ITEM DR1: ANALYTICAL TECHNIQUES

SHRIMP Zircon U-Pb ages

Zircon grains were separated from total rock samples using standard crushing, washing, heavy liquid (Sp. Gr. 2.96 and 3.3), and paramagnetic procedures. Hand selected zircon grains were placed onto double-sided tape, mounted in epoxy together with chips of the reference zircons (Temora, and SL13), sectioned approximately in half, and polished. Reflected and transmitted light photomicrographs were prepared for all zircons, as were cathodoluminescence (CL) Scanning Electron Microscope (SEM) images. These CL images were used to decipher the internal structures of the sectioned grains and to ensure that the ~20µm SHRIMP spot was wholly within a single age component within the sectioned grains.

The U-Th-Pb analyses (Tables DR.3) were made using SHRIMP II at the Research School of Earth Sciences (RSES), The Australian National University, Canberra, Australia following procedures given in Williams (1998, and references therein). Each analysis consisted of 6 scans through the mass range, with the Temora reference zircon grains analyzed for every three unknown analyses. The data have been reduced using the SQUID Excel Macro of Ludwig (2001). The Pb/U ratios have been normalized relative to a value of 0.0668 for the Temora reference zircon, equivalent to an age of 417 Ma (see Black et al., 2003). Uncertainty in the U-Pb calibration was xyz% for the SHRIMP II session. Tera and Wasserburg (1972) concordia plots, probability density plots with stacked histograms and weighted mean $^{206}Pb/^{238}U$ age calculations were carried out using ISOPLOT/EX (Ludwig, 2003). Weighted mean $^{206}Pb/^{238}U$ ages were calculated and the uncertainties are reported as 95% confidence limits.

LA-MC-ICPMS Zircon Lu-Hf isotopic Composition

Lu-Hf isotopic measurements (Tables DR.4) were conducted by laser ablation multicollector inductively coupled plasma mass spectroscopy (LA-MC-ICPMS) using the RSES Neptune MC-ICPMS coupled with a 193 nm ArF Excimer laser; similar to procedures described in Munizaga et al. (2008). Laser ablation analyses were performed on the same locations within single zircon grains used for the U-Pb analyses. For all analyses of unknowns or secondary standards, the laser spot size was ca. 47 µm in diameter. The mass spectrometer was first tuned to optimal sensitivity using a large grain of zircon from the Monastery kimberlite. Isotopic masses were measured simultaneously in static-collection mode. A gas blank was acquired at regular intervals throughout the analytical session (every ≈10 analyses). The laser was fired with typically 5-8 Hz repetition rate and 60 mJ energy. Data was acquired for 100 seconds, but in many cases only a selected interval from the total acquisition was used in data reduction. Throughout the analytical

session several widely used reference zircons (91500, FC-1, Temora-2, Monastery and Mud Tank) were analyzed to monitor data quality. Signal intensity was typically ca.5-6 V for total Hf at the beginning of ablation, and decreased over the acquisition time to 2 V or less. Isobaric interferences of ^{176}Lu and ^{176}Yb on the ^{176}Hf signal were corrected by monitoring signal intensities of ^{175}Lu and ^{173}Yb, ^{172}Yb and ^{171}Yb. The calculation of signal intensity for ^{176}Hf also involved independent mass bias corrections for Lu and Yb.

Whole Rock SiO_2, Sm and Nd Contents and Nd Isotopic Composition

Whole rock samples were crushed in a reciprocating steel crusher, and subsequently reduced to powder in an agate shatterbox. Whole-rock powders were analyzed for major and trace elements. Major element analyses (SiO_2; Table DR.5) were performed at the chemical laboratory of the Departamento de Geología, Universidad de Chile, by inductively coupled plasma-atomic emission spectrometry (ICP-AES) using a sequential Perkin-Elmer P400. Trace element analyses (Sm, Nd; Table DR.5) were performed at the Laboratoire des Mécanismes et Transferts en Géologie (LMTG), Toulouse, France by ICP-MS using an Elan 6000 Perkin Elmer quadripolar ICP-MS. Calibrations, internal standard and interferences corrections were done following the procedure described in Aries et al. (2000). Data quality was controlled by running AC-E and BE-N standards. Relative standard deviations are generally ≤5%. The Nd isotopic composition (Table DR.5) was analyzed on a Finnigan-Mat 261 multicollector mass spectrometer at the LMTG. Nd (and Sr) was first separated from the matrix using the Sr SPEC, LN-SPEC and TRU-SPEC resins, following the technique set up by Pin et al. (1995). Nd was loaded on one of two Re filaments. The La Jolla standard was run regularly and isotopic ratios were corrected for any laboratory bias, as described in Benoit et al. (1996).

