

Appendices

Appendix 1

Table 6.0. 5K₂O-MnO-10Na₂O proportions for samples shown in ternary plot.

Sample no.	Proportion in class (%)		
	Na ₂ O	MnO	K ₂ O
AM 896	9.77	29.55	60.68
AM 897	14.57	23.62	61.81
AM 877	8.99	84.5	6.51
AM 870a	9.13	85.83	5.04
AM 870b	10.76	88.13	1.11
AMS 01	74.53	8.58	16.89
A2H	78.89	9.44	11.66
A 12E	75.08	4.98	19.94
VCF 2	12.3	68.61	19.09
A 8C	61.06	9.57	29.36
B 44C	60.9	9.88	29.22
ArR 1	7.81	92.18	0.00
ArR 4	67.09	13.2	19.71
J36	13.79	42.45	43.76
J35	9.08	90.45	0.47
J34	14.96	24.13	60.91
J33	19.87	25.66	54.48

Appendix 2:

Table 6.1: A12E Bulk rock composition without core and input for THERMOCALC

	Bulk rock composition	bulk rock without apatite	Average garnet compositional content in rock	Estimated % of garnet core in rock	Garnet composition of the core	Bulk rock composition without core	Input for TC Bulk rock composition without core mol% oxide
	wt% oxide	wt% oxide				wt% oxide	
SiO ₂	89.9	89.60997	37.34		0.78414	88.82583	92.46177
TiO ₂	0.18	0.179419	0.18		0.00378	0.175639	0.137476
Al ₂ O ₃	3.97	3.957192	21.18		0.44478	3.512412	2.154411
Fe ₂ O ₃	1.61	1.604806	1.39		0.02919	1.575616	
FeO	1.24	1.236	4.73		0.09933	1.13667	2.223549
MnO	0.64	0.637935	21.24	0.02	0.44604	0.191895	0.169171
MgO	1.06	1.05658	0.09		0.00189	1.05469	1.635902
CaO	0.54	0.512003	14.36		0.30156	0.210443	0.234682
P ₂ O ₅	0.02						
Na ₂ O	0.53	0.52829				0.52829	0.53304
K ₂ O	0.68	0.677806				0.677806	0.449995
	100.37					97.88929	100
		100			2.11071		

Appendix 3: EMPA analyses for sample J34

Transect A-A'												
Transect distance (μm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SiO ₂	37.47	37.45	37.37	37.63	37.52	37.50	36.85	36.32	36.11	36.41	36.29	36.16
Al ₂ O ₃	21.32	21.41	21.51	21.32	21.19	21.19	20.44	19.73	19.95	19.91	20.08	19.94
TiO ₂	0.01	0.02	0.03	0.03	0.02	0.05	0.07	0.08	0.19	0.23	0.15	0.20
MgO	2.96	2.82	2.72	2.72	2.66	2.06	1.36	0.94	1.51	1.74	1.86	1.87
FeO _{total}	19.23	18.35	17.53	17.65	15.99	15.11	12.85	9.86	12.84	13.72	14.30	14.81
FeO(calc)	18.72	17.69	17.51	17.65	15.99	15.09	10.66	7.49	10.20	11.38	11.51	11.01
Fe ₂ O ₃ (calc)	0.57	0.73	0.02	0.00	0.00	0.02	2.44	2.64	2.93	2.60	3.10	4.22
MnO	15.04	15.12	15.22	14.58	15.94	14.91	21.53	26.44	22.88	21.80	20.71	21.41
CaO	4.36	5.28	5.41	5.44	5.60	8.60	7.22	5.90	5.69	5.61	6.04	5.77
Cr ₂ O ₃	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.04	0.00	0.00	0.00	0.00
Total	100.43	100.46	99.82	99.41	98.96	99.48	100.34	99.31	99.20	99.45	99.44	100.16
Normalised to 8 cations												
Si	2.982	2.974	2.984	3.017	3.020	2.997	2.956	2.964	2.941	2.954	2.938	2.913
Al	2.000	2.005	2.026	2.015	2.012	1.996	1.932	1.898	1.916	1.905	1.917	1.894
Ti	0	0.001	0.002	0.002	0.001	0.003	0.004	0.005	0.012	0.014	0.009	0.012
Mg	0.351	0.334	0.324	0.325	0.319	0.245	0.162	0.114	0.183	0.210	0.224	0.225
Fe _{total}	1.280	1.219	1.171	1.183	1.077	1.010	0.862	0.673	0.874	0.931	0.968	0.997
Fe ₂₊ (calc)	1.246	1.175	1.170	1.183	1.077	1.009	0.715	0.511	0.695	0.772	0.779	0.742
Fe ₃₊ (calc)	0.034	0.044	0.001	0	0	0.001	0.147	0.162	0.179	0.159	0.189	0.256
Mn	1.014	1.017	1.030	0.990	1.087	1.010	1.463	1.828	1.578	1.498	1.420	1.461
Ca	0.372	0.450	0.463	0.467	0.483	0.737	0.621	0.516	0.496	0.487	0.524	0.498
Cr	0	0	0	0	0.001	0.002	0	0.002	0	0	0	0
x(g)=Fe/(Fe+Mg)	0.78	0.78	0.78	0.78	0.77	0.80	0.84	0.86	0.83	0.82	0.81	0.82
m(g)=X _{sp}	0.34	0.34	0.34	0.33	0.37	0.34	0.47	0.58	0.50	0.48	0.45	0.46
z(g)=X _{grs}	0.12	0.15	0.16	0.16	0.16	0.25	0.20	0.16	0.16	0.16	0.17	0.16
X _{pyr}	0.12	0.11	0.11	0.11	0.11	0.08	0.05	0.04	0.06	0.07	0.07	0.07
X _{alm}	0.42	0.40	0.39	0.40	0.36	0.34	0.28	0.21	0.28	0.30	0.31	0.31

Transect A-A' (cont'd)												
Transect distance (μm)	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00	40.00	42.00	44.00	46.00
SiO ₂	36.09	35.78	35.50	36.14	36.17	36.13	36.20	36.57	36.36	36.23	36.03	36.27
Al ₂ O ₃	20.37	20.40	20.29	20.37	20.40	20.28	19.89	20.25	20.20	19.93	20.01	19.80
TiO ₂	0.16	0.12	0.19	0.10	0.14	0.16	0.06	0.15	0.18	0.15	0.12	0.21
MgO	1.83	1.73	1.73	1.81	1.86	1.63	0.83	1.82	1.50	1.06	1.07	1.46
FeO _{total}	13.80	12.57	12.35	12.58	12.98	12.49	8.16	14.02	12.38	9.97	10.47	12.23
FeO(calc)	10.80	9.17	8.49	9.89	10.43	9.84	5.11	11.28	9.62	7.29	6.83	9.66
Fe ₂ O ₃ (calc)	3.33	3.78	4.29	2.98	2.84	2.95	3.38	3.05	3.07	2.98	4.04	2.86
MnO	22.77	24.26	24.80	24.79	23.70	24.06	30.22	21.45	23.47	25.94	27.02	23.45
CaO	4.82	4.74	4.63	3.96	4.40	4.87	4.78	5.95	5.91	6.24	5.52	5.89
Cr ₂ O ₃	0.00	0.03	0.05	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.01
Total	99.85	99.62	99.55	99.77	99.66	99.63	100.18	100.21	100.01	99.55	100.23	99.36
Normalised to 8 cations												
Si	2.918	2.901	2.884	2.929	2.930	2.931	2.940	2.939	2.935	2.945	2.915	2.950
Al	1.942	1.950	1.943	1.947	1.949	1.940	1.905	1.918	1.922	1.910	1.909	1.899
Ti	0.010	0.007	0.011	0.006	0.009	0.009	0.003	0.009	0.011	0.009	0.007	0.013
Mg	0.221	0.209	0.209	0.219	0.224	0.197	0.101	0.218	0.180	0.129	0.129	0.177
Fe _{total}	0.933	0.852	0.839	0.853	0.879	0.847	0.554	0.942	0.836	0.678	0.708	0.832
Fe ²⁺ (calc)	0.730	0.622	0.577	0.671	0.707	0.668	0.347	0.758	0.650	0.495	0.462	0.657
Fe ³⁺ (calc)	0.203	0.230	0.262	0.182	0.173	0.180	0.207	0.185	0.186	0.182	0.246	0.175
Mn	1.559	1.666	1.707	1.702	1.627	1.653	2.079	1.461	1.604	1.786	1.852	1.616
Ca	0.418	0.412	0.403	0.344	0.382	0.423	0.416	0.512	0.511	0.544	0.478	0.513
Cr	0	0.002	0.003	0.001	0	0	0.001	0	0	0	0	0.001
x(g)=Fe/(Fe+Mg)	0.81	0.80	0.80	0.80	0.80	0.81	0.85	0.81	0.82	0.84	0.85	0.82
m(g)=X _{sps}	0.50	0.53	0.54	0.55	0.52	0.53	0.66	0.47	0.51	0.57	0.58	0.51
z(g)=X _{grs}	0.13	0.13	0.13	0.11	0.12	0.14	0.13	0.16	0.16	0.17	0.15	0.16
X _{pyr}	0.07	0.07	0.07	0.07	0.07	0.06	0.03	0.07	0.06	0.04	0.04	0.06
X _{alm}	0.30	0.27	0.27	0.27	0.28	0.27	0.18	0.30	0.27	0.22	0.22	0.27

Transect A-A' (cont'd)										
Transect distance (μm)	48	50	52	54	56	58	60	62	64	66
SiO ₂	36.22	36.80	37.75	37.57	37.65	37.35	37.47	37.20	37.31	37.82
Al ₂ O ₃	19.87	20.34	21.43	21.40	21.32	21.44	21.39	21.32	21.66	21.58
TiO ₂	0.14	0.05	0.03	0.00	0	0.01	0.00	0.03	0	0
MgO	1.35	0.87	1.95	2.44	2.68	2.78	2.64	2.78	2.95	3.15
FeO _{total}	12.36	11.05	15.07	16.73	18.52	18.32	17.56	18.66	18.95	19.10
FeO(calc)	8.52	8.78	14.89	16.02	18.26	17.14	17.49	17.41	18.28	18.51
Fe ₂ O ₃ (calc)	4.27	2.52	0.19	0.79	0.28	1.31	0.07	1.38	0.74	0.65
MnO	24.21	23.52	15.46	15.31	15.73	15.77	15.77	15.15	15.33	15.08
CaO	6.24	7.72	8.69	7.07	4.72	5.15	5.18	5.31	4.34	4.54
Cr ₂ O ₃	0	0	0	0.01	0	0.03	0	0	0	0
Total	100.39	100.34	100.39	100.54	100.62	100.85	100.01	100.49	100.54	101.29
Normalised to 8 cations										
Si	2.918	2.957	2.992	2.976	2.993	2.959	2.991	2.958	2.964	2.979
Al	1.887	1.927	2.002	1.999	1.998	2.002	2.013	1.998	2.028	2.004
Ti	0.009	0.003	0.002	0	0	0.001	0	0.002	0	0
Mg	0.162	0.104	0.23	0.288	0.318	0.328	0.314	0.329	0.349	0.37
Fe _{total}	0.833	0.742	0.999	1.109	1.231	1.214	1.172	1.24	1.259	1.258
Fe ₂₊ (calc)	0.574	0.59	0.987	1.062	1.214	1.136	1.168	1.158	1.215	1.22
Fe ₃₊ (calc)	0.259	0.152	0.011	0.047	0.017	0.078	0.004	0.083	0.044	0.039
Mn	1.652	1.601	1.038	1.028	1.059	1.058	1.066	1.02	1.032	1.006
Ca	0.539	0.665	0.738	0.6	0.402	0.437	0.443	0.453	0.369	0.383
Cr	0	0	0	0.001	0	0.002	0	0	0	0
x(g)=Fe/(Fe+Mg)	0.84	0.88	0.81	0.79	0.79	0.79	0.79	0.79	0.78	0.77
m(g)=X _{sps}	0.52	0.51	0.35	0.35	0.35	0.35	0.36	0.34	0.34	0.33
z(g)=X _{grs}	0.17	0.21	0.25	0.20	0.13	0.14	0.15	0.15	0.12	0.13
X _{pyr}	0.05	0.03	0.08	0.10	0.11	0.11	0.10	0.11	0.12	0.12
X _{alm}	0.26	0.24	0.33	0.37	0.41	0.40	0.39	0.41	0.42	0.42

Transect B-B'													
Transect distance (µm)	0.00	2.00	4.00	6.00	8.00	10	12	14	16	18	20	22	24
SiO ₂	37.90	37.30	37.49	37.44	36.94	36.25	36.39	36.36	42.74		36.20	36.45	35.87
Al ₂ O ₃	21.17	21.34	21.41	21.40	20.18	19.85	19.89	19.68	18.26		19.26	20.67	20.37
TiO ₂	0.01	0.00	0.02	0.04	0.08	0.15	0.21	0.14	0.11		0.10	0.03	0.09
MgO	2.81	2.65	2.64	2.16	1.72	1.67	1.64	1.09	1.35		1.59	0.94	1.49
FeO _{total}	18.71	18.37	18.17	16.41	15.53	13.86	12.94	10.08	12.82		12.83	7.25	10.77
FeO(calc)	18.71	17.98	17.38	15.02	13.19	10.91	10.36	7.37	12.82		9.15	6.16	7.97
Fe ₂ O ₃ (calc)	0.00	0.44	0.87	1.55	2.60	3.28	2.87	3.01	0.00		4.09	1.21	3.11
MnO	14.75	14.97	15.03	14.13	17.56	21.30	22.49	26.09	20.50		23.72	30.94	25.93
CaO	4.96	5.26	5.88	9.08	7.96	6.26	5.96	6.14	5.90		5.75	3.47	4.75
Cr ₂ O ₃	0.02	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.01		0.00	0.03	0.00
Total	100.40	99.91	100.71	100.66	99.98	99.35	99.52	99.58	101.68		99.48	99.78	99.31
Normalised to 8 cations													
Si	3.016	2.981	2.971	2.956	2.963	2.941	2.950	2.956	3.393		2.945	2.968	2.921
Al	1.986	2.011	2.001	1.992	1.908	1.898	1.900	1.886	1.709		1.847	1.984	1.956
Ti	0.001	0	0.001	0.002	0.005	0.009	0.013	0.009	0.007		0.006	0.002	0.006
Mg	0.333	0.316	0.311	0.254	0.206	0.202	0.198	0.131	0.159		0.193	0.114	0.181
Fe _{total}	1.245	1.228	1.204	1.084	1.041	0.941	0.877	0.685	0.851		0.873	0.494	0.733
Fe ₂₊ (calc)	1.245	1.202	1.152	0.992	0.885	0.740	0.702	0.501	0.851		0.623	0.419	0.543
Fe ₃₊ (calc)	0	0.026	0.052	0.092	0.157	0.200	0.175	0.184	0.000		0.250	0.074	0.191
Mn	0.994	1.013	1.009	0.945	1.193	1.464	1.544	1.797	1.378		1.634	2.134	1.789
Ca	0.423	0.45	0.5	0.768	0.684	0.545	0.518	0.535	0.502		0.501	0.303	0.414
Cr	0.001	0	0.003	0	0	0.000	0.000	0.000	0.001		0.000	0.002	0.000
x(g)=Fe/(Fe+Mg)	0.79	0.80	0.79	0.81	0.84	0.82	0.82	0.84	0.84		0.82	0.81	0.80
m(g)=X _{sps}	0.33	0.34	0.33	0.31	0.38	0.46	0.49	0.57	0.48		0.51	0.70	0.57
z(g)=X _{grs}	0.14	0.15	0.17	0.25	0.22	0.17	0.17	0.17	0.17		0.16	0.10	0.13
X _{pyr}	0.11	0.11	0.10	0.08	0.07	0.06	0.06	0.04	0.06		0.06	0.04	0.06
X _{alm}	0.42	0.41	0.40	0.36	0.33	0.30	0.28	0.22	0.29		0.27	0.16	0.24

