

Supplementary Materials: Geochemistry and Zircon U–Pb Geochronology of the Zhuxi Granites in the Jingdezhen Area, Jiangxi Province, China: Implications for the Mesozoic Tectonic Development of South China

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Table S1. Simplified sample descriptions, mineral assemblages, sampling location and age of the representative Zhuxi granites, Northeast Jiangxi Province.

Sample	Location	Depth (m)	Lithology	Color	Texture	Mineral Assemblage	Age (Ma)	References
Zk5406-H285 Zk5406-H289 Zk5406-H307 Zk5406-H313 Zk5406-H325 Tw13	Zk5406	1501~1557	granodiorite	White to gray	Granitic texture	Plagioclase, alkali feldspar and quartz, with subordinate biotite and muscovite	159 ±1	This study
Zk5406-H462 Zk5406-H465 Zk5406-H469 Zk5406-H522 Zk5406-H530	Zk5406	1753~1764	biotite granite	White to gray	Granitic texture	Plagioclase, alkali feldspar, quartz and biotite	147 ±2	
Zk5406-H569 Zk5406-H573 Zk5406-H582 ZK4209-1295	Zk5406	1841~1918	Two-mica granite	White to gray	Granitic texture	Quartz, alkali feldspar, and plagioclase, with subordinate biotite and muscovite	147 ±1 153.4±1.0	
Zk5406-1942	Zk5406	1942	Granite porphyry	White to gray	Porphyry texture, felsitic or microcrystalline texture for groundmass	The phenocryst consists of quartz, alkali feldspar, plagioclase, muscovite with minor biotite	150±1	
Zk4209-609	Zk4209	609	White granite	White to gray	Granitic texture	Quartz, alkali feldspar, plagioclase, muscovite with minor biotite	152.9±1.7	
Zk5406-1999	Zk5406	1999	Biotite granite	Gray	Granitic texture	Quartz, alkali feldspar, plagioclase, biotite with minor muscovite	153.5±1.0	Pan et al., 2018

Table S2. LA–ICP–MS U–Pb zircon ages of Zhuxi granites sample Zk4212-289, Tw13, and Zk4212-582.

concentration																	Radiogenic ratios						Age (Ma)					
Spot	Th/U	Th	U	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 δ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 δ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 δ	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 σ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 δ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 δ	Con.												
Zk4212-H289																												
91500std	0.39	31.74	81.52	0.0747	0.0033	1.8650	0.0820	0.1815	0.0031	1061	87	1069	29	1075	17	99%												
91500std	0.39	32.24	83.34	0.0750	0.0031	1.8354	0.0828	0.1769	0.0034	1069	84	1058	30	1050	18	99%												
1	0.38	207.19	543.51	0.0504	0.0009	0.1745	0.0033	0.0251	0.0003	212	42	163	3	160	2	91%												
2	0.55	315.03	577.49	0.0501	0.0010	0.1731	0.0035	0.0251	0.0003	199	45	162	3	160	2	98%												

