# New Zealand where did it come from?

# Provenance of the Rakaia Terrane.

Thesis submitted in accordance with the requirements of the University of Adelaide for an Honours Degree in Geology/Geophysics/Environmental Geoscience

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# NEW ZEALAND WHERE DID IT COME FROM? PROVENANCE OF THE RAKAIA TERRANE

## PROVENANCE OF THE RAKAIA TERRANE

## ABSTRACT

The Rakaia Terrane comprises the majority of the basement of New Zealand, yet, to date, there are competing hypotheses as to its provenance along the Gondwana margin. These range from being adjacent to areas of Antarctica to originating against northern Queensland. To help solve these competing hypotheses, I combined the analysis of detrital zircon U-Pb geochronology with Hf isotope studies and trace element concentrations to constrain the provenance. Detrital muscovites were also dated using the $^{40}Ar$-$^{39}Ar$ total fusion technique. Detrital zircons yielded age populations at 1100-980 Ma, 580-450 Ma, ca. 320 Ma and ca. 230 Ma. $\varepsilon Hf_{(t)}$ values of these zircons largely range from -6 to +6 and the trace element concentrations suggest that the zircons are primarily sourced from granitoids. The $^{40}Ar$-$^{39}Ar$ ages yield two ages with the first at ca. 340 Ma and the second at ca. 250-220 Ma. The U-Pb ages and $\varepsilon Hf_{(t)}$ values for the Ordovician and older zircons are most similar to those from the Lachlan Fold Belt while the younger zircons show a close similarity to those from the New England Fold Belt. From multidimensional scaling maps there is a strong association between zircons from the Rakaia Terrane, north eastern Queensland and the Lachlan Fold Belt. The detrital muscovite data, however, is consistent with an exclusive New England source. Combining the data from different isotopic systems and different minerals, I interpret the provenance of the Rakaia Terrane as being derived from the New England, in the Triassic. The presence of Cambrian and Precambrian zircons, but only Phanerozoic muscovites, is interpreted as demonstrating that zircons were recycled in the New England region from older rocks now exposed in the Lachlan Orogen. These data constrain the provenance of the Rakaia Terrane and allows for more detailed reconstructions of the proto-Pacific margin of Gondwana.

## KEYWORDS

New Zealand, Rakaia, Provenance, Detrital zircons, U-Pb, Geochronology, Hf-isotopes, Trace element, $^{40}Ar$-$^{39}Ar$

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## INTRODUCTION

The Rakaia Terrane is the largest basement terrane in New Zealand and, at present, a number of hypotheses exist as to where along the extensive eastern margin of Gondwana the Rakaia Terrane originated. Suggestions range from adjacent to East Antarctica (Wandres et al. 2004) to being shed off Queensland (Adams et al. 2007, Pickard et al. 2000). To test these hypotheses, I have undertaken the most extensive provenance analysis of the Rakaia Terrane sedimentary rocks, combining U-Pb, Hf and rare earth element analysis of detrital zircons with $^{40}$Ar-$^{39}$Ar total fusion geochronology of detrital muscovites.

New Zealand's basement is made of a series of terranes that are thought to originate somewhere along the Palaeozoic Gondwana margin, extending from New Guinea to South America. The basement geology of the North and South Island of New Zealand is divided into three zones, the Western Province, The Median Tectonic Zone and the Eastern Province (Figure 1). The Torlesse Supergroup within the Eastern Province is composed of the Permian to Late Triassic Rakaia Terrane and the Pahau Terrane (Wandres et al. 2005).

Wandres et al. (2004) studied U-Pb ages of cobble to boulder sized igneous clasts from the Rakaia Terrane. They concluded that the Rakaia Terrane was likely sourced from Antarctica as zircon age distributions from the Rakaia Terrane matched known crystallisation ages of plutons and volcanics in the Amundsen Province. This contrasts with studies by Pickard et al. (2000) and Adams et al. (2007), however, who concluded the Rakaia Terrane was likely sourced from the New England Orogen and eastern

Australia respectively due to the overlapping zircon ages. Evident through the contrasting studies by Wandres et al. (2004), Pickard et al. (2000) and Adams et al. (2007) is that U-Pb zircon ages on their own are inconclusive and potentially provide misleading information (Adams et al. 2007, Howard et al. 2009, Pickard et al. 2000, Wandres et al. 2004).

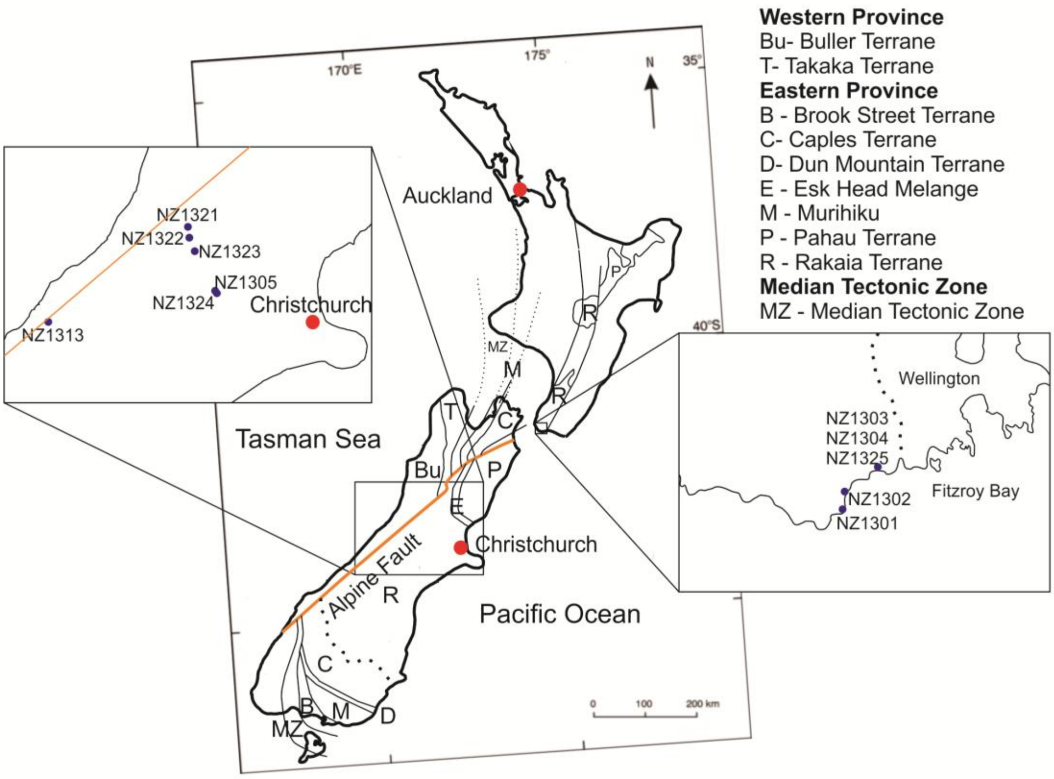


**Figure 1: Location map of New Zealand, edited from Wandres et al. (2005) and Adams et al. (2007), displaying the sample locations from the North and South Islands. The table in the top right displays the different terranes throughout New Zealand and its corresponding symbol on the map. The sample locations are represented by blue dots with the sample name listed adjacent to it.**

In this study I test whether the provenance of the Rakaia Terrane plausibly lies within Australia, Antarctica or New Zealand. To determine this, U-Pb and $\varepsilon Hf_{(t)}$ isotopic values were collected from detrital zircons within the Rakaia Terrane using a laser ablation inductively coupled plasma mass spectrometer (LA-ICP-MS) multicollector. Rare earth element (REE) values were also analysed. These data were compared with

$^{40}Ar$-$^{39}Ar$ detrital muscovite single grain total fusion ages. The data is then compared with similar results from the three source regions to determine the Rakaia Terrane's provenance.

## GEOLOGICAL SETTING OF THE RAKAIA TERRANE

The micro-continent of New Zealand is largely underlain by rocks of the Torlesse Supergroup (Wandres et al. 2004). In the North and South Island the basement geology has been divided into three zones: the Western Province, The Median Tectonic Zone and the Eastern Province. The Torlesse Supergroup forms part of the Eastern Province and is divided into two terranes, the Rakaia Terrane and the Pahau Terrane (Figure 1). The Rakaia Terrane is Permian to Late Triassic in age and the Pahau Terrane is Late Jurassic to Early Cretaceous in age (Wandres et al. 2005). The two terranes are separated by the Esk Head Mélange (Mortimer 2004, Wandres et al. 2005, Wandres et al. 2004). The model favoured for the deposition of the Torlesse is a submarine fan model that has undergone an accretionary wedge model of deformation (Wandres et al. 2005). This submarine fan formed along Gondwana's proto-Pacific margin. It developed after the Neoproterozoic-Ordovician Ross Orogeny and the Late Devonian to Early Triassic New England Fold Belt (Wandres et al. 2004, Rosenbaum et al. 2012, Rosenbaum and Rubatto 2012). Lithologically, the Rakaia Terrane is largely dominated by turbiditic quartzofeldspathic fine - medium grained sandstones and mudstones. The lithology is largely monotonous, however, it does also contain minor amounts of Carboniferous-Permian basalts that have been interpreted as the oceanic crust the turbidites were deposited on (Mortimer 2004). It also contains minor amounts of volcanics, chert and some conglomerate layers.

## GEOLOGICAL HISTORY OF THE POTENTIAL SOURCE REGIONS TO THE RAKAIA TERRANE

### New England Fold Belt

The New England Fold Belt forms part of the Tasmanides orogenic collage in eastern Australia (Rosenbaum et al. 2012). This fold belt also forms the easternmost segment of a larger accretionary orogen, the Terra Australis Orogen (Cawood et al. 2011a). This orogeny recorded the Neoproterozoic to Early Mesozoic convergent plate margin of Gondwana (Cawood et al. 2011b). The New England Fold Belt, part of the Terra Australis Orogen, formed along this proto-Pacific margin of Gondwana and is composed of Late Devonian to Early Triassic subduction related sequences (Rosenbaum et al. 2012, Rosenbaum and Rubatto 2012). These sequences include a Devonian-Carboniferous volcanic arc, fore-arc basin and accretionary wedge sequences. There is also an abundance of Permian-Triassic magmatic rocks. The New England Fold Belt is split into the Tamworth Belt and the Tablelands Complex, which have undergone differing levels of metamorphism varying from prehnite-pumpellyite to lower greenschist to amphibolite facies. The boundary between these two areas is marked by the Peel-Manning Fault System, which is defined by blueschists, eclogites and serpentinites of Ordovician age (Rosenbaum et al. 2012). Within the Tablelands complex metamorphism has been dated at ca. 470 Ma, ca. 330 Ma and ca. 260 Ma (Fukui et al. 2012).

### Ross Orogeny

The Ross Orogeny formed part of an orogenic belt that also formed the Delamerian Orogen in Australia and the Tyennan Orogen in Tasmania (Federico et al. 2009, Godard and Palmeri 2013). This orogenic belt is a direct result of the convergent tectonics along

Gondwana's proto-Pacific margin, during the final stages of Gondwana formation in the Neoproterozoic to Early Palaeozoic (Collins and Pisarevsky 2005). Lithologically it is characterised by the Granite Harbour Intrusive series that encompasses granitoid magmatism active during the entire orogenic event. This magmatic belt is dominantly calc-alkaline in composition, however, there is some alkaline, adakitic and A-type magmatism present (Goodge et al. 2012). The different areas of the Ross Orogen underwent differing levels of metamorphism. Northern Victoria Land largely underwent metamorphism within the granulite-amphibolite facies with peak metamorphism occurring at ca. 495-480 Ma. Southern Victoria Land reached peak metamorphism within the greenschist facies. The Central Transantarctic Mountains underwent metamorphism within the amphibolite-granulite facies with biotite cooling ages of 490-480 Ma (Goodge 2007). These metamorphic ages are similar to Vincenzo et al. (2007) which gave ages of biotite and muscovites of 486.3 ± 3.5 Ma and 489.9 ± 3.5 Ma respectively.

## Brook Street Terrane

Like the Rakaia Terrane, the Brook Street Terrane comprises part of the Eastern Province in the South Island of New Zealand (Wandres et al. 2004). It is Permian in age and is believed to be an island arc system (Mortimer 2004, Spandler et al. 2005). Lithologically, the terrane is composed largely of volcanogenic sequences. These include basaltic to andesitic volcaniclastics, plagioclase- and clinopyroxene-phyric basalts and some sedimentary rocks. The terrane has undergone metamorphism dominantly in the prehenite-pumpellyite facies, there are some areas, however, that have undergone greenschist facies metamorphism (Spandler et al. 2005). Dating of hornblendes from the Longwood Range gave $^{40}Ar$-$^{39}Ar$ of 215-245 Ma (Mortimer et al.

1999). The limited studies done on the Brook Street Terrane have largely focused on the Takitimu Mountains and Longwood Ranges. The Takitimu Mountains consist mainly of mafic volcanics which are dominantly tholeiitic. The Longwood Ranges consist of plutonic rocks that have tonalite-trondjemite-granodiorite affinities (Nebel et al. 2007).

## METHODS

Eleven samples were taken from the Rakaia Terrane of the North and South Island of New Zealand, five from the North Island and six from the South Island. Sandstones were targeted and the location of each sample recorded (Supplementary Table 1). A more detailed methodology is given in the Appendix.

### U-Pb zircon geochronology

Techniques used for zircon U-Pb geochronology follow those of Payne et al. (2006) and Wade et al. (2008). The samples were jaw crushed, disc milled and sieved. Zircons from the 400-79 µm fraction were concentrated via panning, magnetic and heavy liquid separation. The zircons were then hand-picked and mounted into epoxy resin mounts. Back-scattered electron and cathodoluminescence (Figure 2) imaging of the mounted zircons was done on a Phillips XL40 Scanning Electron Microscope (SEM) with a Gatan CL detector. The U-Pb analyses were carried out on a New Wave UP-213 laser attached to an Agilent 7500cx ICP-MS at Adelaide Microscopy, University of Adelaide. A spot size of 30 µm with a laser frequency of 5 Hz and output laser percentage of 55% was chosen with ablation times of around 80 seconds. Fractionation was corrected for using primary zircon standard GJ-1 (Thermal ionization mass spectrometry (TIMS) normalization data $^{207}Pb/^{206}Pb$ = 608.3 Ma, $^{238}U/^{206}Pb$ = 600.7 Ma and $^{235}U/^{207}Pb$ = 602.2 Ma; Jackson et al. 2004).

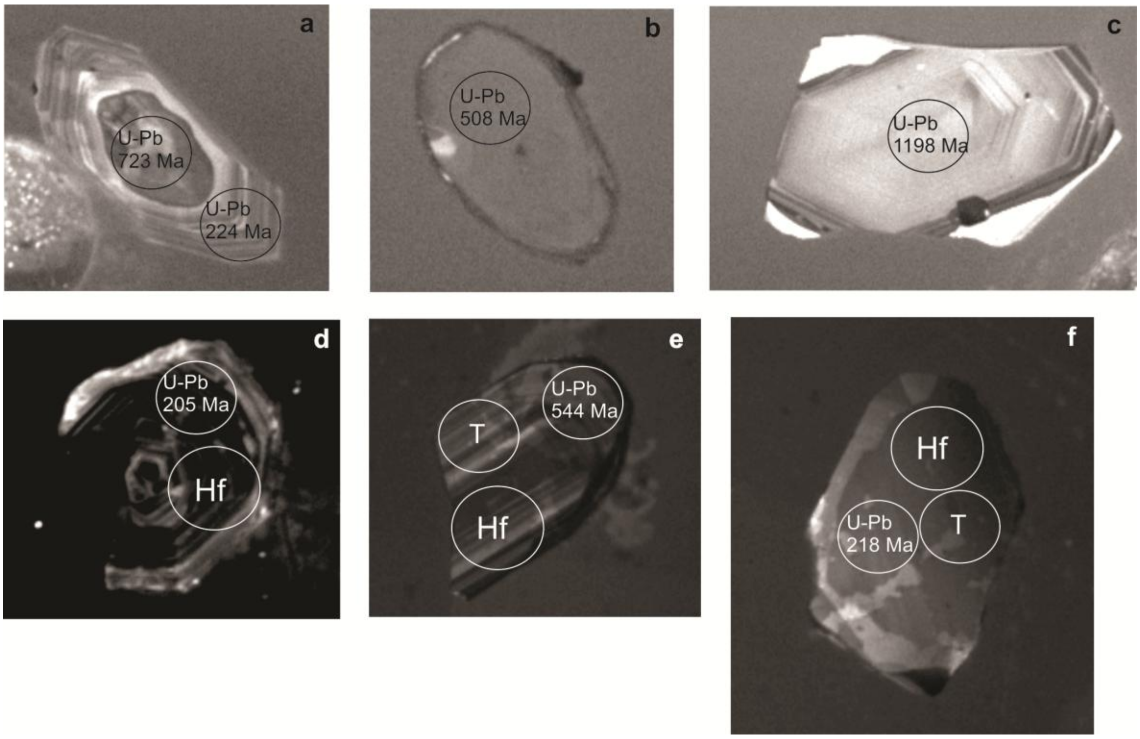


**Figure 2: Examples of cathodoluminescence images of zircons, Images a, b and c are from sample NZ1301, d is from NZ1322 and e, f are from NZ1323. Spots used for geochronology on each zircon are labelled with the corresponding $^{238}$U/$^{206}$Pb age. The circles with T and Hf represent spots for the trace element concentrations and Hf isotope analysis respectively.**

Accuracy of the methodology was verified by repeat analysis of the Plešovice zircon ($^{238}$U /$^{206}$Pb = 337.13±0.37 Ma). The weighted average ages obtained during this study for Plešovice were 354 ± 19 Ma for $^{207}$Pb/$^{206}$Pb, 334 ± 4 Ma for $^{238}$U /$^{206}$Pb, and 335 ± 3 Ma for $^{235}$U /$^{207}$Pb, 95% confidence; n=20 (Sláma et al. 2008). Data were rejected based on the presence of common lead based on a combination of intensity of the raw $^{204}$Pb counts, and following this, weighted average $^{207}$Pb/$^{206}$Pb age calculations at 2$\sigma$ confidence are reported. Due to the unresolvable isobaric interference of Hg on $^{204}$Pb, no common Pb correction was undertaken. The data were further refined by rejecting data >5% discordant. All zircon data are given in Supplementary Tables 2-9.

## Zircon Hf isotope analysis

Methods for zircon Hf isotopes analyses follow that of Griffin et al. (2006b) and Payne et al. (2013). The analyses were undertaken on a LA-MC-ICPMS with an attached New Wave UP-193 Excimer laser and Thermo-Scientific Neptune multicollector at the University of Adelaide Waite Campus. This Excimer laser delivered a beam of 198nm UV light with beam diameter of 35 µm with a repetition rate of 5 Hz. For the analyses the masses 172, 175, 176, 177, 178, 179 and 180 were all measured concurrently. Prior to any analyses, the data were normalised such that $^{179}Hf/^{177}Hf = 0.7325$. Interference of $^{176}Lu$ on $^{176}Hf$ was corrected for by calculating $^{176}Lu/^{176}Hf$ with the isotope $^{175}Lu$ and $^{176}Lu/^{175}Lu$ equals 0.02669 following Patchett (1983). The interference of $^{176}Yb$ on $^{176}Hf$ was corrected by measuring the isotope $^{172}Yb$ and coupling this with $^{176}Yb/^{172}Yb$ values to calculate $^{176}Yb/^{177}Hf$. The $^{176}Yb/^{172}Yb$ ratio was calculated by adding Yb to the JMC475 Hf standard to find the value of $^{176}Yb/^{172}Yb$ that gives the value required to yield a known value of $^{176}Hf/^{177}Hf$ (Griffin et al. 2004). Both prior to, and during, the analyses the standard Mudtank zircons were analysed to ensure accuracy, average corrected value $^{176}Hf/^{177}Hf = 0.282515 \pm 0.000021$ with 2σ confidence and n=11 (Griffin et al. 2006a, Howard et al. 2009). The $^{176}Hf/^{177}Hf$ ratios were calculated from the measured $^{176}Lu/^{176}Hf$ values giving an uncertainty of <ε0.05Hf. The decay constant of $1.856 \times 10^{-11}$ $y^{-1}$ for $^{176}Lu$ as calculated in Scherer et al. (2001) was selected for the calculation of εHf values. All the Hf data are given in Supplementary Table 10-13.

## $^{40}Ar$-$^{39}Ar$ Dating

From the samples selected for $^{40}Ar$-$^{39}Ar$ dating, unaltered, optically transparent, >400 µm-muscovites were separated. These minerals were separated using a Frantz magnetic separator, and then carefully hand-picked under an Olympus SZ51 microscope and sent to the Western Australian Argon Isotope Facility (WAAIF), at Curtin University. There the muscovites were leached in diluted HF for one minute and then thoroughly rinsed with distilled water in an ultrasonic cleaner. Samples were loaded into 10 large wells of one 1.9 cm diameter and 0.3 cm depth aluminium disc. These wells were bracketed by small wells that included Fish Canyon sanidine (FCs) used as a neutron fluence monitor for which an age of 28.305 ± 0.036 Ma (1σ) was adopted (Renne et al. 2010) based on the calibration by Jourdan and Renne (2007). The mean J-values computed from standard grains within the small pits range from 0.0026752 ± 0.0000040 (0.15%) to 0.0026644 ± 0.000054 (0.20%) determined as the average and standard deviation of J-values of the small wells for each irradiation disc. Mass discrimination was monitored using an automated air pipette and provided a mean value of 1.00646 ± 0.00238 per dalton (atomic mass unit) relative to an air ratio of 298.56 ± 0.31 (Lee et al. 2006). The correction factors for interfering isotopes were $(^{39}Ar\text{-}^{37}Ar)_{Ca} = 7.30\text{x}10^{-4}$ (± 11%), $(^{36}Ar\text{-}^{37}Ar)_{Ca} = 2.82\text{x}10^{-4}$ (± 1%) and $(^{40}Ar\text{-}^{39}Ar)_{K} = 6.76\text{x}10^{-4}$ (± 32%). The samples were fusion heated using a 110 W Spectron Laser System with a Nd-YAG laser for 60 seconds. Ar isotopes (Supplementary Table 14-18) were measured in a static mode using a MAP 215-20 mass spectrometer with a Balzers SEV 217 electron multiplier. Data acquisition was done with the Argus program and then processed using ArArCALC software and ages calculated using decay constants from Renne et al. (2010).

## Trace element analysis

Trace element analysis was undertaken on zircons previously dated by U-Pb following the method outlined by Belousova et al. (2002). This was undertaken on a Cameca SX51 electron microprobe located at Adelaide Microscopy, The University of Adelaide.

Spot analyses were conducted using a beam current of 20 nA and an accelerating voltage of 15 kV, with a defocused beam of 5 micron. Concentrations calculated on the microprobe (Supplementary Table 19-22) were in percent oxide (Ox%). Calibration was done on natural and synthetic mineral standards supplied by Astimex, Taylor, and P&H. The trace element compositions (Supplementary Table 23-26) were then collected via LA-ICP-MS, at Adelaide Microscopy, following the methods of Raimondo et al. (2011). $^{178}$Hf was used as the internal standard for the zircons, this was pre-determined from the microprobe results. Zircons were analysed using an Agilent 7500cc quadrupole ICP-MS with an attached New Wave UP-213 Nd-YAG laser. A spot size of 30 µm was chosen with a repetition rate of 5 Hz with the energy set to produce a fluence of ca. 7 $Jcm^{-2}$. The machine was tuned to peak sensitivity to minimize the production of interfering oxide species so that $^{232}Th^{16}O/^{232}Th$ was routinely < 0.5%. Data were collected using a time-resolved data acquisition in fast peak jumping mode and then processed using the GLITTER software (Achterbergh et al. 2001). The results were calibrated against the NIST 610 standard glass with the coefficients of Pearce et al. (1997) Groups of 15 analyses were bracketed by repeat analyses of the NIST 610 standard which corrected for any instrument drift. A linear drift correction based on the analysis sequence and on the bracketing of NIST-610 was applied to the count rate of each sample.

## OBSERVATIONS AND RESULTS

### Trace Element Compositions

The trace element compositions from samples NZ1301, -04, -23 and -24 (Figure 3) define likely source rocks for the zircons (Belousova et al. 2002). The data are almost entirely confined within the granitoid field of Belousova et al. (2002) with some scattered data points falling within the carbonatite and lamproite field. Within the granitoid field, the data are essentially confined within the granodiorite and tonalite field with a few data points suggesting a granite source.

## U-Pb Geochronology

NZ1301

From the 120 zircons analysed, 94 ages fell within the concordancy range (≤ 5% discordance) The largest significant population, with 31 zircons, forming approximately 33% of the total ages, ranges in age from ca. 240-200 Ma. The other populations range in age from ca. 350-300 Ma, ca. 520-415 Ma and ca. 1060-910 Ma which comprise around 9, 13 and 7% and contain 8, 12 and 7 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age, 202.4 ± 2.37 Ma, is taken as the maximum deposition age, which is Rhaetian in age.

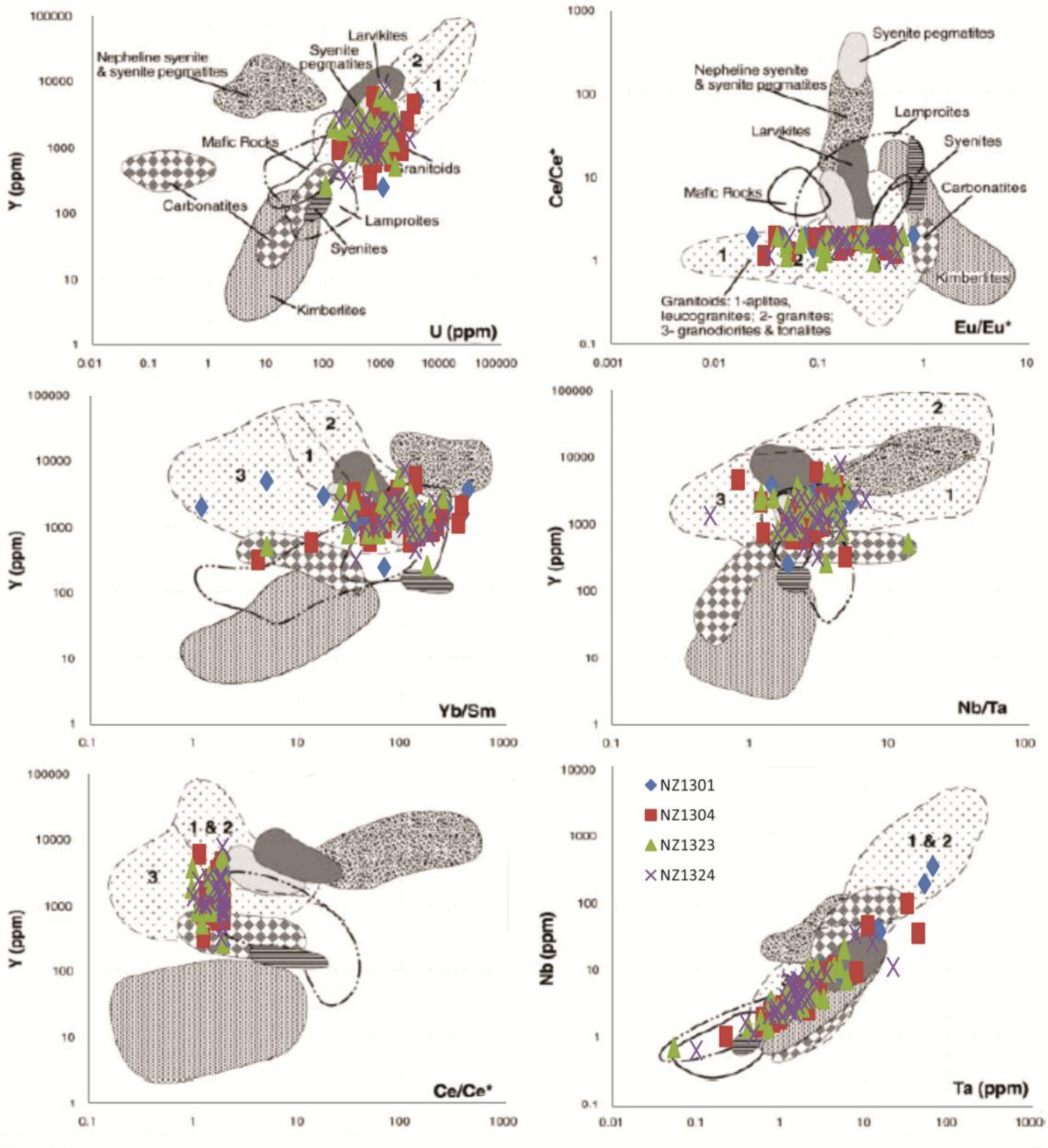


**Figure 3: Trace element concentrations of Rakaia Terrane zircons compared with data from Belousova et al. (2002), the zircons were analysed were from sample NZ1301, NZ1304, NZ1323 and NZ1324. From each sample 30 zircons were analysed, resulting in 120 per graph, the data points have been superimposed on source fields, created by Belousova et al. (2002), allowing the determination of the source rock. In these graphs Ce* is the average of the chrondrite-normalised La and Pr concentrations while Eu* is the average of the chrondrite-normalised of Sm and Gd concentrations. Within the Granitoid field, 1 represents aplites and leucogranites, 2 granites; 3 granodiorites and tonalites.**

## NZ1302

From the 120 zircons analysed, 77 ages fell within the concordancy range (≤ 5% discordance). The largest significant population with 28 zircons, ranges in age from ca.

260-200 Ma and comprise 36% of the total ages. The remaining populations range in age from ca. 360-300 Ma, ca. 600-500 Ma and ca. 1040-950 Ma. These populations comprise 10, 20 and 8% with 8, 16 and 6 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 205.6 ± 2.67 Ma, which is Rhaetian in age, is taken as the maximum depositional age.

NZ1304

From the 120 zircons analysed, 67 ages fell within the concordancy range (≤ 5% discordance). The largest significant population, with 34 zircons, comprises 50% of the total ages ranges in age from 250-200 Ma. The remaining populations, ca. 490-450 Ma, ca. 580-520 Ma and ca. 1100-900 Ma, comprise 9, 7 and 10% with 6, 5 and 7 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 205.6 ± 2.68 Ma, which is Rhaetian in age, is taken as the maximum depositional age.

NZ1321

From the 71 zircons analysed, 21 ages fell within the concordancy threshold (≤ 5% discordance). The largest significant population, with 5 zircons, comprises 23% of the total ages and ranges in age from ca. 260-210 Ma. The remaining populations comprise 13, 13 and 18% of the total ages and range in age from ca. 510-460 Ma, ca. 620-540 Ma and ca. 1040-900 Ma and contain 3, 3 and 4 zircons. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 222.4 ± 3.11 Ma, which is Norian in age, is taken as the maximum depositional age.

NZ1322

From the 120 zircons analysed, 55 fell within the concordancy threshold. The most significant population, containing 28 zircons, ranges in age from ca. 270-200 Ma and comprises 51% of the total ages. The remaining populations range in age from ca. 550-430 Ma and ca. 1100-900 Ma, comprise 20 and 11% and contain 11 and 6 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 202.2 ± 2.21 Ma, which is Rhaetian in age, is taken as the maximum depositional age.

NZ1323

From the 120 zircons analysed, 79 fell within the concordancy threshold. The most significant population, with 38 zircons, ranges in age from 270-200 Ma and comprises 48% of the total ages. The remaining populations range in age from ca. 350-310 Ma, 590- 480 Ma and ca. 1050-950 Ma which comprise 6, 22 and 6% with 5, 17 and 5 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 205.5 ± 2.7 Ma, which is Rhaetian in age, is taken as the maximum depositional age.

NZ1324

From the 120 zircons analysed, 58 fell within the concordancy threshold. The most significant population, with 31 zircons, ranges in age from ca. 270-220 Ma and comprises 53% of the total ages. The remaining populations, ca. 350-300 Ma and 560-490 Ma, comprise 7 and 22% respectively of the total ages and contain 4 and 13 zircons. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 219.5 ± 2,49, which is Norian in age, is taken as the maximum depositional age.

## NZ1325

From the 120 zircons analysed, 71 fell within the concordancy threshold. The most significant population, with 24 zircons, ranges in age from ca. 270-210 Ma and comprises 33% of the total ages. The remaining populations, ca. 500-450 Ma, ca. 610-540 Ma and 1120-930 Ma comprises 9, 15 and 15% respectively of the total ages, these populations contain 7, 11 and 11 zircons respectively. The youngest <5% discordant $^{238}U/^{206}Pb$ age of 213.7 ± 2.79, which is Norian in age, is taken as the maximum depositional age.

## TOTAL RAKAIA TERRANE

The detrital age results for all eight samples are shown in Figure 4. When these ages are compiled there are four populations (Figure 5), one in the Triassic (ca. 230 Ma), one in the mid-Carboniferous (ca. 320 Ma), a Neoproterozoic to Ordovician population (ca. 580-450 Ma) and a Mesoproterozoic to Neoproterozoic population (ca. 1100-980 Ma). These populations do not contain all the detrital ages, with ages also recorded from 930 – 580 Ma. When the rims and cores of the same zircon were dated, both yielded similar ages, otherwise the rims were dominantly Carboniferous to Triassic in age (Figure 2).

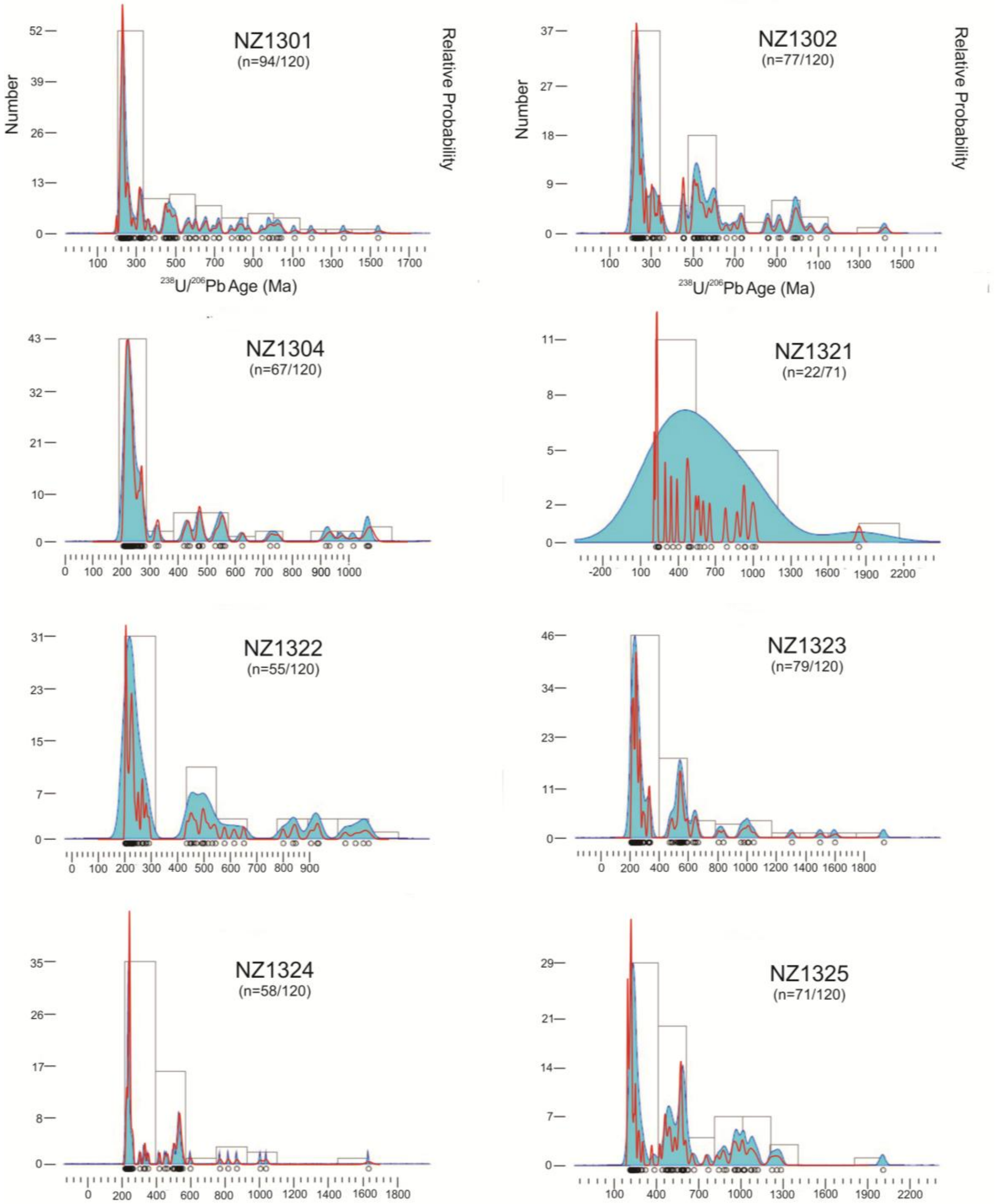


**Figure 4: Concordant detrital zircon ages, the red lines represent probability density plots with a 5% concordancy threshold and 2σ uncertainty. The blue shaded area is the corresponding kernel density estimator (Vermeesch 2012) with the histogram in grey. The sample name is given at the top with the number of concordant ages used in the graph compared with the total number analysed is given underneath.**

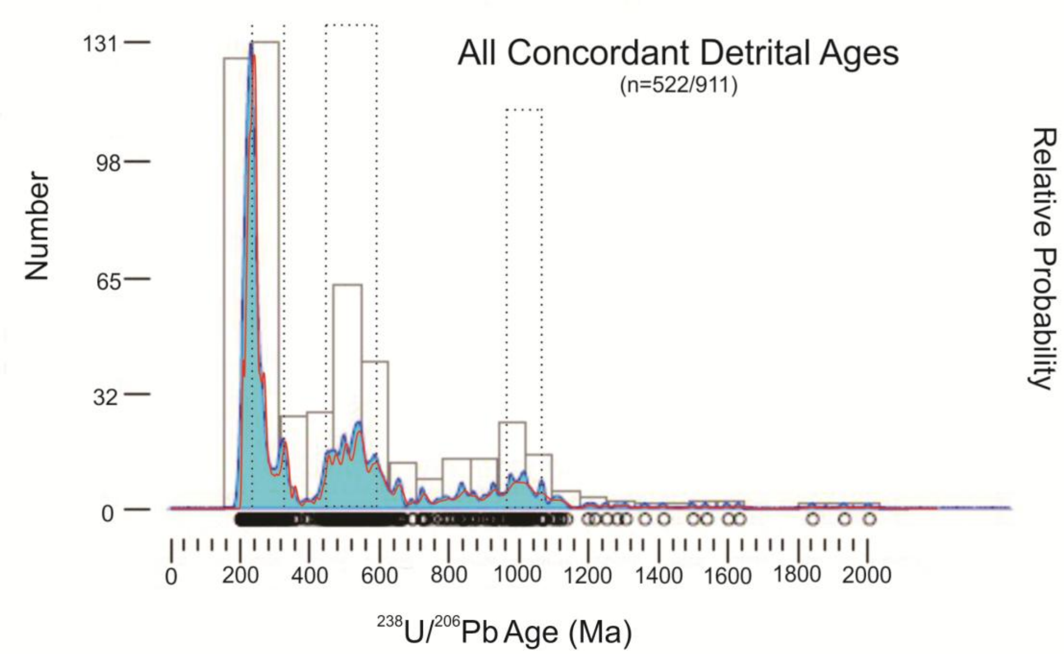


**Figure 5: All 523 concordant detrital zircon ages, the probability density plot, with 2σ uncertainty, is shown in red with the kernel density estimator (Vermeesch 2012) in blue and histogram in grey. The black dashed lines represent the major populations, the dashed rectangles represent the Ordovician to Neoproterozoic and the Neoproterozoic to Mesoproterozoic populations. The number of concordant ages graphed out of the total number of analyses is given under the graph title.**

## Hf Isotopes

The corrected εHf values ($\varepsilon Hf_{(t)}$) from the Rakaia Terrane are given in Figure 6, isotope ratios were taken from samples NZ1301, -22, -23 and -25.

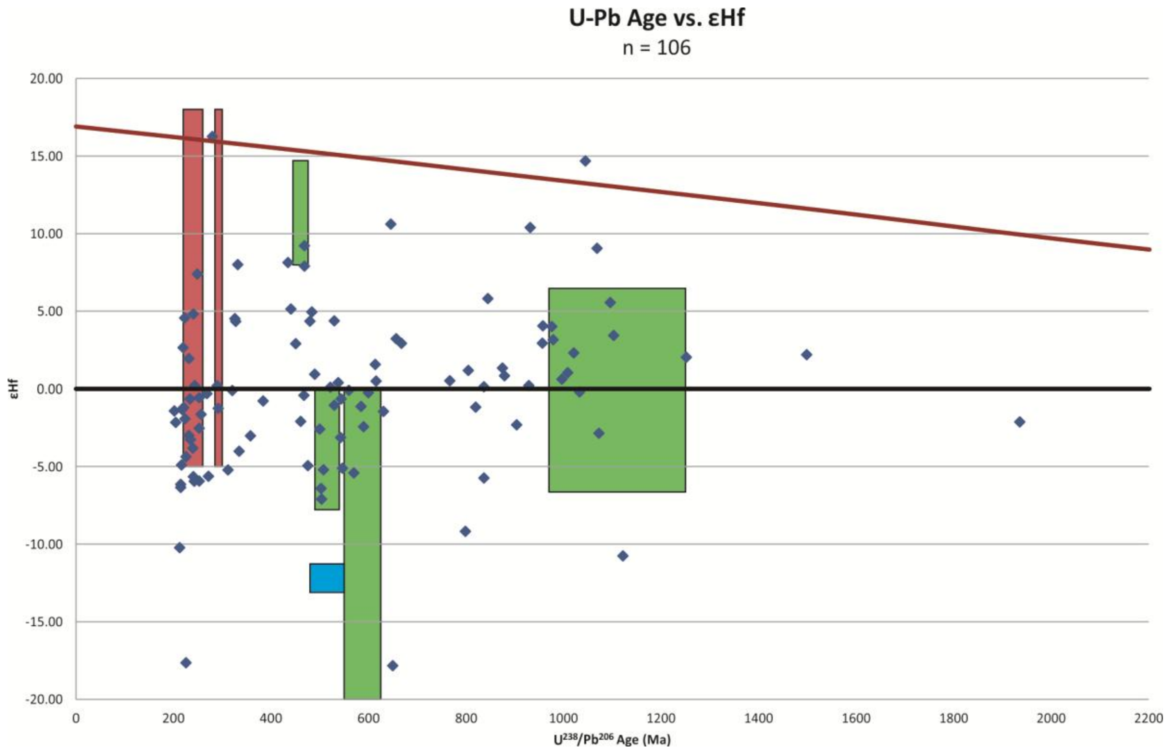


**Figure 6: εHf$_{(t)}$ values plotted against the corresponding $^{238}$U/$^{206}$Pb zircon age, n is the total number of analyses. The analyses were taken from samples NZ1301, NZ1322, NZ1323 and NZ1325. The red rectangles represent the εHf range taken from Phillips et al. (2011), the blue rectangle represents the equivalent εHf range from Borg et al. (1990) and Goodge et al. (2012) the green rectangles the εHf range from detrital zircons published by Glen et al. (2011). The solid red line is the depleted mantle while the solid black line is the CHUR.**

### $^{40}$Ar-$^{39}$Ar Ages

From each sample the fusion ages were calculated from individual detrital muscovites. Sample NZ1301 has detrital muscovites that range in $^{40}$Ar-$^{39}$Ar age from ca. 240-210 Ma. Sample NZ1303 contains muscovites that largely range from ca. 250-230 Ma with one muscovite with a ca. 340 Ma age. The $^{40}$Ar-$^{39}$Ar ages from sample NZ1323 range from ca. 240-210 Ma. In sample NZ1324 the ages range from ca. 250-240 Ma and in NZ1325 the ages vary from ca. 270-240 Ma. From the Ar data, age plots were generated (Figure 7) which give two ages, the first in the Carboniferous (ca. 340 Ma) and the second in the Triassic (ca. 250-220 Ma). These plots give the age when the provenance was cooled below ~350° as this is the approximate closure temperature of Ar in muscovite (Adams 2003).

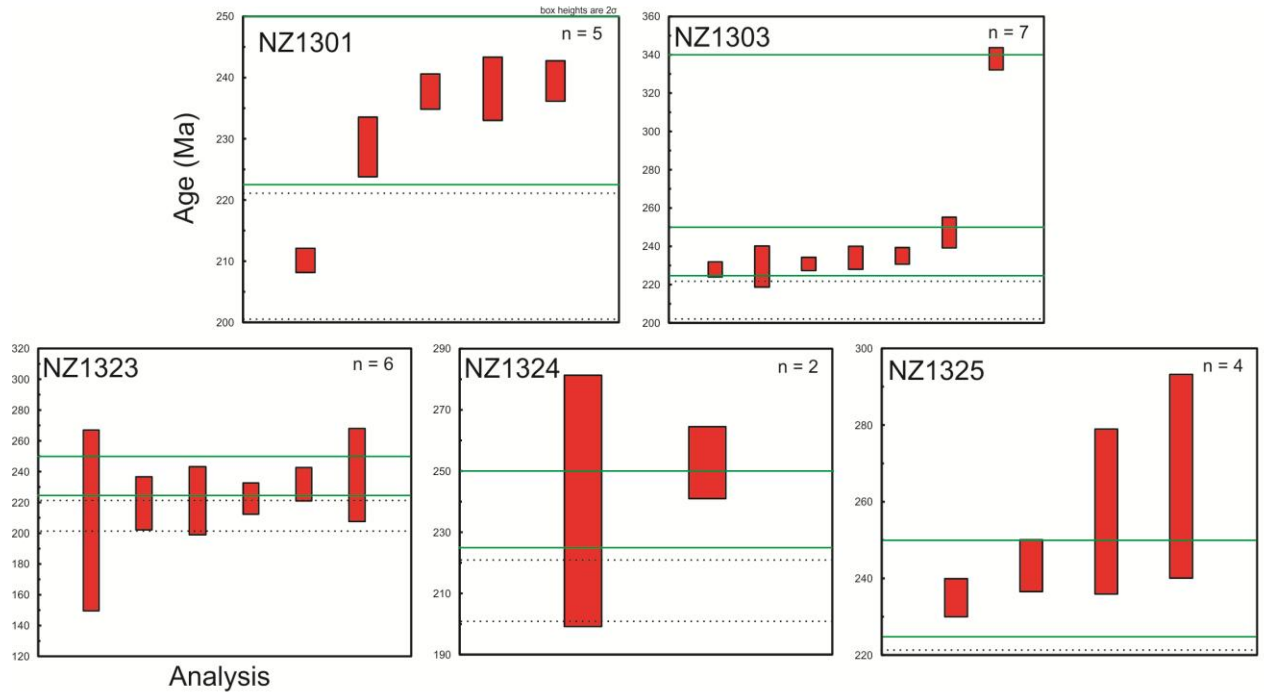


**Figure 7: Age plots generated from $^{40}Ar$-$^{39}Ar$ total fusion ages taken from detrital muscovites. The red rectangles represent individual Ar ages with their associated error. The green lines represent the Ar ages of ca. 340 Ma and ca. 250-220 Ma. The sample the muscovites were taken from is given in the top left hand corner. The number of muscovites analysed, n, is given in the top right hand corner. The dashed black lines represent the maximum depositional age taken from the detrital zircon $^{238}U/^{206}Pb$ ages.**

# DISCUSSION

## Plausible Source Rock Types

Since the provenance of these zircons is poorly understood, gaining an understanding of their likely source region will allow a more plausible determination of their provenance. From the 120 zircons analysed for trace elements, the majority of these lay within the granodiorite and tonalite field with scattered data points within the granite, carbonatite and lamproite field. From this the zircons were likely formed within a plutonic intermediate to felsic rock with possible minor inputs from sub-volcanic ultramafics and carbonatites. When these results are divided into their respective populations, the Carboniferous – Triassic population are entirely derived from plutonic intermediate-felsic rocks, the pre-Silurian populations however appear to have minor inputs from the sub-volcanic ultra-mafic rocks and carbonatites. This suggests a possible change in source region or a changing sediment transport system.

## Maximum Deposition Age

The maximum deposition age varies slightly depending on the sample. From each sample the youngest ages within the concordant threshold were taken as the maximum deposition age. These concordant ages range from ca. 222 – 202 Ma, giving an Upper Triassic maximum depositional age.

## Source Constraints from U-Pb Data

Zircon age distributions are considered with respect to the three potential source regions, the New England Fold Belt, the Brook Street Terrane and the Ross Orogen, that are described in the introduction.

### PRE-SILURIAN ZIRCONS

When considering pre-Silurian zircons solely, two major populations are apparent. The Neoproterozoic to Ordovician population, ca. 580-450 Ma, in the Rakaia Terrane, roughly correlates with a 600-500 Ma population, the “Pacific-Gondwana igneous component”, which has been identified throughout Gondwana (Cawood et al. 2007, Fergusson et al. 2013, Meinhold et al. 2013). The Ross Orogen, specifically Terre Adelie Land, has granitic rocks of similar age, 580-575 Ma and 515-500 Ma (Goodge and Fanning 2010). There are also the granitoids of the Granite Harbour Intrusive series that range in age from 550 – 480 Ma (Goodge et al. 2012). The New England area cannot be a plausible original source region of these zircons as there is no magmatic activity of similar age. However, the Upper Cretaceous Winton Formation of north eastern Queensland has similar aged detrital zircons that may be sourced from the same region as the Rakaia Terrane (Tucker et al. 2013). Moving further south to the Lachlan Fold Belt, specifically the Macquarie Arc, magmatic activity has been recorded throughout the Cambrian and Ordovician (Crawford et al. 2007, Glen et al. 2011). Within the Lachlan Fold Belt there were three phases of largely calc-alkaline magmatism, the first ca. 480 Ma, the second from ca. 468-455 Ma and the third from ca. 449-443 Ma. Detrital zircons have also been recorded, varying in age from ca. 1250-970 Ma, 625-550 Ma and 540-490 Ma (Glen et al. 2011). Sircombe (1999) and Squire et al. (2006) both collected U-Pb zircon ages throughout Victoria which overlap with the Rakaia population. Sircombe (1999) collected zircons from modern beach sands while the zircons from Squire et al. (2006) were extracted from metasedimentary rocks. However, if these zircons were to be shed from these regions into the Rakaia Terrane, then the population distributions should be similar. Methods outlined by Vermeesch (2013) allow different zircon populations to be compared statistically with multidimensional scaling (MDS) maps and QQ plots (Figures 8 & 9). A QQ plot compares two distributions by dividing them up into ten quartiles. These quartiles are then plotted against each other and if they are similar the data will lie on the diagonal 1:1 line. An MDS map is a visual representation of the dissimilarity between the two distributions, based on the Kolmogorov-Smirnov (KS) test. If two populations on a MDS map are connected by a solid line then their distributions are the most similar or least dissimilar, if connected by a dotted line then that is the second most similar distribution. This provides a visual representation as to the similarities of distributions. From Figure 8 the pre-Silurian Rakaia zircons are predominantly associated with populations from Sircombe (1999). There is also associations with data from Tucker et al. (2013) and Squire et al. (2006). These pre-Silurian zircons are therefore plausibly sourced from the Lachlan Fold Belt and share similar features as the Winton Formation detritus of north-eastern Queensland. No magmatism occurred within the Brook Street Terrane prior to the Triassic so it is only a possible source of the Triassic population.

The other pre-Silurian population within the Rakaia Terrane is Meso- to Neoproterozoic in age, ca. 1100-980 Ma. This population also overlaps with a 1300-1000 Ma population also identified throughout Gondwana (Cawood et al. 2007, Fergusson et al. 2013, Meinhold et al. 2013). Zircon ages within this range from Sircombe (1999), Tucker et al. (2013) and Squire et al. (2006) again make the Lachlan Fold Belt and north eastern Queensland plausible source regions.

Not all of the pre-Silurian zircons are within these major populations, there are still a number of middle Neoproterozoic zircons (ca. 980-540 Ma) not accounted for. Detrital studies of Antarctica produced ages within this range (Veevers and Saeed 2008, Veevers and Saeed 2011). As these detrital populations are associated with the Rakaia Terrane in Figure 8, Antarctica is a plausible source region. The Leviathan Formation along with the St Arnaud and Grampians Group, in the Lachlan Fold Belt, also contain Neoproterozoic zircons of this age (Squire et al. 2006). The Winton Formation in north eastern Queensland also has detrital zircons within this range, again supporting the Lachlan Fold Belt and north eastern Queensland as plausible source regions.

## PRE-JURASSIC ZIRCONS

Including the pre-Jurassic zircons there are two major populations, the first of which is in the Carboniferous, ca. 320 Ma. Throughout the northern New England area, magmatism has been recorded from ca. 360-305 Ma, peaking around 325-315 Ma (Williams and Pulford 2008, Bryan et al. 2004). The magmatism within the northern New England area is restricted to the Connors and Auburn Arches. Within the Northern Connors Arch the oldest suite, the granitoid Urannah Suite, has been dated at 305 ± 5 Ma (Murray 2003). Within the Auburn Arch, the oldest suite has been dated at 330-320 Ma (Murray 2003). The granites within this region have been classified as granodiorites (Murray 2003). Carboniferous magmatism has also been recorded in the Southern New England area, peaking at ca. 347-327 Ma and continuing until 303 Ma. This occurred within the Carroll-Nandewar region within the Tamworth Belt and is rhyolitic to dacitic in composition (Roberts et al. 2004, Williams and Pulford 2008). Within Antarctica, known Carboniferous magmatism is largely confined to the Robertson Bay Terrane within northern Victoria Land. This suite is dominantly composed of granitoids, the Admiralty Intrusives, with minor felsic volcanics, the Gallipoli Volcanics. The reported ages of this suite are ca. 350 Ma (Talarico and Kleinschmidt 2008). The age of ca. 350 Ma from Antarctica corresponds to a gap in the detrital ages from the Rakaia Terrane, suggesting that it is unlikely to be the source of these zircons. In the northern New England area magmatism peaks at 325-315 Ma, which corresponds with the Carboniferous peak (ca. 320 Ma) in the Rakaia detrital ages. Because of this, it is likely the New England area is the source region due to its close proximity to Gondwana's proto-Pacific margin, the overlapping zircon ages and the similarity between zircon trace element calculated source composition and exposed granitoids in New England.

The Triassic population from the Rakaia Terrane occurs at ca. 230 Ma. Within the New England Fold Belt Permian and Triassic magmatism has been well documented

(Holcombe et al. 1997, Cawood et al. 2011a, Rosenbaum et al. 2012). This magmatism produced voluminous I-type granitoids from 260-220 Ma, I and S type granitoids from 300-285 Ma and granodiorites from 280-260 Ma (Rosenbaum et al. 2012). Antarctica also has magmatic events occurring from ca. 236-199 Ma and ca. 180-160 Ma, which involved granitoid emplacement followed by volcanic rocks (Storey et al. 1992). Magmatism within the Brook Street Terrane was older from ca. 290 – 260 Ma and was dominantly basaltic – andesitic in composition (Mortimer et al. 1999, Spandler et al. 2005). The Brook Street Terrane is therefore not a plausible source region. Magmatism within Antarctica is largely too young and is today found away from the facing margin of New Zealand. This supports the New England area being the most plausible source of the zircons.

This means that the pre-Silurian zircons are plausibly sourced from the Lachlan Fold Belt and share similar features as the Winton Formation detritus of north-eastern Queensland, while the pre-Jurassic zircons are sourced from the New England area. Using the QQ plots and MDS maps from Vermeesch (2013) and plotting the pre-Jurassic zircons from the  Sircombe (1999), Squire et al. (2006), Tucker et al. (2013), Veevers and Saeed (2008) and the Rakaia Terrane on an MDS map (Figure 10) there is a close association with the Rakaia Terrane and the Winton Formation data from Tucker et al. (2013). From the MDS of the pre-Silurian zircons (Figure 8) there is a spread of plausible source regions. When these pre-Silurian zircons, however, are included with the pre-Jurassic zircons (Figure 10) there is a strong association with the Rakaia and eastern Australia. These pre-Silurian zircons were therefore plausible recycled into the New England area. This recycling would also explain the Triassic rims on older cores, as when the zircons were shed into the New England area, the associated magmatism would result in growth zonation around these older cores. The similarity with the detritus from the Winton Formation is also interpreted by the fact that the Winton Formation was sourced from the New England/central Queensland region (Tucker et al. 2013).

## Source Constraints from Hf Data

εHf and εNd studies from the possible source regions are used here to compare with the data produced in this study. Phillips et al. (2011) described the εHf from the New England Fold Belt which range from -5 to +18. Borg et al. (1990) calculated εNd values from the Ross Orogen which ranged from -10.46 to -11.81. The equation εHf = 1.36εNd + 2.95 from Vervoort et al. (1999) means that Hf data and whole rock Nd data can be compared. Using this equation the equivalent εHf from the Ross Orogen is approximately -11.28 to -13.11. The εHf values calculated by Nebel et al. (2007) for the Brook Street Terrane ranged from +12.0 to +13.4 and +10.4 to +11.4. Similar studies were also done in the Lachlan Fold Belt, the ca. 490-540 detrital population has εHf values that range from -7.78 to 0 and the 550-625 Ma εHf values from -26.6 to 0 (Glen et al. 2011) Ordovician zircons with εHf values up to +15 have also been recorded in the Fairbridge and Cargo Volcanics. The Late Mesoproterozoic detrital population has εHf from -6.44 - +6.47 (Glen et al. 2011). From Figure 6 most of the data is confined within the εHf field taken from Phillips et al. (2011), supporting the New England area being the source of these zircons. The Ross Orogen is discounted as a possible zircon source region because there are no overlapping data (Figure 6). Within the εHf range from Glen et al. (2011) there is some overlap with the Rakaia data. There is still a significant amount of data that aren't accounted for, suggesting the areas of the Lachlan sampled by Glen et al. (2011) are not the only source of pre-Silurian zircons.

## Source Constraints from $^{40}Ar$-$^{39}Ar$ Data

From the age plots in Figure 7 there are two ages at ca. 340 Ma and ca. 250-220 Ma. These ages overlap with the two youngest detrital peaks in the detrital ages from the Rakaia Terrane (Figure 5). Fukui et al. (2012) determined three stages of metamorphism within the New England Fold Belt which occurred at ca. 470 Ma, ca. 330 Ma and ca. 260 Ma. $^{40}Ar$-$^{39}Ar$ studies undertaken in the Ross Orogen by Vincenzo et al. (2007) analysed both biotites and muscovites, which gave closure ages of 486.3 ± 3.5 Ma and 486.9 ± 3.5 Ma respectively. Mortimer et al. (1999) also undertook $^{40}Ar$-$^{39}Ar$ studies from hornblendes taken from the Brook Street Terrane which ranged in age from 251-245 Ma. Metamorphism within the Lachlan Fold Belt occurred largely within the Ordovician with $^{40}Ar$-$^{39}Ar$ of ca. 453 Ma, ca. 440 Ma, ca. 426 Ma and 410-390 Ma (Foster et al. 1998). From this these muscovites are most plausibly sourced from the New England area and the Brooke Street Terrane due to the overlapping Ar ages. As muscovite is not as resistant to erosion and transport as zircon they are less likely to be recycled. If they are recycled however and metamorphosed then the Ar ages would be reset. The Ar data, therefore, supports an interpretation of the turbidites being sourced from the New England area with the pre-Silurian zircons being recycled into the New England area. They cannot be sourced from the Brook Street Terrane as metamorphism within this terrane would have reset the ca. 340 Ma muscovite populations.

## CONCLUSIONS

The data collected from the Rakaia zircons constrain its plausible source region along the east coast of Australia and eliminates Antarctica and the Brook Street Terrane as possible source regions. The Rakaia Terrane had four significant detrital populations in the Triassic, Carboniferous, Ordovician and Proterozoic. The $\varepsilon Hf_{(t)}$ values ranged from -6 to +6 with rare element analysis indicating a granitoid source region. From this the zircons are interpreted to have been sourced from north eastern Queensland and south - south eastern Victoria. The $^{40}Ar/^{39}Ar$ ages gave two ages in the Carboniferous and the Triassic, suggesting the New England area as the exclusive source. The pre-Silurian zircons were therefore recycled into the New England Area before being eroded and further transported into the Rakaia Terrane along with zircons from contemporaneous magmatism from the New England Fold Belt.

