Data Repository of Zhang et al.

Data Repository Appendix A: Description of the geochronological samples

Sample D169-2 is a foliated quartz diorite collected from the central-western part of the Daguangding pluton (Fig. 1), which consists of plagioclase (70 vol.%), quartz (15 vol.%), biotite (8 vol.%), hornblende (5 vol.%), K-feldspar (1 vol.%) and accessory magnetite, titanite, apatite and zircon and secondary (<1 vol.%) sericite and epidote. Zircons from this sample display typical features of magmatic zircons and are transparent, pink, long euhedral prisms with well-developed oscillatory zoning in CL images (Fig. DR2a), with grain size ranging from 100 to 200 μm. Some zircons have rounded relict cores.

Sample HFH-1 was collected from a granite dyke intruded into the Archean gneiss two km south to the Hushiha pluton. It is comprised of plagioclase (45 vol.%), K-feldspar (25 vol.%), quartz (21 vol.%) and biotite (5 vol.%), with accessory magnetite, apatite and zircon and secondary muscovite (3 vol.%, altered after biotite), sericite and chlorite. The zircons are pink, euhedral short or long prisms with well-developed oscillatory zoning in CL images and some of them have rounded relict cores (Fig. DR2b). Zircon grain size ranges from 60 to 250 μm.

Sample HFG-2 is a mylonitic monzogranite collected from the central-southern part of the Guanglingshan pluton (Fig. 1). Its mineral assemblage comprises K-feldspar (42 vol.%), plagioclase (35 vol.%), quartz (20 vol.%), biotite (2 vol.%), with accessory magnetite, apatite and zircon and secondary (<1 vol.%) chlorite and sericite. Zircons from the granite are euhedral long or short yellowish prisms with oscillatory zoning in CL images (Fig. DR2c). The grain sizes are from 100 μm to 200 μm.

Sample D315 is a weakly foliated granodiorite collected from the eastern part of the Jianping diorite pluton (Fig. 1). It is comprised of plagioclase (52 vol.%), quartz (20 vol.%), biotite (11 vol.%), K-feldspar (10 vol.%) and hornblende (6 vol.%), with accessory magnetite, titanite, apatite and zircon and secondary sericite (<1 vol.%). The zircons are transparent, yellowish euhedral prisms with well-developed oscillatory zoning in CL images (Fig. DR2d). Zircon grain size ranges from 50 μm to 200 μm.

Sample D315-1 was collected from a syenogranite dyke intruded into the Jianping diorite pluton. It consists of K-feldspar (50 vol.%), plagioclase (25 vol.%), quartz (22 vol.%) and biotite (2 vol.%), with accessory magnetite, allanite, apatite and zircon and secondary (<1 vol.%) sericite and chlorite. The zircons are euhedral yellowish prisms with well-developed oscillatory zoning in CL images (Fig. DR2e). Zircon grain size ranges from 100 μm to 300 μm.

Sample D315-3 is a monzogranite collected from the Jianping granite pluton (Fig. 1). It comprises K-feldspar (45 vol.%), plagioclase (28 vol.%), quartz (22 vol.%), biotite (4 vol.%) and hornblende (<1 vol.%), with accessory magnetite, titanite, apatite and zircon and secondary (<1 vol.%) sericite and chlorite. The zircons are euhedral yellowish long or short prisms that are 100 μm to 250 μm long. Oscillatory zoning is well developed in CL images (Fig. DR2f).

Table DR1 Summary of the samples from the Late Paleozoic-Early Mesozoic intrusions

Sample no.	Longitude	Latitude	Rock type	Main mineral assemble	Subordinate minerals	Secondary minerals
Longhua pluton (LH)						
SD020-3	117°46′40″	41°20′00″	quartz diorite	Pl + Qtz + Bt + Hbl + Kfs	Mt + Zr + Ap + Ttn + Aln	Chl + Epi + Ser
SD020-1	117°47′17″	41°19′40″	quartz diorite	Pl + Qtz + Hbl + Bt + Kfs	Mt + Zr + Ap + Ttn	Chl + Epi + Cal + Ser
Daguangding pluton (DGD)						
D018-1	117°38′06″	41°16′10″	quartz diorite	Pl + Qtz + Hbl + Bt + Kfs	Mt + Zr + Ap + Ttn + Aln	Chl + Epi + Zoi + Ser
D018-3	117°38′06″	41°16′10″	quartz diorite	Pl + Qtz + Bt + Hbl	Mt + Zr + Ap + Ttn + Aln	Chl + Epi + Zoi + Ser + Kfs
D018-5	117°38′07″	41°16′09″	quartz diorite	Pl + Qtz + Bt + Hbl	Mt + Zr + Ap + Ttn + Aln	Chl + Epi + Zoi + Ser + Kfs
D169-2	117°26′49″	41°14′14″	quartz diorite	Pl + Qtz + Bt + Hbl + Kfs	Mt + Zr + Ap + Ttn	Epi + Ser
D224-1	117°34′23″	41°12′42″	quartz monzodiorite	Pl + Hbl + Qtz + Kfs + Bt	Mt + Zr + Ap + Ttn	Ser
D239-1	117°20′36″	41°11′09″	quartz diorite	Pl + Hbl + Qtz + Bt	Mt + Zr + Ap + Ttn	Chl + Epi + Ser
D195-1	117°30′26″	41°09′40″	hornblende gabbro	Pl + Hbl + Bt + Cpx	Mt + Zr + Ap + Ttn	Epi + Ser
Boluonuo pluton (BLN)						
HLB-G	117°20′25″	41°03′54″	quartz diorite	Pl + Bt + Qtz + Hbl + Kfs	Mt + Zr + Ap	Chl + Epi + Ser
D107-1	117°22′32″	41°05′51″	quartz diorite	Pl + Qtz + Hbl + Bt	Mt + Zr + Ap	Chl + Epi + Zoi + Ser
D203-1	117°24′44″	41°05′56″	diorite	Pl + Hbl + Bt + Qtz	Mt + Zr + Ap + Ttn	Chl + Epi + Ser
Hushiha pluton (HSH)						
FP2	116°59′01″	40°59′17″	granodiorite	Pl + Qtz + Kfs + Bt	Mt + Zr + Ap	Cal + Mus + Ser
FP3	116°59′02″	40°59′16″	granodiorite	Pl + Qtz + Kfs + Bt	Mt + Zr + Ap	Cal + Mus + Ser + Lm
HFH-1	116°59′30″	40°58′10″	granite dyke	Pl + Kfs + Qtz + Bt	Mt + Zr + Ap	Chl + Mus + Ser
Jianping diorite pluton (JP)						
D315	119°37′48″	41°52′57″	granodiorite	Pl + Qtz + Bt + Kfs + Hbl	Mt + Zr + Ap + Ttn	Ser
D316	119°37′55″	41°53′08″	granodiorite	Pl + Qtz + Bt + Kfs + Hbl	Mt + Zr + Ap + Ttn	Chl + Epi
D322-1	119°34′22″	41°51′32″	quartz diorite	Pl + Qtz + Hbl + Kfs + Bt	Mt + Zr + Ap + Ttn	Ser

Table DR1 *(continued)*

Sample no.	Longitude	Latitude	Rock type	Main mineral assemble	Subordinate minerals	Secondary minerals
Jianping granite pluton (JP)						
D315-1	119°37′48″	41°52′57″	syenogranite dyke	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap + Aln	Chl + Ser
D315-3	119°37′50″	41°52′57″	monzogranite	Kfs + Pl + Qtz + Bt + Hbl	Mt + Zr + Ap + Ttn	Chl + Ser
D386-1	119°33′58″	41°56′47″	monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap	Chl + Ser
D374	119°35′08″	41°56′30″	monzogranite	Kfs + Pl + Qtz + Bt + Hbl	Mt + Zr + Ap + Ttn	Chl + Ser
D319	119°37′23″	41°52′46″	monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap + Ttn	Chl + Epi + Ser
D327	119°53′56″	41°54′29″	monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap + Ttn	Chl + Ser
D351	119°38′00″	41°49′22″	quartz monzonite	Kfs + Pl + Qtz + Bt + Hbl	Mt + Zr + Ap + Ttn	Chl + Epi
Guanglingshan pluton (GLS)						
D120-1	117°15′31″	41°11′03″	monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap	Chl + Ser
D126-1	117°15′59″	41°10′38″	mylonitic monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap	Chl + Ser
D138-1	117°19′45″	41°09′47″	mylonitic monzogranite	Kfs + Qtz + Pl + Bt	Mt + Zr + Ap	Chl + Ser + Lm
D148-1	117°18′26″	41°10′15″	mylonitic syenogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap + Aln	Chl + Lm
HFG-G	117°15′54″	41°10′22″	mylonitic monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap	Chl + Ser
HFG-2	117°16′00″	41°10′28″	mylonitic monzogranite	Kfs + Pl + Qtz + Bt	Mt + Zr + Ap	Chl + Ser

Mineral abbreviations: Pl, plagioclase; Bt, biotite; Hbl, hornblende; Kfs, K-feldspar; Qtz, quartz; Cpx, clinopyroxene; Mus, muscovite; Ttn, titanite; Mt, magnetite; Ap, apatite; Zr, zircon; Aln, Allanite; Chl, chlorite; Epi, epidote; Zoi, zoisite; Cal, calcite; Ser, sericite; Lm, limonite. Order of minerals in main mineral assemblage is according to their abundance.

Table DR2 Measured and recommended trace element data (ppm) for rock standards

Elements	GSR-1[a]	Variation (%)	GSR-1[b]	Variation (%)	GSR-1*
Li	129.31	-1.29	-	-	131±3
Be	11.83	-4.60	-	-	12.4±0.7
Sc	5.97	-2.13	6.40	4.92	6.1±0.6
Ti	1715.35	-0.27	-	-	1720±30
V	23.16	-3.50	-	-	24±1
Cr	4.68	30.00	3.97	10.28	3.6±1.1
Co	3.28	-3.53	3.00	-11.76	3.4±1.0
Cu	1.85	-42.19	3.34	4.37	3.2±1.3
Zn	26.41	-5.68	27.42	-2.07	28±4
Ga	18.43	-3.00	19.48	2.53	19±2
Rb	452.08	-2.99	450.38	-3.35	466±26
Sr	105.59	-0.39	111.02	4.74	106±9
Y	62.01	0.02	64.09	3.37	62±7
Zr	172.44	3.26	168.36	0.81	167±14
Nb	39.73	-0.68	44.56	11.40	40±4
Sn	12.55	0.40	12.34	-1.28	12.5±2.0
Cs	38.84	1.15	37.28	-2.92	38.4±1.5
Ba	333.02	-2.91	343.75	0.22	343±45
La	54.15	0.28	57.31	6.13	54±5
Ce	111.66	3.39	113.60	5.19	108±11
Pr	12.62	-0.63	12.16	-4.25	12.7±0.8
Nd	48.58	3.36	47.19	0.40	47±5
Sm	9.54	-1.65	10.45	7.73	9.7±1.2
Eu	0.83	-2.35	0.91	7.06	0.85±0.10
Gd	9.58	3.01	9.23	-0.75	9.3±0.8
Tb	1.65	0.00	1.60	-3.03	1.65±0.13
Dy	10.62	4.12	9.46	-7.25	10.2±0.5
Ho	2.03	-0.98	1.92	-6.34	2.05±0.22
Er	6.33	-2.62	6.24	-4.00	6.5±0.4
Tm	1.10	3.77	1.00	-5.66	1.06±0.11
Yb	7.60	2.70	7.42	0.27	7.4±0.7
Lu	1.16	0.87	1.15	0.00	1.15±0.12
Hf	6.53	3.65	5.71	-9.37	6.3±0.8
Ta	6.82	-5.28	6.94	-3.61	7.2±0.7
Pb	31.27	0.87	29.38	-5.23	31±4
Bi	-	-	0.62	16.98	0.53±0.09
Th	54.84	1.56	55.11	2.06	54±4
U	18.50	-1.60	17.98	-4.36	18.8±2.2

[a] Measured at the State Key Laboratory of Mineral Deposits Research, Nanjing University.