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Table DR2. Basic information on analyzed samples.

Unit*	Sample	Location (Lat S - Long W)	Rock type	Classification§
Lavas Chacayes	MCh2	34º13' - 70º30'	Lava flow	Clinopyroxene dacite
Estero Crucero S	MLL3	34º25' - 71º08'	Stock	Amphibole monzogranite
Portezuelo Arriaza	MLL8	34º24' - 70º04'	Stock	Clinopyroxene diorite
Portezuelo Arriaza	MLL9	35º24' - 71º04'	Stock	Clinopyroxene diorite
Carlota	MM3	33º51' - 70º19'	Stock	Clinopyroxene diorite
Paso Colina	MM4	33º51' - 69º54'	Stock	Amphibole diorite
Cerro Castillo	MM5	33º58' - 69º54'	Lava flow	Orthopyroxene dacite
Cerro Castillo	MM6	33º58' - 69º54'	Lava flow	Orhtopyroxene andesite
Río Negro	MM7	34º01' - 69º56'	Stock	Amphibole quartz diorite
Río Negro	MM8	34º01' - 69º56'	Stock	Amphibole quartz diorite
Jeria	MM11	34º00' - 70º00'	Stock	Amphibole granodiorite
Cruz de Piedra	MM12	34º11' - 69º55'	Stock	Amphibole quartz monzonite
Cerro Listado	MM13	34º15' - 69º54'	Lava flow	Clinopyroxene dacite
Cerro Catedral	MM15	34º11' - 70º06'	Stock	Biotite grandoriorite
Estero Crucero N	MM17	34º24' - 70º07'	Stock	Amphibole tonalite
Cachapoal	MM18	34º19' - 70º02'	Stock	Amphibole quartz diorite
Cono Río Negro	MM19	34º02' - 70º00'	Lava flow	Olivine basaltic andesite
Cono Río Negro	MM20	34º02' - 70º00'	Lava flow	Olivine basaltic andesite
Mina Juanita	MP2	34º14' - 70º22'	Stock	Amphibole monzogranite
Cerro Minero	MT1	34º05' - 70º29'	Lava flow	Two pyroxene andesite
Cerro Minero	MT2	34º04' - 70º28'	Lava flow	Two pyroxene andesite
Cerro Minero	MT3	35º04' - 71º28'	Lava flow	Two pyroxene andesite
Cerro Minero	MT4	34º05' - 70º29'	Lava flow	Clinopyroxene dacite
Lavas Bajo Cachapoal	MT7	34º12' - 70º32'	Lava flow	Pyroxene basaltic andesite
Extravío	MT8	34º02' - 70º16'	Stock	Amphibole grandiorite
Laguna Negra	MT9	34º02' - 70º19'	Stock	Amphibole granodiorite
Los Lunes	RB11	33º46' - 70º06'	Dike	Biotite andesitic dike
Diques de Dacita Tardíos†	TT91	34º05' - 70º21'	Dike	Biotite dacitic dike

*Names on igneous units are either those commonly used in literature or are informally named here.

†Sample collected from inside the El Teniente underground mine (34º35'S-70º21'W).

§Classification based on mineralogical composition, determined by standard optical microscopy, and chemical analyses.

Table DR3. SHRIMP U-Pb zircon data.

