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Data Article

Data on the arc magmatism developed in the Antarctic Peninsula and Patagonia during the Late Triassic–Jurassic: A compilation of new and previous geochronology, geochemistry and isotopic tracing results

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A B S T R A C T

We present the results of U-Pb zircon dating conducted using laser ablation-inductively coupled plasma mass spectrometry (LA-ICP-MS), isotopic tracing analyses of Hf in zircon and Sr-Nd in whole-rock and whole-rock major oxides, and trace element abundances of 12 plutonic and volcanic rocks present on the Antarctic Peninsula. The dataset is presented in combination with the results of previous studies conducted in both Patagonia and the Antarctic Peninsula. These results were filtered for concordant $^{206}Pb–^{238}U$ zircon ages and topology of the $^{40}Ar/^{39}Ar$ age spectra. These results may be useful for researchers studying the geological evolution of southern Gondwana, West Antarctica or Patagonia. The interpretation of this dataset is found in the co-submitted paper

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by Bastias, et al. (2021a) titled 'A revised interpretation of the Chon Aike magmatic province: active margin origin and implications for the opening of the Weddell Sea'.

Specifications Table

Subject	Earth and Planetary Sciences (General)
Specific subject area	Geochronology, Geochemistry and Isotopic Tracing
Type of data	Table Image Figure
How data were acquired	Rock samples were processed to obtain fractions for mineral separation and whole-rock analysis at the University of Geneva. The U-Pb isotopic compositions of zircons were obtained using laser ablation - inductively coupled plasma - mass spectrometry (LA-ICP-MS) at the University of Lausanne. We used an UP-193FX ArF ablation system, and isotopic intensities were measured using an Element XR single-collector sector-field ICP-MS (Thermo Scientific). Whole rock compositions were determined at the University of Lausanne using a Philips PW2400 X-Ray Fluorescence (XRF) spectrometer and Perkin Elmer ELAN 6100 DRC quadrupole ICP-MS. Sr-Nd whole rock and in-situ Hf isotopes were measured at the University of Geneva with a Thermo Neptune PLUS Multi-Collector ICP-MS. In-situ ablations for Hf isotopes in zircons were made using a Teledyne - Photon Machines Analyte G2 ArF excimer laser system coupled with a Thermo Neptune PLUS Multi-Collector ICP-MS at the University of Geneva.
Data format	Raw and analysed
Parameters for data collection	Geochronology: zircons crystals were separated from the rock samples and mounted for the U-Pb LA-ICP-MS analyses. Isotopic tracing: Lu-Hf isotopic abundances were obtained in a MC-ICP-MS from the zircons mounted for the U-Pb LA-ICP-MS analyses. Whole-rock samples were powdered and digested for Sr-Nd isotopic analysis with a MC-ICP-MS. Geochemistry: Major oxides and trace elements abundances were obtained from fussed whole-rock samples and analysed in an ICP-MS
Description of data collection	The description of the data collection each method is presented in the Experimental Design, Materials, and Methods section.
Data source location	The samples were collected in the Antarctic Peninsula by the British Antarctic Survey (UK) and the Ohio State University (USA). The geographical information is shared in Table 1.
Data accessibility	The full raw dataset with the U-Pb geochronology and isotopic tracing in Sr and Nd in whole-rock and the Lu-Hf in zircon has been stored in the following link: http://dx.doi.org/10.17632/3g89tzfbrv.2
Related research article	Author's names: Joaquin Bastias, Richard Spikings, Teal Riley, Alexey Ulianov, Anne Grunow, Massimo Chiaradia and Francisco Hervé. Title: A revised interpretation of the Chon Aike magmatic province: active margin origin and implications for the opening of the Weddell Sea Journal: Lithos https://doi.org/10.1016/j.lithos.2021.106013.

Value of the Data

- The dataset provides of a robust and comprehensive geochemical, geochronological and isotopic tracing compilation of magmas formed in the Antarctic Peninsula and Patagonia during the Late Triassic–Jurassic.
- Detailed U-Pb and Hf zircon, Nd-Sr whole-rock age-corrected isotopes, major oxides and trace element geochemistry data is presented from 12 igneous rocks of the Antarctic Peninsula.
- This dataset can be used in comparisons with local and/or regional studies of the tectono-magmatic evolution of the Gondwanan margin, West Antarctica or the Andes.
- The compilation is also valuable for assessing the origin of magmatism at continental margins.

1. Data Description

The data in this article detail the geochronology, thermochronology, geochemistry and isotopic tracing presented in Bastias et al. (2021a). This includes the location of the geochronology collected in the Antarctic Peninsula (Fig. 1) and the complete geochronological dataset showing the Wetherill concordia diagrams of U-Pb data, along with the weighted mean ages (Fig. 2). A comparison of the geochemical compositions recorded in the igneous rocks of the Antarctic Peninsula with those from Patagonia is presented in Figs. 3 and 4, showing, respectively, the major oxide classification diagrams and the trace element composition. Fig. 5 shows the collection of the rocks used prior to the mechanical preparation for the geochemical, isotopic tracing and geochronological analyses. Bastias et al. (2021a) present a comparison of new data collected from the samples shown in Fig. 5 and previous studies. Furthermore, this compilation is presented in a series of tables that summarise the geochemical (Table 2), geochronological (Table 3) and isotopic tracing databases (Table 4). All data interpretation and discussion can be accessed in Bastias et al. (2021a). The complete datasets containing the geochronological and isotopic tracing analyses collected for Bastias et al. (2021a) are presented in the Supplementary Material (Bastias et al., 2021b). Table 1

Table 1
Rock samples from Jurassic magmatism in Antarctic Peninsula used in [1].

Code	Internal Code	Age	Error	Method	South	West
PRR-5983	15JB72	163	3	U-Pb Zr	−63.55	−58.93
PRR-6037	15JB73	156	2	U-Pb Zr	−68.18	−67.00
PRR-32,977	16JB69	160	2	U-Pb Zr	−63.42	−57.01
PRR-6230	16JB70	151	1	U-Pb Zr	−65.43	−65.48
R.6569.9	18JB01	164	2	U-Pb Zr	−65.60	−62.50
R.6871.3	18JB04	179	2	U-Pb Zr	−75.19	−71.42
R.6607.1	18JB05	162	2	U-Pb Zr	−65.53	−62.43
R.6602.3	18JB07	165	1	U-Pb Zr	−65.53	−62.20
R.5957.3	18JB26	156	3	U-Pb Zr	−70.70	−67.57
R.5257.5	18JB32	183	8	U-Pb Zr	−70.03	−67.65
R.6307.1	18JB50	153	1	U-Pb Zr	−71.58	−66.89
R.6851.1	18JB52	161	1	U-Pb Zr	−65.40	−62.70

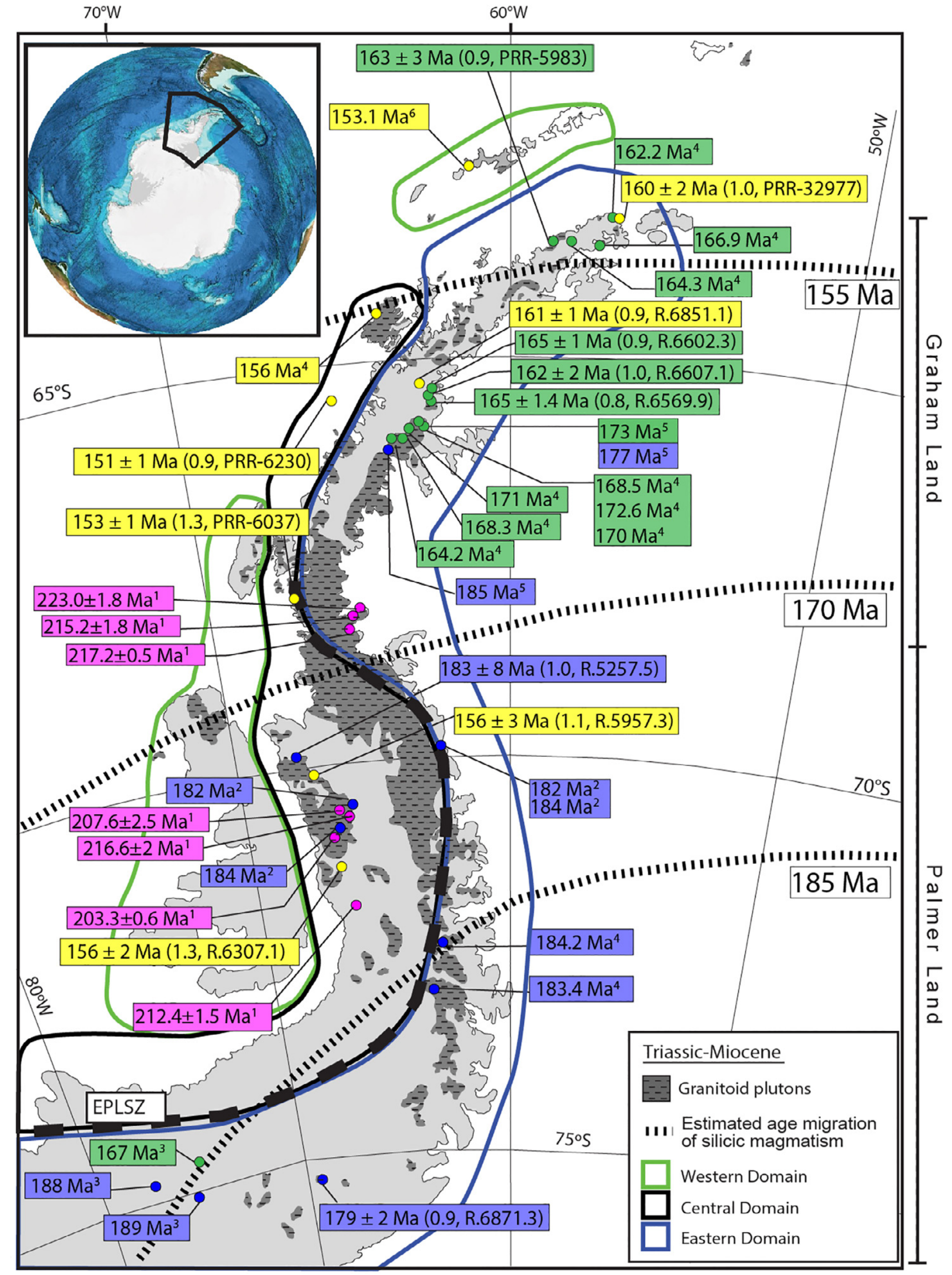

Fig. 1. Geological map of the Antarctic Peninsula, showing the distribution of intrusive rocks and the metamorphic basement, modified from [23]. The locations of the Western, Central and Eastern domains are taken from [17,18]. Zircon $^{206}Pb/^{238}U$ concordia ages collected in this study using LA-ICP-MS are presented along with published: 1 – [7], 2 – [17], 3 – [14], 4 – [15], 5 – [16], 6 – [22]. All uncertainties are quoted at $\pm 2\sigma$. EPLSZ: Eastern Palmer Land Shear Zone, from [24,25].

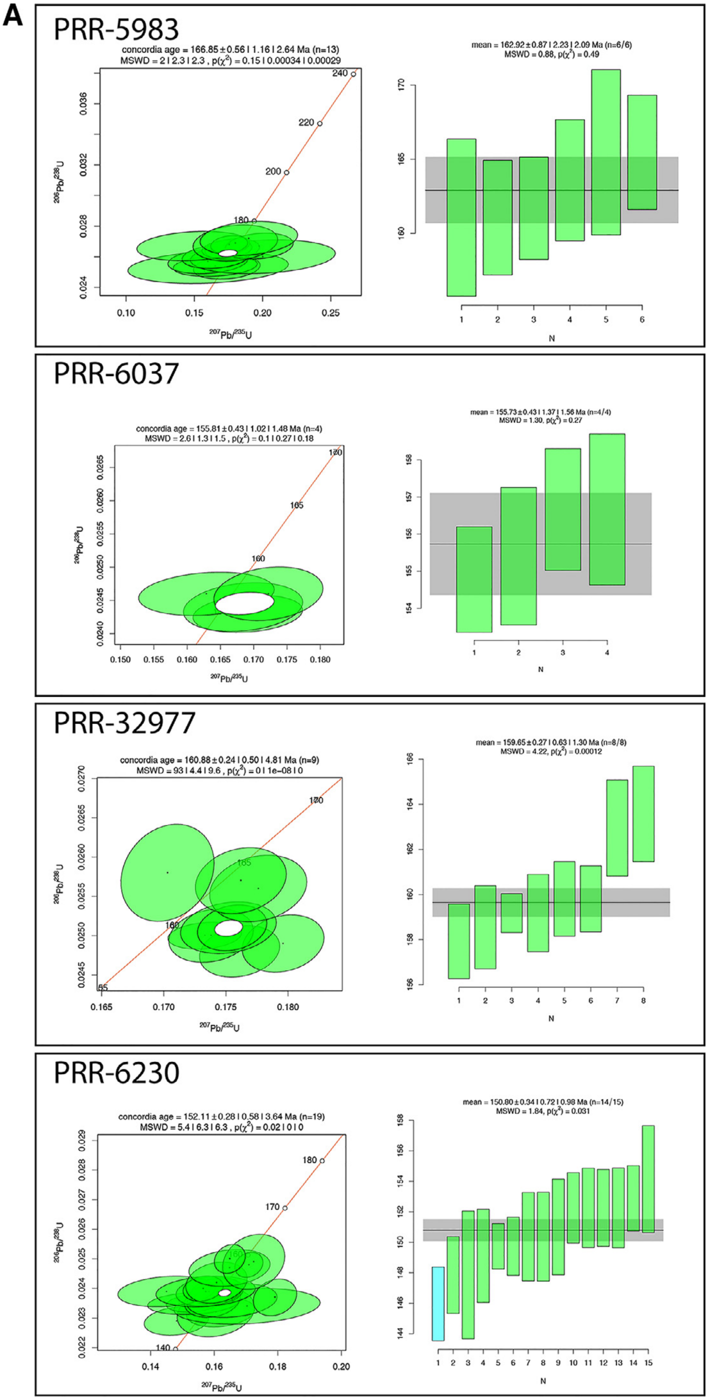

Fig. 2. (A, B and C) Wetherill concordia plots of zircon U–Pb data along with the weighted mean ages calculations obtained from twelve rocks from the Antarctic Peninsula, which correspond to the new data presented in [1]. The figures were prepared with the IsoplotR software from [27].

