Data Repository item 2004028

APPENDIX 1: ANALYTICAL METHODS

U/Pb geochronology was completed at The University of Texas at Austin. Samples were crushed and milled and zircons were separated by standard separation techniques using a Rogers™ or Wilfley™ table, heavy liquids and a Frantz™ Isodynamic Magnetic Separator (Krogh, 1982a). Minerals were hand picked from non-magnetic fractions (and occasionally low-angle magnetic fractions) to segregate distinct morphologies and select the best grains. Representative zircons were imaged by cathodoluminescence (CL) to determine internal morphologies (Connelly, 2000). Similar grains were chosen or partial grains were removed from CL mounts for analysis. All grains were abraded, cleaned and spiked with a $^{205}Pb/^{235}U$ mixed spike prior to dissolution in HF and HNO_3 in Teflon™ dissolution bombs at 210ºC (Krogh, 1973; Krogh and Davis, 1975; Krogh, 1982b; Parrish and Krogh, 1987). U and Pb were isolated from dissolved zircon by anion exchange techniques. Both U and Pb were loaded onto zone-refined Re filaments with a mixture of silica gel and phosphoric acid and analyzed with a Finnigan Mat 261™ thermal ionization mass spectrometer with 7 Faraday cups and a single ion-counting channel. Due to complex zircon populations, most zircon fractions were analyzed in peak jumping mode using only the ion counter, but a few initial zircon fractions were analyzed in static faraday-ion counter mode with ^{204}Pb measured by the ion counter. Repeated analyses of the NBS981 Pb standard and U500 U standard in peak jumping mode determined Pb and U fractionation to be 0.1% and 0.07% per amu, respectively. Blanks were typically less than 2 pg Pb and .2 pg U. Ages and errors were generated using an in-house program that incorporates an unpublished error propagation program (L. M. Heaman) and a linear regression calculation program (Davis, 1982). The 2-sigma error is represented by the size and orientation of ellipses on concordia diagrams.

Whole-rock samples were crushed and then pulverized in a Certiprep™ Shatterbox Puck Mill using an alumina ceramic grinding assembly. For Pb analysis, 35-100 mg aliquots of the pulverized powder were washed in 1N HNO_3 for 30 minutes on a warm hotplate before dissolution in Teflon™ dissolution bombs. Samples were dissolved in two stages using HF/HNO_3 and 6N HCl. Pb was isolated using an HBr anion exchange technique, loaded onto standard Re filaments with a mixture of silica gel and phosphoric acid, and analyzed with a Finnigan Mat 261™ thermal ionization mass spectrometer. Twenty-two analyses of NBS981 indicate fractionation of 0.1% per amu with measured isotopic ratios within 0.05%. Replicate analyses of similar sized aliquots of whole-rock powders were typically within 0.1%.

For Sm/Nd analyses, 35-100 mg aliquots of pulverized powder were spiked with $^{149}Sm/^{150}Nd$ mixed spike and dissolved in the same manner as the Pb samples, except the powders were not washed in HNO_3. Rare earth elements (REE) were isolated using REE-SPEC™ column chemistry. Sm and Nd were subsequently isolated using HDEHP columns. Analyses were normalized to $^{146}Nd/^{144}Nd = .7219$. Twelve analyses of Ames Nd yielded an average $^{143}Nd/^{144}Nd$ of 0.512080+/-7. T_{DM} ages are calculated using the theoretical isotopic decay constant ($6.54*10^{-12}$/yr) of Lugmair and Marti (1978) and the depleted mantle model of DePaolo (1981; $E_{Nd}=0.25T^2-3T+8.5$). Isochron regressions are determined using Isoplot (Ludwig, 2001).

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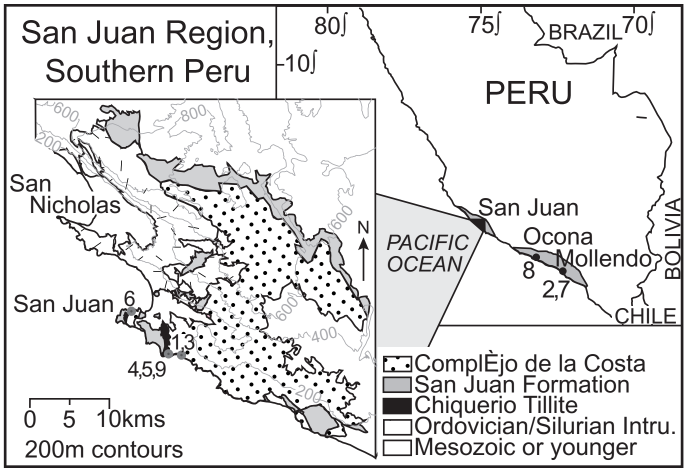

Fig. DR1. Map of southern Peru with coastal exposure of the AAB inlier (gray region) (INGEMMET, 2000). Inset is the geologic map of the San Juan region based on the mapping of Caldas (1978). Numbers indicate U/Pb sample locations.

[INGEMMET Republic del Peru Sector EnergÌa and Minas, 2000, 501 Cuadr·ngulos GeolÛgicos Digitales de la Carta Nacional 1960-1999.]