Spot	U (ppm)	Th (ppm)	Th/U	^{206}Pb (ppm)	$^{204}Pb/^{206}Pb$	F_{206} (%)	Total $^{238}U/^{206}Pb$	1σ	$^{207}Pb/^{206}Pb$	1σ	Radiogenic $^{206}Pb/^{238}Pb$	1σ	Age $^{206}Pb/^{238}Pb$	2σ
Río Negro (sample MM7)														
1.1	693	1316	1.90	0.78	0.003714	1.13	763.4	13.6	0.0551	0.0043	0.00130	0.00002	8.34	0.31
1.2	716	1602	2.24	0.80	0.003600	1.74	771.1	13.0	0.0599	0.0035	0.00127	0.00002	8.21	0.29
2.1	406	620	1.53	0.46	0.007312	4.43	759.2	16.5	0.0812	0.0065	0.00126	0.00003	8.11	0.38
3.1	546	858	1.57	0.63	0.003641	2.98	739.3	14.3	0.0698	0.0050	0.00131	0.00003	8.45	0.35
4.1	428	362	0.85	0.48	0.007975	4.51	761.1	17.4	0.0818	0.0070	0.00125	0.00003	8.08	0.40
5.1	344	533	1.55	0.41	0.014944	7.24	724.0	16.5	0.1034	0.0079	0.00128	0.00003	8.25	0.42
6.1	1121	2050	1.83	1.29	0.000567	1.52	743.4	11.6	0.0582	0.0036	0.00132	0.00002	8.53	0.28
7.1	351	469	1.33	0.39	N.D.	0.05	782.2	16.8	0.0466	0.0073	0.00128	0.00003	8.23	0.38
7.2	368	402	1.09	0.40	0.008828	1.85	784.9	28.6	0.0608	0.0049	0.00125	0.00005	8.06	0.60
8.1	426	642	1.51	0.47	0.000587	2.11	772.4	15.6	0.0629	0.0053	0.00127	0.00003	8.17	0.35
9.1	385	526	1.37	0.43	0.004134	1.92	767.5	16.5	0.0614	0.0059	0.00128	0.00003	8.23	0.38
10.1*	128	112	0.87	0.15	0.030169	20.70	721.2	24.6	0.2097	0.0399	0.00110	0.00008	7.08	1.03
11.1	371	599	1.61	0.42	0.000000	3.52	750.6	15.5	0.0740	0.0077	0.00129	0.00003	8.28	0.38
11.2	869	1939	2.23	0.97	0.004214	1.24	766.8	12.0	0.0560	0.0030	0.00129	0.00002	8.30	0.27
12.1	213	213	1.00	0.29	0.018523	16.98	640.5	15.2	0.1804	0.0206	0.00130	0.00005	8.35	0.66
13.1	554	287	0.52	0.66	0.006579	3.93	726.3	13.5	0.0773	0.0048	0.00132	0.00003	8.52	0.33
14.1	606	1169	1.93	0.68	0.002005	2.30	763.8	13.6	0.0643	0.0042	0.00128	0.00002	8.24	0.31
15.1*	252	183	0.73	0.31	0.010217	4.81	694.3	16.5	0.0842	0.0067	0.00137	0.00003	8.83	0.45
16.1	272	313	1.15	0.31	N.D.	5.74	750.3	17.9	0.0915	0.0135	0.00126	0.00004	8.09	0.49
17.1	395	626	1.58	0.46	0.007199	5.89	731.8	14.9	0.0927	0.0116	0.00129	0.00003	8.29	0.43
						One population, 18 spots			MSWD:	0.61	Weighted mean:		8.29	0.09
Jeria (sample MM11)														
1.1	55	34	0.62	0.08	0.059816	40.76	597.9	29.4	0.3681	0.0460	0.00099	0.00011	6.38	0.71
1.2*	154	48	0.31	4.03	0.000872	1.17	32.9	0.5	0.0593	0.0024	0.03005	0.00045	190.87	2.80
2.1	828	305	0.37	33.47	0.000271	0.04	21.3	0.2	0.0526	0.0006	0.04704	0.00051	296.30	3.15
