

Appendix B

GEOCHEMICAL DATA

Table B.01: Major and trace element data from XRF analysis.

	EY-1	EY-2	EY-3	EY-4A	EY-4B	EY-5	EY-6	EY-7
UNNORMALIZED VALUES (wt%)								
SiO ₂	45.71	47.87	45.25	53.73	55.86	46.99	47.23	46.15
TiO ₂	3.22	3.85	3.84	2.16	1.72	3.06	3.42	3.87
Al ₂ O ₃	12.78	13.34	14.13	14.65	14.65	13.96	14.02	13.71
FeO*	13.53	13.62	14.11	10.80	10.04	13.57	13.50	14.26
MnO	0.21	0.22	0.20	0.23	0.24	0.20	0.21	0.22
MgO	7.77	4.56	5.19	2.85	1.98	5.61	5.24	4.52
CaO	10.27	8.92	10.26	6.76	5.50	10.62	10.14	9.49
Na ₂ O	2.53	3.42	2.76	4.46	4.92	2.81	3.04	3.42
K ₂ O	0.61	0.97	0.54	1.48	1.76	0.63	0.75	0.89
P ₂ O ₅	0.47	0.59	0.37	0.69	0.62	0.35	0.40	0.46
Totals	97.10	97.35	96.66	97.81	97.28	97.80	97.95	96.99
NORMALIZED VALUES (wt%)								
SiO ₂	47.07	49.17	46.82	54.93	57.42	48.05	48.22	47.58
TiO ₂	†3.32	†3.95	†3.97	2.21	1.76	†3.12	†3.49	†3.99
Al ₂ O ₃	13.16	13.70	14.62	14.98	15.06	14.27	14.31	14.14
FeO*	13.93	13.99	14.60	11.04	10.32	13.88	13.78	14.70
MnO	0.22	0.22	0.21	0.24	†0.24	0.21	0.21	0.23
MgO	8.00	4.68	5.37	2.91	2.04	5.74	5.35	4.66
CaO	10.58	9.16	10.61	6.91	5.65	10.86	10.35	9.78
Na ₂ O	2.61	3.51	2.86	4.56	5.06	2.87	3.10	3.53
K ₂ O	0.63	1.00	0.56	1.51	1.81	0.64	0.77	0.92
P ₂ O ₅	0.48	†0.60	0.39	†0.71	†0.63	0.35	0.40	0.47
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	94	18	28	7	1	33	23	1
Cr	173	27	56	23	6	32	22	4
Sc	38	28	32	16	16	37	26	26
V	322	311	376	107	48	382	397	401
Ba	139	206	113	291	371	118	151	158
Rb	12	19	10	31	37	9	12	18
Sr	351	431	439	409	390	387	387	443
Zr	190	274	195	407	485	192	201	241
Y	35	43	33	†61	†67	32	33	38
Nb	30.1	†45	29.5	†60	†69	30.5	†38	†42
Ga	22	23	24	†28	27	21	24	25
Cu	61	43	79	18	10	115	102	37
Zn	110	†136	†125	†157	†167	114	113	†131
Pb	0	0	0	0	3	0	0	0
La	6	24	7	48	39	17	22	25
Ce	71	90	53	108	111	43	56	64
Th	1	4	1	5	8	3	2	3

