Appendix DR1: Regional Geology of the Lhasa terrane in southern Tibet

The Tibetan plateau consists primarily of three terranes: from south to north, the (1) Lhasa, (2) Qiangtang, and (3) Songpan–Ganze terranes (Fig. DR1a; Zhu et al., 2011). These terranes are separated from each other by the Bangong–Nujiang and Jinsha sutures, which represent closure of Meso- and Paleo-Tethyan ocean basins, respectively (Fig. DR1a; Zhu et al., 2011). The Lhasa terrane is bounded to the south by the Indus–Yarlung Zangbo suture (IYS), which represents closure of the Neo-Tethyan Ocean. According to regional variation of sedimentary cover rocks, the Lhasa terrane can be divided into northern, central and southern subterranes, separated by the Shiquan River–Nam Tso Mélange Zone (SNMZ) and Luobadui–Milashan Fault (LMF), respectively (Fig. DR1a; Zhu et al., 2011). The Neo-Tethyan oceanic lithosphere subducted northwards beneath the Lhasa terrane along the Indus-Yarlung Zangbo suture from Late Triassic through Late Cretaceous, and produced voluminous Late Triassic through Paleocene Gangdese batholiths, Jurassic-Cretaceous arc volcanic rocks and the 69-43 Ma Linzizong volcanic rocks (Fig. DR1b; Lee et al., 2009; Zhu et al., 2011).

The closure of the Neo-Tethyan ocean and the collision of India with Asia are generally believed to have occurred at ~55–50 Ma (Patriat and Achache, 1984; Chemenda et al., 2000; Replumaz et al., 2010). The Neo-Tethyan oceanic lithosphere broke off at ~50-45 Ma from the leading edge of the subducting Indian continental lithosphere (Chemenda et al., 2000; Lee et al., 2009; Replumaz et al., 2010). After detachment of the Neo-Tethyan oceanic lithosphere, the leading edge of Indian continental lithosphere (thinned by Paleozoic to Triassic rifting) and some of its sedimentary cover underthrusted Tibet in the 40-30 Ma time frame (Chemenda et al., 2000; Replumaz et al., 2010). The deeply subducted Indian continental lithosphere then detached from the shallower, thicker subducting Indian plate along a tear propagating from ~25 ± 5 Ma in the west to ~10 ± 5 Ma in the east (Replumaz et al. 2010). After the deeply subducted part of the Indian slab detached, flat subduction of the Indian continental lithosphere under the Himalayas and southern Tibet continued. However, since the upper Miocene only the relatively dry mafic lower crust and cool, rigid lithospheric mantle of the Indian plate survived transport as far north as the Gangdese belt (Nábělek et al., 2009).

Appendix DR2: Notes on application of geohygrometer for granitoid rocks based on zircon-saturation thermometry and H_2O-dependent phase-equilibria

One should use this geohygrometer only on zircon-saturated granitoid in order to get reliable estimates of water contents. Harrison et al. (2007) pointed out a potential source of error in using whole-rock Zr contents to infer zircon-saturation temperatures of some granitoids of tonalitic to granodioritic composition. If a zircon undersaturated dacitic melt containing 65 wt% SiO_2 and 125 ppm Zr were emplaced in the upper crust where it cooled and crystallized 20% plagioclase and ferromagnesian minerals as suspended phenocrysts, the interstitial melt's SiO_2 content would rise to ~68 wt% SiO_2 and its Zr content to 156 ppm, causing it to achieve zircon saturation at ~830°C. If the whole-rock Zr content of 125 ppm is used to estimate the zircon saturation temperature, the actual zircon saturation temperature would be underestimated by about 25°C. According to Figure 1 in the text, that temperature error could propagate to an over-estimate (~0.75 wt %) of the wt % H_2O dissolved in the melt at zircon saturation. Larger under-estimates of zircon saturation temperature would lead to larger over-estimates of the melt's H_2O content at zircon saturation.

The existence of zircon in a granitoid is obvious evidence that the melt was zircon-saturated such as the ubiquitous zircons in the Tibetan ore-forming porphyries (Hou et al., 2004, 2013). Therefore, we think that the zircon-saturation temperatures shown in Table 1 are not systematically underestimated. However, caution is warranted in applying this geo-hygrometer to granitoids with $SiO_2 < 66$ wt%, unless independent petrographic work shows the presence of coeval zircon.

The presence of any inherited or xenocrystic zircon in the granitoid would tend to produce an overestimate of zircon-saturation temperature and a corresponding underestimate of the H_2O

content of the melt. Previous dating results have revealed that the Tibetan Miocene ore-forming porphyries contain abundant zircon inheritance of 30-40 Ma, 50-65 Ma, 75-80 Ma and 180-200 Ma, which are consistent with the ages of the wallrock Gangdese batholith in the region (Hou et al., 2004; Qu et al., 2009; Li et al., 2011; Yang et al., 2015a). Therefore, the common occurrence of these inherited zircons suggest that the Miocene Tibetan ore-forming magmas were zircon saturated in the deep crust. Thus, underestimation of melt H_2O content is the more likely direction of error in our estimates of the hydration state of the Tibetan porphyry magmas. Accordingly, the 10 wt% dissolved water for the Tibetan ore-forming porphyries should be interpreted as the minimum estimate (Fig. 1 in the text).

It is also noteworthy that to apply this geohygrometer, one should choose an experimentally studied bulk composition (and pressure) that is most similar to the rock suite under study. The similarity of experimental and natural compositions can be assessed by their M value (a good compositional proxy; Watson and Harrison, 1983). The selected Tibetan samples all yield similar M values (1.56-1.61) to the dacite experimental composition (1.57), suggesting that they are compositionally well matched (Table 1 in the text). There are many temperature vs H_2O wt% diagrams at 2-15 kbar for a range of bulk compositions ranging from trondhjemite (low-K adakite), tonalite (andesite), medium- and high-K granodiorite (dacite), and granite (rhyolite). The sources available for selection of a bulk composition relevant to a suite under study by anyone who wants to apply this geo-hygrometer include Naney (1983), Carroll and Wyllie (1990), van der Laan and Wyllie (1992), Prouteau and Scaillet (2003), Costa et al. (2004), Alonso-Perez et al. (2009), and Almeev et al. (2013).

Figure Captions

Fig. DR1. (a) Tectonic framework of the Tibetan plateau (after Zhu et al., 2011). JSS, Jinsha Suture; BNS, Bangong-Nujiang Suture; IYS, Indus-Yalung Zangbo Suture; SNMZ, Shiquanhe-Nam Tso Mélange Zone; LMF, Luobadui-Milashan Fault; SL, CL and NL are Southern Lhasa, Central Lhasa and Northern Lhasa subterrane, respectively; (b) Geological map of the southern and central Lhasa Terrane showing the distribution of major geological units and Miocene porphyry Cu deposits (after Yang et al., 2015b). Miocene porphyry Cu deposits or prospects: ZN, Zhunuo; BR, Bairong; CJ, Chongjiang; TG, Tinggong; NM, Nanmu; LKE, Lakang'e; QL, Qulong; JM, Jiama; BP, Bangpu; XMR, Xiamari; CBZ, Cuibaizi; TBL, Tangbula. The deposit names in bold are those discussed in this study. T_3, Late Triassic; J, Jurassic; K, Cretaceous.

Fig. DR2. (a) SiO_2 vs K_2O diagram (after Peccerillo and Taylor, 1976), (b) Sr/Y vs Y and (c) La/Yb vs Yb plots for copper-ore-forming porphyries associated with the Miocene porphyry Cu-Mo deposits in southern Tibet. Porphyry samples plotted on (a) are fresh or least altered ones on an anhydrous basis. Fields of adakite and normal andesite-dacite-rhyolite in (b) and (c) are after Richards and Kerrich (2007). The Miocene Microgranular Mafic Enclaves (MME) within ore-forming porphyries in the eastern Gangdese belt are also plotted for comparison (Yang, 2008; Wu et al., 2014); Other data are listed in Table DR1 from Chung et al. (2003); Hou et al. (2004); Qu et al. (2004); Gao et al. (2007); Guo et al. (2007); Xu et al. (2010); Li et al. (2011); Qin et al. (2012) and this study.

Fig. DR3. Chondrite normalized REE patterns for representative porphyry copper deposits listed in Table 1. Data from Table DR1.

Fig. DR4. Dy/Yb vs SiO_2 diagrams for copper-ore-forming porphyries. Fractional crystallization vectors of garnet, ol+pl+cpx, and amphibole are from Davidson et al. (2007). ol, olivine; pl, plagioclase; cpx, clinopyroxene. Data listed in Table DR1. Note that each array is elongate in the direction indicating a predominant influence of amphibole in the cumulate or restite assemblage from which the high Sr/Y granitoid melt segregated.

Fig. DR5. (a) Whole rock ε_{Nd}(t) vs $^{87}Sr/^{86}Sr(i)$, (b) whole rock $^{207}Pb/^{204}Pb$ vs $^{206}Pb/^{204}Pb$, and (c) zircon ε_{Hf}(t) vs Age (Ma) plots for mafic microgranular enclaves (MMEs) and ore-forming granitoids at Qulong porphyry Cu deposit in Tibet. (a) and (b) are modified from Yang et al. (2009). (c) is produced using data from Yang (2008).

Table DR1: Major and trace element compositions of ore-forming intrusives in southern Tibet, eastern China, Peru and Mongolia

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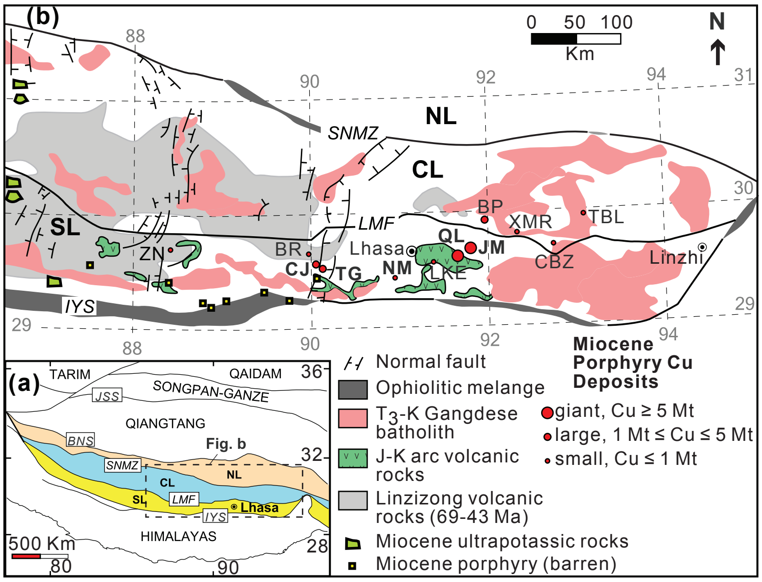