2.2*	50	31	0.61	0.06	0.049133	41.78	715.2	38.9	0.3762	0.0394	0.00081	0.00008	5.25	0.54
3.1	48	30	0.61	0.07	-	37.31	589.4	27.3	0.3409	0.0393	0.00106	0.00010	6.85	0.63
3.2*	160	80	0.50	5.63	-	0.75	24.5	0.3	0.0574	0.0020	0.04058	0.00054	256.44	3.32
4.1	92	54	0.58	0.11	0.022857	28.30	721.1	27.1	0.2697	0.0222	0.00099	0.00005	6.41	0.35
5.1	88	53	0.61	0.11	0.016200	26.70	681.3	26.1	0.2571	0.0267	0.00108	0.00006	6.93	0.42
5.2	98	88	0.90	0.12	0.019263	14.21	722.5	24.8	0.1584	0.0149	0.00119	0.00005	7.65	0.31
6.1	197	140	0.71	8.05	0.001263	0.50	21.1	0.3	0.0563	0.0013	0.04723	0.00059	297.49	3.65
7.1	42	19	0.45	0.06	0.049720	34.54	612.5	31.6	0.3190	0.0379	0.00107	0.00010	6.89	0.62
8.1*	526	246	0.47	20.71	0.000061	0.35	21.8	0.2	0.0548	0.0007	0.04563	0.00052	287.63	3.21
9.1	111	74	0.67	0.12	0.014712	21.34	782.8	27.1	0.2147	0.0173	0.00100	0.00004	6.47	0.29
10.1	58	32	0.55	0.08	0.065907	28.68	603.4	28.7	0.2727	0.0329	0.00118	0.00009	7.62	0.58
11.1	248	108	0.44	9.99	0.000595	0.24	21.3	0.3	0.0541	0.0010	0.04681	0.00057	294.88	3.48
12.1	48	28	0.58	0.06	0.006813	30.00	690.2	35.8	0.2831	0.0355	0.00101	0.00008	6.54	0.54
12.2	47	38	0.82	0.07	0.081700	41.71	555.3	26.9	0.3756	0.0545	0.00105	0.00013	6.76	0.87
13.1	153	127	0.83	0.18	0.023661	16.86	728.7	22.2	0.1794	0.0251	0.00114	0.00006	7.35	0.36
14.1	647	140	0.22	26.92	0.000140	0.08	20.6	0.2	0.0531	0.0006	0.04842	0.00054	304.80	3.31
17.1	110	60	0.55	0.13	-	16.16	746.7	24.5	0.1738	0.0155	0.00112	0.00005	7.23	0.29
14.2	343	141	0.41	14.00	0.000388	0.10	21.1	0.2	0.0531	0.0010	0.04739	0.00055	298.46	3.39
14.3*	50	32	0.65	0.47	0.038948	82.30	90.7	2.2	0.6970	0.0204	0.00195	0.00034	12.57	2.16
15.2*	257	131	0.51	10.08	0.000312	0.55	21.9	0.3	0.0564	0.0010	0.04536	0.00055	285.99	3.38
16.1	58	39	0.67	0.18	0.032995	66.91	283.8	9.8	0.5748	0.0312	0.00117	0.00015	7.51	0.98
16.2*	280	117	0.42	11.07	0.000473	0.09	21.7	0.3	0.0528	0.0009	0.04597	0.00055	289.72	3.38
						Younger population, 13 spots			MSWD:	1.3	Weighted mean:		6.99	0.29
						Older population, 5 spots			MSWD:	1.3	Weighted mean:		298.40	4.66
Cruz de Piedra (sample MM12)														
1.1	67	41	0.60	0.07	0.033360	23.68	874.1	44.4	0.2332	0.0299	0.00087	0.00006	5.63	0.80
2.1	114	62	0.55	0.11	N.D.	15.55	923.9	38.0	0.1690	0.0188	0.00091	0.00005	5.89	0.59
2.2	104	81	0.79	0.13	0.089477	31.92	705.8	28.0	0.2983	0.0282	0.00096	0.00006	6.22	0.82