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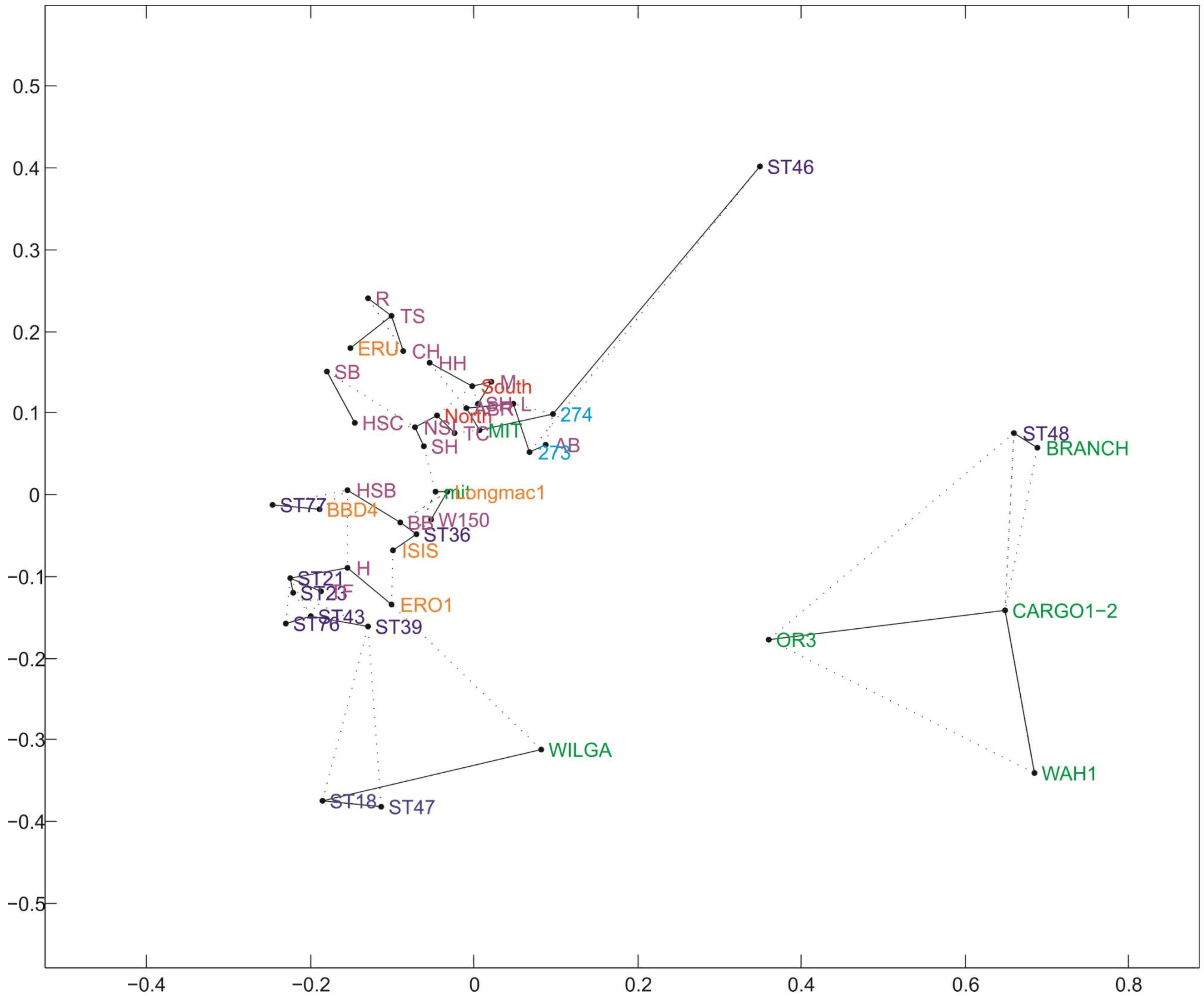


**Figure 8: The multidimensional scaling (MDS) map for the pre-Silurian zircons from the Rakaia Terrane in red (North, South), Squire et al. (2006) in dark blue (ST18, ST21, ST23, ST36, ST39, ST43, ST46, ST47, ST48, ST76, ST77), Glen et al. (2011) in green (mit, MIT, WILGA, WAH1, CARGO1-2, Branch, OR3), Sircombe (1999) in purple (HH, NSI, CH, SB, TS, SH, AB, ABR, BB, M, SH, H, R W150, L, HSB, HSC, TF, TC), Tucker et al. (2013) in orange (ERU, BBD4, ISIS, ERO1, Longmac1) and Veevers and Saeed (2011) in light blue (273, 274). If two distributions are connected by a solid line, from the Kolmogorov-Smirnov (KS) test, their distributions are the least dissimilar or most similar, if connected by a dotted line it is the second most similar distribution.**

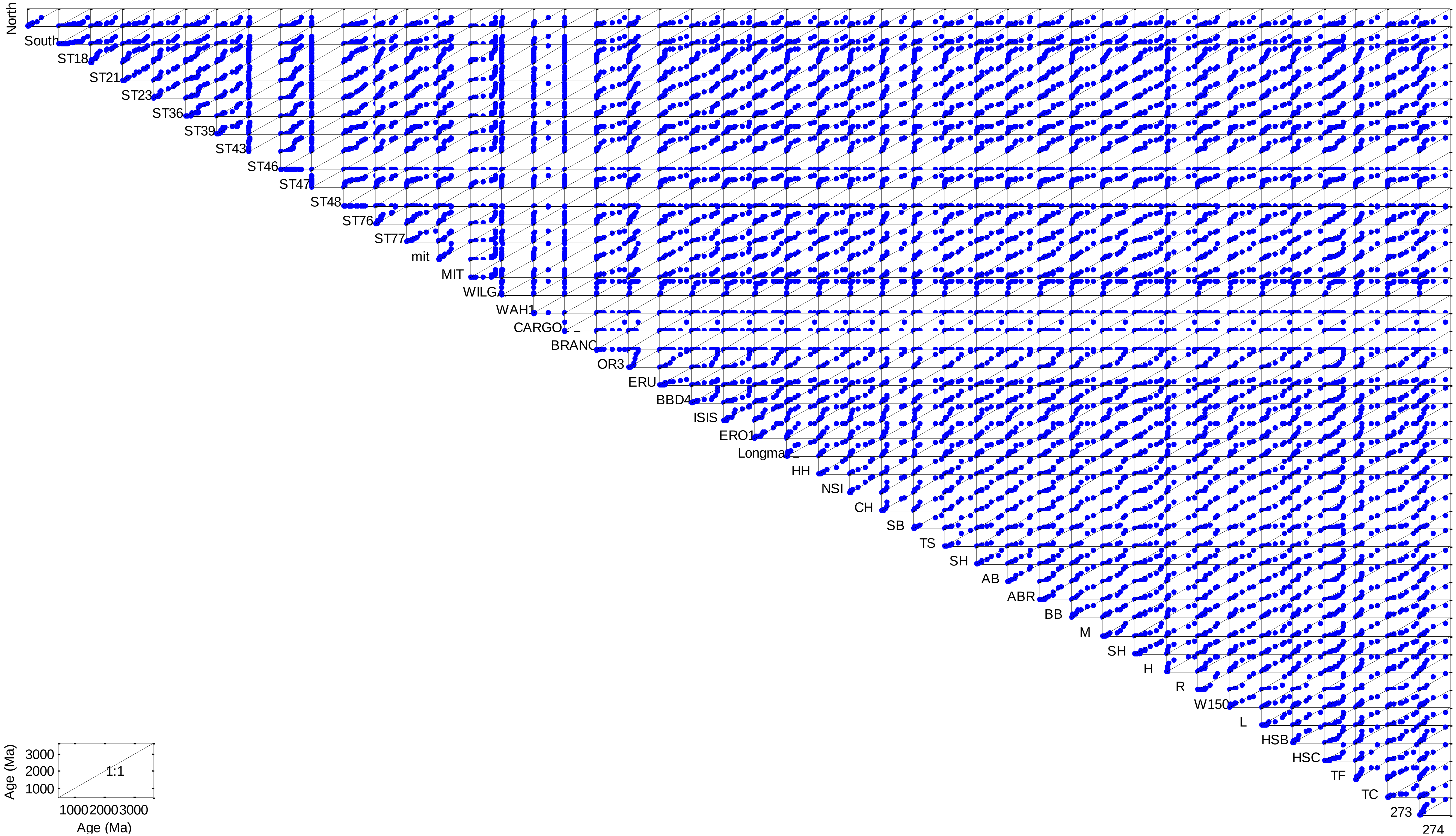


**Figure 9: The QQ plot for the pre-Silurian zircons from the Rakaia Terrane in red (North, South), Squire et al. (2006) in dark blue (ST18, ST21, ST23, ST36, ST39, ST43, ST46, ST47, ST48, ST76, ST77), Glen et al. (2011) in green (mit, MIT, WILGA, WAH1, CARGO1-2, Branch, OR3), Sircombe (1999) in purple (HH, NSI, CH, SB, TS, SH, AB, ABR, BB, M, SH, H, R W150, L, HSB, HSC, TF, TC), Tucker et al. in orange (2013) (ERU, BBD4, ISIS, ERO1, Longmac1) and Veevers and Saeed (2011) in light blue (273, 274). If two distributions are connected by a solid line, from the Kolmogorov-Smirnov (KS) test, their distributions are the least dissimilar or most similar, if connected by a dotted line it is the second most similar distribution.**

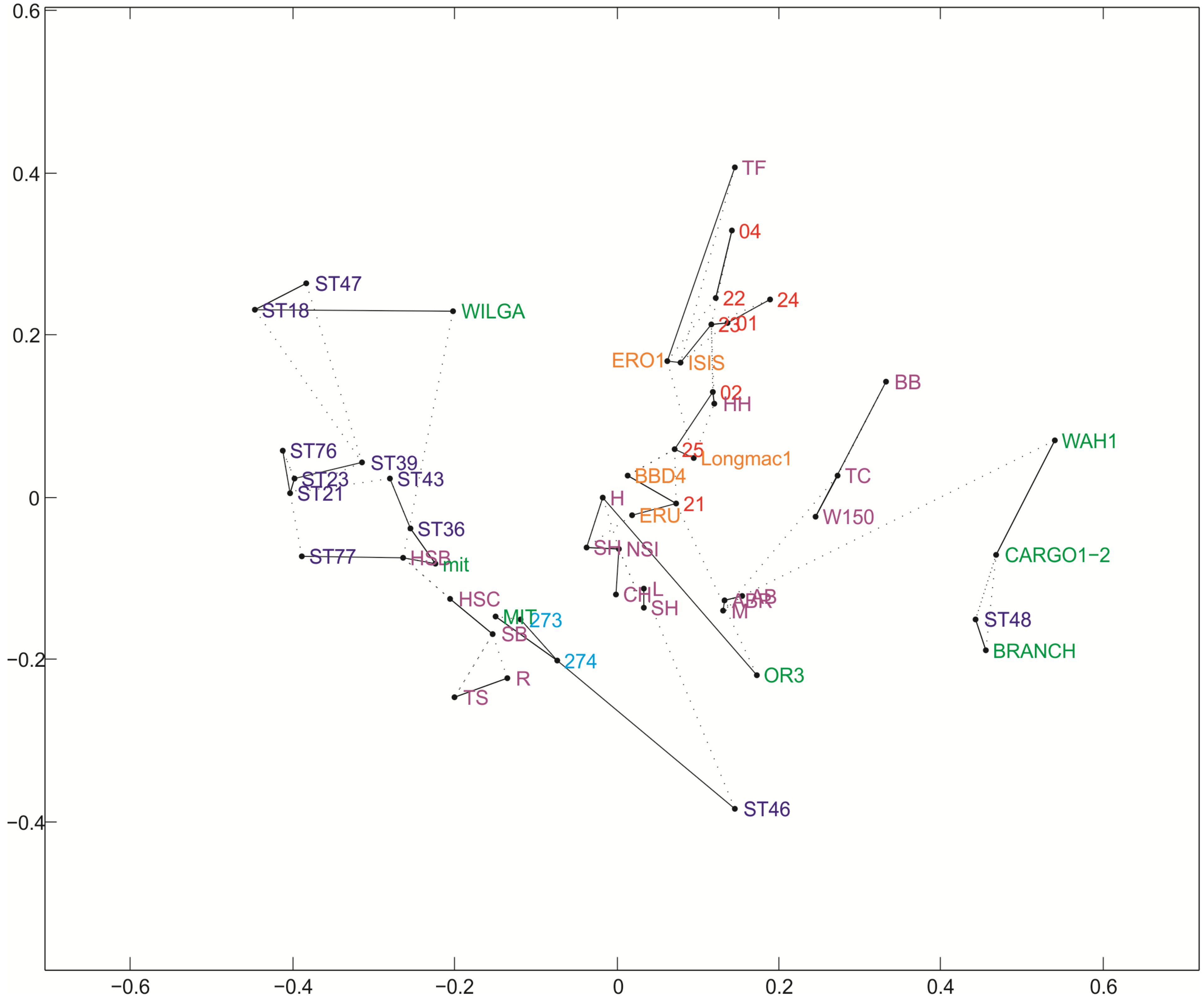


**Figure 10: The multidimensional scaling (MDS) map for the pre-Jurassic zircons from the Rakaia Terrane in red (01, 02, 04, 21, 22, 23, 24, 25), Squire et al. (2006) in dark blue (ST18, ST21, ST23, ST36, ST39, ST43, ST46, ST47, ST48, ST76, ST77), Glen et al. (2011) in green (mit, MIT, WILGA, WAH1, CARGO1-2, Branch, OR3), Sircombe (1999) in purple (HH, NSI, CH, SB, TS, SH, AB, ABR, BB, M, SH, H, R W150, L, HSB, HSC, TF, TC), Tucker et al. (2013) in orange (ERU, BBD4, ISIS, ERO1, Longmac1) and Veevers and Saeed (2011) in light blue (273, 274). If two distributions are connected by a solid line, from the Kolmogorov-Smirnov (KS) test, their distributions are the least dissimilar or most similar, if connected by a dotted line it is the second most similar distribution.**

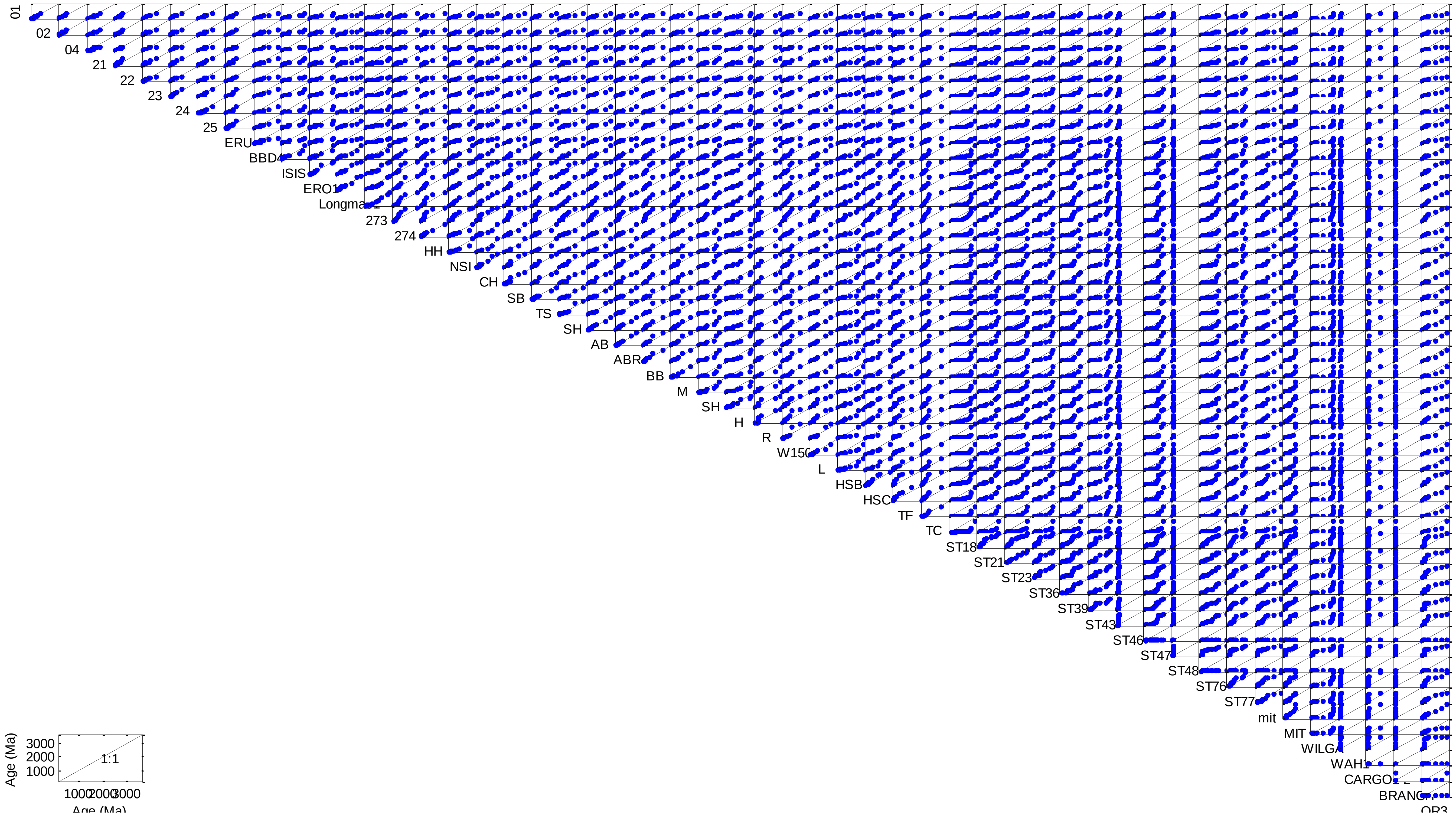


**Figure 11: The QQ plot for the pre-Jurassic zircons from the the Rakaia Terrane in red (01, 02, 04, 21, 22, 23, 24, 25), Squire et al. (2006) in dark blue (ST18, ST21, ST23, ST36, ST39, ST43, ST46, ST47, ST48, ST76, ST77), Glen et al. (2011) in green (mit, MIT, WILGA, WAH1, CARGO1-2, Branch, OR3), Sircombe (1999) in purple (HH, NSI, CH, SB, TS, SH, AB, ABR, BB, M, SH, H, R W150, L, HSB, HSC, TF, TC), Tucker et al. in orange (2013) (ERU, BBD4, ISIS, ERO1, Longmac1) and Veevers and Saeed (2011) in light blue (273, 274). If two distributions are connected by a solid line, from the Kolmogorov-Smirnov (KS) test, their distributions are the least dissimilar or most similar, if connected by a dotted line it is the second most similar distribution.**

# APPENDIX

## Methods

### ZIRCON SEPARATION

Using a diamond saw the samples were then cut to the appropriate size for the jaw crusher. Prior to use the stage and blade were thoroughly cleaned using a hose attached to a nearby sink to ensure no contamination. The sample was placed on the stage and pushed through to ensure that it did not come into contact with the arbor or the shaft. The saw and water was then turned on, ensuring it just covered the blade and the sample and the sample was slowly pushed through. Small rectangles, approximately 6 cm x 2 cm x 1 cm, were also cut from six of the samples to be turned into thin sections. These were done using bricks for safety purposes. Before being crushed in the jaw crusher the pieces of samples were dried on a hotplate and placed in a clearly labelled sample bag. Cleaning the jaw crusher involved removing the collection tray and opening up the crusher. Compressed air was then used to remove any loose particles before the jaws were brushed clean with a wire brush. Before reassembly the jaws and collection tray were wiped clean with ethanol and dried with compressed air. A representative proportion, usual half, the of the sample was then crushed and sieved using an Endecotts EFL2000 Sieve Shaker and a Flexistack. The sieve contained two pieces of sieve mesh, a piece of 400 µm and a piece of 79 µm mesh. This divided the sample into three fractions, a >400 µm fraction, a <79 µm fraction, and a 400-79 µm fraction which contained the zircons. After the sample had been sieved for approximately a minute the >400 µm fraction was milled using a disc mill. Before use the disc mill was cleaned by opening the latch at the front of the mill. The inside of the mill was then brushed before use of compressed air to remove any finer particles. The inside of the mill, including the discs was wiped clean with ethanol before the disc mill was reassembled. Finally the collection tray beneath the discs was removed and wiped clean before being reinserted into the disc mill. The coarse fraction was then milled down to 20 mm before being sieved again. The distance between the discs was then set to 5 mm and the newly sieved coarse fraction was then milled down to 5 mm before being sieved again. This procedure of milling and sieving was then repeated with the milling stages going from 5 mm → 3 mm → 1 mm → 0.5 mm. After the final sieving the three fractions and the sieve mesh were then bagged and cleanly labelled with the fraction size and sample number. The zircon fraction was then panned to remove any light material. The panning process involved wetting the zircon fraction in a small pan and shaking it to concentrate the zircons in the bottom of the pan. This small pan was then dipped into a larger pan filled with water to remove the lighter material on the surface. This process was repeated until all the light material had been removed. The remaining heavy material was then collected in a piece of filter paper and dried on a hot plate. The light material was also collected in pieces of filter paper and dried in an oven before being bagged. Once dried any magnetic material was removed by passing a magnet over the samples, as zircon is not magnetic anything collected in this stage was discarded. The inclined chute on the Isodynamic Magnetic Separator Model L-1 Franz was unscrewed and cleaned with compressed air as was the rest of the Franz before the chute was screwed back into place. The Franz was first set to 1.5 amperes and the coaxial vibrator to the maximum 10 before the heavy material was Franzed in stages. Once the entire sample had passed through the Franz, it was set to >1.7 amps, 1.8 amps in this case, and the non-magnetic material was passed through the separator again. Once this run on the Franz was complete the magnetic material was bagged and the zircons within the non-magnetic material were further concentrated with heavy liquids. The heavy liquids were set up, in a "Safe-Tee" series 200 Fume Cupboard, so the 50 mL burette would drain into a funnel containing a piece of filter paper which would capture the zircons while the heavy liquids were filtered through and recapture the heavy liquid, methylene iodide, was poured into a funnel placed on top of the burette ensuring the tap was firmly closed. The non-magnetic material from the Franz was then also poured in and thoroughly stirred. The heavy material was allowed to settle to the bottom before being drained by opening the tap briefly. This procedure of stirring and draining was repeated five times before the filter paper containing the concentrate removed from the system and was washed with acetone ten times into a waste disposal bottle. The remaining material was drained into a separate piece of filter paper and the heavy liquids allowed to drain into the bottle. Once fully filtered the bottle of heavy liquids was replaced with a 250 mL conical flask and the system cleaned with acetone. The heavy material was then dried on a hot plate and viewed with a microscope to determine the presence of zircon. If the concentrate contained zircon it was transferred to a vial for mounting. If it contained no zircons the procedure of panning, franzing and heavy liquids separation was repeated. The lighter material was also dried on the hot plate and bagged. The entire set up for the heavy liquids was then washed cleaned ten times with acetone into the waste disposal bottle. Once separated the zircons were mounted on a clean glass slide. A single piece of double sided adhesive tape was laid carefully onto the slide ensuring no air bubbles formed. A single piece of adhesive tape was then laid, adhesive side up, onto of the double sided tape, again ensuring no air bubbles. The rubber mould was placed on the single sided tape and the inside of the mould engraved into the tape, forming the boundary of the mount. The zircons were then poured into a clean petri dish and using a pick and a pair of Olympus SZ51 microscopes transferred from the dish to the mount. Once approximately 300 zircons had been mounted the inside of the rubber mount was lubricated and was realigned with the engraved outline. An epoxy mix of one part epoxy hardener 20-8132-008 and five parts epoxy resin 20-8130-032 was combined and thoroughly mixed. This epoxy mix was carefully poured down the side of the rubber mount until around 1 cm of mix was within the mould. A small piece of paper with the sample number was then submerged just below the surface of the resin and allowed to dry for at least 24 hours. Once dried the rubber mount was twisted off the epoxy block and the tape removed. The surfaces of the mounts were then manually ground down until the cores of the zircons were exposed. The surfaces were then polished for 10 minutes using a Struers DP-U4 cloth lap and diamond paste before being carbon coated.

## U-PB GEOCHRONOLOGY

U-Pb zircon geochronology was undertaken via Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS). Back-scattered electrons and cathodoluminescence imaging of the zircon grains was done on a Phillips XL40 Scanning Electron Microscope to map the zircons and determine any internal structures

(Figure 3) within the individual grains mounted in the epoxy mount. U-Pb analyses were carried out on a New Wave UP-213 laser attached to an Agilent 7500cx inductively coupled plasma mass spectrometry (ICP-MS) at Adelaide Microscopy, the University of Adelaide. Ablation was conducted in a helium atmosphere after which argon gas was added immediately after to the cell to aid transport of material. A spot size of 30 µm was chosen in order to target textural domains within the grains, while maximizing signal intensity at the mass spectrometer. A laser frequency of 5 Hz and output laser percentage of 55% resulted in an average fluence of 7 J/cm2 at the ablation site and an ablation time of 80 seconds. Measured isotopes were $^{204}Pb$, $^{206}Pb$, $^{207}Pb$, $^{238}U$, $^{208}Pb$ and $^{232}Th$ with dwell times of 10, 15, 30, 15, 10 and 10 ms respectively. Mass $^{204}Pb$ was measured as a monitor of common lead content, and due to the unresolvable isobaric interference of $^{204}Hg$ on $^{204}Pb$ common lead corrections were not conducted. Age calculations and corrections were done in the GLITTER software through the use of the primary zircon standard GJ-1, TIMS normalization data $^{207}Pb/^{206}Pb$ = 608.3 Ma, $^{206}Pb/^{238}U$ = 600.7 Ma and $^{207}Pb/^{235}U$ = 602.2 Ma (Jackson et al. 2004). An overestimated uncertainty of 1% was assigned to the TIMS derived normalization age for GJ-1. Instrument drift was also corrected for in GLITER via standard bracketing every 10-15 unknowns and application of a linear correction. Accuracy of the methodology was verified by repeat analysis of Plesovice zircon ($^{206}Pb/^{238}U$ = 337.13±0.37). The weighted average ages for Plesovice were 354 ± 19 for $^{207}Pb/^{206}Pb$, 334 ± 4 Ma for $^{206}Pb/^{238}U$, and 335 ± 3 Ma for $^{207}Pb/^{235}U$ (95% confidence; n=20). Due to the unresolvable $^{204}Hg$ on $^{204}Pb$ interference, isotope ratios are presented uncorrected for common lead, with concordia plots generated using Isoplot/Ex 3.71. Data was rejected based on the presence of common lead based on a combination of intensity of the raw $^{204}Pb$ counts, and following this, weighted average $^{207}Pb/^{206}Pb$ age calculations at 2σ confidence are reported.

## ZIRCON HF ISOTOPES

Hf analyses were undertaken on zircons, previously dated for U-Pb ages, mounted within epoxy moulds using the methods described in Griffin *et al.* (2006b). This was undertaken on a LA-MC-ICPMS with an attached New Wave UP-193 Excimer laser and Thermo-Scientific Neptune Multicollector at the University of Adelaide Waite Campus. This Excimer laser delivered a beam of 198nm UV light. For the analyses a beam diameter of 35 µm with a repetition rate of 5 Hz was choosen. For the analyses the 172, 175, 176, 177, 178, 179 and 180 were all measured concurrently. Prior to any analyses the data was normalised such that $^{179}Hf/^{177}Hf$ is equal to 0.7325. Interference of $^{176}Lu$ on $^{176}Hf$ was corrected for by calculating $^{176}Lu/^{176}Hf$ with the isotope $^{175}Lu$ and $^{176}Lu/^{175}Lu$ equals 0.02669 following Patchett (1983). The interference of $^{176}Yb$ on $^{176}Hf$ was corrected in a similar fashion. It was corrected by measuring the isotope $^{172}Yb$ and coupling this with $^{176}Yb/^{172}Yb$ values to calculate $^{176}Yb/^{177}Hf$. The $^{176}Yb/^{172}Yb$ were calculated by adding Yb to the JMC475 Hf standard to find the value of $^{176}Yb/^{172}Yb$ that gives the value required to yield a known value of $^{176}Hf/^{177}Hf$ (Griffin et al. 2004). Both prior to the analysis and during the analyses the standard Mudtank zircons to ensure accuracy (Average corrected value $^{176}Hf/^{177}Hf$ = 0.282515 ± 0.000021 with 2σ confidence and n=11 ((Griffin et al. 2006a, Howard et al. 2009)). The $^{176}Hf/^{177}Hf$ ratios were calculated from the measured $^{176}Lu/^{176}Hf$ values giving an uncertainty of <ε0.05Hf. The decay constant of 1.856 x $10^{-11}$ $y^{-1}$ for $^{176}$Lu as calculated in Scherer *et al.* (2001) was selected for the calculation of εHf values.

## $^{40}$AR-$^{39}$AR DATING

From the samples selected for 40Ar/39Ar dating unaltered, optically transparent, >400 μm-muscovites were separated. These minerals were separated using a Frantz magnetic separator, and then carefully hand-picked under an Olympus SZ51 microscope. The selected muscovites were leached in diluted HF for one minute and then thoroughly rinsed with distilled water in an ultrasonic cleaner. Samples were loaded into 10 large wells of 1.9 cm diameter and 0.3 cm depth aluminium disc. These wells were bracketed by small wells that included Fish Canyon sanidine (FCs) used as a neutron fluence monitor for which an age of 28.305 ± 0.036 Ma (1σ) was adopted (Renne et al. 2010) based on the calibration by Jordan and Renne (2007). The discs were Cd-shielded (to minimize undesirable nuclear interference reactions) and irradiated in the Hamilton McMaster University nuclear reactor (Canada) in position 5C. The mean J-values computed from standard grains within the small pits range from 0.0026752 ± 0.0000040 (0.15%) to 0.0026644 ± 0.000054 (0.20%) determined as the average and standard deviation of J-values of the small wells for each irradiation disc. Mass discrimination was monitored using an automated air pipette and provided a mean value of 1.00646 ± 0.00238 per dalton (atomic mass unit) relative to an air ratio of 298.56 ± 0.31 (Lee et al. 2006). The correction factors for interfering isotopes were $(^{39}Ar\text{-}^{37}Ar)_{Ca} = 7.30\times10^{-4}$ (± 11%), $(^{36}Ar\text{-}^{37}Ar)_{Ca} = 2.82\times10^{-4}$ (± 1%) and $(^{40}Ar\text{-}^{39}Ar)_{K} = 6.76\times10^{-4}$ (± 32%). The $^{40}$Ar-$^{39}$Ar analyses were performed at the Western Australian Argon Isotope Facility at Curtin University, operated by a consortium consisting of Curtin University and the University of Western Australia. The samples were fusion heated using a 110 W Spectron Laser Systems, with a continuous Nd-YAG (IR; 1064 nm) laser. The gas was purified in a stainless steel extraction line using three SAES AP10 getters and a liquid nitrogen condensation trap. Ar isotopes were measured in static mode using a MAP 215-50 mass spectrometer (resolution of ~500; sensitivity of $4\times10^{-14}$ mol/V) with a Balzers SEV 217. The data acquisition was performed with the Argus program written by M.O. McWilliams and ran under a LabView environment. The raw data were processed using the ArArCALC software (Koppers 2002) and the ages have been calculated using the decay constants recommended by Renne et al. (2010). Integrated ages (2σ) are calculated using the total gas released for each Ar isotope.

## TRACE ELEMENT ANALYSIS

Trace Element Analysis were undertaken on 120 zircons from 4 different samples, previously dated for U-Pb ages, mounted within epoxy moulds following the method outlined by Belousova *et al.* (2002). This was undertaken Cameca SX51 electron microprobe located at Adelaide Microscopy, The University of Adelaide. Spot analyses were conducted using a beam current of 20 nA and an accelerating voltage of 15 kV, with a defocused beam of 5 micron. Concentrations calculated on the microprobe included the percent oxide (wt%) of Oxygen (O), Hafnium (Hf), Silica (Si) and Zirconium (Zr). Calibration was done on natural and synthetic mineral standards supplied by Astimex, Taylor, and P&H. The trace element compositions were preformed via laser ablation inductively coupled mass-spectrometry, at Adelaide Microscopy, following the methods of Raimondo *et al.* (2011). Zircons were analysed using an Agilent 7500cc quadrupole ICP-MS with an attached New Wave UP-213 Nd-YAG laser. The elements analysed for were Titanium (Ti), Yttrium (Y), Niobium (Nb), Hafnium (Hf), Tantalum (Ta), Lanthanium (La), Cerium (Ce), Praseodymium (Pr), Samarium (Sm), Europium (Eu), Gadolinium (Gd), Ytterbium (Yb), Lutetium (Lu), Thorium (Th) and Uranium (U). A spot size of 30 µm was chosen with a repetition rate of 5 Hz with the energy set to produce a fluence of ~7 $Jcm^{-2}$. Ablation was conducted in a helium atmosphere to which argon gas was also added. The machine was tuned to peak sensitivity to minimize the production of interfering oxide species so that $^{232}Th^{16}O/^{232}Th$ was routinely < 0.5%. Data was collected using a time-resolved data acquisition in fast peak jumping mode and then processed using the GLITTER software (Achterbergh et al. 2001). The acquisition time for each analyses was 60 seconds with 30 seconds of background and 30 seconds of zircon ablation. The results were calibrated against the NIST 610 standard glass with the coefficients of Pearce *et al.* (1997) Groups of 15 analyses were bracketed by repeat analyses of the NIST 610 standard which corrected for any instrument drift. A linear drift correction based on the analysis sequence and on the bracketing of NIST-610 was applied to the count rate of each sample. $^{178}Hf$ was used as the internal standard for the zircons, this was pre-determined from the microprobe results.

## Supplementary Tables

| Sample Number | Coordinates |
|---|---|
| NZ1301 | 41°21’29.34”S 174°43’31.09”E |
| NZ1302 | 41°21’13.65”S 174°43’42.74”E |
| NZ1303 | 41°20’47.19”S 174°44’46.36”E |
| NZ1304 | 41°20’47.19”S 174°44’46.36”E |
| NZ1305 | 43°18’01.27”S 171°44’52.29”E |
| NZ1313 | 43°23’17.7”S 170°12’32.5”E |
| NZ1321 | 42°51’45.24”S 171°33’28.1”E |
| NZ1322 | 42°55’56.85”S 171°33’33.79”E |
| NZ1323 | 43°01’15.90”S 171°35’49.83”E |
| NZ1324 | 43°18’05.0”S 171°45’07.98”E |
| NZ1325 | 41°20’47.19”S 174°44’46.36”E |

**Supplementary Table 1: The sample name and corresponding GPS coordinates for the outcrop the sample was taken from.**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 39 | 15728 | 832 | 3938 | 299192 | 450086 | 0.05145 | 0.00072 | 0.04004 | 0.00047 | 0.28402 | 0.00419 | 0.01041 | 0.0002 | 261.2 | 31.9 | 253.1 | 2.94 | 253.8 | 3.32 | 209.3 | 4 | 0.936522 | 99.72419228 |
| Z2 | 18 | 4240 | 226 | 1450 | 130773 | 140936 | 0.05196 | 0.00125 | 0.03447 | 0.00044 | 0.24689 | 0.00593 | 0.00879 | 0.0002 | 283.5 | 54.03 | 218.5 | 2.74 | 224 | 4.83 | 176.8 | 3.94 | 0.936522 | 97.54464286 |
| Z3 | 22 | 44185 | 2636 | 9964 | 386732 | 618391 | 0.05812 | 0.00068 | 0.08204 | 0.00096 | 0.65732 | 0.00835 | 0.02047 | 0.0004 | 533.8 | 25.74 | 508.3 | 5.71 | 513 | 5.12 | 409.5 | 7.91 | 0.936522 | 99.08382066 |
| Z4 | 31 | 17499 | 905 | 3918 | 386442 | 633714 | 0.05033 | 0.00069 | 0.0319 | 0.00038 | 0.22131 | 0.00324 | 0.00803 | 0.00017 | 210.1 | 31.62 | 202.4 | 2.37 | 203 | 2.69 | 161.6 | 3.32 | 0.936522 | 99.7044335 |
| Z5 | 32 | 139605 | 8625 | 8430 | 272690 | 1627608 | 0.0602 | 0.00065 | 0.09869 | 0.00115 | 0.81905 | 0.0099 | 0.02471 | 0.00051 | 610.9 | 23.28 | 606.7 | 6.73 | 607.5 | 5.53 | 493.4 | 9.96 | 0.936522 | 99.86831276 |
| Z6 | 15 | 71362 | 4894 | 10022 | 197476 | 670728 | 0.06705 | 0.00096 | 0.11881 | 0.0014 | 1.09827 | 0.01616 | 0.04132 | 0.00145 | 839.3 | 29.47 | 723.7 | 8.04 | 752.5 | 7.82 | 818.4 | 28.16 | 0.936522 | 96.17275748 |
| Z7 | 28 | 17872 | 1040 | 2466 | 115715 | 293118 | 0.05681 | 0.00088 | 0.07228 | 0.0009 | 0.56605 | 0.00922 | 0.01716 | 0.00049 | 483.4 | 34.28 | 449.9 | 5.42 | 455.5 | 5.98 | 343.8 | 9.8 | 0.936522 | 98.77058178 |
| Z8 | 24 | 24523 | 1278 | 5181 | 405925 | 715867 | 0.05123 | 0.00068 | 0.0386 | 0.00045 | 0.27263 | 0.00382 | 0.01051 | 0.00026 | 251.3 | 30.37 | 244.2 | 2.78 | 244.8 | 3.05 | 211.3 | 5.14 | 0.936522 | 99.75490196 |
| Z9 | 29 | 14818 | 782 | 2523 | 205008 | 475156 | 0.05166 | 0.00083 | 0.0366 | 0.00045 | 0.26063 | 0.00436 | 0.0101 | 0.00029 | 270.3 | 36.37 | 231.7 | 2.81 | 235.2 | 3.51 | 203.2 | 5.83 | 0.936522 | 98.51190476 |
| Z10 | 10 | 11493 | 662 | 956 | 45279 | 201835 | 0.05521 | 0.00141 | 0.07068 | 0.00103 | 0.53781 | 0.01373 | 0.01688 | 0.0009 | 420.7 | 55.59 | 440.3 | 6.19 | 437 | 9.07 | 338.2 | 17.89 | 0.936522 | 100.7551487 |
| Z11 | 2 | 9177 | 476 | 2151 | 193475 | 302271 | 0.05103 | 0.00085 | 0.03451 | 0.00041 | 0.24274 | 0.00414 | 0.00937 | 0.00025 | 242.3 | 37.87 | 218.7 | 2.58 | 220.7 | 3.38 | 188.5 | 5.08 | 0.936522 | 99.09379248 |
| Z12 | 28 | 12765 | 784 | 3783 | 331311 | 433330 | 0.06058 | 0.00093 | 0.03379 | 0.00041 | 0.2821 | 0.00447 | 0.00963 | 0.00028 | 624.2 | 32.65 | 214.2 | 2.54 | 252.3 | 3.54 | 193.7 | 5.6 | 0.936522 | 84.89892985 |
| Z13 | 22 | 43400 | 3686 | 7783 | 130486 | 247065 | 0.08301 | 0.00092 | 0.20414 | 0.00241 | 2.33593 | 0.02887 | 0.04855 | 0.00086 | 1269.4 | 21.31 | 1197.5 | 12.88 | 1223.3 | 8.79 | 958.2 | 16.58 | 0.864389 | 97.89095071 |
| Z14 | 26 | 9139 | 558 | 2127 | 153725 | 270855 | 0.0599 | 0.00092 | 0.03901 | 0.00047 | 0.32216 | 0.00514 | 0.01154 | 0.00024 | 600 | 32.82 | 246.7 | 2.93 | 283.6 | 3.95 | 231.9 | 4.74 | 0.864389 | 86.9887165 |
| Z15 | 34 | 17829 | 940 | 8589 | 737708 | 585495 | 0.05147 | 0.00074 | 0.0359 | 0.00044 | 0.25469 | 0.00388 | 0.00958 | 0.0002 | 261.7 | 32.51 | 227.3 | 2.73 | 230.4 | 3.14 | 192.7 | 4.05 | 0.864389 | 98.65451389 |
| Z16 | 18 | 10676 | 560 | 1290 | 114769 | 353568 | 0.05112 | 0.00089 | 0.03608 | 0.00046 | 0.25424 | 0.00458 | 0.0091 | 0.00024 | 246.1 | 39.44 | 228.5 | 2.85 | 230 | 3.71 | 183.2 | 4.82 | 0.864389 | 99.34782609 |
| Z17 | 43 | 9784 | 524 | 2803 | 263365 | 344522 | 0.05175 | 0.00111 | 0.0351 | 0.00048 | 0.25037 | 0.00549 | 0.00838 | 0.00025 | 274.2 | 48.53 | 222.4 | 2.98 | 226.9 | 4.46 | 168.8 | 4.96 | 0.864389 | 98.01674747 |
| Z18 | 40 | 13457 | 706 | 2742 | 240138 | 430906 | 0.05112 | 0.00079 | 0.03716 | 0.00046 | 0.26188 | 0.00426 | 0.0094 | 0.00023 | 246.2 | 35.07 | 235.2 | 2.87 | 236.2 | 3.43 | 189.2 | 4.57 | 0.864389 | 99.57662997 |
| Z19 | 26 | 5080 | 301 | 1140 | 99371 | 168217 | 0.05712 | 0.00172 | 0.03767 | 0.00057 | 0.29662 | 0.00882 | 0.009 | 0.00035 | 495.5 | 65.44 | 238.4 | 3.56 | 263.8 | 6.91 | 181 | 6.97 | 0.864389 | 90.37149356 |
| Z20 | 32 | 2341 | 210 | 367 | 5915 | 20211 | 0.08771 | 0.00211 | 0.13573 | 0.00188 | 1.64134 | 0.03913 | 0.0522 | 0.00191 | 1376.1 | 45.4 | 820.5 | 10.68 | 986.2 | 15.04 | 1028.5 | 36.68 | 0.864389 | 83.19813425 |
| Z21 | 26 | 100913 | 5590 | 22689 | 1526951 | 2450903 | 0.05339 | 0.00066 | 0.05044 | 0.00063 | 0.37128 | 0.00518 | 0.01173 | 0.00032 | 345.3 | 27.66 | 317.2 | 3.88 | 320.6 | 3.83 | 235.6 | 6.43 | 0.864389 | 98.93948846 |
| Z22 | 28 | 7590 | 452 | 1550 | 129067 | 250665 | 0.05752 | 0.00111 | 0.03712 | 0.00049 | 0.29434 | 0.00584 | 0.00927 | 0.00027 | 511.2 | 42.07 | 234.9 | 3.06 | 262 | 4.58 | 186.6 | 5.42 | 0.864389 | 89.65648855 |
| Z23 | 22 | 34385 | 2631 | 3140 | 65977 | 249264 | 0.07355 | 0.00103 | 0.17121 | 0.00222 | 1.73599 | 0.0267 | 0.03703 | 0.00119 | 1029.1 | 27.79 | 1018.8 | 12.21 | 1022 | 9.91 | 735 | 23.29 | 0.864389 | 99.68688845 |
| Z24 | 17 | 7755 | 424 | 1586 | 117262 | 211389 | 0.05255 | 0.0011 | 0.04517 | 0.00061 | 0.32726 | 0.00698 | 0.01062 | 0.00035 | 309.4 | 46.68 | 284.8 | 3.77 | 287.5 | 5.34 | 213.6 | 7.04 | 0.864389 | 99.06086957 |
| Z25 | 11 | 18818 | 1001 | 4853 | 441601 | 627552 | 0.05147 | 0.00078 | 0.03647 | 0.00046 | 0.25877 | 0.00421 | 0.00897 | 0.00028 | 262 | 34.55 | 230.9 | 2.88 | 233.7 | 3.4 | 180.5 | 5.52 | 0.864389 | 98.80188276 |
| Z26 | 49 | 13085 | 796 | 2510 | 228994 | 471740 | 0.05805 | 0.00167 | 0.03483 | 0.00054 | 0.27886 | 0.00793 | 0.0077 | 0.00033 | 531.3 | 62.47 | 220.7 | 3.34 | 249.8 | 6.29 | 155 | 6.53 | 0.758365 | 88.35068054 |
| Z27 | 17 | 6572 | 378 | 1599 | 121718 | 210040 | 0.05545 | 0.0017 | 0.03716 | 0.00055 | 0.284 | 0.00853 | 0.01019 | 0.00038 | 430.1 | 66.7 | 235.2 | 3.44 | 253.8 | 6.75 | 204.8 | 7.63 | 0.758365 | 92.6713948 |
| Z28 | 26 | 22898 | 1325 | 1839 | 88770 | 388401 | 0.05581 | 0.001 | 0.0731 | 0.00098 | 0.56249 | 0.01054 | 0.01512 | 0.00051 | 444.6 | 39.14 | 454.8 | 5.87 | 453.1 | 6.85 | 303.3 | 10.17 | 0.758365 | 100.3751931 |
| Z29 | 0 | 18605 | 1016 | 5184 | 498752 | 646286 | 0.0526 | 0.00084 | 0.0351 | 0.00045 | 0.25453 | 0.00428 | 0.00762 | 0.00019 | 311.7 | 35.78 | 222.4 | 2.8 | 230.2 | 3.47 | 153.5 | 3.71 | 0.758365 | 96.61164205 |
| Z30 | 15 | 7947 | 514 | 1243 | 48336 | 117969 | 0.06238 | 0.00126 | 0.08214 | 0.00111 | 0.70641 | 0.01452 | 0.0187 | 0.00056 | 687 | 42.55 | 508.9 | 6.63 | 542.6 | 8.64 | 374.4 | 11.09 | 0.758365 | 93.78916329 |
| Z31 | 12 | 10184 | 685 | 2169 | 88638 | 157636 | 0.06499 | 0.00122 | 0.07846 | 0.00105 | 0.70293 | 0.01353 | 0.01809 | 0.00053 | 773.9 | 39.08 | 486.9 | 6.26 | 540.5 | 8.07 | 362.5 | 10.58 | 0.758365 | 90.08325624 |
| Z32 | 8 | 24711 | 1445 | 5460 | 243078 | 392022 | 0.05686 | 0.00072 | 0.07235 | 0.00085 | 0.56714 | 0.00772 | 0.01707 | 0.00037 | 485.6 | 28.17 | 450.3 | 5.13 | 456.2 | 5 | 342.2 | 7.35 | 0.758365 | 98.70670758 |
| Z33 | 80 | 105925 | 6718 | 6532 | 214324 | 1206485 | 0.0613 | 0.00084 | 0.10725 | 0.00136 | 0.90644 | 0.01351 | 0.02242 | 0.00073 | 649.7 | 29.07 | 656.8 | 7.9 | 655.2 | 7.2 | 448.1 | 14.37 | 0.758365 | 100.2442002 |
| Z34 | 40 | 176609 | 12270 | 10793 | 262625 | 1567256 | 0.06705 | 0.00085 | 0.1357 | 0.00168 | 1.25447 | 0.01746 | 0.02963 | 0.00087 | 839.5 | 26.09 | 820.3 | 9.52 | 825.4 | 7.86 | 590.1 | 16.98 | 0.758365 | 99.38211776 |
| Z35 | 8 | 51098 | 3647 | 4675 | 99629 | 410268 | 0.06884 | 0.00094 | 0.14531 | 0.00177 | 1.37892 | 0.01994 | 0.03423 | 0.00106 | 893.9 | 27.92 | 874.6 | 9.93 | 880 | 8.51 | 680.3 | 20.67 | 0.758365 | 99.38636364 |
| Z36 | 22 | 12380 | 722 | 2330 | 187492 | 405478 | 0.05659 | 0.00088 | 0.03492 | 0.00042 | 0.27237 | 0.00435 | 0.00904 | 0.00024 | 474.7 | 34.28 | 221.2 | 2.62 | 244.6 | 3.47 | 181.9 | 4.81 | 0.758365 | 90.43336059 |
| Z37 | 22 | 18388 | 1016 | 3241 | 237074 | 492815 | 0.05336 | 0.00079 | 0.04317 | 0.00052 | 0.31756 | 0.00488 | 0.00981 | 0.00027 | 344.1 | 32.87 | 272.4 | 3.23 | 280 | 3.76 | 197.2 | 5.37 | 0.758365 | 97.28571429 |
| Z38 | 1 | 36594 | 6133 | 6514 | 76477 | 161135 | 0.15987 | 0.00225 | 0.35174 | 0.00561 | 7.75135 | 0.13724 | 0.08673 | 0.0037 | 2454.3 | 23.56 | 1942.9 | 26.75 | 2202.6 | 15.92 | 1681.2 | 68.75 | 0.629604 | 88.2093889 |
| Z39 | 13 | 1915 | 133 | 415 | 14352 | 27009 | 0.06754 | 0.00234 | 0.10596 | 0.002 | 0.98619 | 0.03426 | 0.03158 | 0.00218 | 854.4 | 70.5 | 649.2 | 11.68 | 696.8 | 17.51 | 628.5 | 42.81 | 0.629604 | 93.16877153 |
| Z40 | 4 | 6421 | 447 | 659 | 21930 | 107474 | 0.06527 | 0.00139 | 0.09542 | 0.00165 | 0.85825 | 0.02012 | 0.02948 | 0.00163 | 783 | 43.99 | 587.5 | 9.72 | 629.2 | 10.99 | 587.3 | 32.09 | 0.629604 | 93.37253655 |
| Z41 | 11 | 2958 | 161 | 432 | 34617 | 87334 | 0.05181 | 0.00128 | 0.05298 | 0.00091 | 0.3783 | 0.00997 | 0.01267 | 0.00068 | 276.9 | 55.61 | 332.8 | 5.59 | 325.8 | 7.35 | 254.5 | 13.57 | 0.629604 | 102.1485574 |
| Z42 | 0 | 1648 | 89 | 411 | 38307 | 63087 | 0.05255 | 0.00179 | 0.04005 | 0.00073 | 0.29004 | 0.01007 | 0.01142 | 0.00071 | 309.2 | 75.87 | 253.1 | 4.5 | 258.6 | 7.93 | 229.6 | 14.2 | 0.629604 | 97.87316319 |
| Z43 | 8 | 6014 | 326 | 1055 | 77160 | 165175 | 0.05166 | 0.00105 | 0.05707 | 0.00095 | 0.40625 | 0.00922 | 0.01373 | 0.00074 | 270.2 | 45.82 | 357.8 | 5.82 | 346.2 | 6.66 | 275.7 | 14.83 | 0.629604 | 103.3506644 |
| Z44 | 0 | 1810 | 96 | 486 | 43289 | 60797 | 0.051 | 0.00152 | 0.04657 | 0.00083 | 0.3274 | 0.01012 | 0.01168 | 0.00071 | 241 | 67.3 | 293.5 | 5.13 | 287.6 | 7.74 | 234.7 | 14.09 | 0.629604 | 102.0514604 |
| Z45 | 4 | 7958 | 591 | 518 | 13468 | 74982 | 0.07085 | 0.0014 | 0.16733 | 0.00283 | 1.63391 | 0.03655 | 0.03973 | 0.00255 | 953 | 40.04 | 997.4 | 15.63 | 983.4 | 14.09 | 787.5 | 49.54 | 0.629604 | 101.4236323 |
| Z46 | 8 | 26237 | 1788 | 4204 | 123784 | 300784 | 0.06553 | 0.00082 | 0.12988 | 0.00197 | 1.17357 | 0.019 | 0.03428 | 0.00092 | 791.3 | 25.97 | 787.2 | 11.22 | 788.3 | 8.87 | 681.2 | 17.94 | 0.863659 | 99.86045922 |
| Z47 | 0 | 2525 | 143 | 481 | 47456 | 98385 | 0.05439 | 0.00125 | 0.03855 | 0.00063 | 0.28914 | 0.00711 | 0.00994 | 0.00031 | 387.1 | 50.56 | 243.9 | 3.91 | 257.9 | 5.6 | 199.9 | 6.25 | 0.863659 | 94.57153936 |
| Z48 | 4 | 15144 | 897 | 3030 | 150494 | 284673 | 0.05651 | 0.00076 | 0.08023 | 0.00124 | 0.62518 | 0.01064 | 0.01884 | 0.00049 | 471.8 | 29.85 | 497.5 | 7.38 | 493.1 | 6.65 | 377.2 | 9.8 | 0.863659 | 100.8923139 |
| Z49 | 10 | 5841 | 452 | 536 | 11706 | 50045 | 0.07446 | 0.00119 | 0.17539 | 0.00276 | 1.8007 | 0.03395 | 0.04631 | 0.00153 | 1053.7 | 32.27 | 1041.8 | 15.16 | 1045.7 | 12.31 | 915 | 29.53 | 0.863659 | 99.62704409 |
| Z50 | 0 | 5242 | 283 | 538 | 41606 | 155781 | 0.05185 | 0.00094 | 0.05081 | 0.0008 | 0.36327 | 0.00752 | 0.01297 | 0.00043 | 278.9 | 41.13 | 319.5 | 4.94 | 314.7 | 5.6 | 260.5 | 8.66 | 0.863659 | 101.5252622 |
| Z51 | 0 | 1670 | 95 | 787 | 45825 | 38805 | 0.05515 | 0.00196 | 0.06285 | 0.00112 | 0.47782 | 0.01706 | 0.01792 | 0.00077 | 418.3 | 77.08 | 392.9 | 6.81 | 396.6 | 11.72 | 358.9 | 15.35 | 0.863659 | 99.0670701 |
| Z52 | 11 | 6571 | 350 | 1818 | 202936 | 279680 | 0.05141 | 0.0009 | 0.03548 | 0.00056 | 0.25146 | 0.00508 | 0.00932 | 0.00031 | 259.1 | 39.78 | 224.8 | 3.48 | 227.8 | 4.12 | 187.5 | 6.24 | 0.863659 | 98.68305531 |
| Z53 | 19 | 6290 | 392 | 1760 | 73623 | 107317 | 0.05989 | 0.001 | 0.08926 | 0.00142 | 0.73694 | 0.01441 | 0.02392 | 0.00078 | 599.5 | 35.73 | 551.2 | 8.4 | 560.6 | 8.42 | 477.7 | 15.43 | 0.863659 | 98.32322512 |
| Z54 | 11 | 2983 | 169 | 943 | 102849 | 124027 | 0.05477 | 0.00123 | 0.03645 | 0.0006 | 0.27522 | 0.00667 | 0.00969 | 0.00036 | 403 | 49.12 | 230.8 | 3.73 | 246.9 | 5.31 | 195 | 7.23 | 0.863659 | 93.47914135 |
| Z55 | 1 | 34480 | 3606 | 6230 | 96911 | 194176 | 0.10126 | 0.0014 | 0.26961 | 0.00421 | 3.76267 | 0.06575 | 0.06913 | 0.00277 | 1647.3 | 25.43 | 1538.8 | 21.37 | 1584.8 | 14.02 | 1351 | 52.33 | 0.863659 | 97.09742554 |
| Z56 | 24 | 19359 | 1249 | 3252 | 122405 | 285752 | 0.06196 | 0.00087 | 0.10406 | 0.00164 | 0.88869 | 0.01576 | 0.02705 | 0.00097 | 672.7 | 29.84 | 638.1 | 9.58 | 645.7 | 8.47 | 539.5 | 19.13 | 0.863659 | 98.82298281 |
| Z57 | 2 | 4420 | 325 | 576 | 28857 | 95000 | 0.07098 | 0.0013 | 0.07146 | 0.00116 | 0.6992 | 0.01462 | 0.02066 | 0.00083 | 956.9 | 37.03 | 444.9 | 7.01 | 538.3 | 8.74 | 413.2 | 16.51 | 0.863659 | 82.64908044 |
| Z58 | 1 | 1993 | 112 | 677 | 67789 | 77702 | 0.05473 | 0.00155 | 0.039 | 0.00067 | 0.29413 | 0.00867 | 0.01083 | 0.00049 | 401.3 | 61.56 | 246.6 | 4.17 | 261.8 | 6.81 | 217.7 | 9.86 | 0.863659 | 94.19404125 |
| Z59 | 3 | 4172 | 292 | 610 | 23907 | 88267 | 0.0678 | 0.00152 | 0.0711 | 0.00118 | 0.66432 | 0.016 | 0.02855 | 0.00156 | 862.4 | 45.74 | 442.8 | 7.11 | 517.3 | 9.76 | 569 | 30.71 | 0.863659 | 85.59829886 |
| Z60 | 0 | 3620 | 196 | 863 | 89627 | 153919 | 0.05238 | 0.00117 | 0.03649 | 0.00061 | 0.26347 | 0.00643 | 0.01027 | 0.00046 | 302.2 | 49.9 | 231.1 | 3.8 | 237.5 | 5.17 | 206.5 | 9.19 | 0.863659 | 97.30526316 |
| Z61 | 2 | 26891 | 1749 | 149 | 5964 | 384304 | 0.06306 | 0.00082 | 0.10752 | 0.00168 | 0.93467 | 0.01594 | 0.0267 | 0.00127 | 710.4 | 27.55 | 658.3 | 9.8 | 670.1 | 8.37 | 532.7 | 24.96 | 0.799152 | 98.2390688 |
| Z62 | 19 | 2999 | 188 | 518 | 25611 | 58566 | 0.06091 | 0.0014 | 0.07847 | 0.00131 | 0.65882 | 0.0163 | 0.02191 | 0.00084 | 636 | 48.59 | 487 | 7.84 | 513.9 | 9.98 | 438 | 16.58 | 0.799152 | 94.76551858 |
| Z63 | 0 | 41891 | 3220 | 992 | 27346 | 530196 | 0.0737 | 0.0011 | 0.12736 | 0.00212 | 1.294 | 0.02438 | 0.03556 | 0.00148 | 1033.1 | 29.83 | 772.8 | 12.1 | 843.1 | 10.79 | 706.3 | 28.8 | 0.799152 | 91.66172459 |
| Z64 | 0 | 17364 | 1318 | 2347 | 53013 | 141956 | 0.07361 | 0.00102 | 0.18782 | 0.00296 | 1.9059 | 0.03343 | 0.04703 | 0.0016 | 1030.7 | 27.35 | 1109.6 | 16.05 | 1083.2 | 11.68 | 928.8 | 30.88 | 0.799152 | 102.437223 |
| Z65 | 5 | 2785 | 146 | 797 | 85957 | 115593 | 0.05091 | 0.00121 | 0.03703 | 0.00062 | 0.25991 | 0.00664 | 0.00975 | 0.00035 | 236.9 | 53.94 | 234.4 | 3.83 | 234.6 | 5.36 | 196 | 7.04 | 0.799152 | 99.91474851 |
| Z66 | 5 | 3472 | 297 | 651 | 12109 | 22644 | 0.08302 | 0.00156 | 0.23534 | 0.00389 | 2.69367 | 0.05717 | 0.05666 | 0.00214 | 1269.8 | 36.12 | 1362.4 | 20.32 | 1326.7 | 15.71 | 1114 | 40.95 | 0.799152 | 102.6908872 |
| Z67 | 0 | 6521 | 352 | 1399 | 140135 | 248313 | 0.05235 | 0.00095 | 0.04058 | 0.00066 | 0.29284 | 0.00612 | 0.0105 | 0.00039 | 300.6 | 40.77 | 256.4 | 4.07 | 260.8 | 4.8 | 211.2 | 7.82 | 0.799152 | 98.31288344 |
| Z68 | 0 | 8277 | 624 | 943 | 23837 | 77659 | 0.07321 | 0.0012 | 0.16422 | 0.00265 | 1.65756 | 0.03218 | 0.04242 | 0.0017 | 1019.8 | 32.73 | 980.2 | 14.65 | 992.4 | 12.3 | 839.6 | 33 | 0.799152 | 98.77065699 |
| Z69 | 4 | 1789 | 94 | 472 | 50567 | 74091 | 0.05149 | 0.00151 | 0.0368 | 0.00064 | 0.26125 | 0.00791 | 0.0101 | 0.00044 | 262.8 | 65.72 | 233 | 3.95 | 235.7 | 6.37 | 203.2 | 8.77 | 0.799152 | 98.85447603 |
| Z70 | 9 | 6474 | 355 | 955 | 81766 | 237712 | 0.05331 | 0.00097 | 0.04166 | 0.00067 | 0.3062 | 0.00637 | 0.01242 | 0.00051 | 341.9 | 40.49 | 263.1 | 4.14 | 271.2 | 4.95 | 249.5 | 10.2 | 0.799152 | 97.01327434 |
| Z71 | 0 | 3890 | 276 | 697 | 20270 | 42963 | 0.06887 | 0.00135 | 0.13876 | 0.00228 | 1.31747 | 0.02881 | 0.03609 | 0.00152 | 894.8 | 39.85 | 837.6 | 12.91 | 853.4 | 12.62 | 716.6 | 29.58 | 0.799152 | 98.14858214 |
| Z72 | 4 | 3828 | 200 | 1066 | 116279 | 159564 | 0.05069 | 0.00109 | 0.03678 | 0.0006 | 0.25707 | 0.00604 | 0.00953 | 0.0004 | 226.7 | 48.8 | 232.9 | 3.75 | 232.3 | 4.88 | 191.7 | 7.98 | 0.799152 | 100.2582867 |
| Z73 | 8 | 7064 | 391 | 1415 | 147173 | 290805 | 0.05384 | 0.00099 | 0.03715 | 0.0006 | 0.27577 | 0.00578 | 0.01028 | 0.00046 | 364 | 41.03 | 235.2 | 3.72 | 247.3 | 4.6 | 206.7 | 9.12 | 0.799152 | 95.1071573 |
| Z74 | 0 | 5056 | 327 | 1338 | 55887 | 82814 | 0.06286 | 0.00121 | 0.09304 | 0.00151 | 0.80631 | 0.01745 | 0.02559 | 0.00117 | 703.5 | 40.57 | 573.5 | 8.91 | 600.4 | 9.81 | 510.7 | 23 | 0.799152 | 95.51965356 |
| Z75 | 11 | 1844 | 105 | 276 | 25065 | 72384 | 0.05556 | 0.00157 | 0.03878 | 0.00067 | 0.29707 | 0.00869 | 0.01183 | 0.00062 | 434.3 | 61.31 | 245.3 | 4.15 | 264.1 | 6.8 | 237.7 | 12.33 | 0.799152 | 92.88148429 |
| Z76 | 0 | 2937 | 165 | 738 | 79153 | 124499 | 0.05452 | 0.00153 | 0.03733 | 0.00067 | 0.28058 | 0.00823 | 0.00944 | 0.00037 | 392.5 | 61.29 | 236.3 | 4.14 | 251.1 | 6.52 | 189.9 | 7.41 | 0.795471 | 94.10593389 |
| Z77 | 6 | 4015 | 234 | 437 | 22387 | 81760 | 0.05716 | 0.00114 | 0.075 | 0.00122 | 0.59103 | 0.01316 | 0.02024 | 0.00073 | 497 | 43.16 | 466.2 | 7.31 | 471.5 | 8.4 | 404.9 | 14.5 | 0.795471 | 98.87592789 |
| Z78 | 0 | 5403 | 295 | 453 | 45714 | 222877 | 0.0534 | 0.00099 | 0.03705 | 0.00059 | 0.27283 | 0.00576 | 0.01012 | 0.00037 | 345.9 | 41.21 | 234.5 | 3.7 | 245 | 4.59 | 203.6 | 7.37 | 0.795471 | 95.71428571 |
| Z79 | 0 | 4925 | 296 | 588 | 27866 | 95562 | 0.05898 | 0.00125 | 0.08038 | 0.00135 | 0.65352 | 0.01534 | 0.0218 | 0.00088 | 566.4 | 45.45 | 498.4 | 8.05 | 510.6 | 9.42 | 435.8 | 17.48 | 0.795471 | 97.61065413 |
| Z80 | 7 | 5928 | 330 | 1208 | 116511 | 221322 | 0.0545 | 0.00098 | 0.04092 | 0.00066 | 0.30748 | 0.00635 | 0.01037 | 0.00035 | 391.9 | 39.46 | 258.5 | 4.06 | 272.2 | 4.93 | 208.5 | 7.04 | 0.795471 | 94.96693608 |
| Z81 | 5 | 3099 | 169 | 632 | 70116 | 129989 | 0.05377 | 0.00125 | 0.0366 | 0.00061 | 0.2713 | 0.00682 | 0.00908 | 0.00035 | 361.4 | 51.78 | 231.7 | 3.8 | 243.7 | 5.45 | 182.6 | 6.95 | 0.795471 | 95.07591301 |
| Z82 | 10 | 40245 | 3097 | 1199 | 29565 | 380220 | 0.07519 | 0.00105 | 0.16367 | 0.00259 | 1.69662 | 0.03027 | 0.04002 | 0.0015 | 1073.6 | 27.86 | 977.1 | 14.37 | 1007.3 | 11.4 | 793.2 | 29.2 | 0.795471 | 97.00188623 |
| Z83 | 0 | 13574 | 716 | 4608 | 511146 | 577993 | 0.05174 | 0.00081 | 0.03585 | 0.00057 | 0.25575 | 0.00485 | 0.00893 | 0.00032 | 274 | 35.56 | 227.1 | 3.52 | 231.2 | 3.92 | 179.7 | 6.36 | 0.795471 | 98.2266436 |
| Z84 | 0 | 8644 | 588 | 1531 | 48302 | 115980 | 0.06662 | 0.0011 | 0.11394 | 0.00182 | 1.04652 | 0.02041 | 0.03111 | 0.00116 | 826.1 | 33.98 | 695.6 | 10.52 | 727.2 | 10.13 | 619.3 | 22.68 | 0.795471 | 95.65456546 |
| Z85 | 10 | 16063 | 1268 | 1984 | 42290 | 142439 | 0.07741 | 0.00119 | 0.17307 | 0.00275 | 1.84698 | 0.03469 | 0.04594 | 0.0018 | 1131.9 | 30.41 | 1029 | 15.14 | 1062.4 | 12.37 | 907.9 | 34.72 | 0.795471 | 96.8561747 |
| Z86 | 14 | 18045 | 1273 | 2196 | 55678 | 174209 | 0.0692 | 0.00104 | 0.15761 | 0.00248 | 1.50345 | 0.02768 | 0.03849 | 0.00148 | 904.7 | 30.69 | 943.5 | 13.79 | 931.8 | 11.23 | 763.5 | 28.89 | 0.795471 | 101.2556343 |
| Z87 | 15 | 6266 | 363 | 190 | 12451 | 204770 | 0.05698 | 0.00111 | 0.04696 | 0.00077 | 0.3689 | 0.00811 | 0.01485 | 0.00076 | 490.2 | 42.65 | 295.9 | 4.71 | 318.8 | 6.02 | 298 | 15.23 | 0.795471 | 92.81681305 |
| Z88 | 0 | 2332 | 135 | 637 | 63538 | 97309 | 0.05674 | 0.00142 | 0.03647 | 0.00061 | 0.28519 | 0.00757 | 0.00968 | 0.00041 | 480.7 | 54.6 | 230.9 | 3.82 | 254.8 | 5.98 | 194.6 | 8.19 | 0.795471 | 90.62009419 |
| Z89 | 8 | 14602 | 803 | 1209 | 92348 | 435563 | 0.05421 | 0.0009 | 0.05083 | 0.0008 | 0.37985 | 0.00747 | 0.01288 | 0.00056 | 379.7 | 37.12 | 319.6 | 4.92 | 326.9 | 5.49 | 258.6 | 11.23 | 0.795471 | 97.76690119 |
| Z90 | 6 | 60282 | 4423 | 2038 | 51664 | 656063 | 0.07212 | 0.00108 | 0.13939 | 0.00218 | 1.38558 | 0.02536 | 0.0382 | 0.00165 | 989.3 | 30.07 | 841.2 | 12.33 | 882.8 | 10.8 | 757.8 | 32.14 | 0.795471 | 95.28772089 |
| Z91 | 21 | 13056 | 835 | 934 | 41436 | 268382 | 0.06216 | 0.00097 | 0.07615 | 0.00123 | 0.65225 | 0.01246 | 0.02234 | 0.0008 | 679.5 | 33 | 473.1 | 7.39 | 509.9 | 7.66 | 446.6 | 15.84 | 0.760012 | 92.78289861 |
| Z92 | 0 | 9753 | 542 | 1981 | 137007 | 257585 | 0.05405 | 0.00086 | 0.05835 | 0.00093 | 0.43452 | 0.00834 | 0.01512 | 0.00052 | 372.8 | 35.56 | 365.6 | 5.67 | 366.4 | 5.9 | 303.3 | 10.3 | 0.760012 | 99.78165939 |
| Z93 | 0 | 40441 | 2647 | 1614 | 53015 | 528827 | 0.0633 | 0.00082 | 0.11856 | 0.00187 | 1.0341 | 0.01767 | 0.03057 | 0.00103 | 718.2 | 27.28 | 722.2 | 10.78 | 721 | 8.82 | 608.6 | 20.11 | 0.760012 | 100.1664355 |
| Z94 | 5 | 4428 | 278 | 314 | 13787 | 74361 | 0.06108 | 0.00118 | 0.0922 | 0.00152 | 0.776 | 0.01698 | 0.02351 | 0.00099 | 641.9 | 41.08 | 568.5 | 8.96 | 583.2 | 9.71 | 469.7 | 19.56 | 0.760012 | 97.47942387 |
| Z95 | 1 | 4938 | 259 | 743 | 81854 | 203111 | 0.05078 | 0.00101 | 0.03781 | 0.00062 | 0.26459 | 0.00594 | 0.00931 | 0.00036 | 230.7 | 45.42 | 239.3 | 3.87 | 238.4 | 4.77 | 187.4 | 7.23 | 0.760012 | 100.3775168 |
| Z96 | 7 | 2712 | 168 | 752 | 69593 | 101171 | 0.06013 | 0.00138 | 0.04139 | 0.0007 | 0.34297 | 0.0085 | 0.01144 | 0.00046 | 608.1 | 48.86 | 261.5 | 4.33 | 299.4 | 6.43 | 230 | 9.24 | 0.760012 | 87.34134937 |
| Z97 | 11 | 1599 | 106 | 298 | 26817 | 65175 | 0.06394 | 0.0018 | 0.03834 | 0.00068 | 0.33786 | 0.00987 | 0.01118 | 0.0005 | 739.8 | 58.36 | 242.5 | 4.25 | 295.5 | 7.49 | 224.8 | 9.91 | 0.760012 | 82.0642978 |
| Z98 | 0 | 4105 | 212 | 702 | 77537 | 172358 | 0.05011 | 0.00106 | 0.03701 | 0.00061 | 0.25554 | 0.00598 | 0.00936 | 0.00039 | 199.9 | 48.31 | 234.2 | 3.82 | 231.1 | 4.84 | 188.4 | 7.79 | 0.760012 | 101.3414106 |
| Z99 | 0 | 3688 | 230 | 353 | 14760 | 58900 | 0.06049 | 0.00133 | 0.09763 | 0.00165 | 0.81397 | 0.01963 | 0.02544 | 0.00124 | 621.1 | 46.83 | 600.5 | 9.72 | 604.7 | 10.99 | 507.7 | 24.44 | 0.760012 | 99.30544071 |
| Z100 | 5 | 6673 | 352 | 1018 | 111859 | 269946 | 0.05089 | 0.00094 | 0.03846 | 0.00063 | 0.26975 | 0.00573 | 0.00947 | 0.00041 | 235.7 | 42.02 | 243.3 | 3.9 | 242.5 | 4.58 | 190.5 | 8.15 | 0.760012 | 100.3298969 |
| Z101 | 0 | 2822 | 156 | 745 | 79789 | 116380 | 0.05344 | 0.00128 | 0.0378 | 0.00064 | 0.27842 | 0.00719 | 0.00967 | 0.00043 | 347.4 | 52.68 | 239.2 | 4 | 249.4 | 5.71 | 194.5 | 8.7 | 0.760012 | 95.91018444 |
| Z102 | 0 | 4271 | 228 | 973 | 110243 | 179678 | 0.0516 | 0.00115 | 0.03735 | 0.00063 | 0.2656 | 0.00648 | 0.00918 | 0.00044 | 267.6 | 50.2 | 236.4 | 3.94 | 239.2 | 5.2 | 184.7 | 8.82 | 0.760012 | 98.82943144 |
| Z103 | 0 | 6682 | 360 | 2614 | 257696 | 248927 | 0.05184 | 0.00099 | 0.04175 | 0.00069 | 0.29834 | 0.00647 | 0.01084 | 0.00051 | 278.4 | 43 | 263.7 | 4.24 | 265.1 | 5.06 | 217.9 | 10.28 | 0.760012 | 99.4718974 |
| Z104 | 0 | 5860 | 303 | 2432 | 260492 | 244617 | 0.04974 | 0.00099 | 0.03737 | 0.00062 | 0.25619 | 0.00575 | 0.00982 | 0.00047 | 182.6 | 45.71 | 236.5 | 3.84 | 231.6 | 4.65 | 197.5 | 9.41 | 0.760012 | 102.1157168 |
| Z105 | 6 | 5348 | 303 | 529 | 38372 | 161017 | 0.05444 | 0.00111 | 0.05203 | 0.00087 | 0.39035 | 0.00889 | 0.01443 | 0.00075 | 389.3 | 44.71 | 326.9 | 5.32 | 334.6 | 6.49 | 289.5 | 14.86 | 0.760012 | 97.69874477 |
| Z106 | 1 | 3864 | 203 | 145 | 10877 | 117615 | 0.05044 | 0.00111 | 0.05164 | 0.00087 | 0.35903 | 0.00868 | 0.01312 | 0.00065 | 215.2 | 50.19 | 324.6 | 5.34 | 311.5 | 6.48 | 263.4 | 12.91 | 0.774557 | 104.2054575 |
| Z107 | 0 | 7061 | 397 | 1371 | 149308 | 300742 | 0.05375 | 0.00095 | 0.03685 | 0.0006 | 0.27299 | 0.00564 | 0.00891 | 0.0003 | 360.5 | 39.62 | 233.2 | 3.76 | 245.1 | 4.5 | 179.3 | 6.07 | 0.774557 | 95.14483884 |
| Z108 | 0 | 3960 | 208 | 465 | 44034 | 147980 | 0.05004 | 0.00105 | 0.04192 | 0.0007 | 0.28915 | 0.00671 | 0.01002 | 0.00037 | 196.7 | 47.94 | 264.7 | 4.33 | 257.9 | 5.29 | 201.6 | 7.41 | 0.774557 | 102.6366809 |
| Z109 | 0 | 2415 | 124 | 514 | 57630 | 107897 | 0.04911 | 0.00141 | 0.03522 | 0.00062 | 0.23841 | 0.00716 | 0.00861 | 0.00034 | 153.2 | 65.92 | 223.1 | 3.85 | 217.1 | 5.87 | 173.3 | 6.91 | 0.774557 | 102.7637034 |
| Z110 | 0 | 5589 | 321 | 568 | 29789 | 111936 | 0.05518 | 0.00105 | 0.07707 | 0.00126 | 0.58634 | 0.01259 | 0.01941 | 0.00079 | 419.6 | 41.18 | 478.6 | 7.53 | 468.5 | 8.06 | 388.5 | 15.62 | 0.774557 | 102.1558164 |
| Z111 | 2 | 3452 | 182 | 712 | 78987 | 151599 | 0.05044 | 0.0011 | 0.03534 | 0.00059 | 0.2457 | 0.00587 | 0.00869 | 0.00033 | 215.1 | 49.9 | 223.9 | 3.67 | 223.1 | 4.79 | 174.9 | 6.54 | 0.774557 | 100.3585836 |
| Z112 | 20 | 9822 | 568 | 637 | 36011 | 204844 | 0.05528 | 0.001 | 0.07544 | 0.00125 | 0.57495 | 0.01201 | 0.0167 | 0.00072 | 423.6 | 39.22 | 468.9 | 7.47 | 461.2 | 7.74 | 334.7 | 14.25 | 0.774557 | 101.6695577 |
| Z113 | 0 | 3587 | 189 | 833 | 92103 | 150586 | 0.05053 | 0.00113 | 0.0367 | 0.00061 | 0.25565 | 0.00618 | 0.00903 | 0.00037 | 219.5 | 50.79 | 232.3 | 3.79 | 231.2 | 5 | 181.7 | 7.5 | 0.774557 | 100.4757785 |
| Z114 | 8 | 8515 | 1185 | 1173 | 15478 | 46020 | 0.13353 | 0.00223 | 0.28136 | 0.00456 | 5.1795 | 0.10028 | 0.07845 | 0.00374 | 2144.9 | 28.93 | 1598.2 | 22.92 | 1849.3 | 16.48 | 1526.4 | 70.03 | 0.774557 | 86.42188936 |
| Z115 | 8 | 6292 | 358 | 380 | 27602 | 196549 | 0.05386 | 0.00097 | 0.04961 | 0.00081 | 0.36837 | 0.00759 | 0.01223 | 0.0005 | 365.2 | 40.13 | 312.2 | 4.96 | 318.4 | 5.63 | 245.7 | 10 | 0.774557 | 98.05276382 |
| Z116 | 2 | 1196 | 66 | 285 | 20497 | 34558 | 0.05287 | 0.00179 | 0.05341 | 0.00098 | 0.38926 | 0.01339 | 0.01326 | 0.00061 | 323 | 75.26 | 335.4 | 5.97 | 333.8 | 9.79 | 266.2 | 12.26 | 0.774557 | 100.4793289 |
| Z117 | 5 | 2758 | 150 | 648 | 65550 | 115430 | 0.05134 | 0.00128 | 0.03719 | 0.00064 | 0.26319 | 0.00693 | 0.00891 | 0.00038 | 256.1 | 56.1 | 235.4 | 3.96 | 237.2 | 5.57 | 179.3 | 7.65 | 0.774557 | 99.24114671 |
| Z118 | 0 | 2380 | 137 | 235 | 12635 | 50073 | 0.05389 | 0.00184 | 0.0756 | 0.00144 | 0.56174 | 0.0194 | 0.0164 | 0.00102 | 366.5 | 74.85 | 469.8 | 8.63 | 452.7 | 12.62 | 328.8 | 20.27 | 0.774557 | 103.777336 |
| Z119 | 11 | 7219 | 371 | 2292 | 249259 | 296144 | 0.04933 | 0.00106 | 0.03759 | 0.00062 | 0.25562 | 0.00599 | 0.00926 | 0.00049 | 163.5 | 49.36 | 237.9 | 3.87 | 231.1 | 4.84 | 186.3 | 9.74 | 0.774557 | 102.9424492 |
| Z120 | 0 | 2152 | 115 | 345 | 36760 | 96204 | 0.05009 | 0.00189 | 0.03551 | 0.00069 | 0.24525 | 0.0093 | 0.00831 | 0.00052 | 199 | 85.46 | 225 | 4.31 | 222.7 | 7.58 | 167.3 | 10.5 | 0.774557 | 101.0327795 |

