

Appendix D: Biotite major element data (sample 08007).

Grain	c/r ¹	Oxide content (wt%)								Total
		SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	
1	c	37.48	2.14	18.17	17.35	9.40	0.21	7.96	<DL	92.71
1	r	38.19	1.69	17.91	17.83	10.63	0.14	9.10	0.31	95.79
2	c	36.83	2.70	17.34	18.14	10.42	0.19	9.37	0.65	95.64
2	r	37.00	2.52	17.59	18.79	10.14	0.15	9.44	0.49	96.12
3	c	37.23	2.44	17.59	18.45	10.97	0.23	9.38	0.15	96.44
3	r	37.49	2.57	16.78	18.33	11.06	0.20	9.18	0.38	96.00
4	c	37.39	2.43	17.16	18.63	10.24	0.25	9.06	0.17	95.33
4	r	36.64	2.10	17.23	19.18	10.58	0.17	9.13	0.41	95.43
5	c	37.13	2.55	17.27	18.47	10.37	0.25	9.50	0.53	96.06
5	r	37.59	2.57	17.30	18.39	10.14	0.27	9.33	<DL	95.59
6	c	37.13	2.22	17.47	18.64	10.37	0.20	9.43	0.27	95.73
6	r	38.08	2.34	17.10	18.66	10.22	0.17	9.27	0.31	96.14
7	c	36.54	2.43	17.65	17.41	11.09	0.20	6.93	<DL	92.25
7	r	38.53	2.60	17.65	17.04	11.05	0.24	9.14	<DL	96.25
8	c	37.73	2.47	17.22	19.01	10.27	0.18	9.02	0.51	96.41
8	r	36.66	1.97	17.29	18.34	10.41	0.20	8.94	0.34	94.15
9	c	37.87	2.44	16.83	16.23	12.21	0.31	9.35	0.36	95.59
9	r	37.73	2.44	17.43	16.74	11.66	0.23	9.38	0.29	95.90
10	c	37.91	2.11	17.08	19.26	10.27	0.25	9.53	0.32	96.73
10	r	37.85	2.20	17.30	19.04	10.22	0.14	9.62	0.15	96.52
11	c	37.05	1.76	17.16	18.87	10.35	0.19	9.28	0.29	94.95
11	r	36.94	1.61	17.11	18.64	10.59	0.22	9.27	0.16	94.54
12	c	37.08	2.09	16.65	19.22	10.55	0.24	9.19	0.49	95.51
12	r	37.47	1.81	16.85	18.86	10.65	0.23	9.23	0.49	95.59
13	c	36.92	2.20	16.46	20.00	9.91	0.26	9.33	0.47	95.55
13	r	37.25	2.30	17.07	19.28	10.21	0.16	9.42	0.37	96.06
14	c	37.68	2.56	17.57	17.55	10.94	0.26	9.44	0.45	96.45
14	r	38.02	2.94	17.26	17.48	10.82	0.14	9.63	<DL	96.29
15	c	38.06	2.12	16.90	17.76	11.05	0.27	9.23	0.45	95.84
15	r	37.78	2.34	17.03	17.80	10.98	0.15	9.45	<DL	95.53
16	c	36.95	2.31	16.99	19.26	10.25	0.21	9.33	<DL	95.30
16	r	37.50	1.99	17.31	18.68	10.31	0.21	9.28	0.39	95.67
17	c	36.54	2.27	17.03	18.95	10.40	0.29	9.27	0.33	95.08
17	r	37.12	2.24	16.75	18.90	10.47	0.26	9.15	0.23	95.12
18	c	37.31	2.30	17.07	17.56	11.14	0.36	9.00	0.59	95.33
18	r	36.14	2.56	17.04	17.43	12.33	0.12	7.66	0.46	93.74
19	c	36.75	2.13	17.19	18.34	10.81	0.18	9.30	0.40	95.10
19	r	36.46	2.29	16.85	18.69	10.86	0.13	9.36	0.30	94.93
20	c	37.47	2.31	16.76	17.22	11.26	0.27	9.55	<DL	94.84
20	r	38.06	2.37	16.99	17.55	11.15	0.20	9.41	0.25	95.98
21	c	37.86	2.39	16.85	19.03	10.24	0.27	9.26	0.25	96.15
21	r	37.49	2.29	16.97	19.17	10.41	0.24	9.23	0.39	96.18
22	c	37.04	2.35	17.09	18.87	10.32	0.27	9.31	0.47	95.71
22	r	37.21	2.20	17.01	18.52	10.23	0.30	9.36	0.45	95.27
23	c	37.59	2.15	17.82	17.44	11.48	0.24	9.32	0.31	96.35
23	r	37.39	2.24	17.40	16.79	11.67	0.12	9.41	0.35	95.37
24	c	37.54	2.65	16.76	17.76	11.03	0.25	9.29	0.39	95.67
24	r	37.88	2.53	17.08	17.40	10.98	0.32	9.41	<DL	95.60
25	c	37.41	2.48	17.26	19.52	10.11	0.23	9.58	<DL	96.59
25	r	36.86	2.67	16.46	19.59	9.63	0.18	9.05	0.30	94.75
26	c	37.29	1.92	17.20	18.79	10.40	0.16	8.83	0.33	94.92
26	r	37.87	1.90	17.38	19.23	10.25	0.19	9.40	0.31	96.54
27	c	37.05	1.89	17.78	18.13	10.61	0.20	8.06	0.19	93.91
27	r	37.09	2.08	17.17	18.84	10.50	0.18	9.25	0.18	95.29
28	c	37.25	2.86	16.86	19.58	9.93	0.25	9.11	0.39	96.22
28	r	37.66	2.55	16.80	19.29	9.99	0.16	9.22	0.36	96.02
29	c	37.65	2.06	18.03	18.84	10.07	0.28	9.22	0.34	96.49
29	r	37.74	2.05	17.56	18.99	10.22	0.27	9.17	0.36	96.37

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 08007).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.859	0.123	1.634	1.107	1.069	0.031	0.775	0.004	7.604
1	r	2.848	0.095	1.574	1.112	1.182	0.020	0.866	0.009	7.712
2	c	2.782	0.153	1.544	1.146	1.173	0.028	0.903	0.019	7.756
2	r	2.785	0.143	1.561	1.183	1.138	0.021	0.907	0.015	7.755
3	c	2.777	0.137	1.546	1.151	1.220	0.034	0.893	0.004	7.774
3	r	2.812	0.145	1.483	1.150	1.237	0.029	0.878	0.011	7.754
4	c	2.821	0.138	1.526	1.175	1.152	0.037	0.872	0.005	7.733
4	r	2.782	0.120	1.542	1.218	1.198	0.025	0.884	0.012	7.781
5	c	2.797	0.144	1.533	1.163	1.164	0.036	0.913	0.015	7.767
5	r	2.822	0.145	1.531	1.155	1.135	0.039	0.894	0.004	7.731
6	c	2.800	0.126	1.553	1.176	1.166	0.029	0.907	0.008	7.765
6	r	2.848	0.132	1.507	1.167	1.140	0.024	0.884	0.009	7.720
7	c	2.794	0.140	1.590	1.113	1.264	0.030	0.676	0.003	7.623
7	r	2.842	0.144	1.534	1.051	1.215	0.034	0.860	0.001	7.691
8	c	2.822	0.139	1.518	1.189	1.145	0.026	0.861	0.015	7.722
8	r	2.804	0.113	1.558	1.173	1.187	0.030	0.872	0.010	7.754
9	c	2.825	0.137	1.479	1.012	1.358	0.044	0.890	0.010	7.766
9	r	2.808	0.137	1.529	1.042	1.294	0.033	0.891	0.008	7.753
10	c	2.834	0.119	1.505	1.204	1.145	0.036	0.909	0.009	7.766
10	r	2.828	0.124	1.524	1.190	1.138	0.020	0.917	0.005	7.753
11	c	2.820	0.101	1.539	1.201	1.174	0.028	0.901	0.009	7.774
11	r	2.818	0.092	1.538	1.189	1.204	0.033	0.902	0.005	7.788
12	c	2.815	0.119	1.490	1.220	1.194	0.035	0.890	0.014	7.783
12	r	2.833	0.103	1.502	1.193	1.200	0.034	0.890	0.014	7.775
13	c	2.816	0.126	1.480	1.276	1.127	0.039	0.908	0.014	7.790
13	r	2.809	0.130	1.517	1.216	1.148	0.024	0.906	0.011	7.767
14	c	2.805	0.143	1.541	1.092	1.214	0.038	0.896	0.013	7.748
14	r	2.822	0.164	1.510	1.085	1.197	0.020	0.912	0.002	7.723
15	c	2.850	0.119	1.491	1.112	1.233	0.039	0.882	0.013	7.745
15	r	2.832	0.132	1.504	1.116	1.227	0.022	0.904	0.001	7.745
16	c	2.802	0.132	1.518	1.221	1.159	0.031	0.903	0.002	7.773
16	r	2.827	0.113	1.538	1.178	1.159	0.030	0.893	0.012	7.752
17	c	2.786	0.130	1.530	1.208	1.182	0.043	0.902	0.010	7.791
17	r	2.819	0.128	1.499	1.200	1.185	0.039	0.887	0.007	7.766
18	c	2.811	0.130	1.516	1.106	1.251	0.053	0.865	0.017	7.758
18	r	2.751	0.147	1.529	1.110	1.399	0.017	0.744	0.014	7.718
19	c	2.790	0.122	1.538	1.165	1.224	0.026	0.901	0.012	7.782
19	r	2.778	0.131	1.513	1.191	1.234	0.019	0.910	0.009	7.796
20	c	2.831	0.131	1.492	1.088	1.268	0.040	0.920	0.000	7.772
20	r	2.840	0.133	1.494	1.095	1.240	0.029	0.896	0.007	7.743
21	c	2.840	0.135	1.490	1.194	1.145	0.039	0.886	0.007	7.743
21	r	2.819	0.130	1.504	1.205	1.167	0.034	0.885	0.011	7.760
22	c	2.802	0.134	1.523	1.194	1.164	0.039	0.898	0.014	7.771
22	r	2.821	0.125	1.520	1.174	1.156	0.044	0.905	0.013	7.768
23	c	2.794	0.120	1.561	1.084	1.272	0.034	0.884	0.009	7.765
23	r	2.801	0.126	1.536	1.052	1.303	0.018	0.899	0.010	7.761
24	c	2.820	0.150	1.484	1.116	1.235	0.036	0.890	0.011	7.751
24	r	2.832	0.142	1.505	1.088	1.224	0.047	0.898	0.003	7.745
25	c	2.801	0.140	1.523	1.222	1.128	0.033	0.915	0.000	7.770
25	r	2.821	0.154	1.485	1.254	1.099	0.027	0.884	0.009	7.737
26	c	2.828	0.110	1.537	1.192	1.176	0.023	0.854	0.010	7.732
26	r	2.833	0.107	1.532	1.203	1.143	0.028	0.897	0.009	7.757
27	c	2.813	0.108	1.591	1.151	1.201	0.029	0.781	0.006	7.688
27	r	2.807	0.118	1.532	1.193	1.185	0.026	0.893	0.005	7.768
28	c	2.805	0.162	1.496	1.233	1.115	0.036	0.875	0.011	7.740
28	r	2.834	0.144	1.490	1.214	1.121	0.023	0.885	0.010	7.730
29	c	2.809	0.116	1.585	1.175	1.120	0.040	0.877	0.010	7.740
29	r	2.823	0.115	1.548	1.188	1.140	0.040	0.875	0.011	7.744