Transect B-B' (cont'd)												
Transect distance (μm)	26	28	30	32	34	36	38	40	42	44	46	48
SiO ₂	35.52	35.85	36.10	36.31	36.33	36.26	36.16	36.24	36.36	35.80	35.68	36.22
Al ₂ O ₃	20.28	20.14	20.74	20.57	20.63	20.30	20.23	20.06	19.50	19.96	19.73	19.80
TiO ₂	0.13	0.19	0.07	0.09	0.09	0.13	0.13	0.12	0.08	0.19	0.18	0.13
MgO	1.66	2.22	2.17	2.04	1.91	2.27	2.14	1.65	0.70	0.95	1.23	1.01
FeO _{total}	12.35	14.33	14.28	14.46	14.09	15.26	15.02	12.70	8.26	9.19	11.77	11.31
FeO(calc)	8.61	10.99	12.67	11.89	11.61	12.08	11.74	9.61	5.37	6.27	7.83	9.01
Fe ₂ O ₃ (calc)	4.16	3.72	1.79	2.85	2.75	3.54	3.65	3.43	3.21	3.25	4.37	2.56
MnO	24.76	21.98	22.91	22.40	22.79	21.14	21.24	24.30	30.00	26.91	24.73	24.21
CaO	4.65	4.54	2.73	4.12	4.23	4.65	4.90	4.90	5.11	6.06	6.05	6.32
Cr ₂ O ₃	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Total	99.37	99.26	99.01	100.00	100.08	100.00	99.82	99.99	100.05	99.09	99.37	99.03
Normalised to 8 cations												
Si	2.891	2.911	2.944	2.929	2.93	2.921	2.919	2.931	2.961	2.927	2.908	2.959
Al	1.946	1.928	1.993	1.957	1.961	1.928	1.925	1.913	1.871	1.924	1.896	1.908
Ti	0.008	0.011	0.004	0.005	0.005	0.008	0.008	0.007	0.005	0.012	0.011	0.008
Mg	0.201	0.269	0.264	0.245	0.23	0.272	0.258	0.199	0.085	0.115	0.15	0.123
Fe _{total}	0.841	0.973	0.974	0.976	0.95	1.028	1.014	0.859	0.562	0.628	0.802	0.773
Fe ₂₊ (calc)	0.586	0.746	0.864	0.803	0.783	0.814	0.793	0.65	0.366	0.429	0.534	0.616
Fe ₃₊ (calc)	0.255	0.227	0.11	0.173	0.167	0.215	0.222	0.209	0.197	0.2	0.268	0.157
Mn	1.707	1.512	1.582	1.531	1.557	1.442	1.453	1.665	2.069	1.863	1.707	1.676
Ca	0.406	0.395	0.238	0.356	0.366	0.401	0.423	0.424	0.446	0.531	0.528	0.553
Cr	0	0	0.001	0	0	0	0	0.001	0.001	0	0	0
x(g)=Fe/(Fe+Mg)	0.81	0.78	0.79	0.80	0.81	0.79	0.80	0.81	0.87	0.85	0.84	0.86
m(g)=X _{sps}	0.54	0.48	0.52	0.49	0.50	0.46	0.46	0.53	0.65	0.59	0.54	0.54
z(g)=X _{grs}	0.13	0.13	0.08	0.11	0.12	0.13	0.13	0.13	0.14	0.17	0.17	0.18
X _{pyr}	0.06	0.09	0.09	0.08	0.07	0.09	0.08	0.06	0.03	0.04	0.05	0.04
X _{alm}	0.27	0.31	0.32	0.31	0.31	0.33	0.32	0.27	0.18	0.20	0.25	0.25

Transect B-B' (cont'd)					
Transect distance (μm)	50	52	54	56	58
SiO ₂	37.19	37.26	37.35	37.09	37.55
Al ₂ O ₃	20.72	21.19	21.15	21.24	21.35
TiO ₂	0.05	0.04	0.03	0.03	0.01
MgO	1.54	2.01	2.05	2.39	2.79
FeO _{total}	14.29	16.16	16.50	17.08	17.99
FeO(calc)	13.12	14.89	15.74	15.97	17.99
Fe ₂ O ₃ (calc)	1.30	1.41	0.84	1.23	0.00
MnO	17.20	15.33	14.92	14.39	14.64
CaO	8.76	8.27	7.96	7.47	5.32
Cr ₂ O ₃	0.01	0.00	0.00	0.03	0.00
Total	99.78	100.28	99.96	99.74	99.67
Normalised to 8 cations					
Si	2.979	2.963	2.979	2.961	3.003
Al	1.957	1.986	1.989	1.999	2.013
Ti	0.003	0.002	0.002	0.002	0.001
Mg	0.184	0.238	0.243	0.284	0.333
Fe _{total}	0.957	1.075	1.1	1.14	1.203
Fe ²⁺ (calc)	0.879	0.99	1.05	1.067	1.203
Fe ³⁺ (calc)	0.078	0.084	0.05	0.074	0
Mn	1.167	1.032	1.007	0.973	0.992
Ca	0.752	0.704	0.68	0.639	0.456
Cr	0.001	0	0	0.002	0
x(g)=Fe/(Fe+Mg)	0.84	0.82	0.82	0.80	0.78
m(g)=X _{sps}	0.42	0.34	0.33	0.32	0.33
z(g)=X _{grs}	0.25	0.23	0.22	0.21	0.15
X _{pyr}	0.06	0.08	0.08	0.09	0.11
X _{alm}	0.31	0.35	0.36	0.38	0.40

Transect C-C'												
Transect distance (µm)	0	2	4	6	8	10	12	14	16	18	20	22
SiO ₂	37.94	37.32	37.78	37.10	36.79	36.46	36.51	36.32	36.10	36.37	36.38	36.59
Al ₂ O ₃	21.00	21.22	21.32	20.07	19.87	19.89	20.28	20.22	20.07	20.05	20.11	20.09
TiO ₂	0.02	0.02	0.03	0.06	0.21	0.23	0.17	0.18	0.21	0.16	0.21	0.17
MgO	2.73	2.67	2.47	2.26	2.55	2.48	2.51	2.57	2.66	2.42	2.60	2.74
FeO _{total}	18.50	17.99	16.86	17.94	17.81	18.08	18.04	17.86	18.00	17.46	17.95	18.95
FeO(calc)	18.50	17.84	16.40	15.10	15.38	15.33	15.05	14.34	14.44	14.60	14.72	16.12
Fe ₂ O ₃ (calc)	0.00	0.16	0.51	3.17	2.69	3.05	3.32	3.92	3.95	3.18	3.59	3.15
MnO	15.13	15.01	14.19	15.69	16.35	16.23	16.68	16.68	16.14	16.85	16.51	15.40
CaO	5.11	5.34	7.82	7.34	6.01	5.94	5.77	6.07	6.11	5.98	5.95	5.71
Cr ₂ O ₃	0.03	0.02	0.00	0.00	0.02	0.00	0.00	0.03	0.03	0.00	0.00	0.01
Total	100.49	99.60	100.47	100.47	99.63	99.33	99.99	99.94	99.30	99.30	99.74	99.68
Normalised to 8 cations												
Si	3.018	2.991	2.989	2.958	2.962	2.946	2.93	2.914	2.912	2.939	2.925	2.942
Al	1.97	2.005	1.989	1.886	1.886	1.895	1.919	1.912	1.909	1.91	1.907	1.904
Ti	0.001	0.001	0.002	0.004	0.012	0.014	0.01	0.011	0.012	0.01	0.013	0.011
Mg	0.323	0.319	0.291	0.268	0.305	0.299	0.3	0.308	0.32	0.291	0.311	0.328
Fe _{total}	1.231	1.205	1.116	1.197	1.199	1.222	1.211	1.198	1.214	1.18	1.207	1.274
Fe ²⁺ (calc)	1.231	1.196	1.086	1.007	1.036	1.036	1.01	0.962	0.974	0.987	0.99	1.084
Fe ³⁺ (calc)	0	0.01	0.03	0.19	0.163	0.186	0.2	0.237	0.24	0.193	0.217	0.19
Mn	1.019	1.019	0.951	1.06	1.115	1.111	1.134	1.133	1.103	1.154	1.125	1.049
Ca	0.435	0.459	0.663	0.627	0.519	0.514	0.496	0.522	0.528	0.518	0.512	0.492
Cr	0.002	0.001	0	0	0.002	0	0	0.002	0.002	0	0	0.001
x(g)=Fe/(Fe+Mg)	0.79	0.79	0.79	0.82	0.80	0.80	0.80	0.80	0.79	0.80	0.79	0.80
m(g)=X _{sps}	0.34	0.34	0.31	0.34	0.36	0.35	0.36	0.36	0.35	0.37	0.36	0.33
z(g)=X _{grs}	0.14	0.15	0.22	0.20	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16
X _{pyr}	0.11	0.11	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.09	0.10	0.10
X _{alm}	0.41	0.40	0.37	0.38	0.38	0.39	0.39	0.38	0.38	0.38	0.38	0.41

Transect C-C' (cont'd)				
Transect distance (μm)	24	26	28	30
SiO ₂	36.77	37.00	37.20	37.39
Al ₂ O ₃	20.57	21.27	21.11	21.12
TiO ₂	0.06	0.01	0.00	0.01
MgO	2.53	2.75	3.03	2.92
FeO _{total}	18.50	18.65	18.67	18.95
FeO(calc)	16.88	17.20	17.78	18.78
Fe ₂ O ₃ (calc)	1.80	1.61	0.99	0.19
MnO	14.87	14.44	14.50	14.82
CaO	5.91	5.88	5.17	4.47
Cr ₂ O ₃	0.00	0.00	0.00	0.00
Total	99.23	100.02	99.70	99.70
Normalised to 8 cations				
Si	2.964	2.951	2.975	2.996
Al	1.955	2	1.99	1.995
Ti	0.004	0.001	0	0.001
Mg	0.304	0.327	0.361	0.349
Fe _{total}	1.247	1.244	1.249	1.27
Fe ₂₊ (calc)	1.138	1.147	1.189	1.259
Fe ₃₊ (calc)	0.109	0.097	0.06	0.012
Mn	1.016	0.975	0.982	1.006
Ca	0.511	0.502	0.443	0.383
Cr	0	0	0	0
x(g)=Fe/(Fe+Mg)	0.80	0.79	0.78	0.78
m(g)=X _{sps}	0.33	0.32	0.32	0.33
z(g)=X _{grs}	0.17	0.16	0.15	0.13
X _{pyr}	0.10	0.11	0.12	0.12
X _{alm}	0.41	0.41	0.41	0.42

A12E	Transect K-K'										
Transect distance (μm)	0	5	10	15	20	25	30	35	40	45	50
SiO ₂	37.31	37.23	37.24	37.37	37.26	37.23	37.60	33.67			
Al ₂ O ₃	21.24	21.40	21.31	21.44	21.58	21.31	21.67	10.23			
TiO ₂	0.04	0.05	0.03	0.06	0.06	0.06	0.09	21.76			
MgO	1.62	1.69	1.52	1.29	1.04	1.22	0.95	0.19			
FeO _{total}	22.54	23.80	24.39	23.81	20.54	20.35	18.88	5.23			
FeO(calc)	21.72	22.83	23.32	22.25	20.01	20.13	17.92	5.23			
Fe ₂ O ₃ (calc)	0.91	1.07	1.19	1.73	0.59	0.25	1.07	0.00			
MnO	11.14	9.00	8.59	9.04	13.11	12.99	11.35	5.45			
CaO	6.84	7.49	7.68	8.61	7.39	7.11	10.88	21.90			
Cr ₂ O ₃	0.04	0.02	0.00	0.01	0.03	0.01	0.02	0.01			
Total	100.77	100.67	100.77	101.65	101.01	100.27	101.44	98.44			
Normalised to 8 cations											
Si	2.972	2.961	2.963	2.948	2.966	2.982	2.958	2.84			
Al	1.995	2.006	1.999	1.994	2.025	2.013	2.01	1.017			
Ti	0.002	0.003	0.002	0.004	0.003	0.003	0.005	1.38			
Mg	0.192	0.2	0.18	0.152	0.123	0.145	0.111	0.024			
Fe _{total}	1.501	1.583	1.623	1.571	1.367	1.363	1.242	0.369			
Fe ₂₊ (calc)	1.447	1.519	1.552	1.468	1.332	1.348	1.179	0.369			
Fe ₃₊ (calc)	0.055	0.064	0.071	0.103	0.035	0.015	0.063	0			
Mn	0.752	0.607	0.579	0.604	0.884	0.882	0.756	0.39			
Ca	0.584	0.638	0.654	0.727	0.63	0.61	0.917	1.979			
Cr	0.002	0.002	0	0.001	0.002	0.001	0.001	0.001			
x(g)=Fe/(Fe+Mg)	0.89	0.89	0.90	0.91	0.92	0.90	0.92	0.94			
m(g)=X _{sps}	0.25	0.20	0.19	0.20	0.29	0.29	0.25	0.14			
z(g)=X _{grs}	0.19	0.21	0.22	0.24	0.21	0.20	0.30	0.72			
X _{pyp}	0.06	0.07	0.06	0.05	0.04	0.05	0.04	0.01			
X _{alm}	0.50	0.52	0.53	0.51	0.46	0.45	0.41	0.13			

Transect K-K' (cont'd)												
Transect distance (μm)	55	60	65	70	75	80	85	90	95	100	105	110
SiO ₂	37.34	37.30	37.24		37.57	37.71	37.43	37.58		37.57	37.34	37.50
Al ₂ O ₃	21.36	21.62	21.45		21.54	21.57	21.17	21.55		21.15	21.13	21.17
TiO ₂	0.03	0.02	0.01		0.04	0.02	0.04	0.01		0.21	0.17	0.22
MgO	1.30	1.22	1.33		1.02	1.21	0.74	1.17		0.08	0.09	0.07
FeO _{total}	19.29	20.25	19.78		16.93	19.80	15.78	21.02		6.35	6.40	6.36
FeO(calc)	18.44	19.08	18.21		16.93	19.42	14.74	19.86		5.50	5.35	4.65
Fe ₂ O ₃ (calc)	0.95	1.31	1.75		0.00	0.42	1.16	1.29		0.96	1.17	1.89
MnO	15.25	13.10	13.70		13.93	13.40	14.50	11.52		20.76	21.30	21.22
CaO	6.61	7.88	7.86		9.39	7.76	10.97	8.84		14.39	13.83	14.65
Cr ₂ O ₃	0.00	0.00	0.03		0.00	0.01	0.01	0.00		0.00	0.01	0.00
Total	101.21	101.41	101.43		100.43	101.49	100.65	101.69		100.51	100.26	101.19
Normalised to 8 cations												
Si	2.969	2.951	2.946		2.989	2.981	2.972	2.961		2.973	2.965	2.95
Al	2.002	2.017	2.001		2.02	2.01	1.981	2.001		1.973	1.979	1.963
Ti	0.002	0.001	0.001		0.002	0.001	0.003	0.001		0.012	0.01	0.013
Mg	0.155	0.144	0.157		0.121	0.143	0.087	0.137		0.009	0.01	0.008
Fe _{total}	1.283	1.34	1.309		1.127	1.309	1.048	1.385		0.421	0.425	0.418
Fe ₂₊ (calc)	1.226	1.262	1.205		1.127	1.284	0.979	1.309		0.364	0.355	0.306
Fe ₃₊ (calc)	0.057	0.078	0.104		0	0.025	0.069	0.076		0.057	0.07	0.112
Mn	1.027	0.878	0.918		0.939	0.897	0.975	0.769		1.392	1.433	1.414
Ca	0.563	0.668	0.666		0.801	0.658	0.933	0.746		1.22	1.177	1.235
Cr	0	0	0.002		0	0.001	0.001	0		0	0	0
x(g)=Fe/(Fe+Mg)	0.89	0.90	0.89		0.90	0.90	0.92	0.91		0.98	0.98	0.98
m(g)=X _{sps}	0.34	0.29	0.30		0.31	0.30	0.32	0.25		0.46	0.47	0.46
z(g)=X _{grs}	0.19	0.22	0.22		0.27	0.22	0.31	0.25		0.40	0.39	0.40
X _{pyp}	0.05	0.05	0.05		0.04	0.05	0.03	0.05		0.00	0.00	0.00
X _{alm}	0.42	0.44	0.43		0.38	0.44	0.34	0.46		0.14	0.14	0.14