**Supplementary Table 2: Raw U-Pb data from sample NZ1301**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 1 | 27635 | 1725 | 6128 | 225277 | 357127 | 0.06056 | 0.00078 | 0.09912 | 0.0013 | 0.82783 | 0.01232 | 0.02472 | 0.00091 | 623.5 | 27.7 | 609.2 | 7.62 | 612.4 | 6.84 | 493.7 | 18.03 | 0.881277 | 99.47746571 |
| Z2 | 0 | 6270 | 330 | 1327 | 128848 | 220069 | 0.05112 | 0.00096 | 0.03633 | 0.00049 | 0.2561 | 0.00509 | 0.00932 | 0.00037 | 246.3 | 42.84 | 230 | 3.05 | 231.5 | 4.12 | 187.4 | 7.33 | 0.678613 | 99.35205184 |
| Z3 | 0 | 23078 | 1355 | 3284 | 158379 | 396850 | 0.0571 | 0.00083 | 0.07282 | 0.00095 | 0.57348 | 0.00919 | 0.01917 | 0.00088 | 494.8 | 32.15 | 453.1 | 5.69 | 460.3 | 5.93 | 383.7 | 17.47 | 0.814096 | 98.43580274 |
| Z4 | 10 | 13757 | 930 | 2029 | 70730 | 153567 | 0.06569 | 0.00096 | 0.11398 | 0.00151 | 1.0325 | 0.01672 | 0.02629 | 0.00112 | 796.4 | 30.44 | 695.8 | 8.73 | 720.2 | 8.35 | 524.5 | 22.13 | 0.818092 | 96.61205221 |
| Z5 | 14 | 4681 | 307 | 1086 | 87112 | 162163 | 0.06386 | 0.00138 | 0.03603 | 0.0005 | 0.31734 | 0.00699 | 0.01144 | 0.00057 | 737.1 | 44.94 | 228.2 | 3.1 | 279.9 | 5.38 | 229.9 | 11.38 | 0.630019 | 81.52911754 |
| Z6 | 0 | 87913 | 5235 | 373 | 12701 | 1174789 | 0.05801 | 0.00077 | 0.0937 | 0.0012 | 0.74961 | 0.01118 | 0.02702 | 0.00152 | 529.8 | 29.15 | 577.4 | 7.1 | 568 | 6.49 | 539 | 29.98 | 0.858688 | 101.6549296 |
| Z7 | 0 | 25819 | 1980 | 5570 | 119870 | 200842 | 0.0746 | 0.00102 | 0.16391 | 0.00216 | 1.68606 | 0.02598 | 0.04264 | 0.00199 | 1057.5 | 27.57 | 978.5 | 11.94 | 1003.3 | 9.82 | 843.9 | 38.58 | 0.855229 | 97.52815708 |
| Z8 | 7 | 19086 | 1151 | 2871 | 118327 | 291752 | 0.05868 | 0.00087 | 0.08406 | 0.00112 | 0.68018 | 0.01115 | 0.02235 | 0.00109 | 555.3 | 31.88 | 520.3 | 6.67 | 526.9 | 6.74 | 446.7 | 21.51 | 0.812789 | 98.7473904 |
| Z9 | 17 | 17823 | 1014 | 1979 | 127759 | 470415 | 0.05555 | 0.00085 | 0.04809 | 0.00064 | 0.36834 | 0.00618 | 0.01437 | 0.00075 | 434.1 | 33.34 | 302.8 | 3.91 | 318.4 | 4.59 | 288.4 | 15.04 | 0.793205 | 95.10050251 |
| Z10 | 18 | 10244 | 534 | 2520 | 248056 | 385911 | 0.05084 | 0.00088 | 0.03378 | 0.00045 | 0.23676 | 0.00438 | 0.00939 | 0.0005 | 233.4 | 39.46 | 214.2 | 2.83 | 215.8 | 3.6 | 188.8 | 9.96 | 0.720091 | 99.25857275 |
| Z11 | 0 | 4205 | 231 | 1212 | 109048 | 143927 | 0.05385 | 0.00143 | 0.0364 | 0.00052 | 0.27029 | 0.0072 | 0.01021 | 0.00067 | 364.8 | 58.56 | 230.5 | 3.25 | 242.9 | 5.75 | 205.3 | 13.41 | 0.53629 | 94.89501853 |
| Z12 | 0 | 15751 | 851 | 1224 | 80469 | 421079 | 0.05274 | 0.00085 | 0.04782 | 0.00064 | 0.34767 | 0.00607 | 0.01406 | 0.0008 | 317.5 | 36 | 301.1 | 3.93 | 303 | 4.57 | 282.1 | 16 | 0.766565 | 99.37293729 |
| Z13 | 4 | 7640 | 468 | 639 | 28736 | 132275 | 0.05991 | 0.00117 | 0.07313 | 0.001 | 0.60393 | 0.01229 | 0.02073 | 0.00136 | 600.2 | 41.66 | 455 | 6.03 | 479.7 | 7.78 | 414.7 | 26.88 | 0.671953 | 94.85094851 |
| Z14 | 0 | 1787 | 141 | 333 | 7609 | 15799 | 0.07733 | 0.00241 | 0.14353 | 0.00228 | 1.5301 | 0.04721 | 0.04099 | 0.00294 | 1129.6 | 60.73 | 864.6 | 12.87 | 942.5 | 18.95 | 811.9 | 57.12 | 0.514847 | 91.73474801 |
| Z15 | 1 | 2057 | 123 | 352 | 25258 | 57704 | 0.05878 | 0.00207 | 0.04654 | 0.00074 | 0.37706 | 0.01321 | 0.01328 | 0.00096 | 559.1 | 74.88 | 293.3 | 4.57 | 324.9 | 9.74 | 266.7 | 19.16 | 0.453851 | 90.27393044 |
| Z16 | 10 | 3413 | 181 | 1091 | 109486 | 122768 | 0.05175 | 0.00134 | 0.0353 | 0.0005 | 0.25184 | 0.00663 | 0.00864 | 0.00035 | 274.5 | 58.27 | 223.6 | 3.12 | 228.1 | 5.37 | 173.9 | 7.09 | 0.53803 | 98.02718106 |
| Z17 | 0 | 28036 | 1498 | 3648 | 396224 | 1110741 | 0.05212 | 0.00071 | 0.03241 | 0.00043 | 0.23286 | 0.00361 | 0.00798 | 0.00031 | 290.8 | 30.83 | 205.6 | 2.67 | 212.6 | 2.97 | 160.6 | 6.21 | 0.85581 | 96.7074318 |
| Z18 | 2 | 27939 | 1823 | 1990 | 60105 | 306342 | 0.06337 | 0.00092 | 0.11977 | 0.00163 | 1.04639 | 0.01718 | 0.02914 | 0.00127 | 720.7 | 30.61 | 729.3 | 9.39 | 727.1 | 8.53 | 580.6 | 24.97 | 0.828915 | 100.3025719 |
| Z19 | 11 | 4518 | 273 | 764 | 65815 | 149871 | 0.059 | 0.0014 | 0.03815 | 0.00054 | 0.31026 | 0.00747 | 0.0102 | 0.00052 | 566.9 | 50.84 | 241.3 | 3.38 | 274.4 | 5.79 | 205.1 | 10.31 | 0.587901 | 87.93731778 |
| Z20 | 0 | 8687 | 469 | 1753 | 124457 | 221061 | 0.05282 | 0.0011 | 0.04917 | 0.00067 | 0.35801 | 0.00767 | 0.01262 | 0.00069 | 320.9 | 46.47 | 309.5 | 4.14 | 310.7 | 5.73 | 253.4 | 13.71 | 0.636025 | 99.61377535 |
| Z21 | 0 | 10688 | 654 | 2768 | 244700 | 377274 | 0.05972 | 0.00099 | 0.03705 | 0.00051 | 0.30501 | 0.00549 | 0.00994 | 0.00043 | 593.6 | 35.15 | 234.5 | 3.16 | 270.3 | 4.27 | 200 | 8.58 | 0.764757 | 86.7554569 |
| Z22 | 6 | 9214 | 501 | 1302 | 118773 | 328282 | 0.05304 | 0.00091 | 0.03638 | 0.0005 | 0.266 | 0.00493 | 0.00964 | 0.00043 | 330.5 | 38.37 | 230.4 | 3.09 | 239.5 | 3.95 | 193.8 | 8.67 | 0.741553 | 96.20041754 |
| Z23 | 0 | 4389 | 274 | 885 | 78642 | 161395 | 0.06088 | 0.00141 | 0.03491 | 0.0005 | 0.29296 | 0.00691 | 0.01008 | 0.00053 | 635.1 | 48.92 | 221.2 | 3.12 | 260.9 | 5.43 | 202.7 | 10.68 | 0.607226 | 84.78344193 |
| Z24 | 10 | 9920 | 558 | 664 | 47046 | 226753 | 0.05498 | 0.00094 | 0.05659 | 0.00077 | 0.42892 | 0.00791 | 0.01253 | 0.00063 | 411.5 | 37.47 | 354.9 | 4.71 | 362.4 | 5.62 | 251.7 | 12.63 | 0.737821 | 97.93046358 |
| Z25 | 0 | 12875 | 699 | 2943 | 241109 | 389635 | 0.05308 | 0.00095 | 0.04149 | 0.00056 | 0.3036 | 0.00574 | 0.01077 | 0.00061 | 332.1 | 40.02 | 262.1 | 3.44 | 269.2 | 4.47 | 216.5 | 12.27 | 0.713895 | 97.36255572 |
| Z26 | 4 | 94114 | 5469 | 492 | 21054 | 1513751 | 0.05657 | 0.00075 | 0.08116 | 0.00108 | 0.63287 | 0.00972 | 0.0205 | 0.00105 | 474 | 29.25 | 503 | 6.47 | 497.9 | 6.04 | 410.2 | 20.86 | 0.866423 | 101.0243021 |
| Z27 | 5 | 37570 | 2875 | 1968 | 43690 | 290758 | 0.07483 | 0.00107 | 0.16758 | 0.00225 | 1.72877 | 0.02791 | 0.0403 | 0.00213 | 1064 | 28.46 | 998.7 | 12.42 | 1019.3 | 10.39 | 798.5 | 41.48 | 0.831644 | 97.9790052 |
| Z28 | 0 | 12427 | 890 | 1110 | 62757 | 228395 | 0.07057 | 0.00132 | 0.06809 | 0.00093 | 0.66244 | 0.01292 | 0.01641 | 0.00115 | 945 | 37.76 | 424.6 | 5.58 | 516.1 | 7.89 | 329 | 22.8 | 0.700299 | 82.27087774 |
| Z29 | 0 | 1863 | 140 | 496 | 41132 | 67442 | 0.07346 | 0.00236 | 0.03524 | 0.00056 | 0.35678 | 0.01135 | 0.01098 | 0.00073 | 1026.5 | 63.7 | 223.3 | 3.49 | 309.8 | 8.49 | 220.6 | 14.57 | 0.499524 | 72.07876049 |
| Z30 | 5 | 5213 | 305 | 1148 | 103630 | 190477 | 0.05731 | 0.00125 | 0.03579 | 0.00051 | 0.28275 | 0.00643 | 0.00996 | 0.00059 | 503.1 | 47.95 | 226.7 | 3.2 | 252.8 | 5.09 | 200.2 | 11.87 | 0.626614 | 89.67563291 |
| Z31 | 4 | 3211 | 175 | 753 | 71991 | 117720 | 0.0532 | 0.00136 | 0.03626 | 0.00053 | 0.26598 | 0.007 | 0.00979 | 0.0004 | 337.1 | 57.11 | 229.6 | 3.32 | 239.5 | 5.62 | 196.9 | 7.99 | 0.555391 | 95.86638831 |
| Z32 | 0 | 10077 | 526 | 1213 | 118194 | 358462 | 0.05078 | 0.00091 | 0.03805 | 0.00054 | 0.26643 | 0.00519 | 0.00943 | 0.00039 | 231 | 40.71 | 240.7 | 3.37 | 239.8 | 4.16 | 189.7 | 7.71 | 0.728542 | 100.3753128 |
| Z33 | 0 | 11911 | 629 | 2178 | 190864 | 392178 | 0.05148 | 0.00082 | 0.04019 | 0.00055 | 0.28533 | 0.00503 | 0.01087 | 0.00045 | 262.3 | 36.02 | 254 | 3.43 | 254.9 | 3.97 | 218.6 | 9.07 | 0.77629 | 99.64692036 |
| Z34 | 0 | 858 | 52 | 183 | 15055 | 28136 | 0.06012 | 0.00374 | 0.0395 | 0.00077 | 0.32748 | 0.02004 | 0.01152 | 0.00082 | 607.8 | 129.27 | 249.7 | 4.79 | 287.6 | 15.33 | 231.4 | 16.37 | 0.318552 | 86.82197497 |
| Z35 | 9 | 10288 | 555 | 827 | 55315 | 255022 | 0.05253 | 0.00086 | 0.05378 | 0.00075 | 0.38955 | 0.00704 | 0.01435 | 0.00065 | 308.5 | 36.74 | 337.7 | 4.58 | 334 | 5.14 | 288.1 | 12.9 | 0.771669 | 101.1077844 |
| Z36 | 2 | 4541 | 236 | 1040 | 96983 | 160363 | 0.05066 | 0.00117 | 0.03728 | 0.00054 | 0.26048 | 0.00622 | 0.01047 | 0.00052 | 225.6 | 52.4 | 236 | 3.33 | 235 | 5.01 | 210.5 | 10.48 | 0.606599 | 100.4255319 |
| Z37 | 7 | 26094 | 1371 | 2275 | 187414 | 857849 | 0.05112 | 0.00074 | 0.04063 | 0.00056 | 0.28639 | 0.00473 | 0.01175 | 0.00056 | 246.2 | 32.92 | 256.7 | 3.47 | 255.7 | 3.74 | 236.1 | 11.18 | 0.834522 | 100.3910833 |
| Z38 | 4 | 5257 | 271 | 561 | 53226 | 196831 | 0.05022 | 0.00116 | 0.03478 | 0.0005 | 0.24089 | 0.00574 | 0.01036 | 0.00063 | 205.3 | 52.74 | 220.4 | 3.11 | 219.1 | 4.69 | 208.4 | 12.57 | 0.603319 | 100.5933364 |
| Z39 | 0 | 23000 | 1431 | 2520 | 94682 | 316528 | 0.06051 | 0.00087 | 0.09651 | 0.00133 | 0.80523 | 0.01326 | 0.02639 | 0.00136 | 621.7 | 30.84 | 593.9 | 7.79 | 599.8 | 7.46 | 526.4 | 26.8 | 0.836866 | 99.01633878 |
| Z40 | 0 | 10142 | 786 | 1444 | 30742 | 89089 | 0.07534 | 0.0012 | 0.15111 | 0.00211 | 1.56989 | 0.02763 | 0.04698 | 0.00255 | 1077.5 | 31.57 | 907.2 | 11.82 | 958.4 | 10.92 | 928 | 49.22 | 0.793373 | 94.65776294 |
| Z41 | 1 | 2604 | 140 | 688 | 63761 | 94906 | 0.05241 | 0.00154 | 0.03654 | 0.00055 | 0.26408 | 0.00787 | 0.01077 | 0.00063 | 303.3 | 65.54 | 231.4 | 3.45 | 237.9 | 6.33 | 216.5 | 12.51 | 0.505074 | 97.26775956 |
| Z42 | 0 | 21674 | 1460 | 820 | 20766 | 240542 | 0.06548 | 0.00098 | 0.1204 | 0.00167 | 1.08711 | 0.01839 | 0.0398 | 0.00233 | 789.7 | 31.01 | 732.9 | 9.61 | 747.1 | 8.94 | 788.8 | 45.26 | 0.819939 | 98.09931736 |
| Z43 | 0 | 3673 | 199 | 691 | 56581 | 112085 | 0.05272 | 0.0013 | 0.04372 | 0.00065 | 0.31789 | 0.00808 | 0.01235 | 0.00076 | 316.8 | 55.01 | 275.9 | 3.99 | 280.3 | 6.23 | 248.1 | 15.22 | 0.584923 | 98.4302533 |
| Z44 | 0 | 995 | 84 | 316 | 21669 | 32985 | 0.08244 | 0.00346 | 0.03957 | 0.0007 | 0.44988 | 0.01855 | 0.01507 | 0.00111 | 1256 | 79.94 | 250.2 | 4.34 | 377.2 | 12.99 | 302.3 | 22.16 | 0.429027 | 66.33085896 |
| Z45 | 0 | 7222 | 429 | 1197 | 52582 | 114369 | 0.05778 | 0.00109 | 0.08367 | 0.00119 | 0.66676 | 0.01342 | 0.02337 | 0.00153 | 521.4 | 41 | 518 | 7.06 | 518.7 | 8.18 | 467 | 30.25 | 0.706633 | 99.86504723 |
| Z46 | 2 | 23957 | 1804 | 2049 | 36907 | 176740 | 0.07499 | 0.00123 | 0.15303 | 0.00184 | 1.58143 | 0.02666 | 0.05542 | 0.00414 | 1068.4 | 32.73 | 917.9 | 10.31 | 962.9 | 10.49 | 1090.2 | 79.31 | 0.713232 | 95.32661751 |
| Z47 | 5 | 3305 | 251 | 361 | 6012 | 22221 | 0.07579 | 0.00172 | 0.16564 | 0.00216 | 1.73016 | 0.03878 | 0.05886 | 0.00449 | 1089.6 | 44.68 | 988 | 11.95 | 1019.8 | 14.42 | 1156 | 85.78 | 0.581791 | 96.88174152 |
| Z48 | 5 | 1857 | 134 | 352 | 6977 | 14924 | 0.07196 | 0.00245 | 0.14252 | 0.00219 | 1.41315 | 0.047 | 0.05159 | 0.00445 | 984.8 | 67.74 | 858.9 | 12.34 | 894.5 | 19.78 | 1016.8 | 85.51 | 0.462018 | 96.02012297 |
| Z49 | 0 | 2275 | 126 | 711 | 60167 | 74516 | 0.05531 | 0.00208 | 0.03257 | 0.00048 | 0.2482 | 0.00909 | 0.01161 | 0.00115 | 424.5 | 81.72 | 206.6 | 3.01 | 225.1 | 7.39 | 233.4 | 22.91 | 0.402403 | 91.78143048 |
| Z50 | 0 | 4504 | 228 | 870 | 70508 | 139891 | 0.05079 | 0.00123 | 0.03555 | 0.00045 | 0.2488 | 0.00597 | 0.01235 | 0.00104 | 231.3 | 55.03 | 225.2 | 2.8 | 225.6 | 4.86 | 248 | 20.82 | 0.527532 | 99.82269504 |
| Z51 | 0 | 2503 | 162 | 641 | 45926 | 78784 | 0.0649 | 0.00274 | 0.0372 | 0.00064 | 0.33262 | 0.01358 | 0.01511 | 0.00182 | 771.2 | 86.29 | 235.4 | 3.99 | 291.6 | 10.35 | 303.2 | 36.21 | 0.421391 | 80.72702332 |
| Z52 | 0 | 3644 | 289 | 1360 | 21298 | 20395 | 0.07912 | 0.00197 | 0.1929 | 0.00256 | 2.10356 | 0.05141 | 0.06331 | 0.00609 | 1175.1 | 48.58 | 1137.1 | 13.84 | 1150 | 16.82 | 1240.8 | 115.83 | 0.543019 | 98.87826087 |
| Z53 | 0 | 10612 | 592 | 2177 | 121313 | 250461 | 0.05585 | 0.00108 | 0.047 | 0.00057 | 0.36182 | 0.00706 | 0.01796 | 0.00162 | 446.2 | 42.26 | 296.1 | 3.51 | 313.6 | 5.26 | 359.9 | 32.17 | 0.621534 | 94.41964286 |
| Z54 | 0 | 4495 | 265 | 1291 | 96506 | 143536 | 0.05885 | 0.00157 | 0.03607 | 0.00049 | 0.29253 | 0.00774 | 0.01382 | 0.00139 | 561.7 | 57.22 | 228.4 | 3.08 | 260.5 | 6.08 | 277.4 | 27.75 | 0.513428 | 87.67754319 |
| Z55 | 0 | 9943 | 768 | 1063 | 19110 | 66853 | 0.07768 | 0.00152 | 0.16596 | 0.00205 | 1.7768 | 0.035 | 0.05588 | 0.0054 | 1138.6 | 38.5 | 989.8 | 11.36 | 1037 | 12.8 | 1099 | 103.33 | 0.627077 | 95.44840887 |
| Z56 | 15 | 2375 | 126 | 483 | 37726 | 74638 | 0.05334 | 0.00168 | 0.03541 | 0.00048 | 0.26036 | 0.00808 | 0.01288 | 0.0013 | 343.4 | 69.72 | 224.3 | 3 | 235 | 6.51 | 258.7 | 25.91 | 0.436796 | 95.44680851 |
| Z57 | 11 | 2112 | 118 | 609 | 50330 | 67377 | 0.05636 | 0.00185 | 0.03504 | 0.00049 | 0.27221 | 0.00879 | 0.01226 | 0.00128 | 465.8 | 71.32 | 222 | 3.05 | 244.5 | 7.01 | 246.4 | 25.48 | 0.433059 | 90.79754601 |
| Z58 | 6 | 5508 | 305 | 653 | 32929 | 123958 | 0.05586 | 0.00134 | 0.04968 | 0.00064 | 0.38253 | 0.0091 | 0.0202 | 0.00218 | 446.6 | 52.14 | 312.6 | 3.92 | 328.9 | 6.68 | 404.3 | 43.1 | 0.54153 | 95.04408635 |
| Z59 | 0 | 5248 | 310 | 1513 | 80209 | 115527 | 0.05959 | 0.00146 | 0.05059 | 0.00066 | 0.41551 | 0.01012 | 0.01918 | 0.00214 | 588.7 | 52.41 | 318.1 | 4.02 | 352.8 | 7.26 | 384 | 42.45 | 0.535649 | 90.16439909 |
| Z60 | 5 | 945 | 60 | 212 | 12754 | 29314 | 0.06463 | 0.00373 | 0.03478 | 0.00063 | 0.30979 | 0.01746 | 0.0167 | 0.0023 | 762.4 | 117.31 | 220.4 | 3.9 | 274 | 13.53 | 334.7 | 45.7 | 0.321391 | 80.4379562 |
| Z61 | 0 | 1362 | 70 | 278 | 15500 | 27940 | 0.05131 | 0.00217 | 0.0516 | 0.00073 | 0.36488 | 0.01514 | 0.01604 | 0.0012 | 254.9 | 94.39 | 324.3 | 4.48 | 315.8 | 11.26 | 321.7 | 23.95 | 0.340955 | 102.6915769 |
| Z62 | 0 | 677 | 40 | 161 | 12333 | 18979 | 0.06078 | 0.0066 | 0.03422 | 0.00097 | 0.28656 | 0.03025 | 0.01108 | 0.00161 | 631.6 | 218.07 | 216.9 | 6.03 | 255.9 | 23.87 | 222.7 | 32.27 | 0.268523 | 84.75967175 |
| Z63 | 2 | 674 | 36 | 104 | 8329 | 21100 | 0.05361 | 0.00373 | 0.03361 | 0.00057 | 0.24836 | 0.01698 | 0.01118 | 0.001 | 354.7 | 149.45 | 213.1 | 3.57 | 225.2 | 13.81 | 224.8 | 20 | 0.248056 | 94.62699822 |
| Z64 | 14 | 1238 | 59 | 254 | 20512 | 35578 | 0.04729 | 0.00231 | 0.03707 | 0.00055 | 0.24155 | 0.0116 | 0.01078 | 0.00086 | 63.2 | 113.01 | 234.6 | 3.42 | 219.7 | 9.48 | 216.7 | 17.17 | 0.308951 | 106.7819754 |
| Z65 | 5 | 537 | 31 | 105 | 8080 | 17410 | 0.05596 | 0.00646 | 0.03483 | 0.00096 | 0.26856 | 0.03031 | 0.01367 | 0.00186 | 450.4 | 237.94 | 220.7 | 5.97 | 241.5 | 24.26 | 274.5 | 37.08 | 0.244215 | 91.38716356 |
| Z66 | 9 | 6939 | 431 | 243 | 5050 | 78951 | 0.06037 | 0.00156 | 0.09819 | 0.00133 | 0.81673 | 0.0207 | 0.04729 | 0.00508 | 616.8 | 54.95 | 603.8 | 7.81 | 606.2 | 11.57 | 934 | 98.06 | 0.534432 | 99.60409106 |
| Z67 | 0 | 8919 | 923 | 632 | 7569 | 37606 | 0.10213 | 0.00193 | 0.24996 | 0.00298 | 3.51847 | 0.06564 | 0.07177 | 0.00599 | 1663.2 | 34.62 | 1438.3 | 15.36 | 1531.4 | 14.75 | 1400.9 | 112.97 | 0.639044 | 93.92059553 |
| Z68 | 11 | 36536 | 3701 | 750 | 9120 | 157838 | 0.09965 | 0.00175 | 0.24582 | 0.00284 | 3.3762 | 0.05909 | 0.07035 | 0.00591 | 1617.5 | 32.35 | 1416.9 | 14.68 | 1498.9 | 13.71 | 1374.2 | 111.63 | 0.660108 | 94.5293215 |
| Z69 | 0 | 741 | 44 | 150 | 11343 | 21341 | 0.05871 | 0.0036 | 0.03667 | 0.00062 | 0.29672 | 0.01782 | 0.01126 | 0.00107 | 556.2 | 128.35 | 232.2 | 3.88 | 263.8 | 13.95 | 226.4 | 21.44 | 0.281527 | 88.0212282 |
| Z70 | 2 | 559 | 32 | 164 | 10536 | 15070 | 0.05793 | 0.00459 | 0.03939 | 0.00072 | 0.3145 | 0.02455 | 0.01329 | 0.00125 | 526.7 | 165.21 | 249 | 4.46 | 277.7 | 18.96 | 266.8 | 24.91 | 0.234162 | 89.66510623 |
| Z71 | 13 | 1403 | 84 | 216 | 6891 | 18702 | 0.0591 | 0.00414 | 0.08523 | 0.00196 | 0.69404 | 0.04696 | 0.03306 | 0.00549 | 570.6 | 145.56 | 527.3 | 11.66 | 535.2 | 28.15 | 657.3 | 107.44 | 0.339876 | 98.52391629 |
| Z72 | 0 | 1360 | 91 | 207 | 6756 | 17845 | 0.06626 | 0.00288 | 0.08309 | 0.00137 | 0.75872 | 0.03194 | 0.02756 | 0.00298 | 814.6 | 88.22 | 514.5 | 8.14 | 573.3 | 18.44 | 549.5 | 58.69 | 0.391668 | 89.74358974 |
| Z73 | 13 | 6752 | 564 | 643 | 8235 | 48909 | 0.08253 | 0.0019 | 0.14517 | 0.00182 | 1.65148 | 0.03721 | 0.06382 | 0.00629 | 1258 | 44.16 | 873.8 | 10.22 | 990.1 | 14.25 | 1250.4 | 119.56 | 0.556427 | 88.25371175 |
| Z74 | 19 | 15175 | 1182 | 982 | 13067 | 107326 | 0.07654 | 0.00161 | 0.15128 | 0.00184 | 1.59602 | 0.0331 | 0.06215 | 0.006 | 1109.2 | 41.41 | 908.1 | 10.3 | 968.7 | 12.95 | 1218.7 | 114.15 | 0.586471 | 93.74419325 |
| Z75 | 8 | 1110 | 68 | 224 | 8730 | 16422 | 0.06062 | 0.0028 | 0.07154 | 0.0011 | 0.59791 | 0.02697 | 0.02127 | 0.00219 | 625.9 | 96.41 | 445.4 | 6.63 | 475.9 | 17.14 | 425.5 | 43.43 | 0.340878 | 93.59109057 |
| Z76 | 1 | 658 | 39 | 94 | 2930 | 8046 | 0.05933 | 0.00403 | 0.08708 | 0.00154 | 0.71204 | 0.04752 | 0.02786 | 0.00231 | 579.1 | 141.1 | 538.2 | 9.12 | 546 | 28.18 | 555.4 | 45.42 | 0.26499 | 98.57142857 |
| Z77 | 0 | 1157 | 65 | 140 | 3949 | 12076 | 0.05587 | 0.0028 | 0.10111 | 0.00155 | 0.77862 | 0.0383 | 0.03082 | 0.00248 | 446.8 | 108.05 | 620.9 | 9.08 | 584.7 | 21.87 | 613.5 | 48.69 | 0.311648 | 106.1912092 |
| Z78 | 8 | 2354 | 172 | 274 | 4799 | 14524 | 0.07332 | 0.00195 | 0.1708 | 0.00224 | 1.7262 | 0.04483 | 0.05022 | 0.00369 | 1022.8 | 53 | 1016.5 | 12.31 | 1018.3 | 16.7 | 990.3 | 71.06 | 0.50499 | 99.8232348 |
| Z79 | 5 | 2492 | 157 | 226 | 6151 | 28295 | 0.06283 | 0.00179 | 0.093 | 0.00121 | 0.80541 | 0.02243 | 0.03202 | 0.00245 | 702.3 | 59.59 | 573.3 | 7.13 | 599.9 | 12.61 | 637 | 47.89 | 0.467186 | 95.56592765 |
| Z80 | 0 | 531 | 31 | 152 | 10209 | 14279 | 0.05905 | 0.00492 | 0.03924 | 0.00072 | 0.31939 | 0.0262 | 0.01314 | 0.00109 | 569 | 171.55 | 248.1 | 4.48 | 281.4 | 20.16 | 263.9 | 21.66 | 0.223678 | 88.1663113 |
| Z81 | 0 | 9699 | 596 | 985 | 33774 | 129547 | 0.061 | 0.0015 | 0.08197 | 0.00107 | 0.68911 | 0.01658 | 0.02633 | 0.00242 | 639.4 | 51.99 | 507.9 | 6.37 | 532.3 | 9.97 | 525.3 | 47.71 | 0.542541 | 95.41611873 |
| Z82 | 6 | 972 | 50 | 239 | 19531 | 26643 | 0.05133 | 0.00297 | 0.03857 | 0.0006 | 0.27294 | 0.01553 | 0.01068 | 0.00089 | 255.8 | 127.78 | 244 | 3.74 | 245 | 12.39 | 214.7 | 17.71 | 0.273399 | 99.59183673 |
| Z83 | 0 | 1420 | 77 | 164 | 5858 | 17896 | 0.05438 | 0.00304 | 0.08687 | 0.00157 | 0.65099 | 0.03544 | 0.02455 | 0.00266 | 386.7 | 120.49 | 537 | 9.3 | 509.1 | 21.8 | 490.1 | 52.56 | 0.331979 | 105.4802593 |
| Z84 | 2 | 1852 | 100 | 174 | 6212 | 23133 | 0.05403 | 0.00193 | 0.08425 | 0.00114 | 0.62744 | 0.02191 | 0.02476 | 0.0022 | 372.2 | 78.22 | 521.4 | 6.79 | 494.5 | 13.67 | 494.3 | 43.42 | 0.387494 | 105.4398382 |
| Z85 | 2 | 9955 | 511 | 531 | 39934 | 282976 | 0.05144 | 0.00107 | 0.03688 | 0.00043 | 0.26153 | 0.00534 | 0.01159 | 0.00099 | 260.7 | 47.18 | 233.5 | 2.69 | 235.9 | 4.3 | 232.8 | 19.79 | 0.571029 | 98.98261975 |
| Z86 | 3 | 1336 | 88 | 359 | 12404 | 18838 | 0.06621 | 0.00266 | 0.07524 | 0.00114 | 0.68668 | 0.0268 | 0.02531 | 0.00231 | 813.1 | 81.82 | 467.7 | 6.81 | 530.8 | 16.13 | 505.2 | 45.58 | 0.388218 | 88.11228335 |
| Z87 | 1 | 6457 | 483 | 1075 | 18367 | 37912 | 0.07486 | 0.00162 | 0.17882 | 0.00217 | 1.84514 | 0.03896 | 0.05129 | 0.0046 | 1064.7 | 42.89 | 1060.5 | 11.86 | 1061.7 | 13.9 | 1011 | 88.35 | 0.574717 | 99.88697372 |
| Z88 | 0 | 3702 | 184 | 883 | 62163 | 97153 | 0.04988 | 0.00143 | 0.04007 | 0.00051 | 0.27546 | 0.00772 | 0.01236 | 0.00115 | 189.3 | 65.48 | 253.2 | 3.15 | 247 | 6.15 | 248.2 | 22.96 | 0.454142 | 102.5101215 |
| Z89 | 0 | 1701 | 101 | 464 | 28198 | 41515 | 0.05818 | 0.00362 | 0.04043 | 0.00082 | 0.32437 | 0.01936 | 0.01535 | 0.00272 | 535.9 | 131.11 | 255.5 | 5.07 | 285.3 | 14.85 | 307.8 | 54.11 | 0.339817 | 89.55485454 |
| Z90 | 0 | 1065 | 74 | 340 | 21726 | 31578 | 0.06806 | 0.00663 | 0.03762 | 0.00117 | 0.35293 | 0.03299 | 0.01189 | 0.00203 | 870.4 | 189.68 | 238.1 | 7.25 | 306.9 | 24.76 | 238.9 | 40.62 | 0.332716 | 77.58227436 |
| Z91 | 0 | 942 | 48 | 215 | 15596 | 25997 | 0.05231 | 0.00305 | 0.03767 | 0.00058 | 0.27165 | 0.01557 | 0.012 | 0.00083 | 298.8 | 127.49 | 238.4 | 3.58 | 244 | 12.44 | 241.1 | 16.53 | 0.268629 | 97.70491803 |
| Z92 | 18 | 1200 | 59 | 244 | 17905 | 34462 | 0.05043 | 0.00266 | 0.03634 | 0.00054 | 0.25263 | 0.01308 | 0.01195 | 0.00087 | 214.8 | 117.56 | 230.1 | 3.35 | 228.7 | 10.6 | 240.2 | 17.31 | 0.287003 | 100.6121557 |
| Z93 | 10 | 3679 | 202 | 589 | 41198 | 101485 | 0.05607 | 0.00168 | 0.03639 | 0.00047 | 0.28125 | 0.00814 | 0.01274 | 0.00107 | 454.9 | 65.24 | 230.4 | 2.91 | 251.6 | 6.45 | 255.8 | 21.38 | 0.446256 | 91.57392687 |
| Z94 | 0 | 2786 | 136 | 644 | 51060 | 79507 | 0.04954 | 0.00192 | 0.0376 | 0.00055 | 0.25678 | 0.00973 | 0.0113 | 0.00096 | 173.5 | 88.22 | 237.9 | 3.4 | 232.1 | 7.86 | 227.1 | 19.14 | 0.386032 | 102.4989229 |
| Z95 | 0 | 1292 | 70 | 157 | 12047 | 40069 | 0.05531 | 0.0024 | 0.03363 | 0.00048 | 0.25645 | 0.0109 | 0.01138 | 0.0009 | 424.7 | 93.95 | 213.3 | 2.99 | 231.8 | 8.8 | 228.7 | 17.94 | 0.335808 | 92.01898188 |
| Z96 | 10 | 1567 | 81 | 226 | 19050 | 47452 | 0.05287 | 0.00238 | 0.03499 | 0.00052 | 0.25496 | 0.01122 | 0.01054 | 0.00088 | 323 | 98.9 | 221.7 | 3.21 | 230.6 | 9.08 | 211.9 | 17.62 | 0.337706 | 96.14050304 |
| Z97 | 0 | 1320 | 69 | 173 | 7046 | 18900 | 0.05327 | 0.00242 | 0.07266 | 0.00104 | 0.53362 | 0.02379 | 0.02175 | 0.00181 | 340.4 | 99.42 | 452.2 | 6.23 | 434.2 | 15.75 | 434.8 | 35.78 | 0.321052 | 104.145555 |
| Z98 | 1 | 1842 | 97 | 415 | 10132 | 14385 | 0.0538 | 0.00307 | 0.12732 | 0.00215 | 0.94429 | 0.05269 | 0.03645 | 0.00415 | 362.4 | 123.44 | 772.5 | 12.29 | 675.1 | 27.52 | 723.6 | 80.98 | 0.302635 | 114.4274922 |
| Z99 | 0 | 1588 | 88 | 139 | 5085 | 22380 | 0.0565 | 0.00243 | 0.07279 | 0.00107 | 0.56696 | 0.02383 | 0.02444 | 0.00242 | 471.2 | 93.35 | 452.9 | 6.4 | 456 | 15.44 | 488 | 47.66 | 0.349736 | 99.32017544 |
| Z100 | 0 | 573 | 32 | 137 | 3903 | 5985 | 0.05661 | 0.00571 | 0.10356 | 0.00236 | 0.80819 | 0.08024 | 0.03173 | 0.00351 | 475.6 | 209.46 | 635.2 | 13.76 | 601.4 | 45.06 | 631.3 | 68.71 | 0.229532 | 105.6202195 |
| Z101 | 1 | 1308 | 76 | 261 | 7820 | 14179 | 0.05887 | 0.00335 | 0.10075 | 0.00187 | 0.81745 | 0.04524 | 0.03043 | 0.00347 | 562.2 | 119.29 | 618.8 | 10.96 | 606.6 | 25.28 | 605.9 | 68.09 | 0.335378 | 102.01121 |
| Z102 | 0 | 6755 | 388 | 348 | 12459 | 85956 | 0.05841 | 0.00134 | 0.08115 | 0.00097 | 0.65344 | 0.01462 | 0.02556 | 0.00245 | 545.3 | 49.11 | 503 | 5.78 | 510.6 | 8.98 | 510.2 | 48.23 | 0.534246 | 98.51155503 |
| Z103 | 0 | 6005 | 367 | 17 | 545 | 61393 | 0.06265 | 0.0025 | 0.1075 | 0.00176 | 0.92746 | 0.03583 | 0.02795 | 0.00991 | 696.4 | 82.86 | 658.2 | 10.27 | 666.3 | 18.88 | 557.1 | 194.96 | 0.423792 | 98.78433138 |
| Z104 | 0 | 490 | 30 | 134 | 7063 | 11219 | 0.06312 | 0.00602 | 0.04532 | 0.0009 | 0.39436 | 0.03707 | 0.01737 | 0.00188 | 712.3 | 190.61 | 285.7 | 5.54 | 337.5 | 27 | 348 | 37.27 | 0.211263 | 84.65185185 |
| Z105 | 7 | 1278 | 72 | 297 | 9388 | 14781 | 0.05738 | 0.00256 | 0.09 | 0.00132 | 0.71199 | 0.03115 | 0.02833 | 0.00284 | 505.8 | 95.83 | 555.6 | 7.82 | 545.9 | 18.47 | 564.7 | 55.72 | 0.335233 | 101.7768822 |
| Z106 | 0 | 2470 | 125 | 766 | 49707 | 57793 | 0.05112 | 0.00163 | 0.04382 | 0.00055 | 0.30889 | 0.00965 | 0.01455 | 0.00108 | 246.4 | 71.89 | 276.4 | 3.41 | 273.3 | 7.49 | 291.9 | 21.52 | 0.40176 | 101.1342847 |
| Z107 | 0 | 4209 | 217 | 1827 | 146472 | 121895 | 0.05209 | 0.00142 | 0.0349 | 0.00043 | 0.2507 | 0.00661 | 0.0119 | 0.00099 | 289.6 | 60.85 | 221.1 | 2.67 | 227.1 | 5.37 | 239.1 | 19.87 | 0.4673 | 97.35799207 |
| Z108 | 0 | 879 | 52 | 57 | 1666 | 10158 | 0.06041 | 0.00334 | 0.08874 | 0.0014 | 0.73931 | 0.04002 | 0.03209 | 0.0036 | 618.5 | 114.92 | 548.1 | 8.31 | 562 | 23.37 | 638.4 | 70.47 | 0.291446 | 97.52669039 |
| Z109 | 0 | 7543 | 431 | 343 | 9044 | 88707 | 0.05826 | 0.00242 | 0.08092 | 0.00128 | 0.65081 | 0.02581 | 0.0373 | 0.00677 | 538.9 | 88.98 | 501.6 | 7.63 | 509 | 15.87 | 740.1 | 131.95 | 0.39886 | 98.54616896 |
| Z110 | 4 | 2124 | 173 | 435 | 19326 | 56962 | 0.08277 | 0.00231 | 0.03835 | 0.0005 | 0.43763 | 0.0118 | 0.02104 | 0.00181 | 1263.7 | 53.51 | 242.6 | 3.1 | 368.6 | 8.33 | 420.8 | 35.8 | 0.483537 | 65.81660336 |
| Z111 | 0 | 556 | 29 | 209 | 15293 | 16185 | 0.05292 | 0.0054 | 0.03641 | 0.00077 | 0.26565 | 0.02672 | 0.01309 | 0.00137 | 325.2 | 215.92 | 230.6 | 4.81 | 239.2 | 21.44 | 262.9 | 27.24 | 0.210254 | 96.40468227 |
| Z112 | 0 | 4029 | 231 | 1029 | 73512 | 108646 | 0.05843 | 0.00152 | 0.03756 | 0.00046 | 0.30262 | 0.00762 | 0.01302 | 0.00121 | 545.9 | 55.8 | 237.7 | 2.85 | 268.4 | 5.94 | 261.4 | 24.19 | 0.486379 | 88.56184799 |
| Z113 | 25 | 469 | 63 | 219 | 5878 | 8781 | 0.137 | 0.01269 | 0.05756 | 0.00211 | 1.08676 | 0.09392 | 0.03641 | 0.00628 | 2189.6 | 152.73 | 360.8 | 12.88 | 746.9 | 45.7 | 722.8 | 122.49 | 0.424167 | 48.30633284 |
| Z114 | 0 | 2904 | 145 | 574 | 42815 | 75013 | 0.05088 | 0.00166 | 0.03907 | 0.00051 | 0.27411 | 0.00868 | 0.01226 | 0.00125 | 235.3 | 73.56 | 247.1 | 3.14 | 246 | 6.92 | 246.4 | 24.95 | 0.412223 | 100.4471545 |
| Z115 | 4 | 2306 | 120 | 162 | 8447 | 44375 | 0.05306 | 0.00189 | 0.05383 | 0.00073 | 0.39383 | 0.01364 | 0.01804 | 0.00201 | 331.3 | 78.71 | 338 | 4.47 | 337.2 | 9.94 | 361.5 | 39.97 | 0.391555 | 100.2372479 |
| Z116 | 0 | 5345 | 270 | 1013 | 78708 | 144956 | 0.0515 | 0.00136 | 0.03764 | 0.00046 | 0.26721 | 0.00684 | 0.01168 | 0.00123 | 263.1 | 59.49 | 238.2 | 2.87 | 240.5 | 5.48 | 234.8 | 24.6 | 0.477425 | 99.04365904 |
| Z117 | 9 | 6082 | 422 | 337 | 8160 | 43717 | 0.0709 | 0.00174 | 0.14194 | 0.00175 | 1.38747 | 0.03297 | 0.03732 | 0.00413 | 954.6 | 49.5 | 855.6 | 9.87 | 883.6 | 14.02 | 740.6 | 80.5 | 0.518845 | 96.83114531 |
| Z118 | 0 | 1207 | 71 | 509 | 15222 | 13090 | 0.06023 | 0.00339 | 0.09707 | 0.00168 | 0.80587 | 0.04419 | 0.03199 | 0.00414 | 611.7 | 117.06 | 597.2 | 9.86 | 600.1 | 24.85 | 636.4 | 81 | 0.315621 | 99.51674721 |
| Z119 | 8 | 512 | 73 | 206 | 7458 | 12709 | 0.1452 | 0.00978 | 0.0422 | 0.00113 | 0.84464 | 0.05329 | 0.02598 | 0.00403 | 2290.2 | 111.53 | 266.5 | 6.96 | 621.7 | 29.34 | 518.5 | 79.35 | 0.424416 | 42.86633424 |
| Z120 | 0 | 198 | 21 | 90 | 3380 | 4510 | 0.10819 | 0.0153 | 0.04268 | 0.00156 | 0.63641 | 0.08735 | 0.02356 | 0.0037 | 1769 | 238.23 | 269.4 | 9.63 | 500.1 | 54.2 | 470.6 | 72.98 | 0.266302 | 53.86922615 |

