Coastal acid sulfate soil processes in Barker Inlet, South Australia

Doctor of Philosophy

The University of Adelaide

School of Earth and Environmental Sciences

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Appendix C

Basic Soil Chemical data, Acid Base Accounting (ABA) data, Profile Locations

St Kilda Study Site

St Kilda Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
ST KILDA														
Focus Area A														
BSK 4 68	0	5	7.7	7.8	5.6	66.4	7.2	7.1	24.0		23.1	1.2	6.9	7.4
BSK 4 69	5	10	7.0	7.6	5.4	74.5	7.6	7.5	18.8		17.8	1.3	7.6	7.3
BSK 4 70	10	20	7.2	7.6	5.7	74.9	7.5	7.4	18.5		17.7	1.4	6.1	6.5
BSK 4 71	20	50	6.3	7.0	4.6	85.4	6.9	6.9	18.5		18.2	1.7	2.7	6.6
BSK 4 72	50	90	6.4	5.5	4.1	84.5	7.3	7.2	14.8		14.3	1.9	4.0	6.5
BSK 4 73	90	110	5.2	4.7	3.9	86.4	5.9	5.9	17.6		17.4	2.1	1.5	6.1
BSK 4 74	110	130	5.1	3.8	3.3	93.3	5.8	5.8	16.9		16.8	2.2	1.2	6.1
BSK 4 75	130	150	6.7	4.0	4.6	85.2	7.2	7.1	17.2		16.7	1.9	4.1	6.9
BSK 4 76	150	170	6.5	3.1	3.1	87.7	7.1	7.0	14.2		14.0	2.0	1.9	6.9
BSK 4 77	170	190	6.3	4.0	2.0	69.2	7.0	6.9	14.6		14.4	2.2	2.2	6.8
BSK 4 78	190	210	7.5	8.0	4.8	25.2	8.4	8.1	9.8		4.2	0.8	46.7	7.0
BSK 5 79	0	10	7.3	7.7	5.4	97.8	7.3	7.3	17.7		17.3	1.9	4.0	7.3
BSK 5 80	10	30	6.5	7.3	5.0	85.7	7.2	7.1	17.7		17.2	1.6	3.6	7.6
BSK 5 81	30	60	6.7	6.5	5.0	98.5	7.1	7.1	17.5		17.2	1.9	2.2	7.1
BSK 5 82	60	110	6.9	6.4	5.9	67.7	7.8	7.7	16.1		14.8	1.7	11.1	7.4
BSK 5 83	110	150	6.9	6.4	5.7	80.7	7.6	7.6	17.4		16.5	1.9	7.6	7.4
BSK 5 84	150	190	6.9	6.6	5.9	53.5	8.0	7.9	14.5		11.9	1.6	21.9	7.3
BSK 5 85	190	210	7.1	7.4	5.1	54.0	7.9	7.8	14.4		13.2	1.9	9.6	7.3

St Kilda Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
ST KILDA													
Focus Area A													
BSK 4 68	0	5	0.0	0.1	7.6	8.2	1508.5	0.0	58.6	0.0	-947.0	0.4	72
BSK 4 69	5	10											
BSK 4 70	10	20	0.0	0.2	6.7	8.3	1338.7	0.0	104.2	0.0	-788.3		
BSK 4 71	20	50											
BSK 4 72	50	90	0.0	0.6	4.9	8.2	979.0	0.0	394.2	0.0	-258.5	0.5	68
BSK 4 73	90	110											
BSK 4 74	110	130	0.0	0.6	1.2	6.6	229.8	0.0	389.2	0.0	236.0		
BSK 4 75	130	150											
BSK 4 76	150	170	0.0	0.9	1.9	7.9	379.6	0.0	567.6	0.0	314.5		
BSK 4 77	170	190											
BSK 4 78	190	210	0.0	0.4	12.2	9.1	2437.6	0.0	250.7	0.0	-1374.3	0.6	49
BSK 5 79	0	10	0.0	0.2	5.5	8.3	1098.9	0.0	105.4	0.0	-627.2	0.1	92
BSK 5 80	10	30											
BSK 5 81	30	60	0.0	0.3	3.1	8.1	619.4	0.0	177.1	0.0	-235.8	0.3	84
BSK 5 82	60	110											
BSK 5 83	110	150	0.0	0.6	8.5	8.3	1698.3	0.0	363.0	0.0	-769.2		
BSK 5 84	150	190											
BSK 5 85	190	210	0.0	0.8	7.6	8.5	1508.5	0.0	514.6	0.0	-491.1	0.4	66

St Kilda Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area B														
BSK 1 53	0	12	7.3	7.5	5.8	65.2	7.1	7.0	21.9		21.7	1.1	2.0	7.4
BSK 1 54	12	32	7.1	7.6	6.4	45.3	8.1	7.9	11.7		9.4	0.7	19.1	7.3
BSK 1 55	32	48	7.4	7.8	6.2	24.8	8.9	8.6	10.7		3.2	0.5	62.1	7.3
BSK 1 56	48	55	7.4	7.8	6.3	36.3	8.6	8.4	10.8		5.8	0.5	41.7	7.2
BSK 1 57	55	60	7.8	7.8	6.4	19.1	9.2	8.9	10.6		2.3	0.4	69.5	7.1
BSK 3 63	0	5	7.3	7.9	6.2	40.8	8.6	8.5	10.4		4.8	0.4	46.5	7.2
BSK 3 64	5	15	7.6	8.0	6.3	25.4	8.8	8.6	9.5		2.6	0.3	57.6	7.6
BSK 3 65	15	30	7.7	8.2	6.7	22.0	9.0	8.8	9.9		2.0	0.4	65.9	7.6
BSK 3 66	30	55	7.8	8.1	6.6	23.6	9.3	9.1	10.7		1.7	0.4	75.0	7.5
BSK 3 67	55	70	7.8	8.2	6.4	22.3	9.5	9.2	10.7		1.4	0.4	77.2	7.6
Focus Area C														
BSK 6 86	0	5	7.5	3.3	2.0	46.8	7.7	7.7	18.3		18.3	1.2	1.8	7.5
BSK 6 87	5	15	7.7	2.6	1.8	53.9	7.9	7.8	18.5		18.5	2.2	0.6	7.4
BSK 6 88	15	30	7.9	3.6	2.5	46.6	7.3	7.2	12.6		12.6	1.9	0.9	7.7
BSK 7 89	0	5	7.1	4.6	4.8	45.1	7.6	7.5	16.0		16.0	2.5	1.2	7.2
BSK 7 90	5	15	7.2	3.2	2.5	54.5	7.2	7.2	15.0		15.0	2.8	0.4	7.2
BSK 7 91	15	30	7.8	3.7	2.7	53.2	7.9	7.8	11.8		11.8	2.0	0.3	7.6
BSK 8 92	0	5	7.2	5.8	4.6	45.5	7.2	7.1	20.2		20.2	2.3	2.5	7.4
BSK 8 93	5	10	7.7	7.1	6.5	30.6	8.2	8.1	9.7		9.7	1.2	15.1	7.5
BSK 8 94	10	25	7.8	5.8	3.0	51.7	8.8	8.7	11.0		11.0	2.2	0.8	7.7

St Kilda Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area B													
BSK 1 53	0	12		0.1	2.1	8.0	419.6	0.0	46.2	0.0	-233.6		
BSK 1 54	12	32		0.1	12.0	8.8	2397.6	0.0	84.2	0.0	-1514.2		
BSK 1 55	32	48		0.1	12.4	9.4	2477.5	0.0	90.4	0.0	-1561.2		
BSK 1 56	48	55		0.1	12.5	9.2	2497.5	0.0	46.8	0.0	-1618.2		
BSK 1 57	55	60		0.1	12.4	9.7	2467.5	0.0	85.4	0.0	-1559.6		
BSK 3 63	0	5		0.0	12.4	8.0	2477.5	0.0	12.5	0.0	-1639.2		
BSK 3 64	5	15											
BSK 3 65	15	30		0.1	12.5	9.2	2487.5	0.0	49.9	0.0	-1608.4		
BSK 3 66	30	55											
BSK 3 67	55	70		0.1	12.4	9.6	2477.5	0.0	68.6	0.0	-1583.1		
Focus Area C													
BSK 6 86	0	5		0.2	0.0	7.1	0.0	0.0	118.5	0.0	118.5		
BSK 6 87	5	15		0.6	0.0	7.5	0.0	0.0	349.3	0.0	349.3		
BSK 6 88	15	30		0.4	0.0	8.1	0.0	0.0	269.4	0.0	269.4		
BSK 7 89	0	5		0.5	0.0	7.5	0.0	0.0	336.8	0.0	336.8		
BSK 7 90	5	15		1.1	0.0	7.5	0.0	0.0	659.9	0.0	659.9		
BSK 7 91	15	30		0.6	0.0	8.3	0.0	0.0	380.5	0.0	380.5		
BSK 8 92	0	5	0.2	1.1	7.1	7.0	1426.6	0.0	673.6	0.0	-277.5		
BSK 8 93	5	10	0.0	1.2	11.7	7.8	2343.7	0.0	773.4	0.0	-789.0		
BSK 8 94	10	25	0.0	0.3	1.3	6.9	255.7	0.0	212.1	0.0	41.6		

Gillman Study Site

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area A														
BG 11 204	0	5	6.9	7.5	5.1	0.6	6.9	6.6	6.8		6.7	0.1	0.4	6.9
BG 11 205	5	20	6.9	7.7	6.7	1.0	8.2	7.8	1.5		1.3	0.1	1.6	6.9
BG 11 206	20	35	8.1	7.6	6.3	0.4	8.7	8.1	0.1		0.1	0.0	0.0	8.1
BG 11 207	35	45	7.7	6.9	5.9	2.5	7.7	7.5	0.2		0.2	0.0	0.0	7.7
BG 11 208	45	49	7.6	7.2	6.1	4.0	7.4	7.2	0.3		0.4	0.1	0.0	7.6
BG 11 209	49	55	3.6	3.8	2.8	17.0	3.9	3.8	1.9		1.9	0.4		3.6
BG 11 210	55	60	3.7	3.6	2.4	1.9	4.0	3.8	0.3		0.3	0.1		3.7
BG 11 211	60	70	3.6	3.7	3.2	1.4	4.2	3.9	0.2		0.2	0.3	0.0	3.6
BG 11 212	70	78	3.2	3.6	2.5	1.4	4.1	3.9	0.2		0.2	0.2		3.2
BG 11 213	78	80	2.9	3.4	2.1	3.3	3.9	3.7	0.4		0.4	0.2	0.0	2.9
BG 11 214	80	100	2.9	3.5	2.4	2.1	3.9	3.7	0.2		0.2	0.1		2.8
BG 11 215	100	160	2.7	3.3	1.8	5.0	4.6	4.5	0.1		0.1	0.1		2.7
BG 11 216	160	195	3.5	3.3	1.4	2.9	4.3	4.1	0.1		0.1	0.3		3.5
BG 11 217	195	205	3.9	2.7	1.4	4.6	4.2	4.1	0.1		0.1	0.5	0.0	3.9
BG 11 218	205	240	5.2	2.8	1.4	8.8	4.2	4.1	0.2		0.2	1.3		5.2
BG 11 219	240	300	6.2	5.5	2.2	7.6	7.1	6.9	0.1		0.1	0.2	0.0	6.2
BG 11 220	300	350	6.5	6.4	5.1	6.9	7.3	7.2	0.1		0.1	0.1	0.0	6.5
BG 15 188	0	5	7.8	7.8	6.1	0.8	8.0	7.3	3.3		3.3	0.1	0.5	7.8
BG 15 189	5	15	7.9	7.5	5.7	1.1	7.6	7.1	3.6		3.5	0.1	0.5	7.9
BG 15 190	15	25	8.1	7.1	6.4	0.8	8.2	7.5	1.4		1.4	0.1	<0.5	8.1
BG 15 191	25	30	4.3	4.4	4.1	3.0	4.4	4.3	0.6		0.6	0.2	<0.5	4.3
BG 15 192	30	40	3.5	4.0	3.5	5.2	4.0	3.9	1.2		1.2	0.3	<0.5	3.5
BG 15 193	40	65	3.0	3.0	1.9	8.8	3.4	3.3	3.0		3.0	0.4	<0.5	3.0
BG 15 194	65	95	2.3	2.5	1.5	23.9	3.2	3.1	7.3		7.3	4.7	<0.5	2.3
BG 15 250	95	110	1.5	1.9	1.2	45.2	2.3	2.2	14.8		14.8	11.3	<0.5	1.5
BG 15 196	110	120	2.7	2.8	1.4	5.8	3.7	3.6	1.1		1.1	0.7	<0.5	2.7
BG 15 251	120	150	3.2	2.9	1.6	3.9	4.1	3.8	0.3		0.3	0.4	<0.5	3.2
BG 15 252	150	170	4.7	2.9	1.8	4.9	4.2	4.0	0.2		0.2	1.1	<0.5	4.7

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area A													
BG 11 204	0	5		0.0	0.4	6.6	79.9	0.0	0.0	0.0	-53.3	0.7	5
BG 11 205	5	20											
BG 11 206	20	35											
BG 11 207	35	45		0.0	0.0	6.9	0.0	0.0	0.0	7.5	7.5		
BG 11 208	45	49											
BG 11 209	49	55		0.0	0.0	4.4	0.0	68.1	12.2	0.0	80.3		
BG 11 210	55	60		0.0	0.0	5.0	0.0	9.2	62.1	0.0	71.3		
BG 11 211	60	70		0.0	0.0	5.0	0.0	10.1	121.6	0.0	131.7	1.5	18
BG 11 212	70	78		0.0	0.0	5.0	0.0	8.2	84.2	6.2	98.6		
BG 11 213	78	80											
BG 11 214	80	100		0.0	0.0	4.9	0.0	9.7	72.3	6.2	88.3		
BG 11 215	100	160		0.1	0.0	4.8	0.0	49.4	0.0	68.6	118.0		
BG 11 216	160	195		0.2	0.0	5.0	0.0	21.7	29.8	124.1	175.7		
BG 11 217	195	205											
BG 11 218	205	240		1.0	0.0	4.0	0.0	110.1	92.6	654.3	857.0	1.6	16
BG 11 219	240	300											
BG 11 220	300	350		0.0	0.0	6.7	0.0	0.0	0.0	10.6	10.6		
BG 15 188	0	5											
BG 15 189	5	15											
BG 15 190	15	25											
BG 15 191	25	30		0.0	0.0	4.7	0.0	19.5	19.2	5.0	43.7		
BG 15 192	30	40		0.0	0.0	4.4	0.0	30.0	17.6	5.0	52.6	1.5	20
BG 15 193	40	65		0.0	0.0	3.9	0.0	68.5	54.3	11.2	134.0		
BG 15 194	65	95		0.1	0.0	3.6	0.0	204.0	1169.4	48.6	1422.1		
BG 15 250	95	110		6.9	0.0	3.1	0.0	468.0	963.6	4291.1	5722.7		
BG 15 196	110	120		1.7	0.0	3.5	0.0	220.0	158.1	1084.3	1462.4	1.6	14
BG 15 251	120	150		0.3	0.0	4.9	0.0	15.0	45.2	186.5	246.7		
BG 15 252	150	170		0.8	0.0	4.6	0.0	34.0	110.4	517.7	662.1		

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area A														
BG 17 236.1	0	5	4.8	5.2	4.6	12.2	4.7	4.7						4.8
BG 17 238	5	15	3.0	2.6	2.0	7.0	3.7	3.5	0.9		0.9	0.3	0.0	2.6
BG 17 236	15	25	3.4	2.2	2.9	5.8	3.4	3.4	0.7		0.7	0.2	0.0	2.2
BG 17 239	25	40	2.9	2.8	2.1	13.7	3.6	3.5	2.0		2.0	0.8	0.0	2.8
BG 17 240	40	60	2.4	2.5	1.3	38.0	3.0	3.0	6.3		6.3	3.7	0.0	2.7
BG 17 241	60	100	2.6	1.8	1.4	34.3	3.5	3.5	7.6		7.7	4.6	0.0	3.9
BG 17 242	100	120	3.1	2.7	1.4	3.2	3.8	3.6	1.5		1.4	0.5	1.0	4.7
BG P5 310	0	5	7.2	5.8	3.2	4.5	7.0	6.7	1.4		1.4	0.1	1.2	7.1
BG P5 307	5	10	7.2	5.7	2.4	5.1	7.5	7.3	2.1		2.1	0.0	2.4	6.5
BG P5 308	10	25	7.3	6.8	3.9	4.6	7.5	7.2	1.9		1.9	0.6	0.8	6.8
BG P5 309	25	40	7.2	5.8	2.3	3.7	7.4	7.1	1.2		1.2	0.1	0.8	6.7
Focus Area B														
BG 4 276	0	1	6.4	6.7	5.4	30.9	7.6	7.6	0.5		0.2	0.7	0.0	6.4
BG 4 158	1	5	6.4	6.8	4.8	3.8	7.1	6.8	0.5		0.5	0.1	0.0	6.4
BG 4 159	5	10	5.2	6.2	4.4	3.5	6.8	6.3	0.8		0.8	0.1	0.0	5.2
BG 4 160	10	15	4.5	5.6	2.0	4.9	6.2	5.9	1.2		1.2	0.1	0.0	4.5
BG 4 161	15	20	6.2	3.5	1.9	8.7	6.1	5.8	0.8		0.8	0.5	0.0	6.2
BG 4 162	20	30	7.6	7.3	4.0	17.2	7.5	7.4	1.6		1.6	1.5	0.0	7.6
BG 4 163	30	40	7.1	2.6	1.1	20.8	8.1	8.1	2.7		2.5	2.1	1.7	7.1
BG 4 164	40	45	7.7	7.1	3.2	15.9	8.2	8.2	3.2		2.4	3.9	6.6	7.7
BG 4 279	45	55	6.6	6.2	3.2	25.3	7.6	7.6	3.4		2.9	4.9	3.9	6.6
BG 4 280	55	65	6.7	2.8	1.3	13.3	4.6	4.5	1.4		1.5	1.3	6.0	6.7
BG 4 281	65	80	6.1	3.0	1.6	9.0	4.3	4.2	0.2		0.2	0.4	4.0	6.1
BG 4 282	80	85	6.0	3.6	2.0	8.8	4.3	4.2	0.2		0.2	0.3	5.2	6.0

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area A													
BG 17 236.1	0	5											
BG 17 238	5	15		0.0	0.0	6.5	0.0	0.0	101.4	8.1	109.5		
BG 17 236	15	25		0.0	0.0	4.7	0.0	11.0	129.9	5.6	146.5		
BG 17 239	25	40		0.0	0.0	4.3	0.0	27.5	523.9	20.6	572.0		
BG 17 240	40	60	0.0	2.4	0.0	3.8	0.0	140.0	416.3	1499.4	2055.7	0.7	51
BG 17 241	60	100	0.0	4.4	0.0	4.2	0.0	44.5	182.4	2751.1	2978.1	1.5	18
BG 17 242	100	120	0.0	0.4	0.0	5.3	0.0	2.0	86.8	271.3	360.1	1.6	16
BG P5 310	0	5	1.1	1.0	1.2	8.7	239.8	0.0	0.0	615.6	455.8	0.4	27
BG P5 307	5	10	0.0	0.2	1.5	8.8	289.7	0.0	0.0	115.4	-77.8	1.4	39
BG P5 308	10	25	0.1	0.3	0.7	8.0	139.9	0.0	0.0	197.7	104.5	0.9	32
BG P5 309	25	40	0.1	0.2	0.8	8.3	159.8	0.0	0.0	130.4	23.8	1.1	63
Focus Area B													
BG 4 276	0	1											
BG 4 158	1	5											
BG 4 159	5	10		0.0	0.0	9.1	0.0	0.0	0.0	3.1	3.1		
BG 4 160	10	15											
BG 4 161	15	20											
BG 4 162	20	30		0.3	0.0	7.2	0.0	0.0	0.0	217.7	217.7		
BG 4 163	30	40	3.4	7.0	10.1	8.4	2018.0	0.0	0.0	4372.1	3026.8		
BG 4 164	40	45											
BG 4 279	45	55	3.5	7.1	10.9	8.8	2177.8	0.0	0.0	4399.6	2947.7	0.5	61
BG 4 280	55	65		3.9	2.0	8.6	399.6	0.0	0.0	2403.1	2136.7		
BG 4 281	65	80	0.0	0.3	0.0	5.9	0.0	0.0	0.0	182.1	182.1	1.5	18
BG 4 282	80	85	0.8	1.3	4.6	9.0	909.1	0.0	0.0	805.2	199.1	0.6	52

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area B														
BG 5 165	0	5	6.7	4.7	3.1	1.5	5.2	4.9	4.7		4.7	0.1	0.0	6.7
BG 5 166	5	10	6.7	6.6	5.3	1.8	6.8	6.4	2.8		2.8	0.1	0.0	6.7
BG 5 167	10	15	5.4	4.9	3.9	2.2	4.9	4.6	1.0		1.0	0.1	0.0	5.4
BG 5 168	15	20	4.4	3.4	2.2	2.5	4.2	3.9	0.9		0.9	0.1	0.0	4.4
BG 5 169	20	30	4.8	3.3	1.6	2.8	3.8	3.7	0.7		0.7	0.1	0.0	4.8
BG 5 170	30	40	3.5	3.3	1.7	4.2	3.8	3.7	0.6		0.6	0.2	0.0	3.5
BG 5 171	40	50	3.5	3.2	1.7	4.0	3.8	3.7	0.8		0.8	0.3	0.0	3.5
BG 5 172	50	70	3.5	2.9	1.9	3.6	3.8	3.7	0.7		0.7	0.2	0.0	3.5
BG 5 173	70	90	3.6	2.7	1.2	3.8	4.0	3.9	0.7		0.7	0.3	0.0	3.6
BG 5 174	90	110	3.8	2.7	1.2	4.5	4.0	3.9	0.5		0.5	0.4	0.0	3.8
BG 5 175	110	130	4.8	2.7	1.1	5.9	4.0	4.0	0.4		0.4	0.4	0.0	4.8
BG 5 176	130	190	6.0	6.2	5.8	5.7	7.7	7.4	0.3		0.2	0.4	0.5	6.0
Focus Area C														
BG 20 317	0	5	6.3	6.1	4.6	75.6	6.7	6.7	12.6		12.5	1.3	0.5	6.3
BG 20 318	5	15	6.2	6.1	4.5	54.9	6.4	6.4	9.9		9.9	0.9	0.0	6.2
BG 20 319	15	40	6.3	5.9	2.2	61.6	7.0	6.9	10.7		10.7	1.6	0.0	6.3
BG 21 320	0	5	6.2	6.0	4.3	52.7	6.6	6.6	18.7		18.5	1.1	1.4	6.2
BG 21 321	5	15	6.0	6.0	4.3	35.1	6.5	6.5	8.7		8.6	0.5	0.0	6.0
BG 21 322	15	40	5.9	5.4	1.7	32.0	6.5	6.5	7.1		7.2	0.7	0.0	5.9
BG 24 331	0	5	7.6	6.6	5.6	25.8	7.9	7.8	9.6		7.7	1.1	15.7	6.6
BG 24 332	5	20	7.6	6.6	5.7	8.3	8.3	8.2	3.8		1.5	0.7	19.3	6.6

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area B													
BG 5 165	0	5											
BG 5 166	5	10		0.0	0.0	6.6	0.0	0.0	0.0	4.4	4.4		
BG 5 167	10	15											
BG 5 168	15	20											
BG 5 169	20	30											
BG 5 170	30	40		0.0	0.0	5.0	0.0	5.5	104.0	6.2	115.7		
BG 5 171	40	50											
BG 5 172	50	70											
BG 5 173	70	90											
BG 5 174	90	110		0.2	0.0	5.0	0.0	5.5	39.0	127.2	171.7		
BG 5 175	110	130											
BG 5 176	130	190		0.3	0.1	8.0	10.0	0.0	0.0	162.8	156.1		
Focus Area C													
BG 20 317	0	5	0.0	0.1	0.5	7.4	99.9	0.0	0.0	42.4	-24.2	0.5	68
BG 20 318	5	15	0.0	0.4	1.4	7.5	269.7	0.0	0.0	252.0	72.2	0.5	
BG 20 319	15	40	0.0	0.4	1.2	7.5	229.8	0.0	0.0	280.0	126.9	0.6	
BG 21 320	0	5	0.0	0.0	1.4	7.3	279.7	0.0	0.0	20.0	-166.5	0.6	78
BG 21 321	5	15	0.0	0.0	0.0	7.2	0.0	0.0	0.0	21.2	21.2	0.7	64
BG 21 322	15	40	0.0	0.7	0.3	6.7	50.0	0.0	0.0	454.1	420.8	0.4	58
BG 24 331	0	5	0.3	0.5	11.5	8.8	2297.7	0.0	0.0	311.9	-1220.0	0.4	72
BG 24 332	5	20	0.0	0.7	11.9	9.2	2367.6	0.0	0.0	449.1	-1129.4	1.1	36

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area C														
BG 22 323	0	5	5.3	6.4	4.4	8.6	6.5	6.3	6.9		6.9	0.1	0.0	5.3
BG 22 324	5	15	5.3	4.7	3.6	8.7	5.9	5.7	4.0		4.0	0.2	0.0	5.3
BG 22 325	15	25	4.5	5.0	3.2	34.2	5.2	5.1	6.1		6.1	0.6	0.0	4.5
BG 22 326	25	40	5.5	6.3	4.7	27.1	7.6	7.5	1.3		1.3	0.6	0.0	5.5
BG 22 327	40	65	6.2	7.5	5.9	22.1	9.3	9.2	5.7		1.4	0.4	36.1	6.1
BG 28 328.1	0	1	7.4	6.6	6.8									7.4
BG 28 328.2	1	20	7.5	7.8	7.6	21.3	9.2	9.1	1.6		0.5	1.7	8.8	7.1
BG 28 328.3	20	25	7.3	7.4	5.3	20.2	8.8	8.8	1.9		0.9	2.5	8.5	7.5
BG 28 328.4	25	40	7.1	7.5	6.2	20.8	8.3	8.2	1.2		1.1	0.3	0.5	7.3
BG 30.1 410	0	5	6.9	7.7	6.6	39.2	8.1	8.1	8.9		8.9	1.7	20.0	6.9
BG 30.2 411	5	30	7.1	7.7	6.5	46.0	8.2	8.1	9.2		9.2	2.0	16.1	7.1
BG 31.1 412	0	5	7.4	7.8	5.9	22.7	7.8	7.7	9.7		9.7	0.4	0.2	7.4
BG 31.2 413	5	15	7.2	7.3	5.4	58.2	7.3	7.2	11.3		11.3	1.9	0.2	7.2
BG 31.3 414	15	25	6.8	5.8	4.3	75.4	6.7	6.6	12.4		12.4	2.3	0.2	6.8
BG 32.6 420	0	1	5.8	6.6	4.4									5.8
BG 32.1 415	1	15	4.5	4.9	3.8	12.7	5.2	5.1	6.3		6.3	0.1	0.2	4.5
BG 32.2 416	15	25	4.5	4.5	3.0	29.0	5.0	4.9	5.5		5.5	0.5	0.2	4.5
BG 32.3 417	25	40	4.5	4.9	2.8	24.0	5.1	5.0	2.6		2.6	0.4	0.2	4.5
BG 32.4 418	40	60	6.5	6.7	4.5	16.0	7.0	6.7	1.3		1.3	0.2	0.2	6.5
BG 32.5 419	60	80	6.7	7.4	5.9	15.3	9.2	9.0	2.6		2.6	0.3	16.8	6.7

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area C													
BG 22 323	0	5	0.0	0.0	0.0	7.0	0.0	0.0	0.0	5.0	5.0	1.1	37
BG 22 324	5	15	0.0	0.0	0.0	6.6	0.0	0.0	0.0	5.6	5.6	1.1	35
BG 22 325	15	25	0.0	0.0	0.0	7.5	0.0	0.0	0.0	3.7	3.7	1.4	22
BG 22 326	25	40	0.0	0.1	0.0	6.2	0.0	0.0	0.0	33.1	33.1	0.7	40
BG 22 327	40	65	0.0	0.2	12.4	9.7	2467.5	0.0	0.0	137.8	-1507.2	1.3	30
BG 28 328.1	0	1							0.0				
BG 28 328.2	1	20	0.2	0.4	12.3	9.4	2457.5	0.0	0.0	235.1	-1403.2	1.0	44
BG 28 328.3	20	25	0.0	0.3	11.3	8.4	2255.7	0.0	0.0	168.4	-1335.4		
BG 28 328.4	25	40	0.0	0.1	0.9	8.0	173.8	0.0	0.0	43.7	-72.2		
BG 30.1 410	0	5	0.8	1.1	22.4	8.4	4465.5	0.0	0.0	654.9	-2322.1		
BG 30.2 411	5	30	0.8	1.1	23.4	8.8	4675.3	0.0	0.0	704.8	-2412.1		
BG 31.1 412	0	5		0.0	2.5	7.7	497.5	0.0	0.0	18.7	-313.0		
BG 31.2 413	5	15		0.1	1.9	7.3	381.6	0.0	0.0	43.7	-210.8		
BG 31.3 414	15	25		0.3	1.9	7.0	381.6	0.0	0.0	162.2	-92.3		
BG 32.6 420	0	1							0.0				
BG 32.1 415	1	15		0.0	0.0	6.1	0.0	16.0	0.0	12.5	28.5		
BG 32.2 416	15	25		0.0	0.0	6.2	0.0	12.1	0.0	24.9	37.0		
BG 32.3 417	25	40		0.0	0.0	6.2	0.0	6.8	0.0	18.7	25.5		
BG 32.4 418	40	60		0.0	0.1	6.7	14.0	0.0	0.0	18.7	9.4		
BG 32.5 419	60	80		0.2	24.3	8.7	4863.1	0.0	0.0	143.5	-3098.6		

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Focus Area D														
GGT 2-1 371	0	40	7.4	7.4	6.0	2.5	8.4	8.2	2.8		2.8	<0.1	17.1	7.4
GGT 2-2 372	40	130	6.7	8.0	6.2	2.5								6.7
GGT 2-3 373	140	160	6.9	7.8	6.8	2.5								6.9
GGT 2-4 374	175	205	7.5	7.9	6.6	4.6	8.2	7.7	3.8		3.8	0.5	22.1	7.5
GGT 2-5 375	205	235	7.5	7.9	6.3	4.8	8.1	7.9	4.4		4.4	0.4	23.1	7.5
GGT 2-6 376	295	410	6.6	7.5	6.0	4.8								6.6
GGT 2-7 377	410	490	7.2	7.5	6.6	4.8								7.2
GGT 2-8 378	490	495	6.6	7.9	6.5	2.5	8.6	8.1	3.8		3.8	0.1	2.0	6.6
GGT 2-9 379	495	500	6.6	6.0	4.5	3.0	7.6	7.2	3.4		3.4	0.6	2.5	6.6
GGT 2-10 380	500	515	6.1	6.2	5.3	4.6	6.4	6.1	7.3		7.3	1.6	0.2	6.1
GGT 2-11 381	515	530	6.1	6.2	3.1	3.3	7.3	7.0	2.0		2.0	1.1	0.5	6.1
GGT 2-12 382	530	550	7.5	7.1	5.9	14.2	8.2	8.1	6.5		8.9	1.2	33.9	6.6
GGT 5-1 399	0	2												
GGT 5-2 400	0	10	7.3	7.3	5.5	0.9	8.0	7.0	11.2		11.2	0.8	0.0	7.3
GGT 5-3 401	10	45	3.9	5.0	3.0	1.8	3.5	3.3	5.1		5.1	1.4	0.0	3.9
GGT 5-4 402	45	70	4.1	6.9	3.6	0.5	4.3	3.8	0.8		0.8	0.2	0.2	4.1
GGT 5-5 403	70	80	7.5	7.6	6.1	0.8	7.9	7.6	1.3		1.3	0.3	8.8	7.5
Others (Gillman)														
BG 29.1 405	0	5	4.2	4.4	2.8	4.1	4.7	4.6	12.0		12.0	0.2	0.2	4.2
BG 29.2 406	5	20	3.7	3.6	2.4	7.6	3.7	3.6	10.9		10.9	0.5	0.2	3.6
BG 29.3 407	20	40	3.8	3.3	2.3	8.9	3.9	3.7	5.6		5.6	0.4	0.2	3.5
BG 29.4 408	40	60	3.8	2.3	1.6	4.2	3.9	3.9	1.8		1.8	0.3	0.2	3.9
BG 29.5 409	60	70	8.6	7.4	6.4	2.5	8.7	8.2	2.7		2.7	<0.1	23.1	9.1
BG 26 311	0	5	7.6	7.5	7.9	17.3	8.0	7.9	5.8		4.2	3.8	13.3	6.5
BG 26 312	5	10	7.5	7.4	7.6	15.0	8.1	8.0	4.0		2.4	2.6	13.2	6.4
BG 26 313	10	20	7.5	7.5	7.8	15.3	8.0	8.0	2.9		1.9	2.0	8.7	6.6

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD	Moisture
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$	content
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t		(% moisture)
Focus Area D													
GGT 2-1 371	0	40		0.0	1.0	6.8	200.0	0.0	0.0	0.0	-133.3		
GGT 2-2 372	40	130											
GGT 2-3 373	140	160											
GGT 2-4 374	175	205											
GGT 2-5 375	205	235		0.0	0.0	6.6	0.0	0.0	0.0	4.4	4.4		
GGT 2-6 376	295	410											
GGT 2-7 377	410	490											
GGT 2-8 378	490	495	0.0	0.0	1.1	8.6	219.8	0.0	0.0	16.2	-130.3		
GGT 2-9 379	495	500	0.0	0.4	2.4	7.7	479.5	0.0	0.0	259.6	-60.1		
GGT 2-10 380	500	515	0.1	1.3	0.0	6.1	0.0	2.5	0.0	807.7	810.2		
GGT 2-11 381	515	530	0.0	0.9	1.2	7.3	239.8	0.0	0.0	579.9	420.1		
GGT 2-12 382	530	550		0.3	11.4	7.3	2277.7	0.0	0.0	180.9	-1337.6		
GGT 5-1 399	0	2											
GGT 5-2 400	0	10		0.0	0.0	5.1	0.0	4.0	0.0	18.7	22.7		
GGT 5-3 401	10	45		0.9	0.0	3.7	0.0	164.0	18.0	555.2	737.2		
GGT 5-4 402	45	70		0.1	0.0	5.0	0.0	1.0	0.0	54.0	55.0		
GGT 5-5 403	70	80		0.1	9.9	9.0	1978.0	0.0	0.0	40.7	-1278.0		
Others (Gillman)													
BG 29.1 405	0	5		0.0	0.0	5.0	0.0	86.3	0.0	18.7	105.0		
BG 29.2 406	5	20		0.1	0.0	4.1	0.0	120.2	27.0	62.4	209.6		
BG 29.3 407	20	40		0.1	0.0	4.9	0.0	67.9	0.0	49.9	117.8		
BG 29.4 408	40	60		0.3	0.0	5.8	0.0	27.1	0.0	180.9	208.0		
BG 29.5 409	60	70		0.1	23.8	9.2	4749.2	0.0	0.0	43.7	-3122.5		
BG 26 311	0	5	1.1	1.7	9.1	9.2	1818.2	0.0		1061.1	-151.0	0.7	51
BG 26 312	5	10	0.7	1.6	5.4	8.0	1068.9	0.0		1025.4	312.7	0.6	57
BG 26 313	10	20	0.0	0.2	0.5	9.3	99.9	0.0		119.8	53.2	1.3	26

Gillman Study Site	Sample depth		pHw	pHincubation		E.C.	pH	pH	Total	Total		Total	CO3 as	pHf
Sample	interval (cm)		pH water	lowest pH in	pHOX		.1:5	(0.01M	C	Leco	Org.C	S	CaCO3	Field
I.D.	from	to	.1:1	19 weeks		dS/m	soil:water	CaCl2)	%	%C	%	%	%	pH
Others (Gillman)														
BG 23 329	0	5	7.3			44.1	8.7	8.7	4.3	4.3	2.4	1.4	15.7	6.3
BG 23 330	5	20	7.5			4.6	8.9	8.6	1.7	1.8	0.1	0.1	13.2	7.3
BG 19 267	0	5	7.1			30.3	7.8	7.8	3.6	3.6	2.8	1.0	6.5	6.1
BG 19 268	5	20	7.6			12.5	8.2	8.0	4.2	4.2	1.5	0.9	22.7	6.9
BG 19 269	20	35	7.5			11.0	8.4	8.3	3.7	3.7	2.3	0.6	11.6	6.8
BG 19 270	35	50	7.5			8.6	8.2	8.1	5.5	5.6	2.7	0.9	24.0	6.7
BG 2 253 salt crust	0	50	5.1			4.8	5.5	5.5	1.0	1.0		0.3		4.8
BG 2 255	0	5	7.9			18.3	9.1	9.0	1.8	1.8	0.4	0.5	11.3	6.9
BG 2 256	5	20	7.6			18.1	8.6	8.6	1.4	1.5	0.3	0.1	9.7	6.9
BG 2 257	20	40	8.0			7.9	8.7	8.6	1.4	1.4	0.1	0.1	10.2	7.1
BG 2 258	40	55	7.6			13.7	8.5	8.4	1.6	1.6	0.3	0.1	10.6	6.9
BG 2 259	55	70	7.8			16.4	8.4	8.4	0.9	0.9	0.2	0.2	5.3	6.6
BG 2 260	70	90	7.7			19.2	8.3	8.3	2.6	2.6	1.1	0.7	11.9	6.3
BG 2 261	90	105	7.6			17.6	8.4	8.3	2.7	2.8	0.9	0.4	15.8	6.2
BG 2 262	105	110	7.8			21.9	6.4	6.3	4.5	4.5		0.5	<0.2	5.9
BG 2 263	110	120	3.5			24.4	5.3	5.3	3.0	3.1		1.3		3.6
BG 2 263	110	120				24.0								3.6
BG 2 264	120	150	4.8			45.1	5.7	5.7	11.0	11.0		2.1	0.0	5.6
BG 2 264	120	150				45.0								5.6
BG 2 265	150	180	8.0			30.6	9.3	9.1	5.8	5.9	1.5	0.6	35.9	6.6
BG 2 130	190	210	7.5			14.4	8.2	8.1	6.6		8.2		33.8	6.4
BG 2 131	230	250	7.4			14.7	8.1	8.0	6.5		8.1		28.9	6.3
BG 2 132	250	270	7.4			13.5	8.1	8.0	6.3		8.1		28.9	6.2

Gillman Study Site	Sample depth		Acid Volatile	Reduced	Effective		ANC	TAA	PSA	Retained	Net Acidity	Lab BD
Sample	interval (cm)		Sulphur	Inorganic S	% ANC	TAA	moles	mole	mole	Acidity	mole	$^{t}DW/m^{3}$
I.D.	from	to	(% Sav DW)	%Scr	%CaCO3	pH KCl	H+/t	H+ / t	H+/t	mole H+/t	H+/t	
Others (Gillman)												
BG 23 329	0	5	0.4	0.5	12.1	9.6	2407.6	0.0		292.5	-1312.5	1.3
BG 23 330	5	20	0.0	0.3	11.2	9.8	2227.8	0.0		172.8	-1312.4	1.3
BG 19 267	0	5										
BG 19 268	5	20										
BG 19 269	20	35										
BG 19 270	35	50										
BG 2 253 salt crust	0	50		0.0	0.0	7.5	0.0	0.0	0.0	na	0.0	
BG 2 255	0	5										
BG 2 256	5	20										
BG 2 257	20	40										
BG 2 258	40	55										
BG 2 259	55	70										
BG 2 260	70	90										
BG 2 261	90	105										
BG 2 262	105	110										
BG 2 263	110	120	2.0	1.0	0.0	5.9	0.0	0.0	621.2	na	621.2	0.7
BG 2 263	110	120										
BG 2 264	120	150	0.1	1.9	0.0	6.9	0.0	0.0	1156.3	na	1156.3	0.4
BG 2 264	120	150										
BG 2 265	150	180		0.2	12.2	10.0	2437.6	0.0	133.5	na	-1491.6	0.6
BG 2 130	190	210										
BG 2 131	230	250										
BG 2 132	250	270										

