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Supplemental Material

Figure S1. (A-B) X-ray compositional maps for Mg and Mn; (C) BSE image and (D) compositional zoning profiles of garnet from the metapelite (19S21–3.10). Mineral abbreviations after Whitney and Evans (2010): q—quartz; grt—garnet; bt—biotite; sil—sillimanite; Ilm—ilmenite; rt—rutile.

Figure S2. (A) K₂O vs Si₂O diagram; (B) Total alkalis vs silica (TAS) diagram (after Middlemost, 1994); (C) A/CNK vs A/NK diagram of the granite, metapelite and associated leucosome in the GLGSZ.

Figure S3. Chondrite-normalized rare earth element (REE) patterns (A, C and E), and primitive mantle-normalized incompatible element patterns (B, D and F) of the granite, metapelite and associated leucosome in the GLGSZ. Normalization data are after Sun and McDonough (1989).

Figure S4. Chondrite-normalized REE patterns for the dated zircons and Th versus Th/U ratios in the Grt-Sil-Bt gneiss (samples 19S22-01 and 19S28-01) and Bt granite (samples 19S24-2 and 19S21-1) from the Gaoligong area, SE Tibet. Normalization data are after Sun and McDonough (1989).

Figure S5. Chondrite-normalized REE patterns for the dated zircons and Th versus Th/U ratios in the granite (sample 19S27-1) and leucosome (samples 19S22-2 and 19S28-2) from the Gaoligong area, SE Tibet. Normalization data are after Sun and McDonough (1989).

Figure S6. Representative back-scattered electron images of selected monazite crystals and monazite U–Th–Pb dating results for the Grt-Sil-Bt gneiss (samples 19S22-1 and 19S28-1), associated leucosome (samples 19S22-2, 19S28-2 and 19S21-4) and granite (sample 19S27-1) from the Gaoligong area, SE Tibet. Cross represents 2 SD errors.

Figure S7. Pseudosections calculated in the MnNCKFMASHT system for the Grt-Sil-Bt gneiss (Sample 19S22-1.3). The peak mineral assemblage is pl+kfs+bt+melt+grt+sil+qz+rt, defining the peak P–T conditions of 700–800 °C at 6.2–9.5 kbar.

Figure S8. *P–T* estimates using the GBPQ (garnet–biotite–plagioclase–quartz) thermobarometer for the Grt-Sil-Bt gneiss (samples 19S22-1.3 and 19S21-3.10) from the Gaoligong area, SE Tibet. Associated uncertainties are approximately ± 50 °C and ± 1 kbar at 2 SD.

Table S1. The major element (wt%) compositions of garnet in the Grt-Sil-Bt gneiss from the Gaoligong area.

Table S2. The major element (wt%) compositions of biotite and muscovite in the Grt-Sil-Bt gneiss from the Gaoligong area.

Table S3. The major element (wt%) compositions of feldspar in the Grt-Sil-Bt gneiss from the Gaoligong area.

Table S4. Whole-rock major-(wt%) and trace-element (ppm) compositions of granite, metapelite and leucosome from the Gaoligong area.

Table S5. Zircon U–Pb isotopic and trace element data (ppm) of Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.

Table S6. Zircon Lu–Hf isotopic data of the granite and leucosome from the Gaoligong area.

Table S7. Monazite U–Th–Pb isotopic data of the Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.

Table S8. Monazite trace element (-ppm) data of the Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.

SUPPLEMENTARY ANALYTICAL METHODS

Mineralogical major element analysis

Major elements of the rock-forming minerals were determined at the Institute of Geology and Geophysics, Chinese Academy of Sciences (IGGCAS), Beijing. Mineral major elements were obtained using a JEOL JXA-8100 electron microprobe (EMP) operated at 15 kV accelerating voltage, 20 nA beam current and 3 or 5 μm spot size. Counting times were 20 s on peaks and 10 s on each background. Relative standard deviations (RSD) of analyses of reference minerals (diopside, garnet and bustamite) are better than $\pm 1\%$.

Whole rock major and trace elements

Whole rock (WR) major and trace elements were determined at the ALS Chemex Company in Guangzhou, China. A prepared sample (0.66 g) is fused with a 12:22 lithium tetraborate–lithium metaborate flux which also includes an oxidizing agent (Lithium Nitrate), and then poured into a platinum mold. The XRF analysis is determined in conjunction with a loss-on-ignition at 1000 °C. Major element compositions were analyzed on fused glass discs using an X-ray Fluorescence Spectrometer. The analytical precision was better than 1%–2%. The FeO content was determined by ammonium ferrous sulfate titration and the Fe_2O_3 content was calculated from the difference.

During WR trace element analysis, one subsample is digested with perchloric, nitric and hydrofluoric acids. The residue is leached with dilute hydrochloric acid and diluted to volume. The solution is then analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) for ultra-trace level elements. And, the same digestion solution is also analyzed by inductively coupled plasma-atomic emission spectrometry (ICP-AES) for trace level elements. Results are corrected for spectral inter-element interferences. The other subsample is added to lithium metaborate/lithium tetraborate flux, mixed well and used in a furnace at 1025 °C. The resulting melt is then cooled and dissolved in an acid mixture containing nitric, hydrochloric and hydrofluoric acids. This solution is then analyzed by inductively coupled plasma - mass spectrometry. According to the actual situation of the sample and the digestion effect, the comprehensive value is the final test results.

Zircon U-Pb ages, trace elements and Hf isotopes

Zircon grains were isolated from the samples by an electromagnetic separator, then by heavy liquid concentration, and finally handpicked under a binocular microscope. Zircon grains were mounted in epoxy, and then were coated with carbon for cathodoluminescence (CL) imaging.

Zircon U, Th, and Pb, trace element and hafnium isotopic analyses were conducted at the Wuhan SampleSolution Analytical Technology Co., Ltd, Hubei, China. Laser sampling was performed using a GeolasPro laser ablation system that consists of a COMpexPro 102 ArF excimer laser and a MicroLas optical system. The spot size and frequency of the laser were set to 24/32 μm and 5 Hz, respectively, in this study. Zircon 91500 and glass NIST610 were used as external standards for U-Pb dating and trace element calibration, respectively. Each analysis incorporated a background acquisition of ~20–30 s followed by 45 s of data acquisition from the

sample. An Excel-based software ICPMSDataCal was used to perform off-line selection and integration of background and analyzed signals, time-drift correction and quantitative calibration for trace element analysis and U-Pb dating (Liu et al., 2010). Concordia diagrams and weighted mean calculations were made using Isoplot/Ex_ver4 (Ludwig, 2008).

Hafnium isotopes were conducted using a Neptune Plus MC-ICP-MS (Thermo Fisher Scientific, Germany) in combination with a Geolas HD excimer ArF laser ablation system (Coherent, Göttingen, Germany). Analytical procedures and isobaric interference corrections are similar to those described by (Hu et al., 2012). All data were acquired on zircon in single spot ablation mode at a spot size of 44 μm . The energy density of laser ablation that was used in this study was $\sim 7.0 \text{ J cm}^{-2}$. Each measurement consisted of 20 s of acquisition of the background signal followed by 50 s of ablation signal acquisition. Throughout the analyses, the $^{179}\text{Hf}/^{177}\text{Hf}$ and $^{173}\text{Yb}/^{171}\text{Yb}$ ratios were normalized to 0.7325 and 1.1248, respectively, for corrections of mass bias (Blichert-Toft et al., 1997). GJ-1 and 91500 served as reference materials. $^{176}\text{Hf}/^{177}\text{Hf}$ ratios determined in the procedure for the zircon standards 91500 and GJ-1 were 0.282301 ± 0.000004 (2σ , MSWD = 0.8, $n = 33$) and 0.282011 ± 0.000008 (2σ , MSWD = 0.2, $n = 8$), respectively.

Monazite U–Th–Pb dating and trace element

U–Th–Pb analyses of monazite were performed at IGGCAS with an Agilent 7500a quadrupole–inductively coupled plasma–mass spectrometry (Q-ICP-MS), which was coupled with a pulsed 193 nm excimer laser ablation system. A 50–100 mJ energy at a repetition rate of 4 Hz and a small spot size of $\sim 16 \mu\text{m}$ were used during the analyses. Each analysis measures the background for 15–20 s before switching on the laser for 45–50 s. Reference material was analyzed each ten analyses. The measured $^{206}\text{Pb}/^{238}\text{U}$, $^{207}\text{Pb}/^{235}\text{U}$ and $^{208}\text{Pb}/^{232}\text{Th}$ ratios were corrected using reference monazite Delaware 44069 (425 Ma; Aleinikoff et al., 2006). Accuracy and precision of the analyses were evaluated with a secondary reference monazite Maine1 which are identical within errors with the recommended values (Maine1(TU-1) $^{207}\text{Pb}/^{235}\text{U}$ age by isotope dilution thermal ionization mass spectrometry (ID-TIMS), 271–272 Ma; Tomascak et al., 1996). Data reduction, including corrections for baseline, instrumental drift, mass bias and downhole fractionation were calculated using Glitter 4.4. Uncertainties of the corrected $^{206}\text{Pb}/^{238}\text{U}$, $^{207}\text{Pb}/^{235}\text{U}$ and $^{208}\text{Pb}/^{232}\text{Th}$ ratios are quoted at the 2σ .

Trace elements of monazite were obtained simultaneously during the U–Th–Pb analyses. External calibration was performed relative to NIST 610 glass using the values recommended by Pearce et al. (1997) and internal standardization was based on stoichiometry of Ce in monazite (23.6 wt%). Accuracy and precision of the analyses were evaluated with the ARM-1 secondary glass standard and are always better than 10% combined (Wu et al., 2019). Trace elements data reduction was performed using the software Glitter 4.4.

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Supplementary Figures S1–S8

Figure S1

(A-B) X-ray compositional maps for Mg and Mn; (C) BSE image and (D) compositional zoning profiles of garnet from the metapelite (19S21-3.10). Mineral abbreviations after Whitney and Evans (2010): q, quartz; grt, garnet; bt, biotite, sil, sillimanite; Ilm, ilmenite, rt, rutile.

Figure S2

(A) K₂O vs SiO₂ diagram; (B) Total alkalis vs silica (TAS) diagram (after Middlemost, 1994);
 (C) A/CNK vs A/NK diagram of the granite, metapelite and associated leucosome in the GLGSZ.

Figure S3

Chondrite-normalized rare earth element (REE) patterns (A, C and E), and primitive mantle-normalized incompatible element patterns (B, D and F) of the granite, metapelite and associated leucosome in the GLGSZ. Normalization data are after Sun and McDonough (1989).

Figure S4

Chondrite-normalized REE patterns for the dated zircons and Th vs. Th/U ratios in the Grt-Sil-Bt gneiss (samples 19S22-1 and 19S28-1) and Bt granite (samples 19S24-2 and 19S21-1) from the Gaoligong area, SE Tibet. Normalization data are after Sun and McDonough (1989).

Figure S5

Chondrite-normalized REE patterns for the dated zircons and Th vs. Th/U ratios in the granite (sample 19S27-1) and leucosome (samples 19S22-2 and 19S28-2) from the Gaoligong area, SE Tibet. Normalization data are after Sun and McDonough (1989).

Figure S6

Representative back-scattered electron images of selected monazite crystals and monazite U–Th–Pb dating results for the Grt-Sil-Bt gneiss (samples 19S22-1 and 19S28-1), associated leucosome (samples 19S22-2, 19S28-2 and 19S21-4) and granite (sample 19S27-1) from the Gaoligong area, SE Tibet. Cross represents 2 SD errors.

Figure S7

Pseudosections calculated in the MnNCKFMASH system for the Grt-Sil-Bt gneiss (Sample 19S22-1.3). The peak mineral assemblage is pl+kfs+bt+melt+grt+sil+qz+rt, defining the peak P–T conditions of 700–800° C at 6.2–9.5 kbar.

Figure S8

P–*T* estimates using the GBPQ (garnet–biotite–plagioclase–quartz) thermobarometer for the Grt–Sil–Bt gneiss (samples 19S22-1.3 and 19S21-3.10) from the Gaoligong area, SE Tibet. Associated uncertainties are approximately ± 50 °C and ± 1 kbar at 2 SD.

Table S1 **The major element (-wt.%) compositions of garnet in the Grt-Sil-Bt gneiss from the Gaoligong area.**

Sample	19S21-3.10																							
Spot ID	Q1.1	Q1.2	Q1.3	Q1.4	Q1.5	Q1.6	Q1.7	Q1.8	Q1.9	Q1.10	Q1.11	Q1.12	Q1.13	Q1.14	Q1.15	Q1.16	Q1.17	Q1.18	Q1.19	Q1.20	Q1.21	Q1.22	Q1.23	Q1.24
Mineral	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO ₂	37.61	37.66	38.16	37.49	37.34	37.65	37.63	36.95	37.72	37.83	37.33	37.14	37.58	37.34	37.23	37.43	37.17	36.93	37.37	37.39	37.77	37.70	37.60	37.72
TiO ₂	0.00	0.02	0.02	0.02	0.00	0.01	0.06	0.02	0.03	0.04	0.02	0.00	0.03	0.00	0.05	0.00	0.05	0.01	0.01	0.03	0.05	0.02	0.00	0.00
Al ₂ O ₃	20.52	20.60	20.83	20.43	20.82	20.48	20.36	20.41	20.37	20.42	20.44	20.36	20.59	20.44	20.55	20.61	20.33	20.60	20.40	20.56	20.64	20.62	20.56	20.66
Cr ₂ O ₃	0.03	0.00	0.01	0.01	0.00	0.05	0.00	0.01	0.04	0.00	0.02	0.01	0.01	0.03	0.07	0.03	0.00	0.01	0.02	0.02	0.00	0.03	0.01	0.01
FeO ^T	33.36	34.41	35.27	35.14	35.13	34.71	34.56	34.81	34.63	34.77	34.23	33.90	34.23	34.00	34.02	34.05	34.07	34.31	34.28	34.73	34.62	34.94	34.91	34.39
MnO	6.23	4.62	2.90	2.86	2.82	2.81	2.79	2.48	1.96	2.09	3.26	3.95	4.03	4.27	4.14	4.14	4.20	2.86	2.24	2.02	2.02	2.12	2.18	2.37
MgO	1.93	2.51	3.07	3.23	3.29	3.18	3.41	3.70	3.74	3.72	3.15	2.81	2.74	2.72	2.85	2.82	2.82	3.59	3.84	3.89	3.86	3.73	3.87	3.65
CaO	0.85	0.81	0.80	0.88	0.82	0.87	0.85	0.86	0.81	0.82	1.00	0.87	0.81	0.82	0.89	0.81	0.82	0.85	0.79	0.86	0.77	0.83	0.79	0.86
Na ₂ O	0.00	0.03	0.03	0.01	0.02	0.02	0.05	0.04	0.01	0.01	0.03	0.00	0.02	0.00	0.03	0.04	0.03	0.02	0.02	0.03	0.03	0.01	0.03	0.00
K ₂ O	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.02	0.01	0.01	0.00	0.00	0.02	0.02	0.01	0.02	0.00	0.00	0.02	0.00	0.02	0.00	0.02
NiO	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Total	100.56	100.70	101.09	100.12	100.23	99.78	99.71	99.30	99.33	99.71	99.48	99.04	100.06	99.64	99.84	99.95	99.49	99.16	98.95	99.55	99.75	100.03	99.95	99.67
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	3.045	3.033	3.047	3.023	3.003	3.044	3.040	2.993	3.052	3.050	3.027	3.033	3.039	3.034	3.015	3.028	3.023	2.996	3.032	3.015	3.039	3.030	3.022	3.041
Ti	0.000	0.001	0.001	0.001	0.000	0.001	0.004	0.001	0.002	0.002	0.001	0.000	0.002	0.000	0.003	0.000	0.003	0.000	0.000	0.002	0.003	0.001	0.000	0.000
Al	1.958	1.955	1.961	1.941	1.973	1.952	1.938	1.948	1.942	1.940	1.953	1.959	1.963	1.957	1.962	1.964	1.949	1.969	1.951	1.954	1.957	1.953	1.947	1.963
Cr	0.002	0.000	0.001	0.001	0.000	0.003	0.000	0.000	0.002	0.000	0.001	0.001	0.001	0.002	0.004	0.002	0.000	0.000	0.001	0.001	0.000	0.002	0.001	0.000
Fe ³⁺	0.000	0.000	0.000	0.014	0.023	0.000	0.000	0.073	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.006	0.042	0.000	0.018	0.000	0.000	0.012	0.000
Fe ²⁺	2.259	2.318	2.355	2.355	2.339	2.347	2.335	2.285	2.343	2.344	2.321	2.315	2.315	2.310	2.301	2.304	2.311	2.286	2.327	2.325	2.330	2.348	2.334	2.319
Mn	0.427	0.315	0.196	0.195	0.192	0.193	0.191	0.170	0.134	0.143	0.224	0.273	0.276	0.294	0.284	0.284	0.289	0.196	0.154	0.138	0.138	0.144	0.148	0.162
Mg	0.233	0.301	0.365	0.388	0.394	0.383	0.411	0.447	0.452	0.447	0.380	0.342	0.331	0.330	0.344	0.340	0.341	0.434	0.464	0.468	0.463	0.446	0.464	0.439
Ca	0.074	0.070	0.069	0.076	0.071	0.075	0.074	0.075	0.070	0.071	0.087	0.076	0.070	0.071	0.077	0.070	0.072	0.074	0.069	0.074	0.066	0.072	0.068	0.074
Na	0.000	0.005	0.005	0.001	0.003	0.003	0.008	0.006	0.001	0.001	0.004	0.000	0.003	0.000	0.004	0.007	0.005	0.003	0.002	0.004	0.004	0.001	0.004	0.000
K	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.002	0.001	0.001	0.000	0.000	0.002	0.002	0.001	0.002	0.000	0.000	0.002	0.000	0.002	0.000	0.002
Ni	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.094	0.115	0.134	0.142	0.144	0.140	0.150	0.164	0.162	0.160	0.141	0.129	0.125	0.125	0.130	0.129	0.129	0.160	0.166	0.167	0.166	0.160	0.166	0.159
Grs	0.025	0.023	0.023	0.025	0.024	0.025	0.025	0.025	0.023	0.024	0.029	0.025	0.023	0.024	0.026	0.023	0.024	0.025	0.023	0.025	0.022	0.024	0.023	0.025
Prp	0.078	0.100	0.122	0.129	0.132	0.128	0.136	0.150	0.151	0.149	0.126	0.114	0.111	0.110	0.114	0.114	0.113	0.145	0.154	0.156	0.155	0.148	0.154	0.147
Alm	0.755	0.771	0.789	0.781	0.781	0.783	0.776	0.767	0.781	0.780	0.770	0.770	0.774	0.769	0.765	0.768	0.767	0.765	0.772	0.774	0.777	0.780	0.774	0.775
Sps	0.143	0.105	0.066	0.065	0.064	0.064	0.063	0.057	0.045	0.047	0.074	0.091	0.092	0.098	0.094	0.095	0.096	0.066	0.051	0.046	0.046	0.048	0.049	0.054
Xfe	0.906	0.885	0.866	0.858	0.856	0.860	0.850	0.836	0.838	0.840	0.859	0.871	0.875	0.875	0.870	0.871	0.871	0.840	0.834	0.833	0.834	0.840	0.834	0.841
X(Grs)	0.025	0.023	0.023	0.025	0.024	0.025	0.025	0.025	0.023	0.024	0.029	0.025	0.023	0.024	0.026	0.023	0.024	0.025	0.023	0.025	0.022	0.024	0.023	0.025
Y(Alm+Sps)	0.898	0.876	0.855	0.846	0.845	0.847	0.839	0.825	0.826	0.828	0.845	0.861	0.866	0.866	0.860	0.863	0.863	0.830	0.823	0.820	0.823	0.828	0.824	0.829
Z(Prp)	0.078	0.100	0.122	0.129	0.132	0.128	0.136	0.150	0.151	0.149	0.126	0.114	0.111	0.110	0.114	0.114	0.113	0.145	0.154	0.156	0.155	0.148	0.154	0.147

Table S1

Sample	19S21-3.10																							
Spot ID	Q1.25	Q1.26	Q1.27	Q1.28	Q1.29	Q1.30	Q1.31	Q1.32	Q1.33	Q1.34	Q1.35	Q2.9	Q2.10	Q2.11	Q2.12	Q2.13	Q2.14	Q2.15	Q2.16	Q2.17	Q2.18	Q2.19	Q2.20	Q2.21
Mineral	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO2	37.54	37.59	37.36	37.47	37.34	37.07	36.97	36.94	37.24	37.81	37.32	37.45	37.37	37.28	37.74	37.65	37.61	37.51	37.37	37.74	37.67	37.49	37.58	37.30
TiO2	0.00	0.00	0.02	0.02	0.02	0.01	0.02	0.01	0.00	0.00	0.04	0.00	0.00	0.02	0.03	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.06	0.02
Al2O3	20.52	20.54	20.58	20.49	20.69	20.38	20.65	20.59	20.30	19.97	20.53	20.65	20.25	20.57	20.50	20.66	20.56	20.61	20.74	20.51	20.45	20.41	20.74	20.59
Cr2O3	0.05	0.02	0.04	0.00	0.02	0.05	0.00	0.03	0.07	0.02	0.06	0.00	0.01	0.06	0.04	0.04	0.03	0.06	0.02	0.01	0.00	0.00	0.03	0.00
FeO ^T	34.79	34.67	34.54	34.35	34.11	34.28	33.49	33.47	33.18	32.10	33.84	34.20	34.49	34.75	35.06	35.07	34.94	34.92	34.76	34.79	35.01	34.70	34.59	34.70
MnO	2.46	2.78	3.31	3.92	4.00	4.50	5.26	5.73	6.11	6.81	5.33	4.29	3.58	3.06	2.74	2.54	2.47	2.39	2.38	2.29	2.31	2.40	2.39	2.30
MgO	3.60	3.49	3.11	2.90	2.83	2.54	2.28	2.00	1.92	1.52	2.21	2.48	2.83	3.05	3.17	3.27	3.22	3.38	3.40	3.40	3.55	3.60	3.41	3.48
CaO	0.79	0.84	0.88	0.83	0.90	0.93	0.98	0.99	0.99	0.85	0.86	0.93	0.83	0.82	0.80	0.85	0.83	0.88	0.88	0.78	0.84	0.89	0.82	0.84
Na2O	0.08	0.00	0.04	0.00	0.06	0.01	0.02	0.00	0.02	0.03	0.00	0.00	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.03	0.03	0.01	0.00	0.01
K2O	0.01	0.00	0.00	0.01	0.00	0.06	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00
NiO	0.00	0.01	0.00	0.00	0.03	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.83	99.93	99.87	99.98	100.01	99.82	99.68	99.78	99.82	99.15	100.20	99.99	99.50	99.62	100.11	100.10	99.72	99.75	99.56	99.55	99.85	99.49	99.64	99.25
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	3.024	3.030	3.019	3.031	3.017	3.011	3.009	3.011	3.037	3.110	3.027	3.035	3.036	3.022	3.043	3.033	3.041	3.029	3.022	3.052	3.037	3.032	3.036	3.024
Ti	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.002	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.004	0.001
Al	1.948	1.951	1.960	1.953	1.971	1.951	1.981	1.978	1.951	1.936	1.963	1.972	1.939	1.965	1.948	1.961	1.960	1.962	1.976	1.955	1.943	1.945	1.975	1.968
Cr	0.003	0.001	0.003	0.000	0.002	0.003	0.000	0.002	0.004	0.001	0.004	0.000	0.001	0.004	0.002	0.003	0.002	0.004	0.001	0.000	0.000	0.000	0.002	0.000
Fe3+	0.015	0.000	0.004	0.000	0.001	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe2+	2.328	2.337	2.330	2.324	2.304	2.299	2.280	2.282	2.263	2.208	2.295	2.318	2.337	2.356	2.364	2.363	2.363	2.358	2.351	2.353	2.360	2.347	2.337	2.353
Mn	0.168	0.190	0.226	0.269	0.274	0.310	0.363	0.396	0.422	0.475	0.366	0.295	0.247	0.210	0.187	0.174	0.169	0.164	0.163	0.157	0.158	0.164	0.164	0.158
Mg	0.432	0.419	0.375	0.350	0.341	0.308	0.277	0.243	0.233	0.187	0.267	0.300	0.343	0.368	0.381	0.392	0.388	0.407	0.410	0.409	0.426	0.434	0.411	0.421
Ca	0.068	0.072	0.076	0.072	0.078	0.081	0.085	0.086	0.087	0.075	0.075	0.080	0.072	0.071	0.069	0.073	0.072	0.076	0.076	0.068	0.073	0.077	0.071	0.073
Na	0.012	0.000	0.006	0.000	0.010	0.001	0.003	0.000	0.003	0.004	0.000	0.000	0.018	0.000	0.003	0.000	0.001	0.000	0.000	0.004	0.004	0.001	0.000	0.002
K	0.001	0.000	0.000	0.001	0.000	0.006	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.001	0.001	0.001	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Ni	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.157	0.152	0.139	0.131	0.129	0.118	0.108	0.096	0.093	0.078	0.104	0.114	0.128	0.135	0.139	0.142	0.141	0.147	0.148	0.148	0.153	0.156	0.149	0.152
Grs	0.023	0.024	0.025	0.024	0.026	0.027	0.028	0.029	0.029	0.025	0.025	0.027	0.024	0.024	0.023	0.024	0.024	0.025	0.025	0.023	0.024	0.025	0.024	0.024
Prp	0.144	0.139	0.125	0.116	0.114	0.103	0.092	0.081	0.078	0.063	0.089	0.100	0.114	0.122	0.127	0.131	0.130	0.135	0.137	0.137	0.141	0.144	0.138	0.140
Alm	0.777	0.774	0.775	0.771	0.769	0.767	0.759	0.759	0.753	0.750	0.764	0.775	0.779	0.784	0.788	0.787	0.790	0.785	0.784	0.788	0.782	0.777	0.784	0.783
Sps	0.056	0.063	0.075	0.089	0.091	0.103	0.121	0.132	0.140	0.161	0.122	0.098	0.082	0.070	0.062	0.058	0.056	0.054	0.054	0.053	0.052	0.054	0.055	0.053
Xfe	0.843	0.848	0.861	0.869	0.871	0.882	0.892	0.904	0.907	0.922	0.896	0.886	0.872	0.865	0.861	0.858	0.859	0.853	0.852	0.852	0.847	0.844	0.851	0.848
X(Grs)	0.023	0.024	0.025	0.024	0.026	0.027	0.028	0.029	0.029	0.025	0.025	0.027	0.024	0.024	0.023	0.024	0.024	0.025	0.025	0.023	0.024	0.025	0.024	0.024
Y(Alm+Sps)	0.833	0.837	0.850	0.860	0.860	0.870	0.879	0.891	0.894	0.911	0.886	0.873	0.862	0.854	0.850	0.845	0.846	0.839	0.838	0.840	0.835	0.831	0.838	0.836
Z(Prp)	0.144	0.139	0.125	0.116	0.114	0.103	0.092	0.081	0.078	0.063	0.089	0.100	0.114	0.122	0.127	0.131	0.130	0.135	0.137	0.137	0.141	0.144	0.138	0.140

Table S1

Sample Spot ID Mineral	19S21-3.10														19S22-1.3									
	Q2.22	Q2.23	Q2.24	Q2.25	Q2.26	Q2.27	Q2.28	Q2.29	Q2.30	Q2.31	Q2.32	Q2.33	Q2.34	Q2.35	Q1.1	Q1.2	Q1.3	Q1.4	Q1.5	Q1.6	Q1.7	Q1.8	Q1.9	Q1.10
	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO ₂	37.53	37.19	37.69	37.23	37.73	37.71	37.38	37.61	37.42	37.39	37.25	37.57	37.30	37.30	37.41	37.36	37.57	37.70	37.71	37.56	37.71	37.97	37.22	37.54
TiO ₂	0.09	0.00	0.02	0.05	0.00	0.00	0.02	0.00	0.03	0.00	0.04	0.01	0.00	0.06	0.00	0.01	0.00	0.00	0.06	0.00	0.05	0.03	0.02	0.03
Al ₂ O ₃	20.39	20.27	20.48	20.59	20.26	20.63	20.61	20.40	20.50	20.67	20.50	20.65	20.53	20.50	20.59	20.58	20.55	20.55	20.77	20.81	20.71	20.61	20.48	20.52
Cr ₂ O ₃	0.01	0.01	0.05	0.03	0.00	0.00	0.00	0.05	0.01	0.01	0.05	0.01	0.05	0.00	0.01	0.00	0.06	0.05	0.01	0.02	0.03	0.00	0.02	0.00
FeO ^T	34.76	34.51	34.33	34.49	34.67	34.65	34.53	34.48	35.11	34.55	34.76	35.01	34.62	32.97	30.06	30.58	31.84	32.69	32.29	32.76	32.40	32.24	32.29	32.15
MnO	2.47	2.82	2.59	2.43	2.23	2.14	2.20	2.19	2.22	2.43	2.33	2.46	3.50	6.40	8.24	7.46	5.33	3.98	3.56	3.32	3.31	3.28	3.26	3.27
MgO	3.50	3.34	3.42	3.61	3.53	3.69	3.68	3.60	3.64	3.64	3.65	3.37	2.77	1.84	2.63	2.78	3.32	3.84	3.92	4.07	4.20	4.15	4.19	4.16
CaO	0.83	0.90	0.85	0.76	0.83	0.83	0.81	0.83	0.76	0.80	0.79	0.79	0.91	0.92	1.27	1.20	1.16	1.26	1.27	1.27	1.29	1.27	1.29	1.31
Na ₂ O	0.04	0.00	0.06	0.00	0.02	0.02	0.00	0.00	0.04	0.01	0.02	0.03	0.04	0.00	0.03	0.03	0.00	0.01	0.02	0.03	0.01	0.04	0.02	0.03
K ₂ O	0.00	0.00	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.01	0.03	0.01	0.01	0.00	0.01	0.00	0.00
NiO	0.00	0.02	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.61	99.05	99.51	99.19	99.26	99.67	99.25	99.16	99.72	99.51	99.40	99.88	99.72	100.02	100.26	100.01	99.83	100.11	99.61	99.85	99.71	99.58	98.78	99.01
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	3.034	3.027	3.048	3.019	3.059	3.040	3.027	3.051	3.019	3.021	3.014	3.030	3.026	3.036	3.018	3.018	3.030	3.022	3.032	3.010	3.025	3.048	3.014	3.032
Ti	0.006	0.000	0.001	0.003	0.000	0.000	0.001	0.000	0.002	0.000	0.003	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.003	0.000	0.003	0.002	0.001	0.002
Al	1.942	1.944	1.952	1.968	1.936	1.960	1.966	1.950	1.949	1.968	1.956	1.963	1.962	1.967	1.958	1.960	1.954	1.942	1.969	1.965	1.958	1.950	1.954	1.953
Cr	0.000	0.000	0.003	0.002	0.000	0.000	0.000	0.003	0.001	0.001	0.003	0.000	0.003	0.000	0.000	0.000	0.004	0.003	0.001	0.001	0.002	0.000	0.001	0.000
Fe ³⁺	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.010	0.000	0.000	0.000	0.011	0.009	0.000	0.016	0.000	0.019	0.000	0.000	0.018	0.000
Fe ²⁺	2.350	2.348	2.322	2.339	2.351	2.336	2.338	2.339	2.353	2.334	2.342	2.362	2.349	2.245	2.016	2.058	2.148	2.175	2.171	2.176	2.174	2.165	2.168	2.171
Mn	0.169	0.194	0.177	0.167	0.153	0.146	0.151	0.150	0.152	0.166	0.160	0.168	0.240	0.441	0.563	0.511	0.364	0.270	0.242	0.226	0.225	0.223	0.223	0.224
Mg	0.421	0.406	0.412	0.436	0.426	0.444	0.444	0.435	0.438	0.438	0.441	0.405	0.335	0.223	0.316	0.334	0.399	0.459	0.470	0.487	0.502	0.497	0.505	0.500
Ca	0.072	0.078	0.074	0.066	0.072	0.072	0.070	0.072	0.065	0.070	0.068	0.068	0.079	0.080	0.110	0.104	0.101	0.108	0.110	0.109	0.111	0.109	0.112	0.113
Na	0.006	0.000	0.009	0.000	0.003	0.004	0.000	0.000	0.006	0.001	0.003	0.004	0.006	0.000	0.005	0.005	0.000	0.002	0.003	0.005	0.001	0.005	0.003	0.005
K	0.000	0.000	0.002	0.001	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.002	0.001	0.001	0.003	0.001	0.001	0.000	0.001	0.000	0.000
Ni	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.152	0.147	0.151	0.157	0.153	0.160	0.160	0.157	0.157	0.158	0.158	0.146	0.125	0.091	0.135	0.140	0.157	0.174	0.178	0.183	0.188	0.187	0.189	0.187
Grs	0.024	0.026	0.025	0.022	0.024	0.024	0.023	0.024	0.022	0.023	0.023	0.023	0.026	0.027	0.037	0.034	0.033	0.036	0.037	0.036	0.037	0.036	0.037	0.038
Prp	0.140	0.134	0.138	0.145	0.142	0.148	0.148	0.145	0.146	0.146	0.146	0.135	0.111	0.075	0.105	0.111	0.133	0.152	0.157	0.162	0.167	0.166	0.168	0.166
Alm	0.780	0.776	0.778	0.778	0.783	0.779	0.779	0.781	0.782	0.776	0.778	0.787	0.782	0.751	0.671	0.684	0.713	0.722	0.725	0.726	0.722	0.723	0.721	0.722
Sps	0.056	0.064	0.059	0.055	0.051	0.049	0.050	0.050	0.050	0.055	0.053	0.056	0.080	0.148	0.187	0.170	0.121	0.090	0.081	0.075	0.075	0.074	0.074	0.074
Xfe	0.848	0.853	0.849	0.843	0.847	0.840	0.840	0.843	0.843	0.842	0.842	0.854	0.875	0.909	0.865	0.860	0.843	0.826	0.822	0.817	0.812	0.813	0.811	0.813
X(Grs)	0.024	0.026	0.025	0.022	0.024	0.024	0.023	0.024	0.022	0.023	0.023	0.023	0.026	0.027	0.037	0.034	0.033	0.036	0.037	0.036	0.037	0.036	0.037	0.038
Y(Alm+Sps)	0.836	0.840	0.837	0.833	0.834	0.828	0.829	0.831	0.833	0.831	0.831	0.842	0.862	0.898	0.858	0.854	0.834	0.812	0.806	0.801	0.797	0.798	0.795	0.796
Z(Prp)	0.140	0.134	0.138	0.145	0.142	0.148	0.148	0.145	0.146	0.146	0.146	0.135	0.111	0.075	0.105	0.111	0.133	0.152	0.157	0.162	0.167	0.166	0.168	0.166

Table S1

Sample	19S22-1.3																								
Spot ID	Q1.11	Q1.12	Q1.13	Q1.14	Q1.15	Q1.16	Q1.17	Q1.18	Q1.19	Q1.20	Q1.21	Q1.22	Q1.23	Q1.24	Q1.25	Q1.26	Q1.27	Q1.28	Q2.47	Q2.48	Q2.49	Q2.50	Q2.51	Q2.52	Q2.53
Mineral	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO2	37.09	37.26	37.65	37.67	37.90	37.61	37.93	37.57	37.83	37.69	37.56	37.41	37.19	37.39	37.34	37.49	36.30	35.98	37.52	37.36	37.32	37.16	37.14	37.10	36.75
TiO2	0.02	0.07	0.00	0.02	0.22	0.08	0.00	0.07	0.02	0.05	0.07	0.02	0.05	0.00	0.04	0.00	0.03	0.02	0.00	0.03	0.00	0.03	0.01	0.02	0.00
Al2O3	20.41	20.68	20.74	20.74	20.53	20.65	20.70	20.78	20.63	20.42	20.42	20.23	20.46	20.69	20.68	20.45	20.12	20.25	20.54	20.59	20.67	20.94	20.55	20.61	20.65
Cr2O3	0.00	0.04	0.06	0.06	0.03	0.01	0.02	0.00	0.03	0.00	0.03	0.01	0.04	0.03	0.02	0.07	0.02	0.02	0.00	0.03	0.03	0.00	0.01	0.01	0.01
FeO ^T	32.45	32.51	32.11	32.07	31.89	32.32	32.44	32.14	32.56	31.96	32.25	32.28	32.30	32.11	31.14	31.42	29.96	29.68	28.82	29.70	30.26	31.07	30.34	30.45	30.97
MnO	3.28	3.28	3.29	3.23	3.12	3.19	3.16	3.03	2.98	3.11	3.15	3.19	4.15	4.65	6.19	6.35	7.85	8.85	8.85	7.66	6.25	4.95	5.60	4.45	4.27
MgO	4.24	4.07	4.22	4.21	4.33	4.40	4.40	4.37	4.44	4.44	4.41	4.27	3.76	3.55	3.15	3.07	2.54	2.30	2.78	3.07	3.49	3.91	3.84	4.26	4.50
CaO	1.34	1.30	1.33	1.36	1.31	1.34	1.32	1.34	1.32	1.31	1.30	1.28	1.20	1.17	1.24	1.23	1.40	0.73	1.39	1.50	1.45	1.53	1.39	1.40	1.32
Na2O	0.03	0.00	0.04	0.00	0.00	0.05	0.00	0.01	0.04	0.01	0.01	0.02	0.00	0.04	0.00	0.03	0.02	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.03
K2O	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.03	0.00	0.01	0.01	0.00	0.03	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.00
NiO	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Total	98.86	99.21	99.43	99.38	99.33	99.64	99.97	99.33	99.86	99.01	99.21	98.73	99.18	99.64	99.82	100.10	98.29	97.89	99.91	99.93	99.50	99.58	98.88	98.31	98.50
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	3.001	3.006	3.025	3.029	3.048	3.014	3.031	3.019	3.024	3.039	3.025	3.030	3.011	3.015	3.015	3.021	2.989	2.982	3.033	3.014	3.012	2.988	3.010	3.012	2.976
Ti	0.001	0.004	0.000	0.001	0.013	0.005	0.000	0.004	0.001	0.003	0.004	0.001	0.003	0.000	0.002	0.000	0.002	0.001	0.000	0.002	0.000	0.002	0.001	0.001	0.000
Al	1.946	1.967	1.964	1.966	1.946	1.950	1.949	1.968	1.944	1.941	1.938	1.931	1.952	1.966	1.968	1.943	1.953	1.978	1.957	1.957	1.966	1.984	1.963	1.973	1.971
Cr	0.000	0.003	0.004	0.004	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.001	0.002	0.002	0.001	0.004	0.001	0.002	0.000	0.002	0.002	0.000	0.001	0.001	0.000
Fe3+	0.054	0.009	0.000	0.000	0.000	0.020	0.000	0.000	0.010	0.000	0.004	0.012	0.017	0.011	0.000	0.015	0.071	0.062	0.000	0.010	0.012	0.039	0.015	0.001	0.081
Fe2+	2.142	2.185	2.158	2.157	2.145	2.146	2.168	2.160	2.167	2.155	2.168	2.175	2.170	2.154	2.103	2.103	1.993	1.996	1.948	1.993	2.030	2.050	2.042	2.067	2.016
Mn	0.225	0.224	0.224	0.220	0.212	0.216	0.214	0.207	0.202	0.213	0.215	0.219	0.285	0.318	0.423	0.433	0.548	0.622	0.606	0.523	0.427	0.337	0.384	0.306	0.293
Mg	0.511	0.489	0.505	0.505	0.519	0.526	0.524	0.524	0.529	0.534	0.530	0.515	0.454	0.426	0.379	0.369	0.311	0.284	0.335	0.369	0.420	0.469	0.464	0.516	0.544
Ca	0.116	0.112	0.114	0.117	0.113	0.115	0.113	0.116	0.113	0.113	0.112	0.111	0.104	0.101	0.107	0.106	0.124	0.065	0.121	0.130	0.126	0.132	0.120	0.122	0.114
Na	0.004	0.000	0.005	0.000	0.000	0.007	0.000	0.002	0.007	0.002	0.002	0.003	0.000	0.007	0.000	0.005	0.004	0.003	0.000	0.000	0.003	0.000	0.000	0.000	0.004
K	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.003	0.000	0.001	0.001	0.000	0.003	0.006	0.000	0.000	0.001	0.001	0.000	0.001	0.000
Ni	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.193	0.183	0.190	0.190	0.195	0.197	0.195	0.195	0.196	0.199	0.196	0.191	0.173	0.165	0.153	0.149	0.135	0.125	0.147	0.156	0.172	0.186	0.185	0.200	0.212
Grs	0.039	0.037	0.038	0.039	0.038	0.038	0.038	0.038	0.037	0.038	0.037	0.037	0.034	0.034	0.036	0.035	0.042	0.022	0.040	0.043	0.042	0.044	0.040	0.041	0.038
Prp	0.171	0.162	0.168	0.168	0.174	0.175	0.174	0.174	0.176	0.177	0.175	0.171	0.151	0.142	0.126	0.123	0.105	0.096	0.111	0.122	0.140	0.157	0.154	0.171	0.183
Alm	0.715	0.726	0.719	0.719	0.718	0.715	0.718	0.719	0.720	0.715	0.717	0.720	0.720	0.718	0.698	0.698	0.670	0.673	0.647	0.661	0.676	0.686	0.678	0.687	0.680
Sps	0.075	0.075	0.075	0.073	0.071	0.072	0.071	0.069	0.067	0.070	0.071	0.072	0.094	0.106	0.140	0.144	0.184	0.210	0.201	0.174	0.142	0.113	0.128	0.102	0.099
Xfe	0.807	0.817	0.810	0.810	0.805	0.803	0.805	0.805	0.804	0.801	0.804	0.809	0.827	0.835	0.847	0.851	0.865	0.875	0.853	0.844	0.828	0.814	0.815	0.800	0.788
X(Grs)	0.039	0.037	0.038	0.039	0.038	0.038	0.038	0.038	0.037	0.038	0.037	0.037	0.034	0.034	0.036	0.035	0.042	0.022	0.040	0.043	0.042	0.044	0.040	0.041	0.038
Y(Alm+Sps)	0.790	0.800	0.794	0.793	0.789	0.787	0.789	0.787	0.787	0.785	0.788	0.793	0.815	0.824	0.838	0.842	0.854	0.882	0.849	0.835	0.818	0.799	0.806	0.788	0.778
Z(Prp)	0.171	0.162	0.168	0.168	0.174	0.175	0.174	0.174	0.176	0.177	0.175	0.171	0.151	0.142	0.126	0.123	0.105	0.096	0.111	0.122	0.140	0.157	0.154	0.171	0.183