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-8	EY-9	EY-10	EY-11	EY-12	EY-13	EY-14	EY-15
UNNORMALIZED VALUES (wt%)								
SiO ₂	45.85	47.66	47.32	46.32	46.29	46.38	47.36	46.11
TiO ₂	3.02	2.95	2.33	2.91	3.99	3.43	4.09	2.78
Al ₂ O ₃	14.70	16.80	16.15	15.80	13.15	13.91	13.50	15.54
FeO*	12.98	11.36	10.60	11.88	14.38	12.46	14.82	11.22
MnO	0.20	0.18	0.16	0.18	0.23	0.20	0.23	0.17
MgO	5.75	4.16	6.81	5.13	4.46	5.54	4.52	6.09
CaO	10.84	9.99	11.89	10.78	9.37	10.22	9.55	12.12
Na ₂ O	2.73	3.41	2.85	2.99	3.37	3.09	3.43	2.53
K ₂ O	0.58	0.76	0.50	0.59	0.81	0.77	0.86	0.39
P ₂ O ₅	0.34	0.47	0.31	0.33	0.55	0.55	0.57	0.28
Totals	96.99	97.74	98.91	96.92	96.60	96.55	98.92	97.23
NORMALIZED VALUES (wt%)								
SiO ₂	47.28	48.76	47.84	47.79	47.92	48.04	47.88	47.42
TiO ₂	†3.11	†3.02	2.35	†3.01	†4.13	†3.55	†4.13	†2.85
Al ₂ O ₃	15.16	17.19	16.33	16.30	13.61	14.41	13.65	15.98
FeO*	13.38	11.62	10.72	12.26	†14.89	12.91	†14.98	11.54
MnO	0.20	0.18	0.16	0.19	0.23	0.21	0.23	0.18
MgO	5.93	4.26	6.89	5.29	4.62	5.74	4.57	6.26
CaO	11.18	10.22	12.02	11.12	9.70	10.59	9.65	12.47
Na ₂ O	2.81	3.49	2.88	3.09	3.49	3.20	3.47	2.60
K ₂ O	0.60	0.78	0.51	0.61	0.84	0.80	0.87	0.40
P ₂ O ₅	0.35	0.48	0.31	0.34	0.57	0.57	0.57	0.29
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	54	18	107	50	6	44	2	57
Cr	80	17	279	93	6	113	6	159
Sc	28	17	39	25	26	25	29	32
V	388	286	276	302	356	294	357	320
Ba	106	158	118	121	187	146	185	58
Rb	10	16	9	11	12	16	15	6
Sr	406	488	451	440	404	411	413	410
Zr	174	197	141	181	257	221	270	163
Y	32	32	23	33	44	37	†46	25
Nb	27.8	34.1	22.6	32.7	†41	†35	†40	25.4
Ga	25	23	21	23	25	24	25	21
Cu	98	55	65	72	40	66	38	101
Zn	108	100	86	101	†138	†118	†144	94
Pb	0	2	0	0	0	0	0	0
La	9	25	19	10	6	28	24	16
Ce	47	56	35	56	55	61	90	46
Th	0	3	1	1	4	4	3	2

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-16	EY-17	EY-18	EY-19	EY-20	EY-21	EY-22	EY-23
UNNORMALIZED VALUES (wt%)								
SiO ₂	48.26	45.12	46.90	45.77	46.68	47.03	52.47	52.35
TiO ₂	3.73	1.68	3.61	3.43	3.23	4.73	2.56	2.56
Al ₂ O ₃	13.88	10.24	14.00	13.84	13.88	13.01	15.68	15.60
FeO*	13.20	10.12	14.11	13.04	13.03	14.81	10.71	10.68
MnO	0.22	0.16	0.22	0.22	0.21	0.23	0.21	0.21
MgO	4.45	15.27	5.79	6.12	6.89	5.13	3.61	3.62
CaO	9.04	11.95	10.17	10.01	10.69	9.75	7.45	7.42
Na ₂ O	3.55	1.56	3.07	2.86	2.79	3.10	4.87	4.91
K ₂ O	0.86	0.27	0.69	0.64	0.61	0.72	1.46	1.45
P ₂ O ₅	0.51	1.17	0.52	0.52	0.46	0.58	0.89	0.90
Totals	97.69	97.54	99.07	96.45	98.46	99.09	99.91	99.70
NORMALIZED VALUES (wt%)								
SiO ₂	49.40	46.74	47.34	47.46	47.41	47.46	52.52	52.51
TiO ₂	†3.82	1.74	†3.64	†3.56	†3.28	†4.77	2.56	2.57
Al ₂ O ₃	14.21	10.61	14.13	14.35	14.10	13.13	15.69	15.65
FeO*	13.51	10.48	14.24	13.52	13.23	14.95	10.72	10.71
MnO	0.22	0.17	0.22	0.23	0.21	0.23	0.21	0.21
MgO	4.56	15.82	5.84	6.35	7.00	5.18	3.61	3.63
CaO	9.25	12.38	10.27	10.38	10.86	9.84	7.46	7.44
Na ₂ O	3.63	1.62	3.10	2.97	2.83	3.13	4.87	4.92
K ₂ O	0.88	0.28	0.70	0.66	0.62	0.73	1.46	1.45
P ₂ O ₅	0.52	0.18	0.53	0.54	0.47	0.59	†0.89	†0.90
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	2	399	48	49	60	7	15	16
Cr	8	961	83	89	140	20	39	40
Sc	29	42	27	26	28	32	19	18
V	368	251	365	334	338	373	154	154
Ba	170	27	132	149	114	155	288	282
Rb	17	7	13	11	10	11	30	21
Sr	405	235	403	404	385	466	448	444
Zr	248	101	208	199	190	223	392	393
Y	42	18	37	35	36	37	†58	†54
Nb	†43	12.9	32.7	31.1	29.3	†39	†60	†61
Ga	22	14	20	21	22	23	25	27
Cu	24	88	71	48	57	16	24	26
Zn	†132	70	†122	†121	112	†142	†136	†133
Pb	0	0	0	0	0	4	2	2
La	31	18	24	4	24	23	64	55
Ce	74	27	69	60	66	79	114	111
Th	4	2	0	4	1	1	4	6