[b] Measured at the Institute of Geology and Geophysics, Chinese Academy of Sciences.

* Recommended values of the Chinese standard GSR-1 are from Xie et al (1989).

Table DR3 SHRIMP U-Pb dating results of the Late Paleozoic-Early Mesozoic intrusions

Grain-spot	Grain area	$^{206}Pb_c$ (%)	U (ppm)	Th (ppm)	Th/U	$^{206}Pb^*$ (ppm)	$^{204}Pb/^{206}Pb$	$^{207}Pb^*/^{206}Pb^*$	$^{207}Pb^*/^{235}U$	$^{206}Pb^*/^{238}U$	$^{206}Pb^*/^{238}U$ Age (Ma)	$^{207}Pb^*/^{206}Pb^*$ Age (Ma)
Sample D169-2 from Daguangding												
1.1	r	0.62	316	216	0.71	12.2	0.00034	0.0464±0.0019	0.286±0.012	0.04474±0.00054	282±3	
2.1	r	2.66	93	9	0.10	3.78	0.00146	0.0438±0.0088	0.277±0.058	0.04596±0.00092	290±6	
2.2	r	1.80	96	65	0.70	4.12	0.00099	0.0490±0.0069	0.331±0.046	0.04908±0.00088	309±6	
3.1	r	0.84	144	75	0.53	6.18	0.00046	0.0557±0.0023	0.379±0.017	0.04938±0.00064	311±4	
4.1	r	1.30	105	32	0.31	4.56	0.00072	0.0572±0.0042	0.395±0.030	0.05006±0.00085	315±5	
4.2	c	0.07	401	139	0.36	134	0.00005	0.1522±0.0009	8.175±0.073	0.38950±0.00245	2,120±11	2,371±11
5.1	r	0.32	177	98	0.57	8.24	0.00018	0.0582±0.0024	0.432±0.019	0.05385±0.00070	338±4	
6.1	r	0.65	192	98	0.53	8.78	0.00036	0.0515±0.0027	0.376±0.021	0.05294±0.00064	333±4	
6.2	r	0.75	153	110	0.74	6.69	0.00041	0.0566±0.0036	0.393±0.026	0.05042±0.00071	317±4	
7.1	r	0.31	155	60	0.40	6.51	0.00017	0.0605±0.0033	0.406±0.022	0.04864±0.00063	306±4	
8.1	r	0.57	283	232	0.84	11.7	0.00031	0.0546±0.0022	0.361±0.015	0.04794±0.00047	302±3	
9.1	r	0.24	337	235	0.72	15.1	0.00013	0.0557±0.0019	0.400±0.015	0.05211±0.00073	327±4	
9.2	c	0.03	385	348	0.94	156	0.00002	0.1597±0.0014	10.420±0.115	0.47290±0.00293	2,496±13	2,453±14
10.1	r	1.71	106	56	0.54	4.91	0.00094	0.0535±0.0064	0.390±0.047	0.05280±0.00095	332±6	
11.1	r	1.09	111	5	0.05	4.64	0.00060	0.0538±0.0034	0.358±0.024	0.04824±0.00082	304±5	
12.1	r	0.47	421	202	0.49	18.2	0.00026	0.0516±0.0017	0.357±0.012	0.05011±0.00041	315±3	
13.1	r	0.88	224	138	0.64	9.62	0.00048	0.0510±0.0033	0.348±0.023	0.04951±0.00054	312±3	
14.1	r	0.60	446	438	1.02	20.1	0.00033	0.0514±0.0017	0.370±0.013	0.05221±0.00043	328±3	
15.1	r	0.56	171	99	0.60	6.85	0.00031	0.0546±0.0037	0.348±0.024	0.04630±0.00060	292±4	
16.1	r	1.20	198	183	0.95	8.63	0.00066	0.0472±0.0028	0.325±0.020	0.05002±0.00095	315±6	
17.1	r	0.00	110	12	0.11	4.66	0.00000	0.0618±0.0025	0.421±0.019	0.04940±0.00104	311±6	
Sample HFH-1 from Hushiha												
1.1	r	2.57	196	188	0.96	7.85	0.00141	0.0463±0.0077	0.291±0.049	0.04550±0.00075	287±5	
2.1	r	0.20	125	43	0.34	50.6	0.00014	0.1643±0.0019	10.630±0.218	0.46920±0.00804	2480±35	2501±19
3.1	c	0.09	566	213	0.38	185	0.00006	0.1493±0.0008	7.844±0.062	0.38110±0.00218	2081±10	2338±9
4.1	r	0.66	345	92	0.27	95.7	0.00042	0.1468±0.0021	6.500±0.108	0.32130±0.00277	1796±13	2309±24
5.1	r	1.96	480	387	0.81	20.3	0.00107	0.0527±0.0078	0.350±0.052	0.04816±0.00060	303±4	
6.1	r	2.49	181	154	0.85	7.45	0.00136	0.0567±0.0095	0.365±0.049	0.04672±0.00070	294±4	
7.1	r	0.98	158	59	0.37	6.87	0.00054	0.0723±0.0053	0.500±0.037	0.05018±0.00068	316±4	
8.1	r	3.91	117	68	0.58	4.74	0.00214	0.0580±0.0169	0.360±0.107	0.04550±0.00108	287±7	
9.1	r	2.36	132	110	0.83	5.55	0.00129	0.0710±0.0104	0.470±0.069	0.04787±0.00086	301±5	
10.1	r	0.23	172	132	0.77	57.6	0.00015	0.1612±0.0020	8.660±0.134	0.38950±0.00348	2121±16	2468±21
11.1	r	2.78	248	241	0.97	10.9	0.00153	0.0647±0.0067	0.444±0.046	0.04980±0.00066	313±4	

Table DR3 *(continued)*

Grain-spot	Grain area	$^{206}Pb_c$ (%)	U (ppm)	Th (ppm)	Th/U	$^{206}Pb^*$ (ppm)	$^{204}Pb/^{206}Pb$	$^{207}Pb^*/^{206}Pb^*$	$^{207}Pb^*/^{235}U$	$^{206}Pb^*/^{238}U$	$^{206}Pb^*/^{238}U$ Age (Ma)	$^{207}Pb^*/^{206}Pb^*$ Age (Ma)
Sample HFH-1 from Hushiha												
12.1	r	1.00	353	293	0.83	14.9	0.00055	0.0583±0.0077	0.392±0.025	0.04871±0.00091	307±6	
13.1	r	2.11	160	77	0.48	6.41	0.00116	0.0823±0.0072	0.516±0.047	0.04550±0.00118	287±7	
13.2	c	0.07	348	183	0.53	133	0.00005	0.1677±0.0009	10.230±0.226	0.44260±0.00949	2362±42	2534±9
14.1	r	2.93	103	70	0.68	4.10	0.00160	0.0810±0.0142	0.499±0.089	0.04490±0.00127	283±8	
14.2	c	0.04	571	408	0.71	200	0.00002	0.1588±0.0007	8.930±0.194	0.40810±0.00864	2206±40	2443±8
15.1	m	0.24	58	136	2.34	14.4	0.00015	0.1255±0.0031	4.940±0.176	0.28540±0.00723	1618±36	2036±44
15.2	c	0.06	243	107	0.44	89.3	0.00004	0.1966±0.0013	11.600±0.270	0.42800±0.00956	2297±43	2798±10
16.1	r	0.26	1055	654	0.62	47.1	0.00014	0.0606±0.0016	0.433±0.015	0.05190±0.00112	326±7	
17.1	r	1.52	89	30	0.34	3.78	0.00083	0.0696±0.0057	0.468±0.041	0.04880±0.00137	307±8	
18.1	r	1.91	194	132	0.68	7.30	0.00104	0.0820±0.0106	0.489±0.064	0.04300±0.00108	271±7	
Sample HFG-2 from Guanglingshan												
1.1	r	1.39	300	369	1.23	10.5	0.00076	0.0529±0.0042	0.292±0.024	0.04004±0.00048	253±3	
2.1	r	3.62	232	330	1.42	8.34	0.00198	0.0410±0.0107	0.225±0.059	0.04030±0.00069	255±4	
3.1	r	5.06	193	234	1.21	6.96	0.00276	0.0370±0.0185	0.201±0.101	0.03978±0.00095	251±6	
4.1	r	2.86	289	340	1.18	9.77	0.00156	0.0550±0.0132	0.288±0.069	0.03828±0.00073	242±4	
5.1	r	3.21	154	97	0.63	5.56	0.00175	0.0658±0.0079	0.370±0.044	0.04076±0.00082	258±5	
6.1	r	0.89	262	262	1.00	9.31	0.00049	0.0612±0.0048	0.346±0.028	0.04102±0.00053	259±3	
7.1	r	2.07	726	1129	1.56	26.4	0.00113	0.0582±0.0042	0.333±0.024	0.04153±0.00037	262±2	
8.1	r	2.79	284	310	1.09	10.00	0.00152	0.0530±0.0117	0.288±0.063	0.03981±0.00072	252±4	
9.1	r	3.42	293	195	0.66	9.95	0.00187	0.0527±0.0090	0.277±0.050	0.03813±0.00057	241±3	
10.1	r	1.71	277	262	0.95	9.81	0.00093	0.0567±0.0085	0.317±0.048	0.04051±0.00057	256±3	
11.1	r	3.95	124	94	0.75	4.62	0.00216	0.0630±0.0132	0.362±0.080	0.04155±0.00091	262±6	
12.1	r	4.35	240	130	0.54	8.78	0.00238	0.0600±0.0120	0.339±0.071	0.04065±0.00077	257±5	
12.2	m	3.45	332	323	0.97	11.8	0.00188	0.0740±0.0126	0.406±0.069	0.03985±0.00056	252±3	
13.1	r	1.81	250	245	0.98	9.08	0.00099	0.0643±0.0084	0.368±0.048	0.04155±0.00066	262±4	
13.2	m	2.29	223	355	1.59	8.48	0.00125	0.0620±0.0105	0.372±0.063	0.04324±0.00074	273±5	
14.1	r	1.61	2122	4686	2.21	77.1	0.00088	0.0579±0.0032	0.332±0.018	0.04160±0.00028	263±2	
14.2	m	0.21	5392	11090	2.06	182	0.00012	0.0520±0.0006	0.282±0.004	0.03924±0.00016	248±1	

Errors are 1σ; Pb_c and Pb* indicate the common and radiogenic portions, respectively; Common Pb corrected with $^{208}Pb/^{206}Pb$=2.097, $^{207}Pb/^{206}Pb$=0.864, $^{206}Pb/^{204}Pb$=18.052. Grain area as interpreted from CL images; c: core (rounded core usually is discordant to mantle or rim), m, mantle (area between core and rim without clear oscillatory zones); r, rim (usually with oscillatory zones)

Table DR4 LA-ICP-MS U-Pb dating results of the Late Paleozoic-Early Mesozoic intrusions