Table S1

Sample	19S22-1.3																				19S28-1		
Spot ID	Q2.54	Q2.55	Q2.56	Q2.57	Q2.58	Q2.59	Q2.60	Q2.61	Q2.62	Q2.63	Q2.64	Q2.65	Q2.66	Q2.67	Q2.68	Q2.69	Q2.70	Q2.71	Q2.72	Q2.73	1.1	1.2	1.3
Mineral	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO2	36.78	37.85	38.07	38.22	38.13	37.31	37.40	37.25	37.24	37.86	37.65	37.95	37.69	37.72	37.59	37.48	37.86	37.45	37.45	36.80	37.24	37.69	37.56
TiO2	0.00	0.05	0.00	0.07	0.06	0.06	0.09	0.19	0.10	0.03	0.01	0.04	0.00	0.00	0.04	0.05	0.06	0.02	0.02	0.05	0.03	0.01	0.00
Al2O3	20.63	20.88	20.84	21.01	20.77	20.99	20.61	20.40	20.54	20.57	20.82	20.61	20.59	20.71	20.99	20.61	20.72	20.71	20.33	20.26	20.65	20.70	20.46
Cr2O3	0.06	0.00	0.00	0.05	0.02	0.02	0.03	0.04	0.06	0.00	0.00	0.04	0.06	0.04	0.07	0.06	0.01	0.00	0.01	0.00	0.04	0.03	0.04
FeO ^T	30.53	30.97	30.63	30.66	30.68	30.36	30.49	30.39	30.62	30.76	30.66	30.80	30.82	31.06	31.08	30.97	31.15	30.15	29.77	28.46	30.65	30.32	29.88
MnO	4.42	4.36	4.35	4.39	4.42	4.42	4.42	4.62	4.82	4.18	4.26	4.24	4.13	4.35	4.53	4.74	4.99	6.30	7.30	9.24	6.70	6.37	6.64
MgO	4.50	4.48	4.64	4.69	4.70	4.65	4.70	4.48	4.45	4.66	4.77	4.60	4.71	4.41	4.37	4.14	3.94	3.45	3.21	2.52	3.43	3.78	3.94
CaO	1.36	1.36	1.45	1.44	1.47	1.44	1.41	1.58	1.48	1.63	1.61	1.57	1.43	1.47	1.37	1.43	1.40	1.42	1.32	1.44	0.89	0.94	0.88
Na2O	0.00	0.03	0.00	0.04	0.03	0.00	0.00	0.00	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.02	0.00	0.00	0.05
K2O	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.03	0.01	0.00	0.01	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01
NiO	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Total	98.28	99.97	99.99	100.58	100.28	99.27	99.15	99.00	99.35	99.69	99.79	99.85	99.48	99.75	100.07	99.47	100.12	99.55	99.44	98.83	99.63	99.85	99.44
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	2.984	3.020	3.033	3.026	3.028	2.992	3.006	3.004	2.992	3.026	3.003	3.029	3.019	3.019	3.000	3.014	3.030	3.020	3.034	3.012	3.009	3.030	3.028
Ti	0.000	0.003	0.000	0.004	0.004	0.003	0.005	0.011	0.006	0.002	0.001	0.002	0.000	0.000	0.002	0.003	0.003	0.001	0.001	0.003	0.002	0.001	0.000
Al	1.973	1.963	1.957	1.960	1.944	1.984	1.952	1.939	1.945	1.938	1.957	1.939	1.944	1.954	1.973	1.954	1.954	1.969	1.940	1.954	1.966	1.961	1.944
Cr	0.004	0.000	0.000	0.003	0.001	0.001	0.002	0.002	0.004	0.000	0.000	0.002	0.004	0.002	0.005	0.004	0.001	0.000	0.001	0.000	0.002	0.002	0.002
Fe3+	0.054	0.000	0.000	0.000	0.000	0.025	0.024	0.032	0.063	0.005	0.036	0.000	0.017	0.007	0.020	0.009	0.000	0.000	0.000	0.023	0.010	0.000	0.005
Fe2+	2.018	2.066	2.041	2.030	2.038	2.011	2.026	2.017	1.995	2.051	2.010	2.056	2.047	2.072	2.054	2.074	2.085	2.033	2.016	1.925	2.062	2.038	2.009
Mn	0.304	0.294	0.294	0.294	0.297	0.300	0.301	0.316	0.328	0.283	0.287	0.287	0.280	0.295	0.306	0.323	0.338	0.430	0.501	0.641	0.459	0.434	0.453
Mg	0.545	0.533	0.551	0.554	0.557	0.556	0.563	0.538	0.533	0.555	0.567	0.547	0.562	0.526	0.520	0.496	0.470	0.415	0.388	0.308	0.413	0.453	0.474
Ca	0.118	0.116	0.124	0.122	0.125	0.124	0.121	0.136	0.128	0.139	0.138	0.134	0.123	0.126	0.117	0.123	0.120	0.123	0.115	0.126	0.077	0.081	0.076
Na	0.000	0.004	0.000	0.006	0.005	0.000	0.000	0.000	0.006	0.000	0.000	0.003	0.001	0.000	0.000	0.001	0.000	0.008	0.003	0.004	0.000	0.000	0.007
K	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.003	0.001	0.000	0.001	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.001
Ni	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.213	0.205	0.213	0.214	0.215	0.217	0.217	0.211	0.211	0.213	0.220	0.210	0.215	0.202	0.202	0.193	0.184	0.170	0.161	0.138	0.167	0.182	0.191
Grs	0.039	0.039	0.041	0.041	0.041	0.041	0.040	0.045	0.043	0.046	0.046	0.044	0.041	0.042	0.039	0.041	0.040	0.041	0.038	0.042	0.026	0.027	0.025
Prp	0.183	0.177	0.183	0.185	0.185	0.186	0.187	0.179	0.179	0.183	0.189	0.181	0.187	0.174	0.173	0.165	0.156	0.138	0.128	0.103	0.137	0.151	0.157
Alm	0.676	0.686	0.678	0.677	0.675	0.672	0.673	0.671	0.669	0.677	0.669	0.680	0.680	0.687	0.685	0.688	0.692	0.677	0.668	0.642	0.685	0.678	0.667
Sps	0.102	0.098	0.098	0.098	0.098	0.100	0.100	0.105	0.110	0.093	0.096	0.095	0.093	0.098	0.102	0.107	0.112	0.143	0.166	0.214	0.152	0.144	0.150
Xfe	0.787	0.795	0.787	0.786	0.785	0.783	0.783	0.789	0.789	0.787	0.780	0.790	0.785	0.798	0.798	0.807	0.816	0.830	0.839	0.862	0.833	0.818	0.809
X(Grs)	0.039	0.039	0.041	0.041	0.041	0.041	0.040	0.045	0.043	0.046	0.046	0.044	0.041	0.042	0.039	0.041	0.040	0.041	0.038	0.042	0.026	0.027	0.025
Y(Alm+Sps)	0.778	0.784	0.776	0.775	0.774	0.773	0.773	0.776	0.778	0.771	0.765	0.775	0.773	0.784	0.787	0.795	0.804	0.821	0.834	0.855	0.837	0.822	0.817
Z(Prp)	0.183	0.177	0.183	0.185	0.185	0.186	0.187	0.179	0.179	0.183	0.189	0.181	0.187	0.174	0.173	0.165	0.156	0.138	0.128	0.103	0.137	0.151	0.157

Table S1

Sample Spot ID Mineral	19S28-1																							
	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27
	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet	Garnet
SiO ₂	37.72	37.00	35.99	37.03	37.22	37.49	37.53	37.70	37.71	36.51	36.93	36.89	37.11	36.98	37.35	37.49	38.36	37.50	37.53	37.87	37.31	37.30	37.37	37.29
TiO ₂	0.03	0.04	0.00	0.00	0.04	0.00	0.00	0.00	0.04	0.05	0.01	0.01	0.00	0.00	0.00	0.04	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.01
Al ₂ O ₃	20.88	20.85	20.67	20.45	20.58	20.48	20.73	20.78	20.74	20.22	20.69	20.44	20.54	20.71	20.86	20.61	20.95	20.72	20.93	20.79	20.85	20.69	20.67	20.39
Cr ₂ O ₃	0.05	0.04	0.00	0.03	0.02	0.05	0.05	0.00	0.00	0.17	0.05	0.00	0.05	0.04	0.01	0.01	0.05	0.03	0.04	0.01	0.03	0.05	0.03	0.06
FeO ^T	29.86	29.71	29.80	29.42	29.51	29.30	29.43	29.32	29.29	28.76	29.40	29.23	29.57	29.77	30.29	30.10	30.50	30.79	30.60	30.22	30.24	30.22	30.47	30.42
MnO	6.64	6.98	7.02	7.13	7.10	7.31	7.30	7.43	7.38	7.21	7.12	6.99	6.86	6.83	6.53	6.42	6.16	6.14	6.06	6.21	6.43	6.20	6.52	7.51
MgO	3.98	3.99	4.05	4.05	4.03	3.96	3.94	3.91	3.96	3.91	3.81	3.81	3.86	4.01	3.96	4.08	3.95	3.93	3.97	3.92	3.85	3.81	3.53	2.78
CaO	0.92	0.84	0.85	0.89	0.89	0.86	0.90	0.93	0.93	1.06	0.94	1.05	0.99	0.98	1.01	0.98	0.95	0.81	0.85	0.92	0.98	1.00	0.94	0.82
Na ₂ O	0.00	0.00	0.03	0.01	0.01	0.02	0.00	0.01	0.01	0.05	0.00	0.06	0.05	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.00
K ₂ O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.02	0.03	0.02	0.02
NiO	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.08	99.45	98.40	99.01	99.39	99.48	99.86	100.07	100.07	97.94	98.94	98.50	99.04	99.36	100.02	99.77	101.02	99.94	99.98	99.96	99.77	99.29	99.56	99.29
Oxygens	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Si	3.020	2.983	2.931	2.998	3.002	3.023	3.014	3.021	3.021	2.988	2.994	3.002	3.004	2.982	2.994	3.010	3.044	3.011	3.009	3.037	2.997	3.013	3.018	3.037
Ti	0.002	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.003	0.000	0.001	0.000	0.000	0.000	0.002	0.004	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Al	1.970	1.981	1.984	1.951	1.956	1.946	1.962	1.962	1.958	1.951	1.978	1.961	1.960	1.968	1.971	1.950	1.960	1.960	1.977	1.965	1.974	1.970	1.967	1.957
Cr	0.003	0.003	0.000	0.002	0.001	0.003	0.003	0.000	0.000	0.011	0.003	0.000	0.003	0.003	0.001	0.001	0.003	0.002	0.003	0.001	0.002	0.003	0.002	0.004
Fe ³⁺	0.000	0.047	0.157	0.053	0.035	0.009	0.008	0.000	0.000	0.065	0.030	0.046	0.036	0.072	0.042	0.031	0.000	0.017	0.001	0.000	0.039	0.003	0.000	0.000
Fe ²⁺	2.000	1.956	1.873	1.939	1.955	1.966	1.969	1.965	1.963	1.904	1.964	1.944	1.967	1.936	1.989	1.990	2.024	2.051	2.050	2.026	1.993	2.038	2.058	2.072
Mn	0.450	0.477	0.484	0.489	0.485	0.499	0.496	0.504	0.501	0.500	0.489	0.482	0.471	0.466	0.443	0.436	0.414	0.417	0.411	0.422	0.438	0.425	0.446	0.518
Mg	0.476	0.480	0.492	0.489	0.484	0.475	0.471	0.467	0.473	0.477	0.460	0.462	0.466	0.482	0.473	0.488	0.467	0.471	0.475	0.469	0.461	0.459	0.425	0.337
Ca	0.079	0.072	0.074	0.077	0.077	0.074	0.077	0.080	0.080	0.093	0.082	0.092	0.086	0.085	0.086	0.085	0.080	0.070	0.073	0.079	0.084	0.086	0.082	0.071
Na	0.000	0.000	0.004	0.002	0.002	0.003	0.000	0.002	0.002	0.008	0.000	0.009	0.008	0.006	0.000	0.007	0.000	0.000	0.000	0.000	0.009	0.000	0.001	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.002	0.000	0.001	0.001	0.000	0.000	0.002	0.003	0.002	0.002
Ni	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000
total	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000
XMg	0.192	0.197	0.208	0.201	0.198	0.195	0.193	0.192	0.194	0.200	0.190	0.192	0.192	0.199	0.192	0.197	0.188	0.187	0.188	0.188	0.188	0.184	0.171	0.140
Grs	0.026	0.024	0.025	0.026	0.026	0.024	0.026	0.026	0.026	0.031	0.027	0.031	0.029	0.029	0.029	0.028	0.027	0.023	0.024	0.026	0.028	0.029	0.027	0.024
Prp	0.158	0.161	0.168	0.163	0.161	0.158	0.156	0.155	0.157	0.160	0.154	0.155	0.156	0.162	0.158	0.163	0.157	0.156	0.158	0.156	0.155	0.153	0.141	0.113
Alm	0.666	0.655	0.641	0.648	0.651	0.652	0.653	0.652	0.651	0.640	0.656	0.653	0.658	0.652	0.665	0.664	0.678	0.682	0.681	0.676	0.670	0.678	0.684	0.691
Sps	0.150	0.160	0.166	0.163	0.162	0.166	0.165	0.167	0.166	0.168	0.163	0.162	0.157	0.157	0.148	0.145	0.139	0.139	0.137	0.141	0.147	0.141	0.148	0.173
Xfe	0.808	0.803	0.792	0.799	0.802	0.805	0.807	0.808	0.806	0.800	0.810	0.808	0.808	0.801	0.808	0.803	0.812	0.813	0.812	0.812	0.812	0.816	0.829	0.860
X(Grs)	0.026	0.024	0.025	0.026	0.026	0.024	0.026	0.026	0.026	0.031	0.027	0.031	0.029	0.029	0.029	0.028	0.027	0.023	0.024	0.026	0.028	0.029	0.027	0.024
Y(Alm+Sps)	0.816	0.815	0.806	0.811	0.813	0.818	0.818	0.819	0.817	0.808	0.819	0.814	0.815	0.809	0.813	0.809	0.817	0.820	0.818	0.817	0.817	0.819	0.832	0.864
Z(Prp)	0.158	0.161	0.168	0.163	0.161	0.158	0.156	0.155	0.157	0.160	0.154	0.155	0.156	0.162	0.158	0.163	0.157	0.156	0.158	0.156	0.155	0.153	0.141	0.113

Table S2 The major element (-wt.%) compositions of biotite and muscovite in the Grt-Sil-Bt gneiss from the Gaoligong area.

Sample	19S21-3.10																	
Position	contact	contact	contact	inclusion	inclusion	inclusion	inclusion	inclusion	inclusion	inclusion	inclusion	matrix	matrix	matrix	matrix	matrix	matrix	matrix
Mineral	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt
Spot ID	2.3	2.4	3.54	1.35	1.36	1.7	2.5	3.51	3.52	4.55	4.56	1.38	1.39	1.40	1.45	1.46	1.47	2.1
SiO ₂	36.04	37.09	35.12	36.34	35.98	35.37	36.20	35.82	33.83	35.94	35.59	35.30	35.27	35.55	34.87	35.06	34.66	34.93
TiO ₂	2.20	1.99	2.25	3.00	1.77	2.01	3.06	3.32	2.52	2.33	2.18	2.20	3.53	2.24	2.40	2.64	2.59	2.64
Al ₂ O ₃	20.09	20.81	19.94	19.83	20.34	20.43	19.45	19.78	19.86	20.63	20.68	20.11	19.68	19.77	19.76	19.95	19.89	19.72
FeO Total	22.74	22.50	23.16	18.08	20.34	19.56	18.94	19.23	22.20	20.93	22.52	22.96	22.61	22.61	22.04	22.79	22.98	22.62
MnO	0.27	0.21	0.22	0.05	0.10	0.08	0.05	0.05	0.14	0.10	0.11	0.24	0.19	0.21	0.17	0.21	0.22	0.18
MgO	6.58	6.64	6.00	8.65	8.23	8.17	9.12	7.80	6.20	6.95	6.43	6.34	6.19	6.20	6.29	6.22	6.32	6.32
CaO	0.04	0.00	0.14	0.04	0.04	0.01	0.02	0.03	0.02	0.03	0.03	0.05	0.10	0.03	0.00	0.03	0.02	0.03
Na ₂ O	0.15	0.11	0.12	0.28	0.19	0.22	0.30	0.27	0.21	0.24	0.20	0.20	0.12	0.09	0.14	0.15	0.16	0.15
K ₂ O	9.30	9.18	9.35	9.28	9.29	9.33	9.21	9.25	9.62	9.27	9.14	9.39	9.19	9.42	9.34	9.46	9.51	9.31
Cr ₂ O ₃	0.13	0.10	0.13	0.00	0.03	0.16	0.00	0.13	0.05	0.00	0.08	0.08	0.14	0.10	0.08	0.14	0.03	0.12
NiO	0.04	0.02	0.02	0.01	0.01	0.03	0.02	0.03	0.04	0.02	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.04
Total	97.58	98.65	96.46	95.54	96.31	95.36	96.36	95.71	94.67	96.43	96.96	96.85	97.02	96.21	95.11	96.67	96.37	96.07
Oxygenes	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Si	2.710	2.739	2.687	2.728	2.708	2.686	2.708	2.704	2.641	2.708	2.687	2.685	2.672	2.716	2.693	2.673	2.657	2.678
Ti	0.125	0.111	0.130	0.169	0.100	0.115	0.172	0.189	0.148	0.132	0.124	0.126	0.201	0.128	0.139	0.151	0.149	0.152
Al	1.781	1.811	1.798	1.754	1.804	1.828	1.715	1.760	1.827	1.832	1.840	1.802	1.758	1.780	1.798	1.793	1.797	1.782
Fe ²⁺	1.430	1.390	1.482	1.135	1.281	1.242	1.184	1.214	1.449	1.319	1.422	1.460	1.432	1.445	1.423	1.453	1.473	1.450
Mn	0.017	0.013	0.014	0.003	0.006	0.005	0.003	0.003	0.009	0.007	0.007	0.015	0.012	0.014	0.011	0.013	0.014	0.012
Mg	0.738	0.731	0.685	0.968	0.923	0.925	1.017	0.877	0.722	0.780	0.723	0.719	0.699	0.706	0.724	0.707	0.722	0.722
Ca	0.003	0.000	0.011	0.003	0.003	0.001	0.001	0.003	0.001	0.002	0.002	0.004	0.008	0.002	0.000	0.002	0.002	0.003
Na	0.022	0.016	0.018	0.040	0.028	0.032	0.044	0.039	0.031	0.034	0.029	0.030	0.017	0.013	0.022	0.023	0.024	0.022
K	0.892	0.865	0.913	0.888	0.892	0.904	0.879	0.890	0.958	0.891	0.881	0.911	0.888	0.918	0.920	0.920	0.930	0.910
Cr	0.008	0.006	0.008	0.000	0.002	0.010	0.000	0.008	0.003	0.000	0.005	0.005	0.008	0.006	0.005	0.009	0.002	0.008
Ni	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.003
Total	7.728	7.683	7.746	7.690	7.749	7.748	7.724	7.688	7.791	7.707	7.721	7.756	7.696	7.728	7.737	7.746	7.771	7.741
Al IV	1.165	1.150	1.184	1.103	1.191	1.199	1.120	1.107	1.212	1.160	1.189	1.189	1.126	1.155	1.168	1.175	1.194	1.170
Al VI	0.616	0.661	0.614	0.651	0.613	0.629	0.594	0.653	0.615	0.672	0.652	0.613	0.631	0.625	0.631	0.618	0.603	0.612
Mg#	0.34	0.34	0.32	0.46	0.42	0.43	0.46	0.42	0.33	0.37	0.34	0.33	0.33	0.33	0.34	0.33	0.33	0.33

Table S2

Sample	19S21-3.10									19S22-1.3										
Position	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	contact	contact	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix
Mineral	bt	bt	bt	bt	ms	ms	ms	ms	ms	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt	bt
Spot ID	2.2	2.44	2.45	3.49	1.43	1.44	2.36	2.37	2.38	1.29	1.3	1.31	1.32	1.33	1.34	1.35	2.96	2.97	2.98	2.99
SiO2	34.46	35.46	35.02	34.39	44.93	46.14	46.83	46.79	47.72	35.18	35.24	35.10	35.64	36.04	35.11	34.17	34.03	33.78	34.46	36.95
TiO2	2.44	2.70	3.06	2.38	0.30	0.27	0.60	0.66	0.46	2.66	1.96	3.10	3.43	2.59	3.00	2.37	3.35	2.97	2.56	3.81
Al2O3	19.41	19.77	19.77	19.74	33.40	33.86	36.14	36.03	35.92	19.44	19.20	19.15	18.81	19.60	18.92	19.42	18.79	18.21	19.50	20.08
FeO Total	22.19	23.05	23.01	23.29	2.70	3.09	1.42	1.27	1.25	22.21	21.91	21.14	20.56	19.12	20.27	21.15	20.48	22.47	21.99	18.74
MnO	0.19	0.15	0.22	0.23	0.04	0.05	0.04	0.05	0.02	0.40	0.44	0.39	0.40	0.31	0.36	0.32	0.46	0.43	0.38	0.33
MgO	6.57	5.92	5.87	6.14	0.90	1.22	0.41	0.43	0.46	7.51	7.54	7.51	7.37	8.48	8.08	7.72	7.49	7.17	7.37	6.72
CaO	0.04	0.06	0.03	0.02	0.02	0.05	0.02	0.04	0.03	0.02	0.09	0.01	0.01	0.03	0.03	0.10	0.02	0.04	0.03	0.08
Na2O	0.07	0.08	0.17	0.10	0.51	0.52	0.60	0.62	0.54	0.07	0.08	0.14	0.04	0.06	0.08	0.05	0.10	0.10	0.12	0.05
K2O	9.45	9.07	9.33	9.39	10.33	10.03	10.35	10.08	9.98	9.49	9.02	9.50	9.41	9.38	9.59	9.50	9.40	9.48	9.44	8.94
Cr2O3	0.03	0.17	0.09	0.10	0.03	0.06	0.07	0.08	0.02	0.05	0.14	0.07	0.10	0.01	0.11	0.07	0.12	0.10	0.10	0.11
NiO	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.04	0.05	0.04	0.03	0.00	0.03	0.01
Total	94.83	96.42	96.57	95.79	93.15	95.30	96.46	96.05	96.38	97.04	95.62	96.13	95.77	95.66	95.59	94.90	94.26	94.73	95.98	95.83
Oxygenes	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Si	2.678	2.704	2.675	2.658	3.087	3.095	3.074	3.079	3.119	2.668	2.703	2.677	2.715	2.722	2.684	2.647	2.650	2.648	2.646	2.763
Ti	0.142	0.155	0.176	0.138	0.015	0.013	0.030	0.033	0.023	0.152	0.113	0.178	0.197	0.147	0.172	0.138	0.196	0.175	0.148	0.214
Al	1.777	1.776	1.779	1.798	2.704	2.676	2.796	2.794	2.766	1.738	1.736	1.721	1.689	1.745	1.705	1.772	1.724	1.682	1.765	1.770
Fe2+	1.442	1.469	1.470	1.506	0.155	0.173	0.078	0.070	0.068	1.408	1.406	1.348	1.310	1.208	1.296	1.370	1.334	1.473	1.412	1.172
Mn	0.012	0.010	0.014	0.015	0.002	0.003	0.002	0.003	0.001	0.025	0.028	0.025	0.026	0.020	0.023	0.021	0.031	0.028	0.025	0.021
Mg	0.761	0.672	0.668	0.707	0.092	0.122	0.040	0.042	0.044	0.849	0.862	0.854	0.837	0.955	0.921	0.892	0.869	0.837	0.844	0.750
Ca	0.003	0.005	0.003	0.002	0.002	0.003	0.001	0.003	0.002	0.002	0.007	0.001	0.001	0.002	0.002	0.008	0.002	0.003	0.002	0.006
Na	0.010	0.012	0.025	0.015	0.068	0.067	0.076	0.080	0.068	0.010	0.012	0.020	0.006	0.009	0.012	0.008	0.014	0.015	0.018	0.008
K	0.937	0.882	0.909	0.926	0.905	0.858	0.866	0.846	0.832	0.918	0.883	0.924	0.914	0.904	0.935	0.938	0.933	0.947	0.924	0.853
Cr	0.002	0.010	0.005	0.006	0.001	0.003	0.003	0.004	0.001	0.003	0.009	0.004	0.006	0.001	0.007	0.004	0.007	0.006	0.006	0.007
Ni	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.002	0.003	0.002	0.002	0.000	0.002	0.000
Total	7.764	7.695	7.724	7.772	7.032	7.015	6.968	6.953	6.924	7.773	7.759	7.755	7.701	7.715	7.761	7.800	7.762	7.814	7.791	7.564
Al IV	1.180	1.142	1.149	1.203	0.898	0.892	0.896	0.889	0.858	1.180	1.184	1.184	1.161	1.201	1.222	1.091	1.154	1.177	1.206	1.022
Al VI	0.597	0.635	0.630	0.595	1.806	1.784	1.900	1.905	1.908	0.558	0.552	0.631	0.571	0.624	0.481	0.542	0.570	0.504	0.559	0.748
Mg#	0.35	0.31	0.31	0.32	0.37	0.41	0.34	0.38	0.39	0.38	0.38	0.40	0.43	0.41	0.39	0.57	0.39	0.36	0.37	0.39

Table S2

Sample	19S22-1.3							19S28-1							
Position	matrix	contact	contact	contact	inclusion	inclusion	inclusion	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix
Mineral	bt	bt	bt	bt	bt	bt	bt	ms	ms	bt	bt	bt	bt	bt	bt
Spot ID	2.100	2.101	2.102	2.103	2.78	2.79	2.80	1.40	1.41	1.28	1.29	1.30	1.31	1.32	1.33
SiO2	34.83	35.88	35.24	35.54	33.87	36.59	37.18	45.79	47.19	36.09	35.97	35.26	36.14	35.62	35.68
TiO2	2.71	2.16	2.55	2.16	1.11	3.13	3.14	0.98	0.70	2.25	2.41	2.47	2.21	2.34	2.48
Al2O3	18.85	20.51	19.24	20.56	18.04	18.55	18.55	35.54	36.09	18.61	18.87	18.50	18.89	18.72	19.24
FeO Total	20.90	20.59	19.82	20.37	21.33	15.53	15.26	0.88	0.95	18.70	18.73	19.27	19.29	18.08	18.52
MnO	0.34	0.39	0.41	0.45	0.52	0.09	0.09	0.03	0.00	0.27	0.32	0.35	0.31	0.32	0.31
MgO	8.36	7.63	8.26	7.91	7.81	11.68	11.82	0.38	0.42	9.50	9.47	9.45	9.58	9.68	9.76
CaO	0.00	0.03	0.07	0.04	0.02	0.02	0.04	0.08	0.05	0.02	0.01	0.12	0.00	0.01	0.01
Na2O	0.08	0.08	0.15	0.13	0.09	0.15	0.23	0.49	0.47	0.12	0.24	0.18	0.22	0.13	0.21
K2O	9.55	9.55	9.56	9.32	9.41	9.19	9.15	10.43	10.39	9.23	9.25	9.52	9.24	9.32	9.20
Cr2O3	0.10	0.09	0.07	0.05	0.06	0.06	0.10	0.06	0.04	0.05	0.08	0.19	0.09	0.06	0.06
NiO	0.01	0.03	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.03	0.00	0.00	0.02	0.01	0.03
Total	95.73	96.91	95.37	96.53	92.27	94.98	95.57	94.65	96.30	94.88	95.34	95.30	95.98	94.28	95.49
Oxygenes	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Si	2.668	2.694	2.693	2.677	2.712	2.734	2.753	3.062	3.093	2.745	2.725	2.693	2.725	2.724	2.696
Ti	0.156	0.122	0.146	0.123	0.067	0.176	0.175	0.049	0.035	0.129	0.137	0.142	0.125	0.135	0.141
Al	1.702	1.815	1.732	1.825	1.702	1.633	1.619	2.801	2.788	1.669	1.685	1.666	1.678	1.687	1.714
Fe2+	1.339	1.293	1.267	1.283	1.428	0.970	0.945	0.049	0.052	1.190	1.186	1.230	1.216	1.156	1.170
Mn	0.022	0.024	0.027	0.029	0.035	0.006	0.005	0.002	0.000	0.018	0.021	0.023	0.019	0.021	0.020
Mg	0.955	0.854	0.941	0.888	0.932	1.300	1.305	0.037	0.041	1.077	1.069	1.076	1.077	1.103	1.100
Ca	0.000	0.003	0.006	0.003	0.002	0.002	0.003	0.005	0.004	0.002	0.001	0.009	0.000	0.001	0.001
Na	0.012	0.012	0.021	0.018	0.014	0.022	0.033	0.064	0.059	0.018	0.035	0.026	0.033	0.019	0.030
K	0.933	0.915	0.932	0.895	0.961	0.876	0.864	0.889	0.868	0.895	0.894	0.928	0.889	0.909	0.886
Cr	0.006	0.005	0.004	0.003	0.004	0.004	0.006	0.003	0.002	0.003	0.005	0.011	0.005	0.004	0.003
Ni	0.001	0.002	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.001	0.001	0.002
Total	7.794	7.737	7.769	7.744	7.856	7.721	7.708	6.963	6.941	7.747	7.757	7.804	7.769	7.760	7.763
Al IV	1.176	1.072	1.145	1.088	1.131	1.143	1.215	0.888	0.873	1.126	1.138	1.165	1.150	1.141	1.163
Al VI	0.527	0.547	0.576	0.601	0.614	0.561	0.557	1.913	1.915	0.543	0.547	0.500	0.529	0.546	0.551
Mg#	0.42	0.58	0.39	0.39	0.44	0.42	0.39	0.43	0.44	0.48	0.47	0.47	0.47	0.49	0.48

Table S3 The major element (-wt.%) compositions of feldspar in the Grt-Sil-Bt gneiss from the Gaoligong area.

Sample	19S21-3.10												19S22-1.3							
Mineral	pl	pl	pl	pl	pl	pl	pl	pl	kfs	kfs	kfs	kfs	pl	pl	pl	pl	pl	pl	pl	pl
Spot ID	1.42	2.60	2.70	2.41	2.42	2.43	3.46	3.47	2.39	2.40	3.48	2.50	1.42	1.43	1.44	1.45	1.46	2.87	2.88	2.89
location	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix
SiO2	63.33	63.04	63.24	63.25	63.22	62.98	62.49	63.72	65.16	63.36	65.02	63.64	61.76	62.09	60.61	61.76	60.67	61.24	62.08	61.60
TiO2	0.00	0.01	0.00	0.01	0.04	0.01	0.02	0.04	0.00	0.04	0.05	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Al2O3	22.89	22.91	22.91	23.10	23.08	23.03	23.26	22.83	18.09	18.17	18.10	18.38	23.94	23.70	23.65	24.23	23.48	23.60	23.34	24.07
FeO Total	0.20	0.10	0.11	0.01	0.03	0.07	0.00	0.05	0.14	0.08	0.05	0.14	0.06	0.03	0.01	0.01	0.03	0.05	0.02	0.05
MnO	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.03	0.02	0.00	0.03	0.00	0.03	0.01	0.00	0.04	0.04	0.03	0.01	0.01
MgO	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.02	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00
CaO	4.47	4.30	4.33	4.27	4.55	4.18	4.72	4.46	0.00	0.00	0.02	0.04	5.38	5.28	5.25	5.52	5.09	4.96	4.69	5.18
Na2O	9.47	9.85	9.65	9.42	9.37	9.78	9.33	9.49	1.21	1.17	1.27	1.07	8.88	8.98	9.03	8.51	9.02	9.18	9.37	9.08
K2O	0.13	0.23	0.17	0.20	0.26	0.27	0.21	0.29	14.52	14.65	14.46	14.76	0.22	0.13	0.13	0.19	0.20	0.17	0.20	0.20
Cr2O3	0.01	0.02	0.00	0.00	0.00	0.05	0.02	0.00	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02
Total	100.54	100.45	100.45	100.31	100.58	100.38	100.07	100.90	99.16	97.48	99.04	98.11	100.34	100.26	98.69	100.29	98.52	99.24	99.72	100.21
Oxygenes	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Si	2.793	2.786	2.792	2.792	2.787	2.784	2.771	2.800	3.015	2.991	3.012	2.986	2.737	2.750	2.732	2.734	2.739	2.743	2.764	2.733
Ti	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.189	1.193	1.192	1.202	1.199	1.200	1.215	1.182	0.986	1.011	0.988	1.016	1.250	1.237	1.256	1.264	1.249	1.246	1.225	1.259
Fe2+	0.007	0.004	0.004	0.001	0.001	0.003	0.000	0.002	0.005	0.003	0.002	0.005	0.002	0.001	0.001	0.000	0.001	0.002	0.001	0.002
Mn	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000
Mg	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Ca	0.211	0.204	0.205	0.202	0.215	0.198	0.224	0.210	0.000	0.000	0.001	0.002	0.255	0.251	0.253	0.262	0.246	0.238	0.224	0.246
Na	0.810	0.844	0.826	0.806	0.801	0.838	0.802	0.808	0.109	0.107	0.114	0.097	0.763	0.772	0.789	0.730	0.789	0.797	0.809	0.781
K	0.008	0.013	0.009	0.011	0.015	0.015	0.012	0.016	0.857	0.882	0.855	0.883	0.012	0.007	0.007	0.011	0.011	0.010	0.011	0.011
Cr	0.000	0.001	0.000	0.000	0.000	0.002	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Total	5.021	5.045	5.030	5.016	5.020	5.041	5.027	5.020	4.974	4.997	4.977	4.994	5.024	5.020	5.038	5.004	5.037	5.037	5.034	5.033
An	0.21	0.19	0.20	0.20	0.208	0.188	0.216	0.203	0.000	0.000	0.001	0.002	0.248	0.243	0.241	0.261	0.235	0.228	0.214	0.237
Ab	0.79	0.80	0.79	0.79	0.777	0.797	0.773	0.782	0.113	0.108	0.118	0.099	0.740	0.749	0.752	0.728	0.754	0.763	0.775	0.752
Or	0.01	0.01	0.01	0.01	0.014	0.014	0.011	0.015	0.887	0.892	0.881	0.899	0.012	0.007	0.007	0.011	0.011	0.009	0.011	0.011
An+Ab+Or	1.03	1.06	1.04	1.02	1.030	1.052	1.038	1.034	0.966	0.989	0.970	0.982	1.030	1.030	1.049	1.003	1.047	1.045	1.044	1.039

Table S3

Sample	19S22-1.3																			
Mineral	pl	pl	pl	pl	pl	pl	pl	pl	pl	pl	kfs	kfs	kfs	kfs	kfs	kfs	kfs	kfs	kfs	kfs
Spot ID	2.90	2.91	2.92	2.74	2.75	2.76	2.77	2.93	2.94	2.95	1.37	1.38	1.39	2.81	2.82	2.83	2.84	2.85	2.86	2.10
location	matrix	matrix	matrix	inclusion	inclusion	inclusion	inclusion	inclusion	contact	contact	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	matrix	contact
SiO2	61.67	60.01	59.20	58.66	60.82	61.10	58.29	62.72	61.11	60.37	64.11	64.27	64.32	63.91	63.62	63.33	63.52	63.50	63.66	64.49
TiO2	0.02	0.00	0.02	0.01	0.01	0.02	0.00	0.01	0.00	0.03	0.05	0.08	0.09	0.00	0.04	0.03	0.02	0.02	0.06	0.03
Al2O3	23.83	25.60	25.29	25.07	23.59	23.82	25.90	23.80	24.20	23.96	18.20	18.19	18.48	18.27	18.23	18.20	18.25	18.19	18.29	18.12
FeO Total	0.04	0.00	0.14	0.18	0.36	0.23	0.30	0.15	0.05	0.07	0.10	0.10	0.23	0.02	0.03	0.08	0.03	0.04	0.07	0.28
MnO	0.03	0.00	0.04	0.00	0.05	0.03	0.02	0.02	0.02	0.04	0.00	0.02	0.04	0.01	0.01	0.00	0.00	0.02	0.00	0.00
MgO	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
CaO	5.33	6.81	6.88	6.77	5.33	5.30	8.24	5.10	5.37	5.53	0.02	0.01	0.05	0.00	0.05	0.01	0.01	0.05	0.02	0.01
Na2O	9.30	7.95	7.91	8.08	9.25	8.93	7.53	9.28	8.63	8.94	1.01	1.06	1.11	1.21	1.39	1.29	1.03	0.70	1.04	0.81
K2O	0.17	0.14	0.19	0.08	0.08	0.12	0.15	0.12	0.21	0.15	14.81	14.42	14.83	14.99	14.40	14.70	15.01	15.31	14.75	15.09
Cr2O3	0.01	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.04	0.00	0.03	0.00	0.00	0.00	0.06
Total	100.39	100.52	99.69	98.85	99.51	99.56	100.43	101.18	99.62	99.12	98.33	98.16	99.16	98.46	97.77	97.67	97.87	97.83	97.92	98.88
Oxygenes	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Si	2.735	2.661	2.654	2.652	2.727	2.731	2.607	2.754	2.726	2.714	2.999	3.004	2.987	2.991	2.991	2.987	2.990	2.993	2.991	3.003
Ti	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.003	0.003	0.000	0.001	0.001	0.001	0.001	0.002	0.001
Al	1.246	1.338	1.336	1.336	1.246	1.254	1.365	1.232	1.272	1.270	1.003	1.002	1.012	1.008	1.010	1.011	1.012	1.010	1.013	0.995
Fe2+	0.002	0.000	0.005	0.007	0.014	0.009	0.011	0.005	0.002	0.003	0.004	0.004	0.009	0.001	0.001	0.003	0.001	0.002	0.003	0.011
Mn	0.001	0.000	0.002	0.000	0.002	0.001	0.001	0.001	0.001	0.002	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Mg	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
Ca	0.253	0.323	0.330	0.328	0.256	0.254	0.395	0.240	0.257	0.266	0.001	0.000	0.002	0.000	0.002	0.000	0.001	0.003	0.001	0.001
Na	0.800	0.683	0.688	0.709	0.804	0.774	0.653	0.790	0.747	0.780	0.091	0.096	0.100	0.110	0.127	0.118	0.094	0.064	0.095	0.073
K	0.009	0.008	0.011	0.005	0.005	0.007	0.009	0.007	0.012	0.009	0.884	0.860	0.879	0.895	0.864	0.884	0.901	0.920	0.884	0.896
Cr	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.002
Total	5.046	5.015	5.027	5.036	5.054	5.031	5.041	5.028	5.017	5.044	4.985	4.971	4.993	5.007	4.998	5.007	5.000	4.993	4.990	4.982
An	0.238	0.319	0.321	0.315	0.241	0.245	0.374	0.231	0.253	0.252	0.001	0.000	0.002	0.000	0.002	0.000	0.001	0.003	0.001	0.001
Ab	0.753	0.673	0.669	0.680	0.755	0.748	0.618	0.762	0.736	0.739	0.094	0.101	0.102	0.109	0.128	0.117	0.094	0.064	0.097	0.075
Or	0.009	0.008	0.010	0.005	0.005	0.006	0.008	0.006	0.012	0.008	0.905	0.899	0.896	0.890	0.870	0.882	0.905	0.933	0.902	0.924
An+Ab+Or	1.062	1.015	1.028	1.041	1.065	1.034	1.056	1.036	1.015	1.054	0.976	0.956	0.981	1.005	0.993	1.002	0.996	0.987	0.980	0.970

Table S4 Whole-rock major-(wt %) and trace-element (ppm) compositions of granite, metapelite and leucosome from the Gaoligong area.