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-24	EY-25	EY-26	EY-27	EY-28	EY-29	EY-30	EY-31
UNNORMALIZED VALUES (wt%)								
SiO ₂	46.87	67.02	47.48	48.53	50.60	47.07	50.14	48.29
TiO ₂	3.51	0.57	3.65	4.11	3.00	3.44	3.03	3.72
Al ₂ O ₃	15.26	14.44	15.06	13.47	15.00	15.78	14.43	13.16
FeO*	13.17	6.12	13.62	14.32	12.15	13.07	12.54	13.84
MnO	0.20	0.17	0.20	0.24	0.22	0.19	0.21	0.21
MgO	5.16	0.20	4.90	4.53	4.08	5.16	4.62	5.03
CaO	10.90	2.61	10.65	9.06	8.12	11.33	10.09	9.56
Na ₂ O	3.02	5.83	3.12	3.61	4.37	2.83	3.09	3.14
K ₂ O	0.58	3.07	0.63	0.85	1.16	0.51	0.62	0.89
P ₂ O ₅	0.39	0.09	0.40	0.53	0.73	0.33	0.38	0.79
Totals	99.06	100.12	99.71	99.25	99.43	99.71	99.16	98.63
NORMALIZED VALUES (wt%)								
SiO ₂	47.32	66.94	47.62	48.90	50.89	47.21	50.57	48.96
TiO ₂	†3.54	0.57	†3.66	†4.15	†3.02	†3.45	†3.06	†3.77
Al ₂ O ₃	15.40	14.42	15.10	13.57	15.09	15.83	14.55	13.34
FeO*	13.30	6.11	13.66	14.43	12.22	13.11	12.65	14.03
MnO	0.20	0.17	0.21	0.24	0.22	0.19	0.22	0.22
MgO	5.21	0.20	4.91	4.56	4.10	5.18	4.66	5.10
CaO	11.00	2.61	10.68	9.13	8.17	11.36	10.18	9.69
Na ₂ O	3.05	†5.82	3.13	3.64	4.39	2.84	3.12	3.18
K ₂ O	0.59	3.07	0.63	0.86	1.17	0.51	0.63	0.90
P ₂ O ₅	0.40	0.09	0.40	0.54	†0.74	0.33	0.39	†0.80
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	25	5	22	0	4	28	19	18
Cr	54	3	52	8	22	81	38	30
Sc	31	8	34	28	23	31	30	28
V	364	10	372	340	206	375	299	313
Ba	121	534	106	183	236	113	211	162
Rb	9	73	10	14	21	8	12	18
Sr	433	205	426	417	463	442	452	447
Zr	195	†679	205	271	314	175	303	241
Y	32	†79	35	41	†50	29	43	43
Nb	31.9	†98	32.1	†41	†48	23.6	†45	†42
Ga	23	†30	23	†28	26	26	21	23
Cu	116	6	92	9	19	98	45	47
Zn	†118	†164	†125	†143	†141	112	†125	†137
Pb	2	6	2	1	0	5	0	2
La	11	73	17	28	27	16	21	35
Ce	41	159	45	85	80	53	58	59
Th	1	11	3	1	3	2	3	2