3	0.53	195.67	366.40	0.0493	0.0013	0.1717	0.0046	0.0252	0.0003	164	60	161	4	161	2	94%
4	0.23	224.39	958.22	0.0501	0.0007	0.1738	0.0027	0.0252	0.0003	198	33	163	3	160	2	96%
5	0.21	609.91	2896.08	0.0498	0.0006	0.1732	0.0023	0.0252	0.0003	187	27	162	2	160	2	99%
6	0.30	784.80	2606.58	0.0501	0.0006	0.1750	0.0024	0.0253	0.0003	201	27	164	2	161	2	99%
7	0.20	239.98	1199.07	0.0494	0.0006	0.1699	0.0026	0.0250	0.0003	165	31	159	2	159	2	97%
8	0.68	150.93	222.21	0.0489	0.0021	0.1667	0.0072	0.0247	0.0003	145	100	157	7	157	2	99%
9	0.73	159.29	217.76	0.0507	0.0025	0.1745	0.0089	0.0250	0.0003	227	113	163	8	159	2	96%
10	0.18	276.57	1508.30	0.0491	0.0006	0.1703	0.0024	0.0251	0.0003	154	29	160	2	160	2	93%
91500std	0.39	24.28	62.58	0.0723	0.0036	1.7976	0.0867	0.1807	0.0027	994	100	1045	31	1071	15	97%
91500std	0.40	25.19	62.99	0.0775	0.0035	1.9028	0.0865	0.1776	0.0027	1144	89	1082	30	1054	15	97%
11	0.49	182.34	370.33	0.0496	0.0013	0.1723	0.0048	0.0252	0.0003	178	61	161	5	160	2	97%
12	0.83	261.90	316.61	0.0501	0.0028	0.1703	0.0095	0.0246	0.0003	201	129	160	9	157	2	97%
13	1.61	476.38	295.43	0.0498	0.0017	0.1671	0.0060	0.0243	0.0002	185	80	157	6	155	2	95%
14	0.57	121.00	212.26	0.0518	0.0024	0.1747	0.0081	0.0245	0.0003	277	106	163	8	156	2	95%
15	0.60	193.26	323.26	0.0494	0.0019	0.1658	0.0065	0.0243	0.0003	168	88	156	6	155	2	97%
16	1.01	150.32	149.47	0.0490	0.0027	0.1712	0.0098	0.0253	0.0003	149	131	160	9	161	2	96%
17	0.67	296.52	441.19	0.0494	0.0013	0.1753	0.0051	0.0258	0.0003	165	64	164	5	164	2	96%
18	1.07	141.38	132.23	0.0498	0.0048	0.1728	0.0169	0.0252	0.0003	187	226	162	16	160	2	90%
19	1.05	263.83	251.45	0.0498	0.0024	0.1758	0.0089	0.0256	0.0003	184	112	164	8	163	2	98%
20	1.00	82.83	83.08	0.1364	0.0092	0.5770	0.0413	0.0307	0.0006	2182	118	463	33	195	4	94%
91500std	0.39	19.45	49.89	0.0737	0.0037	1.8163	0.0876	0.1790	0.0030	1035	103	1051	32	1061	16	99%
91500std	0.39	19.51	49.90	0.0760	0.0036	1.8841	0.0891	0.1794	0.0029	1096	96	1076	31	1064	16	98%
21	1.49	178.81	120.15	0.0493	0.0036	0.1683	0.0127	0.0248	0.0003	162	171	158	12	158	2	96%
22	0.63	199.38	316.72	0.0492	0.0017	0.1724	0.0069	0.0254	0.0003	156	83	162	7	162	2	92%
23	0.71	233.00	329.90	0.0497	0.0017	0.1710	0.0063	0.0249	0.0003	182	81	160	6	159	2	99%
24	0.08	288.97	3821.85	0.0490	0.0006	0.1728	0.0029	0.0256	0.0003	146	27	162	3	163	2	99%
25	0.30	439.93	1469.42	0.0496	0.0007	0.1755	0.0035	0.0256	0.0004	178	32	164	3	163	3	96%
26	0.43	412.80	961.00	0.0499	0.0009	0.1744	0.0037	0.0253	0.0004	192	40	163	3	161	2	93%
27	0.22	604.14	2763.15	0.0498	0.0009	0.1718	0.0037	0.0250	0.0003	186	44	161	3	159	2	99%
28	0.27	173.52	652.43	0.0497	0.0010	0.1664	0.0035	0.0243	0.0003	182	47	156	3	155	2	96%
91500std	0.40	16.75	42.20	0.0740	0.0031	1.8526	0.0806	0.1801	0.0026	1043	84	1064	29	1068	14	99%
91500std	0.39	16.48	42.70	0.0757	0.0031	1.8478	0.0755	0.1782	0.0031	1088	79	1063	27	1057	17	99%
Tw13																
1	0.41	1053.31	2571.00	0.0487	0.0007	0.1441	0.0023	0.0215	0.0002	130	31	137	2	137	1	98%
2	0.22	977.38	4524.00	0.0497	0.0006	0.1441	0.0020	0.0210	0.0002	183	28	137	2	134	1	98%
3	0.29	195.79	679.00	0.1806	0.0032	0.7005	0.0156	0.0281	0.0003	2531	186	539	12	179	2	99%
4	0.23	669.76	2935.00	0.0508	0.0006	0.1491	0.0020	0.0213	0.0002	213	27	141	2	136	1	99%
5	0.48	168.38	353.00	0.0489	0.0018	0.1585	0.0060	0.0235	0.0002	132	61	149	6	150	2	99%
6	0.25	705.90	2791.00	0.0497	0.0006	0.1841	0.0026	0.0269	0.0003	147	24	172	2	171	2	97%
7	0.38	390.45	1030.00	0.0498	0.0008	0.1626	0.0029	0.0237	0.0002	153	36	153	3	151	1	98%
8	0.14	715.44	5247.00	0.1396	0.0021	0.5113	0.0093	0.0266	0.0003	2198	95	419	8	169	2	98%
9	0.38	237.44	619.00	0.2199	0.0035	1.0498	0.0214	0.0346	0.0004	3067	138	729	15	219	2	97%
10	0.78	321.71	412.00	0.0499	0.0015	0.1611	0.0049	0.0234	0.0002	194	41	152	5	149	1	99%
91500std	0.39	17.86	45.59	0.0765	0.0032	1.9153	0.0763	0.1823	0.0032	1107	77	1086	27	1080	17	99%
91500std	0.39	18.25	46.50	0.0733	0.0036	1.7851	0.0925	0.1760	0.0032	1022	99	1040	34	1045	17	99%
11	0.49	166.57	337.00	0.0501	0.0021	0.1620	0.0082	0.0234	0.0003	213	62	152	8	149	2	99%