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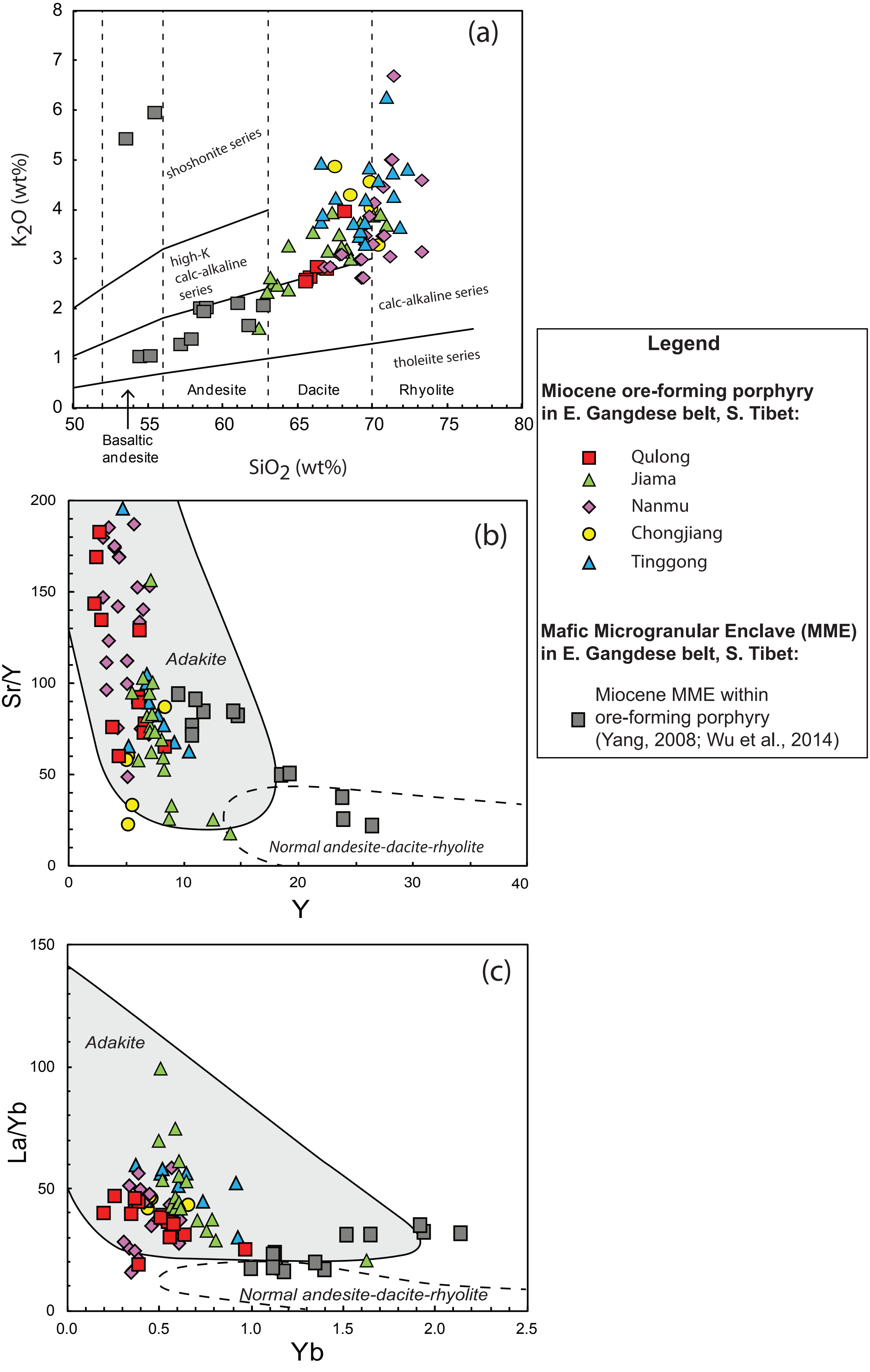

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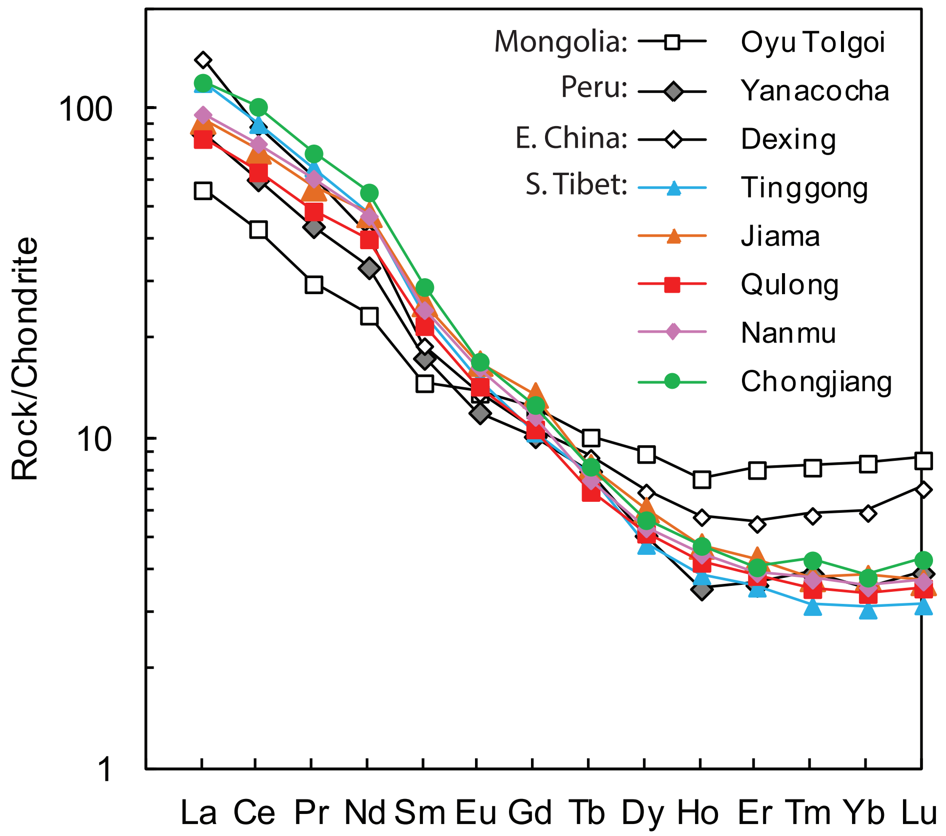

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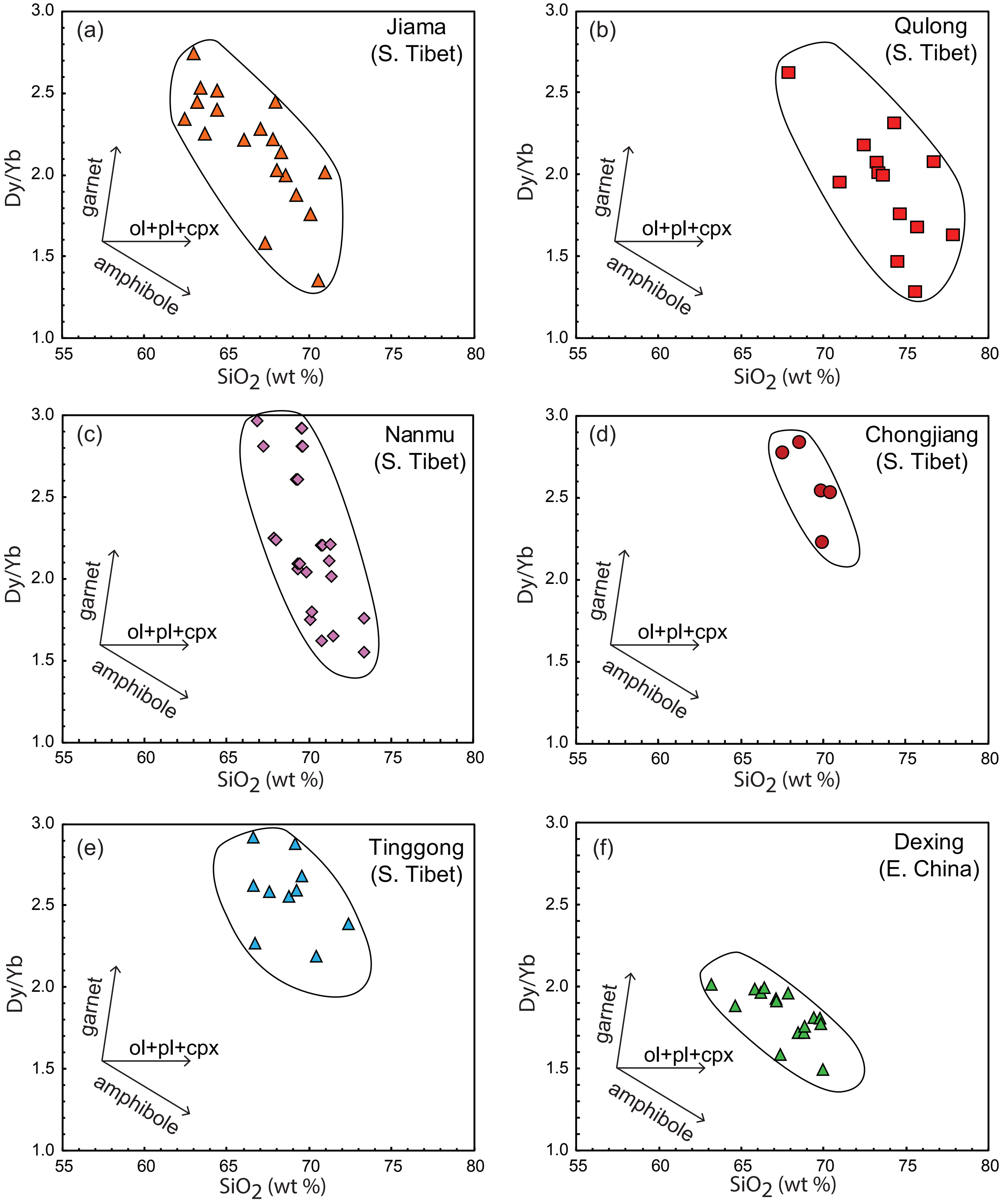

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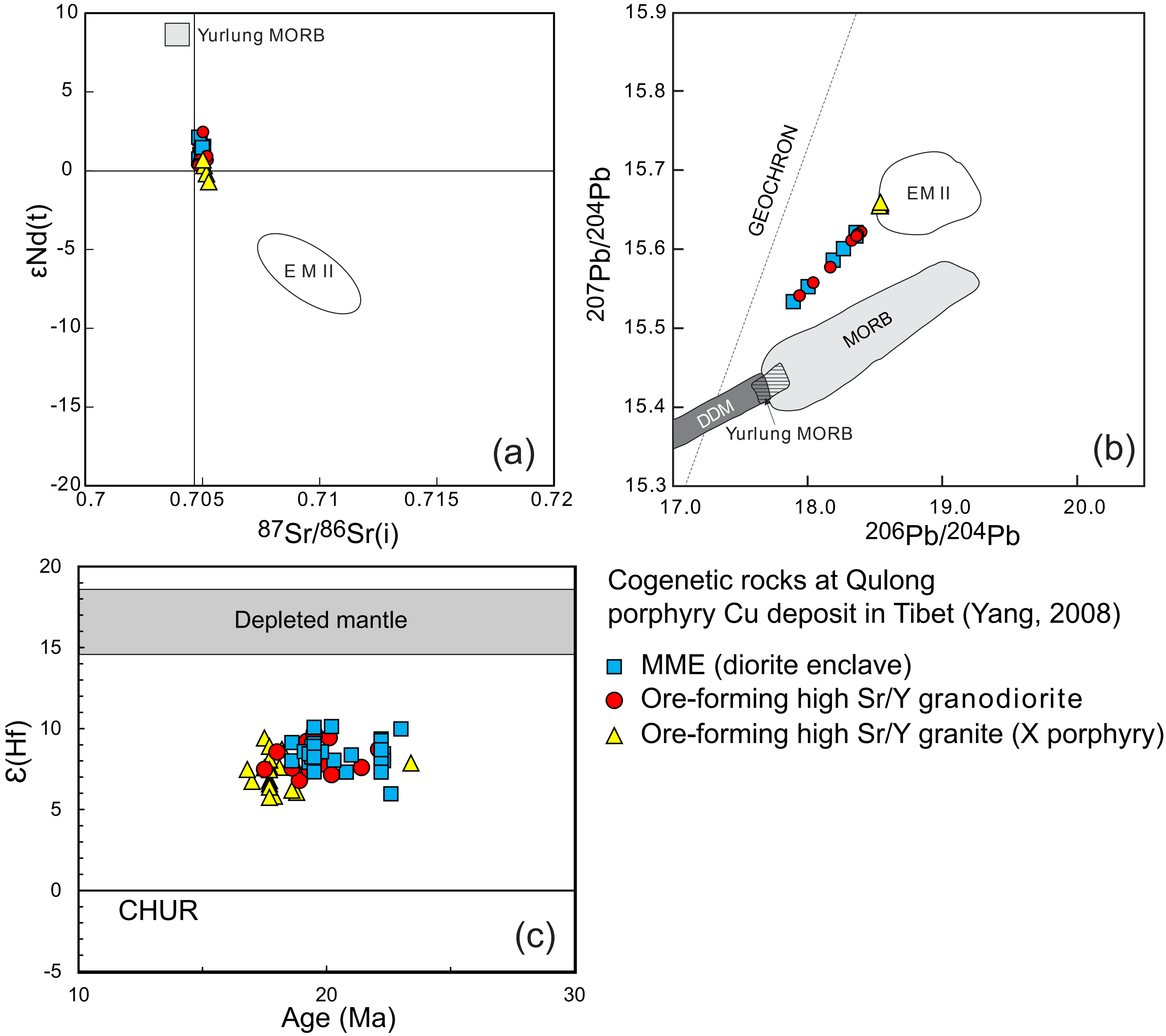

