

Appendix 2

Analytical methodologies and data repository of Chapter 3

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1. Analytical Procedures

1.1 SHRIMP analytical procedures

Igneous or metamorphic samples were collected for zircon SHRIMP U-Pb dating using a SHRIMP- II at the Beijing SHRIMP Center in the Chinese Academy of Geological Sciences. Zircons were mounted in epoxy resin together with chips of the zircon standard M257 (Nasdala et al., 2008) at the Beijing SHRIMP Center, Chinese Academy of Geological Sciences. The mounts were ground down and polished so that the zircons were approximately sectioned in half, and grains were photographed in reflected and transmitted light and under cathodoluminescence (after gold coating) to enable easy and best location for analytical spots during analysis.

Cathodoluminescence (CL) images of the analyzed zircons were obtained before analysis by a Hitachi SEM S-3000N equipped with a Gatan ChromaCL detector and a DigiSan II data recorder in the Beijing SHRIMP Centre. The SHRIMP- II analyses and laboratory procedures followed established methods (Kröner et al., 2012), with instrumental characteristics described in (de Laeter & Kennedy, 1998). Prior to each analysis, the surface of the site was pre-cleaned by rastering with the primary beam for 2-3 min. to reduce or eliminate surface common Pb. The reduced $^{206}\text{Pb}/^{238}\text{U}$ ratios were normalized to 0.09100, which is equivalent to the adopted age of 561.3 Ma for standard M257 (Nasdala et al., 2008). For data collection, five scans through the critical mass range were made. Primary beam intensity was between 5 and 6 nA, and a Köhler aperture of 100 μm diameter was used, giving a slightly elliptical spot of about 30 μm in size. Peak resolution at 1 % peak height was between 5000 and 5200, enabling clear separation of the ^{208}Pb -peak from the HfO peak. Sensitivity was about 25 cps/ppm/nA Pb on the standard.

Analyses of samples and standards were alternated to allow assessment of Pb^+/U^+ discrimination. The 1-sigma error of the $^{206}\text{Pb}/^{238}\text{U}$ ratio during analysis of all standard zircons during this study was between 0.4 and 1.1 %. Raw data reduction and error assessment followed the method described by Nelson (1997), using the Macintosh software programs Prawn 6.4, WALLEAD 2.7 and Plonk 4.3. Common-Pb corrections were applied using the ^{204}Pb -correction method, and because of very low counts on ^{204}Pb in most samples it was assumed that common lead is surface-related (Kinny, 1986) and, therefore, the isotopic composition of Broken Hill lead was used for correction. Analyses with ^{204}Pb counts more than 3 times background were corrected using the Cumming and Richards (1975) values. The analytical data are presented in table format in supplement materials. Errors of individual analyses are given at the 1-sigma level and are based on counting statistics and include the uncertainty in the U/Pb age of the standard, added in quadrature (Nelson, 1997). Errors of pooled analyses are reported at the 1-sigma confidence

interval. The data are graphically presented on conventional concordia diagrams. Uncertainties in ages are quoted at the 95% confidence level. Common Pb corrections were based on measurements of ^{204}Pb . The single-grain concordia age and associated uncertainty were calculated in IsoplotR (Vermeesch, 2018) as the maximum likelihood intersection between the Wetherill concordia line and the ($^{207}\text{Pb}/^{235}\text{U}$ - $^{208}\text{Pb}/^{238}\text{U}$) error ellipse from the common Pb corrected ratios of $^{238}\text{U}/^{206}\text{Pb}$ and $^{207}\text{Pb}/^{206}\text{Pb}$ as well as their 1-sigma errors and the associated error correlation (ρ) values. Percentage of discordance was calculated from common Pb corrected $^{206}\text{Pb}/^{238}\text{U}$ and $^{206}\text{Pb}/^{207}\text{Pb}$ ages instead of $^{207}\text{Pb}/^{235}\text{U}$, considering ratios of $^{206}\text{Pb}/^{238}\text{U}$ and $^{206}\text{Pb}/^{207}\text{Pb}$ are the two which are measured from SHRIMP- II, and ages of $^{207}\text{Pb}/^{235}\text{U}$ are only calculated from measured ratios of $^{206}\text{Pb}/^{238}\text{U}$, $^{206}\text{Pb}/^{207}\text{Pb}$ and a natural U isotope ratio. Additionally, $^{207}\text{Pb}/^{235}\text{U}$ age might be the least precise and accurate date due to the limited abundance of ^{207}Pb , $^{207}\text{Pb}/^{235}\text{U}$ age is the most affected by even minor common lead and calculating discordance using the $^{207}\text{Pb}/^{235}\text{U}$ age may result in fewer discordant analyses being filtered. $^{207}\text{Pb}/^{235}\text{U}$ and $^{206}\text{Pb}/^{238}\text{U}$ ratios were plotted by isoplotR in 95% confidence level to get the Wetherill concordia diagram and concordia ages. Data from core and rim structures observed from CL imagery were calculated separately to obtain different concordia ages in the same sample. Data columns shaded with grey color were excluded from crystallization age calculation for being outliers from the main population. All results are presented in Table SM1.

1.2 Oxygen isotope procedures

Oxygen-in-zircon was analysed on the SHRIMP IIe of the Beijing SHRIMP Centre. In order to achieve high precision O isotopic measurements, the instrument was equipped with a demountable Cs primary ion source, an electron gun, multi-collector and Helmholtz coils. Cs primary ions produced a strong beam of negative secondary ions for O isotopic analysis. Electrons from the electron gun prevented the accumulation of positive charge on the sample surface. The multi-collector has five collectors. The outer two, equipped with Faraday cups, were used to simultaneously measure ^{18}O and ^{16}O in order to maximize the precision of the $^{18}\text{O}/^{16}\text{O}$ ratio. At the operating mass resolution of ~ 3000 , potential isobaric interferences on ^{18}O from ^{17}OH and ^{16}OD were resolved.

Each $^{18}\text{O}/^{16}\text{O}$ analysis took approximately 7 mins; about 5 mins were used to wait for the isotopic composition to stabilize, during which time the ion beam was tuned, and electrometer baselines were measured, and 2 min of O isotope measurement. The analytical procedures and conditions were similar to those described by Ickert et al. (2008). The intensity of the Cs^+ primary ion beam was ~ 3 nA, producing secondary $^{16}\text{O}^-$ count rates of more than 109 cps. The

spot diameter was $\sim 25\ \mu\text{m}$. Reference material used for calibration of instrumental mass fractionation was TEMORA 2 zircon ($\delta^{18}\text{O} = 8.20\ \text{‰}$; Black et al., 2004) that was mounted together with the unknowns. The standard was analyzed 2 or 3 times at the start of each analytical session, then after every 3 unknown analyses. Instrument parameters and further analytical details on oxygen isotopes in the Beijing SHRIMP Center are described in Wan et al. (2013). The results are presented in Table SM3.

1.3 Lu-Hf isotope analytical procedures

Hafnium isotopic ratios of zircon were conducted by LA-MC-ICP-MS at Nanjing FocuMS Technology Co. Ltd. Australian Scientific Instruments RESolution LR laser-ablation system (Canberra, Australian) and Nu Instruments Nu Plasma II MC-ICP-MS (Wrexham, Wales, UK) were combined for the experiments. The 193 nm ArF excimer laser, homogenized by a set of beam delivery systems, was focused on zircon surface with fluence of $4.5\text{J}/\text{cm}^2$. Each acquisition incorporated 20 s background (gas blank), followed by spot diameter of 50 μm at 10 Hz repetition rate for 40 s. Helium ($370\text{ml}/\text{min}$) was applied as carrier gas to efficiently transport aerosol out of the ablation cell, and was mixed with argon ($\sim 0.97\ \text{L}/\text{min}$) via T-connector before entering ICP torch. Integration time of Nu Plasma II was set to 0.3 s (equating to 133 cycles during the 40 s). Standard zircons (including GJ-1, 91500, Plešovice, Mud Tank, Penglai) were treated as quality control for every fifteen unknown samples.

The placement within investigated zircons is presented in Table SM3, corresponding to the numbering used in Table SM1. A procedure similar to those described in Kemp et al. (2009) and Pietranik et al. (2011) was applied to correct for the isobaric interference of ^{176}Yb on ^{176}Hf . The Yb mass bias was determined by measuring the $^{173}\text{Yb}/^{171}\text{Yb}$ ratio during each run and calculating the $^{176}\text{Yb}/^{177}\text{Hf}$ ratio using the natural $^{176}\text{Yb}/^{171}\text{Yb}$ ratio of 0.897145 (Segal et al. 2003). The ^{176}Lu abundance determination was based on measurements of ^{175}Lu that were then corrected using the natural abundance factor $^{175}\text{Lu}/^{176}\text{Lu} = 0.02655$ (Vervoort et al. 2004). According to a detailed study by Fisher et al. (2011), the Bristol Isotope Group's analytical method for Lu–Hf data acquisition and reduction provides accurate results for both natural and synthetic zircons with a large range of Yb/Hf ratios (typically $^{176}\text{Yb}/^{177}\text{Hf}$ from 0.001 to 0.3).

1.4 Whole rock geochemistry analytical procedures

The whole-rock geochemical analysis conducted by the ALS lab in Vancouver, Canada was performed mostly on rocks from magmatic units and a few from volcano-genetic sedimentary units. Both X-ray fluorescence and ICP-AES instrument finishes were used for the major rock-forming elements following a fusion. A lithium borate fusion prior to acid dissolution

and ICP-MS analysis provided a quantitative analytical approach for the broad suite of trace elements.

Major and trace elements, including rare earth element (REE) concentrations, were determined by X-ray fluorescence spectrometry (XRF) on fused glass beads and pressed powder pellets and by laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS), on glass beads, at the ALS laboratory in Vancouver. To obtain high-precision whole-rock data for REE and trace elements, a LA-ICP-MS technique using an automated iridium strip heater was applied. About 40 mg of rock powder was melted on an iridium strip without flux agent. Melting of the sample to a glass bead was achieved in a closed box under an argon atmosphere to suppress oxidation and to limit volatilization of elements with low boiling points (e.g., Cs, Pb). The fused glass beads were then analyzed. Ablation was achieved with a NewWave Research UP-213 Nd:YAG laser ablation system, using a pulse repetition rate of 10 Hz, pulse energies of ~0.3 mJ, and 100 μm crater diameters. Analyses were performed on an Agilent 7500ce inductively coupled plasma-mass spectrometer in pulse counting mode (one point per peak and 10 ms dwell time). Data reduction was carried out using the Glitter software 4.1. The amount of material ablated in laser sampling is different for each spot analysis. Consequently, the detection limits are different for each spot and were calculated for each individual acquisition. Detection limits generally range between 0.001 and 0.5 ppm ($\mu\text{g/g}$). ^{44}Ca was used as an internal standard. Analyses were calibrated against the silicate glass reference material NIST SRM 612, using the values of Pearce et al. (1997), and the US Geological Survey (USGS) glass standard BCR-2G was measured to monitor accuracy.

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1. Geochronology Analytical Procedures

1.1. Detrital zircon U-Pb geochronology analysis

Zircon samples were prepared using standard crushing and separation techniques during the winters of 2017 and 2018 at University of Waterloo and University of Toronto. The rock samples have abundant nets of fractures due to the weathering in desert and the fractures may contain zircons from sands blown into them. To avoid potential contaminating zircon inside these fractures, the samples were first cut into ~1 cubic cm pieces, washed with tap water, then soaked in Calcium, Lime & Rust Remover (CLR), and finally cleaned using an ultrasonic machine. They were then crushed, grinded and sieved through a 60-mesh, and the denser materials extracted were hand separated from the clay fraction using a gold pan. The resultant dense sands were filtered by a Frantz magnetic separator and lithium Meta-tungstate heavy liquid (LMT) to obtain zircon grains.

The mounted and polished zircon were then imaged with cathodoluminescence (CL) functions of a JEOL JSM6610-Lv scanning electron microscope (SEM) at the University of Waterloo. Zircon U-Pb dating was conducted with the Analyte G2 Excimer laser ablation system, which used a Nu Plasma 2 triple quadrupole Inductively Coupled Plasma Mass Spectrometry (ICP-MS) with a 193nm excimer ArF laser. The analysis was made with a beam of 20 micrometers in diameter, 8 Hz repetition rate and an ablation depth of 20-40 micrometers with a laser energy of ~75 mJ/m². Helium was used as a carrier gas to transport the ablated material from the standard laser-ablation cell, and then mixed with Argon gas through a mixing chamber before entering the ICP-MS torch. The Harvard 91500, PLES and Temora2 (TEM2) standards were performed concurrently with the 'unknown' sample zircons to check the ICP-MS calibration and accuracy of the system externally, and NIST SRM 610 is used for concentration calculations as internal standard. Reference standards as external check were performed after every 6 spots. Each spot analysis consists of approximately 30 seconds of background acquisition followed by 40 seconds of sample data acquisition. The instrumental settings and detailed analytical procedures can be found in the geochemistry lab in Earth Science department at the University of Waterloo.

All LA-ICP-MS detrital zircon analytical results are provided in Table SM-1 in the appendix. The detrital age spectra were assembled by single-grain concordia age results calculated from ratios of $^{207}\text{Pb}/^{235}\text{U}$ and $^{206}\text{Pb}/^{238}\text{U}$ using Isoplot.r (Vermeesch, 2018). Separate histogram plots for Paleozoic and Precambrian grains are provided due to the

lengthy hiatus between their populations and the small number of analyses that prove to be Precambrian. Adaptive kernel density estimates (KDEs) are overlain on all histograms as calculated by the visualization software Density Plotter, which also provides an algorithm for calculation of the labeled component peak ages (Sircombe and Hazelton, 2004; Vermeesch, 2012). Component peak ages and their percentage representation of the population are reported with the respective plot. Radial plots (Galbraith and Green, 1990) were prepared with the software Radial Plotter (Vermeesch, 2009) to visualize the differing precision distributions (σ values) by age, and to display the level of discordance of each grain. Discordance level is also evaluated by concordia distance, which represents the log ratio distance (%) measured along a perpendicular line connecting Tera-Wasserburg concordia and the measured composition (Vermeesch, 2021). Paleozoic age data with concordia distance greater than +3 or smaller than -3.5 were discarded, while Precambrian age results were filtered by a range between -5.8 to +10.

1.2. Igneous U-Pb Zircon Analyses

Igneous or metamorphic samples were collected for zircon SHRIMP U-Pb dating using a SHRIMP- II at the Beijing SHRIMP Center in the Chinese Academy of Geological Sciences. Zircons were mounted in epoxy resin together with chips of the zircon standard M257 (Nasdala et al., 2008) at the Beijing SHRIMP Center, Chinese Academy of Geological Sciences. The mounts were grounded down and polished so that the zircons were approximately sectioned in half, and grains were photographed in reflected and transmitted light and under cathodoluminescence (after gold coating) to enable easy and best location for analytical spots during analysis.

Cathodoluminescence (CL) images of the analyzed zircons were obtained before analysis by a Hitachi SEM S-3000N equipped with a Gatan ChromaCL detector and a DigiSan II data recorder in the Beijing SHRIMP Centre. The SHRIMP- II analyses and laboratory procedures followed established methods (Kröner et al., 2012), with instrumental characteristics described in (de Laeter & Kennedy, 1998). Prior to each analysis, the surface of the site was pre-cleaned by rastering with the primary beam for 2-3 min. to reduce or eliminate surface common Pb. The reduced $^{206}\text{Pb}/^{238}\text{U}$ ratios were normalized to 0.09100, which is equivalent to the adopted age of 561.3 Ma for standard M257 (Nasdala et al., 2008). For data collection, five scans through the critical mass range were made. Primary beam intensity was between 5 and 6 nA, and a Köhler aperture of 100 μm diameter was used, giving a slightly elliptical spot of about 30 μm in size. Peak resolution at 1 % peak

height was between 5000 and 5200, enabling clear separation of the ^{208}Pb -peak from the HfO peak. Sensitivity was about 25 cps/ppm/nA Pb on the standard.

Analyses of samples and standards were alternated to allow assessment of Pb+/U+ discrimination. The 1-sigma error of the $^{206}\text{Pb}/^{238}\text{U}$ ratio during analysis of all standard zircons during this study was between 0.4 and 1.1 %. Raw data reduction and error assessment followed the method described by Nelson (1997), using the Macintosh software programs Prawn 6.4, WALLEAD 2.7 and Plonk 4.3. Common-Pb corrections were applied using the ^{204}Pb -correction method, and because of very low counts on ^{204}Pb in most samples it was assumed that common lead is surface-related (Kinny, 1986) and, therefore, the isotopic composition of Broken Hill lead was used for correction. Analyses with ^{204}Pb counts more than 3 times background were corrected using the Cumming and Richards (1975) values. The analytical data are presented in table format in supplement materials. Errors of individual analyses are given at the 1-sigma level and are based on counting statistics and include the uncertainty in the U/Pb age of the standard, added in quadrature (Nelson, 1997). Errors of pooled analyses are reported at the 1-sigma confidence interval. The data are graphically presented on conventional concordia diagrams. Uncertainties in ages are quoted at the 95% confidence level. Common Pb corrections were based on measurements of ^{204}Pb . The single-grain concordia age and associated uncertainty were calculated in IsoplotR (Vermeesch, 2018) as the maximum likelihood intersection between the Wetherill concordia line and the ($^{207}\text{Pb}/^{235}\text{U}$ - $^{208}\text{Pb}/^{238}\text{U}$) error ellipse from the common Pb corrected ratios of $^{238}\text{U}/^{206}\text{Pb}$ and $^{207}\text{Pb}/^{206}\text{Pb}$ as well as their 1-sigma errors and the associated error correlation (ρ) values. Percentage of discordance was calculated from common Pb corrected $^{206}\text{Pb}/^{238}\text{U}$ and $^{206}\text{Pb}/^{207}\text{Pb}$ ages instead of $^{207}\text{Pb}/^{235}\text{U}$, considering ratios of $^{206}\text{Pb}/^{238}\text{U}$ and $^{206}\text{Pb}/^{207}\text{Pb}$ are the two which are measured from SHRIMP- II , and ages of $^{207}\text{Pb}/^{235}\text{U}$ are only calculated from measured ratios of $^{206}\text{Pb}/^{238}\text{U}$, $^{206}\text{Pb}/^{207}\text{Pb}$ and a natural U isotope ratio. Additionally, $^{207}\text{Pb}/^{235}\text{U}$ age might be the least precise and accurate date due to the limited abundance of ^{207}Pb , $^{207}\text{Pb}/^{235}\text{U}$ age is the most affected by even minor common lead and calculating discordance using the $^{207}\text{Pb}/^{235}\text{U}$ age may result in fewer discordant analyses being filtered. $^{207}\text{Pb}/^{235}\text{U}$ and $^{206}\text{Pb}/^{238}\text{U}$ ratios were plotted by isoplotR in 95% confidence level to get the Wetherill concordia diagram and concordia ages. Data from core and rim structures observed from CL imagery were calculated separately to obtain different concordia ages in the same sample. Data columns shaded with grey color were excluded

from crystallization age calculation for being outliers from the main population. All results are presented in Table SM1.

1.3. U-Pb Titanite Analyses

Titanite was analyzed by in situ Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) at the University of New Brunswick Microscopy and Microanalysis Facility, following standard procedures described in McFarlane and Luo (2012). Titanite was analyzed with a 35 μm crater diameter, 3 Hz repetition rate, and 4 J/cm² fluence. An ablation sequence was comprised of up to 10 analyses of NIST610 reference glasses throughout the sequence, and a minimum of five well-characterized U-Pb age standards were distributed so as to bracket blocks of three to five unknowns. Details of analytical conditions during analysis these samples are described by McFarlane (2015). The data reduction scheme described by Petrus and Kamber (2012) was used to calculate the U-Pb age. To minimize background 204Hg to <150 cps, this study used LA-ICP-MS that incorporates high-capacity (Vici Metronics) Hg traps. Although titanite commonly incorporates Pb into its lattice during crystallization (Frost et al., 2001), which would result in common Pb composition, the resultant U-Th-Pb data was carefully assessed for the composition and proportion of the initial common Pb following the procedures discussed by Kramers and Tolstikhin (1997).

2. Geochronology data repository

Results from 19 samples are reported here. Their corresponding field numbers (e.g., 16LYH-01) are also given in this Data Repository. CL images of select zircons from detrital and igneous samples are provided in supplementary materials. All detrital zircon analytical results are provided in Table SM-1 in the appendix. The single-grain concordia ages were used to assemble age spectra. Precambrian and Paleozoic grains were plotted separately in histograms. Adaptive kernel density estimates (KDEs) and probability density plots (PDPs) are overlain on all histograms as calculated by the visualization software Density Plotter (Vermeesch, 2012), which also provides algorithms for calculation of the labeled component peak ages and maximum depositional ages. The maximum depositional age (MDA) or maximum depositional limit (MDL) estimation was calculated using maximum likelihood age (MLA) algorithms model of Galbraith and Laslett (1993) and Galbraith (2005), application of which has been tested successful in Vermeesch (2021). All U-Pb zircon and titanite crystallization ages are reported in Table SM2 and SM3, respectively. Plotted Concordia diagrams are provided in Fig. 8 using the program IsoplotR (Vermeesch,

2018). All error amounts in Concordia diagrams are reported as 2σ values, or at 95% confidence level, and Concordia ages are calculated with decay-constant errors included.

2.1. Orthoquartzite, basement rock unit (H18, 16LYH-18)

Zircon is very abundant and appear brown and equigranular with size range from 200-250 μm . CL images show zircon crystals are characterized with rounded anhedral shape, typical due to mechanical weathering and erosion. Ninety-three out of 115 analyses fit the concordance criteria, and all yielded Precambrian ages. The age distribution shows three distinct component peak ages of ca. 1410 Ma (40%), 1242 Ma (24%) and 1093 Ma (30%) (Fig. 5A).

The maximum depositional age was estimated from age spectra of the youngest peak, yielding a Stenian U-Pb age of 1068 ± 10 Ma.

2.2. Monomict conglomerate, basement rock unit (S22, 16LYS-22)

This sample also yielded abundant zircon with two distinct populations. One is brown and generally rounded to subrounded in shape. CL images show varied textures. Most of them yielded Precambrian ages. The other is characterized with euhedral prism shape and oscillatory zonation, which yielded Early Paleozoic ages. Seventy out of 94 analyses fit the concordance criteria. Most of them ($n=48$) yielded Paleozoic ages, the age spectra of which consists of one main peak component, yielding an Early Silurian age of 440 Ma (94%). The maximum depositional age of the conglomerate is estimated at 417 ± 6 Ma. A total of 22 grains has Precambrian ages, component peaks of which yielded at ca. 2474 Ma (14%), 1391 Ma (23%) and 906 Ma (50%).

2.3. Package 1 rocks, younger meta-sedimentary strata

Samples V1052 (17LYV-1052) and V161 (16LYV-161) were collected from the upper epiclastic sedimentary rocks of Baidunzi Formation, south of the shear zone between the Ganquan and Baidunzi Complex (locations indicated on Fig. 2). They both yielded abundant zircon, consisting generally of euhedral prisms with sizes ranging from 150-200 μm . CL images reveal varied and complex core textures in some grains yet all of them have well-developed regular oscillatory zonation and/or overgrowths, typical of magmatic crystallization.

A total of 26 out of 40 analyses from sample V1052 and a total of 13 out of 38 analyses from sample V161 fit the concordance criteria. The age distributions of them both show only one single distinct Late Paleozoic component peak, yielding peak ages of $304 \pm$

1.5 Ma and 297 ± 2 Ma, respectively. There are no Precambrian ages obtained from the two samples. They combined yielded a single Late Carboniferous peak age at 303 Ma and a maximum depositional age of 300 ± 7 Ma.

2.4. Package 2 rocks, younger meta-sedimentary strata

Sample V361 (16LYV-361) was collected from a calcareous psammite of the calcareous clastic and marble interbeds. Only a few dozen small stubby to long prismatic zircon grains were recovered from this sample. The grains are mostly fractured and varied in sizes from 50 to 150 μm . CL images show that they consist of oscillatory or sector zonation and thin low-U bright rims in some grains. Twenty-three out of 29 analyses fit the concordia criteria. The age distribution show three main component peaks at 454 Ma (9%), 325 Ma (12%) and 295 Ma (75%). There are no Precambrian ages obtained from this sample. The maximum depositional age of the psammite is estimated at 295 ± 2 Ma.

2.5. Package 3 rocks, younger meta-sedimentary strata

Sample S5041 (17LYS-5041) and sample V1110 (17LYV-1110) were collected from hornblende and epidote schist of medium metamorphic grade calcareous clastic rocks of Baidunzi Formation in the south (locations indicated on Fig. 2). Sample S5041 yielded abundant zircon, consisting of euhedral to subhedral, stubby shape and varied in sizes (75-200 μm). While only a few dozens zircon grains are recovered from sample V1110, and they are commonly altered or fractured. CL images reveal both samples have zircon with varied core and overgrowth textures, possibly representing multiple populations.

A total of 62 out of 103 analyses from sample S5041 and a total of 29 out of 60 analyses from sample V1110 fit the concordance criteria. The age distributions show both samples are characterized with a distinct Late Carboniferous to Early Permian component peak, and some Precambrian to Early Paleozoic ages. The age spectra of sample S5041 yielded peak ages at ca. 1194 Ma (1.6%), 433 Ma (16%) and 308 Ma (82%) and a maximum depositional age of 308 ± 1.2 Ma. The age spectra of sample V1110 yielded peak ages at ca. 1625 Ma (4%), 896 Ma (46%) and 305 Ma (50%) and a maximum depositional age of 304.3 ± 2.1 Ma. The two samples combined yielded a Paleozoic component peak age at 307 Ma, a Precambrian component peak age at 896 Ma, and a Late Carboniferous maximum depositional age at 306 ± 1 Ma.

2.6. Melanocratic layer (S5143), Granitic Orthogneiss, Baidunzi Complex

Zircon consists of cracked and clear grains with prismatic or subrounded shape. CL images show that most grains have regular oscillatory zonation with very thin overgrowth (Fig. SM). Analyses show all 15 grains cluster around Early Neoproterozoic ages from 916 to 843 Ma and gave a concordia age of 879.9 ± 7.5 Ma (MSWD = 0.0018, n = 15). All 15 grains are characterized with high U and low Th concentrations, having a narrow range of U/Th ratios from 0.06 to 0.12. This is likely the crystallization age for the protolith of gneiss.

2.7. Leucocratic granitic dyke (S5136), Red Granite Unit, Baidunzi Intrusive Suite

Zircon is abundant in this sample consisting of cracked, stubby euhedral grains varying in size greatly from 75 to 200 μm . Many grains show dark high-U oscillatory zonation under CL, some other grains preserve relatively low-U core with the high-U oscillatory recrystallization and/or overgrowth (Fig. SM). Data from 12 grains gave one inherited old age at 840 Ma and a cluster of younger data with a concordia age of 293.7 ± 3.9 Ma (MSWD = 5.1, n = 11). This is the best age estimate for emplacement of the granite dyke.

2.8. Tonalitic Orthogneiss (V1109), Baidunzi Complex

Zircon is moderately abundant, and sizes range from 100 to 250 μm . CL images (Fig. SM) reveal sector zoned or oscillatory zoned cores with uniform rims. The rim structures are narrow, low-U (bright), and featureless.

Thirty-seven analyses on 33 grains gave an older cluster with a concordia age of 456.1 ± 5.5 Ma (MSWD = 11, n=20). This is the best age estimate for crystallization of the protolith. Four analyses on rim structures gave a concordia age of 295.1 ± 9 Ma (MSWD = 1.6). This is the best estimate of the cooling age of magmatism, which is within error consistent with the crystalline age of metamorphic titanite in this sample (291.4 ± 1.4 Ma, MSWD = 1.5, n = 64). The rest 11 analyses collected from zoned cores gave ages in between ranging from 305 to 395 Ma, with significant decreases in Th and Pb, potentially caused by diffusion during magmatism and recrystallization.

The titanite ages with common Pb were calculated using the weighted mean of the ^{207}Pb -corrected ages and the Tera-Wasserberg (TW) Concordia intercept age anchored through common Pb. Titanite U-Pb isotope results and ages are listed in Table SM3. On the TW diagram, the common Pb-uncorrected data of the sample define a linear array, yielding a lower-intercept age of 292.1 ± 1.8 Ma (n = 70, 2σ , MSWD = 2.5) and an upper-intercept age

of 4857 ± 59 Ma. On the basis of this common Pb composition, a common Pb correction was performed using the method of fitting $^{207}\text{Pb}/^{206}\text{Pb}$. All analyses of MG-5 yielded a lower-intercept $^{206}\text{Pb}/^{238}\text{U}$ age of 291.4 ± 1.4 Ma ($n = 64$, 2σ , $\text{MSWD} = 1.5$) and y-intercept of initial $^{207}\text{Pb}/^{206}\text{Pb}$ of 0.790.

The uniform U-Pb titanite age of 291.4 ± 1.4 Ma, which is in reasonable agreement with the above younger generation of zircon age. Because the titanite population is well constrained to one age population and no distinguishable optical appearance or textural association show multiple generations of titanite growth. Except that there is a wide range of Th/U ratios detected (0.16-7.09), mostly within the range between 0.81 and 5.45 (average of 2.5). Such high U/Th ratios (>1) are neither expected nor particularly common in titanite grains that precipitated from relatively low-temperature hydrothermal or metamorphic fluids (e.g., Scibiorski and Cawood, 2022) due to their low capacity to carry Th. Therefore, we suggest the varied ratios are due to the titanite having crystallized late from small residual melt pockets with variable U/Th ratios. This could have been the case for the late zircon and supports the theory that the Ordovician pluton was remobilized during the Late Carboniferous to Early Permian, and the magma was emplaced and slowly cooled during ca. 295-291 Ma.

2.9. K-feldspar megacrystic granite (S5137), Red Granite Unit, Baidunzi Intrusive Suite

Zircon is abundant in this sample predominately contain long prismatic grains varying in size greatly from 50 to 150 μm . CL images show two grain types: patchy or oscillatory zoned grains with high-U overgrowths and high-U dark oscillatory zoned grains (Fig. SM). Eleven analyses can be divided into two subgroups corresponding to distinctive Th/U ratios, yet not consistent within each grain types. Analyses with Th/U ratios <0.2 mostly gave Neoproterozoic ages from 830 to 880 Ma ($n = 6$, except grain-13), and the rest data are clustered at a younger age, yielding a weighted mean $^{206}\text{Pb}/^{238}\text{U}$ age of 291.8 ± 5.3 Ma ($\text{MSWD} = 4.4$, $n = 5$). This is the best age estimate of emplacement of the dyke. Notably, all data are above the concordia curve, which can be affected by over-correction of common Pb and/or ^{230}Th excess.

2.10. Granite dyke (S5146), Quartz-rich Granitoid Unit, Baidunzi Intrusive Suite

Only a few dozen small stubby to long prismatic zircon grains were recovered from this sample. Most grains are relatively small (<100 μm). CL images show they predominantly contain regular oscillatory zonation with some cores yet no significant

evidence of overgrowths or metamorphic recrystallization. Eight analyses on oscillatory zones gave one inherited old age around 850 Ma and a cluster of younger data with a concordia age of 292 ± 3.2 Ma (MSWD = 1.1, n = 7). This is the best age estimate for the emplacement of dyke.

2.11. Hornblende diorite to gabbro, Hornblende Diorite Unit, Baidunzi Intrusive Suite (V1385, V266 and S5145)

Zircons from the three samples are similar in morphology. All consist of cracked but clear zircon fragments, they are subrounded to euhedral with sizes varying from 150 to 250 μm . CL images show high-U core and lower U overgrowths features. Cores are either uniform or characterized with patchy zonation. Heterogeneous traces of recrystallization and alteration affected some inherited cores and formed magmatically zoned structures. The featureless low-U overgrowths are the latest and reveal absorption of the recrystallized grains (Fig. SM).

Twenty-two analyses on 17 grains of sample V1385 show most of the grains cluster around 800-900 Ma with one overgrowth giving younger Cambrian age. There is no clear difference between older and younger overgrowths in CL images. One analysis of sample V266 records an inherited core age of 443 Ma, and 18 analyses of sample V266 and S5145, from recrystallized magmatic zones, give a concordia age of 288.9 ± 2.9 Ma (MSWD = 0.19). This is the best age estimate for emplacement of the hornblende diorite-gabbro unit. Eleven results on the bright rim structures overlap within error and give a concordia age of 281.2 ± 3.5 Ma (MSWD = 4.6). This is the best estimate of metamorphism age.

2.12. Leuco-diorite to tonalite, Tonalite Unit, Baidunzi Intrusive Suite (V1384 and V1096)

The two samples V1384 and V1096 are from the same rock unit in the field, and their zircons also share some similarities with sizes ranging from 75 to 250 μm . Sample V1384 zircons preserve some inherited cores and reveal two stages of overgrowth/recrystallization. The dark U-enriched recrystallization absorbed inherited cores and is surrounded around by a subsequent oscillatory zoned overgrowth. However, there is no distinguishable age difference between the recrystallization and overgrowth. Nineteen analyses on 16 grains gave four scattered older ages from 390-850 Ma and a cluster of younger data with an average $^{206}\text{Pb}/^{238}\text{U}$ age of 290.8 ± 3.8 Ma (MSWD = 10.9, n = 15).

Sample V1096 also have high-U dark grains with overgrowths. However, the overgrowth is low-U with patchy zonation or featureless texture. Five analyses on high-U grains gave an average $^{206}\text{Pb}/^{238}\text{U}$ age of 287 ± 11 Ma (MSWD = 31). Results from both samples' high-U grains with/without oscillatory zones together gave a concordia age of 289.5 ± 2.8 Ma (MSWD = 0.25, n = 20). This is the best age estimate for the emplacement of the tonalite-quartz anorthosite unit. Ten analyses on low-U overgrowths of sample C2 gave an average $^{206}\text{Pb}/^{238}\text{U}$ age of 280.4 ± 4.4 Ma (MSWD = 6). This is the best age estimate of metamorphism.

2.13. Leuco-granite to leuco-tonalite dyke (V385, V1097), Leuco-granodiorite Bodies, Late Intrusions

The two samples V385 and V1097 are from dykes that cut across plutons of Baidunzi Intrusive Suite and the gabbro of the Late Intrusions Unit. Both of them yielded abundant zircon, consisting of long prisms grains with sizes varying from 100 to 200 μm . CL images show the two samples share similar features in morphology, both present partially dissolved inherited core xenocrysts and high-U dark magmatic overgrowth (Fig. SM).

Seven out of a total 10 analyses in sample V385 yielded inherited core ages between 1140 to 331 Ma, mostly yielded Early Neoproterozoic ages (n=5). And the rest three analyzed from rim structures yielded an Early Permian mean age of 296 Ma.

A total of eighteen analyses from sample V1097 yielded 15 inherited core ages, ranging from 1555 to 663 Ma. Most of the inherited core ages clustered around Tonian ages, yielding a weighted mean age of 889 ± 8 Ma (n=11, MSWD = 1.9). The younger ones are Early Carboniferous ages. Neither samples from this unit give geochronological results consistent with field relationships.

3. Geochemistry Analytical Procedures

3.1. Whole-rock geochemistry

The whole-rock geochemical analysis conducted by the ALS lab in Vancouver, Canada was performed mostly on rocks from magmatic units and a few from volcano-genetic sedimentary units. Both X-ray fluorescence and ICP-AES instrument finishes were used for the major rock-forming elements following a fusion. A lithium borate fusion prior to acid dissolution and ICP-MS analysis provided a quantitative analytical approach for the broad suite of trace elements.

Major and trace elements, including rare earth element (REE) concentrations, were determined by X-ray fluorescence spectrometry (XRF) on fused glass beads and pressed powder pellets and by laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS), on glass beads, at the ALS laboratory in Vancouver. To obtain high-precision whole-rock data for REE and trace elements, a LA-ICP-MS technique using an automated iridium strip heater was applied. About 40 mg of rock powder was melted on an iridium strip without flux agent. Melting of the sample to a glass bead was achieved in a closed box under an argon atmosphere to suppress oxidation and to limit volatilization of elements with low boiling points (e.g., Cs, Pb). The fused glass beads were then analyzed. Ablation was achieved with a NewWave Research UP-213 Nd:YAG laser ablation system, using a pulse repetition rate of 10 Hz, pulse energies of ~0.3 mJ, and 100 μm crater diameters. Analyses were performed on an Agilent 7500ce inductively coupled plasma-mass spectrometer in pulse counting mode (one point per peak and 10 ms dwell time). Data reduction was carried out using the Glitter software 4.1. The amount of material ablated in laser sampling is different for each spot analysis. Consequently, the detection limits are different for each spot and were calculated for each individual acquisition. Detection limits generally range between 0.001 and 0.5 ppm ($\mu\text{g/g}$). ^{44}Ca was used as an internal standard. Analyses were calibrated against the silicate glass reference material NIST SRM 612, using the values of Pearce et al. (1997), and the US Geological Survey (USGS) glass standard BCR-2G was measured to monitor accuracy.

3.2. Lu-Hf isotope

Hafnium isotopic ratios of zircon were conducted by LA-MC-ICP-MS at Nanjing FocuMS Technology Co. Ltd. Australian Scientific Instruments RESolution LR laser-ablation system (Canberra, Australian) and Nu Instruments Nu Plasma II MC-ICP-MS (Wrexham, Wales, UK) were combined for the experiments. The 193 nm ArF excimer laser, homogenized by a set of beam delivery systems, was focused on zircon surface with fluence of 4.5J/cm². Each acquisition incorporated 20 s background (gas blank), followed by spot diameter of 50 μm at 10 Hz repetition rate for 40 s. Helium(370ml/min) was applied as carrier gas to efficiently transport aerosol out of the ablation cell, and was mixed with argon (~0.97 L/min) via T-connector before entering ICP torch. Integration time of Nu Plasma II was set to 0.3 s (equating to 133 cycles during the 40 s). Standard zircons (including GJ-1, 91500, Plešovice, Mud Tank, Penglai) were treated as quality control for every fifteen unknown samples.

The placement within investigated zircons is presented in Table SM3, corresponding to the numbering used in Table SM1. A procedure similar to those described in Kemp et al. (2009) and Pietranik et al. (2011) was applied to correct for the isobaric interference of ^{176}Yb on ^{176}Hf . The Yb mass bias was determined by measuring the $^{173}\text{Yb}/^{171}\text{Yb}$ ratio during each run and calculating the $^{176}\text{Yb}/^{177}\text{Hf}$ ratio using the natural $^{176}\text{Yb}/^{171}\text{Yb}$ ratio of 0.897145 (Segal et al. 2003). The ^{176}Lu abundance determination was based on measurements of ^{175}Lu that were then corrected using the natural abundance factor $^{175}\text{Lu}/^{176}\text{Lu} = 0.02655$ (Vervoort et al. 2004). According to a detailed study by Fisher et al. (2011), the Bristol Isotope Group's analytical method for Lu–Hf data acquisition and reduction provides accurate results for both natural and synthetic zircons with a large range of Yb/Hf ratios (typically $^{176}\text{Yb}/^{177}\text{Hf}$ from 0.001 to 0.3).

In Eplison Hf(t) values vs ages plots of Fig. 12 and 13 in the paper, the mantle curves of depleted mantle, new crust, and island mantle array were from chondritic references at 4.5 Ga (Vervoort and Blichert-Toft, 1999), 3.8 Ga (Dhuime et al., 2012) and 3.8 Ga (Iizuka et al., 2013), respectively.