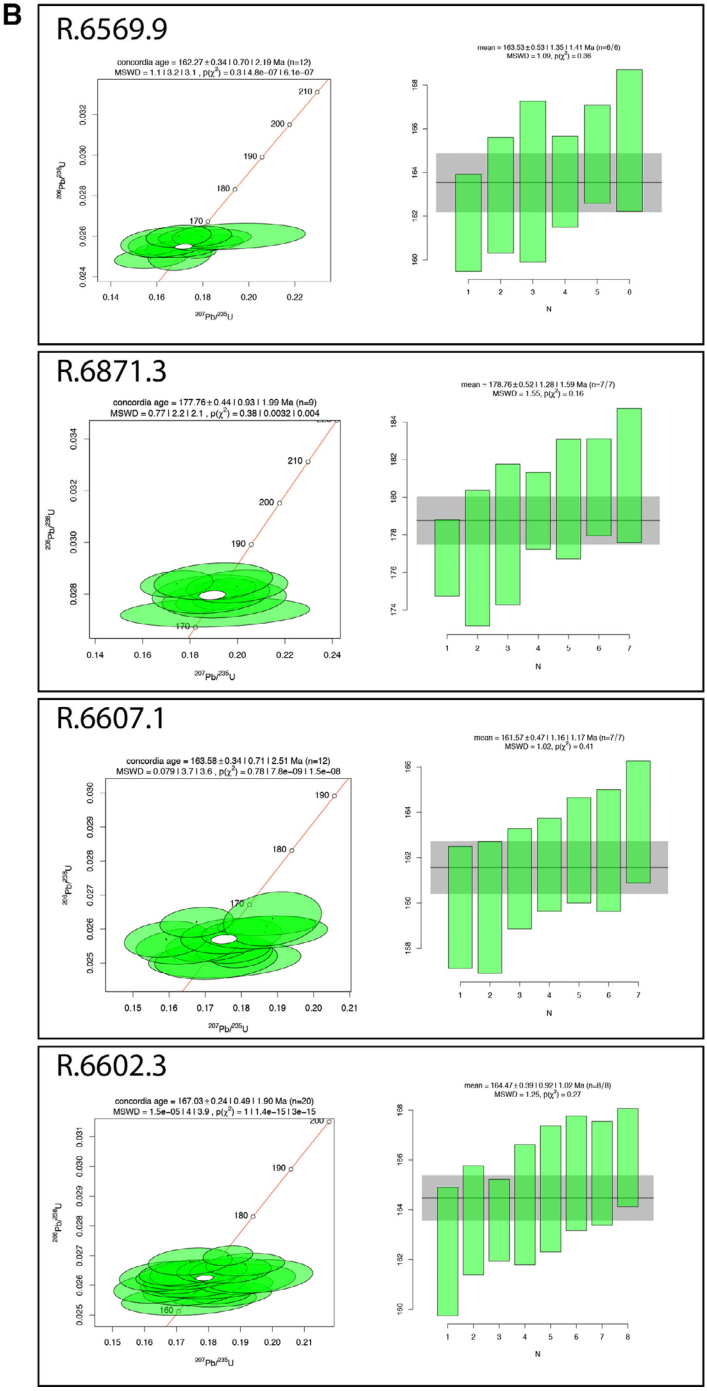

Fig. 2. Continued

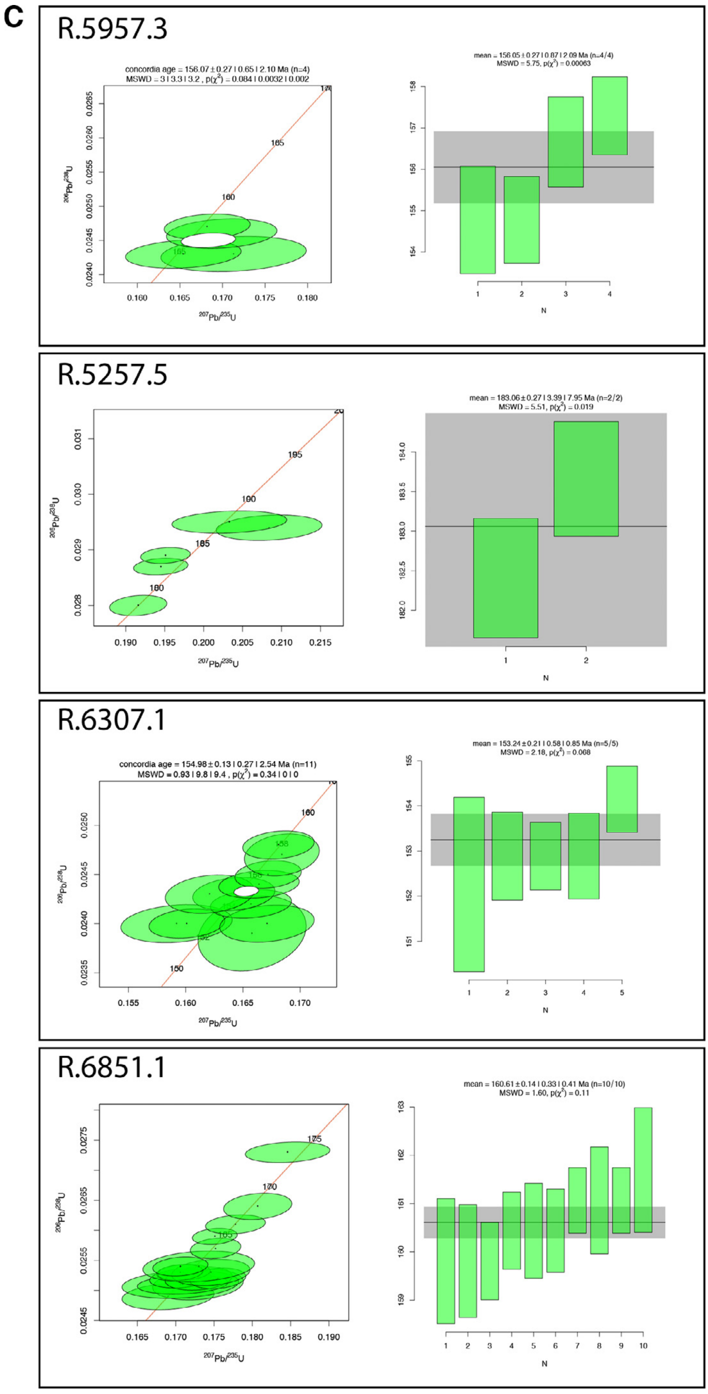

Fig. 2. Continued

Table 2
Geochemical compilation presenting the whole-rock geochemistry of the major oxides and trace elements complemented with relevant information such as lithology, U-Pb LA-ICP-MS zircon geochronology and geographical location. This dataset was extracted from [1,2,3, 4,5,6,7].

Sample	18JB02	18JB18	18JB20	18JB27	18JB34	18JB43	18JB03	R.6871.3	R.6873.1	R.6874.1	R.6878.1
Reference	1	1	1	1	1	1	1	2	2	2	2
Region	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
Age	207.5	212.4	203.37	216.6	215.2	211.2	223.5	185	185	185	185
Error	5.2	1.5	0.67	2	1.8	2.4	1.8				
Method	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	Field rel.	Field rel.	Field rel.	Field rel.
A/CNK	1.08	1.16	1.08	0.91	1.08	1.11	1.07	1.05	1.19	1.16	1.14
A/NK	1.46	1.40	1.38	1.45	1.38	1.88	1.33	1.33	1.64	1.72	1.47
Sr/Y	26.41	10.55	7.29	29.27	5.65	12.06	10.84	1.40	2.56	2.88	2.71
Y	17.57	12.88	26.46	45.45	44.88	28.96	19.61	47.00	50.00	49.00	48.00
Rb/Y	6.20	29.04	9.25	2.42	5.01	8.22	16.91	1.97	3.50	4.38	4.17
SiO_2	71.18	70.81	75.14	63.01	69.37	65.09	69.70	72.06	69.45	67.47	70.41
TiO_2	0.45	0.42	0.39	0.79	0.64	1.24	0.51	0.84	0.78	0.77	0.75
Al_2O_3	15.95	14.54	12.85	17.59	14.95	16.72	14.56	11.75	13.15	13.01	12.94
F_e2O_3	1.66	1.96	2.24	4.55	2.91	5.84	2.72	4.52	5.44	4.78	5.06
MnO	0.01	0.04	0.05	0.13	0.03	0.07	0.05	0.07	0.08	0.09	0.09
MgO	0.52	0.62	0.56	1.79	0.92	2.17	0.74	1.51	1.46	1.28	1.67
CaO	2.15	1.17	1.41	3.96	1.65	3.38	1.48	1.32	1.65	1.99	1.42
Na_2O	3.38	3.15	2.94	4.71	2.77	2.93	2.88	2.95	2.15	1.64	2.05
K_2O	4.93	4.79	4.13	4.02	5.79	3.75	5.74	3.67	4.13	4.49	5.00
P_2O_5	0.27	0.28	0.10	0.18	0.24	0.45	0.22	0.24	0.20	0.21	0.20
Total	99.91	97.37	99.53	100.35	98.69	100.66	100.00	100.10	100.20	99.61	100.36
LOI	0.59	0.75	0.46	0.60	0.44	0.46	1.49	1.17	1.71	3.88	0.77
Cr	0.00	0.01	0.01	0.00	0.00	0.01	0.01	31.00	29.00	36.00	28.00
Be	2.51	8.78	7.40	6.61	2.88	4.81	5.53	n.d.	n.d.	n.d.	n.d.
Sc	9.47	11.74	11.70	18.05	13.96	16.22	8.93	n.d.	n.d.	n.d.	n.d.
Ni	7.59	10.25	4.93	4.70	2.81	15.83	3.83	13.00	15.00	15.00	16.00
Cu	5.11	5.90	5.84	15.67	17.02	29.08	6.32	6.00	18.00	6.00	17.00
Zn	68.57	103.62	65.39	83.46	60.26	118.07	66.21	n.d.	n.d.	n.d.	n.d.
Rb	108.86	373.96	244.88	110.03	224.70	238.22	331.64	92.50	175.00	214.60	200.20
Sr	463.98	135.85	192.99	1330.27	253.47	349.33	212.71	66.00	128.00	141.00	130.00
Y	17.57	12.88	26.46	45.45	44.88	28.96	19.61	47.00	50.00	49.00	48.00
Zr	44.67	113.93	149.26	226.41	476.42	434.11	221.54	284.00	337.00	297.00	328.00
Nb	5.00	17.36	16.20	22.66	14.63	24.49	19.13	16.00	18.00	16.00	16.00
Mo	0.73	1.19	950.67	0.75	0.42	0.55	0.47	n.d.	n.d.	n.d.	n.d.
Cs	0.24	2.68	2.55	0.33	2.69	3.39	3.81	1.40	6.10	6.40	8.30
Ba	1878.83	320.89	361.87	1532.77	1268.99	672.57	596.33	757.00	741.00	943.00	875.00
La	26.89	26.72	47.46	44.19	124.08	75.27	66.27	42.10	44.50	48.60	45.60
Ce	57.39	72.57	104.81	102.97	242.84	156.51	142.93	94.30	104.30	103.10	87.60
Pr	6.91	7.46	11.62	13.45	26.27	18.03	15.97	12.20	12.70	12.90	12.00
Nd	29.21	28.76	44.06	57.22	97.58	71.47	61.48	49.90	51.20	52.30	48.90
Sm	6.66	6.03	8.62	12.51	15.09	12.25	10.95	9.90	10.10	10.20	9.60
Eu	2.51	0.64	0.77	2.46	1.34	1.85	1.14	1.49	1.65	1.66	1.58
Gd	5.88	4.46	6.60	10.58	12.30	8.80	7.05	9.30	9.50	9.50	9.10
Tb	0.73	0.55	0.91	1.51	1.85	1.02	0.81	1.35	1.42	1.38	1.36
Dy	3.88	2.70	5.04	8.89	10.61	5.74	4.29	8.00	8.27	8.22	7.87
Ho	0.68	0.41	0.93	1.61	1.67	1.00	0.69	1.64	1.75	1.65	1.65
Er	1.70	1.12	2.50	4.43	3.65	2.86	1.78	4.41	4.72	4.48	4.51
Tm	0.23	0.13	0.37	0.63	0.44	0.45	0.24	0.66	0.68	0.65	0.68
Yb	1.46	1.04	2.37	4.20	2.57	3.38	1.55	4.20	4.50	4.10	4.50
Lu	0.19	0.14	0.33	0.58	0.35	0.50	0.21	0.64	0.71	0.64	0.70
Hf	1.20	3.68	5.05	6.20	12.69	11.62	6.39	6.80	8.80	7.30	8.00
Ta	0.11	1.08	1.59	1.35	0.91	1.98	1.51	1.12	1.25	1.22	1.36
W	1.41	0.98	1.15	0.10	0.17	0.26	0.83	n.d.	n.d.	n.d.	n.d.
Pb	45.57	57.54	41.00	32.23	43.85	20.84	34.12	18.60	19.50	13.90	25.10
Th	3.90	18.11	35.52	6.47	56.21	32.99	42.14	16.20	19.40	18.20	18.60
U	0.30	11.30	5.03	1.70	5.32	2.50	3.69	2.88	4.18	3.81	3.58
Co	3.64	4.50	4.31	8.34	4.63	13.05	3.82	n.d.	n.d.	n.d.	n.d.

