4549	6.1610 3	0.162 3	1.3702	32.0272
TP19-54 - 15	11.3535	1.0780	0.0276	65.8343	8.6031	19.2816	60.6633	0.251 5	833.2796	13.7361	652.4720	8.0979 5	0.123 5	0.0276	698.8939
TP19-54 - 155	14.9374	8.4765	0.8982	5.4135	9.9018	20.6209	41.6043	0.338 1	1063.294 4	25.5573	803.6118	4.6627 5	0.214 5	0.8982	22.9581
TP19-54 - 17	6.3946	0.5946	0.0379	42.6063	3.1986	14.2303	60.7538	0.108 8	1065.106 3	17.5315	813.8126	7.7236 5	0.129 5	0.0379	375.6334
TP19-54 - 18	23.6301	0.7604	0.0210	187.1366	9.5857	17.2591	60.7243	0.296 1	924.8775	15.2308	725.2634	24.646 7	0.040 6	0.0210	823.0399
TP19-54 - 19	18.8338	7.5116	1.5507	5.5183	14.2787	28.6688	64.5128	0.332 0	998.5617	15.4785	783.3605	6.4184 8	0.155 8	1.5507	18.4873
TP19-54 - 20	6.4039	0.2722	0.0234	80.2248	1.7584	9.1250	42.5889	0.089 2	1052.310 4	24.7085	823.1556	6.0454 4	0.165 4	0.0234	389.8146
TP19-54 - 23	15.1455	9.1287	1.1477	4.6791	16.6183	33.8111	82.1740	0.315 3	1430.340 3	17.4062	1106.527 9	5.9850 1	0.167 1	1.1477	29.4592
TP19-54 - 24	14.4860	3.6713	0.4596	11.1513	9.4423	24.6014	88.4944	0.202 4	1574.667 5	17.7940	1210.006 3	9.2005 3	0.108 7	0.4596	53.5225
TP19-54 - 25	5.5182	0.5921	0.0658	27.9540	3.0298	12.0213	50.7096	0.122 7	1259.443 1	24.8364	980.5834	7.4455 3	0.134 3	0.0658	182.6741
TP19-54 - 26	14.1771	5.8535	0.5586	7.8402	16.2061	38.2444	102.838	0.258 4	1029.973 0	10.0155	801.7590	12.029 5	0.083 1	0.5586	68.4640
TP19-54 - 27	8.6253	1.2362	0.2032	17.2101	4.8932	13.8743	60.2312	0.169 3	1077.910 7	17.8962	859.5906	6.9095 7	0.144 7	0.2032	68.2856

TP19-54 - 28	20.3297	11.5017	0.9900	6.0247	22.1930	42.1127	81.9349	0.377 8	1207.648 2	14.7391	937.0598	5.8267	0.171 6	0.9900	42.5382
TP19-54 - 32	6.0972	0.1981	0.0040	216.9538	1.5933	7.3460	35.3885	0.098 8	1010.585 6	28.5569	786.7752	6.1910	0.161 5	0.0040	1842.510 7
TP19-54 - 35	7.5133	3.3441	1.1587	3.8168	8.5453	15.4543	65.7487	0.268 1	1595.013 3	24.2593	1228.752 9	14.599 4	0.068 5	1.1587	13.3373
TP19-54 - 36	25.2202	1.3121	0.1666	53.9471	6.2471	13.1437	48.6977	0.246 9	914.1674	18.7723	713.6490	6.8973	0.145 0	0.1666	78.9107
TP19-54 - 37	14.5848	10.1345	0.8412	4.9951	18.3165	34.9982	79.5404	0.347 2	1033.971 8	12.9993	807.5293	5.9975	0.166 7	0.8412	41.6047
TP19-54 - 38	29.6169	11.0980	1.8693	6.5025	14.8475	32.1129	73.8178	0.305 0	1350.709 3	18.2979	1071.948 3	5.9537	0.168 0	1.8693	17.1793
TP19-54 - 4	18.9706	12.2136	1.1825	4.9917	20.7992	41.6548	87.4485	0.344 6	1452.135 1	16.6056	1116.702 4	6.5174	0.153 4	1.1825	35.2251
TP19-54 - 41	22.0455	6.5481	0.8068	9.5914	15.5890	24.0053	49.1549	0.453 8	603.7853	12.2833	474.5649	5.0883	0.196 5	0.8068	29.7543
TP19-54 - 5	6.7536	0.3488	0.0354	60.7901	6.0075	5.9854	36.1102	0.408 6	1433.984 8	39.7113	926.5206	12.977 1	0.077 1	0.0354	169.1617
TP19-54 - 50	9.5401	3.3562	0.4522	7.7438	7.3720	16.0957	54.3653	0.249 2	1367.031 7	25.1453	1024.118 9	6.0239	0.166 0	0.4522	35.5936
TP19-54 - 59	49.2452	15.9975	3.2974	6.7803	21.6305	38.4017	63.7430	0.437 2	1021.335 2	16.0227	808.6550	4.5518	0.219 7	3.2974	11.6459
TP19-54 - 6	7.1766	2.0770	0.2292	10.4024	7.4792	15.0110	43.8104	0.291 7	713.4198	16.2843	547.7310	4.9448	0.202 2	0.2292	65.5046
TP19-54 - 60	28.0304	11.1911	1.1575	7.7882	38.2704	59.9573	150.109	0.403 2	1513.351 9	10.0817	1211.623 9	7.6124	0.131 4	1.1575	51.8004
TP19-54 - 62	6.8498	0.8056	0.0485	34.6670	6.4017	16.0750	66.0561	0.196 5	870.6288	13.1801	723.7371	10.442 0	0.095 8	0.0485	331.6934
TP19-54 - 66	10.3879	0.8916	0.0882	37.0348	3.4722	12.1766	50.8176	0.139 6	1107.604 2	21.7957	875.7043	5.0127	0.199 5	0.0882	137.9938
TP19-54 - 72	27.4732	10.0355	1.3737	7.3994	26.1708	53.6304	127.218	0.316 8	1490.172 8	11.7135	1191.673 7	8.0859	0.123 7	1.3737	39.0410
TP19-54 - 73	29.8962	0.4602	0.0301	253.9834	4.6566	10.8897	35.8338	0.235 7	783.3502	21.8606	588.0468	3.7706	0.265 2	0.0301	361.7173
TP19-54 - 79	17.1258	1.9813	0.1517	31.2336	11.8596	29.0865	87.9849	0.234 4	1185.398 7	13.4727	945.7503	7.9670	0.125 5	0.1517	191.6835
TP19-54 - 80	6.1468	1.8969	0.1654	10.9726	8.9078	18.5587	75.0373	0.238 7	852.0998	11.3557	742.5223	7.7032	0.129 8	0.1654	112.1807
TP19-54 - 81	11.2414	5.1158	0.4289	7.5892	7.0736	16.8863	52.8982	0.236 7	1397.919 2	26.4266	1049.902 6	5.0603	0.197 6	0.4289	39.3729
TP19-54 - 87	1.8966	0.5461	0.0113	24.1326	2.1864	14.0636	75.8880	0.066 9	1663.142 9	21.9158	1319.662 0	10.943 0	0.091 4	0.0113	1243.436 6
TP19-54 - 89	20.2229	7.0126	0.7912	8.5857	14.7743	27.5588	58.2731	0.368 7	743.7331	12.7629	591.4284	4.1219	0.242 6	0.7912	34.8337
TP19-54 - 91	44.2429	25.6679	4.3776	4.1738	36.9245	65.9674	110.943	0.431 6	1586.869 5	14.3034	1237.404 3	5.9980	0.166 7	4.3776	15.0694
TP19-54 - 97	15.9155	4.9328	0.6179	9.1163	12.5427	26.0310	61.8994	0.312 5	1046.530 1	16.9070	808.0340	7.0889	0.141 1	0.6179	42.1292

Appendix C: Supplementary Tables: Lu-Hf results for the Renner Group

Sample N	Analysis N	Hf176/Hf177	2 S.E.	Lu176/Hf177	U/Pb AGE	U/Pb AGE Error	Hf Chur (t)	Hf DM (t)	Hf NC(t)	Hf _i	epsilon n	2s	T(DM) (crustal)	T(NC) (crustal)
TP19-45-55	TP1945 - 1	0.281674	0.000028	0.000842	1961.0	35.5	0.281533	0.281820	0.281750	0.281643	3.88	0.98	2.34	2.192271458
TP19-45-52	TP1945 - 2	0.281777	0.000048	0.00169	1827.0	42.3	0.281620	0.281919	0.281848	0.281718	3.48	1.68	2.26	2.106836249
TP19-45-51	TP1945 - 3	0.281535	0.000034	0.000504	1892.3	46.2	0.281578	0.281871	0.281800	0.281517	-2.17	1.19	2.65	2.501805372
TP19-45-58	TP1945 - 4	0.281647	0.000047	0.001937	1860.6	31.6	0.281599	0.281894	0.281823	0.281579	-0.71	5	2.54	2.387988166
TP19-45-64	TP1945 - 5	0.281465	0.000048	0.000715	1808.5	45.5	0.281632	0.281933	0.281861	0.281440	-6.82	1.68	2.87	2.713770815
TP19-45-67	TP1945 - 6	0.281257	0.000045	0.000777	2501.0	46.7	0.281181	0.281416	0.281353	0.281220	1.40	5	2.92	2.783297344
TP19-45-68	TP1945 - 7	0.281586	0.000051	0.0024	1973.4	40.4	0.281525	0.281810	0.281741	0.281496	1.78	5	2.65	2.499383191
TP19-45-47	TP1945 - 8	0.281656	0.000041	0.000962	1798.4	33.9	0.281639	0.281940	0.281869	0.281623	1.43	5	2.48	2.328485769
TP19-45-44	TP1945 - 9	0.281586	0.000039	0.0002044	1910.5	50.3	0.281566	0.281857	0.281787	0.281579	1.36	5	2.51	2.35910103
TP19-45-43	TP1945 - 10	0.281653	0.000046	0.00119	1849.7	39.3	0.281606	0.281902	0.281831	0.281611	0.44	5	2.51	2.32431576
TP19-45-77	TP1945 - 11	0.281241	0.000042	0.00053	2556.0	41.2	0.281145	0.281375	0.281312	0.281215	0.20	1.61	2.48	2.762111742
TP19-45-80	TP1945 - 12	0.28105	0.000040	0.00187	2530.7	46.7	0.281161	0.281394	0.281331	0.280960	2.51	1.47	2.89	3.313751785
TP19-45-81	TP1945 - 13	0.281668	0.000041	0.00105	1648.0	51.6	0.281736	0.282051	0.281978	0.281635	-7.17	1.4	3.45	3.390366869
											1.43	5	2.55	2.390366867