¹ Core (c) or rim (r) of grains

Appendix D: Biotite major element data (sample 08008c).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	36.56	3.53	15.51	24.24	6.77	0.07	9.19	<DL	95.87
1	r	37.13	2.83	15.47	24.49	6.94	<DL	9.37	0.41	96.64
2	c	37.39	2.93	15.95	21.34	8.52	0.03	8.09	0.23	94.48
2	r	35.89	2.55	15.46	21.60	9.15	0.02	8.45	0.32	93.45
3	c	36.68	3.35	15.51	23.91	7.21	0.05	9.41	<DL	96.12
3	r	35.77	3.60	15.04	23.58	6.83	0.03	9.07	0.15	94.07
4	c	36.16	2.50	15.18	21.50	8.86	0.12	7.83	0.23	92.38
4	r	36.11	2.64	15.63	21.68	8.87	0.09	7.43	0.21	92.66
5	c	37.42	3.08	15.48	21.95	8.48	<DL	9.93	0.40	96.74
5	r	37.61	2.32	16.16	21.45	8.75	0.06	8.35	0.18	94.88
6	c	36.77	2.57	15.58	22.30	8.07	0.05	9.55	0.20	95.09
6	r	35.54	1.75	14.72	23.34	8.70	0.05	7.71	0.22	92.02
7	c	36.87	2.86	15.41	21.68	8.61	0.05	8.27	0.18	93.93
7	r	35.15	1.68	15.89	22.40	9.71	0.05	7.37	<DL	92.25
8	c	38.44	2.81	17.24	20.32	7.97	0.08	9.73	<DL	96.59
8	r	37.87	2.86	16.51	22.14	8.66	0.10	8.95	0.55	97.65
9	c	36.51	3.25	15.37	21.43	8.79	0.12	8.07	0.43	93.97
9	r	36.28	2.22	15.80	20.28	9.55	0.07	7.47	0.34	92.01
10	c	37.00	3.02	15.02	21.18	8.79	0.05	8.97	0.46	94.49
10	r	36.40	2.68	15.28	20.25	9.53	0.07	9.52	0.19	93.93
11	c	36.69	2.70	15.41	20.02	9.90	0.09	9.13	0.35	94.29
11	r	36.31	1.90	15.61	17.29	8.38	<DL	6.18	<DL	85.67
12	c	36.90	2.77	16.29	21.56	8.57	0.07	9.50	0.37	96.03
12	r	37.03	3.07	15.56	20.43	8.39	0.09	9.43	<DL	94.00
13	c	37.24	3.10	16.35	21.42	8.60	0.08	9.54	0.26	96.59
13	r	37.39	2.94	16.11	20.74	8.35	0.16	9.31	0.17	95.17
14	c	37.04	2.97	15.21	22.21	9.03	0.03	9.71	<DL	96.20
14	r	37.83	2.88	15.23	21.58	8.77	0.09	9.65	0.32	96.35
15	c	38.24	2.94	16.10	21.84	7.70	0.08	9.45	0.20	96.55
15	r	36.58	2.56	16.21	21.80	8.65	0.03	9.80	0.15	95.78
16	c	37.19	2.83	15.60	21.29	7.96	0.06	8.78	<DL	93.71
16	r	37.20	2.86	15.17	22.26	7.91	0.09	9.13	0.36	94.97
17	c	36.55	3.22	15.62	22.34	8.43	0.03	9.65	0.42	96.26
17	r	36.20	2.99	15.74	22.23	8.68	0.09	9.90	0.22	96.05
18	c	36.93	3.49	15.35	23.36	7.37	0.07	9.72	<DL	96.29
18	r	37.09	3.54	15.40	22.47	7.04	0.04	9.70	0.25	95.52
19	c	37.75	2.64	15.52	19.63	10.44	0.08	9.74	0.48	96.27
19	r	37.26	2.47	15.25	18.77	10.87	0.12	9.79	0.34	94.87
20	c	36.88	2.85	15.70	21.86	8.46	<DL	9.50	0.15	95.40
20	r	37.23	2.08	16.05	22.46	8.52	0.06	9.54	<DL	95.94
21	c	35.94	3.20	15.38	23.45	7.08	0.07	9.50	<DL	94.62
21	r	35.61	3.18	15.18	23.45	7.25	<DL	9.79	0.68	95.14
22	c	36.60	2.58	16.02	21.36	8.51	0.06	7.92	<DL	93.05
22	r	37.49	2.68	16.13	20.45	8.47	0.11	8.76	0.21	94.30
23	c	37.26	3.14	15.61	19.88	9.19	0.06	8.59	0.35	94.08
23	r	38.53	2.89	15.74	18.84	8.83	0.07	7.76	<DL	92.66
24	c	36.72	2.56	15.07	21.31	9.12	0.05	9.56	<DL	94.39
24	r	37.07	2.71	15.16	20.97	9.01	0.06	9.17	<DL	94.15
25	c	37.08	3.25	15.44	20.46	8.84	0.10	8.49	0.27	93.93
25	r	35.40	3.24	14.57	20.84	9.27	0.06	8.73	0.27	92.38
26	c	36.74	3.30	15.19	22.22	8.16	0.12	9.42	0.26	95.41
26	r	36.36	3.28	15.00	22.21	8.07	0.03	9.74	0.46	95.15
27	c	36.77	3.02	15.44	21.25	9.20	0.04	9.70	0.50	95.92
27	r	36.31	3.03	14.90	20.76	9.53	0.06	9.19	<DL	93.78
28	c	37.26	2.92	15.92	22.23	8.27	0.06	9.69	0.51	96.86
28	r	35.77	2.42	15.19	21.49	9.15	0.15	9.99	0.37	94.53
29	c	37.50	3.08	15.80	21.31	9.05	0.07	9.79	0.41	97.01
29	r	37.47	3.03	15.06	21.36	8.75	0.04	9.57	<DL	95.28
30	c	36.53	3.18	15.97	23.10	7.27	0.10	9.65	0.17	95.97
30	r	36.62	2.55	15.78	23.49	7.62	0.04	9.48	0.36	95.94

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 08008c).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.825	0.205	1.412	1.566	0.780	0.010	0.906	0.001	7.720
1	r	2.854	0.164	1.401	1.574	0.795	0.000	0.919	0.012	7.739
2	c	2.866	0.169	1.441	1.368	0.973	0.004	0.791	0.007	7.643
2	r	2.810	0.150	1.427	1.414	1.068	0.004	0.844	0.010	7.750
3	c	2.823	0.194	1.407	1.539	0.827	0.008	0.924	0.004	7.744
3	r	2.818	0.213	1.397	1.554	0.802	0.004	0.912	0.005	7.727
4	c	2.848	0.148	1.409	1.416	1.040	0.019	0.787	0.007	7.702
4	r	2.827	0.155	1.442	1.419	1.035	0.014	0.742	0.006	7.674
5	c	2.848	0.176	1.388	1.397	0.962	0.000	0.964	0.012	7.764
5	r	2.874	0.133	1.456	1.371	0.997	0.008	0.814	0.005	7.675
6	c	2.848	0.150	1.422	1.444	0.932	0.008	0.944	0.006	7.767
6	r	2.843	0.105	1.388	1.561	1.037	0.007	0.787	0.007	7.755
7	c	2.858	0.167	1.408	1.405	0.995	0.007	0.818	0.005	7.683
7	r	2.773	0.100	1.478	1.478	1.142	0.008	0.742	0.001	7.760
8	c	2.878	0.158	1.521	1.272	0.889	0.011	0.929	0.000	7.673
8	r	2.833	0.161	1.456	1.385	0.966	0.015	0.854	0.016	7.711
9	c	2.830	0.189	1.404	1.389	1.016	0.018	0.798	0.013	7.685
9	r	2.841	0.131	1.458	1.328	1.115	0.010	0.746	0.011	7.674
10	c	2.864	0.176	1.370	1.371	1.014	0.008	0.886	0.014	7.720
10	r	2.831	0.157	1.401	1.317	1.105	0.011	0.944	0.006	7.789
11	c	2.831	0.157	1.402	1.292	1.139	0.014	0.899	0.011	7.765
11	r	2.973	0.117	1.506	1.184	1.023	0.001	0.646	0.000	7.479
12	c	2.816	0.159	1.465	1.376	0.975	0.010	0.925	0.011	7.756
12	r	2.865	0.179	1.419	1.322	0.968	0.014	0.931	0.003	7.717
13	c	2.820	0.177	1.459	1.356	0.971	0.012	0.921	0.008	7.739
13	r	2.859	0.169	1.452	1.326	0.952	0.024	0.908	0.005	7.710
14	c	2.829	0.171	1.369	1.419	1.028	0.004	0.946	0.004	7.789
14	r	2.878	0.165	1.366	1.373	0.995	0.013	0.937	0.010	7.748
15	c	2.889	0.167	1.434	1.380	0.867	0.011	0.911	0.006	7.685
15	r	2.805	0.148	1.465	1.398	0.989	0.004	0.959	0.005	7.794
16	c	2.886	0.165	1.427	1.382	0.921	0.008	0.869	0.000	7.673
16	r	2.878	0.166	1.383	1.440	0.912	0.013	0.901	0.011	7.721
17	c	2.802	0.186	1.411	1.432	0.964	0.004	0.944	0.013	7.776
17	r	2.781	0.173	1.425	1.428	0.994	0.013	0.970	0.006	7.821
18	c	2.837	0.202	1.390	1.501	0.844	0.011	0.952	0.001	7.749
18	r	2.862	0.205	1.401	1.450	0.810	0.006	0.955	0.007	7.710
19	c	2.851	0.150	1.381	1.240	1.175	0.011	0.938	0.014	7.780
19	r	2.849	0.142	1.374	1.200	1.239	0.018	0.955	0.010	7.807
20	c	2.836	0.165	1.423	1.406	0.970	0.002	0.932	0.004	7.752
20	r	2.846	0.120	1.446	1.436	0.971	0.009	0.930	0.000	7.779
21	c	2.815	0.189	1.420	1.536	0.827	0.010	0.949	0.000	7.765
21	r	2.798	0.188	1.406	1.541	0.849	0.000	0.981	0.021	7.799
22	c	2.849	0.151	1.470	1.390	0.988	0.008	0.786	0.002	7.661
22	r	2.879	0.155	1.460	1.313	0.970	0.017	0.858	0.006	7.672
23	c	2.863	0.181	1.414	1.277	1.053	0.009	0.842	0.011	7.672
23	r	2.955	0.167	1.423	1.208	1.010	0.010	0.759	0.000	7.551
24	c	2.849	0.149	1.378	1.383	1.055	0.008	0.946	0.001	7.788
24	r	2.868	0.158	1.382	1.357	1.039	0.008	0.905	0.000	7.740
25	c	2.863	0.189	1.405	1.321	1.018	0.015	0.836	0.008	7.670
25	r	2.805	0.193	1.361	1.381	1.095	0.009	0.882	0.008	7.765
26	c	2.837	0.192	1.383	1.435	0.939	0.019	0.928	0.008	7.752
26	r	2.828	0.192	1.375	1.445	0.936	0.004	0.966	0.014	7.778
27	c	2.818	0.174	1.394	1.362	1.051	0.006	0.948	0.015	7.787
27	r	2.826	0.177	1.367	1.351	1.106	0.008	0.913	0.000	7.772
28	c	2.831	0.167	1.426	1.412	0.937	0.009	0.939	0.015	7.760
28	r	2.795	0.142	1.399	1.404	1.066	0.022	0.996	0.011	7.864
29	c	2.833	0.175	1.407	1.346	1.019	0.010	0.944	0.012	7.763
29	r	2.874	0.175	1.362	1.370	1.001	0.006	0.937	0.000	7.740
30	c	2.817	0.184	1.452	1.490	0.836	0.014	0.949	0.005	7.754
30	r	2.826	0.148	1.435	1.516	0.877	0.006	0.933	0.011	7.775

