Data Repository Items for "Chloring enrichment in Central Rio Grande Rift basaltic melt inclusions: Evidence for subduction modification of the lithospheric mantle" Rowe and Lassiter

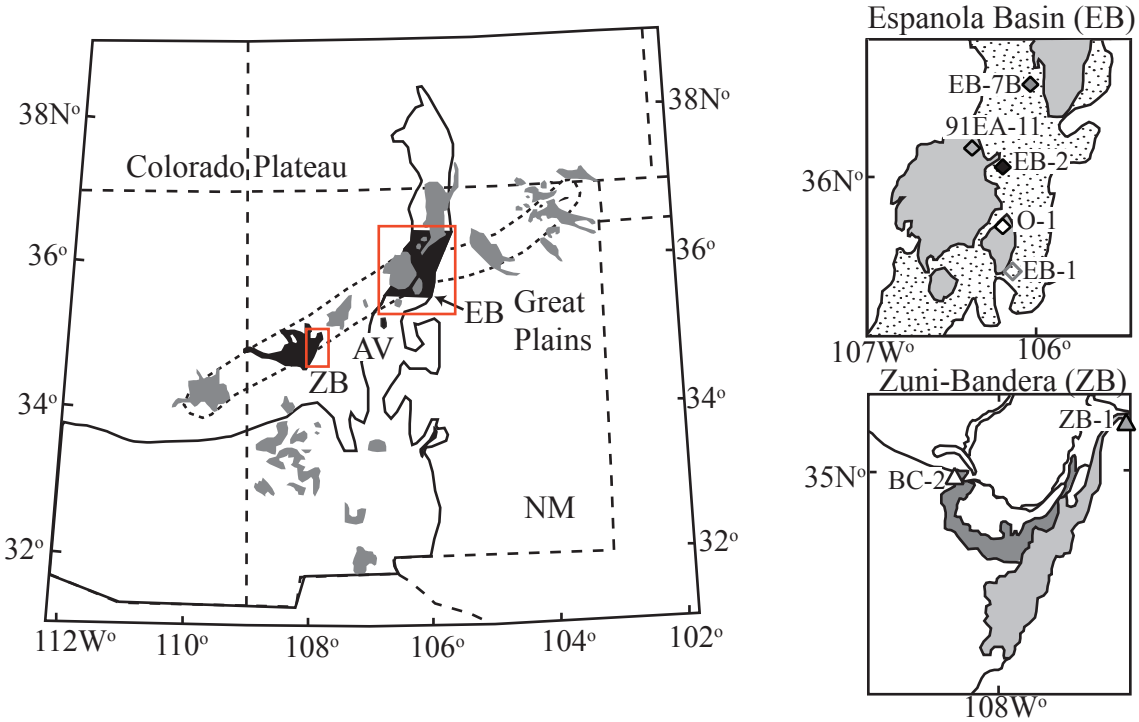

Figure DR1. Schematic map of the RGR with major Cenozoic volcanic fields in grey (after Gibson et al. 1992). Volcanic fields/centers included in this study are indicated in black (Zuni-Bandera volcanic field (ZB), Albuquerque Volcanoes (AV) and the Espanola Basin (EB)). Red boxes correspond to enlarged maps for the Espanola Basin and Zuni-Bandera volcanic field. Specific sample localities for lavas from the Espanola Basin (diamonds) and Zuni-Bandera volcanic field (triangles) are indicated by symbols in the enlarged maps, modified from Menzies et al. (1991) and Gibson et al. (1992). Symbols correspond to Figures 1 and 2. Sample AV06-1 (grey circles-Figures 1 and 2) collected from the north side of the Albuquerque Volcanoes is not shown in enlargement.

Table DR1: Whole rock major- and trace-element analyses.[1]

Location	Espanola Basin					Zuni-Bandera		Albuquerque
Sample[2]	O-1	EB06-1	EB06-2	EB06-7B	91EA11/10	BC-2	ZB06-2	AV06-1
Lattitude (N)	35.76	35.584	36.092	36.396	36.088	34.989	35.084	35.189
Longitude (W)	-106.187	-106.128	-106.150	-106.024	-106.352	-108.095	-107.768	-106.769
Type	A	A	T	T	T	A	T	T
Normalized Major Elements (Weight %)								
SiO_2	51.01	42.54	49.23	55.59	51.34	46.45	51.63	51.03
TiO_2	1.576	2.557	1.472	1.558	1.42	2.322	1.464	1.541
$Al2O_3$	16.42	11.31	16.95	14.15	15.89	14.87	15.17	15.02
FeO*	8.70	12.37	10.21	9.04	9.65	11.12	10.57	10.61
MnO	0.148	0.200	0.177	0.155	0.15	0.177	0.168	0.203
MgO	6.61	14.61	8.04	6.94	7.46	10.45	8.06	8.01
CaO	8.91	11.74	10.21	8.49	9.27	9.38	9.22	9.50
Na_2O	4.10	2.94	2.73	3.25	3.55	3.31	2.84	2.50
K_2O	1.73	0.96	0.69	0.59	0.90	1.41	0.69	0.51
P_2O_5	†0.79	0.771	0.292	0.243	0.36	0.504	0.195	1.069
XRF Trace Elements (ppm)								
Ni	91	364	97	144	142	208	176	189
Cr	153	595	186	267	207	282	261	221
Sc	29	26	32	20	27	25	26	26
V	174	293	194	150	181	231	189	189
Ba	1180	960	282	295	497	315	179	411
Rb	25	15	9	30	14	18	15	7
Sr	1175	967	683	355	651	657	265	327
Zr	213	235	119	119	142	199	114	104
Y	25	23	25	20		22	24	20
Nb	42.0	68.0	9.0	11.1		30.9	9.4	9.6
ICP-MS Trace Elements (ppm)								
La	63.86	61.92	16.26	15.50	28.21	26.93	13.49	11.44
Ce	106.66	118.83	33.52	32.01	49.42	54.45	28.90	27.67
Pr	11.33	14.43	4.33	4.17	5.73	6.75	3.75	3.20
Nd	43.40	56.10	18.35	17.91	23.57	27.98	15.92	14.02
Sm	8.43	10.83	4.50	4.63	5.63	6.27	4.27	3.85
Eu	2.57	3.20	1.61	1.61	1.85	2.11	1.46	1.35
Gd	6.81	8.52	4.73	4.83	5.36	6.07	4.63	4.18
Tb	0.97	1.13	0.80	0.76	0.82	0.93	0.80	0.70
Dy	5.46	5.68	5.02	4.43	4.86	5.17	4.87	4.18
Ho	1.01	0.95	1.02	0.82	0.97	0.97	0.95	0.82
Er	2.55	2.17	2.74	2.02	2.50	2.42	2.52	2.13
Tm	0.35	0.27	0.40	0.27	0.35	0.32	0.36	0.30
Yb	2.07	1.53	2.38	1.65	2.16	1.90	2.14	1.80
Lu	0.34	0.22	0.38	0.24	0.33	0.28	0.32	0.28
Ba	1198	974	285	297	532	302	175	408
Th	8.71	10.44	1.80	2.72	2.73	2.80	2.10	1.47
Nb	44.35	70.75	9.04	11.37	13.03	31.79	9.25	10.20
Y	26.99	23.39	25.75	20.15	25.46	23.59	23.88	20.36
Hf	4.78	5.51	2.78	3.30	3.03	4.53	2.93	2.63
Ta	2.55	4.36	0.52	0.76	0.72	2.05	0.61	0.66
U	1.94	2.46	0.41	0.59	1.11	1.10	0.60	0.54
Pb	7.91	5.23	2.47	2.81	4.84	3.24	3.73	4.10
Rb	23.9	14.6	8.7	30.2	13.6	16.4	15.2	6.8
Cs	0.52	1.27	0.07	7.49	0.39	0.29	0.26	0.21

Sr	1160	1003	723	364	650	669	273	337
Sc	22.6	27.8	33.9	22.6	26.8	27.7	28.5	28.6
Zr	208	225	115	115	142	190	109	98

Notes: [1]Whole rock major- and trace-element analyses were conducted at the Washington State University GeoAnalytical Laboratory by X-ray fluorescence spectrometry (XRF) and inductively coupled plasma mass spectrometry (ICP-MS), respectively. [2]Whole rock data for samples O-1 and 91EAll/10 from Wolff et al. (2005).

Table DR2: Measured and corrected compositions of rehomogenized melt inclusions1.

Location	Espanola Basin, La Madera (36.396N, -106.024W)							
Sample ID	EB-7B-1-1	EB-7B-1-2	EB-7B-2-1	EB-7B-4-1.1	EB-7B-4-1.2	EB-7B-6-2	EB-7B-6-3	EB-7B-7-1.1
Type	T	T	T	T	T	T	T	T
Measured melt inclusion composition [2]								
SiO_2	55.55	58.62	55.57	57.37	57.78	58.23	57.11	57.55
TiO_2	1.37	1.38	1.46	1.43	1.37	1.40	1.40	1.43
Al_2O_3	13.35	12.83	13.57	13.97	14.15	13.70	13.70	14.72
FeO	7.53	6.59	7.10	6.69	6.50	6.54	7.10	6.97
MnO	0.11	0.09	0.13	0.10	0.10	0.14	0.13	0.10
MgO	6.76	6.50	6.82	6.87	6.67	6.69	6.81	7.16
CaO	8.00	8.24	8.05	8.12	8.23	8.10	8.06	8.16
Na_2O	3.85	3.84	3.83	3.96	4.23	3.80	3.83	3.55
K_2O	0.64	0.62	0.63	0.64	0.66	0.66	0.65	0.64
Cl	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.024
S	0.052	0.055	0.060	0.056	0.059	0.063	0.067	0.069
P_2O_5	0.26	0.28	0.22	0.23	0.24	0.24	0.28	0.25
Total	97.55	99.14	97.55	99.53	100.09	99.67	99.25	100.72
Corrected Melt inclusion compositions [3]								
SiO_2	57.01	59.51	57.04	57.79	57.87	58.65	57.68	57.22
TiO_2	1.52	1.56	1.63	1.59	1.50	1.55	1.55	1.60
Al_2O_3	14.68	14.29	15.02	15.38	15.34	14.99	14.96	16.27
FeO	6.76	5.58	6.34	5.76	5.58	5.62	6.20	5.87
Fe_2O_3	0.93	0.83	0.88	0.83	0.79	0.81	0.87	0.87
MnO	0.13	0.10	0.14	0.11	0.11	0.16	0.14	0.11
MgO	4.82	3.49	4.70	4.13	4.16	4.04	4.44	3.85
CaO	8.80	9.19	8.92	8.95	8.94	8.89	8.81	9.03
Na_2O	4.27	4.34	4.28	4.41	4.64	4.21	4.23	3.98
K_2O	0.71	0.71	0.70	0.71	0.73	0.73	0.71	0.72
Cl	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.03
S	0.06	0.06	0.07	0.06	0.06	0.07	0.07	0.08
P_2O_5	0.29	0.31	0.25	0.25	0.26	0.27	0.31	0.28
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	83.80	82.08	84.32	83.93	84.36	83.94	83.89	82.54
X (wt% olvine)	-8.00	-11.40	-8.60	-10.40	-9.40	-10.00	-9.20	-12.40
Trace Elements (ppm) [4]								
Li								
B								
Sr	341.3		332.4					
Y	19.5		19.3					
Zr	121.1		123.5					
Nb	10.3		11.2					
Ba	248.0		235.1					
La	16.3		14.3					
Ce	31.4		32.0					
Nd	17.3		15.6					
Sm	5.2		4.3					
Eu	1.1		1.4					
Gd	5.6		5.1					
Dy	4.2		4.3					
Er	2.4		2.1					
Yb	1.9		1.8					
Hf	4.2		3.8					

Table DR2: Continued.