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Table DR1: Major and trace element compositions of ore-forming intrusives in southern Tibet, eastern China, Peru and Mongolia

Deposit name:	Chongjiang	***Chongjiang***	Chongjiang	Chongjiang	Chongjiang	Jiama	***Jiama***	Jiama	Jiama	Jiama	Jiama
Sample:	CJ-09	***CJ-20***	CJ-02	T339	CJ-22	Jmy-04	***ET023***	JMY-04	G019	Jm-23	G016
Longitude (E):							***91.60°E***		91.8		91.8
Latitude (N):							***29.61°N***		29.8		29.8
Rock type:											
Age (Ma):						10-18	***17.0 ± 0.5***		15.1	10-18	15.1
Reference:	Qu et al., 2004	***Qu et al., 2004***	Qu et al., 2004	Xu et al., 2010	Qu et al., 2004	Hou et al., 2004	***Chung et al., 2003***	Qu et al., 2004	Guo et al., 2007	Hou et al., 2004	Guo et al., 2007
SiO2	62.93	***64.9***	66.41	69.25	67.87	67.09	***65.27***	67.09	68.56	68	68.82
TiO2	0.35	***0.41***	0.32	0.45	0.35	0.47	***0.53***	0.47	0.48	0.38	0.23
Al2O3	14.53	***15.38***	14.59	15.21	15.75	14.62	***16.81***	14.62	15.25	14.82	16.01
FeO	1.86	***1.36***	0.91		1.5			0.77			
Fe2O3	0.61	***1.16***	1.08		0.63			0.29			
Fe2O3T				2.64		0.98	***3.52***		1.72	1.47	1.42
MnO	0.19	***0.07***	0.31	0.02	0.09	0.06	***0.03***	0.06	0.06	0.04	0.03
MgO	1.42	***0.76***	0.9	1.4	0.82	1.43	***1.53***	1.43	1.77	1.29	1.3
CaO	3.85	***3.24***	2.03	2.13	2.4	3.65	***3.53***	3.65	2.49	2.01	1.74
Na2O	2.83	***3.22***	4.09	3.8	3.71	6.46	***4.19***	3.46	4.16	2.31	3.57
K2O	4.55	***4.08***	4.35	4	3.18	6.68	***2.95***	6.68	5.37	8.56	6.77
P2O5	0.13	***0.15***	0.12	0.18	0.13	0.2	***0.19***	0.2	0.13	0.11	0.1
H2O+	1.23	***1.05***	1.24		1.13	0.36		0.36		0.42	
CO2						0.64		0.64		0.12	
LOI	6.32	***4.86***	4.05	0.61	3.11				1.82		0.87
K2O/Na2O	1.61	1.27	1.06	1.05	0.86	1.03	0.70	1.93	1.29	3.71	1.90
Li											
Be	1.69	***1.85***	1.78		2.05			2.73			
Sc	3.3	***3.53***	3.45	5.34	3.22	3.9		4.53	3.95	4	3.04
V	60.1	***59.7***	56.3	52.7	49.4			74.3	42.2		34.8
Cr	15.2	***7.43***	4.33	18.6	17.1			23.4	42.7		55
Co	6.37	***5.91***	5.9	134	4.74			4.47	28.3		14.9
Ni	10.9	***7.42***	6.92	10.7	8.4			20.9	23.9		20.1
Cu	29.3	***16.7***	417	365	74.3			40.7	124		88.6
Zn	94.7	***65.7***	139	23	109			51	47.5		53.6
Ga	16.5	***17.4***	18.9	18.4	17.6			18.1	15.2		17.1
Rb	252	***195***	280	201	134	424	***85.9***	400	369	494	401
Sr	184	***309***	118	726	290	267	***1048***	213	448	282	422
Y	5.44	***5.08***	5.08	8.29	4.95	6.1	***8.2***	6.83	5.51	5.5	6.23
Zr	75.8	***91.6***	68.5	84.1	72.2	95	***89***	101	109	108	124
Nb	6.64	***6.94***	6.9	7.52	7.64	8	***3.67***	11.5	8.05	7.5	7.34
Mo	4.46	***6.22***	13.5		1.56			0.95			
Sn	0.39	***0.6***	0.74		0.54			0.9			

Deposit name:	Chongjiang	***Chongjiang***	Chongjiang	Chongjiang	Chongjiang	Jiama	***Jiama***	Jiama	Jiama	Jiama	Jiama
Sample:	CJ-09	***CJ-20***	CJ-02	T339	CJ-22	Jmy-04	***ET023***	JMY-04	G019	Jm-23	G016
Longitude (E):							***91.60°E***		91.8		91.8
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Age (Ma):						10-18	***17.0 ± 0.5***		15.1	10-18	15.1
Reference:	Qu et al., 2004	***Qu et al., 2004***	Qu et al., 2004	Xu et al., 2010	Qu et al., 2004	Hou et al., 2004	***Chung et al., 2003***	Qu et al., 2004	Guo et al., 2007	Hou et al., 2004	Guo et al., 2007
Sb	6.79	***6.46***	36.9		20.3			6.07			
Cs											
Ba	827	***711***	522	889	710	796	***755***	648	783	701	981
La	21	***20.8***	20.9	28.6	18.3	31.06	***21.9***	32.3	28.1	29.5	30.9
Ce	43	***40.2***	42	62.4	45.9	58.63	***45.9***	65.8	49.5	52.52	56.7
Pr	4.77	***4.74***	4.68	7	4.11	6.45	***5.51***	6.79	5.74	5.79	6.7
Nd	17.7	***18.8***	18.1	26.2	16	22.41	***22.5***	25.8	20.8	19.44	23.4
Sm	3.02	***3***	2.97	4.44	2.73	3.35	***3.96***	4.08	3	2.85	3.15
Eu	0.83	***0.86***	0.77	1	0.71	0.76	***0.99***	0.92	0.79	0.68	0.81
Gd	2.21	***2.28***	2.08	2.62	1.99	2.1	***2.81***	3.02	1.63	1.83	1.88
Tb	0.23	***0.23***	0.21	0.31	0.2	0.27	***0.31***	0.3	0.22	0.24	0.23
Dy	1.25	***1.25***	1.12	1.45	1.09	1.28	***1.56***	1.59	1.14	1.09	1.13
Ho	0.16	***0.15***	0.14	0.27	0.14	0.23	***0.27***	0.22	0.2	0.21	0.21
Er	0.53	***0.51***	0.5	0.68	0.47	0.61	***0.72***	0.69	0.49	0.53	0.56
Tm	0.05	***0.04***	0.5	0.11	0.04	0.09	***0.097***	0.08	0.07	0.09	0.08
Yb	0.45	***0.44***	0.44	0.65	0.43	0.57	***0.65***	0.69	0.44	0.55	0.48
Lu	0.04	***0.04***	0.05	0.11	0.04	0.09	***0.094***	0.08	0.06	0.09	0.06
Hf	2.44	***2.95***	2.32	2.85	2.46	3	***2.54***	3.54	3.47	3.5	3.39
Ta	0.36	***0.32***	0.37	0.71	0.4	0.7	***0.3***	0.63	0.69	0.5	0.81
Pb	39.8	***26.7***	88.2	24.3	57.6		***12.6***	23.5	68.6		103
Bi	2.11	***0.32***	2.93		0.33			0.09			
Th	14	***11.4***	14.3	27.2	10.7	26	***8.83***	29.2	16.4	12	29.8
U	3.57	***2.9***	5.94	5.34	2.94	7.1	***2.52***	8.05	5.37	5.8	8.46
Mg#	51	***36***	46	51	42	74	***47***	71	67	64	65
Sr/Y	34	***61***	23	88	59	44	***128***	31	81	51	68
La/Yb	47	***47***	48	44	43	54	***34***	47	64	54	64
Eu/Eu*	0.98	***1.01***	0.95	0.90	0.93	0.88	***0.91***	0.80	1.09	0.91	1.02
Dy/Yb	2.78	***2.84***	2.55	2.23	2.53	2.25	***2.40***	2.30	2.59	1.98	2.35
M[a]	1.82	***1.59***	1.60	1.46	1.35	2.81	***1.60***	2.13	1.78	1.77	1.61
T_{zr}[b]	698	***727***	704	728	724	654	***724***	699	727	728	749
± (2σ)	35	***36***	35	36	36	33	***36***	35	36	36	37

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	JM-16	Jm-16	JMY-01	Jmy-07	Jmy-01	JM03-5	ET025E	Jm-7	ET025B	Jm-7	Jm-21
Longitude (E):							91.75°E		91.75°E		
Latitude (N):							26.69°N		26.69°N		
Rock type:											
Age (Ma):		10-18		10-18	10-18	15.5	13.2 ± 0.4	Neogene	15.0 ± 0.4	10-18	Neogene
Reference:	Qu et al., 2004	Hou et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Chen et al., 2011	Chung et al., 2003	Gao et al, 2007	Chung et al., 2003	Hou et al., 2004	Gao et al, 2007
SiO2	68.29	68.29	68.59	68.14	68.59	68.95	66.76	68.52	67.32	68.52	69.51
TiO2	0.37	0.37	0.39	0.42	0.39	0.6	0.33	0.45	0.45	0.45	0.42
Al2O3	14.71	14.71	14.62	14.44	14.62	15.53	15.16	14.91	14.43	14.91	15.1
FeO	1.28		0.97					1.25			0.9
Fe2O3	0.44		1.02					1.14			1.46
Fe2O3T		1.59		1.85	1.89	1.31	2.07		1.14	2.26	
MnO	0.05	0.05	0.03	0.05	0.03	0.02	0.06	0.06	0.03	0.06	0.07
MgO	1.29	1.29	1.36	1.41	1.36	1.19	0.93	1.22	1.26	1.22	1.17
CaO	1.3	1.3	1.88	1.88	1.88	1.07	2.7	1.49	1.85	1.49	0.41
Na2O	3.25	3.25	3.32	2.96	3.32	4.5	3.63	3.68	3.15	3.68	3.45
K2O	7.43	7.43	6.21	6.55	6.21	5.19	3.43	4.24	5.69	4.24	5.73
P2O5	0.17	0.17	0.17	0.19	0.17	0.02	0.14	0.17	0.05	0.17	0.18
H2O+	0.4	0.4	0.93	1.06	0.93					1.47	
CO2	0.58	0.58	0.14	0.64	0.14			0.7		0.7	0.05
LOI						1.39					
K2O/Na2O	2.29	2.29	1.87	2.21	1.87	1.15	0.94	1.15	1.81	1.15	1.66
Li								23			20.1
Be	2.74		2.71					2.46			2.49
Sc	3.78	3.5	3.82	3.9	3.7	5.07		3.95		3.1	3.56
V	61.6		63			63.96		45.5			43.3
Cr	20.3		19.8			35.61		15.5			15.9
Co	19.7		8.82			3.56		8.35			9.88
Ni	20.8		16.9			14.96		14.1			13.8
Cu	278		82.1								
Zn	1620		38.6								
Ga	17.1		17.2					17.8			18.9
Rb	439	434	391	380	392	252	159	231	337	218	308
Sr	235	239	415	409	444	330	689	426	360	320	481
Y	9.07	8	6.31	5.5	5.6	5.96	6.9	5.22	8.3	4.6	4.76
Zr	77.9	111	66.3	107	106	130	102	136	129	112	133
Nb	10	7.1	10.2	8.3	7.9	5.67	4.28	4.96	6.94	6.1	4.41
Mo	2.92		1.06								
Sn	0.83		0.93								