Profile Locations

Area	Profile name	Eastings & Northings (WGS 84)		Lats Longs AGM 84	
		X	Y	X	Y
Focus area	**St Kilda**				
A	**BSK 4**	274470.8	6152204.1	138.536307643	-34.7474001682
	BSK 5	274468.2	6152203.1	138.536279956	-34.7474081177
	2610	274471.2	6152209.6	138.536313681	-34.7473506378
B	BSK 1	274540.6	6152279.2	138.537089792	-34.7467384580
	BSK 2	274537.7	6152276.7	138.537057286	-34.7467604095
	BSK 3	274548.1	6152275.4	138.537170456	-34.7467747385
C	**BSK 6**	274618.2	6152365.6	138.537960567	-34.7459778578
	BSK 7	274615.9	6152372.7	138.537936736	-34.7459133551
	BSK 8	274619.4	6152378.5	138.537976226	-34.7458618258
Other	600	274586.7	6152305.7	138.537600774	-34.7465104218
Focus area	**Gillman**				
A	**BG 11**	275472.4	6143190.5	138.544833901	-34.8288281671
	BG 15	275434.9	6143081.1	138.544394809	-34.8298059347
	BG 17	275501.3	6143094.0	138.545124278	-34.8297039282
	BG P5	275508.6	6143055.3	138.545192732	-34.8300548436
	BG 14	275416.6	6143088.8	138.544197156	-34.8297327450
	BG 16	275476.1	6143094.7	138.544848562	-34.8296919192
	BG 18	275441.9	6143077.8	138.544470342	-34.8298372909
	BG 27	275503.4	6143074.3	138.545141931	-34.8298819017
	BG 221	275457.7	6143075.6	138.544642502	-34.8298607037
	BG 233	275470.6	6143071.6	138.544782121	-34.8298993779
	BG 234	275472.7	6143072.2	138.544805843	-34.8298941867
	BG 237	275503.2	6143046.4	138.545131635	-34.8301332983
	BG B1	275458.1	6143042.2	138.544638498	-34.8301609795
	BG B2	275454.6	6143046.9	138.544601067	-34.8301184224
	BG B3	275448.4	6143052.8	138.544534423	-34.8300638557
	BG B4	275443.5	6143055.8	138.544482244	-34.8300353247
	BG B5	275438.9	6143059.9	138.544432747	-34.8299972079
	BG LSS 1	275416.3	6143088.5	138.544194177	-34.8297354093
	BG LSS 2	275416.1	6143088.1	138.544190963	-34.8297387672
	BG LSS 3	275415.6	6143087.8	138.544186347	-34.8297412984
	BG LSS 4	275415.2	6143087.3	138.544181735	-34.8297450952
	BG LSS 5	275413.9	6143086.1	138.544166600	-34.8297556640
	BG P3	275471.4	6143086.3	138.544794687	-34.8297669010
	MFP 2	275458.5	6143135.4	138.544667114	-34.8293218837
B	**BG 4**	274588.4	6143232.6	138.535186914	-34.8282535683
	BG 5	274590.5	6143243.5	138.535212152	-34.8281557092
	BG 283	274530.1	6143232.3	138.534549655	-34.8282433213
C	BG 20	275653.8	6144592.5	138.547190121	-34.8162372958
	BG 24	275653.5	6144550.5	138.547175588	-34.8166154249
	BG 21	275644.4	6144545.0	138.547075730	-34.8166626151
	BG 28	275714.5	6144506.5	138.547830509	-34.8170253077
	BG 22	275677.3	6144416.7	138.547400434	-34.8178261824
	BG 32	275620.7	6144371.9	138.546769803	-34.8182169639
	BG 31	275496.3	6144318.9	138.545396766	-34.8186676530
	BG 30	275401.0	6144324.0	138.544357277	-34.8186004383

Area	Profile name	Eastings & Northings (WGS 84)		Lats Longs AGM 84	
		X	Y	X	Y
Focus area	**Gillman**				
D	**GGT 2**	273790.6	6144203.8	138.526731782	-34.8193268341
	GGT 5	273758.3	6144161.9	138.526367387	-34.8196974320
	GGT 1	273776.8	6144175.4	138.526573138	-34.8195796229
	GGT 3	273804.6	6144224.9	138.526890192	-34.8191401284
	GGT 4	273820.2	6144240.7	138.527065458	-34.8190011600
	GGT 6	273822.5	6144202.9	138.527080656	-34.8193424926
Others	BG 1	273328.2	6142467.6	138.521211504	-34.8348654817
	BG 2	273756.9	6143796.4	138.526254004	-34.8229898262
	BG 3	274872.0	6142705.7	138.538143628	-34.8330634551
	BG 6	275097.4	6143493.0	138.540817628	-34.8260200325
	BG 7	275102.8	6143486.6	138.540875304	-34.8260794660
	BG 8	275073.2	6143238.5	138.540485637	-34.8283073315
	BG 9	275077.2	6143136.5	138.540501100	-34.8292280038
	BG 10	275468.8	6143489.6	138.544874130	-34.8261325635
	BG 12	275668.5	6143542.1	138.547070834	-34.8257038156
	BG 19	273787.5	6143779.9	138.526584014	-34.8231450281
	BG 23	275251.8	6144447.9	138.542760176	-34.8174510549
	BG 26	276067.3	6143842.8	138.551508251	-34.8230822841
	BG 29	274637.9	6144481.0	138.536063050	-34.8170173242
	BG 33	276552.8	6143770.7	138.556792741	-34.8238385627
	BG 34	275039.5	6144549.4	138.540468053	-34.8164903819
	BG 35	276122.4	6144136.1	138.552188385	-34.8204523714
	BG 36	276327.6	6143834.8	138.554349564	-34.8232122349
	BG 40	274336.1	6144660.8	138.315813000	-34.4855190000
	BG 41	274347.9	6144686.7	138.315862000	-34.4854360000
	BG 266	273786.0	6143773.0	138.526565931	-34.8232071700
	BG 274	273259.3	6142580.6	138.520488998	-34.8338322443
	BG 275	273139.4	6142285.0	138.519099491	-34.8364683988
	BG 284	273683.6	6143504.3	138.525374304	-34.8256050578
	BG RW 1	275577.7	6143318.4	138.546018992	-34.8276996204
	BG RW 2	275320.1	6143842.3	138.543344232	-34.8229221684
	BG RW 3	276011.5	6144117.8	138.550971423	-34.8205924213
	BG RW 4	275992.9	6144030.9	138.550744606	-34.8213716534
	BG RW 5	275957.4	6143648.1	138.550255268	-34.8248121518
	BG RW 6	275886.1	6143563.2	138.549453844	-34.8255617521
	BG RW 7	275814.6	6143511.9	138.548658852	-34.8260078123
	MFP 1	275515.9	6143184.1	138.545307730	-34.8288958007
	MFP 14	274949.2	6142785.6	138.539008577	-34.8323607073
	MFP 19	274464.4	6142630.1	138.533669982	-34.8336544697
	MFP 21	274297.1	6142605.8	138.531835600	-34.8338358378
	MFP 8	275218.2	6142946.2	138.541990925	-34.8309730275
	MFP 9	275147.6	6142898.1	138.541206617	-34.8313907020
	RG 1	274568.7	6144584.8	138.535334882	-34.8160665640

Appendix D

Geophysical dataset (EM 38 and Magnetic Susceptibility)

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
1	275508	6143210	150	100	24
2	275507	6143200	125	80	25
3	275506	6143190	110	80	23
4	275505	6143179	115	80	31
5	275505	6143171	175	130	30
6	275501	6143162	210	150	21
7	275502	6143155	240	210	16
8	275502	6143151	260	200	21
9	275499	6143141	310	240	19
10	275498	6143136	310	240	24
11	275498	6143130	310	310	35
12	275497	6143120	310	215	24
13	275498	6143111	310	230	18
14	275495	6143101	310	245	3
15	275494	6143096	285	250	22
16	275496	6143094	280	260	21
17	275494	6143090	310	310	20
18	275493	6143081	310	310	13
19	275491	6143072	310	300	5
20	275492	6143069	310	260	2
21	275490	6143062	310	310	103
22	275479	6143053	275	310	53
23	275479	6143058	310	310	10
24	275479	6143066	180	150	2
25	275477	6143076	240	220	3
26	275477	6143078	220	200	7
27	275478	6143082	210	190	10
28	275479	6143086	250	200	7
29	275482	6143094	270	240	4
30	275482	6143099	310	280	16
31	275483	6143103	310	300	12
32	275484	6143105	310	280	14
33	275480	6143111	310	250	15
34	275484	6143117	310	270	21
35	275487	6143126	310	280	14
36	275486	6143133	310	260	25
37	275488	6143143	310	250	15
38	275488	6143151	260	200	55
39	275488	6143158	260	190	53
40	275489	6143164	230	235	21
41	275491	6143172	220	150	23
42	275492	6143180	185	130	18
43	275493	6143189	80	90	23
44	275497	6143197	145	100	31
45	275497	6143206	150	140	22

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
46	275496	6143213	160	110	22
47	275486	6143214	160	110	23
48	275485	6143204	165	120	19
49	275486	6143193	160	140	14
50	275483	6143185	170	130	7
51	275481	6143176	215	160	17
52	275480	6143172	225	220	20
53	275480	6143166	270	185	9
54	275478	6143155	270	180	21
55	275477	6143146	280	210	18
56	275478	6143145	310	240	18
57	275474	6143137	310	310	60
58	275473	6143132	310	310	20
59	275475	6143126	310	250	15
60	275475	6143117	225	200	24
61	275475	6143113	260	190	2
62	275473	6143109	150	150	3
63	275472	6143104	310	280	12
64	275469	6143095	310	230	3
65	275473	6143080	255	180	2
66	275472	6143076	240	210	4
67	275466	6143066	270	190	2
68	275466	6143058	290	200	7
69	275467	6143054	300	240	9
70	275464	6143046	245	210	76
71	275454	6143037	310	310	106
72	275453	6143041	210	140	33
73	275454	6143048	225	150	10
74	275458	6143061	190	150	6
75	275457	6143069	230	200	8
76	275461	6143078	250	225	4
77	275460	6143079	220	200	6
78	275461	6143083	265	180	5
79	275458	6143094	265	230	8
80	275457	6143103	100	100	2
81	275459	6143108	310	310	27
82	275460	6143112	310	310	28
83	275457	6143122	310	270	20
84	275458	6143130	310	310	26
85	275461	6143140	310	230	23
86	275463	6143151	250	180	20
87	275464	6143162	220	150	14
88	275469	6143174	225	160	14
89	275466	6143183	200	155	19
90	275465	6143186	150	110	15

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
91	275465	6143183	190	140	nr
92	275461	6143192	175	140	105
93	275464	6143196	160	120	24
94	275464	6143203	180	120	12
95	275465	6143210	150	100	18
96	275468	6143217	150	100	17
97	275457	6143218	145	100	14
98	275456	6143210	140	100	13
99	275455	6143202	160	110	16
100	275456	6143193	175	130	19
101	275455	6143185	190	130	15
102	275453	6143178	210	160	16
103	275454	6143170	225	165	21
104	275455	6143160	240	165	14
105	275454	6143153	250	180	20
106	275452	6143141	250	180	20
107	275452	6143131	310	250	23
108	275452	6143119	310	310	19
109	275451	6143109	310	310	25
110	275445	6143097	260	230	12
111	275447	6143092	70	70	5
112	275449	6143092	70	70	1
113	275442	6143083	130	110	3
114	275440	6143081	190	150	16
115	275444	6143074	230	230	24
116	275446	6143073	190	120	21
117	275444	6143039	160	110	8
118	275450	6143030	250	250	115
119	275446	6143023	310	310	99
120	275447	6143018	220	250	115
121	275446	6143011	230	250	93
122	275444	6142994	265	255	145
123	275444	6142987	310	310	65
124	275445	6142982	310	310	40
125	275445	6142979	310	310	56
126	275452	6142978	310	310	34
127	275451	6142986	310	310	149
128	275452	6142996	270	310	141
129	275451	6143004	255	275	112
130	275451	6143013	230	270	112
131	275454	6143023	220	220	105
132	275455	6143032	310	310	87
133	275463	6143038	310	310	93
134	275463	6143027	200	220	110
135	275462	6143019	200	170	85
136	275460	6143009	140	150	65
137	275458	6143001	205	250	107
138	275457	6142993	270	310	102

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
139	275453	6142984	270	300	114
140	275452	6142976	310	310	53
141	275461	6142971	250	310	58
142	275462	6142978	310	300	91
143	275463	6142989	300	310	106
144	275465	6143000	240	190	113
145	275468	6143012	180	260	138
146	275468	6143027	180	185	105
147	275471	6143037	220	210	102
148	275474	6143045	310	310	90
149	275490	6143056	310	310	128
150	275489	6143042	215	210	90
151	275488	6143031	240	250	83
152	275487	6143025	300	300	104
153	275487	6143017	310	310	103
154	275485	6143006	310	310	136
155	275483	6142995	310	310	125
156	275480	6142981	250	280	109
157	275476	6142967	310	300	40
158	275473	6142960	310	310	51
159	275469	6142955	310	310	40
160	275442	6143042	130	125	0
161	275445	6143046	140	140	1
162	275448	6143048	150	140	1
163	275453	6143055	130	125	1
164	275454	6143055	140	100	1
165	275450	6143058	130	100	1
166	275446	6143056	170	140	1
167	275444	6143051	150	130	2
168	275442	6143049	155	110	3
169	275439	6143046	150	100	2
170	275438	6143043	170	135	2
171	275437	6143042	170	150	1
172	275434	6143047	150	110	1
173	275437	6143049	145	115	3
174	275439	6143051	135	115	3
175	275440	6143053	160	120	3
176	275443	6143057	180	155	2
177	275445	6143059	175	170	2
178	275443	6143064	180	150	1
179	275439	6143062	190	170	2
180	275438	6143059	160	115	2
181	275436	6143057	130	110	2
182	275434	6143054	120	100	2
183	275432	6143052	120	105	2
184	275429	6143055	140	100	1
185	275431	6143058	125	90	1

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
186	275434	6143060	145	115	1
187	275435	6143063	175	100	3
188	275438	6143064	190	170	2
189	275440	6143066	190	155	2
190	275416	6143055	260	190	16
191	275422	6143066	300	310	21
192	275426	6143072	180	180	10
193	275429	6143073	170	150	11
194	275428	6143075	135	135	8
195	275430	6143076	155	110	24
196	275431	6143078	195	160	20
197	275425	6143083	175	160	24
198	275423	6143081	160	110	21
199	275422	6143079	160	120	6
200	275420	6143076	180	150	19
201	275419	6143074	170	160	8
202	275416	6143069	245	235	12
203	275411	6143062	190	170	13
204	275410	6143060	170	145	19
205	275405	6143065	180	140	16
206	275409	6143071	210	190	12
207	275411	6143074	185	195	14
208	275413	6143080	175	160	16
209	275416	6143083	180	150	7
210	275417	6143084	80	80	25
211	275417	6143086	40	100	17
212	275406	6143091	170	140	17
213	275409	6143087	125	140	24
214	275407	6143084	140	115	5
215	275406	6143081	160	175	23
216	275403	6143079	160	160	18
217	275405	6143075	180	155	19
218	275402	6143066	185	145	18
219	275392	6143071	175	130	18
220	275395	6143078	140	100	19
221	275395	6143083	145	125	11
222	275394	6143086	150	120	7
223	275398	6143088	110	100	4
224	275398	6143091	130	165	17
225	275399	6143092	170	145	15
226	275389	6143097	155	100	13
227	275388	6143094	130	130	39
228	275387	6143092	120	100	3
229	275384	6143091	160	145	7
230	275382	6143086	165	140	18
231	275378	6143081	200	165	20
232	275377	6143078	245	180	13
233	275372	6143073	310	245	14

Waypoints	DGPS co-ordinates		EM_38 (ECa)		Average volume magnetic susceptibility
Site no.	East	North	V	H	SI units
234	275367	6143066	310	240	14
235	275400	6143096	195	150	14
236	275402	6143099	110	85	5
237	275405	6143106	290	290	23
238	275410	6143111	210	150	18
239	275412	6143122	310	280	23
240	275416	6143130	310	270	17
241	275426	6143137	270	190	15
242	275433	6143133	260	185	12
243	275430	6143125	310	240	12
244	275423	6143114	310	260	5
245	275420	6143102	235	150	19
246	275417	6143099	235	220	19
247	275414	6143094	95	80	5
248	275413	6143093	175	140	14
249	275422	6143089	185	120	19
250	275422	6143092	110	90	3
251	275424	6143098	200	175	12
252	275428	6143103	270	240	17
253	275429	6143111	215	170	18
254	275431	6143120	300	235	23
255	275438	6143133	295	215	21
256	275422	6143139	200	150	37
257	275452	6143136	270	220	24
258	275442	6143124	295	230	20
259	275437	6143116	310	255	18
260	275435	6143119	260	190	23
261	275429	6143101	270	245	23
262	275424	6143097	200	170	10
263	275419	6143092	90	90	3
264	275426	6143087	170	130	8
265	275431	6143084	200	130	9
266	275437	6143080	220	180	11
267	275442	6143080	200	185	22

Appendix E

Geochemical data for bulk soil samples and salt efflorescence samples (determined by XRF)

Soil Samples			(cm)		Major elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	SiO2 (%)	TiO2 (%)	Al2O3 (%)	Fe2O3 (%)	MnO (%)	MgO (%)	CaO (%)	Na2O (%)	K2O (%)	P2O5 (%)	SO3 (%)	Cl (%)	Sum (%)	Cl mg/kg
1	Water	BG P5 307	0	5	73.53	0.43	7.72	5.73	0.01	1.08	0.47	1.19	1.67	0.08	0.76	0.4645	93.14	4645
1		BG P5 310	15	20	77.68	0.46	8.29	2.82	0.01	0.99	0.22	1.19	1.76	0.07	0.74	0.3353	94.56	3353
1		BG 30.1 410	0	5	31.13	0.37	6.79	3.84	0.05	2.85	12.55	7.18	1.41	0.34	0.92	6.885	74.32	68850
1		BG 30.2 411	5	30	28.67	0.40	7.73	4.07	0.05	3.41	9.62	9.17	1.61	0.41	0.91	8.9664	75.01	89664
1		BG 19 267	0	5	51.74	0.48	8.60	3.36	0.03	2.76	5.83	6.43	1.88	0.23	0.76	5.7954	87.89	57954
2	Benthic	BG 4 158	1	5	89.34	0.25	4.16	1.49	0.01	0.46	0.26	0.91	1.06	0.07	0.27	0.4719	98.74	4719
2	mat	BG 4 159	5	10	84.88	0.32	5.58	2.39	0.01	0.64	0.22	1.10	1.25	0.11	0.23	0.5692	97.29	5692
2		BG 4 162	20	30	69.23	0.38	6.95	4.28	0.03	1.53	1.51	2.96	1.47	0.16	1.26	2.3691	92.13	23691
2		BG 4 163	30	40	63.62	0.43	8.21	5.58	0.05	2.13	1.51	3.72	1.68	0.18	0.94	3.0545	91.11	30545
2		BG 4 279	45	55	49.48	0.43	9.47	11.12	0.04	2.30	1.99	4.32	1.57	0.21	2.37	3.6936	87.01	36936
2		BG 4 280	55	65	82.87	0.14	2.65	1.92	0.01	0.59	0.26	2.82	0.79	0.03	0.54	2.4087	95.03	24087
2		BG 4 282	80	85	92.63	0.14	2.53	0.67	0.01	0.30	0.15	1.50	0.83	0.02	0.73	0.949	100.45	9490
2		BG 28 328.2	0	25	30.97	0.14	2.36	1.14	0.01	2.27	23.25	6.04	0.82	0.11	1.11	6.569	74.80	65690
2		BG 23 329	0	5	64.34	0.15	2.58	1.44	0.02	1.68	9.97	3.73	0.81	0.13	1.02	2.9987	88.88	29987
2		BG 31.1 412	0	5	49.01	0.61	11.17	2.97	0.01	2.22	0.75	4.13	1.97	0.20	0.33	3.2206	76.58	32206
2		BG 31.3 414	5	15	26.60	0.28	4.64	1.38	0.00	3.45	0.87	16.78	1.31	0.09	0.73	17.3506	73.47	173506
3	Bare	BG 32.1 415	0	15	62.76	0.46	7.59	2.35	0.01	1.26	0.58	3.31	1.60	0.22	0.28	2.4209	82.84	24209
3	salt	BG 32.3 417	25	40	83.06	0.15	2.50	0.43	0.00	0.76	0.36	4.03	0.98	0.03	0.31	3.5929	96.20	35929
3	scalds	BG 32.5 419	60	80	73.83	0.12	2.35	0.70	0.01	0.55	9.36	2.23	0.87	0.02	0.73	1.523	92.28	15230
		Lower Limit of Detection (mg/kg)			29	22	24	10	5	36	20	12	16	5	8	3		3

Soil Samples			(cm)		Major elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	SiO2 (%)	TiO2 (%)	Al2O3 (%)	Fe2O3 (%)	MnO (%)	MgO (%)	CaO (%)	Na2O (%)	K2O (%)	P2O5 (%)	SO3 (%)	Cl (%)	Sum (%)	Cl mg/kg
4	Low	BG 22 323	0	5	55.16	0.70	12.15	4.65	0.01	1.66	0.60	2.33	2.27	0.20	0.25	1.4279	81.42	14279
4	dense	BG 22 325	15	25	56.55	0.44	6.61	2.34	0.01	1.59	0.72	6.41	1.58	0.09	0.47	5.8015	82.60	58015
4	heath	BG 22 327	40	65	42.52	0.16	2.73	1.12	0.00	0.73	24.72	2.85	0.78	0.03	0.61	2.4641	78.71	24641
4		BG 29.1 405	0	5	41.45	0.69	12.85	4.46	0.01	1.77	0.59	0.92	1.94	0.34	0.19	0.24	65.45	2446
4		BG 29.2 406	5	20	55.89	0.46	7.58	2.21	0.01	0.87	0.34	1.73	1.49	0.17	0.22	0.92	71.88	9236
4		GGT 5-3 401	10	45	60.55	0.38	5.09	1.05	0.01	0.28	0.21	1.14	1.25	0.12	2.01	0.14	72.23	144.7
4		GGT 5-4 402	45	70	85.43	0.23	2.83	0.29	0.01	0.04	0.15	1.25	1.10	0.01	0.30	0.04	91.69	38.88
4		GGT 5-5 403	70	80	70.22	0.16	2.09	0.45	0.01	0.02	7.95	0.85	1.01	0.01	0.43	0.05	83.26	51.29
4		BG 17 236	0	10	86.03	0.20	3.90	1.19	0.00	0.33	0.22	1.40	1.33	0.02	0.83	0.61	96.05	6106
4		BG 17 239	25	40	77.29	0.32	5.17	2.92	0.01	0.61	0.24	2.59	1.80	0.03	1.71	1.59	94.27	15890
4		BG 17 241	60	100	30.01	0.34	6.24	8.33	0.01	2.57	0.69	11.71	1.29	0.04	2.03	11.09	74.35	110906
4		BG 17 242	100	120	86.64	0.24	4.33	1.22	0.01	0.46	0.19	1.23	1.18	0.02	1.26	0.49	97.25	4882
5	Open	BG 15 188	0	5	55.63	0.85	14.93	8.79	0.05	2.82	0.52	0.83	2.95	0.31	0.14	0.05	87.87	486
5	low	BG 15 189	5	15	58.71	0.96	16.73	7.35	0.04	2.33	0.39	0.84	2.91	0.18	0.12	0.05	90.59	465
5	scrub	BG 15 191	25	30	76.43	0.56	9.54	4.00	0.01	0.92	0.27	0.97	1.82	0.06	0.37	0.13	95.08	1301
5		BG 15 192	30	40	72.55	0.70	11.02	4.94	0.01	1.09	0.25	1.28	2.11	0.06	0.47	0.33	94.81	3335
5		BG 15 193	40	65	63.05	0.95	14.83	4.30	0.01	1.53	0.24	1.93	2.69	0.09	0.59	0.85	91.05	8488
5		BG 15 194	65	95	37.80	0.62	9.60	10.70	0.01	1.28	0.33	3.63	3.16	0.09	1.90	2.37	71.47	23710
5		BG 15 250	95	110	26.24	0.15	3.14	12.29	0.00	1.25	1.02	5.73	1.61	0.04	2.63	4.05	58.15	40545
5		BG 15 251	120	150	89.58	0.20	3.66	0.76	0.00	0.29	0.13	0.70	1.02	0.01	0.76	0.16	97.29	1608
5		BG 15 252	150	170	74.66	0.47	10.17	3.81	0.01	1.15	0.18	1.21	1.78	0.03	2.61	0.38	96.46	3754
		Lower Limit of Detection (mg/kg)			29	22	24	10	5	36	20	12	16	5	8	3		3

Soil Samples			(cm)		Major elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	SiO2 (%)	TiO2 (%)	Al2O3 (%)	Fe2O3 (%)	MnO (%)	MgO (%)	CaO (%)	Na2O (%)	K2O (%)	P2O5 (%)	SO3 (%)	Cl (%)	Sum (%)	Cl mg/kg
6	Open	BG 5 165	0	5	56.29	0.87	14.67	8.18	0.06	1.71	0.42	0.86	2.47	0.36	0.16	0.12	86.17	1225
6	grass	BG 5 166	5	10	57.27	0.92	15.86	8.01	0.09	1.95	0.45	1.06	2.65	0.31	0.17	0.15	88.88	1476
6	plain	BG 5 170	30	40	93.80	0.10	1.88	0.97	0.00	0.17	0.10	0.81	0.81	0.02	0.52	0.42	99.59	4164
6		BG 5 174	90	110	94.16	0.11	1.94	0.61	0.00	0.21	0.11	0.95	0.68	0.02	0.60	0.60	99.99	5990
6		BG 5 176	130	190	90.93	0.19	3.81	0.98	0.01	0.33	0.24	1.11	1.00	0.02	0.79	0.65	100.04	6482
6		BG 11 204	0	5	59.26	0.65	10.98	5.34	0.03	1.70	0.92	0.56	2.15	0.24	0.10	0.05	81.98	532
6		BG 11 205	5	20	58.98	0.90	16.22	6.98	0.02	2.51	1.28	0.70	2.92	0.14	0.07	0.09	90.80	912
6		BG 11 206	20	35	93.24	0.07	1.97	0.18	0.00	0.11	0.09	0.35	0.72	0.01	0.01	0.03	96.78	271
6		BG 11 207	35	45	90.96	0.11	2.69	1.10	0.00	0.21	0.13	0.63	0.91	0.03	0.08	0.20	97.05	2016
6		BG 11 208	45	47	85.99	0.15	3.35	3.44	0.00	0.36	0.18	0.92	0.94	0.04	0.20	0.51	96.08	5078
6		BG 11 209	47	55	66.16	0.56	10.53	5.68	0.01	1.30	1.16	2.36	1.95	0.06	1.02	1.70	92.49	16958
6		BG 11 210	55	60	90.72	0.11	2.62	1.03	0.00	0.17	0.09	0.54	0.87	0.02	0.32	0.15	96.65	1525
6		BG 11 211	60	70	91.99	0.09	2.10	0.63	0.00	0.11	0.08	0.43	0.82	0.01	0.36	0.09	96.70	854
6		BG 11 212	70	78	92.09	0.10	2.25	0.49	0.00	0.12	0.09	0.45	0.83	0.01	0.24	0.08	96.73	777
6		BG 11 213	78	80	88.12	0.22	3.80	1.02	0.00	0.28	0.13	0.85	1.12	0.02	0.51	0.25	96.32	2465
6		BG 11 214	80	100	90.68	0.15	2.79	0.52	0.00	0.19	0.12	0.76	0.95	0.01	0.33	0.28	96.80	2820
6		BG 11 215	100	160	89.75	0.16	2.97	0.53	0.00	0.25	0.13	1.03	0.94	0.01	0.47	0.56	96.80	5616
6		BG 11 216	160	195	88.94	0.16	3.96	0.70	0.00	0.30	0.11	0.75	0.96	0.01	0.47	0.32	96.69	3172
6		BG 11 217	195	205	82.32	0.32	7.21	1.85	0.01	0.71	0.15	1.19	1.36	0.02	1.23	0.58	96.94	5844
6		BG 11 218	205	240	64.67	0.83	14.30	4.81	0.01	2.25	0.25	2.16	2.36	0.04	2.22	0.97	94.86	9657
6		BG 11 219	240	300	69.20	0.87	12.70	4.14	0.01	2.11	0.31	2.34	2.24	0.04	0.60	0.95	95.52	9500
6		BG 11 220	300	350	73.26	0.70	10.93	3.78	0.01	1.88	0.22	1.99	2.03	0.04	0.33	0.95	96.12	9499
		Lower Limit of Detection (mg/kg)			29	22	24	10	5	36	20	12	16	5	8	3		3

Soil Samples			(cm)		Major elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	SiO2 (%)	TiO2 (%)	Al2O3 (%)	Fe2O3 (%)	MnO (%)	MgO (%)	CaO (%)	Na2O (%)	K2O (%)	P2O5 (%)	SO3 (%)	Cl (%)	Sum (%)	Cl mg/kg
8	Artificially	GGT 2-1 371	0	40	64.31	0.50	8.28	2.85	0.02	1.70	8.97	1.19	1.72	0.05	0.35	0.22	90.17	2223
8	filled	GGT 2-5 375	205	235	59.52	0.39	6.13	2.21	0.01	1.42	12.18	1.38	1.40	0.06	0.58	0.53	85.80	5324
8	area	GGT 2-8 378	490	495	59.05	0.56	9.17	2.32	0.02	1.77	3.28	1.14	1.87	0.07	0.15	0.17	79.56	170.6
8		GGT 2-9 379	495	500	49.66	0.73	12.89	3.77	0.02	2.11	1.35	1.32	2.15	0.24	0.88	0.35	75.48	349.3
8		GGT 2-10 380	500	515	55.86	0.45	5.48	1.20	0.01	0.60	0.44	1.77	1.34	0.11	2.38	0.78	70.42	778.7
8		GGT 2-11 381	515	530	74.44	0.28	3.34	0.66	0.01	0.18	0.42	1.41	1.11	0.07	1.61	0.71	84.25	713.1
8		BG 2 255	0	5	68.11	0.38	6.26	2.06	0.03	1.90	7.14	2.88	1.54	0.07	1.13	2.10	93.58	20979
8		BG 2 258	40	55	64.26	0.55	9.39	3.36	0.02	1.86	7.10	2.58	1.99	0.06	0.38	1.38	92.92	13799
8		BG 2 260	70	90	43.90	0.82	16.45	7.18	0.03	3.45	6.41	3.39	2.85	0.07	0.91	2.62	88.07	26163
8		BG 2 263	110	120	46.75	0.93	16.88	6.50	0.02	3.10	0.51	4.71	2.93	0.11	0.72	3.92	87.08	39218
8		BG 2 264	120	150	41.59	0.53	9.65	3.42	0.01	2.26	0.76	7.09	1.83	0.13	0.63	6.56	74.46	65619
8		BG 2 265	150	180	30.43	0.09	1.43	0.50	0.00	1.15	27.89	7.15	0.59	0.03	0.80	7.38	77.43	73785
8		BG 2 132	250	270	43.43	0.39	5.44	2.67	0.01	1.82	18.22	2.57	1.26	0.06	0.86	2.02	78.72	20187
9	Water	BSK 5 79	0	10	6.00	0.10	2.06	1.11	0.00	3.53	3.86	20.21	0.86	0.26	0.99	20.79	59.77	207949
9		BSK 5 81	30	60	7.39	0.13	2.58	1.53	0.01	3.60	3.46	17.18	0.95	0.29	0.75	17.86	55.73	178599
9		BSK 5 83	110	150	10.27	0.19	3.65	1.94	0.01	3.10	5.56	16.88	0.90	0.22	0.79	17.03	60.53	170317
9		BSK 5 85	190	210	24.15	0.38	7.28	2.66	0.01	2.59	5.77	9.74	1.35	0.12	0.70	9.56	64.30	95574
9		BG 24 331	0	5	49.25	0.29	5.43	2.77	0.02	1.78	10.15	3.78	1.23	0.22	0.55	2.84	78.29	28393
		Lower Limit of Detection (mg/kg)			29	22	24	10	5	36	20	12	16	5	8	3		3

Soil Samples			(cm)		Major elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	SiO2 (%)	TiO2 (%)	Al2O3 (%)	Fe2O3 (%)	MnO (%)	MgO (%)	CaO (%)	Na2O (%)	K2O (%)	P2O5 (%)	SO3 (%)	Cl (%)	Sum (%)	Cl mg/kg
10	Mangrove	BSK 1 53	5	12	14.91	0.26	5.25	1.74	0.01	3.10	2.06	11.74	1.52	0.36	0.49	10.99	52.42	109878
10	woodland	BSK 1 55	32	48	14.12	0.16	3.26	1.11	0.01	2.06	32.61	4.15	0.67	0.10	0.56	3.59	62.39	35925
10		BSK 1 57	55	60	12.88	0.06	1.35	0.39	0.01	1.90	37.56	3.30	0.36	0.05	0.59	2.66	61.10	26567
10		BSK 4 68	0	5	5.82	0.09	1.93	1.27	0.05	2.91	5.41	11.88	0.70	0.35	0.56	11.48	42.47	114804
10		BSK 4 70	10	20	9.90	0.17	3.39	1.57	0.01	3.23	4.61	14.20	0.98	0.34	0.54	14.04	52.97	140383
10		BSK 4 74	110	130	10.55	0.20	4.03	1.70	0.01	3.17	2.24	16.56	1.07	0.35	0.79	16.29	56.95	162947
10		BSK 4 78	190	210	29.42	0.14	2.75	0.77	0.01	1.84	25.61	4.13	0.61	0.05	0.61	3.80	69.73	37953
10		BG 21 320	0	5	23.38	0.27	4.85	3.06	0.01	3.24	1.38	13.21	1.58	0.56	0.60	13.49	65.64	134871
10		BG 21 322	15	40	22.94	0.36	5.96	3.04	0.01	3.67	1.70	20.13	1.45	0.18	1.26	20.65	81.34	206456
11	Low salt	BG 20 317	0	5	17.26	0.29	5.35	4.26	0.01	3.83	1.90	16.33	1.34	0.66	0.95	16.84	69.03	168424
11	marsh	BG 20 319	15	40	21.21	0.29	4.80	2.35	0.01	3.39	1.88	21.00	1.27	0.17	1.31	21.13	78.80	211304
12	Bare	BSK 3 63	0	5	16.40	0.25	5.03	2.16	0.03	2.52	25.54	6.63	0.96	0.26	0.53	5.82	66.11	58168
12	chenier	BSK 3 64	5	15	16.29	0.25	4.85	2.17	0.04	2.45	30.30	4.15	0.91	0.22	0.58	3.90	66.10	38982
12	ridge	BSK 3 67	55	70	13.13	0.07	1.51	0.41	0.01	2.12	37.95	3.42	0.38	0.06	0.66	3.24	62.95	32410
		Lower Limit of Detection (mg/kg)			29	22	24	10	5	36	20	12	16	5	8	3		3

Soil Samples			(cm)		Minor elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	As mg/kg	Ba mg/kg	Br mg/kg	Ce mg/kg	Cd mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Ga mg/kg	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg
1	Water	BG P5 307	0	5	29	225	78	40	1.5	9	64	4	17	10	6	40	27	117
1		BG P5 310	15	20	22	236	46	40	1.5	13	62	4	14	9	6	25	20	71
1		BG 30.1 410	0	5	19	137	363	38	1.5	11	68	16	106	8	6	178	28	394
1		BG 30.2 411	5	30	21	152	440	39	1.5	8	80	17	112	9	6	188	20	410
1		BG 19 267	0	5	27	287	235	57	4	63	95	10	638	11	6	35	6.5	212
2	Benthic	BG 4 158	1	5	23	172	38	28	1.5	17	30	4	46	4	6	71	6.5	60
2	mat	BG 4 159	5	10	34	173	67	36	1.5	12	42	13	44	7	6	101	6.5	63
2		BG 4 162	20	30	27	175	154	50	1.5	14	93	15	113	8	6	132	18	319
2		BG 4 163	30	40	28	171	186	59	1.5	13	60	8	108	9	6	174	20	482
2		BG 4 279	45	55	67	134	236	86	1.5	13	55	10	21	9	6	262	48	375
2		BG 4 280	55	65	44	99	198	21	1.5	20	32	4	46	4	6	34	6.5	46
2		BG 4 282	80	85	9	131	53	22	1.5	21	108	4	5	3	6	3.5	6.5	37
2		BG 28 328.2	0	25	10	102	392	7.5	1.5	6	33	15	13	4	6	20	6.5	42
2		BG 23 329	0	5	9	108	223	7.5	1.5	11	75	4	39	4	6	53	6.5	187
2		BG 31.1 412	0	5	19	169	459	56	1.5	10	106	13	30	12	6	526	23	108
2		BG 31.3 414	5	15	54	58	897	17	4	6	40	14	24	5	6	210	6.5	44
3	Bare	BG 32.1 415	0	15	39	166	545	43	1.5	8	101	12	21	9	6	632	20	77
3	salt	BG 32.3 417	25	40	10	125	253	7.5	1.5	24	134	4	6	5	6	62	6.5	21
3	scalds	BG 32.5 419	60	80	13	124	131	7.5	1.5	16	187	4	4	2	6	9	6.5	47
	Lower Limit of Detection (mg/kg)				1	11	1	15	3	4	2	8	1	1	12	7	13	6

Soil Samples			(cm)		Minor elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	As mg/kg	Ba mg/kg	Br mg/kg	Ce mg/kg	Cd mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Ga mg/kg	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg
4	Low	BG 22 323	0	5	63	208	413	51	1.5	10	74	13	18	13	6	379	25	108
4	dense	BG 22 325	15	25	35	144	546	36	1.5	4	50	4	10	8	6	294	17	45
4	heath	BG 22 327	40	65	17	95	162	39	1.5	2	117	8	6	2	6	27	23	40
4		BG 29.1 405	0	5	39	244	232	62	1.5	13	106	16	88	15	6	255	45	131
4		BG 29.2 406	5	20	18	156	391	33	1.5	10	91	13	19	9	6	299	15	54
4		GGT 5-3 401	10	45	0.5	159.7	148.2	19.8	1.5	43	5	4	8.5	3.3	6	50.4	12.8	12.44
4		GGT 5-4 402	45	70	0.5	182.4	5.7	9.8	1.5	228	1	4	0.5	8.4	6	3.5	6.5	11.97
4		GGT 5-5 403	70	80	0.5	168.4	21.9	19.5	1.5	105	1	4	8.7	3.8	6	3.5	6.5	12.58
4		BG 17 236	0	10	10	209	64	16	1.5	11	52	4	4	4	6	15	6.5	29
4		BG 17 239	25	40	35	170	142	23	1.5	5	62	11	6	7	6	13	6.5	44
4		BG 17 241	60	100	46	81	429	48	1.5	11	43	4	8	7	6	93	6.5	97
4		BG 17 242	100	120	11	210	59	18	1.5	17	99	4	6	5	6	9	6.5	62
5	Open	BG 15 188	0.00	5.00	81	242	88	72	1.5	17	96	15	25	18	6	102	30	347
5	low	BG 15 189	5	15	96	253	77	67	1.5	13	103	17	13	19	6	172	27	276
5	scrub	BG 15 191	25	30	25	214	61	50	1.5	8	63	4	7	9	6	108	21	66
5		BG 15 192	30	40	36	223	74	42	1.5	12	72	11	9	14	6	80	21	71
5		BG 15 193	40	65	34	243	127	60	1.5	11	82	12	13	14	6	72	17	82
5		BG 15 194	65	95	55	164	297	38	1.5	9	58	9	11	11	6	124	24	54
5		BG 15 250	95	110	56	32	393	22	1.5	18	21	4	7	3	6	96	6.5	56
5		BG 15 251	120	150	5	183	19	16	1.5	17	46	4	5	4	6	3.5	17	37
5		BG 15 252	150	170	16	207	33	58	1.5	13	116	4	19	13	6	3.5	24	91
	Lower Limit of Detection (mg/kg)				1	11	1	15	3	4	2	8	1	1	12	7	13	6