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-34	EY-36	EY-37	EY-38	EY-39	EY-40	EY-41	EY-42
UNNORMALIZED VALUES (wt%)								
SiO ₂	57.69	51.83	51.06	49.45	46.96	46.81	47.20	56.98
TiO ₂	1.45	2.56	2.62	3.36	2.53	3.98	2.74	1.73
Al ₂ O ₃	14.85	14.98	15.02	14.46	14.87	13.67	14.76	14.88
FeO*	11.03	11.58	11.52	12.90	12.11	14.70	12.19	10.30
MnO	0.27	0.22	0.22	0.22	0.19	0.22	0.18	0.24
MgO	1.44	4.11	4.47	4.58	8.74	5.19	8.34	2.07
CaO	5.28	7.76	8.15	8.93	10.74	10.09	10.95	5.59
Na ₂ O	5.33	4.64	4.43	4.00	2.83	3.41	2.67	5.28
K ₂ O	1.80	1.19	1.11	0.96	0.46	0.70	0.46	1.77
P ₂ O ₅	0.50	0.57	0.55	0.61	0.28	0.44	0.27	0.63
Totals	99.64	99.44	99.15	99.48	99.70	99.20	99.77	99.47
NORMALIZED VALUES (wt%)								
SiO ₂	57.90	52.12	51.50	49.77	47.10	47.19	47.31	57.29
TiO ₂	1.45	2.57	2.64	†3.39	2.54	†4.01	†2.75	1.74
Al ₂ O ₃	14.90	15.06	15.15	14.55	14.91	13.78	14.79	14.96
FeO*	11.07	11.65	11.62	12.84	12.15	†14.82	12.22	10.36
MnO	†0.27	0.23	0.22	0.22	0.19	0.22	0.18	†0.24
MgO	1.45	4.13	4.51	4.65	8.77	5.23	8.36	2.08
CaO	5.30	7.80	8.22	8.97	10.77	10.17	10.98	5.62
Na ₂ O	†5.35	4.67	4.47	4.04	2.84	3.44	2.68	†5.31
K ₂ O	1.81	1.20	1.12	0.96	0.46	0.71	0.46	1.78
P ₂ O ₅	0.50	0.57	0.55	†0.62	0.28	0.44	0.27	†0.63
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	0	27	36	19	163	22	135	3
Cr	0	66	93	31	373	27	279	5
Sc	15	25	23	22	31	32	31	19
V	7	178	199	277	311	436	315	60
Ba	398	247	230	195	73	115	79	364
Rb	34	21	20	16	9	12	8	35
Sr	387	417	415	423	349	398	378	394
Zr	468	311	299	275	146	223	151	485
Y	†66	†49	†46	43	27	37	26	†66
Nb	†69	†49	†45	†42	20.6	31.7	22.5	†67
Ga	†30	24	27	25	23	22	22	†29
Cu	1	33	45	45	76	75	86	7
Zn	†179	†135	†133	†131	95	†135	99	†167
Pb	2	0	1	1	1	1	0	2
La	62	35	34	22	11	28	23	61
Ce	130	77	80	84	40	47	51	135
Th	7	3	3	2	0	1	0	5

