MATERIALS AND METHODS

For the lithogeochemical and Sm-Nd isotope analysis, care was taken to select fresh samples free from weathering and whose protoliths suffered only apparently isochemical post-igneous transformations. Only the homogeneous parts of the samples were used (e.g. to avoid veins). In preparation for the geochemical and Nd isotope analysis, samples were crushed in a press and then a fraction of the resulting fragments was powdered in a shatterbox.

Major, trace and rare earth elements analysis were conducted at the ACME Analytical Laboratories Ltd., Vancouver, Canada. Element grades were analyzed via ICP-MS after fusion with lithium metaborate / tetraborate and digestion with diluted nitric acid. Analytical errors are within 5% for oxides and 10-15% for trace elements. Base and precious metal grades were determined by digestion in Aqua Regia followed by ICP-MS analysis. The Lost On Ignition (LOI) was determined by the weighing difference after ignition at 1000 °C.

The Sm-Nd analysis were conducted at the GEOTOP-UQÀM Research Center, Montréal, Canadá. Samples were dissolved in a HF-HNO_3 mixture in high-pressure Teflon vessels. A ^{150}Nd-^{149}Sm tracer was added to determine Nd and Sm concentrations. The REE were then purified by cation exchange chromatography, and Sm and Nd were subsequently separated following the procedure of Pin and Zalduegui (1997). The total procedural blanks are less than 150 pg. Sm and Nd analyses were done using a double filament assembly in a Thermo Scientific Triton Plus mass spectrometer at GEOTOP, in static mode. The Sm and Nd concentrations and the ^{147}Sm/^{144}Nd ratios have an accuracy of 0.5% that corresponds to an average error on the initial ε_{Nd} value of ± 0.5 epsilon units, based on repeated measurements of standards JNdi and BHVO-2.

Reference Cited in Materials and Methods:

Pin, C., and Zalduegui, J.F.S., 1997, Sequential separation of light rare earth elements, thorium and uranium by miniaturized extraction chromatography: Application to isotopic analyses of silicate rocks: Geochimica et Cosmochima Acta, v. 339, p. 79-89.

Table DR1 – Oxide (%) and trace element (ppm) data for the metabasalt samples.

Sample	51	61	56A	56B	71	60	11A	43B	43A
Lat (ºS)	**8°22'21”**	**8°16'19”**	**8°20'50"**	**8°20'50"**	**8°18'4"**	**8°16'25"**	**8°20'21"**	**8°20'36"**	**8°20'36"**
Long (ºW)	**40°57'18"**	**40°39'39”**	**40°41'52"**	**40°41'52"**	**40°45'43"**	**40°39'48"**	**41°3'45"**	**40°46'55"**	**40°46'55"**
SiO_2	43.77	45.51	45.84	45.88	46.15	46.68	47.07	47.50	47.52
TiO_2	0.71	0.91	0.97	1.00	1.15	0.95	1.69	0.99	1.37
Al_2O_3	16.83	15.38	14.91	14.95	14.15	15.95	14.41	14.85	14.42
Fe_2O_3	11.67	12.86	12.77	12.79	13.91	13.43	14.91	12.83	13.03
MnO	0.16	0.19	0.18	0.19	0.21	0.20	0.21	0.17	0.19
MgO	10.47	9.16	8.89	8.45	8.37	8.17	8.08	8.69	7.84
CaO	10.18	12.15	12.14	12.81	12.04	10.61	7.47	10.51	10.21
Na_2O	2.57	1.62	1.69	1.49	1.74	2.13	2.86	2.74	2.61
K_2O	0.17	0.28	0.43	0.35	0.19	0.27	0.26	0.12	0.16
P_2O_5	0.05	0.07	0.07	0.07	0.07	0.07	0.13	0.07	0.12
Cr_2O_3	0.023	0.052	0.053	0.050	0.043	0.026	0.020	0.050	0.022
LOI	3.1	1.6	1.8	1.7	1.7	1.3	2.6	1.2	2.3
Ba	20	40	84	88	73	42	35	37	72
Rb	1.1	4.1	7.5	4.7	3.8	2.4	7.4	1.9	3.0
Sr	89.7	87.5	121.0	96.8	163.3	76.2	210.2	110.1	141.6
Cs	<0.1	<0.1	0.1	0.1	<0.1	<0.1	1.0	<0.1	0.2
Ga	14.0	15.9	14.7	16.3	17.1	15.6	18.0	16.0	14.2
Tl	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ta	0.1	<0.1	0.2	0.1	0.3	0.1	0.4	0.2	0.3
Nb	1.2	2.5	2.1	2.5	5.0	2.5	2.2	2.0	5.7
Hf	0.9	1.2	1.6	1.6	1.6	1.3	3.1	1.5	2.2
Zr	32.0	47.8	46.8	51.0	62.8	39.2	102.1	48.9	78.7
Y	13.3	20.6	19.9	22.0	24.0	18.8	30.1	20.0	23.9
Th	0.2	<0.2	<0.2	0.3	0.5	0.3	0.8	0.3	0.4
U	0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1	0.1
Ni	106.8	44.4	57.2	45.3	52.9	64.6	42.3	56.7	40.3
Sc	34	43	45	46	49	39	49	45	42
V	242	311	308	348	351	282	466	327	329
Cu	196.6	40.9	148.6	111.5	110.7	122.5	136.5	125.9	57.4
Pb	0.2	0.5	0.3	0.3	0.9	1.1	0.5	<0.1	0.2
Zn	35	26	21	23	43	36	53	18	33
Sn	<1	<1	<1	<1	1	<1	<1	<1	<1
W	1.0	<0.5	1.0	<0.5	0.7	1.3	<0.5	<0.5	0.5
Mo	0.4	0.3	0.9	0.3	0.7	0.6	0.4	0.4	0.4
Au	1.7	<0.5	1.6	<0.5	2.2	2.3	3.2	1.9	0.7
La	5.4	3.7	4.3	4.9	5.8	3.3	7.1	3.0	5.3
Ce	5.6	7.0	7.4	8.0	12.9	6.9	17.5	7.0	13.5
Pr	0.97	1.36	1.43	1.57	1.85	1.10	2.51	1.22	1.96
Nd	4.8	5.7	6.8	8.1	8.7	5.3	10.6	6.2	9.6