Soil Samples			(cm)		Minor elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	As mg/kg	Ba mg/kg	Br mg/kg	Ce mg/kg	Cd mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Ga mg/kg	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg
6	Open	BG 5 165	0	5	140	240	151	62	1.5	13	97	18	23	17	6	375	33	494
6	grass	BG 5 166	5	10	127	239	173	65	1.5	12	100	10	16	14	6	550	34	707
6	plain	BG 5 170	30	40	13	116	47	7.5	1.5	25	117	4	3	0.5	6	31	6.5	20
6		BG 5 174	90	110	12	114	44	7.5	1.5	40	45	4	2	2	6	3.5	6.5	24
6		BG 5 176	130	190	10	155	42	31	1.5	21	20	4	4	5	6	3.5	6.5	46
6		BG 11 204	0	5	69	255	59	52	1.5	15	85	4	29	14	6	31	23	251
6		BG 11 205	5	20	102	262	65	61	1.5	11	117	4	12	17	6	62	32	166
6		BG 11 206	20	35	4	131	4	16	1.5	74	12	4	0.5	2	6	3.5	6.5	11
6		BG 11 207	35	45	33	193	25	59	1.5	18	34	4	4	3	6	15	24	27
6		BG 11 208	45	47	67	165	52	99	1.5	33	28	4	6	3	6	53	36	35
6		BG 11 209	47	55	55	212	205	62	1.5	12	75	4	10	12	6	124	18	73
6		BG 11 210	55	60	17	153	26	7.5	1.5	43	20	4	2	2	6	18	6.5	17
6		BG 11 211	60	70	11	162	14	7.5	1.5	40	23	4	3	3	6	3.5	6.5	15
6		BG 11 212	70	78	9	148	12	7.5	1.5	64	18	4	1	2	6	9	6.5	18
6		BG 11 213	78	80	12	193	42	24	1.5	16	65	4	4	7	6	19	6.5	36
6		BG 11 214	80	100	6	163	22	7.5	1.5	49	31	4	2	3	6	3.5	6.5	19
6		BG 11 215	100	160	6	170	34	7.5	1.5	41	30	4	3	3	6	3.5	6.5	24
6		BG 11 216	160	195	4	181	27	19	1.5	27	47	4	4	6	6	3.5	16	33
6		BG 11 217	195	205	6	202	37	33	1.5	17	56	15	8	9	6	3.5	15	65
6		BG 11 218	205	240	8	338	51	70	1.5	24	84	9	20	18	6	3.5	24	114
6		BG 11 219	240	300	5	339	49	57	1.5	12	73	13	18	14	6	3.5	25	104
6		BG 11 220	300	350	4	342	41	53	1.5	10	140	15	17	12	6	3.5	30	101
	Lower Limit of Detection (mg/kg)				1	11	1	15	3	4	2	8	1	1	12	7	13	6

Soil Samples			(cm)		Minor elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	As mg/kg	Ba mg/kg	Br mg/kg	Ce mg/kg	Cd mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Ga mg/kg	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg
8	Artificially filled area	GGT 2-1 371	0	40	11	245	45	47	1.5	16	128	16	16	11	6	23	25	149
8		GGT 2-5 375	205	235	14	187	96	30	1.5	10	63	10	12	8	6	29	18	116
8		GGT 2-8 378	490	495	2.1	246.4	13	53.5	1.5	109	6	4	24.3	16.2	6	3.5	33.7	21.39
8		GGT 2-9 379	495	500	28.5	252.1	139.2	40	1.5	80	15	4	82.2	5.8	6	3.5	28.4	22.26
8		GGT 2-10 380	500	515	0.5	156.1	199.8	21.6	1.5	15	6	4	8.2	6.1	6	62.3	18.3	13.34
8		GGT 2-11 381	515	530	0.5	172.9	103.8	28.1	1.5	160	1	1.6	0.5	0.9	6	13	17.5	12.86
8		BG 2 255	0	5	8	228	86	38	1.5	14	215	4	19	8	6	3.5	19	163
8		BG 2 258	40	55	8	279	46	48	1.5	9	50	12	17	11	6	3.5	16	169
8		BG 2 260	70	90	13	256	97	63	1.5	12	83	9	30	17	6	23	33	215
8		BG 2 263	110	120	19	297	223	55	1.5	12	94	4	57	20	6	63	31	126
8		BG 2 264	120	150	12	175	448	49	1.5	11	59	9	58	10	6	134	25	102
8		BG 2 265	150	180	5	52	325	36	1.5	7	18	20	6	2	6	24	6.5	33
8		BG 2 132	250	270	25	134	223	28	1.5	2	54	4	9	5	6	41	15	124
9	Water	BSK 5 79	0	10	17	31	872	7.5	1.5	4	14	15	20	0.5	6	61	6.5	38
9		BSK 5 81	30	60	13	29	864	7.5	1.5	4	17	11	26	2	6	74	6.5	63
9		BSK 5 83	110	150	7	47	713	7.5	1.5	4	24	4	32	3	6	81	6.5	99
9		BSK 5 85	190	210	10	88	560	19	1.5	8	37	9	20	7	6	134	23	91
9		BG 24 331	0	5	13	145	268	32	1.5	15	70	4	80	6	6	90	25	174
	Lower Limit of Detection (mg/kg)				1	11	1	15	3	4	2	8	1	1	12	7	13	6

Soil Samples			(cm)		Minor elements													
Map unit no.		Profile & Sample ID	Depth from	Depth to	As mg/kg	Ba mg/kg	Br mg/kg	Ce mg/kg	Cd mg/kg	Co mg/kg	Cr mg/kg	Cs mg/kg	Cu mg/kg	Ga mg/kg	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg
10	Mangrove	BSK 1 53	5	12	12	51	925	17	1.5	6	24	15	27	4	6	211	6.5	118
10	woodland	BSK 1 55	32	48	13	75	298	26	1.5	2	33	4	10	4	6	219	16	140
10		BSK 1 57	55	60	8	40	220	17	1.5	2	46	18	3	0.5	6	93	6.5	100
10		BSK 4 68	0	5	16	31	971	7.5	1.5	6	13	4	20	3	6	161	6.5	531
10		BSK 4 70	10	20	22	57	1072	7.5	1.5	21	25	10	28	4	6	246	6.5	125
10		BSK 4 74	110	130	18	37	785	7.5	1.5	5	21	11	22	2	6	171	6.5	48
10		BSK 4 78	190	210	9	69	228	29	1.5	2	24	12	8	2	6	38	6.5	89
10		BG 21 320	0	5	23	71	698	7.5	1.5	2	57	12	71	4	6	199	18	47
10		BG 21 322	15	40	50	89	664	18	1.5	5	57	14	21	5	6	230	15	43
11	Low salt	BG 20 317	0	5	32	63	790	19	1.5	11	59	13	81	4	6	232	6.5	62
11	marsh	BG 20 319	15	40	32	85	815	16	1.5	5	47	16	29	6	6	247	6.5	42
12	Bare	BSK 3 63	0	5	16	84	453	27	1.5	8	39	11	17	6	6	168	16	311
12	chenier	BSK 3 64	5	15	19	102	276	42	1.5	2	43	12	14	6	6	164	6.5	392
12	ridge	BSK 3 67	55	70	8	42	205	7.5	1.5	111	17	17	6	0.5	6	63	6.5	100
	Lower Limit of Detection (mg/kg)				1	11	1	15	3	4	2	8	1	1	12	7	13	6

Soil Samples			(cm)		Minor elements														
Map unit no.		Profile & Sample ID	Depth from	Depth to	Mo	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	U	V	Y	Zn	Zr	SUM REE
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1	Water	BG P5 307	0	5	14	8	19	3	26	75	12	79	7	5	100	15	92	122	94.5
1		BG P5 310	15	20	19	8	14	5	22	72	11	77	6	4	98	15	48	142	87.50
1		BG 30.1 410	0	5	41	7	15	30	143	65	1.5	475	8	21	114	12	512	92	89.50
1		BG 30.2 411	5	30	39	8	21	35	168	71	6	437	10	18	123	14	540	88	95.00
1		BG 19 267	0	5	5	8	18	12	377	79	8	457	9	5	65	16	1427	135	92.00
2	Benthic	BG 4 158	1	5	8	4	12	11	45	40	6	41	1.5	3	82	11	40	135	54.00
2	mat	BG 4 159	5	10	17	5	9	14	82	55	8	42	4	6	121	13	43	131	65.00
2		BG 4 162	20	30	38	6	18	46	282	66	9	128	4	8	158	15	157	111	93.50
2		BG 4 163	30	40	30	7	22	33	160	73	10	171	6	8	170	19	259	119	119.00
2		BG 4 279	45	55	45	6	39	16	340	68	8	172	4	6	167	29	103	110	173.50
2		BG 4 280	55	65	57	4	16	12	21	25	1.5	40	1.5	7	126	7	11	73	47.50
2		BG 4 282	80	85	6	3	4	1	4	23	1.5	29	1.5	1	26	5	2	87	41.00
2		BG 28 328.2	0	25	2	4	4	1	1	36	1.5	2836	20	25	20	4	77	58	34.00
2		BG 23 329	0	5	8	5	4	1	35	25	1.5	465	5	8	28	7	120	77	30.50
2		BG 31.1 412	0	5	0.5	9	21	20	57	95	9	87	9	24	120	19	115	160	111.50
2		BG 31.3 414	5	15	22	4	4	10	35	40	4	92	1.5	97	132	5	186	64	37.00
3	Bare	BG 32.1 415	0	15	56	9	15	5	18	70	9	63	6	23	120	14	35	165	97.00
3	salt	BG 32.3 417	25	40	21	4	4	1	1	25	1.5	41	1.5	12	40	5	5	104	27.50
3	scalds	BG 32.5 419	60	80	8	4	4	1	1	25	1.5	386	4	3	50	5	4	72	27.50
	Lower Limit of Detection (mg/kg)				1	1	8	2	2	2	3	1	3	2	5	1	2	1	18

Soil Samples			(cm)		Minor elements														
Map unit no.		Profile & Sample ID	Depth from	Depth to	Mo	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	U	V	Y	Zn	Zr	SUM REE
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
4	Low	BG 22 323	0	5	18	11	24	11	111	109	11	80	12	10	160	21	111	184	112.50
4	dense	BG 22 325	15	25	93	8	13	1	12	60	5	81	7	67	118	11	17	163	83.00
4	heath	BG 22 327	40	65	20	4	15	1	1	29	1.5	810	7	10	52	7	9	76	77.50
4		BG 29.1 405	0	5	13	12	24	40	223	110	13	78	12	14	132	23	424	158	146.50
4		BG 29.2 406	5	20	55	8	11	7	26	70	8	51	7	50	103	13	70	174	73.50
4		GGT 5-3 401	10	45	53	14.9	4	1	22.2	49.6	1.5	49.8	11.8	18.6	12	15.3	93.9	219.2	62.80
4		GGT 5-4 402	45	70	18.4	14.4	4	1	13.4	36.4	1.5	42.8	10.3	10.3	1	14.5	90	268	45.20
4		GGT 5-5 403	70	80	9.4	14.8	4	1	11.6	29.7	1.5	303.8	14	7	1	11.8	78.6	192.5	52.60
4		BG 17 236	0	10	13	4	4	1	1	36	1.5	41	4	1	28	6	4	122	37.00
4		BG 17 239	25	40	27	6	4	1	7	48	6	53	4	2	86	8	11	140	48.00
4		BG 17 241	60	100	64	5	17	1	5	45	5	96	4	14	107	10	25	63	74.00
4		BG 17 242	100	120	4	5	4	1	1	44	6	40	5	1	41	9	9	104	43.00
5	Open	BG 15 188	0.00	5.00	11	12	26	18	112	141	13	77	12	4	223	24	131	178	142.50
5	low	BG 15 189	5	15	26	14	25	15	27	145	18	69	15	3	222	25	51	210	137.50
5	scrub	BG 15 191	25	30	24	10	21	3	11	84	12	45	10	14	105	21	26	203	106.50
5		BG 15 192	30	40	62	11	19	4	13	95	12	51	12	27	163	20	30	226	98.50
5		BG 15 193	40	65	50	15	25	6	8	123	14	58	14	35	162	20	34	240	116.50
5		BG 15 194	65	95	106	9	12	2	18	76	11	67	9	27	185	12	25	124	87.50
5		BG 15 250	95	110	238	4	4	5	3	23	5	61	1.5	46	114	7	11	34	44.00
5		BG 15 251	120	150	1	5	4	1	1	36	4	30	1.5	1	27	7	6	96	49.50
5		BG 15 252	150	170	3	7	28	9	9	82	14	42	8	1	98	12	30	119	110.00
	Lower Limit of Detection (mg/kg)				1	1	8	2	2	2	3	1	3	2	5	1	2	1	18

Soil Samples			(cm)		Minor elements														
Map unit no.		Profile & Sample ID	Depth from	Depth to	Mo	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	U	V	Y	Zn	Zr	SUM REE
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
6	Open	BG 5 165	0	5	30	12	27	12	249	128	16	67	12	7	293	26	142	212	137.50
6	grass	BG 5 166	5	10	35	14	31	13	56	133	15	69	14	9	258	26	64	214	143.50
6	plain	BG 5 170	30	40	32	2	4	1	1	20	1.5	21	1.5	1	38	3	1	67	23.50
6		BG 5 174	90	110	16	3	4	1	2	19	1.5	21	1.5	5	20	4	3	72	25.50
6		BG 5 176	130	190	6	4	10	1	4	35	1.5	36	1.5	1	32	7	8	103	53.00
6		BG 11 204	0	5	11	10	24	11	162	101	14	78	10	1	177	20	276	174	115.00
6		BG 11 205	5	20	17	13	30	14	44	142	18	92	14	2	238	25	61	196	143.00
6		BG 11 206	20	35	0.5	2	4	1	1	21	1.5	21	1.5	1	8	4	1	52	33.00
6		BG 11 207	35	45	15	3	29	1	1	28	1.5	30	4	1	38	6	4	67	96.50
6		BG 11 208	45	47	51	5	39	1	3	31	1.5	34	6	1	72	9	8	81	160.00
6		BG 11 209	47	55	43	9	26	4	5	89	11	61	8	7	137	12	29	132	105.50
6		BG 11 210	55	60	11	3	4	1	1	26	1.5	22	1.5	1	24	5	5	65	26.50
6		BG 11 211	60	70	5	2	4	1	1	23	4	22	1.5	1	10	4	1	64	24.50
6		BG 11 212	70	78	3	3	4	1	1	24	1.5	21	1.5	1	9	4	1	71	25.50
6		BG 11 213	78	80	5	5	10	1	1	39	8	31	1.5	5	28	6	6	101	46.00
6		BG 11 214	80	100	2	4	4	1	1	27	1.5	26	4	1	16	5	3	91	27.50
6		BG 11 215	100	160	0.5	3	4	1	1	30	1.5	29	1.5	1	20	6	3	94	27.50
6		BG 11 216	160	195	0.5	3	4	1	1	35	5	28	1.5	1	25	5	6	86	47.50
6		BG 11 217	195	205	0.5	6	4	1	5	57	9	34	5	1	60	8	14	111	66.50
6		BG 11 218	205	240	1	13	34	12	14	120	16	53	13	3	105	29	44	184	151.00
6		BG 11 219	240	300	0.5	14	26	6	10	112	15	59	12	1	96	28	36	239	128.50
6		BG 11 220	300	350	0.5	11	25	6	9	105	15	50	10	1	99	21	35	180	119.50
	Lower Limit of Detection (mg/kg)				1	1	8	2	2	2	3	1	3	2	5	1	2	1	18

Soil Samples			(cm)		Minor elements														
Map unit no.		Profile & Sample ID	Depth from	Depth to	Mo	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	U	V	Y	Zn	Zr	SUM REE
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
8	Artifically	GGT 2-1 371	0	40	5	10	20	3	12	70	7	347	10	6	76	17	49	188	103.50
8	filled	GGT 2-5 375	205	235	13	8	11	1	11	56	1.5	496	10	9	64	13	37	158	73.50
8	area	GGT 2-8 378	490	495	2.3	21.2	4	1	22	75.8	1.5	144.5	17.6	10.8	7	28	43.4	342.5	136.40
8		GGT 2-9 379	495	500	23.1	17.1	4	15.2	244.7	110.6	1.5	122	33.8	22.6	22	28.7	174.7	300.3	114.20
8		GGT 2-10 380	500	515	54	17.4	4	1	49.9	52.5	1.5	66.3	20.2	40.9	14	21.3	114	284.8	78.60
8		GGT 2-11 381	515	530	26	13.9	4	1	20	38.1	1.5	57.9	12.7	7.1	3	16.4	188.1	271	75.90
8		BG 2 255	0	5	0.5	8	13	1	14	54	4	254	9	2	58	14	96	157	83.50
8		BG 2 258	40	55	0.5	10	21	2	10	73	7	280	12	6	56	19	44	202	102.00
8		BG 2 260	70	90	3	12	23	15	12	117	16	211	17	4	105	19	60	131	131.50
8		BG 2 263	110	120	16	14	22	13	153	140	17	76	14	8	138	16	161	155	120.50
8		BG 2 264	120	150	23	9	20	11	353	85	12	85	8	17	101	16	146	131	103.50
8		BG 2 265	150	180	4	4	14	1	1	20	1.5	923	11	8	13	3	4	57	54.00
8		BG 2 132	250	270	26	7	18	1	1	53	1.5	783	10	9	65	11	18	120	65.50
9	Water	BSK 5 79	0	10	15	1	4	1	10	19	1.5	244	1.5	3	36	2	82	14	21.50
9		BSK 5 81	30	60	27	1	4	2	13	21	1.5	220	1.5	6	41	2	106	17	21.50
9		BSK 5 83	110	150	18	3	4	3	19	29	4	277	4	5	41	3	131	29	29.00
9		BSK 5 85	190	210	16	5	4	5	49	53	5	316	5	10	61	9	89	64	60.50
9		BG 24 331	0	5	6	7	13	5	95	48	4	415	10	5	56	13	276	92	81.50
	Lower Limit of Detection (mg/kg)				1	1	8	2	2	2	3	1	3	2	5	1	2	1	18

Soil Samples			(cm)		Minor elements														
Map unit no.		Profile & Sample ID	Depth from	Depth to	Mo	Nb	Nd	Ni	Pb	Rb	Sc	Sr	Th	U	V	Y	Zn	Zr	SUM REE
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
10	Mangrove	BSK 1 53	5	12	0.5	3	4	1	27	33	4	134	1.5	1	45	4	36	36	35.00
10	woodland	BSK 1 55	32	48	0.5	2	14	1	14	34	1.5	1348	8	8	42	5	20	37	53.50
10		BSK 1 57	55	60	3	2	4	1	1	18	1.5	1727	8	14	20	4	1	22	34.00
10		BSK 4 68	0	5	1	2	4	1	12	19	1.5	315	1.5	1	19	0.5	99	13	26.50
10		BSK 4 70	10	20	3	2	4	2	18	33	4	283	1.5	2	34	3	80	31	23.50
10		BSK 4 74	110	130	11	2	4	1	16	26	5	170	1.5	6	27	3	60	26	23.50
10		BSK 4 78	190	210	6	3	9	1	21	24	1.5	1080	7	9	21	6	18	52	49.00
10		BG 21 320	0	5	0.5	2	4	2	184	34	6	138	1.5	1	52	6	88	47	38.00
10		BG 21 322	15	40	17	4	4	8	42	46	6	150	1.5	8	87	7	99	71	49
11	Low salt	BG 20 317	0	5	0.5	3	4	2	166	36	5	172	1.5	1	54	5	163	44	38
11	marsh	BG 20 319	15	40	17	4	10	11	51	44	6	176	1.5	15	72	7	118	74	38
12	Bare	BSK 3 63	0	5	0.5	4	4	3	31	47	1.5	1079	8	6	44	8	67	47	60
12	chenier	BSK 3 64	5	15	0.5	4	20	1	29	47	1.5	1426	9	9	54	8	68	45	65
12	ridge	BSK 3 67	55	70	2	1	4	1	1	18	1.5	1775	7	15	16	3	10	24	23
	Lower Limit of Detection (mg/kg)				1	1	8	2	2	2	3	1	3	2	5	1	2	1	18

Salt efflorescence			
Sample ID	**Area sampled**	**Major minerals (XRD)**	**Minor minerals (XRD)**
BG-235	Surface crust	halite, blodite, gypsum	quartz, halite, blodite, albite, orthoclase, anatase, muscovite, gypsum
BG 16-226	Area c1	goethite	quartz, goethite, orthoclase, albite
BG 14-247	Area c2	halite, tamarugite	halite, tamarugite
BG 14-286	Area c3	halite, tamarugite, hexahydrite, gypsum	quartz, halite, tamarugite, hexahydrite, gypsum
BG-221	Area c4	halite, gypsum, hexahydrite	quartz, halite, gypsum, albite, hexahydrite
BG11-200	50-75	halite, gypsum, pentahydrite	quartz, halite, gypsum, albite, pentahydrite
BG11-201	80-100	halite, starkeyite	quartz, halite, starkeyite
BG11-202	150	halite, starkeyite, gypsum	quartz, halite, starkeyite, gypsum
BG11-203	160	halite, gypsum	quartz, halite, gypsum, albite, orthoclase

Profile &	**As**	**Ba**	**Bi**	**Br**	**Cd**	**Ce**	**Co**	**Cr**	**Cs**	**Cu**	**Ga**	**Ge**	**Hf**
Salt Sample ID	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
BG-235	14	104	<3	196	<4	22	<5	26	12	8	4	<2	<8
BG 16-226	153	78	<3	125	<4	69	6	32	<9	9	<1	<2	<8
BG 14-247	5	<12	<3	615	<4	<18	5	8	11	5	<1	<2	<8
BG 14-286	7	<12	<3	592	<4	<18	6	17	13	4	<1	<2	<8
BG-221	7	<12	<3	474	<4	395	<5	6	11	5	2	<2	<8
BG11-200	9	64	<3	372	<4	<18	11	15	<9	5	1	<2	<8
BG11-201	18	117	<3	321	<4	<18	12	20	<9	5	3	<2	<8
BG11-202	8	17	<3	425	<4	<18	16	12	<9	4	2	<2	<8
BG11-203	22	58	<3	166	<4	20	16	18	<9	5	2	<2	<8
Detection limit	2	12	3	1	4	18	5	3	9	1	1	2	8

Profile & Salt Sample ID	Hg mg/kg	I mg/kg	La mg/kg	Mn mg/kg	Mo mg/kg	Nb mg/kg	Nd mg/kg	Ni mg/kg	Pb mg/kg	Rb mg/kg	Sb mg/kg	Sc mg/kg	Se mg/kg
BG-235	<14	18	22	231	9	4	<10	4	31	34	<9	6	<2
BG 16-226	<14	160	<16	26	980	6	42	<2	16	19	<9	<4	7
BG 14-247	<14	<8	<16	338	<1	1	<10	<2	<3	9	<9	<4	<2
BG 14-286	<14	<8	<16	282	<1	2	<10	7	<3	11	<9	<4	2
BG-221	<14	9	131	60	2	3	199	<2	<3	15	<9	<4	<2
BG11-200	<14	13	170	124	2	3	<10	<2	<3	20	<9	6	<2
BG11-201	<14	10	54	48	9	4	<10	<2	3	31	<9	<4	<2
BG11-202	<14	<8	37	155	<1	2	<10	5	91	14	<9	<4	<2
BG11-203	<14	45	42	120	11	3	14	<2	<3	26	<9	<4	<2
Detection limit	14	8	16	8	1	1	10	2	3	2	9	4	2

Profile & Salt Sample ID	Sm mg/kg	Sn mg/kg	Sr mg/kg	Ta mg/kg	Te mg/kg	Th mg/kg	Tl mg/kg	U mg/kg	V mg/kg	Y mg/kg	Yb mg/kg	Zn mg/kg	Zr mg/kg
BG-235	13	<3	71	<7	<8	<4	6	9	36	9	<10	36	96
BG 16-226	<11	<3	20	<7	<8	<4	<3	67	173	11	<10	14	48
BG 14-247	<11	<3	73	<7	<8	<4	5	<2	16	19	<10	5	5
BG 14-286	<11	<3	112	<7	<8	<4	6	<2	19	23	<10	15	4
BG-221	55	7	1591	<7	<8	10	<3	13	40	30	<10	17	<1
BG11-200	<11	<3	120	<7	<8	<4	7	8	11	7	<10	5	60
BG11-201	<11	<3	57	<7	<8	6	6	3	36	6	<10	19	68
BG11-202	<11	<3	115	<7	<8	<4	6	<2	9	5	<10	17	15
BG11-203	16	<3	630	<7	<8	6	4	12	39	6	<10	11	49
Detection limit	11	3	1	7	8	4	3	2	6	2	10	2	1

Table 5-A - Soil Investigation Levels (mg/kg)

NOTE:
This table is included on page E-18 of the print copy of the thesis held in the University of Adelaide Library.

Table 5-B

Groundwater Investigation Levels

NOTE:
This table is included on page E-19 of the print copy of the thesis held in the University of Adelaide Library.

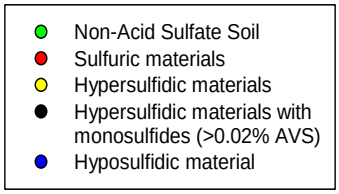
Appendix E

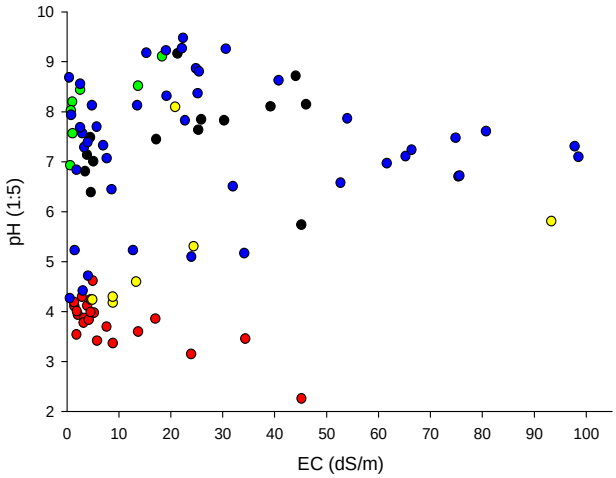
Major variables vs Major variables plots:

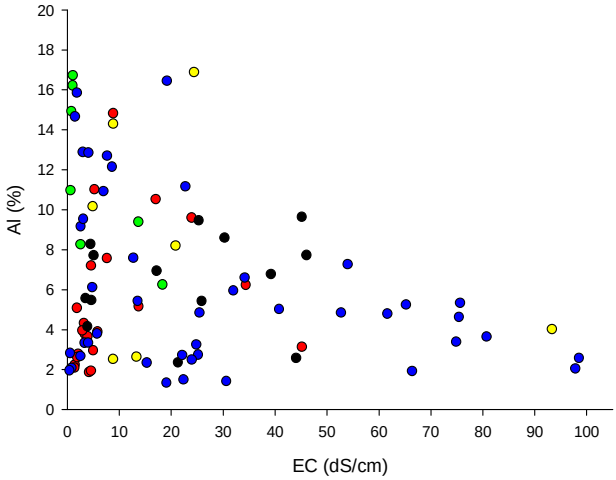
	EC	pH	Al	Fe	Mn	SCR	AVS	Org. C	ANC	Mg	P
pH											
Al											
Fe											
Mn											
SCR											
AVS											
Org.C											
ANC											
Mg											
P											
S											

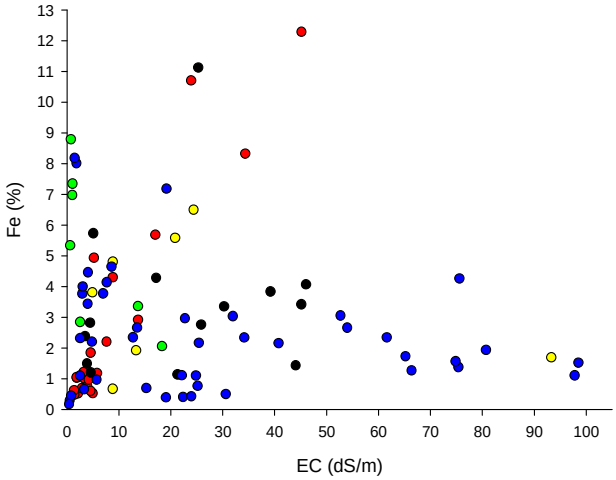
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

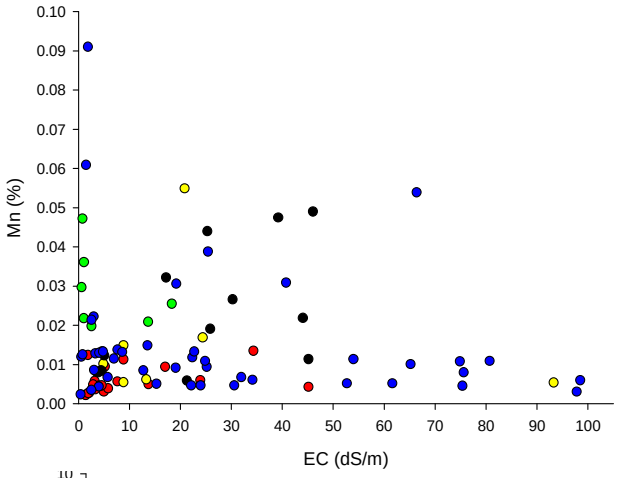
EC

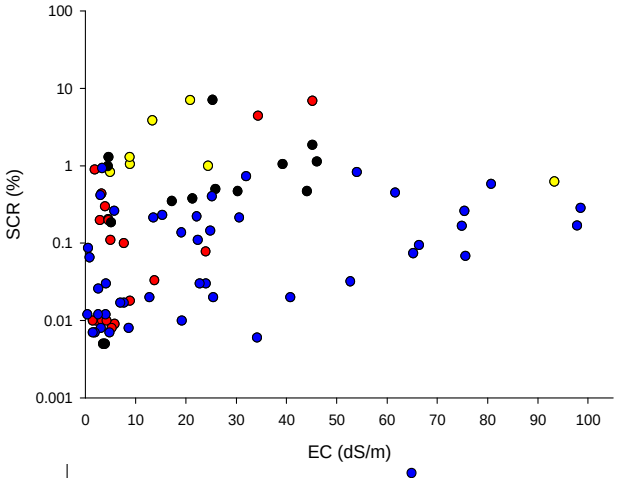

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

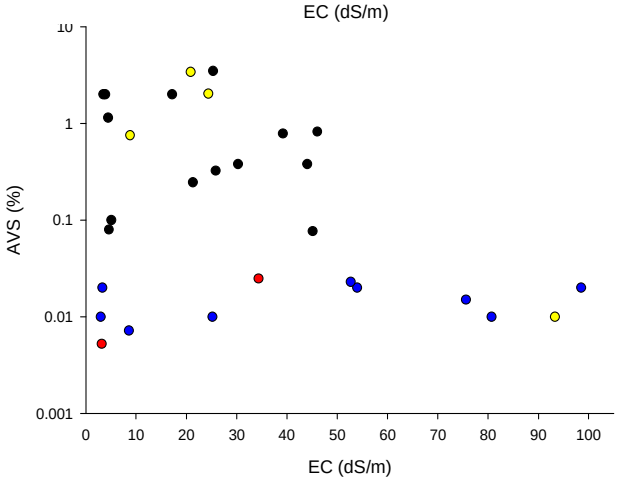

pH (1:5)
EC (dS/m)

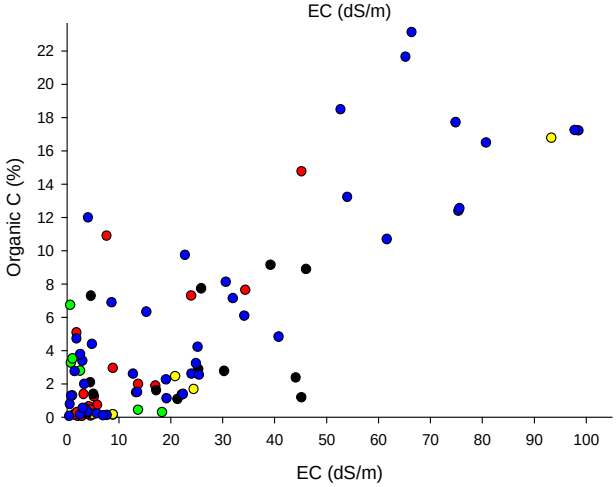

Al (%)
EC (dS/cm)

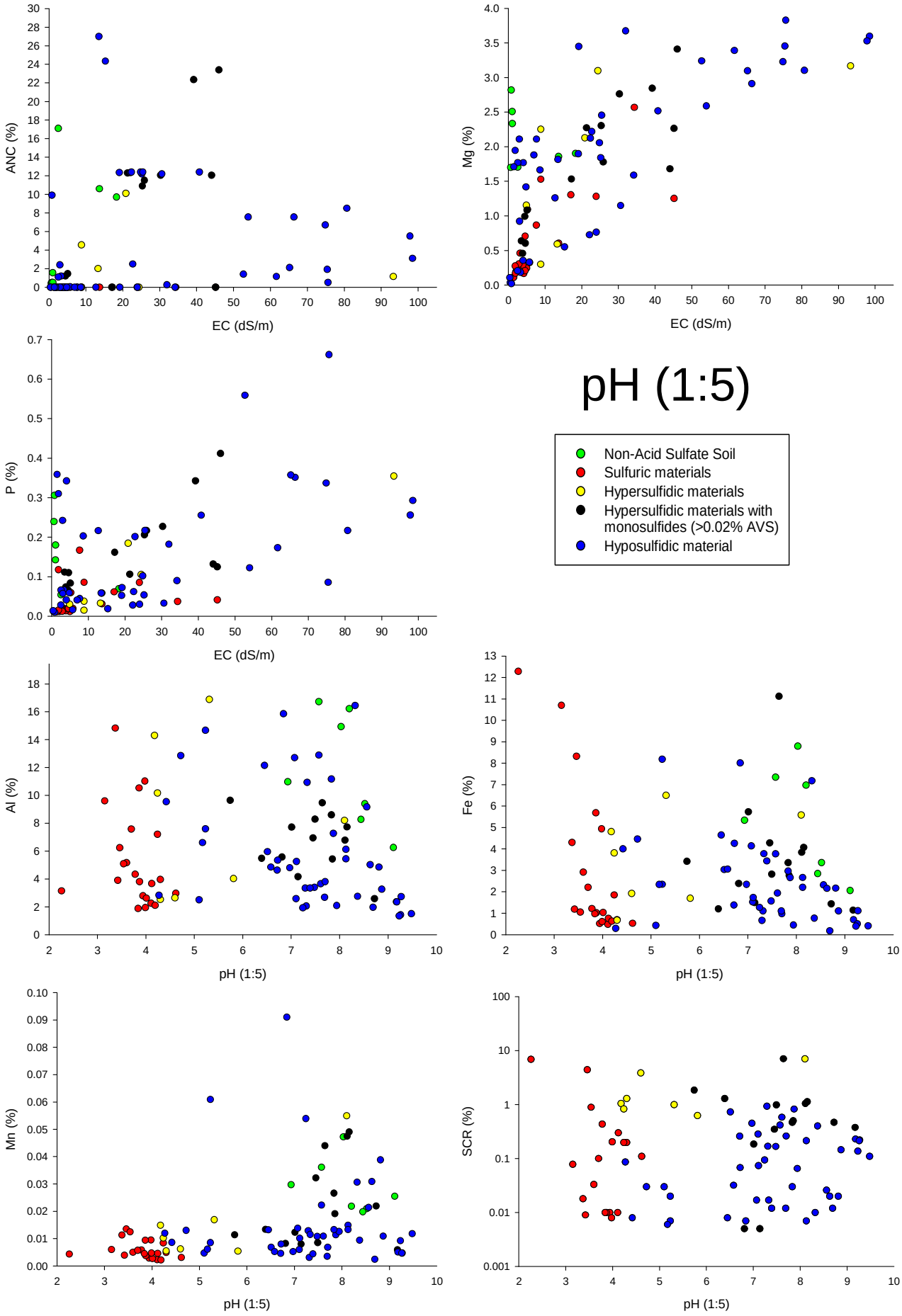

Fe (%)
EC (dS/m)

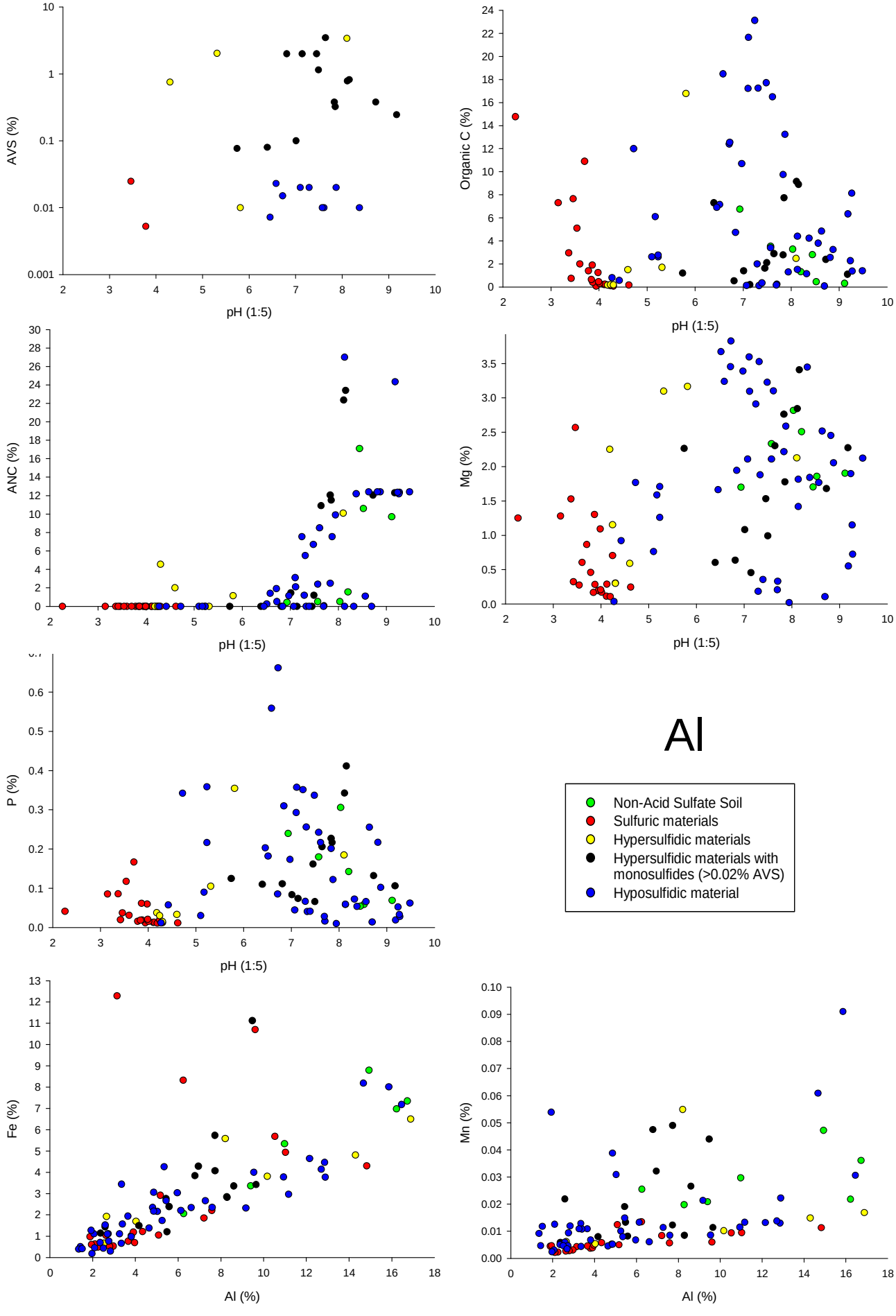

Mn (%)
EC (dS/m)

