

Table S3: Standard Reference Materials used for trace element abundance analyses (values in ppm)

BHVO-2 Hawaiian Basalt USGS Standard				BCR-2 Columbia River USGS Standard				BIR-1a Icelandic Basalt USGS Standard				AGV-2 Guano Valley Andesite USGS Standard							
	Rec.	Average n = 8	Std. dev.	RSD		Rec.	Average n = 9	Std. dev.	RSD		Rec.	Average n = 5	Std. dev.	RSD		Rec.	Average n = 3	Std. dev.	RSD
Li		5.04	0.92	18%			9.13	0.18	2%			2.77	0.08	3%			10.67	0.17	2%
Be		1.03	0.03	3%			2	0.05	3%			0.09	0.00	4%			2.10	0.03	1%
B		0.93	0.06	7%			4.4	1.04	24%			1.13	0.23	21%			13.93	8.26	59%
S		74.33	24.99	34%			22.25	7.66	34%			38.84	22.36	58%					
Sc		41.67	16.46	39%			33.53	1.11	3%			41.27	2.32	6%			12.80	0.31	2%
Ti		16289.82	81.72	1%			13500	103.35	1%			5732.59	87.14	2%			6223.15	78.01	1%
V		319.97	4.24	1%			417.6	4.64	1%			326.24	5.83	2%			118.51	1.47	1%
Cr		307.01	15.65	5%			15.85	0.69	4%			403.72	6.81	2%			16.62	0.45	3%
Mn		1235.75	69.46	6%			1400	14.31	1%			1181.48	18.44	2%			700.59	5.45	1%
Co		47.04	2.37	5%			37.33	0.48	1%			58.30	1.00	2%			15.94	0.40	2%
Ni		115.56	2.22	2%			12.57	0.92	7%			165.91	3.84	2%			18.55	0.60	3%
Cu		112.07	1.16	1%			19.66	3.74	19%			105.27	1.14	1%			43.02	1.92	4%
Zn		37.89	1.44	4%			129.5	13.13	10%			58.80	9.78	17%			273.85	175.37	64%
Ga		21.90	1.41	6%			22.07	0.26	1%			14.77	0.25	2%			20.52	0.24	1%
Ge		1.36	0.06	5%			1.46	0.05	3%			0.92	0.04	4%			1.07	0.04	3%
Se		0.08	0.01	8%			0.082	0.01	6%			0.01	0.00	19%			0.07	0.00	7%
Rb		13.06	7.62	58%			46.02	0.30	1%			0.18	0.02	9%			65.97	0.49	1%
Sr		448.12	117.64	26%			337.4	1.80	1%			87.63	2.39	3%			651.15	9.54	1%
Y		27.50	3.76	14%			36.07	0.20	1%			13.82	0.21	2%			17.94	0.23	1%
Zr		170.02	1.55	1%			186.5	1.39	1%			12.87	0.23	2%			231.91	1.43	1%
Nb		18.17	0.31	2%			12.44	0.13	1%			0.55	0.01	2%			13.95	0.23	2%
Sn		1.75	0.03	2%			2.28	0.02	1%			0.86	0.14	16%			2.06	0.10	5%
Te		0.01	0.00	14%			0.004	0.00	28%			0.00	0.00	49%			0.00	0.00	29%
Cs		0.21	0.18	88%			1.16	0.01	1%			0.00	0.00	7%			1.20	0.02	2%
Ba		123.03	1.79	1%			683.9	5.87	1%			6.28	0.08	1%			1159.39	4.45	0%
La		14.30	0.37	3%			25.08	0.24	1%			0.57	0.01	1%			38.13	0.27	1%
Ce		37.98	0.51	1%			53.12	0.58	1%			1.76	0.02	1%			69.70	0.33	0%
Pr		5.36	0.13	2%			6.827	0.08	1%			0.38	0.00	1%			8.19	0.07	1%
Nd		24.14	0.51	2%			28.26	0.36	1%			2.36	0.03	1%			30.21	0.40	1%
Sm		6.15	0.15	2%			6.547	0.07	1%			1.09	0.01	1%			5.55	0.09	2%
Eu		2.02	0.04	2%			1.989	0.03	1%			0.50	0.01	2%			1.65	0.03	2%
Gd		6.31	0.17	3%			6.811	0.10				1.69	0.03	2%			5.13	0.06	1%
Tb		0.97	0.04	4%			1.077	0.02	2%			0.36	0.01	2%			0.67	0.01	2%
Dy		5.47	0.30	5%			6.424	0.07	1%			2.57	0.05	2%			3.53	0.03	1%
Ho		1.02	0.06	6%			1.313	0.02	1%			0.57	0.01	1%			0.69	0.01	1%
Er		2.66	0.17	6%			3.67	0.05	1%			1.68	0.03	2%			1.89	0.02	1%
Tm		0.36	0.02	6%			0.5341	0.01	2%			0.25	0.00	2%			0.26	0.00	1%
Yb		2.11	0.18	8%			3.392	0.04	1%			1.65	0.03	2%			1.66	0.03	2%
Lu		0.30	0.02	8%			0.5049	0.01	2%			0.25	0.01	2%			0.25	0.00	2%
Hf		4.54	0.06	1%			4.972	0.08	2%			0.62	0.01	2%			5.31	0.10	2%
Ta		1.17	0.00	0%			0.785	0.01	1%			0.04	0.00	5%			0.86	0.01	1%
W		0.21	0.01	3%			0.465	0.01	2%			0.02	0.00	4%			0.47	0.01	1%
Hg		0.00	0.00	39%			0.0012	0.00	21%			0.00	0.00	-74%			0.00	0.00	10%
Tl		0.02	0.01	26%			0.267	0.00	1%			0.00	0.00	13%			0.28	0.00	1%
Pb		1.51	0.08	5%			10.59	0.23	2%			3.43	0.59	17%			13.26	0.20	2%
Th		1.28	0.15	11%			5.828	0.10	2%			0.03	0.00	2%			6.03	0.08	1%
U		0.42	0.01	2%			1.683	0.03	2%			0.02	0.00	13%			1.92	0.04	2%