**Supplementary Table 3: Raw U-Pb data from sample NZ1302**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 4 | 17763 | 966 | 1992 | 171713 | 598245 | 0.05241 | 0.00081 | 0.03635 | 0.00047 | 0.26267 | 0.00434 | 0.0094 | 0.00031 | 303.4 | 34.82 | 230.2 | 2.9 | 236.8 | 3.49 | 189.1 | 6.15 | 0.847593 | 97.21283784 |
| Z2 | 21 | 11903 | 737 | 2501 | 151705 | 301610 | 0.05962 | 0.00088 | 0.04957 | 0.00065 | 0.4075 | 0.00657 | 0.01381 | 0.0004 | 589.8 | 31.64 | 311.9 | 3.98 | 347.1 | 4.74 | 277.3 | 8.01 | 0.847593 | 89.85883031 |
| Z3 | 14 | 44992 | 2432 | 5363 | 510818 | 1405223 | 0.05212 | 0.00067 | 0.03926 | 0.00049 | 0.2822 | 0.00407 | 0.00857 | 0.00027 | 290.6 | 29.17 | 248.3 | 3.06 | 252.4 | 3.22 | 172.5 | 5.47 | 0.847593 | 98.37559429 |
| Z4 | 6 | 9696 | 564 | 1745 | 137610 | 314713 | 0.05564 | 0.00099 | 0.04068 | 0.00057 | 0.31212 | 0.00595 | 0.01033 | 0.00034 | 437.7 | 38.55 | 257.1 | 3.53 | 275.8 | 4.61 | 207.8 | 6.9 | 0.847593 | 93.21972444 |
| Z5 | 0 | 11787 | 653 | 1853 | 142845 | 340994 | 0.05321 | 0.0008 | 0.04448 | 0.00059 | 0.32641 | 0.00541 | 0.01079 | 0.00033 | 337.9 | 33.48 | 280.5 | 3.66 | 286.8 | 4.14 | 216.9 | 6.66 | 0.847593 | 97.80334728 |
| Z6 | 13 | 9203 | 507 | 1986 | 194629 | 351114 | 0.05293 | 0.00097 | 0.03241 | 0.00043 | 0.23661 | 0.00451 | 0.00834 | 0.00031 | 325.5 | 40.84 | 205.6 | 2.68 | 215.6 | 3.71 | 167.8 | 6.15 | 0.847593 | 95.36178108 |
| Z7 | 9 | 6519 | 420 | 1084 | 41931 | 98901 | 0.06173 | 0.00111 | 0.08549 | 0.00119 | 0.72771 | 0.01395 | 0.0214 | 0.00075 | 664.7 | 38.06 | 528.8 | 7.04 | 555.2 | 8.2 | 428 | 14.93 | 0.847593 | 95.24495677 |
| Z8 | 0 | 8480 | 473 | 1822 | 161840 | 298643 | 0.05339 | 0.0009 | 0.03704 | 0.00051 | 0.27268 | 0.005 | 0.0093 | 0.00032 | 345.3 | 37.74 | 234.4 | 3.16 | 244.8 | 3.99 | 187.1 | 6.36 | 0.847593 | 95.75163399 |
| Z9 | 70 | 51756 | 3771 | 10569 | 664299 | 1124199 | 0.06972 | 0.00111 | 0.0561 | 0.00073 | 0.53938 | 0.00913 | 0.01397 | 0.00075 | 920.1 | 32.29 | 351.9 | 4.44 | 438 | 6.02 | 280.4 | 14.98 | 0.847593 | 80.34246575 |
| Z10 | 2 | 9506 | 568 | 810 | 39195 | 162942 | 0.05729 | 0.00091 | 0.07558 | 0.00103 | 0.59712 | 0.01044 | 0.01711 | 0.00066 | 502.2 | 34.67 | 469.7 | 6.15 | 475.4 | 6.64 | 342.8 | 13.02 | 0.847593 | 98.80100968 |
| Z11 | 11 | 11976 | 787 | 3013 | 107228 | 154868 | 0.06279 | 0.00093 | 0.10148 | 0.00139 | 0.87879 | 0.01461 | 0.0232 | 0.00084 | 701.2 | 31.21 | 623.1 | 8.11 | 640.3 | 7.9 | 463.5 | 16.55 | 0.847593 | 97.31375918 |
| Z12 | 12 | 4366 | 303 | 1140 | 91309 | 153803 | 0.06623 | 0.00134 | 0.03729 | 0.00053 | 0.34055 | 0.00721 | 0.01028 | 0.00041 | 813.7 | 41.66 | 236 | 3.32 | 297.6 | 5.46 | 206.8 | 8.15 | 0.847593 | 79.30107527 |
| Z13 | 20 | 13342 | 732 | 772 | 48763 | 337348 | 0.05231 | 0.0008 | 0.05238 | 0.00072 | 0.37785 | 0.00648 | 0.01303 | 0.00054 | 299.1 | 34.45 | 329.1 | 4.42 | 325.5 | 4.78 | 261.6 | 10.68 | 0.847593 | 101.1059908 |
| Z14 | 7 | 10949 | 627 | 3407 | 336501 | 404082 | 0.05433 | 0.00094 | 0.03592 | 0.0005 | 0.26915 | 0.00505 | 0.00824 | 0.00035 | 384.8 | 38.14 | 227.5 | 3.14 | 242 | 4.04 | 166 | 7.07 | 0.847593 | 94.00826446 |
| Z15 | 0 | 15012 | 916 | 3168 | 128494 | 223654 | 0.05807 | 0.00086 | 0.08986 | 0.00125 | 0.71946 | 0.01216 | 0.02011 | 0.00081 | 531.8 | 32.64 | 554.7 | 7.4 | 550.3 | 7.18 | 402.4 | 16.07 | 0.847593 | 100.7995639 |
| Z16 | 4 | 5999 | 341 | 1058 | 92098 | 211343 | 0.05455 | 0.00118 | 0.03544 | 0.00049 | 0.26653 | 0.00589 | 0.0096 | 0.00035 | 393.9 | 47.58 | 224.5 | 3.04 | 239.9 | 4.72 | 193.1 | 6.95 | 0.817108 | 93.58065861 |
| Z17 | 8 | 16298 | 914 | 2796 | 222651 | 497101 | 0.05362 | 0.00076 | 0.04303 | 0.00058 | 0.3181 | 0.0051 | 0.01039 | 0.0003 | 354.9 | 31.8 | 271.6 | 3.6 | 280.4 | 3.93 | 208.9 | 5.99 | 0.817108 | 96.86162625 |
| Z18 | 19 | 5321 | 297 | 1243 | 122701 | 198739 | 0.05352 | 0.00109 | 0.03467 | 0.00048 | 0.25589 | 0.00542 | 0.00848 | 0.00027 | 351 | 45.34 | 219.7 | 3.01 | 231.4 | 4.38 | 170.7 | 5.4 | 0.817108 | 94.94382022 |
| Z19 | 14 | 8589 | 462 | 2030 | 202784 | 315737 | 0.05159 | 0.0009 | 0.03487 | 0.00047 | 0.24806 | 0.00461 | 0.00835 | 0.00027 | 267.2 | 39.59 | 221 | 2.94 | 225 | 3.75 | 168.1 | 5.41 | 0.817108 | 98.22222222 |
| Z20 | 0 | 6296 | 327 | 1852 | 192756 | 246161 | 0.04976 | 0.00091 | 0.03335 | 0.00046 | 0.22879 | 0.00447 | 0.0078 | 0.00023 | 183.9 | 42.17 | 211.5 | 2.87 | 209.2 | 3.69 | 156.9 | 4.69 | 0.817108 | 101.0994264 |
| Z21 | 4 | 66755 | 4556 | 2361 | 72294 | 793158 | 0.06335 | 0.00097 | 0.11847 | 0.00174 | 1.034 | 0.01795 | 0.02211 | 0.00089 | 719.9 | 32.04 | 721.7 | 10.03 | 720.9 | 8.96 | 442 | 17.57 | 0.817108 | 100.1109724 |
| Z22 | 8 | 8692 | 481 | 1589 | 160670 | 332461 | 0.05291 | 0.00086 | 0.03407 | 0.00046 | 0.24852 | 0.00438 | 0.0079 | 0.00025 | 325 | 36.25 | 216 | 2.89 | 225.4 | 3.56 | 159.1 | 5.02 | 0.817108 | 95.8296362 |
| Z23 | 11 | 9938 | 556 | 1570 | 152436 | 384717 | 0.05305 | 0.00082 | 0.03368 | 0.00046 | 0.24633 | 0.00418 | 0.00779 | 0.00024 | 330.8 | 34.62 | 213.6 | 2.85 | 223.6 | 3.41 | 156.9 | 4.84 | 0.817108 | 95.52772809 |
| Z24 | 8 | 11262 | 615 | 2744 | 282087 | 429670 | 0.05224 | 0.00085 | 0.03432 | 0.00047 | 0.24713 | 0.00438 | 0.00797 | 0.00028 | 295.9 | 36.66 | 217.5 | 2.93 | 224.2 | 3.56 | 160.5 | 5.6 | 0.817108 | 97.01159679 |
| Z25 | 17 | 23745 | 1871 | 2318 | 44011 | 170641 | 0.07548 | 0.00098 | 0.17914 | 0.00237 | 1.86409 | 0.02764 | 0.04262 | 0.00146 | 1081.4 | 25.8 | 1062.3 | 12.96 | 1068.4 | 9.8 | 843.6 | 28.35 | 0.817108 | 99.42905279 |
| Z26 | 7 | 4377 | 242 | 1008 | 95658 | 158068 | 0.05294 | 0.00112 | 0.03585 | 0.0005 | 0.26165 | 0.00575 | 0.00841 | 0.00031 | 326.4 | 47.34 | 227.1 | 3.13 | 236 | 4.63 | 169.3 | 6.18 | 0.817108 | 96.22881356 |
| Z27 | 0 | 15963 | 876 | 2907 | 274846 | 572351 | 0.05257 | 0.00078 | 0.03605 | 0.00048 | 0.26126 | 0.00428 | 0.00859 | 0.00032 | 310 | 33.36 | 228.3 | 3.01 | 235.7 | 3.44 | 172.9 | 6.37 | 0.817108 | 96.86041578 |
| Z28 | 14 | 32506 | 1878 | 1454 | 80279 | 599645 | 0.05569 | 0.00077 | 0.06912 | 0.00091 | 0.53066 | 0.00817 | 0.01491 | 0.0006 | 439.9 | 29.9 | 430.8 | 5.47 | 432.2 | 5.42 | 299.2 | 11.93 | 0.817108 | 99.67607589 |
| Z29 | 0 | 6557 | 352 | 1218 | 108860 | 225396 | 0.0521 | 0.0017 | 0.03834 | 0.00063 | 0.27543 | 0.00891 | 0.00957 | 0.00068 | 289.7 | 72.95 | 242.6 | 3.89 | 247 | 7.09 | 192.6 | 13.52 | 0.817108 | 98.21862348 |
| Z30 | 2 | 5955 | 385 | 1080 | 98198 | 217459 | 0.06167 | 0.00124 | 0.036 | 0.00052 | 0.30605 | 0.0064 | 0.00887 | 0.00039 | 662.5 | 42.48 | 228 | 3.21 | 271.1 | 4.98 | 178.5 | 7.87 | 0.817108 | 84.10180745 |
| Z31 | 9 | 32760 | 2492 | 1511 | 34467 | 283225 | 0.07231 | 0.00096 | 0.15531 | 0.00215 | 1.54828 | 0.02393 | 0.03411 | 0.00109 | 994.8 | 26.67 | 930.7 | 11.98 | 949.8 | 9.54 | 677.9 | 21.3 | 0.83195 | 97.98905033 |
| Z32 | 0 | 14866 | 811 | 4050 | 403974 | 549383 | 0.05213 | 0.00101 | 0.0356 | 0.00051 | 0.25586 | 0.00524 | 0.00807 | 0.00032 | 291 | 43.78 | 225.5 | 3.15 | 231.3 | 4.23 | 162.5 | 6.33 | 0.83195 | 97.49243407 |
| Z33 | 7 | 3179 | 178 | 528 | 48669 | 118870 | 0.05327 | 0.00181 | 0.0367 | 0.00061 | 0.26947 | 0.00915 | 0.00839 | 0.00038 | 340.1 | 75.24 | 232.3 | 3.81 | 242.3 | 7.32 | 168.9 | 7.68 | 0.83195 | 95.87288485 |
| Z34 | 17 | 11445 | 646 | 1400 | 133750 | 438580 | 0.05367 | 0.00098 | 0.03545 | 0.00051 | 0.26224 | 0.00516 | 0.00797 | 0.00028 | 357.3 | 40.84 | 224.6 | 3.19 | 236.5 | 4.15 | 160.5 | 5.71 | 0.83195 | 94.96828753 |
| Z35 | 15 | 4298 | 316 | 1028 | 36728 | 65356 | 0.07025 | 0.00172 | 0.08819 | 0.00136 | 0.85386 | 0.0213 | 0.02262 | 0.00091 | 935.6 | 49.49 | 544.8 | 8.08 | 626.8 | 11.67 | 452.2 | 18.03 | 0.83195 | 86.91767709 |
| Z36 | 7 | 8742 | 464 | 4069 | 396550 | 333225 | 0.05082 | 0.00089 | 0.03419 | 0.00047 | 0.23954 | 0.0045 | 0.00816 | 0.00026 | 232.5 | 39.87 | 216.7 | 2.93 | 218 | 3.68 | 164.2 | 5.27 | 0.83195 | 99.40366972 |
| Z37 | 6 | 5718 | 331 | 1458 | 132175 | 208202 | 0.05581 | 0.00117 | 0.03449 | 0.00048 | 0.26537 | 0.0057 | 0.009 | 0.00035 | 444.5 | 45.58 | 218.6 | 2.97 | 239 | 4.58 | 181 | 7.03 | 0.83195 | 91.46443515 |
| Z38 | 6 | 8457 | 441 | 1495 | 146303 | 315998 | 0.05051 | 0.00107 | 0.03271 | 0.00044 | 0.22781 | 0.00492 | 0.0084 | 0.00039 | 218.7 | 48.28 | 207.5 | 2.75 | 208.4 | 4.07 | 169.1 | 7.75 | 0.83195 | 99.5681382 |
| Z39 | 6 | 4453 | 280 | 1073 | 46242 | 75473 | 0.06047 | 0.00121 | 0.07623 | 0.00107 | 0.63554 | 0.01327 | 0.01843 | 0.00066 | 620.6 | 42.6 | 473.6 | 6.4 | 499.5 | 8.24 | 369.1 | 13.12 | 0.83195 | 94.81481481 |
| Z40 | 3 | 18902 | 1406 | 872 | 18231 | 149901 | 0.07137 | 0.00097 | 0.16246 | 0.00216 | 1.59841 | 0.02463 | 0.03812 | 0.00143 | 967.9 | 27.55 | 970.4 | 12 | 969.6 | 9.62 | 756.2 | 27.83 | 0.83195 | 100.0825083 |
| Z41 | 0 | 43723 | 2624 | 486 | 13814 | 629415 | 0.05734 | 0.00078 | 0.09131 | 0.00124 | 0.72186 | 0.01123 | 0.02782 | 0.00122 | 504.2 | 29.53 | 563.3 | 7.3 | 551.8 | 6.62 | 554.6 | 23.9 | 0.83195 | 102.0840884 |
| Z42 | 12 | 6992 | 385 | 2389 | 240733 | 269147 | 0.05298 | 0.00095 | 0.03332 | 0.00045 | 0.24338 | 0.00464 | 0.00806 | 0.00031 | 327.8 | 40.11 | 211.3 | 2.83 | 221.2 | 3.79 | 162.3 | 6.24 | 0.83195 | 95.5244123 |
| Z43 | 12 | 4193 | 304 | 1236 | 104561 | 159203 | 0.06927 | 0.00191 | 0.0358 | 0.00058 | 0.34177 | 0.00948 | 0.00958 | 0.00051 | 906.9 | 55.89 | 226.8 | 3.6 | 298.5 | 7.18 | 192.7 | 10.21 | 0.83195 | 75.9798995 |
| Z44 | 0 | 7858 | 493 | 736 | 32148 | 147282 | 0.06029 | 0.00103 | 0.06895 | 0.00094 | 0.57312 | 0.0105 | 0.01826 | 0.00078 | 613.9 | 36.47 | 429.8 | 5.7 | 460 | 6.78 | 365.8 | 15.46 | 0.83195 | 93.43478261 |
| Z45 | 12 | 3787 | 214 | 1451 | 148155 | 140982 | 0.05452 | 0.00126 | 0.03461 | 0.00049 | 0.2601 | 0.00615 | 0.00798 | 0.00035 | 392.3 | 50.62 | 219.3 | 3.07 | 234.7 | 4.95 | 160.8 | 6.95 | 0.83195 | 93.43843204 |
| Z46 | 0 | 5974 | 333 | 683 | 56453 | 201303 | 0.0536 | 0.00097 | 0.04304 | 0.00066 | 0.31813 | 0.00643 | 0.01119 | 0.00034 | 354.2 | 40.49 | 271.6 | 4.07 | 280.5 | 4.95 | 224.9 | 6.71 | 0.86677 | 96.82709447 |
| Z47 | 6 | 2047 | 132 | 579 | 52805 | 78346 | 0.06166 | 0.00153 | 0.03818 | 0.00062 | 0.32464 | 0.00838 | 0.01001 | 0.00029 | 662.3 | 52.19 | 241.5 | 3.88 | 285.5 | 6.42 | 201.3 | 5.87 | 0.86677 | 84.58844133 |
| Z48 | 0 | 4625 | 291 | 751 | 46547 | 117342 | 0.06039 | 0.00113 | 0.05756 | 0.00089 | 0.47932 | 0.00991 | 0.01498 | 0.00045 | 617.6 | 39.83 | 360.7 | 5.46 | 397.6 | 6.8 | 300.5 | 8.93 | 0.86677 | 90.7193159 |
| Z49 | 5 | 8163 | 487 | 1533 | 111230 | 228592 | 0.05708 | 0.00098 | 0.05314 | 0.00083 | 0.41827 | 0.00822 | 0.01269 | 0.00038 | 494.2 | 37.52 | 333.8 | 5.08 | 354.8 | 5.88 | 254.8 | 7.66 | 0.86677 | 94.08117249 |
| Z50 | 3 | 4573 | 270 | 778 | 72893 | 176853 | 0.05686 | 0.00118 | 0.03724 | 0.00058 | 0.29196 | 0.00653 | 0.01011 | 0.00035 | 485.6 | 45.5 | 235.7 | 3.61 | 260.1 | 5.13 | 203.3 | 6.97 | 0.86677 | 90.6189927 |
| Z51 | 0 | 8658 | 519 | 583 | 32460 | 223135 | 0.05757 | 0.00093 | 0.05689 | 0.00087 | 0.4516 | 0.00844 | 0.01689 | 0.00057 | 513 | 35.32 | 356.7 | 5.3 | 378.4 | 5.9 | 338.6 | 11.27 | 0.86677 | 94.2653277 |
| Z52 | 10 | 4985 | 388 | 614 | 21692 | 74073 | 0.0747 | 0.00133 | 0.09941 | 0.00157 | 1.02398 | 0.02052 | 0.02645 | 0.0009 | 1060.5 | 35.46 | 610.9 | 9.18 | 715.9 | 10.29 | 527.7 | 17.8 | 0.86677 | 85.33314709 |
| Z53 | 18 | 85722 | 6079 | 3607 | 107843 | 1078403 | 0.06694 | 0.00091 | 0.12271 | 0.00194 | 1.1325 | 0.01966 | 0.02901 | 0.00101 | 835.8 | 28.17 | 746.1 | 11.14 | 768.9 | 9.36 | 577.9 | 19.88 | 0.86677 | 97.03472493 |
| Z54 | 4 | 5995 | 326 | 1212 | 139175 | 264248 | 0.05195 | 0.00093 | 0.03378 | 0.00053 | 0.24197 | 0.00491 | 0.00779 | 0.00024 | 283.2 | 40.41 | 214.2 | 3.29 | 220 | 4.01 | 156.9 | 4.86 | 0.86677 | 97.36363636 |
| Z55 | 14 | 4906 | 312 | 606 | 37633 | 137563 | 0.06108 | 0.00113 | 0.05288 | 0.00083 | 0.44535 | 0.00924 | 0.01509 | 0.00054 | 641.9 | 39.41 | 332.2 | 5.1 | 374 | 6.49 | 302.8 | 10.74 | 0.86677 | 88.82352941 |
| Z56 | 6 | 10147 | 633 | 1605 | 75869 | 206327 | 0.05885 | 0.0014 | 0.0779 | 0.00136 | 0.63202 | 0.01616 | 0.01935 | 0.00102 | 561.6 | 50.85 | 483.6 | 8.16 | 497.4 | 10.05 | 387.4 | 20.2 | 0.86677 | 97.22557298 |
| Z57 | 5 | 6212 | 381 | 166 | 8357 | 191419 | 0.05819 | 0.00131 | 0.05048 | 0.00086 | 0.40506 | 0.00988 | 0.01814 | 0.00114 | 536.4 | 49.07 | 317.4 | 5.27 | 345.3 | 7.14 | 363.3 | 22.72 | 0.86677 | 91.9200695 |
| Z58 | 0 | 9792 | 544 | 1862 | 168768 | 346452 | 0.05286 | 0.00084 | 0.04241 | 0.00066 | 0.30912 | 0.00579 | 0.00965 | 0.00032 | 322.8 | 35.49 | 267.7 | 4.08 | 273.5 | 4.49 | 194.2 | 6.35 | 0.86677 | 97.87934186 |
| Z59 | 0 | 1684 | 122 | 67 | 477 | 28748 | 0.06969 | 0.00184 | 0.08774 | 0.00151 | 0.84322 | 0.02308 | 0.13021 | 0.00876 | 919.4 | 53.29 | 542.1 | 8.93 | 620.9 | 12.71 | 2474 | 156.73 | 0.86677 | 87.30874537 |
| Z60 | 0 | 13198 | 710 | 2058 | 212976 | 546118 | 0.05135 | 0.00083 | 0.03666 | 0.00058 | 0.25957 | 0.00498 | 0.00883 | 0.00033 | 256.5 | 36.83 | 232.1 | 3.59 | 234.3 | 4.01 | 177.6 | 6.71 | 0.86677 | 99.06103286 |
| Z61 | 0 | 5386 | 333 | 2429 | 235170 | 205366 | 0.05939 | 0.00105 | 0.03982 | 0.00064 | 0.32608 | 0.00659 | 0.00963 | 0.00027 | 581.6 | 37.84 | 251.7 | 3.94 | 286.6 | 5.05 | 193.7 | 5.34 | 0.830276 | 87.82274948 |
| Z62 | 0 | 888 | 63 | 169 | 13836 | 33567 | 0.06905 | 0.00254 | 0.03994 | 0.00076 | 0.38032 | 0.01394 | 0.01177 | 0.00054 | 900.3 | 73.97 | 252.5 | 4.69 | 327.3 | 10.26 | 236.6 | 10.71 | 0.830276 | 77.14634892 |
| Z63 | 0 | 4766 | 263 | 1118 | 126333 | 209560 | 0.05287 | 0.00121 | 0.03465 | 0.00058 | 0.25263 | 0.00622 | 0.0084 | 0.00031 | 323.1 | 51.09 | 219.6 | 3.59 | 228.7 | 5.04 | 169 | 6.24 | 0.830276 | 96.02098819 |
| Z64 | 6 | 3299 | 171 | 572 | 58693 | 130796 | 0.04982 | 0.0011 | 0.0382 | 0.00062 | 0.2624 | 0.0063 | 0.00915 | 0.0003 | 186.5 | 50.81 | 241.7 | 3.87 | 236.6 | 5.07 | 184 | 6.07 | 0.830276 | 102.1555368 |
| Z65 | 4 | 2398 | 139 | 541 | 49172 | 83707 | 0.05583 | 0.00139 | 0.0432 | 0.00072 | 0.33258 | 0.00872 | 0.01044 | 0.00036 | 445.3 | 54.06 | 272.7 | 4.45 | 291.5 | 6.64 | 210 | 7.29 | 0.830276 | 93.55060034 |
| Z66 | 0 | 8930 | 465 | 2173 | 246209 | 382605 | 0.05001 | 0.00082 | 0.03533 | 0.00056 | 0.24361 | 0.00469 | 0.0083 | 0.00026 | 195.3 | 37.64 | 223.8 | 3.46 | 221.4 | 3.83 | 167 | 5.27 | 0.830276 | 101.0840108 |
| Z67 | 3 | 2672 | 146 | 917 | 111500 | 122080 | 0.05218 | 0.00159 | 0.03467 | 0.00063 | 0.24942 | 0.00784 | 0.00748 | 0.00031 | 293.3 | 67.97 | 219.7 | 3.93 | 226.1 | 6.37 | 150.6 | 6.26 | 0.830276 | 97.16939407 |
| Z68 | 0 | 3109 | 252 | 953 | 22540 | 29393 | 0.0769 | 0.00233 | 0.17052 | 0.00331 | 1.80768 | 0.05622 | 0.03599 | 0.00178 | 1118.7 | 59.4 | 1015 | 18.25 | 1048.2 | 20.33 | 714.6 | 34.78 | 0.830276 | 96.83266552 |
| Z69 | 5 | 8340 | 445 | 1645 | 188092 | 372546 | 0.05108 | 0.00086 | 0.03401 | 0.00054 | 0.23952 | 0.0047 | 0.00803 | 0.00027 | 244.4 | 38.27 | 215.6 | 3.35 | 218 | 3.85 | 161.6 | 5.46 | 0.830276 | 98.89908257 |
| Z70 | 6 | 879 | 50 | 375 | 39948 | 34375 | 0.05471 | 0.00222 | 0.03848 | 0.00073 | 0.29031 | 0.01174 | 0.00872 | 0.00036 | 400.1 | 88.18 | 243.4 | 4.55 | 258.8 | 9.24 | 175.4 | 7.29 | 0.830276 | 94.04945904 |
| Z71 | 0 | 1543 | 111 | 285 | 12475 | 24720 | 0.06872 | 0.0019 | 0.09522 | 0.00168 | 0.90227 | 0.02575 | 0.02092 | 0.0009 | 890.5 | 55.98 | 586.4 | 9.89 | 652.9 | 13.74 | 418.5 | 17.83 | 0.830276 | 89.814673 |
| Z72 | 12 | 15071 | 781 | 72 | 3564 | 633355 | 0.04875 | 0.00086 | 0.03745 | 0.00062 | 0.25169 | 0.00518 | 0.01715 | 0.00132 | 135.6 | 41.15 | 237 | 3.84 | 227.9 | 4.2 | 343.8 | 26.24 | 0.830276 | 103.9929794 |
| Z73 | 2 | 5093 | 396 | 664 | 17909 | 52799 | 0.07436 | 0.00176 | 0.15318 | 0.00272 | 1.56992 | 0.0399 | 0.03451 | 0.00184 | 1051.3 | 46.95 | 918.8 | 15.19 | 958.4 | 15.77 | 685.8 | 35.92 | 0.830276 | 95.86811352 |
| Z74 | 17 | 2960 | 311 | 546 | 8243 | 51905 | 0.10142 | 0.0033 | 0.09192 | 0.00187 | 1.28497 | 0.04202 | 0.06149 | 0.00431 | 1650.2 | 59.22 | 566.9 | 11.03 | 839.1 | 18.67 | 1206.2 | 82.13 | 0.830276 | 67.56048147 |
| Z75 | 0 | 28562 | 2024 | 772 | 15424 | 444587 | 0.06737 | 0.0011 | 0.09565 | 0.00149 | 0.88848 | 0.01688 | 0.04447 | 0.00211 | 849.4 | 33.54 | 588.8 | 8.78 | 645.5 | 9.08 | 879.4 | 40.92 | 0.830276 | 91.21611154 |
| Z76 | 5 | 2863 | 198 | 565 | 50153 | 119570 | 0.06605 | 0.00137 | 0.0361 | 0.00059 | 0.32883 | 0.00742 | 0.01014 | 0.00032 | 808.1 | 42.9 | 228.6 | 3.67 | 288.7 | 5.67 | 204 | 6.44 | 0.806346 | 79.18254243 |
| Z77 | 11 | 4970 | 338 | 1732 | 77245 | 86198 | 0.06496 | 0.00116 | 0.08691 | 0.00139 | 0.77846 | 0.01576 | 0.02058 | 0.00063 | 773.2 | 37.16 | 537.2 | 8.23 | 584.6 | 9 | 411.8 | 12.38 | 0.806346 | 91.89189189 |
| Z78 | 0 | 2912 | 150 | 597 | 66357 | 125231 | 0.04927 | 0.00163 | 0.03697 | 0.00069 | 0.25102 | 0.00848 | 0.00821 | 0.00038 | 160.7 | 75.53 | 234 | 4.28 | 227.4 | 6.88 | 165.3 | 7.56 | 0.806346 | 102.9023747 |
| Z79 | 8 | 16936 | 3327 | 228 | 1658 | 63857 | 0.18734 | 0.0026 | 0.39557 | 0.00613 | 10.21714 | 0.17381 | 0.12822 | 0.00605 | 2718.9 | 22.66 | 2148.6 | 28.34 | 2454.6 | 15.73 | 2438.5 | 108.35 | 0.806346 | 87.53361036 |
| Z80 | 6 | 13499 | 826 | 526 | 23765 | 267679 | 0.05842 | 0.00086 | 0.07581 | 0.00117 | 0.61065 | 0.01088 | 0.01997 | 0.00069 | 545.6 | 31.78 | 471.1 | 7.04 | 484 | 6.86 | 399.7 | 13.75 | 0.806346 | 97.33471074 |
| Z81 | 0 | 5797 | 367 | 1195 | 82936 | 164670 | 0.06074 | 0.00108 | 0.0526 | 0.00083 | 0.44051 | 0.00884 | 0.0133 | 0.00045 | 630.1 | 37.68 | 330.4 | 5.08 | 370.6 | 6.23 | 267.1 | 9.07 | 0.806346 | 89.15272531 |
| Z82 | 0 | 13161 | 1028 | 1569 | 34931 | 109649 | 0.07474 | 0.00109 | 0.18017 | 0.0028 | 1.85662 | 0.03288 | 0.0406 | 0.00136 | 1061.6 | 29.09 | 1067.9 | 15.28 | 1065.8 | 11.69 | 804.4 | 26.49 | 0.806346 | 100.1970351 |
| Z83 | 6 | 509 | 49 | 162 | 10671 | 18507 | 0.09282 | 0.00385 | 0.04109 | 0.00087 | 0.52582 | 0.02113 | 0.01438 | 0.0007 | 1484.1 | 76.66 | 259.6 | 5.39 | 429 | 14.06 | 288.5 | 14 | 0.806346 | 60.51282051 |
| Z84 | 5 | 3660 | 214 | 938 | 99639 | 154059 | 0.05616 | 0.00115 | 0.0356 | 0.00057 | 0.27558 | 0.00618 | 0.00846 | 0.00031 | 458.2 | 44.86 | 225.5 | 3.57 | 247.1 | 4.92 | 170.2 | 6.12 | 0.806346 | 91.25859976 |
| Z85 | 8 | 5692 | 333 | 520 | 44776 | 227371 | 0.05602 | 0.00103 | 0.03751 | 0.00059 | 0.28971 | 0.006 | 0.01042 | 0.0004 | 452.7 | 40.22 | 237.4 | 3.69 | 258.3 | 4.72 | 209.5 | 8.09 | 0.806346 | 91.90863337 |
| Z86 | 5 | 4496 | 249 | 816 | 87220 | 188037 | 0.05323 | 0.00107 | 0.03565 | 0.00057 | 0.26167 | 0.00578 | 0.0086 | 0.00034 | 338.8 | 45.01 | 225.8 | 3.54 | 236 | 4.66 | 173.1 | 6.78 | 0.806346 | 95.6779661 |
| Z87 | 2 | 4321 | 270 | 748 | 56741 | 133337 | 0.06038 | 0.00123 | 0.04811 | 0.00077 | 0.40048 | 0.00887 | 0.01241 | 0.00052 | 617.3 | 43.27 | 302.9 | 4.73 | 342 | 6.43 | 249.3 | 10.41 | 0.806346 | 88.56725146 |
| Z88 | 3 | 4235 | 273 | 1108 | 105662 | 173383 | 0.06196 | 0.00131 | 0.03652 | 0.00059 | 0.31189 | 0.00712 | 0.00995 | 0.00043 | 672.7 | 44.53 | 231.2 | 3.68 | 275.6 | 5.51 | 200 | 8.7 | 0.806346 | 83.88969521 |
| Z89 | 8 | 4283 | 261 | 1161 | 116441 | 168613 | 0.05858 | 0.00123 | 0.03799 | 0.00061 | 0.30683 | 0.00697 | 0.00917 | 0.00039 | 551.7 | 45.07 | 240.4 | 3.81 | 271.7 | 5.41 | 184.5 | 7.8 | 0.806346 | 88.47994111 |
| Z90 | 5 | 2652 | 161 | 577 | 64246 | 112864 | 0.05863 | 0.00141 | 0.03496 | 0.00058 | 0.28253 | 0.00715 | 0.00824 | 0.00037 | 553.4 | 51.66 | 221.5 | 3.59 | 252.7 | 5.66 | 165.9 | 7.38 | 0.806346 | 87.65334389 |
| Z91 | 1 | 3851 | 232 | 1051 | 112335 | 155022 | 0.05822 | 0.00116 | 0.03697 | 0.00059 | 0.29672 | 0.00649 | 0.009 | 0.00029 | 537.5 | 43.52 | 234 | 3.66 | 263.8 | 5.08 | 181.1 | 5.72 | 0.786557 | 88.70356331 |
| Z92 | 6 | 4591 | 305 | 2004 | 88565 | 76636 | 0.06477 | 0.0013 | 0.08739 | 0.00138 | 0.78015 | 0.0171 | 0.02351 | 0.00085 | 766.9 | 41.85 | 540.1 | 8.18 | 585.6 | 9.75 | 469.7 | 16.87 | 0.786557 | 92.23019126 |
| Z93 | 6 | 2023 | 115 | 385 | 40837 | 87075 | 0.05469 | 0.00142 | 0.03465 | 0.00058 | 0.26124 | 0.00708 | 0.00887 | 0.00032 | 400.1 | 56.36 | 219.6 | 3.61 | 235.7 | 5.7 | 178.5 | 6.48 | 0.786557 | 93.16928299 |
| Z94 | 4 | 1262 | 79 | 283 | 27599 | 53036 | 0.06074 | 0.00196 | 0.03541 | 0.00063 | 0.29648 | 0.00966 | 0.00988 | 0.0004 | 630.2 | 67.88 | 224.3 | 3.9 | 263.6 | 7.57 | 198.7 | 7.98 | 0.786557 | 85.09104704 |
| Z95 | 4 | 2987 | 186 | 736 | 65319 | 106898 | 0.05987 | 0.00136 | 0.04195 | 0.00069 | 0.34621 | 0.00842 | 0.01035 | 0.00037 | 599 | 48.57 | 264.9 | 4.27 | 301.9 | 6.35 | 208.1 | 7.39 | 0.786557 | 87.74428619 |
| Z96 | 12 | 7853 | 621 | 627 | 13567 | 64785 | 0.07603 | 0.00122 | 0.18055 | 0.00282 | 1.89214 | 0.03556 | 0.04351 | 0.00161 | 1095.7 | 31.91 | 1070 | 15.42 | 1078.3 | 12.49 | 860.9 | 31.24 | 0.786557 | 99.23026987 |
| Z97 | 0 | 3799 | 207 | 688 | 77767 | 150837 | 0.05233 | 0.00111 | 0.03736 | 0.0006 | 0.26948 | 0.00619 | 0.00831 | 0.0003 | 299.7 | 47.53 | 236.5 | 3.7 | 242.3 | 4.95 | 167.2 | 6.11 | 0.786557 | 97.60627322 |
| Z98 | 2 | 2237 | 127 | 816 | 81530 | 81353 | 0.05455 | 0.00139 | 0.04073 | 0.00067 | 0.30622 | 0.00814 | 0.00944 | 0.00035 | 393.7 | 55.74 | 257.3 | 4.17 | 271.2 | 6.33 | 190 | 7.07 | 0.786557 | 94.87463127 |
| Z99 | 6 | 2247 | 130 | 725 | 77621 | 86895 | 0.05556 | 0.00159 | 0.0391 | 0.00068 | 0.29938 | 0.00881 | 0.00862 | 0.00036 | 434.5 | 62.12 | 247.2 | 4.21 | 265.9 | 6.88 | 173.6 | 7.3 | 0.786557 | 92.96728093 |
| Z100 | 14 | 21614 | 1229 | 2334 | 133324 | 454473 | 0.0545 | 0.00081 | 0.07049 | 0.00108 | 0.52961 | 0.00941 | 0.01617 | 0.0006 | 391.8 | 32.66 | 439.1 | 6.49 | 431.5 | 6.25 | 324.1 | 11.87 | 0.786557 | 101.7612978 |
| Z101 | 10 | 771 | 59 | 123 | 3131 | 8313 | 0.07384 | 0.00274 | 0.13791 | 0.00267 | 1.40366 | 0.05181 | 0.03638 | 0.00198 | 1037 | 73.28 | 832.9 | 15.14 | 890.5 | 21.88 | 722.3 | 38.69 | 0.786557 | 93.53172375 |
| Z102 | 1 | 1418 | 137 | 387 | 29664 | 57293 | 0.09328 | 0.00275 | 0.03744 | 0.0007 | 0.48132 | 0.01427 | 0.01221 | 0.00061 | 1493.5 | 54.82 | 237 | 4.33 | 399 | 9.78 | 245.3 | 12.17 | 0.786557 | 59.39849624 |
| Z103 | 1 | 3248 | 182 | 532 | 58549 | 136099 | 0.05365 | 0.00121 | 0.03536 | 0.00057 | 0.26152 | 0.00628 | 0.00828 | 0.00035 | 356.2 | 50.11 | 224 | 3.56 | 235.9 | 5.05 | 166.6 | 7.06 | 0.786557 | 94.95548961 |
| Z104 | 0 | 4279 | 249 | 813 | 77286 | 155531 | 0.05578 | 0.00115 | 0.04072 | 0.00065 | 0.31305 | 0.007 | 0.00961 | 0.00041 | 443.1 | 44.84 | 257.3 | 4.02 | 276.5 | 5.42 | 193.3 | 8.16 | 0.786557 | 93.05605787 |
| Z105 | 16 | 6387 | 383 | 771 | 48482 | 141780 | 0.05765 | 0.00115 | 0.06729 | 0.00108 | 0.53468 | 0.01168 | 0.01446 | 0.00067 | 516.4 | 43.34 | 419.8 | 6.51 | 434.9 | 7.73 | 290.3 | 13.3 | 0.786557 | 96.52793746 |
| Z106 | 2 | 4106 | 225 | 791 | 91778 | 174325 | 0.05242 | 0.00105 | 0.0352 | 0.00056 | 0.25438 | 0.00559 | 0.00752 | 0.00024 | 303.9 | 44.82 | 223 | 3.49 | 230.1 | 4.53 | 151.3 | 4.89 | 0.781438 | 96.91438505 |
| Z107 | 6 | 6836 | 399 | 1015 | 78844 | 199569 | 0.05607 | 0.00097 | 0.05109 | 0.0008 | 0.39491 | 0.0078 | 0.01172 | 0.0004 | 454.7 | 37.61 | 321.2 | 4.9 | 337.9 | 5.68 | 235.6 | 8 | 0.781438 | 95.05770938 |
| Z108 | 0 | 9293 | 547 | 1046 | 48421 | 156955 | 0.05639 | 0.00091 | 0.08844 | 0.00137 | 0.68758 | 0.01297 | 0.01935 | 0.00067 | 467 | 35.53 | 546.3 | 8.14 | 531.3 | 7.8 | 387.4 | 13.23 | 0.781438 | 102.8232637 |
| Z109 | 5 | 1940 | 138 | 485 | 48235 | 83558 | 0.06773 | 0.00182 | 0.03545 | 0.00062 | 0.33084 | 0.00921 | 0.00868 | 0.00035 | 860.2 | 54.94 | 224.6 | 3.88 | 290.2 | 7.02 | 174.7 | 7.04 | 0.781438 | 77.39490007 |
| Z110 | 5 | 4014 | 208 | 399 | 40261 | 155989 | 0.04969 | 0.00105 | 0.03846 | 0.00062 | 0.26349 | 0.00605 | 0.00901 | 0.00036 | 180.4 | 48.46 | 243.3 | 3.83 | 237.5 | 4.86 | 181.2 | 7.31 | 0.781438 | 102.4421053 |
| Z111 | 0 | 2257 | 118 | 315 | 31631 | 82167 | 0.05016 | 0.00131 | 0.04108 | 0.00068 | 0.28411 | 0.00776 | 0.00907 | 0.00039 | 202.6 | 59.54 | 259.5 | 4.24 | 253.9 | 6.13 | 182.5 | 7.84 | 0.781438 | 102.2055928 |
| Z112 | 13 | 2899 | 173 | 744 | 34222 | 49078 | 0.05703 | 0.00131 | 0.08855 | 0.00146 | 0.69634 | 0.01705 | 0.01941 | 0.00078 | 492.3 | 50.4 | 547 | 8.63 | 536.6 | 10.21 | 388.6 | 15.41 | 0.781438 | 101.938129 |
| Z113 | 0 | 2516 | 158 | 368 | 41243 | 94338 | 0.05306 | 0.0028 | 0.04211 | 0.001 | 0.30816 | 0.01572 | 0.00398 | 0.0003 | 331.5 | 115.2 | 265.9 | 6.17 | 272.8 | 12.2 | 80.2 | 6.09 | 0.781438 | 97.47067449 |
| Z114 | 17 | 3139 | 163 | 559 | 61201 | 126545 | 0.04955 | 0.00115 | 0.0372 | 0.00061 | 0.25416 | 0.00629 | 0.00821 | 0.00036 | 173.7 | 53.24 | 235.5 | 3.79 | 230 | 5.09 | 165.2 | 7.17 | 0.781438 | 102.3913043 |
| Z115 | 33 | 299 | 192 | 520 | 2607 | 2464 | 0.52058 | 0.04278 | 0.19217 | 0.01213 | 13.828 | 0.86445 | 0.08483 | 0.0081 | 4300.6 | 115.66 | 1133.1 | 65.57 | 2738 | 59.19 | 1645.8 | 150.82 | 0.781438 | 41.38422206 |
| Z116 | 0 | 6353 | 412 | 1012 | 70895 | 176665 | 0.06145 | 0.00132 | 0.05529 | 0.00093 | 0.46835 | 0.01095 | 0.01319 | 0.0007 | 655.2 | 45.47 | 346.9 | 5.65 | 390 | 7.57 | 264.9 | 13.87 | 0.781438 | 88.94871795 |
| Z117 | 1 | 106 | 91 | 255 | 1779 | 532 | 0.82445 | 0.0486 | 0.2891 | 0.01461 | 32.86424 | 1.45643 | 0.14091 | 0.01063 | 4964.6 | 81.28 | 1637 | 73.04 | 3576.5 | 43.67 | 2664.5 | 188.24 | 0.781438 | 45.77100517 |
| Z118 | 0 | 1229 | 69 | 304 | 31729 | 46123 | 0.05377 | 0.00196 | 0.04013 | 0.00073 | 0.29753 | 0.01091 | 0.00893 | 0.00049 | 361.4 | 79.94 | 253.6 | 4.53 | 264.5 | 8.54 | 179.6 | 9.8 | 0.781438 | 95.87901701 |
| Z119 | 0 | 1373 | 86 | 495 | 53946 | 57130 | 0.0603 | 0.00188 | 0.03613 | 0.00064 | 0.30044 | 0.00952 | 0.00844 | 0.00044 | 614.4 | 65.97 | 228.8 | 3.99 | 266.7 | 7.43 | 169.9 | 8.83 | 0.781438 | 85.78927634 |
| Z120 | 2 | 6026 | 327 | 80 | 4516 | 213854 | 0.05125 | 0.00105 | 0.04249 | 0.00069 | 0.30023 | 0.00675 | 0.01505 | 0.00115 | 251.9 | 46.59 | 268.2 | 4.26 | 266.6 | 5.27 | 301.8 | 22.85 | 0.781438 | 100.60015 |

**Supplementary Table 4: Raw U-Pb data from sample NZ1304**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 0 | 4919 | 289 | 44 | 386 | 75589 | 0.05632 | 0.00122 | 0.08054 | 0.00109 | 0.62532 | 0.0139 | 0.09259 | 0.0173 | 464.1 | 47.86 | 499.3 | 6.52 | 493.2 | 8.69 | 1789.8 | 320.09 | 0.608839 | 101.2368208 |
| Z2 | 9 | 42738 | 2595 | 2789 | 92678 | 703512 | 0.05742 | 0.00071 | 0.0786 | 0.00104 | 0.62231 | 0.00898 | 0.02269 | 0.0007 | 507.3 | 26.92 | 487.7 | 6.2 | 491.3 | 5.62 | 453.5 | 13.9 | 0.916941 | 99.26725015 |
| Z3 | 7 | 8262 | 514 | 1758 | 158329 | 305352 | 0.05886 | 0.001 | 0.03493 | 0.00048 | 0.28347 | 0.00517 | 0.00851 | 0.00028 | 562.1 | 36.7 | 221.3 | 2.96 | 253.4 | 4.09 | 171.3 | 5.53 | 0.753458 | 87.33228098 |
| Z4 | 14 | 18801 | 2004 | 2043 | 32909 | 135120 | 0.10141 | 0.00125 | 0.17656 | 0.0023 | 2.46882 | 0.03509 | 0.04903 | 0.00157 | 1650 | 22.76 | 1048.1 | 12.62 | 1262.9 | 10.27 | 967.5 | 30.31 | 0.916519 | 82.99152744 |
| Z5 | 12 | 4427 | 265 | 1150 | 88678 | 127935 | 0.05705 | 0.00126 | 0.04405 | 0.00061 | 0.34648 | 0.00786 | 0.01049 | 0.00038 | 492.8 | 47.8 | 277.9 | 3.78 | 302.1 | 5.93 | 210.9 | 7.55 | 0.610435 | 91.98940748 |
| Z6 | 0 | 16839 | 1304 | 3008 | 232142 | 391064 | 0.07385 | 0.00104 | 0.05475 | 0.00072 | 0.55752 | 0.0087 | 0.01048 | 0.00038 | 1037.5 | 28.1 | 343.6 | 4.42 | 449.9 | 5.67 | 210.8 | 7.67 | 0.842732 | 76.37252723 |
| Z7 | 12 | 38059 | 2334 | 1351 | 52876 | 543332 | 0.05763 | 0.00076 | 0.09297 | 0.00127 | 0.73876 | 0.01134 | 0.01894 | 0.0007 | 515.5 | 29.05 | 573.1 | 7.47 | 561.7 | 6.62 | 379.2 | 13.92 | 0.88992 | 102.0295531 |
| Z8 | 19 | 102030 | 16184 | 17871 | 169584 | 351632 | 0.15132 | 0.00186 | 0.37158 | 0.00487 | 7.75213 | 0.11115 | 0.08577 | 0.00333 | 2360.9 | 20.8 | 2036.8 | 22.88 | 2202.7 | 12.9 | 1663.2 | 62.04 | 0.914088 | 92.46833432 |
| Z9 | 0 | 54408 | 6302 | 19799 | 237198 | 214535 | 0.10972 | 0.00131 | 0.33075 | 0.0044 | 5.00368 | 0.0712 | 0.06561 | 0.00231 | 1794.8 | 21.6 | 1842 | 21.32 | 1819.9 | 12.04 | 1284.4 | 43.85 | 0.934894 | 101.2143524 |
| Z10 | 6 | 4055 | 249 | 1690 | 156845 | 143087 | 0.05822 | 0.00133 | 0.03728 | 0.00054 | 0.29925 | 0.00706 | 0.00843 | 0.00033 | 537.5 | 49.76 | 235.9 | 3.34 | 265.8 | 5.52 | 169.6 | 6.54 | 0.61397 | 88.75094056 |
| Z11 | 0 | 11355 | 608 | 7044 | 672468 | 381668 | 0.05134 | 0.00196 | 0.03733 | 0.00064 | 0.26387 | 0.0099 | 0.00841 | 0.00076 | 255.9 | 85.27 | 236.2 | 3.97 | 237.8 | 7.96 | 169.2 | 15.33 | 0.456959 | 99.32716569 |
| Z12 | 5 | 10460 | 642 | 2416 | 111247 | 178671 | 0.05835 | 0.00094 | 0.07697 | 0.00106 | 0.61921 | 0.01095 | 0.01768 | 0.00073 | 542.8 | 34.74 | 478 | 6.36 | 489.4 | 6.87 | 354.3 | 14.59 | 0.778768 | 97.67061708 |
| Z13 | 0 | 11100 | 610 | 2292 | 212299 | 385148 | 0.05225 | 0.00083 | 0.0379 | 0.00052 | 0.27301 | 0.00481 | 0.00871 | 0.00036 | 296.2 | 35.91 | 239.8 | 3.23 | 245.1 | 3.83 | 175.3 | 7.22 | 0.778749 | 97.8376173 |
| Z14 | 0 | 9057 | 531 | 2631 | 235838 | 308925 | 0.05569 | 0.00093 | 0.03871 | 0.00054 | 0.29719 | 0.00543 | 0.00908 | 0.00039 | 439.6 | 36.29 | 244.8 | 3.33 | 264.2 | 4.25 | 182.7 | 7.8 | 0.763493 | 92.65707797 |
| Z15 | 17 | 6994 | 473 | 1485 | 116959 | 249158 | 0.0642 | 0.00111 | 0.03739 | 0.00053 | 0.33099 | 0.00623 | 0.01011 | 0.00044 | 748.3 | 36.12 | 236.7 | 3.28 | 290.3 | 4.76 | 203.3 | 8.8 | 0.753091 | 81.53634172 |
| Z16 | 12 | 19429 | 1125 | 4478 | 428795 | 737265 | 0.05542 | 0.00074 | 0.03537 | 0.00049 | 0.27014 | 0.0042 | 0.00807 | 0.00022 | 429 | 29.23 | 224.1 | 3.02 | 242.8 | 3.36 | 162.4 | 4.35 | 0.891047 | 92.29818781 |
| Z17 | 23 | 6308 | 382 | 1807 | 169572 | 235257 | 0.05752 | 0.00154 | 0.03742 | 0.0006 | 0.29667 | 0.0081 | 0.00766 | 0.00031 | 511.1 | 58.16 | 236.8 | 3.72 | 263.8 | 6.34 | 154.3 | 6.16 | 0.587268 | 89.76497346 |
| Z18 | 32 | 2935 | 432 | 1521 | 67752 | 84329 | 0.14168 | 0.00254 | 0.04653 | 0.00069 | 0.90835 | 0.01708 | 0.01764 | 0.00054 | 2247.8 | 30.64 | 293.2 | 4.27 | 656.2 | 9.09 | 353.5 | 10.7 | 0.788645 | 44.68149954 |
| Z19 | 9 | 6524 | 416 | 1229 | 108744 | 165599 | 0.06126 | 0.0011 | 0.05274 | 0.00075 | 0.44517 | 0.00863 | 0.00887 | 0.00028 | 648.4 | 38.09 | 331.3 | 4.57 | 373.9 | 6.06 | 178.5 | 5.67 | 0.733561 | 88.6065793 |
| Z20 | 79 | 35932 | 3435 | 3386 | 27014 | 348036 | 0.09145 | 0.00109 | 0.13903 | 0.00191 | 1.75229 | 0.02546 | 0.095 | 0.00278 | 1455.9 | 22.52 | 839.1 | 10.78 | 1028 | 9.39 | 1834.4 | 51.27 | 0.945524 | 81.62451362 |
| Z21 | 0 | 5762 | 399 | 1630 | 131704 | 201559 | 0.06652 | 0.00116 | 0.03833 | 0.00054 | 0.35138 | 0.00665 | 0.00962 | 0.0003 | 822.9 | 36.05 | 242.5 | 3.37 | 305.8 | 5 | 193.6 | 6.08 | 0.744407 | 79.30019621 |
| Z22 | 15 | 29359 | 2811 | 1347 | 37594 | 337641 | 0.09176 | 0.00134 | 0.11328 | 0.00154 | 1.43215 | 0.02332 | 0.02813 | 0.00124 | 1462.3 | 27.71 | 691.8 | 8.94 | 902.4 | 9.74 | 560.7 | 24.35 | 0.834887 | 76.66223404 |
| Z23 | 15 | 10317 | 770 | 1627 | 35093 | 80327 | 0.07208 | 0.00117 | 0.1703 | 0.00239 | 1.69167 | 0.03009 | 0.03696 | 0.0014 | 988 | 32.91 | 1013.8 | 13.15 | 1005.4 | 11.35 | 733.6 | 27.2 | 0.788999 | 100.8354884 |
| Z24 | 0 | 4092 | 294 | 644 | 45166 | 144323 | 0.06907 | 0.00141 | 0.03821 | 0.00056 | 0.36369 | 0.00782 | 0.01112 | 0.00042 | 900.8 | 41.55 | 241.7 | 3.47 | 315 | 5.82 | 223.6 | 8.48 | 0.681609 | 76.73015873 |
| Z25 | 1 | 1202 | 100 | 388 | 21999 | 35868 | 0.0801 | 0.00496 | 0.04343 | 0.00102 | 0.47936 | 0.02851 | 0.01419 | 0.00107 | 1199.4 | 117.34 | 274.1 | 6.31 | 397.6 | 19.57 | 284.8 | 21.26 | 0.394889 | 68.93863179 |
| Z26 | 0 | 50709 | 3198 | 7773 | 264045 | 634587 | 0.06037 | 0.00075 | 0.10789 | 0.00148 | 0.89772 | 0.01349 | 0.022 | 0.00074 | 616.7 | 26.76 | 660.5 | 8.64 | 650.5 | 7.22 | 439.9 | 14.61 | 0.912871 | 101.537279 |
| Z27 | 12 | 17550 | 1085 | 3462 | 298967 | 632713 | 0.05943 | 0.00087 | 0.03769 | 0.00053 | 0.30875 | 0.00517 | 0.00891 | 0.00033 | 583 | 31.38 | 238.5 | 3.29 | 273.2 | 4.01 | 179.4 | 6.63 | 0.839781 | 87.29868228 |
| Z28 | 0 | 9262 | 580 | 1636 | 85942 | 209211 | 0.06038 | 0.001 | 0.05963 | 0.00084 | 0.49618 | 0.00906 | 0.01496 | 0.00059 | 617.1 | 35.33 | 373.4 | 5.13 | 409.1 | 6.15 | 300 | 11.75 | 0.771482 | 91.27352725 |
| Z29 | 10 | 9864 | 647 | 1329 | 61080 | 261078 | 0.06315 | 0.00101 | 0.05097 | 0.00072 | 0.44368 | 0.00791 | 0.01698 | 0.00068 | 713.4 | 33.71 | 320.5 | 4.41 | 372.8 | 5.56 | 340.3 | 13.54 | 0.792339 | 85.97103004 |
| Z30 | 0 | 10740 | 663 | 784 | 30156 | 162631 | 0.05949 | 0.00096 | 0.08927 | 0.00126 | 0.73195 | 0.01313 | 0.02022 | 0.00086 | 584.9 | 34.59 | 551.2 | 7.47 | 557.7 | 7.7 | 404.6 | 17.04 | 0.786831 | 98.83449883 |
| Z31 | 14 | 54748 | 4093 | 2334 | 53802 | 470177 | 0.07183 | 0.00086 | 0.15514 | 0.0021 | 1.53586 | 0.02219 | 0.03444 | 0.00103 | 981.1 | 24.14 | 929.7 | 11.72 | 944.8 | 8.89 | 684.4 | 20.14 | 0.936893 | 98.40177815 |
| Z32 | 13 | 7243 | 433 | 1075 | 90338 | 245916 | 0.05732 | 0.00098 | 0.03939 | 0.00055 | 0.31115 | 0.00582 | 0.00922 | 0.00028 | 503.4 | 37.18 | 249 | 3.43 | 275.1 | 4.51 | 185.6 | 5.68 | 0.746489 | 90.51254089 |
| Z33 | 3 | 2326 | 172 | 833 | 65371 | 75040 | 0.07097 | 0.00207 | 0.04055 | 0.00063 | 0.39654 | 0.01155 | 0.01016 | 0.00038 | 956.4 | 58.49 | 256.2 | 3.9 | 339.1 | 8.4 | 204.2 | 7.56 | 0.533402 | 75.55293424 |
| Z34 | 17 | 9244 | 663 | 569 | 11954 | 134191 | 0.06896 | 0.0011 | 0.09067 | 0.00126 | 0.86184 | 0.0151 | 0.03766 | 0.00144 | 897.5 | 32.71 | 559.5 | 7.43 | 631.1 | 8.23 | 747.2 | 28.04 | 0.793152 | 88.65472984 |
| Z35 | 22 | 5918 | 353 | 1067 | 92123 | 204929 | 0.05695 | 0.00103 | 0.03854 | 0.00054 | 0.30251 | 0.00587 | 0.00866 | 0.00027 | 488.9 | 39.62 | 243.8 | 3.37 | 268.4 | 4.58 | 174.3 | 5.44 | 0.722077 | 90.83457526 |
| Z36 | 0 | 11034 | 673 | 2360 | 114137 | 226306 | 0.05848 | 0.00092 | 0.06441 | 0.00089 | 0.51913 | 0.00899 | 0.01625 | 0.00055 | 547.8 | 33.92 | 402.4 | 5.38 | 424.6 | 6.01 | 325.8 | 10.85 | 0.797909 | 94.77154969 |
| Z37 | 5 | 4515 | 381 | 1365 | 108532 | 177500 | 0.08023 | 0.00197 | 0.03492 | 0.00056 | 0.38614 | 0.00961 | 0.00897 | 0.00038 | 1202.6 | 47.63 | 221.3 | 3.46 | 331.5 | 7.04 | 180.4 | 7.53 | 0.64437 | 66.7571644 |
| Z38 | 5 | 32981 | 2442 | 4044 | 85091 | 279596 | 0.07083 | 0.00091 | 0.15583 | 0.00211 | 1.52126 | 0.02275 | 0.03732 | 0.00127 | 952.6 | 25.93 | 933.5 | 11.75 | 939 | 9.16 | 740.7 | 24.81 | 0.905427 | 99.4142705 |
| Z39 | 8 | 100712 | 7171 | 8129 | 209403 | 1024838 | 0.06806 | 0.00083 | 0.12961 | 0.00174 | 1.21593 | 0.01767 | 0.0303 | 0.00106 | 870.5 | 25.16 | 785.7 | 9.93 | 807.9 | 8.1 | 603.3 | 20.75 | 0.92381 | 97.25213517 |
| Z40 | 30 | 6274 | 429 | 1522 | 124095 | 220224 | 0.06517 | 0.00116 | 0.03799 | 0.00054 | 0.34124 | 0.0065 | 0.00936 | 0.00034 | 779.7 | 36.85 | 240.4 | 3.35 | 298.1 | 4.92 | 188.4 | 6.76 | 0.746227 | 80.64407917 |
| Z41 | 0 | 5758 | 319 | 1179 | 107446 | 197307 | 0.05306 | 0.00105 | 0.03863 | 0.00055 | 0.28248 | 0.00591 | 0.00856 | 0.00033 | 331.1 | 44.29 | 244.3 | 3.4 | 252.6 | 4.68 | 172.2 | 6.63 | 0.680516 | 96.7141726 |
| Z42 | 20 | 23315 | 1782 | 1609 | 31331 | 206641 | 0.07306 | 0.00112 | 0.14585 | 0.00198 | 1.46873 | 0.02459 | 0.03991 | 0.00183 | 1015.7 | 30.76 | 877.7 | 11.14 | 917.6 | 10.11 | 791 | 35.64 | 0.810853 | 95.65170009 |
| Z43 | 0 | 4368 | 272 | 869 | 81077 | 162535 | 0.05896 | 0.00166 | 0.03679 | 0.00059 | 0.299 | 0.0085 | 0.00775 | 0.00039 | 565.4 | 60.22 | 232.9 | 3.65 | 265.6 | 6.64 | 156 | 7.79 | 0.564124 | 87.68825301 |
| Z44 | 30 | 20208 | 1470 | 3368 | 249093 | 586680 | 0.06953 | 0.00109 | 0.04575 | 0.00064 | 0.43849 | 0.00759 | 0.01023 | 0.00045 | 914.6 | 32.03 | 288.4 | 3.93 | 369.2 | 5.36 | 205.7 | 8.94 | 0.808178 | 78.1148429 |
| Z45 | 0 | 16388 | 940 | 1722 | 155125 | 443202 | 0.05449 | 0.00082 | 0.04911 | 0.00068 | 0.36892 | 0.00617 | 0.00831 | 0.00033 | 391.4 | 33.09 | 309.1 | 4.16 | 318.8 | 4.58 | 167.4 | 6.65 | 0.827916 | 96.95734003 |
| Z46 | 7 | 7068 | 426 | 2432 | 192491 | 214558 | 0.05792 | 0.00107 | 0.04256 | 0.00059 | 0.33965 | 0.00662 | 0.01052 | 0.00035 | 526.4 | 40.29 | 268.7 | 3.64 | 296.9 | 5.02 | 211.6 | 7.01 | 0.711253 | 90.50185248 |
| Z47 | 5 | 2622 | 174 | 1694 | 67831 | 36750 | 0.06417 | 0.00169 | 0.09281 | 0.00137 | 0.82051 | 0.02196 | 0.021 | 0.00068 | 747.1 | 54.8 | 572.1 | 8.11 | 608.3 | 12.25 | 420 | 13.52 | 0.55154 | 94.04898899 |
| Z48 | 0 | 5405 | 364 | 1592 | 149405 | 204519 | 0.06484 | 0.00115 | 0.03459 | 0.00048 | 0.30904 | 0.00586 | 0.0086 | 0.00027 | 769 | 36.95 | 219.2 | 3 | 273.4 | 4.55 | 173 | 5.34 | 0.731826 | 80.17556693 |
| Z49 | 2 | 6450 | 388 | 1538 | 139116 | 235395 | 0.05772 | 0.00107 | 0.03628 | 0.00051 | 0.28857 | 0.00572 | 0.00889 | 0.0003 | 518.8 | 40.58 | 229.7 | 3.18 | 257.4 | 4.51 | 178.8 | 5.93 | 0.709183 | 89.23853924 |
| Z50 | 5 | 1186 | 75 | 394 | 33128 | 40051 | 0.06106 | 0.0028 | 0.0389 | 0.00067 | 0.3273 | 0.01483 | 0.00998 | 0.00043 | 641.3 | 95.64 | 246 | 4.14 | 287.5 | 11.35 | 200.7 | 8.55 | 0.380128 | 85.56521739 |
| Z51 | 0 | 17213 | 1011 | 789 | 66460 | 395337 | 0.05652 | 0.00081 | 0.05666 | 0.00076 | 0.44127 | 0.00711 | 0.01012 | 0.00039 | 472.1 | 31.77 | 355.3 | 4.65 | 371.1 | 5.01 | 203.6 | 7.87 | 0.832476 | 95.7423875 |
| Z52 | 8 | 6220 | 405 | 1035 | 42746 | 104887 | 0.06252 | 0.00139 | 0.07867 | 0.00116 | 0.67774 | 0.01553 | 0.02034 | 0.00093 | 691.9 | 46.72 | 488.2 | 6.96 | 525.4 | 9.4 | 407.1 | 18.33 | 0.643488 | 92.91968024 |
| Z53 | 5 | 26383 | 1998 | 623 | 12447 | 209064 | 0.07282 | 0.00098 | 0.16678 | 0.00227 | 1.67368 | 0.02591 | 0.04114 | 0.00169 | 1008.8 | 26.97 | 994.3 | 12.54 | 998.6 | 9.84 | 814.9 | 32.75 | 0.879198 | 99.56939716 |
| Z54 | 0 | 2791 | 188 | 1416 | 122056 | 91853 | 0.06521 | 0.00167 | 0.03969 | 0.00059 | 0.35673 | 0.00929 | 0.0099 | 0.00039 | 781.2 | 53.02 | 250.9 | 3.64 | 309.8 | 6.95 | 199 | 7.84 | 0.570814 | 80.98773402 |
| Z55 | 0 | 3670 | 228 | 973 | 90143 | 134018 | 0.05994 | 0.00137 | 0.03598 | 0.00052 | 0.29728 | 0.00699 | 0.00907 | 0.00037 | 601.6 | 48.71 | 227.9 | 3.24 | 264.3 | 5.47 | 182.5 | 7.42 | 0.614654 | 86.22777147 |
| Z56 | 3 | 16209 | 930 | 4121 | 395632 | 604679 | 0.05498 | 0.00083 | 0.0356 | 0.00049 | 0.26975 | 0.00456 | 0.00838 | 0.00033 | 411.3 | 33.19 | 225.5 | 3.06 | 242.5 | 3.65 | 168.7 | 6.53 | 0.814222 | 92.98969072 |
| Z57 | 0 | 6194 | 352 | 3000 | 305474 | 233922 | 0.0547 | 0.00123 | 0.03551 | 0.00052 | 0.26777 | 0.00623 | 0.00821 | 0.00038 | 400.1 | 49.18 | 225 | 3.27 | 240.9 | 4.99 | 165.3 | 7.58 | 0.6294 | 93.39975093 |
| Z58 | 0 | 2155 | 155 | 146 | 4280 | 70866 | 0.06914 | 0.00227 | 0.03957 | 0.00064 | 0.37713 | 0.01222 | 0.02953 | 0.00229 | 902.9 | 66.16 | 250.2 | 3.98 | 324.9 | 9.01 | 588.3 | 44.93 | 0.499153 | 77.00831025 |
| Z59 | 5 | 1605 | 114 | 630 | 52557 | 49878 | 0.06886 | 0.00416 | 0.04183 | 0.00095 | 0.39702 | 0.02309 | 0.01049 | 0.00089 | 894.7 | 119.87 | 264.2 | 5.86 | 339.5 | 16.78 | 211 | 17.79 | 0.390503 | 77.82032401 |
| Z60 | 8 | 31844 | 1681 | 14450 | 1555485 | 1233514 | 0.04964 | 0.00079 | 0.0351 | 0.0005 | 0.24015 | 0.00424 | 0.00659 | 0.00029 | 178.1 | 36.58 | 222.4 | 3.11 | 218.5 | 3.47 | 132.8 | 5.79 | 0.806826 | 101.784897 |
| Z61 | 1 | 8612 | 460 | 218 | 14186 | 221841 | 0.05142 | 0.00086 | 0.05127 | 0.00071 | 0.3634 | 0.00663 | 0.01334 | 0.00067 | 259.5 | 37.92 | 322.3 | 4.35 | 314.7 | 4.94 | 267.8 | 13.32 | 0.759043 | 71.62891046 |
| Z62 | 10 | 2314 | 182 | 594 | 37675 | 71360 | 0.076 | 0.00213 | 0.04207 | 0.00065 | 0.44074 | 0.01232 | 0.01411 | 0.00066 | 1095.1 | 55.11 | 265.6 | 4.04 | 370.8 | 8.68 | 283.1 | 13.25 | 0.552729 | 93.21557607 |
| Z63 | 0 | 7437 | 425 | 2158 | 212462 | 267484 | 0.05499 | 0.00097 | 0.03667 | 0.00051 | 0.27798 | 0.00527 | 0.00886 | 0.00034 | 411.9 | 38.5 | 232.2 | 3.17 | 249.1 | 4.19 | 178.2 | 6.85 | 0.733605 | 36.15630835 |
| Z64 | 51 | 4128 | 795 | 2410 | 99900 | 128023 | 0.18454 | 0.00283 | 0.04296 | 0.00062 | 1.09269 | 0.01825 | 0.02003 | 0.00074 | 2694.1 | 25.11 | 271.1 | 3.82 | 749.8 | 8.86 | 400.9 | 14.75 | 0.864095 | 64.50798991 |
| Z65 | 15 | 2704 | 239 | 1056 | 83069 | 101243 | 0.08402 | 0.00205 | 0.03634 | 0.00057 | 0.42091 | 0.01047 | 0.01025 | 0.00043 | 1292.9 | 46.9 | 230.1 | 3.54 | 356.7 | 7.48 | 206.2 | 8.68 | 0.630569 | 95.46511628 |
| Z66 | 14 | 13436 | 757 | 2543 | 229569 | 460192 | 0.05388 | 0.00081 | 0.03895 | 0.00054 | 0.28928 | 0.00487 | 0.00892 | 0.00034 | 366.1 | 34.04 | 246.3 | 3.34 | 258 | 3.84 | 179.6 | 6.91 | 0.823523 | 93.1875 |
| Z67 | 0 | 4192 | 250 | 1283 | 92399 | 118356 | 0.05677 | 0.00118 | 0.04734 | 0.00068 | 0.3705 | 0.00812 | 0.01094 | 0.00044 | 482.1 | 45.74 | 298.2 | 4.2 | 320 | 6.01 | 219.8 | 8.78 | 0.65541 | 84.8536036 |
| Z68 | 5 | 2682 | 176 | 732 | 52035 | 74519 | 0.06346 | 0.00165 | 0.04787 | 0.00072 | 0.41876 | 0.01108 | 0.01214 | 0.00059 | 723.7 | 54.13 | 301.4 | 4.44 | 355.2 | 7.93 | 243.8 | 11.75 | 0.568453 | 88.44843605 |
| Z69 | 7 | 9181 | 573 | 1505 | 103705 | 270646 | 0.05997 | 0.00104 | 0.04529 | 0.00064 | 0.37441 | 0.00705 | 0.01242 | 0.0006 | 602.5 | 37.04 | 285.6 | 3.95 | 322.9 | 5.21 | 249.6 | 12 | 0.750475 | 79.61324156 |
| Z70 | 13 | 1870 | 128 | 593 | 48729 | 64786 | 0.06622 | 0.00212 | 0.0384 | 0.00061 | 0.35049 | 0.01123 | 0.01069 | 0.00058 | 813.4 | 65.45 | 242.9 | 3.78 | 305.1 | 8.44 | 214.9 | 11.59 | 0.495786 | 76.56401945 |
| Z71 | 4 | 8748 | 630 | 2321 | 183751 | 313916 | 0.06902 | 0.00118 | 0.03731 | 0.00053 | 0.35497 | 0.00663 | 0.01066 | 0.00053 | 899.4 | 34.99 | 236.2 | 3.29 | 308.5 | 4.97 | 214.3 | 10.68 | 0.760552 | 100.9282281 |