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Appendix 4

Chapter 3 Table SM1

Chapter 3 Table SM1: GEOCHRONOLOGY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX

Spot	ppm U	ppm Th	²³² Th / ²³⁸ U	% ²⁰⁶ Pb _c	ppm ²⁰⁶ Pb*	Total ²³⁸ U / ²⁰⁶ Pb	±%	Total ²⁰⁷ Pb / ²⁰⁶ Pb	±%	(1) ²³⁸ U/ ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²³⁵ U	±%	(1) ²⁰⁶ Pb* / ²³⁸ U	±%	err corr	(1) ²⁰⁶ Pb / ²³⁸ U Age	(1) ²⁰⁷ Pb / ²⁰⁶ Pb Age	(1) ²⁰⁶ Pb / ²³² Th Age	% Dis- cor- dant	Single-grain concordia age	1se	disc	distance		
(S-85) Rhyolite, Volcano-plutonic lithodeme																												
(40.897134N, 95.530468E)																												
16LYS85-1.1	181.29	112.54	0.64	-0.16	7.05	22.08	1.6	0.036	29	22.05	1.7	0.037	31	0.230	31	0.04536	1.7	0.055	286.0	± 4.8	-569	± 840	305	± 20	150	285.8	4.8	-30
16LYS85-2.1	250.68	216.05	0.89	4.40	10.8	19.94	1.6	0.076	22	20.86	2.6	0.040	61	0.26	61	0.0480	2.6	0.043	302.0	± 7.8	-350	±1600	278	± 52	186	302.1	7.7	-30
16LYS85-3.1	354.29	231.80	0.68	0.11	13.8	22.00	1.5	0.0561	2.3	22.02	1.5	0.0552	4.7	0.346	4.9	0.04540	1.5	0.306	286.2	± 4.2	421	± 100	280	± 10	32	286.3	4.2	6
16LYS85-4.1	203.84	133.59	0.68	0.39	8.39	20.88	1.6	0.0486	13	20.96	1.9	0.045	23	0.299	23	0.04771	1.9	0.081	300.4	± 5.6	-30	± 570	266	± 37	1109	300.4	5.6	-10
16LYS85-6.1	862.47	1482.20	1.78	0.72	27.1	27.30	1.4	0.0586	2.9	27.49	1.4	0.0529	5.5	0.265	5.7	0.03638	1.4	0.250	230.3	± 3.2	326	± 130	233.2	± 4.8	29	230.4	3.2	4
16LYS85-6.2	404.73	555.15	1.42	1.53	13.0	26.78	1.6	0.0626	7.2	27.20	1.8	0.0503	16	0.255	16	0.03678	1.8	0.111	232.8	± 4.2	211	± 380	234	± 11	-11	232.8	4.1	-1
16LYS85-7.1	325.13	262.38	0.83	6.84	13.7	20.33	1.5	0.1056	1.9	21.82	2.0	0.051	22	0.320	22	0.04587	2.0	0.090	289.1	± 5.6	223	± 510	217	± 35	-29	289.1	5.7	-3
16LYS85-8.1	339.42	307.38	0.94	0.17	13.8	21.07	1.4	0.0585	3.0	21.11	1.4	0.0572	3.3	0.373	3.6	0.04737	1.4	0.404	298.4	± 4.2	498	± 72	304.5	± 6.4	40	298.3	4.1	9
16LYS85-9.1	229.94	174.22	0.78	0.55	9.49	20.81	1.5	0.0600	5.6	20.92	1.6	0.0556	9.9	0.366	10	0.04780	1.6	0.160	301.0	± 4.7	436	± 220	320	± 16	31	301.0	4.7	6
16LYS85-10.1	407.67	351.98	0.89	0.63	16.6	21.05	1.4	0.0554	2.0	21.18	1.5	0.0503	6.0	0.328	6.2	0.04721	1.5	0.237	297.4	± 4.3	210	± 140	276.0	± 9.5	-42	297.2	4.4	-4
16LYS85-11.1	277.81	207.06	0.77	3.05	11.5	20.74	1.6	0.0636	7.8	21.39	1.8	0.0387	21	0.250	21	0.04677	1.8	0.083	294.7	± 5.1	-435	± 560	287	± 22	168	294.3	5.2	-30
16LYS85-12.1	254.56	189.20	0.77	0.10	9.91	22.06	1.5	0.0519	8.2	22.09	1.6	0.0511	10	0.319	10	0.04528	1.6	0.153	285.5	± 4.3	245	± 230	276	± 11	-16	285.5	4.5	-2
16LYS85-13.1	358.40	331.99	0.96	1.85	15.0	20.46	1.5	0.0677	5.6	20.85	1.5	0.0529	9.9	0.350	10	0.04797	1.5	0.151	302.1	± 4.5	324	± 230	288	± 14	7	302.1	4.4	1
16LYS85-14.1	312.55	290.94	0.96	-0.47	13.0	20.70	1.5	0.0548	4.8	20.61	1.5	0.0586	4.5	0.392	4.8	0.04852	1.5	0.308	305.4	± 4.4	552	± 99	308.8	± 6.5	45	305.5	4.5	10
16LYS85-15.1	298.72	161.71	0.56	0.09	11.8	21.71	1.5	0.0535	2.7	21.73	1.6	0.0527	9.5	0.335	9.6	0.04603	1.6	0.165	290.1	± 4.5	318	± 220	304	± 22	9	290.1	4.5	1
Error in Standard calibration was 0.36%.																												
(H-3090A) Phyric tuff, Volcano-plutonic lithodeme																												
(40.917667N, 95.513647E)																												
17LYH3090A-1.1	679.85	412.97	0.63	0.05	27.1	21.57	2.0	0.05158	1.7	21.58	2.0	0.0512	2.3	0.3271	3.0	0.04634	2.0	0.645	292.0	±5.6	250	± 53	286.3	± 7.4	-17	291.3	5.6	-2
17LYH3090A-2.1	514.21	231.44	0.47	-0.12	20.2	21.91	1.0	0.0531	2.0	21.89	1.0	0.0540	1.9	0.3404	2.2	0.04569	1.0	0.477	288.0	±2.9	372	± 43	286.3	± 5.7	23	288.1	2.8	4
17LYH3090A-3.1	169.31	72.06	0.44	1.31	6.61	22.02	1.3	0.0567	3.3	22.31	1.7	0.0461	19	0.285	19	0.04482	1.7	0.086	282.6	±4.6	2	±460	254	±47	-15263	282.6	4.7	-10
17LYH3090A-4.1	289.69	117.12	0.42	0.36	11.7	21.30	1.1	0.0571	2.3	21.38	1.2	0.0542	6.8	0.350	6.9	0.04678	1.2	0.169	294.7	±3.4	379	±150	288	±22	22	294.8	3.5	4
17LYH3090A-5.1	445.26	187.24	0.43	0.24	17.6	21.68	1.0	0.0526	2.5	21.73	1.1	0.0507	3.8	0.322	3.9	0.04602	1.1	0.267	290.0	±3.0	226	± 88	281.6	± 9.7	-28	289.9	3.1	-3
17LYH3090A-6.1	734.19	431.45	0.61	0.21	28.8	21.93	0.99	0.05324	1.6	21.97	10	0.0515	2.2	0.3233	2.5	0.04551	10	0.406	286.9	±2.8	264	± 51	272.5	± 5.3	-9	284.3	6.1	-1
17LYH3090A-7.1	218.28	129.08	0.61	0.21	8.64	21.70	1.2	0.0544	2.9	21.75	1.2	0.0527	5.1	0.334	5.2	0.04598	1.2	0.232	289.8	±3.4	317	±120	271	±11	9	289.8	3.4	1
17LYH3090A-8.1	246.31	132.40	0.56	0.43	10.1	20.90	1.1	0.0533	2.7	20.99	1.2	0.0498	6.8	0.327	6.9	0.04763	1.2	0.174	300.0	±3.5	186	±160	299	±17	-61	299.9	3.5	-5
17LYH3090A-9.1	378.99	213.85	0.58	0.35	15.2	21.44	1.1	0.0523	3.5	21.51	1.1	0.0495	4.7	0.317	4.8	0.04649	1.1	0.226	292.9	±3.1	170	±110	275.3	± 8.2	-72	292.8	3.1	-5
17LYH3090A-10.1	290.06	223.12	0.79	1.37	11.7	21.36	1.1	0.0747	6.6	21.66	1.2	0.0639	9.0	0.407	9.1	0.04618	1.2	0.128	291.0	±3.3	740	±190	252	±11	61	291.0	3.4	20
17LYH3090A-11.1	408.00	286.15	0.72	-0.02	17.0	20.58	1.0	0.0528	2.1	20.57	1.0	0.0530	2.1	0.3550	2.3	0.04861	1.0	0.443	306.0	±3.1	328	± 48	300.6	± 5.5	7	306.0	3.0	0.9
17LYH3090A-12.1	636.76	367.20	0.60	0.48	24.2	22.61	0.98	0.05404	1.7	22.72	10	0.0502	3.5	0.305	3.6	0.04401	10	0.278	277.7	±2.7	204	± 80	259.8	± 8.3	-36	270.4	8.5	-4
17LYH3090A-13.1	421.43	267.47	0.66	0.59	17.2	21.02	1.0	0.0573	3.1	21.14	1.0	0.0526	4.4	0.343	4.5	0.04730	1.0	0.227	297.9	±3.0	311	±100	293.5	± 8.6	4	297.9	2.9	0.6
17LYH3090A-14.1	205.66	130.12	0.65	1.07	8.33	21.21	1.1	0.0574	5.9	21.43	1.2	0.0488	10	0.314	10	0.04665	1.2	0.119	293.9	±3.5	137	±240	280	±18	-114	293.9	3.4	-7
17LYH3090A-15.1	346.40	99.49	0.30	0.59	14.0	21.25	1.0	0.0566	2.1	21.37	1.0	0.0519	3.7	0.335	3.9	0.04679	1.0	0.270	294.8	±3.0	280	± 85	268	±15	-5	294.8	2.9	-0.6
Error in Standard calibration was 0.23%.																												
(V-1106) Granite, Volcano-plutonic lithodeme																												
(40.890156N, 95.500638E)																												
17LYV1106-1.1	108.87	46.62	0.44	5.44	4.70	19.92	1.9	0.1077	2.8	21.06	2.5	0.065	22	0.424	22	0.0475	2.5	0.116	299.2	±7.4	764	±460	370	±81	61	299.1	7.3	20
17LYV1106-2.1	227.51	160.64	0.73	-0.70	8.86	22.05	1.7	0.0523	3.2	21.90	1.7	0.0579	2.9	0.364	3.3	0.04566	1.7	0.512	287.8	±4.8	525	± 63	303.9	± 8.8	45	288.0	4.8	10
17LYV1106-3.1	261.10	151.00	0.60	-0.64	10.00	22.33	1.7	0.0543	2.6	22.19	1.7	0.0593	4.8	0.368	5.1	0.04506	1.7	0.335	284.1	±4.8	579	±100	298	±13	51	284.0	4.7	10
17LYV1106-4.1	256.24	127.23	0.51	-0.22	10.3	21.40	1.7	0.0544	3.1	21.35	1.7	0.0561	3.5	0.362	3.9	0.04684	1.7	0.431	295.1	±4.9	457	± 79	300	±15	35	295.4	4.9	7
17LYV1106-5.1	252.03	177.76	0.73	0.55	10.1	21.41	1.6	0.0611	2.2	21.53	1.6	0.0567	4.7	0.363	5.0	0.04645	1.6	0.331	292.7	±4.7	479	±100	310	±10	39	292.7	4.6	8
17LYV1106-6.1	225.61	135.75	0.62	1.24	9.56	20.27	1.7	0.0628	2.5	20.53	1.8	0.0528	10	0.355	10	0.04872	1.8	0.171	306.7	±5.3	322	±230	302	±23	5	306.7	5.4	0.7
17LYV1106-7.1	129.51	63.70	0.51	0.11	4.94	22.51	1.8	0.0519	3.9	22.53	1.8	0.0510	7.7	0.312	7.9	0.04438	1.8	0.232										

Chapter 3 Table SM1: GEOCHRONOLOGY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX (continued.)

Spot	ppm U	ppm Th	²³² Th / ²³⁸ U	% ²⁰⁶ Pb _c	ppm ²⁰⁶ Pb*	Total ²³⁸ U / ²⁰⁶ Pb	±%	Total ²⁰⁷ Pb / ²⁰⁶ Pb	±%	(1) ²³⁶ U/ ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²³⁵ U	±%	(1) ²⁰⁶ Pb* / ²³⁸ U	±%	err corr	(1) ²⁰⁶ Pb / ²³⁸ U Age	±3.3	(1) ²⁰⁷ Pb / ²⁰⁶ Pb Age	±110	(1) ²⁰⁸ Pb / ²³² Th Age	±10	% Dis- cor- dant	Single-grain concordia age	1se	disc	distance
17LYV1082-14.1	349.73	231.76	0.68	0.00	13.8	21.70	1.2	0.0573	4.8	21.70	1.2	0.0573	4.8	0.364	4.9	0.04608	1.2	0.235	290.4	±3.3	503	±110	294	±10	42	290.5	3.4	9	
17LYV1082-15.1	889.57	877.10	1.02	1.14	34.7	22.00	1.1	0.0603	2.2	22.25	1.1	0.0511	4.7	0.317	4.9	0.04494	1.1	0.224	283.4	±3.0	247	±110	277.1	±6.4	11	283.3	3.0	-2	
Error in Standard calibration was 0.22%.																													
(V-176) Andesitic tuff, Red bed lithodeme (40.950633N, 95.659494E)																													
1617LYV176-1.1	261.50	186.19	0.74	1.01	10.3	21.82	1.2	0.0595	2.8	22.04	1.3	0.0514	5.1	0.321	5.2	0.04536	1.3	0.242	286.0	±3.5	257	±120	264.0	±9.3	-11	285.9	3.6	-1	
1617LYV176-2.1	309.60	236.33	0.79	0.90	12.0	22.10	1.2	0.0535	3.2	22.29	1.2	0.0463	6.5	0.286	6.7	0.04485	1.2	0.185	282.8	±3.4	11	±160	268.7	±9.8	-2541	282.6	3.3	-10	
1617LYV176-3.1	188.54	94.95	0.52	1.20	7.39	21.91	1.3	0.0636	3.1	22.18	1.4	0.0540	5.2	0.336	5.4	0.04509	1.4	0.250	284.3	±3.8	371	±120	280	±13	23	284.4	3.9	4	
1617LYV176-4.1	119.03	53.68	0.47	0.55	4.65	21.98	1.5	0.0654	3.9	22.10	1.7	0.0610	9.2	0.381	9.3	0.04524	1.7	0.178	285.3	±4.6	640	±200	318	±34	55	285.2	4.7	20	
1617LYV176-5.1	213.33	112.18	0.54	0.32	8.24	22.23	1.3	0.0581	4.6	22.30	1.3	0.0555	6.2	0.343	6.3	0.04484	1.3	0.212	282.7	±3.7	433	±140	299	±18	35	282.8	3.6	7	
1617LYV176-6.1	265.15	164.24	0.64	1.15	10.4	21.97	1.2	0.0605	2.7	22.22	1.3	0.0512	8.5	0.318	8.6	0.04499	1.3	0.153	283.7	±3.6	250	±190	265	±18	-13	283.7	3.6	-1	
1617LYV176-7.1	213.54	130.94	0.63	4.75	8.70	21.08	1.3	0.1002	8.7	22.13	1.8	0.063	21	0.390	21	0.04518	1.8	0.083	284.9	±4.9	695	±450	323	±45	59	284.8	5.0	20	
1617LYV176-8.1	159.43	97.28	0.63	1.17	6.05	22.65	1.4	0.0743	3.5	22.92	1.5	0.0651	8.5	0.392	8.7	0.04363	1.5	0.178	275.3	±4.2	777	±180	303	±20	65	275.0	4.0	20	
1617LYV176-9.1	312.18	217.12	0.72	0.77	12.1	22.09	1.2	0.0595	4.7	22.26	1.3	0.0533	8.5	0.330	8.5	0.04492	1.3	0.148	283.3	±3.5	341	±190	282	±13	17	283.3	3.6	3	
1617LYV176-10.1	202.78	138.87	0.71	0.01	7.94	21.93	1.3	0.0624	6.0	21.93	1.3	0.0623	7.2	0.392	7.4	0.04559	1.3	0.181	287.4	±3.7	685	±150	302	±12	58	287.3	3.7	20	
1617LYV176-11.1	219.40	160.59	0.76	0.86	9.04	20.85	1.3	0.0606	5.2	21.03	1.3	0.0537	8.2	0.352	8.3	0.04755	1.3	0.160	299.5	±3.9	358	±180	289	±12	16	299.5	3.8	3	
1617LYV176-12.1	371.90	320.80	0.89	0.29	14.1	22.65	1.1	0.0555	5.6	22.72	1.2	0.0532	7.0	0.323	7.1	0.04402	1.2	0.165	277.7	±3.2	338	±160	277.5	±7.8	18	277.7	3.3	3	
1617LYV176-13.1	242.51	166.26	0.71	1.33	9.41	22.15	1.3	0.0600	5.0	22.45	1.4	0.0492	10	0.302	10	0.04455	1.4	0.134	281.0	±3.7	159	±230	274	±15	-77	280.9	3.8	-5	
1617LYV176-14.1	457.40	363.97	0.82	0.94	18.1	21.74	1.1	0.0552	2.1	21.95	1.1	0.0477	6.1	0.299	6.2	0.04556	1.1	0.184	287.2	±3.2	83	±150	268.0	±9.9	-246	287.0	3.1	-9	
1617LYV176-15.1	172.11	85.55	0.51	3.39	6.85	21.58	1.5	0.0694	6.3	22.33	1.8	0.0419	22	0.258	23	0.04478	1.8	0.081	282.4	±5.0	-235	±570	244	±40	220	282.2	5.0	-20	
Error in Standard calibration was 0.22%.																													
(H-3009) Ash tuff, Volcano-sedimentary lithodeme (40.924383N, 95.498943E)																													
17LYH3009-1.1	174.18	108.39	0.64	1.43	6.23	24.04	2.2	0.0592	3.9	24.39	2.3	0.0477	7.3	0.269	7.7	0.04101	2.3	0.295	259.1	±5.7	82	±170	257	±13	-216	258.7	5.8	-8	
17LYH3009-2.1	179.95	107.33	0.62	0.22	6.80	22.73	1.3	0.0537	3.4	22.78	1.3	0.0520	4.2	0.315	4.4	0.04390	1.3	0.299	277.0	±3.6	285	±96	286.3	±9.3	3	277.0	3.5	0.4	
17LYH3009-3.1	255.76	154.56	0.62	2.14	10.2	21.62	1.2	0.0835	2.7	22.10	1.4	0.0666	9.0	0.415	9.1	0.04526	1.4	0.150	285.3	±3.8	825	±190	339	±23	65	285.2	3.9	20	
17LYH3009-3.2	147.64	92.18	0.65	-0.16	5.63	22.52	1.3	0.0585	3.5	22.48	1.4	0.0597	5.4	0.366	5.6	0.04448	1.4	0.245	280.5	±3.8	594	±120	287	±13	53	280.5	3.8	10	
17LYH3009-4.1	155.06	98.20	0.65	-0.08	5.88	22.67	1.3	0.0544	3.7	22.65	1.3	0.0550	3.6	0.335	3.9	0.04414	1.3	0.348	278.5	±3.7	412	±81	293.0	±8.7	32	278.5	3.5	6	
17LYH3009-5.1	122.57	102.56	0.86	0.48	4.70	22.42	1.4	0.0570	3.9	22.53	1.6	0.0531	12	0.325	12	0.04439	1.6	0.136	280.0	±4.4	334	±260	272	±18	16	280.0	4.4	2	
17LYH3009-6.1	136.34	78.11	0.59	1.39	5.12	22.88	1.4	0.0543	5.4	23.21	1.6	0.0430	16	0.256	16	0.04309	1.6	0.101	272.0	±4.3	-166	±400	220	±25	264	271.8	4.3	-20	
17LYH3009-7.1	160.60	101.97	0.66	-0.05	6.09	22.65	1.3	0.0518	3.5	22.64	1.3	0.0522	3.4	0.318	3.7	0.04418	1.3	0.352	278.7	±3.5	296	±78	287.8	±8.1	6	278.7	3.5	0.7	
17LYH3009-8.1	225.12	148.72	0.68	-0.33	8.76	22.08	1.2	0.0551	3.8	22.01	1.2	0.0577	4.2	0.361	4.4	0.04544	1.2	0.281	286.4	±3.4	518	±92	291.2	±8.5	45	286.4	3.4	10	
17LYH3009-9.1	199.70	107.23	0.55	0.91	7.73	22.20	1.3	0.0563	4.3	22.41	1.3	0.0490	7.7	0.302	7.8	0.04463	1.3	0.166	281.5	±3.6	148	±180	255	±15	-90	281.4	3.6	-6	
17LYH3009-10.1	141.80	85.48	0.62	1.01	5.44	22.41	1.4	0.0577	3.5	22.64	1.4	0.0496	5.7	0.302	5.9	0.04417	1.4	0.233	278.6	±3.8	176	±130	255	±11	-58	278.5	3.8	-4	
17LYH3009-11.1	148.00	94.46	0.66	0.34	5.75	22.10	1.3	0.0537	4.0	22.18	1.4	0.0510	8.1	0.317	8.3	0.04509	1.4	0.171	284.3	±3.9	241	±190	272	±16	-18	284.3	3.9	-2	
17LYH3009-12.1	167.93	102.67	0.63	0.60	6.79	21.25	1.3	0.0583	3.3	21.38	1.3	0.0535	4.4	0.345	4.6	0.04677	1.3	0.278	294.7	±3.7	349	±99	278	±13	16	294.7	3.7	2	
17LYH3009-13.1	168.92	109.97	0.67	1.55	6.57	22.07	1.3	0.0564	5.7	22.42	1.4	0.0438	13	0.270	14	0.04460	1.4	0.105	281.3	±3.9	-120	±330	233	±20	335	281.1	3.9	-20	
17LYH3009-14.1	278.76	220.23	0.82	0.18	10.8	22.17	1.1	0.0534	2.6	22.21	1.3	0.0519	8.6	0.322	8.7	0.04503	1.3	0.145	284.0	±3.5	283	±200	278	±14	0	283.9	3.6	-0.2	
Error in Standard calibration was 0.23%.																													
(H-3345) Hbl gabbro, Volcano-sedimentary lithodeme (40.902180N, 95.468503E)																													
18LYH-3345-1	84.79	65.40	0.80	0.08	37.6	1.937	2.2	0.1814	0.99	1.938	2.2	0.1808	1.1	12.86	2.4	0.516	2.2	0.889	2,682	±47	2,660	±18	2,668	±72	-1	2662.9	16.7	-0.9	
18LYH-3345-2	595.10	460.14	0.80	6.61	31.7	16.10	2.0	0.1094	7.3	17.25	2.1	0.056	19	0.450	19	0.0580	2.1	0.111	363.4	±7.5	463	±420	381	±35	22	363.5	7.4	4	
18LYH-3345-4	1371.11	167.07	0.13	0.00	383	3.075	1.9	0.11313	0.40	3.075	1.9	0.11313	0.40	5.073	2.0	0.3252	1.9	0.979	1,815	±31	1,850.3	±7.3	1,790	±39	2	1849.5	7.3	2	
18LYH-3345-5	1773.78	105.78	0.06	-0.01	511	2.983	1.9	0.11294	0.36	2.982	1.9	0.11305	0.37	5.23	1.9	0.3353	1.9	0.982	1,864	±31	1,849.1	±6.7	1,825	±52	-1	1851.1	6.3	-0.8	
18LYH-3345-6	353.73	101.43	0.30	-0.06	87.8	3.46	3.0	0.1213	0.86	3.46	3.0	0.1217	0.89	4.85	3.1	0.2892	3.0	0.958	1,637	±43	1,982	±16	2,246	±77	17	1945.8	13.1	20	
18LYH-3345-7	275.57	105.61	0.40	0.26	11.0	21.60	2.1	0.0538	3.9	21.66	2.2	0.0517	8.6	0.329	8.9	0.0462	2.2	0.247	291.0	±6.3	274	±200	287	±27					

Chapter 3 Table SM1: GEOCHRONOLOGY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX (continued.)

Spot	ppm U	ppm Th	²³² Th / ²³⁸ U	% ²⁰⁶ Pb _c	ppm ²⁰⁶ Pb*	Total ²³⁸ U / ²⁰⁶ Pb	±%	Total ²⁰⁷ Pb / ²⁰⁶ Pb	±%	(1) ²³⁸ U/ ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²³⁵ U	±%	(1) ²⁰⁶ Pb* / ²³⁸ U	±%	err corr	(1) ²⁰⁶ Pb / ²³⁸ U Age	(1) ²⁰⁷ Pb / ²⁰⁶ Pb Age	(1) ²⁰⁶ Pb / ²³² Th Age	% Dis- cor- dant	Single-grain concordia age	1se	disc	distance		
1617LYV163-14	453.21	2391.40	5.45	-0.73	17.1	22.73	1.6	0.0512	2.0	22.57	1.6	0.0570	4.7	0.348	5.0	0.04431	1.6	0.329	279.5 ±4.5	491 ±100	258.0 ±4.7	43	279.5	4.4	9			
1617LYV163-15	460.27	1204.72	2.70	-0.14	17.7	22.29	1.6	0.0541	2.0	22.26	1.6	0.0551	2.4	0.3416	2.9	0.04493	1.6	0.559	283.3 ±4.4	418 ± 53	274.6 ±5.0	32	283.6	4.4	6			
Error in Standard calibration was 0.37%.																												
(V-233) Ash layer of red shale bed, red bed lithodeme (40.954685N, 95.692817E)																												
1617LYV233-1.1	668.92	338.69	0.52	2.12	28.02	20.51	1.61	0.0707	1.89	20.95	1.7	0.0538	7.3	0.3537	7.4	0.0477	1.7	0.225	300.6 ± 4.9	360.6 ±160	303.3 ±20	17	300.4	5.0	2.7			
1617LYV233-2.1	302.61	109.28	0.37	0.46	12.53	20.75	1.66	0.0571	2.33	20.85	1.7	0.0534	5.6	0.3534	5.8	0.0480	1.7	0.290	302.0 ± 5.0	347.5 ±130	287.4 ±20	13	302.3	5.0	1.9			
1617LYV233-3.1	426.10	313.21	0.76	-0.08	16.82	21.76	1.64	0.0540	3.31	21.75	1.6	0.0547	3.3	0.3466	3.7	0.0460	1.6	0.444	289.8 ± 4.6	398.5 ± 74	282.3 ± 6.3	27	290.1	4.5	4.8			
1617LYV233-4.1	128.24	132.33	1.07	0.48	4.81	22.93	1.85	0.0601	9.10	23.04	2.0	0.0563	14.2	0.3370	14.3	0.0434	2.0	0.139	273.9 ± 5.3	464.3 ±310	278.6 ±16	41	273.9	5.4	8.5			
1617LYV233-5.1	285.84	250.02	0.90	0.24	11.53	21.30	1.69	0.0543	2.79	21.35	1.7	0.0524	4.1	0.3383	4.4	0.0468	1.7	0.387	295.1 ± 4.9	302.4 ± 92	290.8 ± 7.9	2	294.9	4.9	0.4			
1617LYV233-7.1	506.91	308.83	0.63	0.35	20.93	20.81	1.61	0.0556	1.79	20.88	1.6	0.0529	3.4	0.3490	3.8	0.0479	1.6	0.429	301.5 ± 4.8	322.6 ± 78	300.3 ± 8.7	7	301.7	4.7	0.9			
1617LYV233-8.1	232.24	165.15	0.73	2.09	9.93	20.09	1.70	0.0693	2.40	20.52	1.9	0.0525	14.5	0.3527	14.6	0.0487	1.9	0.133	306.7 ± 5.8	306.8 ±330	298.4 ±27	0	306.5	5.7	0.1			
1617LYV233-9.1	386.60	166.68	0.45	-0.42	14.47	22.94	1.68	0.0526	2.80	22.85	1.7	0.0559	4.8	0.3375	5.1	0.0438	1.7	0.335	276.1 ± 4.6	449.4 ±110	301.1 ±14	39	276.4	4.6	7.6			
1617LYV233-10.1	887.20	567.81	0.66	1.97	35.32	21.58	1.62	0.0695	2.00	22.01	1.6	0.0537	5.2	0.3366	5.5	0.0454	1.6	0.301	286.4 ± 4.6	360.1 ±120	276.6 ±11	20	286.3	4.5	3.3			
1617LYV233-12.1	836.41	838.53	1.04	0.31	35.77	20.09	1.55	0.0565	1.30	20.15	1.6	0.0540	3.1	0.3698	3.5	0.0496	1.6	0.445	312.2 ± 4.8	372.8 ± 71	304.9 ± 6.6	16	312.3	4.9	2.7			
1617LYV233-13.1	1087.94	1450.25	1.38	3.34	43.18	21.65	1.54	0.0729	1.21	22.39	1.6	0.0459	6.6	0.2827	6.8	0.0447	1.6	0.232	281.6 ± 4.4	-6.7 ±160	250.0 ± 7.5	4242	281.3	4.4	-12.0			
1617LYV233-14.1	471.57	425.45	0.93	4.46	18.86	21.48	1.69	0.0854	3.75	22.49	1.8	0.0495	13.6	0.3035	13.8	0.0445	1.8	0.133	280.5 ± 5.0	171.7 ±320	253.3 ±17	-64	280.6	4.9	-4.8			
1617LYV233-16.1	97.00	51.99	0.55	-0.01	4.08	20.41	2.15	0.0591	5.09	20.40	2.2	0.0592	5.1	0.4000	5.5	0.0490	2.2	0.390	308.4 ± 6.5	574.3 ±110	351.1 ±15	46	308.6	6.6	12.0			
1617LYV233-17.1	525.40	326.88	0.64	4.28	21.25	21.24	1.57	0.0862	1.37	22.19	1.7	0.0519	9.5	0.3223	9.7	0.0451	1.7	0.173	284.2 ± 4.7	279.6 ±220	267.0 ±21	-2	284.4	4.7	-0.3			

Error in Standard calibration was 0.37%.

Errors are 1-sigma; Pb_c and Pb* indicate the common and radiogenic portions, respectively.

Error in Standard calibration was not included in above errors but required when comparing data from different mounts

Common Pb corrected using measured ²⁰⁴Pb.

% discordant is the conventional relative age difference (%) between the 206Pb/238U and 207Pb/206Pb ages or between 206Pb/238U and 207Pb/235U ages
disc distance is the logratio distance (%) measured along a line connecting the measured composition and the corresponding single grain concordia age composition.

Appendix 5

Chapter 3 Table SM2

Chapter 3 Table SM2: GEOCHEMISTRY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX

Volcano-plutonic unit (lower sequence)																		
Sample	16/17LYV141	18LYH-3061	18LYH-3061	18LYV-1356a	16LYV-180	16/17LYV115-2	16/17LYV115-1	18LYV-1356c	18LYH-3050	18LYH-3347	17LYH3026	18LYH-3267	16LYS85A	16LYV-181	17LYV-1037a	16LYS85B	16/17LYV116	17LYH-3025
Coordinates	Andesitic tuff	Duplicate	rhyolite	rhyolite	rhyolite	Duplicate	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite
mN	40.927469	40.939943	40.939943	40.939271	40.946734	40.944935	40.944935	40.939271	40.947959	40.948438	40.90340794	40.890336	40.897134	40.946252	40.894791	40.897134	40.949143	40.900137
mE	95.607996	95.634188	95.634188	95.647953	95.676207	95.659872	95.659872	95.647953	95.659547	95.659405	95.47718086	95.525464	95.530468	95.675587	95.522983	95.530468	95.659434	95.477886
Major elements (wt%)																		
SiO ₂	48.06	71.5	71.6	72.4	72.7	73.32	73.66	74.4	75.4	75.7	75.95	76	76.03	76.3	76.8	77.27	77.35	77.5
TiO ₂	2.34	0.33	0.33	0.3	0.24	0.3	0.32	0.27	0.2	0.22	0.16	0.12	0.12	0.13	0.13	0.12	0.16	0.11
Al ₂ O ₃	15.33	12.6	12.6	13.25	13.6	12.71	12.67	12.7	12.65	12.75	12.53	12.15	12.16	12.45	12.25	11.82	10.99	12.05
Fe ₂ O ₃	11.08	3.02	3.03	3.1	2.48	3.23	3.31	2.74	2.2	2.41	1.61	2.3	1.53	1.2	1.58	1.53	2.14	0.92
MgO	5.78	0.48	0.48	0.77	0.2	0.5	0.58	0.35	0.26	0.29	0.15	0.1	0.11	0.39	0.07	0.12	0.16	0.13
MnO	0.17	0.05	0.05	0.05	0.03	0.08	0.07	0.06	0.04	0.03	0.06	0.08	0.01	<0.01	0.01	0.01	0.02	0.01
CaO	8.75	2.71	2.71	1.21	1.98	2.67	1.88	1.52	1.06	0.18	0.14	0.8	0.64	1.4	0.24	0.47	0.78	0.58
Na ₂ O	2.51	4.44	4.45	3.77	2.25	2.91	4.64	3.63	4.48	5.03	3.95	4.13	3.63	3.34	4.05	3.33	3.49	3.09
K ₂ O	0.29	2.34	2.33	3.28	3.5	2.63	1.28	2.82	3.03	2.05	3.94	3.57	4.03	2.61	3.9	3.76	3.02	4.49
P ₂ O ₅	0.37	0.06	0.06	0.04	0.02	0.06	0.08	0.05	0.03	0.04	0.03	<0.01	0.01	0.02	<0.01	0.01	0.03	0.01
LOI	4.76	2.91	2.81	2.27	3.25	1.15	1.07	1.62	1.14	0.87	0.64	1.36	1.1	2.36	0.77	1.17	1.23	1.01
Total	99.44	100.44	100.45	100.44	100.25	99.56	99.56	100.16	100.49	99.57	99.16	100.61	99.37	100.2	99.8	99.61	99.37	99.9
ASI	1.26	1.03	1.03	1.22	1.47	1.27	1.19	1.22	1.09	1.20	1.15		1.11	1.30		1.19	1.13	1.15
Trace elements (µg/g)																		
Cd	0.09	0.5	0.5	<0.5	<0.5	0.07	0.06	<0.5	<0.5	<0.5	0.11	<0.5	0.19	<0.5	<0.5	0.22	0.11	<0.5
Co	36.9	<1	2	4	1	1.9	1.9	1	1	2	1.6	<1	0.2	<1	<1	0.2	0.6	<1
Cu	128	3	4	7	2	4.4	4.1	3	3	4	7.6	5	3.7	1	5	5.1	5.5	1
Li	38.5	10	10	10	10	20.6	23	10	10	20	14.9	10	5.4	10	<10	5	10.6	10
Mo	0.32	1	1	1	<1	0.06	0.07	2	2	1	3.52	1	0.91	<1	1	1.11	1.27	1
Ni	100	<1	<1	1	<1	0.7	1.2	<1	<1	3	0.8	<1	0.2	<1	<1	0.3	<0.2	<1
Pb	7.5	29	29	9	16	14.7	13.2	13	14	13	19.7	15	17.9	9	20	18.7	16.4	13
Sc	28.1	7	7	8	7	8.7	9.4	7	5	6	6.3	5	5.5	5	3	5.1	8.3	5
Tl	0.05	<10	<10	<10	<10	0.43	0.22	<10	<10	<10	0.88	<10	0.63	<10	<10	0.59	0.52	<10
Zn	98	50	51	78	79	65	70	68	65	36	49	80	47	37	86	35	62	40
Ba	71.6	494	491	575	339	423	192	451	531	379	509	510	590	440	575	558	466	555
Ce	37.3	58.8	57.6	65.2	75.2	66.2	62.2	63.6	66	69.4	74.1	68.2	80.2	78.7	77.4	79	65.7	71.2
Cr	141	10	10	10	<10	1	3	<10	<10	<10	<1	<10	1	<10	<10	1	<1	<10
Cs	3.19	1.36	1.39	4.08	10.25	5.1	2.61	3.11	2.35	1.7	4.75	2.37	1	5.27	2.42	1.1	2.06	2.62
Dy	8.32	7.61	7.51	8.52	10.8	8.83	8.8	7.71	8.7	8.34	7	7.88	8.58	6	8.9	7.95	7.98	7.28
Er	4.66	5.18	5	5.12	7.07	5.5	5.38	4.94	5.76	5.19	4.15	5.38	4.95	3.51	5.54	4.93	4.85	4.41
Eu	2.18	1.52	1.47	1.49	1.82	1.77	1.71	1.4	1.38	1.49	0.96	1.04	1.39	1.04	1.34	1.45	1.4	0.74
Ga	22.2	17.1	16.6	18.8	16.9	20.3	18.4	16.9	17.7	16.6	14.8	16.2	20.7	15.2	15.7	17.8	14.8	14.4
Gd	8.85	7.51	7.85	7.85	9.41	8.66	7.5	7.22	8.12	7.9	6.66	7.04	8.39	6.05	8.53	8.24	7.55	6.5
Hf	6.1	6.9	6.9	7.2	9.8	8.9	8.2	7	7.9	8.1	5.7	7.3	8.1	7.3	7.4	8.3	8.3	4.2
Ho	1.72	1.57	1.56	1.68	2.15	1.83	1.8	1.62	1.77	1.79	1.41	1.61	1.73	1.26	1.77	1.7	1.74	1.47
La	16.4	26.6	25.9	29.7	33.1	30.8	27.5	28.7	30.3	31.2	33.3	31.4	38.5	39.7	36.3	38.5	31	35.2
Lu	0.71	0.68	0.73	0.72	1.01	0.88	0.84	0.71	0.86	0.8	0.69	0.72	0.78	0.48	0.76	0.81	0.81	0.75
Nb	5	8.9	8.7	10.4	12.2	10.1	9.9	10.8	11.1	11	9.4	9.5	11.1	10.5	11.1	10.9	9.5	9.5
Nd	28.2	30.4	29.9	33.1	39.6	33.8	32	32	33.5	32	31.7	31.2	37.7	35.6	37.2	37.4	32.8	33.9
Pr	5.83	7.36	7.07	7.95	9.43	8.08	7.92	7.92	8.16	8.59	8.26	7.9	9.44	9.28	9.13	9.3	8.26	8.83
Rb	13.7	65.6	65.5	98	121.5	69	35.9	93.6	90.6	64.3	95.4	115.5	129.5	108	131	115.5	88.4	166
Sm	7.59	6.95	7.32	8.03	9.76	7.75	7.96	7.9	7.98	8	6.96	7.59	8.26	6.85	8.68	8.25	7.42	6.9
Sn	2.4	3	3	3	3	3	2.8	3	3	<1	2.1	3	3.1	2	3	2.7	2.5	3
Sr	323	205	204	57.5	36.7	101.5	102	79.3	85.5	65.8	67.2	56.4	60.3	42.3	51.2	52.3	70.5	59.7
Ta	0.39	0.7	0.7	0.8	0.9	0.76	0.74	0.8	0.9	1	0.9	0.9	0.89	0.9	0.9	0.85	0.73	1
Tb	1.42	1.17	1.14	1.27	1.6	1.45	1.38	1.16	1.32	1.33	1.17	1.18	1.31	0.93	1.36	1.35	1.31	1.12
Th	2.91	8.17	8.07	8.95	10.65	9.22	9.14	8.72	9.62	9.8	14.3	13.15	13.8	15.9	13.1	13.7	9.05	14.5
Tm	0.67	0.68	0.68	0.78	0.92	0.88	0.82	0.7	0.83	0.77	0.7	0.73	0.78	0.51	0.78	0.76	0.76	0.7
U	1.02	2.15	2.05	2.16	2.15	2.37	2.41	2.47	2.53	2.38	2.12	2.6	3.09	2.15	3.23	3.2	2.35	2.38
V	189	20	20	26	7	8	12	16	10	10	8	5	1	6	<5	1	2	5
W	1.1	2	2	1	1	0.4	0.4	1	1	2	2.6	1	2.6	5	1	2.2	0.6	1
Y	47.5	41.8	41.5	45.3	58.5	51.5	50.9	42.6	47.9	47.6	43.9	43.2	47.5	29.2	47.2	47	46.4	40
Yb	4.68	4.68	4.87	5.07	6.77	5.89	5.43	4.87	5.7	5.27	4.64	4.83	5.02	3.53	5.44	5.26	5.18	4.53
Zr	238	268	266	269	393	325	307	286	286	281	175	274	277	254	283	281	298	128

Chapter 3 Table SM2: GEOCHEMISTRY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX (continued.)