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 08017).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	37.92	1.81	17.91	15.53	12.47	0.31	8.61	0.59	95.15
1	r	36.97	1.67	17.15	15.17	12.79	0.40	9.18	0.76	94.09
2	c	38.31	1.82	18.35	15.76	12.68	0.29	9.20	0.67	97.08
2	r	38.20	1.69	18.56	15.90	12.44	0.24	9.67	0.43	97.14
3	c	38.12	1.54	17.42	14.69	13.37	0.24	9.12	0.62	95.12
3	r	38.15	1.86	17.68	14.97	13.70	0.29	9.16	<DL	95.81
4	c	37.03	1.63	17.78	14.48	14.07	0.12	8.25	0.24	93.60
4	r	39.08	1.46	18.33	15.08	12.71	0.18	8.92	0.32	96.08
5	c	38.59	1.57	17.34	14.72	13.04	0.24	9.17	0.33	94.99
5	r	38.16	1.73	17.37	14.24	13.34	0.22	9.65	0.28	94.98
6	c	37.92	1.84	17.60	15.14	12.94	0.16	9.28	0.31	95.19
6	r	37.24	2.03	17.00	14.76	13.23	0.16	8.95	0.24	93.61
7	c	37.02	1.62	18.12	16.00	12.77	0.14	8.47	0.52	94.67
7	r	38.16	1.73	17.69	15.17	12.24	0.17	9.33	0.50	94.99
8	c	37.98	1.62	17.70	14.15	13.61	0.44	9.21	0.41	95.11
8	r	38.22	1.67	17.73	14.04	13.45	0.32	9.39	0.30	95.11
9	c	38.52	1.66	18.01	15.03	12.91	0.30	8.85	0.33	95.61
9	r	38.23	1.66	17.56	14.51	12.94	0.23	9.03	0.63	94.79
10	c	38.25	1.51	17.81	15.85	12.32	0.21	9.14	0.59	95.68
10	r	38.27	1.70	17.48	15.75	12.51	0.21	9.74	0.49	96.15
11	c	38.37	1.81	17.72	14.57	13.23	0.37	8.73	0.61	95.40
11	r	38.38	1.91	17.57	14.59	13.06	0.29	9.18	0.31	95.29
12	c	37.91	1.78	17.34	15.26	12.96	0.37	8.96	0.41	94.99
12	r	37.79	1.80	18.03	15.26	12.60	0.19	9.57	0.61	95.85
13	c	38.53	1.53	18.02	15.14	13.68	0.38	8.92	0.63	96.83
13	r	38.24	1.59	17.74	14.98	13.71	0.20	9.41	0.23	96.10
14	c	38.29	1.99	18.25	14.26	12.92	0.43	8.72	0.28	95.14
14	r	38.08	1.48	17.61	14.13	12.95	0.23	8.73	0.36	93.56
15	c	37.85	1.68	17.69	15.06	13.17	0.16	7.99	0.36	93.96
15	r	38.72	1.77	18.36	14.44	12.92	0.22	8.56	0.45	95.44
16	c	38.64	1.65	18.05	14.81	12.89	0.33	9.12	0.26	95.76
16	r	37.96	1.75	18.27	14.52	13.28	0.51	8.98	0.70	95.97
17	c	38.39	1.66	17.78	14.30	13.29	0.42	9.30	0.58	95.71
17	r	38.46	1.80	17.57	14.50	13.38	0.31	9.54	0.53	96.08
18	c	38.36	1.45	17.82	13.96	13.59	0.37	9.36	0.30	95.21
18	r	38.34	1.56	17.61	13.85	13.97	0.38	9.04	0.25	95.00
19	c	38.09	1.68	18.03	14.19	13.65	0.32	9.33	0.14	95.43
19	r	38.41	1.60	17.71	13.89	13.41	0.21	9.40	0.38	95.01
20	c	38.41	1.54	17.75	14.54	13.47	0.30	9.24	0.40	95.66
20	r	38.26	1.57	18.02	14.15	13.54	0.25	9.13	0.21	95.13
21	c	38.11	1.56	17.76	14.28	13.48	0.17	9.39	0.64	95.39
21	r	38.72	1.63	18.28	14.33	12.80	0.30	9.52	0.46	96.05
22	c	38.40	1.69	17.77	14.33	13.78	0.30	8.77	0.35	95.39
22	r	37.65	2.06	17.29	14.56	12.51	0.24	8.96	0.54	93.81
23	c	38.08	1.59	17.40	15.06	13.13	0.14	9.48	0.27	95.14
23	r	38.34	1.71	17.92	14.99	13.06	0.24	9.60	0.17	96.03
24	c	38.68	1.52	18.68	14.54	13.37	0.26	9.51	0.55	97.11
24	r	38.41	1.58	17.64	14.95	13.47	0.33	9.19	0.37	95.94
25	c	37.99	1.58	17.74	15.00	13.00	0.24	9.56	0.39	95.50
25	r	37.98	1.61	17.68	15.19	12.87	0.22	9.05	0.39	94.99
26	c	38.78	1.52	18.00	13.40	13.44	0.27	9.56	0.44	95.42
26	r	36.15	1.52	17.71	14.70	14.81	0.09	7.44	0.30	92.71
27	c	37.80	1.46	17.61	14.63	13.35	0.20	9.20	0.45	94.69
27	r	38.44	1.60	18.18	14.61	13.73	0.20	8.69	0.45	95.90
28	c	38.18	1.67	17.22	15.84	12.68	0.22	9.02	0.37	95.20
28	r	38.37	1.67	17.43	15.69	12.73	0.24	9.03	0.24	95.40
29	c	38.65	1.62	18.05	14.47	13.44	0.44	8.90	0.40	95.97
29	r	38.27	1.49	18.22	14.31	13.20	0.37	8.56	0.43	94.86
30	c	38.50	1.61	17.93	14.84	13.28	0.31	9.03	0.22	95.72
30	r	38.21	1.56	17.70	14.21	13.71	0.27	9.62	0.56	95.84

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 08017).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.820	0.101	1.570	0.966	1.382	0.045	0.817	0.017	7.725
1	r	2.802	0.095	1.532	0.961	1.445	0.059	0.887	0.023	7.810
2	c	2.803	0.100	1.582	0.964	1.383	0.041	0.859	0.019	7.756
2	r	2.796	0.093	1.601	0.973	1.357	0.035	0.903	0.012	7.778
3	c	2.834	0.086	1.526	0.913	1.482	0.034	0.865	0.018	7.765
3	r	2.806	0.103	1.533	0.921	1.502	0.042	0.860	0.004	7.775
4	c	2.779	0.092	1.572	0.909	1.574	0.017	0.790	0.007	7.745
4	r	2.858	0.080	1.580	0.922	1.386	0.026	0.832	0.009	7.700
5	c	2.864	0.087	1.517	0.914	1.443	0.034	0.868	0.010	7.740
5	r	2.835	0.097	1.521	0.885	1.478	0.031	0.915	0.008	7.778
6	c	2.819	0.103	1.542	0.941	1.434	0.024	0.880	0.009	7.758
6	r	2.811	0.115	1.512	0.932	1.489	0.023	0.862	0.007	7.759
7	c	2.775	0.091	1.601	1.003	1.427	0.021	0.810	0.015	7.748
7	r	2.845	0.097	1.554	0.946	1.360	0.024	0.887	0.015	7.735
8	c	2.816	0.090	1.547	0.877	1.504	0.063	0.871	0.012	7.786
8	r	2.830	0.093	1.547	0.869	1.485	0.045	0.887	0.009	7.770
9	c	2.837	0.092	1.564	0.926	1.418	0.043	0.832	0.010	7.726
9	r	2.845	0.093	1.540	0.903	1.436	0.033	0.857	0.018	7.735
10	c	2.838	0.084	1.558	0.984	1.363	0.030	0.865	0.017	7.745
10	r	2.832	0.095	1.524	0.975	1.380	0.031	0.919	0.014	7.783
11	c	2.835	0.101	1.543	0.900	1.457	0.053	0.823	0.018	7.731
11	r	2.838	0.106	1.531	0.902	1.440	0.042	0.866	0.009	7.742
12	c	2.826	0.100	1.524	0.951	1.440	0.054	0.852	0.012	7.763
12	r	2.802	0.100	1.575	0.946	1.392	0.027	0.905	0.018	7.774
13	c	2.811	0.084	1.549	0.924	1.488	0.054	0.830	0.018	7.770
13	r	2.812	0.088	1.538	0.921	1.503	0.028	0.883	0.007	7.785
14	c	2.822	0.110	1.585	0.879	1.420	0.061	0.820	0.008	7.714
14	r	2.856	0.083	1.556	0.886	1.448	0.033	0.835	0.010	7.716
15	c	2.829	0.094	1.558	0.941	1.467	0.024	0.762	0.010	7.690
15	r	2.841	0.098	1.588	0.886	1.413	0.031	0.801	0.013	7.682
16	c	2.841	0.091	1.564	0.911	1.413	0.047	0.855	0.008	7.738
16	r	2.796	0.097	1.586	0.894	1.458	0.073	0.844	0.020	7.771
17	c	2.831	0.092	1.545	0.882	1.461	0.060	0.875	0.017	7.771
17	r	2.831	0.100	1.524	0.893	1.468	0.044	0.896	0.015	7.776
18	c	2.834	0.081	1.552	0.863	1.497	0.053	0.882	0.009	7.775
18	r	2.831	0.086	1.533	0.855	1.538	0.054	0.852	0.007	7.768
19	c	2.808	0.093	1.567	0.875	1.500	0.046	0.877	0.004	7.776
19	r	2.844	0.089	1.545	0.860	1.480	0.030	0.888	0.011	7.752
20	c	2.833	0.085	1.543	0.897	1.481	0.043	0.869	0.012	7.766
20	r	2.825	0.087	1.568	0.874	1.490	0.036	0.860	0.006	7.752
21	c	2.825	0.087	1.551	0.885	1.489	0.024	0.888	0.019	7.769
21	r	2.841	0.090	1.581	0.879	1.400	0.043	0.891	0.013	7.745
22	c	2.829	0.094	1.543	0.883	1.513	0.043	0.824	0.010	7.740
22	r	2.836	0.117	1.535	0.917	1.405	0.034	0.861	0.016	7.726
23	c	2.832	0.089	1.525	0.937	1.456	0.020	0.900	0.008	7.775
23	r	2.820	0.095	1.554	0.922	1.432	0.035	0.901	0.005	7.773
24	c	2.811	0.083	1.600	0.884	1.448	0.037	0.882	0.016	7.765
24	r	2.828	0.088	1.531	0.920	1.478	0.047	0.863	0.011	7.775
25	c	2.820	0.088	1.552	0.931	1.439	0.035	0.905	0.011	7.784
25	r	2.827	0.090	1.551	0.946	1.428	0.032	0.859	0.011	7.753
26	c	2.852	0.084	1.560	0.824	1.473	0.039	0.897	0.013	7.750
26	r	2.735	0.086	1.579	0.930	1.670	0.013	0.718	0.009	7.753
27	c	2.822	0.082	1.549	0.913	1.486	0.028	0.876	0.013	7.773
27	r	2.816	0.088	1.570	0.895	1.499	0.028	0.812	0.013	7.729
28	c	2.843	0.094	1.511	0.987	1.408	0.032	0.857	0.011	7.749
28	r	2.845	0.093	1.523	0.973	1.407	0.034	0.854	0.007	7.744
29	c	2.832	0.089	1.559	0.887	1.468	0.063	0.832	0.011	7.746
29	r	2.828	0.083	1.587	0.884	1.454	0.054	0.807	0.013	7.724
30	c	2.830	0.089	1.553	0.912	1.455	0.044	0.847	0.006	7.746
30	r	2.819	0.087	1.539	0.877	1.508	0.038	0.905	0.016	7.796