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-43	EY-44	EY-45	EY-46	EY-47	EY-48	EY-49	EY-50
UNNORMALIZED VALUES (wt%)								
SiO ₂	50.22	51.02	46.96	46.74	47.70	47.76	47.08	50.74
TiO ₂	2.87	2.74	3.94	3.94	3.13	3.13	2.20	2.34
Al ₂ O ₃	14.38	14.27	13.67	13.60	14.81	15.70	12.64	16.35
FeO*	12.69	12.46	14.08	13.97	12.05	12.09	11.83	10.44
MnO	0.22	0.23	0.20	0.20	0.19	0.18	0.17	0.19
MgO	4.90	4.19	5.91	5.92	6.95	5.82	12.63	4.68
CaO	8.83	8.17	10.99	10.98	10.76	11.77	11.58	9.13
Na ₂ O	3.84	4.13	2.91	2.81	2.91	2.77	1.91	4.21
K ₂ O	1.00	1.19	0.59	0.60	0.67	0.50	0.28	1.05
P ₂ O ₅	0.78	0.87	0.40	0.40	0.36	0.29	0.17	0.41
Totals	99.74	99.27	99.65	99.16	99.54	100.00	100.49	99.54
NORMALIZED VALUES (wt%)								
SiO ₂	50.35	51.40	47.13	47.14	47.92	47.76	46.85	50.97
TiO ₂	†2.88	†2.76	†3.95	†3.97	†3.15	†3.13	2.19	2.35
Al ₂ O ₃	14.42	14.38	13.72	13.72	14.88	15.70	12.58	16.43
FeO*	12.72	12.55	14.13	14.09	12.11	12.09	11.77	10.49
MnO	0.22	0.23	0.20	0.20	0.19	0.18	0.17	0.19
MgO	4.91	4.22	5.93	5.97	6.98	5.82	12.57	4.70
CaO	8.85	8.23	11.03	11.07	10.81	11.77	11.52	9.17
Na ₂ O	3.85	4.16	2.92	2.83	2.92	2.77	1.90	4.23
K ₂ O	1.00	1.20	0.59	0.61	0.67	0.50	0.28	1.05
P ₂ O ₅	†0.79	†0.88	0.40	0.40	0.36	0.29	0.17	0.42
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)								
Ni	30	14	51	51	78	41	251	50
Cr	94	50	72	70	142	85	546	80
Sc	25	23	27	31	36	34	39	18
V	225	179	416	416	374	355	295	200
Ba	199	219	110	102	125	90	27	185
Rb	20	24	9	10	11	9	4	20
Sr	410	422	433	438	398	415	291	433
Zr	277	316	183	185	185	162	108	283
Y	†47	†52	31	32	29	27	20	41
Nb	†43	†50	29.2	29.7	30.9	21.7	15.2	†41
Ga	25	23	21	21	23	24	19	25
Cu	38	26	116	112	97	101	92	49
Zn	†141	†145	†124	†120	106	102	92	†130
Pb	0	0	4	2	1	1	3	1
La	29	51	5	28	23	18	3	42
Ce	96	92	58	50	40	32	34	72
Th	3	4	2	3	2	1	1	4

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.01 cont.: Major and trace element data from XRF analysis.

	EY-52	EY-53	EY-54	EY-55	STF-1	STF-3	STF-5
UNNORMALIZED VALUES (wt%)							
SiO ₂	49.36	49.05	49.56	52.70	46.72	46.02	47.43
TiO ₂	3.87	3.63	3.70	2.47	3.23	1.90	3.93
Al ₂ O ₃	14.45	16.31	13.83	15.11	13.78	13.43	13.29
FeO*	13.28	11.99	14.05	11.51	14.11	9.68	13.52
MnO	0.22	0.21	0.23	0.22	0.20	0.15	0.22
MgO	4.16	4.33	4.93	3.94	5.35	10.29	4.69
CaO	8.66	9.74	9.19	8.02	9.99	13.31	9.04
Na ₂ O	4.54	3.91	3.39	4.23	2.98	1.90	3.29
K ₂ O	1.09	0.79	0.80	1.21	0.66	0.35	0.91
P ₂ O ₅	0.57	0.60	0.49	0.65	0.36	0.18	0.56
Totals	100.21	100.57	100.16	100.06	97.38	97.21	96.87
NORMALIZED VALUES (wt%)							
SiO ₂	49.26	48.77	49.48	52.67	47.98	47.34	48.96
TiO ₂	†3.87	†3.61	†3.69	2.47	†3.31	1.95	†4.06
Al ₂ O ₃	14.42	16.22	13.81	15.10	14.15	13.82	13.72
FeO*	13.25	11.92	14.03	11.50	14.49	9.96	13.96
MnO	0.22	0.21	0.23	0.22	0.21	0.16	0.22
MgO	4.15	4.31	4.92	3.94	5.49	10.59	4.84
CaO	8.64	9.69	9.17	8.02	10.26	13.69	9.33
Na ₂ O	4.53	3.89	3.38	4.23	3.06	1.95	3.40
K ₂ O	1.09	0.79	0.80	1.21	0.68	0.36	0.94
P ₂ O ₅	0.57	†0.60	0.48	0.65	0.37	0.19	0.57
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(PPM)							
Ni	1	7	5	17	16	176	17
Cr	12	22	11	55	16	510	30
Sc	25	29	30	21	28	39	25
V	308	298	336	180	402	276	329
Ba	217	192	172	242	123	63	188
Rb	20	11	12	23	8	7	16
Sr	434	492	342	428	383	356	429
Zr	260	297	256	343	192	113	258
Y	43	†45	†45	†50	34	19	39
Nb	†44	†47	†39	†50	31.5	19.7	†43
Ga	24	†28	21	26	20	18	24
Cu	10	19	59	37	79	105	33
Zn	†128	†138	†139	†146	115	67	†133
Pb	1	1	0	3	0	0	0
La	16	24	12	31	15	15	27
Ce	79	71	62	93	52	41	87
Th	1	2	2	3	3	2	2

* Total Fe is expressed as FeO

† denotes values >120% of highest standard

Table B.02: CIPW norms, and equilibrium olivine data.

