

Supplementary Table S1. K-Ar age of basaltic flow near the Cerro Pampa Adakite

Sample No.	K <sub>2</sub> O (wt%)	K (wt%)	error	<sup>40</sup> Ar rad 10 <sup>-8</sup> cm <sup>3</sup> STP/g	error	<sup>38</sup> Ar/ <sup>36</sup> Ar	error	Age (Ma)	error	Air Fraction (%)
CP21P32*	0.695	0.577 ± 0.017		19.4 ± 1.0		0.18887 ± 0.00045		8.65 ± 0.51		57.1

Ar isotope analysis were achieved using a noble gas mass spectrometry MS-III (modified-VG5400) in the Geochemical Research Center, University of Tokyo and K concentration was determined by a XRFmethod (Phillips PW2400) at ERI, University of Tokyo. Detail of analytical procedures were followed in Nagao et al. (1996) and Orihashi et al. (2004).

Errors are 1σ

\* The sample was collected from outcrop of the plateau basalt neighboring the Cerro Pampa adakite body (S47°53.6', W71°21.2').

Supplementary Table S2. Fission-track age of zircon crystals of Sample CP1, separated from the Cerro Pampa Adakite

Smple No.	Mineral/grain	Spontaneous track $\rho_s$ (per cm <sup>2</sup> )	Induced track (N <sub>s</sub> ) $\rho_i$ (per cm <sup>2</sup> )	Dosimeter (N <sub>i</sub> ) $\rho_d$ (per cm <sup>2</sup> )	Pr ( $\chi^2$ ) (N <sub>d</sub> ) (%)	U (ppm)	Fission-track age (Ma) Age $\pm 1\sigma$
CP1	Zircon/17	2.78 $\times 10^5$	(811) 3.28 $\times 10^6$	(3780) 7.383 $\times 10^4$	3.0	420	11.9 $\pm$ 0.6

The external detector method (ED1) was applied to the internal surface of zircon. Diallyl phthalate resin was used as an external detector. Track densities ( $\rho$ ) and numbers of counted tracks are shown in brackets. Pr( $\chi^2$ ) is the possibility of obtaining a  $\chi^2$  value for  $\nu$  degrees of freedom (where  $\nu$  = number of crystals – 1; Galbraith 1981). Ages were calculated using dosimeter glass NIST-SRM612 and  $\zeta_{ED1} = 390 \pm 3$  (Danbara et al. 2003).

Supplementary Table S3. U-Pb isotopic data for zircon crystals of Samples CP1, CP3 and CP4 in the Cerro Pampa adakite, determined by LA-ICP-MS