3.1	246	242	0.99	0.22	0.031890	7.40	945.9	27.5	0.1046	0.0132	0.00098	0.00003	6.31	0.43
4.1	67	39	0.58	0.08	0.074269	26.47	737.3	32.5	0.2552	0.0319	0.00100	0.00007	6.43	0.91
5.1*	49	30	0.61	0.05	N.D.	33.55	817.7	43.7	0.3111	0.0351	0.00081	0.00007	5.24	0.90
5.2	60	48	0.79	0.08	0.040956	30.39	684.7	34.6	0.2862	0.0309	0.00102	0.00008	6.55	1.00
6.1	120	60	0.50	0.12	0.014864	13.02	900.0	37.2	0.1490	0.0173	0.00097	0.00005	6.23	0.60
6.2	90	37	0.42	0.10	0.029892	34.10	789.6	34.0	0.3155	0.0435	0.00083	0.00008	5.38	1.02
7.1	252	255	1.01	0.23	0.021631	13.41	928.5	27.2	0.1520	0.0119	0.00093	0.00003	6.01	0.41
8.1	89	51	0.57	0.11	0.021810	28.44	682.9	27.9	0.2708	0.0241	0.00105	0.00006	6.75	0.80
8.2*	55	32	0.59	0.07	0.112011	54.22	664.2	34.4	0.4743	0.0431	0.00069	0.00009	4.44	1.17
9.1*	149	43	0.29	0.15	0.054535	28.74	870.8	34.3	0.2732	0.0235	0.00082	0.00005	5.27	0.61
9.2*	98	53	0.54	0.10	0.026726	33.23	855.9	36.8	0.3086	0.0276	0.00078	0.00005	5.03	0.69
10.1	505	508	1.01	0.43	0.018328	7.33	1004.8	23.3	0.1040	0.0073	0.00092	0.00002	5.94	0.30
11.1	48	28	0.58	0.07	0.054341	47.47	612.4	31.9	0.4211	0.0407	0.00086	0.00010	5.53	1.24
11.2	93	74	0.80	0.10	0.072506	33.68	781.2	34.2	0.3122	0.0287	0.00085	0.00006	5.47	0.77
						One population, 13 spots			MSWD:	1.1	Weighted mean:		6.04	0.16
Cerro Catedral (sample MM15)														
1.1	384	341	0.89	0.19	0.036808	9.58	1746.7	55.5	0.1218	0.0131	0.00052	0.00002	3.34	0.24
2.1	105	68	0.64	0.06	0.043856	32.61	1558.9	90.6	0.3036	0.0432	0.00043	0.00004	2.79	0.56
3.1	149	80	0.54	0.08	N.D.	25.02	1675.3	83.7	0.2437	0.0364	0.00045	0.00004	2.88	0.46
3.2	140	113	0.81	0.07	N.D.	28.23	1607.3	76.9	0.2690	0.0367	0.00045	0.00004	2.88	0.47
4.1	142	63	0.44	0.08	0.063836	31.77	1505.0	72.9	0.2970	0.0328	0.00045	0.00004	2.92	0.46
5.1	91	54	0.60	0.06	0.025759	40.69	1268.4	68.3	0.3674	0.0424	0.00047	0.00005	3.01	0.64
5.2*	154	108	0.70	0.10	N.D.	10.46	1337.7	55.9	0.1287	0.0307	0.00067	0.00004	4.31	0.52
6.1	45	18	0.41	0.04	N.D.	64.37	927.2	59.6	0.5545	0.0803	0.00038	0.00011	2.48	1.46
6.2*	245	181	0.74	0.14	0.049076	15.40	1477.5	49.9	0.1678	0.0278	0.00057	0.00003	3.69	0.40
7.1*	38	26	0.67	0.03	N.D.	28.38	950.3	63.0	0.2703	0.0481	0.00075	0.00008	4.86	1.05
8.1	99	54	0.54	0.06	0.075270	28.18	1484.5	71.4	0.2686	0.0325	0.00048	0.00004	3.12	0.47