Transect K-K' (cont'd)												
Transect distance (μm)	115	120	125	130	135	140	145	150	155	160	165	170
SiO ₂	37.86	37.58	37.52	37.19	37.29	37.05	36.87	37.58	37.38	37.47	37.02	36.95
Al ₂ O ₃	21.38	21.08	21.36	20.98	20.99	21.20	21.16	21.15	21.13	21.24	21.04	21.23
TiO ₂	0.18	0.18	0.15	0.19	0.20	0.15	0.17	0.19	0.18	0.17	0.21	0.19
MgO	0.08	0.08	0.07	0.09	0.08	0.09	0.10	0.06	0.08	0.08	0.10	0.10
FeO _{total}	6.01	5.78	5.89	5.59	5.83	6.33	5.88	5.98	5.79	6.05	6.13	5.71
FeO(calc)	4.96	4.92	5.17	4.97	5.17	4.33	4.58	4.59	4.72	4.65	4.57	4.27
Fe ₂ O ₃ (calc)	1.16	0.96	0.80	0.70	0.73	2.23	1.44	1.55	1.19	1.56	1.74	1.61
MnO	20.70	21.05	21.07	20.89	20.90	21.31	20.31	19.97	20.03	21.27	22.55	21.96
CaO	15.12	14.61	14.33	14.33	14.27	14.33	14.75	15.75	15.38	14.52	13.17	13.79
Cr ₂ O ₃	0.00	0.03	0.00	0.02	0.03	0.00	0.00	0.01	0.02	0.00	0.00	0.00
Total	101.33	100.39	100.39	99.27	99.58	100.47	99.25	100.69	99.99	100.81	100.21	99.97
Normalised to 8 cations												
Si	2.967	2.976	2.971	2.977	2.977	2.935	2.949	2.96	2.965	2.956	2.948	2.943
Al	1.975	1.968	1.993	1.98	1.976	1.98	1.995	1.964	1.976	1.976	1.975	1.994
Ti	0.011	0.011	0.009	0.011	0.012	0.009	0.01	0.011	0.011	0.01	0.012	0.012
Mg	0.009	0.009	0.009	0.01	0.01	0.01	0.012	0.007	0.01	0.01	0.012	0.012
Fe _{total}	0.394	0.383	0.39	0.374	0.389	0.42	0.394	0.394	0.384	0.399	0.408	0.381
Fe ²⁺ (calc)	0.325	0.326	0.342	0.333	0.345	0.287	0.307	0.302	0.313	0.307	0.304	0.284
Fe ³⁺ (calc)	0.069	0.057	0.048	0.042	0.044	0.133	0.087	0.092	0.071	0.092	0.104	0.096
Mn	1.374	1.412	1.413	1.416	1.413	1.43	1.376	1.333	1.346	1.422	1.521	1.482
Ca	1.27	1.239	1.216	1.229	1.221	1.217	1.264	1.329	1.307	1.228	1.124	1.177
Cr	0	0.002	0	0.001	0.002	0	0	0.001	0.001	0	0	0
x(g)=Fe/(Fe+Mg)	0.98	0.98	0.98	0.97	0.98	0.98	0.97	0.98	0.98	0.98	0.97	0.97
m(g)=X _{sps}	0.45	0.46	0.47	0.47	0.47	0.46	0.45	0.44	0.44	0.46	0.50	0.49
z(g)=X _{grs}	0.42	0.41	0.40	0.41	0.40	0.40	0.42	0.43	0.43	0.40	0.37	0.39
X _{pyp}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
X _{alm}	0.13	0.13	0.13	0.12	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.12

Transect K-K' (cont'd)											
Transect distance (μm)	175	180	185	190	195	200	205	210	215	220	225 230
SiO ₂	37.29	37.31	37.39	37.25	37.30	37.40	37.32	37.52	37.40		37.69 37.52
Al ₂ O ₃	21.13	21.37	21.26	21.10	21.14	21.43	21.10	21.15	21.16		21.33 21.24
TiO ₂	0.19	0.12	0.19	0.21	0.22	0.17	0.15	0.20	0.22		0.17 0.21
MgO	0.08	0.07	0.14	0.06	0.07	0.08	0.08	0.08	0.25		0.42 0.09
FeO _{total}	5.96	6.42	5.77	5.63	5.79	5.96	5.63	6.27	6.45		7.40 6.14
FeO(calc)	4.51	4.69	4.77	4.40	3.98	4.56	4.65	5.14	5.24		7.40 5.35
Fe ₂ O ₃ (calc)	1.61	1.92	1.12	1.36	2.02	1.55	1.09	1.25	1.35		0.00 0.87
MnO	22.02	23.08	21.72	21.13	20.27	21.09	21.09	22.35	21.22		19.83 20.92
CaO	13.89	12.90	13.93	14.68	15.74	14.68	14.51	13.36	13.85		12.93 14.32
Cr ₂ O ₃	0.02	0.00	0.00	0.00	0.00	0.04	0.01	0.04	0.01		0.01 0.02
Total	100.60	101.29	100.42	100.08	100.55	100.85	99.90	100.97	100.56		99.80 100.45
Normalised to 8 cations											
Si	2.954	2.942	2.963	2.959	2.944	2.947	2.969	2.965	2.96		3.002 2.97
Al	1.973	1.987	1.986	1.976	1.967	1.991	1.979	1.97	1.974		2.003 1.982
Ti	0.011	0.007	0.011	0.012	0.013	0.01	0.009	0.012	0.013		0.01 0.012
Mg	0.01	0.008	0.017	0.008	0.008	0.009	0.01	0.01	0.029		0.049 0.011
Fe _{total}	0.395	0.424	0.383	0.374	0.382	0.393	0.375	0.414	0.427		0.493 0.406
Fe ₂₊ (calc)	0.299	0.309	0.316	0.292	0.262	0.301	0.31	0.34	0.347		0.493 0.354
Fe ₃₊ (calc)	0.096	0.114	0.066	0.082	0.12	0.092	0.065	0.074	0.08		0 0.052
Mn	1.477	1.542	1.458	1.422	1.355	1.408	1.421	1.496	1.422		1.338 1.403
Ca	1.179	1.09	1.183	1.249	1.331	1.24	1.237	1.131	1.174		1.103 1.215
Cr	0.001	0	0	0	0	0.002	0.001	0.002	0		0.001 0.001
x(g)=Fe/(Fe+Mg)	0.98	0.98	0.96	0.98	0.98	0.98	0.97	0.98	0.94		0.91 0.97
m(g)=X _{sps}	0.48	0.50	0.48	0.47	0.44	0.46	0.47	0.49	0.47		0.45 0.46
z(g)=X _{grs}	0.39	0.36	0.39	0.41	0.43	0.41	0.41	0.37	0.38		0.37 0.40
X _{pyp}	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01		0.02 0.00
X _{alm}	0.13	0.14	0.13	0.12	0.12	0.13	0.12	0.14	0.14		0.17 0.13

Transect K-K' (cont'd)												
Transect distance (μm)	235	240	245	250	255	260	265	270	275	280	285	290
SiO ₂	37.16	37.35	37.54	37.67	37.33						37.67	37.35
Al ₂ O ₃	21.44	21.32	21.22	21.69	21.50						21.31	21.38
TiO ₂	0.20	0.16	0.20	0.02	0.02						0.10	0.02
MgO	0.08	0.17	0.30	1.40	1.43						0.72	1.50
FeO _{total}	6.76	7.25	7.60	20.00	20.01						15.45	22.59
FeO(calc)	5.57	5.95	7.15	19.49	19.54						15.45	21.41
Fe ₂ O ₃ (calc)	1.32	1.45	0.49	0.57	0.52						0.00	1.31
MnO	21.20	21.40	20.14	13.20	12.03						12.22	10.26
CaO	13.60	13.19	13.26	7.58	8.10						12.50	7.96
Cr ₂ O ₃	0.00	0.00	0.00	0.00	0.04						0.03	0.00
Total	100.44	100.84	100.25	101.60	100.46						99.99	101.05
Normalised to 8 cations												
Si	2.946	2.954	2.98	2.973	2.973						2.995	2.961
Al	2.004	1.987	1.986	2.018	2.018						1.998	1.998
Ti	0.012	0.01	0.012	0.001	0.001						0.006	0.001
Mg	0.01	0.02	0.035	0.164	0.17						0.085	0.177
Fe _{total}	0.448	0.48	0.504	1.32	1.333						1.027	1.498
Fe ₂₊ (calc)	0.37	0.393	0.475	1.286	1.301						1.027	1.419
Fe ₃₊ (calc)	0.079	0.086	0.029	0.034	0.031						0	0.078
Mn	1.424	1.433	1.355	0.883	0.811						0.823	0.689
Ca	1.155	1.117	1.128	0.641	0.692						1.065	0.676
Cr	0	0	0	0	0.002						0.002	0
x(g)=Fe/(Fe+Mg)	0.98	0.96	0.93	0.89	0.89						0.92	0.89
m(g)=X _{sps}	0.47	0.47	0.45	0.29	0.27						0.27	0.23
z(g)=X _{grs}	0.38	0.37	0.37	0.21	0.23						0.35	0.22
X _{pyr}	0.00	0.01	0.01	0.05	0.06						0.03	0.06
X _{alm}	0.15	0.16	0.17	0.44	0.44						0.34	0.49

Transect L-L'												
Transect distance (μm)	0	5	10	15	20	25	30	35	40	45	50	55
SiO ₂	37.28	37.54	37.51	37.47	37.42	37.58	37.43	37.63	37.75	37.67	37.51	37.77
Al ₂ O ₃	21.59	21.39	21.54	21.51	21.65	21.53	21.72	21.61	21.47	21.73	21.22	21.59
TiO ₂	0.01	0.02	0.02	0.05	0.04	0.02	0.03	0.02	0.05	0.03	0.06	0.10
MgO	1.79	1.74	1.67	1.46	1.33	1.29	1.27	1.13	0.81	0.70	0.45	0.25
FeO _{total}	19.42	20.61	21.24	20.09	20.72	20.16	20.20	18.66	17.46	16.66	14.01	11.20
FeO(calc)	18.43	20.61	20.18	20.09	19.86	19.38	18.39	17.40	16.78	15.68	13.09	10.84
Fe ₂ O ₃ (calc)	1.10	0.00	1.18	0.00	0.95	0.87	2.01	1.40	0.75	1.09	1.02	0.40
MnO	13.70	11.09	11.46	11.41	11.24	11.26	11.82	12.40	13.61	14.09	14.02	16.80
CaO	7.10	7.40	7.89	8.24	8.71	9.26	9.49	10.18	10.28	10.83	13.12	13.23
Cr ₂ O ₃	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03
Total	100.91	99.80	101.34	100.25	101.12	101.12	101.97	101.63	101.43	101.73	100.42	100.96
Si	2.957	3.006	2.961	2.987	2.960	2.970	2.935	2.957	2.977	2.959	2.974	2.978
Al	2.019	2.020	2.005	2.022	2.019	2.006	2.008	2.002	1.996	2.013	1.983	2.007
Ti	0.000	0.001	0.001	0.003	0.002	0.001	0.002	0.001	0.003	0.002	0.004	0.006
Mg	0.211	0.207	0.196	0.173	0.157	0.152	0.149	0.132	0.095	0.082	0.053	0.029
Fe _{total}	1.288	1.380	1.402	1.340	1.371	1.333	1.324	1.226	1.152	1.095	0.929	0.738
Fe ₂ ⁺ (calc)	1.223	1.380	1.332	1.340	1.314	1.281	1.206	1.144	1.107	1.030	0.868	0.715
Fe ₃ ⁺ (calc)	0.066	0.000	0.070	0.000	0.057	0.052	0.119	0.083	0.045	0.064	0.061	0.024
Mn	0.921	0.752	0.766	0.770	0.753	0.754	0.785	0.825	0.909	0.937	0.942	1.122
Ca	0.603	0.634	0.667	0.704	0.738	0.784	0.797	0.857	0.869	0.912	1.115	1.118
Cr	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002
x(g)=Fe/(Fe+Mg)	0.86	0.89	0.88	0.89	0.90	0.90	0.90	0.90	0.92	0.93	0.95	0.96
m(g)=X _{sps}	0.30	0.25	0.25	0.26	0.25	0.25	0.26	0.27	0.30	0.31	0.31	0.37
z(g)=X _{grs}	0.20	0.21	0.22	0.24	0.24	0.26	0.26	0.28	0.29	0.30	0.37	0.37
X _{pyr}	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.03	0.02	0.01
X _{alm}	0.43	0.46	0.46	0.45	0.45	0.44	0.43	0.40	0.38	0.36	0.31	0.25

Transect L-L' (cont'd)												
Transect distance (μm)	60	65	70	75	80	85	90	95	100	105	110	115
SiO ₂	37.71	37.57	37.63	37.40	37.40	37.43	37.53	37.33	37.57	37.41	38.12	37.28
Al ₂ O ₃	21.45	21.18	21.51	21.24	21.26	21.23	21.40	21.36	21.40	21.30	21.11	21.47
TiO ₂	0.10	0.12	0.13	0.16	0.17	0.16	0.13	0.13	0.17	0.17	0.16	0.16
MgO	0.19	0.16	0.13	0.13	0.09	0.19	0.11	0.14	0.13	0.11	0.18	0.09
FeO _{total}	9.95	8.34	7.69	6.53	6.03	6.87	6.22	5.81	5.51	4.94	5.43	4.72
FeO(calc)	8.87	7.63	6.44	5.31	5.07	5.39	5.19	5.33	4.15	4.03	5.43	3.66
Fe ₂ O ₃ (calc)	1.21	0.78	1.38	1.35	1.07	1.65	1.14	0.54	1.51	1.01	0.00	1.18
MnO	18.01	19.08	20.63	22.60	22.32	20.88	22.83	21.39	22.56	22.08	22.20	23.73
CaO	13.85	13.89	13.70	12.82	13.30	14.07	12.85	13.68	13.93	14.28	13.63	13.16
Cr ₂ O ₃	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.01
Total	101.26	100.32	101.42	100.91	100.59	100.82	101.08	99.86	101.28	100.30	100.84	100.60
Si	2.965	2.979	2.955	2.959	2.965	2.954	2.963	2.973	2.953	2.964	3.009	2.953
Al	1.988	1.980	1.992	1.981	1.987	1.975	1.992	2.006	1.983	1.990	1.964	2.005
Ti	0.006	0.007	0.008	0.009	0.010	0.009	0.008	0.008	0.010	0.010	0.009	0.009
Mg	0.022	0.018	0.015	0.016	0.011	0.022	0.013	0.016	0.015	0.013	0.021	0.011
Fe _{total}	0.654	0.553	0.505	0.432	0.400	0.453	0.411	0.387	0.362	0.327	0.359	0.313
Fe ₂₊ (calc)	0.583	0.506	0.423	0.351	0.336	0.356	0.343	0.355	0.273	0.267	0.359	0.243
Fe ₃₊ (calc)	0.071	0.047	0.082	0.081	0.064	0.098	0.068	0.032	0.089	0.061	0.000	0.070
Mn	1.199	1.282	1.372	1.515	1.499	1.396	1.527	1.443	1.502	1.482	1.484	1.592
Ca	1.166	1.180	1.153	1.087	1.129	1.190	1.087	1.167	1.173	1.212	1.153	1.117
Cr	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001
x(g)=Fe/(Fe+Mg)	0.97	0.97	0.97	0.97	0.97	0.95	0.97	0.96	0.96	0.96	0.94	0.97
m(g)=X _{sps}	0.39	0.42	0.45	0.50	0.49	0.46	0.50	0.48	0.49	0.49	0.49	0.53
z(g)=X _{grs}	0.38	0.39	0.38	0.36	0.37	0.39	0.36	0.39	0.38	0.40	0.38	0.37
X _{pyr}	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00
X _{alm}	0.22	0.18	0.17	0.14	0.13	0.15	0.14	0.13	0.12	0.11	0.12	0.10

