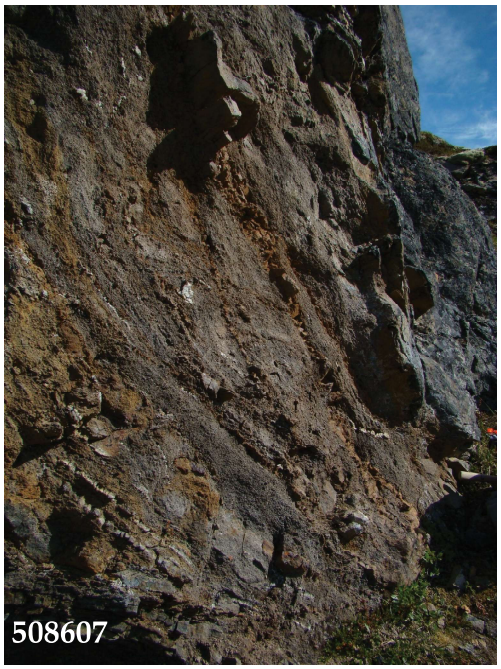
Electronic Supplement to:
Automated Quantitative Mineralogy applied to Metamorphic Rocks
N. Keulen, S. Malkki & S. Graham

Outcrop and handspecimen images, mineral composition data



Electronic Supplement to:
Automated Quantitative Mineralogy applied to Metamorphic Rocks
N. Keulen, S. Malkki & S. Graham

Outcrop and handspecimen images, mineral composition data

Outcrop and handspecimen images, mineral composition data

508599	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
Quartz	36.06	35.78	118.12	114.28	Si 54.89; O 44.8; Al 0.23; Fe 0.04; Mg 0.04; K 0.01;
Albite	34.71	34.06	74.52	60.73	O 40.87; Si 33.7; Al 14.29; Na 7.65; Ca 3.46; Fe 0.02; Mg 0.02; K 0;
Biotite	17.44	19.60	70.40	65.57	O 37.94; Si 20.73; Fe 13.89; Al 9.93; Mg 9.36; K 8.14;
Plagioclase	4.37	4.26	22.32	7.35	O 40.61; Si 33.3; Al 13.97; Na 6.6; Ca 5.4; Fe 0.12; Mg 0.01;
Pyroxene	2.70	3.33	57.88	53.66	O 38.67; Si 25.28; Fe 12.35; Ca 10.54; Mg 8.54; Al 4.57; Na 0.06;
Calcite	0.74	0.75	37.49	36.59	Ca 49.87; O 49.23; Fe 0.57; Mg 0.27; Mn 0.06;
IronOxide	0.69	1.30	27.12	17.11	Fe 53.99; O 41.02; Si 4.02; S 0.97;
Garnet	0.15	0.23	20.00	0.00	O 40.01; Si 18.92; Fe 12.82; Al 11.53; Ca 10.1; Mg 6.55; Na 0.09;
Cummingtonite	0.13	0.18	21.17	4.85	O 41.14; Si 22.57; Fe 13.76; Al 12.12; Mg 10.05; Na 0.26; K 0.1;
Chlorite	0.11	0.13	20.00	0.00	O 45.83; Si 25.52; Al 19.68; Fe 6.18; Mg 2.3; K 0.49;
Pyrite	0.08	0.14	27.49	10.35	Fe 67.92; S 32.08;

508607	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
Quartz	35.80	34.69	104.86	102.39	Si 55.64; O 44; Al 0.28; Mg 0.04; Fe 0.04; K 0.01;
Anorthite	30.81	31.10	104.12	89.87	O 38.75; Si 24.28; Al 20.82; Ca 15.34; Na 0.79; Fe 0.02; K 0;
Biotite	9.56	10.49	52.02	45.54	O 38.34; Si 21.23; Al 11.69; Fe 10.97; Mg 10.63; K 7.13;
Anthophyllite	9.30	10.82	58.15	49.98	O 38.4; Si 27.52; Fe 19.22; Mg 12.88; Al 1.96; Ca 0.01; Na 0; K 0;
Garnet	5.07	7.23	59.81	59.33	O 35.17; Fe 26.44; Si 19.62; Al 13.1; Mg 3.4; Ca 2.26; Na 0.01;
Cummingtonite	1.87	2.57	23.70	11.63	O 39.5; Si 20.28; Fe 17.78; Al 13.05; Mg 9.1; Ca 0.23; K 0.03; Mn 0.02; Na 0.01;
Chlorite	0.51	0.56	20.30	2.48	O 44.98; Si 22.66; Al 19.95; Fe 8.14; Mg 3.93; K 0.34;
Ilmenite	0.43	0.76	41.47	28.24	Ti 36.09; Fe 35.69; O 28.22;
Plagioclase	0.43	0.41	20.36	2.70	O 41.46; Si 27.79; Al 18.61; Ca 8.06; Na 4.02; Fe 0.04; Mg 0.01;
IronOxide	0.25	0.47	38.82	34.25	Fe 59.95; O 35.67; Si 2.45; S 1.93;
Pyrite	0.14	0.25	32.72	16.18	Fe 66.74; S 33.26;