Location	Espanola Basin, La Madera (36.396N, -106.024W)								
Sample ID	EB-7B-8-1.2	EB-7B-9-1	EB-7B-9-2	EB-7B-9-3	EB-7B-9-4.1	EB-7B-9-4.2	EB-7B-9-5	EB-7B-9-6	EB-7B-10-4
Type	T	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	56.77	57.72	58.42	57.81	56.48	56.64	59.05	58.67	56.55
TiO_2	1.50	1.45	1.42	1.50	1.49	1.47	1.35	1.32	1.51
Al_2O_3	15.07	14.47	14.64	15.03	14.30	14.10	14.61	13.84	14.50
FeO	6.47	6.63	6.57	6.14	6.82	6.93	5.81	5.85	7.38
MnO	0.11	0.09	0.10	0.10	0.10	0.08	0.08	0.09	0.12
MgO	7.38	7.29	7.35	6.68	7.70	7.72	6.89	7.08	7.80
CaO	8.14	8.34	8.06	8.60	8.24	8.26	8.12	8.27	7.96
Na_2O	3.66	3.30	2.94	3.59	3.90	3.71	3.52	2.94	3.39
K_2O	0.80	0.65	0.62	0.58	0.73	0.75	0.60	0.68	0.74
Cl	0.025	0.025	0.027	0.023	0.027	0.025	0.020	0.023	0.029
S	0.047	0.059	0.060	0.048	0.040	0.060	0.065	0.053	0.076
P_2O_5	0.29	0.27	0.25	0.26	0.24	0.27	0.24	0.24	0.28
Total	100.42	100.36	100.53	100.46	100.16	100.12	100.44	99.09	100.43
Corrected Melt									
SiO_2	56.50	57.64	58.31	57.63	56.35	56.55	59.05	59.57	56.29
TiO_2	1.70	1.65	1.61	1.66	1.71	1.69	1.52	1.53	1.72
Al_2O_3	16.80	16.20	16.36	16.43	16.21	15.93	16.25	15.79	16.28
FeO	5.44	5.56	5.50	5.16	5.74	5.87	4.80	4.86	6.29
Fe_2O_3	0.81	0.84	0.83	0.75	0.87	0.88	0.73	0.75	0.94
MnO	0.12	0.10	0.12	0.11	0.12	0.09	0.09	0.10	0.13
MgO	3.88	3.69	3.74	3.74	3.81	3.96	3.37	3.28	4.18
CaO	9.10	9.36	9.03	9.43	9.38	9.37	9.07	9.49	8.95
Na_2O	4.15	3.75	3.34	3.97	4.50	4.26	3.97	3.41	3.87
K_2O	0.91	0.74	0.70	0.64	0.85	0.86	0.68	0.79	0.84
Cl	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03
S	0.05	0.07	0.07	0.05	0.05	0.07	0.07	0.06	0.09
P_2O_5	0.33	0.31	0.28	0.29	0.28	0.31	0.27	0.28	0.32
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	83.86	82.89	83.16	84.01	82.79	83.04	83.66	82.92	82.88
X (wt% olvine)	-13.00	-13.40	-13.40	-10.80	-14.60	-14.20	-12.80	-14.00	-13.80
Trace Elements									
Li									
B									
Sr		341.6							331.7
Y		20.6							18.5
Zr		130.2							128.4
Nb		11.1							11.4
Ba		244.8							285.0
La		13.4							16.4
Ce		28.8							35.9
Nd		13.4							16.6
Sm		4.7							5.9
Eu		0.4							1.0
Gd		4.4							4.0
Dy		5.4							4.1
Er		2.9							2.5
Yb		0.6							2.0
Hf		4.5							3.7

Table DR2: Continued.

Location	Espanola Basin, La Madera (36.396N, -106.024W)							
Sample ID	EB-7B-10-3	EB-7B-10-2	EB-7B-10-1	EB-7B-11-1.1	EB-7B-11-4	EB-2-1-1	EB-2-1-2.1	EB-2-1-2.2
Type	T	T	T	T	T	T	T	T
Measured melt								
SiO_2	57.33	58.78	57.24	57.02	56.72	45.617	41.314	44.283
TiO_2	1.50	1.32	1.48	1.30	1.53	1.504	1.428	1.641
Al_2O_3	14.97	13.71	14.62	13.93	14.82	19.498	18.55	17.702
FeO	7.51	6.19	6.89	7.40	7.48	6.472	7.958	8.231
MnO	0.13	0.08	0.09	0.13	0.10	0.111	0.147	0.17
MgO	7.46	8.23	7.30	8.66	7.43	7.85	7.771	7.724
CaO	8.15	7.90	8.11	8.23	8.08	10.957	10.202	9.956
Na_2O	3.51	3.09	3.50	2.79	3.38	4.312	4.451	4.341
K_2O	0.54	0.49	0.75	0.52	0.55	0.672	0.656	0.672
Cl	0.026	0.023	0.027	0.025	0.024	0.023	0.025	0.021
S	0.078	0.055	0.053	0.070	0.060	0.072	0.114	0.105
P_2O_5	0.25	0.19	0.26	0.23	0.25	0.426	0.394	0.453
Total	101.54	100.18	100.37	100.49	100.46	97.616	93.174	95.452
Corrected Melt								
SiO_2	56.45	59.00	57.10	56.75	56.44	47.35	44.71	46.88
TiO_2	1.66	1.57	1.69	1.54	1.70	1.69	1.66	1.85
Al_2O_3	16.34	15.91	16.39	16.12	16.29	21.91	21.52	19.92
FeO	6.36	5.12	5.78	6.28	6.43	4.96	6.70	6.79
Fe_2O_3	0.92	0.82	0.87	0.97	0.93	1.21	1.54	1.54
MnO	0.14	0.10	0.10	0.16	0.11	0.12	0.17	0.19
MgO	4.27	3.52	3.67	4.11	4.44	4.26	5.32	5.32
CaO	8.90	9.26	9.10	9.57	8.88	12.31	11.84	11.20
Na_2O	3.89	3.66	3.99	3.30	3.76	4.84	5.16	4.89
K_2O	0.59	0.58	0.86	0.62	0.62	0.75	0.76	0.76
Cl	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
S	0.09	0.07	0.06	0.08	0.07	0.08	0.13	0.12
P_2O_5	0.27	0.23	0.30	0.27	0.28	0.48	0.46	0.51
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	83.00	83.37	82.13	82.65	83.34	83.63	82.51	82.25
X (wt% olvine)	-12.00	-17.40	-13.60	-17.40	-11.40	-9.20	-7.40	-7.00
Trace Elements								
Li								
B								
Sr	316.8		337.9		356.1	549.8		
Y	18.9		18.4		22.3	30.9		
Zr	117.5		190.0		129.1	152.5		
Nb	10.7		11.2		12.2	11.0		
Ba	219.3		268.0		247.5	282.3		
La	14.6		15.5		16.1	20.9		
Ce	31.8		30.4		31.6	44.3		
Nd	15.4		15.3		17.3	22.5		
Sm	4.8		4.7		5.9	6.2		
Eu	1.3		1.1		1.3	2.1		
Gd	5.2		4.9		5.4	4.7		
Dy	4.9		3.7		5.0	7.5		
Er	2.2		2.2		2.3	3.5		
Yb	1.8		1.5		1.8	3.1		
Hf	2.5		8.4		3.4	4.8		

Table DR2: Continued.

Location	Espanola Basin, Chilli (36.092N, -106.150W)									
Sample ID	EB-2-2-1	EB-2-2-2	EB-2-3-1	EB-2-4-2-1	EB-2-5-1	EB-2-5-2	EB-2-6-2	EB-2-6-3	EB-2-6-5	EB-2-7-1
Type	T	T	T	T	T	T	T	T	T	T
Measured melt										
SiO_2	43.859	49.032	48.258	49.123	50.726	49.549	50.78	51.42	44.21	49.66
TiO_2	1.35	1.471	1.449	1.118	1.21	0.802	1.79	1.80	2.23	1.77
Al_2O_3	17.405	18.223	19.111	18.867	18.503	18.22	17.78	18.72	18.86	18.64
FeO	10.521	8.472	6.091	6.806	6.726	10.235	8.27	6.22	8.39	5.63
MnO	0.161	0.109	0.118	0.107	0.116	0.143	0.14	0.12	0.14	0.09
MgO	7.446	7.638	7.687	7.516	7.575	7.986	7.13	7.56	9.20	7.97
CaO	9.648	9.748	11.106	10.136	9.899	8.43	9.67	10.27	14.96	10.99
Na_2O	4.562	4.962	4.016	4.389	4.418	4.566	3.13	4.43	0.45	3.90
K_2O	0.7	0.704	0.661	0.685	0.629	0.606	0.71	0.65	0.13	0.60
Cl	0.024	0.025	0.018	0.026	0.022	0.024	0.023	0.024	0.006	0.022
S	0.116	0.079	0.113	0.078	0.079	0.094	0.048	0.049	0.048	0.049
P_2O_5	0.401	0.429	0.397	0.405	0.352	0.466	0.44	0.47	0.48	0.38
Total	96.361	101.004	99.191	99.367	100.367	101.257	99.89	101.85	99.13	99.81
Corrected Melt										
SiO_2	45.48	48.90	49.52	50.11	51.40	49.10	51.51	51.37	45.07	50.83
TiO_2	1.39	1.52	1.61	1.21	1.31	0.81	1.90	1.93	2.52	1.99
Al_2O_3	17.95	18.80	21.20	20.37	19.97	18.35	18.95	20.05	21.27	20.92
FeO	9.32	6.82	4.50	5.30	5.08	8.46	6.46	4.49	6.39	3.92
Fe_2O_3	1.81	1.46	1.13	1.23	1.21	1.72	1.47	1.11	1.58	1.05
MnO	0.17	0.11	0.13	0.12	0.13	0.14	0.15	0.13	0.15	0.10
MgO	7.96	5.94	3.82	4.70	4.30	7.14	4.64	3.76	4.85	3.18
CaO	9.95	10.06	12.32	10.95	10.68	8.49	10.31	11.00	16.87	12.33
Na_2O	4.70	5.12	4.45	4.74	4.77	4.60	3.33	4.74	0.51	4.38
K_2O	0.72	0.73	0.73	0.74	0.68	0.61	0.75	0.70	0.15	0.68
Cl	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.03	0.01	0.02
S	0.12	0.08	0.13	0.08	0.08	0.09	0.05	0.05	0.05	0.05
P_2O_5	0.41	0.44	0.44	0.44	0.38	0.47	0.46	0.51	0.54	0.43
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	83.54	83.78	83.35	83.99	83.44	83.44	81.06	83.33	81.75	82.79
X (wt% olvine)	0.80	-4.40	-9.60	-7.20	-8.20	-2.20	-6.60	-9.20	-11.40	-11.60
Trace Elements										
Li										
B										
Sr		563.3			663.3					590.4
Y		25.8			27.5					32.4
Zr		152.8			145.7					159.5
Nb		10.9			10.6					10.9
Ba		286.2			307.4					307.7
La		21.3			22.9					24.0
Ce		46.7			44.3					45.9
Nd		20.0			21.9					23.7
Sm		5.5			4.3					6.9
Eu		1.7			1.5					1.5
Gd		4.9			6.4					7.0
Dy		5.3			5.0					6.8
Er		3.2			3.2					2.8
Yb		1.9			2.2					3.4
Hf		3.5			3.8					3.7

Table DR2: Continued.