AP: Aantarctic Peninsula
P: Patagonia
n.d.: no data
1=: Bastias et al. 2021, 2: Riley et al. 2001; 3: Rapela et al. 2005; 4: Herve et al. 2007; 5: Navarrete et al., 2019

(*continued on next page*)

Table 2 (*continued*)

R.6888.2	R.6889.2	R.7111.1	R.6893.1	R.7103.1	R.7108.2	R.7102.1	R.6892.1	R.6622.4	R.6623.3	R.6608.2
2	2	2	2	2	2	2	2	2	2	2
AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
185	185	185	185	185	185	185	185	168	168	168
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.15	1.11	1.09	1.10	1.08	1.28	1.31	0.70	1.04	0.94	1.01
1.81	1.76	1.67	1.67	1.65	1.72	2.02	7.99	1.82	1.95	1.92
3.19	2.76	3.47	3.13	3.60	1.68	5.82	5.41	17.78	23.48	20.82
47.00	45.00	43.00	48.00	43.00	47.00	34.00	37.00	23.00	23.00	22.00
3.53	4.16	4.24	3.44	4.17	3.56	5.97	1.57	2.65	3.00	4.27
69.62	69.17	70.69	69.68	70.94	72.09	75.02	75.92	62.88	60.60	63.35
0.78	0.73	0.72	0.74	0.73	0.76	0.40	0.29	0.92	0.95	0.68
13.32	13.30	13.01	13.59	13.01	12.53	12.43	10.36	16.28	16.07	14.94
4.87	4.99	4.77	4.86	4.87	4.28	3.09	3.44	6.03	6.94	4.84
0.07	0.07	0.07	0.06	0.06	0.06	0.04	0.02	0.10	0.11	0.10
1.47	1.34	1.10	1.25	1.20	1.43	0.71	0.36	2.34	2.54	1.56
2.31	2.45	2.29	2.34	2.31	1.37	1.84	7.48	3.67	4.86	3.86
1.58	1.76	1.75	2.22	1.98	2.39	1.10	0.00	4.33	3.72	3.16
4.41	4.29	4.54	4.16	4.26	3.09	4.00	1.20	1.66	1.95	2.39
0.20	0.20	0.18	0.22	0.20	0.19	0.04	0.03	0.21	0.20	0.21
100.30	99.81	100.36	100.39	100.19	99.93	99.84	100.19	100.16	99.74	99.47
1.67	1.51	1.24	1.27	0.63	1.74	1.17	1.09	1.74	1.80	4.38
33.00	42.00	25.00	25.00	27.00	31.00	28.00	21.00	15.00	10.00	15.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
16.00	16.00	14.00	16.00	16.00	13.00	9.00	12.00	3.00	3.00	3.00
15.00	15.00	15.00	15.00	13.00	9.00	11.00	8.00	3.00	7.00	10.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
165.80	187.00	182.30	165.00	179.50	167.10	203.10	58.10	61.00	69.00	94.00
150.00	124.00	149.00	150.00	155.00	79.00	198.00	200.00	409.00	540.00	458.00
47.00	45.00	43.00	48.00	43.00	47.00	34.00	37.00	23.00	23.00	22.00
292.00	292.00	264.00	286.00	260.00	267.00	244.00	228.00	199.00	182.00	156.00
16.00	17.00	15.00	15.00	14.00	15.00	15.00	15.00	9.00	9.00	10.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
5.10	5.40	6.60	4.90	7.80	6.30	16.40	1.70	1.60	0.80	5.40
864.00	845.00	838.00	882.00	803.00	675.00	879.00	113.00	420.00	651.00	558.00
47.80	42.70	41.40	44.20	37.50	37.80	40.10	27.90	30.70	28.90	29.10
98.60	92.50	89.80	96.50	83.70	81.60	85.50	65.70	63.10	59.20	60.00
12.40	11.30	11.10	11.90	10.70	10.40	10.40	8.10	7.60	7.10	7.40
49.30	45.30	44.10	48.40	43.70	42.70	40.50	33.00	28.60	26.80	28.10
9.50	9.10	8.50	9.70	8.70	8.70	7.40	6.50	5.90	5.60	5.90
1.66	1.52	1.47	1.66	1.46	1.35	1.03	0.84	1.39	1.49	1.24
9.00	8.60	8.10	9.40	8.30	8.30	6.50	6.30	4.90	4.70	4.90
1.34	1.27	1.20	1.36	1.23	1.31	0.98	0.98	0.74	0.68	0.72
7.98	7.53	7.14	8.05	7.31	7.61	5.78	6.07	4.17	3.86	4.18
1.63	1.57	1.47	1.65	1.49	1.60	1.19	1.28	0.82	0.76	0.83
4.41	4.20	4.07	4.44	4.14	4.42	3.33	3.69	2.30	2.12	2.27
0.66	0.65	0.58	0.65	0.59	0.64	0.51	0.55	0.36	0.33	0.34
4.20	4.10	3.90	4.20	3.90	4.20	3.40	3.60	2.30	2.10	2.20
0.66	0.64	0.61	0.64	0.60	0.65	0.51	0.61	0.36	0.34	0.34
7.60	7.50	6.50	7.10	6.30	6.50	6.60	6.10	4.60	4.00	4.30
1.22	1.23	1.18	1.15	1.05	1.18	1.12	1.12	0.75	0.70	0.77
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
18.40	22.90	26.10	27.70	28.30	9.00	22.80	20.50	9.90	10.20	11.20
17.70	17.50	16.10	17.30	16.40	17.60	14.90	12.80	8.50	7.50	8.30
3.64	3.48	3.43	3.52	2.80	3.75	3.89	2.94	2.01	1.78	2.12
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.

(*continued on next page*)

Table 2 (*continued*)

R.6863.3	R.6605.4	R.6605.6	R.6607.3	R.6609.3	R.6610.3	R.6612.4	R.6614.2	R.6618.1	R.6618.7	R.6619.3
2	2	2	2	2	2	2	2	2	2	2
AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
168	168	168	168	168	168	168	168	168	168	168
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.21	1.33	1.36	1.06	1.04	1.04	0.99	1.06	1.02	1.03	0.95
2.14	1.47	1.65	1.35	1.16	1.22	1.16	1.41	1.11	1.28	1.85
11.29	5.51	9.97	10.65	7.68	5.30	5.86	13.41	0.17	13.43	20.67
24.00	37.00	39.00	23.00	28.00	27.00	21.00	22.00	90.00	21.00	24.00
5.88	5.03	5.21	6.52	4.75	7.44	5.00	6.05	4.79	8.33	3.33
62.85	72.35	74.95	72.04	74.76	75.35	74.45	72.25	77.22	73.90	66.50
0.76	0.14	0.18	0.29	0.15	0.17	0.17	0.27	0.08	0.20	0.43
15.87	15.28	13.88	14.19	12.81	12.27	13.07	14.28	11.89	13.43	16.29
5.51	1.92	1.42	2.40	2.26	1.59	1.70	2.40	1.24	1.99	4.63
0.10	0.03	0.03	0.04	0.05	0.02	0.04	0.03	0.01	0.05	0.10
2.23	0.34	0.24	0.43	0.06	0.16	0.40	0.41	0.00	0.38	0.92
3.15	0.61	0.97	1.61	0.73	0.96	1.10	1.81	0.53	1.38	4.62
2.27	3.42	2.13	3.15	3.56	2.24	4.33	3.00	3.34	3.33	3.51
3.39	4.40	4.54	4.91	4.75	5.88	3.82	4.82	4.79	4.63	2.80
0.23	0.02	0.03	0.08	0.03	0.03	0.06	0.08	0.02	0.05	0.10
100.48	100.02	99.58	100.02	99.63	100.01	99.67	100.03	99.63	99.91	100.46
4.12	1.51	1.21	0.88	0.47	1.34	0.53	0.68	0.51	0.57	0.56
18.00	9.00	11.00	13.00	10.00	15.00	12.00	13.00	9.00	8.00	12.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
7.00	0.00	0.00	2.00	2.00	1.00	3.00	3.00	3.00	2.00	2.00
11.00	1.00	1.00	4.00	6.00	1.00	5.00	6.00	2.00	1.00	5.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
141.00	186.00	203.00	150.00	133.00	201.00	105.00	133.00	431.00	175.00	80.00
271.00	204.00	389.00	245.00	215.00	143.00	123.00	295.00	15.00	282.00	496.00
24.00	37.00	39.00	23.00	28.00	27.00	21.00	22.00	90.00	21.00	24.00
165.00	156.00	175.00	155.00	203.00	211.00	108.00	138.00	101.00	140.00	187.00
10.00	11.00	11.00	9.00	12.00	10.00	8.00	9.00	17.00	9.00	8.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
5.10	6.90	3.50	1.40	n.d.	2.90	0.50	1.90	n.d.	10.40	3.30
731.00	833.00	1390.00	955.00	n.d.	1096.00	728.00	912.00	n.d.	708.00	808.00
29.80	54.20	50.70	41.90	n.d.	42.50	26.80	38.60	n.d.	31.30	27.80
62.80	95.10	96.70	89.90	n.d.	79.30	52.50	82.90	n.d.	61.60	61.07
7.70	13.00	12.30	10.30	n.d.	9.70	6.00	9.80	n.d.	7.40	7.40
29.50	46.50	43.90	39.50	n.d.	33.90	22.20	36.60	n.d.	25.20	29.80
6.20	8.90	8.40	6.20	n.d.	6.30	4.30	5.90	n.d.	4.70	5.60
1.44	1.41	1.27	1.14	n.d.	1.14	0.83	0.92	n.d.	0.94	1.67
5.10	8.70	8.40	5.00	n.d.	5.80	3.80	4.70	n.d.	4.40	4.80
0.75	1.13	1.09	0.69	n.d.	0.77	0.57	0.62	n.d.	0.60	0.71
4.30	6.06	6.11	3.65	n.d.	4.40	3.19	3.57	n.d.	3.51	4.12
0.86	1.23	1.25	0.72	n.d.	0.92	0.69	0.71	n.d.	0.72	0.82
2.39	3.44	3.48	1.97	n.d.	2.76	2.00	1.91	n.d.	2.16	2.28
0.37	0.50	0.55	0.28	n.d.	0.41	0.32	0.29	n.d.	0.35	0.34
2.30	3.30	3.40	1.90	n.d.	2.70	2.10	1.80	n.d.	2.30	2.30
0.35	0.52	0.54	0.30	n.d.	0.44	0.34	0.28	n.d.	0.35	0.38
4.40	5.30	5.50	3.50	n.d.	5.60	3.00	4.00	n.d.	4.40	5.40
0.81	1.10	0.96	0.63	n.d.	0.93	0.95	0.67	n.d.	0.91	0.90
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
8.20	19.50	26.50	18.10	n.d.	23.80	8.70	16.30	n.d.	25.50	16.00
8.70	18.50	16.20	15.30	n.d.	14.90	17.10	15.00	n.d.	13.10	9.80
205.00	3.77	3.53	2.22	n.d.	3.37	3.06	2.17	n.d.	2.97	2.27
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		

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Table 2 (*continued*)

R.6621.2	R.6624.1	R.6625.2	R.6625.3	R.6626.1	R.6627.3	R.6627.6	R.6627.7	R.6628.3	R.6629.4	R.6629.5
2	2	2	2	2	2	2	2	2	2	2
AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
168	168	168	168	168	168	168	168	168	168	168
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.01	0.97	1.05	1.16	0.98	0.98	0.98	1.23	1.29	1.08	0.99
1.36	1.29	1.21	1.59	1.25	1.22	1.57	1.51	2.01	1.39	1.64
10.76	7.94	4.92	17.15	10.00	6.76	14.52	5.39	17.00	9.86	11.88
25.00	31.00	36.00	26.00	34.00	33.00	27.00	31.00	30.00	28.00	42.00
6.68	4.52	5.25	5.46	4.74	5.03	4.74	6.55	3.27	2.68	2.45
72.28	71.65	74.36	69.80	68.31	73.79	67.77	74.53	71.17	74.17	70.09
0.25	0.19	0.15	0.43	0.23	0.18	0.35	0.12	0.34	0.22	0.37
13.75	13.72	13.59	15.23	15.39	13.60	15.59	13.17	15.81	13.43	14.79
2.31	2.23	1.68	2.96	2.56	1.99	3.85	1.76	2.95	2.62	3.10
0.05	0.06	0.03	0.01	0.06	0.05	0.06	0.04	0.04	0.05	0.08
0.48	0.28	0.03	0.45	0.27	0.17	0.79	0.21	0.59	0.29	0.55
1.90	1.96	0.96	1.98	1.86	1.46	3.24	1.11	2.41	1.53	3.30
3.20	4.07	3.58	3.22	4.16	3.85	3.84	1.89	3.41	4.58	3.61
4.49	3.62	4.95	3.96	5.02	4.46	3.35	5.19	2.08	1.94	2.82
0.08	0.04	0.02	0.09	0.05	0.03	0.09	0.02	0.07	0.04	0.07
99.50	100.06	99.91	100.31	100.30	100.39	100.30	100.01	99.89	99.52	99.60
0.71	2.24	0.56	2.18	2.39	0.81	1.37	1.97	1.02	0.65	0.82
11.00	8.00	9.00	19.00	9.00	8.00	10.00	18.00	15.00	8.00	12.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
5.00	1.00	0.00	4.00	0.00	1.00	2.00	0.00	4.00	0.00	2.00
4.00	1.00	2.00	2.00	0.00	1.00	4.00	1.00	5.00	0.00	7.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
167.00	140.00	189.00	142.00	161.00	166.00	128.00	203.00	98.00	75.00	103.00
269.00	246.00	177.00	446.00	340.00	223.00	392.00	167.00	510.00	276.00	499.00
25.00	31.00	36.00	26.00	34.00	33.00	27.00	31.00	30.00	28.00	42.00
123.00	181.00	231.00	223.00	191.00	167.00	210.00	157.00	152.00	221.00	305.00
9.00	11.00	13.00	10.00	13.00	12.00	10.00	11.00	9.00	10.00	12.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
1.90	4.20	2.70	n.d.	5.10	3.10	2.40	4.80	7.30	4.80	2.30
637.00	766.00	893.00	n.d.	958.00	816.00	678.00	967.00	598.00	720.00	504.00
22.70	33.00	45.30	n.d.	36.80	31.90	31.90	32.60	35.90	38.90	28.60
53.60	67.50	90.00	n.d.	79.80	69.20	66.90	69.60	73.30	79.00	65.20
6.50	8.10	11.30	n.d.	9.50	8.30	7.90	8.40	9.00	10.00	8.00
24.90	32.50	41.00	n.d.	37.60	33.00	31.90	29.70	32.60	36.00	32.30
4.80	6.50	8.00	n.d.	7.70	6.60	6.10	5.80	6.40	7.00	6.20
0.82	1.30	1.33	n.d.	1.57	1.09	1.49	1.21	1.03	1.39	2.62
4.00	5.80	7.90	n.d.	6.80	5.80	5.50	5.90	6.20	6.40	6.20
0.64	0.90	1.08	n.d.	1.00	0.87	0.82	0.80	0.87	0.87	0.97
3.77	2.21	6.27	n.d.	5.85	5.26	4.73	4.59	5.01	4.81	6.15
0.77	1.04	1.27	n.d.	1.20	1.13	0.95	0.94	1.01	0.98	1.34
2.24	3.03	3.76	n.d.	3.33	3.09	2.64	2.73	2.88	2.88	3.87
0.36	0.48	0.57	n.d.	0.51	0.46	0.40	0.42	0.43	0.43	0.62
2.50	3.20	3.60	n.d.	3.60	3.20	2.70	2.70	2.80	2.90	4.40
0.40	0.52	0.54	n.d.	0.58	0.51	0.44	0.42	0.42	0.45	0.74
3.30	5.40	6.80	n.d.	6.00	4.20	5.60	4.70	4.80	5.90	6.90
1.07	0.95	1.13	n.d.	1.33	0.94	0.71	0.94	1.04	0.90	0.79
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
23.10	20.10	28.00	n.d.	32.20	20.40	18.30	27.70	28.90	18.70	19.80
13.80	14.30	16.90	n.d.	16.50	13.90	13.20	11.80	15.80	11.60	9.50
3.24	3.26	3.66	n.d.	2.66	3.29	2.94	2.93	4.78	2.55	3.67