Grain-spot	Grain area	Pb (ppm)	^{238}U (ppm)	^{232}Th (ppm)	$^{232}Th/^{238}U$	$^{204}Pb/^{206}Pb$	$^{207}Pb^*/^{206}Pb^*$	$^{207}Pb^*/^{235}U$	$^{206}Pb^*/^{238}U$	$^{206}Pb^*/^{238}U$ Age (Ma)	$^{207}Pb^*/^{235}U$ Age (Ma)	$^{207}Pb^*/^{206}Pb^*$ Age (Ma)
Sample D315 from Jianping												
01	r	24.57	327.6	242.3	0.74	0.00239	0.05850±0.00145	0.44452±0.01069	0.05511±0.00034	346±2	373±8	
02	r	23.97	358.1	319.4	0.89	0.00145	0.05334±0.00073	0.35447±0.00357	0.04819±0.00023	303±1	308±3	
03	r	27.14	454.6	206.0	0.45	0.00131	0.05316±0.00095	0.35490±0.00537	0.04841±0.00026	305±2	308±4	
04	r	10.95	169.9	98.7	0.58	0.00253	0.05518±0.00096	0.37818±0.00553	0.04970±0.00027	313±2	326±4	
05	r	16.03	257.1	152.2	0.59	0.00136	0.05238±0.00082	0.34994±0.00438	0.04845±0.00024	305±1	305±3	
06	r	42.13	683.3	409.0	0.60	0.00102	0.05284±0.00063	0.35255±0.00271	0.04838±0.00021	305±1	307±2	
07	r/c	384.08	941.5	523.1	0.56	0.00005	0.11136±0.00112	4.77510±0.02052	0.31095±0.00129	1745±6	1781±4	1822±18
08	r	12.23	196.0	111.9	0.57	0.00158	0.05409±0.00086	0.36256±0.00464	0.04860±0.00025	306±2	314±3	
09	r	21.26	362.1	131.9	0.36	<0.00057	0.05765±0.00129	0.38210±0.00764	0.04806±0.00031	303±2	329±6	
10	r	13.86	221.9	140.9	0.63	0.00355	0.05182±0.00170	0.31313±0.01006	0.04382±0.00028	276±2	277±8	
11	r	9.99	160.4	104.4	0.65	<0.00135	0.05330±0.00087	0.35438±0.00472	0.04821±0.00024	304±1	308±4	
12	r	9.95	164.9	102.4	0.62	0.00233	0.05327±0.00144	0.34386±0.00906	0.04682±0.00030	295±2	300±7	
13	r	7.65	125.6	70.9	0.56	0.00293	0.05373±0.00096	0.35759±0.00539	0.04826±0.00026	304±2	310±4	
14	r	12.21	192.4	117.6	0.61	0.00237	0.05313±0.00115	0.35225±0.00735	0.04808±0.00026	303±2	306±6	
15	r	11.02	183.3	119.6	0.65	0.00241	0.05240±0.00103	0.33937±0.00581	0.04696±0.00027	296±2	297±4	
16	r	10.06	169.5	83.2	0.49	0.00311	0.05418±0.00091	0.36173±0.00506	0.04841±0.00025	305±2	314±4	
Sample D315-1 from Jianping												
01	r	16.03	270.3	360.4	1.33	0.00434	0.05262±0.00075	0.27729±0.00298	0.03821±0.00018	242±1	249±2	
02	r	8.86	139.8	236.1	1.69	0.00747	0.05316±0.00117	0.28215±0.00554	0.03849±0.00023	243±1	252±4	
03	r	14.77	237.7	346.9	1.46	0.00313	0.05357±0.00079	0.28784±0.00327	0.03896±0.00019	246±1	257±3	
04	r	25.20	292.5	415.7	1.42	0.00855	0.15169±0.00177	0.92661±0.00658	0.04430±0.00021	279±1	666±3	
05	r	25.58	459.8	511.7	1.11	0.00175	0.07108±0.00106	0.36613±0.00426	0.03736±0.00019	236±1	317±3	
06	r	15.68	231.0	370.1	1.60	0.00151	0.05213±0.00080	0.29358±0.00356	0.04084±0.00020	258±1	261±3	
07	r	19.22	303.7	516.8	1.70	0.00110	0.05275±0.00086	0.27293±0.00362	0.03752±0.00019	237±1	245±3	
08	r	45.17	755.5	494.2	0.65	0.00106	0.06312±0.00072	0.39905±0.00270	0.04585±0.00020	289±1	341±2	
09	r	8.68	144.9	178.6	1.23	<0.00213	0.05432±0.00097	0.29380±0.00443	0.03922±0.00021	248±1	262±3	
10	r	12.50	174.0	405.2	2.33	0.00482	0.06820±0.00158	0.34609±0.00719	0.03680±0.00025	233±2	302±5	
11	r	5.50	86.0	123.1	1.43	0.00449	0.06465±0.00152	0.34691±0.00739	0.03891±0.00025	246±2	302±6	
12	r	4.21	70.4	99.4	1.41	0.00788	0.05180±0.00154	0.27141±0.00760	0.03799±0.00026	240±2	244±6	
13	r	5.11	79.0	128.0	1.62	0.00752	0.05131±0.00219	0.27095±0.01137	0.03830±0.00028	242±2	243±9	
14	r	22.38	316.2	700.5	2.22	0.00135	0.05224±0.00078	0.27517±0.00318	0.03820±0.00018	242±1	247±3	
15	r	12.92	196.6	366.2	1.86	0.00258	0.05408±0.00100	0.28340±0.00452	0.03801±0.00021	240±1	253±4	

Table DR4 *(continued)*

Grain-spot	Grain area	Pb (ppm)	^{238}U (ppm)	^{232}Th (ppm)	$^{232}Th/^{238}U$	$^{204}Pb/^{206}Pb$	$^{207}Pb^*/^{206}Pb^*$	$^{207}Pb^*/^{235}U$	$^{206}Pb^*/^{238}U$	$^{206}Pb^*/^{238}U$ Age (Ma)	$^{207}Pb^*/^{235}U$ Age (Ma)	$^{207}Pb^*/^{206}Pb^*$ Age (Ma)
Sample D315-3 from Jianping												
01	r	3.00	48.3	63.9	1.32	0.02178	0.05107±0.00371	0.27390±0.01969	0.03890±0.00042	246±3	246±16	
02	r	7.83	133.2	144.7	1.09	0.00753	0.05981±0.00349	0.31173±0.01790	0.03780±0.00039	239±2	276±14	
03	r/c	7.58	117.2	195.5	1.67	0.00982	0.06047±0.00337	0.30952±0.01698	0.03712±0.00036	235±2	274±13	
04	r	8.07	153.1	166.7	1.09	0.00363	0.05294±0.00166	0.27391±0.00809	0.03754±0.00028	238±2	246±6	
05	r	11.90	190.5	350.3	1.84	0.00296	0.05064±0.00143	0.26232±0.00687	0.03758±0.00027	238±2	237±6	
06	r	2.06	33.1	58.0	1.75	<0.01091	0.05620±0.00419	0.29097±0.02133	0.03756±0.00050	238±3	259±17	
07	r	15.19	204.4	606.4	2.97	0.00259	0.05426±0.00128	0.28030±0.00602	0.03748±0.00024	237±1	251±5	
08	r	3.98	74.5	75.4	1.01	<0.00420	0.05355±0.00316	0.27776±0.01617	0.03762±0.00038	238±2	249±13	
09	r	12.47	203.2	318.4	1.57	<0.00188	0.06210±0.00233	0.32009±0.01175	0.03739±0.00028	237±2	282±9	
10	r	2.51	47.2	55.0	1.16	0.01095	0.05343±0.00617	0.27119±0.03076	0.03683±0.00088	233±5	244±25	
11	r	8.52	143.6	201.0	1.40	0.00309	0.05259±0.00259	0.27146±0.01314	0.03743±0.00032	237±2	244±10	
12	r	7.72	110.2	211.8	1.92	<0.00274	0.05605±0.00216	0.28896±0.01060	0.03741±0.00036	237±2	258±8	
13	r	8.11	140.9	194.6	1.38	0.00529	0.05318±0.00167	0.27604±0.00817	0.03766±0.00029	238±2	248±7	
14	r	6.70	90.0	125.9	1.40	0.01362	0.05063±0.00634	0.23741±0.02943	0.03401±0.00059	216±4	216±24	
15	r	17.35	255.5	469.3	1.84	0.00151	0.05425±0.00141	0.30845±0.00736	0.04125±0.00028	261±2	273±6	
16	r	13.08	247.7	232.8	0.94	<0.00170	0.05529±0.00125	0.28362±0.00574	0.03721±0.00023	236±1	254±5	

Errors are 1σ; Pb refers to total Pb; Pb* indicate the radiogenic lead portion; Common Pb corrected using method described by Andersen (2002); Grain area interpretation is as same as Table DR3.

Table DR5 Major and trace element compositions of the Carboniferous rocks

Rock type	quartz diorite, diorite, granodiorite, granite, hornblende gabbro																	
Number	SD020-3*	SD020-1*	D018-1*	D018-3	D018-5	D169-2*	D224-1	D239-1	D195-1	HLB-G*	D107-1	D203-1	FP2*	FP3	HFH-1	D315	D316	D322-1
Location	LH	LH	DGD	DGD	DGD	DGD	DGD	DGD	DGD	BLN	BLN	BLN	HSH	HSH	HSH	JP	JP	JP
Major element oxides (wt%)																		
SiO_2	61.32	58.01	66.71	72.46	71.26	63.06	55.16	55.68	46.46	67.70	59.17	50.48	69.34	71.06	73.37	64.16	63.86	60.09
TiO_2	0.60	0.68	0.14	0.12	0.18	0.62	0.85	0.78	1.40	0.17	0.47	0.81	0.09	0.11	0.06	0.50	0.50	0.76
Al_2O_3	17.69	17.83	18.62	15.24	14.76	17.34	19.35	18.00	19.98	17.37	17.68	19.26	15.86	16.64	14.47	16.39	16.56	17.80
Fe_2O_3T	5.71	6.45	1.37	1.14	1.57	4.70	7.63	8.57	11.44	2.04	5.34	7.89	0.76	0.90	0.74	4.97	4.63	6.34
MnO	0.11	0.12	0.04	0.02	0.06	0.07	0.14	0.14	0.13	0.04	0.07	0.09	0.01	0.02	0.02	0.11	0.11	0.14
MgO	2.09	2.55	0.43	0.32	0.59	1.79	2.68	3.64	4.16	0.76	4.10	5.17	0.20	0.26	0.22	2.18	2.00	2.31
CaO	5.86	5.57	3.16	1.40	1.79	4.79	5.99	6.63	9.48	3.06	5.89	8.55	1.72	1.55	1.27	5.64	5.24	6.28
Na_2O	3.74	3.55	6.63	5.30	5.34	4.78	4.74	3.88	3.54	6.26	4.92	4.72	5.86	5.97	4.50	3.47	3.54	3.30
K_2O	2.00	2.87	1.81	3.26	3.37	1.49	2.46	1.75	1.46	1.38	1.41	0.50	2.73	3.01	3.93	2.12	2.54	2.10
P_2O_5	0.27	0.33	0.07	0.05	0.11	0.27	0.50	0.30	0.40	0.07	0.16	0.36	0.03	0.04	0.02	0.19	0.20	0.33
LOI	0.79	2.20	1.11	0.90	1.04	0.55	0.64	0.59	1.45	1.09	0.68	1.52	3.36	0.65	0.93	0.33	0.66	0.84
Total	100.18	100.15	100.09	100.20	100.07	99.46	100.14	99.96	99.90	99.94	99.89	99.35	99.96	100.21	99.55	100.06	99.84	100.29
A/CNK	0.93	0.93	1.00	1.03	0.94	0.95	0.91	0.89	0.81	1.00	0.87	0.81	1.01	1.05	1.04	0.90	0.91	0.93
A/NK	2.13	1.99	1.45	1.24	1.19	1.83	1.85	2.17	2.70	1.47	1.84	2.32	1.26	1.27	1.24	2.05	1.93	2.31
Na_2O/K_2O	1.87	1.24	3.66	1.63	1.58	3.21	1.93	2.22	2.42	4.54	3.49	9.44	2.15	1.98	1.15	1.64	1.39	1.57
Na_2O/CaO	0.64	0.64	2.10	3.78	2.98	1.00	0.79	0.59	0.37	2.05	0.84	0.55	3.41	3.85	3.54	0.62	0.68	0.53
MgO/FeOT	0.41	0.44	0.35	0.31	0.41	0.42	0.39	0.47	0.40	0.41	0.85	0.73	0.29	0.32	0.33	0.49	0.48	0.40
MgO/MnO	19.00	21.25	10.75	12.68	10.30	25.57	19.14	26.00	32.00	19.00	58.57	57.44	20.00	13.00	10.18	19.82	18.18	16.50
Mg#	42.0	43.9	38.4	35.7	42.4	43.0	41.0	45.7	41.9	42.4	60.4	56.5	34.4	36.4	37.4	46.5	46.1	41.9
Trace elements (ppm)																		
La	55.12	58.08	15.36	13.32	16.01	22.47	30.54	14.11	22.08	18.80	14.39	12.55	10.04	3.64	15.56	29.71	37.27	52.26
Ce	99.96	109.61	26.69	23.57	23.96	39.74	63.34	29.56	45.19	33.05	25.68	28.64	17.37	5.66	31.26	52.93	70.34	95.04
Pr	11.26	12.59	2.56	4.16	3.16	4.96	7.63	4.63	6.28	3.59	2.94	4.09	1.93	0.59	3.60	5.87	6.94	10.08
Nd	41.23	47.57	8.58	13.17	12.56	20.31	30.81	22.62	28.22	12.59	12.20	20.04	6.93	2.19	12.57	23.00	25.50	39.92
Sm	8.47	7.58	1.94	3.21	3.23	3.33	5.13	4.72	5.54	2.78	2.05	3.75	0.93	0.30	2.53	3.88	4.15	7.58
Eu	1.87	2.02	0.77	1.51	1.28	1.57	1.92	1.87	2.05	1.19	0.91	1.51	0.59	0.47	1.06	1.39	1.45	2.14
Gd	5.97	6.48	1.38	1.53	1.81	2.86	4.78	4.49	5.13	1.63	1.82	3.15	0.77	0.33	1.12	3.27	3.71	6.96
Tb	0.75	0.82	0.17	0.23	0.28	0.39	0.69	0.67	0.76	0.17	0.26	0.45	0.08	0.03	0.17	0.49	0.46	1.02
Dy	3.36	3.92	0.78	1.13	1.35	1.90	3.72	3.63	4.00	0.76	1.45	2.21	0.39	0.17	0.84	2.58	2.37	5.40
Ho	0.64	0.74	0.14	0.21	0.25	0.35	0.72	0.71	0.77	0.14	0.29	0.42	0.07	0.03	0.16	0.50	0.46	1.10
Er	1.85	2.24	0.43	0.58	0.77	0.95	2.20	2.00	2.09	0.40	0.83	1.18	0.22	0.10	0.51	1.53	1.32	3.19
Tm	0.24	0.29	0.06	0.08	0.11	0.12	0.32	0.27	0.28	0.05	0.11	0.16	0.03	0.02	0.08	0.23	0.20	0.46
Yb	1.54	1.90	0.44	0.56	0.76	0.82	2.28	1.88	1.84	0.37	0.81	1.05	0.25	0.12	0.58	1.76	1.35	2.96