12	0.53	225.13	423.00	0.0503	0.0013	0.1736	0.0048	0.0250	0.0002	209	48	163	5	159	2	95%
13	0.20	324.27	1654.00	0.0501	0.0009	0.1736	0.0037	0.0252	0.0003	214	40	163	3	160	2	99%
14	0.44	529.36	1197.00	0.1590	0.0024	0.6030	0.0106	0.0275	0.0003	2373	105	479	8	175	2	93%
15	0.16	284.11	1722.00	0.0498	0.0006	0.1877	0.0027	0.0273	0.0003	155	24	175	3	174	2	92%
16	0.53	189.55	357.00	0.0485	0.0014	0.1505	0.0048	0.0225	0.0002	127	55	142	5	144	1	90%
17	0.37	240.70	658.00	0.0488	0.0011	0.1497	0.0034	0.0222	0.0002	133	44	142	3	142	1	95%
18	0.67	254.80	379.00	0.0499	0.0015	0.1791	0.0055	0.0260	0.0003	197	52	167	5	166	2	99%
19	0.71	202.76	285.00	0.0491	0.0016	0.1590	0.0063	0.0235	0.0002	153	55	150	6	150	2	96%
20	0.24	266.23	1097.00	0.0652	0.0008	0.7226	0.0120	0.0804	0.0012	872	43	552	9	499	7	97%
91500std	0.39	20.93	53.42	0.0748	0.0030	1.7978	0.0720	0.1742	0.0028	1063	77	1045	26	1035	15	99%
91500std	0.39	20.93	53.25	0.0750	0.0034	1.9026	0.0842	0.1841	0.0028	1133	95	1082	29	1089	15	99%
21	0.58	201.21	346.00	0.0493	0.0009	0.1560	0.0034	0.0230	0.0002	155	40	147	3	146	1	93%
22	1.40	1084.41	774.00	0.0489	0.0010	0.1593	0.0039	0.0237	0.0002	145	42	150	4	151	1	99%
23	0.84	384.27	456.00	0.0490	0.0009	0.1539	0.0034	0.0228	0.0002	147	40	145	3	145	1	97%
24	0.12	585.30	4948.00	0.0502	0.0006	0.1634	0.0024	0.0236	0.0002	216	28	154	2	137	1	99%
Zk4212-H582																
1	0.42	406.27	978.53	0.0880	0.0020	0.3272	0.0082	0.0270	0.0003	1383	43	287	7	172	2	99%
2	1.03	213.71	207.32	0.0490	0.0025	0.1551	0.0084	0.0230	0.0003	147	121	146	8	146	2	97%
3	0.68	932.30	1380.56	0.0491	0.0010	0.1551	0.0039	0.0229	0.0003	153	48	146	4	146	2	99%
4	0.48	147.01	307.82	0.0495	0.0014	0.1561	0.0048	0.0229	0.0002	171	68	147	4	146	2	94%
5	0.27	552.98	2011.11	0.0492	0.0006	0.1563	0.0021	0.0231	0.0002	156	28	147	2	147	2	94%
6	0.22	258.12	1160.91	0.0495	0.0008	0.1600	0.0028	0.0234	0.0003	172	37	151	3	149	2	99%
91500std	0.39	24.45	61.97	0.0740	0.0030	1.8114	0.0729	0.1772	0.0031	1043	78	1050	26	1052		99%
91500std	0.40	24.81	62.09	0.0758	0.0032	1.8890	0.0772	0.1811	0.0032	1100	81	1077	27	1073		99%
7	0.81	226.32	279.07	0.0491	0.0026	0.1579	0.0085	0.0233	0.0003	153	123	149	8	149	2	99%
8	0.44	68.93	157.06	0.0493	0.0028	0.1583	0.0094	0.0233	0.0002	162	135	149	9	148	2	95%
9	0.22	279.35	1278.24	0.0491	0.0007	0.1562	0.0024	0.0231	0.0002	153	32	147	2	147	1	99%
10	0.59	178.67	300.69	0.0487	0.0050	0.1596	0.0170	0.0238	0.0003	131	240	150	16	152	2	94%
11	0.36	302.03	842.68	0.0491	0.0008	0.1593	0.0029	0.0235	0.0003	153	37	150	3	150	2	99%
12	0.38	288.96	758.62	0.0489	0.0008	0.1581	0.0030	0.0234	0.0003	145	40	149	3	149	2	99%
13	0.49	477.60	984.44	0.0491	0.0009	0.1584	0.0029	0.0234	0.0002	152	41	149	3	149	1	99%
14	0.58	226.24	391.43	0.0962	0.0022	0.3575	0.0089	0.0270	0.0003	1552	42	310	8	171	2	94%
15	0.41	396.65	969.67	0.0482	0.0008	0.1542	0.0027	0.0232	0.0003	109	38	146	3	148	2	95%
16	1.02	322.98	316.73	0.0493	0.0035	0.1616	0.0121	0.0238	0.0003	160	166	152	11	152	2	98%
91500std	0.40	25.02	63.32	0.0768	0.0035	1.9114	0.0869	0.1797	0.0031	1117	86	1085	30	1065	17	98%
91500std	0.39	24.92	63.33	0.0729	0.0036	1.7890	0.0855	0.1786	0.0031	1013	100	1041	31	1060	17	98%
17	1.01	177.62	176.15	0.0711	0.0054	0.2491	0.0190	0.0254	0.0003	960	154	226	17	162	2	94%
18	0.17	300.46	1806.49	0.0496	0.0007	0.1574	0.0024	0.0230	0.0002	175	31	148	2	147	1	96%
19	0.56	153.78	274.20	0.0497	0.0034	0.1558	0.0108	0.0227	0.0003	181	159	147	10	145	2	99%
20	1.01	303.07	300.74	0.1531	0.0043	0.5877	0.0188	0.0278	0.0003	2381	48	469	15	177	2	99%
21	1.47	373.52	254.88	0.0493	0.0047	0.1563	0.0147	0.0230	0.0003	162	223	147	14	147	2	97%
22	0.28	334.39	1176.99	0.0486	0.0007	0.1557	0.0025	0.0232	0.0002	130	35	147	2	148	1	99%
23	0.67	649.41	963.52	0.0605	0.0016	0.2084	0.0058	0.0250	0.0003	622	57	192	5	159	2	96%
24	0.54	198.67	369.77	0.0497	0.0034	0.1526	0.0105	0.0223	0.0002	182	157	144	10	142	1	95%
91500std	0.39	25.03	64.93	0.0732	0.0032	1.7693	0.0811	0.1732	0.0040	1020	90	1034	30	1030	22	99%
91500std	0.38	24.58	64.06	0.0765	0.0038	1.9311	0.0884	0.1851	0.0062	1109	99	1092	31	1095	34	99%

Table S3. Major oxide (wt.%) composition of the Zhuxi Granites.