TP19-45-34	TP1945 - 14	0.281825	0.00004	5	0.00084	1773.9	39.1	0.281655	0.281958	0.281887	0.281797	5.04	1.57	2.12	1.96851597
TP19-45-144	TP1945 - 15	0.281613	0.00003	3	0.0008089	2025.7	47.6	0.281491	0.281771	0.281703	0.281582	3.22	1.15	2.43	2.28533555
TP19-45-138	TP1945 - 16	0.281232	0.00005	6	0.000539	2514.9	47.2	0.281172	0.281406	0.281343	0.281206	1.23	1.96	2.94	2.80451392
TP19-45-85	TP1945 - 17	0.281747	0.00005	7	0.000804	1808.6	47.7	0.281632	0.281933	0.281861	0.281719	3.09	1.99	2.27	2.11539285
TP19-45-89	TP1945 - 18	0.281651	0.00003	4	0.000927	1793.5	42.6	0.281642	0.281944	0.281872	0.281619	-0.80	1.19	2.49	2.33932906
TP19-45-135	TP1945 - 19	0.281665	0.00005	7	0.001101	2308.8	53.5	0.281307	0.281560	0.281495	0.281617	11.02	1.99	2.19	2.04798004
TP19-45-92	TP1945 - 20	0.281669	0.00004	2	0.000686	1757.7	40.3	0.281665	0.281970	0.281898	0.281646	-0.68	1.47	2.46	2.30286895
TP19-45-27	TP1945 - 21	0.281687	0.00004	2	0.00076	1822.6	41.7	0.281623	0.281922	0.281851	0.281661	1.33	1.47	2.39	2.23367057
TP19-45-24	TP1945 - 22	0.280962	0.00004	9	0.000556	2518.6	35.0	0.281169	0.281403	0.281340	0.280935	-8.32	1.71	3.50	3.37161149
TP19-45-23	TP1945 - 23	0.28131	0.00004	6	0.00083	2479.0	56.9	0.281195	0.281433	0.281369	0.281271	2.69	1.61	2.82	2.68830397
TP19-45-131	TP1945 - 24	0.28045	0.00005	6	0.000976	3501.3	34.8	0.280518	0.280659	0.280607	0.280384	-4.76	1.96	4.06	3.95972830
TP19-45-99	TP1945 - 25	0.281608	0.00004	8	0.00192	1916.1	52.6	0.281563	0.281853	0.281783	0.281538	-0.87	1.68	2.59	2.44249621
TP19-45-123	TP1945 - 26	0.281361	0.00005	3	0.00174	2534.3	44.9	0.281159	0.281391	0.281328	0.281277	4.20	1.85	2.78	2.64395318
TP19-45-105	TP1945 - 27	0.281813	0.00006	0.001229	1600.6	41.9	0.281767	0.282086	0.282013	0.281776	0.281773	0.32	2.1	2.27	2.11512321
TP19-45-116	TP1945 - 28	0.281524	0.00003	2	0.000702	1897.0	72.5	0.281575	0.281867	0.281797	0.281499	-2.71	1.12	2.69	2.53794143
TP19-45-07	TP1945 - 29	0.281635	0.00004	2	0.000888	1813.6	35.0	0.281629	0.281929	0.281858	0.281604	-0.87	1.47	2.51	2.35987749
TP19-45-112	TP1945 - 30	0.281674	0.00004	0.00096	1850.1	41.8	0.281605	0.281902	0.281831	0.281640	0.281643	1.24	1.4	2.41	2.26162186
TP19-46-71	TP1946 - 1	0.281584	0.00004	2	0.000305	1930.0	27.5	0.281554	0.281843	0.281773	0.281573	0.69	1.47	2.51	2.36010557
TP19-46-69	TP1946 - 2	0.281729	0.00003	5	0.001024	1760.0	29.0	0.281664	0.281969	0.281897	0.281695	1.10	1.22	2.35	2.19670268
TP19-46-68	TP1946 - 3	0.281564	0.00003	0.000906	1827.1	23.1	0.281620	0.281919	0.281848	0.281533	0.281533	-3.12	1.05	2.66	2.50607916
TP19-46-67	TP1946 - 4	0.281574	0.00005	4	0.0003302	1883.4	42.2	0.281584	0.281877	0.281807	0.281562	-0.77	1.89	2.56	2.40994578

TP19-46-66	TP1946 - 5	0.28197	0.00005 4	0.00178	1624.3	35.6	0.281752	0.282069	0.28199 5	0.28191 5	5.81	1.89	1.96	1.79883755 3
TP19-46-55	TP1946 - 6	0.281616	0.00004 6	0.00055	1860.5	37.3	0.281599	0.281894	0.28182 3	0.28159 7	-0.07	1.61	2.50	2.34947972 6
TP19-46-54	TP1946 - 7	0.281658	0.00004 2	0.00151	1832.7	33.0	0.281617	0.281915	0.28184 4	0.28160 5	-0.40	1.47	2.50	2.34650291 6
TP19-46-53	TP1946 - 8	0.281769	0.00004 7	0.000696	1729.8	53.8	0.281683	0.281991	0.28191 9	0.28174 6		1.64		2.10352192 1
TP19-46-52	TP1946 - 9	0.28166	0.00003 8	0.000945	1784.8	42.6	0.281648	0.281950	0.28187 9	0.28162 8	-0.70	1.33	2.48	2.32602628 8
TP19-46-48	TP1946 - 10	0.28138	0.00003 0.0002122		2628.3	48.8	0.281097	0.281321	0.28125 9	0.28136 9				2.39413055 1
TP19-46-43	TP1946 - 11	0.281508	0.00003 9	0.000551	1848.2	51.0	0.281607	0.281903	0.28183 2	0.28148 9		1.36		2.58771916 1
TP19-46-101	TP1946 - 12	0.281455	0.00004 6	0.0018	2072.6	40.4	0.281461	0.281737	0.28166 8	0.28138 4	-2.73	1.61	2.83	2.68085197 7
TP19-46-35	TP1946 - 13	0.281624	0.00005 1	0.000697	1862.1	27.8	0.281598	0.281893	0.28182 2	0.28159 9		1.78		2.34258584 7
TP19-46-33	TP1946 - 14	0.281738	0.00004 7	0.000583	1778.7	40.6	0.281652	0.281955	0.28188 3	0.28171 8		1.64		2.13514538 3
TP19-46-32	TP1946 - 15	0.28173	0.00005 1	0.000565	1834.7	38.2	0.281615	0.281913	0.28184 2	0.28171 0		1.78		2.11976970 1
TP19-46-29	TP1946 - 16	0.281646	0.00004 7	0.000725	1811.2	36.6	0.281631	0.281931	0.28185 9	0.28162 1		1.64		2.32554704 7
TP19-46-26	TP1946 - 17	0.281588	0.00003 4	0.000619	1931.7	46.5	0.281552	0.281841	0.28177 1	0.28156 5				2.37526802 4
TP19-46-25	TP1946 - 18	0.281646	0.00004 8	0.001719	2315.2	35.6	0.281302	0.281556	0.28149 0	0.28157 0	0.46	1.19	2.53	2.14387388 5
TP19-46-22	TP1946 - 19	0.281956	0.00005 0.00366		1667.7	37.3	0.281724	0.282037	0.28196 4	0.28184 0	9.52	1.68	2.28	1.93600656 8
TP19-46-23	TP1946 - 20	0.281636	0.00004 2	0.000891	1892.7	39.5	0.281578	0.281870	0.28180 0	0.28160 4	4.15	1.75	2.09	2.31488217 6
TP19-46-19	TP1946 - 23	0.281515	0.00004 3	0.0005346	1865.1	45.1	0.281596	0.281891	0.28182 0	0.28149 6	0.93	1.47	2.47	2.56208487 4
TP19-46-146	TP1946 - 24	0.281644	0.00007 8	0.00364	2789.5	33.2	0.280991	0.281199	0.28113 9	0.28145 0	-3.54	5	2.71	2.13198597 3
TP19-46-145	TP1946 - 25	0.28167	0.00003 8	0.001231	1828.2	31.3	0.281620	0.281918	0.28184 7	0.28162 7	16.33	2.73	2.26	2.30227048 9
TP19-46-142	TP1946 - 26	0.281579	0.00005 5	0.00192	2030.0	34.2	0.281489	0.281768	0.28169 9	0.28150 5	0.27	1.33	2.46	2.44763203 5
TP19-46-132	TP1946 - 29	0.281574	0.00004 0.00068		1833.7	33.0	0.281616	0.281914	0.28184 3	0.28155 0	0.58	5	2.59	2.46421429 8

TP19-47-72	TP1947 - 1	0.281706	0.00004	0.000668	1626.5	37.5	0.281750	0.282067	0.28199	0.28168				2.29494494
TP19-47-70	TP1947 - 2	0.281579	0.00005	0.000768	2090.6	32.6	0.281449	0.281723	4	5	-2.30	1.4	2.45	4
TP19-47-77	TP1947 - 3	0.281445	0.00003	0.0004728	2149.5	50.9	0.281411	0.281679	0.28165	0.28154		1.92		2.31942511
TP19-47-58	TP1947 - 4	0.281307	0.00004	0.001069	2333.3	41.4	0.281291	0.281542	5	8	3.53	5	2.47	8
TP19-47-54	TP1947 - 5	0.28165	0.00006	0.00335	2067.8	37.3	0.281464	0.281740	0.28161	0.28142		1.22		2.54791646
TP19-47-32	TP1947 - 8	0.280965	0.00003	0.000743	2843.1	44.1	0.280955	0.281159	2	6	0.53	5	2.69	8
TP19-47-25	TP1947 - 9	0.281288	0.00004	0.00148	2501.5	48.8	0.281180	0.281416	0.28147	0.28125				2.79541297
TP19-47-114	TP1947 - 10	0.281187	0.00003	0.000492	2185.4	42.3	0.281387	0.281653	0.28167	0.28151				2.39720512
TP19-47-117	TP1947 - 11	0.281677	0.00007	0.00257	2135.4	48.7	0.281420	0.281690	0.28110	0.28092				3.21008644
TP19-47-157	TP1947 - 12	0.281703	0.00003	0.0009177	1825.5	39.2	0.281621	0.281920	0.28135	0.28121				
TP19-47-17	TP1947 - 13	0.281649	0.00004	0.000726	1824.7	40.8	0.281622	0.281921	0.28158	0.28116		1.22		2.78845821
TP19-47-16	TP1947 - 14	0.281541	0.00004	0.0004035	1932.4	37.1	0.281552	0.281841	6	7	-7.84	5	3.22	3.07669399
TP19-47-127	TP1947 - 15	0.281626	0.00004	0.000597	1850.3	35.4	0.281605	0.281902	0.28162	0.28157		2.76		2.24194616
TP19-47-10	TP1947 - 16	0.281661	0.00004	0.00055	1873.9	33.6	0.281590	0.281884	2	3	5.43	5	2.39	5
TP19-47-09	TP1947 - 17	0.281672	0.00003	0.000585	1803.1	45.9	0.281636	0.281937	0.28184	0.28167				2.20940043
TP19-47-08	TP1947 - 18	0.281727	0.00005	0.00112	1629.0	35.1	0.281749	0.282065	0.28185	0.28162		1.77	1.26	2.31171317
TP19-47-04	TP1947 - 19	0.281525	0.00004	0.000504	2005.1	46.3	0.281505	0.281787	0	4	0.07	1.4	2.46	5
TP19-47-139	TP1947 - 20	0.281378	0.00004	0.000636	2322.3	56.2	0.281298	0.281550	0.28177	0.28152				2.45862905
TP19-47-144	TP1947 - 21	0.280923	0.00004	0.0005967	2738.9	35.5	0.281024	0.281238	0.28183	0.28160				
TP19-49-123	TP1949 - 1	0.281573	0.00004	0.002173	2406.1	42.2	0.281243	0.281488	0.28165	0.28164		-0.01	1.54	2.33727102
TP19-49-128	TP1949 - 2	0.281742	0.00004	0.000918	2047.5	38.5	0.281477	0.281755	0.28181	0.28164		1.43	2.49	2.24533291
									4	1	1.83	5	2.40	1
									0.28186	0.28165		1.15		
									5	2	0.57	5	2.42	2.26381606
									0.28199	0.28169				2.27832183
									2	2	-1.99	1.82	2.44	8
									0.28171	0.28150				2.46015976
									8	6	0.04	1.4	2.61	6
									0.28148	0.28135		1.71		2.60995976
									5	0	1.85	5	2.75	4
									0.28117	0.28089				3.33743666
									7	2	-4.71	1.61	3.46	9
									0.28142	0.28147		1.71		2.29916191
									3	3	8.19	5	2.44	9
									0.28168	0.28170		1.64		2.00524964
									7	6	8.14	5	2.15	4

