

Table S1. Compilation of previously published radiometric ages of the Permian granitoids

No.	Sample	Tectonic unit	Lithology	Dating Method	Age (Ma)	$\pm\sigma$	Reference
Yili-Central Tianshan							
1	KMX13	Central Tianshan Arc	Granite	LA-ICP-MS zircon U-Pb	252	4	Wang et al., 2009a
2	762	Central Tianshan Arc	K-feldspar granite	LA-ICP-MS zircon U-Pb	267	3.6	Ma et al., 2015
3	99-25	Central Tianshan Arc	Alkali feldspar granite	LA-ICP-MS zircon U-Pb	270	0.7	Wang et al., 2009b
4	792	Central Tianshan Arc	K-feldspar granite	LA-ICP-MS zircon U-Pb	263	2	Ma et al., 2015
5	788	Central Tianshan Arc	Granite	LA-ICP-MS zircon U-Pb	300	3.1	Ma et al., 2015
6	DD-117	Central Tianshan Arc	K-feldspar granite	LA-ICP-MS zircon U-Pb	296	0.7	Duan et al., 2014
7	122A	Central Tianshan Arc	granite	LA-ICP-MS zircon U-Pb	282	3.5	Huang et al., 2017
8	10NLT1-1	Southern Yili	Alkali granite	LA-ICP-MS zircon U-Pb	297	2.4	Xu et al., 2013
9	KKS5	Southern Yili	Granite	LA-ICP-MS zircon U-Pb	277	3	Wang et al., 2009a
10	KKS1	Southern Yili	Granitoid	LA-ICP-MS zircon U-Pb	276	3	Gao et al., 2009
11	W8026	Southern Yili	Quartz monzonite	LA-ICP-MS zircon U-Pb	294	2.2	Gou et al., 2012
12	W8011	Southern Yili	Granite	LA-ICP-MS zircon U-Pb	275	3	Gou et al., 2015
13	W8017	Southern Yili	Granite	LA-ICP-MS zircon U-Pb	278	3	Gou et al., 2015
14	W8015	Southern Yili	Granite	LA-ICP-MS zircon U-Pb	266	13	Gou et al., 2015
15	TGLS8	Southern Yili	Granite	Camera IMS	285	2	Gao et al., 2011
16	416705	Middle Tianshan Arc	Diorite	SHRIMP zircon U-Pb	294	5	Konopelko et al., 2009
17	416000	Middle Tianshan Arc	Granite	SHRIMP zircon U-Pb	291	5	Konopelko et al., 2009
18	NT-8	Middle Tianshan Arc	Granite	TIMS zircon U-Pb	293	1	Alekseev et al., 2009
19	26	Middle Tianshan Arc	Foliated granite	SHRIMP zircon U-Pb	279	5	Seltmann et al., 2011
20	27	Middle Tianshan Arc	Foliated granite	SHRIMP zircon U-Pb	279	5	Seltmann et al., 2011
21	320100	Middle Tianshan Arc	Granite	SHRIMP zircon U-Pb	286	5	Seltmann et al., 2011

Table S1 continued

South Tianshan							
1	D2110-14	Chinese South Tianshan	Two-micagranite	LA-ICP-MS zircon U-Pb	293	1.3	Huang et al., 2011
2	07Y-1040	Chinese South Tianshan	quartz syenite	SHRIMP zircon U-Pb	295	1.2	Yang et al., 2011
3	20ST78	Chinese South Tianshan	Granite	LA-ICP-MS zircon U-Pb	272	1.2	this study
4	777	Chinese South Tianshan	K-feld spar granite	LA-ICP-MS zircon U-Pb	275	2.2	Ma et al., 2015
5	776-1	Chinese South Tianshan	Syenite	LA-ICP-MS zircon U-Pb	277	2.7	Ma et al., 2015
6	776	Chinese South Tianshan	K-feld spar granite	LA-ICP-MS zircon U-Pb	272	2.2	Ma et al., 2015
7	KECI-11	Chinese South Tianshan	muscovite granite	LA-ICP-MS zircon U-Pb	283	4	Qin et al.,2021
8	20ST93	Chinese South Tianshan	Granite	LA-ICP-MS zircon U-Pb	298	5.8	this study
9	787	Chinese South Tianshan	Biotite K-feld spar granite	LA-ICP-MS zircon U-Pb	292	2.3	Ma et al., 2015
10	ST06-6	Chinese South Tianshan	Granodiorite	SHRIMP	297	5.4	Zhu et al., 2008
11	18ST64	Chinese South Tianshan	Granodiorite	LA-ICP-MS zircon U-Pb	294	2.4	this study
12	18ST60	Chinese South Tianshan	Granodiorite	LA-ICP-MS zircon U-Pb	292	1.7	this study
13	ULR	Chinese South Tianshan	ryholite	LA-ICP-MS zircon U-Pb	282	0.7	Cheng et al.,2017
14		Chinese South Tianshan	Syenite	zircon U-Pb	273		Liu et al., 2004
15	HYS73	Chinese South Tianshan	homblende biotite granite	SHRIMP zircon U-Pb	285	4	Long et al.,2008
16	BZGE-1-14	Chinese South Tianshan	Granite	LA-ICP-MS zircon U-Pb	290	1.4	Huang et al., 2014
17	NJ11-004	Chinese South Tianshan	Quartz porphyry	LA-ICP-MS zircon U-Pb	295	2.8	Liu et al., 2014
18	19ST17	Chinese South Tianshan	Monzogranite	LA-ICP-MS zircon U-Pb	286	3	this study
19	10	Kyrgyz South Tianshan	Leucogranite	SHRIMP zircon U-Pb	289	6	Konopelko et al.2009
20	9	Kyrgyz South Tianshan	Granite	SHRIMP zircon U-Pb	295	4	Konopelko et al.2009
21	8	Kyrgyz South Tianshan	Granite	SHRIMP zircon U-Pb	299	4	Konopelko et al.2009
22	1	Kyrgyz South Tianshan	Rapakivi granite	SHRIMP zircon U-Pb	292	3	Seltmann et al., 2011
23	7	Kyrgyz South Tianshan	Rapakivi granite	SHRIMP zircon U-Pb	297	4.2	Konopelko et al.2007
24	6	Kyrgyz South Tianshan	A type Leucogranite	SHRIMP zircon U-Pb	279	8.1	Konopelko et al.2007

Table S1 continued

25	05QQ97	Chinese South Tianshan	Granite	LA-ICP-MS zircon U-Pb	273	2	Wang et al., 2007
26	BLG13-1	Chinese South Tianshan	Biotite monzonite	LA-ICP-MS zircon U-Pb	283	3	Huang H et al., 2015
27	18	Kyrgyz South Tianshan	Granite	LA-ICP-MS zircon U-Pb	286	4	Glorie et al., 2011
28	19	Kyrgyz South Tianshan	Granite	LA-ICP-MS zircon U-Pb	283	4	Glorie et al., 2011
29	14	Kyrgyz South Tianshan	Granite	LA-ICP-MS zircon U-Pb	282	6	Glorie et al., 2011
30	17	Kyrgyz South Tianshan	Granite	LA-ICP-MS zircon U-Pb	286	4	Glorie et al., 2011
31	16	Kyrgyz South Tianshan	Granite	LA-ICP-MS zircon U-Pb	288	3	Glorie et al., 2011
32	DYCWL-3	Chinese South Tianshan	Biotite monzonite	LA-ICP-MS zircon U-Pb	286	2.5	Huang H et al., 2012

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