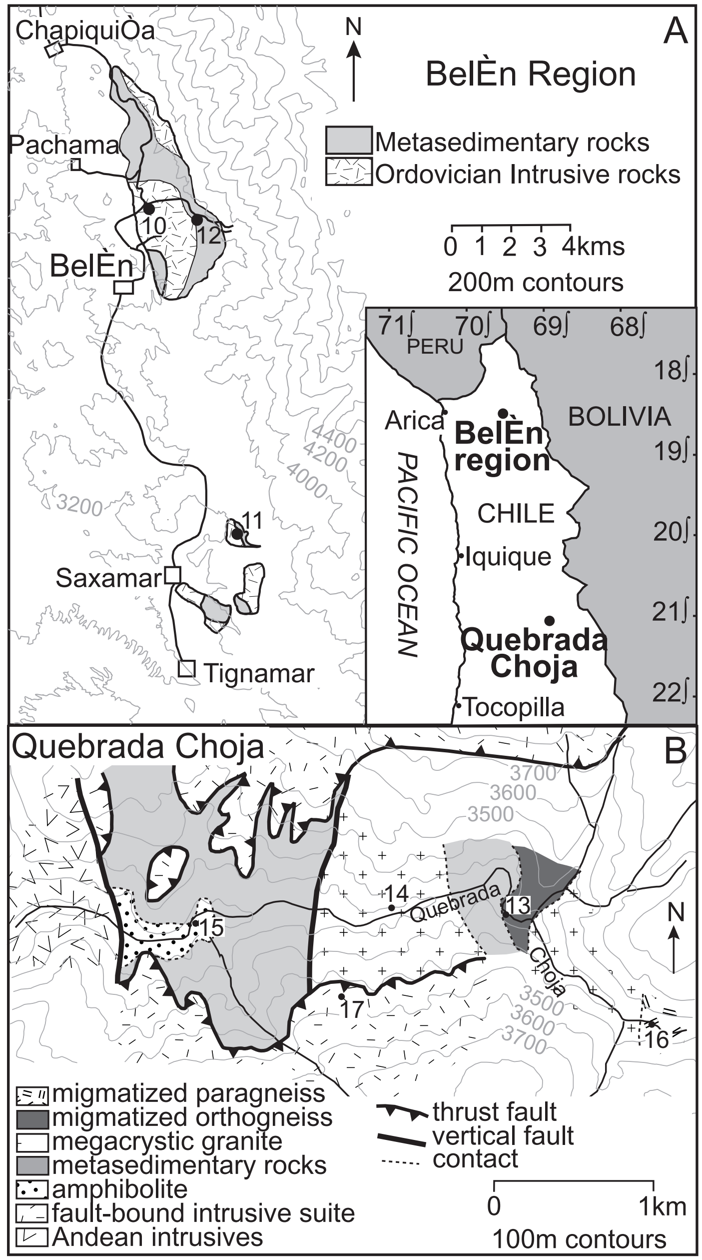

Fig. DR2. a) Map of BelÈn area inliers. Numbers indicate U/Pb sample locations. Topographic basemaps are BelÈn, Cerro Tejene, Pampa de Oxaya and Tignamar (1:50,000; Instituto Geographico Militar de Chile). b) Geology of Quebrada Choja. Numbers indicate U/Pb sample locations. Topographic basemap is Quehuita (1:50,000; Instituto Geographico Militar de Chile).

