

Supplementary File S1: SEM-BSE
images and Electron Dispersive
Spectroscopy (EDS) mineral analyses
for sand samples.

A1: SEM-BSE images and EDS
mineral analyses for sample S1

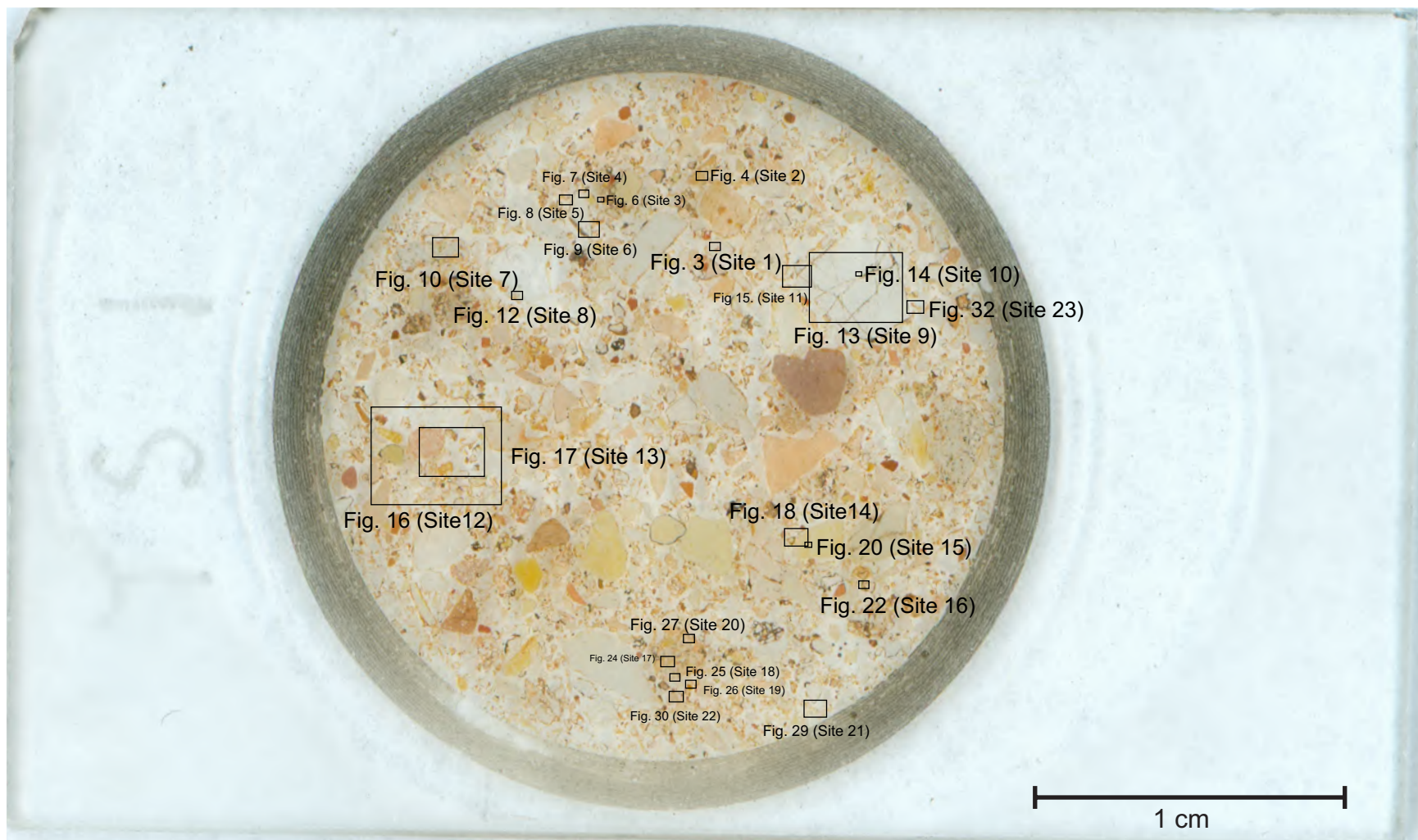


Figure A1:1: Slide S1: Sample taken from a fine sand bed ~ 1m below present surface.

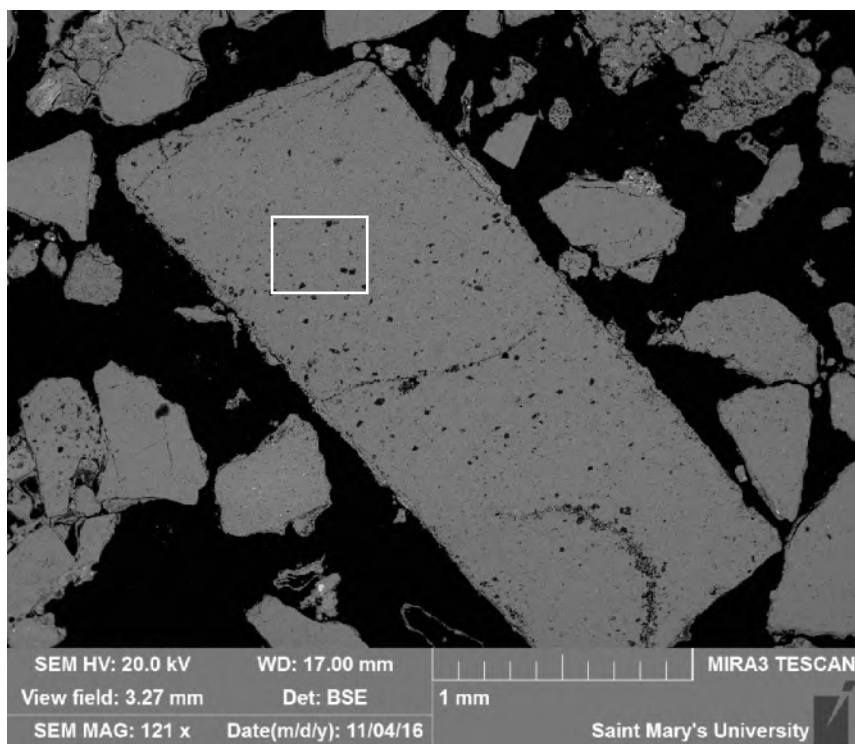
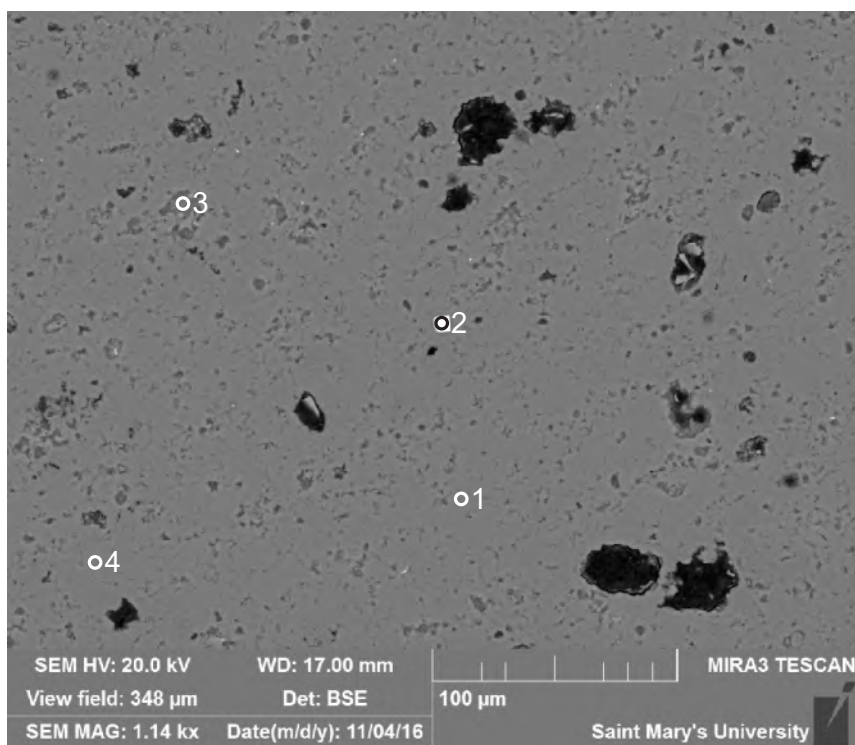


Figure A1.2: Sample S1 (SEM).



- 1: Quartz
- 2: Fe-oxide/hydroxide+
- 3: Quartz +
- 4: Quartz

Figure A1.3: Sample S1 Site 1 (SEM). This site contains: Detrital quartz (1, 3, 4) with voids filled with Fe-oxide/hydroxide (2) (pedogenetically).

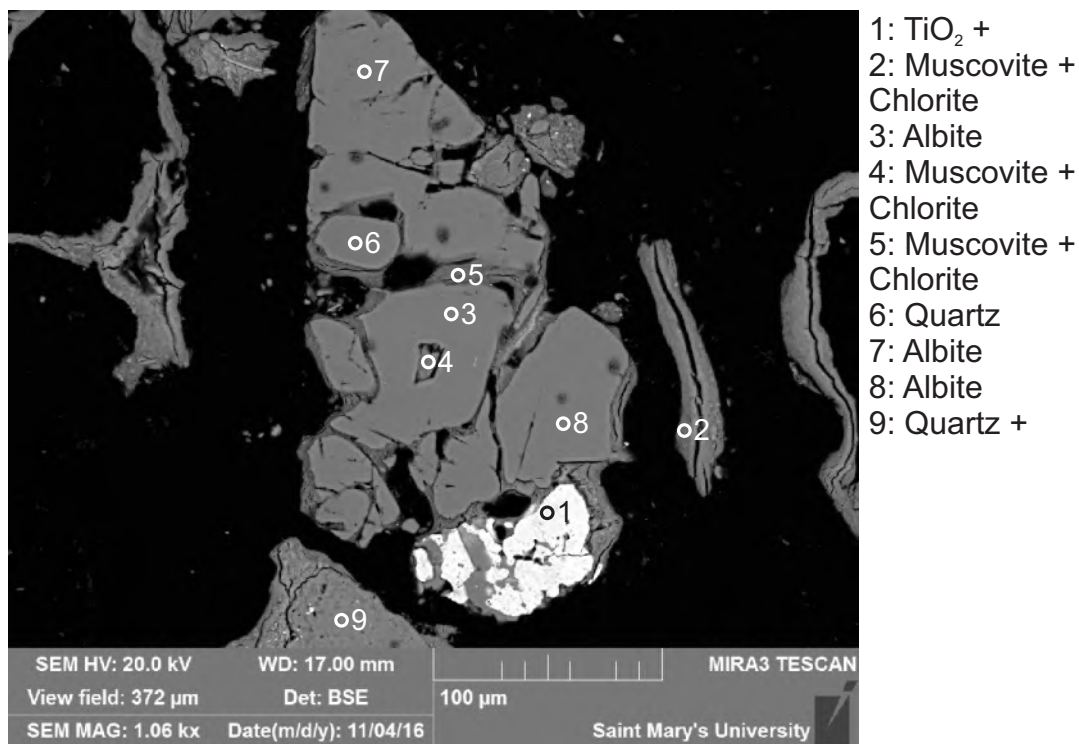


Figure A1.4: Sample S1 Site 2 (SEM). This site contains: Detrital albite (3, 7, 8), quartz (6, 8) chlorite (2,4-5) and TiO_2 (1). Lithic clast (albite + muscovite + TiO_2 (1,3-8, granite).

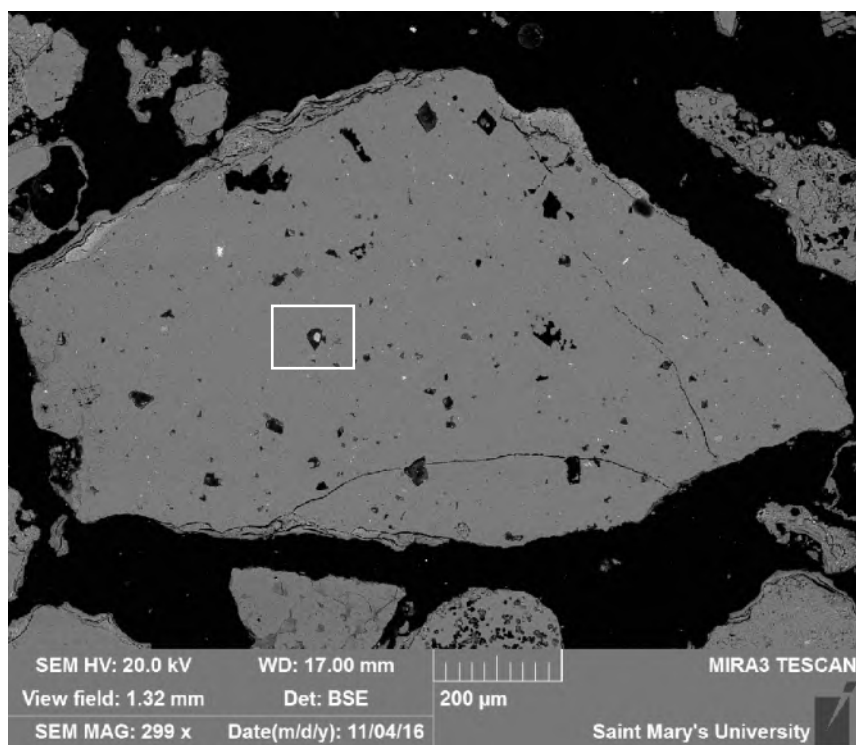
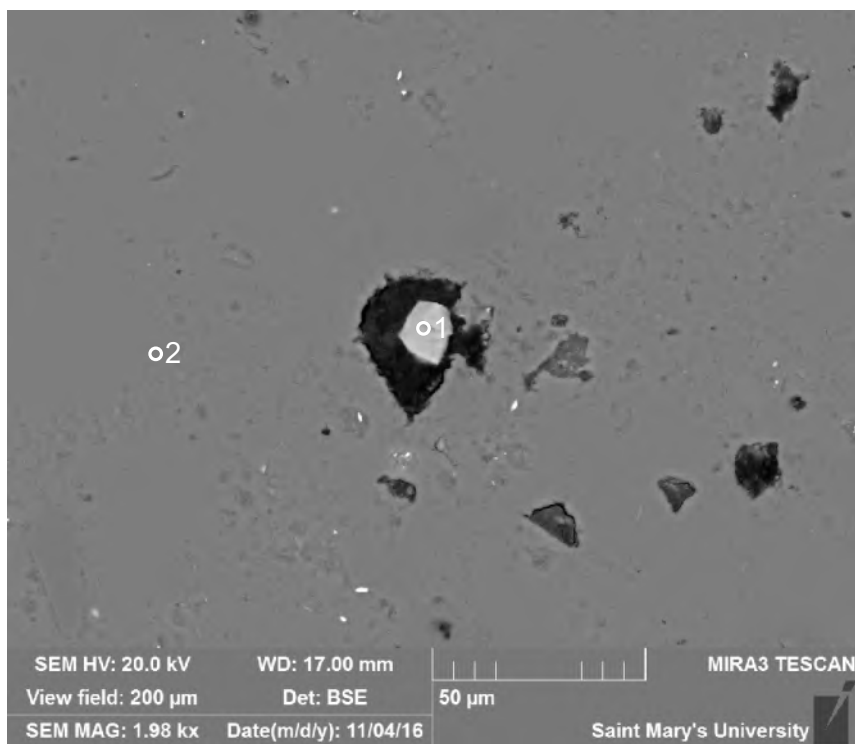
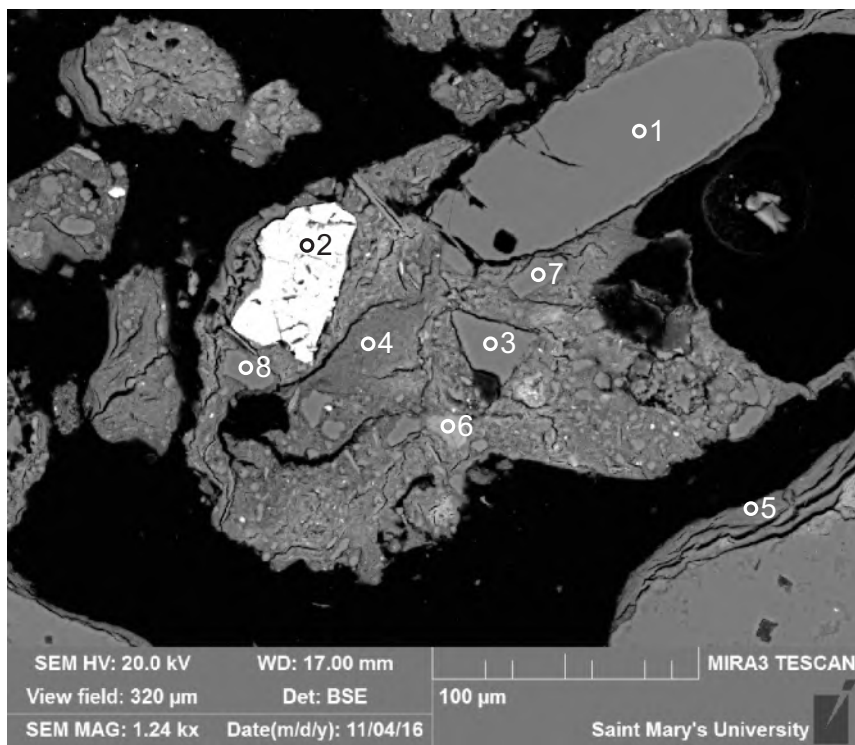


Figure A1.5: Sample S1 (SEM).



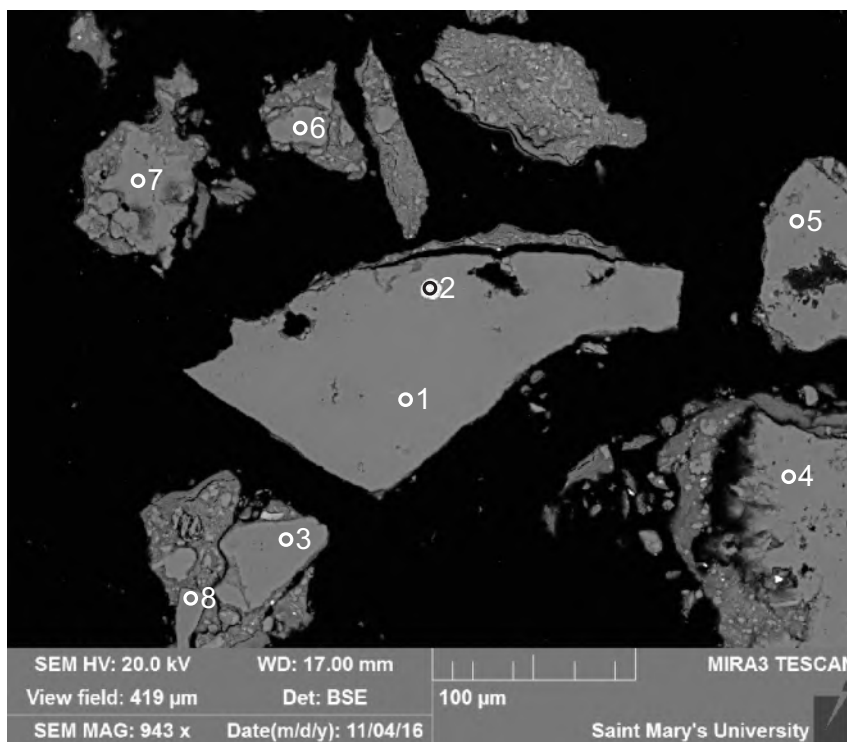
- 1: Epidote
- 2: Quartz

Figure A1.6: Sample S1 Site 3 (SEM). This site contains: Detrital quartz (2), and epidote (1). Lithic clast: Quartz + Epidote (1-2), crystal of quartz with epidote in a void.



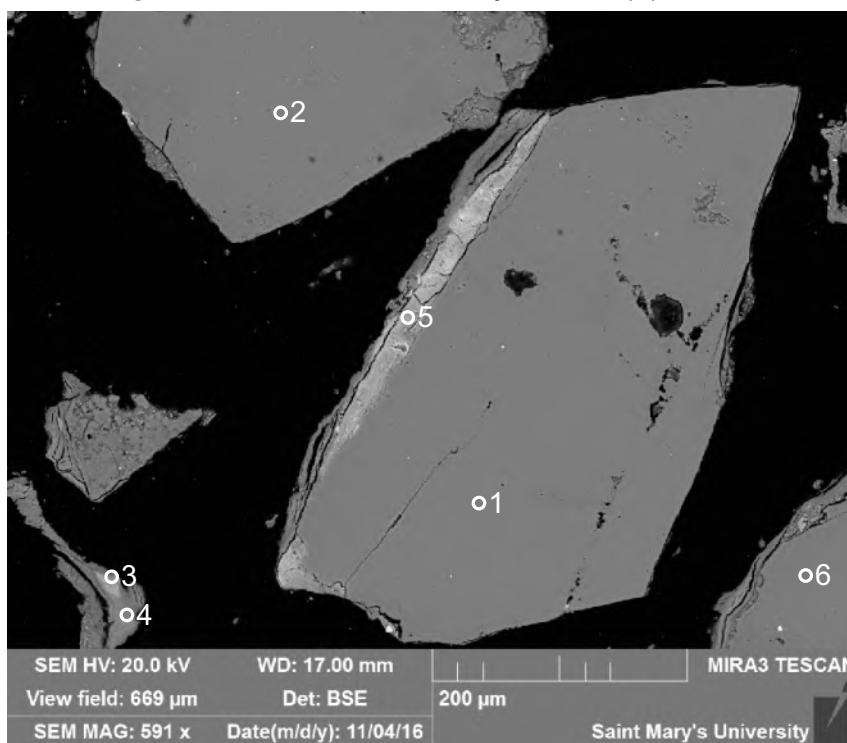
- 1: Albite
- 2: Ti- Magnetite
- 3: Quartz
- 4: Muscovite + Chlorite
- 5: Muscovite + Chlorite
- 6: Chlorite
- 7: Quartz
- 8: Quartz

Figure A1.7: Sample S1 Site 4 (SEM). This site contains: Detrital albite (1), quartz (3,7,8), Ti-Magnetite (2), muscovite (4,5), and chlorite (4-6). Lithic clast: Quartz + Albite + Muscovite + Magnetite (1-4,6-7, granite-chloritized muscovite).



- 1: Quartz
- 2: Fe-oxide/hydroxide+
- 3: Quartz
- 4: Quartz
- 5: Quartz
- 6: Quartz
- 7: Quartz
- 8: Quartz

Figure A1.8: Sample S1 Site 5 (SEM). This site contains: Detrital quartz (1, 3, 4, 5, 6, 7, 8) with grains of quartz containing inclusions of Fe- oxide/hydroxide (2).



- 1: Quartz
- 2: Quartz
- 3: Chlorite + Muscovite
- 4: Muscovite + Chlorite
- 5: Chlorite + Muscovite
- 6: Quartz

Figure A1.9: Sample S1 Site 6 (SEM). This site contains: Detrital quartz (1, 2, 6) and chloritized muscovite (3-5). Lithic clast: Quartz + Muscovite (1-5, granite).

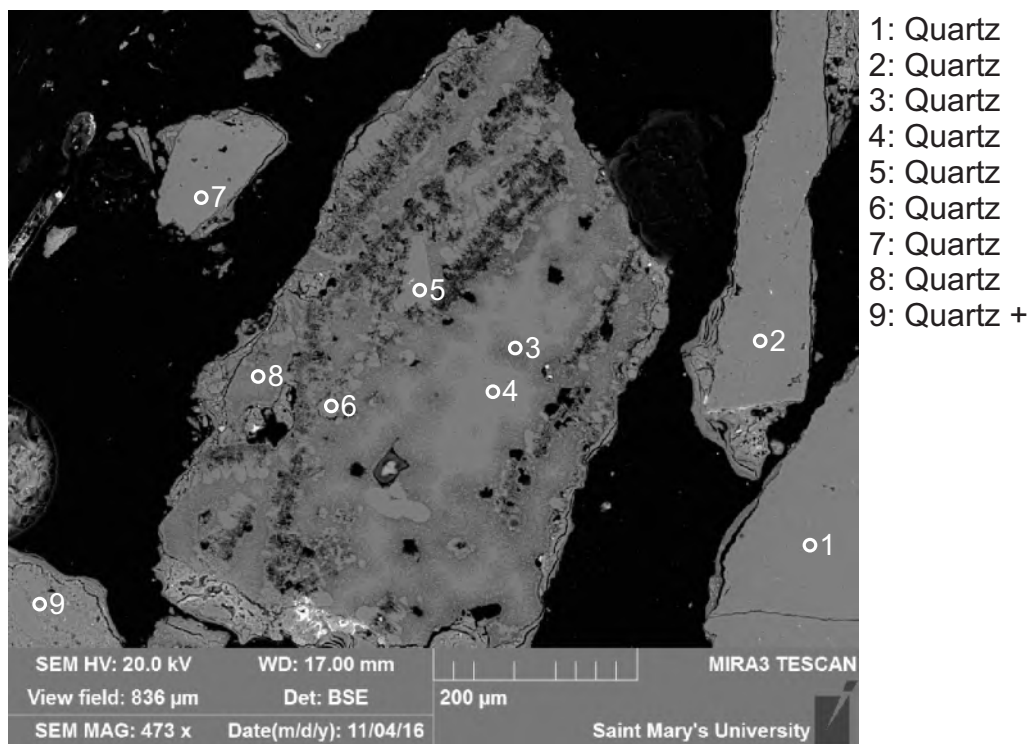


Figure A1.10: Sample S1 Site 7 (SEM). This site contains: Detrital partially dissolved quartz.

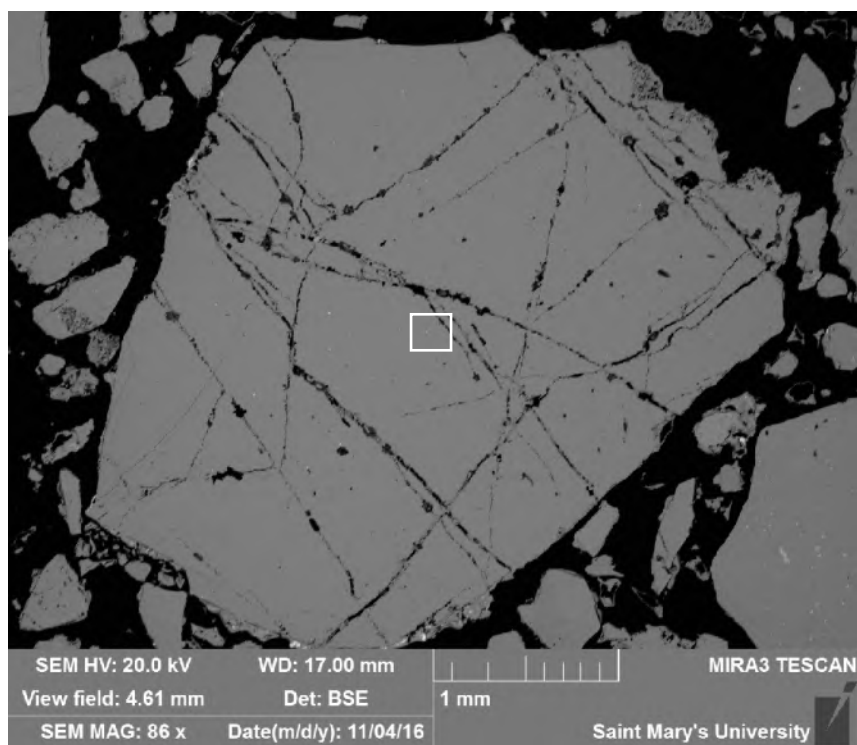
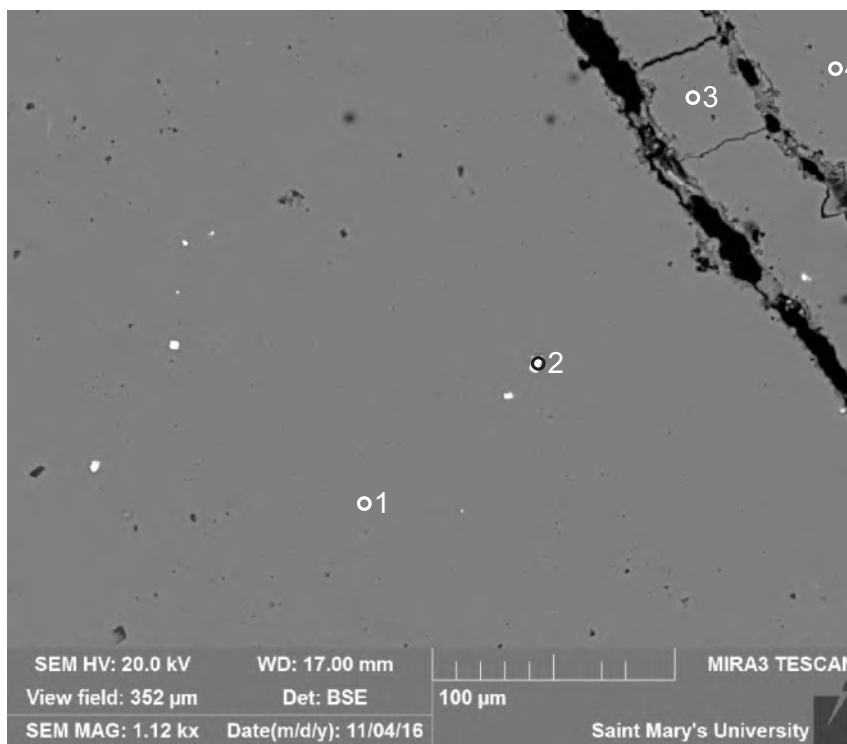
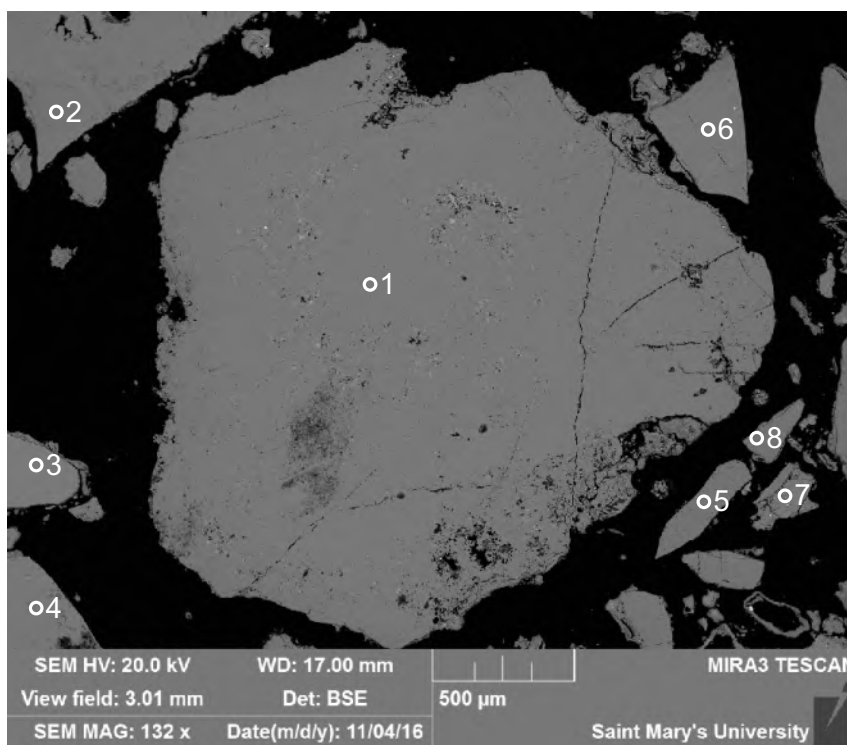


Figure A1.11: Sample S1 (SEM). Fractured detrital quartz.



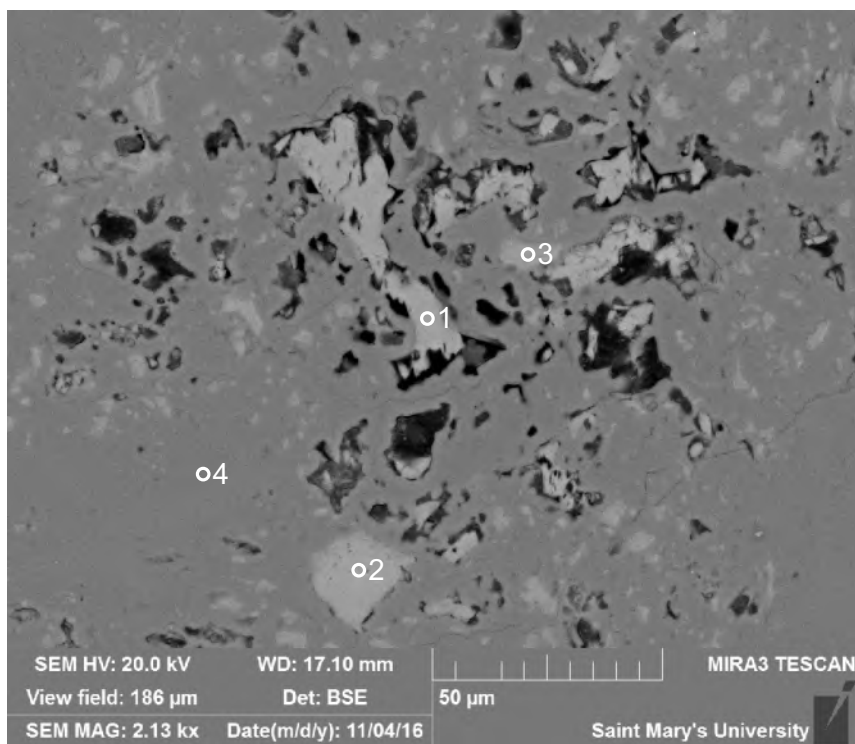
- 1: Quartz
- 2: Pyrite
- 3: Quartz
- 4: Quartz

Figure A1.12: Sample S1 Site 8 (SEM). This site contains: Detrital fractured quartz (1, 3, 4) with inclusions of pyrite (2).



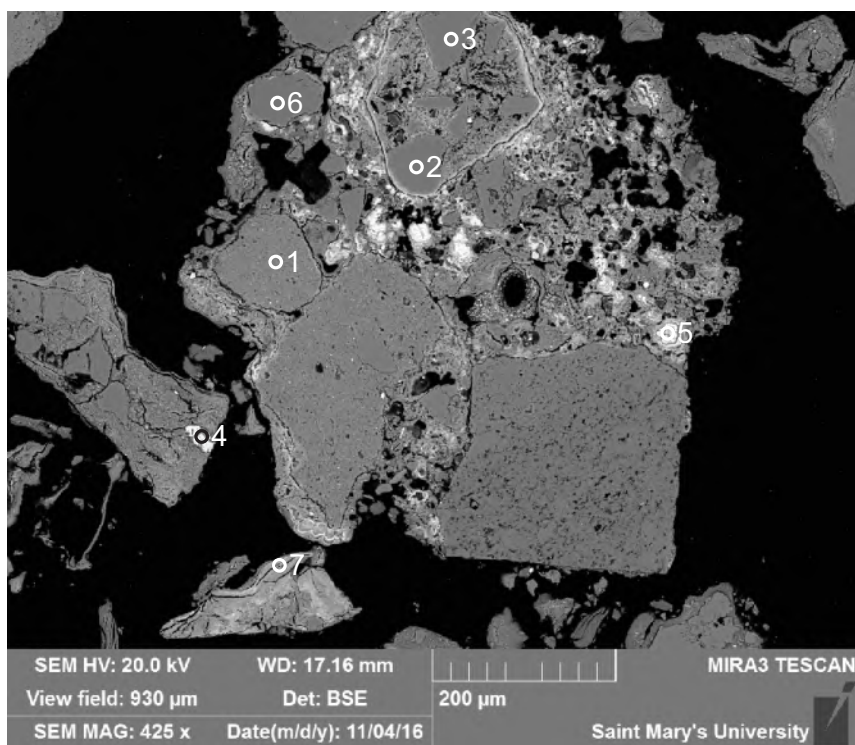
- 1: Quartz
- 2: Quartz
- 3: Quartz + Albite
- 4: Quartz
- 5: Quartz
- 6: Quartz
- 7: Quartz + K-feldspar
- 8: Quartz

Figure A1.13: Sample S1 Site 9 (SEM). This site contains: Detrital fractured quartz.



- 1: Calcite+
- 2: Calcite
- 3: Calcite+
- 4: Quartz

Figure A1.14: Sample S1 Site 10 (SEM). This site contains: Detrital partially dissolved quartz (4) with calcite (1,2,3) filling (?pedogenetically) voids.



- 1: Quartz+
- 2: Quartz
- 3: Quartz
- 4: TiO_2 +
- 5: Mn- hydroxide +
- 6: Quartz
- 7: Chlorite +
Muscovite

Figure A1.15: Sample S1 Site 11 (SEM). This site contains: Detrital quartz (1, 2, 3, 6) and muscovite (7) pedogenically cemented with Mn-hydroxide mineral mixtures.

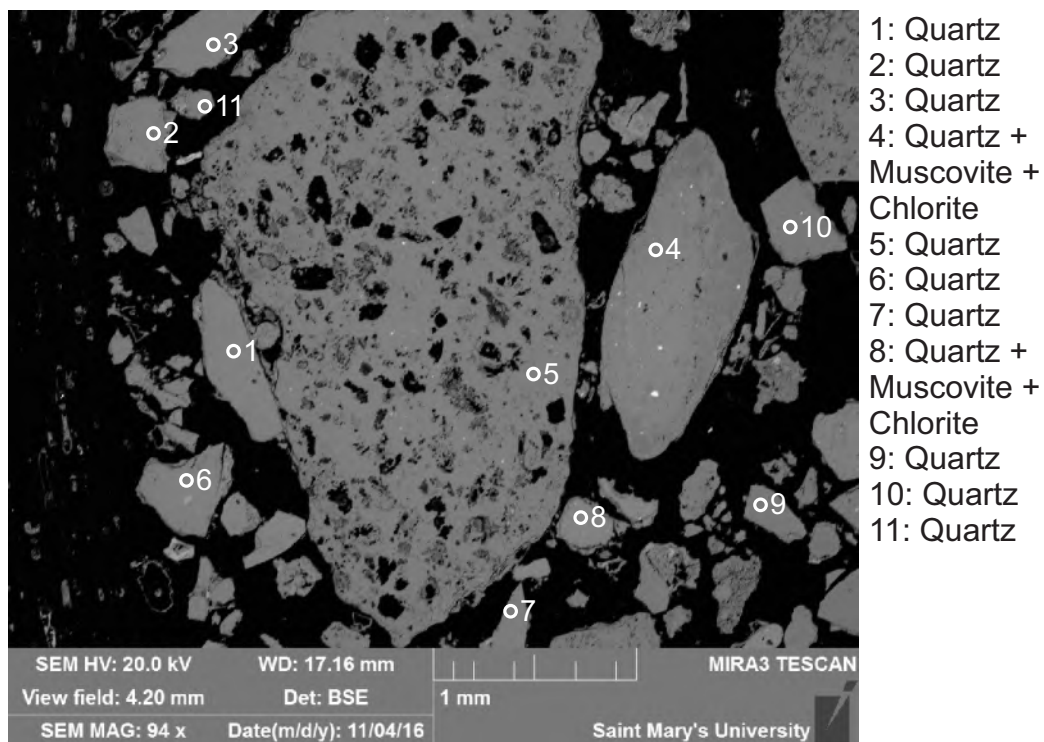


Figure A1.16: Sample S1 Site 12 (SEM). This site contains: Detrital partially dissolved quartz (5) and other quartz grains in contact with chloritized muscovite (4,8) - too low magnification to be seen.

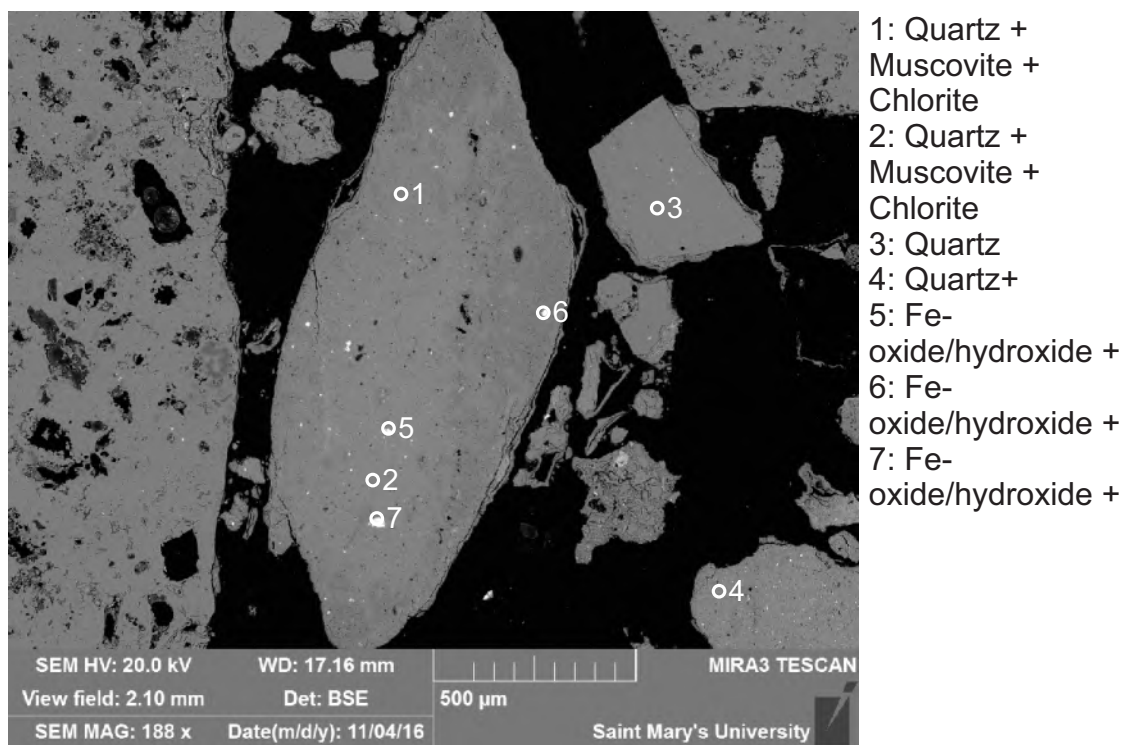
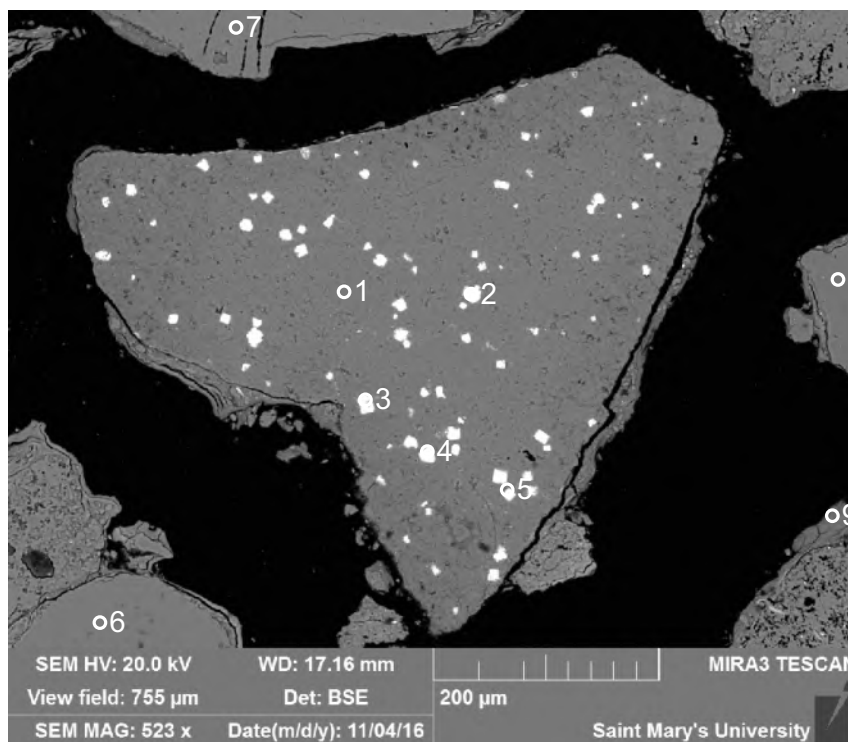


Figure A1.17: Sample S1 Site 13 (SEM). This site contains: Detrital quartz (1-4) with inclusions of Fe-oxide/hydroxide (5-7), and probably in contact with chloritized muscovite (1-2).



- 1: Quartz
- 2: Fe-oxide/hydroxide +
- 3: Fe-oxide/hydroxide +
- 4: Fe-oxide/hydroxide +
- 5: Fe-oxide/hydroxide +
- 6: Quartz
- 7: Quartz
- 8: Quartz
- 9: Muscovite + Chlorite

Figure A1.18: Sample S1 Site 14 (SEM). This site contains: Detrital quartz (1, 6, 7, 8) with grains of Fe-oxide/hydroxide (2, 3, 4, 5) and detrital chloritized muscovite (9). Lithic clast: Quartz + Muscovite (9, granite)

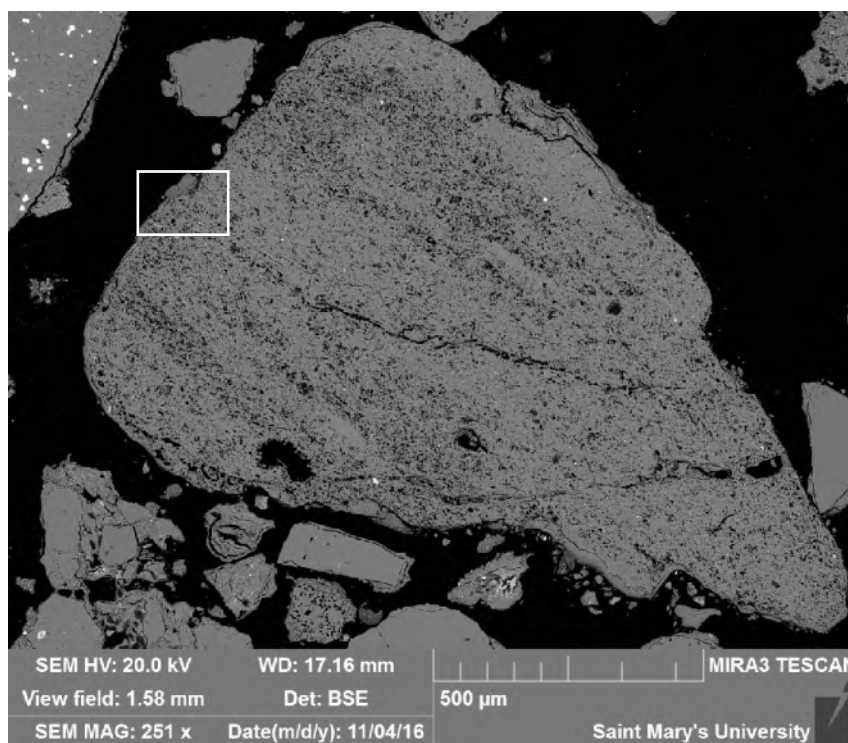


Figure A1.19: Sample S1 (SEM).

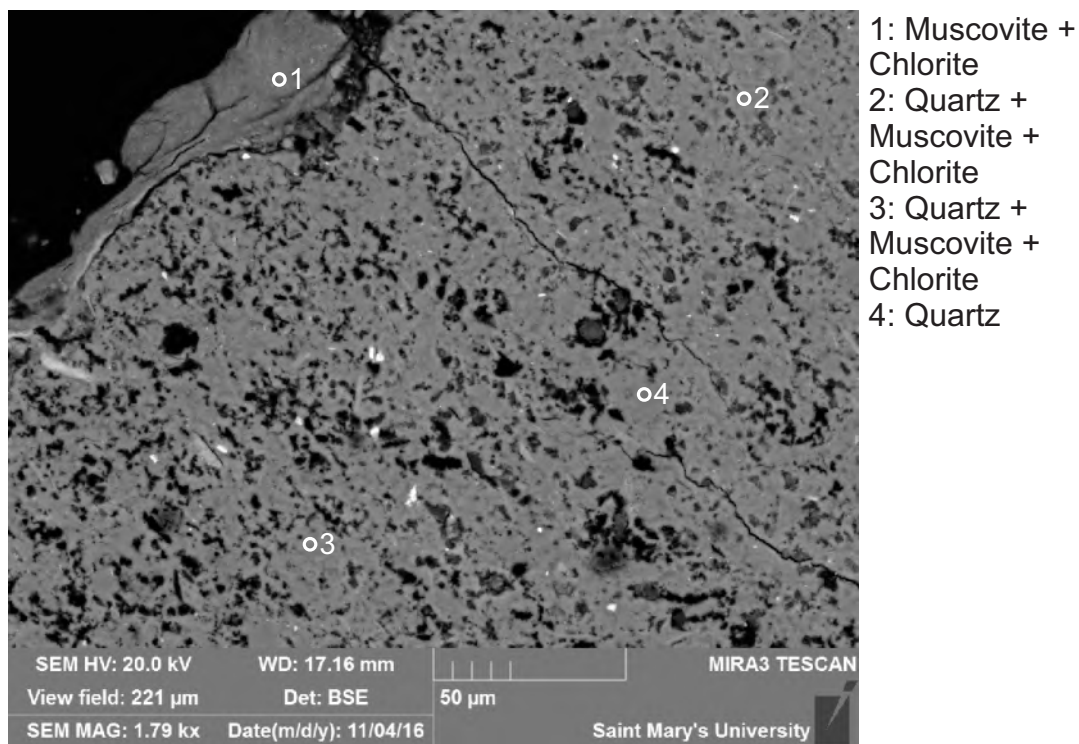


Figure A1.20: Sample S1 Site 15 (SEM). This site consists of detrital quartz (2, 3, 4). with abundant voids, some fractures, and chloritized muscovite (1). Lithic clast: Quartz + Muscovite (1-4, granite).

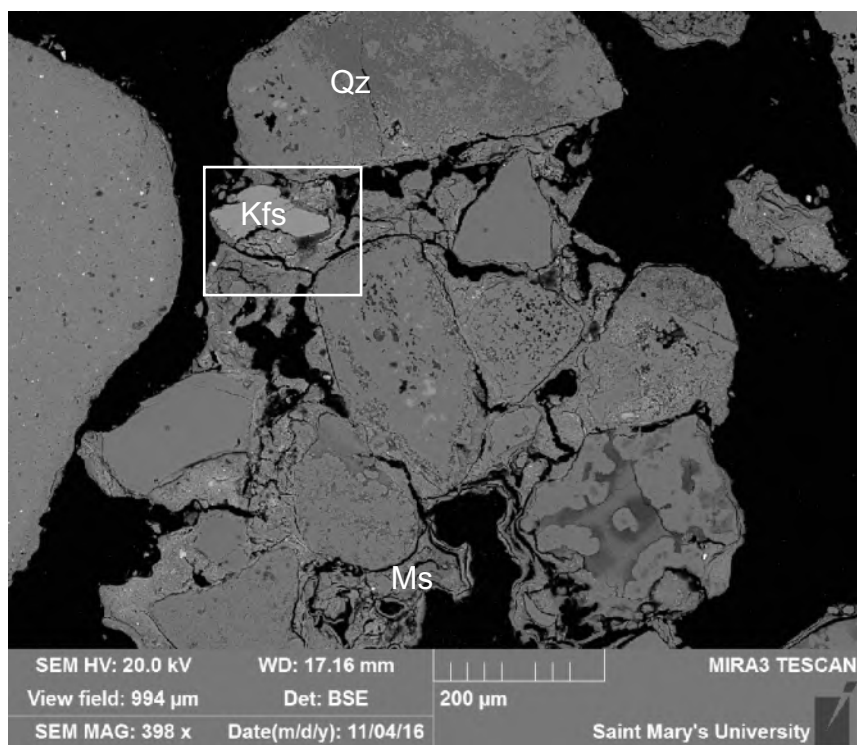
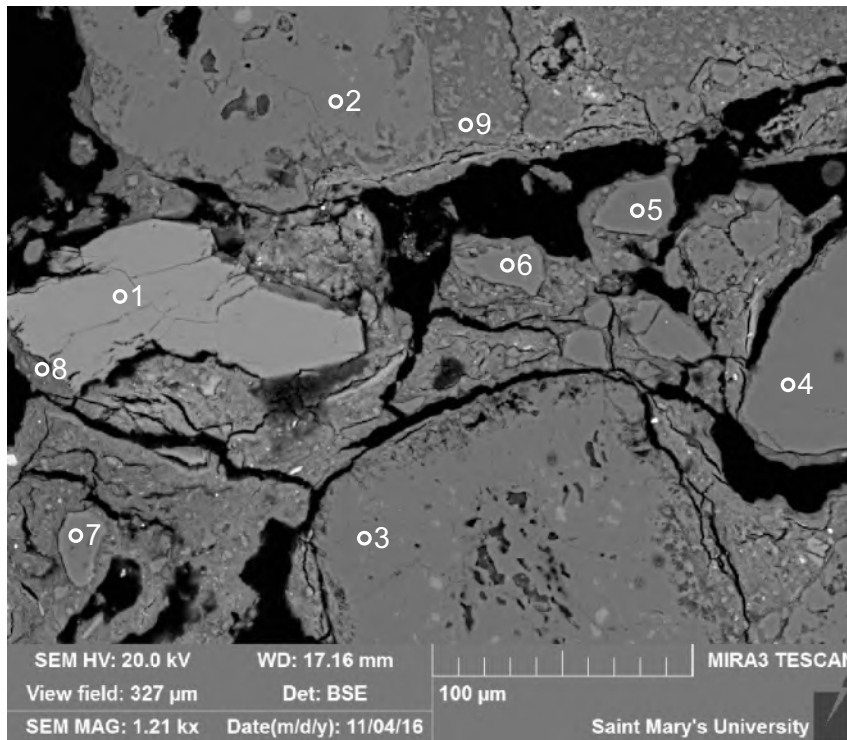


Figure A1.21: Sample S1 (SEM).



- 1: K-Feldspar
- 2: Quartz
- 3: Quartz
- 4: Quartz
- 5: Quartz
- 6: Quartz
- 7: Quartz
- 8: K-feldspar + Chlorite
- 9: Quartz

Figure A1.22: Sample S1 Site 16 (SEM). This site contains: Detrital K-feldspar (1) and quartz (2-7,9). Lithic clast: Quartz + K-feldspar (1-9, deformed and partially dissolved granite).

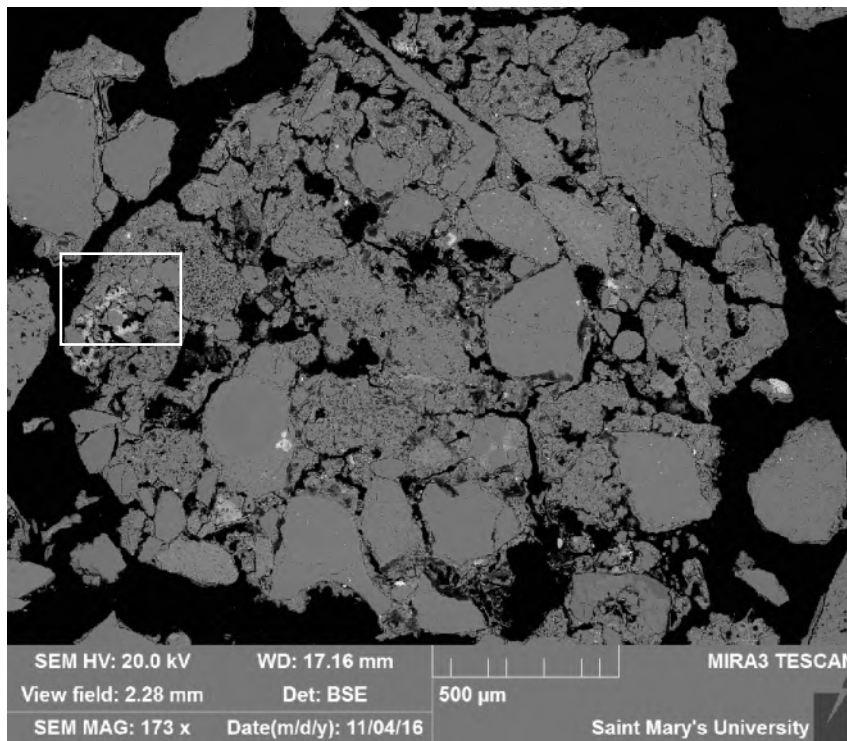
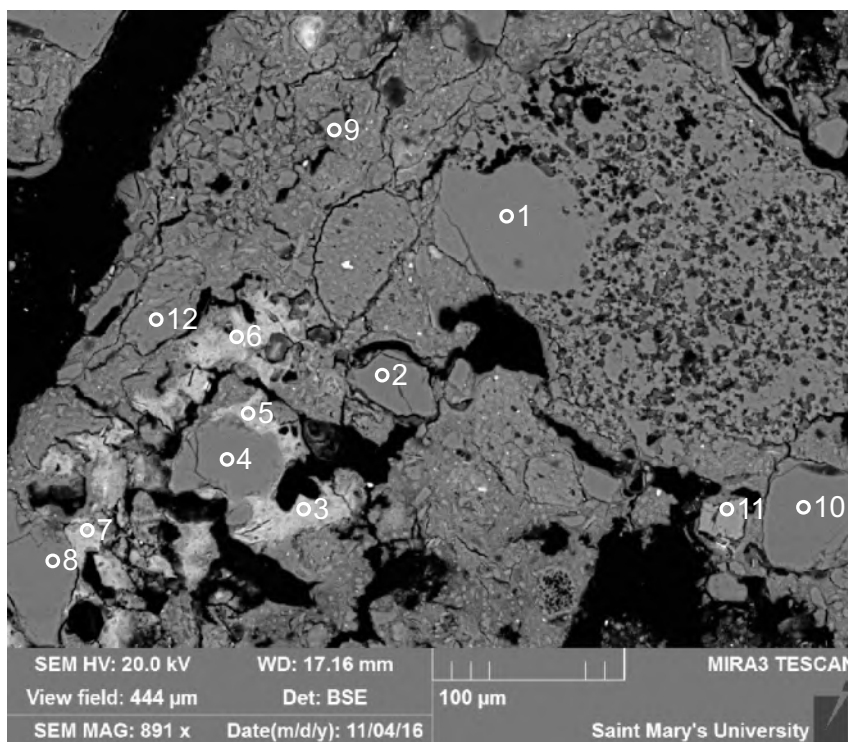
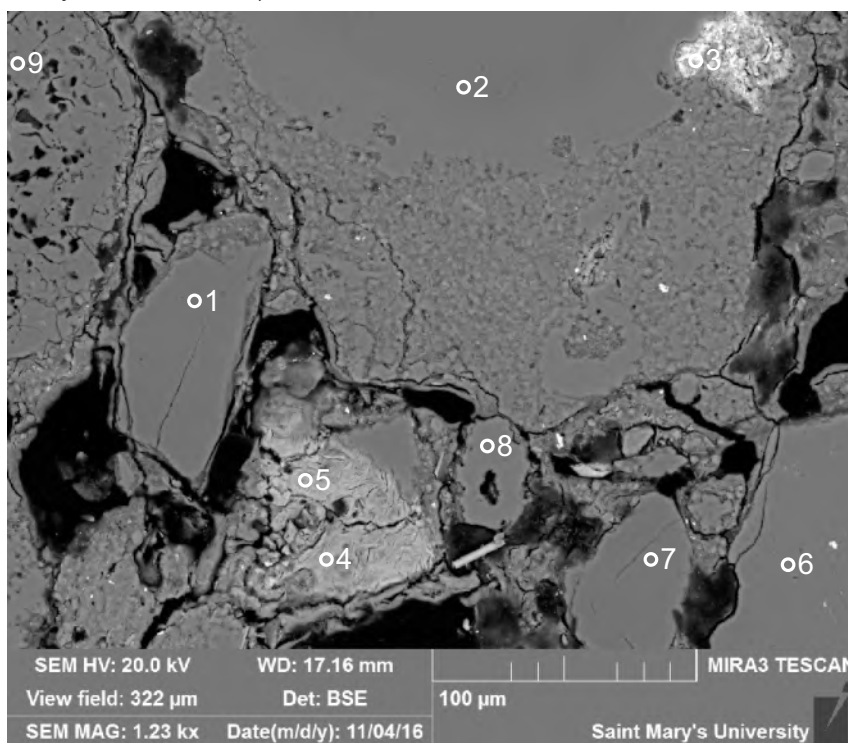


Figure A1.23: Sample S1 (SEM).



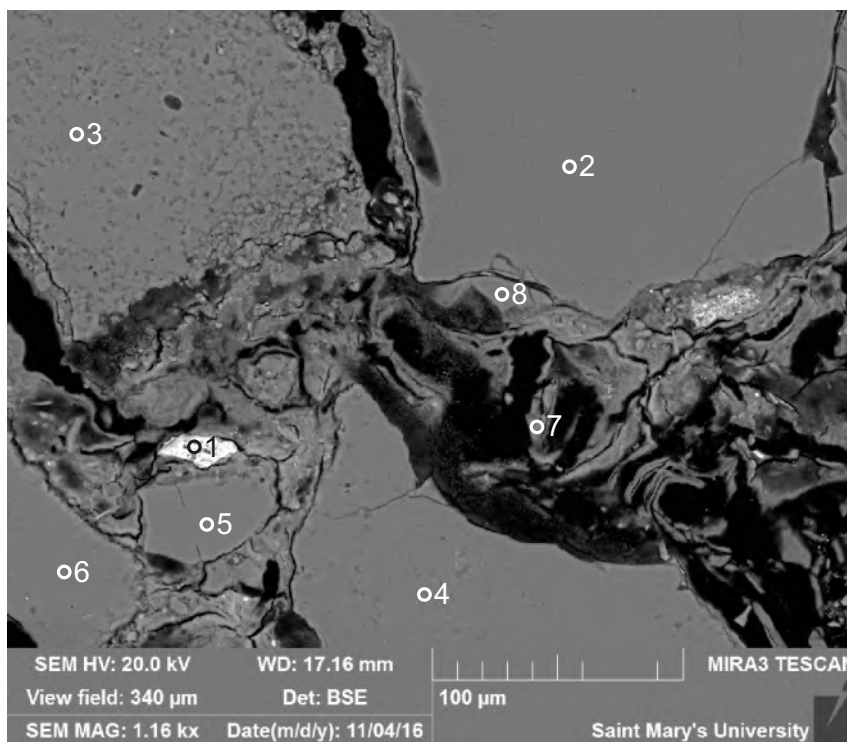
- 1: Quartz
- 2: Quartz
- 3: Chlorite + Mn-hydroxide
- 4: Quartz
- 5: Chlorite + Mn-hydroxide
- 6: Chlorite + Mn-hydroxide
- 7: Chlorite + Mn-hydroxide
- 8: Quartz
- 9: Quartz
- 10: Quartz
- 11: K-feldspar
- 12: Quartz +

Figure A1.24: Sample S1 Site 17 (SEM). This site contains: Detrital quartz (1-2,4,8-10,12) and K-feldspar (11) and chlorite + Mn-hydroxide throughout (3, 5-7). Lithic clast: Quartz + K-feldspar (1,2,4,8-10,11, granite pedogenetically altered - Mn-hydroxide + Chlorite).



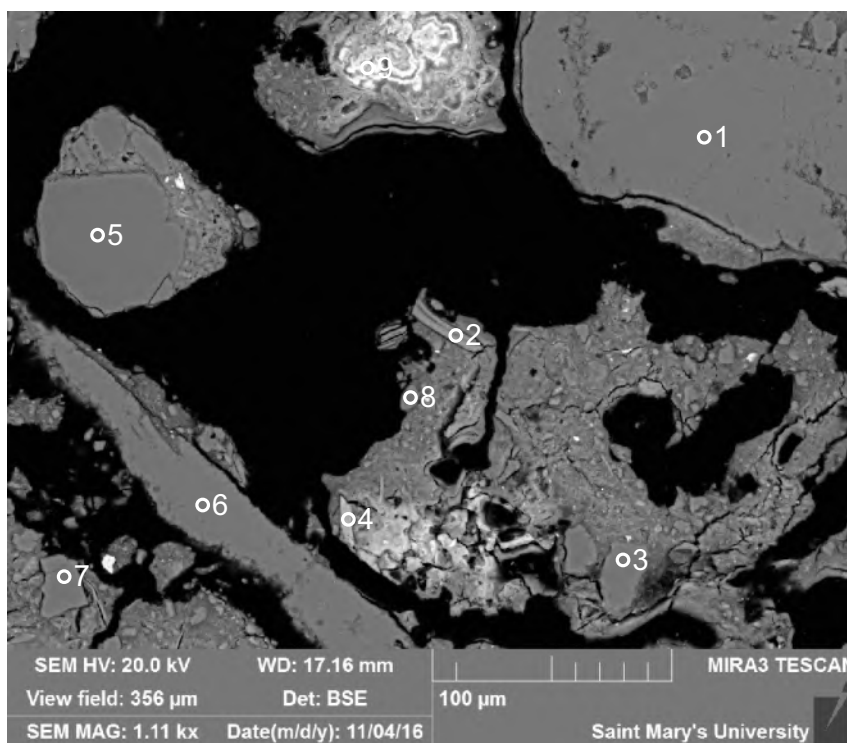
- 1: Quartz
- 2: Quartz
- 3: Mix
- 4: Chlorite + Muscovite
- 5: Chlorite + Muscovite
- 6: Quartz +
- 7: Quartz
- 8: Quartz
- 9: Quartz

Figure A1.25: Sample S1 Site 18 (SEM). This site contains: Detrital quartz (1,2,6-9) with chlorite and muscovite (4-5) and dissolved voids. Lithic clast: altered granite.



- 1: Fe-oxide/hydroxide +
- 2: Quartz
- 3: Quartz
- 4: Quartz
- 5: Quartz
- 6: Quartz
- 7: Chlorite + Muscovite
- 8: Quartz

Figure A1.26: Sample S1 Site 19 (SEM). This site contains: Detrital quartz (2-6,8), Fe-oxide/hydroxide (1) and chlorite and muscovite (7). Lithic clast: altered granite.



- 1: Quartz
- 2: Muscovite
- 3: Quartz
- 4: "Biotite"
- 5: Quartz
- 6: Quartz
- 7: Quartz
- 8: Quartz
- 9: Fe-Mn-hydroxide

Figure A1.27: Sample S1 Site 20 (SEM). This site contains: Detrital quartz (1, 3, 5, 6, 7, 8) muscovite (2), "biotite" (4), and Fe-Mn-hydroxide. Lithic clast: altered granite.

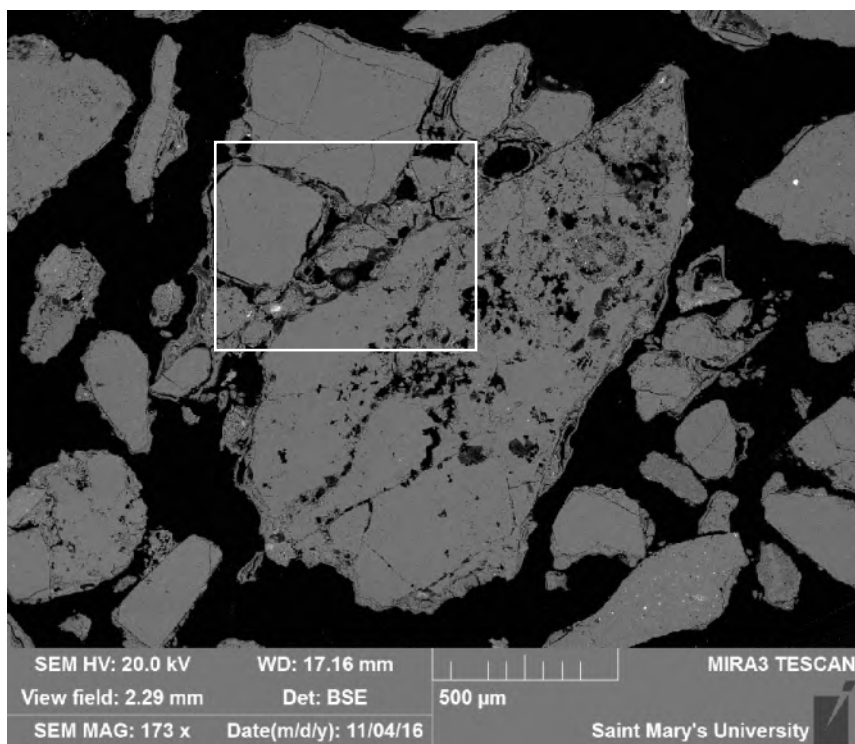
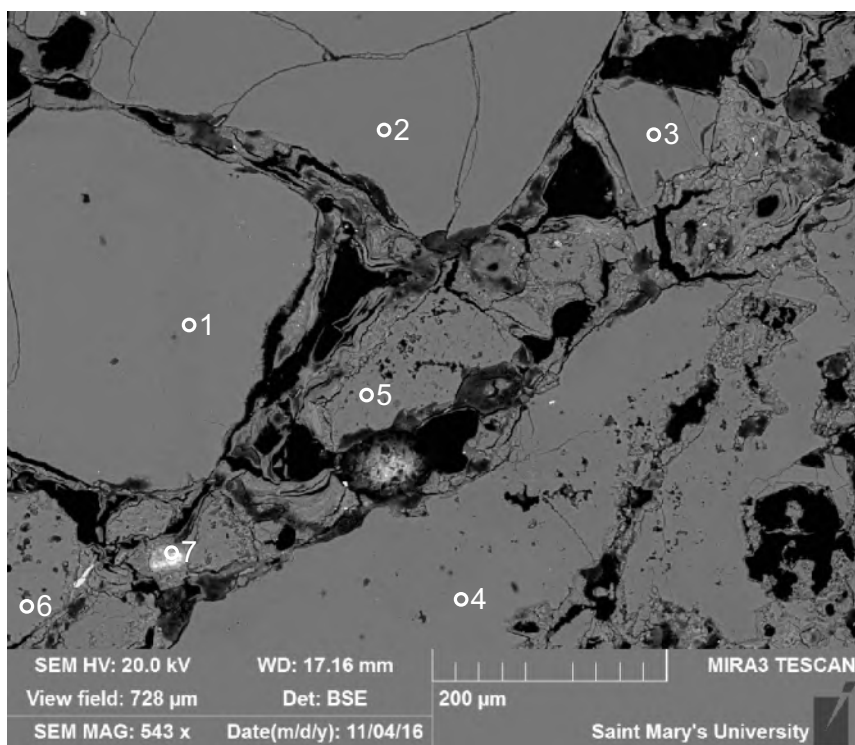
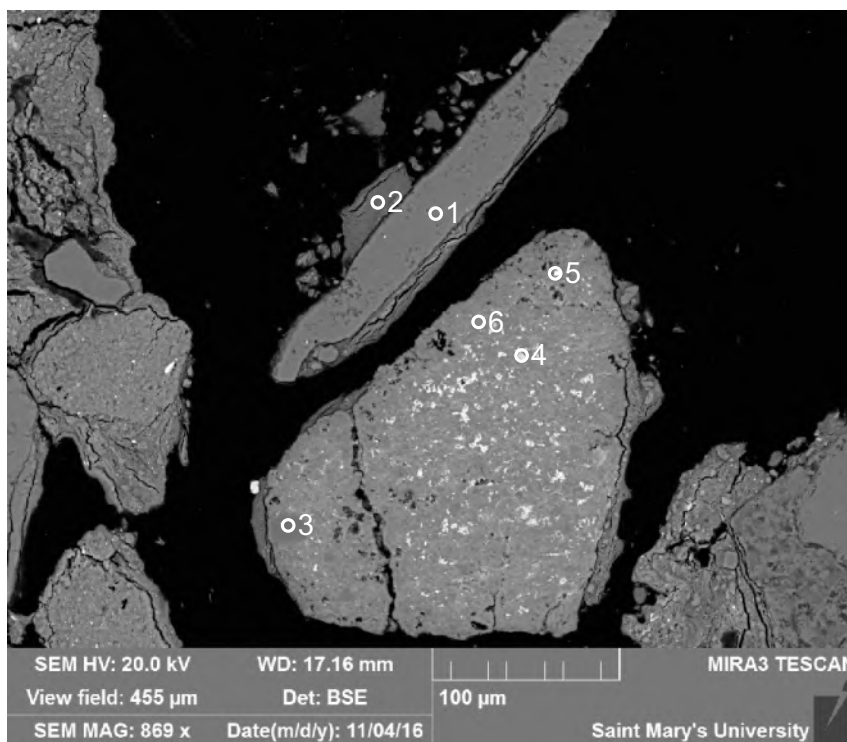


Figure A1.28: Sample S1 (SEM).



- 1: Quartz
- 2: Quartz
- 3: Quartz
- 4: Quartz
- 5: Quartz
- 6: Quartz
- 7: Mn-hydroxide

Figure A1.29: Sample S1 Site 21 (SEM). This site contains: Detrital quartz (1-6) and Mn-hydroxide (7). Lithic clast: altered granite.



- 1: Quartz
- 2: Muscovite + Chlorite +
- 3: Quartz
- 4: Fe-oxide/hydroxide +
- 5: Chlorite + Cr
- 6: Quartz +

Figure A1.30: Sample S1 Site 22 (SEM). This site contains: Detrital quartz (1, 3, 6) with grains of altered Fe-oxide/hydroxide (4) and Cr-chlorite (5). Lithic clast: mineralized quartz (3-6) grain.

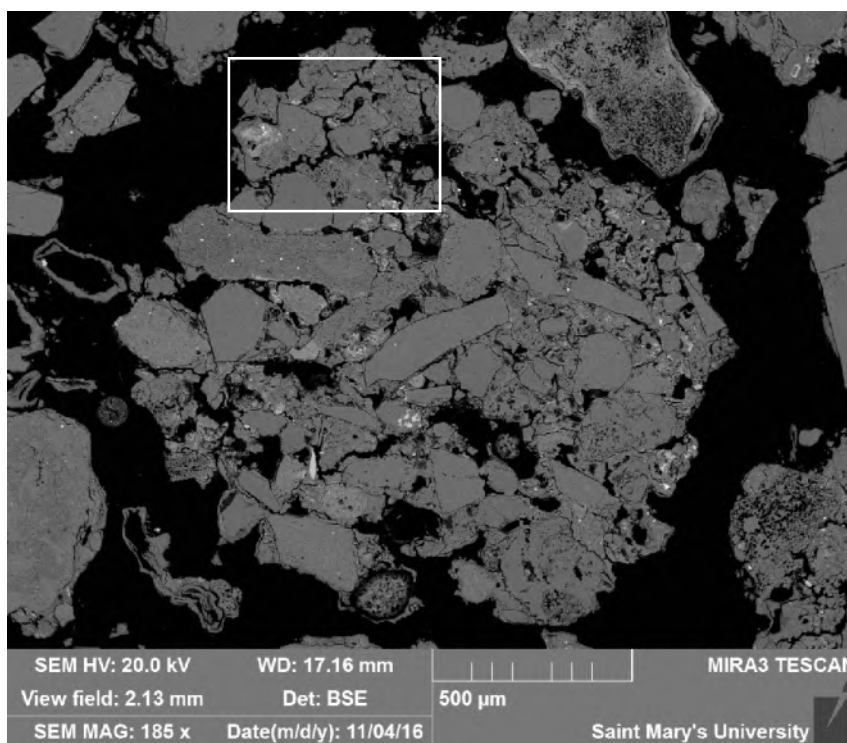
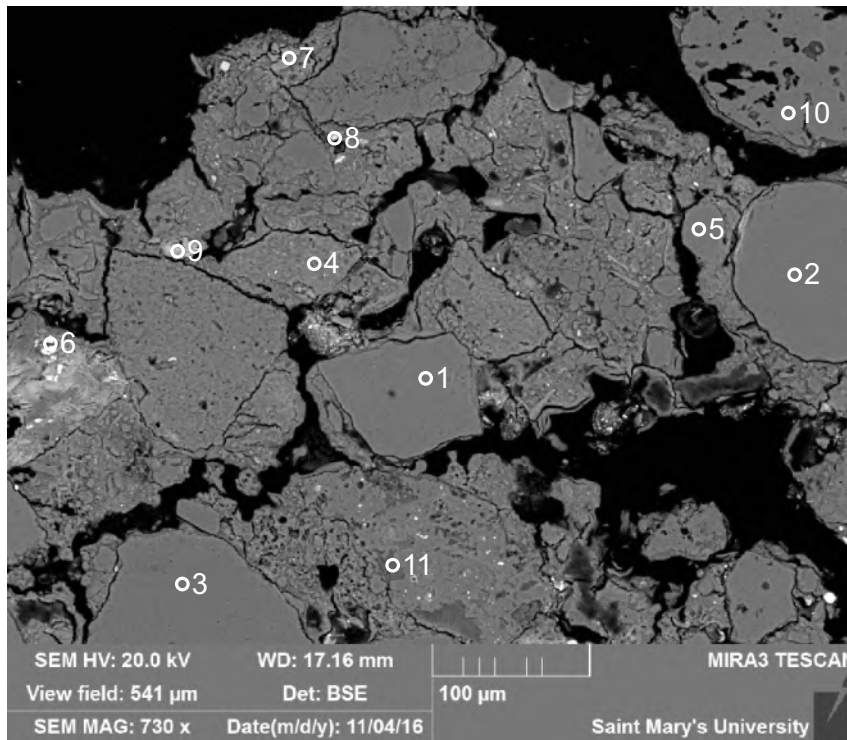


Figure A1.31: Sample S1 (SEM).