Transect L-L' (cont'd)												
Transect distance (μm)	120	125	130	135	140	145	150	155	160	165	170	175
SiO ₂	37.07	37.28	37.15	37.22	36.99	36.89			36.91	36.86	36.99	36.76
Al ₂ O ₃	21.43	21.28	21.14	21.25	21.11	21.34			21.23	21.26	21.25	20.94
TiO ₂	0.18	0.20	0.20	0.25	0.16	0.19			0.16	0.17	0.18	0.15
MgO	0.09	0.21	0.09	0.06	0.04	0.10			0.08	0.06	0.09	0.21
FeO _{total}	4.48	6.17	3.98	3.74	3.70	3.91			3.85	3.73	3.80	5.00
FeO(calc)	3.34	5.26	2.93	2.67	2.38	2.39			2.39	2.28	2.20	3.81
Fe ₂ O ₃ (calc)	1.27	1.01	1.16	1.19	1.47	1.69			1.62	1.61	1.78	1.33
MnO	25.08	22.32	26.12	24.61	24.44	25.15			24.64	24.61	24.18	24.64
CaO	12.17	12.89	11.76	13.28	13.40	12.67			13.10	13.20	13.69	11.67
Cr ₂ O ₃	0.01	0.01	0.01	0.01	0.02	0.00			0.00	0.00	0.01	0.00
Total	100.51	100.42	100.45	100.43	99.86	100.24			99.96	99.89	100.19	99.36
Si	2.947	2.961	2.960	2.955	2.952	2.937			2.944	2.941	2.940	2.958
Al	2.009	1.992	1.986	1.989	1.987	2.003			1.996	2.000	1.991	1.986
Ti	0.011	0.012	0.012	0.015	0.010	0.011			0.009	0.010	0.011	0.009
Mg	0.010	0.025	0.010	0.007	0.005	0.012			0.009	0.007	0.011	0.025
Fe _{total}	0.298	0.410	0.265	0.248	0.247	0.260			0.257	0.249	0.253	0.337
Fe ₂₊ (calc)	0.222	0.350	0.196	0.177	0.159	0.159			0.160	0.152	0.146	0.256
Fe ₃₊ (calc)	0.076	0.060	0.069	0.071	0.088	0.101			0.097	0.097	0.106	0.080
Mn	1.689	1.502	1.763	1.655	1.653	1.696			1.665	1.664	1.628	1.679
Ca	1.037	1.097	1.004	1.130	1.146	1.081			1.119	1.129	1.166	1.006
Cr	0.000	0.001	0.001	0.000	0.001	0.000			0.000	0.000	0.001	0.000
x(g)=Fe/(Fe+Mg)	0.97	0.94	0.96	0.97	0.98	0.95			0.96	0.97	0.96	0.93
m(g)=X _{sps}	0.56	0.49	0.58	0.54	0.54	0.56			0.55	0.55	0.53	0.55
z(g)=X _{grs}	0.34	0.36	0.33	0.37	0.38	0.35			0.37	0.37	0.38	0.33
X _{pyp}	0.00	0.01	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.01
X _{alm}	0.10	0.14	0.09	0.08	0.08	0.09			0.08	0.08	0.08	0.11

Transect L-L' (cont'd)												
Transect distance (μm)	180	185	190	195	200	205	210	215	220	225	230	235
SiO ₂	36.74	36.70	36.88	36.97	36.99	37.04	36.83	36.84		37.21	37.40	37.40
Al ₂ O ₃	21.03	21.22	21.21	21.25	21.20	21.24	21.16	21.10		21.22	21.48	21.30
TiO ₂	0.20	0.21	0.20	0.11	0.14	0.12	0.21	0.20		0.03	0.01	0.03
MgO	0.09	0.10	0.07	0.07	0.09	0.09	0.06	0.09		0.74	1.48	1.78
FeO _{total}	3.89	3.97	4.19	3.87	4.01	4.10	4.25	4.29		14.17	21.36	21.12
FeO(calc)	2.43	2.12	2.42	2.80	2.03	2.78	2.83	2.50		13.36	19.71	19.92
Fe ₂ O ₃ (calc)	1.63	2.06	1.96	1.19	2.20	1.47	1.57	1.99		0.89	1.84	1.34
MnO	25.44	26.15	25.59	25.05	26.02	24.94	25.14	25.33		15.55	11.85	12.17
CaO	12.30	11.94	12.34	12.49	12.34	12.65	12.35	12.42		10.99	8.10	7.29
Cr ₂ O ₃	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00		0.01	0.00	0.03
Total	99.70	100.34	100.50	99.80	100.79	100.18	100.00	100.25		99.91	101.69	101.13
Normalised to 8 cations												
Si	2.945	2.927	2.934	2.956	2.935	2.951	2.943	2.937		2.972	2.947	2.963
Al	1.988	1.995	1.990	2.003	1.983	1.995	1.994	1.983		1.998	1.995	1.989
Ti	0.012	0.013	0.012	0.007	0.008	0.007	0.013	0.012		0.002	0.001	0.002
Mg	0.011	0.011	0.008	0.009	0.011	0.011	0.007	0.011		0.088	0.174	0.210
Fe _{total}	0.261	0.265	0.279	0.259	0.266	0.273	0.284	0.286		0.947	1.408	1.399
Fe ²⁺ (calc)	0.163	0.141	0.161	0.187	0.135	0.185	0.189	0.167		0.893	1.299	1.320
Fe ³⁺ (calc)	0.098	0.124	0.118	0.071	0.131	0.088	0.094	0.119		0.054	0.109	0.080
Mn	1.727	1.766	1.725	1.697	1.748	1.683	1.702	1.710		1.052	0.791	0.817
Ca	1.057	1.021	1.052	1.070	1.049	1.080	1.057	1.061		0.941	0.684	0.619
Cr	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.002
x(g)=Fe/(Fe+Mg)	0.96	0.96	0.97	0.97	0.96	0.96	0.98	0.96		0.91	0.89	0.87
m(g)=X _{sps}	0.57	0.58	0.56	0.56	0.57	0.55	0.56	0.56		0.35	0.26	0.27
z(g)=X _{grs}	0.35	0.33	0.34	0.35	0.34	0.35	0.35	0.35		0.31	0.22	0.20
X _{pyr}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.03	0.06	0.07
X _{alm}	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		0.31	0.46	0.46

Transect L-L' (cont'd)				
Transect distance (μm)	240-285	290	295	300
SiO ₂		37.13	37.26	37.10
Al ₂ O ₃		21.19	21.21	21.04
TiO ₂		0.00	0.01	0.03
MgO		1.51	1.12	1.23
FeO _{total}		21.60	19.27	19.19
FeO(calc)		19.85	18.22	17.51
Fe ₂ O ₃ (calc)		1.94	1.16	1.86
MnO		11.75	12.31	12.73
CaO		7.78	9.27	9.21
Cr ₂ O ₃		0.00	0.00	0.00
Total		100.96	100.47	100.56
Normalised to 8 cations				
Si		2.950	2.968	2.955
Al		1.984	1.992	1.975
Ti		0.000	0.001	0.002
Mg		0.178	0.133	0.146
Fe _{total}		1.435	1.284	1.278
Fe ²⁺ (calc)		1.319	1.214	1.166
Fe ³⁺ (calc)		0.116	0.070	0.112
Mn		0.790	0.831	0.859
Ca		0.662	0.791	0.786
Cr		0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)		0.89	0.91	0.90
m(g)=X _{sps}		0.26	0.27	0.28
z(g)=X _{grs}		0.22	0.26	0.26
X _{pyr}		0.06	0.04	0.05
X _{alm}		0.47	0.42	0.42

Transect M-M'												
Transect dist (µm)	0	5	10	15	20	25	30	35	40	45	50	55
SiO ₂	37.51	37.20	37.22	37.59	37.37	36.99	37.07	37.53	37.59	37.48	37.36	37.55
Al ₂ O ₃	21.16	21.40	21.33	21.23	21.38	21.29	21.44	21.43	21.28	21.09	21.10	21.21
TiO ₂	0.01	0.03	0.02	0.03	0.03	0.02	0.03	0.03	0.09	0.12	0.13	0.12
MgO	1.62	1.54	1.43	1.26	0.91	1.20	1.19	0.83	0.24	0.19	0.18	0.18
FeO _{total}	18.48	21.17	20.83	20.41	17.64	18.20	18.80	16.21	11.45	10.01	8.86	8.35
FeO(calc)	18.42	20.22	19.78	19.14	16.89	17.20	16.83	14.77	10.58	9.02	7.54	7.15
Fe ₂ O ₃ (calc)	0.07	1.06	1.16	1.41	0.83	1.12	2.19	1.59	0.97	1.10	1.47	1.34
MnO	14.11	11.58	11.32	11.50	14.59	14.87	14.65	12.92	17.00	18.18	18.95	19.35
CaO	7.22	7.66	8.37	9.33	8.91	7.68	8.25	12.16	13.11	13.40	13.85	14.00
Cr ₂ O ₃	0.01	0.00	0.00	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Total	100.23	100.61	100.52	101.36	100.83	100.28	101.47	101.10	100.76	100.49	100.43	100.76
Normalised to 8 cations												
Si	2.999	2.962	2.963	2.968	2.971	2.960	2.933	2.956	2.973	2.974	2.963	2.965
Al	1.995	2.009	2.002	1.976	2.004	2.009	2.000	1.990	1.985	1.973	1.972	1.975
Ti	0.000	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.005	0.007	0.008	0.007
Mg	0.193	0.183	0.170	0.148	0.108	0.144	0.140	0.097	0.028	0.022	0.021	0.021
Fe _{total}	1.236	1.410	1.387	1.347	1.173	1.218	1.244	1.067	0.758	0.664	0.588	0.552
Fe ₂₊ (calc)	1.232	1.346	1.317	1.264	1.123	1.151	1.114	0.973	0.700	0.599	0.500	0.472
Fe ₃₊ (calc)	0.004	0.063	0.070	0.084	0.050	0.067	0.130	0.094	0.058	0.065	0.088	0.080
Mn	0.956	0.781	0.764	0.769	0.983	1.008	0.982	0.862	1.139	1.221	1.273	1.295
Ca	0.619	0.654	0.714	0.789	0.759	0.659	0.699	1.026	1.112	1.139	1.176	1.185
Cr	0.000	0.000	0.000	0.002	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.86	0.89	0.89	0.90	0.92	0.89	0.90	0.92	0.96	0.97	0.97	0.96
m(g)=X _{sps}	0.32	0.26	0.25	0.25	0.33	0.33	0.32	0.28	0.38	0.40	0.42	0.42
z(g)=X _{grs}	0.21	0.22	0.24	0.26	0.25	0.22	0.23	0.34	0.37	0.37	0.38	0.39
X _{pyp}	0.06	0.06	0.06	0.05	0.04	0.05	0.05	0.03	0.01	0.01	0.01	0.01
X _{alm}	0.41	0.47	0.46	0.44	0.39	0.40	0.41	0.35	0.25	0.22	0.19	0.18

Transect M-M' (cont'd)												
Transect distance (µm)	60	65	70	75	80	85	90	95	100	105	110	115
SiO ₂	37.41	37.38	37.29	37.35	37.43	37.34	37.49	37.59	37.55	37.63	37.55	37.58
Al ₂ O ₃	21.08	21.15	21.16	21.35	21.23	21.34	21.18	21.29	21.36	21.22	21.29	21.18
TiO ₂	0.12	0.12	0.13	0.11	0.12	0.12	0.10	0.12	0.13	0.09	0.11	0.12
MgO	0.15	0.16	0.15	0.17	0.15	0.17	0.16	0.14	0.13	0.14	0.15	0.14
FeO _{total}	7.89	8.21	8.04	8.11	7.98	8.47	7.65	7.77	7.75	7.62	7.98	7.89
FeO(calc)	6.77	7.52	6.70	6.64	6.91	6.94	7.35	7.06	6.50	6.76	6.89	6.24
Fe ₂ O ₃ (calc)	1.24	0.77	1.49	1.63	1.18	1.70	0.33	0.78	1.39	0.95	1.21	1.83
MnO	19.60	18.76	19.76	20.02	19.79	19.54	19.36	19.54	20.07	19.98	19.86	20.21
CaO	14.01	14.06	13.84	13.69	13.77	13.84	13.79	14.00	14.02	13.91	13.84	14.11
Cr ₂ O ₃	0.00	0.01	0.00	0.02	0.02	0.02	0.01	0.00	0.02	0.00	0.00	0.00
Total	100.28	99.85	100.38	100.82	100.49	100.84	99.74	100.47	101.02	100.59	100.79	101.23
Normalised to 8 cations												
Si	2.969	2.977	2.958	2.950	2.966	2.948	2.988	2.976	2.958	2.977	2.966	2.956
Al	1.973	1.986	1.979	1.988	1.983	1.987	1.990	1.988	1.984	1.979	1.983	1.965
Ti	0.007	0.007	0.008	0.006	0.007	0.007	0.006	0.007	0.008	0.005	0.007	0.007
Mg	0.017	0.019	0.018	0.020	0.018	0.020	0.019	0.017	0.015	0.016	0.017	0.016
Fe _{total}	0.524	0.547	0.533	0.536	0.529	0.559	0.510	0.514	0.510	0.504	0.527	0.519
Fe ₂ + (calc)	0.450	0.501	0.445	0.439	0.458	0.458	0.490	0.468	0.428	0.448	0.455	0.411
Fe ₃ + (calc)	0.074	0.046	0.089	0.097	0.071	0.101	0.020	0.047	0.082	0.056	0.072	0.109
Mn	1.318	1.265	1.327	1.339	1.328	1.307	1.307	1.311	1.339	1.339	1.329	1.347
Ca	1.192	1.199	1.176	1.159	1.169	1.171	1.178	1.188	1.183	1.179	1.172	1.190
Cr	0.000	0.001	0.000	0.001	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.97	0.97	0.97	0.96	0.97	0.97	0.96	0.97	0.97	0.97	0.97	0.97
m(g)=X _{sps}	0.43	0.42	0.43	0.44	0.44	0.43	0.43	0.43	0.44	0.44	0.44	0.44
z(g)=X _{grs}	0.39	0.40	0.38	0.38	0.38	0.38	0.39	0.39	0.39	0.39	0.38	0.39
X _{pyp}	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
X _{alm}	0.17	0.18	0.17	0.18	0.17	0.18	0.17	0.17	0.17	0.17	0.17	0.17