Table DR5 *(continued)*

Number	SD020-3*	SD020-1*	D018-1*	D018-3	D018-5	D169-2*	D224-1	D239-1	D195-1	HLB-G*	D107-1	D203-1	FP2*	FP3	HFH-1	D315	D316	D322-1
Location	LH	LH	DGD	DGD	DGD	DGD	DGD	DGD	DGD	BLN	BLN	BLN	HSH	HSH	HSH	JP	JP	JP
Lu	0.23	0.29	0.07	0.08	0.12	0.12	0.36	0.28	0.26	0.05	0.13	0.15	0.04	0.02	0.10	0.28	0.23	0.46
ΣREE	232.49	254.13	59.37	63.32	65.64	99.90	154.44	91.42	124.50	75.57	63.86	79.34	39.64	13.68	70.11	127.42	155.75	228.59
La_N/Yb_N	24.19	20.66	23.59	16.02	14.27	18.52	9.05	5.07	8.13	34.34	12.00	8.08	27.14	20.50	18.12	11.40	18.71	11.95
Eu_N/Eu_N^*	0.81	0.88	1.44	2.09	1.62	1.56	1.19	1.24	1.18	1.71	1.44	1.34	2.13	4.57	1.92	1.19	1.13	0.90
Li	46.35	45.02	12.90	34.68	20.71	6.19	12.01	11.37	8.33	24.33	10.55	6.06	8.36	8.35	36.33	n.a.	n.a.	n.a.
Be	1.56	1.44	1.76	0.86	1.24	0.62	1.38	1.04	1.10	1.04	0.63	0.39	0.66	0.40	1.08	n.a.	n.a.	n.a.
Sc	9.03	12.12	3.05	2.09	4.20	7.88	11.34	19.72	26.39	4.00	12.30	16.25	0.85	1.23	2.59	8.86	9.24	12.33
Co	12.76	13.54	2.34	1.74	4.26	10.84	15.25	23.64	34.07	4.31	21.11	29.54	1.05	1.66	2.72	10.18	10.21	9.91
As	2.83	2.67	2.73	2.45	2.19	n.a.	n.a.	n.a.	n.a.	2.30	n.a.	n.a.	n.a.	n.a.	2.68	n.a.	n.a.	n.a.
Cu	2.89	3.68	4.39	1.49	5.18	2.84	16.16	13.44	48.26	2.40	7.11	8.20	1.70	15.60	11.65	4.10	4.60	4.57
Ga	32.11	30.96	23.58	40.56	34.34	18.84	17.98	19.13	21.00	30.94	16.64	18.37	12.25	12.62	33.85	17.26	19.13	22.00
Rb	44.17	70.17	29.90	31.92	32.57	14.61	46.62	35.64	25.94	27.08	16.63	6.75	22.89	19.44	91.55	44.24	72.40	56.09
Sr	859.5	776.9	914.0	639.2	810.7	1147.0	1123.9	923.7	1203.9	1215.1	1095.9	1765.5	917.9	990.0	320.9	467.0	487.4	778.7
Y	23.49	24.64	10.55	13.86	13.67	8.13	18.07	16.39	17.15	8.44	6.78	9.88	1.98	1.13	10.45	12.18	11.93	28.11
Zr	99.64	95.94	81.99	57.46	74.61	105.78	161.35	67.73	35.81	46.23	64.79	33.00	40.85	41.57	68.38	99.02	102.39	221.98
Nb	14.46	7.82	6.87	4.97	11.59	4.49	6.20	5.29	4.86	8.51	2.23	1.92	4.26	3.41	9.57	9.05	10.02	11.84
Ba	1051.5	1089.0	432.9	1833.1	1477.2	1017.3	1260.3	928.2	515.4	1240.6	954.7	427.5	2892.4	3446.0	1428.9	646.9	688.6	1162.9
Hf	2.44	2.42	2.11	1.92	2.33	3.55	4.83	2.56	1.85	0.93	2.22	1.43	1.43	1.45	2.22	3.82	3.33	6.11
Ta	0.31	0.44	0.22	0.32	0.43	0.20	0.42	0.35	0.30	0.15	0.17	0.17	0.20	0.09	0.74	1.67	0.67	0.69
Pb	16.40	17.49	15.48	18.53	20.14	4.87	8.81	8.26	3.67	19.07	7.27	2.29	19.37	18.44	26.29	12.81	11.16	10.46
Th	7.21	8.44	1.55	1.00	2.56	2.15	3.88	1.12	0.32	0.56	1.35	0.22	3.06	0.14	4.15	8.65	9.27	8.71
U	0.50	0.45	0.33	0.34	0.56	0.42	1.15	0.82	0.10	0.16	0.31	0.09	0.22	0.06	0.54	1.10	1.06	0.83
Rb/Sr	0.051	0.090	0.033	0.050	0.040	0.013	0.041	0.039	0.022	0.022	0.015	0.004	0.025	0.020	0.285	0.095	0.149	0.072
Rb/Ba	0.042	0.064	0.069	0.017	0.022	0.014	0.037	0.038	0.050	0.022	0.017	0.016	0.008	0.006	0.064	0.068	0.105	0.048
Th/Ta	23.26	19.18	7.05	3.13	5.95	10.75	9.24	3.20	1.07	3.73	7.94	1.29	15.30	1.56	5.61	5.17	13.82	12.56
Rb/Zr	0.443	0.731	0.365	0.556	0.437	0.138	0.289	0.526	0.724	0.586	0.257	0.205	0.560	0.467	1.339	0.447	0.707	0.253
Sr/Y	36.59	31.53	86.64	46.12	59.30	141.07	62.21	56.34	70.20	143.97	161.73	178.64	464.52	876.11	30.71	38.33	40.84	27.70

Note: LH–Longhua pluton; DGD–Daguangding pluton; BLN–Boluonuo pluton; HSH–Hushiha pluton; JP–Jianping dioritic pluton; Fe_2O_3T, Fe_2O_3 total; LOI, loss on ignition; A/CNK=molecular $Al_2O_3/(CaO+Na_2O+K_2O)$; A/NK=molecular $Al_2O_3/(Na_2O+K_2O)$; Eu_N, chondrite-normalized Eu; Eu_N*, $(Sm_N \times Gd_N)^{1/2}$, n.a., not analyzed. Samples marked with asterisk are from Zhang et al. (2007).

Table DR6 Major and trace element compositions of the Late Permian-Middle Triassic granitoids