Sm	1.52	2.22	2.01	2.24	2.62	1.75	3.46	1.98	2.75
Eu	0.68	0.78	0.81	0.83	0.95	0.73	1.43	0.82	1.09
Gd	2.19	3.24	2.98	3.21	3.54	2.49	4.91	2.84	3.88
Tb	0.38	0.54	0.50	0.56	0.60	0.45	0.84	0.51	0.64
Dy	2.36	3.24	3.30	3.87	4.04	3.33	5.22	3.34	4.14
Ho	0.49	0.75	0.72	0.84	0.86	0.64	1.11	0.72	0.83
Er	1.35	2.24	1.91	2.25	2.39	1.92	3.19	2.01	2.53
Tm	0.19	0.30	0.31	0.33	0.36	0.29	0.45	0.32	0.33
Yb	1.35	1.83	2.08	2.22	2.41	2.06	3.34	1.90	2.19
Lu	0.20	0.32	0.27	0.34	0.35	0.31	0.41	0.31	0.33
Co	59.5	54.2	46.9	48.2	54.4	57.5	51.6	49.3	46.4
Sum	99.76	99.77	99.77	99.78	99.75	99.78	99.74	99.77	99.78
TOT/C	0.03	<0.02	<0.02	0.06	0.04	0.03	0.04	0.03	<0.02
TOT/S	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Table DR1 – (continued)

Sample	**73**	**42**	**253A**	**72**	**290**	**252**	**100**	**253B**	**11B**
Lat (ºS)	**8°17'32"**	**8°20'46"**	**8°28'1"**	**8°17'55”**	**8°20'34"**	**8°28'3"**	**8°25'10"**	**8°28'1"**	**8º20'21"**
Long (ºW)	**40°45'42"**	**40°46'46"**	**41° 2'29"**	**40°45'41"**	**40°42'51"**	**41°2'37"**	**41°9'41"**	**41°2'29"**	**41°3'45"**
SiO_2	47.53	47.61	47.82	48.15	48.19	48.28	48.54	49.46	49.87
TiO_2	1.43	1.07	0.85	1.24	0.79	0.95	1.05	0.92	1.50
Al_2O_3	14.33	14.14	15.59	14.16	14.33	13.88	14.03	14.48	13.77
Fe_2O_3	14.28	13.48	10.13	14.42	10.98	11.92	12.76	11.17	14.33
MnO	0.21	0.19	0.15	0.21	0.17	0.17	0.19	0.16	0.16
MgO	7.04	8.39	8.37	7.01	9.19	8.8	8.07	7.38	7.04
CaO	10.13	10.42	11.05	10.93	12.19	11.39	10.49	11.72	6.91
Na_2O	2.76	2.42	2.76	1.83	2.25	2.1	1.67	2.28	4.43
K_2O	0.12	0.16	0.22	0.17	0.21	0.25	0.22	0.12	0.37
P_2O_5	0.11	0.07	0.06	0.10	0.04	0.07	0.10	0.07	0.12
Cr_2O_3	0.017	0.040	0.049	0.027	0.066	0.057	0.033	0.049	0.022
LOI	1.8	1.8	2.7	1.5	1.3	1.9	2.6	1.9	1.3
Ba	35	36	72	26	44	82	32	29	50
Rb	2.6	3.5	5.8	3.2	3.6	6.5	6.9	2.4	12.7
Sr	172.4	204.1	134.8	129.3	119.7	188.2	128.3	157.2	86.9
Cs	0.1	0.1	0.2	0.2	<0.1	0.4	0.3	0.3	1.6
Ga	17.3	17.1	16	17.4	14.3	16.9	16.0	17	15.7
Tl	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ta	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.4
Nb	3.7	2.9	2.7	4.3	2.0	3.2	3.7	2.9	4.0
Hf	2.0	1.8	1.1	2.1	0.7	1.6	1.6	1.4	2.4
Zr	74.5	55.3	46.1	70.5	41.2	51.3	58.8	50.9	87.7