Sample (ZK4212)	Location (depth)(m)	lithology	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	FeO	MgO	CaO	Na ₂ O	K ₂ O	MnO	P ₂ O ₅	LOI	TOTAL	Mg#	A/CNK	ALK	A/NK
H285	1501	granodiorite	69.65	0.11	17.21	0.41	0.16	0.40	2.51	0.14	4.54	0.03	0.17	4.56	99.90	57.47	1.77	4.69	3.34
H289	1507	granodiorite	68.36	0.14	16.26	0.57	0.25	0.36	4.22	0.13	4.12	0.06	0.16	5.27	99.90	45.73	1.32	4.26	3.47
H307	1531	granodiorite	66.09	0.13	18.45	0.87	0.34	0.26	4.17	0.24	4.62	0.05	0.45	4.23	99.90	29.50	1.42	4.86	3.42
H313	1541	granodiorite	72.67	0.16	15.41	0.82	0.25	0.28	2.66	0.06	4.11	0.05	0.13	3.30	99.89	33.69	1.64	4.17	3.39
H325	1557	granodiorite	74.46	0.09	13.12	1.30	0.33	0.26	3.13	0.08	3.50	0.06	0.22	3.38	99.95	23.37	1.36	3.59	3.34
H462	1753	biotite granite	71.12	0.27	15.08	0.24	1.74	0.40	1.90	2.35	4.86	0.05	0.18	1.75	99.95	26.90	1.20	7.21	1.65
H465	1758	biotite granite	70.17	0.26	16.10	0.38	1.50	0.41	1.83	0.90	5.18	0.06	0.20	2.92	99.90	28.21	1.55	6.08	2.27
H469	1764	biotite granite	69.37	0.26	15.96	0.35	1.70	0.37	1.87	1.90	5.16	0.06	0.17	2.67	99.86	24.83	1.32	7.06	1.83
H522	1841	Two-mica granite	74.22	0.09	14.52	0.27	0.62	0.13	0.94	2.69	4.84	0.04	0.14	1.37	99.88	21.75	1.28	7.53	1.50
H530	1854	Two-mica granite	72.14	0.09	17.62	0.26	0.55	0.17	0.85	0.22	5.31	0.03	0.17	2.45	99.86	27.73	2.30	5.53	2.88
H569	1912	Two-mica granite	70.33	0.15	17.56	0.54	0.59	0.26	1.26	0.50	5.52	0.06	0.29	2.81	99.86	30.35	1.93	6.02	2.58
H573	1918	Two-mica granite	72.53	0.12	16.93	0.44	0.54	0.24	0.95	0.51	5.01	0.05	0.15	2.48	99.95	31.39	2.12	5.52	2.71

Table S4. Trace-element (ppm) compositions of the Zhuxi granites (H285 - H573) and Shuangqiaoshan Group (Bzx13-(01-08)).