- 1: Quartz
- 2: Quartz
- 3: Quartz
- 4: Quartz + K-feldspar
- 5: Quartz
- 6: Kaolinite + Fe-oxide/hydroxide
- 7: K-Feldspar
- 8: TiO_2 +
- 9: Mix
- 10: Quartz
- 11: Kaolinite

Figure A1.32: Sample S1 Site 23 (SEM). This site contains: Detrital quartz (1-5, 10), K-feldspar (7) and pedogenic kaolinite (11) and TiO_2 (8). Lithic clast: altered granite.

Table A1.1: EDS analyses of sample S1.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	1	1	Qz	100.00																			100	122
S1	1	2	Feho +	21.07		1.56	74.77						1.15			0.45				0.99			100	86
S1	1	3	Qz +	96.49		1.64	0.77			0.37	0.46	0.27											100	111
S1	1	4	Qz	100.00																			100	121
S1	2	1	TiO2 +	3.04	76.30	1.42	19.03			0.22													100	100
S1	2	2	Ms + Chl	56.33		27.07	9.61		2.41	0.64	0.53	3.16				0.25							100	81
S1	2	3	Ab	69.54		18.90				0.20	11.36												100	121
S1	2	4	Ms + Chl	60.56		29.56	4.12		1.97	0.73	0.85	2.22											100	92
S1	2	5	Ms + Chl	56.35	1.69	26.06	8.90	0.74	2.12	0.61	0.73	2.57				0.21							100	90
S1	2	6	Qz	100.00																			100	123
S1	2	7	Ab	69.67		18.96					11.37												100	119
S1	2	8	Ab	69.54		18.88				0.30	11.28												100	120
S1	2	9	Qz +	90.98		4.97	1.10		0.72	0.32	0.33	1.58											100	119
S1	3	1	Ep	41.05		23.43	10.73	0.52		21.27													97	105
S1	3	2	Qz	99.09		0.76						0.16											100	120
S1	4	1	Ab	69.95		18.59					11.46												100	121
S1	4	2	Ti-Mag		11.01	2.56	83.55	0.76	1.38								0.72						100	97
S1	4	3	Qz	100.00																			100	123
S1	4	4	Ms + Chl	58.30	0.60	25.56	8.80		2.21	0.89	0.51	2.85				0.28							100	92
S1	4	5	Ms + Chl	55.15	0.55	26.07	10.75	0.26	2.07	1.37	0.44	3.33											100	87
S1	4	6	Chl	32.89		23.27	18.68		8.48	0.36	0.60	0.71											85	98
S1	4	7	Qz	100.00																			100	122
S1	4	8	Qz	100.00																			100	123
S1	5	1	Qz	100.00																			100	122
S1	5	2	Feho +	19.79		1.01	78.34						0.86										100	88
S1	5	3	Qz	100.00																			100	124
S1	5	4	Qz	100.00																			100	125
S1	5	5	Qz	100.00																			100	125
S1	5	6	Qz	100.00																			100	123
S1	5	7	Qz	100.00																			100	123
S1	5	8	Qz	100.00																			100	126
S1	6	1	Qz	100.00																			100	124

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Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	6	2	Qz	99.03		0.76	0.22																100	120
S1	6	3	Chl + Ms	33.86	0.36	17.77	26.51	0.71	1.43	0.76	0.41	1.60	1.37			0.24							85	91
S1	6	4	Ms + Chl	51.04	0.50	25.43	16.69		2.00	0.66	0.60	2.53	0.57										100	97
S1	6	5	Chl + Ms	34.25		16.57	10.43	17.73	1.35	0.69	0.41	1.85				0.26						1.47	85	97
S1	6	6	Qz	99.67		0.33																	100	126
S1	7	1	Qz	98.03		1.10	0.57					0.29											100	127
S1	7	2	Qz	97.91		1.35	0.37					0.37											100	126
S1	7	3	Qz	100.00																			100	111
S1	7	4	Qz	100.00																			100	127
S1	7	5	Qz	100.00																			100	126
S1	7	6	Qz	100.00																			100	127
S1	7	7	Qz	100.00																			100	123
S1	7	8	Qz	100.00																			100	117
S1	7	9	Qz +	90.50		5.47	1.59		0.88		0.29	1.27											100	117
S1	8	1	Qz	100.00																			100	125
S1	8	2	Py	4.53			27.31							68.16									100	232
S1	8	3	Qz	99.69		0.31																	100	124
S1	8	4	Qz	100.00																			100	124
S1	9	1	Qz	99.27						0.73													100	119
S1	9	2	Qz	100.00																			100	106
S1	9	3	Qz + Ab	94.71		2.96	0.73				1.26	0.35											100	106
S1	9	4	Qz	99.15		0.64						0.21											100	104
S1	9	5	Qz	100.00																			100	131
S1	9	6	Qz	100.00																			100	117
S1	9	7	Qz + Kfs	91.19		5.51	0.99		0.66			1.65											100	123
S1	9	8	Qz	100.00																			100	172
S1	10	1	Cal+	1.68					0.81	93.90					3.60								100	61
S1	10	2	Cal	0.61					0.45	53.53					1.41								56	60
S1	10	3	Cal+	5.56					1.07	87.82					5.55								100	65
S1	10	4	Qz	100.00																			100	135
S1	11	1	Qz+	79.48	0.99	9.02	4.93	0.50	1.74	0.38	0.35	2.59											100	113
S1	11	2	Qz	100.00																			100	120

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Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	11	3	Qz	100.00																			100	121
S1	11	4	TiO2 +	2.12	94.63	1.28	1.66			0.31													100	105
S1	11	5	Mnho +	2.00		6.52	6.76	70.12	0.90	1.90					5.16				2.87	0.62		3.15	100	66
S1	11	6	Qz	100.00																			100	123
S1	11	7	Chl + Ms	34.99	0.24	17.38	26.78	0.82	1.37	0.41	0.39	1.80	0.82										85	97
S1	12	1	Qz	99.64		0.36																	100	121
S1	12	2	Qz	95.36		2.57	0.79		0.48			0.81											100	110
S1	12	3	Qz	97.67		1.56	0.38					0.38											100	107
S1	12	4	Qz + Ms + Chl	89.95		5.48	2.00		0.94		0.36	1.28											100	110
S1	12	5	Qz	99.47		0.53																	100	129
S1	12	6	Qz	99.69		0.31																	100	116
S1	12	7	Qz	99.62		0.38																	100	134
S1	12	8	Qz + Ms + Chl	85.90	0.29	6.49	3.71		1.25	0.21		2.15											100	129
S1	12	9	Qz	99.66		0.34																	100	131
S1	12	10	Qz	99.39		0.61																	100	104
S1	12	11	Qz	100.00																			100	113
S1	13	1	Qz + Ms + Chl	86.27		6.98	2.76		1.60		0.32	2.08											100	114
S1	13	2	Qz + Ms + Chl	87.47		6.29	3.00		1.15		0.28	1.80											100	115
S1	13	3	Qz	100.00																			100	120
S1	13	4	Qz+	81.32	0.32	7.51	6.80	0.40	1.23	0.34	0.27	1.80											100	115
S1	13	5	Feho +	8.25		3.96	84.30						1.82					0.45		1.23			100	85
S1	13	6	Feho +	7.15		7.50	81.29						2.73					0.34		1.00			100	83
S1	13	7	Feho +	7.76		6.18	82.65			0.30			2.10							1.01			100	84
S1	14	1	Qz	99.69			0.31																100	119
S1	14	2	Feho +	7.33	0.92	1.21	88.95						0.82				0.43	0.34					100	84
S1	14	3	Feho +	9.45		1.98	87.54						1.03										100	83
S1	14	4	Feho +	12.98		1.06	85.09						0.87										100	87
S1	14	5	Feho +	8.59		1.26	89.06						1.09										100	86
S1	14	6	Qz	100.00																			100	124
S1	14	7	Qz	100.00																			100	118
S1	14	8	Qz	100.00																			100	123
S1	14	9	Ms + Chl	55.07	0.46	28.11	9.34		2.38	0.57	0.43	3.64											100	91

Table A1.1: EDS analyses of sample S1.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	15	1	Ms + Chl	54.82	0.69	27.90	10.12		2.35	0.40	0.51	3.20											100	90
S1	15	2	Qz + Ms + Chl	82.72	0.25	6.74	5.62		1.97			2.71											100	110
S1	15	3	Qz + Ms + Chl	84.48		6.91	3.62		1.92	0.29	0.27	2.51											100	110
S1	15	4	Qz	100.00																			100	119
S1	16	1	Kfs	66.21		17.78					0.70	15.31											100	115
S1	16	2	Qz	98.97						1.03													100	116
S1	16	3	Qz	100.00																			100	119
S1	16	4	Qz	100.00																			100	118
S1	16	5	Qz	100.00																			100	119
S1	16	6	Qz	100.00																			100	118
S1	16	7	Qz	99.64		0.36																	100	118
S1	16	8	Kfs + Chl	64.54	0.32	19.77	9.35		2.07	0.64	0.58	2.57				0.17							100	88
S1	16	9	Qz	100.00																			100	113
S1	17	1	Qz	100.00																			100	120
S1	17	2	Qz	100.00																			100	122
S1	17	3	Chl + Mnho	29.39	0.45	11.45	10.51	27.10	1.54	1.33	0.78	2.09							0.36				85	89
S1	17	4	Qz	100.00																			100	121
S1	17	5	Chl + Mnho	32.41	0.43	12.81	8.28	25.62	1.29	1.30	0.60	1.90							0.37				85	96
S1	17	6	Chl + Mnho	30.19	0.43	13.00	10.76	24.84	1.33	1.43	0.78	1.84							0.40				85	87
S1	17	7	Chl + Mnho	51.97	0.43	11.64	9.51	21.09	1.24	1.07	0.51	1.87				0.29			0.38				100	97
S1	17	8	Qz	100.00																			100	122
S1	17	9	Qz	100.00																			100	121
S1	17	10	Qz	100.00																			100	123
S1	17	11	Kfs	68.40		16.79					0.62	14.19											100	118
S1	17	12	Qz +	90.03		4.98	2.04		1.02	0.22	0.31	1.40											100	115
S1	18	1	Qz	100.00																			100	118
S1	18	2	Qz	100.00																			100	118
S1	18	3	Mix	18.66		5.40	72.17		0.95		0.92	0.34	1.56										100	82
S1	18	4	Chl + Ms	36.52	0.61	21.69	18.94		4.05	0.48	0.60	2.10											85	100
S1	18	5	Chl + Ms	33.50		20.51	23.12		4.85	0.37	0.43	2.23											85	90
S1	18	6	Qz+	86.80		8.30	1.09		1.05			2.77											100	119
S1	18	7	Qz	100.00																			100	121

Table A1.1: EDS analyses of sample S1.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	18	8	Qz	100.00																			100	119
S1	18	9	Qz	99.76						0.24													100	119
S1	19	1	Feho +	4.35		3.69	90.91						1.05										100	76
S1	19	2	Qz	100.00																			100	118
S1	19	3	Qz	99.55		0.45																	100	117
S1	19	4	Qz	98.28		0.91	0.61					0.20											100	119
S1	19	5	Qz	100.00																			100	119
S1	19	6	Qz	98.58		0.92	0.31					0.19											100	117
S1	19	7	Chl + Ms	46.58	0.31	23.32	8.08		2.18	0.73	0.77	2.73				0.29							85	77
S1	19	8	Qz	100.00																			100	117
S1	20	1	Qz	100.00																			100	117
S1	20	2	Ms	48.97	0.69	32.12	1.62		1.43		1.22	8.96											95	105
S1	20	3	Qz	100.00																			100	121
S1	20	4	"Bt"	37.57	2.47	15.47	28.92	0.68	4.75		0.53	5.02	0.59										96	94
S1	20	5	Qz	100.00																			100	118
S1	20	6	Qz	99.68		0.32																	100	117
S1	20	7	Qz	100.00																			100	120
S1	20	8	Qz	100.00																			100	120
S1	20	9	Fe-Mnho +	15.76		7.13	12.70	51.18	0.62	0.99		1.26			5.71				0.90			3.74	100	67
S1	21	1	Qz	100.00																			100	118
S1	21	2	Qz	100.00																			100	117
S1	21	3	Qz	100.00																			100	116
S1	21	4	Qz	99.74																	0.26		100	119
S1	21	5	Qz	99.73																	0.27		100	117
S1	21	6	Qz	100.00																			100	116
S1	21	7	Mnho	7.14		4.29	6.61	71.11	1.21	1.82						0.38			1.95	0.61		4.89	100	66
S1	22	1	Qz	96.93		1.47	1.28					0.33											100	120
S1	22	2	Ms + Chl +	57.50	0.40	28.91	7.54		2.05	0.50	0.48	2.63											100	92
S1	22	3	Qz	99.82			0.18																100	121
S1	22	4	Feho +	39.30		4.10	54.10					0.24	1.44					0.48			0.33		100	91
S1	22	5	Chl + Cr	13.34		13.39	16.04		7.65									45.53			4.05		100	112
S1	22	6	Qz +	85.86	0.49	3.53	8.80		0.54			0.79											100	112

Table A1.1: EDS analyses of sample S1.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	CuO	ZnO	BaO	Total	Actual Total
S1	23	1	Qz	100.00																			100	137
S1	23	2	Qz	100.00																			100	138
S1	23	3	Qz	100.00																			100	134
S1	23	4	Qz + Kfs	87.05		6.31	3.34		1.28		0.38	1.64											100	114
S1	23	5	Qz	97.61		1.36	0.60	0.23				0.21											100	115
S1	23	6	Kln + Feho	52.48		24.54	19.37		0.93	0.43	0.89	0.76	0.59										100	97
S1	23	7	Kfs	65.94		17.90	0.24				0.60	15.32											100	114
S1	23	8	TiO2 +	10.37	81.03	4.23	2.86			0.28		0.73						0.50					100	100
S1	23	9	Mix	19.86		8.34	9.89	49.58	0.99	1.25		0.87			5.37				1.28			2.57	100	66
S1	23	10	Qz	99.65		0.35																	100	116
S1	23	11	Kln	56.64		42.29	0.55			0.26	0.27												100	97
			Note																					
			+ = indicates that other minerals are present																					
			Feho = Fe-oxide/hydroxide																					
			Mnho = Mn-oxide/hydroxide																					

A2: SEM-BSE images and EDS
mineral analyses for sample S9

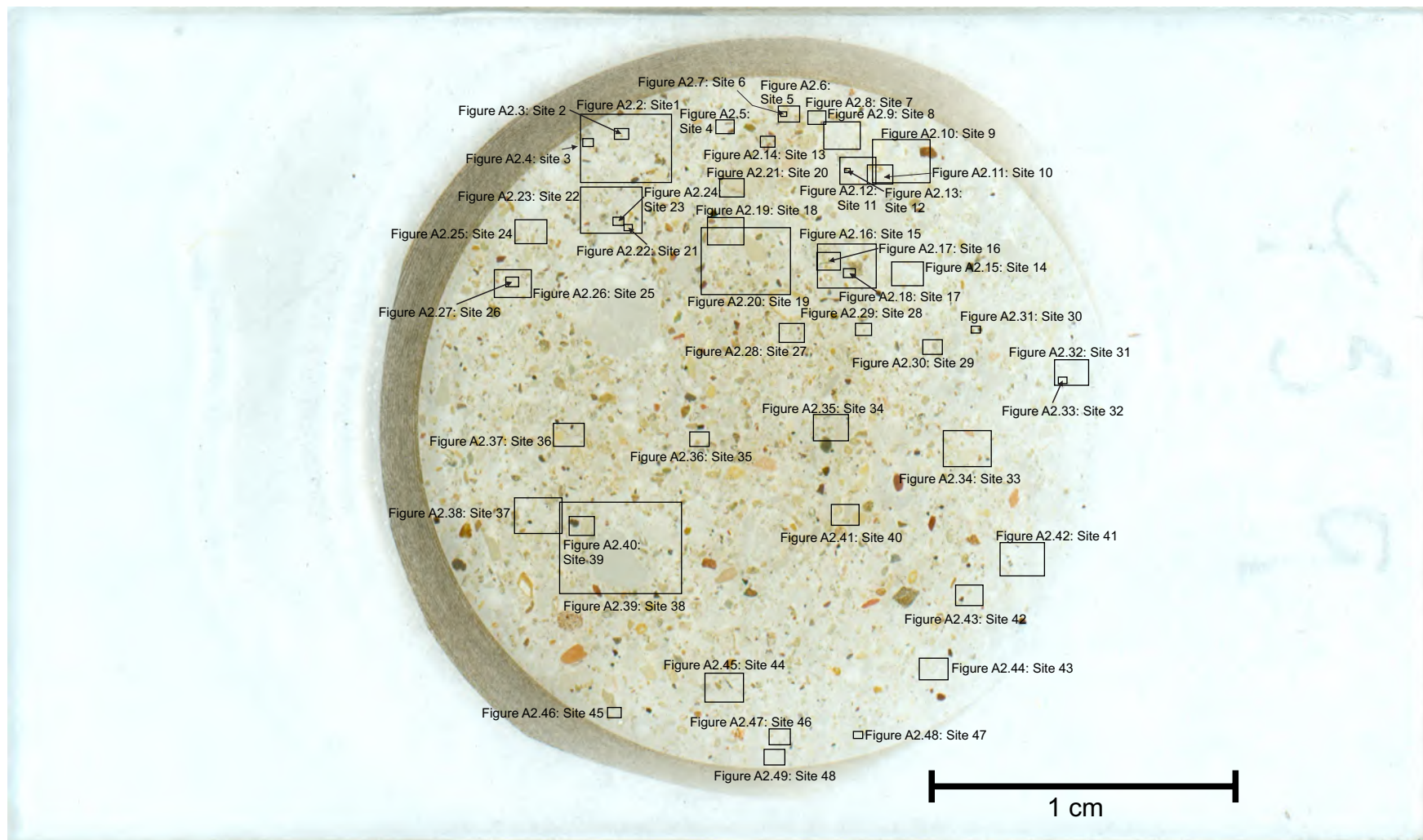
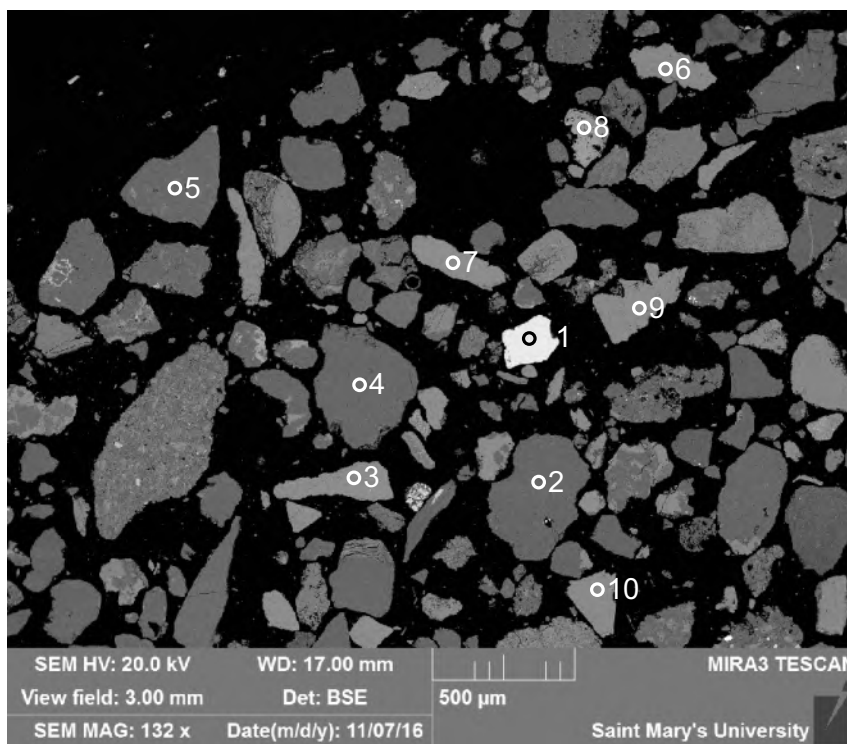
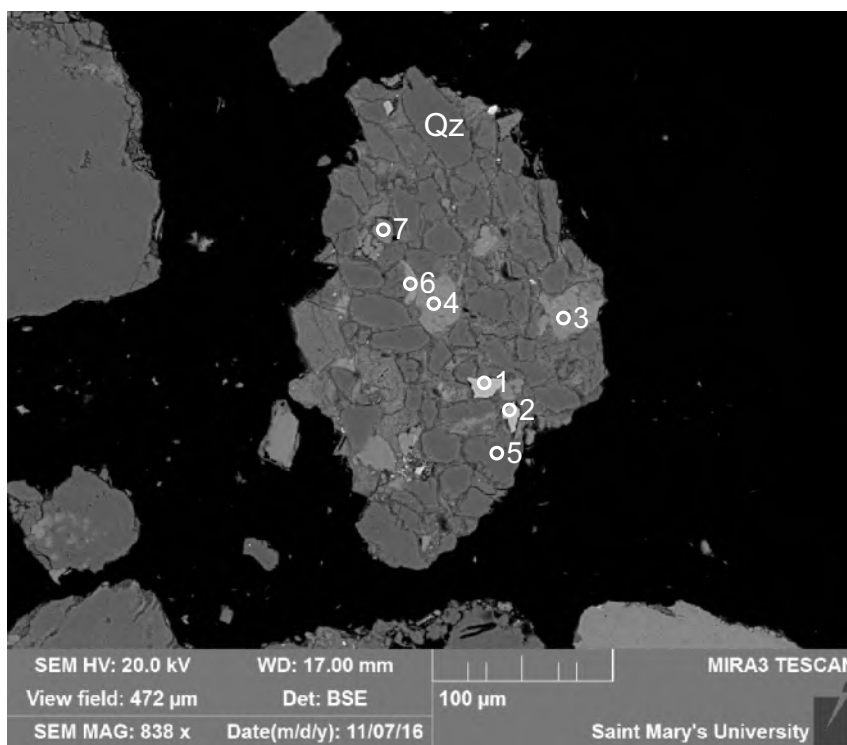


Figure A2:1: Slide S9: Medium to coarse grained sand taken from Upper Arachthos River on the lee side of boulders.



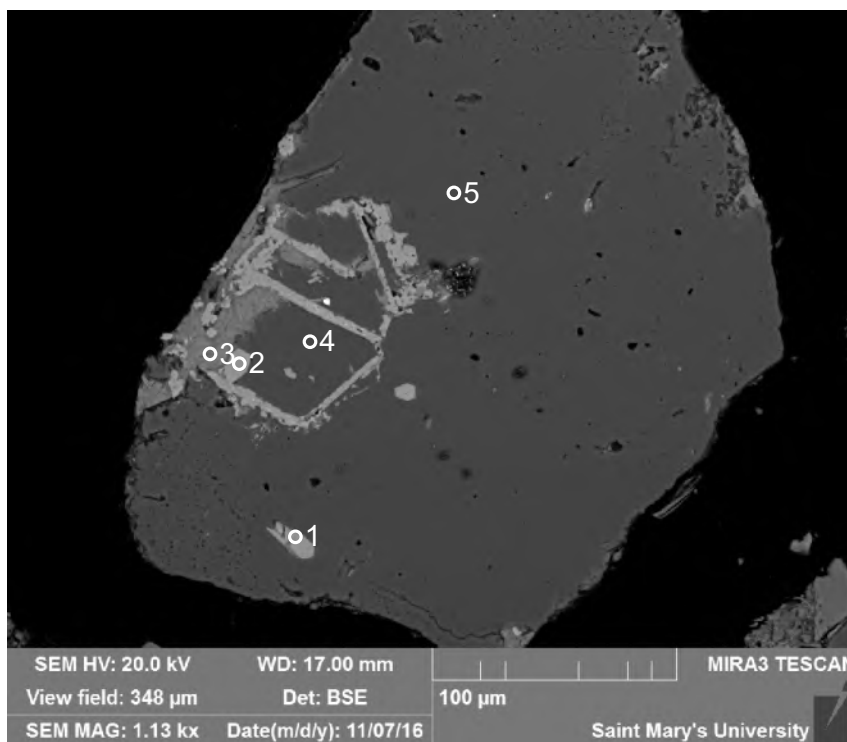
- 1: Chromite
- 2: Quartz
- 3: Calcite
- 4: Quartz
- 5: Quartz
- 6: Calcite
- 7: Calcite
- 8: Clinopyroxene
- 9: Calcite
- 10: Calcite

Figure A2.2: Sample S9 Site 1 (SEM). This site contains: Detrital chromite (1), quartz (2,4,5), calcite (3,6,7,9,10), and clinopyroxene (8).



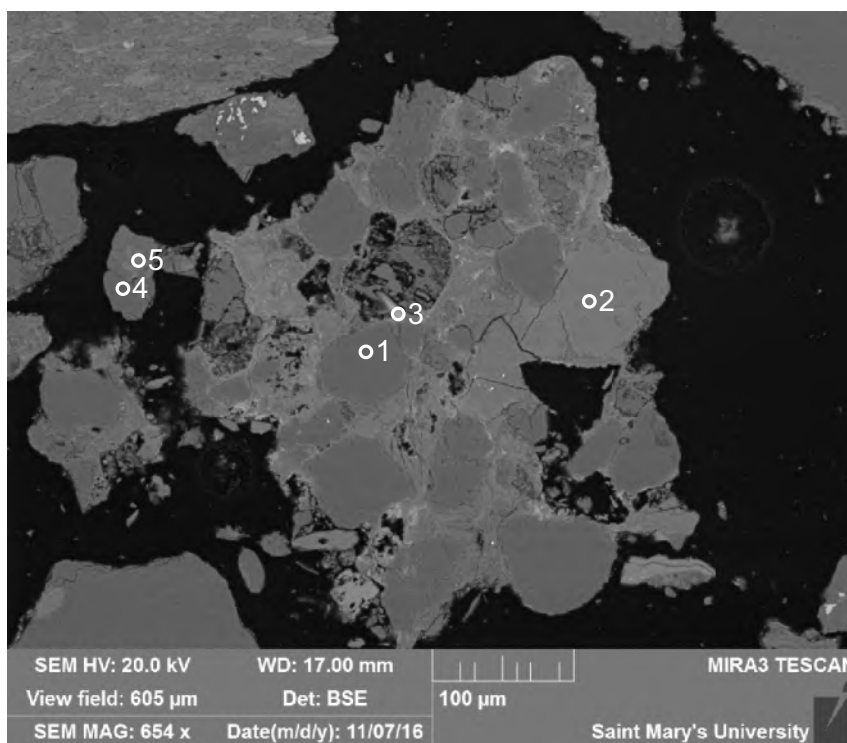
- 1: Garnet (alm)
- 2: Garnet (alm)
- 3: Calcite
- 4: Calcite+
- 5: Albite
- 6: Chlorite
- 7: K-Feldspar

Figure A2.3: Sample S9 Site 2 (SEM). This site contains: Detrital garnet (1, 2), calcite (3, 4), albite (5), chlorite (6) and K-Feldspar (7). Lithic clase: Quartz + Garnet + Calcite + Albite + K-feldspar (1-7, sandstone based on texture).



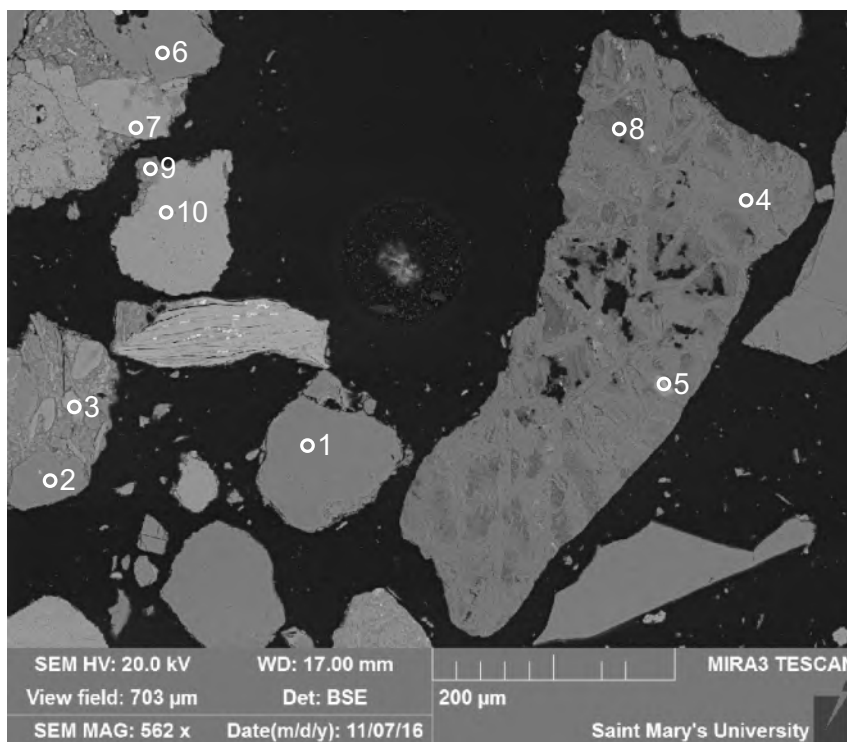
- 1: Apatite
- 2: Titanite
- 3: Chlorite
- 4: Quartz
- 5: Quartz

Figure A2.4: Sample S9 Site 3 (SEM). This site contains: Detrital quartz grain (4, 5) with apatite (1) inclusion and cut by titanite (2) and chlorite (3).



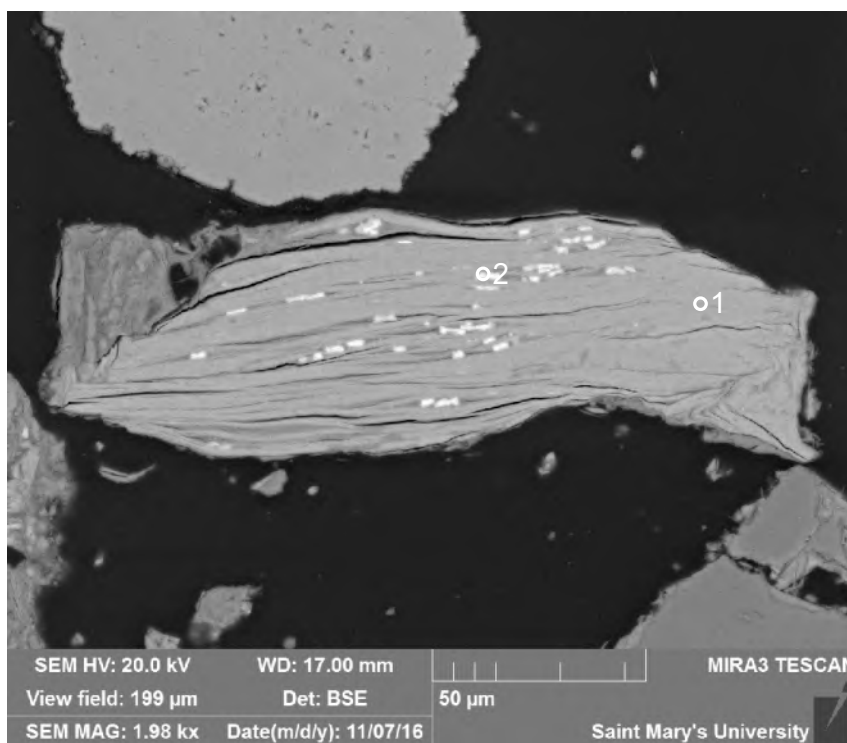
- 1: Quartz
- 2: K-Feldspar
- 3: TiO_2
- 4: Quartz
- 5: Calcite+

Figure A2.5: Sample S9 Site 4 (SEM). This site contains: Detrital quartz (1), K-Feldspar (2), TiO_2 (3), and calcite (5). Lithic clasts: Quartz + Calcite (4-5, cherty limestone); Quartz + K-feldspar + Rutile (1-3, calcareous sandstone).



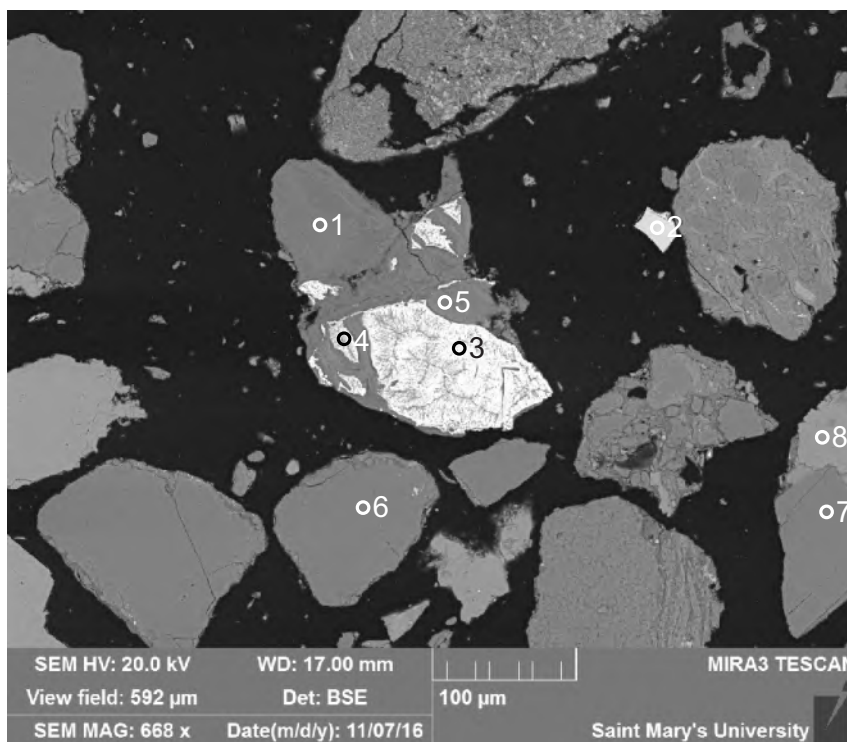
- 1: Quartz
- 2: Quartz
- 3: Calcite+
- 4: Orthopyroxene
- 5: Mix with Ni
- 6: Quartz
- 7: Calcite
- 8: Orthopyroxene
- 9: Quartz
- 10: Calcite

Figure A2.6: Sample S9 Site 5 (SEM). This site contains: Detrital quartz (1,2,6,9), calcite (3,7,10), and orthopyroxene (4,8). Lithic clasts: Quartz + Calcite (6-7,9-10, cherty limestone); Orthopyroxene + ? (4,-5,8, peridotite).



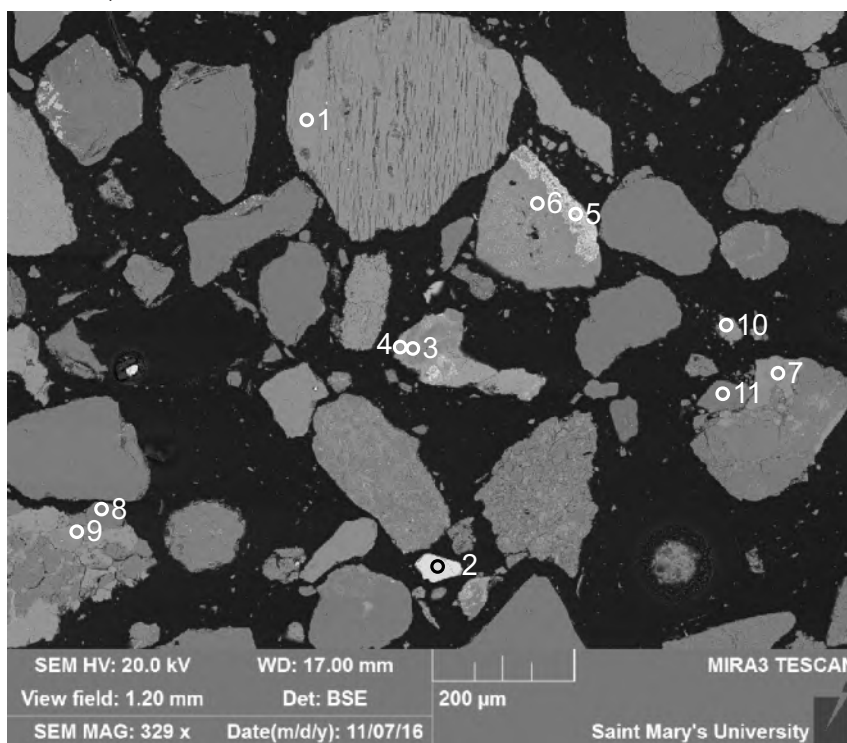
- 1: Chlorite
- 2: Fe-oxide/hydroxide + Chlorite

Figure A2.7: Sample S9 Site 6 (SEM). This site contains: Detrital chlorite (1) with grains of Fe-oxide/hydroxide along its cleavage, from metamorphic rock (2).



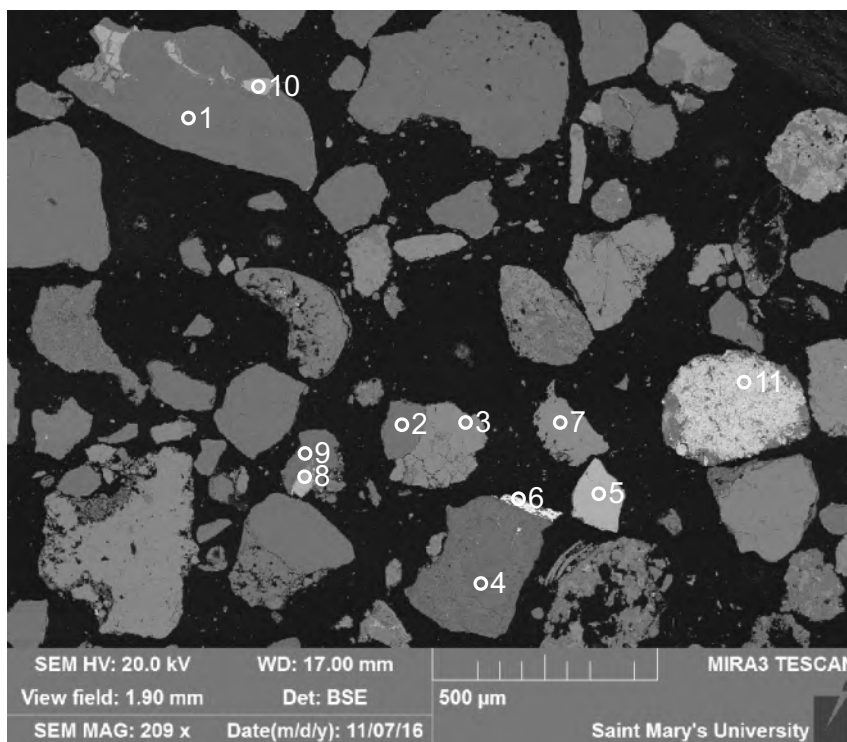
- 1: "Olivine"
- 2: Chromite
- 3: "Chromite" +
- 4: "Chromite" +
- 5: "Olivine"
- 6: Quartz
- 7: Albite
- 8: Calcite

Figure A2.8: Sample S9 Site 7 (SEM). This site contains: Detrital altered olivine (1, 5), altered chromite (3, 4), chromite (2), quartz (6), albite (7) and calcite (8). Lithic clasts: Olivine + Chromite (1,3-5, serpentinite); Calcite + Albite (7-8, sandy limestone).



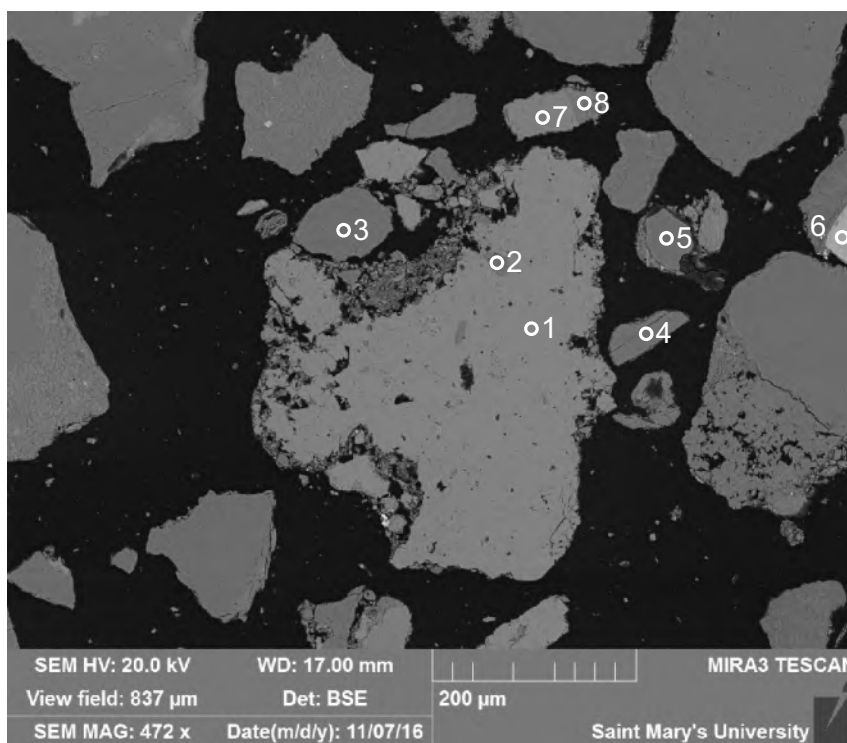
- 1: K-Feldspar (perthite)
- 2: Chromite
- 3: Albite
- 4: Chlorite
- 5: Chlorite
- 6: K-Feldspar +
- 7: Albite
- 8: Quartz
- 9: K-Feldspar
- 10: Calcite
- 11: Quartz

Figure A2.9: Sample S9 Site 8 (SEM). This site contains: Detrital K-feldspar (1, 6, 9), chromite (2), albite (3, 7), quartz (8,11), calcite (10), and chlorite (4-5). Lithic clasts: K-feldspar + Chlorite (5-6, igneous); Albite + Chlorite (3-4, metamorphic); Quartz + K-feldspar (8-9, igneous); Quartz + Albite (7,11, igneous or metamorphic).



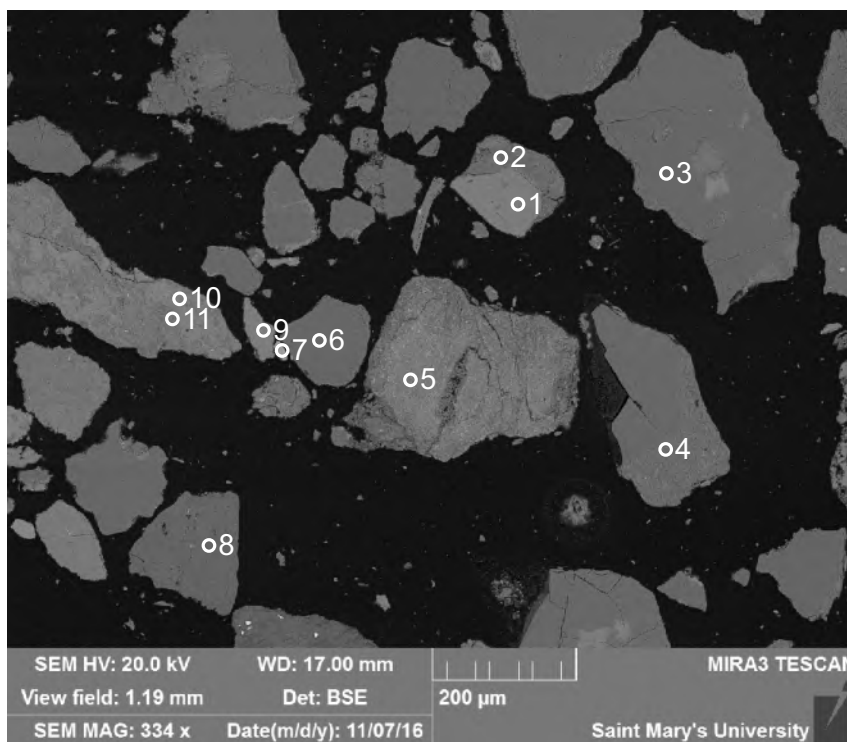
- 1: "Olivine"
- 2: Quartz
- 3: Calcite
- 4: "Olivine"
- 5: Spinel
- 6: Fe-oxide/hydroxide +
- 7: Calcite
- 8: Garnet (Uvarovite)
- 9: "Olivine"
- 10: Garnet (Uvarovite)
- 11: Fe-oxide/hydroxide +

Figure A2.10: Sample S9 Site 9 (SEM). This site contains: Detrital (antigorite) altered olivine (1, 4) that contains patches or veins of uvarovite (8,10), Fe-oxide/hydroxide (6, 11), spinel (5), and calcite (7). Lithic clasts: Quartz + Calcite (2,3, cherty limestone); calcite (7, limestone); "Olivine" + garnet (uvarovite), "Olivine" + Fe-oxide/hydroxides (1,10; 4,6, hydrothermally altered ophiolite).



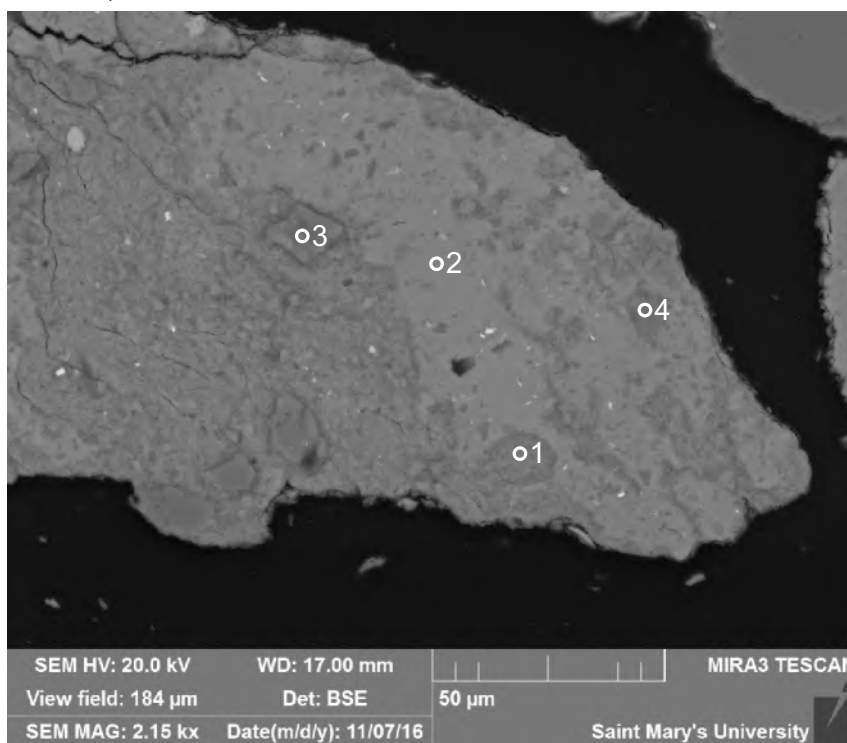
- 1: Calcite
- 2: Quartz
- 3: Quartz
- 4: Albite
- 5: Quartz
- 6: Garnet (Uvarovite)
- 7: K-Feldspar
- 8: Muscovite

Figure A2.11: Sample S9 Site 10 (SEM). This site contains: Detrital calcite (1), quartz (2), albite (4), K-Feldspar (7), muscovite (8), and garnet (uvarovite). Lithic clasts: K-feldspar + muscovite (7-8, igneous or metamorphic); Calcite + Quartz (1-2, cherty limestone); Garnet (uvarovite) (6, hydrothermally altered ophiolite).



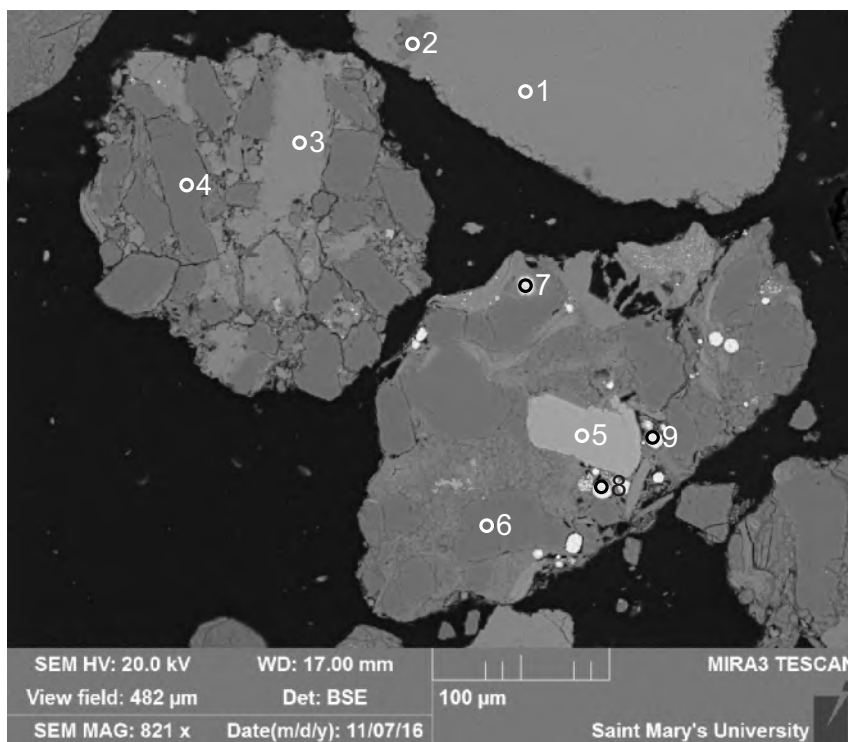
- 1: K-Feldspar
- 2: Quartz +
- 3: Quartz
- 4: Muscovite
- 5: Mix
- 6: Quartz
- 7: Garnet (alm)
- 8: "Olivine"
- 9: Calcite
- 10: Calcite+
- 11: Clay

Figure A2.12: Sample S9 Site 11 (SEM). This site contains: Detrital K-Feldspar (1), quartz (2, 3, 6), and calcite (10). Lithic clasts: K-feldspar + Quartz (1-2, igneous or metamorphic); Quartz + Garnet (6-7, ?metamorphic); Calcite (10-11, limestone).



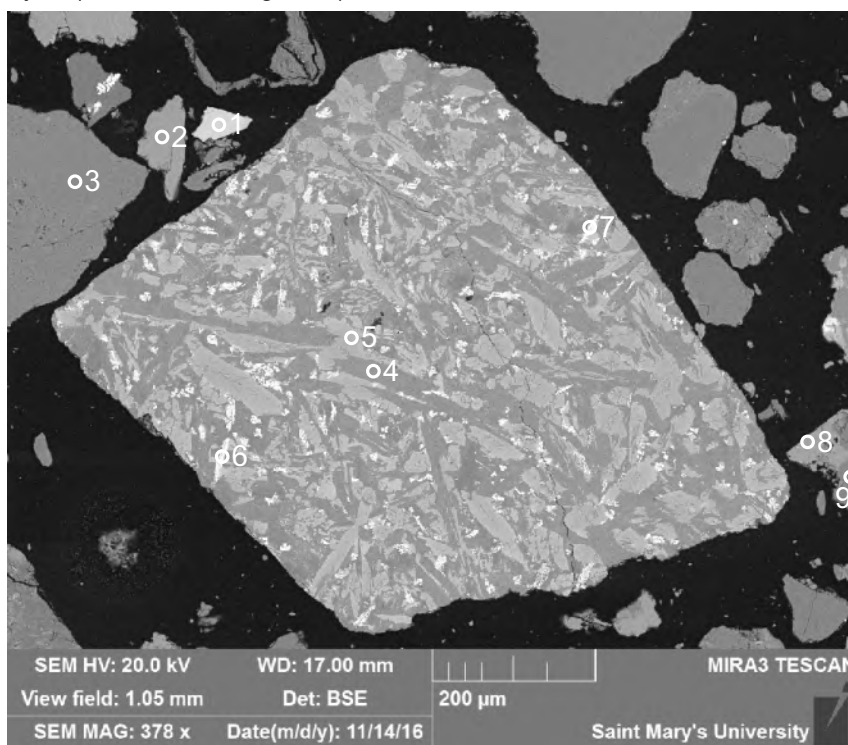
- 1: Clay
- 2: Calcite
- 3: Quartz+
- 4: Albite

Figure A2.13: Sample S9 Site 12 (SEM). This site contains: Detrital calcite (2), albite (4), quartz (3) and possible clay minerals (1). Lithic clast Calcite + Albite + Quartz (2-4, calcareous siltstone).



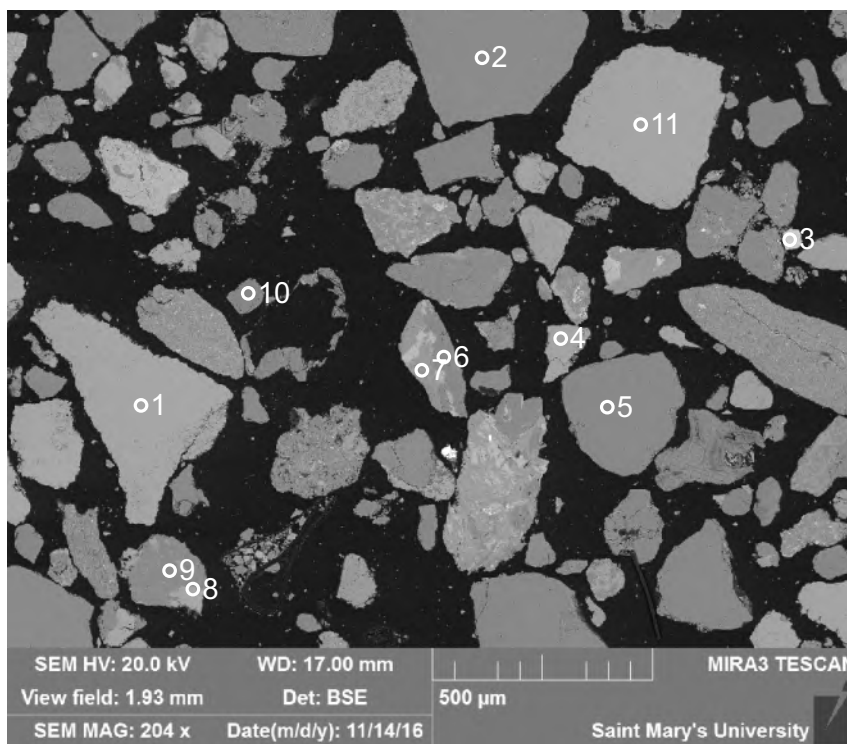
- 1: Calcite
- 2: Quartz +
- 3: Calcite
- 4: Quartz
- 5: Apatite
- 6: Albite
- 7: Pyrite
- 8: Pyrite
- 9: Pyrite

Figure A2.14: Sample S9 Site 13 (SEM). This site contains: Detrital calcite (1,3), quartz (2,4), and albite (6) with apatite (5) inclusion and grains of pyrite (7-9). Lithic clasts: Quartz + Calcite (3-4, calcareous sandstone); Albite + Apatite + Pyrite (5-9, mineralized igneous).



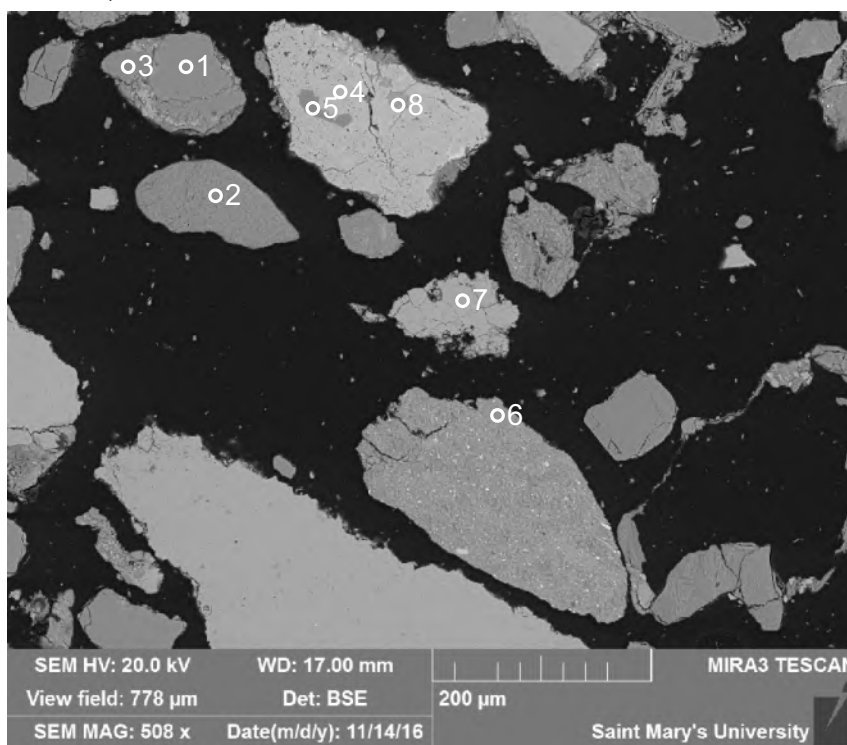
- 1: Spinel
- 2: Calcite
- 3: Quartz
- 4: Plagioclase
- 5: Clinopyroxene
- 6: Fe-oxide/hydroxide +
- 7: Fe-oxide/hydroxide +
- 8: Calcite
- 9: Quartz

Figure A2.15: Sample S9 Site 14 (SEM). This site contains: Detrital spinel (1), calcite (2), quartz (3), plagioclase (4), and grains of Fe-oxide/hydroxide (6, 7). Lithic clast: Plagioclase + Clinopyroxene + Fe-oxide/hydroxide (5-7, basalt); Calcite + Quartz (8-9, cherty limestone or calcareous sandstone).



- 1: Calcite
- 2: Quartz +
- 3: Garnet
- 4: Calcite
- 5: Quartz
- 6: Quartz
- 7: Clay
- 8: Calcite
- 9: Quartz
- 10: Dolomite
- 11: Calcite

Figure A2.16: Sample S9 Site 15 (SEM). This site contains: Detrital quartz (2,5-6,9), calcite (1,4,8,11), garnet (3), dolomite (10), and clay minerals (7). Lithic clast: Calcite + Quartz (8-9, cherty limestone or calcareous sandstone); Calcite (1,11, limestone).



- 1: Albite
- 2: Orthopyroxene
- 3: Quartz
- 4: Epidote
- 5: Quartz
- 6: Quartz+
- 7: Calcite
- 8: Chlorite +

Figure A2.17: Sample S9 Site 16 (SEM). This site contains: Detrital orthopyroxene (2), albite (1), quartz (3,5-6), epidote (4), and chlorite (8). Lithic clasts: Albite + Quartz (1,3, igneous or metamorphic); Epidote + Quartz + Chlorite (4,5,8, hydrothermal); Calcite (7, limestone).

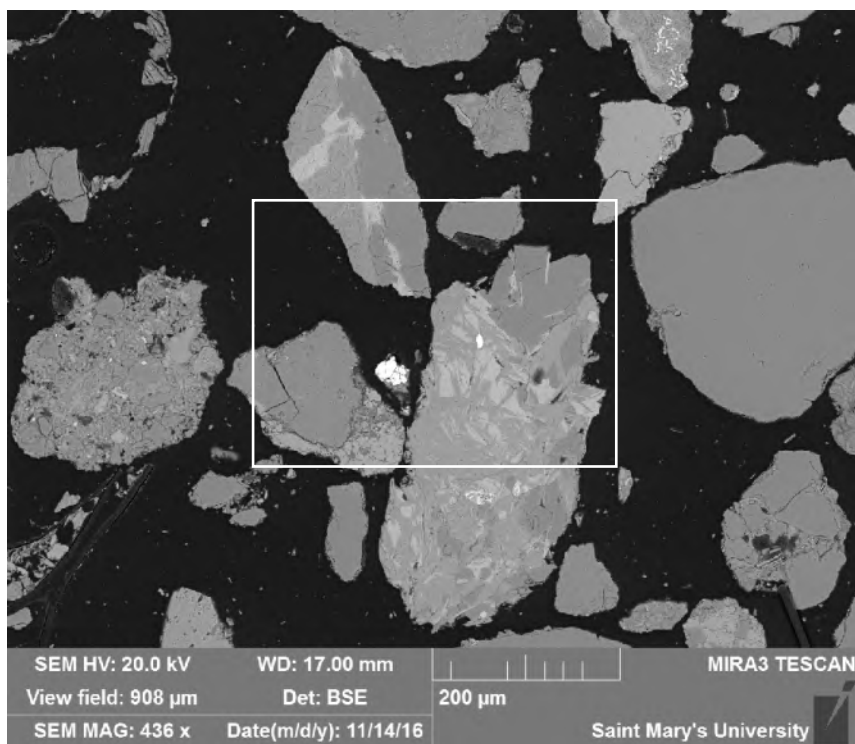
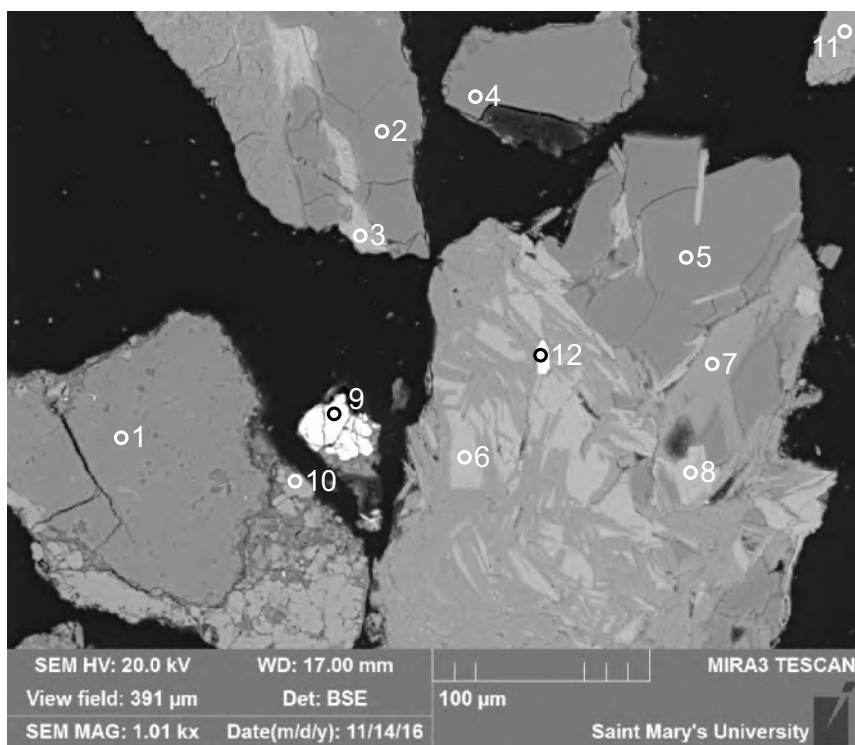
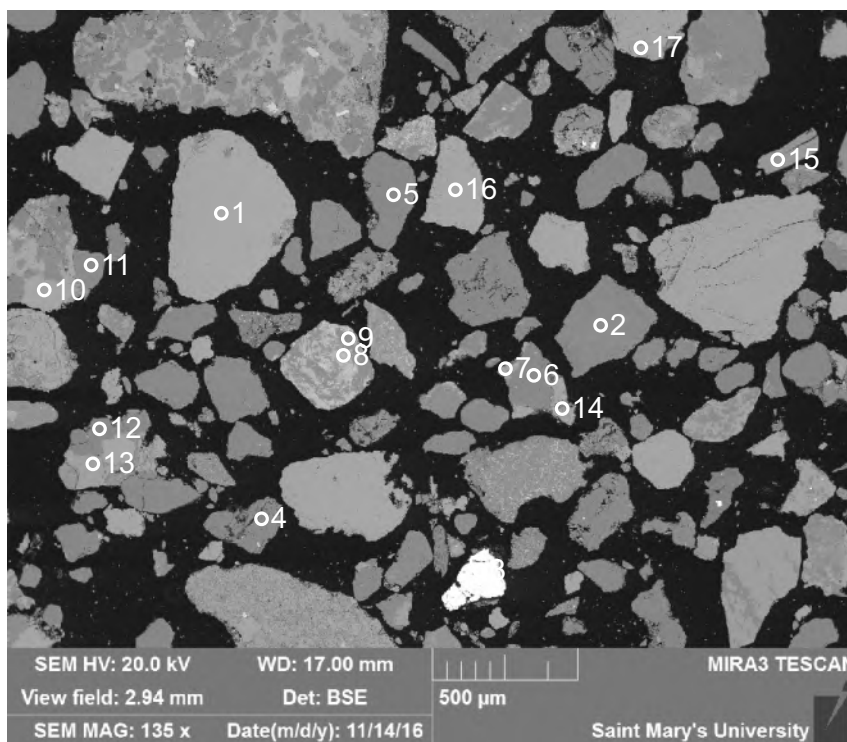


Figure A2.18: Sample S9 (SEM).



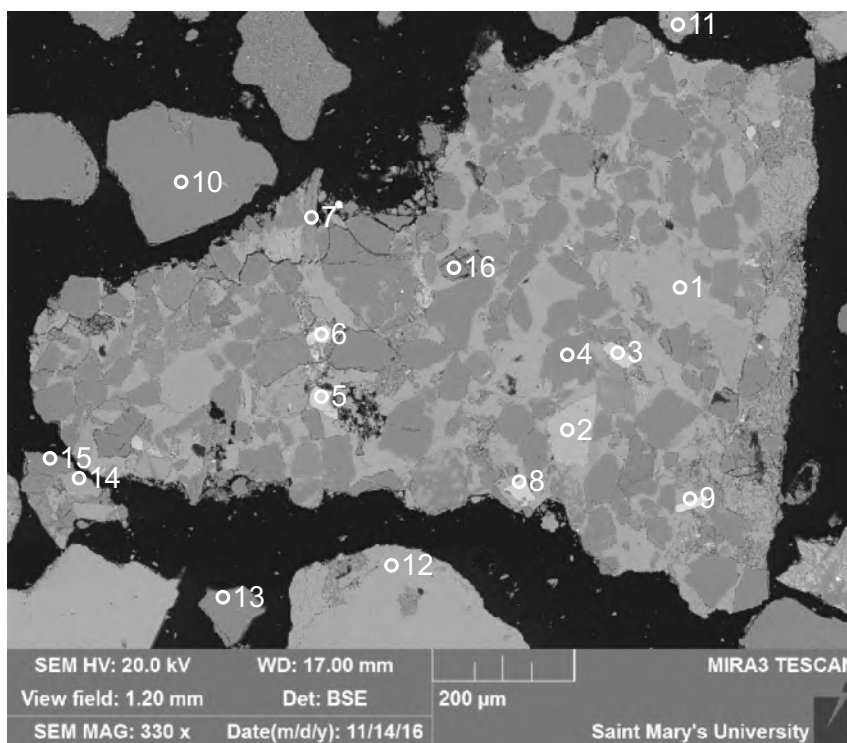
- 1: Quartz +
- 2: Quartz
- 3: Chlorite
- 4: Quartz
- 5: Quartz
- 6: Chlorite
- 7: Muscovite
- 8: Chlorite
- 9: Magnetite +
- 10: Calcite
- 11: Calcite
- 12: Zircon

Figure A2.19: Sample S9 Site 17 (SEM). This site contains: Detrital quartz (1,2,4,5), muscovite (7), chlorite (3,6, 8), zircon (12), and calcite (10,11). Lithic clasts: Quartz + Calcite (1,10, cherty limestone or calcareous sandstone); Quartz + Chlorite (2,3, metamorphic); Quartz + Muscovite + Chlorite + Zircon (5-8,12, metamorphic).



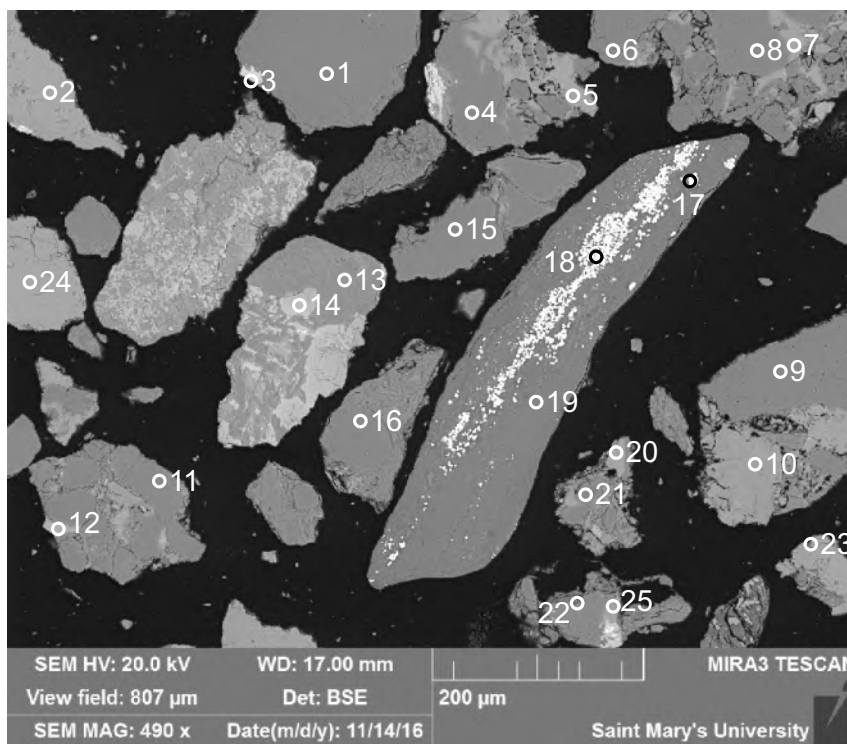
- 1: Calcite
- 2: "Olivine"
- 3: Fe-oxide/hydroxide
- 4: Albite
- 5: Quartz
- 6: Quartz
- 7: Calcite+
- 8: Chlorite + Albite
- 9: Albite +
- 10: Calcite
- 11: Quartz
- 12: Quartz
- 13: K-Feldspar
- 14: Calcite
- 15: K-Feldspar +
- 16: Calcite
- 17: Calcite

Figure A2.20: Sample S9 Site 18 (SEM). This site contains: Detrital "olivine" (2), calcite (1,7,10), quartz (11,12), K-Feldspar (13,15), chlorite (8) and albite (8,9). Lithic clasts: Quartz + Calcite (6,7,14,10-11), cherty limestone or calcareous sandstone; Albite + Chlorite (8,9, metamorphic); K-feldspar + Quartz (12-13, igneous); Calcite (1, limestone).



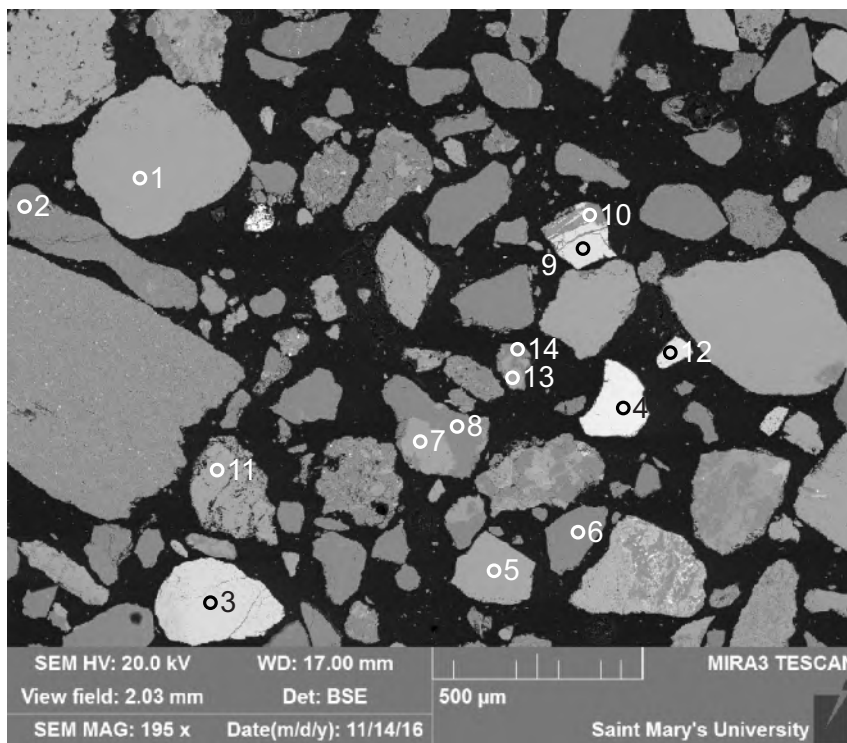
- 1: Calcite
- 2: Epidote
- 3: Spinel
- 4: Albite
- 5: Garnet
- 6: Titanite +
- 7: Muscovite
- 8: Garnet
- 9: TiO_2
- 10: Quartz
- 11: Calcite
- 12: Calcite
- 13: Quartz
- 14: K-Feldspar
- 15: Albite
- 16: Dolomite

Figure A2.21: Sample S9 Site 19 (SEM). This site contains: Detrital calcite (1), dolomite (16), albite (4,15) garnet (5, 8), epidote (2), titanite (6), TiO_2 (9), muscovite (7), spinel (3), quartz (10,13), and K-feldspar (14). Lithic clasts: Albite + K-feldspar (14-15, igneous); Calcite (11-12, limestone); Calcite + Epidote + Spinel + Albite + Garnet + Titanite + Muscovite + Titania + Dolomite (1-9,16, calcareous sandstone).



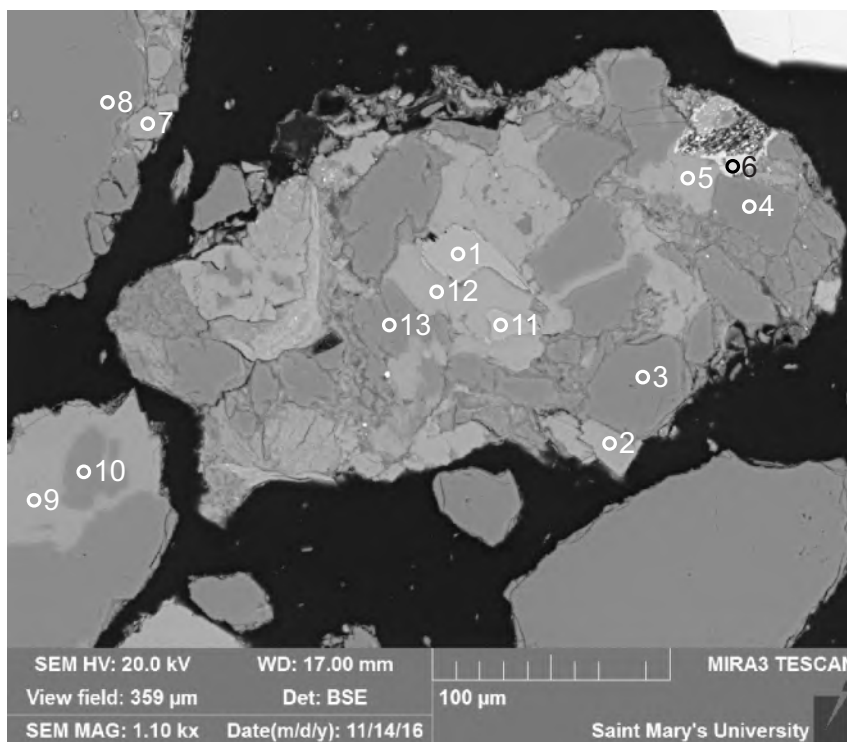
- 1: Quartz
- 2: Calcite
- 3: TiO_2
- 4: Quartz
- 5: Calcite
- 6: Albite
- 7: Calcite+
- 8: Quartz
- 9: Quartz
- 10: K-Feldspar
- 11: Quartz
- 12: Chlorite
- 13: K-Feldspar
- 14: Amphibole (Actinolite)
- 15: Quartz
- 16: Quartz
- 17: Fe-oxide/hydroxide +
- 18: Fe-oxide/hydroxide +
- 19: Orthopyroxene
- 20: Calcite
- 21: Quartz
- 22: Albite
- 23: Calcite
- 24: Calcite
- 25: Chlorite

Figure A2.22: Sample S9 Site 20 (SEM). This site contains: Detrital quartz (1, 4, 8, 9, 11, 15, 16, 21), calcite (2, 5, 7, 20, 23, 24), K-Feldspar (10, 13), albite (6, 22), TiO_2 (3), and Fe-Oxide/hydroxide (17,18), along with chlorite (12, 25), amphibole (14), and orthopyroxene (19). Lithic clasts: Quartz + K-feldspar (9-10, igneous); Orthopyroxene + Fe-oxide/hydroxide (17-19, Peridotite); K-feldspar + Amphibole (13-14, igneous); Calcite + Quartz (4-5,7-8, cherty limestone); Calcite + Quartz (20,21, cherty limestone); Albite + Chlorite (22,25, metamorphic).