510512	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
Anorthite	58.04	54.99	168.32	168.09	O 38.76; Si 25.42; Al 20.24; Ca 13.92; Na 1.64; Fe 0.02; K 0;
Hornblende	28.86	32.76	73.59	87.11	O 39.67; Si 23.09; Al 11; Ca 10.08; Mg 9.15; Fe 6.79; Na 0.22;
Chromite	6.26	7.52	90.94	87.54	O 28.59; Fe 28.18; Cr 25.43; Al 17.67; Si 0.14;
Plagioclase	2.42	2.16	24.07	11.68	O 40.75; Si 26.9; Al 19.24; Ca 8.79; Na 4.18; Fe 0.1; Mg 0.03; K 0.01;
weathered anorthite	1.34	1.27	20.40	2.81	O 40.33; Si 25.88; Al 20.44; Ca 11.73; Na 0.85; Mg 0.51; Fe 0.24;
Cummingtonite	0.32	0.42	24.50	12.39	O 43.08; Si 16.89; Mg 15.54; Al 13.75; Fe 10.68; K 0.04; Ca 0.02;
Prehnite	0.20	0.19	20.00	0.00	O 40.69; Si 29.34; Al 19.37; Ca 8.97; Na 1.56; Fe 0.04; Mg 0.02;
Epidote	0.12	0.14	20.00	0.00	O 41.35; Si 21.62; Ca 15.61; Fe 11.47; Al 9.96;
Quartz	0.10	0.09	21.42	5.34	O 61.66; Si 36.77; Al 1.05; Mg 0.51;
Albite	0.10	0.09	21.42	5.34	O 40.28; Si 32.58; Al 15.6; Na 7.34; Ca 3.91; Mg 0.29;

511923	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
FerroAmphibole	47.60289	50.93242	73.96491	232.8628	O 36.48; Si 22.4; Fe 15.87; Ca 12.5; Mg 6.77; Al 5.88; Na 0.09; K 0;
Hornblende	20.86204	22.32121	31.24033	30.65479	O 36.19; Si 23.03; Fe 13.6; Ca 11.44; Mg 8.42; Al 6.98; Na 0.34; K 0;
Anorthite	12.84101	11.49093	52.54893	59.30429	O 39.09; Si 25.67; Al 19.31; Ca 12.37; Na 3.52; Fe 0.03; Mg 0; K 0;
Plagioclase	5.91275	4.984366	22.10174	19.15307	O 39.5; Si 27.6; Al 17.54; Ca 9.13; Na 5.9; Fe 0.29; Mg 0.02; K 0.01;
Quartz	5.880862	5.052821	31.08847	30.03436	Si 55.49; O 43.45; Al 0.45; Fe 0.4; Mg 0.21; K 0.01;
Zoisite	1.23586	1.322301	30.64872	34.65783	O 41.1; Ca 22.27; Si 19.35; Al 17.28;
Albite	1.062521	0.90258	20.42543	22.5178	O 40.33; Si 32.61; Al 14.78; Na 8.7; Ca 3.5; Fe 0.03; Mg 0.03; K 0.01;
Garnet	0.611184	0.77283	11.68365	4.989052	O 38.35; Fe 20.24; Si 17.18; Al 11.51; Mg 7.3; Ca 5.28; Na 0.14; K 0;
Ilmenite	0.371208	0.577704	24.34616	18.04262	Ti 38.95; Fe 33.84; O 27.21;
Ankerite	0.35649	0.358308	10.5318	2.641227	O 51.89; Ca 20.87; Fe 18.99; Mg 8.25;
Pale orthoamphibole	0.261644	0.271461	15.97996	11.85089	O 39.18; Fe 22.14; Al 13.31; Si 13.04; Mg 12.25; Na 0.05; Ca 0.03; K 0.01;
Sphene	0.167616	0.190209	15.98123	11.07173	O 37.96; Ti 24.69; Ca 23.37; Si 13.98;
Cummingtonite	0.155351	0.188883	11.34868	4.026234	O 39.33; Fe 20.28; Si 16.53; Al 12.98; Mg 9.29; Ca 1.03; Na 0.55;
Apatite	0.134501	0.137804	14.47633	7.442685	Ca 44.63; O 38.77; P 16.52; Cl 0.08;
Pseudobrookite	0.122237	0.190235	16.965	12.23911	Ti 42.71; O 37.6; Fe 19.69;