Sample	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Y	Cs	Rb	Ba	Th	U	Nb	Ta	Pb
H285	11.00	22.37	2.66	9.56	2.33	0.38	2.20	0.40	2.08	0.30	0.78	0.11	0.66	0.10	9.51	135.40	439.40	134.80	5.07	10.82	10.83	2.28	25.86
H289	24.12	48.22	5.72	20.68	4.17	0.53	3.39	0.48	2.34	0.34	0.88	0.12	0.73	0.11	9.70	170.10	432.30	85.90	12.79	11.62	8.72	1.59	10.07
H307	20.59	40.96	4.79	17.54	3.64	0.50	3.08	0.46	2.27	0.33	0.92	0.13	0.85	0.12	10.79	179.50	437.70	128.80	11.09	9.02	12.12	2.80	11.89
H313	21.14	42.46	5.03	18.16	3.71	0.57	2.99	0.41	1.90	0.28	0.68	0.10	0.61	0.09	8.03	127.70	449.60	163.30	11.66	7.88	11.27	2.46	10.14
H325	10.87	21.84	2.60	9.32	2.11	0.31	2.00	0.34	1.97	0.33	0.94	0.16	1.05	0.15	10.26	123.60	364.60	80.10	5.75	10.72	9.00	2.31	23.34
H462	38.36	77.90	9.02	32.64	5.90	1.05	4.42	0.52	2.05	0.25	0.64	0.07	0.43	0.05	7.60	62.54	311.10	450.50	16.28	4.14	13.57	1.64	34.14
H465	36.93	74.98	8.71	31.81	5.84	0.97	4.23	0.50	2.03	0.26	0.64	0.07	0.42	0.06	7.60	126.00	518.90	329.00	15.53	6.75	12.78	1.76	31.71
H469	32.60	66.06	7.73	28.12	5.41	0.97	4.30	0.55	2.49	0.35	0.89	0.12	0.81	0.11	10.41	78.25	359.30	339.70	15.03	7.06	13.20	1.55	36.36
H522	7.88	16.71	2.06	7.71	2.14	0.28	2.22	0.44	2.70	0.48	1.39	0.24	1.59	0.23	15.54	49.23	319.20	80.10	4.30	19.88	11.09	2.48	38.86
H530	10.70	22.61	2.76	10.15	2.67	0.37	2.51	0.45	2.72	0.45	1.32	0.22	1.55	0.21	14.75	81.18	393.80	159.60	5.15	16.30	10.97	3.05	48.86
H569	14.08	28.65	3.44	12.83	2.96	0.55	2.56	0.40	2.18	0.32	0.85	0.13	0.79	0.12	10.02	107.50	549.90	158.90	6.76	7.71	11.40	2.65	36.37
H573	12.51	25.46	3.06	11.32	2.72	0.42	2.51	0.43	2.37	0.37	0.99	0.16	1.06	0.14	11.65	80.05	484.80	128.70	6.38	13.20	10.79	2.11	33.46
Bzx13-01	41.21	83.04	10.42	44.15	9.01	1.96	8.21	1.42	7.93	1.58	4.09	0.67	3.96	0.55	40.78	16.72	148.40	834.70	9.38	1.72	20.80	0.90	12.90
Bzx13-02	39.11	75.13	8.68	36.14	7.38	1.67	6.91	1.25	7.24	1.43	3.71	0.63	3.52	0.49	37.65	11.25	80.90	368.40	7.80	1.17	15.30	0.79	16.79
Bzx13-03	34.10	65.88	7.36	28.20	5.38	1.11	4.69	0.78	3.98	0.72	1.76	0.30	1.85	0.27	17.74	11.74	129.70	803.20	9.51	2.05	19.30	0.79	21.82
Bzx13-04	41.10	78.82	8.78	34.45	6.34	1.19	5.34	0.92	4.86	0.98	2.60	0.47	2.77	0.41	25.73	8.85	94.30	263.70	11.67	2.37	14.20	0.86	11.15
Bzx13-05	51.75	104.33	12.51	50.47	10.14	2.37	9.16	1.65	9.32	1.91	5.13	0.92	5.34	0.78	49.97	15.63	175.20	813.00	13.04	2.44	26.60	1.06	11.11
Bzx13-06	30.80	60.32	6.81	27.10	5.44	1.10	4.76	0.84	4.68	0.94	2.39	0.43	2.63	0.39	23.89	9.50	108.80	275.70	10.31	1.98	15.10	0.98	14.34
Bzx13-07	32.54	63.36	7.01	27.50	5.62	1.11	5.11	0.90	5.28	1.07	2.77	0.50	2.92	0.43	27.45	14.13	122.40	268.80	9.31	2.00	16.80	0.87	6.23
Bzx13-08	41.12	83.15	9.28	36.54	7.25	1.34	6.32	1.08	6.46	1.38	3.68	0.68	3.94	0.57	35.94	47.23	205.30	465.80	13.45	2.63	19.00	0.97	11.69

Sample	Sr	Zr	Hf	V	Sc	Co	Ni	Ga	Cr	W	Zn	Bi	Cd	Sn	δEu	(La/Yb) _N	(La/Sm) _N	(Gd/Yb) _N	ΣREE	ΣLREE	ΣHREE	LREE/ HREE
H285	67.80	59.10	2.03	8.40	2.98	0.99	2.13	25.19	8.20	289.00	114.00	12.24	1905.20	11.32	0.52	11.94	3.05	2.75	54.92	48.30	6.62	7.30
H289	71.10	88.10	3.58	8.00	3.01	1.39	2.08	26.58	6.50	1369.00	129.50	46.97	2275.26	13.70	0.43	23.64	3.74	3.83	111.82	103.43	8.39	12.33
H307	96.80	74.70	2.84	8.80	2.40	2.23	1.89	32.85	7.30	4528.00	417.10	189.70	9250.97	26.58	0.45	17.44	3.65	3.01	96.17	88.02	8.16	10.79
H313	53.20	82.70	3.04	10.20	3.18	1.87	2.11	20.24	4.70	1452.00	197.70	64.79	3773.82	22.94	0.52	25.06	3.68	4.09	98.11	91.07	7.04	12.94
H325	62.20	44.40	2.11	10.60	2.48	2.68	1.78	20.78	11.20	1884.00	312.10	415.20	5984.12	20.79	0.46	7.43	3.33	1.57	53.98	47.05	6.92	6.80
H462	148.30	158.00	7.13	29.90	2.77	2.94	1.95	21.09	10.40	8.04	59.32	5.01	181.66	8.56	0.63	64.29	4.19	8.53	173.30	164.88	8.43	19.56
H465	90.60	153.30	7.29	28.20	2.86	2.95	2.03	24.37	6.20	22.87	69.50	7.99	345.95	33.71	0.60	62.48	4.08	8.25	167.45	159.24	8.21	19.40
H469	129.10	140.60	6.24	28.70	3.28	2.98	2.04	20.81	8.30	15.12	69.16	27.72	237.97	12.45	0.62	28.76	3.89	4.37	150.51	140.90	9.61	14.66
H522	52.10	39.30	1.90	6.80	2.30	0.97	1.40	18.02	6.60	11.92	29.75	13.39	226.46	10.76	0.40	3.55	2.38	1.16	46.09	36.78	9.31	3.95
H530	38.40	40.20	1.93	8.60	2.60	1.35	1.71	19.91	5.70	468.40	34.74	33.93	312.36	12.36	0.43	4.96	2.59	1.34	58.69	49.25	9.44	5.22
H569	41.10	62.70	2.39	13.10	3.30	1.64	1.80	26.41	9.90	30.06	84.85	6.44	812.80	42.87	0.62	12.85	3.07	2.70	69.85	62.51	7.34	8.52
H573	35.20	58.20	2.34	11.20	3.11	1.34	1.78	23.00	9.40	71.15	48.72	7.35	379.25	27.61	0.49	8.50	2.97	1.96	63.50	55.49	8.01	6.92
Bzx13-01	78.40	256.60	6.02	67.30	15.36	5.31	15.15	21.74	45.20	7.64	75.31	0.23	97.00	2.81	0.35	7.02	-	-	218.20	189.79	28.41	6.68
Bzx13-02	92.30	249.80	5.75	41.80	11.65	2.46	6.25	17.32	31.00	25.49	56.52	0.20	124.80	2.43	0.36	7.49	-	-	193.28	168.10	25.18	6.68
Bzx13-03	51.90	141.90	3.56	75.00	14.96	16.60	34.10	17.75	46.00	4.51	80.07	0.50	69.17	3.38	0.33	12.45	-	-	156.39	142.04	14.35	9.90
Bzx13-04	39.70	336.00	8.49	78.20	11.35	7.51	22.24	13.06	99.30	3.48	81.22	0.15	41.92	2.74	0.30	10.00	-	-	189.03	170.68	18.35	9.30
Bzx13-05	79.40	317.30	7.80	95.20	18.55	5.88	25.67	24.58	68.80	13.47	98.22	0.19	146.86	3.47	0.37	6.53	-	-	265.78	231.56	34.21	6.77
Bzx13-06	49.40	182.10	4.68	80.20	12.91	9.23	29.06	15.25	80.30	1.83	83.26	0.33	44.09	2.79	0.32	7.89	-	-	148.64	131.56	17.07	7.71
Bzx13-07	52.70	200.90	4.89	79.60	11.95	15.47	28.00	14.33	78.70	6.19	92.57	0.10	39.88	2.53	0.31	7.52	-	-	156.12	137.15	18.97	7.23
Bzx13-08	58.50	177.10	4.33	127.50	20.79	18.76	42.47	25.03	91.00	6.11	123.40	0.25	65.78	4.16	0.30	7.03	-	-	202.79	178.69	24.11	7.41