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	JM-16	Jm-16	JMY-01	Jmy-07	Jmy-01	JM03-5	ET025E	Jm-7	ET025B	Jm-7	Jm-21
Longitude (E):							91.75°E		91.75°E		
Latitude (N):							26.69°N		26.69°N		
Rock type:											
Age (Ma):		10-18		10-18	10-18	15.5	13.2 ± 0.4	Neogene	15.0 ± 0.4	10-18	Neogene
Reference:	Qu et al., 2004	Hou et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Chen et al., 2011	Chung et al., 2003	Gao et al, 2007	Chung et al., 2003	Hou et al., 2004	Gao et al, 2007
Sb	3.07		3.92								
Cs								11.1			13
Ba	666	742	709	930	823	661	823	1136	748	957	1150
La	37.4	27.48	34.1	25.17	28.24	29.18	24.4	32.6	26.8	28.77	24.2
Ce	64.3	44.11	61.7	51.64	48.24	56.64	47.7	65.3	50.8	50.25	53.4
Pr	7.39	5.5	5.84	5.77	5.66	6.94	5.3	7.26	5.43	6.03	5.3
Nd	26.3	19.16	24.2	19.94	19.86	24.67	19.8	25.5	19.6	21.93	18.7
Sm	3.95	2.92	3.84	2.98	3.05	3.82	3.22	3.94	3.09	3.24	2.94
Eu	0.95	0.71	0.9	0.76	0.73	0.82	0.87	0.822	0.79	0.79	0.6
Gd	3.15	2.11	2.75	1.91	1.9	2.2	2.43	2.19	2.43	1.88	1.65
Tb	0.34	0.29	0.28	0.25	0.25	0.27	0.27	0.237	0.27	0.23	0.195
Dy	1.9	1.51	1.39	1.17	1.22	1.29	1.25	1.08	1.24	1.1	0.92
Ho	0.3	0.27	0.19	0.2	0.212	0.21	0.21	0.195	0.21	0.19	0.171
Er	0.93	0.75	0.66	0.56	0.565	0.57	0.6	0.496	0.6	0.48	0.441
Tm	0.11	0.11	0.06	0.09	0.09	0.09	0.081	0.0745	0.083	0.07	0.0684
Yb	0.85	0.69	0.62	0.54	0.537	0.59	0.53	0.493	0.56	0.42	0.429
Lu	0.11	0.12	0.07	0.09	0.086	0.1	0.082	0.0765	0.086	0.07	0.0698
Hf	2.85	3.3	2.49	3.5	3.5	3.58	3.42	3.77	3.74	3.4	3.66
Ta	0.59	0.5	0.6	0.8	0.7	0.4	0.33	0.35	0.46	0.5	0.309
Pb	102		48.3			12.69	31.6	39	20.5		26
Bi	0.35		0.94								
Th	30	24.6	32.2	25.1	27.7	12.56	14.2	17.5	19.2	18.3	15.8
U	8.81	8.3	8.42	8.5	8	5.29	5.09	5.67	5.13	3.3	4.11
Mg#	58	62	56	60	59	65	47	49	69	52	49
Sr/Y	26	30	66	74	79	55	100	82	43	70	101
La/Yb	44	40	55	47	53	49	46	66	48	69	56
Eu/Eu*	0.82	0.87	0.85	0.97	0.93	0.86	0.95	0.86	0.88	0.98	0.83
Dy/Yb	2.24	2.19	2.24	2.17	2.27	2.19	2.36	2.19	2.21	2.62	2.14
M^a	1.67	1.67	1.65	1.65	1.65	1.50	1.48	1.37	1.56	1.36	1.27
T_{zr}^b	709	736	698	735	734	761	743	774	756	758	779
± (2σ)	35	37	35	37	37	38	37	39	38	38	39

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	Jm-21	JM03-4	jm406	jm1609	zgl	sbg-1	sbg-2	sbg-3	jm1618
Longitude (E):									
Latitude (N):									
Rock type:			granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	monzogranite porphyry
Age (Ma):	10-18	15.5							
Reference:	Hou et al., 2004	Chen et al., 2011	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012
SiO2	69.51	70.42	67.02	68.32	69.24	66.96	69.06	70.26	66.69
TiO2	0.42	0.38	0.51	0.2	0.18	0.47	0.29	0.29	0.43
Al2O3	15.1	15.76	14.88	14.87	14.69	14.78	15.15	13.44	15.27
FeO			1.67	1.29	1.35	2.27	1.96	1.96	1.67
Fe2O3			1.59	3.2	1.19	2.16	1.43	2.47	1.99
Fe2O3T	2.27	1.8							
MnO	0.07	0.02	0.07	0.03	0.09	0.12	0.06	0.08	0.04
MgO	1.17	0.89	1.97	1.02	1	1.6	1.02	1.12	1.19
CaO	0.41	4.42	3.93	2.27	2.34	3.61	2.22	2.58	2.46
Na2O	3.45	1.68	3.17	3.71	3.82	3.48	3.49	3.47	5.05
K2O	5.73	3.27	3.15	3.69	3.61	3.93	3.83	3.9	3.45
P2O5	0.18	0.08	0.2	0.14	0.1	0.11	0.07	0.05	0.16
H2O+	1.21								
CO2	0.05								
LOI		1.08	1.2	1.13	2.25	0.4	1.37	0.31	1.42
K2O/Na2O	1.66	1.95	0.99	0.99	0.95	1.13	1.10	1.12	0.68
Li									
Be									
Sc	2.9	1.92	6.74	4.9	6.21	9.41	6.59	7.57	4.69
V		48.91							
Cr		15.77							
Co		5.9							
Ni		8.79	21.7	16.8	23.3	9.66	10.6	13.6	22.5
Cu									
Zn									
Ga			17.7	16.5	18.5	13.1	13	12.2	17.7
Rb	494	143	90	157	147	69.8	85.2	176.7	145
Sr	448	360	227	437	660	323	297	255	518
Y	4.1	6.37	8.66	8.23	6.38	12.5	8.88	14	5.43
Zr	103	104	123	98	86.3	103	132	89.3	122
Nb	5.8	5.71	6.59	5.96	4.46	6.79	7.87	7.24	4.4
Mo									
Sn									

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	Jm-21	JM03-4	jm406	jm1609	zgl	sbg-1	sbg-2	sbg-3	jm1618
Longitude (E):									
Latitude (N):									
Rock type:			granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	granodiorite porphyry	monzogranite porphyry
Age (Ma):	10-18	15.5							
Reference:	Hou et al., 2004	Chen et al., 2011	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012
Sb									
Cs			7.09	8.94	7.78	3.77	4.27	1.82	7.46
Ba	701	490	306	547	1030	429	771	676	930
La	19.68	25.6	29.6	25	24.4	20.7	23.5	34.3	49.9
Ce	45.48	47.71	55.8	43.6	44.4	34.4	35.1	55.4	80.6
Pr	4.69	5.55	6.65	5.01	5.1	3.51	3.59	5.56	8.04
Nd	16.69	18.99	24.8	18.4	18.6	13.1	12.5	18.4	27.1
Sm	2.48	2.94	3.99	2.99	2.97	2.35	2.09	2.97	3.9
Eu	0.57	0.81	0.84	0.7	0.79	0.57	0.45	0.69	0.91
Gd	1.48	1.7	2.72	1.99	2.25	1.73	1.36	1.99	1.72
Tb	0.2	0.23	0.37	0.32	0.29	0.35	0.27	0.4	0.29
Dy	0.95	1.17	1.67	1.41	1.13	1.84	1.41	2.2	1.11
Ho	0.16	0.22	0.33	0.3	0.21	0.4	0.3	0.5	0.21
Er	0.42	0.59	0.91	0.8	0.63	1.15	0.77	1.48	0.59
Tm	0.07	0.09	0.12	0.11	0.08	0.17	0.11	0.23	0.07
Yb	0.38	0.67	0.78	0.75	0.56	1.16	0.8	1.62	0.5
Lu	0.06	0.12	0.12	0.11	0.08	0.19	0.13	0.26	0.08
Hf	3.4	3.13	3.41	2.76	2.33	2.5	3.04	2.66	3.37
Ta	0.5	0.49	0.54	0.55	0.37	0.67	0.81	0.78	0.38
Pb		24.43	28.82	74.3	39.4	33	23.5	25.4	124
Bi									
Th	18.9	16.99	17.2	17.3	11.5	12.3	14.7	13.4	18.4
U	3.3	4.32	3.73	3.26	2.87	2.91	3.18	2.38	4.49
Mg#	51	50	53	31	43	41	36	33	38
Sr/Y	109	57	26	53	103	26	33	18	95
La/Yb	52	38	38	33	44	18	29	21	100
Eu/Eu*	0.91	1.11	0.78	0.88	0.93	0.86	0.82	0.87	1.07
Dy/Yb	2.50	1.75	2.14	1.88	2.02	1.59	1.76	1.36	2.22
M[a]	1.27	1.35	1.66	1.48	1.49	1.78	1.40	1.64	1.73
T_{zr}[b]	757	753	745	739	728	723	769	721	740
± (2σ)	38	38	37	37	36	36	38	36	37

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	jm2002	jm2005	jm2006-1	jm2006-2	jm3204	pd13	jm1501	jm1504
Longitude (E):								
Latitude (N):								
Rock type:	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	quartz diorite porphyrite	quartz diorite porphyrite
Age (Ma):								
Reference:	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012
SiO2	62.98	62.82	66.86	65.64	66.32	65.96	60.82	59.86
TiO2	0.34	0.56	0.3	0.49	0.44	0.25	0.34	0.41
Al2O3	14.63	14.66	15.38	15.05	14.82	14.19	16.55	16.22
FeO	1.86	2.32	1.64	2.29	1.56	0.97	2.48	2.85
Fe2O3	1.82	3.79	2.29	1.79	2.9	3.26	1.76	1.32
Fe2O3T								
MnO	0.07	0.06	0.03	0.05	0.08	0.08	0.06	0.06
MgO	1.55	1.76	1.15	1.53	1.37	1.2	1.81	1.9
CaO	3.69	3.17	3.04	2.95	2.08	3.32	4.4	4.71
Na2O	4.86	4.99	3.77	4.84	4.68	4.56	5.04	5.23
K2O	3.39	3.2	2.94	3.11	3.08	3.16	2.43	2.23
P2O5	0.2	0.23	0.14	0.2	0.18	0.15	0.27	0.28
H2O+								
CO2								
LOI	3.7	2.26	1.25	1.18	1.27	1.71	3.11	5.05
K2O/Na2O	0.70	0.64	0.78	0.64	0.66	0.69	0.48	0.43
Li								
Be								
Sc	7.39	7.08	5.39	6.55	6.79	5.81	9.74	10.1
V								
Cr								
Co								
Ni	21.2	46.8	10.5	23.5	26.3	22.8	16.9	20.3
Cu								
Zn								
Ga	17.7	17.6	16.9	17.8	18.2	17.9	20.9	20.8
Rb	184	137	194	153	217	179	61.6	59.9
Sr	447	541	558	555	487	349	1110	661
Y	7.12	7.02	8.01	6.73	8.14	5.99	7.07	6.95
Zr	124	117	113	119	110	109	108	109
Nb	5.43	5.21	5.65	5.37	6.34	5.19	4.04	4.02
Mo								
Sn								

Deposit name:	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama	Jiama
Sample:	jm2002	jm2005	jm2006-1	jm2006-2	jm3204	pd13	jm1501	jm1504
Longitude (E):								
Latitude (N):								
Rock type:	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	monzogranite porphyry	quartz diorite porphyrite	quartz diorite porphyrite
Age (Ma):								
Reference:	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012
Sb								
Cs	9.81	5.95	12.3	7.13	8.04	8.35	6.17	8.78
Ba	638	630	832	779	707	831	832	396
La	33.5	43.6	26.3	37.1	34.3	34.4	27.3	27.6
Ce	63.3	73.7	47.8	65.1	59.6	59.7	55.4	55.3
Pr	7.2	8	5.41	7.14	6.66	6.52	7.18	7.07
Nd	26.6	29.2	20.2	26	23.8	24	28.4	28
Sm	4.13	4.46	3.39	4.07	3.77	3.68	4.67	4.74
Eu	0.98	0.92	0.76	0.85	0.87	0.72	1.26	1.11
Gd	2.46	2.06	1.82	1.94	2.39	1.61	3.4	3.04
Tb	0.37	0.34	0.32	0.32	0.32	0.3	0.41	0.4
Dy	1.33	1.46	1.4	1.37	1.3	1.2	1.47	1.4
Ho	0.26	0.27	0.28	0.25	0.26	0.22	0.27	0.25
Er	0.72	0.7	0.78	0.67	0.73	0.6	0.77	0.72
Tm	0.08	0.09	0.1	0.09	0.1	0.07	0.08	0.08
Yb	0.6	0.58	0.7	0.6	0.64	0.49	0.58	0.51
Lu	0.09	0.09	0.12	0.1	0.11	0.08	0.08	0.08
Hf	3.15	3.35	3.24	3.51	3.05	3.04	2.68	2.61
Ta	0.42	0.45	0.52	0.45	0.52	0.4	0.27	0.26
Pb	24	231	52.5	29.7	47.1	68.2	31.7	29.2
Bi								
Th	23.5	23.7	18.2	22.9	26.8	21.4	5.5	5.04
U	6.32	5.74	4.13	5.51	6.81	4.6	1.91	1.77
Mg#	44	36	36	41	37	36	44	46
Sr/Y	63	77	70	82	60	58	157	95
La/Yb	56	75	38	62	54	70	47	54
Eu/Eu*	0.94	0.93	0.94	0.92	0.89	0.90	0.97	0.89
Dy/Yb	2.22	2.52	2.00	2.28	2.03	2.45	2.53	2.75
M^a	2.07	1.99	1.52	1.79	1.58	1.89	1.97	2.09
T_{zr}^b	719	719	748	734	741	720	715	707
± (2σ)	36	36	37	37	37	36	36	35