TABLE DR1. U/Pb DATA

Fraction and Description		Weight [mg]	Conc. U [ppm]	Conc. Pb_{rad} [ppm]	total common Pb [pg]	Measured $^{206}Pb/^{204}Pb$	Measured $^{208}Pb/^{206}Pb$	Corrected Atomic Ratios $^{206}Pb/^{238}U$ ratio	2ω### +/-	Corrected Atomic Ratios $^{207}Pb/^{235}U$ ratio	2ω### +/-	Corrected Atomic Ratios $^{207}Pb/^{206}Pb$ ratio	2ω## +/-	Age [Ma] $^{206}Pb/^{238}U$	Age [Ma] $^{207}Pb/^{235}U$	Age [Ma] $^{207}Pb/^{206}Pb$
Peru																
U/Pb-1 banded gneiss, San Juan																
(SJ-00-07B) 15º 24' 12.0" S, 75º 08' 59.0" W																
Z1	2 med p.pnk flat euh elng f.inclu HF	0.002	145	44.0	2	2296	0.1537	0.28031	92	4.0209	132	0.10404	22	1593	1638	1697
Z2	4 pcs lrg pnk euh flat elng f.inclu	0.003	276	81.7	5	2578	0.1619	0.27225	104	3.8676	136	0.10303	24	1552	1607	1679
Z3	1 med-lrg pnk subh prsm m.clr	0.002	162	46.1	60	103	0.1347	0.26768	316	3.7728	510	0.10222	68	1529	1587	1665
Z4	2 med p.pnk flat subh elng f.inclu	0.002	108	29.6	3	1263	0.1261	0.25987	86	3.5900	122	0.10019	22	1489	1547	1628
Z5	5 med-lrg pnk subh m.clr	0.005	276	72.5	4	5316	0.1295	0.24901	80	3.3629	98	0.09795	16	1433	1496	1585
U/Pb-2 banded gneiss, Mollendo																
(AM-96-26) 17º 02' 24.6" S, 71º 59' 47.0" W																
Z1	3 lrg pnk euh prsm-elong clr	0.006	77	27.3	1	5857	0.2952	0.29423	116	4.3878	152	0.10816	30	1663	1710	1769
Z2	~15 lrg lt.bge anh rnd clr lct-Far	0.066	45	21.8	4	13328	0.8189	0.28984	92	4.3027	126	0.10767	18	1641	1694	1760
Z3	1 lrg lt.bge anh rnd clr	0.011	37	14.5	3	2480	0.4614	0.29027	94	4.3093	130	0.10767	20	1643	1695	1760
Z4	1 lrg lt.bge anh rnd clr	0.017	39	12.9	15	675	0.4551	0.24981	80	3.4359	116	0.09976	22	1437	1513	1620
Z5	~15 lrg lt.bge anh rnd clr lct-Far	0.070	49	17.8	4	13376	0.4194	0.27848	102	4.0604	138	0.10575	18	1584	1646	1727
Z6	1 pc lrg p.pnk subh clr CL (mz)	0.003	69	26.7	1	2108	0.6042	0.26424	78	3.7650	118	0.10334	22	1511	1585	1685
Z7	sml-med anh rnd-prsm clr lct-Far	0.077	52	22.9	3	25727	0.6900	0.28305	66	4.1869	100	0.10728	10	1607	1671	1754
Z8	2 lrg pnk euh prsm-elng clr	0.006	60	17.7	1	5382	0.3591	0.23609	130	3.1791	162	0.09766	38	1366	1452	1580
Z9	1 lrg pnk subh elng CL (mz)	0.009	104	26.0	5	2855	0.2090	0.22281	54	2.9604	76	0.09636	12	1297	1398	1555
Z10	2 pcs (meta rim) lrg pnk eq CL	0.003	35	13.4	3	465	0.9108	0.22021	92	2.8382	168	0.09348	42	1283	1366	1498
Z11	31 sml pnk euh prsm clr	0.018	74	16.7	6	2911	0.2754	0.19173	50	2.3147	62	0.08756	12	1131	1217	1373
Z12	9 v.sml p.pnk anh eq m.clr	0.002	65	12.7	2	770	0.2387	0.17190	226	1.8562	204	0.07832	84	1023	1066	1155
U/Pb-3 foliated megacrystic granite, San Juan																
(SJ-96-05) 15º 24' 28.6" S, 75º 07' 57.3" W																
Z1	5 med eq clr	0.004	90	29.1	4	1746	0.1745	0.29253	86	4.2558	130	0.10551	20	1654	1685	1723
Z2	3 med bge subh-euh elng clr	0.003	126	40.1	3	2212	0.1787	0.28897	116	4.1787	174	0.10488	24	1636	1670	1712
Z3	10 med bge subh-euh elng clr	0.002	202	61.0	14	469	0.1535	0.27967	116	3.9700	218	0.10296	46	1590	1628	1678
Z4	7 med bge euh prsm clr	0.001	243	71.9	2	2107	0.1331	0.27774	100	3.9311	128	0.10265	24	1580	1620	1673
Z5	31 sml lt.bge subh-euh prsm	0.020	236	69.0	14	5943	0.1528	0.27124	52	3.8055	80	0.10175	6	1547	1594	1656
Z6	6 sml-med bge euh elng m.clr	0.003	133	37.7	4	1470	0.1365	0.26664	126	3.6951	170	0.10051	40	1524	1570	1634
Z7	7 med elng clr	0.004	87	24.4	5	1082	0.1391	0.26277	88	3.6149	144	0.09977	24	1504	1553	1620
Z8	4 med bge subh eq-prsm m.clr	0.002	235	53.1	2	3951	0.0858	0.22372	66	2.8005	86	0.09079	12	1301	1356	1442
U/Pb-4 granitic clast in Chiquerío Tillite, San Juan																
(SJ-96-04) 15º 24' 29.7" S, 75º 08' 21.8" W																
Z1	2 med pnk euh prsm m.clr	0.001	159	34.7	1	1352	0.2174	0.19581	60	2.1262	80	0.07876	22	1153	1157	1166
Z2	2 lrg pnk euh prsm f.inclu	0.012	139	28.5	3	6084	0.1609	0.19249	48	2.0887	54	0.07870	8	1135	1145	1165
Z3	7 lrg pnk euh prsm f.inclu	0.010	243	47.7	3	8877	0.1160	0.19068	46	2.0679	52	0.07865	8	1125	1138	1163
Z4	1 lrg pnk euh frag clr	0.007	112	25.6	11	882	0.2523	0.19902	46	2.1847	60	0.07961	12	1170	1176	1187