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 09015).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	36.62	1.85	18.63	16.38	11.06	0.23	8.67	0.23	93.67
1	r	37.61	1.51	18.39	16.55	11.20	0.37	8.63	<DL	94.26
2	c	37.70	1.60	18.26	16.61	11.87	0.37	8.90	0.32	95.62
2	r	37.43	1.59	18.46	16.52	11.82	0.29	8.73	0.34	95.18
3	c	37.29	1.75	18.54	16.55	11.47	0.31	8.59	0.23	94.73
3	r	37.31	1.96	18.29	17.17	11.51	0.26	8.70	<DL	95.20
4	c	37.71	1.71	18.26	16.70	11.39	0.34	8.76	0.16	95.03
4	r	38.39	1.42	18.97	15.90	10.85	0.24	8.62	<DL	94.39
5	c	37.97	1.63	17.95	16.78	11.44	0.38	8.76	0.23	95.13
5	r	38.20	1.41	18.24	16.27	11.61	0.28	8.81	<DL	94.82
6	c	37.33	1.84	18.56	16.65	11.05	0.22	8.63	<DL	94.28
6	r	37.68	1.90	18.26	16.99	10.85	0.26	8.37	<DL	94.31
7	c	37.61	1.66	18.54	17.03	11.57	0.37	8.66	<DL	95.44
7	r	38.16	1.78	18.26	16.46	11.29	0.19	8.83	0.38	95.35
8	c	37.90	1.78	18.37	17.10	11.13	0.26	9.09	0.34	95.97
8	r	35.02	1.77	16.93	15.68	9.94	0.31	8.02	0.19	87.86
9	c	38.18	1.60	17.95	16.93	11.00	0.36	8.68	0.30	95.00
9	r	38.06	1.03	18.43	17.03	12.04	0.23	9.10	0.16	96.07
10	c	38.87	1.58	18.05	16.40	11.64	0.27	8.64	0.36	95.81
10	r	39.38	2.26	18.15	15.94	10.99	0.25	8.80	0.45	96.22
11	c	37.49	1.87	18.29	17.35	11.09	0.24	8.52	<DL	94.85
11	r	37.56	1.72	18.41	17.17	10.90	0.26	8.79	<DL	94.81
12	c	38.82	1.65	18.48	16.62	11.53	0.30	8.85	<DL	96.26
12	r	38.90	1.72	18.60	16.47	11.96	0.30	8.89	0.28	97.12
13	c	37.87	1.67	18.56	16.39	11.52	0.22	8.53	<DL	94.76
13	r	38.47	1.78	18.39	16.46	11.43	0.23	8.66	0.20	95.62
14	c	38.27	1.84	18.12	17.06	11.32	0.18	8.72	0.18	95.69
14	r	34.90	2.11	17.55	17.08	11.28	0.25	8.71	<DL	91.88
15	c	38.02	1.67	18.50	16.38	11.25	0.23	8.94	0.15	95.14
15	r	37.91	1.87	18.81	16.30	10.54	0.32	8.93	0.27	94.95
16	c	37.42	1.98	18.35	16.62	11.24	0.31	8.69	0.35	94.96
16	r	37.73	1.86	17.97	16.96	11.69	0.22	8.69	0.30	95.42
17	c	38.27	1.75	18.60	17.28	11.02	0.34	8.95	<DL	96.21
17	r	36.94	1.74	18.29	16.86	11.21	0.31	8.75	<DL	94.10
18	c	37.60	1.91	17.83	16.95	11.34	0.27	8.67	0.34	94.90
18	r	35.78	1.86	17.64	15.95	11.51	0.30	8.92	<DL	91.96
19	c	37.27	2.04	17.62	16.69	11.27	0.25	8.60	<DL	93.74
19	r	38.78	1.56	18.36	16.71	11.51	0.24	8.77	0.21	96.13
20	c	36.99	1.77	18.40	17.29	10.96	0.28	8.79	0.24	94.72
20	r	36.52	1.31	18.17	17.39	11.71	0.29	8.94	<DL	94.32
21	c	38.08	1.84	18.40	16.74	11.59	0.32	8.85	0.23	96.04
21	r	37.40	2.22	18.05	16.87	10.99	0.21	8.80	0.39	94.92
22	c	38.52	1.53	17.95	16.89	11.52	0.40	8.80	0.16	95.76
22	r	37.07	1.34	17.99	16.92	11.78	0.21	8.82	<DL	94.13
23	c	38.42	1.72	18.66	16.70	10.94	0.27	8.53	0.35	95.59
23	r	37.81	1.81	18.37	16.78	11.31	0.32	8.58	<DL	94.98
24	c	37.40	1.79	17.81	17.27	11.47	0.21	8.70	0.43	95.09
24	r	36.81	1.84	17.84	17.19	11.75	0.24	8.88	0.32	94.88
25	c	38.20	1.82	18.18	16.59	11.38	0.21	8.43	0.49	95.29
25	r	37.30	1.82	18.46	17.64	11.67	0.21	8.22	0.34	95.66
26	c	38.10	1.90	18.08	17.24	11.14	0.28	8.99	0.20	95.93
26	r	37.94	1.51	18.03	16.63	11.57	0.26	8.87	<DL	94.81
27	c	37.90	1.80	18.00	16.67	11.55	0.25	8.74	0.20	95.10
27	r	38.59	1.61	18.07	16.43	11.41	0.26	8.80	0.21	95.37
28	c	37.86	1.78	18.33	16.89	11.00	0.27	8.70	<DL	94.83
28	r	37.66	1.96	18.02	17.49	10.68	0.26	9.01	0.39	95.48
29	c	38.38	1.75	17.91	16.70	11.46	0.33	8.79	0.41	95.74
29	r	39.04	1.80	18.01	17.32	11.19	0.30	8.99	0.16	96.81
30	c	38.30	1.66	18.50	16.58	11.17	0.30	8.87	<DL	95.37
30	r	38.62	1.51	18.19	16.62	11.20	0.27	8.71	<DL	95.11

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 09015).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.824	0.085	1.628	1.039	1.254	0.053	0.827	0.001	7.716
1	r	2.804	0.089	1.601	1.033	1.316	0.053	0.845	0.009	7.753
2	c	2.792	0.089	1.623	1.031	1.315	0.042	0.831	0.010	7.741
2	r	2.794	0.099	1.637	1.037	1.281	0.045	0.821	0.007	7.722
3	c	2.787	0.110	1.610	1.073	1.282	0.038	0.829	0.001	7.731
3	r	2.817	0.096	1.608	1.043	1.268	0.049	0.835	0.005	7.724
4	c	2.860	0.080	1.666	0.991	1.205	0.035	0.819	0.000	7.654
4	r	2.836	0.091	1.580	1.048	1.274	0.054	0.835	0.007	7.727
5	c	2.845	0.079	1.601	1.013	1.289	0.040	0.837	0.000	7.712
5	r	2.803	0.104	1.643	1.046	1.237	0.032	0.827	0.003	7.701
6	c	2.827	0.107	1.614	1.066	1.213	0.037	0.801	0.001	7.677
6	r	2.797	0.093	1.625	1.059	1.283	0.053	0.822	0.003	7.734
7	c	2.839	0.100	1.601	1.024	1.252	0.027	0.838	0.011	7.693
7	r	2.815	0.099	1.608	1.062	1.232	0.037	0.861	0.010	7.730
8	c	2.831	0.108	1.613	1.060	1.198	0.048	0.827	0.006	7.692
8	r	2.855	0.090	1.582	1.059	1.226	0.053	0.828	0.009	7.703
9	c	2.818	0.057	1.608	1.055	1.329	0.033	0.860	0.004	7.767
9	r	2.869	0.088	1.570	1.012	1.281	0.039	0.814	0.010	7.684
10	c	2.887	0.125	1.568	0.977	1.201	0.036	0.823	0.013	7.633
10	r	2.807	0.105	1.614	1.086	1.238	0.035	0.814	0.003	7.705
11	c	2.816	0.097	1.627	1.077	1.218	0.037	0.841	0.000	7.713
11	r	2.848	0.091	1.598	1.020	1.261	0.043	0.828	0.002	7.697
12	c	2.833	0.094	1.596	1.003	1.298	0.043	0.826	0.008	7.707
12	r	2.822	0.094	1.630	1.021	1.280	0.032	0.811	0.000	7.690
13	c	2.844	0.099	1.602	1.018	1.260	0.033	0.817	0.006	7.681
13	r	2.837	0.103	1.583	1.058	1.251	0.025	0.825	0.005	7.692
14	c	2.722	0.124	1.613	1.114	1.312	0.038	0.867	0.001	7.798
14	r	2.831	0.093	1.624	1.020	1.249	0.033	0.849	0.004	7.705
15	c	2.829	0.105	1.654	1.017	1.173	0.046	0.850	0.008	7.686
15	r	2.802	0.112	1.619	1.041	1.255	0.045	0.830	0.010	7.714
16	c	2.811	0.104	1.578	1.057	1.298	0.031	0.826	0.009	7.723
16	r	2.824	0.097	1.618	1.066	1.212	0.049	0.843	0.003	7.715
17	c	2.790	0.099	1.628	1.065	1.262	0.045	0.843	0.002	7.740
17	r	2.819	0.108	1.576	1.063	1.268	0.039	0.829	0.010	7.718
18	c	2.769	0.108	1.609	1.032	1.328	0.045	0.881	0.001	7.780
18	r	2.822	0.116	1.573	1.057	1.272	0.036	0.831	0.001	7.709
19	c	2.855	0.086	1.593	1.029	1.263	0.034	0.824	0.006	7.691
19	r	2.787	0.100	1.634	1.090	1.231	0.041	0.845	0.007	7.738
20	c	2.768	0.074	1.623	1.102	1.323	0.042	0.864	0.000	7.799
20	r	2.814	0.102	1.603	1.035	1.277	0.045	0.834	0.007	7.722
21	c	2.807	0.125	1.597	1.059	1.230	0.030	0.843	0.011	7.705
21	r	2.853	0.085	1.567	1.046	1.272	0.057	0.832	0.005	7.722
22	c	2.801	0.076	1.602	1.069	1.327	0.030	0.850	0.002	7.761
22	r	2.844	0.096	1.628	1.034	1.207	0.039	0.806	0.010	7.667
23	c	2.818	0.101	1.614	1.046	1.257	0.046	0.816	0.000	7.703
23	r	2.808	0.101	1.576	1.084	1.284	0.031	0.833	0.013	7.734
24	c	2.775	0.104	1.585	1.084	1.321	0.036	0.854	0.009	7.772
24	r	2.841	0.102	1.594	1.032	1.262	0.030	0.800	0.014	7.675
25	c	2.777	0.102	1.620	1.098	1.295	0.031	0.781	0.010	7.716
25	r	2.828	0.106	1.581	1.070	1.232	0.040	0.851	0.006	7.720
26	c	2.836	0.085	1.589	1.040	1.289	0.038	0.846	0.004	7.727
26	r	2.828	0.101	1.583	1.040	1.285	0.036	0.832	0.006	7.713
27	c	2.863	0.090	1.580	1.019	1.262	0.037	0.833	0.006	7.693
27	r	2.828	0.100	1.614	1.055	1.225	0.038	0.829	0.002	7.698
28	c	2.821	0.110	1.591	1.095	1.192	0.038	0.861	0.012	7.723
28	r	2.848	0.098	1.566	1.036	1.268	0.048	0.832	0.012	7.711
29	c	2.865	0.099	1.558	1.063	1.224	0.042	0.842	0.005	7.698
29	r	2.840	0.092	1.617	1.028	1.235	0.042	0.839	0.000	7.699
30	c	2.869	0.084	1.592	1.032	1.240	0.039	0.825	0.000	7.683
30	r	2.87	0.084	1.59	1.033	1.240	0.039	0.825	0.000	7.68