Transect M-M' (cont'd)											
Transect distance (μm)	120	125	130	135	140	145	150	155	160	165	170
SiO ₂	37.39	37.50	37.45	37.39	37.66	37.58	37.71	37.35	37.52	37.89	37.74
Al ₂ O ₃	21.15	21.29	21.29	21.25	21.28	21.48	21.33	21.46	21.47	21.42	21.48
TiO ₂	0.11	0.10	0.12	0.10	0.06	0.06	0.02	0.01	0.04	0.02	0.00
MgO	0.13	0.57	0.16	0.20	0.47	0.54	0.88	0.85	1.39	1.60	1.72
FeO _{total}	7.84	11.83	8.77	9.93	13.12	14.89	17.51	17.18	19.52	20.84	18.40
FeO(calc)	6.63	11.46	7.32	8.69	12.18	13.53	16.16	15.93	18.42	20.64	18.23
Fe ₂ O ₃ (calc)	1.35	0.42	1.61	1.38	1.05	1.51	1.50	1.38	1.22	0.23	0.19
MnO	19.69	15.51	19.44	18.41	15.93	14.42	13.60	14.37	12.38	11.70	14.95
CaO	14.05	13.07	13.73	13.35	12.44	12.41	10.62	9.88	8.95	7.80	6.78
Cr ₂ O ₃	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00
Total	100.37	99.90	100.96	100.65	100.99	101.38	101.67	101.11	101.25	101.31	101.07
Normalised to 8 cations											
Si	2.965	2.983	2.955	2.961	2.974	2.956	2.966	2.957	2.963	2.994	2.991
Al	1.977	1.996	1.980	1.984	1.981	1.992	1.978	2.002	1.998	1.995	2.007
Ti	0.006	0.006	0.007	0.006	0.004	0.004	0.001	0.001	0.002	0.001	0.000
Mg	0.015	0.068	0.019	0.024	0.055	0.063	0.103	0.101	0.163	0.188	0.203
Fe _{total}	0.520	0.787	0.579	0.658	0.867	0.979	1.152	1.138	1.289	1.377	1.220
Fe ₂₊ (calc)	0.440	0.762	0.483	0.576	0.804	0.890	1.063	1.055	1.216	1.364	1.208
Fe ₃₊ (calc)	0.081	0.025	0.096	0.082	0.063	0.089	0.089	0.083	0.072	0.013	0.011
Mn	1.323	1.045	1.299	1.235	1.066	0.960	0.906	0.964	0.828	0.783	1.003
Ca	1.194	1.114	1.161	1.133	1.053	1.046	0.895	0.838	0.757	0.660	0.576
Cr	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000
x(g)=Fe/(Fe+Mg)	0.97	0.92	0.97	0.97	0.94	0.94	0.92	0.92	0.89	0.88	0.86
m(g)=X _{sps}	0.43	0.35	0.42	0.41	0.35	0.32	0.30	0.32	0.27	0.26	0.33
z(g)=X _{grs}	0.39	0.37	0.38	0.37	0.35	0.34	0.29	0.28	0.25	0.22	0.19
X _{pyr}	0.00	0.02	0.01	0.01	0.02	0.02	0.03	0.03	0.05	0.06	0.07
X _{alm}	0.17	0.26	0.19	0.22	0.29	0.32	0.38	0.37	0.42	0.46	0.41

Transect N-N'													
Transect distance (μm)	0	5	10	15	20	25	30	35	40	45	50	55	60
SiO ₂	37.17	37.28	37.26	37.38	37.27	37.55	37.56	37.21	37.67	37.57	37.56	37.92	37.64
Al ₂ O ₃	21.15	21.34	21.14	21.27	21.10	21.37	21.11	21.38	21.14	21.29	21.37	21.29	21.61
TiO ₂	0.02	0.03	0.02	0.00	0.02	0.03	0.12	0.10	0.13	0.14	0.10	0.13	0.03
MgO	1.67	1.70	1.24	0.98	1.25	0.80	0.21	0.14	0.17	0.13	0.15	0.28	1.34
FeO _{total}	19.73	21.03	20.50	18.33	18.31	16.44	10.63	8.89	8.56	8.28	8.28	9.94	17.90
FeO(calc)	18.78	19.69	19.14	17.16	17.46	15.53	9.72	7.66	7.84	7.08	7.00	9.27	17.90
Fe ₂ O ₃ (calc)	1.05	1.49	1.50	1.30	0.95	1.01	1.01	1.36	0.80	1.33	1.42	0.75	0.00
MnO	12.67	11.98	11.95	14.07	14.33	13.29	17.80	18.80	18.84	19.49	19.65	17.95	12.15
CaO	7.70	7.62	8.68	9.00	8.11	11.32	13.20	13.75	13.99	14.05	13.92	13.67	9.40
Cr ₂ O ₃	0.00	0.00	0.01	0.00	0.01	0.04	0.01	0.02	0.02	0.00	0.00	0.02	0.02
Total	100.13	100.98	100.82	101.06	100.41	100.84	100.63	100.29	100.51	100.95	101.02	101.23	100.09
Normalised to 8 cations													
Si	2.97047	2.956	2.963	2.966	2.977	2.970	2.977	2.953	2.982	2.963	2.959	2.982	2.996
Al	1.99286	1.994	1.982	1.990	1.987	1.993	1.972	2.000	1.973	1.979	1.985	1.974	2.028
Ti	0.00144	0.002	0.001	0.000	0.001	0.002	0.007	0.006	0.007	0.008	0.006	0.008	0.002
Mg	0.199	0.201	0.147	0.116	0.149	0.095	0.024	0.017	0.020	0.015	0.017	0.033	0.159
Fe _{total}	1.31874	1.395	1.363	1.217	1.223	1.088	0.704	0.590	0.566	0.546	0.546	0.654	1.192
Fe ₂₊ (calc)	1.25545	1.305	1.273	1.139	1.166	1.027	0.644	0.509	0.519	0.467	0.461	0.609	1.192
Fe ₃₊ (calc)	0.06329	0.089	0.090	0.077	0.057	0.060	0.060	0.081	0.048	0.079	0.084	0.044	0.000
Mn	0.85796	0.805	0.805	0.946	0.969	0.890	1.195	1.264	1.263	1.302	1.311	1.196	0.819
Ca	0.65933	0.647	0.739	0.765	0.694	0.960	1.120	1.169	1.187	1.187	1.175	1.152	0.802
Cr	0	0.000	0.001	0.000	0.001	0.002	0.000	0.001	0.001	0.000	0.000	0.001	0.001
x(g)=Fe/(Fe+Mg)	0.87	0.87	0.90	0.91	0.89	0.92	0.97	0.97	0.97	0.97	0.97	0.95	0.88
m(g)=X _{sps}	0.28	0.26	0.26	0.31	0.32	0.29	0.39	0.42	0.42	0.43	0.43	0.39	0.28
z(g)=X _{grs}	0.22	0.21	0.24	0.25	0.23	0.32	0.37	0.38	0.39	0.39	0.39	0.38	0.27
X _{pyr}	0.07	0.07	0.05	0.04	0.05	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.05
X _{alm}	0.43	0.46	0.45	0.40	0.40	0.36	0.23	0.19	0.19	0.18	0.18	0.22	0.40

AMS01	Transect D1-D1'											
Transect distance (µm)	0	2	4	6	8	10	12	14	16	18	20	22
SiO ₂			36.51	37.14	37.10	37.23	36.95	37.00	37.02	37.06	37.08	36.85
Al ₂ O ₃			21.11	21.03	21.29	21.17	21.15	21.12	21.15	21.21	21.32	21.30
TiO ₂			0.01	0.01	0.01	0.00	0.02	0.01	0.03	0.00	0.02	0.01
MgO			2.58	1.86	1.89	1.90	1.86	1.83	1.89	1.94	1.93	1.97
FeO _{total}			19.33	19.36	19.55	19.68	19.63	18.85	19.67	19.25	19.79	20.43
FeO(calc)			16.94	18.13	18.45	18.18	18.09	18.58	18.06	18.45	18.68	18.64
Fe ₂ O ₃ (calc)			2.65	1.36	1.22	1.67	1.71	0.29	1.79	0.89	1.23	1.99
MnO			13.51	13.64	13.17	13.55	13.39	13.17	13.67	13.33	13.51	13.90
CaO			6.59	7.15	7.20	7.20	7.21	7.07	7.03	6.96	6.67	6.12
Cr ₂ O ₃			0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.00
Total			99.65	100.23	100.24	100.76	100.21	99.06	100.49	99.78	100.36	100.57
Normalised to 8 cations												
Si			2.923	2.968	2.961	2.959	2.951	2.986	2.951	2.971	2.959	2.938
Al			1.993	1.981	2.003	1.983	1.992	2.010	1.987	2.005	2.006	2.003
Ti			0.000	0.000	0.001	0.000	0.001	0.001	0.002	0.000	0.001	0.001
Mg			0.308	0.221	0.225	0.225	0.221	0.221	0.225	0.232	0.230	0.234
Fe _{total}			1.294	1.294	1.305	1.308	1.311	1.272	1.311	1.290	1.321	1.363
Fe ₂ ⁺ (calc)			1.135	1.212	1.231	1.208	1.208	1.254	1.204	1.236	1.247	1.244
Fe ₃ ⁺ (calc)			0.160	0.082	0.073	0.100	0.103	0.018	0.107	0.054	0.074	0.119
Mn			0.916	0.923	0.890	0.912	0.906	0.900	0.923	0.905	0.913	0.939
Ca			0.565	0.612	0.615	0.613	0.617	0.611	0.601	0.598	0.570	0.523
Cr			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)			0.81	0.85	0.85	0.85	0.86	0.85	0.85	0.85	0.85	0.85
m(g)=X _{sps}			0.30	0.30	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.31
z(g)=X _{grs}			0.18	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.19	0.17
X _{pyr}			0.10	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08
X _{alm}			0.42	0.42	0.43	0.43	0.43	0.42	0.43	0.43	0.44	0.45

Transect D1-D1' (cont'd)												
Transect distance (μm)	24	26	28	30	32	34	36	38	40	42	44	46
SiO ₂	37.09	36.85	37.11	36.88	36.94	36.72	36.68	36.57	36.28	36.24	36.11	36.01
Al ₂ O ₃	21.20	20.98	21.22	20.99	20.82	20.59	20.05	20.04	19.82	19.88	19.74	19.75
TiO ₂	0.01	0.02	0.03	0.02	0.04	0.04	0.10	0.14	0.15	0.18	0.20	0.21
MgO	1.99	2.03	1.84	1.81	1.77	1.77	1.80	1.89	1.82	1.80	1.85	1.86
FeO _{total}	20.57	19.59	20.60	19.91	19.55	20.18	20.13	20.30	20.37	20.42	20.12	20.57
FeO(calc)	19.30	18.82	18.73	18.13	18.05	17.67	17.80	17.49	17.27	17.19	17.02	17.16
Fe ₂ O ₃ (calc)	1.41	0.85	2.07	1.98	1.67	2.79	2.58	3.12	3.45	3.58	3.45	3.79
MnO	14.17	14.36	14.28	13.63	13.30	13.39	13.54	13.80	13.83	13.76	13.68	13.33
CaO	5.58	5.53	6.19	7.00	7.44	7.46	7.20	7.05	7.02	7.14	7.17	7.23
Cr ₂ O ₃	0.02	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Total	100.64	99.37	101.29	100.24	99.85	100.18	99.50	99.79	99.31	99.43	98.87	98.98
Normalised to 8 cations												
Si	2.96	2.97	2.94	2.95	2.96	2.94	2.96	2.95	2.94	2.93	2.94	2.93
Al	1.99	2.00	1.98	1.98	1.97	1.94	1.91	1.90	1.89	1.90	1.89	1.89
Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Mg	0.24	0.24	0.22	0.22	0.21	0.21	0.22	0.23	0.22	0.22	0.22	0.23
Fe _{total}	1.37	1.32	1.37	1.33	1.31	1.35	1.36	1.37	1.38	1.38	1.37	1.40
Fe ²⁺ (calc)	1.29	1.27	1.24	1.21	1.21	1.18	1.20	1.18	1.17	1.16	1.16	1.17
Fe ³⁺ (calc)	0.08	0.05	0.12	0.12	0.10	0.17	0.16	0.19	0.21	0.22	0.21	0.23
Mn	0.96	0.98	0.96	0.92	0.90	0.91	0.93	0.94	0.95	0.94	0.94	0.92
Ca	0.48	0.48	0.53	0.60	0.64	0.64	0.62	0.61	0.61	0.62	0.62	0.63
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
x(g)=Fe/(Fe+Mg)	0.85	0.84	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
m(g)=X _{sps}	0.31	0.32	0.31	0.30	0.29	0.29	0.30	0.30	0.30	0.30	0.30	0.29
z(g)=X _{grs}	0.16	0.16	0.17	0.20	0.21	0.21	0.20	0.19	0.19	0.20	0.20	0.20
X _{pyr}	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
X _{alm}	0.45	0.44	0.45	0.43	0.43	0.43	0.44	0.43	0.44	0.44	0.43	0.44

Transect D1-D1' (cont'd)												
Transect distance (μm)	48	50	52	54	56	58	60	62	64	66	68	70
SiO ₂	36.25	36.10	36.19	36.25	36.27	35.87	36.15	35.83	36.12	36.55	36.35	36.76
Al ₂ O ₃	19.89	19.68	19.89	20.11	20.20	20.06	20.00	20.06	20.02	20.05	20.10	20.21
TiO ₂	0.20	0.18	0.17	0.17	0.14	0.16	0.18	0.18	0.16	0.13	0.11	0.06
MgO	1.87	1.89	1.84	1.76	1.77	1.80	1.94	1.86	1.91	1.84	1.82	1.77
FeO _{total}	20.41	20.19	19.69	19.54	19.39	19.83	20.05	20.50	20.10	20.33	20.61	20.20
FeO(calc)	17.32	17.38	17.26	17.73	17.44	17.35	17.13	17.08	17.09	17.91	17.87	18.04
Fe ₂ O ₃ (calc)	3.43	3.12	2.70	2.01	2.17	2.75	3.24	3.80	3.34	2.69	3.05	2.40
MnO	13.32	12.95	13.42	12.62	12.65	12.78	13.45	13.36	13.67	13.62	13.40	13.69
CaO	7.32	7.39	7.25	7.69	7.88	7.45	7.17	7.08	7.02	6.90	6.94	6.98
Cr ₂ O ₃	0.02	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.03	0.01	0.00	0.03
Total	99.28	98.39	98.45	98.18	98.29	97.99	98.94	98.92	99.03	99.43	99.34	99.70
Normalised to 8 cations												
Si	2.934	2.946	2.951	2.960	2.955	2.937	2.934	2.911	2.930	2.955	2.941	2.963
Al	1.898	1.893	1.912	1.936	1.940	1.936	1.913	1.922	1.914	1.911	1.918	1.921
Ti	0.012	0.011	0.010	0.010	0.009	0.010	0.011	0.011	0.010	0.008	0.007	0.003
Mg	0.226	0.230	0.224	0.214	0.215	0.220	0.234	0.225	0.231	0.222	0.219	0.213
Fe _{total}	1.381	1.378	1.343	1.334	1.321	1.358	1.361	1.393	1.363	1.375	1.395	1.362
Fe ²⁺ (calc)	1.173	1.186	1.177	1.210	1.188	1.188	1.163	1.161	1.160	1.211	1.209	1.216
Fe ³⁺ (calc)	0.209	0.192	0.166	0.124	0.133	0.170	0.198	0.232	0.204	0.164	0.186	0.146
Mn	0.913	0.895	0.927	0.873	0.873	0.886	0.924	0.920	0.939	0.932	0.918	0.934
Ca	0.635	0.646	0.634	0.673	0.688	0.653	0.623	0.617	0.610	0.597	0.601	0.603
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.86	0.85	0.86	0.86	0.86
m(g)=X _{sps}	0.29	0.28	0.30	0.28	0.28	0.28	0.29	0.29	0.30	0.30	0.29	0.30
z(g)=X _{grs}	0.20	0.21	0.20	0.22	0.22	0.21	0.20	0.20	0.19	0.19	0.19	0.19
X _{pyr}	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
X _{alm}	0.44	0.44	0.43	0.43	0.43	0.44	0.43	0.44	0.43	0.44	0.45	0.44