Sample Coordinates	Volcano-plutonic unit (lower sequence)									Red bed lithodeme (upper sequence)								
	18LYH-3130b	18LYV-1356b	16/17LYV76	16LYV-116	18LYH-3130a	19LYH-3426	17LYV1106-2	17LYV1106-1	18LYH-3133a	16LYV-205	16LYV-174	16LYV-210	18LYV-1381	16/17LYV209	18LYV-1380a	16/17LYV176	18LYH-3024	16LYV-202
	rhyolite	rhyolite	rhyolite	rhyolite	rhyolite	Granite	Granite	Granite	rhyolite	Green tuff	Ash layer	Rhyolite	Rhyolite	Ash layer	Rhyolite	Tuff	Rhyolite	Ash layer
mN	40.887315	40.939271	40.91565	40.94966	40.887315	40.87280213	40.890156	40.890156	40.881524	40.949146	40.953394	40.951423	40.953327	40.951327	40.955942	40.95063333	40.951991	40.94922
mE	95.465831	95.647953	95.603778	95.659368	95.465831	95.43981902	95.500638	95.500638	95.459315	95.696582	95.681283	95.66003	95.724626	95.696455	95.728831	95.6594944	95.681726	95.69488
Major elements (wt%)																		
SiO ₂	78.4	78.4	79.42	79.9	80.6	74.4	74.97	75.93	76.7	66.7	69.9	71	72	72.59	72.8	73.72	74.2	75.1
TiO ₂	0.1	0.14	0.11	0.1	0.07	0.18	0.16	0.08	0.14	0.57	0.57	0.39	0.21	0.36	0.3	0.33	0.19	0.29
Al ₂ O ₃	12.65	12.45	10.96	11.35	10.65	12.75	12.36	12.48	12.5	12.85	12.4	12.8	12.65	11.6	13.85	13.19	12.8	12.15
Fe ₂ O ₃	1.44	1.76	1.13	1.14	1.3	1.64	2.09	1.2	1.82	5.33	4.55	3.13	2.14	2.79	2.78	2.88	2.14	2.54
MgO	0.07	0.16	0.18	0.1	0.02	0.26	0.27	0.2	0.14	0.68	0.5	0.52	0.17	0.71	0.47	0.44	0.3	0.22
MnO	0.01	0.02	0.01	0.01	0.01	0.03	0.04	0.02	0.03	0.13	0.09	0.09	0.05	0.07	0.01	0.03	0.05	0.05
CaO	0.18	1.54	0.48	0.66	0.25	0.93	0.97	0.52	0.65	4.65	2.49	1.86	2.53	2.78	0.87	0.63	1.1	0.88
Na ₂ O	3.27	1.86	2.92	4.54	3.53	3.62	4.01	4.13	4.2	4.64	4.15	4.98	4.53	5.15	4.36	5.48	4.36	4.42
K ₂ O	4.24	2.87	3.04	1.61	3.75	4.08	3.38	4.06	3.68	0.34	2.41	1.83	2.46	0.52	2.47	1.58	3.03	2.82
P ₂ O ₅	<0.01	0.01	<0.01	<0.01	<0.01	0.04	0.02	0.02	<0.01	0.16	0.1	0.09	0.03	0.08	0.06	0.08	0.03	0.04
LOI	0.84	2.21	1.26	1.33	0.29	1.33	1.04	0.72	0.65	3.44	2.93	2.31	2.76	2.9	2.02	1.2	1.57	1.42
Total	101.2	101.42	99.51	100.74	100.47	99.26	99.31	99.36	100.51	99.49	100.09	99	99.53	99.55	99.99	99.56	99.77	99.93
ASI		1.65				1.14	1.11	1.07		1.06	1.07	1.08	1.02	1.01	1.31	1.17	1.12	1.09
Trace elements (µg/g)																		
Cd	<0.5	<0.5	0.1	<0.5	<0.5	<0.5	0.06	0.07	<0.5	<0.5	<0.5	<0.5	<0.5	0.13	<0.5	0.09	<0.5	<0.5
Co	<1	<1	0.8	<1	<1	1	1.1	0.6	<1	3	2	3	<1	2.5	1	1.9	1	1
Cu	4	2	14.9	3	2	3	6.8	3.9	4	3	4	6	2	7.7	4	5.2	2	3
Li	<10	<10	7.4	10	<10	20	9.2	6.4	10	40	10	20	10	15.3	10	14	10	10
Mo	<1	<1	0.4	<1	<1	1	0.5	0.66	1	1	<1	1	1	0.73	1	1.08	1	1
Ni	<1	<1	1	<1	<1	<1	<0.2	<0.2	<1	<1	<1	<1	<1	3	1	1.3	<1	<1
Pb	19	16	12.6	18	18	13	14.8	11.3	14	10	18	10	15	13.3	12	12.7	12	14
Sc	4	5	4.4	4	3	3	5.3	2.9	7	16	14	9	7	9.3	7	10.1	5	7
Tl	<10	<10	0.61	<10	<10	<10	0.67	0.51	<10	<10	<10	<10	<10	0.11	<10	0.23	<10	<10
Zn	59	46	56	90	19	33	56	23	45	90	109	75	69	52	54	57	57	75
Ba	612	408	513	225	578	473	520	535	540	64	434	307	496	98.4	363	335	460	456
Ce	71.7	73.2	61.8	59.3	50.5	53.6	54.6	63.4	63.2	47.1	65.7	39	70	49.2	61.2	65.3	61	60.7
Cr	<10	<10	4	<10	<10	<10	<1	<1	<10	<10	<10	10	<10	11	10	4	<10	<10
Cs	9.32	5.18	2.67	1.76	6.65	4.48	2.63	0.71	0.6	0.73	1.77	5.4	2.03	1.13	3.79	2.41	2.48	2.27
Dy	9	8.49	6.82	6.49	6.81	4.68	5.14	5.67	5.72	7.38	9.94	7.01	8.97	6.29	7.26	7.77	7.03	8.76
Er	6.04	5.7	4.4	4.5	4.47	2.93	3.31	3.64	3.59	4.7	6.54	4.75	5.69	3.97	4.51	4.93	4.36	5.81
Eu	1.19	0.96	0.98	0.98	0.9	0.56	0.8	0.49	0.93	2	1.94	1.13	1.41	1.49	1.29	1.6	1.32	1.57
Ga	18.5	19.7	15.8	12.3	8.6	16.7	17.3	14.5	17.1	19	19	18.3	17.4	15.2	17.7	19.4	18.3	16.5
Gd	8.54	7.93	6.56	7.22	6.8	4.1	4.57	5.29	5.81	7.39	9.3	5.44	8.27	6.57	6.94	7.63	6.76	7.97
Hf	6.3	7.7	6	6	5.1	4.4	5.5	4.1	5.8	6.8	9.7	7	8.8	6.7	7.7	7.5	7.5	8.5
Ho	1.89	1.75	1.37	1.4	1.4	0.95	1.07	1.22	1.23	1.53	2.05	1.58	1.93	1.37	1.6	1.72	1.5	1.76
La	35	33.3	31.3	26.9	28	22.6	27.2	32.5	29	21	29.3	14.8	31.5	23.3	28.2	29.6	27.2	27
Lu	0.71	0.92	0.67	0.65	0.58	0.44	0.56	0.63	0.47	0.68	0.91	0.7	0.81	0.69	0.72	0.8	0.71	0.81
Nb	11.3	11.3	11	8.8	9.4	6.4	8.5	7.7	7.2	8.2	11.2	9	11.1	7.8	9.9	9.3	10.3	10.8
Nd	36	36.3	30.4	30.6	29	18.6	24	28.4	28	26.7	35.7	18.2	33.1	25.8	28.9	32.5	28.6	32.5
Pr	8.91	9.04	7.58	7.48	7.32	5.06	6.36	7.69	7.18	6.03	8.36	4.41	8.83	6.29	7.52	8.02	7.52	7.51
Rb	161	136	120	68.6	100.5	164	136.5	116	67.8	11.4	65.2	65.9	75	21	88.3	39.9	99	71.4
Sm	8.54	7.94	7	7.01	6.46	3.86	4.99	5.86	6.19	6.7	8.81	4.79	8.73	6.24	7.49	7.63	6.83	7.67
Sn	4	4	3.7	2	2	3	6.4	1.2	1	2	3	3	3	2.1	1	2.7	2	6
Sr	34.6	70.6	46	47.7	30.6	62.6	82.1	33.4	55.2	213	107	97.9	76.7	100	79.8	70.6	69.8	67
Ta	0.8	0.9	0.94	0.8	0.7	0.9	0.7	0.8	0.5	0.7	0.7	0.7	0.9	0.59	1.1	0.7	1	0.8
Tb	1.31	1.21	1.12	1.03	1.04	0.64	0.79	0.88	0.95	1.17	1.59	1.04	1.38	1.06	1.21	1.25	1.18	1.29
Th	13.55	12.65	14.1	8.7	9.68	17.65	12.05	15.35	8.9	6.29	8.89	7.72	9.81	6.52	9.03	9.1	8.98	8.91
Tm	0.79	0.81	0.67	0.61	0.63	0.42	0.52	0.59	0.47	0.65	0.88	0.71	0.83	0.66	0.7	0.77	0.7	0.78
U	2.37	2.55	3.14	1.99	1.48	1.17	2.23	0.98	2.13	1.85	2.48	2.28	3.01	2.08	2.48	3.1	2.62	3.51
V	12	<5	4	10	<5	18	4	3	5	7	22	22	6	18	12	13	8	5
W	2	1	1.8	1	1	4	0.7	0.6	<1	1	2	1	7	0.8	4	1.5	1	1
Y	53	45.9	41.4	34.2	38.1	26.6	31.3	34.9	30.6	40.5	53.1	40	52.6	38.6	41.8	48.3	39.4	48.7
Yb	5.64	5.94	4.45	4.58	4.33	3	3.45	3.61	3.44	4.36	6.09	4.89	5.84	4.37	5	4.89	4.75	5.68
Zr	198	244	160	204	160	140	181	105	206	296	411	280	327	247	279	273	263	351

Chapter 3 Table SM2: GEOCHEMISTRY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX (continued.)

Volcano-sedimentary lithodeme (upper sequence)									
Sample	16LYV-225	18LYH3351	19LYH-3557	18LYV1377	18LYV1377dup	17LYH3055	17LYH3185	19LYV1477	17LYH3177
Coordinates	Rhyolite	Andesite	Andesite	Ash layer	Duplicate	Rhyolite	Rhyolite	Tuff	Tuff
mN	40.950547	40.945888	40.96367539	40.969496	40.969496	40.93130105	40.891907	40.952973	40.90984077
mE	95.712014	95.439565	95.36428312	95.608979	95.608979	95.48396096	95.501532	95.756438	95.54615923
Major elements (wt%)									
SiO ₂	81.5	54.9	63.3	71.6	72.2	72.38	74.25	76.3	77.7
TiO ₂	0.13	1.09	0.68	0.45	0.46	0.61	0.24	0.21	0.18
Al ₂ O ₃	10	18.05	14.8	11.65	11.7	13.14	12.32	12.8	11.38
Fe ₂ O ₃	0.99	6.74	5.59	2.97	2.86	4.04	2.6	0.85	0.93
MgO	0.09	1.9	2.66	1.13	1.11	1.23	0.61	0.31	0.4
MnO	0.01	0.04	0.07	0.05	0.05	0.05	0.05	0.01	0.02
CaO	0.87	3.07	2.13	2.84	2.81	2.42	0.97	0.81	0.92
Na ₂ O	4.87	8.06	2.84	5.54	5.64	3.32	4.31	4.83	4.27
K ₂ O	0.55	0.32	3.55	0.17	0.16	1.34	2.71	3.44	2.7
P ₂ O ₅	0.02	0.04	0.13	0.09	0.08	0.07	0.05	0.03	0.03
LOI	1.32	4.76	2.4	3.16	3.19	1.35	1.44	0.57	1.31
Total	100.35	98.98	98.2	99.65	100.26	99.97	99.59	100.25	99.89
ASI	1.07	1.10	1.43	0.99	0.98	1.45	1.13	1.03	1.06
Trace elements (µg/g)									
Cd	<0.5	<0.5	<0.5	<0.5	<0.5	0.05	0.06	<0.5	0.08
Co	1	22	16	8	6	11.7	2.6	1	0.8
Cu	4	4	25	4	3	16.7	3.2	14	1.7
Li	<10	30	20	20	20	19	30.6	10	6.9
Mo	1	1	1	1	1	<0.05	0.23	<1	0.25
Ni	<1	42	40	19	16	18.9	0.7	4	0.5
Pb	10	15	60	12	10	9.5	12.8	<2	14.9
Sc	4	12	15	7	7	11.7	6.7	4	4.2
Tl	<10	<10	<10	<10	<10	0.26	0.48	<10	0.29
Zn	45	98	87	53	51	48	50	6	40
Ba	112	129.5	484	41.9	45.8	181.5	348	795	441
Ce	46.3	49.6	48.3	41	39.3	34.5	50.9	33.4	49
Cr	<10	120	70	50	40	65	1	10	3
Cs	0.79	1.16	3.65	0.33	0.39	4.01	9.87	0.91	1.24
Dy	5.52	4.26	5.48	2.78	2.73	3.86	4.82	3.2	2.99
Er	3.55	2.74	3.1	1.74	1.55	2.32	2.91	2.01	1.93
Eu	0.87	1.28	1.56	0.78	0.74	0.98	0.96	0.59	0.58
Ga	8.3	19.4	20.4	11.4	10.7	15.3	15.5	8.5	9.4
Gd	5.6	4.66	5.37	3.12	3.04	4.19	4.5	3.23	2.99
Hf	4.9	7.8	4.9	4.5	4	3.9	5.8	3.6	3.6
Ho	1.05	0.91	1.11	0.57	0.53	0.82	0.98	0.63	0.64
La	20.7	24.4	23.8	20.2	19.9	18.3	25.6	18.5	25.4
Lu	0.5	0.5	0.46	0.29	0.26	0.38	0.49	0.31	0.38
Nb	6.8	17.9	9.4	7.6	7.4	5	7.5	5.9	6
Nd	23.5	22.9	25.6	17.6	17.6	18.4	22.1	15.8	18.9
Pr	5.84	6.32	6.28	4.83	4.6	4.64	5.79	4.24	5.39
Rb	18.2	10.1	92.3	4.7	4.4	57.3	116.5	61.1	47.9
Sm	5.48	5.53	5.32	3.91	3.42	4.15	4.6	3.19	3.52
Sn	1	1	3	<1	2	1.5	1.7	<1	0.8
Sr	54.1	449	185	179.5	172.5	184	81.5	117.5	91
Ta	0.5	0.9	0.9	0.7	0.6	0.17	0.63	0.6	0.44
Tb	0.84	0.68	0.8	0.48	0.45	0.64	0.75	0.5	0.46
Th	7.09	9.04	10.4	7.92	7.38	5.7	9.86	9.57	9.4
Tm	0.49	0.42	0.48	0.27	0.27	0.36	0.48	0.3	0.32
U	2.26	3.79	2.31	1.72	1.68	1.89	1.94	2	1.81
V	<5	108	160	57	55	97	10	18	10
W	2	10	1	1	<1	0.3	0.8	1	1.1
Y	29.2	25.1	28.4	15.2	14.6	22.6	28.1	17.4	16.5
Yb	3.45	3.1	3.22	1.94	1.86	2.47	3.05	2.31	2.23
Zr	189	279	172	159	154	133	213	121	116

ASI = [Al]/([Ca - 1.67P + Na + K])

Chapter 3 Table SM2: GEOCHEMISTRY DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX (continued.)

hornblende gabbro sills																		
Sample	19LYH3617	19LYH3618	1819LYH3176G	1718LYH3097b	18LYH3345	17LYH3194	19LYH3488	17LYV1038a	17LYH3164E	16LYV102	1617LYV277	16LYV161a	1617LYV163	18LYH3133b	18LYV1382gbr	16LYV161b	17LYV1042	1718LYV1042
Coordinates	gabbro intruded volcano-sedimentary unit									gabbro from shear zone								
mN	40.920335	40.91446367	40.913563	40.91710897	40.90218	40.916735	40.89759901	40.896134	40.912783	40.930215	40.909938	40.942531	40.942383	40.881524	41.951255	40.942531	40.877095	40.877095
mE	95.556487	95.56493114	95.55525	95.498746	95.468503	95.542098	95.4420108	95.505565	95.554617	95.637467	95.598361	95.692016	95.692156	95.459315	95.726401	95.692016	95.49927	95.49927
Major elements (wt%)																		
SiO ₂	42.1	43	47	47.2	47.5	47.85	48.6	49.4	51.64	45	46.37	47.9	48.97	49.8	49.8	50.9	51.29	57.1
TiO ₂	5.9	5.36	2.22	3.7	3.12	2.84	1.72	3.8	2.39	2.54	2.87	1.38	1.26	1.65	1.32	1.42	1.58	1.95
Al ₂ O ₃	12.3	12.35	15.2	12.4	13.3	14	16.7	12.25	14.84	15.35	15.67	15.6	17.34	14.6	17.25	16.05	15.78	13.1
Fe ₂ O ₃	16.75	16.4	10.45	14.55	13.15	13.1	9.66	15.65	11.45	11.85	11.94	9.6	9.42	11.8	9.18	9.14	9.6	10.05
MgO	6.67	6.63	5.22	4.58	6.19	6.05	6.59	2.45	5.51	5.78	4.97	7.22	6.92	5.91	5.87	5.33	4.54	2.58
MnO	0.25	0.25	0.16	0.27	0.2	0.2	0.18	0.27	0.15	0.16	0.16	0.13	0.14	0.18	0.11	0.12	0.15	0.17
CaO	7.96	7.72	7.52	8.1	8.82	9.74	7.39	4.68	6.08	8.6	7.41	8.78	8.71	9.95	6.65	8.38	7.91	5.41
Na ₂ O	3.58	4.43	4.42	2.92	3.52	3.49	4.46	3.91	4.42	3.13	3.87	2.89	3.46	3.19	4.3	3.21	3.91	3.97
K ₂ O	0.17	0.15	1.05	0.1	0.29	0.51	0.28	2.31	0.78	0.07	0.97	0.66	0.78	0.39	0.88	0.99	0.5	0.26
P ₂ O ₅	0.55	0.68	0.31	0.69	0.45	0.33	0.22	0.62	0.32	0.39	0.47	0.15	0.15	0.21	0.17	0.18	0.2	0.27
LOI	3.41	3.97	6.97	5.45	1.46	1.65	2.25	3.9	2.02	7.78	4.41	6.43	2.7	2.01	2.81	5.17	4.02	5.76
Total	99.64	100.94	100.53	99.96	98	99.8	98.05	99.28	99.62	100.65	99.14	100.75	99.87	99.69	98.35	100.91	99.5	100.63
Mg#	0.44	0.44	0.50	0.38	0.48	0.48	0.57	0.24	0.49	0.49	0.45	0.60	0.59	0.50	0.56	0.54	0.48	0.34
Trace elements (µg/g)																		
Cd	<0.5	0.5	<0.5	1	0.7	0.2	<0.5	0.9	0.04	0.6	0.05	<0.5	0.04	0.7	0.5	<0.5	0.15	0.5
Co	48	38	30	30	37	41.4	37	38	31.4	39	36.5	41	39.3	33	31	33	30.6	24
Cu	28	18	143	8	32	64.4	117	18	149.5	155	219	45	37.9	47	6	106	30.4	74
Li	20	20	40	20	20	15.1	20	40	20.4	90	23.7	30	20.8	10	30	30	26.4	40
Mo				1	1	0.32			0.24	1	0.7	1	0.14		1	1	0.53	1
Ni	33	27	30	8	30	34.1	73	17	20.7	102	69	93	80.2	30	72	61	17.1	4
Pb				8	5	2.6			5.6	14	9.3		1.8	5		7	4.6	6
Sc	55	46	30	34	45	52.5	24	42	40	25	22.5	23	22	38	15	24	29.8	26
Tl	<10	<10	<10	<10	<10	0.11	<10	10	0.08	<10	0.26	10	0.11	<10	<10	<10	0.11	<10
Zn	124	122	108	123	110	101	92	111	91	113	123	60	58	101	46	84	88	113
Ba	36.6	22.1	81.9	21.8	23.8	86.8	47.5	329	81.5	36.9	112.5	134.5	52.9	35.8	67.7	145.5	86	81.2
Ce	30.2	35.4	27.6	50.8	38.1	29.8	23.7	50.2	33.4	37.6	47.3	18.6	19.1	17	19.9	23.2	22.6	32
Cr	20	10	130	10	120	129	160	30	111	160	112	260	197	90	100	140	109	
Cs	0.14	0.62	11.8	0.14	0.71	3.47	0.3	15	5.16	0.49	6.59	1.19	0.9	0.36	1.61	1.14	3.03	0.64
Dy	8.3	8.88	7.67	10.65	8.76	6.69	6.45	10.8	8.08	8.73	9.57	5.13	4.79	5.92	4.66	5.81	5.54	8.32
Er	4.41	4.71	4.86	5.98	5.09	3.95	3.82	6.55	4.92	5.1	5.57	3.07	2.88	3.5	2.65	3.61	3.25	5.22
Eu	2.85	2.63	1.96	3.04	2.51	2.02	1.57	3.06	2.14	1.98	2.51	1.28	1.42	1.48	1.35	1.43	1.57	1.67
Ga	21.2	20.4	21.2	21.6	19.5	21	21.8	21.6	24	20.4	24.8	16.9	20.2	18.1	18.3	18.8	19.5	20.1
Gd	8.84	9.38	8.07	10.55	8.45	7.01	6.23	10.95	7.81	8.5	9.67	4.77	4.72	4.84	4.29	5.81	5.54	7.31
Hf	4.4	5.2	5.4	7.8	6.2	5.1	4.3	6.8	6.3	6.3	8.1	2.9	3	3.2	3.5	4	3.6	5.9
Ho	1.63	1.73	1.61	2.3	1.73	1.33	1.32	2.14	1.69	1.72	1.88	0.99	0.99	1.18	0.92	1.2	1.1	1.67
La	11.1	13.3	11.6	18.6	13.7	11.4	9.8	19.4	13.5	14.5	18.9	7.3	7.5	6.4	7.1	8.6	8.8	11.8
Lu	0.5	0.56	0.6	0.9	0.65	0.57	0.48	0.77	0.7	0.7	0.77	0.42	0.4	0.49	0.34	0.49	0.39	0.72
Nb	6.3	7.2	4.2	11.2	8.4	5.8	3.3	9.6	4.6	5.9	6.9	2.8	2.5	3.1	2.3	3.4	2.9	5.2
Nd	25.2	28.5	21.6	37.5	28	21.7	16.6	35.8	23.8	27.1	32.3	13.6	13.8	13.7	15.3	16.2	16.1	21.7
Pr	4.76	5.83	4.47	7.74	5.67	4.35	3.41	7.35	4.9	5.4	6.59	2.79	2.8	2.6	3.03	3.36	3.37	4.52
Rb	1.8	2.2	36.3	2	3.9	15.5	5.2	115.5	23.4	4	44.7	23.7	29.5	14.8	31.2	37.9	17.3	9.7
Sm	7.02	8.08	6.26	10.4	7.23	5.81	4.89	9.44	7.04	7.36	8.82	3.79	3.95	4.53	4.25	4.54	4.72	5.62
Sn	1	2	2	2	2	1.7	2	3	2.4	3	3.1	1	1.2	1	1	1	1.8	2
Sr	189	183.5	109.5	334	315	294	265	184.5	201	331	325	219	257	200	297	218	394	128.5
Ta	0.8			0.8	0.6	0.41	0.5	0.8	0.4	0.4	0.53	0.4	0.19	0.3	0.2	0.4	0.29	0.5
Tb	1.25	1.45	1.23	1.69	1.34	1.16	1	1.59	1.29	1.36	1.66	0.76	0.79	0.86	0.71	0.96	0.91	1.26
Th	0.45	0.56	2.59	1	0.69	0.47	2.34	0.89	0.89	2.75	3.07	4.19	1.38	1.39	0.53	1.39	1.92	3.18
Tm	0.53	0.6	0.64	0.94	0.75	0.58	0.49	0.87	0.72	0.74	0.87	0.42	0.43	0.5	0.37	0.52	0.45	0.72
U	0.61	0.35	1.04	0.52	0.57	1.1	0.88	0.88	1.15	1.15	1.36	0.36	0.47	0.36	0.68	0.54	0.55	1.1
V	649	544	268	377	389	410	235	435	300	221	239	203	187	334	146	188	190	207
W	2	2	1	2	1	0.9	2	6	0.5	8	0.8		0.4	1	1		1.1	4
Y	39.5	42.7	42.2	57.1	45.6	36.8	35.3	55.3	45.4	43.7	53.1	26.2	26.8	30.8	24.4	32	27	43.5
Yb	3.7	4.06	4.22	6.07	4.43	3.55	3.42	5.55	4.6	4.49	5.32	2.66	2.71	3.27	2.52	3.58	2.8	4.71
Zr	193	220	207	363	294	214	162	308	234	265	321	109	110	124	133	153	129	217
Eu/Eu*	1.10	0.92	0.84	0.88	0.97	0.96	0.86	0.91	0.87	0.76	0.82	0.91	1.00	0.96	0.96	0.84	0.93	0.79
Dy/Dy*	1.18	1.12	0.98	0.92	1.03	0.97	1.00	0.97	0.93	1.00	0.90	1.04	0.95	1.08	0.99	0.91	1.02	0.98
Dy _N /Yb _N	2.24	2.19	1.82	1.75	1.98	1.88	1.89	1.95	1.76	1.94	1.80	1.93	1.77	1.81	1.85	1.62	1.98	1.77
La _N /Lu _N	2.34	2.51	2.04	2.18	2.22	2.11	2.15	2.66	2.03	2.19	2.59	1.83	1.98	1.38	2.20	1.85	2.38	1.73
La _N /Yb _N	2.04	2.23	1.87	2.08	2.10	2.18	1.95	2.37	1.99	2.19	2.41	1.86	1.88	1.33	1.91	1.63	2.14	1.70
ASI	0.95	0.88	1.01	1.05	0.96	0.94	1.17	0.96	1.10	1.20	1.13	1.17	1.21	1.00	1.23	1.16	1.12	1.13
Eu/Eu*=Eu _N /SQRT(Sm _N *Gd _N)																		
Dy/Dy* a measure of the curvature of the REE pattern																		

Appendix 6

Chapter 3 Table SM3

Chapter 3 Table SM3: ISOTOPIC DATA OF IGNEOUS ROCKS FROM THE GANQUAN COMPLEX

Assigned age (Ma)		Sample	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1SE			176Hf/177Hf	1SE	176Lu/177Hf	1SE	176Yb/177Hf	1SE	178Hf/177Hf	1SE	εHf(0)	1SE	176Hf/177Hf(t)	εHf(t)	1SE	T _{DM} (Ma)	T _{2DM} (Ma)	εHf(t')	1SE	δ ¹⁸ O(‰)	1SE
294.8	± 3.7																				
302.1	7.7	16LYS85-02	0.282580 ± 12	0.001837 ± 8	0.06449 ± 46	1.467280 ± 60	-7.2 ± 0.4	0.282570	-1.0 ± 0.4	972.0	1349.3	-0.9	0.4	5.13	0.31						
286.3	4.2	16LYS85-03	0.282554 ± 13	0.001833 ± 39	0.06889 ± 235	1.467361 ± 62	-8.2 ± 0.5	0.282544	-2.0 ± 0.5	1010.3	1408.8	-2.2	0.5	5.57	0.26						
300.4	5.6	16LYS85-04	0.282549 ± 14	0.003145 ± 47	0.12036 ± 248	1.467233 ± 63	-8.3 ± 0.5	0.282532	-2.4 ± 0.5	1054.4	1435.2	-2.3	0.5	5.84	0.18						
289.1	5.7	16LYS85-07	0.282585 ± 12	0.002478 ± 26	0.09345 ± 106	1.467351 ± 81	-7.1 ± 0.4	0.282571	-1.0 ± 0.4	982.3	1346.7	-1.1	0.4	7.25	0.20						
298.3	4.1	16LYS85-08	0.282608 ± 13	0.001815 ± 18	0.05784 ± 79	1.467374 ± 68	-6.3 ± 0.5	0.282598	-0.1 ± 0.5	932.3	1288.3	0.0	0.5	5.42	0.41						
301.0	4.7	16LYS85-09	0.282573 ± 12	0.001931 ± 10	0.06711 ± 18	1.467293 ± 63	-7.5 ± 0.4	0.282562	-1.3 ± 0.4	985.8	1367.8	-1.2	0.4	6.00	0.17						
297.2	4.4	16LYS85-10	0.282541 ± 11	0.003032 ± 42	0.10310 ± 80	1.467313 ± 71	-8.6 ± 0.4	0.282524	-2.7 ± 0.4	1063.7	1452.7	-2.6	0.4	5.74	0.15						
294.3	5.2	16LYS85-11	0.282616 ± 16	0.002572 ± 34	0.08569 ± 211	1.467218 ± 149	-6.0 ± 0.5	0.282602	0.1 ± 0.5	939.8	1279.3	0.1	0.5	5.21	0.14						
285.5	4.5	16LYS85-12	0.282592 ± 12	0.001524 ± 4	0.05343 ± 29	1.467324 ± 58	-6.8 ± 0.4	0.282584	-0.6 ± 0.4	947.0	1319.1	-0.8	0.4	5.55	0.35						
302.1	4.4	16LYS85-13	0.282501 ± 21	0.003649 ± 11	0.13831 ± 55	1.467650 ± 123	-10.0 ± 0.7	0.282481	-4.2 ± 0.7	1141.9	1548.0	-4.0	0.7	5.51	0.13						
305.5	4.5	16LYS85-14	0.282566 ± 10	0.001751 ± 26	0.05946 ± 49	1.467448 ± 81	-7.7 ± 0.4	0.282556	-1.5 ± 0.4	990.3	1380.1	-1.3	0.4	4.52	0.18						
290.1	4.5	16LYS85-15	0.282571 ± 11	0.002153 ± 26	0.07778 ± 135	1.467456 ± 76	-7.6 ± 0.4	0.282559	-1.4 ± 0.4	994.6	1375.0	-1.5	0.4	4.70	0.14						
294.8	± 3.7	16LYS85-16	0.282543 ± 12	0.001613 ± 19	0.05610 ± 85	1.467483 ± 98	-8.6 ± 0.4	0.282534	-2.3 ± 0.4	1020.3	1431.0	-2.3	0.4	6.83	0.22						
294.8	± 3.7	16LYS85-17	0.282506 ± 18	0.003292 ± 35	0.10104 ± 78	1.467511 ± 77	-9.9 ± 0.7	0.282488	-4.0 ± 0.7	1123.1	1532.7	-4.0	0.7	5.64	0.20						
294.8	± 3.7	16LYS85-18	0.282503 ± 14	0.003270 ± 65	0.11159 ± 107	1.467427 ± 58	-10.0 ± 0.5	0.282485	-4.1 ± 0.5	1126.8	1539.1	-4.1	0.5	5.81	0.28						
		Mean	0.282564			1.467364	-7.8		-1.7										5.47		
		95% conf. (or 2SE)	±0.000017			±0.000052	±0.6		±0.7										±0.33		
292.4	± 2.2																				
291.3	5.6	17LYH3090A-01	0.282543 ± 11	0.001870 ± 22	0.06452 ± 83	1.467225 ± 63	-8.6 ± 0.4	0.282533	-2.4 ± 0.4	1026.7	1434.6	-2.4	0.4	5.99	0.17						
288.1	2.8	17LYH3090A-02	0.282563 ± 9	0.001279 ± 3	0.04393 ± 23	1.467156 ± 49	-7.8 ± 0.3	0.282556	-1.6 ± 0.3	981.8	1382.2	-1.7	0.3	5.94	0.21						
282.6	4.7	17LYH3090A-03	0.282546 ± 10	0.001419 ± 13	0.04956 ± 51	1.467248 ± 53	-8.5 ± 0.3	0.282538	-2.2 ± 0.3	1010.5	1423.1	-2.4	0.3	6.66	0.26						
294.8	3.5	17LYH3090A-04	0.282525 ± 8	0.001230 ± 13	0.04221 ± 58	1.467190 ± 66	-9.2 ± 0.3	0.282518	-2.9 ± 0.3	1034.5	1466.7	-2.9	0.3	6.42	0.27						
289.9	3.1	17LYH3090A-05	0.282558 ± 9	0.001128 ± 2	0.03849 ± 13	1.467135 ± 56	-8.0 ± 0.3	0.282552	-1.8 ± 0.3	985.3	1392.1	-1.8	0.3	6.00	0.18						
284.3	6.1	17LYH3090A-06	0.282572 ± 10	0.001389 ± 16	0.04738 ± 68	1.467213 ± 59	-7.5 ± 0.4	0.282564	-1.3 ± 0.4	972.9	1365.0	-1.5	0.4	5.65	0.23						
289.8	3.4	17LYH3090A-07	0.282533 ± 14	0.005512 ± 75	0.19784 ± 256	1.467290 ± 73	-8.9 ± 0.5	0.282503	-3.5 ± 0.5	1155.0	1501.0	-3.5	0.5	5.69	0.19						
299.9	3.5	17LYH3090A-08	0.282660 ± 11	0.000961 ± 13	0.03316 ± 51	1.467185 ± 66	-4.4 ± 0.4	0.282655	1.9 ± 0.4	837.5	1162.1	2.1	0.4	5.92	0.14						
292.8	3.1	17LYH3090A-09	0.282588 ± 9	0.001382 ± 29	0.04841 ± 95	1.467183 ± 56	-7.0 ± 0.3	0.282580	-0.8 ± 0.3	950.0	1329.2	-0.7	0.3	6.27	0.29						
291.0	3.4	17LYH3090A-10	0.282572 ± 10	0.001677 ± 24	0.05685 ± 91	1.467270 ± 52	-7.5 ± 0.3	0.282563	-1.4 ± 0.3	980.3	1368.3	-1.4	0.3	6.37	0.17						
306.0	3.0	17LYH3090A-11	0.282628 ± 11	0.002155 ± 17	0.07658 ± 57	1.467215 ± 46	-5.5 ± 0.4	0.282617	0.5 ± 0.4	910.9	1247.7	0.8	0.4	5.26	0.17						
270.4	8.5	17LYH3090A-12	0.282537 ± 9	0.001354 ± 16	0.04643 ± 65	1.467213 ± 55	-8.8 ± 0.3	0.282529	-2.5 ± 0.3	1021.5	1442.4	-3.0	0.3	5.59	0.24						
297.9	2.9	17LYH3090A-13	0.282559 ± 9	0.001918 ± 19	0.06479 ± 66	1.467223 ± 54	-8.0 ± 0.3	0.282548	-1.9 ± 0.3	1005.7	1400.7	-1.8	0.3	5.76	0.22						
293.9	3.4	17LYH3090A-14	0.282657 ± 10	0.001743 ± 7	0.06063 ± 22	1.467248 ± 57	-4.5 ± 0.4	0.282647	1.6 ± 0.4	859.5	1178.4	1.7	0.4	5.49	0.15						
294.8	2.9	17LYH3090A-15	0.282600 ± 10	0.001314 ± 25	0.04493 ± 91	1.467191 ± 65	-6.5 ± 0.3	0.282593	-0.3 ± 0.3	930.6	1300.7	-0.2	0.3	5.74	0.20						
		Mean	0.282573			1.467211	-7.5		-1.3										5.86		
		95% conf. (or 2SE)	±0.000023			±0.000029	±0.8		±0.8										±0.2		
286.5	± 3.3																				
299.1	7.3	17LYV1106-01	0.282636 ± 10.5	0.000964 ± 9	0.03151 ± 36	1.467228 ± 50	-5.3 ± 0.4	0.282630	0.9 ± 0.4	871.9	1220.0	1.2	0.4	5.07	0.13						
288.0	4.8	17LYV1106-02	0.282577 ± 10.4	0.002466 ± 15	0.08484 ± 50	1.467234 ± 58	-7.4 ± 0.4	0.282563	-1.5 ± 0.4	994.6	1370.1	-1.4	0.4	5.31	0.19						
284.0	4.7	17LYV1106-03	0.282596 ± 10.7	0.001633 ± 13	0.05550 ± 57	1.467250 ± 65	-6.7 ± 0.4	0.282587	-0.6 ± 0.4	944.2	1316.4	-0.7	0.4	5.24	0.19						
295.4	4.9	17LYV1106-04	0.282615 ± 10.4	0.002690 ± 33	0.09532 ± 112	1.467234 ± 72	-6.0 ± 0.4	0.282601	-0.1 ± 0.4	943.9	1286.6	0.0	0.4	5.33	0.23						
292.7	4.6	17LYV1106-05	0.282598 ± 10.3	0.001633 ± 10	0.05498 ± 20	1.467167 ± 60	-6.6 ± 0.4	0.282589	-0.6 ± 0.4	942.1	1313.0	-0.4	0.4	5.54	0.17						
306.7	5.4	17LYV1106-06	0.282598 ± 13.2	0.002533 ± 15	0.08991 ± 56	1.467273 ± 60	-6.6 ± 0.5	0.282584	-0.7 ± 0.5	965.4	1323.6	-0.3	0.5	5.01	0.14						
279.9	4.9	17LYV1106-07	0.282619 ± 8.31	0.001018 ± 3	0.03465 ± 13	1.467245 ± 50	-5.9 ± 0.3	0.282613	0.3 ± 0.3	896.7	1258.0	0.2	0.3	5.93	0.14						
283.6	5.6	17LYV1106-08	0.282635 ± 10.8	0.001487 ± 6	0.04981 ± 22	1.467296 ± 52	-5.3 ± 0.4	0.282627	0.8 ± 0.4	884.9	1227.4	0.7	0.4	5.52	0.08						
282.1	5.2	17LYV1106-09	0.282619 ± 13.5	0.001191 ± 9	0.04016 ± 29	1.467369 ± 66	-5.9 ± 0.5	0.282612	0.3 ± 0.5	901.0	1260.3	0.2	0.5	5.67	0.17						
291.2	4.8	17LYV1106-10	0.282600 ± 9.5	0.001121 ± 11	0.03747 ± 46	1.467288 ± 56	-6.6 ± 0.3	0.282594	-0.4 ± 0.3	926.3	1302.2	-0.3	0.3	5.85	0.18						
290.7	4.8	17LYV1106-11	0.282618 ± 10.6	0.001325 ± 13	0.04294 ± 21	1.467434 ± 64	-5.9 ± 0.4	0.282611	0.2 ± 0.4	905.6	1264.2	0.3	0.4	5.64	0.32						
278.7	4.6	17LYV1106-12	0.282597 ± 9.5	0.000935 ± 12	0.03149 ± 55	1.467286 ± 56	-6.6 ± 0.3	0.282592	-0.4 ± 0.3	925.4	1305.8	-0.6	0.3	4.97	0.26						
281.9	4.7	17LYV1106-13	0.282572 ± 11.4	0.001302 ± 14	0.04656 ± 49	1.467321 ± 55	-7.5 ± 0.4	0.282565	-1.4 ± 0.4	969.5	1365.3	-1.5	0.4	4.94	0.13						
282.6	4.7	17LYV1106-14	0.282632 ± 10.1	0.002101 ± 6	0.07439 ± 16	1.467268 ± 54	-5.4 ± 0.4	0.282620	0.5 ± 0.4	904.9	1242.8	0.5	0.4	5.19	0.15						
287.6	4.5	17LYV1106-15	0.282587 ± 10.5	0.002575 ± 5	0.08997 ± 31	1.467257 ± 54	-7.0 ± 0.4	0.282573	-1.1 ± 0.4	981.9	1347.5	-1.1	0.4	5.89	0.21						