Location	Espanola Basin, Chilli (36.092N, -106.150W)								
Sample ID	EB-2-7-2	EB-2-7-3.1	EB-2-7-3.2	EB-2-7-4	EB-2-7-5	O-1-1-3	O-1-1-4.1	O-1-2-1	O-1-2-2
Type	T	T	T	T	T	A	A	A	A
Measured melt									
SiO_2	47.48	49.69	49.16	50.76	50.20	49.41	47.60	48.59	49.79
TiO_2	1.42	1.76	1.85	1.81	1.76	1.67	1.75	1.88	1.62
Al_2O_3	17.25	17.67	17.23	19.03	18.89	18.66	17.86	18.60	17.92
FeO	8.11	8.12	8.44	5.98	5.43	7.17	8.65	6.86	7.34
MnO	0.16	0.13	0.18	0.09	0.10	0.13	0.12	0.09	0.09
MgO	7.34	7.49	7.37	7.73	7.93	6.71	7.21	7.65	7.03
CaO	11.43	10.24	10.37	10.34	11.01	8.22	9.57	8.82	8.48
Na_2O	5.58	4.27	4.13	4.32	3.92	5.08	5.11	4.83	5.18
K_2O	0.91	0.69	0.67	0.63	0.63	2.03	1.33	1.54	2.03
Cl	0.035	0.025	0.028	0.026	0.024	0.125	0.088	0.076	0.125
S	0.054	0.072	0.052	0.040	0.053	0.072	0.080	0.091	0.080
P_2O_5	0.51	0.44	0.43	0.40	0.37	0.95	1.11	0.96	0.92
Total	100.44	100.61	99.96	101.24	100.41	100.30	100.57	100.05	100.81
Corrected Melt									
SiO_2	47.61	50.30	49.86	51.10	51.09	49.84	47.71	49.42	50.03
TiO_2	1.49	1.93	1.99	1.97	1.96	1.77	1.84	2.08	1.73
Al_2O_3	18.09	19.30	18.58	20.72	21.06	19.82	18.78	20.56	19.07
FeO	6.43	5.96	6.49	4.25	3.73	5.50	6.80	4.95	5.55
Fe_2O_3	1.42	1.48	1.52	1.09	1.01	1.27	1.52	1.26	1.30
MnO	0.17	0.14	0.20	0.10	0.11	0.13	0.13	0.10	0.09
MgO	5.19	3.72	4.42	3.52	3.10	4.13	4.94	3.52	4.11
CaO	11.99	11.19	11.18	11.26	12.27	8.73	10.06	9.75	9.03
Na_2O	5.85	4.66	4.46	4.70	4.37	5.39	5.37	5.34	5.52
K_2O	0.96	0.75	0.73	0.69	0.71	2.16	1.40	1.71	2.16
Cl	0.04	0.03	0.03	0.03	0.03	0.13	0.09	0.08	0.13
S	0.06	0.08	0.06	0.04	0.06	0.08	0.08	0.10	0.09
P_2O_5	0.53	0.48	0.47	0.44	0.41	1.01	1.17	1.06	0.97
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	82.82	78.71	80.29	83.20	83.20	81.80	81.15	80.72	81.40
X (wt% olvine)	-5.60	-9.80	-7.80	-10.20	-11.60	-6.60	-6.00	-10.40	-7.40
Trace Elements									
Li									
B									
Sr		581.1		598.6	605.9			1138.2	
Y		30.1		28.0	32.7			32.7	
Zr		159.2		156.6	165.2			249.3	
Nb		9.5		11.2	11.7			43.5	
Ba		306.1		319.0	316.6			976.7	
La		21.7		23.6	22.8			80.5	
Ce		43.6		46.0	44.4			137.7	
Nd		22.3		22.9	23.1			51.1	
Sm		7.6		5.5	6.6			10.2	
Eu		1.3		1.2	1.5			1.7	
Gd		5.6		6.9	5.3			8.9	
Dy		5.2		5.8	6.4			6.9	
Er		3.3		2.9	3.1			4.6	
Yb		2.4		3.1	3.4			2.9	
Hf		3.4		3.7	4.0			5.2	

Table DR2: Continued.

Location	Espanola Basin, Cerros del Rio (35.76N, -106.187W)										
Sample ID	O-1-2-3.1	O-1-2-3.2	O-1-2-4	O-1-2-5.1	O-1-2-5.2	O-1-2-6	O-1-2-7	O-1-2-8	O-1-2-9	O-1-2-10.1	O-1-2-10.2
Type	A	A	A	A	A	A	A	A	A	A	A
Measured melt											
SiO_2	48.34	47.80	47.65	47.61	50.30	48.99	47.90	44.08	48.63	45.78	47.20
TiO_2	1.78	1.85	2.05	1.85	0.87	1.72	0.83	1.33	1.67	1.62	0.97
Al_2O_3	18.21	18.11	18.87	18.32	15.75	18.93	14.30	15.04	18.85	19.21	16.86
FeO	6.43	6.76	7.83	6.89	8.79	7.33	9.54	12.66	7.27	7.27	9.47
MnO	0.09	0.13	0.07	0.11	0.14	0.11	0.16	0.23	0.10	0.09	0.10
MgO	7.54	7.71	7.29	7.41	6.54	7.07	7.01	6.76	7.12	7.40	7.92
CaO	9.66	10.10	9.22	9.96	8.49	8.39	10.78	9.13	8.49	8.26	8.18
Na_2O	4.83	4.69	4.86	4.62	4.78	5.06	4.84	3.66	4.40	4.19	5.03
K_2O	1.79	1.77	1.47	1.77	2.12	2.13	2.01	1.64	1.96	1.86	1.95
Cl	0.114	0.118	0.060	0.117	0.133	0.119	0.129	0.101	0.116	0.122	0.128
S	0.090	0.098	0.079	0.088	0.085	0.083	0.099	0.183	0.068	0.070	0.073
P_2O_5	0.91	0.91	0.88	0.92	0.92	1.02	0.90	1.16	1.05	1.17	1.09
Total	99.83	100.12	100.36	99.75	99.95	101.00	99.05	96.11	99.83	98.34	101.62
Corrected Melt											
SiO_2	49.18	48.42	48.00	48.35	50.62	49.07	48.41	45.67	49.40	47.10	46.77
TiO_2	1.96	2.02	2.20	2.01	0.90	1.82	0.85	1.36	1.81	1.80	1.01
Al_2O_3	20.03	19.80	20.21	19.96	16.28	20.07	14.59	15.39	20.43	21.30	17.54
FeO	4.70	5.00	5.98	5.17	7.15	5.57	8.08	11.29	5.47	5.53	7.46
Fe_2O_3	1.18	1.23	1.40	1.25	1.51	1.30	1.62	2.16	1.31	1.34	1.64
MnO	0.10	0.14	0.08	0.12	0.15	0.11	0.16	0.24	0.10	0.10	0.11
MgO	3.69	3.96	4.35	4.01	5.23	4.23	6.61	7.52	3.93	4.03	5.61
CaO	10.62	11.04	9.88	10.85	8.78	8.90	11.00	9.35	9.21	9.15	8.50
Na_2O	5.31	5.13	5.21	5.03	4.94	5.36	4.94	3.74	4.77	4.65	5.23
K_2O	1.97	1.94	1.58	1.93	2.19	2.26	2.06	1.67	2.12	2.07	2.03
Cl	0.13	0.13	0.06	0.13	0.14	0.13	0.13	0.10	0.13	0.13	0.13
S	0.10	0.11	0.08	0.10	0.09	0.09	0.10	0.19	0.07	0.08	0.08
P_2O_5	1.00	1.00	0.95	1.01	0.95	1.08	0.92	1.19	1.14	1.29	1.13
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	82.34	82.49	81.10	82.25	81.25	81.87	82.90	79.85	81.11	81.17	81.64
X (wt% olvine)	-9.60	-9.40	-7.60	-8.60	-3.60	-7.20	-1.40	1.60	-8.20	-8.80	-6.00
Trace Elements											
Li											
B											
Sr	1330.2	1263.2	1010.0	1373.2		1461.4					
Y	25.8	26.8	26.2	29.5		25.2					
Zr	252.9	242.0	183.5	236.9		277.8					
Nb	45.8	44.8	34.1	47.5		47.6					
Ba	1087.5	1029.9	675.1	1067.4		1254.6					
La	73.5	70.1	48.9	76.9		107.6					
Ce	122.1	121.3	94.4	136.6		177.0					
Nd	44.2	46.0	40.4	51.4		62.5					
Sm	10.0	9.3	7.5	9.9		9.5					
Eu	1.5	1.5	2.4	1.7		1.8					
Gd	7.7	8.3	7.5	8.8		7.2					
Dy	6.4	6.2	5.9	7.2		6.3					
Er	3.1	3.6	3.6	3.5		3.9					
Yb	2.0	1.5	2.1	2.2		2.4					
Hf	5.9	4.6	4.9	5.5		6.3					

Table DR2: Continued.