8.2	140	119	0.86	0.08	N.D.	24.89	1540.5	67.3	0.2426	0.0404	0.00049	0.00004	3.14	0.51
9.1	72	60	0.83	0.04	N.D.	37.89	1397.5	91.9	0.3453	0.0607	0.00044	0.00006	2.86	0.81
10.1	118	96	0.81	0.08	0.023984	37.26	1272.0	54.3	0.3404	0.0420	0.00049	0.00005	3.18	0.61
11.1	44	24	0.55	0.04	0.205117	54.45	969.6	57.8	0.4761	0.0572	0.00047	0.00008	3.03	1.04
12.1	72	44	0.61	0.05	0.280084	46.18	1281.6	67.8	0.4108	0.0443	0.00042	0.00005	2.71	0.64
12.2	98	85	0.87	0.05	N.D.	31.46	1562.3	96.7	0.2945	0.0498	0.00044	0.00005	2.83	0.63
13.1	86	48	0.56	0.06	N.D.	46.36	1266.0	67.5	0.4122	0.0479	0.00042	0.00005	2.73	0.69
14.1	79	50	0.63	0.06	N.D.	41.53	1208.3	64.5	0.3741	0.0541	0.00048	0.00006	3.12	0.81
						One population, 16 spots			MSWD:	0.77	Weighted mean:		3.05	0.13
Cerro Minero (sample MT1)														
1.1	69	48	0.69	0.08	0.053576	20.71	753.6	37.7	0.2098	0.0256	0.00105	0.00007	6.78	0.44
1.2	90	78	0.87	0.11	0.014397	18.86	728.5	26.7	0.1951	0.0175	0.00111	0.00005	7.18	0.33
2.1	84	48	0.58	0.09	N.D.	17.46	772.1	35.7	0.1841	0.0305	0.00107	0.00007	6.89	0.45
3.1	139	78	0.56	0.15	N.D.	9.52	793.3	29.9	0.1214	0.0169	0.00114	0.00005	7.35	0.33
3.2	114	78	0.69	0.13	0.008754	11.94	724.1	23.5	0.1405	0.0127	0.00122	0.00005	7.83	0.29
4.1	373	462	1.24	0.39	0.017329	4.85	830.7	20.7	0.0845	0.0078	0.00115	0.00003	7.38	0.20
5.1	153	84	0.55	0.17	0.018551	6.64	764.4	27.3	0.0987	0.0128	0.00122	0.00005	7.87	0.31
5.2	428	334	0.78	0.44	0.011071	4.55	833.0	17.0	0.0821	0.0055	0.00115	0.00002	7.38	0.16
6.1	97	65	0.67	0.11	0.021758	13.77	750.0	33.8	0.1549	0.0208	0.00115	0.00006	7.41	0.40
7.1	71	57	0.81	0.10	0.018989	28.39	621.8	24.5	0.2704	0.0228	0.00115	0.00007	7.42	0.42
7.2	93	87	0.93	0.11	0.049672	17.46	700.7	25.6	0.1841	0.0169	0.00118	0.00005	7.59	0.34
8.1	116	111	0.95	0.13	0.019114	13.69	774.0	26.8	0.1543	0.0162	0.00112	0.00005	7.18	0.30
10.1	88	73	0.83	0.10	N.D.	19.25	755.6	27.8	0.1982	0.0194	0.00107	0.00005	6.89	0.33
10.2	106	72	0.68	0.12	0.049020	16.53	756.3	26.3	0.1768	0.0172	0.00110	0.00005	7.11	0.31
11.1	94	65	0.69	0.12	0.045612	22.49	698.1	26.0	0.2238	0.0196	0.00111	0.00005	7.15	0.35
11.2	173	152	0.88	0.18	0.013506	10.62	808.8	22.4	0.1301	0.0128	0.00111	0.00004	7.12	0.24
12.1	63	42	0.66	0.08	N.D.	22.26	696.8	28.5	0.2220	0.0228	0.00112	0.00006	7.19	0.40
12.2	83	73	0.88	0.09	N.D.	12.90	779.5	30.7	0.1480	0.0216	0.00112	0.00006	7.20	0.36