Table S5. Zircon Hf isotopic compositions of the Zhuxi granites.

No.	Sample	Age	$^{176}\text{Hf}/^{177}\text{Hf}$	2δ	$^{176}\text{Lu}/^{177}\text{Hf}$	2δ	$^{176}\text{Yb}/^{177}\text{Hf}$	2δ	$\varepsilon_{\text{Hf}}(0)$	$\varepsilon_{\text{Hf}}(t)$	1δ	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
ZX4212-H289														
1	H289-1	160	0.282469	0.000021	0.000277	0.000001	0.008188	0.000045	-10.7	-7.2	0.9	1087	1671	-0.99
2	H289-2	161	0.282457	0.000019	0.000466	0.000001	0.013445	0.000057	-11.1	-7.7	0.8	1109	1698	-0.99
3	H289-3	160	0.282442	0.000017	0.001163	0.000011	0.031120	0.000344	-11.7	-8.3	0.8	1150	1736	-0.96
4	H289-4	159	0.282419	0.000016	0.001404	0.000041	0.037726	0.001159	-12.5	-9.2	0.8	1192	1792	-0.96
5	H289-5	157	0.282395	0.000020	0.000518	0.000005	0.013506	0.000107	-13.3	-9.9	0.9	1197	1840	-0.98
6	H289-6	160	0.282441	0.000018	0.001149	0.000015	0.030584	0.000456	-11.7	-8.3	0.8	1152	1739	-0.97
7	H289-7	161	0.282471	0.000019	0.000485	0.000003	0.013731	0.000101	-10.7	-7.2	0.8	1091	1668	-0.99
8	H289-8	164	0.282447	0.000020	0.001071	0.000004	0.027654	0.000126	-11.5	-8.0	0.9	1141	1723	-0.97
9	H289-9	160	0.282463	0.000014	0.000553	0.000002	0.015967	0.000083	-10.9	-7.5	0.7	1104	1686	-0.98
10	H289-10	158	0.282512	0.000031	0.000517	0.000002	0.015183	0.000145	-9.2	-5.8	1.2	1035	1577	-0.98
11	H289-11	162	0.282458	0.000018	0.000393	0.000001	0.011179	0.000047	-11.1	-7.6	0.8	1106	1695	-0.99
12	H289-12	159	0.282461	0.000019	0.000520	0.000001	0.015156	0.000030	-11.0	-7.6	0.9	1105	1691	-0.98
TW1.3														
13	TW.1.3-1	137	0.282456	0.000020	0.000815	0.000009	0.022688	0.000277	-11.2	-8.2	0.9	1120	1716	-0.98
14	TW.1.3-2	150	0.282481	0.000023	0.000952	0.000007	0.026043	0.000208	-10.3	-7.1	1.0	1090	1655	-0.97
15	TW.1.3-3	171	0.282410	0.000021	0.001212	0.000028	0.031461	0.000709	-12.8	-9.2	0.9	1197	1802	-0.96
16	TW.1.3-4	169	0.282430	0.000016	0.000839	0.000004	0.024376	0.000237	-12.1	-8.5	0.8	1158	1757	-0.97
17	TW.1.3-5	149	0.282443	0.000016	0.000461	0.000002	0.012993	0.000044	-11.6	-8.4	0.8	1129	1738	-0.99