TABLE DR1 (continued). U/Pb DATA

Fraction	Description	Weight [mg]	Conc. U [ppm]	Conc. Pb_{rad} [ppm]	total common Pb [pg]	Measured $^{206}Pb/^{204}Pb$	Measured $^{208}Pb/^{206}Pb$	Corrected Atomic Ratios $^{206}Pb/^{238}U$	+/-	$^{207}Pb/^{235}U$	+/-	$^{207}Pb/^{206}Pb$	+/-	Age [Ma] $^{206}Pb/^{238}U$	$^{207}Pb/^{235}U$	$^{207}Pb/^{206}Pb$
U/Pb-5 granitic clasts in Chiquerío Tillite, San Juan																
(SJ-96-06) 15º 24' 29.7" S, 75º 08' 21.8" W																
Z1	3 med-lrg pnk elng-asic f.inclu	0.005	136	29.7	3	2915	0.2306	0.19323	70	2.0865	78	0.07832	16	1139	1144	1155
Z2	6 med pnk euh prsm clr	0.021	122	27.9	16	1895	0.3006	0.19248	52	2.1083	66	0.07944	14	1135	1152	1183
Z3	2 lrg euh multifac eq	0.006	117	25.9	6	1390	0.2832	0.18860	60	2.0547	78	0.07901	22	1114	1134	1172
Z4	3 lrg pnk clr prsm	0.010	44	9.3	2	2314	0.2380	0.18492	80	1.9893	82	0.07802	22	1094	1112	1147
Z5	2 pcs v.lrg p.pnk subh elng clr	0.001	164	29.7	3	558	0.1611	0.16979	44	1.7980	94	0.07680	32	1011	1045	1116
Z6	9 sml p.pnk euh prsm clr	0.004	136	32.7	2	2740	0.2158	0.21470	52	2.5205	66	0.08514	12	1254	1278	1319
Z7	7 med pnk euh prsm clr	0.017	143	36.5	4	9128	0.2770	0.21735	70	2.6210	84	0.08746	10	1268	1307	1371
U/Pb-6 gneissic clast in Chiquerío Tillite, San Juan																
(SJ-00-10D) 15º 24' 12.0" S, 75º 08' 32.0" W																
Z1	2 med-lrg p.pnk multifac	0.003	179	32.2	5	1432	-0.0325	0.20002	52	2.2366	68	0.08110	16	1175	1193	1224
Z2	2 lrg p.pnk prsm sl.pit f.inclu	0.005	125	28.3	4	1713	0.2482	0.19751	50	2.1643	62	0.07948	14	1162	1170	1184
Z3	4 med p.pnk euh prsm clr sl.pit	0.005	205	41.0	2	4918	0.1245	0.19277	66	2.1243	70	0.07992	14	1136	1157	1195
Z4	2 lrg pnk subh prsm sl.pit	0.005	374	67.3	5	4902	0.0588	0.18413	44	1.9722	50	0.07769	8	1089	1106	1139
Z5	6 med p.pnk subh prsm f.inclu	0.011	225	41.7	3	9862	0.0875	0.18473	42	1.9812	46	0.07779	8	1093	1109	1141
U/Pb-7 late granite, Mollendo																
(AM-96-25) 17º 08' 17.6" S, 71º 54' 35.5" W																
Z1	6 eq-elng f.inclu	0.003	321	24.5	2	2646	0.1354	0.07435	24	0.5782	22	0.05640	16	462	463	468
Z2	3 elng clr	0.003	191	15.6	2	1279	0.2265	0.07381	48	0.5725	34	0.05625	28	459	460	462
Z3	8 elng m.clr	0.008	312	25.0	20	615	0.2149	0.07328	18	0.5702	22	0.05643	16	456	458	470
Z4	44 asic clr	0.027	360	29.3	13	3379	0.2451	0.07264	24	0.5630	20	0.05621	8	452	453	461
U/Pb-8 foliated megacrystic granite, Ocoña																
(SJ-96-09) 16º 27' 10" S, 73º 05' 55" W †																
Z1	5 v.lrg p.bge subh prsm f.inclu	0.016	84	7.7	5	1229	0.3682	0.07472	24	0.5800	28	0.05630	22	465	464	464
Z2	9 v.lrg p.bge subh prsm	0.023	105	9.4	20	603	0.3240	0.07536	18	0.5936	28	0.05713	22	468	473	496
Z3	4 lrg p.bge subh elng f.inclu pit	0.010	128	12.3	12	570	0.3144	0.08132	32	0.6650	52	0.05931	42	504	518	578
U/Pb-9 - late granite, San Juan																
(SJ-96-08) 15º 24' 30.7" S, 75º 08' 19.6" W																
Z1	6 med-lrg pnk euh prsm clr	0.004	106	21.1	2	2063	0.1617	0.18589	66	2.1605	80	0.08430	20	1099	1168	1299
Z2	1 lrg bge euh multifac eq m.clr	0.010	47	8.3	5	1037	0.0855	0.17800	72	1.8438	68	0.07512	28	1056	1061	1072
Z3	4 pcs bge euh elong f.inclu	0.010	152	25.6	8	1940	0.1618	0.15901	62	1.5958	58	0.07279	18	951	969	1008
Z4	10 sml p.bge multifac prsm clr	0.048	112	19.2	7	7152	0.2770	0.14778	30	1.4907	32	0.07316	6	889	927	1018
Z5	2 euh bge prsm m.clr	0.004	211	31.5	4	1966	0.2227	0.13410	36	1.3752	42	0.07438	14	811	878	1052
Z6	9 med pnk euh elong-asic m.clr	0.006	146	17.2	4	1522	0.2185	0.10629	52	1.0503	56	0.07167	34	651	729	977
Z7	1 v.lrg bge euh prsm m.clr	0.033	148	17.6	5	6837	0.2117	0.10785	30	0.9692	28	0.06518	10	660	688	780
Z8	1 lrg p.brn euh elng cld-core clr-tips	0.008	220	19.1	2	5513	0.2298	0.07826	18	0.6301	16	0.05839	8	486	496	545