Location	Espanola Basin, Cerros del Rio (35.76N, -106.187W)								
Sample ID	O-1-2-11	O-1-3-1	O-1-3-3.1	O-1-3-3.2	O-1-3-4	O-1-3-5	O-1-3-6	91EA-11-5-2	91EA-11-5-3.2
Type	A	A	A	A	A	A	A	T	T
Measured melt									
SiO_2	49.05	46.62	50.05	50.24	49.54	48.24	50.75	51.85	50.68
TiO_2	1.58	1.66	1.61	1.40	1.72	1.93	1.84	1.51	1.29
Al_2O_3	18.26	17.27	19.31	18.59	17.01	18.98	18.57	16.86	10.23
FeO	6.90	8.33	7.51	8.02	7.77	7.23	7.20	7.51	13.19
MnO	0.06	0.10	0.16	0.11	0.09	0.08	0.09	0.12	0.26
MgO	7.66	7.42	7.22	6.95	8.26	6.74	6.80	8.02	11.64
CaO	9.01	9.26	6.93	7.17	8.22	9.77	6.64	8.98	8.29
Na_2O	4.71	4.94	5.30	5.23	5.54	4.90	5.22	4.05	2.13
K_2O	1.92	1.77	2.00	2.08	2.21	1.67	2.40	0.77	0.37
Cl	0.110	0.111	0.111	0.124	0.130	0.105	0.137	0.035	0.022
S	0.092	0.085	0.077	0.079	0.054	0.096	0.067	0.129	0.065
P_2O_5	1.10	0.83	0.96	1.03	0.97	0.84	1.15	0.44	0.25
Total	100.56	98.74	101.31	101.14	101.67	100.66	100.92	100.34	98.46
Corrected Melt									
SiO_2	49.65	47.48	50.06	50.19	49.45	48.33	50.95	52.49	53.77
TiO_2	1.74	1.75	1.71	1.46	1.84	2.02	1.95	1.62	1.56
Al_2O_3	20.04	18.26	20.47	19.44	18.22	19.91	19.66	18.07	12.45
FeO	4.98	6.83	5.66	6.23	5.84	5.62	5.45	5.82	10.23
Fe_2O_3	1.26	1.47	1.33	1.40	1.39	1.26	1.27	1.34	2.68
MnO	0.07	0.11	0.17	0.12	0.10	0.08	0.10	0.13	0.32
MgO	3.58	5.77	4.21	4.62	4.67	4.46	4.04	5.04	5.41
CaO	9.89	9.79	7.35	7.49	8.81	10.25	7.03	9.63	10.09
Na_2O	5.17	5.22	5.62	5.47	5.94	5.14	5.52	4.33	2.59
K_2O	2.10	1.87	2.12	2.18	2.36	1.75	2.54	0.82	0.45
Cl	0.12	0.12	0.12	0.13	0.14	0.11	0.14	0.04	0.03
S	0.10	0.09	0.08	0.08	0.06	0.10	0.07	0.14	0.08
P_2O_5	1.20	0.87	1.02	1.08	1.04	0.88	1.21	0.47	0.31
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	81.18	83.43	81.56	81.41	82.59	82.44	81.51	83.68	75.86
X (wt% olvine)	-10.20	-4.60	-7.60	-6.00	-9.00	-5.80	-7.00	-7.60	-18.20
Trace Elements									
Li									
B									
Sr	1642.6							756.2	
Y	32.5							26.8	
Zr	287.5							148.8	
Nb	56.4							13.7	
Ba	1354.1							433.5	
La	110.4							33.1	
Ce	186.0							65.6	
Nd	67.2							26.8	
Sm	10.9							7.1	
Eu	1.5							1.6	
Gd	9.9							5.6	
Dy	7.1							4.7	
Er	4.4							3.1	
Yb	3.1							2.5	
Hf	8.0							4.0	

Table DR2: Continued.

Location	Espanola Basin, El Alto (36.088N, -106.352W)						
Sample ID	91EA-11-5-5.1	91EA-11-6-4.1	91EA-11-6-4.2	91EA-11-1-1	91EA-11-1-2.2	91EA-11-1-3	91EA-11-2-1
Type	T	T	T	T	T	T	T
Measured melt							
SiO_2	51.28	50.48	51.41	51.88	51.43	52.63	51.63
TiO_2	1.69	1.58	1.61	1.43	1.67	1.60	1.68
Al_2O_3	16.69	16.35	16.50	12.92	17.28	16.97	16.99
FeO	7.60	9.61	9.80	11.12	7.59	7.04	6.90
MnO	0.12	0.14	0.13	0.20	0.11	0.12	0.13
MgO	7.56	7.70	7.50	7.66	7.58	7.74	7.70
CaO	8.42	9.00	8.67	9.01	9.22	8.57	9.63
Na_2O	4.28	3.78	3.98	1.48	4.11	4.41	4.11
K_2O	0.76	0.85	0.93	0.79	0.87	0.80	0.73
Cl	0.036	0.030	0.032	0.015	0.038	0.037	0.035
S	0.074	0.101	0.088	0.101	0.110	0.073	0.097
P_2O_5	0.50	0.42	0.39	0.28	0.40	0.41	0.49
Total	99.11	100.12	101.13	97.07	100.44	100.53	100.20
Corrected Melt							
SiO_2	52.50	51.00	51.29	53.60	52.07	53.22	52.48
TiO_2	1.82	1.67	1.67	1.50	1.79	1.71	1.83
Al_2O_3	18.01	17.31	17.08	13.54	18.61	18.15	18.46
FeO	5.98	7.66	7.83	9.59	5.76	5.40	5.18
Fe_2O_3	1.37	1.70	1.69	1.94	1.36	1.26	1.25
MnO	0.13	0.15	0.14	0.21	0.12	0.13	0.14
MgO	4.89	5.41	5.62	7.20	4.37	4.71	4.20
CaO	9.09	9.53	8.97	9.43	9.93	9.16	10.46
Na_2O	4.61	4.00	4.12	1.55	4.42	4.72	4.46
K_2O	0.82	0.90	0.96	0.83	0.93	0.86	0.79
Cl	0.04	0.03	0.03	0.02	0.04	0.04	0.04
S	0.08	0.11	0.09	0.11	0.12	0.08	0.11
P_2O_5	0.54	0.45	0.41	0.30	0.43	0.44	0.54
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	82.88	80.78	80.97	81.65	81.87	83.76	82.99
X (wt% olvine)	-7.00	-6.20	-5.00	-2.00	-8.20	-7.60	-8.80
Trace Elements							
Li							
B							
Sr	760.3	714.4				800.4	743.6
Y	23.8	25.3				25.3	25.9
Zr	154.0	147.1				157.7	146.8
Nb	12.5	13.1				13.3	13.8
Ba	417.4	434.0				430.1	383.1
La	33.8	33.8				34.9	33.6
Ce	66.2	63.9				65.2	59.4
Nd	27.6	27.8				30.4	27.3
Sm	7.4	6.7				6.4	7.1
Eu	1.7	1.5				1.6	2.0
Gd	6.7	5.1				6.3	6.3
Dy	5.2	5.8				5.8	5.1
Er	2.5	3.3				2.9	2.7
Yb	1.9	2.8				2.3	2.4
Hf	4.0	3.9				4.0	3.6

Table DR2: Continued.

Location	Espanola Basin, El Alto (36.088N, -106.352W)						
Sample ID	91EA-11-2-1.2	91EA-11-2-2.1	91EA-11-2-3	91EA-11-2-4	91EA-11-2-6	91EA-11-2-7	91EA-11-3-1
Type	T	T	T	T	T	T	T
Measured melt							
SiO_2	51.42	51.75	54.63	51.81	51.84	52.93	55.17
TiO_2	1.63	1.61	1.20	1.62	1.71	1.54	1.60
Al_2O_3	17.25	17.03	16.84	17.47	17.71	16.31	17.20
FeO	6.79	6.96	8.78	6.85	7.23	9.81	7.71
MnO	0.05	0.14	0.12	0.09	0.08	0.11	0.14
MgO	7.57	7.71	6.56	7.71	7.58	7.13	7.40
CaO	9.39	9.26	6.67	9.14	9.13	7.84	8.58
Na_2O	4.08	4.13	5.23	4.10	4.15	4.63	1.79
K_2O	0.75	0.80	0.73	0.78	0.81	0.81	0.77
Cl	0.036	0.036	0.030	0.035	0.037	0.034	0.040
S	0.098	0.087	0.065	0.078	0.078	0.092	0.075
P_2O_5	0.44	0.42	0.48	0.67	0.45	0.49	0.43
Total	99.60	100.00	101.47	100.44	100.88	101.83	101.02
Corrected Melt							
SiO_2	52.39	52.65	53.79	52.34	52.16	52.45	55.34
TiO_2	1.75	1.74	1.19	1.73	1.82	1.58	1.66
Al_2O_3	18.56	18.43	16.60	18.63	18.83	16.69	17.94
FeO	5.27	5.30	7.33	5.28	5.53	7.79	6.07
Fe_2O_3	1.22	1.26	1.44	1.22	1.28	1.67	1.34
MnO	0.05	0.15	0.12	0.10	0.09	0.12	0.14
MgO	4.73	4.46	6.38	4.83	4.63	5.37	5.19
CaO	10.10	10.02	6.58	9.75	9.71	8.02	8.95
Na_2O	4.39	4.47	5.16	4.37	4.42	4.74	1.87
K_2O	0.81	0.86	0.72	0.83	0.86	0.83	0.80
Cl	0.04	0.04	0.03	0.04	0.04	0.03	0.04
S	0.11	0.09	0.06	0.08	0.08	0.09	0.08
P_2O_5	0.48	0.46	0.47	0.71	0.48	0.50	0.44
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	84.11	83.26	83.82	84.41	83.15	80.33	83.51
X (wt% olvine)	-7.20	-8.20	-0.40	-7.20	-7.40	-4.60	-5.60
Trace Elements							
Li							
B							
Sr		720.9			626.1		
Y		24.2			19.4		
Zr		154.4			136.1		
Nb		14.8			11.0		
Ba		400.7			346.9		
La		30.4			23.9		
Ce		52.3			46.2		
Nd		23.7			23.6		
Sm		5.4			4.1		
Eu		1.8			1.6		
Gd		6.0			4.0		
Dy		5.1			2.0		
Er		2.8			1.8		
Yb		2.6			1.8		
Hf		3.9			4.1		

Table DR2: Continued.