Sample ID	SiO2	TiO2	Al2O3	Fe2O3t	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	FeO	A/CNK	A/NK	K2O+ Na2O	Li	Be	Sc	Cr	Co	Ni	Cs
granite																						
19S21-1	57.24	1.56	16.68	8.29	0.10	3.18	4.53	3.25	2.98	0.93	0.43	6.60	1.0	1.71	6.2	182	2.81	12.3	14.0	22.1	24.5	27.8
19S24-2.1	74.06	0.10	14.20	0.87	0.02	0.17	1.02	3.09	5.59	0.08	0.64	0.73	1.1	1.15	8.7	83.9	3.06	1.70	2.00	0.900	0.300	12.1
19S27-1	71.43	0.19	15.15	1.51	0.05	0.46	1.52	3.32	5.45	0.12	0.45	1.06	1.1	1.20	8.8	105	4.58	3.40	5.00	2.00	1.10	14.8
19S24-1.1	75.05	0.03	14.16	0.51	0.03	0.04	1.18	3.69	4.59	0.05	0.65	0.43	1.1	1.14	8.3	41.9	5.19	1.90	2.00	0.300	0.600	19.8
paragneiss																						
19S28-1	57.38	0.68	19.70	8.27	0.14	3.10	1.78	2.99	3.74	0.12	1.62	6.49	1.6	1.95	6.7	222	4.82	19.4	117	20.4	51.3	39.3
19S22-1.1	63.34	0.75	17.48	7.81	0.37	2.16	1.20	1.87	3.20	0.11	1.50	6.28	2.0	2.40	5.1	172	1.89	17.0	104	29.9	73.7	13.9
19S21-3.9	61.44	0.81	21.10	9.87	0.38	1.97	0.25	0.41	3.10	0.05	0.33	8.88	4.7	4.94	3.5	121	3.21	23.9	113	26.6	61.9	16.5
19S21-3.10	60.02	0.85	21.48	10.81	0.40	2.13	0.21	0.41	3.26	0.06	0.38	9.72	4.7	4.82	3.7	129	3.18	25.7	119	27.7	64.8	17.3
19S22-1.3	69.69	0.65	13.78	6.39	0.40	2.08	0.93	1.59	2.69	0.08	1.04	5.75	1.9	2.24	4.3	139	2.20	15.3	71.9	26.8	56.9	12.2
19S21-2.1	67.58	0.70	14.66	5.72	0.12	2.63	0.89	1.82	4.12	0.06	0.91	4.80	1.6	1.78	5.9	147	4.14	13.0	75.0	15.0	32.5	28.0
19S28-3	66.43	1.13	13.65	6.13	0.22	2.71	7.34	0.41	0.98	0.25	0.43	5.11	0.9	7.15	1.4	73.9	4.76	14.0	105	14.3	29.5	42.6
19S28-4	56.36	0.72	19.46	8.39	0.14	3.36	2.20	4.17	3.35	0.11	1.12	6.77	1.3	1.62	7.5	258	4.76	19.8	127	21.4	52.4	71.0
19S29-1	67.76	0.77	13.80	4.87	0.05	2.58	3.32	2.01	2.92	0.23	0.93	3.79	1.1	1.90	4.9	107	2.06	13.1	95.0	13.3	41.6	14.4
19S22-4	62.02	0.81	17.99	5.41	0.06	2.56	3.67	3.84	2.95	0.14	0.41	4.47	1.1	1.65	6.8	144	3.89	10.7	44.0	14.4	23.3	22.4
leucosome																						
19S21-4.1	75.32	0.06	14.48	0.83	0.06	0.17	0.82	2.88	4.31	0.03	0.82	0.67	1.3	1.38	7.2	36.2	4.43	4.3	6.00	1.20	2.20	4.53
19S22-2.1	73.07	0.09	14.65	0.56	0.03	0.11	1.32	2.65	6.69	0.09	0.77	0.49	1.0	1.15	9.3	32.0	8.04	1.4	2.00	0.600	0.500	16.9
19S28-2	73.60	0.08	15.02	1.17	0.04	0.35	0.45	2.59	5.08	0.15	0.98	0.94	1.4	1.39	7.7	66.7	16.15	2.7	2.00	1.10	1.20	17.8

Table S4

Sample ID	Rb	Sr	Y	Zr	Nb	Ba	La	Ce	Pr	Nb	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	Pb	Th
granite																								
19S21-1	322	826	44.2	657	48.0	985	123	243	25.6	48.0	15.3	2.75	11.55	1.62	8.82	1.61	4.13	0.550	3.48	0.490	12.4	2.32	16.4	12.1
19S24-2.1	290	63.4	12.8	84.0	11.4	295	28.1	58.7	5.81	11.4	4.85	0.49	3.85	0.56	2.74	0.42	1.00	0.140	0.790	0.100	2.90	0.800	61.0	22.4
19S27-1	357	257	13.7	175	17.2	776	50.0	94.1	10.1	17.2	5.39	0.84	3.70	0.56	2.72	0.49	1.32	0.190	1.09	0.160	5.20	1.56	46.6	38.1
19S24-1.1	261	68.6	16.9	59	3.50	162	14.2	25.4	2.22	3.5	1.55	0.38	1.40	0.27	2.21	0.56	1.92	0.340	2.42	0.370	2.00	1.08	59.4	5.75
paragneiss																								
19S28-1	400	113	29.6	144	16.7	429	50.5	97.4	10.7	16.7	7.60	1.06	6.03	0.92	5.53	1.03	2.94	0.460	2.94	0.420	3.70	1.11	17.2	21.3
19S22-1.1	197	150	32.0	146	23.8	913	62.7	145	13.4	23.8	9.03	1.74	6.96	1.03	5.82	1.15	3.09	0.470	2.97	0.470	3.70	1.39	33.6	24.5
19S21-3.9	246	45.3	42.9	75.7	27.4	335	60.0	147	13.5	27.4	8.48	1.13	7.37	1.11	7.43	1.48	4.31	0.647	4.43	0.632	2.28	1.55	15.5	32.8
19S21-3.10	249	45.8	48.6	76.3	29.1	362	95.1	237	21.9	29.1	14.9	1.37	12.3	1.64	9.33	1.66	4.71	0.651	4.37	0.626	2.21	1.88	14.7	56.5
19S22-1.3	165	92.4	31.5	99.5	20.1	678	44.2	105	9.97	20.1	6.16	1.24	5.55	0.84	5.47	1.01	2.96	0.429	2.76	0.402	2.83	1.22	23.0	18.2
19S21-2.1	326	86.4	19.2	188	46.0	401	58.3	121	12.6	46.0	8.85	1.12	6.86	0.99	4.77	0.72	1.65	0.220	1.31	0.210	5.20	3.47	30.9	30.5
19S28-3	161	222	55.3	762	18.3	322	76.3	157	17.8	18.3	13.4	1.88	11.9	1.87	10.7	2.09	5.76	0.880	5.61	0.950	18.7	1.71	4.10	44.0
19S28-4	447	185	28.7	124	16.7	500	51.1	99.4	11.3	16.7	8.15	1.26	6.46	0.98	5.33	1.09	2.89	0.430	2.72	0.400	3.30	1.29	18.9	21.8
19S29-1	129	214	33.3	345	12.9	2060	37.0	73.0	8.62	12.9	6.69	1.36	6.33	0.96	5.64	1.18	3.39	0.540	3.41	0.520	8.90	0.940	16.8	13.0
19S22-4	234	360	27.4	228	31.8	535	252	488	45.7	31.8	23.7	1.75	15.2	1.72	7.27	0.96	2.07	0.200	1.02	0.130	5.30	2.67	39.8	164
leucosome																								
19S21-4.1	248	96.4	29.6	47.0	15.3	168	16.1	31.9	3.41	15.3	3.78	0.26	3.85	0.74	4.77	0.96	2.65	0.370	2.42	0.350	2.00	0.950	68.3	16.4
19S22-2.1	454	67.0	19.5	46.0	42.0	368	12.0	27.7	2.88	42.0	3.17	0.23	3.17	0.60	3.45	0.62	1.49	0.210	1.22	0.160	1.90	4.75	78.9	19.2
19S28-2	298	76.7	71.1	41.0	10.4	299	20.9	48.3	5.50	10.4	7.29	0.48	9.83	1.95	12.10	2.25	5.34	0.670	3.31	0.410	1.50	1.00	36.3	32.3

Table S4

Sample ID	U	LaN/YbN	GdN/YbN	Eu*
granite				
19S21-1	3.99	25.2	19.5	0.6
19S24-2.1	17.3	25.5	31.8	0.3
19S27-1	18.6	32.9	19.1	0.6
19S24-1.1	25.1	4.2	3.1	0.8
paragneiss				
19S28-1	4.43	12.3	11.9	0.5
19S22-1.1	2.61	15.1	12.3	0.7
19S21-3.9	3.22	9.7	9.7	0.4
19S21-3.10	5.29	15.6	16.3	0.3
19S22-1.3	2.51	11.5	11.4	0.6
19S21-2.1	5.70	31.9	27.0	0.4
19S28-3	6.71	9.8	10.3	0.5
19S28-4	3.55	13.5	13.4	0.5
19S29-1	5.30	7.8	10.1	0.6
19S22-4	11.6	177.2	96.7	0.3
leucosome				
19S21-4.1	16.3	4.8	9.1	0.2
19S22-2.1	30.6	7.1	16.4	0.2
19S28-2	16.2	4.5	19.8	0.2

Table S5 **Zircon U–Pb isotopic and trace element data (–ppm) of Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.**

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
Grt-Sil-bt gneiss														
19S22-1-30	detrital	0.1932	0.0040	11.2882	0.2755	0.4216	0.0059	2770.1	35.3	2547.2	22.8	2267.9	27.0	88%
19S22-1-05	detrital	0.1215	0.0023	3.0593	0.0591	0.1814	0.0016	1988.9	34.4	1422.6	14.8	1074.6	8.6	72%
19S22-1-77	detrital	0.0891	0.0017	2.0811	0.0396	0.1684	0.0012	1406.5	36.3	1142.6	13.1	1003.4	6.8	87%
19S22-1-16	detrital	0.0715	0.0019	1.4611	0.0407	0.1482	0.0021	972.2	56.6	914.4	16.8	890.8	12.0	97%
19S22-1-58	detrital	0.0667	0.0026	1.3655	0.0528	0.1482	0.0020	827.8	83.3	874.2	22.7	890.7	11.5	98%
19S22-1-61	detrital	0.0942	0.0018	1.7243	0.0310	0.1314	0.0009	1522.2	36.9	1017.6	11.6	796.0	4.9	75%
19S22-1-63	detrital	0.0641	0.0017	0.9466	0.0247	0.1065	0.0011	744.1	55.6	676.3	12.9	652.4	6.4	96%
19S22-1-20	detrital	0.0797	0.0020	1.1784	0.0399	0.1056	0.0023	1190.7	48.1	790.6	18.6	647.3	13.3	80%
19S22-1-23	detrital	0.0702	0.0017	1.0174	0.0237	0.1045	0.0009	1000.0	48.2	712.6	12.0	640.6	5.4	89%
19S22-1-35	detrital	0.0686	0.0018	0.9730	0.0275	0.1019	0.0014	887.0	53.7	690.0	14.1	625.4	8.1	90%
19S22-1-49	detrital	0.0671	0.0016	0.8925	0.0216	0.0962	0.0012	838.9	48.1	647.7	11.6	591.9	7.1	90%
19S22-1-69	detrital	0.0772	0.0014	1.0332	0.0283	0.0960	0.0018	1127.8	32.4	720.5	14.1	591.0	10.3	80%
19S22-1-03	detrital	0.0586	0.0015	0.7231	0.0188	0.0889	0.0008	550.0	55.5	552.5	11.1	549.0	5.0	99%
19S22-1-31	detrital	0.0679	0.0020	0.8034	0.0240	0.0854	0.0009	877.8	60.0	598.8	13.5	528.3	5.5	87%
19S22-1-40	detrital	0.0638	0.0016	0.7483	0.0180	0.0845	0.0007	744.5	51.8	567.2	10.5	522.9	4.4	91%
19S22-1-17	detrital	0.0588	0.0015	0.6156	0.0160	0.0757	0.0008	561.1	57.4	487.1	10.0	470.3	5.0	96%
19S22-1-55	detrital	0.0586	0.0015	0.6162	0.0155	0.0755	0.0006	553.7	53.7	487.5	9.7	469.4	3.4	96%
19S22-1-65	detrital	0.0695	0.0018	0.7154	0.0205	0.0742	0.0013	922.2	54.5	547.9	12.1	461.4	8.1	82%
19S22-1-46	detrital	0.0657	0.0018	0.7323	0.0564	0.0740	0.0050	794.4	56.3	557.9	33.1	460.0	29.9	80%
19S22-1-29	detrital	0.0604	0.0017	0.5457	0.0173	0.0652	0.0009	620.4	56.5	442.2	11.3	406.9	5.5	91%
19S22-1-07	detrital	0.0743	0.0022	0.5857	0.0247	0.0561	0.0012	1050.0	59.3	468.1	15.8	351.6	7.5	71%
19S22-1-57	detrital	0.0639	0.0026	0.4932	0.0234	0.0552	0.0014	738.9	85.2	407.1	15.9	346.4	8.3	83%
19S22-1-51	detrital	0.0655	0.0046	0.4956	0.0339	0.0549	0.0018	790.7	148.6	408.7	23.0	344.3	11.0	82%
19S22-1-59	detrital	0.0591	0.0018	0.4504	0.0158	0.0547	0.0011	572.3	64.8	377.6	11.1	343.0	6.7	90%
19S22-1-79	detrital	0.0582	0.0018	0.4036	0.0156	0.0496	0.0012	600.0	66.7	344.2	11.3	311.8	7.1	90%
19S22-1-76	detrital	0.0546	0.0022	0.3763	0.0229	0.0489	0.0020	398.2	90.7	324.3	16.9	307.7	12.6	94%
19S22-1-27	detrital	0.0541	0.0016	0.3141	0.0129	0.0416	0.0010	376.0	68.5	277.3	10.0	262.6	6.2	94%
19S22-1-71	detrital	0.0602	0.0016	0.3213	0.0109	0.0384	0.0007	609.3	91.7	282.9	8.4	242.6	4.4	84%
19S22-1-32	detrital	0.0566	0.0013	0.2819	0.0079	0.0360	0.0007	476.0	45.4	252.2	6.2	228.2	4.1	90%
19S22-1-25	detrital	0.0589	0.0018	0.2877	0.0110	0.0352	0.0008	564.9	66.7	256.8	8.6	222.9	4.9	85%
19S22-1-39	detrital	0.0672	0.0019	0.3286	0.0107	0.0351	0.0006	844.1	57.4	288.5	8.2	222.4	3.8	74%
19S22-1-42	detrital	0.0604	0.0025	0.2619	0.0108	0.0313	0.0004	620.4	88.9	236.2	8.7	198.8	2.7	82%
19S22-1-74	detrital	0.0651	0.0021	0.2505	0.0102	0.0278	0.0008	788.9	66.7	227.0	8.3	177.0	5.2	75%
19S22-1-11	detrital	0.0564	0.0014	0.2187	0.0079	0.0276	0.0006	477.8	57.4	200.8	6.6	175.6	4.0	86%
19S22-1-33	detrital	0.0545	0.0015	0.2038	0.0053	0.0271	0.0002	390.8	61.1	188.4	4.5	172.2	1.4	91%
19S22-1-36	detrital	0.0568	0.0016	0.2076	0.0058	0.0263	0.0003	483.4	63.0	191.5	4.9	167.5	2.1	86%
19S22-1-73	detrital	0.0601	0.0019	0.2089	0.0065	0.0252	0.0003	605.6	36.1	192.6	5.5	160.5	1.8	81%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S22-1-81	detrital	0.0570	0.0023	0.1575	0.0073	0.0197	0.0004	500.0	61.1	148.5	6.4	126.0	2.7	83%
19S22-1-45	detrital	0.0545	0.0024	0.1370	0.0070	0.0180	0.0004	394.5	100.0	130.4	6.3	115.2	2.6	87%
19S22-1-15	detrital	0.0519	0.0015	0.1129	0.0044	0.0156	0.0004	279.7	66.7	108.6	4.1	100.0	2.6	91%
19S22-1-37	detrital	0.0631	0.0024	0.1261	0.0049	0.0144	0.0002	709.3	81.5	120.6	4.4	92.1	1.1	73%
19S22-1-02	detrital	0.0539	0.0019	0.1064	0.0036	0.0143	0.0002	364.9	79.6	102.7	3.3	91.6	1.4	88%
19S22-1-10	meta	0.0477	0.0010	0.0740	0.0017	0.0112	0.0001	83.4	84.2	72.5	1.6	71.6	0.6	98%
19S22-1-60	meta	0.0547	0.0022	0.0845	0.0031	0.0112	0.0001	466.7	88.9	82.4	2.9	71.7	0.7	86%
19S22-1-12	meta	0.0469	0.0014	0.0725	0.0022	0.0112	0.0001	42.7	79.6	71.1	2.0	71.8	0.6	98%
19S22-1-01	meta	0.0474	0.0014	0.0737	0.0021	0.0113	0.0001	77.9	122.2	72.2	1.9	72.2	0.8	99%
19S22-1-28	meta	0.0445	0.0017	0.0700	0.0028	0.0114	0.0001			68.7	2.6	72.9	0.8	94%
19S22-1-50	meta	0.0474	0.0018	0.0747	0.0028	0.0114	0.0001	77.9	88.9	73.2	2.6	73.2	0.7	99%
19S22-1-19	meta	0.0516	0.0020	0.0814	0.0029	0.0115	0.0001	264.9	87.0	79.5	2.7	73.5	0.7	92%
19S22-1-41	meta	0.0511	0.0018	0.0812	0.0028	0.0115	0.0001	255.6	81.5	79.3	2.6	73.6	0.8	92%
19S22-1-64	meta	0.0474	0.0016	0.0757	0.0025	0.0115	0.0001	77.9	68.5	74.1	2.4	74.0	0.7	99%
19S22-1-43	meta	0.0534	0.0026	0.0849	0.0039	0.0116	0.0001	342.7	109.2	82.7	3.6	74.2	0.8	89%
19S22-1-56	meta	0.0471	0.0013	0.0759	0.0021	0.0116	0.0001	53.8	66.7	74.3	2.0	74.3	0.7	99%
19S22-1-09	meta	0.0479	0.0014	0.0769	0.0022	0.0116	0.0001	100.1	66.7	75.2	2.1	74.4	0.7	98%
19S22-1-66	meta	0.0497	0.0016	0.0805	0.0025	0.0117	0.0001	189.0	74.1	78.6	2.4	74.8	0.8	95%
19S22-1-53	meta	0.0531	0.0017	0.0860	0.0028	0.0117	0.0001	331.5	104.6	83.8	2.6	74.9	0.7	88%
19S22-1-18	meta	0.0499	0.0017	0.0808	0.0027	0.0117	0.0001	187.1	77.8	78.9	2.5	75.2	0.8	95%
19S22-1-75	meta	0.0487	0.0017	0.0793	0.0029	0.0117	0.0001	200.1	80.5	77.5	2.8	75.2	0.7	97%
19S22-1-08	meta	0.0467	0.0015	0.0759	0.0024	0.0117	0.0001	35.3	87.0	74.3	2.3	75.2	0.7	98%
19S22-1-22	meta	0.0500	0.0017	0.0817	0.0028	0.0118	0.0001	194.5	75.0	79.8	2.6	75.4	0.8	94%
19S22-1-83	meta	0.0471	0.0015	0.0768	0.0025	0.0118	0.0001	57.5	74.1	75.1	2.4	75.5	0.7	99%
19S22-1-52	meta	0.0467	0.0019	0.0770	0.0031	0.0119	0.0001	31.6	92.6	75.4	3.0	76.1	0.9	98%
19S22-1-24	meta	0.0505	0.0013	0.0833	0.0021	0.0119	0.0001	216.7	54.6	81.3	2.0	76.3	0.7	93%
19S22-1-68	meta	0.0466	0.0015	0.0770	0.0024	0.0119	0.0001	31.6	74.1	75.3	2.3	76.6	0.7	98%
19S22-1-14	meta	0.0495	0.0015	0.0819	0.0025	0.0120	0.0001	172.3	72.2	80.0	2.4	76.6	0.8	95%
19S22-1-54	meta	0.0478	0.0014	0.0795	0.0023	0.0120	0.0001	87.1	68.5	77.7	2.1	76.9	0.7	99%
19S22-1-67	meta	0.0496	0.0017	0.0829	0.0028	0.0121	0.0001	176.0	78.7	80.9	2.6	77.5	0.8	95%
19S22-1-44	meta	0.0480	0.0015	0.0805	0.0025	0.0121	0.0001	101.9	69.4	78.6	2.3	77.6	0.7	98%
19S22-1-04	meta	0.0466	0.0016	0.0784	0.0026	0.0122	0.0001	27.9	77.8	76.6	2.4	78.2	0.7	98%
19S22-1-80	meta	0.0477	0.0016	0.0806	0.0027	0.0122	0.0001	87.1	-117.6	78.7	2.6	78.3	0.7	99%
19S22-1-48	meta	0.0482	0.0018	0.0817	0.0031	0.0123	0.0001	109.4	88.9	79.7	2.9	78.5	0.8	98%
19S22-1-38	meta	0.0487	0.0015	0.0835	0.0026	0.0124	0.0001	200.1	74.1	81.4	2.5	79.1	0.7	97%
19S22-1-62	meta	0.0515	0.0018	0.0892	0.0031	0.0125	0.0001	264.9	76.8	86.8	2.9	80.2	0.8	92%
19S22-1-70	meta	0.0514	0.0016	0.0894	0.0032	0.0126	0.0002	257.5	74.1	87.0	3.0	80.4	1.2	92%
19S22-1-47	meta	0.0521	0.0021	0.0908	0.0036	0.0126	0.0001	300.1	94.4	88.3	3.3	80.9	0.8	91%
19S22-1-85	meta	0.0457	0.0022	0.0812	0.0038	0.0128	0.0002			79.2	3.5	82.2	1.1	96%
19S22-1-13	meta	0.0472	0.0016	0.0837	0.0028	0.0129	0.0001	61.2	77.8	81.6	2.6	82.3	0.8	99%

SpotID	Goup	$^{207}\text{Pb}/^{206}\text{Pb}$ Ratio	1sigma	$^{207}\text{Pb}/^{235}\text{U}$ Ratio	1sigma	$^{206}\text{Pb}/^{238}\text{U}$ Ratio	1sigma	$^{207}\text{Pb}/^{206}\text{Pb}$ Age (Ma)	1sigma	$^{207}\text{Pb}/^{235}\text{U}$ Age (Ma)	1sigma	$^{206}\text{Pb}/^{238}\text{U}$ Age (Ma)	1sigma	Concordance
19S22-1-72	meta	0.0528	0.0017	0.0938	0.0030	0.0129	0.0002	320.4	67.6	91.1	2.8	82.7	1.1	90%
19S22-1-84	meta	0.0684	0.0025	0.1332	0.0059	0.0138	0.0002	883.3	-116.7	127.0	5.3	88.4	1.5	64%
Grt-Sil-bt gneiss														
19S28-1-56	detrital	0.1760	0.0041	11.1615	0.2689	0.4552	0.0045	2616.7	38.3	2536.7	22.5	2418.3	20.1	95%
19S28-1-70	detrital	0.1619	0.0037	9.5000	0.2218	0.4208	0.0045	2476.2	37.5	2387.5	21.5	2264.1	20.5	94%
19S28-1-19	detrital	0.1588	0.0030	8.4873	0.1811	0.3857	0.0047	2442.9	31.5	2284.6	19.4	2102.8	21.7	91%
19S28-1-53	detrital	0.1590	0.0042	8.5136	0.2863	0.3830	0.0086	2455.6	50.2	2287.4	30.6	2090.1	39.9	90%
19S28-1-27	detrital	0.1378	0.0029	7.2323	0.1502	0.3792	0.0036	2211.1	35.7	2140.5	18.6	2072.5	16.6	96%
19S28-1-08	detrital	0.1089	0.0024	4.9099	0.1164	0.3240	0.0039	1783.3	39.4	1804.0	20.0	1809.2	19.0	99%
19S28-1-02	detrital	0.1536	0.0040	6.6103	0.1933	0.3116	0.0055	2386.7	44.4	2060.7	25.8	1748.8	26.9	83%
19S28-1-24	detrital	0.1072	0.0019	4.3908	0.0804	0.2950	0.0025	1753.7	32.1	1710.6	15.2	1666.7	12.5	97%
19S28-1-69	detrital	0.1045	0.0026	4.2948	0.1037	0.2949	0.0027	1705.9	44.6	1692.4	19.9	1666.1	13.7	98%
19S28-1-39	detrital	0.1042	0.0029	4.0748	0.1128	0.2827	0.0028	1699.7	51.2	1649.3	22.6	1604.9	14.2	97%
19S28-1-20	detrital	0.0957	0.0019	3.4782	0.0709	0.2627	0.0024	1542.6	43.1	1522.3	16.1	1503.5	12.4	98%
19S28-1-36	detrital	0.0839	0.0019	2.5331	0.0595	0.2174	0.0023	1300.0	76.4	1281.6	17.1	1268.3	12.0	98%
19S28-1-32	detrital	0.0759	0.0019	1.9711	0.0478	0.1877	0.0018	1092.3	50.0	1105.7	16.4	1108.9	9.5	99%
19S28-1-28	detrital	0.0744	0.0016	1.8871	0.0407	0.1830	0.0015	1051.6	42.6	1076.6	14.3	1083.1	8.4	99%
19S28-1-05	detrital	0.0748	0.0016	1.8842	0.0418	0.1817	0.0018	1064.8	42.6	1075.5	14.7	1076.0	9.8	99%
19S28-1-61	detrital	0.0775	0.0023	1.9347	0.0586	0.1797	0.0020	1144.5	59.3	1093.2	20.3	1065.2	10.7	97%
19S28-1-21	detrital	0.0728	0.0019	1.7955	0.0456	0.1782	0.0015	1009.3	52.9	1043.8	16.6	1057.0	8.3	98%
19S28-1-64	detrital	0.0796	0.0021	1.9537	0.0520	0.1762	0.0019	1187.0	47.2	1099.7	17.9	1046.3	10.6	95%
19S28-1-44	detrital	0.0730	0.0015	1.6836	0.0344	0.1663	0.0012	1013.0	40.7	1002.3	13.0	991.4	6.5	98%
19S28-1-58	detrital	0.0665	0.0021	1.5283	0.0498	0.1658	0.0021	821.9	66.7	941.8	20.0	989.2	11.5	95%
19S28-1-25	detrital	0.0758	0.0015	1.7349	0.0360	0.1647	0.0016	1100.0	37.8	1021.6	13.4	982.8	8.9	96%
19S28-1-07	detrital	0.0699	0.0023	1.5239	0.0521	0.1571	0.0022	925.6	66.7	940.0	21.0	940.6	12.1	99%
19S28-1-65	detrital	0.0711	0.0025	1.5519	0.0563	0.1571	0.0019	959.0	73.6	951.3	22.4	940.6	10.9	98%
19S28-1-73	detrital	0.0679	0.0031	1.4707	0.0701	0.1556	0.0026	864.8	99.1	918.4	28.8	932.3	14.3	98%
19S28-1-54	detrital	0.0706	0.0021	1.5225	0.0457	0.1550	0.0017	946.3	61.1	939.5	18.4	929.2	9.7	98%
19S28-1-04	detrital	0.0691	0.0016	1.4553	0.0339	0.1519	0.0014	902.8	48.1	912.0	14.0	911.5	7.6	99%
19S28-1-38	detrital	0.0707	0.0020	1.4813	0.0413	0.1511	0.0015	950.0	52.8	922.7	16.9	907.3	8.4	98%
19S28-1-01	detrital	0.0685	0.0018	1.4105	0.0386	0.1491	0.0017	883.3	55.6	893.4	16.3	895.9	9.7	99%
19S28-1-03	detrital	0.0673	0.0013	1.3266	0.0273	0.1422	0.0013	855.6	40.7	857.4	11.9	857.3	7.2	99%
19S28-1-41	detrital	0.0697	0.0017	1.3739	0.0373	0.1419	0.0017	920.4	47.2	877.8	16.0	855.3	9.8	97%
19S28-1-12	detrital	0.0708	0.0020	1.3616	0.0357	0.1394	0.0011	950.0	55.6	872.5	15.4	841.3	6.2	96%
19S28-1-63	detrital	0.0713	0.0018	1.3555	0.0370	0.1366	0.0017	964.8	47.2	869.9	16.0	825.5	9.7	94%
19S28-1-59	detrital	0.0668	0.0023	1.2310	0.0412	0.1334	0.0016	831.5	66.5	814.8	18.8	807.1	9.0	99%
19S28-1-17	detrital	0.0718	0.0021	1.2518	0.0349	0.1264	0.0013	988.9	59.3	824.2	15.7	767.5	7.3	92%
19S28-1-49	detrital	0.0642	0.0018	1.0362	0.0503	0.1129	0.0045	746.3	59.3	722.0	25.1	689.7	25.8	95%
19S28-1-72	detrital	0.0678	0.0023	1.0773	0.0564	0.1123	0.0046	864.8	104.6	742.3	27.6	686.1	26.6	92%
19S28-1-51	detrital	0.0678	0.0018	1.0220	0.0272	0.1084	0.0014	861.1	55.6	714.9	13.7	663.3	8.0	92%
19S28-1-43	detrital	0.0717	0.0018	1.0687	0.0473	0.1052	0.0030	977.5	51.9	738.1	23.2	644.8	17.7	86%
19S28-1-48	detrital	0.0566	0.0017	0.8063	0.0237	0.1021	0.0012	476.0	64.8	600.4	13.3	626.8	7.0	95%