TABLE DR1 (continued). U/Pb DATA

Fraction and Description		Weight [mg]	Conc. U [ppm]	Conc. Pb_{rad} [ppm]	total common Pb [pg]	Measured $^{206}Pb/^{204}Pb$	Measured $^{208}Pb/^{206}Pb$	Corrected Atomic Ratios $^{206}Pb/^{238}U$	+/-	$^{207}Pb/^{235}U$	+/-	$^{207}Pb/^{206}Pb$	+/-	Age [Ma] $^{206}Pb/^{238}U$	Age [Ma] $^{207}Pb/^{235}U$	Age [Ma] $^{207}Pb/^{206}Pb$
Belén																
U/Pb-10 - foliated granodiorite																
(BC-96-24) 18º 26' 55.4" S, 69º 29' 56.0" W																
Z1	13 med-lrg pnk euh prsm cores	0.015	136	11.8	5	1946	0.2680	0.07620	24	0.5933	22	0.05647	16	473	473	471
Z2	12 p.pnk blocky elng frag f.inclu	0.012	116	10.4	3	2416	0.3201	0.07597	26	0.5925	22	0.05656	14	472	472	475
Z3	13 p.pnk blocky elng frag f.inclu	0.008	161	18.2	14	586	0.2361	0.09999	28	0.9622	40	0.06979	22	614	684	922
Z4	6 sml pnk subh elng f.inclu	0.008	74	6.9	4	689	0.3272	0.07769	32	0.6168	46	0.05758	36	482	488	514
Z5	9 p.pnk elong-asic f.inclu	0.004	171	15.6	15	217	0.3229	0.07656	22	0.6028	56	0.05711	48	476	479	496
U/Pb-11 - foliated granodiorite																
(BC-98-05) 18º 32' 27.9" S, 39º 28' 34.4" W																
Z1	6 med-lrg bge euh elng clr	0.020	121	10.2	3	3395	0.2626	0.07408	22	0.5798	18	0.05676	12	461	464	482
Z2	12 lrg pnk euh prsm f.inclu	0.022	125	10.8	5	2448	0.2688	0.07580	28	0.5907	28	0.05651	20	471	471	473
Z3	10 med pnk euh prsm f.inclu	0.015	116	10.1	8	1132	0.2793	0.07586	22	0.5939	20	0.05678	14	471	473	483
Z4	10 lrg pnk euh prsm f.inclu	0.019	112	10.7	108	115	0.2877	0.08187	18	0.7958	44	0.07050	32	507	594	943
U/Pb-12 - felsic dike																
(BC-98-90D) 18º 26' 58" S, 69º 29' 03" W †																
Z1	4 med v.p.pnk subh eq-prsm inclu	0.005	608	150.4	15	3090	0.0383	0.25050	56	3.7993	86	0.11000	10	1441	1593	1799
Z2	5 med v.p.pnk subh elng inclu	0.003	645	183.7	11	2954	0.1205	0.26847	56	4.1548	92	0.11224	12	1533	1665	1836
Z3	4 sm clr clrls sub	0.001	724	206.8	4	3418	0.0685	0.28137	66	4.3704	108	0.11265	10	1598	1707	1843
Z4	1 med p.pnk anh prsm pit m.clr	0.001	343	105.4	3	2834	0.0044	0.32009	84	5.0018	138	0.11333	14	1790	1820	1854
Z5	2 vsm clr clrls sub	0.001	1962	617.1	1	21838	0.0141	0.32437	72	5.0927	118	0.11387	10	1811	1835	1862
Quebrada Choja																
U/Pb-13 - migmatitic orthogneiss																
(QC-98-36A) 21º 04' 31" S, 68º 53' 07" W †																
Z1	1 lrg anh rnd pit clr	0.013	241	41.7	2	19570	0.0962	0.17189	38	1.7600	40	0.07426	8	1023	1031	1049
Z2	6 med pnk anh prsm frag clr	0.011	198	32.4	5	4218	0.0660	0.16637	42	1.7784	46	0.07752	8	992	1038	1135
Z3	3 lrg p.pnk subh-euh elng f.inclu	0.010	243	39.9	3	9068	0.0778	0.16590	32	1.6922	36	0.07398	6	989	1006	1041
Z4	1 lrg v.p.pnk anh prsm CL (mz)	0.004	145	23.5	3	1650	0.0950	0.16177	38	1.6225	54	0.07274	16	967	979	1007
Z5	1 pc lrg pnk euh prsm CL (no mz)	0.001	486	88.6	1	4365	0.2552	0.15947	36	1.6078	42	0.07312	10	954	973	1017
Z6	4 lrg p.prple subh prsm f.inclu	0.024	258	40.6	6	9413	0.0860	0.15777	44	1.5871	44	0.07296	8	944	965	1013
Z7	4 lrg p.pink subh prsm pit f.inclu	0.027	90	14.0	5	4600	0.1451	0.14853	38	1.5089	42	0.07368	10	893	934	1033