Location			Espanola Basin, La Cienga (35.584N, -106.128W)					
Sample ID	91EA-11-3-2	91EA-11-3-4	EB-1-1	EB-1-1-2	EB-1-7-3-1	EB-1-7-5-1	EB-1-7-7-1	EB-1-7-9-2
Type	T	T	A	A	A	A	A	A
Measured melt								
SiO_2	52.99	52.11	39.95	40.14	38.58	38.98	40.93	42.37
TiO_2	1.64	1.69	3.12	2.78	3.00	2.73	2.93	2.46
Al_2O_3	16.83	17.52	13.02	13.36	13.77	12.67	15.13	15.04
FeO	7.56	6.35	10.02	9.89	11.75	14.43	8.82	13.89
MnO	0.07	0.09	0.11	0.13	0.17	0.17	0.12	0.22
MgO	7.06	7.75	11.52	10.90	11.28	11.88	11.73	10.04
CaO	8.75	9.55	12.32	12.50	12.63	11.59	12.32	6.63
Na_2O	4.31	4.05	4.44	4.35	3.94	3.66	4.06	4.91
K_2O	0.83	0.70	1.91	1.96	2.18	2.04	1.98	2.97
Cl	0.040	0.037	0.087	0.081	0.08	0.07	0.08	0.09
S	0.072	0.124	0.183	0.164	0.21	0.23	0.13	0.13
P_2O_5	0.42	0.40	0.88	0.85	1.13	0.97	0.99	1.13
Total	100.71	100.43	97.82	97.34	98.57	99.32	99.18	99.77
Corrected Melt								
SiO_2	53.25	52.86	40.88	41.28	38.98	39.09	41.22	42.61
TiO_2	1.71	1.83	3.24	2.90	3.12	2.74	3.20	2.66
Al_2O_3	17.61	18.99	13.54	13.96	14.35	12.70	16.54	16.25
FeO	5.93	4.73	8.67	8.60	10.60	13.02	7.70	12.04
Fe_2O_3	1.32	1.15	1.74	1.72	1.36	1.61	1.07	1.67
MnO	0.08	0.10	0.12	0.14	0.17	0.17	0.13	0.24
MgO	4.87	4.18	11.19	10.60	10.33	11.91	8.68	7.38
CaO	9.15	10.35	12.82	13.07	13.17	11.63	13.46	7.17
Na_2O	4.51	4.39	4.62	4.55	4.11	3.67	4.43	5.30
K_2O	0.87	0.75	1.99	2.04	2.27	2.05	2.17	3.21
Cl	0.04	0.04	0.09	0.08	0.09	0.07	0.08	0.09
S	0.08	0.13	0.19	0.17	0.22	0.23	0.14	0.14
P_2O_5	0.44	0.44	0.92	0.89	1.18	0.97	1.08	1.22
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	83.01	84.06	88.47	87.94	85.22	84.47	87.04	78.50
X (wt% olvine)	-5.60	-8.80	-1.80	-1.80	-3.20	-0.20	-8.40	-8.00
Trace Elements								
Li						27.0	23.7	42.2
B						4.8	4.8	11.7
Sr		697.5	822.5			997.9	953.6	2109.8
Y		24.3	19.9			23.5	21.6	38.7
Zr		145.4	250.0			229.8	264.9	379.0
Nb		12.4	73.4			66.4	78.2	119.1
Ba		386.7	785.6			930.9	905.1	2066.6
La		27.2	59.3			67.3	67.0	146.5
Ce		49.6	103.5			134.2	137.7	272.8
Nd		21.4	47.3			63.6	65.5	117.9
Sm		5.4	8.9			11.8	11.5	19.3
Eu		1.2	2.1			2.3	1.5	2.2
Gd		4.8	7.8			7.8	8.3	17.7
Dy		3.8	5.7			5.7	7.0	11.4
Er		2.7	2.8			3.1	2.5	4.9
Yb		1.9	1.3			1.7	0.9	1.9
Hf		3.9	5.8			5.8	6.2	8.3

Table DR2: Continued.

Location	Espanola Basin, La Cienga (35.584N, -106.128W)								
Sample ID	EB-1-7-10-1	EB-1-8-3-1	EB-1-8-6-1	EB-1-9-4-1	EB-1-9-5-1	EB-1-9-6-3	EB-1-9-9-1	EB-1-10-2-1	EB-1-10-4-1
Type	A	A	A	A	A	A	A	A	A
Measured melt									
SiO_2	45.13	39.05	44.24	39.24	41.86	47.40	42.43	42.46	39.38
TiO_2	1.90	2.95	1.86	3.81	2.84	0.82	2.66	2.47	3.18
Al_2O_3	17.70	14.17	16.13	14.08	15.50	5.37	14.34	16.40	14.57
FeO	8.97	11.19	15.35	11.96	9.26	14.20	9.62	9.92	8.41
MnO	0.17	0.11	0.30	0.14	0.08	0.23	0.11	0.10	0.13
MgO	9.50	11.71	6.29	11.38	11.26	13.79	11.35	11.35	11.96
CaO	4.50	12.29	4.85	11.49	11.65	16.80	10.43	8.20	13.03
Na_2O	4.61	4.07	3.80	4.00	4.00	0.78	4.38	2.82	3.92
K_2O	3.87	2.18	3.69	2.06	2.12	0.27	2.45	2.34	2.23
Cl	0.10	0.08	0.10	0.07	0.07	0.01	0.07	0.07	0.08
S	0.05	0.18	0.02	0.20	0.12	0.04	0.06	0.07	0.18
P_2O_5	1.40	1.14	1.25	0.60	0.82	0.22	1.18	0.75	1.05
Total	97.86	99.02	97.88	98.88	99.53	99.90	99.08	96.96	98.01
Corrected Melt									
SiO_2	46.14	39.27	44.34	39.52	42.07	47.93	43.13	44.00	40.01
TiO_2	1.97	3.11	1.68	4.13	3.04	0.88	3.07	2.76	3.65
Al_2O_3	18.35	14.94	14.55	15.30	16.61	5.79	16.54	18.30	16.72
FeO	8.17	10.00	14.93	10.56	8.11	12.67	8.04	8.90	7.23
Fe_2O_3	1.03	1.31	1.54	1.44	1.10	1.70	1.23	1.23	1.07
MnO	0.18	0.12	0.27	0.15	0.09	0.25	0.13	0.11	0.15
MgO	9.08	10.13	10.30	8.82	8.80	11.24	6.37	8.72	7.58
CaO	4.67	12.96	4.37	12.48	12.48	18.11	12.04	9.15	14.95
Na_2O	4.78	4.29	3.43	4.34	4.29	0.84	5.05	3.14	4.50
K_2O	4.01	2.30	3.33	2.24	2.27	0.29	2.82	2.61	2.56
Cl	0.11	0.09	0.09	0.08	0.08	0.01	0.08	0.07	0.09
S	0.05	0.19	0.02	0.22	0.13	0.05	0.07	0.08	0.20
P_2O_5	1.46	1.20	1.13	0.65	0.88	0.24	1.36	0.84	1.20
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	86.88	85.78	80.37	83.25	86.54	84.08	82.47	85.31	86.13
X (wt% olvine)	-1.80	-4.80	12.20	-7.60	-6.80	-7.80	-13.60	-8.00	-12.00
Trace Elements									
Li		21.5		26.5		38.8	28.5		9.0
B		2.3		3.1		1.4	3.8		2.9
Sr		1085.3		1377.2		255.6	1510.0		1226.9
Y		26.4		25.8		12.4	30.2		36.5
Zr		276.4		218.7		51.3	263.7		334.6
Nb		75.1		67.5		9.4	98.2		100.2
Ba		965.1		1151.9		138.0	1451.5		1165.8
La		80.5		113.0		12.5	105.2		87.9
Ce		159.7		206.0		32.7	201.8		179.5
Nd		78.8		89.8		21.7	92.3		85.0
Sm		15.2		15.3		5.0	14.0		14.7
Eu		2.4		2.2		1.2	1.2		1.9
Gd		9.9		12.0		4.1	12.3		11.0
Dy		7.5		8.3		2.2	7.2		7.9
Er		3.0		3.4		1.2	4.1		3.6
Yb		1.1		1.0		0.4	1.3		2.3
Hf		5.1		4.3		1.1	5.7		8.6

Table DR2: Continued.

Location		Albuquerque Volcanoes (35.189N, -106.769N)							
Sample ID	EB-1-10-6-1	AV-1-1-1	AV-1-2-1	AV-1-3-1.1	AV-1-4-1	AV-1-5-1	AV-1-5-2	AV-1-5-5	AV-1-5-6
Type	A	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	43.29	49.70	50.35	51.24	50.10	50.43	50.99	50.77	49.33
TiO_2	2.21	1.69	1.58	1.63	1.56	1.48	1.69	1.77	1.52
Al_2O_3	10.97	13.24	12.98	13.11	13.08	13.30	12.87	13.12	13.34
FeO	17.86	12.37	12.46	12.15	12.11	11.98	13.16	11.12	11.85
MnO	0.28	0.17	0.21	0.18	0.15	0.17	0.22	0.16	0.16
MgO	11.03	8.06	8.17	8.54	8.31	8.00	8.14	8.34	7.95
CaO	7.39	8.95	8.76	9.11	8.91	8.43	8.60	9.06	8.66
Na_2O	2.31	3.32	3.23	2.99	3.23	3.37	3.19	3.21	3.55
K_2O	1.07	0.60	0.60	0.58	0.58	0.67	0.62	0.61	0.60
Cl	0.14	0.01	0.013	0.016	0.012	0.014	0.015	0.012	0.01
S	0.02	0.089	0.097	0.083	0.071	0.106	0.093	0.070	0.117
P_2O_5	0.78	0.34	0.26	0.23	0.25	0.25	0.27	0.25	0.23
Total	97.37	98.66	98.85	99.97	98.47	98.36	99.99	98.58	97.50
Corrected Melt									
SiO_2	44.12	50.80	51.39	51.80	51.38	51.80	51.27	52.35	51.14
TiO_2	2.16	1.78	1.66	1.71	1.66	1.57	1.73	1.92	1.63
Al_2O_3	10.72	13.96	13.67	13.74	13.91	14.13	13.20	14.27	14.34
FeO	16.53	10.34	10.41	9.98	10.11	10.01	10.99	9.03	9.97
Fe_2O_3	1.94	2.17	2.19	2.12	2.15	2.12	2.25	2.02	2.12
MnO	0.28	0.18	0.22	0.18	0.16	0.18	0.22	0.17	0.17
MgO	12.77	6.73	6.83	6.82	6.77	6.54	7.23	5.87	6.47
CaO	7.23	9.44	9.23	9.55	9.47	8.96	8.82	9.86	9.31
Na_2O	2.26	3.50	3.40	3.13	3.44	3.58	3.27	3.49	3.81
K_2O	1.04	0.63	0.63	0.61	0.61	0.72	0.63	0.66	0.65
Cl	0.14	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01
S	0.02	0.09	0.10	0.09	0.08	0.11	0.09	0.08	0.13
P_2O_5	0.76	0.36	0.27	0.25	0.27	0.27	0.28	0.27	0.25
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	82.12	79.42	79.64	80.15	79.90	79.47	79.58	79.37	79.47
X (wt% olvine)	4.80	-4.20	-4.20	-5.00	-4.80	-4.60	-2.80	-7.20	-4.80
Trace Elements									
Li									
B									
Sr									
Y									
Zr									
Nb									
Ba									
La									
Ce									
Nd									
Sm									
Eu									
Gd									
Dy									
Er									
Yb									
Hf									

Table DR2: Continued.