Sample & Grain	Th/U	$^{207}\text{Pb}/^{235}\text{U}$	Error	$^{206}\text{Pb}/^{238}\text{U}$	Error	$^{207}\text{Pb}/^{235}\text{U}$	Error	$^{238}\text{U}/^{206}\text{Pb}$ age	Error	Concordia age*	Error*	MSWD*	Prob.*
Number			2 $\sigma$		2 $\sigma$		2 $\sigma$	(Ma)	2 $\sigma$	(Ma)	2 $\sigma$		
<i>Sample: CP1</i>													
G004	#	0.81	0.080 ± 0.018	0.1174 ± 0.0107		1.29 ± 0.32		716 ± 65		717 ± 62		3.30	0.10
G005	#	0.96	0.043 ± 0.013	0.0262 ± 0.0019		0.157 ± 0.049		167 ± 12		166 ± 12		0.83	0.36
G007	#	0.49	0.048 ± 0.010	0.0265 ± 0.0018		0.174 ± 0.038		169 ± 11		169 ± 11		0.12	0.73
G008	#	0.49	0.054 ± 0.016	0.0204 ± 0.0028		0.152 ± 0.050		130 ± 18		130 ± 18		0.47	0.49
G008	#	0.65	0.063 ± 0.020	0.0248 ± 0.0022		0.214 ± 0.069		158 ± 14		158 ± 14		1.90	0.17
G009	#	0.59	0.067 ± 0.021	0.0248 ± 0.0036		0.230 ± 0.080		158 ± 23		156 ± 23		2.90	0.10
G009	#	0.30	0.0480 ± 0.0078	0.0345 ± 0.0045		0.228 ± 0.048		219 ± 29		218 ± 28		0.41	0.52
G011	#	0.48	0.091 ± 0.014	0.224 ± 0.031		2.83 ± 0.58		1,304 ± 180		1,335 ± 150		0.81	0.37
G012	#	0.55	0.046 ± 0.013	0.0402 ± 0.0062		0.25 ± 0.08		254 ± 39		252 ± 38		0.71	0.40
G014	#	0.70	0.0591 ± 0.0128	0.0246 ± 0.0024		0.200 ± 0.047		157 ± 15		156 ± 15		2.40	0.12
G016	#	0.62	0.0476 ± 0.0073	0.0192 ± 0.0015		0.126 ± 0.022		123 ± 10		122.7 ± 9.7		0.06	0.81
G017	#	0.59	0.0517 ± 0.0065	0.0244 ± 0.0019		0.174 ± 0.026		156 ± 12		156 ± 12		0.61	0.43
G018	#	0.70	0.0555 ± 0.0092	0.0232 ± 0.0019		0.178 ± 0.033		148 ± 12		148 ± 12		2.00	0.16
G019	#	0.75	0.0524 ± 0.0046	0.0199 ± 0.0015		0.144 ± 0.017		127 ± 10		126.8 ± 9.5		2.80	0.10
G020	#	0.59	0.0538 ± 0.0076	0.0239 ± 0.0019		0.177 ± 0.029		152 ± 12		152 ± 12		1.50	0.22
G021	#	0.79	0.0446 ± 0.0085	0.0295 ± 0.0024		0.182 ± 0.038		188 ± 15		187 ± 15		1.50	0.22
G021	#	0.55	0.057 ± 0.013	0.0218 ± 0.0022		0.171 ± 0.041		139 ± 14		139 ± 14		1.70	0.20
G022	#	0.62	0.0489 ± 0.0029	0.0281 ± 0.0013		0.190 ± 0.014		178.8 ± 8.3		178.7 ± 8.1		0.27	0.60
G022	#	0.56	0.0479 ± 0.0031	0.0279 ± 0.0013		0.184 ± 0.015		177.2 ± 8.2		176.9 ± 8.1		1.20	0.26
G022	#	0.67	0.0502 ± 0.0024	0.0259 ± 0.0012		0.179 ± 0.012		164.6 ± 7.5		164.7 ± 7.4		0.50	0.48
G023	#	0.65	0.0489 ± 0.0026	0.0224 ± 0.0010		0.151 ± 0.011		142.9 ± 6.6		142.9 ± 6.5		0	1.00
G023	#	0.52	0.0474 ± 0.0022	0.0215 ± 0.0010		0.1409 ± 0.0092		137.4 ± 6.3		137.1 ± 6.2		1.50	0.22
G025	#	0.30	0.0504 ± 0.0026	0.01999 ± 0.00092		0.139 ± 0.010		127.6 ± 5.9		127.6 ± 5.8		1.80	0.18
G030	#	0.55	0.0516 ± 0.0026	0.0266 ± 0.0015		0.189 ± 0.014		169.2 ± 9.3		169.5 ± 9.2		2.60	0.10
G031	#	0.42	0.0540 ± 0.0045	0.0363 ± 0.0020		0.270 ± 0.027		230 ± 13		230 ± 13		2.10	0.15
G032	#	0.62	0.0502 ± 0.0038	0.0231 ± 0.0013		0.160 ± 0.015		147.5 ± 8.2		147.6 ± 8.2		0.41	0.52
G033	#	0.49	0.0490 ± 0.0023	0.0238 ± 0.0013		0.161 ± 0.012		151.7 ± 8.3		151.6 ± 8.2		0.0007	0.98
G038	#	0.46	0.0482 ± 0.0030	0.0255 ± 0.0016		0.170 ± 0.015		162.5 ± 9.9		162.2 ± 9.7		0.53	0.47
G039	#	0.39	0.0496 ± 0.0030	0.0226 ± 0.0010		0.155 ± 0.011		144.0 ± 6.2		144.0 ± 6.1		0.23	0.63
G041	#	0.40	0.0511 ± 0.0028	0.0224 ± 0.0010		0.158 ± 0.011		142.7 ± 6.1		142.8 ± 6.0		2.40	0.12
G051	#	0.57	0.0483 ± 0.0025	0.0267 ± 0.0017		0.178 ± 0.014		170 ± 11		169 ± 10		0.84	0.36
G052	#	0.67	0.0525 ± 0.0026	0.0332 ± 0.0021		0.240 ± 0.019		210 ± 13		211 ± 13		2.60	0.11
G053	#	0.55	0.0495 ± 0.0026	0.0295 ± 0.0018		0.201 ± 0.016		187 ± 12		187 ± 11		0.07	0.79