Z8	4 med pnk sub-euh prsm f.inclu	0.003	164	23.3	2	2227	0.0617	0.14587	38	1.4518	48	0.07219	18	878	911	991
Z9	2 lrg v.p.pnk anh rnd prsm pit clr	0.011	132	19.3	3	4030	0.1104	0.14441	30	1.4218	32	0.07141	8	870	898	969

TABLE DR1 (continued). U/Pb DATA

Fraction and Description		Weight [mg]	Conc. U [ppm]	Conc. Pb_{rad} [ppm]	total common Pb [pg]	Measured $^{206}Pb/^{204}Pb$	Measured $^{208}Pb/^{206}Pb$	Corrected Atomic Ratios $^{206}Pb/^{238}U$	+/-	$^{207}Pb/^{235}U$	+/-	$^{207}Pb/^{206}Pb$	+/-	Age [Ma] $^{206}Pb/^{238}U$	Age [Ma] $^{207}Pb/^{235}U$	Age [Ma] $^{207}Pb/^{206}Pb$
U/Pb-14 - megacrystic granite																
(QC-96-17) 21º 04' 51.1" S, 68º 53' 37.8" W																
Z1	1 p.brn eq same as Z2	0.005	332	51.7	1	10817	0.0655	0.15907	66	1.5877	64	0.07239	12	952	965	997
Z2	1 p.brn eq	0.005	312	48.4	6	2809	0.0894	0.15504	72	1.5359	64	0.07185	18	929	945	982
Z3	16 brn euh multifac	0.046	325	47.5	3	47800	0.0768	0.14802	52	1.4720	46	0.07212	12	890	919	989
Z4	1 lrg brn euh multifac from Z3	0.003	441	61.8	6	1874	0.0922	0.13994	58	1.3730	58	0.07116	14	844	877	962
Z5	1 v.lrg pnk prsm clr	0.017	177	24.0	3	9890	0.0803	0.13747	36	1.3376	36	0.07057	8	830	862	945
Z6	8 sml p.brn subh eq-prsm m.clr	0.001	251	28.2	5	350	0.0668	0.11519	104	1.0695	164	0.06734	94	703	738	848
Z7	3 med-lrg brn euh multifac from Z3	0.010	369	38.5	2	14282	0.0550	0.10828	30	0.9857	28	0.06602	10	663	697	807
Z8	1 lrg p.brn elng clr	0.020	119	23.0	4	7757	0.1177	0.18841	80	2.0866	82	0.08032	16	1113	1144	1205
U/Pb-15 - dacite dike																
(QC-96-20) 21º 04' 56.0" S, 68º 54' 29.6" W																
Z1	2 med-lrg p.brn euh multfac eq	0.002	114	36.9	77	64	0.1810	0.29039	160	4.4598	444	0.11139	86	1643	1724	1822
Z2	4 lrg bge clr pit	0.012	180	39.0	2	16165	0.1413	0.19898	52	3.3279	92	0.12130	10	1170	1488	1975
Z3	10 med p.bge subh elng f.inclu	0.006	109	14.3	18	310	0.1221	0.12448	40	1.6384	70	0.09546	32	756	985	1537
Z4	7 lrg p.pnk euh eq-prsm pit	0.004	123	16.3	19	226	0.1617	0.12508	30	1.2443	78	0.07215	38	760	821	990
Z5	21 sml subh-euh prsm inclu Ict-Far	0.015	192	22.6	9	2365	0.1203	0.11508	56	1.0685	48	0.06734	22	702	738	848
Z6	6 med p.pnk subh-euh elng m.clr	0.002	259	30.2	2	1480	0.1053	0.11563	58	1.0844	70	0.06801	36	705	746	869
Z7	1 lrg p.brn elng clr	0.001	367	36.4	2	1813	0.0494	0.10392	46	0.8754	54	0.06110	32	637	638	643
U/Pb-16 - second neosome in migmatitic paragneiss																
(QC-98-38B) 21º 04' 52.5" S, 68º 52' 34.3" W																
Z1	2 lrg brn clr tips from euh elng	0.004	1432	96.1	6	3813	0.0031	0.07371	16	0.5737	12	0.05645	8	458	460	470
Z2	2 lrg brn clr tips from euh elng	0.002	1280	84.3	4	3727	0.0032	0.07234	20	0.5631	18	0.05646	10	450	454	470
U/Pb-17 - undeformed tonalite in fault-bound intrusive sequence																
(QC-98-04) 21º 04' 47.6" S, 68º 53' 42.4" W																
Z1	6 med p.pink euh prsm	0.009	275	29.8	8	2180	0.1061	0.10742	18	0.9817	18	0.06628	4	658	694	815
Z2	1 med pnk euh prsm f.inclu	0.003	352	42.0	2	2928	0.0684	0.12208	32	1.1603	36	0.06893	14	743	782	897
Z3	2 med p.pink euh drk from Z1	0.005	195	25.7	2	3271	0.1288	0.12783	50	1.2426	46	0.07050	18	775	820	943