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 09019).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	39.01	1.83	17.36	16.56	11.57	0.23	9.24	<DL	95.80
1	r	38.56	2.05	17.05	16.36	11.36	0.22	9.35	0.42	95.37
2	c	38.54	1.65	17.37	16.48	11.91	0.24	8.51	0.37	95.07
2	r	39.21	1.92	17.50	16.98	11.44	0.21	9.13	0.43	96.82
3	c	38.69	1.64	17.26	16.85	11.86	0.22	9.12	0.52	96.16
3	r	37.94	1.55	16.69	16.72	12.13	0.25	9.29	0.46	95.02
4	c	38.63	1.79	16.95	16.79	11.68	0.28	9.16	0.14	95.42
4	r	37.39	1.93	16.73	16.60	11.95	0.30	9.36	<DL	94.26
5	c	38.48	1.82	16.67	16.88	11.45	0.25	9.02	0.22	94.79
5	r	36.85	1.76	16.48	16.61	11.68	0.22	9.20	<DL	92.80
6	c	39.12	1.75	17.68	16.42	11.94	0.24	9.32	<DL	96.47
6	r	38.78	1.64	17.34	16.36	11.72	0.23	9.06	0.38	95.50
7	c	38.19	1.71	17.60	15.84	12.15	0.30	8.67	0.33	94.78
7	r	38.92	1.78	17.92	16.41	11.13	0.22	9.65	<DL	96.03
8	c	38.74	1.69	17.40	16.45	11.31	0.27	9.18	0.17	95.20
8	r	38.05	1.57	16.68	16.49	12.07	0.21	9.29	0.24	94.60
9	c	39.09	1.91	17.17	17.07	11.06	0.13	9.29	<DL	95.72
9	r	38.32	1.84	17.36	16.80	11.88	0.23	9.05	<DL	95.48
10	c	38.88	1.93	17.03	17.04	11.87	0.29	9.22	0.15	96.41
10	r	38.63	1.70	16.95	17.25	12.13	0.22	9.07	<DL	95.95
11	c	38.49	1.80	16.91	17.00	11.74	0.20	9.12	<DL	95.26
11	r	38.10	1.73	16.96	16.60	11.76	0.27	9.15	0.26	94.83
12	c	38.78	1.62	17.26	16.96	12.23	0.25	9.10	0.18	96.38
12	r	38.14	2.04	17.72	16.83	11.55	0.28	9.14	<DL	95.70
13	c	38.53	1.82	17.36	16.89	11.94	0.28	9.05	<DL	95.87
13	r	39.13	1.64	17.36	17.01	12.05	0.25	9.25	0.22	96.90
14	c	38.11	1.80	16.77	16.93	11.90	0.28	9.30	<DL	95.09
14	r	37.95	1.77	16.70	17.51	11.82	0.27	9.14	0.20	95.37
15	c	38.97	1.91	16.95	16.84	12.02	0.33	9.09	<DL	96.11
15	r	38.46	2.14	16.93	16.20	11.77	0.28	9.44	0.25	95.46
16	c	37.85	2.08	17.35	16.66	12.38	0.14	9.41	0.47	96.34
16	r	38.64	1.92	17.57	16.29	12.11	0.12	9.27	0.18	96.10
17	c	38.70	1.82	16.86	16.85	11.80	0.27	9.34	<DL	95.64
17	r	39.30	1.81	16.73	16.69	11.70	0.22	9.16	<DL	95.61
18	c	38.16	1.64	17.27	17.16	11.70	0.30	9.14	0.36	95.73
18	r	38.53	1.80	17.02	16.58	11.19	0.30	8.36	<DL	93.78
19	c	38.42	1.96	17.06	17.02	11.59	0.18	9.27	0.24	95.74
19	r	37.65	1.83	16.74	16.85	11.60	0.16	9.74	<DL	94.57
20	c	38.80	1.52	17.51	17.44	11.73	0.28	9.40	<DL	96.68
20	r	38.44	1.57	16.68	17.16	12.12	0.15	9.10	0.16	95.38
21	c	38.42	1.77	17.35	16.97	11.54	0.28	8.97	<DL	95.30
21	r	38.65	1.82	17.48	16.98	11.32	0.22	9.44	<DL	95.91
22	c	38.53	1.91	16.60	16.81	12.04	0.27	9.01	<DL	95.17
22	r	39.55	1.68	17.32	16.67	11.87	0.20	9.30	<DL	96.59
23	c	39.02	1.99	16.66	16.96	11.96	0.24	9.24	0.16	96.23
23	r	38.13	1.88	16.50	16.96	12.49	0.22	9.30	0.21	95.69
24	c	38.53	2.00	16.87	17.08	11.79	0.16	8.80	0.26	95.48
24	r	37.79	1.77	17.43	16.09	11.89	0.19	7.07	0.25	92.48
25	c	38.49	1.78	16.81	16.81	11.71	0.28	9.39	0.46	95.72
25	r	38.50	1.67	17.20	17.29	12.01	0.17	9.11	0.17	96.12
26	c	39.13	1.90	16.82	17.24	11.69	0.27	9.15	0.29	96.49
26	r	38.52	2.05	16.63	17.25	11.77	0.22	8.92	<DL	95.36
27	c	38.73	2.06	17.10	16.83	11.74	0.16	9.29	0.15	96.06
27	r	38.54	1.99	16.65	16.62	11.73	0.22	9.31	<DL	95.06
28	c	38.92	1.67	17.22	17.19	11.75	0.27	9.27	0.26	96.55
28	r	38.67	1.71	16.20	16.88	11.86	0.22	9.35	<DL	94.89
29	c	38.66	2.10	16.35	16.71	11.89	0.29	9.10	<DL	95.10
29	r	38.04	2.07	16.11	16.37	11.55	0.26	8.67	0.19	93.26
30	c	37.52	1.94	16.66	17.53	11.39	0.24	9.14	0.14	94.56
30	r	38.38	1.97	16.82	17.22	11.45	0.26	8.36	0.30	94.75

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 09019).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.885	0.102	1.513	1.024	1.276	0.033	0.872	0.001	7.708
1	r	2.879	0.115	1.500	1.021	1.264	0.032	0.891	0.012	7.717
2	c	2.870	0.093	1.525	1.026	1.322	0.035	0.809	0.011	7.696
2	r	2.879	0.106	1.515	1.043	1.252	0.030	0.855	0.012	7.699
3	c	2.868	0.092	1.508	1.044	1.310	0.031	0.862	0.015	7.734
3	r	2.855	0.088	1.480	1.052	1.361	0.036	0.892	0.014	7.781
4	c	2.879	0.100	1.489	1.046	1.298	0.040	0.871	0.004	7.731
4	r	2.829	0.110	1.492	1.050	1.348	0.044	0.904	0.003	7.788
5	c	2.888	0.103	1.475	1.060	1.281	0.036	0.864	0.006	7.722
5	r	2.836	0.102	1.495	1.069	1.340	0.033	0.903	0.000	7.783
6	c	2.870	0.097	1.529	1.007	1.306	0.033	0.872	0.000	7.721
6	r	2.882	0.092	1.519	1.017	1.299	0.033	0.859	0.011	7.713
7	c	2.847	0.096	1.547	0.988	1.350	0.043	0.825	0.009	7.717
7	r	2.874	0.099	1.560	1.013	1.225	0.032	0.909	0.002	7.717
8	c	2.886	0.095	1.528	1.025	1.256	0.038	0.872	0.005	7.711
8	r	2.867	0.089	1.481	1.039	1.356	0.031	0.893	0.007	7.765
9	c	2.897	0.106	1.500	1.058	1.222	0.019	0.878	0.000	7.693
9	r	2.849	0.103	1.521	1.045	1.317	0.033	0.858	0.001	7.732
10	c	2.871	0.107	1.482	1.052	1.307	0.042	0.869	0.004	7.736
10	r	2.864	0.095	1.481	1.070	1.341	0.031	0.858	0.003	7.745
11	c	2.872	0.101	1.487	1.061	1.306	0.028	0.868	0.001	7.731
11	r	2.862	0.098	1.502	1.043	1.317	0.039	0.877	0.008	7.747
12	c	2.859	0.090	1.500	1.046	1.344	0.036	0.856	0.005	7.747
12	r	2.831	0.114	1.550	1.045	1.278	0.041	0.865	0.000	7.733
13	c	2.851	0.101	1.514	1.045	1.317	0.040	0.854	0.002	7.736
13	r	2.871	0.091	1.501	1.044	1.318	0.035	0.866	0.006	7.738
14	c	2.856	0.101	1.481	1.061	1.329	0.040	0.889	0.000	7.767
14	r	2.848	0.100	1.477	1.099	1.322	0.040	0.875	0.006	7.771
15	c	2.877	0.106	1.475	1.040	1.323	0.047	0.856	0.003	7.731
15	r	2.864	0.120	1.486	1.009	1.307	0.040	0.897	0.007	7.741
16	c	2.808	0.116	1.517	1.034	1.369	0.020	0.891	0.014	7.773
16	r	2.851	0.107	1.528	1.005	1.332	0.017	0.873	0.005	7.723
17	c	2.878	0.102	1.478	1.048	1.308	0.038	0.886	0.000	7.743
17	r	2.912	0.101	1.461	1.034	1.292	0.032	0.866	0.002	7.705
18	c	2.846	0.092	1.518	1.070	1.301	0.044	0.870	0.010	7.759
18	r	2.898	0.102	1.509	1.043	1.255	0.044	0.802	0.000	7.668
19	c	2.861	0.110	1.497	1.060	1.287	0.025	0.881	0.007	7.734
19	r	2.846	0.104	1.491	1.065	1.307	0.024	0.939	0.002	7.785
20	c	2.860	0.084	1.521	1.075	1.289	0.039	0.884	0.001	7.757
20	r	2.872	0.088	1.469	1.072	1.350	0.022	0.867	0.005	7.750
21	c	2.861	0.099	1.523	1.057	1.281	0.040	0.852	0.002	7.723
21	r	2.863	0.101	1.526	1.052	1.250	0.031	0.892	0.003	7.733
22	c	2.876	0.107	1.460	1.049	1.340	0.039	0.858	0.000	7.735
22	r	2.898	0.093	1.496	1.022	1.297	0.028	0.869	0.000	7.709
23	c	2.886	0.111	1.452	1.049	1.318	0.035	0.872	0.005	7.731
23	r	2.846	0.106	1.452	1.059	1.390	0.031	0.886	0.006	7.780
24	c	2.869	0.112	1.481	1.064	1.309	0.023	0.836	0.007	7.708
24	r	2.863	0.101	1.556	1.020	1.343	0.027	0.683	0.008	7.613
25	c	2.871	0.100	1.478	1.049	1.302	0.040	0.894	0.013	7.757
25	r	2.853	0.093	1.502	1.071	1.327	0.025	0.861	0.005	7.745
26	c	2.889	0.106	1.463	1.064	1.287	0.039	0.862	0.008	7.724
26	r	2.874	0.115	1.462	1.076	1.309	0.032	0.849	0.000	7.720
27	c	2.868	0.115	1.492	1.042	1.296	0.023	0.878	0.004	7.722
27	r	2.881	0.112	1.467	1.039	1.307	0.032	0.888	0.000	7.733
28	c	2.873	0.093	1.498	1.061	1.293	0.039	0.873	0.007	7.741
28	r	2.899	0.096	1.431	1.058	1.325	0.032	0.894	0.003	7.750
29	c	2.886	0.118	1.439	1.043	1.323	0.041	0.867	0.002	7.730
29	r	2.892	0.118	1.444	1.041	1.309	0.038	0.841	0.006	7.707
30	c	2.842	0.111	1.487	1.110	1.286	0.036	0.883	0.004	7.763
30	r	2.877	0.111	1.486	1.080	1.280	0.037	0.799	0.009	7.687