**Supplementary Table 5: Raw U-Pb data from sample NZ1321**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 1 | 7131 | 378 | 1148 | 97521 | 242255 | 0.05251 | 0.00117 | 0.03706 | 0.00052 | 0.26804 | 0.00609 | 0.01162 | 0.00052 | 307.6 | 49.69 | 234.6 | 3.21 | 241.1 | 4.88 | 233.4 | 10.46 | 0.83561 | 97.30402323 |
| Z2 | 0 | 36297 | 5834 | 2180 | 24696 | 149654 | 0.15724 | 0.00186 | 0.32055 | 0.00432 | 6.94663 | 0.09967 | 0.08325 | 0.00267 | 2426.2 | 19.91 | 1792.4 | 21.08 | 2104.6 | 12.73 | 1616.3 | 49.88 | 0.83561 | 85.16582724 |
| Z3 | 8 | 20118 | 1517 | 1906 | 45373 | 170578 | 0.07377 | 0.00096 | 0.15556 | 0.0021 | 1.58161 | 0.02415 | 0.03971 | 0.00132 | 1035.3 | 26.14 | 932 | 11.74 | 963 | 9.5 | 787.2 | 25.72 | 0.83561 | 96.78089304 |
| Z4 | 0 | 1773 | 122 | 522 | 17569 | 21973 | 0.06843 | 0.00304 | 0.09932 | 0.00183 | 0.93559 | 0.04036 | 0.02831 | 0.00174 | 881.7 | 89.31 | 610.4 | 10.76 | 670.6 | 21.17 | 564.2 | 34.29 | 0.83561 | 91.02296451 |
| Z5 | 8 | 7890 | 426 | 2110 | 203857 | 289723 | 0.05285 | 0.00089 | 0.03574 | 0.00049 | 0.26033 | 0.00479 | 0.00984 | 0.00035 | 322.2 | 37.88 | 226.4 | 3.06 | 234.9 | 3.86 | 197.9 | 6.96 | 0.83561 | 96.38143891 |
| Z6 | 4 | 6048 | 351 | 1536 | 134284 | 205245 | 0.05707 | 0.00109 | 0.03809 | 0.00053 | 0.29957 | 0.00603 | 0.01076 | 0.00042 | 493.5 | 41.63 | 241 | 3.28 | 266.1 | 4.71 | 216.3 | 8.4 | 0.83561 | 90.56745584 |
| Z7 | 16 | 10641 | 614 | 3803 | 383805 | 414179 | 0.05659 | 0.00091 | 0.03334 | 0.00045 | 0.25999 | 0.00457 | 0.00937 | 0.00036 | 474.7 | 35.49 | 211.4 | 2.82 | 234.7 | 3.68 | 188.4 | 7.21 | 0.83561 | 90.07243289 |
| Z8 | 18 | 12322 | 668 | 3367 | 335113 | 484758 | 0.05301 | 0.00083 | 0.03325 | 0.00045 | 0.24289 | 0.00418 | 0.00963 | 0.00038 | 329 | 34.89 | 210.8 | 2.82 | 220.8 | 3.42 | 193.7 | 7.56 | 0.83561 | 95.47101449 |
| Z9 | 0 | 22878 | 1195 | 4542 | 441528 | 816789 | 0.05099 | 0.00073 | 0.03664 | 0.00049 | 0.25746 | 0.00418 | 0.0099 | 0.00041 | 240.2 | 32.78 | 231.9 | 3.07 | 232.6 | 3.37 | 199.2 | 8.14 | 0.83561 | 99.69905417 |
| Z10 | 12 | 10561 | 631 | 2697 | 262823 | 409552 | 0.05837 | 0.00093 | 0.0336 | 0.00046 | 0.27035 | 0.00472 | 0.00983 | 0.00041 | 543.7 | 34.5 | 213 | 2.85 | 243 | 3.78 | 197.7 | 8.23 | 0.83561 | 87.65432099 |
| Z11 | 11 | 8257 | 452 | 3170 | 308855 | 306185 | 0.05353 | 0.00097 | 0.03495 | 0.00048 | 0.25788 | 0.00496 | 0.0098 | 0.00044 | 351.2 | 40.35 | 221.5 | 3 | 233 | 4 | 197.1 | 8.77 | 0.83561 | 95.06437768 |
| Z12 | 2 | 15791 | 1178 | 1783 | 37736 | 148482 | 0.07281 | 0.00106 | 0.13863 | 0.00188 | 1.39144 | 0.02271 | 0.04526 | 0.00203 | 1008.8 | 29.32 | 836.9 | 10.64 | 885.3 | 9.64 | 894.7 | 39.19 | 0.83561 | 94.53292669 |
| Z13 | 6 | 9060 | 501 | 1959 | 187707 | 344668 | 0.05411 | 0.00114 | 0.03239 | 0.00044 | 0.24154 | 0.00517 | 0.01013 | 0.00061 | 375.5 | 46.7 | 205.5 | 2.75 | 219.7 | 4.23 | 203.8 | 12.22 | 0.83561 | 93.53664087 |
| Z14 | 0 | 18919 | 1540 | 4099 | 74940 | 128300 | 0.07937 | 0.00117 | 0.19014 | 0.00256 | 2.08039 | 0.03399 | 0.05268 | 0.00257 | 1181.5 | 28.95 | 1122.1 | 13.86 | 1142.4 | 11.2 | 1037.6 | 49.3 | 0.83561 | 98.22303922 |
| Z15 | 283 | 10822 | 4587 | 11427 | 95011 | 213161 | 0.41384 | 0.00583 | 0.06497 | 0.00088 | 3.70639 | 0.05743 | 0.11497 | 0.00567 | 3960.2 | 20.94 | 405.8 | 5.3 | 1572.7 | 12.39 | 2199.6 | 102.83 | 0.83561 | 25.80275959 |
| Z16 | 5 | 13339 | 1098 | 2420 | 44167 | 92028 | 0.08065 | 0.0011 | 0.18655 | 0.00249 | 2.0742 | 0.03218 | 0.05155 | 0.0017 | 1212.9 | 26.71 | 1102.7 | 13.52 | 1140.3 | 10.63 | 1015.9 | 32.74 | 0.758406 | 96.70262212 |
| Z17 | 11 | 12314 | 658 | 537 | 37599 | 348961 | 0.0524 | 0.00082 | 0.04445 | 0.00058 | 0.32115 | 0.00544 | 0.01322 | 0.00053 | 303 | 35.12 | 280.4 | 3.6 | 282.8 | 4.18 | 265.5 | 10.59 | 0.758406 | 99.15134371 |
| Z18 | 13 | 4675 | 321 | 1409 | 130415 | 188689 | 0.06724 | 0.00129 | 0.03186 | 0.00044 | 0.29532 | 0.00595 | 0.01016 | 0.00037 | 845.1 | 39.44 | 202.2 | 2.76 | 262.7 | 4.66 | 204.4 | 7.31 | 0.758406 | 76.96992767 |
| Z19 | 11 | 26456 | 1616 | 1827 | 63632 | 387991 | 0.05973 | 0.00081 | 0.08788 | 0.00116 | 0.72367 | 0.01115 | 0.02685 | 0.001 | 593.8 | 28.9 | 543 | 6.9 | 552.8 | 6.57 | 535.5 | 19.67 | 0.758406 | 98.22720695 |
| Z20 | 10 | 18136 | 1051 | 504 | 21609 | 313285 | 0.0567 | 0.0008 | 0.07405 | 0.00098 | 0.57889 | 0.00914 | 0.02195 | 0.00092 | 479.2 | 31.12 | 460.5 | 5.87 | 463.7 | 5.88 | 438.8 | 18.16 | 0.758406 | 99.30989864 |
| Z21 | 14 | 2309 | 129 | 504 | 44938 | 81201 | 0.055 | 0.00181 | 0.03549 | 0.00054 | 0.26912 | 0.00878 | 0.01035 | 0.0005 | 412.1 | 71.13 | 224.8 | 3.33 | 242 | 7.02 | 208.1 | 10 | 0.758406 | 92.89256198 |
| Z22 | 10 | 6603 | 355 | 1277 | 123193 | 259207 | 0.05265 | 0.00097 | 0.03292 | 0.00045 | 0.23893 | 0.00467 | 0.0097 | 0.00039 | 313.5 | 41.21 | 208.8 | 2.82 | 217.5 | 3.83 | 195 | 7.73 | 0.758406 | 96 |
| Z23 | 10 | 1290 | 88 | 258 | 24861 | 50991 | 0.0669 | 0.00238 | 0.03267 | 0.00052 | 0.30139 | 0.01066 | 0.00962 | 0.00047 | 834.6 | 72.53 | 207.3 | 3.24 | 267.5 | 8.32 | 193.5 | 9.49 | 0.758406 | 77.4953271 |
| Z24 | 20 | 7056 | 388 | 2343 | 167182 | 182877 | 0.05443 | 0.00124 | 0.04631 | 0.00063 | 0.3475 | 0.00793 | 0.01319 | 0.00074 | 388.7 | 49.9 | 291.8 | 3.87 | 302.8 | 5.98 | 264.9 | 14.82 | 0.758406 | 96.3672391 |
| Z25 | 11 | 4491 | 254 | 1215 | 104374 | 149037 | 0.05559 | 0.00127 | 0.038 | 0.00053 | 0.29123 | 0.00678 | 0.01076 | 0.00051 | 435.8 | 49.64 | 240.4 | 3.3 | 259.5 | 5.34 | 216.4 | 10.18 | 0.758406 | 92.63969171 |
| Z26 | 10 | 4494 | 239 | 1041 | 98375 | 161626 | 0.05219 | 0.00115 | 0.03537 | 0.00049 | 0.25457 | 0.00579 | 0.00986 | 0.00046 | 293.8 | 49.62 | 224.1 | 3.07 | 230.3 | 4.69 | 198.3 | 9.15 | 0.758406 | 97.30785931 |
| Z27 | 17 | 6714 | 378 | 1360 | 135208 | 256923 | 0.05446 | 0.00147 | 0.03632 | 0.00058 | 0.27271 | 0.00752 | 0.00946 | 0.00057 | 390 | 59.25 | 230 | 3.61 | 244.9 | 6 | 190.2 | 11.48 | 0.758406 | 93.91588403 |
| Z28 | 23 | 6842 | 382 | 1260 | 124102 | 271623 | 0.05484 | 0.00138 | 0.03242 | 0.00048 | 0.24516 | 0.00623 | 0.00931 | 0.00058 | 405.8 | 54.49 | 205.6 | 2.99 | 222.6 | 5.08 | 187.2 | 11.57 | 0.758406 | 92.36298293 |
| Z29 | 0 | 3399 | 195 | 939 | 93491 | 134241 | 0.05631 | 0.0014 | 0.03228 | 0.00046 | 0.25061 | 0.00634 | 0.00931 | 0.00047 | 463.7 | 54.72 | 204.8 | 2.89 | 227.1 | 5.15 | 187.3 | 9.46 | 0.758406 | 90.18053721 |
| Z30 | 0 | 11114 | 673 | 1171 | 51766 | 197336 | 0.0595 | 0.00128 | 0.07191 | 0.00102 | 0.59012 | 0.013 | 0.02061 | 0.00133 | 585.5 | 45.84 | 447.6 | 6.14 | 470.9 | 8.3 | 412.3 | 26.4 | 0.758406 | 95.05202803 |
| Z31 | 10 | 6957 | 402 | 1150 | 97806 | 246087 | 0.05615 | 0.00097 | 0.03745 | 0.00052 | 0.2899 | 0.00543 | 0.01064 | 0.00034 | 458 | 37.57 | 237 | 3.24 | 258.5 | 4.28 | 214 | 6.77 | 0.814724 | 91.6827853 |
| Z32 | 0 | 8064 | 485 | 1637 | 146904 | 285924 | 0.05844 | 0.00096 | 0.03746 | 0.00052 | 0.30179 | 0.00544 | 0.01009 | 0.00032 | 546.2 | 35.35 | 237.1 | 3.24 | 267.8 | 4.24 | 203 | 6.46 | 0.814724 | 88.53622106 |
| Z33 | 4 | 13201 | 692 | 2815 | 279553 | 477064 | 0.05112 | 0.00085 | 0.03641 | 0.0005 | 0.25666 | 0.00466 | 0.00928 | 0.00034 | 246.4 | 37.73 | 230.5 | 3.12 | 232 | 3.77 | 186.8 | 6.86 | 0.814724 | 99.35344828 |
| Z34 | 6 | 2767 | 148 | 851 | 87650 | 105158 | 0.05211 | 0.00144 | 0.03522 | 0.00053 | 0.25304 | 0.00711 | 0.00882 | 0.00032 | 290.3 | 61.64 | 223.1 | 3.3 | 229 | 5.76 | 177.6 | 6.39 | 0.814724 | 97.42358079 |
| Z35 | 3 | 4474 | 251 | 673 | 66619 | 169907 | 0.05448 | 0.00117 | 0.03517 | 0.00051 | 0.26421 | 0.00594 | 0.00922 | 0.00036 | 391 | 47.18 | 222.8 | 3.17 | 238.1 | 4.77 | 185.5 | 7.12 | 0.814724 | 93.57412852 |
| Z36 | 0 | 14176 | 798 | 4299 | 361101 | 480672 | 0.05487 | 0.00098 | 0.03782 | 0.00052 | 0.28603 | 0.00546 | 0.01076 | 0.00049 | 406.8 | 39.31 | 239.3 | 3.22 | 255.4 | 4.31 | 216.3 | 9.83 | 0.814724 | 93.69616288 |
| Z37 | 19 | 6224 | 437 | 1048 | 61303 | 177943 | 0.06809 | 0.00126 | 0.04716 | 0.00068 | 0.44276 | 0.00879 | 0.01562 | 0.00063 | 871.2 | 37.78 | 297 | 4.2 | 372.2 | 6.19 | 313.4 | 12.48 | 0.814724 | 79.7958087 |
| Z38 | 3 | 15727 | 1059 | 2547 | 90878 | 221095 | 0.06521 | 0.00093 | 0.09594 | 0.00134 | 0.86256 | 0.01415 | 0.02511 | 0.00092 | 781.2 | 29.54 | 590.5 | 7.87 | 631.5 | 7.72 | 501.3 | 18.15 | 0.814724 | 93.50752177 |
| Z39 | 0 | 3241 | 179 | 386 | 39302 | 130041 | 0.05341 | 0.00131 | 0.03387 | 0.00051 | 0.2494 | 0.00634 | 0.00874 | 0.00038 | 346.2 | 53.86 | 214.7 | 3.15 | 226.1 | 5.15 | 175.8 | 7.61 | 0.814724 | 94.95798319 |
| Z40 | 1 | 13185 | 868 | 824 | 25750 | 224347 | 0.06269 | 0.0017 | 0.08599 | 0.00147 | 0.74285 | 0.02073 | 0.02777 | 0.00202 | 697.6 | 56.87 | 531.7 | 8.7 | 564.1 | 12.08 | 553.7 | 39.63 | 0.814724 | 94.25633753 |
| Z41 | 3 | 5238 | 294 | 1363 | 140006 | 200811 | 0.05319 | 0.00101 | 0.03572 | 0.00052 | 0.262 | 0.00537 | 0.00729 | 0.00025 | 337 | 42.33 | 226.3 | 3.23 | 236.3 | 4.32 | 146.7 | 4.97 | 0.814724 | 95.76809141 |
| Z42 | 13 | 3104 | 190 | 1570 | 165379 | 122981 | 0.05936 | 0.00142 | 0.03447 | 0.00052 | 0.28213 | 0.00703 | 0.00842 | 0.00035 | 580.5 | 51.26 | 218.5 | 3.24 | 252.3 | 5.57 | 169.4 | 6.98 | 0.814724 | 86.6032501 |
| Z43 | 14 | 5797 | 323 | 830 | 84885 | 234682 | 0.05359 | 0.00101 | 0.03403 | 0.0005 | 0.25142 | 0.00513 | 0.00833 | 0.00034 | 353.9 | 41.96 | 215.7 | 3.1 | 227.7 | 4.17 | 167.6 | 6.89 | 0.814724 | 94.72990777 |
| Z44 | 0 | 5289 | 306 | 1592 | 163271 | 207295 | 0.05591 | 0.00111 | 0.03505 | 0.00052 | 0.2702 | 0.00576 | 0.00862 | 0.00038 | 448.5 | 43.2 | 222.1 | 3.22 | 242.9 | 4.6 | 173.5 | 7.57 | 0.814724 | 91.43680527 |
| Z45 | 0 | 17452 | 1044 | 1383 | 63077 | 288092 | 0.05727 | 0.00107 | 0.08576 | 0.0013 | 0.67728 | 0.01392 | 0.01963 | 0.00109 | 501.4 | 40.45 | 530.4 | 7.72 | 525.1 | 8.43 | 392.9 | 21.54 | 0.814724 | 101.0093316 |
| Z46 | 0 | 1004 | 70 | 420 | 31394 | 27859 | 0.0718 | 0.00353 | 0.03572 | 0.00057 | 0.35334 | 0.01685 | 0.01152 | 0.00075 | 980.1 | 97.05 | 226.3 | 3.53 | 307.2 | 12.64 | 231.4 | 14.96 | 0.334623 | 73.66536458 |
| Z47 | 9 | 12157 | 1135 | 536 | 5781 | 106770 | 0.09515 | 0.00211 | 0.11847 | 0.00148 | 1.55117 | 0.03332 | 0.0882 | 0.00782 | 1531.1 | 41.16 | 721.7 | 8.53 | 951 | 13.26 | 1708.4 | 145.29 | 0.581578 | 75.88853838 |
| Z48 | 0 | 1909 | 102 | 453 | 36654 | 53539 | 0.05487 | 0.00219 | 0.03479 | 0.00048 | 0.26293 | 0.01016 | 0.01061 | 0.00076 | 406.9 | 86.2 | 220.4 | 3 | 237 | 8.17 | 213.3 | 15.22 | 0.357053 | 92.99578059 |
| Z49 | 0 | 1801 | 89 | 609 | 49315 | 48384 | 0.0509 | 0.00197 | 0.03666 | 0.00047 | 0.25709 | 0.00971 | 0.01054 | 0.00068 | 236.4 | 86.71 | 232.1 | 2.94 | 232.3 | 7.84 | 212 | 13.55 | 0.339447 | 99.91390443 |
| Z50 | 1 | 3367 | 209 | 355 | 11331 | 39356 | 0.06354 | 0.00156 | 0.08403 | 0.00099 | 0.73562 | 0.01744 | 0.02656 | 0.00179 | 726.5 | 51.16 | 520.1 | 5.89 | 559.8 | 10.2 | 529.9 | 35.17 | 0.496944 | 92.90818149 |
| Z51 | 6 | 3291 | 179 | 322 | 22210 | 77804 | 0.05554 | 0.00149 | 0.04169 | 0.00049 | 0.31908 | 0.0083 | 0.01234 | 0.00086 | 433.9 | 58.32 | 263.3 | 3.06 | 281.2 | 6.39 | 248 | 17.19 | 0.451841 | 93.6344239 |
| Z52 | 13 | 5819 | 329 | 1911 | 138136 | 144415 | 0.05751 | 0.00123 | 0.03975 | 0.00045 | 0.31499 | 0.00653 | 0.01173 | 0.0008 | 510.9 | 46.77 | 251.3 | 2.78 | 278 | 5.04 | 235.8 | 15.98 | 0.546083 | 90.39568345 |
| Z53 | 0 | 1437 | 104 | 212 | 11782 | 36238 | 0.07423 | 0.00371 | 0.03798 | 0.00067 | 0.38855 | 0.0186 | 0.01441 | 0.00149 | 1047.8 | 97.63 | 240.3 | 4.16 | 333.3 | 13.6 | 289.1 | 29.73 | 0.368514 | 72.09720972 |
| Z54 | 0 | 1738 | 116 | 443 | 31548 | 50271 | 0.06813 | 0.00234 | 0.03382 | 0.00045 | 0.31747 | 0.01055 | 0.01194 | 0.00091 | 872.5 | 69.69 | 214.4 | 2.81 | 280 | 8.13 | 239.8 | 18.27 | 0.400395 | 76.57142857 |
| Z55 | 1 | 3713 | 202 | 461 | 19393 | 53288 | 0.05554 | 0.00201 | 0.07252 | 0.00106 | 0.55502 | 0.01944 | 0.02171 | 0.00223 | 433.6 | 78.44 | 451.3 | 6.36 | 448.3 | 12.69 | 434.2 | 44.18 | 0.417312 | 100.6691947 |
| Z56 | 0 | 6411 | 514 | 233 | 8883 | 54911 | 0.08187 | 0.0018 | 0.11245 | 0.0013 | 1.26837 | 0.02673 | 0.02217 | 0.00199 | 1242.3 | 42.33 | 686.9 | 7.53 | 831.7 | 11.96 | 443.2 | 39.37 | 0.548569 | 82.58987616 |
| Z57 | 13 | 7976 | 387 | 1727 | 143408 | 226484 | 0.04925 | 0.00106 | 0.03483 | 0.00039 | 0.23645 | 0.00494 | 0.01019 | 0.0008 | 159.8 | 49.48 | 220.7 | 2.44 | 215.5 | 4.05 | 204.9 | 16 | 0.535949 | 102.412993 |
| Z58 | 0 | 3488 | 182 | 456 | 30401 | 81195 | 0.05312 | 0.00146 | 0.04227 | 0.00051 | 0.30953 | 0.00823 | 0.01271 | 0.00106 | 334 | 60.97 | 266.9 | 3.13 | 273.8 | 6.38 | 255.3 | 21.19 | 0.453775 | 97.47991234 |
| Z59 | 6 | 2202 | 126 | 264 | 14095 | 45753 | 0.05726 | 0.0027 | 0.04536 | 0.00073 | 0.35808 | 0.01631 | 0.01572 | 0.00201 | 501.1 | 101.25 | 286 | 4.53 | 310.8 | 12.2 | 315.3 | 39.96 | 0.353326 | 92.02059202 |
| Z60 | 7 | 2294 | 140 | 1023 | 37796 | 27411 | 0.06211 | 0.00195 | 0.0826 | 0.00106 | 0.70727 | 0.02156 | 0.02285 | 0.00198 | 678 | 65.72 | 511.6 | 6.3 | 543.1 | 12.82 | 456.7 | 39.1 | 0.420981 | 94.19996317 |
| Z61 | 1 | 5778 | 315 | 1908 | 148701 | 147367 | 0.05488 | 0.00122 | 0.03824 | 0.00043 | 0.28946 | 0.0062 | 0.01064 | 0.00063 | 407.1 | 48.75 | 241.9 | 2.69 | 258.1 | 4.88 | 213.9 | 12.57 | 0.524986 | 93.72336304 |
| Z62 | 0 | 4336 | 320 | 1233 | 20729 | 23755 | 0.07445 | 0.00169 | 0.17395 | 0.00204 | 1.78639 | 0.03874 | 0.04937 | 0.00308 | 1053.3 | 45.48 | 1033.8 | 11.23 | 1040.5 | 14.12 | 974 | 59.42 | 0.540782 | 99.35607881 |
| Z63 | 0 | 1409 | 89 | 405 | 29087 | 40562 | 0.06466 | 0.00309 | 0.03435 | 0.00056 | 0.30622 | 0.01411 | 0.01211 | 0.00092 | 763.2 | 97.58 | 217.7 | 3.47 | 271.2 | 10.97 | 243.2 | 18.42 | 0.353808 | 80.27286136 |
| Z64 | 4 | 789 | 46 | 161 | 12486 | 22693 | 0.06015 | 0.0044 | 0.03429 | 0.00068 | 0.28429 | 0.02023 | 0.01125 | 0.00101 | 608.8 | 150.74 | 217.3 | 4.27 | 254.1 | 15.99 | 226.1 | 20.11 | 0.278681 | 85.51751279 |
| Z65 | 7 | 578 | 38 | 142 | 6644 | 12132 | 0.06831 | 0.00495 | 0.04461 | 0.00078 | 0.42012 | 0.0298 | 0.01763 | 0.00131 | 878.1 | 143.15 | 281.3 | 4.83 | 356.1 | 21.3 | 353.2 | 26 | 0.246501 | 78.99466442 |
| Z66 | 15 | 226 | 132 | 383 | 2889 | 972 | 0.59185 | 0.02309 | 0.21866 | 0.00635 | 17.84573 | 0.55904 | 0.10783 | 0.00726 | 4488.1 | 55.59 | 1274.8 | 33.59 | 2981.5 | 30.12 | 2069.8 | 132.52 | 0.927034 | 42.75700151 |
| Z67 | 0 | 4904 | 280 | 847 | 31637 | 61514 | 0.05787 | 0.00145 | 0.07575 | 0.00088 | 0.60449 | 0.01443 | 0.02198 | 0.00157 | 524.4 | 54.15 | 470.7 | 5.28 | 480.1 | 9.13 | 439.5 | 31 | 0.486657 | 98.04207457 |
| Z68 | 3 | 2771 | 151 | 31 | 1512 | 62037 | 0.05538 | 0.00165 | 0.04109 | 0.00048 | 0.31372 | 0.00894 | 0.01658 | 0.00252 | 427.3 | 64.58 | 259.6 | 2.99 | 277.1 | 6.91 | 332.3 | 50.2 | 0.40993 | 93.6845904 |
| Z69 | 0 | 7380 | 526 | 204 | 3545 | 45085 | 0.07263 | 0.0015 | 0.15057 | 0.00163 | 1.50834 | 0.02929 | 0.04546 | 0.00353 | 1003.7 | 41.43 | 904.1 | 9.14 | 933.8 | 11.86 | 898.5 | 68.25 | 0.55748 | 96.81944742 |
| Z70 | 0 | 1927 | 93 | 270 | 20932 | 55195 | 0.04936 | 0.00195 | 0.03221 | 0.00041 | 0.21921 | 0.00839 | 0.01027 | 0.00078 | 165.2 | 89.72 | 204.3 | 2.53 | 201.2 | 6.99 | 206.6 | 15.58 | 0.332576 | 101.5407555 |
| Z71 | 0 | 1164 | 72 | 248 | 19797 | 37543 | 0.0622 | 0.00769 | 0.03192 | 0.00115 | 0.27123 | 0.03224 | 0.01188 | 0.00264 | 680.9 | 244.28 | 202.6 | 7.16 | 243.7 | 25.75 | 238.7 | 52.8 | 0.303094 | 83.13500205 |
| Z72 | 3 | 3629 | 201 | 492 | 16545 | 41435 | 0.05679 | 0.00152 | 0.07992 | 0.00091 | 0.62559 | 0.01589 | 0.02338 | 0.00178 | 482.5 | 58.02 | 495.7 | 5.45 | 493.3 | 9.92 | 467.2 | 35.17 | 0.448283 | 100.4865194 |
| Z73 | 0 | 2325 | 115 | 647 | 46646 | 55807 | 0.05085 | 0.00177 | 0.03809 | 0.00046 | 0.267 | 0.00895 | 0.01082 | 0.00083 | 234.2 | 78.43 | 241 | 2.86 | 240.3 | 7.17 | 217.5 | 16.51 | 0.360276 | 100.2913025 |
| Z74 | 7 | 3879 | 207 | 247 | 10276 | 50860 | 0.05466 | 0.00151 | 0.06981 | 0.00081 | 0.52598 | 0.01382 | 0.01861 | 0.00156 | 398.3 | 60.12 | 435 | 4.85 | 429.1 | 9.2 | 372.6 | 30.86 | 0.441599 | 101.3749709 |
| Z75 | 5 | 10961 | 1215 | 2091 | 21103 | 34104 | 0.11342 | 0.00225 | 0.28992 | 0.00306 | 4.53187 | 0.08293 | 0.07554 | 0.00594 | 1854.9 | 35.5 | 1641.1 | 15.31 | 1736.8 | 15.22 | 1472 | 111.68 | 0.576778 | 94.48986642 |
| Z76 | 2 | 1407 | 82 | 357 | 10431 | 12241 | 0.0598 | 0.00243 | 0.09988 | 0.00132 | 0.82285 | 0.03235 | 0.02689 | 0.00163 | 596.2 | 85.71 | 613.7 | 7.73 | 609.6 | 18.02 | 536.4 | 32.08 | 0.336157 | 100.6725722 |
| Z77 | 0 | 2441 | 165 | 706 | 43898 | 58798 | 0.07073 | 0.00596 | 0.04055 | 0.00115 | 0.3946 | 0.0316 | 0.01414 | 0.00237 | 949.5 | 163.56 | 256.3 | 7.15 | 337.7 | 23.01 | 283.9 | 47.15 | 0.354142 | 75.89576547 |
| Z78 | 10 | 4120 | 223 | 2823 | 181065 | 86068 | 0.05394 | 0.00299 | 0.0447 | 0.00084 | 0.33257 | 0.01759 | 0.01383 | 0.00181 | 368.3 | 119.75 | 281.9 | 5.21 | 291.5 | 13.4 | 277.7 | 36.03 | 0.355295 | 96.70668954 |
| Z79 | 0 | 1682 | 108 | 246 | 14440 | 40595 | 0.06576 | 0.0023 | 0.0361 | 0.00044 | 0.32709 | 0.01097 | 0.01342 | 0.00089 | 798.8 | 71.52 | 228.6 | 2.75 | 287.3 | 8.39 | 269.5 | 17.71 | 0.363418 | 79.56839541 |
| Z80 | 11 | 2384 | 219 | 435 | 5357 | 12476 | 0.09294 | 0.00283 | 0.17487 | 0.00244 | 2.23854 | 0.06435 | 0.06681 | 0.0051 | 1486.5 | 56.7 | 1038.9 | 13.37 | 1193.2 | 20.17 | 1307.2 | 96.68 | 0.48539 | 87.06838753 |
| Z81 | 0 | 558 | 63 | 254 | 11224 | 12300 | 0.11651 | 0.0066 | 0.03866 | 0.00077 | 0.62085 | 0.03333 | 0.01744 | 0.00135 | 1903.4 | 98.39 | 244.5 | 4.75 | 490.4 | 20.88 | 349.5 | 26.85 | 0.371005 | 49.85725938 |
| Z82 | 0 | 1099 | 58 | 218 | 13067 | 22447 | 0.05437 | 0.00292 | 0.04203 | 0.00058 | 0.31495 | 0.01654 | 0.0131 | 0.00095 | 386.5 | 116.06 | 265.4 | 3.57 | 278 | 12.77 | 263 | 18.94 | 0.262769 | 95.4676259 |
| Z83 | 9 | 3505 | 229 | 784 | 24082 | 37518 | 0.06587 | 0.00178 | 0.08302 | 0.00098 | 0.75366 | 0.01928 | 0.02706 | 0.00206 | 802.3 | 55.64 | 514.1 | 5.83 | 570.3 | 11.16 | 539.7 | 40.45 | 0.461436 | 90.14553744 |
| Z84 | 12 | 2867 | 154 | 432 | 30898 | 71474 | 0.0547 | 0.0016 | 0.03481 | 0.00039 | 0.26238 | 0.00734 | 0.01105 | 0.00079 | 400.1 | 63.46 | 220.6 | 2.43 | 236.6 | 5.9 | 222.1 | 15.87 | 0.400493 | 93.2375317 |
| Z85 | 16 | 18001 | 1240 | 3051 | 57815 | 116321 | 0.06991 | 0.00134 | 0.13196 | 0.00131 | 1.27188 | 0.02244 | 0.04123 | 0.00319 | 925.6 | 38.76 | 799 | 7.45 | 833.2 | 10.03 | 816.6 | 62.01 | 0.562668 | 95.89534325 |
| Z86 | 3 | 1375 | 77 | 292 | 20965 | 32446 | 0.05921 | 0.00551 | 0.0343 | 0.0009 | 0.27993 | 0.02506 | 0.01012 | 0.0017 | 574.8 | 190.33 | 217.4 | 5.62 | 250.6 | 19.88 | 203.6 | 34.08 | 0.293101 | 86.75179569 |
| Z87 | 16 | 503 | 30 | 139 | 11961 | 13744 | 0.06004 | 0.00827 | 0.03339 | 0.00101 | 0.27599 | 0.03716 | 0.01032 | 0.00143 | 605.1 | 272.81 | 211.7 | 6.32 | 247.5 | 29.57 | 207.4 | 28.53 | 0.224658 | 85.53535354 |
| Z88 | 0 | 5214 | 265 | 761 | 54533 | 113498 | 0.05151 | 0.00125 | 0.03945 | 0.00042 | 0.2801 | 0.00642 | 0.01094 | 0.00088 | 263.7 | 54.9 | 249.4 | 2.58 | 250.7 | 5.09 | 219.9 | 17.5 | 0.464494 | 99.48145193 |
| Z89 | 0 | 2019 | 113 | 253 | 18130 | 42873 | 0.05752 | 0.00252 | 0.03835 | 0.00054 | 0.30421 | 0.01276 | 0.01051 | 0.00114 | 511 | 94 | 242.6 | 3.37 | 269.7 | 9.94 | 211.4 | 22.83 | 0.3357 | 89.95179829 |
| Z90 | 16 | 1454 | 80 | 261 | 14135 | 34884 | 0.05605 | 0.00239 | 0.03578 | 0.00046 | 0.2765 | 0.01139 | 0.01444 | 0.00126 | 453.8 | 92.26 | 226.6 | 2.87 | 247.9 | 9.06 | 289.8 | 25.02 | 0.312097 | 91.40782574 |
| Z91 | 0 | 8394 | 444 | 1198 | 88777 | 201037 | 0.05359 | 0.00101 | 0.03585 | 0.00035 | 0.26488 | 0.00466 | 0.00999 | 0.00056 | 353.6 | 42.14 | 227 | 2.18 | 238.6 | 3.74 | 200.8 | 11.13 | 0.554935 | 95.13830679 |
| Z92 | 11 | 1848 | 116 | 358 | 21101 | 40915 | 0.06387 | 0.0021 | 0.03871 | 0.00046 | 0.34095 | 0.01075 | 0.01245 | 0.00075 | 737.4 | 68.18 | 244.8 | 2.88 | 297.9 | 8.14 | 250 | 14.94 | 0.376892 | 82.17522659 |
| Z93 | 0 | 718 | 45 | 181 | 12198 | 16208 | 0.06423 | 0.00416 | 0.03782 | 0.00061 | 0.33496 | 0.02116 | 0.01085 | 0.00076 | 749.1 | 131.15 | 239.3 | 3.81 | 293.3 | 16.09 | 218.2 | 15.14 | 0.25532 | 81.58881691 |
| Z94 | 0 | 8208 | 533 | 1388 | 36228 | 70271 | 0.06599 | 0.00122 | 0.10098 | 0.001 | 0.91878 | 0.01585 | 0.02806 | 0.00165 | 806.1 | 38.25 | 620.1 | 5.86 | 661.7 | 8.39 | 559.4 | 32.43 | 0.574046 | 93.71316306 |
| Z95 | 15 | 1352 | 74 | 206 | 7252 | 14682 | 0.05624 | 0.00249 | 0.07929 | 0.00104 | 0.61489 | 0.02644 | 0.02079 | 0.00142 | 461.1 | 95.94 | 491.9 | 6.21 | 486.6 | 16.62 | 415.8 | 28.14 | 0.305036 | 101.0891903 |
| Z96 | 6 | 1388 | 76 | 289 | 20223 | 31454 | 0.05622 | 0.00256 | 0.03785 | 0.00051 | 0.29339 | 0.01295 | 0.01044 | 0.00073 | 460.3 | 98.6 | 239.5 | 3.14 | 261.2 | 10.17 | 210 | 14.64 | 0.305267 | 91.69218989 |
| Z97 | 10 | 2494 | 140 | 446 | 23982 | 42884 | 0.05711 | 0.00203 | 0.05248 | 0.00068 | 0.41326 | 0.01412 | 0.01459 | 0.00114 | 495.3 | 77.07 | 329.8 | 4.19 | 351.2 | 10.14 | 292.8 | 22.61 | 0.379231 | 93.90660592 |
| Z98 | 14 | 3404 | 191 | 473 | 15478 | 36258 | 0.05707 | 0.00152 | 0.08113 | 0.0009 | 0.63837 | 0.01624 | 0.02234 | 0.00155 | 493.6 | 58.38 | 502.8 | 5.38 | 501.3 | 10.07 | 446.6 | 30.73 | 0.436061 | 100.299222 |
| Z99 | 1 | 3839 | 191 | 1064 | 90313 | 103023 | 0.05082 | 0.00138 | 0.03247 | 0.00036 | 0.22753 | 0.00592 | 0.00868 | 0.00061 | 232.7 | 61.7 | 206 | 2.23 | 208.2 | 4.9 | 174.8 | 12.23 | 0.426125 | 98.94332373 |
| Z100 | 55 | 8012 | 445 | 1654 | 113971 | 193624 | 0.05677 | 0.00116 | 0.0356 | 0.00036 | 0.27864 | 0.00533 | 0.01058 | 0.00074 | 481.9 | 44.72 | 225.5 | 2.22 | 249.6 | 4.23 | 212.8 | 14.84 | 0.528651 | 90.34455128 |
| Z101 | 0 | 1469 | 81 | 575 | 40751 | 35023 | 0.05649 | 0.00268 | 0.03745 | 0.00054 | 0.29171 | 0.01344 | 0.01085 | 0.0009 | 470.9 | 102.59 | 237 | 3.35 | 259.9 | 10.56 | 218.2 | 18.02 | 0.312964 | 91.18891881 |
| Z102 | 6 | 4470 | 331 | 716 | 12006 | 22088 | 0.07587 | 0.0025 | 0.18114 | 0.00252 | 1.89477 | 0.05929 | 0.04916 | 0.00541 | 1091.7 | 64.6 | 1073.2 | 13.76 | 1079.3 | 20.8 | 969.9 | 104.19 | 0.444592 | 99.43481886 |
| Z103 | 18 | 1628 | 101 | 445 | 31741 | 40387 | 0.06384 | 0.0029 | 0.03312 | 0.00048 | 0.29153 | 0.01272 | 0.00924 | 0.00086 | 736.2 | 93.24 | 210 | 3.01 | 259.8 | 10 | 185.9 | 17.18 | 0.33216 | 80.83140878 |
| Z104 | 12 | 3715 | 228 | 490 | 15779 | 43001 | 0.06318 | 0.0018 | 0.07604 | 0.0009 | 0.66236 | 0.01798 | 0.02331 | 0.00205 | 714.4 | 59.42 | 472.4 | 5.42 | 516.1 | 10.98 | 465.7 | 40.55 | 0.436018 | 91.53264871 |
| Z105 | 7 | 876 | 43 | 228 | 13262 | 17919 | 0.0505 | 0.0035 | 0.04255 | 0.00065 | 0.29627 | 0.02018 | 0.01248 | 0.0011 | 217.9 | 152.92 | 268.6 | 4.05 | 263.5 | 15.81 | 250.8 | 21.89 | 0.224275 | 101.9354839 |
| Z106 | 0 | 6030 | 381 | 543 | 16490 | 48276 | 0.06477 | 0.00132 | 0.10613 | 0.00107 | 0.94798 | 0.01806 | 0.02275 | 0.00138 | 766.8 | 42.35 | 650.2 | 6.25 | 677.1 | 9.41 | 454.6 | 27.28 | 0.529209 | 96.02717472 |
| Z107 | 12 | 4356 | 305 | 186 | 3903 | 26038 | 0.07228 | 0.00166 | 0.14016 | 0.00149 | 1.39795 | 0.03011 | 0.03267 | 0.00238 | 993.9 | 45.99 | 845.6 | 8.44 | 888.1 | 12.75 | 649.8 | 46.55 | 0.493564 | 95.21450287 |
| Z108 | 0 | 12859 | 898 | 1062 | 18296 | 69708 | 0.07183 | 0.00127 | 0.15492 | 0.00148 | 1.53493 | 0.0251 | 0.03927 | 0.00245 | 981.1 | 35.68 | 928.5 | 8.26 | 944.5 | 10.05 | 778.5 | 47.56 | 0.58421 | 98.305982 |
| Z109 | 0 | 2783 | 145 | 254 | 18843 | 58858 | 0.05365 | 0.00159 | 0.03999 | 0.00045 | 0.29588 | 0.00838 | 0.00909 | 0.00064 | 356.3 | 65.53 | 252.8 | 2.78 | 263.2 | 6.56 | 183 | 12.79 | 0.397313 | 96.04863222 |
| Z110 | 3 | 360 | 21 | 65 | 1654 | 3499 | 0.06219 | 0.00809 | 0.08578 | 0.00183 | 0.73599 | 0.09468 | 0.0262 | 0.00257 | 680.7 | 255.78 | 530.6 | 10.85 | 560.1 | 55.38 | 522.8 | 50.61 | 0.165836 | 94.73308338 |
| Z111 | 0 | 1184 | 53 | 244 | 15837 | 25892 | 0.04694 | 0.00317 | 0.03626 | 0.00056 | 0.23535 | 0.01552 | 0.00985 | 0.00089 | 46.1 | 153.98 | 229.6 | 3.48 | 214.6 | 12.75 | 198.1 | 17.9 | 0.234198 | 106.9897484 |
| Z112 | 1 | 478 | 31 | 7 | 34 | 4631 | 0.06861 | 0.00574 | 0.08601 | 0.0016 | 0.81405 | 0.06674 | 0.13891 | 0.07683 | 887.2 | 163.81 | 531.9 | 9.5 | 604.7 | 37.36 | 2629 | 1363.44 | 0.226901 | 87.96097238 |
| Z113 | 2 | 2931 | 174 | 120 | 3379 | 29200 | 0.06116 | 0.00182 | 0.08309 | 0.00096 | 0.70102 | 0.01978 | 0.02378 | 0.00214 | 644.9 | 62.66 | 514.5 | 5.69 | 539.4 | 11.81 | 474.9 | 42.34 | 0.409474 | 95.38375973 |
| Z114 | 0 | 2054 | 99 | 452 | 36202 | 52245 | 0.05038 | 0.00196 | 0.03203 | 0.00038 | 0.2227 | 0.00836 | 0.00815 | 0.00066 | 212.5 | 87.85 | 203.2 | 2.38 | 204.2 | 6.94 | 164 | 13.16 | 0.316039 | 99.51028404 |
| Z115 | 3 | 1284 | 73 | 181 | 14803 | 33798 | 0.05912 | 0.00361 | 0.03217 | 0.00057 | 0.26209 | 0.01544 | 0.00812 | 0.00091 | 571.7 | 127.63 | 204.1 | 3.58 | 236.3 | 12.42 | 163.5 | 18.28 | 0.300765 | 86.37325434 |
| Z116 | 0 | 4165 | 213 | 383 | 29255 | 104634 | 0.05321 | 0.00144 | 0.03245 | 0.00034 | 0.23816 | 0.00608 | 0.00826 | 0.00068 | 337.7 | 60.33 | 205.8 | 2.14 | 216.9 | 4.99 | 166.3 | 13.57 | 0.410421 | 94.8824343 |
| Z117 | 3 | 2622 | 157 | 264 | 7205 | 22684 | 0.06222 | 0.00191 | 0.09371 | 0.00107 | 0.80436 | 0.02339 | 0.02295 | 0.00198 | 681.5 | 64.3 | 577.5 | 6.33 | 599.3 | 13.16 | 458.7 | 39.21 | 0.392661 | 96.36242283 |
| Z118 | 11 | 4951 | 241 | 936 | 73333 | 125101 | 0.05017 | 0.00136 | 0.03229 | 0.00034 | 0.22342 | 0.0057 | 0.00796 | 0.00068 | 202.7 | 61.83 | 204.9 | 2.14 | 204.8 | 4.73 | 160.3 | 13.63 | 0.412722 | 100.0488281 |
| Z119 | 0 | 3249 | 162 | 196 | 13090 | 82030 | 0.05209 | 0.00162 | 0.03187 | 0.00035 | 0.22905 | 0.00674 | 0.00926 | 0.00086 | 289.6 | 69.5 | 202.2 | 2.21 | 209.4 | 5.57 | 186.3 | 17.19 | 0.373213 | 96.56160458 |
| Z120 | 0 | 1747 | 80 | 240 | 17525 | 43900 | 0.04745 | 0.00208 | 0.03222 | 0.0004 | 0.21084 | 0.00892 | 0.00834 | 0.00078 | 71.2 | 101.81 | 204.4 | 2.52 | 194.3 | 7.48 | 167.8 | 15.59 | 0.293442 | 105.1981472 |

**Supplementary Table 6: Raw U-Pb data from sample NZ1322**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 6 | 9806 | 646 | 1915 | 130715 | 293101 | 0.06324 | 0.00153 | 0.04381 | 0.00066 | 0.38174 | 0.00933 | 0.01132 | 0.00054 | 716.4 | 50.47 | 276.4 | 4.07 | 328.3 | 6.85 | 227.5 | 10.75 | 0.828506 | 84.19128846 |
| Z2 | 10 | 21260 | 1767 | 1653 | 26547 | 123773 | 0.07955 | 0.00102 | 0.22466 | 0.00302 | 2.46389 | 0.03671 | 0.0488 | 0.00149 | 1186 | 25.15 | 1306.4 | 15.9 | 1261.5 | 10.76 | 963.1 | 28.73 | 0.828506 | 103.5592549 |
| Z3 | 5 | 26970 | 1507 | 3504 | 217570 | 663863 | 0.05347 | 0.00075 | 0.05352 | 0.00073 | 0.39461 | 0.00631 | 0.01278 | 0.00043 | 348.8 | 31.49 | 336.1 | 4.45 | 337.7 | 4.59 | 256.7 | 8.54 | 0.828506 | 99.52620669 |
| Z4 | 0 | 5234 | 295 | 1337 | 117435 | 182223 | 0.05418 | 0.00108 | 0.03705 | 0.00052 | 0.27677 | 0.00578 | 0.00923 | 0.00032 | 378.4 | 44.38 | 234.5 | 3.21 | 248.1 | 4.59 | 185.7 | 6.36 | 0.828506 | 94.51833938 |
| Z5 | 22 | 11512 | 609 | 2348 | 235928 | 442799 | 0.05085 | 0.00123 | 0.0352 | 0.00054 | 0.24681 | 0.00614 | 0.00783 | 0.0004 | 234.1 | 55.01 | 223 | 3.34 | 224 | 5 | 157.6 | 8.05 | 0.828506 | 99.55357143 |
| Z6 | 9 | 15931 | 995 | 1007 | 32733 | 195727 | 0.05991 | 0.00084 | 0.10539 | 0.00141 | 0.8704 | 0.01369 | 0.02499 | 0.00089 | 600.2 | 30.01 | 645.9 | 8.22 | 635.8 | 7.43 | 498.9 | 17.5 | 0.828506 | 101.5885499 |
| Z7 | 0 | 6702 | 377 | 1037 | 90772 | 230740 | 0.05387 | 0.00098 | 0.03807 | 0.00053 | 0.2827 | 0.00547 | 0.00912 | 0.00033 | 365.4 | 40.49 | 240.8 | 3.28 | 252.8 | 4.33 | 183.6 | 6.65 | 0.828506 | 95.25316456 |
| Z8 | 9 | 6521 | 443 | 1161 | 75172 | 200597 | 0.06492 | 0.00123 | 0.04322 | 0.00062 | 0.38686 | 0.00774 | 0.01247 | 0.00051 | 771.8 | 39.35 | 272.8 | 3.83 | 332.1 | 5.67 | 250.5 | 10.09 | 0.828506 | 82.14393255 |
| Z9 | 0 | 33441 | 2510 | 4246 | 88747 | 263915 | 0.07225 | 0.00096 | 0.16402 | 0.00218 | 1.63371 | 0.02483 | 0.03979 | 0.00154 | 993.1 | 26.89 | 979.1 | 12.1 | 983.3 | 9.57 | 788.6 | 29.85 | 0.828506 | 99.57286688 |
| Z10 | 1 | 5814 | 303 | 980 | 82226 | 183190 | 0.05007 | 0.00097 | 0.04106 | 0.00057 | 0.28343 | 0.00578 | 0.00976 | 0.00039 | 198.2 | 44.5 | 259.4 | 3.51 | 253.4 | 4.58 | 196.3 | 7.85 | 0.828506 | 102.3677979 |
| Z11 | 10 | 2823 | 162 | 510 | 23268 | 47088 | 0.0553 | 0.00145 | 0.07751 | 0.00113 | 0.5909 | 0.01575 | 0.01813 | 0.00081 | 424.3 | 57.06 | 481.3 | 6.74 | 471.4 | 10.05 | 363.1 | 16.03 | 0.828506 | 102.1001273 |
| Z12 | 8 | 30513 | 1878 | 371 | 10012 | 421373 | 0.05879 | 0.00087 | 0.09563 | 0.00131 | 0.77503 | 0.01277 | 0.03097 | 0.00159 | 559.4 | 31.84 | 588.8 | 7.72 | 582.6 | 7.31 | 616.5 | 31.17 | 0.828506 | 101.064195 |
| Z13 | 14 | 2420 | 153 | 562 | 25830 | 42936 | 0.06134 | 0.00175 | 0.0726 | 0.00109 | 0.61375 | 0.01755 | 0.01895 | 0.00097 | 651 | 60.1 | 451.8 | 6.58 | 485.9 | 11.05 | 379.4 | 19.18 | 0.828506 | 92.98209508 |
| Z14 | 10 | 1361 | 130 | 260 | 6734 | 20624 | 0.09207 | 0.00272 | 0.08442 | 0.00135 | 1.0712 | 0.03113 | 0.03347 | 0.00187 | 1468.7 | 55.1 | 522.4 | 8.02 | 739.3 | 15.26 | 665.4 | 36.64 | 0.828506 | 70.66143649 |
| Z15 | 9 | 3706 | 281 | 1105 | 80506 | 123269 | 0.07339 | 0.00158 | 0.03816 | 0.00054 | 0.38596 | 0.00846 | 0.01215 | 0.00062 | 1024.7 | 42.96 | 241.4 | 3.35 | 331.4 | 6.2 | 244.1 | 12.44 | 0.828506 | 72.84248642 |
| Z16 | 0 | 7987 | 415 | 1440 | 151727 | 320472 | 0.05053 | 0.00126 | 0.03406 | 0.00052 | 0.23727 | 0.00609 | 0.00775 | 0.00035 | 219.5 | 56.66 | 215.9 | 3.25 | 216.2 | 5 | 156.1 | 7.06 | 0.71617 | 99.86123959 |
| Z17 | 9 | 6247 | 407 | 2584 | 261599 | 246563 | 0.06373 | 0.00119 | 0.033 | 0.00046 | 0.28983 | 0.00574 | 0.00826 | 0.00029 | 732.6 | 39.19 | 209.3 | 2.88 | 258.4 | 4.52 | 166.3 | 5.74 | 0.71617 | 80.99845201 |
| Z18 | 0 | 11197 | 668 | 1694 | 67735 | 164454 | 0.05835 | 0.00087 | 0.08717 | 0.00116 | 0.70094 | 0.0116 | 0.02071 | 0.0007 | 542.8 | 32.42 | 538.8 | 6.88 | 539.4 | 6.92 | 414.4 | 13.84 | 0.71617 | 99.88876529 |
| Z19 | 0 | 7512 | 402 | 1571 | 140565 | 251727 | 0.05246 | 0.0009 | 0.03826 | 0.00052 | 0.27661 | 0.00512 | 0.00924 | 0.00032 | 305.6 | 38.74 | 242 | 3.21 | 248 | 4.07 | 185.9 | 6.49 | 0.71617 | 97.58064516 |
| Z20 | 3 | 12115 | 637 | 3103 | 268401 | 401046 | 0.05164 | 0.00081 | 0.03859 | 0.00051 | 0.27464 | 0.00469 | 0.00964 | 0.00035 | 269.6 | 35.42 | 244.1 | 3.19 | 246.4 | 3.74 | 193.9 | 7 | 0.71617 | 99.06655844 |
| Z21 | 6 | 5471 | 286 | 1011 | 91523 | 179719 | 0.05127 | 0.00103 | 0.03943 | 0.00055 | 0.27862 | 0.0059 | 0.00903 | 0.00035 | 253.1 | 45.7 | 249.3 | 3.4 | 249.6 | 4.68 | 181.7 | 6.98 | 0.71617 | 99.87980769 |
| Z22 | 12 | 2892 | 215 | 615 | 12595 | 22401 | 0.07345 | 0.00197 | 0.15997 | 0.00241 | 1.61869 | 0.04337 | 0.04127 | 0.00211 | 1026.3 | 53.44 | 956.6 | 13.37 | 977.5 | 16.82 | 817.5 | 40.97 | 0.71617 | 97.86189258 |
| Z23 | 2 | 2696 | 148 | 490 | 39202 | 86522 | 0.05401 | 0.00147 | 0.04 | 0.00058 | 0.29769 | 0.00822 | 0.01033 | 0.00046 | 371.1 | 60.12 | 252.8 | 3.6 | 264.6 | 6.44 | 207.7 | 9.24 | 0.71617 | 95.5404384 |
| Z24 | 6 | 12340 | 727 | 1597 | 104379 | 334048 | 0.05787 | 0.00091 | 0.04794 | 0.00065 | 0.38223 | 0.00664 | 0.01218 | 0.00049 | 524.5 | 34.48 | 301.8 | 4 | 328.7 | 4.87 | 244.7 | 9.86 | 0.71617 | 91.81624582 |
| Z25 | 0 | 20780 | 1110 | 4385 | 421923 | 756445 | 0.05253 | 0.00078 | 0.03554 | 0.00048 | 0.25723 | 0.00428 | 0.0084 | 0.00035 | 308.5 | 33.55 | 225.1 | 2.97 | 232.4 | 3.46 | 169.1 | 7.02 | 0.71617 | 96.85886403 |
| Z26 | 0 | 7099 | 363 | 1528 | 141979 | 247976 | 0.05045 | 0.00097 | 0.03692 | 0.00051 | 0.25672 | 0.00521 | 0.00876 | 0.00039 | 215.8 | 43.8 | 233.7 | 3.16 | 232 | 4.21 | 176.3 | 7.88 | 0.71617 | 100.7327586 |
| Z27 | 0 | 13093 | 681 | 3011 | 281449 | 462732 | 0.05114 | 0.00084 | 0.03678 | 0.0005 | 0.25917 | 0.00464 | 0.00843 | 0.00037 | 247.2 | 37.18 | 232.8 | 3.11 | 234 | 3.74 | 169.7 | 7.4 | 0.71617 | 99.48717949 |
| Z28 | 12 | 9235 | 489 | 1677 | 152869 | 323578 | 0.05207 | 0.00092 | 0.03729 | 0.00052 | 0.26755 | 0.00512 | 0.00836 | 0.00037 | 288.4 | 40.04 | 236 | 3.2 | 240.7 | 4.1 | 168.2 | 7.47 | 0.71617 | 98.04736186 |
| Z29 | 0 | 8562 | 453 | 1724 | 141961 | 263928 | 0.05224 | 0.00097 | 0.04233 | 0.00059 | 0.30469 | 0.00605 | 0.0097 | 0.00047 | 295.7 | 41.83 | 267.3 | 3.64 | 270.1 | 4.71 | 195.1 | 9.4 | 0.71617 | 98.96334691 |
| Z30 | 13 | 9685 | 529 | 2315 | 188068 | 303837 | 0.05362 | 0.00095 | 0.0417 | 0.00058 | 0.30808 | 0.00588 | 0.00918 | 0.00042 | 354.8 | 39.48 | 263.4 | 3.57 | 272.7 | 4.56 | 184.7 | 8.5 | 0.71617 | 96.58965897 |
| Z31 | 12 | 7824 | 460 | 1069 | 41413 | 113971 | 0.05725 | 0.00092 | 0.08902 | 0.00118 | 0.70249 | 0.0125 | 0.02115 | 0.00043 | 500.5 | 35.03 | 549.7 | 7 | 540.3 | 7.45 | 423.1 | 8.42 | 0.594004 | 101.7397742 |
| Z32 | 0 | 8736 | 471 | 652 | 42986 | 218174 | 0.05248 | 0.00085 | 0.05194 | 0.00069 | 0.37577 | 0.00669 | 0.01243 | 0.00027 | 306.4 | 36.25 | 326.4 | 4.22 | 323.9 | 4.94 | 249.6 | 5.35 | 0.594004 | 100.7718432 |
| Z33 | 1 | 2122 | 114 | 453 | 36463 | 65418 | 0.05227 | 0.00162 | 0.04211 | 0.00059 | 0.30345 | 0.00957 | 0.01017 | 0.00024 | 297.4 | 68.89 | 265.9 | 3.64 | 269.1 | 7.46 | 204.5 | 4.74 | 0.594004 | 98.81085098 |
| Z34 | 280 | 8375 | 4459 | 11130 | 40191 | 61466 | 0.51815 | 0.00638 | 0.17673 | 0.00235 | 12.62363 | 0.18267 | 0.22672 | 0.00462 | 4293.7 | 17.97 | 1049.1 | 12.88 | 2652 | 13.61 | 4130.2 | 76.17 | 0.594004 | 39.55882353 |
| Z35 | 0 | 18707 | 1176 | 6969 | 239200 | 235963 | 0.06116 | 0.00083 | 0.10276 | 0.00135 | 0.86644 | 0.01352 | 0.02384 | 0.0005 | 644.8 | 28.83 | 630.6 | 7.9 | 633.6 | 7.35 | 476.2 | 9.88 | 0.594004 | 99.52651515 |
| Z36 | 12 | 6055 | 401 | 978 | 67733 | 192111 | 0.06446 | 0.00111 | 0.04088 | 0.00055 | 0.36326 | 0.00681 | 0.01182 | 0.00027 | 756.8 | 35.92 | 258.3 | 3.39 | 314.6 | 5.07 | 237.4 | 5.39 | 0.594004 | 82.10425938 |
| Z37 | 0 | 18474 | 1090 | 1346 | 54016 | 272066 | 0.05748 | 0.0008 | 0.0881 | 0.00116 | 0.69815 | 0.01114 | 0.02041 | 0.00047 | 509.8 | 30.1 | 544.3 | 6.88 | 537.7 | 6.66 | 408.4 | 9.33 | 0.594004 | 101.2274503 |
| Z38 | 3 | 6491 | 347 | 758 | 67834 | 225336 | 0.0521 | 0.00099 | 0.03787 | 0.00052 | 0.27201 | 0.00557 | 0.00909 | 0.00023 | 289.8 | 42.8 | 239.6 | 3.2 | 244.3 | 4.44 | 182.8 | 4.58 | 0.594004 | 98.0761359 |
| Z39 | 0 | 7284 | 394 | 1667 | 166203 | 277481 | 0.05266 | 0.00102 | 0.03494 | 0.00048 | 0.25365 | 0.00528 | 0.00814 | 0.00021 | 314.2 | 43.26 | 221.4 | 3 | 229.5 | 4.28 | 163.9 | 4.19 | 0.594004 | 96.47058824 |
| Z40 | 8 | 6082 | 359 | 1122 | 70949 | 146529 | 0.05756 | 0.00105 | 0.05386 | 0.00072 | 0.42741 | 0.00839 | 0.01296 | 0.00033 | 512.6 | 39.79 | 338.2 | 4.42 | 361.3 | 5.97 | 260.3 | 6.55 | 0.594004 | 93.60642126 |
| Z41 | 13 | 7609 | 472 | 1238 | 52638 | 120334 | 0.05969 | 0.00139 | 0.08701 | 0.00128 | 0.71599 | 0.01754 | 0.0179 | 0.00058 | 593 | 49.11 | 537.8 | 7.56 | 548.3 | 10.38 | 358.7 | 11.52 | 0.594004 | 98.08498997 |
| Z42 | 2 | 1077 | 61 | 173 | 14093 | 35802 | 0.05529 | 0.00264 | 0.03907 | 0.00058 | 0.29786 | 0.01424 | 0.0101 | 0.00036 | 423.9 | 102.83 | 247.1 | 3.61 | 264.7 | 11.14 | 203.2 | 7.27 | 0.594004 | 93.35096335 |
| Z43 | 1 | 6554 | 508 | 1275 | 27852 | 50202 | 0.07561 | 0.00129 | 0.16944 | 0.00228 | 1.76624 | 0.03281 | 0.0375 | 0.00103 | 1084.6 | 33.75 | 1009 | 12.56 | 1033.1 | 12.04 | 744 | 20.05 | 0.594004 | 97.66721518 |
| Z44 | 7 | 9930 | 523 | 1560 | 168745 | 398211 | 0.05135 | 0.00087 | 0.03238 | 0.00043 | 0.22928 | 0.00424 | 0.00757 | 0.00021 | 256.6 | 38.38 | 205.5 | 2.7 | 209.6 | 3.51 | 152.4 | 4.26 | 0.594004 | 98.04389313 |
| Z45 | 12 | 48995 | 3014 | 4036 | 171541 | 742699 | 0.05932 | 0.00106 | 0.09034 | 0.00128 | 0.73873 | 0.01454 | 0.01786 | 0.00061 | 578.7 | 38.25 | 557.5 | 7.56 | 561.7 | 8.49 | 357.8 | 12.09 | 0.594004 | 99.25226989 |
| Z46 | 9 | 5759 | 730 | 2707 | 32327 | 22698 | 0.12244 | 0.00187 | 0.35019 | 0.00519 | 5.91098 | 0.10245 | 0.06726 | 0.00191 | 1992 | 26.92 | 1935.5 | 24.76 | 1962.8 | 15.05 | 1315.8 | 36.2 | 0.788743 | 98.60912981 |
| Z47 | 7 | 2463 | 150 | 264 | 21712 | 94033 | 0.05722 | 0.00179 | 0.03812 | 0.00067 | 0.30069 | 0.00947 | 0.00797 | 0.00037 | 499.7 | 68.11 | 241.2 | 4.14 | 266.9 | 7.4 | 160.5 | 7.43 | 0.788743 | 90.37092544 |
| Z48 | 4 | 2427 | 130 | 803 | 71118 | 74422 | 0.05193 | 0.00152 | 0.04599 | 0.00075 | 0.32932 | 0.00981 | 0.00895 | 0.00031 | 282.5 | 65.59 | 289.9 | 4.64 | 289 | 7.49 | 180 | 6.28 | 0.788743 | 100.3114187 |
| Z49 | 7 | 16142 | 1629 | 766 | 11828 | 85562 | 0.09668 | 0.00127 | 0.2618 | 0.00375 | 3.48956 | 0.05512 | 0.05059 | 0.00156 | 1561.1 | 24.45 | 1499 | 19.13 | 1524.9 | 12.47 | 997.5 | 30.07 | 0.788743 | 98.30152797 |
| Z50 | 5 | 1603 | 92 | 321 | 21877 | 42536 | 0.05591 | 0.0018 | 0.0512 | 0.00084 | 0.39455 | 0.01274 | 0.01363 | 0.00059 | 448.3 | 70.09 | 321.9 | 5.14 | 337.7 | 9.27 | 273.6 | 11.8 | 0.788743 | 95.32129109 |
| Z51 | 0 | 12536 | 892 | 614 | 17829 | 125711 | 0.06838 | 0.00099 | 0.13856 | 0.002 | 1.30615 | 0.02208 | 0.02786 | 0.00096 | 880 | 29.76 | 836.5 | 11.31 | 848.4 | 9.72 | 555.4 | 18.83 | 0.788743 | 98.59735974 |
| Z52 | 18 | 16998 | 1083 | 867 | 41001 | 270716 | 0.06119 | 0.00087 | 0.08733 | 0.00125 | 0.7368 | 0.01234 | 0.01716 | 0.00059 | 646.1 | 30.36 | 539.7 | 7.44 | 560.5 | 7.21 | 344 | 11.68 | 0.788743 | 96.28902765 |
| Z53 | 1 | 1984 | 128 | 347 | 14958 | 33755 | 0.06235 | 0.00158 | 0.08175 | 0.0013 | 0.70277 | 0.01833 | 0.01906 | 0.00076 | 686.1 | 53.3 | 506.6 | 7.76 | 540.4 | 10.93 | 381.6 | 15.02 | 0.788743 | 93.7453738 |
| Z54 | 0 | 6212 | 369 | 268 | 12421 | 110673 | 0.05608 | 0.00137 | 0.08238 | 0.00136 | 0.63681 | 0.01625 | 0.01549 | 0.00086 | 455.1 | 53.15 | 510.3 | 8.09 | 500.3 | 10.08 | 310.6 | 17.07 | 0.788743 | 101.9988007 |
| Z55 | 0 | 2669 | 140 | 701 | 73042 | 97583 | 0.05143 | 0.00248 | 0.03787 | 0.00076 | 0.26844 | 0.01269 | 0.00925 | 0.00074 | 260.3 | 107.08 | 239.6 | 4.74 | 241.4 | 10.16 | 186.2 | 14.87 | 0.788743 | 99.25434963 |
| Z56 | 0 | 509 | 36 | 168 | 17001 | 18398 | 0.06852 | 0.00343 | 0.0389 | 0.00079 | 0.36742 | 0.01798 | 0.00808 | 0.00041 | 884.2 | 100.23 | 246 | 4.9 | 317.7 | 13.35 | 162.7 | 8.26 | 0.788743 | 77.43153919 |
| Z57 | 8 | 4647 | 301 | 284 | 12895 | 77214 | 0.06226 | 0.00126 | 0.08541 | 0.00132 | 0.73312 | 0.01594 | 0.01795 | 0.00085 | 683 | 42.52 | 528.3 | 7.83 | 558.4 | 9.34 | 359.7 | 16.79 | 0.788743 | 94.60959885 |
| Z58 | 8 | 5243 | 334 | 736 | 64030 | 197260 | 0.05942 | 0.0016 | 0.03956 | 0.00068 | 0.32407 | 0.00901 | 0.00738 | 0.00037 | 582.6 | 57.5 | 250.1 | 4.22 | 285 | 6.91 | 148.5 | 7.35 | 0.788743 | 87.75438596 |
| Z59 | 0 | 393 | 23 | 92 | 6684 | 10161 | 0.0569 | 0.00426 | 0.05372 | 0.00127 | 0.42137 | 0.03084 | 0.0132 | 0.00098 | 486.9 | 157.83 | 337.3 | 7.79 | 357 | 22.03 | 265 | 19.59 | 0.788743 | 94.48179272 |
| Z60 | 0 | 7058 | 511 | 855 | 23566 | 75369 | 0.07008 | 0.0013 | 0.13293 | 0.00203 | 1.28446 | 0.02636 | 0.03128 | 0.00148 | 930.7 | 37.69 | 804.6 | 11.56 | 838.8 | 11.72 | 622.7 | 28.95 | 0.788743 | 95.92274678 |
| Z61 | 2 | 7521 | 594 | 987 | 23929 | 63036 | 0.0744 | 0.00142 | 0.17604 | 0.00282 | 1.80576 | 0.0378 | 0.03137 | 0.00118 | 1052.4 | 38.01 | 1045.3 | 15.44 | 1047.5 | 13.68 | 624.4 | 23.22 | 0.76748 | 99.78997613 |
| Z62 | 7 | 7180 | 456 | 546 | 20044 | 97685 | 0.06068 | 0.00102 | 0.10523 | 0.00158 | 0.88036 | 0.01664 | 0.02251 | 0.00078 | 627.9 | 35.68 | 645 | 9.24 | 641.2 | 8.99 | 449.9 | 15.41 | 0.76748 | 100.5926388 |
| Z63 | 4 | 7381 | 450 | 733 | 61115 | 289702 | 0.05858 | 0.00115 | 0.03694 | 0.00058 | 0.29834 | 0.00637 | 0.01047 | 0.00043 | 551.5 | 42.33 | 233.8 | 3.58 | 265.1 | 4.99 | 210.6 | 8.58 | 0.76748 | 88.19313467 |
| Z64 | 11 | 3852 | 246 | 730 | 31724 | 62122 | 0.06178 | 0.00136 | 0.08685 | 0.00135 | 0.73974 | 0.01714 | 0.02037 | 0.00082 | 666.4 | 46.48 | 536.9 | 7.98 | 562.3 | 10 | 407.5 | 16.26 | 0.76748 | 95.48283834 |
| Z65 | 1 | 1654 | 88 | 490 | 56480 | 72429 | 0.05145 | 0.00158 | 0.03262 | 0.00054 | 0.23141 | 0.00723 | 0.00714 | 0.00026 | 261.1 | 69.03 | 206.9 | 3.36 | 211.4 | 5.96 | 143.9 | 5.26 | 0.76748 | 97.87133396 |
| Z66 | 6 | 6375 | 369 | 2462 | 253989 | 247104 | 0.05524 | 0.00096 | 0.03694 | 0.00056 | 0.28135 | 0.00547 | 0.00752 | 0.00024 | 421.7 | 37.79 | 233.9 | 3.46 | 251.7 | 4.33 | 151.4 | 4.8 | 0.76748 | 92.92808899 |
| Z67 | 0 | 3945 | 209 | 285 | 29178 | 150622 | 0.05079 | 0.00106 | 0.03748 | 0.00058 | 0.26243 | 0.00587 | 0.00774 | 0.00031 | 231.1 | 47.42 | 237.2 | 3.59 | 236.6 | 4.72 | 155.9 | 6.3 | 0.76748 | 100.2535926 |
| Z68 | 0 | 1444 | 93 | 271 | 24469 | 54623 | 0.06246 | 0.00218 | 0.03839 | 0.0007 | 0.3306 | 0.01147 | 0.0092 | 0.00046 | 689.9 | 72.59 | 242.8 | 4.32 | 290 | 8.76 | 185.1 | 9.24 | 0.76748 | 83.72413793 |
| Z69 | 0 | 2163 | 129 | 267 | 13368 | 41061 | 0.05752 | 0.00147 | 0.07542 | 0.00122 | 0.5982 | 0.01586 | 0.01625 | 0.00072 | 511.3 | 55.71 | 468.7 | 7.31 | 476.1 | 10.07 | 325.9 | 14.25 | 0.76748 | 98.44570468 |
| Z70 | 9 | 3668 | 190 | 1322 | 155765 | 156203 | 0.04969 | 0.0011 | 0.03362 | 0.00052 | 0.23037 | 0.00541 | 0.00676 | 0.00025 | 180.7 | 50.76 | 213.2 | 3.26 | 210.5 | 4.47 | 136.2 | 5.1 | 0.76748 | 101.2826603 |
| Z71 | 0 | 5622 | 323 | 1132 | 108845 | 196072 | 0.0555 | 0.00112 | 0.04074 | 0.00062 | 0.31178 | 0.00676 | 0.00888 | 0.00038 | 432.1 | 43.77 | 257.4 | 3.87 | 275.6 | 5.23 | 178.6 | 7.67 | 0.76748 | 93.39622642 |
| Z72 | 11 | 3909 | 315 | 767 | 84935 | 183425 | 0.07457 | 0.0022 | 0.03195 | 0.00058 | 0.32838 | 0.00974 | 0.00603 | 0.00034 | 1056.6 | 58.57 | 202.7 | 3.62 | 288.3 | 7.45 | 121.5 | 6.86 | 0.76748 | 70.30870621 |
| Z73 | 12 | 3779 | 200 | 982 | 111848 | 157575 | 0.05054 | 0.0011 | 0.03442 | 0.00054 | 0.23982 | 0.00557 | 0.00675 | 0.00027 | 219.8 | 49.77 | 218.1 | 3.34 | 218.3 | 4.56 | 136 | 5.44 | 0.76748 | 99.90838296 |
| Z74 | 2 | 3857 | 202 | 725 | 63176 | 130611 | 0.05036 | 0.00112 | 0.04233 | 0.00066 | 0.29396 | 0.00695 | 0.00932 | 0.00041 | 211.6 | 50.83 | 267.3 | 4.09 | 261.7 | 5.45 | 187.5 | 8.26 | 0.76748 | 102.1398548 |
| Z75 | 0 | 2374 | 139 | 426 | 32077 | 79593 | 0.05673 | 0.0016 | 0.04257 | 0.00071 | 0.33305 | 0.00958 | 0.01095 | 0.00057 | 480.4 | 61.14 | 268.7 | 4.37 | 291.9 | 7.3 | 220.1 | 11.36 | 0.76748 | 92.05207263 |
| Z76 | 8 | 5170 | 330 | 2011 | 210835 | 203877 | 0.06122 | 0.0011 | 0.03578 | 0.00054 | 0.30218 | 0.00596 | 0.00753 | 0.00023 | 647.1 | 38.08 | 226.7 | 3.34 | 268.1 | 4.65 | 151.6 | 4.52 | 0.751722 | 84.55800075 |
| Z77 | 6 | 1412 | 79 | 251 | 22108 | 47495 | 0.05378 | 0.00167 | 0.04188 | 0.0007 | 0.31063 | 0.00972 | 0.00902 | 0.00035 | 361.8 | 68.37 | 264.5 | 4.3 | 274.7 | 7.53 | 181.4 | 7.08 | 0.751722 | 96.28685839 |
| Z78 | 10 | 2392 | 152 | 334 | 24767 | 78836 | 0.06125 | 0.00151 | 0.04222 | 0.00067 | 0.35666 | 0.00904 | 0.0109 | 0.00044 | 647.9 | 52.12 | 266.6 | 4.12 | 309.7 | 6.77 | 219.1 | 8.8 | 0.751722 | 86.08330643 |
| Z79 | 0 | 3825 | 250 | 769 | 65132 | 145792 | 0.06324 | 0.00137 | 0.0365 | 0.00056 | 0.31843 | 0.00725 | 0.0095 | 0.00036 | 716.4 | 45.5 | 231.1 | 3.49 | 280.7 | 5.59 | 191.1 | 7.3 | 0.751722 | 82.32988956 |
| Z80 | 3 | 2409 | 133 | 338 | 32203 | 88190 | 0.05337 | 0.00136 | 0.03817 | 0.0006 | 0.28094 | 0.00738 | 0.00845 | 0.00034 | 344.6 | 56.79 | 241.5 | 3.73 | 251.4 | 5.85 | 170 | 6.81 | 0.751722 | 96.06205251 |
| Z81 | 0 | 12609 | 775 | 1225 | 50569 | 195412 | 0.05924 | 0.00095 | 0.09075 | 0.00133 | 0.74141 | 0.01343 | 0.01933 | 0.0007 | 575.8 | 34.31 | 560 | 7.88 | 563.2 | 7.83 | 386.9 | 13.91 | 0.751722 | 99.43181818 |
| Z82 | 1 | 3683 | 284 | 366 | 8263 | 30731 | 0.07413 | 0.00145 | 0.16863 | 0.00259 | 1.72393 | 0.03621 | 0.03479 | 0.00138 | 1045.1 | 38.97 | 1004.5 | 14.29 | 1017.5 | 13.5 | 691.2 | 26.99 | 0.751722 | 98.72235872 |
| Z83 | 8 | 2797 | 177 | 592 | 50601 | 101923 | 0.06142 | 0.00145 | 0.038 | 0.00059 | 0.3219 | 0.00786 | 0.00959 | 0.00039 | 653.9 | 49.87 | 240.4 | 3.66 | 283.4 | 6.03 | 192.9 | 7.9 | 0.751722 | 84.82709951 |
| Z84 | 10 | 2427 | 138 | 524 | 37619 | 64363 | 0.05481 | 0.00134 | 0.05283 | 0.00083 | 0.3993 | 0.01011 | 0.01094 | 0.00043 | 404.4 | 53.53 | 331.9 | 5.07 | 341.1 | 7.33 | 220 | 8.66 | 0.751722 | 97.30284374 |
| Z85 | 0 | 4100 | 233 | 647 | 61284 | 162193 | 0.05514 | 0.00119 | 0.03498 | 0.00053 | 0.26598 | 0.00602 | 0.00859 | 0.00036 | 417.7 | 46.73 | 221.6 | 3.29 | 239.5 | 4.83 | 173 | 7.25 | 0.751722 | 92.52609603 |
| Z86 | 6 | 30089 | 1954 | 741 | 26032 | 393085 | 0.06264 | 0.00096 | 0.10814 | 0.00159 | 0.93403 | 0.01648 | 0.02238 | 0.00094 | 695.9 | 32.3 | 661.9 | 9.23 | 669.8 | 8.65 | 447.4 | 18.68 | 0.751722 | 98.82054345 |
| Z87 | 10 | 3656 | 195 | 826 | 91111 | 153006 | 0.05159 | 0.00172 | 0.03566 | 0.00064 | 0.2536 | 0.00851 | 0.00696 | 0.00041 | 267.4 | 74.53 | 225.8 | 3.99 | 229.5 | 6.89 | 140.3 | 8.16 | 0.751722 | 98.38779956 |
| Z88 | 0 | 12411 | 764 | 1063 | 42378 | 189040 | 0.05909 | 0.00098 | 0.09239 | 0.00137 | 0.75269 | 0.01398 | 0.01853 | 0.00075 | 570.2 | 35.68 | 569.7 | 8.06 | 569.8 | 8.1 | 371 | 14.95 | 0.751722 | 99.98244998 |
| Z89 | 4 | 35226 | 1884 | 2972 | 271563 | 1347739 | 0.0528 | 0.00116 | 0.03742 | 0.00059 | 0.2724 | 0.00633 | 0.00912 | 0.00059 | 320.4 | 48.95 | 236.8 | 3.64 | 244.6 | 5.05 | 183.5 | 11.79 | 0.751722 | 96.8111202 |
| Z90 | 0 | 18262 | 1896 | 2994 | 44278 | 93251 | 0.10022 | 0.00173 | 0.28187 | 0.00431 | 3.89468 | 0.07538 | 0.0519 | 0.00244 | 1628.2 | 31.81 | 1600.8 | 21.67 | 1612.6 | 15.64 | 1022.7 | 46.86 | 0.751722 | 99.26826243 |
| Z91 | 0 | 3193 | 198 | 359 | 16307 | 56746 | 0.0601 | 0.00127 | 0.07896 | 0.00121 | 0.65394 | 0.01467 | 0.01825 | 0.00068 | 607.3 | 45.06 | 489.9 | 7.23 | 510.9 | 9.01 | 365.5 | 13.4 | 0.746481 | 95.88960658 |
| Z92 | 8 | 1737 | 98 | 372 | 35423 | 67382 | 0.05486 | 0.00163 | 0.03613 | 0.00059 | 0.27312 | 0.00822 | 0.00881 | 0.00034 | 406.7 | 64.41 | 228.8 | 3.68 | 245.2 | 6.55 | 177.4 | 6.89 | 0.746481 | 93.31158238 |
| Z93 | 0 | 2831 | 161 | 432 | 43057 | 115484 | 0.05538 | 0.00131 | 0.03415 | 0.00053 | 0.2606 | 0.00643 | 0.00857 | 0.00033 | 427.4 | 51.56 | 216.5 | 3.29 | 235.1 | 5.18 | 172.4 | 6.7 | 0.746481 | 92.08847299 |
| Z94 | 8 | 9152 | 508 | 1299 | 135038 | 372733 | 0.05371 | 0.00088 | 0.03451 | 0.00051 | 0.2554 | 0.00475 | 0.00806 | 0.00028 | 359 | 36.86 | 218.7 | 3.16 | 231 | 3.84 | 162.2 | 5.62 | 0.746481 | 94.67532468 |
| Z95 | 14 | 1078 | 58 | 245 | 28059 | 45841 | 0.05228 | 0.00192 | 0.03312 | 0.00057 | 0.2386 | 0.00876 | 0.00728 | 0.00031 | 297.8 | 81.59 | 210 | 3.57 | 217.3 | 7.18 | 146.6 | 6.28 | 0.746481 | 96.64058905 |
| Z96 | 0 | 3191 | 171 | 620 | 70706 | 135236 | 0.05209 | 0.00122 | 0.03296 | 0.00051 | 0.23657 | 0.00578 | 0.00746 | 0.0003 | 289.5 | 52.48 | 209 | 3.17 | 215.6 | 4.74 | 150.3 | 5.99 | 0.746481 | 96.93877551 |
| Z97 | 8 | 1470 | 132 | 698 | 61090 | 57970 | 0.08667 | 0.0024 | 0.03647 | 0.00063 | 0.43564 | 0.01216 | 0.00888 | 0.00035 | 1353.2 | 52.52 | 230.9 | 3.93 | 367.2 | 8.6 | 178.7 | 6.98 | 0.746481 | 62.88126362 |
| Z98 | 2 | 474 | 27 | 95 | 7358 | 15567 | 0.05561 | 0.00323 | 0.04295 | 0.0009 | 0.32907 | 0.01875 | 0.01098 | 0.00064 | 436.6 | 124.69 | 271.1 | 5.55 | 288.9 | 14.32 | 220.8 | 12.83 | 0.746481 | 93.83869851 |
| Z99 | 0 | 2701 | 169 | 329 | 14404 | 43531 | 0.06078 | 0.00164 | 0.08903 | 0.00148 | 0.74581 | 0.02066 | 0.01874 | 0.00094 | 631.5 | 57.09 | 549.8 | 8.74 | 565.8 | 12.02 | 375.3 | 18.66 | 0.746481 | 97.17214563 |
| Z100 | 0 | 12445 | 680 | 3807 | 307814 | 390716 | 0.05313 | 0.00089 | 0.04483 | 0.00066 | 0.32814 | 0.00619 | 0.01052 | 0.00043 | 334.2 | 37.38 | 282.7 | 4.08 | 288.1 | 4.73 | 211.5 | 8.69 | 0.746481 | 98.12565082 |
| Z101 | 0 | 6987 | 380 | 730 | 74556 | 291173 | 0.05293 | 0.00101 | 0.03384 | 0.00051 | 0.24679 | 0.00515 | 0.00835 | 0.00038 | 326 | 42.73 | 214.5 | 3.18 | 224 | 4.19 | 168.1 | 7.58 | 0.746481 | 95.75892857 |
| Z102 | 0 | 1231 | 69 | 246 | 23259 | 46549 | 0.05502 | 0.00186 | 0.03731 | 0.00064 | 0.28289 | 0.0096 | 0.00898 | 0.00045 | 413.1 | 73.23 | 236.1 | 3.96 | 252.9 | 7.59 | 180.6 | 8.92 | 0.746481 | 93.35705813 |
| Z103 | 4 | 14152 | 867 | 1608 | 90847 | 314948 | 0.06001 | 0.00115 | 0.06176 | 0.00092 | 0.51035 | 0.01059 | 0.01615 | 0.00093 | 604.1 | 40.95 | 386.3 | 5.56 | 418.7 | 7.12 | 323.9 | 18.48 | 0.746481 | 92.2617626 |
| Z104 | 0 | 5178 | 287 | 1685 | 160205 | 188198 | 0.054 | 0.00111 | 0.03879 | 0.00059 | 0.28864 | 0.00635 | 0.00907 | 0.00043 | 370.9 | 45.48 | 245.3 | 3.67 | 257.5 | 5 | 182.5 | 8.55 | 0.746481 | 95.26213592 |
| Z105 | 2 | 7073 | 368 | 1395 | 145421 | 287405 | 0.0508 | 0.00102 | 0.03479 | 0.00053 | 0.24353 | 0.0053 | 0.00829 | 0.00042 | 231.9 | 45.83 | 220.5 | 3.3 | 221.3 | 4.33 | 166.9 | 8.33 | 0.746481 | 99.63849977 |
| Z106 | 13 | 2508 | 159 | 668 | 63522 | 104207 | 0.06241 | 0.00141 | 0.03387 | 0.00053 | 0.29137 | 0.00693 | 0.00919 | 0.00033 | 688.4 | 47.63 | 214.7 | 3.29 | 259.6 | 5.45 | 184.8 | 6.62 | 0.719753 | 82.70416025 |
| Z107 | 5 | 1861 | 114 | 542 | 46933 | 62996 | 0.05997 | 0.0016 | 0.04156 | 0.00067 | 0.3435 | 0.00939 | 0.01013 | 0.00039 | 602.4 | 56.66 | 262.5 | 4.14 | 299.8 | 7.09 | 203.7 | 7.78 | 0.719753 | 87.55837225 |
| Z108 | 16 | 3932 | 208 | 684 | 63911 | 137605 | 0.05143 | 0.0011 | 0.04062 | 0.00062 | 0.28797 | 0.00658 | 0.00894 | 0.00033 | 260.3 | 48.4 | 256.7 | 3.87 | 257 | 5.19 | 179.9 | 6.7 | 0.719753 | 99.88326848 |
| Z109 | 0 | 8004 | 438 | 654 | 36703 | 241552 | 0.05348 | 0.00099 | 0.04724 | 0.00072 | 0.34824 | 0.00713 | 0.01514 | 0.00064 | 349.1 | 41.45 | 297.6 | 4.4 | 303.4 | 5.37 | 303.7 | 12.64 | 0.719753 | 98.08833223 |
| Z110 | 0 | 13139 | 784 | 2056 | 88937 | 215134 | 0.0585 | 0.00091 | 0.08565 | 0.00125 | 0.6906 | 0.01237 | 0.02 | 0.00077 | 548.4 | 33.67 | 529.8 | 7.42 | 533.2 | 7.43 | 400.3 | 15.18 | 0.719753 | 99.36234059 |
| Z111 | 6 | 1984 | 138 | 459 | 15329 | 26337 | 0.06867 | 0.00177 | 0.10515 | 0.00171 | 0.99519 | 0.0262 | 0.02668 | 0.00123 | 889 | 52.23 | 644.5 | 9.95 | 701.4 | 13.33 | 532.1 | 24.21 | 0.719753 | 91.88765326 |
| Z112 | 3 | 1843 | 98 | 547 | 58368 | 76624 | 0.05259 | 0.00156 | 0.03363 | 0.00054 | 0.24372 | 0.00733 | 0.00821 | 0.00036 | 311.1 | 65.8 | 213.2 | 3.38 | 221.5 | 5.99 | 165.2 | 7.24 | 0.719753 | 96.25282167 |
| Z113 | 0 | 2194 | 116 | 620 | 62481 | 82764 | 0.05202 | 0.00164 | 0.03788 | 0.00064 | 0.27159 | 0.00864 | 0.00843 | 0.00043 | 286.3 | 70.34 | 239.7 | 3.99 | 244 | 6.9 | 169.6 | 8.55 | 0.719753 | 98.23770492 |
| Z114 | 0 | 831 | 50 | 430 | 38921 | 29386 | 0.06001 | 0.0027 | 0.03871 | 0.00072 | 0.32012 | 0.01417 | 0.00989 | 0.00053 | 603.9 | 94.54 | 244.8 | 4.48 | 282 | 10.9 | 198.9 | 10.57 | 0.719753 | 86.80851064 |
| Z115 | 24 | 3437 | 211 | 979 | 78024 | 114786 | 0.06001 | 0.00131 | 0.04217 | 0.00065 | 0.34885 | 0.00804 | 0.0103 | 0.00045 | 604.1 | 46.5 | 266.3 | 4.03 | 303.9 | 6.06 | 207.2 | 9.05 | 0.719753 | 87.62750905 |
| Z116 | 7 | 3838 | 202 | 481 | 34234 | 104161 | 0.05179 | 0.0015 | 0.05213 | 0.00086 | 0.37206 | 0.01093 | 0.01185 | 0.00073 | 276.2 | 64.78 | 327.6 | 5.27 | 321.2 | 8.09 | 238 | 14.62 | 0.719753 | 101.992528 |
| Z117 | 0 | 2005 | 122 | 385 | 14464 | 29436 | 0.06016 | 0.00163 | 0.09505 | 0.00154 | 0.78804 | 0.02183 | 0.02299 | 0.0012 | 609.3 | 57.57 | 585.3 | 9.05 | 590.1 | 12.4 | 459.4 | 23.77 | 0.719753 | 99.18657855 |
| Z118 | 0 | 6962 | 1144 | 1112 | 16825 | 43118 | 0.16064 | 0.00274 | 0.2262 | 0.00341 | 5.00817 | 0.09461 | 0.05472 | 0.00268 | 2462.4 | 28.52 | 1314.6 | 17.94 | 1820.7 | 15.99 | 1076.9 | 51.37 | 0.719753 | 72.20299885 |
| Z119 | 0 | 1357 | 77 | 269 | 25316 | 48466 | 0.05616 | 0.0019 | 0.03908 | 0.00066 | 0.30246 | 0.01026 | 0.00915 | 0.00052 | 458.5 | 73.26 | 247.1 | 4.11 | 268.3 | 8 | 184.1 | 10.48 | 0.719753 | 92.09839732 |
| Z120 | 7 | 4965 | 274 | 1175 | 116228 | 194304 | 0.05447 | 0.00124 | 0.03516 | 0.00054 | 0.26394 | 0.00625 | 0.00873 | 0.0005 | 390.7 | 49.88 | 222.7 | 3.34 | 237.8 | 5.02 | 175.7 | 10.08 | 0.719753 | 93.65012616 |