SpotID	Goup	$^{207}\text{Pb}/^{206}\text{Pb}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{207}\text{Pb}/^{206}\text{Pb}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S28-1-11	detrital	0.0627	0.0019	0.7738	0.0237	0.0893	0.0009	698.2	66.7	582.0	13.6	551.3	5.4	94%
19S28-1-37	detrital	0.0627	0.0020	0.7666	0.0333	0.0868	0.0023	698.2	68.5	577.8	19.2	536.3	13.9	92%
19S28-1-42	detrital	0.0676	0.0023	0.5857	0.0280	0.0620	0.0021	857.4	72.2	468.1	18.0	387.9	13.0	81%
19S28-1-55	detrital	0.0597	0.0028	0.4910	0.0406	0.0578	0.0039	594.5	106.5	405.6	27.7	362.0	23.7	88%
19S28-1-66	meta	0.0465	0.0052	0.0555	0.0042	0.0093	0.0002	20.5	312.9	54.9	4.0	60.0	1.6	91%
19S28-1-33	meta	0.0541	0.0051	0.0740	0.0064	0.0103	0.0002	376.0	211.1	72.5	6.0	65.9	1.4	90%
19S28-1-68	meta	0.0556	0.0035	0.0786	0.0046	0.0103	0.0002	435.2	142.6	76.9	4.3	66.3	1.1	85%
19S28-1-30	meta	0.0483	0.0030	0.0702	0.0040	0.0106	0.0001	122.3	127.8	68.9	3.8	68.3	0.8	99%
19S28-1-29	meta	0.0490	0.0033	0.0728	0.0045	0.0109	0.0002	146.4	151.8	71.4	4.3	70.0	1.2	97%
19S28-1-50	meta	0.0477	0.0029	0.0724	0.0040	0.0111	0.0002	83.4	150.0	71.0	3.8	71.3	1.0	99%
19S28-1-47	meta	0.0518	0.0038	0.0785	0.0051	0.0112	0.0002	276.0	166.6	76.7	4.8	71.6	1.1	93%
19S28-1-23	meta	0.0485	0.0034	0.0742	0.0047	0.0112	0.0002	124.2	155.5	72.7	4.5	72.0	1.1	99%
19S28-1-10	meta	0.0531	0.0035	0.0814	0.0048	0.0113	0.0002	331.5	150.0	79.5	4.5	72.3	1.1	90%
19S28-1-45	meta	0.0461	0.0035	0.0717	0.0051	0.0113	0.0002	400.1	-211.1	70.3	4.9	72.6	1.2	96%
19S28-1-71	meta	0.0508	0.0024	0.0797	0.0037	0.0113	0.0001	231.6	111.1	77.8	3.5	72.6	0.9	93%
19S28-1-26	meta	0.0497	0.0025	0.0772	0.0037	0.0114	0.0001	189.0	119.4	75.5	3.5	72.8	0.8	96%
19S28-1-13	meta	0.0507	0.0032	0.0793	0.0048	0.0114	0.0002	227.8	146.3	77.5	4.6	73.0	1.0	94%
19S28-1-14	meta	0.0495	0.0026	0.0769	0.0037	0.0114	0.0001	172.3	128.7	75.2	3.5	73.1	0.9	97%
19S28-1-16	meta	0.0484	0.0038	0.0756	0.0050	0.0114	0.0002	116.8	183.3	74.0	4.7	73.3	1.2	99%
19S28-1-06	meta	0.0489	0.0020	0.0770	0.0030	0.0114	0.0001	142.7	89.8	75.3	2.8	73.3	0.9	97%
19S28-1-67	meta	0.0519	0.0035	0.0822	0.0052	0.0116	0.0002	279.7	155.5	80.2	4.9	74.0	1.2	91%
19S28-1-34	meta	0.0525	0.0040	0.0805	0.0052	0.0116	0.0002	309.3	172.2	78.6	4.9	74.1	1.4	94%
19S28-1-60	meta	0.0511	0.0035	0.0798	0.0049	0.0116	0.0002	255.6	159.2	77.9	4.6	74.5	1.4	95%
19S28-1-31	meta	0.0566	0.0035	0.0904	0.0050	0.0117	0.0002	476.0	130.5	87.9	4.6	75.0	1.1	84%
19S28-1-35	meta	0.0547	0.0040	0.0868	0.0059	0.0117	0.0002	466.7	162.9	84.5	5.5	75.1	1.3	88%
19S28-1-18	meta	0.0543	0.0031	0.0876	0.0048	0.0117	0.0002	388.9	125.0	85.3	4.5	75.3	1.2	87%
19S28-1-15	meta	0.0483	0.0019	0.0795	0.0030	0.0120	0.0002	122.3	95.4	77.6	2.8	77.1	1.0	99%
19S28-1-46	meta	0.0482	0.0033	0.0819	0.0050	0.0124	0.0002	109.4	155.5	80.0	4.7	79.4	1.2	99%
19S28-1-22	meta	0.0559	0.0038	0.0955	0.0062	0.0126	0.0003	450.0	147.2	92.6	5.7	80.8	1.7	86%
19S28-1-52	meta	0.0531	0.0028	0.1025	0.0052	0.0140	0.0003	331.5	122.2	99.1	4.8	89.5	2.0	89%
19S28-1-74	meta	0.0586	0.0045	0.0919	0.0064	0.0114	0.0002	550.0	166.6	89.3	6.0	73.4	1.4	80%
Grt two-mica granite														
19S24-2.1-42	inherited	0.1529	0.0045	8.1228	0.2312	0.3792	0.0051	2378.7	49.4	2244.8	25.8	2072.7	23.8	92%
19S24-2.1-11	inherited	0.0738	0.0024	1.0750	0.0514	0.1023	0.0034	1036.1	66.2	741.2	25.2	628.1	20.0	83%
19S24-2.1-15	inherited	0.0910	0.0035	0.9941	0.0569	0.0741	0.0029	1447.84	74.07	700.79	28.97	460.7	17.2	58%
19S24-2.1-20	inherited	0.0524	0.0035	0.4865	0.0308	0.0681	0.0011	301.9	158.3	402.5	21.1	424.6	6.8	94%
19S24-2.1-44	inherited	0.0542	0.0019	0.3450	0.0113	0.0456	0.0005	388.9	77.8	301.0	8.5	287.3	2.8	95%
19S24-2.1-58	inherited	0.0481	0.0017	0.2222	0.0076	0.0331	0.0003	101.9	81.5	203.7	6.4	209.8	2.0	97%
19S24-2.1-54	inherited	0.0495	0.0020	0.2287	0.0094	0.0331	0.0004	168.6	94.4	209.1	7.8	209.8	2.5	99%
19S24-2.1-19	inherited	0.0498	0.0018	0.2272	0.0080	0.0328	0.0003	187.1	115.7	207.9	6.6	208.0	2.0	99%
19S24-2.1-66	inherited	0.0483	0.0023	0.2187	0.0096	0.0327	0.0004	122.3	98.1	200.8	8.0	207.4	2.4	96%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S24-2.1-36	inherited	0.0499	0.0024	0.2156	0.0099	0.0311	0.0005	190.8	111.1	198.2	8.3	197.6	2.8	99%
19S24-2.1-46	mag	0.0460	0.0019	0.0937	0.0037	0.0146	0.0002			90.9	3.5	93.5	1.0	97%
19S24-2.1-25	mag	0.0477	0.0036	0.0932	0.0067	0.0142	0.0003	87.1	170.3	90.5	6.2	91.2	1.7	99%
19S24-2.1-51	mag	0.0520	0.0038	0.0968	0.0061	0.0138	0.0003	283.4	175.0	93.8	5.7	88.5	1.7	94%
19S24-2.1-06	mag	0.0476	0.0032	0.0925	0.0060	0.0140	0.0002	76.0	155.5	89.9	5.6	89.7	1.5	99%
19S24-2.1-09	mag	0.0438	0.0016	0.0849	0.0031	0.0139	0.0002			82.7	2.9	88.9	1.2	92%
19S24-2.1-26	mag	0.0451	0.0018	0.0870	0.0034	0.0138	0.0001			84.7	3.1	88.3	0.9	95%
19S24-2.1-27	mag	0.0456	0.0014	0.0876	0.0027	0.0137	0.0001			85.3	2.5	87.8	0.9	97%
19S24-2.1-34	mag	0.0471	0.0018	0.0904	0.0034	0.0137	0.0002	53.8	88.9	87.9	3.2	87.7	1.2	99%
19S24-2.1-24	mag	0.0494	0.0015	0.0947	0.0029	0.0137	0.0001	168.6	70.4	91.9	2.7	87.7	0.8	95%
19S24-2.1-13	mag	0.0458	0.0016	0.0875	0.0030	0.0137	0.0001			85.2	2.8	87.6	0.9	97%
19S24-2.1-04	mag	0.0446	0.0014	0.0851	0.0027	0.0137	0.0002			82.9	2.5	87.4	1.0	94%
19S24-2.1-10	mag	0.0476	0.0020	0.0906	0.0039	0.0136	0.0002	83.4	105.5	88.0	3.6	87.4	1.2	99%
19S24-2.1-48	mag	0.0479	0.0023	0.0901	0.0043	0.0136	0.0002	94.5	111.1	87.6	4.0	86.9	1.2	99%
19S24-2.1-64	mag	0.0450	0.0014	0.0850	0.0025	0.0135	0.0001			82.9	2.4	86.7	0.9	95%
19S24-2.1-12	mag	0.0449	0.0015	0.0839	0.0027	0.0134	0.0001			81.8	2.6	85.5	0.9	95%
19S24-2.1-49	mag	0.0463	0.0014	0.0860	0.0025	0.0133	0.0001	13.1	70.4	83.8	2.4	85.4	0.9	98%
19S24-2.1-38	mag	0.0468	0.0015	0.0869	0.0028	0.0133	0.0001	35.3	87.0	84.6	2.6	85.0	0.9	99%
19S24-2.1-37	mag	0.0449	0.0021	0.0830	0.0038	0.0132	0.0002			80.9	3.5	84.5	1.0	95%
19S24-2.1-17	mag	0.0475	0.0026	0.0863	0.0043	0.0132	0.0002	76.0	122.2	84.1	4.1	84.5	1.1	99%
19S24-2.1-21	mag	0.0460	0.0013	0.0841	0.0024	0.0132	0.0001			82.0	2.3	84.3	0.9	97%
19S24-2.1-14	mag	0.0468	0.0016	0.0857	0.0029	0.0131	0.0001	39.0	81.5	83.5	2.7	83.8	0.9	99%
19S24-2.1-60	mag	0.0476	0.0032	0.0910	0.0056	0.0138	0.0002	79.7	151.8	88.4	5.3	88.3	1.6	99%
19S24-2.1-28	mag	0.0475	0.0015	0.0896	0.0028	0.0134	0.0001	76.0	74.1	87.1	2.6	86.1	0.9	98%
19S24-2.1-47	mag	0.0607	0.0047	0.1135	0.0076	0.0137	0.0003	631.5	166.6	109.1	6.9	87.8	2.1	78%
19S24-2.1-61	mag	0.0571	0.0057	0.1068	0.0082	0.0142	0.0004	494.5	222.2	103.0	7.6	91.0	2.2	87%
19S24-2.1-62	mag	0.0673	0.0043	0.1355	0.0092	0.0142	0.0002	855.6	131.5	129.1	8.2	90.7	1.5	65%
19S24-2.1-32	meta	0.0468	0.0017	0.0684	0.0025	0.0105	0.0001	39.0	88.9	67.2	2.3	67.1	0.8	99%
19S24-2.1-22	meta	0.0467	0.0016	0.0747	0.0025	0.0115	0.0001	35.3	87.0	73.2	2.4	73.7	0.8	99%
19S24-2.1-40	meta	0.0458	0.0016	0.0741	0.0026	0.0116	0.0001			72.6	2.4	74.1	0.9	97%
19S24-2.1-01	meta	0.0461	0.0015	0.0750	0.0025	0.0117	0.0001	400.1	-320.3	73.4	2.4	74.8	0.8	98%
19S24-2.1-05	meta	0.0430	0.0017	0.0713	0.0027	0.0119	0.0002			69.9	2.6	76.2	1.0	91%
19S24-2.1-02	meta	0.0459	0.0016	0.0775	0.0028	0.0121	0.0001			75.8	2.6	77.6	0.9	97%
19S24-2.1-08	meta	0.0455	0.0018	0.0778	0.0030	0.0123	0.0002			76.1	2.8	78.6	1.0	96%
19S24-2.1-52	meta	0.0473	0.0015	0.0814	0.0026	0.0124	0.0002	64.9	77.8	79.5	2.5	79.4	1.0	99%
19S24-2.1-33	meta	0.0444	0.0018	0.0773	0.0031	0.0124	0.0002			75.6	2.9	79.6	1.0	94%
19S24-2.1-18	meta	0.0479	0.0016	0.0835	0.0029	0.0125	0.0001	94.5	77.8	81.4	2.7	79.9	0.9	98%
19S24-2.1-23	meta	0.0459	0.0021	0.0814	0.0038	0.0127	0.0002			79.5	3.5	81.5	1.0	97%
19S24-2.1-63	meta	0.0452	0.0018	0.0805	0.0031	0.0128	0.0002			78.6	2.9	81.8	1.0	95%
19S24-2.1-03	meta	0.0468	0.0016	0.0833	0.0029	0.0128	0.0002	39.0	81.5	81.2	2.7	81.8	1.0	99%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S24-2.1-55	meta	0.0460	0.0018	0.0822	0.0033	0.0128	0.0001			80.2	3.1	81.9	0.9	97%
19S24-2.1-53	meta	0.0455	0.0015	0.0820	0.0027	0.0130	0.0001			80.0	2.5	83.0	0.9	96%
19S24-2.1-30	meta	0.0460	0.0015	0.0835	0.0027	0.0130	0.0001			81.4	2.6	83.1	0.9	97%
19S24-2.1-39	meta	0.0472	0.0017	0.0866	0.0031	0.0131	0.0001	57.5	85.2	84.4	2.9	83.9	0.9	99%
19S24-2.1-67	meta	0.0464	0.0017	0.0844	0.0030	0.0131	0.0001	20.5	85.2	82.2	2.8	84.1	0.9	97%
19S24-2.1-35	meta	0.0482	0.0020	0.0882	0.0035	0.0131	0.0002	122.3	98.1	85.8	3.3	84.1	1.2	97%
19S24-2.1-56	meta	0.0474	0.0016	0.0871	0.0030	0.0132	0.0002	77.9	72.2	84.8	2.8	84.2	1.0	99%
19S24-2.1-59	meta	0.0456	0.0013	0.0844	0.0025	0.0132	0.0001			82.3	2.3	84.8	0.9	96%
19S24-2.1-31	meta	0.0480	0.0016	0.0893	0.0029	0.0133	0.0001	98.2	77.8	86.8	2.7	85.2	0.9	98%
19S24-2.1-57	meta	0.0481	0.0015	0.0900	0.0027	0.0134	0.0001	101.9	70.4	87.5	2.5	85.8	0.9	98%
19S24-2.1-07	meta	0.0454	0.0020	0.0850	0.0036	0.0134	0.0002			82.8	3.4	85.9	1.1	96%
19S24-2.1-29	meta	0.0475	0.0018	0.0900	0.0033	0.0135	0.0002	76.0	85.2	87.5	3.1	86.6	1.0	98%
19S24-2.1-50	meta	0.0447	0.0017	0.0848	0.0033	0.0136	0.0002			82.7	3.1	87.2	1.0	94%
19S24-2.1-41	meta	0.0468	0.0018	0.0899	0.0039	0.0136	0.0003	39.0	92.6	87.4	3.6	87.3	1.8	99%
19S24-2.1-16	meta	0.0453	0.0017	0.0864	0.0032	0.0137	0.0001			84.2	3.0	87.6	0.9	95%
19S24-2.1-43	meta	0.0468	0.0015	0.0903	0.0028	0.0138	0.0002	39.0	83.3	87.8	2.6	88.6	1.0	99%
19S24-2.1-45	meta	0.0477	0.0016	0.0932	0.0030	0.0140	0.0002	83.4	-116.7	90.5	2.8	89.9	1.0	99%
Bt granite														
19S21-1-04	inherited	0.0841	0.0025	2.5201	0.0686	0.2195	0.0025	1295.4	57.4	1277.9	19.8	1279.3	13.2	99%
19S21-1-24	inherited	0.0976	0.0014	3.3940	0.0501	0.2508	0.0017	1588.9	25.9	1503.0	11.6	1442.4	8.9	95%
19S21-1-39	inherited	0.0640	0.0027	0.8743	0.0345	0.1001	0.0011	742.6	88.9	637.9	18.7	615.2	6.6	96%
19S21-1-41	inherited	0.0562	0.0024	0.6188	0.0255	0.0805	0.0009	457.5	94.4	489.1	16.0	499.1	5.6	97%
19S21-1-47	inherited	0.1837	0.0022	11.7306	0.1473	0.4621	0.0032	2686.1	19.8	2583.1	11.9	2448.7	14.3	94%
19S21-1-52	inherited	0.0584	0.0015	0.7208	0.0175	0.0897	0.0008	546.3	55.5	551.2	10.3	553.6	4.7	99%
19S21-1-28	mag	0.0474	0.0033	0.0715	0.0047	0.0110	0.0002	77.9	155.5	70.1	4.5	70.8	1.2	98%
19S21-1-02	mag	0.0497	0.0024	0.0782	0.0038	0.0115	0.0002	189.0	117.6	76.4	3.6	73.6	1.1	96%
19S21-1-03	mag	0.0509	0.0025	0.0771	0.0034	0.0112	0.0001	235.3	111.1	75.4	3.2	71.5	0.9	94%
19S21-1-06	mag	0.0470	0.0021	0.0738	0.0030	0.0115	0.0001	55.7	94.4	72.3	2.9	73.6	0.9	98%
19S21-1-07	mag	0.0485	0.0030	0.0755	0.0042	0.0115	0.0002	124.2	140.7	74.0	4.0	73.6	1.0	99%
19S21-1-08	mag	0.0480	0.0033	0.0787	0.0048	0.0119	0.0002	101.9	151.8	77.0	4.5	76.5	1.1	99%
19S21-1-09	mag	0.0506	0.0038	0.0791	0.0047	0.0116	0.0002	220.4	175.9	77.3	4.4	74.6	1.4	96%
19S21-1-10	mag	0.0516	0.0039	0.0825	0.0060	0.0116	0.0002	333.4	174.1	80.5	5.6	74.6	1.2	92%
19S21-1-14	mag	0.0501	0.0035	0.0763	0.0044	0.0112	0.0002	211.2	169.4	74.7	4.2	72.0	1.1	96%
19S21-1-16	mag	0.0486	0.0029	0.0753	0.0041	0.0114	0.0002	127.9	137.0	73.7	3.9	72.9	1.0	98%
19S21-1-17	mag	0.0485	0.0033	0.0751	0.0045	0.0114	0.0002	124.2	155.5	73.6	4.3	73.3	1.1	99%
19S21-1-18	mag	0.0477	0.0021	0.0758	0.0034	0.0116	0.0001	83.4	103.7	74.2	3.2	74.2	0.9	99%
19S21-1-20	mag	0.0432	0.0033	0.0710	0.0049	0.0118	0.0002	error		69.6	4.7	75.8	1.2	91%
19S21-1-21	mag	0.0476	0.0037	0.0751	0.0053	0.0117	0.0002	76.0	177.8	73.5	5.0	75.3	1.4	97%
19S21-1-25	mag	0.0476	0.0025	0.0741	0.0037	0.0113	0.0002	83.4	127.8	72.5	3.5	72.6	1.0	99%
19S21-1-29	mag	0.0483	0.0028	0.0768	0.0042	0.0117	0.0002	122.3	133.3	75.1	4.0	75.2	1.0	99%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S21-1-31	mag	0.0487	0.0023	0.0758	0.0033	0.0114	0.0001	200.1	111.1	74.2	3.1	73.0	0.9	98%
19S21-1-33	mag	0.0502	0.0031	0.0815	0.0048	0.0118	0.0001	205.6	140.7	79.6	4.5	75.4	0.9	94%
19S21-1-36	mag	0.0451	0.0027	0.0719	0.0043	0.0115	0.0002	error		70.5	4.0	73.7	1.1	95%
19S21-1-38	mag	0.0496	0.0033	0.0783	0.0044	0.0117	0.0002	189.0	157.4	76.6	4.2	75.0	1.1	97%
19S21-1-40	mag	0.0479	0.0029	0.0757	0.0043	0.0116	0.0002	100.1	131.5	74.1	4.1	74.4	1.0	99%
19S21-1-43	mag	0.0476	0.0026	0.0752	0.0040	0.0117	0.0002	79.7	125.9	73.6	3.8	74.9	1.1	98%
19S21-1-45	mag	0.0496	0.0021	0.0766	0.0032	0.0113	0.0001	176.0	97.2	74.9	3.0	72.4	0.8	96%
19S21-1-46	mag	0.0449	0.0025	0.0710	0.0037	0.0114	0.0002	error		69.7	3.6	73.4	1.0	94%
19S21-1-48	mag	0.0501	0.0026	0.0773	0.0038	0.0113	0.0001	198.2	125.0	75.6	3.6	72.7	1.0	96%
19S21-1-49	mag	0.0510	0.0036	0.0794	0.0055	0.0114	0.0002	239.0	164.8	77.6	5.2	72.8	1.3	93%
19S21-1-51	mag	0.0498	0.0038	0.0784	0.0048	0.0119	0.0002	183.4	170.3	76.6	4.6	76.0	1.4	99%
19S21-1-55	mag	0.0483	0.0041	0.0749	0.0052	0.0116	0.0002	122.3	179.6	73.4	4.9	74.2	1.3	98%
19S21-1-01	meta	0.0486	0.0037	0.0666	0.0046	0.0104	0.0002	131.6	170.3	65.5	4.3	66.8	1.3	98%
19S21-1-11	meta	0.0472	0.0036	0.0722	0.0048	0.0112	0.0002	61.2	170.3	70.8	4.6	72.1	1.3	98%
19S21-1-12	meta	0.0465	0.0011	0.0738	0.0017	0.0115	0.0001	33.4	46.3	72.3	1.6	73.8	0.6	98%
19S21-1-15	meta	0.0494	0.0048	0.0743	0.0057	0.0114	0.0003	168.6	220.3	72.8	5.4	73.4	1.9	99%
19S21-1-23	meta	0.0460	0.0011	0.0737	0.0017	0.0116	0.0001	error		72.2	1.6	74.2	0.6	97%
19S21-1-26	meta	0.0502	0.0039	0.0796	0.0054	0.0117	0.0002	205.6	187.9	77.8	5.1	75.1	1.4	96%
19S21-1-27	meta	0.0465	0.0009	0.0738	0.0015	0.0115	0.0001	33.4	44.4	72.3	1.4	73.6	0.5	98%
19S21-1-32	meta	0.0501	0.0021	0.0787	0.0031	0.0115	0.0001	198.2	98.1	76.9	3.0	73.9	0.8	96%
19S21-1-34	meta	0.0508	0.0041	0.0786	0.0053	0.0119	0.0003	231.6	187.0	76.9	5.0	76.3	1.6	99%
19S21-1-35	mag	0.0486	0.0068	0.0746	0.0063	0.0118	0.0004	131.6	300.0	73.0	5.9	75.5	2.4	96%
19S21-1-37	meta	0.0497	0.0011	0.0794	0.0017	0.0116	0.0001	189.0	50.0	77.6	1.6	74.2	0.6	95%
19S21-1-42	meta	0.0473	0.0011	0.0736	0.0016	0.0113	0.0001	64.9	53.7	72.1	1.6	72.3	0.6	99%
19S21-1-44	meta	0.0561	0.0053	0.0827	0.0066	0.0114	0.0002	457.5	211.1	80.7	6.2	73.1	1.5	90%
19S21-1-54	meta	0.0507	0.0043	0.0771	0.0052	0.0117	0.0003	227.8	196.3	75.4	4.9	75.0	1.7	99%
19S21-1-56	meta	0.0464	0.0015	0.0734	0.0023	0.0115	0.0001	16.8	83.3	72.0	2.2	73.6	0.7	97%
19S21-1-57	meta	0.0497	0.0054	0.0787	0.0075	0.0119	0.0002	189.0	227.7	76.9	7.0	76.1	1.5	98%
19S21-1-30	meta	0.0468	0.0043	0.0785	0.0059	0.0124	0.0003	39.0	203.7	76.7	5.5	79.2	1.6	96%
19S21-1-50	meta	0.0478	0.0044	0.0798	0.0056	0.0128	0.0003	100.1	200.0	77.9	5.3	81.7	2.2	95%
19S21-1-05		0.0560	0.0043	0.0855	0.0057	0.0113	0.0002	450.0	139.8	83.3	5.3	72.7	1.3	86%
19S21-1-13		0.0555	0.0051	0.0862	0.0061	0.0118	0.0003	431.5	210.2	84.0	5.7	75.9	1.7	89%
19S21-1-19		0.0559	0.0043	0.0763	0.0050	0.0104	0.0002	455.6	137.9	74.7	4.7	66.9	1.3	89%
19S21-1-22		0.0667	0.0074	0.1061	0.0096	0.0123	0.0003	831.5	233.3	102.4	8.8	78.8	2.1	73%
19S21-1-53		0.0565	0.0051	0.0902	0.0080	0.0117	0.0002	477.8	200.0	87.7	7.5	75.2	1.3	84%
Tur two-mica granite														
19S27-1-17	inherited	0.1586	0.0034	7.6546	0.1636	0.3477	0.0032	2442.6	36.0	2191.3	19.3	1923.4	15.2	86%
19S27-1-03	inherited	0.1544	0.0024	6.5465	0.1028	0.3052	0.0019	2395.4	26.8	2052.2	13.9	1717.1	9.5	82%
19S27-1-01	inherited	0.0851	0.0016	2.4809	0.0496	0.2100	0.0020	1318.2	37.3	1266.5	14.5	1228.6	10.5	96%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S27-1-43	inherited	0.0945	0.0025	2.5902	0.0732	0.1976	0.0031	1520.4	17.6	1297.9	20.7	1162.7	16.6	89%
19S27-1-21	inherited	0.0955	0.0021	2.4163	0.0999	0.1798	0.0054	1538.9	45.4	1247.5	29.7	1065.7	29.3	84%
19S27-1-56	inherited	0.0740	0.0019	1.5797	0.0404	0.1541	0.0014	1040.4	54.6	962.2	15.9	923.8	7.8	95%
19S27-1-41	inherited	0.0759	0.0026	1.5754	0.0549	0.1509	0.0022	1100.0	69.3	960.6	21.7	906.2	12.2	94%
19S27-1-05	inherited	0.0687	0.0014	1.3146	0.0259	0.1379	0.0010	888.6	36.9	852.2	11.4	832.7	5.6	97%
19S27-1-20	inherited	0.0736	0.0018	1.3536	0.0321	0.1328	0.0014	1029.3	44.0	869.1	13.9	803.9	7.7	92%
19S27-1-45	inherited	0.0657	0.0020	0.9517	0.0277	0.1048	0.0010	798.2	64.0	679.0	14.4	642.3	5.7	94%
19S27-1-11	inherited	0.0604	0.0013	0.6986	0.0159	0.0833	0.0009	616.7	48.1	537.9	9.5	516.0	5.2	95%
19S27-1-52	inherited	0.0702	0.0017	0.7145	0.0186	0.0733	0.0009	1000.0	48.9	547.4	11.0	456.0	5.4	81%
19S27-1-33	inherited	0.0511	0.0019	0.5118	0.0174	0.0729	0.0008	255.6	83.3	419.7	11.7	453.3	4.7	92%
19S27-1-51	inherited	0.0505	0.0014	0.2507	0.0070	0.0359	0.0003	220.4	66.7	227.2	5.7	227.1	2.1	99%
19S27-1-06	inherited	0.0506	0.0023	0.2447	0.0110	0.0353	0.0007	220.4	100.9	222.3	9.0	223.7	4.1	99%
19S27-1-37	inherited	0.0499	0.0014	0.2255	0.0061	0.0327	0.0003	190.8	64.8	206.5	5.0	207.3	2.0	99%
19S27-1-36	inherited	0.0501	0.0015	0.2262	0.0069	0.0326	0.0003	198.2	102.8	207.0	5.7	206.6	2.0	99%
19S27-1-24	inherited	0.0482	0.0017	0.1802	0.0063	0.0272	0.0005	105.6	76.8	168.3	5.5	172.9	2.9	97%
19S27-1-54	inherited	0.0534	0.0026	0.1385	0.0068	0.0187	0.0005	346.4	109.3	131.7	6.1	119.7	2.9	90%
19S27-1-50	inherited	0.0529	0.0065	0.0762	0.0081	0.0114	0.0004	327.8	281.4	74.6	7.7	72.9	2.5	97%
19S27-1-40	inherited	0.0496	0.0052	0.0530	0.0047	0.0082	0.0002	176.0	290.7	52.5	4.5	52.8	1.4	99%
19S27-1-47	inherited	0.0470	0.0036	0.0472	0.0032	0.0072	0.0001	50.1	183.3	46.8	3.1	46.4	0.9	99%
19S27-1-04	inherited	0.0488	0.0030	0.0440	0.0025	0.0067	0.0001	200.1	72.2	43.7	2.4	43.0	0.7	98%
19S27-1-38	mag	0.0469	0.0014	0.0306	0.0009	0.0047	0.0000	42.7	79.6	30.6	0.9	30.3	0.3	99%
19S27-1-26	mag	0.0462	0.0015	0.0302	0.0009	0.0047	0.0000	9.4	77.8	30.2	0.9	30.4	0.3	99%
19S27-1-30	mag	0.0480	0.0018	0.0315	0.0011	0.0047	0.0000	101.9	88.9	31.5	1.1	30.5	0.3	96%
19S27-1-39	mag	0.0466	0.0017	0.0306	0.0011	0.0047	0.0000	27.9	94.4	30.6	1.1	30.5	0.3	99%
19S27-1-23	mag	0.0478	0.0019	0.0313	0.0012	0.0047	0.0001	87.1	101.8	31.3	1.2	30.5	0.4	97%
19S27-1-58	mag	0.0466	0.0017	0.0305	0.0011	0.0048	0.0000	27.9	94.4	30.5	1.1	30.6	0.3	99%
19S27-1-22	mag	0.0432	0.0017	0.0285	0.0011	0.0048	0.0001			28.5	1.1	30.8	0.4	92%
19S27-1-27	mag	0.0466	0.0017	0.0309	0.0011	0.0048	0.0001	27.9	94.4	30.9	1.1	30.8	0.4	99%
19S27-1-44	mag	0.0460	0.0016	0.0306	0.0010	0.0048	0.0000			30.6	1.0	30.8	0.3	99%
19S27-1-35	mag	0.0473	0.0019	0.0314	0.0012	0.0048	0.0001	64.9	101.8	31.4	1.2	30.9	0.3	98%
19S27-1-25	mag	0.0470	0.0016	0.0312	0.0011	0.0048	0.0000	55.7	72.2	31.2	1.0	30.9	0.3	99%
19S27-1-18	mag	0.0524	0.0021	0.0347	0.0013	0.0048	0.0001	301.9	94.4	34.6	1.3	30.9	0.4	88%
19S27-1-59	mag	0.0467	0.0016	0.0310	0.0010	0.0048	0.0000	31.6	90.7	31.0	1.0	31.0	0.3	99%
19S27-1-34	mag	0.0462	0.0014	0.0310	0.0009	0.0048	0.0000	5.7	70.4	31.0	0.9	31.1	0.3	99%
19S27-1-60	mag	0.0488	0.0023	0.0326	0.0015	0.0048	0.0001	200.1	104.6	32.6	1.5	31.2	0.4	95%
19S27-1-42	mag	0.0466	0.0015	0.0315	0.0011	0.0049	0.0001	31.6	77.8	31.5	1.0	31.2	0.3	99%
19S27-1-55	mag	0.0516	0.0022	0.0346	0.0015	0.0049	0.0001	333.4	100.0	34.5	1.5	31.3	0.3	90%
19S27-1-46	mag	0.0469	0.0016	0.0314	0.0011	0.0049	0.0000	42.7	81.5	31.4	1.0	31.3	0.3	99%
19S27-1-14	mag	0.0478	0.0020	0.0322	0.0013	0.0049	0.0001	87.1	100.0	32.2	1.3	31.5	0.4	97%
19S27-1-16	mag	0.0490	0.0021	0.0330	0.0013	0.0049	0.0001	146.4	93.5	33.0	1.3	31.5	0.4	95%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S27-1-15	mag	0.0499	0.0020	0.0337	0.0013	0.0049	0.0001	187.1	89.8	33.7	1.3	31.5	0.4	93%
19S27-1-02	mag	0.0481	0.0017	0.0327	0.0011	0.0049	0.0001	101.9	83.3	32.6	1.1	31.7	0.3	97%
19S27-1-09	mag	0.0483	0.0014	0.0332	0.0010	0.0049	0.0000	116.8	63.9	33.1	1.0	31.8	0.3	95%
19S27-1-31	mag	0.0487	0.0019	0.0335	0.0013	0.0050	0.0001	200.1	88.9	33.5	1.2	31.9	0.3	95%
19S27-1-32	mag	0.0462	0.0015	0.0319	0.0010	0.0050	0.0000	9.4	74.1	31.9	1.0	31.9	0.3	99%
19S27-1-28	mag	0.0465	0.0020	0.0323	0.0013	0.0050	0.0001	20.5	100.0	32.3	1.3	32.3	0.4	99%
19S27-1-08	mag	0.0523	0.0020	0.0363	0.0014	0.0051	0.0001	298.2	88.9	36.2	1.3	32.5	0.4	89%
19S27-1-10	mag	0.0477	0.0018	0.0336	0.0013	0.0051	0.0001	83.4	85.2	33.5	1.3	32.6	0.4	97%
19S27-1-13	mag	0.0455	0.0018	0.0321	0.0013	0.0051	0.0001			32.1	1.3	32.9	0.4	97%
19S27-1-12	mag	0.0499	0.0022	0.0353	0.0016	0.0051	0.0001	190.8	106.5	35.2	1.5	32.9	0.4	93%
19S27-1-53	mag	0.0480	0.0019	0.0342	0.0013	0.0051	0.0001	101.9	-104.6	34.1	1.3	33.0	0.4	96%
19S27-1-19		0.0521	0.0018	0.0332	0.0011	0.0046	0.0001	300.1	77.8	33.1	1.1	29.6	0.4	88%
19S27-1-48		0.0634	0.0081	0.0383	0.0038	0.0048	0.0001	721.9	272.2	38.1	3.7	30.8	0.7	78%
19S27-1-49		0.0530	0.0056	0.0347	0.0029	0.0050	0.0001	327.8	236.1	34.7	2.9	32.4	0.8	93%
19S27-1-29		0.0435	0.0039	0.0302	0.0023	0.0051	0.0001			30.2	2.2	33.0	0.6	90%
leucosome														
19S22-2.1-09	inherited	0.0641	0.0015	1.0793	0.0265	0.1215	0.0013	742.6	48.1	743.3	12.9	739.5	7.6	99%
19S22-2.1-46	inherited	0.0665	0.0025	0.9266	0.0335	0.1007	0.0011	833.3	77.8	665.9	17.6	618.4	6.5	92%
19S22-2.1-11	inherited	0.0686	0.0017	0.5304	0.0140	0.0557	0.0007	887.0	51.9	432.1	9.3	349.7	4.2	78%
19S22-2.1-22	mag	0.0461	0.0010	0.0708	0.0015	0.0111	0.0001	400.1	-346.3	69.4	1.4	70.9	0.6	97%
19S22-2.1-45	mag	0.0482	0.0013	0.0738	0.0019	0.0111	0.0001	109.4	56.5	72.3	1.8	70.9	0.6	98%
19S22-2.1-14	mag	0.0458	0.0009	0.0698	0.0015	0.0110	0.0001	error		68.5	1.4	70.6	0.8	97%
19S22-2.1-19	mag	0.0461	0.0011	0.0703	0.0017	0.0110	0.0001	400.1	-342.6	68.9	1.7	70.4	0.7	97%
19S22-2.1-35	mag	0.0466	0.0010	0.0708	0.0016	0.0109	0.0001	31.6	48.1	69.5	1.5	70.2	0.6	98%
19S22-2.1-37	mag	0.0466	0.0010	0.0703	0.0015	0.0109	0.0001	27.9	51.8	69.0	1.4	70.1	0.6	98%
19S22-2.1-02	mag	0.0472	0.0010	0.0711	0.0016	0.0109	0.0001	57.5	51.8	69.8	1.5	69.7	0.7	99%
19S22-2.1-12	mag	0.0466	0.0012	0.0700	0.0019	0.0108	0.0001	33.4	53.7	68.7	1.8	69.5	0.6	98%
19S22-2.1-21	mag	0.0467	0.0010	0.0699	0.0015	0.0108	0.0001	35.3	48.1	68.6	1.4	69.2	0.6	99%
19S22-2.1-42	mag	0.0469	0.0009	0.0697	0.0014	0.0107	0.0001	55.7	44.4	68.4	1.3	68.8	0.6	99%
19S22-2.1-08	mag	0.0450	0.0012	0.0665	0.0017	0.0107	0.0001	error		65.4	1.6	68.7	0.6	95%
19S22-2.1-43	mag	0.0481	0.0010	0.0715	0.0015	0.0107	0.0001	105.6	50.0	70.1	1.5	68.7	0.6	97%
19S22-2.1-17	mag	0.0457	0.0010	0.0680	0.0015	0.0107	0.0001	error		66.8	1.4	68.5	0.6	97%
19S22-2.1-15	mag	0.0458	0.0010	0.0676	0.0015	0.0106	0.0001	error		66.4	1.4	68.2	0.7	97%
19S22-2.1-06	mag	0.0466	0.0010	0.0687	0.0015	0.0106	0.0001	27.9	51.8	67.4	1.5	68.2	0.7	98%
19S22-2.1-40	mag	0.0470	0.0009	0.0691	0.0014	0.0106	0.0001	55.7	-152.8	67.8	1.3	68.1	0.6	99%
19S22-2.1-29	mag	0.0463	0.0009	0.0680	0.0014	0.0106	0.0001	13.1	44.4	66.8	1.3	68.0	0.6	98%
19S22-2.1-31	mag	0.0470	0.0011	0.0691	0.0016	0.0106	0.0001	50.1	55.6	67.9	1.5	67.9	0.6	99%
19S22-2.1-39	mag	0.0472	0.0011	0.0692	0.0017	0.0106	0.0001	61.2	-141.6	67.9	1.6	67.9	0.6	99%
19S22-2.1-28	mag	0.0481	0.0012	0.0702	0.0017	0.0106	0.0001	105.6	52.8	68.9	1.6	67.8	0.6	98%
19S22-2.1-07	mag	0.0456	0.0009	0.0667	0.0014	0.0106	0.0001	error		65.6	1.3	67.8	0.6	96%

SpotID	Goup	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁷ Pb/ ²⁰⁶ Pb	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S22-2.1-01	mag	0.0470	0.0010	0.0686	0.0015	0.0105	0.0001	55.7	42.6	67.4	1.4	67.7	0.6	99%
19S22-2.1-10	mag	0.0472	0.0010	0.0689	0.0015	0.0105	0.0001	57.5	50.0	67.6	1.4	67.6	0.6	99%
19S22-2.1-34	mag	0.0467	0.0010	0.0680	0.0015	0.0105	0.0001	35.3	48.1	66.8	1.4	67.5	0.6	98%
19S22-2.1-44	mag	0.0485	0.0012	0.0705	0.0018	0.0105	0.0001	124.2	63.9	69.2	1.7	67.5	0.6	97%
19S22-2.1-27	mag	0.0469	0.0010	0.0682	0.0014	0.0105	0.0001	55.7	38.9	67.0	1.4	67.3	0.6	99%
19S22-2.1-41	mag	0.0482	0.0010	0.0697	0.0015	0.0105	0.0001	105.6	54.6	68.4	1.4	67.0	0.5	97%
19S22-2.1-23	mag	0.0480	0.0009	0.0695	0.0013	0.0104	0.0001	98.2	44.4	68.2	1.3	67.0	0.5	98%
19S22-2.1-33	mag	0.0479	0.0010	0.0693	0.0015	0.0104	0.0001	100.1	41.7	68.0	1.4	66.9	0.5	98%
19S22-2.1-32	mag	0.0467	0.0014	0.0670	0.0020	0.0104	0.0001	35.3	70.4	65.8	1.9	66.5	0.7	98%
19S22-2.1-26	mag	0.0464	0.0009	0.0665	0.0014	0.0103	0.0001	16.8	48.1	65.4	1.3	66.3	0.6	98%
19S22-2.1-36	mag	0.0475	0.0010	0.0680	0.0014	0.0103	0.0001	72.3	43.5	66.8	1.4	66.3	0.6	99%
19S22-2.1-30	mag	0.0465	0.0010	0.0664	0.0014	0.0103	0.0001	33.4	38.9	65.3	1.3	66.1	0.5	98%
19S22-2.1-16	mag	0.0451	0.0010	0.0644	0.0014	0.0103	0.0001	error		63.4	1.3	66.0	0.5	95%
19S22-2.1-13	mag	0.0459	0.0011	0.0651	0.0014	0.0102	0.0001	error		64.0	1.4	65.7	0.5	97%
19S22-2.1-25	mag	0.0462	0.0010	0.0654	0.0015	0.0102	0.0001	9.4	51.8	64.3	1.4	65.5	0.6	98%
19S22-2.1-18	mag	0.0476	0.0015	0.0671	0.0022	0.0101	0.0001	79.7	-125.0	65.9	2.1	64.8	0.7	98%
19S22-2.1-04	mag	0.0476	0.0011	0.0667	0.0015	0.0101	0.0001	76.0	47.2	65.6	1.5	64.8	0.6	98%
19S22-2.1-03	mag	0.0484	0.0014	0.0675	0.0019	0.0101	0.0001	120.5	66.7	66.3	1.8	64.6	0.6	97%
19S22-2.1-05	mag	0.0468	0.0011	0.0633	0.0015	0.0098	0.0001	35.3	64.8	62.3	1.4	62.7	0.6	99%
19S22-2.1-38	mag	0.0466	0.0011	0.0624	0.0015	0.0097	0.0001	27.9	55.6	61.5	1.5	62.2	0.6	98%
19S22-2.1-20	mag	0.0467	0.0014	0.0612	0.0019	0.0095	0.0001	31.6	70.4	60.3	1.8	60.9	0.7	99%
19S22-2.1-24	mag	0.0465	0.0013	0.0575	0.0017	0.0089	0.0001	33.4	66.7	56.8	1.6	57.3	0.6	99%
leucosome														
19S28-2-05	inherited	0.0537	0.0010	0.2864	0.0109	0.0382	0.0012	366.7	75.0	255.7	8.6	241.4	7.7	94%
19S28-2-06	mag	0.0471	0.0015	0.0798	0.0026	0.0123	0.0002	53.8	74.1	78.0	2.5	78.7	1.2	99%
19S28-2-18	mag	0.0485	0.0012	0.0822	0.0021	0.0122	0.0001	124.2	55.6	80.2	2.0	78.3	0.9	97%
19S28-2-25	mag	0.0465	0.0016	0.0780	0.0026	0.0122	0.0001	33.4	72.2	76.3	2.5	78.2	0.8	97%
19S28-2-35	mag	0.0473	0.0023	0.0796	0.0037	0.0122	0.0002	64.9	111.1	77.8	3.5	78.2	1.0	99%
19S28-2-20	mag	0.0464	0.0013	0.0780	0.0023	0.0121	0.0001	20.5	66.7	76.3	2.2	77.7	0.8	98%
19S28-2-38	mag	0.0469	0.0016	0.0784	0.0027	0.0121	0.0001	55.7	72.2	76.7	2.6	77.4	0.8	99%
19S28-2-28	mag	0.0465	0.0021	0.0774	0.0035	0.0121	0.0001	20.5	107.4	75.7	3.3	77.3	0.9	97%
19S28-2-24	mag	0.0472	0.0018	0.0783	0.0029	0.0120	0.0001	57.5	88.9	76.6	2.7	77.0	0.8	99%
19S28-2-19	mag	0.0459	0.0010	0.0763	0.0017	0.0120	0.0001			74.6	1.6	76.8	0.7	97%
19S28-2-17	mag	0.0475	0.0013	0.0789	0.0023	0.0120	0.0001	72.3	-100.0	77.1	2.2	76.7	0.9	99%
19S28-2-21	mag	0.0454	0.0015	0.0746	0.0024	0.0120	0.0001			73.1	2.3	76.7	0.9	95%
19S28-2-36	mag	0.0463	0.0016	0.0765	0.0026	0.0119	0.0001	13.1	87.0	74.8	2.4	76.5	0.8	97%
19S28-2-33	mag	0.0452	0.0016	0.0744	0.0026	0.0119	0.0001			72.8	2.4	76.1	0.8	95%
19S28-2-22	mag	0.0493	0.0019	0.0805	0.0032	0.0118	0.0001	161.2	86.1	78.6	3.0	75.7	0.8	96%
19S28-2-31	mag	0.0441	0.0011	0.0706	0.0017	0.0116	0.0001			69.3	1.6	74.1	0.7	93%
19S28-2-29	mag	0.0483	0.0014	0.0780	0.0021	0.0117	0.0001	122.3	66.7	76.3	2.0	75.1	0.7	98%

SpotID	Goup	$^{207}\text{Pb}/^{206}\text{Pb}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{207}\text{Pb}/^{206}\text{Pb}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	Concordance
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
19S28-2-30	mag	0.0464	0.0016	0.0749	0.0025	0.0117	0.0001	16.8	77.8	73.3	2.3	74.9	0.8	97%
19S28-2-42	mag	0.0477	0.0020	0.0759	0.0030	0.0116	0.0001	83.4	105.5	74.3	2.9	74.6	0.9	99%
19S28-2-40	mag	0.0464	0.0014	0.0747	0.0022	0.0116	0.0001	16.8	70.4	73.2	2.0	74.6	0.8	98%
19S28-2-07	mag	0.0464	0.0016	0.0741	0.0024	0.0116	0.0001	16.8	77.8	72.6	2.2	74.4	0.9	97%
19S28-2-09	mag	0.0468	0.0012	0.0750	0.0019	0.0116	0.0001	39.0	55.6	73.5	1.8	74.0	0.7	99%
19S28-2-01	mag	0.0483	0.0030	0.0752	0.0042	0.0115	0.0002	122.3	131.5	73.6	3.9	73.7	1.2	99%
19S28-2-02	mag	0.0483	0.0021	0.0762	0.0030	0.0115	0.0001	116.8	100.0	74.5	2.8	74.0	0.8	99%
19S28-2-13	mag	0.0469	0.0013	0.0747	0.0020	0.0115	0.0001	42.7	63.0	73.2	1.8	73.8	0.7	99%
19S28-2-15	mag	0.0479	0.0012	0.0764	0.0019	0.0115	0.0001	94.5	59.3	74.8	1.8	73.8	0.8	98%
19S28-2-23	mag	0.0459	0.0011	0.0729	0.0018	0.0115	0.0001			71.4	1.7	73.6	0.7	97%
19S28-2-26	mag	0.0455	0.0011	0.0723	0.0018	0.0115	0.0001			70.9	1.7	73.5	0.6	96%
19S28-2-12	mag	0.0484	0.0011	0.0768	0.0018	0.0114	0.0001	120.5	53.7	75.1	1.7	73.4	0.7	97%
19S28-2-37	mag	0.0459	0.0012	0.0729	0.0020	0.0114	0.0001			71.4	1.9	73.3	0.8	97%
19S28-2-27	mag	0.0462	0.0014	0.0732	0.0022	0.0114	0.0001	9.4	70.4	71.7	2.0	73.3	0.7	97%
19S28-2-11	mag	0.0464	0.0013	0.0733	0.0019	0.0114	0.0001	16.8	63.0	71.8	1.8	73.2	0.7	98%
19S28-2-10	mag	0.0469	0.0011	0.0741	0.0017	0.0114	0.0001	42.7	55.6	72.6	1.6	73.1	0.7	99%
19S28-2-14	mag	0.0478	0.0013	0.0754	0.0020	0.0114	0.0001	100.1	60.2	73.8	1.9	72.9	0.7	98%
19S28-2-16	mag	0.0510	0.0021	0.0795	0.0030	0.0113	0.0001	242.7	92.6	77.7	2.8	72.7	0.9	93%
19S28-2-41	mag	0.0469	0.0013	0.0728	0.0019	0.0113	0.0001	42.7	66.7	71.4	1.8	72.2	0.9	98%
19S28-2-32	mag	0.0453	0.0011	0.0707	0.0017	0.0112	0.0001			69.4	1.6	72.0	0.6	96%
19S28-2-03	mag	0.0476	0.0011	0.0741	0.0018	0.0112	0.0001	79.7	83.3	72.6	1.7	72.0	0.6	99%
19S28-2-08	mag	0.0471	0.0012	0.0733	0.0018	0.0112	0.0001	57.5	64.8	71.9	1.7	71.9	0.7	99%
19S28-2-04	mag	0.0462	0.0011	0.0709	0.0017	0.0111	0.0001	9.4	55.6	69.5	1.6	71.1	0.6	97%
19S28-2-34	mag	0.0480	0.0024	0.0656	0.0032	0.0100	0.0001	98.2	114.8	64.5	3.0	64.1	0.8	99%

Table S5

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
Grt-Sil-bt gneiss																					
19S22-1-30	364	11.3	687	0.043	36.0	0.416	6.61	11.0	5.96	39.6	9.98	82.1	23.0	84.3	16.1	138	28.0	138	309	0.45	0.87
19S22-1-05	876	11.6	1690	0.214	36.4	1.10	5.32	4.59	1.27	30.8	11.4	147	58.4	274	59.9	562	120	178	468	0.38	0.33
19S22-1-77	366	4.51	908	7.82	20.8	0.232	3.18	2.27	0.522	13.0	5.27	72.6	29.8	144	32.9	320	68.7	233	511	0.46	0.29
19S22-1-16	376	11.2	947	4.76	20.1	0.178	1.42	2.88	0.334	21.4	6.82	84.9	33.1	151	31.9	293	60.8	57.6	143	0.40	0.13
19S22-1-58	673	26.1	1140	0.076	5.33	0.471	14.4	15.2	0.232	61.7	16.1	147	40.1	135	21.1	152	25.6	155	71.0	2.18	0.02
19S22-1-61	401	5.28	972	1.35	45.5	1.91	3.21	3.17	1.03	17.7	6.79	81.1	30.1	142	31.0	300	64.8	276	862	0.32	0.42
19S22-1-63	226	4.23	580	0.018	14.1	0.047	0.825	1.62	0.344	10.8	3.68	46.0	18.1	90.3	20.6	201	45.5	121	208	0.58	0.25
19S22-1-20	248	9.45	524	0.013	13.2	0.029	0.690	1.47	0.209	9.94	3.51	45.1	17.4	81.4	17.6	162	34.5	250	496	0.50	0.17
19S22-1-23	303	4.35	308	5.19	2.91	0.333	0.752	1.69	0.194	11.1	4.78	41.7	10.3	31.2	4.84	35.0	5.79	17.9	643	0.03	0.14
19S22-1-35	503	5.32	976	0.090	3.54	0.120	2.34	4.37	0.155	26.4	9.37	99.8	33.2	132	26.4	220	44.7	148	632	0.23	0.04
19S22-1-49	806	6.91	1740	0.634	4.56	0.285	3.90	9.13	0.251	46.1	16.7	182	59.9	244	47.6	399	75.8	249	650	0.38	0.04
19S22-1-69	495	6.40	1620	0.046	8.80	0.145	4.56	6.79	0.274	32.2	11.5	144	56.3	258	54.9	504	102	407	1170	0.35	0.06
19S22-1-03	298	6.78	1780	0.090	8.05	0.535	8.18	10.9	1.48	52.9	16.2	182	62.4	259	48.5	410	77.8	238	634	0.38	0.19
19S22-1-31	481	5.41	2130	0.374	17.1	0.330	5.90	9.24	0.391	49.2	17.3	207	76.9	331	66.7	562	109	210	566	0.37	0.06
19S22-1-40	2750	3.27	643	2.89	28.6	5.36	36.8	13.7	0.614	27.2	6.67	65.0	21.9	92.4	19.3	169	34.1	119	706	0.17	0.10
19S22-1-17	126	3.00	239	0.003	17.1	0.018	0.470	0.959	0.225	5.32	1.64	20.6	7.67	36.2	8.66	89.7	19.6	172	459	0.37	0.30
19S22-1-55	548	5.72	1330	0.040	5.56	0.097	2.76	6.48	0.072	38.4	11.9	134	45.8	190	37.0	322	63.6	228	509	0.45	0.01
19S22-1-65	435	4.43	994	0.022	6.85	0.083	1.53	3.75	0.207	21.3	7.41	91.1	32.7	151	31.0	276	55.4	253	831	0.30	0.07
19S22-1-46	527	8.43	1010	3.36	13.6	0.556	3.45	3.06	0.797	16.6	6.60	87.9	32.8	165	40.7	417	87.7	99.5	917	0.11	0.34
19S22-1-29	329	2.81	1100	0.565	30.2	0.767	1.24	2.12	0.627	14.8	5.97	81.1	34.9	175	42.6	443	101	133	573	0.23	0.34
19S22-1-07	897	8.39	1660	0.308	6.19	0.064	2.01	4.75	0.571	34.5	11.9	149	56.7	255	54.2	499	104	151	653	0.23	0.14
19S22-1-57	213	7.05	299	0.023	4.43	0.014	0.225	0.337	0.139	3.35	1.36	19.8	8.82	50.8	14.0	159	41.7	30.5	314	0.10	0.40
19S22-1-51	309	8.59	625	0.005	23.0	0.062	1.27	4.70	0.079	29.3	9.95	98.5	28.0	93.0	14.1	105	19.4	90.7	85.4	1.06	0.02
19S22-1-59	412	3.89	1270	0.031	7.21	0.135	2.83	6.03	0.446	31.0	10.7	123	43.9	190	39.5	357	71.6	105	363	0.29	0.10
19S22-1-79	659	8.66	2920	6.62	29.7	0.830	6.51	7.52	1.13	56.5	20.4	259	104	463	96.9	881	181	119	682	0.17	0.17
19S22-1-76	217	8.13	309	0.024	7.88	0.066	1.29	2.08	0.288	8.10	2.52	27.4	9.95	46.2	10.6	104	24.5	59.8	355	0.17	0.21
19S22-1-27	430	5.57	926	0.144	23.4	0.168	2.67	4.57	2.27	26.0	7.83	83.9	30.1	138	32.0	318	68.6	294	958	0.31	0.64
19S22-1-71	618	3.74	1000	2.19	8.66	1.07	1.36	1.00	0.416	7.01	4.45	71.8	31.8	169	42.6	456	104	25.0	857	0.03	0.48
19S22-1-32	491	5.43	802	0.330	11.0	0.238	3.62	5.94	0.975	24.4	7.07	78.4	26.3	117	25.2	241	50.6	193	1510	0.13	0.25
19S22-1-25	634	8.81	1200	5.80	13.2	2.78	5.99	2.39	0.698	17.6	6.77	97.0	38.3	192	45.2	447	96.5	85.3	1180	0.07	0.33
19S22-1-39	1130	7.12	2150	1.71	6.78	1.11	6.44	8.45	0.748	49.8	16.6	200	75.3	328	69.7	650	134	117	1130	0.10	0.11
19S22-1-42	368	2.28	1330	0.055	59.5	0.328	4.91	7.21	1.51	33.9	11.2	129	45.4	204	42.7	378	77.4	101	474	0.21	0.30
19S22-1-74	600	13.9	1080	86.1	149	18.5	62.3	11.0	0.894	23.1	7.15	89.5	35.4	167	37.6	372	83.6	92.2	892	0.10	0.17
19S22-1-11	619	7.71	767	0.075	1.66	0.138	1.67	2.75	0.218	10.0	4.11	58.2	25.6	138	37.5	424	97.5	71.1	1590	0.04	0.13
19S22-1-33	733	13.6	2030	0.382	76.9	1.36	18.1	22.7	12.6	81.1	22.1	220	70.1	290	60.4	577	118	438	1610	0.27	0.90
19S22-1-36	1030	16.7	2000	0.243	17.3	0.438	4.12	7.00	1.65	35.8	13.9	174	67.6	313	70.2	684	142	401	1960	0.20	0.32
19S22-1-73	477	2.60	997	0.843	3.07	0.034	0.416	1.70	0.298	11.0	4.76	74.2	32.5	172	43.2	462	105	42.3	996	0.04	0.21