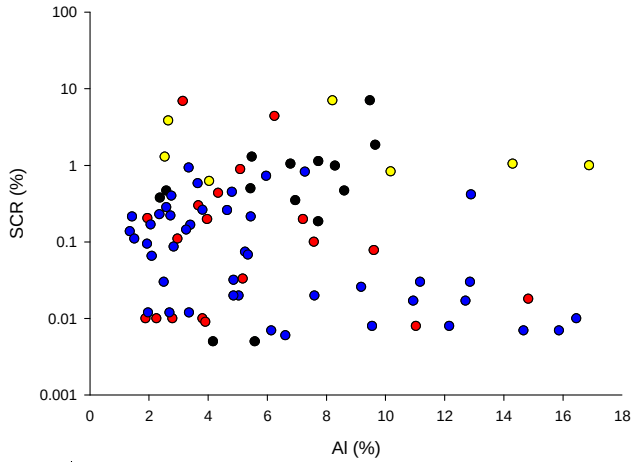

SCR (%)
EC (dS/m)

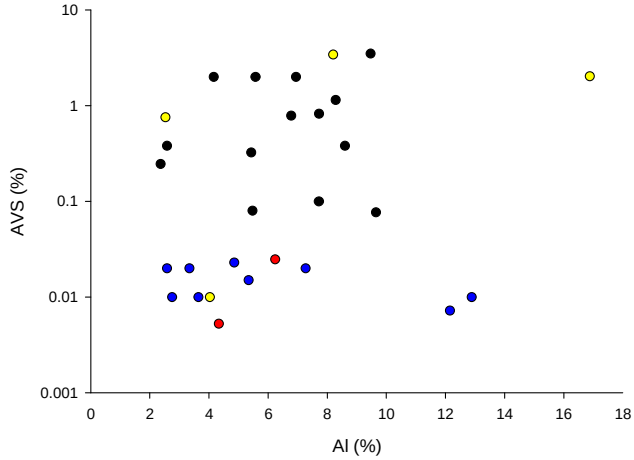

AVS (%)
EC (dS/m)

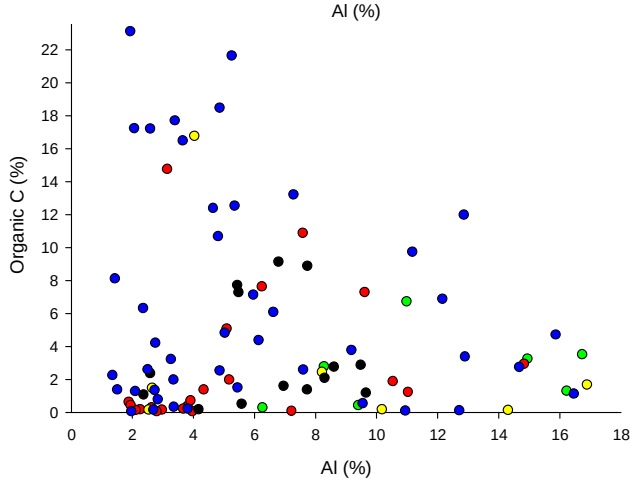

Organic C (%)
EC (dS/m)

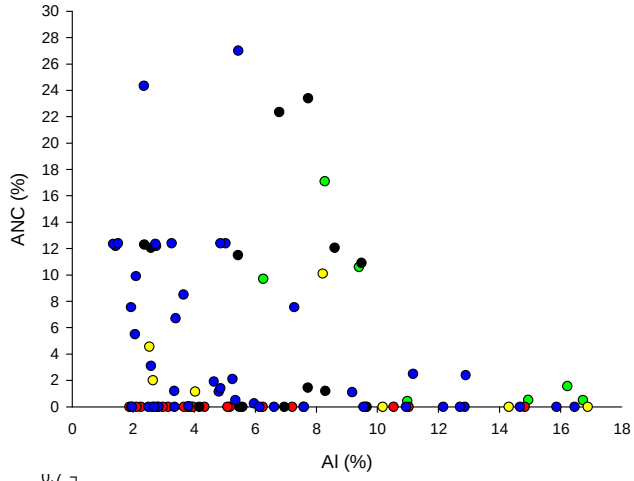

ANC (%)
EC (dS/m)
Mg (%)
EC (dS/m)
pH (1:5)
P (%)
EC (dS/m)
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material
Al (%)
pH (1:5)
Fe (%)
pH (1:5)
Mn (%)
pH (1:5)
SCR (%)
pH (1:5)

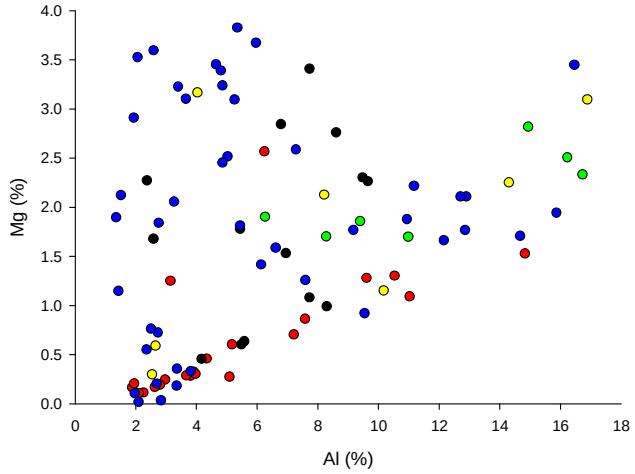

AVS (%)
pH (1:5)
Organic C (%)
pH (1:5)
ANC (%)
pH (1:5)
Mg (%)
pH (1:5)
P (%)
pH (1:5)
Al
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material
Fe (%)
Al (%)
Mn (%)
Al (%)

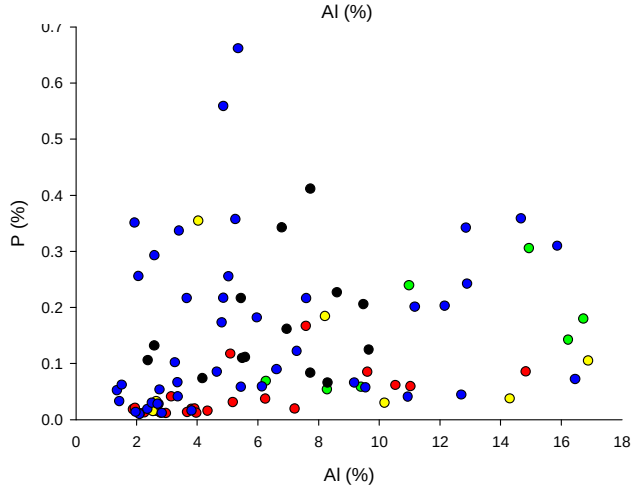

SCR (%)
100
10
1
0.1
0.01
0.001
0 2 4 6 8 10 12 14 16 18
Al (%)


AVS (%)
10
1
0.1
0.01
0.001
0 2 4 6 8 10 12 14 16 18
Al (%)

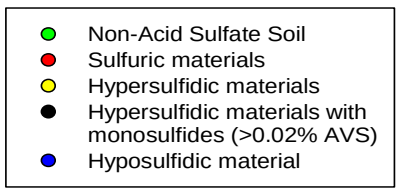

Organic C (%)
22 20 18 16 14 12 10 8 6 4 2 0
0 2 4 6 8 10 12 14 16 18
Al (%)

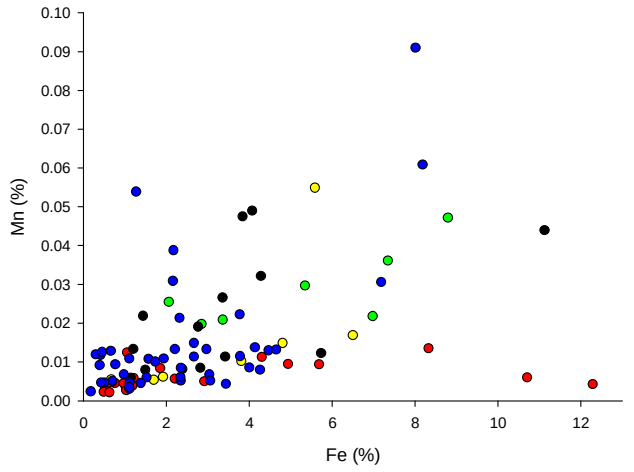

ANC (%)
30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
0 2 4 6 8 10 12 14 16 18
Al (%)

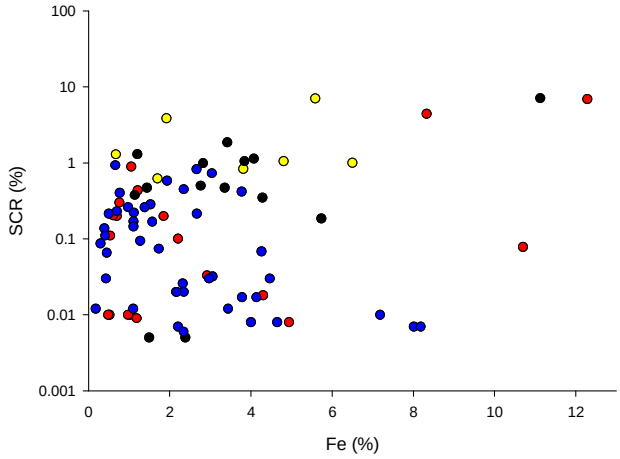

Mg (%)
4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
0 2 4 6 8 10 12 14 16 18
Al (%)

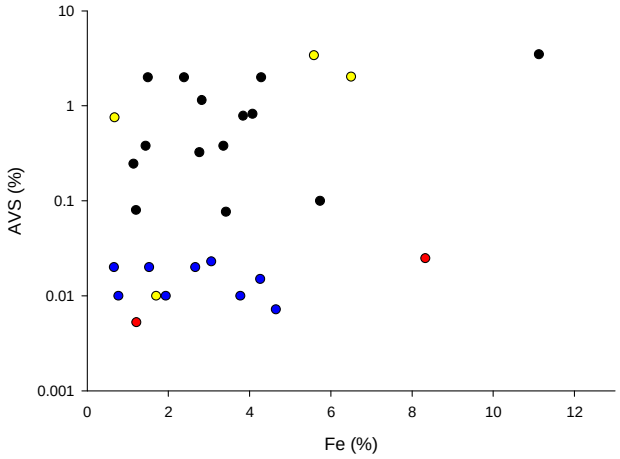

P (%)
0.6 0.5 0.4 0.3 0.2 0.1 0.0
0 2 4 6 8 10 12 14 16 18
Al (%)

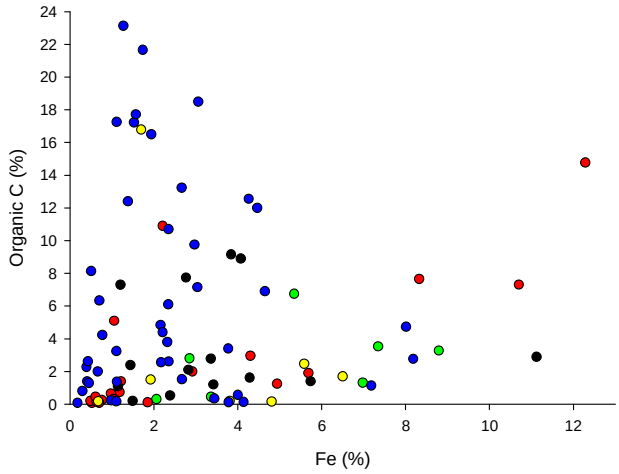
Fe

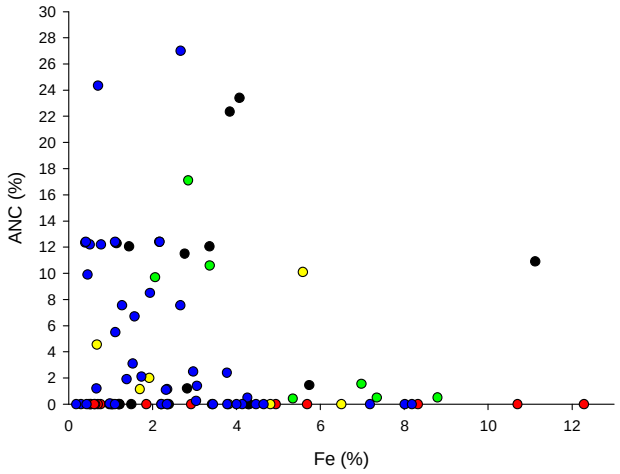

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

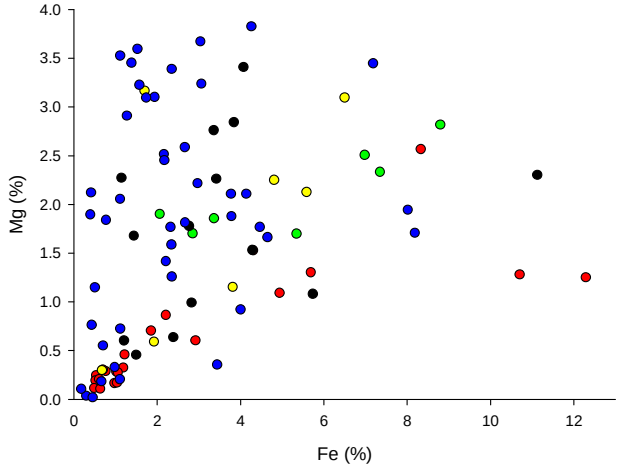

Mn (%)
0.10 0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0.00
0 2 4 6 8 10 12
Fe (%)

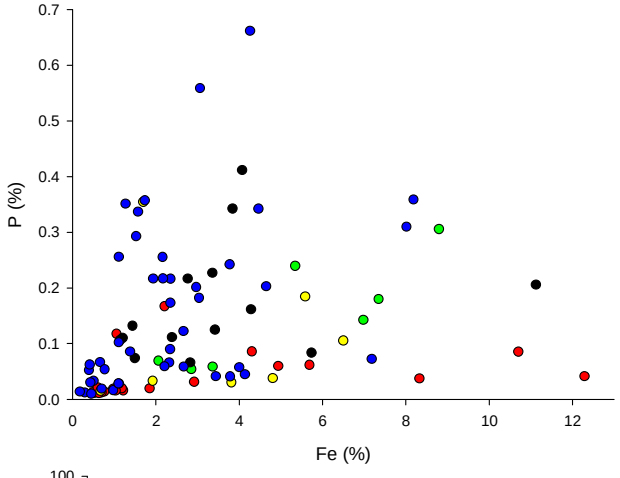

SCR (%)
100
10
1
0.1
0.01
0.001
0
2
4
6
8
10
12
Fe (%)


AVS (%)
10
1
0.1
0.01
0.001
0
2
4
6
8
10
12
Fe (%)

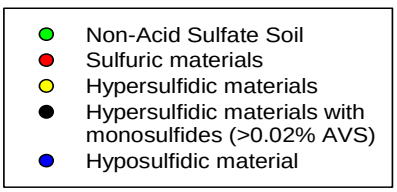

Organic C (%)
24
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
Fe (%)

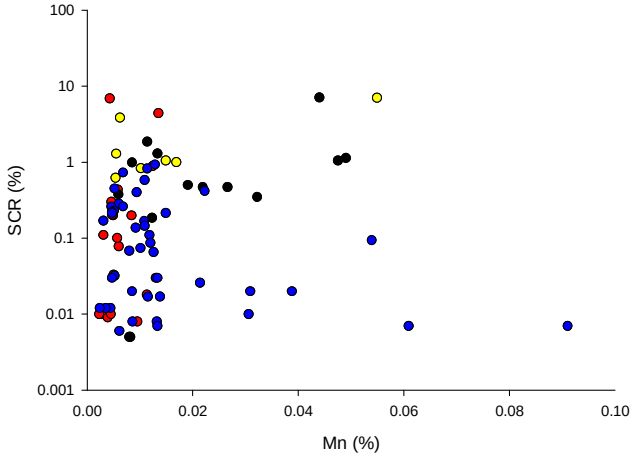

ANC (%)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
Fe (%)

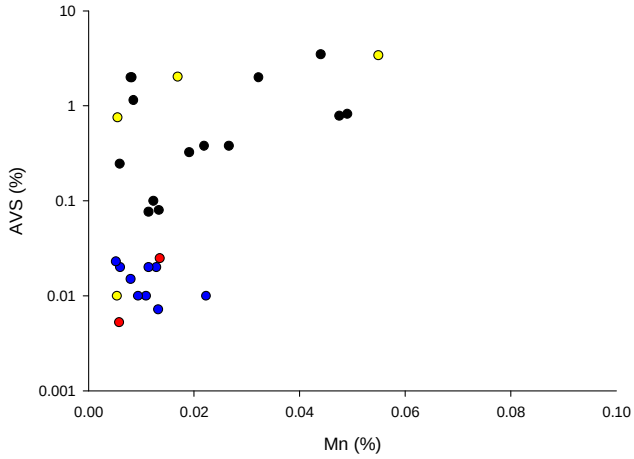

Mg (%)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
2
4
6
8
10
12
Fe (%)

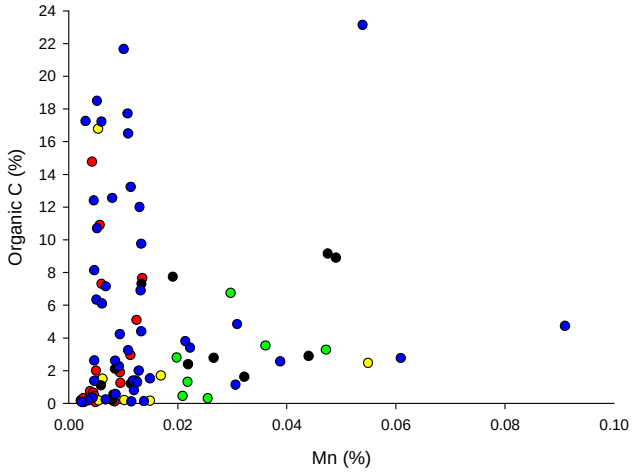

P (%)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
2
4
6
8
10
12
Fe (%)

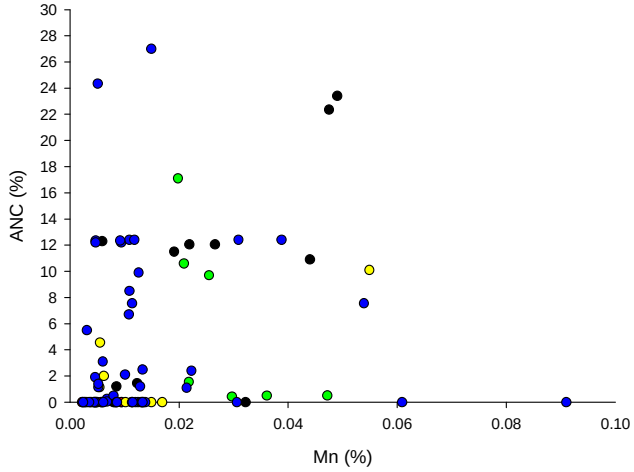
Mn

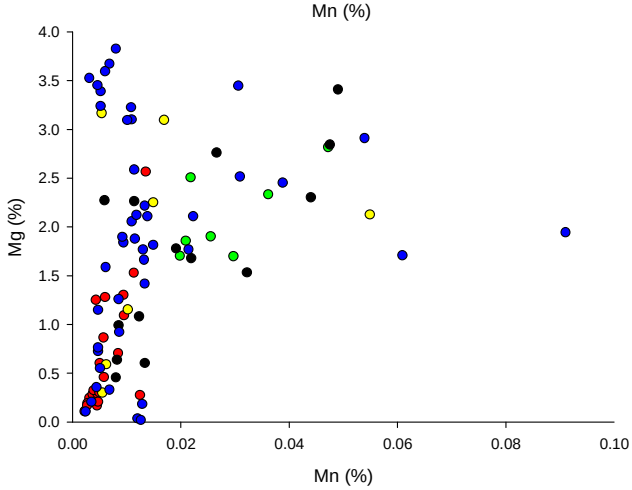

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

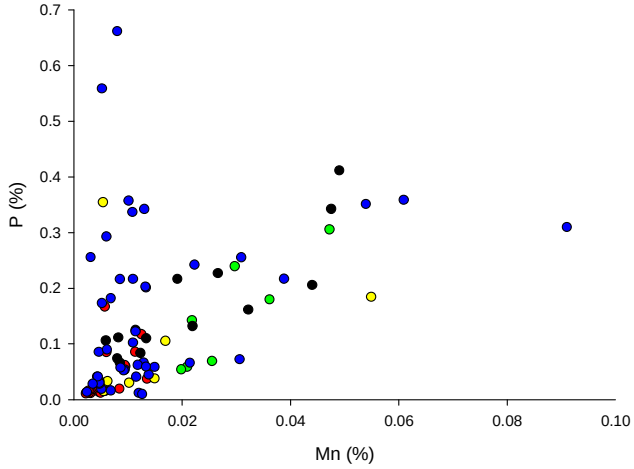

SCR (%)
100
10
1
0.1
0.01
0.001
0.00
0.02
0.04
0.06
0.08
0.10
Mn (%)





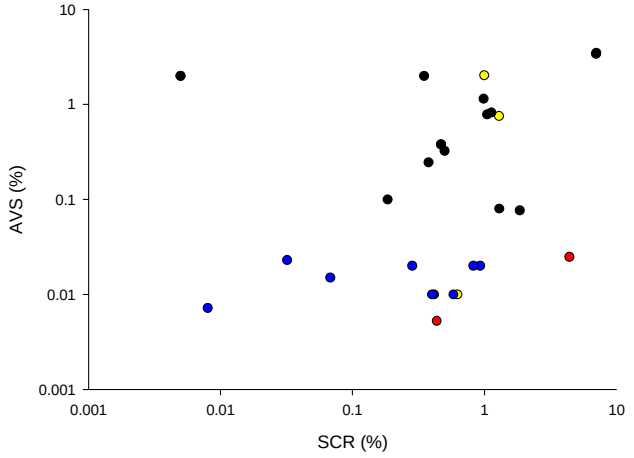


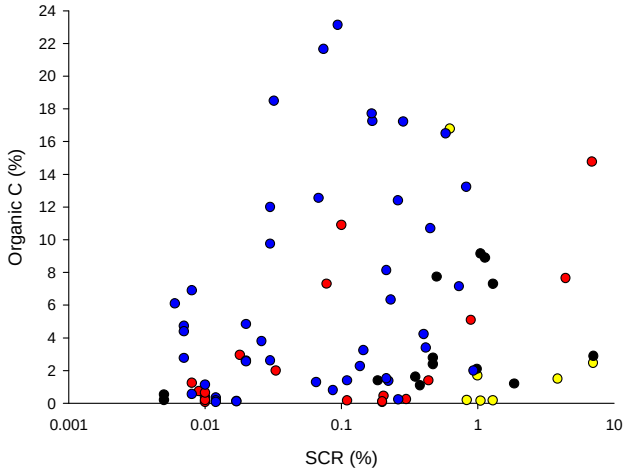


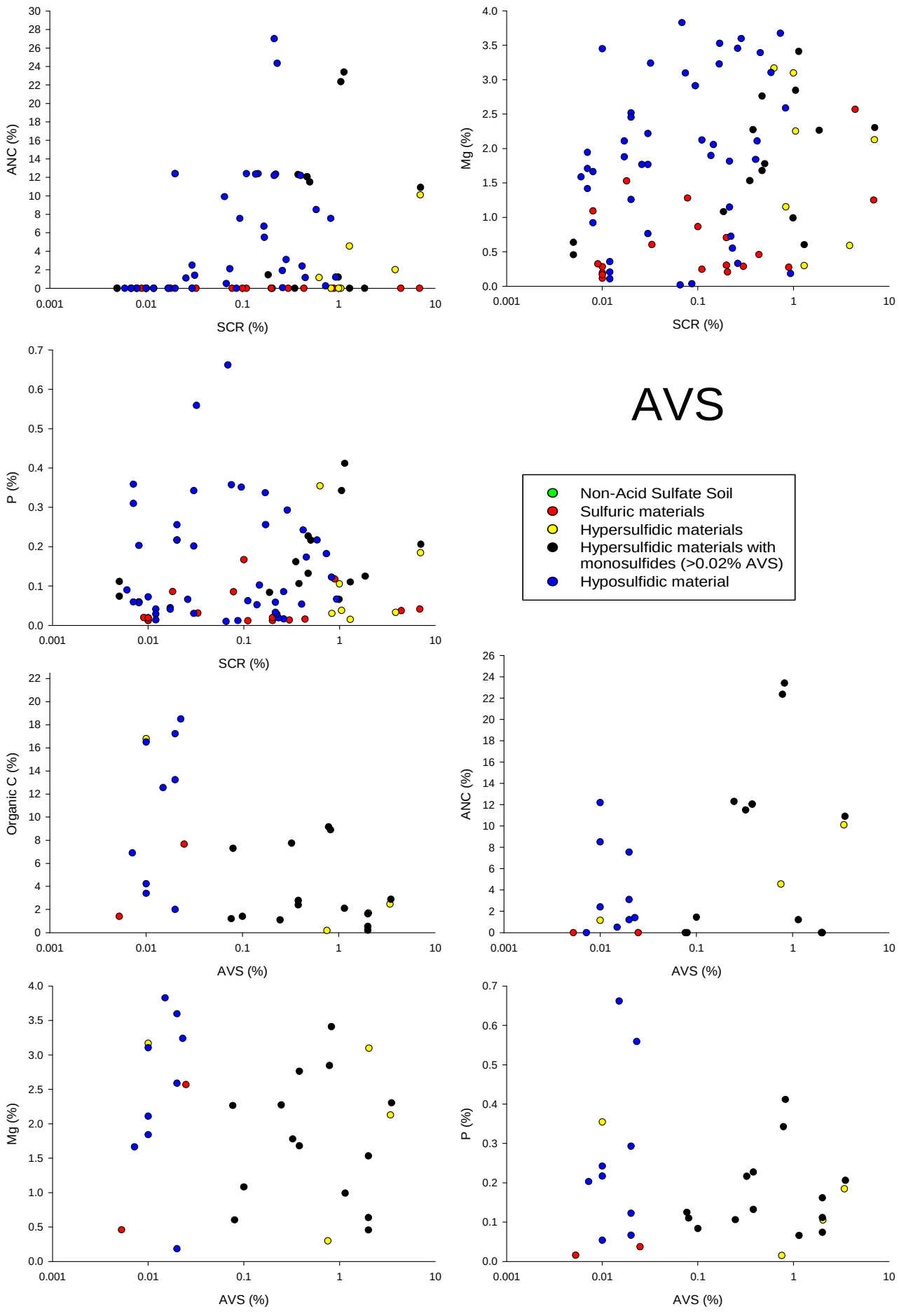


%SCR

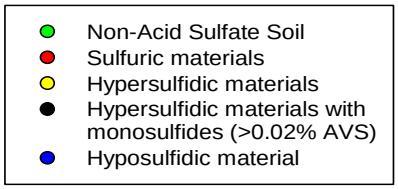
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

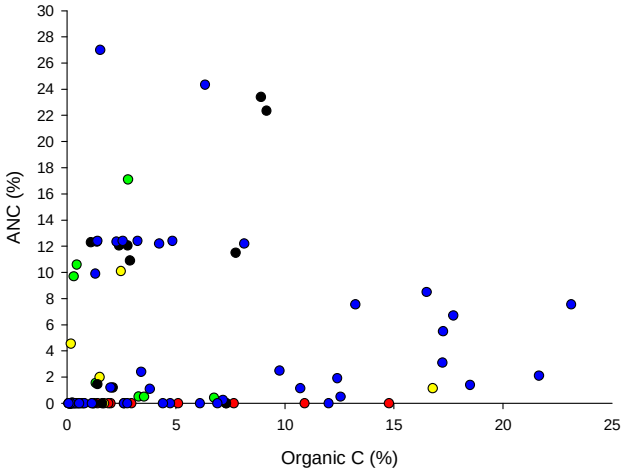


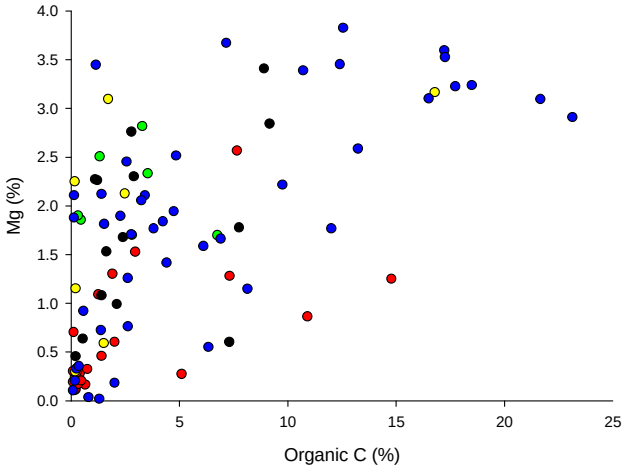


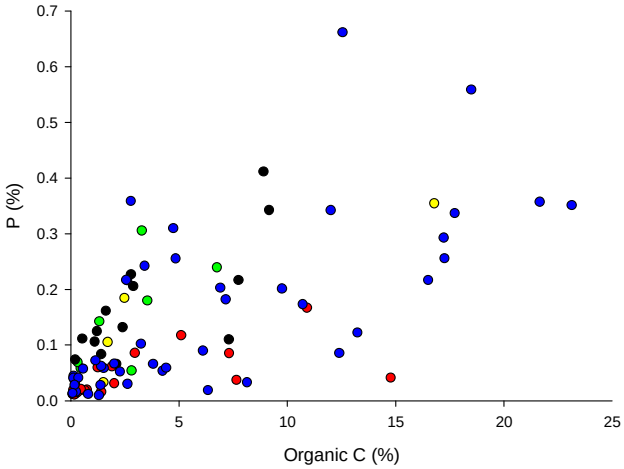

ANC (%)
SCR (%)
Mg (%)
SCR (%)
AVS
P (%)
SCR (%)
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material
Organic C (%)
AVS (%)
ANC (%)
AVS (%)
Mg (%)
AVS (%)
P (%)
AVS (%)

Organic C

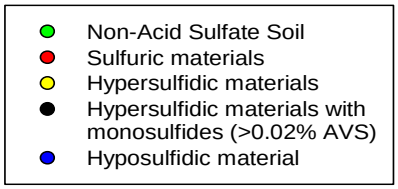


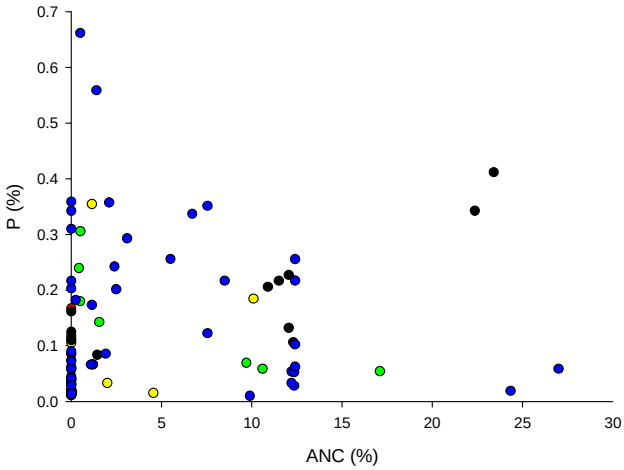


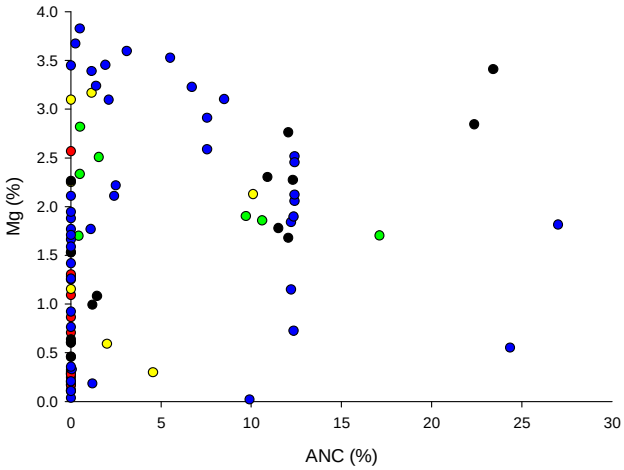




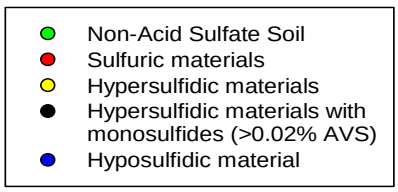
ANC

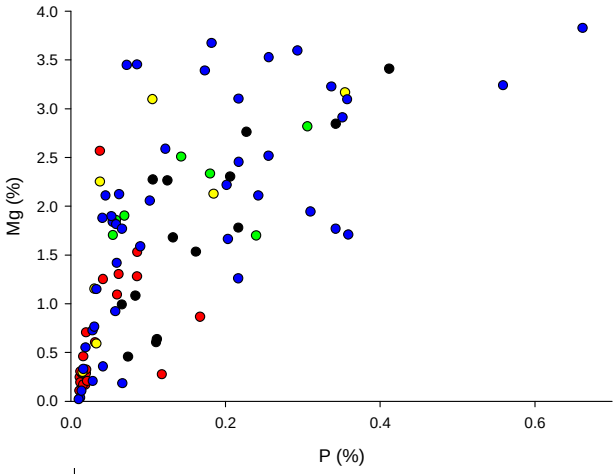




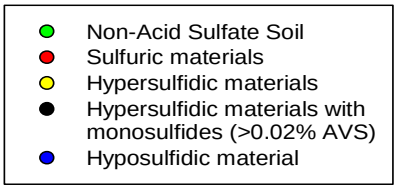


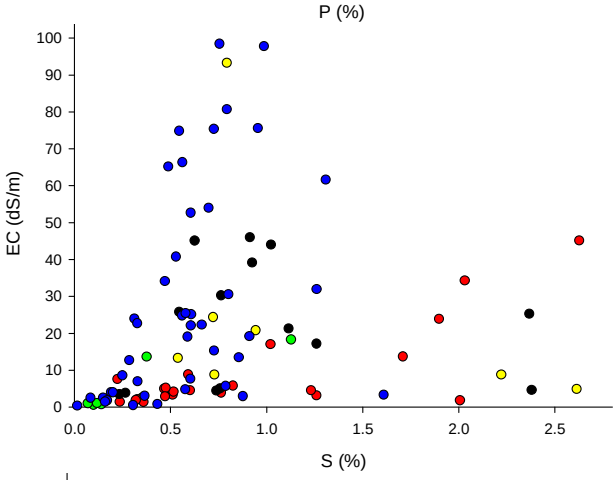
P

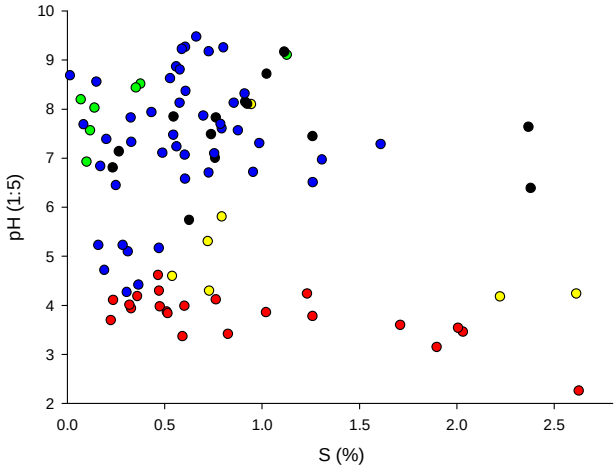

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

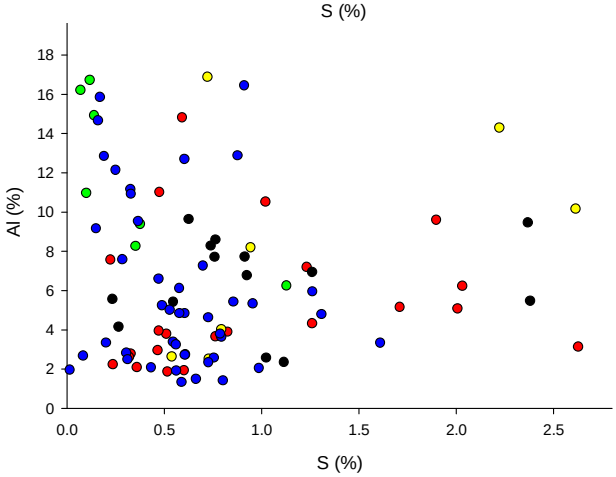

Mg (%)
P (%)

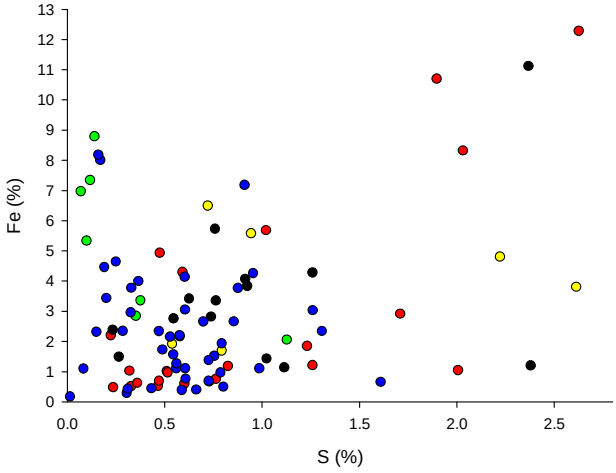
S

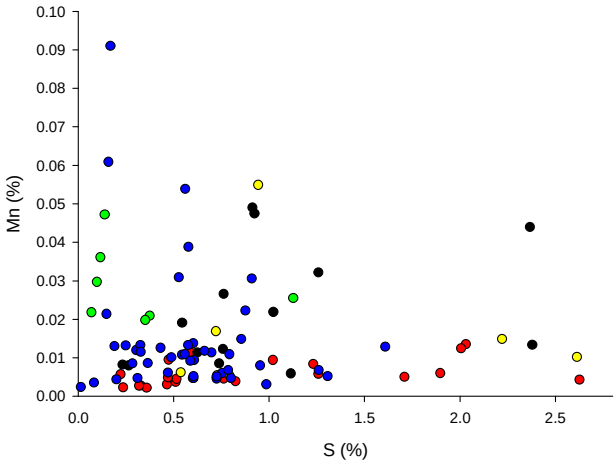

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

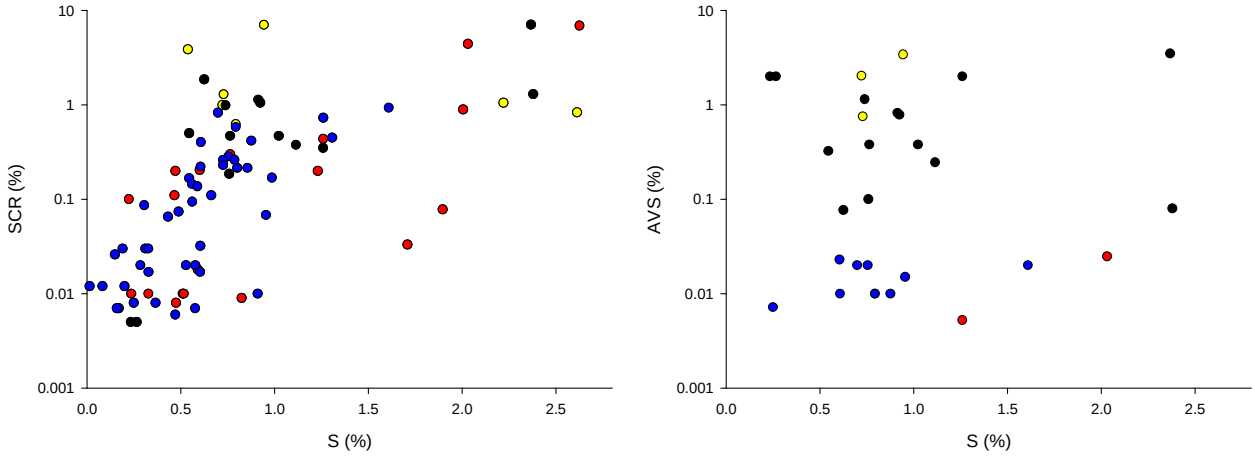

EC (dS/m)
S (%)


pH (1:5)
S (%)