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12001).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	38.92	1.37	18.12	15.28	13.04	0.29	9.53	0.35	96.91
1	r	38.41	1.34	18.12	15.71	13.00	0.31	9.51	0.27	96.67
2	c	38.40	1.85	18.21	15.39	12.46	0.39	9.35	0.66	96.71
2	r	37.88	1.95	18.04	15.33	12.95	0.29	9.28	0.42	96.13
3	c	38.22	1.83	17.55	15.48	13.28	0.30	9.07	0.23	95.95
3	r	39.01	1.70	17.60	14.90	12.82	0.31	9.56	0.20	96.10
4	c	38.04	1.70	17.78	15.21	13.19	0.34	8.89	0.29	95.44
4	r	38.51	1.55	17.83	14.48	13.13	0.27	9.03	0.40	95.20
5	c	38.76	1.32	18.13	14.82	13.23	0.30	9.41	0.34	96.32
5	r	38.37	1.39	17.90	15.05	12.90	0.25	8.92	<DL	94.78
6	c	39.25	1.39	17.81	13.48	14.59	0.34	9.45	0.18	96.49
6	r	38.77	1.48	17.68	12.96	14.75	0.34	9.11	<DL	95.08
7	c	38.74	1.99	17.82	15.06	12.72	0.40	9.27	<DL	96.00
7	r	38.86	2.16	17.60	15.18	12.33	0.35	9.39	<DL	95.87
8	c	39.10	1.68	17.48	15.18	13.35	0.37	9.19	0.25	96.59
8	r	38.16	1.68	17.65	14.72	13.36	0.29	9.40	0.44	95.70
9	c	38.58	1.57	17.79	15.37	12.60	0.28	9.25	<DL	95.44
9	r	38.74	1.47	17.61	15.58	12.93	0.24	9.41	0.29	96.27
10	c	38.30	1.61	18.10	14.82	13.62	0.46	9.23	0.62	96.76
10	r	38.30	1.29	17.33	14.21	13.88	0.29	9.30	0.17	94.77
11	c	38.30	1.57	17.86	14.46	13.40	0.37	8.78	0.16	94.90
11	r	38.39	1.69	17.43	14.67	13.22	0.26	8.06	0.17	93.89
12	c	39.01	1.63	18.17	15.27	13.53	0.37	9.52	0.28	97.79
12	r	38.13	1.61	17.55	15.66	13.13	0.33	9.39	<DL	95.80
13	c	38.33	1.51	18.18	15.48	12.87	0.25	9.44	<DL	96.05
13	r	38.63	1.67	18.22	15.57	13.10	0.30	9.44	0.25	97.18
14	c	34.89	0.83	19.30	14.45	16.66	0.21	4.91	<DL	91.25
14	r	37.65	1.74	17.45	14.03	14.66	0.26	9.08	0.21	95.08
15	c	39.39	1.48	17.79	14.31	12.93	0.31	9.02	0.19	95.43
15	r	38.10	1.45	17.59	14.99	13.31	0.18	8.67	0.52	94.81
16	c	38.83	1.65	17.92	15.58	13.05	0.32	9.34	0.18	96.86
16	r	39.09	1.73	17.82	15.30	12.85	0.29	9.33	<DL	96.41
17	c	38.23	1.63	17.53	15.59	12.83	0.29	9.10	0.26	95.46
17	r	38.90	1.60	18.06	15.48	12.82	0.16	9.52	0.32	96.85
18	c	38.41	1.93	17.61	14.54	13.43	0.35	8.93	0.50	95.70
18	r	37.85	1.84	17.36	13.96	13.00	0.28	9.05	0.23	93.57
19	c	38.62	1.67	17.56	15.23	13.04	0.26	9.30	<DL	95.68
19	r	38.77	1.37	17.47	14.96	13.22	0.32	9.48	0.38	95.96
20	c	38.24	1.50	18.18	15.28	12.95	0.38	9.32	0.58	96.44
20	r	38.24	1.62	17.76	15.54	13.07	0.28	9.35	0.22	96.08
21	c	38.35	1.72	18.09	15.73	13.00	0.29	9.59	0.39	97.17
21	r	38.55	1.58	17.77	15.57	12.83	0.26	9.28	<DL	95.83
22	c	38.85	1.46	18.12	14.92	13.02	0.30	9.36	0.26	96.28
22	r	38.23	1.56	17.39	15.15	13.72	0.28	9.25	0.15	95.72
23	c	38.68	1.37	17.73	15.08	12.90	0.29	9.32	<DL	95.37
23	r	38.71	1.18	17.76	15.82	13.07	0.24	9.72	0.27	96.76
24	c	38.40	1.74	17.42	15.46	13.25	0.28	9.41	0.25	96.21
24	r	38.42	1.74	17.49	15.11	12.86	0.32	9.32	<DL	95.26
25	c	39.24	1.57	18.29	14.25	13.30	0.33	9.24	0.34	96.56
25	r	38.81	1.60	17.67	13.95	13.47	0.36	9.52	<DL	95.38
26	c	38.76	2.02	17.73	15.34	13.26	0.33	9.32	0.25	97.00
26	r	38.87	1.97	17.61	15.47	13.63	0.35	9.20	0.35	97.45
27	c	38.84	1.18	17.39	15.82	13.04	0.28	9.79	<DL	96.34
27	r	38.76	1.46	17.79	15.45	13.18	0.31	9.59	0.29	96.83
28	c	38.50	1.24	17.78	15.83	13.10	0.28	9.25	0.27	96.26
28	r	38.17	1.52	17.51	15.66	13.65	0.25	8.82	0.15	95.73
29	c	38.82	1.87	17.60	15.40	13.04	0.30	9.62	0.35	97.00
29	r	37.92	1.78	16.88	15.40	13.44	0.35	9.37	0.23	95.36
30	c	38.62	1.80	17.42	15.50	12.60	0.34	9.11	<DL	95.39
30	r	38.02	1.67	17.82	15.17	13.00	0.32	8.92	<DL	94.92

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12001).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.839	0.075	1.558	0.932	1.418	0.042	0.887	0.010	7.770
1	r	2.818	0.074	1.567	0.964	1.422	0.045	0.890	0.008	7.790
2	c	2.819	0.102	1.575	0.945	1.363	0.056	0.876	0.019	7.757
2	r	2.792	0.108	1.567	0.945	1.423	0.041	0.873	0.012	7.771
3	c	2.817	0.101	1.524	0.954	1.459	0.042	0.853	0.007	7.767
3	r	2.864	0.094	1.523	0.915	1.403	0.044	0.895	0.006	7.750
4	c	2.815	0.095	1.551	0.941	1.455	0.049	0.839	0.008	7.759
4	r	2.844	0.086	1.552	0.894	1.445	0.039	0.851	0.011	7.737
5	c	2.837	0.073	1.564	0.907	1.443	0.042	0.879	0.010	7.766
5	r	2.845	0.078	1.564	0.933	1.426	0.036	0.844	0.000	7.734
6	c	2.847	0.076	1.523	0.818	1.578	0.047	0.874	0.005	7.776
6	r	2.841	0.081	1.527	0.794	1.611	0.048	0.852	0.000	7.764
7	c	2.842	0.110	1.541	0.924	1.391	0.057	0.868	0.003	7.739
7	r	2.856	0.119	1.524	0.933	1.351	0.050	0.880	0.000	7.726
8	c	2.855	0.092	1.504	0.927	1.453	0.052	0.856	0.007	7.754
8	r	2.820	0.093	1.537	0.910	1.472	0.042	0.886	0.013	7.782
9	c	2.851	0.087	1.549	0.950	1.388	0.040	0.872	0.000	7.742
9	r	2.849	0.081	1.526	0.958	1.418	0.035	0.883	0.008	7.765
10	c	2.802	0.089	1.561	0.907	1.486	0.065	0.862	0.018	7.792
10	r	2.844	0.072	1.517	0.882	1.536	0.041	0.881	0.005	7.786
11	c	2.833	0.087	1.557	0.895	1.478	0.052	0.829	0.005	7.741
11	r	2.858	0.095	1.529	0.913	1.467	0.037	0.765	0.005	7.684
12	c	2.821	0.089	1.548	0.923	1.458	0.052	0.878	0.008	7.781
12	r	2.818	0.090	1.529	0.968	1.447	0.047	0.885	0.003	7.793
13	c	2.818	0.083	1.576	0.952	1.411	0.035	0.886	0.004	7.770
13	r	2.813	0.091	1.564	0.948	1.422	0.042	0.877	0.007	7.771
14	c	2.637	0.047	1.719	0.913	1.877	0.031	0.473	0.004	7.709
14	r	2.786	0.097	1.522	0.868	1.617	0.037	0.857	0.006	7.803
15	c	2.891	0.082	1.539	0.878	1.415	0.045	0.844	0.005	7.701
15	r	2.833	0.081	1.542	0.932	1.476	0.025	0.823	0.015	7.739
16	c	2.835	0.090	1.542	0.951	1.420	0.045	0.870	0.005	7.761
16	r	2.856	0.095	1.534	0.935	1.399	0.041	0.869	0.001	7.737
17	c	2.835	0.091	1.532	0.967	1.418	0.041	0.861	0.008	7.759
17	r	2.839	0.088	1.553	0.945	1.395	0.022	0.886	0.009	7.748
18	c	2.829	0.107	1.529	0.896	1.475	0.050	0.839	0.014	7.744
18	r	2.842	0.104	1.536	0.877	1.455	0.040	0.867	0.007	7.739
19	c	2.846	0.093	1.525	0.939	1.432	0.036	0.874	0.000	7.752
19	r	2.857	0.076	1.517	0.922	1.452	0.045	0.891	0.011	7.776
20	c	2.813	0.083	1.576	0.940	1.420	0.055	0.875	0.017	7.780
20	r	2.819	0.090	1.543	0.958	1.436	0.040	0.879	0.006	7.780
21	c	2.805	0.095	1.559	0.962	1.417	0.041	0.895	0.011	7.788
21	r	2.840	0.087	1.543	0.959	1.409	0.037	0.872	0.003	7.755
22	c	2.843	0.080	1.563	0.913	1.421	0.043	0.874	0.007	7.753
22	r	2.822	0.087	1.513	0.935	1.510	0.040	0.871	0.004	7.789
23	c	2.856	0.076	1.543	0.931	1.420	0.042	0.878	0.000	7.755
23	r	2.841	0.065	1.536	0.971	1.430	0.034	0.910	0.008	7.798
24	c	2.827	0.096	1.511	0.952	1.454	0.040	0.884	0.007	7.781
24	r	2.843	0.097	1.525	0.935	1.419	0.045	0.880	0.003	7.759
25	c	2.853	0.086	1.567	0.866	1.441	0.047	0.857	0.010	7.729
25	r	2.852	0.088	1.530	0.857	1.476	0.051	0.893	0.001	7.764
26	c	2.824	0.111	1.523	0.935	1.440	0.046	0.866	0.007	7.758
26	r	2.822	0.108	1.507	0.939	1.475	0.050	0.852	0.010	7.767
27	c	2.858	0.065	1.508	0.974	1.431	0.040	0.919	0.004	7.802
27	r	2.835	0.080	1.534	0.945	1.437	0.044	0.895	0.008	7.786
28	c	2.833	0.069	1.542	0.974	1.437	0.040	0.868	0.008	7.779
28	r	2.817	0.084	1.523	0.966	1.502	0.036	0.830	0.004	7.769
29	c	2.836	0.103	1.515	0.941	1.420	0.043	0.896	0.010	7.772
29	r	2.823	0.100	1.481	0.959	1.492	0.050	0.890	0.007	7.806
30	c	2.857	0.100	1.519	0.959	1.390	0.049	0.860	0.000	7.737
30	r	2.821	0.093	1.558	0.941	1.438	0.046	0.844	0.000	7.749

