

Table S7. CA-TIMS U-Pb geochronologic analysis
677-187 Fenghuoshan Tuff
92.85386° E, 34.611° N

Sample	Radiogenic Isotope Ratios														Isotopic Dates					
	Th	²⁰⁶ Pb*	mol %	Pb*	Pb _C	²⁰⁶ Pb	²⁰⁸ Pb	²⁰⁷ Pb		²⁰⁷ Pb		²⁰⁶ Pb	corr.	²⁰⁷ Pb	²⁰⁷ Pb	²⁰⁶ Pb				
	U	x10 ⁻¹³ mol	²⁰⁶ Pb*	Pb _C	(pg)	²⁰⁴ Pb	²⁰⁶ Pb	²⁰⁶ Pb	% err	²³⁵ U	% err	²³⁸ U	% err	coef.	²⁰⁶ Pb	±	²³⁵ U	±	²³⁸ U	±
(a)	(b)	(c)	(c)	(c)	(c)	(d)	(e)	(e)	(f)	(e)	(f)	(e)	(f)		(g)	(f)	(g)	(f)	(g)	(f)
z1	0.800	0.1590	97.13%	11	0.39	640	0.259	0.047710	1.589	0.060696	1.693	0.009227	0.128	0.821	84.9	37.7	59.83	0.98	59.21	0.08
z2	0.687	0.1230	96.28%	8	0.39	493	0.222	0.047621	2.066	0.060566	2.196	0.009224	0.155	0.854	80.5	49.0	59.71	1.27	59.19	0.09
z3	0.999	0.0987	95.37%	7	0.40	396	0.324	0.047790	2.575	0.061137	2.735	0.009278	0.182	0.888	88.9	61.0	60.25	1.60	59.54	0.11
z4	0.805	0.1152	96.46%	9	0.35	518	0.265	0.048528	1.892	0.062210	2.015	0.009297	0.142	0.879	125.1	44.5	61.28	1.20	59.66	0.08
z5	0.747	0.0747	94.76%	6	0.34	350	0.243	0.047839	2.959	0.061040	3.141	0.009254	0.197	0.929	91.3	70.1	60.16	1.83	59.38	0.12
z6	0.830	0.1855	97.22%	12	0.44	660	0.270	0.047830	1.346	0.060924	1.439	0.009238	0.100	0.942	90.9	31.9	60.05	0.84	59.28	0.06
z8	0.850	0.2025	97.03%	11	0.51	620	0.279	0.048399	1.251	0.061671	1.339	0.009242	0.109	0.816	118.8	29.5	60.77	0.79	59.30	0.06

(a) z1, z2 etc. are labels for fractions composed of single zircon grains or fragments. Fractions were annealed and chemically abraded after Mattinson (2005). Fraction labels in bold are used in the weighted mean calculations.

(b) Model Th/U ratio calculated from radiogenic ²⁰⁸Pb/²⁰⁶Pb ratio and ²⁰⁷Pb/²³⁵U date.

(c) Pb* and Pb_C are radiogenic and common Pb, respectively. mol % ²⁰⁶Pb* is with respect to radiogenic and blank Pb.

(d) Measured ratio corrected for spike and fractionation only. Fractionation correction is 0.15 ± 0.03 (1 sigma) %/amu (atomic mass unit) for single-collector Daly analyses, based on analysis of the ²⁰²Pb/²⁰⁵Pb in ET2535 tracer solution.

(e) Corrected for fractionation, spike, common Pb, and initial disequilibrium in ²³⁰Th/²³⁸U. Common Pb is assigned to procedural blank with composition of ²⁰⁶Pb/²⁰⁴Pb = 18.35 ± 1.50%; ²⁰⁷Pb/²⁰⁴Pb = 15.60 ± 0.75%; ²⁰⁸Pb/²⁰⁴Pb = 38.53 ± 1.00% (1 sigma). ²⁰⁶Pb/²³⁸U and ²⁰⁷Pb/²⁰⁶Pb ratios corrected for initial disequilibrium in ²³⁰Th/²³⁸U using Th/U [magma] = 3.

(f) Errors are 2 sigma, propagated using algorithms of Schmitz and Schoene (2007) and Crowley et al. (2007).

(g) Calculations based on the decay constants of Jaffey et al. (1971). ²⁰⁶Pb/²³⁸U and ²⁰⁷Pb/²⁰⁶Pb dates corrected for initial disequilibrium in ²³⁰Th/²³⁸U using Th/U [magma] = 3.