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S22-1-81	841	5.94	1230	6.29	14.5	3.12	6.72	2.80	0.385	12.3	5.52	88.4	38.9	206	54.1	569	128	28.4	1040	0.03	0.20
19S22-1-45	460	4.41	937	1.36	14.3	1.64	5.58	7.45	1.77	23.9	7.81	87.8	31.5	145	32.8	320	68.6	34.7	655	0.05	0.41
19S22-1-15	865	4.03	1370	1.15	4.17	0.348	3.76	0.812	0.261	10.9	6.03	95.8	42.9	215	51.8	517	110	36.6	1820	0.02	0.27
19S22-1-37	145	2.32	145	2.68	3.26	0.929	4.44	2.71	0.195	4.54	1.33	14.6	4.45	18.2	3.76	32.9	7.13	23.3	1240	0.02	0.17
19S22-1-02	328	2.85	381	0.158	0.895	0.266	0.262	1.65	0.215	11.0	5.07	45.2	10.9	28.2	4.27	30.8	5.62	23.4	1570	0.01	0.15
19S22-1-10	569	2.31	1110	2.87	1.31	0.060	4.16	4.41	0.403	35.1	14.5	138	31.0	77.1	9.65	56.7	8.24	64.8	5980	0.01	0.10
19S22-1-60	360	3.41	496	19.9	38.3	3.29	47.9	3.78	0.227	12.3	4.45	50.9	14.3	46.0	7.73	59.0	10.5	25.4	1310	0.02	0.10
19S22-1-12	917	3.10	1600	7.65	15.1	1.73	6.09	9.10	0.315	27.6	14.0	175	48.5	138	19.2	123	19.4	38.0	3100	0.01	0.06
19S22-1-01	431	2.50	602	4.95	1.98	2.41	12.2	2.80	0.209	18.1	7.49	71.4	16.8	44.4	5.99	35.7	5.21	25.7	2750	0.01	0.09
19S22-1-28	450	1.60	685	0.007	0.592	0.011	0.759	1.46	0.252	16.9	7.25	77.2	19.7	59.9	9.15	64.7	10.2	23.5	1850	0.01	0.16
19S22-1-50	929	2.32	1510	8.82	28.1	0.902	2.28	1.56	0.256	15.3	8.60	129	45.7	161	26.2	181	29.1	17.0	1750	0.01	0.16
19S22-1-19	696	3.39	1030	6.06	14.4	1.58	6.52	2.12	0.136	10.1	5.55	80.2	31.6	143	29.5	260	49.4	16.5	1400	0.01	0.09
19S22-1-41	998	1.81	1850	0.210	0.703	0.127	0.201	1.62	0.170	15.8	9.20	144	54.8	210	36.0	254	40.9	17.1	2280	0.01	0.10
19S22-1-64	477	2.60	778	3.00	8.10	0.056	2.34	1.94	0.139	12.0	6.01	70.3	22.5	87.8	16.2	132	24.0	15.9	1670	0.01	0.09
19S22-1-43	573	4.54	799	17.2	42.8	3.55	12.8	3.38	0.401	9.97	4.84	65.9	23.6	101	20.4	187	38.7	18.8	1270	0.01	0.21
19S22-1-56	539	2.20	914	3.16	7.96	0.645	3.68	2.08	0.214	17.2	9.15	105	27.0	69.5	8.60	53.5	8.61	28.9	2370	0.01	0.11
19S22-1-09	1340	2.49	2190	0.020	0.649	0.059	0.356	2.44	0.317	24.5	13.6	191	68.4	249	39.1	256	41.4	39.7	2740	0.01	0.13
19S22-1-66	319	3.10	529	0.081	0.701	0.049	0.300	1.18	0.145	11.1	5.03	54.8	15.8	49.1	7.04	47.0	7.93	21.7	1680	0.01	0.12
19S22-1-53	872	3.56	1300	9.61	26.4	5.40	31.6	6.05	0.510	22.2	8.42	107	39.4	181	39.8	362	76.1	20.7	2000	0.01	0.13
19S22-1-18	511	2.52	714	2.35	13.8	0.888	12.7	1.44	0.137	9.75	5.25	68.1	22.2	84.4	15.1	119	21.6	16.9	1410	0.01	0.11
19S22-1-75	182	2.51	158	2.74	24.5	1.69	39.1	1.91	0.191	10.4	3.15	23.1	4.41	11.4	1.44	10.1	1.72	14.5	1140	0.01	0.13
19S22-1-08	499	1.85	660	5.19	23.3	0.504	5.24	2.12	0.188	15.3	7.14	74.3	20.7	63.1	9.30	62.8	10.8	19.6	2080	0.01	0.10
19S22-1-22	843	1.65	1280	5.46	8.27	0.032	0.874	1.07	0.098	12.1	7.07	103	39.1	161	28.7	211	37.4	23.5	1770	0.01	0.08
19S22-1-83	903	1.88	1520	0.022	0.525	0.023	0.132	0.695	0.115	9.15	6.04	102	48.4	267	69.3	738	165	18.8	2180	0.01	0.14
19S22-1-52	678	1.87	1060	0.283	0.505	0.283	0.356	1.30	0.111	9.79	5.73	85.8	32.7	137	23.4	157	26.3	17.4	1050	0.02	0.10
19S22-1-24	845	3.01	1350	0.007	0.610	0.015	0.407	1.71	0.179	19.4	10.2	126	40.1	149	25.7	195	33.1	28.5	3020	0.01	0.10
19S22-1-68	734	2.89	1160	0.006	0.403	0.016	0.272	1.25	0.144	15.0	8.33	108	35.2	122	18.2	120	19.6	23.6	1730	0.01	0.10
19S22-1-14	1290	2.41	1930	0.088	0.473	0.129	0.387	0.920	0.098	11.8	6.98	128	60.1	331	86.7	918	197	18.4	2230	0.01	0.09
19S22-1-54	979	1.46	1660	0.019	0.482	0.019	0.284	1.58	0.210	18.2	10.3	141	50.5	195	32.4	217	34.6	27.6	2060	0.01	0.12
19S22-1-67	606	4.10	939	0.003	0.492	0.015	0.217	1.12	0.140	12.1	6.45	83.6	28.9	106	17.7	128	22.0	23.0	1660	0.01	0.12
19S22-1-44	674	1.59	974	1.54	0.617	0.422	0.696	1.82	0.286	22.4	8.75	101	29.5	97.8	14.5	89.2	14.9	25.6	1940	0.01	0.14
19S22-1-04	1140	1.74	1770	0.059	0.555	0.026	0.137	1.01	0.197	15.0	9.33	138	55.3	235	45.3	352	62.9	28.4	1950	0.01	0.15
19S22-1-80	431	1.64	669	5.09	6.43	0.369	1.38	0.683	0.162	6.97	3.98	53.1	20.2	86.5	17.4	153	29.2	14.2	1290	0.01	0.23
19S22-1-48	745	3.14	1090	0.799	21.5	1.89	0.929	2.31	0.170	10.0	5.79	87.3	32.7	131	24.1	179	32.6	17.2	1670	0.01	0.11
19S22-1-38	578	1.78	902	0.010	0.477	0.032	0.168	0.878	0.130	11.2	5.96	80.9	26.7	103	20.3	175	34.4	20.8	1890	0.01	0.13
19S22-1-62	695	2.28	1030	7.99	8.45	2.66	5.96	1.72	0.293	7.24	3.71	67.4	31.7	173	43.3	452	99.6	14.2	1270	0.01	0.25
19S22-1-70	446	1.74	797	0.558	3.71	1.40	1.47	0.883	0.171	6.64	3.70	58.4	23.0	98.0	20.2	174	34.2	27.2	1400	0.02	0.22
19S22-1-47	708	1.42	1220	0.293	2.81	0.115	0.837	2.01	0.306	11.2	5.19	84.0	37.9	204	51.6	533	119	16.3	1490	0.01	0.20
19S22-1-85	678	1.73	1020	3.78	8.82	0.766	3.37	5.58	0.580	6.12	3.91	68.1	31.7	170	42.0	439	96.6	11.2	1090	0.01	0.30
19S22-1-13	850	3.17	1160	12.0	24.5	13.6	11.4	2.20	0.263	8.51	5.12	80.8	36.5	191	47.4	477	102	21.9	1300	0.02	0.19

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S22-1-72	197	1.85	232	9.69	29.2	1.78	4.38	1.70	1.68	13.3	3.96	31.5	6.53	18.0	3.05	25.2	4.53	25.8	1420	0.02	1.08
19S22-1-84	246	3.00	349	0.002	0.998	0.007	0.323	1.14	0.113	10.5	4.28	40.8	9.69	26.2	3.63	25.7	4.32	17.2	1310	0.01	0.10
Grt-Sil-bt gneiss																					
19S28-1-56	465	50.7	1110	0.042	6.75	0.028	0.817	2.09	1.53	19.5	7.04	90.1	38.0	174	38.4	357	74.7	71.3	611	0.12	0.73
19S28-1-70	366	5.73	673	0.017	17.8	0.031	0.304	1.06	0.188	9.92	4.03	52.8	22.4	102	23.3	218	47.7	132	292	0.45	0.18
19S28-1-19	459	11.5	593	0.011	4.37	0.022	1.00	3.00	0.192	19.9	6.37	64.3	21.0	77.2	13.4	110	21.6	182	195	0.93	0.08
19S28-1-53	512	4.37	547	6.65	45.6	1.56	6.65	3.12	0.797	11.2	3.59	41.0	16.7	78.9	18.9	197	47.0	132	267	0.49	0.41
19S28-1-27	286	7.13	605	0.006	8.36	0.083	1.01	2.49	0.633	12.4	4.13	50.6	19.8	94.8	20.8	200	44.1	66.1	122	0.54	0.35
19S28-1-08	444	7.05	1080	3.07	23.3	0.857	5.66	4.81	0.384	23.7	8.19	97.0	37.6	162	33.1	291	58.3	321	343	0.94	0.11
19S28-1-02	385	2.90	506	0.007	3.28	0.000	0.386	1.02	0.086	6.99	2.93	39.0	16.8	79.8	17.8	169	36.1	59.2	192	0.31	0.10
19S28-1-24	1410	3.64	2130	0.851	1.91	0.087	0.925	1.41	0.215	16.4	8.94	149	70.9	387	97.5	1030	228	123	2360	0.05	0.14
19S28-1-69	855	6.65	1020	0.344	20.7	0.362	3.42	5.31	0.974	23.4	7.78	91.0	35.4	160	33.8	307	66.8	323	399	0.81	0.27
19S28-1-39	2590	4.55	1110	15.4	58.1	4.25	17.8	8.56	0.778	25.8	8.01	91.7	36.2	172	39.5	369	82.1	254	329	0.77	0.16
19S28-1-20	201	421	1040	0.031	13.7	0.237	2.82	4.12	1.34	23.1	7.72	87.1	33.8	158	34.4	327	73.1	467	440	1.06	0.42
19S28-1-36	1880	33.1	4120	0.300	25.7	0.784	9.32	19.8	1.99	103	36.2	404	145	604	120	1050	203	1000	1680	0.60	0.13
19S28-1-32	541	6.70	1500	0.554	24.9	0.566	6.85	9.75	0.336	43.6	14.2	155	55.9	233	45.7	398	77.3	245	327	0.75	0.05
19S28-1-28	1080	17.8	1730	0.041	0.753	0.066	0.813	3.60	0.101	29.3	12.7	160	59.3	260	53.3	457	91.3	68.0	511	0.13	0.03
19S28-1-05	295	8.47	1820	0.057	16.6	0.553	8.77	12.2	0.620	50.3	16.2	181	62.7	263	50.3	412	79.9	550	544	1.01	0.08
19S28-1-61	352	11.2	701	0.006	26.3	0.040	1.01	2.63	0.323	14.1	5.16	65.0	23.9	107	23.2	208	41.6	318	470	0.68	0.16
19S28-1-21	294	8.35	2090	0.086	20.7	0.563	7.47	11.4	1.67	55.3	16.7	201	74.1	322	64.2	570	113	361	333	1.08	0.20
19S28-1-64	964	3.77	1390	0.023	0.371	0.061	0.653	3.26	0.059	26.4	12.0	137	46.6	184	39.2	342	65.4	62.4	949	0.07	0.02
19S28-1-44	681	6.97	972	0.014	1.49	0.005	0.313	1.39	0.198	12.5	5.78	81.3	30.8	141	33.2	333	72.1	57.4	1350	0.04	0.15
19S28-1-58	290	11.5	740	0.006	13.8	0.171	3.02	5.92	1.05	26.4	7.36	75.8	26.3	108	21.4	186	37.7	280	247	1.13	0.26
19S28-1-25	855	11.4	1190	0.036	1.94	0.036	0.921	1.85	0.201	14.6	6.88	98.0	40.3	194	45.1	439	90.4	79.2	995	0.08	0.12
19S28-1-07	484	4.06	1510	0.014	3.11	0.300	4.48	7.93	0.833	43.9	13.5	150	54.9	227	43.3	368	71.4	144	216	0.67	0.14
19S28-1-65	2960	7.47	891	73.6	162	17.7	72.9	17.1	0.742	36.4	9.15	93.4	32.1	133	26.7	243	52.3	140	176	0.80	0.09
19S28-1-73	303	5.42	633	0.017	8.73	0.056	1.06	2.66	0.233	15.0	4.89	59.1	22.8	95.5	20.0	176	36.1	49.2	66.9	0.74	0.11
19S28-1-54	967	12.0	1690	0.024	4.05	0.258	4.21	9.57	0.223	47.8	15.7	174	60.9	241	46.6	382	72.5	258	308	0.84	0.03
19S28-1-04	291	6.56	819	0.007	14.2	0.025	0.775	1.99	0.143	12.9	5.32	71.3	27.4	126	26.4	243	49.3	262	491	0.53	0.09
19S28-1-38	570	15.3	2660	5.77	46.5	1.42	6.67	4.55	0.078	28.7	12.8	189	85.3	429	98.5	925	181	530	1280	0.41	0.02
19S28-1-01	644	35.3	1730	0.089	17.7	0.062	1.26	3.61	0.452	27.4	10.4	140	60.0	288	63.4	607	132	612	519	1.18	0.14
19S28-1-03	1520	25.2	2150	182	410	45.2	162	34.7	0.241	37.0	12.4	164	68.4	360	88.2	869	173	296	2540	0.12	0.02
19S28-1-41	4970	21.2	3660	8.13	31.1	3.81	27.4	26.6	1.28	96.3	33.3	370	129	534	104	868	162	527	1070	0.49	0.08
19S28-1-12	954	2.82	1250	1.42	18.7	0.432	3.47	4.42	0.695	24.1	8.74	107	42.7	198	42.2	397	84.3	141	355	0.40	0.21
19S28-1-63	1260	46.1	7770	5.46	177	4.43	52.2	68.5	12.5	260	74.0	785	270	1120	228	1970	389	2160	1440	1.50	0.29
19S28-1-59	139	1.63	444	0.023	7.78	0.052	0.598	1.59	0.195	8.27	2.99	37.0	15.0	75.8	17.7	184	42.3	124	507	0.24	0.16
19S28-1-17	485	6.30	832	0.008	2.13	0.040	1.25	2.84	0.082	17.0	6.04	73.6	28.6	131	27.4	256	50.4	117	392	0.30	0.04
19S28-1-49	1120	5.55	2020	0.193	1.11	0.078	1.55	6.85	0.107	52.6	21.8	232	67.4	231	42.6	355	65.0	207	1980	0.10	0.02
19S28-1-72	935	8.68	1980	0.577	9.84	0.388	4.59	7.92	0.338	48.6	16.6	192	69.8	289	55.8	471	90.9	325	296	1.10	0.05
19S28-1-51	360	11.8	413	0.024	2.94	0.119	1.62	3.47	0.177	13.6	4.18	45.1	14.2	54.5	11.8	108	22.6	180	950	0.19	0.08
19S28-1-43	291	5.28	294	0.006	0.696	0.001	0.479	0.754	0.177	7.84	3.70	34.1	9.03	34.5	6.83	63.8	14.2	25.6	697	0.04	0.22
19S28-1-48	386	5.99	1200	0.524	31.1	0.301	2.10	3.92	0.805	21.9	7.58	92.7	39.0	187	44.4	432	98.0	499	1740	0.29	0.27

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S28-1-11	6360	59.4	2240	64.9	275	19.4	101	47.1	7.57	119	28.6	259	78.8	297	53.1	457	86.9	1850	374	4.95	0.31
19S28-1-37	687	7.82	1160	0.022	4.89	0.089	0.644	1.96	0.472	14.9	6.93	95.0	38.2	167	35.3	321	65.0	87.0	557	0.16	0.27
19S28-1-42	633	438	637	0.093	1.60	0.051	0.186	0.740	0.111	5.45	2.86	44.7	21.7	118	32.4	366	84.2	64.1	613	0.10	0.17
19S28-1-55	467	12.2	678	0.839	3.76	0.129	0.924	2.19	0.268	11.1	4.21	58.1	23.7	113	25.9	271	59.5	49.5	403	0.12	0.17
19S28-1-66	807	0.843	968	0.439	0.891	0.126	10.6	1.11	0.146	6.01	4.16	73.4	29.7	137	28.4	266	52.7	4.66	555	0.01	0.17
19S28-1-33	859	0.626	980	0.622	2.52	1.16	0.519	0.558	0.058	5.22	3.77	70.5	31.3	153	36.7	380	77.5	3.82	624	0.01	0.10
19S28-1-68	1390	3.15	1920	0.458	0.772	0.034	0.828	0.893	0.177	11.4	8.24	140	57.3	243	46.7	374	67.7	4.89	842	0.01	0.17
19S28-1-30	759	0.450	847	0.111	0.328	0.017	0.162	0.493	0.102	4.50	3.20	55.2	27.0	147	38.6	392	83.3	3.37	1080	0.00	0.21
19S28-1-29	696	17.8	810	0.163	0.940	0.000	0.238	0.478	0.017	3.63	2.84	53.5	25.3	137	33.5	321	63.9	5.02	711	0.01	0.04
19S28-1-50	718	1.92	848	0.091	0.250	0.162	0.079	0.571	0.045	6.99	5.00	75.8	25.0	79.1	11.4	69.2	10.6	7.79	824	0.01	0.07
19S28-1-47	832	1.57	925	0.012	0.165	0.014	0.002	0.483	0.099	4.58	3.47	64.9	29.3	141	31.3	276	50.3	3.73	724	0.01	0.20
19S28-1-23	768	0.943	884	0.185	0.549	0.041	0.524	0.338	0.114	4.36	3.46	58.9	27.8	149	36.1	390	83.2	4.28	619	0.01	0.29
19S28-1-10	1020	1.63	1120	0.158	1.76	0.084	0.589	0.894	0.150	7.80	4.30	73.9	36.6	208	59.3	686	155	4.85	1010	0.00	0.17
19S28-1-45	994	0.444	1070	0.024	0.154	0.043	0.212	0.621	0.118	6.49	4.22	74.8	33.6	187	44.8	473	97.6	4.59	711	0.01	0.18
19S28-1-71	1290	1.39	1530	0.000	0.194	0.009	0.098	0.707	0.141	9.73	5.98	106	47.7	244	59.3	587	114	5.63	1090	0.01	0.16
19S28-1-26	1370	1.33	1680	1.93	2.80	0.201	0.923	0.867	0.194	9.26	7.02	119	52.6	273	64.3	651	129	6.33	1190	0.01	0.21
19S28-1-13	1140	0.545	1360	0.058	0.216	0.027	0.171	0.424	0.063	7.71	5.12	93.0	41.4	201	44.9	421	80.4	4.63	937	0.00	0.11
19S28-1-14	1520	2.22	1940	0.000	0.123	0.009	0.129	0.878	0.180	11.2	7.89	137	59.4	284	63.9	598	123	5.09	1110	0.00	0.18
19S28-1-16	796	1.20	818	0.083	0.175	0.183	0.194	0.423	0.102	4.29	2.94	55.2	26.5	147	39.3	451	99.8	7.12	488	0.01	0.23
19S28-1-06	1030	1.84	1300	0.276	0.106	0.000	0.180	0.452	0.145	8.06	5.45	95.7	40.3	173	33.0	255	45.7	5.97	1600	0.00	0.23
19S28-1-67	879	0.533	1060	0.000	0.122	0.004	0.025	0.300	0.127	5.49	3.96	73.5	33.9	165	36.8	328	60.7	4.56	620	0.01	0.30
19S28-1-34	840	0.846	917	0.027	38.3	0.000	0.088	0.651	0.088	5.55	3.55	62.6	29.4	151	39.0	413	90.1	4.18	520	0.01	0.14
19S28-1-60	760	0.902	902	0.017	0.178	0.009	0.050	0.302	0.026	4.31	3.25	61.0	30.6	180	52.1	589	137	5.21	620	0.01	0.07
19S28-1-31	901	2.29	936	3.14	0.190	0.025	0.000	0.366	0.142	5.64	3.41	63.6	31.1	182	50.4	572	129	4.81	672	0.01	0.30
19S28-1-35	734	1.68	789	1.04	0.152	0.001	0.058	9.84	0.078	3.62	2.87	53.2	24.7	133	33.0	338	70.6	3.45	561	0.01	0.04
19S28-1-18	776	0.706	1010	0.037	0.114	0.006	0.655	0.384	0.044	5.17	3.86	69.8	31.7	151	31.4	267	47.0	4.79	738	0.01	0.10
19S28-1-15	2100	0.904	2660	0.000	0.164	0.000	1.08	1.68	0.453	18.7	11.5	191	84.7	425	101	998	196	10.6	1690	0.01	0.25
19S28-1-46	714	1.17	841	0.001	0.212	0.005	0.080	0.417	0.082	4.22	2.97	56.5	26.0	129	28.2	244	45.9	5.01	642	0.01	0.19
19S28-1-22	817	1.77	799	0.042	0.153	0.016	0.123	0.541	0.082	4.24	2.94	51.5	26.1	148	39.3	419	91.3	3.76	553	0.01	0.17
19S28-1-52	885	0.754	1140	0.000	0.132	0.005	0.002	0.405	0.070	6.61	4.64	82.2	36.3	167	36.5	314	59.4	8.21	952	0.01	0.13
19S28-1-74	870	5.65	902	0.076	0.225	0.312	0.304	0.925	0.102	5.88	3.50	61.2	30.2	162	42.1	440	99.7	3.46	460	0.01	0.13
Grt two-mica grani																					
19S24-2.1-42	495	22.3	764	0.012	12.7	0.184	2.59	6.16	0.225	36.9	10.5	96.4	28.1	89.2	14.7	101	17.2	169	211	0.80	0.05
19S24-2.1-11	215	2.70	444	0.000	9.28	0.022	0.364	1.36	0.140	7.81	2.97	37.2	15.3	69.6	15.4	153	32.4	85.9	460	0.19	0.13
19S24-2.1-15	713	6.36	1180	0.105	1.76	0.058	1.25	2.72	0.379	16.9	7.38	97.6	40.1	185	40.7	392	83.3	74.4	491	0.15	0.17
19S24-2.1-20	316	6.28	1100	0.000	10.8	0.108	2.17	4.02	0.154	27.6	9.43	108	38.0	160	31.1	271	51.5	155	192	0.80	0.04
19S24-2.1-44	206	9.58	506	0.038	8.06	0.020	0.539	1.60	0.438	7.74	2.95	35.9	15.4	78.0	20.5	216	54.9	172	1350	0.13	0.38
19S24-2.1-58	783	7.16	1770	0.000	8.48	0.104	2.22	6.28	0.294	34.9	12.5	150	60.6	270	54.5	491	97.5	521	994	0.52	0.06
19S24-2.1-54	569	7.22	1600	0.023	19.7	0.211	3.29	6.05	1.44	36.9	12.7	149	55.7	244	50.6	453	92.5	497	650	0.77	0.29
19S24-2.1-19	842	10.1	2300	0.000	5.87	0.136	2.04	6.24	0.412	39.9	15.2	189	77.4	342	73.0	642	133	399	994	0.40	0.08
19S24-2.1-66	426	3.86	1180	0.012	13.7	0.055	1.48	3.64	0.547	23.6	7.76	98.2	39.9	184	40.1	382	80.4	322	646	0.50	0.18

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S24-2.1-36	1610	3.29	2980	0.174	2.35	0.368	4.54	8.84	0.109	55.0	21.8	267	101	438	89.6	740	143	132	605	0.22	0.02
19S24-2.1-46	1370	5.59	2340	0.029	2.27	0.127	2.01	7.89	0.418	65.7	24.6	257	76.6	284	52.0	414	79.3	261	2890	0.09	0.06
19S24-2.1-25	354	4.71	618	0.000	3.51	0.086	2.27	4.26	0.490	26.4	7.69	73.3	20.1	69.5	12.4	90.3	16.0	147	395	0.37	0.14
19S24-2.1-51	339	3.66	667	0.012	2.62	0.087	1.39	4.38	0.358	27.4	8.89	80.4	21.7	71.0	11.2	86.4	13.8	124	393	0.31	0.10
19S24-2.1-06	510	5.91	972	0.030	3.43	0.187	4.24	10.6	0.527	51.8	14.6	125	32.4	94.1	15.3	104	17.3	244	626	0.39	0.07
19S24-2.1-09	4010	2.32	1480	10.2	30.9	2.23	8.23	5.71	0.208	36.8	14.9	162	47.7	174	32.8	263	50.4	143	2710	0.05	0.04
19S24-2.1-26	1240	14.3	2820	0.021	5.64	0.237	4.84	15.4	0.974	96.2	31.1	318	95.0	342	60.1	470	86.3	429	2250	0.19	0.08
19S24-2.1-27	1660	6.54	3620	6.22	22.0	1.48	6.69	11.5	0.520	94.2	39.0	417	122	426	78.5	638	120	378	5660	0.07	0.05
19S24-2.1-34	1440	5.79	3040	0.011	2.66	0.071	1.53	8.31	0.377	69.0	30.1	332	100	362	68.5	550	104	264	4670	0.06	0.05
19S24-2.1-24	1260	10.8	3250	0.017	6.01	0.187	3.90	13.9	0.674	93.4	32.6	356	110	416	77.0	618	116	545	3320	0.16	0.06
19S24-2.1-13	1310	4.06	2980	0.000	2.54	0.070	1.78	7.43	0.479	71.9	28.6	329	97.6	354	65.0	522	97.8	264	4240	0.06	0.06
19S24-2.1-04	1850	5.64	4670	0.012	4.19	0.114	2.90	12.3	0.629	110	47.4	517	156	554	99.7	806	148	509	7780	0.07	0.05
19S24-2.1-10	1190	7.68	2460	0.018	4.16	0.210	4.93	16.0	0.868	97.2	30.1	286	84.9	296	52.5	412	76.2	381	1560	0.24	0.07
19S24-2.1-48	708	2.72	2130	0.048	5.19	0.315	4.59	16.5	0.757	86.5	27.1	257	74.1	254	43.8	342	59.8	311	1540	0.20	0.06
19S24-2.1-64	1460	6.01	2800	0.011	2.78	0.125	2.10	9.34	0.648	71.2	28.5	306	92.6	331	59.3	477	89.5	280	4070	0.07	0.08
19S24-2.1-12	2140	6.09	4400	0.000	2.89	0.184	3.21	13.1	0.662	124	48.5	507	144	503	91.4	731	135	475	6170	0.08	0.05
19S24-2.1-49	3530	5.21	4130	5.51	19.7	2.35	12.9	14.0	0.667	106	43.1	464	139	495	89.6	732	136	482	6530	0.07	0.05
19S24-2.1-38	1510	8.22	3510	0.000	3.42	0.110	1.73	10.2	0.499	89.9	37.5	403	119	420	76.1	600	111	396	5510	0.07	0.05
19S24-2.1-37	905	4.41	1950	0.000	1.94	0.041	1.07	5.13	0.232	42.9	17.7	198	63.9	240	45.0	373	73.3	159	2140	0.07	0.05
19S24-2.1-17	924	8.42	3430	0.148	18.1	1.47	24.1	43.5	3.70	197	50.0	446	123	396	64.1	472	80.5	1480	1430	1.03	0.12
19S24-2.1-21	2140	5.75	4160	0.012	3.09	0.128	3.96	15.6	0.961	119	47.6	490	140	487	87.9	696	131	497	5960	0.08	0.07
19S24-2.1-14	1750	6.63	4340	0.006	4.12	0.188	2.51	13.1	0.588	117	46.8	492	146	512	92.0	740	137	556	6350	0.09	0.05
19S24-2.1-60	542	4.19	1480	0.053	9.16	0.627	8.95	17.5	1.33	70.9	19.0	175	52.0	178	31.9	257	48.1	426	521	0.82	0.12
19S24-2.1-28	16000	7.37	4220	13800	25700	2440	9190	1720	27.0	1170	137	707	147	448	76.2	599	112	10700	5830	1.84	0.06
19S24-2.1-47	280	11.2	1030	0.039	4.14	0.439	5.63	9.37	1.34	39.3	11.3	113	36.6	136	23.5	198	37.5	216	292	0.74	0.21
19S24-2.1-61	362	4.27	470	0.000	2.99	0.034	1.19	2.42	0.271	13.8	4.44	45.1	15.6	61.2	11.3	100	19.1	87.2	210	0.42	0.14
19S24-2.1-62	899	7.80	1770	0.996	10.8	1.17	13.2	19.5	0.590	77.4	23.4	212	59.6	202	35.3	260	47.4	248	596	0.42	0.05
19S24-2.1-32	579	3.33	1010	0.045	0.563	0.004	0.242	1.32	0.008	12.1	7.74	97.5	27.7	88.2	14.2	102	19.1	50.2	3320	0.02	0.01
19S24-2.1-22	654	2.53	1010	1.23	1.09	0.043	0.199	0.844	0.000	6.72	4.74	75.7	28.4	128	28.8	259	49.3	24.5	3040	0.01	0.00
19S24-2.1-40	750	1.77	1180	0.000	0.293	0.004	0.245	0.740	0.000	10.6	6.51	95.5	33.1	134	26.9	213	37.4	41.4	3310	0.01	0.00
19S24-2.1-01	714	2.10	1370	0.006	0.188	0.004	0.075	0.806	0.025	10.2	7.52	114	37.4	153	31.7	272	50.6	36.5	3510	0.01	0.03
19S24-2.1-05	894	1.97	1610	0.000	0.240	0.000	0.228	1.24	0.017	14.3	8.85	131	44.4	165	31.3	256	45.6	40.6	3690	0.01	0.01
19S24-2.1-02	724	1.26	1160	0.000	0.096	0.013	0.155	0.616	0.009	7.74	5.20	87.7	32.0	135	27.1	225	41.9	16.8	3380	0.00	0.01
19S24-2.1-08	700	1.92	1080	0.000	0.155	0.013	0.076	0.664	0.000	7.94	5.34	80.4	29.3	124	25.6	218	38.4	18.9	2900	0.01	0.00
19S24-2.1-52	954	4.04	1380	0.017	0.342	0.017	0.439	1.20	0.024	13.1	7.58	112	39.7	155	31.7	262	48.8	31.0	3500	0.01	0.02
19S24-2.1-33	888	2.12	1140	0.013	0.146	0.005	0.088	0.177	0.010	7.77	4.92	80.3	32.5	147	34.0	306	57.6	14.4	3060	0.00	0.03
19S24-2.1-18	728	1.34	1220	0.000	0.227	0.014	0.000	0.677	0.009	8.64	6.50	95.1	33.6	142	29.8	281	52.9	37.3	3270	0.01	0.01
19S24-2.1-23	564	0.945	714	0.008	0.129	0.006	0.035	0.296	0.023	4.26	3.36	51.0	20.9	107	28.4	315	66.6	10.1	2110	0.00	0.06
19S24-2.1-63	920	1.40	1170	0.000	0.098	0.006	0.097	0.623	0.053	7.02	5.04	80.4	33.2	152	33.1	304	52.6	12.3	2690	0.00	0.08
19S24-2.1-03	777	1.05	1080	0.006	0.099	0.009	0.000	0.835	0.050	6.90	4.91	76.9	30.3	144	33.4	298	52.9	15.2	3320	0.00	0.06

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S24-2.1-55	945	1.28	1210	0.000	0.134	0.005	0.119	0.571	0.068	8.32	5.63	85.5	33.6	158	34.2	304	57.3	12.9	2900	0.00	0.10
19S24-2.1-53	832	0.744	1160	0.012	0.111	0.000	0.129	0.404	0.000	7.27	5.29	84.8	32.8	145	30.9	266	42.4	16.7	3560	0.00	0.00
19S24-2.1-30	839	2.40	1210	0.000	0.098	0.012	0.047	0.628	0.039	8.09	5.54	88.3	33.7	152	32.5	269	42.2	17.5	3530	0.00	0.05
19S24-2.1-39	819	0.534	1040	0.000	0.101	0.000	0.049	0.416	0.024	6.39	4.33	74.0	29.7	145	35.2	338	62.3	13.8	3190	0.00	0.05
19S24-2.1-67	717	2.26	888	0.011	0.083	0.004	0.000	0.174	0.023	5.94	3.90	63.8	25.5	123	28.6	281	54.5	10.4	2420	0.00	0.07
19S24-2.1-35	934	3.07	1250	0.011	0.189	0.030	0.273	0.450	0.090	7.89	5.88	90.8	36.4	162	36.8	331	59.6	25.8	3340	0.01	0.15
19S24-2.1-56	867	1.58	1060	0.005	0.141	0.004	0.097	0.611	0.016	7.03	4.63	77.8	30.6	145	33.4	317	58.7	13.1	2800	0.00	0.02
19S24-2.1-59	905	0.705	1110	0.000	0.126	0.000	0.049	0.438	0.016	6.56	4.89	80.2	32.3	153	36.5	342	60.5	15.4	3410	0.00	0.03
19S24-2.1-31	838	1.97	1140	0.028	0.199	0.004	0.074	0.388	0.041	6.78	5.17	82.0	32.6	154	37.2	357	67.6	16.1	3200	0.01	0.08
19S24-2.1-57	891	2.31	1080	0.011	0.144	0.004	0.099	0.297	0.032	6.70	4.79	76.8	30.6	151	36.5	345	62.8	15.8	3140	0.01	0.07
19S24-2.1-07	748	2.16	974	0.006	0.123	0.018	0.026	0.335	0.103	6.05	4.09	70.8	28.3	139	36.1	370	76.6	12.9	2950	0.00	0.22
19S24-2.1-29	706	0.873	864	0.028	0.136	0.000	0.024	0.379	0.001	5.13	3.80	62.9	24.8	122	30.3	307	59.8	10.8	2620	0.00	0.00
19S24-2.1-50	669	0.798	803	0.000	0.096	0.006	0.000	0.342	0.000	5.13	3.46	56.8	23.0	109	25.5	228	39.7	9.79	2340	0.00	0.00
19S24-2.1-41	821	2.80	1230	0.007	0.220	0.026	0.119	0.576	0.010	9.21	6.12	96.3	36.0	156	35.6	328	62.2	20.8	3000	0.01	0.01
19S24-2.1-16	753	2.30	1090	0.000	0.118	0.005	0.000	0.266	0.019	6.43	5.05	80.9	31.7	161	42.1	459	96.5	13.5	3050	0.00	0.04
19S24-2.1-43	745	2.46	935	0.006	0.058	0.004	0.024	0.176	0.088	5.42	4.30	72.9	27.5	140	37.7	422	90.8	11.0	2930	0.00	0.28
19S24-2.1-45	741	1.72	970	0.011	0.072	0.000	0.119	0.403	0.016	6.01	4.84	76.1	28.6	142	38.0	426	92.4	11.6	3150	0.00	0.03
Bt granite																					
19S21-1-04	200	12.6	257	0.002	3.14	0.040	0.599	1.27	0.109	6.13	2.14	24.1	9.07	39.6	7.88	73.3	14.9	19.0	35.0	0.54	0.12
19S21-1-24	851	7.88	1580	0.022	2.38	0.046	0.917	2.66	0.112	19.4	8.83	124	50.8	234	47.6	409	78.2	72.2	838	0.09	0.05
19S21-1-39	153	3.65	175	0.007	1.84	0.011	0.155	0.330	0.274	3.04	1.01	14.5	5.63	28.0	6.35	64.7	15.2	16.7	63.7	0.26	0.84
19S21-1-41	317	21.9	619	0.012	17.4	0.102	1.94	3.53	0.406	16.4	5.31	60.7	21.5	91.5	18.8	166	32.5	89.6	65.9	1.36	0.16
19S21-1-47	11600	4.78	811	31.7	139	19.3	96.4	27.0	2.54	37.4	8.60	78.4	25.9	123	29.8	322	78.3	160	794	0.20	0.24
19S21-1-52	174	25.4	250	0.007	13.2	0.063	1.01	1.68	0.220	6.64	2.10	23.0	8.11	35.7	7.66	70.6	14.5	113	217	0.52	0.20
19S21-1-28	427	6.79	2920	0.141	84.4	1.03	14.1	20.7	9.41	88.8	27.7	298	103	444	90.7	841	165	841	396	2.12	0.67
19S21-1-02	429	7.29	2950	0.161	101	1.14	17.4	24.3	10.4	95.1	28.6	302	104	435	88.6	817	160	863	362	2.38	0.66
19S21-1-03	400	5.52	2440	0.170	89.6	0.888	13.8	19.6	7.95	76.2	22.9	245	85.2	359	74.3	670	133	716	329	2.18	0.63
19S21-1-06	553	7.06	3880	0.182	119	1.33	15.7	25.7	11.5	118	36.1	391	139	579	119	1080	211	1250	500	2.50	0.64
19S21-1-07	405	11.0	2400	0.181	70.9	0.861	12.9	17.2	7.50	70.2	21.6	236	82.4	345	72.3	668	132	599	287	2.09	0.66
19S21-1-08	367	7.43	1990	0.077	56.1	0.758	10.1	13.6	6.29	56.5	17.8	194	68.8	293	62.1	573	116	483	244	1.98	0.70
19S21-1-09	269	6.09	818	0.021	34.6	0.230	3.02	4.47	1.83	19.4	6.19	71.1	27.1	124	28.0	272	56.9	160	125	1.27	0.60
19S21-1-10	358	10.5	2080	0.111	60.4	0.855	11.5	15.5	6.75	62.6	18.8	198	72.0	309	63.6	583	119	473	234	2.02	0.66
19S21-1-14	361	3.65	1820	0.050	60.2	0.661	9.87	12.8	5.63	53.8	16.3	174	62.0	273	57.5	533	108	448	222	2.02	0.65
19S21-1-16	370	5.10	2290	0.142	83.7	0.967	12.9	18.1	7.72	69.2	21.1	223	78.8	336	69.1	642	129	610	298	2.05	0.67
19S21-1-17	293	9.54	1900	0.062	56.7	0.660	9.44	13.7	5.64	56.2	17.3	185	65.6	278	57.5	537	106	434	221	1.97	0.62
19S21-1-18	508	4.85	3240	0.267	124	1.41	20.6	27.0	12.0	104	30.7	323	113	468	97.8	932	185	1420	541	2.63	0.69
19S21-1-20	200	7.06	1170	0.075	59.9	0.526	7.63	8.69	3.22	33.3	10.1	110	39.1	172	36.2	341	71.8	252	175	1.44	0.58
19S21-1-21	316	7.77	1640	0.072	53.7	0.500	7.36	10.7	4.71	47.4	14.6	160	57.0	244	50.5	475	94.1	393	195	2.02	0.64
19S21-1-25	389	4.92	2540	0.145	73.0	0.890	12.5	16.1	7.26	76.1	23.2	249	88.1	375	77.3	701	139	699	324	2.16	0.63
19S21-1-29	401	10.5	2420	0.153	68.9	0.897	12.3	17.2	7.91	71.1	21.7	237	83.5	351	74.3	680	136	662	312	2.12	0.69