G058	#	0.65	0.0495 ± 0.0026	0.0265 ± 0.0013		0.181 ± 0.013		168.5 ± 8.2		168.5 ± 8.1		0.003	0.96
G059	#	0.85	0.0495 ± 0.0025	0.0358 ± 0.0017		0.244 ± 0.017		227 ± 11		226 ± 11		0.87	0.35
G059	#	0.47	0.0488 ± 0.0021	0.0174 ± 0.0016		0.117 ± 0.012		111 ± 10		110.5 ± 9.8		0.27	0.61
G061	#	0.93	0.0508 ± 0.0020	0.0304 ± 0.0027		0.213 ± 0.021		193 ± 17		194 ± 17		0.69	0.41
G063	#	1.59	0.0511 ± 0.0019	0.0457 ± 0.0041		0.322 ± 0.031		288 ± 26		284 ± 24		0.97	0.33
G072	#	0.86	0.0517 ± 0.0027	0.0285 ± 0.0022		0.203 ± 0.019		181 ± 14		181 ± 14		2.20	0.14
G076	#	0.64	0.0503 ± 0.0026	0.0250 ± 0.0019		0.173 ± 0.016		159 ± 12		160 ± 12		0.64	0.43
G082	#	1.30	0.0500 ± 0.0029	0.0363 ± 0.0033		0.250 ± 0.027		230 ± 21		229 ± 20		0.27	0.60
G085	#	0.53	0.0501 ± 0.0031	0.0215 ± 0.0020		0.149 ± 0.016		137 ± 13		138 ± 12		0.68	0.41
G087	#	0.84	0.0528 ± 0.0030	0.0351 ± 0.0032		0.256 ± 0.028		223 ± 20		224 ± 20		2.00	0.16
G090	#	0.52	0.0514 ± 0.0032	0.0232 ± 0.0021		0.165 ± 0.018		148 ± 14		148 ± 13		2.30	0.13
G090	#	0.43	0.0523 ± 0.0038	0.0245 ± 0.0022		0.177 ± 0.021		156 ± 14		156 ± 14		2.80	0.10
<i>Sample: CP2</i>													
G001	#	0.53	0.0504 ± 0.0065	0.0169 ± 0.0009		0.117 ± 0.016		107.9 ± 5.5		107.9 ± 5.4		0.46	0.50
G004	#	0.70	0.0480 ± 0.0041	0.0338 ± 0.0017		0.224 ± 0.022		214 ± 11		214 ± 10		1.40	0.24
G006	#	0.70	0.0501 ± 0.0065	0.0219 ± 0.0011		0.151 ± 0.021		139.5 ± 7.1		139.6 ± 7.0		0.14	0.71
G008	#	0.70	0.0499 ± 0.0245	0.0258 ± 0.0016		0.178 ± 0.088		164 ± 10		164 ± 10		0.002	0.96
G011	#	0.61	0.0549 ± 0.0116	0.0173 ± 0.0011		0.131 ± 0.029		110.3 ± 6.9		110.2 ± 6.8		1.30	0.25
G012	#	1.20	0.0516 ± 0.0017	0.0465 ± 0.0025		0.331 ± 0.021		293 ± 15		292 ± 15		0.48	0.49
G015	#	0.56	0.0494 ± 0.0031	0.0223 ± 0.0012		0.152 ± 0.013		142.5 ± 7.6		142.5 ± 7.5		0.10	0.75
G017	#	0.39	0.0518 ± 0.0063	0.0248 ± 0.0014		0.177 ± 0.024		158.0 ± 8.9		158.0 ± 8.8		0.67	0.41
G017	#	0.38	0.0431 ± 0.0104	0.0243 ± 0.0015		0.145 ± 0.036		155.0 ± 9.5		154.7 ± 9.4		1.40	0.24
G019	#	0.56	0.0528 ± 0.0023	0.0393 ± 0.0032		0.286 ± 0.026		248 ± 20		250 ± 20		2.00	0.16
G020	#	0.71	0.0517 ± 0.0021	0.0302 ± 0.0024		0.215 ± 0.019		192 ± 15		193 ± 15		2.70	0.10
G020	#	0.82	0.0499 ± 0.0019	0.0379 ± 0.0030		0.261 ± 0.023		240 ± 19		237 ± 18		1.19	0.28
G022	#	0.65	0.0474 ± 0.0050	0.0307 ± 0.0030		0.201 ± 0.029		195 ± 19		194 ± 18		1.09	0.30
G024	#	0.61	0.0485 ± 0.0039	0.0257 ± 0.0023		0.172 ± 0.021		163 ± 15		163 ± 14		0.19	0.66
G025	#	0.56	0.0519 ± 0.0031	0.0259 ± 0.0022		0.186 ± 0.019		165 ± 14		165 ± 14		2.70	0.10
G027	#	0.44	0.0536 ± 0.0044	0.0594 ± 0.0054		0.439 ± 0.054		372 ± 34		371 ± 32		0.04	0.84
G027	#	0.47	0.0611 ± 0.0037	0.1115 ± 0.0094		0.939 ± 0.098		681 ± 58		675 ± 50		0.31	0.58
G027	#	0.49	0.0597 ± 0.0024	0.0949 ± 0.0086		0.782 ± 0.077		585 ± 53		587 ± 44		0.03	0.86
G029	#	0.61	0.0490 ± 0.0022	0.0281 ± 0.0025		0.190 ± 0.019		179 ± 16		178 ± 16		0.39	0.53
G032	#	0.45	0.0493 ± 0.0042	0.0216 ± 0.0020		0.147 ± 0.018		138 ± 13		138 ± 12		0.05	0.82
G032	#	0.37	0.0484 ± 0.0035	0.0231 ± 0.0021		0.154 ± 0.018		147 ± 13		147 ± 13		0.10	0.75
G033	#	1.05	0.0481 ± 0.0028	0.0339 ± 0.0024		0.225 ± 0.021		215 ± 15		213 ± 15		2.70	0.10
G034	#	0.47	0.0485 ± 0.0034	0.0247 ± 0.0018		0.165 ± 0.017		157 ± 11		157 ± 11		0.16	0.69
G036	#	0.67	0.0504 ± 0.0030	0.0389 ± 0.0028		0.271 ± 0.025		246 ± 18		246 ± 17		0.20	0.65