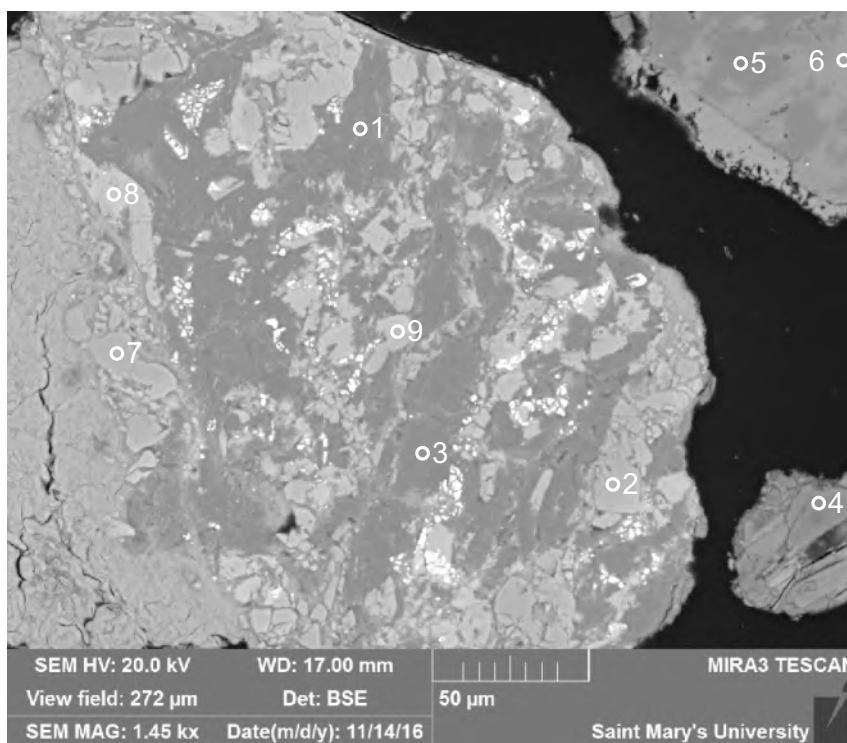
- 1: Calcite
- 2: Quartz
- 3: Garnet (Andradite)
- 4: Chromite
- 5: Calcite
- 6: Quartz
- 7: Calcite
- 8: Quartz
- 9: Spinel
- 10: Chlorite
- 11: Calcite
- 12: Chromite
- 13: Calcite
- 14: Quartz

Figure A2.23: Sample S9 Site 21 (SEM). This site contains: Detrital garnet (3), chromite (4, 12), spinel (9), calcite (1,5,7,13), quartz (2,6,8,14), and chlorite (10). Lithic clasts: Calcite (1, limestone); Calcite + Quartz (5-6,13-14, cherty limestone).



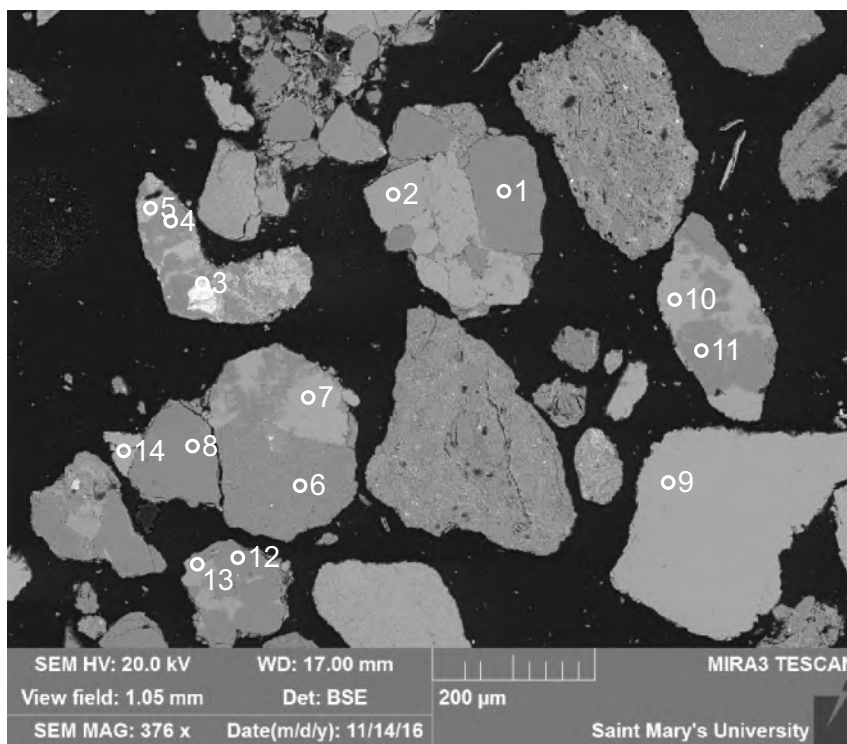
- 1: Chloritoid
- 2: K-Feldspar + Calcite
- 3: Quartz
- 4: Quartz
- 5: Calcite
- 6: TiO₂
- 7: K-Feldspar
- 8: Quartz
- 9: K-Feldspar
- 10: Quartz
- 11: Chloritoid
- 12: Calcite
- 13: Albite

Figure A2.24: Sample S9 Site 22 (SEM). This site contains: Detrital quartz (3, 4, 8, 10), calcite (5, 12), K-Feldspar (2,7,9), albite (13), chloritoid (1,11), and grains of TiO₂ (6). Lithic clasts: Quartz + K-feldspar (7-8, igneous or metamorphic); Quartz + K-feldspar (9-10, igneous); Quartz + K-feldspar + Albite + Calcite + Chloritoid (1-6,11-13, sandstone).



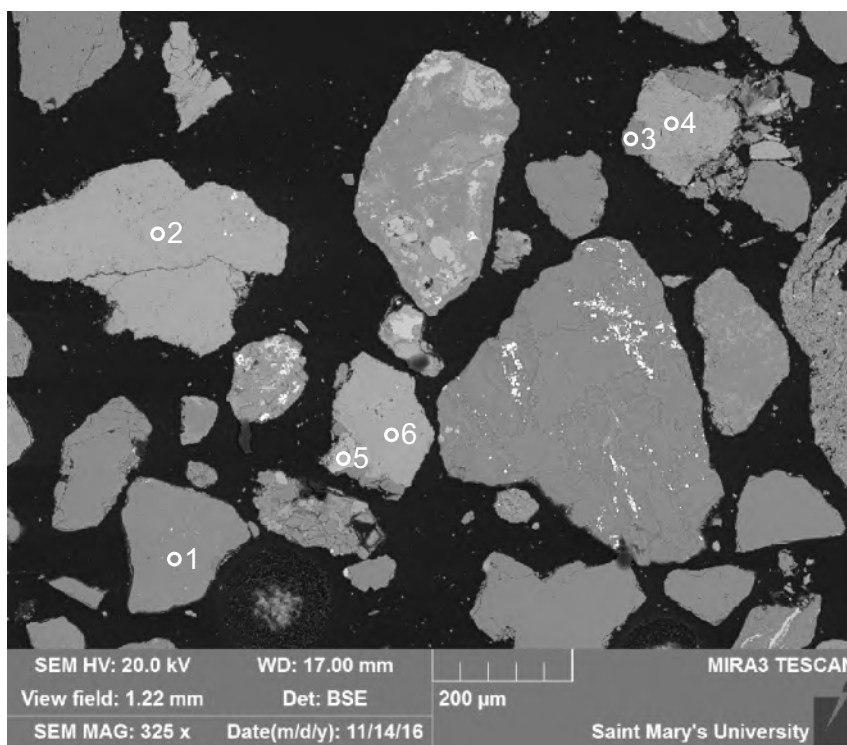
- 1: Albite +
- 2: Clinopyroxene
- 3: Albite
- 4: Albite
- 5: Albite
- 6: K-Feldspar
- 7: Clinopyroxene
- 8: Titanite
- 9: Clinopyroxene

Figure A2.25: Sample S9 Site 23 (SEM). This site contains: Detrital albite (1, 3, 4, 5), K-Feldspar (6), clinopyroxene (2,7,9), and titanite (8). Lithic clasts: Albite + K-feldspar (5-6, igneous); Clinopyroxene + Albite + Titanite (1-3,7-9, Ab-Cpx schist with minor titanite), metaophiolite.



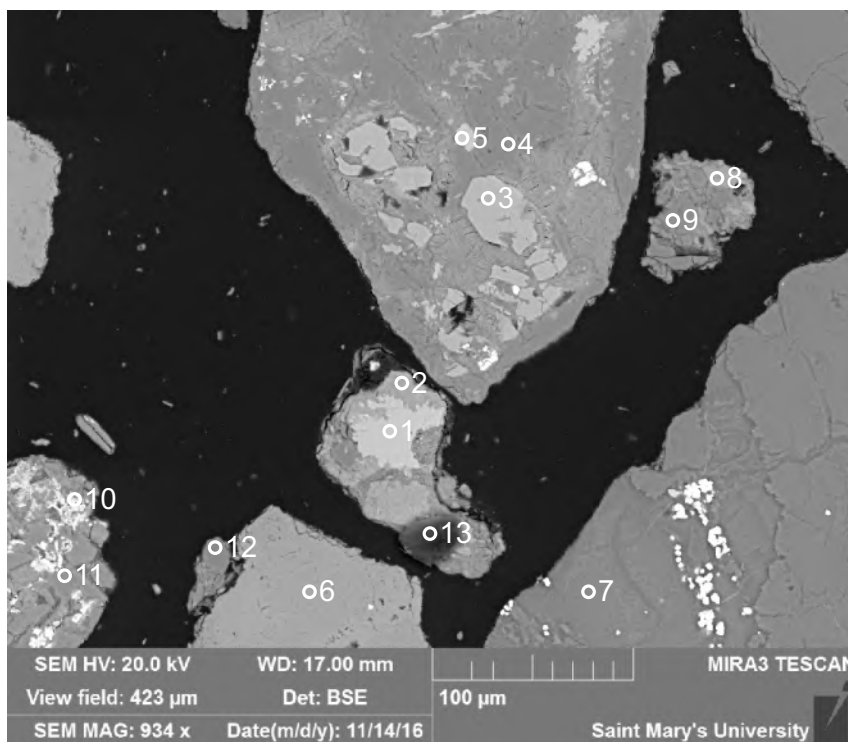
- 1: Quartz
- 2: K-Feldspar
- 3: Mix
- 4: Albite
- 5: Actinolite
- 6: Quartz+
- 7: Calcite
- 8: Quartz
- 9: Calcite
- 10: Calcite
- 11: Quartz +
- 12: Quartz
- 13: K-Feldspar
- 14: Calcite

Figure A2.26: Sample S9 Site 24 (SEM). This site contains: Detrital quartz (1, 6, 8, 11, 12), calcite (7, 9, 10, 14), albite (4) and K-Feldspar (2,13), and detrital actinolite (5). Lithic clasts: Quartz + Calcite (10-11,14,8,6-7, cherty limestone); Quartz + K-feldspar (1-2,12-13, igneous); Albite + Actinolite (4-5, igneous or metamorphic).



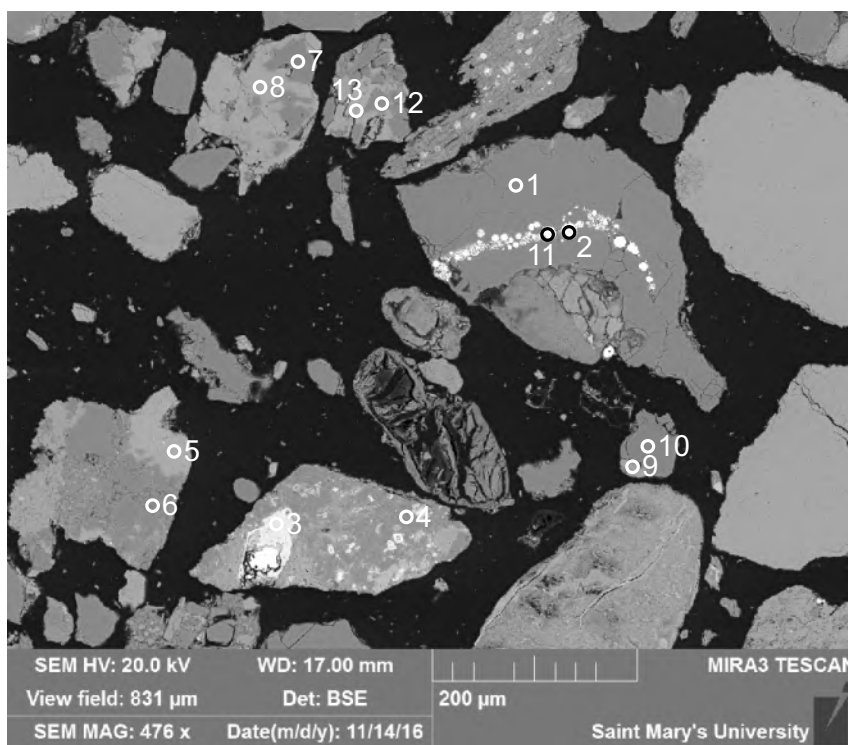
- 1: Quartz
- 2: Calcite
- 3: Albite
- 4: Calcite
- 5: Spinel
- 6: Calcite

Figure A2.27: Sample S9 Site 25 (SEM). This site contains: Detrital quartz (1), calcite (2,4,6), albite (3), and spinel (5). Lithic clasts: Calcite (2, limestone); Calcite + Albite (3-4, metamorphic or sandy limestone); Calcite + Spinel (5-6, metaophiolite).



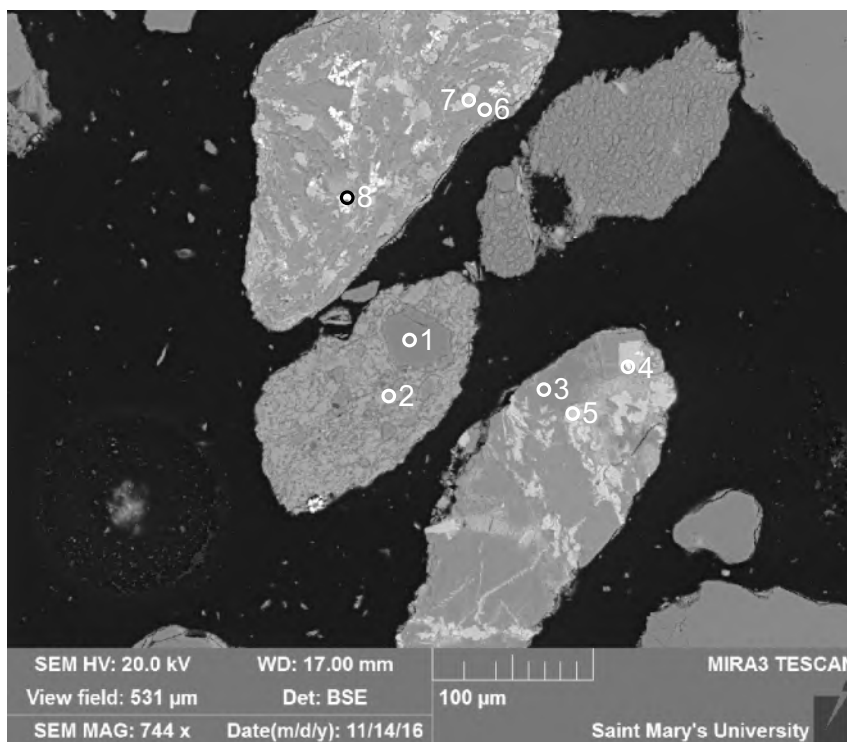
- 1: Titanite
- 2: Chlorite
- 3: Clinopyroxene
- 4: Glaucophane
- 5: Titanite
- 6: Calcite
- 7: Orthopyroxene
- 8: Calcite +
- 9: Albite +
- 10: Ilmenite +
- 11: Feldspar
- 12: Albite
- 13: Mix

Figure A2.28: Sample S9 Site 26 (SEM). This site contains: Detrital titanite (1,5), albite (9,11,12), clinopyroxene (3), ilmenite (10), calcite (6), ?glaucophane (4), and chlorite (2). Lithic clasts: Calcite + Albite (8-9, metamorphic or sandy limestone); Albite + Ilmenite (10-11, igneous); Clinopyroxene + Titanite + Glaucophane (3-5, glaucophane crystal with inclusions?, metamorphic); Orthopyroxene + Fe-oxide/hydroxides (7), ophiolite.



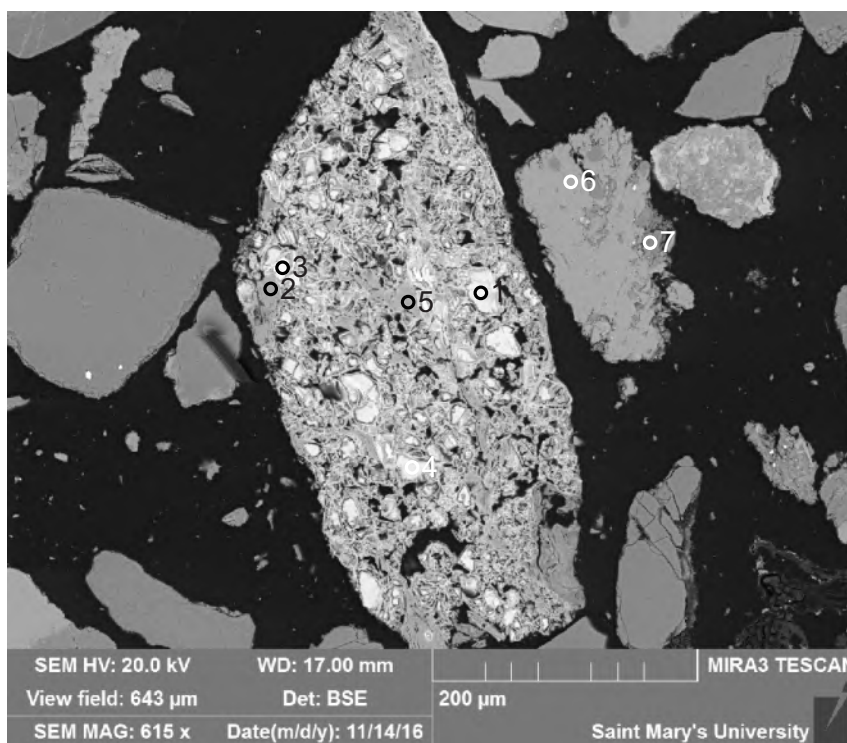
- 1: Quartz
- 2: Pyrite
- 3: Fe-Oxide/hydroxide +
- 4: Albite +
- 5: Calcite
- 6: Quartz
- 7: Dolomite
- 8: Calcite
- 9: Calcite
- 10: Dolomite
- 11: Pyrite
- 12: Albite
- 13: Chlorite

Figure A2.29: Sample S9 Site 27 (SEM). This site contains: Detrital quartz (1, 6), calcite (5, 8, 9), albite (4,12), chlorite (13), and dolomite (7,10). Lithic clasts: Calcite + Dolomite (7-8, 9-10, limestone); Albite + Chlorite (12-13, metamorphic); Calcite + Quartz (5-6, cherty limestone); Quartz + Pyrite (1-2,11, quartz crystals with pyrite patches/inclusions, hydrothermal); Albite + Fe-oxide/hydroxide (3-4, albite grain with Feohy patches, hydrothermal).



- 1: Dolomite
- 2: Calcite
- 3: Quartz+
- 4: Titanite
- 5: Mix
- 6: Plagioclase +
- 7: Clinopyroxene
- 8: Fe-oxide/hydroxide +

Figure A2.30: Sample S9 Site 28 (SEM). This site contains: Detrital quartz (3), calcite (2) and albite (6) with detrital garnet (8), clinopyroxene (7) and grains of titanite (4). Lithic clasts: Albite + Clinopyroxene + Fe-oxide/hydroxide (6-8, deformed igneous); Dolomite (1-2) (limestone); Quartz-Titanite rock (3-5, metamorphic).



- 1: Fe-Oxide/hydroxide +
- 2: Chlorite
- 3: Pyrite
- 4: Fe-Oxide/hydroxide +
- 5: Chlorite
- 6: Calcite +
- 7: Quartz

Figure A2.31: Sample S9 Site 29 (SEM). This site contains: Detrital chlorite (2, 5), Fe-oxide/hydroxide (1, 4), pyrite (3), calcite (6) and quartz (7). Lithic clasts: Calcite + Quartz (6-7, cherty limestone); Fe-oxide/hydroxide + Chlorite (1-5, pedogenic intraclast).

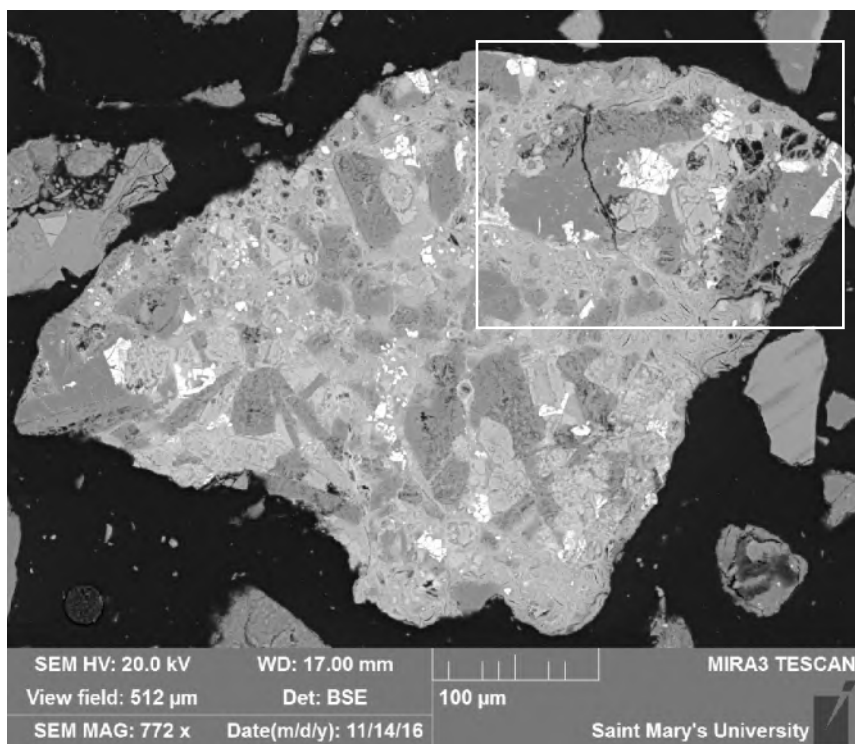
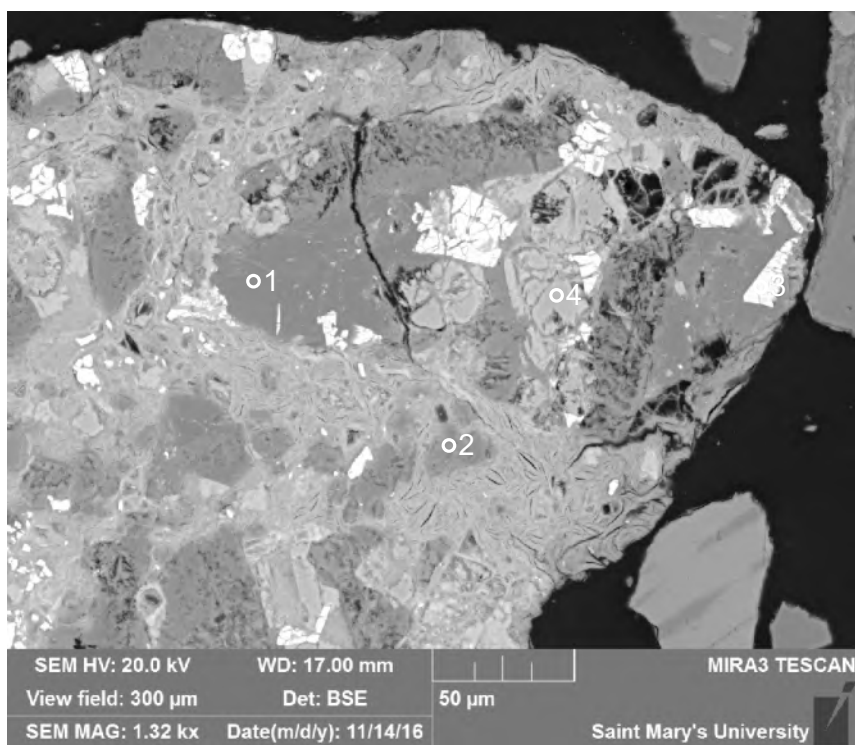
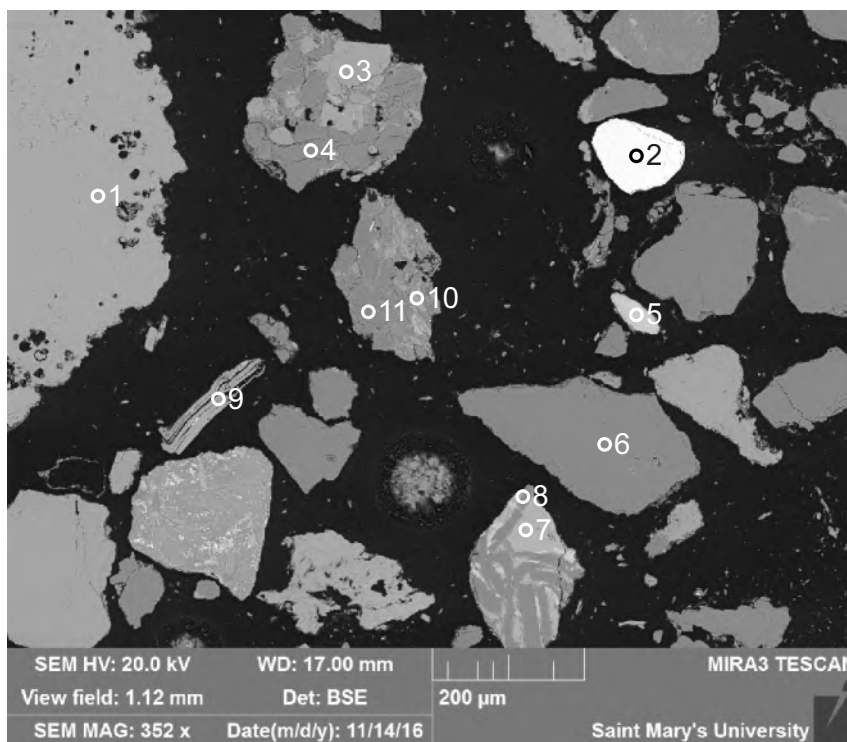


Figure A2.32: Sample S9 (SEM).



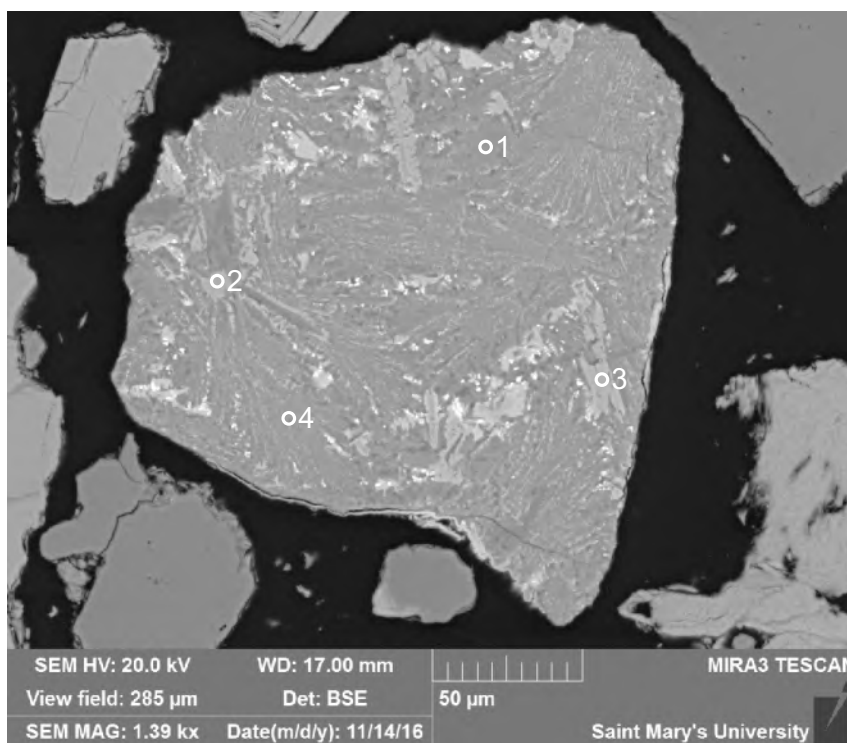
- 1: Quartz
- 2: Albite + Chlorite
- 3: Fe-Oxide/hydroxide +
- 4: Amphibole (Actinolite)

Figure A2.33: Sample S9 Site 30 (SEM). This site contains: Detrital quartz (1) with grains of Fe-oxide/hydroxide (3) and amphibole (4). Lithic clast: Quartz + Albite + Chlorite + Fe-oxide/hydroxide + Amphibole (1-4, ?pedogenic intraclast or calcareous sandstone).



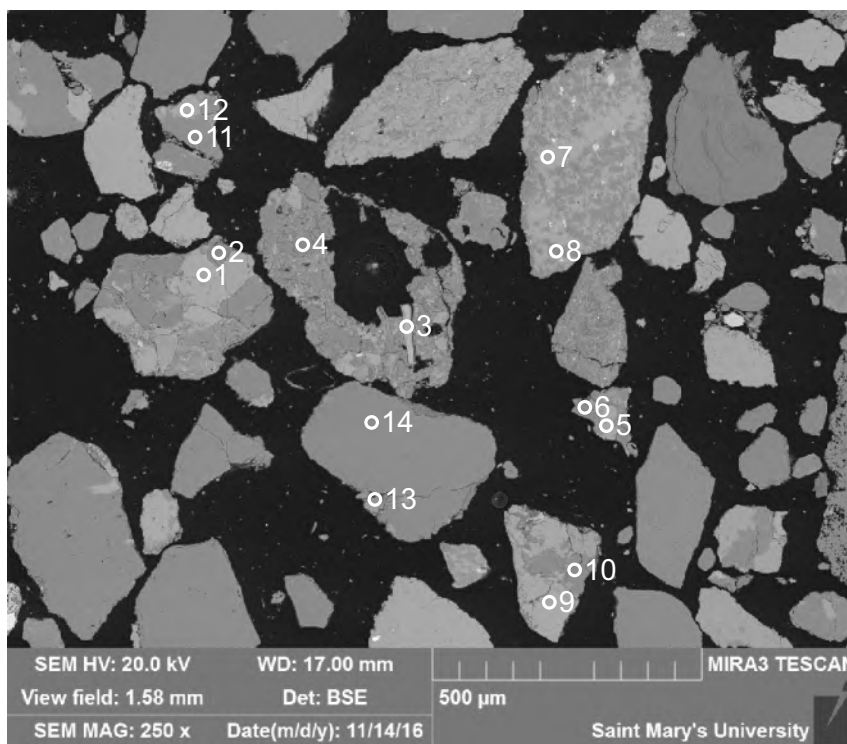
- 1: Calcite
- 2: Chromite
- 3: Calcite
- 4: Albite
- 5: Titanite
- 6: Quartz
- 7: Chlorite
- 8: Albite
- 9: Chlorite
- 10: Calcite
- 11: Quartz

Figure A2.34: Sample S9 Site 31 (SEM). This site contains: Detrital calcite (1, 3, 10), albite (4, 8), chromite (2), quartz (6, 11), and chlorite (7, 9). Lithic clasts: Calcite (1, limestone); Albite + Calcite (3-4, metamorphic); Quartz + Calcite (10-11, cherty limestone); Albite + Chlorite (7-8, metamorphic).



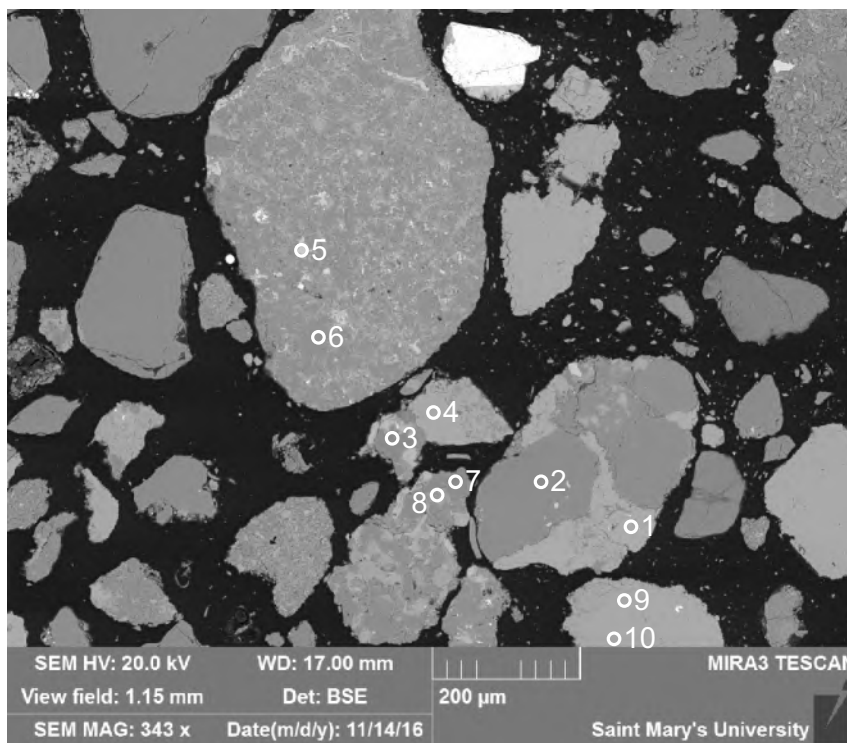
- 1: Oligoclase + Chlorite
- 2: Clinopyroxene
- 3: Clinopyroxene
- 4: Glaucophane

Figure A2.35: Sample S9 Site 32 (SEM). This site contains: Detrital oligoclase, and chlorite (1), clinopyroxene (2,3), and glaucophane (4). Lithic clast: glaucophane, clinopyroxene, oligoclase, and chlorite (1-4, metamorphic).



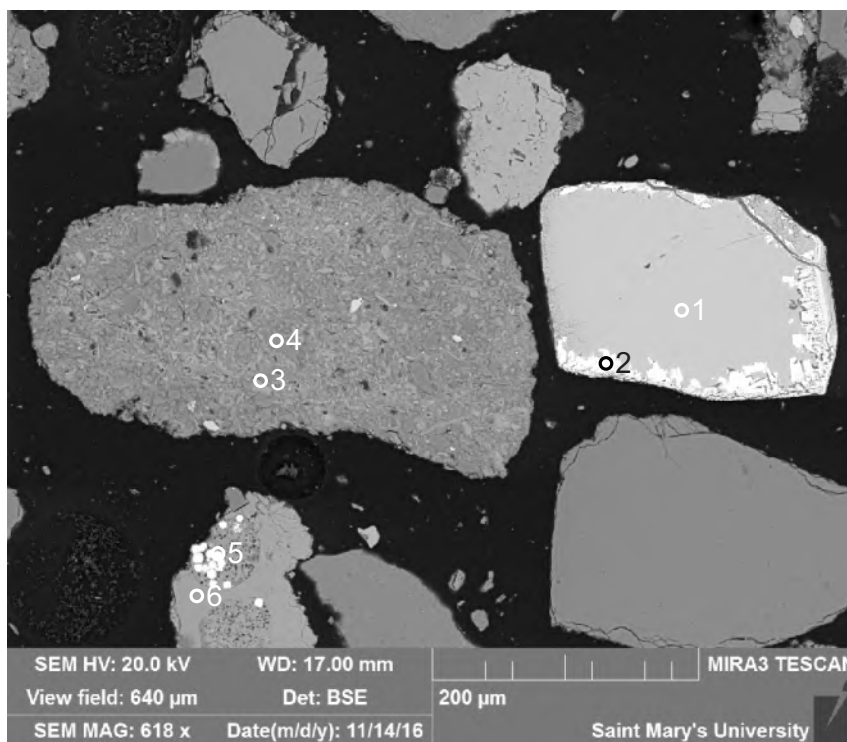
- 1: Calcite
- 2: Dolomite
- 3: Mix
- 4: Quartz
- 5: Calcite
- 6: Quartz
- 7: Calcite
- 8: Quartz+
- 9: Calcite
- 10: Quartz
- 11: Quartz +
- 12: Calcite
- 13: Mix
- 14: Quartz

Figure A2.36: Sample S9 Site 33 (SEM). This site contains: Detrital calcite (1,5,7,9,12), dolomite (2), and quartz (4,6,8,10,11,14). Lithic clasts: Calcite + Dolomite (1-2, limestone); Quartz + Calcite (5-6,7-8,9-10,11-12 cherty limestones).



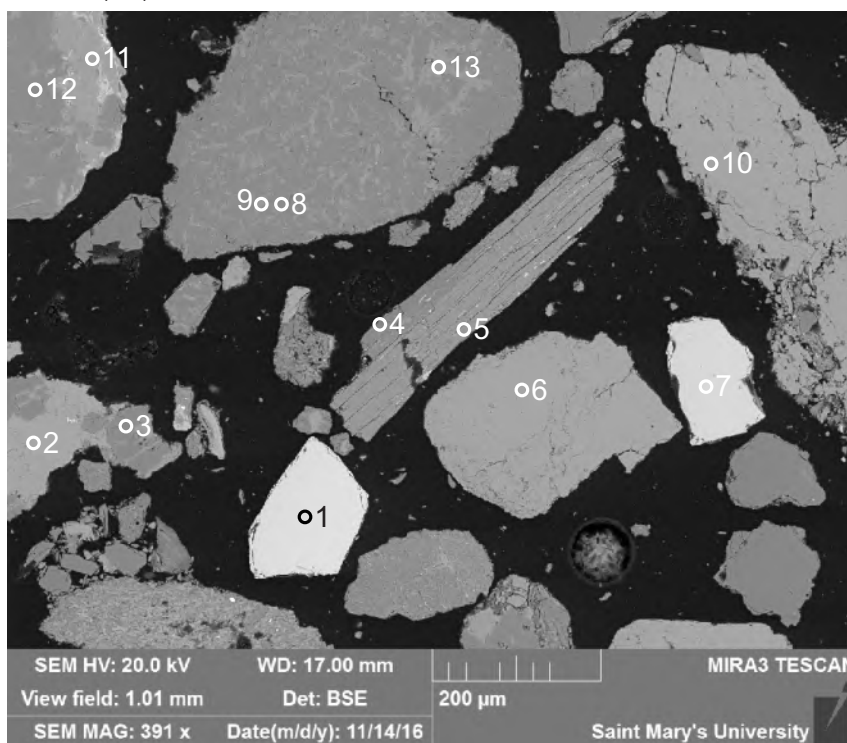
- 1: Calcite
- 2: Quartz
- 3: Quartz
- 4: Calcite
- 5: Titanite
- 6: Albite
- 7: Quartz
- 8: Calcite+
- 9: Calcite + Chlorite +
- 10: Calcite

Figure A2.37: Sample S9 Site 34 (SEM). This site contains: Detrital albite (6), titanite (5), and calcite (1,4,8-10). Lithic clasts: Quartz + Calcite (1-2,3-4,7-8, cherty limestones); Albite + Titanite (5-6, metamorphic).



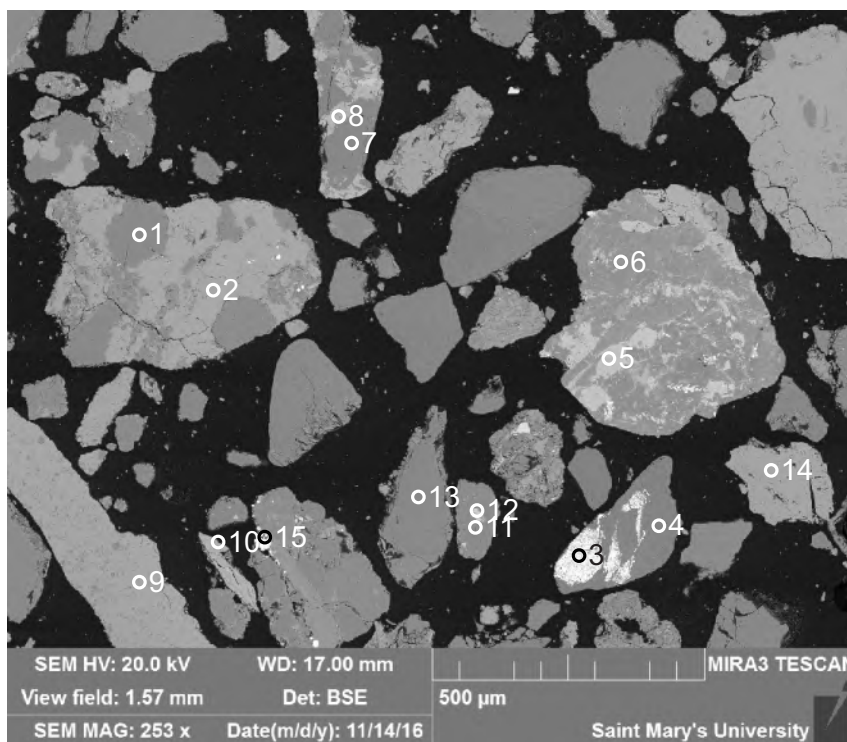
- 1: Spinel
- 2: "Chromite"
- 3: Mix ?
- 4: Quartz +
- 5: Pyrite
- 6: Calcite

Figure A2.38: Sample S9 Site 35 (SEM). This site contains: Detrital spinel (1), altered chromite (2), calcite (6), and pyrite (5). Lithic clasts: Spinel + Chromite (1-2, ophiolite); Calcite + Pyrite (5-6, hydrothermally altered limestone); Calcareous siltstone (3-4).



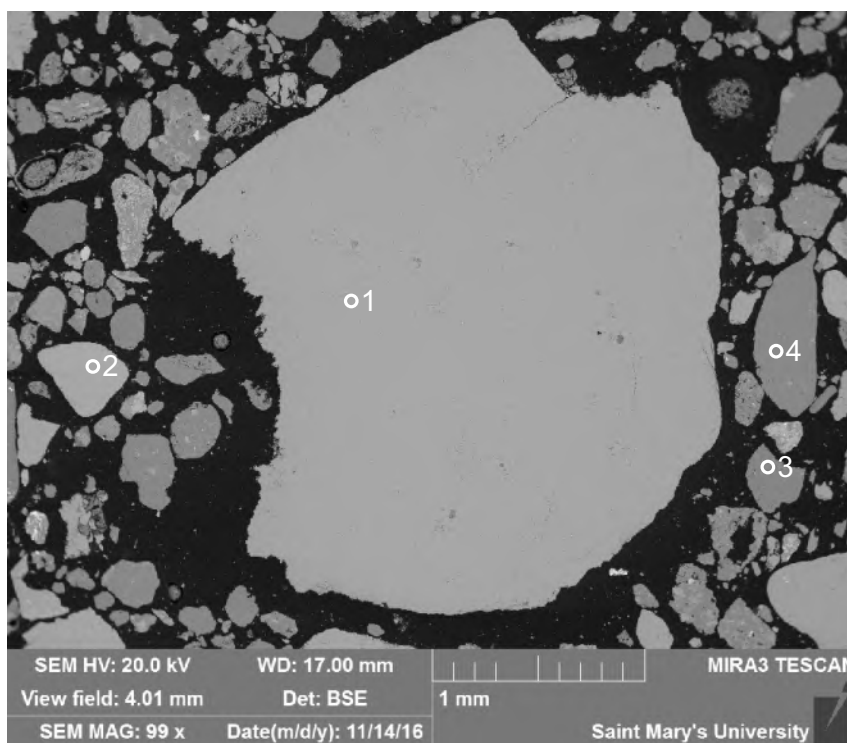
- 1: Chromite
- 2: Calcite
- 3: Quartz+
- 4: "Orthopyroxene"
- 5: Orthopyroxene
- 6: Calcite
- 7: Spinel
- 8: Albite
- 9: Muscovite
- 10: Calcite
- 11: K-Feldspar
- 12: Albite
- 13: Muscovite

Figure A2.39: Sample S9 Site 36 (SEM). This site contains: Detrital chromite (1), orthopyroxene (4-5), quartz (3), albite (8,12), spinel (7), muscovite (9,13), and calcite (2,6,10). It also contains lithic clasts made up of K-feldspar and Albite (11,12, igneous), Albite and Muscovite (8,9,13, igneous or metamorphic), Calcite and Quartz (2,3, cherty limestone), and calcite (10, limestone).



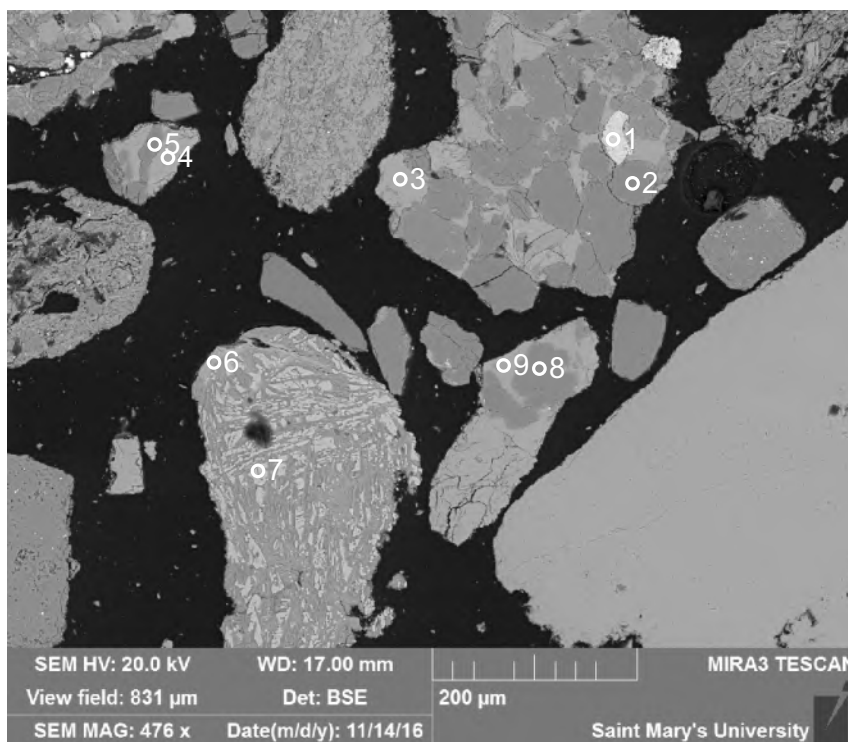
- 1: Quartz
- 2: Calcite
- 3: Chromite +
- 4: "Orthopyroxene"
- 5: Clinopyroxene
- 6: Albite +
- 7: Quartz
- 8: Epidote +
- 9: Calcite+
- 10: Chlorite
- 11: Albite
- 12: Apatite
- 13: Quartz
- 14: Calcite
- 15: Fe-oxide/hydroxide +

Figure A2.40: Sample S9 Site 37 (SEM). This site contains: Detrital chlorite (10), apatite (12), Fe-oxide/hydroxide (15), quartz (1,7,13), orthopyroxene (4), clinopyroxene (5), chromite (3), calcite (2,9,14), albite (6,11), and epidote (8). Lithic clasts: Chromite + Orthopyroxene (3-4, peridotite); Quartz + Calcite (1-2, cherty limestone); Clinopyroxene + Albite (5-6, igneous or metamorphic); Quartz + Epidote (7-8, hydrothermal or metamorphic); Albite + Apatite (11-12, igneous).



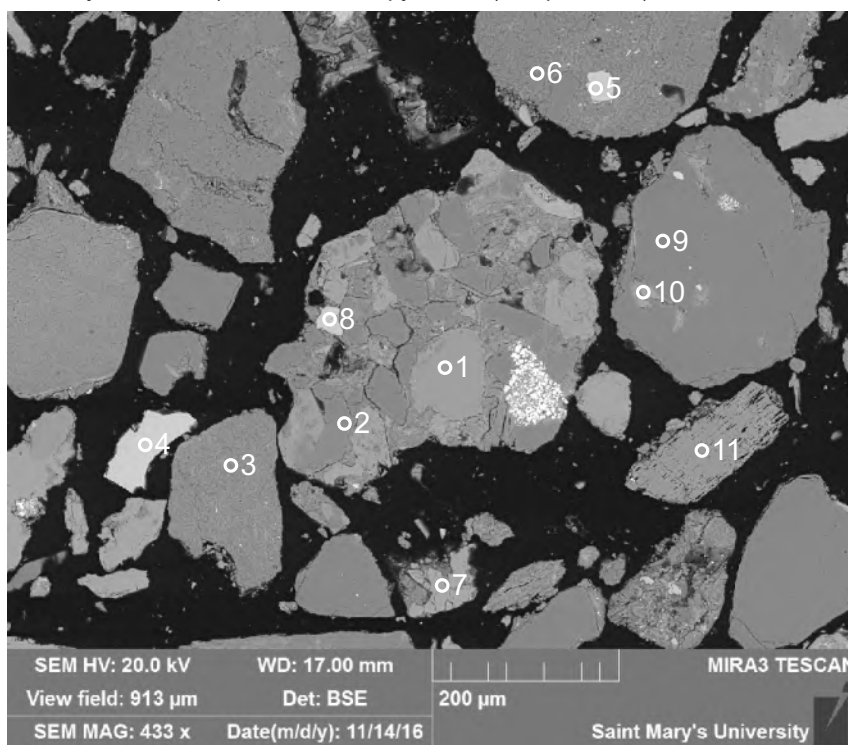
- 1: Calcite
- 2: Calcite
- 3: Quartz + Albite
- 4: Quartz

Figure A2.41: Sample S9 Site 38 (SEM). This site contains: Detrital calcite (1,2), quartz (4), and albite (3). Lithic clast: Calcite (1, limestone).



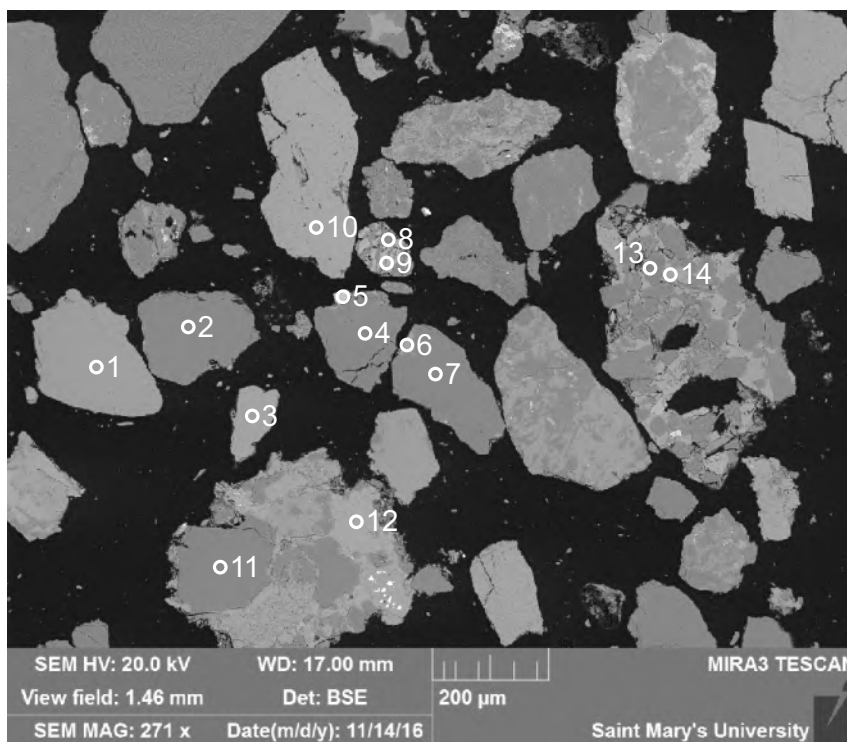
- 1: Titanite +
- 2: Quartz
- 3: Calcite
- 4: Calcite
- 5: Quartz
- 6: Chlorite +
- 7: Clinopyroxene +
- 8: Quartz
- 9: Calcite

Figure A2.42: Sample S9 Site 39 (SEM). This site contains: Detrital quartz (2, 5, 8), calcite (3, 4, 9), titanite (1), chlorite (6) and clinopyroxene (7). Lithic clasts: Quartz + Calcite + Titanite (1-3, calcareous sandstone); Quartz + Calcite (4-5, 8-9, cherty limestones); chlorite + clinopyroxene (6-7, peridotite).



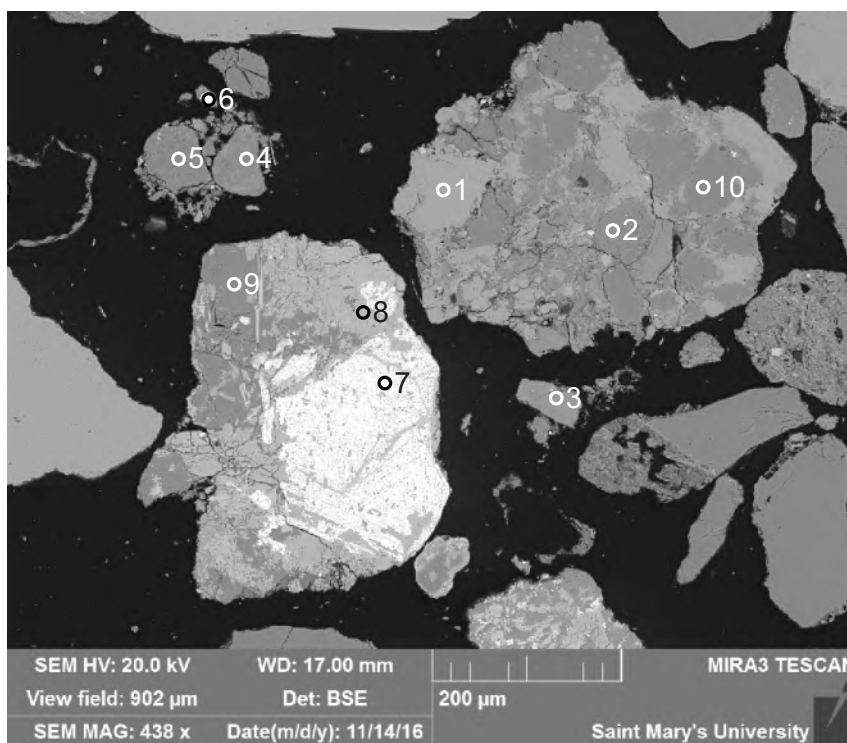
- 1: K-Feldspar
- 2: Albite
- 3: Quartz +
- 4: Garnet (Almandine)
- 5: Spinel
- 6: Quartz +
- 7: Calcite
- 8: Spinel
- 9: Quartz
- 10: Chlorite
- 11: Olivine

Figure A2.43: Sample S9 Site 40 (SEM). This site contains: Detrital K-Feldspar (1), albite (2), spinel (5,8), quartz (3,6,9), chlorite (10), garnet (almandine, 4), olivine (11), and calcite (7). Lithic clasts: K-feldspar + Albite + Spinel (1-2,8, sandstone); Quartz + Chlorite (9-10, metamorphic); Quartz + Spinel inclusion (5-6, igneous).



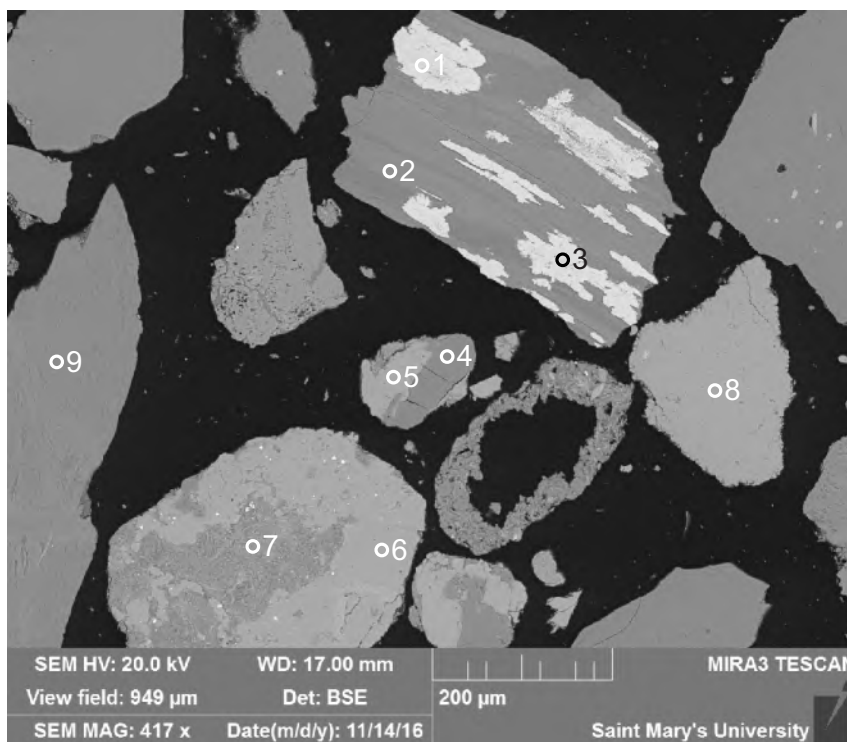
- 1: K-Feldspar
- 2: Quartz
- 3: Calcite
- 4: Quartz
- 5: Garnet (Almandine)
- 6: Calcite
- 7: Quartz
- 8: Albite
- 9: Clinopyroxene
- 10: Calcite
- 11: Quartz
- 12: Calcite
- 13: Quartz
- 14: Calcite+

Figure A2.44: Sample S9 Site 41 (SEM). This site contains: Detrital K-Feldspar (1), quartz (2,4,7,11,13), garnet (almandine, 5), calcite (3,6,10,12,14), albite (8), clinopyroxene (9). Lithic clasts: Quartz + Calcite (6-7,11-12,13-14, cherty limestone); Albite + Clinopyroxene (8-9, igneous or metamorphic); Quartz + Garnet (4-5, metamorphic).



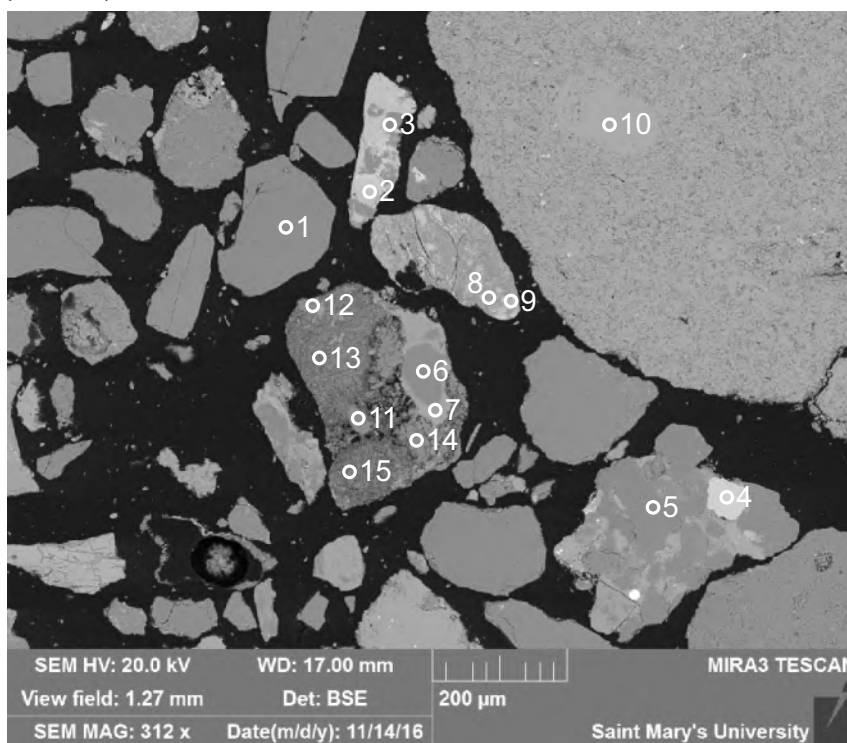
- 1: Calcite
- 2: Clay (Ill +)
- 3: Clay (Ill +)
- 4: Quartz
- 5: Quartz
- 6: Pyrite
- 7: Ilmenite +
- 8: Amphibole (Actinolite)
- 9: Albite
- 10: Quartz

Figure A2.45: Sample S9 Site 42 (SEM). This site contains: Detrital calcite (1), albite (9), quartz (4, 5, 10), pyrite (6), ilmenite (7), amphibole (8), and clay minerals (probably illite, 2-3). Lithic clasts: Quartz + Calcite + Clay (1-2,10, sandy limestone); Albite + Amphibole + Ilmenite (7-9, metamorphic).



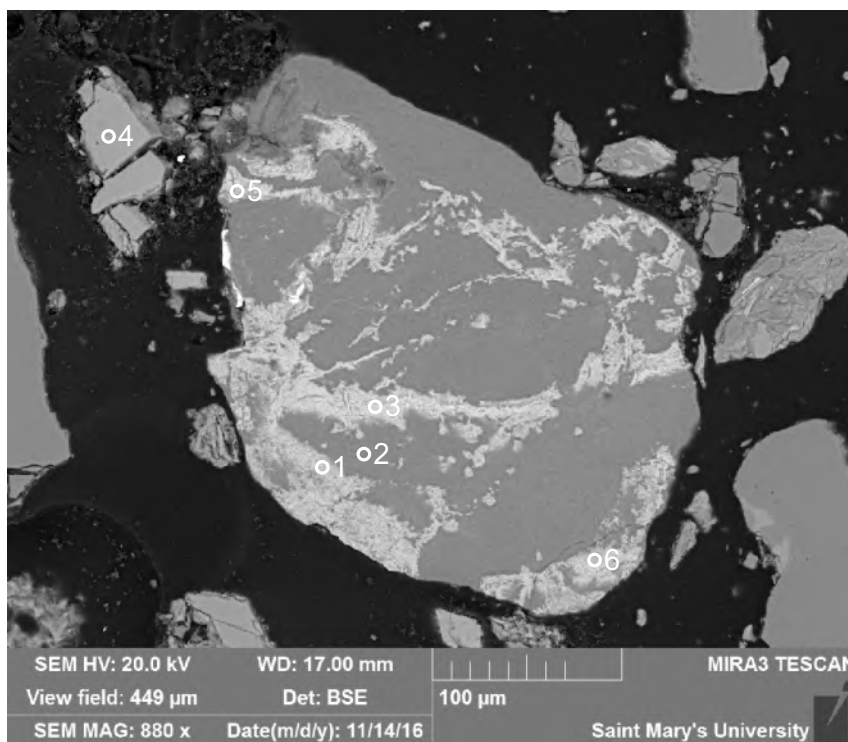
- 1: Garnet (Andradite)
- 2: "Orthopyroxene"
- 3: Garnet (Andradite)
- 4: Quartz
- 5: Calcite
- 6: Calcite
- 7: Mix
- 8: Calcite
- 9: "Orthopyroxene"

Figure A2.46: Sample S9 Site 43 (SEM). This site contains: Detrital garnet (almandine, 1,3), altered orthopyroxene (2,9), quartz (4), and calcite (5,6,8). Lithic clasts: Quartz + Calcite (4-5, cherty limestone); Garnet + Orthopyroxene (1-3, peridotite).



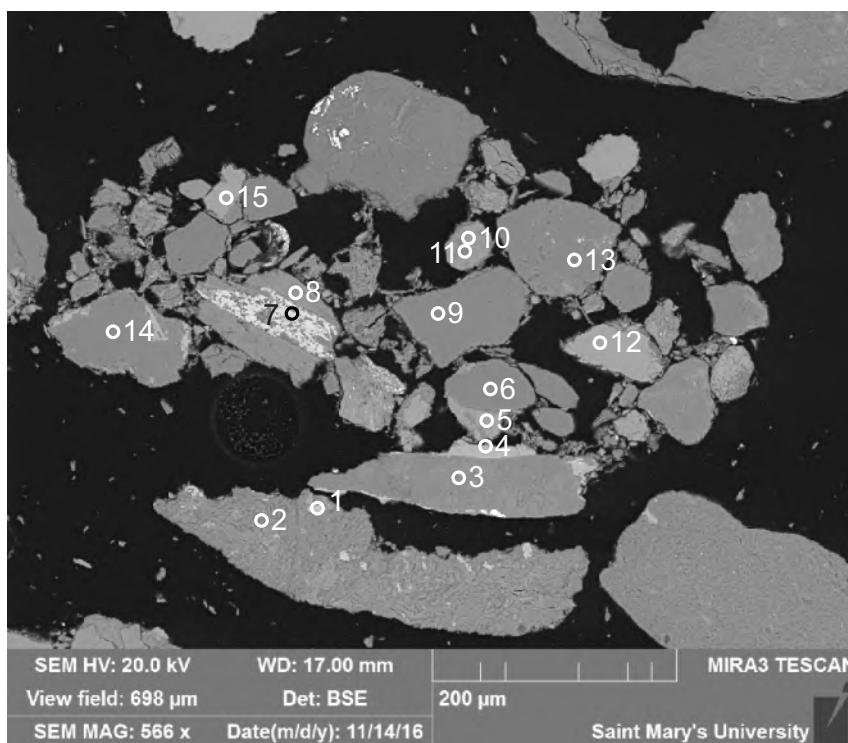
- 1: Quartz
- 2: Clinopyroxene
- 3: Albite
- 4: Garnet (Almandine-Spessartine)
- 5: Quartz
- 6: Quartz
- 7: K-Feldspar
- 8: K-Feldspar +
- 9: Titanite +
- 10: Calcite
- 11: Quartz
- 12: Albite
- 13: Feldspar
- 14: Albite
- 15: Albite

Figure A2.47: Sample S9 Site 44 (SEM). This site contains: Detrital quartz (1, 5, 6, 11), K-Feldspar (7, 8), albite (3, 12, 14, 15), titanite (9), clinopyroxene (2), garnet (4), and calcite (10). Lithic clasts: Albite + Clinopyroxene (2-3, igneous or metamorphic); K-feldspar + Titanite (8,9, metamorphic); Garnet + Quartz (4-5, metamorphic); Quartz + K-feldspar + Albite (6,7,11-15, igneous).



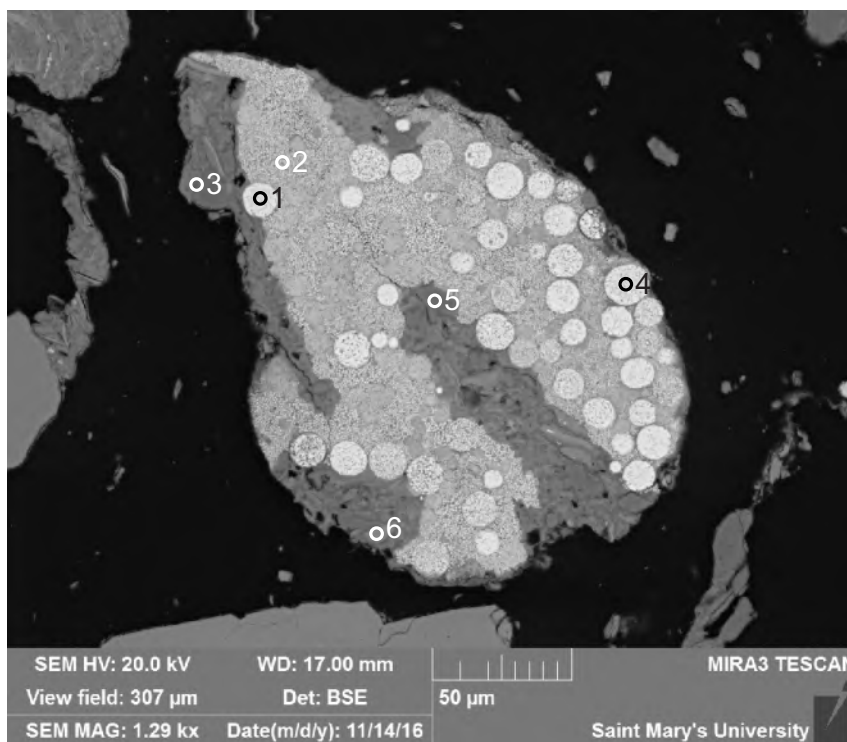
- 1: Garnet (Andradite)
- 2: “?Orthopyroxene”
- 3: Garnet
- 4: Calcite
- 5: Garnet
- 6: Garnet

Figure A2.48: Sample S9 Site 45 (SEM). This site contains: Detrital altered ?orthopyroxene (2), with veins of garnet (1, 3, 5, 6) running throughout. Lithic clast: Garnet + Orthopyroxene (1-3, 5-6, hydrothermally altered peridotite).



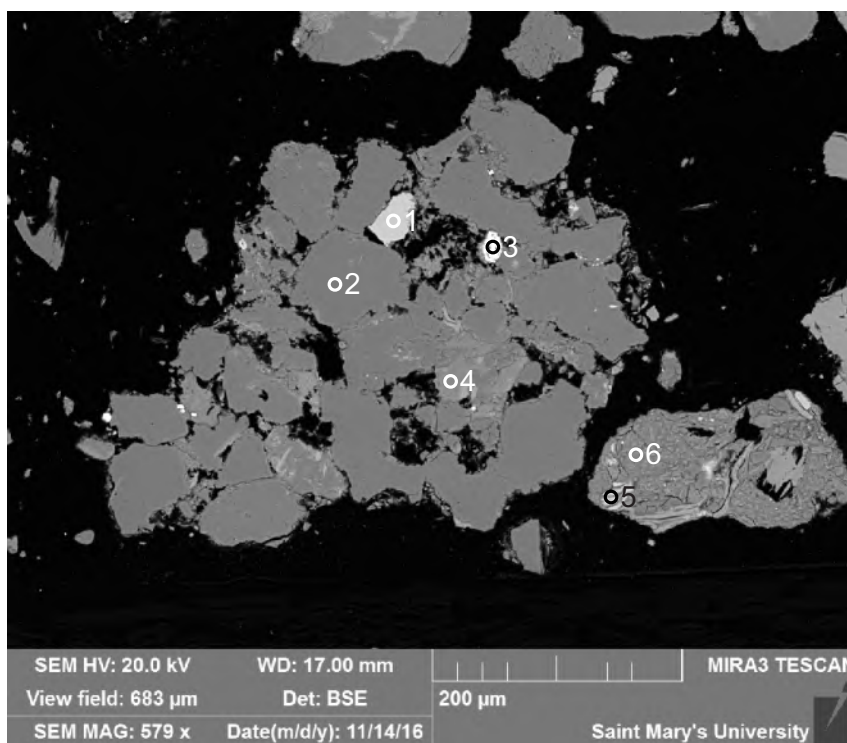
- 1: Mix
- 2: Mix
- 3: Feldspar
- 4: Clinopyroxene
- 5: Calcite
- 6: Quartz
- 7: TiO_2 +
- 8: Muscovite
- 9: Quartz
- 10: K-Feldspar
- 11: Albite
- 12: Calcite
- 13: Quartz
- 14: Albite + Quartz
- 15: Calcite

Figure A2.49: Sample S9 Site 46 (SEM). This site contains: Detrital quartz (6,9,13), calcite (5,12,15), muscovite (8), K-feldspar (10), albite (11,14), titania (7), and clinopyroxene (4). Lithic clasts: Feldspar + Clinopyroxene (3-4, igneous); Quartz + Calcite (5-6, cherty limestone); K-feldspar + Albite (10-11, igneous); Muscovite + Rutile (7-8, metamorphic).



- 1: Pyrite
- 2: Pyrite + Chlorite
- 3: Quartz
- 4: Pyrite
- 5: Quartz
- 6: Biotite + Chlorite

Figure A2.50: Sample S9 Site 47 (SEM). This site contains: Detrital quartz (3), pyrite (1, 2, 4), biotite and chlorite (6). Lithic clast: Quartz + Biotite + Chlorite (1-6, siltstone cemented by pyrite some of which is framboidal).



- 1: Garnet (Almandine)
- 2: Quartz
- 3: Chromite
- 4: Muscovite
- 5: Titanite
- 6: K-feldspar + Chlorite

Figure A2.51: Sample S9 Site 48 (SEM). This site contains: Detrital quartz (2), garnet (1), chromite (3), muscovite (4), titanite (5), and K-feldspar and chlorite (6). Lithic clasts: K-feldspar + Chlorite + Titanite (5-6, igneous or metamorphic); Quartz + Chromite + Garnet + Muscovite (1-4, sandstone).