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S21-1-31	419	3.78	3140	0.174	105	0.933	12.9	22.8	9.64	99.6	29.3	323	112	464	95.3	855	164	1150	439	2.62	0.62
19S21-1-33	425	5.41	2550	0.166	83.0	0.986	13.9	19.9	8.46	78.1	24.0	252	88.9	369	75.9	696	138	698	313	2.23	0.66
19S21-1-36	382	8.68	2440	0.129	68.9	0.812	11.6	17.3	7.33	69.2	21.8	237	84.1	359	75.3	697	138	592	290	2.04	0.65
19S21-1-38	372	7.47	1550	0.057	47.6	0.463	6.70	8.53	4.27	40.3	12.7	144	53.0	232	49.6	460	94.2	336	197	1.71	0.70
19S21-1-40	315	5.73	1890	0.069	59.8	0.668	9.38	13.1	5.91	55.9	16.7	180	65.7	279	58.9	548	110	468	291	1.61	0.67
19S21-1-43	384	6.28	2600	0.118	83.6	0.965	14.1	19.3	8.61	78.5	23.8	257	91.1	388	81.3	749	150	686	325	2.11	0.68
19S21-1-45	480	7.57	3520	0.141	79.5	0.921	11.6	16.5	7.14	87.8	29.8	341	125	535	112	1000	193	1120	530	2.11	0.57
19S21-1-46	307	4.25	2030	0.122	60.4	0.714	10.1	14.1	6.47	60.3	18.4	199	69.3	298	62.3	583	116	496	241	2.06	0.68
19S21-1-48	460	6.56	3010	0.175	98.5	1.10	16.2	22.3	9.10	90.2	28.9	301	105	444	91.5	840	165	827	368	2.24	0.62
19S21-1-49	344	4.27	2090	0.095	72.4	0.779	11.2	15.5	7.04	62.5	19.0	203	71.5	306	65.3	599	120	547	253	2.16	0.69
19S21-1-51	339	7.41	1670	0.094	55.3	0.530	8.54	11.6	5.31	49.6	14.7	163	56.9	250	53.2	494	97.7	381	199	1.91	0.68
19S21-1-55	428	8.52	1020	0.033	40.8	0.193	3.44	5.57	2.65	24.8	7.75	89.0	33.7	151	33.1	323	67.5	347	204	1.70	0.69
19S21-1-01	106	1.12	133	0.000	3.41	0.002	0.076	0.261	0.104	1.59	0.603	8.76	4.01	22.2	6.15	70.8	18.7	30.9	205	0.15	0.49
19S21-1-11	90.3	2.96	144	0.000	9.51	0.007	0.071	0.302	0.152	1.57	0.671	9.07	4.20	23.4	6.18	73.9	19.6	43.2	165	0.26	0.67
19S21-1-12	261	3.33	934	0.002	9.94	0.038	0.894	1.64	0.412	12.0	4.66	65.8	28.7	152	39.1	418	95.9	210	3000	0.07	0.28
19S21-1-15	128	2.13	181	0.000	7.95	0.012	0.167	0.255	0.174	2.75	0.978	12.8	5.76	28.5	7.14	78.4	18.2	58.7	147	0.40	0.64
19S21-1-23	253	3.49	642	0.023	8.39	0.031	0.466	1.22	0.303	7.89	3.18	45.6	20.1	106	26.8	289	66.2	117	1940	0.06	0.30
19S21-1-26	138	1.50	115	0.003	5.91	0.002	0.123	0.309	0.103	1.35	0.579	7.58	3.41	18.1	4.71	53.6	13.9	29.6	135	0.22	0.48
19S21-1-27	282	3.39	1080	0.000	10.6	0.056	0.948	2.73	0.531	13.4	5.52	77.0	33.3	178	46.1	501	114	241	3350	0.07	0.27
19S21-1-32	120	3.17	415	0.008	9.20	0.043	0.590	1.17	0.546	6.94	2.50	32.1	13.0	64.8	15.7	165	37.2	209	573	0.37	0.59
19S21-1-34	108	2.51	138	0.008	8.67	0.020	0.234	0.318	0.273	1.96	0.686	9.41	4.32	21.9	5.47	63.6	16.7	58.6	135	0.44	1.06
19S21-1-35	114	2.23	76.5	0.003	3.52	0.004	0.045	0.127	0.086	0.947	0.321	4.91	2.29	12.8	3.16	35.6	9.94	27.9	50.0	0.56	0.76
19S21-1-37	439	3.15	1080	0.000	8.51	0.025	0.556	1.69	0.452	12.6	5.18	73.3	33.6	181	46.6	514	120	175	2960	0.06	0.30
19S21-1-42	184	3.34	692	0.000	6.84	0.038	0.440	1.19	0.316	8.04	3.48	47.9	21.4	116	29.4	324	76.4	121	2030	0.06	0.31
19S21-1-44	84.3	1.94	91.5	0.007	6.81	0.002	0.085	0.267	0.141	1.12	0.428	5.91	2.61	14.5	3.82	46.7	11.8	32.2	124	0.26	0.79
19S21-1-54	148	3.03	310	0.024	12.5	0.041	0.986	1.16	0.796	6.77	2.26	26.2	10.1	47.8	11.3	117	26.5	84.7	111	0.76	0.87
19S21-1-56	179	1.53	495	0.003	4.21	0.018	0.300	0.641	0.170	5.48	2.21	33.6	15.5	83.0	21.7	243	55.8	65.9	1500	0.04	0.28
19S21-1-57	86.4	2.50	82.5	0.003	3.92	0.002	0.120	0.200	0.095	1.18	0.387	5.24	2.52	13.1	3.48	40.8	10.4	20.3	108	0.19	0.59
19S21-1-30	151	5.07	545	0.008	25.6	0.090	1.56	2.99	1.27	12.8	4.12	47.1	18.3	84.1	18.8	184	39.9	99.4	115	0.86	0.63
19S21-1-50	111	2.12	106	0.002	4.89	0.004	0.126	0.215	0.092	1.16	0.470	6.62	2.98	16.4	4.34	48.8	12.8	17.6	66.4	0.26	0.56
19S21-1-05	96.6	2.65	193	0.000	12.1	0.007	0.210	0.594	0.259	2.47	0.983	13.2	5.75	30.1	7.82	90.0	22.3	45.2	227	0.20	0.65
19S21-1-13	298	9.67	1560	0.048	49.4	0.593	8.68	12.3	4.94	44.8	13.7	149	52.8	227	47.2	441	88.3	312	169	1.84	0.64
19S21-1-19	102	1.58	128	0.002	7.74	0.002	0.077	0.209	0.130	1.67	0.636	8.55	3.86	21.4	5.47	64.6	15.9	31.7	178	0.18	0.67
19S21-1-22	159	2.27	78.0	0.000	5.95	0.000	0.038	0.230	0.069	0.808	0.408	5.10	2.15	12.4	3.27	37.6	9.62	24.5	80.4	0.30	0.49
19S21-1-53	272	9.80	1350	0.048	44.7	0.427	6.51	9.73	3.97	38.8	11.8	128	45.3	201	42.7	395	79.9	259	148	1.76	0.63
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19S27-1-17	249	6.44	348	0.003	14.6	0.069	0.882	1.62	0.676	8.31	2.50	28.5	11.1	51.4	12.0	118	28.2	321	480	0.67	0.56
19S27-1-03	621	9.44	1080	0.073	7.38	0.089	2.06	5.77	0.504	30.5	10.0	105	37.1	153	29.9	255	50.3	206	622	0.33	0.12
19S27-1-01	569	4.74	1980	0.533	44.6	0.528	7.02	11.3	1.66	51.6	16.3	188	70.6	304	61.1	529	107	498	366	1.36	0.21

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S27-1-43	271	11.8	1240	1.13	8.62	0.562	7.77	11.4	1.21	47.1	13.5	138	46.9	182	34.0	282	55.5	120	165	0.73	0.16
19S27-1-21	398	8.45	1370	0.005	7.96	0.064	1.21	4.43	0.300	31.7	10.6	126	48.4	214	43.2	381	78.0	131	594	0.22	0.08
19S27-1-56	154	5.26	2310	0.088	12.7	0.778	14.0	22.9	1.21	95.9	28.0	284	92.2	342	60.8	486	88.2	185	200	0.93	0.08
19S27-1-41	417	12.4	807	0.000	9.15	0.083	1.66	3.66	0.515	19.2	6.51	77.2	29.2	125	25.9	230	46.9	48.2	94.8	0.51	0.19
19S27-1-05	679	11.1	1250	0.006	4.13	0.084	1.85	4.40	0.090	28.2	10.0	117	43.0	189	38.9	332	64.3	254	387	0.66	0.02
19S27-1-20	518	12.2	1600	0.147	22.0	0.351	4.80	8.10	1.45	40.0	12.9	151	57.0	241	48.6	419	83.8	438	334	1.31	0.25
19S27-1-45	353	5.10	1420	0.059	26.1	0.297	6.18	9.89	2.17	42.7	12.5	139	50.0	210	41.9	358	71.5	342	195	1.76	0.32
19S27-1-11	2870	46.9	1070	10.0	51.7	4.74	24.1	9.68	0.474	22.6	7.06	87.9	34.6	166	37.8	352	74.0	292	817	0.36	0.10
19S27-1-52	455	7.66	741	0.040	29.6	0.083	0.888	1.89	0.467	12.6	5.08	62.9	24.5	111	25.2	236	52.0	273	556	0.49	0.29
19S27-1-33	327	3.35	1040	0.000	8.72	0.027	0.442	2.25	0.304	18.7	7.19	92.8	37.3	170	35.9	318	65.1	110	243	0.45	0.14
19S27-1-51	549	5.45	2910	0.065	19.8	0.164	3.81	9.27	0.268	62.5	22.2	275	106	455	88.4	741	142	346	660	0.52	0.03
19S27-1-06	442	5.12	643	0.000	0.574	0.023	0.560	2.17	0.075	15.6	5.95	67.4	20.9	75.0	13.3	103	18.1	27.0	239	0.11	0.04
19S27-1-37	1220	11.6	2050	0.007	2.16	0.079	1.50	4.80	0.086	33.4	13.6	178	70.7	329	70.9	639	128	183	791	0.23	0.02
19S27-1-36	1900	10.7	2480	1.82	9.73	1.01	10.00	13.3	0.479	63.2	20.8	242	90.0	379	74.9	641	125	398	719	0.55	0.05
19S27-1-24	1520	5.68	2400	0.028	2.20	0.060	0.815	3.60	0.161	32.9	15.2	206	80.5	364	74.3	660	127	152	933	0.16	0.05
19S27-1-54	572	4.61	731	0.010	0.463	0.015	0.235	1.03	0.092	13.0	5.87	74.1	22.8	76.7	12.4	96.0	16.5	19.5	589	0.03	0.08
19S27-1-50	357	9.37	551	0.016	2.73	0.094	1.99	4.17	0.542	23.9	6.78	66.0	18.8	60.0	9.83	70.0	12.1	63.1	119	0.53	0.17
19S27-1-40	147	6.44	88.8	0.000	1.54	0.009	0.133	0.283	0.115	1.57	0.521	7.08	2.72	14.0	3.36	37.9	8.79	133	188	0.71	0.53
19S27-1-47	469	5.03	680	0.016	2.28	0.016	0.492	1.38	0.116	8.13	3.65	52.3	22.2	111	26.5	269	60.0	46.4	466	0.10	0.11
19S27-1-04	701	12.4	2150	0.006	5.27	0.142	2.42	5.52	0.960	39.0	14.1	182	72.6	333	69.2	610	125	216	558	0.39	0.20
19S27-1-38	960	5.63	1990	2.13	31.1	0.904	8.49	14.3	0.809	71.7	21.2	220	71.9	282	52.6	434	79.7	3380	4190	0.81	0.08
19S27-1-26	890	11.4	2530	2.12	55.9	1.29	13.0	23.8	1.17	110	30.3	299	94.0	350	64.6	525	96.5	5720	4680	1.22	0.07
19S27-1-30	2090	4.99	1470	2.65	31.8	1.36	9.07	9.70	0.894	47.5	14.8	158	52.3	205	39.7	334	64.8	2300	3240	0.71	0.13
19S27-1-39	1290	5.54	1510	4.48	30.9	1.98	11.2	10.7	0.626	51.1	15.6	164	54.1	210	39.8	330	60.9	2240	3250	0.69	0.08
19S27-1-23	1010	5.76	1360	3.43	27.1	1.39	8.09	9.22	0.676	48.7	14.4	149	48.3	188	35.4	293	53.9	2260	2930	0.77	0.10
19S27-1-58	623	6.71	1730	1.95	29.1	0.779	7.46	13.3	0.787	65.9	18.9	194	62.4	240	44.6	369	68.7	2840	3160	0.90	0.08
19S27-1-22	1280	6.80	1290	2.48	33.2	1.16	8.48	11.6	1.17	55.7	14.8	144	45.8	176	33.6	287	55.1	2730	3830	0.71	0.14
19S27-1-27	1540	3.97	1380	6.67	41.2	2.47	14.9	11.9	0.846	48.9	14.4	147	49.0	192	35.6	303	57.0	2380	3130	0.76	0.11
19S27-1-44	3710	5.40	1850	10.8	53.6	4.51	24.3	17.3	1.14	71.4	20.2	204	67.2	254	47.5	388	70.4	3390	4380	0.77	0.10
19S27-1-35	2180	4.92	1480	7.40	42.8	2.99	16.2	11.1	0.922	48.6	15.1	159	51.7	204	39.6	331	62.6	2240	3230	0.69	0.12
19S27-1-25	1610	5.35	1740	6.53	45.2	2.45	14.9	14.7	1.04	66.1	19.2	194	62.9	242	44.4	370	67.6	3340	3660	0.91	0.10
19S27-1-18	1920	6.35	1740	8.44	44.9	3.87	21.7	15.0	0.980	58.6	17.3	181	59.4	242	45.9	382	72.8	2090	3320	0.63	0.10
19S27-1-59	656	4.46	1250	1.61	23.1	0.796	4.91	7.28	0.688	41.1	12.5	131	44.1	173	32.9	275	51.9	1960	2830	0.69	0.12
19S27-1-34	775	3.86	1600	0.832	19.4	0.442	3.10	7.47	0.678	41.0	14.4	160	55.5	230	46.5	409	77.4	1820	4200	0.43	0.12
19S27-1-60	714	6.56	1720	1.45	25.8	0.780	7.11	12.8	0.674	63.1	18.5	190	61.5	236	44.8	367	71.4	2490	2740	0.91	0.07
19S27-1-42	559	2.66	1390	0.000	15.8	0.026	1.16	4.22	0.621	27.7	10.5	127	48.2	208	45.3	409	79.8	1100	5050	0.22	0.18
19S27-1-55	2870	4.64	1130	21.3	72.0	8.02	38.3	14.1	0.976	42.3	11.7	119	39.6	157	30.6	255	48.9	1330	2160	0.61	0.12
19S27-1-46	1470	5.50	1610	3.51	33.6	1.61	10.8	12.6	0.892	58.2	17.2	176	56.8	225	42.0	340	63.3	2900	3630	0.80	0.10
19S27-1-14	766	5.65	1750	5.49	38.1	1.92	12.4	14.4	0.660	62.4	18.9	191	61.1	238	44.6	362	68.0	3080	3200	0.96	0.07
19S27-1-16	604	4.04	1440	0.707	17.7	0.420	3.67	8.33	0.521	45.3	14.4	151	50.0	201	38.0	315	59.3	2240	3290	0.68	0.08

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S27-1-15	1450	4.24	1230	6.71	30.6	2.55	14.8	10.2	0.697	41.8	12.4	127	42.4	169	32.4	263	49.5	1790	2600	0.69	0.10
19S27-1-02	1500	21.7	1620	4.50	36.7	1.95	12.0	12.4	1.16	56.1	16.8	175	55.5	220	41.3	343	63.0	2650	3340	0.79	0.14
19S27-1-09	1430	4.78	2130	4.65	37.3	2.01	11.6	12.7	1.05	66.8	21.3	226	74.0	295	56.3	455	83.4	3980	6170	0.65	0.11
19S27-1-31	2380	34.2	1340	10.6	46.8	4.32	21.9	11.9	1.04	44.3	13.7	142	47.2	186	35.6	303	58.2	1650	2730	0.60	0.14
19S27-1-32	1080	5.47	1860	2.09	35.7	1.22	10.2	16.6	0.912	75.5	21.5	211	67.3	255	46.9	380	70.0	4020	3520	1.14	0.08
19S27-1-28	490	3.24	1130	0.361	19.9	0.207	2.71	5.66	0.449	35.2	10.9	119	39.5	157	30.5	255	48.4	1590	2430	0.65	0.10
19S27-1-08	4300	4.07	1260	29.3	94.5	11.2	53.9	19.8	1.44	50.3	13.7	134	43.4	171	32.6	270	52.2	1450	2360	0.61	0.14
19S27-1-10	2190	5.04	1370	15.3	63.3	5.79	30.0	13.9	1.01	49.4	14.6	146	47.4	188	35.7	301	57.4	2020	2870	0.70	0.12
19S27-1-13	1020	2.82	1210	7.08	32.9	2.43	13.6	9.46	0.646	40.3	12.4	127	41.1	162	31.2	258	48.8	1810	2550	0.71	0.10
19S27-1-12	1640	4.20	1240	10.8	42.0	3.98	20.3	11.0	0.665	38.7	11.8	125	42.2	174	32.9	282	53.0	1140	2320	0.49	0.10
19S27-1-53	1900	3.88	1080	11.3	44.6	4.08	21.6	9.43	0.658	34.4	10.5	110	38.3	153	30.0	255	49.5	1030	1940	0.53	0.11
19S27-1-19	3820	4.72	1600	13.5	59.1	5.51	28.8	16.6	1.61	57.4	17.1	171	55.3	223	43.5	357	68.1	3330	4000	0.83	0.16
19S27-1-48	245	15.3	121	0.022	4.63	0.155	3.33	6.03	0.339	16.3	3.00	19.4	4.05	11.2	1.70	10.8	1.94	233	250	0.93	0.10
19S27-1-49	296	18.3	232	0.023	4.60	0.194	4.39	7.81	0.433	25.5	5.16	34.0	7.77	22.5	3.11	22.2	3.42	162	237	0.68	0.09
19S27-1-29	375	12.5	408	0.021	6.08	0.195	3.02	5.79	0.792	20.5	4.64	43.2	13.8	56.1	11.0	98.7	20.1	266	564	0.47	0.22
leucosome																					
19S22-2.1-09	370	3.13	1510	0.052	23.3	0.165	3.00	6.41	0.639	37.1	12.1	144	54.5	235	47.9	430	86.0	271	402	0.67	0.13
19S22-2.1-46	263	1.20	888	0.030	12.1	0.056	1.29	2.59	0.186	15.6	6.22	75.8	29.8	135	29.3	264	57.2	151	210	0.72	0.09
19S22-2.1-11	873	8.07	1570	0.198	3.07	0.214	2.18	4.28	1.50	22.8	9.83	126	53.1	253	57.1	526	110	130	1120	0.12	0.46
19S22-2.1-22	739	1.75	1490	0.000	2.43	0.036	0.668	2.03	0.073	18.6	8.90	120	48.1	236	54.9	547	115	184	7210	0.03	0.04
19S22-2.1-45	836	2.06	1280	0.000	0.514	0.019	0.178	1.57	0.054	14.3	8.39	109	40.3	170	35.7	315	60.0	70.6	3690	0.02	0.03
19S22-2.1-14	1730	3.61	3430	0.006	0.918	0.050	0.554	5.71	0.026	50.1	26.7	330	103	381	71.9	571	93.4	333	8980	0.04	0.00
19S22-2.1-19	1170	3.40	2240	0.007	0.266	0.006	0.306	2.01	0.005	26.2	18.1	228	60.9	189	31.9	225	29.7	109	5540	0.02	0.00
19S22-2.1-35	1360	2.07	2480	0.004	0.866	0.027	0.354	3.03	0.091	28.3	15.8	211	76.6	328	70.1	631	122	115	5810	0.02	0.03
19S22-2.1-37	594	1.73	1210	0.003	2.02	0.025	0.430	1.42	0.024	13.2	7.18	95.9	37.5	186	42.3	412	86.6	123	4940	0.02	0.02
19S22-2.1-02	2180	4.70	4360	0.000	1.03	0.048	0.926	6.70	0.039	66.1	35.2	422	127	448	81.8	631	97.5	429	11100	0.04	0.01
19S22-2.1-12	1040	2.64	1700	0.000	0.539	0.024	0.321	1.96	0.083	20.8	11.8	151	52.6	217	44.2	373	69.0	75.5	3910	0.02	0.04
19S22-2.1-21	1610	3.35	3290	0.020	1.27	0.052	1.28	5.67	0.015	58.4	27.6	321	102	377	71.5	563	92.7	539	8620	0.06	0.00
19S22-2.1-42	1630	3.44	3990	0.000	1.12	0.025	0.584	4.93	0.005	51.2	29.4	379	118	400	64.5	415	54.8	390	9820	0.04	0.00
19S22-2.1-08	1130	2.22	1760	0.003	0.458	0.014	0.344	1.76	0.039	18.7	10.7	149	55.5	243	53.6	479	95.1	57.1	3560	0.02	0.02
19S22-2.1-43	1150	2.06	2490	0.009	0.334	0.028	0.266	2.72	0.009	29.3	20.1	258	67.9	200	29.1	174	20.5	131	6250	0.02	0.00
19S22-2.1-17	1930	2.65	3910	0.019	0.416	0.024	0.529	3.93	0.009	53.1	32.2	380	104	326	54.6	376	51.2	216	8300	0.03	0.00
19S22-2.1-15	1330	2.05	2650	0.004	0.450	0.011	0.323	3.17	0.005	36.1	21.9	268	74.6	241	40.5	283	39.2	184	6420	0.03	0.00
19S22-2.1-06	1960	3.51	4030	0.007	0.645	0.034	0.582	5.35	0.035	56.1	30.9	383	120	432	78.6	613	96.8	287	7650	0.04	0.01
19S22-2.1-40	2010	2.47	4710	0.003	0.815	0.019	0.669	5.30	0.014	58.1	35.9	439	127	445	76.9	566	83.0	341	10400	0.03	0.00
19S22-2.1-29	1710	2.50	3830	0.000	0.686	0.032	0.425	3.71	0.000	45.6	28.4	357	106	360	62.5	462	68.6	248	7990	0.03	0.00
19S22-2.1-31	1810	3.87	4270	0.003	0.692	0.016	0.509	4.74	0.004	54.2	32.8	417	121	373	55.8	340	41.7	271	8300	0.03	0.00
19S22-2.1-39	1190	2.94	2280	0.003	0.457	0.026	0.291	2.82	0.027	34.2	18.0	215	66.2	236	43.8	343	53.5	159	4490	0.04	0.01
19S22-2.1-28	940	1.59	1570	0.017	0.178	0.021	0.060	0.710	0.020	14.5	11.4	153	43.3	138	24.1	166	23.3	38.4	4060	0.01	0.02
19S22-2.1-07	1780	3.11	3810	0.020	0.799	0.064	0.807	4.24	0.014	44.0	26.8	353	114	416	74.0	535	79.1	236	7740	0.03	0.00

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S22-2.1-01	2120	2.40	4020	0.007	0.327	0.039	0.419	3.79	0.035	42.8	30.7	405	116	384	68.6	480	66.5	105	8220	0.01	0.01
19S22-2.1-10	2380	5.23	4780	0.043	1.52	0.081	1.52	8.66	0.088	87.6	42.5	481	146	519	94.2	714	113	749	12300	0.06	0.01
19S22-2.1-34	1610	3.84	3630	0.003	0.522	0.017	0.615	3.69	0.019	44.6	27.4	352	100	327	54.3	371	53.9	209	7250	0.03	0.00
19S22-2.1-44	778	2.75	1470	0.003	0.210	0.009	0.120	1.02	0.004	15.1	10.5	147	40.6	127	20.3	132	16.8	61.7	3760	0.02	0.00
19S22-2.1-27	1390	3.50	2940	0.006	0.245	0.014	0.373	2.46	0.009	31.5	23.2	308	79.7	240	37.0	235	29.6	126	7270	0.02	0.00
19S22-2.1-41	1160	3.54	2600	0.000	0.535	0.007	0.162	2.36	0.009	29.1	17.5	241	75.3	264	45.2	312	44.5	169	5970	0.03	0.00
19S22-2.1-23	3150	3.79	6170	0.005	0.956	0.070	1.49	10.7	0.071	97.9	46.7	566	189	752	151	1250	226	518	8960	0.06	0.01
19S22-2.1-33	2340	4.02	4970	0.011	0.580	0.026	0.680	6.92	0.013	76.3	41.9	480	131	430	74.2	527	75.6	346	10800	0.03	0.00
19S22-2.1-32	775	2.27	1430	0.012	0.247	0.015	0.186	1.13	0.006	13.5	9.41	126	39.7	142	25.4	191	29.3	60.6	3340	0.02	0.00
19S22-2.1-26	2040	2.93	4840	0.006	0.538	0.019	0.523	4.97	0.013	59.6	40.3	499	130	379	55.3	340	41.6	246	9830	0.02	0.00
19S22-2.1-36	1270	3.00	2670	0.012	0.304	0.030	0.663	2.80	0.004	29.9	21.4	287	72.7	217	33.0	208	25.8	96.0	6570	0.01	0.00
19S22-2.1-30	2130	2.86	4720	0.062	1.03	0.131	1.08	4.90	0.027	53.2	32.6	434	134	485	85.4	641	94.7	252	9800	0.03	0.01
19S22-2.1-16	1700	4.14	4010	0.012	0.685	0.018	0.607	4.20	0.006	49.9	28.8	368	120	427	74.2	531	77.1	263	8020	0.03	0.00
19S22-2.1-13	1840	3.14	3940	0.004	0.325	0.008	0.369	3.86	0.005	47.6	32.4	400	109	323	50.4	314	40.1	166	7470	0.02	0.00
19S22-2.1-25	1430	4.31	3050	0.009	1.05	0.021	0.346	2.61	0.013	33.9	24.5	316	83.1	246	37.9	239	30.2	138	7730	0.02	0.00
19S22-2.1-18	597	2.16	1010	0.000	0.102	0.000	0.027	0.596	0.000	8.51	6.75	93.1	27.6	89.8	15.0	99.3	13.3	18.4	2510	0.01	0.00
19S22-2.1-04	2050	2.60	4480	0.020	0.731	0.037	0.472	4.89	0.000	51.9	31.5	418	132	471	84.2	605	88.9	276	11100	0.02	0.00
19S22-2.1-03	1220	3.95	2570	0.022	0.474	0.047	0.469	2.56	0.000	30.6	19.4	247	73.1	250	42.7	311	44.6	130	5590	0.02	0.00
19S22-2.1-05	3190	2.59	6080	0.081	1.45	0.183	1.46	7.72	0.034	75.8	40.9	540	191	792	162	1370	245	456	11400	0.04	0.00
19S22-2.1-38	1750	2.84	2790	0.000	0.179	0.003	0.149	1.33	0.034	16.7	13.8	221	73.3	292	63.2	539	86.1	54.4	6470	0.01	0.02
19S22-2.1-20	562	0.675	871	0.000	0.033	0.000	0.096	0.386	0.000	6.44	5.46	78.8	24.1	81.4	14.5	109	15.5	14.0	2180	0.01	0.00
19S22-2.1-24	644	1.67	1060	0.007	0.089	0.000	0.029	0.569	0.000	8.11	6.18	91.8	29.9	118	24.9	211	34.6	14.9	2770	0.01	0.00
leucosome																					
19S28-2-05	994	2.55	1660	0.003	0.336	0.007	0.211	1.62	0.077	19.0	11.3	151	53.0	219	45.2	403	73.5	44.0	3120	0.01	0.04
19S28-2-06	832	2.11	1280	0.012	0.285	0.016	0.400	1.82	0.065	18.9	9.98	124	40.6	158	30.5	270	52.8	35.1	1480	0.02	0.03
19S28-2-18	912	5.45	1910	0.003	1.56	0.033	1.04	5.30	0.229	49.0	21.5	224	64.9	217	36.7	270	46.3	203	2620	0.08	0.04
19S28-2-25	1090	5.46	1850	0.334	3.49	0.173	2.74	9.90	0.584	66.5	22.9	218	62.1	226	41.2	330	62.7	266	1750	0.15	0.07
19S28-2-35	531	5.81	793	0.010	1.15	0.052	1.30	4.96	0.235	36.4	12.1	105	26.9	86.3	14.6	106	18.6	104	997	0.10	0.05
19S28-2-20	1020	9.35	2040	0.010	3.44	0.116	2.35	9.42	0.470	66.5	24.2	233	70.4	254	45.5	376	70.3	282	2140	0.13	0.06
19S28-2-38	863	5.38	1540	0.000	1.88	0.067	1.66	5.99	0.313	48.0	17.6	173	52.8	188	36.3	293	54.6	169	1520	0.11	0.06
19S28-2-28	467	6.02	769	0.000	2.74	0.086	2.04	5.80	0.395	32.8	9.32	86.3	25.3	93.1	17.0	137	25.6	157	761	0.21	0.09
19S28-2-24	630	5.70	1100	0.065	1.68	0.060	1.10	4.74	0.227	34.3	12.2	123	36.9	137	24.8	201	37.9	140	1300	0.11	0.05
19S28-2-19	1510	4.75	3580	0.008	3.50	0.057	2.38	11.7	0.411	103	39.9	410	119	427	74.5	580	102	408	3930	0.10	0.04
19S28-2-17	1110	6.93	2430	0.009	3.19	0.111	2.16	9.12	0.393	71.8	27.0	275	82.6	303	53.4	430	78.3	304	2530	0.12	0.05
19S28-2-21	984	3.11	1780	0.000	1.33	0.033	0.947	4.17	0.161	32.7	14.7	172	57.3	220	41.3	328	58.1	112	2070	0.05	0.04
19S28-2-36	740	5.66	1550	0.009	3.09	0.083	1.52	6.85	0.426	48.7	16.4	165	52.1	204	40.0	345	69.1	222	1750	0.13	0.07
19S28-2-33	805	8.81	1800	0.038	10.0	0.430	8.06	20.3	1.44	102	28.1	232	63.5	215	36.0	280	49.8	655	1340	0.49	0.10
19S28-2-22	589	9.39	1300	0.013	5.29	0.156	2.79	8.85	0.506	52.4	15.6	149	43.5	160	28.6	221	40.6	287	1190	0.24	0.07
19S28-2-31	1640	4.26	2640	0.007	0.298	0.015	0.383	2.00	0.069	24.4	15.1	219	81.4	349	70.7	615	103	47.0	4850	0.01	0.03
19S28-2-29	982	4.90	2090	0.046	1.98	0.050	1.19	6.17	0.231	55.8	23.0	240	71.0	252	42.1	327	56.2	217	2870	0.08	0.04

SpotID	P	Ti	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Th/U	Eu*
19S28-2-30	1070	6.83	1760	0.017	2.07	0.096	2.13	9.97	0.479	66.5	22.7	211	60.6	215	37.4	299	55.3	212	1440	0.15	0.06
19S28-2-42	655	5.38	1100	0.000	2.84	0.096	1.68	6.34	0.548	44.2	14.8	133	37.6	131	23.4	189	35.3	158	995	0.16	0.10
19S28-2-40	1120	8.17	2280	0.006	2.71	0.104	1.97	9.63	0.551	72.5	27.4	269	77.5	277	49.8	414	74.0	219	2380	0.09	0.06
19S28-2-07	891	6.39	1910	1.26	5.31	0.310	2.83	9.24	0.335	66.7	22.3	220	65.9	239	42.8	353	65.9	275	1940	0.14	0.04
19S28-2-09	1680	2.86	3310	0.003	0.582	0.028	0.499	3.97	0.079	46.7	25.2	319	105	397	71.5	547	94.8	115	4080	0.03	0.02
19S28-2-01	405	6.49	694	0.003	5.07	0.069	1.84	5.17	0.399	28.7	8.61	80.3	23.5	83.1	14.9	114	21.6	140	382	0.37	0.10
19S28-2-02	700	8.35	1380	0.012	4.76	0.116	3.75	9.83	0.695	63.4	18.6	170	47.5	166	27.8	220	40.6	301	1170	0.26	0.09
19S28-2-13	1260	3.45	2310	0.003	0.654	0.014	0.613	3.17	0.139	38.1	18.7	234	74.7	270	46.9	355	58.7	99.9	3030	0.03	0.04
19S28-2-15	1640	3.77	3070	0.013	0.579	0.032	0.495	3.80	0.111	44.3	25.0	312	99.1	371	65.4	489	83.3	97.2	3610	0.03	0.03
19S28-2-23	1680	5.60	3040	0.189	0.874	0.122	1.25	4.89	0.199	48.1	25.9	316	96.8	334	55.8	401	66.1	79.9	3760	0.02	0.04
19S28-2-26	1470	3.85	2710	0.010	0.571	0.035	0.637	4.07	0.131	47.9	24.7	293	88.9	297	49.1	355	57.7	97.3	3600	0.03	0.03
19S28-2-12	1760	2.28	3400	0.006	0.632	0.032	0.783	4.00	0.091	48.4	26.6	335	109	407	71.5	540	91.9	118	4480	0.03	0.02
19S28-2-37	1940	4.57	3800	0.003	0.616	0.043	0.783	5.07	0.119	57.9	31.4	392	118	413	68.2	493	77.7	104	4770	0.02	0.02
19S28-2-27	1330	7.03	2720	0.008	3.65	0.134	2.24	9.85	0.508	72.4	27.4	286	90.4	341	62.8	507	92.3	353	3630	0.10	0.06
19S28-2-11	1230	5.85	2710	0.000	1.90	0.063	1.33	6.98	0.299	70.1	28.4	298	89.8	322	59.1	479	86.4	249	3200	0.08	0.04
19S28-2-10	1860	3.66	3620	0.003	0.486	0.031	0.847	4.81	0.128	57.1	31.6	373	113	388	63.0	446	72.6	91.9	4440	0.02	0.02
19S28-2-14	1170	27.9	2570	0.029	4.44	0.119	2.78	10.8	0.967	87.3	32.2	305	86.5	305	53.5	423	74.3	284	2900	0.10	0.10
19S28-2-16	581	11.1	1330	0.021	5.82	0.186	3.80	9.93	0.693	58.2	17.8	157	45.3	153	26.2	205	37.3	344	1110	0.31	0.09
19S28-2-41	1470	7.52	3830	0.004	3.11	0.102	2.15	10.5	0.437	94.7	38.1	415	126	440	79.0	608	102	360	4480	0.08	0.04
19S28-2-32	1490	2.89	2770	0.000	0.487	0.018	0.466	3.39	0.122	40.5	22.6	277	89.9	335	59.6	454	76.2	101	3960	0.03	0.03
19S28-2-03	1860	4.23	3700	0.000	0.584	0.015	0.545	4.34	0.107	54.7	30.8	379	119	417	69.9	510	84.7	97.5	4510	0.02	0.02
19S28-2-08	1960	2.46	3760	7.52	0.496	0.034	0.776	4.94	0.197	58.3	33.2	388	119	404	64.7	456	73.2	98.8	4660	0.02	0.04
19S28-2-04	1430	3.52	2890	0.043	0.591	0.014	0.471	3.29	0.106	40.9	23.2	288	92.2	332	56.2	429	72.6	88.4	3770	0.02	0.03
19S28-2-34	485	4.33	1010	0.021	3.65	0.216	4.24	11.1	0.503	47.6	13.9	123	35.4	123	23.4	194	37.5	236	1040	0.23	0.07

Table S6 Zircon Lu–Hf isotopic data of the granite and leucosome from the Gaoligong area.

Sample	$^{176}\text{Hf}/^{177}\text{Hf}$	1σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1σ	age	$^{(176}\text{Hf}/^{177}\text{Hf})_i$	$\varepsilon_{\text{Hf}}(t)$	1σ	T_{DM}	1σ	$T_{\text{DM}}^{\text{crust}}$	1σ
Grt two-mica granite														
19S24-2.1-01	0.282523	0.000014	0.001191	0.000055	0.040484	0.002009	87.0	0.282521	-7.0	0.5	1037	20	1592	31
19S24-2.1-02	0.282688	0.000012	0.000366	0.000013	0.012018	0.000318	87.0	0.282687	-1.1	0.4	786	17	1221	27
19S24-2.1-03	0.282516	0.000011	0.000600	0.000006	0.018672	0.000199	87.0	0.282515	-7.2	0.4	1031	16	1606	25
19S24-2.1-04	0.282654	0.000014	0.000993	0.000024	0.031487	0.000789	87.0	0.282652	-2.3	0.5	848	19	1300	31
19S24-2.1-05	0.282502	0.000014	0.001373	0.000021	0.043069	0.000714	87.0	0.282500	-7.7	0.5	1073	20	1641	32
19S24-2.1-06	0.282485	0.000011	0.001014	0.000018	0.033342	0.000437	87.0	0.282483	-8.3	0.4	1087	15	1678	23
19S24-2.1-07	0.282524	0.000012	0.001155	0.000016	0.036459	0.000538	87.0	0.282522	-6.9	0.4	1035	16	1590	26
19S24-2.1-08	0.282636	0.000011	0.000773	0.000015	0.025064	0.000567	87.0	0.282635	-2.9	0.4	868	16	1339	26
19S24-2.1-09	0.282510	0.000011	0.001229	0.000025	0.041087	0.001039	87.0	0.282508	-7.4	0.4	1057	16	1622	25
19S24-2.1-10	0.282564	0.000014	0.001301	0.000023	0.044018	0.000867	87.0	0.282562	-5.5	0.5	982	20	1502	31
19S24-2.1-11	0.282669	0.000011	0.000167	0.000002	0.006062	0.000094	87.0	0.282669	-1.7	0.4	808	15	1262	25
19S24-2.1-12	0.282576	0.000012	0.000772	0.000020	0.026868	0.000885	87.0	0.282575	-5.1	0.4	951	16	1473	26
19S24-2.1-13	0.282502	0.000015	0.001397	0.000018	0.046329	0.000391	87.0	0.282500	-7.7	0.5	1073	21	1640	33
19S24-2.1-14	0.282506	0.000013	0.001433	0.000009	0.049968	0.000180	87.0	0.282504	-7.6	0.5	1068	19	1631	30
19S24-2.1-15	0.282595	0.000012	0.000732	0.000008	0.024742	0.000188	87.0	0.282593	-4.4	0.4	925	16	1432	26
19S24-2.1-16	0.282500	0.000017	0.001405	0.000007	0.042960	0.000148	87.0	0.282498	-7.8	0.6	1076	24	1645	38
19S24-2.1-17	0.282527	0.000009	0.000587	0.000017	0.019448	0.000686	87.0	0.282526	-6.8	0.3	1016	13	1583	20
19S24-2.1-18	0.282709	0.000013	0.000411	0.000002	0.014274	0.000118	87.0	0.282708	-0.4	0.4	759	17	1175	28
19S24-2.1-19	0.282496	0.000014	0.001562	0.000013	0.052589	0.000590	87.0	0.282493	-8.0	0.5	1087	21	1655	32
19S24-2.1-20	0.282780	0.000013	0.000348	0.000003	0.011868	0.000177	87.0	0.282779	2.2	0.5	658	18	1014	29
19S24-2.1-21	0.282502	0.000012	0.000706	0.000006	0.023776	0.000230	87.0	0.282501	-7.7	0.4	1054	17	1638	27
Bt granite														
19S21-1-01	0.282688	0.000018	0.003091	0.000037	0.095924	0.001314	73.7	0.282684	-1.5	0.6	846	27	1237	41
19S21-1-02	0.282698	0.000013	0.002040	0.000018	0.061877	0.000726	73.7	0.282695	-1.1	0.5	808	19	1212	30
19S21-1-03	0.282696	0.000019	0.003552	0.000029	0.111701	0.000436	73.7	0.282691	-1.2	0.7	846	29	1221	42
19S21-1-04	0.282666	0.000018	0.003443	0.000050	0.104804	0.001489	73.7	0.282661	-2.3	0.6	888	27	1288	40
19S21-1-05	0.282690	0.000013	0.000715	0.000026	0.019861	0.000827	73.7	0.282689	-1.3	0.5	791	18	1225	29
19S21-1-06	0.282663	0.000016	0.002576	0.000049	0.079120	0.001447	73.7	0.282660	-2.4	0.6	871	24	1291	37
19S21-1-07	0.282722	0.000017	0.003168	0.000028	0.095239	0.000917	73.7	0.282718	-0.3	0.6	797	25	1161	37
19S21-1-08	0.282682	0.000017	0.002701	0.000034	0.081540	0.001140	73.7	0.282678	-1.7	0.6	846	25	1249	38
19S21-1-09	0.282696	0.000019	0.002337	0.000071	0.067981	0.002298	73.7	0.282693	-1.2	0.7	818	28	1218	44
19S21-1-10	0.282692	0.000013	0.001889	0.000021	0.056573	0.000802	73.7	0.282690	-1.3	0.4	813	18	1224	29
19S21-1-11	0.282672	0.000017	0.004027	0.000145	0.125264	0.004182	73.7	0.282666	-2.1	0.6	894	27	1277	39
19S21-1-12	0.282677	0.000018	0.002564	0.000052	0.081122	0.002037	73.7	0.282674	-1.9	0.6	850	27	1260	41
19S21-1-13	0.282687	0.000017	0.002684	0.000043	0.084406	0.001518	73.7	0.282683	-1.5	0.6	839	26	1239	39
19S21-1-14	0.282676	0.000016	0.002826	0.000051	0.090767	0.001762	73.7	0.282672	-1.9	0.6	858	24	1263	37
19S21-1-15	0.282709	0.000015	0.001786	0.000023	0.055134	0.000881	73.7	0.282706	-0.7	0.5	787	22	1187	34
19S21-1-16	0.282524	0.000022	0.000768	0.000009	0.021736	0.000167	73.7	0.282523	-7.2	0.8	1024	31	1596	50
19S21-1-17	0.282723	0.000015	0.003838	0.000062	0.128064	0.002297	73.7	0.282718	-0.3	0.5	811	23	1160	34
19S21-1-18	0.282668	0.000016	0.002722	0.000112	0.091992	0.003408	73.7	0.282664	-2.2	0.6	868	24	1281	36
19S21-1-19	0.282719	0.000016	0.003170	0.000068	0.100770	0.001765	73.7	0.282715	-0.4	0.6	802	25	1168	37
19S21-1-20	0.282695	0.000017	0.003731	0.000054	0.123852	0.001948	73.7	0.282690	-1.3	0.6	851	26	1223	38
19S21-1-21	0.282688	0.000018	0.003593	0.000085	0.114624	0.002523	73.7	0.282683	-1.5	0.6	858	28	1238	41
19S21-1-22	0.282698	0.000012	0.001161	0.000046	0.037964	0.001895	73.7	0.282697	-1.0	0.4	788	17	1208	26
Tur two-mica granite														
19S27-1-01	0.282689	0.000010	0.000964	0.000014	0.029343	0.000342	30.9	0.282688	-2.3	0.4	798	15	1254	23
19S27-1-02	0.282702	0.000010	0.000843	0.000005	0.026296	0.000157	30.9	0.282701	-1.8	0.3	777	14	1224	22
19S27-1-03	0.282696	0.000007	0.000835	0.000009	0.026183	0.000322	30.9	0.282696	-2.0	0.3	785	10	1237	17
19S27-1-04	0.282651	0.000009	0.000618	0.000007	0.019178	0.000297	30.9	0.282650	-3.6	0.3	844	13	1338	20
19S27-1-05	0.282683	0.000008	0.000780	0.000005	0.023414	0.000086	30.9	0.282683	-2.5	0.3	802	11	1266	17
19S27-1-06	0.282674	0.000012	0.000851	0.000012	0.026109	0.000352	30.9	0.282674	-2.8	0.4	816	17	1285	26
19S27-1-07	0.282677	0.000009	0.000970	0.000015	0.027090	0.000317	30.9	0.282677	-2.7	0.3	814	13	1279	21
19S27-1-08	0.282678	0.000008	0.000749	0.000002	0.023274	0.000087	30.9	0.282677	-2.7	0.3	809	12	1278	19
19S27-1-09	0.282676	0.000008	0.000865	0.000006	0.025134	0.000182	30.9	0.282676	-2.7	0.3	814	11	1282	18
19S27-1-10	0.282683	0.000012	0.000937	0.000023	0.028465	0.000610	30.9	0.282683	-2.5	0.4	805	17	1266	27
19S27-1-11	0.282691	0.000011	0.000721	0.000007	0.022496	0.000271	30.9	0.282691	-2.2	0.4	789	15	1247	24
19S27-1-12	0.282685	0.000010	0.000939	0.000008	0.027229	0.000132	30.9	0.282685	-2.4	0.4	802	14	1261	23
19S27-1-13	0.282676	0.000012	0.000829	0.000015	0.025385	0.000415	30.9	0.282676	-2.7	0.4	812	17	1281	26
19S27-1-14	0.282665	0.000009	0.000690	0.000004	0.021924	0.000121	30.9	0.282664	-3.1	0.3	826	12	1307	19
19S27-1-15	0.282656	0.000008	0.000661	0.000005	0.020451	0.000152	30.9	0.282655	-3.4	0.3	838	12	1327	19
19S27-1-16	0.282678	0.000011	0.000796	0.000007	0.025173	0.000219	30.9	0.282678	-2.7	0.4	809	15	1277	24
19S27-1-17	0.282666	0.000012	0.000667	0.000005	0.021311	0.000197	30.9	0.282666	-3.1	0.4	823	16	1303	26
19S27-1-18	0.282639	0.000013	0.000894	0.000015	0.028261	0.000361	30.9	0.282638	-4.1	0.5	867	18	1365	29
19S27-1-19	0.282678	0.000017	0.000845	0.000011	0.025776	0.000244	30.9	0.282677	-2.7	0.6	811	24	1278	37