(*continued on next page*)

Table 2 (*continued*)

R.6630.2	R.6630.3	R.6630.4	R.6631.2	R.6632.2	R.6632.3	R.6632.7	R.6634.5	R.6851.3	R.6861.1	R.6911.3
2	2	2	2	2	2	2	2	2	2	2
AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
168	168	168	168	168	168	168	168	168	168	168
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.28	1.13	1.07	1.02	0.97	1.03	0.99	0.98	1.18	1.08	1.07
1.56	1.80	1.27	1.58	1.46	1.17	1.64	1.14	1.42	1.29	1.20
9.28	14.75	7.48	21.43	12.61	8.36	16.23	6.33	5.56	7.52	7.00
29.00	24.00	29.00	23.00	28.00	28.00	26.00	30.00	25.00	27.00	18.00
3.79	5.75	4.97	3.35	2.36	4.32	5.00	4.40	7.00	5.78	5.56
74.16	68.69	75.63	72.01	74.36	76.19	69.45	76.08	68.49	70.27	72.91
0.25	0.42	0.12	0.38	0.26	0.12	0.45	0.10	0.43	0.33	0.27
13.34	14.59	13.07	13.97	13.20	13.06	15.06	12.63	15.05	14.43	13.62
2.82	4.38	1.55	2.93	2.34	1.12	3.34	1.21	3.52	3.30	2.66
0.05	0.07	0.06	0.07	0.04	0.03	0.08	0.02	0.05	0.06	0.05
0.33	0.70	0.09	0.63	0.51	0.11	0.72	0.07	0.98	1.00	0.50
1.06	2.65	1.03	2.64	2.51	0.87	3.32	1.00	1.19	1.18	0.79
3.40	2.62	3.21	3.96	4.24	3.97	3.62	3.63	2.65	3.89	4.80
2.71	3.52	4.63	2.14	1.89	4.24	2.98	4.68	5.75	4.42	3.16
0.04	0.12	0.02	0.06	0.05	0.02	0.09	0.01	0.11	0.11	0.07
99.49	100.13	100.14	99.59	100.11	100.27	99.73	99.84	99.86	100.10	99.81
1.33	2.37	0.73	0.80	0.71	0.54	0.62	0.41	1.64	1.11	0.98
9.00	14.00	14.00	8.00	9.00	9.00	9.00	9.00	17.00	16.00	16.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
1.00	4.00	2.00	1.00	4.00	2.00	3.00	1.00	4.00	3.00	2.00
1.00	7.00	4.00	1.00	2.00	0.00	3.00	0.00	9.00	5.00	3.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
110.00	138.00	144.00	77.00	66.00	121.00	130.00	132.00	175.00	156.00	100.00
269.00	354.00	217.00	493.00	353.00	234.00	422.00	190.00	139.00	203.00	126.00
29.00	24.00	29.00	23.00	28.00	28.00	26.00	30.00	25.00	27.00	18.00
268.00	202.00	133.00	271.00	165.00	124.00	311.00	103.00	174.00	134.00	133.00
12.00	10.00	10.00	11.00	1.00	10.00	12.00	9.00	10.00	10.00	5.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
3.10	12.00	2.30	1.70	4.70	1.80	10.50	1.30	n.d.	n.d.	1.00
788.00	624.00	981.00	613.00	502.00	981.00	643.00	757.00	n.d.	n.d.	586.00
40.70	27.50	36.30	33.50	41.60	39.30	37.00	25.60	n.d.	n.d.	36.90
82.10	61.50	78.10	68.00	82.80	77.20	63.80	54.00	n.d.	n.d.	75.70
10.60	7.70	9.20	8.60	10.20	9.50	7.70	7.00	n.d.	n.d.	8.70
39.40	31.80	35.60	32.00	35.60	32.70	31.00	25.30	n.d.	n.d.	32.60
7.60	5.70	6.40	6.20	6.60	6.10	6.00	5.50	n.d.	n.d.	5.60
1.65	1.57	1.07	1.81	1.47	1.09	1.64	0.86	n.d.	n.d.	1.14
7.20	4.80	5.50	5.90	6.90	6.40	5.00	5.10	n.d.	n.d.	4.50
0.93	0.71	0.84	0.75	0.85	0.83	0.72	0.84	n.d.	n.d.	0.65
5.26	3.97	4.81	4.32	4.69	4.61	4.07	4.91	n.d.	n.d.	3.56
1.03	0.82	0.99	0.86	1.00	0.96	0.85	1.01	n.d.	n.d.	0.73
2.86	2.25	2.83	2.45	2.72	2.75	2.32	3.01	n.d.	n.d.	1.97
0.43	0.34	0.43	0.38	0.44	0.44	0.37	0.47	n.d.	n.d.	0.32
2.70	2.30	2.90	2.30	2.70	2.90	2.50	3.00	n.d.	n.d.	2.10
0.44	0.37	0.47	0.36	0.41	0.45	0.39	0.47	n.d.	n.d.	0.34
6.90	4.90	3.50	7.30	5.00	4.10	7.30	3.70	n.d.	n.d.	4.10
0.93	0.76	0.92	0.83	0.83	1.01	0.80	1.10	n.d.	n.d.	1.10
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
19.50	13.90	29.20	26.50	13.90	28.20	20.10	26.50	n.d.	n.d.	13.80
12.10	9.30	16.10	10.00	11.40	16.00	10.10	16.20	n.d.	n.d.	14.10
2.67	2.13	3.54	2.55	3.56	3.25	2.40	3.82	n.d.	n.d.	2.50

(*continued on next page*)

Table 2 (*continued*)

LEL-052	ALE-055	JSM-058	MUZ-224	QUI-225	QUI-227	F00345A	F004-015	F00105	F00015	F004-010	F00009
3	3	3	3	3	3	4	4	4	4	4	4
P	P	P	P	P	P	West P	West P	West P	West P	West P	West P
181	184.9	181.5	~180	~180	~180	156.7	155.5	152	152	151	150.1
3	2	2									
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr
0.96	0.95	0.91	n.d.	n.d.	n.d.	0.86	1.01	1.06	1.10	1.03	1.16
1.44	1.50	1.87	n.d.	n.d.	n.d.	3.27	1.67	1.17	1.36	1.47	1.32
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	25.19	5.15	0.73	5.57	3.93	1.72
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	33.66	28.03	52.76	37.41	28.52	39.02
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.05	4.30	6.34	2.94	4.98	0.00
69.66	67.49	61.46	n.d.	n.d.	n.d.	54.16	71.61	75.82	74.72	72.67	73.50
0.40	0.54	0.88	n.d.	n.d.	n.d.	0.40	0.34	0.02	0.06	0.20	0.10
14.63	14.86	16.11	n.d.	n.d.	n.d.	23.54	13.79	13.31	12.69	13.58	12.62
1.35	0.63	2.11	n.d.	n.d.	n.d.	3.32	3.70	0.95	1.22	2.05	1.46
0.09	0.07	0.11	n.d.	n.d.	n.d.	0.06	0.07	0.02	0.02	0.03	0.02
0.98	1.53	2.52	n.d.	n.d.	n.d.	2.68	0.57	0.05	0.26	0.36	0.49
2.76	3.14	4.97	n.d.	n.d.	n.d.	11.10	2.98	0.66	1.20	2.16	0.75
4.24	3.59	3.74	n.d.	n.d.	n.d.	4.29	3.28	3.66	3.69	3.12	2.86
2.97	3.69	2.27	n.d.	n.d.	n.d.	0.12	2.64	4.98	3.02	3.82	4.47
0.11	0.12	0.18	n.d.	n.d.	n.d.	0.11	0.07	0.02	0.02	0.05	0.03
99.23	99.95	99.57	99.17	99.13	99.32	99.89	99.11	99.54	97.05	98.10	96.32
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
0.50	9.00	14.00	34.00	34.00	21.00	20.02	12.80	5.25	9.99	8.91	8.43
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
109.00	152.00	93.00	39.00	49.00	9.00	1.70	120.60	334.30	110.10	142.00	
262.00	203.00	297.00	115.00	114.00	101.00	848.07	144.27	38.47	208.38	112.12	66.99
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	33.66	28.03	52.76	37.41	28.52	39.02
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	291.41	150.51	60.66	88.89	144.39	92.75
8.70	7.40	7.00	5.90	6.10	2.10	13.02	7.84	11.31	11.20	7.49	9.49
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
4.00	4.70	3.80	2.30	1.60	1.50	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
651.00	573.00	472.00	268.00	249.00	77.00	76.19	607.92	259.76	872.82	582.69	723.76
31.00	29.90	21.60	16.50	16.30	4.30	66.01	35.85	14.09	19.15	31.50	30.17
58.50	57.30	45.10	34.50	34.00	8.90	122.77	66.99	31.92	42.21	62.46	60.52
6.73	6.74	5.89	4.06	3.98	1.09	13.53	7.39	4.22	5.35	7.16	7.11
21.40	22.70	22.10	16.40	16.40	4.50	48.75	27.07	17.84	21.59	26.66	26.81
3.99	4.85	5.39	3.84	3.70	1.16	8.50	5.22	5.98	5.86	5.40	6.26
0.94	1.01	1.36	0.96	0.96	0.47	1.24	0.96	0.22	0.42	0.81	0.59
3.27	4.26	5.03	3.76	3.76	1.28	6.84	4.53	6.69	5.65	4.82	5.82
0.53	0.74	0.90	0.67	0.67	0.24						
2.93	4.31	5.26	4.18	4.16	1.57	5.82	4.52	8.34	6.07	4.69	6.16
0.60	0.87	1.09	0.88	0.89	0.34	1.18	0.93	1.71	1.22	0.95	1.32
1.86	2.65	3.26	2.77	2.77	1.07	3.31	2.83	5.20	3.71	2.85	3.82
0.30	0.41	0.50	0.41	0.41	0.16	0.48	0.42	0.78	0.57	0.41	0.59
1.97	2.56	3.08	2.63	2.59	1.05	3.35	2.84	5.44	3.76	2.72	3.79
0.32	0.41	0.49	0.40	0.39	0.15	0.51	0.43	0.81	0.57	0.42	0.56
4.30	6.78	5.40	3.70	3.50	1.00	6.85	4.13	3.08	3.86	4.16	3.11
0.80	0.69	0.56	0.39	0.37	0.10	0.82	0.68	1.49	1.05	0.63	0.89
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
13.80	20.00	9.80	6.30	6.10	1.40	22.22	15.66	15.27	15.04	13.45	13.57
2.38	2.83	1.62	1.57	1.55	0.30	1.39	1.77	3.24	3.77	1.97	2.11

(*continued on next page*)

Table 2 (*continued*)