Rock type	syenogranite, monzogranite						syenogranite, monzogranite, quartz monzonite						
Number	D120-1	D126-1	D138-1	D148-1	HFG-G	HFG-2	D315-1	D315-3	D386-1	D374	D319	D327	D351
Location	GLS	GLS	GLS	GLS	GLS	GLS	JP	JP	JP	JP	JP	JP	JP
Major element oxides (wt%)													
SiO_2	76.15	77.46	75.23	72.63	74.81	73.36	72.21	71.68	76.32	72.20	72.33	75.70	64.82
TiO_2	0.10	0.09	0.14	0.26	0.16	0.15	0.16	0.38	0.07	0.22	0.28	0.22	0.53
Al_2O_3	13.26	13.01	13.46	14.74	13.43	14.04	14.12	14.40	12.27	13.67	14.39	12.47	17.73
Fe_2O_3T	0.70	0.48	0.82	1.11	0.62	0.61	1.64	2.22	1.56	2.53	1.62	1.48	2.45
MnO	0.04	0.01	0.02	0.02	0.01	0.01	0.03	0.07	0.01	0.09	0.04	0.03	0.06
MgO	0.09	0.08	0.11	0.21	0.16	0.15	0.33	0.51	0.03	0.18	0.16	0.12	0.24
CaO	0.69	0.66	0.60	0.71	0.54	0.98	1.16	1.26	0.52	0.96	0.75	0.52	0.85
Na_2O	4.17	4.04	3.77	3.76	3.28	3.77	2.78	4.32	3.16	4.04	4.36	2.93	4.61
K_2O	4.44	4.24	4.86	6.16	5.53	5.51	6.54	4.74	5.51	5.17	5.28	5.76	8.18
P_2O_5	0.02	0.01	0.03	0.02	0.04	0.04	0.07	0.12	0.02	0.06	0.07	0.03	0.07
LOI	0.34	0.18	0.35	0.32	0.58	0.94	0.30	0.31	0.21	0.35	0.36	0.26	0.22
Total	100.00	100.26	99.39	99.94	99.16	99.56	99.34	100.01	99.68	99.47	99.64	99.52	99.76
A/CNK	1.03	1.05	1.07	1.04	1.09	1.01	1.03	0.99	1.01	0.98	1.01	1.04	0.99
A/NK	1.14	1.16	1.17	1.15	1.18	1.15	1.21	1.18	1.10	1.12	1.12	1.13	1.08
Na_2O/K_2O	0.94	0.95	0.78	0.61	0.59	0.68	0.43	0.91	0.57	0.78	0.83	0.51	0.56
Na_2O/CaO	6.04	6.12	6.28	5.30	6.07	3.85	2.40	3.43	6.08	4.21	5.81	5.63	5.42
MgO/FeOT	0.14	0.19	0.15	0.21	0.29	0.27	0.22	0.26	0.02	0.08	0.11	0.09	0.11
MgO/MnO	2.25	8.00	5.50	10.50	16.00	15.00	11.00	7.29	3.00	2.00	4.00	4.00	4.00
Mg#	20.3	24.9	21.2	27.2	33.7	32.7	28.6	31.4	3.7	12.4	16.3	13.9	16.2
Trace elements (ppm)													
La	7.77	4.48	10.65	79.94	23.02	25.92	13.68	57.05	37.25	92.42	50.38	157.91	150.47
Ce	14.91	9.40	26.88	135.40	41.88	45.79	24.10	116.88	106.45	175.99	124.87	277.01	329.35
Pr	1.78	1.14	2.41	14.02	4.59	6.32	2.43	12.88	8.07	16.52	11.89	24.46	29.50
Nd	6.64	4.19	9.19	50.14	15.87	20.36	9.31	50.88	29.62	60.01	45.58	78.32	106.64
Sm	1.28	0.73	1.99	7.14	2.95	3.01	1.88	9.89	5.73	9.06	8.97	9.81	15.59
Eu	0.24	0.19	0.41	1.44	0.99	1.16	0.99	1.42	0.19	0.57	1.09	1.34	1.03
Gd	1.09	0.57	2.06	5.39	2.08	2.11	1.89	8.38	4.56	7.42	7.15	7.57	11.20
Tb	0.17	0.08	0.43	0.73	0.27	0.23	0.26	1.30	0.72	0.96	1.03	0.85	1.24
Dy	0.97	0.44	2.44	3.51	1.12	0.93	1.32	6.90	3.99	4.45	4.97	2.89	4.58
Ho	0.18	0.08	0.44	0.62	0.20	0.17	0.26	1.36	0.84	0.89	0.83	0.54	0.82
Er	0.55	0.25	1.08	1.70	0.52	0.47	0.84	3.83	2.63	2.67	2.23	1.70	2.60
Tm	0.08	0.04	0.14	0.23	0.08	0.07	0.12	0.53	0.43	0.37	0.30	0.23	0.36
Yb	0.58	0.30	0.79	1.52	0.51	0.42	0.96	3.25	3.15	2.60	1.92	1.58	2.69
Lu	0.08	0.05	0.10	0.23	0.07	0.06	0.17	0.45	0.45	0.42	0.28	0.24	0.47
∑REE	36.31	21.94	58.99	301.99	94.15	107.02	58.21	275.00	204.10	374.35	261.49	564.44	656.54
La_N/Yb_N	9.05	10.09	9.11	35.54	30.50	41.70	9.68	11.86	7.99	24.03	17.71	67.75	37.78
Eu_N/Eu_N^*	0.62	0.90	0.62	0.71	1.22	1.41	1.60	0.48	0.11	0.21	0.42	0.47	0.24
Li	17.48	13.81	3.60	4.72	21.26	34.99	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Be	3.02	1.95	1.86	0.58	0.89	0.90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sc	1.40	0.93	1.87	1.39	1.29	1.45	1.91	3.50	2.66	10.11	2.99	3.72	10.49
Co	0.26	0.09	0.61	0.62	1.17	1.20	1.62	1.93	0.74	1.07	1.19	0.39	0.31
Cu	0.94	1.63	1.56	2.57	2.02	2.09	2.95	2.16	3.97	2.91	2.70	2.38	2.84
Ga	16.41	15.88	16.23	12.33	21.34	22.99	17.41	17.52	20.23	19.45	17.84	14.32	18.74
Rb	185.51	118.59	147.66	69.66	76.87	77.45	147.45	100.80	122.32	82.54	99.80	81.08	69.06
Sr	43.70	33.70	155.40	230.20	212.45	263.14	269.12	187.70	33.90	80.46	113.31	73.09	10.58
Y	5.24	2.22	9.74	14.29	13.48	10.16	6.89	31.74	21.65	20.74	16.60	12.83	18.51
Zr	71.15	29.73	82.99	475.81	67.12	71.81	176.89	230.98	241.95	365.84	255.76	230.14	835.75
Nb	16.08	8.66	13.95	10.19	9.72	12.93	10.97	22.99	16.51	14.01	21.39	12.71	13.32
Ba	132.70	45.40	440.60	947.80	650.3	946.69	960.70	752.92	102.72	366.59	726.94	371.40	38.90
Hf	4.46	2.02	4.14	13.90	1.59	1.67	6.58	7.56	8.72	9.17	7.69	6.37	18.33
Ta	1.22	0.84	1.39	1.08	0.48	0.47	0.89	1.88	1.36	0.82	1.53	0.58	0.58
Pb	25.15	25.28	27.33	15.61	19.31	21.28	24.48	15.34	21.32	12.20	15.78	14.13	21.90
Th	10.82	7.63	16.19	8.89	3.59	3.69	10.45	17.98	20.36	11.37	10.41	15.71	17.51
U	1.09	1.78	2.27	1.75	0.82	0.90	1.10	1.50	1.65	1.12	0.73	1.52	1.35
Rb/Sr	4.245	3.519	0.950	0.303	0.362	0.294	0.548	0.537	3.608	1.026	0.881	1.109	6.526
Rb/Ba	1.398	2.612	0.335	0.073	0.118	0.082	0.153	0.134	1.191	0.225	0.137	0.218	1.775
Rb/Zr	2.607	3.989	1.779	0.146	1.145	1.079	0.834	0.436	0.506	0.226	0.390	0.352	0.083
Sr/Y	8.34	15.15	15.96	16.11	15.76	25.90	39.04	5.91	1.57	3.88	6.83	5.70	0.57

Note: GLS−Guanglingshan pluton; HJD−Hanjiadian pluton; JP−Jianping granite pluton; n.a., not analyzed. Others are same as Table DR5.

Table DR7 Hf isotope results of zircons from the Late Paleozoic-Early Mesozoic intrusions

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Longhua quartz diorite (SD020-3)											
01	306	0.045879	0.001345	0.282114	0.000024	-23.3	-16.8	1619	2382	0.282106	-0.96
02	319	0.044427	0.001338	0.282107	0.000018	-23.5	-16.8	1629	2391	0.282099	-0.96
03	307	0.039275	0.001202	0.282159	0.000022	-21.7	-15.2	1550	2281	0.282152	-0.96
04	1827	0.026459	0.000628	0.281662	0.000018	-39.3	0.7	2208	2462	0.281640	-0.98
05	305	0.026770	0.001014	0.282086	0.000021	-24.3	-17.8	1644	2440	0.282080	-0.97
06	311	0.035469	0.001110	0.282139	0.000017	-22.4	-15.8	1574	2322	0.282133	-0.97
07	303	0.061877	0.001788	0.282081	0.000024	-24.4	-18.2	1685	2462	0.282071	-0.95
08	308	0.068632	0.001962	0.282123	0.000019	-23.0	-16.6	1633	2369	0.282112	-0.94
09	307	0.044336	0.001295	0.282178	0.000020	-21.0	-14.5	1527	2240	0.282171	-0.96
10	1846	0.054024	0.001352	0.281609	0.000019	-41.1	-1.7	2324	2627	0.281562	-0.96
11	310	0.039953	0.001338	0.282139	0.000018	-22.4	-15.9	1584	2325	0.282131	-0.96
12	310	0.047192	0.001448	0.282108	0.000025	-23.5	-17.0	1632	2395	0.282100	-0.96
13	1801	0.014005	0.000325	0.281679	0.000021	-38.7	1.1	2168	2417	0.281668	-0.99
14	318	0.022210	0.000771	0.281993	0.000019	-27.6	-20.7	1762	2635	0.281988	-0.98
15	316	0.029278	0.000921	0.282174	0.000019	-21.2	-14.4	1518	2239	0.282169	-0.97
16	305	0.040078	0.001230	0.282157	0.000026	-21.8	-15.3	1554	2287	0.282150	-0.96
17	311	0.039043	0.001282	0.282198	0.000024	-20.3	-13.7	1499	2193	0.282191	-0.96
18	306	0.042756	0.001338	0.282156	0.000021	-21.8	-15.3	1560	2290	0.282148	-0.96
19	1803	0.056934	0.001879	0.281769	0.000020	-35.5	2.4	2131	2332	0.281705	-0.94
20	313	0.028356	0.001082	0.282162	0.000019	-21.6	-14.9	1541	2269	0.282156	-0.97
21	315	0.064515	0.002656	0.282219	0.000024	-19.6	-13.2	1525	2163	0.282203	-0.92
22	311	0.035171	0.001438	0.282164	0.000020	-21.5	-15.0	1553	2271	0.282156	-0.96

Table DR7 *(continued)*

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Boluonuo quartz diorite (HLB-G)											
01	320	0.032241	0.001418	0.281989	0.000016	-27.7	-21.0	1798	2651	0.281981	-0.96
02	310	0.023226	0.001016	0.281980	0.000015	-28.0	-21.4	1791	2671	0.281974	-0.97
03	312	0.039741	0.001739	0.281982	0.000016	-27.9	-21.5	1823	2674	0.281972	-0.95
04	300	0.026238	0.001040	0.282016	0.000017	-26.7	-20.4	1742	2597	0.282010	-0.97
05	303	0.032530	0.001301	0.281950	0.000018	-29.1	-22.7	1847	2744	0.281943	-0.96
06	295	0.040275	0.001726	0.282014	0.000015	-26.8	-20.7	1777	2613	0.282004	-0.95
07	307	0.019270	0.000830	0.281567	0.000020	-42.6	-36.1	2350	3568	0.281562	-0.98
08	302	0.039519	0.001677	0.281977	0.000017	-28.1	-21.8	1827	2690	0.281968	-0.95
09	301	0.037080	0.001625	0.281977	0.000017	-28.1	-21.8	1825	2690	0.281968	-0.95
10	301	0.043812	0.001921	0.282014	0.000017	-26.8	-20.6	1787	2612	0.282003	-0.94
11	302	0.034961	0.001522	0.282013	0.000016	-26.8	-20.5	1769	2609	0.282004	-0.95
12	288	0.035960	0.001577	0.282006	0.000015	-27.1	-21.1	1781	2632	0.281998	-0.95
13	2363	0.016485	0.000644	0.281344	0.000018	-50.5	1.4	2641	2830	0.281315	-0.98
14	295	0.026555	0.001124	0.281861	0.000016	-32.2	-26.0	1962	2940	0.281855	-0.97
15	300	0.033695	0.001436	0.281953	0.000017	-29.0	-22.7	1849	2740	0.281945	-0.96
16	302	0.021696	0.000861	0.281506	0.000019	-44.8	-38.3	2435	3702	0.281501	-0.97
17	298	0.047729	0.002041	0.281995	0.000017	-27.5	-21.4	1820	2657	0.281984	-0.94
18	2380	0.013061	0.000535	0.281378	0.000019	-49.3	3.2	2587	2730	0.281354	-0.98
19	302	0.043099	0.001825	0.281963	0.000017	-28.6	-22.4	1854	2722	0.281953	-0.95
20	302	0.016716	0.000720	0.281732	0.000018	-36.8	-30.3	2118	3212	0.281728	-0.98
21	302	0.040989	0.001779	0.282005	0.000016	-27.1	-20.9	1793	2630	0.281995	-0.95

***Table DR7** (continued)*

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Daguangding quartz diorite (D018-1)											
01	316	0.034152	0.001477	0.282437	0.000017	-11.9	-5.2	1168	1662	0.282428	-0.96
02	324	0.033520	0.001337	0.282469	0.000039	-10.7	-3.9	1118	1584	0.282461	-0.96
03	322	0.034726	0.001432	0.282524	0.000015	-8.8	-2.0	1043	1463	0.282515	-0.96
04	306	0.039910	0.001548	0.282625	0.000049	-5.2	1.2	902	1247	0.282616	-0.95
05	316	0.032538	0.001490	0.282507	0.000025	-9.4	-2.7	1069	1505	0.282498	-0.96
06	335	0.058114	0.002327	0.282403	0.000017	-13.1	-6.2	1244	1739	0.282388	-0.93
07	337	0.033019	0.001404	0.282547	0.000016	-8.0	-0.9	1009	1403	0.282538	-0.96
08	351	0.023986	0.000936	0.281917	0.000018	-30.2	-22.8	1875	2786	0.281911	-0.97
09	317	0.044046	0.001838	0.282463	0.000022	-10.9	-4.4	1142	1608	0.282452	-0.94
10	333	0.026335	0.001095	0.281974	0.000021	-28.2	-21.2	1803	2672	0.281967	-0.97
12	308	0.027110	0.001057	0.282276	0.000017	-17.5	-11.0	1381	2019	0.282270	-0.97
13	329	0.020363	0.000826	0.282429	0.000017	-12.1	-5.1	1159	1664	0.282424	-0.98
14	2510	0.029344	0.001104	0.281463	0.000023	-46.3	8.2	2509	2509	0.281410	-0.97
15	319	0.030359	0.001138	0.282334	0.000019	-15.5	-8.7	1302	1885	0.282327	-0.97
16	328	0.033887	0.001289	0.282383	0.000018	-13.8	-6.8	1238	1773	0.282375	-0.96
17	346	0.036213	0.001291	0.282281	0.000016	-17.4	-10.1	1382	1990	0.282273	-0.96
18	2510	0.020461	0.000733	0.281548	0.000018	-43.3	11.8	2370	2273	0.281513	-0.98
19	324	0.066780	0.002238	0.282274	0.000023	-17.6	-11.0	1428	2031	0.282260	-0.93
20	2510	0.025362	0.000925	0.281389	0.000021	-48.9	5.8	2599	2659	0.281345	-0.97
21	2510	0.009389	0.000297	0.281267	0.000022	-53.2	2.6	2720	2868	0.281253	-0.99
22	2510	0.013875	0.000374	0.281584	0.000028	-42.0	13.7	2299	2150	0.281566	-0.99
23	2510	0.016343	0.000498	0.281356	0.000022	-50.1	5.4	2615	2687	0.281332	-0.99