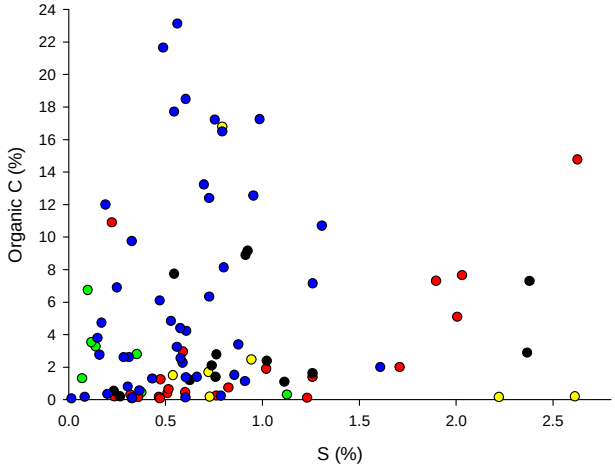

Al (%)
S (%)

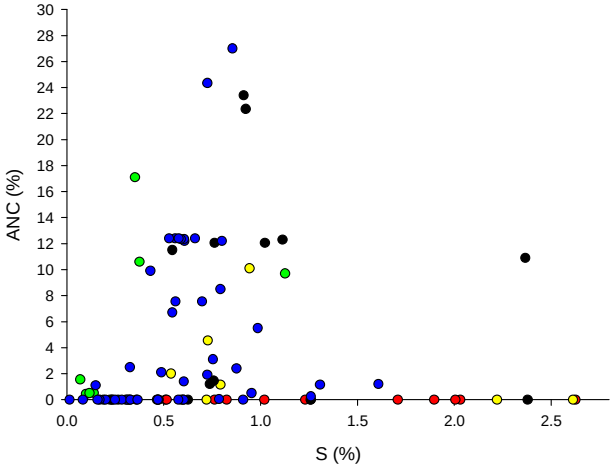

Fe (%)
S (%)

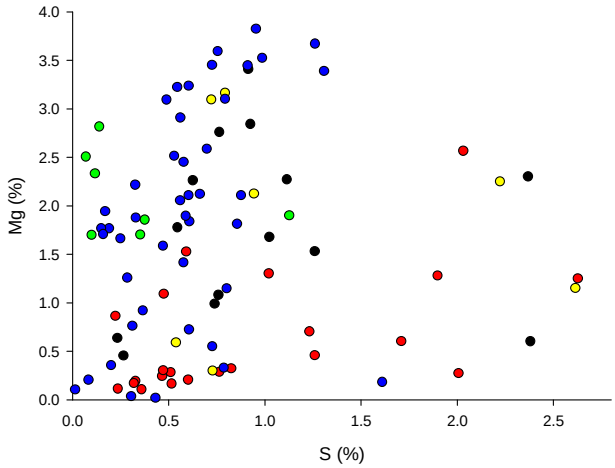

Mn (%)
S (%)

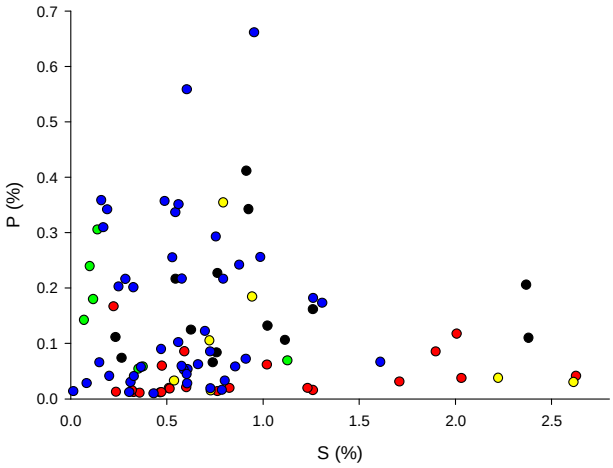

SCR (%)
10
1
0.1
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
S (%)

AVS (%)
10
1
0.1
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
S (%)


Organic C (%)
24
22
20
18
16
14
12
10
8
6
4
2
0
0.0
0.5
1.0
1.5
2.0
2.5
S (%)


ANC (%)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0.0
0.5
1.0
1.5
2.0
2.5
S (%)


Mg (%)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
S (%)


P (%)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
0.5
1.0
1.5
2.0
2.5
S (%)

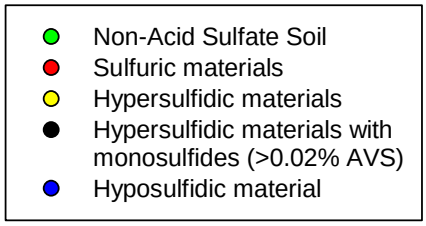
Appendix E

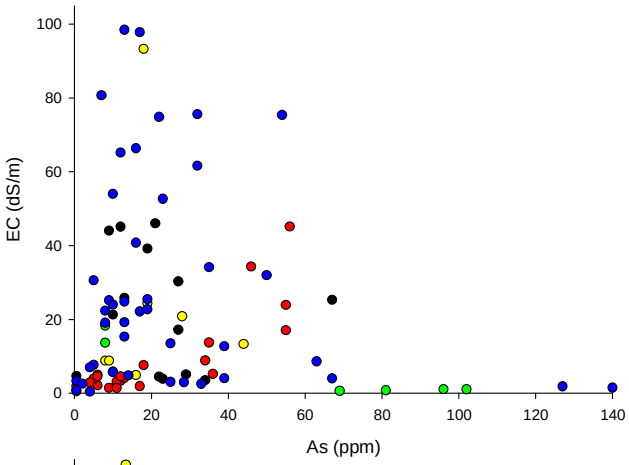
Major variables vs Trace elements plots:

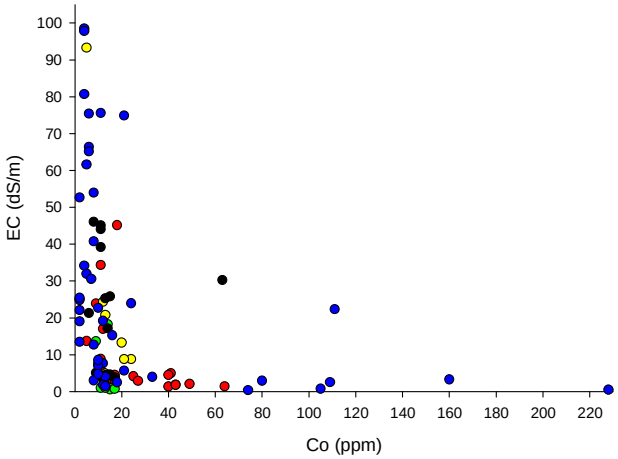
	EC	pH	Al	Fe	Mn	SCR	AVS	Org.C	ANC	Mg	P
As											
Co											
Cr											
Cu											
Mo											
Ni											
Pb											
V											
Zn											

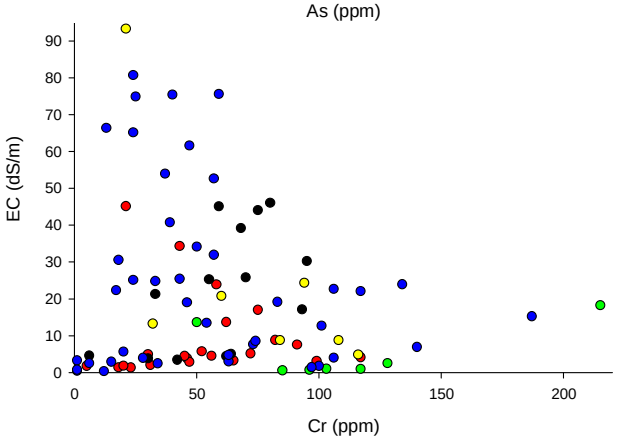
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

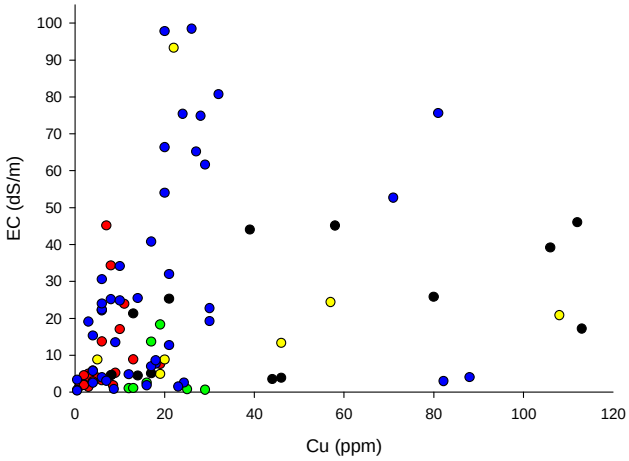
EC

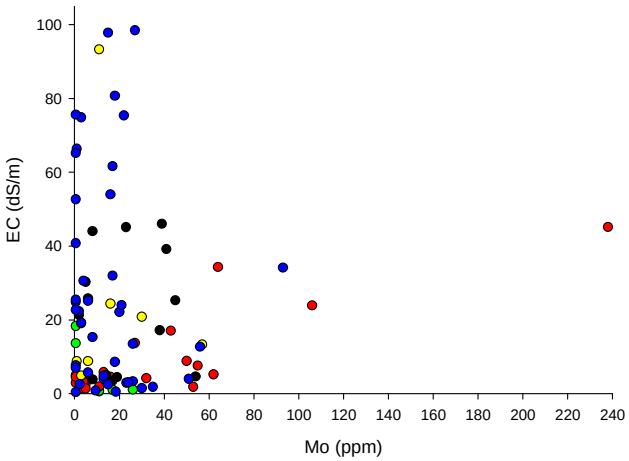

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

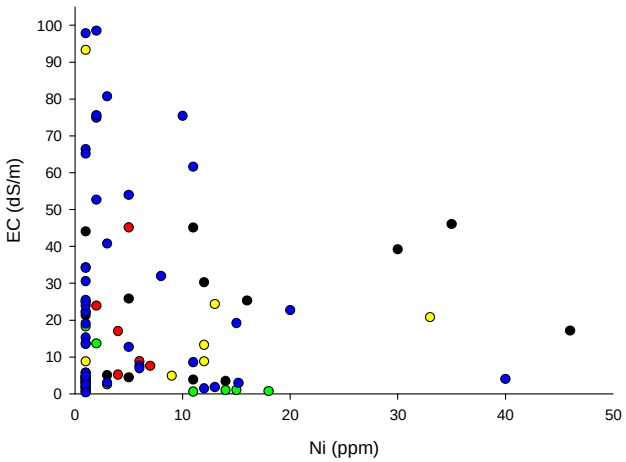

EC (dS/m)
As (ppm)

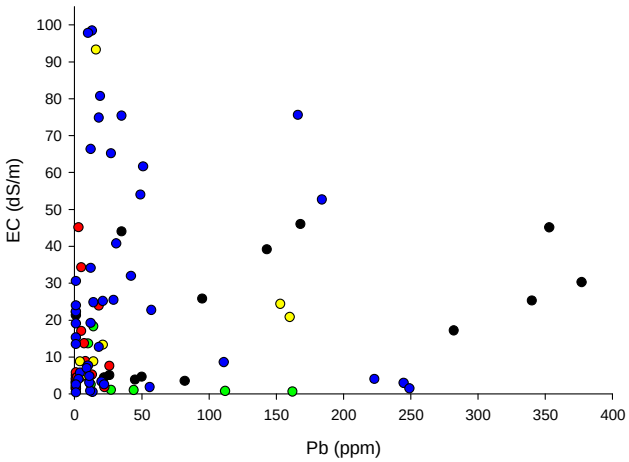

EC (dS/m)
Co (ppm)

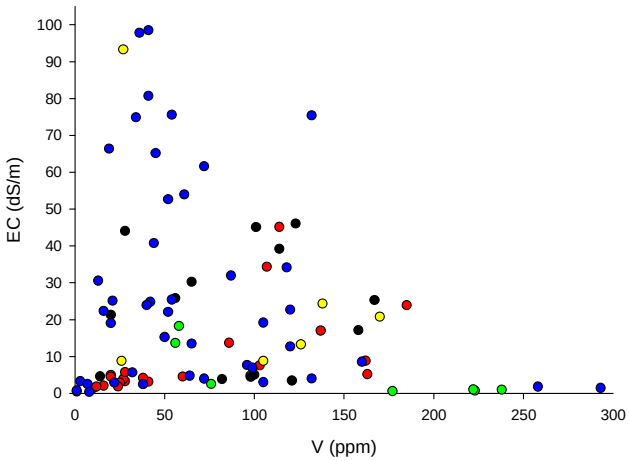

EC (dS/m)
Cr (ppm)

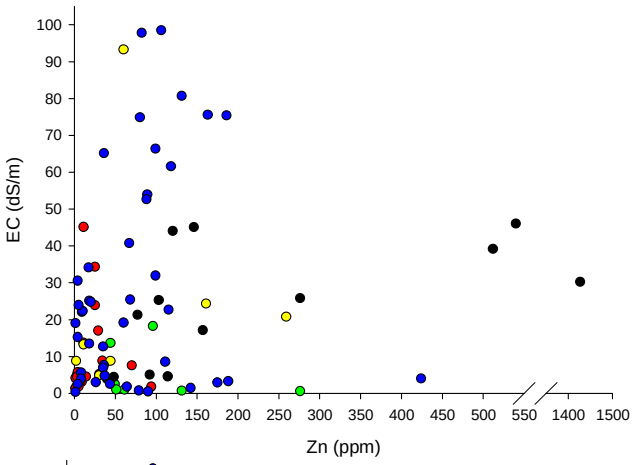

EC (dS/m)
Cu (ppm)


EC (dS/m)
Mo (ppm)


EC (dS/m)
Ni (ppm)

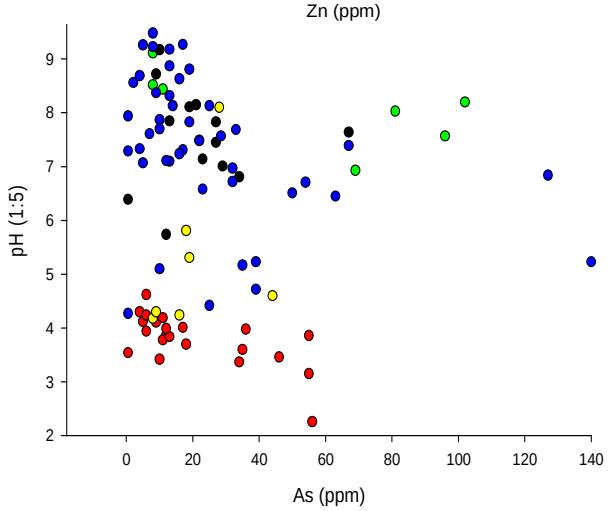

EC (dS/m)
Pb (ppm)

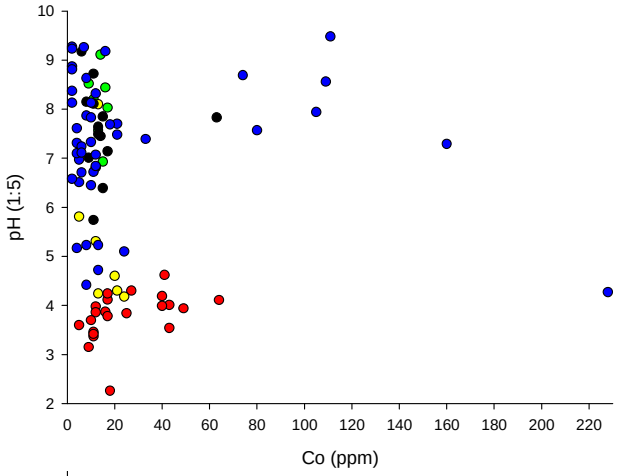


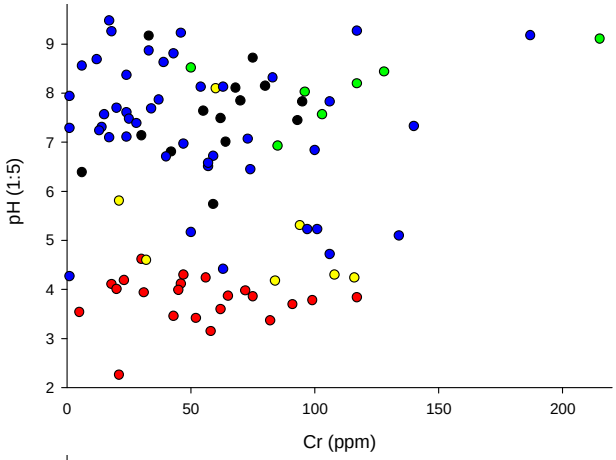


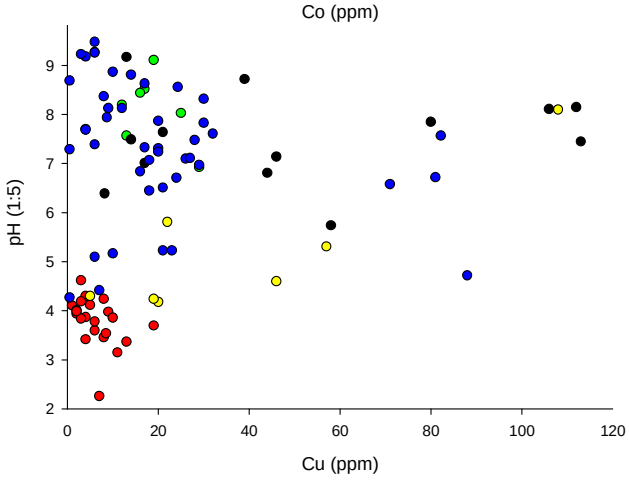
pH

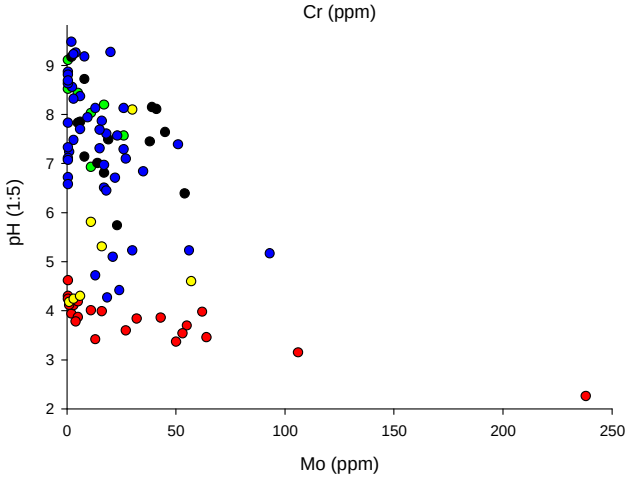
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

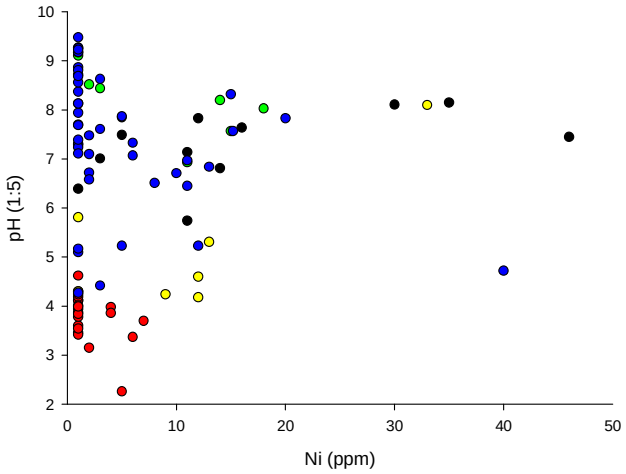


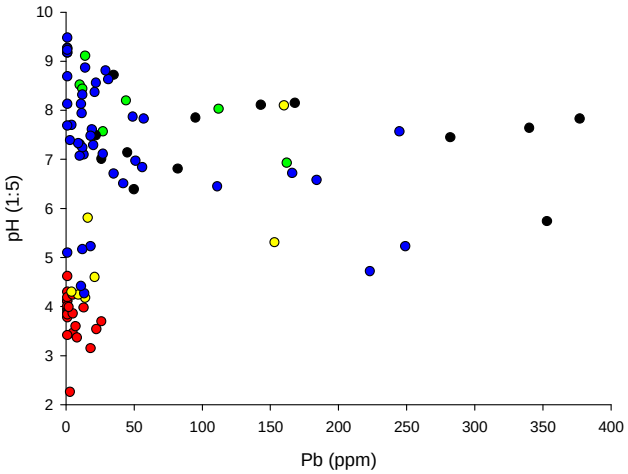


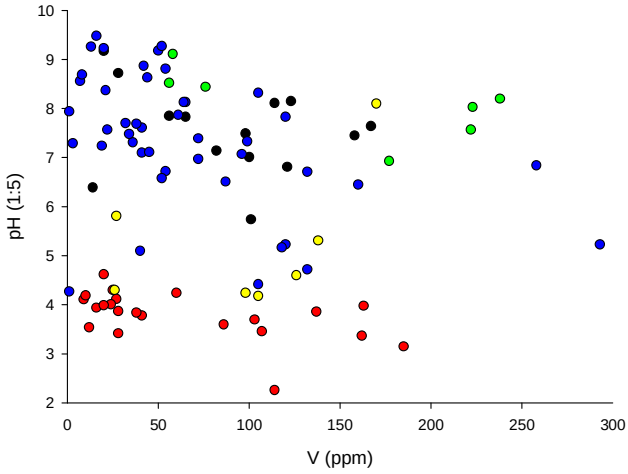


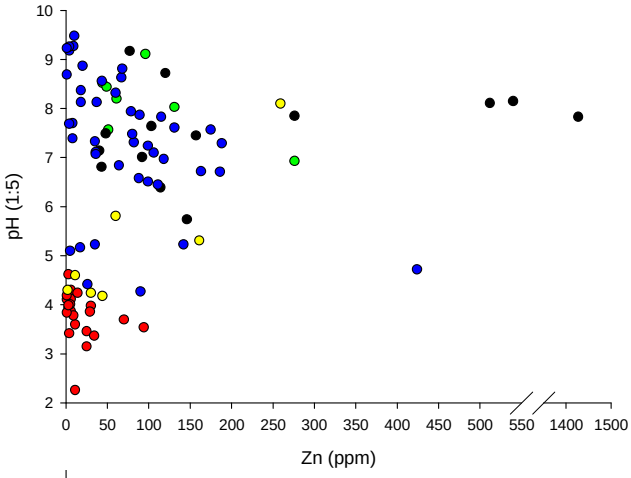






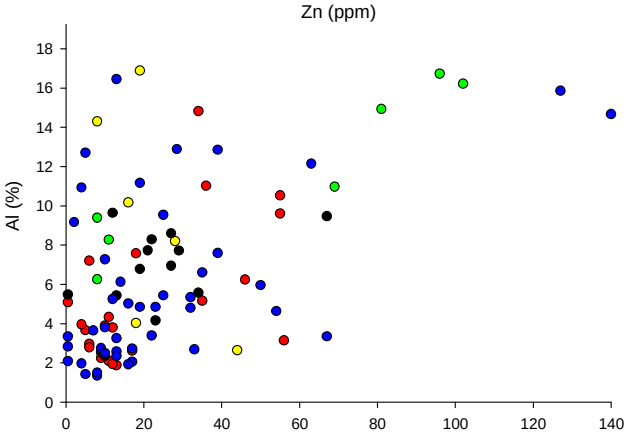


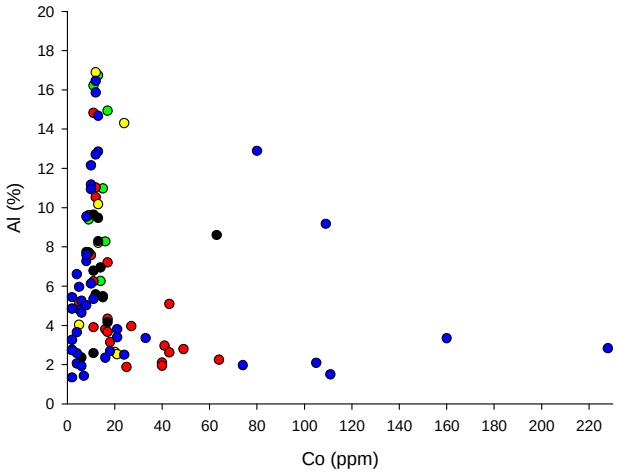


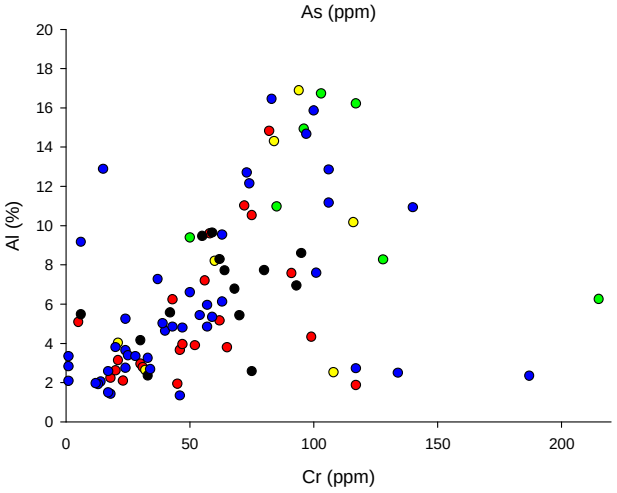


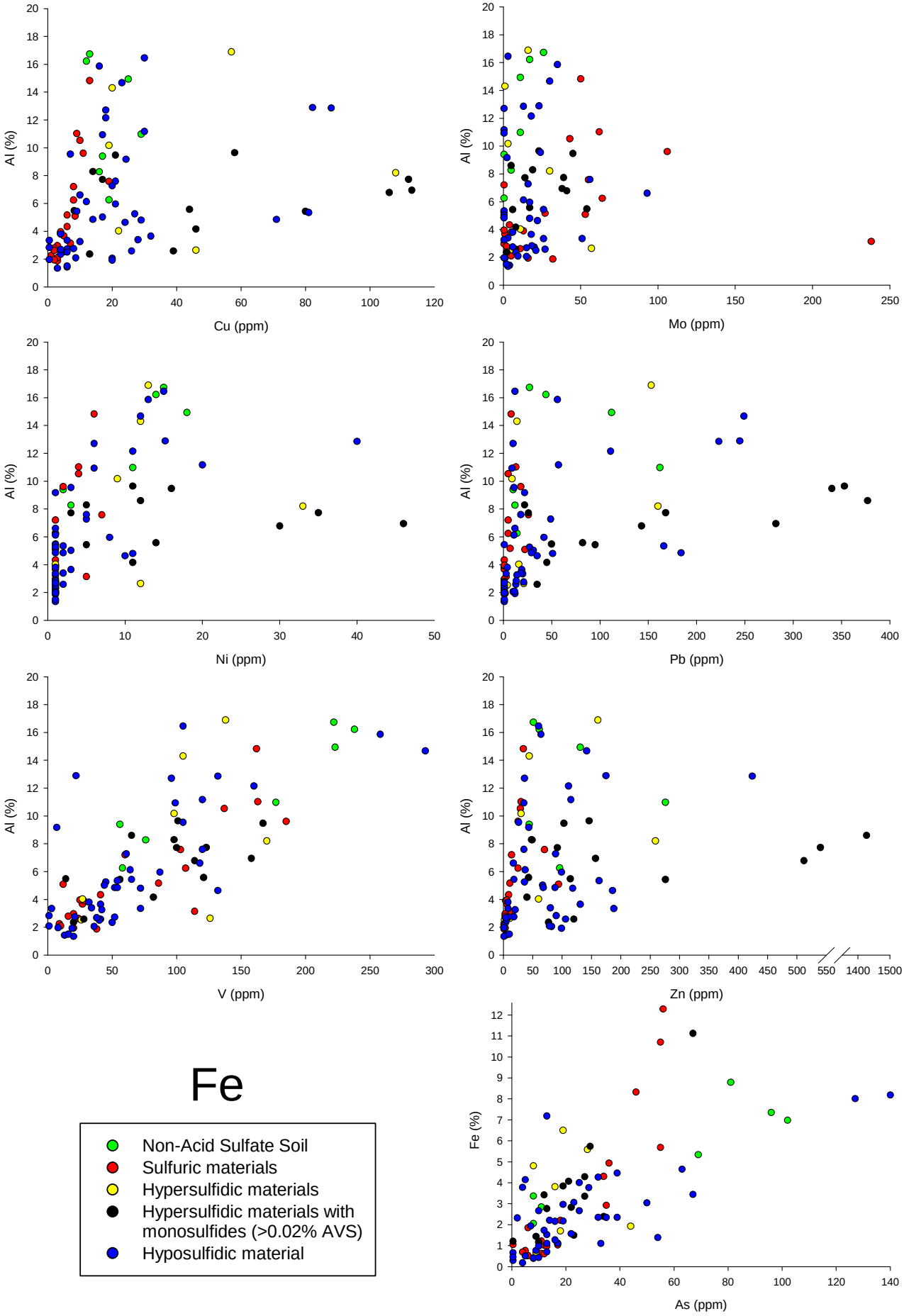
Al

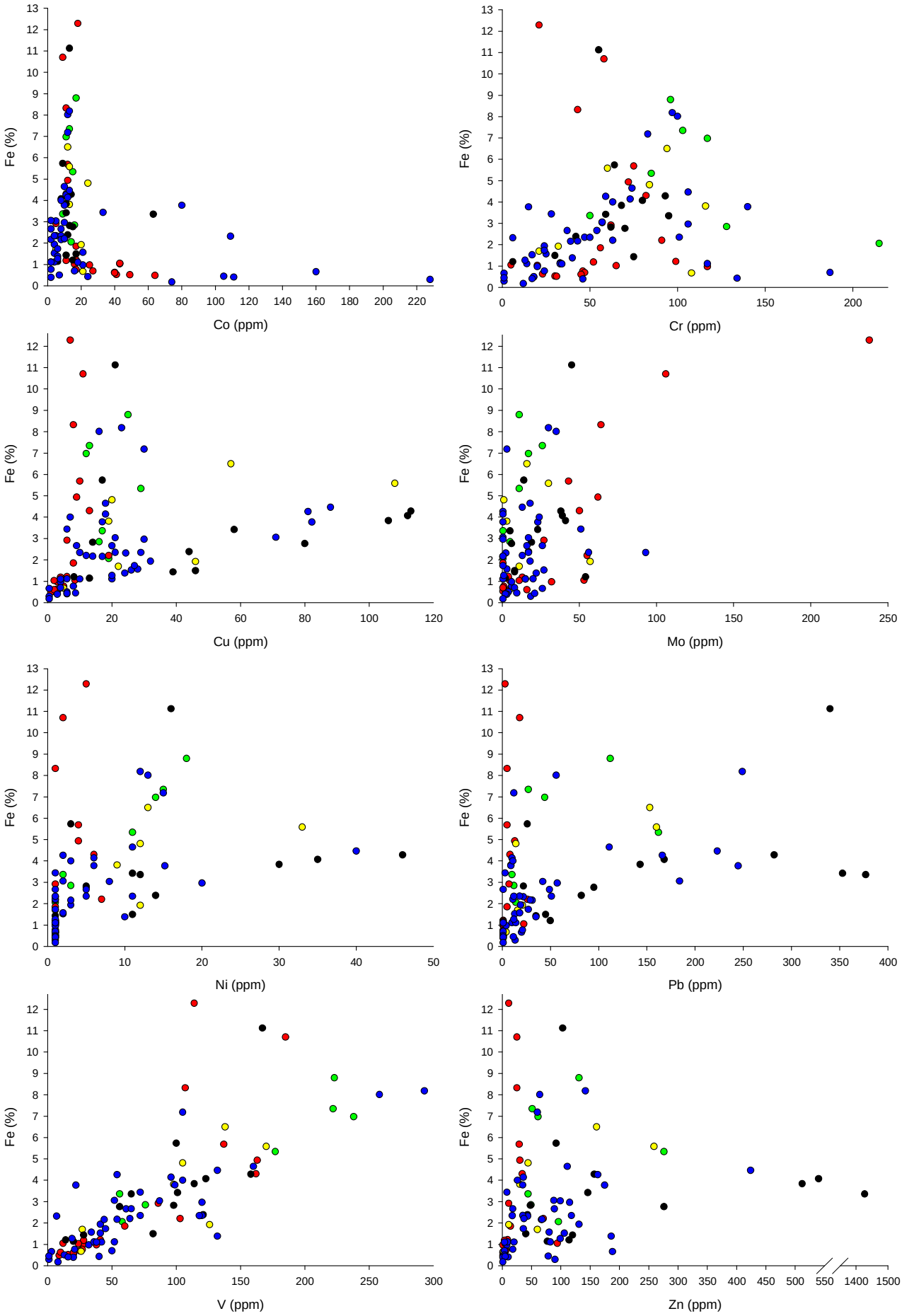
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material



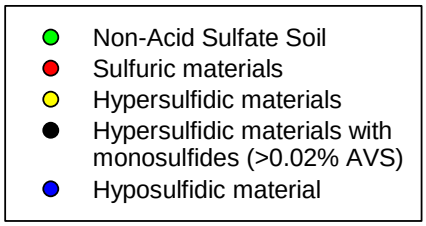


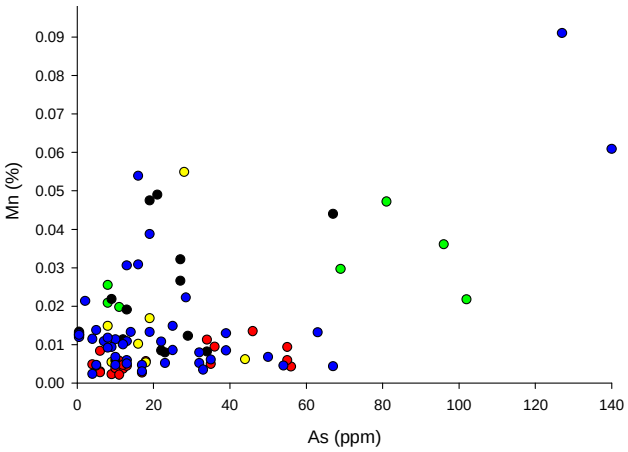


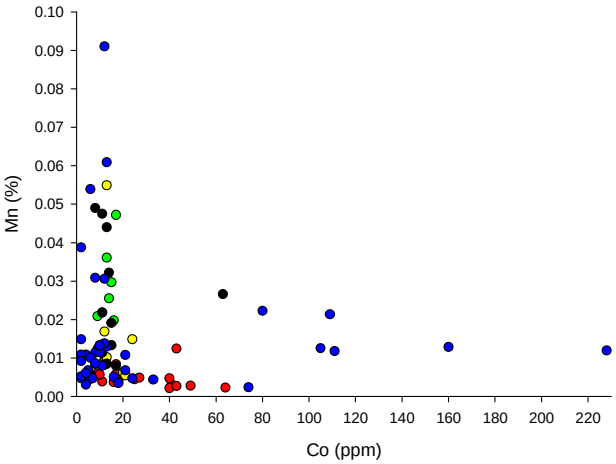

Al (%)
Cu (ppm)
Mo (ppm)
Ni (ppm)
Pb (ppm)
V (ppm)
Zn (ppm)
Fe (%)
As (ppm)
Fe
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

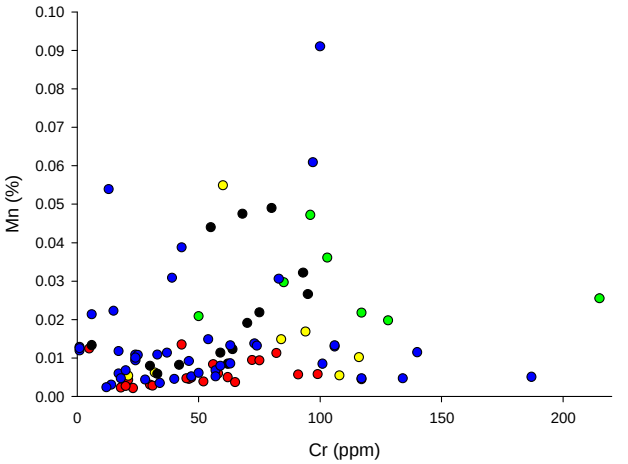

Fe (%)
Co (ppm)
Cr (ppm)
Cu (ppm)
Mo (ppm)
Ni (ppm)
Pb (ppm)
V (ppm)
Zn (ppm)

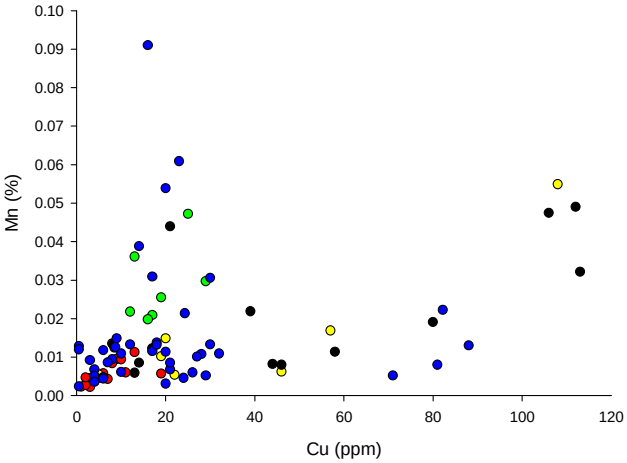
Mn

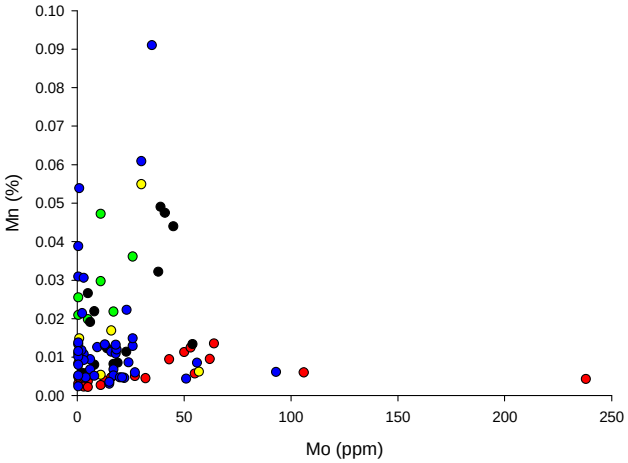

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

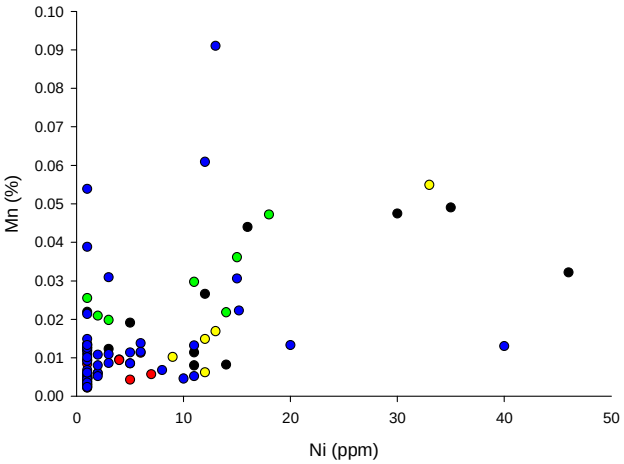

Mn (%)
As (ppm)