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	1	1	Chr			15.06	18.03		12.38									54.52								100	143
S9	1	2	Qz	100.00																						100	163
S9	1	3	Cal						0.94	55.06																56	75
S9	1	4	Qz	100.00																						100	157
S9	1	5	Qz	100.00																						100	143
S9	1	6	Cal					0.51		55.49																56	64
S9	1	7	Cal					0.34		55.66																56	71
S9	1	8	Cpx	53.71	0.50	1.50	10.41	0.32	14.59	18.63	0.34															100	136
S9	1	9	Cal							56.00																56	73
S9	1	10	Cal							56.00																56	77
S9	2	1	Grt (alm)	40.34		20.94	29.62	0.38	1.94	6.78																100	136
S9	2	2	Grt (alm)	39.77		21.12	28.33	0.75	1.87	8.15																100	138
S9	2	3	Cal	0.91			0.73	1.12	1.08	52.17																56	68
S9	2	4	Cal+	8.76		5.12	2.30	0.59	0.86	38.38																56	84
S9	2	5	Ab	69.59		18.74					11.67															100	143
S9	2	6	Chl	29.03		18.56	23.08		13.98	0.36																85	113
S9	2	7	Kfs	66.47		17.62					0.31	15.60														100	137
S9	3	1	Ap	0.73			0.27			48.73			43.98		4.21	0.67								1.41		100	124
S9	3	2	Ttn	34.03	32.06	4.42	0.60			27.55					1.35											100	112
S9	3	3	Chl	29.22	0.28	17.40	23.81	0.53	13.17	0.32		0.26														85	92
S9	3	4	Qz	100.00																						100	115
S9	3	5	Qz	100.00																						100	112
S9	4	1	Qz	100.00																						100	78
S9	4	2	Kfs	65.77		17.74					0.84	15.09											0.56			100	74
S9	4	3	TiO2	0.63	98.80		0.57																			100	65
S9	4	4	Qz	100.00																						100	72
S9	4	5	Cal+	8.13		1.71	0.45	1.16	0.50	43.52	0.52															56	37
S9	5	1	Qz	100.00																						100	117
S9	5	2	Qz	100.00																						100	117
S9	5	3	Cal+	4.42		0.95	1.25		2.83	46.38		0.16														56	63
S9	5	4	Opx	51.06			3.86		45.07																	100	97
S9	5	5	Mix	21.83		1.25	58.48	2.91	13.26	1.40									0.88							100	73
S9	5	6	Qz	100.00																						100	110
S9	5	7	Cal	0.78					1.16	54.06																56	53
S9	5	8	Opx	50.70			7.29		40.89	0.39						0.22			0.51							100	73
S9	5	9	Qz	99.78						0.22																100	107
S9	5	10	Cal				0.30		0.50	55.20																56	50
S9	6	1	Chl	30.40		16.64	26.03	0.47	11.06	0.41																85	87

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	6	2	Feho + Chl	19.32		8.01	63.37	0.74	6.54	1.18									0.83							100	78
S9	7	1	"Ol"	49.38			4.79		45.47										0.36							100	87
S9	7	2	Chr			19.23	29.42		8.54									42.81								100	93
S9	7	3	"Chr" +	2.18		2.78	62.89	4.50	3.01									24.64								100	86
S9	7	4	"Chr" +	6.74	0.51	2.15	51.26	5.80	8.80									23.91		0.82						100	85
S9	7	5	"Ol"	48.34			8.39		41.55									1.72								100	77
S9	7	6	Qz	100.00																						100	104
S9	7	7	Ab	69.51		18.59					11.72	0.18														100	103
S9	7	8	Cal						0.77	55.23																56	49
S9	8	1	Kfs (perthite)	65.71		18.54					2.10	12.94											0.72			100	95
S9	8	2	Chr			10.82	25.88		8.25									55.05								100	92
S9	8	3	Ab	60.14		25.46	1.21			4.29	6.47	2.43														100	96
S9	8	4	Chl	32.50		13.42	23.56	0.66	13.62	0.71	0.36	0.17														85	84
S9	8	5	Chl	24.78	3.09	10.97	39.93		1.92	0.59		3.72														85	80
S9	8	6	Kfs +	51.71	3.80	25.35	6.84		3.86	0.78	0.32	7.35														100	85
S9	8	7	Ab	65.40		18.02				5.10	10.35	1.13														100	91
S9	8	8	Qz	100.00																						100	96
S9	8	9	Kfs	66.19		17.83					0.59	15.39														100	93
S9	8	10	Cal						0.69	55.31																56	47
S9	8	11	Qz	100.00																						100	98
S9	9	1	"Ol"	49.49		1.78	5.68		42.47										0.39							100	71
S9	9	2	Qz	100.00																						100	96
S9	9	3	Cal					0.55		55.45																56	45
S9	9	4	"Ol"	49.13		1.19	6.18		42.22	0.28									0.56							100	75
S9	9	5	Spl			32.64	15.75		15.47									36.14								100	88
S9	9	6	Feho +	1.81			96.83		1.36																	100	76
S9	9	7	Cal				0.40	0.55	1.10	53.94																56	45
S9	9	8	Uv (Grt)	32.56		1.43	9.90		0.62	36.82								18.68								100	77
S9	9	9	"Ol"	47.77		1.34	7.10		42.55	0.28								0.31	0.38							100	72
S9	9	10	Uv (Grt)	35.88		4.55	10.92		0.85	36.1								11.7								100	74
S9	9	11	Feho +	9.70		2.93	77.96		5.76	0.53								3.12								100	61
S9	10	1	Cal						1.49	54.51																56	43
S9	10	2	Qz	99.63						0.37																100	85
S9	10	3	Qz	100.00																						100	88
S9	10	4	Ab	69.35		18.75				0.20	11.70															100	89
S9	10	5	Qz	100.00																						100	88
S9	10	6	Grt (Uv)	32.41		1.32	9.7		0.44	37.32								18.82								100	73
S9	10	7	Kfs	66.67		18.26					2.95	12.11														100	84

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	10	8	Ms	51.74		26.09	3.03		3.46		0.37	10.10				0.22										95	66
S9	11	1	Kfs	65.39		18.18					0.46	15.13											0.85			100	83
S9	11	2	Qz +	95.41		2.90					1.69															100	85
S9	11	3	Qz	100.00																						100	86
S9	11	4	Ms+	56.34		22.86	5.85		5.97	1.36	0.58	6.30	0.75													100	80
S9	11	5	Mix	54.94	2.94	14.14	9.86		6.06	4.16	5.03	2.25	0.62													100	81
S9	11	6	Qz	100.00																						100	87
S9	11	7	Grt (alm)	39.81		20.94	27.07	2.75	1.06	8.37																100	81
S9	11	8	"Ol"	50.70			5.03		43.89										0.37							100	64
S9	11	9	Cal	0.85					0.70	54.45																56	41
S9	11	10	Cal+	9.84		4.12	1.81	0.76	5.08	33.79		0.59														56	50
S9	11	11	Clay	59.08	0.30	20.27	5.91	0.30	4.65	0.55	0.32	8.62														100	76
S9	12	1	Clay	59.95		21.03	5.42		4.55	0.62		8.44														100	78
S9	12	2	Cal	0.99						55.01																56	42
S9	12	3	Qz+	81.96		6.72	7.80	0.24	2.55	0.27		0.47														100	90
S9	12	4	Ab	68.25		18.68	0.47		0.85	0.47	11.28															100	90
S9	13	1	Cal						1.28	54.72																56	46
S9	13	2	Qz +	93.14						6.86																100	90
S9	13	3	Cal						1.40	54.60																56	45
S9	13	4	Qz	100.00																						100	97
S9	13	5	Ap							47.95			43.66		6.63									1.76		100	104
S9	13	6	Ab	69.31		19.10					11.58															100	100
S9	13	7	Py	0.31			27.40	0.40			0.53			69.80											1.57	100	194
S9	13	8	Py				27.53	0.50			0.56			71.41												100	194
S9	13	9	Py	0.29			28.36							71.35												100	201
S9	14	1	Spl			30.07	17.82		14.24									37.86								100	124
S9	14	2	Cal							56.00																56	64
S9	14	3	Qz	100.00																						100	135
S9	14	4	Pl	57.22		26.85	1.49		0.38	6.98	5.06	2.00														100	133
S9	14	5	Cpx	50.81	1.71	4.32	13.79	0.30	15.25	13.82																100	133
S9	14	6	Feho +	10.12	7.95	1.89	74.50	0.46	0.90	4.18																100	109
S9	14	7	Feho +	7.31	3.92	2.57	82.85	0.43	1.68	0.80							0.45									100	107
S9	14	8	Cal				0.40		0.84	54.76																56	67
S9	14	9	Qz	100.00																						100	144
S9	15	1	Cal	0.48			0.34		0.66	54.52																56	66
S9	15	2	Qz +	97.45		1.90	0.22					0.43														100	129
S9	15	3	Grt	39.57		20.43	15.32	17.80	1.06	5.81																100	130
S9	15	4	Cal							56.00																56	68

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	15	5	Qz	100.00																						100	146
S9	15	6	Qz	100.00																						100	142
S9	15	7	Clay	56.34		21.83	5.98	0.24	7.37			8.24														100	124
S9	15	8	Cal				0.36	0.94	0.51	54.20																56	66
S9	15	9	Qz	100.00																						100	140
S9	15	10	Dol						22.83	31.17																54	65
S9	15	11	Cal							56.00																56	74
S9	16	1	Ab	69.50		18.85					11.65															100	136
S9	16	2	Opx	52.99		2.84	5.70		37.32	0.72	0.42															100	117
S9	16	3	Qz	100.00																						100	138
S9	16	4	Ep	40.35		27.10	6.73			22.81																97	128
S9	16	5	Qz	100.00																						100	139
S9	16	6	Qz+	86.09		7.76	1.78		1.42	0.22		2.73														100	142
S9	16	7	Cal						1.09	54.91																56	67
S9	16	8	Chl +	33.02		14.85	14.00	0.34	19.86	2.93																85	119
S9	17	1	Qz +	94.38		3.40	0.69		0.51			1.02														100	142
S9	17	2	Qz	100.00																						100	142
S9	17	3	Chl	31.65		14.54	26.02	1.01	10.68	0.55	0.54															85	115
S9	17	4	Qz	100.00																						100	143
S9	17	5	Qz	100.00																						100	143
S9	17	6	Chl	25.32		21.02	28.14		10.51																	85	118
S9	17	7	Ms	50.25	0.44	27.06	4.12		2.46		0.32	10.36														95	130
S9	17	8	Chl	26.56		19.33	27.88		11.24																	85	117
S9	17	9	Mag +	5.59		0.75	92.64			1.02																100	96
S9	17	10	Cal	0.81				0.36	0.33	54.50																56	68
S9	17	11	Cal	1.55		0.54	0.37			53.26		0.29														56	69
S9	17	12	Zrn	31.19			0.72															68.09				100	144
S9	18	1	Cal				0.33	0.83	0.54	54.30																56	63
S9	18	2	"Ol"	47.89		3.01	6.29		41.55									1.26								100	118
S9	18	3	Feho	0.99	10.81	4.14	81.02	0.70	1.05								1.28									100	121
S9	18	4	Ab	69.18		18.82				0.22	11.77															100	140
S9	18	5	Qz	100.00																						100	137
S9	18	6	Qz	100.00																						100	145
S9	18	7	Cal+	4.98		0.69	0.59	0.28	2.40	47.06																56	74
S9	18	8	Chl + Ab	41.50		19.95	23.85	0.67	10.27		3.75															100	119
S9	18	9	Ab +	61.91		18.30	6.58		2.81	0.71	9.70															100	137
S9	18	10	Cal						0.72	55.28																56	61
S9	18	11	Qz	99.41		0.59																				100	131

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	18	12	Qz	100.00																						100	134
S9	18	13	Kfs	66.28		18.18					1.24	14.30														100	128
S9	18	14	Cal	1.26				0.36	1.09	53.30																56	71
S9	18	15	Kfs +	53.76	0.40	26.23	4.71		3.50		0.36	11.04														100	117
S9	18	16	Cal					0.59		55.41																56	64
S9	18	17	Cal					0.84		55.16																56	58
S9	19	1	Cal				1.03			54.97																56	65
S9	19	2	Ep	40.65		24.57	9.37			22.41																97	133
S9	19	3	Spl			39.39	15.54		15.96	0.29								28.82								100	131
S9	19	4	Ab	68.30		19.50				0.28	11.26	0.66														100	141
S9	19	5	Grt	40.00		20.76	26.94	4.48	1.86	5.96																100	134
S9	19	6	Ttn +	26.06	50.50	0.58	1.79			21.08																100	131
S9	19	7	Ms	47.31	0.52	35.86	0.77		0.42		1.93	8.20														95	127
S9	19	8	Grt	39.71		20.94	23.40	6.30	0.95	8.69																100	137
S9	19	9	TiO2		98.45		0.41			1.13																100	131
S9	19	10	Qz	100.00																						100	139
S9	19	11	Cal				0.68	0.33	0.84	54.15																56	63
S9	19	12	Cal					0.80	0.48	54.72																56	68
S9	19	13	Qz	99.78						0.22																100	144
S9	19	14	Kfs	65.46		17.97	0.46				0.42	15.19											0.51			100	136
S9	19	15	Ab	68.75		19.50					11.56	0.19														100	137
S9	19	16	Dol						22.62	31.38																54	67
S9	20	1	Qz	100.00																						100	139
S9	20	2	Cal						0.79	55.21																56	64
S9	20	3	TiO2	0.51	98.77		0.42			0.30																100	123
S9	20	4	Qz	100.00																						100	140
S9	20	5	Cal						0.53	55.47																56	65
S9	20	6	Ab	69.22		18.92				0.18	11.69															100	137
S9	20	7	Cal+	4.36		0.88	0.41		0.69	49.66																56	67
S9	20	8	Qz	100.00																						100	139
S9	20	9	Qz	100.00																						100	144
S9	20	10	Kfs	66.35		17.85					0.41	15.39														100	141
S9	20	11	Qz	100.00																						100	142
S9	20	12	Chl	31.11		18.16	26.56		8.82	0.34																85	113
S9	20	13	Kfs	58.27		28.12	0.95		0.45	2.00	4.46	5.75														100	134
S9	20	14	Amph (Actinolite)	50.46	1.04	2.05	16.02	0.45	12.74	13.94	0.31															97	134
S9	20	15	Qz	100.00																						100	141
S9	20	16	Qz	100.00																						100	143

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	20	17	Feho +	1.92			96.98		1.10																	100	110
S9	20	18	Feho +	6.88			86.71	0.36	5.09									0.96								100	110
S9	20	19	Opx	50.62		0.57	4.33		44.48																	100	115
S9	20	20	Cal				0.94	0.89	0.36	53.81																56	66
S9	20	21	Qz	100.00																						100	143
S9	20	22	Ab	69.22		18.89				0.38	11.51															100	145
S9	20	23	Cal	0.45				0.29		55.26																56	69
S9	20	24	Cal	0.53						55.47																56	66
S9	20	25	Chl	31.22		15.45	18.76		19.27	0.30																85	119
S9	21	1	Cal						1.00	55.00																56	64
S9	21	2	Qz	100.00																						100	133
S9	21	3	Grt (Andr)	39.04		0.57	25.59		3.68	31.12																100	125
S9	21	4	Chr			13.66	17.55		11.96									56.83								100	133
S9	21	5	Cal					0.67		55.33																56	69
S9	21	6	Qz	100.00																						100	150
S9	21	7	Cal						0.81	55.19																56	70
S9	21	8	Qz	100.00																						100	147
S9	21	9	Spl		0.68	27.26	23.33		12.67									36.06								100	127
S9	21	10	Chl	35.39		11.95	10.60	0.31	25.79	0.31								0.65								85	115
S9	21	11	Cal							56.00																56	67
S9	21	12	Chr			21.52	19.08		12.79									46.60								100	130
S9	21	13	Cal	0.77			0.44	0.95	0.62	53.23																56	69
S9	21	14	Qz	100.00																						100	144
S9	22	1	Cld	24.25		37.16	20.61	0.76	1.91	0.31																85	123
S9	22	2	Kfs + Cal	58.86		16.13				11.09	0.6	13.32														100	128
S9	22	3	Qz	100.00																						100	144
S9	22	4	Qz	100.00																						100	143
S9	22	5	Cal	0.50			0.76	1.02	1.13	52.60																56	68
S9	22	6	TiO2	0.74	95.83		2.81			0.62																100	124
S9	22	7	Kfs	66.26		17.58					0.47	15.69														100	137
S9	22	8	Qz	100.00																						100	141
S9	22	9	Kfs	66.83		17.48						15.69														100	138
S9	22	10	Qz	100.00																						100	144
S9	22	11	Cld	28.37		43.87	24.18	0.91	2.14	0.54																100	124
S9	22	12	Cal	0.62			0.90	0.97	1.62	51.89																56	68
S9	22	13	Ab	68.85		19.01				0.44	11.70															100	141
S9	23	1	Ab +	66.05		18.01	1.45		0.51	1.75	11.00		1.24													100	139
S9	23	2	Cpx	50.46	2.01	4.61	12.48		14.81	15.29	0.34															100	138

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	23	3	Ab	64.93		21.60	1.00			1.53	9.15	1.78														100	140
S9	23	4	Ab	66.91		20.48				2.01	10.60															100	143
S9	23	5	Ab	67.19		20.09				1.56	10.80	0.37														100	140
S9	23	6	Kfs	66.11		17.95					0.56	15.38														100	138
S9	23	7	Cpx	52.08	1.37	3.82	10.56	0.28	17.12	14.44	0.33															100	139
S9	23	8	Ttn	35.31	29.40	4.49	2.66		0.35	27.01							0.78									100	128
S9	23	9	Cpx	49.21	3.27	4.15	14.59	0.32	11.88	16.02	0.57															100	136
S9	24	1	Qz	100.00																						100	141
S9	24	2	Kfs	66.34		17.71						15.95														100	137
S9	24	3	Mix	28.99	22.85	5.15	21.95		2.14	18.94																100	119
S9	24	4	Ab	68.13		19.53	0.25			0.72	11.06	0.31														100	138
S9	24	5	Act	51.17	0.65	3.17	12.31	0.33	17.87	11.12	0.39															97	135
S9	24	6	Qz+	82.57		11.92	0.85		0.92			3.74														100	141
S9	24	7	Cal						1.11	54.89																56	68
S9	24	8	Qz	100.00																						100	143
S9	24	9	Cal						0.43	55.57																56	70
S9	24	10	Cal						1.36	54.64																56	68
S9	24	11	Qz +	92.42		1.04	1.01		2.61	2.92																100	142
S9	24	12	Qz	100.00																						100	145
S9	24	13	Kfs	66.49		17.80					2.15	13.56														100	141
S9	24	14	Cal				0.38	0.71	0.71	54.20																56	66
S9	25	1	Qz	100.00																						100	145
S9	25	2	Cal						0.42	55.58																56	66
S9	25	3	Ab	69.75		18.62					11.64															100	134
S9	25	4	Cal						1.47	54.53																56	64
S9	25	5	Spl			51.34	12.49		19.41									16.46	0.30							100	135
S9	25	6	Cal				0.40	0.65	0.54	54.42																56	69
S9	26	1	Ttn	34.16	33.96	2.65	1.52			27.71																100	130
S9	26	2	Chl	31.12		15.59	20.13	0.22	17.58	0.37																85	121
S9	26	3	Cpx	49.95	2.64	3.99	11.09	0.30	11.48	19.89	0.67															100	135
S9	26	4	Gln	57.82		18.63	6.84		8.12	1.08	6.76	0.75														100	129
S9	26	5	Ttn	34.85	32.04	3.75	1.99		0.74	26.63																100	128
S9	26	6	Cal				0.36	0.85	0.66	54.13																56	68
S9	26	7	Opx	48.79		1.17	8.59		40.18	0.23						0.46		0.58								100	109
S9	26	8	Cal+	5.42		2.81	0.74	0.26	0.73	45.15		0.89														56	74
S9	26	9	Ab +	67.01		18.71	1.46		1.56	0.56	10.70															100	138
S9	26	10	Ilm +	8.31	43.30	3.37	42.85	0.36	0.92	0.68		0.21														100	112
S9	26	11	Feld	65.75		21.12	0.77			3.11	8.88	0.36														100	135

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	26	12	Ab	69.46		18.72				0.26	11.56															100	141
S9	26	13	Mix	49.95		9.82	8.35		23.62	1.24	2.03			3.05		1.94										100	63
S9	27	1	Qz	99.65						0.35																100	139
S9	27	2	Py	0.26			28.61				1.43			69.70												100	254
S9	27	3	Feho +	14.80	1.13	9.49	72.06		1.04	1.21						0.28										100	98
S9	27	4	Ab +	66.47		19.45	1.59		0.76	0.82	10.69	0.21														100	140
S9	27	5	Cal					1.83		54.17																56	66
S9	27	6	Qz	99.80			0.20																			100	142
S9	27	7	Dol						22.48	31.52																54	65
S9	27	8	Cal							56.00																56	65
S9	27	9	Cal				0.39	0.67	0.71	54.24																56	67
S9	27	10	Dol						22.39	31.61																54	67
S9	27	11	Py	0.31			27.81				0.55			70.96					0.37							100	263
S9	27	12	Ab	69.48		18.64				0.31	11.41	0.16														100	137
S9	27	13	Chl	29.62		17.98	21.34	0.22	15.32	0.53																85	114
S9	28	1	Dol						22.77	31.23																54	67
S9	28	2	Cal				0.62	0.74	0.45	54.19																56	66
S9	28	3	Qz+	75.24	0.31	14.16	1.10			1.68	7.33	0.17														100	138
S9	28	4	Ttn	36.26	29.26	4.22	3.27		0.32	26.67																100	128
S9	28	5	Mix	45.64	6.07	4.19	24.80	0.61	3.25	15.44																100	130
S9	28	6	Plag +	56.90		25.56	2.09		0.76	8.90	5.79															100	135
S9	28	7	Cpx	49.31	2.76	3.22	18.00	0.34	9.29	16.73	0.37															100	134
S9	28	8	Feho +	10.00	1.28	2.72	81.59		3.35	1.06																100	113
S9	29	1	Feho +	17.80		0.92	77.70			2.79							0.79									100	97
S9	29	2	Chl	27.73		18.15	21.88	0.31	16.94																	85	114
S9	29	3	Py	0.47			33.17	0.24		0.21				65.90												100	235
S9	29	4	Feho +	20.61		0.92	74.56			3.00							0.92									100	97
S9	29	5	Chl	26.86		17.54	23.04	0.27	16.72	0.26							0.31									85	121
S9	29	6	Cal + ?Chl	1.66		0.78	0.52	0.51	0.65	51.69		0.19														56	67
S9	29	7	Qz	100.00																						100	139
S9	30	1	Qz	99.72			0.28																			100	141
S9	30	2	Ab + Chl	60.56		18.10	9.53		1.72	0.48	9.36	0.26														100	136
S9	30	3	Feho +	25.05	2.13	1.53	70.98			0.31																100	113
S9	30	4	Amph (Act)	49.57	1.40	3.15	14.45	0.41	14.19	13.52	0.31															97	137
S9	31	1	Cal						0.69	55.31																56	65
S9	31	2	Chr			8.58	23.68		9.89									57.85								100	125
S9	31	3	Cal						0.64	55.36																56	66
S9	31	4	Ab	68.17		19.15	0.43			0.36	11.32	0.56														100	139

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	31	5	Ttn	33.74	36.00	2.54	0.28			27.45																100	130
S9	31	6	Qz	100.00																						100	146
S9	31	7	Chl	27.02		17.79	27.44	0.66	12.09																	85	116
S9	31	8	Ab	68.83		19.09				0.48	11.60															100	145
S9	31	9	Chl	27.14		21.08	20.52		16.25																	85	118
S9	31	10	Cal	0.41			0.33	0.30	0.40	54.55																56	66
S9	31	11	Qz	92.46		5.36	0.28		0.33			1.57														100	140
S9	32	1	Olig + Chl	59.20		19.62	5.81		4.10	4.38	6.89															100	134
S9	32	2	Cpx	53.82	0.69	3.40	6.44		17.55	17.64								0.46								100	138
S9	32	3	Cpx	49.57	1.84	8.01	8.54		14.55	17.07	0.42															100	137
S9	32	4	Gln	59.97		17.50	6.37		4.75	3.59	7.83															100	133
S9	33	1	Cal	0.71			0.45	0.48	1.36	53.00																56	67
S9	33	2	Dol						23.05	30.95																54	66
S9	33	3	Mix	41.63	3.38	21.07	15.13	0.31	10.57		0.34	7.57														100	130
S9	33	4	Qz	100.00																						100	143
S9	33	5	Cal	1.39		0.40	0.67	0.71	0.81	52.02																56	72
S9	33	6	Qz	100.00																						100	148
S9	33	7	Cal					0.74	0.81	54.45																56	64
S9	33	8	Qz+	83.15		5.14	0.86		0.68	8.56		1.61														100	119
S9	33	9	Cal					0.63		55.37																56	71
S9	33	10	Qz	100.00																						100	151
S9	33	11	Qz +	97.31		1.53	0.31		0.29			0.56														100	137
S9	33	12	Cal						0.52	55.48																56	66
S9	33	13	Mix	42.81		14.87	14.73		26.85	0.74																100	122
S9	33	14	Qz	100.00																						100	148
S9	34	1	Cal					0.78	0.32	54.91																56	71
S9	34	2	Qz	100.00																						100	149
S9	34	3	Qz	100.00																						100	148
S9	34	4	Cal						0.29	55.71																56	70
S9	34	5	Ttn	35.82	29.42	4.80	2.33			27.64																100	129
S9	34	6	Ab	69.12		18.64	0.39			0.27	11.58															100	143
S9	34	7	Qz	98.82		1.01						0.17														100	146
S9	34	8	Cal+	11.32		2.51	0.56		1.14	39.92		0.56														56	82
S9	34	9	Cal + Chl +	28.10		11.33	9.19		6.75	41.49	0.60	2.54														100	103
S9	34	10	Cal	1.74					0.46	53.68		0.12														56	75
S9	35	1	Spl		0.35	36.46	18.43		16.35									28.40								100	128
S9	35	2	"Chr"	0.55	0.40	4.97	61.41	1.92	4.04									26.69								100	119
S9	35	3	Mix ?	49.82	0.60	11.18	5.86		3.86	25.61		3.07														100	104

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	35	4	Qz +	96.55		1.58	1.38		0.49																	100	139
S9	35	5	Py	0.17			28.85			0.38	0.28			70.32												100	264
S9	35	6	Cal							56.00																56	67
S9	36	1	Chr			25.10	18.83		14.00									42.07								100	129
S9	36	2	Cal				0.36		0.98	54.66																56	64
S9	36	3	Qz+	78.97		12.04	0.24		0.30		8.45															100	143
S9	36	4	"Opx"	46.51		2.44	6.55		41.14	0.73								0.81	1.81							100	119
S9	36	5	Opx	55.63		4.08	6.10		32.75	0.60								0.83								100	138
S9	36	6	Cal							56.00																56	67
S9	36	7	Spl			31.14	18.93		13.97									35.96								100	130
S9	36	8	Ab	69.27		18.77				0.21	11.76															100	136
S9	36	9	Ms	48.66		31.86	2.16		1.18		0.29	10.85														95	124
S9	36	10	Cal							56.00																56	65
S9	36	11	Kfs	66.41		17.86					0.65	15.08														100	131
S9	36	12	Ab	67.99		19.70				0.89	11.27	0.15														100	134
S9	36	13	Ms	49.66		27.92	4.69		2.46			10.27														95	123
S9	37	1	Qz	100.00																						100	138
S9	37	2	Cal					0.58		55.42																56	65
S9	37	3	Chr +	9.49		3.96	54.97	0.57	10.89									20.13								100	126
S9	37	4	"Opx"	49.87		0.76	4.22		44.27	0.26								0.28	0.33							100	123
S9	37	5	Cpx	51.12	1.53	2.04	18.47	0.52	11.17	15.14																100	137
S9	37	6	Ab +	59.55		20.10	7.15		2.64	2.38	8.18															100	138
S9	37	7	Qz	100.00																						100	138
S9	37	8	Ep +	42.32		25.08	7.46			21.13		1.02														97	123
S9	37	9	Cal+	13.90		0.36			0.41	41.33																56	80
S9	37	10	Chl	33.21		11.94	23.41	0.39	15.40	0.65																85	118
S9	37	11	Ab	69.12		18.89				0.19	11.81															100	149
S9	37	12	Ap							48.20			44.16		6.07								1.57			100	150
S9	37	13	Qz	100.00																						100	147
S9	37	14	Cal				0.36		0.49	55.16																56	69
S9	37	15	Feho +	4.74			93.99		0.60	0.67																100	93
S9	38	1	Cal						0.43	55.57																56	67
S9	38	2	Cal					4.27	0.43	51.31																56	59
S9	38	3	Qz+ Ab	76.56		14.51				0.47	8.46															100	146
S9	38	4	Qz	100.00																						100	139
S9	39	1	Ttn +	15.82	68.01	0.85	1.35			13.97																100	129
S9	39	2	Qz	99.38		0.62																				100	141
S9	39	3	Cal				0.69	1.38	0.36	53.56																56	66

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	39	4	Cal				0.43	0.99	0.75	53.84																56	66
S9	39	5	Qz	99.80						0.20																100	141
S9	39	6	Chl +	35.63		12.89	17.61	1.73	14.81	1.66	0.51	0.17														85	112
S9	39	7	Cpx+	47.14	2.37	7.28	12.26	0.32	11.07	19.10	0.47															100	126
S9	39	8	Qz	100.00																						100	144
S9	39	9	Cal	0.43				0.54	0.33	54.70																56	67
S9	40	1	Kfs	66.29		17.87					0.85	14.99														100	138
S9	40	2	Ab	69.29		18.79	0.20			0.28	11.44															100	139
S9	40	3	Qz+	74.20	0.33	14.09	3.14		3.47		2.33	2.44														100	136
S9	40	4	Grt (Alm)	39.46		20.85	29.00	6.76	3.24	0.69																100	134
S9	40	5	Spl			36.97	14.98		16.60									31.45								100	127
S9	40	6	Qz+	85.80		4.83	3.64		4.87	0.25	0.24	0.37														100	124
S9	40	7	Cal	0.54				0.65	0.45	54.35																56	68
S9	40	8	Spl	0.71		35.51	14.14		17.24	0.26								32.14								100	130
S9	40	9	Qz	100.00																						100	141
S9	40	10	Chl	31.74		19.64	19.97		12.51	0.66	0.48															85	111
S9	40	11	Ol	41.45			10.05		48.22										0.29							100	136
S9	41	1	Kfs	66.30		17.73						15.97														100	134
S9	41	2	Qz	100.00																						100	139
S9	41	3	Cal					0.31		55.69																56	66
S9	41	4	Qz	100.00																						100	141
S9	41	5	Grt (Alm)	40.25		21.15	30.99	1.33	4.13	2.15																100	133
S9	41	6	Cal	0.86			0.98	1.01	1.37	51.77																56	67
S9	41	7	Qz	100.00																						100	143
S9	41	8	Ab	67.73		19.69				1.17	11.42															100	138
S9	41	9	Cpx	52.08	1.13	4.96	7.42		14.63	19.31	0.47															100	133
S9	41	10	Cal					0.64		55.36																56	64
S9	41	11	Qz	100.00																						100	142
S9	41	12	Cal				1.03			54.97																56	66
S9	41	13	Qz	100.00																						100	141
S9	41	14	Cal+	2.07		0.55	4.11	2.63	0.80	45.71		0.13														56	69
S9	42	1	Cal				0.82	0.60	1.23	53.35																56	65
S9	42	2	Clay (Ill +)	68.74		15.85	4.76		4.21		0.74	5.70														100	136
S9	42	3	Clay (Ill +)	58.15	0.41	19.81	9.46		4.26	0.90	0.48	6.53														100	121
S9	42	4	Qz	98.50		0.94					0.36	0.20														100	140
S9	42	5	Qz	92.05		5.29	0.33		0.69			1.65														100	139
S9	42	6	Py	0.14			26.93	0.73			0.20			71.77					0.23							100	259
S9	42	7	Ilm +	1.23	34.44		63.42										0.91									100	115

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	42	8	Amph (Act)	54.16	0.34	2.15	15.97	0.25	12.84	10.89	0.39															97	134
S9	42	9	Ab	67.28		20.25				1.87	10.60															100	139
S9	42	10	Qz	100.00																						100	140
S9	43	1	Grt (Andr)	39.96		0.90	23.65		4.88	30.62																100	122
S9	43	2	"Opx"	49.25		1.89	7.49		40.12	0.33								0.92								100	116
S9	43	3	Grt (Andr)	38.72		1.43	24.41		0.63	33.91								0.89								100	128
S9	43	4	Qz	100.00																						100	145
S9	43	5	Cal				1.02		0.42	54.56																56	67
S9	43	6	Cal							56.00																56	70
S9	43	7	Mix	47.72		17.16	10.79		21.09	0.73	1.37	1.13														100	130
S9	43	8	Cal						0.43	55.57																56	70
S9	43	9	"Opx"	46.14		2.54	6.44	0.28	42.51							0.49		1.61								100	112
S9	44	1	Qz	100.00																						100	145
S9	44	2	Cpx	51.36	1.31	2.16	16.37	0.39	11.40	16.58	0.43															100	137
S9	44	3	Ab	67.56		19.15	1.27		0.29	0.55	11.18															100	140
S9	44	4	Grt (Alm-Sp)	39.74		20.64	16.95	14.92	1.94	5.82																100	142
S9	44	5	Qz	100.00																						100	151
S9	44	6	Qz	100.00																						100	147
S9	44	7	Kfs	65.27		17.93					0.35	15.61											0.84			100	143
S9	44	8	Kfs +	56.85		23.89	5.72		3.99	0.52	0.35	8.67														100	132
S9	44	9	Ttn +	40.96	22.92	10.02	2.47		1.46	19.85		2.32														100	134
S9	44	10	Cal							56.00																56	67
S9	44	11	Qz	100.00																						100	147
S9	44	12	Ab	69.56		18.60					11.84															100	144
S9	44	13	Feld	63.88		24.20	0.24			0.99	8.03	2.67														100	113
S9	44	14	Ab	69.38		18.85					11.77															100	147
S9	44	15	Ab	66.15		21.62				1.16	9.91	1.17														100	126
S9	45	1	Grt (Andr)	40.58		3.07	20.82		8.03	27.17										0.33						100	122
S9	45	2	"Opx"	50.56		1.26	6.44		41.55	0.19																100	115
S9	45	3	Grt	38.34		2.95	22.54		4.58	31.23										0.36						100	121
S9	45	4	Cal							56.00																56	65
S9	45	5	Grt	37.86	2.13	2.25	20.92		6.97	29.56										0.31						100	119
S9	45	6	Grt	43.10		2.96	18.32		12.03	23.58																100	124
S9	46	1	Mix	39.11	13.03	8.68	2.98		6.13	19.46	1.22	1.36	7.85			0.17										100	136
S9	46	2	Mix	62.51		17.28	3.80		7.89	0.44	7.34	0.22								0.52						100	119
S9	46	3	Feld	59.83		25.24	0.43		0.31	5.98	7.15	1.08														100	147
S9	46	4	Cpx	47.94	3.54	5.91	9.72		11.15	20.70	1.05															100	136
S9	46	5	Cal	1.15		0.49	0.74	0.26	1.50	51.55										0.32						56	68

Table A2.1: EDS analyses of sample S9.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	NiO	ZnO	As2O3	ZrO2	BaO	WO3	PtO2	Total	Actual Total
S9	46	6	Qz	99.78																0.22						100	143
S9	46	7	TiO2 +	5.45	92.42	0.65	0.99													0.49						100	128
S9	46	8	Ms	47.51	0.47	33.82	1.47		1.32		1.81	8.19								0.42						95	129
S9	46	9	Qz	99.65																0.35						100	142
S9	46	10	Kfs	66.06		17.65					0.30	15.64								0.35						100	140
S9	46	11	Ab	69.34		18.66					12.01															100	140
S9	46	12	Cal							55.76										0.24						56	67
S9	46	13	Qz	96.21		1.36	0.59		0.93	0.90																100	139
S9	46	14	Ab + Qz	72.00		17.16					10.84															100	139
S9	46	15	Cal	0.54					1.09	54.36																56	66
S9	47	1	Py	0.96			37.95			0.44	0.74			58.83						0.45	0.62					100	213
S9	47	2	Py + Chl	8.84		2.64	44.59		4.27	0.78				38.43						0.45						100	152
S9	47	3	Qz	93.28		3.32	1.26		1.18			0.95														100	139
S9	47	4	Py	0.95			36.58			0.31				61.15						0.53	0.48					100	221
S9	47	5	Qz	99.08			0.59													0.34						100	145
S9	47	6	Bt + Chl	35.82	2.11	16.39	14.07		9.86			6.29								0.46						85	129
S9	48	1	Grt (Alm)	39.74		21.16	31.67	1.09	4.87	0.78										0.70						100	136
S9	48	2	Qz	99.51																0.49						100	146
S9	48	3	Chr	1.65	1.01	4.32	47.02	1.27	1.83								0.53	40.70		1.67						100	122
S9	48	4	Ms	47.38	0.44	34.07	1.11		0.77		1.10	9.48								0.66						95	134
S9	48	5	Ttn	34.43	31.03	3.06	1.93		0.78	26.29							1.10			1.38						100	133
S9	48	6	Kfs + Chl	67.49	0.33	14.51	8.07		2.97			5.28				0.69				0.67						100	121
			Notes																								
			+ = indicates that other minerals are present																								
			" " = indicates that mineral is altered																								
			Feho = Fe-oxide/hydroxide																								
			Feld = Feldspar																								

A3: SEM-BSE images and EDS mineral analyses for sample S11

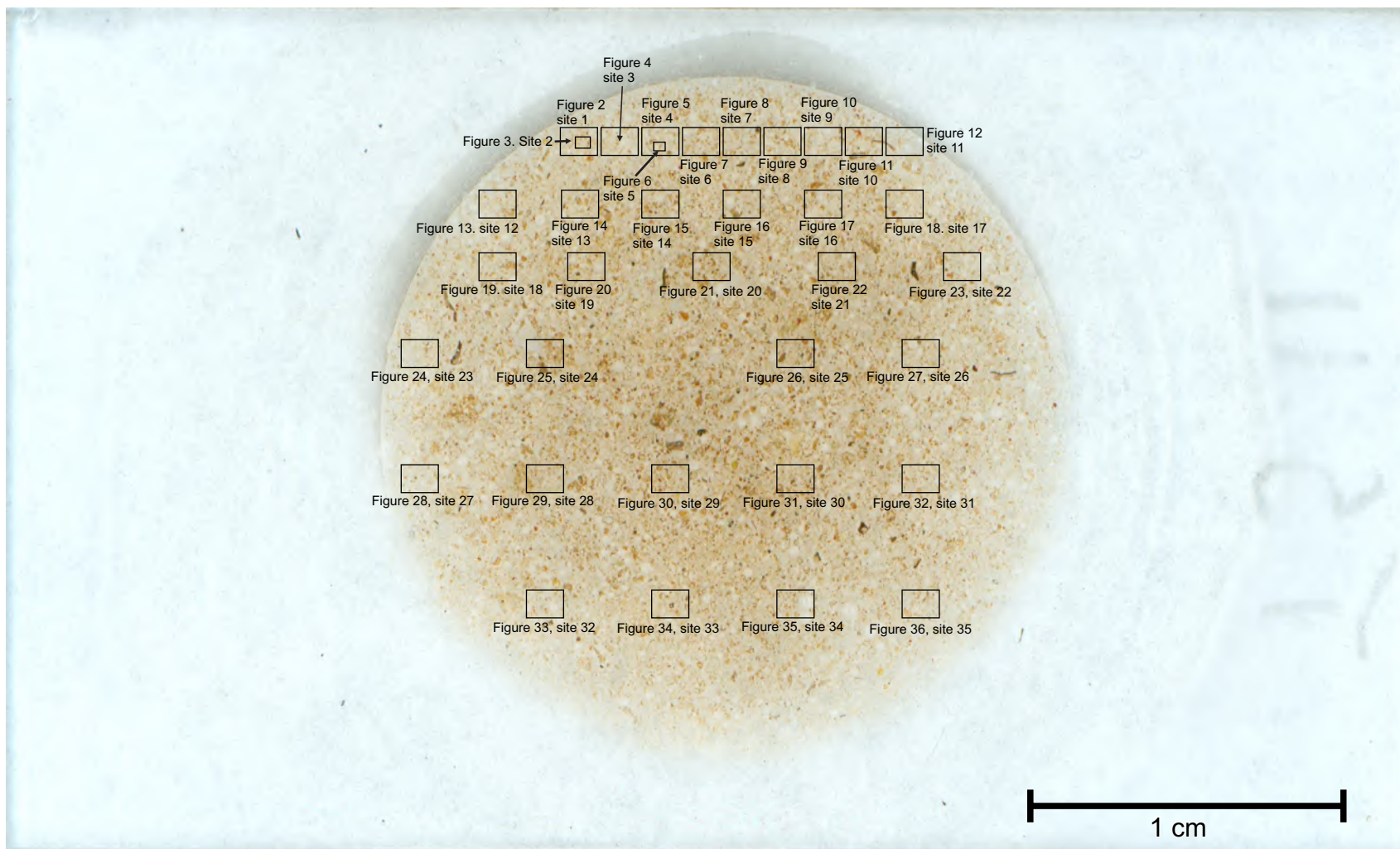
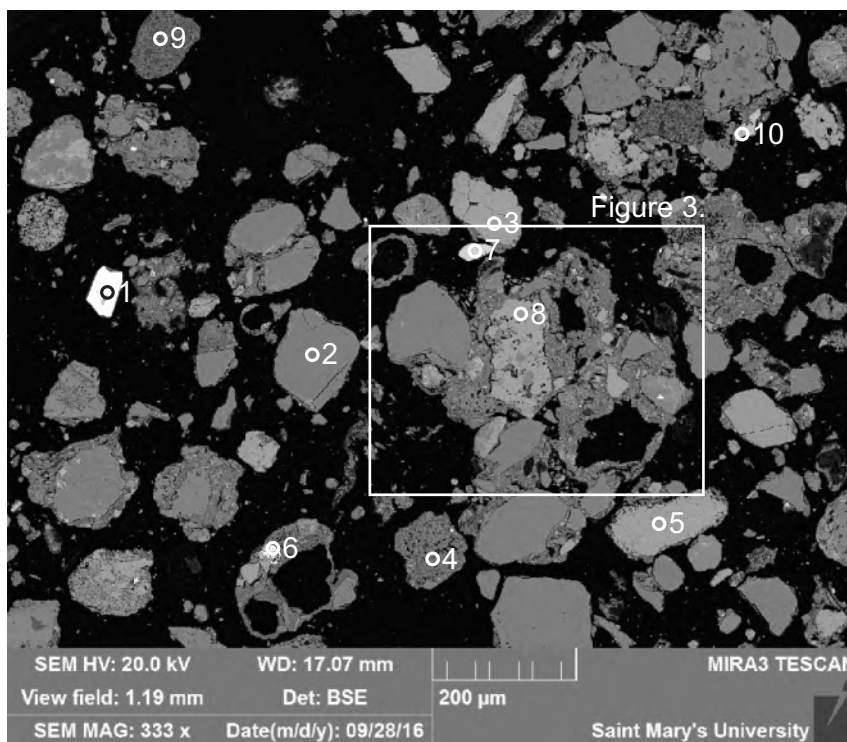
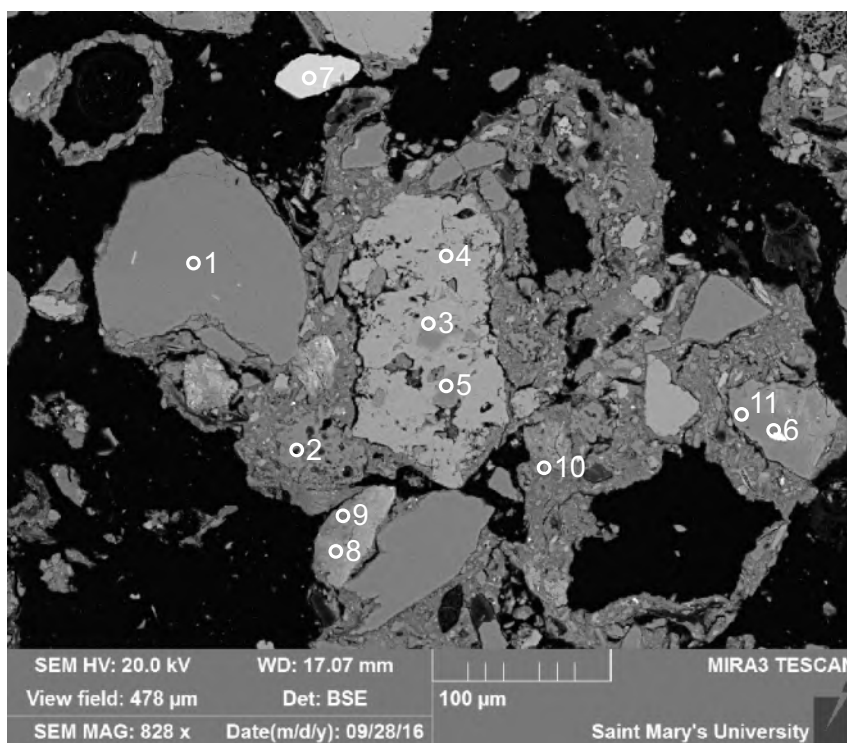


Figure A3.1: Slide S11, Taken from the Lower Louros River from a sandy bank 30 centimetres above normal water level. In flood, river rises 2 metres.



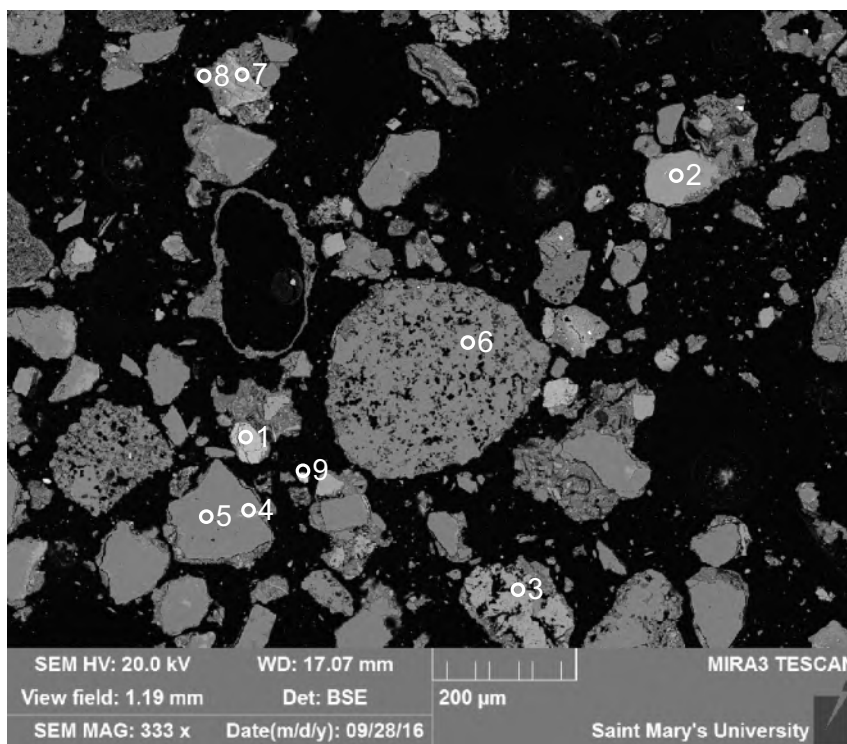
1. Zircon
2. Quartz
3. Calcite
4. Mix
5. Calcite
6. Pyrite
7. Garnet (Almandine)
8. Calcite
9. Quartz
10. Apatite

Figure A3.2: Sample S11 site 1 (SEM). This site includes: Detrital calcite (3,5,8), apatite (10), pyrite (6), zircon (1), quartz (2, 9), and garnet (7).



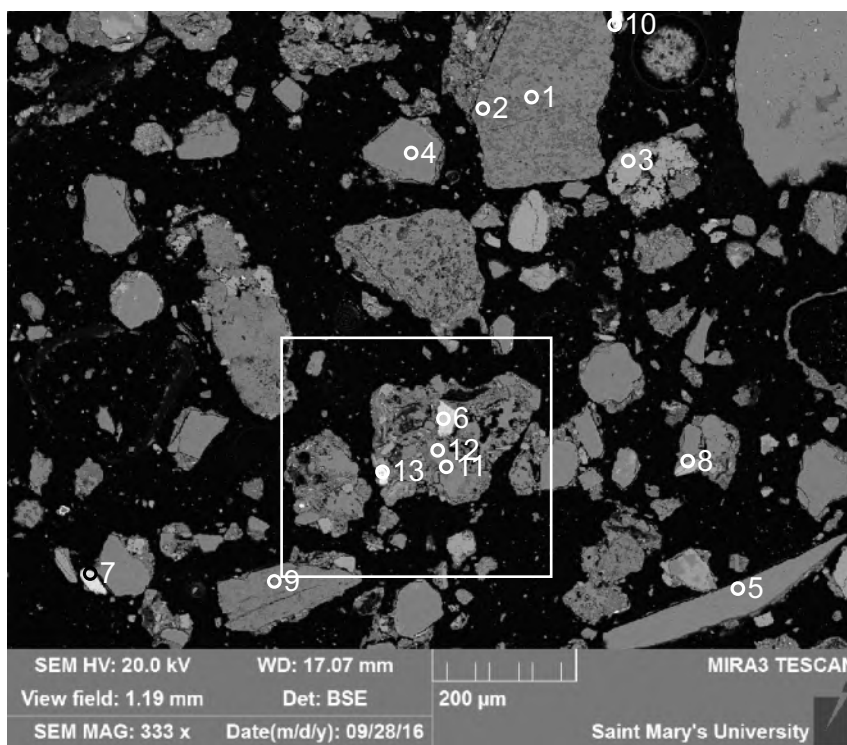
1. Quartz
2. Quartz +
3. Calcite + Quartz
4. Quartz +
5. Quartz +
6. Pyrite +
7. Garnet (Almandine)
8. Mix
9. Quartz +
10. Quartz +
11. Albite

Figure A3.3: Sample S11 site 2 (SEM). This site includes: Detrital quartz (1, 2, 4, 5, 9 and 10), albite (11), calcite (3), garnet (7), and pyrite (6). This is a typical muddy aggregate, common in this sample.



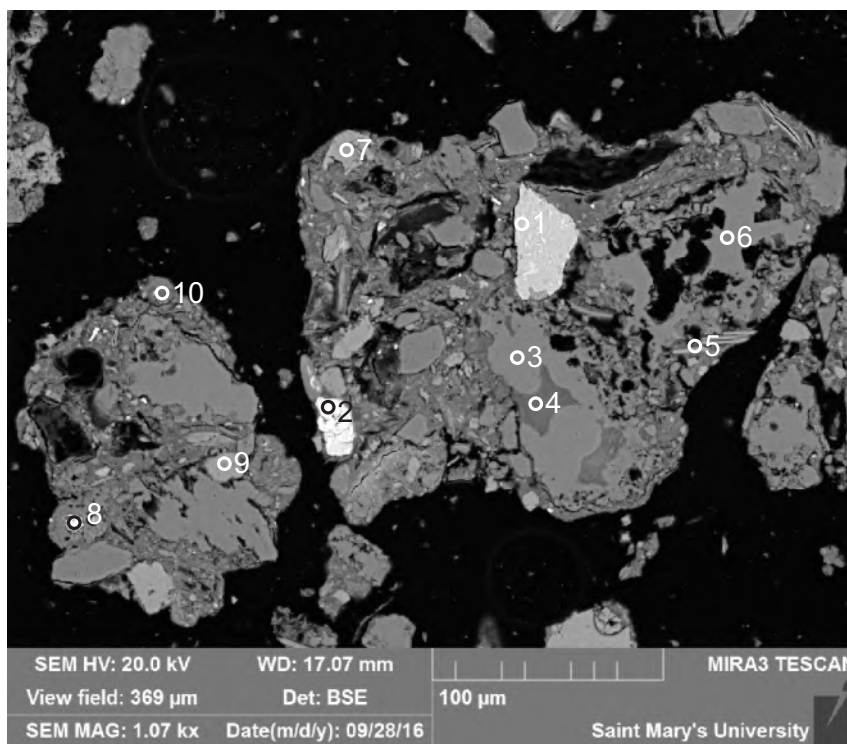
1. Epidote
2. K-Feldspar
3. Calcite +
4. Mix
5. Quartz
6. Quartz
7. Chlorite +
8. Mix
9. Siderite +

Figure A3.4: Sample S11 site 3 (SEM). This site includes: detrital epidote (1), K-feldspar (2), calcite + quartz (3), quartz (5, 6), chlorite (7), and siderite (9). Lithic clast: Quartz (6, chert).



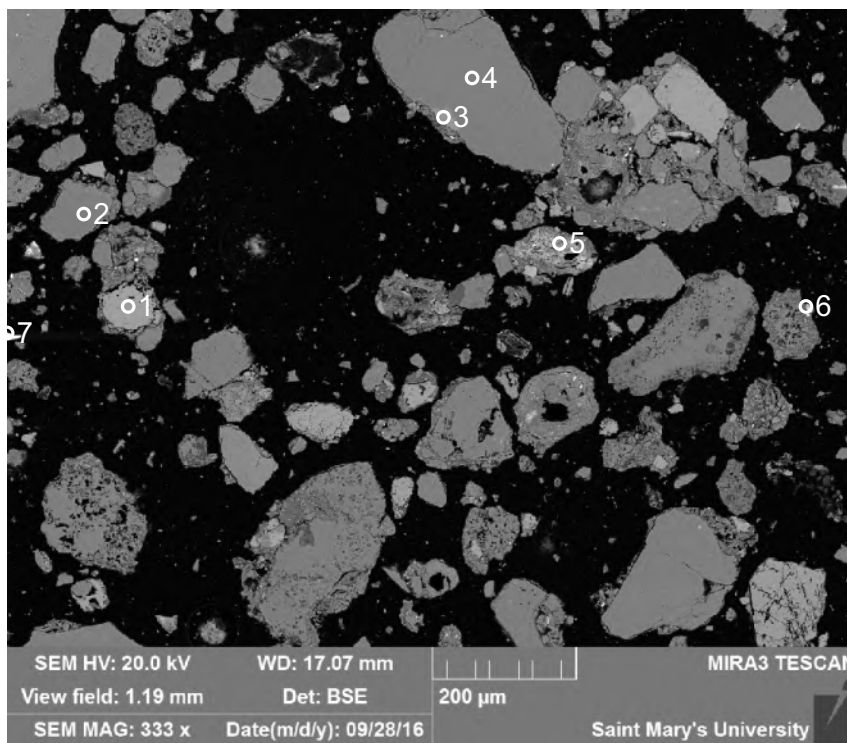
1. Quartz
2. Quartz
3. Calcite
4. Quartz
5. Quartz
6. Titanite +
7. "Ilmenite"
8. Chlorite
9. Quartz
10. Zircon
11. Quartz
12. Quartz
13. Fe-oxide/hydroxide +

Figure A3.5: Sample S11 site 4 (SEM). This site includes: detrital quartz (1, 2, 4, 5, 9, 11, 12), calcite (3), titanite (6), ilmenite (7), zircon (10), Fe-oxide/ hydroxide (13), and chlorite (8).



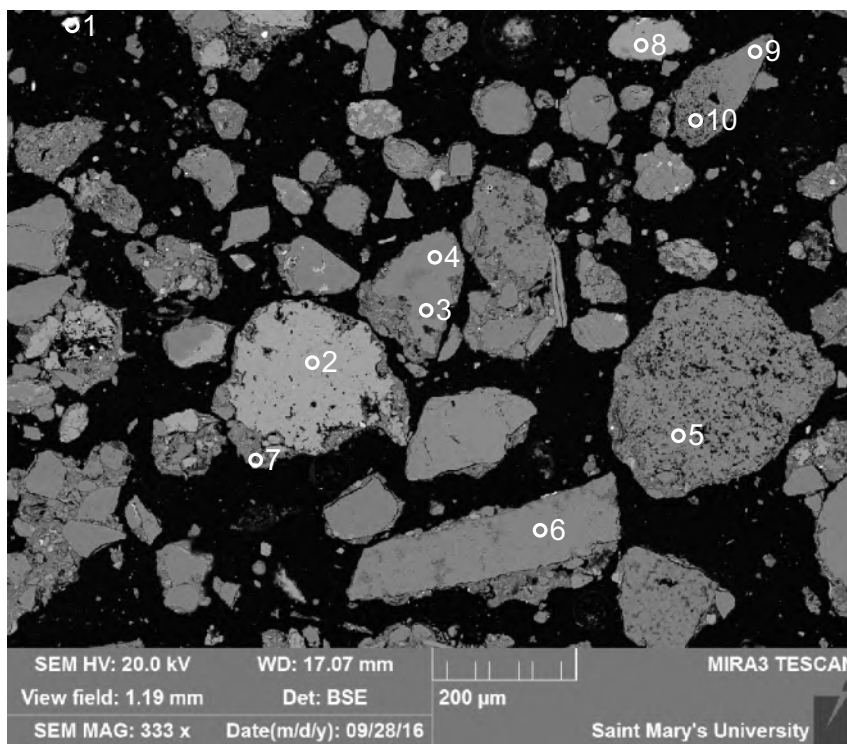
1. Titanite +
2. Fe-oxide/hydroxide +
3. Quartz
4. Quartz
5. Chlorite + Feldspar
6. Quartz
7. Calcite
8. Fe-oxide/hydroxide +
9. K-Feldspar
10. Chlorite +

Figure A3.6: Sample S11 site 5 (SEM). This site contains: Detrital titanite (1), Fe-oxide/hydroxide (2, 8), quartz (3, 4, 6), calcite (7), and K-feldspar (9) partly altered to chlorite.



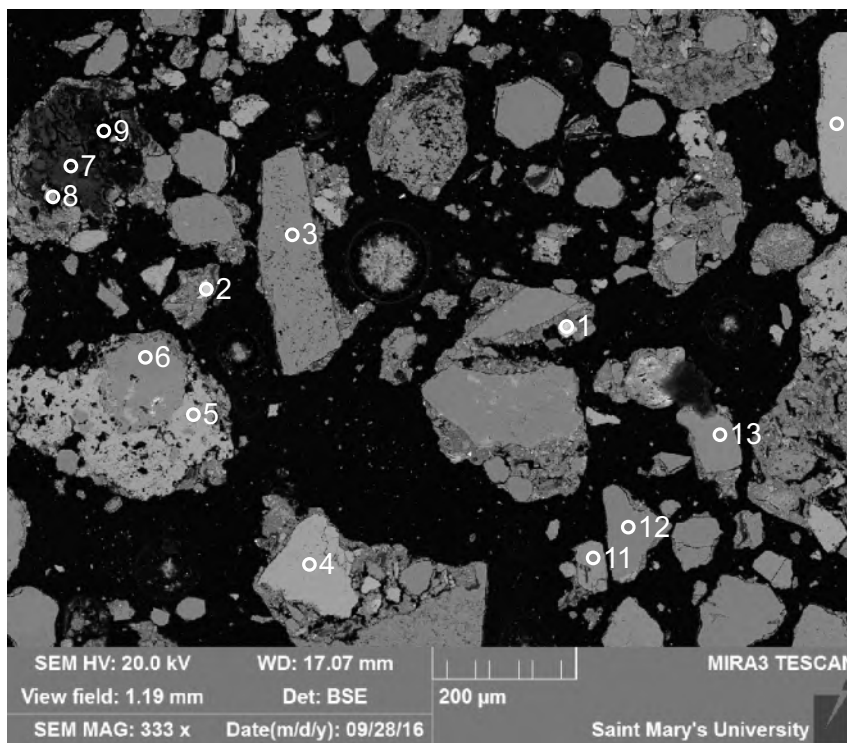
1. Calcite
2. Quartz
3. K-Feldspar
4. Quartz
5. Mix
6. Garnet (Almandine)
7. Zircon

Figure A3.7: Sample S11 site 6 (SEM). This site contains: detrital calcite (1), quartz (2, 4), K-feldspar (3), garnet (5), and zircon (7). Lithic clast: Quartz + K-feldspar (3-4, igneous).



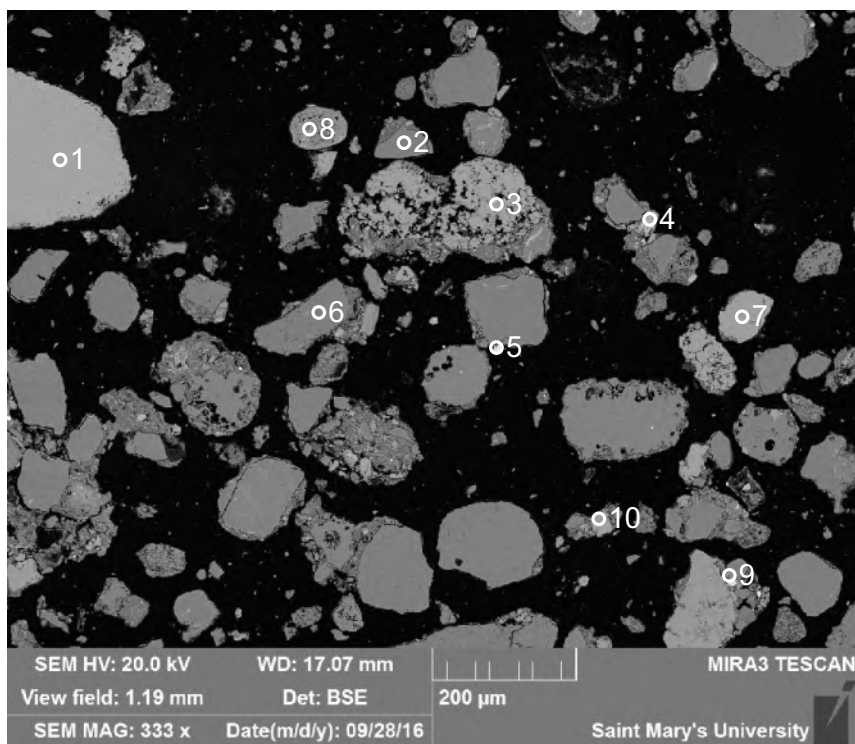
1. Mix
2. Calcite
3. Quartz
4. Quartz
5. Quartz +
6. Quartz
7. Pyrite
8. K-Feldspar
9. Quartz
10. Quartz

Figure A3.8: Sample S11 site 7 (SEM). This site contains: detrital quartz (3, 4, 5, 6, 9, 10), calcite (2), K-feldspar (8), and pyrite (7). Lithic clast: Quartz (5, chert).



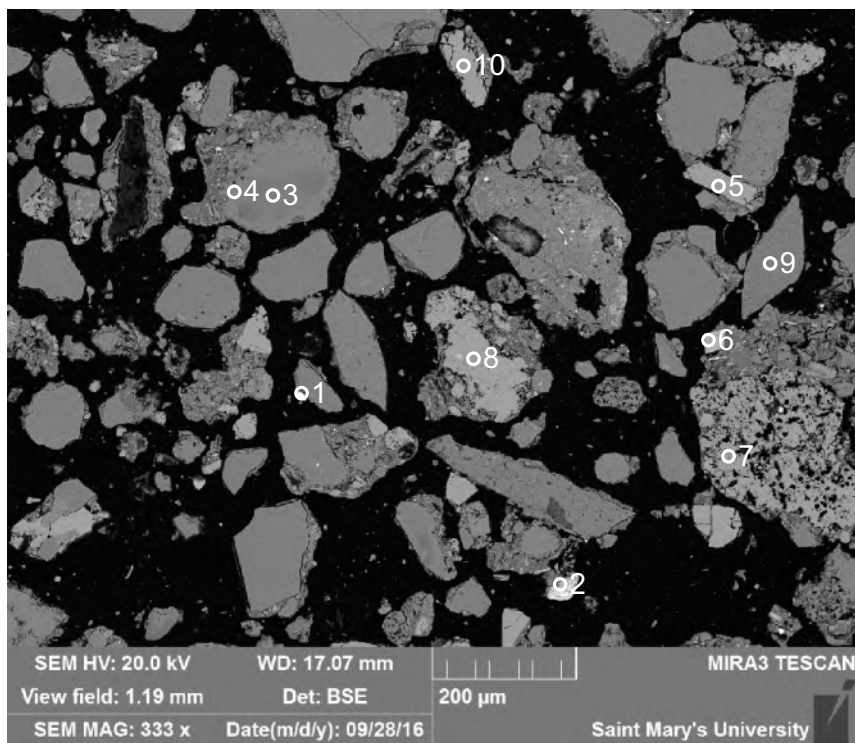
1. Spinel +
2. Garnet (Almandine)
3. Quartz
4. Calcite
5. Calcite
6. Quartz
7. Calcite + Chlorite +
8. Calcite
9. Hole
10. Calcite
11. Plagioclase (Andesine)
12. Quartz
13. Tourmaline

Figure A3.9: Sample S11 site 8 (SEM). This site contains: detrital spinel (1), quartz (3, 6, 12), calcite (4, 5, 8, 10), plagioclase (11), tourmaline (13), garnet (2), and chlorite (7). Lithic clast: Quartz + Calcite (5-6, cherty limestone).



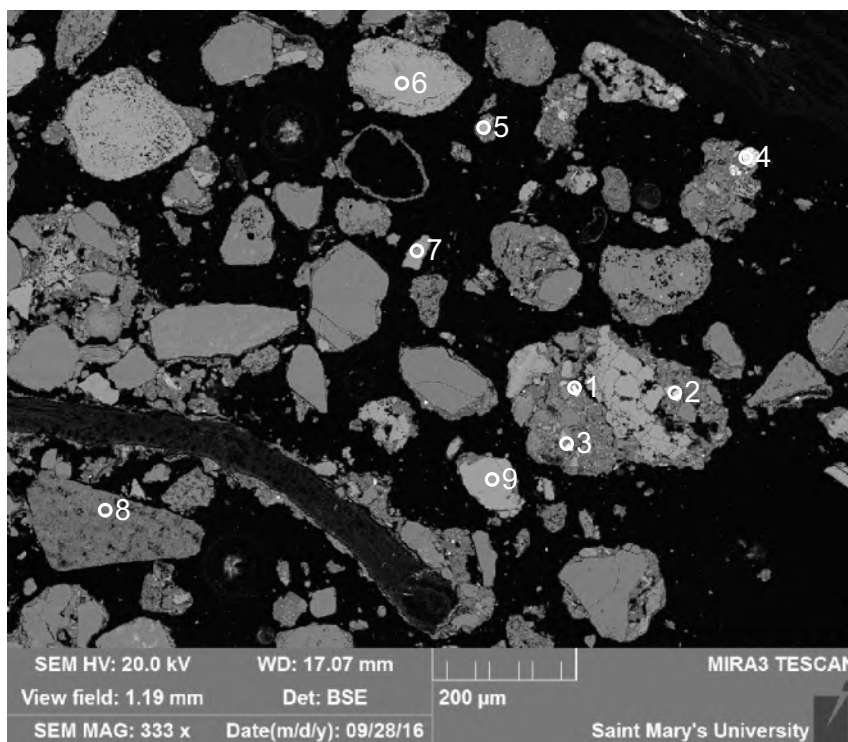
1. Calcite
2. Quartz
3. Calcite +
4. Chlorite + Calcite
5. TiO_2
6. Quartz +
7. Calcite
8. Mix
9. TiO_2 +
10. Calcite

Figure A3.10: Sample S11 site 9 (SEM). This site contains: detrital calcite (1, 3, 7, 10), quartz (2, 6), chlorite (4), and TiO_2 (5, 9).



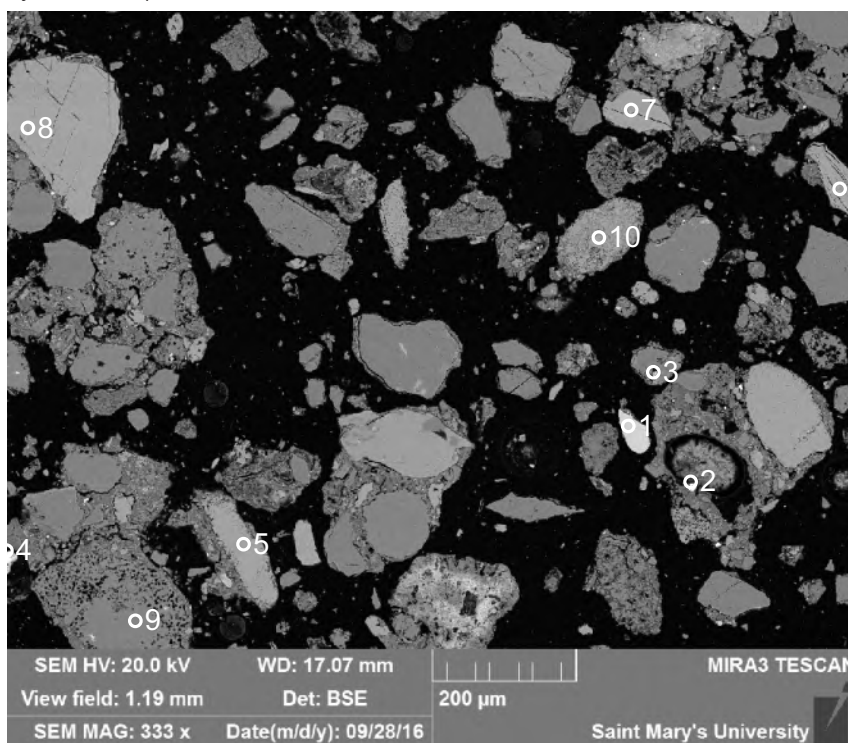
1. Zircon
2. Siderite
3. Quartz
4. Quartz
5. Calcite
6. Epidote
7. Calcite
8. Calcite
9. Quartz
10. Calcite +

Figure A3.11: Sample S11 site 10 (SEM). This site contains: detrital quartz (3, 4, 9), calcite (5, 7, 8, 10), zircon (1), epidote (6) and siderite (2). Lithic clast: Calcite + Epidote (6-7, sandy limestone).



1. Barite
2. Fe-oxide/hydroxide +
3. Fe-oxide/hydroxide +
4. Pyrite +
5. Epidote
6. Calcite
7. K-Feldspar
8. Quartz + Fe Oxide +
9. Calcite

Figure A3.12: Sample S11 site 11 (SEM). This site contains: detrital barite (1), Fe-oxide/hydroxide (2, 3), calcite (6, 9), K-feldspar (7), quartz (8), pyrite (4), and epidote (5). Lithic clast: Barite + Fe-oxide/hydroxide + ?Calcite (1-3, hydrothermal).



1. Garnet (Spessartine?)
2. Fe-oxide/hydroxide +
3. TiO_2 +
4. Fe-oxide/hydroxide +
5. Calcite
6. Chlorite
7. Calcite
8. Calcite
9. Quartz
10. Calcite

Figure A3.13: Sample S11 site 12 (SEM). This site contains: detrital calcite (5, 7, 8, 10), chlorite (6), quartz (9), garnet (1), and Fe-oxide/hydroxide (2,4).

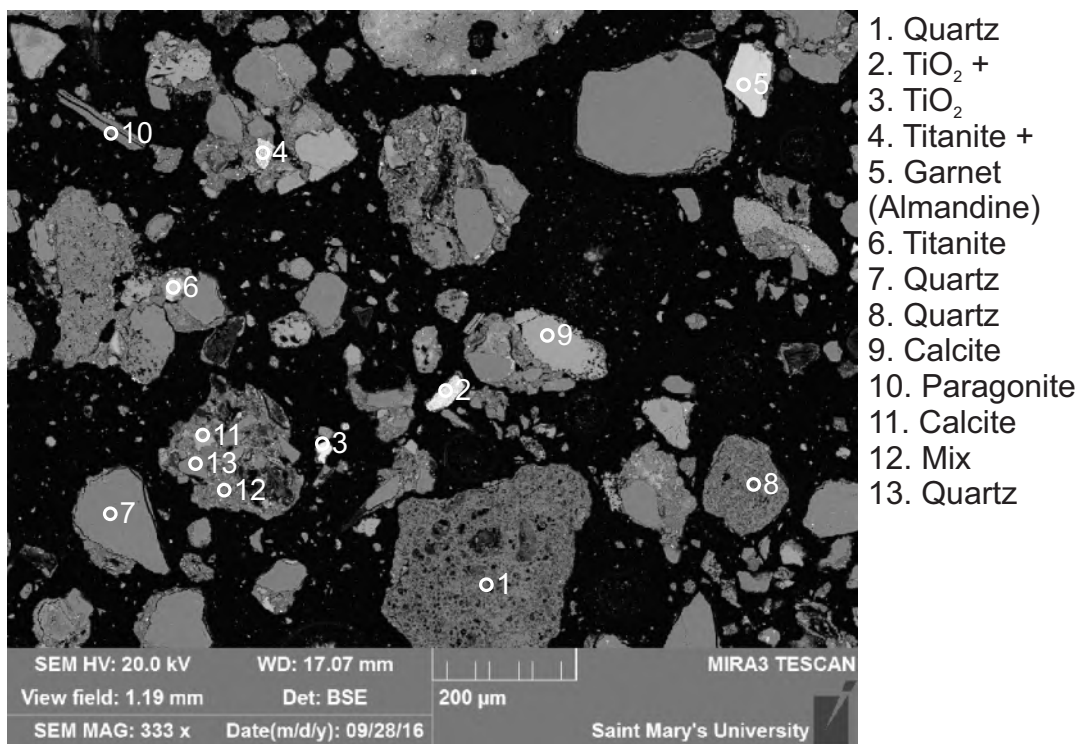


Figure A3.14: Sample S11 site 13 (SEM). This site includes: Detrital quartz (1,7,8,13), calcite (9,11), TiO_2 (2,3), paragonite (10), titanite (4,6), and garnet (5). Lithic clast: Quartz + Calcite (11-13, cherty limestone).

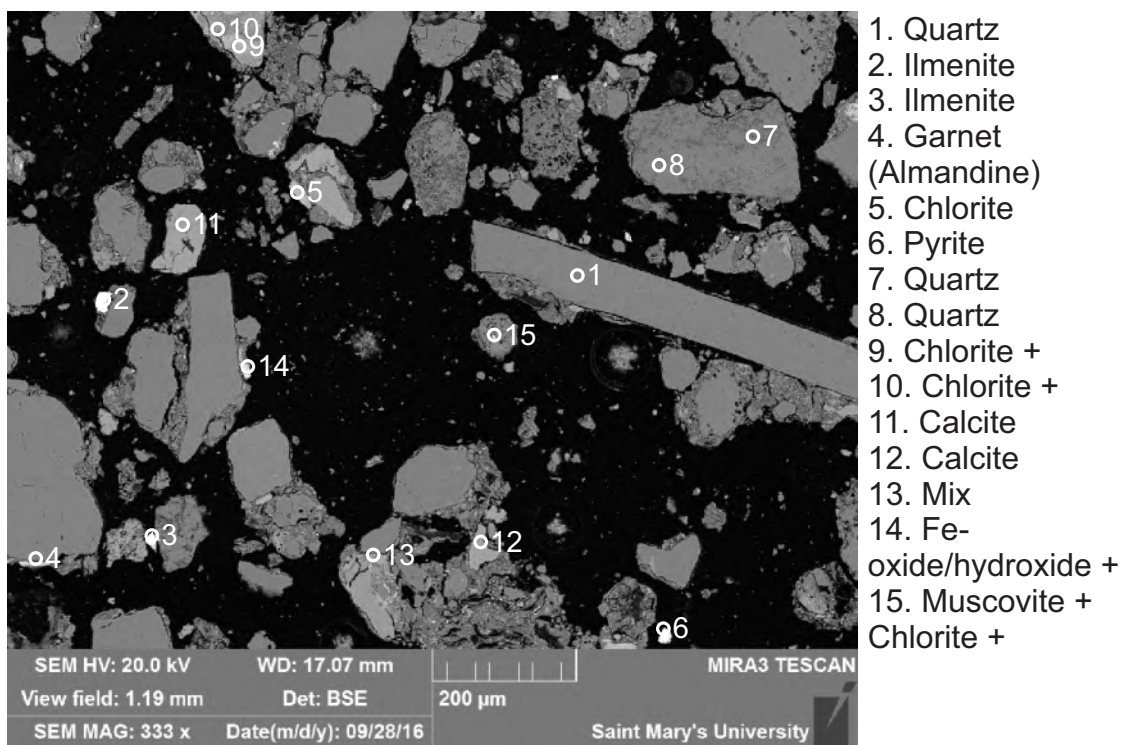
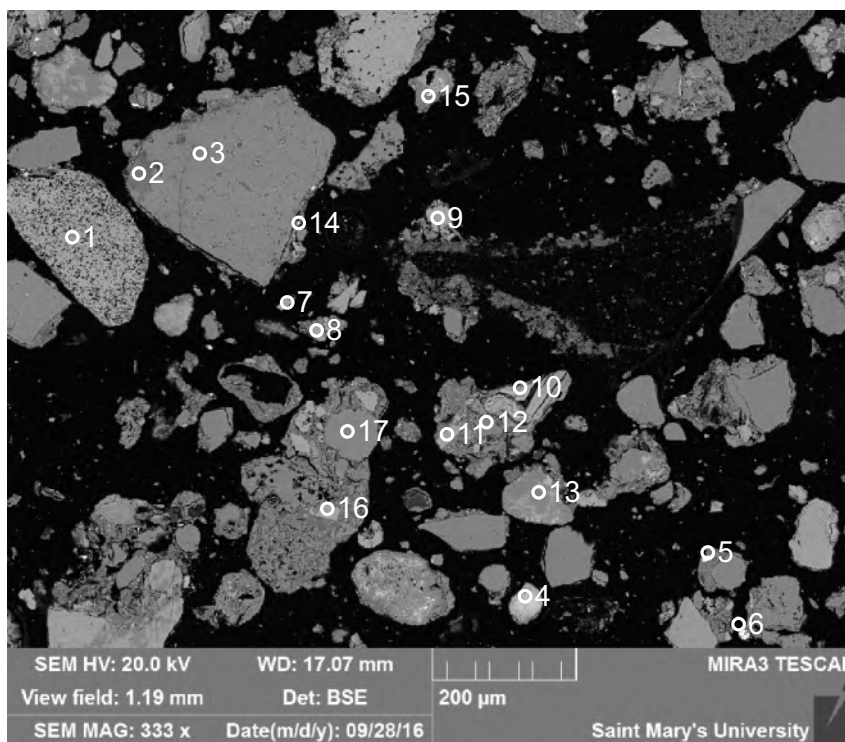
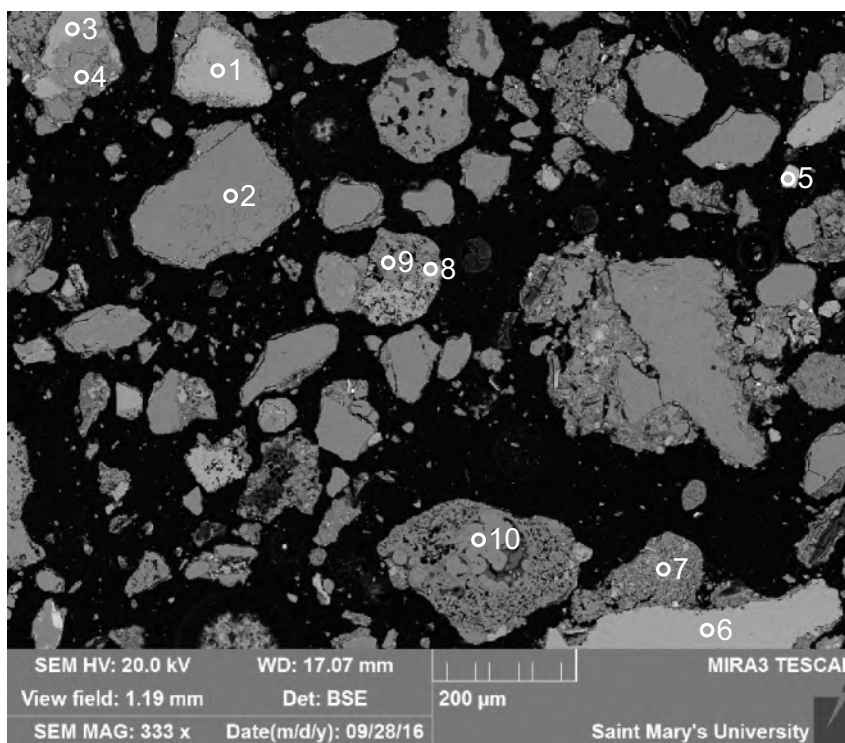


Figure A3.15: Sample S11 site 14 (SEM). This site contains: detrital quartz (1, 7, 8), calcite (11, 12), ilmenite (2, 3), garnet (4), chlorite (5), pyrite (6), Fe-oxide/hydroxide (14), and a mix between muscovite and chlorite (15).



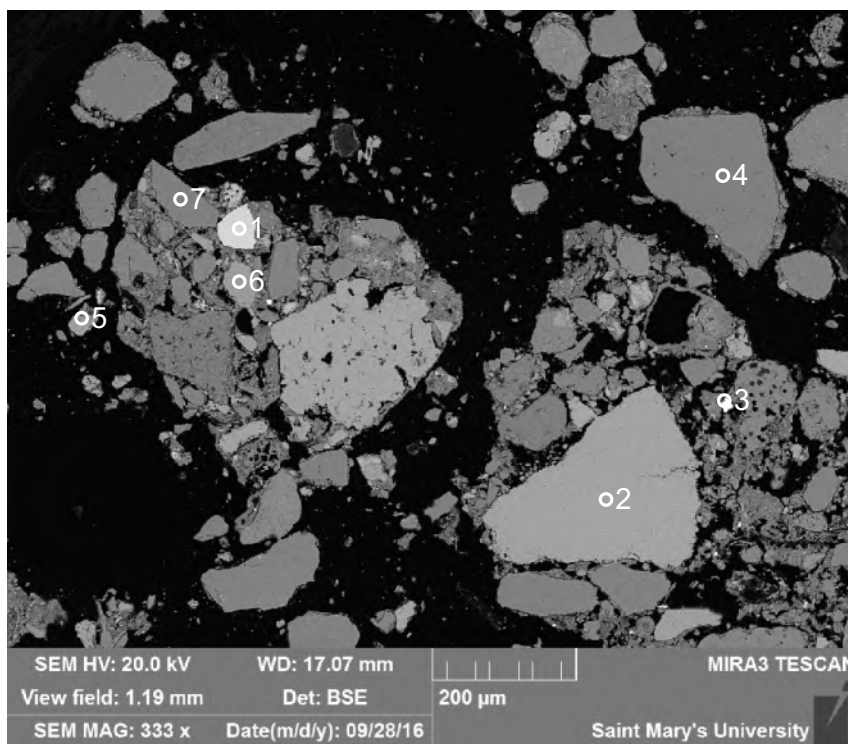
1. Calcite
2. Quartz
3. Quartz
4. Garnet (Almandine)
5. Ilmenite
6. Pyrite +
7. Calcite
8. Calcite
9. Calcite
10. Orthopyroxene
11. Calcite
12. Quartz
13. Quartz +
14. Fe-oxide/hydroxide +
15. Fe-oxide/hydroxide +
16. Calcite
17. Quartz

Figure A3.16: Sample S11 site 15 (SEM). This site contains: detrital calcite (1, 7, 8, 9, 11, 16), quartz (2, 3, 12, 13, 17), garnet (4), ilmenite (5), pyrite (6), orthopyroxene (10), and Fe-oxide/hydroxide (14,15). Lithic clasts: Quartz + Calcite (16-17, cherty limestone); Orthopyroxene + Quartz + Calcite (10-12, sandstone).