Table DR7 *(continued)*

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Daguangding quartz diorite (D169-2)											
01	282	0.016308	0.000715	0.282415	0.000014	-12.6	-6.6	1175	1720	0.282411	-0.98
02	290	0.009325	0.000440	0.282452	0.000017	-11.3	-5.0	1115	1630	0.282450	-0.99
03	309	0.018393	0.000824	0.282464	0.000015	-10.9	-4.3	1110	1597	0.282459	-0.98
04	311	0.014186	0.000650	0.282491	0.000017	-9.9	-3.2	1067	1533	0.282487	-0.98
05	315	0.012497	0.000564	0.282147	0.000023	-22.1	-15.3	1541	2295	0.282144	-0.98
06	338	0.019179	0.000833	0.282447	0.000014	-11.5	-4.3	1134	1618	0.282442	-0.97
07	333	0.013120	0.000573	0.282453	0.000015	-11.3	-4.1	1118	1604	0.282449	-0.98
08	302	0.026260	0.001174	0.282405	0.000014	-13.0	-6.6	1203	1737	0.282398	-0.96
09	306	0.014485	0.000658	0.282433	0.000015	-12.0	-5.4	1148	1666	0.282429	-0.98
10	327	0.015723	0.000700	0.282424	0.000017	-12.3	-5.3	1162	1674	0.282420	-0.98
11	2453	0.012317	0.000530	0.281415	0.000015	-48.0	6.1	2537	2596	0.281390	-0.98
12	332	0.018018	0.000834	0.282421	0.000013	-12.4	-5.3	1170	1680	0.282416	-0.97
13	315	0.010265	0.000484	0.282445	0.000014	-11.6	-4.8	1126	1631	0.282442	-0.99
14	304	0.018084	0.000795	0.282451	0.000013	-11.4	-4.8	1127	1628	0.282446	-0.98
15	312	0.020797	0.000893	0.282381	0.000017	-13.8	-7.2	1228	1781	0.282376	-0.97
16	328	0.021602	0.000999	0.282411	0.000014	-12.8	-5.8	1190	1707	0.282405	-0.97
17	315	0.020223	0.000890	0.282440	0.000015	-11.7	-5.0	1146	1648	0.282435	-0.97
18	292	0.012635	0.000596	0.282437	0.000017	-11.8	-5.6	1141	1664	0.282434	-0.98
19	311	0.010951	0.000500	0.282427	0.000014	-12.2	-5.5	1152	1674	0.282424	-0.98
20	314	0.030199	0.001339	0.282426	0.000017	-12.2	-5.6	1179	1686	0.282418	-0.96
21	314	0.018479	0.000769	0.282415	0.000013	-12.6	-5.9	1177	1703	0.282410	-0.98

Table DR7 *(continued)*

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Hushiha granodiorite (FP2)											
01	292	0.077901	0.003005	0.282228	0.000016	-19.2	-13.4	1526	2158	0.282212	-0.91
02	305	0.093178	0.003298	0.282223	0.000018	-19.4	-13.4	1546	2167	0.282204	-0.90
03	323	0.093041	0.003211	0.282233	0.000018	-19.1	-12.7	1528	2135	0.282214	-0.90
04	302	0.089961	0.003277	0.282173	0.000022	-21.2	-15.2	1619	2278	0.282154	-0.90
05	300	0.093806	0.003119	0.282213	0.000024	-19.8	-13.8	1553	2189	0.282196	-0.91
06	317	0.091126	0.003139	0.282184	0.000018	-20.8	-14.5	1597	2245	0.282165	-0.91
07	305	0.091691	0.003176	0.282244	0.000019	-18.7	-12.6	1510	2119	0.282226	-0.90
08	313	0.098044	0.003369	0.282193	0.000026	-20.5	-14.3	1594	2230	0.282173	-0.90
09	305	0.084438	0.003106	0.282247	0.000023	-18.6	-12.5	1503	2111	0.282229	-0.91
10	307	0.075185	0.002871	0.282261	0.000021	-18.1	-11.9	1472	2076	0.282245	-0.91
11	305	0.087669	0.003104	0.282177	0.000016	-21.0	-15.0	1606	2266	0.282159	-0.91
12	301	0.099814	0.003679	0.282246	0.000018	-18.6	-12.7	1528	2122	0.282225	-0.89
13	308	0.060402	0.002240	0.282224	0.000018	-19.4	-13.1	1500	2150	0.282211	-0.93
14	297	0.077488	0.002879	0.282247	0.000016	-18.6	-12.6	1493	2112	0.282231	-0.91
15	300	0.090876	0.003482	0.282280	0.000019	-17.4	-11.5	1469	2045	0.282260	-0.90
16	2500	0.001236	0.000045	0.281417	0.000015	-47.9	8.1	2503	2505	0.281415	-1.00
17	311	0.068124	0.002422	0.282276	0.000018	-17.5	-11.2	1432	2035	0.282262	-0.93
18	300	0.095104	0.003482	0.282251	0.000019	-18.4	-12.5	1513	2109	0.282231	-0.90
19	297	0.078265	0.002905	0.282244	0.000019	-18.7	-12.7	1499	2119	0.282228	-0.91
20	310	0.063778	0.002538	0.282245	0.000018	-18.6	-12.4	1482	2106	0.282230	-0.92
Guanglingshan monzogranite (HFG-2)											
01	251	0.046631	0.001638	0.282315	0.000022	-16.2	-10.9	1347	1970	0.282307	-0.95
02	253	0.028469	0.000980	0.282316	0.000024	-16.1	-10.7	1322	1960	0.282311	-0.97

***Table DR7** (continued)*

Spots	Age (Ma)	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	±2σ	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(T)$	T_{DM} (Ma)	T_{DM}^{C} (Ma)	Hf_i	$f_{Lu/Hf}$
Guanglingshan monzogranite (HFG-2)											
03	255	0.040762	0.001433	0.282371	0.000022	-14.2	-8.8	1260	1842	0.282364	-0.96
04	253	0.030479	0.001088	0.282312	0.000020	-16.3	-10.9	1331	1970	0.282307	-0.97
05	242	0.042782	0.001376	0.282304	0.000018	-16.6	-11.5	1353	1997	0.282298	-0.96
06	258	0.033812	0.001123	0.282318	0.000023	-16.1	-10.6	1324	1954	0.282313	-0.97
07	259	0.025006	0.000825	0.282312	0.000021	-16.3	-10.7	1322	1964	0.282308	-0.98
08	262	0.045717	0.001393	0.282315	0.000024	-16.2	-10.7	1338	1962	0.282308	-0.96
09	253	0.060377	0.001831	0.282264	0.000023	-18.0	-12.7	1427	2084	0.282255	-0.94
10	253	0.029026	0.000840	0.282378	0.000024	-13.9	-8.5	1231	1821	0.282374	-0.97
11	252	0.030355	0.000997	0.282363	0.000019	-14.5	-9.1	1257	1857	0.282358	-0.97
12	241	0.056116	0.001624	0.282329	0.000025	-15.7	-10.6	1326	1944	0.282322	-0.95
13	256	0.044708	0.001084	0.282315	0.000028	-16.2	-10.7	1327	1962	0.282310	-0.97
14	262	0.036056	0.001010	0.282270	0.000027	-17.8	-12.2	1387	2058	0.282265	-0.97
15	273	0.052121	0.001212	0.282328	0.000033	-15.7	-9.9	1313	1925	0.282322	-0.96
16	252	0.061308	0.001423	0.282221	0.000030	-19.5	-14.2	1472	2176	0.282214	-0.96
17	248	0.101562	0.002391	0.282207	0.000029	-20.0	-14.9	1531	2219	0.282196	-0.93
18	253	0.113471	0.002683	0.282317	0.000032	-16.1	-11.0	1383	1976	0.282304	-0.92
19	253	0.054429	0.001238	0.282433	0.000028	-12.0	-6.7	1166	1703	0.282427	-0.96
20	253	0.123006	0.002706	0.282239	0.000029	-18.8	-13.8	1498	2149	0.282226	-0.92

^{176}Lu decay constant $\lambda=1.865\times10^{-11}$ yr^{-1}; Chondritic values: $^{176}Lu/^{177}Hf=0.0332\pm0.0002$, $^{176}Hf/^{177}Hf=0.282772\pm0.000029$; depleted mantle values: $(^{176}Lu/^{177}Hf)_{DM}=0.0384$, $(^{176}Hf/^{177}Hf)_{DM}=0.28325$; Hf_i: initial Hf isotope composition for U-Pb age; the $^{176}Hf/^{177}Hf$ ratios reported were corrected according to the recommended value of the standard zircon 91500. $T_{DM}=1/\lambda\times\ln\{1+[(^{176}Hf/^{177}Hf)_{sample}-(^{176}Hf/^{177}Hf)_{DM}]/[(^{176}Lu/^{177}Hf)_{sample}-(^{176}Lu/^{177}Hf)_{DM}]\}$;

$T_{DM}^{C}=1/\lambda\times\ln\{1+[(^{176}Hf/^{177}Hf)_{sample,t}-(^{176}Hf/^{177}Hf)_{DM,t}]/[(^{176}Lu/^{177}Hf)_{c}-(^{176}Lu/^{177}Hf)_{DM}]\}+t$; $(^{176}Lu/^{177}Hf)_{c}=0.015$; t=crystallization time of zircon.