**Supplementary Table 7: Raw U-Pb data from sample NZ1323**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 15 | 8387 | 494 | 3580 | 267341 | 242857 | 0.05706 | 0.0015 | 0.04055 | 0.00057 | 0.31892 | 0.00825 | 0.01009 | 0.00034 | 493.1 | 57.42 | 256.2 | 3.54 | 281.1 | 6.35 | 202.9 | 6.75 | 0.883007 | 91.14194237 |
| Z2 | 5 | 7639 | 422 | 2145 | 175543 | 241002 | 0.0536 | 0.00127 | 0.03662 | 0.00049 | 0.27061 | 0.00638 | 0.00934 | 0.00029 | 354.1 | 52.89 | 231.9 | 3.04 | 243.2 | 5.1 | 187.9 | 5.81 | 0.883007 | 95.35361842 |
| Z3 | 15 | 9915 | 564 | 2571 | 210436 | 317905 | 0.0555 | 0.001 | 0.03531 | 0.00043 | 0.27018 | 0.00494 | 0.00965 | 0.00026 | 432.1 | 39.37 | 223.7 | 2.7 | 242.8 | 3.95 | 194.2 | 5.2 | 0.883007 | 92.13344316 |
| Z4 | 18 | 7466 | 418 | 2029 | 160388 | 234973 | 0.05514 | 0.00097 | 0.03507 | 0.00042 | 0.26661 | 0.00474 | 0.01029 | 0.00026 | 417.8 | 38.79 | 222.2 | 2.6 | 240 | 3.8 | 206.8 | 5.14 | 0.883007 | 92.58333333 |
| Z5 | 22 | 13859 | 1040 | 1552 | 28328 | 87782 | 0.07379 | 0.00103 | 0.17443 | 0.00203 | 1.77472 | 0.02556 | 0.04468 | 0.0012 | 1035.8 | 28 | 1036.5 | 11.14 | 1036.3 | 9.35 | 883.4 | 23.24 | 0.883007 | 100.0192994 |
| Z6 | 27 | 9372 | 538 | 2124 | 145532 | 228313 | 0.05649 | 0.00093 | 0.04533 | 0.00053 | 0.35303 | 0.00588 | 0.01195 | 0.00032 | 470.8 | 36.34 | 285.8 | 3.29 | 307 | 4.41 | 240.2 | 6.45 | 0.883007 | 93.09446254 |
| Z7 | 24 | 28267 | 1669 | 989 | 33315 | 363048 | 0.05814 | 0.00076 | 0.086 | 0.00098 | 0.68941 | 0.00938 | 0.02442 | 0.00074 | 534.5 | 28.84 | 531.9 | 5.82 | 532.4 | 5.64 | 487.6 | 14.62 | 0.883007 | 99.90608565 |
| Z8 | 17 | 12478 | 733 | 3615 | 267190 | 359526 | 0.05788 | 0.00088 | 0.03835 | 0.00045 | 0.30603 | 0.00477 | 0.01115 | 0.00032 | 524.8 | 33.45 | 242.6 | 2.78 | 271.1 | 3.71 | 224.1 | 6.36 | 0.883007 | 89.48727407 |
| Z9 | 36 | 12279 | 710 | 2558 | 186410 | 365893 | 0.05669 | 0.00082 | 0.03804 | 0.00045 | 0.29731 | 0.00446 | 0.01086 | 0.00021 | 478.9 | 31.9 | 240.7 | 2.79 | 264.3 | 3.49 | 218.3 | 4.21 | 0.862804 | 91.07075293 |
| Z10 | 7 | 13472 | 805 | 3514 | 133327 | 187534 | 0.05821 | 0.00098 | 0.08545 | 0.00109 | 0.68584 | 0.01195 | 0.02037 | 0.00049 | 537 | 36.9 | 528.6 | 6.45 | 530.3 | 7.2 | 407.6 | 9.64 | 0.862804 | 99.67942674 |
| Z11 | 12 | 9827 | 633 | 1640 | 51500 | 125019 | 0.06379 | 0.00138 | 0.08298 | 0.00103 | 0.7296 | 0.01533 | 0.02639 | 0.00091 | 734.8 | 45.09 | 513.9 | 6.13 | 556.3 | 9 | 526.6 | 17.99 | 0.862804 | 92.37821319 |
| Z12 | 28 | 10186 | 610 | 4975 | 205313 | 156070 | 0.05866 | 0.00092 | 0.07454 | 0.0009 | 0.60276 | 0.00977 | 0.01912 | 0.00039 | 554.4 | 33.94 | 463.5 | 5.4 | 479 | 6.19 | 382.8 | 7.79 | 0.862804 | 96.76409186 |
| Z13 | 29 | 14402 | 884 | 4626 | 373928 | 452606 | 0.0603 | 0.00084 | 0.03578 | 0.00042 | 0.29745 | 0.00429 | 0.00984 | 0.0002 | 614.2 | 29.65 | 226.6 | 2.6 | 264.4 | 3.36 | 197.9 | 4.04 | 0.862804 | 85.70347958 |
| Z14 | 27 | 20957 | 1121 | 5770 | 488207 | 663142 | 0.05255 | 0.0007 | 0.03517 | 0.0004 | 0.25479 | 0.00355 | 0.00947 | 0.0002 | 309.5 | 30.12 | 222.8 | 2.51 | 230.5 | 2.87 | 190.5 | 4.07 | 0.862804 | 96.65943601 |
| Z15 | 42 | 4580 | 246 | 1221 | 98905 | 134204 | 0.05295 | 0.00111 | 0.03813 | 0.00047 | 0.27837 | 0.00583 | 0.00989 | 0.00024 | 326.5 | 46.81 | 241.3 | 2.92 | 249.4 | 4.63 | 198.8 | 4.77 | 0.862804 | 96.75220529 |
| Z16 | 16 | 8468 | 456 | 1962 | 165886 | 266944 | 0.053 | 0.00084 | 0.03555 | 0.00042 | 0.25976 | 0.00423 | 0.00946 | 0.00021 | 328.6 | 35.63 | 225.2 | 2.61 | 234.5 | 3.41 | 190.3 | 4.25 | 0.862804 | 96.03411514 |
| Z17 | 9 | 16328 | 1024 | 2714 | 99950 | 229734 | 0.06173 | 0.00092 | 0.07695 | 0.00088 | 0.65475 | 0.00985 | 0.02208 | 0.00061 | 664.7 | 31.61 | 477.9 | 5.28 | 511.4 | 6.05 | 441.4 | 11.98 | 0.862804 | 93.44935471 |
| Z18 | 25 | 14663 | 884 | 5981 | 459548 | 446156 | 0.05967 | 0.001 | 0.035 | 0.0004 | 0.28789 | 0.00478 | 0.01076 | 0.00033 | 591.6 | 35.92 | 221.8 | 2.51 | 256.9 | 3.77 | 216.4 | 6.6 | 0.862804 | 86.33709615 |
| Z19 | 30 | 11899 | 704 | 2603 | 204445 | 365497 | 0.05827 | 0.00099 | 0.03556 | 0.00042 | 0.28563 | 0.00487 | 0.01041 | 0.00032 | 539.1 | 37.53 | 225.3 | 2.61 | 255.1 | 3.85 | 209.3 | 6.31 | 0.862804 | 88.31830655 |
| Z20 | 32 | 20772 | 1113 | 5553 | 492718 | 684707 | 0.05271 | 0.00082 | 0.03547 | 0.00044 | 0.25775 | 0.00419 | 0.00892 | 0.00027 | 316.1 | 34.95 | 224.7 | 2.72 | 232.8 | 3.38 | 179.5 | 5.33 | 0.862804 | 96.52061856 |
| Z21 | 5 | 6259 | 345 | 1962 | 162202 | 189065 | 0.05438 | 0.00104 | 0.03608 | 0.00043 | 0.27045 | 0.00515 | 0.00999 | 0.00023 | 386.6 | 42.24 | 228.5 | 2.68 | 243 | 4.12 | 200.9 | 4.64 | 0.722136 | 94.03292181 |
| Z22 | 25 | 25734 | 1492 | 4348 | 330120 | 721751 | 0.05708 | 0.00072 | 0.03948 | 0.00045 | 0.31062 | 0.00411 | 0.01075 | 0.00023 | 493.9 | 27.96 | 249.6 | 2.78 | 274.7 | 3.19 | 216.1 | 4.59 | 0.722136 | 90.86275937 |
| Z23 | 62 | 10621 | 831 | 2401 | 129564 | 295530 | 0.07698 | 0.00151 | 0.04329 | 0.00058 | 0.45945 | 0.0091 | 0.01484 | 0.00049 | 1120.8 | 38.55 | 273.2 | 3.61 | 383.9 | 6.33 | 297.8 | 9.83 | 0.722136 | 71.16436572 |
| Z24 | 20 | 13278 | 756 | 10365 | 856644 | 405582 | 0.05602 | 0.00086 | 0.03676 | 0.00043 | 0.28392 | 0.00445 | 0.00977 | 0.00023 | 453 | 33.25 | 232.7 | 2.7 | 253.8 | 3.52 | 196.5 | 4.59 | 0.722136 | 91.68636722 |
| Z25 | 0 | 16430 | 884 | 4325 | 367802 | 519207 | 0.05297 | 0.00078 | 0.03589 | 0.00043 | 0.26204 | 0.00403 | 0.00951 | 0.00024 | 327.5 | 33.2 | 227.3 | 2.65 | 236.3 | 3.24 | 191.3 | 4.76 | 0.722136 | 96.19128227 |
| Z26 | 15 | 13848 | 789 | 3704 | 302050 | 421501 | 0.05627 | 0.00085 | 0.03618 | 0.00042 | 0.28066 | 0.00431 | 0.01003 | 0.00026 | 462.4 | 33.29 | 229.1 | 2.61 | 251.2 | 3.42 | 201.6 | 5.22 | 0.722136 | 91.2022293 |
| Z27 | 20 | 12654 | 678 | 2323 | 196138 | 403351 | 0.05289 | 0.00078 | 0.03464 | 0.0004 | 0.25254 | 0.00382 | 0.00968 | 0.00025 | 323.8 | 33.15 | 219.5 | 2.49 | 228.6 | 3.1 | 194.8 | 4.93 | 0.722136 | 96.01924759 |
| Z28 | 22 | 13112 | 775 | 3842 | 324512 | 435274 | 0.05807 | 0.00096 | 0.03483 | 0.00043 | 0.27881 | 0.00473 | 0.00961 | 0.00029 | 531.8 | 36.19 | 220.7 | 2.68 | 249.7 | 3.76 | 193.2 | 5.76 | 0.722136 | 88.38606328 |
| Z29 | 6 | 14437 | 838 | 1621 | 69359 | 238780 | 0.05726 | 0.00081 | 0.06685 | 0.00077 | 0.52774 | 0.00767 | 0.01921 | 0.00053 | 501.2 | 30.79 | 417.2 | 4.65 | 430.3 | 5.1 | 384.6 | 10.47 | 0.722136 | 96.95561236 |
| Z30 | 22 | 14165 | 750 | 4879 | 416019 | 431039 | 0.05222 | 0.00076 | 0.03627 | 0.00042 | 0.26115 | 0.00388 | 0.00964 | 0.00026 | 295.2 | 32.66 | 229.7 | 2.6 | 235.6 | 3.13 | 193.9 | 5.22 | 0.722136 | 97.49575552 |
| Z31 | 20 | 4427 | 246 | 1057 | 97434 | 146798 | 0.05272 | 0.00113 | 0.03845 | 0.00053 | 0.27931 | 0.00619 | 0.0071 | 0.00022 | 316.7 | 47.91 | 243.2 | 3.28 | 250.1 | 4.91 | 143.1 | 4.33 | 0.809145 | 97.24110356 |
| Z32 | 0 | 1650 | 102 | 523 | 47722 | 53079 | 0.05884 | 0.0021 | 0.03972 | 0.0006 | 0.32203 | 0.01148 | 0.00695 | 0.00024 | 561.2 | 76.07 | 251.1 | 3.74 | 283.5 | 8.82 | 140 | 4.74 | 0.809145 | 88.57142857 |
| Z33 | 11 | 14933 | 918 | 5479 | 262273 | 238863 | 0.05787 | 0.00081 | 0.08007 | 0.00106 | 0.63842 | 0.00992 | 0.01309 | 0.00037 | 524.4 | 30.48 | 496.5 | 6.31 | 501.3 | 6.15 | 262.8 | 7.33 | 0.809145 | 99.04248953 |
| Z34 | 0 | 19033 | 1055 | 511 | 24582 | 466114 | 0.05259 | 0.00072 | 0.05232 | 0.00069 | 0.37916 | 0.00584 | 0.01378 | 0.00051 | 311.2 | 30.81 | 328.7 | 4.22 | 326.4 | 4.3 | 276.6 | 10.11 | 0.809145 | 100.7046569 |
| Z35 | 69 | 37824 | 2330 | 4054 | 159634 | 558588 | 0.05844 | 0.00073 | 0.08691 | 0.00114 | 0.69993 | 0.01014 | 0.01691 | 0.00053 | 546.3 | 27.11 | 537.3 | 6.75 | 538.7 | 6.05 | 338.9 | 10.54 | 0.809145 | 99.74011509 |
| Z36 | 0 | 6622 | 358 | 2103 | 209261 | 228015 | 0.05138 | 0.00095 | 0.03733 | 0.00051 | 0.26431 | 0.00517 | 0.00676 | 0.00022 | 257.8 | 41.89 | 236.3 | 3.16 | 238.1 | 4.15 | 136.3 | 4.51 | 0.809145 | 99.24401512 |
| Z37 | 0 | 2365 | 139 | 506 | 37330 | 63090 | 0.05561 | 0.00163 | 0.04833 | 0.00071 | 0.37038 | 0.01095 | 0.00879 | 0.00034 | 436.4 | 63.78 | 304.3 | 4.37 | 319.9 | 8.11 | 176.8 | 6.71 | 0.809145 | 95.12347609 |
| Z38 | 1 | 6477 | 357 | 965 | 62739 | 157314 | 0.0519 | 0.00096 | 0.05313 | 0.00073 | 0.38002 | 0.00743 | 0.00943 | 0.00032 | 281 | 41.63 | 333.7 | 4.44 | 327.1 | 5.46 | 189.7 | 6.4 | 0.809145 | 102.0177316 |
| Z39 | 0 | 3863 | 203 | 331 | 30258 | 124624 | 0.05 | 0.0012 | 0.04007 | 0.00057 | 0.27611 | 0.0068 | 0.00737 | 0.00034 | 194.9 | 54.74 | 253.3 | 3.51 | 247.6 | 5.41 | 148.4 | 6.8 | 0.809145 | 102.3021002 |
| Z40 | 9 | 9976 | 604 | 860 | 35018 | 149864 | 0.05759 | 0.00093 | 0.08618 | 0.00117 | 0.68395 | 0.01201 | 0.01682 | 0.00067 | 513.9 | 35.36 | 532.9 | 6.94 | 529.2 | 7.24 | 337.1 | 13.29 | 0.809145 | 100.6991686 |
| Z41 | 6 | 4448 | 234 | 1044 | 97569 | 151925 | 0.05017 | 0.00113 | 0.03796 | 0.00053 | 0.26248 | 0.00612 | 0.00735 | 0.00029 | 202.8 | 51.42 | 240.2 | 3.31 | 236.7 | 4.92 | 148 | 5.89 | 0.809145 | 101.478665 |
| Z42 | 4 | 2420 | 136 | 548 | 50556 | 83611 | 0.05406 | 0.00165 | 0.03752 | 0.00056 | 0.27952 | 0.00862 | 0.00803 | 0.00038 | 373.2 | 67.28 | 237.4 | 3.47 | 250.3 | 6.84 | 161.7 | 7.57 | 0.809145 | 94.84618458 |
| Z43 | 32 | 29729 | 2275 | 4022 | 99367 | 283491 | 0.07339 | 0.00103 | 0.13612 | 0.00183 | 1.37683 | 0.02194 | 0.03086 | 0.00141 | 1024.7 | 28.2 | 822.7 | 10.37 | 879.1 | 9.37 | 614.3 | 27.59 | 0.809145 | 93.58434763 |
| Z44 | 9 | 3654 | 215 | 1175 | 107094 | 126941 | 0.05664 | 0.00137 | 0.03744 | 0.00054 | 0.29226 | 0.00726 | 0.0083 | 0.00039 | 476.6 | 52.95 | 236.9 | 3.35 | 260.3 | 5.71 | 167.1 | 7.92 | 0.809145 | 91.01037265 |
| Z45 | 27 | 3691 | 259 | 969 | 77133 | 123387 | 0.06792 | 0.00167 | 0.03877 | 0.00057 | 0.36289 | 0.00909 | 0.01008 | 0.00056 | 866.1 | 50.09 | 245.2 | 3.52 | 314.4 | 6.77 | 202.8 | 11.15 | 0.809145 | 77.98982188 |
| Z46 | 7 | 17191 | 997 | 2451 | 106290 | 257261 | 0.05589 | 0.00078 | 0.08726 | 0.00117 | 0.67223 | 0.01065 | 0.01644 | 0.00049 | 447.5 | 30.31 | 539.3 | 6.95 | 522.1 | 6.47 | 329.7 | 9.7 | 0.792288 | 103.294388 |
| Z47 | 17 | 14824 | 859 | 1884 | 78534 | 220248 | 0.05554 | 0.00078 | 0.08808 | 0.00119 | 0.67439 | 0.01078 | 0.01628 | 0.00047 | 433.8 | 30.66 | 544.2 | 7.04 | 523.4 | 6.54 | 326.4 | 9.38 | 0.792288 | 103.974016 |
| Z48 | 19 | 3815 | 218 | 883 | 82720 | 131041 | 0.05493 | 0.00125 | 0.03812 | 0.00054 | 0.28863 | 0.00682 | 0.00718 | 0.00023 | 409.5 | 49.54 | 241.1 | 3.36 | 257.5 | 5.37 | 144.7 | 4.55 | 0.792288 | 93.63106796 |
| Z49 | 8 | 4760 | 290 | 380 | 15699 | 73218 | 0.05884 | 0.00119 | 0.08493 | 0.0012 | 0.68891 | 0.01461 | 0.01711 | 0.00069 | 561.1 | 43.48 | 525.5 | 7.11 | 532.1 | 8.79 | 342.9 | 13.66 | 0.792288 | 98.75963165 |
| Z50 | 11 | 4678 | 259 | 968 | 90973 | 160675 | 0.05307 | 0.0011 | 0.03815 | 0.00054 | 0.27904 | 0.00606 | 0.00693 | 0.00022 | 331.5 | 46.21 | 241.3 | 3.33 | 249.9 | 4.81 | 139.7 | 4.41 | 0.792288 | 96.55862345 |
| Z51 | 0 | 4164 | 292 | 867 | 51216 | 105168 | 0.06735 | 0.00137 | 0.05189 | 0.00074 | 0.48178 | 0.01024 | 0.01135 | 0.00039 | 848.7 | 41.78 | 326.1 | 4.53 | 399.3 | 7.02 | 228.2 | 7.77 | 0.792288 | 81.66791886 |
| Z52 | 0 | 7248 | 436 | 1006 | 43336 | 113224 | 0.05778 | 0.00099 | 0.08386 | 0.00116 | 0.66794 | 0.0124 | 0.01549 | 0.00052 | 521.1 | 37.52 | 519.1 | 6.89 | 519.5 | 7.55 | 310.6 | 10.44 | 0.792288 | 99.92300289 |
| Z53 | 14 | 5651 | 359 | 1423 | 62935 | 86132 | 0.0609 | 0.00113 | 0.08598 | 0.0012 | 0.72174 | 0.01423 | 0.0149 | 0.0005 | 635.6 | 39.43 | 531.7 | 7.14 | 551.7 | 8.39 | 299 | 9.95 | 0.792288 | 96.3748414 |
| Z54 | 43 | 18464 | 1462 | 3813 | 189232 | 483878 | 0.07669 | 0.0013 | 0.04905 | 0.00067 | 0.51856 | 0.00938 | 0.01567 | 0.00078 | 1113.2 | 33.38 | 308.7 | 4.13 | 424.2 | 6.27 | 314.3 | 15.57 | 0.792288 | 72.77227723 |
| Z55 | 0 | 12911 | 742 | 3133 | 138887 | 206638 | 0.05552 | 0.0009 | 0.08158 | 0.00112 | 0.62437 | 0.01104 | 0.01637 | 0.00064 | 432.8 | 35.17 | 505.6 | 6.65 | 492.6 | 6.9 | 328.1 | 12.74 | 0.792288 | 102.6390581 |
| Z56 | 0 | 8019 | 505 | 268 | 10100 | 108251 | 0.06064 | 0.00104 | 0.09701 | 0.00134 | 0.81097 | 0.01504 | 0.01793 | 0.00088 | 626.5 | 36.62 | 596.9 | 7.9 | 603 | 8.43 | 359.2 | 17.49 | 0.792288 | 98.98839138 |
| Z57 | 4 | 2106 | 110 | 498 | 45540 | 72041 | 0.05036 | 0.00172 | 0.03839 | 0.00058 | 0.26652 | 0.00915 | 0.00697 | 0.00028 | 211.5 | 77.23 | 242.9 | 3.61 | 239.9 | 7.33 | 140.4 | 5.65 | 0.792288 | 101.2505211 |
| Z58 | 0 | 3458 | 205 | 468 | 29412 | 101804 | 0.05662 | 0.00135 | 0.04459 | 0.00064 | 0.34806 | 0.00855 | 0.01002 | 0.00041 | 476 | 52.32 | 281.2 | 3.98 | 303.3 | 6.44 | 201.5 | 8.29 | 0.792288 | 92.713485 |
| Z59 | 5 | 2280 | 212 | 1034 | 36094 | 37433 | 0.08977 | 0.00257 | 0.08061 | 0.00131 | 0.99748 | 0.02837 | 0.01847 | 0.00083 | 1420.6 | 53.68 | 499.8 | 7.81 | 702.5 | 14.42 | 369.9 | 16.52 | 0.792288 | 71.14590747 |
| Z60 | 2 | 9213 | 517 | 124 | 5747 | 215155 | 0.05422 | 0.00099 | 0.05598 | 0.00078 | 0.41837 | 0.00812 | 0.01516 | 0.00114 | 379.9 | 40.36 | 351.1 | 4.75 | 354.9 | 5.81 | 304.2 | 22.72 | 0.792288 | 98.92927585 |
| Z61 | 14 | 3800 | 198 | 760 | 69478 | 129901 | 0.05034 | 0.00118 | 0.03831 | 0.00055 | 0.26589 | 0.00646 | 0.00736 | 0.00023 | 210.6 | 53.64 | 242.4 | 3.38 | 239.4 | 5.18 | 148.2 | 4.61 | 0.783898 | 101.2531328 |
| Z62 | 14 | 50180 | 3052 | 6053 | 280799 | 1048949 | 0.05874 | 0.00072 | 0.0625 | 0.00083 | 0.50619 | 0.00736 | 0.01508 | 0.00044 | 557.5 | 26.57 | 390.8 | 5.04 | 415.9 | 4.96 | 302.6 | 8.75 | 0.783898 | 93.96489541 |
| Z63 | 12 | 3363 | 238 | 974 | 68986 | 100358 | 0.06881 | 0.00159 | 0.04364 | 0.00063 | 0.41405 | 0.00984 | 0.01035 | 0.00036 | 893 | 47.08 | 275.4 | 3.89 | 351.8 | 7.07 | 208.2 | 7.18 | 0.783898 | 78.28311541 |
| Z64 | 0 | 4297 | 249 | 1167 | 103384 | 144507 | 0.05649 | 0.00125 | 0.03864 | 0.00055 | 0.30096 | 0.0069 | 0.00836 | 0.0003 | 471.1 | 48.86 | 244.4 | 3.4 | 267.2 | 5.39 | 168.2 | 5.95 | 0.783898 | 91.46706587 |
| Z65 | 0 | 8532 | 433 | 1254 | 114444 | 290614 | 0.04898 | 0.00084 | 0.03828 | 0.00052 | 0.25851 | 0.00478 | 0.00747 | 0.00024 | 147.1 | 39.6 | 242.1 | 3.24 | 233.5 | 3.86 | 150.5 | 4.88 | 0.783898 | 103.6830835 |
| Z66 | 14 | 3942 | 246 | 1086 | 93444 | 134796 | 0.06068 | 0.00132 | 0.03804 | 0.00054 | 0.31823 | 0.00716 | 0.00844 | 0.0003 | 627.8 | 46.13 | 240.7 | 3.36 | 280.5 | 5.51 | 169.9 | 6.09 | 0.783898 | 85.81105169 |
| Z67 | 16 | 4777 | 284 | 1642 | 142549 | 155632 | 0.0577 | 0.00119 | 0.03991 | 0.00056 | 0.31746 | 0.00686 | 0.00823 | 0.00029 | 518 | 45.06 | 252.3 | 3.47 | 280 | 5.29 | 165.6 | 5.83 | 0.783898 | 90.10714286 |
| Z68 | 0 | 4555 | 250 | 1155 | 104583 | 156038 | 0.05291 | 0.00114 | 0.038 | 0.00054 | 0.27722 | 0.0062 | 0.00738 | 0.00026 | 324.8 | 48.05 | 240.4 | 3.32 | 248.4 | 4.93 | 148.6 | 5.17 | 0.783898 | 96.77938808 |
| Z69 | 0 | 921 | 83 | 364 | 23788 | 26116 | 0.08842 | 0.00431 | 0.04489 | 0.00087 | 0.54727 | 0.02589 | 0.01161 | 0.00065 | 1391.6 | 90.73 | 283.1 | 5.38 | 443.2 | 16.99 | 233.3 | 13.01 | 0.783898 | 63.87635379 |
| Z70 | 5 | 10197 | 542 | 2392 | 219994 | 341445 | 0.0515 | 0.00086 | 0.03873 | 0.00053 | 0.27496 | 0.00498 | 0.00769 | 0.00029 | 263.1 | 37.98 | 244.9 | 3.27 | 246.6 | 3.97 | 154.9 | 5.79 | 0.783898 | 99.31062449 |
| Z71 | 7 | 2606 | 185 | 846 | 67816 | 87640 | 0.06911 | 0.0018 | 0.03841 | 0.00057 | 0.366 | 0.00965 | 0.00939 | 0.00041 | 902 | 52.91 | 243 | 3.53 | 316.7 | 7.17 | 188.9 | 8.26 | 0.783898 | 76.72876539 |
| Z72 | 19 | 5217 | 284 | 1679 | 159096 | 178605 | 0.05317 | 0.00112 | 0.03777 | 0.00053 | 0.27688 | 0.00607 | 0.00784 | 0.00033 | 336.1 | 47 | 239 | 3.28 | 248.2 | 4.83 | 157.9 | 6.66 | 0.783898 | 96.29331185 |
| Z73 | 19 | 3019 | 204 | 614 | 21916 | 43019 | 0.06634 | 0.00183 | 0.08932 | 0.00134 | 0.81703 | 0.02263 | 0.02155 | 0.00117 | 817.2 | 56.75 | 551.5 | 7.94 | 606.4 | 12.64 | 431 | 23.21 | 0.783898 | 90.94656992 |
| Z74 | 9 | 7859 | 514 | 4603 | 416411 | 256872 | 0.06405 | 0.00128 | 0.03888 | 0.00054 | 0.34341 | 0.00709 | 0.00851 | 0.00044 | 743.4 | 41.58 | 245.9 | 3.35 | 299.8 | 5.36 | 171.3 | 8.84 | 0.783898 | 82.02134757 |
| Z75 | 16 | 1021 | 56 | 303 | 24858 | 33119 | 0.05456 | 0.00347 | 0.03886 | 0.00073 | 0.29234 | 0.01828 | 0.00955 | 0.00064 | 394.1 | 136.25 | 245.8 | 4.55 | 260.4 | 14.36 | 192.1 | 12.82 | 0.783898 | 94.39324117 |
| Z76 | 14 | 4452 | 259 | 1055 | 93132 | 152064 | 0.05614 | 0.00114 | 0.0381 | 0.00053 | 0.29488 | 0.00625 | 0.00772 | 0.00023 | 457.7 | 44.13 | 241.1 | 3.31 | 262.4 | 4.9 | 155.3 | 4.66 | 0.772364 | 91.88262195 |
| Z77 | 0 | 5782 | 333 | 1818 | 170422 | 199489 | 0.05644 | 0.0011 | 0.03773 | 0.00052 | 0.29356 | 0.00602 | 0.0084 | 0.00029 | 468.9 | 42.78 | 238.7 | 3.26 | 261.4 | 4.73 | 169.1 | 5.74 | 0.772364 | 91.31599082 |
| Z78 | 0 | 19184 | 1388 | 2331 | 58363 | 173551 | 0.07008 | 0.00093 | 0.14403 | 0.00193 | 1.39147 | 0.02131 | 0.02944 | 0.00094 | 930.8 | 27.06 | 867.4 | 10.87 | 885.3 | 9.05 | 586.5 | 18.48 | 0.772364 | 97.97808652 |
| Z79 | 0 | 8332 | 625 | 1462 | 49461 | 139155 | 0.07229 | 0.00141 | 0.08025 | 0.00118 | 0.79963 | 0.0165 | 0.02013 | 0.00079 | 994.1 | 39.23 | 497.6 | 7.02 | 596.6 | 9.31 | 402.8 | 15.66 | 0.772364 | 83.40596715 |
| Z80 | 0 | 19873 | 1390 | 3240 | 79822 | 192222 | 0.06778 | 0.00091 | 0.13505 | 0.00181 | 1.26187 | 0.01955 | 0.03002 | 0.001 | 861.8 | 27.72 | 816.6 | 10.31 | 828.7 | 8.78 | 597.9 | 19.7 | 0.772364 | 98.53988174 |
| Z81 | 26 | 2653 | 178 | 660 | 54163 | 86887 | 0.06591 | 0.00207 | 0.0401 | 0.00064 | 0.36436 | 0.01142 | 0.01012 | 0.00051 | 803.4 | 64.55 | 253.5 | 3.97 | 315.5 | 8.5 | 203.6 | 10.21 | 0.772364 | 80.34865293 |
| Z82 | 7 | 8691 | 643 | 1821 | 41306 | 67592 | 0.07172 | 0.00112 | 0.16845 | 0.00232 | 1.66551 | 0.02867 | 0.03304 | 0.0012 | 978.1 | 31.42 | 1003.6 | 12.78 | 995.5 | 10.92 | 657 | 23.44 | 0.772364 | 100.8136615 |
| Z83 | 14 | 6554 | 700 | 1529 | 20644 | 29791 | 0.10398 | 0.00164 | 0.28827 | 0.00404 | 4.13196 | 0.07153 | 0.0587 | 0.00232 | 1696.3 | 28.74 | 1632.9 | 20.19 | 1660.6 | 14.15 | 1152.8 | 44.32 | 0.772364 | 98.33192822 |
| Z84 | 6 | 3657 | 201 | 531 | 47055 | 116237 | 0.05366 | 0.00136 | 0.0417 | 0.00062 | 0.30841 | 0.00803 | 0.00894 | 0.00042 | 356.6 | 56.46 | 263.3 | 3.83 | 272.9 | 6.23 | 180 | 8.42 | 0.772364 | 96.48222792 |
| Z85 | 1 | 3578 | 206 | 734 | 69473 | 126466 | 0.05613 | 0.00133 | 0.03713 | 0.00054 | 0.28733 | 0.00702 | 0.00864 | 0.00039 | 457.1 | 51.64 | 235 | 3.33 | 256.5 | 5.54 | 173.8 | 7.77 | 0.772364 | 91.61793372 |
| Z86 | 0 | 3614 | 221 | 969 | 87379 | 127997 | 0.0596 | 0.00135 | 0.03719 | 0.00054 | 0.3056 | 0.00719 | 0.00886 | 0.00039 | 589.2 | 48.54 | 235.4 | 3.35 | 270.8 | 5.59 | 178.3 | 7.86 | 0.772364 | 86.92762186 |
| Z87 | 1 | 5204 | 273 | 1385 | 134727 | 174967 | 0.05135 | 0.00119 | 0.03868 | 0.00055 | 0.27377 | 0.00655 | 0.00909 | 0.00048 | 256.3 | 52.4 | 244.6 | 3.43 | 245.7 | 5.22 | 182.9 | 9.71 | 0.772364 | 99.55229955 |
| Z88 | 10 | 4898 | 317 | 1743 | 151487 | 169125 | 0.06285 | 0.00145 | 0.03891 | 0.00058 | 0.33714 | 0.00808 | 0.00883 | 0.00043 | 703.3 | 48.42 | 246.1 | 3.6 | 295 | 6.13 | 177.6 | 8.61 | 0.772364 | 83.42372881 |
| Z89 | 2 | 5160 | 313 | 1584 | 137908 | 169409 | 0.05935 | 0.00133 | 0.03967 | 0.00057 | 0.32455 | 0.0075 | 0.0103 | 0.00059 | 579.9 | 47.82 | 250.8 | 3.53 | 285.4 | 5.75 | 207.1 | 11.75 | 0.772364 | 87.87666433 |
| Z90 | 0 | 4660 | 252 | 1429 | 136263 | 165735 | 0.05253 | 0.00113 | 0.03722 | 0.00053 | 0.26948 | 0.00609 | 0.00831 | 0.0004 | 308.4 | 48.32 | 235.6 | 3.31 | 242.3 | 4.87 | 167.2 | 7.95 | 0.772364 | 97.23483285 |
| Z91 | 3 | 3527 | 199 | 809 | 75407 | 121827 | 0.05507 | 0.00129 | 0.0383 | 0.00055 | 0.29078 | 0.00707 | 0.00901 | 0.00032 | 414.8 | 51.04 | 242.3 | 3.45 | 259.2 | 5.56 | 181.3 | 6.44 | 0.782321 | 93.47993827 |
| Z92 | 10 | 4111 | 236 | 1239 | 117917 | 143976 | 0.05582 | 0.00119 | 0.03786 | 0.00054 | 0.29137 | 0.0065 | 0.00845 | 0.00028 | 444.9 | 46.37 | 239.6 | 3.37 | 259.6 | 5.11 | 170.1 | 5.65 | 0.782321 | 92.29583975 |
| Z93 | 14 | 1494 | 107 | 437 | 34550 | 50291 | 0.07034 | 0.00248 | 0.03923 | 0.00063 | 0.38045 | 0.01339 | 0.01073 | 0.00045 | 938.3 | 70.79 | 248.1 | 3.92 | 327.4 | 9.85 | 215.8 | 9.06 | 0.782321 | 75.77886378 |
| Z94 | 3 | 4334 | 243 | 892 | 85748 | 154018 | 0.05472 | 0.00116 | 0.03725 | 0.00053 | 0.28099 | 0.00623 | 0.00842 | 0.00031 | 400.1 | 47.03 | 235.8 | 3.31 | 251.4 | 4.93 | 169.5 | 6.13 | 0.782321 | 93.7947494 |
| Z95 | 0 | 3583 | 226 | 881 | 73987 | 125144 | 0.06107 | 0.00134 | 0.03804 | 0.00055 | 0.32024 | 0.00729 | 0.00902 | 0.00032 | 641.6 | 46.32 | 240.7 | 3.42 | 282.1 | 5.61 | 181.4 | 6.34 | 0.782321 | 85.32435307 |
| Z96 | 8 | 4299 | 224 | 1133 | 108579 | 149651 | 0.05048 | 0.00114 | 0.03811 | 0.00055 | 0.26522 | 0.00621 | 0.00821 | 0.0003 | 217.1 | 51.26 | 241.1 | 3.4 | 238.9 | 4.99 | 165.3 | 6.07 | 0.782321 | 100.9208874 |
| Z97 | 0 | 9785 | 695 | 823 | 21171 | 102108 | 0.06908 | 0.00108 | 0.12675 | 0.00176 | 1.20705 | 0.02095 | 0.03131 | 0.00124 | 901.1 | 31.94 | 769.3 | 10.05 | 803.8 | 9.64 | 623.2 | 24.4 | 0.782321 | 95.70788753 |
| Z98 | 7 | 3312 | 173 | 1085 | 94222 | 108984 | 0.05065 | 0.0013 | 0.04029 | 0.00059 | 0.28135 | 0.00744 | 0.00883 | 0.00033 | 225 | 58.47 | 254.6 | 3.64 | 251.7 | 5.9 | 177.6 | 6.66 | 0.782321 | 101.1521653 |
| Z99 | 5 | 1573 | 104 | 409 | 34647 | 54209 | 0.06442 | 0.00244 | 0.0381 | 0.00063 | 0.33835 | 0.01272 | 0.01019 | 0.00053 | 755.5 | 78.1 | 241.1 | 3.91 | 295.9 | 9.65 | 205 | 10.67 | 0.782321 | 81.48022981 |
| Z100 | 11 | 3216 | 205 | 1069 | 93456 | 111106 | 0.06116 | 0.00142 | 0.03845 | 0.00056 | 0.32419 | 0.00779 | 0.00813 | 0.0003 | 644.9 | 49.23 | 243.2 | 3.49 | 285.1 | 5.97 | 163.8 | 6.07 | 0.782321 | 85.30340231 |
| Z101 | 0 | 3688 | 225 | 621 | 26314 | 54960 | 0.05868 | 0.00141 | 0.08937 | 0.00132 | 0.72299 | 0.01786 | 0.01752 | 0.00076 | 555.4 | 51.48 | 551.8 | 7.83 | 552.4 | 10.52 | 351 | 15.16 | 0.782321 | 99.89138306 |
| Z102 | 8 | 1677 | 105 | 539 | 46848 | 58874 | 0.05973 | 0.00244 | 0.03859 | 0.00067 | 0.31776 | 0.01284 | 0.00746 | 0.00035 | 593.9 | 86.14 | 244.1 | 4.17 | 280.2 | 9.89 | 150.2 | 7.05 | 0.782321 | 87.11634547 |
| Z103 | 0 | 968 | 62 | 279 | 18320 | 25633 | 0.06077 | 0.00381 | 0.05134 | 0.00108 | 0.43012 | 0.02638 | 0.00961 | 0.00058 | 631 | 129.47 | 322.7 | 6.62 | 363.3 | 18.73 | 193.4 | 11.52 | 0.782321 | 88.82466281 |
| Z104 | 14 | 6486 | 387 | 1684 | 145640 | 216978 | 0.05784 | 0.00111 | 0.0395 | 0.00056 | 0.31499 | 0.00643 | 0.00888 | 0.00039 | 523.5 | 41.86 | 249.8 | 3.46 | 278 | 4.97 | 178.7 | 7.88 | 0.782321 | 89.85611511 |
| Z105 | 0 | 6360 | 363 | 1468 | 124699 | 207106 | 0.05451 | 0.0012 | 0.04123 | 0.00061 | 0.30985 | 0.00709 | 0.00807 | 0.00037 | 392.3 | 48.38 | 260.5 | 3.76 | 274.1 | 5.5 | 162.5 | 7.38 | 0.782321 | 95.03830719 |
| Z106 | 0 | 3964 | 218 | 1958 | 192163 | 138629 | 0.05231 | 0.00132 | 0.0385 | 0.00058 | 0.27765 | 0.00716 | 0.00682 | 0.00022 | 298.8 | 56.28 | 243.6 | 3.59 | 248.8 | 5.69 | 137.3 | 4.4 | 0.789695 | 97.90996785 |
| Z107 | 4 | 1119 | 79 | 293 | 24375 | 39418 | 0.06851 | 0.0029 | 0.03766 | 0.00065 | 0.35566 | 0.01487 | 0.00916 | 0.00042 | 884 | 85.11 | 238.3 | 4.01 | 309 | 11.14 | 184.4 | 8.32 | 0.789695 | 77.1197411 |
| Z108 | 6 | 4013 | 247 | 1113 | 102510 | 141156 | 0.0593 | 0.00129 | 0.03774 | 0.00055 | 0.30851 | 0.00699 | 0.00806 | 0.00029 | 578 | 46.69 | 238.8 | 3.4 | 273 | 5.42 | 162.2 | 5.72 | 0.789695 | 87.47252747 |
| Z109 | 7 | 3969 | 205 | 882 | 86384 | 136795 | 0.05005 | 0.00116 | 0.03824 | 0.00055 | 0.26384 | 0.00633 | 0.00808 | 0.00031 | 197.5 | 52.95 | 241.9 | 3.41 | 237.8 | 5.08 | 162.6 | 6.2 | 0.789695 | 101.7241379 |
| Z110 | 6 | 5247 | 283 | 1489 | 140839 | 182090 | 0.05184 | 0.00102 | 0.03806 | 0.00054 | 0.272 | 0.00567 | 0.00782 | 0.00028 | 278.4 | 44.49 | 240.8 | 3.33 | 244.3 | 4.53 | 157.4 | 5.54 | 0.789695 | 98.56733524 |
| Z111 | 3 | 3061 | 199 | 983 | 81654 | 101058 | 0.06262 | 0.00148 | 0.04002 | 0.00058 | 0.34546 | 0.00839 | 0.00889 | 0.00033 | 695.3 | 49.53 | 253 | 3.62 | 301.3 | 6.33 | 179 | 6.64 | 0.789695 | 83.96946565 |
| Z112 | 10 | 2853 | 179 | 330 | 14419 | 46404 | 0.06059 | 0.00151 | 0.08105 | 0.0012 | 0.677 | 0.01726 | 0.01761 | 0.00083 | 624.8 | 52.85 | 502.4 | 7.14 | 525 | 10.45 | 352.8 | 16.47 | 0.789695 | 95.6952381 |
| Z113 | 3 | 7537 | 395 | 2180 | 207239 | 255797 | 0.05048 | 0.0009 | 0.03888 | 0.00054 | 0.27057 | 0.00521 | 0.00786 | 0.0003 | 217.4 | 40.89 | 245.9 | 3.36 | 243.1 | 4.16 | 158.2 | 6.07 | 0.789695 | 101.1517894 |
| Z114 | 0 | 1843 | 100 | 357 | 36433 | 64160 | 0.05305 | 0.00226 | 0.03763 | 0.00064 | 0.27518 | 0.01162 | 0.00821 | 0.00051 | 331 | 94.05 | 238.1 | 3.96 | 246.8 | 9.25 | 165.3 | 10.18 | 0.789695 | 96.47487844 |
| Z115 | 14 | 6933 | 405 | 1786 | 141902 | 209575 | 0.05666 | 0.00104 | 0.04349 | 0.00061 | 0.33969 | 0.00665 | 0.00988 | 0.00043 | 477.6 | 40.45 | 274.4 | 3.75 | 296.9 | 5.04 | 198.7 | 8.6 | 0.789695 | 92.4216908 |
| Z116 | 2 | 5295 | 296 | 1438 | 132695 | 178660 | 0.05481 | 0.0013 | 0.03825 | 0.00055 | 0.28904 | 0.00703 | 0.00936 | 0.00053 | 404.7 | 52.08 | 242 | 3.43 | 257.8 | 5.54 | 188.3 | 10.65 | 0.789695 | 93.871218 |
| Z117 | 0 | 8172 | 528 | 2686 | 118953 | 132729 | 0.0626 | 0.00109 | 0.08085 | 0.00113 | 0.69769 | 0.01306 | 0.01781 | 0.00082 | 694.8 | 36.59 | 501.2 | 6.71 | 537.4 | 7.81 | 356.8 | 16.31 | 0.789695 | 93.26386304 |
| Z118 | 3 | 16084 | 957 | 3319 | 168323 | 293038 | 0.05748 | 0.00089 | 0.07219 | 0.00099 | 0.57198 | 0.00983 | 0.01515 | 0.0007 | 509.5 | 34.16 | 449.3 | 5.95 | 459.3 | 6.35 | 303.9 | 13.88 | 0.789695 | 97.82277379 |
| Z119 | 19 | 1864 | 110 | 487 | 44292 | 62560 | 0.0575 | 0.00192 | 0.03908 | 0.00061 | 0.30971 | 0.01033 | 0.00898 | 0.00049 | 510.2 | 72.02 | 247.1 | 3.77 | 274 | 8.01 | 180.8 | 9.83 | 0.789695 | 90.18248175 |
| Z120 | 0 | 3164 | 209 | 1059 | 89506 | 107891 | 0.0645 | 0.00163 | 0.0383 | 0.00057 | 0.34051 | 0.00875 | 0.00996 | 0.00056 | 758 | 52.47 | 242.3 | 3.52 | 297.6 | 6.63 | 200.4 | 11.28 | 0.789695 | 81.41801075 |