FF99-09A	F00004	F00054	F004-016	F004-007A	F00327A	M52	M53	M54	M55	M56	M57	M345
4	4	4	4	4	4	5	5	5	5	5	5	5
West P	West P	West P	West P	West P	West P	P	P	P	P	P	P	P
149.9	149.5	149.3	148.8	148.8	148.3	~202	~202	~202	~202	~202	~202	~202
U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	U-Pb Zr	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.06	1.03	1.06	0.81	1.03	1.06	0.97	0.99	1.01	1.03	1.01	1.02	1.00
1.53	1.14	1.37	2.91	1.21	1.58	1.60	1.42	1.41	1.12	1.10	1.11	1.52
3.66	2.09	4.12	6.11	8.30	4.58	50.29	40.99	174.64	6.15	2.42	39.48	43.21
30.61	36.15	25.00	30.18	33.27	27.00	11.60	11.80	2.50	6.20	6.20	4.00	13.00
5.60	4.21	6.25	2.08	7.14	5.19	9.72	18.23	51.88	48.19	44.31	60.43	10.19
73.63	77.33	75.33	56.44	74.58	72.02	67.44	70.01	73.56	77.25	77.30	76.14	67.86
0.20	0.05	0.18	1.03	0.05	0.20	0.45	0.35	0.14	0.11	0.12	0.08	0.41
13.22	12.24	12.76	15.12	13.14	14.08	15.63	14.93	14.37	12.35	12.24	12.63	15.83
2.44	0.90	1.99	10.52	1.18	2.60	3.84	2.87	1.55	1.17	1.18	1.26	3.46
0.05	0.01	0.04	0.18	0.03	0.05	0.05	0.03	0.02	0.01	0.02	0.01	0.05
0.51	0.05	0.26	3.75	0.07	0.47	1.86	1.23	0.38	0.08	0.06	0.07	1.50
2.12	0.59	1.50	7.36	1.03	2.39	3.51	2.53	2.18	0.51	0.51	0.59	2.99
2.79	4.01	2.97	2.31	3.52	3.13	3.81	3.56	3.26	3.26	3.44	2.47	3.68
3.72	3.85	4.08	1.28	4.67	3.48	3.25	4.32	4.48	5.22	5.09	6.72	4.04
0.06	0.01	0.04	0.18	0.02	0.05	0.15	0.11	0.04	0.02	0.02	0.02	0.15
98.84	99.06	99.27	98.21	98.38	98.53	99.84	99.82	99.90	99.93	99.95	99.90	99.70
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.60	0.30	0.10	0.30	0.20	0.20	0.60
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3.00	2.00	2.00	2.00	< 1	2.00	4.00
11.29	8.67	6.72	36.82	63.12	10.83	6.00	5.00	1.00	1.00	< 1	< 1	6.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	11.40	11.10	8.50	5.60	5.40	7.20	15.20
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
171.30	152.10	156.20	62.70	237.50	140.00	112.80	215.10	129.70	298.80	274.70	241.70	132.50
112.13	75.38	102.94	184.43	276.19	123.57	583.40	483.70	436.60	38.10	15.00	157.90	561.70
30.61	36.15	25.00	30.18	33.27	27.00	11.60	11.80	2.50	6.20	6.20	4.00	13.00
119.06	98.20	150.62	148.17	41.70	103.27	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
8.84	10.15	8.10	7.26	3.67	7.77	7.00	7.40	1.80	8.10	8.20	2.90	6.30
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3.30	3.90	5.10	15.50	13.80	3.00	3.10
477.99	606.66	756.09	251.84	124.83	622.28	740.00	708.00	647.00	65.00	25.00	341.00	909.00
16.12	11.15	20.26	16.35	9.49	26.04	31.40	33.20	31.70	31.10	22.50	18.10	35.00
32.55	25.38	40.70	34.79	21.43	47.67	61.10	64.60	50.20	53.90	40.30	25.00	66.30
3.97	3.50	4.75	4.61	3.14	5.11	6.33	6.54	4.50	4.67	3.71	2.17	7.94
16.11	14.90	18.23	19.25	14.00	18.19	23.20	23.30	12.90	13.70	10.90	6.80	28.50
4.18	4.79	4.09	4.65	3.98	3.72	3.92	3.65	1.52	1.98	1.59	1.02	4.70
0.72	0.42	0.64	1.16	0.83	0.59	0.94	0.79	0.54	0.34	0.16	0.32	1.04
4.35	5.41	3.74	4.71	4.39	3.53	2.78	2.68	0.98	1.33	1.15	0.77	3.46
						0.37	0.38	0.11	0.19	0.16	0.10	0.44
5.14	5.98	4.02	5.04	5.18	4.08	2.05	1.95	0.61	1.14	0.89	0.52	2.44
1.01	1.24	0.82	1.04	1.10	0.86	0.38	0.38	0.09	0.22	0.21	0.13	0.46
3.11	3.61	2.54	3.08	3.46	2.73	1.20	1.20	0.28	0.67	0.58	0.39	1.31
0.44	0.56	0.39	0.44	0.52	0.41	0.18	0.18	0.04	0.12	0.11	0.07	0.20
3.05	3.83	2.63	3.03	3.63	2.98	1.15	1.34	0.44	0.98	0.84	0.52	1.30
0.46	0.56	0.39	0.46	0.54	0.45	0.20	0.20	0.07	0.19	0.15	0.11	0.21
7.19	4.45	4.46	3.49	1.39	2.95	4.40	4.70	2.10	3.80	3.80	4.80	4.50
3.15	0.99	0.78	0.46	0.24	0.84	0.70	0.90	0.30	1.20	1.20	0.30	0.70
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.90	0.50	< 0.5	4.20	1.40	0.60	0.70
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
8.74	14.36	11.42	3.39	2.20	13.63	15.40	22.40	23.40	43.80	41.50	22.00	18.00
2.07	3.82	2.23	0.87	0.56	2.18	2.60	8.70	2.30	4.10	5.80	11.00	3.70
						8.10	5.60	3.00	1.10	1.00	1.30	8.20

(*continued on next page*)

Table 2 (*continued*)

M346	ALT-1	ALT-2	ALT-3	ALT-4	ALT-5	ALT-6	ALT-7	DC-12	DC-14	DC-49	M63	M758	M820	M55
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
~202	~188-178	~188-178	~188-178	~188-178	~188-178	~188-178	~188-178	~188-178	~188-178	~188-178	~172-162	~172-162	~172-162	~172-162
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
0.91	1.09	1.12	1.02	0.94	1.11	1.08	1.08	1.01	1.07	0.96	1.17	1.24	1.03	1.13
1.89	1.39	1.19	1.05	1.12	1.14	1.11	1.12	1.07	1.19	1.20	1.19	1.31	1.16	1.21
76.76	19.53	0.56	0.18	2.65	5.65	1.17	1.30	1.08	1.54	6.22	1.69	1.22	2.10	1.40
11.70	18.87	31.20	55.61	28.23	13.39	38.01	33.41	36.04	55.34	29.28	33.90	44.60	42.70	55.90
5.15	6.67	6.07	2.82	6.85	11.20	6.70	9.00	16.40	9.26	7.90	12.13	3.18	8.18	2.87
60.86	69.33	77.31	72.27	74.78	72.55	77.37	77.37	77.20	77.02	83.62	73.90	74.00	76.50	78.90
0.68	0.45	0.18	0.46	0.20	0.22	0.13	0.11	0.16	0.23	0.13	0.28	0.35	0.25	0.23
17.76	16.35	12.23	14.24	13.16	14.82	12.25	11.96	12.01	12.78	8.51	13.50	14.40	13.20	11.10
5.23	2.64	1.33	2.30	1.39	1.74	1.43	1.62	1.04	1.12	0.66	1.93	1.99	1.31	1.92
0.08	0.08	0.11	0.08	0.12	0.16	0.15	0.16	0.04	0.04	0.03	0.04	0.05	0.07	0.04
3.14	0.56	0.40	0.16	0.29	0.22	0.18	0.12	0.15	0.26	0.21	0.25	0.22	0.16	0.20
5.54	1.80	0.37	0.18	1.24	0.20	0.16	0.22	0.33	0.71	0.96	0.13	0.32	0.78	0.35
4.36	4.22	2.76	4.44	3.97	3.80	3.66	2.76	2.58	3.95	1.34	1.06	2.97	5.21	2.52
2.07	4.42	5.30	5.84	4.82	6.23	4.65	5.65	6.47	3.88	4.52	8.87	5.64	2.57	4.65
0.25	0.12	0.01	0.03	0.04	0.05	0.03	0.02	0.03	0.02	0.03	0.02	0.03	0.01	0.02
99.78	99.91	99.61	99.55	99.64	99.70	99.93	99.56	99.57	99.81	100.10	99.80	99.80	99.80	99.90
0.70	2.04	1.88	1.09	1.47	0.74	0.50	0.76	0.77	5.22	2.13	1.10	1.50	6.40	1.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
< 1	2.06	3.42	3.22	3.35	1.68	3.99	3.97	8.84	7.02	5.34	4.00	2.00	6.00	3.00
10.00	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	5.00	9.00	6.00	4.00
20.00	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	< 20	< 20	< 20	< 20
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
60.20	125.78	189.50	157.06	193.25	149.95	254.52	300.57	591.11	512.42	231.27	411.20	141.90	349.40	160.50
898.10	368.57	17.47	10.12	74.80	75.61	44.35	43.29	39.08	85.35	182.12	57.30	54.60	89.50	78.20
11.70	18.87	31.20	55.61	28.23	13.39	38.01	33.41	36.04	55.34	29.28	33.90	44.60	42.70	55.90
n.d.	298.71	209.51	683.43	181.54	250.78	97.19	87.84	156.92	179.40	109.70	244.40	332.20	298.00	211.30
4.40	11.26	21.83	22.64	22.13	10.26	28.90	25.26	30.75	28.99	15.52	14.40	17.10	19.50	12.90
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
1.50	1.61	1.34	2.47	1.55	3.31	1.96	16.94	14.64	43.32	8.16	21.30	3.20	85.40	5.40
606.00	1569.10	109.34	10.90	397.59	795.70	148.20	120.44	124.26	184.50	158.66	1351.00	1389.00	669.00	1063.00
27.30	47.18	46.43	120.04	54.80	66.35	23.11	21.63	45.19	73.41	37.23	62.50	77.40	58.70	48.90
56.20	88.99	96.41	259.16	102.22	131.76	48.54	46.40	90.19	160.57	76.73	119.20	152.10	122.70	102.80
6.84	10.10	9.94	37.78	10.78	14.12	5.89	5.31	9.59	18.52	8.09	13.98	19.81	14.20	12.34
27.20	36.81	33.70	144.84	35.56	45.95	21.14	18.65	30.75	65.99	27.03	51.60	72.70	55.10	49.40
4.71	6.13	6.46	28.18	6.35	7.09	5.53	4.75	5.79	13.57	5.23	8.69	13.33	10.78	9.37
1.25	1.31	0.53	0.63	0.75	0.99	0.30	0.22	0.42	1.26	0.44	1.58	2.73	1.65	1.90
3.52	4.35	5.16	18.13	4.83	4.05	5.22	4.38	4.69	11.13	4.21	7.12	10.15	9.32	8.77
0.45	0.65	0.91	2.50	0.86	0.61	1.03	0.86	0.94	1.92	0.77	1.08	1.51	1.43	1.36
2.33	3.54	5.38	12.67	4.54	3.09	6.32	5.31	5.68	11.18	4.80	6.22	8.34	8.40	8.51
0.41	0.70	1.12	2.31	0.96	0.61	1.35	1.15	1.24	2.13	0.97	1.17	1.65	1.62	1.80
1.17	2.05	3.34	6.12	2.95	1.80	4.10	3.55	4.03	6.21	3.06	3.51	4.83	5.09	5.41
0.16	0.31	0.53	0.89	0.48	0.28	0.64	0.57	0.72	0.99	0.50	0.54	0.71	0.72	0.81
1.08	2.09	3.50	5.75	3.10	1.90	4.17	3.76	4.94	6.44	3.25	3.45	4.67	4.71	5.35
0.15	0.33	0.55	0.86	0.48	0.30	0.61	0.56	0.78	0.93	0.48	0.54	0.72	0.72	0.79
3.50	7.49	7.08	15.08	5.77	6.48	4.47	4.12	5.88	5.91	3.61	7.00	9.40	9.10	6.00
0.30	0.78	1.03	1.18	1.64	0.60	2.33	1.72	4.03	3.30	2.12	0.90	1.00	1.00	0.60
0.60	0.78	0.42	0.53	0.48	0.38	0.51	0.95	437.16	262.17	405.40	3.50	1.40	0.70	1.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
6.60	10.67	15.98	18.60	24.29	11.48	29.12	26.80	46.09	39.21	23.12	15.10	13.50	14.30	11.70
1.20	1.45	2.13	3.01	3.02	1.33	4.97	3.31	2.96	10.23	5.87	2.30	1.60	3.20	2.00
14.00	2.59	0.44	0.28	1.40	1.46	1.58	1.20	60.21	36.19	47.50	0.80	0.50	< 0.2	1.10

(*continued on next page*)

Table 2 (*continued*)

M077-b	M739	M703-a	M748-a	M182	M176	M779	M332-b	M330-b	M325-b	M845	M738	M149	M145
5	5	5	5	5	5	5	5	5	5	5	5	5	5
P	P	P	P	P	P	P	P	P	P	P	P	P	P
~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162	~172-162
Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.	Field rel.
1.14	1.11	1.18	1.05	1.14	1.04	0.70	0.92	0.93	0.87	0.83	0.86	0.81	0.79
1.16	1.25	1.37	1.22	1.17	1.38	2.31	1.75	1.65	1.89	1.41	2.44	2.51	2.51
5.26	6.98	4.53	6.65	1.88	4.74	43.22	15.66	19.92	27.70	28.54	45.98	33.75	36.40
15.60	19.00	28.70	18.60	22.10	25.90	20.20	39.30	29.80	25.10	19.30	18.20	19.90	19.20
17.30	9.32	4.75	6.43	9.31	9.97	1.32	3.85	2.98	2.57	9.15	2.82	3.38	3.35
78.30	77.80	75.80	83.00	82.10	74.50	54.80	63.67	63.20	61.12	56.72	57.78	56.32	55.39
0.12	0.12	0.10	0.09	0.13	0.16	1.11	0.83	0.95	0.94	0.92	0.97	0.99	1.00
12.00	11.80	13.50	8.95	9.14	14.10	16.40	16.88	17.37	17.10	17.03	16.88	17.71	17.82
1.08	1.71	1.51	1.54	1.30	1.96	9.73	5.18	5.51	6.10	9.27	8.70	7.36	7.67
< 0.01	0.03	0.03	0.03	0.01	0.03	0.19	0.11	0.08	0.13	0.14	0.16	0.15	0.15
0.03	0.23	0.20	0.08	0.15	0.25	2.79	1.76	0.59	2.03	1.63	3.35	3.91	3.99
0.09	0.67	0.89	0.66	0.10	1.80	9.04	4.80	4.53	5.79	4.64	6.96	8.21	8.57
2.21	2.26	2.06	2.20	0.46	4.29	3.26	4.47	4.45	3.78	4.02	2.96	3.13	3.13
6.22	5.30	5.95	3.42	6.54	2.93	1.59	2.10	2.95	2.63	5.05	1.88	1.75	1.80
0.01	0.03	0.02	0.02	0.02	0.03	1.09	0.36	0.38	0.38	0.59	0.43	0.47	0.48
99.90	99.90	99.90	99.90	99.90	99.90	99.70	99.70	99.80	99.80	99.80	99.80	99.80	99.80
0.80	1.20	8.00	0.80	1.00	4.90	4.60	2.30	2.60	4.30	4.80	1.90	2.30	2.40
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2.00	< 1	4.00	< 1	3.00	3.00	< 1	4.00	2.00	< 1	4.00	1.00	2.00	2.00
3.00	2.00	3.00	1.00	2.00	8.00	20.00	14.00	14.00	15.00	20.00	18.00	22.00	22.00
< 20	< 20	< 20	< 20	< 20	26.00	< 20	< 20	< 20	< 20	< 20	< 20	50.00	61.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
269.90	177.00	136.30	119.60	205.70	258.10	26.60	151.50	88.90	64.50	176.60	51.30	67.30	64.30
82.10	132.60	130.10	123.60	41.60	122.80	873.00	615.30	593.50	695.20	550.80	836.90	671.60	698.80
15.60	19.00	28.70	18.60	22.10	25.90	20.20	39.30	29.80	25.10	19.30	18.20	19.90	19.20
83.50	111.30	117.30	81.10	88.00	171.40	162.40	351.10	314.70	263.80	167.40	154.60	173.00	171.50
12.90	7.60	11.00	5.60	5.00	8.80	6.10	10.20	10.80	9.30	6.80	6.00	16.80	17.00
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2.60	2.30	187.60	2.70	5.00	19.70	3.70	40.20	12.30	5.00	2.90	21.90	3.70	5.60
393.00	905.00	1041.00	755.00	490.00	741.00	851.00	1193.00	1168.00	1177.00	1113.00	844.00	679.00	667.00
25.20	43.20	39.10	26.60	24.20	32.90	34.10	46.50	44.90	43.10	30.20	43.90	31.40	30.90
48.50	68.60	73.00	46.70	49.20	65.10	70.70	93.90	90.60	87.00	63.60	82.40	61.60	62.90
4.88	8.97	8.32	5.33	4.70	7.44	8.58	11.19	10.98	10.23	7.80	9.86	7.64	7.53
16.90	34.10	30.70	19.30	15.80	26.60	36.00	46.10	44.40	41.60	31.40	38.90	29.20	29.90
2.74	6.45	5.92	3.43	2.78	5.08	6.95	8.62	8.48	7.68	6.13	6.86	5.82	5.74
0.33	1.22	0.80	0.57	0.57	0.75	1.71	2.22	2.09	1.92	1.48	1.73	1.62	1.61
2.23	5.52	5.29	3.15	2.84	4.84	5.69	8.17	7.34	6.47	5.15	5.32	4.97	4.90
0.34	0.76	0.82	0.48	0.50	0.80	0.77	1.17	1.02	0.89	0.70	0.68	0.68	0.70
2.11	3.79	4.80	2.75	3.25	4.43	4.02	6.83	5.50	5.09	3.91	3.48	3.82	3.74
0.48	0.77	1.04	0.57	0.74	0.98	0.78	1.36	1.07	0.95	0.71	0.64	0.76	0.72
1.69	2.18	3.22	1.82	2.33	2.91	2.20	4.13	3.09	2.77	2.03	1.83	2.23	2.14
0.30	0.32	0.47	0.24	0.36	0.44	0.31	0.55	0.42	0.38	0.28	0.26	0.32	0.30
2.20	2.33	3.32	1.69	2.32	2.96	2.00	3.57	2.69	2.29	1.93	1.64	2.03	2.01
0.36	0.35	0.49	0.25	0.36	0.46	0.29	0.60	0.40	0.38	0.28	0.25	0.30	0.31
3.40	3.30	4.00	2.70	2.30	5.00	4.00	8.30	7.40	6.50	4.40	4.00	4.40	4.00
1.00	0.70	0.70	0.50	0.50	0.70	0.20	0.60	0.60	0.60	0.40	0.30	1.00	0.80
1.20	1.00	0.90	0.80	1.60	3.10	< 0.5	< 0.5	0.60	< 0.5	1.20	< 0.5	0.80	0.80
n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
19.50	11.50	11.80	8.90	15.60	16.70	4.70	9.10	9.10	9.00	5.90	9.90	5.50	5.40
1.40	1.60	3.30	2.30	2.10	4.40	0.80	1.90	1.80	1.60	1.00	1.90	1.20	1.10
0.60	1.70	1.70	0.80	1.50	1.00	17.20	25.60	7.90	11.00	18.20	19.30	25.90	28.80