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12004).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	38.73	1.80	18.01	15.33	12.59	0.19	9.37	0.35	96.37
1	r	34.48	1.66	15.84	13.08	10.43	0.04	8.20	0.41	84.13
2	c	38.62	1.76	17.52	15.74	13.16	0.09	9.46	0.39	96.74
2	r	38.65	1.67	17.68	16.11	12.62	0.12	9.46	0.72	97.03
3	c	39.06	1.61	17.34	15.79	12.81	0.20	9.53	0.29	96.63
3	r	37.89	1.69	16.75	15.80	12.75	0.13	9.53	0.82	95.36
4	c	38.74	1.65	17.37	14.79	13.10	0.21	9.56	0.37	95.78
4	r	38.50	1.81	17.44	14.96	13.15	0.20	9.63	0.27	95.96
5	c	38.45	1.73	17.28	15.72	12.72	0.30	9.55	0.32	96.07
5	r	38.54	1.63	17.18	15.89	12.82	0.11	9.52	0.30	95.98
6	c	38.45	1.53	17.16	14.78	13.18	0.28	9.42	0.53	95.32
6	r	38.57	1.71	17.17	15.06	12.78	0.11	9.47	0.19	95.06
7	c	38.64	1.65	17.13	14.93	13.12	0.20	9.59	0.41	95.67
7	r	36.79	1.56	16.43	14.63	12.88	0.14	9.14	0.52	92.09
8	c	38.32	1.62	17.44	15.86	12.88	0.12	9.18	0.63	96.06
8	r	38.04	1.44	16.73	16.05	13.24	0.14	9.34	0.40	95.38
9	c	38.54	1.52	17.99	16.03	12.84	0.23	9.28	0.27	96.69
9	r	39.00	1.51	17.41	15.14	12.86	0.26	9.69	0.38	96.25
10	c	38.41	1.45	17.36	15.43	13.68	0.16	9.68	0.25	96.42
10	r	36.73	1.48	16.45	14.93	12.93	0.17	8.89	0.67	92.25
11	c	38.31	1.57	17.62	15.72	12.51	0.16	9.34	0.19	95.42
11	r	38.50	1.66	17.28	15.26	13.17	0.18	9.25	0.38	95.68
12	c	38.95	1.62	17.46	15.15	13.46	0.12	9.68	0.67	97.11
12	r	38.61	1.77	17.13	15.22	13.32	0.06	9.25	0.45	95.82
13	c	37.85	1.57	17.30	15.41	12.70	0.19	9.52	0.45	94.98
13	r	38.57	1.79	17.43	15.55	12.92	0.17	9.79	<DL	96.22
14	c	38.16	1.77	17.34	16.25	12.65	0.22	9.39	0.38	96.17
14	r	35.00	1.62	15.57	14.47	11.90	0.14	8.73	0.19	87.62
15	c	38.36	1.54	17.19	15.20	12.66	0.23	9.64	0.37	95.19
15	r	38.55	1.48	16.76	15.80	13.16	0.14	9.62	0.30	95.81
16	c	38.22	1.35	17.38	15.01	13.27	0.10	9.56	0.25	95.14
16	r	38.17	1.53	16.99	14.61	13.41	0.15	9.62	0.45	94.94
17	c	38.93	1.63	18.09	15.88	12.76	0.24	9.46	0.26	97.25
17	r	37.30	1.77	16.31	14.96	13.50	0.10	9.34	0.70	93.98
18	c	38.35	1.84	17.50	15.44	12.48	0.13	9.70	0.57	96.00
18	r	37.56	1.89	17.31	14.98	12.17	0.13	9.38	0.28	93.70
19	c	38.28	1.61	17.63	15.25	13.36	0.24	9.59	0.48	96.43
19	r	39.30	1.78	17.30	15.31	13.09	0.21	9.26	0.34	96.58
20	c	38.88	1.58	17.78	14.84	13.86	0.26	9.45	0.45	97.10
20	r	38.69	1.57	17.08	14.47	13.34	0.20	9.53	0.35	95.22
21	c	38.49	1.64	17.46	15.21	12.86	0.23	9.53	0.57	95.99
21	r	38.05	1.46	17.19	16.06	12.39	0.10	9.42	0.35	95.01
22	c	38.73	1.49	17.43	15.13	13.28	0.18	9.62	0.47	96.34
22	r	38.56	1.40	17.28	15.09	13.30	0.14	9.45	0.23	95.44
23	c	38.61	1.70	17.42	16.00	13.09	0.23	9.34	0.38	96.77
23	r	38.83	1.58	17.61	15.88	12.67	0.23	9.64	0.50	96.93
24	c	38.87	1.51	17.50	14.84	13.09	0.19	9.17	0.33	95.50
24	r	38.94	1.53	17.51	15.38	13.00	0.22	9.58	0.24	96.40
25	c	38.61	1.65	17.62	15.79	12.80	0.23	9.38	0.26	96.35
25	r	38.21	1.76	17.46	15.34	13.02	0.19	9.63	<DL	95.61
26	c	38.44	1.60	17.51	14.95	13.04	0.19	9.52	0.32	95.58
26	r	37.97	1.66	16.88	15.79	12.61	0.16	9.54	<DL	94.61
27	c	39.16	1.48	17.34	14.76	13.33	0.25	9.29	0.21	95.82
27	r	38.61	1.72	17.43	15.21	13.48	0.19	9.61	0.49	96.74
28	c	38.46	1.60	17.78	16.46	12.45	0.20	9.53	0.24	96.73
28	r	38.29	1.65	17.13	16.18	12.53	0.17	9.52	<DL	95.47
29	c	38.84	1.53	17.67	14.96	12.58	0.20	9.68	0.20	95.66
29	r	38.71	1.76	17.82	14.72	13.02	0.16	9.38	0.53	96.10
30	c	38.63	1.87	17.61	15.46	12.59	0.20	9.48	0.51	96.36
30	r	38.50	1.74	17.24	15.57	12.45	0.17	9.53	0.77	95.98

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

Data represents the brown biotite fraction of sample 12004

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12004).

Grain	c/r ¹	Cation content (pfu; O=11)								
		Si	Ti	Al	Fe	Mg	Na	K	Ba	Total
1	c	2.841	0.099	1.557	0.940	1.377	0.027	0.877	0.010	7.732
1	r	2.885	0.104	1.562	0.915	1.301	0.006	0.875	0.013	7.668
2	c	2.832	0.097	1.514	0.965	1.439	0.013	0.885	0.011	7.760
2	r	2.837	0.092	1.530	0.989	1.381	0.017	0.886	0.021	7.757
3	c	2.863	0.089	1.498	0.968	1.400	0.029	0.891	0.008	7.756
3	r	2.836	0.095	1.478	0.989	1.423	0.019	0.910	0.024	7.790
4	c	2.858	0.091	1.510	0.912	1.440	0.029	0.900	0.011	7.759
4	r	2.840	0.100	1.516	0.923	1.446	0.028	0.906	0.008	7.769
5	c	2.844	0.096	1.506	0.972	1.402	0.043	0.901	0.009	7.778
5	r	2.852	0.090	1.498	0.983	1.414	0.016	0.899	0.009	7.765
6	c	2.853	0.085	1.501	0.917	1.458	0.040	0.892	0.015	7.773
6	r	2.865	0.096	1.503	0.935	1.415	0.016	0.897	0.006	7.742
7	c	2.857	0.092	1.493	0.923	1.446	0.028	0.905	0.012	7.767
7	r	2.833	0.090	1.491	0.942	1.478	0.021	0.898	0.016	7.788
8	c	2.833	0.090	1.520	0.981	1.420	0.018	0.866	0.018	7.756
8	r	2.839	0.081	1.472	1.002	1.473	0.020	0.889	0.012	7.797
9	c	2.825	0.084	1.554	0.983	1.403	0.032	0.868	0.008	7.762
9	r	2.869	0.084	1.510	0.931	1.410	0.037	0.909	0.011	7.765
10	c	2.826	0.080	1.505	0.949	1.500	0.022	0.908	0.007	7.805
10	r	2.830	0.085	1.494	0.962	1.485	0.026	0.874	0.020	7.785
11	c	2.841	0.088	1.540	0.975	1.383	0.023	0.884	0.006	7.752
11	r	2.845	0.092	1.505	0.943	1.451	0.026	0.872	0.011	7.755
12	c	2.846	0.089	1.504	0.926	1.466	0.017	0.902	0.019	7.772
12	r	2.851	0.098	1.491	0.940	1.466	0.009	0.871	0.013	7.745
13	c	2.832	0.088	1.525	0.964	1.416	0.027	0.909	0.013	7.783
13	r	2.837	0.099	1.511	0.957	1.417	0.024	0.919	0.000	7.778
14	c	2.826	0.099	1.513	1.006	1.397	0.032	0.887	0.011	7.778
14	r	2.838	0.099	1.488	0.981	1.438	0.022	0.903	0.006	7.781
15	c	2.856	0.086	1.508	0.946	1.405	0.033	0.915	0.011	7.773
15	r	2.857	0.083	1.464	0.979	1.454	0.020	0.910	0.009	7.790
16	c	2.842	0.076	1.523	0.933	1.471	0.015	0.907	0.007	7.781
16	r	2.848	0.086	1.494	0.911	1.491	0.022	0.916	0.013	7.788
17	c	2.835	0.090	1.553	0.967	1.385	0.034	0.879	0.007	7.755
17	r	2.824	0.101	1.455	0.947	1.524	0.014	0.902	0.021	7.801
18	c	2.838	0.102	1.527	0.956	1.377	0.018	0.916	0.016	7.760
18	r	2.835	0.107	1.540	0.946	1.369	0.019	0.903	0.008	7.745
19	c	2.819	0.089	1.530	0.939	1.467	0.034	0.901	0.014	7.794
19	r	2.871	0.098	1.490	0.935	1.426	0.029	0.863	0.010	7.731
20	c	2.829	0.087	1.524	0.903	1.503	0.036	0.877	0.013	7.777
20	r	2.868	0.087	1.492	0.897	1.474	0.028	0.901	0.010	7.763
21	c	2.844	0.091	1.520	0.940	1.417	0.033	0.898	0.017	7.768
21	r	2.847	0.082	1.516	1.005	1.382	0.015	0.899	0.010	7.767
22	c	2.848	0.083	1.511	0.931	1.456	0.026	0.903	0.014	7.776
22	r	2.856	0.078	1.508	0.935	1.469	0.019	0.893	0.007	7.767
23	c	2.834	0.094	1.507	0.982	1.432	0.033	0.874	0.011	7.771
23	r	2.847	0.087	1.522	0.974	1.385	0.032	0.902	0.014	7.771
24	c	2.868	0.084	1.522	0.916	1.440	0.027	0.863	0.010	7.733
24	r	2.857	0.085	1.514	0.944	1.422	0.031	0.897	0.007	7.764
25	c	2.837	0.091	1.526	0.970	1.402	0.033	0.879	0.007	7.761
25	r	2.826	0.098	1.522	0.949	1.436	0.028	0.909	0.004	7.780
26	c	2.844	0.089	1.527	0.925	1.438	0.028	0.898	0.009	7.766
26	r	2.845	0.093	1.491	0.989	1.408	0.024	0.912	0.003	7.780
27	c	2.875	0.082	1.501	0.906	1.459	0.035	0.870	0.006	7.744
27	r	2.827	0.095	1.504	0.931	1.472	0.027	0.898	0.014	7.784
28	c	2.827	0.089	1.540	1.012	1.364	0.029	0.894	0.007	7.772
28	r	2.843	0.092	1.499	1.005	1.387	0.025	0.902	0.004	7.772
29	c	2.867	0.085	1.537	0.923	1.384	0.029	0.911	0.006	7.747
29	r	2.844	0.097	1.543	0.904	1.426	0.023	0.879	0.015	7.738
30	c	2.842	0.103	1.527	0.951	1.381	0.029	0.890	0.015	7.747
30	r	2.854	0.097	1.506	0.965	1.376	0.025	0.901	0.022	7.757

Data represents the brown biotite fraction of sample 12004

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12004).