Mean			0.282607		1.467274		-6.3		-0.2		5.4										
95% conf. (or 2SE)			±0.000011		±0.000029		±0.4		±0.4		±0.18										
284.8	± 2.4																				
278.8	3.0	17LYV1082-01	0.282551	± 12.4	0.001717	± 10	0.06078	± 34	1.467284	± 76	-8.3	± 0.4	0.282542	-2.3	± 0.4	1010.6	1418.3	-2.4	0.4		
286.8	3.4	17LYV1082-02	0.282577	± 9.37	0.000837	± 12	0.02887	± 51	1.467359	± 53	-7.4	± 0.3	0.282572	-1.2	± 0.3	951.8	1351.6	-1.2	0.3		
276.8	5.1	17LYV1082-03	0.282582	± 12.3	0.001255	± 10	0.04322	± 32	1.467350	± 74	-7.2	± 0.4	0.282575	-1.1	± 0.4	955.4	1345.4	-1.3	0.4		
284.0	3.3	17LYV1082-04	0.282447	± 10.6	0.001052	± 2	0.03721	± 8	1.467326	± 64	-12.0	± 0.4	0.282441	-5.8	± 0.4	1140.0	1643.3	-5.9	0.4		
286.8	3.9	17LYV1082-05	0.282599	± 11.6	0.000944	± 19	0.03003	± 70	1.467335	± 67	-6.6	± 0.4	0.282594	-0.4	± 0.4	923.3	1303.3	-0.4	0.4		
284.7	3.3	17LYV1082-06	0.282598	± 11.8	0.001214	± 6	0.04092	± 20	1.467322	± 60	-6.6	± 0.4	0.282591	-0.5	± 0.4	931.4	1308.7	-0.5	0.4		
287.6	3.4	17LYV1082-07	0.282632	± 9.67	0.001601	± 6	0.05518	± 14	1.467307	± 69	-5.4	± 0.3	0.282623	0.6	± 0.3	892.8	1237.8	0.7	0.3		
290.0	4.3	17LYV1082-08	0.282539	± 12	0.002314	± 20	0.07962	± 76	1.467347	± 60	-8.7	± 0.4	0.282526	-2.8	± 0.4	1045.4	1453.2	-2.7	0.4		
284.4	3.6	17LYV1082-09	0.282725	± 10.9	0.001388	± 9	0.04894	± 45	1.467268	± 55	-2.1	± 0.4	0.282717	3.9	± 0.4	755.1	1026.8	3.9	0.4		
287.7	3.9	17LYV1082-10	0.282648	± 12.3	0.001280	± 8	0.04626	± 27	1.467286	± 67	-4.8	± 0.4	0.282641	1.3	± 0.4	861.4	1196.6	1.3	0.4		
281.5	4.1	17LYV1082-12	0.282647	± 10.4	0.001936	± 19	0.06417	± 52	1.467199	± 53	-4.9	± 0.4	0.282636	1.1	± 0.4	878.8	1207.6	1.0	0.4		
275.8	8.4	17LYV1082-13	0.282609	± 11.6	0.001189	± 13	0.04276	± 44	1.467226	± 69	-6.2	± 0.4	0.282603	-0.1	± 0.4	915.0	1283.4	-0.3	0.4		
290.5	3.4	17LYV1082-14	0.282544	± 11.8	0.001589	± 3	0.05804	± 21	1.467349	± 71	-8.5	± 0.4	0.282536	-2.5	± 0.4	1017.3	1432.6	-2.4	0.4		
283.3	3.0	17LYV1082-15	0.282660	± 11.8	0.001236	± 6	0.04237	± 28	1.467290	± 69	-4.4	± 0.4	0.282653	1.7	± 0.4	843.7	1169.7	1.7	0.4		
Mean			0.28261		1.467301		-6.2		-0.1												
95% conf. (or 2SE)			±0.000032		±0.000033		±1.1		±1.1												
280.8	± 2.6																				
277.0	3.5	17LYH3009-02	0.282817	± 14.2	0.003209	± 37	0.12428	± 128	1.467278	± 56	1.1	± 0.5	0.282800	6.8	± 0.5	654.6	841.9	6.7	0.5	5.94	0.32
285.2	3.9	17LYH3009-03	0.282812	± 13.9	0.003466	± 7	0.12594	± 30	1.467204	± 63	0.9	± 0.5	0.282793	6.5	± 0.5	668.0	857.8	6.6	0.5	5.26	0.14
278.5	3.5	17LYH3009-04	0.282763	± 14.2	0.003783	± 39	0.14496	± 126	1.467199	± 54	-0.8	± 0.5	0.282743	4.8	± 0.5	748.1	970.7	4.7	0.5	4.75	0.25
280.0	4.4	17LYH3009-05	0.282802	± 14.1	0.002844	± 33	0.10489	± 143	1.467206	± 56	0.6	± 0.5	0.282787	6.3	± 0.5	670.4	871.6	6.3	0.5	5.03	0.19
271.8	4.3	17LYH3009-06	0.282810	± 12.7	0.002440	± 6	0.09278	± 27	1.467202	± 62	0.9	± 0.4	0.282797	6.7	± 0.4	651.3	849.0	6.5	0.4	4.48	0.14
278.7	3.5	17LYH3009-07	0.282783	± 11.8	0.003000	± 8	0.11415	± 33	1.467188	± 54	-0.1	± 0.4	0.282767	5.6	± 0.4	702.0	916.7	5.6	0.4	4.00	0.19
286.4	3.4	17LYH3009-08	0.282809	± 16.1	0.002860	± 22	0.11052	± 74	1.467267	± 64	0.9	± 0.6	0.282794	6.6	± 0.6	660.2	856.0	6.7	0.6	5.45	0.23
281.4	3.6	17LYH3009-09	0.282816	± 9.8	0.001568	± 20	0.05974	± 86	1.467223	± 61	1.1	± 0.3	0.282808	7.1	± 0.3	627.0	824.7	7.1	0.3	5.29	0.25
278.5	3.8	17LYH3009-10	0.282786	± 12	0.003263	± 16	0.12369	± 78	1.467205	± 64	0.0	± 0.4	0.282769	5.7	± 0.4	702.4	912.6	5.6	0.4	5.16	0.22
284.3	3.9	17LYH3009-11	0.282840	± 14.1	0.003031	± 35	0.11534	± 152	1.467245	± 54	1.9	± 0.5	0.282824	7.6	± 0.5	617.9	789.5	7.7	0.5	4.95	0.24
294.7	3.7	17LYH3009-12	0.282778	± 13.6	0.002733	± 12	0.09649	± 55	1.467106	± 58	-0.2	± 0.5	0.282764	5.5	± 0.5	703.6	923.9	5.8	0.5	4.85	0.23
281.1	3.9	17LYH3009-13	0.282787	± 13.9	0.004294	± 43	0.16384	± 144	1.467188	± 67	0.1	± 0.5	0.282765	5.5	± 0.5	721.6	922.1	5.5	0.5	4.53	0.24
283.9	3.6	17LYH3009-14	0.282738	± 18.1	0.005024	± 17	0.19207	± 112	1.467195	± 62	-1.7	± 0.6	0.282711	3.6	± 0.6	816.0	1042.6	3.7	0.6	4.51	0.16
Mean			0.282799		1.467214		0.5		6.2				4.86								
95% conf. (or 2SE)			±0.000013		±0.00003		±0.4		±0.5				±0.28								
283.1	± 2.4																				
285.9	3.6	1617LYV176-01	0.282705	± 13.8	0.003844	± 59	0.13713	± 200	1.467303	± 61	-2.8	± 0.5	0.282685	2.8	± 0.5	837.8	1100.3	2.8	0.5	3.84	0.24
282.6	3.3	1617LYV176-02	0.282727	± 14.2	0.001526	± 6	0.05486	± 21	1.467375	± 77	-2.1	± 0.5	0.282719	4.0	± 0.5	754.5	1024.1	3.9	0.5	3.76	0.17
284.4	3.9	1617LYV176-03	0.282624	± 12.5	0.000791	± 2	0.02726	± 6	1.467260	± 69	-5.7	± 0.4	0.282620	0.5	± 0.4	883.6	1245.0	0.5	0.4	7.90	0.31
285.2	4.7	1617LYV176-04	0.282744	± 10.5	0.000944	± 1	0.03159	± 10	1.467225	± 58	-1.4	± 0.4	0.282739	4.7	± 0.4	718.6	978.5	4.7	0.4	5.19	0.13
282.8	3.6	1617LYV176-05	0.282723	± 11.3	0.001489	± 4	0.05323	± 31	1.467235	± 62	-2.2	± 0.4	0.282715	3.8	± 0.4	759.6	1032.8	3.8	0.4	4.18	0.23
283.7	3.6	1617LYV176-06	0.282698	± 12.1	0.001444	± 11	0.04637	± 46	1.467216	± 56	-3.1	± 0.4	0.282690	2.9	± 0.4	794.3	1088.2	3.0	0.4	3.99	0.17
284.8	5.0	1617LYV176-07	0.282697	± 9.57	0.001749	± 7	0.06282	± 9	1.467268	± 64	-3.1	± 0.3	0.282687	2.8	± 0.3	802.8	1094.9	2.9	0.3	3.77	0.12
275.0	4.0	1617LYV176-08	0.282688	± 12.9	0.003747	± 44	0.13564	± 162	1.467306	± 57	-3.4	± 0.5	0.282668	2.2	± 0.5	861.5	1137.5	2.0	0.5	4.02	0.12
283.3	3.6	1617LYV176-09	0.282683	± 12.5	0.002821	± 24	0.09890	± 50	1.467316	± 69	-3.6	± 0.4	0.282668	2.1	± 0.4	847.4	1138.8	2.2	0.4	3.88	0.16
287.3	3.7	1617LYV176-10	0.282712	± 12	0.003741	± 10	0.13152	± 24	1.467216	± 67	-2.6	± 0.4	0.282692	3.0	± 0.4	825.2	1084.1	3.1	0.4	4.38	0.22
299.5	3.8	1617LYV176-11	0.282693	± 10.6	0.001279	± 5	0.04273	± 43	1.467393	± 64	-3.3	± 0.4	0.282686	2.8	± 0.4	798.3	1098.1	3.1	0.4	4.77	0.28
277.7	3.3	1617LYV176-12	0.282669	± 13	0.002117	± 18	0.07802	± 76	1.467237	± 54	-4.1	± 0.5	0.282657	1.8	± 0.5	851.6	1162.1	1.7	0.5	6.87	0.24
280.9	3.8	1617LYV176-13	0.282683	± 12.2	0.003247	± 15	0.11559	± 84	1.467270	± 71	-3.6	± 0.4	0.282666	2.1	± 0.4	856.9	1142.8	2.0	0.4	3.69	0.22
287.0	3.1	1617LYV176-14	0.282659	± 10.3	0.002750	± 12	0.10085	± 69	1.467194	± 55	-4.5	± 0.4	0.282644	1.3	± 0.4	881.1	1191.5	1.4	0.4	5.71	0.16
282.2	5.0	1617LYV176-15	0.282723	± 13.4	0.002071	± 44	0.07324	± 152	1.467322	± 61	-2.2	± 0.5	0.282712	3.7	± 0.5	771.0	1038.6	3.7	0.5	4.02	0.18
Mean			0.282700		1.467270		-3.2		2.9				4.27								
95% conf. (or 2SE)			±0.000014		±0.000031		±0.5		±0.6				±0.4								
detrital																					
300.4	5.0	1617LYV233-01	0.282541	± 9.5	0.001603	± 8	0.05986	± 33	1.467348	± 57	-8.6	± 0.3	0.282532	-2.3	± 0.3	1022.6	1431.8				
302.3	5.0	1617LYV233-02	0.282526	± 9.7	0.001876	± 9	0.06588	± 41	1.467407	± 43	-9.2	± 0.3	0.282515	-2.8	± 0.3	1051.2	1466.7				

290.1	4.5	1617LYV233-03	0.282564	± 10.4	0.002681	± 84	0.09144	± 213	1.467603	± 86	-7.8 ± 0.4	0.282550	-1.9 ± 0.4	1018.8	1398.5				
273.9	5.4	1617LYV233-04	0.282720	± 10.0	0.002418	± 37	0.08577	± 132	1.467275	± 54	-2.3 ± 0.4	0.282707	3.3 ± 0.4	783.9	1056.2				
294.9	4.9	1617LYV233-05	0.282524	± 9.9	0.001229	± 8	0.04312	± 20	1.467425	± 58	-9.2 ± 0.4	0.282517	-2.9 ± 0.4	1036.2	1467.7				
282.1	5	1617LYV233-06	0.282729	± 10.9	0.001777	± 9	0.06257	± 24	1.467312	± 51	-2.0 ± 0.4	0.282720	4.0 ± 0.4	756.5	1022.7				
301.7	4.7	1617LYV233-07	0.282504	± 11.2	0.001757	± 15	0.05830	± 39	1.467435	± 70	-9.9 ± 0.4	0.282494	-3.6 ± 0.4	1079.1	1514.1				
306.5	5.7	1617LYV233-08	0.282537	± 15.2	0.003657	± 27	0.11959	± 80	1.467291	± 67	-8.8 ± 0.5	0.282516	-2.7 ± 0.5	1087.8	1462.4				
276.4	4.6	1617LYV233-09	0.282807	± 10.9	0.001695	± 7	0.04950	± 66	1.467439	± 63	0.8 ± 0.4	0.282798	6.6 ± 0.4	642.6	849.7				
286.3	4.5	1617LYV233-10	0.282579	± 15.2	0.001974	± 20	0.05843	± 40	1.467455	± 70	-7.3 ± 0.5	0.282568	-1.3 ± 0.5	977.7	1358.7				
312.3	4.9	1617LYV233-12	0.282362	± 17.7	0.002335	± 19	0.07748	± 126	1.467670	± 93	-15.0 ± 0.6	0.282348	-8.5 ± 0.6	1303.1	1831.9				
280.6	4.9	1617LYV233-14	0.282701	± 9.2	0.001205	± 14	0.03579	± 70	1.467341	± 64	-3.0 ± 0.3	0.282695	3.1 ± 0.3	784.4	1079.2				
308.6	6.6	1617LYV233-16	0.282538	± 15.0	0.001908	± 47	0.05497	± 90	1.467587	± 102	-8.7 ± 0.5	0.282527	-2.3 ± 0.5	1034.7	1436.7				
281.1 ± 2.3																			
285.8	4.4	1617LYV163-01	0.282788	± 13.7	0.004469	± 20	0.21031	± 79	1.467371	± 63	0.1 ± 0.5	0.282764	5.5 ± 0.5	724.8	923.4	5.6	0.5	6.04	0.22
276.0	4.3	1617LYV163-02	0.282864	± 9.12	0.002556	± 10	0.11013	± 27	1.467295	± 53	2.8 ± 0.3	0.282850	8.6 ± 0.3	574.2	729.4	8.5	0.3	5.86	0.16
277.5	4.3	1617LYV163-03	0.282862	± 14.9	0.003473	± 4	0.15562	± 24	1.467323	± 68	2.7 ± 0.5	0.282844	8.3 ± 0.5	591.1	743.2	8.3	0.5	4.80	0.22
282.7	4.4	1617LYV163-04	0.282810	± 12.8	0.003587	± 4	0.15761	± 51	1.467328	± 51	0.9 ± 0.5	0.282791	6.5 ± 0.5	672.3	862.0	6.5	0.5	6.28	0.24
282.2	5.0	1617LYV163-05	0.282801	± 12.6	0.002857	± 36	0.12698	± 181	1.467344	± 63	0.6 ± 0.4	0.282786	6.3 ± 0.4	671.9	873.6	6.3	0.4	5.74	0.23
279.3	4.4	1617LYV163-06	0.282828	± 9.29	0.002719	± 30	0.12179	± 110	1.467290	± 50	1.5 ± 0.3	0.282814	7.3 ± 0.3	629.9	812.1	7.2	0.3	5.93	0.24
279.9	4.3	1617LYV163-07	0.282797	± 10.3	0.003688	± 6	0.16385	± 46	1.467319	± 54	0.4 ± 0.4	0.282778	6.0 ± 0.4	694.3	892.9	6.0	0.4	6.22	0.20
282.1	4.4	1617LYV163-08	0.282835	± 11.9	0.002360	± 19	0.10420	± 52	1.467427	± 64	1.8 ± 0.4	0.282822	7.6 ± 0.4	613.8	792.7	7.6	0.4	5.19	0.18
283.1	4.4	1617LYV163-09	0.282807	± 8.86	0.003332	± 8	0.14325	± 15	1.467311	± 56	0.8 ± 0.3	0.282789	6.4 ± 0.3	672.5	866.7	6.5	0.3	5.66	0.13
281.0	4.4	1617LYV163-10	0.282703	± 14.6	0.004166	± 9	0.18197	± 81	1.467315	± 68	-2.9 ± 0.5	0.282681	2.6 ± 0.5	848.6	1109.3	2.6	0.5	5.90	0.24
282.1	4.4	1617LYV163-11	0.282776	± 13.2	0.003353	± 7	0.14376	± 63	1.467431	± 62	-0.3 ± 0.5	0.282759	5.3 ± 0.5	719.1	935.8	5.3	0.5	5.79	0.15
286.9	4.5	1617LYV163-12	0.282760	± 14.1	0.003965	± 13	0.17941	± 38	1.467385	± 77	-0.9 ± 0.5	0.282739	4.6 ± 0.5	756.5	979.2	4.8	0.5	6.20	0.21
275.7	4.3	1617LYV163-13	0.282796	± 15.5	0.003747	± 36	0.14602	± 21	1.467514	± 72	0.4 ± 0.5	0.282776	5.9 ± 0.5	697.9	897.2	5.8	0.5	6.18	0.18
279.5	4.4	1617LYV163-14	0.282673	± 13.6	0.003656	± 21	0.15047	± 26	1.467378	± 68	-4.0 ± 0.5	0.282654	1.6 ± 0.5	882.5	1171.6	1.6	0.5	6.05	0.22
283.6	4.4	1617LYV163-15	0.282671	± 26.4	0.004687	± 50	0.17183	± 140	1.467364	± 79	-4.0 ± 0.9	0.282646	1.3 ± 0.9	912.4	1188.3	1.4	0.9	6.04	0.17
281.1	± 2.3	1617LYV163-16	0.282786	± 8.13	0.002766	± 12	0.12240	± 55	1.467260	± 54	0.0 ± 0.3	0.282772	5.8 ± 0.3	692.5	906.3	5.8	0.3		
		Mean	0.282804						1.467343		0.7		6.12					5.94	
		95% conf. (or 2SE)	± 0.000022						± 0.000030		± 0.8		± 0.95					± 0.10	
2662.9	16.7	18LYH3345-02	0.282008	± 25	0.001828	± 16	0.04654	± 34	1.467551	± 81	-27.5 ± 0.9	0.281915	30.0 ± 0.9	1788.8	1290.4	30.0	0.9		
363.5	7.4	18LYH3345-03	0.282484	± 16	0.002450	± 9	0.08185	± 74	1.467584	± 81	-10.6 ± 0.6	0.282468	-3.1 ± 0.6	1128.7	1534.6	-3.1	0.6		
1849.5	7.3	18LYH3345-04	0.281579	± 17	0.001507	± 23	0.03488	± 66	1.46748	± 83	-42.7 ± 0.6	0.281526	-2.8 ± 0.6	2373.0	2672.6	-2.8	0.6		
1851.1	6.3	18LYH3345-05	0.281578	± 10	0.000866	± 18	0.02318	± 60	1.467391	± 47	-42.7 ± 0.4	0.281548	-2.0 ± 0.4	2334.1	2623.8	-2.0	0.4		
1945.8	13.1	18LYH3345-06	0.281510	± 15	0.001249	± 6	0.03441	± 25	1.467281	± 68	-45.1 ± 0.5	0.281463	-2.8 ± 0.5	2452.2	2747.6	-2.8	0.5		
291.1	6.3	18LYH3345-07	0.282589	± 16	0.001274	± 26	0.03309	± 94	1.467484	± 65	-6.9 ± 0.6	0.282582	-0.7 ± 0.6	945.7	1325.9	-0.7	0.6		
285.2	5.6	18LYH3345-08	0.282628	± 18	0.001979	± 36	0.05366	± 121	1.467479	± 93	-5.5 ± 0.6	0.282618	0.4 ± 0.6	906.6	1249.2	0.4	0.6		
1842.1	5.1	18LYH3345-09	0.281650	± 17	0.001304	± 33	0.03315	± 100	1.467509	± 89	-40.1 ± 0.6	0.281605	-0.2 ± 0.6	2261.5	2505.4	-0.2	0.6		
309.0	5.7	18LYH3345-11	0.282452	± 12	0.002413	± 9	0.08143	± 23	1.467341	± 55	-11.8 ± 0.4	0.282438	-5.4 ± 0.4	1175.3	1635.6	-5.4	0.4		
772.7	16.5	18LYH3345-12	0.282016	± 11	0.000801	± 5	0.02205	± 12	1.467434	± 46	-27.2 ± 0.4	0.282004	-10.4 ± 0.4	1729.7	2302.1	-10.4	0.4		
280.6	5.5	18LYH3345-13	0.282714	± 9	0.001375	± 5	0.04710	± 24	1.467349	± 44	-2.5 ± 0.3	0.282706	3.5 ± 0.3	770.3	1053.4	3.5	0.3		
286.3	5.6	18LYH3345-14	0.282120	± 18	0.001717	± 19	0.04653	± 42.8	1.467837	± 78	-23.5 ± 0.6	0.282110	-17.5 ± 0.6	1625.7	2371.5	-17.5	0.6		
		Mean	0.282150						1.467416				-3.1						
		95% conf. (or 2SE)	± 0.000030						± 0.000057				± 3.7						
¹⁷⁶ Lu/ ¹⁷⁷ Hf _{CHUR}		0.0336							Bouvier et al.(2008) EPSL 273:48-57. https://doi.org/10.1016/j.epsl.2008.06.010										
¹⁷⁶ Hf/ ¹⁷⁷ Hf _{CHUR}		0.282785							Bouvier et al.(2008) EPSL 273:48-57. https://doi.org/10.1016/j.epsl.2008.06.010										
¹⁷⁶ Lu/ ¹⁷⁷ Hf _{DM}		0.0384	± 0.000011						Griffin et al.(2000) GCA 64:133-147.										
¹⁷⁶ Hf/ ¹⁷⁷ Hf _{DM}		0.28325							Griffin et al.(2000) GCA 64:133-147.										
¹⁷⁶ Lu/ ¹⁷⁷ Hf _{Chst}		0.015							Griffin et al.(2002) Lithos 61:237-269										
λ ¹⁷⁶ Lu		1.867E-11							Söderlund et al.(2004) EPSL 219: 311-324										

Appendix 7

Chapter 4 Supplementary Tables

Chapter 4 Table SM1: U-Pb DETRITAL ZIRCON GEOCHRONOLOGY OF SEDIMENTARY ROCKS FROM BAIDUNZI COMPLEX

Measurements:												238U		raw		Standardized Concordia:				88Sr		U		Pb206		Ages Ma (2SE)			1: Relative age difference; 2: Concordia distance				
Analysis		207Pb/206Pb	2SiGM	206Pb/238U	2SiGM	Kcps	U/Th	207Pb/235U	2SiGM	206Pb/238U	2SiGM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SiGM	206Pb/238U	2SiGM	207Pb/206Pb	2SiGM	t.conc	2SiGM	%Disc-1	%Disc-2							
H18, Orthoquartzite, Basement rock unit (40.909445N, 95.640935E)																																	
1	16-LYH-18-1.1	0.192	0.009	0.185	0.006	849	4.8	2.800	0.140	0.230	0.006	0.27	-	83	51	1.0	1356	37	1336	29	1386	95	1343	26	3.6	2.3							
2	16-LYH-18-1.2	0.191	0.007	0.184	0.005	1311	4.3	2.770	0.100	0.230	0.005	0.27	-	129	84	0.9	1348	27	1335	26	1367	71	1341	21	2.4	1.5							
3	16-LYH-18-2.1	0.201	0.007	0.197	0.006	1411	4.9	3.130	0.120	0.245	0.006	0.43	-	139	87	1.1	1440	30	1413	29	1481	66	1425	25	4.6	3.1							
4	16-LYH-18-3	0.168	0.008	0.162	0.005	910	10.8	2.140	0.110	0.202	0.005	0.40	-	90	21	2.4	1162	36	1186	28	1117	95	1178	26	-6.2	-3.2							
5	16-LYH-18-10	0.217	0.007	0.228	0.006	1394	5.4	3.910	0.120	0.285	0.005	0.06	-	139	90	1.2	1616	25	1619	26	1612	64	1617	18	-0.4	-0.3							
6	16-LYH-18-11	0.224	0.007	0.219	0.006	2229	9.1	3.880	0.120	0.275	0.007	0.51	-	223	76	2.0	1610	25	1564	37	1670	53	1603	25	6.3	4.5							
7	16-LYH-18-12	0.199	0.007	0.184	0.006	1760	6.3	2.900	0.120	0.232	0.008	0.60	-	177	87	1.4	1382	31	1345	43	1439	66	1377	31	6.6	4.2							
8	16-LYH-18-13	0.189	0.007	0.158	0.004	2058	8.7	2.363	0.076	0.199	0.006	0.39	-	207	68	1.9	1232	23	1171	31	1340	66	1215	22	13.0	7.6							
9	16-LYH-18-14	0.175	0.007	0.149	0.005	2470	14.3	2.050	0.100	0.188	0.005	0.55	-	251	42	3.1	1132	33	1108	26	1179	81	1114	25	5.9	3.3							
10	16-LYH-18-15	0.254	0.006	0.268	0.007	2057	11.3	5.400	0.160	0.337	0.006	0.56	-	209	71	2.5	1885	25	1872	30	1899	44	1881	24	1.4	1.1							
11	16-LYH-18-16	0.185	0.013	0.158	0.005	520	11.5	2.290	0.160	0.199	0.007	0.20	-	53	10	2.5	1209	49	1172	35	1276	138	1183	31	8.1	4.9							
12	16-LYH-18-18	0.200	0.006	0.193	0.005	2165	7.8	3.070	0.100	0.246	0.004	0.41	-	222	79	1.7	1425	25	1418	23	1436	57	1421	20	1.2	0.8							
13	16-LYH-18-19	0.172	0.005	0.152	0.004	2465	7.3	2.065	0.066	0.194	0.005	0.40	-	253	80	1.6	1137	22	1140	25	1132	62	1139	19	-0.8	-0.4							
14	16-LYH-18-20	0.165	0.006	0.138	0.004	3250	16.7	1.802	0.057	0.176	0.003	0.16	-	334	41	3.6	1046	21	1046	18	1047	68	1046	14	0.2	0.1							
15	16-LYH-18-22	0.198	0.005	0.192	0.004	2360	8.7	3.026	0.077	0.247	0.004	0.34	-	242	78	1.9	1414	19	1425	20	1399	48	1419	16	-1.9	-1.2							
16	16-LYH-18-23	0.358	0.007	0.371	0.009	2036	7.6	10.640	0.260	0.477	0.008	0.58	-	209	145	1.7	2492	23	2515	35	2474	34	2494	22	-1.7	-1.6							
17	16-LYH-18-24	0.185	0.009	0.174	0.005	1257	8.4	2.580	0.110	0.226	0.006	0.16	-	129	38	1.8	1295	31	1315	30	1263	90	1305	23	-4.1	-2.3							
18	16-LYH-18-25	0.201	0.007	0.199	0.005	1628	9.1	3.170	0.100	0.259	0.005	0.01	-	168	54	2.0	1450	24	1485	26	1398	71	1466	18	-6.2	-3.8							
19	16-LYH-18-26	0.191	0.008	0.185	0.005	1344	4.4	2.810	0.120	0.242	0.004	0.36	-	139	89	0.9	1358	32	1395	22	1301	78	1386	21	-7.2	-4.5							
20	16-LYH-18-27	0.201	0.005	0.182	0.004	3020	7.1	2.919	0.076	0.238	0.004	0.48	-	311	118	1.6	1387	20	1375	22	1406	45	1382	18	2.2	1.4							
21	16-LYH-18-28	0.222	0.012	0.221	0.006	803	5.8	3.950	0.210	0.290	0.007	0.19	-	83	45	1.3	1624	43	1642	34	1601	100	1635	29	-2.5	-1.9							
22	16-LYH-18-29	0.164	0.005	0.134	0.004	6370	81.9	1.775	0.062	0.179	0.006	0.68	-	657	16	17.9	1036	23	1064	33	979	56	1036	23	-8.6	-4.0							
23	16-LYH-18-30	0.198	0.005	0.182	0.005	3950	11.8	2.967	0.097	0.249	0.006	0.61	-	408	95	2.6	1399	25	1431	31	1352	50	1407	24	-5.9	-3.4							
24	16-LYH-18-31	0.173	0.008	0.135	0.004	1646	11.7	1.884	0.086	0.177	0.005	0.26	-	170	31	2.5	1076	30	1051	27	1125	93	1061	23	6.6	3.4							
25	16-LYH-18-33	0.163	0.006	0.143	0.005	2880	10.2	1.837	0.060	0.186	0.005	0.42	-	297	66	2.2	1059	22	1098	29	979	68	1069	20	-12.0	-5.3							
26	16-LYH-18-34	0.168	0.013	0.141	0.005	461	11.5	1.880	0.130	0.183	0.007	0.09	-	48	8	2.5	1074	46	1085	36	1052	151	1081	29	-3.1	-1.5							
27	16-LYH-18-36.1	0.175	0.006	0.151	0.004	2006	13.0	2.090	0.072	0.195	0.005	0.33	-	207	37	2.8	1146	24	1147	25	1142	69	1146	20	-0.5	-0.2							
28	16-LYH-18-36.2	0.170	0.005	0.159	0.004	2029	13.1	2.155	0.077	0.205	0.004	0.52	-	209	36	2.8	1167	25	1199	23	1106	61	1186	20	-8.4	-4.2							
29	16-LYH-18-38.1	0.197	0.004	0.178	0.004	5450	8.4	2.805	0.061	0.230	0.004	0.52	-	562	186	1.8	1357	16	1332	20	1396	37	1350	16	4.5	2.8							
30	16-LYH-18-38.2	0.198	0.006	0.195	0.005	1773	10.6	3.086	0.095	0.251	0.005	0.28	-	183	52	2.3	1429	24	1443	26	1409	61	1435	20	-2.5	-1.5							
31	16-LYH-18-39.1	0.202	0.007	0.190	0.005	2270	12.7	3.080	0.110	0.244	0.006	0.34	-	234	54	2.8	1428	27	1410	31	1455	68	1420	24	3.1	2.0							
32	16-LYH-18-39.2	0.198	0.007	0.188	0.005	1801	17.9	2.970	0.110	0.242	0.006	0.34	-	186	30	3.9	1400	28	1395	29	1408	70	1398	23	0.9	0.6							
33	16-LYH-18-39.3	0.194	0.005	0.188	0.004	2644	9.1	2.939	0.081	0.241	0.005	0.41	-	273	85	2.0	1392	21	1392	26	1392	51	1392	19	0.0	0.0							
34	16-LYH-18-40.1	0.199	0.008	0.184	0.005	945	7.6	2.910	0.110	0.236	0.006	0.20	-	98	36	1.7	1385	29	1365	33	1414	80	1377	24	3.5	2.2							
35	16-LYH-18-40.2	0.198	0.007	0.190	0.005	1761	16.8	3.020	0.110	0.244	0.005	0.40	-	182	31	3.7	1413	28	1407	28	1421	65	1410	23	1.0	0.6							
36	16-LYH-18-41	0.173	0.005	0.147	0.004	3410	6.4	2.027	0.068	0.188	0.004	0.47	-	354	116	1.4	1125	23	1113	21	1148	60	1118	19	3.0	1.6							
37	16-LYH-18-42.1	0.185	0.006	0.167	0.003	2394	6.2	2.468	0.068	0.214	0.004	0.13	-	248	104	1.3	1263	20	1252	20	1281	60	1257	15	2.2	1.3							
38	16-LYH-18-42.2	0.178	0.006	0.173	0.004	2370	6.1	2.455	0.084	0.222	0.004	0.24	-	246	97	1.3	1259	25	1291	19	1204	67	1280	17	-7.3	-4.0							
39	16-LYH-18-43	0.192	0.006	0.162	0.003	2036	7.6	2.494	0.091	0.209	0.006	0.50	-	212	52	1.6	1270	26	1223	31	1351	64	1253	25	9.5	5.7							
40	16-LYH-18-45.1	0.201	0.006	0.199	0.005	2180	6.1	3.200	0.100	0.256	0.006	0.39	-	227	114	1.3	1457	24	1469	28	1440	58	1462	21	-2.0	-1.3							
41	16-LYH-18-45.2	0.196	0.008	0.203	0.006																												

62	16-LYH-18-89.1	0.180	0.007	0.163	0.005	1312	14.9	2.364	0.089	0.219	0.004	0.32	-	143	23	3.2	1232	27	1276	23	1156	72	1258	20	-10.0	-5.4
63	16-LYH-18-97.1	0.189	0.006	0.148	0.008	3630	7.8	2.250	0.140	0.203	0.012	0.86	-	400	101	1.7	1197	44	1191	64	1207	63	1199	41	1.2	0.8
64	16-LYH-18-97.2	0.190	0.006	0.159	0.006	3460	8.0	2.460	0.110	0.218	0.009	0.75	-	383	117	1.7	1260	32	1270	49	1244	60	1259	32	-2.1	-1.3
65	16-LYH-18-98.2	0.170	0.007	0.137	0.004	1414	8.1	1.890	0.089	0.186	0.005	0.41	-	157	41	1.7	1078	31	1101	26	1030	88	1093	23	-6.9	-3.2
66	16-LYH-18-100	0.205	0.007	0.186	0.006	2322	11.0	3.030	0.110	0.251	0.008	0.47	-	259	64	2.4	1415	28	1443	40	1374	67	1420	27	-5.0	-3.0
67	16-LYH-18-101.1	0.165	0.007	0.150	0.004	1981	13.6	1.957	0.074	0.183	0.005	0.12	-	234	42	2.9	1101	25	1081	25	1140	85	1091	19	5.2	2.6
68	16-LYH-18-101.2	0.166	0.005	0.144	0.004	2761	13.5	1.918	0.070	0.176	0.004	0.51	-	326	49	2.9	1087	24	1044	24	1175	63	1063	21	11.0	6.0
69	16-LYH-18-102.1	0.179	0.007	0.172	0.005	1634	7.1	2.458	0.091	0.209	0.006	0.34	-	193	70	1.5	1260	27	1225	31	1320	74	1246	24	7.2	4.2
70	16-LYH-18-102.2	0.178	0.010	0.174	0.006	974	5.8	2.440	0.110	0.211	0.006	0.08	-	116	51	1.2	1255	33	1235	33	1288	101	1245	24	4.1	2.4
71	16-LYH-18-104.1	0.197	0.006	0.210	0.005	2930	9.1	3.294	0.096	0.254	0.006	0.45	-	348	117	1.9	1480	23	1458	30	1511	53	1474	22	3.5	2.3
72	16-LYH-18-104.2	0.199	0.006	0.209	0.007	1737	8.2	3.310	0.110	0.253	0.007	0.49	-	206	73	1.8	1483	26	1453	36	1527	58	1477	25	4.8	3.2
73	16-LYH-18-106	0.186	0.007	0.195	0.006	1794	5.6	2.870	0.110	0.239	0.006	0.33	-	214	115	1.2	1374	29	1384	30	1359	73	1379	24	-1.8	-1.1
74	16-LYH-18-108	0.195	0.007	0.201	0.006	1604	8.0	3.130	0.110	0.250	0.006	0.39	-	191	74	1.7	1440	27	1437	31	1444	65	1439	24	0.5	0.3
75	16-LYH-18-111	0.169	0.011	0.164	0.007	689	12.5	2.130	0.120	0.205	0.008	0.17	-	82	18	2.7	1159	39	1202	42	1079	125	1178	30	-11.0	-5.4
76	16-LYH-18-113	0.198	0.006	0.203	0.006	3071	9.9	3.190	0.110	0.256	0.008	0.54	-	366	111	2.1	1455	27	1467	40	1437	59	1456	26	-2.1	-1.3
77	16-LYH-18-115.1	0.178	0.007	0.167	0.005	1335	11.2	2.380	0.110	0.209	0.006	0.45	-	159	39	2.4	1237	33	1225	32	1257	82	1230	28	2.5	1.4
78	16-LYH-18-115.2	0.181	0.009	0.167	0.006	983	9.9	2.400	0.120	0.211	0.007	0.27	-	117	31	2.1	1243	36	1232	37	1262	102	1237	29	2.4	1.4
79	16-LYH-18-121	0.183	0.009	0.150	0.006	1048	15.8	2.180	0.120	0.191	0.008	0.47	-	125	12	3.4	1175	38	1127	45	1264	101	1157	36	11.0	6.2
80	16-LYH-18-123	0.194	0.008	0.191	0.006	1188	10.6	2.960	0.130	0.241	0.007	0.37	-	142	43	2.3	1397	33	1391	37	1407	82	1395	29	1.2	0.7
81	16-LYH-18-127	0.169	0.009	0.144	0.004	981	5.1	1.950	0.098	0.183	0.005	0.27	-	117	59	1.1	1098	34	1081	28	1133	101	1088	25	4.6	2.4
82	16-LYH-18-131	0.199	0.006	0.196	0.006	3210	10.9	3.110	0.110	0.248	0.008	0.53	-	382	95	2.3	1435	27	1428	39	1446	61	1434	27	1.3	0.8
83	16-LYH-18-136	0.175	0.006	0.159	0.006	2469	11.3	2.220	0.100	0.200	0.008	0.63	-	293	61	2.4	1187	32	1178	41	1205	72	1186	31	2.3	1.3
84	16-LYH-18-141	0.168	0.006	0.143	0.005	3021	10.3	1.896	0.075	0.181	0.006	0.49	-	358	71	2.2	1080	26	1074	35	1091	76	1078	25	1.6	0.8
85	16-LYH-18-143	0.165	0.006	0.155	0.006	2350	12.3	2.045	0.086	0.196	0.006	0.50	-	278	57	2.6	1131	29	1151	31	1092	75	1139	26	-5.5	-2.6
86	16-LYH-18-144	0.176	0.008	0.138	0.010	1341	8.7	1.970	0.170	0.179	0.014	0.84	-	158	32	1.9	1105	58	1062	77	1193	94	1114	59	11.0	6.6
87	16-LYH-18-145	0.187	0.009	0.180	0.007	999	6.5	2.680	0.130	0.227	0.006	0.26	-	118	51	1.4	1323	36	1317	34	1332	96	1320	28	1.1	0.7
88	16-LYH-18-147	0.192	0.007	0.193	0.007	2140	12.0	2.940	0.120	0.244	0.008	0.52	-	252	64	2.6	1392	31	1409	42	1367	71	1396	30	-3.1	-1.8
89	16-LYH-18-149.1	0.195	0.008	0.203	0.007	1351	8.1	3.110	0.130	0.256	0.008	0.49	-	159	63	1.7	1435	32	1471	43	1382	74	1443	30	-6.5	-3.9
90	16-LYH-18-149.2	0.195	0.007	0.197	0.006	1870	6.0	3.040	0.110	0.248	0.006	0.35	-	219	113	1.3	1418	28	1427	33	1404	69	1421	25	-1.7	-1.0
91	16-LYH-18-151.1	0.191	0.007	0.168	0.005	1875	12.2	2.524	0.090	0.211	0.006	0.34	-	220	50	2.6	1279	26	1232	31	1360	71	1261	23	9.4	5.7
92	16-LYH-18-151.2	0.186	0.007	0.186	0.006	1476	8.7	2.760	0.110	0.233	0.007	0.47	-	173	56	1.9	1345	30	1352	37	1334	71	1347	28	-1.4	-0.8
93	16-LYH-18-152	0.193	0.008	0.193	0.006	1294	4.8	2.950	0.130	0.240	0.006	0.40	-	152	93	1.0	1395	33	1388	31	1405	79	1391	27	1.2	0.8