G038	0.33	0.0488 ± 0.0039	0.0281 ± 0.0025	0.189 ± 0.022	178 ± 16	178 ± 16	0.19	0.66
G040	0.45	0.0487 ± 0.0057	0.0269 ± 0.0024	0.181 ± 0.026	171 ± 15	171 ± 15	0.07	0.79
G041	0.47	0.0493 ± 0.0029	0.0329 ± 0.0029	0.223 ± 0.024	209 ± 18	208 ± 18	0.48	0.49
G042	0.49	0.0500 ± 0.0076	0.0335 ± 0.0030	0.231 ± 0.041	212 ± 19	212 ± 19	0.008	0.93
G042	0.48	0.0512 ± 0.0054	0.0259 ± 0.0023	0.183 ± 0.025	165 ± 15	165 ± 14	0.46	0.50
G043	0.92	0.0514 ± 0.0025	0.0317 ± 0.0022	0.225 ± 0.019	201 ± 14	202 ± 14	1.05	0.31
G046	0.48	0.0519 ± 0.0060	0.0302 ± 0.0021	0.216 ± 0.029	192 ± 13	192 ± 13	0.44	0.51
G046	0.62	0.0504 ± 0.0038	0.0288 ± 0.0020	0.200 ± 0.020	183 ± 13	183 ± 12	0.11	0.74
G046	0.54	0.0489 ± 0.0034	0.0237 ± 0.0016	0.160 ± 0.016	151 ± 10	151 ± 10	0.01	0.91
G046	0.67	0.0516 ± 0.0040	0.0247 ± 0.0025	0.176 ± 0.022	158 ± 16	158 ± 16	1.50	0.22
G048	0.77	0.0493 ± 0.0049	0.0293 ± 0.0030	0.200 ± 0.028	186 ± 19	186 ± 18	0.04	0.85
G049	0.65	0.0464 ± 0.0133	0.0294 ± 0.0030	0.188 ± 0.057	187 ± 19	186 ± 19	0.27	0.60
G050	0.64	0.051 ± 0.015	0.0272 ± 0.0028	0.193 ± 0.058	173 ± 18	173 ± 18	0.06	0.81
G051	0.37	0.0508 ± 0.0051	0.0291 ± 0.0029	0.203 ± 0.029	185 ± 19	185 ± 18	0.15	0.70
<i>Sample: CP4</i>								
G002	0.74	0.0494 ± 0.0039	0.0210 ± 0.0012	0.143 ± 0.014	133.8 ± 7.6	133.8 ± 7.5	0.13	0.72
G003	0.44	0.0502 ± 0.0073	0.0180 ± 0.0010	0.125 ± 0.019	115.1 ± 6.7	115.1 ± 6.6	0.27	0.60
G004	0.63	0.0443 ± 0.0088	0.0171 ± 0.0010	0.105 ± 0.022	109.6 ± 6.4	109.5 ± 6.4	0.78	0.38
G005	0.33	0.0448 ± 0.0157	0.0180 ± 0.0011	0.111 ± 0.040	114.8 ± 7.2	114.8 ± 7.1	0.20	0.66
G005	0.24	0.0495 ± 0.0058	0.0553 ± 0.0032	0.377 ± 0.049	347 ± 20	345 ± 19	1.90	0.17
G006	0.92	0.0520 ± 0.0034	0.0266 ± 0.0015	0.191 ± 0.016	169.3 ± 9.6	169.4 ± 9.4	2.30	0.13
G008	0.44	0.0474 ± 0.0174	0.0163 ± 0.0010	0.107 ± 0.040	104.4 ± 6.6	104.4 ± 6.6	0.007	0.93
G008	0.58	0.053 ± 0.017	0.0244 ± 0.0022	0.180 ± 0.060	155 ± 14	155 ± 14	0.26	0.61
G009	0.51	0.0516 ± 0.0069	0.0255 ± 0.0023	0.181 ± 0.029	162 ± 15	162 ± 14	0.43	0.51
G010	0.44	0.043 ± 0.015	0.0262 ± 0.0024	0.154 ± 0.055	167 ± 15	167 ± 15	0.84	0.36
G012	0.64	0.0522 ± 0.0063	0.0215 ± 0.0019	0.155 ± 0.023	137 ± 12	137 ± 12	1.15	0.28
G012	0.68	0.0537 ± 0.0057	0.0226 ± 0.0020	0.168 ± 0.023	144 ± 13	144 ± 13	2.80	0.10
G013	0.43	0.054 ± 0.010	0.0206 ± 0.0019	0.154 ± 0.032	131 ± 12	131 ± 12	1.30	0.25
G015	0.41	0.0498 ± 0.0026	0.0230 ± 0.0014	0.158 ± 0.013	146.6 ± 9.0	146.7 ± 8.9	0.38	0.54
G015	0.58	0.0496 ± 0.0022	0.0313 ± 0.0019	0.214 ± 0.016	198 ± 12	198 ± 12	0.17	0.68
G015	0.80	0.0523 ± 0.0020	0.0479 ± 0.0029	0.345 ± 0.025	301 ± 18	301 ± 18	0.003	0.96
G016	0.32	0.0544 ± 0.0028	0.0568 ± 0.0035	0.426 ± 0.034	356 ± 22	357 ± 21	0.26	0.61
G037	1.48	0.061 ± 0.023	0.00260 ± 0.00017	0.0220 ± 0.00085	16.8 ± 1.1	16.7 ± 1.1	1.60	0.20
G019	0.61	0.0506 ± 0.0035	0.0240 ± 0.0014	0.167 ± 0.015	153.0 ± 8.9	153.1 ± 8.8	0.68	0.41
G020	0.31	0.046 ± 0.017	0.0255 ± 0.0020	0.161 ± 0.062	163 ± 13	162 ± 13	0.18	0.67
G018	0.60	0.0556 ± 0.0090	0.0229 ± 0.0018	0.175 ± 0.031	146 ± 11	146 ± 11	2.20	0.14
G018	0.57	0.053 ± 0.019	0.0217 ± 0.0017	0.160 ± 0.057	138 ± 11	138 ± 11	0.25	0.62