TP19-49-134	TP1949 - 3	0.281665	0.00004 3	0.002608	2813.7	48.9	0.280975	0.281181	0.28112 1	0.28152 4	19.56	1.50 5	2.09	1.95843686 8
TP19-49-99	TP1949 - 4	0.281776	0.00005 4	0.000621	1751.5	45.8	0.281669	0.281975	0.28190 3	0.28175 5	3.06	1.89	2.23	2.07100389
TP19-49-91	TP1949 - 5	0.281524	0.00003 8	0.00072	1862.7	50.8	0.281597	0.281893	0.28182 2	0.28149 9	-3.50	1.33	2.71	2.55819028 9
TP19-49-64	TP1949 - 6	0.281291	0.00006 2	0.00091	1915.5	30.8	0.281563	0.281853	0.28178 3	0.28125 8	-10.84	2.17	3.19	3.03957725 4
TP19-49-156	TP1949 - 7	0.281245	0.00004 5	0.00122	2540.0	34.0	0.281155	0.281387	0.28132 4	0.28118 6	1.10	1.57 5	2.97	2.83308404 1
TP19-49-147	TP1949 - 8	0.281638	0.00003 2	0.000815	1921.3	32.4	0.281559	0.281849	0.28177 9	0.28160 8	1.74	1.12	2.44	2.28909479 8
TP19-49-150	TP1949 - 9	0.281503	0.00004 8	0.000481	2364.2	38.9	0.281270	0.281519	0.28145 4	0.28148 1	7.50	1.68	2.44	2.30591851 2
TP19-49-146	TP1949 - 10	0.281131	0.00004 1	0.000601	2578.3	38.6	0.281130	0.281358	0.28129 6	0.28110 1	-1.01	1.43 5	3.12	2.98923759 3
TP19-49-158	TP1949 - 11	0.281941	0.00005 0.00003	0.001617	1633.2	35.6	0.281746	0.282062	0.28198 9	0.28189 1	5.15	1.75	2.01	1.84637026 2.71704835
TP19-49-52	TP1949 - 12	0.281445	0.00003 4	0.000617	1866.4	36.4	0.281595	0.281890	0.28181 9	0.28142 3	-6.10	1.19	2.87	2.18727157 8
TP19-49-160	TP1949 - 13	0.281724	0.00003 6	0.000839	1772.6	37.0	0.281656	0.281959	0.28188 7	0.28169 6	1.43	1.26	2.34	2.68219644 5
TP19-49-76	TP1949 - 14	0.281332	0.00003 9	0.000623	2366.6	66.4	0.281269	0.281517	0.28145 2	0.28130 4	1.36 1.25	5	2.82	1.53840694 7
TP19-49-60	TP1949 - 15	0.282095	0.00003 6	0.002045	1635.9	39.3	0.281744	0.282060	0.28198 7	0.28203 2	10.21	1.26	1.70	2.27467037 5
TP19-49-39	TP1949 - 16	0.281668	0.00004 3	0.000694	1813.5	64.7	0.281629	0.281929	0.28185 8	0.28164 4	1.50 0.53	5	2.43	2.60018554 3
TP19-49-40	TP1949 - 17	0.281529	0.00004 8	0.00068	1762.2	40.0	0.281662	0.281967	0.28189 5	0.28150 6	-5.54	1.68	2.75	2.62736202 5
TP19-49-30	TP1949 - 18	0.28148	0.00004 2	0.000765	1914.1	68.5	0.281564	0.281854	0.28178 4	0.28145 2	-3.97	1.47	2.78	2.02491200 4
TP19-49-29	TP1949 - 19	0.281767	0.00004 4	0.000985	1921.1	51.2	0.281559	0.281849	0.28177 9	0.28173 1	6.10	1.54	2.18	2.17273455 4
TP19-49-25	TP1949 - 20	0.281744	0.00005 9	0.001468	1805.2	35.1	0.281635	0.281935	0.28186 4	0.28169 4	2.06 2.10	5	2.33	2.56472849 1
TP19-49-16	TP1949 - 21	0.281555	0.00004 5	0.000723	1731.3	55.7	0.281682	0.281990	0.28191 8	0.28153 1	1.57 -5.37	5	2.72	2.30953526 4
TP19-49-11	TP1949 - 22	0.281624	0.00003 7	0.001579	2056.6	38.6	0.281471	0.281749	0.28168 0	0.28156 2	1.29 3.23	5	2.46	2.35004178 6
TP19-49-09	TP1949 - 23	0.281636	0.00005 2	0.001338	1891.4	46.1	0.281579	0.281871	0.28180 1	0.28158 8	0.33	1.82	2.50	4

TP19-49-01	TP1949 - 24	0.281634	0.00003 6	0.001218	1847.5	36.6	0.281607	0.281904	0.28183 3	0.28159 1	-0.56	1.26	2.52	2.36840546 3
TP19-49-06	TP1949 - 25	0.281489	0.00004 6	0.000845	1845.6	43.9	0.281608	0.281905	0.28183 4	0.28145 9	-5.29	1.61	2.80	2.65174648 4
TP19-50-70	TP1950 - 1	0.281698	0.00003 7	0.0006147	1718.6	31.9	0.281691	0.281999	0.28192 7	0.28167 8	-0.45	1.29 5	2.41	2.2571409
TP19-50-69	TP1950 - 2	0.281533	0.00003 9	0.000529	2017.8	55.4	0.281496	0.281777	0.28170 8	0.28151 3	1.36 0.58	5	2.59	2.43799809 9
TP19-50-62	TP1950 - 3	0.281649	0.00004 4	0.000744	1773.8	30.6	0.281655	0.281958	0.28188 7	0.28162 4	-1.10	1.54	2.50	2.34108928 3
TP19-50-86	TP1950 - 4	0.281658	0.00004 1	0.000678	1736.6	32.6	0.281679	0.281986	0.28191 4	0.28163 6	1.43 -1.54	5	2.49	2.33762079 3
TP19-50-50	TP1950 - 5	0.281678	0.00004 8	0.000512	1761.8	36.1	0.281663	0.281967	0.28189 5	0.28166 1	-0.06	1.68	2.42	2.26871172 2
TP19-50-92	TP1950 - 6	0.281713	0.00003 9	0.001867	1783.9	31.4	0.281648	0.281951	0.28187 9	0.28165 0	1.36 0.05	5	2.43	2.27962278 6
TP19-50-34	TP1950 - 7	0.281748	0.00003 5	0.000641	1770.9	32.7	0.281657	0.281961	0.28188 9	0.28172 6	1.22 2.48	5	2.28	2.12209944 9
TP19-50-103	TP1950 - 8	0.281698	0.00004 3	0.001296	1790.3	35.5	0.281644	0.281946	0.28187 5	0.28165 4	1.50 0.35	5	2.42	2.26695965 5
TP19-50-105	TP1950 - 9	0.281658	0.00004 5	0.0009	1748.9	36.0	0.281671	0.281977	0.28190 5	0.28162 8	1.57 -1.52	5	2.50	2.34662928 6
TP19-50-25	TP1950 - 10	0.281711	0.00004 6	0.000682	2003.0	60.7	0.281506	0.281788	0.28171 9	0.28168 5	2.07672620 6.36	1.61	2.23	2.07672620 6
TP19-50-22	TP1950 - 11	0.281805	0.00005 3	0.000923	1808.7	36.8	0.281632	0.281933	0.28186 1	0.28177 3	1.85 5.01	5	2.15	1.99889176 4
TP19-50-20	TP1950 - 12	0.281683	0.00003 8	0.000747	1868.5	41.3	0.281593	0.281888	0.28181 8	0.28165 7	2.21605035 2.24	1.33	2.37	2.21605035 2
TP19-50-116	TP1950 - 13	0.281733	0.00003 5	0.000694	1807.9	43.3	0.281633	0.281933	0.28186 2	0.28170 9	1.22 2.71	5	2.29	2.13780672 7
TP19-50-16	TP1950 - 14	0.281728	0.00004 4	0.00213	1825.0	38.8	0.281622	0.281921	0.28184 9	0.28165 4	2.24623104 1.16	1.54	2.40	2.24623104 8
TP19-50-13	TP1950 - 15	0.281658	0.00004 1	0.00172	2295.2	44.7	0.281316	0.281571	0.28150 5	0.28158 3	1.43 9.50	5	2.27	2.12829321 3
TP19-50-155	TP1950 - 16	0.28166	0.00003 6	0.000739	1856.5	51.2	0.281601	0.281897	0.28182 6	0.28163 4	2.27152823 1.16	1.26	2.42	2.27152823 1
TP19-50-10	TP1950 - 17	0.281657	0.00004 0.00004	0.000667	1719.9	43.8	0.281690	0.281998	0.28192 6	0.28163 5	2.34831661 -1.94	1.4	2.50	2.34831661 2
TP19-50-139	TP1950 - 18	0.281644	0.00004 1	0.00095	1982.3	47.8	0.281520	0.281804	0.28173 4	0.28160 8	1.43 3.15	5	2.40	2.25389267 5
TP19-51-81	TP1951 - 1	0.281708	0.00005	0.00139	1818.9	26.2	0.281626	0.281925	0.28185 4	0.28166 0	2.23729180 1.22	1.75	2.39	2.23729180 1

TP19-51-79	TP1951 - 2	0.281647	0.00003 3	0.000781	1794.2	29.0	0.281642	0.281943	0.28187 2	0.28162 0	-0.75 5	2.49	2.33687941 6
TP19-51-86	TP1951 - 3	0.28173	0.00003 5	0.000556	1788.3	31.3	0.281645	0.281948	0.28187 6	0.28171 1	1.22 2.33	2.30	2.14502703 9
TP19-51-73	TP1951 - 4	0.281658	0.00003 9	0.001048	2102.3	34.2	0.281441	0.281715	0.28164 7	0.28161 6	1.36 6.20	2.31	2.16766451 4
TP19-51-98	TP1951 - 5	0.281667	0.00004 1	0.000878	1786.9	36.4	0.281646	0.281949	0.28187 7	0.28163 7	1.43 -0.32	2.46	2.30494590 9
TP19-51-72	TP1951 - 6	0.281695	0.00004 5	0.001226	1844.8	36.0	0.281609	0.281906	0.28183 5	0.28165 2	1.57 1.54	2.39	2.23935079
TP19-51-67	TP1951 - 7	0.281642	0.00005 3	0.002499	2734.9	56.6	0.281027	0.281241	0.28118 0	0.28151 1	1.85 17.24	2.16	2.03123584
TP19-51-103	TP1951 - 8	0.281666	0.00006 2	0.00124	1829.7	40.4	0.281619	0.281917	0.28184 6	0.28162 3	2.17 0.15	2.46	2.31078437 2
TP19-51-106	TP1951 - 9	0.28171	0.00004 9	0.00251	1774.1	31.9	0.281655	0.281958	0.28188 6	0.28162 6	1.71 -1.03	2.49	2.33751748 1
TP19-51-62	TP1951 - 10	0.281672	0.00004 5	0.001009	1837.9	40.0	0.281613	0.281911	0.28184 0	0.28163 7	1.57 0.83	2.43	2.27621571 6
TP19-51-61	TP1951 - 11	0.281387	0.00004 8	0.00177	2879.4	56.8	0.280931	0.281131	0.28107 3	0.28128 9	2.42 12.75	2.55	2.42203235 3
TP19-51-129	TP1951 - 12	0.28167	0.00003 9	0.001469	1850.2	32.1	0.281605	0.281902	0.28183 1	0.28161 8	1.36 0.46	2.46	2.30858796 2
TP19-51-132	TP1951 - 13	0.281733	0.00005 9	0.00416	3349.6	55.9	0.280619	0.280775	0.28072 1	0.28146 5	2.06 30.14	1.90	1.78630589 9
TP19-51-136	TP1951 - 14	0.281696	0.00004 2	0.001179	1791.9	55.1	0.281643	0.281945	0.28187 3	0.28165 6	2.26 0.45	2.42	2.26188294 4
TP19-51-135	TP1951 - 15	0.28176	0.00003 1	0.000702	1973.6	43.0	0.281525	0.281810	0.28174 1	0.28173 4	1.08 7.41	2.14	1.98884627 2
TP19-51-28	TP1951 - 16	0.281381	0.00004 6	0.000546	2520.4	54.7	0.281168	0.281402	0.28133 9	0.28135 5	2.48 6.64	2.62	2.48651737 3
TP19-51-142	TP1951 - 17	0.281743	0.00004 1	0.00064	1778.9	38.4	0.281652	0.281955	0.28188 3	0.28172 1	1.43 2.48	2.28	2.12836947 5
TP19-51-140	TP1951 - 18	0.28162	0.00003 3	0.000804	1873.5	33.1	0.281590	0.281885	0.28181 4	0.28159 1	1.15 0.04	2.50	2.35306746 1
TP19-51-145	TP1951 - 19	0.281607	0.00004 3	0.000716	1959.9	33.4	0.281534	0.281820	0.28175 1	0.28158 0	1.50 1.64	2.48	2.32665794 9
TP19-51-10	TP1951 - 20	0.281703	0.00004 6	0.0006547	1812.4	41.3	0.281630	0.281930	0.28185 8	0.28168 0	2.19 1.80	2.35	2.19705731 8
TP19-51-04	TP1951 - 21	0.281676	0.00005 1	0.000922	1806.9	31.1	0.281633	0.281934	0.28186 2	0.28164 4	1.78 0.39	2.43	2.27791088 6
TP19-52-77	TP1952 - 1	0.281647	0.00004	0.000557	1769.3	36.3	0.281658	0.281962	0.28189 0	0.28162 8	2.33 -1.05	2.49	2.33441107 5