Measurements:					238U	Standardized Concordia:					88Sr	U	Pb206	Ages Ma (2SE)				1: Relative age difference; 2: Concordia distance									
Analysis		207Pb/206Pb	SigM	206Pb/238U	SigM	Kcps	Th/U	207Pb/235U	SigM	206Pb/238U	SigM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SigM	206Pb/238U	2SigM	207Pb/206Pb	2SigM	t.conc	2SigM	%Disc-1	%Disc-2	
<i>S22, Monomict conglomerate, Basement rock unit (40.92775N,95.6576E)</i>																											
1	16LYS22A-2	0.054	0.001	0.065	0.001	158.4	0.2	0.548	0.014	0.073	0.001	0.39	0.145	218	16	0.4	443.7	17.9	452.9	8.5	396.1	102.6	452.4	8.5	-14.0	-2.5	
2	16LYS22A-3	0.057	0.001	0.075	0.001	275.9	0.4	0.669	0.014	0.084	0.001	0.47	0.146	368	31	0.9	520.2	16.4	522.2	9.6	511.5	78.3	522.0	9.5	-2.1	-0.5	
3	16LYS22A-4	0.056	0.001	0.064	0.000	284.4	0.4	0.556	0.012	0.072	0.001	0.43	0.242	368	27	0.8	449.1	15.4	448.9	7.9	450.0	85.1	448.9	7.8	0.2	0.0	
4	16LYS22A-6.1	0.057	0.001	0.065	0.001	402.5	0.4	0.577	0.011	0.074	0.001	0.52	0.180	488	36	0.8	462.4	13.8	458.3	8.6	482.4	70.1	458.7	8.5	5.0	1.1	
5	16LYS22A-6.2	0.095	0.001	0.223	0.001	464.7	0.4	3.331	0.045	0.255	0.002	0.54	0.156	571	145	0.8	1488.4	21.0	1463.1	19.2	1524.5	42.6	1472.9	17.8	4.0	2.8	
6	16LYS22A-8	0.054	0.001	0.056	0.000	439.2	0.3	0.476	0.009	0.064	0.001	0.51	0.296	554	36	0.6	395.3	12.0	401.6	7.3	358.5	71.2	401.1	7.3	-12.0	-1.9	
7	16LYS22A-9	0.056	0.001	0.060	0.000	543.8	0.2	0.528	0.010	0.069	0.001	0.46	0.226	695	48	0.5	430.6	12.8	427.7	6.9	446.6	71.7	427.8	6.8	4.2	0.8	
8	16LYS22A-10	0.057	0.001	0.064	0.000	589.4	0.3	0.565	0.009	0.073	0.001	0.45	2.054	764	56	0.6	455.1	12.0	452.4	6.4	469.0	64.4	452.5	6.4	3.5	0.7	
9	16LYS22A-11	0.092	0.001	0.216	0.002	771.7	0.0	3.107	0.044	0.246	0.002	0.63	0.247	995	245	0.1	1434.5	21.7	1420.2	22.7	1455.7	41.7	1428.1	20.2	2.4	1.6	
10	16LYS22A-12	0.071	0.001	0.132	0.001	226.3	0.3	1.459	0.024	0.151	0.001	0.52	0.285	290	44	0.5	913.8	19.5	904.2	14.1	937.1	56.7	905.9	13.8	3.5	1.5	
11	16LYS22A-14	0.056	0.001	0.061	0.000	331.8	0.4	0.535	0.010	0.070	0.001	0.48	0.237	420	29	0.7	435.4	13.7	434.9	7.7	437.7	75.3	434.9	7.7	0.6	0.1	
12	16LYS22A-15	0.054	0.001	0.055	0.000	795.4	0.2	0.461	0.008	0.062	0.001	0.56	0.347	1005	63	0.4	384.8	10.7	389.9	7.1	354.5	62.4	389.4	7.0	-10.0	-1.6	
13	16LYS22A-16	0.056	0.001	0.067	0.001	804.1	0.3	0.583	0.011	0.076	0.001	0.56	0.250	1020	77	0.7	466.2	13.7	470.2	9.3	446.3	67.6	469.8	9.2	-5.3	-1.1	
14	16LYS22A-17	0.057	0.001	0.067	0.001	474.5	0.4	0.594	0.010	0.076	0.001	0.56	0.212	605	46	0.7	473.4	12.6	471.2	8.4	484.5	60.9	471.4	8.3	2.7	0.6	
15	16LYS22A-18	0.056	0.001	0.062	0.000	613.6	0.2	0.538	0.008	0.070	0.001	0.52	0.216	785	55	0.5	437.4	11.0	436.6	6.8	441.7	58.9	436.7	6.8	1.1	0.2	
16	16LYS22A-19	0.057	0.001	0.064	0.000	181.1	0.3	0.572	0.014	0.073	0.001	0.38	0.159	233	17	0.7	459.2	17.7	456.1	8.1	475.2	98.1	456.2	8.1	4.0	0.9	
17	16LYS22A-20	0.056	0.001	0.062	0.000	558.8	0.3	0.545	0.009	0.071	0.001	0.54	0.244	720	51	0.5	442.0	11.9	441.8	7.7	442.9	61.9	441.9	7.6	0.2	0.0	
18	16LYS22A-22.1	0.069	0.001	0.135	0.001	1435.2	0.1	1.466	0.023	0.154	0.002	0.67	0.127	1837	283	0.2	916.4	19.1	924.7	18.3	896.4	48.5	921.0	17.0	-3.2	-1.3	
19	16LYS22A-23	0.072	0.001	0.133	0.001	286.7	0.2	1.504	0.024	0.153	0.001	0.53	0.279	364	56	0.4	931.9	19.1	916.3	14.1	968.8	54.3	919.3	13.8	5.4	2.4	
20	16LYS22A-24	0.055	0.001	0.063	0.001	158.4	0.2	0.550	0.014	0.072	0.001	0.41	2.163	201	14	0.5	445.1	18.1	449.4	9.0	422.8	102.1	449.1	9.0	-6.3	-1.2	
21	16LYS22A-25	0.057	0.001	0.064	0.000	368.0	0.3	0.576	0.010	0.074	0.001	0.50	0.187	467	34	0.6	462.2	13.1	457.5	7.8	485.5	67.5	457.9	7.8	5.8	1.2	
22	16LYS22A-26	0.056	0.001	0.063	0.000	270.4	0.2	0.552	0.011	0.073	0.001	0.46	0.181	344	25	0.4	446.0	14.0	451.5	7.8	417.6	77.0	451.1	7.8	-8.1	-1.5	
23	16LYS22A-27	0.056	0.001	0.062	0.000	451.6	0.2	0.544	0.009	0.072	0.001	0.50	0.243	576	41	0.5	440.8	11.9	447.4	7.2	406.4	64.7	446.9	7.2	-10.0	-1.8	
24	16LYS22A-28	0.167	0.001	0.403	0.003	82.5	0.2	10.520	0.172	0.465	0.004	0.59	0.131	105	49	0.5	2481.7	30.3	2459.4	39.1	2500.0	44.4	2476.9	29.9	1.6	1.6	
25	16LYS22A-29	0.071	0.000	0.138	0.001	1199.8	0.5	1.510	0.024	0.159	0.001	0.58	0.129	1571	249	1.1	934.6	19.2	949.8	16.0	898.9	52.8	945.1	15.2	-5.7	-2.3	
26	16LYS22A-30	0.057	0.000	0.060	0.000	1249.7	0.2	0.529	0.008	0.069	0.001	0.55	0.499	1654	115	0.4	431.1	11.0	432.6	7.2	422.9	58.4	432.4	7.2	-2.3	-0.4	
27	16LYS22A-32	0.056	0.001	0.060	0.000	551.8	0.3	0.517	0.010	0.070	0.001	0.49	0.285	746	52	0.6	423.4	13.1	434.0	7.8	365.6	74.3	433.1	7.7	-19.0	-3.0	
28	16LYS22A-33	0.058	0.001	0.058	0.000	253.2	0.2	0.508	0.011	0.067	0.001	0.43	0.150	346	23	0.5	416.9	15.3	415.1	7.7	426.9	90.2	415.2	7.7	2.8	0.5	
29	16LYS22A-36	0.059	0.001	0.063	0.000	427.1	0.4	0.566	0.012	0.072	0.001	0.40	0.421	586	42	0.7	455.1	15.2	448.1	7.1	490.6	84.0	448.4	7.1	8.7	1.9	
30	16LYS22A-38	0.057	0.001	0.061	0.001	243.7	0.3	0.531	0.012	0.070	0.001	0.44	0.280	331	23	0.6	432.3	15.8	433.9	8.3	423.8	90.1	433.9	8.2	-2.4	-0.5	
31	16LYS22A-39	0.057	0.001	0.061	0.000	978.5	0.2	0.530	0.008	0.070	0.001	0.55	0.218	1313	92	0.4	431.7	10.5	434.7	6.9	416.1	55.7	434.4	6.8	-4.5	-0.8	

32	16LYS22A-40	0.055	0.001	0.063	0.000	471.6	0.2	0.537	0.009	0.072	0.001	0.52	0.178	632	45	0.4	436.7	11.6	447.7	7.3	379.0	62.7	446.6	7.2	-18.0	-3.0
33	16LYS22A-41	0.056	0.000	0.061	0.000	869.7	0.3	0.523	0.008	0.069	0.001	0.59	0.266	1164	80	0.7	426.9	10.1	430.6	7.1	407.0	52.3	430.1	7.0	-5.8	-1.0
34	16LYS22A-44	0.070	0.001	0.137	0.001	643.9	0.1	1.492	0.022	0.155	0.001	0.61	0.584	852	132	0.2	927.3	17.9	930.5	15.6	919.6	47.9	929.4	14.8	-1.2	-0.5
35	16LYS22A-45	0.165	0.001	0.402	0.002	356.5	0.3	10.273	0.132	0.456	0.004	0.63	0.186	470	214	0.7	2459.6	23.7	2419.9	32.5	2492.7	33.6	2454.6	24.0	2.9	2.8
36	16LYS22A-46	0.056	0.001	0.062	0.000	336.3	0.3	0.542	0.009	0.070	0.001	0.49	0.261	442	31	0.5	439.7	12.4	437.6	7.2	450.9	67.4	437.7	7.1	3.0	0.6
37	16LYS22A-47	0.076	0.001	0.154	0.001	636.5	0.2	1.806	0.026	0.174	0.002	0.64	0.250	834	145	0.4	1047.6	18.9	1032.8	17.7	1078.7	44.5	1038.7	16.7	4.2	2.1
38	16LYS22A-48	0.072	0.001	0.142	0.001	533.0	0.1	1.593	0.024	0.160	0.001	0.60	0.329	696	111	0.2	967.5	18.8	957.5	16.1	990.4	49.0	960.6	15.4	3.3	1.5
39	16LYS22A-49	0.167	0.001	0.415	0.002	136.6	0.4	10.713	0.152	0.469	0.004	0.58	0.134	177	83	0.9	2498.5	26.3	2481.1	34.0	2512.7	38.8	2494.7	25.8	1.3	1.3
40	16LYS22A-50	0.068	0.000	0.128	0.001	882.9	0.1	1.353	0.019	0.145	0.001	0.61	0.525	1144	166	0.2	869.0	16.6	875.1	14.2	853.3	46.7	873.2	15.5	-2.6	-1.0
41	16LYS22A-51	0.057	0.001	0.065	0.000	344.4	0.2	0.572	0.011	0.074	0.001	0.42	0.178	446	33	0.5	459.2	13.7	462.5	7.0	442.4	74.7	462.4	7.0	-4.5	-0.9
42	16LYS22A-52	0.057	0.001	0.063	0.000	339.9	0.2	0.550	0.010	0.072	0.001	0.50	0.207	440	32	0.5	445.2	13.6	447.2	8.2	434.5	73.0	447.1	8.2	-2.9	-0.6
43	16LYS22A-53	0.106	0.001	0.260	0.002	439.3	0.4	4.220	0.060	0.297	0.002	0.58	0.336	568	169	0.8	1678.0	23.5	1678.9	24.6	1676.8	43.1	1678.4	21.3	-0.1	-0.1
44	16LYS22A-55	0.056	0.001	0.063	0.001	100.7	0.3	0.545	0.016	0.072	0.001	0.37	0.117	134	10	0.6	441.9	21.4	449.8	9.5	401.0	124.1	449.5	9.5	-12.0	-2.2
45	16LYS22A-56	0.060	0.001	0.076	0.001	208.0	0.4	0.695	0.015	0.087	0.001	0.47	0.102	280	24	0.9	535.9	17.7	535.5	10.2	537.6	82.2	535.5	10.1	0.4	0.1
46	16LYS22A-57	0.055	0.001	0.060	0.000	733.7	0.3	0.507	0.009	0.068	0.001	0.52	0.315	995	68	0.6	416.2	11.7	426.8	7.4	357.8	66.2	425.7	7.3	-19.0	-3.0
47	16LYS22A-58	0.068	0.001	0.111	0.001	90.3	0.4	1.164	0.029	0.127	0.001	0.48	0.156	124	16	0.8	783.9	27.0	769.7	17.1	824.3	90.4	771.4	16.9	6.6	2.5
48	16LYS22A-59	0.084	0.001	0.198	0.001	136.6	0.3	2.589	0.047	0.227	0.002	0.50	0.276	199	45	0.6	1297.7	26.8	1317.5	22.0	1265.0	61.8	1311.1	20.4	-4.1	-2.4
49	16LYS22A-60	0.055	0.001	0.060	0.000	452.7	0.2	0.507	0.010	0.069	0.001	0.48	0.141	673	46	0.4	416.4	12.9	427.3	7.5	356.1	74.7	426.4	7.5	-20.0	-3.1
50	16LYS22A-61	0.056	0.001	0.061	0.000	745.9	0.3	0.532	0.009	0.070	0.001	0.56	0.681	1133	80	0.6	433.0	11.8	437.2	7.9	410.7	61.9	436.8	7.8	-6.5	-1.2
51	16LYS22A-62	0.091	0.001	0.216	0.002	96.6	0.4	3.046	0.054	0.248	0.002	0.54	0.256	150	37	0.9	1419.3	27.3	1427.9	24.7	1406.2	57.5	1424.5	22.6	-1.5	-1.0
52	16LYS22A-63	0.055	0.001	0.062	0.001	201.3	0.3	0.535	0.013	0.072	0.001	0.42	0.266	320	23	0.7	435.1	17.1	446.2	8.8	376.8	98.4	445.5	8.7	-18.0	-3.1
53	16LYS22A-74	0.054	0.001	0.059	0.001	205.5	0.3	0.487	0.012	0.066	0.001	0.49	0.200	314	21	0.6	402.7	16.9	412.2	9.9	348.6	100.4	411.5	9.8	-18.0	-2.8
54	16LYS22A-75	0.085	0.001	0.188	0.002	279.3	0.3	2.442	0.051	0.211	0.002	0.48	0.153	423	89	0.5	1255.0	30.3	1232.2	22.8	1294.3	71.8	1237.4	22.0	4.8	2.9
55	16LYS22A-77	0.076	0.001	0.161	0.002	276.2	0.2	1.854	0.043	0.179	0.003	0.70	0.192	412	74	0.4	1064.9	30.9	1059.3	32.1	1076.5	67.1	1062.5	29.1	1.6	0.8
56	16LYS22A-78	0.070	0.001	0.135	0.004	751.6	0.1	1.433	0.048	0.149	0.004	0.80	0.522	1114	166	0.2	902.6	40.1	895.8	45.2	919.4	82.8	901.1	40.0	2.6	1.1
57	16LYS22A-80	0.056	0.001	0.064	0.000	385.7	0.2	0.539	0.012	0.071	0.001	0.45	0.304	555	39	0.5	437.7	15.3	441.4	8.3	418.1	85.7	441.2	8.2	-5.6	-1.0
58	16LYS22A-81	0.057	0.001	0.065	0.001	331.8	0.3	0.566	0.012	0.073	0.001	0.54	0.191	475	35	0.7	455.2	15.4	452.0	10.0	471.4	78.4	452.3	9.9	4.1	0.9
59	16LYS22A-82	0.056	0.001	0.068	0.001	282.7	0.3	0.582	0.016	0.076	0.001	0.45	0.194	403	31	0.6	465.6	20.2	473.8	11.0	425.4	107.5	473.2	10.9	-11.0	-2.2
60	16LYS22A-83	0.056	0.001	0.064	0.001	853.7	0.2	0.541	0.009	0.071	0.001	0.58	0.307	1212	86	0.5	439.2	12.5	444.5	8.7	411.7	63.6	443.8	8.6	-8.0	-1.4
61	16LYS22A-84	0.055	0.001	0.061	0.001	272.6	0.4	0.517	0.012	0.070	0.001	0.49	0.113	375	26	0.8	423.0	15.5	433.5	9.2	366.0	88.0	432.7	9.1	-18.0	-3.0
62	16LYS22A-85	0.069	0.001	0.133	0.001	673.9	0.1	1.403	0.021	0.151	0.001	0.60	0.406	916	138	0.2	890.4	18.1	905.8	15.6	852.4	50.8	900.8	14.7	-6.3	-2.4
63	16LYS22A-86	0.057	0.001	0.060	0.000	717.0	0.6	0.529	0.009	0.069	0.001	0.53	10.727	964	66	1.1	431.0	11.6	428.2	7.2	445.6	62.0	428.5	7.1	3.9	0.8
64	16LYS22A-87	0.069	0.001	0.130	0.001	662.6	0.1	1.392	0.021	0.148	0.001	0.61	0.336	881	130	0.2	885.4	17.8	889.4	15.1	875.6	49.3	888.2	14.5	-1.6	-0.6
65	16LYS22A-88	0.055	0.001	0.060	0.001	638.2	0.5	0.511	0.009	0.069	0.001	0.57	0.168	839	58	1.0	419.3	12.6	428.8	8.6	367.7	67.7	427.6	8.5	-17.0	-2.7
66	16LYS22A-89	0.055	0.001	0.060	0.001	576.9	0.4	0.510	0.009	0.067	0.001	0.58	2.186	720	49	0.9	418.7	12.3	421.0	8.4	406.5	65.2	420.7	8.3	-3.6	-0.6
67	16LYS22A-90	0.056	0.001	0.061	0.000	997.3	0.3	0.527	0.008	0.069	0.001	0.55	0.672	1227	85	0.6	429.7	10.8	431.0	7.1	422.3	57.7	430.9	7.0	-2.1	-0.4
68	16LYS22A-93	0.056	0.002	0.064	0.001	61.7	0.3	0.549	0.020	0.071	0.001	0.32	0.132	73	5	0.5	444.5	26.6	443.8	10.2	448.3	155.8	443.8	10.2	1.0	0.2
69	16LYS22A-94	0.056	0.001	0.071	0.001	179.9	0.3	0.605	0.013	0.079	0.001	0.42	0.174	216	17	0.5	480.6	16.8	488.3	8.6	443.9	85.6	487.8	8.6	-10.0	-2.0
70	16LYS22A-95	0.055	0.001	0.065	0.001	258.6	0.4	0.542	0.014	0.072	0.001	0.53	0.314	318	23	0.7	439.8	18.0	449.3	11.6	390.9	98.8	448.2	11.5	-15.0	-2.6

Measurements:					238U	Standardized Concordia:					88Sr	U	Pb206	Ages Ma (2SE)					1: Relative age difference; 2: Concordia distance							
Analysis	207Pb/206Pb	SigM	206Pb/238U	SigM	Kcps	Th/U	207Pb/235U	SigM	206Pb/238U	SigM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SigM	206Pb/238U	2SigM	207Pb/206Pb	2SigM	t_conc	2SigM	%Disc-1	%Disc-2	
V1052, Epilastic Schist, Package 1, Young Meta-sedimentary Strata (40.884546N, 95.580919E)																										
1	17LYV1052-1	0.052	0.001	0.044	0.000	259.3114014	0.2	0.329	0.009	0.047	0.000	0.37	0.231	252	12	0.7	288.8	13.0	296.5	5.5	227.6	111.3	296.2	5.5	-30	-3
2	17LYV1052-2.1	0.053	0.002	0.044	0.000	48.01576233	0.2	0.341	0.016	0.047	0.001	0.26	0.128	47	2	0.8	298.1	23.8	298.3	6.9	296.2	202.9	298.3	6.9	-1	-0.091
3	17LYV1052-2.2	0.053	0.001	0.043	0.000	321.5466614	0.4	0.334	0.008	0.046	0.000	0.38	0.298	313	14	1.3	292.3	12.1	292.0	5.1	294.7	100.9	292.0	5.1	1	0.12
4	17LYV1052-4	0.052	0.001	0.045	0.000	245.3256073	0.3	0.348	0.009	0.048	0.001	0.43	0.266	239	12	1.0	303.2	12.9	305.0	6.3	289.2	101.2	304.9	6.3	-5	-0.69
5	17LYV1052-5.2	0.052	0.001	0.044	0.000	177.5226898	0.3	0.337	0.008	0.048	0.000	0.42	0.171	172	8	1.1	295.0	12.5	299.7	6.0	258.4	101.9	299.5	6.0	-16	-1.8
6	17LYV1052-6	0.053	0.001	0.046	0.000	380.2407227	0.2	0.350	0.007	0.049	0.000	0.46	0.150	368	18	0.7	304.8	11.0	309.6	5.8	268.2	85.0	309.4	5.8	-15	-1.8
7	17LYV1052-7.1	0.053	0.001	0.044	0.000	141.2181549	0.2	0.343	0.010	0.048	0.001	0.39	0.131	136	7	0.7	299.3	15.6	300.3	6.9	291.2	126.2	300.3	6.9	-3	-0.4
8	17LYV1052-7.2	0.054	0.001	0.045	0.000	182.9012451	0.2	0.349	0.010	0.048	0.001	0.38	0.139	176	8	0.5	303.9	14.9	302.6	6.4	313.8	119.2	302.7	6.4	4	0.49
9	17LYV1052-9	0.053	0.001	0.045	0.000	192.6151733	0.2	0.352	0.010	0.049	0.001	0.38	0.155	170	8	0.5	305.9	14.3	309.3	6.3	280.2	114.3	309.2	6.2	-10	-1.3
10	17LYV1052-10	0.052	0.001	0.044	0.000	187.3998108	0.2	0.337	0.009	0.047	0.000	0.40	0.109	162	8	0.5	294.7	13.2	298.5	6.1	264.4	108.6	298.4	6.1	-13	-1.5
11	17LYV1052-12	0.052	0.001	0.047	0.000	240.9675446	0.1	0.363	0.009	0.051	0.001	0.44	0.132	201	10	0.4	314.3	13.5	318.7	6.8	281.4	102.5	318.5	6.8	-13	-1.6
12	17LYV1052-13	0.052	0.004	0.043	0.001	16.38145638	0.3	0.335	0.025	0.047	0.001	0.27	0.196	14	1	1.0	293.7	38.2	294.6	11.8	286.7	329.8	294.6	11.7	-3	-0.34
13	17LYV1052-14	0.051	0.001	0.047	0.001	379.8035889	0.1	0.360	0.008	0.051	0.001	0.55	0.243	315	16	0.5	312.3	12.2	318.1	7.7	268.6	87.2	317.7	7.6	-18	-2.2
14	17LYV1052-15	0.052	0.001	0.047	0.001	410.3474426	0.1	0.369	0.009	0.051	0.001	0.52	0.258	340	17	0.4	319.1	13.8	318.8	8.2	321.3	97.5	318.9	8.2	1	0.11
15	17LYV1052-16.2	0.052	0.001	0.045	0.000	310.2398071	0.2	0.354	0.009	0.049	0.001	0.47	0.193	253	12	0.7	307.5	13.4	307.1	7.1	310.6	101.5	307.1	7.1	1	0.15
16	17LYV1052-17	0.054	0.001	0.047	0.000	259.8689575	0.2	0.377	0.009	0.050	0.001	0.48	0.181	211	11	0.6	324.5	13.0	317.1	6.9	377.8	92.4	317.4	6.9	16	2.7
17	17LYV1052-18	0.053	0.001	0.046	0.000	313.237915	0.2	0.362	0.008	0.049	0.001	0.49	0.237	252	12	0.6	313.5	12.6	310.9	6.9	332.8	92.9	311.0	6.9	7	0.96
18	17LYV1052-19	0.052	0.001	0.046	0.000	287.7461853	0.1	0.353	0.009	0.050	0.001	0.47	0.365	230	11	0.4	306.8	13.4	312.2	7.2	266.2	102.9	311.9	7.2	-17	-2
19	17LYV1052-20	0.053	0.001	0.044	0.000	185.5311279	0.4	0.344	0.010	0.047	0.001	0.42	0.209	148	7	1.2	299.9	15.4	297.4	7.3	319.7	122.2	297.4	7.3	7	0.98
20	17LYV1052-21	0.054	0.001	0.046	0.000	523.8520508	0.1	0.361	0.009	0.049	0.001	0.47	0.154	423	21	0.2	313.1	13.0	310.9	6.9	329.0	96.6	311.0	6.9	6	0.79
21	17LYV1052-24	0.052	0.001	0.044	0.000	401.9354858	0.1	0.331	0.008	0.047	0.001	0.48	0.170	340	16	0.3	290.0	11.8	294.5	6.5	253.7	94.1	294.3	6.5	-16	-1.8
22	17LYV1052-25.1	0.052	0.001	0.047	0.000	1223.717407	0.0	0.350	0.007	0.050	0.001	0.58	0.176	1046	52	0.1	304.8	10.2	311.6	6.8	252.9	72.7	311.0	6.8	-23	-2.5
23	17LYV1052-27	0.052	0.001	0.045	0.000	470.0766602	0.3	0.352	0.007	0.048	0.000	0.47	0.237	401	19	0.9	306.4	11.1	304.6	5.9	320.2	84.4	304.6	5.9	5	0.68
24	17LYV1052-28	0.052	0.001	0.045	0.000	248.2666168	0.2	0.350	0.009	0.048	0.001	0.48	0.122	212	10	0.5	304.9	13.2	304.4	7.1	309.1	100.3	304.4	7.1	2	0.21

26	17LVV1052-32	0.052	0.001	0.044	0.000	162.1664581	0.3	0.334	0.010	0.047	0.001	0.36	0.153	151	7	1.0	292.3	15.3	297.3	6.4	251.8	128.9	297.2	6.4	-18	-2	
Measurements:						238U	Standardized Concordia:						88Sr	U	Pb206	Ages Ma (2SE)		1: Relative age difference; 2: Concordia distance									
	Analysis	207Pb/206Pb	SigM	206Pb/238U	SigM	Kcps	Th/U	207Pb/235U	SigM	206Pb/238U	SigM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SigM	206Pb/238U	2SigM	207Pb/206Pb	2SigM	t.conc	2SigM	%Disc-1	%Disc-2	
V161, Volcanogenetic Conglomerate, Package 1, Young Meta-sedimentary Strata																											
1	1617LYV161-1	0.052	0.002	0.042	0.001	67.03975677	0.4	0.338	0.014	0.047	0.001	0.33	0.196	55	3	1.3	295.9	21.7	294.3	8.0	308.7	181.7	294.3	8.0	5	0.6	
2	1617LYV161-2	0.054	0.002	0.044	0.001	85.17508698	0.2	0.369	0.017	0.049	0.001	0.29	0.098	70	3	0.6	318.8	25.5	310.8	8.3	377.6	200.1	310.8	8.3	18	3.0	
3	1617LYV161-5	0.050	0.002	0.042	0.001	53.77388763	0.8	0.335	0.017	0.048	0.001	0.30	0.208	44	2	2.5	293.5	26.1	301.6	9.1	229.5	225.0	301.5	9.1	-31	-3.1	
4	1617LVV161-6.1	0.052	0.002	0.043	0.001	77.84842682	0.5	0.351	0.015	0.048	0.001	0.32	0.162	64	3	1.6	305.8	23.2	304.0	8.4	319.3	188.7	304.0	8.4	5	0.7	
5	1617LVV161-11	0.053	0.004	0.042	0.001	21.03033447	0.5	0.340	0.025	0.046	0.001	0.24	0.125	19	1	1.5	297.0	37.3	292.7	10.0	330.6	319.2	292.7	10.0	11	1.7	
6	1617LVV161-13	0.051	0.002	0.043	0.000	92.44470215	0.5	0.324	0.013	0.047	0.001	0.32	0.129	82	4	1.5	285.3	20.1	294.1	7.4	213.3	177.2	293.9	7.4	-38	-3.5	
7	1617LVV161-16	0.054	0.002	0.042	0.000	83.5714035	0.5	0.333	0.014	0.046	0.001	0.28	0.249	75	3	1.5	291.8	21.7	288.9	6.7	315.6	186.7	288.9	6.7	9	1.2	
8	1617LVV161-18	0.052	0.001	0.045	0.000	231.079895	0.3	0.348	0.009	0.049	0.001	0.42	0.244	206	10	0.9	303.3	14.1	310.8	6.8	246.4	112.5	310.5	6.8	-26	-2.8	
9	1617LVV161-21	0.052	0.001	0.042	0.000	154.7229919	0.3	0.334	0.011	0.047	0.001	0.35	0.137	138	6	0.9	292.3	16.7	294.8	6.7	272.4	141.0	294.8	6.7	-8	-1.0	
10	1617LVV161-23.2	0.052	0.003	0.041	0.001	33.99382401	0.4	0.333	0.020	0.046	0.001	0.29	0.187	31	1	1.2	292.2	30.5	289.7	9.9	312.9	261.4	289.7	9.9	7	1.0	
11	1617LVV161-36	0.053	0.003	0.043	0.001	37.44158936	0.7	0.341	0.019	0.048	0.001	0.27	0.161	34	2	2.2	298.0	28.6	299.2	8.8	288.1	243.3	299.2	8.8	-4	-0.5	
12	1617LVV161-37	0.054	0.002	0.042	0.000	145.7953186	0.3	0.337	0.011	0.046	0.001	0.36	0.101	133	6	1.1	295.3	17.1	291.5	6.8	325.3	142.0	291.5	6.8	10	1.5	
13	1617LVV161-38	0.054	0.001	0.043	0.000	291.144165	0.2	0.338	0.009	0.047	0.001	0.41	0.202	266	12	0.7	295.9	14.0	294.1	6.5	309.9	113.2	294.1	6.5	5	0.7	
Measurements:						238U	Standardized Concordia:						88Sr	U	Pb206	Ages Ma (2SE)		1: Relative age difference; 2: Concordia distance									
	Analysis	207Pb/206Pb	SigM	206Pb/238U	SigM	Kcps	Th/U	207Pb/235U	SigM	206Pb/238U	SigM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SigM	206Pb/238U	2SigM	207Pb/206Pb	2SigM	t.conc	2SigM	%Disc-1	%Disc-2	
V361, Calcareous Psammite, Package 2, Young Meta-sedimentary Strata (40.872022N, 95.639999E)																											
1	1617LYV361-1	0.052	0.001	0.042	0.000	904.5811768	0.0	0.335	0.007	0.047	0.001	0.59	0.120	772	36	0.1	293.0	10.3	295.9	6.9	270.2	75.0	295.7	6.8	-9.5	-1.1	
2	1617LYV361-2	0.054	0.001	0.042	0.000	1224.730713	0.1	0.343	0.006	0.046	0.000	0.56	1.853	1050	49	0.2	299.7	9.3	292.5	5.8	356.8	67.0	292.8	5.8	18	2.8	
3	1617LYV361-3	0.053	0.001	0.042	0.000	1439.422607	0.0	0.343	0.006	0.047	0.000	0.54	0.170	1240	59	0.0	299.4	8.9	297.3	5.4	315.6	65.4	297.4	5.4	5.8	0.8	
4	1617LYV361-4	0.054	0.001	0.047	0.001	1688.629272	0.0	0.390	0.008	0.052	0.001	0.69	0.448	1462	76	0.1	334.0	11.2	328.7	8.7	371.8	63.8	329.3	8.7	12	1.9	
5	1617LYV361-5	0.054	0.000	0.045	0.000	1615.491455	0.0	0.368	0.007	0.050	0.001	0.66	0.829	1405	71	0.0	318.5	10.3	315.8	7.7	338.4	64.5	316.1	7.6	6.7	1.0	
6	1617LYV361-6	0.055	0.001	0.065	0.001	118.7862091	0.3	0.537	0.015	0.072	0.001	0.48	0.138	104	8	1.0	436.5	19.3	447.9	11.2	376.6	107.9	447.0	11.1	-19	-3.2	
7	1617LYV361-7	0.053	0.001	0.043	0.000	1013.408997	0.0	0.343	0.007	0.047	0.001	0.60	0.124	891	42	0.1	299.5	10.2	298.8	6.9	304.6	71.5	298.9	6.9	1.9	0.3	
9	1617LYV361-10	0.053	0.001	0.044	0.001	1027.84021	0.0	0.345	0.011	0.048	0.001	0.50	0.129	905	43	0.1	300.8	16.9	302.4	9.5	288.1	129.1	302.4	9.5	-5	-0.6	
10	1617LYV361-11	0.053	0.001	0.043	0.000	979.6450806	0.0	0.341	0.007	0.048	0.001	0.60	0.108	863	41	0.1	298.3	10.8	300.4	7.4	282.0	76.2	300.2	7.4	-6.5	-0.8	
11	1617LVV361-12	0.056	0.001	0.067	0.001	623.5735474	0.2	0.562	0.010	0.074	0.001	0.60	0.142	549	41	0.5	452.6	13.6	459.6	9.9	417.6	66.4	458.5	9.8	-10	-1.9	
12	1617LYV361-13	0.053	0.001	0.043	0.000	1161.86438	0.0	0.334	0.006	0.047	0.000	0.60	0.133	1022	48	0.0	292.9	8.8	294.6	5.9	279.3	63.3	294.5	5.9	-5.5	-0.7	
13	1617LYV361-14	0.052	0.001	0.043	0.000	948.5610962	0.0	0.332	0.006	0.047	0.000	0.56	0.117	834	39	0.0	291.2	9.6	295.0	6.1	260.9	71.7	294.7	6.1	-13	-1.5	
14	1617LYV361-17	0.052	0.001	0.042	0.000	1409.48938	0.0	0.333	0.007	0.046	0.001	0.59	0.473	1235	57	0.1	292.1	10.5	292.5	7.0	288.6	75.9	292.5	7.0	-1.3	-0.2	
15	1617LVV361-19	0.052	0.001	0.042	0.000	229.0930481	0.3	0.325	0.008	0.046	0.001	0.42	0.233	200	9	0.9	285.8	12.9	287.1	6.2	275.5	107.7	287.0	6.2	-4.2	-0.5	
16	1617LYV361-20	0.052	0.001	0.043	0.000	1051.504395	0.0	0.328	0.007	0.046	0.001	0.56	0.133	919	43	0.2	287.8	10.5	292.5	6.7	249.6	79.6	292.2	6.6	-17	-1.9	
17	1617LYV361-21	0.053	0.001	0.044	0.000	1349.792236	0.0	0.343	0.007	0.048	0.001	0.57	0.149	1181	56	0.1	299.3	11.1	299.5	7.1	297.9	80.8	299.5	7.1	-0.56	-0.1	
18	1617LYV361-22	0.055	0.001	0.048	0.001	1225.833618	0.1	0.397	0.009	0.053	0.001	0.67	1.717	1076	57	0.3	339.6	12.4	331.2	9.2	397.7	71.8	332.0	9.2	17	2.9	
19	1617LYV361-23	0.053	0.001	0.043	0.000	1525.183594	0.0	0.338	0.007	0.047	0.001	0.63	0.148	1343	63	0.0	296.0	10.7	294.1	7.5	311.7	73.6	294.2	7.4	5.7	0.8	
20	1617LYV361-25	0.054	0.001	0.043	0.000	1280.207397	0.0	0.351	0.007	0.047	0.001	0.56	0.243	1135	54	0.1	305.3	10.2	297.9	6.3	362.0	72.2	298.2	6.3	18	2.8	
21	1617LYV361-26	0.055	0.001	0.057	0.001	447.0505676	0.2	0.473	0.011	0.063	0.001	0.64	0.205	398	25	0.7	393.4	15.2	391.3	11.4	405.6	79.9	391.6	11.3	3.5	0.6	
22	1617LYV361-27	0.053	0.001	0.042	0.000	1042.982422	0.0	0.332	0.006	0.046	0.001	0.60	0.212	928	43	0.1	290.8	9.7	289.5	6.5	300.6	69.6	289.6	6.5	3.7	0.5	
23	1617LYV361-28	0.052	0.001	0.042	0.000	958.4476929	0.0	0.330	0.007	0.046	0.000	0.53	0.089	852	39	0.1	289.6	10.3	290.2	6.1	284.8	79.2	290.1	6.1	-1.9	-0.2	
24	1617LVV361-29	0.052	0.001	0.043	0.000	677.0446777	0.1	0.335	0.006																		