G018	0.65	0.0529 ± 0.0081	0.0250 ± 0.0019	0.182 ± 0.031	159 ± 12	159 ± 12	0.83	0.36
G018	0.70	0.049 ± 0.013	0.0225 ± 0.0018	0.152 ± 0.043	144 ± 11	144 ± 11	0.001	0.98
G021	0.47	0.0490 ± 0.0104	0.0213 ± 0.0017	0.144 ± 0.033	136 ± 11	136 ± 10	0.003	0.96
G021	0.43	0.0545 ± 0.0124	0.0242 ± 0.0019	0.181 ± 0.044	154 ± 12	154 ± 12	0.74	0.39
G022	0.38	0.0498 ± 0.0077	0.0288 ± 0.0022	0.198 ± 0.034	183 ± 14	183 ± 14	0.0002	0.99
G025	0.31	0.0522 ± 0.0032	0.0318 ± 0.0025	0.229 ± 0.023	202 ± 16	202 ± 15	1.70	0.19
G025	0.27	0.0529 ± 0.0039	0.0490 ± 0.0038	0.358 ± 0.038	308 ± 24	309 ± 23	0.04	0.85
G028	0.78	0.0477 ± 0.0082	0.0297 ± 0.0024	0.195 ± 0.037	189 ± 15	188 ± 15	0.29	0.59
G034	0.63	0.0506 ± 0.0059	0.0216 ± 0.0017	0.151 ± 0.021	138 ± 11	138 ± 11	0.39	0.53
G036	0.45	0.0525 ± 0.0047	0.0245 ± 0.0019	0.177 ± 0.021	156 ± 12	156 ± 12	1.90	0.16
G039	0.67	0.0511 ± 0.0027	0.0321 ± 0.0027	0.226 ± 0.023	203 ± 17	204 ± 17	0.42	0.52
G039	0.50	0.0523 ± 0.0051	0.0243 ± 0.0021	0.175 ± 0.023	155 ± 13	155 ± 13	1.50	0.22
G040	0.56	0.0512 ± 0.0024	0.0288 ± 0.0025	0.203 ± 0.020	183 ± 16	184 ± 15	1.50	0.22
G040	0.53	0.0510 ± 0.0025	0.0274 ± 0.0024	0.193 ± 0.019	175 ± 15	175 ± 15	1.40	0.24
G040	0.56	0.0516 ± 0.0024	0.0349 ± 0.0030	0.249 ± 0.024	221 ± 19	222 ± 18	0.77	0.38
G043	0.70	0.0492 ± 0.0019	0.0246 ± 0.0021	0.167 ± 0.016	157 ± 13	157 ± 13	0.0003	0.99
G048	0.57	0.0518 ± 0.0031	0.0277 ± 0.0018	0.198 ± 0.017	176 ± 11	176 ± 11	2.00	0.16
G050	0.51	0.0510 ± 0.0023	0.0419 ± 0.0027	0.295 ± 0.023	265 ± 17	264 ± 16	0.22	0.64
G050	0.41	0.0542 ± 0.0037	0.0612 ± 0.0040	0.458 ± 0.043	383 ± 25	383 ± 24	0.0008	0.98
G051	0.14	0.0536 ± 0.0022	0.0552 ± 0.0035	0.407 ± 0.031	346 ± 22	347 ± 21	0.02	0.90
G054	0.91	0.0660 ± 0.0258	0.0222 ± 0.0021	0.202 ± 0.082	142 ± 13	141 ± 13	1.70	0.19
G055	0.64	0.0499 ± 0.0065	0.0469 ± 0.0038	0.323 ± 0.049	296 ± 24	295 ± 23	0.51	0.48
G055	0.69	0.0491 ± 0.0028	0.0380 ± 0.0030	0.257 ± 0.025	240 ± 19	238 ± 18	1.90	0.17
G055	0.49	0.0538 ± 0.0028	0.0414 ± 0.0033	0.307 ± 0.029	262 ± 21	263 ± 20	2.80	0.10
G056	0.48	0.0542 ± 0.0039	0.0366 ± 0.0029	0.274 ± 0.029	232 ± 18	232 ± 18	3.00	0.10
G057	0.62	0.0493 ± 0.0021	0.0235 ± 0.0015	0.160 ± 0.012	149.9 ± 9.6	149.9 ± 9.5	0.04	0.84
G058	0.62	0.0514 ± 0.0041	0.0299 ± 0.0019	0.212 ± 0.022	190 ± 12	190 ± 12	0.51	0.48
G061	0.37	0.0500 ± 0.0025	0.0244 ± 0.0019	0.168 ± 0.015	155 ± 12	155 ± 12	0.44	0.51
G062	0.54	0.0522 ± 0.0027	0.0368 ± 0.0028	0.264 ± 0.024	233 ± 18	234 ± 17	1.02	0.31
G066	0.41	0.0514 ± 0.0036	0.0241 ± 0.0019	0.171 ± 0.018	154 ± 12	154 ± 12	1.60	0.21
G068	0.35	0.0500 ± 0.0037	0.0247 ± 0.0019	0.170 ± 0.018	157 ± 12	157 ± 12	0.18	0.68
G070	0.39	0.0481 ± 0.0038	0.0261 ± 0.0024	0.173 ± 0.021	166 ± 15	166 ± 15	0.49	0.48
G070	0.49	0.0522 ± 0.0078	0.0249 ± 0.0023	0.179 ± 0.031	159 ± 15	159 ± 14	0.59	0.44
G073	0.84	0.057 ± 0.011	0.0388 ± 0.0036	0.304 ± 0.065	245 ± 23	245 ± 22	1.15	0.28
G078	0.37	0.0516 ± 0.0034	0.0257 ± 0.0018	0.183 ± 0.017	164 ± 11	164 ± 11	1.70	0.19
G080	0.79	0.049 ± 0.011	0.0482 ± 0.0034	0.326 ± 0.079	303 ± 22	303 ± 21	0.36	0.55
G082	0.26	0.0544 ± 0.0036	0.0447 ± 0.0031	0.335 ± 0.032	282 ± 19	283 ± 19	1.90	0.17