TP19-52-71	TP1952 - 2	0.281668	0.000048	0.000822	1801.1	49.3	0.281637	0.281938	0.281867	0.281640	0.10	1.68	2.44	2.29093957
TP19-52-68	TP1952 - 3	0.281655	0.00005	0.000492	1860.4	151.0	0.281599	0.281894	0.281823	0.281638	1.38	1.75	2.41	2.26138452
TP19-52-100	TP1952 - 4	0.281652	0.000036	0.000843	1783.5	37.2	0.281649	0.281951	0.281880	0.281623	-0.89	1.26	2.49	2.33649642
TP19-52-52	TP1952 - 5	0.281647	0.00004	0.0004647	1804.1	34.8	0.281635	0.281936	0.281865	0.281631	-0.15	1.4	2.46	2.30817916
TP19-52-112	TP1952 - 6	0.281661	0.000038	0.000983	1759.4	45.9	0.281664	0.281969	0.281897	0.281628	-1.28	1.33	2.49	2.34039869
TP19-52-114	TP1952 - 7	0.281658	0.000039	0.000767	1798.3	34.9	0.281639	0.281940	0.281869	0.281632	-0.26	5	2.46	2.30997275
TP19-52-44	TP1952 - 8	0.281709	0.000058	0.001031	1799.6	56.8	0.281638	0.281939	0.281868	0.281674	1.27	2.03	2.37	2.21890014
TP19-52-43	TP1952 - 9	0.281684	0.000044	0.000788	1836.4	34.5	0.281614	0.281912	0.281841	0.281657	1.50	1.54	2.39	2.23464279
TP19-52-118	TP1952 - 10	0.281081	0.000046	0.0002675	2502.9	38.2	0.281179	0.281415	0.281352	0.281068	-3.95	1.61	3.23	3.10190664
TP19-52-126	TP1952 - 11	0.281654	0.000039	0.000594	1747.2	33.8	0.281672	0.281978	0.281906	0.281633	-1.34	5	2.49	2.33436278
TP19-52-34	TP1952 - 12	0.281648	0.00004	0.000708	1787.9	38.1	0.281646	0.281948	0.281876	0.281624	-0.77	1.4	2.49	2.33287731
TP19-52-27	TP1952 - 13	0.281736	0.000033	0.0005113	1736.4	46.2	0.281679	0.281986	0.281914	0.281719	1.42	5	2.31	2.15799722
TP19-52-130	TP1952 - 14	0.281674	0.00004	0.000729	1799.1	51.5	0.281638	0.281940	0.281868	0.281649	0.38	1.4	2.43	2.27229109
TP19-52-22	TP1952 - 15	0.281725	0.000056	0.000706	1789.3	44.2	0.281645	0.281947	0.281875	0.281701	2.00	1.96	2.32	2.16624177
TP19-52-14	TP1952 - 16	0.281581	0.000037	0.000787	1789.2	38.1	0.281645	0.281947	0.281875	0.281554	-3.22	5	2.63	2.48163072
TP19-52-10	TP1952 - 17	0.281693	0.000039	0.000668	1721.1	39.7	0.281689	0.281997	0.281925	0.281671	-0.63	5	2.43	2.27027365
TP19-52-137	TP1952 - 18	0.28163	0.000039	0.000688	1741.4	38.7	0.281676	0.281982	0.281910	0.281607	-2.43	5	2.55	2.39586045
TP19-52-138	TP1952 - 19	0.281698	0.000037	0.000993	1774.6	29.5	0.281654	0.281958	0.281886	0.281665	0.36	5	2.41	2.25333780
TP19-52-05	TP1952 - 20	0.281691	0.000049	0.000864	1755.5	32.9	0.281667	0.281972	0.281900	0.281662	-0.16	5	2.42	2.26949832
TP19-52-150	TP1952 - 21	0.281913	0.000039	0.0010123	1652.5	125.8	0.281733	0.282048	0.281975	0.281881	5.25	5	2.01	1.85605456
TP19-52-151	TP1952 - 22	0.281621	0.000034	0.0007815	1723.6	34.9	0.281687	0.281996	0.281923	0.281595	-3.26	1.19	2.59	2.43163150

TP19-52-146	TP1952 - 23	0.281648	0.000048	0.001416	1767.3	34.9	0.281659	0.281963	0.281891	0.281601	-2.08	1.68	2.55	2.39521925
TP19-53-01	TP1953 - 1	0.281589	0.000055	0.00172	2370.6	72.7	0.281266	0.281514	0.281449	0.281511	8.71	5	2.38	2.23829771
TP19-53-05	TP1953 - 2	0.281614	0.000038	0.00105	1997.5	59.0	0.281510	0.281793	0.281723	0.281574	2.29	1.33	2.47	2.31820291
TP19-53-07	TP1953 - 3	0.281636	0.000054	0.001646	1959.4	56.2	0.281534	0.281821	0.281751	0.281575	1.43	1.89	2.49	2.33900369
TP19-53-16	TP1953 - 4	0.281666	0.000045	0.000681	1780.0	63.4	0.281651	0.281954	0.281882	0.281643	-0.28	5	2.45	2.29657306
TP19-54-70	TP1954 - 1	0.281567	0.000042	0.000459	1921.4	39.8	0.281559	0.281849	0.281779	0.281550	-0.32	1.47	2.56	2.41347426
TP19-54-76	TP1954 - 2	0.28169	0.000026	0.000976	2233.8	52.4	0.281356	0.281616	0.281550	0.281648	10.41	0.91	2.17	2.02237622
TP19-54-80	TP1954 - 3	0.281623	0.000036	0.00092	1746.1	45.4	0.281673	0.281979	0.281907	0.281593	-2.85	1.26	2.58	2.42474289
TP19-54-60	TP1954 - 4	0.281639	0.000042	0.000723	1806.2	30.4	0.281634	0.281934	0.281863	0.281614	-0.70	1.47	2.50	2.34320392
TP19-54-86	TP1954 - 5	0.281706	0.000059	0.00167	2507.0	42.1	0.281177	0.281412	0.281349	0.281626	15.98	5	2.05	1.91439598
TP19-54-89	TP1954 - 6	0.281688	0.000039	0.000755	1814.9	41.9	0.281628	0.281928	0.281857	0.281662	1.20	5	2.39	2.23538166
TP19-54-91	TP1954 - 7	0.281663	0.000055	0.001307	1812.3	32.4	0.281630	0.281930	0.281859	0.281618	-0.42	5	2.48	2.33139023
TP19-54-103	TP1954 - 8	0.281688	0.000040.00003	0.001121	1803.8	45.8	0.281635	0.281936	0.281865	0.281650	0.51	1.4	2.42	2.26844116
TP19-54-36	TP1954 - 9	0.281736	0.000032	0.0006214	1746.1	48.5	0.281673	0.281979	0.281907	0.281715	1.51	1.12	2.32	2.16037414
TP19-54-32	TP1954 - 10	0.281668	0.000040.00003	0.00078	1734.7	36.3	0.281680	0.281987	0.281915	0.281642	-1.34	1.4	2.48	2.32442534
TP19-54-30	TP1954 - 11	0.281645	0.000044	0.000754	1994.9	39.6	0.281511	0.281794	0.281725	0.281616	3.73	1.19	2.38	2.22897218
TP19-54-111	TP1954 - 12	0.28171	0.000043	0.001094	1811.1	40.9	0.281631	0.281931	0.281859	0.281672	1.48	5	2.37	2.21521901
TP19-54-115	TP1954 - 13	0.281589	0.000039	0.000739	1792.4	44.5	0.281643	0.281945	0.281873	0.281564	-2.80	5	2.61	2.45924117
TP19-54-24	TP1954 - 14	0.281628	0.000038	0.000691	1788.4	56.1	0.281645	0.281948	0.281876	0.281605	-1.45	1.33	2.53	2.37431382
TP19-54-23	TP1954 - 15	0.281654	0.000034	0.00085	1791.8	32.9	0.281643	0.281945	0.281874	0.281625	-0.64	1.19	2.48	2.32818840
TP19-54-19	TP1954 - 16	0.281616	0.000039	0.000503	1747.8	48.8	0.281672	0.281978	0.281906	0.281599	-2.57	5	2.56	2.40917357

TP19-54-120	TP1954 - 17	0.281672	0.000035	0.000525	1859.8	38.3	0.281599	0.281895	0.281824	0.281653	1.225	2.38	2.22767528
TP19-54-17	TP1954 - 18	0.281652	0.000036	0.00064	1784.1	41.6	0.281648	0.281951	0.281879	0.281630	-0.63	1.26	2.32140042
TP19-54-15	TP1954 - 19	0.281491	0.000046	0.001015	1899.1	41.8	0.281574	0.281866	0.281795	0.281454	-4.23	1.61	2.63134261
TP19-54-139	TP1954 - 20	0.281641	0.000049	0.00065	1788.9	38.9	0.281645	0.281947	0.281876	0.281619	-0.93	5	2.34311307
TP19-54-144	TP1954 - 21	0.281772	0.000050	0.001128	2110.9	39.1	0.281436	0.281708	0.281640	0.281727	10.33	1.75	1.92461122
TP19-54-141	TP1954 - 22	0.281722	0.000043	0.001968	2800.6	125.9	0.280983	0.281191	0.281131	0.281616	22.53	5	1.76868382
TP19-54-155	TP1954 - 23	0.281655	0.000037	0.00055	1799.4	39.8	0.281638	0.281940	0.281868	0.281636	-0.07	5	2.29989527
TP19-54-153	TP1954 - 24	0.281594	0.000043	0.001909	3003.9	58.6	0.280849	0.281037	0.280980	0.281484	22.61	5	1.93803979
TP19-54-150	TP1954 - 25	0.281647	0.000047	0.000661	1852.1	37.4	0.281604	0.281900	0.281829	0.281624	0.70	5	2.29597717
TP19-53-99	TP1953a - 2	0.281544	0.000056	0.001159	1930.9	58.2	0.281553	0.281842	0.281772	0.281502	-1.83	1.96	2.51231737
TP19-53-120	TP1953a - 3	0.281653	0.000046	0.000808	1785.1	57.2	0.281648	0.281950	0.281878	0.281626	-0.78	1.61	2.33091999
TP19-53-92	TP1953a - 4	0.281283	0.000038	0.000827	2580.7	76.2	0.281128	0.281357	0.281294	0.281242	4.05	1.33	2.69074949
TP19-53-127	TP1953a - 5	0.281582	0.000053	0.000819	2115.9	69.8	0.281433	0.281704	0.281637	0.281549	4.14	5	2.30364978
TP19-53-131	TP1953a - 6	0.281567	0.000058	0.00068	1999.9	78.2	0.281508	0.281791	0.281721	0.281541	1.17	2.03	2.38746627
TP19-53-132	TP1953a - 7	0.280903	0.000054	0.000385	2640.0	83.9	0.281089	0.281312	0.281250	0.280884	-7.32	1.89	3.41048194
TP19-53-91	TP1953a - 8	0.281568	0.000046	0.000924	1928.1	77.2	0.281555	0.281844	0.281774	0.281534	-0.73	1.61	2.44407067
TP19-53-87	TP1953a - 9	0.281624	0.000033	0.00115	1890.6	58.4	0.281579	0.281872	0.281801	0.281583	0.13	5	2.36175874
TP19-53-85	TP1953a - 10	0.281528	0.000071	0.001003	1876.5	66.6	0.281588	0.281882	0.281812	0.281492	-3.41	5	2.56360259
TP19-53-141	TP1953a - 11	0.28138	0.000045	0.001214	2420.7	74.7	0.281233	0.281477	0.281412	0.281324	3.22	5	2.60874232
TP19-53-57	TP1953a - 12	0.281634	0.000038	0.000468	1725.6	73.0	0.281686	0.281994	0.281922	0.281619	-2.39	1.33	2.38054762
TP19-53-56	TP1953a - 13	0.281562	0.000051	0.001465	1834.4	60.5	0.281616	0.281914	0.281842	0.281511	-3.71	5	2.54802366