Sample	$^{176}\text{Hf}/^{177}\text{Hf}$	1σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1σ	age	$^{(176}\text{Hf}/^{177}\text{Hf})_i$	$\epsilon_{\text{Hf}}(t)$	1σ	T_{DM}	1σ	$T_{\text{DM}}^{\text{crust}}$	1σ
19S27-1-20	0.282667	0.000010	0.000788	0.000003	0.024468	0.000088	30.9	0.282667	-3.0	0.3	824	14	1301	22
19S27-1-21	0.282694	0.000011	0.000647	0.000002	0.019957	0.000051	30.9	0.282694	-2.1	0.4	784	15	1241	24
19S27-1-22	0.282678	0.000010	0.000706	0.000001	0.022194	0.000168	30.9	0.282677	-2.7	0.4	808	15	1278	23
19S27-1-23	0.282676	0.000009	0.000848	0.000005	0.024947	0.000129	30.9	0.282675	-2.8	0.3	814	12	1283	19
19S27-1-24	0.282689	0.000011	0.000601	0.000010	0.019188	0.000439	30.9	0.282688	-2.3	0.4	790	15	1253	24
19S27-1-25	0.282672	0.000010	0.000898	0.000020	0.027320	0.000446	30.9	0.282672	-2.9	0.3	820	14	1290	22
19S27-1-26	0.282672	0.000009	0.000671	0.000008	0.021392	0.000253	30.9	0.282671	-2.9	0.3	816	13	1291	21
19S27-1-27	0.282680	0.000011	0.000737	0.000005	0.023147	0.000185	30.9	0.282680	-2.6	0.4	805	15	1272	25
19S27-1-28	0.282662	0.000011	0.001193	0.000020	0.038156	0.000669	30.9	0.282662	-3.2	0.4	840	15	1313	24
leucosome														
19S22-2.1-01	0.282592	0.000008	0.000246	0.000001	0.010971	0.000050	70.0	0.282591	-4.9	0.3	917	11	1447	17
19S22-2.1-02	0.282516	0.000010	0.001725	0.000032	0.058330	0.001081	70.0	0.282514	-7.6	0.4	1062	15	1619	23
19S22-2.1-03	0.282540	0.000009	0.000873	0.000012	0.033241	0.000423	70.0	0.282539	-6.7	0.3	1005	13	1564	21
19S22-2.1-04	0.282580	0.000008	0.000378	0.000003	0.016020	0.000138	70.0	0.282580	-5.3	0.3	936	12	1472	19
19S22-2.1-05	0.282525	0.000013	0.001003	0.000011	0.040224	0.000286	70.0	0.282524	-7.2	0.5	1029	19	1597	30
19S22-2.1-06	0.282565	0.000012	0.000588	0.000012	0.022985	0.000415	70.0	0.282564	-5.8	0.4	963	16	1507	26
19S22-2.1-07	0.282533	0.000009	0.000677	0.000003	0.026089	0.000163	70.0	0.282532	-7.0	0.3	1010	13	1579	21
19S22-2.1-08	0.282548	0.000008	0.000425	0.000008	0.018869	0.000210	70.0	0.282547	-6.4	0.3	982	12	1545	19
19S22-2.1-09	0.282523	0.000009	0.000599	0.000008	0.023322	0.000330	70.0	0.282522	-7.3	0.3	1021	13	1601	21
19S22-2.1-10	0.282312	0.000011	0.001227	0.000009	0.037107	0.000494	70.0	0.282310	-14.8	0.4	1336	15	2071	23
19S22-2.1-11	0.282504	0.000011	0.001825	0.000054	0.067246	0.002121	70.0	0.282502	-8.0	0.4	1082	16	1646	26
19S22-2.1-12	0.282584	0.000007	0.000152	0.000000	0.007928	0.000031	70.0	0.282584	-5.1	0.3	925	10	1463	16
19S22-2.1-13	0.282573	0.000010	0.000449	0.000005	0.019796	0.000154	70.0	0.282573	-5.5	0.3	948	13	1488	21
19S22-2.1-14	0.282603	0.000011	0.000504	0.000012	0.023183	0.000381	70.0	0.282602	-4.5	0.4	908	16	1422	25
19S22-2.1-15	0.282534	0.000012	0.000888	0.000019	0.034085	0.000565	70.0	0.282533	-6.9	0.4	1013	17	1576	28
19S22-2.1-16	0.282544	0.000012	0.001138	0.000019	0.043891	0.000637	70.0	0.282543	-6.6	0.4	1006	17	1555	27
19S22-2.1-17	0.282465	0.000012	0.000907	0.000012	0.031526	0.000330	70.0	0.282463	-9.4	0.4	1112	17	1731	27
19S22-2.1-18	0.282335	0.000012	0.001045	0.000006	0.031675	0.000142	70.0	0.282334	-14.0	0.4	1297	17	2018	26
19S22-2.1-19	0.282535	0.000011	0.000402	0.000002	0.016706	0.000053	70.0	0.282535	-6.9	0.4	999	15	1573	24
19S22-2.1-20	0.282588	0.000008	0.000403	0.000006	0.018240	0.000155	70.0	0.282587	-5.0	0.3	926	11	1455	18
19S22-2.1-21	0.282592	0.000008	0.000431	0.000006	0.019890	0.000137	70.0	0.282592	-4.8	0.3	921	11	1445	18
leucosome														
19S28-2-01	0.282471	0.000012	0.001077	0.000020	0.037383	0.000551	75.2	0.282470	-9.0	0.4	1107	17	1714	26
19S28-2-02	0.282471	0.000007	0.000417	0.000004	0.015207	0.000176	75.2	0.282470	-9.0	0.3	1089	10	1713	16
19S28-2-03	0.282569	0.000011	0.000716	0.000004	0.023754	0.000201	75.2	0.282568	-5.6	0.4	960	15	1494	24
19S28-2-04	0.282514	0.000009	0.000836	0.000012	0.029857	0.000478	75.2	0.282513	-7.5	0.3	1040	12	1618	19
19S28-2-05	0.282525	0.000007	0.000399	0.000004	0.014016	0.000159	75.2	0.282524	-7.1	0.2	1014	10	1594	16
19S28-2-06	0.282452	0.000012	0.000742	0.000007	0.026882	0.000339	75.2	0.282451	-9.7	0.4	1125	16	1757	26
19S28-2-07	0.282508	0.000010	0.000495	0.000003	0.016841	0.000108	75.2	0.282508	-7.7	0.4	1039	14	1630	23
19S28-2-08	0.282492	0.000013	0.000850	0.000004	0.028166	0.000138	75.2	0.282491	-8.3	0.4	1072	18	1668	28
19S28-2-09	0.282534	0.000008	0.000568	0.000004	0.021275	0.000114	75.2	0.282534	-6.8	0.3	1005	12	1572	19
19S28-2-10	0.282528	0.000013	0.001084	0.000012	0.038958	0.000468	75.2	0.282527	-7.0	0.5	1027	18	1587	29
19S28-2-11	0.282522	0.000009	0.000765	0.000013	0.025599	0.000539	75.2	0.282521	-7.2	0.3	1027	12	1600	19
19S28-2-12	0.282495	0.000010	0.000655	0.000006	0.023222	0.000317	75.2	0.282494	-8.2	0.4	1062	15	1660	23
19S28-2-13	0.282529	0.000010	0.000491	0.000005	0.016910	0.000146	75.2	0.282528	-7.0	0.4	1011	14	1584	23
19S28-2-14	0.282475	0.000014	0.000683	0.000006	0.023914	0.000138	75.2	0.282474	-8.9	0.5	1090	20	1704	32
19S28-2-15	0.282522	0.000010	0.000734	0.000008	0.025415	0.000198	75.2	0.282521	-7.2	0.4	1026	14	1599	22
19S28-2-16	0.282537	0.000013	0.000680	0.000013	0.023393	0.000613	75.2	0.282536	-6.7	0.5	1005	18	1568	29
19S28-2-17	0.282477	0.000010	0.000548	0.000002	0.020294	0.000166	75.2	0.282476	-8.8	0.3	1084	13	1700	22
19S28-2-18	0.282494	0.000009	0.000389	0.000009	0.013885	0.000311	75.2	0.282493	-8.2	0.3	1057	12	1663	20
19S28-2-19	0.282511	0.000012	0.000672	0.000009	0.023280	0.000343	75.2	0.282510	-7.6	0.4	1040	16	1624	26
19S28-2-20	0.282493	0.000010	0.000915	0.000005	0.033892	0.000283	75.2	0.282492	-8.3	0.3	1072	14	1665	22
19S28-2-21	0.282509	0.000021	0.000823	0.000013	0.026674	0.000159	75.2	0.282508	-7.7	0.7	1047	29	1629	46
19S28-2-22	0.282530	0.000011	0.000571	0.000008	0.020570	0.000271	75.2	0.282529	-6.9	0.4	1011	15	1581	24
19S28-2-23	0.282505	0.000011	0.000210	0.000003	0.007437	0.000111	75.2	0.282504	-7.8	0.4	1036	15	1637	25
19S28-2-24	0.282484	0.000011	0.000682	0.000002	0.026139	0.000165	75.2	0.282483	-8.6	0.4	1079	16	1686	25
19S28-2-25	0.282526	0.000014	0.000625	0.000002	0.021346	0.000059	75.2	0.282526	-7.1	0.5	1017	19	1590	30
19S28-2-26	0.282542	0.000011	0.000534	0.000005	0.018092	0.000165	75.2	0.282542	-6.5	0.4	993	16	1555	25
19S28-2-27	0.282522	0.000012	0.001118	0.000016	0.040945	0.000588	75.2	0.282520	-7.3	0.4	1037	17	1602	26
19S28-2-28	0.282488	0.000016	0.000710	0.000012	0.024895	0.000552	75.2	0.282487	-8.4	0.5	1073	22	1675	35

Table S7 Monazite U–Th–Pb isotopic data of the Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.

Spot ID	Location	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{208}\text{Pb}/^{232}\text{Th}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{208}\text{Pb}/^{232}\text{Th}$	1sigma
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)	
Grt-Sil-Bt gneiss													
19S22-1_22	core	0.09660	0.00505	0.01363	0.00030	0.00450	0.00010	93.6	4.7	87.3	1.9	90.7	2.0
19S22-1_13	core	0.11376	0.00626	0.01388	0.00034	0.00444	0.00009	109.4	5.7	88.8	2.2	89.6	1.7
19S22-1_35	core	0.09554	0.00968	0.01406	0.00044	0.00439	0.00010	92.6	9.0	90.0	2.8	88.6	2.0
19S22-1_16	core	0.11189	0.00847	0.01370	0.00037	0.00433	0.00007	107.7	7.7	87.7	2.4	87.4	1.5
19S22-1_28	core	0.09421	0.00637	0.01285	0.00034	0.00418	0.00007	91.4	5.9	82.3	2.1	84.3	1.4
19S22-1_38	core	0.08825	0.00761	0.01302	0.00038	0.00401	0.00006	85.9	7.1	83.4	2.4	81.0	1.1
19S22-1_19	core	0.07911	0.00608	0.01264	0.00031	0.00381	0.00006	77.3	5.7	81.0	1.9	77.0	1.2
19S22-1_02	core	0.09302	0.00526	0.01254	0.00031	0.00370	0.00005	90.3	4.9	80.4	2.0	74.6	1.1
19S22-1_34	rim	0.09146	0.00582	0.01286	0.00031	0.00405	0.00006	88.9	5.4	82.4	2.0	81.7	1.2
19S22-1_27	unzoned	0.08065	0.00787	0.01278	0.00036	0.00396	0.00006	78.8	7.4	81.9	2.3	79.9	1.1
19S22-1_11	unzoned	0.09924	0.00606	0.01269	0.00032	0.00391	0.00006	96.1	5.6	81.3	2.1	78.9	1.2
19S22-1_14	rim	0.08720	0.00476	0.01237	0.00028	0.00387	0.00005	84.9	4.5	79.3	1.8	78.1	1.1
19S22-1_07	unzoned	0.09013	0.00457	0.01207	0.00026	0.00381	0.00005	87.6	4.3	77.3	1.7	76.9	1.1
19S22-1_24	core	0.07512	0.00630	0.01175	0.00031	0.00381	0.00006	73.5	6.0	75.3	2.0	76.9	1.2
19S22-1_10	unzoned	0.08168	0.00404	0.01226	0.00026	0.00376	0.00006	79.7	3.8	78.6	1.6	75.9	1.1
19S22-1_15	unzoned	0.08449	0.00495	0.01247	0.00028	0.00376	0.00006	82.4	4.6	79.9	1.8	75.8	1.1
19S22-1_36	unzoned	0.08007	0.00447	0.01240	0.00026	0.00376	0.00005	78.2	4.2	79.4	1.6	75.8	1.1
19S22-1_26	unzoned	0.08663	0.00456	0.01177	0.00026	0.00375	0.00006	84.4	4.3	75.4	1.6	75.7	1.2
19S22-1_40	unzoned	0.08072	0.00436	0.01257	0.00027	0.00374	0.00005	78.8	4.1	80.5	1.7	75.5	1.1
19S22-1_41	unzoned	0.07963	0.00379	0.01162	0.00023	0.00374	0.00006	77.8	3.6	74.5	1.5	75.4	1.1
19S22-1_09	unzoned	0.07563	0.00488	0.01173	0.00026	0.00373	0.00005	74.0	4.6	75.2	1.7	75.3	1.1
19S22-1_03	unzoned	0.07880	0.00418	0.01165	0.00025	0.00372	0.00005	77.0	3.9	74.6	1.6	75.0	1.1
19S22-1_05	core	0.08226	0.00386	0.01206	0.00023	0.00370	0.00005	80.3	3.6	77.3	1.5	74.6	1.1
19S22-1_08	unzoned	0.07452	0.00353	0.01138	0.00022	0.00369	0.00006	73.0	3.3	73.0	1.4	74.5	1.2
19S22-1_29	unzoned	0.06943	0.00531	0.01135	0.00032	0.00368	0.00006	68.2	5.0	72.8	2.0	74.3	1.3
19S22-1_23	unzoned	0.07746	0.00347	0.01168	0.00022	0.00365	0.00005	75.8	3.3	74.8	1.4	73.6	1.1
19S22-1_17	unzoned	0.06867	0.00443	0.01165	0.00024	0.00363	0.00005	67.4	4.2	74.6	1.5	73.1	1.1
19S22-1_32	core	0.07313	0.00380	0.01155	0.00023	0.00362	0.00006	71.7	3.6	74.0	1.5	73.0	1.2
19S22-1_21	unzone	0.07819	0.00280	0.01167	0.00019	0.00361	0.00005	76.4	2.6	74.8	1.2	72.9	1.1
19S22-1_12	unzoned	0.08793	0.00494	0.01161	0.00028	0.00361	0.00005	85.6	4.6	74.4	1.8	72.9	1.1
19S22-1_20	unzoned	0.07634	0.00378	0.01155	0.00025	0.00359	0.00005	74.7	3.6	74.0	1.6	72.4	1.1
19S22-1_25	rim	0.07518	0.00455	0.01138	0.00025	0.00359	0.00005	73.6	4.3	73.0	1.6	72.4	1.1
19S22-1_18	rim	0.08366	0.00454	0.01181	0.00026	0.00358	0.00005	81.6	4.3	75.7	1.7	72.3	1.1
19S22-1_33	rim	0.07466	0.00400	0.01167	0.00024	0.00355	0.00005	73.1	3.8	74.8	1.5	71.7	1.1
19S22-1_06	unzoned	0.07698	0.00394	0.01154	0.00023	0.00353	0.00005	75.3	3.7	74.0	1.5	71.3	1.1
19S22-1_31	rim	0.07253	0.00439	0.01160	0.00025	0.00352	0.00005	71.1	4.2	74.3	1.6	71.1	1.0
19S22-1_04	rim	0.07093	0.00300	0.01105	0.00018	0.00342	0.00005	69.6	2.9	70.9	1.2	69.0	1.0
19S22-1_37	unzoned	0.06778	0.00384	0.01028	0.00023	0.00324	0.00005	66.6	3.7	65.9	1.5	65.5	1.1
19S22-1_39	rim	0.06978	0.00426	0.00999	0.00025	0.00314	0.00005	68.5	4.1	64.0	1.6	63.4	1.0
19S22-1_30	core	0.07204	0.00404	0.00992	0.00022	0.00324	0.00005	70.6	3.8	63.7	1.4	65.3	1.0

Spot ID	Location	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma	
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)		
Grt-Sil-Bt gneiss														
19S28-1_06	core	0.08626	0.00287	0.01258	0.00019	0.00416	0.00007	84.0	2.7	80.6	1.2	83.9	1.3	
19S28-1_07	unzoned	0.07496	0.00362	0.01279	0.00023	0.00404	0.00006	73.4	3.4	81.9	1.5	81.6	1.3	
19S28-1_39	core	0.08908	0.00213	0.01323	0.00016	0.00397	0.00006	86.6	2.0	84.7	1.0	80.2	1.1	
19S28-1_08	unzoned	0.07701	0.00170	0.01197	0.00013	0.00390	0.00004	75.3	1.6	76.7	0.8	78.6	0.8	
19S28-1_27	rim	0.08566	0.00209	0.01219	0.00014	0.00386	0.00004	83.5	2.0	78.1	0.9	77.9	0.7	
19S28-1_44	core	0.08285	0.00193	0.01275	0.00015	0.00384	0.00004	80.8	1.8	81.7	0.9	77.4	0.8	
19S28-1_01	unzoned	0.08387	0.00242	0.01225	0.00017	0.00380	0.00004	81.8	2.3	78.5	1.1	76.7	0.8	
19S28-1_14	core	0.10656	0.00363	0.01252	0.00021	0.00378	0.00004	102.8	3.3	80.2	1.3	76.2	0.8	
19S28-1_33	unzoned	0.07739	0.00199	0.01172	0.00014	0.00374	0.00004	75.7	1.9	75.1	0.9	75.5	0.7	
19S28-1_28	core	0.07799	0.00200	0.01168	0.00014	0.00368	0.00004	76.2	1.9	74.9	0.9	74.3	0.7	
19S28-1_36	core	0.08077	0.00325	0.01153	0.00020	0.00366	0.00005	78.9	3.1	73.9	1.3	73.8	0.9	
19S28-1_15	unzoned	0.07925	0.00206	0.01185	0.00014	0.00360	0.00003	77.4	1.9	75.9	0.9	72.6	0.7	
19S28-1_05	core	0.08494	0.00247	0.01190	0.00017	0.00357	0.00004	82.8	2.3	76.3	1.1		72.1	0.8
19S28-1_32	unzoned	0.07556	0.00176	0.01130	0.00013	0.00356	0.00003	74.0	1.7	72.4	0.8		71.9	0.7
19S28-1_46	core	0.07501	0.00176	0.01120	0.00013	0.00356	0.00004	73.4	1.7	71.8	0.8		71.9	0.8
19S28-1_23	unzoned	0.07953	0.00208	0.01156	0.00015	0.00353	0.00004	77.7	2.0	74.1	1.0	71.2	0.7	
19S28-1_41	unzoned	0.06903	0.00128	0.01101	0.00011	0.00353	0.00004	67.8	1.2	70.6	0.7	71.2	0.7	
19S28-1_35	rim	0.08191	0.00208	0.01113	0.00014	0.00352	0.00004	79.9	2.0	71.3	0.9	71.0	0.7	
19S28-1_37	core	0.07344	0.00141	0.01104	0.00012	0.00351	0.00004	72.0	1.3	70.8	0.8	70.7	0.7	
19S28-1_02	unzoned	0.08790	0.00190	0.01139	0.00013	0.00348	0.00003	85.5	1.8	73.0	0.8	70.2	0.7	
19S28-1_20	unzoned	0.06893	0.00135	0.01082	0.00011	0.00348	0.00003	67.7	1.3	69.4	0.7	70.2	0.7	
19S28-1_16	unzoned	0.07621	0.00148	0.01131	0.00012	0.00348	0.00003	74.6	1.4	72.5	0.8	70.1	0.7	
19S28-1_18	unzoned	0.07348	0.00182	0.01113	0.00012	0.00346	0.00003	72.0	1.7	71.3	0.8	69.8	0.6	
19S28-1_31	unzoned	0.06853	0.00129	0.01087	0.00011	0.00344	0.00003	67.3	1.2	69.7	0.7	69.5	0.7	
19S28-1_10	unzoned	0.07195	0.00111	0.01084	0.00010	0.00342	0.00003	70.5	1.1	69.5	0.7	69.1	0.7	
19S28-1_09	core	0.07209	0.00134	0.01075	0.00011	0.00342	0.00003	70.7	1.3	68.9	0.7	69.0	0.7	
19S28-1_26	unzoned	0.08119	0.00170	0.01104	0.00012	0.00342	0.00003	79.3	1.6	70.8	0.8	68.9	0.6	
19S28-1_24	unzoned	0.06974	0.00115	0.01073	0.00010	0.00340	0.00003	68.5	1.1	68.8	0.7	68.7	0.7	
19S28-1_30	unzoned	0.06570	0.00208	0.01082	0.00014	0.00340	0.00003	64.6	2.0	69.4	0.9	68.7	0.7	
19S28-1_03	unzoned	0.06950	0.00147	0.01072	0.00011	0.00337	0.00003	68.2	1.4	68.8	0.7	68.0	0.7	
19S28-1_43	unzoned	0.07013	0.00105	0.01065	0.00010	0.00336	0.00003	68.8	1.0	68.3	0.6	67.8	0.7	
19S28-1_29	unzoned	0.06893	0.00100	0.01063	0.00010	0.00334	0.00003	67.7	1.0	68.2	0.6	67.4	0.7	
19S28-1_11	unzoned	0.06827	0.00116	0.01054	0.00010	0.00333	0.00003	67.1	1.1	67.6	0.7	67.3	0.7	
19S28-1_04	rim	0.07685	0.00179	0.01071	0.00013	0.00332	0.00003	75.2	1.7	68.7	0.8	66.9	0.7	
19S28-1_12	unzoned	0.07205	0.00154	0.01052	0.00012	0.00331	0.00003	70.6	1.5	67.5	0.7	66.8	0.6	
19S28-1_34	unzoned	0.07089	0.00106	0.01049	0.00010	0.00331	0.00003	69.5	1.0	67.3	0.6	66.7	0.7	
19S28-1_19	unzoned	0.07536	0.00169	0.01109	0.00013	0.00329	0.00004	73.8	1.6	71.1	0.8	66.4	0.8	
19S28-1_17	unzoned	0.06627	0.00224	0.00963	0.00013	0.00302	0.00003	65.2	2.1	61.8	0.8	61.0	0.6	
19S28-1_13	rim	0.05221	0.00144	0.00739	0.00010	0.00235	0.00003	51.7	1.4	47.4	0.6	47.4	0.5	
19S28-1_21	unzoned	0.05484	0.00175	0.00794	0.00012	0.00257	0.00003	54.2	1.7	51.0	0.8	51.8	0.7	
19S28-1_22	rim	0.05496	0.00174	0.00728	0.00010	0.00229	0.00002	54.3	1.7	46.7	0.7	46.3	0.5	
19S28-1_25	rim	0.04436	0.00180	0.00750	0.00013	0.00211	0.00003	44.1	1.8	48.2	0.8	42.6	0.6	
19S28-1_38	rim	0.05418	0.00175	0.00776	0.00012	0.00258	0.00003	53.6	1.7	49.9	0.8	52.1	0.7	

Spot ID	Location	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)	
19S28-1_40	rim	0.03721	0.00140	0.00513	0.00008	0.00164	0.00002	37.1	1.4	33.0	0.5	33.1	0.4
19S28-1_42	rim	0.06250	0.00191	0.00870	0.00011	0.00273	0.00003	61.6	1.8	55.8	0.7	55.1	0.6
19S28-1_45	rim	0.06351	0.00148	0.00880	0.00011	0.00267	0.00003	62.5	1.4	56.5	0.7	54.0	0.6
leucosome													
19S22-2_19	unzoned	0.08039	0.00473	0.01280	0.00027	0.00393	0.00005	78.5	4.5	82.0	1.7	79.3	1.1
19S22-2_04	unzoned	0.07598	0.00230	0.01123	0.00016	0.00318	0.00003	74.4	2.2	72.0	1.0	64.1	0.6
19S22-2_05	unzoned	0.07604	0.00380	0.01075	0.00022	0.00311	0.00003	74.4	3.6	68.9	1.4	62.7	0.7
19S22-2_06	core	0.07430	0.00238	0.01132	0.00017	0.00323	0.00003	72.8	2.3	72.6	1.1	65.2	0.7
19S22-2_08	unzoned	0.07606	0.00235	0.01122	0.00017	0.00322	0.00003	74.4	2.2	71.9	1.1	65.0	0.7
19S22-2_09	unzoned	0.07242	0.00311	0.01126	0.00020	0.00323	0.00003	71.0	2.9	72.2	1.3	65.2	0.7
19S22-2_10	unzoned	0.07654	0.00240	0.01134	0.00017	0.00322	0.00003	74.9	2.3	72.7	1.1	65.0	0.6
19S22-2_11	core	0.07492	0.00328	0.01075	0.00019	0.00317	0.00003	73.4	3.1	68.9	1.2	64.0	0.7
19S22-2_14	unzoned	0.07545	0.00258	0.01122	0.00017	0.00324	0.00003	73.9	2.4	72.0	1.1	65.5	0.7
19S22-2_15	unzoned	0.07322	0.00228	0.01114	0.00016	0.00319	0.00003	71.8	2.2	71.4	1.0	64.4	0.6
19S22-2_16	unzoned	0.07498	0.00224	0.01100	0.00016	0.00319	0.00003	73.4	2.1	70.5	1.0	64.4	0.6
19S22-2_18	unzoned	0.07625	0.00228	0.01134	0.00016	0.00314	0.00003	74.6	2.2	72.7	1.0	63.3	0.6
19S22-2_20	core	0.07407	0.00257	0.01132	0.00017	0.00322	0.00003	72.6	2.4	72.6	1.1	64.9	0.7
19S22-2_22	core	0.06823	0.00261	0.01088	0.00017	0.00308	0.00003	67.0	2.5	69.8	1.1	62.2	0.7
19S22-2_24	core	0.07255	0.00263	0.01125	0.00017	0.00319	0.00003	71.1	2.5	72.1	1.1	64.4	0.7
19S22-2_26	unzoned	0.07292	0.00240	0.01133	0.00017	0.00318	0.00003	71.5	2.3	72.6	1.1	64.3	0.6
19S22-2_28	core	0.07103	0.00316	0.01120	0.00021	0.00319	0.00004	69.7	3.0	71.8	1.3	64.3	0.8
19S22-2_34	unzoned	0.07250	0.00263	0.01116	0.00018	0.00313	0.00003	71.1	2.5	71.5	1.1	63.2	0.7
19S22-2_37	unzoned	0.07458	0.00252	0.01093	0.00017	0.00314	0.00003	73.0	2.4	70.1	1.1	63.3	0.7
19S22-2_33	unzoned	0.07258	0.00244	0.01052	0.00016	0.00310	0.00003	71.1	2.3	67.5	1.0	62.5	0.6
19S22-2_07	unzoned	0.07186	0.00294	0.01024	0.00020	0.00282	0.00004	70.5	2.8	65.7	1.3	57.0	0.7
19S22-2_21	unzoned	0.06200	0.00185	0.01018	0.00014	0.00287	0.00003	61.1	1.8	65.3	0.9	58.0	0.6
19S22-2_25	rim	0.05482	0.00167	0.00838	0.00012	0.00228	0.00003	54.2	1.6	53.8	0.8	46.1	0.5
19S22-2_23	rim	0.05071	0.00203	0.00772	0.00013	0.00210	0.00003	50.2	2.0	49.6	0.9	42.4	0.5
19S22-2_03	unzoned	0.05506	0.00264	0.00653	0.00015	0.00175	0.00002	54.4	2.5	42.0	0.9	35.4	0.4
19S22-2_29	rim	0.04336	0.00524	0.00624	0.00027	0.00184	0.00003	43.1	5.1	40.1	1.7	37.2	0.6
19S22-2_17	unzoned	0.04494	0.00259	0.00617	0.00014	0.00181	0.00002	44.6	2.5	39.7	0.9	36.5	0.5
19S22-2_31	unzoned	0.03641	0.00299	0.00560	0.00016	0.00129	0.00002	36.3	2.9	36.0	1.0	26.1	0.4
19S22-2_13	unzoned	0.04700	0.00477	0.00533	0.00019	0.00153	0.00002	46.6	4.6	34.3	1.2	30.8	0.4
19S22-2_27	unzoned	0.03945	0.00550	0.00534	0.00020	0.00152	0.00002	39.3	5.4	34.3	1.3	30.7	0.4
19S22-2_12	rim	0.03519	0.00260	0.00485	0.00015	0.00138	0.00002	35.1	2.6	31.2	1.0	27.8	0.5
19S22-2_30	rim	0.03688	0.00359	0.00483	0.00016	0.00117	0.00002	36.8	3.5	31.1	1.0	23.5	0.3
19S22-2_36	rim	0.03364	0.00622	0.00476	0.00023	0.00111	0.00002	33.6	6.1	30.6	1.5	22.3	0.4
19S22-2_32	unzoned	0.03729	0.00227	0.00450	0.00012	0.00124	0.00002	37.2	2.2	29.0	0.8	25.0	0.4
19S22-2_02	rim	0.02820	0.00154	0.00412	0.00009	0.00116	0.00002	28.2	1.5	26.5	0.6	23.5	0.5
19S22-2_35	unzoned	0.03702	0.01197	0.00450	0.00033	0.00149	0.00003	36.9	11.7	28.9	2.1	30.0	0.6
19S22-2_01	unzoned	0.00291	0.01141	0.00385	0.00029	0.00121	0.00003	3.0	11.6	24.8	1.9	24.5	0.6

Spot ID	Location	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)	
leucosome													
19S28-2_37	unzoned	0.10013	0.00143	0.01512	0.00014	0.00419	0.00003	96.9	1.3	96.7	0.9	84.5	0.7
19S28-2_16	unzoned	0.06648	0.00153	0.00994	0.00011	0.00272	0.00002	65.4	1.5	63.8	0.7	55.0	0.5
19S28-2_42	unzoned	0.06620	0.00106	0.01006	0.00010	0.00286	0.00002	65.1	1.0	64.5	0.6	57.8	0.5
19S28-2_25	unzoned	0.07257	0.00125	0.01091	0.00011	0.00294	0.00002	71.1	1.2	70.0	0.7	59.4	0.5
19S28-2_01	unzoned	0.08173	0.00208	0.01106	0.00015	0.00298	0.00003	79.8	2.0	70.9	0.9	60.2	0.5
19S28-2_05	unzoned	0.07985	0.00153	0.01197	0.00013	0.00317	0.00003	78.0	1.4	76.7	0.8	63.9	0.5
19S28-2_11	unzoned	0.07938	0.00194	0.01185	0.00014	0.00307	0.00002	77.6	1.8	75.9	0.9	62.0	0.5
19S28-2_38	unzoned	0.08078	0.00151	0.01184	0.00012	0.00329	0.00003	78.9	1.4	75.9	0.8	66.4	0.6
19S28-2_45	unzoned	0.08122	0.00113	0.01171	0.00011	0.00319	0.00003	79.3	1.1	75.1	0.7	64.4	0.6
19S28-2_17	unzoned	0.08186	0.00165	0.01172	0.00013	0.00326	0.00003	79.9	1.6	75.1	0.8	65.7	0.6
19S28-2_03	unzoned	0.08437	0.00194	0.01170	0.00014	0.00305	0.00003	82.2	1.8	75.0	0.9	61.6	0.5
19S28-2_28	unzoned	0.08563	0.00207	0.01168	0.00015	0.00299	0.00003	83.4	1.9	74.8	1.0	60.3	0.6
19S28-2_46	unzoned	0.08493	0.00170	0.01166	0.00013	0.00308	0.00003	82.8	1.6	74.7	0.8	62.2	0.5
19S28-2_12	unzoned	0.07291	0.00115	0.01165	0.00011	0.00311	0.00003	71.5	1.1	74.7	0.7	62.7	0.5
19S28-2_40	unzoned	0.07516	0.00124	0.01165	0.00011	0.00324	0.00003	73.6	1.2	74.7	0.7	65.5	0.6
19S28-2_27	rim	0.07582	0.00129	0.01162	0.00012	0.00333	0.00003	74.2	1.2	74.5	0.8	67.2	0.6
19S28-2_06	unzoned	0.07860	0.00140	0.01161	0.00012	0.00314	0.00003	76.8	1.3	74.4	0.8	63.3	0.5
19S28-2_02	unzoned	0.07827	0.00218	0.01156	0.00015	0.00300	0.00002	76.5	2.1	74.1	0.9	60.5	0.5
19S28-2_29	core	0.08824	0.00197	0.01155	0.00014	0.00300	0.00002	85.9	1.8	74.1	0.9	60.6	0.5
19S28-2_09	rim	0.07727	0.00113	0.01156	0.00011	0.00314	0.00003	75.6	1.1	74.1	0.7	63.4	0.6
19S28-2_19	unzoned	0.07749	0.00140	0.01156	0.00012	0.00322	0.00003	75.8	1.3	74.1	0.8	64.9	0.6
19S28-2_03-	unzoned	0.07610	0.00098	0.01155	0.00010	0.00317	0.00003	74.5	0.9	74.0	0.7	64.0	0.6
19S28-2_30	rim	0.07486	0.00134	0.01154	0.00012	0.00366	0.00003	73.3	1.3	74.0	0.8	73.8	0.7
19S28-2_23	unzoned	0.08871	0.00179	0.01153	0.00012	0.00302	0.00002	86.3	1.7	73.9	0.8	61.0	0.5
19S28-2_14	unzoned	0.07471	0.00129	0.01146	0.00011	0.00324	0.00003	73.2	1.2	73.5	0.7	65.3	0.6
19S28-2_36	unzoned	0.07014	0.00124	0.01140	0.00011	0.00305	0.00003	68.8	1.2	73.1	0.7	61.6	0.5
19S28-2_33	rim	0.07446	0.00140	0.01140	0.00012	0.00313	0.00003	72.9	1.3	73.1	0.8	63.2	0.5
19S28-2_15	unzoned	0.08068	0.00149	0.01140	0.00012	0.00324	0.00003	78.8	1.4	73.1	0.8	65.5	0.5
19S28-2_35	unzoned	0.07638	0.00129	0.01133	0.00011	0.00305	0.00003	74.7	1.2	72.6	0.7	61.5	0.5
19S28-2_22	unzoned	0.07263	0.00124	0.01133	0.00011	0.00310	0.00003	71.2	1.2	72.6	0.7	62.6	0.6
19S28-2_08	core	0.07862	0.00130	0.01121	0.00011	0.00331	0.00003	76.8	1.2	71.8	0.7	66.8	0.6
19S28-2_18	unzoned	0.07930	0.00147	0.01105	0.00012	0.00319	0.00003	77.5	1.4	70.8	0.7	64.5	0.6
19S28-2_32	core	0.07587	0.00134	0.01102	0.00011	0.00304	0.00003	74.2	1.3	70.7	0.7	61.5	0.5
19S28-2_20	rim	0.08333	0.00178	0.01101	0.00013	0.00310	0.00003	81.3	1.7	70.6	0.8	62.5	0.5
19S28-2_04	rim	0.04976	0.00082	0.00791	0.00008	0.00230	0.00002	49.3	0.8	50.8	0.5	46.5	0.4
19S28-2_10	rim	0.04946	0.00169	0.00717	0.00011	0.00206	0.00002	49.0	1.6	46.0	0.7	41.6	0.5
19S28-2_24	rim	0.04875	0.00077	0.00830	0.00008	0.00231	0.00002	48.3	0.7	53.3	0.5	46.7	0.4
19S28-2_31	rim	0.04476	0.00137	0.00590	0.00009	0.00246	0.00003	44.5	1.3	37.9	0.6	49.6	0.6
19S28-2_34	rim	0.04384	0.00095	0.00654	0.00008	0.00213	0.00002	43.6	0.9	42.0	0.5	42.9	0.4
19S28-2_39	rim	0.04981	0.00097	0.00720	0.00008	0.00232	0.00002	49.4	0.9	46.3	0.5	46.7	0.4
19S28-2_41	rim	0.04801	0.00077	0.00735	0.00007	0.00199	0.00002	47.6	0.7	47.2	0.5	40.1	0.4
19S28-2_43	unzoned	0.05697	0.00108	0.00851	0.00009	0.00276	0.00002	56.3	1.0	54.6	0.6	55.6	0.5
19S28-2_07	rim	0.02954	0.00059	0.00471	0.00005	0.00144	0.00001	29.6	0.6	30.3	0.3	29.1	0.3

Spot ID	Location	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma	²⁰⁷ Pb/ ²³⁵ U	1sigma	²⁰⁶ Pb/ ²³⁸ U	1sigma	²⁰⁸ Pb/ ²³² Th	1sigma
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)	
19S28-2_13	unzoned	0.02831	0.00066	0.00446	0.00005	0.00146	0.00002	28.3	0.7	28.7	0.3	29.5	0.3
19S28-2_21	rim	0.01788	0.00040	0.00293	0.00003	0.00081	0.00001	18.0	0.4	18.9	0.2	16.4	0.2
19S28-2_26	unzoned	0.01694	0.00028	0.00281	0.00003	0.00079	0.00001	17.1	0.3	18.1	0.2	16.0	0.2
19S28-2_44	unzoned	0.01590	0.00029	0.00275	0.00003	0.00072	0.00001	16.0	0.3	17.7	0.2	14.5	0.2
leucosome													
19S21-4_06	core	0.05072	0.00263	0.00624	0.00014	0.00178	0.00003	50.2	2.5	40.1	0.9	36.0	0.6
19S21-4_09	core	0.04546	0.00192	0.00616	0.00012	0.00179	0.00003	45.1	1.9	39.6	0.8	36.2	0.6
19S21-4_12	core	0.05008	0.00214	0.00614	0.00012	0.00174	0.00002	49.6	2.1	39.5	0.8	35.2	0.5
19S21-4_14	core	0.04915	0.00266	0.00613	0.00015	0.00177	0.00003	48.7	2.6	39.4	0.9	35.8	0.6
19S21-4_15	core	0.04615	0.00272	0.00629	0.00014	0.00182	0.00003	45.8	2.6	40.4	0.9	36.8	0.5
19S21-4_18	core	0.05607	0.00261	0.00623	0.00013	0.00174	0.00002	55.4	2.5	40.1	0.9	35.1	0.5
19S21-4_20	core	0.05459	0.00282	0.00611	0.00015	0.00187	0.00003	54.0	2.7	39.3	1.0	37.7	0.6
19S21-4_22	core	0.04495	0.00277	0.00644	0.00016	0.00193	0.00003	44.6	2.7	41.4	1.0	39.0	0.6
19S21-4_26	core	0.05304	0.00306	0.00647	0.00016	0.00182	0.00002	52.5	3.0	41.6	1.0	36.8	0.5
19S21-4_27	core	0.04864	0.00244	0.00637	0.00013	0.00179	0.00002	48.2	2.4	40.9	0.8	36.1	0.5
19S21-4_31	core	0.04888	0.00264	0.00641	0.00014	0.00180	0.00002	48.5	2.6	41.2	0.9	36.4	0.4
19S21-4_34	core	0.04275	0.00250	0.00630	0.00014	0.00185	0.00003	42.5	2.4	40.5	0.9	37.3	0.6
19S21-4_35	unzoned	0.04192	0.00180	0.00621	0.00011	0.00180	0.00003	41.7	1.8	39.9	0.7	36.3	0.6
19S21-4_36	unzoned	0.04656	0.00318	0.00638	0.00016	0.00179	0.00002	46.2	3.1	41.0	1.0	36.1	0.5
19S21-4_39	unzoned	0.05143	0.00309	0.00614	0.00016	0.00176	0.00003	50.9	3.0	39.5	1.0	35.5	0.5
19S21-4_01	unzoned	0.04843	0.00307	0.00636	0.00016	0.00184	0.00003	48.0	3.0	40.9	1.0	37.1	0.5
19S21-4_02	unzoned	0.04426	0.00279	0.00641	0.00015	0.00176	0.00002	44.0	2.7	41.2	1.0	35.5	0.5
19S21-4_03	unzoned	0.04241	0.00265	0.00630	0.00015	0.00180	0.00003	42.2	2.6	40.5	1.0	36.3	0.5
19S21-4_04	unzoned	0.04137	0.00209	0.00607	0.00012	0.00180	0.00003	41.2	2.0	39.0	0.8	36.3	0.5
19S21-4_05	unzoned	0.04519	0.00323	0.00619	0.00016	0.00177	0.00002	44.9	3.1	39.8	1.1	35.7	0.5
19S21-4_08	unzoned	0.04857	0.00494	0.00631	0.00020	0.00182	0.00003	48.2	4.8	40.6	1.3	36.7	0.6
19S21-4_28	unzoned	0.04883	0.00247	0.00633	0.00013	0.00180	0.00003	48.4	2.4	40.7	0.9	36.4	0.5
19S21-4_29	unzoned	0.05175	0.00276	0.00636	0.00014	0.00181	0.00002	51.2	2.7	40.9	0.9	36.6	0.5
19S21-4_37	unzoned	0.04307	0.00244	0.00609	0.00013	0.00177	0.00003	42.8	2.4	39.2	0.8	35.8	0.5
19S21-4_38	unzoned	0.04621	0.00252	0.00640	0.00014	0.00178	0.00002	45.9	2.5	41.1	0.9	36.0	0.5
19S21-4_23	unzoned	0.04591	0.00237	0.00641	0.00013	0.00178	0.00002	45.6	2.3	41.2	0.8	35.9	0.5
19S21-4_25	unzoned	0.04878	0.00293	0.00631	0.00015	0.00178	0.00002	48.4	2.8	40.5	1.0	35.9	0.5
19S21-4_17	unzoned	0.04374	0.00237	0.00635	0.00013	0.00177	0.00002	43.5	2.3	40.8	0.9	35.7	0.5
19S21-4_24	unzoned	0.04317	0.00266	0.00635	0.00015	0.00177	0.00002	42.9	2.6	40.8	0.9	35.7	0.5
19S21-4_16	unzoned	0.04268	0.00209	0.00604	0.00012	0.00170	0.00002	42.4	2.0	38.8	0.8	34.3	0.5
19S21-4_30	unzoned	0.04150	0.00241	0.00590	0.00013	0.00157	0.00002	41.3	2.4	37.9	0.9	31.8	0.4
19S21-4_33	rim	0.04389	0.00278	0.00523	0.00014	0.00144	0.00002	43.6	2.7	33.6	0.9	29.1	0.4
19S21-4_19	rim	0.04959	0.00351	0.00458	0.00015	0.00120	0.00002	49.1	3.4	29.4	1.0	24.3	0.4
19S21-4_10	rim	0.04319	0.00397	0.00549	0.00019	0.00116	0.00002	42.9	3.9	35.3	1.3	23.3	0.4
19S21-4_21	rim	0.04279	0.00339	0.00441	0.00015	0.00114	0.00002	42.5	3.3	28.4	1.0	22.9	0.4
19S21-4_07	rim	0.03922	0.00271	0.00395	0.00013	0.00113	0.00002	39.1	2.6	25.4	0.8	22.8	0.4
19S21-4_32	rim	0.03467	0.00295	0.00408	0.00014	0.00110	0.00002	34.6	2.9	26.3	0.9	22.1	0.4
19S21-4_13	rim	0.02289	0.00162	0.00384	0.00009	0.00109	0.00002	23.0	1.6	24.7	0.6	22.0	0.4

Spot ID	Location	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{208}\text{Pb}/^{232}\text{Th}$	1sigma	$^{207}\text{Pb}/^{235}\text{U}$	1sigma	$^{206}\text{Pb}/^{238}\text{U}$	1sigma	$^{208}\text{Pb}/^{232}\text{Th}$	1sigma
		Ratio		Ratio		Ratio		Age (Ma)		Age (Ma)		Age (Ma)	
19S21-4_11	rim	0.03249	0.00404	0.00369	0.00015	0.00104	0.00002	32.5	4.0	23.8	1.0	21.0	0.3
Tur two-mica granite													
19S27-1_01	unzoned	0.03313	0.00272	0.00513	0.00014	0.00135	0.00002	33.1	2.7	33.0	0.9	27.3	0.5
19S27-1_02	unzoned	0.02910	0.00254	0.00478	0.00013	0.00132	0.00002	29.1	2.5	30.7	0.9	26.7	0.4
19S27-1_03	unzoned	0.03414	0.00264	0.00532	0.00014	0.00129	0.00002	34.1	2.6	34.2	0.9	26.1	0.4
19S27-1_04	bright BSE	0.03846	0.00386	0.00517	0.00017	0.00144	0.00002	38.3	3.8	33.3	1.1	29.1	0.4
19S27-1_05	unzoned	0.03183	0.00234	0.00494	0.00014	0.00130	0.00002	31.8	2.3	31.8	0.9	26.2	0.4
19S27-1_06	unzoned	0.03332	0.00253	0.00509	0.00014	0.00130	0.00002	33.3	2.5	32.7	0.9	26.2	0.4
19S27-1_07	unzoned	0.03234	0.00290	0.00547	0.00015	0.00138	0.00002	32.3	2.9	35.1	1.0	27.9	0.5
19S27-1_08	unzoned	0.02832	0.00282	0.00471	0.00014	0.00134	0.00002	28.4	2.8	30.3	0.9	27.1	0.4
19S27-1_09	unzoned	0.03203	0.00376	0.00536	0.00018	0.00141	0.00002	32.0	3.7	34.5	1.2	28.4	0.5
19S27-1_10	unzoned	0.04066	0.00336	0.00482	0.00017	0.00135	0.00002	40.5	3.3	31.0	1.1	27.2	0.4
19S27-1_11	unzoned	0.03762	0.00286	0.00485	0.00014	0.00129	0.00002	37.5	2.8	31.2	0.9	26.1	0.4
19S27-1_12	unzoned	0.03132	0.00261	0.00502	0.00014	0.00139	0.00002	31.3	2.6	32.3	0.9	28.1	0.5
19S27-1_13	unzoned	0.03116	0.00306	0.00523	0.00015	0.00139	0.00002	31.2	3.0	33.6	0.9	28.1	0.5
19S27-1_14	unzoned	0.03017	0.00335	0.00523	0.00015	0.00142	0.00003	30.2	3.3	33.7	1.0	28.7	0.5
19S27-1_15	unzoned	0.03108	0.00279	0.00518	0.00014	0.00142	0.00003	31.1	2.8	33.3	0.9	28.8	0.5
19S27-1_16	unzoned	0.02985	0.00263	0.00506	0.00015	0.00133	0.00002	29.9	2.6	32.6	1.0	26.8	0.5
19S27-1_17	unzoned	0.03326	0.00318	0.00494	0.00016	0.00131	0.00002	33.2	3.1	31.8	1.0	26.5	0.5
19S27-1_18	unzoned	0.03316	0.00325	0.00521	0.00015	0.00135	0.00002	33.1	3.2	33.5	1.0	27.3	0.5
19S27-1_19	bright BSE	0.03465	0.00409	0.00514	0.00018	0.00143	0.00002	34.6	4.0	33.1	1.2	28.8	0.4
19S27-1_20	unzoned	0.03064	0.00318	0.00518	0.00018	0.00129	0.00003	30.6	3.1	33.3	1.2	26.1	0.6
19S27-1_21	unzoned	0.02891	0.00375	0.00525	0.00018	0.00140	0.00002	28.9	3.7	33.8	1.1	28.2	0.5
19S27-1_22	unzoned	0.03748	0.00280	0.00480	0.00015	0.00129	0.00002	37.4	2.7	30.9	1.0	26.0	0.5
19S27-1_23	unzoned	0.03181	0.00309	0.00520	0.00016	0.00137	0.00002	31.8	3.0	33.4	1.0	27.7	0.5
19S27-1_24	unzoned	0.03526	0.00294	0.00516	0.00015	0.00135	0.00002	35.2	2.9	33.1	0.9	27.3	0.5

Table S8 Monazite trace element (-ppm) data of the Grt-Sil-Bt gneiss, granite and leucosome from the Gaoligong area.