Notes: Below each sample name is the original field identifier and lat/lon coordinates. Pb Rad: total radiogenic Pb after correction for blank, common Pb and spike. Total common Pb: includes laboratory blank. Corrected ratios: ratios have been corrected for fractionation, laboratory blank, spike and initial common Pb. Abreviations: anh = anhedral; asic = asicular; bge = beige; brn = brown; CL = cathodoluminescence; clr = clear; cld = cloudy; drk = dark; elng = elongate; eq = equant; euh = euhedral; frag = fragments; HF = treated with HF to find flaws; inclu = inclusions; Ict-Far = mode of analysis used for a few fractions and requires significantly larger fractions of zircon; lrg = large; m.clr = mostly clear; mz = magmatic zonation; med = medium; meta rim = metamorphic overgrowth; multifac = multifaceted; p. = pale; prple = purple; pc = piece or pieces; pnk = pink; pit = pitted; prsm = prism; rnd = round; sl. = slightly; sml = small; subh =subhedral; v. = very

†Coordinates not taken in the field. Latitude and longitude estimated from position on 1:50,000 map and coordinates of nearest location

TABLE DR2. WHOLE-ROCK ISOTOPIC DATA

Samples Nos.	Field Identifier	lithology	lat./long.	$^{206}Pb/^{204}Pb$ ratio	2ω%	$^{207}Pb/^{204}Pb$ ratio	2ω%	$^{208}Pb/^{204}Pb$ ratio	2ω%	values today $^{143}Nd/^{144}Nd$	values today $^{147}Sm/^{144}Nd$	values today E_{Nd}	T_{DM} Age Ma	$Age_{U/Pb}$ Ga§	$E_{Nd}(t)$ $t=Age_{U/Pb}$
Northern Domain															
Peru - San Juan															
Compléjo de la Costa - crystalline basement															
P1	SJ-00-07B	granitic gneiss	15º 24' 12.0" S, 75º 08' 59.0" W	19.37	0.004	15.85	0.005	40.40	0.006	0.511722	0.12426	-17.87	2243	1.82	-0.95
P2	SJ-96-03	granitic gneiss	15º 21' 31.1" S, 75º 10' 37.6" W	19.38	0.003	15.82	0.004	39.95	0.004	0.511659	0.11827	-19.10	2202	1.8	-0.99
P3	SJ-96-02	amphibolite layer	15º 21' 30.9" S, 75º 10' 31.3" W	16.16	0.006	15.81	0.006	39.33	0.006	0.512428	0.18313	-4.10	3183	1.8	-0.97
P4†	SJ-00-12E	amphibolite layer	15º 25' 16.0" S, 75º 04' 57.0" W	17.75	0.005	15.66	0.005	38.39	0.005						
P5	SJ-96-01	m/c granite	15º 21' 27.4" S, 75º 10' 27.9" W	19.88	0.003	15.89	0.003	40.25	0.003	0.511618	0.10791	-19.90	2042	1.8	0.62
P6	SJ-96-05	m/c granite	15º 24' 28.6" S, 75º 07' 57.3" W	18.03	0.003	15.72	0.003	40.45	0.003	0.511575	0.10904	-20.74	2128	1.79	-0.60
P7	QJ-00-03A	m/c granite	15º 26' 43.0" S, 74º 51' 43.0" W	18.39	0.004	15.68	0.004	39.43	0.004	0.511624	0.09880	-19.78	1872	1.8	2.85
Ordovician Instrusives															
P8	SJ-96-08	undef granite	15º 24' 30.7" S, 75º 08' 19.6" W	22.92	0.005	15.91	0.006	44.98	0.008	0.511863	0.09090	-15.12	1457	0.5	-8.37
P9	SJ-00-12D	undef mafic	15º 25' 16.0" S, 75º 04' 57.0" W	18.07	0.006	15.62	0.006	38.69	0.007	0.512258	0.13190	-7.41	1453	0.5	-3.28
Peru - Mollendo															
Compléjo de la Costa - crystalline basement															
P10	AM-96-26	granitic gneiss	17º 02' 24.6" S, 71º 59' 47.0" W	16.08	0.003	15.45	0.003	35.99	0.003	0.510937	0.07512	-33.18	2308	1.85	-4.33
Ordovician Instrusives															
P11	AM-96-25	granite porphyry	17º 08' 17.6" S, 71º 54' 35.5" W	18.01	0.003	15.57	0.003	38.44	0.003	0.512015	0.10718	-12.15	1463	0.47	-6.78
Peru - Ocoña															
Ordovician Intrusives															
P12‡	SJ-96-09	foliated m/c granite	16º 27' 10" S, 73º 05' 55" W #	17.22	0.004	15.56	0.004	39.35	0.004	0.511829	0.08770	-15.78	1460	0.46	-9.39
Central Domain															
Belén															
Metasediments/Metavolcanics															
B1†	BC-98-06	qfp gneiss	18º 32' 03.3" S, 69º 28' 27.5" W	19.28	0.006	15.70	0.006	41.26	0.007						
B2†	BC-98-152A	metaconglomerate	18º 24' 33.5" S, 69º 30' 34.2" W	17.50	0.005	15.58	0.006	38.94	0.007						
B3	BC-98-100B	amphibolite	18º 33' 45.2" S, 69º 28' 49.9" W	17.44	0.005	15.65	0.007	37.48	0.008	0.512463	0.17224	-3.41	2119	1.4	0.10
B4	BC-98-7A	amphibolite	18º 32' 04.6" S, 69º 28' 26.0" W	17.21	0.004	15.56	0.004	38.99	0.005	0.512748	0.20743	2.15		1.4	0.22
B5†	BC-98-66A	serp ultra mafic	18º 25' 01.8" S, 69º 30' 17.4" W	17.20	0.025	15.49	0.022	38.60	0.025						
B6†	BC-98-66F	serp ultra mafic	18º 25' 01.8" S, 69º 30' 17.4" W	18.75	0.029	15.68	0.031	39.48	0.029						
B7†	BC-98-66D	serp ultra mafic	18º 25' 01.8" S, 69º 30' 17.4" W	16.65	0.012	15.54	0.013	39.89	0.002						
B8	BC-98-113A	serp ultra mafic	18º 24' 56.0" S, 69º 30' 24.0" W	16.72	0.006	15.56	0.006	39.30	0.007	0.512225	0.17707	-8.06	3564	ca.1.4	-4.55
B9	BC-98-90D	felsic dike	18º 26' 58" S, 69º 29' 03" W #	17.53	0.004	15.66	0.004	38.40	0.004	0.511126	0.09093	-29.49	2373	<ca.1.4	
Ordovician Instrusives															
B10	BC-96-24	granodiorite	18º 26' 55.4" S, 69º 29' 56.0" W	17.74	0.004	15.60	0.004	38.45	0.005	0.511936	0.13034	-13.69	2010	0.47	-9.72
B11‡	BC-98-05	granodiorite	18º 32' 27.9" S, 39º 28' 34.4" W	17.79	0.004	15.59	0.005	39.47	0.005	0.511875	0.11936	-14.88	1875	0.47	-10.25
B12‡	BC-98-68A	granodiorite	18º 24' 23.8" S, 69º 30' 33.6" W	17.68	0.004	15.59	0.004	39.20	0.004	0.511862	0.11314	-15.14	1780	ca.0.5	-9.81
B13‡	BC-98-96A	granodiorite	18º 33' 13.9" S, 69º 29' 34.2" W	17.13	0.006	15.54	0.006	38.22	0.007	0.511884	0.12718	-14.71	2030	ca.0.5	-10.28
B14‡	BC-98-96B	granodiorite	18º 33' 13.9" S, 69º 29' 34.2" W	17.19	0.005	15.57	0.006	38.32	0.007	0.511905	0.13255	-14.30	2125	ca.0.5	-10.21
B15	BC-98-111	granodiorite	18º 24' 51.6" S, 69º 30' 37.2" W	17.64	0.006	15.60	0.007	38.60	0.008						
B16‡	BC-98-115A	granodiorite	18º 24' 36.8" S, 69º 30' 28.8" W	17.98	0.007	15.62	0.007	40.08	0.008	0.511834	0.10207	-15.68	1640	ca.0.5	-9.65