TP19-53-55	TP1953a - 14	0.281574	0.000048	0.00148	1825.4	52.1	0.281621	0.281920	0.281849	0.281523	-3.50	1.68	2.68	2.528144308
TP19-53-162	TP1953a - 15	0.281637	0.00005	0.00143	1884.8	59.4	0.281583	0.281876	0.281806	0.281586	0.10	1.75	2.51	2.35842647
TP19-53-163	TP1953a - 16	0.281611	0.000043	0.0005027	1733.3	69.1	0.281681	0.281988	0.281916	0.281594	-3.08	1.50	5	2.428088207
TP19-53-39	TP1953a - 17	0.281637	0.000039	0.000688	1751.7	71.6	0.281669	0.281975	0.281903	0.281614	-1.95	1.36	2.53	2.375082917

Appendix D: Supplementary Tables: Rutile Data from the Renner Group

Sample	206Pb/238U	206Pb/238U	207Pb/235U(calc)	207Pb/235U(calc)	206Pb/238U Age (Ma)	206Pb/238U Age (Ma)	207Pb/206Pb Age (Ma)	207Pb/206Pb Age (Ma)	207Pb/235U(calc) Age (Ma)	207Pb/235U(calc) Age (Ma)	Concordance (206/238 and 207/206)
TP19-45_ - 1	0.490889657	0.012599921	24.19148089	1.142339925	2575	66	3768	120	3276	155	68
TP19-45_ - 2	0.687820448	0.011505222	49.35789616	1.518913617	3374	56	4324	28	3979	122	78
TP19-45_ - 3	0.612298238	0.040172563	36.49472539	2.183149266	3079	202	4052	212	3680	220	76
TP19-45_ - 4	0.483160115	0.013595745	15.00052315	0.826739896	2541	72	3040	103	2815	155	84
TP19-45_ - 5	10.97335166	0.668161405	1253.144573	78.95037792	16004	974	4996	198	7244	456	320
TP19-46_ - 1	17.88238623	1.920871056	2338.68081	254.1109715	18941	2035	5188	390	7877	856	365
TP19-46_ - 10	0.549313039	0.018354997	32.25774736	2.009664607	2822	94	4027	126	3558	222	70
TP19-46_ - 11	0.33377256	0.010407981	13.66515705	0.599740445	1857	58	3474	41	2727	120	53
TP19-46_ - 12	0.335395526	0.009090042	7.000107418	0.323765562	1864	51	2379	88	2111	98	78
TP19-46_ - 13	1.317132997	0.145073946	134.1615707	31.99223358	5417	597	4837	1304	4982	1188	112
TP19-46_ - 14	10.78064751	1.718389176	1247.375385	200.9066641	15900	2534	5012	152	7239	1166	317
TP19-46_ - 15	0.367472277	0.007059984	10.92869862	0.470771787	2017	39	2966	85	2517	108	68
TP19-46_ - 16	0.451835799	0.011466882	13.79992384	0.640144656	2403	61	3004	98	2736	127	80
TP19-46_ - 2	0.435270024	0.022129364	10.10916394	0.420494567	2329	118	2564	111	2445	102	91

TP19-46_ - 3	0.5765146	0.014897959	34.52116791	1.352337369	2935	76	4054	82	3625	142	72
TP19-46_ - 4	0.415877575	0.008280029	14.91567269	0.621348737	2242	45	3269	84	2810	117	69
TP19-46_ - 5	0.663668409	0.012784393	49.78723355	1.674912974	3281	63	4386	50	3988	134	75
TP19-46_ - 6	0.457999474	0.009251987	19.96728753	0.777847499	2431	49	3573	79	3090	120	68
TP19-46_ - 7	0.356942667	0.006538145	5.733453439	0.206788356	1968	36	1930	39	1936	70	102
TP19-46_ - 8	3.444530371	0.18089249	409.8804378	23.8214499	9616	505	5047	150	6111	355	191
TP19-46_ - 9	0.309088488	0.005692198	4.448364802	0.163235226	1736	32	1732	39	1721	63	100
TP19-47_ - 1	0.490149841	0.01167148	25.51870084	1.535683418	2571	61	3837	166	3328	200	67
TP19-47_ - 10	3.932427401	0.125860436	451.2723245	18.0526553	10287	329	4982	69	6208	248	206
TP19-47_ - 11	0.414109398	0.029691916	12.87607635	1.057580277	2234	160	3023	271	2671	219	74
TP19-47_ - 12	0.521633035	0.019120257	32.33926706	1.829333228	2706	99	4091	127	3561	201	66
TP19-47_ - 13	2.370872369	0.169017684	276.9611013	23.56725913	7833	558	5006	60	5714	486	156
TP19-47_ - 14	0.31863389	0.005178011	5.369464184	0.176542954	1783	29	1997	28	1880	62	89
TP19-47_ - 15	0.290833973	0.007456883	4.360225113	0.217709195	1646	42	1783	72	1705	85	92
TP19-47_ - 16	0.463014704	0.008921991	24.00848939	0.837829892	2453	47	3820	43	3269	114	64
TP19-47_ - 2	0.454717326	0.010781524	21.57511937	0.924149772	2416	57	3697	68	3165	136	65
TP19-47_ - 3	0.299169505	0.00658729	5.24997808	0.230130008	1687	37	2085	54	1861	82	81
TP19-47_ - 4	0.30599234	0.006424057	6.438428924	0.263186306	1721	36	2388	65	2038	83	72
TP19-47_ - 5	0.577771095	0.05259568	36.71775266	5.356232661	2940	268	4135	381	3686	538	71
TP19-47_ - 6	0.34007972	0.006670054	6.515316746	0.234630361	1887	37	2224	44	2048	74	85
TP19-47_ - 7	0.377109624	0.010194677	15.69116917	0.973472786	2063	56	3488	129	2858	177	59
TP19-47_ - 8	0.331257908	0.007961156	5.203963061	0.272280233	1844	44	1873	82	1853	97	98
TP19-47_ - 9	0.96384337	0.034876672	80.2141655	3.93734712	4351	157	4529	166	4465	219	96
TP19-49_ - 1	0.346179992	0.006358967	5.599196298	0.197578156	1916	35	1918	39	1916	68	100
TP19-49_ - 10	0.343086567	0.01247126	5.585637099	0.413693369	1901	69	1926	129	1914	142	99
TP19-49_ - 11	0.333091168	0.005781265	5.196153013	0.173780181	1853	32	1850	30	1852	62	100

TP19-49_ - 12	0.229559709	0.006863925	5.50166823	0.216724255	1836	38	1975	85	1901	109	93
TP19-49_ - 13	0.321895331	0.006736762	4.913667867	0.185027406	1799	38	1811	45	1805	68	99
TP19-49_ - 14	0.337890042	0.007778861	5.736723388	0.255191581	1877	43	2004	63	1937	86	94
TP19-49_ - 15	0.322883166	0.005923846	5.033738372	0.172962627	1804	33	1849	34	1825	63	98
TP19-49_ - 16	0.336871586	0.005751182	5.552887322	0.176850587	1872	32	1952	21	1909	61	96
TP19-49_ - 17	0.325300478	0.005704406	5.089401699	0.165339962	1816	32	1858	26	1834	60	98
TP19-49_ - 2	0.349074261	0.005867566	5.71178256	0.180055747	1930	32	1939	19	1933	61	100
TP19-49_ - 3	0.717486682	0.046903753	50.71397026	4.035321981	3487	228	4280	325	4006	319	81
TP19-49_ - 4	0.445903101	0.027501126	13.54750058	1.305653944	2377	147	2987	278	2719	262	80
TP19-49_ - 5	0.33679897	0.005630686	5.222683473	0.16151552	1871	31	1841	16	1856	57	102
TP19-49_ - 6	0.338919529	0.006085706	5.466709014	0.189309133	1881	34	1912	36	1895	66	98
TP19-49_ - 7	0.349082229	0.010717773	6.100493843	0.344967777	1930	59	2057	106	1999	113	94
TP19-49_ - 8	0.329000694	0.005461626	5.176540293	0.162708119	1834	30	1866	20	1849	58	98
TP19-49_ - 9	0.34070831	0.005835407	5.456154432	0.178961633	1890	32	1899	28	1894	62	100
TP19-52_ - 1	0.311833744	0.011790123	5.203866671	0.354321924	1750	66	1974	134	1853	126	89
TP19-52_ - 2	0.298162344	0.006487254	4.336282231	0.172203102	1682	37	1725	49	1700	68	98
TP19-52_ - 3	3.43302922	0.108824771	397.191344	16.20402007	9599	304	4992	32	6079	248	192
TP19-52_ - 4	2.492616355	0.126839958	284.7230557	16.80208945	8062	410	4971	34	5742	339	162
TP19-52_ - 5	0.269631622	0.005249196	3.873360807	0.135788244	1539	30	1704	32	1608	56	90
TP19-54_ - 1	0.332281348	0.00681953	5.535518437	0.217000201	1849	38	1971	55	1906	75	94
TP19-54_ - 2	0.383255558	0.007289362	9.805690848	0.336338642	2091	40	2711	45	2417	83	77
TP19-54_ - 3	0.520805236	0.019092065	23.71915753	0.939171427	2703	99	3628	86	3257	129	75
TP19-54_ - 4	1.460875865	0.026789159	128.6071754	4.072738246	5805	106	4610	41	4939	156	126
TP19-54_ - 5	2.175664732	0.046008017	227.2280736	7.52666211	7449	158	4855	41	5514	183	153

Appendix E: GRS data and its associated errors from the Newcastle Waters region.

measured K2O	K2O cross interference	U cross interference	Th cross interference	error on K	lower bound on K	upper bound on K
5.9	0.328	0.048	0.127	0.36	5.54	6.26
0	0.050	0.042	0.037	0.08	-0.08	0.08
0	0.050	0.043	0.031	0.07	-0.07	0.07
0	0.050	0.042	0.028	0.07	-0.07	0.07
0	0.050	0.039	0.029	0.07	-0.07	0.07
0	0.050	0.044	0.035	0.07	-0.07	0.07
0	0.050	0.038	0.033	0.07	-0.07	0.07
0	0.050	0.039	0.034	0.07	-0.07	0.07
0.1	0.056	0.039	0.046	0.08	0.02	0.18
0	0.050	0.037	0.032	0.07	-0.07	0.07
0.1	0.056	0.044	0.056	0.09	0.01	0.19
0	0.050	0.035	0.033	0.07	-0.07	0.07
0	0.050	0.037	0.030	0.07	-0.07	0.07
0	0.050	0.037	0.035	0.07	-0.07	0.07
0	0.050	0.037	0.036	0.07	-0.07	0.07
0.1	0.056	0.039	0.035	0.08	0.02	0.18
0	0.050	0.040	0.049	0.08	-0.08	0.08
0.1	0.056	0.038	0.038	0.08	0.02	0.18
0	0.050	0.037	0.041	0.07	-0.07	0.07
0.1	0.056	0.035	0.038	0.08	0.02	0.18
0	0.050	0.037	0.035	0.07	-0.07	0.07
0	0.050	0.037	0.034	0.07	-0.07	0.07
0.1	0.056	0.037	0.034	0.08	0.02	0.18
0.1	0.056	0.037	0.032	0.07	0.03	0.17
0.1	0.056	0.039	0.036	0.08	0.02	0.18
0.1	0.056	0.039	0.039	0.08	0.02	0.18
0	0.050	0.039	0.035	0.07	-0.07	0.07
0	0.050	0.041	0.031	0.07	-0.07	0.07
0.1	0.056	0.044	0.045	0.08	0.02	0.18
0.1	0.056	0.039	0.039	0.08	0.02	0.18
0	0.050	0.041	0.033	0.07	-0.07	0.07
0	0.050	0.041	0.039	0.08	-0.08	0.08
0.1	0.056	0.040	0.035	0.08	0.02	0.18
0.1	0.056	0.039	0.036	0.08	0.02	0.18
0.1	0.056	0.037	0.036	0.08	0.02	0.18