Y	26.8	22.4	16.7	26.6	15.7	21.4	21.3	21.9	26.8
Th	0.3	0.2	0.3	0.4	0.3	0.2	0.5	0.3	0.6
U	0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	0.1
Ni	36.4	38.8	58.5	33.4	22.5	49	50.8	68.5	27.7
Sc	48	46	41	44	44	47	40	44	42
V	407	358	253	376	286	330	327	326	387
Cu	121.2	79.0	107.6	103.0	95.4	110.4	140.8	150.5	39.3
Pb	0.4	0.3	0.4	0.4	0.2	0.4	0.6	0.3	0.4
Zn	46	23	31	33	10	26	36	24	33
Sn	<1	1	<1	<1	<1	<1	<1	<1	<1
W	<0.5	0.6	1	<0.5	<0.5	0.8	0.7	<0.5	<0.5
Mo	0.1	0.7	0.2	0.5	0.8	0.3	0.3	0.2	0.3
Au	<0.5	1.6	<0.5	0.8	10.9	2.6	0.8	1.1	0.6
La	4.2	3.4	3.4	5.0	50.0	3.8	4.8	4.2	5.7
Ce	10.9	9.7	7.7	11.8	4.0	8.1	9.7	9.3	14.7
Pr	1.86	1.41	1.23	1.83	7.4	1.39	1.54	1.43	2.14
Nd	9.1	7.3	6.3	8.7	1.26	6.5	7.0	7.2	10.5
Sm	3.04	2.28	1.93	2.92	4.7	2.19	2.44	2.2	3.13
Eu	1.17	0.94	0.76	1.11	1.89	0.88	0.88	0.93	1.02
Gd	4.14	3.29	2.54	3.78	0.75	3.28	3.03	3.28	4.13
Tb	0.75	0.55	0.48	0.70	2.61	0.56	0.54	0.57	0.69
Dy	4.84	3.66	2.61	4.60	0.44	3.39	3.55	3.49	4.08
Ho	1.07	0.78	0.65	0.97	3.21	0.8	0.74	0.85	1.03
Er	3.21	2.39	1.92	2.82	0.58	2.29	2.19	2.4	2.82
Tm	0.43	0.34	0.26	0.40	2.00	0.32	0.28	0.34	0.40
Yb	2.79	2.13	1.49	2.61	0.29	1.89	2.10	2.13	2.39
Lu	0.43	0.33	0.24	0.38	1.79	0.3	0.28	0.31	0.36
Co	53.8	52.1	49.4	49.8	0.27	53.1	47.1	43.3	49.3
Sum	99.77	99.77	99.78	99.79	99.76	99.74	99.78	99.78	99.79
TOT/C	<0.02	<0.02	0.08	0.02	<0.02	<0.02	0.30	0.03	<0.02
TOT/S	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Table DR2 – Sm-Nd isotope data.

Sample	Lat (ºS)	Long (ºW)	Nd (ppm)	Sm (ppm)	$^{147}Sm/^{144}Nd$	$^{143}Nd/^{144}Nd$	± 2σ	$\varepsilon Nd_{(819\ Ma)}$	$f^{Sm/Nd}$
43B	8°20'36"	40°46'55"	6.76	2.24	0.200831	0.512888	16	4.5	0.02
42	8°20'46"	40°46'46"	6.87	2.25	0.197710	0.512863	8	4.3	0.01
72	8°17'55”	40°45'41"	9.02	2.91	0.195026	0.512848	11	4.3	-0.01
43A	8°20'36"	40°46'55"	11.25	3.39	0.182434	0.512783	11	4.3	-0.07
73*	8°17'32"	40°45'42"	9.25	3.02	0.197314	0.512846	13	4.0	0.00

* Not used in the regression of Fig. 3 (outlier).