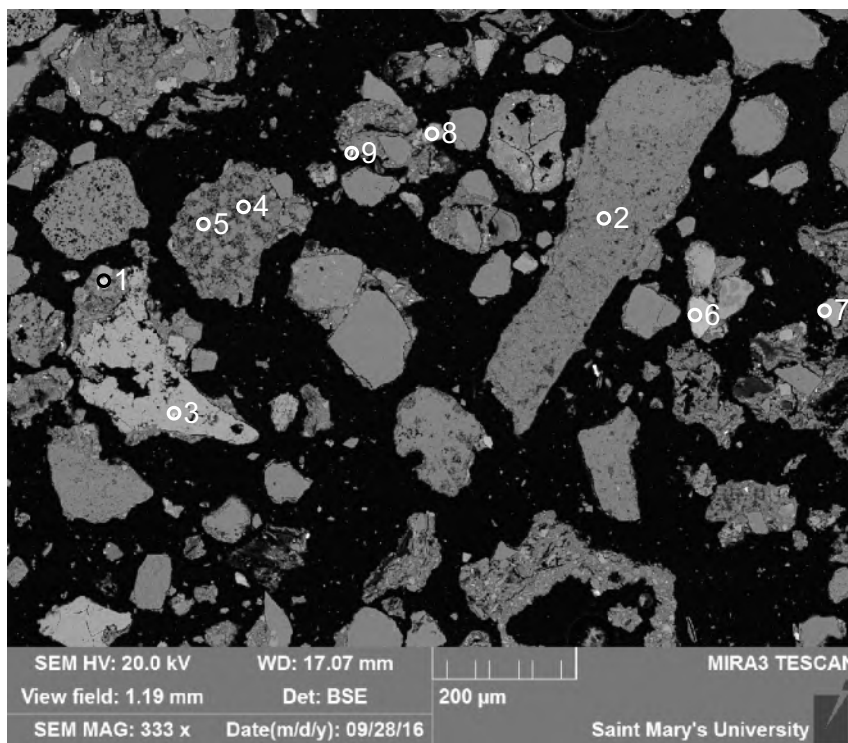
1. Calcite
2. Quartz +
3. K-Feldspar
4. Albite
5. Epidote
6. Calcite
7. Mix
8. Calcite +
9. Quartz
10. Quartz

Figure A3.17: Sample S11 site 16 (SEM). This site contains: detrital calcite (1, 6, 8), quartz (2, 9, 10), K-feldspar (3), albite (4), and epidote (5). Lithic clasts: K-feldspar + Albite (3-4, igneous); Quartz + Calcite (8-9, cherty limestone).



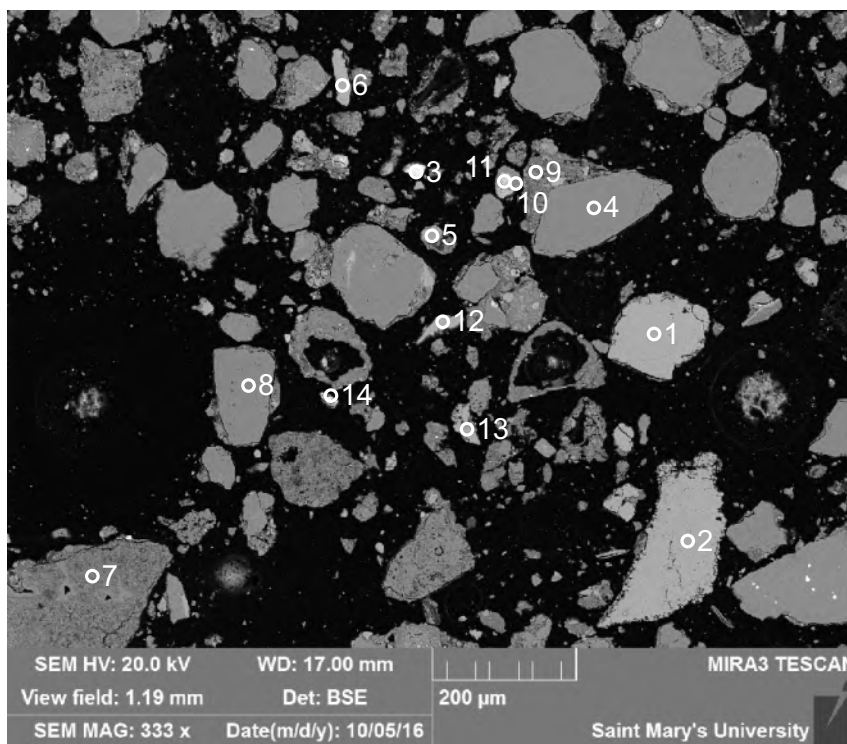
1. Garnet?
2. Calcite
3. Zircon
4. Quartz
5. Calcite + Quartz
6. K-Feldspar
7. Quartz

Figure A3.18: Sample S11 site 17 (SEM). This site contains: Detrital garnet (1), K-feldspar (6), quartz (4,7), calcite (2), and zircon (3).



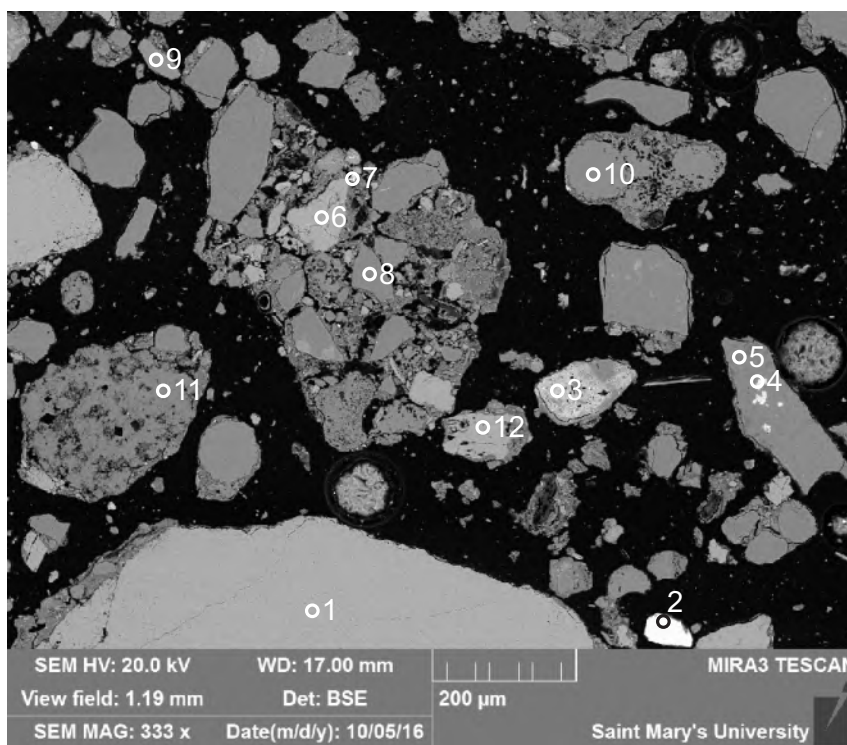
1. Ilmenite +
2. Quartz
3. Fe-oxide/hydroxide + Calcite +
4. Quartz
5. Quartz
6. Mix
7. Calcite
8. Calcite
9. Zircon +

Figure A3.19: Sample S11 site 18 (SEM). This site contains: detrital quartz (2, 4, 5), calcite (7, 8), ilmenite (1), Fe-oxide/hydroxide (3), and zircon (9).



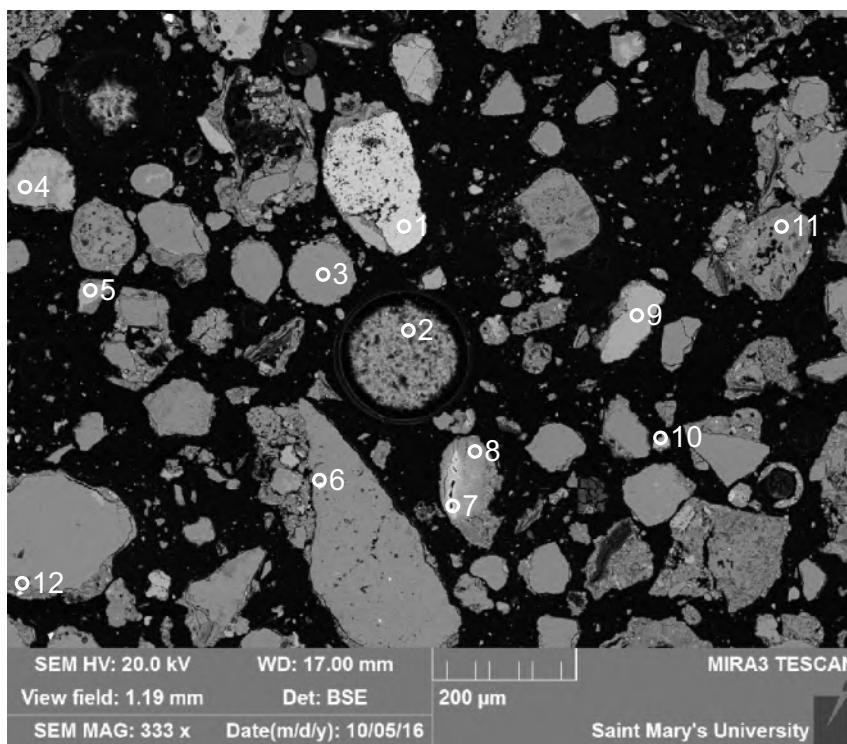
1. Calcite
2. Calcite
3. TiO_2 + Quartz
4. Quartz
5. Calcite
6. Calcite
7. Quartz
8. Quartz
9. Mix
10. Quartz +
11. Ilmenite + Chlorite
12. Calcite
13. Calcite
14. TiO_2 +

Figure A3.20: Sample S11 site 19 (SEM). This site includes: detrital calcite (1, 2, 5, 6, 12, 13), quartz (4, 7, 8, 10), TiO_2 (3,14), and ilmenite + chlorite (11).



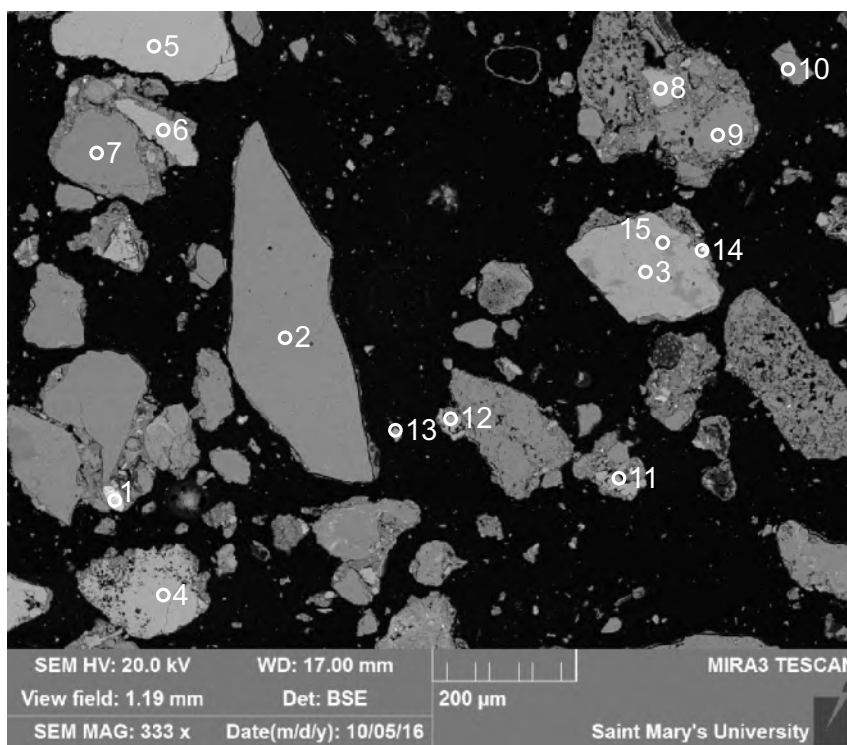
1. Calcite
2. Spinel
3. Chlorite +
4. Fe-oxide/hydroxide +
5. Quartz
6. Calcite
7. Fe-oxide/hydroxide +
8. Quartz
9. Plagioclase (Oligoclase)
10. Quartz
11. Quartz
12. Calcite

Figure A3.21: Sample S11 site 20 (SEM). This site includes: Detrital calcite (1,6,12), quartz (5,8,10-11), spinel (2), chlorite (3), plagioclase (oligoclase) (9), and Fe- oxide/hydroxide (4,7).



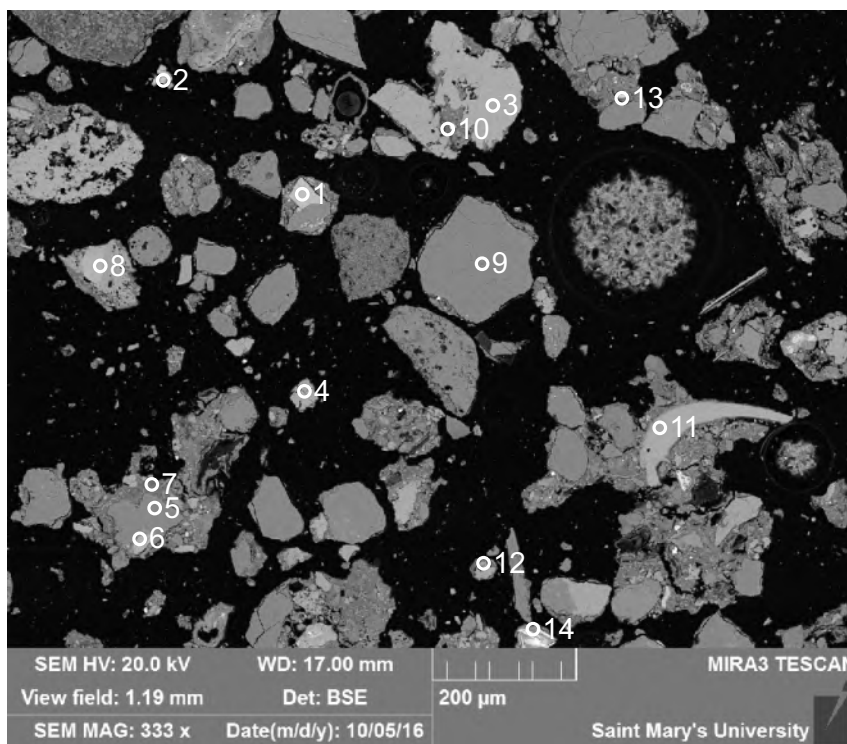
1. Apatite
2. Mix
3. Quartz
4. K-Feldspar
5. Calcite
6. Fe-oxide/hydroxide +
7. Mix
8. Mix
9. Calcite
10. Calcite
11. Quartz
12. Muscovite +

Figure A3.22: Sample S11 site 21 (SEM). This site includes: Detrital apatite (1), quartz (3, 11), K-feldspar (4), calcite (5, 9, 10), and Fe-oxide/hydroxide (6).



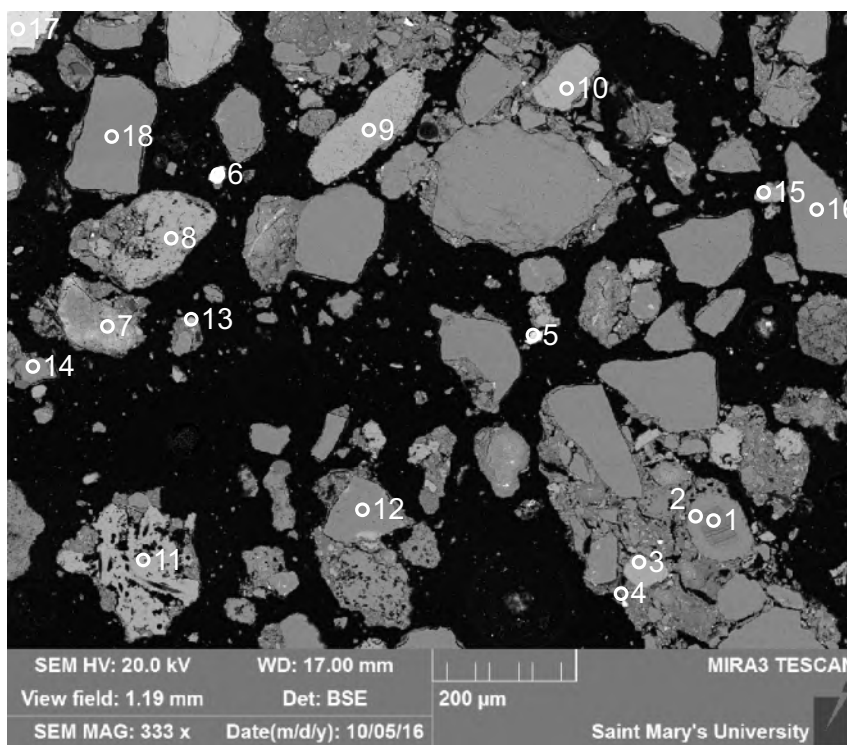
1. "Ilmenite" +
2. Quartz
3. K-Feldspar
4. Calcite
5. Calcite
6. Calcite
7. Quartz
8. Calcite
9. Quartz
10. Quartz
11. Calcite
12. Calcite
13. K-Feldspar
14. Fe-oxide/hydroxide +
15. Albite

Figure A3.23: Sample S11 site 22 (SEM). This site includes: detrital quartz (2, 7, 9, 10), calcite (4, 5, 6, 8, 11, 12), altered ilmenite (1), K-feldspar (3,13), albite (15), and Fe-oxide/hydroxide (14). Lithic clasts: K-feldspar + Albite (3,15, igneous); Quartz + Calcite (8-9, cherty limestone).



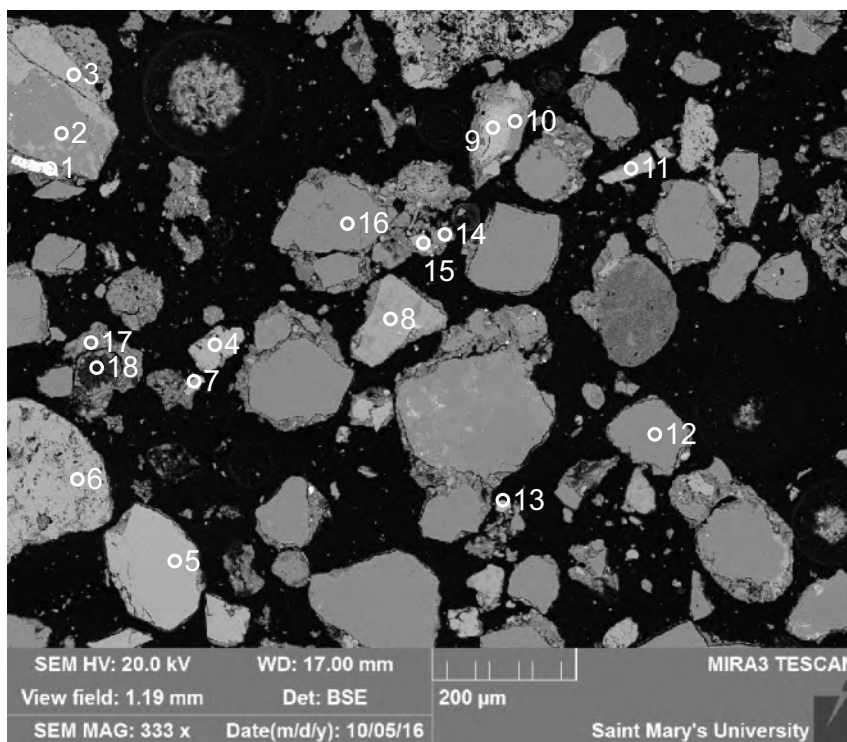
1. Epidote
2. Corundum
3. Calcite
4. Calcite
5. Quartz
6. Biotite
7. Kaolinite +
8. K-Feldspar
9. Quartz
10. Garnet (Almandine)
11. Calcite
12. Calcite+
13. Titanite
14. Titanite +

Figure A3.24: Sample S11 site 23 (SEM). This site includes: detrital corundum (2), calcite (3, 4, 11), quartz (5, 9), K-feldspar (8), biotite (6), kaolinite (7), epidote (1), garnet (10), and titanite (13, 14). Lithic clasts: Calcite + Garnet (3,10, metamorphic); Quartz + Biotite + Kaolinite (5-7, quartz with biotite and kaolinite inclusions, igneous).



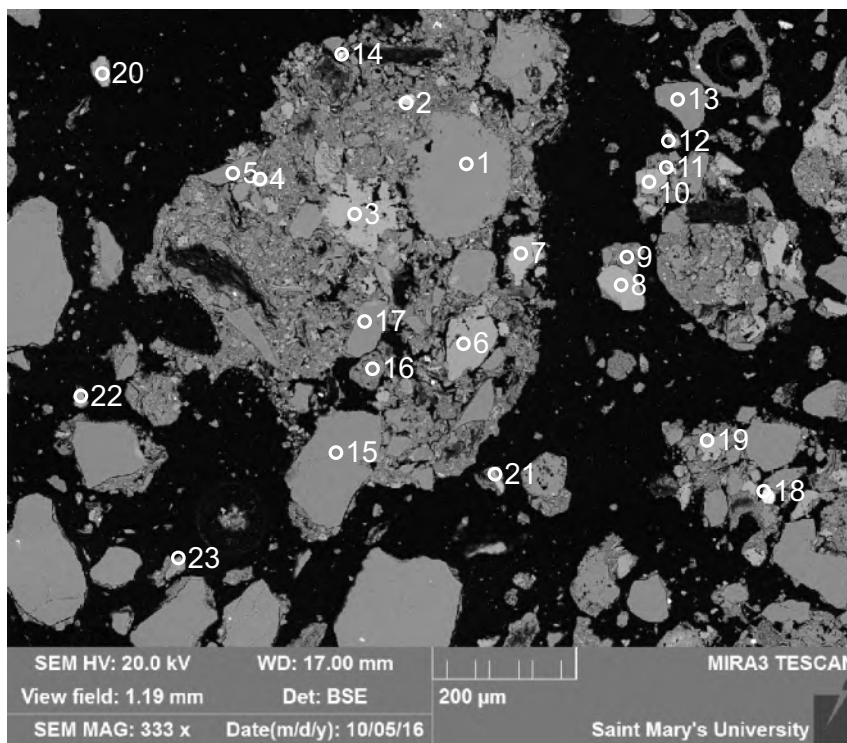
1. Quartz
2. Quartz
3. Calcite
4. Mix
5. "Ilmenite"
6. Zircon
7. Mix
8. Calcite
9. Calcite
10. K-Feldspar
11. Calcite
12. Quartz
13. Epidote
14. Quartz
15. Calcite
16. Quartz
17. Titanite
18. Quartz

Figure A3.25: Sample S11 site 24 (SEM). This site includes: detrital quartz (1, 2, 12, 14, 16, 18), calcite (3, 8, 9, 11, 15), K-feldspar (10), zircon (6), epidote (13), and titanite (17).



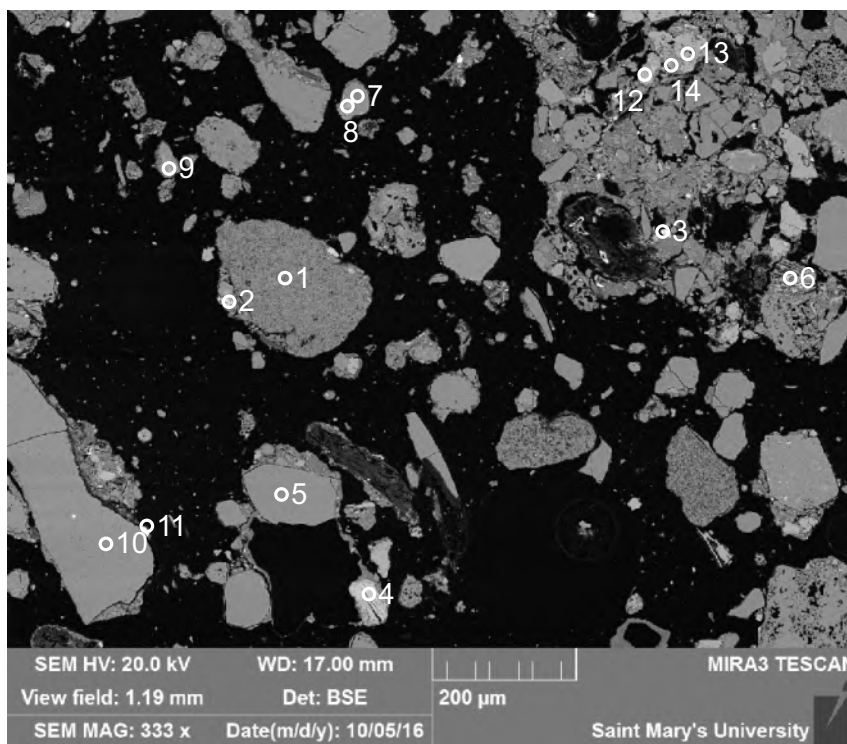
1. Limonite +
2. Quartz
3. K-Feldspar
4. Calcite
5. Calcite
6. Calcite +
7. Calcite
8. K-Feldspar +
9. Garnet (Almandine)
10. Quartz
11. Calcite
12. Quartz
13. Garnet (Almandine)
14. Quartz
15. Calcite
16. Quartz
17. Quartz
18. Mix

Figure A3.26: Sample S11 site 25 (SEM). This site includes: detrital calcite (4, 5, 6, 7, 11, 15), quartz (2, 10, 12, 14-17), K-feldspar (3,8), and garnet (9,13). Lithic clasts: Quartz + K-feldspar + Limonite (1-3, igneous); Quartz + Garnet (9-10, sandstone or metamorphic); Quartz + Calcite (14-16, sandstone).



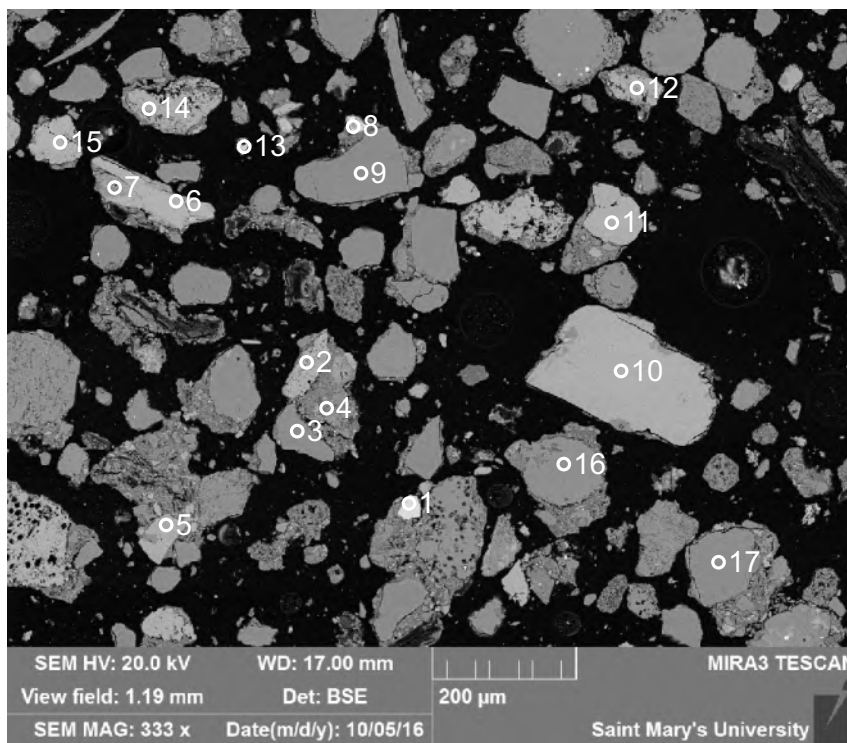
1. Quartz
2. Titanite
3. Calcite
4. Calcite
5. Quartz
6. K-Feldspar
7. Calcite
8. K-Feldspar
9. Epidote
10. Calcite
11. Mix
12. Calcite
13. Quartz
14. Mix
15. Quartz
16. Quartz
17. Quartz
18. Corundum +
19. Calcite
20. K-Feldspar
21. Biotite
22. Calcite
23. K-Feldspar

Figure A3.27: Sample S11 site 26 (SEM). This site includes: Detrital quartz (1, 5, 13, 15, 16, 17), calcite (3, 4, 7, 9, 22), titanite (2), K-feldspar (6, 8, 20, 23), epidote (9), corundum (18), biotite (21), and titanite (2). Lithic clasts: K-feldspar + Epidote (8-9, igneous).



1. Quartz
2. Mix
3. Fe-oxide/hydroxide +
4. Chlorite +
5. Quartz
6. Mix
7. Quartz
8. Garnet (Almandine)
9. Garnet + Quartz
10. Quartz
11. Arsenopyrite
12. Kaolinite + Chlorite +
13. Calcite
14. Quartz

Figure A3.28: Sample S11 site 27(SEM). This site includes: Detrital quartz (1,5,7,10,14), Fe-oxide/hydroxide (3), calcite (13), garnet (8,9), and arsenopyrite (11).



1. Apatite
2. Calcite +
3. Quartz
4. Kaolinite + Chlorite +
5. K-Feldspar
6. Calcite
7. Chlorite + Muscovite
8. Muscovite +
9. Quartz
10. K-Feldspar
11. Calcite
12. Calcite +
13. Mix
14. Calcite
15. Calcite
16. Quartz
17. Quartz

Figure A3.29: Sample S11 site 28 (SEM). This site includes: Detrital quartz (3, 9, 16, 17), calcite (2, 6, 11, 12, 14, 15), K-feldspar (5, 10), apatite (1), muscovite (8), chlorite and kaolinite (4). Lithic clasts: Calcite + Chlorite (6-7, metamorphic); Quartz + Calcite + Kaolinite + Chlorite (2-4, metamorphic).

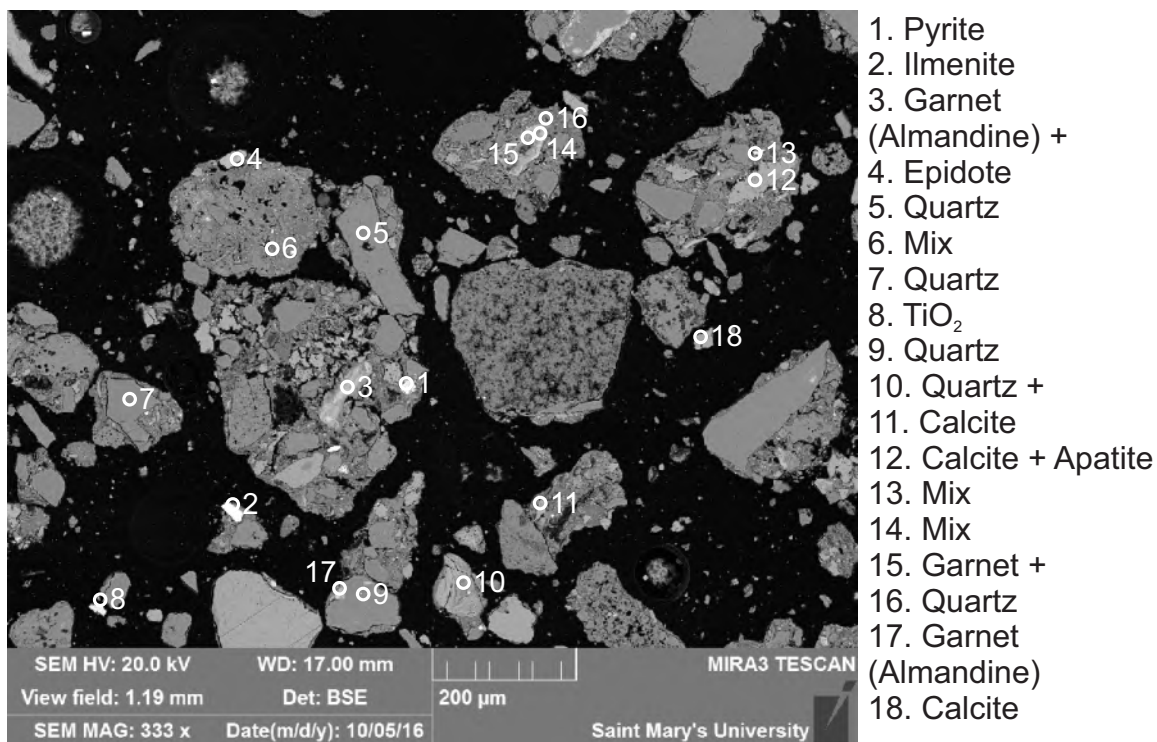


Figure A3.30: Sample S11 site 29 (SEM). This site includes: Detrital pyrite (1), garnet (3,15,17), epidote (4), quartz (5,7,9,10,16), calcite (11,18), ilmenite (2), and TiO_2 (8).

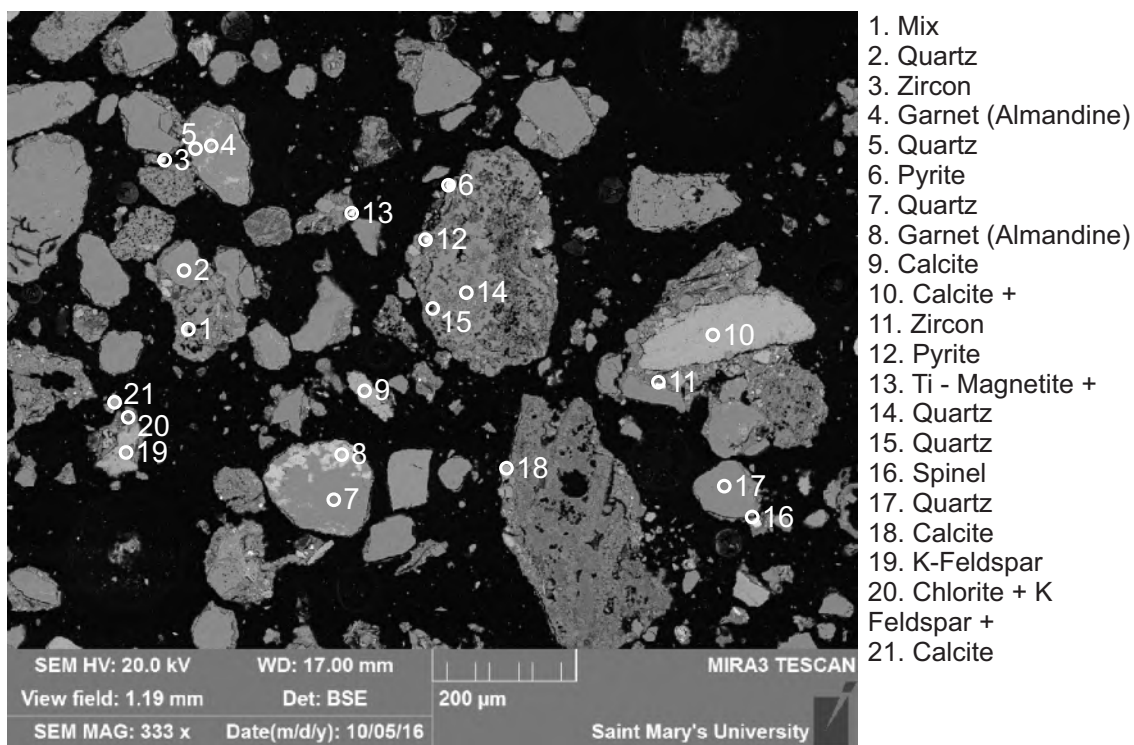
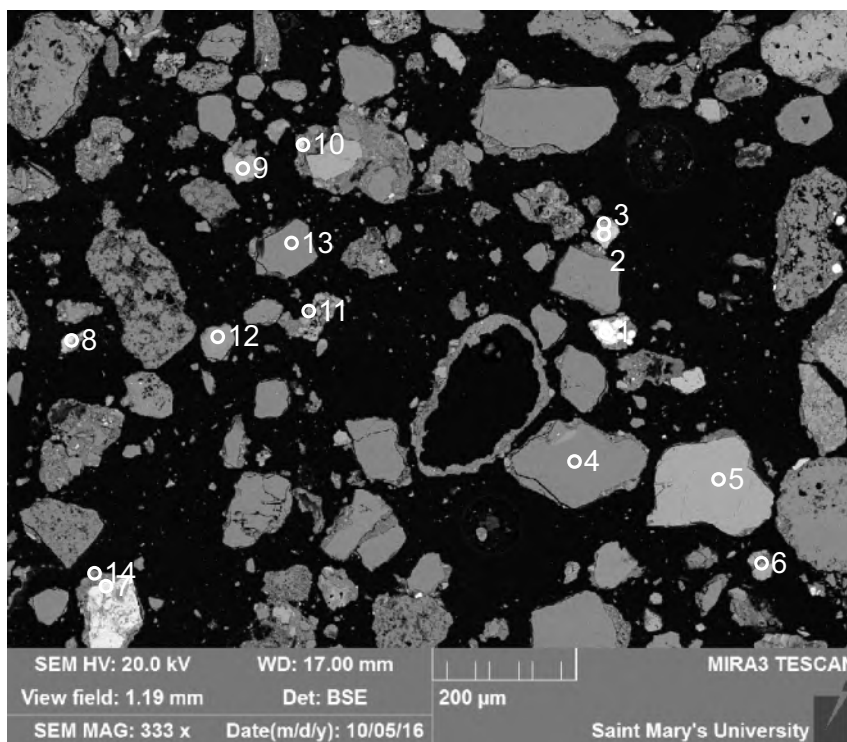
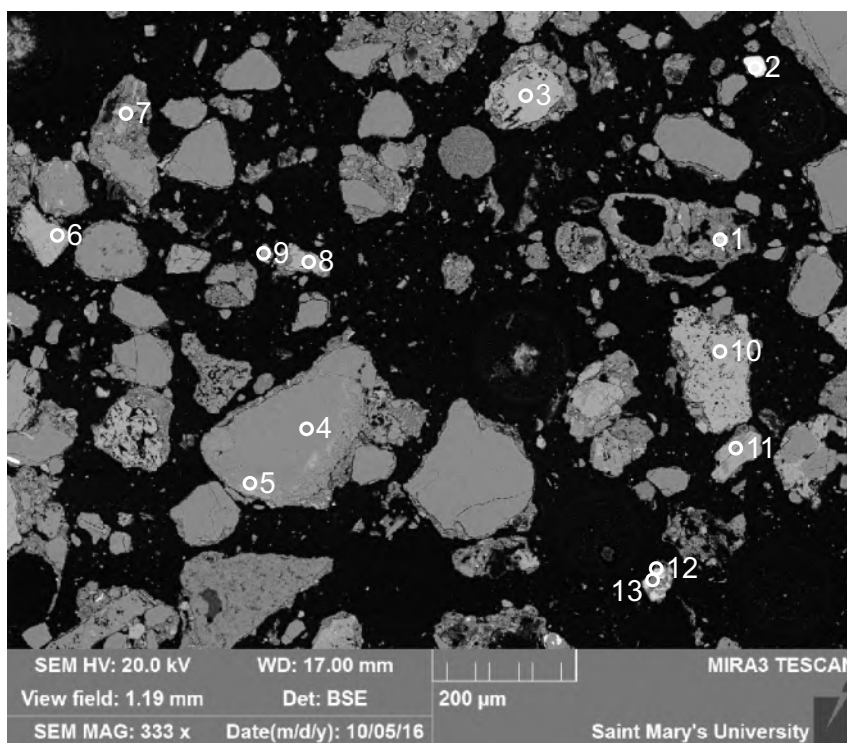


Figure A3.31: Sample S11 site 30 (SEM). This site includes: detrital quartz (2, 5, 7, 14, 15, 17), calcite (9, 10, 18, 21), K-feldspar (19), zircon (3, 11), garnet (4, 8), pyrite (6, 12), Ti-Magnetite (13), and spinel (16). Lithic clasts: K-feldspar + Chlorite (19-20, chloritization of K-feldspar, igneous); Quartz + Garnet (7-8, metamorphic); Quartz + Pyrite (6,12,14-15, chert with pyrite).



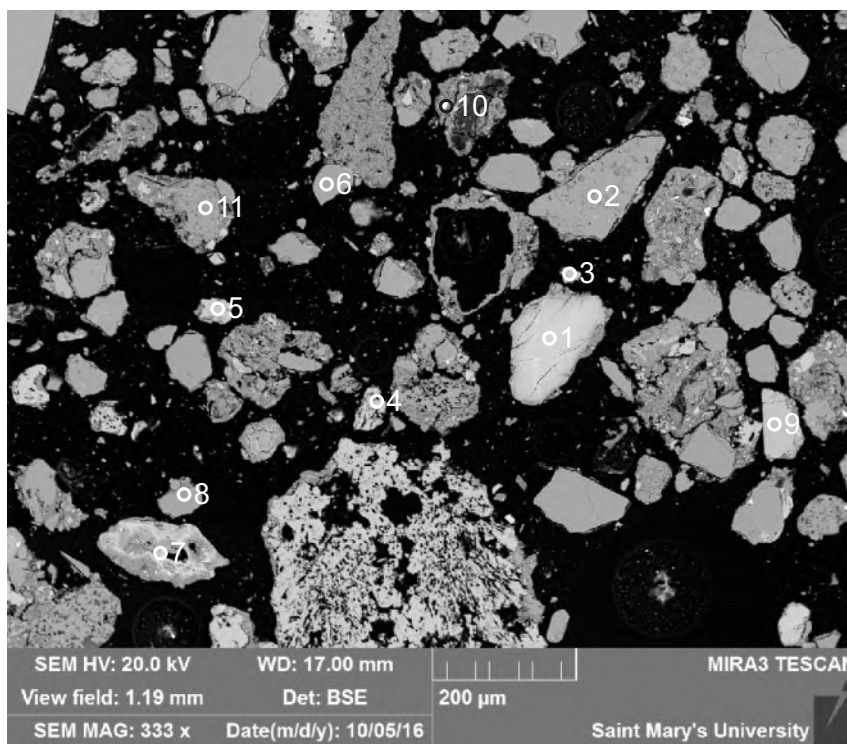
1. Fe-oxide/hydroxide +
2. Titanite
3. Garnet
4. Quartz
5. Calcite
6. Calcite
7. Mix
8. Mix
9. Calcite
10. Mix
11. Calcite +
12. Plagioclase (Andesine)
13. Quartz
14. Calcite +

Figure A3.32: Sample S11 site 31 (SEM). This site includes: Detrital quartz (4, 13), calcite (5, 6, 9, 11, 14), plagioclase (12), Fe-oxide/hydroxide (1), titanite (2), and garnet (3).



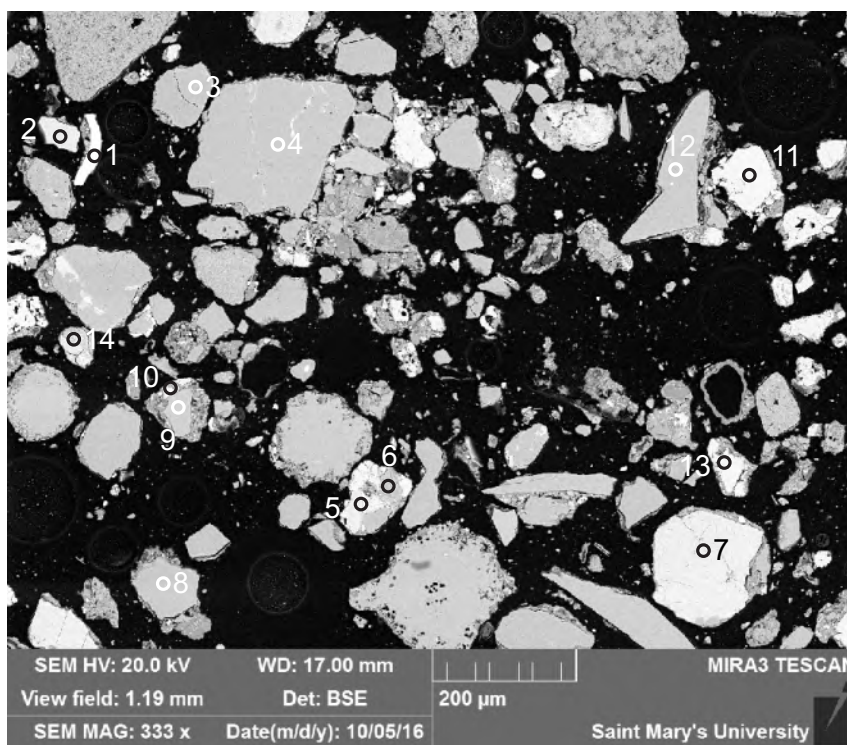
1. Titanite
2. TiO_2
3. Calcite +
4. Quartz
5. K-Feldspar
6. Calcite
7. Calcite
8. Calcite
9. Calcite
10. Calcite
11. K-Feldspar
12. Mix
13. Garnet (Almandine)

Figure A3.33: Sample S11 site 32 (SEM). This site includes: Detrital quartz (4), calcite (6, 7, 8, 9, 10), K-feldspar (5, 11), titanite (1), TiO_2 (2), and garnet (13). Lithic clast: Quartz + K-feldspar (4-5, igneous).



1. Chlorite +
2. Quartz
3. Calcite
4. Calcite
5. Calcite
6. Quartz
7. Garnet +
8. Quartz
9. K-Feldspar
10. Mix
11. Quartz

Figure A3.34: Sample S11 site 33 (SEM). This site includes: Detrital chlorite (1), quartz (2, 6, 8, 11), calcite (3, 4, 5), and K-feldspar (9).



1. Apatite
2. K-Feldspar
3. Quartz
4. Albite
5. Mix
6. Mix
7. K-Feldspar
8. Quartz
9. Quartz
10. Calcite
11. Calcite
12. Quartz
13. Calcite
14. Quartz +

Figure A3.35: Sample S11 site 34 (SEM). This site includes: Detrital apatite (1), K-feldspar (2, 7), quartz (3, 8, 9, 12, 14), albite (4), and calcite (10, 11, 13).

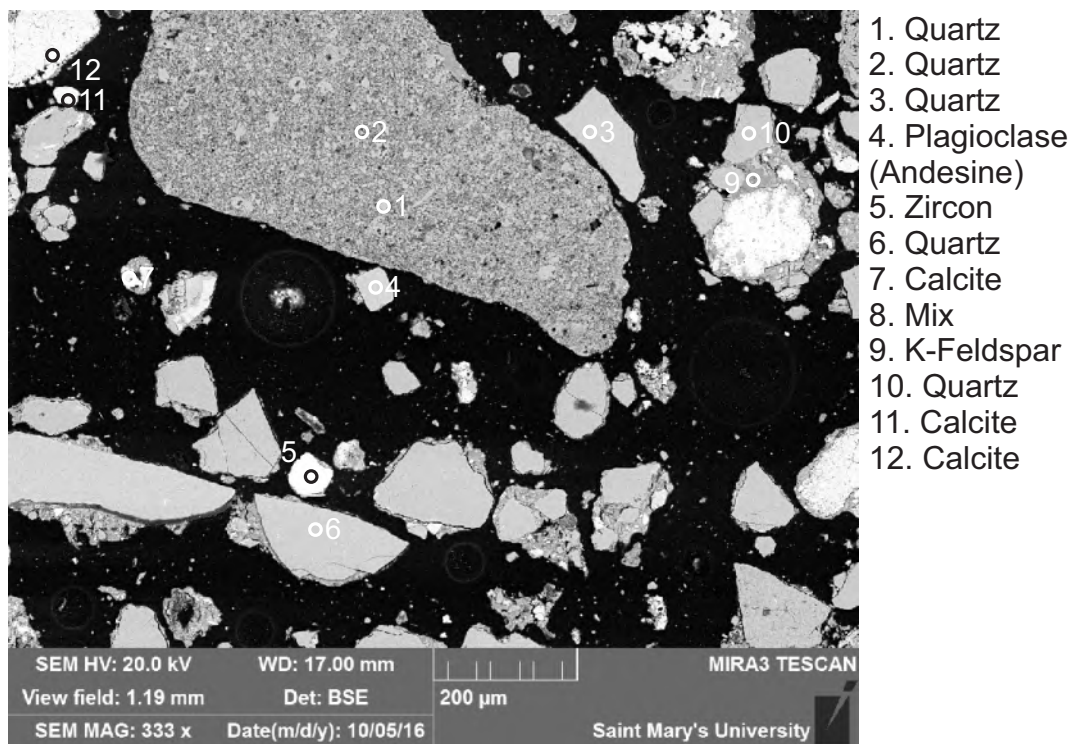


Figure A3.36: Sample S11 site 35 (SEM). This site includes: Detrital quartz (1, 2, 3, 6, 10), plagioclase (4), calcite (7, 11, 12), K-feldspar (9), zircon (5).

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	1	1	Zrn	31.26																				68.74						100	114	
S11	1	2	Qz	100.00																										100	119	
S11	1	3	Cal						0.49	55.51																				56	55	
S11	1	4	Mix	69.82	0.38	22.48	2.84		1.51	0.97	0.28	1.56				0.17														100	97	
S11	1	5	Cal						0.58	55.42																				56	58	
S11	1	6	Py	0.51			30.25			0.39				67.27															1.58	100	160	
S11	1	7	Grt (Alm)	39.73		20.98	29.02	4.62	2.65	3.01																				100	112	
S11	1	8	Cal							56.00																				56	55	
S11	1	9	Qz	99.37		0.41				0.22																				100	83	
S11	1	10	Ap						0.38	48.91	1.45		36.17	2.83	8.57													1.69		100	108	
S11	2	1	Qz	100.00																										100	118	
S11	2	2	Qz+	91.98		4.14	1.38		0.68	1.09		0.73																		100	78	
S11	2	3	Cal+Qz	12.23						87.77																				100	61	
S11	2	4	Cal							56.00																				56	55	
S11	2	5	Qz+	97.67		1.12				0.31	0.89																			100	121	
S11	2	6	Py+	14.53		5.20	31.90			0.37	3.08	0.20		44.71																100	190	
S11	2	7	Grt (Alm)	39.73		21.00	29.01	4.48	2.67	3.10																				100	111	
S11	2	8	Mix	42.19	0.62	29.25	21.47		1.24	1.48	0.36	1.95	1.21			0.23														100	85	
S11	2	9	Qz+	85.02	0.38	6.92	6.74			0.51		0.43																		100	111	
S11	2	10	Qz+	70.94	0.49	17.74	6.57		1.10	1.76		1.41																		100	76	
S11	2	11	Ab	69.54		18.77					11.69																			100	119	
S11	3	1	Ep	38.67		20.93	15.00			22.40																				97	88	
S11	3	2	Kfs	66.42		18.24					2.42	12.93																		100	114	
S11	3	3	Cal+	6.48		3.60	1.31			87.46		0.30		0.84																100	59	
S11	3	4	Mix	48.36		13.12	22.23	0.30	13.90	1.02	0.74	0.33																		100	95	
S11	3	5	Qz	100.00																										100	119	
S11	3	6	Qz	100.00																										100	118	
S11	3	7	Chl +	29.46	0.40	23.68	39.16		0.98	1.36	0.48	1.05	3.08			0.35														100	88	
S11	3	8	Mix	46.58	0.49	22.54	8.65		1.75	15.99	0.41	2.35	0.77			0.48														100	65	
S11	3	9	Sd +	4.73		6.37	83.68			2.28			2.95																	100	60	
S11	4	1	Qz	100.00																										100	115	
S11	4	2	Qz	99.13		0.73				0.14																				100	104	
S11	4	3	Cal							55.52				0.48																56	55	
S11	4	4	Qz	100.00																										100	116	
S11	4	5	Qz	98.62		0.76	0.42					0.20																		100	120	
S11	4	6	Ttn+	25.07	50.66	1.81	0.90			21.56																				100	109	
S11	4	7	"Ilm"	0.72	89.76		9.26			0.26																				100	102	
S11	4	8	Chl	28.43		15.34	25.39	0.97	14.53	0.35																				85	87	
S11	4	9	Qz	100.00																										100	113	
S11	4	10	Zrn	30.77																				67.92			1.31			100	110	
S11	4	11	Qz	99.79						0.21																				100	100	
S11	4	12	Qz	100.00																										100	120	
S11	4	13	Feho +	10.97		2.73	84.13			0.86		0.31	1.01																	100	78	
S11	5	1	Ttn+	30.00	42.61	2.45	0.66			24.28																				100	109	
S11	5	2	Feho +	8.39		2.12	87.60			0.85			1.04																	100	77	
S11	5	3	Qz	100.00																										100	118	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	5	4	Qz	99.37		0.43				0.21																				100	101	
S11	5	5	Chl+Feld	51.25	0.98	22.88	11.56	0.32	7.91	1.12		3.72				0.24														100	82	
S11	5	6	Qz	100.00																										100	118	
S11	5	7	Cal						0.36	55.64																				56	55	
S11	5	8	Feho +	6.84		2.61	88.43	0.49		0.75			0.88																	100	79	
S11	5	9	Kfs	66.23		17.74					0.33	15.69																		100	117	
S11	5	10	Mix	47.71	2.64	29.17	14.91		1.21	1.75		1.49	0.90			0.23														100	79	
S11	6	1	Cal						0.40	53.47				2.12																56	55	
S11	6	2	Qz	100.00																										100	115	
S11	6	3	Kfs	66.26		17.77					0.59	15.39																		100	113	
S11	6	4	Qz	100.00																										100	115	
S11	6	5	Mix	73.65	0.42	15.80	7.13		0.64	0.59	0.27	0.79	0.70																	100	102	
S11	6	6	Grt (Alm)	40.47	0.71	19.87	36.09			0.71		0.54	1.61																	100	85	
S11	6	7	Zrn	31.18																					68.82					100	115	
S11	7	1	Mix	8.05	1.03	6.44	79.68		0.57	1.47		0.51	2.24																	100	81	
S11	7	2	Cal							56.00																				56	56	
S11	7	3	Qz	100.00																										100	96	
S11	7	4	Qz	100.00																										100	115	
S11	7	5	Qz+	92.57		4.86	0.60		0.68			1.29																		100	104	
S11	7	6	Qz	100.00																										100	120	
S11	7	7	Py	0.81		0.29	28.15			0.14				70.61																100	222	
S11	7	8	Kfs	65.50		17.99					0.56	15.17														0.78				100	112	
S11	7	9	Qz	100.00																										100	112	
S11	7	10	Qz	98.64		0.94	0.25					0.17																		100	110	
S11	8	1	Spl +	2.89		39.58	15.88		14.76										26.89											100	102	
S11	8	2	Grt (Alm)	40.46		21.61	27.14	1.11	4.14	5.55																				100	111	
S11	8	3	Qz	99.61		0.39																								100	115	
S11	8	4	Cal						1.13	54.87																				56	57	
S11	8	5	Cal + Chl +	5.53		1.77	0.95			90.70		1.04																		100	58	
S11	8	6	Qz	100.00																										100	117	
S11	8	7	Mix				16.15		2.34	60.75	2.18			18.58																100	12	
S11	8	8	Cal	0.44						53.70				1.86																56	55	
S11	8	9	Hole													100.00														100	1	
S11	8	10	Cal						0.33	55.67																				56	55	
S11	8	11	Pl (Ads)	61.01		24.69				6.58	7.71																			100	120	
S11	8	12	Qz	100.00																										100	123	
S11	8	13	Tur	38.45	0.71	30.91	5.28		8.40	0.95	2.29																			87	100	
S11	9	1	Cal						0.38	55.62																				56	54	
S11	9	2	Qz	100.00																										100	117	
S11	9	3	Cal+	4.00		1.43				90.93			2.83	0.81																100	58	
S11	9	4	Chl + Cal	38.98		15.26	33.48	0.60	6.75	3.10	0.72	0.25	0.88																	100	94	
S11	9	5	TiO2	0.53	99.47																									100	106	
S11	9	6	Qz+	96.75		2.06					0.47	0.72																		100	117	
S11	9	7	Cal						0.64	55.36																				56	57	
S11	9	8	Mix	45.29	1.18	19.11	29.03		1.82	1.19		0.51	1.88																	100	83	
S11	9	9	TiO2 +	7.37	90.25	0.96	0.38			0.45		0.59																		100	107	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total			
S11	9	10	Cal							56.00																					56	58			
S11	10	1	Zrn	30.73		0.95	0.42			0.80							0.48								65.12			1.51				100	106		
S11	10	2	Sd	0.91			54.65			0.44																						56	64		
S11	10	3	Qz	100.00																												100	109		
S11	10	4	Qz	98.35		1.22	0.43																									100	112		
S11	10	5	Cal						0.30	55.70																							56	56	
S11	10	6	Ep	40.24		25.94	8.07			22.76																							97	108	
S11	10	7	Cal						0.30	55.17				0.54																			56	57	
S11	10	8	Cal							55.50				0.50																			56	56	
S11	10	9	Qz	100.00																													100	113	
S11	10	10	Cal+	2.18		0.76			0.64	96.42																							100	55	
S11	11	1	Brt	1.43		0.74	0.53			0.43				35.78						-0.03						61.11							100	112	
S11	11	2	Feho +	3.26	0.73	7.15	85.03	0.66		0.97			1.88						0.33														100	76	
S11	11	3	Feho +	8.97		2.48	80.95		0.65	1.57		0.37	1.04	3.97																			100	79	
S11	11	4	Py +	1.30			36.30	0.42		0.92				59.53																	1.53	100	160		
S11	11	5	Ep	40.42		27.15	6.80			22.63																							97	106	
S11	11	6	Cal						0.31	55.23				0.46																			56	54	
S11	11	7	Kfs	66.41		17.84					0.73	15.02																					100	115	
S11	11	8	Qz + Feho +	52.86	0.54	1.05	43.20			0.97			1.39																				100	87	
S11	11	9	Cal							56.00																							56	57	
S11	12	1	Grt (Spes?)	39.50		20.90	19.46	13.78	1.33	5.05																							100	114	
S11	12	2	Feho +	3.36	3.95	2.94	88.64	0.49		0.62																							100	80	
S11	12	3	TiO2 +	3.07	94.16	0.98	0.93			0.32	0.53																						100	100	
S11	12	4	Feho +	3.21		1.96	91.44	0.59		0.76			2.03																				100	81	
S11	12	5	Cal						1.06	54.94																							56	58	
S11	12	6	Chl	29.01		19.40	20.85		15.20	0.39		0.14																					85	97	
S11	12	7	Cal							56.00																								56	56
S11	12	8	Cal						0.37	55.63																							56	54	
S11	12	9	Qz	100.00																													100	120	
S11	12	10	Cal	1.08						54.92																							56	55	
S11	13	1	Qz	100.00																													100	89	
S11	13	2	TiO2 +	2.22	96.53		1.25																										100	106	
S11	13	3	TiO2		98.14		1.86																										100	105	
S11	13	4	Ttn+	31.06	25.93	5.38	17.41	0.60	4.40	15.04		0.19																					100	99	
S11	13	5	Grt (Alm)	40.15		21.11	29.58	0.82	3.06	5.27																							100	109	
S11	13	6	Ttn	33.37	37.01	1.39	0.50			27.73																							100	109	
S11	13	7	Qz	100.00																													100	119	
S11	13	8	Qz	100.00																													100	112	
S11	13	9	Cal						0.74	55.26																							56	56	
S11	13	10	Pg	48.84		37.34	0.60				7.26	0.97																				95	105		
S11	13	11	Cal				1.01	1.19	0.90	52.91																							56	55	
S11	13	12	Mix	68.91	0.45	18.14	6.16		2.09	1.88	0.64	1.73																					100	95	
S11	13	13	Qz	100.00																													100	120	
S11	14	1	Qz	99.57	0.43																												100	117	
S11	14	2	Ilm		53.68		43.36	2.70		0.27																							100	102	
S11	14	3	Ilm		52.11		39.45	8.16		0.28																							100	104	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	14	4	Grt (Alm)	39.73		21.23	32.27	0.26	5.09	1.41																				100	108	
S11	14	5	Chl	24.58		22.26	30.69		7.17	0.31																				85	95	
S11	14	6	Py				28.66			0.18				71.16																100	233	
S11	14	7	Qz	100.00																										100	102	
S11	14	8	Qz	100.00																										100	117	
S11	14	9	Chl+	31.23	0.85	26.37	36.52		1.08	1.15		0.76	2.03																	100	92	
S11	14	10	Chl+	39.19	0.74	28.75	26.74		1.05	0.99		1.17	1.37																	100	86	
S11	14	11	Cal						0.49	55.51																				56	55	
S11	14	12	Cal							56.00																				56	59	
S11	14	13	Mix	22.48	0.55	11.34	55.53	0.45	3.10	1.89	1.73	0.29	2.64																	100	87	
S11	14	14	Feho +	9.16		8.02	77.88		0.74	1.21		0.25	2.73																	100	75	
S11	14	15	Ms+Chl +	50.94	0.68	29.74	13.84		0.93	0.98	0.45	2.45																		100	86	
S11	15	1	Cal	0.52					0.57	54.91																				56	55	
S11	15	2	Qz	100.00																										100	104	
S11	15	3	Qz	100.00																										100	116	
S11	15	4	Grt (Alm)	40.70	0.55	14.32	39.06		1.19	1.28		1.48	1.43																	100	96	
S11	15	5	Ilm		52.90		43.22	3.88																						100	106	
S11	15	6	Py+	4.10		1.30	39.49			2.18	0.36		1.43	51.14																100	147	
S11	15	7	Cal							55.25				0.75																56	56	
S11	15	8	Cal							56.00																				56	57	
S11	15	9	cal						0.50	55.50																				56	56	
S11	15	10	Opx	51.07		9.99	13.99		21.50	2.24	0.93								0.28											100	112	
S11	15	11	Cal						0.71	55.29																				56	57	
S11	15	12	Qz	100.00																										100	122	
S11	15	13	Qz+	95.96		1.95	0.55		0.29	0.24	1.02																			100	121	
S11	15	14	Feho +	13.35		7.20	72.76	0.34	0.90	1.36		0.37	1.68	0.91							1.13								100	79		
S11	15	15	Feho +	7.96		7.68	82.57			0.79			1.00																	100	85	
S11	15	16	Cal	0.52						55.48																				56	57	
S11	15	17	Qz	100.00																										100	120	
S11	16	1	Cal						0.44	55.56																				56	55	
S11	16	2	Qz+	94.74		3.18					2.08																			100	119	
S11	16	3	Kfs	66.16		17.70					0.27	15.87																		100	111	
S11	16	4	Ab	68.97		19.11				0.50	11.41																			100	114	
S11	16	5	Ep	40.40		25.82	8.25			22.53																				97	105	
S11	16	6	Cal						0.48	55.52																				56	60	
S11	16	7	Mix	39.22	0.72	12.59	6.73		4.96	33.26	0.47	2.05																		100	77	
S11	16	8	Cal+	20.38		9.83	4.86		1.66	60.43		0.87		1.97																100	69	
S11	16	9	Qz	100.00																										100	117	
S11	16	10	Qz	99.24		0.52	0.24																							100	98	
S11	17	1	Grt?	39.85		20.95	23.40	6.57	0.68	8.55																				100	111	
S11	17	2	Cal						0.44	55.56																				56	59	
S11	17	3	Zrn	32.73																					65.39			1.89		100	119	
S11	17	4	Qz	100.00																										100	119	
S11	17	5	Mix	74.25	0.58	1.01	0.64	0.74	0.64	22.14																				100	90	
S11	17	6	Kfs	66.56		17.90					1.60	13.93																		100	115	
S11	17	7	Qz	100.00																										100	118	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	18	1	Ilm +	2.95	78.00	4.21	10.61			2.32	0.39		1.53																		100	93
S11	18	2	Qz	100.00																											100	112
S11	18	3	Feho+Cal +	7.68			67.13	0.53		20.07	1.21		2.22	0.84		0.32															100	77
S11	18	4	Qz	100.00																											100	91
S11	18	5	Qz	100.00																											100	117
S11	18	6	Mix	64.99		14.43	6.35	0.22		14.00																					100	111
S11	18	7	Cal						0.29	55.08				0.63																	56	58
S11	18	8	Cal						0.68	55.32																					56	55
S11	18	9	Zrn+	33.76		5.77	1.70		0.73	1.76		0.46					0.89								54.92						100	87
S11	19	1	Cal						0.31	55.69																					56	57
S11	19	2	Cal						0.7	55.3																					56	59
S11	19	3	TiO2 + Qz	8.62	88.7	0.47	1.92			0.28																					100	103
S11	19	4	Qz	100																											100	118
S11	19	5	Cal							56																					56	56
S11	19	6	Cal					0.27		55.73																					56	54
S11	19	7	Qz	100																											100	102
S11	19	8	Qz	100																											100	118
S11	19	9	Mix	57.88	0.44	24	6.07	0.54	1.51	3.73	2.91	1.66		1.08		0.21															100	85
S11	19	10	Qz +	97.89		1.69						0.42																			100	117
S11	19	11	Ilm + Chl	24.22	33.9	13.7	20.6	0.35	6.31	0.62		0.23																			100	96
S11	19	12	Cal							56																					56	55
S11	19	13	Cal +	2.94		1.24	0.55		0.6	93.85				0.81																	100	58
S11	19	14	TiO2 +	4.39	89.5	1.81	1.85		1.95	0.47																					100	88
S11	20	1	Cal						0.49	55.51																					56	57
S11	20	2	Spl			26.5	27.3		10.2																						100	109
S11	20	3	Chl +	23.88	0.33	14.5	43.4	0.73	0.54	0.992		1	1.71																		87	85
S11	20	4	Feho +	18.28		1.31	78.1			0.96			1.34																		100	81
S11	20	5	Qz	100																											100	115
S11	20	6	Cal					0.51	55.49																						56	55
S11	20	7	Feho +	3.83		2.57	90.5			1.62			1.45																		100	65
S11	20	8	Qz	100																											100	116
S11	20	9	Pl (Olig)	62.51		23.4				5.63	8.11	0.31																			100	110
S11	20	10	Qz	100																											100	115
S11	20	11	Qz	100																											100	111
S11	20	12	Cal							55.38				0.62																	56	56
S11	21	1	Ap					0.54	49.34	1.09			38	1.8	7.5														2		100	107
S11	21	2	Mix	73.56		1.15			4.35	7.4	13	0.57																			100	113
S11	21	3	Qz	100																											100	113
S11	21	4	Kfs	66.05		18.2					1.36	14.4																			100	109
S11	21	5	Cal						0.83	55.17																					56	54
S11	21	6	Feho +	5.29		2.12	88			1.88			2.68																		100	82
S11	21	7	Mix	31.48	0.37	22	40.4		1.12	1.14	0.48	1.59	1.48																		100	88
S11	21	8	Mix	48.35	0.83	29	16.3		1.26	1.27	0.39	1.42	1.01			0.18															100	91
S11	21	9	Cal						0.71	55.29																					56	56
S11	21	10	Cal							56																					56	56
S11	21	11	Qz	99.57						0.43																					100	115

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	21	12	Ms +	48.75	5.85	29	7.63	1.27	1.78	1.94	0.4	3.35																		100	79	
S11	22	1	"Ilm" +	6.31	81	3.24	6.18		0.56	1.71			0.95																	100	89	
S11	22	2	Qz	100																										100	112	
S11	22	3	Kfs	66.27		17.6					0.76	15.4																		100	112	
S11	22	4	Cal						1.02	54.98																				56	54	
S11	22	5	Cal	1.288					0.54	54.17																				56	53	
S11	22	6	Cal						4.02	51.98																				56	54	
S11	22	7	Qz	100																										100	111	
S11	22	8	Cal						0.42	55.58																				56	53	
S11	22	9	Qz	100																										100	111	
S11	22	10	Qz	100																										100	109	
S11	22	11	Cal	1.042						54.96																				56	51	
S11	22	12	Cal							56																				56	54	
S11	22	13	Kfs	65.91		17.8					0.36	16																		100	109	
S11	22	14	Feho +	5.62		4.21	87.5		0.76	0.66			1.23																	100	72	
S11	22	15	Ab	68.83		19.1				0.72	11.2	0.15																		100	113	
S11	23	1	Ep	40.21		24.2	9.6			22.95																				97	104	
S11	23	2	Crn	0.33		96.1	0.18	0.32	0.71													2.4								100	173	
S11	23	3	Cal					0.37	0.4	55.23																				56	53	
S11	23	4	Cal						0.47	55.53																				56	55	
S11	23	5	Qz	100																										100	116	
S11	23	6	Bt	42.45	2.91	20	14.8		7.93		0.34	7.59																		96	99	
S11	23	7	Kln +	46.37	1	30.3	4.34		0.97	0.8	0.27	1.42		0.58																86	84	
S11	23	8	Kfs	63.46		19.4					2.43	11.2														3.58				100	109	
S11	23	9	Qz	100																										100	116	
S11	23	10	Grt (Alm)	37.1	1.63	23.7	29.5		1.79	3.81		1.47	0.99																	100	83	
S11	23	11	Cal							56																				56	56	
S11	23	12	Cal +	8.38		4.58	1.26		0.76	83.83		0.4		0.79																100	59	
S11	23	13	Ttn	40.7	24.8	9.46	3.41		1.25	19.63		0.79																		100	91	
S11	23	14	Ttn +	33.18	16.3	10.5	14.4	0.3	18.6	6.05								0.7												100	101	
S11	24	1	Qz	100																										100	104	
S11	24	2	Qz	100																										100	120	
S11	24	3	Cal						0.76	55.24																				56	58	
S11	24	4	Mix	44.5	12.6	21.7	15.9	0.43	1.82	1.68		1.4																		100	91	
S11	24	5	"Ilm"	0.94	74.6	0.99	22.5	0.52		0.46																				100	92	
S11	24	6	Zrn	31.12																					68.9					100	112	
S11	24	7	Mix	56.83		13.1	23.6		1.65	1.23	0.41	1.45	1.78																	100	83	
S11	24	8	Cal							56																				56	52	
S11	24	9	Cal						0.7	55.3																				56	53	
S11	24	10	Kfs	65.65		17.9					0.38	15.3														0.8				100	111	
S11	24	11	Cal	1.68		0.59			0.34	52.75				0.64																56	57	
S11	24	12	Qz	100																										100	117	
S11	24	13	Ep	40.33		25.2	9.08			22.34																				97	108	
S11	24	14	Qz	100																										100	114	
S11	24	15	Cal	0.823					0.3	54.76		0.11																		56	55	
S11	24	16	Qz	99.86																							0.14			100	116	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	24	17	Ttn	32.85	38	0.89	0.31			27.96																				100	103	
S11	24	18	Qz	100																										100	114	
S11	25	1	Lm +	18.21		1.74	78.6			0.42			1.02																	100	80	
S11	25	2	Qz	100																										100	115	
S11	25	3	Kfs	66.34		17.7					1.36	14.6																		100	112	
S11	25	4	Cal							56																				56	55	
S11	25	5	Cal							56																				56	58	
S11	25	6	Cal +	13.23		1.7	0.95			83.82		0.3																		100	58	
S11	25	7	Cal						0.5	55.5																				56	56	
S11	25	8	Kfs +	70.03		16.2					1.08	12.7																		100	115	
S11	25	9	Grt (Alm)	36.7	0.93	15.9	32.1		10.3	1.83	0.51	1.03	0.77																	100	89	
S11	25	10	Qz	99.78			0.22																							100	118	
S11	25	11	Cal						0.68	55.32																				56	56	
S11	25	12	Qz	100																										100	121	
S11	25	13	Grt (Alm)	34.47	0.92	22.9	37.2		0.98	1.05		1.23	1.32																	100	90	
S11	25	14	Qz	100																										100	119	
S11	25	15	Cal				0.28			55.72																				56	56	
S11	25	16	Qz	100																										100	113	
S11	25	17	Qz	96.89		1.32	1.3			0.33		0.16																		100	106	
S11	25	18	Mix	35.41		4.86	7.75			43.31				8.66																100	7	
S11	26	1	Qz	100																										100	119	
S11	26	2	Ttn	33.46	35.5	2.55	0.91			27.56																				100	105	
S11	26	3	Cal							55.51			0.49																	56	57	
S11	26	4	Cal							56																				56	55	
S11	26	5	Qz	100																										100	118	
S11	26	6	Kfs	65.98		18.8	0.26			0.87	3.28	10.9																		100	118	
S11	26	7	Cal							56																				56	58	
S11	26	8	Kfs	65.86		17.8					1	14.6														0.77				100	117	
S11	26	9	Ep	42.65	0.72	18.6	13.1		1.22	20.45		1.5	1.45			0.29														100	66	
S11	26	10	Cal							56																				56	56	
S11	26	11	Mix	46.33	0.47	22.3	4.55		1.95	11.18	0.29	3.77	8.95			0.19														100	89	
S11	26	12	Cal							56																				56	56	
S11	26	13	Qz	100																										100	117	
S11	26	14	Mix	51.6		22	7.94		2.02	12.83		2.02				1.58														100	20	
S11	26	15	Qz	100																										100	122	
S11	26	16	Qz	99.77			0.23																							100	105	
S11	26	17	Qz	100																										100	122	
S11	26	18	Lm +	3.85		2.46	90.1		0.72	1.25			1.63																	100	76	
S11	26	19	Cal	0.627						54.89				0.49																56	57	
S11	26	20	Kfs	65.39		18.1	0.29				1.17	14.2														0.86				100	106	
S11	26	21	Bt	41.62	2.75	18.7	16.1	0.36	8.9	0.797		6.74																	96	102		
S11	26	22	Cal						0.69	55.31																				56	56	
S11	26	23	Kfs	65.98		18.4				0.63	1.51	13.5																		100	116	
S11	27	1	Qz	99.72			0.28																							100	112	
S11	27	2	Mix	9.74		10.6	75.8		2.23	0.61			1.03																	100	69	
S11	27	3	Feho +	6.1		2.79	86.1	1.67	1.19	0.91			1.27																	100	72	

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	27	4	Chl +	31.4	3.91	13.5	37.1	0.77	11.9	1.14		0.28																		100	79	
S11	27	5	Qz	100																										100	122	
S11	27	6	Mix	17.36	0.43	7.96	45.7	6.77	7.91	11.1		1.15	1.65																	100	65	
S11	27	7	Qz	100																										100	119	
S11	27	8	Grt (Alm)	36.64		23.3	25.6		14.1	0.27																				100	99	
S11	27	9	Grt + Qz	57.18		10.6	19.9		11	1.2		0.18																		100	98	
S11	27	10	Qz	99.95																							0.05			100	119	
S11	27	11	Apy	0.49			27.1							31.1						0.73			41							100	175	
S11	27	12	Kln + Chl +	39.73	1.03	30	23.7	0.31	0.98	1.31	0.34	1.15	1.52																	100	83	
S11	27	13	Cal	0.51						55.49																				56	51	
S11	27	14	Qz	100																										100	118	
S11	28	1	Ap							48.45			44.1		5.9														2		100	126
S11	28	2	Cal +	6.96						93.04																					100	58
S11	28	3	Qz	100																											100	121
S11	28	4	Kln + Chl +	49.4	0.67	31.3	13.9		1.41	1.17		1.53	0.67																		100	85
S11	28	5	Kfs	66.09		17.8					0.42	15.7																			100	116
S11	28	6	Cal				0.52	1.71	0.77	53.01																					56	55
S11	28	7	Chl + Ms	49.77		20	12.1		14.4	0.7	0.43	2.56																			100	101
S11	28	8	Ms +	43.48	9.28	25.7	5.51		3.18		0.3	7.53																		95	109	
S11	28	9	Qz	100																											100	119
S11	28	10	Kfs	65.36		17.9					0.6	15.3														0.8					100	117
S11	28	11	Cal							56																					56	57
S11	28	12	Cal +	4.81		1.64				91.67	1.06			0.81																	100	56
S11	28	13	Mix	3.36		1.23	43.7	1.64		2.74			46.3			0.99															100	29
S11	28	14	Cal							56																					56	55
S11	28	15	Cal							55.47				0.53																	56	55
S11	28	16	Qz	100																											100	120
S11	28	17	Qz	100																											100	124
S11	29	1	Py	0.59			33.5			0.46				65.5																	100	188
S11	29	2	Ilm		53.3		44.5	1.95		0.32																					100	105
S11	29	3	Grt (Alm) +	32.8	0.61	24.5	36.4		1	1.68		1.07	1.91																		100	90
S11	29	4	Ep	41.37		23.5	8.24		2.16	20.93			0.84																		97	106
S11	29	5	Qz	100																											100	116
S11	29	6	Mix	48.04	0.78	24.6	20.9		1.16	1.12		1.14	2.02			0.22															100	77
S11	29	7	Qz	100																											100	117
S11	29	8	TiO2		99.7		0.3																								100	106
S11	29	9	Qz	100																											100	121
S11	29	10	Qz +	86.8		7.36	3.08		0.89	0.44		1.44																			100	111
S11	29	11	Cal	0.913		0.45	0.33	0.43		53.88																					56	59
S11	29	12	Cal + Ap	1.09			1.35	2.26	0.81	88.07			6.43																		100	57
S11	29	13	Mix	20		9.95	62.9		1.19	4.63		1.32																			100	71
S11	29	14	Mix	35.98	2.93	15.2	27.8	6.33	2.18	6.08		1.29	2.23																		100	88
S11	29	15	Grt +	44.51	1.12	21.4	13.9	9.92	2.98	2.67	0.41	2.53	0.58																		100	87
S11	29	16	Qz	100																											100	117
S11	29	17	Grt (Alm)	32.41		22	33.9	0.8	9.41	0.69		0.8																			100	96
S11	29	18	Cal							55.31				0.69																	56	57

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total
S11	30	1	Mix	31.17		9.03	3.77		0.94	27.8		1.61	23.9			1.83															100	18
S11	30	2	Qz	100																											100	116
S11	30	3	Zrn	31.05		0.46																		66.9			2				100	116
S11	30	4	Grt (Alm)	37.3		21.1	28.7	0.43	10.1	0.99	0.87	0.57																			100	93
S11	30	5	Qz	100																											100	114
S11	30	6	Py	0.79			32.5			0.78				65.9																	100	189
S11	30	7	Qz	100																											100	119
S11	30	8	Grt (Alm)	35.28		22	32.7	0.45	8.77	0.54		0.25																			100	96
S11	30	9	Cal						0.55	55.45																					56	56
S11	30	10	Cal +	7.41		2.42	0.76		1.23	87.48		0.71																			100	61
S11	30	11	Zrn	31.12																					67.5			1			100	123
S11	30	12	Py	0.48			32.1			0.35				67.1																	100	198
S11	30	13	Ti - Mag +	1.17	19.6		77.9	1.39																							100	90
S11	30	14	Qz	100																											100	102
S11	30	15	Qz	96.96		2.4	0.33					0.31																			100	110
S11	30	16	Spl			34.1	20		13.1										32.8												100	108
S11	30	17	Qz	100																											100	121
S11	30	18	Cal	0.504						55.5																					56	54
S11	30	19	Kfs	65.76		17.7						15.9													0.61						100	112
S11	30	20	Chl + Kfs +	61.92	0.47	18.9	9		1.77	3.51		3.83	0.59																		100	81
S11	30	21	Cal						0.4	55.47		0.13																			56	55
S11	31	1	Feho +	3.62		1.78	89.6	0.75	0.64	1.01			1.82	0.8																	100	75
S11	31	2	Ttn	31.55	37.6	2.35	1.97		0.6	25								0.9													100	108
S11	31	3	Grt	43.05	0.49	19.2	20.8		13.3	2.35		0.72																			100	82
S11	31	4	Qz	100																											100	120
S11	31	5	Cal							56																					56	58
S11	31	6	Cal						0.37	55.63																					56	58
S11	31	7	Mix?	53.57	46.2		0.24																								100	115
S11	31	8	Mix	6.07		1.95	80.2			4.22			6.42	1.19																	100	56
S11	31	9	Cal					1.24	0.63	54.13																					56	53
S11	31	10	Mix	15.98		7.08	21.8		0.8	5.31		0.82		48.2																	100	102
S11	31	11	Cal +	1.596		0.63	0.27			53.39		0.11																			56	53
S11	31	12	Pl (Ads)	58.59		26.3				8.38	6.71																				100	112
S11	31	13	Qz	100																											100	115
S11	31	14	Cal +	29.89	1	11.8	3		1.27	51.92		1.14																			100	63
S11	32	1	Ttn	35.29	29.9	5.57	2.02			27													0.3								100	102
S11	32	2	TiO2		98.5	0.59	0.64			0.25																					100	100
S11	32	3	Cal +	3.95			1.23	1.05	1.54	92		0.22																			100	56
S11	32	4	Qz	100																											100	117
S11	32	5	Kfs	63.78		17.5	2.85		1.97		0.47	13.5																			100	105
S11	32	6	Cal	0.403						55.6																					56	54
S11	32	7	Cal							56																					56	53
S11	32	8	Cal							56																					56	54
S11	32	9	Cal	0.588					0.32	54.48				0.61																	56	55
S11	32	10	Cal						0.42	55.58																					56	54
S11	32	11	Kfs	66.02		17.8					0.83	15.4																			100	116

Table A3.1: EDS analyses of sample S11.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Sc2O3	V2O5	Cr2O3	CoO	NiO	CuO	ZnO	As2O3	ZrO2	BaO	Yb2O3	HfO2	WO3	PtO2	Total	Actual Total				
S11	32	12	Mix	10.55	0.68	9.3	71.8	1	1.04	1.79		0.3	3.15						0.36												100	63				
S11	32	13	Grt (Alm)	42.51	0.77	19.9	29		1.83	2.19		1.35	1.77			0.69															100	48				
S11	33	1	Chl +	39.1		11.1	27	0.43	19.1	1.79	0.54	0.24	0.69																		100	100				
S11	33	2	Qz	100																											100	124				
S11	33	3	Cal						0.62	55.38																					56	61				
S11	33	4	Cal							56																					56	60				
S11	33	5	Cal	0.482						55.52																					56	59				
S11	33	6	Qz	100																											100	125				
S11	33	7	Grt +	38.89	0.32	28.5	26.9		1.36	1.11	0.42	0.93	1.61																		100	104				
S11	33	8	Qz	100																											100	127				
S11	33	9	Kfs	66.15		17.5					0.32	16																			100	127				
S11	33	10	Mix	14.41	36.6	5.84	39.4	1.03	1.01	0.85		0.23	0.56									0.1									100	98				
S11	33	11	Qz	99.51						0.49																					100	124				
S11	34	1	Ap				0.4			49.22	0.55		41.1	0.75	6.6													1			100	113				
S11	34	2	Kfs	66.26		18.3					1.53	14																			100	120				
S11	34	3	Qz	100																											100	125				
S11	34	4	Ab	69.76		18.5					11.7																				100	124				
S11	34	5	Mix	55.56		15.5	2		0.92	14.77	0.29	11																			100	104				
S11	34	6	Mix	68.76		2.56	2.07	0.4	1.05	24.49	0.67																				100	91				
S11	34	7	Kfs	65.94		17.9					0.43	15.7																			100	128				
S11	34	8	Qz	100																											100	129				
S11	34	9	Qz	100																											100	125				
S11	34	10	Cal	0.605						55.4																					56	61				
S11	34	11	Cal							56																					56	60				
S11	34	12	Qz	99.86								0.14																			100	124				
S11	34	13	Cal							56																					56	63				
S11	34	14	Qz+	77.58		8.92	8.75		0.43	0.74	0.3	2.73	0.56																		100	118				
S11	35	1	Qz	100																											100	125				
S11	35	2	Qz	99.81												0.19															100	86				
S11	35	3	Qz	98.79		0.88						0.33																			100	125				
S11	35	4	Pl (Ads)	64.36		22.4				4.04	9.21																				100	126				
S11	35	5	Zrn	31.17																					68.8						100	130				
S11	35	6	Qz	100																											100	129				
S11	35	7	Cal							55.33				0.67																	56	60				
S11	35	8	Mix	28.4	1.09	18.4	45.2	0.84	1.16	0.69		3.14	1.08																		100	91				
S11	35	9	Kln +	55.8	0.47	35.9	3.78		1.12	1.05		1.7				0.22															100	86				
S11	35	10	Qz	100																											100	127				
S11	35	11	Cal					0.67		55.33																					56	58				
S11	35	12	Cal						0.52	55.48																					56	59				
			Notes																																	
			+ = indicates other minerals are present																																	
			" " = indicates that mineral is altered																																	
			Feho = Fe-oxide/hydroxide																																	
			Pl (Ads) = Plagioclase (Andesine)																																	

A4: SEM-BSE images and EDS
mineral analyses for sample S12

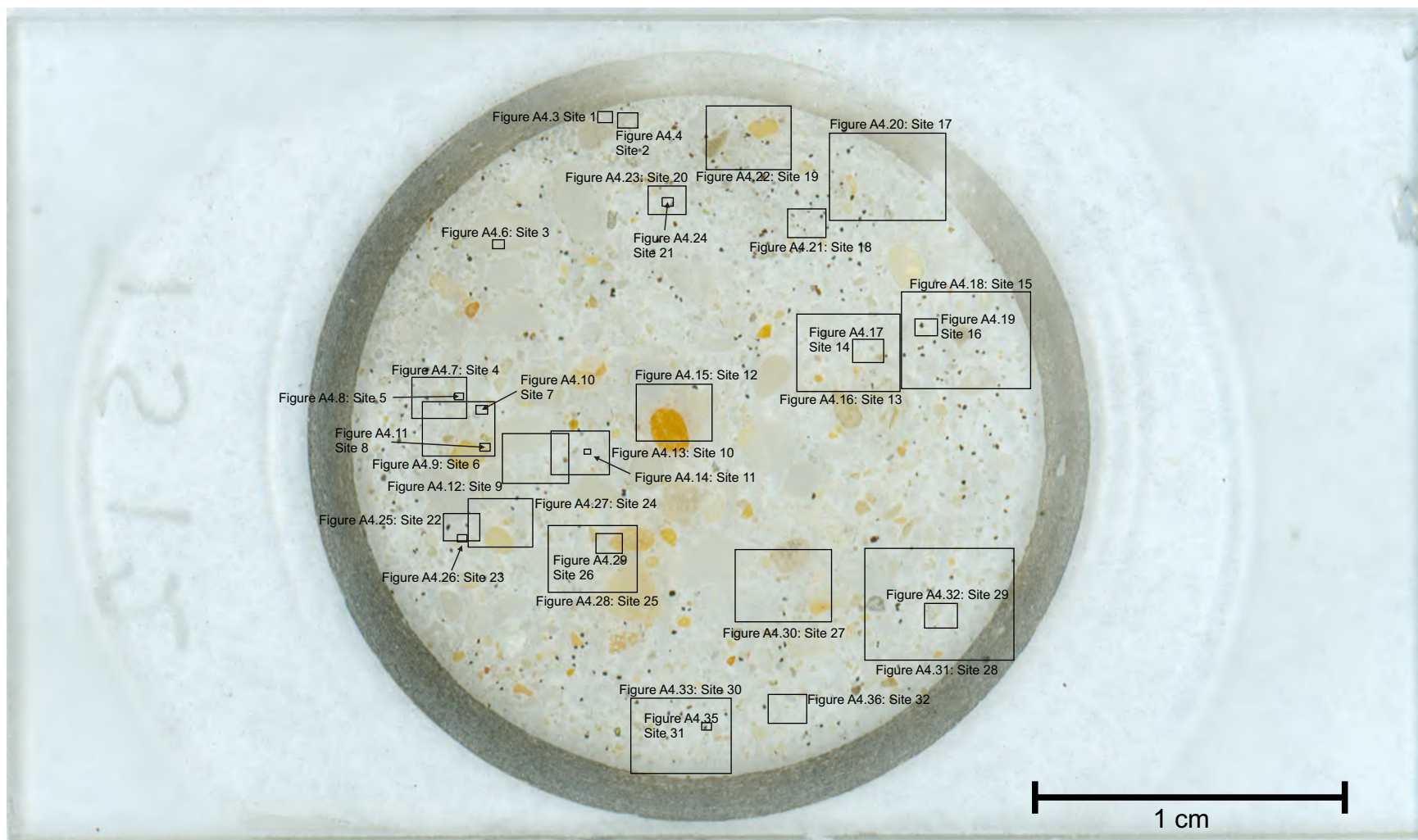


Figure A4:1: Slide S12, Fine sand with heavy minerals taken from Monolithos beach.