521106	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
Pale orthoamphibole	59.71596	61.27287	140.0007	371.6429	O 37.49; Si 24.31; Mg 17.43; Al 13.64; Fe 6.53; Na 0.56; Ca 0.03; K 0.01; Mn 0.01;
Biotite	9.665579	9.29773	57.35854	111.7215	O 38.48; Si 21.74; Mg 17.03; Al 13.2; K 7.66; Fe 1.9;
Chlorite	9.279201	8.926056	16.98913	45.25022	O 37.44; Si 27.04; Al 22.62; Mg 11.03; Fe 1.6; Ca 0.13; K 0.08; Na 0.07;
Corundum	7.519942	7.233751	318.3211	420.7831	Al 63.38; O 36.37; Si 0.2; Fe 0.02; Ca 0.01; Na 0.01; K 0; Mg 0;
Cummingtonite	6.076791	7.306903	14.71464	8.73763	O 37.19; Si 23.94; Mg 16.99; Al 13.59; Fe 6.41; Ca 1.35; Na 0.52; Mn 0.01; K 0;
Sapphirine	2.566964	2.469272	102.9857	180.348	Al 43.23; O 35.17; Mg 12.77; Si 7.03; Fe 1.76; Ca 0.03; Na 0.01; K 0;
Chlorite	1.35041	1.299017	11.76738	5.172373	O 32.35; Si 31.52; Al 15.06; Mg 12.55; Fe 6.16; Ca 2.14; Na 0.15; K 0.07;
Garnet	0.536131	0.670445	10.58391	2.761698	O 35.75; Si 23.96; Mg 15.36; Al 14.47; Fe 7.39; Ca 2.82; Na 0.26; K 0;
Hornblende	0.522834	0.55323	24.23036	35.13456	O 37.45; Si 23.93; Mg 12.23; Ca 11.82; Al 10.79; Fe 3.44; Na 0.34; K 0;
Anorthite	0.304408	0.269397	107.2395	170.4246	O 37.61; Al 22.16; Si 21.62; Ca 18.2; Na 0.4; Fe 0.01; K 0;

521111	Area %	Weight %	Grain Size (µm)	Grain Size Std Dev (µm)	Average Composition
Pale othoamphibole	52.00148	54.33953	129.378	318.286	O 42.18; Si 25.06; Mg 14.7; Al 12.14; Fe 5.64; Ca 0.16; Na 0.08; Mn 0.02; K 0.02;
Biotite	24.33754	23.8423	108.7797	200.2108	O 41.97; Si 22.57; Mg 14.96; Al 11.63; K 7.51; Fe 1.35;
Corundum	10.88616	10.66464	255.2314	342.5348	Al 60.43; O 39.22; Si 0.22; Ca 0.03; Fe 0.03; Na 0.03; K 0.02; Mg 0.02;
Sapphirine	6.050846	5.927719	149.6582	212.8313	Al 40.44; O 39.73; Mg 12.16; Si 6.54; Fe 1.04; Ca 0.05; Na 0.02; K 0.02;
Cordierite	2.657312	2.299528	75.13865	119.5024	O 42.12; Si 26.94; Al 22.33; Mg 8.43; Fe 0.09; Ca 0.05; K 0.02; Na 0.01;
Anorthite	1.428846	1.28779	149.1862	183.0565	O 40.31; Si 22.57; Al 20.07; Ca 16.55; Na 0.43; Mg 0.03; Fe 0.02; K 0.01;
Chlorite	0.778836	0.762987	22.8162	9.606928	O 41.96; Si 23.86; Al 21.84; Mg 9.41; Fe 1.99; K 0.89; Ca 0.04; Na 0.01;
Hornblende	0.312037	0.336256	35.68912	46.02404	O 42.27; Si 24.27; Ca 11.01; Mg 10.55; Al 9.7; Fe 2.15; Na 0.05; K 0.01;
Magnesite	0.100497	0.098452	45.31817	41.03339	O 52.92; Mg 37.74; Fe 7.43; Al 1.3; Ca 0.26; Si 0.26; Mn 0.04; K 0.03; Na 0.01;