Location	Albuquerque Volcanoes (35.189N, -106.769N)									
Sample ID	AV-1-6-1	AV-1-6-2	AV-1-6-3	AV-1-6-4.1	AV-1-6-4.2	AV-1-6-4.3	AV-1-6-5	AV-1-6-6.2	AV-1-6-8	AV-1-6-9.1
Type	T	T	T	T	T	T	T	T	T	T
Measured melt										
SiO_2	52.27	50.88	51.91	51.11	52.30	52.56	48.19	50.03	51.87	52.08
TiO_2	1.78	1.74	1.81	1.97	1.72	1.66	1.82	1.84	1.79	1.90
Al_2O_3	15.14	14.13	14.53	14.85	14.72	13.75	13.62	14.72	14.50	14.74
FeO	9.53	10.42	9.82	9.75	9.92	9.84	13.82	10.51	10.35	9.95
MnO	0.15	0.16	0.18	0.14	0.19	0.19	0.20	0.17	0.16	0.16
MgO	8.09	7.37	8.13	8.10	7.82	7.80	7.54	7.52	8.21	8.02
CaO	9.28	9.81	9.53	9.59	9.46	10.76	9.27	9.93	9.42	9.37
Na_2O	3.07	2.61	2.79	2.98	2.93	2.80	2.61	2.73	2.77	2.84
K_2O	0.64	0.54	0.59	0.62	0.52	0.52	0.55	0.54	0.60	0.65
Cl	0.011	0.015	0.012	0.011	0.012	0.009	0.020	0.013	0.015	0.016
S	0.053	0.081	0.049	0.051	0.053	0.055	0.064	0.067	0.053	0.055
P_2O_5	0.27	0.31	0.36	0.31	0.28	0.23	0.25	0.28	0.30	0.26
Total	100.35	98.09	99.74	99.53	99.99	100.24	97.97	98.38	100.08	100.15
Corrected Melt										
SiO_2	53.29	52.63	53.18	52.38	53.27	53.42	49.56	51.51	52.79	53.04
TiO_2	1.96	1.89	1.98	2.16	1.85	1.79	1.94	1.99	1.94	2.07
Al_2O_3	16.61	15.35	15.95	16.30	15.89	14.83	14.51	15.90	15.70	16.01
FeO	7.19	8.41	7.56	7.54	7.73	7.62	11.56	8.51	8.10	7.69
Fe_2O_3	1.74	1.89	1.80	1.78	1.78	1.77	2.45	1.89	1.87	1.80
MnO	0.17	0.17	0.20	0.16	0.20	0.20	0.21	0.18	0.17	0.18
MgO	4.37	5.11	4.68	4.73	4.89	4.78	6.17	5.32	5.16	4.79
CaO	10.18	10.66	10.46	10.53	10.21	11.61	9.87	10.73	10.19	10.18
Na_2O	3.36	2.84	3.06	3.27	3.17	3.02	2.78	2.95	3.00	3.09
K_2O	0.70	0.58	0.65	0.68	0.57	0.56	0.58	0.58	0.65	0.70
Cl	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.02
S	0.06	0.09	0.05	0.06	0.06	0.06	0.07	0.07	0.06	0.06
P_2O_5	0.30	0.33	0.39	0.34	0.31	0.25	0.27	0.30	0.33	0.29
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	78.39	78.41	78.61	78.78	79.01	78.91	76.01	78.73	79.07	78.77
X (wt% olvine)	-10.00	-6.60	-9.40	-9.20	-8.00	-8.20	-4.60	-6.40	-8.40	-8.80
Trace Elements										
Li										
B										
Sr	360.2		278.2	285.1						
Y	29.2		22.3	24.8						
Zr	140.8		119.6	120.9						
Nb	14.6		11.7	12.7						
Ba	179.8		148.5	148.0						
La	17.0		11.3	12.6						
Ce	34.4		24.9	26.1						
Nd	19.1		14.2	14.2						
Sm	4.8		4.1	3.5						
Eu	1.9		1.1	1.2						
Gd	5.0		3.2	5.2						
Dy	4.7		3.6	3.9						
Er	3.1		1.7	2.9						
Yb	2.7		1.9	1.3						
Hf	3.7		3.2	3.2						

Table DR2: Continued.

Location	Albuquerque Volcanoes (35.189N, -106.769N)								
Sample ID	AV-1-6-9.2	AV-1-7-1	AV-1-7-3.1	AV-1-7-4.1	AV-1-7-4.2	AV-1-7-5.1	AV-1-7-5.2	AV-1-7-5.3	AV-1-7-6.1
Type	T	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	51.17	51.96	50.97	50.95	50.92	50.72	52.68	52.50	52.40
TiO_2	1.92	1.36	1.84	1.92	1.82	1.92	1.76	1.90	1.78
Al_2O_3	15.05	15.13	14.71	14.97	13.92	14.47	15.07	15.48	15.03
FeO	10.01	9.73	9.92	9.78	9.68	10.55	9.36	9.56	9.81
MnO	0.18	0.16	0.15	0.11	0.18	0.17	0.14	0.14	0.15
MgO	7.80	7.49	8.33	7.96	8.72	8.27	8.25	7.60	8.17
CaO	9.87	8.73	9.96	9.92	11.09	9.83	9.21	9.42	9.73
Na_2O	2.91	3.26	2.89	2.99	2.22	3.19	3.11	3.31	2.79
K_2O	0.60	0.62	0.58	0.60	0.59	0.73	0.64	0.62	0.57
Cl	0.016	0.019	0.015	0.016	0.018	0.015	0.014	0.014	0.013
S	0.082	0.063	0.060	0.058	0.081	0.099	0.055	0.064	0.049
P_2O_5	0.29	0.30	0.30	0.27	0.36	0.33	0.32	0.30	0.28
Total	100.00	98.89	99.76	99.56	99.59	100.29	100.63	100.96	100.83
Corrected Melt									
SiO_2	52.00	53.57	52.15	52.15	52.58	51.51	53.64	52.90	53.04
TiO_2	2.07	1.49	2.02	2.10	2.07	2.09	1.93	2.02	1.93
Al_2O_3	16.21	16.56	16.17	16.36	15.80	15.73	16.55	16.51	16.27
FeO	7.83	7.59	7.64	7.59	7.16	8.18	7.01	7.36	7.49
Fe_2O_3	1.80	1.78	1.82	1.78	1.83	1.91	1.71	1.70	1.77
MnO	0.20	0.17	0.16	0.12	0.21	0.18	0.16	0.15	0.17
MgO	4.95	4.55	4.80	4.75	4.07	4.99	4.34	4.68	4.74
CaO	10.63	9.56	10.95	10.84	12.59	10.68	10.11	10.04	10.53
Na_2O	3.14	3.57	3.18	3.26	2.52	3.46	3.42	3.53	3.02
K_2O	0.65	0.68	0.64	0.66	0.67	0.80	0.70	0.66	0.62
Cl	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
S	0.09	0.07	0.07	0.06	0.09	0.11	0.06	0.07	0.05
P_2O_5	0.32	0.33	0.33	0.29	0.40	0.36	0.35	0.32	0.30
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	79.00	78.09	78.94	78.89	77.14	78.36	78.69	79.08	79.00
X (wt% olvine)	-7.80	-8.20	-9.60	-8.80	-12.60	-9.00	-10.40	-7.80	-9.20
Trace Elements									
Li									
B									
Sr				406.0	317.3	301.9	284.3		
Y				24.3	27.5	27.1	23.2		
Zr				120.4	129.2	137.6	127.5		
Nb				11.9	13.1	12.1	11.9		
Ba				179.8	251.2	406.1	162.6		
La				14.3	16.1	16.0	14.5		
Ce				27.6	34.2	30.3	26.8		
Nd				15.4	18.8	17.1	15.8		
Sm				3.8	5.1	5.2	4.3		
Eu				1.1	1.4	1.2	1.4		
Gd				5.0	5.3	5.4	5.0		
Dy				5.2	4.6	4.5	3.9		
Er				2.9	2.9	4.0	3.7		
Yb				1.8	2.9	3.1	2.0		
Hf				3.6	3.5	4.0	3.3		

Table DR2: Continued.

Location									
Sample ID	AV-1-8-2	AV-1-8-3	AV-1-8-4.4	AV-1-8-4.5	ZB-1-1.1	ZB-1-1.2	ZB-1-3-1	ZB-1-3-2	ZB-1-5-1
Type	T	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	50.95	48.74	52.21	52.25	49.22	48.98	50.36	51.20	50.95
TiO_2	1.77	1.71	1.49	1.85	1.56	1.28	1.30	1.22	1.37
Al_2O_3	14.69	13.86	13.56	14.61	15.64	15.24	15.12	14.72	15.29
FeO	10.01	9.99	11.67	9.97	9.40	9.74	9.69	9.92	9.72
MnO	0.15	0.16	0.15	0.18	0.14	0.16	0.18	0.15	0.14
MgO	7.12	7.10	8.36	8.17	7.35	7.32	7.30	7.78	7.48
CaO	9.48	9.77	9.96	9.11	9.53	9.57	9.62	9.46	9.77
Na_2O	2.82	2.52	2.91	2.92	3.94	3.78	3.42	3.25	3.46
K_2O	0.67	0.59	0.64	0.59	0.49	0.48	0.56	0.55	0.54
Cl	0.015	0.018	0.015	0.016	0.007	0.011	0.009	0.006	0.007
S	0.055	0.077	0.094	0.055	0.115	0.115	0.096	0.311	0.115
P_2O_5	0.34	0.30	0.36	0.31	0.28	0.29	0.21	0.20	0.21
Total	98.13	94.86	101.45	100.08	97.85	97.13	98.01	99.21	99.22
Corrected Melt									
SiO_2	52.71	52.32	52.26	53.26	50.55	50.85	51.67	52.14	51.67
TiO_2	1.93	1.95	1.57	2.01	1.63	1.37	1.35	1.27	1.42
Al_2O_3	15.98	15.80	14.32	15.88	16.35	16.28	15.81	15.34	15.82
FeO	8.01	8.15	9.18	7.73	8.00	8.23	8.22	8.31	8.14
Fe_2O_3	1.82	1.90	2.05	1.81	1.64	1.73	1.69	1.72	1.68
MnO	0.17	0.18	0.16	0.20	0.15	0.17	0.18	0.15	0.14
MgO	4.77	4.54	5.66	4.93	6.66	6.15	6.53	6.72	6.55
CaO	10.31	11.14	10.52	9.91	9.97	10.23	10.06	9.86	10.11
Na_2O	3.07	2.88	3.08	3.17	4.12	4.04	3.57	3.39	3.58
K_2O	0.73	0.67	0.68	0.64	0.51	0.51	0.59	0.57	0.56
Cl	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
S	0.06	0.09	0.10	0.06	0.12	0.12	0.10	0.32	0.12
P_2O_5	0.37	0.34	0.38	0.34	0.29	0.31	0.22	0.21	0.22
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	77.95	76.85	78.52	79.09	83.19	81.55	82.50	82.79	82.68
X (wt% olvine)	-6.80	-7.80	-7.40	-8.80	-2.40	-3.80	-2.60	-3.20	-2.80
Trace Elements									
Li									
B									
Sr									
Y									
Zr									
Nb									
Ba									
La									
Ce									
Nd									
Sm									
Eu									
Gd									
Dy									
Er									
Yb									
Hf									

Table DR2: Continued.