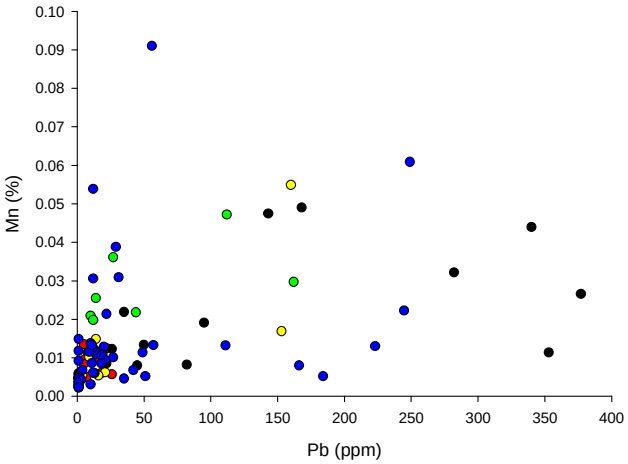

Mn (%)
Co (ppm)

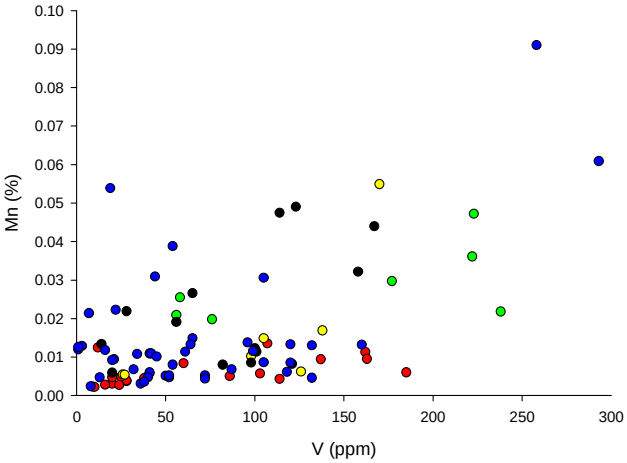

Mn (%)
Cr (ppm)

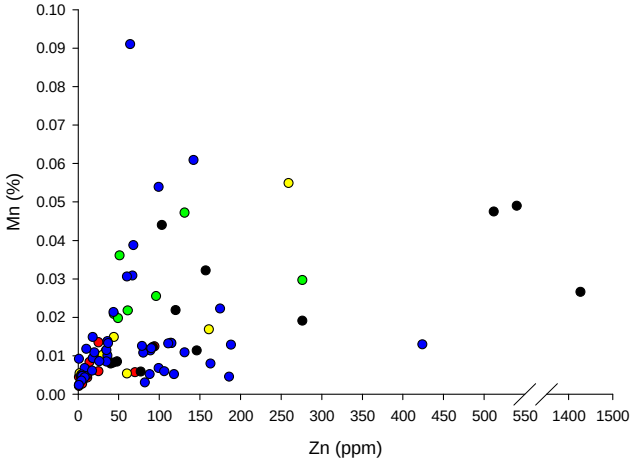

Mn (%)
Cu (ppm)


Mn (%)
Mo (ppm)


Mn (%)
Ni (ppm)

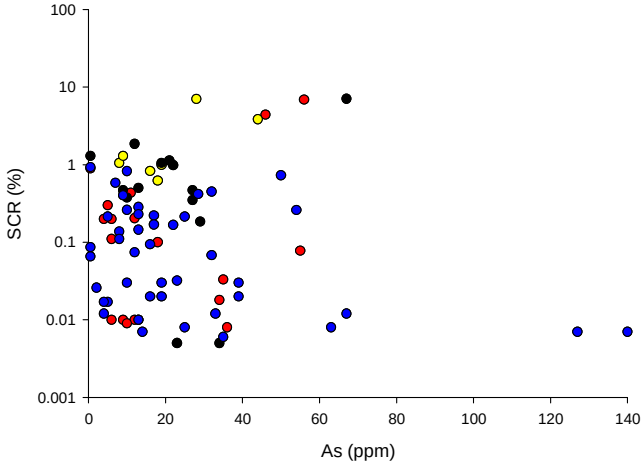

Mn (%)
Pb (ppm)

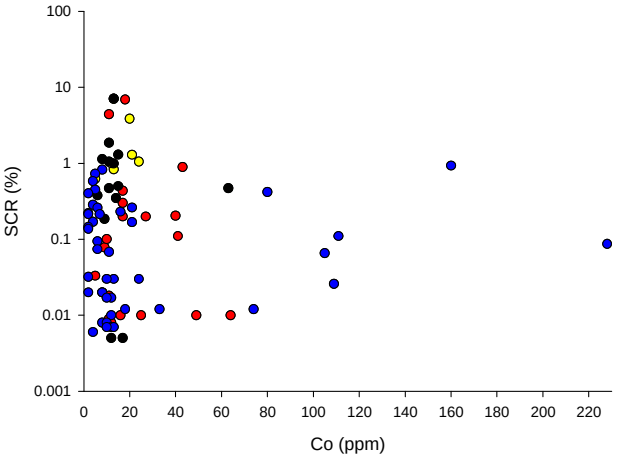


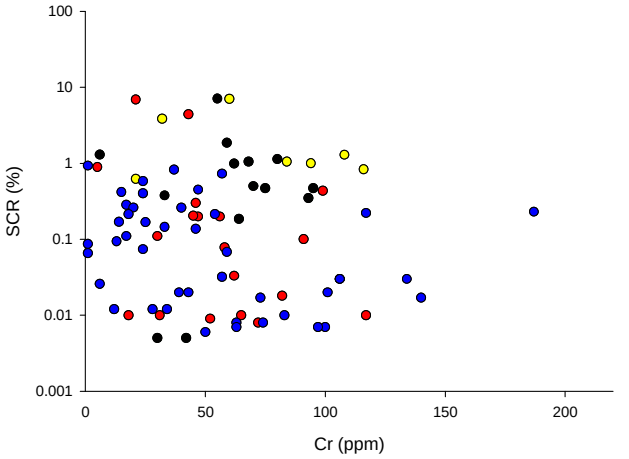


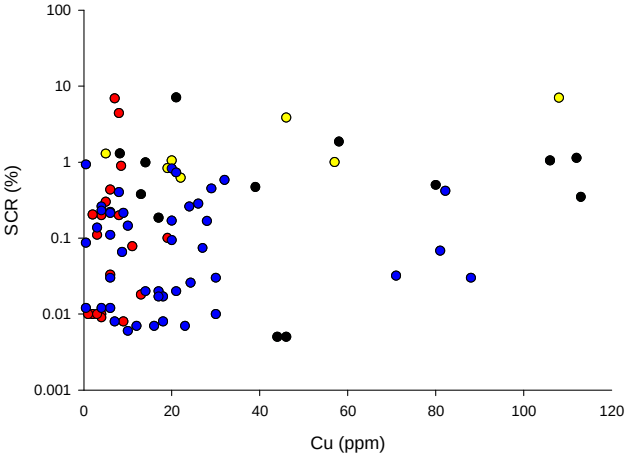
%SCR

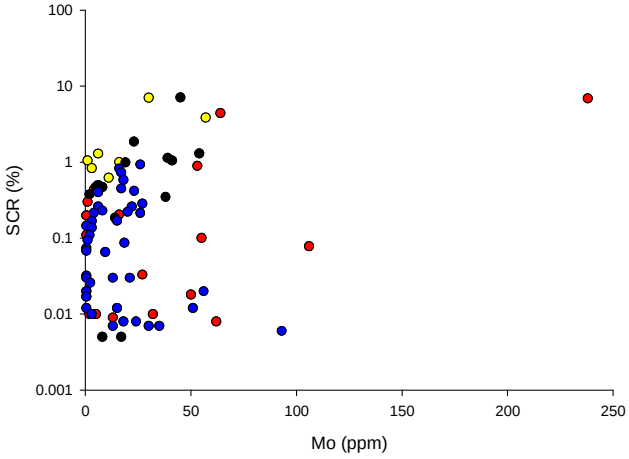
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

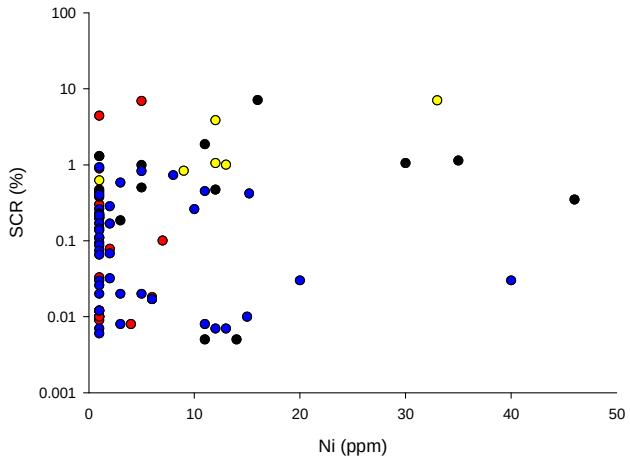


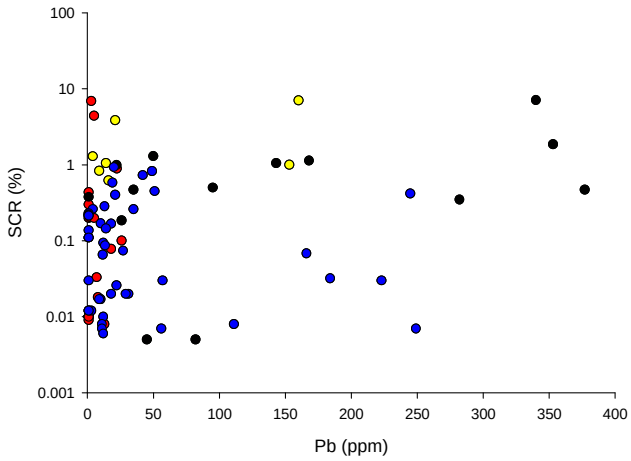


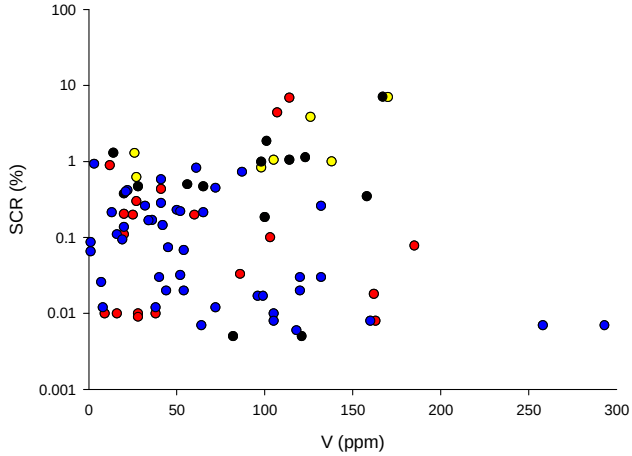


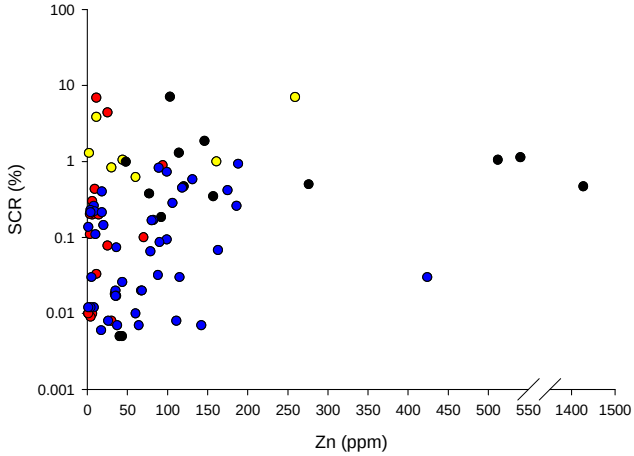




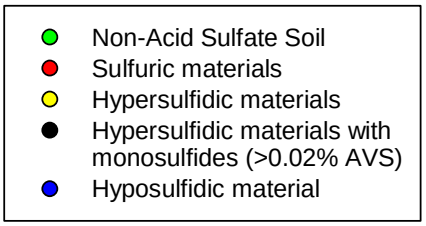

SCR (%)
100
10
1
0.1
0.01
0.001
0
10
20
30
40
50
Ni (ppm)

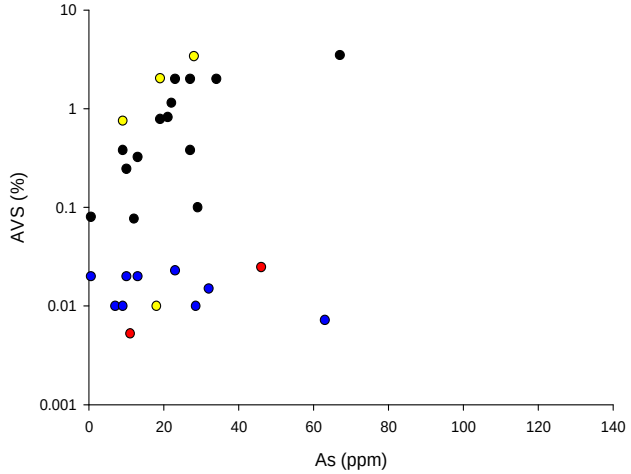

SCR (%)
100
10
1
0.1
0.01
0.001
0
50
100
150
200
250
300
350
400
Pb (ppm)

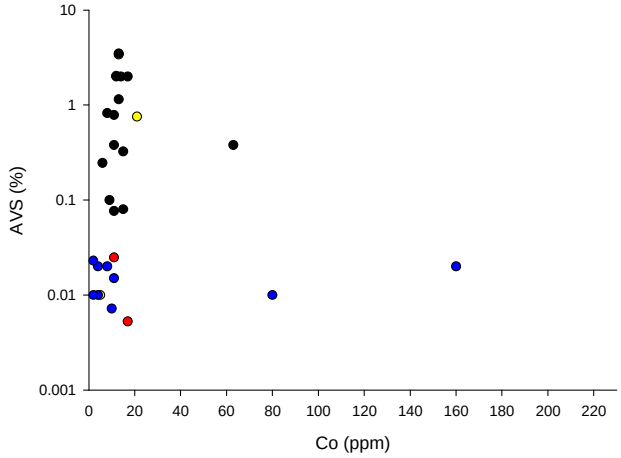

SCR (%)
100
10
1
0.1
0.01
0.001
0
50
100
150
200
250
300
V (ppm)

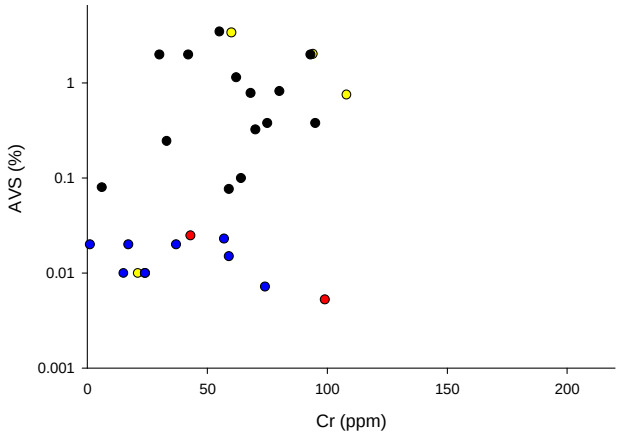

SCR (%)
100
10
1
0.1
0.01
0.001
0
50
100
150
200
250
300
350
400
450
500
550
1400
1500
Zn (ppm)

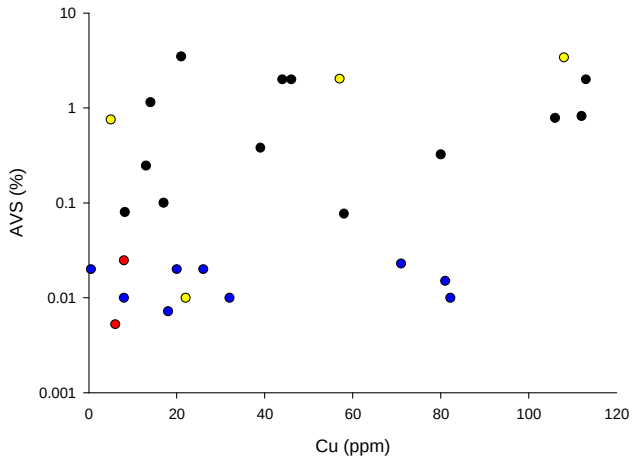
AVS

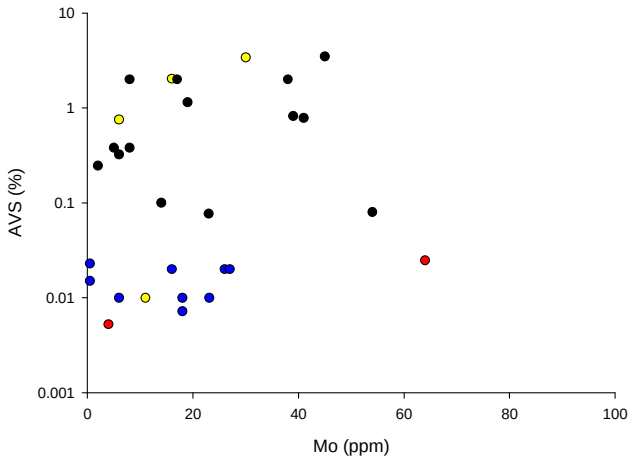

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

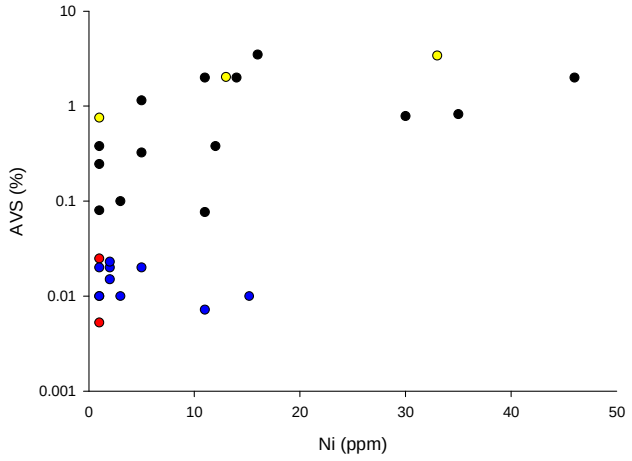

AVS (%)
10
1
0.1
0.01
0.001
0
20
40
60
80
100
120
140
As (ppm)

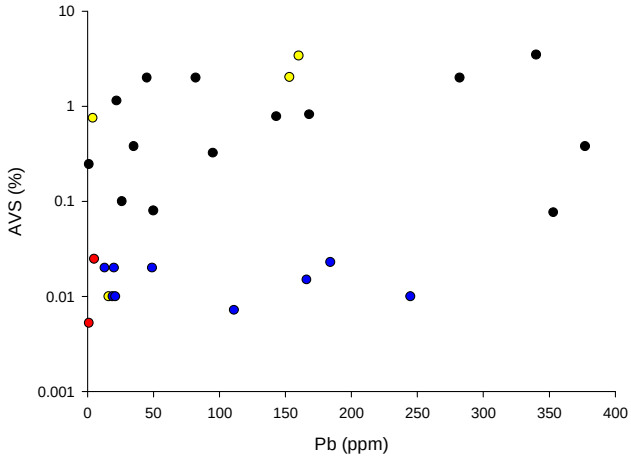

AVS (%)
10
1
0.1
0.01
0.001
0
20
40
60
80
100
120
140
160
180
200
220
Co (ppm)

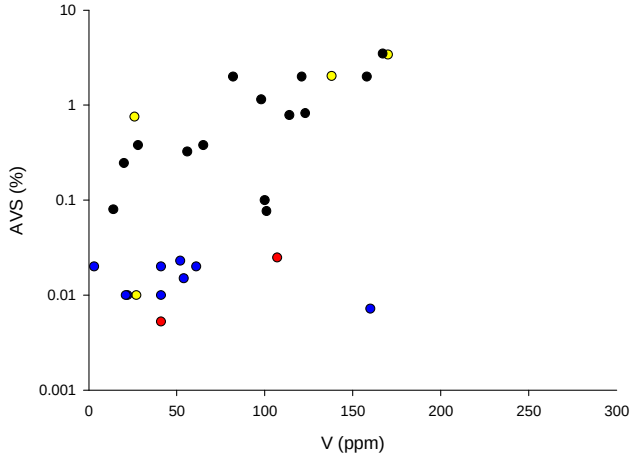

AVS (%)
1
0.1
0.01
0.001
0
50
100
150
200
Cr (ppm)

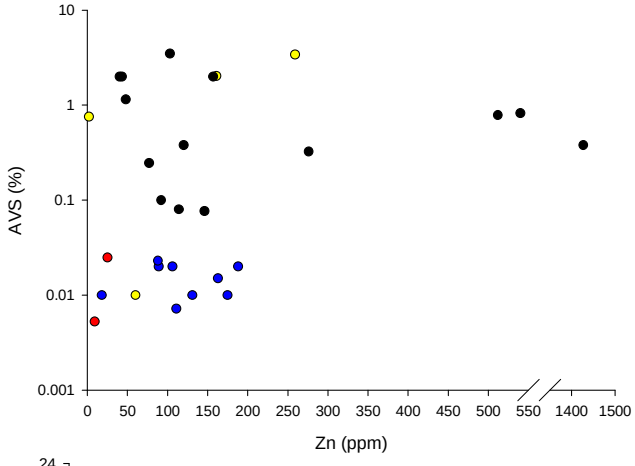






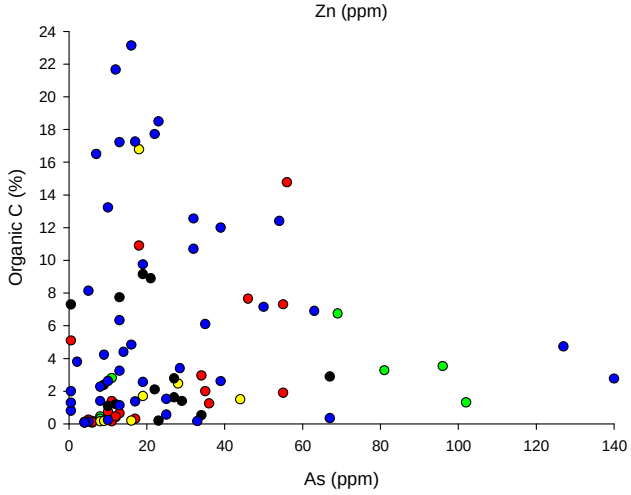


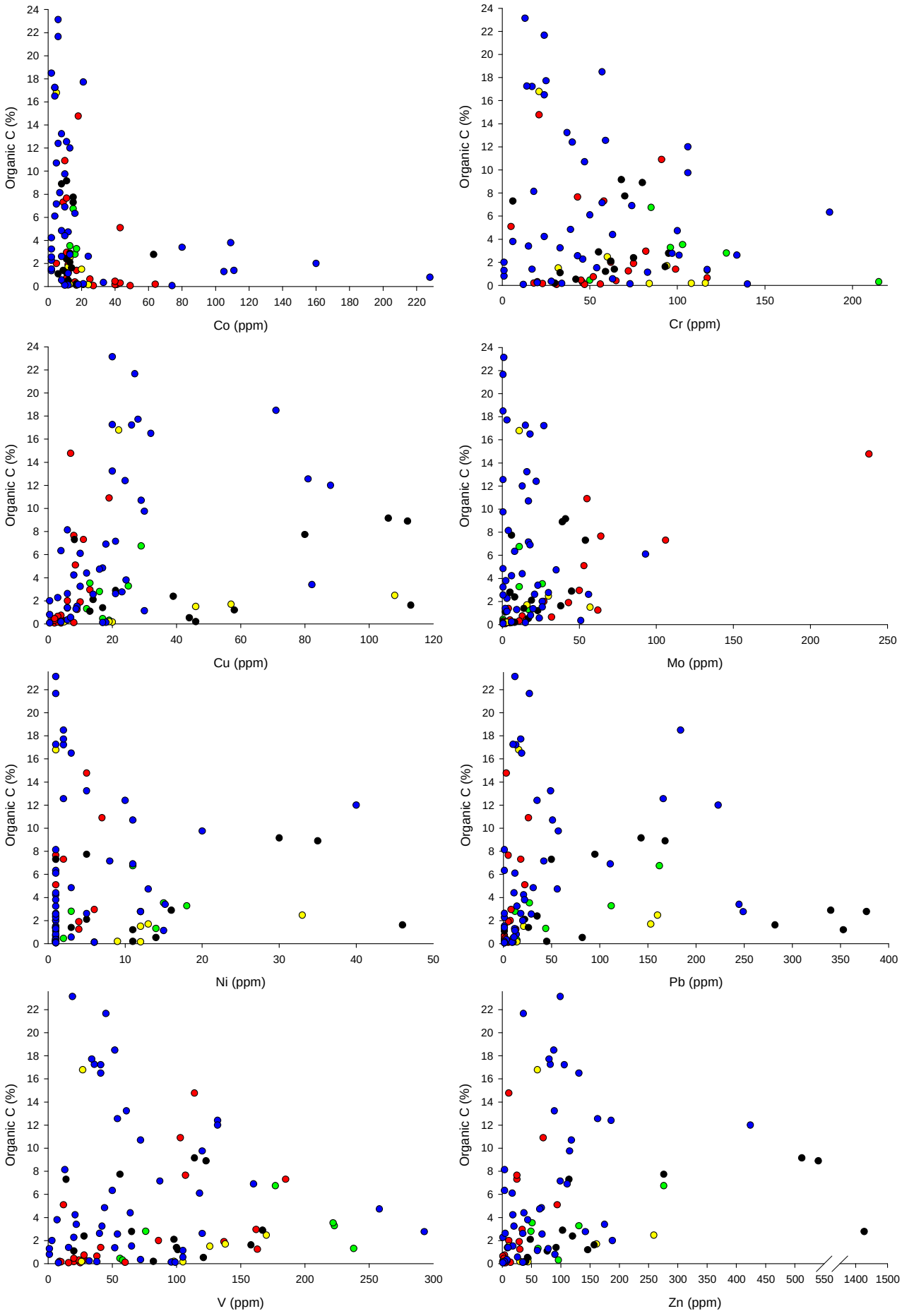




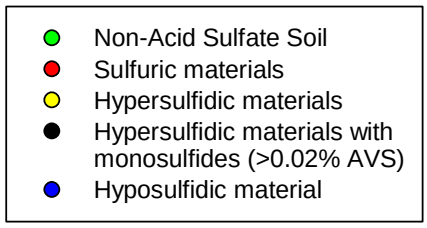
Organic C

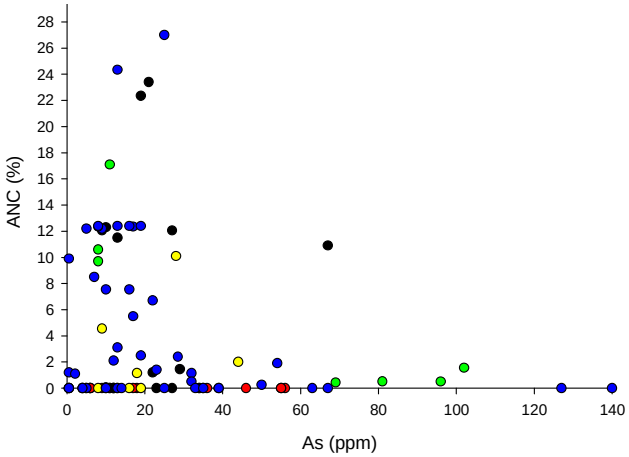
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

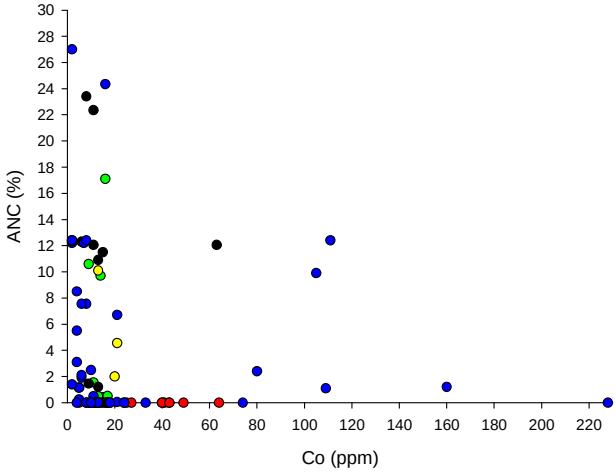


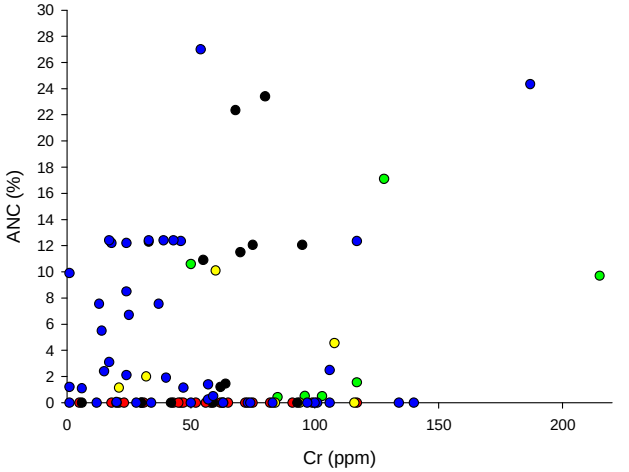

Organic C (%)
Co (ppm)
Cr (ppm)
Cu (ppm)
Mo (ppm)
Ni (ppm)
Pb (ppm)
V (ppm)
Zn (ppm)

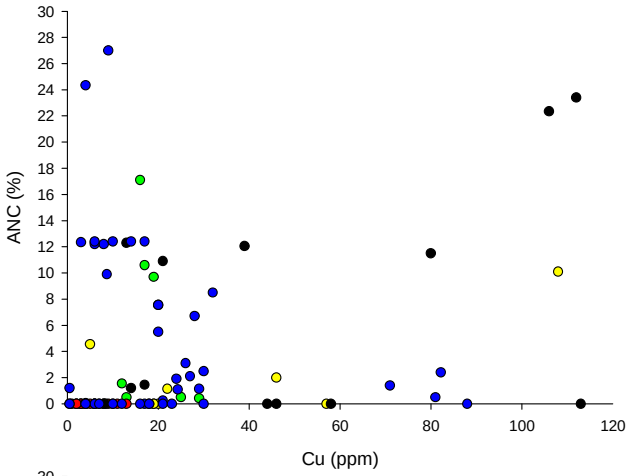
ANC

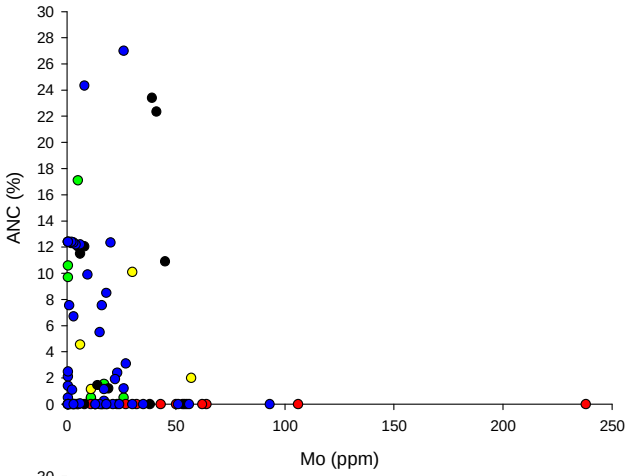

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

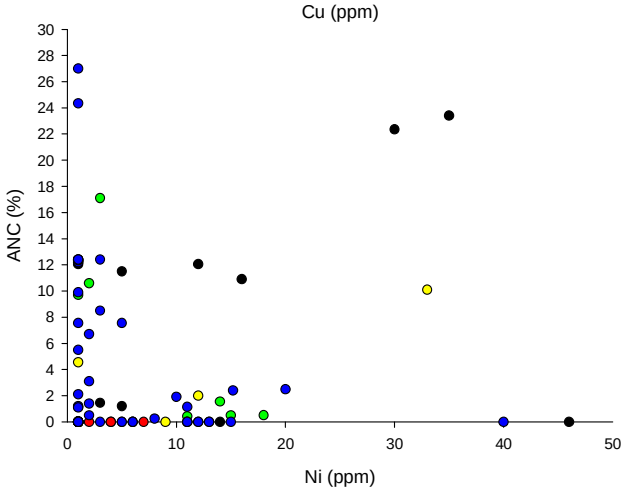

ANC (%)
As (ppm)

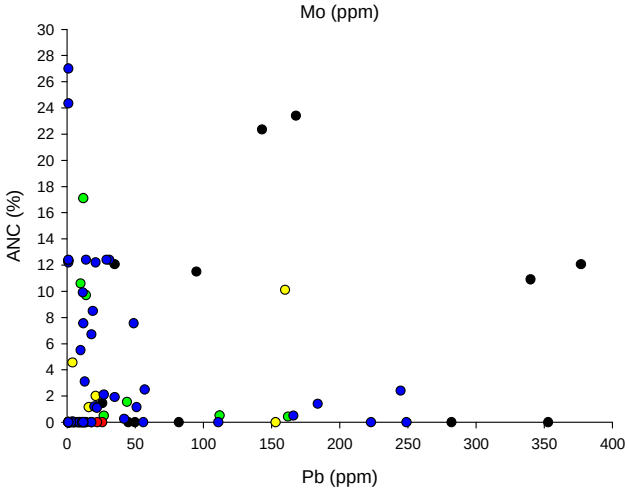

ANC (%)
Co (ppm)

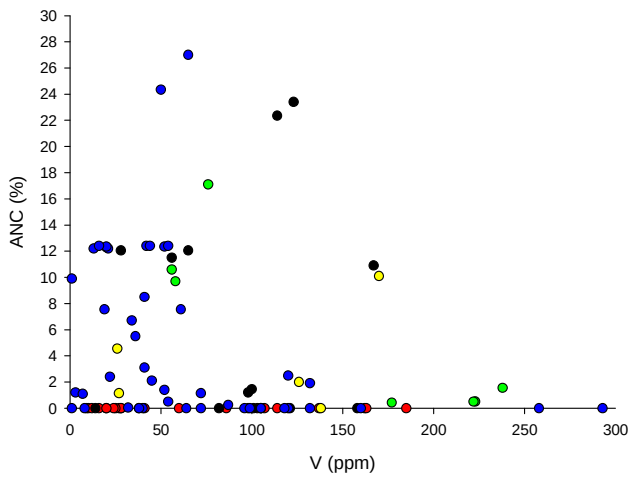

ANC (%)
Cr (ppm)

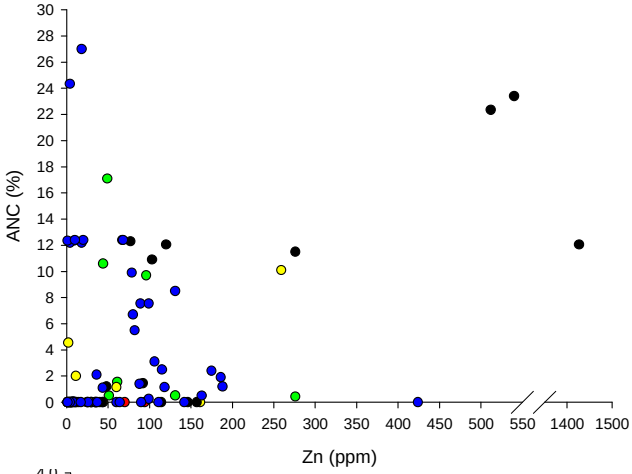

ANC (%)
Cu (ppm)


ANC (%)
Mo (ppm)


ANC (%)
Ni (ppm)

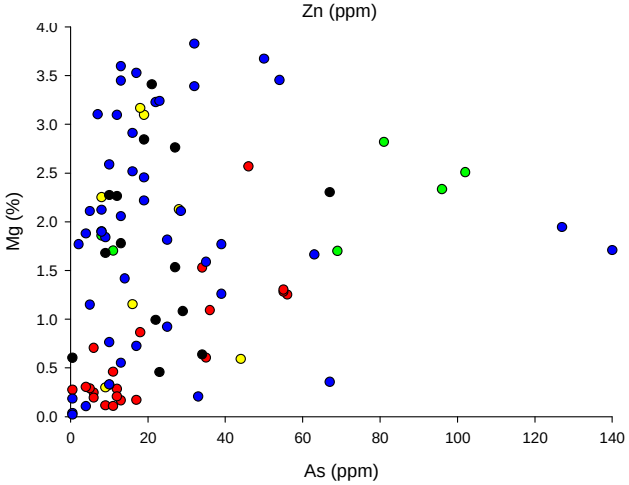

ANC (%)
Pb (ppm)

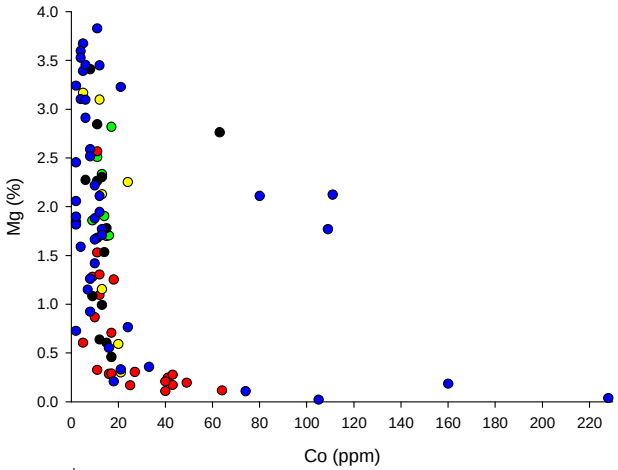


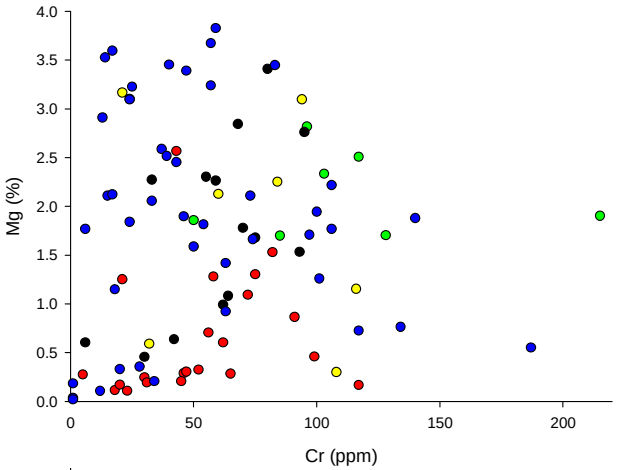


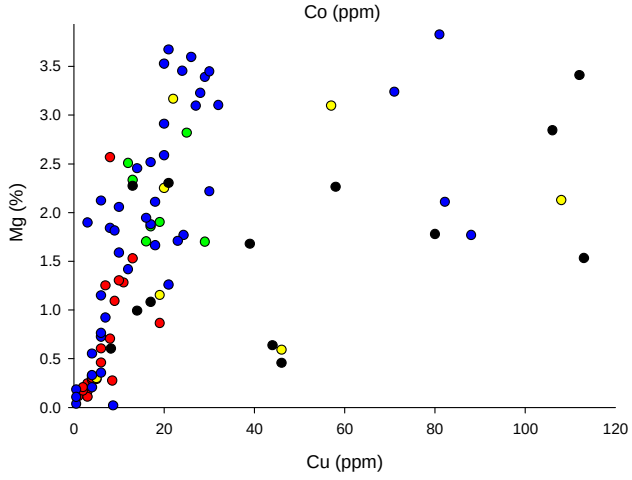
Mg

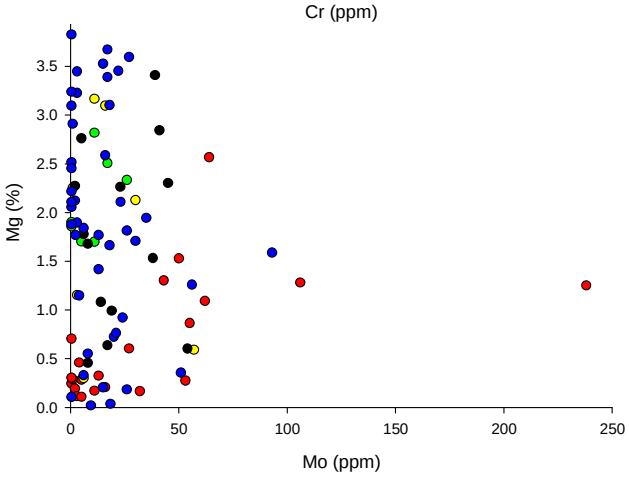
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