G084	0.50	0.0506 ± 0.0029	0.0232 ± 0.0016	0.162 ± 0.014	148 ± 10	147.8 ± 9.9	1.30	0.25
G085	0.33	0.0490 ± 0.0031	0.0263 ± 0.0018	0.178 ± 0.017	168 ± 11	167 ± 11	0.07	0.80
G086	0.62	0.0507 ± 0.0041	0.0218 ± 0.0018	0.153 ± 0.017	139 ± 11	139 ± 11	0.86	0.35
G089	0.56	0.0467 ± 0.0032	0.0218 ± 0.0018	0.141 ± 0.015	139 ± 11	138 ± 11	1.70	0.20
G095	0.32	0.0544 ± 0.0054	0.0339 ± 0.0010	0.255 ± 0.026	215.1 ± 6.6	215.1 ± 6.4	2.20	0.14
G096	0.81	0.0486 ± 0.0033	0.03259 ± 0.00089	0.218 ± 0.016	206.8 ± 5.6	206.6 ± 5.5	1.00	0.32
G099	0.20	0.0537 ± 0.0045	0.0577 ± 0.0017	0.427 ± 0.038	362 ± 11	362 ± 10	0.002	0.97
G101	0.54	0.0515 ± 0.0051	0.0354 ± 0.0011	0.251 ± 0.026	224.2 ± 6.8	224.2 ± 6.7	0.11	0.74
G104	0.29	0.0545 ± 0.0039	0.0467 ± 0.0013	0.351 ± 0.027	294.5 ± 8.2	294.7 ± 8.0	1.40	0.24
G106	0.44	0.0508 ± 0.0056	0.0245 ± 0.0022	0.172 ± 0.024	156 ± 14	156 ± 14	0.33	0.57
G107	0.44	0.0501 ± 0.0035	0.0372 ± 0.0032	0.257 ± 0.029	235 ± 21	235 ± 20	0.19	0.66
G121	0.40	0.0465 ± 0.0060	0.0193 ± 0.0015	0.124 ± 0.019	123.5 ± 9.7	123.3 ± 9.6	0.43	0.51
G121	0.36	0.0479 ± 0.0048	0.0207 ± 0.0016	0.137 ± 0.017	132 ± 10	132 ± 10	0.09	0.76
G121	0.49	0.0479 ± 0.0027	0.0211 ± 0.0016	0.139 ± 0.013	134 ± 10	134 ± 10	0.34	0.56
G121	0.52	0.0502 ± 0.0023	0.0294 ± 0.0025	0.204 ± 0.020	187 ± 16	187 ± 16	0.07	0.77
G123	0.63	0.0527 ± 0.0054	0.0235 ± 0.0020	0.171 ± 0.023	150 ± 13	150 ± 13	1.80	0.18
G123	0.55	0.0472 ± 0.0079	0.0257 ± 0.0023	0.167 ± 0.032	163 ± 14	163 ± 14	0.29	0.59
G124	0.40	0.0499 ± 0.0092	0.0263 ± 0.0023	0.181 ± 0.037	167 ± 15	167 ± 15	0.01	0.92
G124	0.60	0.0542 ± 0.0221	0.0235 ± 0.0022	0.176 ± 0.074	150 ± 14	150 ± 14	0.22	0.64
G124	0.62	0.042 ± 0.015	0.0284 ± 0.0026	0.164 ± 0.062	180 ± 16	180 ± 16	1.02	0.31
G124	0.70	0.0626 ± 0.0161	0.0258 ± 0.0024	0.222 ± 0.061	164 ± 15	163 ± 15	2.70	0.10
G129	0.44	0.0547 ± 0.0074	0.0422 ± 0.0025	0.318 ± 0.047	267 ± 16	267 ± 16	0.72	0.40
G130	0.29	0.0565 ± 0.0039	0.0805 ± 0.0047	0.627 ± 0.057	499 ± 29	498 ± 28	0.12	0.73
G135	0.65	0.0469 ± 0.0035	0.0293 ± 0.0022	0.189 ± 0.020	186 ± 14	184 ± 14	2.80	0.10
G135	0.66	0.0518 ± 0.0036	0.0242 ± 0.0013	0.173 ± 0.015	154.4 ± 8.5	154.5 ± 8.4	2.20	0.14
G140	0.39	0.0514 ± 0.0040	0.0276 ± 0.0015	0.196 ± 0.019	175.7 ± 9.7	175.8 ± 9.6	0.83	0.36
G140	0.37	0.0500 ± 0.0056	0.0237 ± 0.0014	0.164 ± 0.020	151.1 ± 8.6	151.1 ± 8.5	0.12	0.73
G140	0.32	0.0535 ± 0.0060	0.0294 ± 0.0017	0.217 ± 0.027	187 ± 11	187 ± 11	1.50	0.22
G140	0.37	0.0509 ± 0.0074	0.0208 ± 0.0012	0.146 ± 0.023	132.8 ± 7.9	132.8 ± 7.8	0.34	0.56
G141	0.46	0.0505 ± 0.0028	0.0267 ± 0.0023	0.186 ± 0.019	170 ± 15	170 ± 15	0.57	0.45
G145	0.92	0.0532 ± 0.0064	0.0185 ± 0.0017	0.135 ± 0.020	118 ± 11	118 ± 10	2.30	0.13
G147	0.91	0.048 ± 0.018	0.0148 ± 0.0011	0.097 ± 0.038	94.5 ± 6.9	94.5 ± 6.8	0.001	0.97
G152	0.48	0.0521 ± 0.0044	0.0201 ± 0.0013	0.144 ± 0.015	128.3 ± 8.2	128.2 ± 8.1	2.60	0.11