Deposit name:	Jiama	Jiama	Jiama	Jiama	Nanmu	***Nanmu***	Nanmu	Nanmu	Nanmu
Sample:	jm1512	pd101	jm724	jm720	ET026D	***ET026C***	Nty-05	Nty-05	NG-16
Longitude (E):					90.87°E	***90.87°E***			
Latitude (N):					29.48°N	***29.48°N***			
Rock type:	quartz diorite porphyrite	quartz diorite porphyrite	quartz diorite porphyrite	quartz diorite porphyrite					
Age (Ma):					16.4 ± 1.8	***16.6 ± 0.4***	Neogene	10-18	
Reference:	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Chung et al., 2003	***Chung et al., 2003***	Gao et al, 2007	Hou et al., 2004	Qu et al., 2004
SiO_2	59.86	59.58	61.04	57.02	63.62	***65.41***	66.94	66.94	68.46
TiO_2	0.39	0.48	0.5	0.71	0.55	***0.51***	0.45	0.45	0.47
Al_2O_3	15.52	14.89	15.36	15.19	16.32	***16.25***	15.94	15.94	15.86
FeO	1.61	2.37	2.58	2.69			1.93		1.4
Fe_2O_3	3.43	3.95	1.83	1.43			1.37		1.01
Fe_2O_3T					2.75	***3.19***		3.11	
MnO	0.06	0.07	0.06	0.06	0.03	***0.05***	0.03	0.03	0.03
MgO	1.71	1.82	1.87	2.08	1.04	***1.29***	1.36	1.36	0.92
CaO	4.56	4.27	4.52	6.34	3.4	***3.47***	3.06	3.06	2.88
Na_2O	4.32	4.16	4.52	4.12	4.61	***4.25***	4.39	4.39	4.8
K_2O	2.34	2.49	2.27	1.48	2.71	***2.78***	3.06	3.06	2.97
P_2O_5	0.25	0.22	0.25	0.23	0.21	***0.17***	0.18	0.18	0.17
H_2O^+								0.92	0.67
CO_2							0.05	0.05	0.05
LOI	5.68	4.79	5.32	6.63					
K_2O/Na_2O	0.54	0.60	0.50	0.36	0.59	0.65	0.70	0.70	0.62
Li							4.74		
Be							1.71		1.52
Sc	8.86	9.56	8.58	6.34			6.03	5.2	2.59
V							63.8		67
Cr							10.3		5.76
Co							7.1		5.17
Ni	21.4	18.8	17.7	19.9			7.66		3.96
Cu									11.1
Zn									23.6
Ga	18	19	18.3	18.1			18.4		17.7
Rb	73.1	93.8	72.5	47	61.4	***66.8***	88	97.4	51.1
Sr	600	517	548	730	1051	***902***	1072	903	729
Y	7.18	6.99	7.42	7.23	5.6	***6.4***	6.97	5.9	4.29
Zr	121	118	124	116	85	***108***	129	115	94.9
Nb	3.84	3.52	3.97	4	3.1	***2.93***	3.68	4.5	4.89
Mo									3.27
Sn									0.37

Deposit name:	Jiama	Jiama	Jiama	Jiama	Nanmu	***Nanmu***	Nanmu	Nanmu	Nanmu
Sample:	jm1512	pd101	jm724	jm720	ET026D	***ET026C***	Nty-05	Nty-05	NG-16
Longitude (E):					90.87°E	***90.87°E***			
Latitude (N):					29.48°N	***29.48°N***			
Rock type:	quartz diorite porphyrite	quartz diorite porphyrite	quartz diorite porphyrite	quartz diorite porphyrite					
Age (Ma):					16.4 ± 1.8	***16.6 ± 0.4***	Neogene	10-18	
Reference:	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Qin et al., 2012	Chung et al., 2003	***Chung et al., 2003***	Gao et al, 2007	Hou et al., 2004	Qu et al., 2004
Sb									0.5
Cs	14.1	12.7	32.8	25.3			2.53		
Ba	321	747	428	634	1032	***713***	783	892	770
La	25	24.7	27	25.9	21.6	***21.3***	22.9	19.18	19.6
Ce	48.9	49.1	53.2	51	46.7	***43.8***	48.2	40.42	45.7
Pr	6.01	6.23	6.51	6.24	5.64	***5.08***	5.87	4.89	4.84
Nd	23.3	24.3	24.8	24.3	22.4	***19.9***	22.2	18.58	18.9
Sm	3.96	4.15	4.21	4.03	3.67	***3.35***	3.78	3.06	3.08
Eu	0.95	1.14	0.98	0.97	1.06	***0.95***	0.959	0.84	0.84
Gd	2.53	2.99	2.72	2.4	2.59	***2.53***	2.41	2.03	2.08
Tb	0.35	0.39	0.37	0.36	0.27	***0.28***	0.282	0.24	0.2
Dy	1.33	1.42	1.44	1.43	1.13	***1.24***	1.37	1.19	1.02
Ho	0.27	0.25	0.27	0.26	0.19	***0.2***	0.254	0.23	0.12
Er	0.73	0.74	0.75	0.72	0.52	***0.54***	0.653	0.57	0.42
Tm	0.09	0.07	0.09	0.09	0.06	***0.066***	0.0961	0.09	0.03
Yb	0.59	0.58	0.6	0.61	0.38	***0.44***	0.607	0.53	0.39
Lu	0.08	0.08	0.08	0.08	0.052	***0.063***	0.0945	0.08	0.03
Hf	2.89	2.65	2.93	2.74	2.64	***3.11***	3.38	3.9	2.93
Ta	0.26	0.24	0.26	0.27	0.18	***0.18***	0.226	0.5	0.18
Pb	38	28.9	24.8	30	22.8	***18.4***	17.1		26.7
Bi									0.08
Th	5.96	6.95	6.21	6.49	8.86	***7.49***	8.76	9.5	7.18
U	1.66	1.89	1.64	1.86	2.34	***2.65***	2.42	0.8	2.18
Mg#	40	36	44	48	43	***45***	44	47	42
Sr/Y	84	74	74	101	188	***141***	154	153	170
La/Yb	42	43	45	42	57	***48***	38	36	50
Eu/Eu*	0.92	0.99	0.89	0.95	1.05	***1.00***	0.97	1.03	1.01
Dy/Yb	2.25	2.45	2.40	2.34	2.97	***2.82***	2.26	2.25	2.62
M[a]	1.96	1.97	1.98	2.27	1.66	***1.61***	1.61	1.60	1.61
T_{zr}[b]	724	721	724	701	716	***738***	752	743	728
± (2σ)	36	36	36	35	36	***37***	38	37	36

Deposit name:	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu
Sample:	PI-18	PI-18	Ng-16	PI-18	PI-28	NG-18	PI-28	Ng-18	Nmy-04	G006	Nmy-05	NMY-01
Longitude (E):										90.9		
Latitude (N):										29.5		
Rock type:												
Age (Ma):	Neogene		10-18	10-18			10-18	10-18	10-18	16.3	10-18	
Reference:	Gao et al, 2007	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Qu et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Guo et al., 2007	Hou et al., 2004	Qu et al., 2004
SiO2	68.43	68.43	68.46	68.43	66.49	68.79	66.49	68.79	68.75	70.02	69.58	69.71
TiO2	0.4	0.4	0.47	0.4	0.57	0.46	0.57	0.46	0.42	0.46	0.38	0.37
Al2O3	16.3	16.3	15.86	16.3	16.28	15.76	16.28	15.76	15.79	16.07	15.51	15.33
FeO	1.68	1.68			0.47	0.82						1.33
Fe2O3	0.89	0.89			3.35	1.52						0.73
Fe2O3T			2.27	2.4			3.77	2.26	1.99	2.02	3.28	
MnO	0.04	0.04	0.03	0.04	0.01	0.02	0.01	0.02	0.03	0.02	0.02	0.02
MgO	0.96	0.96	0.92	0.96	0.85	0.75	0.85	0.75	1.34	1.41	1.27	1.15
CaO	2.25	2.25	2.88	2.25	1.07	2.73	1.07	2.73	1.37	1.86	0.49	1.91
Na2O	5.11	5.11	4.8	5.11	3.05	4.66	3.05	4.66	4.84	4.69	4.44	4.5
K2O	2.6	2.6	2.97	2.6	3.33	3.28	3.33	3.28	3.82	3.31	4.11	3.43
P2O5	0.13	0.13	0.17	0.13	0.22	0.17	0.22	0.17	0.16	0.13	0.15	0.14
H2O+		0.35	0.67	0.35	1.75	0.69	1.75	0.69	0.86		1.15	1.03
CO2			0.05			0.05		0.05	0.17		0.17	0.05
LOI		0.74			3.64					0.52		
K2O/Na2O	0.51	0.51	0.62	0.51	1.09	0.70	1.09	0.70	0.79	0.71	0.93	0.76
Li	6.21											
Be	1.73	1.66			2.01	1.61						2.1
Sc	5.24	3.1	2.6	3.1	4.7	1.8	4.7	1.8	3.8	8.44	3.9	4.8
V	50.9	78.9			94.2	67.7				55.5		70
Cr	9.32	9.83			15.9	4.41				46.8		12.4
Co	5.79	5.22			8.91	2.78				9.12		9
Ni	7.25	7.75			10.9	2.84				29.8		23.6
Cu		245			1499	24				19		94.9
Zn		13.5			19.4	15.8				21.5		53.2
Ga	17.7	18.7			18.3	17.8				18.2		17.7
Rb	89	41.4	51	41	120	53.3	120	53	134	158	137	97.1
Sr	817	469	729	469	500	685	500	685	599	317	421	564
Y	6.09	6.22	4.3	6.2	6.89	3.92	6.9	3.9	4.2	4.17	3.4	5
Zr	122	102	95	102	102	94.2	102	94	98	92.6	106	150
Nb	3.96	6.34	4.9	6.3	8.01	4.64	8	4.6	5.9	5.33	4.7	5
Mo		14.39			3.86	1.39						26
Sn		0.4			0.8	0.42						1.1