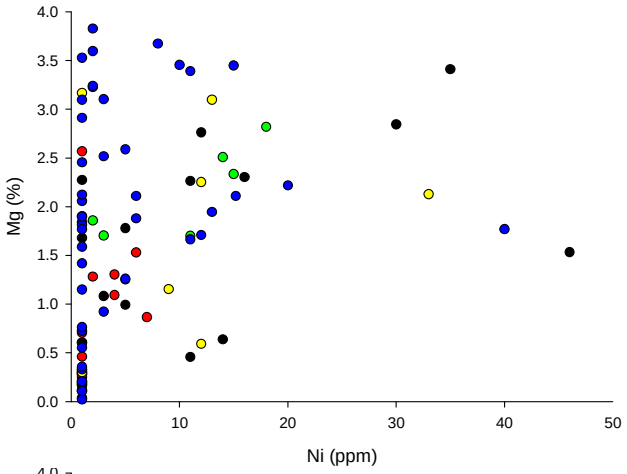


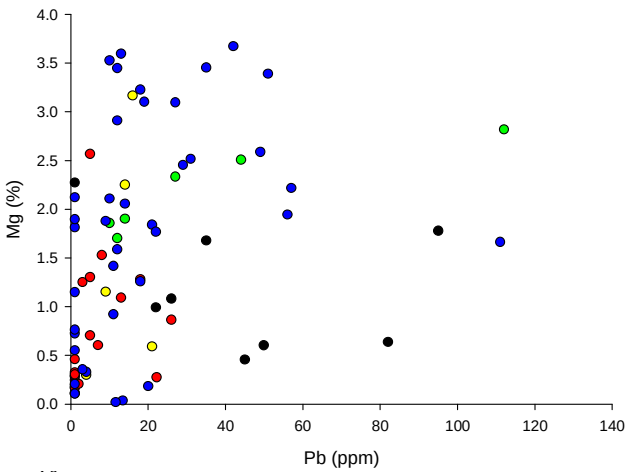


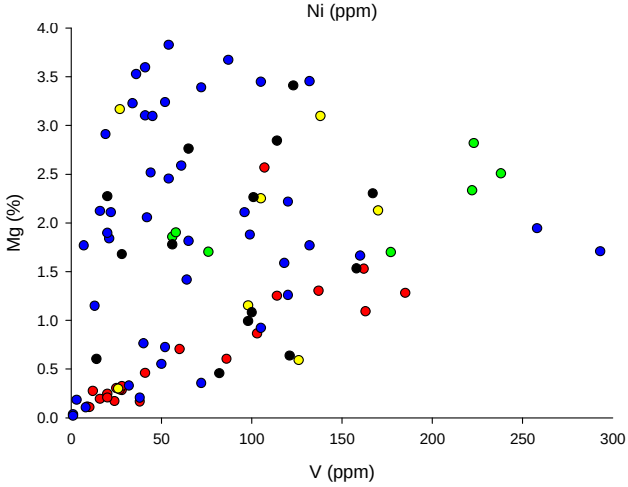


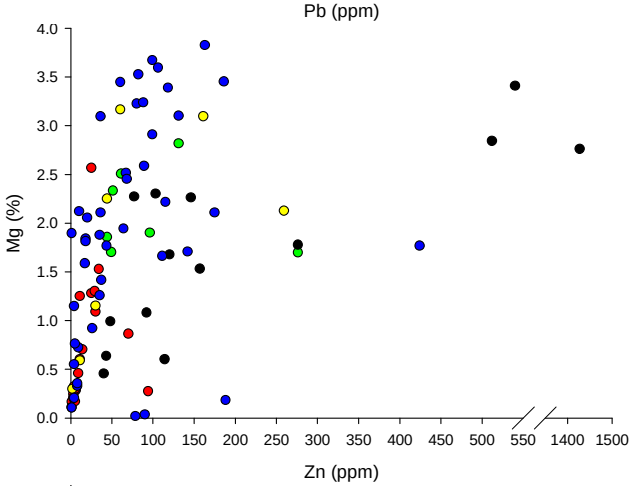






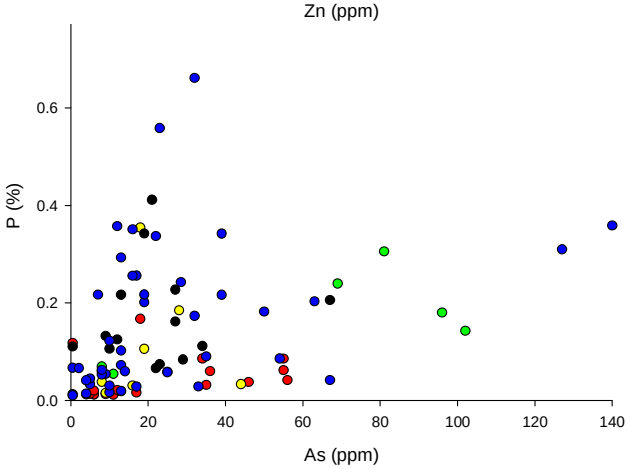


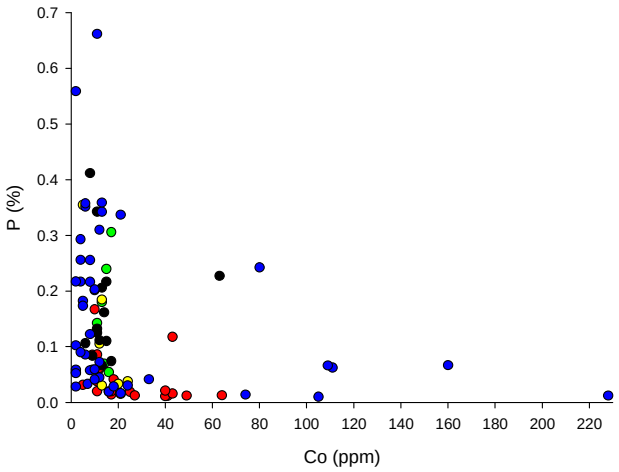


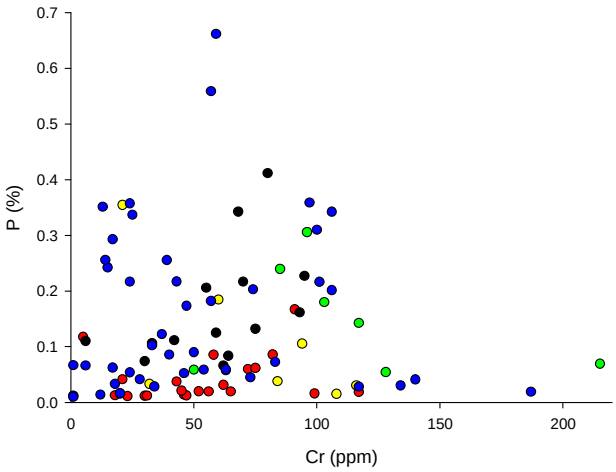


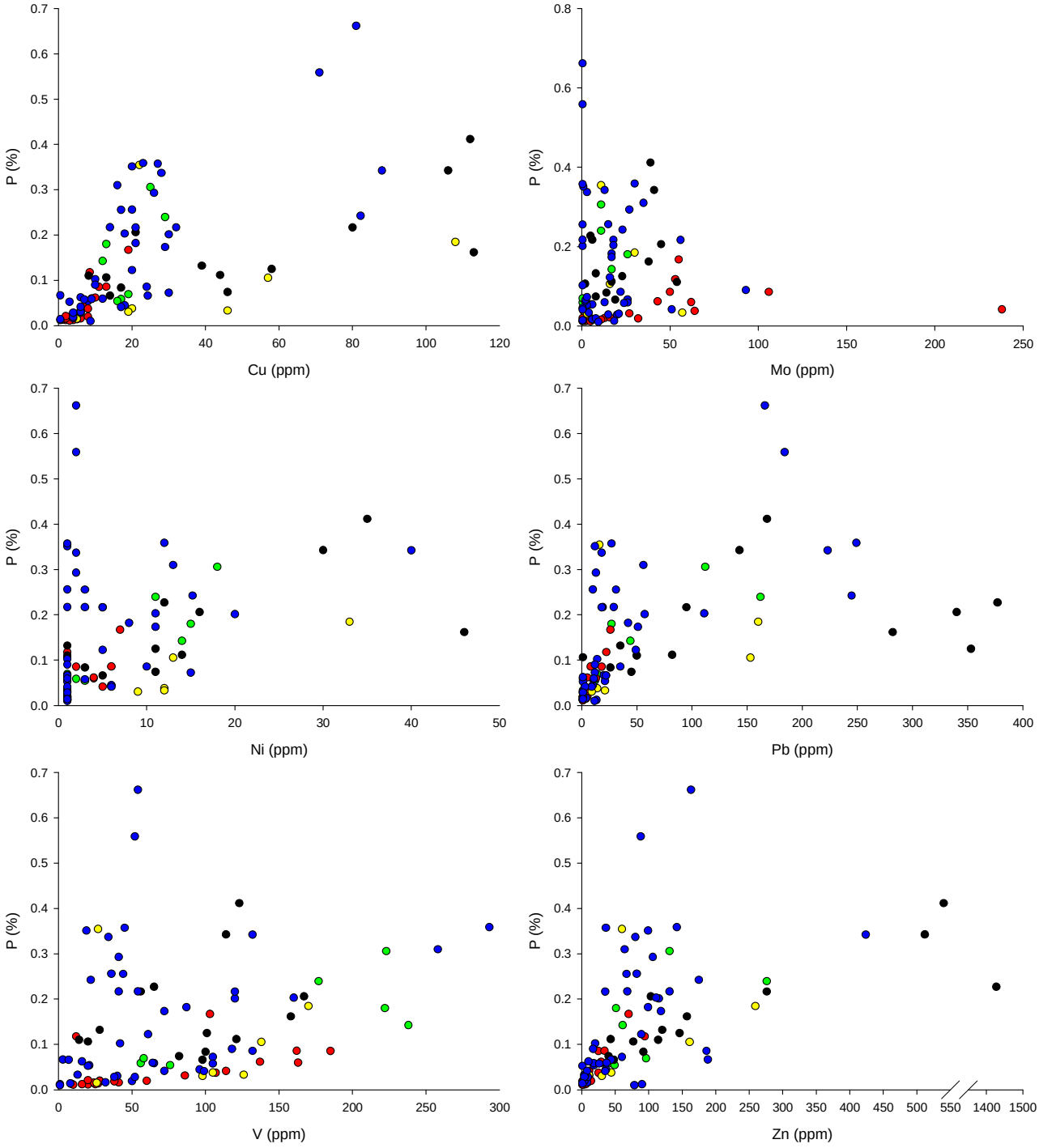
P

Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material







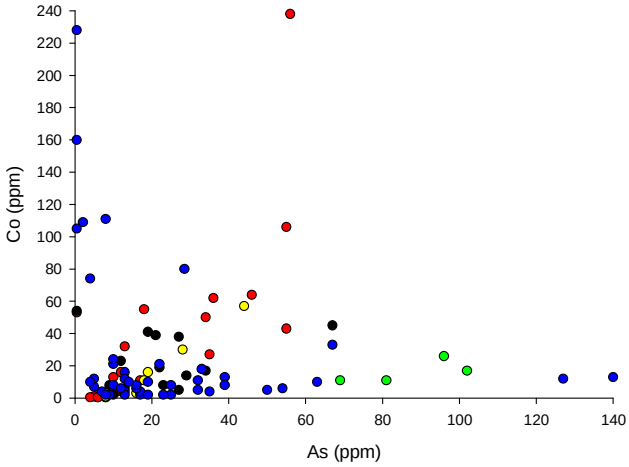

P (%)
Cu (ppm)
Mo (ppm)
Ni (ppm)
Pb (ppm)
V (ppm)
Zn (ppm)
Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

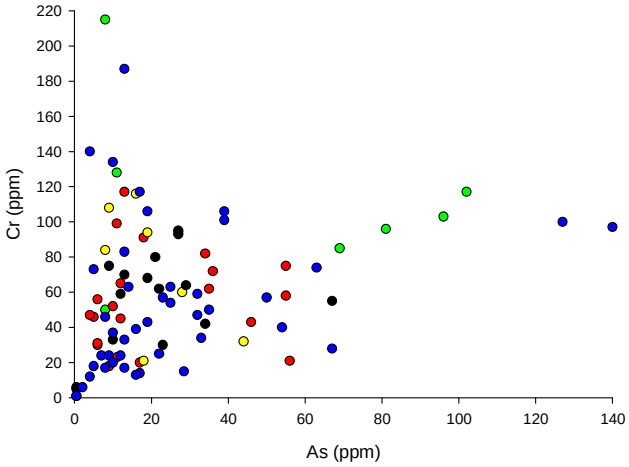
Appendix E

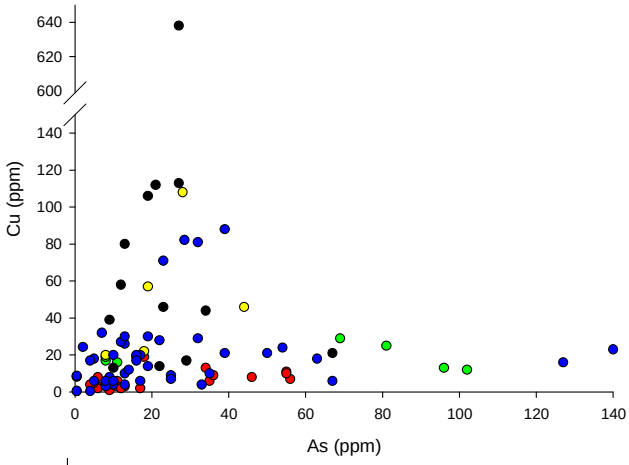
Trace element relationship plots:

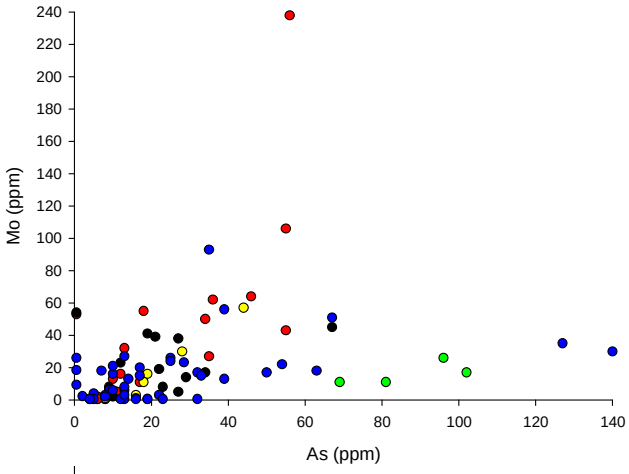
	As	Co	Cr	Cu	Mo	Ni	Pb	V
As								
Co								
Cr								
Cu								
Mo								
Ni								
Pb								
V								
Zn								

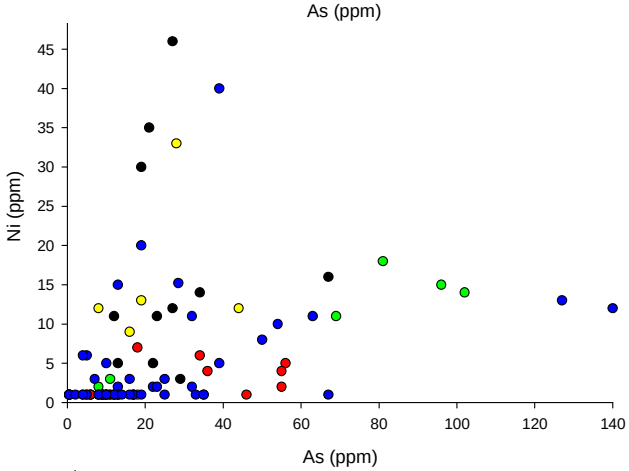
- Non-Acid Sulfate Soil
- Sulfuric materials
- Hypersulfidic materials
- Hypersulfidic materials with monosulfides (>0.02% AVS)
- Hyposulfidic material

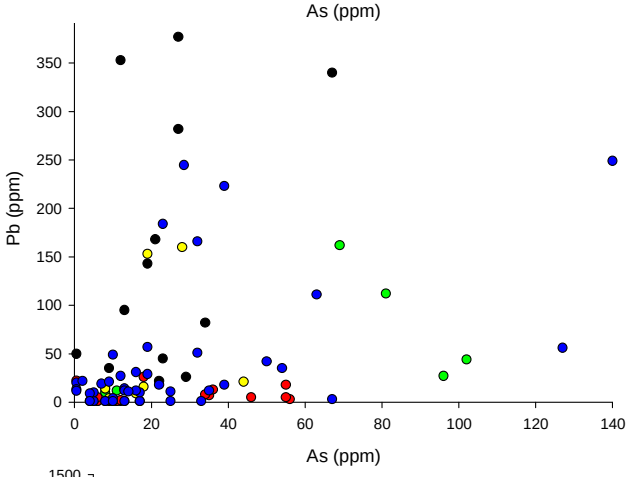

Co (ppm)
As (ppm)

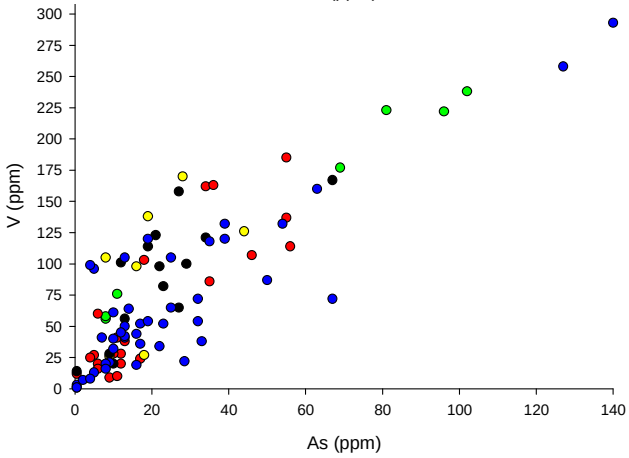

Cr (ppm)
As (ppm)

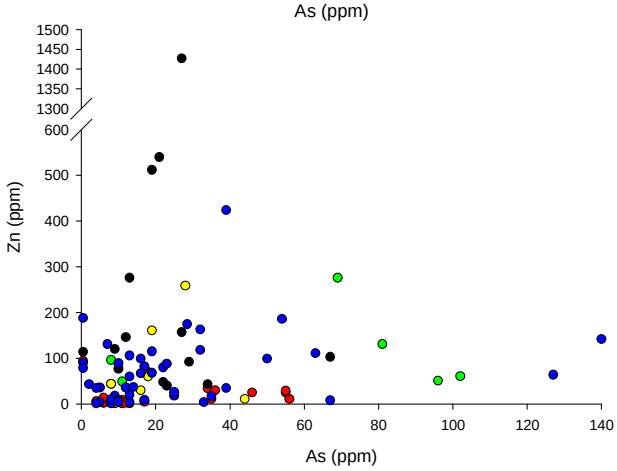

Cu (ppm)
As (ppm)

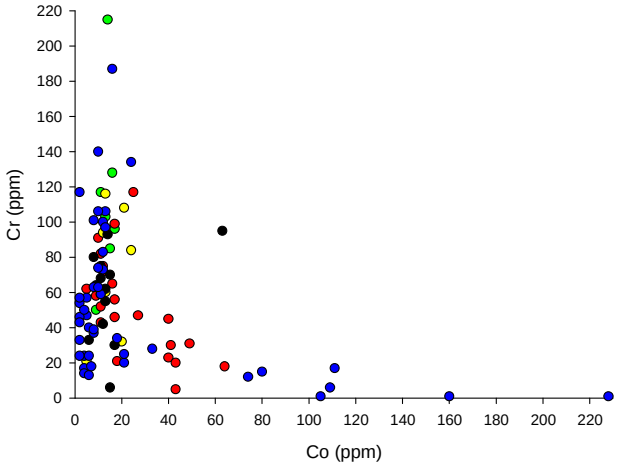

Mo (ppm)
As (ppm)

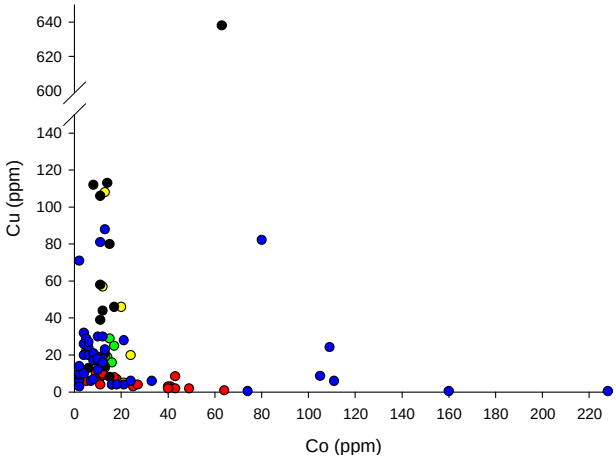

Ni (ppm)
As (ppm)

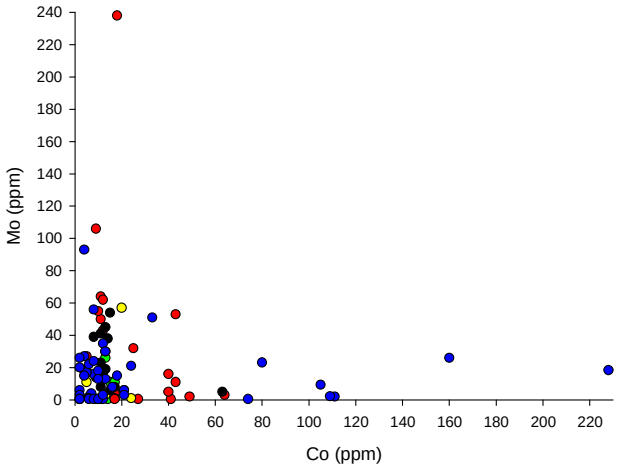

Pb (ppm)
As (ppm)

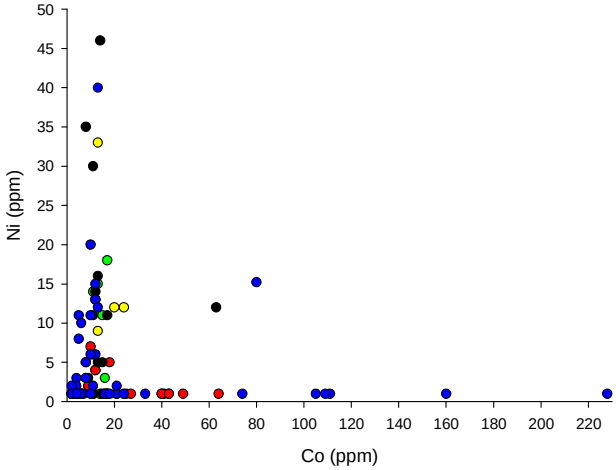

V (ppm)
As (ppm)

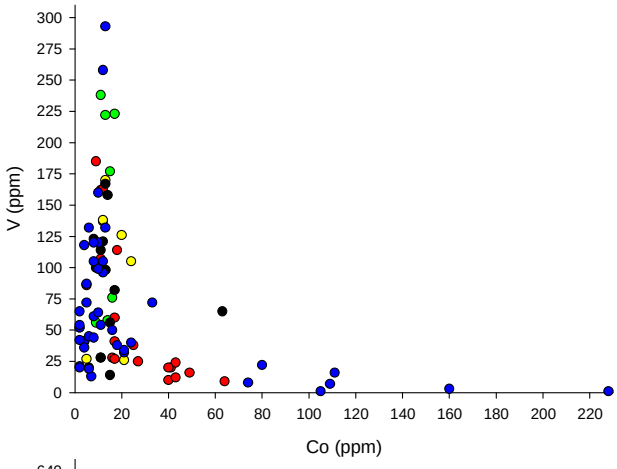

Zn (ppm)
As (ppm)

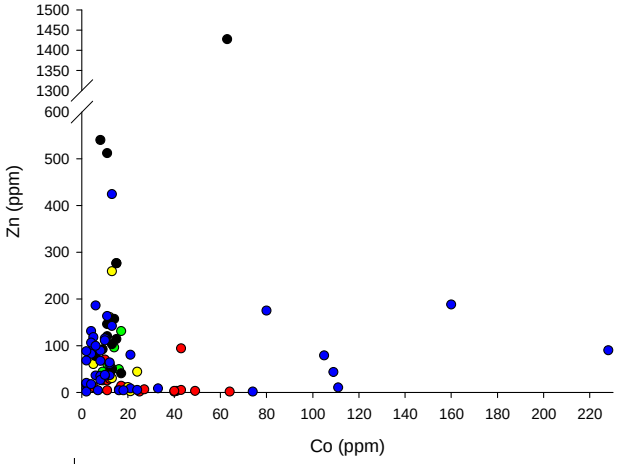

Cr (ppm)
Co (ppm)

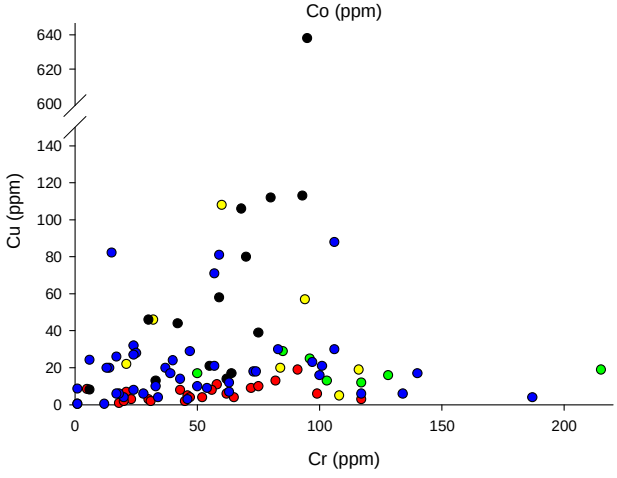

Cu (ppm)
Co (ppm)

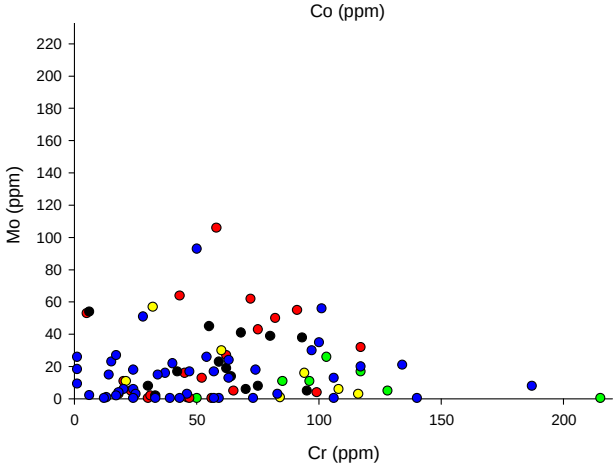

Mo (ppm)
Co (ppm)

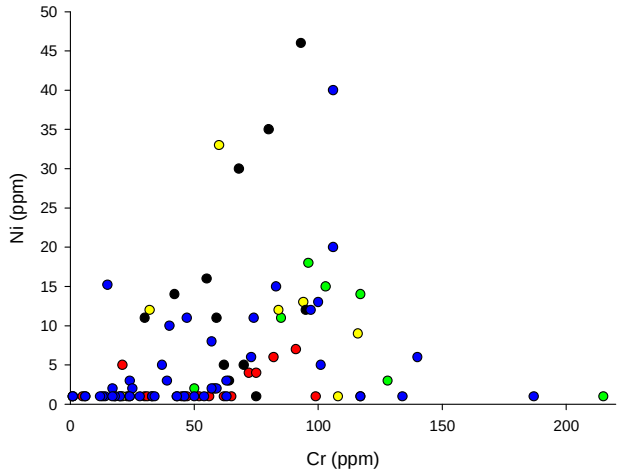

Ni (ppm)
Co (ppm)

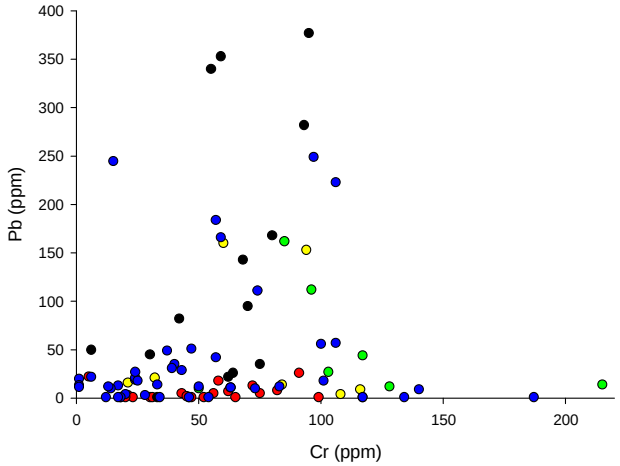

V (ppm)
Co (ppm)

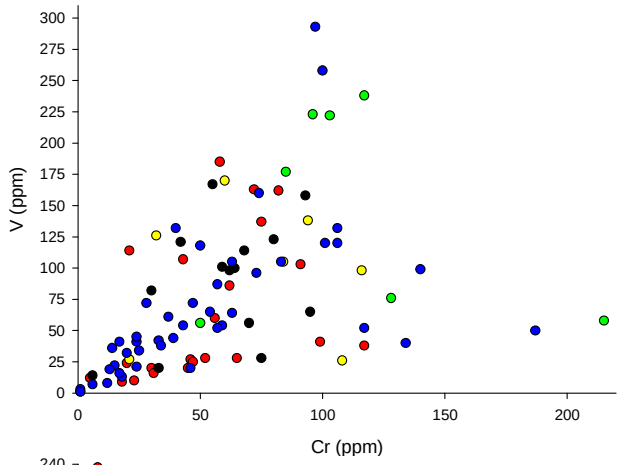

Zn (ppm)
Co (ppm)

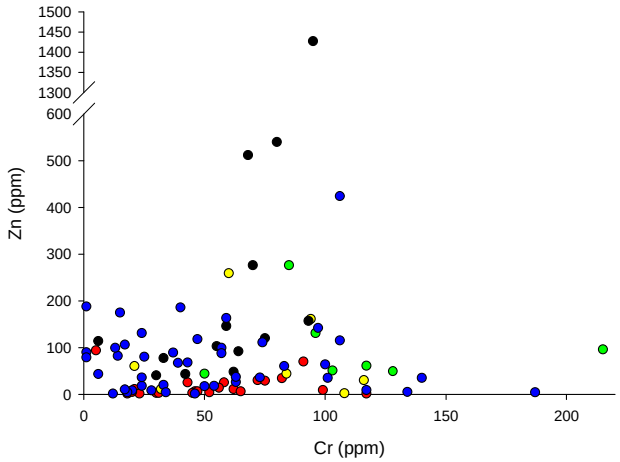

Cu (ppm)
Cr (ppm)

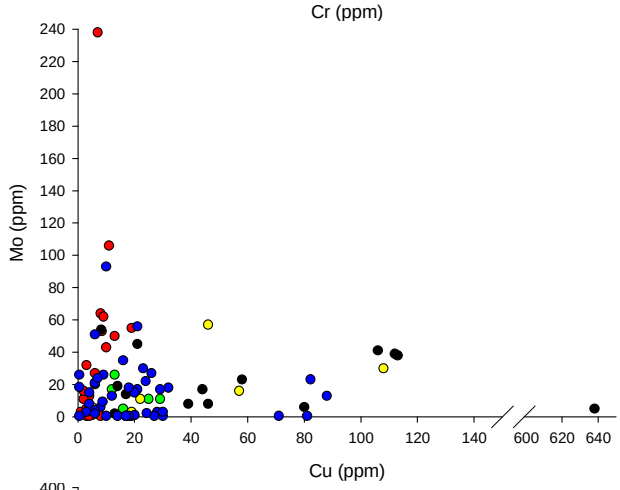

Mo (ppm)
Cr (ppm)

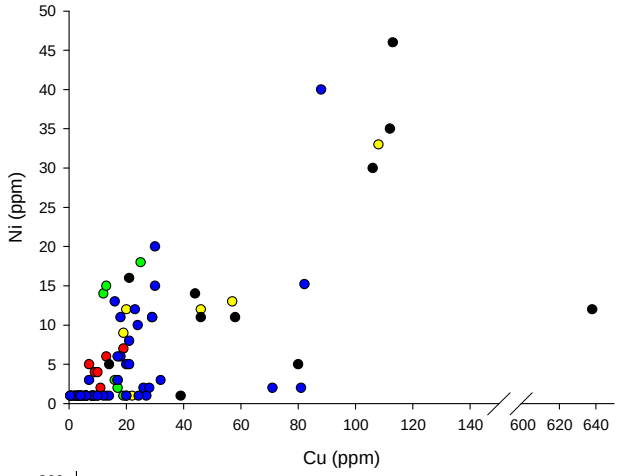

Ni (ppm)
Cr (ppm)

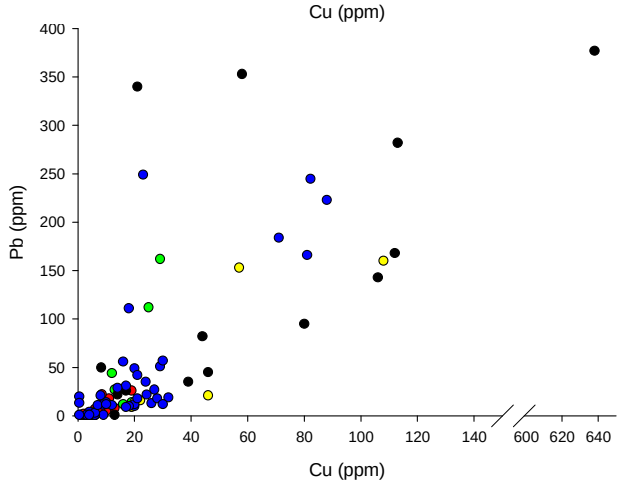

Pb (ppm)
Cr (ppm)

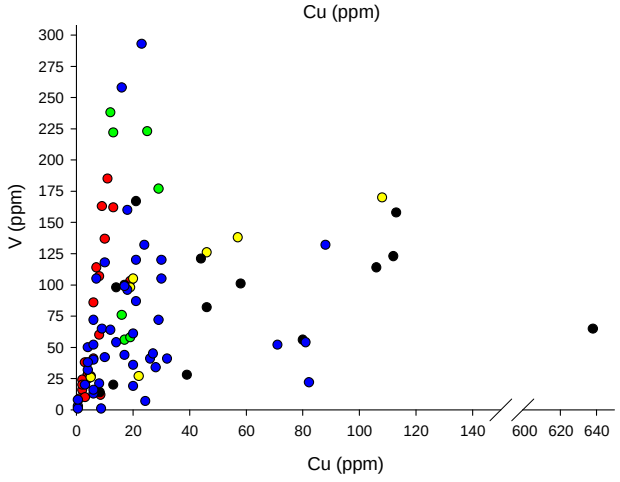

V (ppm)
Cr (ppm)

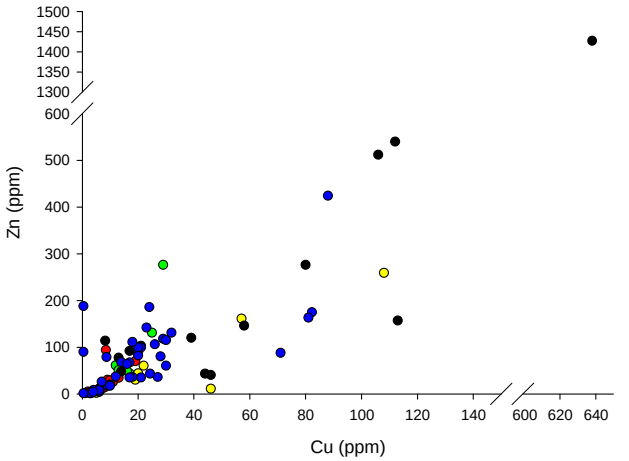

Zn (ppm)
Cr (ppm)

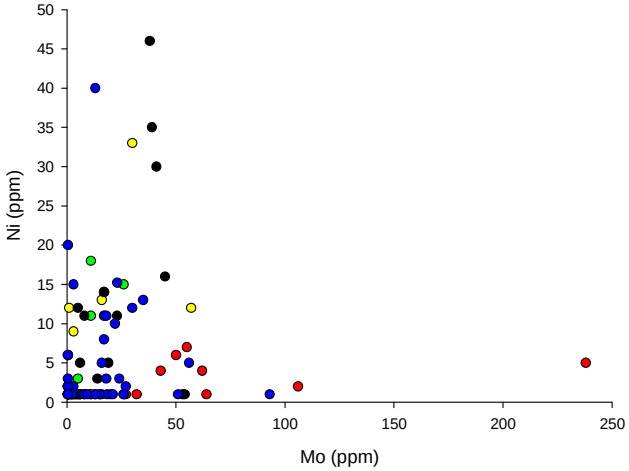

Mo (ppm)
Cu (ppm)

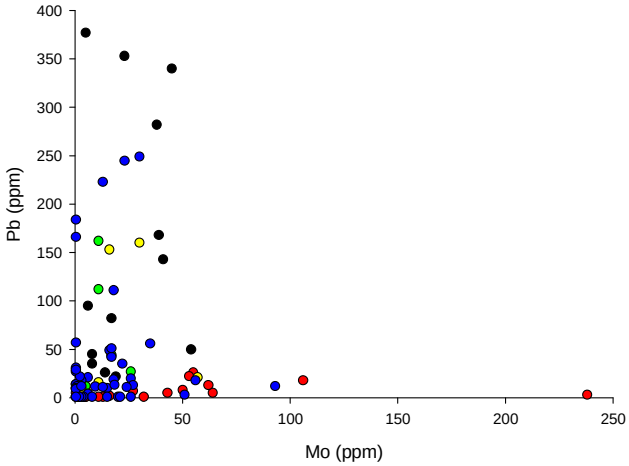

Ni (ppm)
Cu (ppm)

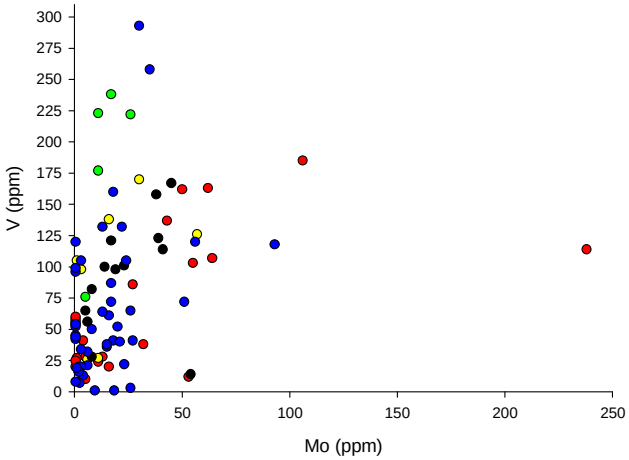

Pb (ppm)
Cu (ppm)