(*continued on next page*)

Table 2 (*continued*)

M312-b	M202
5	5
P	P
~172-162	~172-162
Field rel.	Field rel.
1.00	0.76
1.62	2.27
34.81	38.30
13.40	16.90
9.21	6.34
64.84	55.90
0.37	0.85
16.79	17.40
4.83	8.01
0.12	0.10
1.73	3.39
3.55	8.42
3.96	2.96
3.56	2.58
0.25	0.38
99.80	99.80
2.10	3.20
n.d.	n.d.
2.00	< 1
6.00	20.00
< 20	52.00
n.d.	n.d.
n.d.	n.d.
123.40	107.20
466.50	647.20
13.40	16.90
105.10	154.50
5.30	9.40
n.d.	n.d.
5.20	6.00
992.00	596.00
32.90	26.00
58.00	52.00
6.34	6.23
23.00	25.20
3.94	4.89
1.07	1.43
3.23	4.49
0.43	0.60
2.40	3.26
0.46	0.60
1.35	1.89
0.22	0.28
1.47	1.76
0.23	0.31
2.80	3.60
0.30	0.50
0.80	0.70
n.d.	n.d.
10.40	4.60
2.20	1.20
7.60	20.90

AP: Aantarctic Peninsula.
P: Patagonia.
n.d.: no data.
1=: Bastias et al. 2021, 2: Riley et al. 2001; 3: Rapela et al. 2005; 4: Herve et al. 2007; 5: Navarrete et al., 2019.

Table 3
Geochronological compilation of Mesozoic igneous rocks of the Antarctic Peninsula and Patagonia reported by [1,5,6,7,12,13,14,15,16,17,19,20,21,22].

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	Gecohem	39Ar% released
AA0815		Volcanic	Bastias et al. (2019)	Antarctic Peninsula			SHRIMP	U-Pb zircon	153.1	1.7	1.6		
18JB02	R.6067.8	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−70.69417	−66.58389	LA-ICP-MS	U-Pb zircon	207.6	2.5	1.06		
18JB03	K7.557.1	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−68.108415	−65.02415833	LA-ICP-MS	U-Pb zircon	223	1.8	0.86		
18JB18	R.6306.7	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−71.61314	−66.34537	LA-ICP-MS	U-Pb zircon	212.4	1.5	1.30		
18JB20	R.5786.3	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−70.91583	−66.91833	LA-ICP-MS	U-Pb zircon	203.3	0.6	1.00		
18JB27	R.5290.1	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−70.53333	−66.8	LA-ICP-MS	U-Pb zircon	216.2	2	1.60		
18JB34	K7.526.3	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−68.20048667	−65.18230333	LA-ICP-MS	U-Pb zircon	215.2	1.8	1.12		
18JB43	K7.562	Orthogneiss	Bastias et al. (2020)	Antarctic Peninsula	−68.18703667	−65.30471	LA-ICP-MS	U-Pb zircon	217.3	0.5	1.05		
FO0407a		Volcanic	Calderon et al. (2007)	Patagonia			SHRIMP	U-Pb zircon	150.5	1.5			
FO0410		Plutonic	Calderon et al. (2007)	Patagonia			SHRIMP	U-Pb zircon	149.1	1.5			
ST0340a		Volcanic	Calderon et al. (2007)	Patagonia			SHRIMP	U-Pb zircon	148.3	1.3			
Mount Rex		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.49*	*−73.07*	n.r.	U-Pb zircon	167	3			
Mr Peterson		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.7*	*−74.61*	n.r.	U-Pb zircon	188	3			
Sweeney Mountains		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.94*	*−70.16*	n.r.	U-Pb zircon	189	3			
PAT118		Volcanic	Feraud et al. (1999)	Patagonia			Ar/Ar	Amphibole	182.7	0.3			96.3
SER-046		Volcanic	Feraud et al. (1999)	Patagonia			Ar/Ar	Whole rock	164.1	0.3			74.7
ST0246		Plutonic	Feraud et al. (1999)	Patagonia			Ar/Ar	Amphibole	178.5	0.9			100
FF9909B		Plutonic	Herve et al. (2007)	Patagonia	−50.79816667	−73.9035	SHRIMP	U-Pb zircon	149.5		1.3		
FO0004		Plutonic	Herve et al. (2007)	Patagonia	−49.3565	−74.1065	SHRIMP	U-Pb zircon	149.9		1.7		
FO0009		Plutonic	Herve et al. (2007)	Patagonia	−52.25616667	−73.58966667	SHRIMP	U-Pb zircon	149.3		1.5		
FO00105		Plutonic	Herve et al. (2007)	Patagonia	−50.55766667	−73.877	SHRIMP	U-Pb zircon	148.8		0.28		
FO0015		Plutonic	Herve et al. (2007)	Patagonia	−50.4645	−74.18266667	SHRIMP	U-Pb zircon	148.8		0.65		
FO0054		Plutonic	Herve et al. (2007)	Patagonia	−49.66883333	−73.77466667	SHRIMP	U-Pb zircon	150.1		1.19		
FO0327a		Volcanic	Herve et al. (2007)	Patagonia	−50.54018333	−73.71926667	SHRIMP	U-Pb zircon	152		1.4		
FO0328a		Plutonic	Herve et al. (2007)	Patagonia	−51.533	−73.814	SHRIMP	U-Pb zircon	152		0.64		
FO0345a		Plutonic	Herve et al. (2007)	Patagonia	−50.19833333	−74.165	SHRIMP	U-Pb zircon	145		1.17		
FO0412		Plutonic	Herve et al. (2007)	Patagonia	−52.411	−73.74366667	SHRIMP	U-Pb zircon	147.8		0.47		
FO0415		Plutonic	Herve et al. (2007)	Patagonia	−52.425	−73.74966667	SHRIMP	U-Pb zircon	148.3		1.3		
FO0416		Plutonic	Herve et al. (2007)	Patagonia	−50.532	−73.9455	SHRIMP	U-Pb zircon	151		1		
IBA-2		Plutonic	Herve et al. (2007)	Patagonia	−51.9295	−73.60333333	SHRIMP	U-Pb zircon	154.5		0.99		
MV99–40		Volcanic	Herve et al. (2007)	Patagonia	−50.54566667	−73.86516667	SHRIMP	U-Pb zircon	156.5		1.15		
PAT.30.2		Plutonic	Herve et al. (2007)	Patagonia	−50.53516667	−73.89666667	SHRIMP	U-Pb zircon	155.5		0.65		
PAT.70.8		Plutonic	Herve et al. (2007)	Patagonia	−53.4205	−72.59383333	SHRIMP	U-Pb zircon	156.9		1.7		
SE9811		Plutonic	Herve et al. (2007)	Patagonia	−49.99691667	−74.33426667	SHRIMP	U-Pb zircon	149.6		2		
R.5414.7		Plutonic	Leat et al. (2009)	Antarctic Peninsula			LA-ICP-MS	U-Pb zircon	183	6			
M-03		Volcanic	Lovecchio et al. (2019)	Patagonia			U-Pb	LA-ICP-MS	169.6	2			
M-06		Volcanic	Lovecchio et al. (2019)	Patagonia			U-Pb	LA-ICP-MS	215				
Darwin Granite		Plutonic	Mukaza & Dalziel (1996)	Patagonia	*−55.17*	*−69.47*	TIMS	U-Pb zircon	164.1	1.7			
sample 55		Volcanic	Navarrete et al. (2019)	Patagonia			U-Pb	LA-ICP-MS	207.6	4.1			
BR.060.1		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	164.3	0.9			
R.312.2		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	164.2	0.8			

(*continued on next page*)

Table 3 (*continued*)

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	Gecohem	39Ar% released
R.4182.10		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184.2	1.2			
R.4197.2		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183.9	0.9			
R.505.4		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	156	0.6			
R.601.9		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	162.2	0.6			
R.631.1		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	166.9	0.8			
R.6619.4		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	172.6	0.9			
R.6632.10		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	168.3	1.1			
R.6906.3		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	168.5	0.8			
R.6908.7		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	170	0.7			
R.6914.6		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	171	0.5			
PAT.19.2		Plutonic	Pankhurst et al. (2000)	Patagonia	*−47.45*	*−72.37*	SHRIMP	U-Pb zircon	153.8	0.7			
PAT.34.1		Volcanic	Pankhurst et al. (2000)	Patagonia	*−47.11*	*−70.36*	SHRIMP	U-Pb zircon	156.2	0.9			
PAT.49.1		Volcanic	Pankhurst et al. (2000)	Patagonia	*−49.73*	*−68.2*	SHRIMP	U-Pb zircon	162.7	0.5			
PAT.62.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−47.33*	*−71.97*	SHRIMP	U-Pb zircon	154.1	0.6			
PAT.65.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−50.14*	*−73.21*	SHRIMP	U-Pb zircon	154.5	0.7			
SE9806		Volcanic	Pankhurst et al. (2000)	Patagonia	*−46.4*	*−71.77*	SHRIMP	U-Pb zircon	153	0.5			
ST0322A		Plutonic	Pankhurst et al. (2000)	Patagonia	*−53.29*	*−68.5*	SHRIMP	U-Pb zircon	178.4	0.7			
T0		Volcanic	Pankhurst et al. (2000)	Patagonia	*−48.77*	*−67.12*	SHRIMP	U-Pb zircon	168.4	0.8			
T1A		Volcanic	Pankhurst et al. (2000)	Patagonia	*−52.15*	*−73*	SHRIMP	U-Pb zircon	171.8	0.6			
LC-1		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2			
LC-2		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2			
LC-27		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2			
LL-39		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2			
LL-44		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2			
LL-46		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2			
ALE-055		Plutonic	Rapela et al. (2005)	Patagonia	*−43.01*	*−70.78*	SHRIMP	U-Pb zircon	184.9	2.3	1.5	yes	
PAT53		Plutonic	Rapela et al. (2005)	Patagonia	*−44.03*	*−70.31*	SHRIMP	U-Pb zircon	181.5	2.3	1.8	yes	
PAT55		Plutonic	Rapela et al. (2005)	Patagonia	*−42.2*	*−71.4*	SHRIMP	U-Pb zircon	181.1	2.5	1.9	yes	
ST0253		Plutonic	Rapela et al. (2005)	Patagonia	*−41.9*	*−71.33*	SHRIMP	U-Pb zircon	181.1	1.7	2	yes	
H9.520.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			SIMS	U-Pb zircon	185	3			
H9.520.2		Plutonic	Riley et al. (2012)	Antarctic Peninsula			SIMS	U-Pb zircon	185	3			
H9.545.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			SIMS	U-Pb zircon	173	3			
H9.546.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			SIMS	U-Pb zircon	177	3			
R.8137C		Plutonic	Riley et al. (2012)	Antarctic Peninsula			SIMS	U-Pb zircon	184	3			
BR.015.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183	1	1.1		
N10.395.2		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SIMS	U-Pb zircon	183	1	1.1		
N10.470.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SIMS	U-Pb zircon	182	2	0.9		

(*continued on next page*)

Table 3 (*continued*)

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	Gecohem	39Ar% released
N11.115.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SIMS	U-Pb zircon	182	1	1		
R.2143.3		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SIMS	U-Pb zircon	188	1	1.9		
R.6157.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184	2	1.6		
R.6308.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184	2	1.6		
R.7170.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183	3	1.1		
15JB72	PRR-5983	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−63.55	−58.93333333	LA-ICP-MS	U-Pb zircon	163	1	0.9		
15JB73	PRR-6037	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−68.18333333	−67	LA-ICP-MS	U-Pb zircon	156	1	1.3		
16JB69	PRR-32,977	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−63.41583333	−57.01111111	LA-ICP-MS	U-Pb zircon	160	1	1.08		
16JB70	PRR-6230	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−65.43333333	−65.48333333	LA-ICP-MS	U-Pb zircon	151	1	0.9		
18JB01	R6569.9	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−65.6	−62.5	LA-ICP-MS	U-Pb zircon	164	1	0.84		
18JB04	R6871.3	Volcanic	Bastias et al. (2021)	Antarctic Peninsula	−75.18889	−71.42167	LA-ICP-MS	U-Pb zircon	179	1	0.94		
18JB05	R6607.1	Volcanic	Bastias et al. (2021)	Antarctic Peninsula	−65.53333333	−62.43333333	LA-ICP-MS	U-Pb zircon	162	1	1.03		
18JB07	R6602.3	Volcanic	Bastias et al. (2021)	Antarctic Peninsula	−65.53333333	−62.2	LA-ICP-MS	U-Pb zircon	164	1	0.9		
18JB26	R5957.3	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−70.69709	−67.56797	LA-ICP-MS	U-Pb zircon	156	1	1.17		
18JB32	R5257.5	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−70.03333	−67.65	LA-ICP-MS	U-Pb zircon	183	1	1.08		
18JB50	R.6307.1	Plutonic	Bastias et al. (2021)	Antarctic Peninsula	−71.58287	−66.89271	LA-ICP-MS	U-Pb zircon	153	1	1.3		
18JB52	R6851.1	Volcanic	Bastias et al. (2021)	Antarctic Peninsula	−65.4025	−62.69583	LA-ICP-MS	U-Pb zircon	161	1	1.18		
JSM-058		Volcanic	Zaffarana & Somoza (2012)	Patagonia			Ar/Ar	Amphibole	187.69	0.73			82.2
LEL-052		Volcanic	Zaffarana & Somoza (2012)	Patagonia			Ar/Ar	Amphibole	184	5			96.5

Table 4
Isotopic tracing compilation of Mesozoic igneous rocks of the Antarctic Peninsula and Patagonia reported by [1,2,3,6,7,11,12,13,14,15,16,17,18].