Deposit name:	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu
Sample:	PI-18	PI-18	Ng-16	PI-18	PI-28	NG-18	PI-28	Ng-18	Nmy-04	G006	Nmy-05	NMY-01
Longitude (E):										90.9		
Latitude (N):										29.5		
Rock type:												
Age (Ma):	Neogene		10-18	10-18			10-18	10-18	10-18	16.3	10-18	
Reference:	Gao et al, 2007	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Qu et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Guo et al., 2007	Hou et al., 2004	Qu et al., 2004
Sb		0.93			1.17	0.17						0.6
Cs	2.71											
Ba	833	785	770	785	621	787	621	787	884	729	789	989
La	21.6	16.9	19.6	16.9	33.1	17.1	33.1	17.1	18.4	8.61	9.03	17.39
Ce	43.9	47.4	45.7	47.4	64.5	41.7	64.5	41.7	34.2	14.8	16.91	34.4
Pr	5.16	4.32	4.84	4.32	7.74	4.41	7.74	4.41	4.06	1.68	1.98	3.93
Nd	19	15.6	18.9	15.6	29.4	17.5	29.4	17.5	15.23	6.22	7.28	14.27
Sm	3.18	2.9	3.08	2.9	4.82	3.02	4.82	3.02	2.43	1.24	1.31	2.45
Eu	0.776	0.77	0.84	0.77	1.13	0.82	1.13	0.82	0.64	0.45	0.35	0.69
Gd	1.99	2.15	2.08	2.15	3.39	2.03	3.39	2.03	1.49	0.81	0.87	1.64
Tb	0.237	0.24	0.2	0.24	0.32	0.18	0.32	0.18	0.17	0.11	0.12	0.21
Dy	1.16	1.26	1.02	1.26	1.64	0.93	1.64	0.93	0.84	0.58	0.65	1.04
Ho	0.221	0.18	0.12	0.18	0.22	0.1	0.22	0.1	0.16	0.12	0.12	0.18
Er	0.572	0.61	0.42	0.61	0.68	0.36	0.68	0.36	0.4	0.33	0.35	0.48
Tm	0.0855	0.06	0.03	0.06	0.07	0.02	0.07	0.02	0.06	0.05	0.06	0.08
Yb	0.561	0.6	0.39	0.6	0.56	0.33	0.56	0.33	0.41	0.33	0.36	0.47
Lu	0.0848	0.06	0.03	0.06	0.06	0.02	0.06	0.02	0.07	0.05	0.06	0.08
Hf	3.2	3.04	2.9	3	3.31	2.9	3.3	2.9	3.4	3.68	3.5	4.4
Ta	0.273	0.28	0.2	0.3	0.35	0.16	0.4	0.2	0.5	0.53	0.5	0.5
Pb	15.7	15.2			61.9	20				29.2		34
Bi		0.29			4.58	0.17						1.34
Th	9.03	8.47	7.2	8.5	13.7	7.09	13.7	7.1	14.4	12.6	11.1	9.4
U	2.25	2.36	2.2	2.4	3.06	2.35	3.1	2.4	1.6	1.82	1.4	0.8
Mg#	41	41	45	44	31	38	31	40	57	58	44	51
Sr/Y	134	75	170	76	73	175	72	176	143	76	124	113
La/Yb	39	28	50	28	59	52	59	52	45	26	25	37
Eu/Eu*	0.94	0.94	1.01	0.94	0.85	1.01	0.85	1.01	1.03	1.37	1.00	1.05
Dy/Yb	2.07	2.10	2.62	2.10	2.93	2.82	2.93	2.82	2.05	1.76	1.81	2.21
M^a	1.47	1.47	1.61	1.47	0.99	1.60	0.99	1.59	1.44	1.41	1.25	1.46
T_{zr}^b	757	743	728	743	776	728	777	728	742	739	761	776
± (2σ)	38	37	36	37	39	36	39	36	37	37	38	39

Deposit name:	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Qulong	Qulong	Qulong	Qulong	Qulong
Sample:	Nmy-02	Nmy-01	Nty-11	NMY-07	Nmy-07	Nty-08	Nty-04	Nty-01	601-328	601-313	1001-522	601-314	1001-513
Longitude (E):													
Latitude (N):													
Rock type:									X porphyry	X porphyry	X porphyry	X porphyry	X porphyry
Age (Ma):	10-18	10-18	10-18		10-18	10-18	10-18	10-18					
Reference:	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	This study	This study	This study	This study	This study
SiO2	69.24	69.71	70.2	70.07	70.07	70.01	71.24	72.18	65.68	69.53	71.48	72.17	72.33
TiO2	0.38	0.37	0.38	0.36	0.36	0.28	0.2	0.3	0.43	0.31	0.28	0.21	0.27
Al2O3	15.78	15.33	14.93	15.18	15.18	14.64	14.66	14.94	14.73	14.16	13.31	13.26	12.95
FeO				0.93									
Fe2O3				0.61									
Fe2O3T	2.33	1.93	2.14		1.45	1.98	1.31	1.07	2.98	1.87	2.02	1.22	2.09
MnO	0.01	0.02	0.02	0.02	0.02	0.01	0.03	0.01	0.05	0.06	0.05	0.06	0.05
MgO	0.81	1.15	1.25	1.09	1.09	0.61	0.7	0.61	1.32	0.87	0.96	0.62	0.76
CaO	0.38	1.91	1.91	1.08	1.08	0.4	1.68	0.34	3.12	1.86	2.23	1.30	2.07
Na2O	4.47	4.5	4.64	3.95	3.95	3.41	4.24	4.45	3.76	3.40	3.45	2.16	3.45
K2O	4.37	3.43	3.02	4.93	4.93	6.57	3.07	4.53	4.51	5.81	4.78	7.51	4.58
P2O5	0.14	0.14	0.14	0.13	0.13	0.12	0.07	0.05	0.19	0.13	0.11	0.08	0.12
H2O+	1.13	1.03	0.94	0.97	0.97	1	1.44	1.19					
CO2	0.58	0.05	0.02	0.29	0.29	0.11	1.02	0.05					
LOI									3.03	2.08	2.18	2.03	2.17
K2O/Na2O	0.98	0.76	0.65	1.25	1.25	1.93	0.72	1.02	1.20	1.71	1.38	3.48	1.33
Li													
Be				2.68					2.32	2.39	2.18	1.43	2.26
Sc	3.8	4.8	3.5	2.98	3.6	3.2	2	3.1	5.59	4.72	4.57	4.23	3.95
V				66.9					73.8	49.2	43.1	38.7	41.4
Cr				26.1					16.0	14.4	28.9	9.2	16.3
Co				6.69					15.4	6.35	7.00	5.37	7.48
Ni				22.9					17.9	10.8	17.2	7.98	13.0
Cu				16.1					6744	1539	1152	1760	1876
Zn				27.1					31.3	26.5	26.0	47.7	25.3
Ga				15.8					17.2	17.7	15.5	13.8	15.4
Rb	144	97	93.8	257	149	194	89.9	112	111	123	107	159	108
Sr	310	564	632	248	501	358	523	428	788	545	554	540	513
Y	3.2	5	3.4	5.04	5	3.2	2.9	2.9	6.08	8.28	5.96	5.99	6.54
Zr	125	150	85	67	88	102	64	84	57.5	112	76.6	140	102
Nb	5.1	5	4	10.2	4.5	5.3	3.4	5.2	3.72	6.03	5.51	5.65	5.66
Mo				1.28					56.9	43.3	272	24.0	4.68
Sn				0.84									

Deposit name:	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Nanmu	Qulong	Qulong	Qulong	Qulong	Qulong
Sample:	Nmy-02	Nmy-01	Nty-11	NMY-07	Nmy-07	Nty-08	Nty-04	Nty-01	601-328	601-313	1001-522	601-314	1001-513
Longitude (E):													
Latitude (N):													
Rock type:									X porphyry	X porphyry	X porphyry	X porphyry	X porphyry
Age (Ma):	10-18	10-18	10-18		10-18	10-18	10-18	10-18					
Reference:	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Qu et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	Hou et al., 2004	This study	This study	This study	This study	This study
Sb				2.78									
Cs													
Ba	1000	989	632	738	892	1096	723	887	744	928	749	825	701
La	6.03	17.39	14.19	24.2	15.89	8.26	8.64	5.52	20.3	24.7	20.0	19.4	20.0
Ce	13.98	34.4	26.81	55.8	28.49	20.8	17	11.2	44.4	53.8	40.1	39.1	40.7
Pr	1.46	3.93	2.96	5.23	3.48	2.33	2.09	1.35	5.34	6.8	4.46	4.28	4.57
Nd	5.51	14.27	10.65	19.7	12.6	8.78	7.7	5.71	21.4	24.8	16.7	15.6	16.5
Sm	1.06	2.45	1.68	3.3	2.08	1.5	1.27	1.04	3.67	4.12	2.70	2.45	2.86
Eu	0.29	0.69	0.48	0.79	0.6	0.34	0.35	0.29	0.80	0.66	0.58	0.59	0.56
Gd	0.76	1.64	1.06	2.32	1.45	0.92	0.85	0.7	2.27	3.94	1.74	1.59	1.86
Tb	0.11	0.21	0.15	0.22	0.18	0.12	0.11	0.11	0.26	0.33	0.22	0.20	0.23
Dy	0.57	1.04	0.72	1.22	0.91	0.63	0.53	0.53	1.34	1.88	1.18	1.04	1.27
Ho	0.11	0.18	0.13	0.16	0.17	0.12	0.1	0.11	0.24	0.33	0.21	0.20	0.23
Er	0.32	0.48	0.35	0.52	0.46	0.33	0.27	0.3	0.63	1.04	0.59	0.54	0.68
Tm	0.05	0.08	0.05	0.05	0.07	0.06	0.05	0.05	0.08	0.13	0.08	0.07	0.10
Yb	0.35	0.47	0.34	0.55	0.45	0.38	0.3	0.34	0.51	0.96	0.54	0.50	0.63
Lu	0.06	0.07	0.05	0.06	0.07	0.07	0.05	0.06	0.08	0.14	0.08	0.07	0.09
Hf	3.9	4.4	3	2.6	3.3	4	2.6	3	1.98	3.13	2.45	4.08	3.23
Ta	0.5	0.5	0.5	0.57	0.5	0.5	0.5	0.5	0.35	0.56	0.47	0.58	0.50
Pb				25.1					35.7	35.7	31.0	67.2	32.9
Bi				0.15									
Th	13.8	9.4	11.6	21.1	8.2	11.9	5.5	7.9	6.45	13.3	17.3	16.8	21.2
U	1.2	0.8	2.2	5.85	1.8	0.9	2.4	2	3.57	4.51	3.98	3.70	4.65
Mg#	41	54	54	57	60	38	52	53	47	48	49	50	42
Sr/Y	97	113	186	49	100	112	180	148	130	66	93	90	78
La/Yb	17	37	42	44	35	22	29	16	40	26	37	39	32
Eu/Eu*	0.99	1.05	1.10	0.87	1.06	0.88	1.03	1.04	0.85	0.50	0.82	0.91	0.74
Dy/Yb	1.63	2.21	2.12	2.22	2.02	1.66	1.77	1.56	2.63	1.96	2.19	2.08	2.02
M[a]	1.24	1.45	1.46	1.38	1.38	1.38	1.34	1.27	1.80	1.63	1.66	1.54	1.62
T_{zr}[b]	776	776	729	716	738	749	715	741	679	739	709	764	733
± (2σ)	39	39	36	36	37	37	36	37	34	37	35	38	37