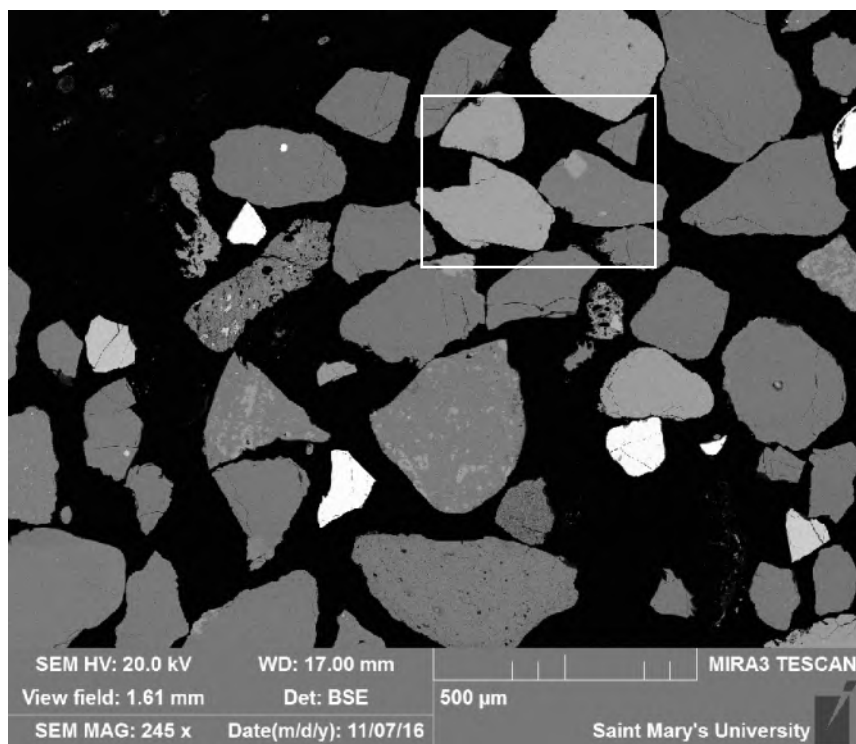
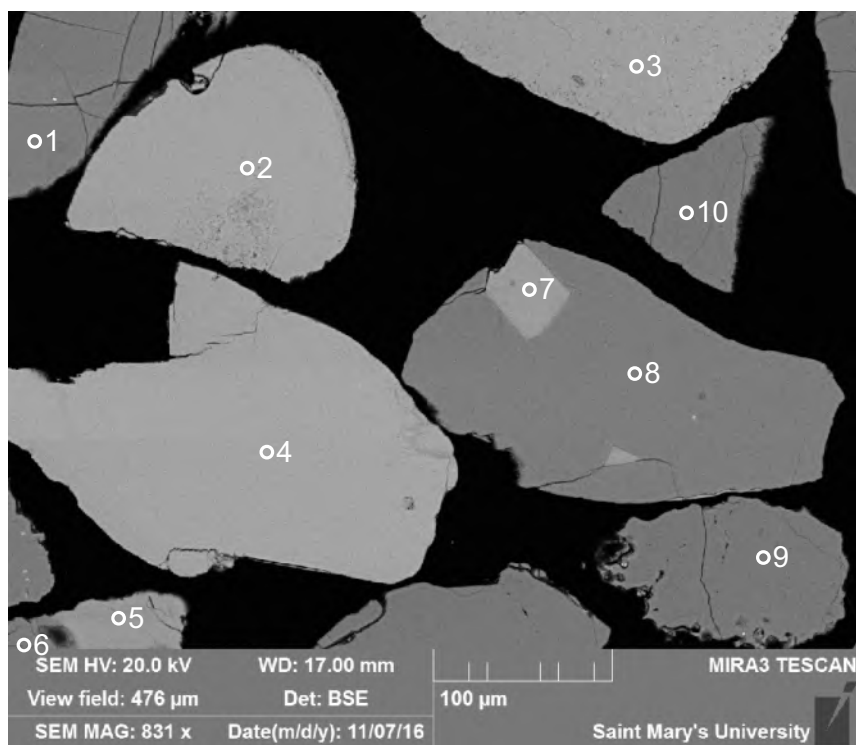
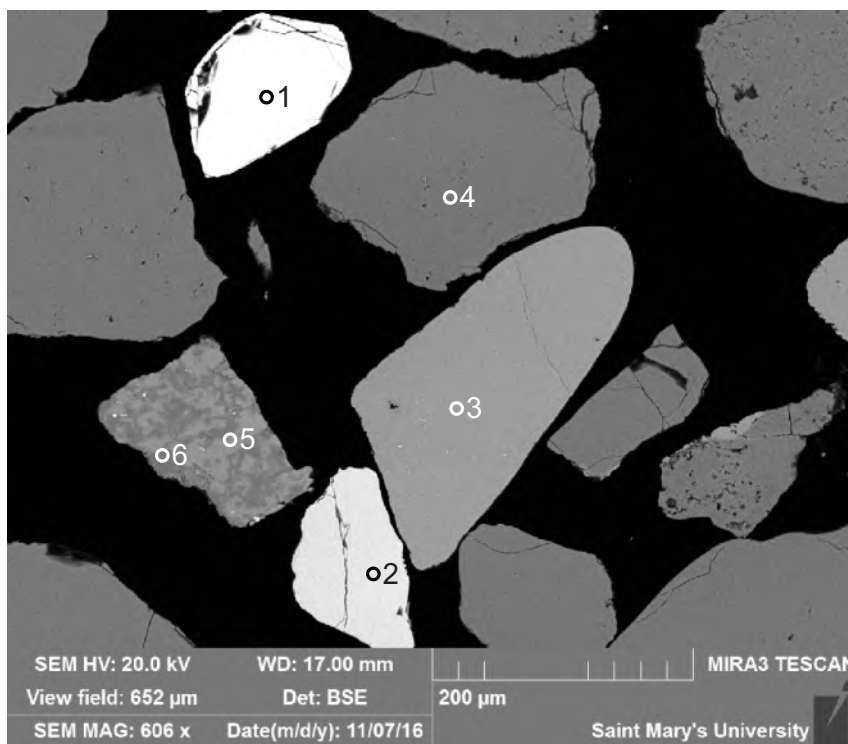


Figure A4.2: Sample S12 (SEM).



- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Calcite
- 5: K-Feldspar
- 6: Quartz
- 7: Calcite
- 8: Quartz
- 9: Quartz
- 10: Quartz

Figure A4.3: Sample S12 Site 1 (SEM). This site contains: detrital quartz (1, 6, 8, 9, 10), calcite (2, 3, 4, 7) and K-Feldspar (5). Lithic clast: Quartz + Calcite (7-8, chert in sparry limestone).



- 1: Chromite
- 2: TiO_2
- 3: Calcite
- 4: Quartz
- 5: K-Feldspar
- 6: Quartz

Figure A4.4: Sample S12 Site 2 (SEM). This site contains: detrital chromite (1), TiO_2 (2), quartz (4,6), K-Feldspar (5), and calcite (3). Lithic clast: Quartz + K-feldspar (5-6, igneous).

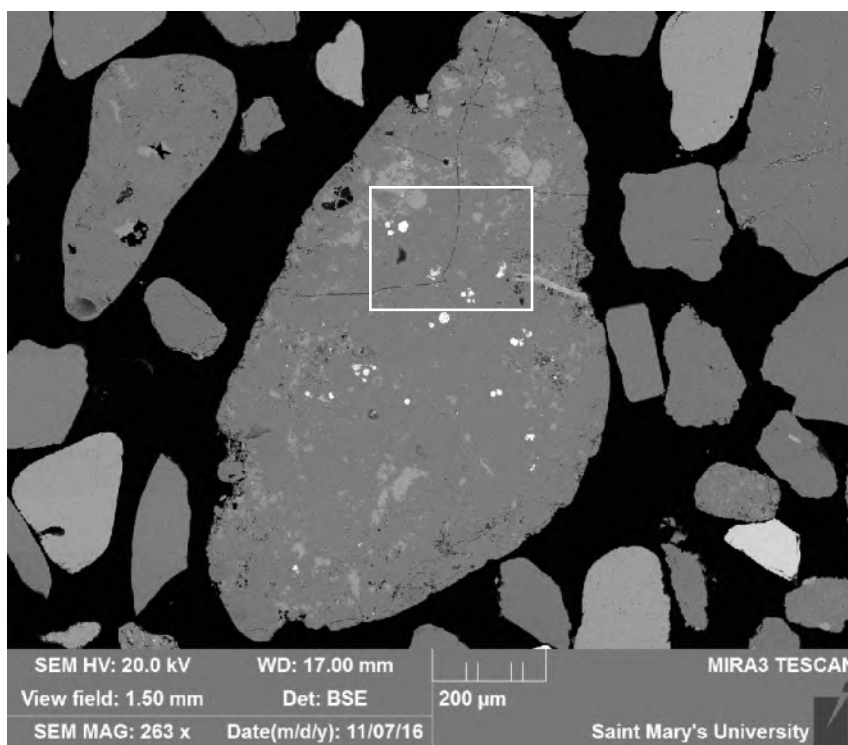
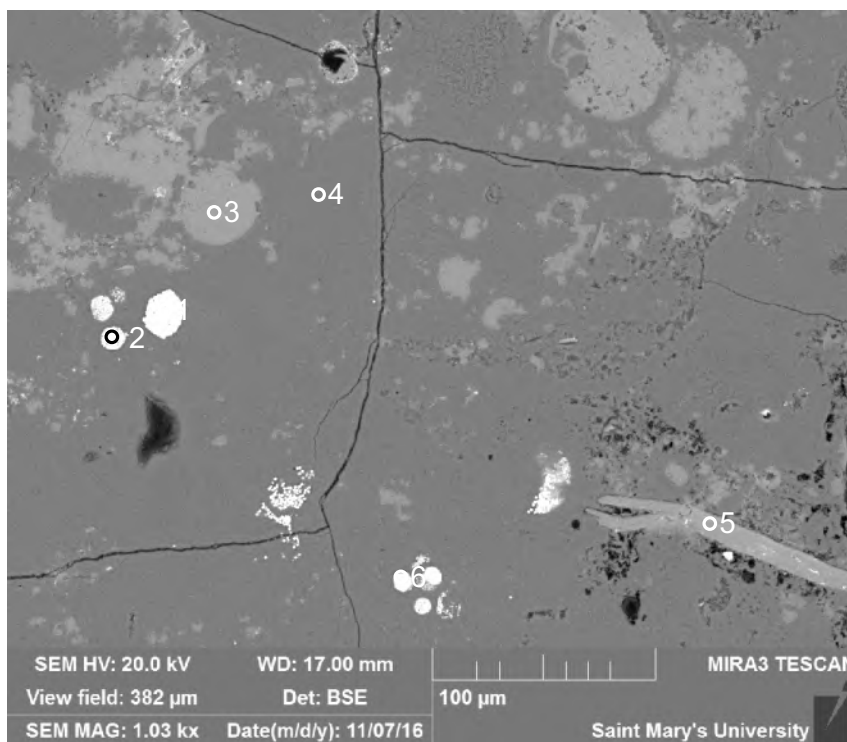
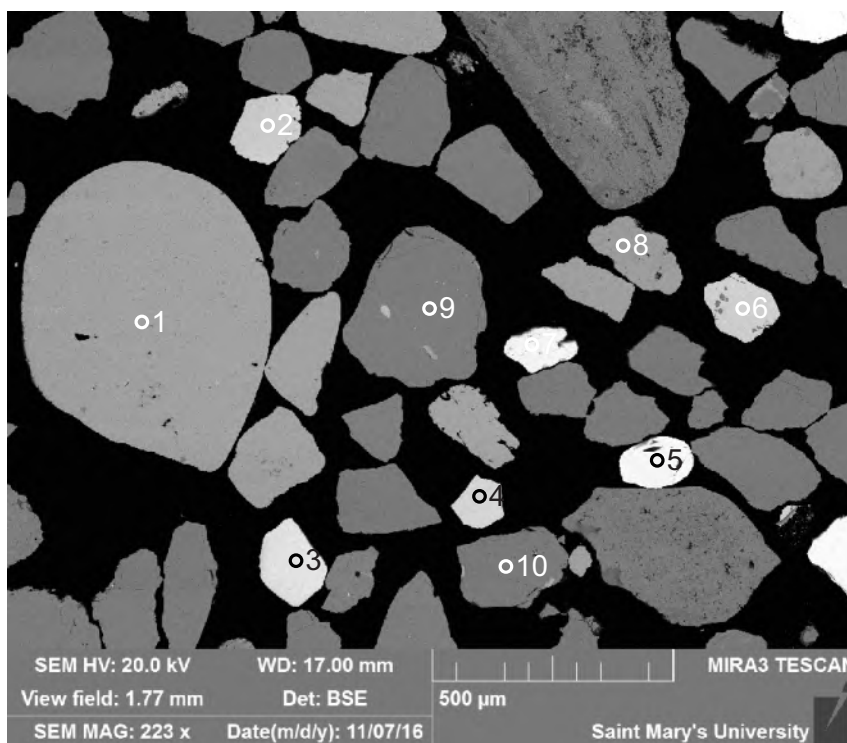


Figure A4.5: Sample S12 (SEM).



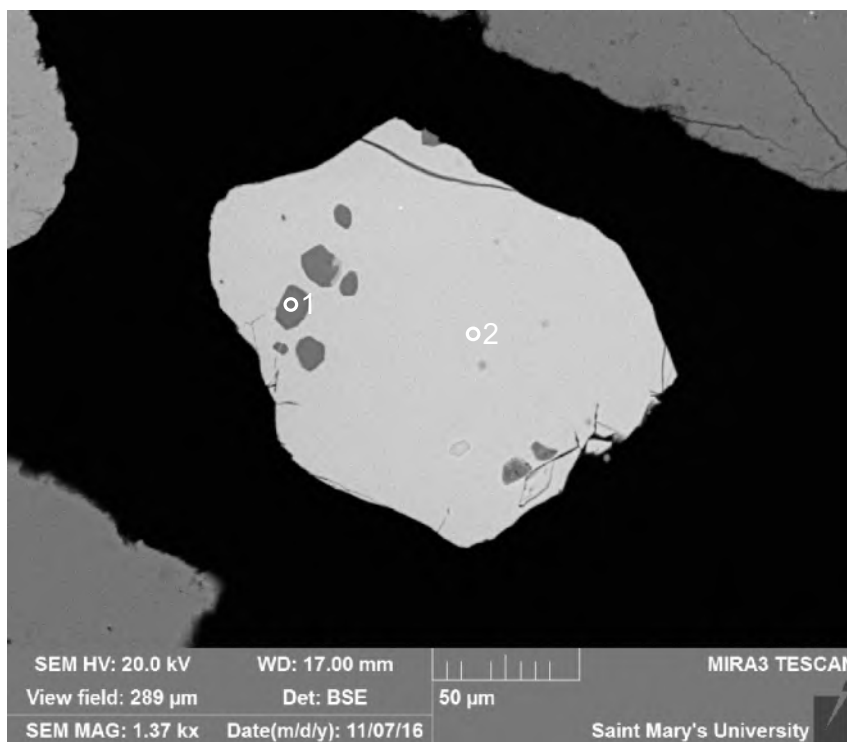
- 1: Pyrite
- 2: Pyrite
- 3: Calcite+
- 4: Quartz
- 5: Muscovite + Chlorite +
- 6: Pyrite

Figure A4.6: Sample S12 Site 3 (SEM). This site contains: Detrital quartz (4), pyrite (1, 2, 6), and calcite (3). Lithic clast: Quartz + Calcite + Pyrite + Muscovite (1-6, chert in a sandy limestone).



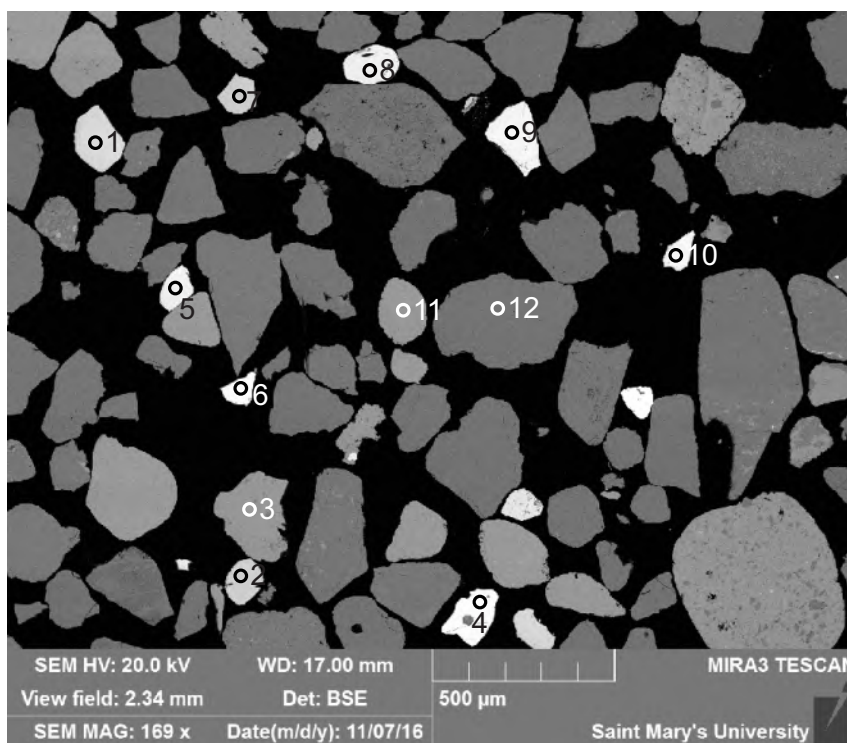
- 1: Calcite+
- 2: Garnet (Almandine)
- 3: Spinel
- 4: Garnet (Almandine)
- 5: Spinel
- 6: Garnet (Almandine)
- 7: TiO_2
- 8: Calcite
- 9: Quartz
- 10: Quartz

Figure A4.7: Sample S12 Site 4 (SEM). This site contains: Detrital calcite (1-2), quartz (9-10), garnet (3-4,6), spinel (3,5), and titania (7).



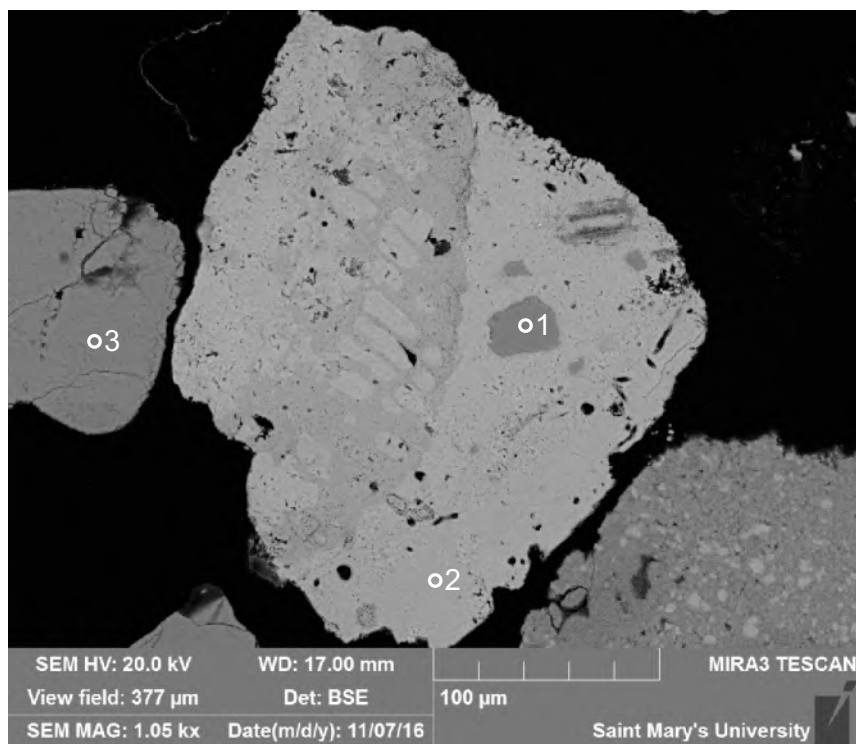
- 1: Quartz
- 2: Garnet (Almandine)

Figure A4.8: Sample S12 Site 5 (SEM). This site contains: Detrital garnet (2), and quartz (1). Lithic clast: Garnet + Quartz (1-2, garnet with quartz inclusions, metamorphic).



- 1: Spinel
- 2: Garnet (Almandine)
- 3: K-Feldspar
- 4: Chromite
- 5: Chromite
- 6: Chromite
- 7: Garnet (Almandine)
- 8: Spinel
- 9: Chromite
- 10: Chromite
- 11: Calcite
- 12: Quartz

Figure A4.9: Sample S12 Site 6 (SEM). This site contains: Detrital spinel (1,8), chromite (4-6,9-10), quartz (12), calcite (11), garnet (2,7), and K-feldspar (3).



- 1: Quartz
- 2: Calcite
- 3: Quartz

Figure A4.10: Sample S12 Site 7 (SEM). This site contains: Detrital quartz (1,3), and calcite (2). Lithic clast: Quartz + Calcite (1-2, detrital subhedral quartz in sandy limestone).

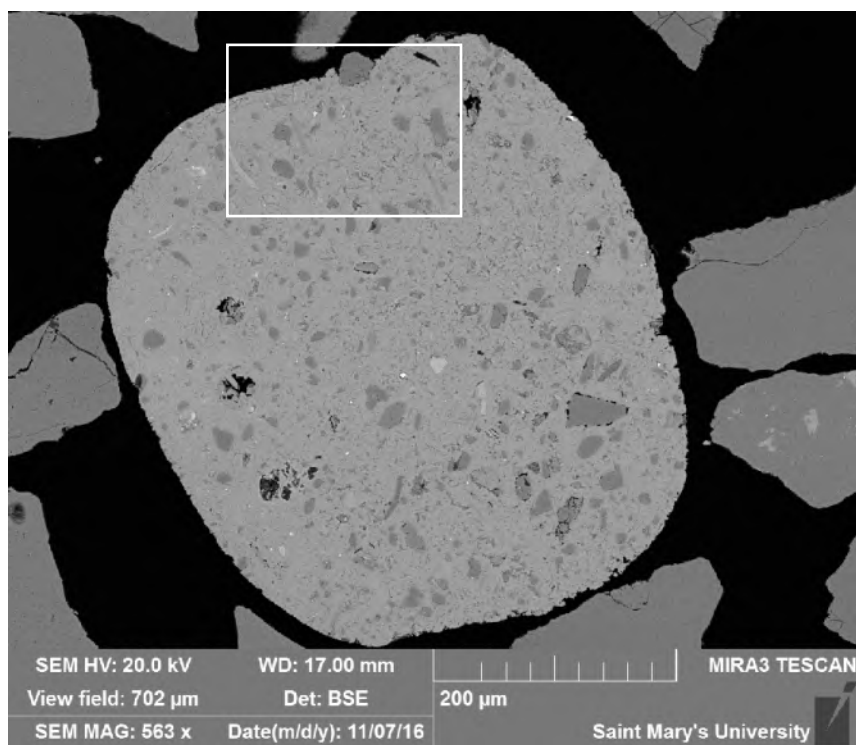
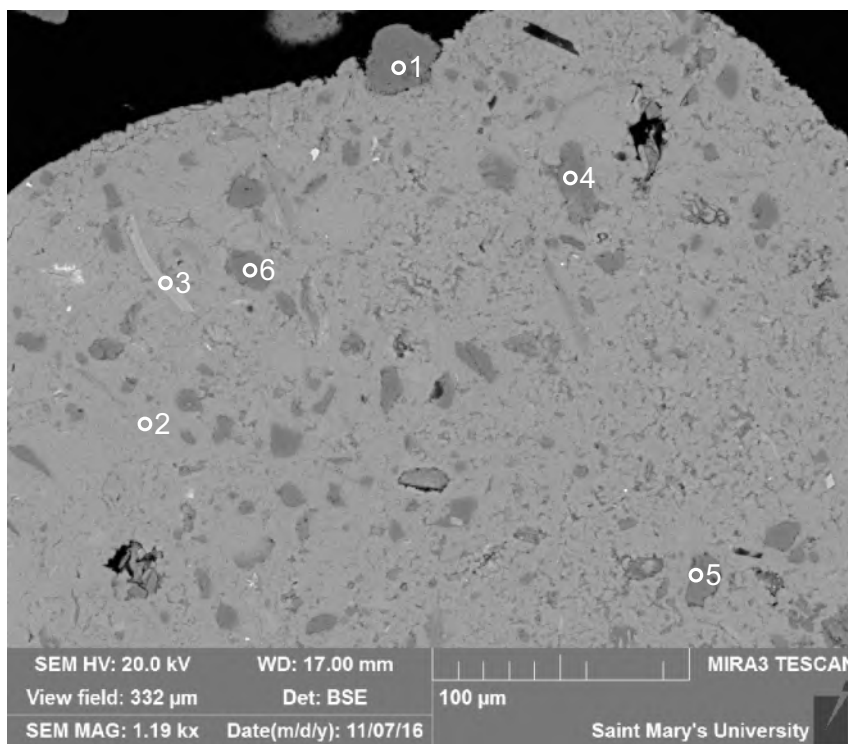
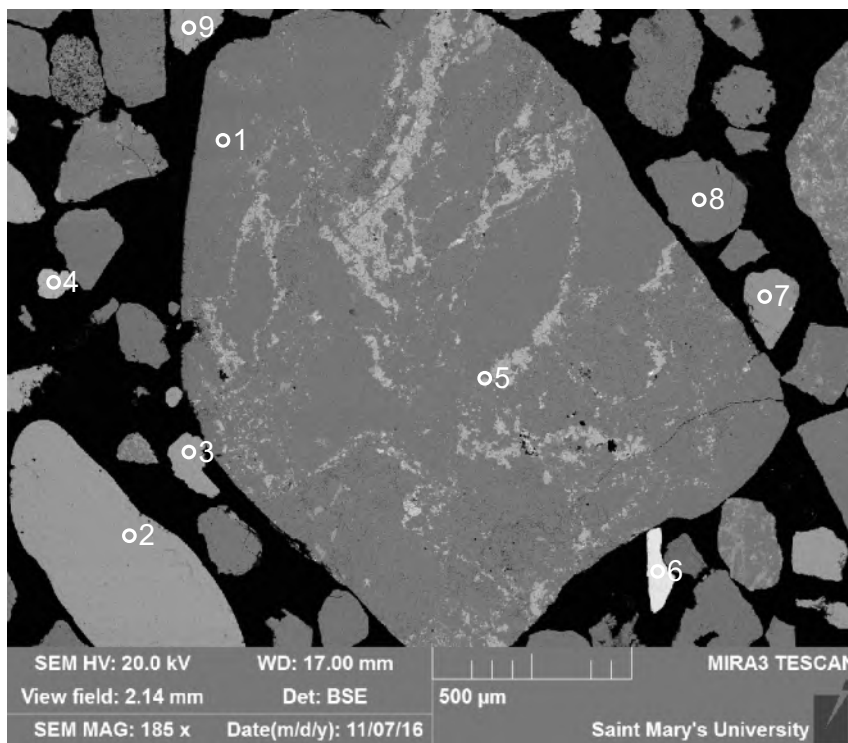


Figure A4.11: Sample S12 (SEM).



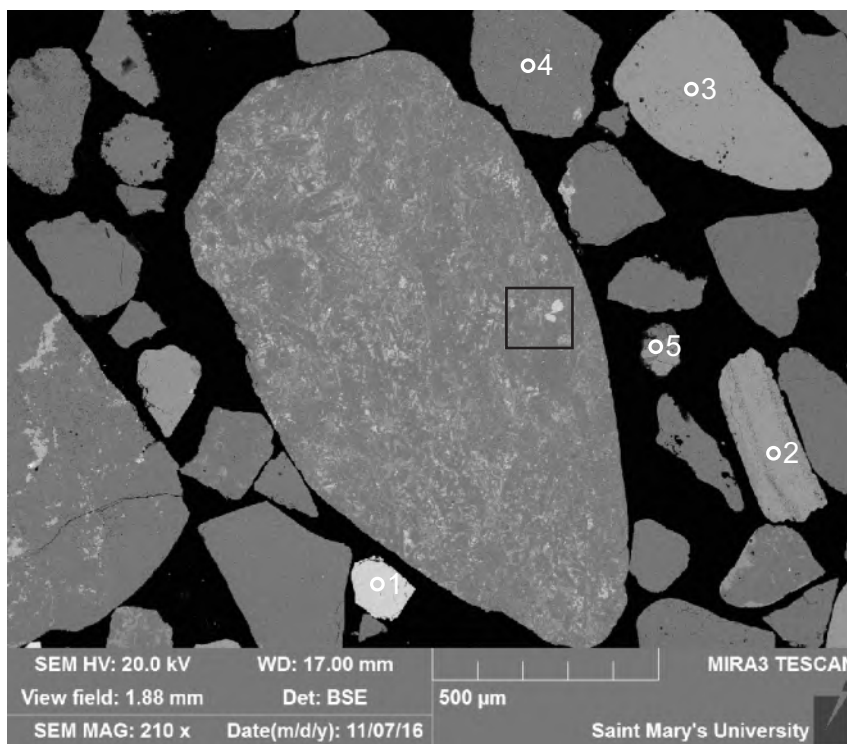
- 1: Albite
- 2: Calcite+
- 3: Chlorite
- 4: Quartz
- 5: Quartz
- 6: Quartz

Figure A4.12: Sample S12 Site 8 (SEM). This site contains: Detrital calcite (2), albite (1), quartz (4, 5, 6), and chlorite (3). Lithic clast: Calcite + Quartz + Albite + Chlorite (1-6, sandy limestone).



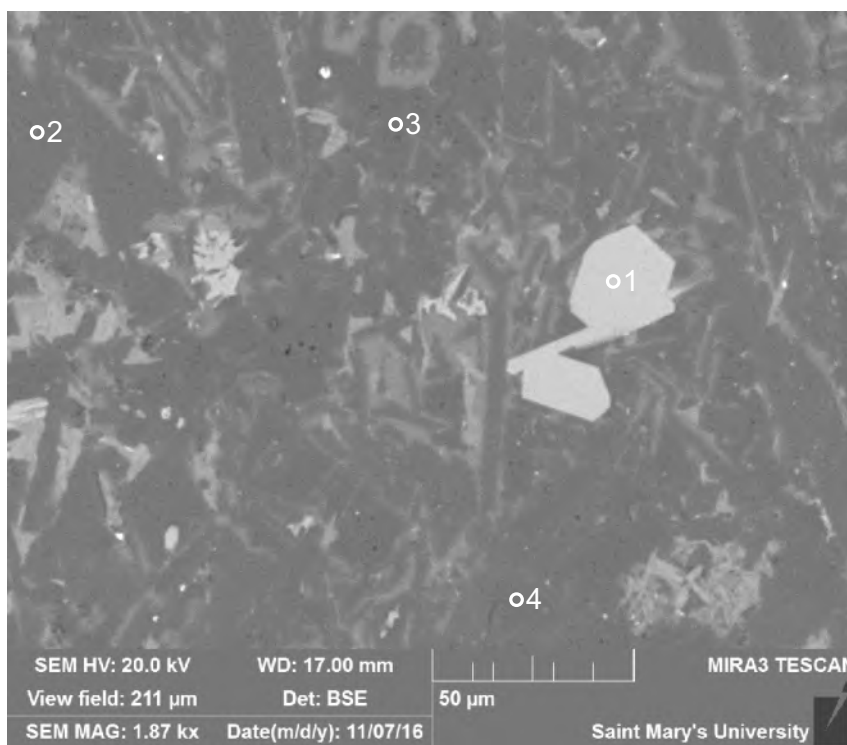
- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Spinel
- 5: Epidote
- 6: Chromite
- 7: K-Feldspar
- 8: Quartz
- 9: Calcite

Figure A4.13: Sample S12 Site 9 (SEM). This site contains: Detrital quartz (1,8), calcite (2,3,9), spinel (4), chromite (6), epidote (5), and K-feldspar (7). Lithic clast: Quartz + Epidote (1,5, quartz vein, hydrothermal).



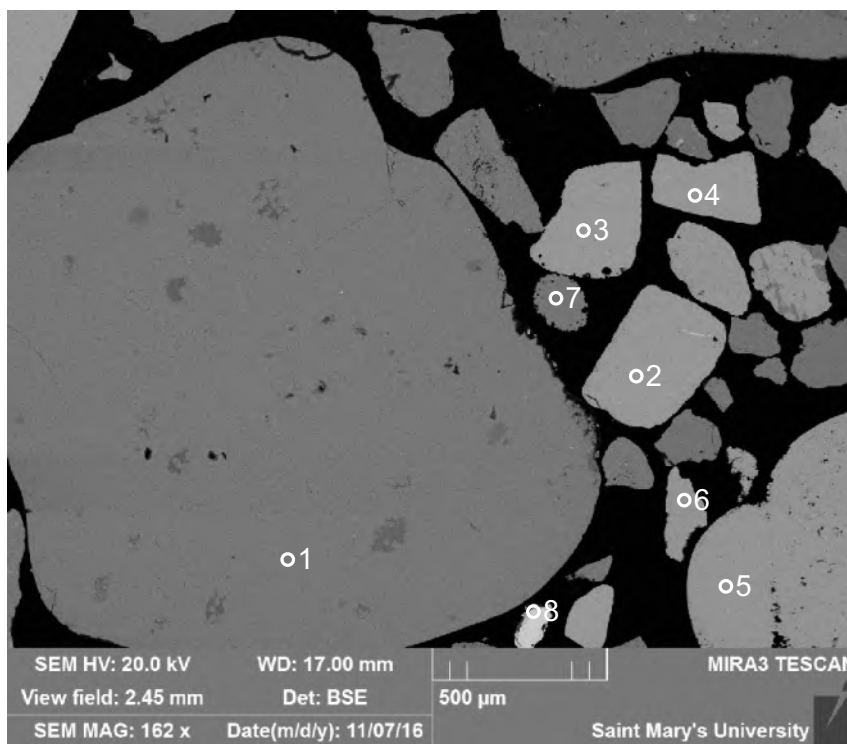
- 1: Garnet (Almandine)
- 2: Calcite
- 3: Calcite
- 4: Quartz
- 5: K-Feldspar

Figure A4.14: Sample S12 Site 10 (SEM). This site contains: Detrital quartz (4), calcite (2-3), garnet (1), and K-feldspar (5).



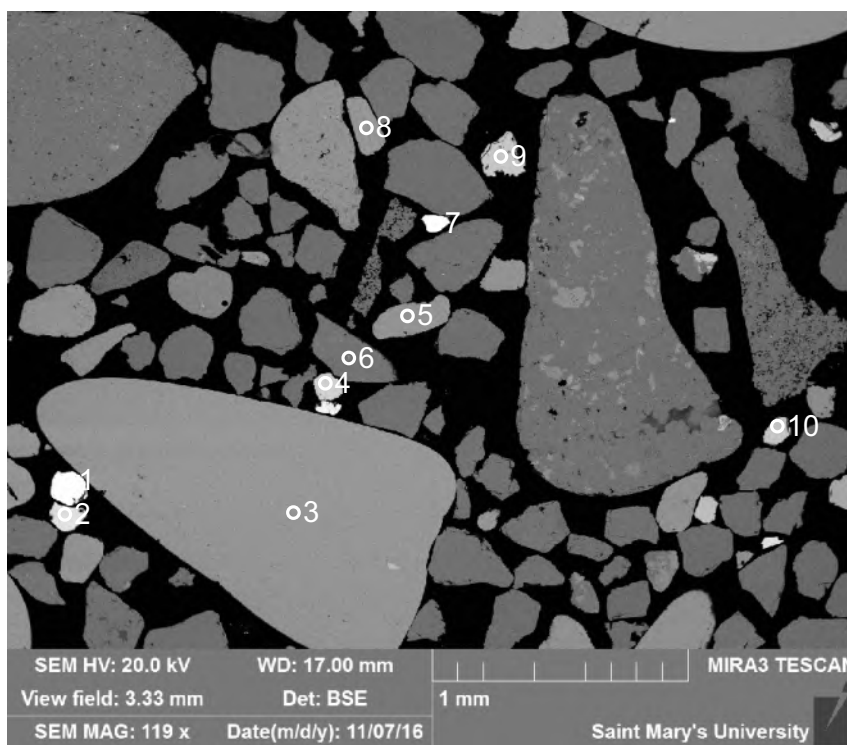
- 1: Apatite
- 2: Albite
- 3: Quartz
- 4: Quartz

Figure A4.15: Sample S12 Site 11 (SEM). This site contains: detrital quartz (3, 4), albite (2), and apatite (1). Lithic clast: Quartz + Albite + Apatite (1-4, igneous).



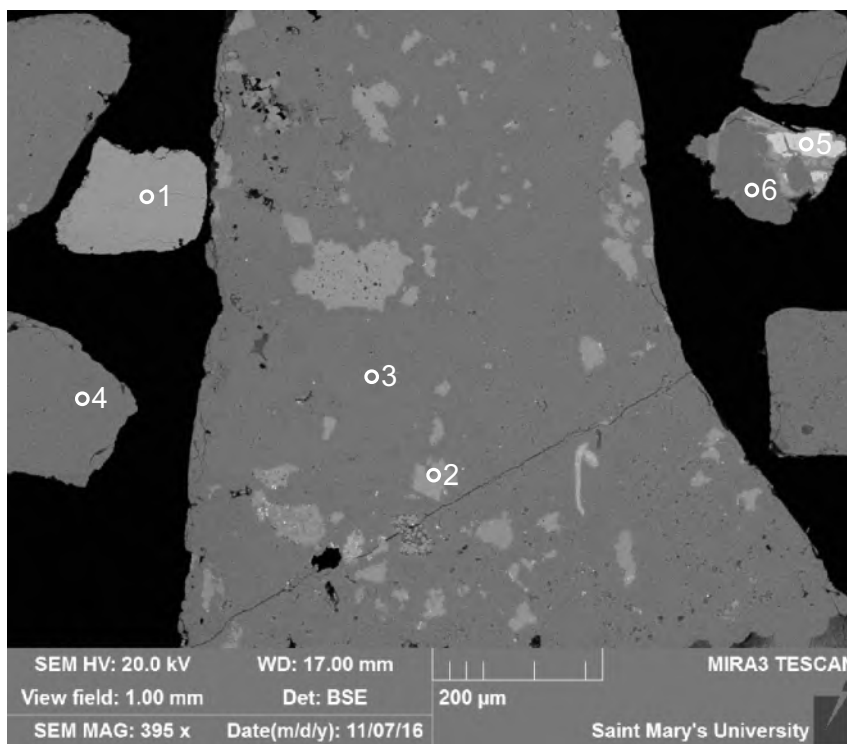
- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Calcite
- 5: Calcite
- 6: Calcite
- 7: Quartz
- 8: Garnet (Almandine)

Figure A4.16: Sample S12 Site 12 (SEM). This site contains: Detrital quartz (1,7), calcite (2-6), and garnet (8).



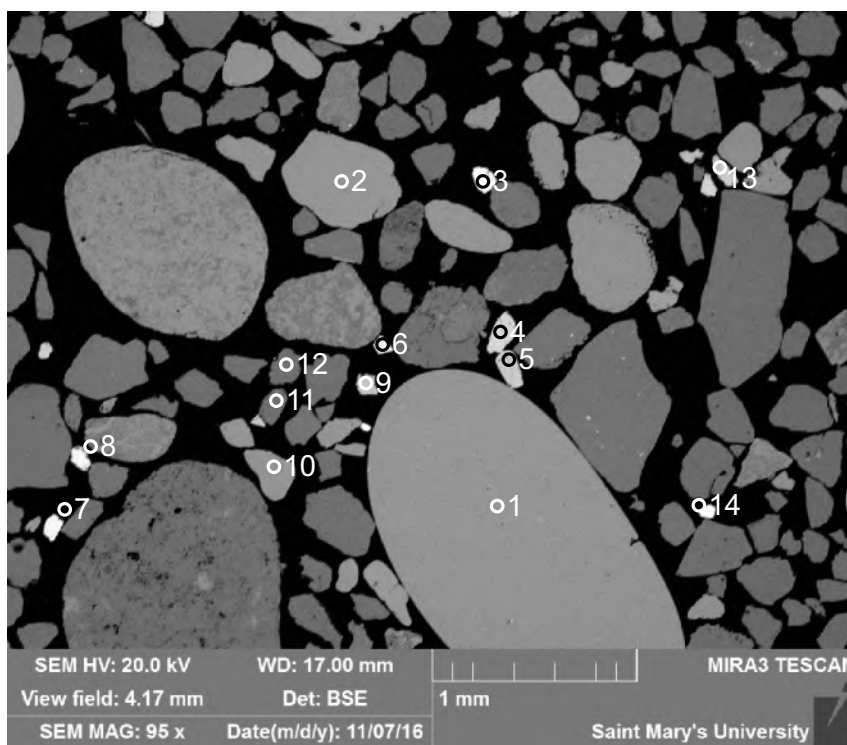
- 1: Chromite
- 2: Chromite
- 3: Calcite
- 4: Garnet (Almandine)
- 5: Calcite
- 6: Quartz+
- 7: Chromite
- 8: Calcite
- 9: Mix
- 10: Garnet (Almandine)

Figure A4.17: Sample S12 Site 13 (SEM). This site contains: Detrital chromite (1,2,7), garnet (4,10), calcite (3,5,8), and quartz (6).



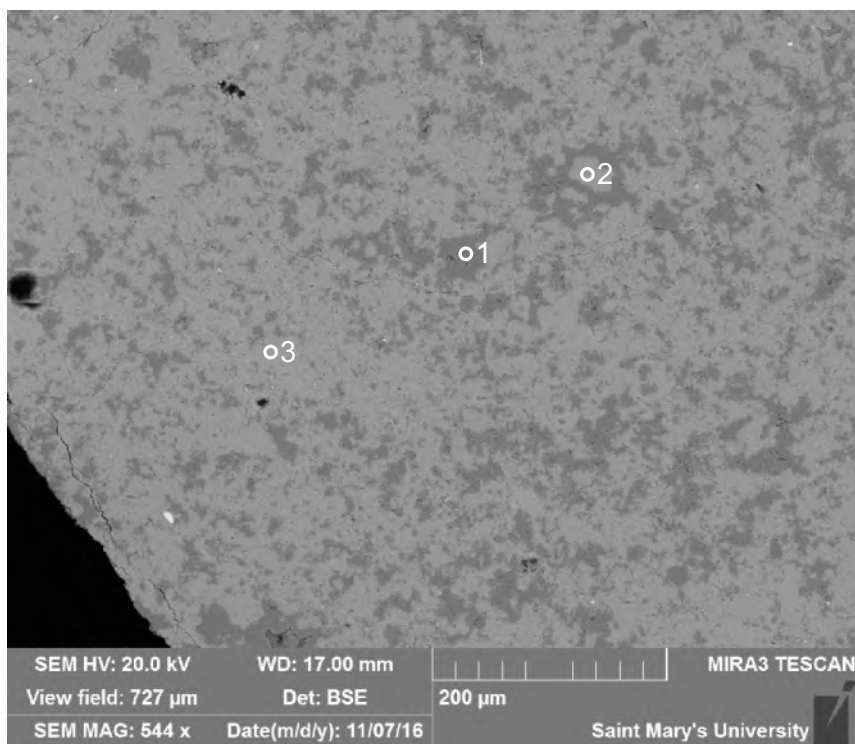
- 1: Calcite
- 2: Calcite
- 3: Quartz
- 4: Quartz
- 5: Garnet (Almandine)
- 6: Quartz

Figure A4.18: Sample S12 Site 14 (SEM). This site contains: Detrital quartz (3,4,6), calcite (1,2), and garnet (5). Lithic clast: Quartz + Calcite (2-3, chert).



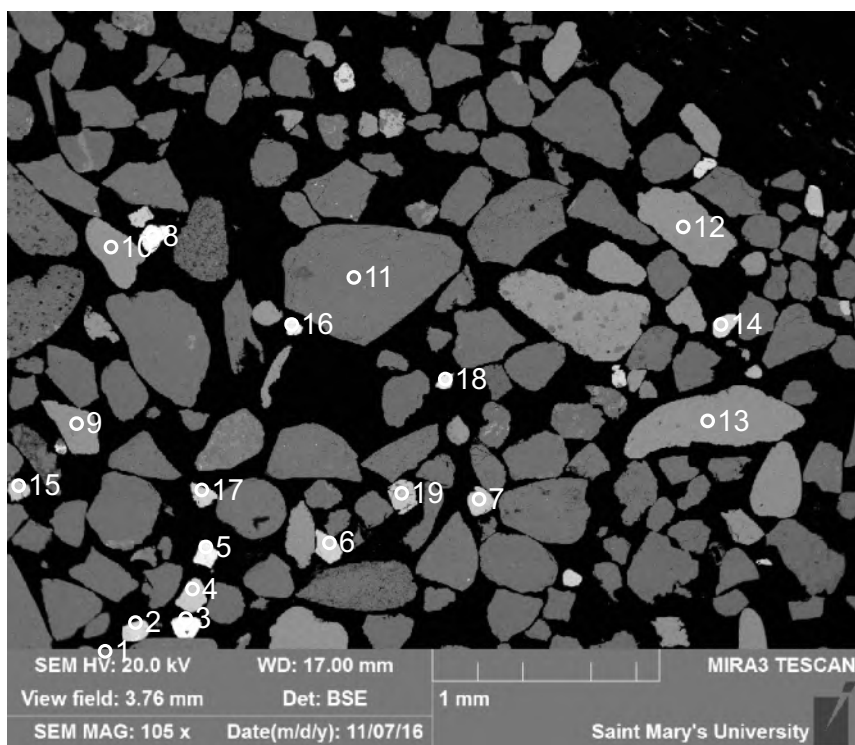
- 1: Calcite
- 2: Calcite
- 3: Chromite
- 4: Spinel
- 5: Garnet (Almandine)
- 6: Chromite
- 7: Chromite
- 8: Chromite
- 9: Garnet (Almandine)
- 10: Calcite
- 11: Quartz
- 12: Quartz
- 13: Spinel
- 14: Chromite

Figure A4.19: Sample S12 Site 15 (SEM). This site contains: Detrital calcite (1,2,10), quartz (11-12), chromite (3,6-8,14), spinel (4,13), and garnet (5,9).



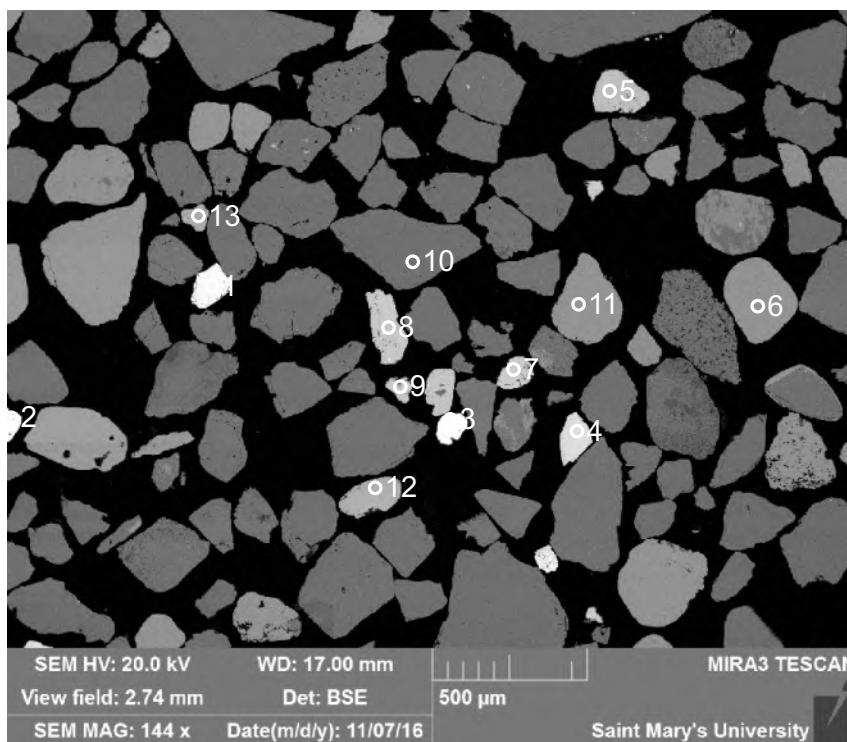
- 1: Quartz
- 2: Calcite
- 3: Calcite

Figure A4.20: Sample S12 Site 16 (SEM). This site contains: Detrital quartz (1) and calcite (2-3). Lithic clast: Quartz + Calcite (1-3, cherty limestone).



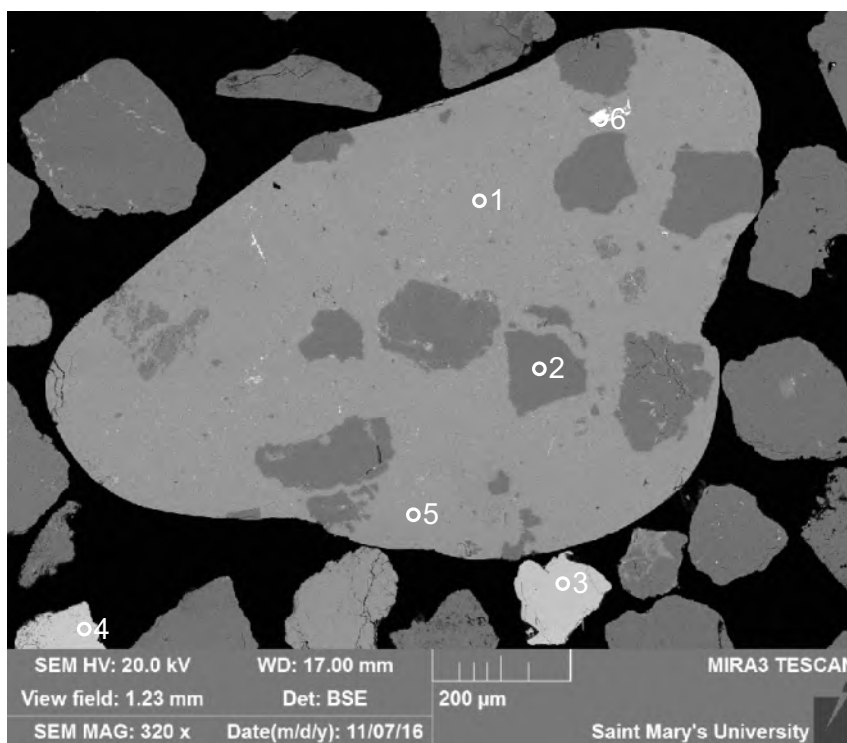
- 1: Chromite
- 2: Chromite
- 3: Chromite
- 4: Garnet (Almandine)
- 5: Chromite
- 6: Spinel
- 7: Garnet (Almandine)
- 8: Chromite
- 9: Calcite
- 10: Calcite
- 11: Quartz
- 12: Calcite
- 13: Calcite
- 14: Spinel
- 15: Garnet (Almandine)
- 16: Chromite
- 17: Spinel
- 18: Chromite
- 19: Garnet

Figure A4.21: Sample S12 Site 17 (SEM). This site contains: Detrital chromite (1-3,5,8,16,18), spinel (6,14,17), garnet (4,7,15,19), calcite (9-10, 12-13), and quartz (11).



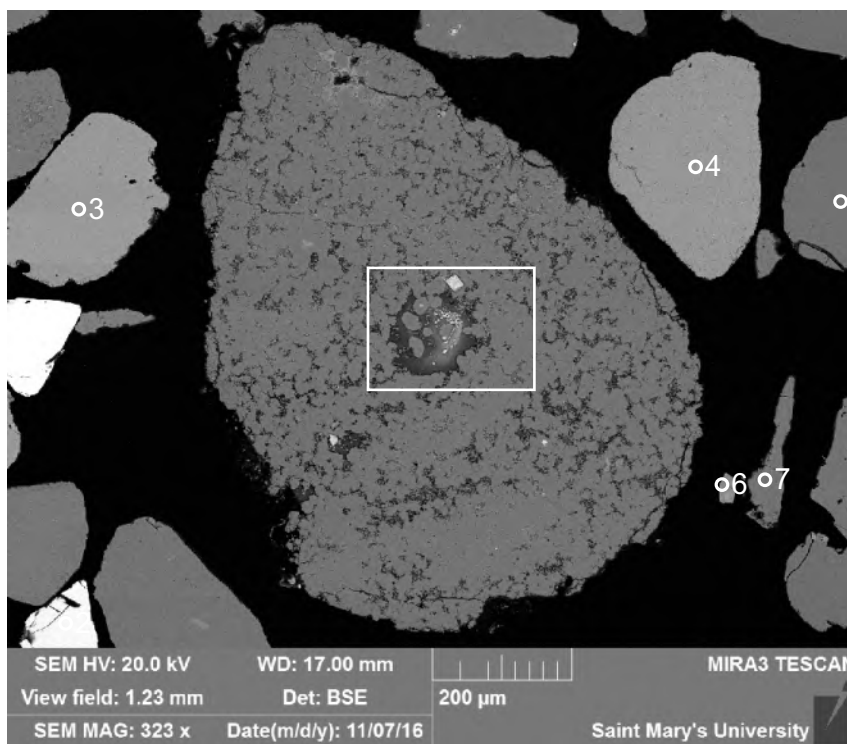
- 1: Chromite
- 2: Chromite
- 3: Chromite +
- 4: Chromite
- 5: Garnet (Almandine)
- 6: Calcite +
- 7: Garnet (Almandine)
- 8: Garnet (Almandine)
- 9: Garnet (Almandine)
- 10: Quartz
- 11: Calcite
- 12: Spinel
- 13: Epidote

Figure A4.22: Sample S12 Site 18 (SEM). This site contains: Detrital chromite (1-4), garnet (5,7-9), calcite (6,11), quartz (10), spinel (12), and epidote (13).



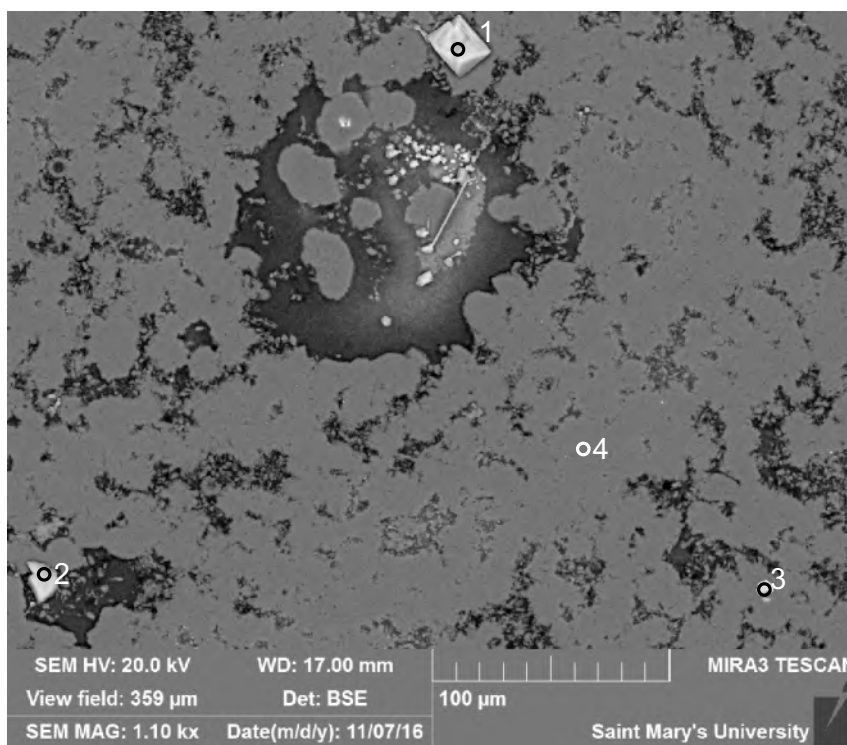
- 1: Calcite+
- 2: Quartz
- 3: Garnet (Almandine)
- 4: Garnet (Almandine)
- 5: Calcite
- 6: Ilmenite

Figure A4.23: Sample S12 Site 19 (SEM). This site contains: Detrital calcite (1, 5), quartz (2), ilmenite (6), and garnet (3-4). Lithic clast: Calcite + Quartz + Ilmenite (1-2,5-6, chert in sparry limestone).



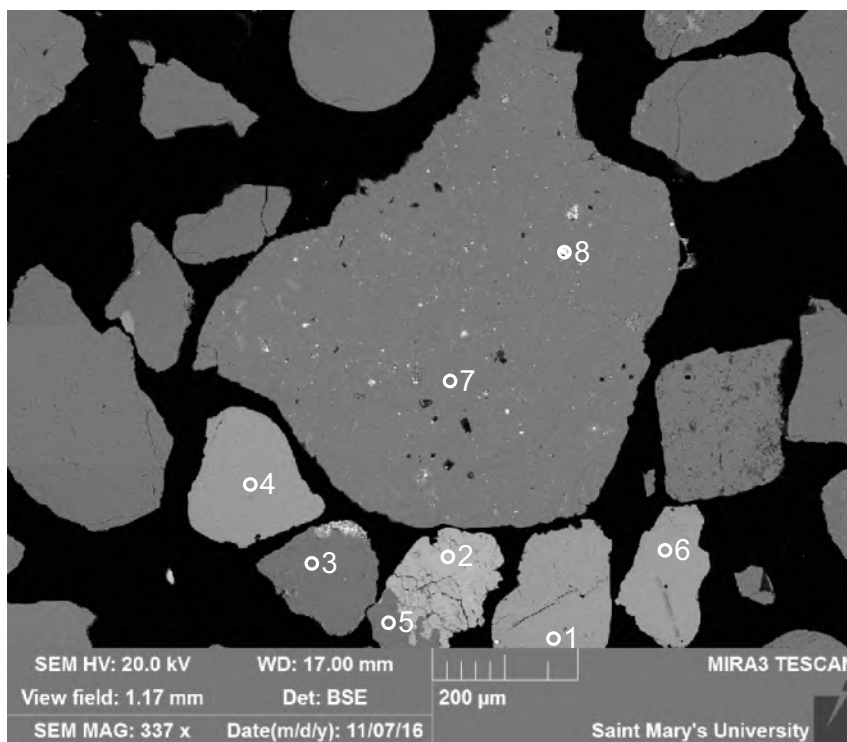
- 1: Chromite
- 2: Chromite
- 3: Calcite
- 4: Mix
- 5: Quartz
- 6: Anhydrite
- 7: Quartz

Figure A4.24: Sample S12 Site 20 (SEM). This site contains: Detrital chromite (1-2), calcite (3), and quartz (5,7). Anhydrite is also present (most likely from sea water).



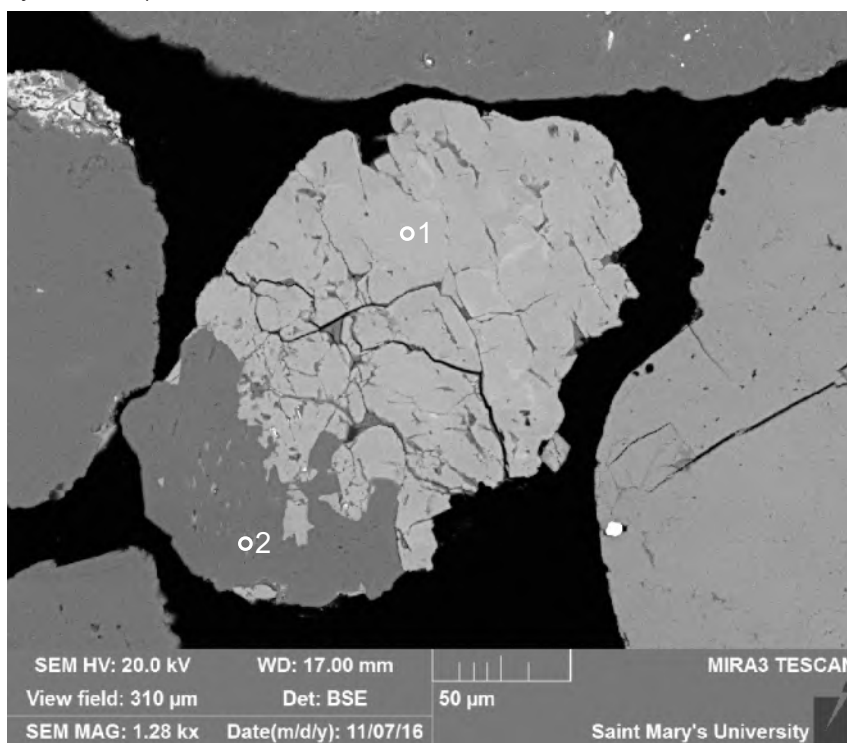
- 1: Halite
- 2: Halite +
- 3: TiO_2 +
- 4: Quartz

Figure A4.25: Sample S12 Site 21 (SEM). This site contains: Detrital quartz (4), TiO_2 (3), and halite (1-2) (probably from sea water). Lithic clast: Quartz + Halite + Titania (1-4, siltstone).



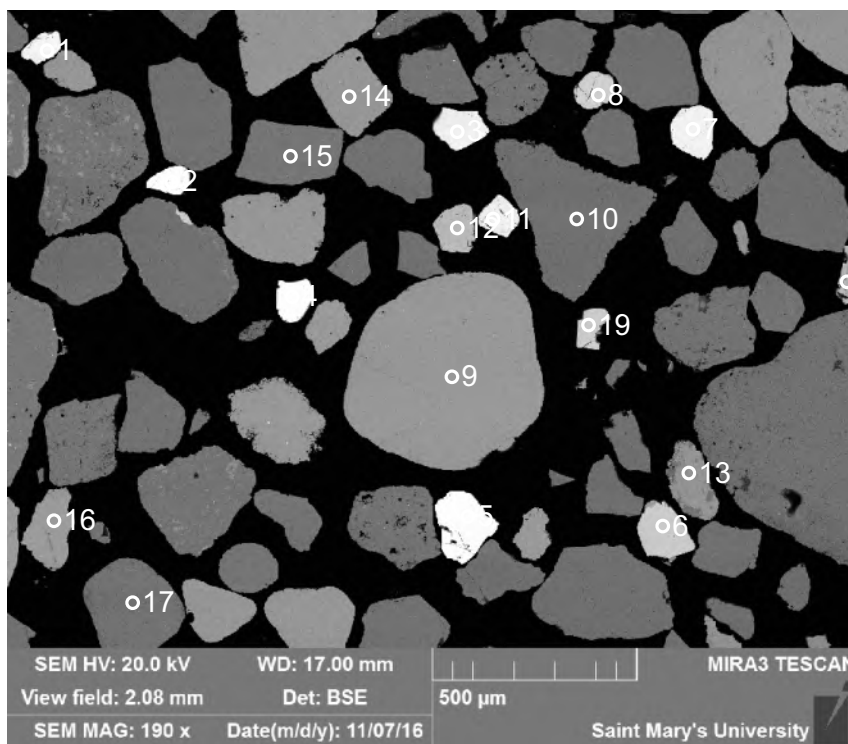
- 1: Calcite+
- 2: Epidote
- 3: Quartz
- 4: Calcite
- 5: Quartz
- 6: Calcite
- 7: Quartz
- 8: Pyrite

Figure A4.26: Sample S12 Site 22 (SEM). This site contains: Detrital quartz (3,5,7), pyrite (8), epidote (2), and calcite (1,4,6). Lithic clasts: Quartz + Pyrite (7-8, detrital quartz grain with pyrite inclusions); Quartz + Epidote (2,5, hydrothermal).



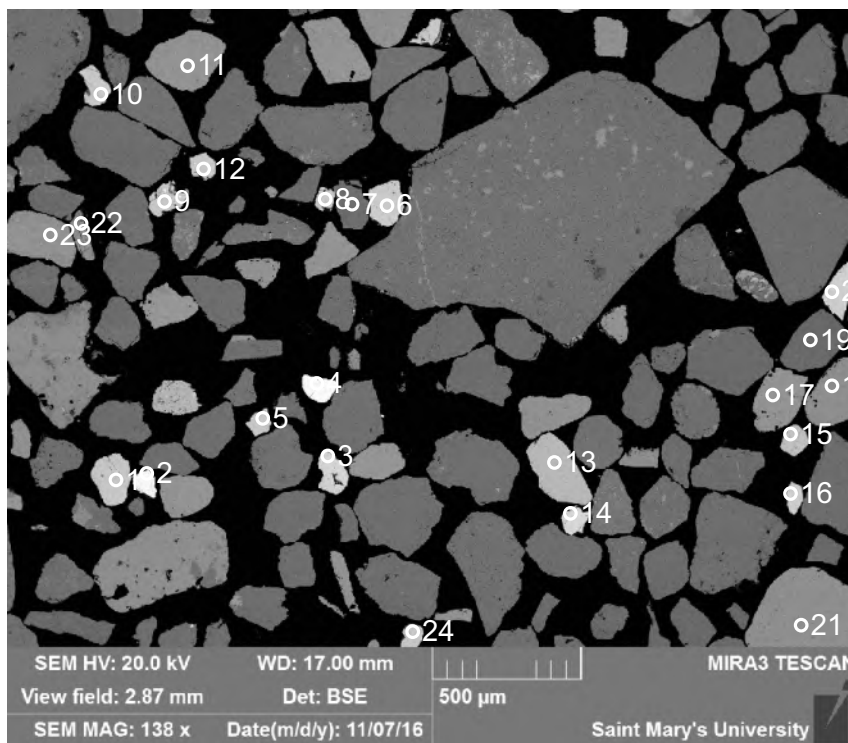
- 1: Epidote
- 2: Quartz

Figure A4.27: Sample S12 Site 23 (SEM). This site contains: Detrital quartz (2) and epidote (1). Lithic clast: Quartz + Epidote (1-2, quartz vein, hydrothermal).



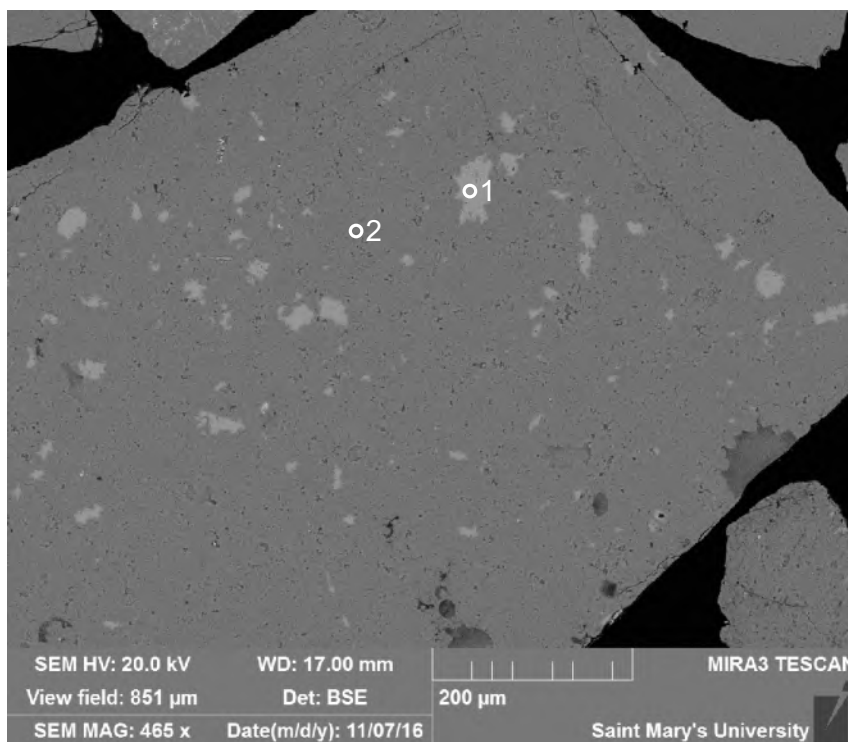
- 1: Chromite
- 2: Chromite
- 3: Chromite
- 4: Chromite
- 5: Chromite
- 6: Garnet (Almandine)
- 7: Chromite
- 8: Garnet (Almandine)
- 9: Calcite
- 10: Quartz
- 11: Chromite
- 12: Spinel
- 13: Calcite+
- 14: Calcite
- 15: Quartz
- 16: Calcite
- 17: Quartz +
- 18: Garnet (Almandine)
- 19: Garnet (Almandine)

Figure A4.28: Sample S12 Site 24(SEM). This site contains: Detrital chromite (1-5,7,11), garnet (6,8,18-19), calcite (9,13,14,16), spinel (12), and quartz (10,15,17).