TABLE DR2 (continued). WHOLE-ROCK ISOTOPIC DATA

Samples				$^{206}Pb/^{204}Pb$		$^{207}Pb/^{204}Pb$		$^{208}Pb/^{204}Pb$		values today			T_{DM}		
Nos.	Field Identifier	lithology		ratio	2ω%	ratio	2ω%	ratio	2ω%	$^{143}Nd/^{144}Nd$	$^{147}Sm/^{144}Nd$	E_{Nd}	Age Ma	$Age_{U/Pb}$ Ga[§]	$E_{Nd}(t)$ $t=Age_{U/Pb}$
Belén (continued)															
B17[‡]	BC-98-115B	granodiorite	18º 24' 36.8" S, 69º 30' 28.8" W	17.77	0.004	15.61	0.004	39.13	0.004	0.511899	0.12477	-14.42	1950	ca.0.5	-9.83
B18[‡]	BC-98-159C	granodiorite	18º 24' 24.6" S, 69º 30' 35.4" W	17.75	0.006	15.60	0.006	39.66	0.007	0.511825	0.09576	-15.86	1565	ca.0.5	-9.42
B19	BC-98-81	gabbro	18º 24' 52.6" S, 69º 29' 53.6" W	19.03	0.005	15.69	0.004	39.54	0.004						
B20	BC-98-100A	amphibolite	18º 33' 45.2" S, 69º 28' 49.9" W	17.98	0.008	15.64	0.01	39.43	0.015						
Andean Intrusives															
B21[†]	BC-98-10	rhyolite	18º 32' 12.8" S, 69º 28' 37.7" W	18.07	0.005	15.58	0.005	38.47	0.006						
B22[†]	BC-98-160	andesite poprhyry	18º 26' 47.3" S, 69º 30' 56.9" W	18.10	0.005	15.59	0.005	38.51	0.005						
Quebrada Choja															
pre-Sunsás migmatititic gneisses															
Q1	QC-98-38A	mig paragneiss	21º 04' 52.5" S, 68º 52' 34.3" W	19.75	0.005	15.68	0.005	39.47	0.005	0.512214	0.11789	-8.27	1312	ca. 1.2	3.85
Q2[†]	QC-98-36A	mig orthogneiss	21º 04' 31" S, 68º 53' 07" W [#]	19.43	0.006	15.66	0.007	39.09	0.008	0.512153	0.12452	-9.46	1510	1.07	0.43
post-Sunsás metaintrusives and metasediments															
Q3	QC-98-39	m/c granite	21º 04' 50" S, 68º 52' 42" W [#]	19.99	0.005	15.68	0.005	40.02	0.005						
Q4	QC-96-17	m/c granite	21º 04' 51.1" S, 68º 53' 37.8" W	19.41	0.003	15.64	0.003	38.85	0.003	0.512132	0.14329	-9.87	1959	1.02	-2.90
Q5	QC-98-17B	q-m paragneiss	21º 04' 30.0" S, 68º 53' 56.7" W	23.50	0.007	15.91	0.008	45.67	0.008	0.512137	0.11708	-9.77	1420	ca. 0.8	-1.63
Q6[†]	QC-98-41	q-m paragneiss	21º 04' 30.3" S, 68º 54' 00.0" W	22.80	0.01	15.86	0.011	43.21	0.013						
Q7[†]	QC-98-42	amphibolite	21º 04' 36" S, 68º 54' 16" W [#]	18.95	0.012	15.53	0.013	38.60	0.012	0.513036	0.20905	7.76	570	ca. 0.8	6.51
Q8	QC-98-43A	amphibolite	21º 04' 29" S, 68º 54' 24" W [#]	18.66	0.008	15.65	0.009	38.45	0.01	0.513037	0.20871	7.78	530	ca. 0.8	6.57
Q9	QC-96-20	dacite dike	21º 04' 56.0" S, 68º 54' 29.6" W	21.85	0.005	15.87	0.006	42.21	0.008	0.512069	0.13798	-11.10	1948	0.64	-6.31
Q10	QC-98-43B	dacite dike	21º 04' 29" S, 68º 54' 24" W [#]	21.23	0.006	15.82	0.005	41.06	0.006						
Q11	QC-98-38B	2nd migmatite in pg	21º 04' 52.5" S, 68º 52' 34.3" W	19.29	0.004	15.66	0.005	38.25	0.005	0.512302	0.16356	-6.55	2245	0.47	-4.57
capping intrusive sequence															
Q12	QC-98-28A	foliated diorite	21º 05' 09.8" S, 68º 53' 58.4" W	19.01	0.004	15.65	0.004	38.73	0.005						
Q13[‡]	QC-98-04	undef tonalite	21º 04' 47.6" S, 68º 53' 42.4" W	18.89	0.004	15.64	0.004	39.55	0.005	0.512045	0.19659	-11.57		0.45	-11.57
post-Famatinian undeformed intrusives															
Q14	QC-98-38C	undef tonalite in pg	21º 04' 52.5" S, 68º 52' 34.3" W	18.95	0.005	15.62	0.005	38.29	0.005	0.512136	0.10414	-9.79	1256	ca.0.4	-5.07
Q15	QC-98-03	peg in m/c granite	21º 04' 27.1" S, 68º 53' 27.6" W	18.77	0.004	15.63	0.005	38.09	0.006	0.512580	0.26153	-1.13			
Andean Instrusives															
Q16	QC-98-44	diorite porphyry	21º 04' 33" S, 68º 54' 34" W [#]	18.68	0.006	15.62	0.007	38.64	0.008						
Q17	QC-98-02	diorite porphyry	21º 04' 32" S, 68º 54' 35" W [#]	18.71	0.005	15.63	0.006	38.67	0.007						
Southern Domain - Sierra Límon Verde															
L1	LV-96-14	unfoliated diorite	22º 39' 33.2" S, 68º 56' 39.5" W	18.67	0.003	15.62	0.003	38.45	0.003	0.512464	0.16440	-3.39	1772	0.30	-2.16

Notes: [†]Samples analyzed using different silica gel. Fractionation = 0.1%/amu. All other samples corrected for fractionation as outlined in appendix 1.

[‡]Samples analyzed for Pb without leaching in dilute HNO3. (Duplicate analyses were run for eight samples to compare leached versus unleached aliquots. Only the two most radiogenic samples yielded significant differences (ca. 4%). The variation in the other analyses was within 0.1%.)

[§]U/Pb ages are inferred if not defined in this chapter, except L1 which is unpublished.

[#]Coordinates not taken in the field. Latitude and longitude estimated from position on 1:50,000 map and coordinates of nearest location.

See appendix for precision of replicate analyses of See appendix for precision of replicate analyses of NBS981and the depleted mantle model used for T_{DM} calculations.

Abreviations: def = deformed, m/c = megacrystic, mig = migmatitic, m = muscovite, pg = paragneiss, peg = pegmatite, q = quartz, qfp = quartzofeldspathic, serp = serpentinized