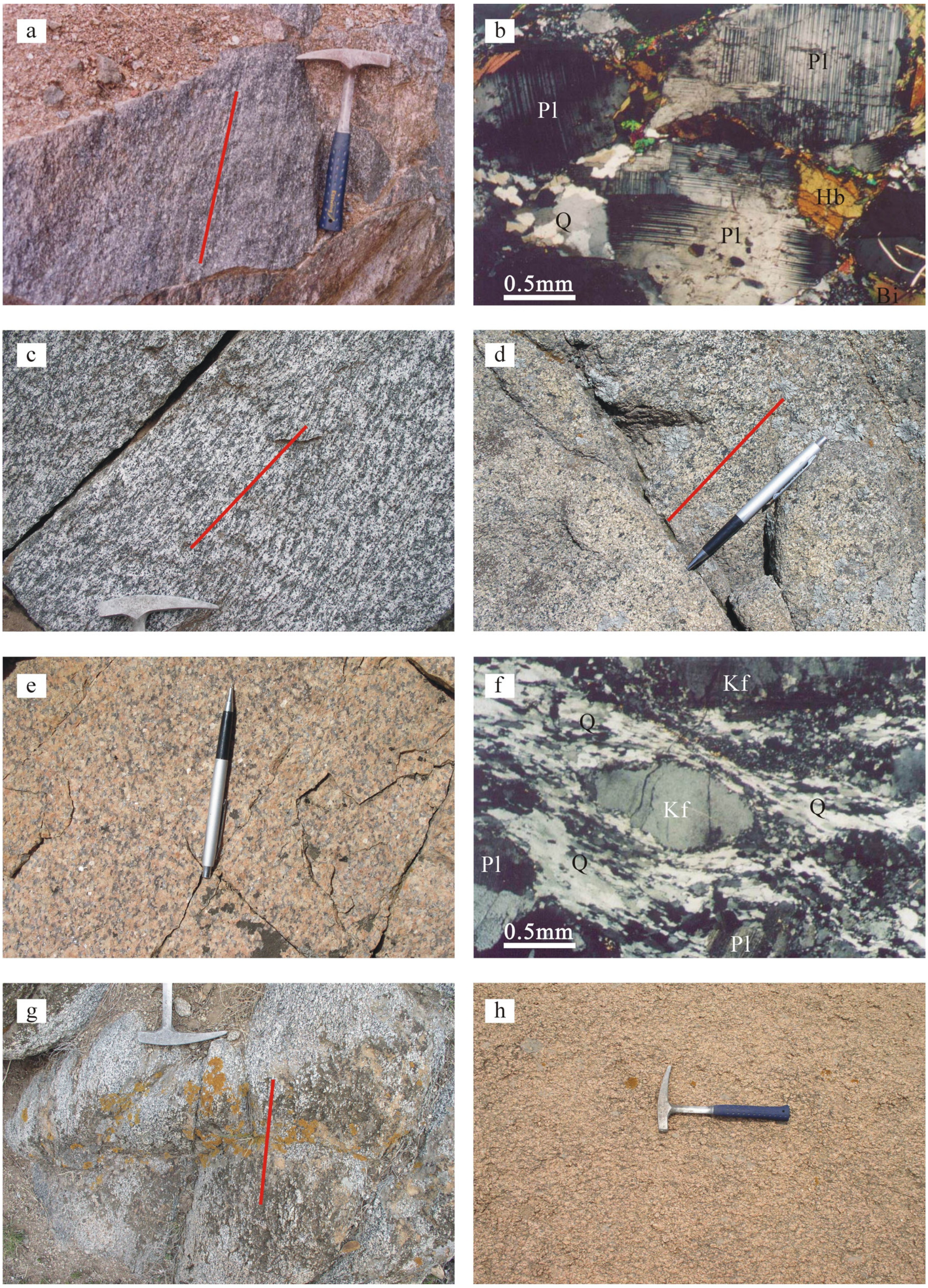
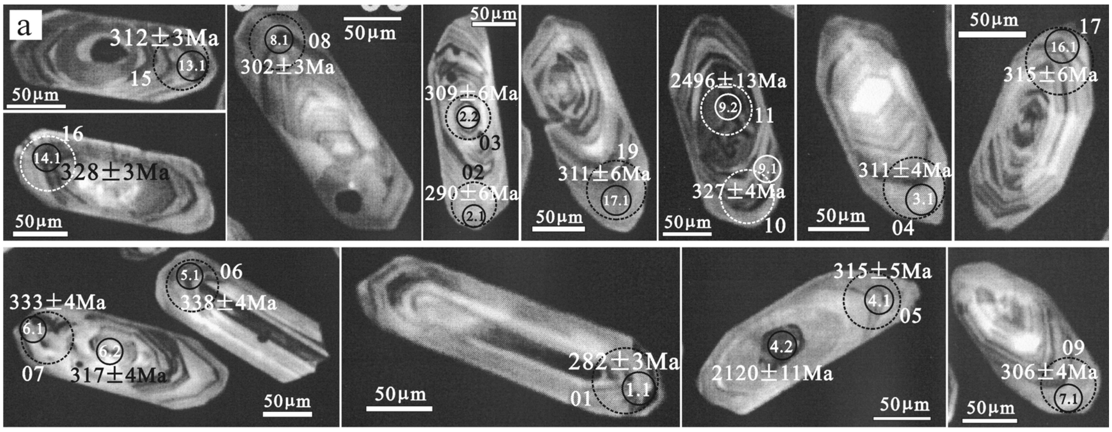


Figure DR1 Representative outcrop and photomicrographs of the Late Paleozoic-Early Mesozoic intrusions

(a) Field photograph of quartz diorite in the western Longhua pluton near Shangyingzi vallage showing a NE trending steep foliation, view to NE; (b) Photomicrograph of the Longhua quartz diorite (Sample SD020-3), cross polarized light; (c) Field photograph of quartz diorite in the western Daguangding pluton, showing an east-west trending foliation, view to southwest; (d) Field photograph of quartz diorite from the western Boluonuo pluton, showing a very weak foliation, view to northeast; (e) Field photograph of mylonitic monzogranite from the southern Guanglingshan intrusion, showing strong deformation of quartz, view to west; (f) Photomicrograph of the mylonitic monzogranite from the southern Guanglingshan intrusion (Sample D138-1), showing recrystalization and strong deformation of quartz grains, cross polarized light; (g) Field photograph of granodiorite from the Jianping diorite pluton showing a very weak foliation; (h) Field photograph of monzogranite from the Jianping granite intrusion. Red lines indicate strike of foliation. For scale of the field photographs, width of the hammer head is ~17 cm and the pencil is ~13 cm long.



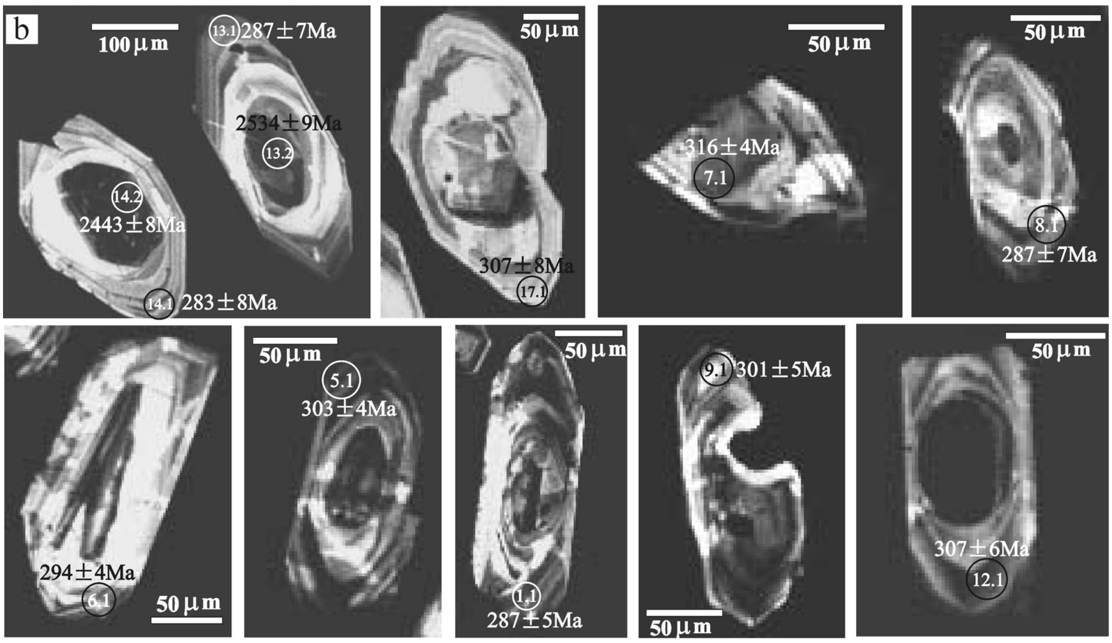


Figure DR2 Representative CL images of zircons, with sites of SHRIMP and LA-ICP-MS U-Pb and in-situ Lu-Hf analyses spots from the analyzed samples

(a) Sample D169-2 (Daguangding quartz diorite); (b) Sample HFH-1 (Hushiha granite dyke); (c) Sample HFG-2 (Guanglingshan monzogranite); (d) Sample D315 (Jianping diorite); (e) D315-1 (Jianping syenogranite dyke); (f) Sample D315-3 (Jianping monzogranite). Small circles in (a), (b), (c) are SHRIMP U-Pb analysis spots, large dashed circles in (a) and (c) are in-situ Lu-Hf analysis spots, and small dashed circles in (d), (e), (f) are LA-ICP-MS U-Pb analysis spots.

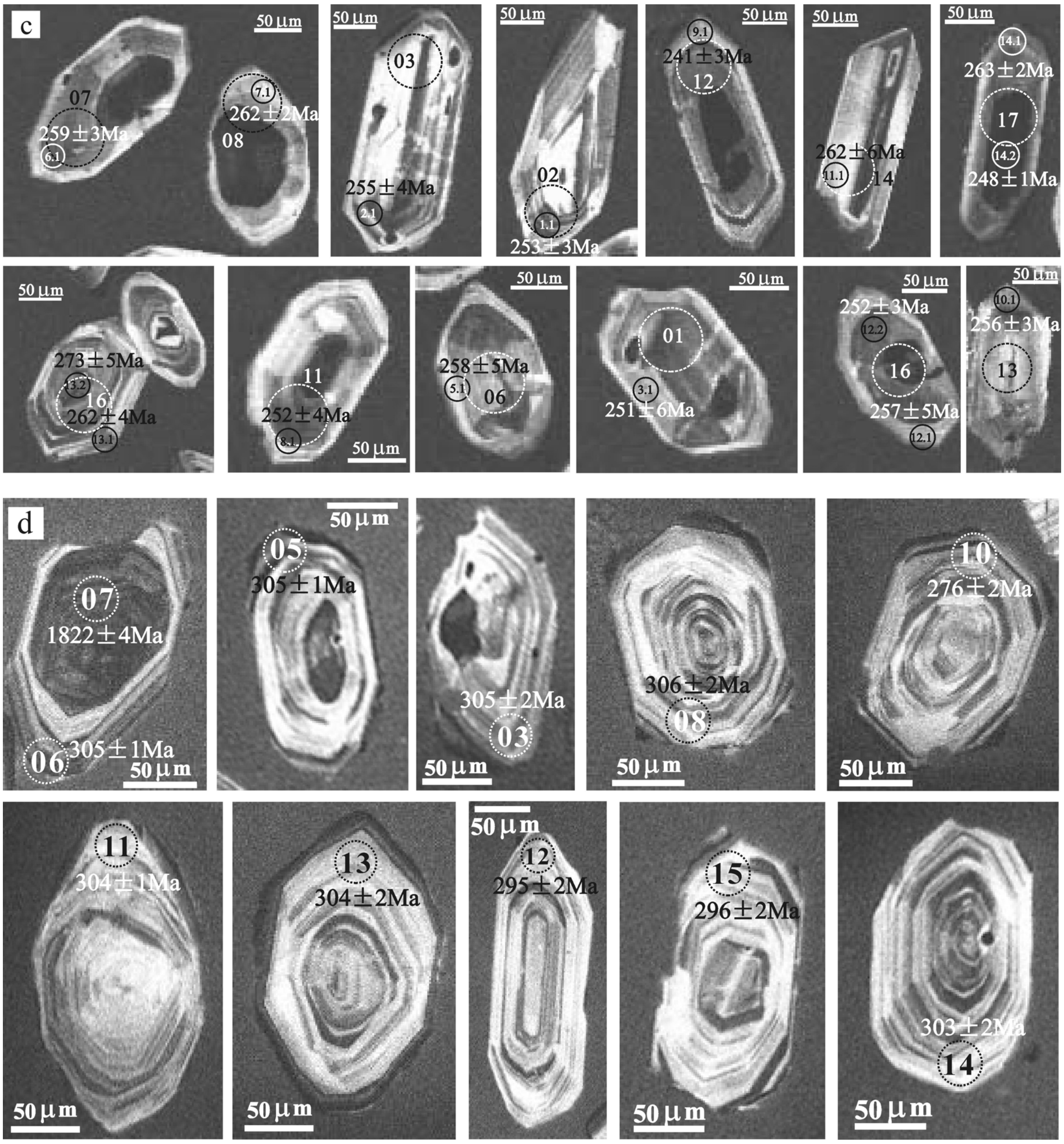


Figure DR2 (*Continued*)