Location	Zuni-Bandera, McCarty's Flow (35.084N, -107.768W)								
Sample ID	ZB-1-11-1	ZB-1-11-2.2	ZB-1-11-2.3	ZB-1-11-4	ZB-1-11-5	ZB-1-11-6	ZB-1-11-7.1	ZB-1-11-7.2	ZB-1-8-1.1
Type	T	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	50.21	49.70	49.84	49.89	50.09	50.32	50.56	50.39	50.32
TiO_2	1.81	1.33	1.63	1.58	1.56	1.54	1.58	1.66	1.58
Al_2O_3	15.20	15.16	15.61	15.77	16.03	15.66	16.11	16.11	15.58
FeO	11.76	11.79	12.23	10.81	10.61	11.12	10.12	10.85	11.37
MnO	0.12	0.14	0.19	0.14	0.15	0.20	0.18	0.13	0.12
MgO	7.71	7.87	8.02	8.00	7.97	8.07	7.87	7.78	7.87
CaO	8.88	9.41	9.24	9.45	9.52	9.41	9.37	9.24	9.27
Na_2O	2.95	3.08	2.82	3.00	3.06	2.88	3.20	3.05	3.00
K_2O	0.77	0.56	0.62	0.57	0.54	0.42	0.53	0.69	0.64
Cl	0.016	0.008	0.009	0.008	0.010	0.010	0.013	0.014	0.012
S	0.136	0.124	0.134	0.108	0.122	0.130	0.094	0.101	0.130
P_2O_5	0.23	0.21	0.24	0.21	0.22	0.19	0.24	0.25	0.30
Total	99.87	99.50	100.64	99.62	99.89	100.05	99.88	100.34	100.28
Corrected Melt									
SiO_2	50.28	50.02	49.63	50.33	50.51	50.51	51.03	50.47	50.24
TiO_2	1.83	1.36	1.64	1.64	1.62	1.57	1.65	1.70	1.60
Al_2O_3	15.34	15.46	15.79	16.32	16.70	16.07	16.83	16.54	15.73
FeO	9.92	9.94	10.16	8.98	8.70	9.23	8.27	8.93	9.52
Fe_2O_3	1.98	2.00	2.06	1.87	1.84	1.90	1.76	1.86	1.91
MnO	0.13	0.14	0.19	0.15	0.16	0.20	0.18	0.13	0.13
MgO	7.35	7.31	7.24	6.83	6.41	7.02	6.22	6.57	7.32
CaO	8.96	9.59	9.35	9.77	9.92	9.65	9.78	9.49	9.35
Na_2O	2.98	3.14	2.86	3.11	3.18	2.96	3.34	3.13	3.03
K_2O	0.78	0.57	0.63	0.59	0.56	0.43	0.56	0.71	0.65
Cl	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
S	0.14	0.13	0.14	0.11	0.13	0.13	0.10	0.10	0.13
P_2O_5	0.24	0.21	0.24	0.21	0.23	0.19	0.25	0.26	0.31
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	81.44	81.39	80.86	81.91	81.34	81.84	81.67	81.39	82.00
X (wt% olvine)	-1.20	-1.80	-2.20	-3.40	-4.40	-3.00	-4.60	-3.40	-1.60
Trace Elements									
Li									
B									
Sr				280.9	288.8	267.9			
Y				23.4	24.8	22.8			
Zr				115.0	114.4	104.8			
Nb				9.9	10.0	7.5			
Ba				140.7	137.7	104.4			
La				12.7	12.7	10.2			
Ce				28.4	27.9	24.2			
Nd				15.2	13.7	12.9			
Sm				4.1	4.6	3.5			
Eu				1.5	1.2	1.5			
Gd				5.3	5.1	3.5			
Dy				4.8	4.4	4.5			
Er				2.7	2.6	2.4			
Yb				2.6	2.3	2.4			
Hf				2.5	2.9	2.5			

Table DR2: Continued.

Location	Zuni-Bandera, McCarty's Flow (35.084N, -107.768W)								
Sample ID	ZB-1-8-1.2	ZB-1-9-1.1	ZB-1-9-1.2	ZB-1-9-1.3	ZB-1-10-2	ZB-1-10-1.1	ZB-1-12-1	ZB-1-12-2	ZB-1-12-3
Type	T	T	T	T	T	T	T	T	T
Measured melt									
SiO_2	50.03	47.30	50.33	49.40	50.34	49.94	49.86	49.96	50.40
TiO_2	1.78	1.43	1.53	1.54	1.62	1.49	1.59	1.60	1.54
Al_2O_3	16.36	12.72	15.79	15.24	16.05	15.17	15.23	15.96	15.45
FeO	9.99	15.32	11.39	11.72	10.42	11.17	11.91	10.46	12.32
MnO	0.15	0.21	0.17	0.16	0.17	0.17	0.19	0.12	0.16
MgO	7.85	6.97	7.75	7.60	7.77	7.58	8.44	7.89	7.81
CaO	9.28	7.77	9.35	9.23	9.55	9.04	9.07	9.70	9.20
Na_2O	3.31	2.89	3.13	2.90	3.05	3.13	2.88	3.05	2.82
K_2O	0.63	0.65	0.48	0.53	0.62	0.58	0.60	0.52	0.50
Cl	0.016	0.012	0.015	0.010	0.010	0.009	0.011	0.008	0.010
S	0.123	0.123	0.103	0.143	0.186	0.107	0.268	0.129	0.126
P_2O_5	0.29	0.23	0.21	0.19	0.23	0.26	0.23	0.20	0.23
Total	99.86	95.67	100.29	98.71	100.00	98.73	100.35	99.63	100.63
Corrected Melt									
SiO_2	50.48	48.99	50.28	50.14	50.58	50.74	50.20	50.70	49.99
TiO_2	1.86	1.45	1.55	1.59	1.67	1.54	1.67	1.70	1.53
Al_2O_3	17.09	12.88	15.99	15.69	16.51	15.68	16.05	16.95	15.32
FeO	8.16	13.80	9.51	9.94	8.62	9.43	9.64	8.44	10.39
Fe_2O_3	1.74	2.59	1.92	2.01	1.79	1.92	2.09	1.85	2.04
MnO	0.15	0.21	0.17	0.16	0.18	0.18	0.20	0.13	0.16
MgO	6.19	8.21	7.06	7.03	6.64	6.85	6.32	5.75	7.75
CaO	9.70	7.86	9.48	9.50	9.82	9.34	9.56	10.30	9.12
Na_2O	3.46	2.92	3.17	2.98	3.14	3.23	3.04	3.24	2.79
K_2O	0.65	0.66	0.48	0.54	0.64	0.60	0.63	0.56	0.49
Cl	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
S	0.13	0.12	0.10	0.15	0.19	0.11	0.28	0.14	0.12
P_2O_5	0.30	0.23	0.21	0.20	0.23	0.27	0.24	0.22	0.23
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	81.89	77.92	81.55	80.87	82.00	81.28	79.50	80.24	81.57
X (wt% olvine)	-4.60	3.00	-2.00	-2.00	-3.20	-2.40	-6.00	-6.00	-0.20
Trace Elements									
Li									
B									
Sr	404.5						277.0	296.6	238.4
Y	27.2						25.8	24.5	19.2
Zr	142.9						124.1	118.2	104.0
Nb	15.3						10.3	9.8	9.2
Ba	161.3						161.1	129.0	121.0
La	17.6						16.7	13.3	12.0
Ce	35.4						31.2	25.2	24.1
Nd	18.6						16.4	13.9	12.6
Sm	5.4						4.8	5.0	3.9
Eu	1.5						1.4	1.5	1.6
Gd	5.7						5.1	5.2	3.5
Dy	6.6						5.4	5.5	4.6
Er	3.4						2.6	2.7	2.7
Yb	3.5						2.7	2.8	2.1
Hf	4.3						3.2	3.3	3.7

Table DR2: Continued.

Location			Zuni-Bandera, Bandera Crater (34.989N, -108.095W)					
Sample ID	ZB-1-13-4	ZB-1-13-5	BC-2-1-4-1	BC-2-2-1-1	BC-2-2-6-1	BC-2-3-1-1	BC-2-3-3-1	BC-2-3-3-2
Type	T	T	A	A	A	A	A	A
Measured melt								
SiO_2	49.91	49.83	43.49	44.92	43.57	45.27	44.60	44.18
TiO_2	1.35	1.48	2.96	2.85	2.79	1.38	2.66	2.50
Al_2O_3	14.85	15.38	18.03	17.71	18.03	16.80	18.21	16.87
FeO	13.51	11.58	8.71	7.89	8.99	9.30	9.36	10.08
MnO	0.13	0.12	0.11	0.11	0.11	0.12	0.10	0.17
MgO	7.75	7.60	7.46	8.14	7.82	14.22	7.93	10.53
CaO	8.41	8.90	10.75	11.06	10.72	2.32	9.62	9.34
Na_2O	3.07	2.92	3.80	4.27	3.76	2.92	4.22	4.03
K_2O	0.48	0.89	1.63	1.78	1.67	5.63	1.68	1.63
Cl	0.014	0.011	0.04	0.04	0.04	0.10	0.04	0.05
S	0.112	0.132	0.37	0.11	0.11	0.12	0.11	0.13
P_2O_5	0.21	0.25	0.79	0.87	0.83	2.11	0.78	0.68
Total	100.27	99.12	97.83	99.68	98.38	100.23	99.21	100.11
Corrected Melt								
SiO_2	49.86	50.13	44.35	45.19	44.26	46.16	44.94	44.35
TiO_2	1.37	1.49	3.08	2.99	2.87	1.70	2.72	2.70
Al_2O_3	15.04	15.43	18.80	18.53	18.59	20.69	18.61	18.21
FeO	11.29	9.94	7.80	6.83	8.10	7.50	8.37	8.65
Fe_2O_3	2.28	1.94	1.01	0.92	1.03	1.27	1.06	1.21
MnO	0.14	0.12	0.11	0.11	0.11	0.15	0.10	0.19
MgO	7.10	7.79	6.66	6.42	7.32	6.18	7.37	7.53
CaO	8.52	8.93	11.21	11.57	11.06	2.86	9.84	10.08
Na_2O	3.11	2.92	3.96	4.47	3.87	3.60	4.31	4.35
K_2O	0.48	0.89	1.70	1.86	1.72	6.93	1.72	1.76
Cl	0.01	0.01	0.04	0.05	0.04	0.13	0.04	0.06
S	0.11	0.13	0.39	0.12	0.11	0.15	0.11	0.14
P_2O_5	0.21	0.25	0.82	0.91	0.86	2.60	0.80	0.73
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	78.81	82.36	83.47	84.87	84.35	83.00	83.91	83.83
X (wt% olvine)	-2.00	0.60	-2.60	-4.60	-1.80	-21.60	-1.80	-8.20
Trace Elements								
Li				5.5		8.9		
B				3.0		9.7		
Sr				895.3		2899.6		
Y				24.9		12.2		
Zr				230.1		663.2		
Nb				39.1		164.0		
Ba				379.0		1376.8		
La				33.0		142.4		
Ce				75.7		223.8		
Nd				37.9		36.5		
Sm				5.8		4.4		
Eu				1.8		0.1		
Gd				7.4		6.8		
Dy				6.0		3.1		
Er				2.5		2.0		
Yb				1.4		0.7		
Hf				4.7		13.8		

Table DR2: Continued.