Transect D1-D1' (cont'd)												
Transect distance (µm)	72	74	76	78	80	82	84	86	88	90	92	94
SiO ₂	36.91	36.85	36.74	36.84	36.63	36.87	36.53	36.67	36.62	36.98	36.87	36.89
Al ₂ O ₃	20.54	20.89	21.12	20.92	20.82	21.16	20.97	21.26	21.11	21.14	21.03	21.01
TiO ₂	0.03	0.04	0.04	0.03	0.03	0.02	0.02	0.00	0.02	0.02	0.01	0.03
MgO	1.80	1.89	1.91	1.97	2.02	2.04	1.99	1.96	1.86	1.85	1.87	1.75
FeO _{total}	18.85	19.93	20.26	19.80	20.84	20.99	20.63	19.90	19.38	19.84	19.88	19.32
FeO(calc)	18.12	18.17	18.31	19.08	18.94	19.34	18.63	18.50	18.08	18.31	18.36	18.53
Fe ₂ O ₃ (calc)	0.81	1.95	2.17	0.80	2.12	1.83	2.22	1.56	1.44	1.69	1.69	0.87
MnO	13.68	13.86	14.13	14.09	14.38	14.51	14.52	14.00	13.65	13.53	13.31	13.37
CaO	7.01	6.66	6.20	5.63	5.25	5.03	5.32	5.99	6.69	6.96	6.96	6.98
Cr ₂ O ₃	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02
Total	98.84	100.17	100.44	99.29	99.97	100.61	100.00	99.81	99.35	100.33	99.96	99.40
Normalised to 8 cations												
Si	2.991	2.952	2.937	2.977	2.947	2.947	2.937	2.946	2.952	2.953	2.955	2.973
Al	1.963	1.973	1.990	1.993	1.975	1.994	1.988	2.013	2.006	1.990	1.987	1.996
Ti	0.002	0.002	0.003	0.002	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.002
Mg	0.217	0.225	0.227	0.237	0.242	0.243	0.238	0.234	0.224	0.221	0.223	0.210
Fe _{total}	1.278	1.335	1.354	1.338	1.402	1.403	1.388	1.337	1.306	1.325	1.333	1.302
Fe ₂ ⁺ (calc)	1.228	1.217	1.224	1.290	1.274	1.293	1.253	1.243	1.219	1.223	1.230	1.249
Fe ₃ ⁺ (calc)	0.049	0.118	0.131	0.049	0.128	0.110	0.135	0.094	0.087	0.102	0.102	0.053
Mn	0.939	0.940	0.957	0.965	0.980	0.982	0.989	0.953	0.932	0.915	0.904	0.913
Ca	0.608	0.571	0.531	0.487	0.452	0.431	0.458	0.516	0.578	0.595	0.598	0.603
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.85	0.86	0.86	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
m(g)=X _{sps}	0.31	0.31	0.31	0.32	0.32	0.32	0.32	0.31	0.31	0.30	0.30	0.30
z(g)=X _{grs}	0.20	0.19	0.17	0.16	0.15	0.14	0.15	0.17	0.19	0.19	0.20	0.20
X _{pyr}	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
X _{alm}	0.42	0.43	0.44	0.44	0.46	0.46	0.45	0.44	0.43	0.43	0.44	0.43

Transect D1-D1' (cont'd)								
Transect distance (μm)	96	98	100	102	104	106	108	110
SiO ₂	36.84	36.84	36.65	37.11				
Al ₂ O ₃	21.05	21.06	20.89	20.82				
TiO ₂	0.03	0.04	0.03	0.03				
MgO	1.66	1.65	1.65	1.51				
FeO _{total}	19.67	18.59	18.99	18.42				
FeO(calc)	18.26	17.58	17.39	18.42				
Fe ₂ O ₃ (calc)	1.57	1.13	1.77	0.00				
MnO	13.80	14.48	14.54	14.28				
CaO	6.93	6.94	6.86	6.71				
Cr ₂ O ₃	0.00	0.01	0.00	0.01				
Total	99.99	99.64	99.66	98.89				
Normalised to 8 cations								
Si	2.955	2.964	2.952	3.011				
Al	1.991	1.998	1.984	1.991				
Ti	0.002	0.002	0.002	0.002				
Mg	0.198	0.198	0.198	0.183				
Fe _{total}	1.320	1.251	1.279	1.249				
Fe ₂₊ (calc)	1.225	1.183	1.172	1.249				
Fe ₃₊ (calc)	0.095	0.068	0.107	0.000				
Mn	0.938	0.987	0.992	0.981				
Ca	0.596	0.599	0.592	0.583				
Cr	0.000	0.000	0.000	0.000				
x(g)=Fe/(Fe+Mg)	0.87	0.86	0.87	0.87				
m(g)=X _{sps}	0.31	0.33	0.32	0.33				
z(g)=X _{grs}	0.20	0.20	0.19	0.19				
X _{pyr}	0.06	0.07	0.06	0.06				
X _{alm}	0.43	0.41	0.42	0.42				

Transect E1-E1'												
Transect distance (μm)	0	2	4	6	8	10	12	14	16	18	20	22
SiO ₂		37.00	37.00	37.10	37.08	36.93	36.91	36.95	37.09	36.83	36.93	36.50
Al ₂ O ₃		20.95	21.19	21.18	21.11	21.14	21.13	21.08	21.17	21.17	21.08	21.19
TiO ₂		0.03	0.03	0.02	0.00	0.02	0.03	0.02	0.05	0.00	0.02	0.00
MgO		1.93	1.98	1.94	1.95	1.94	1.93	1.93	1.97	1.94	1.96	2.00
FeO _{total}		19.00	19.33	19.60	19.37	19.44	19.69	20.16	19.96	19.91	19.80	20.11
FeO(calc)		18.07	18.17	18.60	18.44	18.34	18.41	18.40	18.81	18.40	18.40	18.04
Fe ₂ O ₃ (calc)		1.03	1.28	1.12	1.03	1.22	1.42	1.96	1.28	1.68	1.56	2.30
MnO		13.15	13.02	12.73	12.82	12.71	12.71	12.74	12.72	12.88	13.20	13.85
CaO		7.36	7.33	7.36	7.37	7.42	7.37	7.39	7.17	7.14	6.96	6.25
Cr ₂ O ₃		0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.00
Total		99.44	99.88	99.95	99.73	99.60	99.79	100.28	100.15	99.90	99.98	99.91
Normalised to 8 cations												
Si		2.974	2.960	2.967	2.971	2.963	2.957	2.948	2.962	2.950	2.957	2.928
Al		1.985	1.999	1.997	1.994	1.999	1.996	1.983	1.993	1.999	1.989	2.004
Ti		0.002	0.002	0.001	0.000	0.001	0.002	0.001	0.003	0.000	0.001	0.000
Mg		0.232	0.236	0.231	0.233	0.232	0.230	0.229	0.235	0.231	0.234	0.239
Fe _{total}		1.277	1.293	1.311	1.298	1.304	1.319	1.345	1.333	1.333	1.326	1.349
Fe ₂₊ (calc)		1.215	1.216	1.244	1.236	1.230	1.234	1.228	1.256	1.232	1.232	1.210
Fe ₃₊ (calc)		0.063	0.077	0.067	0.062	0.074	0.086	0.117	0.077	0.101	0.094	0.139
Mn		0.895	0.882	0.862	0.870	0.864	0.863	0.861	0.860	0.874	0.895	0.941
Ca		0.634	0.628	0.631	0.633	0.638	0.633	0.632	0.614	0.613	0.597	0.538
Cr		2.974	2.960	2.967	2.971	2.963	2.957	2.948	2.962	2.950	2.957	0.000
x(g)=Fe/(Fe+Mg)		0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
m(g)=X _{sps}		0.29	0.29	0.28	0.29	0.28	0.28	0.28	0.28	0.29	0.29	0.31
z(g)=X _{grs}		0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.18
X _{pyr}		0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08	0.08	0.08	0.08
X _{alm}		0.42	0.43	0.43	0.43	0.43	0.43	0.44	0.44	0.44	0.43	0.44

Transect E1-E1' (cont'd)												
Transect distance (µm)	24	26	28	30	32	34	36	38	40	42	44	46
SiO ₂	36.73	36.61	36.71	36.86	36.87	36.85	36.87	36.92	37.03	36.97	36.86	36.65
Al ₂ O ₃	21.27	21.10	21.03	21.04	21.02	21.12	21.06	20.97	21.05	20.82	20.61	20.29
TiO ₂	0.00	0.00	0.02	0.01	0.02	0.05	0.05	0.04	0.04	0.02	0.03	0.08
MgO	2.03	2.10	2.17	2.01	2.10	2.02	2.01	1.87	1.85	1.81	1.77	1.81
FeO _{total}	20.62	20.69	20.78	20.66	20.28	20.56	19.95	19.61	19.20	19.69	20.31	19.88
FeO(calc)	19.31	19.45	19.21	19.61	18.81	18.79	18.44	18.35	18.04	17.87	18.12	17.77
Fe ₂ O ₃ (calc)	1.45	1.37	1.74	1.17	1.64	1.97	1.67	1.41	1.28	2.03	2.44	2.35
MnO	13.97	14.61	14.89	14.48	14.38	14.12	13.95	13.52	13.27	13.11	12.87	13.36
CaO	5.34	4.51	4.48	4.87	5.45	5.79	6.24	6.89	7.43	7.68	7.63	7.31
Cr ₂ O ₃	0.02	0.00	0.01	0.00	0.00	0.02	0.01	0.02	0.00	0.00	0.01	0.02
Total	99.99	99.65	100.09	99.95	100.14	100.55	100.14	99.84	99.87	100.11	100.09	99.43
Normalised to 8 cations												
Si	2.949	2.955	2.950	2.966	2.956	2.943	2.952	2.963	2.965	2.957	2.952	2.958
Al	2.013	2.008	1.993	1.996	1.987	1.989	1.988	1.984	1.987	1.963	1.946	1.931
Ti	0.000	0.000	0.001	0.001	0.001	0.003	0.003	0.002	0.002	0.001	0.002	0.005
Mg	0.243	0.252	0.260	0.241	0.251	0.241	0.239	0.223	0.221	0.216	0.211	0.218
Fe _{total}	1.385	1.396	1.396	1.390	1.360	1.373	1.336	1.316	1.286	1.317	1.361	1.342
Fe ²⁺ (calc)	1.297	1.313	1.291	1.320	1.261	1.255	1.235	1.231	1.208	1.195	1.214	1.200
Fe ³⁺ (calc)	0.088	0.083	0.105	0.071	0.099	0.119	0.101	0.085	0.077	0.122	0.147	0.142
Mn	0.950	0.999	1.014	0.987	0.976	0.955	0.946	0.919	0.900	0.888	0.873	0.914
Ca	0.460	0.390	0.386	0.419	0.469	0.495	0.535	0.592	0.638	0.658	0.655	0.632
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.85	0.85	0.84	0.85	0.84	0.85	0.85	0.86	0.85	0.86	0.87	0.86
m(g)=X _{sps}	0.31	0.33	0.33	0.32	0.32	0.31	0.31	0.30	0.30	0.29	0.28	0.29
z(g)=X _{grs}	0.15	0.13	0.13	0.14	0.15	0.16	0.18	0.19	0.21	0.21	0.21	0.20
X _{pyr}	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07
X _{alm}	0.46	0.46	0.46	0.46	0.45	0.45	0.44	0.43	0.42	0.43	0.44	0.43

Transect E1-E1' (cont'd)												
Transect distance (μm)	48	50	52	54	56	58	60	62	64	66	68	70
SiO ₂	36.56	36.29	36.17	36.26	36.23	36.69	36.39	36.30	36.27	36.18	36.34	36.38
Al ₂ O ₃	20.29	19.86	19.87	19.83	19.88	20.11	20.13	19.80	19.74	19.91	20.06	19.94
TiO ₂	0.08	0.14	0.19	0.22	0.20	0.21	0.19	0.18	0.18	0.17	0.15	0.15
MgO	1.89	1.98	1.89	1.92	1.87	1.85	1.77	1.82	1.87	1.96	1.95	1.97
FeO _{total}	20.40	21.07	20.34	21.01	19.92	19.90	19.57	19.78	20.24	20.23	20.31	20.20
FeO(calc)	17.69	17.21	17.25	17.09	17.10	18.31	17.98	17.69	17.39	17.08	17.21	17.48
Fe ₂ O ₃ (calc)	3.01	4.28	3.44	4.36	3.13	1.77	1.76	2.32	3.17	3.50	3.45	3.02
MnO	13.49	13.64	13.70	13.81	13.64	12.84	12.64	13.15	13.46	13.67	13.76	13.60
CaO	7.07	7.00	6.97	7.07	7.23	7.38	7.61	7.27	7.16	7.03	7.00	6.91
Cr ₂ O ₃	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.00	0.01	0.00
Total	99.79	100.01	99.12	100.16	98.98	98.99	98.31	98.34	98.97	99.16	99.60	99.16
Normalised to 8 cations												
Si	2.942	2.920	2.934	2.915	2.941	2.973	2.967	2.964	2.946	2.932	2.932	2.947
Al	1.925	1.884	1.900	1.879	1.902	1.921	1.935	1.906	1.890	1.902	1.908	1.905
Ti	0.005	0.009	0.011	0.013	0.012	0.013	0.012	0.011	0.011	0.010	0.009	0.009
Mg	0.227	0.237	0.228	0.230	0.226	0.223	0.215	0.222	0.226	0.236	0.234	0.238
Fe _{total}	1.373	1.417	1.380	1.413	1.352	1.348	1.334	1.350	1.375	1.371	1.370	1.368
Fe ₂₊ (calc)	1.191	1.158	1.170	1.149	1.161	1.240	1.226	1.208	1.181	1.157	1.161	1.184
Fe ₃₊ (calc)	0.182	0.259	0.210	0.264	0.191	0.108	0.108	0.143	0.194	0.214	0.209	0.184
Mn	0.920	0.929	0.941	0.940	0.938	0.881	0.873	0.910	0.926	0.938	0.940	0.933
Ca	0.610	0.604	0.606	0.609	0.628	0.641	0.665	0.636	0.623	0.611	0.605	0.600
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85
m(g)=X _{sps}	0.29	0.29	0.30	0.29	0.30	0.28	0.28	0.29	0.29	0.30	0.30	0.30
z(g)=X _{grs}	0.19	0.19	0.19	0.19	0.20	0.21	0.22	0.20	0.20	0.19	0.19	0.19
X _{pyp}	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08
X _{alm}	0.44	0.44	0.44	0.44	0.43	0.44	0.43	0.43	0.44	0.43	0.43	0.44

Transect E1-E1' (cont'd)											
Transect distance (μm)	72	74	76	78	80	82	84	86	88	90	92
SiO ₂	36.19	36.61	36.58	36.84	36.86	36.98	36.95	36.89	36.85	36.77	36.85
Al ₂ O ₃	20.07	20.21	20.30	20.64	20.75	20.85	21.08	21.03	20.98	20.90	21.07
TiO ₂	0.16	0.10	0.07	0.05	0.03	0.04	0.05	0.02	0.03	0.04	0.04
MgO	1.94	1.95	1.91	1.78	1.77	1.74	1.87	1.85	1.83	1.84	1.84
FeO _{total}	20.63	21.00	20.27	20.14	19.89	20.01	19.96	20.17	20.09	20.16	20.13
FeO(calc)	17.75	18.02	17.66	18.11	17.86	18.46	18.07	18.55	18.70	17.95	18.26
Fe ₂ O ₃ (calc)	3.20	3.31	2.90	2.26	2.26	1.72	2.10	1.80	1.54	2.46	2.08
MnO	13.35	13.48	13.66	13.44	13.57	13.45	13.81	13.75	13.69	14.46	14.50
CaO	6.78	6.80	6.95	7.18	7.30	7.08	6.89	6.52	6.45	6.35	6.14
Cr ₂ O ₃	0.00	0.04	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00
Total	99.12	100.19	99.75	100.09	100.17	100.17	100.67	100.26	99.91	100.53	100.57
Normalised to 8 cations											
Si	2.934	2.937	2.945	2.953	2.951	2.961	2.944	2.952	2.959	2.939	2.943
Al	1.918	1.911	1.926	1.951	1.959	1.968	1.980	1.984	1.986	1.969	1.984
Ti	0.010	0.006	0.004	0.003	0.002	0.002	0.003	0.001	0.002	0.002	0.002
Mg	0.234	0.233	0.229	0.213	0.211	0.208	0.222	0.221	0.219	0.219	0.219
Fe _{total}	1.399	1.409	1.365	1.350	1.331	1.340	1.330	1.350	1.349	1.347	1.345
Fe ₂₊ (calc)	1.204	1.210	1.189	1.214	1.196	1.236	1.204	1.242	1.256	1.200	1.220
Fe ₃₊ (calc)	0.195	0.200	0.176	0.136	0.136	0.104	0.126	0.108	0.093	0.148	0.125
Mn	0.917	0.916	0.931	0.913	0.920	0.912	0.932	0.932	0.931	0.979	0.981
Ca	0.589	0.585	0.599	0.617	0.626	0.607	0.588	0.559	0.555	0.544	0.526
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.86	0.86	0.86	0.86	0.86	0.87	0.86	0.86	0.86	0.86	0.86
m(g)=X _{sps}	0.29	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.32	0.32
z(g)=X _{grs}	0.19	0.19	0.19	0.20	0.20	0.20	0.19	0.18	0.18	0.18	0.17
X _{pyr}	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
X _{alm}	0.45	0.45	0.44	0.44	0.43	0.44	0.43	0.44	0.44	0.44	0.44