Deposit name:	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	***Qulong***	Tinggong	Tinggong	Tinggong	*Tinggong*	Tinggong
Sample:	601-312	1602-471	601-290	601-177	401-184	1602-493	601-203	401-211	***QL33-39***	NT-10	TZK 1101-32	TG-39	***Cj-20***	T358
Longitude (E):														
Latitude (N):														
Rock type:	X porphyry	P porphyry	P porphyry	X porphyry	P porphyry	P porphyry	X porphyry	P porphyry	***granodiorite***					
Age (Ma):												16	***Neogene***	
Reference:	This study	This study	This study	This study	This study	This study	This study	This study	***Yang et al.,2014***	Qu et al., 2004	Li et al., 201	Li et al., 201	***Gao et al, 2007***	Xu et al., 2010
SiO2	72.87	73.07	74.43	74.00	76.29	75.25	76.68	74.57	***68.90***	64.26	63.77	65.11	***64.9***	66.09
TiO2	0.22	0.13	0.16	0.17	0.13	0.16	0.17	0.13	***0.45***	0.58	0.49	0.54	***0.41***	0.41
Al2O3	13.17	12.31	12.70	12.36	13.01	11.98	11.55	12.12	***16.50***	15.19	14.56	15.34	***15.38***	15.37
FeO										2.17			***1.36***	
Fe2O3										1.17			***2.52***	
Fe2O3T	1.38	1.81	0.94	0.87	0.62	1.93	0.78	0.85	***2.64***		3.19	3.15		2.55
MnO	0.06	0.07	0.05	0.05	0.04	0.06	0.05	0.04	***0.05***	0.06	0.08	0.1	***0.07***	0.08
MgO	0.65	0.30	0.51	0.51	0.37	0.30	0.53	0.78	***1.44***	1.93	1.72	2.04	***0.76***	1
CaO	1.51	1.22	0.53	1.08	0.13	1.20	0.68	1.80	***2.31***	3.38	2.99	3.38	***3.24***	2.79
Na2O	2.94	1.75	1.07	1.11	1.52	2.45	1.23	0.23	***4.64***	3.94	3.92	3.95	***3.22***	4.11
K2O	6.17	7.67	9.51	8.94	8.81	6.07	8.27	5.22	***4.02***	3.63	4.74	3.82	***4.08***	3.59
P2O5	0.06	0.03	0.05	0.07	0.08	0.05	0.07	0.05	***0.18***	0.23	0.33	0.23	***0.15***	0.17
H2O+										1.61				
CO2										1.52				
LOI	1.90	1.70	1.01	2.00	0.31	1.91	1.16	4.30	***0.29***		3.7	2.28		3.38
K2O/Na2O	2.10	4.38	8.86	8.05	5.79	2.47	6.74	22.71	0.87	0.92	1.21	0.97	1.27	0.87
Li											25.2	28.9	***9.38***	
Be	2.11	0.94	0.84	1.03	1.04	1.41	0.92	1.97	***1.69***	2.88	5.57	3.35	***1.82***	
Sc	3.75	2.08	3.27	3.43	3.04	2.15	3.28	3.38	***6.23***	5.6	5.38	6.22	***3.82***	4.27
V	31.1	19.60	30.90	38.2	15.80	22.70	35.9	27.50	***90.1***	93	53.5	64.7	***48.7***	47.5
Cr	10.7	13.90	11.60	11.1	6.19	12.20	11.6	11.50	***14.5***	42.7	70	62.2	***9.92***	11.2
Co	5.51	4.83	2.12	2.41	1.15	8.69	1.87	1.80	***8.8***	9.18	8.31	8.49	***6.55***	65.2
Ni	9.25	11.50	6.55	6.52	3.91	9.35	7.08	8.30	***16***	26.89	44.21	22.3	***7.15***	7.31
Cu	1840	4980	1245	153	390	1553	854	1226	***608***	58.9	66.2	146		13.4
Zn	25.7	28.50	18.00	13.5	13.90	18.60	15.2	14.10	***30.4***	67.7	94.1	80.2		91.1
Ga	14.1	11.50	12.00	10.9	15.60	12.20	10.9	13.90	***18.6***	17.9	18.6	18.7	***18.1***	19.4
Rb	127	172	179	162	175	145	149	164	***86.7***	128	259	152	***198***	145
Sr	474	475	392	372	310	384	284	259	***840***	637	657	636	***339***	673
Y	6.45	2.59	2.31	2.75	2.15	1.91	3.71	4.27	***5.89***	7.67	10.4	8.2	***5.13***	6.69
Zr	64.3	54.3	53.6	59.2	60.1	76.6	59.7	52	***72.4***	91.2	292	170	***111***	103
Nb	7.01	2.09	6.02	5.92	6.57	2.03	5.12	5.37	***3.63***	12.7	14.1	8.34	***4.13***	6.25
Mo	67.9	150	28.4	124	47.4	6.93	97.4	60.3	***1.9***	2.4				
Sn										1.01				

Deposit name:	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	Qulong	***Qulong***	Tinggong	Tinggong	Tinggong	***Tinggong***	Tinggong
Sample:	601-312	1602-471	601-290	601-177	401-184	1602-493	601-203	401-211	***QL33-39***	NT-10	TZK 1101-32	TG-39	***Cj-20***	T358
Longitude (E):														
Latitude (N):														
Rock type:	X porphyry	P porphyry	P porphyry	X porphyry	P porphyry	P porphyry	X porphyry	P porphyry	***granodiorite***					
Age (Ma):												16	***Neogene***	
Reference:	This study	This study	This study	This study	This study	This study	This study	This study	***Yang et al.,2014***	Qu et al., 2004	Li et al., 201	Li et al., 201	***Gao et al, 2007***	Xu et al., 2010
Sb										1.74				
Cs											14	9.57	***27.2***	
Ba	836	985	790	839	1134	549	610	883	***813***	842	1196	790	***760***	855
La	20.6	11.9	17.2	13.7	7.43	7.72	16.8	16.9	***19.3***	36.4	48.1	33.1	***19.2***	28.4
Ce	41.7	24.7	34.3	28.3	14.0	13.9	35.0	32.3	***39.5***	73.1	101	65.4	***39***	60.6
Pr	4.60	2.90	4.01	3.20	1.58	1.50	3.92	3.77	***4.67***	8.72	12.88	8.44	***4.62***	6.58
Nd	16.7	11.1	13.7	11.8	5.45	5.72	14.3	13.2	***18.9***	32.4	53.7	34	***17.2***	24.6
Sm	2.70	1.81	1.97	1.76	0.96	0.93	2.29	2.15	***3.38***	5.32	8.93	5.8	***2.87***	3.88
Eu	0.55	0.50	0.29	0.45	0.06	0.30	0.41	0.23	***0.84***	1.25	1.78	1.22	***0.723***	0.96
Gd	1.68	1.07	2.17	1.07	1.01	0.55	1.37	2.33	***2.21***	3.65	5.54	3.57	***1.91***	2.32
Tb	0.20	0.12	0.11	0.12	0.09	0.06	0.15	0.17	***0.26***	0.37	0.62	0.41	***0.229***	0.27
Dy	1.14	0.58	0.56	0.60	0.49	0.32	0.75	0.90	***1.32***	1.87	2.39	1.66	***1.09***	1.28
Ho	0.21	0.09	0.09	0.11	0.09	0.06	0.13	0.16	***0.24***	0.27	0.39	0.29	***0.192***	0.21
Er	0.61	0.28	0.37	0.32	0.29	0.18	0.36	0.53	***0.64***	0.78	1.09	0.79	***0.479***	0.59
Tm	0.08			0.05	0.05		0.05	0.07	***0.09***	0.08	0.15	0.11	***0.0658***	0.098
Yb	0.57	0.25	0.38	0.34	0.38	0.19	0.36	0.55	***0.58***	0.64	0.91	0.73	***0.421***	0.5
Lu	0.08		0.06	0.06	0.06		0.05	0.09	***0.09***	0.07	0.14	0.11	***0.0613***	0.084
Hf	2.32	1.99	2.01	2.01	2.33	2.99	2.16	2.01	***2.29***	2.95	8.56	4.88	***3.04***	3.1
Ta	0.75	0.24	0.60	0.55	0.75	0.19	0.50	0.64	***0.34***	0.65	0.98	0.6	***0.287***	0.53
Pb	42.0	46.6	42.2	39.0	46.6	52.7	34.7	33.5	***16***	108	95.5	42.1	***24.8***	43.2
Bi										0.33	1.16	0.18		
Th	18.3	8.65	15.2	13.5	13.3	18.4	14.1	16.6	***7.1***	25.7	66.1	30.3	***10.7***	21.6
U	3.17	2.95	1.24	1.50	1.96	7.22	1.69	1.95	***1.49***	5.19	10.4	5.08	***2.81***	4.62
Mg#	49	25	52	54	54	23	58	65	***52***	52	52	56	***27***	44
Sr/Y	73	183	170	135	144	201	77	61	***143***	83	63	78	***66***	101
La/Yb	36	48	45	40	20	41	47	31	***33***	57	53	45	***46***	57
Eu/Eu*	0.79	1.10	0.43	1.00	0.19	1.28	0.71	0.31	***0.94***	0.87	0.77	0.82	***0.94***	0.98
Dy/Yb	2.00	2.32	1.47	1.76	1.29	1.68	2.08	1.64	***2.28***	2.92	2.63	2.27	***2.59***	2.56
M^a	1.57	1.55	1.46	1.55	1.32	1.49	1.46	1.03	***1.56***	1.77	1.90	1.77	***1.60***	1.60
T_{zr}^b	701	690	695	697	712	719	703	720	***710***	715	801	764	***741***	735
± (2σ)	35	34	35	35	36	36	35	36	***36***	36	40	38	***37***	37

Deposit name:	Tinggong	Tinggong	Tinggong	Tinggong	Tinggong	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing
Sample:	NT-08	NT-03	Ng-18	CZ-26	Nt-05	01T-15	01FJW-2	G-83-175	CK307-1	01T-17	CK309-9
Longitude (E):											
Latitude (N):											
Rock type:											
Age (Ma):			Neogene	Neogene	Neogene	171	171	171	171	171	171
Reference:	Qu et al., 2004	Qu et al., 2004	Gao et al, 2007	Gao et al, 2007	Gao et al, 2007	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006
SiO2	66.83	67.9	68.79	69.06	71.19	59.44	61.29	64.67	64.63	64.53	65.75
TiO2	0.39	0.49	0.46	0.37	0.37	0.39	0.63	0.49	0.43	0.38	0.38
Al2O3	15.12	16.09	15.76	14.65	14.99	14.56	15.25	14.97	15.48	14.7	15.14
FeO	1.87	1.47	0.82	1.43	0.95	2.8	3.8	2.6	2.48	2.73	2.45
Fe2O3	0.6	0.84	1.52	0.78	0.75	1.34	2.29	1.55	1.36	2.16	2.19
Fe2O3T											
MnO	0.06	0.01	0.02	0.03	0.01	0.08	0.21	0.11	0.09	0.06	0.06
MgO	1.11	1.49	0.75	0.95	0.72	2.4	3.86	2.35	2.05	2.23	1.87
CaO	2.86	1.53	2.73	2.19	0.9	5.85	2.78	4.5	3.84	2.88	3.29
Na2O	4.33	4.61	4.66	3.99	3.62	4.26	2.85	3.57	4.09	4.28	3.64
K2O	3.36	3.51	3.28	4.51	4.75	2.84	1.79	3.3	3.11	3.13	3.13
P2O5	0.17	0.19	0.17	0.15	0.15	0.23	0.19	0.26	0.2	0.22	0.19
H2O+	1.37	1.14									
CO2	1.63	0.23	0.05	0.4	0.12	2.91	1.18	0.07	0.48	0.56	0.06
LOI											
K2O/Na2O	0.78	0.76	0.70	1.13	1.31	0.67	0.63	0.92	0.76	0.73	0.86
Li			9.09	18.7	16.2						
Be	2.59	2.44	1.81	2.75	2.17						
Sc	3.94	4.6	3.44	4.85	3.48	9.76	15.8	9.28	8.42	8.23	8.99
V	59.7	76.8	51	42.9	40.8	79	135	74.1	74.2	75.4	74.3
Cr	10.4	4.7	2.54	12	2.45	50.8	80.1	56.2	54	46.3	37.1
Co	5.59	2.39	5.31	4.45	3.82	9.93	12.3	10.4	8.6	9.22	9.66
Ni	7.37	8.49	6.11	6.01	4.26	22.3	30.7	23.8	22.4	22.7	16.7
Cu	50.8	1633									
Zn	105	40.5									
Ga	17.9	19.4	19.4	17.7	19	17.2	16.5	17.6	18.3	18.6	19.8
Rb	142	134	81	164	140	109	71.3	104	81.6	119	57.3
Sr	623	622	907	709	621	916	442	818	790	656	632
Y	6.84	9.12	4.62	6.72	6.9	11	13	13.43	11.3	8.63	8.34
Zr	48.9	79.4	121	146	123	111	108	41.4	112	83.3	85.4
Nb	10.1	9.81	3.13	7.63	5.33	8.98	8.32	10.4	9.76	9.34	7.71
Mo	2.27	15.1									
Sn	0.75	2.27									