	EY-1	EY-2	EY-3	EY-4A	EY-4B	EY-5	EY-6	EY-7	EY-8	EY-9	EY-10
Roeder and Emslie (1970) equilibrium olivine (calculated from cation mole %).											
Fo%	79.69	69.56	71.53	64.30	57.46	73.86	72.62	68.41	75.17	71.47	81.45
Mg#	52.44	39.11	41.39	33.60	27.51	44.26	42.71	37.84	45.97	41.31	55.24
CIPW NORM											
Q	.00	.00	.00	2.06	3.83	.00	.00	.00	.00	.00	.00
Or	3.72	5.91	3.31	8.92	10.70	3.78	4.55	5.44	3.55	4.61	3.01
Ab	22.08	29.70	24.20	38.59	42.82	24.29	26.23	28.44	23.78	29.53	22.38
An	22.33	18.67	25.40	15.95	13.03	24.16	22.86	20.02	26.98	28.93	30.12
Ne	.00	.00	.00	.00	.00	.00	.00	.77	.00	.00	1.08
Di	22.22	19.10	20.59	11.59	9.30	22.80	21.53	21.30	21.73	15.55	22.55
Hy	4.95	9.25	4.92	15.40	13.97	5.62	5.11	.00	1.57	2.66	.00
OI	15.18	6.36	10.96	.00	.00	10.51	10.08	13.16	13.68	10.13	14.07
Mt	2.24	2.25	2.35	1.78	1.66	2.24	2.22	2.37	2.16	1.87	1.73
Il	6.31	7.50	7.54	4.19	3.35	5.93	6.63	7.58	5.91	5.74	4.47
Ap	1.05	1.31	.85	1.55	1.38	.77	.88	1.03	.77	1.04	.67
Total	100.09	100.06	100.12	100.02	100.03	100.10	100.09	100.11	100.11	100.07	100.09

Table B.02 cont.: CIPW norms, and equilibrium olivine data.

	EY-11	EY-12	EY-13	EY-14	EY-15	EY-16	EY-17	EY-18	EY-19	EY-20	EY-21
Roeder and Emslie (1970) equilibrium olivine (calculated from cation mole %).											
Fe%	74.67	67.95	75.23	67.58	78.75	69.75	91.16	73.70	76.24	78.33	70.30
Mg#	45.31	37.33	46.05	36.94	51.02	39.32	74.35	44.05	47.42	50.39	39.95
CIPW NORM											
Q	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Or	3.61	4.96	4.73	5.14	2.36	5.20	1.65	4.14	3.90	3.66	4.31
Ab	26.10	29.53	27.08	29.36	22.00	30.72	12.70	26.23	25.13	23.95	26.49
An	28.80	18.99	22.59	19.10	30.75	19.88	20.85	22.57	23.87	23.94	19.62
Ne	.02	.00	.00	.00	.00	.00	.54	.00	.00	.00	.00
Di	20.02	21.30	21.71	21.00	24.06	18.90	31.62	20.73	19.95	22.17	21.14
Hy	.00	2.68	1.87	2.84	.95	8.31	.00	2.53	4.69	2.81	8.80
Oi	13.10	11.14	12.05	11.15	12.05	6.52	27.36	13.54	12.44	14.18	6.99
Mt	1.98	2.40	2.08	2.41	1.86	2.18	1.69	2.29	2.18	2.13	2.41
Il	5.72	7.84	6.74	7.84	5.41	7.26	3.31	6.91	6.76	6.23	9.06
Ap	.75	1.24	1.24	1.25	.64	1.13	.39	1.15	1.17	1.02	1.28
Total	100.10	100.10	100.09	100.10	100.08	100.08	100.11	100.10	100.10	100.09	100.10

Table B.02 cont.: CIPW norms, and equilibrium olivine data.