0.2	0.062	0.037	0.045	0.08	0.12	0.28
0.1	0.056	0.040	0.050	0.09	0.01	0.19
0.1	0.056	0.033	0.034	0.07	0.03	0.17
0.2	0.062	0.036	0.038	0.08	0.12	0.28
0	0.050	0.034	0.040	0.07	-0.07	0.07
0.1	0.056	0.037	0.035	0.08	0.02	0.18
0.1	0.056	0.041	0.055	0.09	0.01	0.19
0	0.050	0.039	0.033	0.07	-0.07	0.07
0.1	0.056	0.036	0.042	0.08	0.02	0.18
0.1	0.056	0.040	0.038	0.08	0.02	0.18
0.1	0.056	0.038	0.039	0.08	0.02	0.18
0	0.050	0.039	0.046	0.08	-0.08	0.08
0	0.050	0.039	0.041	0.08	-0.08	0.08
0.1	0.056	0.043	0.034	0.08	0.02	0.18
0.1	0.056	0.037	0.041	0.08	0.02	0.18
0.1	0.056	0.041	0.057	0.09	0.01	0.19
0	0.050	0.045	0.041	0.08	-0.08	0.08
0	0.050	0.045	0.040	0.08	-0.08	0.08
0.1	0.056	0.045	0.034	0.08	0.02	0.18
0	0.050	0.044	0.038	0.08	-0.08	0.08
0	0.050	0.047	0.036	0.08	-0.08	0.08
0	0.050	0.041	0.041	0.08	-0.08	0.08
0	0.050	0.041	0.039	0.08	-0.08	0.08
0.1	0.056	0.039	0.029	0.07	0.03	0.17
0.1	0.056	0.043	0.051	0.09	0.01	0.19
0	0.050	0.041	0.039	0.07	-0.07	0.07
0	0.050	0.040	0.043	0.08	-0.08	0.08
0	0.050	0.039	0.038	0.07	-0.07	0.07
0.1	0.056	0.038	0.038	0.08	0.02	0.18
0	0.050	0.040	0.038	0.07	-0.07	0.07
0.2	0.062	0.044	0.061	0.10	0.10	0.30
0.1	0.056	0.038	0.043	0.08	0.02	0.18
0	0.050	0.037	0.038	0.07	-0.07	0.07
0	0.050	0.035	0.043	0.07	-0.07	0.07
0	0.050	0.037	0.041	0.07	-0.07	0.07
0	0.050	0.036	0.037	0.07	-0.07	0.07
0	0.050	0.040	0.045	0.08	-0.08	0.08
0.1	0.056	0.037	0.042	0.08	0.02	0.18
0	0.050	0.037	0.037	0.07	-0.07	0.07
0	0.050	0.034	0.042	0.07	-0.07	0.07
0	0.050	0.038	0.034	0.07	-0.07	0.07

0	0.050	0.040	0.036	0.07	-0.07	0.07
0	0.050	0.044	0.038	0.08	-0.08	0.08
0	0.050	0.043	0.043	0.08	-0.08	0.08
0.1	0.056	0.044	0.033	0.08	0.02	0.18
0.1	0.056	0.043	0.037	0.08	0.02	0.18
0	0.050	0.044	0.036	0.08	-0.08	0.08
0	0.050	0.042	0.035	0.07	-0.07	0.07
0	0.050	0.040	0.038	0.07	-0.07	0.07
0.1	0.056	0.038	0.035	0.08	0.02	0.18
0	0.050	0.038	0.039	0.07	-0.07	0.07
0	0.050	0.039	0.039	0.07	-0.07	0.07
0.1	0.056	0.037	0.033	0.07	0.03	0.17
0	0.050	0.043	0.041	0.08	-0.08	0.08
0	0.050	0.037	0.030	0.07	-0.07	0.07
0	0.050	0.036	0.033	0.07	-0.07	0.07
0	0.050	0.041	0.036	0.07	-0.07	0.07
0	0.050	0.033	0.033	0.07	-0.07	0.07
0.1	0.056	0.037	0.051	0.08	0.02	0.18
0.1	0.056	0.042	0.038	0.08	0.02	0.18
0	0.050	0.045	0.048	0.08	-0.08	0.08
0.1	0.056	0.043	0.037	0.08	0.02	0.18
0.1	0.056	0.046	0.052	0.09	0.01	0.19
0.3	0.068	0.049	0.058	0.10	0.20	0.40
0.1	0.056	0.044	0.037	0.08	0.02	0.18
0	0.050	0.048	0.033	0.08	-0.08	0.08
0.1	0.056	0.048	0.043	0.09	0.01	0.19
0.1	0.056	0.046	0.042	0.08	0.02	0.18
0.2	0.062	0.043	0.062	0.10	0.10	0.30
0.1	0.056	0.041	0.045	0.08	0.02	0.18
0.2	0.062	0.045	0.062	0.10	0.10	0.30
0.1	0.056	0.040	0.042	0.08	0.02	0.18
0.2	0.062	0.040	0.059	0.09	0.11	0.29
0.2	0.062	0.040	0.064	0.10	0.10	0.30
0.2	0.062	0.042	0.067	0.10	0.10	0.30
0	0.050	0.042	0.055	0.09	-0.09	0.09
0.1	0.056	0.034	0.042	0.08	0.02	0.18
0.1	0.056	0.038	0.056	0.09	0.01	0.19
0.2	0.062	0.035	0.069	0.10	0.10	0.30
0.1	0.056	0.035	0.046	0.08	0.02	0.18
0.1	0.056	0.035	0.044	0.08	0.02	0.18
0	0.050	0.035	0.043	0.07	-0.07	0.07

0	0.050	0.033	0.034	0.07	-0.07	0.07
0	0.050	0.031	0.030	0.07	-0.07	0.07
0	0.050	0.033	0.035	0.07	-0.07	0.07
0.1	0.056	0.039	0.050	0.08	0.02	0.18
0	0.050	0.042	0.042	0.08	-0.08	0.08
0.1	0.056	0.036	0.056	0.09	0.01	0.19
0.1	0.056	0.034	0.036	0.08	0.02	0.18
0.1	0.056	0.037	0.028	0.07	0.03	0.17
0	0.050	0.033	0.033	0.07	-0.07	0.07
0.1	0.056	0.035	0.038	0.08	0.02	0.18
0	0.050	0.035	0.031	0.07	-0.07	0.07
0	0.050	0.032	0.031	0.07	-0.07	0.07
0	0.050	0.033	0.034	0.07	-0.07	0.07
measured U	K2O cross interference	U cross interference	Th cross interference	error on U	lower bound on U	upper bound on U
5.4	0.327903	0.625692	1.247032	1.43	3.97	6.83
3.2	0.0496	0.510148	0.390988	0.64	2.56	3.84
3.4	0.0496	0.520772	0.333392	0.62	2.78	4.02
3	0.0496	0.4995	0.300128	0.58	2.42	3.58
2.2	0.0496	0.456668	0.312632	0.56	1.64	2.76
3.7	0.0496	0.536663	0.3664	0.65	3.05	4.35
2	0.0496	0.4459	0.3458	0.57	1.43	2.57
2.2	0.0496	0.456668	0.362288	0.59	1.61	2.79
2.4	0.055883	0.467412	0.475912	0.67	1.73	3.07
1.7	0.0496	0.429703	0.337532	0.55	1.15	2.25
3.6	0.055883	0.531372	0.5669	0.78	2.82	4.38
1.3	0.0496	0.408023	0.354052	0.54	0.76	1.84
1.9	0.0496	0.440507	0.3251	0.55	1.35	2.45
1.7	0.0496	0.429703	0.370508	0.57	1.13	2.27
1.7	0.0496	0.429703	0.374612	0.57	1.13	2.27
2.2	0.055883	0.456668	0.370508	0.59	1.61	2.79
2.6	0.0496	0.478132	0.499852	0.69	1.91	3.29
2	0.055883	0.4459	0.395072	0.60	1.40	2.60
1.9	0.0496	0.440507	0.4276	0.62	1.28	2.52
1.4	0.055883	0.413452	0.395072	0.57	0.83	1.97
1.9	0.0496	0.440507	0.370508	0.58	1.32	2.48
1.8	0.0496	0.435108	0.362288	0.57	1.23	2.37
1.9	0.055883	0.440507	0.358172	0.57	1.33	2.47
1.9	0.055883	0.440507	0.337532	0.56	1.34	2.46
2.2	0.055883	0.456668	0.378712	0.60	1.60	2.80
2.3	0.055883	0.462043	0.403228	0.62	1.68	2.92

2.4	0.0496	0.467412	0.370508	0.60	1.80	3.00
2.8	0.0496	0.488828	0.333392	0.59	2.21	3.39
3.6	0.055883	0.531372	0.463888	0.71	2.89	4.31
2.4	0.055883	0.467412	0.411368	0.63	1.77	3.03
2.9	0.0496	0.494167	0.3458	0.61	2.29	3.51
2.8	0.0496	0.488828	0.4073	0.64	2.16	3.44
2.6	0.055883	0.478132	0.370508	0.61	1.99	3.21
2.4	0.055883	0.467412	0.374612	0.60	1.80	3.00
1.8	0.055883	0.435108	0.382808	0.58	1.22	2.38
1.7	0.062112	0.429703	0.463888	0.64	1.06	2.34
2.5	0.055883	0.472775	0.515732	0.70	1.80	3.20
1	0.055883	0.3917	0.358172	0.53	0.47	1.53
1.5	0.062112	0.418875	0.399152	0.58	0.92	2.08
1.2	0.0496	0.402588	0.415432	0.58	0.62	1.78
1.8	0.055883	0.435108	0.370508	0.57	1.23	2.37
2.7	0.055883	0.483483	0.562988	0.74	1.96	3.44
2.4	0.0496	0.467412	0.3458	0.58	1.82	2.98
1.5	0.055883	0.418875	0.439732	0.61	0.89	2.11
2.6	0.055883	0.478132	0.399152	0.63	1.97	3.23
2.1	0.055883	0.451287	0.4073	0.61	1.49	2.71
2.4	0.0496	0.467412	0.475912	0.67	1.73	3.07
2.2	0.0496	0.456668	0.4276	0.63	1.57	2.83
3.3	0.055883	0.515463	0.362288	0.63	2.67	3.93
1.7	0.055883	0.429703	0.4276	0.61	1.09	2.31
2.8	0.055883	0.488828	0.578612	0.76	2.04	3.56
4.1	0.0496	0.557767	0.423548	0.70	3.40	4.80
4	0.0496	0.5525	0.415432	0.69	3.31	4.69
4	0.055883	0.5525	0.362288	0.66	3.34	4.66
3.7	0.0496	0.536663	0.395072	0.67	3.03	4.37
4.8	0.0496	0.594468	0.374612	0.70	4.10	5.50
2.8	0.0496	0.488828	0.4276	0.65	2.15	3.45
2.9	0.0496	0.494167	0.411368	0.64	2.26	3.54
2.2	0.055883	0.456668	0.308468	0.55	1.65	2.75
3.5	0.055883	0.526075	0.519692	0.74	2.76	4.24
2.8	0.0496	0.488828	0.403228	0.64	2.16	3.44
2.5	0.0496	0.472775	0.443768	0.65	1.85	3.15
2.2	0.0496	0.456668	0.399152	0.61	1.59	2.81
2.1	0.055883	0.451287	0.399152	0.61	1.49	2.71
2.6	0.0496	0.478132	0.395072	0.62	1.98	3.22
3.6	0.062112	0.531372	0.621248	0.82	2.78	4.42
2.1	0.055883	0.451287	0.4478	0.64	1.46	2.74