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
Grt-Sil-Bt gneiss																			
19S22-1_02	14288	117448	236004	21010	81158	14332	441	10587	1273	4956	575	743	41.5	107	5.88	61463	4996	0.11	82
19S22-1_13	11751	98233	236004	17873	71937	12522	1535	8849	1043	4218	512	717	47.9	146	9.66	20200	3690	0.45	50
19S22-1_16	11560	106439	236004	18518	73341	12424	497	8656	1029	4099	484	663	41.8	123	7.20	24145	2441	0.15	58
19S22-1_19	18241	113624	236004	21299	84030	14584	561	10335	1283	5683	793	1329	111	450	37.8	39707	4072	0.14	19
19S22-1_22	15158	109668	236004	19246	76428	13350	907	9241	1089	4781	646	1045	81.5	279	18.9	13874	4703	0.25	27
19S22-1_28	15656	113578	236004	20296	79482	13432	935	9433	1119	4912	673	1099	88.6	340	25.4	32589	3575	0.25	23
19S22-1_35	16469	122968	236004	21563	85039	15303	873	10099	1123	4762	671	1329	143	678	59.5	12957	1986	0.21	12
19S22-1_38	19456	113339	236004	20036	79564	13442	524	10187	1272	5878	821	1348	111	407	34.7	48751	2709	0.14	21
19S22-1_01	17064	112350	236004	21097	84838	15974	799	12163	1518	6050	747	1090	78.9	294	22.5	40250	5945	0.18	34
19S22-1_03	17933	113859	236004	20998	83104	14834	470	11319	1414	5837	706	950	59.8	178	12.4	50384	5816	0.11	53
19S22-1_04	14225	117653	236004	21215	82786	14415	326	10272	1215	4740	582	908	76.6	303	27.8	48077	10678	0.08	28
19S22-1_05	24601	120932	236004	21964	85986	15129	476	11170	1487	6862	1004	1756	153	640	54.1	50228	7776	0.11	14
19S22-1_06	8374	113526	236004	20837	81887	14671	322	10234	1103	3535	333	385	23.8	84.8	6.18	43616	6330	0.08	100
19S22-1_07	6107	121150	236004	21887	85534	14900	398	10268	1076	3188	233	178	6.3	14.1		51314	5810	0.10	604
19S22-1_08	10639	110824	236004	20968	82699	15272	362	11446	1314	4611	457	479	22.3	52.8	3.77	38432	7472	0.08	179
19S22-1_09	14374	114398	236004	20919	82752	14374	451	10509	1274	4988	569	712	43.7	129	9.15	46867	5077	0.11	67
19S22-1_10	17217	113822	236004	20870	82962	14668	453	11122	1371	5623	678	918	58.2	191	13.8	44617	5687	0.11	48
19S22-1_11	19686	113436	236004	20684	81886	14297	519	10783	1353	5952	824	1349	104	386	32.6	45973	4010	0.13	23
19S22-1_12	9878	114276	236004	20719	82187	14211	343	9915	1067	3708	407	549	40.0	153	12.1	47605	4697	0.09	54
19S22-1_14	10204	111526	236004	19876	77258	13384	322	9492	1050	3753	416	563	39.1	127	11.0	49062	4628	0.09	62
19S22-1_15	13593	115952	236004	20623	80014	13817	408	9893	1180	4752	559	723	42.5	126	8.91	41306	4748	0.11	65
19S22-1_17	11843	110930	236004	20233	79688	14075	363	10122	1142	4198	468	676	50.7	180	15.4	42438	5722	0.09	46
19S22-1_18	5825	112538	236004	20671	81287	14148	344	9733	983	2972	240	196	7.21	16.7		41949	4934	0.09	483
19S22-1_20	22060	117870	236004	21057	82648	14632	518	10975	1442	6601	917	1524	128	491	41.1	52690	6258	0.12	19
19S22-1_21	6659	108505	236004	19797	77207	13733	339	9401	958	2946	261	274	15.9	50.1	2.84	44971	9882	0.09	155
19S22-1_23	13880	111265	236004	20367	80341	14410	436	10765	1278	5014	562	724	42.6	131	9.52	43833	7392	0.11	68
19S22-1_24	16530	117657	236004	21807	86166	14957	418	10921	1295	5327	696	1117	84.9	331	27.5	42400	3747	0.10	27
19S22-1_25	13436	111935	236004	21044	84071	14904	403	11035	1269	4727	548	749	52.5	179	14.5	50634	6076	0.10	51
19S22-1_26	17251	110751	236004	20407	81031	14254	480	10709	1324	5626	707	1029	73.1	241	20.4	40013	5505	0.12	37
19S22-1_27	19853	113344	236004	20317	80521	13843	552	10388	1298	5956	846	1393	114	419	37.0	48372	2896	0.14	21
19S22-1_29	8390	111743	236004	20498	80146	13827	382	9954	1088	3722	340	322	12.7	27.8	2.18	42157	4581	0.10	296
19S22-1_30	18293	118597	236004	21423	84463	15266	324	11590	1482	6151	741	1036	69.4	226	16.2	45329	6298	0.07	42
19S22-1_31	6051	121633	236004	21271	82731	14317	326	10249	1094	3303	241	166	5.93	10.3		48927	5835	0.08	822
19S22-1_32	18414	110930	236004	20455	82149	14536	446	11267	1405	6002	733	994	63.7	191	15.9	38177	6649	0.11	49
19S22-1_33	6846	112969	236004	20572	81188	14128	346	9800	1001	3213	277	246	10.7	26.8	1.62	41011	5784	0.09	302
19S22-1_34	16345	117989	236004	21353	84765	15045	597	10731	1275	5227	665	1084	95.3	405	35.4	40744	3949	0.14	22
19S22-1_36	12352	111765	236004	20299	79275	14434	351	10702	1211	4463	491	637	40.6	133	8.69	52473	5741	0.09	67

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S22-1_37	21466	112617	236004	21178	84840	15321	338	11587	1479	6583	884	1415	118	469	41.9	41195	6220	0.08	20
19S22-1_39	14116	111377	236004	20719	81588	14321	441	10789	1286	5059	576	770	50.5	178	13.4	46776	4616	0.11	50
19S22-1_40	11340	120392	236004	20688	78581	13347	461	9897	1134	4309	467	557	26.9	61.2	4.28	46133	4916	0.12	134
19S22-1_41	8562	110561	236004	19739	76924	13563	335	9648	1031	3413	330	394	24.2	72.8	4.91	41691	6426	0.09	110
Grt-Sil-Bt gneiss																			
19S28-1_01	17697	135420	236004	24156	90408	15782	845	10407	1364	6154	820	1303	112	440	36.1	51382	5780	0.20	20
19S28-1_02	22714	133673	236004	23998	91318	16488	891	11664	1555	7282	1006	1636	138	554	45.3	51323	7139	0.20	17
19S28-1_03	28699	133675	236004	24629	95159	18205	436	14245	2178	10086	1202	1599	100	314	23.7	50195	10913	0.08	38
19S28-1_04	19830	133732	236004	24220	91894	16302	924	11669	1549	6934	857	1188	85.3	287	20.1	37449	6247	0.20	34
19S28-1_05	20822	133486	236004	24066	91672	16296	955	11287	1529	7129	944	1450	119	432	33.0	45596	6759	0.22	22
19S28-1_06	16040	136418	236004	24521	90709	16183	2001	9913	1238	5248	701	1221	99.6	341	21.4	12778	4202	0.48	24
19S28-1_07	15751	135621	236004	24018	94153	17262	1271	11349	1359	5740	730	1180	96.9	397	30.2	20709	4342	0.28	24
19S28-1_08	16908	134497	236004	23961	90038	16074	1159	11234	1499	6413	749	997	67.7	228	16.1	31344	7370	0.26	41
19S28-1_09	19235	132099	236004	24537	94006	18588	570	15083	2125	8534	777	652	28.6	61.7	2.79	41620	11323	0.10	202
19S28-1_10	26809	134511	236004	24333	91066	18543	397	14587	2227	9863	1142	1519	97.7	321	22.5	43187	15135	0.07	38
19S28-1_11	29848	132605	236004	24837	94822	19349	474	15561	2379	10833	1224	1510	95.5	274	18.0	45645	16135	0.08	47
19S28-1_12	20646	135246	236004	23821	88952	15733	472	10615	1419	6649	948	1663	156	705	61.5	50003	8699	0.11	12
19S28-1_14	19000	131850	236004	23750	90576	15801	628	10659	1395	6456	905	1511	132	562	45.6	50546	3790	0.15	16
19S28-1_15	21850	132977	236004	24072	91799	16630	673	11792	1596	7392	996	1534	117	427	33.3	52924	6338	0.15	23
19S28-1_16	24432	133986	236004	24025	91737	17086	733	12561	1746	7989	1058	1585	116	370	23.9	60393	11265	0.15	28
19S28-1_17	17022	131894	236004	23764	90300	16293	460	11192	1422	6104	772	1167	93.6	348	27.8	50009	4636	0.10	27
19S28-1_18	23445	134217	236004	24392	92837	17823	696	13868	1986	8569	950	1058	53.9	127	6.5	57624	8024	0.14	91
19S28-1_19	26004	129931	236004	24273	92700	18693	321	13845	2013	8971	1148	1762	132	495	41.2	49093	12795	0.06	23
19S28-1_20	28741	129905	236004	24596	96008	19334	412	15048	2237	10094	1255	1751	127	440	34.4	50665	12403	0.07	28
19S28-1_23	21858	132397	236004	24119	92530	17020	895	12946	1774	7819	942	1189	75.9	246	18.4	53687	7345	0.18	43
19S28-1_24	28787	128683	236004	24425	95795	20531	369	17161	2584	10990	1259	1596	105	344	24.4	42337	14820	0.06	41
19S28-1_26	16907	132865	236004	23945	91731	17547	399	13847	1925	7493	697	639	28.7	70.7	3.88	62300	7410	0.08	162
19S28-1_27	18924	133610	236004	23858	90579	16287	1152	11211	1473	6586	875	1372	114	434	33.3	46609	6344	0.26	21
19S28-1_28	20369	134038	236004	23790	90219	16353	860	12183	1635	7019	844	1096	72.8	229	15.6	41169	6227	0.19	44
19S28-1_29	27548	130965	236004	24461	93677	19130	447	15338	2311	10035	1154	1448	93.2	279	20.5	45942	19432	0.08	45
19S28-1_30	24038	130130	236004	24230	90911	18278	283	13281	1850	8008	1054	1661	135	501	42.1	49963	6942	0.06	22
19S28-1_30	22289	131089	236004	23966	88988	17896	276	12382	1694	7446	1032	1890	185	854	72.7	38593	13021	0.06	12
19S28-1_31	27913	134947	236004	24113	91793	17592	798	14098	2031	9154	1102	1394	88.6	269	17.5	52209	11741	0.15	43
19S28-1_32	23904	132496	236004	24395	94489	17985	782	13287	1751	7849	1012	1507	112	376	27.6	58020	8396	0.15	29
19S28-1_33	19593	134311	236004	23860	89927	16330	1058	11460	1484	6597	864	1330	105	398	31.0	48588	6463	0.24	24
19S28-1_34	21279	131874	236004	23614	85606	17621	277	11711	1583	6948	958	1737	160	704	56.3	38675	14861	0.06	14
19S28-1_35	11753	111070	236004	20067	77275	13919	389	10147	1216	4535	488	594	36.1	122	7.61	37385	5560	0.10	69
19S28-1_36	16949	110284	236004	19925	76047	13435	535	9583	1228	5353	715	1103	85.4	323	26.6	33167	4480	0.14	25
19S28-1_37	25562	133739	236004	24546	94606	19100	470	14626	2098	9056	1079	1449	97.8	334	23.2	43842	12301	0.09	36
19S28-1_39	14693	133166	236004	23420	85530	13881	716	8534	1136	5206	696	1070	72.3	243	13.7	13497	5886	0.20	29

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S28-1_41	28599	131027	236004	24311	93238	19154	394	15574	2327	10176	1191	1593	106	348	27.4	46059	14750	0.07	37
19S28-1_43	28116	133878	236004	23978	90827	18630	437	14819	2286	10206	1206	1629	107	362	27.0	42111	16801	0.08	34
19S28-1_44	16757	134750	236004	23322	87545	15493	1117	11156	1458	6107	732	957	63.4	197	15.9	36295	6061	0.26	47
19S28-1_46	22674	132439	236004	23948	92311	17346	707	13199	1833	7967	920	1115	64.5	198	13.7	32588	7375	0.14	55
19S28-1_13	17829	131638	236004	23963	90874	16245	933	11043	1433	6380	819	1253	101.9	435	33.5	50664	8880	0.21	21
19S28-1_21	21805	132079	236004	23698	91589	17058	519	12322	1706	7473	956	1401	108.1	403	33.8	48897	9429	0.11	25
19S28-1_22	18028	132759	236004	23413	89786	15937	903	11055	1442	6410	839	1373	117.2	496	41.1	56777	6808	0.21	18
19S28-1_25	18003	134484	236004	24073	90014	17103	511	11492	1482	6349	878	1582	151.8	692	58.3	56532	8403	0.11	14
19S28-1_38	20584	132592	236004	24538	93812	18365	499	13353	1808	7458	916	1380	112.6	426	33.5	47999	9589	0.10	26
19S28-1_40	17315	131704	236004	23866	90140	16620	848	11420	1445	6234	798	1267	106.4	450	37.2	44860	7384	0.19	21
19S28-1_42	20328	132340	236004	23862	91649	17057	910	12489	1648	7240	917	1399	112.1	460	40.1	49772	6529	0.19	22
19S28-1_45	19617	133030	236004	23576	88640	16148	863	11134	1483	6589	870	1422	119.2	459	40.2	48231	8190	0.20	20
leucosome																			
19S22-2_19	21111	114198	236004	21152	84137	14973	464	10782	1416	6025	875	1440	113	427	34.0	47878	5165	0.112	21
19S22-2_04	42876	89738	236004	25432	92714	35479	24	30996	5140	17850	1487	1440	72.8	172	8.88	232622	20220	0.002	149
19S22-2_05	18039	105001	236004	23600	86332	21527	42	14535	1785	6382	739	1081	76.8	270	20.5	154645	7177	0.007	45
19S22-2_06	23822	93176	236004	24868	94312	29732	39	23776	3171	9913	800	750	37.5	98.2	5.14	205506	16456	0.004	200
19S22-2_08	30922	89193	236004	25516	97701	31320	10	25311	3445	11710	1130	1392	85.7	285	17.9	214433	17926	0.001	73
19S22-2_09	34622	91231	236004	25923	99791	30235	10	24669	3501	12871	1365	1730	104	316	20.8	174137	11526	0.001	65
19S22-2_10	37310	90911	236004	24994	93796	33075	40	29190	4357	14568	1229	1235	65.2	178	9.79	252229	20098	0.004	136
19S22-2_11	26954	97060	236004	24793	93167	26829	26	21140	2951	10503	1049	1215	71.0	215	13.5	170488	10648	0.003	81
19S22-2_14	30454	93450	236004	24906	93908	30066	13	25144	3430	11562	1077	1248	78.1	255	16.8	187675	15725	0.001	82
19S22-2_15	35967	87434	236004	25775	99000	32732	8	27417	3845	13200	1294	1571	102	338	21.0	227629	20571	0.001	67
19S22-2_16	35866	89460	236004	25729	99063	32713	11	27825	3849	13214	1286	1555	100	321	20.2	238011	21587	0.001	72
19S22-2_18	35490	87967	236004	25932	98839	32980	9	28034	3904	13266	1250	1497	92.9	309	18.8	216555	18863	0.001	75
19S22-2_20	38573	87626	236004	25607	98187	33926	12	29629	4276	14666	1327	1509	89.5	277	17.0	218439	16544	0.001	88
19S22-2_22	34347	94812	236004	25291	94807	29937	32	25163	3707	13377	1286	1453	81.3	226	14.0	178868	14679	0.004	92
19S22-2_24	35732	92606	236004	25080	93396	30705	15	25306	3874	13657	1312	1516	92.0	281	17.1	188851	15263	0.002	75
19S22-2_26	35411	85437	236004	25280	97712	34231	10	29625	4111	13711	1237	1408	85.7	272	15.1	259500	19325	0.001	90
19S22-2_28	23016	104074	236004	23364	85418	21594	51	15718	2075	7843	937	1386	105	365	29.3	108452	9981	0.008	36
19S22-2_34	37088	94488	236004	25110	93615	31074	19	27931	4368	15454	1349	1321	63.0	166	9.14	192616	16258	0.002	139
19S22-2_37	41223	89497	236004	25841	97489	33953	29	29675	4472	16247	1542	1716	97.8	282	14.3	202473	15827	0.003	87
19S22-2_33	30568	95296	236004	24596	91367	29443	30	24934	3752	12979	1104	1089	57.0	160	9.84	206540	17305	0.003	129
19S22-2_07	30277	98408	236004	24362	90232	28808	49	23625	3604	12417	1104	1162	65.4	170	10.2	185884	16648	0.006	115
19S22-2_21	32553	104821	236004	23445	83131	26365	31	20262	3237	12300	1272	1674	116	386	24.1	177840	24177	0.004	43
19S22-2_02	20541	131760	236004	21167	72525	20245	272	15420	2465	8881	842	1000	73.4	264	19.3	103552	19873	0.047	48
19S22-2_03	21001	108313	236004	23108	80048	22729	76	13798	2055	7957	901	1270	95.3	360	23.6	175191	10044	0.013	32
19S22-2_12	19414	115459	236004	22663	80001	22164	177	15919	2351	8252	811	1050	78.1	301	20.8	155005	10477	0.029	44
19S22-2_13	19905	89602	236004	25489	96584	31837	54	24366	3209	9824	867	1003	71.2	275	18.9	195898	5530	0.006	73
19S22-2_17	30815	118246	236004	24774	99420	27541	50	20814	2581	10454	1373	2184	160	583	42.8	139601	10626	0.006	30

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S22-2_23	25747	108271	236004	23062	81315	25378	103	19940	3076	10781	1004	1234	89.1	307	22.7	161168	15485	0.014	54
19S22-2_25	25818	118984	236004	22002	74823	23523	67	17402	2740	10343	1070	1408	102	346	21.8	172699	23834	0.010	42
19S22-2_27	14585	122531	236004	21152	70471	18525	96	12813	1811	6348	605	781	60.8	234	17.4	128901	4025	0.019	45
19S22-2_29	22007	103712	236004	23965	87494	24831	59	19584	2729	9330	858	934	51.4	154	10.8	145947	4701	0.008	105
19S22-2_30	21635	125169	236004	21305	72759	20992	60	15476	2248	8400	902	1256	97.8	382	29.2	204361	7271	0.010	34
19S22-2_31	22463	108759	236004	23624	87057	26663	56	19872	2606	8746	833	1036	72.6	277	18.6	174476	7542	0.007	59
19S22-2_32	21466	114406	236004	22626	79305	24296	126	18622	2715	9407	869	1036	69.9	255	17.0	179796	11084	0.018	60
19S22-2_36	18598	115076	236004	24328	94019	18643	87	11423	1395	5329	647	989	80.7	324	27.6	147028	3093	0.018	29
19S22-2_01	17693	107235	236004	23726	80597	19862	27	11598	1467	5113	575	847	65.5	274	21.9	33837	1380	0.005	35
19S22-2_35	15895	125056	236004	23289	88134	15675	105	8790	1099	4407	553	981	91.9	418	37.6	49134	1507	0.027	17
leucosome																			
19S28-2_01	29327	114764	236004	24209	91514	25635	153	20978	2791	10947	1291	1901	150	559	43.3	143477	9201	0.02	31
19S28-2_02	30178	113589	236004	24501	93816	27189	138	22062	2835	11018	1319	1868	132	456	31.7	155256	6682	0.02	40
19S28-2_03	28487	115844	236004	24418	92472	25551	145	20891	2790	10727	1274	1902	146	535	44.2	142490	8175	0.02	32
19S28-2_03-1	25265	122543	236004	23262	83983	20406	241	15578	2228	9005	1013	1398	104	382	26.1	113416	24815	0.04	34
19S28-2_05	25166	117110	236004	23571	86586	22482	216	17862	2400	9345	1055	1467	107	379	29.1	118378	10417	0.03	39
19S28-2_06	23908	119315	236004	23491	86235	22931	210	18235	2431	9093	1018	1374	93.3	333	24.2	120570	10516	0.03	45
19S28-2_08	24995	122863	236004	23134	85145	19822	204	15677	2211	9117	1028	1349	88.5	270	17.8	95169	11832	0.04	48
19S28-2_09	21360	128725	236004	22307	80188	16188	209	11450	1608	6806	797	1094	73.3	237	14.4	113299	20709	0.05	40
19S28-2_11	30380	112740	236004	24694	93837	27742	149	23501	3069	11413	1295	1753	118	375	28.2	158398	7466	0.02	52
19S28-2_12	32462	116752	236004	24364	92090	26497	201	22455	3169	12188	1386	1919	137	467	36.9	145263	20965	0.03	40
19S28-2_14	25084	119733	236004	23347	85447	20697	213	15890	2205	8808	1024	1415	97.4	341	24.1	97603	11866	0.04	39
19S28-2_15	25702	121463	236004	23239	84671	21471	265	17247	2316	9084	1062	1503	103	338	23.9	109964	9779	0.04	42
19S28-2_16	26140	117610	236004	24092	89585	24004	248	19289	2548	9605	1132	1737	138	530	43.4	129561	10122	0.04	30
19S28-2_17	23858	122808	236004	22807	83886	20492	188	15900	2146	8518	991	1351	97.7	325	23.9	101101	9325	0.03	41
19S28-2_18	27046	119566	236004	24024	89157	23149	254	19448	2656	10193	1100	1321	81.7	246	15.2	112733	12928	0.04	65
19S28-2_19	24244	122567	236004	23165	85756	19109	223	14766	2088	8625	968	1254	74.7	237	13.7	93065	10762	0.04	52
19S28-2_20	24394	118065	236004	23903	88846	23158	219	18695	2465	9002	1042	1557	122	480	35.8	120780	8463	0.03	32
19S28-2_22	17858	131955	236004	22446	78502	15049	217	10147	1358	5600	642	842	52.6	154	8.70	100416	15286	0.05	54
19S28-2_23	31258	112838	236004	24485	92910	28625	163	25166	3323	12078	1326	1670	101	323	22.5	168029	9458	0.02	65
19S28-2_25	28787	118759	236004	24263	90005	24912	200	20142	2720	10408	1252	1897	154	600	49.3	143163	13100	0.03	28
19S28-2_27	29703	119419	236004	23954	90070	23168	267	20287	2921	11077	1215	1474	87.1	281	17.7	103720	14138	0.04	60
19S28-2_28	28219	116276	236004	23894	87810	23851	172	19599	2669	10092	1224	1889	157	587	45.2	130078	8899	0.02	28
19S28-2_29	31436	111398	236004	24764	94614	28493	147	23824	3077	11517	1354	1868	121	395	30.3	162399	6999	0.02	50
19S28-2_30	30760	124273	236004	23900	90370	21518	313	18777	2764	11251	1276	1638	108	342	24.1	84956	15930	0.05	45
19S28-2_32	32346	114341	236004	24372	93043	27494	217	24604	3397	12309	1297	1613	102	291	21.1	158073	14019	0.03	70
19S28-2_33	34090	111697	236004	24475	91988	28577	203	25728	3512	12952	1412	1779	109	311	21.8	162291	11780	0.02	68
19S28-2_35	27180	118394	236004	23643	88430	25087	224	22137	2976	10668	1090	1332	80.7	256	16.0	139284	13587	0.03	71
19S28-2_36	22461	120089	236004	23245	85959	22591	275	18001	2376	8543	911	1205	82.0	275	18.8	119208	14684	0.04	54
19S28-2_37	25830	141357	236004	21561	78700	16002	493	12583	1810	8045	1040	1602	125	475	37.1	93502	13145	0.11	22

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S28-2_38	28965	119893	236004	23702	87362	22311	232	18114	2503	10114	1180	1678	117	399	28.5	109350	11523	0.04	38
19S28-2_40	31586	115566	236004	23975	88710	25223	233	22586	3129	11830	1300	1617	98.3	293	22.0	114532	13681	0.03	64
19S28-2_42	31961	117552	236004	23922	90171	25533	284	21793	3074	11763	1291	1788	122	405	30.1	140302	18747	0.04	44
19S28-2_45	27790	121701	236004	23781	86731	23013	385	18628	2505	9715	1157	1679	129	466	36.4	99064	18673	0.06	33
19S28-2_46	29892	115386	236004	23834	88741	24793	163	20594	2745	10452	1269	1957	148	516	41.7	128400	7859	0.02	33
19S28-2_04	24506	121943	236004	23743	87010	23065	371	18356	2500	9484	1061	1644	142	595	48.1	129019	20158	0.06	26
19S28-2_10	23282	117870	236004	24090	89426	24708	391	20071	2654	9573	1037	1370	94.9	362	29.8	131122	15281	0.05	46
19S28-2_24	24865	121665	236004	23313	85787	23096	344	18185	2560	9439	1053	1579	137	593	47.2	119152	28173	0.05	25
19S28-2_31	25381	118097	236004	23887	87359	23067	290	18374	2463	9329	1048	1573	122	445	38.6	118604	21549	0.04	34
19S28-2_34	25520	122080	236004	23863	87394	23395	377	18771	2535	9574	1096	1640	127	501	38.1	133297	19044	0.05	31
19S28-2_39	22046	123182	236004	23275	85960	22578	1054	18287	2377	8626	940	1273	90.3	315	23.7	140765	17284	0.16	48
19S28-2_41	23768	121384	236004	23391	85840	23649	520	18632	2525	9088	1015	1515	129	541	43.5	122555	23719	0.08	29
19S28-2_43	24701	121804	236004	23732	88080	22759	318	17457	2284	8806	1024	1400	96.8	325	23.0	117371	13634	0.05	44
19S28-2_07	23950	123249	236004	23031	83915	20970	396	16342	2289	8774	1024	1559	133	555	45.4	120490	29601	0.07	24
19S28-2_13	21869	125893	236004	23314	86144	20837	372	16314	2139	8275	940	1414	121	483	39.2	111648	22780	0.06	28
19S28-2_21	27199	124685	236004	23299	82933	20040	381	15653	2314	9634	1107	1611	130	487	36.8	121634	40005	0.07	27
19S28-2_26	32183	122577	236004	23637	89922	22396	249	18146	2821	11556	1244	1658	117	406	27.9	77702	55284	0.04	37
19S28-2_44	33327	122524	236004	23961	91419	22637	256	18876	2925	11874	1304	1752	123	416	29.1	94928	59009	0.04	38
leucosome																			
19S21-4_01	20532	115715	236004	24282	92999	29530	23	18743	2330	8029	842	1222	98.3	384	29.5	106003	8358	0.003	40
19S21-4_02	22144	120256	236004	24151	93061	27772	43	19028	2384	8489	926	1361	105	402	29.9	132345	9357	0.006	39
19S21-4_03	30699	119229	236004	24555	97157	27137	59	20729	2623	10690	1368	2194	169	611	47.9	142109	11588	0.008	28
19S21-4_04	27800	115301	236004	24435	93385	29107	18	20364	2671	9987	1161	1798	149	586	47.8	103224	15190	0.002	29
19S21-4_05	25762	121165	236004	24349	96089	25484	55	19137	2343	9282	1181	1789	127	454	31.3	177549	10302	0.008	35
19S21-4_06	22210	118285	236004	24492	92926	32915	50	22015	2728	9028	893	1239	97.2	395	29.2	104078	11814	0.006	46
19S21-4_07	21778	117921	236004	24627	93367	36818	44	26634	3176	9554	859	1050	73.9	254	17.5	143428	9581	0.004	87
19S21-4_08	18477	120101	236004	24144	94558	26308	47	17356	2000	7255	821	1196	90.1	324	25.5	94585	5176	0.007	44
19S21-4_09	27622	115448	236004	24666	93179	34278	36	23122	3095	10861	1078	1545	131	548	40.1	113615	21208	0.004	35
19S21-4_10	20470	114490	236004	24560	95077	29816	25	20987	2413	7835	773	980	71.1	246	17.1	141255	5842	0.003	71
19S21-4_11	21848	118434	236004	24201	93831	35672	17	27453	3237	9660	869	1035	67.0	222	13.6	159754	5548	0.002	102
19S21-4_12	28859	117595	236004	24591	96021	30871	38	22240	2938	10796	1191	1783	150	574	44.6	156486	14282	0.004	32
19S21-4_13	18570	125543	236004	22967	89516	20209	226	14325	1831	7035	834	1263	103	416	33.9	85689	14597	0.041	28
19S21-4_14	27499	111825	236004	25269	96640	32944	11	23140	2915	10577	1159	1666	137	517	40.8	105424	11697	0.001	37
19S21-4_15	22030	116930	236004	24286	93494	27428	24	18428	2287	8290	932	1367	111	426	31.0	102452	10058	0.003	36
19S21-4_16	26285	116541	236004	24669	95227	33661	43	24127	2992	10168	1052	1489	125	486	37.8	136369	14922	0.005	41
19S21-4_17	34583	119451	236004	24542	98050	28070	61	21566	2812	11674	1554	2453	193	735	59.3	169840	14200	0.008	24
19S21-4_18	26835	124329	236004	23969	94073	25392	54	19163	2383	9459	1218	1900	145	510	40.0	179700	13266	0.008	31
19S21-4_19	23617	109763	236004	25587	99455	37894	21	25573	3235	10566	948	1075	68.5	186	9.5	162356	6675	0.002	114
19S21-4_20	18443	106387	236004	25205	97621	37167	14	23228	2803	8550	713	822	52.4	175	9.7	97678	9043	0.001	110
19S21-4_21	21062	123553	236004	23702	91900	25524	75	19735	2472	8577	872	1151	76.7	257	16.8	153626	6567	0.010	64

Sppot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S21-4_22	20591	112356	236004	24530	95923	27533	13	17712	2130	7770	883	1323	105	416	30.6	68557	7972	0.002	35
19S21-4_23	28522	117019	236004	24301	94303	29960	55	21909	2851	10627	1192	1767	143	583	43.2	159630	13771	0.007	31
19S21-4_24	26475	115645	236004	24620	95644	31972	38	21936	2817	10003	1085	1615	132	536	40.2	142875	11374	0.004	34
19S21-4_25	29693	121609	236004	24320	96857	26749	51	20509	2563	10371	1328	2029	155	553	42.2	156264	10273	0.007	31
19S21-4_26	24516	119973	236004	23855	94259	25120	45	18500	2218	8797	1120	1676	125	428	32.8	175805	9584	0.006	36
19S21-4_27	34197	119700	236004	24290	98645	26602	45	21394	2714	11375	1545	2524	193	731	56.0	156849	14430	0.006	24
19S21-4_28	28506	111301	236004	24985	95429	33181	19	23260	2937	10835	1167	1752	136	532	39.0	113053	11959	0.002	36
19S21-4_29	28741	116481	236004	24716	97350	29359	44	21271	2667	10398	1248	1954	153	588	44.9	132280	11085	0.005	30
19S21-4_30	29439	120093	236004	24103	96792	25928	54	20508	2539	10300	1343	2073	159	557	43.6	167637	11978	0.007	30
19S21-4_31	21113	122803	236004	23302	92634	22052	46	16159	1893	7527	986	1500	109	360	28.9	194697	11635	0.007	37
19S21-4_32	20744	119500	236004	23958	97070	27349	83	21137	2480	8559	878	1112	72.2	228	15.4	127816	7222	0.011	77
19S21-4_33	28187	120024	236004	24436	97848	26160	51	20452	2504	10149	1306	1950	144	473	36.4	144498	9621	0.007	36
19S21-4_34	19646	120838	236004	23778	89022	29019	59	20738	2538	8295	782	973	67.1	221	14.7	67280	10574	0.007	78
19S21-4_35	21483	114934	236004	24373	90116	36752	50	26514	3170	9601	796	916	59.5	193	12.5	94043	16375	0.005	114
19S21-4_36	25274	121098	236004	23821	93767	26316	50	18720	2299	8941	1092	1715	137	512	41.9	125767	8139	0.007	30
19S21-4_37	19469	117753	236004	22973	84820	23023	10	15916	2019	7572	830	1158	88.0	325	22.8	86892	10598	0.002	41
19S21-4_38	32922	120031	236004	24247	96768	27001	55	21437	2731	11239	1469	2317	174	630	50.9	157712	12290	0.007	28
19S21-4_39	19919	119973	236004	23996	91729	29039	44	20782	2505	8378	806	1069	76.5	269	18.0	113991	7763	0.005	64

Tur two-mica granite

19S27-1_01	11679	139054	236004	21542	73892	9876	678	5218	679	3067	458	896	88.3	388	35.1	83906	6707	0.29	11
19S27-1_02	16745	139538	236004	21798	75918	11123	716	6426	891	4157	651	1309	122	569	50.9	94855	7180	0.26	9
19S27-1_03	20015	135696	236004	22422	80457	12868	879	7855	1109	5175	800	1553	148	689	58.6	94600	8051	0.27	9
19S27-1_04	6168	142839	236004	21882	78547	12259	337	6647	662	2229	270	403	28.6	105	7.45	196939	5273	0.11	52
19S27-1_05	17664	139007	236004	21873	77342	11570	758	6631	929	4432	698	1360	131	583	52.4	91914	7651	0.26	9
19S27-1_06	17935	136209	236004	21946	77690	11512	778	6876	956	4477	709	1369	132	615	51.5	93324	7705	0.27	9
19S27-1_07	18422	135375	236004	21902	78806	12033	795	7118	1015	4749	729	1429	137	612	52.4	90170	7703	0.26	10
19S27-1_08	15595	138307	236004	21825	77824	11180	715	6408	867	4043	632	1216	115	538	43.6	98528	7006	0.26	10
19S27-1_09	12435	134850	236004	21491	73785	10975	747	5992	830	3614	503	888	78.2	328	27.6	84534	4871	0.28	15
19S27-1_10	14592	139715	236004	21797	77207	11605	720	6581	865	3877	581	1127	100	460	38.4	111041	5119	0.25	12
19S27-1_11	19052	137248	236004	22177	78935	12665	815	7698	1095	5084	777	1512	141	676	58.3	112337	7777	0.25	9
19S27-1_12	15766	138426	236004	21594	74365	10242	749	5503	785	3815	617	1258	123	565	48.0	82000	7827	0.30	8
19S27-1_13	17585	137671	236004	21800	76470	11319	758	6755	938	4453	698	1382	132	600	51.1	91425	7728	0.26	9
19S27-1_14	11879	138302	236004	21144	73724	9790	681	5114	671	3121	466	935	91.0	411	37.3	78100	6922	0.29	10
19S27-1_15	16080	137977	236004	21437	74202	10211	729	5657	790	3883	623	1319	127	574	49.4	83820	8198	0.29	8
19S27-1_16	18766	135705	236004	21791	77464	12329	814	7482	1050	4959	759	1458	143	627	56.5	90947	7648	0.26	10
19S27-1_17	19030	133638	236004	22004	79434	12582	850	7523	1039	4871	761	1493	148	685	60.3	116250	7804	0.27	9
19S27-1_18	13034	137592	236004	21138	74357	10438	736	5847	774	3525	525	1012	97.5	421	35.9	84540	6840	0.29	11
19S27-1_19	7183	138185	236004	22431	82990	14019	378	7587	741	2541	321	489	37.1	142	11.5	232022	5934	0.11	44
19S27-1_20	18440	136119	236004	21972	78751	12050	824	7336	1038	4877	746	1451	135	608	54.5	93816	7912	0.27	10
19S27-1_21	14413	138752	236004	21697	76686	11592	628	6930	897	4019	600	1105	102	420	36.8	90183	5781	0.21	14

Sspot ID	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Th	U	Eu/Eu*	Gd _N /Yb _N
19S27-1_22	19977	135059	236004	22194	79888	12736	877	7944	1126	5284	810	1562	151	701	61.9	112610	7820	0.27	9
19S27-1_23	16763	137986	236004	21485	74679	11167	746	6578	927	4372	679	1318	125	576	50.7	87707	7473	0.27	9
19S27-1_24	20141	133399	236004	22663	80415	13237	914	8270	1180	5452	837	1615	155	696	60.3	96546	8566	0.27	10