	EY-22	EY-23	EY-24	EY-25	EY-26	EY-27	EY-28	EY-29	EY-30	EY-31	EY-34
Roeder and Emslie (1970) equilibrium olivine (calculated from cation mole %).											
Fo%	69.70	69.84	72.80	18.28	71.06	68.34	69.63	72.97	71.57	71.29	47.23
Mg#	39.27	39.42	42.93	5.91	40.83	37.76	39.18	43.14	41.43	41.11	20.10
CIPW NORM											
Q	.00	.00	.00	13.42	.00	.00	.00	.00	.68	.00	3.28
Or	8.63	8.57	3.49	18.14	3.72	5.08	6.91	3.01	3.72	5.32	10.70
Ab	41.21	41.63	25.81	49.25	26.49	30.80	37.15	24.03	26.40	26.91	45.27
An	16.64	16.33	26.59	4.15	25.29	18.15	18.01	28.94	23.83	19.47	11.29
Ne	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Di	12.19	12.30	21.13	7.24	20.91	19.80	14.81	21.02	20.15	19.50	10.13
Hy	4.19	3.47	.94	5.59	2.83	7.26	3.92	2.88	16.63	13.78	13.75
Oi	8.61	9.11	12.42	.00	10.83	7.64	9.93	10.84	.00	3.90	.00
Mt	1.73	1.73	2.14	.98	2.20	2.33	1.97	2.11	2.04	2.26	1.78
Il	4.86	4.88	6.72	1.08	6.95	7.88	5.74	6.55	5.81	7.16	2.76
Ap	1.94	1.97	.86	.20	.88	1.17	1.62	.72	.85	1.75	1.10
Total	99.99	100.00	100.11	100.06	100.10	100.11	100.05	100.11	100.11	100.04	100.07

Table B.02 cont.: CIPW norms, and equilibrium olivine data.

	EY-36	EY-37	EY-38	EY-39	EY-40	EY-41	EY-42	EY-43	EY-44	EY-45	EY-46
Roeder and Emslie (1970) equilibrium olivine (calculated from cation mole %).											
Fe%	70.78	72.62	71.22	83.14	70.68	82.38	57.84	72.51	69.67	74.14	74.33
Mg#	40.50	42.70	41.02	58.09	40.39	56.78	27.82	42.57	39.23	44.62	44.86
CIPW NORM											
Q	.00	.00	.00	.00	.00	.00	2.56	.00	.00	.00	.00
Or	7.09	6.62	5.67	2.72	4.20	2.72	10.52	5.91	7.09	3.49	3.61
Ab	39.52	37.82	34.19	22.39	27.21	22.68	44.93	32.58	35.20	24.71	23.95
An	16.59	17.96	18.73	26.58	20.06	26.97	11.73	19.11	17.02	22.59	22.93
Ne	.00	.00	.00	.89	1.03	.00	.00	.00	.00	.00	.00
Di	15.39	16.02	18.12	20.47	22.98	21.05	10.28	16.38	15.14	24.47	24.35
Hy	3.48	2.45	2.39	.00	.00	1.35	13.67	8.95	10.68	2.02	3.33
Oi	9.99	11.09	11.12	19.68	13.68	17.56	.00	7.86	5.72	12.18	11.26
Mt	1.88	1.87	2.07	1.96	2.39	1.97	1.67	2.05	2.02	2.28	2.27
Il	4.88	5.01	6.43	4.82	7.62	5.22	3.30	5.47	5.24	7.50	7.54
Ap	1.24	1.21	1.35	.61	.96	.60	1.38	1.73	1.92	.88	.88
Total	100.05	100.06	100.07	100.10	100.12	100.11	100.04	100.03	100.04	100.11	100.11

Table B.02 cont.: CIPW norms, and equilibrium olivine data.