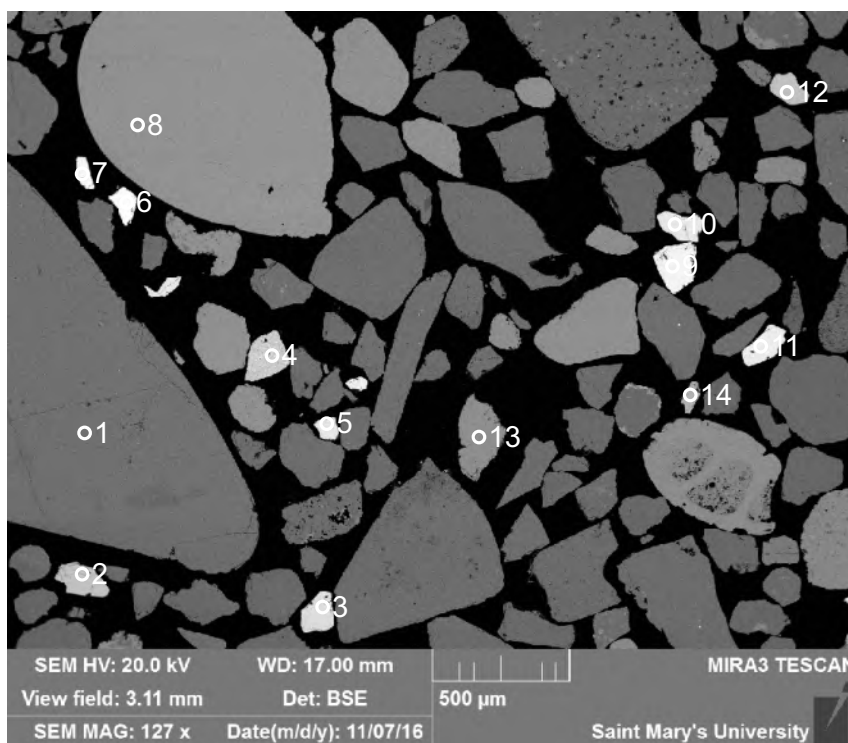
- 1: Garnet (Almandine)
- 2: Chromite
- 3: Spinel
- 4: Chromite
- 5: Garnet (Almandine)
- 6: Garnet (Almandine)
- 7: Quartz
- 8: Garnet (Almandine)
- 9: Garnet (Almandine)
- 10: Garnet (Almandine)
- 11: Calcite
- 12: Garnet (Almandine)
- 13: Spinel
- 14: Spinel
- 15: Garnet (Almandine)
- 16: Spinel
- 17: Calcite
- 18: Calcite
- 19: Quartz
- 20: Spinel
- 21: Calcite
- 22: K-Feldspar
- 23: Calcite
- 24: Garnet (Almandine)

Figure A4.29: Sample S12 Site 25 (SEM). This site contains: Detrital garnet (1,5,6,8-10,12,15,24), chromite (2,4), spinel (13,14,16,20), quartz (7,19), calcite (11,17,18,21,23), and K-feldspar (22).



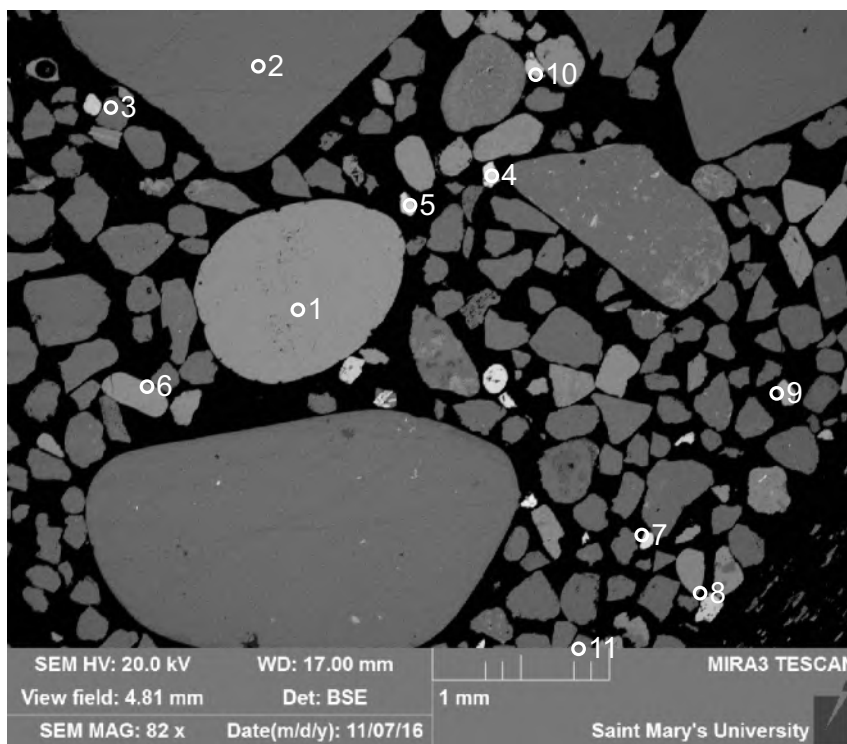
- 1: Calcite
- 2: Quartz

Figure A4.30: Sample S12 Site 26 (SEM). This site contains: Detrital calcite (1) and quartz (2). Lithic clast: Quartz + Calcite (1-2, chert with residual calcite).



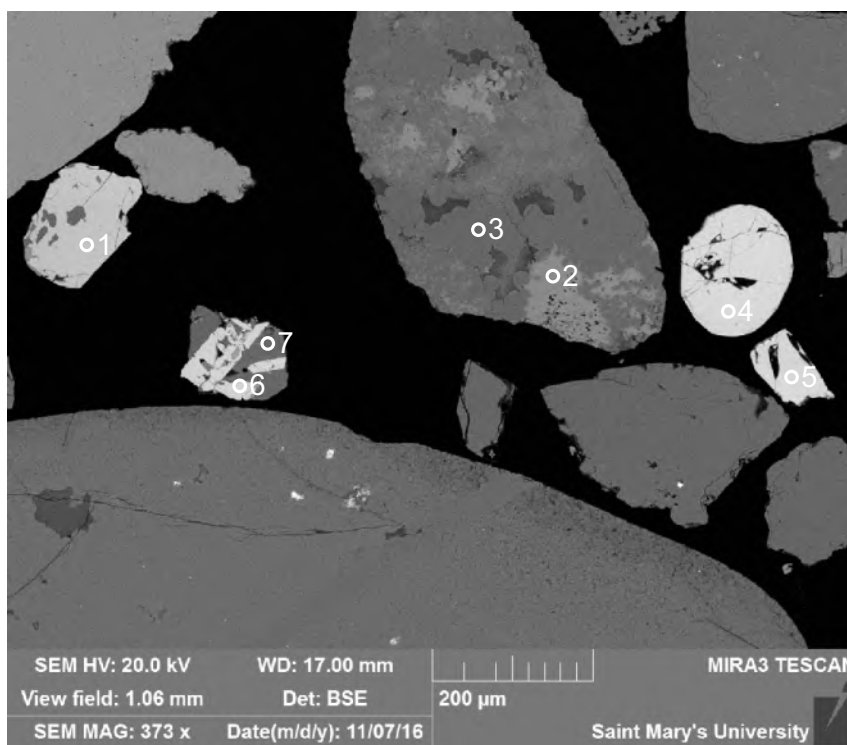
- 1: Quartz
- 2: Garnet (Almandine)
- 3: Chromite
- 4: Titanite +
- 5: Chromite
- 6: Chromite
- 7: Chromite
- 8: Calcite
- 9: Chromite
- 10: Chromite
- 11: Chromite
- 12: Garnet (Almandine)
- 13: Calcite
- 14: Garnet (Almandine)

Figure A4.31: Sample S12 Site 27 (SEM). This site contains: Detrital quartz (1), calcite (8,13), garnet (2,12,14), chromite (3,5-7,9-11), and titanite (4).



- 1: Calcite
- 2: Quartz
- 3: Titanite
- 4: Chromite
- 5: Chromite
- 6: Calcite+
- 7: Chromite
- 8: Chromite
- 9: Spinel
- 10: Garnet (Almandine)
- 11: Chromite

Figure A4.32: Sample S12 Site 28 (SEM). This site contains: Detrital calcite (1,6), quartz (2), chromite (4-5,7-8,11), spinel (9), garnet (10), and titanite (3).



- 1: Garnet (Almandine)
- 2: Calcite
- 3: Quartz
- 4: Spinel
- 5: Spinel
- 6: TiO_2
- 7: Quartz

Figure A4.33: Sample S12 Site 29 (SEM). This site contains: Detrital garnet (1), spinel (4, 5), quartz (3,7), TiO_2 (6), and calcite (2). Lithic clasts: Quartz + Calcite (2-3, chert with residual calcite); Quartz + TiO_2 (6-7, metamorphic).

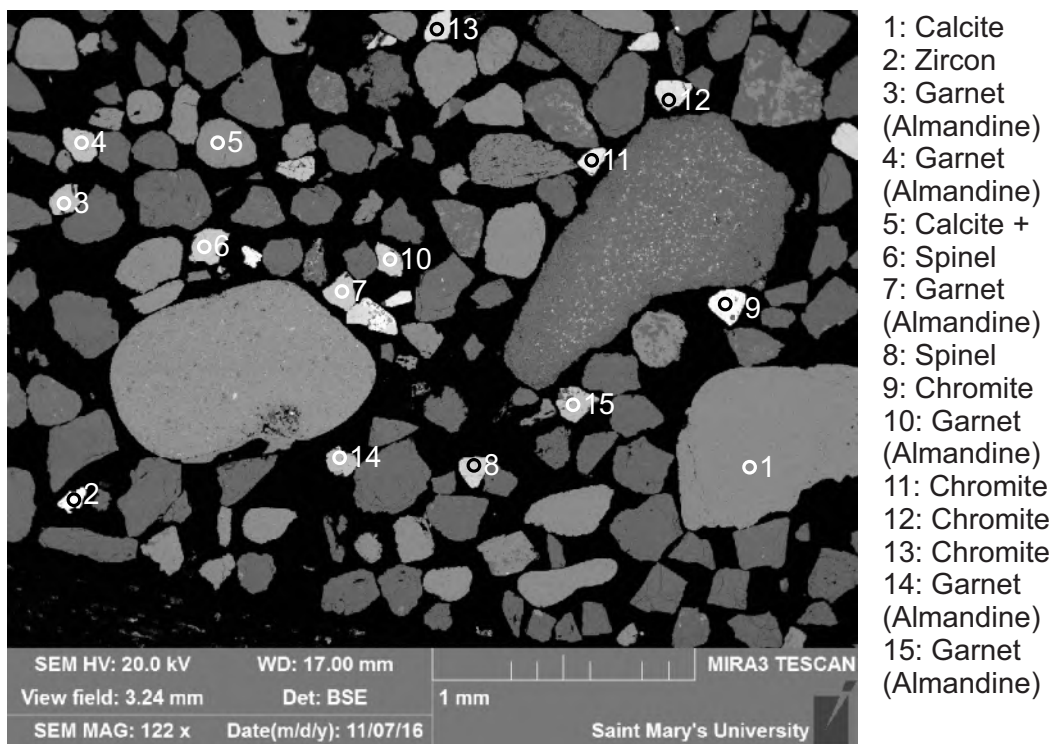


Figure A4.34: Sample S12 Site 30 (SEM). This site contains: Detrital calcite (1,5), garnet (3,4,7,10,14,15), chromite (9,11-13), spinel (6,8), and zircon (2).

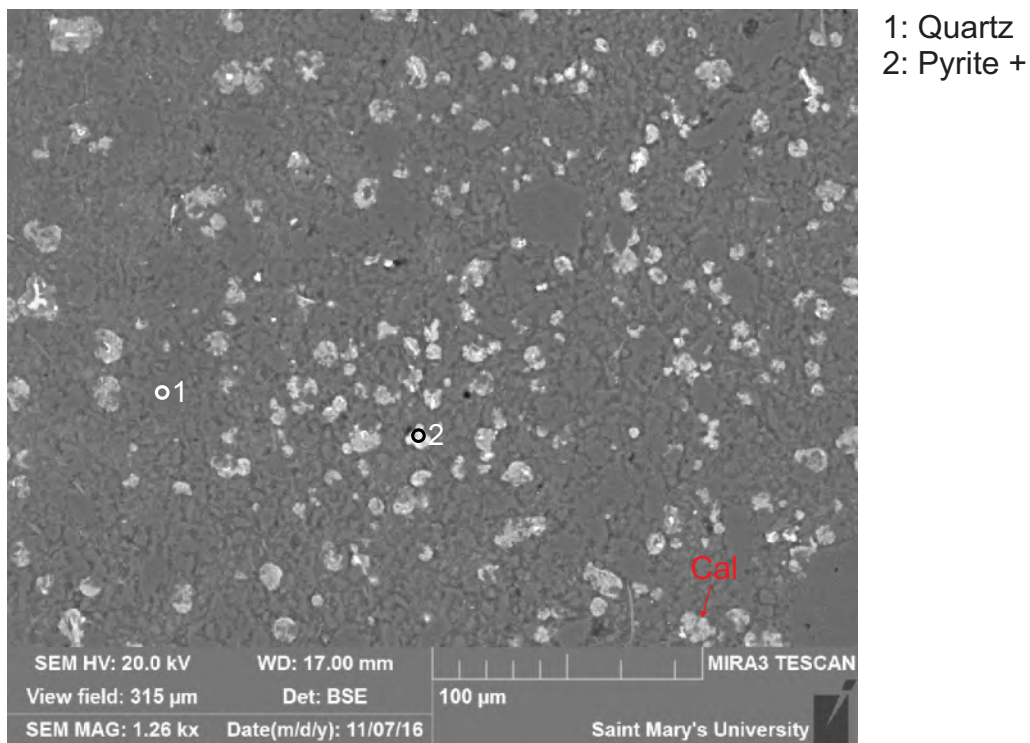
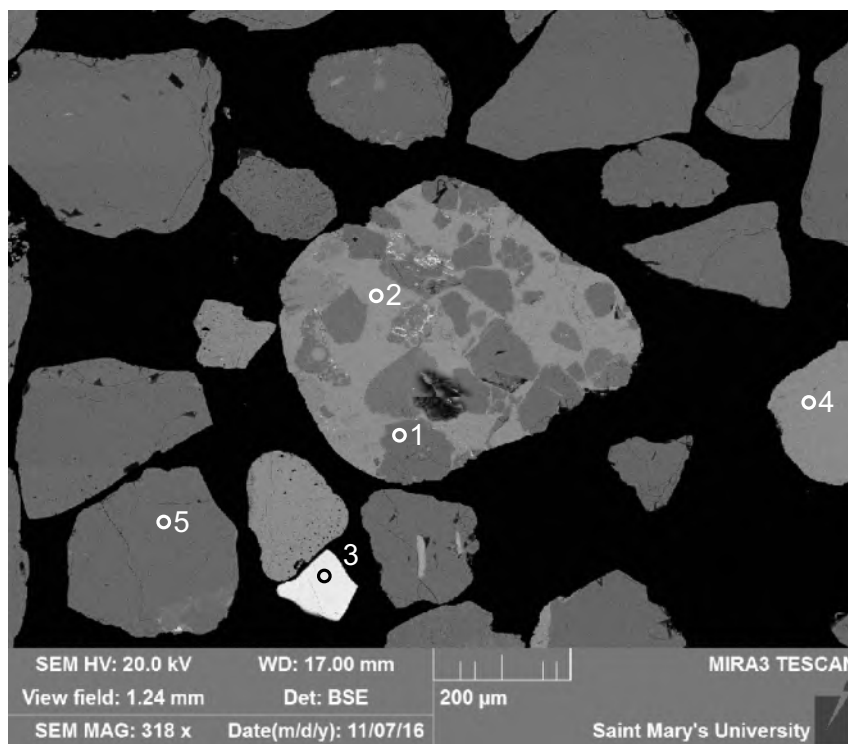


Figure A4.35: Sample S12 Site 31 (SEM). This site contains: Detrital quartz (1), pyrite (2), and calcite. Lithic clast: Quartz + Calcite + Pyrite (1-2, chert with residual calcite).



- 1: Quartz
- 2: Calcite
- 3: Chromite
- 4: Calcite
- 5: Quartz

Figure A4.36: Sample S12 Site 32 (SEM). This site contains: Detrital calcite (2,4), quartz (1,5), and spinel (3). Lithic clast: Quartz + Calcite (1-2, cherty limestone).

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total	
S12	1	1	Qz	100																				100	108	
S12	1	2	Cal						0.30	53.61	0.52			0.71						0.87					56	53
S12	1	3	Cal				0.41		1.18	54.41															56	53
S12	1	4	Cal							55.26	0.74														56	54
S12	1	5	Kfs	65.96		17.97					0.46	15.6													100	110
S12	1	6	Qz	100																					100	113
S12	1	7	Cal	1.00						55.00															56	55
S12	1	8	Qz	100																					100	112
S12	1	9	Qz	100																					100	114
S12	1	10	Qz	99.46		0.54																			100	111
S12	2	1	Chr			8.81	21.03		8.83									61.3							100	98
S12	2	2	TiO2		98.32		1.68																		100	101
S12	2	3	Cal						0.63	55.37															56	54
S12	2	4	Qz	100																					100	111
S12	2	5	Kifs	66.06		17.77					0.53	15.6													100	108
S12	2	6	Qz	98.98		0.66						0.37													100	112
S12	3	1	Py	0.41			28.13				0.92			70.5											100	212
S12	3	2	Py	1.17			25.96				0.27			68.2								4.45			100	200
S12	3	3	Cal+	3.75		0.8	2.7		1.9	90.85															100	56
S12	3	4	Qz	100																					100	113
S12	3	5	Ms + Chl +	39.2	3.71	22.12	18.13	0.42	9.94	0.59	0.83	4.16		0.73		0.18									100	96
S12	3	6	Py	0.5			28.47				0.21			70.8											100	220
S12	4	1	Cal+	3.9		0.66	0.66		0.88	93.91															100	55
S12	4	2	Grt (Alm)	40.14		21.61	27.25	1.64	7.89	1.48															100	104
S12	4	3	Spl			32.06	17.9		14.62									35.4							100	105
S12	4	4	Grt (Alm)	39.59		20.93	29.22	0.33	2.55	7.39															100	111
S12	4	5	Spl		0.73	26.53	30.54		10.87								0.4	30.9							100	106
S12	4	6	Grt (Alm)	40.13		20.62	27.06	0.6	3.72	7.87															100	108
S12	4	7	TiO2		99.4		0.6																		100	104
S12	4	8	Cal					0.75	6.06	92.25				0.94											100	53
S12	4	9	Qz	100																					100	115
S12	4	10	Qz	100																					100	118

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	5	1	Qz	99.53			0.47																	100	112
S12	5	2	Grt (Alm)	40.1		20.88	26.96	0.47	3.82	7.77														100	105
S12	6	1	Spl			32.68	17.56		14.89									34.9						100	94
S12	6	2	Grt (Alm)	39.66		20.98	30.41	3.4	4.27	1.27														100	104
S12	6	3	Kfs	65.44		17.88					0.87	15										0.83		100	108
S12	6	4	Chr		0.55	19.21	29.74		8.03								0.44	42						100	105
S12	6	5	Chr		0.49	26.9	28.19		11.17									33.3						100	96
S12	6	6	Chr			15.42	24.01		9.07									51.5						100	98
S12	6	7	Grt (Alm)	39.77		21.2	28.88	0.36	2.42	7.37														100	99
S12	6	8	Spl		0.75	27.23	30.23		11.09									30.7						100	93
S12	6	9	Chr			18.31	18.05		11.77									51.9						100	96
S12	6	10	Chr			19.4	24.44		10.65									45.5						100	98
S12	6	11	Cal						0.58	55.42														56	53
S12	6	12	Qz	100																				100	111
S12	7	1	Qz	99.78						0.22														100	114
S12	7	2	Cal							55.31	0.69													56	53
S12	7	3	Qz	100																				100	111
S12	8	1	Ab	69.37		18.74				0.32	11.6													100	108
S12	8	2	Cal+	12.04		3.98	4.41		4.01	74.32		0.51		0.72										100	58
S12	8	3	Chl	26.18		20.82	21.83	0.32	14.91	0.94														85	91
S12	8	4	Qz	99.17		0.36				0.26	0.21													100	112
S12	8	5	Qz	97.29		1.34	0.24			0.69		0.43												100	111
S12	8	6	Qz	99.6						0.4														100	112
S12	9	1	Qz	100																				100	106
S12	9	2	Cal						0.38	55.62														56	52
S12	9	3	Cal						0.41	55.59														56	52
S12	9	4	Spl			51.44	13.31		18.9									16.4						100	96
S12	9	5	Ep	40.75		27.1	6.528			22.62														97	102
S12	9	6	Chr			26.23	17.92		13.71									42.1						100	107
S12	9	7	Kfs	65.95		18					0.59	15.5												100	106
S12	9	8	Qz	100																				100	107
S12	9	9	Cal							54.96	1.04													56	47

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	10	1	Grt (Alm)	39.63		20.68	30.23	2.58	3.75	3.13														100	107
S12	10	2	Cal							55.09	0.91													56	54
S12	10	3	Cal						0.45	55.55														56	50
S12	10	4	Qz	97.86		0.74	0.82		0.34			0.23												100	102
S12	10	5	Kfs	66.06		17.68					0.51	15.7												100	108
S12	11	1	Ap				0.36			49.04			44.9		3	0.92							1.75	100	111
S12	11	2	Kfs	65.23		22.54	1.31		0.42	0.4	7.41	2.68												100	101
S12	11	3	Qz	97.19		1.66	0.2				0.52	0.44												100	110
S12	11	4	Qz	99.48		0.52																		100	110
S12	12	1	Qz	100																				100	108
S12	12	2	Cal	0.82					0.60	54.58														56	54
S12	12	3	Cal	0.45					0.66	54.89														56	52
S12	12	4	Cal						0.58	55.42														56	50
S12	12	5	Cal	0.46					0.39	55.15														56	57
S12	12	6	Cal						0.46	55.54														56	55
S12	12	7	Qz	99.54					0.46															100	109
S12	12	8	Grt (Alm)	39.68		21.04	30.61	0.41	3.49	4.76														100	109
S12	13	1	Chr			9.87	29.4		7.79									53						100	85
S12	13	2	Chr			23.93	17.99		13.72								0.42	44						100	86
S12	13	3	Cal	0.80		0.41			0.41	54.39														56	52
S12	13	4	Grt (Alm)	38.77		20.48	27.8	9.86	1.96	1.14														100	101
S12	13	5	Cal				0.27		1.18	54.55														56	50
S12	13	6	Qz+	84.24		5.37	4.76		5.34			0.28												100	107
S12	13	7	Chr			7.71	19.96		10.04									62.3						100	93
S12	13	8	Cal							55.54	0.46													56	47
S12	13	9	Mix	34.34	13.98	17.68	25.34	0.67	2.54	5.45														100	94
S12	13	10	Grt (Alm)	39.49		20.96	33.37	0.52	4.18	1.47														100	104
S12	14	1	Cal						0.70	55.30														56	50
S12	14	2	Cal	0.48						55.52														56	53
S12	14	3	Qz	100																				100	107
S12	14	4	Qz	100																				100	106
S12	14	5	Grt (Alm)	39.49		21.07	27.84	2.94	1.65	7.01														100	99

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	14	6	Qz	100																				100	106
S12	15	1	Cal	0.57					0.55	54.88														56	57
S12	15	2	Cal						0.47	55.53														56	49
S12	15	3	Chr			7.1	22.82		8.74									61.3						100	91
S12	15	4	Spl	4.48		31.24	21.38		13.87									28.6	0.43					100	97
S12	15	5	Grt (Alm)	39.04		21.1	33.76	1.13	3.7	1.28														100	105
S12	15	6	Chr			22.58	26.82		10.17								0.53	39.9						100	98
S12	15	7	Chr			12.44	19.91		11.17									56.5						100	80
S12	15	8	Chr			14.6	19.73		10.78								0.41	54.5						100	84
S12	15	9	Grt (Alm)	40.03		20.9	30.07	1.38	6.05	1.57														100	103
S12	15	10	Cal						0.64	55.36														56	51
S12	15	11	Qz	100																				100	107
S12	15	12	Qz	100																				100	107
S12	15	13	Spl			33.03	16.39		15.55									35						100	84
S12	15	14	Chr		1.14	17.2	35.71		5.44								0.43	40.1						100	105
S12	16	1	Qz	99.75						0.25														100	108
S12	16	2	Cal						1.34	54.66														56	52
S12	16	3	Cal						0.84	55.16														56	52
S12	17	1	Chr			10.66	25.1		7.95									56.3						100	81
S12	17	2	Chr			26.6	20.65		12.75									40						100	86
S12	17	3	Chr			6.77	24.51		7.77									61						100	88
S12	17	4	Grt (Alm)	39.52		21.09	33.36	0.98	4	1.05														100	95
S12	17	5	Chr			12.82	17		12.96									57.2						100	92
S12	17	6	Spl			33.22	15.53		16.43									34.8						100	99
S12	17	7	Grt (Alm)	39.88		21.02	26.98	2.04	3.26	6.82														100	108
S12	17	8	Chr			13.18	27.26		8.21									51.4						100	87
S12	17	9	Cal					0.67		55.33														56	44
S12	17	10	Cal					0.49	0.96	54.54														56	45
S12	17	11	Qz	99.63		0.37																		100	104
S12	17	12	Cal						0.46	55.54														56	48
S12	17	13	Cal						0.50	55.50														56	54
S12	17	14	Spl			32.24	17.73		14.42									35.6						100	97

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	17	15	Grt (Alm)	39.84		20.95	29.96	1.12	2.77	5.35														100	84
S12	17	16	Chr			18.81	21.4		11.53								0.39	47.9						100	96
S12	17	17	Spl			35.7	17.71		15.33								0.34	30.9						100	93
S12	17	18	Chr		0.62	20.35	19.86		13.15								0.39	45.6						100	100
S12	17	19	Grt	40.06		21.31	20.16	0.85	0.58	17.04														100	106
S12	18	1	Chr			13.68	18.22		11.51									56.6						100	96
S12	18	2	Chr			14.25	28.89		7.02									49.8						100	88
S12	18	3	Chr +		6.46	9.92	44.65		8.1								1.06	29.8						100	99
S12	18	4	Chr			27.72	16.92		14.27									41.1						100	104
S12	18	5	Grt (Alm)	40.6		21.15	23.94	0.59	4.1	9.63														100	95
S12	18	6	Cal +	1.51			0.39		0.52	53.60														56	52
S12	18	7	Grt (Alm)	39.74		20.7	30.92	1.77	3.52	3.35														100	106
S12	18	8	Grt (Alm)	39.54		21.09	27.76	1.5	2.63	7.48														100	103
S12	18	9	Grt (Alm)	39.59		21.01	27.29	1.79	1.73	8.59														100	105
S12	18	10	Qz	100																				100	107
S12	18	11	Cal	0.52					0.37	55.11														56	53
S12	18	12	Spl			48.58	14.53		18.19									18.7						100	103
S12	18	13	Ep	39.61	0.349	22.59	12.02		1.659	20.78														97	90
S12	19	1	Cal+	7.18		2.02	3.31		2.22	84.83		0.44												100	54
S12	19	2	Qz	100																				100	111
S12	19	3	Grt (Alm)	40.16		21.18	26.67	1.41	4.53	6.05														100	107
S12	19	4	Grt (Alm)	39.88		20.86	30.43	0.29	2.95	5.59														100	103
S12	19	5	Cal						0.48	55.52														56	52
S12	19	6	Ilm		52.84		44.09	1.89		1.19														100	94
S12	20	1	Chr			7.21	23.45		8.9									60.4						100	96
S12	20	2	Chr			15.23	19.87		10.51									54.4						100	99
S12	20	3	Cal	1.40		0.57			0.35	53.56		0.12												56	52
S12	20	4	Mix	15.63		3.13	18.66		1.65	36.83		0.87		22.9		0.37								100	88
S12	20	5	Qz	100																				100	109
S12	20	6	Anh	0.39						38.52				61.1										100	93
S12	20	7	Qz	99.28		0.41	0.32																	100	111
S12	21	1	HI	1.08							46.9	0.24				51.8								100	130

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	21	2	HI +	5.74							46.2	0.46				47.7								100	123
S12	21	3	TiO2 +	6.92	91.55	1.02						0.5												100	102
S12	21	4	Qz	99.79			0.21																	100	110
S12	22	1	Cal+	9.55		3.01	0.53		1.23	85		0.67												100	61
S12	22	2	Ep	40.05		23.38	10.92			22.65														97	104
S12	22	3	Qz	100																				100	114
S12	22	4	Cal						0.55	55.45														56	54
S12	22	5	Qz	99.52					0.28	0.19														100	113
S12	22	6	Cal							55.14	0.86													56	55
S12	22	7	Qz	98.82		0.77	0.21					0.2												100	110
S12	22	8	Py	0.72			28.56							70.7										100	204
S12	23	1	Ep	39.98		23.23	11.14			22.65														97	101
S12	23	2	Qz	98.14			0.32		0.9	0.64														100	110
S12	24	1	Chr			15.48	17.74		12.19									54.6						100	90
S12	24	2	Chr		0.3	10.74	30.75		7.27								0.44	50.5						100	94
S12	24	3	Chr			21.31	19.52		11.85									47.3						100	95
S12	24	4	Chr			11.1	24.15		9.19									55.6						100	97
S12	24	5	Chr			8.07	18.47		12.6									60.9						100	103
S12	24	6	Grt (Alm)	39.76		20.83	30.02	0.81	3.35	5.23														100	109
S12	24	7	Chr			16.44	18.58		11.85								0.41	52.7						100	94
S12	24	8	Grt (Alm)	39.24		20.8	30.37	5.12	2.46	2.01														100	98
S12	24	9	Cal							56.00														56	53
S12	24	10	Qz	100																				100	108
S12	24	11	Chr			20.55	17.59		12.78								0.32	48.8						100	99
S12	24	12	Spl			46.6	15.76		17.34									20.3						100	99
S12	24	13	Cal+	13.59			0.78	0.59	1.15	83.89														100	59
S12	24	14	Cal						0.39	55.61														56	50
S12	24	15	Qz	100																				100	104
S12	24	16	Cal							55.10	0.90													56	50
S12	24	17	Qz +	93.3		1.58	0.46		0.46			0.46									3.73			100	99
S12	24	18	Grt (Alm)	40.87		21.75	25.82	0.53	9.51	1.53														100	103
S12	24	19	Grt (Alm)	39.49		20.73	27.9	2.64	1.8	7.44														100	104

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	25	1	Grt (Alm)	39.94		20.97	31.25	1.2	4.54	2.09														100	96
S12	25	2	Chr			15.78	23.51		10.14									50.6						100	93
S12	25	3	Spl			32.46	18.98		14.58									34						100	100
S12	25	4	Chr			11.62	19.3		11.62									57.5						100	98
S12	25	5	Grt (Alm)	39.67		21.16	28.76	1.43	3.16	5.82														100	102
S12	25	6	Grt (Alm)	39.66		20.89	31.59	1.88	4.26	1.72														100	100
S12	25	7	Qz	100																				100	105
S12	25	8	Grt (Alm)	39.64		21.2	30.66	1.18	3.41	3.89														100	98
S12	25	9	Grt (Alm)	39.87		20.84	26.22	4.09	1.75	7.24														100	95
S12	25	10	Grt (Alm)	39.68		21.03	30.62	1.63	3.1	3.93														100	93
S12	25	11	Cal				0.28		0.58	55.14														56	46
S12	25	12	Grt (Alm)	39.77		20.48	27.27	2.59	0.98	8.9														100	95
S12	25	13	Spl			43.79	13.52		18.34									24.4						100	104
S12	25	14	Spl		0.45	33.87	22.74		12.31									30.2	0.44					100	105
S12	25	15	Grt (Alm)	39.64		20.91	31.26	1.49	5.23	1.48														100	106
S12	25	16	Spl			31.28	15.22		15.37									37.7	0.43					100	105
S12	25	17	Cal							55.29	0.71													56	52
S12	25	18	Cal						0.44	55.56														56	52
S12	25	19	Qz	100																				100	106
S12	25	20	Spl			34.18	19.72		13.43									32.7						100	93
S12	25	21	Cal	0.59			0.26	0.89	0.41	53.85														56	56
S12	25	22	Kfs	66.15		17.68					0.79	15.4												100	93
S12	25	23	Cal						0.46	55.00				0.54										56	46
S12	25	24	Grt (Alm)	39.66		20.83	29.58	0.52	1.98	7.44														100	105
S12	26	1	Cal						0.41	55.59														56	51
S12	26	2	Qz	100																				100	106
S12	27	1	Qz	100																				100	95
S12	27	2	Grt (Alm)	39.36		21.08	33.27	1.12	4.27	0.89														100	90
S12	27	3	Chr			22.04	16.99		14.36									46.6						100	97
S12	27	4	Ttn +	19.49	61.52	0.33	2.05	0.51		16.09														100	97
S12	27	5	Chr			22.36	19.99		12.31									45.3						100	97
S12	27	6	Chr		0.44	13.74	30.86		6.97									48						100	87

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	27	7	Chr			11.89	21.44		10.37									56.3						100	86
S12	27	8	Cal	0.56						54.53	0.91													56	45
S12	27	9	Chr			12.6	22.16		9.83								0.4	55						100	93
S12	27	10	Chr			18.08	19.1		11.59									51.2						100	92
S12	27	11	Chr			14.23	18.75		11.29								0.45	55.3						100	96
S12	27	12	Grt (Alm)	39.33		20.76	34.29	0.58	2.97	2.07														100	84
S12	27	13	Cal						0.40	55.60														56	53
S12	27	14	Grt (Alm)	40.68		21.52	25.64	0.77	8.79	2.6														100	103
S12	28	1	Cal							56.00														56	48
S12	28	2	Qz	100																				100	86
S12	28	3	Ttn	28.46	46.53	1.03	0.78			23.2														100	79
S12	28	4	Chr			24.49	19.93		12.55								0.37	42.7						100	86
S12	28	5	Chr	0.46		28.34	17.24		14.34									39.6						100	89
S12	28	6	Cal+	8.69		0.65			0.89	89.77														100	46
S12	28	7	Chr			19.16	17.83		12.37								0.37	50.3						100	106
S12	28	8	Chr			29.72	14.24		15.44								0.33	40.3						100	109
S12	28	9	Spl			46.3	14.45		17.96									21.3						100	92
S12	28	10	Grt (Alm)	39.56		20.91	34.65		2.84	2.03														100	78
S12	28	11	Chr		1.35	19.4	37.42		5.84								0.43	35.6						100	104
S12	29	1	Grt (Alm)	39.5		20.64	30	2.11	1.56	6.19														100	95
S12	29	2	Cal	0.41					0.85	54.75														56	50
S12	29	3	Qz	100																				100	102
S12	29	4	Spl			26.57	20.61		12.56									40.3						100	94
S12	29	5	Spl		0.4	26.73	21.27		13.02									38.6						100	95
S12	29	6	TiO2	0.5	99.04		0.45																	100	93
S12	29	7	Qz	99.69	0.31																			100	104
S12	30	1	Cal						0.43	55.19									0.39					56	54
S12	30	2	Zrn	27.16						8.63									0.5		63.7			100	90
S12	30	3	Grt (Alm)	40.1		20.94	28.5	1.68	3.25	5.3									0.23					100	90
S12	30	4	Grt (Alm)	39.93		21.11	27.48	5.96	4.18	1.34														100	89
S12	30	5	Cal +	2.71		1.12	0.66		1.06	94.21		0.25												100	47
S12	30	6	Spl			34.49	16.15		16.04									33.1	0.26					100	91

Table A4.1: EDS analyses of sample S12.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	V2O5	Cr2O3	ZnO	SrO	ZrO2	BaO	WO3	Total	Actual Total
S12	30	7	Grt (Alm)	39.21		20.78	29.85	6.06	3.04	0.75									0.32					100	98
S12	30	8	Spl			29.49	17.62		14.96									37.3	0.63					100	100
S12	30	9	Chr			5.82	24.48		7.96								0.39	60.6	0.7					100	92
S12	30	10	Grt (Alm)	38.93		20.52	32.21	0.67	0.62	6.76									0.28					100	96
S12	30	11	Chr			16.48	21.13		10.32									51.5	0.58					100	88
S12	30	12	Chr	0.58		19.13	18.8		11.69									49.2	0.62					100	81
S12	30	13	Chr		1.41	24.67	27.69		11.85									34	0.41					100	84
S12	30	14	Grt (Alm)	39.8		21.41	26.82	0.87	5.33	5.29									0.49					100	101
S12	30	15	Grt (Alm)	39.73		21.04	30.22	0.27	4.51	3.86									0.38					100	102
S12	31	1	704	98.68		0.6	0.22				0.37	0.13												100	104
S12	31	2	Py+	13.59		0.95	25.15		0.33	0.14	0.65	0.3		58.9										100	172
S12	32	1	Qz	100																				100	106
S12	32	2	Cal				0.50		0.67	54.83														56	49
S12	32	3	Chr		0.87	22.27	27.74		9.75								0.55	38.4	0.39					100	95
S12	32	4	Cal							56.00														56	49
S12	32	5	Qz	100																				100	104
	Note																								
	+ = indicates that other minerals are present																								

A5: SEM-BSE images and EDS mineral analyses for sample S17

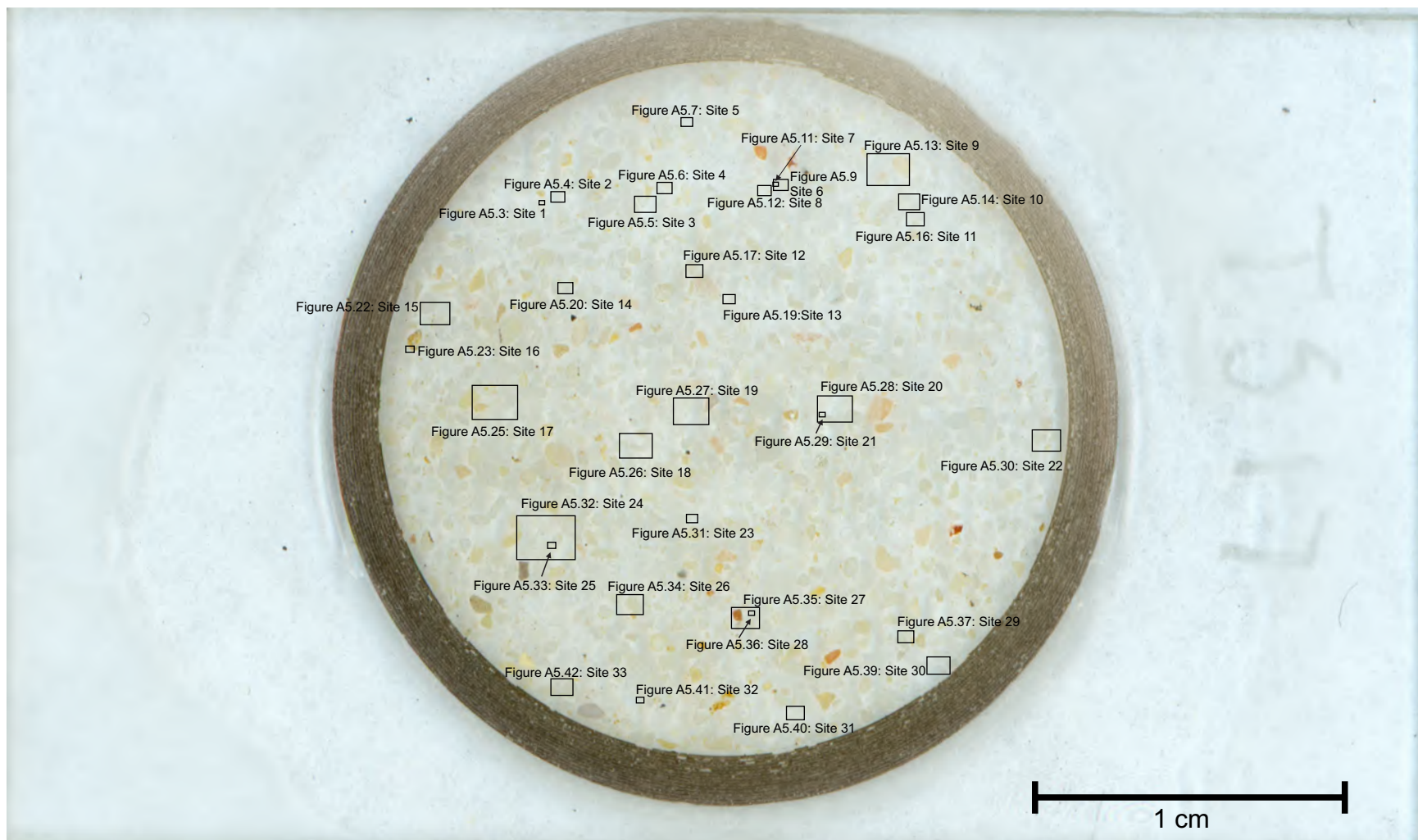


Figure A5:1: Slide S17, taken from a sandstone bed which is predominately limestone and is a shallow channel-like structure.

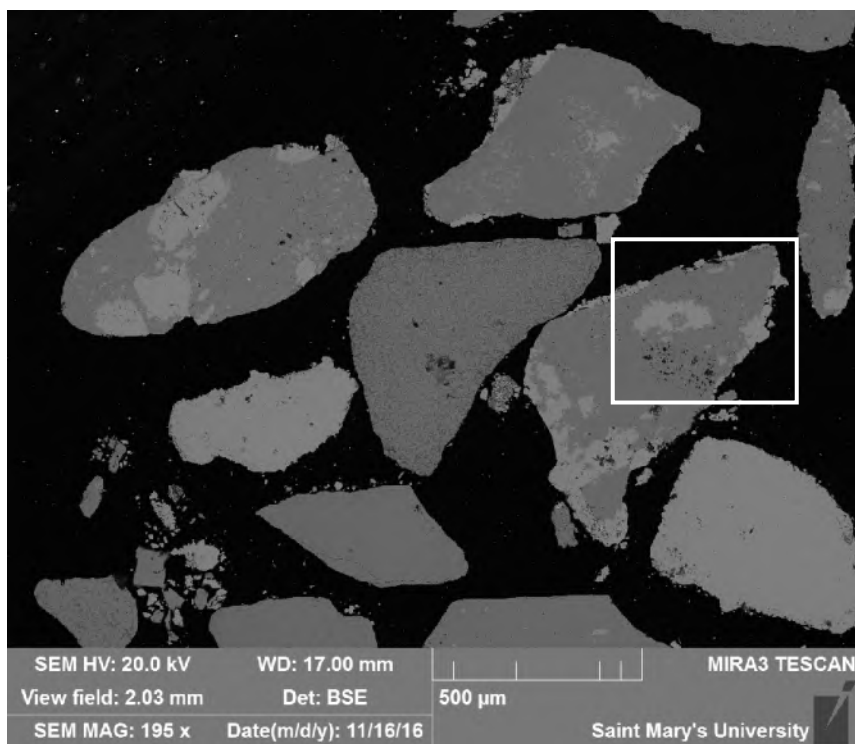
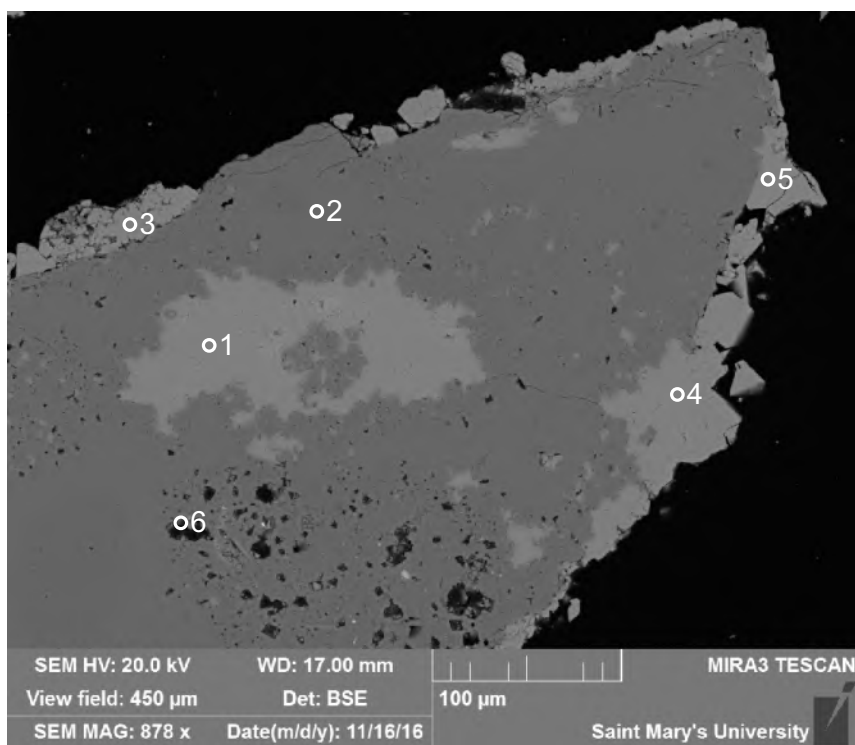
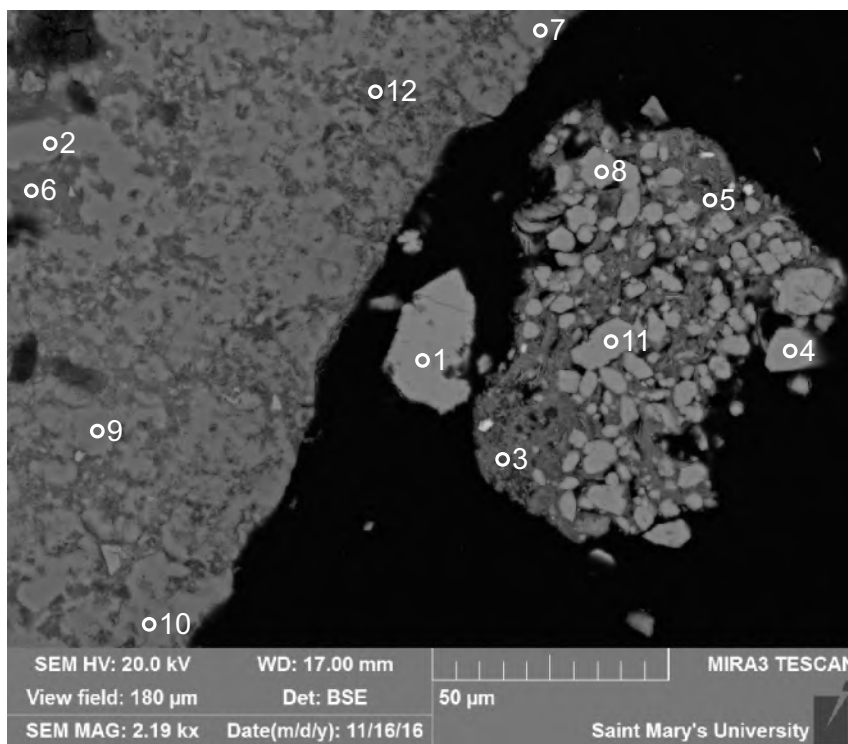


Figure A5.2: Sample S17 (SEM).



- 1: Calcite
- 2: Quartz
- 3: Calcite
- 4: Calcite
- 5: Calcite
- 6: Quartz +

Figure A5.3: Sample S17 Site 1 (SEM). This site contains: detrital calcite (1, 3, 4, 5), and quartz (2, 6). Lithic clast: Quartz + Calcite (1-6, chert with residual limestone).



- 1: Calcite
- 2: Quartz
- 3: Garnet (Almandine)
- 4: Calcite
- 5: Garnet (Almandine)
- 6: Quartz
- 7: Quartz
- 8: Calcite+
- 9: Quartz
- 10: Quartz
- 11: Calcite +
- 12: Quartz +

Figure A5.4: Sample S17 Site 2 (SEM). This site contains: Detrital quartz (2, 6, 7, 9, 10, 12), garnet (3, 5), and calcite (4, 8, 11). Lithic clasts: Calcite + Garnet (3-5, 8, 11, siltstone with abundant calcite grains); Quartz (2, 6-7, 10, 12, chert or sandstone).

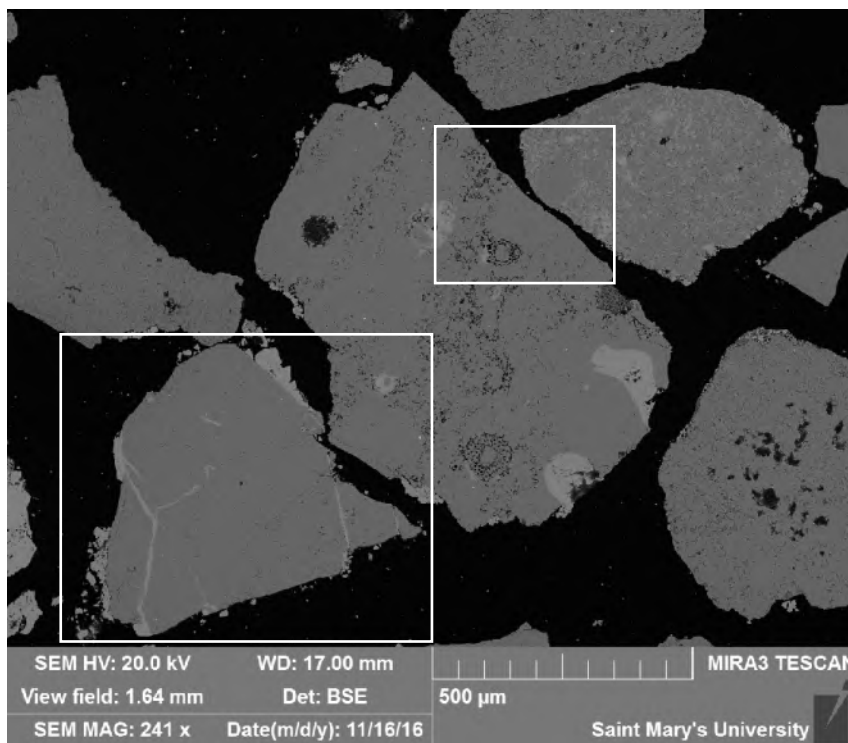
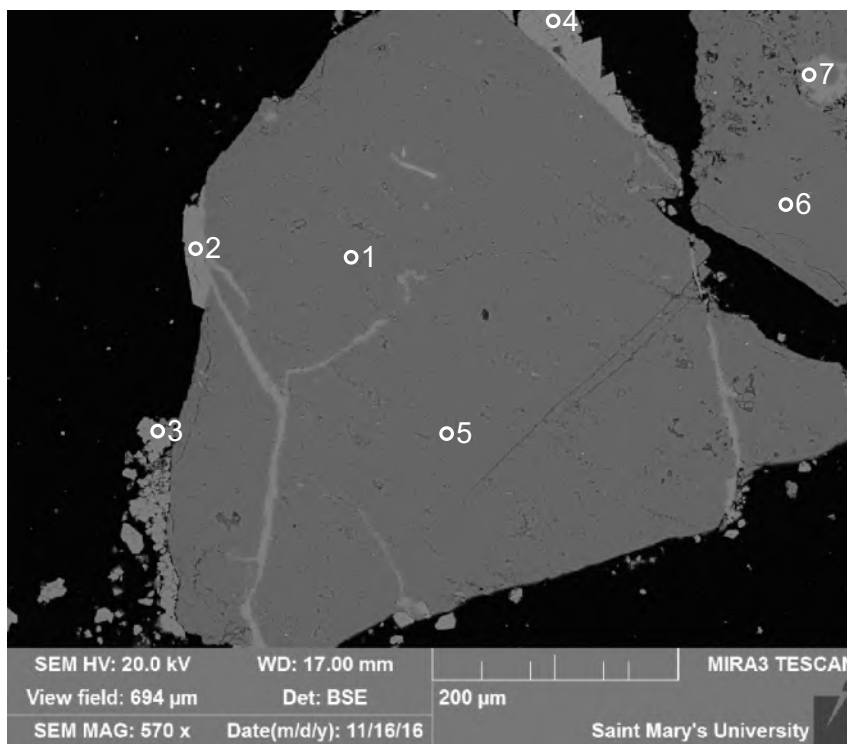
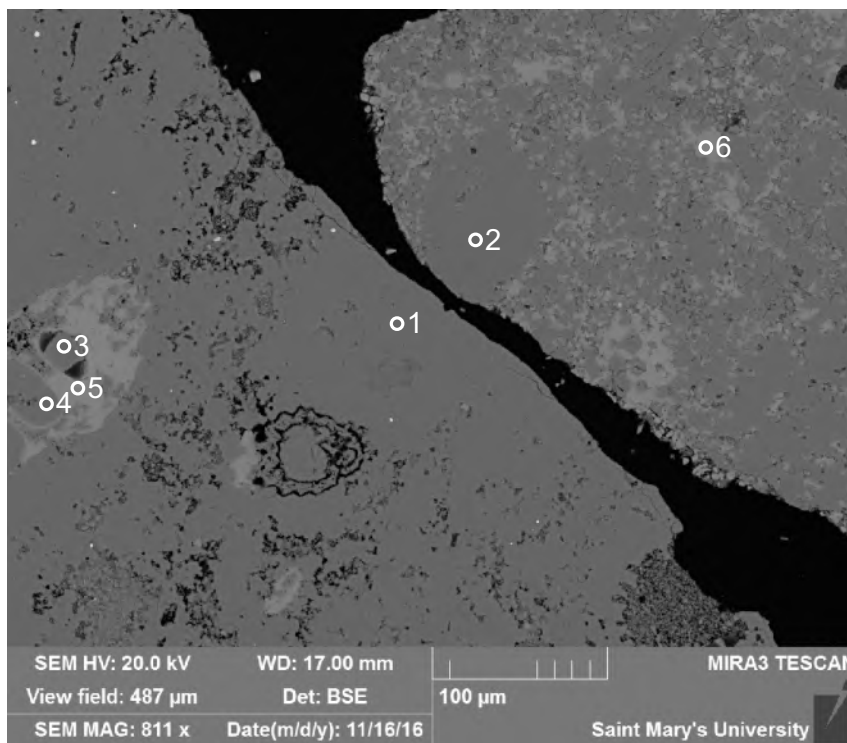


Figure A5.5: Sample S17 (SEM).



- 1: Quartz +
- 2: Calcite
- 3: Calcite +
- 4: Calcite
- 5: Quartz
- 6: Quartz
- 7: Calcite

Figure A5.6: Sample S17 Site 3 (SEM). This site contains: detrital quartz (1, 5, 6), and calcite (2, 3, 4, 7). Lithic clasts: Quartz + Calcite (1-5, ?quartz vein, hydrothermal); Quartz + Calcite (6-7, chert with residual limestone).



- 1: Quartz
- 2: Quartz
- 3: Quartz
- 4: Quartz
- 5: Calcite
- 6: Calcite

Figure A5.7: Sample S17 Site 4 (SEM). This site contains: detrital quartz (1, 2, 3, 4), and calcite (5, 6). Lithic clasts: Quartz + Calcite (2-6 and 1,3-5, chert with residual limestone).

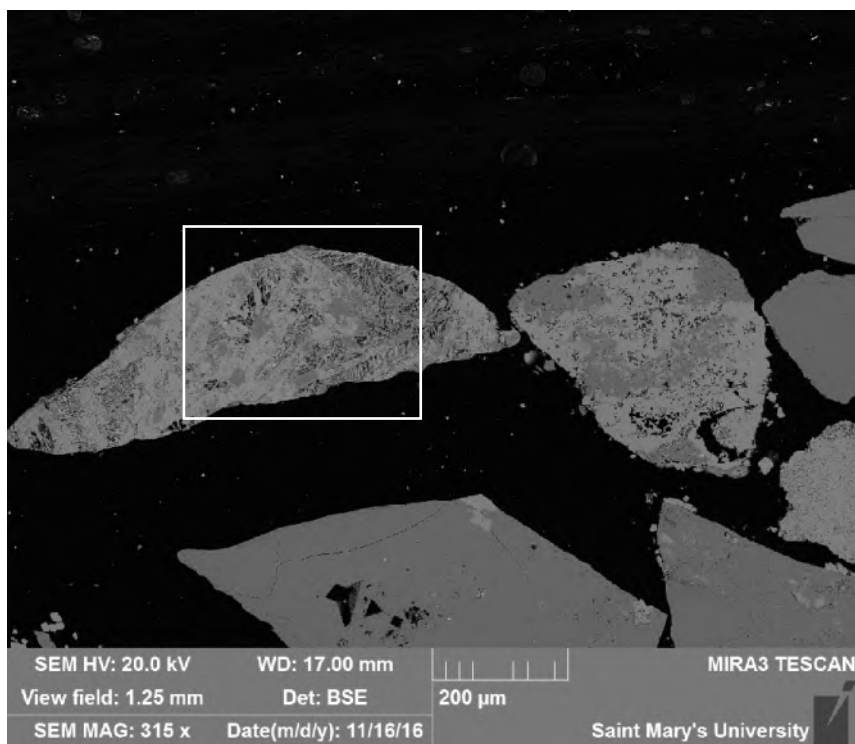
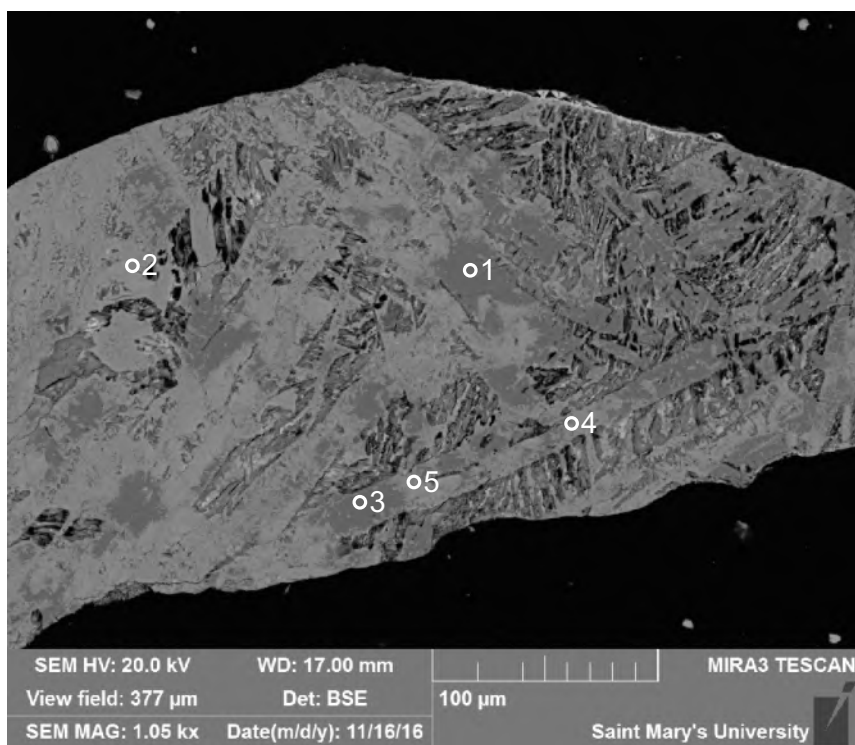


Figure A5.8: Sample S17 (SEM).



- 1: Quartz
- 2: Epidote
- 3: Quartz
- 4: Epidote
- 5: Epidote

Figure A5.9: Sample S17 Site 5 (SEM). This site contains: Detrital quartz (1, 3), which is cut by epidote (2, 4, 5). Lithic clast: Epidote + Quartz (1-5, epidote-quartz vein, hydrothermal).

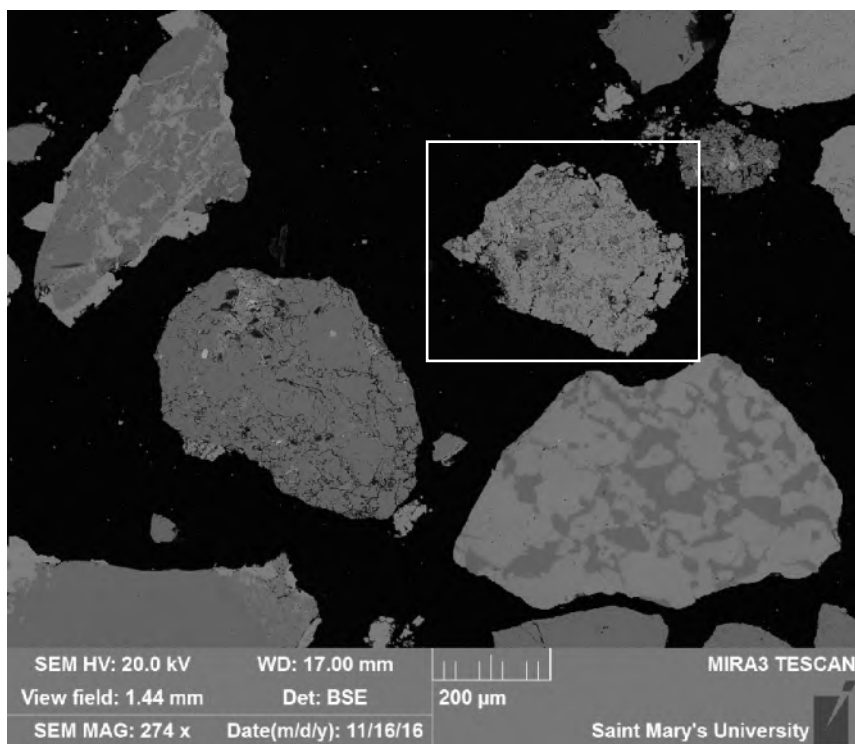
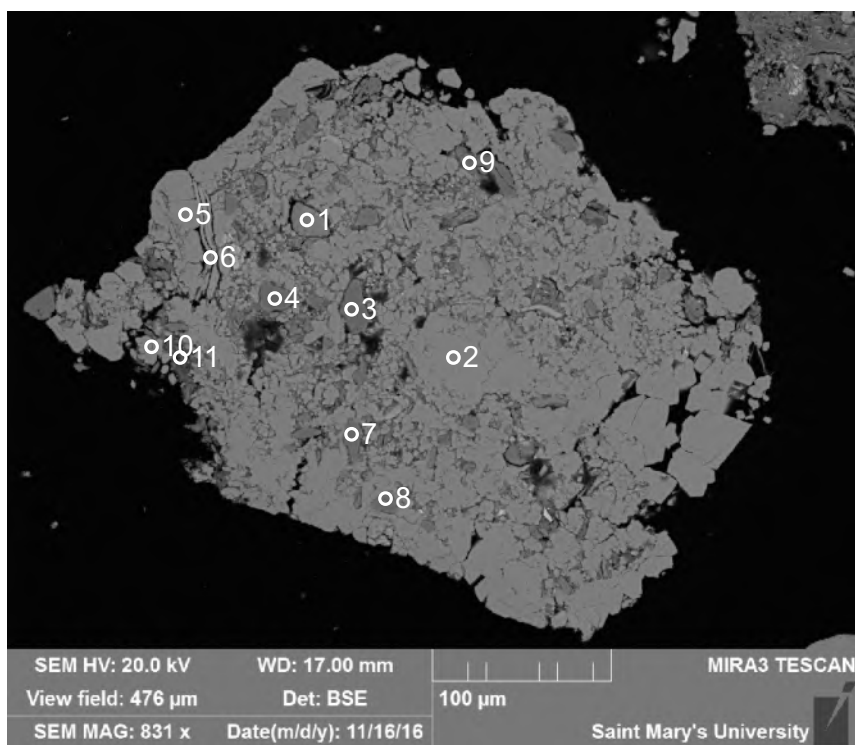
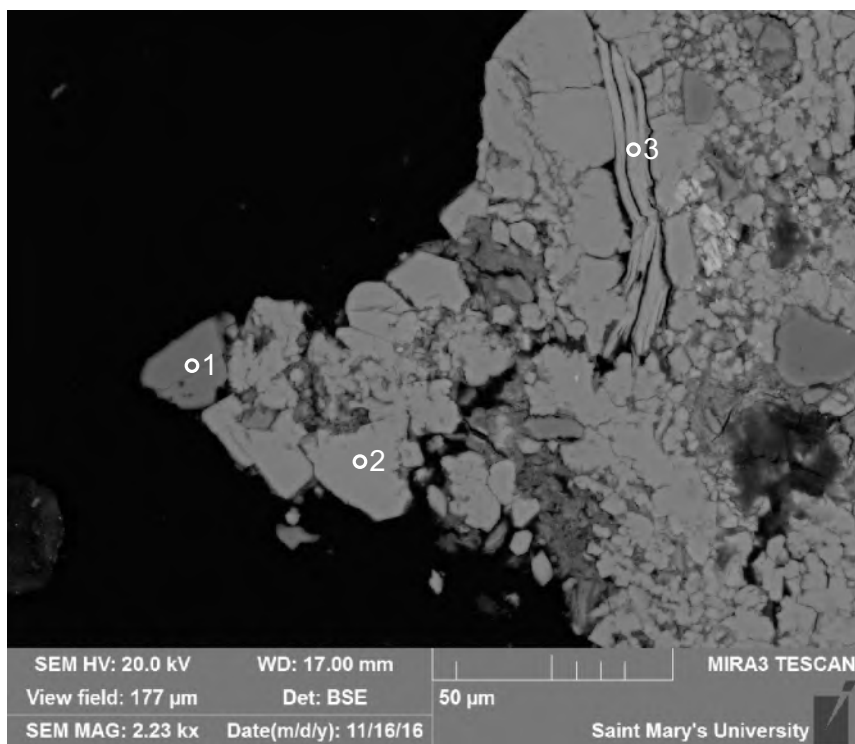


Figure A5.10: Sample S17 (SEM).



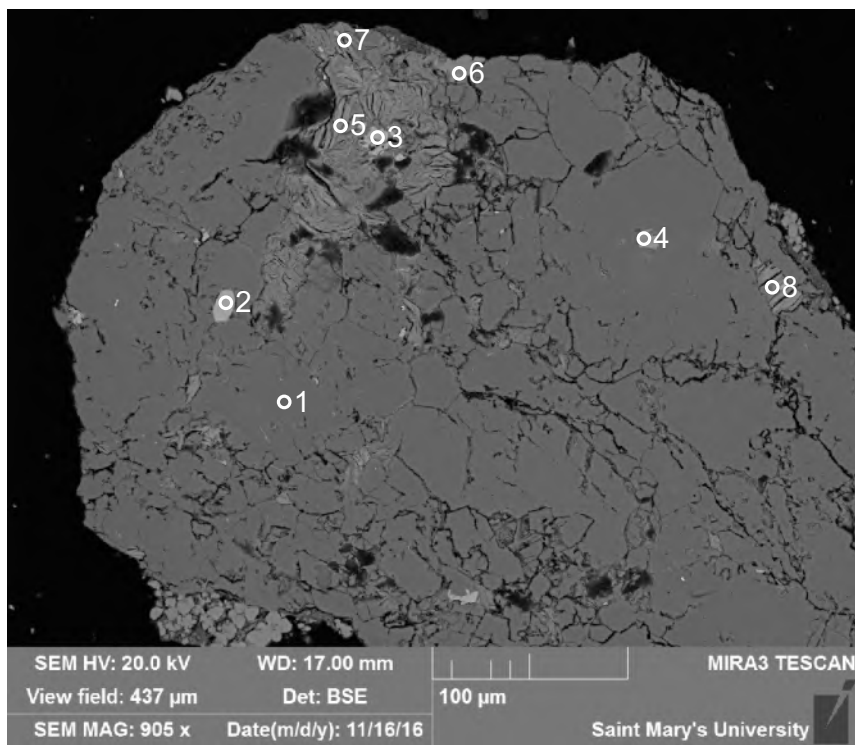
- 1: Biotite+
- 2: Calcite
- 3: Quartz
- 4: Quartz
- 5: Calcite
- 6: Chlorite +
- 7: Albite
- 8: Quartz +
- 9: Albite
- 10: Calcite+
- 11: Mix

Figure A5.11: Sample S17 Site 6 (SEM). This site contains: Detrital calcite (2, 5, 10), quartz (3, 4, 8), biotite (1), chlorite (6), and albite (7, 9). Lithic clast: Quartz + Calcite (1-11, calcareous siltstone).



- 1: Albite
- 2: Calcite+
- 3: Chlorite +

Figure A5.12: Sample S17 Site 7 (SEM). This site contains: Detrital calcite (2), chlorite (3), and albite (1). Lithic clast: Calcite + Chlorite + Albite (1-3, calcareous siltstone).



- 1: Quartz
- 2: Apatite
- 3: Titanite
- 4: Epidote
- 5: Chlorite +
- 6: Calcite+
- 7: Chlorite +
- 8: Chlorite +

Figure A5.13: Sample S17 Site 8 (SEM). This site contains: detrital quartz (1), calcite (6), apatite (2), titanite (3), epidote (4), and chlorite (5, 7, 8). Lithic clast: Quartz + Apatite + Titanite + Epidote + Chlorite + Calcite (1-8, ?sandstone).

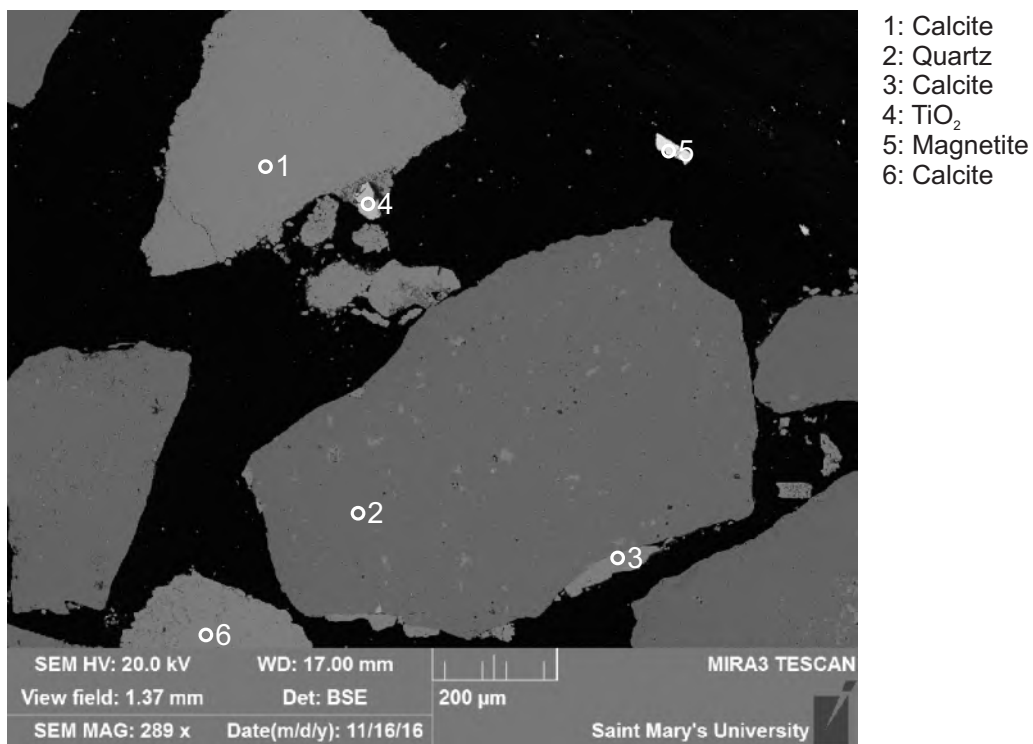


Figure A5.14: Sample S17 Site 9 (SEM). This site contains: Detrital calcite (1, 3, 6), quartz (2), TiO_2 (4), and magnetite (5). Lithic clast: Quartz + Calcite (2-3, ?quartz vein).

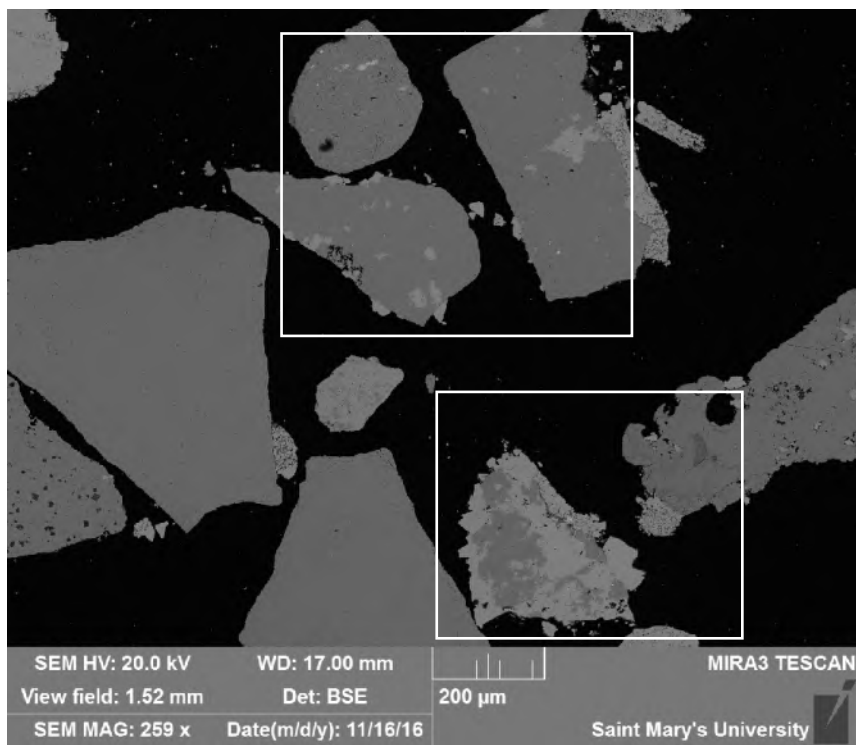
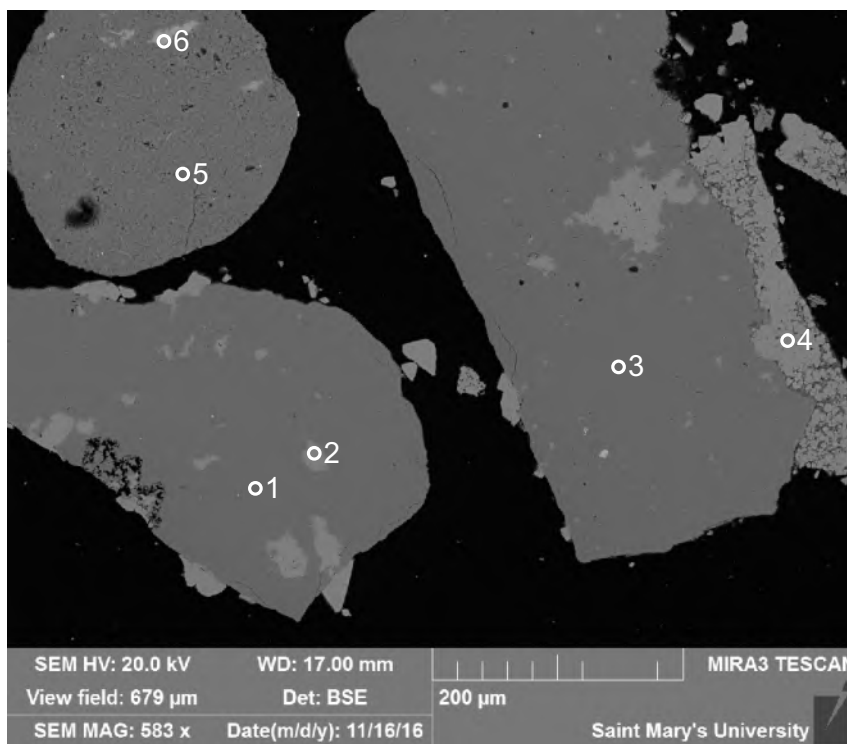
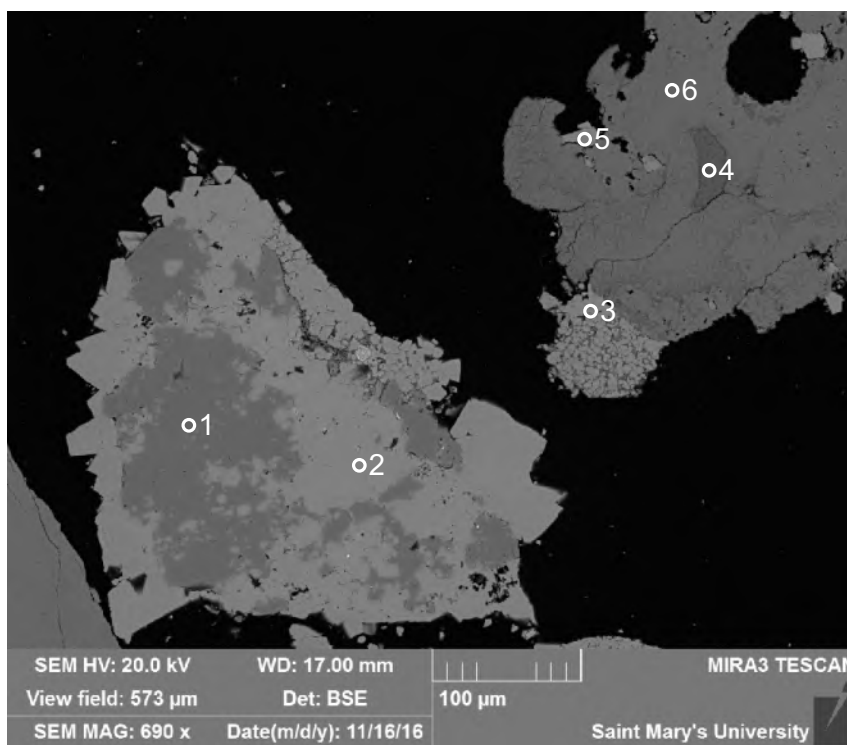


Figure A5.15: Sample S17 (SEM).