Deposit name:	Tinggong	Tinggong	Tinggong	Tinggong	Tinggong	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing
Sample:	NT-08	NT-03	Ng-18	CZ-26	Nt-05	01T-15	01FJW-2	G-83-175	CK307-1	01T-17	CK309-9
Longitude (E):											
Latitude (N):											
Rock type:											
Age (Ma):			Neogene	Neogene	Neogene	171	171	171	171	171	171
Reference:	Qu et al., 2004	Qu et al., 2004	Gao et al, 2007	Gao et al, 2007	Gao et al, 2007	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006
Sb	1.99	1									
Cs			3.17	8.45	9.64	32.5	23.62	1.72	3.7	4.81	2.86
Ba	739	858	908	917	751	933	1273	1465	1321	1205	1339
La	29.9	28.2	22	30.9	18.2	45.76	28.46	41.26	37.3	28.7	20.7
Ce	58.5	66.5	46.3	59.4	46.6	71.73	46.78	72.1	60.75	44.77	35.4
Pr	6.21	8.44	5.57	6.63	5.96	6.47	5.41	8.25	6.5	4.72	3.62
Nd	23.7	33.1	20.9	23.8	22.1	21.4	18.61	27.12	22.33	16.25	12.68
Sm	3.84	5.88	3.34	3.75	3.85	3.43	3.27	4.32	3.45	2.45	2.33
Eu	0.95	1.28	0.764	0.787	0.79	1.07	0.88	1.09	0.9	0.7	0.8
Gd	2.84	4.12	1.93	2.39	2.37	2.87	2.78	3.1	2.53	1.87	2.02
Tb	0.28	0.47	0.208	0.268	0.289	0.37	0.41	0.48	0.38	0.27	0.26
Dy	1.47	2.39	0.98	1.31	1.39	2.06	2.21	2.37	1.99	1.46	1.45
Ho	0.19	0.35	0.167	0.242	0.248	0.38	0.43	0.45	0.37	0.27	0.28
Er	0.62	1.02	0.405	0.637	0.612	1.18	1.14	1.18	1	0.75	0.86
Tm	0.06	0.12	0.0576	0.0913	0.0881	0.16	0.18	0.17	0.15	0.11	0.12
Yb	0.51	0.92	0.365	0.597	0.581	1.02	1.17	1.19	1.01	0.73	0.75
Lu	0.05	0.1	0.0559	0.0934	0.0868	0.18	0.2	0.19	0.17	0.12	0.11
Hf	2	2.74	3.27	3.93	3.48	3.26	2.97	1.59	3.08	2.49	2.74
Ta	0.52	0.4	0.195	0.555	0.338	0.84	0.72	0.86	0.76	0.8	0.66
Pb	44.7	54.9	19.8	25.5	28.3	6.85	16.3	8.27	11.4	8.11	10.3
Bi	0.2	0.3									
Th	24.8	15.9	8.43	22.8	13.1	18	14.7	20.5	15.3	19.8	16.2
U	4.99	3.85	2.92	6.16	2.92	3.39	3.38	5.08	4.02	3	3.52
Mg#	45	55	38	45	44	52	54	51	50	46	43
Sr/Y	91	68	196	106	90	83	34	61	70	76	76
La/Yb	59	31	60	52	31	45	24	35	37	39	28
Eu/Eu*	0.88	0.80	0.92	0.80	0.80	1.04	0.89	0.91	0.93	1.00	1.13
Dy/Yb	2.88	2.60	2.68	2.19	2.39	2.02	1.89	1.99	1.97	2.00	1.93
M[a]	1.65	1.38	1.60	1.61	1.26	2.45	1.27	1.93	1.80	1.73	1.62
T_{zr}[b]	676	729	748	762	773	687	762	649	728	710	719
± (2σ)	34	36	37	38	39	34	38	32	36	35	36

Deposit name:	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing
Sample:	CK307-4	01TC-02	01T-16	01TC-03	01TC-01	01FJW-4	01FJW-1-2	01FJW-3	01FJW-1-1	01FJW-5
Longitude (E):										
Latitude (N):										
Rock type:										
Age (Ma):	171	171	171	171	171	171	171	171	171	171
Reference:	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006
SiO2	65.83	63.86	66.14	65.28	65.31	67.33	67.82	68.08	68.25	68.24
TiO2	0.42	0.6	0.38	0.53	0.53	0.41	0.46	0.44	0.43	0.42
Al2O3	15.22	14.88	14.57	15.18	15.16	15.19	15.38	15.33	15.22	14.96
FeO	2.2	3.75	2.3	3.02	3.25	2.35	2.37	2.18	2.07	2.05
Fe2O3	1.51	2.45	1.33	0.99	0.96	1.59	1.54	1.44	1.69	1.59
Fe2O3T										
MnO	0.09	0.06	0.07	0.12	0.04	0.02	0.04	0.03	0.03	0.03
MgO	1.85	3.23	1.95	2.43	2.93	1.8	1.87	1.82	1.84	1.67
CaO	3.94	1.83	3.7	2.24	2.03	1.96	1.67	1.42	1.59	1.74
Na2O	3.87	1.69	3.77	3.51	2.24	3.7	3.66	3.46	3.63	4.03
K2O	3.04	2.36	3.2	2.1	2.4	3.47	2.93	3.38	3.02	2.87
P2O5	0.2	0.19	0.19	0.08	0.18	0.09	0.09	0.1	0.08	0.06
H2O+										
CO2	0.45	1.06	0.5	1.53	1.06	0.14	0.05	0.05	0.05	0.24
LOI										
K2O/Na2O	0.79	1.40	0.85	0.60	1.07	0.94	0.80	0.98	0.83	0.71
Li										
Be										
Sc	9.79	11.7	9.39	8.28	11.1	7.64	7.9	7.38	7.81	7.12
V	75.2	101	75.9	76.3	95.4	69.4	66.2	62.4	67.5	69
Cr	42.2	73.4	43.3	59.7	72.9	30.2	41.8	35.1	33.3	37.9
Co	10.5	8.67	9.65	10.4	19.9	6.93	7.66	7.1	6.93	7.86
Ni	20.2	28.7	18.3	21	32.8	12.1	14.5	15.3	15.2	13.4
Cu										
Zn										
Ga	19.7	19	17.8	16.8	17.3	18.2	18.5	18.9	18.3	18.2
Rb	81.3	136	114	89.1	114	53.9	56.1	59.7	55.1	52.3
Sr	873	648	651	1833	1318	638	691	573	623	713
Y	10.2	9.05	9.59	7.68	10	5.84	8.35	6.01	6.77	2.81
Zr	100	160	77.4	97.1	127	122	164	144	172	113
Nb	9.92	10	10.5	8.56	9.13	7.2	7.78	8.73	7.85	6.36
Mo										
Sn										

Deposit name:	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing	Dexing
Sample:	CK307-4	01TC-02	01T-16	01TC-03	01TC-01	01FJW-4	01FJW-1-2	01FJW-3	01FJW-1-1	01FJW-5
Longitude (E):										
Latitude (N):										
Rock type:										
Age (Ma):	171	171	171	171	171	171	171	171	171	171
Reference:	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006	Wang et al., 2006
Sb										
Cs	4.96	27.2	5.6	17	30.4	3.93	4.13	3.82	3.96	7.14
Ba	1288	1431	1124	3959	1550	1257	1224	1262	1203	1420
La	39.58	29.6	58.37	31.46	33.62	14.97	31.4	23.34	26.62	9.31
Ce	64.25	48.42	86.31	48.64	54.3	24.1	50.4	36.76	44.22	13.42
Pr	5.9	5.36	7.38	5.2	6.01	2.73	5.6	3.92	5	1.42
Nd	20.33	17.39	24.22	16.29	19.63	9.14	18.2	13.39	16.45	4.63
Sm	3.38	2.6	3.42	2.54	2.94	1.54	2.86	2.02	2.54	0.71
Eu	0.94	0.64	0.98	0.54	0.8	0.52	0.77	0.59	0.69	0.42
Gd	2.74	1.92	2.67	1.94	2.19	1.22	2.09	1.4	1.8	0.61
Tb	0.35	0.28	0.34	0.27	0.33	0.18	0.31	0.21	0.25	0.08
Dy	1.88	1.48	1.75	1.38	1.76	0.97	1.49	1.07	1.21	0.42
Ho	0.33	0.29	0.28	0.26	0.33	0.17	0.28	0.19	0.23	0.08
Er	0.92	0.78	0.93	0.7	0.92	0.49	0.75	0.54	0.61	0.23
Tm	0.14	0.13	0.14	0.12	0.15	0.08	0.11	0.08	0.1	0.04
Yb	0.98	0.93	0.89	0.8	1.02	0.55	0.82	0.59	0.68	0.28
Lu	0.15	0.17	0.15	0.14	0.18	0.09	0.14	0.1	0.12	0.05
Hf	3.13	4.28	2.57	2.79	3.43	3.2	4.31	3.95	4.49	3.06
Ta	0.83	0.85	0.76	0.74	0.78	0.65	0.69	0.72	0.71	0.65
Pb	9.76	11.2	9.06	9.05	31	10.3	12.1	12.6	13.4	8.92
Bi										
Th	17.9	18	27.2	17.7	18.2	14.3	15.6	16.8	13.7	12.6
U	4.68	3.02	5.43	4.11	4.84	1.58	1.92	2.39	2.05	1.5
Mg#	48	49	50	53	56	46	47	49	48	46
Sr/Y	86	72	68	239	132	109	83	95	92	254
La/Yb	40	32	66	39	33	27	38	40	39	33
Eu/Eu*	0.94	0.88	0.99	0.74	0.96	1.16	0.96	1.07	0.99	1.95
Dy/Yb	1.92	1.59	1.97	1.73	1.73	1.76	1.82	1.81	1.78	1.50
M[a]	1.77	0.91	1.79	1.25	1.02	1.38	1.23	1.20	1.23	1.33
T_{zr}[b]	721	823	701	754	794	764	800	791	805	761
± (2σ)	36	41	35	38	40	38	40	40	40	38

Deposit name:	*Oyu Tolgoi*	*Yanacocha*
Sample:		*YN-1A*
Longitude (E):	*106.8667773*	
Latitude (N):	*43.04489771*	
Rock type:		*Dacite*
Age (Ma):		
Reference:	*Wainwright et al., 2011*	*Longo 2010*
SiO2	*65.15*	*68.09*
TiO2	*0.46*	*0.4*
Al2O3	*16.91*	*16.72*
FeO	*1.48*	
Fe2O3	*0.64*	
Fe2O3T		*2.55*
MnO	*0.04*	*0.05*
MgO	*0.60*	*0.58*
CaO	*2.23*	*3.85*
Na2O	*4.34*	*4.33*
K2O	*4.13*	*3.1*
P2O5	*0.11*	*0.16*
H2O+		
CO2		
LOI	*3.29*	
K2O/Na2O	0.95	0.72
Li		
Be		
Sc		
V	*94*	*10*
Cr		
Co	*1.9*	*3.5*
Ni		
Cu	*1930*	
Zn	*35*	*215*
Ga		*23*
Rb	*93.9*	*80*
Sr	*492*	*729*
Y	*11.9*	*5*
Zr	*104*	*111.5*
Nb	*5.40*	*4*
Mo		
Sn		

Deposit name:	*Oyu Tolgoi*	*Yanacocha*
Sample:		*YN-1A*
Longitude (E):	*106.8667773*	
Latitude (N):	*43.04489771*	
Rock type:		*Dacite*
Age (Ma):		
Reference:	*Wainwright et al., 2011*	*Longo 2010*
Sb		
Cs	*1.74*	*7.6*
Ba	*738*	*677*
La	*13.5*	*20*
Ce	*26.6*	*37.5*
Pr	*2.81*	*4.2*
Nd	*11.1*	*15.5*
Sm	*2.27*	*2.7*
Eu	*0.80*	*0.7*
Gd	*2.54*	*2.1*
Tb	*0.38*	*0.3*
Dy	*2.30*	*1.3*
Ho	*0.43*	*0.2*
Er	*1.34*	*0.6*
Tm	*0.21*	*0.1*
Yb	*1.44*	*0.6*
Lu	*0.22*	*0.1*
Hf	*2.70*	*3*
Ta	*0.30*	
Pb	*5*	*25*
Bi		
Th	*2.4*	*7*
U	*1.38*	*2.5*
Mg#	*34*	*31*
Sr/Y	*41*	*146*
La/Yb	*9*	*33*
Eu/Eu*	*1.02*	*0.90*
Dy/Yb	*1.60*	*2.17*
M[a]	*1.48*	*1.65*
T_{zr}[b]	*744*	*738*
± (2σ)	*37*	*37*

[a] M = (Na+K+2*Ca)/(Al*Si) cation fractions (Hanchar and Watson, 2003).

[b] Zircon saturation temperature calculated using the zircon solubility model of Watson and Harrison (1983).