Data having concordant probability superior to 0. 1 was listed (175 of 437).

<sup>†</sup> Calculated using ISOPLLOT program (Ludwig, 2001).

Supplementary Table S4. List of exotic zircon grains having multiple spot U-Pb concordia ages on the same grain

Sample & Grain Number	Position <sup>*</sup>	Th/U	<sup>238</sup> U- <sup>206</sup> Pb age (Ma)	Error 2σ	Concordia age <sup>**</sup> (Ma)	Error <sup>**</sup> 2σ	MSWD <sup>**</sup>	Prob. <sup>**</sup>	Age Group <sup>***</sup>
CP1-G008	R	0.49	130 ± 18		130 ± 18		0.47	0.49	2
	C	0.65	158 ± 14		158 ± 14		1.9	0.17	3
CP1-G009	R	0.59	158 ± 23		156 ± 23		2.9	0.10	3
	C	0.30	219 ± 29		218 ± 28		0.41	0.52	5
CP1-G021	R	0.55	139 ± 14		139 ± 14		1.7	0.20	2
	C	0.79	188 ± 15		187 ± 15		1.5	0.22	4
CP1-G022	R	0.67	164.6 ± 7.5		164.7 ± 7.4		0.50	0.48	3
	M	0.56	177.2 ± 8.2		176.9 ± 8.1		1.2	0.26	4
	C	0.62	178.8 ± 8.3		178.7 ± 8.1		0.27	0.60	4
					177.8 ± 5.7		1.3	0.25	4
CP1-G023	C	0.65	142.9 ± 6.6		142.9 ± 6.5		0	1.00	2
	M	0.52	137.4 ± 6.3		137.1 ± 6.2		1.5	0.22	2
					139.8 ± 4.5		0.94	0.33	2
CP1-G059	R	0.47	111 ± 10		110.5 ± 9.8		0.27	0.61	1
	C	0.85	227 ± 11		226 ± 11		0.87	0.35	5
CP1-G090	R	0.52	148 ± 14		148 ± 13		2.3	0.13	3
	C	0.43	156 ± 14		156 ± 14		2.8	0.10	3
CP2-G017	C	0.39	158.0 ± 8.9		158.0 ± 8.8		0.67	0.41	3
	R	0.38	155.0 ± 9.5		154.7 ± 9.4		1.40	0.24	3
					156.5 ± 6.4		0.0046	0.95	3
CP2-G020	R	0.71	192 ± 15		193 ± 15		2.7	0.10	4
	C	0.82	240 ± 19		237 ± 18		1.2	0.28	5
CP2-G027	R	0.44	372 ± 34		371 ± 32		0.043	0.84	5
	M	0.49	585 ± 53		587 ± 44		0.033	0.86	
	C	0.47	681 ± 58		675 ± 50		0.31	0.58	
CP2-G032	R	0.45	138 ± 13		138 ± 12		0.052	0.82	2
	C	0.37	147 ± 13		147 ± 13		0.10	0.75	3
					142.3 ± 9.0		0.0035	0.95	2
CP2-G042	R	0.48	165 ± 15		165 ± 14		0.46	0.50	3
	C	0.49	212 ± 19		212 ± 19		0.0084	0.93	5
CP2-G046	R	0.54	151 ± 10		151 ± 10		0.013	0.91	3
	R	0.67	158 ± 16		158 ± 16		1.5	0.22	3
					152.9 ± 8.6		0.46	0.50	3
	M	0.62	183 ± 13		183 ± 12		0.11	0.74	4
	C	0.48	192 ± 13		192 ± 13		0.44	0.51	4
				187.3 ± 9.0		0.35	0.55	4	
CP4-G005	R	0.33	114.8 ± 7.2		114.8 ± 7.1		0.20	0.66	1
	C	0.24	347 ± 20		345 ± 19		1.9	0.17	5
CP4-G008	R	0.44	104.4 ± 6.6		104.4 ± 6.6		0.0069	0.93	1
	C	0.58	155 ± 14		155 ± 14		0.26	0.61	3
CP4-G012	R	0.64	137 ± 12		137.0 ± 12.0		1.2	0.28	2
	C	0.68	144 ± 13		144.0 ± 13.0		2.8	0.10	2
CP4-G015	R	0.41	146.6 ± 9.0		146.7 ± 8.9		0.38	0.54	3
	M	0.58	198 ± 12		198 ± 12		0.17	0.68	4