13.1*	69	41	0.60	0.09	0.052561	16.51	636.3	24.7	0.1767	0.0228	0.00131	0.00007	8.45	0.44
						One population, 18 spots			MSWD:	0.78	Weighted mean:		7.31	0.14

Notes : Uncertainties for U-Pb ages given at the two standard deviation level (±2σ); error in FC1, reference zircon calibration,
*Excluded spots.
N.D.: no data.

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Table DR4. Zircon Lu and Hf isotopic composition.

Spot	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{176}Hf/^{177}Hf$	2σ	$^{176}Lu/^{177}Hf$	2σ	εHf(t)	2σ	T_{DM}^{2}
Río Negro (sample MM7)									
5.1	8.25	0.42	0.282778	0.000035	0.001245	0.000058	0.4	1.3	1004
6.1	8.53	0.28	0.282738	0.000048	0.002485	0.000129	-1.0	1.7	1094
7.1	8.23	0.38	0.282783	0.000030	0.001389	0.000055	0.6	1.1	994
8.1	8.17	0.35	0.282763	0.000021	0.001552	0.000073	-0.2	0.8	1038
10.1	7.08	1.03	0.282749	0.000034	0.001836	0.000035	-0.7	1.2	1069
11.1	8.28	0.38	0.282754	0.000057	0.001953	0.000279	-0.5	2.0	1057
12.1	8.35	0.66	0.282692	0.000053	0.002071	0.000209	-2.6	1.9	1196
14.1	8.24	0.31	0.282737	0.000027	0.002131	0.000029	-1.1	0.9	1096
16.1	8.09	0.49	0.282734	0.000047	0.002736	0.000050	-1.2	1.7	1103
17.1	8.29	0.43	0.282650	0.000081	0.001791	0.000211	-4.1	2.9	1289
Jeria (sample MM11)									
2.1	296.30	3.15	0.282459	0.000020	0.000859	0.000018	-4.7	0.7	1552
4.1	6.41	0.70	0.282846	0.000019	0.000250	0.000004	2.7	0.7	853
5.1	6.93	0.84	0.282831	0.000025	0.000381	0.000008	2.2	0.9	886
7.1	6.89	1.24	0.282855	0.000024	0.000364	0.000019	3.1	0.9	832
10.1	7.62	1.15	0.282821	0.000028	0.000610	0.000020	1.9	1.0	909
11.1	294.88	6.97	0.282472	0.000019	0.000848	0.000009	-4.3	0.7	1522
12.2	6.76	1.74	0.282882	0.000024	0.000442	0.000026	4.0	0.9	773
14.1	304.80	6.62	0.282553	0.000017	0.000779	0.000010	-1.2	0.6	1335
15.2	285.99	6.77	0.282438	0.000030	0.001099	0.000040	-5.7	1.1	1606
16.1	7.51	1.95	0.282830	0.000029	0.000493	0.000030	2.2	1.0	889
16.2	289.72	6.77	0.282549	0.000029	0.000681	0.000010	-1.7	1.0	1353
Cruz de Piedra (sample MM12)									
1.1	5.63	0.80	0.282808	0.000022	0.000557	0.000009	1.4	0.8	938
2.1	5.89	0.59	0.282783	0.000021	0.000282	0.000006	0.5	0.7	994
3.1	6.31	0.43	0.282770	0.000024	0.000958	0.000020	0.1	0.8	1022
5.2	6.55	1.00	0.282826	0.000025	0.000834	0.000071	2.1	0.9	897
6.1	6.23	0.60	0.282853	0.000021	0.000357	0.000005	3.0	0.7	838
6.2	5.38	1.02	0.282806	0.000022	0.000576	0.000020	1.3	0.8	943
8.1	6.75	0.80	0.282790	0.000019	0.000286	0.000008	0.8	0.7	979
8.2	4.44	1.17	0.282800	0.000021	0.000328	0.000003	1.1	0.8	957
9.1	5.27	0.61	0.282803	0.000027	0.000563	0.000007	1.2	0.9	949
9.2	5.03	0.69	0.282822	0.000023	0.000418	0.000012	1.9	0.8	908
11.1	5.53	1.24	0.282864	0.000023	0.000723	0.000016	3.4	0.8	812
11.2	5.47	0.77	0.282836	0.000023	0.000791	0.000034	2.4	0.8	876
Cerro Catedral (sample MM15)									
2.1	2.79	0.56	0.282797	0.000022	0.000356	0.000014	0.9	0.8	965
3.1	2.88	0.46	0.282834	0.000022	0.000304	0.000022	2.3	0.8	881
3.2	2.88	0.47	0.282801	0.000026	0.000389	0.000024	1.1	0.9	955
5.1	3.01	0.64	0.282791	0.000028	0.000433	0.000031	0.7	1.0	978
5.2	4.31	0.52	0.282758	0.000025	0.000471	0.000010	-0.4	0.9	1051
6.2	3.69	0.40	0.282783	0.000025	0.000661	0.000033	0.5	0.9	995
11.1	3.03	1.04	0.282820	0.000023	0.000724	0.000016	1.8	0.8	912
12.1	2.71	0.64	0.282801	0.000019	0.000159	0.000001	1.1	0.7	956
12.2	2.83	0.63	0.282803	0.000023	0.000337	0.000021	1.2	0.8	951
Cerro Minero (sample MT1)									
1.2	7.18	0.66	0.282964	0.000025	0.000687	0.000012	6.9	0.9	587
3.2	7.83	0.58	0.282978	0.000023	0.000399	0.000032	7.5	0.8	554
4.2*	7.38	0.40	0.282904	0.000038	0.001136	0.000096	4.8	1.3	721
5.2	7.38	0.32	0.282965	0.000022	0.000409	0.000032	7.0	0.8	586
8.1	7.18	0.60	0.282929	0.000022	0.000553	0.000031	5.7	0.8	665
11.1	7.15	0.70	0.282986	0.000020	0.000519	0.000019	7.7	0.7	537
12.2	7.20	0.72	0.282930	0.000021	0.000396	0.000008	5.8	0.7	663
13.1	8.45	0.88	0.282927	0.000024	0.000499	0.000022	5.7	0.8	670

Notes: Söderlund et al. (2004) ^{176}Lu decay constant of 1.867 x 10^{-11} has been used in these calculations. For εHf(t) values the chondritic values of Blichert-Toft and Albarède (1997) have been used along with the corresponding zircon spot age. Two stage depleted mantle model age T_{DM}^{2} was calculated using the present day Depleted Mantle values of Vervoort and Blichert-Toft (1999) assuming a crustal average of $^{176}Lu/^{177}Hf$ = 0.015 (Goodge and Vervoort, 2006). *: Age used for calculations correspond to that of the adjacent spot 4.1.

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Table DR5. Whole rock Sm, Nd and SiO_2 contents and Nd isotope ratios.