**Supplementary Table 8: Raw U-Pb data from sample NZ1324**

| Grain | Pb204 (ppm) | Pb206 (ppm) | Pb207 (ppm) | Pb208 (ppm) | Th232 (ppm) | U238 (ppm) | Pb207/Pb206 | | Pb206/U238 | | Pb207/U235 | | Pb208/Th232 | | Pb207/Pb206 Age (Ma) | ± 2σ | Pb206/U238 Age (Ma) | ± 2σ | Pb207/U235 Age (Ma) | ± 2σ | Pb208/Th232 Age (Ma) | ± 2σ | Rho | Concordancy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Z1 | 2 | 6213 | 412 | 1354 | 106885 | 214095 | 0.06393 | 0.0012 | 0.03645 | 0.00049 | 0.32115 | 0.00629 | 0.01042 | 0.00034 | 739.5 | 39.38 | 230.8 | 3.08 | 282.8 | 4.84 | 209.6 | 6.71 | 0.766703 | 81.61244696 |
| Z2 | 11 | 5709 | 407 | 1755 | 146359 | 201111 | 0.06887 | 0.00127 | 0.03539 | 0.00048 | 0.33592 | 0.00643 | 0.00998 | 0.00031 | 894.8 | 37.5 | 224.2 | 2.96 | 294.1 | 4.89 | 200.8 | 6.24 | 0.766703 | 76.23257395 |
| Z3 | 10 | 16794 | 896 | 495 | 33455 | 498383 | 0.05131 | 0.00077 | 0.0431 | 0.00057 | 0.30477 | 0.00505 | 0.01207 | 0.00049 | 254.6 | 34.31 | 272 | 3.54 | 270.1 | 3.93 | 242.4 | 9.7 | 0.766703 | 100.7034432 |
| Z4 | 25 | 12679 | 676 | 3608 | 336958 | 421950 | 0.05156 | 0.00076 | 0.0372 | 0.00048 | 0.2644 | 0.00425 | 0.00901 | 0.00028 | 266 | 33.59 | 235.5 | 2.97 | 238.2 | 3.41 | 181.2 | 5.56 | 0.766703 | 98.86649874 |
| Z5 | 7 | 7977 | 481 | 1958 | 140113 | 215658 | 0.05827 | 0.00103 | 0.04683 | 0.00063 | 0.37609 | 0.00706 | 0.01177 | 0.00041 | 539.2 | 39.02 | 295 | 3.88 | 324.2 | 5.21 | 236.5 | 8.1 | 0.766703 | 90.99321407 |
| Z6 | 10 | 8803 | 511 | 2098 | 188627 | 298596 | 0.05628 | 0.00094 | 0.03643 | 0.00047 | 0.28258 | 0.00499 | 0.00956 | 0.00033 | 462.6 | 36.77 | 230.7 | 2.95 | 252.7 | 3.95 | 192.3 | 6.62 | 0.766703 | 91.29402454 |
| Z7 | 5 | 9067 | 506 | 1669 | 153591 | 311840 | 0.05417 | 0.00103 | 0.03607 | 0.00048 | 0.26926 | 0.00531 | 0.00932 | 0.00037 | 378 | 42.12 | 228.4 | 3 | 242.1 | 4.25 | 187.5 | 7.47 | 0.766703 | 94.34118133 |
| Z8 | 9 | 3629 | 213 | 758 | 70600 | 132745 | 0.05704 | 0.00137 | 0.03443 | 0.00048 | 0.27071 | 0.00664 | 0.00924 | 0.00036 | 492.7 | 52.84 | 218.2 | 3 | 243.3 | 5.3 | 185.9 | 7.27 | 0.766703 | 89.68351829 |
| Z9 | 13 | 10007 | 796 | 1221 | 27865 | 92197 | 0.07589 | 0.00138 | 0.14495 | 0.0021 | 1.51617 | 0.02943 | 0.03554 | 0.00161 | 1092.2 | 35.94 | 872.6 | 11.8 | 936.9 | 11.88 | 705.8 | 31.34 | 0.766703 | 93.13694098 |
| Z10 | 0 | 6593 | 383 | 1610 | 155378 | 251321 | 0.05628 | 0.00103 | 0.03289 | 0.00044 | 0.25509 | 0.0049 | 0.00905 | 0.00035 | 462.5 | 40.27 | 208.6 | 2.74 | 230.7 | 3.96 | 182.1 | 7 | 0.766703 | 90.42045947 |
| Z11 | 8 | 3033 | 251 | 1034 | 21788 | 23415 | 0.08018 | 0.00178 | 0.16248 | 0.0023 | 1.79587 | 0.04066 | 0.04165 | 0.0017 | 1201.4 | 43.13 | 970.6 | 12.77 | 1044 | 14.77 | 824.8 | 33 | 0.766703 | 92.96934866 |
| Z12 | 19 | 12345 | 790 | 2948 | 102244 | 160022 | 0.06211 | 0.00094 | 0.0965 | 0.00126 | 0.82625 | 0.01359 | 0.02557 | 0.00104 | 677.9 | 31.99 | 593.9 | 7.41 | 611.5 | 7.56 | 510.3 | 20.56 | 0.766703 | 97.12183156 |
| Z13 | 15 | 5467 | 367 | 623 | 19039 | 75635 | 0.06526 | 0.00128 | 0.08979 | 0.00121 | 0.80778 | 0.01636 | 0.02944 | 0.00139 | 782.7 | 40.54 | 554.3 | 7.18 | 601.2 | 9.19 | 586.5 | 27.22 | 0.766703 | 92.19893546 |
| Z14 | 11 | 56787 | 3344 | 13735 | 611347 | 930484 | 0.05713 | 0.00074 | 0.07669 | 0.00099 | 0.60399 | 0.00888 | 0.02016 | 0.00086 | 496.1 | 28.53 | 476.3 | 5.91 | 479.8 | 5.62 | 403.4 | 17.12 | 0.766703 | 99.27052939 |
| Z15 | 0 | 22933 | 1737 | 4927 | 111313 | 185502 | 0.0733 | 0.00108 | 0.15944 | 0.00214 | 1.61087 | 0.02633 | 0.03977 | 0.00188 | 1022.2 | 29.41 | 953.7 | 11.92 | 974.4 | 10.24 | 788.3 | 36.6 | 0.766703 | 97.87561576 |
| Z16 | 20 | 8009 | 445 | 1674 | 125380 | 228424 | 0.05464 | 0.0011 | 0.04107 | 0.00053 | 0.30932 | 0.00632 | 0.01139 | 0.00048 | 397.4 | 44.31 | 259.5 | 3.27 | 273.7 | 4.9 | 228.9 | 9.66 | 0.776468 | 94.81183778 |
| Z17 | 0 | 8518 | 543 | 1931 | 79585 | 128758 | 0.06226 | 0.001 | 0.08162 | 0.00106 | 0.70048 | 0.01204 | 0.02097 | 0.00075 | 683 | 34.03 | 505.8 | 6.32 | 539.1 | 7.19 | 419.5 | 14.82 | 0.776468 | 93.8230384 |
| Z18 | 54 | 27957 | 2292 | 1975 | 21262 | 246462 | 0.07874 | 0.0032 | 0.12625 | 0.00228 | 1.3696 | 0.05302 | 0.07873 | 0.01169 | 1165.7 | 78.5 | 766.4 | 13.02 | 876 | 22.72 | 1531.8 | 219.12 | 0.776468 | 87.48858447 |
| Z19 | 21 | 8188 | 459 | 1228 | 116958 | 305599 | 0.05444 | 0.0011 | 0.03476 | 0.00049 | 0.26086 | 0.0055 | 0.00918 | 0.0004 | 389.4 | 44.32 | 220.3 | 3.04 | 235.4 | 4.43 | 184.6 | 8.11 | 0.776468 | 93.58538658 |
| Z20 | 0 | 25257 | 1281 | 8835 | 769467 | 814757 | 0.05035 | 0.0019 | 0.03431 | 0.00055 | 0.23787 | 0.00867 | 0.00956 | 0.00115 | 211.1 | 85.12 | 217.4 | 3.42 | 216.7 | 7.11 | 192.2 | 23 | 0.776468 | 100.3230272 |
| Z21 | 21 | 9380 | 566 | 1646 | 131872 | 237371 | 0.05905 | 0.00111 | 0.04692 | 0.00061 | 0.38191 | 0.00737 | 0.01073 | 0.00049 | 568.9 | 40.51 | 295.6 | 3.73 | 328.4 | 5.41 | 215.8 | 9.7 | 0.776468 | 90.01218027 |
| Z22 | 0 | 7957 | 402 | 322 | 28006 | 261311 | 0.04966 | 0.00103 | 0.03579 | 0.00046 | 0.24503 | 0.00514 | 0.00978 | 0.00055 | 179.3 | 47.48 | 226.7 | 2.87 | 222.5 | 4.19 | 196.7 | 10.95 | 0.776468 | 101.8876404 |
| Z23 | 0 | 20852 | 1319 | 3739 | 127018 | 253746 | 0.06186 | 0.00085 | 0.10172 | 0.0013 | 0.86733 | 0.01318 | 0.02549 | 0.00098 | 669.3 | 29.05 | 624.5 | 7.6 | 634.1 | 7.17 | 508.8 | 19.35 | 0.776468 | 98.48604321 |
| Z24 | 16 | 60926 | 4730 | 5157 | 110714 | 469474 | 0.07544 | 0.00132 | 0.16468 | 0.00225 | 1.71241 | 0.0319 | 0.04209 | 0.00267 | 1080.3 | 34.74 | 982.7 | 12.45 | 1013.2 | 11.94 | 833.3 | 51.7 | 0.776468 | 96.98973549 |
| Z25 | 6 | 10934 | 839 | 2867 | 54963 | 72987 | 0.07577 | 0.00152 | 0.17098 | 0.00222 | 1.78594 | 0.03578 | 0.04449 | 0.00251 | 1089 | 39.65 | 1017.5 | 12.23 | 1040.3 | 13.04 | 879.8 | 48.5 | 0.776468 | 97.80832452 |
| Z26 | 12 | 2977 | 204 | 735 | 61760 | 101908 | 0.06711 | 0.00162 | 0.03611 | 0.0005 | 0.334 | 0.00815 | 0.01034 | 0.00045 | 841.2 | 49.43 | 228.7 | 3.12 | 292.6 | 6.2 | 208 | 9.01 | 0.776468 | 78.16131237 |
| Z27 | 0 | 17722 | 919 | 2955 | 298879 | 646377 | 0.0507 | 0.00078 | 0.03391 | 0.00044 | 0.23699 | 0.00395 | 0.00862 | 0.00037 | 227.3 | 35.26 | 215 | 2.73 | 215.9 | 3.24 | 173.5 | 7.51 | 0.776468 | 99.58314034 |
| Z28 | 23 | 23305 | 1424 | 4120 | 151549 | 315599 | 0.05941 | 0.00099 | 0.09509 | 0.0013 | 0.77872 | 0.01404 | 0.02433 | 0.00126 | 582.1 | 35.78 | 585.5 | 7.63 | 584.8 | 8.01 | 485.8 | 24.93 | 0.776468 | 100.119699 |
| Z29 | 3 | 17609 | 1089 | 1251 | 46291 | 226351 | 0.06055 | 0.00089 | 0.09598 | 0.00123 | 0.80113 | 0.01278 | 0.02352 | 0.00104 | 623.4 | 31.24 | 590.8 | 7.24 | 597.5 | 7.21 | 469.8 | 20.56 | 0.776468 | 98.87866109 |
| Z30 | 9 | 5877 | 367 | 1317 | 52703 | 87583 | 0.0613 | 0.00115 | 0.08296 | 0.0011 | 0.70086 | 0.01369 | 0.02177 | 0.00097 | 649.7 | 39.7 | 513.7 | 6.57 | 539.3 | 8.17 | 435.3 | 19.13 | 0.776468 | 95.25310588 |
| Z31 | 7 | 9640 | 581 | 2287 | 205422 | 353186 | 0.0583 | 0.001 | 0.0342 | 0.00045 | 0.27485 | 0.00498 | 0.00991 | 0.00034 | 540.6 | 37.69 | 216.8 | 2.83 | 246.6 | 3.97 | 199.4 | 6.82 | 0.807044 | 87.91565288 |
| Z32 | 0 | 9271 | 741 | 3610 | 77491 | 72426 | 0.07748 | 0.00115 | 0.15732 | 0.00204 | 1.68039 | 0.02688 | 0.04153 | 0.00135 | 1133.8 | 29.13 | 941.8 | 11.34 | 1001.1 | 10.18 | 822.4 | 26.14 | 0.807044 | 94.07651583 |
| Z33 | 0 | 7823 | 437 | 1541 | 144635 | 290325 | 0.05416 | 0.00098 | 0.03321 | 0.00044 | 0.248 | 0.00469 | 0.00961 | 0.00035 | 377.7 | 40.29 | 210.6 | 2.73 | 225 | 3.82 | 193.2 | 7.02 | 0.807044 | 93.6 |
| Z34 | 9 | 5140 | 276 | 1453 | 142328 | 185621 | 0.05206 | 0.00108 | 0.0337 | 0.00045 | 0.24186 | 0.00515 | 0.00919 | 0.00034 | 288.1 | 46.83 | 213.7 | 2.79 | 219.9 | 4.21 | 184.9 | 6.81 | 0.807044 | 97.18053661 |
| Z35 | 10 | 5824 | 359 | 1635 | 148148 | 202417 | 0.05975 | 0.00111 | 0.03524 | 0.00046 | 0.29031 | 0.00557 | 0.01005 | 0.00038 | 594.4 | 39.79 | 223.3 | 2.89 | 258.8 | 4.38 | 202.1 | 7.51 | 0.807044 | 86.28284389 |
| Z36 | 9 | 4390 | 256 | 994 | 94346 | 151420 | 0.0566 | 0.00122 | 0.03599 | 0.00049 | 0.28083 | 0.0062 | 0.00968 | 0.00039 | 475.3 | 47.55 | 227.9 | 3.05 | 251.3 | 4.92 | 194.6 | 7.79 | 0.807044 | 90.68842021 |
| Z37 | 14 | 7035 | 420 | 1629 | 132904 | 234125 | 0.05771 | 0.00104 | 0.0368 | 0.00048 | 0.29281 | 0.00549 | 0.01132 | 0.00046 | 518.6 | 39.32 | 233 | 3 | 260.8 | 4.31 | 227.5 | 9.27 | 0.807044 | 89.3404908 |
| Z38 | 12 | 9476 | 618 | 526 | 15194 | 125477 | 0.06339 | 0.00127 | 0.0874 | 0.00114 | 0.76377 | 0.0154 | 0.03097 | 0.00183 | 721.2 | 42.04 | 540.2 | 6.73 | 576.2 | 8.87 | 616.4 | 35.92 | 0.807044 | 93.75216939 |
| Z39 | 9 | 4781 | 269 | 1123 | 103982 | 167855 | 0.05443 | 0.00115 | 0.03489 | 0.00047 | 0.26177 | 0.00565 | 0.01009 | 0.00045 | 388.8 | 46.47 | 221.1 | 2.91 | 236.1 | 4.55 | 203 | 8.99 | 0.807044 | 93.64675985 |
| Z40 | 19 | 6948 | 448 | 1845 | 159746 | 244712 | 0.06223 | 0.00107 | 0.03526 | 0.00047 | 0.30247 | 0.00549 | 0.01074 | 0.00047 | 682 | 36.42 | 223.4 | 2.9 | 268.3 | 4.28 | 215.9 | 9.39 | 0.807044 | 83.26500186 |
| Z41 | 0 | 3019 | 179 | 1023 | 81849 | 91040 | 0.05741 | 0.00147 | 0.04088 | 0.00057 | 0.32353 | 0.00836 | 0.01189 | 0.00057 | 507.1 | 55.93 | 258.3 | 3.55 | 284.6 | 6.41 | 239 | 11.47 | 0.807044 | 90.75895994 |
| Z42 | 0 | 18527 | 990 | 4552 | 455551 | 671594 | 0.0516 | 0.00078 | 0.03416 | 0.00044 | 0.24293 | 0.00395 | 0.00958 | 0.00046 | 267.5 | 34.11 | 216.5 | 2.75 | 220.8 | 3.23 | 192.7 | 9.25 | 0.807044 | 98.05253623 |
| Z43 | 7 | 11520 | 655 | 1309 | 65259 | 200506 | 0.05483 | 0.00089 | 0.07087 | 0.00092 | 0.53561 | 0.00923 | 0.01944 | 0.00099 | 405.1 | 35.57 | 441.4 | 5.55 | 435.5 | 6.11 | 389.1 | 19.68 | 0.807044 | 101.3547646 |
| Z44 | 8 | 13080 | 679 | 2682 | 253823 | 441636 | 0.05006 | 0.00081 | 0.03653 | 0.00047 | 0.25208 | 0.00435 | 0.01029 | 0.00054 | 197.6 | 37.15 | 231.3 | 2.95 | 228.3 | 3.52 | 206.9 | 10.75 | 0.807044 | 101.3140604 |
| Z45 | 0 | 24401 | 1773 | 1894 | 55923 | 277354 | 0.06973 | 0.00127 | 0.11643 | 0.00166 | 1.11904 | 0.02184 | 0.03494 | 0.00247 | 920.6 | 37.06 | 710 | 9.59 | 762.5 | 10.47 | 694.2 | 48.28 | 0.807044 | 93.1147541 |
| Z46 | 9 | 5554 | 326 | 864 | 76551 | 195322 | 0.0566 | 0.00105 | 0.04293 | 0.00068 | 0.33497 | 0.007 | 0.01012 | 0.00033 | 475.3 | 40.79 | 271 | 4.23 | 293.4 | 5.32 | 203.5 | 6.52 | 0.815775 | 92.36537151 |
| Z47 | 0 | 5120 | 281 | 1790 | 196804 | 211456 | 0.05223 | 0.00096 | 0.03705 | 0.0006 | 0.2668 | 0.00559 | 0.00733 | 0.0002 | 295.4 | 41.57 | 234.5 | 3.71 | 240.1 | 4.48 | 147.7 | 4.05 | 0.815775 | 97.66763848 |
| Z48 | 1 | 8270 | 442 | 2338 | 267291 | 360238 | 0.05126 | 0.00084 | 0.03488 | 0.00055 | 0.2465 | 0.00476 | 0.00748 | 0.00022 | 252.4 | 37.23 | 221 | 3.43 | 223.7 | 3.87 | 150.7 | 4.37 | 0.815775 | 98.79302637 |
| Z49 | 6 | 19489 | 1412 | 2403 | 69939 | 207202 | 0.07 | 0.00107 | 0.13931 | 0.00215 | 1.34425 | 0.02453 | 0.03248 | 0.00126 | 928.3 | 31.17 | 840.7 | 12.14 | 865.1 | 10.62 | 646 | 24.62 | 0.815775 | 97.17951682 |
| Z50 | 9 | 34565 | 1797 | 880 | 107302 | 1514103 | 0.05015 | 0.00085 | 0.0343 | 0.00054 | 0.23707 | 0.00465 | 0.00792 | 0.00039 | 201.8 | 38.72 | 217.4 | 3.36 | 216 | 3.82 | 159.5 | 7.83 | 0.815775 | 100.6481481 |
| Z51 | 0 | 10224 | 541 | 2679 | 283504 | 412679 | 0.05073 | 0.00085 | 0.03819 | 0.00061 | 0.26705 | 0.00527 | 0.00822 | 0.00027 | 228.3 | 38.24 | 241.6 | 3.8 | 240.3 | 4.23 | 165.4 | 5.51 | 0.815775 | 100.5409904 |
| Z52 | 6 | 3313 | 180 | 734 | 78519 | 134049 | 0.05213 | 0.00117 | 0.03793 | 0.00063 | 0.27258 | 0.00663 | 0.00826 | 0.0003 | 291.1 | 50.43 | 240 | 3.91 | 244.8 | 5.29 | 166.3 | 5.95 | 0.815775 | 98.03921569 |
| Z53 | 11 | 8372 | 462 | 949 | 98370 | 338570 | 0.05289 | 0.00093 | 0.03813 | 0.00062 | 0.27797 | 0.00566 | 0.0085 | 0.00032 | 323.9 | 39.24 | 241.2 | 3.82 | 249 | 4.5 | 171.1 | 6.32 | 0.815775 | 96.86746988 |
| Z54 | 1 | 5049 | 269 | 569 | 48056 | 183342 | 0.05091 | 0.00102 | 0.04268 | 0.0007 | 0.29949 | 0.00673 | 0.01009 | 0.00039 | 237 | 45.77 | 269.4 | 4.35 | 266 | 5.26 | 202.9 | 7.8 | 0.815775 | 101.2781955 |
| Z55 | 7 | 10906 | 695 | 1097 | 42814 | 154751 | 0.06113 | 0.00101 | 0.10913 | 0.00176 | 0.91956 | 0.01805 | 0.02277 | 0.00089 | 643.8 | 35.15 | 667.7 | 10.25 | 662.1 | 9.55 | 455 | 17.61 | 0.815775 | 100.8457937 |
| Z56 | 0 | 2763 | 149 | 466 | 47664 | 106043 | 0.05195 | 0.00126 | 0.04004 | 0.00067 | 0.28677 | 0.00746 | 0.00882 | 0.00036 | 283.3 | 54.71 | 253.1 | 4.17 | 256 | 5.89 | 177.5 | 7.29 | 0.815775 | 98.8671875 |
| Z57 | 10 | 31841 | 2436 | 3753 | 86540 | 264653 | 0.07326 | 0.00104 | 0.18527 | 0.00293 | 1.87108 | 0.03338 | 0.03798 | 0.00142 | 1021.2 | 28.5 | 1095.7 | 15.96 | 1070.9 | 11.81 | 753.4 | 27.67 | 0.815775 | 102.3158091 |
| Z58 | 1 | 4153 | 227 | 1034 | 100020 | 153804 | 0.05233 | 0.00124 | 0.04254 | 0.00073 | 0.30677 | 0.00783 | 0.00866 | 0.00037 | 300 | 52.9 | 268.6 | 4.52 | 271.7 | 6.08 | 174.3 | 7.51 | 0.815775 | 98.8590357 |
| Z59 | 8 | 12200 | 1151 | 1484 | 26433 | 86490 | 0.09033 | 0.00147 | 0.22026 | 0.00361 | 2.74225 | 0.05358 | 0.05065 | 0.00222 | 1432.4 | 30.82 | 1283.2 | 19.05 | 1340 | 14.54 | 998.7 | 42.78 | 0.815775 | 95.76119403 |
| Z60 | 0 | 3694 | 214 | 1250 | 130299 | 145939 | 0.05547 | 0.00147 | 0.04029 | 0.00072 | 0.30793 | 0.00866 | 0.00848 | 0.00043 | 431 | 57.8 | 254.6 | 4.46 | 272.6 | 6.72 | 170.8 | 8.62 | 0.815775 | 93.39691856 |
| Z61 | 0 | 8690 | 525 | 239 | 10232 | 144522 | 0.0582 | 0.00091 | 0.09308 | 0.00149 | 0.74682 | 0.01418 | 0.02207 | 0.00085 | 536.6 | 34.57 | 573.8 | 8.8 | 566.4 | 8.24 | 441.3 | 16.79 | 0.806566 | 101.3064972 |
| Z62 | 5 | 3898 | 233 | 856 | 83040 | 150793 | 0.05762 | 0.00113 | 0.04002 | 0.00066 | 0.31792 | 0.00702 | 0.00972 | 0.00031 | 515 | 42.93 | 253 | 4.08 | 280.3 | 5.41 | 195.6 | 6.11 | 0.806566 | 90.26043525 |
| Z63 | 7 | 17988 | 1389 | 5475 | 130484 | 177716 | 0.07489 | 0.00138 | 0.14911 | 0.00235 | 1.53945 | 0.03172 | 0.04315 | 0.00212 | 1065.5 | 36.62 | 896 | 13.19 | 946.3 | 12.68 | 853.9 | 41.09 | 0.806566 | 94.68456092 |
| Z64 | 2 | 3016 | 191 | 683 | 66378 | 122804 | 0.06149 | 0.00137 | 0.03777 | 0.00063 | 0.32016 | 0.00771 | 0.0101 | 0.00036 | 656.5 | 46.97 | 239 | 3.93 | 282 | 5.93 | 203.1 | 7.29 | 0.806566 | 84.75177305 |
| Z65 | 0 | 35540 | 2467 | 3904 | 111753 | 377459 | 0.06654 | 0.00087 | 0.14604 | 0.00231 | 1.33973 | 0.02293 | 0.03216 | 0.00099 | 823.5 | 27.12 | 878.7 | 12.99 | 863.1 | 9.95 | 639.7 | 19.34 | 0.806566 | 101.8074383 |
| Z66 | 0 | 12257 | 662 | 612 | 44412 | 371949 | 0.05197 | 0.0008 | 0.05109 | 0.00082 | 0.36607 | 0.00689 | 0.01299 | 0.00046 | 284.2 | 34.89 | 321.2 | 5.01 | 316.7 | 5.12 | 260.8 | 9.15 | 0.806566 | 101.4209031 |
| Z67 | 9 | 1541 | 92 | 329 | 26941 | 55758 | 0.0582 | 0.00207 | 0.04162 | 0.00078 | 0.33387 | 0.0119 | 0.01268 | 0.00067 | 536.6 | 76.56 | 262.9 | 4.8 | 292.5 | 9.06 | 254.8 | 13.33 | 0.806566 | 89.88034188 |
| Z68 | 0 | 3408 | 205 | 525 | 24645 | 62904 | 0.05782 | 0.00124 | 0.08432 | 0.00141 | 0.67212 | 0.01584 | 0.01968 | 0.00074 | 522.7 | 46.57 | 521.8 | 8.41 | 522 | 9.62 | 393.9 | 14.65 | 0.806566 | 99.96168582 |
| Z69 | 1 | 2768 | 154 | 684 | 70663 | 119871 | 0.05366 | 0.00127 | 0.0358 | 0.00061 | 0.26482 | 0.00672 | 0.00943 | 0.00037 | 356.5 | 52.46 | 226.7 | 3.77 | 238.5 | 5.39 | 189.7 | 7.37 | 0.806566 | 95.0524109 |
| Z70 | 7 | 9769 | 699 | 1488 | 45140 | 120157 | 0.06861 | 0.00108 | 0.12627 | 0.00204 | 1.19436 | 0.02276 | 0.03041 | 0.0011 | 886.9 | 32.33 | 766.6 | 11.67 | 798 | 10.53 | 605.5 | 21.64 | 0.806566 | 96.06516291 |
| Z71 | 1 | 8878 | 553 | 3227 | 137155 | 143272 | 0.06031 | 0.00105 | 0.09586 | 0.00156 | 0.79707 | 0.0162 | 0.02335 | 0.00095 | 614.7 | 37.18 | 590.1 | 9.15 | 595.2 | 9.15 | 466.6 | 18.68 | 0.806566 | 99.14314516 |
| Z72 | 6 | 6893 | 375 | 1281 | 128731 | 280607 | 0.0521 | 0.00094 | 0.03816 | 0.00062 | 0.27409 | 0.00569 | 0.00909 | 0.00035 | 289.8 | 40.48 | 241.4 | 3.86 | 246 | 4.53 | 182.9 | 6.94 | 0.806566 | 98.1300813 |
| Z73 | 10 | 4229 | 387 | 852 | 19473 | 42455 | 0.08795 | 0.00162 | 0.15491 | 0.00258 | 1.87842 | 0.03949 | 0.0412 | 0.00169 | 1381.5 | 35.01 | 928.4 | 14.42 | 1073.5 | 13.93 | 816 | 32.85 | 0.806566 | 86.4834653 |
| Z74 | 0 | 5338 | 282 | 1377 | 140362 | 214013 | 0.05065 | 0.001 | 0.03879 | 0.00064 | 0.27085 | 0.00601 | 0.00909 | 0.00037 | 224.8 | 45.03 | 245.3 | 3.97 | 243.4 | 4.81 | 182.8 | 7.4 | 0.806566 | 100.7806081 |
| Z75 | 0 | 9275 | 876 | 1672 | 37986 | 87193 | 0.09103 | 0.00153 | 0.1657 | 0.00272 | 2.07954 | 0.04122 | 0.04221 | 0.00185 | 1447 | 31.64 | 988.4 | 15.01 | 1142.1 | 13.59 | 835.7 | 35.83 | 0.806566 | 86.5423343 |
| Z76 | 13 | 8815 | 675 | 1212 | 30180 | 85374 | 0.07299 | 0.00109 | 0.16017 | 0.00257 | 1.61221 | 0.02956 | 0.03737 | 0.00112 | 1013.7 | 29.99 | 957.7 | 14.31 | 975 | 11.49 | 741.5 | 21.77 | 0.793861 | 98.22564103 |
| Z77 | 6 | 1490 | 100 | 346 | 31800 | 58900 | 0.06465 | 0.00182 | 0.03908 | 0.0007 | 0.3484 | 0.01015 | 0.01069 | 0.0004 | 762.9 | 58.33 | 247.1 | 4.31 | 303.5 | 7.64 | 214.9 | 8 | 0.793861 | 81.41680395 |
| Z78 | 7 | 4461 | 234 | 1724 | 180631 | 180877 | 0.05023 | 0.00102 | 0.03839 | 0.00063 | 0.26594 | 0.00603 | 0.00896 | 0.00028 | 205.9 | 46.4 | 242.8 | 3.94 | 239.4 | 4.83 | 180.3 | 5.61 | 0.793861 | 101.4202172 |
| Z79 | 10 | 16357 | 1206 | 1739 | 43674 | 155058 | 0.07064 | 0.00099 | 0.16338 | 0.0026 | 1.59169 | 0.02827 | 0.03855 | 0.00125 | 947.1 | 28.57 | 975.5 | 14.41 | 967 | 11.08 | 764.5 | 24.4 | 0.793861 | 100.8790072 |
| Z80 | 1 | 20828 | 1215 | 2450 | 131226 | 414623 | 0.05583 | 0.00078 | 0.07789 | 0.00124 | 0.59965 | 0.01064 | 0.01774 | 0.00057 | 445.3 | 30.45 | 483.5 | 7.4 | 477 | 6.75 | 355.5 | 11.34 | 0.793861 | 101.3626834 |
| Z81 | 4 | 15028 | 884 | 1758 | 89302 | 297982 | 0.05669 | 0.00092 | 0.07736 | 0.00123 | 0.60467 | 0.01165 | 0.01995 | 0.00079 | 478.6 | 35.76 | 480.4 | 7.38 | 480.2 | 7.37 | 399.2 | 15.61 | 0.793861 | 100.0416493 |
| Z82 | 10 | 760 | 44 | 184 | 18088 | 29311 | 0.05566 | 0.00234 | 0.04022 | 0.0008 | 0.30874 | 0.01291 | 0.00998 | 0.00046 | 438.4 | 90.68 | 254.2 | 4.93 | 273.2 | 10.01 | 200.7 | 9.29 | 0.793861 | 93.04538799 |
| Z83 | 2 | 3659 | 209 | 400 | 32768 | 119179 | 0.05518 | 0.0013 | 0.04725 | 0.0008 | 0.35949 | 0.00908 | 0.01239 | 0.00057 | 419.5 | 51.12 | 297.6 | 4.9 | 311.8 | 6.78 | 249 | 11.42 | 0.793861 | 95.44579859 |
| Z84 | 0 | 1123 | 102 | 467 | 33889 | 35234 | 0.088 | 0.00356 | 0.04769 | 0.001 | 0.57866 | 0.02276 | 0.01442 | 0.00088 | 1382.4 | 75.63 | 300.3 | 6.17 | 463.6 | 14.64 | 289.4 | 17.61 | 0.793861 | 64.77566868 |
| Z85 | 6 | 5668 | 313 | 641 | 54375 | 192519 | 0.05221 | 0.00097 | 0.04595 | 0.00076 | 0.33081 | 0.00701 | 0.00998 | 0.00036 | 294.6 | 41.87 | 289.6 | 4.65 | 290.2 | 5.35 | 200.8 | 7.26 | 0.793861 | 99.79324604 |
| Z86 | 12 | 1450 | 98 | 135 | 4869 | 25525 | 0.06459 | 0.00187 | 0.08873 | 0.0016 | 0.79034 | 0.02365 | 0.0259 | 0.00137 | 761 | 59.91 | 548 | 9.5 | 591.4 | 13.41 | 516.9 | 27.07 | 0.793861 | 92.66148123 |
| Z87 | 0 | 1818 | 113 | 496 | 50487 | 78509 | 0.05946 | 0.0017 | 0.03649 | 0.00066 | 0.29921 | 0.0089 | 0.00922 | 0.00041 | 584 | 60.99 | 231 | 4.09 | 265.8 | 6.95 | 185.6 | 8.14 | 0.793861 | 86.90744921 |
| Z88 | 8 | 8353 | 492 | 1767 | 86207 | 161331 | 0.05649 | 0.00099 | 0.0806 | 0.00131 | 0.6279 | 0.01279 | 0.01966 | 0.0008 | 470.8 | 38.51 | 499.7 | 7.84 | 494.8 | 7.98 | 393.5 | 15.94 | 0.793861 | 100.9902991 |
| Z89 | 4 | 33954 | 2515 | 4253 | 102662 | 297794 | 0.07174 | 0.0013 | 0.17158 | 0.00274 | 1.69767 | 0.03504 | 0.04362 | 0.00255 | 978.6 | 36.59 | 1020.8 | 15.07 | 1007.7 | 13.19 | 862.9 | 49.46 | 0.793861 | 101.2999901 |
| Z90 | 9 | 2834 | 173 | 629 | 57169 | 107243 | 0.05818 | 0.00148 | 0.04186 | 0.00074 | 0.33584 | 0.00909 | 0.01032 | 0.00049 | 535.9 | 55.36 | 264.3 | 4.57 | 294 | 6.91 | 207.5 | 9.89 | 0.793861 | 89.89795918 |
| Z91 | 0 | 9900 | 590 | 1393 | 87900 | 252280 | 0.0563 | 0.00085 | 0.06141 | 0.00099 | 0.47669 | 0.00881 | 0.01294 | 0.00035 | 463.5 | 33.21 | 384.2 | 6.01 | 395.8 | 6.06 | 259.9 | 7.08 | 0.781281 | 97.06922688 |
| Z92 | 0 | 16146 | 1245 | 704 | 15820 | 133769 | 0.072 | 0.00097 | 0.18957 | 0.00305 | 1.88172 | 0.03262 | 0.03293 | 0.00095 | 986 | 27.31 | 1119 | 16.54 | 1074.7 | 11.49 | 654.8 | 18.67 | 0.781281 | 104.1220806 |
| Z93 | 0 | 2155 | 157 | 690 | 25725 | 31872 | 0.07088 | 0.00248 | 0.1016 | 0.00196 | 0.9927 | 0.03464 | 0.02667 | 0.00142 | 953.9 | 70.04 | 623.8 | 11.45 | 700.1 | 17.65 | 532.1 | 27.89 | 0.781281 | 89.10155692 |
| Z94 | 10 | 983 | 59 | 352 | 35083 | 36832 | 0.05749 | 0.00211 | 0.04174 | 0.00079 | 0.33087 | 0.01227 | 0.00882 | 0.00032 | 510.2 | 79.24 | 263.6 | 4.89 | 290.2 | 9.36 | 177.5 | 6.43 | 0.781281 | 90.83390765 |
| Z95 | 0 | 642 | 38 | 190 | 18198 | 24810 | 0.05783 | 0.00271 | 0.04043 | 0.00083 | 0.32237 | 0.01498 | 0.00944 | 0.00041 | 523.3 | 99.86 | 255.5 | 5.13 | 283.7 | 11.51 | 189.8 | 8.19 | 0.781281 | 90.05992245 |
| Z96 | 0 | 2818 | 160 | 495 | 51240 | 115646 | 0.05402 | 0.00123 | 0.03798 | 0.00064 | 0.28285 | 0.00698 | 0.00825 | 0.00029 | 371.9 | 50.56 | 240.3 | 3.98 | 252.9 | 5.53 | 166.1 | 5.74 | 0.781281 | 95.01779359 |
| Z97 | 0 | 8447 | 513 | 1923 | 96607 | 161782 | 0.05793 | 0.00096 | 0.08123 | 0.00132 | 0.64872 | 0.01269 | 0.01753 | 0.00058 | 526.7 | 36.12 | 503.5 | 7.85 | 507.7 | 7.82 | 351.3 | 11.53 | 0.781281 | 99.17273981 |
| Z98 | 0 | 1586 | 130 | 509 | 10685 | 13674 | 0.07787 | 0.00203 | 0.18096 | 0.00326 | 1.94271 | 0.0529 | 0.0406 | 0.00151 | 1143.6 | 50.92 | 1072.2 | 17.82 | 1095.9 | 18.25 | 804.4 | 29.35 | 0.781281 | 97.83739392 |
| Z99 | 0 | 5069 | 310 | 590 | 24279 | 82827 | 0.05795 | 0.00109 | 0.09538 | 0.00157 | 0.762 | 0.01626 | 0.01987 | 0.00072 | 527.6 | 41.08 | 587.3 | 9.27 | 575.2 | 9.37 | 397.7 | 14.2 | 0.781281 | 102.1036161 |
| Z100 | 0 | 11101 | 684 | 2600 | 106826 | 170732 | 0.05906 | 0.00098 | 0.10019 | 0.00161 | 0.81575 | 0.0159 | 0.02174 | 0.00081 | 569.5 | 35.54 | 615.5 | 9.43 | 605.7 | 8.89 | 434.8 | 15.99 | 0.781281 | 101.6179627 |
| Z101 | 8 | 4706 | 311 | 894 | 66763 | 158544 | 0.06297 | 0.00121 | 0.04605 | 0.00076 | 0.39972 | 0.00862 | 0.01143 | 0.00043 | 707.2 | 40.31 | 290.2 | 4.69 | 341.4 | 6.25 | 229.7 | 8.52 | 0.781281 | 85.00292912 |
| Z102 | 0 | 3582 | 192 | 1125 | 120821 | 150826 | 0.05057 | 0.00113 | 0.03706 | 0.00062 | 0.25834 | 0.00626 | 0.0073 | 0.00026 | 221.3 | 50.86 | 234.6 | 3.88 | 233.3 | 5.05 | 147 | 5.3 | 0.781281 | 100.5572225 |
| Z103 | 0 | 1288 | 78 | 429 | 39772 | 47039 | 0.058 | 0.00206 | 0.0421 | 0.00079 | 0.33666 | 0.01206 | 0.00953 | 0.00044 | 529.3 | 76.43 | 265.9 | 4.86 | 294.6 | 9.16 | 191.6 | 8.83 | 0.781281 | 90.25797692 |
| Z104 | 6 | 2352 | 136 | 485 | 47076 | 100622 | 0.05483 | 0.0014 | 0.03618 | 0.00062 | 0.27345 | 0.00737 | 0.00826 | 0.00033 | 405.2 | 55.5 | 229.1 | 3.86 | 245.5 | 5.88 | 166.3 | 6.63 | 0.781281 | 93.3197556 |
| Z105 | 5 | 1042 | 64 | 254 | 24126 | 42469 | 0.05858 | 0.00204 | 0.03796 | 0.00071 | 0.30654 | 0.01078 | 0.00846 | 0.00038 | 551.4 | 74.35 | 240.2 | 4.4 | 271.5 | 8.38 | 170.2 | 7.52 | 0.781281 | 88.47145488 |
| Z106 | 1 | 5503 | 348 | 61 | 517 | 96665 | 0.06028 | 0.00105 | 0.08857 | 0.00145 | 0.73622 | 0.01489 | 0.09769 | 0.00631 | 613.7 | 37.12 | 547.1 | 8.56 | 560.2 | 8.71 | 1884 | 116.23 | 0.801804 | 97.66154945 |
| Z107 | 5 | 3113 | 236 | 520 | 19353 | 59570 | 0.07203 | 0.00141 | 0.08127 | 0.00136 | 0.80715 | 0.01766 | 0.02158 | 0.00069 | 987.1 | 39 | 503.7 | 8.1 | 600.9 | 9.92 | 431.6 | 13.67 | 0.801804 | 83.8242636 |
| Z108 | 8 | 15335 | 1406 | 3757 | 70262 | 112659 | 0.086 | 0.00121 | 0.21435 | 0.00348 | 2.54175 | 0.04511 | 0.03926 | 0.00111 | 1338.2 | 26.95 | 1251.9 | 18.47 | 1284.1 | 12.93 | 778.3 | 21.52 | 0.801804 | 97.49240713 |
| Z109 | 0 | 5186 | 321 | 717 | 35580 | 107412 | 0.05926 | 0.00108 | 0.07494 | 0.00123 | 0.61242 | 0.01276 | 0.0168 | 0.00055 | 576.8 | 38.97 | 465.9 | 7.35 | 485.1 | 8.04 | 336.7 | 11.01 | 0.801804 | 96.04205318 |
| Z110 | 12 | 17896 | 1371 | 2144 | 52310 | 161902 | 0.07209 | 0.00136 | 0.18032 | 0.00313 | 1.79202 | 0.03897 | 0.03182 | 0.00139 | 988.1 | 38.21 | 1068.7 | 17.07 | 1042.6 | 14.17 | 633.1 | 27.3 | 0.801804 | 102.503357 |
| Z111 | 5 | 13640 | 1234 | 1875 | 37784 | 102929 | 0.08452 | 0.00122 | 0.20805 | 0.00338 | 2.4245 | 0.04361 | 0.03428 | 0.00102 | 1304.5 | 27.87 | 1218.4 | 18.02 | 1249.9 | 12.93 | 681.3 | 19.86 | 0.801804 | 97.47979838 |
| Z112 | 0 | 12079 | 723 | 927 | 41385 | 194928 | 0.05699 | 0.00088 | 0.09627 | 0.00155 | 0.75651 | 0.01424 | 0.01831 | 0.00063 | 490.6 | 34.23 | 592.5 | 9.1 | 572 | 8.23 | 366.7 | 12.54 | 0.801804 | 103.5839161 |
| Z113 | 9 | 2303 | 129 | 588 | 59432 | 96072 | 0.05347 | 0.0014 | 0.03744 | 0.00065 | 0.27602 | 0.00762 | 0.0081 | 0.00031 | 348.6 | 58.13 | 236.9 | 4.04 | 247.5 | 6.06 | 163.1 | 6.19 | 0.801804 | 95.71717172 |
| Z114 | 0 | 5065 | 313 | 1631 | 130214 | 164533 | 0.05884 | 0.00111 | 0.04786 | 0.00079 | 0.38829 | 0.00832 | 0.01025 | 0.00037 | 561.1 | 40.69 | 301.4 | 4.85 | 333.1 | 6.08 | 206.1 | 7.34 | 0.801804 | 90.48333834 |
| Z115 | 0 | 7757 | 469 | 1468 | 70149 | 136472 | 0.05775 | 0.00103 | 0.08852 | 0.00145 | 0.70491 | 0.01455 | 0.01727 | 0.00066 | 520.2 | 38.92 | 546.8 | 8.59 | 541.7 | 8.67 | 346 | 13.03 | 0.801804 | 100.9414805 |
| Z116 | 2 | 6049 | 452 | 1052 | 25413 | 54673 | 0.07032 | 0.00124 | 0.17247 | 0.00284 | 1.67228 | 0.03397 | 0.03124 | 0.00114 | 937.7 | 35.64 | 1025.7 | 15.63 | 998.1 | 12.91 | 621.8 | 22.41 | 0.801804 | 102.765254 |
| Z117 | 0 | 44590 | 5887 | 7177 | 92714 | 189642 | 0.12568 | 0.00182 | 0.36501 | 0.00584 | 6.32487 | 0.1141 | 0.06357 | 0.00244 | 2038.4 | 25.4 | 2005.9 | 27.59 | 2021.9 | 15.82 | 1245.6 | 46.32 | 0.801804 | 99.20866512 |
| Z118 | 0 | 2721 | 168 | 843 | 38074 | 44475 | 0.05941 | 0.00149 | 0.09383 | 0.00161 | 0.76865 | 0.02031 | 0.01921 | 0.00088 | 582.1 | 53.42 | 578.2 | 9.49 | 579 | 11.66 | 384.6 | 17.48 | 0.801804 | 99.86183074 |
| Z119 | 0 | 3829 | 242 | 789 | 34122 | 62246 | 0.06007 | 0.0013 | 0.09541 | 0.00161 | 0.79016 | 0.01861 | 0.01921 | 0.00084 | 606 | 45.97 | 587.5 | 9.46 | 591.3 | 10.55 | 384.6 | 16.7 | 0.801804 | 99.35734822 |
| Z120 | 4 | 6980 | 582 | 555 | 9320 | 86457 | 0.07936 | 0.00145 | 0.12543 | 0.00207 | 1.37244 | 0.02866 | 0.04905 | 0.00226 | 1181.2 | 35.76 | 761.7 | 11.88 | 877.2 | 12.27 | 967.9 | 43.5 | 0.801804 | 86.83310534 |

**Supplementary Table 9: Raw U-Pb data from sample NZ1325**

| Sample Number | 176Hf/177Hf | 2SE | 178Hf/177Hf | 2SE | 176Lu/177Hf | 2SE | 176Yb/177Hf | 2SE | εHf | Corrected 176Hf/177Hf | 2SE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JA01H15 | 0.282546189 | 3.32E-05 | 1.467309845 | 0.000251 | 0.001206186 | 2.96E-05 | 0.03581324 | 0.001197 | -2.54 | 0.282560034 | 3.37E-05 |
| JA01H14 | 0.282389852 | 2.78E-05 | 1.467371458 | 0.00035 | 0.000364039 | 4.15E-05 | 0.014234427 | 0.001527 | -0.26 | 0.28240369 | 2.85E-05 |
| JA01H13 | 0.28230566 | 3.63E-05 | 1.467407726 | 0.000343 | 0.000170959 | 1.36E-05 | 0.006599876 | 0.0004 | -5.21 | 0.282319493 | 3.68E-05 |
| JA01H12 | 0.282455808 | 4.22E-05 | 1.467298455 | 0.000329 | 0.001258187 | 3.71E-05 | 0.042839065 | 0.000999 | -5.96 | 0.282469649 | 4.27E-05 |
| JA01H11 | 0.282607449 | 4.15E-05 | 1.467118947 | 0.000367 | 0.000935506 | 3.49E-05 | 0.03292648 | 0.001385 | -1.43 | 0.282621298 | 4.19E-05 |
| JA01H10 | 0.282580342 | 4.05E-05 | 1.467170739 | 0.000277 | 0.001058597 | 7.37E-05 | 0.034214322 | 0.001517 | -1.93 | 0.282594189 | 4.1E-05 |
| JA01H9 | 0.282708363 | 5.14E-05 | 1.4676567 | 0.000361 | 0.001036413 | 7.12E-05 | 0.031003653 | 0.001287 | 7.90 | 0.282722216 | 5.17E-05 |
| JA01H8 | 0.282544874 | 3.67E-05 | 1.46735766 | 0.000206 | 0.00099155 | 4.31E-05 | 0.026917503 | 0.000839 | -3.00 | 0.28255872 | 3.73E-05 |
| JA01H7 | 0.282449429 | 9.27E-05 | 1.467518183 | 0.000209 | 0.00377281 | 0.000168 | 0.113818875 | 0.003779 | -5.23 | 0.282463269 | 9.29E-05 |
| JA01H6 | 0.282457716 | 4.32E-05 | 1.467350254 | 0.000189 | 0.001718376 | 0.000125 | 0.053976785 | 0.004181 | -4.02 | 0.282471557 | 4.37E-05 |
| JA01H5 | 0.282278772 | 6E-05 | 1.467482196 | 0.000369 | 0.001376183 | 0.000102 | 0.045403497 | 0.002259 | 1.34 | 0.282292604 | 6.03E-05 |
| JA01H4 | 0.282271257 | 0.000209 | 1.467443322 | 0.000662 | 0.003331255 | 9.21E-05 | 0.100656495 | 0.004153 | -1.19 | 0.282285089 | 0.000209 |
| JA01H3 | 0.282456754 | 4.65E-05 | 1.467246658 | 0.000341 | 0.000714279 | 2.76E-05 | 0.023442726 | 0.000735 | 3.22 | 0.282470595 | 4.69E-05 |
| JA01H2 | 0.282470363 | 5.52E-05 | 1.467485875 | 0.000369 | 0.001452156 | 0.000172 | 0.054090684 | 0.005221 | -3.02 | 0.282484205 | 5.56E-05 |
| JA01H1 | 0.282178572 | 5.69E-05 | 1.467471739 | 0.000438 | 0.001097159 | 8.14E-05 | 0.037264054 | 0.000966 | 0.62 | 0.282192399 | 5.72E-05 |

**Supplementary Table 10: Raw Hf data from sample NZ1301 with corrected εHf values**

| Sample Number | 176Hf/177Hf | 2SE | 178Hf/177Hf | 2SE | 176Lu/177Hf | 2SE | 176Yb/177Hf | 2SE | εHf | Corrected 176Hf/177Hf | 2SE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JA22H30 | 0.282559951 | 3.28E-05 | 1.467302865 | 0.00024 | 0.000961738 | 9.66E-05 | 0.030120191 | 0.001654 | 1.95 | 0.282698473 | 3.34E-05 |
| JA22H29 | 0.282585361 | 2.62E-05 | 1.467395243 | 0.000167 | 0.00107865 | 2.88E-05 | 0.033001325 | 0.000544 | -2.17 | 0.282599208 | 2.69E-05 |
| JA22H28 | 0.282324961 | 2.57E-05 | 1.467164757 | 0.000212 | 0.001131399 | 4.72E-05 | 0.042644017 | 0.002023 | -5.95 | 0.282463369 | 2.64E-05 |
| JA22H27 | 0.282214967 | 3.56E-05 | 1.467295622 | 0.000182 | 0.001429767 | 8.74E-05 | 0.058943478 | 0.004533 | 0.21 | 0.282228797 | 3.61E-05 |
| JA22H26 | 0.282288839 | 3.61E-05 | 1.46732937 | 0.000247 | 0.000746141 | 5.45E-05 | 0.023429102 | 0.001349 | 5.81 | 0.282427229 | 3.66E-05 |
| JA22H25 | 0.282274366 | 2.15E-05 | 1.467310684 | 0.000198 | 0.000617359 | 1.66E-05 | 0.023296253 | 0.000552 | -11.87 | 0.282288199 | 2.24E-05 |
| JA22H24 | 0.282572992 | 2.7E-05 | 1.467351071 | 0.000252 | 0.000521444 | 1.08E-05 | 0.018058704 | 0.000411 | 21.38 | 0.282711521 | 2.77E-05 |
| JA22H23 | 0.282404735 | 7E-05 | 1.467571736 | 0.000347 | 0.001535714 | 0.000108 | 0.050757107 | 0.002063 | -2.86 | 0.282418573 | 7.02E-05 |
| JA22H22 | 0.282314608 | 3.47E-05 | 1.467292707 | 0.000273 | 0.000634963 | 2.03E-05 | 0.021298895 | 0.00064 | -6.42 | 0.28245301 | 3.53E-05 |
| JA22H21 | 0.282479334 | 2.7E-05 | 1.467271746 | 0.000225 | 0.00085406 | 2.02E-05 | 0.025448565 | 0.000493 | 7.39 | 0.282493176 | 2.77E-05 |
| JA22H20 | 0.28226776 | 3.75E-05 | 1.467420858 | 0.000282 | 0.001041136 | 0.000121 | 0.035829529 | 0.004378 | -9.18 | 0.282406139 | 3.8E-05 |
| JA22H19 | 0.282461088 | 4.25E-05 | 1.467455834 | 0.000262 | 0.000971535 | 6.27E-05 | 0.034555764 | 0.001357 | -6.15 | 0.28247493 | 4.29E-05 |
| JA22H18 | 0.282643265 | 4.1E-05 | 1.467309943 | 0.000233 | 0.001915976 | 5.02E-05 | 0.066471268 | 0.001287 | 4.56 | 0.282781828 | 4.14E-05 |
| JA22H17 | 0.282432675 | 3.12E-05 | 1.467282496 | 0.000366 | 0.000359552 | 2.62E-05 | 0.013495845 | 0.000996 | 1.57 | 0.282446515 | 3.18E-05 |
| JA22H16 | 0.282608783 | 3.36E-05 | 1.467310864 | 0.000309 | 0.000771262 | 5.62E-05 | 0.024380944 | 0.00183 | 8.13 | 0.282747329 | 3.42E-05 |
| JA22H15 | 0.282560377 | 3.96E-05 | 1.467119501 | 0.000236 | 0.001522935 | 0.000138 | 0.057715953 | 0.005233 | -1.26 | 0.282574223 | 4E-05 |
| JA22H14 | 0.282635975 | 4.05E-05 | 1.467433269 | 0.000333 | 0.001027592 | 5.4E-05 | 0.035984091 | 0.002005 | 4.82 | 0.282774534 | 4.1E-05 |
| JA22H13 | 0.282467397 | 3.44E-05 | 1.467402768 | 0.000342 | 0.000866162 | 2.89E-05 | 0.026928639 | 0.000561 | 9.21 | 0.282481239 | 3.5E-05 |
| JA22H12 | 0.282306778 | 3.36E-05 | 1.467427676 | 0.000243 | 0.000941067 | 4.36E-05 | 0.035613903 | 0.001886 | -2.33 | 0.282445176 | 3.42E-05 |
| JA22H11 | 0.282385703 | 4.9E-05 | 1.467360082 | 0.000281 | 0.001833344 | 4.57E-05 | 0.070494216 | 0.001616 | -2.10 | 0.28239954 | 4.94E-05 |
| JA22H10 | 0.282391609 | 4.22E-05 | 1.467348585 | 0.000256 | 0.00095433 | 5.11E-05 | 0.033000962 | 0.00049 | -3.14 | 0.282530048 | 4.27E-05 |
| JA22H9 | 0.282536521 | 3.69E-05 | 1.467394647 | 0.000239 | 0.000989457 | 0.000108 | 0.02983864 | 0.00252 | 16.25 | 0.282550366 | 3.75E-05 |
| JA22H8 | 0.282041594 | 3.8E-05 | 1.467369265 | 0.000424 | 0.000408236 | 3.39E-06 | 0.0165443 | 0.000182 | 3.43 | 0.282179862 | 3.85E-05 |
| JA22H7 | 0.28183818 | 3.59E-05 | 1.467302745 | 0.000204 | 0.001141112 | 4.66E-05 | 0.04144051 | 0.002086 | -10.76 | 0.281851991 | 3.64E-05 |
| JA22H6 | 0.282015934 | 5.79E-05 | 1.467357045 | 0.000424 | 0.001465339 | 0.000137 | 0.040795191 | 0.001997 | -0.20 | 0.282154189 | 5.83E-05 |
| JA22H5 | 0.282098719 | 7.08E-05 | 1.467299359 | 0.000791 | 0.001162686 | 5.09E-05 | 0.045909773 | 0.002447 | -5.74 | 0.282112543 | 7.11E-05 |
| JA22H4 | 0.282589662 | 4.41E-05 | 1.467355557 | 0.000314 | 0.001554414 | 3.86E-05 | 0.053807579 | 0.00143 | 2.65 | 0.282728199 | 4.46E-05 |
| JA22H3 | 0.28257641 | 3.77E-05 | 1.467252305 | 0.000294 | 0.000826049 | 4.5E-05 | 0.028469431 | 0.000944 | 2.91 | 0.282590256 | 3.82E-05 |
| JA22H2 | 0.28237232 | 4.9E-05 | 1.467168922 | 0.000315 | 0.001245289 | 0.000153 | 0.049226321 | 0.006276 | 10.38 | 0.28251075 | 4.94E-05 |
| JA22H1 | 0.282493828 | 4.77E-05 | 1.467323952 | 0.000453 | 0.000653876 | 3.74E-05 | 0.021458403 | 0.000459 | -10.04 | 0.28250767 | 4.81E-05 |

**Supplementary Table 11: Raw Hf data from sample NZ1322 with corrected εHf values**

| Sample Number | 176Hf/177Hf | 2SE | 178Hf/177Hf | 2SE | 176Lu/177Hf | 2SE | 176Yb/177Hf | 2SE | εHf | Corrected 176Hf/177Hf | 2SE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JA23H31 | 0.282457431 | 2.83E-05 | 1.467199375 | 0.000194 | 0.000510639 | 1.49E-05 | 0.018769324 | 0.000662 | 3.09 | 0.282471272 | 2.9E-05 |
| JA23H30 | 0.282256755 | 4.11E-05 | 1.467315393 | 0.000234 | 0.000850286 | 2.54E-05 | 0.028244573 | 0.001001 | 3.16 | 0.282270586 | 4.16E-05 |
| JA23H29 | 0.282458201 | 5.85E-05 | 1.467401792 | 0.000303 | 0.001450815 | 6.77E-05 | 0.044672246 | 0.001906 | 0.40 | 0.282472042 | 5.89E-05 |
| JA23H28 | 0.282627035 | 3.14E-05 | 1.467306416 | 0.000248 | 0.000691349 | 6.21E-05 | 0.022198848 | 0.001818 | 0.21 | 0.282640885 | 3.2E-05 |
| JA23H27 | 0.282263561 | 3.75E-05 | 1.467325504 | 0.000291 | 0.000808291 | 5.79E-05 | 0.028166553 | 0.001485 | 2.94 | 0.282277393 | 3.8E-05 |
| JA23H26 | 0.282611572 | 7.63E-05 | 1.467378659 | 0.000273 | 0.001312703 | 9.3E-05 | 0.038956353 | 0.00143 | -0.65 | 0.28262542 | 7.65E-05 |
| JA23H25 | 0.282374807 | 3.32E-05 | 1.467147432 | 0.000258 | 0.000387958 | 3.13E-05 | 0.014151918 | 0.001147 | -1.13 | 0.282388644 | 3.38E-05 |
| JA23H24 | 0.282689951 | 2.93E-05 | 1.467343247 | 0.000212 | 0.000390623 | 2.79E-05 | 0.011887124 | 0.000898 | 4.34 | 0.282703803 | 2.99E-05 |
| JA23H23 | 0.28241875 | 4.82E-05 | 1.467281472 | 0.000287 | 0.001130388 | 6.38E-05 | 0.042849078 | 0.003768 | -1.06 | 0.282432589 | 4.86E-05 |
| JA23H22 | 0.282565871 | 3.04E-05 | 1.467217389 | 0.000197 | 0.000585008 | 1.41E-05 | 0.019566492 | 0.000549 | -1.65 | 0.282579717 | 3.1E-05 |
| JA23H21 | 0.282605267 | 4.48E-05 | 1.467454258 | 0.000298 | 0.001716688 | 0.000102 | 0.059180114 | 0.00428 | -1.21 | 0.282619116 | 4.52E-05 |
| JA23H20 | 0.282495911 | 3.67E-05 | 1.467358776 | 0.000316 | 0.000724849 | 2.54E-05 | 0.021942615 | 0.000341 | 0.94 | 0.282509754 | 3.72E-05 |
| JA23H19 | 0.282412277 | 4.58E-05 | 1.467421025 | 0.000286 | 0.000627109 | 4.35E-05 | 0.013346619 | 0.000547 | 22.73 | 0.282426116 | 4.62E-05 |
| JA23H18 | 0.282263378 | 2.49E-05 | 1.46727251 | 0.00029 | 0.000400606 | 5.53E-05 | 0.014167839 | 0.001848 | -5.42 | 0.28227721 | 2.57E-05 |
| JA23H17 | 0.282133385 | 4.83E-05 | 1.467342446 | 0.000275 | 0.000662066 | 4.68E-05 | 0.01944235 | 0.000927 | -17.64 | 0.282147211 | 4.87E-05 |
| JA23H16 | 0.282793768 | 5.06E-05 | 1.46729269 | 0.000219 | 0.000862171 | 8.29E-05 | 0.02700104 | 0.001673 | 8.00 | 0.282807625 | 5.1E-05 |
| JA23H15 | 0.282423028 | 3.37E-05 | 1.46731732 | 0.000244 | 0.000714583 | 4.47E-05 | 0.026363391 | 0.00168 | -0.10 | 0.282436867 | 3.43E-05 |
| JA23H14 | 0.282601189 | 3.52E-05 | 1.467320536 | 0.00027 | 0.00113164 | 8.23E-05 | 0.034938105 | 0.001873 | -1.33 | 0.282615038 | 3.57E-05 |
| JA23H13 | 0.282360112 | 0.000139 | 1.467772161 | 0.000376 | 0.003034603 | 0.000118 | 0.08741658 | 0.005568 | -10.24 | 0.282373948 | 0.00014 |
| JA23H12 | 0.282481078 | 4.42E-05 | 1.46735892 | 0.000245 | 0.001860082 | 0.00011 | 0.061636245 | 0.002154 | -0.42 | 0.28249492 | 4.46E-05 |
| JA23H11 | 0.282173141 | 3.89E-05 | 1.467352998 | 0.00027 | 0.000580972 | 3.89E-05 | 0.020536428 | 0.00075 | 1.03 | 0.282186969 | 3.94E-05 |
| JA23H10 | 0.282423214 | 4.45E-05 | 1.467097657 | 0.000359 | 0.001282423 | 5.52E-05 | 0.051081541 | 0.003257 | -0.65 | 0.282437054 | 4.5E-05 |
| JA23H9 | 0.282539351 | 0.000114 | 1.467818695 | 0.000562 | 0.000791137 | 6.53E-05 | 0.020088427 | 0.001785 | 14.67 | 0.282553196 | 0.000114 |
| JA23H8 | 0.282322318 | 0.0001 | 1.467375446 | 0.000437 | 0.001719567 | 0.000167 | 0.05435335 | 0.003683 | 1.18 | 0.282336153 | 0.0001 |
| JA23H7 | 0.282516097 | 4.29E-05 | 1.467401523 | 0.000391 | 0.000855745 | 5.9E-05 | 0.026401769 | 0.000734 | -3.83 | 0.282529941 | 4.33E-05 |
| JA23H6 | 0.28225153 | 3.93E-05 | 1.467438608 | 0.000431 | 0.000340813 | 5.48E-05 | 0.01268812 | 0.001967 | 0.13 | 0.282265361 | 3.98E-05 |
| JA23H5 | 0.282349069 | 4.7E-05 | 1.467443339 | 0.000305 | 0.001414991 | 0.000133 | 0.04913918 | 0.005765 | -1.46 | 0.282362905 | 4.74E-05 |
| JA23H4 | 0.282703172 | 4.89E-05 | 1.467388834 | 0.000338 | 0.001513564 | 4.91E-05 | 0.055106721 | 0.00344 | 4.52 | 0.282717026 | 4.93E-05 |
| JA23H3 | 0.281914118 | 0.000104 | 1.467656281 | 0.000546 | 0.001180171 | 0.000143 | 0.041374215 | 0.002976 | 2.20 | 0.281927932 | 0.000104 |
| JA23H2 | 0.282603337 | 5.47E-05 | 1.467456844 | 0.000322 | 0.001639519 | 6.39E-05 | 0.057071749 | 0.001124 | 0.20 | 0.282617186 | 5.5E-05 |
| JA23H1 | 0.281490299 | 5.31E-05 | 1.467445202 | 0.000291 | 0.00039149 | 2.7E-05 | 0.010248835 | 0.000538 | -2.13 | 0.281504092 | 5.35E-05 |

**Supplementary Table 12: Raw Hf data from sample NZ1323 with corrected εHf values**

| Sample Number | 176Hf/177Hf | 2SE | 178Hf/177Hf | 2SE | 176Lu/177Hf | 2SE | 176Yb/177Hf | 2SE | εHf | Corrected 176Hf/177Hf | 2SE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JA25H30 | 0.282534869 | 3.41E-05 | 1.467104849 | 0.000291 | 0.000840312 | 7.66E-05 | 0.02216906 | 0.000502 | -3.27 | 0.282548714 | 3.46E-05 |
| JA25H29 | 0.282051141 | 0.000201 | 1.467595651 | 0.000266 | 0.000994377 | 8.43E-05 | 0.023279256 | 0.002026 | 18.58 | 0.282064962 | 0.000201 |
| JA25H28 | 0.282284109 | 4.36E-05 | 1.467354232 | 0.000213 | 0.000191943 | 1.44E-05 | 0.005787346 | 0.000392 | -5.12 | 0.282297941 | 4.4E-05 |
| JA25H27 | 0.282370813 | 5.78E-05 | 1.467277841 | 0.000412 | 0.00104121 | 0.000167 | 0.037605703 | 0.004818 | 9.05 | 0.28238465 | 5.81E-05 |
| JA25H26 | 0.282068409 | 6.22E-05 | 1.467460009 | 0.000293 | 0.001432684 | 8.62E-05 | 0.046518359 | 0.002232 | 2.03 | 0.282082231 | 6.25E-05 |
| JA25H25 | 0.282401262 | 4.71E-05 | 1.467430539 | 0.0004 | 0.000363228 | 7.22E-05 | 0.014472409 | 0.003334 | 0.50 | 0.2824151 | 4.75E-05 |
| JA25H24 | 0.28227073 | 0.000109 | 1.467413966 | 0.000399 | 0.001873293 | 0.000192 | 0.056137351 | 0.002227 | -7.11 | 0.282284562 | 0.000109 |
| JA25H23 | 0.282517767 | 8.09E-05 | 1.467464149 | 0.000529 | 0.001420911 | 9.26E-05 | 0.05248244 | 0.002027 | -0.78 | 0.282531611 | 8.11E-05 |
| JA25H22 | 0.282207058 | 3.65E-05 | 1.467316956 | 0.000335 | 0.000865712 | 4.83E-05 | 0.032156725 | 0.002239 | 2.31 | 0.282220887 | 3.71E-05 |
| JA25H21 | 0.282399254 | 4.25E-05 | 1.467347691 | 0.000226 | 0.00173947 | 8.56E-05 | 0.061304625 | 0.003325 | -2.60 | 0.282413092 | 4.29E-05 |
| JA25H20 | 0.282599696 | 3.55E-05 | 1.467388593 | 0.00032 | 0.000870897 | 2.71E-05 | 0.025373891 | 0.000904 | 4.35 | 0.282613544 | 3.6E-05 |
| JA25H19 | 0.282617367 | 3.69E-05 | 1.467244851 | 0.000222 | 0.001225864 | 5.92E-05 | 0.031544782 | 0.000941 | 4.95 | 0.282631216 | 3.74E-05 |
| JA25H18 | 0.28229155 | 4.89E-05 | 1.467340042 | 0.000303 | 0.001337771 | 7.61E-05 | 0.050092214 | 0.003102 | 4.01 | 0.282305383 | 4.93E-05 |
| JA25H17 | 0.282313825 | 5.27E-05 | 1.467321179 | 0.00026 | 0.001884592 | 0.000159 | 0.076872539 | 0.006866 | 4.05 | 0.282327659 | 5.3E-05 |
| JA25H16 | 0.282338656 | 3.04E-05 | 1.467295422 | 0.000263 | 0.000751501 | 7.46E-05 | 0.030520112 | 0.003173 | -2.45 | 0.282352491 | 3.1E-05 |
| JA25H15 | 0.282306117 | 3.15E-05 | 1.467233245 | 0.000333 | 0.00029963 | 3.56E-05 | 0.010140452 | 0.001268 | 0.52 | 0.282319951 | 3.21E-05 |
| JA25H14 | 0.282452791 | 5.37E-05 | 1.467486258 | 0.000461 | 0.000761546 | 1.83E-05 | 0.028051858 | 0.001019 | 0.10 | 0.282466632 | 5.4E-05 |
| JA25H13 | 0.28257559 | 6.11E-05 | 1.46724846 | 0.000392 | 0.001552296 | 6.98E-05 | 0.056533721 | 0.002295 | -0.11 | 0.282589436 | 6.14E-05 |
| JA25H12 | 0.282263964 | 6.23E-05 | 1.467474317 | 0.000326 | 0.001482638 | 0.000116 | 0.050400825 | 0.002145 | 0.84 | 0.282277796 | 6.26E-05 |
| JA25H11 | 0.282258186 | 3.62E-05 | 1.467406841 | 0.000369 | 0.00116973 | 9.39E-05 | 0.037969191 | 0.001576 | 5.56 | 0.282272018 | 3.67E-05 |
| JA25H10 | 0.282600149 | 8.54E-05 | 1.46759151 | 0.00028 | 0.000862151 | 7.15E-05 | 0.027856323 | 0.001983 | -0.57 | 0.282613997 | 8.56E-05 |
| JA25H9 | 0.282443873 | 4.76E-05 | 1.467616734 | 0.000559 | 0.000901182 | 7.2E-05 | 0.033002647 | 0.001511 | 2.93 | 0.282457713 | 4.8E-05 |
| JA25H8 | 0.28259754 | 4.92E-05 | 1.467095514 | 0.000407 | 0.000815123 | 8.53E-05 | 0.028320405 | 0.002528 | -0.31 | 0.282611388 | 4.96E-05 |
| JA25H7 | 0.282465262 | 4.45E-05 | 1.467434582 | 0.000272 | 0.001229471 | 9.64E-05 | 0.034939138 | 0.001679 | -5.66 | 0.282479104 | 4.49E-05 |
| JA25H6 | 0.282649325 | 5.49E-05 | 1.467619754 | 0.000384 | 0.001270624 | 6.15E-05 | 0.041082953 | 0.001173 | 5.14 | 0.282663176 | 5.52E-05 |
| JA25H5 | 0.282462952 | 8.2E-05 | 1.467505001 | 0.000309 | 0.00158253 | 7.04E-05 | 0.053857212 | 0.002735 | -6.35 | 0.282476793 | 8.22E-05 |
| JA25H4 | 0.282508196 | 4.19E-05 | 1.467518043 | 0.000258 | 0.00066579 | 4.21E-05 | 0.022704138 | 0.000645 | -4.38 | 0.28252204 | 4.24E-05 |
| JA25H3 | 0.282502842 | 6.19E-05 | 1.467386184 | 0.000301 | 0.001615418 | 0.000251 | 0.044617329 | 0.00647 | -4.90 | 0.282516686 | 6.22E-05 |
| JA25H2 | 0.282338869 | 4.97E-05 | 1.467533251 | 0.000261 | 0.000801425 | 6.79E-05 | 0.030835853 | 0.003749 | -4.95 | 0.282352705 | 5.01E-05 |
| JA25H1 | 0.282448332 | 4.57E-05 | 1.467517354 | 0.000288 | 0.001422463 | 0.000148 | 0.05295811 | 0.00548 | -5.63 | 0.282462172 | 4.62E-05 |

**Supplementary Table 13: Raw Hf data from sample NZ1325 with corrected εHf values**

| Analysis | 36Ar (V) | %1σ | 37Ar (V) | %1σ | 38Ar (V) | %1σ | 39Ar (V) | %1σ | 40Ar (V) | %1σ | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 40Ar(r) (%) | 39Ar(k) (%) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M30233I | 0.0000389 | 20.117 | 0.0001803 | 58.413 | 0.0007140 | 2.141 | 0.0542377 | 0.394 | 0.7997068 | 0.055 | 14.52981 | ± 0.14429 | 210.19 | 1.97 | 98.54 | 41.01 | 129 | 151.10 |
| 3M30237I | 0.0000315 | 25.991 | 0.0001023 | 116.546 | 0.0002249 | 3.369 | 0.0173777 | 0.697 | 0.2856152 | 0.090 | 15.89322 | ± 0.35942 | 228.71 | 4.86 | 96.70 | 13.14 | 73 | 170.25 |
| 3M30232I | 0.0000714 | 9.404 | 0.0000493 | 228.375 | 0.0003269 | 3.496 | 0.0240509 | 0.395 | 0.4197570 | 0.068 | 16.56568 | ± 0.21323 | 237.78 | 2.87 | 94.92 | 18.19 | 210 | 957.95 |
| 3M30235I | 0.0000190 | 45.106 | 0.0000304 | 370.589 | 0.0002322 | 5.833 | 0.0164089 | 0.676 | 0.2780118 | 0.066 | 16.59642 | ± 0.38495 | 238.19 | 5.18 | 97.96 | 12.41 | 232 | 1721.93 |
| 3M30234I | 0.0000225 | 28.397 | 0.0000122 | 875.577 | 0.0002874 | 4.102 | 0.0201742 | 0.441 | 0.3435112 | 0.155 | 16.69355 | ± 0.24549 | 239.50 | 3.30 | 98.04 | 15.25 | 714 | 12499.04 |

| Results | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 39Ar(k) (%,n) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|
| Total Fusion Age | 15.66569 | ± 0.10512<br>± 0.67% | 225.64 | ± 1.64<br>± 0.72% | 5 | 391 | ± 1337 |
| | | Full External Error | | ± 2.30 | | | |
| | | Analytical Error | | ± 1.42 | | | |

**Supplementary Table 14: Raw $^{40}$Ar-$^{39}$Ar data from sample NZ1301 with the calculated total fusion age**

| Analysis | 36Ar (V) | %1σ | 37Ar (V) | %1σ | 38Ar (V) | %1σ | 39Ar (V) | %1σ | 40Ar (V) | %1σ | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 40Ar(r) (%) | 39Ar(k) (%) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M30224I | 0.0001128 | 12.540 | 0.0000165 | 642.728 | 0.0004368 | 2.957 | 0.0336776 | 0.451 | 0.5674568 | 0.108 | 15.84871 | ± 0.29111 | 228.11 | 3.94 | 94.06 | 26.63 | 879 | 11298.48 |
| 3M30228I | 0.0000203 | 36.970 | 0.0000438 | 261.419 | 0.0000820 | 11.701 | 0.0061182 | 0.889 | 0.1036737 | 0.300 | 15.95141 | ± 0.79322 | 229.50 | 10.72 | 94.14 | 4.84 | 60 | 314.04 |
| 3M30225I | 0.0000367 | 32.781 | 0.0001904 | 62.795 | 0.0004613 | 2.098 | 0.0340770 | 0.417 | 0.5581467 | 0.070 | 16.05754 | ± 0.25077 | 230.93 | 3.39 | 98.04 | 26.94 | 77 | 96.67 |
| 3M30226I | 0.0000248 | 32.792 | 0.0000566 | 188.029 | 0.0001630 | 4.811 | 0.0122201 | 0.606 | 0.2065708 | 0.116 | 16.29878 | ± 0.44509 | 234.19 | 6.00 | 96.42 | 9.66 | 93 | 349.12 |
| 3M30223I | 0.0000474 | 15.067 | 0.0000867 | 141.544 | 0.0002125 | 3.861 | 0.0156160 | 0.480 | 0.2697794 | 0.095 | 16.36925 | ± 0.31655 | 235.14 | 4.26 | 94.75 | 12.35 | 77 | 219.34 |
| 3M30230I | 0.0000269 | 25.862 | 0.0001639 | 70.436 | 0.0001218 | 5.823 | 0.0081471 | 0.854 | 0.1487557 | 0.214 | 17.27337 | ± 0.59464 | 247.27 | 7.96 | 94.60 | 6.44 | 21 | 30.11 |
| 3M30229I | 0.0000140 | 60.762 | 0.0000415 | 260.153 | 0.0002292 | 4.882 | 0.0166197 | 0.665 | 0.4068365 | 0.108 | 24.22733 | ± 0.44701 | 338.00 | 5.69 | 98.97 | 13.14 | 172 | 896.20 |

| Results | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 39Ar(k) (%,n) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|
| Total Fusion Age | 17.21048 | ± 0.14148<br>± 0.82% | 246.43 | ± 2.09<br>± 0.85% | 7 | 178 | ± 350 |
| | | Full External Error | | ± 2.73 | | | |
| | | Analytical Error | | ± 1.89 | | | |

**Supplementary Table 15: Raw $^{40}$Ar-$^{39}$Ar data from sample NZ1303 with the calculated total fusion age**

| Analysis | 36Ar (V) | %1σ | 37Ar (V) | %1σ | 38Ar (V) | %1σ | 39Ar (V) | %1σ | 40Ar (V) | %1σ | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 40Ar(r) (%) | 39Ar(k) (%) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M30215I | 0.0000144 | 84.926 | 0.0000614 | 195.745 | 0.0000308 | 23.998 | 0.0017106 | 1.506 | 0.0289335 | 0.671 | 14.39850 | ± 4.29482 | 208.39 | 58.71 | 85.13 | 5.12 | 12 | 46.88 |
| 3M30219I | 0.0000220 | 52.278 | 0.0000838 | 157.484 | 0.0000721 | 15.380 | 0.0056070 | 0.919 | 0.0918904 | 0.349 | 15.21367 | ± 1.26282 | 219.50 | 17.16 | 92.83 | 16.79 | 29 | 90.60 |
| 3M30220I | 0.0000244 | 46.539 | 0.0000934 | 135.629 | 0.0000623 | 12.748 | 0.0042104 | 0.787 | 0.0718681 | 0.315 | 15.33805 | ± 1.63041 | 221.19 | 22.13 | 89.86 | 12.61 | 19 | 52.57 |
| 3M30221I | 0.0000397 | 28.205 | 0.0000151 | 852.551 | 0.0001265 | 7.641 | 0.0094527 | 0.670 | 0.1578488 | 0.190 | 15.44436 | ± 0.73970 | 222.64 | 10.03 | 92.49 | 28.30 | 268 | 4577.98 |
| 3M30217I | 0.0000476 | 24.781 | 0.0001327 | 96.878 | 0.0001380 | 7.379 | 0.0092451 | 0.623 | 0.1633554 | 0.289 | 16.13253 | ± 0.79476 | 231.95 | 10.72 | 91.30 | 27.68 | 30 | 58.06 |
| 3M30216I | 0.0000078 | 148.488 | 0.0000172 | 833.420 | 0.0000418 | 19.268 | 0.0031714 | 1.478 | 0.0549233 | 0.406 | 16.57994 | ± 2.24798 | 237.97 | 30.23 | 95.74 | 9.50 | 79 | 1323.53 |

| Results | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 39Ar(k) (%,n) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|
| Total Fusion Age | 15.63699 | ± 0.52279<br>± 3.34% | 225.25 | ± 7.13<br>± 3.16% | 6 | 133 | ± 784 |
| | | Full External Error | | ± 7.31 | | | |
| | | Analytical Error | | ± 7.08 | | | |

**Supplementary Table 16: Raw $^{40}$Ar-$^{39}$Ar data from sample NZ1323 with the calculated total fusion age**

| Analysis | 36Ar (V) | %1σ | 37Ar (V) | %1σ | 38Ar (V) | %1σ | 39Ar (V) | %1σ | 40Ar (V) | %1σ | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 40Ar(r) (%) | 39Ar(k) (%) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M30206I | 0.0000390 | 16.964 | 0.0001468 | 70.258 | 0.0000190 | 28.965 | 0.0013145 | 1.587 | 0.0336869 | 0.304 | 16.75687 | ± 3.05641 | 240.35 | 41.05 | 65.39 | 17.49 | 4 | 5.41 |
| 3M30208I | 0.0000392 | 21.586 | 0.0003849 | 25.160 | 0.0000834 | 6.030 | 0.0062020 | 0.943 | 0.1213656 | 0.168 | 17.68705 | ± 0.88278 | 252.80 | 11.78 | 90.38 | 82.51 | 7 | 3.49 |

| Results | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 39Ar(k) (%,n) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|
| Total Fusion Age | 17.52437 | ± 0.90317<br>± 5.15% | 250.63 | ± 12.09<br>± 4.83% | 2 | 13.6 | ± 16.1 |
| | | Full External Error | | ± 12.23 | | | |
| | | Analytical Error | | ± 12.06 | | | |