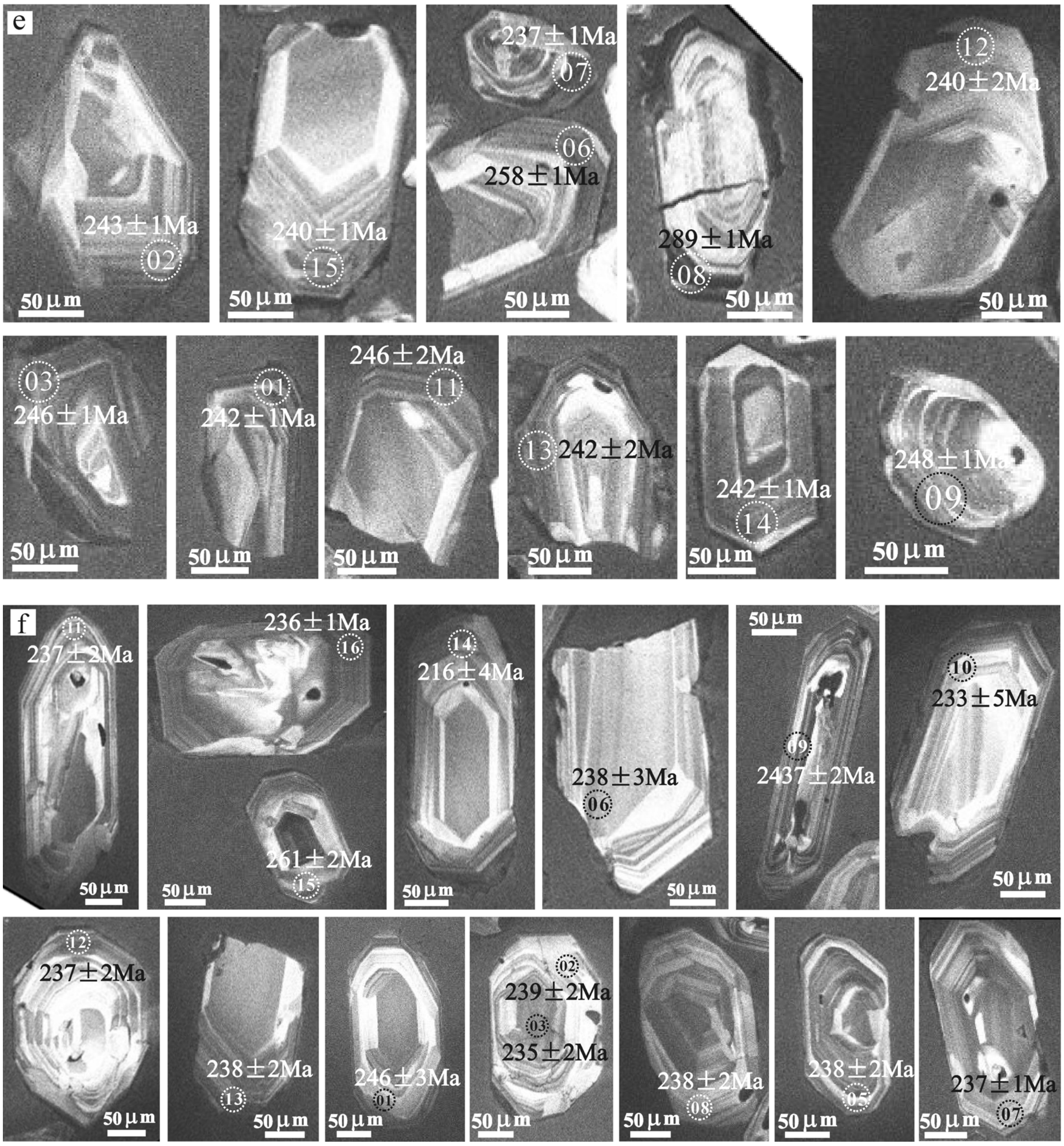


Figure DR2 (*Continued*)

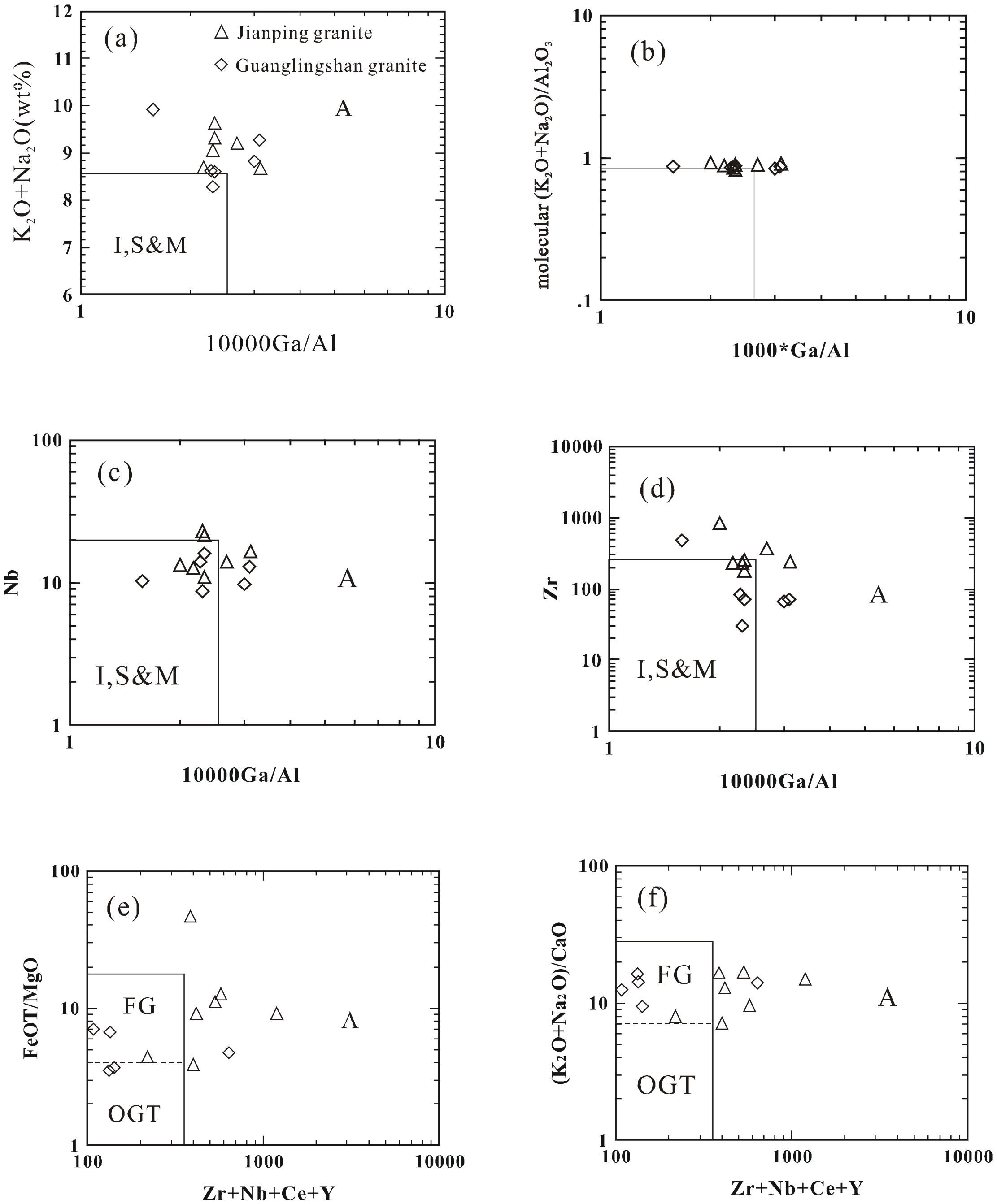


Figure DR3 Classification diagrams for the Late Permian-Middle Triassic granitic rocks

(a) K_2O+Na_2O, (b) molecular (K_2O+Na_2O)/Al_2O_3, (c) Nb, (d) Zr vs. 10000 Ga/Al and (e) FeOT/MgO, (f) (K_2O+Na_2O)/CaO vs. (Zr+Nb+Ce+Y) classification diagrams (Whalen et al., 1987), indicating that the Late Permian-Middle Triassic granites are transitional between the I-, S-, M- and A-types (a–d) or highly fractionated (e–f). A: A-type granite; I, S & M: I-, S-, M-type granite; FG: Fractionated felsic granite; OGT: unfractionated M-, I- and S-type granite. Symbols are same as Fig. 4.

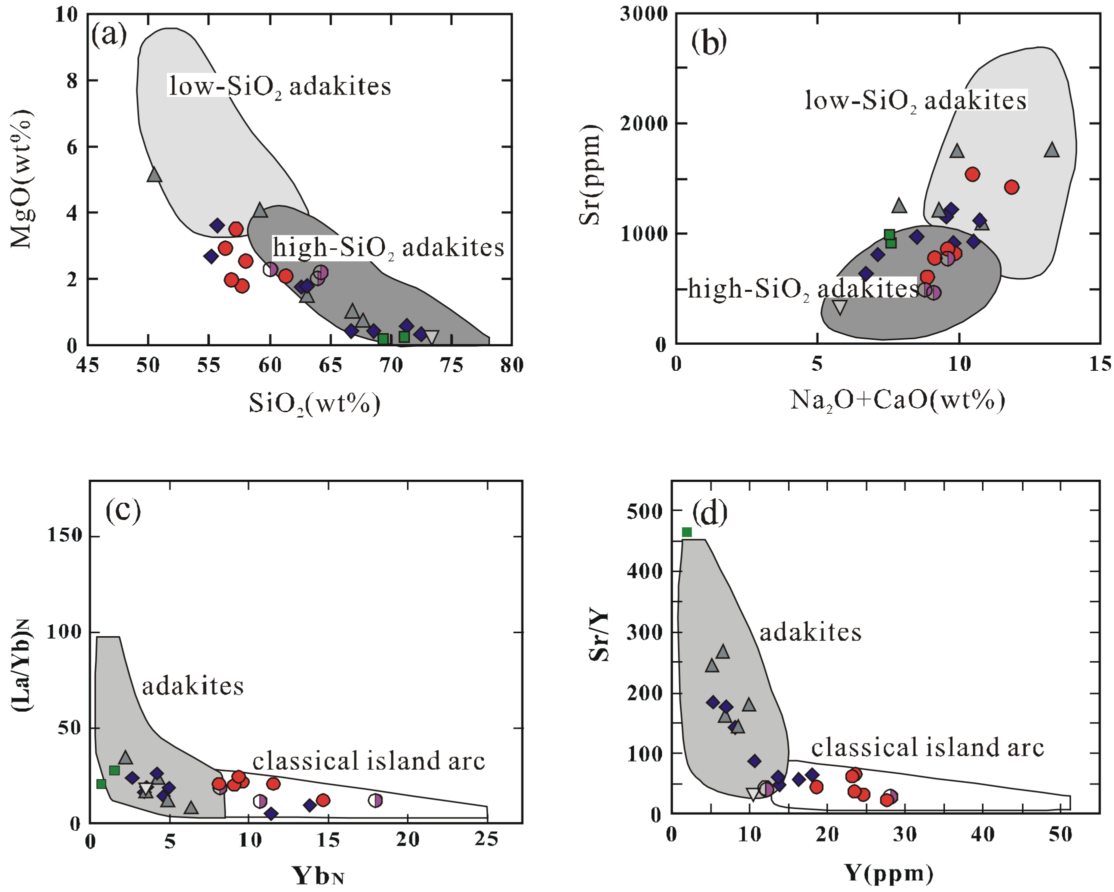


Figure DR4 Adakite discrimination diagrams for the Carboniferous granitic intrusions

(a) MgO vs. SiO_2 diagram from Martin et al. (2005); (b) Sr vs. (CaO+Na_2O) diagram from Martin et al. (2005); (c) $(La/Yb)_N$ vs. Yb_N diagram from Martin (1999), and the chondrite values are from Evensen et al. (1978); (d) Sr/Y vs. Y diagram from Drummond and Defant (1990). Symbols are same as Fig. 4.

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