20	17LYS5041-36	0.078	0.000	0.195	0.002	485.4404907	0.2	2.225	0.036	0.206	0.002	0.72	0.170	413	85	0.6	1188.8	22.6	1205.8	25.5	1158.1	44.6	1193.6	21.7	-4	-2.1
21	17LYS5041-37	0.058	0.001	0.074	0.001	240.2786102	0.2	0.619	0.012	0.078	0.001	0.56	0.151	204	16	0.6	489.3	15.6	482.1	10.5	522.9	72.7	482.9	10.5	8	1.8
22	17LYS5041-38	0.053	0.001	0.047	0.000	192.6828766	0.3	0.358	0.009	0.049	0.001	0.50	0.265	164	8	0.7	310.9	13.2	309.4	7.5	321.7	97.3	309.5	7.4	4	0.5
23	17LYS5041-39	0.054	0.001	0.048	0.000	403.5791016	0.2	0.375	0.007	0.051	0.001	0.58	0.247	344	17	0.5	323.3	10.4	317.6	6.8	364.5	69.1	318.0	6.8	13	2.1
24	17LYS5041-40	0.051	0.001	0.047	0.000	158.5959015	0.3	0.346	0.008	0.049	0.001	0.52	0.203	135	7	0.8	302.1	12.5	310.2	7.5	239.7	94.4	309.6	7.4	-29	-3.1
25	17LYS5041-42	0.054	0.001	0.046	0.000	122.8803177	0.5	0.356	0.010	0.048	0.001	0.43	0.206	105	5	1.3	309.0	15.6	302.5	7.4	358.2	119.8	302.7	7.4	16	2.4
26	17LYS5041-46	0.052	0.001	0.045	0.000	177.8311462	0.3	0.338	0.008	0.048	0.001	0.51	0.258	153	7	0.9	295.7	12.7	301.3	7.4	251.2	98.3	301.0	7.4	-20	-2.2
27	17LYS5041-48	0.054	0.002	0.045	0.001	70.25721741	0.2	0.351	0.013	0.048	0.001	0.44	0.134	62	3	0.5	305.3	18.9	302.5	9.3	327.3	146.0	302.5	9.3	8	1.1
28	17LYS5041-49	0.054	0.002	0.046	0.001	83.46052551	0.3	0.365	0.014	0.049	0.001	0.38	0.159	75	4	0.7	315.6	20.6	309.7	8.8	359.4	158.2	309.8	8.8	14	2.2
29	17LYS5041-51.1	0.052	0.002	0.045	0.000	129.9804993	0.3	0.343	0.012	0.048	0.001	0.39	0.137	120	6	0.7	299.2	18.0	301.2	8.0	283.7	146.6	301.2	8.0	-6	-0.8
30	17LYS5041-51.2	0.053	0.001	0.045	0.000	782.2401733	0.8	0.348	0.006	0.048	0.000	0.57	1.639	723	34	2.0	303.0	9.5	300.0	6.0	326.4	67.6	300.1	6.0	8	1.2
31	17LYS5041-54	0.056	0.001	0.063	0.001	203.7215729	0.2	0.517	0.012	0.067	0.001	0.51	0.167	190	13	0.6	423.0	16.5	418.3	9.9	448.9	90.9	418.6	9.9	7	1.4
32	17LYS5041-56	0.053	0.001	0.048	0.000	146.0496216	0.3	0.377	0.010	0.051	0.001	0.47	0.267	136	7	0.7	324.7	14.0	322.3	7.5	342.1	101.0	322.4	7.4	6	0.9
33	17LYS5041-57	0.052	0.001	0.048	0.000	429.7318726	0.3	0.367	0.008	0.051	0.001	0.57	0.195	401	21	0.8	317.4	11.4	322.4	7.5	281.1	78.2	321.9	7.5	-15	-1.8
34	17LYS5041-58	0.052	0.001	0.044	0.001	188.3339844	0.2	0.339	0.009	0.047	0.001	0.57	0.163	176	8	0.6	296.4	14.2	294.9	9.1	308.3	103.2	295.0	9.1	4	0.6
35	17LYS5041-59	0.053	0.001	0.047	0.000	123.7319717	0.2	0.363	0.011	0.050	0.001	0.45	0.202	115	6	0.6	314.2	16.1	313.1	8.1	322.1	121.2	313.1	8.1	3	0.4
36	17LYS5041-60	0.052	0.001	0.046	0.000	175.3144989	0.3	0.354	0.010	0.049	0.001	0.46	0.183	165	8	0.7	308.0	14.5	309.4	7.5	297.5	110.9	309.3	7.5	-4	-0.5
37	17LYS5041-61	0.053	0.001	0.046	0.000	184.4832458	0.2	0.353	0.009	0.048	0.001	0.50	0.168	174	8	0.6	306.8	13.5	304.9	7.5	321.2	100.2	305.0	7.5	5	0.7
38	17LYS5041-63	0.051	0.001	0.046	0.000	141.8084106	0.3	0.347	0.011	0.049	0.001	0.43	0.186	135	7	0.7	302.1	15.9	307.9	8.0	257.3	126.2	307.7	7.9	-20	-2.2
39	17LYS5041-64	0.051	0.001	0.044	0.000	434.9667053	0.4	0.334	0.008	0.047	0.001	0.53	0.229	417	20	1.0	292.9	12.9	294.3	7.8	281.1	98.1	294.3	7.8	-5	-0.6
40	17LYS5041-65	0.053	0.001	0.044	0.000	194.2581177	0.2	0.341	0.010	0.047	0.001	0.47	0.240	187	9	0.6	297.6	14.4	295.3	7.5	315.4	112.4	295.4	7.5	6	0.9
41	17LYS5041-68	0.055	0.001	0.059	0.001	1746.11377	0.4	0.463	0.012	0.062	0.001	0.68	2.317	1675	104	1.2	386.6	16.2	389.2	13.0	371.0	82.8	388.7	12.8	-5	-0.8
42	17LYS5041-70	0.056	0.002	0.058	0.001	71.4044342	0.4	0.474	0.017	0.062	0.001	0.41	0.143	70	4	1.0	394.1	23.6	388.8	11.2	425.0	146.8	389.0	11.2	9	1.6
43	17LYS5041-71	0.054	0.002	0.047	0.001	67.84098816	0.2	0.369	0.014	0.050	0.001	0.42	0.240	67	3	0.6	318.8	20.5	314.9	9.8	347.1	153.5	315.0	9.8	9	1.4
44	17LYS5041-72	0.051	0.001	0.047	0.000	213.5757904	0.3	0.357	0.010	0.051	0.001	0.45	0.211	212	11	0.8	310.3	14.4	318.9	7.6	246.3	110.3	318.5	7.5	-29	-3.2
45	17LYS5041-74	0.053	0.001	0.046	0.000	185.1320496	0.3	0.359	0.010	0.049	0.001	0.49	0.156	187	9	0.7	311.3	14.2	309.7	7.8	322.9	105.1	309.8	7.8	4	0.6
46	17LYS5041-75	0.054	0.001	0.044	0.000	290.6629028	0.3	0.351	0.008	0.047	0.001	0.56	0.166	290	14	0.8	305.4	12.1	299.1	7.4	353.9	86.0	299.4	7.4	15	2.4
47	17LYS5041-76	0.054	0.002	0.046	0.001	56.00439453	0.2	0.370	0.017	0.050	0.001	0.35	0.175	55	3	0.6	319.7	25.3	311.9	9.8	376.9	194.7	312.1	9.8	17	2.9
48	17LYS5041-78	0.051	0.002	0.047	0.001	61.59698105	0.2	0.354	0.014	0.050	0.001	0.46	0.172	59	3	0.5	308.1	20.7	317.3	11.0	239.3	159.7	316.8	11.0	-33	-3.4
49	17LYS5041-79	0.052	0.001	0.045	0.000	150.994812	0.3	0.341	0.010	0.048	0.001	0.47	0.181	144	7	0.8	298.0	15.3	302.2	8.2	265.0	120.1	302.0	8.2	-14	-1.6
50	17LYS5041-83	0.051	0.001	0.046	0.001	256.6082153	0.1	0.355	0.011	0.050	0.001	0.61	0.122	243	12	0.3	308.3	17.1	314.1	12.0	264.8	117.5	313.5	11.8	-19	-2.1
51	17LYS5041-86	0.051	0.001	0.047	0.001	199.0861511	0.3	0.361	0.009	0.051	0.001	0.53	0.227	192	10	0.7	312.7	13.7	317.7	8.4	275.3	98.4	317.3	8.3	-15	-1.8
52	17LYS5041-87	0.052	0.001	0.045	0.000	159.1553192	0.4	0.349	0.009	0.048	0.001	0.48	0.235	155	7	0.9	303.7	14.0	305.3	7.7	291.8	106.9	305.2	7.6	-5	-0.6
53	17LYS5041-88	0.053	0.001	0.044	0.000	293.6849365	0.3	0.348	0.008	0.047	0.001	0.55	0.165	287	13	0.7	303.3	12.8	296.2	7.8	358.6	91.9	296.5	7.8	17	2.7
54	17LYS5041-89	0.052	0.001	0.046	0.000	336.7321472	0.3	0.352	0.008	0.049	0.001	0.55	0.241	334	16	0.8	306.1	12.4	308.8	7.8	285.8	89.7	308.6	7.7	-8	-1.0
55	17LYS5041-90	0.052	0.001	0.047	0.001	121.6900711	0.3	0.362	0.011	0.050	0.001	0.46	0.194	121	6	0.7	313.7	15.8	316.4	8.3	293.9	118.3	316.3	8.3	-8	-1.0
56	17LYS5041-91	0.053	0.001	0.046	0.001	175.2167816	0.3	0.354	0.010	0.049	0.001	0.48	0.331	176	9	0.7	308.1	14.3	308.5	7.8	305.1	107.8	308.4	7.8	-1	-0.2
57	17LYS5041-92	0.053	0.001	0.044	0.000	180.3226929	0.5	0.342	0.009	0.047	0.001	0.50	0.215	182	9	1.2	298.5	13.1	299.1	7.4	293.4	100.5	299.1	7.4	-2	-0.3
58	17LYS5041-93	0.054	0.001	0.047	0.000	143.2582092	0.4	0.376	0.010	0.050	0.001	0.48	0.189	145	7	0.9	323.8	15.1	317.5	8.2	368.6	107.7	317.8	8.2	14	2.2
59	17LYS5041-95	0.053	0.002	0.046	0.001	178.4481354	0.3	0.361	0.013	0.049	0.001	0.42	0.198	181	9	0.7	313.2	18.8	310.0	8.9	336.6	142.9	310.1	8.9	8	1.2
60	17LYS5041-96	0.055	0.001	0.062	0.001	198.9056244	0.5	0.512	0.013	0.067	0.001	0.45	0.192	201	14	1.4	420.1	17.9	420.3	9.6	419.0	103.3	420.3	9.6	0	-0.1
61	17LYS5041-98	0.052	0.001	0.045	0.000	231.3005524	0.3	0.354	0.009	0.049	0.001	0.49	0.218	232	11	0.7	307.6	14.2	309.1	7.9	296.1	106.9	309.0	7.9	-4	-0.6
62	17LYS5041-99.1	0.053	0.002	0.045	0.001	96.93366241	0.3	0.365	0.013	0.049	0.001	0.43	0.137	95	5	0.7	315.9	18.9	310.7	9.0	354.7	141.8	310.8	9.0	12	1.9

Measurements:		Standardized Concordia:										88Sr		U	Pb206	Ages Ma (2SE)				1: Relative age difference; 2: Concordia distance							
Analysis	207Pb/206Pb	SigM	206Pb/238U	SigM	238U Kcps	Th/U	207Pb/235U	SigM	206Pb/238U	SigM	RhoXY	Kcps	ppm	ppm	Th/U	207Pb/235U	2SigM	206Pb/238U	2SigM	207Pb/206Pb	2SigM	t.conc	2SigM	%Disc-1	%Disc-2		
V1110, Epidote Schist, Package 3, Young Meta-sedimentary Strata (40.857386N, 95.601299E)																											
1	17LVV1110-2.1	0.070	0.001	0.135	0.001	682.194519	0.0	1.426	0.028	0.148	0.002	0.64	0.480	616	91	0.1	899.8	23.2	887.7	20.8	929.7		60.9	891.8	19.9	4.5	1.9
2	17LVV1110-2.3	0.067	0.001	0.137	0.001	478.938324	0.0	1.416	0.027	0.150	0.002	0.60	0.181	433	65	0.1	895.8	22.5	903.4	19.1	876.8		62.8	901.1	18.1	-3.0	-1.2
3	17LVV1110-5.2	0.069	0.001	0.134	0.001	503.2004395	0.0	1.419	0.028	0.147	0.002	0.63	0.188	466	69	0.1	896.8	23.5	886.6	20.6	922.1		62.9	889.8	19.7	3.9	1.6
4	17LVV1110-5.2	0.053	0.001	0.045	0.000	610.1547852	0.4	0.366	0.008	0.049	0.001	0.54	0.376	606	30	1.4	316.5	12.4	309.6	7.5	367.8		86.2	309.9	7.5	16.0	2.6
5	17LVV1110-53	0.051	0.001	0.044	0.000	825.3361206	0.3	0.339	0.008	0.048	0.001	0.53	0.253	824	39	0.9	296.2	12.4	301.4	7.6	255.4		93.8	301.0	7.6	-18.0	-2.0
6	17LVV1110-6	0.052	0.001	0.045	0.000	305.2789001	0.3	0.359	0.009	0.049	0.001	0.44	0.180	284	14	0.9	311.5	14.1	311.0	7.0	315.9		107.3	311.0	7.0	1.6	0.2
7	17LVV1110-7	0.068	0.001	0.140	0.001	338.7901917	0.2	1.470	0.031	0.155	0.002	0.57	0.154	317	49	0.7	918.1	25.4	927.3	20.8	896.2		71.0	924.7	19.8	-3.5	-1.4
8	17LVV1110-8	0.054	0.001	0.044	0.000	156.5097351	0.3	0.365	0.011	0.049	0.001	0.40	0.125	146	7	1.0	316.2	16.9	308.5	7.5	373.5		128.3	308.7	7.5	17.0	2.9
9	17LVV1110-14	0.052	0.002	0.044	0.000	70.97180176	0.3	0.344	0.014	0.049	0.001	0.31	0.144	65	3	1.0	300.6	20.8	306.3	7.5	256.4		174.7	306.2	7.5	-19.0	-2.2
10	17LVV1110-15	0.068	0.001	0.129	0.001	620.7868652	0.0	1.344	0.028	0.142	0.002	0.59	0.495	573	81	0.1	865.0	24.5	857.0	20.1	885.8		70.0	859.0	19.4	3.3	1.3
11	17LVV1110-16.1	0.052	0.001	0.045	0.001	170.2316895	0.2	0.358	0.012	0.050	0.001	0.43	0.164	158	8	0.7	310.9	17.6	312.1	8.6	302.2		135.1	312.0	8.6	-3.3	-0.4
12	17LVV1110-17.1	0.052	0.002	0.043	0.001	90.60281372	0.3	0.353	0.014	0.048	0.001	0.38	0.169	83	4	1.0	306.7	20.5	300.9	8.6	350.5		161.8	301.0	8.6	14.0	2.2
13	17LVV1110-19	0.067	0.001	0.132	0.001	525.467041	0.1	1.382	0.028	0.147	0.002	0.60	0.230	477	70	0.2	881.4	24.1	885.6	20.2	871.0		68.0	884.4	19.3	-1.7	-0.7
15	17LVV1110-23	0.068	0.001	0.135	0.001	215.2395325	0.1	1.426	0.030	0.150	0.002	0.54	0.174	197	29	0.4	899.9	27.7	898.5	20.9	903.2		80.8	898.8	20.2	0.5	0.2
16	17LVV1110-25	0.054	0.001	0.044	0.000	275.8580933	0.2	0.366	0.010	0.049	0.001	0.46	0.909	256	13	0.8	316.7	14.3	309.2	7.3	371.7		105.2	309.4	7.3	17.0	2.8
17	17LVV1110-27	0.069	0.001	0.131	0.001	480.3694763	0.0	1.384	0.027	0.145	0.002	0.62	0.157	449	65	0.2	882.2	22.7	872.9	19.5	905.7		62.1	875.7	18.8	3.6	1.5
18	17LVV1110-29	0.051	0.001	0.044	0.001	259.0533447	0.2	0.341	0.009	0.048	0.001	0.47	0.168	245	12	0.6	297.8	14.3	304.4	7.8	246.8		112.5	304.0	7.7	-23.0	-2.5
19	17LVV1110-30	0.051	0.001	0.042	0.001	557.6473999	0.3	0.329	0.008	0.047	0.001	0.54	0.272	530	25	0.9	289.0	12.3	293.4	7.6	253.6		94.1	293.1	7.6	-16.0	-1.7
20	17LVV1110-31	0.052	0.001	0.043	0.000	259.4024963	0.2	0.345	0.009	0.048	0.001	0.46	0.188	247	12	0.8	300.7	13.1	300.6	6.7	300.8		102.1	300.6	6.7	0.1	0.0
21	17LVV1110-33	0.052	0.001	0.044	0.000	404.5773621	0.4	0.351	0.009	0.048	0.001	0.46	0.572	387	19	1.1	305.8	13.1	303.7	6.7	322.3		100.1	303.7	6.7	5.8	0.8

22	17LVV1110-35	0.053	0.001	0.045	0.001	287.6448669	0.2	0.358	0.010	0.049	0.001	0.50	0.166	282	14	0.6	311.0	14.2	305.5	7.8	352.3	104.1	305.7	7.8	13.0	2.1
23	17LVV1110-37	0.069	0.001	0.142	0.001	360.4458618	0.1	1.466	0.030	0.153	0.002	0.56	0.188	359	55	0.2	916.6	24.7	917.4	19.8	914.9	69.6	917.2	19.0	-0.3	-0.1
24	17LVV1110-39	0.052	0.001	0.044	0.000	125.2996674	0.3	0.343	0.012	0.047	0.001	0.39	0.494	126	6	1.2	299.4	17.4	298.3	7.6	308.0	140.8	298.3	7.6	3.1	0.4
25	17LVV1110-44	0.069	0.001	0.133	0.001	563.5126953	0.1	1.429	0.027	0.148	0.002	0.62	0.326	553	82	0.3	901.0	23.0	890.1	20.0	927.8	61.8	893.4	19.2	4.1	1.7
26	17LVV1110-46	0.070	0.001	0.135	0.001	442.4691467	0.1	1.471	0.029	0.150	0.002	0.64	0.263	431	65	0.3	918.6	23.6	899.5	21.1	964.6	61.0	905.8	20.3	6.7	3.0
27	17LVV1110-47	0.068	0.001	0.132	0.002	416.1339722	0.0	1.394	0.030	0.147	0.002	0.64	0.637	404	59	0.2	886.5	25.4	885.3	22.6	889.4	68.5	885.7	21.5	0.5	0.2
28	17LVV1110-48	0.099	0.001	0.256	0.003	262.0407104	0.4	3.964	0.084	0.286	0.004	0.66	0.310	253	72	1.4	1626.9	34.2	1621.3	39.8	1634.2	59.1	1625.3	33.2	0.8	0.6
29	17LVV1110-49	0.069	0.001	0.138	0.001	309.6911316	0.2	1.476	0.031	0.153	0.002	0.62	0.291	302	46	0.6	920.5	25.4	918.7	22.1	924.8	67.7	919.3	21.1	0.7	0.3

Chapter 4 Table SM2.1: U-PB ZIRCON GEOCHRONOLOGY OF IGNEOUS AND METAMORPHIC ROCKS FROM BAIDUNZI COMPLEX

Spot	ppm U	ppm Th	²³² Th / ²³⁸ U	% ²⁰⁶ Pb _c	ppm ²⁰⁶ Pb*	Total ²³⁸ U / ²⁰⁶ Pb	±%	Total ²⁰⁷ Pb / ²⁰⁶ Pb	±%	(1) ²³⁸ U/ ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²⁰⁶ Pb*	±%	(1) ²⁰⁷ Pb* / ²³⁵ U	±%	(1) ²⁰⁶ Pb* / ²³⁸ U	±%	err corr	(1) ²⁰⁶ Pb / ²³⁸ U Age	±error	(1) ²⁰⁷ Pb / ²⁰⁶ Pb Age	±error	(1) ²⁰⁸ Pb / ²³² Th Age	±error	% Dis- cor- dant	Single- grain concordia age	1se	disc distance			
(A) S5143, melanocratic layer, Granitic Orthogneiss, Baidunzi Complex																(40.84722654N, 95.6005941E)															
<i>inheritance</i>																															
18LYS-5143A-1	764	46	0.06	--	97.4	6.74	1.6	0.06796	1.3	6.74	1.6	0.06799	1.3	1.391	2	0.1484	1.6	.779	892	13	868	26	920	26	-3	886.7	11.6	-1			
18LYS-5143A-2	699	84	0.12	0.08	88.4	6.8	1.6	0.06997	1.2	6.8	1.6	0.06926	1.3	1.404	2	0.147	1.6	.768	884	13	907	27	899	28	2	888.8	11.7	1			
18LYS-5143A-3	445	41	0.09	--	58.3	6.57	1.9	0.06885	1	6.56	1.9	0.06964	1.2	1.464	2.3	0.1525	1.9	.856	915	17	918	24	983	44	0	915.7	13.9	0			
18LYS-5143A-4	790	71	0.09	0.00	100	6.76	1.6	0.06823	0.79	6.76	1.6	0.06823	0.79	1.392	1.8	0.148	1.6	.894	890	13	876	16	909	21	-2	884.0	10.4	-1			
18LYS-5143A-5	516	47	0.09	0.10	62.9	7.04	1.6	0.06918	1.4	7.05	1.6	0.06833	1.5	1.336	2.2	0.1418	1.6	.740	855	13	879	30	840	35	3	858.2	12.0	1			
18LYS-5143A-6	735	67	0.09	--	94.4	6.69	1.6	0.06841	0.82	6.69	1.6	0.06848	0.82	1.412	1.8	0.1495	1.6	.885	898	13	883	17	931	22	-2	892.7	10.5	-1			
18LYS-5143A-7	611	45	0.08	0.00	76.6	6.85	1.6	0.06798	0.92	6.85	1.6	0.06796	0.98	1.369	1.9	0.1461	1.6	.850	879	13	867	20	898	32	-1	875.7	11.1	-1			
18LYS-5143A-8	643	72	0.12	0.11	79.4	6.96	1.6	0.06976	0.88	6.97	1.6	0.06883	1	1.363	1.9	0.1436	1.6	.837	865	13	894	21	823	30	3	872.6	11.2	1			
18LYS-5143A-9	837	73	0.09	--	110	6.53	1.6	0.0686	1.1	6.53	1.6	0.06905	1.1	1.458	1.9	0.1531	1.6	.815	918	14	900	23	1,028	34	-2	913.4	11.4	-1			
18LYS-5143A-10	690	82	0.12	0.07	83.4	7.1	1.7	0.06917	10	7.11	1.7	0.06862	1	1.331	2	0.1407	1.7	.858	849	14	887	21	814	22	4	859.3	11.7	2			
18LYS-5143A-11	546	59	0.11	0.11	68	6.9	1.7	0.06923	0.93	6.9	1.7	0.06831	1.1	1.364	2	0.1449	1.7	.839	872	14	878	22	797	31	1	873.6	11.7	0			
18LYS-5143A-12	594	58	0.10	0.01	73.8	6.91	1.6	0.0675	1.1	6.91	1.6	0.06738	1.1	1.344	1.9	0.1446	1.6	.820	871	13	850	23	863	26	-2	865.4	11.0	-1			
18LYS-5143A-13	726	72	0.10	0.07	92.6	6.73	1.7	0.06885	0.81	6.74	1.7	0.06828	0.83	1.397	1.9	0.1484	1.7	.901	892	14	877	17	882	23	-2	885.8	10.9	-1			
18LYS-5143A-14	630	65	0.11	0.03	81	6.69	1.6	0.06889	0.87	6.69	1.6	0.0686	0.9	1.414	1.8	0.1495	1.6	.867	898	13	887	19	896	23	-1	894.1	10.6	-1			
18LYS-5143A-15	689	70	0.11	0.05	82.5	7.18	1.7	0.06779	0.88	7.18	1.7	0.06737	0.93	1.293	2	0.1392	1.7	.882	840	14	849	19	826	24	1	842.9	11.5	1			
Error in Standard calibration was 0.56%.																															
(B) S5136, leucocratic granite dyke, Red Granite Unit, Baidunzi Intrusive Suite																(40.85565646N, 95.62850897E)															
<i>inheritance</i>																															
18LYS-5136A-13	603	65	0.11	--	71.3	7.26	2	0.0677	1.2	7.26	2	0.06786	1.2	1.288	2.3	0.1377	2	.849	832	15	864	25	839	26	4	840.6	13.3	2			
<i>crystallization ages</i>																															
18LYS-5136A-1	317	193	0.63	1.61	13.1	20.76	2	0.0642	2.7	21.1	2.1	0.0512	8.9	0.335	9.1	0.04739	2.1	.229	298.5	6.1	252	200	155	18	-18	298.4	6.1	-2			
18LYS-5136A-3	271	95	0.36	--	10.9	21.44	2.1	0.0515	3.4	21.4	2.1	0.0532	3.3	0.343	3.9	0.04673	2.1	.528	294.4	5.9	338	75	311	12	13	294.7	6.0	2			
18LYS-5136A-4	493	168	0.35	0.01	20.3	20.87	2	0.0552	2.5	20.87	2	0.0551	2.9	0.364	3.5	0.04791	2	.571	301.7	6	418	65	295	11	28	302.2	5.9	5			
18LYS-5136A-5	130	71	0.57	0.76	5.01	22.27	2.5	0.0629	14	22.44	2.5	0.0569	16	0.349	16	0.0446	2.5	.153	281	6.9	486	360	364	67	42	281.3	6.9	9			
18LYS-5136A-6	82	48	0.61	1.40	3.38	20.71	3.6	0.0535	6.7	21	3.8	0.042	26	0.276	27	0.0476	3.8	.145	300	11	-221	660	239	45	236	299.2	11.1	-20			
18LYS-5136A-7	162	143	0.91	3.14	6.68	20.81	2.3	0.0668	9.2	21.49	2.7	0.041	33	0.265	33	0.0465	2.7	.081	293.3	7.8	-272	840	213	35	208	292.8	7.7	-20			
18LYS-5136A-8	100	136	1.41	--	3.82	22.44	2.5	0.0568	5.7	22.08	2.7	0.0697	11	0.435	11	0.0453	2.7	.232	285.5	7.5	919	230	319	17	69	285.1	7.6	30			
18LYS-5136A-9	1065	341	0.33	--	44.5	20.58	2.1	0.05217	1.8	20.56	2.1	0.05287	1.7	0.3546	2.7	0.0486	2.1	.769	306.2	6.2	323	39	301.7	8.3	5	306.4	6.2	1			
18LYS-5136A-10	892	420	0.49	0.73	35.8	21.39	1.9	0.0595	2.7	21.55	1.9	0.0536	4.5	0.343	4.9	0.04641	1.9	.395	292.4	5.6	354	100	252	12	17	292.5	5.4	3			
18LYS-5136A-11	286	116	0.42	0.91	11.1	22.2	2.1	0.0564	3.3	22.41	2.2	0.0491	11	0.302	11	0.04463	2.2	.198	281.5	6.1	153	260	252	30	-84	281.3	6.1	-6			
18LYS-5136A-12	486	159	0.34	--	19.5	21.47	2	0.053	2.6	21.41	2	0.0553	3.4	0.356	3.9	0.0467	2	.511	294.2	5.8	424	75	307	14	31	294.6	5.8	6			
Error in Standard calibration was 0.77%.																															
(C) V1109, Tonalitic Orthogneiss, Baidunzi Complex																(40.843991N, 95.603838E)															
<i>inheritance</i>																															
17LYV1109-A1	166	51	0.32	0.74	10.6	13.51	1.9	0.0584	3.2	13.61	1.9	0.0524	6.8	0.531	7.1	0.0735	1.9	.273	457.2	8.5	302	150	429	40	-51	456.6	8.4	-7			
17LYV1109-A2	234	84	0.37	0.30	15.1	13.3	1.9	0.0598	4.4	13.33	1.9	0.0574	5.3	0.593	5.6	0.075	1.9	.333	466.1	8.5	506	120	455	25	8	466.4	8.5	2			
17LYV1109-A3	160	31	0.20	0.77	10.2	13.42	2	0.0621	7	13.53	2	0.0559	9.3	0.57	9.5	0.0739	2	.211	459.7	8.9	449	210	469	58	-2	459.6	8.9	0			
17LYV1109-A5	148	44	0.31	0.93	9.45	13.43	1.9	0.0596	4.7	13.56	2	0.0521	11	0.529	11	0.0738	2	.186	458.8	8.9	288	240	473	63	-59	458.7	8.8	-8			
17LYV1109-A11	344	112	0.34	0.51	20.7	14.27	1.7	0.0582	2.1	14.35	1.7	0.054	4.1	0.519	4.5	0.0697	1.7	.391	434.4	7.3	373	93	433	23	-16	434.0	7.1	-3			
17LYV1109-1.1	85	27	0.33	0.18	5.38	13.53	1.9	0.06	3.6	13.55	1.9	0.0585	4.7	0.596	5.1	0.0738	1.9	.378	459	8.5	549	100	461	27	16	459.4	8.4	4			
17LYV1109-2.1	95	45	0.49	1.55	6.02	13.51	1.9	0.064	4.3	13.72	1.9	0.0514	9.8	0.517	10	0.0729	1.9	.195	453.6	8.5	259	220	420	36	-75	453.2	8.3	-9			
17LYV1109-3.1	134	115	0.89	0.03	8.54	13.49	1.8	0.0582	2.8	13.49	1.8	0.058	4.2	0.593	4.5	0.0741	1.8	.397	460.9	8	530	91	469	14	13	461.3	8.0	3			
17LYV1109-4.1	121	106	0.90	0.11	7.73	13.45	1.8	0.06	2.9	13.47	1.8	0.0591	5.5	0.605	5.8	0.0743	1.8	.318	461.8	8.2	572	120	451	18	19	462.3	8.0	5			
17LYV1109-5.1	100	37	0.38	--	6.46	13.27	1.9	0.0558	3.3	13.18	1.9	0.0617	6.4	0.646	6.7	0.0759	1.9	.286	471.6	8.7	664	140	556	42	29	471.9	8.7	9			
17LYV1109-6.1	320	99	0.32	--	20.9	13.15	1.7	0.0557	1.8	13.13	1.7	0.0571	2.1	0.6	2.7	0.0762	1.7	.613	473.2	7.6	497	47	501	15	5	474.0	7.7	1			
17LYV1109-8.1	146	65	0.46	--	9.23	13.63	1.8	0.0602	2.8	13.61	1.8	0.0611	2.8	0.619	3.3	0.0735	1.8	.543	457	7.9	644	60	445	14	29	458.8	8.0	8			
17LYV1109-9.1	155	73	0.49	--	9.79	13.62	1.8	0.0603	2.9	13.56	1.8	0.0639	2.7	0.65	3.3	0.0737	1.8	.542	458.7	7.8	738	58	476	14	38	459.8	8.0	10			
17LYV1109-11.1	234	91	0.40	0.12	14.3	14.05	1.7	0.0567	2.2	14.06	1.7	0.0558	3.6	0.547	4	0.0711	1.7	.427	442.8	7.4	443	81	415	19	0	442.8	7.2	0			
17LYV1109-12.1	254	35	0.14	0.19	16.8	12.95	1.7	0.0561	2.1	12.97	1.7	0.0546	3.6	0.58	4	0.0771	1.7	.425	478.7	7.9	394	82	490	49	-21	477.8	7.8	-4			
17LYV1109-13.1	90	35	0.40	--	5.53	14.07	1.9	0.0604	3.8	14.06	1.9	0.0607	3.8	0.595	4.3	0.0711	1.9	.441	442.8	8.1	628	83	505	18	29	443.6	8.2	8			
17LYV1109-14.1	173	64	0.38	0.20	10.																										

17LYV1109-17.1	125	33	0.28	1.68	6.89	15.55	2.1	0.0694	3.2	15.82	2.1	0.0558	8.8	0.487	9.1	0.0632	2.1	.236	395.3	8.2	445	200	446	60	11	395.1	8.0	2
17LYV1109-18.2	70	31	0.45	2.68	3.66	16.36	2.1	0.063	8	16.81	2.4	0.041	24	0.337	25	0.0595	2.3	.095	372.6	8.5	-285	620	356	61	231	372.1	8.3	-30
<i>late magmatic overgrowth</i>																												
17LYV1109-A6	185	40	0.22	1.11	7.68	20.7	1.9	0.056	3.4	20.93	1.9	0.047	6.4	0.31	6.7	0.04778	1.9	.292	300.9	5.7	52	150	275	32	-483	300.2	5.6	-10
17LYV1109-A9	62	4	0.07	4.46	2.71	19.61	3.2	0.078	15	20.53	3.7	0.042	48	0.28	49	0.0487	3.7	.077	307	11	-220	1200			242	306.4	11.1	-20
17LYV1109-A13	213	38	0.18	0.54	9	20.37	1.9	0.0598	3.2	20.48	1.9	0.0554	6.3	0.373	6.6	0.04884	1.9	.294	307.4	5.8	430	140	327	43	28	307.5	5.7	5
17LYV1109-A15	89	14	0.16	1.50	3.55	21.61	2.3	0.0671	7.4	21.94	2.6	0.055	19	0.347	19	0.0456	2.6	.137	287.4	7.3	418	420	239	140	31	287.5	7.3	6
17LYV1109-12.2	101	31	0.31	--	4.07	21.34	1.9	0.0619	4.5	21.34	1.9	0.062	4.5	0.401	4.9	0.04687	1.9	.398	295.3	5.6	674	95	332	15	56	294.6	5.5	20
17LYV1109-20.1	603	282	0.48	0.14	24.3	21.35	1.6	0.05398	1.8	21.38	1.7	0.0529	2.9	0.341	3.3	0.04677	1.7	.496	294.7	4.8	324	66	283.7	8.8	9	294.9	4.9	1

Error in Standard calibration was 0.43% in analyses numbered with A, and 0.38% in rest analyses.

(E) S5137, K-feldspar megacrystic granite, Red Granite Unit, Baidunzi Intrusive S(40.90597N, 95.666508E)

<i>inheritance</i>																												
18LYS-5137A-1	531	70	0.14	0.00	68.5	6.653	1.5	0.063	1.8	6.653	1.5	0.063	1.8	1.305	2.3	0.1503	1.5	.621	903	12	707	39	867	30	-28	876.5	11.2	-9
18LYS-5137A-3	451	81	0.19	--	57.7	6.71	1.7	0.0608	2	6.71	1.7	0.0612	2	1.258	2.7	0.1491	1.7	.650	896	15	646	44	880	22	-39	864.7	12.7	-10
18LYS-5137A-4	553	62	0.12	--	67.6	7.02	1.5	0.06402	1.5	7.02	1.5	0.06409	1.5	1.259	2.1	0.1424	1.5	.689	858	12	745	33	831	19	-15	841.4	10.7	-5
18LYS-5137A-7	1020	92	0.09	--	130	6.736	1.4	0.0607	2.5	6.735	1.4	0.0609	2.5	1.247	2.9	0.1485	1.4	.494	892	12	636	54	880	24	-40	876.0	11.0	-10
18LYS-5137A-8	896	66	0.08	0.00	111	6.963	1.4	0.0623	1.6	6.963	1.4	0.0623	1.6	1.234	2.2	0.1436	1.4	.661	865	12	685	35	902	19	-26	844.6	10.4	-8
18LYS-5137A-11	706	89	0.13	0.01	85.3	7.12	1.5	0.0606	2.2	7.12	1.5	0.0605	2.2	1.172	2.7	0.1405	1.5	.569	848	12	621	47	794	17	-36	829.5	11.1	-10
<i>crystallization ages</i>																												
18LYS-5137A-5	1612	1654	1.06	0.02	63.9	21.66	1.4	0.04677	1.7	21.67	1.4	0.04657	1.8	0.2964	2.3	0.04616	1.4	.630	290.9	4	27	42	275.5	4.3	-961	286.5	3.9	-10
18LYS-5137A-6	1717	1056	0.64	--	69.6	21.19	1.4	0.04814	1.6	21.18	1.4	0.04853	1.6	0.3159	2.1	0.04722	1.4	.670	297.4	4.1	125	37	292.4	5.6	-138	293.8	4.0	-7
18LYS-5137A-10	514	497	1.00	0.68	20.6	21.43	1.5	0.0532	2.8	21.58	1.5	0.0478	4.6	0.305	4.8	0.04634	1.5	.311	292	4.3	88	110	279	6.7	-233	291.4	4.3	-9
18LYS-5137A-13	1272	177	0.14	0.02	50.7	21.56	1.4	0.047	3	21.56	1.4	0.0468	3	0.299	3.3	0.04638	1.4	.427	292.2	4.1	40	72	268.2	9	-630	290.5	4.0	-10
18LYS-5137A-14	722	298	0.43	0.02	29.6	20.98	1.5	0.04968	1.6	20.98	1.5	0.0495	2.1	0.3254	2.5	0.04766	1.5	.575	300.2	4.3	173	49	292.9	7.1	-74	298.1	4.3	-5

Error in Standard calibration was 0.29%.

(F) S5146, granite dyke, Quartz-rich granitoid unit, Baidunzi Intrusive Suite (40.85276182N, 95.58913494E)

<i>inheritance</i>																												
18LYS-5146A-8	481	59	0.13	0.53	57.8	7.14	1.5	0.0732	0.89	7.18	1.5	0.0688	1.7	1.321	2.3	0.1393	1.5	.641	840	12	893	36	872	63	6	845.4	11.4	2
<i>crystallization ages</i>																												
18LYS-5146A-3	476	128	0.28	0.06	19.5	20.99	1.5	0.0533	1.9	21	1.5	0.0529	2.1	0.347	2.5	0.04761	1.5	.585	299.9	4.3	322	47	302.4	8	7	300.1	4.4	1
18LYS-5137A-6	909	98	0.11	3.43	37.3	20.92	1.4	0.07643	1.1	21.67	1.5	0.0487	6.4	0.31	6.5	0.04616	1.5	.227	290.9	4.2	135	150	238	83	-115	290.7	4.3	-7
18LYS-5146A-7	873	447	0.53	0.13	34.7	21.6	1.7	0.05225	1.4	21.63	1.7	0.05118	1.8	0.3262	2.4	0.04623	1.7	.689	291.3	4.8	249	40	293	6.4	-17	290.5	4.8	-2
18LYS-5146A-9	911	266	0.30	0.15	36.8	21.26	1.4	0.05293	1.4	21.29	1.4	0.05173	1.5	0.335	2.1	0.04697	1.4	.687	295.9	4.2	273	35	311	6.8	-8	295.6	4.0	-1
18LYS-5146A-10	542	63	0.12	0.66	21	22.14	1.5	0.05575	1.6	22.29	1.5	0.0504	4.3	0.312	4.6	0.04487	1.5	.327	282.9	4.1	215	100	264	40	-32	282.8	4.1	-3
18LYS-5146A-12	981	68	0.07	4.64	40.3	20.92	1.4	0.0857	2.8	21.94	1.5	0.0482	8.8	0.303	9	0.04558	1.5	.167	287.3	4.2	110	210			-162	287.2	4.2	-8
18LYS-5146A-15	893	164	0.19	2.15	37	20.72	1.5	0.0705	1.5	21.18	1.5	0.0533	4.6	0.347	4.9	0.04722	1.5	.306	297.4	4.3	341	100	106	35	13	297.5	4.4	2

Error in Standard calibration was 0.29%.

(G) V1385, hornblende gabbro, Hornblende Diorite Unit, Baidunzi Intrusive Su (40.90597N, 95.666508E)

inheritance																												
18LYV-1385-1.1	791	1012	1.32	0.17	99.9	6.798	1.5	0.06882	1.1	6.809	1.5	0.06742	1.3	1.365	2	0.1469	1.5	.745	883	12	851	27	879	14	-4	877.7	11.1	-2
18LYV-1385-2.1	724	961	1.37	0.04	89.7	6.94	1.5	0.06894	1.3	6.94	1.5	0.0686	1.5	1.363	2.1	0.144	1.5	.703	867	12	887	31	857	14	2	870.1	11.3	1
18LYV-1385-3.1	591	653	1.14	0.28	72.3	7.02	1.7	0.07088	1.3	7.04	1.7	0.0685	1.8	1.343	2.5	0.1421	1.7	.693	856	14	885	37	836	18	3	859.6	13.0	1
18LYV-1385-3.2	93	68	0.76	0.10	11.5	6.98	1.9	0.0681	2.6	6.99	1.9	0.0673	2.8	1.329	3.4	0.1432	1.9	.558	862	15	848	58	857	24	-2	861.7	14.8	-1
18LYV-1385-4.1	460	578	1.30	0.00	56.5	7	1.8	0.0689	1.1	7	1.8	0.06888	1.3	1.357	2.2	0.1429	1.8	.817	861	14	895	26	842	16	4	868.8	12.9	2
18LYV-1385-4.2	278	263	0.98	0.23	35.2	6.78	1.6	0.06912	1.4	6.8	1.6	0.0672	2	1.364	2.5	0.1471	1.6	.621	885	13	844	41	864	21	-5	880.5	12.4	-2
18LYV-1385-5.1	472	483	1.06	0.11	59.2	6.839	1.4	0.07003	1.1	6.847	1.4	0.0691	1.2	1.392	1.9	0.1461	1.4	.767	879	12	902	25	878	15	3	882.6	10.7	1
18LYV-1385-6.1	814	1548	1.97	0.04	107	6.535	1.4	0.06867	0.82	6.538	1.4	0.0683	0.85	1.44	1.6	0.1529	1.4	.857	917	12	878	18	904	15	-5	903.8	9.4	-2
18LYV-1385-6.2	83	61	0.76	0.20	10	7.14	1.8	0.0655	2.6	7.16	1.8	0.0638	2.9	1.23	3.4	0.1397	1.8	.527	843	14	737	62	843	24	-14	836.4	13.6	-5
18LYV-1385-7.1	92	69	0.78	1.26	11.3	6.95	1.8	0.0758	2.3	7.04	1.8	0.0653	5.7	1.278	5.9	0.142	1.8	.306	856	15	783	120	806	37	-9	854.7	14.3	-3
18LYV-1385-8.1	86	62	0.75	1.28	11.2	6.6	2.4	0.0817	2.3	6.68	2.4	0.071	5.3	1.466	5.9	0.1497	2.4	.417	899	21	959	110	942	46	6	900.9	20.0	3
18LYV-1385-9.1	90	66	0.76	0.15	11.2	6.91	1.8	0.0691	2.5	6.92	1.8	0.0679	3.2	1.354	3.7	0.1446	1.8	.491	870	15	866	66	864	26	-1	870.4	14.3	0
18LYV-1385-10.1	426	675	1.64	0.20	48.6	7.53	1.5	0.06866	1.2	7.54	1.5	0.067	1.5	1.224	2.1	0.1325	1.5	.697	802	11	837	31	780	13	4	806.2	10.7	2
18LYV-1385-11.1	112	82	0.76	0.25	14.1	6.79	1.7	0.0705	2.2	6.81	1.7	0.0685	2.6	1.386	3.1	0.1468	1.7	.546	883	14	882	54	872	23	0	883.0	13.6	0
18LYV-1385-12.1	111	91	0.85	0.31	12.6	7.6	1.7	0.067	2.3	7.62	1.7	0.0644	3.8	1.165	4.2	0.1312	1.7	.415	795	13	755	81	718	23	-5	793.7	12.5	-2
18LYV-1385-13.1	509	582	1.18	0.04	63.4	6.89	1.5	0.07081	1	6.9	1.5	0.07048	1.1	1.409	1.8	0.145	1.5	.804	873	12	942	22	856	14	7	889.1	10.8	3
18LYV-1385-14.1	518	618	1.23	0.16	65	6.849	1.4	0.06969	1.1	6.861	1.4	0.06832	1.3	1.373	1.9	0.1458	1.4	.745	877	12	878	27	858	14	0	877.4	10.6	0
18LYV-1385-15.1	583	644	1.14	0.14	73.6	6.807	1.5	0.06867	0.97	6.816	1.5	0.06752	1.2	1.366	1.9	0.1467	1.5	.783	882	12	854	24	874	14	-3	876.5	10.9	-1
18LYV-1385-15.2	85	49	0.59	0.35	6.14	11.95	1.9	0.064	3.5	11.99	1.9	0.0611	4.7	0.703	5	0.0834	1.9	.374	516.3	9.3	644	100	549	23	20	517.2	9.4	6
18LYV-1385-16.1	216	244	1.17	--	27.2	6.81	1.5	0.0672	1.6	6.81	1.5	0.0678	1.7	1.373	2.3	0.1469	1.5	.672	883	13	862	35	882	17	-2	881.3	11.7	-1
18LYV-1385-17.1	339	303	0.92	0.67	41.4	7.04	1.7	0.07157	1.3	7.09	1.7	0.066	2.4	1.284	2.9	0.141	1.7	.589	850	14	807	50	811	19	-5	847.1	12.9	-2
18LYV-1385-17.2	94	68	0.75	0.14	11.9	6.78	1.9	0.072	2.4	6.79	1.9	0.0709	2.7	1.438	3.3	0.1472	1.9	.582	885	16	953	55	889	28	7	889.7	15.4	4

16LYV266-10.1	192	84	0.45	1.44	7.57	21.81	1.9	0.0559	5.2	22.12	2.2	0.0442	21	0.276	21	0.0452	2.2	.103	285	6.2	-99	520	232	48	388	284.8	6.1	-20
16LYV266-11.1	99	50	0.53	4.33	4.18	20.25	1.5	0.0767	7.7	21.17	2.7	0.041	45	0.27	45	0.0472	2.7	.059	297.6	7.7	-260	1100	234	85	215	297.2	7.8	-20
16LYV266-14.2	345	84	0.25	0.78	14.3	20.76	1.1	0.056	2.2	20.92	1.3	0.0497	10	0.328	10	0.04779	1.3	.121	301	3.7	182	240	311	51	-66	300.9	3.8	-5
<i>metamorphic rim</i>																												
16LYV266-5.1	58	23	0.41	0.56	2.2	22.88	2.4	0.0855	10	23.01	3.9	0.081	31	0.49	32	0.0435	3.9	.124	274	11	1,225	620	424	150	78	274.0	10.5	50
16LYV266-6.2	49	14	0.30	12.24	2.25	18.85	1.9	0.1434	3.5	21.48	3.6	0.044	59	0.28	59	0.0466	3.6	.062	293	10	-100	1400			380	293.5	10.3	-20

Error in Standard calibration was 0.23%.