1.7	0.0496	0.429703	0.399152	0.59	1.11	2.29
1.4	0.0496	0.413452	0.4478	0.61	0.79	2.01
1.9	0.0496	0.440507	0.4276	0.62	1.28	2.52
1.5	0.0496	0.418875	0.390988	0.58	0.92	2.08
2.6	0.0496	0.478132	0.4679	0.67	1.93	3.27
1.9	0.055883	0.440507	0.431648	0.62	1.28	2.52
1.7	0.0496	0.429703	0.3869	0.58	1.12	2.28
1.1	0.0496	0.397147	0.431648	0.59	0.51	1.69
2	0.0496	0.4459	0.362288	0.58	1.42	2.58
2.5	0.0496	0.472775	0.374612	0.61	1.89	3.11
3.7	0.0496	0.536663	0.395072	0.67	3.03	4.37
3.3	0.0496	0.515463	0.443768	0.68	2.62	3.98
3.7	0.055883	0.536663	0.349928	0.64	3.06	4.34
3.3	0.055883	0.515463	0.3869	0.65	2.65	3.95
3.8	0.0496	0.541948	0.378712	0.66	3.14	4.46
3	0.0496	0.4995	0.370508	0.62	2.38	3.62
2.6	0.0496	0.478132	0.395072	0.62	1.98	3.22
2.1	0.055883	0.451287	0.370508	0.59	1.51	2.69
2	0.0496	0.4459	0.403228	0.60	1.40	2.60
2.2	0.0496	0.456668	0.411368	0.62	1.58	2.82
1.8	0.055883	0.435108	0.3458	0.56	1.24	2.36
3.5	0.0496	0.526075	0.423548	0.68	2.82	4.18
1.8	0.0496	0.435108	0.3251	0.55	1.25	2.35
1.6	0.0496	0.424292	0.349928	0.55	1.05	2.15
2.7	0.0496	0.483483	0.382808	0.62	2.08	3.32
1	0.0496	0.3917	0.354052	0.53	0.47	1.53
1.7	0.055883	0.429703	0.523648	0.68	1.02	2.38
3	0.055883	0.4995	0.395072	0.64	2.36	3.64
4.2	0.0496	0.563028	0.495872	0.75	3.45	4.95
3.4	0.055883	0.520772	0.3869	0.65	2.75	4.05
4.5	0.055883	0.578775	0.5276	0.79	3.71	5.29
5.6	0.068287	0.636052	0.590288	0.87	4.73	6.47
3.6	0.055883	0.531372	0.390988	0.66	2.94	4.26
5.3	0.0496	0.620503	0.3458	0.71	4.59	6.01
5.3	0.055883	0.620503	0.443768	0.76	4.54	6.06
4.6	0.055883	0.584012	0.431648	0.73	3.87	5.33
3.4	0.062112	0.520772	0.6251	0.82	2.58	4.22
2.8	0.055883	0.488828	0.4679	0.68	2.12	3.48
4.2	0.062112	0.563028	0.628948	0.85	3.35	5.05
2.6	0.055883	0.478132	0.435692	0.65	1.95	3.25
2.5	0.062112	0.472775	0.594172	0.76	1.74	3.26

2.5	0.062112	0.472775	0.6443	0.80	1.70	3.30
3.1	0.062112	0.504827	0.674812	0.85	2.25	3.95
3.1	0.0496	0.504827	0.562988	0.76	2.34	3.86
1.1	0.055883	0.397147	0.439732	0.60	0.50	1.70
2	0.055883	0.4459	0.574712	0.73	1.27	2.73
1.4	0.062112	0.413452	0.697528	0.81	0.59	2.21
1.4	0.055883	0.413452	0.471908	0.63	0.77	2.03
1.4	0.055883	0.413452	0.455852	0.62	0.78	2.02
1.3	0.0496	0.408023	0.443768	0.60	0.70	1.90
0.9	0.0496	0.386247	0.358172	0.53	0.37	1.43
0.5	0.0496	0.364375	0.3251	0.49	0.01	0.99
1	0.0496	0.3917	0.370508	0.54	0.46	1.54
2.3	0.055883	0.462043	0.511768	0.69	1.61	2.99
3.1	0.0496	0.504827	0.431648	0.67	2.43	3.77
1.5	0.055883	0.418875	0.570808	0.71	0.79	2.21
1.2	0.055883	0.402588	0.382808	0.56	0.64	1.76
1.9	0.055883	0.440507	0.3043	0.54	1.36	2.44
1	0.0496	0.3917	0.349928	0.53	0.47	1.53
1.4	0.055883	0.413452	0.399152	0.58	0.82	1.98
1.4	0.0496	0.413452	0.329248	0.53	0.87	1.93
0.8	0.0496	0.380788	0.333392	0.51	0.29	1.31
1	0.0496	0.3917	0.362288	0.54	0.46	1.54
measured Th	K2O cross interference	U cross interference	Th cross interference	error on Th	lower bound on Th	upper bound on Th
26.8	0.046476	0.048272	2.95676	2.96	23.84	29.76
3.1	0.0073	0.042288	0.879455	0.88	2.22	3.98
1.7	0.0073	0.042952	0.739175	0.74	0.96	2.44
0.9	0.0073	0.0416	0.658135	0.66	0.24	1.56
1.2	0.0073	0.038608	0.6886	0.69	0.51	1.89
2.5	0.0073	0.043903	0.819575	0.82	1.68	3.32
2	0.0073	0.0378	0.7694	0.77	1.23	2.77
2.4	0.0073	0.038608	0.80956	0.81	1.59	3.21
5.2	0.008196	0.039392	1.0862	1.09	4.11	6.29
1.8	0.0073	0.036543	0.74926	0.75	1.05	2.55
7.5	0.008196	0.043592	1.307575	1.31	6.19	8.81
2.2	0.0073	0.034783	0.7895	0.79	1.41	2.99
1.5	0.0073	0.037387	0.718975	0.72	0.78	2.22
2.6	0.0073	0.036543	0.82958	0.83	1.77	3.43
2.7	0.0073	0.036543	0.839575	0.84	1.86	3.54
2.6	0.008196	0.038608	0.82958	0.83	1.77	3.43
5.8	0.0073	0.040152	1.14446	1.15	4.65	6.95

3.2	0.008196	0.0378	0.8894	0.89	2.31	4.09
4	0.0073	0.037387	0.9686	0.97	3.03	4.97
3.2	0.008196	0.035232	0.8894	0.89	2.31	4.09
2.6	0.0073	0.037387	0.82958	0.83	1.77	3.43
2.4	0.0073	0.036968	0.80956	0.81	1.59	3.21
2.3	0.008196	0.037387	0.799535	0.80	1.50	3.10
1.8	0.008196	0.037387	0.74926	0.75	1.05	2.55
2.8	0.008196	0.038608	0.84956	0.85	1.95	3.65
3.4	0.008196	0.039003	0.90926	0.91	2.49	4.31
2.6	0.0073	0.039392	0.82958	0.83	1.77	3.43
1.7	0.0073	0.040888	0.739175	0.74	0.96	2.44
4.9	0.008196	0.043592	1.056935	1.06	3.84	5.96
3.6	0.008196	0.039392	0.92908	0.93	2.67	4.53
2	0.0073	0.041247	0.7694	0.77	1.23	2.77
3.5	0.0073	0.040888	0.919175	0.92	2.58	4.42
2.6	0.008196	0.040152	0.82958	0.83	1.77	3.43
2.7	0.008196	0.039392	0.839575	0.84	1.86	3.54
2.9	0.008196	0.036968	0.859535	0.86	2.04	3.76
4.9	0.009084	0.036543	1.056935	1.06	3.84	5.96
6.2	0.008196	0.039775	1.1831	1.18	5.02	7.38
2.3	0.008196	0.0334	0.799535	0.80	1.50	3.10
3.3	0.009084	0.035675	0.899335	0.90	2.40	4.20
3.7	0.0073	0.034328	0.938975	0.94	2.76	4.64
2.6	0.008196	0.036968	0.82958	0.83	1.77	3.43
7.4	0.008196	0.040523	1.29806	1.30	6.10	8.70
2	0.0073	0.039392	0.7694	0.77	1.23	2.77
4.3	0.008196	0.035675	0.998135	1.00	3.30	5.30
3.3	0.008196	0.040152	0.899335	0.90	2.40	4.20
3.5	0.008196	0.038207	0.919175	0.92	2.58	4.42
5.2	0.0073	0.039392	1.0862	1.09	4.11	6.29
4	0.0073	0.038608	0.9686	0.97	3.03	4.97
2.4	0.008196	0.042623	0.80956	0.81	1.59	3.21
4	0.008196	0.036543	0.9686	0.97	3.03	4.97
7.8	0.008196	0.040888	1.33606	1.34	6.46	9.14
3.9	0.0073	0.045087	0.958735	0.96	2.94	4.86
3.7	0.0073	0.0448	0.938975	0.94	2.76	4.64
2.4	0.008196	0.0448	0.80956	0.81	1.59	3.21
3.2	0.0073	0.043903	0.8894	0.89	2.31	4.09
2.7	0.0073	0.046928	0.839575	0.84	1.86	3.54
4	0.0073	0.040888	0.9686	0.97	3.03	4.97
3.6	0.0073	0.041247	0.92908	0.93	2.67	4.53

1.1	0.008196	0.038608	0.678455	0.68	0.42	1.78
6.3	0.008196	0.043275	1.192735	1.19	5.11	7.49
3.4	0.0073	0.040888	0.90926	0.91	2.49	4.31
4.4	0.0073	0.039775	1.00796	1.01	3.39	5.41
3.3	0.0073	0.038608	0.899335	0.90	2.40	4.20
3.3	0.008196	0.038207	0.899335	0.90	2.40	4.20
3.2	0.0073	0.040152	0.8894	0.89	2.31	4.09
8.9	0.009084	0.043592	1.439735	1.44	7.46	10.34
4.5	0.008196	0.038207	1.017775	1.02	3.48	5.52
3.3	0.0073	0.036543	0.899335	0.90	2.40	4.20
4.5	0.0073	0.035232	1.017775	1.02	3.48	5.52
4	0.0073	0.037387	0.9686	0.97	3.03	4.97
3.1	0.0073	0.035675	0.879455	0.88	2.22	3.98
5	0.0073	0.040152	1.0667	1.07	3.93	6.07
4.1	0.008196	0.037387	0.978455	0.98	3.12	5.08
3	0.0073	0.036543	0.8695	0.87	2.13	3.87
4.1	0.0073	0.033867	0.978455	0.98	3.12	5.08
2.4	0.0073	0.0378	0.80956	0.81	1.59	3.21
2.7	0.0073	0.039775	0.839575	0.84	1.86	3.54
3.2	0.0073	0.043903	0.8894	0.89	2.31	4.09
4.4	0.0073	0.042623	1.00796	1.01	3.39	5.41
2.1	0.008196	0.043903	0.779455	0.78	1.32	2.88
3	0.008196	0.042623	0.8695	0.87	2.13	3.87
2.8	0.0073	0.044208	0.84956	0.85	1.95	3.65
2.6	0.0073	0.0416	0.82958	0.83	1.77	3.43
3.2	0.0073	0.040152	0.8894	0.89	2.31	4.09
2.6	0.008196	0.038207	0.82958	0.83	1.77	3.43
3.4	0.0073	0.0378	0.90926	0.91	2.49	4.31
3.6	0.0073	0.038608	0.92908	0.93	2.67	4.53
2	0.008196	0.036968	0.7694	0.77	1.23	2.77
3.9	0.0073	0.043275	0.958735	0.96	2.94	4.86
1.5	0.0073	0.036968	0.718975	0.72	0.78	2.22
2.1	0.0073	0.036112	0.779455	0.78	1.32	2.88
2.9	0.0073	0.040523	0.859535	0.86	2.04	3.76
2.2	0.0073	0.0334	0.7895	0.79	1.41	2.99
6.4	0.008196	0.036543	1.20236	1.20	5.20	7.60
3.2	0.008196	0.0416	0.8894	0.89	2.31	4.09
5.7	0.0073	0.045368	1.134775	1.14	4.56	6.84
3	0.008196	0.042952	0.8695	0.87	2.13	3.87
6.5	0.008196	0.046175	1.211975	1.21	5.29	7.71
8.1	0.009964	0.048672	1.364455	1.37	6.73	9.47