Transect E1-E1' (cont'd)											
Transect distance (μm)	94	96	98	100	102	104	106	108	110	112	114
SiO ₂	36.85	36.89	36.88	37.06	37.20	36.99	37.14	36.73	36.51	36.23	38.94
Al ₂ O ₃	21.05	21.31	21.31	21.27	21.25	21.13	21.19	20.43	19.33	18.19	17.62
TiO ₂	0.03	0.02	0.02	0.04	0.01	0.03	0.06	0.54	1.20	1.88	2.03
MgO	1.96	1.99	1.95	1.85	1.74	1.63	1.60	3.82	7.06	9.91	9.97
FeO _{total}	19.89	20.94	20.19	20.09	19.61	18.78	18.63	17.82	17.77	16.77	16.19
FeO(calc)	18.82	19.12	18.77	18.68	18.62	17.85	18.32	17.82	17.77	16.77	16.19
Fe ₂ O ₃ (calc)	1.19	2.02	1.57	1.57	1.10	1.04	0.34	0.00	0.00	0.00	0.00
MnO	14.22	14.01	13.84	13.69	13.78	14.59	14.90	12.25	7.26	2.10	0.68
CaO	5.76	5.68	6.13	6.63	6.88	6.81	6.40	4.68	2.39	0.44	0.03
Cr ₂ O ₃	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.01	0.02
Total	99.75	100.85	100.32	100.66	100.49	99.97	100.04	98.65	97.26	94.12	94.62
Normalised to 8 cations											
Si	2.964	2.938	2.948	2.952	2.967	2.968	2.983	3.023	3.097	3.215	3.452
Al	1.996	2.001	2.008	1.997	1.998	1.999	2.007	1.982	1.933	1.903	1.841
Ti	0.002	0.001	0.001	0.002	0.000	0.002	0.003	0.033	0.076	0.126	0.135
Mg	0.234	0.236	0.232	0.220	0.207	0.195	0.191	0.468	0.892	1.311	1.317
Fe _{total}	1.338	1.395	1.349	1.339	1.308	1.260	1.251	1.226	1.261	1.244	1.200
Fe ₂₊ (calc)	1.266	1.273	1.255	1.245	1.242	1.198	1.231	1.226	1.261	1.244	1.200
Fe ₃₊ (calc)	0.072	0.121	0.095	0.094	0.066	0.063	0.021	0.000	0.000	0.000	0.000
Mn	0.969	0.945	0.937	0.924	0.931	0.992	1.014	0.854	0.522	0.158	0.051
Ca	0.496	0.485	0.525	0.566	0.588	0.585	0.551	0.413	0.217	0.042	0.003
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
x(g)=Fe/(Fe+Mg)	0.85	0.86	0.85	0.86	0.86	0.87	0.87	0.72	0.59	0.49	0.48
m(g)=X _{sps}	0.32	0.31	0.31	0.30	0.31	0.33	0.34	0.29	0.18	0.06	0.02
z(g)=X _{grs}	0.16	0.16	0.17	0.19	0.19	0.19	0.18	0.14	0.08	0.02	0.00
X _{pyr}	0.08	0.08	0.08	0.07	0.07	0.06	0.06	0.16	0.31	0.48	0.51
X _{alm}	0.44	0.46	0.44	0.44	0.43	0.42	0.42	0.41	0.44	0.45	0.47

J35	Transect I-I'										
Transect distance (μm)	0	2	4	6	8	10	12	14	16	18	20
SiO ₂	37.45	36.66	36.97	36.90	36.78	36.96	37.07	37.11	37.36	37.11	36.81
Al ₂ O ₃	20.71	20.38	20.49	20.68	20.68	20.60	20.58	20.36	20.54	20.32	19.08
TiO ₂	0.04	0.04	0.03	0.06	0.08	0.05	0.06	0.07	0.07	0.05	0.04
MgO	1.54	1.56	1.67	1.61	1.59	1.56	1.52	1.48	1.49	1.43	1.35
FeO _{total}	19.98	19.87	19.71	19.25	19.58	19.32	18.70	18.95	19.09	19.67	20.86
FeO(calc)	19.37	18.49	18.39	17.80	17.27	17.70	17.40	17.22	17.41	17.79	17.11
Fe ₂ O ₃ (calc)	0.685	0.69	1.53	1.47	1.61	2.57	1.81	1.45	1.92	1.86	2.09
MnO	15.83	15.46	15.03	15.01	14.87	14.53	14.67	14.54	14.29	14.12	14.98
CaO	5.21	5.42	5.97	6.47	6.94	7.06	7.35	7.70	7.95	7.63	7.31
Cr ₂ O ₃	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00
Total	100.79	99.39	99.91	99.99	100.52	100.09	99.96	100.20	100.81	100.35	100.46
Normalised to 8 cations											
Si	2.999	2.976	2.980	2.967	2.943	2.967	2.978	2.975	2.976	2.974	2.999
Al	1.955	1.950	1.947	1.960	1.951	1.950	1.949	1.925	1.929	1.920	1.955
Ti	0.002	0.002	0.002	0.004	0.005	0.003	0.004	0.004	0.004	0.003	0.002
Mg	0.183	0.188	0.201	0.193	0.189	0.187	0.182	0.176	0.177	0.171	0.183
Fe _{total}	1.338	1.349	1.328	1.295	1.310	1.297	1.256	1.270	1.271	1.318	1.338
Fe ₂ + (calc)	1.297	1.297	1.255	1.239	1.197	1.155	1.188	1.169	1.155	1.160	1.192
Fe ₃ + (calc)	0.041	0.041	0.093	0.089	0.097	0.155	0.109	0.088	0.116	0.111	0.126
Mn	1.074	1.063	1.026	1.023	1.008	0.988	0.998	0.987	0.964	0.958	1.074
Ca	0.447	0.472	0.516	0.558	0.595	0.607	0.632	0.662	0.679	0.655	0.447
Cr											
x(g)=Fe/(Fe+Mg)	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.88	0.88	0.89	0.90
m(g)=X _{sps}	0.35	0.35	0.33	0.33	0.33	0.32	0.33	0.32	0.31	0.31	0.32
z(g)=X _{grs}	0.15	0.15	0.17	0.18	0.19	0.20	0.21	0.21	0.22	0.21	0.20
X _{pyp}	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05
X _{alm}	0.44	0.44	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.42	0.44

Transect I-I'												
Transect distance (μm)	22	24	26	28	30	32	34	36	38	40	42	44
SiO ₂	36.61	36.74	37.20	36.85	36.70	36.55	36.90	36.54	36.85	36.83	36.77	36.47
Al ₂ O ₃	18.39	18.87	20.68	20.54	19.61	19.27	19.82	19.63	20.04	20.35	20.08	18.12
TiO ₂	0.04	0.05	0.02	0.01	0.07	0.06	0.04	0.01	0.03	0.02	0.01	0.06
MgO	1.30	1.30	1.44	1.41	1.38	1.35	1.37	1.41	1.40	1.42	1.43	1.35
FeO _{total}	21.87	21.43	20.05	20.08	21.27	21.24	20.48	20.26	19.97	20.31	19.80	21.84
FeO(calc)	17.08	17.40	18.53	18.57	17.76	17.36	17.32	17.06	17.61	18.25	17.43	17.00
Fe ₂ O ₃ (calc)	5.33	4.48	1.68	1.67	3.89	4.30	3.52	3.56	2.63	2.29	2.63	5.37
MnO	15.55	15.38	15.62	15.55	15.83	15.51	15.25	15.05	15.63	15.34	15.19	15.43
CaO	6.77	6.78	5.92	5.65	6.01	6.45	6.99	6.93	6.37	6.05	6.73	6.73
Cr ₂ O ₃	0.00	0.00	0.03	0.00	0.00	0.02	0.01	0.00	0.02	0.00	0.00	0.00
Total	100.52	100.54	100.95	100.09	100.85	100.45	100.87	99.86	100.31	100.32	100.00	100.01
Normalised to 8 cations												
Si	2.96	2.964	2.973	2.972	2.949	2.949	2.956	2.955	2.967	2.964	2.965	2.964
Al	1.753	1.795	1.948	1.953	1.858	1.833	1.872	1.872	1.902	1.931	1.909	1.736
Ti	0.002	0.003	0.001	0.001	0.004	0.003	0.002	0.001	0.002	0.001	0.001	0.003
Mg	0.157	0.156	0.171	0.169	0.165	0.163	0.163	0.17	0.168	0.17	0.171	0.164
Fe _{total}	1.479	1.446	1.34	1.354	1.429	1.433	1.372	1.37	1.345	1.367	1.335	1.484
Fe ₂₊ (calc)	1.155	1.174	1.239	1.253	1.194	1.172	1.16	1.154	1.186	1.228	1.176	1.156
Fe ₃₊ (calc)	0.324	0.272	0.101	0.101	0.235	0.261	0.212	0.216	0.159	0.139	0.16	0.329
Mn	1.065	1.051	1.057	1.062	1.077	1.06	1.035	1.031	1.066	1.046	1.038	1.062
Ca	0.586	0.586	0.507	0.489	0.517	0.558	0.6	0.601	0.549	0.521	0.581	0.586
Cr	0	0	0.002	0	0	0.001	0.001	0	0.001	0	0	0
x(g)=Fe/(Fe+Mg)	0.90	0.90	0.89	0.89	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.90
m(g)=X _{sps}	0.32	0.32	0.34	0.35	0.34	0.33	0.33	0.33	0.34	0.34	0.33	0.32
z(g)=X _{grs}	0.18	0.18	0.17	0.16	0.16	0.17	0.19	0.19	0.18	0.17	0.19	0.18
X _{pyr}	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
X _{alm}	0.45	0.45	0.44	0.44	0.45	0.45	0.43	0.43	0.43	0.44	0.43	0.45

Transect I-I' (cont'd)												
Transect distance (μm)	46	48	50	52	54	56	58	60	62	64	66	68
SiO ₂	36.14	36.13	36.16	36.21	36.30	36.89	37.03	37.14	36.95	36.87	36.28	36.12
Al ₂ O ₃	17.55	17.51	17.63	17.69	17.20	19.28	20.67	20.34	20.01	19.07	17.64	18.10
TiO ₂	0.17	0.15	0.16	0.15	0.12	0.03	0.00	0.01	0.00	0.02	0.06	0.18
MgO	1.22	1.21	1.32	1.21	1.23	1.38	1.43	1.57	1.64	1.55	1.31	1.31
FeO _{total}	21.70	21.21	21.44	21.87	22.66	21.43	20.08	19.88	20.63	21.68	22.74	21.76
FeO(calc)	16.15	15.97	16.41	16.56	16.51	17.64	18.28	17.61	17.63	18.16	17.10	16.26
Fe ₂ O ₃ (calc)	6.16	5.83	5.59	5.90	6.83	4.22	2.00	2.52	3.33	3.91	6.27	6.12
MnO	15.22	15.10	15.25	15.15	15.04	15.40	15.66	14.83	15.24	15.90	15.43	15.45
CaO	7.50	7.74	7.15	7.31	7.47	6.59	5.93	7.02	6.39	5.53	6.53	7.12
Cr ₂ O ₃	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Total	99.53	99.09	99.12	99.60	100.02	101.01	100.81	100.79	100.86	100.62	100.00	100.05
Normalised to 8 cations												
Si	2.953	2.964	2.966	2.958	2.957	2.959	2.964	2.966	2.956	2.974	2.957	2.935
Al	1.691	1.693	1.705	1.704	1.652	1.823	1.951	1.915	1.888	1.813	1.695	1.734
Ti	0.01	0.009	0.01	0.009	0.008	0.002	0	0.001	0	0.001	0.004	0.011
Mg	0.149	0.148	0.162	0.148	0.149	0.165	0.171	0.186	0.196	0.186	0.16	0.158
Fe _{total}	1.483	1.455	1.47	1.494	1.544	1.438	1.344	1.328	1.38	1.462	1.55	1.479
Fe ²⁺ (calc)	1.104	1.095	1.126	1.132	1.125	1.183	1.223	1.176	1.18	1.225	1.165	1.105
Fe ³⁺ (calc)	0.379	0.36	0.345	0.363	0.419	0.254	0.121	0.152	0.2	0.237	0.385	0.374
Mn	1.054	1.049	1.06	1.048	1.038	1.046	1.061	1.003	1.033	1.086	1.065	1.064
Ca	0.657	0.68	0.628	0.64	0.652	0.566	0.509	0.601	0.548	0.478	0.57	0.62
Cr	0.002	0.001	0	0	0	0	0	0	0	0	0	0
x(g)=Fe/(Fe+Mg)	0.91	0.91	0.90	0.91	0.91	0.90	0.89	0.88	0.88	0.89	0.91	0.90
m(g)=X _{sps}	0.32	0.31	0.32	0.31	0.31	0.33	0.34	0.32	0.33	0.34	0.32	0.32
z(g)=X _{grs}	0.20	0.20	0.19	0.19	0.19	0.18	0.16	0.19	0.17	0.15	0.17	0.19
X _{pyr}	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.05
X _{alm}	0.44	0.44	0.44	0.45	0.46	0.45	0.44	0.43	0.44	0.46	0.46	0.45

Transect I-I' (cont'd)								
Transect distance (μm)	70	72	74	76	78	80	82	84
SiO ₂	35.90	36.44	37.10	37.32	37.27	37.34	37.26	37.39
Al ₂ O ₃	18.23	18.93	20.35	20.32	20.71	20.83	20.80	20.43
TiO ₂	0.22	0.13	0.05	0.06	0.09	0.01	0.00	0.03
MgO	1.32	1.33	1.47	1.50	1.65	1.62	1.44	1.39
FeO _{total}	21.35	20.56	20.27	19.19	19.41	19.71	19.76	19.72
FeO(calc)	15.90	16.84	18.14	18.17	17.63	18.64	18.78	18.20
Fe ₂ O ₃ (calc)	6.06	4.13	2.37	1.14	1.97	1.19	1.08	1.68
MnO	14.93	14.94	14.83	14.74	14.50	14.58	15.53	15.18
CaO	7.61	7.30	6.74	6.95	7.33	6.52	5.84	6.78
Cr ₂ O ₃	0.01	0.00	0.00	0.02	0.01	0.00	0.01	0.00
Total	99.58	99.63	100.82	100.10	100.96	100.64	100.62	100.91
Normalised to 8 cations								
Si	2.925	2.96	2.966	2.999	2.964	2.983	2.985	2.986
Al	1.751	1.812	1.918	1.925	1.942	1.962	1.964	1.923
Ti	0.013	0.008	0.003	0.004	0.005	0.001	0	0.002
Mg	0.16	0.161	0.175	0.18	0.195	0.193	0.171	0.165
Fe _{total}	1.455	1.396	1.356	1.29	1.291	1.317	1.324	1.317
Fe ₂₊ (calc)	1.083	1.144	1.213	1.221	1.173	1.246	1.258	1.216
Fe ₃₊ (calc)	0.371	0.252	0.142	0.069	0.118	0.071	0.065	0.101
Mn	1.031	1.028	1.004	1.003	0.977	0.986	1.054	1.027
Ca	0.664	0.635	0.578	0.599	0.625	0.558	0.501	0.58
Cr	0.001	0	0	0.001	0.001	0	0.001	0
x(g)=Fe/(Fe+Mg)	0.90	0.90	0.89	0.88	0.87	0.87	0.89	0.89
m(g)=X _{sps}	0.31	0.32	0.32	0.33	0.32	0.32	0.35	0.33
z(g)=X _{grs}	0.20	0.20	0.19	0.19	0.20	0.18	0.16	0.19
X _{pyr}	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05
X _{alm}	0.44	0.43	0.44	0.42	0.42	0.43	0.43	0.43