Location	Zuni-Bandera, Bandera Crater (34.989N, -108.095W)								
Sample ID	BC-2-3-5-1	BC-2-5-1-2	BC-2-5-3-1	BC-2-5-5-1	BC-2-5-6-1	BC-2-5-8-1	BC-2-6-1-1	BC-2-6-4-1	BC-2-6-6-1
Type	A	A	A	A	A	A	A	A	A
Measured melt									
SiO_2	44.76	46.69	44.53	45.66	44.59	42.52	45.95	45.65	45.10
TiO_2	2.60	3.50	2.56	2.78	2.60	5.55	2.78	2.98	2.45
Al_2O_3	17.30	20.87	17.61	17.88	17.76	17.52	18.49	17.73	17.18
FeO	9.82	7.09	9.44	8.34	9.59	9.14	8.00	8.52	9.46
MnO	0.17	0.10	0.10	0.10	0.13	0.10	0.14	0.09	0.17
MgO	8.03	5.85	7.87	7.75	8.29	7.46	8.13	8.05	7.95
CaO	10.17	4.89	10.24	10.52	10.46	8.70	11.24	10.75	10.24
Na_2O	3.60	3.42	3.83	3.94	3.88	4.14	3.94	4.22	3.82
K_2O	1.69	6.48	1.59	1.58	1.64	2.63	1.66	1.69	1.64
Cl	0.03	0.08	0.04	0.04	0.04	0.04	0.04	0.03	0.04
S	0.13	0.09	0.13	0.10	0.15	0.14	0.12	0.11	0.06
P_2O_5	0.69	1.01	0.78	0.80	0.74	0.58	0.75	0.80	0.74
Total	98.89	100.00	98.61	99.43	99.73	98.40	101.16	100.55	98.81
Corrected Melt									
SiO_2	45.35	46.61	45.24	45.94	44.73	43.09	45.45	45.45	45.77
TiO_2	2.71	3.50	2.68	2.84	2.67	5.61	2.81	3.04	2.56
Al_2O_3	18.06	20.83	18.44	18.27	18.27	17.68	18.68	18.06	17.96
FeO	8.67	6.37	8.35	7.41	8.45	8.37	6.96	7.45	8.37
Fe_2O_3	1.14	0.79	1.10	0.95	1.10	1.03	0.90	0.96	1.10
MnO	0.17	0.10	0.11	0.10	0.13	0.10	0.14	0.09	0.18
MgO	6.83	5.84	6.67	7.08	7.24	7.72	7.09	6.99	6.74
CaO	10.61	4.88	10.72	10.75	10.76	8.79	11.35	10.95	10.70
Na_2O	3.76	3.41	4.01	4.03	3.99	4.18	3.98	4.30	3.99
K_2O	1.76	6.47	1.66	1.61	1.69	2.65	1.68	1.72	1.72
Cl	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.03	0.04
S	0.14	0.09	0.14	0.10	0.15	0.14	0.12	0.11	0.07
P_2O_5	0.72	1.01	0.81	0.82	0.76	0.58	0.76	0.81	0.77
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fo (m)	82.33	84.51	82.55	84.98	83.59	84.60	85.78	84.86	82.69
X (wt% olivine)	-3.60	-0.20	-3.60	-2.00	-3.00	0.60	-2.60	-2.80	-3.60
Trace Elements									
Li	6.2			5.3	6.2	5.7	5.2		7.1
B	3.7			2.3	2.5	2.0	2.9		3.4
Sr	757.2			855.8	921.3	1242.2	796.5		927.2
Y	28.8			30.8	34.2	30.0	29.7		34.9
Zr	211.4			240.6	250.0	263.4	224.1		265.9
Nb	35.1			41.1	41.2	50.0	39.2		42.5
Ba	341.7			360.7	417.7	492.1	353.8		429.7
La	32.3			42.1	40.6	31.7	36.2		41.8
Ce	68.3			84.0	86.9	80.7	75.5		86.1
Nd	33.9			42.5	45.3	53.7	39.2		45.7
Sm	6.5			8.5	8.6	11.6	7.5		9.0
Eu	2.0			1.8	2.0	3.1	2.6		2.1
Gd	6.1			8.1	7.3	8.6	6.3		6.8
Dy	5.3			6.9	7.1	6.8	6.4		6.8
Er	2.3			3.1	3.3	3.3	3.0		3.2
Yb	2.0			2.1	3.0	2.3	2.6		3.3
Hf	4.6			6.2	5.4	7.2	5.9		7.1

Table DR2: Continued.

Location		
Sample ID	BC-2-6-8-1	BC-2-6-8-2
Type	A	A
Measured melt		
SiO_2	46.43	45.45
TiO_2	2.85	2.97
Al_2O_3	17.87	17.98
FeO	8.47	8.49
MnO	0.11	0.09
MgO	7.77	8.06
CaO	10.05	10.48
Na_2O	4.29	4.07
K_2O	1.72	1.65
Cl	0.04	0.04
S	0.10	0.11
P_2O_5	0.83	0.91
Total	100.46	100.16
Corrected Melt		
SiO_2	46.30	45.44
TiO_2	2.90	3.04
Al_2O_3	18.22	18.42
FeO	7.40	7.43
Fe_2O_3	0.96	0.97
MnO	0.11	0.09
MgO	6.72	6.95
CaO	10.25	10.74
Na_2O	4.38	4.17
K_2O	1.76	1.69
Cl	0.04	0.04
S	0.10	0.11
P_2O_5	0.85	0.94
Total	100.00	100.00
Fo (m)	84.43	84.79
X (wt% olvine)	-2.80	-3.00
Trace Elements		
Li		
B		
Sr		
Y		
Zr		
Nb		
Ba		
La		
Ce		
Nd		
Sm		
Eu		
Gd		
Dy		
Er		
Yb		
Hf		

Notes: [1]Grains were heated using two different experimental setups. Setup 1: Olivine and orthopyroxene grains were heated for 14 minutes in a 1-atm Deltech vertical tube furnace modified for rapid (<1 sec) quenching following techniques described in Rowe et al. (2007). Oxygen fugacity was maintained by a CO_2-H_2 mixture at oxidation states ranging from QFM to QFM-1. Setup 2: Grains were sealed in Pt-tubing with graphite powder to keep olivine grains from oxidizing. The Pt-tubing was then suspending into the hot zone of a Deltech 1-atm vertical furnace for 15 minutes then rapidly removed and quenched in water (~2-3 sec). Furnace temperatures were based on MELTS estimates of liquidus temperatures from whole rock geochemistry. [2]Melt inclusion major element compositions (including S and Cl) were determined by electron microprobe analysis (EMPA) at Oregon State University (OSU; Cameca SX100), University of Oregon (UO; Cameca SX100), and University of Texas at Austin (UTA; JEOL 8200).

[3]Melt inclusion compositions were corrected for over or under heating assuming mineral-melt equilibrium at time of trapping, after Rowe et al. (2007). Equilibrium olivine or orthopyroxene is incrementally added or subtracted from the melt composition until the calculated equilibrium mineral composition matches the measured host composition. Equilibrium compositions are determined assuming a melt Fe^{3+}/Fe_T of 0.1 and mineral-melt Fe-Mg distribution coefficients of 0.3 (olivine) and 0.245 (orthopyroxene; Roedder and Emslie, 1970).

[4]Melt inclusion trace element concentrations were determined by secondary ion mass spectrometry (SIMS) on a Cameca 6f ion microprobe at Arizona State University (ASU) over two analytical sessions. For trace element analysis we used a $^{16}O^-$ primary beam (1 nA) focused to ~20-25 μm in diameter. Positive secondary ions were accelerated to 10 KeV. Following conventional energy filtering techniques (e.g. Shimizu et al., 1978) ions with a 75 ± 20eV excess kinetic energy were allowed into the mass spectrometer. After an initial pre-sputter time of 180 sec (session 1) and 300 sec (session 2), ions with a mass less than ^{140}Ce were counted for 1 sec (^{11}B counted for 2 sec), and ions with a mass greater than ^{144}Nd were counted for 5 sec for each measurement cycle (25 cycles per analysis). Measured ratios ($M^+/^{30}Si$) were corrected for interfering oxides using REE oxide production values (MO^+/M^+) from Zinner and Crozaz (1986) and a $^{135}Ba^{16}O/^{135}Ba$ oxide production ratio of .054 (R. Hervig, personal communication).

Table DR3: Inter-laboratory comparison of EMPA glass standards analyzed with melt inclusions.[1]

	UT		OSU		UO		Reported[2]
	average	std dev	average	stdev	average	stdev	
BHVO-2G							
SiO_2	49.50	0.93	49.79	0.14	49.20	0.46	49.30
TiO_2	2.45	0.32	2.76	0.03	2.71	0.08	2.79
Al_2O_3	13.43	0.75	13.71	0.06	13.99	0.34	13.60
FeO	10.66	0.62	10.95	0.09	10.81	0.15	11.30
MnO	0.15	0.02	0.16	0.02	0.17	0.03	0.17
MgO	7.02	0.07	7.50	0.03	7.01	0.03	7.13
CaO	11.51	0.17	11.28	0.05	11.04	0.03	11.40
Na_2O	2.46	0.13	2.15	0.03	2.26	0.04	2.40
K_2O	0.51	0.02	0.48	0.02	0.49	0.05	0.51
P_2O_5	0.27	0.02	0.27	0.02	0.36	0.01	0.29
Total	97.97	2.03	99.07	0.17	98.05	0.77	98.89
VG-2							
S	0.14	0.00			0.15	0.00	0.13
Cl	0.03	0.00			0.03	0.00	0.03
F					0.03	0.02	0.03
LO-02-04							
S			0.12	0.01	0.12	0.01	0.14
Cl			0.14	0.00	0.13	0.01	0.14
MgO[3]			9.27	0.06	8.75	0.08	9.03

Notes: [1]Measurements were made at Oregon State University (OSU; Cameca SX100), University of Oregon (UO; Cameca SX100), and University of Texas at Austin (UTA; JEOL 8200). Beam conditions were consistent between facilities with a 15 KeV accelerating volatage and 30 nA beam current. Beam size varied from 3-7 μm. Analytical routines were optimized for analysis of S and Cl, with on-peak count times of 60 and 100 sec (UTA), 90 and 60 sec (OSU) and 80 and 100 sec (UO), respectively.

[2]BHVO from GeoReM preferred values, VG-2 S from Thornber et al. (2002), Cl from De Hoog (2001), F from Straub and Layne (2003); LO-02-04 S from Rowe et al. (2007), Cl and MgO from Kent et al. (2002). MgO standard values for glasses analyzed at Oregon State University are high by 0.25 to 0.37 wt%.

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