**Supplementary Table 17: Raw $^{40}$Ar-$^{39}$Ar data from sample NZ1324 with the calculated total fusion age**

| Analysis | 36Ar (V) | %1σ | 37Ar (V) | %1σ | 38Ar (V) | %1σ | 39Ar (V) | %1σ | 40Ar (V) | %1σ | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 40Ar(r) (%) | 39Ar(k) (%) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M30210I | 0.0000143 | 58.016 | 0.0003081 | 39.937 | 0.0001948 | 5.366 | 0.0154881 | 0.546 | 0.2576408 | 0.139 | 16.36058 | 0.36911 | 235.02 | ± 4.97 | 98.35 | 46.49 | 21.6 | 17.3 |
| 3M30211I | 0.0000445 | 19.588 | 0.0000850 | 155.213 | 0.0001498 | 5.265 | 0.0111777 | 0.545 | 0.2031048 | 0.140 | 16.98193 | 0.50363 | 243.37 | ± 6.75 | 93.46 | 33.55 | 56.5 | 175.5 |
| 3M30212I | 0.0000314 | 33.643 | 0.0000162 | 816.436 | 0.0000672 | 13.346 | 0.0040034 | 1.001 | 0.0815939 | 0.216 | 18.03947 | 1.61884 | 257.50 | ± 21.54 | 88.51 | 12.02 | 106.2 | 1734.8 |
| 3M30213I | 0.0000070 | 123.539 | 0.0001496 | 76.941 | 0.0000378 | 24.480 | 0.0026442 | 1.055 | 0.0516153 | 0.352 | 18.73277 | 2.00235 | 266.70 | ± 26.50 | 95.96 | 7.94 | 7.6 | 11.7 |

| Results | 40(r)/39(k) | ± 2σ | Age (Ma) | ± 2σ | 39Ar(k) (%,n) | K/Ca | ± 2σ |
|---|---|---|---|---|---|---|---|
| Total Fusion Age | 16.95911 | ± 0.34816<br>± 2.05% | 243.06 | ± 4.75<br>± 1.95% | 4 | 25.6 | ± 23.1 |
| | | Full External Error | | ± 5.06 | | | |
| | | Analytical Error | | ± 4.67 | | | |

**Supplementary Table 18: Raw $^{40}$Ar-$^{39}$Ar data from sample NZ1325 with the calculated total fusion age**

| Analysis | Zircon Number | Ox%(O ) | Ox%(Si) | Ox%(Zr) | Ox%(Hf) | Sum |
|---|---|---|---|---|---|---|
| T1 | 21 | 0 | 0.3322 | 0.4326 | 0.0948 | 0.8596 |
| T2 | 28 | 0 | 31.9031 | 64.5661 | 1.3619 | 97.8311 |
| T3 | 10 | 0 | 0.3547 | 0.3133 | 0.0002 | 0.6682 |
| T4 | 9 | 0 | 32.7465 | 66.0082 | 1.7295 | 100.4842 |
| T5 | 117 | 0 | 34.6855 | 61.6517 | 1.455 | 97.7922 |
| T6 | 7 | 0 | 32.5668 | 65.8554 | 1.6791 | 100.1013 |
| T7 | 112 | 0 | 36.2037 | 61.8624 | 1.2353 | 99.3014 |
| T8 | 110 | 0 | 33.5839 | 64.6248 | 1.8227 | 100.0314 |
| T9 | 109 | 0 | 32.607 | 62.5446 | 1.4716 | 96.6232 |
| T10 | 5 | 0 | 33.0798 | 65.0249 | 2.4848 | 100.5895 |
| T11 | 104 | 0 | 33.3316 | 64.1601 | 1.5687 | 99.0604 |
| T12 | 103 | 0 | 34.0808 | 63.4565 | 1.8283 | 99.3656 |
| T13 | 4 | 0 | 32.5387 | 65.8271 | 1.7158 | 100.0816 |
| T14 | 100 | 0 | 33.1581 | 63.7067 | 1.8493 | 98.7141 |
| T15 | 3 | 0 | 33.1629 | 65.7359 | 1.9226 | 100.8214 |
| T16 | 1 | 0 | 32.9543 | 65.1864 | 1.8177 | 99.9584 |
| T17 | 95 | 0 | 34.1555 | 62.222 | 1.7374 | 98.1149 |
| T18 | 16 | 0 | 32.838 | 66.1522 | 1.8603 | 100.8505 |
| T19 | 74 | 0 | 27.7142 | 56.4377 | 1.2238 | 85.3757 |
| T20 | 72 | 0 | 32.4612 | 57.0679 | 1.2154 | 90.7445 |
| T21 | 66 | 0 | 33.5043 | 63.7372 | 1.5323 | 98.7738 |
| T22 | 11 | 0 | 33.1324 | 65.413 | 1.8208 | 100.3662 |
| T23 | 65 | 0 | 32.8976 | 65.8607 | 1.5734 | 100.3317 |
| T24 | 64 | 0 | 32.8917 | 64.3626 | 1.9861 | 99.2404 |
| T25 | 62 | 0 | 32.5638 | 65.4951 | 1.993 | 100.0519 |
| T26 | 56 | 0 | 33.0701 | 64.1638 | 1.786 | 99.0199 |
| T27 | 55 | 0 | 32.7355 | 63.6985 | 1.8718 | 98.3058 |
| T28 | 53 | 0 | 37.9383 | 59.8044 | 1.4315 | 99.1742 |
| T29 | 48 | 0 | 32.7288 | 64.88 | 2.1282 | 99.737 |
| T30 | 49 | 0 | 33.459 | 61.8161 | 1.4877 | 96.7628 |

**Supplementary Table 19: Raw microprobe data from sample NZ1301**

| Analysis | Zircon Number | Ox%(O ) | Ox%(Si) | Ox%(Zr) | Ox%(Hf) | Sum |
|---|---|---|---|---|---|---|
| T1 | 1 | 0 | 31.3844 | 62.8207 | 5.7435 | 99.9486 |
| T2 | 5 | 0 | 33.1132 | 66.3036 | 1.582 | 100.9988 |
| T3 | 10 | 0 | 32.828 | 65.2066 | 1.9543 | 99.9889 |
| T4 | 56 | 0 | 33.2686 | 64.3886 | 2.0157 | 99.6729 |
| T5 | 11 | 0 | 32.5416 | 65.4782 | 1.9576 | 99.9774 |
| T6 | 15 | 0 | 32.1244 | 63.0393 | 2.3909 | 97.5546 |
| T7 | 19 | 0 | 33.1116 | 65.5516 | 1.9015 | 100.5647 |
| T8 | 68 | 0 | 34.5915 | 62.4792 | 1.575 | 98.6457 |
| T9 | 25 | 0 | 32.5445 | 65.9384 | 1.4836 | 99.9665 |
| T10 | 26 | 0 | 32.9956 | 65.0639 | 1.6821 | 99.7416 |
| T11 | 28 | 0 | 32.7641 | 65.4574 | 1.5145 | 99.736 |
| T12 | 29 | 0 | 32.507 | 65.4771 | 1.7948 | 99.7789 |
| T13 | 32 | 0 | 32.6702 | 64.8687 | 1.7578 | 99.2967 |
| T14 | 75 | 0 | 36.161 | 58.9947 | 1.9588 | 97.1145 |
| T15 | 36 | 0 | 32.9992 | 65.3503 | 1.3746 | 99.7241 |
| T16 | 80 | 0 | 32.5698 | 65.2142 | 2.1428 | 99.9268 |
| T17 | 82 | 0 | 35.8448 | 53.4273 | 1.3987 | 90.6708 |
| T18 | 38 | 0 | 32.9302 | 65.8988 | 1.8608 | 100.6898 |
| T19 | 40 | 0 | 32.5156 | 64.7921 | 2.154 | 99.4617 |
| T20 | 41 | 0 | 31.5996 | 64.4798 | 2.7707 | 98.8501 |
| T21 | 92 | 0 | 31.668 | 64.0765 | 1.4794 | 97.2239 |
| T22 | 96 | 0 | 35.3211 | 60.9023 | 1.5368 | 97.7602 |
| T23 | 100 | 0 | 32.384 | 63.8914 | 1.9648 | 98.2402 |
| T24 | 103 | 0 | 33.1244 | 62.4353 | 1.6691 | 97.2288 |
| T25 | 105 | 0 | 34.7776 | 60.937 | 1.5601 | 97.2747 |
| T26 | 108 | 0 | 32.5428 | 65.1094 | 1.7578 | 99.41 |
| T27 | 111 | 0 | 33.7569 | 64.1862 | 1.6622 | 99.6053 |
| T28 | 114 | 0 | 33.9948 | 61.2863 | 1.7578 | 97.0389 |
| T29 | 118 | 0 | 33.6394 | 62.068 | 1.346 | 97.0534 |
| T30 | 120 | 0 | 33.8963 | 62.5344 | 2.1536 | 98.5843 |

**Supplementary Table 20: Raw microprobe data from sample NZ1304**

| Analysis | Zircon Number | Ox%(O ) | Ox%(Si) | Ox%(Zr) | Ox%(Hf) | Sum |
|---|---|---|---|---|---|---|
| T1 | 46 | 0 | 32.7796 | 61.854 | 1.3025 | 95.9361 |
| T2 | 48 | 0 | 32.5423 | 64.6584 | 1.4153 | 98.616 |
| T3 | 49 | 0 | 32.7833 | 63.9293 | 2.4492 | 99.1618 |
| T4 | 33 | 0 | 32.9856 | 65.4781 | 1.5706 | 100.0343 |
| T5 | 54 | 0 | 35.8027 | 58.6202 | 1.511 | 95.9339 |
| T6 | 55 | 0 | 32.3211 | 64.6244 | 1.6886 | 98.6341 |
| T7 | 61 | 0 | 33.6162 | 62.8292 | 1.4077 | 97.8531 |
| T8 | 37 | 0 | 32.6238 | 64.4381 | 1.9521 | 99.014 |
| T9 | 44 | 0 | 33.0486 | 65.4985 | 1.9988 | 100.5459 |
| T10 | 69 | 0 | 34.4143 | 63.1183 | 1.9241 | 99.4567 |
| T11 | 45 | 0 | 32.9555 | 65.2747 | 1.3338 | 99.564 |
| T12 | 70 | 0 | 34.6514 | 62.026 | 1.44 | 98.1174 |
| T13 | 73 | 0 | 31.7314 | 65.5629 | 2.1222 | 99.4165 |
| T14 | 74 | 0 | 33.0488 | 65.397 | 1.5846 | 100.0304 |
| T15 | 82 | 0 | 18.5018 | 49.8427 | 0.785 | 69.1295 |
| T16 | 88 | 0 | 32.5424 | 65.1066 | 2.3612 | 100.0102 |
| T17 | 90 | 0 | 28.8873 | 61.8707 | 1.988 | 92.746 |
| T18 | 108 | 0 | 36.8446 | 58.313 | 1.5752 | 96.7328 |
| T19 | 110 | 0 | 34.2679 | 63.1833 | 1.5136 | 98.9648 |
| T20 | 26 | 0 | 27.9266 | 65.0228 | 2.4111 | 95.3605 |
| T21 | 21 | 0 | 32.8567 | 65.7014 | 1.7917 | 100.3498 |
| T22 | 20 | 0 | 31.5557 | 63.3229 | 1.4655 | 96.3441 |
| T23 | 19 | 0 | 32.9905 | 66.0082 | 1.8634 | 100.8621 |
| T24 | 18 | 0 | 32.3241 | 64.1187 | 1.5011 | 97.9439 |
| T25 | 12 | 0 | 32.8102 | 65.9075 | 2.3203 | 101.038 |
| T26 | 11 | 0 | 32.8809 | 65.6177 | 1.8961 | 100.3947 |
| T27 | 10 | 0 | 33.4254 | 65.7802 | 1.4812 | 100.6868 |
| T28 | 5 | 0 | 32.8612 | 65.3041 | 2.0013 | 100.1666 |
| T29 | 3 | 0 | 32.8326 | 64.3137 | 1.9509 | 99.0972 |
| T30 | 2 | 0 | 32.6153 | 64.746 | 2.5026 | 99.8639 |

**Supplementary Table 21: Raw microprobe data from sample NZ1323**

| Analysis | Zircon Number | Ox%(O ) | Ox%(Si) | Ox%(Zr) | Ox%(Hf) | Sum |
|---|---|---|---|---|---|---|
| T1 | 31 | 0 | 32.8449 | 65.0931 | 1.6802 | 99.6182 |
| T2 | 34 | 0 | 32.8184 | 63.9901 | 1.9972 | 98.8057 |
| T3 | 33 | 0 | 33.1075 | 64.0807 | 1.5877 | 98.7759 |
| T4 | 35 | 0 | 33.8869 | 62.2955 | 2.2059 | 98.3883 |
| T5 | 36 | 0 | 34.4399 | 62.4839 | 1.7064 | 98.6302 |
| T6 | 40 | 0 | 33.2111 | 65.0201 | 1.8616 | 100.0928 |
| T7 | 41 | 0 | 31.3273 | 57.3078 | 1.9267 | 90.5618 |
| T8 | 49 | 0 | 33.2028 | 66.0386 | 1.8839 | 101.1253 |
| T9 | 52 | 0 | 25.9157 | 51.7838 | 0.5513 | 78.2508 |
| T10 | 55 | 0 | 33.1857 | 64.0077 | 1.5595 | 98.7529 |
| T11 | 56 | 0 | 33.6096 | 59.1034 | 1.1044 | 93.8174 |
| T12 | 57 | 0 | 35.09 | 60.3087 | 1.592 | 96.9907 |
| T13 | 61 | 0 | 33.7691 | 62.265 | 1.6689 | 97.703 |
| T14 | 70 | 0 | 33.5773 | 63.3042 | 1.6565 | 98.538 |
| T15 | 82 | 0 | 33.8413 | 61.8496 | 2.3999 | 98.0908 |
| T16 | 19 | 0 | 33.1558 | 65.5426 | 1.7728 | 100.4712 |
| T17 | 83 | 0 | 35.3843 | 62.106 | 1.1225 | 98.6128 |
| T18 | 96 | 0 | 34.96 | 63.0538 | 1.908 | 99.9218 |
| T19 | 12 | 0 | 34.4451 | 63.9589 | 1.8517 | 100.2557 |
| T20 | 11 | 0 | 32.751 | 65.2094 | 1.5038 | 99.4642 |
| T21 | 10 | 0 | 33.5749 | 64.7256 | 1.8871 | 100.1876 |
| T22 | 101 | 0 | 33.304 | 65.2516 | 2.1925 | 100.7481 |
| T23 | 7 | 0 | 32.9175 | 64.7038 | 2.0894 | 99.7107 |
| T24 | 5 | 0 | 34.4213 | 62.959 | 1.7609 | 99.1412 |
| T25 | 110 | 0 | 35.3097 | 62.0317 | 2.0255 | 99.3669 |
| T26 | 109 | 0 | 12.1639 | 25.1377 | 0.1172 | 37.4188 |
| T27 | 113 | 0 | 32.6846 | 61.9088 | 1.6314 | 96.2248 |
| T28 | 30 | 0 | 32.4739 | 64.385 | 2.2486 | 99.1075 |
| T29 | 27 | 0 | 33.1691 | 65.5404 | 2.0554 | 100.7649 |
| T30 | 25 | 0 | 33.8279 | 64.451 | 1.5971 | 99.876 |

**Supplementary Table 22: Raw microprobe data from sample NZ1324**

| Element | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | <8120054. | <8200577. | <2290752. | 261966.5 | 239890.3 | 240155.5 | 202253.9 | 308524.4 | 245073.3 | 284024.3 | 252010.9 | 295652.9 | 257144.1 | 242414.2 | 299076.8 |
| Ti | <70626.60 | 414410.7 | <19136.42 | 29.68 | <20.41 | <20.96 | <18.42 | <23.96 | <20.80 | <22.02 | <19.75 | <21.81 | <21.03 | <19.86 | <19.51 |
| Y | 5072.69 | 2014.43 | 2996.35 | 1463.94 | 1200.09 | 1143.8 | 1078.02 | 1947.38 | 1151.13 | 2491.24 | 2316.48 | 1875.5 | 1255.21 | 3136.05 | 245.91 |
| Zr | 1216363 | 291564.7 | 302588.2 | 395252.9 | 356532.1 | 410146.9 | 356999.3 | 468088.1 | 400926.5 | 417378.7 | 385206.9 | 464699.9 | 423712.8 | 404983.5 | 480795.2 |
| Nb | 186.96 | 339.5 | 40.99 | 6.35 | 4.48 | 4.26 | 3.39 | 5.88 | 4.59 | 36.91 | 10.14 | 6.83 | 4.18 | 9.07 | 4.89 |
| La | <74.04 | 210.95 | <15.81 | 0.512 | 29.59 | 0.026 | <0.023 | <0.019 | <0.022 | <0.030 | <0.028 | 2.57 | 0.064 | 0.026 | 0.018 |
| Ce | 79.91 | 369.15 | 43.59 | 62.08 | 100.26 | 18.58 | 5.47 | 18.38 | 29.5 | 32.97 | 90.51 | 64.77 | 31.09 | 37.88 | 18.79 |
| Pr | <33.57 | <48.79 | <12.61 | 0.422 | 7.46 | 0.07 | 0.037 | 0.064 | 0.078 | 0.174 | 0.189 | 0.949 | 0.096 | 0.099 | 0.029 |
| Nd | <325.98 | <204.79 | 183.51 | 6.17 | 29.36 | 1.19 | 0.63 | 0.87 | 1.75 | 3.94 | 3.14 | 8.17 | 1.27 | 2.68 | 0.55 |
| Sm | *233.28* | *239.57* | *115.69* | 9.77 | 9.85 | 3.38 | 2.34 | 3.69 | 3.56 | 10.13 | 7.48 | 12.38 | 3.43 | 9.21 | 1.47 |
| Eu | <70.00 | <62.30 | <30.11 | 3.59 | 1.83 | 0.914 | 1.057 | 1.2 | 1.05 | 0.168 | 2.73 | 3.37 | 0.95 | 3.21 | 1.22 |
| Gd | <282.33 | <318.22 | <71.26 | 37.81 | 24.74 | 17.47 | 18.08 | 24.81 | 19.28 | 51.7 | 44.45 | 50.76 | 18.73 | 56.21 | 6.65 |
| Tb | <66.90 | <62.77 | 16.08 | 11.61 | 8.42 | 7.14 | 7.48 | 10.09 | 6.82 | 19.42 | 15.75 | 15.25 | 7.33 | 21.73 | 2.04 |
| Dy | 417.23 | <191.77 | 164.01 | 127.63 | 103.49 | 92.28 | 95.96 | 147.75 | 86.34 | 235.91 | 190.26 | 171.81 | 94.33 | 277.64 | 22.62 |
| Ho | 76.44 | 62.35 | 79.91 | 44.43 | 37.53 | 36.31 | 35.31 | 62.43 | 33.98 | 88.74 | 74.41 | 60.62 | 37.22 | 100.84 | 7.24 |
| Er | 424.83 | 336.27 | 480 | 205.56 | 165.28 | 165.81 | 150.85 | 300.43 | 164.57 | 388.11 | 331.83 | 253.49 | 170.43 | 441.27 | 30.59 |
| Tm | 47.88 | 104.83 | 107.47 | 50.08 | 41.21 | 41.12 | 36.07 | 81.31 | 43.76 | 92.65 | 76.51 | 57.67 | 45.74 | 104.15 | 7.76 |
| Yb | 1155.53 | 281 | 2017.91 | 555.5 | 478.51 | 479.79 | 400.4 | 981.17 | 539.01 | 945.17 | 837.85 | 654.58 | 532.93 | 1134.37 | 98.49 |
| Lu | 350.61 | 103.12 | 215.53 | 89.47 | 77.78 | 82.18 | 67.29 | 168.56 | 92.96 | 137.45 | 133.64 | 103.42 | 82.24 | 179.82 | 16.06 |
| Hf | 15235.63 | 11548.62 | 15132.18 | 14665.79 | 12338.09 | 14238.41 | 10475.08 | 15456.11 | 14613.21 | 21070.57 | 13302.24 | 15503.59 | 14549.62 | 15681.67 | 16303.23 |
| **Hf (wt%)** | **1.523563** | **1.154862** | **1.513218** | **1.466579** | **1.233809** | **1.423841** | **1.047508** | **1.545611** | **1.461321** | **2.107057** | **1.330224** | **1.550359** | **1.454962** | **1.568167** | **1.630323** |
| Ta | 51.82 | 64.94 | 14.5 | 1.433 | 1.36 | 1.206 | 0.764 | 1.69 | 1.39 | 15.09 | 2.48 | 2.4 | 1.68 | 2.66 | 2.64 |
| Pb206 | 1387.64 | 12236.31 | 463.53 | 118.07 | 101.41 | 165.38 | 116.49 | 148.22 | 70.67 | 543.64 | 162.2 | 145.4 | 59.11 | 142.81 | 308.18 |
| Pb207 | 1111.43 | 11633.72 | <157.13 | 7.22 | 5.51 | 10.8 | 6.46 | 9.13 | 3.83 | 38.82 | 10.02 | 10.14 | 3.33 | 8.85 | 18.39 |
| Pb208 | 898.77 | 11880.24 | 208.52 | 15.07 | 9.66 | 9.67 | 3.09 | 5.94 | 6.03 | 30.31 | 31.49 | 16.78 | 5.6 | 8.71 | 10.59 |
| Th | 701.78 | 933.69 | 550.25 | 683.49 | 436.37 | 263.33 | 79.86 | 135.44 | 312.55 | 512.16 | 1581.88 | 699.95 | 285.6 | 466.3 | 221.27 |
| U | 3694.87 | 961.48 | 949.85 | 774.4 | 690.31 | 635.01 | 404.39 | 530.19 | 505.83 | 1453.07 | 1272.2 | 938.68 | 454.18 | 1049.36 | 939 |

| Element | T16 | T17 | T18 | T19 | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | 238654.5 | 226772 | 260369.6 | 243472.2 | 234978.8 | 207755.5 | 232451.3 | 200081.1 | 264455.3 | 276431.9 | 243903 | 210353.2 | 181928.3 | 259413.3 | 238185.3 |
| Ti | <18.93 | 53.13 | <20.44 | 30.86 | <18.48 | 15.89 | <19.42 | <22.35 | <25.16 | <22.53 | <17.25 | 34.49 | 18.18 | <20.83 | <28.56 |
| Y | 1867.85 | 1462.51 | 1342.67 | 1156.9 | 1349.28 | 1107.36 | 886.88 | 1438.31 | 2084.12 | 1320.74 | 1435.79 | 3748.44 | 952.51 | 1613.58 | 1057.57 |
| Zr | 409922.1 | 368981.6 | 452407.7 | 432371.3 | 434952.2 | 341514.9 | 438226.2 | 363828.7 | 426945.1 | 473038.4 | 420128.4 | 377116.2 | 315312.1 | 465980.8 | 398705.4 |
| Nb | 10.96 | 9.16 | 6.46 | 4.47 | 3.99 | 5.34 | 3.19 | 3.55 | 9.53 | 5.04 | 3.38 | 7.95 | 3.43 | 9.36 | 12.46 |
| La | 0.044 | 0.06 | <0.022 | 0.04 | 0.303 | 0.076 | <0.029 | 6.46 | <0.037 | 1.7 | 1.34 | <0.025 | 0.104 | 0.033 | <0.040 |
| Ce | 82.18 | 45.95 | 32.46 | 54.57 | 49.66 | 53.32 | 33.72 | 50.16 | 24.5 | 33.48 | 16.72 | 10.74 | 20.43 | 63.14 | 15.04 |
| Pr | 0.095 | 0.065 | 0.077 | 0.308 | 0.231 | 0.059 | 0.075 | 1.53 | 0.156 | 0.825 | 1.036 | 0.042 | 0.23 | 0.041 | 0.066 |
| Nd | 2.01 | 1.07 | 1.39 | 5.03 | 3.18 | 1.3 | 1.66 | 7.76 | 3.51 | 6.44 | 9.46 | 1.01 | 3.01 | 1.32 | 0.9 |
| Sm | 5.48 | 3.79 | 3.87 | 9.57 | 5.72 | 3.32 | 3.7 | 5.09 | 8.84 | 9.05 | 13.21 | 4.23 | 6.26 | 2.48 | 2.69 |
| Eu | 1.32 | 1.55 | 1.58 | 2.06 | 2 | 0.749 | 1.01 | 1.75 | 0.265 | 0.82 | 0.525 | 0.426 | 1.33 | 0.71 | 0.188 |
| Gd | 33.19 | 25.31 | 22.91 | 38.96 | 25.79 | 17.83 | 15.21 | 25.69 | 41.81 | 36.13 | 41.16 | 37.12 | 24.98 | 16.65 | 17.76 |
| Tb | 12.68 | 9.62 | 9.15 | 12.57 | 9.04 | 7.08 | 6.09 | 9.07 | 16.24 | 12.77 | 13.73 | 19.28 | 8 | 6.76 | 7.29 |
| Dy | 158.21 | 120.61 | 121.61 | 130.47 | 115.04 | 96.04 | 75.4 | 114.1 | 199.48 | 141.83 | 160.74 | 279.48 | 87.45 | 93.55 | 95.29 |
| Ho | 61.31 | 49.05 | 46.57 | 42.24 | 44.06 | 37.22 | 28.41 | 46.07 | 72.31 | 48.07 | 52.38 | 122.31 | 31.85 | 43.12 | 38.09 |
| Er | 269.26 | 210.21 | 207.8 | 160.95 | 198.88 | 177.56 | 129.79 | 225 | 324.26 | 191.37 | 201.86 | 624.48 | 141.38 | 239.88 | 173.32 |
| Tm | 68.27 | 54.22 | 52.18 | 35.19 | 51.18 | 45.57 | 35.52 | 55 | 71.01 | 41.5 | 47.85 | 166.98 | 32.51 | 71.58 | 39.48 |
| Yb | 758.77 | 631.28 | 583.47 | 334.15 | 631.37 | 510.77 | 423.86 | 582.57 | 692.74 | 435.42 | 500.5 | 1814.91 | 317.26 | 947.56 | 426.66 |
| Lu | 122.16 | 94.81 | 92.15 | 51.12 | 104 | 74.89 | 71.7 | 115.28 | 98.91 | 65.51 | 70.07 | 273.5 | 49.26 | 167.07 | 61.66 |
| Hf | 15413.71 | 14732.78 | 15774.95 | 15132.18 | 14613.22 | 12993.58 | 15440 | 13342.1 | 16841.71 | 16900.21 | 15144.9 | 15872.47 | 12138.81 | 18046.68 | 15235.63 |
| **Hf (wt%)** | **1.541371** | **1.473278** | **1.577495** | **1.513218** | **1.461322** | **1.299358** | **1.544** | **1.33421** | **1.684171** | **1.690021** | **1.51449** | **1.587247** | **1.213881** | **1.804668** | **1.523563** |
| Ta | 3.2 | 2.27 | 1.498 | 1.267 | 1.372 | 1.96 | 1.064 | 1.076 | 4.45 | 1.76 | 1.273 | 5.63 | 1.585 | 3.02 | 4.32 |
| Pb206 | 181.52 | 143.65 | 57.54 | 108.31 | 106.42 | 150.39 | 60.16 | 68.83 | 586.5 | 67.92 | 475.42 | 830.43 | 97.5 | 393.22 | 174.9 |
| Pb207 | 10.31 | 8.25 | 3.46 | 6.73 | 5.99 | 14.61 | 3.29 | 4.32 | 48.41 | 6.07 | 30.73 | 88.5 | 6.09 | 24.8 | 14.22 |
| Pb208 | 18.92 | 11.46 | 3.77 | 11.72 | 14.05 | 10.37 | 6.2 | 9.25 | 35.43 | 9.89 | 31.52 | 19.8 | 9.6 | 42.08 | 6.39 |
| Th | 944.69 | 542.92 | 177.6 | 255 | 680.25 | 89.84 | 307.4 | 441.19 | 353.55 | 201.54 | 558.91 | 134.88 | 171.92 | 884.77 | 53.55 |
| U | 1272.74 | 976.18 | 407.57 | 322.85 | 751.82 | 182.95 | 397.96 | 459.35 | 831.08 | 201.43 | 1172.33 | 812.44 | 269.84 | 1189.4 | 253.94 |

**Supplementary Table 23: Raw trace element data from sample NZ1301, concentrations given in ppm.**

| Element | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | 671051.9 | 242490.5 | 236094.8 | 206380.7 | 265080.4 | 245707.1 | 229929.7 | 212290 | 244472.9 | 208879.6 | 219678.9 | 226840.4 | 232103.2 | 208435.9 | 281708.1 |
| Ti | <44.90 | 124.7 | <17.02 | <15.62 | 28.16 | <20.18 | 17.02 | <17.01 | <19.42 | 16.98 | 18.47 | 106.14 | <18.44 | 85.22 | <26.72 |
| Y | 4533.84 | 1303.74 | 1150.5 | 730.43 | 986.5 | 321.37 | 749.23 | 1720.17 | 1928.84 | 597.31 | 1587.24 | 854.27 | 1637.77 | 2114.99 | 3392.03 |
| Zr | 1226918 | 435182.4 | 418813.8 | 360472.6 | 463418.3 | 456459.7 | 409911.4 | 352159.4 | 374315.5 | 386912.7 | 362786.9 | 386321.8 | 391924.9 | 406313.7 | 422986.9 |
| Nb | 35.28 | 3.18 | 5.87 | 2.65 | 4.12 | 1.07 | 2.99 | 9.07 | 3.28 | 1.95 | 6.32 | 5.5 | 4.01 | 9.45 | 9.4 |
| La | 0.6 | 2.62 | <0.025 | 1.2 | <0.026 | <0.030 | 44.74 | 0.285 | <0.027 | 0.0138 | 0.21 | <0.023 | 35.12 | 0.413 | 16.01 |
| Ce | 75.91 | 22.9 | 32.51 | 11.5 | 15.01 | 4.23 | 112.53 | 40.04 | 20.68 | 34.89 | 21.86 | 34.68 | 133.27 | 14.08 | 207.64 |
| Pr | 0.7 | 0.789 | 0.034 | 0.528 | 0.037 | 0.356 | 10.48 | 0.146 | 0.123 | 0.053 | 0.087 | 0.046 | 9.54 | 0.286 | 5.22 |
| Nd | 10.18 | 4.79 | 0.74 | 3.11 | 1.44 | 8.38 | 41.73 | 1.5 | 3 | 0.96 | 2.15 | 0.98 | 53.61 | 1.87 | 33.88 |
| Sm | 16.59 | 7.22 | 1.76 | 2.57 | 2.78 | 16.22 | 8.41 | 3.42 | 7.12 | 2.36 | 4.93 | 2.32 | 11.91 | 3.21 | 30.52 |
| Eu | 4.88 | 1.5 | 1.07 | 0.279 | 0.63 | 0.228 | 1.52 | 1.34 | 0.676 | 0.778 | 0.479 | 1 | 2.41 | 0.557 | 8.79 |
| Gd | 66.02 | 28.59 | 15.24 | 10.27 | 17.4 | 30.77 | 15.47 | 26.06 | 37.81 | 10.56 | 27.59 | 13.67 | 31.71 | 19.53 | 108.29 |
| Tb | 24.87 | 10 | 6.17 | 4.46 | 6.72 | 6.64 | 4.97 | 10.48 | 14.01 | 3.72 | 10.41 | 5.21 | 11.13 | 10.39 | 34.77 |
| Dy | 324.69 | 116.08 | 84.6 | 58.35 | 88.89 | 49.08 | 62.33 | 143.32 | 175.24 | 50.43 | 134.54 | 63.68 | 148.56 | 162.11 | 367.3 |
| Ho | 132.55 | 40.94 | 36.09 | 24.54 | 34.73 | 11.07 | 23.95 | 57.45 | 64.33 | 18.62 | 51.68 | 26.01 | 55.53 | 71.37 | 121.39 |
| Er | 678.66 | 179.93 | 179.68 | 116.83 | 158.37 | 33.19 | 113.48 | 274.33 | 286.14 | 86.09 | 228.79 | 131.87 | 262.25 | 353.55 | 475.59 |
| Tm | 191.05 | 41.12 | 48.71 | 29.72 | 39.58 | 6.52 | 29.62 | 70.74 | 68.63 | 23.41 | 54.83 | 35.71 | 59.53 | 98.64 | 103.99 |
| Yb | 2225.29 | 424.86 | 606.25 | 341.5 | 427.03 | 66.35 | 379.87 | 817.27 | 712.91 | 278.11 | 581.71 | 448.7 | 663.38 | 1192.54 | 1039.02 |
| Lu | 399.71 | 68.92 | 111.35 | 58 | 71.11 | 8.95 | 66.67 | 132.35 | 100.33 | 46.56 | 86.92 | 82.47 | 124.55 | 210.28 | 147.73 |
| Hf | 48703.65 | 13415.02 | 16572.04 | 17092.71 | 16600.03 | 20274.32 | 16124.31 | 13355.66 | 12580.61 | 14263.85 | 12842.64 | 15219.52 | 14905.77 | 16610.21 | 11656.31 |
| **Hf (wt%)** | **4.870365** | **1.341502** | **1.657204** | **1.709271** | **1.660003** | **2.027432** | **1.612431** | **1.335566** | **1.258061** | **1.426385** | **1.284264** | **1.521952** | **1.490577** | **1.661021** | **1.165631** |
| Ta | 43.65 | 1.232 | 1.78 | 2.16 | 1.506 | 0.225 | 1.049 | 2.65 | 1.391 | 0.992 | 2.97 | 1.93 | 1.88 | 8.03 | 2.45 |
| Pb206 | 414.98 | 67.72 | 100.53 | 160.79 | 162.74 | 184.02 | 75.8 | 115.58 | 490.33 | 73.66 | 95.64 | 95.57 | 185.34 | 730.97 | 198.69 |
| Pb207 | 30.55 | 6.79 | 6.37 | 11.65 | 11.78 | 11 | 5.22 | 6.99 | 40.95 | 4.38 | 7.81 | 6.55 | 12.47 | 67.29 | 10.92 |
| Pb208 | 24.59 | 9.93 | 7.32 | 6.72 | 5.08 | 13.81 | 5.56 | 6.8 | 26.17 | 8.17 | 9.39 | 8.48 | 15.96 | 16.45 | 45.54 |
| Th | 926.24 | 370.92 | 336.83 | 130.87 | 110.36 | 312.49 | 269.15 | 254.32 | 261.78 | 408.75 | 275.43 | 331.54 | 835.15 | 166.38 | 1696.68 |
| U | 3136.72 | 433.3 | 812.54 | 626.86 | 451.96 | 564.6 | 623.07 | 736.94 | 701.73 | 548.87 | 621.02 | 637.59 | 1338.57 | 1366.12 | 1239.79 |

| Element | T16 | T17 | T18 | T19 | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | 336174.6 | 231859.3 | 285611.3 | 279957 | 234531.8 | 252818.5 | 175907.7 | 287338.8 | 192562.9 | 181049.1 | 219640.4 | 210965.8 | 289877.8 | 196791.7 | 243711.2 |
| Ti | <22.60 | <22.87 | <24.75 | 328.09 | <18.92 | <17.53 | <18.04 | 49.39 | 27.34 | <16.25 | 26.18 | <15.30 | <24.79 | <18.13 | <19.29 |
| Y | 1788.54 | 1206.37 | 1615.82 | 5911.13 | 882.86 | 1049.59 | 1042.68 | 2480.33 | 972.6 | 3674.17 | 590.1 | 1124.88 | 2065.38 | 922.96 | 610.26 |
| Zr | 455166.1 | 384832 | 428916.6 | 460153.2 | 376735.4 | 343074.3 | 323691.3 | 428984 | 380607.3 | 358722.4 | 404412.7 | 384984.1 | 472416.1 | 352914.8 | 437127.6 |
| Nb | 11.69 | 2.04 | 4.97 | 4.84 | 96.46 | 2.03 | 9.36 | 7.1 | 4.76 | 45.08 | 2.11 | 1.75 | 1.77 | 2.45 | 1.49 |
| La | 0.348 | 6.71 | 0.95 | 0.529 | 0.057 | 0.163 | <0.0225 | 2.83 | 0.021 | 0.168 | 0.035 | 0.018 | 7.95 | <0.0151 | <0.032 |
| Ce | 5.67 | 31.8 | 35.56 | 3.49 | 7.77 | 23.37 | 13.54 | 35.44 | 29.48 | 29.07 | 8.52 | 21.53 | 44.1 | 21.91 | 1.21 |
| Pr | 0.131 | 2.34 | 0.391 | 0.372 | 0.019 | 0.924 | 0.044 | 1.66 | 0.115 | 0.41 | 0.196 | 0.145 | 2.27 | 0.054 | 0.014 |
| Nd | 1.89 | 13.01 | 3.94 | 5.62 | 0.45 | 1.08 | 0.74 | 12.32 | 2.09 | 5.63 | 3.58 | 2.61 | 18.22 | 1.2 | 0.72 |
| Sm | 4.39 | 7.2 | 7.48 | 15.21 | 1.51 | 2.21 | 2.21 | 13.91 | 5 | 10.85 | 6.06 | 6.69 | 16.64 | 2.54 | 3.25 |
| Eu | 1.14 | 0.566 | 1.51 | 0.379 | 0.201 | 1.22 | 0.082 | 1.45 | 0.366 | 1.58 | 0.502 | 2.11 | 4.25 | 1.13 | 0.299 |
| Gd | 29.85 | 23.1 | 30.96 | 90.75 | 11.21 | 17.31 | 15.39 | 50.82 | 21.25 | 61.9 | 29.65 | 24.99 | 51.5 | 13.2 | 22.67 |
| Tb | 12.82 | 8.34 | 12.03 | 40.04 | 6.16 | 6.99 | 6.76 | 16.71 | 8.11 | 25.28 | 8.52 | 8.27 | 17.62 | 5.24 | 8.4 |
| Dy | 155.55 | 102.74 | 142.02 | 542.59 | 82.94 | 92.64 | 89.88 | 229.99 | 90.62 | 332.51 | 71.4 | 97.68 | 189.61 | 70.51 | 71.87 |
| Ho | 56.95 | 40.11 | 53.28 | 211 | 30.19 | 36.73 | 34.54 | 86.32 | 33.88 | 128.07 | 19.85 | 35.96 | 62.46 | 29.47 | 19.11 |
| Er | 230.55 | 177.52 | 242.01 | 919.2 | 132.34 | 173.23 | 152.65 | 357.65 | 144.05 | 532.79 | 63.08 | 158.14 | 268.2 | 140.85 | 69.17 |
| Tm | 51.86 | 43.57 | 60.15 | 206.91 | 30.68 | 44.29 | 38.18 | 84.74 | 32.79 | 108.42 | 10.16 | 39.83 | 65.93 | 36.57 | 15.65 |
| Yb | 549.33 | 488.77 | 669.49 | 2026.76 | 296.98 | 478.4 | 412.53 | 985.09 | 339.57 | 967.29 | 80.73 | 454.96 | 711.43 | 442.27 | 158.45 |
| Lu | 79.52 | 78.54 | 115.42 | 319.15 | 44.02 | 76.7 | 61.43 | 168.53 | 55.51 | 145.45 | 10.26 | 75.51 | 108.51 | 76.37 | 22.84 |
| Hf | 18166.93 | 14308.79 | 15779.19 | 18265.46 | 23494.95 | 12545 | 13031.74 | 16661.09 | 14153.61 | 13229.32 | 14905.77 | 14095.1 | 14905.77 | 11413.79 | 18262.07 |
| **Hf (wt%)** | **1.816693** | **1.430879** | **1.577919** | **1.826546** | **2.349495** | **1.2545** | **1.303174** | **1.666109** | **1.415361** | **1.322932** | **1.490577** | **1.40951** | **1.490577** | **1.141379** | **1.826207** |
| Ta | 4.42 | 0.733 | 1.99 | 1.64 | 32.11 | 0.612 | 3.41 | 2.17 | 2.61 | 10.89 | 0.936 | 0.827 | 0.746 | 0.749 | 0.61 |
| Pb206 | 560.87 | 417.46 | 185.29 | 390.24 | 678.07 | 142.8 | 148.97 | 711.57 | 86.65 | 186.23 | 240.57 | 56.81 | 77.96 | 24.08 | 197.79 |
| Pb207 | 36.14 | 37.43 | 12.09 | 36.1 | 45.95 | 10.02 | 12.35 | 49.02 | 5.41 | 12.85 | 16.96 | 2.72 | 7.53 | 2.03 | 11.71 |
| Pb208 | 11.66 | 25.84 | 15.67 | 14.07 | 3.67 | 21.03 | 5.2 | 37.1 | 6.45 | 13.94 | 12.37 | 4.17 | 14.32 | 2.97 | 1.45 |
| Th | 203.45 | 219.14 | 609.66 | 118.24 | 53.2 | 349.34 | 50.23 | 861.93 | 321.99 | 465.36 | 236.62 | 199.73 | 490.66 | 117.84 | 26.15 |
| U | 1752.41 | 587.45 | 1193.12 | 637.23 | 1972.36 | 347 | 217.28 | 2436.44 | 627.16 | 699.25 | 684.24 | 376.14 | 563.29 | 162.6 | 1288.52 |

**Supplementary Table 24: Raw trace element data from sample NZ1304, concentrations given in ppm.**

| Element | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | 274107.8 | 163867.3 | 362169.7 | 197796.6 | 243035 | 227385.6 | 146295.2 | 194526.9 | 245996.6 | 193430.9 | 236259.8 | 224654.3 | 291454 | 271285.6 | 279658.7 | 270649.1 | 212098.9 | 228940.3 | 260586.9 | 211176.4 | 222907.8 | 229436 | 211565.6 | 197092.5 | 243614.5 | 271401.9 | 202056.3 | 254541.3 | 199180.1 | 482107.1 |
| Ti | <36.64 | <14.27 | 29.04 | 30.41 | 127.46 | <18.06 | <17.53 | 28.45 | <21.09 | 19.41 | <29.06 | <27.36 | <39.35 | <33.80 | <48.06 | <33.35 | <37.28 | <25.62 | <30.25 | <19.17 | <18.59 | <26.97 | 23.85 | 18.09 | <31.49 | <39.06 | <22.27 | <22.07 | 53.93 | <64.49 |
| Y | 262.01 | 1815.42 | 1789.33 | 858.43 | 2690.07 | 786.54 | 977.03 | 1767.49 | 1939.49 | 2717.42 | 3205.81 | 5023.53 | 2586.51 | 2331.15 | 2056.1 | 789.04 | 1233.54 | 1153.08 | 1735.82 | 1804.82 | 935.73 | 1222.89 | 790.77 | 1284.82 | 512.89 | 1960.29 | 2278.72 | 2414.76 | 3639.17 | 5775.05 |
| Zr | 507601.2 | 304347.3 | 540183.4 | 377840.3 | 455135.4 | 365786.1 | 277636.7 | 371563.5 | 384288.1 | 344230.7 | 377398.9 | 380958 | 482014.3 | 493466.3 | 492160.3 | 469286.5 | 428317.3 | 382245.8 | 421693.2 | 383054.5 | 397671.1 | 378386.1 | 395697.7 | 356574 | 455550.8 | 535496.4 | 371991.9 | 428716.1 | 344043.3 | 763778.9 |
| Nb | 1.45 | 4.16 | 9.55 | 2.33 | 3.24 | 3.55 | 3.94 | 5.87 | 11.23 | 7.3 | 10.57 | 10.93 | 3.03 | 9.87 | 1.87 | 1.42 | 5.91 | 4.14 | 4.53 | 8.05 | 3.07 | 5.34 | 2.91 | 4.99 | 0.73 | 2.63 | 3.79 | 3.96 | 10.92 | 20.49 |
| La | <0.034 | 0.017 | 13.78 | <0.0151 | 0.19 | 19.09 | 0.021 | 0.068 | <0.031 | 0.518 | 0.03 | 0.458 | 0.025 | 0.23 | 0.03 | <0.035 | 0.113 | 0.316 | 3.05 | 0.574 | 0.042 | 2.04 | 5.03 | 0.407 | 0.047 | 0.012 | 0.568 | 1.26 | 43.14 | 0.129 |
| Ce | 20.09 | 6.4 | 43.62 | 21.34 | 5.35 | 83.16 | 12.24 | 19.37 | 28.25 | 4.25 | 34.84 | 136.3 | 52.89 | 21.2 | 8.27 | 1.18 | 26.15 | 40.83 | 38.34 | 33.15 | 29.7 | 74.09 | 43.41 | 27.26 | 1.57 | 17.37 | 28.69 | 58.6 | 170.62 | 47.89 |
| Pr | 0.059 | 0.169 | 6.62 | 0.033 | 0.189 | 5.04 | 0.054 | 0.13 | 0.077 | 0.242 | 0.222 | 1.02 | 0.488 | 0.358 | 0.078 | 0.138 | 0.117 | 0.141 | 1.98 | 0.32 | 0.071 | 1.25 | 1.39 | 0.364 | 0.142 | 0.102 | 0.464 | 0.608 | 25.02 | 0.339 |
| Nd | 0.83 | 3.04 | 49.17 | 0.91 | 2.18 | 22 | 0.94 | 1.9 | 2.13 | 1.7 | 3.95 | 19.29 | 8.86 | 4.75 | 2.32 | 2.26 | 1.25 | 1.82 | 15.72 | 3.92 | 1.62 | 9.48 | 7.73 | 3.22 | 3.53 | 1.74 | 6 | 7.04 | 125.8 | 6.22 |
| Sm | 0.75 | 6.92 | 23.45 | 3.03 | 6.58 | 6.39 | 2.83 | 6.56 | 4.66 | 4.35 | 9.48 | 33.12 | 19.54 | 9.44 | 6.22 | 8.44 | 2.84 | 3.85 | 16.35 | 8.57 | 2.92 | 7.76 | 4.93 | 5.02 | 11.33 | 5.16 | 11.75 | 13.96 | 51.11 | 20.97 |
| Eu | 0.67 | 0.227 | 3.8 | 0.683 | 0.406 | 1.72 | 0.31 | 0.294 | 0.93 | 0.241 | 2.46 | 10.11 | 2.19 | 2.02 | 1.96 | 0.355 | 0.344 | 1.18 | 0.92 | 1.55 | 0.75 | 2.36 | 0.8 | 0.477 | 0.75 | 1.86 | 2.27 | 2.01 | 1.66 | 0.73 |
| Gd | 5.3 | 32.75 | 68.17 | 16.04 | 42.7 | 15.74 | 17.36 | 29.89 | 32.15 | 35.18 | 64.26 | 158 | 84.48 | 50.9 | 39.16 | 50.9 | 19.06 | 21.4 | 59.77 | 41.72 | 15.86 | 29.82 | 17.55 | 23.68 | 43.6 | 33.85 | 53.48 | 53.54 | 107.4 | 129.82 |
| Tb | 1.62 | 13.54 | 19.99 | 5.94 | 19.62 | 4.59 | 6.98 | 12.19 | 12.65 | 16.02 | 23.04 | 48.46 | 26.48 | 17.34 | 14.23 | 14.24 | 8.04 | 7.79 | 18.14 | 14.19 | 5.83 | 9.45 | 6.07 | 9.06 | 10.97 | 13.1 | 18.68 | 19.17 | 33.85 | 49.94 |
| Dy | 20.45 | 163.63 | 202.76 | 73.23 | 244.87 | 56.91 | 90.87 | 152.44 | 163.3 | 230.72 | 286.51 | 510.38 | 259.95 | 217.94 | 174.87 | 110.6 | 103.18 | 93.79 | 206.5 | 181.6 | 69.53 | 98.45 | 73.4 | 115.14 | 78.33 | 170.54 | 221.71 | 233.98 | 401.44 | 638.18 |
| Ho | 8.32 | 58.67 | 71.24 | 28.01 | 82.54 | 24.7 | 36.43 | 55.54 | 67.32 | 102.31 | 119.72 | 183.4 | 86.97 | 85.06 | 66.95 | 27.29 | 41.64 | 37.97 | 69.27 | 70.1 | 28.03 | 39.73 | 27.25 | 47.06 | 17.53 | 69.38 | 82.69 | 85.83 | 142.93 | 220.81 |
| Er | 39.75 | 258.05 | 303.31 | 130.04 | 337.52 | 115.33 | 171.24 | 253.08 | 336.86 | 472.97 | 556.79 | 817.02 | 371.39 | 364.14 | 306.24 | 102.3 | 199.44 | 180.08 | 267.29 | 318.61 | 141.42 | 189.19 | 123.96 | 206.73 | 48.91 | 295.69 | 345.15 | 364.81 | 603.29 | 911.83 |
| Tm | 11.33 | 66.12 | 64.59 | 32.93 | 73.23 | 27.61 | 39.45 | 62.71 | 81.97 | 107.45 | 119.83 | 179.71 | 77.51 | 78.15 | 67.81 | 23.4 | 49.42 | 42.85 | 54.24 | 68.67 | 38.27 | 48.58 | 28.66 | 44.46 | 7.62 | 65.93 | 75.78 | 83.88 | 132.15 | 199.2 |
| Yb | 129.96 | 693.11 | 577.6 | 380.03 | 678.39 | 295.31 | 377.81 | 629.23 | 850.52 | 1057.21 | 1134 | 1681.88 | 674.8 | 771.6 | 669.56 | 253.57 | 512.28 | 472.09 | 516.23 | 673.28 | 427.55 | 510.07 | 295.4 | 451.12 | 56.35 | 691.67 | 793.23 | 890.77 | 1305.79 | 1957.24 |
| Lu | 25.88 | 97.38 | 84.71 | 58.46 | 94.15 | 63.67 | 61.51 | 101.76 | 135.08 | 172.01 | 167.7 | 252.41 | 93.04 | 135.33 | 115.02 | 40.93 | 83.32 | 81.11 | 72.24 | 111.84 | 68.06 | 87.65 | 48.86 | 69.24 | 6.95 | 111.2 | 123.28 | 130.54 | 176.09 | 245.85 |
| Hf | 17696.46 | 12001.44 | 20768.69 | 13318.35 | 15785.12 | 14318.96 | 11936.99 | 16553.39 | 16949.39 | 16315.95 | 11310.34 | 12210.89 | 17995.8 | 13437.07 | 17696.46 | 20022.47 | 16857.81 | 13357.36 | 12835 | 14509.76 | 15193.23 | 14509.76 | 15801.23 | 12729.01 | 19675.65 | 16078.52 | 12560.26 | 16970.6 | 16543.21 | 21221.51 |
| **Hf (wt%)** | **1.769646** | **1.200144** | **2.076869** | **1.331835** | **1.578512** | **1.431896** | **1.193699** | **1.655339** | **1.694939** | **1.631595** | **1.131034** | **1.221089** | **1.79958** | **1.343707** | **1.769646** | **2.002247** | **1.685781** | **1.335736** | **1.2835** | **1.450976** | **1.519323** | **1.450976** | **1.580123** | **1.272901** | **1.967565** | **1.607852** | **1.256026** | **1.69706** | **1.654321** | **2.122151** |
| Ta | 0.418 | 2.24 | 3.87 | 1.074 | 1.404 | 0.778 | 2.09 | 2.07 | 4.37 | 6.15 | 2.11 | 2.69 | 1.178 | 2.36 | 0.582 | 0.719 | 2.07 | 1.286 | 1.62 | 2.22 | 1.74 | 1.24 | 1.86 | 2.26 | 0.054 | 0.932 | 3.27 | 2.72 | 5.06 | 5.72 |
| Pb206 | 122.79 | 92.47 | 193.56 | 41.89 | 129.29 | 69.75 | 231.9 | 316.26 | 141 | 106.55 | 128.27 | 140.89 | 69.82 | 125.19 | 165.31 | 345.32 | 328.64 | 67.17 | 334.36 | 95.7 | 83.42 | 216.1 | 77.41 | 154.62 | 534.11 | 40.96 | 94.48 | 169.25 | 296.56 | 795.29 |
| Pb207 | 17.61 | 5.75 | 21.54 | 2.71 | 7.54 | 10.42 | 19.54 | 19.17 | 8.04 | 8.99 | 10.09 | 8.23 | 3.93 | 7.28 | 14.04 | 21.76 | 37.2 | 4.47 | 22.24 | 5.6 | 4.84 | 12.91 | 4.53 | 10.12 | 36.67 | 2.7 | 5.55 | 10.95 | 21.9 | 70.58 |
| Pb208 | 14.76 | 4.6 | 10.33 | 3.61 | 3.82 | 12.99 | 12.34 | 8.44 | 9.12 | 5.36 | 13.9 | 34.82 | 9.96 | 9.47 | 6.95 | 4.72 | 20.25 | 6.69 | 26.44 | 7.66 | 7.27 | 32.15 | 7.05 | 11.25 | 2.59 | 3.92 | 8.45 | 17.92 | 20.37 | 27.76 |
| Th | 91.48 | 179.02 | 72.2 | 152.52 | 69.41 | 342.54 | 137.8 | 191.48 | 465.37 | 61.38 | 232.73 | 1720.79 | 500.51 | 397.94 | 67.44 | 91.77 | 137.18 | 274.47 | 491.63 | 367.52 | 312.93 | 1349.13 | 326.39 | 237.79 | 41.27 | 85.29 | 356.03 | 853.09 | 541 | 180.83 |
| U | 99.35 | 509.01 | 196.29 | 251.18 | 344.79 | 454.79 | 353.72 | 904.01 | 1161.91 | 413.52 | 359.11 | 1122.93 | 538.27 | 764.9 | 238.54 | 1037.08 | 361.42 | 446.89 | 992.81 | 745.3 | 582.48 | 1397.76 | 539.01 | 519.25 | 1512.7 | 136.3 | 591.69 | 1389.71 | 1457.46 | 830.15 |

**Supplementary Table 25: Raw trace element data from sample NZ1323, concentrations given in ppm.**

| Element | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Si | 227976.7 | 219829.6 | 241521.7 | 244658.3 | 220769.8 | 286098.4 | 253472 | 234308.4 | 242889.3 | 247373 | 259138.7 | 265165.4 | 226636.2 | 201887 | 458886.2 | 234995.8 | 170016.1 | 243982.5 | 214538.5 | 212708.6 | 287373.1 | 313751.6 | 233644.5 | 247521.3 | 289374.5 | 237972.7 | 210632.3 | 312675.2 | 235411.9 | 188541.6 |
| Ti | <35.69 | <25.11 | <35.18 | <25.24 | <23.09 | <43.23 | <37.44 | <33.73 | <38.11 | <32.71 | <16.29 | <44.01 | <27.53 | <21.91 | 608.96 | <37.76 | <26.42 | <44.01 | <34.81 | <29.01 | <67.74 | <51.62 | <28.00 | 38.23 | <34.81 | <33.64 | <23.59 | 41.17 | 1508.52 | <25.04 |
| Y | 1111.67 | 1320.31 | 7507.76 | 2323.12 | 1109.73 | 1297.24 | 1139.6 | 856.82 | 1423.8 | 2477.12 | 710.62 | 962.97 | 718.52 | 1697.6 | 2594.91 | 979.64 | 457.82 | 1034.49 | 319.86 | 1083.1 | 2778.16 | 2102.06 | 2309.69 | 2632.64 | 783.48 | 861.39 | 1471.13 | 2422.16 | 1248.86 | 897.6 |
| Zr | 412503.3 | 366227 | 388408.6 | 414035.9 | 370878.5 | 483703.2 | 441487.3 | 392998 | 412757.7 | 382186.9 | 443474.5 | 402163.8 | 399228.1 | 355088.2 | 654835.4 | 412865.4 | 287250.4 | 421117.8 | 360426.3 | 376789.8 | 519946.3 | 549982.5 | 396003.8 | 428518.6 | 472406.8 | 419253.1 | 395175.3 | 521889.3 | 474415.5 | 366174.6 |
| Nb | 2.65 | 11.15 | 33.98 | 25.51 | 2.53 | 3.68 | 5.5 | 3.16 | 8.06 | 3.99 | 2.36 | 2.09 | 2.19 | 9.01 | 6.93 | 3.83 | 1.16 | 4.42 | 2.72 | 4.02 | 5.29 | 6.7 | 0.67 | 2.24 | 1.7 | 2.55 | 5.91 | 8.21 | 6.97 | 3.82 |
| La | 0.315 | 7.81 | <0.022 | 0.516 | 9.56 | 0.029 | 0.188 | 0.0057 | 0.563 | 1.76 | <0.021 | 0.22 | 0.131 | 5.13 | 5.86 | 25.08 | 0.068 | 62.65 | 0.235 | 6.72 | 0.053 | 3.14 | 0.007 | 0.059 | <0.023 | 0.025 | 1.42 | 8.23 | 0.614 | 0.251 |
| Ce | 28.3 | 38.47 | 58.21 | 23.32 | 53.03 | 13.24 | 56.63 | 7.06 | 20.79 | 73.7 | 2.85 | 23.91 | 22.85 | 68.57 | 37.48 | 83.16 | 8.31 | 152.27 | 29.31 | 23.71 | 29.44 | 42.69 | 2.19 | 11.22 | 28.54 | 31.08 | 62.17 | 124.37 | 43.67 | 46.07 |
| Pr | 0.191 | 5.44 | 0.321 | 0.284 | 2.79 | 0.062 | 0.167 | 0.018 | 0.352 | 0.695 | <0.023 | 0.114 | 0.111 | 1.35 | 2.38 | 6.11 | 0.029 | 14.93 | 0.288 | 1.8 | 0.336 | 1.03 | 0.243 | 0.121 | 0.09 | 0.072 | 0.86 | 2.01 | 0.308 | 0.09 |
| Nd | 2.28 | 34.33 | 6.14 | 2.43 | 11.86 | 1.16 | 2.66 | 0.48 | 3.08 | 8.65 | 0.56 | 2.06 | 1.34 | 7.7 | 17.04 | 29.31 | 0.55 | 58.09 | 2.86 | 11.21 | 5.27 | 5.98 | 4.43 | 4.37 | 1.17 | 1.32 | 7.84 | 11.04 | 2.58 | 1.34 |
| Sm | 4.67 | 18.45 | 22.55 | 4.77 | 7.36 | 4.66 | 4.83 | 1.59 | 4.54 | 11.85 | 1.51 | 4.06 | 2.66 | 5.78 | 16.61 | 7.7 | 1.53 | 11.37 | 3.42 | 6.28 | 10.27 | 7.33 | 17.29 | 10.29 | 2.95 | 2.35 | 8.22 | 10.21 | 2.22 | 2.58 |
| Eu | 1.28 | 3.03 | 2.07 | 0.237 | 2.05 | 0.64 | 1.81 | 0.324 | 0.63 | 2.97 | 0.25 | 1 | 0.98 | 1.31 | 1.47 | 1.51 | 0.688 | 2.29 | 0.788 | 0.673 | 2.35 | 0.98 | 0.445 | 1.35 | 1.47 | 0.83 | 1.8 | 3.07 | 1.04 | 0.97 |
| Gd | 21.22 | 34.6 | 140.01 | 31.88 | 26.15 | 23.91 | 23.06 | 14.06 | 24.11 | 52.59 | 12.29 | 19.11 | 11.59 | 25.08 | 66.05 | 21.79 | 8.2 | 21.06 | 9.88 | 23.84 | 63.23 | 37.07 | 95.14 | 64.49 | 13.84 | 12.63 | 26.46 | 46.62 | 15.73 | 13.67 |
| Tb | 7.26 | 9.45 | 57.54 | 13.35 | 7.76 | 9.87 | 7.8 | 5.41 | 8.78 | 18.94 | 4.95 | 6.81 | 4.17 | 9.6 | 20.26 | 6.83 | 3.25 | 6.47 | 2.84 | 8.23 | 21.24 | 14.06 | 31.53 | 22.74 | 4.65 | 4.77 | 9.86 | 16.35 | 5.84 | 4.88 |
| Dy | 88.78 | 107.79 | 701.7 | 200.81 | 88.27 | 119.18 | 95.51 | 75.03 | 124.98 | 210.91 | 63.61 | 73.84 | 55.59 | 127.95 | 234.18 | 74.77 | 39.78 | 77.6 | 28.1 | 100.61 | 240.86 | 179.72 | 302.45 | 259.31 | 58.91 | 63.89 | 126.35 | 196.32 | 73.93 | 65.88 |
| Ho | 34.07 | 39.51 | 243.68 | 84.01 | 36.99 | 44.59 | 38.18 | 30.75 | 50.26 | 78.1 | 23.16 | 29.91 | 22.98 | 53.03 | 85.53 | 27.75 | 15.31 | 32.3 | 10.87 | 37.65 | 89.96 | 68.36 | 85.54 | 92.87 | 22.92 | 25.31 | 47.01 | 76.73 | 33.06 | 28.51 |
| Er | 166.87 | 186.62 | 1040.65 | 394.15 | 175.66 | 201.14 | 173.13 | 154.53 | 227.08 | 350.47 | 102.9 | 153.39 | 117.17 | 265.4 | 349.15 | 145.42 | 73.21 | 163.42 | 48.6 | 166.1 | 440.65 | 308.07 | 290.72 | 401.28 | 114.74 | 130.34 | 216.1 | 349.81 | 180.09 | 146.02 |
| Tm | 44.83 | 48.41 | 237.26 | 89.52 | 41.52 | 48.2 | 40.95 | 36.11 | 49.61 | 84.97 | 24 | 38.26 | 30.61 | 71.82 | 74.48 | 36.09 | 18.21 | 42.13 | 11.07 | 39.91 | 99.07 | 72.05 | 52.61 | 83.41 | 30.26 | 34.75 | 54.98 | 90.4 | 48.56 | 37.65 |
| Yb | 526.35 | 578.92 | 2382.06 | 992.65 | 451.68 | 484.65 | 485.17 | 364.3 | 515.87 | 899.26 | 270.22 | 419.42 | 389 | 851.37 | 754.18 | 410.3 | 205.32 | 495.29 | 122.79 | 410.41 | 943.53 | 736.96 | 438.16 | 777.66 | 371.05 | 421.98 | 620.69 | 996.5 | 548.02 | 468.42 |
| Lu | 90.34 | 90.85 | 358.98 | 158.78 | 75.98 | 71.37 | 84.18 | 62.17 | 83.62 | 140.38 | 44.9 | 67.36 | 68.73 | 131.71 | 116.19 | 69 | 34.94 | 91.77 | 20.7 | 64.23 | 138.6 | 116.86 | 59.31 | 102.85 | 72.16 | 74.4 | 108.6 | 167.01 | 120.13 | 80.65 |
| Hf | 14247.74 | 16935.83 | 13463.36 | 18705.57 | 14469.91 | 15785.97 | 15419.65 | 15975.07 | 16129.41 | 13224.23 | 16129.41 | 15419.65 | 14151.92 | 14046.77 | 20350.64 | 15032.96 | 9518.56 | 16179.43 | 15702.02 | 12751.9 | 16002.2 | 18591.93 | 17717.66 | 14932.06 | 17175.81 | 15419.64 | 15419.64 | 19067.65 | 17429.35 | 13543.07 |
| **Hf (wt%)** | **1.424774** | **1.693583** | **1.346336** | **1.870557** | **1.446991** | **1.578597** | **1.541965** | **1.597507** | **1.612941** | **1.322423** | **1.612941** | **1.541965** | **1.415192** | **1.404677** | **2.035064** | **1.503296** | **0.951856** | **1.617943** | **1.570202** | **1.27519** | **1.60022** | **1.859193** | **1.771766** | **1.493206** | **1.717581** | **1.541964** | **1.541964** | **1.906765** | **1.742935** | **1.354307** |
| Ta | 1.266 | 21.87 | 7.75 | 12.48 | 0.853 | 2.07 | 1.56 | 1.63 | 2.67 | 1.73 | 1.51 | 1.055 | 0.871 | 3.57 | 1.25 | 1.79 | 0.479 | 1.46 | 0.899 | 2.2 | 1.39 | 2.5 | 0.1 | 0.737 | 0.382 | 1.35 | 1.85 | 2.11 | 1.57 | 1.152 |
| Pb206 | 73.45 | 530.59 | 366.94 | 545.95 | 62.94 | 137.36 | 90.73 | 123.35 | 145.06 | 265.42 | 260.32 | 45.6 | 64.62 | 197.96 | 275.81 | 83.45 | 182.28 | 95.35 | 60.56 | 89.43 | 92.61 | 138.39 | 371.68 | 104.21 | 119.62 | 75.4 | 100.14 | 191.53 | 110.89 | 79.92 |
| Pb207 | 5.14 | 34.2 | 21.5 | 41.84 | 4.34 | 9.19 | 5.44 | 8.88 | 13.08 | 17.84 | 17.78 | 2.59 | 4.73 | 12.37 | 27.64 | 5.38 | 24 | 6.12 | 4.97 | 6.09 | 6.59 | 9.52 | 24.9 | 8.99 | 6.99 | 5.69 | 6.3 | 11.63 | 10.67 | 5.8 |
| Pb208 | 8.9 | 6.59 | 54.11 | 29.47 | 8.4 | 6.15 | 10.73 | 5.14 | 12.83 | 34.69 | 4.15 | 4.93 | 6.88 | 18.71 | 29.51 | 8.25 | 5.81 | 9.67 | 6.14 | 4.6 | 11.36 | 10.5 | 1.49 | 5.58 | 12.55 | 8.42 | 12.2 | 23.88 | 12.86 | 8.58 |
| Th | 383.7 | 123.66 | 1117.99 | 555.28 | 390.93 | 115.76 | 518.55 | 109.09 | 197.29 | 753.66 | 74.48 | 206.42 | 274.82 | 837.91 | 231.3 | 346.55 | 41.37 | 472.68 | 108.88 | 87.57 | 212.99 | 219.08 | 31.52 | 63.71 | 620.01 | 365.33 | 629.51 | 973.65 | 494.78 | 362.32 |
| U | 509.78 | 2689.97 | 1009.23 | 1800.57 | 510.57 | 351 | 726.78 | 417.65 | 506.48 | 900.64 | 744.68 | 323.45 | 483.13 | 1370.58 | 442.02 | 550.8 | 162.34 | 680.2 | 223.06 | 298.18 | 279.21 | 395.74 | 1217.75 | 168.13 | 850.7 | 542.71 | 714.75 | 1179.67 | 694.54 | 544.26 |

**Supplementary Table 26: Raw trace element data from sample NZ1324, concentrations given in ppm.**