3.1	0.008196	0.043592	0.879455	0.88	2.22	3.98
2	0.0073	0.048063	0.7694	0.77	1.23	2.77
4.4	0.008196	0.048063	1.00796	1.01	3.39	5.41
4.1	0.008196	0.046432	0.978455	0.98	3.12	5.08
9	0.009084	0.042952	1.4491	1.45	7.55	10.45
5	0.008196	0.040888	1.0667	1.07	3.93	6.07
9.1	0.009084	0.045368	1.458455	1.46	7.64	10.56
4.2	0.008196	0.040152	0.9883	0.99	3.21	5.19
8.2	0.009084	0.039775	1.3739	1.37	6.83	9.57
9.5	0.009084	0.039775	1.495775	1.50	8.00	11.00
10.3	0.009084	0.041947	1.569935	1.57	8.73	11.87
7.4	0.0073	0.041947	1.29806	1.30	6.10	8.70
4.3	0.008196	0.033867	0.998135	1.00	3.30	5.30
7.7	0.008196	0.0378	1.326575	1.33	6.37	9.03
10.9	0.009084	0.035232	1.625135	1.63	9.27	12.53
5.1	0.008196	0.035232	1.076455	1.08	4.02	6.18
4.7	0.008196	0.035232	1.037375	1.04	3.66	5.74
4.4	0.0073	0.034783	1.00796	1.01	3.39	5.41
2.3	0.0073	0.032927	0.799535	0.80	1.50	3.10
1.5	0.0073	0.030975	0.718975	0.72	0.78	2.22
2.6	0.0073	0.0334	0.82958	0.83	1.77	3.43
6.1	0.008196	0.039003	1.173455	1.17	4.93	7.27
4.1	0.0073	0.041947	0.978455	0.98	3.12	5.08
7.6	0.008196	0.035675	1.31708	1.32	6.28	8.92
2.9	0.008196	0.034328	0.859535	0.86	2.04	3.76
1	0.008196	0.037387	0.6683	0.67	0.33	1.67
2.1	0.0073	0.0334	0.779455	0.78	1.32	2.88
3.3	0.008196	0.035232	0.899335	0.90	2.40	4.20
1.6	0.0073	0.035232	0.72908	0.73	0.87	2.33
1.7	0.0073	0.032448	0.739175	0.74	0.96	2.44
2.4	0.0073	0.0334	0.80956	0.81	1.59	3.21

K2O (wt%)	+/-	U (ppm)	+/-	Th (ppm)	+/-
5.9	0.36	5.4	1.43	26.8	2.96
0	0.08	3.2	0.64	3.1	0.88
0	0.07	3.4	0.62	1.7	0.74
0	0.07	3	0.58	0.9	0.66
0	0.07	2.2	0.56	1.2	0.69
0	0.07	3.7	0.65	2.5	0.82
0	0.07	2	0.57	2	0.77
0	0.07	2.2	0.59	2.4	0.81

0.1	0.08	2.4	0.67	5.2	1.09
0	0.07	1.7	0.55	1.8	0.75
0.1	0.09	3.6	0.78	7.5	1.31
0	0.07	1.3	0.54	2.2	0.79
0	0.07	1.9	0.55	1.5	0.72
0	0.07	1.7	0.57	2.6	0.83
0	0.07	1.7	0.57	2.7	0.84
0.1	0.08	2.2	0.59	2.6	0.83
0	0.08	2.6	0.69	5.8	1.15
0.1	0.08	2	0.60	3.2	0.89
0	0.07	1.9	0.62	4	0.97
0.1	0.08	1.4	0.57	3.2	0.89
0	0.07	1.9	0.58	2.6	0.83
0	0.07	1.8	0.57	2.4	0.81
0.1	0.08	1.9	0.57	2.3	0.80
0.1	0.07	1.9	0.56	1.8	0.75
0.1	0.08	2.2	0.60	2.8	0.85
0.1	0.08	2.3	0.62	3.4	0.91
0	0.07	2.4	0.60	2.6	0.83
0	0.07	2.8	0.59	1.7	0.74
0.1	0.08	3.6	0.71	4.9	1.06
0.1	0.08	2.4	0.63	3.6	0.93
0	0.07	2.9	0.61	2	0.77
0	0.08	2.8	0.64	3.5	0.92
0.1	0.08	2.6	0.61	2.6	0.83
0.1	0.08	2.4	0.60	2.7	0.84
0.1	0.08	1.8	0.58	2.9	0.86
0.2	0.08	1.7	0.64	4.9	1.06
0.1	0.09	2.5	0.70	6.2	1.18
0.1	0.07	1	0.53	2.3	0.80
0.2	0.08	1.5	0.58	3.3	0.90
0	0.07	1.2	0.58	3.7	0.94
0.1	0.08	1.8	0.57	2.6	0.83
0.1	0.09	2.7	0.74	7.4	1.30
0	0.07	2.4	0.58	2	0.77
0.1	0.08	1.5	0.61	4.3	1.00
0.1	0.08	2.6	0.63	3.3	0.90
0.1	0.08	2.1	0.61	3.5	0.92
0	0.08	2.4	0.67	5.2	1.09
0	0.08	2.2	0.63	4	0.97
0.1	0.08	3.3	0.63	2.4	0.81

0.1	0.08	1.7	0.61	4	0.97
0.1	0.09	2.8	0.76	7.8	1.34
0	0.08	4.1	0.70	3.9	0.96
0	0.08	4	0.69	3.7	0.94
0.1	0.08	4	0.66	2.4	0.81
0	0.08	3.7	0.67	3.2	0.89
0	0.08	4.8	0.70	2.7	0.84
0	0.08	2.8	0.65	4	0.97
0	0.08	2.9	0.64	3.6	0.93
0.1	0.07	2.2	0.55	1.1	0.68
0.1	0.09	3.5	0.74	6.3	1.19
0	0.07	2.8	0.64	3.4	0.91
0	0.08	2.5	0.65	4.4	1.01
0	0.07	2.2	0.61	3.3	0.90
0.1	0.08	2.1	0.61	3.3	0.90
0	0.07	2.6	0.62	3.2	0.89
0.2	0.10	3.6	0.82	8.9	1.44
0.1	0.08	2.1	0.64	4.5	1.02
0	0.07	1.7	0.59	3.3	0.90
0	0.07	1.4	0.61	4.5	1.02
0	0.07	1.9	0.62	4	0.97
0	0.07	1.5	0.58	3.1	0.88
0	0.08	2.6	0.67	5	1.07
0.1	0.08	1.9	0.62	4.1	0.98
0	0.07	1.7	0.58	3	0.87
0	0.07	1.1	0.59	4.1	0.98
0	0.07	2	0.58	2.4	0.81
0	0.07	2.5	0.61	2.7	0.84
0	0.08	3.7	0.67	3.2	0.89
0	0.08	3.3	0.68	4.4	1.01
0.1	0.08	3.7	0.64	2.1	0.78
0.1	0.08	3.3	0.65	3	0.87
0	0.08	3.8	0.66	2.8	0.85
0	0.07	3	0.62	2.6	0.83
0	0.07	2.6	0.62	3.2	0.89
0.1	0.08	2.1	0.59	2.6	0.83
0	0.07	2	0.60	3.4	0.91
0	0.07	2.2	0.62	3.6	0.93
0.1	0.07	1.8	0.56	2	0.77
0	0.08	3.5	0.68	3.9	0.96
0	0.07	1.8	0.55	1.5	0.72

0	0.07	1.6	0.55	2.1	0.78
0	0.07	2.7	0.62	2.9	0.86
0	0.07	1	0.53	2.2	0.79
0.1	0.08	1.7	0.68	6.4	1.20
0.1	0.08	3	0.64	3.2	0.89
0	0.08	4.2	0.75	5.7	1.14
0.1	0.08	3.4	0.65	3	0.87
0.1	0.09	4.5	0.79	6.5	1.21
0.3	0.10	5.6	0.87	8.1	1.37
0.1	0.08	3.6	0.66	3.1	0.88
0	0.08	5.3	0.71	2	0.77
0.1	0.09	5.3	0.76	4.4	1.01
0.1	0.08	4.6	0.73	4.1	0.98
0.2	0.10	3.4	0.82	9	1.45
0.1	0.08	2.8	0.68	5	1.07
0.2	0.10	4.2	0.85	9.1	1.46
0.1	0.08	2.6	0.65	4.2	0.99
0.2	0.09	2.5	0.76	8.2	1.37
0.2	0.10	2.5	0.80	9.5	1.50
0.2	0.10	3.1	0.85	10.3	1.57
0	0.09	3.1	0.76	7.4	1.30
0.1	0.08	1.1	0.60	4.3	1.00
0.1	0.09	2	0.73	7.7	1.33
0.2	0.10	1.4	0.81	10.9	1.63
0.1	0.08	1.4	0.63	5.1	1.08
0.1	0.08	1.4	0.62	4.7	1.04
0	0.07	1.3	0.60	4.4	1.01
0	0.07	0.9	0.53	2.3	0.80
0	0.07	0.5	0.49	1.5	0.72
0	0.07	1	0.54	2.6	0.83
0.1	0.08	2.3	0.69	6.1	1.17
0	0.08	3.1	0.67	4.1	0.98
0.1	0.09	1.5	0.71	7.6	1.32
0.1	0.08	1.2	0.56	2.9	0.86
0.1	0.07	1.9	0.54	1	0.67
0	0.07	1	0.53	2.1	0.78
0.1	0.08	1.4	0.58	3.3	0.90
0	0.07	1.4	0.53	1.6	0.73
0	0.07	0.8	0.51	1.7	0.74
0	0.07	1	0.54	2.4	0.81
0	0.00	0	0.00	0	0.00

Appendix F: Extended Methods:

Mineral Separation

Crushing

Ensure the bench space, jaw crusher and disc mill are thoroughly cleaned before and after use with the compressed air gun, metal brush and ethanol.

Line the collection tray in the jaw crusher with paper to minimise contamination between samples.

Transfer sample from the collection tray to the disc mill to achieve zircon fraction.

Run sample through sieve using $<79\mu\text{m}$ and $>400\mu\text{m}$ mesh. Place the sieve into the Endcotts EPL2000 Super Shaker to allow fractions to separate.

Place each fraction into 3 separate sample bags ($>400\mu\text{m}$, $400\text{-}79\mu\text{m}$ or $<79\mu\text{m}$) labelled accordingly with their grain fraction and sample number

Mineral Separation

Separation was done in B29 Mawson Laboratories at Adelaide University

Thoroughly clean the lab before use by wiping down benches, vacuuming floors and cleaning equipment with water and a compressed air gun before use.

Pan samples to separate light and heavy grains.

The lights were placed into a funnel with filter paper and dried in the oven overnight.

Heavies extracted are then placed on the hotplate to dry at 50°C .

A Neodymium (Nd) hand magnet is then run over the top of the heavy minerals to remove magnetic minerals.

Final separation is done using heavy liquids:

Rinse all equipment with deionised water and dry with a compressed air gun.

Funnel 8ml LST into each tube.

Add sample (no more than ½ small vile) and shake gently so grains are not sticking to the side and let sit for an hour.

Freeze samples on dry ice (allowing only the heavy fraction to freeze)

Pour off the light fraction into the filter paper-lined funnels to drain into beakers.

Rinse light fraction grains through 3-5 times with deionised water.
Light fraction then placed on a hotplate at 50°C to dry.

Once the heavy fraction has thawed out, repeat the filtration process.

Picking Zircon

Clean a glass petri dish with ethanol

Transfer the zircon sample into the glass petri dish and place under a microscope

Using a fine tipped pick, select zircons from the petri dish and place onto a glass plane with double sided tape applied to allow zircons to stick.

Repeat the process until ~250-300 grains have been picked. Lay out the zircons in rows ensuring that they don't get too close to the edge of the circle traced on the slide. Try to space the zircons so they are not touching one another and the mount is well labelled and recorded in a lab book.

Epoxy Resin Zircon Mounts

A teflon tubular mount coated in vaseline was placed on top of the glass pane so zircons are in the centre.

Epoxy resin was prepared using a two part epoxy resin; 5g epoxy with 1.15g hardener. These were carefully mixed in a disposable cup using a figure-8 pattern (to prevent air pockets forming) for 2-3min.

The resin was carefully poured into the teflon mount and left for a minimum of 12hours to set.

The epoxy mount was then removed from the glass plane using a razor blade and then cleaned with ethanol.

This process was repeated across all samples.

Epoxy mounts were polished using 9 μ m paper for the first cut and 6 μ m and 3 μ m paper after until the zircons were exposed and grinded down to approximately halfway through the zircon.

Samples were then polished on a 3 and 1 micron cloth lap using diamond paste.