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	87Sr/86Sri	epsNdi CHUR	Gecohem
AA0815		Volcanic	Bastias et al. (2019)	Antarctic Peninsula			SHRIMP	U-Pb zircon	153.1	1.7	1.6			
R.5786.3	18JB20	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−70.9158	−66.9183	LA-ICP-MS	U-Pb zircon	203.3	0.6	1.00	0.707185	−4.0053436	
R.6067.8	18JB02	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−70.6942	−66.5839	LA-ICP-MS	U-Pb zircon	207.6	2.5	1.06	0.714047	−3.4301417	
R.6306.7	18JB18	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−71.6131	−66.3454	LA-ICP-MS	U-Pb zircon	212.4	1.5	1.30	0.706119	−6.2227663	
K7.526.3	18JB34	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−68.2005	−65.1823	LA-ICP-MS	U-Pb zircon	215.2	1.8	1.12	0.709161	−3.3289993	
R.5290.1	18JB27	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−70.5333	−66.8	LA-ICP-MS	U-Pb zircon	216.2	2	1.60	–	–	
K7.562	18JB43	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−68.187	−65.3047	LA-ICP-MS	U-Pb zircon	217.3	0.5	1.05	0.709661	−3.6822481	
K7.557.1	18JB03	Orthogneiss	Bastias et al. (2020, in review)	Antarctic Peninsula	−68.1084	−65.0242	LA-ICP-MS	U-Pb zircon	223	1.8	0.86	0.70761	−4.7228364	
Mount Rex		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.49*	*−73.07*	n.r.	U-Pb zircon	167	3				
Mr Peterson		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.7*	*−74.61*	n.r.	U-Pb zircon	188	3				
Sweeney Mountains		Plutonic	Fanning & Laudon (1997)	Antarctic Peninsula	*−74.94*	*−70.16*	n.r.	U-Pb zircon	189	3				
R.5414.3		Plutonic	Leat et al. (2009)	Antarctic Peninsula			–	Field relationship	*183*	*6*		0.705618	1.9	
R.5414.4		Plutonic	Leat et al. (2009)	Antarctic Peninsula			–	Field relationship	*183*	*6*		0.705113	1.3	
R.5414.5		Plutonic	Leat et al. (2009)	Antarctic Peninsula			–	Field relationship	*183*	*6*		0.707825		
R.5414.6		Plutonic	Leat et al. (2009)	Antarctic Peninsula			–	Field relationship	*183*	*6*		0.707313		
R.5414.7		Plutonic	Leat et al. (2009)	Antarctic Peninsula			–	U-Pb zircon	183	6		0.707138	−2.9	
Darwin Granite		Plutonic	Mukaza & Dalziel (1996)	Patagonia	*−55.17*	*−69.47*	TIMS	U-Pb zircon	164.1	1.7				
n.d.		Volcanic	Pankhurst & Rapela (1995)	Patagonia				Rb-Sr isochron	~175–190			−0.7067	−4	
IBA-2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−46.4*	*−71.77*	SHRIMP	U-Pb zircon	153	0.5				
PAT.49.1		Plutonic	Pankhurst et al. (2000)	Patagonia	*−47.45*	*−72.37*	SHRIMP	U-Pb zircon	153.8	0.7				
PAT.34.1		Volcanic	Pankhurst et al. (2000)	Patagonia	*−47.33*	*−71.97*	SHRIMP	U-Pb zircon	154.1	0.6				
PAT.62.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−50.14*	*−73.21*	SHRIMP	U-Pb zircon	154.5	0.7				
R.505.4		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	156	0.6				
PAT.30.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−47.11*	*−70.36*	SHRIMP	U-Pb zircon	156.2	0.9				
R.601.9		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	162.2	0.6				
PAT.65.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−49.73*	*−68.2*	SHRIMP	U-Pb zircon	162.7	0.5				
R.312.2		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	164.2	0.8				
BR.060.1		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	164.3	0.9				
R.631.1		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	166.9	0.8				
R.6632.10		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	168.3	1.1				

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Table 4 (*continued*)

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	87Sr/86Sri	epsNdi CHUR	Gecohem
PAT.19.2		Volcanic	Pankhurst et al. (2000)	Patagonia	*−48.77*	*−67.12*	SHRIMP	U-Pb zircon	168.4	0.8				
R.6906.3		Plutonic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	168.5	0.8				
R.6908.7		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	170	0.7				
R.6914.6		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	171	0.5				
MV99–40		Volcanic	Pankhurst et al. (2000)	Patagonia	*−52.15*	*−73*	SHRIMP	U-Pb zircon	171.8	0.6				
R.6619.4		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	172.6	0.9				
PAT.70.8		Plutonic	Pankhurst et al. (2000)	Patagonia	*−53.29*	*−68.5*	SHRIMP	U-Pb zircon	178.4	0.7				
R.4197.2		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183.9	0.9				
R.4182.10		Volcanic	Pankhurst et al. (2000)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184.2	1.2				
LL-12		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2		0.706854	−0.3	
LL-33		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2			−0.8	
LL-39		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2		0.706564	−0.5	
LL-44		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2		0.705784	−0.8	
LL-46		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	202	2		0.707082	−0.3	
LC-1		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2		0.705668	−2.5	
LC-2		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2		0.705377	−1.5	
LC-8		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2			−1.1	
LC-27		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2		0.707368	−0.8	
LC-29		Plutonic	Rapela & Pankhurst (1996)	Patagonia				Rb-Sr isochron	203	2		0.709965	−1.3	
SER-046		Plutonic	Rapela et al. (2005)	Patagonia	*−41.9*	*−71.33*	SHRIMP	U-Pb zircon	181.1	1.7	2			yes
LEL-052		Plutonic	Rapela et al. (2005)	Patagonia	*−42.2*	*−71.4*	SHRIMP	U-Pb zircon	181.1	2.5	1.9	0.705193	−1.6	yes
JSM-058		Plutonic	Rapela et al. (2005)	Patagonia	*−44.03*	*−70.31*	SHRIMP	U-Pb zircon	181.5	2.3	1.8	0.704737	1.4	yes
ALE-055		Plutonic	Rapela et al. (2005)	Patagonia	*−43.01*	*−70.78*	SHRIMP	U-Pb zircon	184.9	2.3	1.5	0.705282	−1.2	yes
R.6622.4		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70667	−2.5	
R.6623.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70666	−2.6	
R.6605.6		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70674	−3	
R.6607.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70751	−2.4	
R.6609.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70645	−2.6	
R.6612.4		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70559	−2.3	
R.6618.7		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70621	−2.2	
R.6625.2		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70674	−3.3	

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Table 4 (*continued*)

Sample	Reference	Type	Reference	Area	North	East	Data	Method	Age	Error	MSWD	87Sr/86Sri	epsNdi CHUR	Gecohem
R.6625.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70633	−2.8	
R.6627.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.7063	−2.2	
R.6628.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70697	−3.3	
R.6629.5		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70663	−3.3	
R.6630.4		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70648	−3	
R.6632.2		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70644	−2.8	
R.6632.7		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70668	−3.4	
R.6851.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70724	−3.5	
R.6861.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					168			0.70712	−3.4	
R.6871.3		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71965	−7.7	Yes
R.6874.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71829	−7.4	
R.6888.2		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.72056	−7.5	
R.6889.2		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71866	−7.5	
R.7111.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.72057	−7.8	
R.6893.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.72021	−7.7	
R.7103.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71885	−6.9	
R.7108.2		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71799	−7.6	
R.7102.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.7156	−4.9	
R.6892.1		Plutonic	Riley et al. (2001)	Antarctic Peninsula					185			0.71062	−2.4	
H9.545.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			NORDSIM	U-Pb zircon	173	3				
H9.546.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			NORDSIM	U-Pb zircon	177	3				
R.8137C		Plutonic	Riley et al. (2012)	Antarctic Peninsula			NORDSIM	U-Pb zircon	184	3				
H9.520.1		Plutonic	Riley et al. (2012)	Antarctic Peninsula			NORDSIM	U-Pb zircon	185	3				
H9.520.2		Plutonic	Riley et al. (2012)	Antarctic Peninsula			NORDSIM	U-Pb zircon	185	3				
N11.115.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			NORDSIM	U-Pb zircon	182	1	1			
N10.470.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			NORDSIM	U-Pb zircon	182	2	0.9			
N10.395.2		Plutonic	Riley et al. (2016)	Antarctic Peninsula			NORDSIM	U-Pb zircon	183	1	1.1			
BR.015.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183	1	1.1			
R.7170.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	183	3	1.1	0.705758	−4.5	
R.6157.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184	2	1.6			
R.6308.1		Plutonic	Riley et al. (2016)	Antarctic Peninsula			SHRIMP	U-Pb zircon	184	2	1.6			
R.2143.3		Plutonic	Riley et al. (2016)	Antarctic Peninsula			NORDSIM	U-Pb zircon	188	1	1.9	0.706097	−3.5	
PRR-6230	16JB70	Plutonic	This study	Antarctic Peninsula	−65.4333	−65.4833	LA-ICP-MS	U-Pb zircon	153.9	1.8	0.9			
R.6307.1	18JB50	Plutonic	This study	Antarctic Peninsula	−71.5829	−66.8927	LA-ICP-MS	U-Pb zircon	154.8	0.6	1.3			
PRR-32,977	16JB69	Plutonic	This study	Antarctic Peninsula	−63.4158	−57.0111	LA-ICP-MS	U-Pb zircon	159.8	1.1	1.08			
R6851.1	18JB52	Volcanic	This study	Antarctic Peninsula	−65.4025	−62.6958	LA-ICP-MS	U-Pb zircon	161.35	0.61	1.18			
R5957.3	18JB26	Plutonic	This study	Antarctic Peninsula	−70.6971	−67.568	LA-ICP-MS	U-Pb zircon	161.8	0.7	1.17			
R6569.9	18JB01	Plutonic	This study	Antarctic Peninsula	−65.6	−62.5	LA-ICP-MS	U-Pb zircon	162.7	1.4	0.84			
R6607.1	18JB05	Plutonic	This study	Antarctic Peninsula	−65.5333	−62.4333	LA-ICP-MS	U-Pb zircon	163.6	1.4	1.03			
PRR-5983	15JB72	Plutonic	This study	Antarctic Peninsula	−63.55	−58.9333	LA-ICP-MS	U-Pb zircon	166.9	2.3	0.9			
R6602.3	18JB07	Volcanic	This study	Antarctic Peninsula	−65.5333	−62.2	LA-ICP-MS	U-Pb zircon	168	1.1	0.9			
PRR-6037	15JB73	Plutonic	This study	Antarctic Peninsula	−68.1833	−67	LA-ICP-MS	U-Pb zircon	172.6	1.1	1.3			
R6871.3	18JB04	Volcanic	This study	Antarctic Peninsula	−75.1889	−71.4217	LA-ICP-MS	U-Pb zircon	179.7	1.9	0.94			
R5257.5	18JB32	Plutonic	This study	Antarctic Peninsula	−70.0333	−67.65	LA-ICP-MS	U-Pb zircon	182.9	7	1.08			

n.d.: no data.

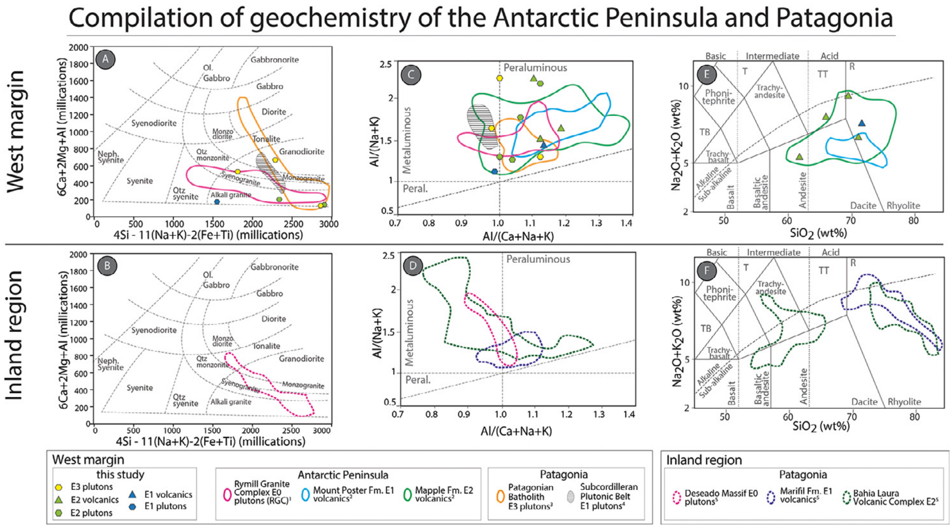

Fig. 3. Geochemical compilation showing the relevant classification diagrams for the igneous rocks of the Antarctic Peninsula and Patagonia. This figure has been divided between Inland Region and West Margin units throughout the Late Triassic – Jurassic. Source of the data: 1 – [6,7], 2 – [2], 3 – [4], 4 – [3], 5 – [5],.