J36	Transect T-T'							
Transect distance (µm)	0	2	4	6	8	10	12	14
SiO ₂	37.59	37.58	37.08	36.40	36.58	36.69	36.81	37.53
Al ₂ O ₃	21.39	21.82	21.10	20.89	20.68	20.97	20.98	21.41
TiO ₂	1.53	1.32	1.30	1.21	1.20	1.14	1.05	1.08
MgO	2.74	2.49	2.89	2.98	2.99	2.63	2.71	2.82
FeO _{total}	18.70	18.45	19.23	19.28	19.44	18.82	19.26	18.84
FeO(calc)	18.70	18.45	18.87	18.01	17.94	17.47	17.84	18.84
Fe ₂ O ₃ (calc)	0.00	0.00	0.40	1.41	1.67	1.50	1.59	0.00
MnO	12.94	13.12	13.42	13.70	13.83	14.43	14.11	13.16
CaO	7.13	7.50	6.16	5.79	5.90	6.34	6.25	6.48
Cr ₂ O ₃	0.01	0.02	0.00	0.00	0.00	0.00	0.04	0.07
Total	102.03	102.30	101.19	100.26	100.61	101.01	101.21	101.37
Normalised to 8 cations								
Si	2.939	2.930	2.928	2.903	2.909	2.908	2.911	2.953
Al	1.973	2.006	1.965	1.964	1.938	1.960	1.956	1.986
Ti	0.090	0.078	0.077	0.073	0.072	0.068	0.063	0.064
Mg	0.319	0.289	0.341	0.355	0.354	0.310	0.319	0.330
Fe _{total}	1.223	1.203	1.270	1.286	1.293	1.247	1.274	1.240
Fe ₂₊ (calc)	1.223	1.203	1.246	1.201	1.193	1.158	1.180	1.240
Fe ₃₊ (calc)	0.000	0.000	0.024	0.085	0.100	0.089	0.094	0.000
Mn	0.857	0.867	0.898	0.926	0.932	0.968	0.945	0.877
Ca	0.598	0.627	0.521	0.495	0.502	0.539	0.529	0.546
Cr	0.001	0.001	0.000	0.000	0.000	0.000	0.003	0.004
x(g)=Fe/(Fe+Mg)	0.79	0.81	0.79	0.78	0.79	0.80	0.80	0.79
m(g)=X _{sps}	0.29	0.29	0.30	0.30	0.30	0.32	0.31	0.29
z(g)=X _{grs}	0.20	0.21	0.17	0.16	0.16	0.18	0.17	0.18
X _{pyr}	0.11	0.10	0.11	0.12	0.11	0.10	0.10	0.11
X _{alm}	0.41	0.40	0.42	0.42	0.42	0.41	0.42	0.41

Transect T-T' (cont'd)					
Transect distance (μm)	22	24	26	28	30
SiO ₂	37.03	36.86	36.40	36.41	36.19
Al ₂ O ₃	21.26	20.68	20.45	20.53	20.50
TiO ₂	1.07	1.16	1.27	1.29	1.27
MgO	2.38	2.96	2.96	2.91	2.91
FeO _{total}	18.27	19.99	19.41	19.54	19.72
FeO(calc)	18.11	18.78	18.41	18.13	18.27
Fe ₂ O ₃ (calc)	0.18	1.34	1.10	1.57	1.61
MnO	14.21	13.42	13.77	13.84	13.40
CaO	6.63	5.83	5.49	5.75	5.77
Cr ₂ O ₃	0.01	0.01	0.00	0.02	0.00
Total	100.88	100.92	99.76	100.31	99.75
Normalised to 8 cations					
Si	2.908	2.905	2.953	2.930	2.928
Al	1.933	1.940	1.943	1.980	1.993
Ti	0.078	0.077	0.083	0.084	0.098
Mg	0.347	0.348	0.339	0.367	0.323
Fe _{total}	1.305	1.324	1.293	1.279	1.235
Fe ₂₊ (calc)	1.211	1.227	1.293	1.279	1.235
Fe ₃₊ (calc)	0.094	0.097	0.000	0.000	0.000
Mn	0.937	0.911	0.901	0.820	0.875
Ca	0.492	0.496	0.487	0.535	0.547
Cr	0.001	0.000	0.002	0.005	0.001
x(g)=Fe/(Fe+Mg)	0.81	0.79	0.79	0.79	0.79
m(g)=X _{sps}	0.32	0.29	0.31	0.30	0.30
z(g)=X _{grs}	0.19	0.16	0.15	0.16	0.16
X _{pyp}	0.09	0.11	0.12	0.11	0.11
X _{alm}	0.40	0.43	0.43	0.42	0.43

Transect U-U'											
Transect distance (μm)	0	2	4	6	8	10	12	14	16	18	20
SiO ₂	37.07	36.99	36.62	36.33	36.52	36.60	36.26	36.40	36.59	36.65	36.68
Al ₂ O ₃	21.03	20.76	20.98	20.69	20.59	20.75	20.77	20.67	20.96	20.74	20.90
TiO ₂	1.05	0.88	0.76	0.73	0.64	0.61	0.58	0.52	0.45	0.46	0.45
MgO	3.01	3.03	3.11	3.24	3.17	3.17	3.13	3.17	2.98	3.02	2.94
FeO _{total}	19.61	19.86	20.36	19.53	19.81	20.02	19.66	19.87	18.49	19.48	19.39
FeO(calc)	18.24	18.33	18.15	17.06	17.45	17.28	17.39	17.14	17.49	17.52	17.29
Fe ₂ O ₃ (calc)	1.52	1.69	2.45	2.75	2.62	3.04	2.53	3.04	1.11	2.17	2.33
MnO	13.97	13.71	14.04	13.99	14.36	14.30	14.05	13.97	13.22	14.16	13.98
CaO	5.87	5.78	5.12	5.52	5.15	5.38	5.21	5.51	6.21	5.46	5.91
Cr ₂ O ₃	0.00	0.06	0.01	0.02	0.03	0.03	0.01	0.01	0.00	0.01	0.00
Total	101.61	101.09	101.00	100.06	100.27	100.87	99.69	100.11	98.92	99.96	100.28
Normalised to 8 cations											
Si	2.917	2.927	2.902	2.900	2.914	2.902	2.907	2.905	2.945	2.930	2.922
Al	1.951	1.937	1.959	1.947	1.937	1.939	1.963	1.945	1.989	1.954	1.962
Ti	0.062	0.052	0.045	0.044	0.038	0.036	0.035	0.031	0.027	0.027	0.027
Mg	0.353	0.357	0.367	0.386	0.377	0.375	0.374	0.377	0.358	0.360	0.349
Fe _{total}	1.290	1.314	1.349	1.304	1.322	1.327	1.318	1.326	1.245	1.302	1.292
Fe ²⁺ (calc)	1.200	1.213	1.203	1.139	1.165	1.146	1.166	1.144	1.177	1.171	1.152
Fe ³⁺ (calc)	0.090	0.101	0.146	0.165	0.158	0.181	0.153	0.182	0.067	0.131	0.140
Mn	0.931	0.919	0.942	0.946	0.970	0.961	0.954	0.944	0.901	0.959	0.943
Ca	0.495	0.490	0.435	0.472	0.440	0.457	0.448	0.471	0.536	0.467	0.505
Cr	0.000	0.004	0.000	0.001	0.002	0.002	0.000	0.001	0.000	0.001	0.000
x(g)=Fe/(Fe+Mg)	0.79	0.79	0.79	0.77	0.78	0.78	0.78	0.78	0.78	0.78	0.79
m(g)=X _{sps}	0.30	0.30	0.30	0.30	0.31	0.31	0.31	0.30	0.30	0.31	0.31
z(g)=X _{grs}	0.16	0.16	0.14	0.15	0.14	0.15	0.14	0.15	0.30	0.31	0.31
X _{pyr}	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.30	0.31	0.31
X _{alm}	0.42	0.43	0.44	0.42	0.43	0.43	0.43	0.43	0.30	0.31	0.31

Transect U-U'				
Transect distance (μm)	22	24	26	28
SiO ₂	37.07	36.97	36.25	37.46
Al ₂ O ₃	21.01	21.44	20.90	21.56
TiO ₂	0.42	0.39	0.40	0.42
MgO	2.90	2.70	2.44	2.82
FeO _{total}	19.73	19.18	18.83	18.43
FeO(calc)	17.92	18.61	17.57	17.91
Fe ₂ O ₃ (calc)	2.00	0.63	1.41	0.57
MnO	13.58	13.78	14.93	13.03
CaO	6.14	5.61	5.20	7.05
Cr ₂ O ₃	0.04	0.02	0.02	0.02
Total	100.89	100.09	98.97	100.79
Normalised to 8 cations				
Si	2.934	2.949	2.935	2.955
Al	1.960	2.016	1.995	2.005
Ti	0.025	0.024	0.024	0.025
Mg	0.342	0.321	0.295	0.332
Fe _{total}	1.306	1.279	1.275	1.216
Fe ₂₊ (calc)	1.187	1.242	1.189	1.182
Fe ₃₊ (calc)	0.119	0.038	0.086	0.034
Mn	0.910	0.931	1.024	0.870
Ca	0.520	0.479	0.451	0.596
Cr	0.003	0.001	0.001	0.001
x(g)=Fe/(Fe+Mg)	0.79	0.80	0.81	0.79
m(g)=X _{sps}	0.30	0.31	0.34	0.29
z(g)=X _{grs}	0.17	0.16	0.15	0.20
X _{pyr}	0.11	0.11	0.10	0.11
X _{alm}	0.42	0.42	0.42	0.40

Standard measurements - 30th June																
Almandine											Av Almandine <i>n</i> = 10	2σ	2σ (%)	Exp Value	Difference	Diff. (%)
SiO ₂	35.67	35.46	35.43	35.38	35.25	35.44	35.29	35.53	35.56	35.80	35.48	0.33	0.93%	35.84	-0.36	-1.01%
Al ₂ O ₃	20.54	20.52	20.63	20.41	20.28	20.45	20.21	20.29	20.50	20.55	20.44	0.27	1.33%	21.20	-0.76	-3.60%
TiO ₂	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	442.22%	n.a.	-	-
MgO	0.20	0.19	0.18	0.20	0.16	0.19	0.17	0.19	0.20	0.18	0.18	0.03	14.17%	1.04	-0.86	-82.22%
FeO	27.97	28.16	27.80	28.00	28.41	27.88	28.34	28.11	27.91	27.96	28.05	0.40	1.42%	27.84	0.21	0.77%
MnO	15.68	15.27	15.64	15.40	15.13	15.45	15.82	15.74	15.43	15.84	15.54	0.48	3.08%	14.33	1.21	8.43%
CaO	0.29	0.29	0.31	0.30	0.27	0.29	0.26	0.27	0.31	0.28	0.29	0.03	12.18%	0.29	0.00	-1.38%
Cr ₂ O ₃	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.03	0.00	0.00	0.01	0.02	319.89%	n.a.	-	-
Total	100.35	99.89	99.99	99.68	99.51	99.72	100.09	100.15	99.91	100.60	99.99			100.54		
Pyrope											Av Pyrope <i>n</i> = 10	2σ	2σ (%)	Exp Value	Difference	Diff. (%)
SiO ₂	41.39	41.303	41.395	41.545	41.163	41.287	41.094	41.108	41.407	41.563	41.33	0.33	0.81%	41.46	-0.13	-0.32%
Al ₂ O ₃	23.632	23.604	23.579	23.514	23.632	23.415	23.244	23.519	23.559	23.537	23.52	0.24	1.00%	23.73	-0.21	-0.87%
TiO ₂	0.359	0.316	0.387	0.335	0.333	0.326	0.326	0.351	0.344	0.363	0.34	0.04	12.44%	0.47	-0.13	-26.81%
MgO	19.113	19.148	19.251	18.857	19.132	19.136	18.998	19.08	19.025	18.938	19.07	0.23	1.21%	18.53	0.54	2.90%
FeO	10.379	10.222	10.457	10.205	10.631	10.307	10.003	10.037	10.496	9.852	10.26	0.49	4.75%	10.68	-0.42	-3.94%
MnO	0.271	0.281	0.291	0.308	0.339	0.295	0.348	0.316	0.307	0.341	0.31	0.05	17.01%	0.26	0.05	19.12%
CaO	5.145	5.147	5.155	5.097	5.112	5.18	5.141	5.124	5.199	5.152	5.15	0.06	1.17%	5.17	-0.02	-0.48%
Cr ₂ O ₃	0.104	0.118	0.083	0.076	0.072	0.097	0.037	0.101	0.08	0.072	0.08	0.05	53.78%	n.a.	-	-
Total	100.39	100.14	100.60	99.94	100.41	100.04	99.19	99.64	100.42	99.82	100.06			100.30		

Standard measurements - 30th May																
Almandine											Av $n = 10$	2 σ	2 σ (%)	Exp Value	Difference	Diff. (%)
SiO₂	35.713	35.34	35.613	35.647	35.368	35.432	35.626	35.625	35.602	35.745	35.57	0.28	0.79%	35.84	-0.27	-0.75%
Al₂O₃	20.624	20.487	20.319	20.631	20.397	20.372	20.17	20.254	20.303	20.703	20.43	0.36	1.75%	21.20	-0.77	-3.65%
TiO₂	0.012	0	0.001	0	0.001	0	0	0	0.001	0	0.00	0.01	495.91%	n.a.	-	-
MgO	0.182	0.183	0.165	0.163	0.184	0.171	0.194	0.16	0.168	0.159	0.17	0.02	13.91%	1.04	-0.87	-83.38%
FeO	27.697	28.027	28.148	28.409	27.892	27.613	28.094	28.29	28.114	28.551	28.08	0.59	2.10%	27.84	0.24	0.87%
MnO	15.489	15.479	15.736	15.557	15.687	15.445	15.516	15.383	15.289	15.152	15.47	0.35	2.24%	14.33	1.14	7.98%
CaO	0.282	0.305	0.283	0.286	0.286	0.317	0.274	0.292	0.286	0.274	0.29	0.03	9.27%	0.29	0.00	-0.52%
Cr₂O₃	0.005	0	0.009	0	0.004	0	0.028	0	0.007	0	0.01	0.02	326.58%	n.a.	-	-
Total	100.00	99.82	100.27	100.69	99.82	99.35	99.90	100.00	99.77	100.58	100.02					
Pyrope											Av Pyrope $n = 10$	2 σ	2 σ (%)	Exp Value	Difference	Diff. (%)
SiO₂	41.319	41.567	40.941	41.24	41.274	41.368	41.343	41.374	41.419	41.102	41.29	0.35	0.84%	41.46	-0.17	-0.40%
Al₂O₃	23.709	23.712	23.314	23.651	23.361	23.471	23.413	23.646	23.521	23.406	23.52	0.30	1.27%	23.73	-0.21	-0.88%
TiO₂	0.346	0.393	0.342	0.341	0.345	0.353	0.328	0.419	0.341	0.335	0.35	0.06	16.20%	0.47	-0.12	-24.62%
MgO	19.119	19.028	19.109	19.062	18.7	18.873	18.957	18.996	19.038	18.639	18.95	0.33	1.75%	18.53	0.42	2.28%
FeO	10.368	10.344	10.374	10.446	10.32	10.401	10.326	9.747	10.33	10.18	10.28	0.40	3.91%	10.68	-0.40	-3.71%
MnO	0.336	0.319	0.333	0.324	0.334	0.321	0.315	0.354	0.364	0.32	0.33	0.03	9.66%	0.26	0.07	27.69%
CaO	5.134	5.099	5.144	5.112	5.156	5.104	5.177	5.198	5.22	5.182	5.15	0.08	1.60%	5.17	-0.02	-0.34%
Cr₂O₃	0.126	0.104	0.144	0.088	0.113	0.062	0.073	0.064	0.088	0.096	0.10	0.05	55.64%	n.a.	-	-
Total	100.46	100.57	99.70	100.26	99.60	99.95	99.93	99.80	100.32	99.26	99.99			100.30		