- 1: Quartz
- 2: Calcite
- 3: Quartz
- 4: Calcite
- 5: Quartz
- 6: Apatite

Figure A5.16: Sample S17 Site 10 (SEM). This site contains: detrital quartz (1, 3, 5), calcite (2, 4), and apatite (6). Lithic clasts: Quartz + Calcite (1-2, 3-4, quartz veins, hydrothermal); Quartz + Apatite (5-6, quartz vein, hydrothermal).



- 1: Quartz+Calcite
- 2: Calcite
- 3: Calcite
- 4: Quartz
- 5: Calcite
- 6: Quartz

Figure A5.17: Sample S17 Site 11 (SEM). This site contains: detrital quartz (1, 4, 6), and calcite (1, 2, 3, 5). Lithic clasts: Quartz + Calcite (1-2, 3-6, ?chert with residual limestone).

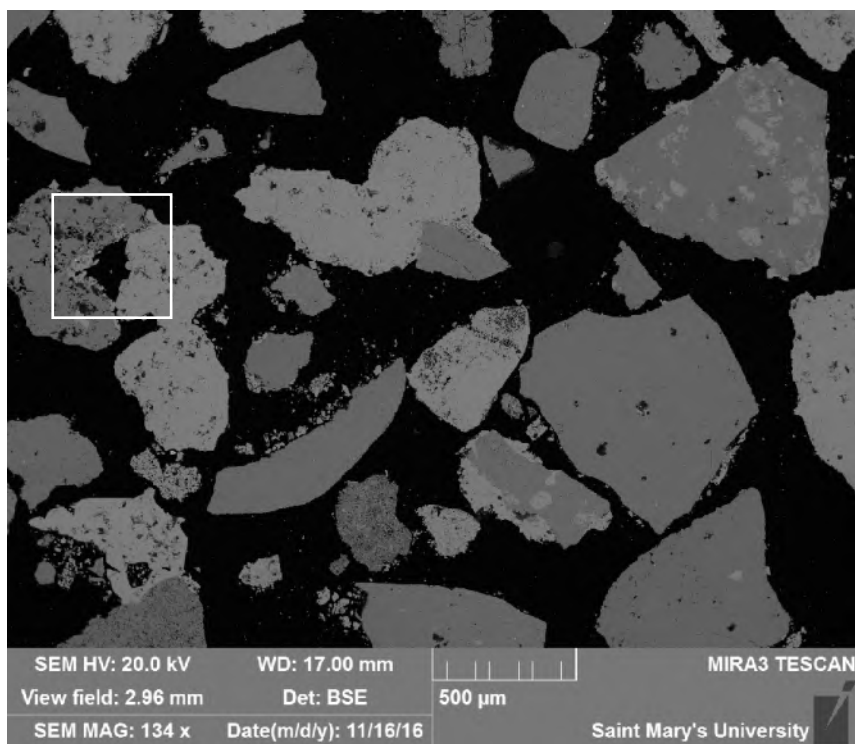
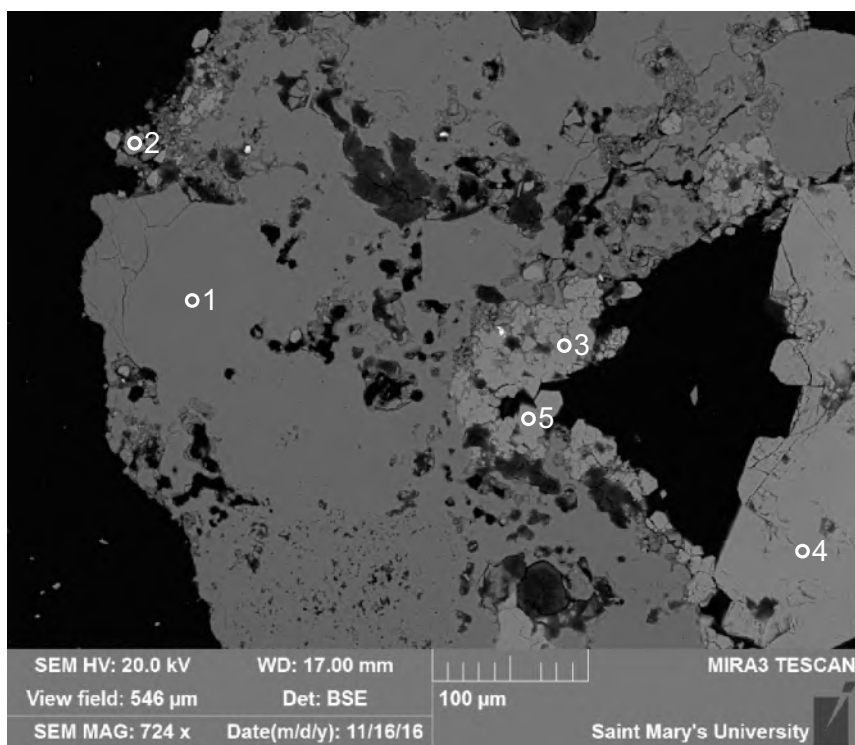
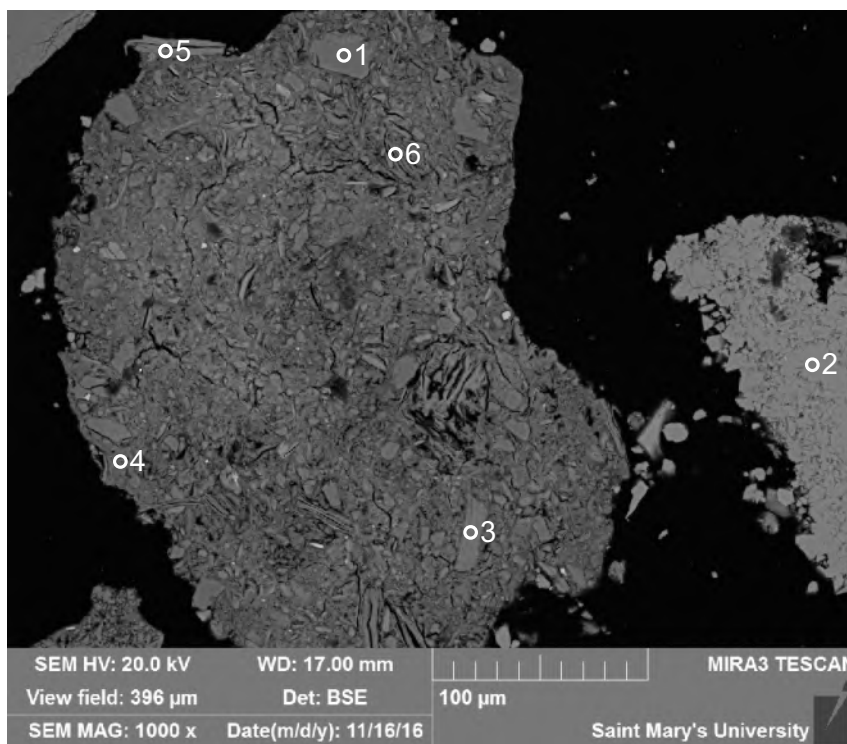


Figure A5.18: Sample S17 (SEM).



- 1: Quartz
- 2: Calcite+
- 3: Calcite+
- 4: Calcite
- 5: Calcite

Figure A5.19: Sample S17 Site 12 (SEM). This site contains: detrital quartz (1), and calcite (2, 3, 4, 5). Lithic clast: Quartz + Calcite (1-5, chert with residual limestone).



- 1: Quartz
- 2: Calcite
- 3: Muscovite
- 4: Mix
- 5: Muscovite
- 6: Muscovite

Figure A5.20: Sample S17 Site 13 (SEM). This site contains: Detrital quartz (1), muscovite (3, 5, 6), and calcite (2). Lithic clast: Quartz + Muscovite (1,3-6, siltstone).

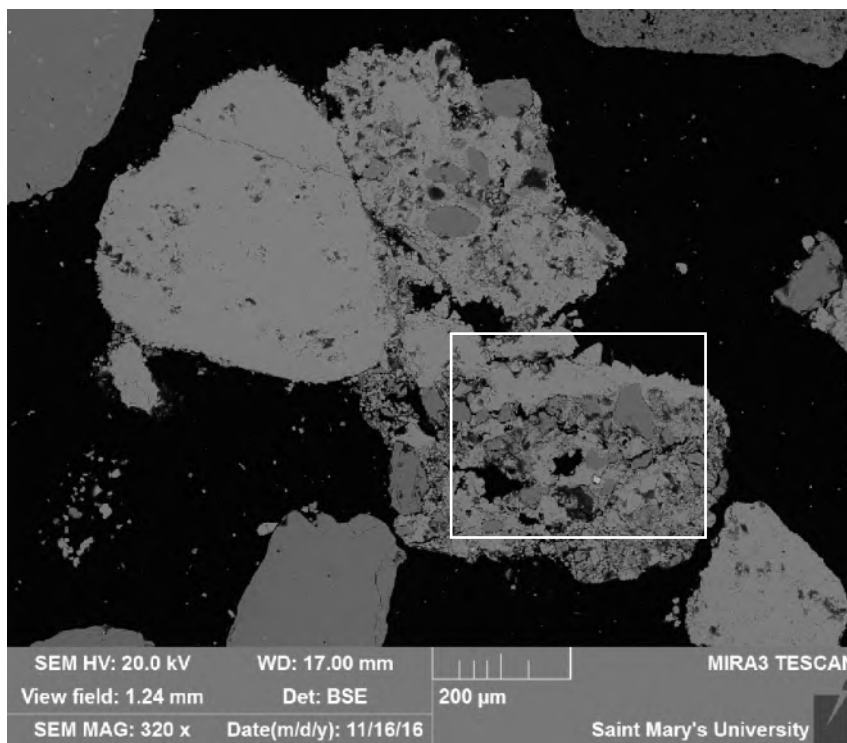
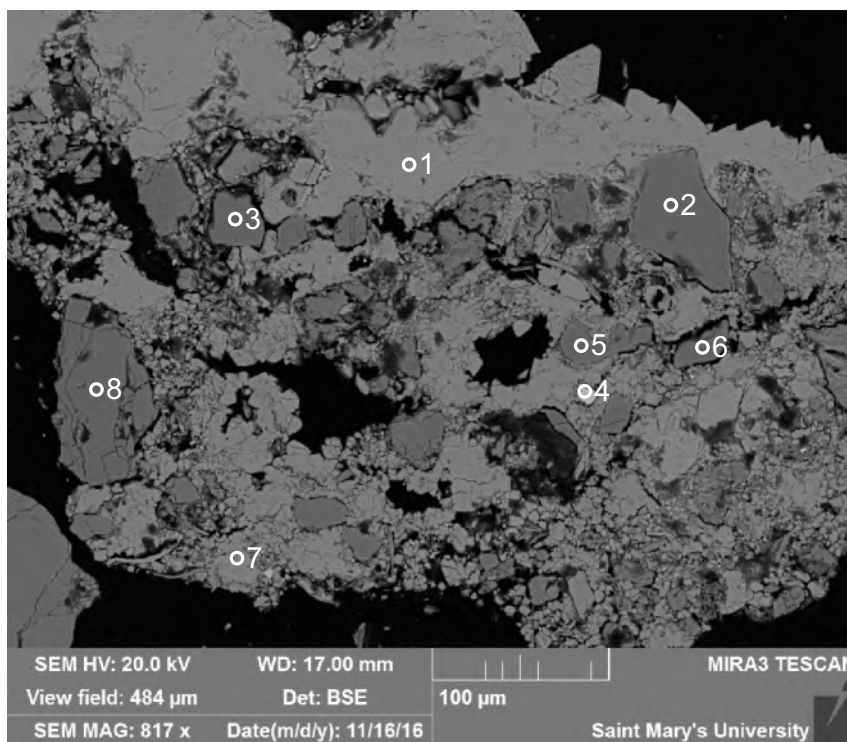
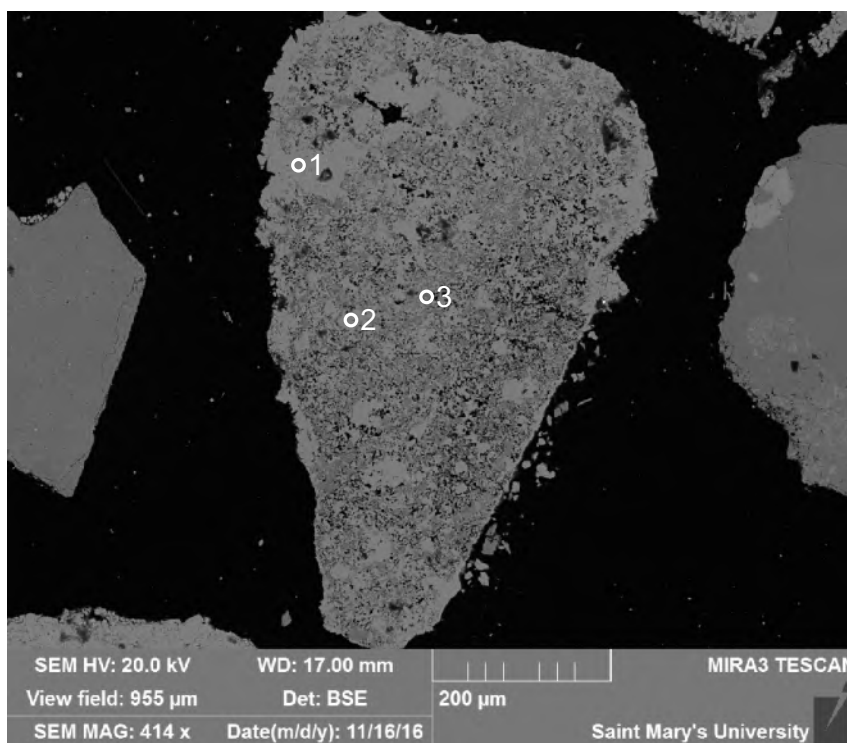


Figure A5.21: Sample S17 (SEM).



- 1: Calcite
- 2: Quartz
- 3: Quartz
- 4: TiO_2 +
- 5: Quartz
- 6: Quartz
- 7: Calcite+
- 8: Quartz

Figure A5.22: Sample S17 Site 14 (SEM). This site contains: Detrital quartz (2, 3, 5, 6, 8), calcite (1, 7), and TiO_2 (4). Lithic clast: Quartz + Calcite + TiO_2 (1-8, sandy limestone).



- 1: Calcite
- 2: Calcite
- 3: Quartz + Calcite +

Figure A5.23: Sample S17 Site 15 (SEM). This site contains: Detrital calcite (1-3), and quartz (3). Lithic clast: Calcite + Quartz (1-3, chert with residual limestone).

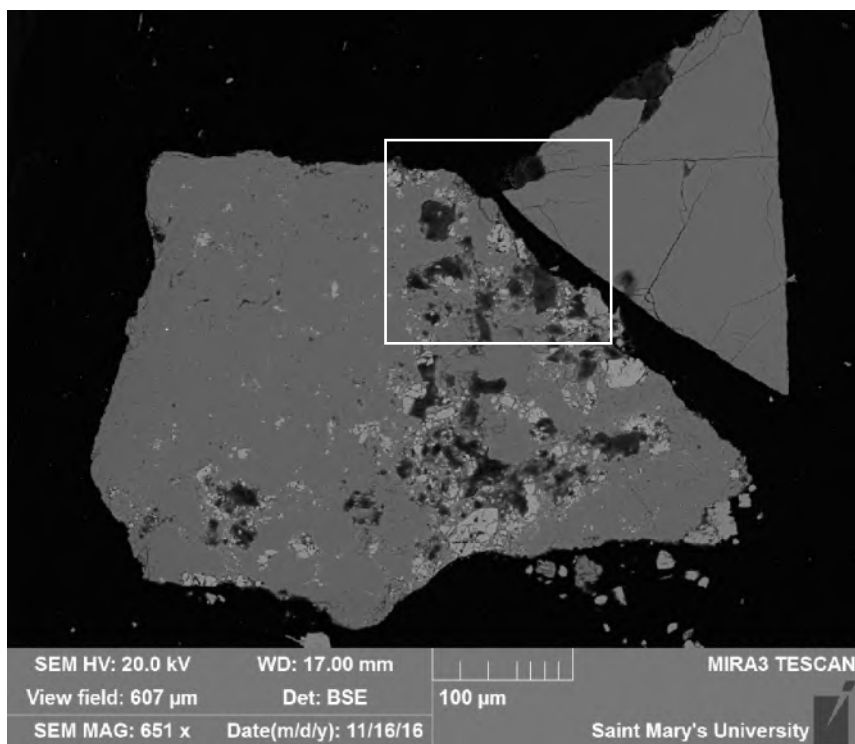
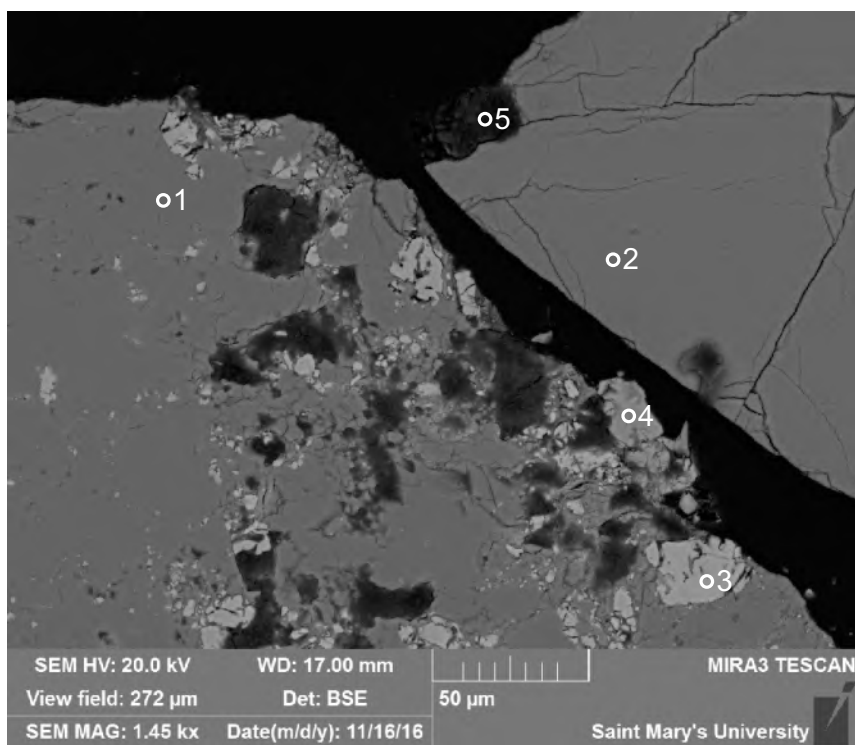
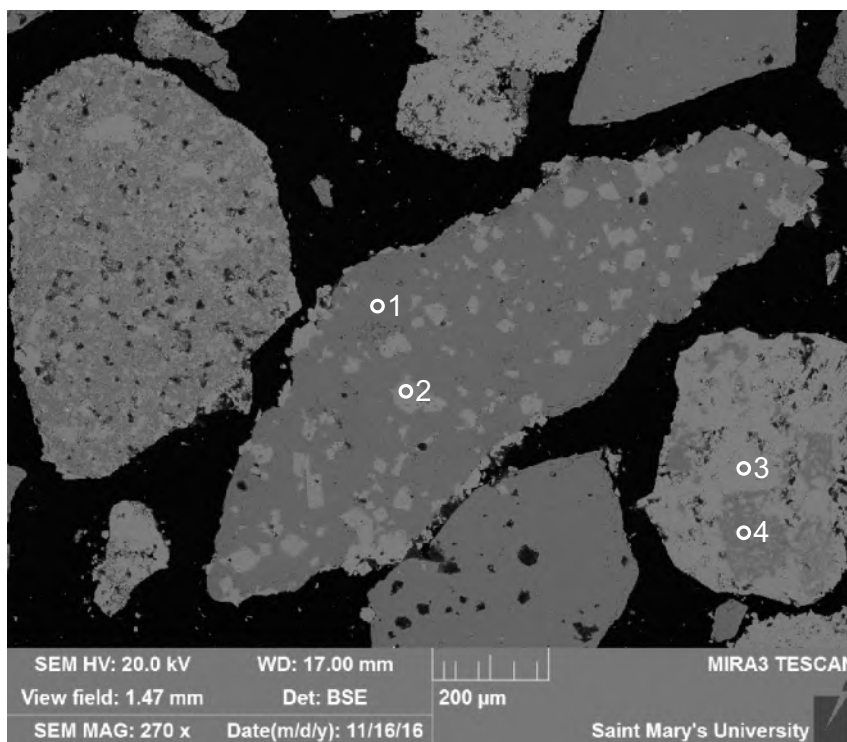


Figure A5.24: Sample S17 (SEM).



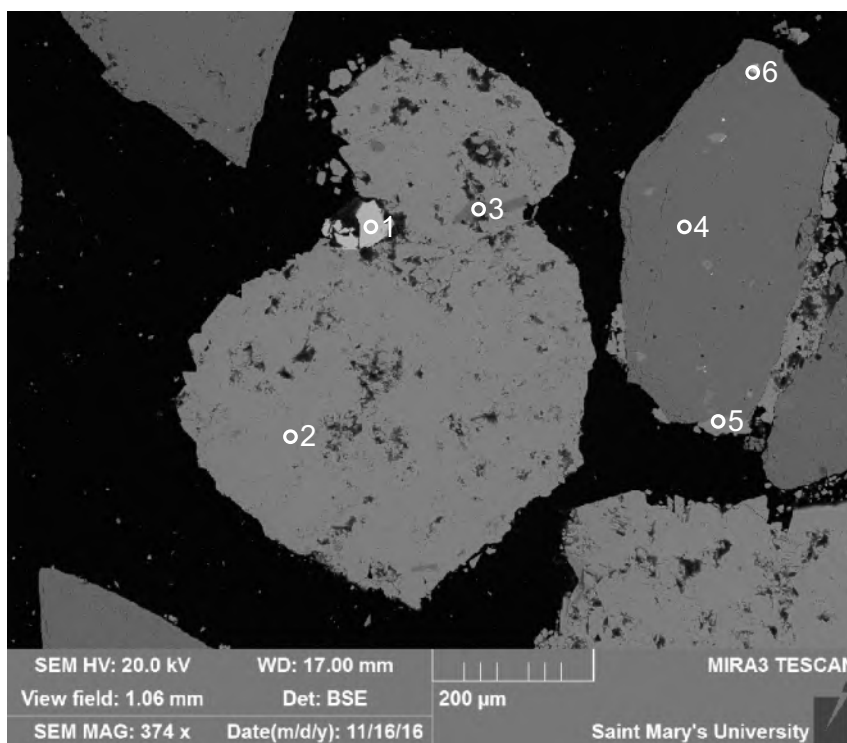
- 1: Quartz
- 2: Quartz
- 3: Epidote
- 4: Calcite+
- 5: Quartz+

Figure A5.25: Sample S17 Site 16 (SEM). This site contains: Detrital quartz (1, 2, 5), and epidote (3). Lithic clast: Quartz + Calcite + Epidote (1,3,4, chert with residual limestone or siltstone).



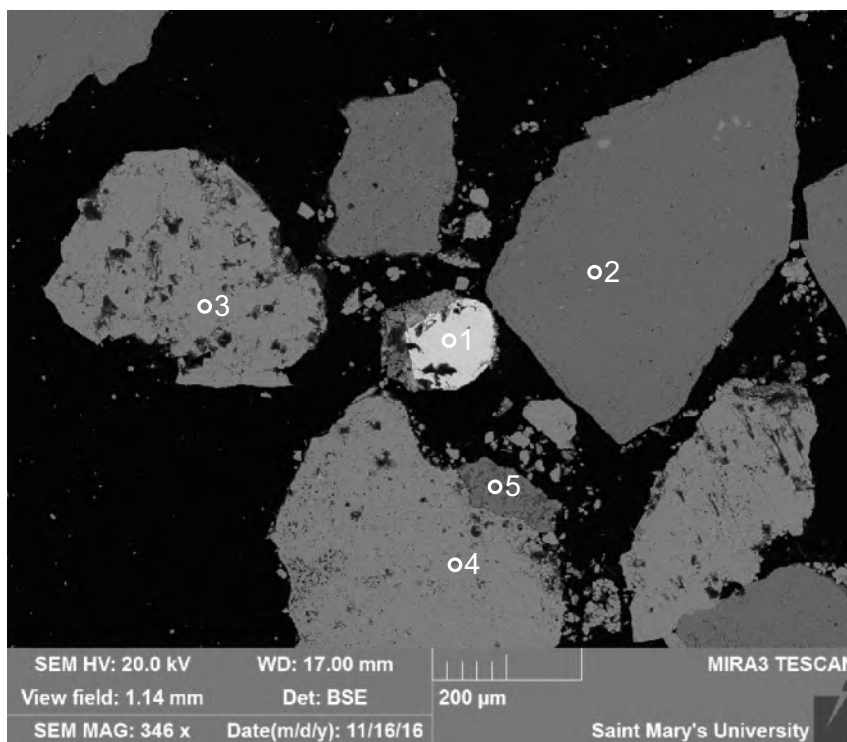
- 1: Quartz
- 2: Calcite+
- 3: Calcite
- 4: Quartz

Figure A5.26: Sample S17 Site 17 (SEM). This site contains: quartz (1,4), and calcite (2,3). Lithic clasts: Quartz + Calcite (1-2, chert with residual limestone); Quartz + Calcite (3-4, ?cherty limestone).



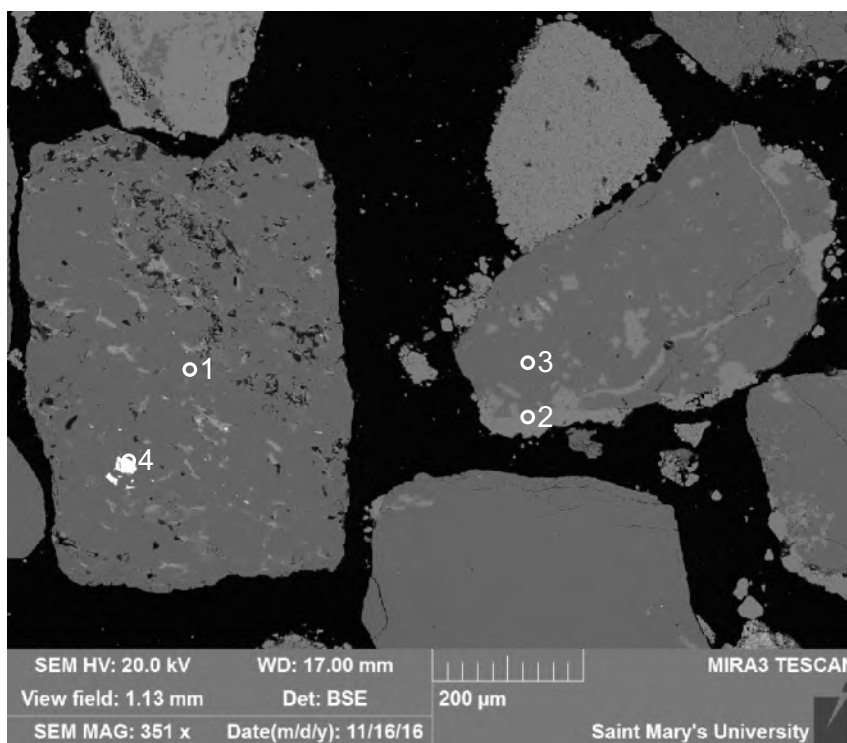
- 1: Spinel
- 2: Calcite
- 3: Quartz
- 4: Quartz
- 5: Calcite
- 6: Fe-oxide/hydroxide +

Figure A5.27: Sample S17 Site 18 (SEM). This site contains: Detrital calcite (2,5), quartz (3,4), and spinel (1), and Fe-oxide/hydroxide (6). Lithic clasts: Quartz + Fe-oxide/hydroxide (4-6, hydrothermal quartz vein); Quartz + Calcite + Spinel (1-3, ?sandstone).



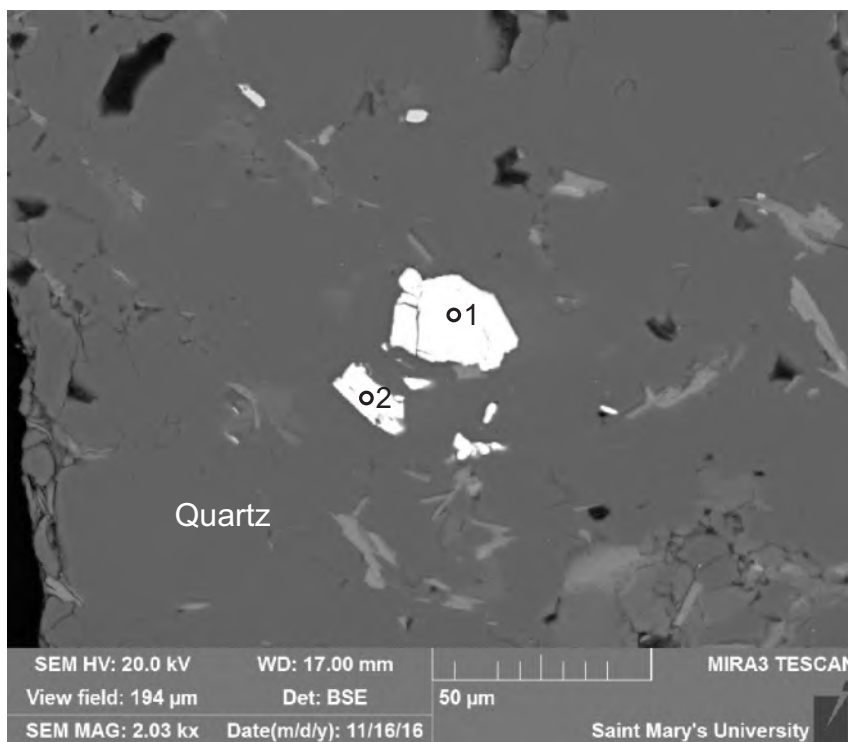
- 1: Chromite
- 2: Quartz
- 3: Calcite
- 4: Calcite
- 5: Quartz

Figure A5.28: Sample S17 Site 19 (SEM). This site contains: Detrital chromite (1), quartz (2, 5), and calcite (3, 4). Lithic clast: Calcite + Quartz (4-5, cherty limestone).



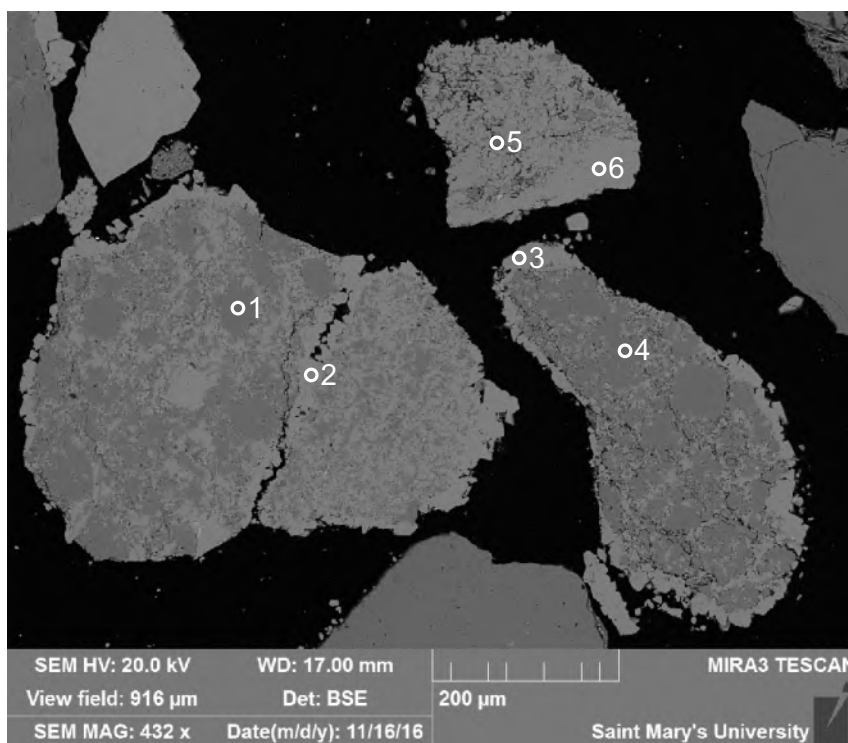
- 1: Quartz
- 2: Calcite + Quartz
- 3: Quartz
- 4: Zircon

Figure A5.29: Sample S17 Site 20 (SEM). This site contains: detrital quartz (1), zircon (4), and calcite (2). Lithic clasts: Quartz + Calcite (2-3, quartz vein, hydrothermal); Quartz + Calcite + Zircon (1,4, chert with residual limestone).



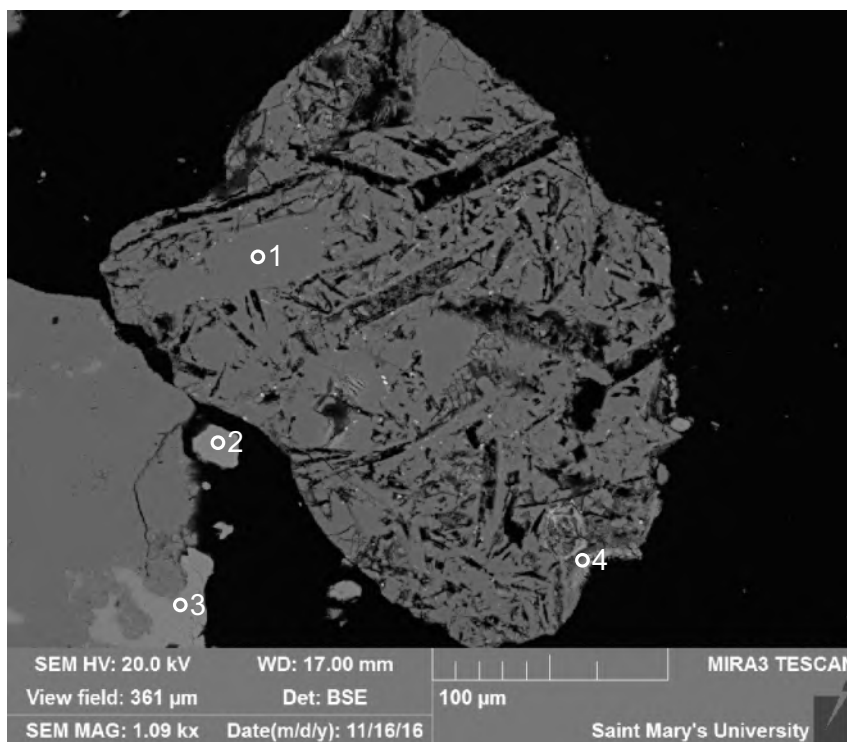
- 1: Zircon
- 2: Zircon

Figure A5.30: Sample S17 Site 21 (SEM). This site contains: Detrital zircon (1, 2) in quartz.



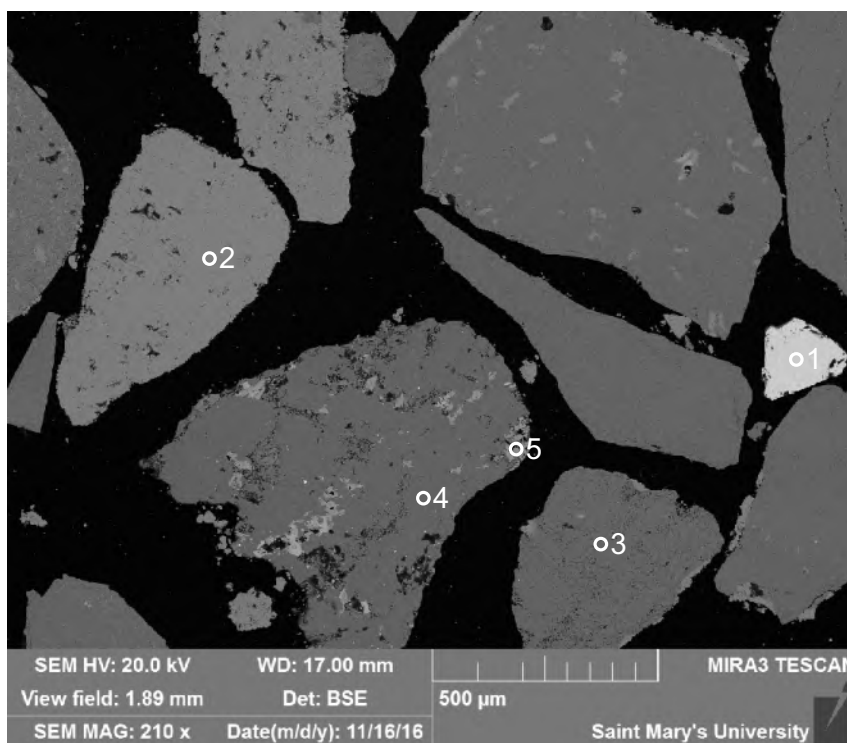
- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Quartz + Chlorite
- 5: Quartz
- 6: Calcite

Figure A5.31: Sample S17 Site 22 (SEM). This site contains: Detrital quartz (1,4-5), and calcite (2-3,6). Lithic clasts: Quartz + Calcite (1-2,3-4,5-6, chert with residual limestone).



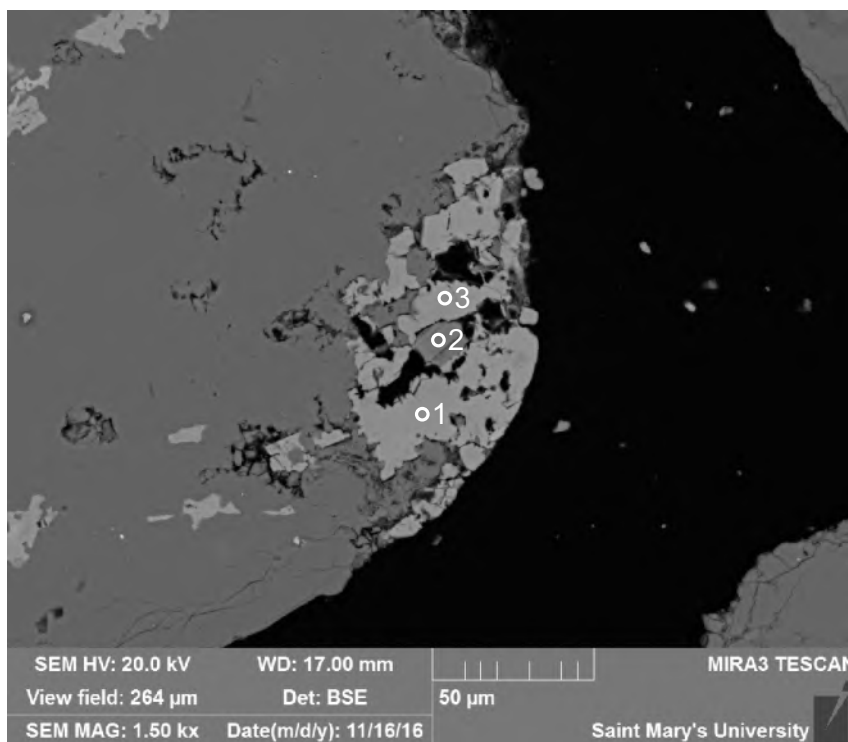
- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Fe-Chlorite or Mix (altered mineral)

Figure A5.32: Sample S17 Site 23 (SEM). This site contains: detrital quartz (1), and chlorite (4). Lithic clast: Quartz + Chlorite (1,4, quartz vein, hydrothermal).



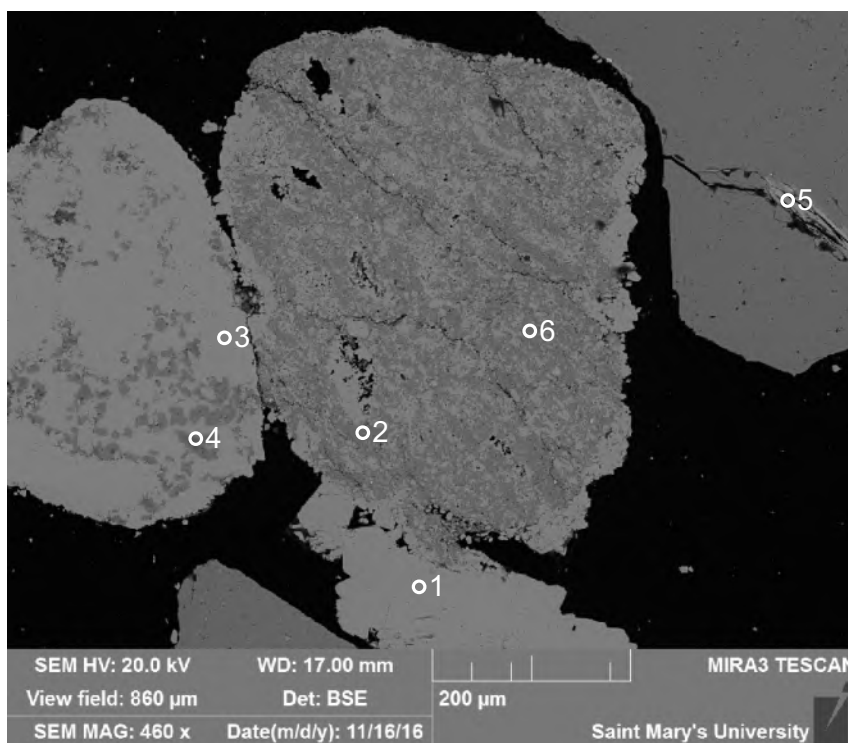
- 1: Chromite
- 2: Calcite
- 3: Quartz
- 4: Quartz
- 5: Epidote

Figure A5.33: Sample S17 Site 24 (SEM). This site contains: Detrital chromite (1), calcite (2), quartz (3, 4), and epidote (5). Lithic clast: Quartz + Epidote (4,5, quartz crystal with epidote inclusion, hydrothermal).



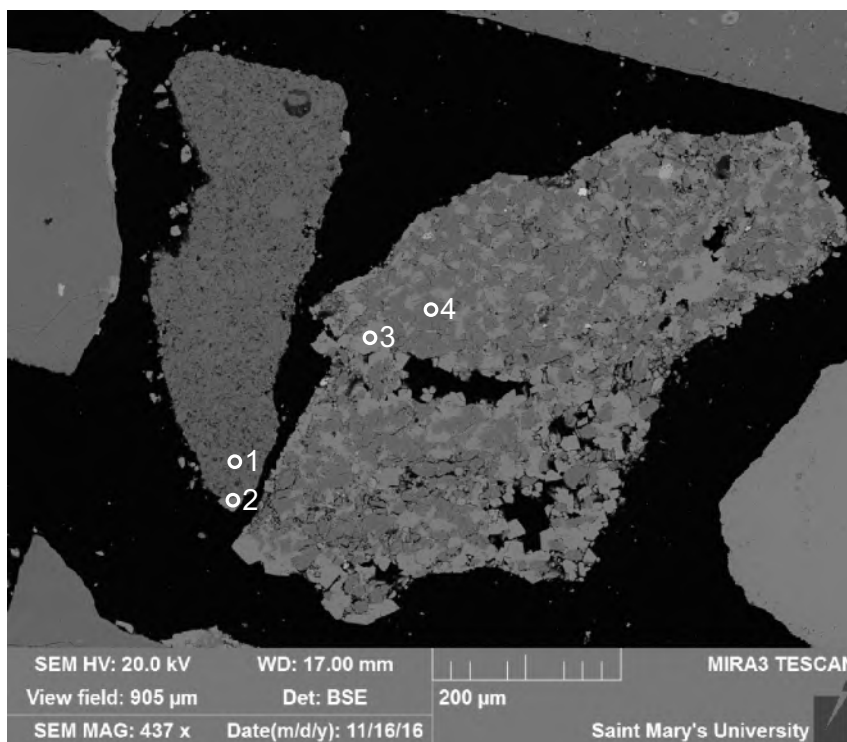
- 1: Epidote
- 2: Muscovite
- 3: Epidote

Figure A5.34: Sample S17 Site 25 (SEM). This site contains: Detrital epidote (1, 3), and muscovite (2).



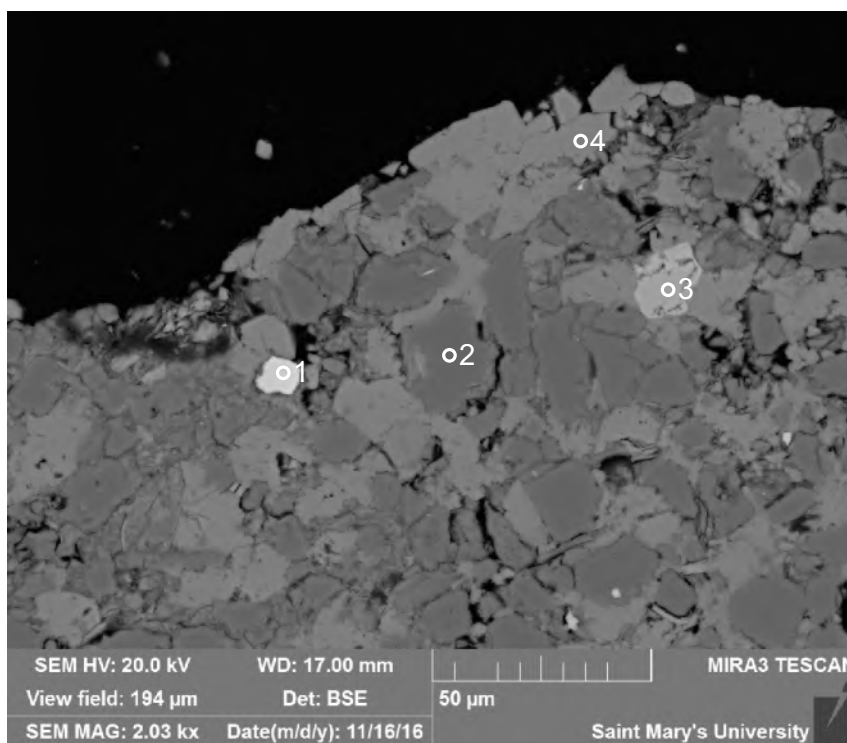
- 1: Calcite
- 2: Quartz+
- 3: Calcite
- 4: Quartz
- 5: Chlorite + Muscovite
- 6: Quartz + Albite

Figure A5.35: Sample S17 Site 26 (SEM). This site contains: Detrital calcite (1,3), quartz (2,4), quartz and albite (6), and muscovite and chlorite (5). Lithic clasts: Calcite + Quartz (3-4, cherty limestone); Quartz + Calcite + Muscovite (1-2,6, chert with residual limestone or siltstone).



- 1: Quartz
- 2: Calcite
- 3: Calcite
- 4: Quartz

Figure A5.36: Sample S17 Site 27 (SEM). This site contains: Detrital quartz (1,4), and calcite (2-3). Lithic clasts: Quartz + Calcite (1-2,3-4, calcareous sandstone).



- 1: TiO_2 +
- 2: Quartz
- 3: Apatite
- 4: Calcite+

Figure A5.37: Sample S17 Site 28 (SEM). This site contains: detrital quartz (2), apatite (3), calcite (4), and TiO_2 (1). Lithic clast: Quartz + Calcite (1-4, chert with residual limestone or calcareous siltstone).

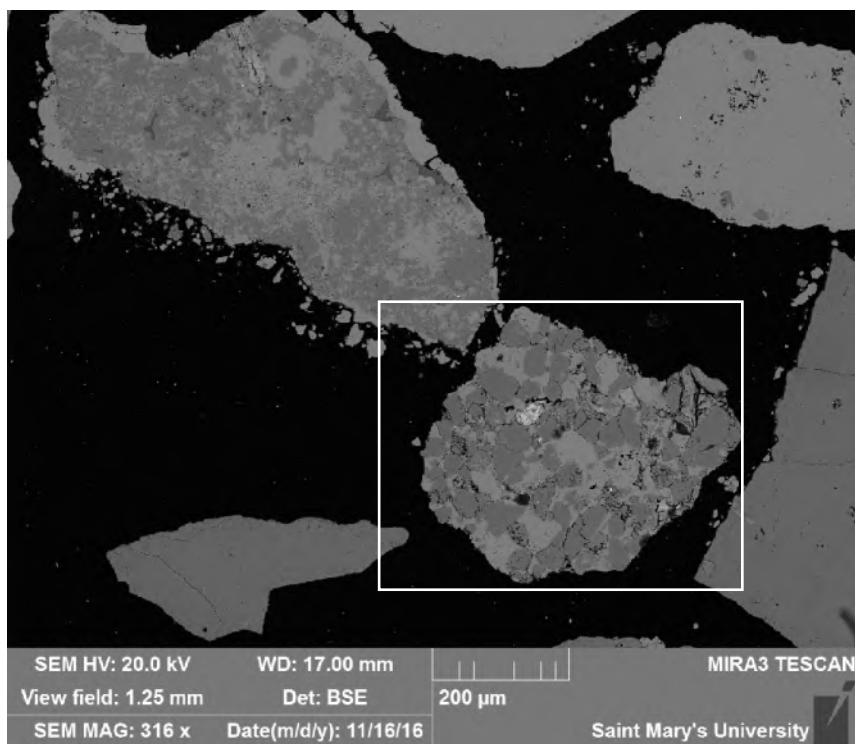
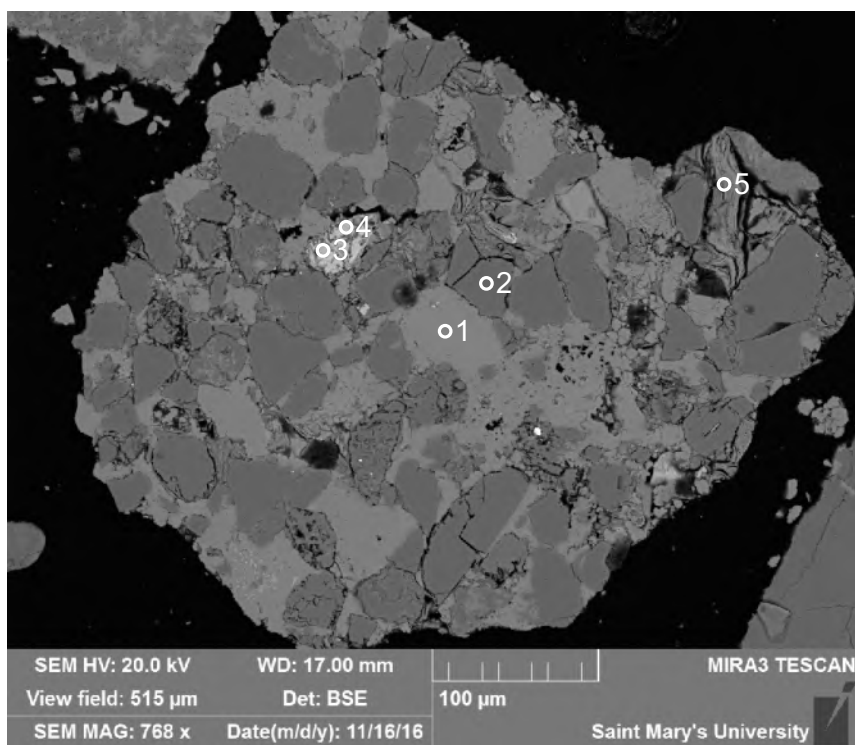
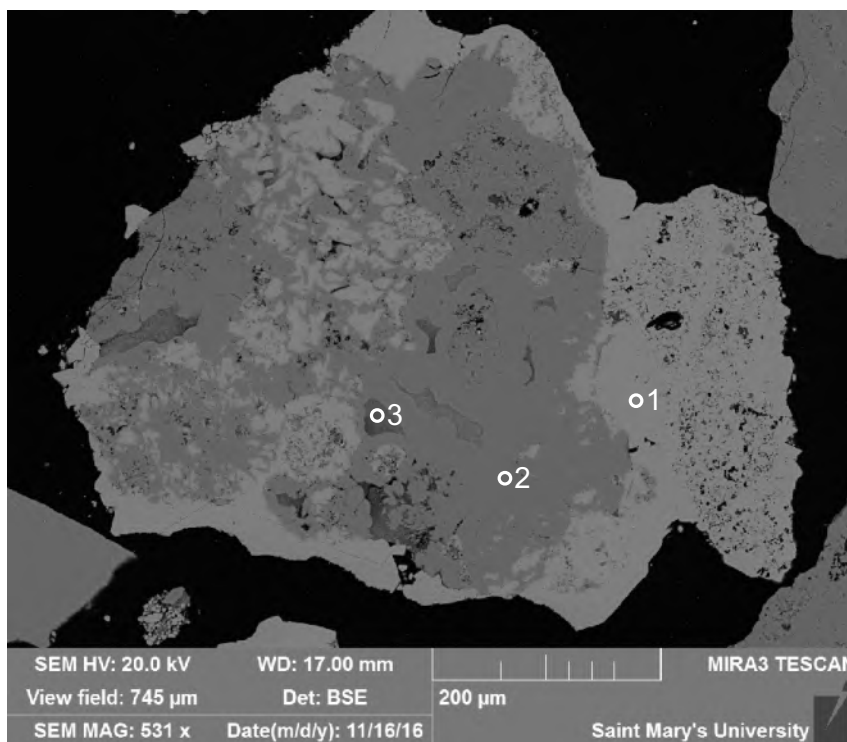


Figure A5.38: Sample S17 (SEM).



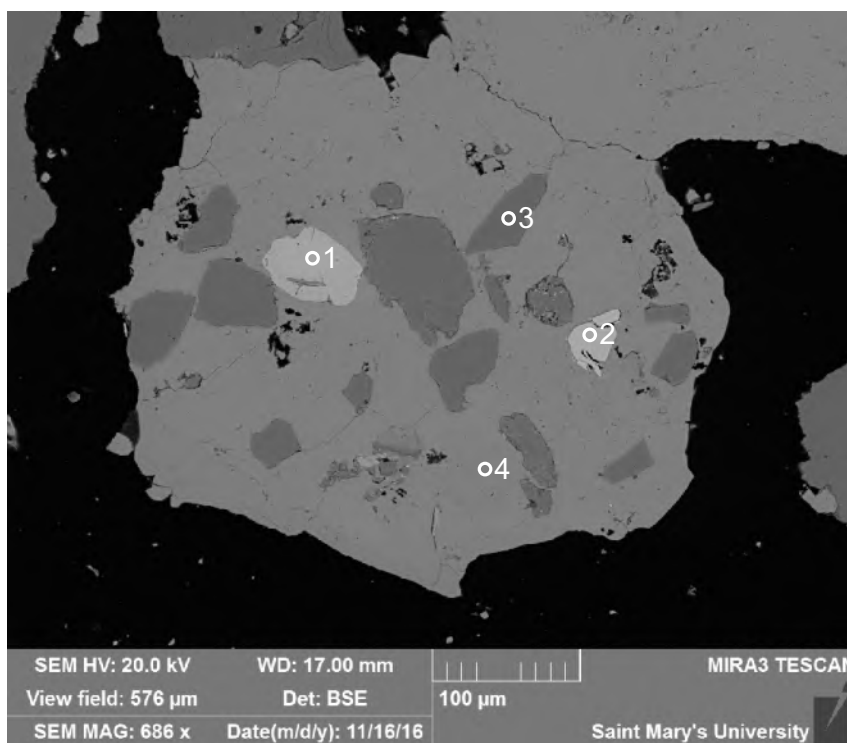
- 1: Calcite
- 2: Albite
- 3: "Ilm" +
- 4: "Ilm" +
- 5: Mix

Figure A5.39: Sample S17 Site 29 (SEM). This site contains: Detrital calcite (1), albite (2), and altered ilmenite (3,4). Lithic clast: Calcite + Albite + "Ilmenite" (1-4, calcareous sandstone).



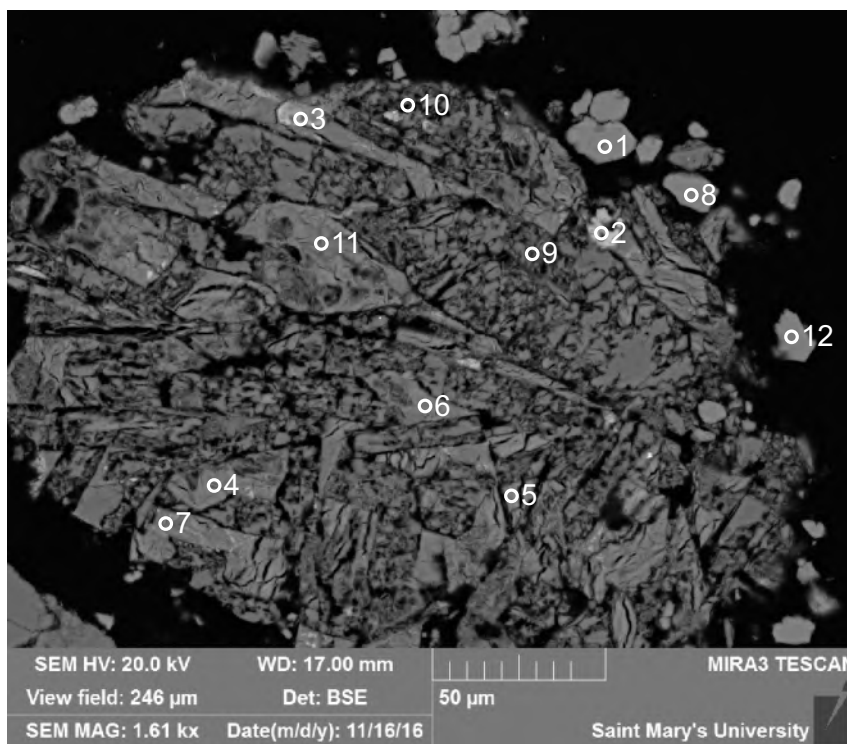
- 1: Calcite
- 2: Quartz
- 3: Quartz

Figure A5.40: Sample S17 Site 30 (SEM). This site contains: Detrital calcite (1), and quartz (2-3). Lithic clast: Quartz + Calcite (1-3, sandy limestone or chert with residual limestone).



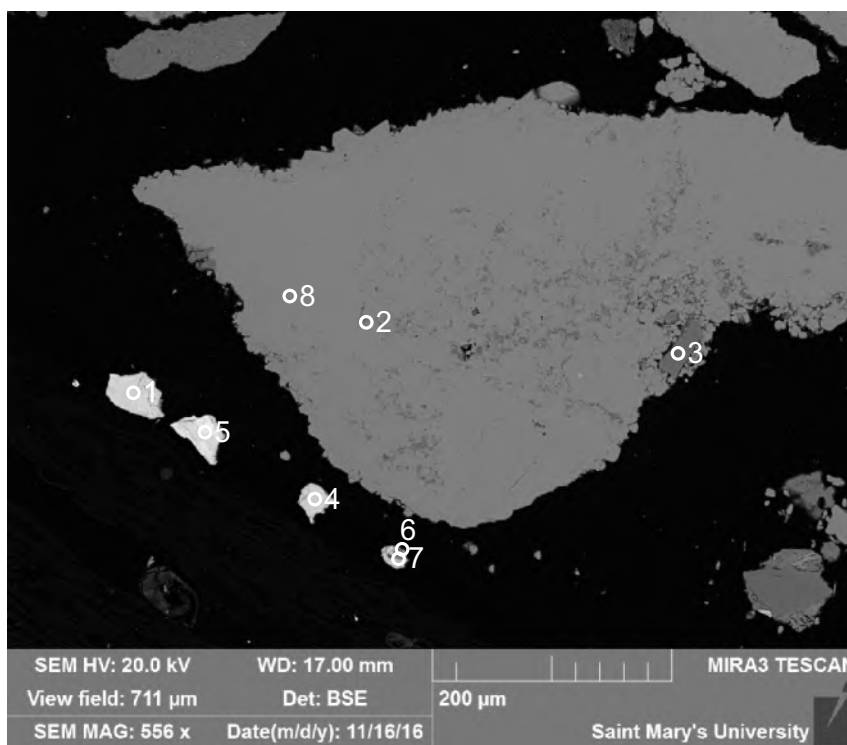
- 1: Apatite
- 2: Garnet (Almandine)
- 3: Quartz
- 4: Calcite

Figure A5.41: Sample S17 Site 31 (SEM). This site contains: Detrital calcite (4), quartz (3), apatite (1), and garnet (2). Lithic clast: Calcite + Quartz + Apatite + Garnet (1-4, sandy limestone or calcareous sandstone).



- 1: Calcite +
- 2: Titanite +
- 3: Titanite
- 4: Mix
- 5: Mix
- 6: Mix
- 7: Mix
- 8: Calcite
- 9: Muscovite +
- 10: Feldspar + Chlorite
- 11: Mix
- 12: Calcite

Figure A5.42: Sample S17 Site 32 (SEM). Very altered lithic clast of an igneous rock (hypabyssal mafic rock).



- 1: Magnetite
- 2: Calcite + Quartz +
- 3: Quartz
- 4: Magnetite
- 5: Magnetite
- 6: Quartz
- 7: Magnetite +
- 8: Calcite

Figure A5.43: Sample S17 Site 33 (SEM). Lithic clasts: Quartz + Calcite (2-3,8, cherty limestone); Magnetite + Quartz (6-7, igneous).

Table A5.1: EDS analyses of sample S17.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Cr2O3	ZnO	ZrO2	Nb2O5	Ce2O3	Yb2O3	HfO2	WO3	Total	Actual Total
S17	1	1	Cal						0.29	55.71															56	78
S17	1	2	Qz	100.00																					100	161
S17	1	3	Cal	0.91					0.38	54.71															56	78
S17	1	4	Cal							56.00															56	78
S17	1	5	Cal							56.00															56	77
S17	1	6	Qz +	92.40		2.19	1.05		0.56	1.86	0.56	0.38		0.66		0.34									100	91
S17	2	1	Cal	0.76					0.28	54.96															56	76
S17	2	2	Qz	100.00																					100	164
S17	2	3	Grt (Alm)	34.34	0.54	14.21	33.94		6.04	5.99	0.44	0.40	4.10												100	83
S17	2	4	Cal	0.42			0.26			55.32															56	77
S17	2	5	Grt (Alm)	43.40	0.84	18.53	17.61		7.79	8.47	0.52	1.56	1.03			0.26									100	98
S17	2	6	Qz	91.45		3.42	4.26		0.35	0.52															100	133
S17	2	7	Qz	100.00																					100	157
S17	2	8	Cal+	4.11		1.72	0.94		0.49	92.57		0.18													100	78
S17	2	9	Qz	100.00																					100	163
S17	2	10	Qz	98.66		0.63	0.50			0.22															100	145
S17	2	11	Cal +	1.49		0.52	0.44		0.24	53.32															56	77
S17	2	12	Qz +	91.87		4.33	2.57		0.48	0.75															100	120
S17	3	1	Qz +	97.50		1.65	0.42					0.43													100	153
S17	3	2	Cal						0.28	55.72															56	76
S17	3	3	Cal+	3.57		1.80			0.54	94.08															100	79
S17	3	4	Cal						0.41	55.59															56	77
S17	3	5	Qz	98.81		0.71	0.31					0.18													100	160
S17	3	6	Qz	100.00																					100	160
S17	3	7	Cal	0.71						55.29															56	77
S17	4	1	Qz	100.00																					100	159
S17	4	2	Qz	100.00																					100	159
S17	4	3	Qz	99.69						0.31															100	159
S17	4	4	Qz	99.82						0.18															100	159
S17	4	5	Cal							56.00															56	76
S17	4	6	Cal	0.66						55.34															56	78
S17	5	1	Qz	98.37		1.00					0.64														100	160
S17	5	2	Ep	41.57	0.41	21.14	8.12		4.53	21.23															97	137
S17	5	3	Qz	97.53		0.70	0.65		1.11																100	161
S17	5	4	Ep	42.04	0.53	22.48	5.91		4.54	21.50															97	137
S17	5	5	Ep	40.42	0.36	20.65	9.28		3.43	22.85															97	139
S17	6	1	Bt+	59.02		11.76	14.14		6.77	1.43		6.52				0.37									100	134
S17	6	2	Cal							56.00															56	76
S17	6	3	Qz	99.69						0.31															100	162
S17	6	4	Qz	99.68						0.32															100	162
S17	6	5	Cal							56.00															56	76
S17	6	6	Chl +	37.96		22.36	21.52		14.45	1.57	0.48	1.65													100	137

Table A5.1: EDS analyses of sample S17.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Cr2O3	ZnO	ZrO2	Nb2O5	Ce2O3	Yb2O3	HfO2	WO3	Total	Actual Total
S17	6	7	Ab	68.79		18.74				0.34	11.83	0.30													100	163
S17	6	8	Qz +	92.52						4.46			3.03												100	163
S17	6	9	Ab	69.55		18.70				0.40	11.36														100	156
S17	6	10	Cal+	3.25		1.59	1.61			93.34		0.20													100	78
S17	6	11	Mix	32.88	0.48	19.52	32.53		2.18	10.89		0.69	0.84												100	79
S17	7	1	Ab	69.06		18.95				0.51	11.49														100	158
S17	7	2	Cal+	2.90		1.94				94.92		0.24													100	79
S17	7	3	Chl +	33.34		23.98	25.66	0.24	14.51	1.33	0.35	0.59													100	132
S17	8	1	Qz	100.00																					100	162
S17	8	2	Ap	0.48			0.33			48.65			44.30	0.50	2.71	1.58								1.44	100	160
S17	8	3	Ttn	34.67	29.25	5.84	1.15			26.64					2.45										100	148
S17	8	4	Ep	40.10		24.74	9.34	0.43		22.40															97	143
S17	8	5	Chl +	37.35		22.81	22.49	0.7	13.56	0.46	0.64	2													100	131
S17	8	6	Cal+	8.03		3.15	1.32	1.57	1.16	84.54		0.22													100	82
S17	8	7	Chl +	42.72		22.78	15.6	0.46	14.28	2.01	0.84	1.32													100	133
S17	8	8	Chl +	43.38	0.95	19.41	17.25	0.49	13.18	2.21	1.01	2.12													100	122
S17	9	1	Cal	0.55					0.60	54.85															56	76
S17	9	2	Qz	100.00																					100	162
S17	9	3	Cal							56.00															56	80
S17	9	4	TiO2		99.42					0.58															100	143
S17	9	5	Mag				98.56		0.93	0.51															100	108
S17	9	6	Cal						0.52	55.48															56	77
S17	10	1	Qz	100.00																					100	160
S17	10	2	Cal	0.59					0.32	55.09															56	79
S17	10	3	Qz	99.31		0.54						0.15													100	161
S17	10	4	Cal	1.27		0.33			0.28	54.12															56	80
S17	10	5	Qz	90.48		4.86	1.75		1.32			1.58													100	147
S17	10	6	Ap	0.44						47.35	1.03		39.74	1.53	7.49	0.30					0.74			1.39	100	142
S17	11	1	Qz+Cal	73.98					0.47	25.55															100	129
S17	11	2	Cal					0.36	0.48	55.15															56	77
S17	11	3	Cal	0.91		0.45				54.64															56	79
S17	11	4	Qz	100.00																					100	141
S17	11	5	Cal							56.00															56	77
S17	11	6	Qz	100.00																					100	157
S17	12	1	Qz	100.00																					100	160
S17	12	2	Cal+	8.30	2.76	3.81	3.16		0.68	77.98		0.35			2.96										100	85
S17	12	3	Cal+	6.35		2.45	1.20		0.80	88.99		0.21													100	82
S17	12	4	Cal						0.44	55.56															56	78
S17	12	5	Cal							56.00															56	77
S17	13	1	Qz	100.00																					100	159
S17	13	2	Cal						0.40	55.60															56	77
S17	13	3	Ms	49.30	0.30	32.69	1.72		1.12		0.94	8.93													95	146

Table A5.1: EDS analyses of sample S17.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Cr2O3	ZnO	ZrO2	Nb2O5	Ce2O3	Yb2O3	HfO2	WO3	Total	Actual Total
S17	13	4	Mix	60.82	0.33	26.99	5.55		2.44	1.44	0.29	2.14													100	126
S17	13	5	Ms	52.83		27.46	2.70		2.79		0.38	8.84													95	125
S17	13	6	Ms	51.99		32.75	2.95		1.94	0.43	0.44	4.51													95	128
S17	14	1	Cal						0.71	55.29															56	76
S17	14	2	Qz	100.00																					100	161
S17	14	3	Qz	100.00																					100	161
S17	14	4	TiO2 +	0.40	97.71					1.89															100	147
S17	14	5	Qz	99.72						0.28															100	162
S17	14	6	Qz	99.74						0.26															100	162
S17	14	7	Cal+	2.52		0.90	0.92		1.07	94.59															100	78
S17	14	8	Qz	100.00																					100	161
S17	15	1	Cal						0.37	55.63															56	75
S17	15	2	Cal					0.32	0.49	55.19															56	76
S17	15	3	Qz + Cal +	76.34		4.34	2.31		1.41	14.14		1.47													100	132
S17	16	1	Qz	100.00																					100	162
S17	16	2	Qz	100.00																					100	161
S17	16	3	Ep	39.96		21.09	13.60			22.35															97	149
S17	16	4	Cal+	5.40		2.50	8.66		0.98	82.46															100	80
S17	16	5	Qz+	79.91		5.73	2.57		1.28	4.39	1.46	0.72		2.88		1.05									100	39
S17	17	1	Qz	99.74						0.26															100	160
S17	17	2	Cal+	1.26					12.59	86.15															100	83
S17	17	3	Cal						0.57	55.43															56	79
S17	17	4	Qz	91.28						8.72															100	157
S17	18	1	Spl		0.37	29.19	24.34		12.55	0.36							33.20								100	144
S17	18	2	Cal						0.31	55.69															56	77
S17	18	3	Qz	99.66						0.34															100	162
S17	18	4	Qz	100.00																					100	159
S17	18	5	Cal	1.15		0.39		0.29	0.32	53.84															56	79
S17	18	6	Feho +	8.13		2.61	86.90		1.36	0.71						0.29									100	102
S17	19	1	Chr		0.91	12.32	27.14		8.65								50.98								100	146
S17	19	2	Qz	100.00																					100	163
S17	19	3	Cal							56.00															56	76
S17	19	4	Cal	0.43					0.57	55.00															56	80
S17	19	5	Qz	99.80						0.20															100	155
S17	20	1	Qz	100.00																					100	160
S17	20	2	Cal + Qz	39.22						60.78															100	103
S17	20	3	Qz	99.79						0.21															100	162
S17	20	4	Zrn	31.07															67.29				1.65		100	165
S17	21	1	Zrn	31.06															67.35				1.59		100	163
S17	21	2	Zrn	31.53															66.76				1.70		100	157
S17	22	1	Qz	99.77						0.23															100	157
S17	22	2	Cal							56.00															56	76

Table A5.1: EDS analyses of sample S17.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Cr2O3	ZnO	ZrO2	Nb2O5	Ce2O3	Yb2O3	HfO2	WO3	Total	Actual Total
S17	22	3	Cal						0.35	55.65															56	77
S17	22	4	Qz + Chl	95.42		1.88	0.80		0.51	0.71		0.55				0.14									100	157
S17	22	5	Qz	99.69						0.31															100	157
S17	22	6	Cal						0.31	55.69															56	76
S17	23	1	Qz	99.35		0.65																			100	159
S17	23	2	Cal	0.54					0.33	55.13															56	78
S17	23	3	Cal	0.55					0.54	54.91															56	78
S17	23	4	Fe-Chl or Mix	25.23	0.53	18.01	51.34		1.77	1.17		0.76	1.19												100	98
S17	24	1	Chr			9.33	22.15		9.35								59.17								100	145
S17	24	2	Cal							56.00															56	75
S17	24	3	Qz	100.00																					100	166
S17	24	4	Qz	100.00																					100	165
S17	24	5	Ep	40.58		23.89	9.81			22.43	0.30														97	148
S17	25	1	Ep	40.06		24.82	9.10	0.29		22.73															97	146
S17	25	2	Ms	47.43		34.68	1.10		0.71		0.42	10.66													95	138
S17	25	3	Ep	40.23		25.05	8.62	0.31		22.80															97	144
S17	26	1	Cal						0.40	55.60															56	77
S17	26	2	Qz+	87.85		5.29	1.72		0.84	2.00	0.97	1.33													100	133
S17	26	3	Cal						0.46	55.54															56	76
S17	26	4	Qz	99.11		0.48				0.42															100	143
S17	26	5	Chl + Ms	42.14		18.1	22.88		12.14	1	0.83	2.07				0.83									100	57
S17	26	6	Qz + Ab	89.71		6.83			0.31		2.46	0.69													100	154
S17	27	1	Qz	100.00																					100	148
S17	27	2	Cal	0.40					0.31	55.28															56	77
S17	27	3	Cal						2.30	53.70															56	77
S17	27	4	Qz	99.26		0.74																			100	158
S17	28	1	TiO2 +	0.59	78.42		5.92			1.38										13.69					100	148
S17	28	2	Qz	100.00																					100	161
S17	28	3	Ap							47.96			43.71		6.71									1.62	100	169
S17	28	4	Cal+	3.18		1.21	1.10		0.64	93.87															100	79
S17	29	1	Cal					0.43		55.57															56	75
S17	29	2	Ab	69.33		18.76				0.28	11.63														100	159
S17	29	3	"Ilm" +	1.36	81.23	1.22	14.98			1.20															100	132
S17	29	4	"Ilm" +	1.21	81.31	1.04	15.40			1.04															100	129
S17	29	5	Mix	49.62		16.59	16.05		12.51	1.86	1.43	1.72				0.22									100	124
S17	30	1	Cal							56.00															56	78
S17	30	2	Qz	99.62						0.38															100	162
S17	30	3	Qz	99.79						0.21															100	131
S17	31	1	Ap							48.64			44.06		5.81									1.48	100	164
S17	31	2	Grt (Alm)	39.18		20.67	34.64	0.55	2.91	1.89								0.17							100	153
S17	31	3	Qz	100.00																					100	162
S17	31	4	Cal						1.06	54.94															56	80

Table A5.1: EDS analyses of sample S17.

Sample	Site	Position	Mineral	SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	F	Cl	Cr2O3	ZnO	ZrO2	Nb2O5	Ce2O3	Yb2O3	HfO2	WO3	Total	Actual Total
S17	32	1	Cal +	4.58		2.77	0.69		0.59	91.12		0.26													100	78
S17	32	2	Ttn +	20.96	49.14	4.90	9.04		0.42	13.77	0.42	0.26	1.09												100	120
S17	32	3	Ttn	22.69	32.17	12.17	27.30		1.13	2.22	0.62	0.78	0.91												100	113
S17	32	4	Mix	48.94		17.12	16.08		13.76	2.60	0.99	0.50													100	120
S17	32	5	Mix	46.67		18.80	15.72		14.28	2.69	1.05	0.58				0.21									100	137
S17	32	6	Mix	50.64		20.13	12.73		11.50	3.03	0.52	1.45													100	135
S17	32	7	Mix	46.42		19.45	9.35		6.43	8.52	0.51	2.72	6.60												100	132
S17	32	8	Cal	1.15		0.59				54.26															56	74
S17	32	9	Ms +	54.67		28.87	2.62		1.56	1.16	0.98	5.14													95	101
S17	32	10	Feld + Chl	63.50		23.08	2.30		0.61	0.88	7.05	2.59													100	107
S17	32	11	Mix	49.30		19.17	14.26		13.33	1.84	1.29	0.57				0.22									100	124
S17	32	12	Cal							56.00															56	79
S17	33	1	Mag				97.27	0.53		0.55				0.84		0.31		0.51							100	101
S17	33	2	Cal + Qz +	44.11		1.55	0.52		0.62	52.20		0.35				0.27		0.38							100	106
S17	33	3	Qz	99.71														0.29							100	161
S17	33	4	Mag				95.91	1.12		1.04				0.88				1.05							100	98
S17	33	5	Mag				97.61		0.97	0.67								0.75							100	104
S17	33	6	Qz	99.28			0.49											0.23							100	275
S17	33	7	Mag +	3.99			90.50	0.58	1.03	1.56				1.10		0.47		0.77							100	105
S17	33	8	Cal						0.45	55.55															56	75
			Note																							
			+ = indicates that other minerals are present																							
			Feho = Fe-oxide/hydroxide																							