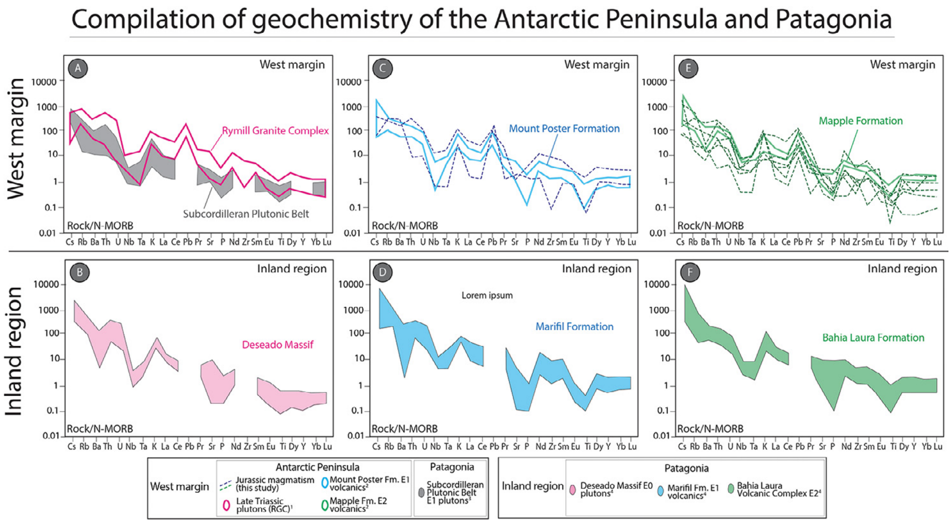

Fig. 4. Geochemical compilation showing trace element abundances normalized to N-MORB (values from [26]) for the igneous rocks of the Antarctic Peninsula and Patagonia. This figure has been divided between Inland Region and West Margin units throughout the Late Triassic – Jurassic. Source of the data: 1 – [1,6,7], 2 – [2], 3 – [3], 4 – [5].

2. Experimental Design, Materials and Methods

2.1. Whole rock geochemistry

Representative whole rock powders were prepared using an agate mill and major and trace elements were measured using a Philips PW2400 X-Ray Fluorescence (XRF) spectrometer at the University of Lausanne, Switzerland. The NIMN, NIMG, BHVO and SY2 standards were used for

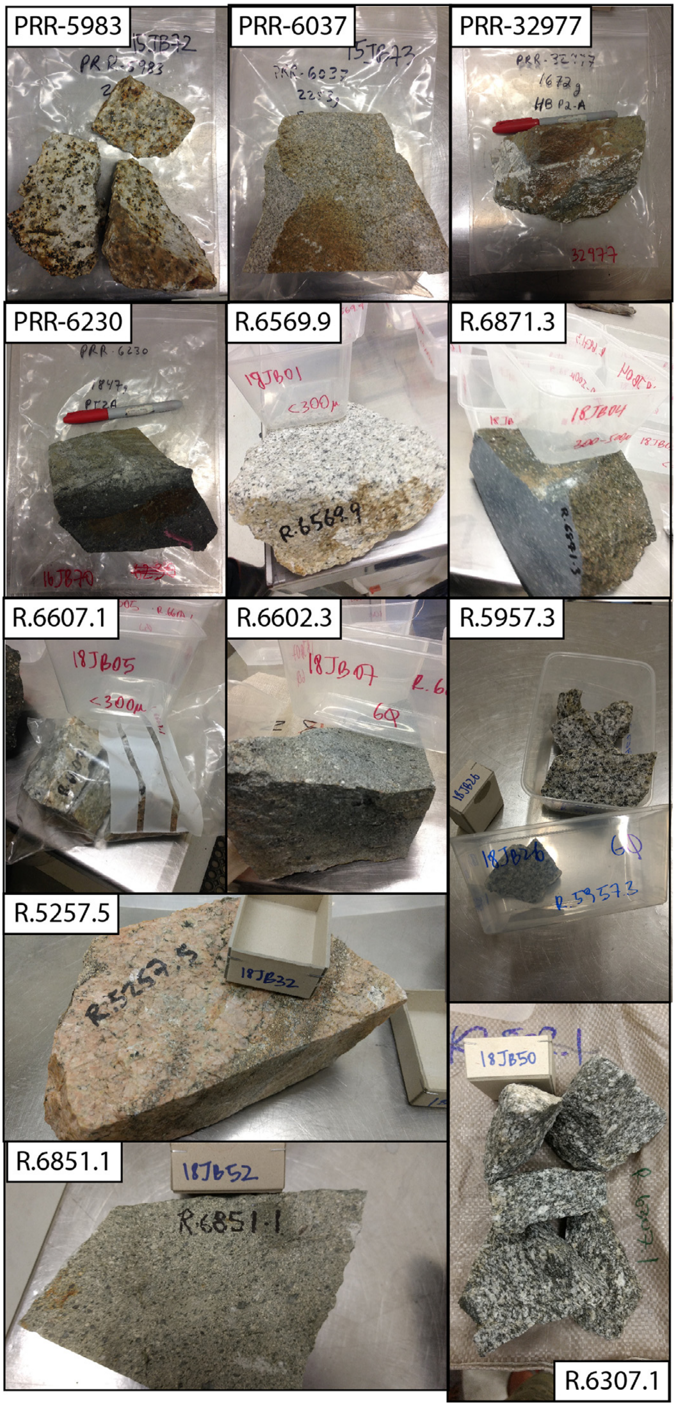

Fig. 5. Collection of hand-specimen photos from the rocks used in [1] prior to use them for the mechanical preparation.

quality control. Glass fused disks prepared for XRF analyses were fragmented and mounted for additional analyses of trace and rare earth elements (REE). Measurements were made using a Perkin Elmer ELAN 6100 DRC quadrupole ICP-MS, and depending on the expected enrichment within samples, either NIST SRM 610 or 612 fused glasses were used as external standards. The laser settings used for analyses were 10 Hz frequency, 140 mJ energy and 80–120 µm spot size. Blanks were measured for ~90 s, after which the laser was switched on and the signal was measured for 45 s. The Sr or Al_2O_3 concentrations (previously determined by XRF) were used as an internal standard. Each sample was ablated 3 times, and average concentrations were calculated offline using LAMTRACE [28]. The uncertainties of 3 spots per sample are ±10% for rare earth elements (REE), and ±5% for other trace elements. Whole rock compositions have been normalized to an anhydrous state in the graphical representations.

2.2. Sr-Nd-Pb bulk rock isotopes

100 mg of whole rock powder was dissolved in 4 ml of concentrated HF and 1 ml of 15 M HNO_3 in closed Teflon vials at 140 °C for seven days. The samples were dried down and re-dissolved in 3 ml of 15 M HNO_3 before being dried down again.

Sr–Nd–Pb chemical separation followed the methods described in [29,30]. Radiogenic isotopes of Sr, Nd and Pb were analysed at the University of Geneva using a Thermo Neptune PLUS Multi-Collector ICP-MS following the methods described by [31,32].

Isotopic ratios were corrected for internal fractionation using $^{88}Sr/^{86}Sr$=8.375209 for the $^{87}Sr/^{86}Sr$ ratio, $^{146}Nd/^{144}Nd$=0.7219 for the $^{143}Nd/^{144}Nd$ ratio and $^{203}Tl/^{205}Tl$=0.418922 for the three Pb ratios (a Tl standard was added to the solution). SRM987 ($^{87}Sr/^{86}Sr$=0.710248, long-term external reproducibility: 10 ppm), JNdi-1 ($^{143}Nd/^{144}Nd$= 0.512115; [33]; long-term external reproducibility: 10 ppm), and SRM 981 (Pb-isotopes; [34]; long-term external reproducibility of 0.0048% for $^{206}Pb/^{204}Pb$, 0.0049% for $^{207}Pb/^{204}Pb$ and 0.0062% for $^{208}Pb/^{204}Pb$) were used as external standards. Due to a systematic difference between measured and accepted standard ratios, Sr, Nd and Pb isotope ratios were further corrected for external fractionation by a value of −0.039, +0.047 and +0.5 amu, respectively. Mass interferences at 84 (^{84}Kr), 86 (^{86}Kr) and 87 (^{87}Rb) were corrected for by monitoring ^{83}Kr and ^{85}Rb. The interference of ^{144}Sm on ^{144}Nd was monitored on ^{147}Sm and corrected with a value of 0.206700 ($^{144}Sm/^{147}Sm$). The interference of ^{204}Hg on ^{204}Pb was corrected by monitoring ^{202}Hg.

2.3. Zircon LA-ICP-MS U-Pb geochronology

The U–Pb isotopic composition of zircons was obtained using Laser Ablation Inductively Coupled Mass Spectrometry (LA-ICP-MS) at the University of Lausanne. Zircons were ablated with an UP-193FX ArF 193 nm excimer ablation system (ESI) using the following parameters: 35 µm beam size, 5 Hz repetition rate, 30 second signal and a beam energy density of 2.2–2.5 J/cm2. Isotopic intensities were measured using an Element XR single-collector sector-field ICP-MS (Thermo Scientific). GEMOC GJ-1 zircon (CA-ID-TIMS ^{206}Pb–^{238}U age of 600.5 ± 0.4 Ma; [8,9,10] was used as a primary standard. Secondary standards used to monitor consistency in the measured U–Pb dates were either Harvard 91,500 (1065.4 ± 0.3 Ma; [35]) zircon, or Plešovice (337.13 ± 0.37 Ma; [36]) zircon. Dates were calculated using LAMTRACE [28] and IsoplotR [27]. More details regarding the spectrometer setup and data reduction can be found in [9]. Statistical analyses of magmatic zircon data were performed using Isoplot 3.71 [37]. All discordant (N1–3%) analyses of magmatic zircons were discarded. Only zircons with concordance greater than 90% were accepted and plotted. All the reported results are presented with 2σ values.

2.4. Zircon in-situ HF isotopes (LA-MC-ICP-MS)

The same zircons that were used for dating and trace element analysis were also selected for in-situ Hf isotope measurements. Analyses were carried out on a Thermo Neptune Plus MC-ICP-MS coupled to a Teledyne - Photon Machines Analyte G2 ArF excimer laser system equipped with a two volume HelEx-2 ablation cell [38] at the University of Geneva. Ablation was performed at a fluence of ~4 J/ cm^2, a repetition rate of 5 Hz and a spot size of 40 µm (50 µm in some rare cases where enough space was available on the zircon). Helium was used as a carrier gas for the ablated particles and mixed with a small amount of N_2 before entering the Ar-plasma torch to increase sensitivity. Measurements were performed at low mass resolution over 120 cycles of ~1 s for standards and between 80 and 120 cycles for samples (depending on the thickness of the zircons). At the beginning of the session, the end and every ~15 sample measurements, Mud Tank, Plešovice, MUN4 and GJ-1 zircon standards were measured in order to evaluate the offset of the measured values to reference values. Blanks were also acquired (120 cycles) at the same intervals as the zircon standard measurements, but without ablation.

Data were reduced off-line using an excel spreadsheet and consisted of blank subtractions, removing the isobaric interference of ^{176}Lu and ^{176}Yb on mass 176 (e.g. [39]) and correcting the resulting $^{176}Hf/^{177}Hf$ ratio for mass bias using an exponential law [40]. βHf and βYb mass bias coefficients were calculated from the measured $^{179}Hf/^{177}Hf$ and $^{173}Yb/^{171}Yb$ with the reference values of [41] ($^{179}Hf/^{177}Hf$=0.7325) and [42] ($^{173}Yb/^{171}Yb$=1.1234) respectively. Isobaric interferences of ^{176}Yb and ^{176}Lu with ^{176}Hf were corrected using $^{176}Yb/^{173}Yb$=0.786954 and $^{176}Lu/^{175}Lu$=0.02645 respectively [42]. Only non-perturbed spectra were retained. Initial $^{176}Hf/^{177}Hf$ ratios and initial εHf were calculated using the $^{206}Pb/^{238}U$ date of the respective crystal, the CHUR parameters of [43] ($^{176}Hf/^{177}Hf$ = 0.282785 and $^{176}Lu/^{177}Hf$= 0.0336) and $\lambda^{176}Lu$=1.87 × 10–11 year-1 [44].

As no Temora standard was available for measurement but its $^{173}Yb/^{177}Hf$ values are closer to our zircon samples than the $^{173}Yb/^{177}Hf$ values of the other standards measured, the long term in-house standard deviation on the age corrected εHf from the Temora standard as well as its offset value of the age corrected εHf from its nominal value were used (e.g. [45,46]) to calculate the standard deviation (*2std propagated including offset*) on the age corrected εHf values from the samples. The standard deviations of the Temora standard zircon [45] are higher than those obtained during the analytical sessions of the present work on the Mud Tank, Plešovice and GJ-1 zircon standards. Additionally, the standard deviations associated with the measurements of Mud Tank, Plešovice and GJ-1 obtained during our analyses were lower than the long-term inhouse standard deviations obtained by [45], which gives us confidence on the reproducibility of our data at least at the same level as that obtained by [45]. This conservative approach was chosen in order to make sure that we did not underestimate the standard deviations applied to our final results; on the contrary, it most likely slightly overestimates the uncertainties.

Ethics Statement

This work does not involve the use of human subject, does not involve animal experiment and does not involve data collected from social media platforms.

CRediT Author Statement

Joaquin Bastias: Data curation, Writing original draft, Writing review & editing; **Richard Spikings:** Data curation, Writing original draft, Writing review & editing; **Teal Riley:** Writing original draft; **Alexey Ulianov:** Data curation, Writing original draft; **Anne Grunow:** Data curation, Writing original draft; **Massimo Chiaradia:** Data curation; **Francisco Hervé:** Writing original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

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Supplementary Materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.dib.2021.107042.

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