Unit	Sample	SiO_2 (wt%)	Age (Ma)	Sm (ppm)	Nd (ppm)	$^{143}Nd/^{144}Nd$	2σ	$^{143}Nd/^{144}Nd(t)$	εNd(t)	2σ
Pre-4.8 Ma Eastern Principal Cordillera igneous units										
Cruz de Piedra	MM12	63.9	6.04 (1)	3.45	17.93	0.512668	0.000005	0.512663	0.6	0.1
Jeria	MM11	67.4	6.99 (1)	3.07	16.49	0.512648	0.000024	0.512643	0.3	0.5
Estero Crucero S	MLL3	53.3	9.64 (2)	5.96	24.08	0.512713	0.000010	0.512704	1.5	0.2
Estero Crucero N	MM17	58.7	9.76 (2)	3.84	17.40	0.512757	0.000007	0.512748	2.4	0.1
Río Negro	MM7	58.0	8.29 (1)	5.41	26.99	0.512718	0.000007	0.512711	1.6	0.1
Río Negro	MM8	60.3	8.29 (1)	3.82	19.41	0.512716	0.000011	0.512710	1.6	0.2
Cachapoal	MM18	61.3	11.9 (2)	4.82	23.39	0.512639	0.000011	0.512629	0.1	0.2
Pre-4.8 Ma Western Principal Cordillera igneous units										
Diques de Dacita Tardíos	TT91	67.8	4.82 (3)	2.15	11.61	0.512766	0.000010	0.512762	2.5	0.2
Cerro Minero	MT1	60.8	7.31 (1)	3.79	18.43	0.512769	0.000017	0.512763	2.6	0.3
Cerro Minero	MT2	61.6	7.31 (1)	5.15	24.40	0.512774	0.000016	0.512768	2.7	0.3
Cerro Minero	MT3	60.2	7.31 (1)	5.28	25.27	0.512769	0.000011	0.512763	2.6	0.2
Cerro Minero	MT4	62.9	7.31 (1)	5.56	26.00	0.512806	0.000009	0.512800	3.3	0.2
Laguna Negra	MT9	72.0	7.00 (4)	2.35	12.62	0.512799	0.000012	0.512794	3.2	0.2
Carlota	MM3	53.8	8.70 (5)	3.92	16.08	0.512826	0.000007	0.512818	3.7	0.1
Extravío	MT8	63.4	8.09 (5)	4.23	19.11	0.512774	0.000012	0.512767	2.7	0.2
Mina Juanita	MP2	67.6	9.30 (5)	5.74	25.69	0.512787	0.000007	0.512779	3.0	0.1
Lavas Chacayes	MCh2	61.6	14 *	6.56	28.68	0.512852	0.000008	0.512839	4.3	0.2
Post-4.8 Ma Eastern Principal Cordillera igneous units										
Cono Río Negro	MM19	55.3	0.3 *	4.31	19.29	0.512621	0.000007	0.512621	-0.3	0.1
Cono Río Negro	MM20	55.1	0.3 *	4.47	19.85	0.512612	0.000010	0.512612	-0.5	0.2
Portezuelo Arriaza	MLL8	55.9	1.6 (2)	4.36	18.95	0.512584	0.000009	0.512583	-1.0	0.2
Portezuelo Arriaza	MLL9	56.8	1.6 (2)	4.59	21.70	0.512580	0.000015	0.512579	-1.1	0.3
Cerro Castillo	MM5	68.3	0.5 *	4.33	24.12	0.512594	0.000010	0.512594	-0.9	0.2
Cerro Castillo	MM6	61.1	0.5 *	4.18	23.54	0.512587	0.000014	0.512587	-1.0	0.3
Paso Colina	MM4	62.8	1.26 (2)	4.10	21.27	0.512629	0.000008	0.512628	-0.2	0.2
Cerro Listado	MM13	72.1	0.3 *	6.67	34.25	0.512528	0.000008	0.512528	-2.1	0.2
Cerro Catedral	MM15	68.3	3.01 (2)	2.73	13.72	0.512657	0.000007	0.512655	0.4	0.1
Post-4.8 Ma Western Principal Cordillera igneous units										
Lavas Bajo Cachapoal	MT7	57.0	2.3 (6)	5.92	26.45	0.512592	0.000009	0.512590	-0.9	0.2
Los Lunes	RB11	61.5	1.0 (7)	4.14	20.17	0.512700	0.000007	0.512699	1.2	0.1

Notes: For isotopic ratios calculations a ^{147}Sm decay constant of 6.54×10^{-12} was used. For εNd(t) values the chondritic ratios of $^{143}Nd/^{143}Nd = 0.512638$ and $^{147}Sm/^{144}Nd = 0.1968$ (Jacobsen and Wasserburg, 1980) were used along with the corresponding formation ages. Formation ages taken from: (1) this work, (2) Muñoz et al. (2009), (3) Maksaev et al. (2004), (4) Cuadra (1986), (5) Kay et al. (2005), (6) Charrier and Munizaga (1979), (7) Godoy (1998).

*Estimated age.

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