	EY-47	EY-48	EY-49	EY-50	EY-52	EY-53	EY-54	EY-55	STF-1	STF-3	STF-5
Roeder and Emslie (1970) equilibrium olivine (calculated from cation mole %).											
Fo%	79.75	76.68	87.95	75.38	68.15	71.18	70.55	70.07	72.13	87.90	70.32
Mg#	52.53	48.03	67.22	46.24	37.55	40.98	40.24	39.68	42.11	67.12	39.97
CIPW NORM											
Q	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Or	3.96	2.96	1.65	6.21	6.44	4.67	4.73	7.15	4.02	2.13	5.56
Ab	24.71	23.44	16.08	34.92	33.79	32.90	28.60	35.79	25.89	14.84	28.77
An	25.51	28.93	24.97	22.74	15.79	24.46	20.15	18.64	22.87	27.89	19.40
Ne	.00	.00	.00	.47	2.46	.01	.00	.00	.00	.90	.00
DI	21.16	22.81	25.14	16.63	19.54	16.40	18.53	14.16	21.37	31.37	19.31
Hy	2.25	2.90	3.88	.00	.00	.00	13.56	14.48	5.09	.00	9.93
OI	13.76	10.56	21.96	12.03	11.32	11.54	4.20	1.86	11.44	17.25	5.91
Mt	1.95	1.95	1.90	1.69	2.13	1.92	2.26	1.85	2.33	1.60	2.25
II	5.98	5.94	4.16	4.46	7.35	6.86	7.01	4.69	6.29	3.70	7.71
AP	.79	.62	.37	.91	1.25	1.31	1.06	1.42	.81	.41	1.25
Total	100.08	100.11	100.10	100.06	100.07	100.07	100.09	100.05	100.11	100.09	100.09

Table B.03: Ta, Hf and REE data from INAA.

	EY-1	EY-4B	EY-11	EY-18	EY-20	STF-3	STF-5
La	20.54	51.31	21.53	22.82	20.50	11.30	28.69
Ce	49.57	115.73	47.90	51.99	50.50	24.81	64.83
Nd	27.85	58.90	26.10	29.39	26.69	15.02	36.73
Sm	6.87	13.17	6.11	7.17	6.55	3.39	8.49
Eu	2.63	4.58	2.20	2.76	2.51	1.36	3.13
Tb	1.13	2.28	0.97	1.17	1.06	0.54	1.39
Yb	2.54	6.11	2.39	2.92	3.40	1.98	3.38
Lu	0.36	0.73	0.36	0.34	0.34	0.20	0.42
Ta	1.68	3.67	1.70	1.75	1.57	0.77	2.45
Hf	5.17	13.43	4.87	5.63	4.96	2.87	7.18

Table B.04: K-Ar ages and $^3\text{He}/^4\text{He}$ values.

sample#	wt% K	radiogenic Argon/gram	% radiogenic Argon	K-Ar age (x 1000 yrs)
Ey-1	0.481	1.10E-08	2.93	587±31
Ey-2	0.822	2.43E-09	0.34	76±45
Ey-3	0.457	1.45E-09	1.73	82±21
Ey-5	0.534	1.68E-08	16.58	809±50
Ey-6	0.423	1.19E-08	3.27	722±33
Ey-7	0.732	2.00E-08	18.87	702±17
Ey-8	0.647	2.00E-08	9.63	797±17
Ey-9	0.631	1.72E-08	6.92	701±33
Ey-11	0.506	1.39E-08	4.77	706±25
Ey-12	0.706	1.13E-08	6.40	414±21
Ey-13	0.662	1.01E-08	5.04	394±25
Ey-14	0.755	9.08E-09	3.87	309±18
Ey-16	0.713	2.37E-08	19.69	[857±17]*
Ey-19	0.540	1.24E-08	3.12	589±37
Ey-20	0.503	1.21E-08	2.99	619±26
Ey-23	1.204	4.06E-09	4.71	87±16
Ey-24	0.490	5.87E-10	0.65	31±28
Ey-27	0.714	3.21E-09	1.58	116±20
Ey-31	0.747	1.58E-09	3.49	54±15
Ey-34	1.502	2.30E-09	5.04	39±10
Ey-38	0.805	1.83E-09	1.01	58±18
Ey-44	0.996	5.75E-09	1.61	149±24
Ey-45	0.490	3.43E-10	0.53	18±16
Ey-48	0.415	1.95E-09	1.90	121±39
Ey-50	0.872	4.38E-09	7.00	129±20
Ey-52	0.905	1.23E-08	11.88	349±19
STF-5	0.780	3.59E-09	1.41	118±34

* Sample didn't equilibrate with atmosphere - sill.

sample#	$^3\text{He}/^4\text{He}$ (x atmospheric ratio)
Ey-32	19.40±0.40
Ey-39	19.40±0.3
Ey-49	18.50±0.90
Ey-50	17.4±0.8