	C	0.80	301 ± 18	301 ± 18	0.0032	0.96	5
CP4-G018	R	0.57	138 ± 11	138 ± 11	0.25	0.62	2
	M	0.70	144 ± 11	144 ± 11	0.00073	0.98	2
	M	0.60	146 ± 11	146 ± 11	2.2	0.14	3
	C	0.65	159 ± 12	159 ± 12	0.83	0.36	3
			145.8 ± 5.6		2.5	0.11	3
CP4-G021	R	0.47	136 ± 11	136.0 ± 10.0	0.0027	0.96	2
	C	0.43	154 ± 12	154.0 ± 12.0	0.74	0.39	3
			143.5 ± 7.9		0.26	0.61	2
CP4-G025	R	0.31	202 ± 16	202 ± 15	1.7	0.19	5
	C	0.27	308 ± 24	309 ± 23	0.036	0.85	5
CP4-G039	R	0.50	155 ± 13	155 ± 13	1.5	0.22	3
	C	0.67	203 ± 17	204 ± 17	0.42	0.52	5
CP4-G040	R	0.53	175 ± 15	175 ± 15	1.4	0.24	4
	M	0.56	183 ± 16	184 ± 15	1.5	0.22	4
	C	0.56	221 ± 19	222 ± 18	0.77	0.38	5
CP4-G050	R	0.51	265 ± 17	264 ± 16	0.22	0.64	5
	C	0.41	383 ± 25	383 ± 24	0.00078	0.98	5
CP4-G055	R	0.69	240 ± 19	238 ± 18	1.9	0.17	5
	M	0.49	262 ± 21	263 ± 20	2.8	0.10	5
	C	0.64	296 ± 24	295 ± 23	0.51	0.48	5
CP4-G070	C	0.39	166 ± 15	166.0 ± 15.0	0.49	0.48	3
	R	0.49	159 ± 15	159.0 ± 14.0	0.59	0.44	3
				162 ± 10	0.053	0.82	3
CP4-G121	R	0.40	123.5 ± 9.7	123.3 ± 9.6	0.43	0.51	2
	M	0.36	132 ± 10	132 ± 10	0.092	0.76	3
	M	0.49	134 ± 10	134 ± 10	0.34	0.56	3
				129.6 ± 5.7	0.66	0.41	3
CP4-G123	C	0.52	187 ± 16	187 ± 16	0.065	0.77	4
CP4-G123	R	0.63	150 ± 13	150.0 ± 13.0	1.8	0.18	3
	C	0.55	163 ± 14	163.0 ± 14.0	0.29	0.59	3
			155.7 ± 9.5		0.80	0.37	3
CP4-G124	R	0.60	150 ± 14	150 ± 14	0.22	0.64	3
	M	0.70	164 ± 15	163 ± 15	2.7	0.10	3
	M	0.40	167 ± 15	167 ± 15	0.011	0.92	3
	C	0.62	180 ± 16	180 ± 16	1.0	0.31	4
			164.1 ± 7.4		0.36	0.55	3
CP4-G135	C	0.65	186 ± 14	184.0 ± 14.0	2.8	0.10	4
	M	0.66	154.4 ± 8.5	154.5 ± 8.4	2.2	0.14	3
CP4-G140	R	0.37	132.8 ± 7.9	132.8 ± 7.8	0.34	0.56	2
	R	0.37	151.1 ± 8.6	151.1 ± 8.5	0.12	0.73	3
	M	0.39	175.7 ± 9.7	175.8 ± 9.6	0.83	0.36	4
	C	0.32	187 ± 11	187 ± 11	1.5	0.22	4
			180.7 ± 7.1		2.0	0.16	4

\* Positions of each ablation pit; C: core, M: mantle, R: rim.

\*\* Calculated using ISOPLOT program (Ludwig, 2001).

\*\*\* Age group defined on the U-Pb concordia age histogram (Fig. 6b); first age group (1: 94-125 Ma), second age group (2: 125-145 Ma), third age group (3: 145-170 Ma), fourth age group (4: 170-200 Ma) and fifth age group (5: 200-383 Ma).