18	TW.1.3-6	159	0.282490	0.000019	0.000452	0.000002	0.012453	0.000076	-10.0	-6.5	0.8	1064	1626	-0.99
19	TW.1.3-7	160	0.282456	0.000018	0.000353	0.000002	0.010428	0.000063	-11.2	-7.7	0.8	1108	1701	-0.99
20	TW.1.3-8	174	0.282409	0.000020	0.000826	0.000008	0.021541	0.000208	-12.9	-9.1	0.9	1188	1802	-0.98
21	TW.1.3-9	144	0.282476	0.000015	0.000387	0.000002	0.010498	0.000070	-10.5	-7.3	0.8	1081	1665	-0.99
22	TW.1.3-10	142	0.282476	0.000016	0.000319	0.000001	0.008974	0.000008	-10.5	-7.4	0.8	1080	1668	-0.99
23	TW.1.3-11	166	0.282419	0.000017	0.000303	0.000002	0.008303	0.000089	-12.5	-8.9	0.8	1157	1780	-0.99
24	TW.1.3-12	150	0.282468	0.000019	0.000421	0.000003	0.011944	0.000064	-10.7	-7.5	0.8	1093	1680	-0.99
25	TW.1.3-13	146	0.282451	0.000019	0.000496	0.000005	0.014844	0.000168	-11.4	-8.2	0.8	1119	1722	-0.99
26	TW.1.3-14	151	0.282578	0.000020	0.001802	0.000010	0.050235	0.000060	-6.9	-3.7	0.9	976	1442	-0.95
27	TW.1.3-15	145	0.282534	0.000017	0.000491	0.000001	0.014577	0.000024	-8.4	-5.3	0.8	1004	1536	-0.99
ZX4212-H582														
28	H582-1	146	0.282517	0.000027	0.000489	0.000007	0.014613	0.000180	-9.0	-5.9	1.1	1027	1573	-0.99
29	H582-2	146	0.282431	0.000018	0.000410	0.000001	0.012093	0.000030	-12.1	-8.9	0.8	1143	1765	-0.99
30	H582-3	147	0.282459	0.000019	0.001054	0.000028	0.029957	0.000599	-11.1	-8.0	0.9	1124	1706	-0.97
31	H582-4	149	0.282544	0.000023	0.000613	0.000015	0.017398	0.000440	-8.1	-4.9	1.0	993	1512	-0.98
32	H582-5	148	0.282492	0.000019	0.000692	0.000014	0.021079	0.000367	-9.9	-6.7	0.9	1067	1628	-0.98
33	H582-6	152	0.282443	0.000018	0.000402	0.000004	0.012136	0.000146	-11.6	-8.4	0.8	1126	1736	-0.99
34	H582-7	150	0.282470	0.000018	0.001204	0.000007	0.031711	0.000156	-10.7	-7.5	0.8	1113	1682	-0.96
35	H582-8	149	0.282441	0.000017	0.000562	0.000009	0.015816	0.000311	-11.7	-8.5	0.8	1134	1742	-0.98
36	H582-9	149	0.282494	0.000022	0.001078	0.000003	0.028126	0.000105	-9.8	-6.7	1.0	1075	1627	-0.97
37	H582-10	171	0.282455	0.000016	0.000567	0.000005	0.016805	0.000090	-11.2	-8.0	0.8	1115	1711	-0.98
38	H582-11	145	0.282517	0.000019	0.000884	0.000003	0.024670	0.000037	-9.0	-5.8	0.8	1037	1573	-0.97
39	H582-12	147	0.282484	0.000019	0.000527	0.000003	0.014622	0.000078	-10.2	-7.0	0.9	1074	1646	-0.98

$$\varepsilon_{\text{Hf}}(t) = \{[(^{176}\text{Hf}/^{177}\text{Hf})_{\text{S}} - (^{176}\text{Lu}/^{177}\text{Hf})_{\text{S}} - (e^{\lambda t} - 1)] / [(^{176}\text{Hf}/^{177}\text{Hf})_{\text{CHUR},0} - (^{176}\text{Lu}/^{177}\text{Hf})_{\text{CHUR}} - (e^{\lambda t} - 1)] - 1\} \times 10^5.$$

$$\text{TDM1} = 1/\lambda \times \ln\{1 + [(^{176}\text{Hf}/^{177}\text{Hf})_{\text{S}} - (^{176}\text{Hf}/^{177}\text{Hf})_{\text{DM}}] / [(^{176}\text{Lu}/^{177}\text{Hf})_{\text{S}} - (^{176}\text{Lu}/^{177}\text{Hf})_{\text{DM}}]\}.$$

$$\text{TDM2} = 1/\lambda \times \ln\{1 + [(^{176}\text{Hf}/^{177}\text{Hf})_{\text{S},t} - (^{176}\text{Hf}/^{177}\text{Hf})_{\text{DM},t}] / [(^{176}\text{Lu}/^{177}\text{Hf})_{\text{C}} - (^{176}\text{Lu}/^{177}\text{Hf})_{\text{DM}}]\} + t.$$

Table S6. Summary of U–Pb age data for Northeastern Jiangxi and adjacent regions.