(G-H) S5145, hornblende gabbro, Hornblende Diorite Unit, Baidunzi Intrusive Suite (40.85136576N, 95.59033544E)

<i>magmatic zonation</i>																												
18LYS-5145A-1	285	116	0.42	0.21	11.6	21.19	2.1	0.0524	2.6	21.23	2.1	0.0507	3.1	0.329	3.7	0.0471	2.1	.568	296.7	6.1	226	71	294	10	-31	296.0	6.0	-3
18LYS-5145A-2.1	957	828	0.89	0.07	37.5	21.92	1.6	0.05132	1.5	21.94	1.6	0.05073	1.8	0.3188	2.4	0.04558	1.6	.665	287.3	4.4	229	41	289.2	5.4	-26	286.5	4.4	-3
18LYS-5145A-7	732	535	0.76	0.10	28.9	21.79	1.6	0.05342	1.6	21.81	1.6	0.0526	1.9	0.3328	2.5	0.04584	1.6	.637	288.9	4.5	314	44	284.4	5.8	8	289.2	4.5	1
18LYS-5145A-8.1	380	166	0.45	0.34	14.8	22.12	1.8	0.0543	2.2	22.19	1.8	0.0515	2.8	0.32	3.3	0.04506	1.8	.553	284.1	5.1	265	64	276.7	8.5	-7	284.0	5.0	-1
18LYS-5145A-9	626	61	0.10	0.23	23.8	22.56	1.6	0.05312	1.8	22.62	1.6	0.0513	2.8	0.3124	3.2	0.04421	1.6	.510	278.9	4.5	252	63	245	26	-11	278.8	4.4	-1
18LYS-5145A-10	294	138	0.49	--	11.3	22.39	1.7	0.0506	2.9	22.28	1.7	0.0545	4.4	0.337	4.7	0.04488	1.7	.358	283	4.7	391	99	294	13	28	283.2	4.7	5
18LYS-5145A-11	464	259	0.58	--	18.3	21.82	1.8	0.0519	2.1	21.8	1.8	0.0526	2.3	0.3329	3	0.04587	1.8	.618	289.1	5.2	313	53	285.9	7.4	8	289.3	5.1	1
18LYS-5145A-13.1	238	58	0.25	0.14	9.15	22.38	1.8	0.05	2.9	22.42	1.8	0.0488	3.3	0.3	3.8	0.04461	1.8	.469	281.3	4.9	138	79	273	12	-104	280.3	4.9	-6
18LYS-5145A-15	119	47	0.40	0.51	4.77	21.5	1.9	0.0542	4	21.61	1.9	0.0501	5.4	0.32	5.8	0.04628	1.9	.332	291.7	5.5	199	130	285	15	-47	291.4	5.4	-4
18LYS-5145A-16	1379	1580	1.18	0.00	54.3	21.83	1.6	0.05216	1.2	21.83	1.6	0.05216	1.2	0.3295	2	0.04581	1.6	.793	288.8	4.4	292	27	291.2	5.2	1	288.9	4.5	0
<i>metamorphic rim</i>																												
18LYS-5145A-2.2	172	75	0.45	0.20	6.5	22.73	1.8	0.0502	3.4	22.77	1.8	0.0486	4.2	0.294	4.5	0.04391	1.8	.395	277	4.8	128	98	282	15	-116	276.3	4.9	-6
18LYS-5145A-3	121	53	0.45	0.86	4.9	21.18	2	0.0535	4.1	21.37	2.1	0.0465	13	0.3	13	0.04681	2.1	.163	294.9	6.1	23	310	249	32	-1199	294.7	6.0	-10
18LYS-5145A-4	329	68	0.21	0.54	12.8	22.11	1.7	0.0509	2.5	22.23	1.7	0.0465	5.1	0.288	5.4	0.04498	1.7	.313	283.6	4.7	24	120	227	24	-1076	282.7	4.7	-10
18LYS-5145A-5	60	32	0.55	1.15	2.32	22.25	2.2	0.0575	5.5	22.51	2.3	0.0482	15	0.295	15	0.0444	2.3	.152	280.2	6.4	111	360	269	31	-152	279.9	6.3	-7
18LYS-5145A-6	105	46	0.45	0.33	4.03	22.42	1.9	0.0533	4.1	22.49	1.9	0.0507	5.6	0.311	5.9	0.04446	1.9	.325	280.4	5.3	227	130	261	14	-23	280.3	5.2	-2
18LYS-5145A-8.2	144	52	0.38	0.45	5.47	22.58	1.9	0.0573	5.9	22.69	1.9	0.0537	6.9	0.326	7.1	0.04408	1.9	.263	278.1	5.1	359	150	265	14	22	278.1	5.2	3
18LYS-5145A-12	49	23	0.48	1.51	1.93	21.74	2.4	0.0553	6.3	22.08	2.8	0.043	29	0.269	29	0.0453	2.8	.095	285.6	7.8	-166	720	247	60	272	285.4	7.8	-20
18LYS-5145A-13.2	130	71	0.56	0.35	5.05	22.13	1.9	0.0534	3.8	22.21	1.9	0.0506	4.6	0.314	5	0.04502	1.9	.374	283.9	5.2	221	110	298	13	-29	283.7	5.3	-3
18LYS-5145A-14	314	182	0.60	0.12	11.8	22.81	1.7	0.0525	2.6	22.84	1.7	0.0515	2.9	0.311	3.3	0.04379	1.7	.507	276.3	4.6	265	66	276.5	7.5	-4	276.2	4.6	-1

Error in Standard calibration was 0.56%.

(I-J) V1384, leuco-diorite, Tonalite Unite, Baidunzi Intrusive Suite

(40.905513N, 95.666233E)

inheritance																												
18LYV-1384-1	1241	111	0.09	1.08	112	9.49	1.4	0.07738	0.68	9.6	1.4	0.0687	1.7	0.986	2.2	0.1042	1.4	.631	639	8.4	888	35	459	77	28	645.9	8.6	10
18LYV-1384-2	755	46	0.06	0.08	92.1	7.05	1.5	0.06813	1.3	7.05	1.5	0.06749	1.3	1.32	2	0.1418	1.5	.738	855	12	853	28	677	39	0	854.6	11.0	0
18LYV-1384-6.1	493	115	0.24	1.58	26.7	15.85	1.6	0.078	2	16.11	1.7	0.0654	6.2	0.56	6.5	0.0621	1.7	.263	388.2	6.4	788	130	767	56	51	388.2	6.4	20
18LYV-1384-10.1	539	193	0.37	0.37	62.8	7.38	1.4	0.07036	0.91	7.4	1.4	0.0673	1.5	1.253	2	0.1351	1.4	.687	817	11	846	31	927	22	3	820.1	10.2	1
high-U magmatic zonation																												
18LYV-1384-10.2	3562	598	0.17	5.63	146	21.02	1.4	0.0995	1.4	22.28	1.5	0.0544	8.4	0.337	8.6	0.04489	1.5	.171	283.1	4	388	190	295	81	27	283.1	4.2	5
18LYV-1384-6.2	2621	373	0.15	--	104	21.56	1.4	0.05171	0.88	21.55	1.4	0.05194	0.9	0.3322	1.6	0.04639	1.4	.835	292.3	3.9	283	21	291.9	5.7	-3	291.8	3.8	0
18LYV-1384-5.1	2496	419	0.17	0.88	103	20.8	1.4	0.05936	0.8	20.98	1.4	0.0523	2	0.3438	2.5	0.04766	1.4	.558	300.1	4	300	46	302	17	0	300.1	4.1	0
18LYV-1384-5.2	877	434	0.51	0.15	36	20.95	1.4	0.05536	1.5	20.98	1.4	0.05415	1.5	0.3559	2.1	0.04767	1.4	.676	300.2	4.1	377	35	309.6	5.9	20	300.8	4.1	3
18LYV-1384-15	764	416	0.56	0.04	29.1	22.55	1.6	0.05464	1.5	22.56	1.6	0.05429	1.6	0.3317	2.3	0.04432	1.6	.719	279.6	4.5	383	36	273.7	5.7	27	280.0	4.4	5
18LYV-1384-11	615	569	0.96	--	24.4	21.66	1.5	0.05296	1.7	21.65	1.5	0.0531	1.7	0.3381	2.3	0.04618	1.5	.663	291	4.3	333	39	288.5	5.4	13	291.4	4.3	2
18LYV-1384-7	705	279	0.41	0.85	27.2	22.28	1.4	0.05556	1.6	22.48	1.4	0.0487	3.8	0.299	4	0.04449	1.4	.354	280.6	3.9	133	89	265	11	-110	280.2	3.8	-6
18LYV-1384-14	600	346	0.59	0.22	23.6	21.81	1.4	0.0527	2	21.85	1.4	0.051	2.5	0.3216	2.9	0.04576	1.4	.499	288.4	4.1	240	58	280.3	6.3	-20	288.2	3.9	-2
18LYV-1384-3	480	189	0.41	0.10	19.4	21.22	1.5	0.0526	2	21.24	1.5	0.0518	2.6	0.336	3	0.04707	1.5	.489	296.5	4.2	276	60	299.6	8.6	-7	296.4	4.3	-1
18LYV-1384-16	476	161	0.35	0.18	18.7	21.89	1.5	0.05076	2	21.93	1.5	0.0493	2.8	0.3102	3.2	0.0456	1.5	.460	287.5	4.1	163	66	276.6	9.4	-76	286.6	4.2	-5
18LYV-1384-9	446	188	0.44	0.15	17.9	21.45	1.5	0.0531	2	21.49	1.5	0.0519	2.1	0.3332	2.5	0.04654	1.5	.576	293.3	4.2	282	48	283.9	6.7	-4	293.1	4.3	-1
18LYV-1384-13	434	215	0.51	0.10	17.1	21.75	1.5	0.0537	2	21.77	1.5	0.053	2.3	0.3354	2.7	0.04593	1.5	.534	289.5	4.2	327	53	285	6.9	11	289.8	4.2	2
18LYV-1384-4	428	163	0.39	--	17.2	21.42	1.5	0.0515	2.1	21.41	1.5	0.0516	2.1	0.3325	2.5	0.0467	1.5	.578	294.2	4.2	270	47	297.5	7.1	-9	293.9	4.3	-1
18LYV-1384-12	419	174	0.43	0.25	16.4	21.88	1.5	0.0533	2	21.93	1.5	0.0513	2.5	0.3226	2.9	0.0456	1.5	.520	287.4	4.2	255	57	281.2	7.6	-13	287.3	4.2	-1
18LYV-1384-8	367	138	0.39	0.18	15.1	20.85	1.5	0.0533	2.2	20.89	1.5	0.0498	2.7	0.329	3.1	0.04787	1.5	.500	301.4	4.5	187	62	288.8	8.7	-61	300.7	4.4	-1

17LYV1096-17	100	47	0.49	2.99	3.81	22.64	1.6	0.0667	8.2	23.34	2.2	0.042	31	0.251	31	0.04284	2.2	.070	270.4	5.8	-199	780	218	56	236	270.3	5.8	-20
Error in Standard calibration was 0.22%.																												
(K) V385, garnet leuco-granite, Leucogranodiote Uni														(40.9162911N, 95.6905927E)														
core structures (inheritance)																												
1617LYV385-1.1	3164	1694	0.55	6.82	154	17.7	0.98	0.10606	0.6	18.99	1.1	0.051	7.1	0.371	7.2	0.05265	1.1	.149	330.8	3.5	243	160	310	30	-36	330.7	3.5	-3.7
1617LYV385-4.1	393	304	0.80	2.45	40.6	8.31	1.5	0.072	2.4	8.52	1.6	0.0516	9	0.835	9.2	0.1174	1.6	.175	716	11	266	210	747	38	-169	712.7	10.7	-20
1617LYV385-5.1	1522	25	0.02	0.01	191	6.831	10	0.069	0.64	6.831	10	0.06895	0.64	1.392	1.2	0.1464	10	.841	880.7	8.2	897	13	963	65	2	885.9	4.1	0.84
1617LYV385-7.1	525	95	0.19	0.20	59.5	7.575	1.1	0.0692	1.6	7.59	1.1	0.0676	1.8	1.227	2.1	0.1317	1.1	.500	797.8	8	855	38	767	27	7	800.2	8.1	2.7
1617LYV385-8.1	578	75	0.13	0.08	73	6.8	1	0.07021	0.96	6.805	1	0.06955	1	1.409	1.5	0.1469	1	.700	883.8	8.5	915	22	912	32	3	886.9	7.9	1.4
1617LYV385-10.1	560	125	0.23	0.15	90.6	5.312	1	0.08701	0.9	5.32	1	0.08577	1.1	2.223	1.5	0.188	1	.697	1,110	11	1,333	21	1,252	28	17	1139.5	10.2	10
1617LYV385-11.1	813	504	0.64	29.02	143	4.895	10	0.2996	0.41	6.9	2.3	0.055	32	1.1	32	0.145	2.3	.071	873	18	423	710	836	370	-106	872.1	18.7	-21
rim structures (inheritance)																												
1617LYV385-3.1	393	304	0.80	2.55	16.2	20.83	1.2	0.072	2.4	21.37	1.3	0.0515	9.1	0.332	9.1	0.04679	1.3	.139	294.8	3.7	265	210	300	15	-11	294.8	3.7	-1.5
1617LYV385-9.1	3134	1036	0.34	0.42	128	21.05	0.99	0.05541	0.86	21.14	10	0.05203	1.6	0.3393	1.9	0.0473	10	.536	297.9	2.9	287	36	303.8	6.8	-4	296.6	4.5	-0.64
1617LYV385-12.1	2230	835	0.39	19.68	111	17.22	0.99	0.2068	1.4	21.44	1.6	0.048	23	0.309	23	0.04665	1.6	.069	293.9	4.6	97	540	155	120	-202	293.9	4.6	-8.3
Error in Standard calibration was 0.22%.																												
(L) V1097, garnet leuco-tonalite, Leucogranodiote U														(40.877236197N, 95.62175309E)														
core structures (inheritance)																												
17LYV1097-1.1	453	70	0.16	2.53	58.4	6.66	1.6	0.08891	0.94	6.83	1.7	0.0679	3.7	1.367	4.1	0.1462	1.7	.411	880	14	864	77	889	140	-2	879.1	13.7	-1
17LYV1097-2.1	546	82	0.16	0.31	68	6.9	1.6	0.07061	0.94	6.92	1.6	0.068	1.2	1.354	2	0.1444	1.6	.797	870	13	868	25	892	33	0	869.3	11.5	0
17LYV1097-3.1	377	67	0.18	0.23	47.3	6.84	1.6	0.06977	1.1	6.85	1.6	0.0679	1.5	1.366	2.2	0.1459	1.6	.732	878	13	865	32	858	35	-1	876.1	12.1	-1
17LYV1097-4.1	260	110	0.44	0.56	29.4	7.6	1.7	0.07217	1.4	7.65	1.7	0.0676	2.6	1.218	3.1	0.1307	1.7	.541	792	13	855	54	852	30	7	794.9	12.4	3
17LYV1097-5.1	594	56	0.10	0.00	76.7	6.66	1.6	0.06816	0.92	6.66	1.6	0.06816	0.94	1.412	1.9	0.1502	1.6	.865	902	14	873	19	907	25	-3	893.3	11.2	-1
17LYV1097-6.1	290	65	0.23	0.29	36.8	6.78	1.7	0.06951	1.3	6.8	1.7	0.0671	2	1.36	2.6	0.147	1.7	.643	884	14	841	42	745	38	-5	879.2	13.1	-2
17LYV1097-7.1	550	69	0.13	0.02	72.4	6.52	1.6	0.06867	0.91	6.52	1.6	0.06853	0.97	1.449	1.9	0.1534	1.6	.860	920	14	885	20	842	24	-4	908.5	11.3	-2
17LYV1097-8.1	460	73	0.16	1.40	52.5	7.52	1.6	0.08287	0.96	7.63	1.7	0.0714	4.1	1.289	4.4	0.131	1.7	.375	794	12	968	84	941	130	18	796.5	12.7	8
17LYV1097-9.1	516	99	0.20	--	66.8	6.63	1.6	0.06839	0.96	6.63	1.6	0.06916	1.3	1.439	2.1	0.1509	1.6	.775	906	14	903	27	960	35	0	905.5	12.2	0
17LYV1097-10.1	654	127	0.20	1.12	61.4	9.16	1.6	0.07437	0.99	9.26	1.6	0.0652	2.6	0.971	3.1	0.1079	1.6	.530	661	10	782	55	467	50	16	663.1	10.0	6
17LYV1097-11.1	341	49	0.15	9.22	47.8	6.12	1.7	0.1407	0.83	6.74	1.8	0.0636	9.9	1.29	10	0.1477	1.8	.182	888	15	725	210	917	480	-23	886.9	14.9	-8
17LYV1097-12.1	844	152	0.19	4.31	110	6.59	1.6	0.104	2.6	6.89	1.7	0.0682	8.6	1.36	8.8	0.1448	1.7	.198	872	14	875	180	848	250	0	871.8	13.8	0
17LYV1097-13.1	421	42	0.10	0.15	53.2	6.79	1.6	0.0696	1.1	6.8	1.6	0.06836	1.3	1.386	2.1	0.147	1.6	.781	884	14	880	27	766	43	-1	883.4	12.0	0
17LYV1097-14.1	322	64	0.21	--	40.9	6.77	1.7	0.06859	1.2	6.76	1.7	0.06956	1.2	1.418	2.1	0.1479	1.7	.807	889	14	916	25	904	23	3	895.0	12.5	1
17LYV1097-15.1	502	89	0.18	0.58	109	3.971	1.7	0.1095	0.94	3.994	1.7	0.1047	1.3	3.611	2.1	0.2502	1.7	.788	1,440	21	1,708	24	1,281	77	16	1555.5	18.0	12
rim structures (inheritance)																												
17LYV1097-8.2	4262	600	0.15	7.23	221	16.59	1.6	0.1097	1.5	17.88	1.7	0.0513	7.5	0.396	7.7	0.05596	1.7	.220	351	5.8	254	170	351	130	-38	350.9	5.8	-4
17LYV1097-13.2	2507	22	0.01	2.08	115	18.75	1.6	0.06957	0.83	19.15	1.6	0.0529	3.1	0.381	3.5	0.05223	1.6	.466	328.2	5.2	322	70	750	600	-2	328.2	5.1	0
17LYV1097-15.2	1139	48	0.04	0.03	133	7.34	1.6	0.06737	0.71	7.35	1.6	0.06712	0.84	1.26	1.8	0.1361	1.6	.887	823	12	842	17	791	54	2	829.2	10.2	1
Error in Standard calibration was 0.38%.																												

Errors are 1-sigma; Pb_c and Pb^{*} indicate the common and radiogenic portions, respectively.

Error in Standard calibration was not included in above errors but required when comparing data from different mounts.

Common Pb corrected using measured ²⁰⁴Pb.

the relative age difference (%) between the 206Pb/238U and 207Pb/206Pb ages

the logratio distance (%) measured along a line connecting the measured composition and the corresponding single grain concordia age composition.

Chapter 4 Table SM2.2: U-PB TITANITE GEOCHRONOLOGY OF SAMPLE V1109 AND STANDARDS

Sample Name	Ca44_CPS	U (ppm)	Th (ppm)	U/Th	204PbCps	2σ int	%	206PbCps/ 204PbCps	%Pb*	207Pb/ 235U	2σ	206Pb/ 238U	2σ	err. corr.	207Pb/ 206Pb	2σ	207Pb/ 235U	2σ	206Pb/ 238U	2σ	%conc	238U/ 206Pb	2σ	207Pb/ 206Pb	2σ	err. corr.		
BLR-1 - 1	6.27E+06	322.51	200.76	1.61	29	195600	674482.8	52	100.00	1.801	0.029	0.176	0.003	0.116	0.0743	0.0007	1048	12	1045	11	1047	15	100.3	5.67	0.09	0.074	0.001	0.47
BLR-1 - 2	6.24E+06	268.87	149.35	1.80	21	163700	779523.8	62	100.00	1.797	0.031	0.176	0.003	0.322	0.0742	0.0007	1048	9	1045	11	1047	15	100.5	5.67	0.09	0.074	0.001	0.03
BLR-1 - 3	6.09E+06	313.22	195.86	1.60	26	187500	721153.8	65	100.00	1.826	0.029	0.176	0.003	0.018	0.0743	0.0007	1058	10	1055	10	1047	15	99.6	5.67	0.09	0.075	0.001	0.39
BLR-1 - 4	6.15E+06	314.8	202.16	1.56	30	189000	630000.0	57	100.00	1.786	0.030	0.176	0.003	0.133	0.0741	0.0007	1042	8	1040	11	1047	15	100.3	5.67	0.09	0.074	0.001	0.16
BLR-1 - 5	5.82E+06	328	229.86	1.43	26	190300	731923.1	62	100.00	1.789	0.031	0.176	0.003	0.024	0.0743	0.0008	1052	13	1041	11	1047	15	101.6	5.67	0.09	0.074	0.001	0.27
BLR-1 - 6	5.98E+06	303.9	187.51	1.62	24	177700	740416.7	46	100.00	1.820	0.034	0.176	0.003	0.217	0.0743	0.0009	1044	10	1052	12	1048	15	98.7	5.67	0.09	0.074	0.001	0.10
BLR-1 - 7	5.85E+06	315.85	196.54	1.61	23	184300	801304.3	78	100.00	1.807	0.031	0.176	0.003	0.188	0.0740	0.0007	1043	11	1048	11	1047	15	99.2	5.67	0.09	0.074	0.001	0.15
BLR-1 - 8	5.86E+06	265.03	149.42	1.77	26	155300	597307.7	42	100.00	1.798	0.031	0.176	0.003	0.014	0.0742	0.0008	1052	12	1045	11	1044	15	98.9	5.69	0.09	0.074	0.001	0.36
BLR-1 - 9	5.76E+06	306.52	191.45	1.60	31	178000	574193.5	48	100.00	1.812	0.029	0.177	0.003	0.066	0.0742	0.0007	1045	11	1050	11	1050	15	100.7	5.65	0.09	0.074	0.001	0.46
BLR-1 - 10	5.79E+06	265.14	150.95	1.76	26	154600	594615.4	42	100.00	1.812	0.032	0.176	0.003	0.090	0.0741	0.0008	1054	15	1049	11	1047	15	99.4	5.67	0.09	0.074	0.001	0.22
BLR-1 - 11	5.72E+06	322.09	207.27	1.55	25	187000	748000.0	44	100.00	1.815	0.030	0.176	0.003	0.142	0.0745	0.0006	1054	12	1051	11	1047	15	99.5	5.67	0.09	0.075	0.001	0.26
BLR-1 - 12	5.49E+06	324.72	212.89	1.53	23	181800	790434.8	83	100.00	1.821	0.029	0.176	0.003	0.195	0.0745	0.0006	1050	10	1053	11	1047	15	99.5	5.67	0.09	0.075	0.001	0.30
BLR-1 - 13	5.22E+06	308	237.32	1.30	29	165300	570000.0	55	100.00	1.794	0.031	0.176	0.003	0.125	0.0742	0.0007	1054	13	1043	11	1047	15	101.6	5.67	0.08	0.074	0.001	0.19
BLR-1 - 14	5.40E+06	275.5	194.4	1.42	24	151380	630750.0	25	100.00	1.794	0.030	0.176	0.003	0.079	0.0744	0.0008	1051	11	1043	11	1047	15	101.2	5.67	0.09	0.074	0.001	0.33
BLR-1 - 15	5.45E+06	279.6	153.25	1.82	30	156600	522000.0	40	100.00	1.803	0.030	0.176	0.003	0.030	0.0744	0.0007	1051	10	1048	11	1047	15	99.3	5.67	0.09	0.074	0.001	0.36
BLR-1 - 16	5.35E+06	309.1	191	1.62	24	170800	711666.7	58	100.00	1.803	0.030	0.176	0.003	0.116	0.0741	0.0007	1047	11	1047	11	1047	15	99.9	5.67	0.09	0.074	0.001	0.29
MKED - 1	6.82E+06	121.72	362.8	0.34	26	120440	463230.8	33	100.00	3.454	0.057	0.267	0.004	0.180	0.0944	0.0009	1524	9	1517	13	1525	21	100.9	3.75	0.06	0.094	0.001	0.26
MKED - 2	6.52E+06	120.73	352.1	0.34	23	117760	512000.0	37	100.00	3.505	0.060	0.266	0.004	0.009	0.0953	0.0011	1530	12	1528	14	1520	21	99.8	3.76	0.06	0.095	0.001	0.44
MKED - 3	6.09E+06	136.91	400.8	0.34	23	129030	561000.0	41	100.00	3.498	0.060	0.270	0.004	0.162	0.0946	0.0010	1523	12	1526	14	1539	21	100.5	3.71	0.06	0.095	0.001	0.35
MKED - 4	6.52E+06	130.44	400.6	0.33	41	124410	303439.0	22	100.00	3.510	0.069	0.265	0.004	0.129	0.0956	0.0013	1534	12	1529	16	1516	22	99.4	3.77	0.06	0.096	0.001	0.30
MKED - 5	5.89E+06	117.72	346.8	0.34	22	107350	487954.5	40	100.00	3.468	0.062	0.265	0.004	0.363	0.0949	0.0010	1529	12	1519	14	1516	21	98.9	3.77	0.06	0.095	0.001	0.15
MKED - 6	5.89E+06	131.88	384	0.34	25	120000	480000.0	48	100.00	3.492	0.058	0.267	0.004	0.193	0.0948	0.0010	1517	9	1526	13	1523	21	99.0	3.75	0.06	0.095	0.001	0.31
MKED - 7	5.70E+06	123.07	357.5	0.34	23	108100	470000.0	52	100.00	3.529	0.062	0.267	0.004	0.265	0.0967	0.0010	1558	12	1533	14	1528	21	97.0	3.74	0.06	0.097	0.001	0.12
MKED - 8	5.66E+06	201.54	699.6	0.29	24	177400	739166.7	71	100.00	3.469	0.054	0.265	0.004	0.178	0.0948	0.0007	1525	6	1520	12	1517	21	99.4	3.77	0.06	0.095	0.001	0.37
V-1109 - 1	6.49E+06	69.33	74.3	0.93	25	13020	52080.0	6	90.69	0.910	0.026	0.052	0.001	0.211	0.1268	0.0033	2031	22	656	14	329	6	50.2	19.07	0.34	0.127	0.003	0.13
V-1109 - 2	6.51E+06	89.97	408.9	0.22	28	16100	57500.0	6	92.83	0.750	0.020	0.050	0.001	0.120	0.1095	0.0025	1785	25	569	11	313	5	55.0	20.13	0.35	0.110	0.003	0.29
V-1109 - 3	6.35E+06	147.63	313.3	0.47	30	25850	86166.7	10	93.65	0.688	0.016	0.049	0.001	0.088	0.1027	0.0022	1671	26	532	10	308	5	58.0	20.41	0.34	0.103	0.002	0.41
V-1109 - 4	6.67E+06	134.9	735	0.18	27	23910	88555.6	10	94.31	0.648	0.015	0.049	0.001	0.214	0.0975	0.0019	1587	20	507	9	306	5	60.4	20.56	0.34	0.098	0.002	0.14
V-1109 - 5	6.67E+06	101.1	134.6	0.75	33	24440	74060.6	6	70.65	2.639	0.054	0.066	0.001	0.471	0.2884	0.0036	3414	15	1311	15	415	7	31.7	15.04	0.25	0.288	0.004	0.07
V-1109 - 6	6.51E+06	105.1	223	0.47	26	19110	73500.0	26	92.84	0.759	0.019	0.051	0.001	0.149	0.1095	0.0026	1801	26	573	11	320	5	55.8	19.66	0.33	0.110	0.003	0.23
V-1109 - 7	6.49E+06	83.3	133.8	0.62	30	15980	53266.7	11	90.79	0.916	0.024	0.053	0.001	0.104	0.1259	0.0030	2038	25	660	12	333	6	50.4	18.88	0.32	0.126	0.003	0.29
V-1109 - 8	6.59E+06	153.88	212.2	0.73	23	27610	120043.5	9	94.28	0.675	0.016	0.050	0.001	0.097	0.0979	0.0021	1589	21	525	10	314	5	59.9	20.02	0.32	0.098	0.002	0.19
V-1109 - 9	6.52E+06	97.98	138.52	0.71	22	18270	83045.5	10	90.64	0.899	0.028	0.051	0.001	0.209	0.1267	0.0034	2054	33	651	15	323	5	49.5	19.49	0.33	0.127	0.003	0.11
V-1109 - 10	6.29E+06	80.72	293.9	0.27	23	13880	60347.8	12	92.41	0.753	0.020	0.049	0.001	0.139	0.1122	0.0027	1823	29	571	11	308	5	53.9	20.46	0.35	0.112	0.003	0.23
V-1109 - 11	6.83E+06	34.55	37.67	0.92	28	7940	28357.1	4	77.23	1.995	0.060	0.062	0.001	0.212	0.2333	0.0066	3066	31	1113	20	390	8	35.0	16.04	0.31	0.233	0.007	0.23
V-1109 - 12	6.14E+06	71.49	125.2	0.57	38	13540	35631.6	7	89.64	0.992	0.042	0.054	0.001	0.539	0.1346	0.0048	2176	54	701	22	338	7	48.3	18.55	0.38	0.135	0.005	-0.24
V-1109 - 13	6.54E+06	183	707	0.26	28	32590	116392.9	8	94.92	0.624	0.017	0.049	0.001	0.335	0.0924	0.0019	1477	33	493	10	308	5	62.5	20.45	0.33	0.092	0.002	-0.06
V-1109 - 14	6.48E+06	152.41	797.4	0.19	24	26040	108500.0	9	95.02	0.609	0.014	0.048	0.001	0.359	0.0914	0.0019	1444	23	483	9	304	5	63.0	20.70	0.33	0.091	0.002	-0.03
V-1109 - 15	6.04E+06	109.9	475.3	0.23	35	20560	58742.9	9	85.28	1.243	0.045	0.053	0.001	0.465	0.1678	0.0051	2538	38	821	21	335	6	40.8	18.75	0.33	0.168	0.005	-0.17
V-1109 - 16	6.51E+06	123.14	612.6	0.20	20	21830	109150.0	16	95.69	0.590	0.015	0.050	0.001	0.039	0.0865	0.0020	1531	26	471	10	312	5	66.2	20.18	0.33	0.087	0.002	0.31
V-1109 - 17	6.51E+06	93.99	194.7	0.48	21	17310	82428.6	8	91.15	0.862	0.021	0.051	0.001	0.302	0.1219	0.0024	1984	20	631	11	322	6	51.0	19.54	0.34	0.122	0.002	0.16
V-1109 - 18	6.58E+06	59.71	185	0.32	22	11070	50318.2	8	92.91	0.760	0.025	0.051	0.001	0.106	0.1087	0.0033	1774	31	575	14	320	6	55.6	19.66	0.34	0.109	0.003	0.24
V-1109 - 19	6.04E+06	98.2	393.4	0.25	68	21800	32058.8	18	70.70	2.740	0.130	0.069	0.002	0.652	0.2869	0.0098												

Sample Name	6240000	U (ppm)	Th (ppm)	U/Th	204PbCps	2σ int	%	206Pbcps/ 204PbCps	%Pb*	207Pb/ 235U	2σ	206Pb/ 238U	2σ	err. corr.	207Pb/ 206Pb	2σ	207Pb/ 206Pb	2σ	207Pb/ 235U	2σ	206Pb/ 238U	2σ	%conc	238U/ 206Pb	2σ	207Pb/ 206Pb	2σ	err. corr.
V-1109 - 59	6.14E+06	67.99	69.8	0.97	25	13040	52160.0	5	83.33	1.412	0.034	0.056	0.001	0.316	0.1831	0.0037	2689	23	894	15	349	6	39.0	17.99	0.31	0.183	0.004	0.12
V-1109 - 60	6.12E+06	75.48	310.2	0.24	25	13450	53800.0	6	91.37	0.858	0.023	0.052	0.001	0.328	0.1200	0.0026	1950	25	629	13	325	5	51.6	19.36	0.33	0.120	0.003	0.08
V-1109 - 61	6.24E+06	35.39	30.53	1.16	22	6800	30909.1	5	86.96	1.160	0.037	0.054	0.001	0.026	0.1554	0.0048	2409	28	779	17	339	6	43.5	18.54	0.34	0.155	0.005	0.37
V-1109 - 62	6.24E+06	129.7	144.16	0.90	18	22130	122944.4	10	93.67	0.689	0.016	0.049	0.001	0.123	0.1024	0.0020	1672	18	532	10	306	5	57.6	20.56	0.33	0.102	0.002	0.18
V-1109 - 63	6.13E+06	165.69	382.1	0.43	22	27900	126818.2	17	95.27	0.605	0.014	0.049	0.001	0.079	0.0896	0.0017	1420	18	480	9	307	5	64.0	20.49	0.33	0.090	0.002	0.32
V-1109 - 64	6.13E+06	74.63	105.5	0.71	22	13220	60090.9	7	91.84	0.830	0.022	0.051	0.001	0.149	0.1170	0.0026	1922	23	612	12	320	5	52.3	19.65	0.33	0.117	0.003	0.26
V-1109 - 65	6.17E+06	106.12	317.9	0.33	23	18900	82173.9	12	91.98	0.811	0.021	0.051	0.001	0.333	0.1159	0.0024	1890	22	603	12	319	5	53.0	19.69	0.34	0.116	0.002	0.06
V-1109 - 66	6.11E+06	84.45	63.33	1.33	20	15220	76100.0	12	90.27	0.946	0.027	0.052	0.001	0.375	0.1300	0.0027	2100	23	676	14	328	6	48.5	19.16	0.33	0.130	0.003	0.03
V-1109 - 67	6.17E+06	90.39	207.6	0.44	21	15970	76047.6	9	92.03	0.810	0.021	0.050	0.001	0.145	0.1157	0.0026	1913	22	602	12	317	5	52.7	19.82	0.35	0.116	0.003	0.24
V-1109 - 68	6.17E+06	143.6	186.6	0.77	22	24390	110863.6	19	94.75	0.635	0.015	0.049	0.001	0.189	0.0942	0.0017	1511	19	499	9	307	5	61.6	20.48	0.34	0.094	0.002	0.21
V-1109 - 69	6.04E+06	138.19	980	0.14	22	23310	105954.5	10	94.24	0.657	0.018	0.049	0.001	0.369	0.0976	0.0023	1557	28	512	11	311	5	60.8	20.21	0.33	0.098	0.002	-0.05
V-1109 - 70	6.06E+06	63.09	170	0.37	27	11740	43481.5	6	86.54	1.200	0.032	0.054	0.001	0.071	0.1595	0.0041	2468	23	799	15	341	6	42.6	18.44	0.32	0.160	0.004	0.30

Chapter 4 Table SM3: GEOCHEMISTRY OF IGNEOUS AND METAMORPHIC ROCKS FROM BAIDUNZI COMPLEX

region	Host Orthogneiss				Baidunzi Intrusive Suite														Hbl gabbro-diorite phase												
	Tonalitic orthogneiss		Granitic orthogneiss		leucocratic layer		injection		injection		dyke		granite		granodiorite		granite		gabbro		gabbro		diorite		diorite		diorite		diorite (no qtz)		diorite
Sample_Name	17LYV1109	19LYH3616A	19LYH3564B	19LYH3535	18LYY5137	18LYY55143	18LYY55136	18LYY55144	16LYV370	16LYV372b	18LYV1266	1617LYV1658	18LYY55145	18LYV1385	16LYV386a	16LYV266a	17LYV1096B	18LYV1382drt	16LYV266b												
Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19												
Lantitude	40.843991	40.84363282	40.86438016	40.8555948	40.85668361	40.84722654	40.85565646	40.84724774	40.887193	40.881197	40.861392	40.937391	40.85136576	40.905977	40.91476	40.898281	40.88392097	40.951255	40.898281												
Longitude	95.603838	95.60395777	95.71361854	95.62871424	95.62936292	95.6005941	95.62850897	95.59234974	95.677483	95.657581	95.66123	95.691462	95.59033544	95.666504	95.690581	95.636335	95.62462602	95.726400	95.636335												
SiO ₂ (wt%)	64.15	63.10	73.30	72.50	72.70	72.80	76.20	76.40	75.00	74.40	77.10	47.08	50.00	46.80	50.60	51.70	54.30	57.00	58.00												
TiO ₂	0.50	0.58	0.50	0.20	0.20	0.09	0.06	0.07	0.14	0.24	0.09	1.46	0.63	1.22	1.29	0.77	1.04	1.03	0.83												
Al ₂ O ₃	14.30	15.00	13.50	14.00	13.55	14.15	12.75	13.25	13.05	13.50	12.75	17.08	18.00	15.90	17.35	17.60	18.40	16.75	17.30												
TFe ₂ O ₃	4.76	5.12	3.44	1.49	1.56	0.81	0.43	0.56	1.53	2.29	0.86	10.36	6.49	11.45	9.65	8.82	7.53	5.97	6.43												
MgO	2.39	2.73	0.87	0.45	0.40	0.22	0.11	0.14	0.23	0.43	0.13	8.04	8.01	7.72	4.29	5.42	4.37	3.64	3.45												
MnO	0.08	0.07	0.03	0.02	0.03	0.01	<0.01	<0.01	0.04	0.05	0.01	0.16	0.11	0.17	0.16	0.17	0.14	0.10	0.11												
CaO	7.87	8.20	1.42	2.07	1.66	1.49	1.13	0.62	1.36	2.04	0.97	8.71	11.55	10.40	7.67	9.65	6.99	6.30	6.59												
Na ₂ O	3.91	4.24	2.42	3.35	3.31	2.71	3.25	2.60	3.96	4.31	3.12	2.18	2.39	1.55	2.75	3.40	4.10	3.33	4.12												
K ₂ O	0.84	0.90	4.71	4.30	4.40	6.84	4.80	6.21	3.32	1.97	5.34	1.62	1.04	0.93	2.35	0.35	0.82	1.71	0.66												
P ₂ O ₅	0.08	0.10	0.17	0.10	0.05	0.09	0.01	0.02	0.03	0.06	0.03	0.27	0.06	0.13	0.22	0.29	0.19	0.08	0.20												
BaO	0.02	0.02	0.05	0.07	0.04	0.09	0.04	0.06	0.06	0.05	0.04	0.04	0.01	0.02	0.02	0.02	0.02	0.03	0.03												
LOI 1000	1.14	1.05	1.50	1.95	0.99	1.29	0.75	0.71	0.74	1.10	0.61	2.87	2.16	2.68	1.89	1.59	2.18	3.38	1.45												
Total	100.04	101.11	101.91	100.50	98.89	100.59	99.53	100.64	99.46	100.44	101.05	99.87	100.45	98.97	98.24	99.78	100.08	99.32	99.17												
TFeO	4.28	4.61	3.10	1.34	1.40	0.73	0.39	0.50	1.38	2.06	0.77	9.32	5.84	10.31	8.69	7.94	6.78	5.37	5.79												
Cd (ppm)	0.09	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.09	0.50	0.50	<0.5	0.70	<0.5	<0.5	<0.5												
Co	11.70	12.00	6.00	1.00	3.00	<1	<1	<1	1.00	2.00	1.00	34.90	29.00	47.00	28.00	23.00	22.00	19.00	17.00												
Cu	5.70	3.00	9.00	9.00	3.00	4.00	3.00	3.00	2.00	2.00	3.00	43.80	64.00	47.00	27.00	30.00	25.00	8.00	35.00												
Li	2.80	10.00	40.00	20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	16.30	10.00	20.00	50.00	10.00	10.00	30.00	10.00												
Mo	0.18	<1	1.00	<1	<1	<1	<1	1.00	<1	1.00	<1	0.08	<1	<1	<1	1.00	<1	<1	1.00												
Ni	22.10	23.00	7.00	1.00	2.00	<1	1.00	<1	1.00	<1	<1	57.40	73.00	69.00	11.00	42.00	31.00	22.00	33.00												
Pb	8.30	<2	28.00	19.00	28.00	35.00	24.00	42.00	18.00	14.00	33.00	5.30	2.00	10.00	15.00	6.00	5.00	16.00	9.00												
Sc	12.60	11.00	7.00	3.00	4.00	2.00	1.00	1.00	4.00	5.00	2.00	31.00	26.00	37.00	20.00	21.00	17.00	18.00	14.00												
Tl	0.12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	0.31	<10	10.00	<10	<10	<10	10.00	<10												
Zn	40.00	42.00	48.00	25.00	24.00	13.00	8.00	13.00	36.00	33.00	12.00	93.00	49.00	96.00	96.00	120.00	85.00	68.00	83.00												
Ba	128.50	159.50	418.00	642.00	371.00	754.00	304.00	584.00	493.00	438.00	350.00	190.00	89.70	143.00	197.00	169.50	203.00	323.00	293.00												
Ce	18.70	19.30	94.00	44.10	52.60	22.50	31.20	28.20	52.00	53.70	53.80	55.30	14.10	32.20	34.60	33.40	21.80	24.30	30.50												
Cr	59.00	70.00	10.00	10.00	<10	<10	<10	<10	<10	<10	<10	259.00	300.00	140.00	10.00	80.00	30.00	30.00	50.00												
Cs	0.72	0.62	7.31	1.65	1.75	1.32	0.89	1.05	1.02	0.42	1.26	0.97	0.90	0.51	5.19	1.11	0.95	2.73	0.43												
Dy	1.95	2.17	5.91	2.94	4.73	2.87	2.50	2.98	8.35	4.93	4.77	5.74	2.08	5.57	4.66	3.96	2.72	3.65	4.39												
Er	1.18	1.17	2.70	1.51	2.78	2.20	1.42	1.91	5.29	3.24	3.18	3.27	1.16	3.90	3.03	2.37	1.73	2.17	2.53												
Eu	0.65	0.75	0.98	1.01	0.67	0.89	0.48	0.53	0.82	0.96	0.59	1.85	0.76	1.21	1.53	1.38	1.21	1.08	1.33												
Ga	13.90	14.60	20.30	15.10	16.50	9.80	12.00	12.50	17.30	16.60	12.00	21.20	16.00	18.50	19.40	20.00	20.30	17.60	19.80												
Gd	1.93	2.36	8.00	3.47	5.00	2.56	2.52	2.72	6.87	4.89	4.81	7.09	1.80	4.85	4.50	3.76	2.75	3.63	4.30												
Hf	2.80	2.90	6.80	3.90	4.20	1.90	2.90	2.00	4.30	5.40	3.10	3.60	1.70	3.60	3.20	2.80	3.10	3.00	4.30												
Ho	0.41	0.40	1.08	0.51	1.01	0.61	0.52	0.66	1.63	1.00	1.03	1.11	0.39	1.17	0.93	0.78	0.55	0.71	0.85												
La	9.50	10.80	47.50	23.90	27.60	10.90	15.20	14.00	23.40	25.20	25.80	21.10	6.10	14.90	14.00	15.20	10.30	9.80	13.70												
Lu	0.17	0.19	0.39	0.15	0.39	0.30	0.26	0.38	0.77	0.52	0.42	0.47	0.14	0.53	0.42	0.31	0.23	0.29	0.32												
Nb	3.90	3.70	13.60	5.20	12.																										