Grain	c/r ¹	Oxide content (wt%)		Al ₂ O ₃	FeO	MgO	Na ₂ O	K ₂ O	BaO	Total
		SiO ₂	TiO ₂							
1	c	38.57	1.56	17.18	15.00	13.50	0.23	9.59	0.27	95.90
1	r	38.61	1.62	17.02	14.52	13.21	0.17	9.62	0.30	95.07
2	c	39.20	1.45	17.66	15.25	13.05	0.15	9.53	0.63	96.92
2	r	39.46	1.50	17.85	15.12	13.11	0.19	9.69	0.48	97.40
3	c	39.27	1.40	17.55	14.58	13.41	0.17	9.50	0.26	96.13
3	r	38.70	1.43	17.52	14.36	13.46	0.18	9.54	0.50	95.69
4	c	38.95	1.62	17.83	15.31	13.32	0.25	9.66	0.42	97.35
4	r	38.62	1.65	16.91	14.69	13.12	0.08	9.67	<DL	94.74
5	c	39.02	1.46	17.47	14.63	13.37	0.25	9.43	0.59	96.21
5	r	38.87	1.72	17.05	14.45	13.21	0.22	9.73	0.52	95.77
6	c	38.10	1.68	16.71	14.80	13.29	0.17	9.77	<DL	94.52
6	r	38.43	1.65	16.83	14.64	13.21	0.20	9.60	0.28	94.84
7	c	38.74	1.54	17.05	15.19	13.04	0.26	9.54	0.22	95.59
7	r	39.81	1.59	17.54	15.04	12.86	0.17	9.56	0.39	96.96
8	c	38.43	1.69	17.49	14.11	13.97	0.16	9.22	<DL	95.07
8	r	38.54	1.71	17.27	14.03	13.47	0.23	9.93	0.16	95.33
9	c	38.96	1.46	17.00	14.87	13.42	0.17	9.08	0.31	95.28
9	r	38.91	1.59	17.09	14.85	13.01	0.29	9.59	0.37	95.70
10	c	39.40	1.30	17.45	14.72	13.02	0.22	9.50	0.20	95.81
10	r	38.69	1.31	17.45	14.57	13.62	0.17	9.57	0.37	95.75
11	c	38.92	1.66	17.22	15.06	13.31	0.28	9.60	0.19	96.24
11	r	38.92	1.74	17.82	14.77	12.61	0.21	9.67	0.30	96.04
12	c	39.08	1.59	17.61	15.35	13.17	0.10	9.58	0.51	96.99
12	r	36.47	1.64	16.44	14.10	12.79	0.12	8.66	0.37	90.59
13	c	39.19	1.38	17.54	13.90	13.85	0.22	9.53	0.22	95.84
13	r	39.33	1.52	16.84	14.45	14.12	0.22	9.50	0.40	96.38
14	c	38.51	1.57	16.95	15.67	13.02	0.16	9.25	0.32	95.46
14	r	37.96	1.56	16.54	15.58	12.70	0.16	9.70	0.76	94.96
15	c	38.66	1.56	17.21	15.08	13.03	0.18	9.48	0.57	95.78
15	r	38.88	1.60	17.59	15.24	13.44	0.21	9.31	0.20	96.47
16	c	38.92	1.45	17.35	15.01	13.17	0.21	9.30	0.26	95.67
16	r	38.23	1.57	17.04	14.29	13.34	0.23	9.42	0.32	94.44
17	c	38.57	1.65	17.51	14.88	13.00	0.23	9.72	0.33	95.88
17	r	38.49	1.72	17.29	15.21	13.47	0.18	9.62	0.23	96.21
18	c	38.64	1.61	16.98	14.71	12.96	0.16	9.46	0.20	94.72
18	r	38.17	1.73	16.82	15.16	13.34	0.16	9.55	0.27	95.20
19	c	39.18	1.48	17.61	15.06	13.09	0.27	9.54	0.27	96.50
19	r	38.96	1.56	17.25	14.90	13.44	0.23	9.58	0.50	96.42
20	c	39.38	1.70	17.37	14.60	13.43	0.12	9.36	0.28	96.24
20	r	38.67	1.55	17.29	14.48	12.79	0.23	9.27	0.21	94.48
21	c	39.14	1.46	17.23	15.29	12.98	0.21	9.58	<DL	95.89
21	r	39.47	1.56	17.37	15.01	12.79	0.15	9.35	0.19	95.90
22	c	39.27	1.40	17.63	15.51	13.18	0.28	9.61	0.48	97.36
22	r	39.34	1.60	17.71	15.22	12.93	0.16	9.66	0.52	97.14
23	c	38.47	1.63	17.51	14.66	13.51	0.24	9.62	0.69	96.33
23	r	39.04	1.75	17.17	15.02	13.33	0.15	9.85	0.53	96.84
24	c	38.51	1.53	17.25	15.96	12.98	0.19	9.21	0.18	95.81
24	r	38.21	1.74	16.76	15.72	13.20	0.13	9.56	<DL	95.32
25	c	38.79	1.52	17.79	14.47	13.35	0.33	9.58	0.24	96.07
25	r	39.18	1.56	17.32	14.70	12.59	0.21	9.63	0.18	95.37
26	c	39.02	1.50	17.28	14.84	13.13	0.23	9.58	0.34	95.93
26	r	38.47	1.56	17.09	14.97	13.33	0.11	9.85	0.44	95.82
27	c	38.84	1.63	17.59	14.97	13.00	0.20	9.65	<DL	95.88
27	r	38.83	1.72	17.33	14.73	13.04	0.19	9.74	0.28	95.85
28	c	39.60	1.48	17.67	14.43	13.38	0.14	9.40	0.56	96.66
28	r	38.63	1.58	17.49	14.77	13.60	0.19	9.43	0.23	95.92
29	c	38.87	1.46	17.71	15.63	13.36	0.21	9.74	0.66	97.64
29	r	38.94	1.54	17.41	15.51	13.14	0.20	9.12	0.65	96.50
30	c	39.15	1.48	17.53	15.35	13.17	0.23	9.60	0.25	96.76
30	r	38.81	1.62	17.09	15.17	12.93	0.21	9.57	<DL	95.40

Abbreviations: <DL = below detection limits, n.a. = not analyzed. CaO and MnO were ≤ DL.

Data represents the green biotite fraction of sample 12004

¹ Core (c) or rim (r) of grains.

Appendix D: Biotite major element data (sample 12004).

Grain	c/r ¹	Cation content (pfu; O=11)								Total
		Si	Ti	Al	Fe	Mg	Na	K	Ba	
1	c	2.845	0.087	1.494	0.925	1.485	0.032	0.903	0.008	7.786
1	r	2.867	0.091	1.489	0.902	1.462	0.024	0.911	0.009	7.763
2	c	2.862	0.080	1.520	0.931	1.421	0.022	0.888	0.018	7.751
2	r	2.864	0.082	1.527	0.918	1.419	0.026	0.897	0.014	7.752
3	c	2.873	0.077	1.513	0.892	1.463	0.023	0.887	0.008	7.747
3	r	2.853	0.079	1.522	0.885	1.479	0.026	0.897	0.014	7.768
4	c	2.833	0.089	1.528	0.931	1.444	0.035	0.896	0.012	7.777
4	r	2.873	0.092	1.483	0.914	1.455	0.011	0.918	0.004	7.756
5	c	2.863	0.081	1.511	0.898	1.462	0.035	0.883	0.017	7.758
5	r	2.868	0.095	1.483	0.892	1.453	0.032	0.916	0.015	7.765
6	c	2.848	0.094	1.472	0.925	1.481	0.024	0.932	0.004	7.796
6	r	2.863	0.092	1.478	0.912	1.467	0.029	0.913	0.008	7.773
7	c	2.866	0.086	1.487	0.940	1.438	0.038	0.900	0.006	7.772
7	r	2.892	0.087	1.502	0.914	1.393	0.024	0.886	0.011	7.721
8	c	2.835	0.094	1.521	0.870	1.536	0.023	0.868	0.002	7.756
8	r	2.850	0.095	1.505	0.868	1.485	0.032	0.937	0.004	7.786
9	c	2.879	0.081	1.480	0.919	1.478	0.024	0.856	0.009	7.737
9	r	2.873	0.088	1.487	0.917	1.432	0.042	0.903	0.011	7.765
10	c	2.895	0.072	1.511	0.905	1.426	0.032	0.891	0.006	7.738
10	r	2.852	0.073	1.516	0.898	1.497	0.024	0.900	0.011	7.778
11	c	2.858	0.092	1.490	0.925	1.457	0.040	0.899	0.005	7.774
11	r	2.859	0.096	1.543	0.907	1.381	0.029	0.906	0.009	7.740
12	c	2.852	0.087	1.514	0.937	1.433	0.014	0.892	0.014	7.755
12	r	2.838	0.096	1.508	0.918	1.484	0.019	0.860	0.011	7.748
13	c	2.869	0.076	1.514	0.851	1.512	0.032	0.890	0.006	7.758
13	r	2.876	0.084	1.451	0.884	1.539	0.031	0.886	0.011	7.773
14	c	2.860	0.088	1.484	0.973	1.442	0.023	0.876	0.009	7.760
14	r	2.853	0.088	1.465	0.979	1.423	0.023	0.930	0.022	7.801
15	c	2.859	0.087	1.500	0.933	1.437	0.026	0.894	0.017	7.762
15	r	2.843	0.088	1.516	0.932	1.465	0.030	0.869	0.006	7.757
16	c	2.869	0.080	1.507	0.925	1.447	0.031	0.875	0.007	7.748
16	r	2.853	0.088	1.499	0.892	1.484	0.033	0.897	0.009	7.771
17	c	2.845	0.092	1.522	0.918	1.429	0.032	0.915	0.009	7.772
17	r	2.829	0.095	1.498	0.935	1.476	0.026	0.902	0.007	7.785
18	c	2.877	0.090	1.490	0.916	1.438	0.023	0.898	0.006	7.748
18	r	2.842	0.097	1.476	0.944	1.481	0.023	0.907	0.008	7.786
19	c	2.866	0.081	1.518	0.921	1.427	0.039	0.890	0.008	7.757
19	r	2.858	0.086	1.492	0.914	1.470	0.032	0.897	0.014	7.772
20	c	2.876	0.093	1.495	0.892	1.462	0.017	0.872	0.008	7.725
20	r	2.878	0.087	1.517	0.901	1.419	0.032	0.880	0.006	7.731
21	c	2.880	0.081	1.494	0.941	1.424	0.030	0.899	0.000	7.755
21	r	2.896	0.086	1.502	0.921	1.399	0.022	0.875	0.006	7.713
22	c	2.858	0.076	1.512	0.944	1.430	0.040	0.892	0.014	7.773
22	r	2.865	0.088	1.520	0.927	1.404	0.022	0.898	0.015	7.746
23	c	2.829	0.090	1.518	0.902	1.481	0.034	0.903	0.020	7.788
23	r	2.857	0.096	1.481	0.919	1.454	0.021	0.920	0.015	7.774
24	c	2.848	0.085	1.503	0.987	1.431	0.028	0.869	0.005	7.763
24	r	2.842	0.097	1.469	0.978	1.463	0.019	0.907	0.004	7.787
25	c	2.846	0.084	1.538	0.888	1.460	0.047	0.897	0.007	7.772
25	r	2.894	0.087	1.508	0.908	1.386	0.030	0.908	0.005	7.734
26	c	2.873	0.083	1.499	0.914	1.441	0.033	0.900	0.010	7.759
26	r	2.847	0.087	1.490	0.926	1.470	0.016	0.930	0.013	7.791
27	c	2.854	0.090	1.523	0.920	1.424	0.029	0.904	0.001	7.758
27	r	2.859	0.095	1.504	0.907	1.432	0.027	0.915	0.008	7.760
28	c	2.882	0.081	1.516	0.878	1.452	0.020	0.873	0.016	7.723
28	r	2.841	0.087	1.516	0.909	1.491	0.028	0.885	0.007	7.769
29	c	2.831	0.080	1.520	0.952	1.451	0.030	0.905	0.019	7.795
29	r	2.858	0.085	1.506	0.952	1.438	0.028	0.854	0.019	7.745
30	c	2.860	0.081	1.509	0.938	1.434	0.033	0.895	0.007	7.766
30	r	2.872	0.090	1.491	0.939	1.427	0.031	0.904	0.000	7.758

Data represents the green biotite fraction of sample 12004

¹ Core (c) or rim (r) of grains.