No.	Location		Petrologic description	Age (Ma)	Method	Reference
01	Northeast Jiangxi	Zhuxi	Muscovite granite	147±1	LA-ICP-MS	Wang et al., 2015
02			Granite	149±2	LA-ICP-MS	Chen et al., 2015
03			Granite-porphyry	148±3	LA-ICP-MS	Chen et al., 2015
04			Granite-porphyry	151±2	LA-ICP-MS	Li et al., 2014a
05			Granite-porphyry	150±2	LA-ICP-MS	Li et al., 2014a
06			Biotite monzogranite	149.38±0.86	LA-ICP-MS	Song et al., 2018a
07			Fine-grained granite	149.0±1.0	LA-ICP-MS	Song et al., 2018a
08			Granite porphyry	148.3±1.4	LA-ICP-MS	Song et al., 2018a
09			Granite porphyry	153.4±1.0	LA-ICP-MS	Pan et al., 2018
10			Granite porphyry	150±1	LA-ICP-MS	Pan et al., 2018
11			White granite	152.9±1.7	LA-ICP-MS	Pan et al., 2018
12			Biotite granite	153.5±1.0	LA-ICP-MS	Pan et al., 2018
13			lamprophyre	160.3±2.1	LA-ICP-MS	Liu et al., 2014a
14		Henglu	Granite	158.8±2.2	LA-ICP-MS	Li, 2017

No.	Location	Petrologic description	Age (Ma)	Method	Reference
15	Keshan	Biotite granite	161.6±3.0	LA-ICP-MS	Li, 2017
16	Zhangjiawu	Granodiorite	160.6±2.7	LA-ICP-MS	Li, 2017
17	Zhenzhushan	porphyritic muscovite granite	129-133	LA-ICP-MS	Liu et al., 2016
18	Taqian	Granodiorite porphyry	160.9±2.5	LA-ICP-MS	Hu et al., 2015
19		Porphyric-like muscovite granite	144.2±1.3	LA-ICP-MS	Huang et al., 2012
20	Dahutang	Porphyritic granite	134.6±1.2	LA-ICP-MS	Huang et al., 2013
21	(shiweidong)	Porphyritic-like two-mica granite	144±1	LA-ICP-MS	Huang et al., 2014
22		Porphyritic two-mica granite	130±1	LA-ICP-MS	Huang et al., 2014
23		Porphyritic biotite granite	147.4±0.58	LA-ICP-MS	Mao et al., 2015
24		Porphyritic biotite granite	148.3±1.9	LA-ICP-MS	Mao et al., 2015
25	Northwest	Fine grained biotite granite	144.66±0.47	LA-ICP-MS	Mao et al., 2015
26	Jiangxi	(shimensi) Fine grained biotite granite	146.0±0.64	LA-ICP-MS	Mao et al., 2015
27		Granite porphyry	143.0±0.76	LA-ICP-MS	Mao et al., 2015
28		Granite porphyry	143.1±1.2	LA-ICP-MS	Mao et al., 2015
29		Middle-to-fine-grained muscovite granite	134±1	LA-ICP-MS	Huang et al., 2014
30		Fine-granite two-mica granite	131±1	LA-ICP-MS	Huang et al., 2014
31		Muscovite granite	151.6±2.6	LA-ICP-MS	Liu et al., 2008
32		Fine-grained granite	130±1.5	SHRIMP	Qin et al., 2010a
33		Granite-porphyry	148.6±1.8	SHRIMP	Qin et al., 2010b
34	South	Dawujian Granodiorite-porphyry	148.2±2.2	LA-ICP-MS	Li et al., 2015
35	Anhui	Granite	140.5±1.3	LA-ICP-MS	Chen et al., 2013
36		Granite	138.7±1.6	LA-ICP-MS	Chen et al., 2013
37		Granite	142.0±1.6	LA-ICP-MS	Chen et al., 2013
38		Biotite granite	158.9±1.3	SIMS	Huang et al., 2015
39		Two-mica granites	156-159	SIMS	Huang et al., 2015
40		Muscovite granodiorite	159.0±4.4	SIMS	Huang et al., 2015
43	Xihuashan pluton	Granites	158~161	SIMS	Guo et al., 2011
44	Taoxikeng	Granites	158~159	SHRIMP	Guo et al., 2007
45	Piaotang	Granite	161.8±1	LA-ICP-MS	Zhang et al., 2009a
46	Dajishan	Granite	151.7±1.6	LA-ICP-MS	Zhang et al., 2006
47	South	Pangushan Granite	161.7±1.6	LA-ICP-MS	Fang et al., 2014
48	Jiangxi	Kuimeishan Biotite granite	157.7±2.7	SHRIMP	Li et al., 2014c
49		Medium to fine-grained porphyritic granodiorite	164.4±1.1	SHRIMP	Feng et al., 2012
50		Medium to fine-grained granite	156.6±3.9	SHRIMP	Feng et al., 2012
51		Granite	155~159	SHRIMP	Guo et al., 2011
52	Tianmenshan	Medium to coarse-grained biotite granite	157.2±2.2	SHRIMP	Feng et al., 2011a
53	Tianmenshan	Porphyritic biotite granite	151.8±2.9	SHRIMP	Feng et al., 2011a
55	Hongtaoling	Biotite granite	151.4±3.1	SHRIMP	Feng et al., 2011a
56	Zhangtiantang	Fine-grained muscovite granite	156.9±1.7	SHRIMP	Feng et al., 2011a