Chapter 4 Table SM3: GEOCHEMISTRY OF IGNEOUS AND METAMORPHIC ROCKS FROM BAIDUNZI COMPLEX (continued.)

Baidunzi Intrusive Suite												Late Intrusive Suite							
region	Tonalite phase					Quartz-rich granitoid phase					Leuco-granodiorite unit								
	leucodiorite 18LYV1384	diorite 18LYV1383	tonalite 17LYV1096A	tonalite 19LYH3566	tonalite 18LYH3348	granite 18LYS5146	granodiorite 19LYH3531	granite 19LYH3562Bdup	granite 19LYH3562B	dyke 19LYH3616B	mylonite granite 19LYH3567		granite 16LYV386Bdup	granite 16LYV386b	granite 19LYH3564A	granite 19LYH3451	granite 19LYH3562A	granite 17LYV1097	granite 16LYV386C
Sample_Name Group	Tonalite unit (mafic)		Tonalite unit (felsic)																
	20	21	22	23	24	25	26	27	28	29	30		31	32	33	34	35	36	37
Lantitude Longitude	40.905513 95.666233	40.929613 95.684209	40.88392097 95.62462602	40.86519745 95.59828769	40.861365 95.467221	40.85276182 95.58913494	40.85272529 95.58934892	40.88277181 95.62439529	40.88277181 95.62439529	40.84363282 95.60395777	40.89923477 95.57717126		40.91476 95.690581	40.91476 95.690581	40.86438016 95.71361854	40.85198051 95.45884393	40.88277181 95.62439529	40.8772736 95.62175309	40.91476 95.690581
SiO ₂ (wt%)	52.60	60.50	67.00	74.50	77.80	73.80	74.30	75.10	75.30	71.10	72.20		74.90	75.40	75.60	77.40	74.40	74.80	76.00
TiO ₂	0.95	0.72	0.39	0.07	0.08	0.20	0.11	0.16	0.16	0.11	0.31		0.06	0.06	0.08	0.04	0.02	0.10	0.04
Al ₂ O ₃	21.10	17.35	16.90	14.25	13.00	13.95	13.65	13.50	13.50	16.00	14.00		13.80	13.85	13.65	13.00	14.50	14.45	13.20
TFe ₂ O ₃	6.39	5.56	2.98	0.66	0.59	1.44	1.24	1.28	1.30	1.07	2.20		0.36	0.36	0.60	0.33	0.21	0.89	0.44
MgO	2.52	3.07	1.01	0.25	0.23	0.42	0.20	0.19	0.20	0.29	1.01		0.11	0.10	0.15	0.09	0.04	0.29	0.08
MnO	0.06	0.10	0.04	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02		<0.01	<0.01	0.01	<0.01	0.01	0.05	<0.01
CaO	6.49	5.75	4.72	3.06	1.93	1.73	1.72	0.94	0.95	1.02	1.54		0.64	0.64	1.11	0.27	1.70	1.43	0.81
Na ₂ O	4.38	4.49	4.97	4.14	4.43	2.90	2.83	2.86	2.87	2.81	2.62		2.56	2.58	2.71	2.92	4.88	3.40	3.18
K ₂ O	2.24	0.59	0.55	1.57	1.16	4.99	5.61	5.62	5.63	8.70	5.48		7.48	7.52	6.45	6.48	3.44	5.42	5.43
P ₂ O ₅	0.41	0.19	0.10	0.06	0.03	0.05	0.01	0.03	0.03	0.09	0.12		0.09	0.09	0.07	0.01	0.02	0.03	0.02
BaO	0.05	0.03	0.02	0.05	0.06	0.07	0.10	0.07	0.07	0.10	0.05		0.01	0.01	0.06	0.04	0.02	0.04	0.01
LOI 1000	3.08	1.82	1.30	1.41	1.34	0.83	0.74	0.83	0.80	0.62	1.25		0.42	0.46	0.76	0.46	0.89	0.75	0.55
Total	100.27	100.17	99.98	100.03	100.66	100.39	100.52	100.60	100.83	101.93	100.80		100.43	101.07	101.25	101.04	100.13	101.65	99.76
TFeO	5.75	5.00	2.68	0.59	0.53	1.30	1.12	1.15	1.17	0.96	1.98		0.32	0.32	0.54	0.30	0.19	0.80	0.40
Cd (ppm)	<0.5	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Co	14.00	17.00	4.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	6.00		1.00	<1	1.00	<1	<1	1.00	1.00
Cu	10.00	13.00	21.00	2.00	6.00	3.00	10.00	13.00	13.00	9.00	3.00		3.00	3.00	3.00	3.00	1.00	2.00	15.00
Li	30.00	10.00	10.00	<10	<10	10.00	10.00	10.00	10.00	10.00	10.00		<10	<10	10.00	10.00	<10	10.00	10.00
Mo	<1	1.00	1.00	1.00	<1	<1	1.00	1.00	<1	<1	<1		<1	<1	1.00	<1	<1	1.00	<1
Ni	5.00	26.00	2.00	<1	<1	1.00	2.00	1.00	<1	2.00	6.00		1.00	<1	1.00	1.00	2.00	3.00	<1
Pb	16.00	10.00	5.00	9.00	9.00	29.00	33.00	25.00	23.00	39.00	14.00		43.00	43.00	43.00	24.00	26.00	35.00	44.00
Sc	5.00	16.00	6.00	1.00	2.00	3.00	1.00	3.00	4.00	1.00	5.00		2.00	2.00	1.00	1.00	<1	3.00	2.00
Tl	<10	<10	<10	10.00	<10	<10	10.00	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10
Zn	81.00	78.00	33.00	8.00	7.00	20.00	13.00	23.00	24.00	9.00	29.00		7.00	7.00	9.00	3.00	4.00	15.00	3.00
Ba	431.00	237.00	206.00	397.00	558.00	673.00	852.00	669.00	679.00	846.00	448.00		138.00	139.00	555.00	384.00	145.50	330.00	60.60
Ce	53.80	33.80	24.20	21.60	18.10	38.70	38.90	100.00	101.00	34.50	39.90		10.80	12.80	29.70	7.40	11.40	25.30	29.80
Cr	10.00	40.00	<10	<10	<10	<10	10.00	<10	<10	<10	10.00		<10	<10	<10	<10	<10	<10	<10
Cs	3.93	1.27	0.74	0.19	0.51	1.89	0.91	1.67	1.80	7.18	0.98		2.65	2.56	1.89	1.14	0.32	0.66	3.14
Dy	3.71	5.08	1.76	1.49	1.49	1.21	0.80	6.93	7.05	1.93	3.45		2.66	2.47	5.61	1.37	2.04	4.34	8.75
Er	2.12	3.03	1.20	0.86	1.13	0.69	0.48	3.67	3.87	1.11	1.76		1.61	1.54	3.62	1.29	1.30	2.85	6.55
Eu	1.15	1.47	1.61	0.99	0.78	0.87	0.76	0.88	0.83	0.40	0.84		0.30	0.25	0.83	0.29	0.49	0.55	0.34
Ga	24.20	19.60	20.70	14.90	13.20	13.10	13.20	16.60	17.20	16.20	15.50		14.30	14.40	13.20	12.50	14.50	15.50	13.50
Gd	4.03	5.56	1.96	1.54	1.17	1.95	1.19	7.24	7.18	2.10	4.06		1.63	1.82	3.81	0.91	1.22	3.21	5.00
Hf	7.30	4.30	8.30	2.90	2.90	5.00	4.30	5.80	6.00	3.00	5.50		0.60	0.80	2.30	5.90	0.60	1.90	2.80
Ho	0.73	1.06	0.35	0.30	0.32	0.25	0.14	1.28	1.27	0.41	0.70		0.53	0.53	1.05	0.36	0.41	0.93	2.06
La	26.00	15.20	12.60	12.40	8.80	19.40	21.10	46.50	47.20	17.20	22.60		5.10	6.10	14.30	4.90	7.10	12.40	12.50
Lu	0.30	0.35	0.21	0.14	0.21	0.12	0.11	0.50	0.50	0.21	0.22		0.29	0.25	0.56	0.23	0.18	0.42	1.11
Nb	9.20	5.60	3.00	2.10	3.90	3.20	2.10	14.80	15.40	2.60	10.80		1.80	1.90	3.10	1.70	1.60	3.80	5.80
Nd	24.90	21.10	11.30	8.40	7.10	14.70	13.70	40.20	42.00	10.90	21.50		4.70	5.90	12.60	3.70	4.20	11.40	13.50
Pr	6.26	4.52	2.84	2.28	1.92	4.10	3.98	11.00	10.90	3.20	5.60		1.25	1.57	3.28	1.03	1.26	2.84	3.56
Rb	93.10	7.70	15.80	37.00	26.90	127.50	119.00	166.00	169.00	326.00	153.00		186.50	187.00	185.50	164.00	82.40	108.00	174.50
Sm	4.69	4.99	2.19	1.66	1.36	2.77	2.03	7.78	7.99	2.24	4.14		1.50	1.88	3.24	0.87	0.97	2.77	4.22
Sn	2.00	1.00	1.00	1.00	1.00	1.00	1.00	3.00	3.00	1.00	2.00		2.00	2.00	2.00	<1	1.00	1.00	1.00
Sr	354.00	509.00	420.00	259.00	214.00	175.00	209.00	111.00	112.50	214.00	152.50		59.90	60.00	92.80	58.30	133.50	196.00	49.00
Ta	0.80	0.30	1.40	1.20	0.50	0.40	0.60	1.30	1.90	0.40	1.60		0.30	0.30	1.40	<0.1	0.50	0.40	1.20
Tb	0.54	0.76	0.29	0.23	0.23	0.25	0.16	1.15	1.11	0.36	0.60		0.39	0.40	0.75	0.17	0.26	0.56	1.15
Th	6.90	0.21	2.45	2.44	2.17	13.30	13.85	22.30	21.80	15.55	16.05		3.90	4.30	9.04	2.65	1.27	7.30	9.86
Tm	0.29	0.42	0.18	0.15	0.19	0.10	0.08	0.51	0.50	0.19	0.21		0.29	0.27	0.60	0.18	0.19	0.44	1.06
U	1.37	0.21	1.32	0.53	0.54	1.55	2.35	3.24	3.23	3.29	2.06		2.20	2.29	3.78	0.95	1.26	1.21	3.00
V	91.00	98.00	35.00	10.00	6.00	19.00	25.00	10.00	12.00	9.00	34.00		<5	<5	9.00	<5	<5	14.00	5.00
W	1.00	1.00	1.00	1.00	1.00	<1	1.00	2.00	2.00	1.00	1.00								

Chapter 4 Table SM4: ZIRCON ISOTOPIC DATA OF IGNEOUS AND METAMORPHIC ROCKS FROM BAIDUNZI COMPLEX

Analysis spot	¹⁷⁶ Yb/ ¹⁷⁷ Hf	1σ	¹⁷⁸ Hf/ ¹⁷⁷ Hf	1σ	¹⁷⁶ Lu/ ¹⁷⁷ Hf	1σ	¹⁷⁶ Hf/ ¹⁷⁷ Hf	1σ	U-Pb age (Ma)	1σ	(¹⁷⁶ Hf/ ¹⁷⁷ Hf) _i	1σ	εHf(0)	1σ	f _{Lu/Hf}	εHf(t)	1σ	TDM1(Ma)	TDM2 (c.c)(Ma)
(A) S5143, melanocratic layer, Granitic Orthogneiss, Baidunzi Complex																			
01-c	0.0243449	0.000106	1.467339	0.0000452	0.000714198	0.00000503	0.2819647	0.00000883	887	± 12	0.281952778	8.91396E-06	-29.0	0.3	-0.98	-9.6	0.3	1796	2344
02-c	0.03409563	0.000139	1.467344	0.0000367	0.001011688	0.00000311	0.2819773	0.00000797	889	± 12	0.281960372	8.02204E-06	-28.6	0.3	-0.97	-9.3	0.3	1793	2326
03-c	0.03793972	0.000347	1.467313	0.0000364	0.001128318	0.0000148	0.2819092	0.00000901	916	± 14	0.281889745	9.26519E-06	-31.0	0.3	-0.97	-11.2	0.3	1893	2464
04-c	0.03969294	0.000219	1.467343	0.0000441	0.001175095	0.00000549	0.2819122	0.00000912	884	± 10	0.281892644	9.21137E-06	-30.9	0.3	-0.97	-11.8	0.3	1891	2477
05-c	0.03379259	0.000094	1.467338	0.0000418	0.000989596	0.00000323	0.2818649	0.00000806	858	± 12	0.281848917	8.11217E-06	-32.5	0.3	-0.97	-13.9	0.3	1947	2589
06-c	0.04954217	0.000251	1.467302	0.0000427	0.001459872	0.0000123	0.2818467	0.00000936	893	± 10	0.281822164	9.56672E-06	-33.2	0.3	-0.96	-14.1	0.3	1997	2626
07-c	0.03345872	0.00064	1.467339	0.0000445	0.000972972	0.0000182	0.2817981	0.00000822	876	± 11	0.281782062	8.52001E-06	-34.9	0.3	-0.97	-15.9	0.3	2039	2724
08-c	0.03288375	0.000428	1.467379	0.0000418	0.000957164	0.00000872	0.2817892	0.00000707	873	± 11	0.281773479	7.21323E-06	-35.2	0.3	-0.97	-16.3	0.3	2050	2744
09-c	0.03088396	0.000208	1.467367	0.0000442	0.000919914	0.00000832	0.2817532	0.00000864	913	± 11	0.281737377	8.7831E-06	-36.5	0.3	-0.97	-16.6	0.3	2097	2797
10-c	0.03674151	0.000156	1.467387	0.000037	0.001088087	0.00000176	0.2817635	0.00000872	859	± 12	0.281745903	8.74846E-06	-36.1	0.3	-0.97	-17.6	0.3	2092	2812
11-c	0.03164586	0.000562	1.467352	0.0000459	0.000823373	0.0000159	0.2816602	0.00000769	874	± 12	0.281646661	7.95145E-06	-39.8	0.3	-0.98	-20.8	0.3	2219	3019
12-c	0.03065552	0.000654	1.467406	0.000043	0.000842085	0.0000201	0.2816589	0.00000834	865	± 11	0.281645184	8.66738E-06	-39.8	0.3	-0.97	-21.0	0.3	2222	3027
13-c	0.03028707	0.000395	1.467421	0.0000399	0.00089357	0.00000857	0.2821181	0.00000819	886	± 11	0.282103199	8.33291E-06	-23.6	0.3	-0.97	-4.3	0.3	1593	2014
14-c	0.04027626	0.000379	1.467318	0.0000358	0.001198283	0.00000774	0.2821082	0.00000774	894	± 11	0.282088029	7.87029E-06	-23.9	0.3	-0.96	-4.7	0.3	1619	2042
15-c	0.03214531	0.000135	1.46732	0.0000401	0.000929275	0.00000256	0.2821335	0.00000961	843	± 11	0.282118761	9.6506E-06	-23.0	0.3	-0.97	-4.7	0.3	1573	2007
(C) V1109, Tonalitic Orthogneiss, Baidunzi Complex																			
01-c	0.0202294	0.000098	1.467258	0.0000426	0.000674598	0.00000175	0.2827051	0.00000977	459	± 8	0.282699289	9.78507E-06	-2.8	0.3	-0.98	7.2	0.3	768	956
02-c	0.01600374	0.000163	1.46724	0.0000406	0.000569168	0.00000574	0.2827459	0.000011	453	± 8	0.282741064	1.10488E-05	-1.4	0.4	-0.98	8.6	0.4	709	866
03-c	0.0256906	0.000305	1.467231	0.0000485	0.00082716	0.00000596	0.2827047	0.0000107	461	± 8	0.282697546	1.07515E-05	-2.8	0.4	-0.98	7.2	0.4	772	959
04-c	0.02250791	0.000167	1.467311	0.0000404	0.000719267	0.00000415	0.2827269	0.00000992	462	± 8	0.282720665	9.95597E-06	-2.1	0.4	-0.98	8.0	0.4	738	906
05-c	0.009707236	0.000223	1.467304	0.0000448	0.00036276	0.00000751	0.2827553	0.0000108	472	± 9	0.28275209	1.08665E-05	-1.1	0.4	-0.99	9.4	0.4	692	829
06-c	0.01501982	0.0000573	1.467319	0.0000456	0.000577548	0.00000136	0.2827507	0.0000104	474	± 8	0.282745566	1.04121E-05	-1.2	0.4	-0.98	9.2	0.4	702	843
08-c	0.02152235	0.0000587	1.467299	0.0000509	0.000721955	0.00000239	0.2827458	0.0000111	459	± 8	0.282739589	1.11206E-05	-1.4	0.4	-0.98	8.6	0.4	712	866
09-c	0.009594551	0.0000547	1.467285	0.0000332	0.00032362	0.00000237	0.2827357	0.00000947	460	± 8	0.28273291	9.49043E-06	-1.7	0.3	-0.99	8.4	0.3	719	880
11-c	0.01777237	0.000139	1.467329	0.0000427	0.000692609	0.00000325	0.28276	0.00000876	443	± 7	0.282754251	8.78698E-06	-0.9	0.3	-0.98	8.8	0.3	692	843
16-c	0.0215475	0.0000551	1.467359	0.0000395	0.000750744	0.00000183	0.2827368	0.000011	441	± 8	0.282730592	1.10151E-05	-1.7	0.4	-0.98	7.9	0.4	725	897
17.2-c	0.01663912	0.000067	1.467314	0.0000451	0.000549258	0.00000152	0.2827517	0.00000858	466	± 8	0.282746901	8.59328E-06	-1.2	0.3	-0.98	9.0	0.3	701	845
18.1-c	0.01154618	0.0000254	1.467297	0.000045	0.000382337	0.000000929	0.2827353	0.0000101	455	± 8	0.282732041	1.01079E-05	-1.8	0.4	-0.99	8.3	0.4	720	886
(B) S5136, leucocratic granite dyke, Red Granite Unit, Baidunzi Intrusive Suite																			
01-r	0.02997702	0.000775	1.467379	0.0000414	0.001074967	0.0000259	0.2828323	0.0000112	298	± 6	0.282826294	1.13447E-05	1.7	0.4	-0.97	8.1	0.4	596	772
03-r	0.03177932	0.000279	1.467261	0.0000426	0.000999314	0.00000665	0.2826237	0.0000105	295	± 6	0.282618187	1.05367E-05	-5.7	0.4	-0.97	0.7	0.4	890	1242
04-r	0.02895327	0.000689	1.467364	0.0000429	0.000940792	0.0000188	0.2827901	0.0000104	302	± 6	0.282784777	1.05064E-05	0.2	0.4	-0.97	6.7	0.4	654	864
05-r	0.02500443	0.0000912	1.467328	0.0000468	0.000775674	0.00000531	0.2828456	0.0000103	281	± 7	0.282841515	1.0328E-05	2.1	0.4	-0.98	8.3	0.4	573	749
06-r	0.02360379	0.000217	1.467332	0.0000418	0.000762473	0.00000504	0.2828695	0.00000928	299	± 11	0.282865228	9.30824E-06	3.0	0.3	-0.98	9.5	0.3	539	684
07-r	0.02822594	0.000231	1.467341	0.000041	0.000866499	0.00000293	0.2828381	0.0000104	293	± 8	0.282833351	1.04161E-05	1.9	0.4	-0.97	8.2	0.4	585	760
08-r	0.05587608	0.000264	1.467187	0.0000399	0.001793584	0.000014	0.2826492	0.00000906	285	± 8	0.282639627	9.13472E-06	-4.8	0.3	-0.95	1.2	0.3	872	1200
09-r	0.06609973	0.00119	1.467334	0.0000569	0.001941017	0.0000218	0.2826505	0.00000981	306	± 6	0.282639364	9.93507E-06	-4.8	0.3	-0.94	1.7	0.4	874	1187
10-r	0.04647761	0.00133	1.467326	0.0000485	0.001475942	0.0000388	0.2826592	0.00000929	293	± 5	0.282651117	9.5025E-06	-4.4	0.3	-0.96	1.8	0.3	850	1170
11-r	0.02864527	0.000108	1.467303	0.0000444	0.000895005	0.00000564	0.2826128	0.00000959	281	± 6	0.282608087	9.6197E-06	-6.1	0.3	-0.97	0.0	0.3	902	1273
12-r	0.03667941	0.000202	1.467355	0.0000427	0.001171807	0.0000104	0.2825855	0.0000103	295	± 6	0.282579037	1.03574E-05	-7.1	0.4	-0.97	-0.7	0.4	948	1330
13-c	0.03386215	0.000191	1.467593	0.0000693	0.00120168	0.0000184	0.2824233	0.0000185	841	± 13	0.282404293	1.8791E-05	-12.8	0.7	-0.96	5.3	0.7	1177	1375
(G-H) V266, hornblende diorite, Hornblende Diorite Unit, Baidunzi Intrusive Suite																			
01-r	0.02926529	0.00126	1.467377	0.0000619	0.00092964	0.0000432	0.282691	0.0000108	293	± 7	0.282685901	1.1037E-05	-3.3	0.4	-0.97	3.0	0.4	793	1092
02-r	0.04974356	0.000845	1.467186	0.0000553	0.001635273	0.0000294	0.2827438	0.0000103	292	± 3	0.282734853	1.04609E-05	-1.5	0.4	-0.95	4.7	0.4	732	982
04-r	0.01303276	0.000135	1.467167	0.0000566	0.000401845	0.00000218	0.2825463	0.0000144	283	± 4	0.282544171	1.44116E-05	-8.4	0.5	-0.99	-2.2	0.5	983	1415
05-m	0.01242113	0.000552	1.467332	0.0000624	0.000405271	0.0000183	0.282733	0.0000112	274	± 10	0.282730921	1.12939E-05	-1.8	0.4	-0.99	4			

07-r	0.02085866	0.000201	1.467348	0.0000515	0.000743285	0.0000051	0.2828096	0.0000123	289	± 5	0.282805576	1.23276E-05	0.9	0.4	-0.98	7.2	0.4	623	825
08.1-r	0.02589468	0.000389	1.467403	0.0000456	0.000941267	0.0000156	0.2827662	0.0000128	284	± 5	0.282761196	1.28829E-05	-0.7	0.5	-0.97	5.5	0.5	687	928
09-r	0.00723991	0.000172	1.467409	0.0000532	0.000273879	0.0000655	0.2827975	0.0000124	279	± 4	0.282796071	1.24342E-05	0.4	0.4	-0.99	6.6	0.4	632	853
10-r	0.02901312	0.000193	1.467385	0.0000459	0.001046328	0.0000834	0.2827812	0.0000138	283	± 5	0.282775654	1.38442E-05	-0.1	0.5	-0.97	6.0	0.5	668	896
11-r	0.007501789	0.000143	1.467403	0.000046	0.000304938	0.00000443	0.2827872	0.0000114	289	± 5	0.282785549	1.1424E-05	0.1	0.4	-0.99	6.5	0.4	647	870
13.1-r	0.02726109	0.000593	1.46747	0.0000502	0.001142615	0.0000247	0.2828263	0.000012	280	± 5	0.282820304	1.21296E-05	1.5	0.4	-0.97	7.5	0.4	606	797
15-r	0.006029268	0.0000833	1.467303	0.0000475	0.000225998	0.00000291	0.2827686	0.0000113	291	± 5	0.282767367	1.13159E-05	-0.6	0.4	-0.99	5.9	0.4	671	910
16-r	0.06286519	0.000442	1.467404	0.0000562	0.002114713	0.00001	0.282743	0.0000139	289	± 4	0.282731565	1.39541E-05	-1.5	0.5	-0.94	4.5	0.5	743	992
(I-J) V1384, leuco-diorite, Tonalite Unite, Baidunzi Intrusive Suite																			
01-c	0.03989986	0.00106	1.467559	0.0000731	0.001255209	0.0000226	0.2824264	0.0000156	646	± 9	0.282411171	1.58742E-05	-12.7	0.6	-0.96	1.2	0.6	1175	1483
02-c	0.04016841	0.00026	1.46752	0.0000637	0.001415352	0.0000124	0.2824365	0.0000139	855	± 11	0.282413735	1.40994E-05	-12.3	0.5	-0.96	6.0	0.5	1165	1345
03-r	0.06361651	0.00094	1.467354	0.0000441	0.002055308	0.0000188	0.2825699	0.0000104	296	± 4	0.282558496	1.05043E-05	-7.6	0.4	-0.94	-1.4	0.4	993	1375
04-r	0.04405275	0.00118	1.467248	0.0000383	0.001428287	0.0000331	0.2825611	0.00000996	294	± 4	0.28255324	1.01421E-05	-7.9	0.4	-0.96	-1.7	0.4	989	1388
05-r	0.08947487	0.000324	1.467381	0.0000593	0.00255299	0.0000128	0.2824866	0.0000105	300	± 4	0.282472254	1.05719E-05	-10.6	0.4	-0.92	-4.4	0.4	1129	1564
06.1-c	0.02975562	0.00016	1.467305	0.0000588	0.000855883	0.0000655	0.2821368	0.0000106	388	± 6	0.282130574	1.06476E-05	-22.9	0.4	-0.97	-14.5	0.4	1565	2264
06.2-r	0.05937155	0.000295	1.467332	0.0000687	0.001712969	0.00000508	0.2824487	0.0000124	292	± 4	0.282439342	1.24278E-05	-11.9	0.4	-0.95	-5.7	0.4	1157	1643
07-r	0.07028758	0.000318	1.467402	0.0000466	0.002121267	0.00000779	0.2825739	0.0000101	280	± 4	0.282562776	1.01409E-05	-7.5	0.4	-0.94	-1.6	0.4	989	1375
08-r	0.05177167	0.000629	1.467248	0.0000431	0.001676976	0.0000156	0.2825798	0.00000923	301	± 4	0.282570358	9.31783E-06	-7.3	0.3	-0.95	-0.9	0.3	969	1345
09-r	0.06389413	0.0015	1.467362	0.0000464	0.002020486	0.0000357	0.2825918	0.0000125	293	± 4	0.282580713	1.26959E-05	-6.8	0.4	-0.94	-0.7	0.4	960	1327
10.1-c	0.02514963	0.000329	1.467266	0.0000551	0.000701546	0.0000106	0.2820633	0.00000767	820	± 10	0.282052475	7.83356E-06	-25.5	0.3	-0.98	-7.6	0.3	1660	2167
11-r	0.1053996	0.00179	1.467268	0.0000489	0.003268188	0.0000464	0.2825602	0.0000111	291	± 4	0.282542373	1.13531E-05	-7.9	0.4	-0.9	-2.1	0.4	1041	1414
12-r	0.05582204	0.000448	1.46745	0.000048	0.001870935	0.00000396	0.2825999	0.00000983	287	± 4	0.282589839	9.85129E-06	-6.5	0.3	-0.94	-0.5	0.3	945	1310
13-r	0.06001968	0.000734	1.467255	0.0000372	0.00196994	0.0000184	0.2825572	0.0000104	290	± 4	0.282546514	1.04998E-05	-8.1	0.4	-0.94	-2.0	0.4	1009	1405
14-r	0.06592112	0.00142	1.467457	0.0000671	0.0021787	0.0000286	0.2825395	0.0000118	288	± 4	0.282527745	1.19543E-05	-8.7	0.4	-0.94	-2.7	0.4	1040	1448
15-r	0.06365629	0.00162	1.467191	0.0000944	0.001944438	0.0000469	0.2825297	0.0000122	280	± 4	0.282519509	1.24458E-05	-9.0	0.4	-0.94	-3.2	0.4	1048	1472
16-r	0.03986662	0.00123	1.467505	0.0000779	0.001307394	0.0000283	0.2825175	0.000012	287	± 4	0.282510486	1.21518E-05	-9.5	0.4	-0.96	-3.3	0.4	1047	1488
(I-J) V1096, tonalite, Tonalite Unit, Baidunzi Intrusive Suite																			
01-r	0.03942715	0.000846	1.467408	0.0000603	0.001264593	0.0000342	0.2827588	0.0000123	285	± 4	0.282752057	1.24824E-05	-0.9	0.4	-0.96	5.2	0.4	704	948
02-c/r	0.02501009	0.000422	1.467275	0.0000518	0.000741679	0.0000125	0.2829315	0.00001	301	± 4	0.282927323	1.00704E-05	5.2	0.4	-0.98	11.7	0.4	451	542
03-c/r	0.1106462	0.00198	1.467291	0.0000744	0.003512317	0.0000511	0.2827479	0.000015	294	± 3	0.282728587	1.5281E-05	-1.3	0.5	-0.9	4.5	0.5	765	995
04-r	0.09029613	0.00118	1.467338	0.0000693	0.002860081	0.0000301	0.2827351	0.0000144	287	± 3	0.282719747	1.45616E-05	-1.8	0.5	-0.91	4.1	0.5	770	1020
06-r	0.06624211	0.00264	1.46735	0.0000587	0.002108197	0.0000891	0.2826996	0.0000121	274	± 5	0.2826888	1.25565E-05	-3.0	0.4	-0.94	2.7	0.4	806	1097
07-r	0.01771587	0.000263	1.46739	0.000062	0.000549099	0.00000713	0.282679	0.000013	278	± 5	0.282676139	1.30371E-05	-3.7	0.5	-0.98	2.3	0.5	802	1123
08-r	0.03333381	0.00114	1.467386	0.000067	0.001012136	0.0000369	0.2826987	0.0000118	288	± 4	0.28269324	1.1999E-05	-3.1	0.4	-0.97	3.2	0.4	784	1078
09-r	0.04111168	0.00109	1.467248	0.0000579	0.001239237	0.0000371	0.2827107	0.0000124	280	± 4	0.282704204	1.25945E-05	-2.6	0.4	-0.96	3.4	0.4	772	1059
11-r	0.03491612	0.00115	1.467166	0.0000582	0.001127578	0.0000335	0.2827275	0.0000095	278	± 4	0.282721622	9.67463E-06	-2.0	0.3	-0.97	4.0	0.3	746	1021
12-r	0.04437538	0.00103	1.467274	0.0000549	0.001386953	0.0000335	0.282754	0.0000121	289	± 6	0.282746507	1.2281E-05	-1.1	0.4	-0.96	5.1	0.4	713	958
13-r	0.04485266	0.000296	1.467221	0.0000529	0.001315721	0.0000101	0.2827033	0.00000934	278	± 4	0.282696465	9.39247E-06	-2.9	0.3	-0.96	3.0	0.3	784	1078
14-r	0.03159581	0.00017	1.467205	0.0000487	0.00097287	0.00000333	0.2827182	0.00000928	282	± 5	0.282713072	9.29755E-06	-2.4	0.3	-0.97	3.7	0.3	756	1038
15-r	0.01913094	0.000158	1.467309	0.0000617	0.000740653	0.00000598	0.2827291	0.0000109	266	± 10	0.282725415	1.09298E-05	-2.0	0.4	-0.98	3.8	0.4	736	1020
(K) V385, garnet leuco-granite, Leucogranite Unit, Late Intrusion																			
01-c	5.54E-02	1.66E-03	1.46739	0.00008	1.62E-03	4.00E-05	0.282612	0.000013	331	± 4	0.282601965	1.33477E-05	-6.1	0.5	-0.95	0.9	0.5	921	1256
03-c	6.27E-02	3.51E-04	1.46733	0.00006	1.80E-03	1.30E-05	0.282640	0.000010	295	± 4	0.282629559	9.62174E-06	-5.1	0.3	-0.95	1.1	0.3	886	1217
04-c	1.08E-01	1.37E-03	1.46729	0.00009	2.60E-03	2.34E-05	0.282447	0.000009	713	± 11	0.282411815	9.41344E-06	-12.0	0.3	-0.92	2.7	0.3	1189	1439
05-c	8.12E-02	2.54E-04	1.46742	0.00007	2.39E-03	8.60E-06	0.282064	0.000008	886	± 4	0.282023894	8.27343E-06	-25.5	0.3	-0.93	-7.1	0.3	1736	2189
07-c	6.35E-02	5.65E-04	1.46736	0.00008	1.63E-03	9.31E-06	0.282517	0.000010	800	± 8	0.282491995	1.01101E-05	-9.5	0.4	-0.95	7.5	0.4	1058	1205
08-c	8.64E-02	3.42E-04	1.46731	0.00008	2.17E-03	4.51E-06	0.282408	0.000008	887	± 8	0.282371895	8.5253E-06	-13.3	0.3	-0.94	5.2	0.3	1230	1418
09-c	8.75E-02	4.26E-04	1.46735	0.00007	2.44E-03	9.49E-06	0.282571	0.000011	297	± 4	0.282557827	1.14527E-05	-7.6	0.4	-0.93	-1.4	0.4	1001	1376
10-c	1.06E-01	4.71E-04	1.46723	0.00008	2.82E-03	1.12E-05	0.282512	0.000010	1140	± 10	0.282451141	1.00108E-05	-9.7	0.3	-0.92	13.8	0.4	1100	1079
11-c	7.21E-02	1.42E-03	1.46746	0.00008	1.96E-03	1.75E-05	0.282445	0.000013	872	± 19	0.282412573	1.27873E-05	-12.0	0.4	-0.94	6.3	0.5	1171	1336
12-c	1.06E-01	1.41E-03	1.46739	0.00008	2.75E-03	2.16E-05	0.282492	0.000012	294	± 5	0.282476473	1.24188E-05	-10.4	0.4	-0.92	-4.4	0.4	1127	1559

Notes:

Spot#-c: inherited cores; spot#-r: magmatic rim/ overgrowth of crystallization; spot#-m: metamorphic rim

176Lu decay constant of 1.865×10^{-11} (Soderlund et al. 2004).

176Hf/177Hf and 176Lu/177Hf CHUR values of 0.282785 and 0.0336 (Bouvier et al. 2008).

Present-day depleted mantle values of 176Hf/177Hf and 176Lu/177Hf of 0.283225 and 0.0385 (Vervoort & Blichert-Toft 1999) and a bulk earth 176Lu/177Hf value of 0.015 (Goodge & Vervoort 2006).

*Uncertainties on tDM are ±0.1 Ga, at minimum, and may approach 1 Ga in cases of old inherited grains with younger ages (Vervoort et al. 2011), so the tDM are not here given in Ma.