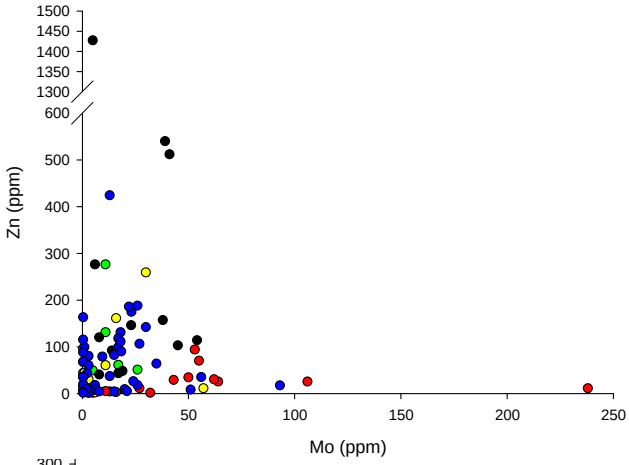

V (ppm)
Cu (ppm)

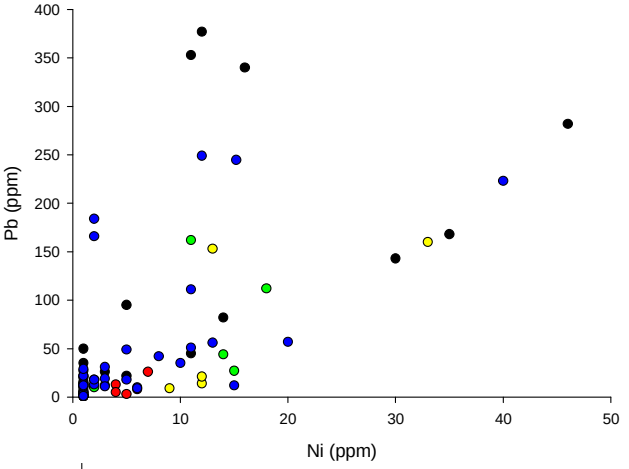

Zn (ppm)
Cu (ppm)

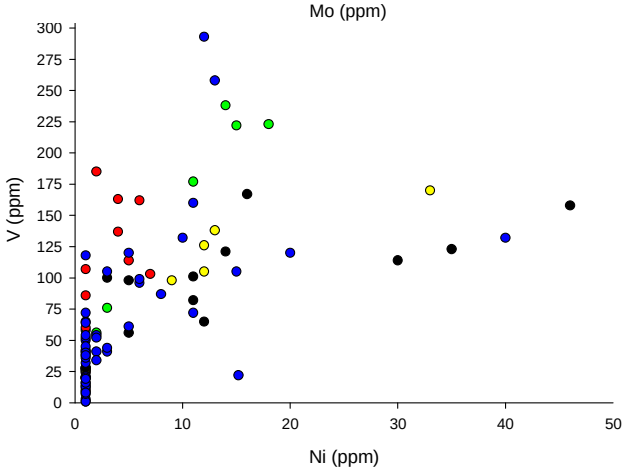

Ni (ppm)
Mo (ppm)

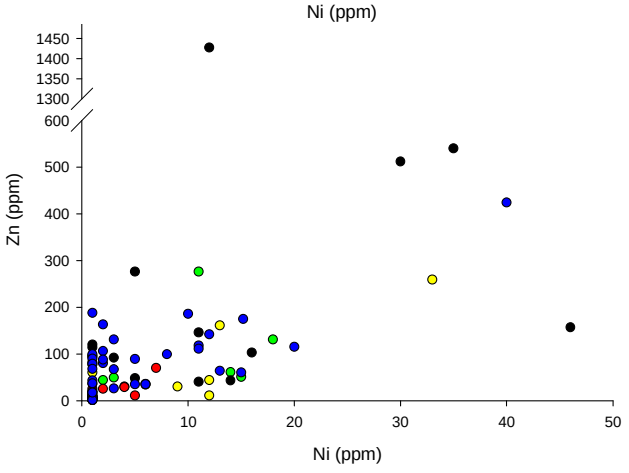

Pb (ppm)
Mo (ppm)

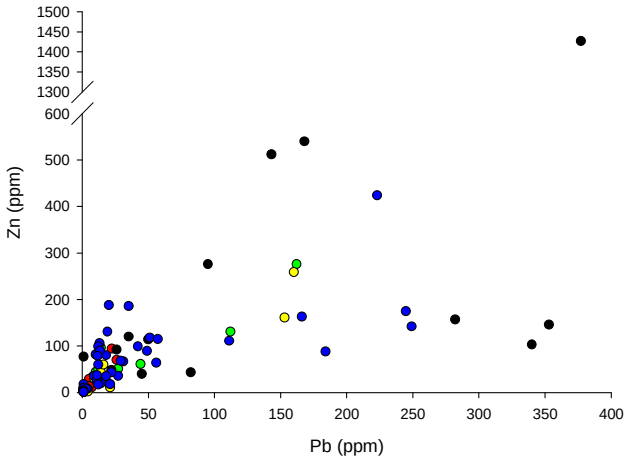

V (ppm)
Mo (ppm)

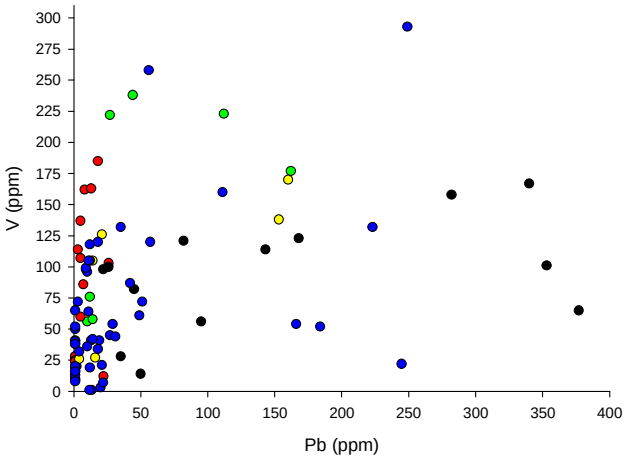

Zn (ppm)
Mo (ppm)

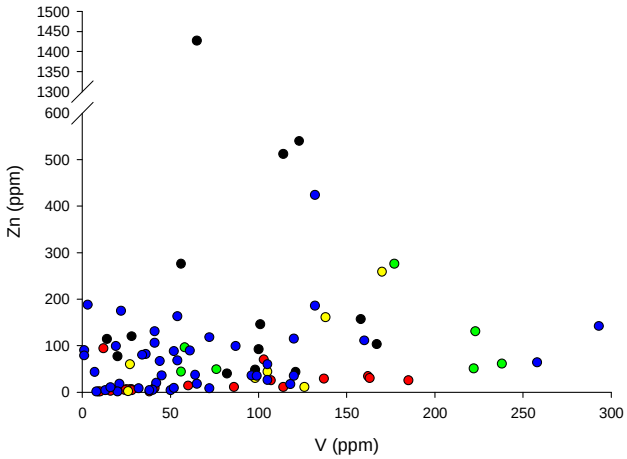

Pb (ppm)
Ni (ppm)

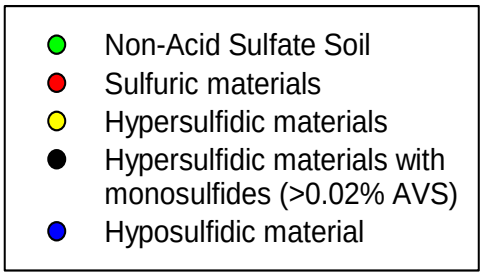

V (ppm)
Ni (ppm)


Zn (ppm)
Ni (ppm)


Zn (ppm)
Pb (ppm)


V (ppm)
Pb (ppm)


Zn (ppm)
V (ppm)


Non-Acid Sulfate Soil
Sulfuric materials
Hypersulfidic materials
Hypersulfidic materials with monosulfides (>0.02% AVS)
Hyposulfidic material

Appendix F

Hydrochemical data for PEEPER samples surface water samples (determined by ICP-OES)

Peepers	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cell depth* (cm)	Soil material
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
LLD	0.01	0.1	0.2	2	2	0.2	10	10	10	10	2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	10		
P0	1.84	77.0	44.5	4200	830	137.0	20700	12000	370	150	2	62	0.2	16	0.2	20	0.4	11	17.9	56000	1	salt efflorescence
BG 15	1.62	53.0	56.4	2000	760	38.0	7450	4000	580	60	1	29	0.1	27	1.7	15	0.1	4	14.6	27000	3	sand jarosite
(high	1.59	40.0	68.7	1500	1100	22.0	6550	2300	650	40	1	21	0.1	62	5.5	27	0.1	1.8	14.2	16000	8	sand jarosite
drain	1.67	36.0	68.4	1400	1100	19.0	6700	2200	620	90	1	19	0.1	21	2.1	10.9	0.1	1.5	13.8	14000	14	sand jarosite
wall)	1.98	36.0	70.3	1400	2700	18.4	7120	2400	560	310	1	18	0.1	2.1	0.2	2.9	0.1	1.3	13.9	14000	19	sand jarosite
	2.68	43.0	56.1	1300	3500	20.0	7330	2600	540	510	1	19	0.1	1.5	0.1	2.5	0.1	1.3	14.6	15000	24	sand jarosite
	2.86	42.0	52.4	1200	3300	20.0	7060	2700	560	590	1	20	0.1	0.8	0.1	2.1	0.1	1.3	15.4	17000	28	sandy clay
	3.09	43.0	40.6	760	2500	17.0	6000	3000	620	770	1	23	0.1	1.1	0.1	1.6	0.1	1.1	16.7	21000	33	gleyed sandy clay
P1	2.31	102.2	44.0	2300	1600	83.0	20800	20000	170	2700	10	95	0.1	11.4	2.0	14.7	2.0	8.8	23.2	62000	1	salt efflorescence
BG 15	1.94	102.1	57.1	3100	2200	97.0	25800	25000	150	3600	10	130	0.1	10.8	1.9	14.9	2.0	9.6	19.2	63000	4	sand jarosite
(drain	2.73	99.7	40.8	1500	710	36.0	10200	8800	650	1700	1	52	0.1	0.1	0.1	3.5	0.1	2.8	28.9	56000	9	sand jarosite
wall)	3.21	94.4	26.2	880	690	22.0	7870	6800	780	1500	1	39	0.1	0.1	0.1	2.0	0.1	1.5	29.5	47000	14	sand jarosite
	3.14	110.7	20.4	1100	900	29.0	9500	8400	680	1800	1	43	0.1	0.1	0.1	2.2	0.1	2.0	33.7	58000	19	sand jarosite
	3.16	126.3	13.7	1300	1000	34.0	10400	9600	580	2100	1	47	0.1	0.1	0.1	2.6	0.1	2.7	35.4	67000	24	clay sand jarosite
	3.09	132.5	15.5	1500	1100	38.0	11500	11000	490	2300	1	51	0.1	0.1	0.1	2.9	0.1	2.9	35.3	72000	32	gleyed clay
	3.17	117.2	15.0	1400	1000	36.0	11100	10000	520	2200	1	49	0.1	0.1	0.1	2.7	0.1	2.6	33.4	68000	35	Gleyed Heavy clay
P2	1.95	91.2	43.7	1000	870	31	9400	8700	560	1900	1	41	0.1	0.1	0.1	0.1	0.1	0.1		65000	-4	water
BG 15	1.95	94.8	44.3	1000	870	30	9300	8700	540	1900	1	40	0.1	0.1	0.1	0.1	0.1	0.1		65000	-3	water
(base	1.95	96.5	44.4	980	870	30	9300	8700	530	1900	1	41	0.1	0.1	0.1	0.1	0.1	0.1		64000	-2	water
of	1.95	100.1	44.7	1000	870	31	9400	8700	530	1900	1	40	0.1	0.1	0.1	0.1	0.1	0.1		64000	-1	water
drain)	2.01	99.7	36.8	900	840	29	8800	8200	550	1800	1	37	0.1	0.1	0.1	0.1	0.1	0.1		62000	0	water / sediment

Peepers	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cell depth* (cm)	Soil material
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
LLD	**0.01**	**0.1**	**0.2**	**2**	**2**	**0.2**	**10**	**10**	**10**	**10**	**2**	**2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**10**		
continued	2.12	103.4	30.3	810	810	26	8300	7800	580	1700	1	35	0.1	0.1	0.1	0.1	0.1	0.1		58000	1	sand
P2	2.17	105.8	29.0	820	830	26	8500	7900	600	1800	1	35	0.1	0.1	0.1	0.1	0.1	0.1		59000	2	sand
BG 15	2.22	107.0	27.5	800	780	25	8000	7500	560	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		56000	3	sand
(base	2.22	108.2	27.1	810	780	25	8000	7500	570	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		56000	4	sand
of	2.29	108.5	27.3	810	800	25	8200	7700	590	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		58000	5	sand
drain)	2.28	112.6	27.9	810	800	25	8200	7700	570	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		57000	6	sand
	2.29	106.3	28.0	810	790	25	8200	7600	560	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		56000	7	sand
	2.28	104.5	27.5	840	810	26	8300	7800	570	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		58000	8	sand
	2.29	103.8	27.1	830	810	26	8300	7700	580	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		58000	9	sand
	2.26	103.5	27.2	820	800	27	8200	7600	590	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		57000	10	sand
	2.31	100.3	26.8	830	810	27	8400	7800	590	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		58000	11	sand
	2.33	97.5	25.6	820	790	25.7	8200	7600	570	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		56000	12	sand
	2.34	95.5	26.3	840	820	26.2	8500	7800	580	1700	1	35	0.1	0.1	0.1	0.1	0.1	0.1		57000	13	sand
	2.38	95.4	24.9	800	790	25.0	8200	7500	590	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		55000	14	sand
	2.4	92.3	24.6	790	780	24.8	8200	7500	600	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		55000	15	sand
	2.41	91.1	24.2	780	760	24.0	8000	7300	590	1600	1	32	0.1	0.1	0.1	0.1	0.1	0.1		53000	16	sand
	2.42	88.1	24.4	800	770	24.4	8100	7500	600	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		54000	17	sand
	2.42	88.5	25.0	790	780	24.7	8200	7600	610	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		55000	18	sand
	2.42	89.4	25.4	800	810	25.4	8400	7800	630	1700	1	34	0.1	0.1	0.1	0.1	0.1	0.1		57000	19	sand
	2.44	87.9	25.0	770	780	24.6	8100	7500	610	1700	1	33	0.1	0.1	0.1	0.1	0.1	0.1		55000	20	sand
	2.45	83.5	25.1	750	770	25.6	8000	7400	610	1600	1	33	0.1	0.1	0.1	0.1	0.1	0.1		54000	21	sand
	2.49	79.7	23.2	740	750	23.4	7900	7300	610	1600	1	33	0.1	0.1	0.1	0.1	0.1	0.1		53000	22	sand/clay
	2.56	79.9	20.8	670	710	21.4	7400	7000	640	1600	1	30	0.1	0.1	0.1	0.1	0.1	0.1		50000	23	sandy gleyed clay
	2.66	84.7	17.2	560	670	18.7	6900	6600	710	1500	1	28	0.1	0.1	0.1	0.1	0.1	0.1		48000	24	sandy gleyed clay
	2.83	84.1	11.7	370	590	14.1	5800	5900	840	1500	1	25	0.1	0.1	0.1	0.1	0.1	0.1		45000	25	gleyed clay
	3.01	85.9	0.1	200	490	9.9	4800	5200	920	1400	1	20	0.1	0.1	0.1	0.1	0.1	0.1		41000	26	gleyed clay
	3.2	86.9	0.1	110	440	7.3	4400	4800	1000	1400	1	18	0.1	0.1	0.1	0.1	0.1	0.1		39000	27	gleyed clay
	3.29	85.9	0.1	89	400	6.0	4100	4600	1000	1300	1	17	0.1	0.1	0.1	0.1	0.1	0.1		36000	28	gleyed clay
	3.37	85.3	0.1	85	390	0.1	4200	4500	1000	1300	1	16	0.1	0.1	0.1	0.1	0.1	0.1		35000	29	gleyed clay
	3.65	84.9	0.1	47	340	0.1	3800	4100	1000	1200	1	15	0.1	0.1	0.1	0.1	0.1	0.1		32000	30	gleyed clay
	3.88	80.7	0.1	28	330	0.1	3800	4100	1100	1200	1	14	0.1	0.1	0.1	0.1	0.1	0.1		32000	31	gleyed heavy clay

Peepers	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cell depth*	Soil material
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
LLD	**0.01**	**0.1**	**0.2**	**2**	**2**	**0.2**	**10**	**10**	**10**	**10**	**2**	**2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**10**	(cm)	
P3	7.56	115.0	1.0	1	3	0.1	2450	3500	1200	1200	1	11	0.1	0.1	0.1	0.1	0.1	0.1	18.3	28000	-1	water
BG 28	7.55	88.0	2.1	1	4	0.1	1880	2600	990	900	1	8	0.1	0.1	0.1	0.1	0.1	0.1	16.0	21000	5	black clay
	7.74	69.0	2.2	1	2	0.1	1830	2600	950	860	1	8	0.1	0.1	0.1	0.1	0.1	0.1	14.9	21000	13	gleyed carbonate sand
	7.72	66.0	2.3	1	2	0.1	1890	2600	980	890	1	8	0.1	0.1	0.1	0.1	0.1	0.1	15.2	21000	20	gleyed carbonate sand
	7.72	68.0	2.2	1	5	0.1	1800	2500	920	850	1	8	0.1	0.1	0.1	0.1	0.1	0.1	14.1	20000	32	gleyed carbonate sand
BG P	6.51	55.6	0.1	1	30	0.1	1300	1600	500	430	1	1	0.1	0.1	0.1	0.1	0.1	0.1		13000	-2	water
P5	6.51	50.6	13.8	15	490	0.1	170	230	100	37	1	1	0.1	0.1	0.1	0.1	0.1	0.1	14.3	1900	-1	water
	6.94	43.7	0.1	1	47	0.1	740	1000	350	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8500	0	water / black clay
	6.86	40.9	0.1	1	21	0.1	710	980	330	250	1	1	0.1	0.1	0.1	0.1	0.1	0.1	15.0	7900	1	sandy gleyed clay
	6.62	39.2	0.1	1	1	0.1	690	940	310	230	1	1	0.1	0.1	0.1	0.1	0.1	0.1		7500	2	sandy gleyed clay
	7.09	39.1	0.1	1	1	0.1	700	940	310	230	1	1	0.1	0.1	0.1	0.1	0.1	0.1		7600	3	gleyed clay
	7.11	40	0.1	1	1	0.1	720	940	300	240	1	1	0.1	0.1	0.1	0.1	0.1	0.1		7800	4	gleyed clay
	7.59	40.5	0.1	1	1	0.1	760	960	290	260	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8000	5	gleyed clay
	7.58	41	0.1	1	1	0.1	780	950	260	260	1	1	0.1	0.1	0.1	0.1	0.1	0.1	14.0	8000	6	gleyed clay
	7.66	40.6	0.1	1	1	0.1	790	940	270	240	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8100	7	gleyed clay
	7.55	41.2	0.1	1	1	0.1	810	960	270	260	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8300	8	gleyed clay
	7.39	42.3	0.1	1	11	0.1	820	980	270	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8400	9	gleyed clay (heavy)
	7.74	41.7	0.1	1	1	0.1	800	950	280	250	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8300	10	gleyed clay (heavy)
	7.72	42.2	0.1	1	1	0.1	830	980	290	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8500	11	gleyed clay (heavy)
	7.47	41.7	0.1	1	1	0.1	820	980	300	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8500	12	gleyed clay (heavy)
	7.34	42	0.1	1	1	0.1	810	980	300	280	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8400	13	gleyed clay (heavy)
	7.26	41.8	0.1	1	1	0.1	790	970	300	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8300	14	gleyed clay (heavy)
	7.3	40.8	0.1	1	1	0.1	750	940	290	240	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8000	15	gleyed clay (heavy)
	7.28	42.2	0.1	1	1	0.1	780	990	300	250	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8400	16	gleyed clay (heavy)
	7.22	42.4	0.1	1	1	0.1	830	1000	320	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1	13.0	8700	17	gleyed clay (heavy)
	7.28	42.8	0.1	1	1	0.1	860	1100	330	290	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8900	18	gleyed clay (heavy)
	7.31	44.2	0.1	1	1	0.1	870	1100	330	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9000	19	gleyed clay (heavy)
	7.3	44.2	0.1	1	1	0.1	850	1100	330	260	1	1	0.1	0.1	0.1	0.1	0.1	0.1		8900	20	gleyed clay (heavy)
	7.29	45.3	0.1	1	1	0.1	870	1100	340	270	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9200	21	gleyed clay (heavy)

Peepers	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cell depth*	Soil material
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(cm)	
LLD	**0.01**	**0.1**	**0.2**	**2**	**2**	**0.2**	**10**	**10**	**10**	**10**	**2**	**2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**10**		
continued	7.29	46	0.1	1	1	0.1	900	1100	340	280	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9400	22	gleyed clay (heavy)
BG P	7.33	47.1	0.1	1	1	0.1	910	1100	350	280	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9600	23	gleyed clay (heavy)
P5	7.31	48	0.1	1	1	0.1	940	1200	360	290	1	1	0.1	0.1	0.1	0.1	0.1	0.1	12.8	10000	24	gleyed clay (heavy)
	7.35	47.4	0.1	1	1	0.1	920	1200	350	290	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9800	25	gleyed clay (heavy)
	7.3	49.3	0.1	1	1	0.1	940	1200	350	300	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9900	26	gleyed clay (heavy)
	7.26	49.3	0.1	1	1	0.1	1000	1200	370	300	1	1	0.1	0.1	0.1	0.1	0.1	0.1		10000	27	gleyed clay (heavy)
	7.38	51.9	0.1	1	1	0.1	1100	1300	380	330	1	1	0.1	0.1	0.1	0.1	0.1	0.1		11000	28	gleyed clay (heavy)
	7.4	51.9	0.1	1	1	0.1	1100	1300	390	310	1	1	0.1	0.1	0.1	0.1	0.1	0.1		11000	29	gleyed clay (heavy)
	7.41	52.6	0.1	1	1	0.1	1100	1300	390	310	1	1	0.1	0.1	0.1	0.1	0.1	0.1		11000	30	gleyed clay (heavy)
	7.46	54.1	0.1	1	1	0.1	1200	1400	410	320	1	1	0.1	0.1	0.1	0.1	0.1	0.1		12000	31	gleyed clay (heavy)
	7.82	55	0.1	1	1	0.1	1200	1400	410	320	1	1	0.1	0.1	0.1	0.1	0.1	0.1	12.6	12000	32	gleyed clay (heavy)
	8.19	55.2	0.1	1	1	0.1	1200	1400	370	340	1	1	0.1	0.1	0.1	0.1	0.1	0.1	12.6	12000	33	gleyed clay (heavy)
P4	7.26	60.0	1.0	1	6	0.1	1420	1900	810	660	1	8	0.1	0.1	0.1	0.1	0.1	0.1	11.5	16000	-2	water
BG 24	6.35	66.0	5.8	1	1	0.1	1350	1800	770	640	1	6	0.1	0.1	0.1	0.1	0.1	0.1	10.9	15000	1	black carbonate clay
	8.16	54.0	14.2	1	1	0.1	1130	1800	770	640	1	6	0.1	0.1	0.1	0.1	0.1	0.1	10.9	15000	4	gleyed carbonate sand
	8.38	45.0	12.8	1	1	0.1	1120	1800	740	640	1	6	0.1	0.1	0.1	0.1	0.1	0.1	10.7	15000	12	gleyed carbonate sand
	8.37	46.0	11.4	1	1	0.1	1430	2200	880	750	1	7	0.1	0.1	0.1	0.1	0.1	0.1	12.7	17000	33	gleyed carbonate sand
BSK 3	8.04	75.0	5.3	1	18	2.6	1350	2100	680	760	1	5	0.1	0.1	0.1	0.1	0.1	0.1	12.1	18000	5	shell grit / clay
	8.11	61.0	13.1	1	6	3.4	1170	2100	710	790	1	5	0.1	0.1	0.1	0.1	0.1	0.1	12.6	18000	11	shell grit / clay
	8.17	54.0	11.9	1	7	1.6	1250	2200	730	790	1	6	0.1	0.1	0.1	0.1	0.1	0.1	12.8	18000	17	shell grit / clay
	8.25	48.0	15.9	4	14	1.2	1160	1900	690	640	1	5	0.1	0.1	0.1	0.1	0.1	0.1	11.7	15000	22	shell grit / clay

Peepers	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cell depth*	Soil material
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(cm)	
LLD	**0.01**	**0.1**	**0.2**	**2**	**2**	**0.2**	**10**	**10**	**10**	**10**	**2**	**2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**10**		
P5	7.46	54.0	1.0	1	1	0.4	1000	1300	510	440	1	4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	-2	water/air
BSK 4	7.83	56.0	2.2	1	1	0.7	1060	1400	530	450	1	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	1	peaty clay
	7.86	58.0	3.8	1	1	0.1	1090	1500	550	460	1	6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12000	12	peaty clay
	8.02	55.0	4.8	1	1	0.4	990	1400	520	450	1	7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	18	peaty clay
	8.14	49.0	4.1	1	1	0.2	820	1200	450	390	1	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10000	26	peaty clay
	8.07	54.0	4.4	1	1	0.2	900	1300	480	430	1	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	33	peaty clay
P6	7.95	57.0	6.2	1	1	0.1	1070	1500	560	470	1	6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12000	-2	water/air
BSK 5	7.90	58.0	7.4	1	1	0.1	990	1400	540	440	1	6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	2	organic wrack
	8.33	50.0	10.9	1	1	0.1	600	1200	440	380	1	5	0.1	0.1	0.1	0.6	0.1	0.5	0.1	10000	14	organic wrack
	8.32	58.0	10.9	1	1	0.1	710	1400	490	430	1	6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	24	organic wrack
	8.39	58.0	11.3	1	1	0.1	730	1400	490	430	1	6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11000	29	organic wrack
	8.40	61.0	12.9	1	1	0.1	810	1600	540	530	1	7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	13000	33	organic wrack

***Cell Depth: 0 cm = top of soil surface.**

Surface waters	pH	EC	Si	Al	Fe	Mn	S	Mg	Ca	K	P	B	Cd	Cr	Cu	Ni	Pb	Zn	Sr	Na	Cl^-	SO_4^{2-}
		dS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LLD	**0.01**	**0.1**	**0.2**	**2**	**2**	**0.2**	**10**	**10**	**10**	**10**	**2**	**2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**10**	**10**	**10**
BW BG 3	1.63	152.9	53.4	5600	1300	66.7	23000	15000	180	2900	1	160	0.1	0.1	0.1	10.0	0.1	13.5		110000	166715	60000
BW BG 15 #13/09/2002	3.12	91.7	28.0	330	54	12	4300	3600	1100	830	1	18	0.1	0.1	0.1	0.1	0.1	0.1		26000	42958	11800
BW BG 15 #18/02/2003	1.95	183.2	57.0	1500	1370	48	13000	14000	260	3100	1	64	0.1	0.1	0.1	0.1	0.1	0.1		110000	171767	34000
BW BG 15 #07/07/2003	2.98	96.5	36.0	610	565	18	5490	4340	750	890	1	20	0.1	0.1	0.1	0.1	0.1	0.1		30380	59703	13200
BW BG P5	6.49	73.3	0.1	12	1	0.1	2200	2800	870	860	1	1	0.1	0.1	0.1	0.1	0.1	0.1		23000	36317	5480
BW BG 23	5.86	71.4	0.1	54	11	0.1	1700	2500	640	760	1	1	0.1	0.1	0.1	0.1	0.1	0.1		20000	35654	5140
BW BG 24	6.20	39.2	0.1	1	1	0.1	820	1200	460	380	1	1	0.1	0.1	0.1	0.1	0.1	0.1		9500	17501	2330
BW BG 40	6.12	3.9	0.1	6	23	0.1	640	730	560	280	1	1	0.1	0.1	0.1	0.1	0.1	0.1		6500	1158	184
BW BG 41	6.47	13.1	0.1	1	1	0.1	240	320	160	116	1	1	0.1	0.1	0.1	0.1	0.1	0.1		2600	5463	768

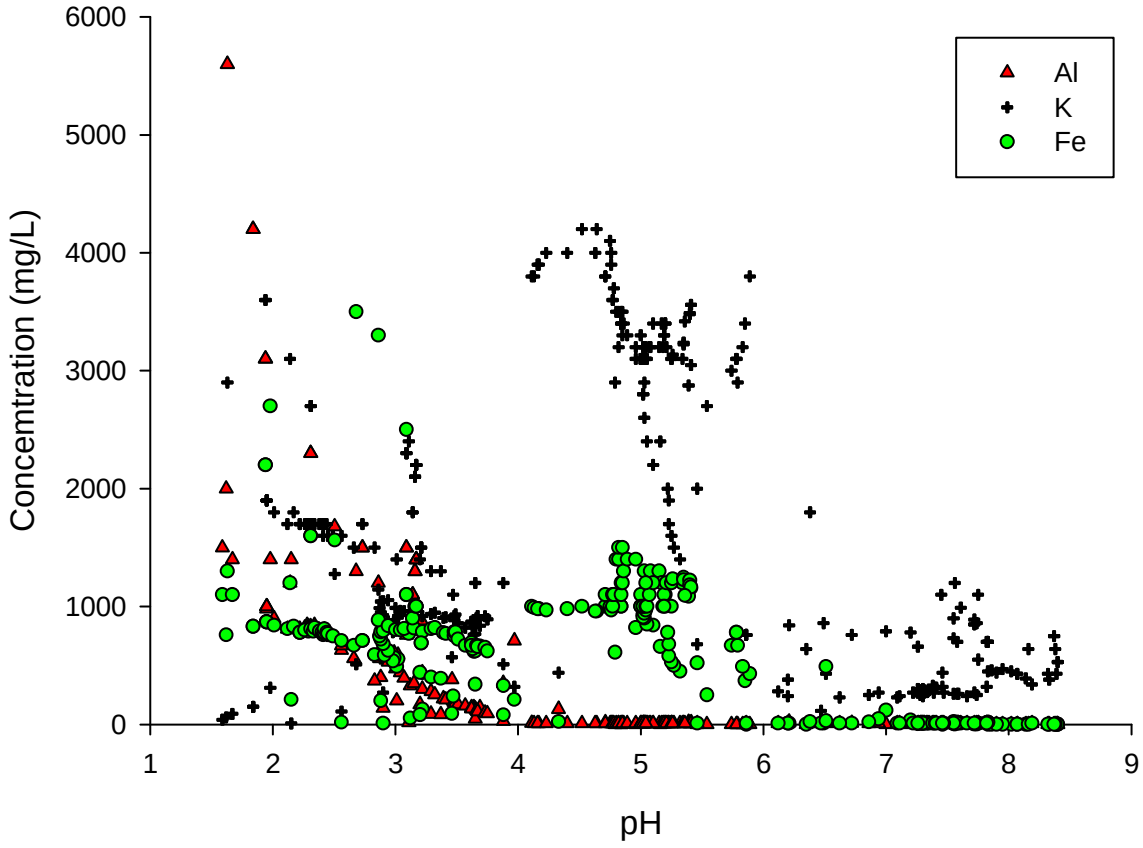
#Sampling dates.

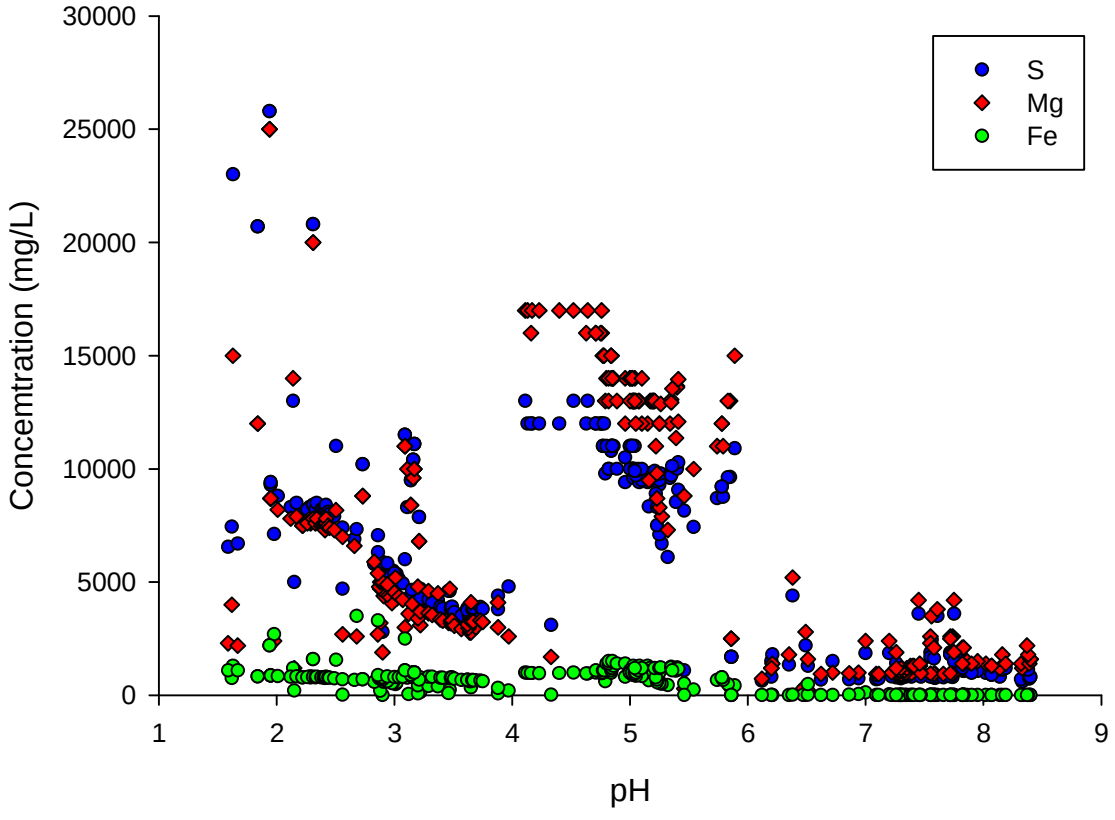
Note: surface water samples BW BG 15 are from the experimental drain at Gillman (refer to Chapter 10).

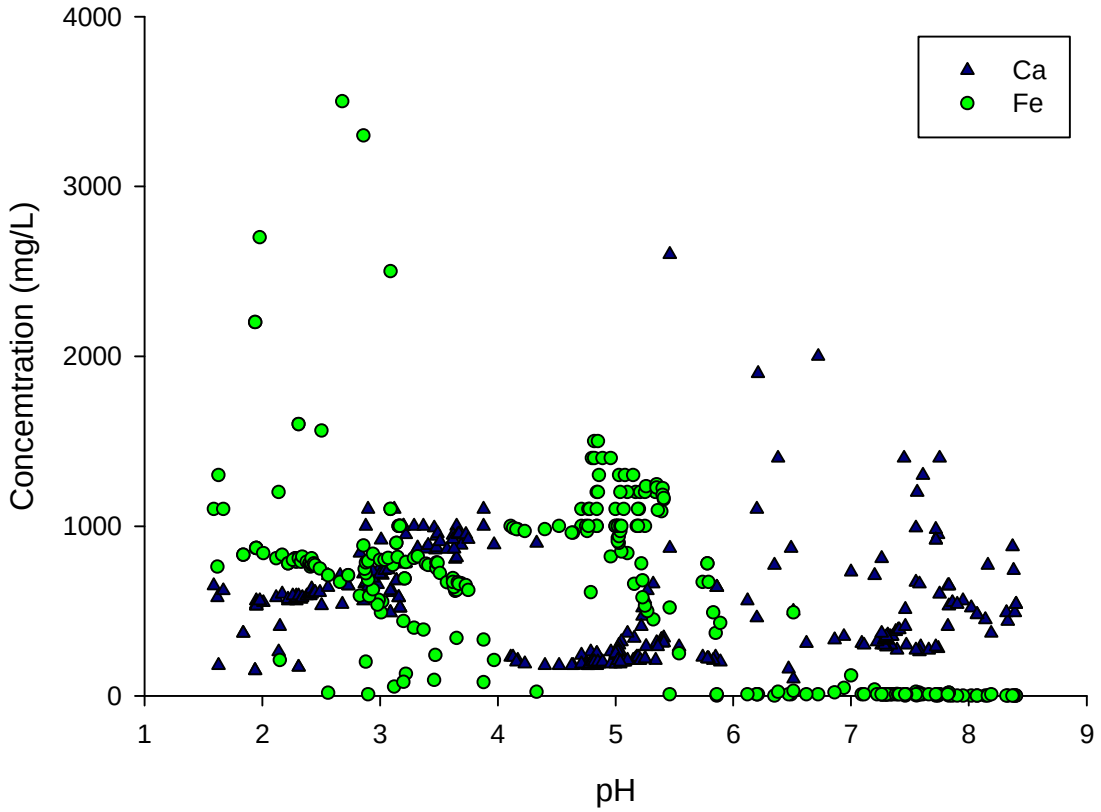
Appendix F

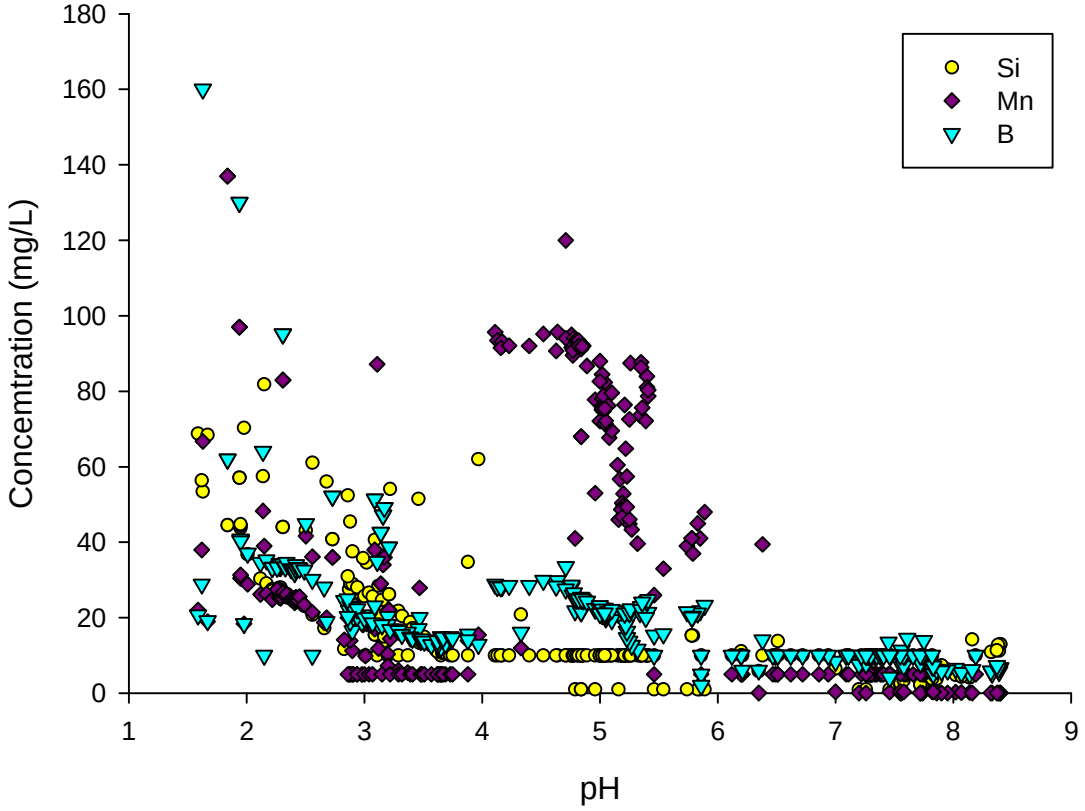
Plots of Major variables vs Major variables, for all water data

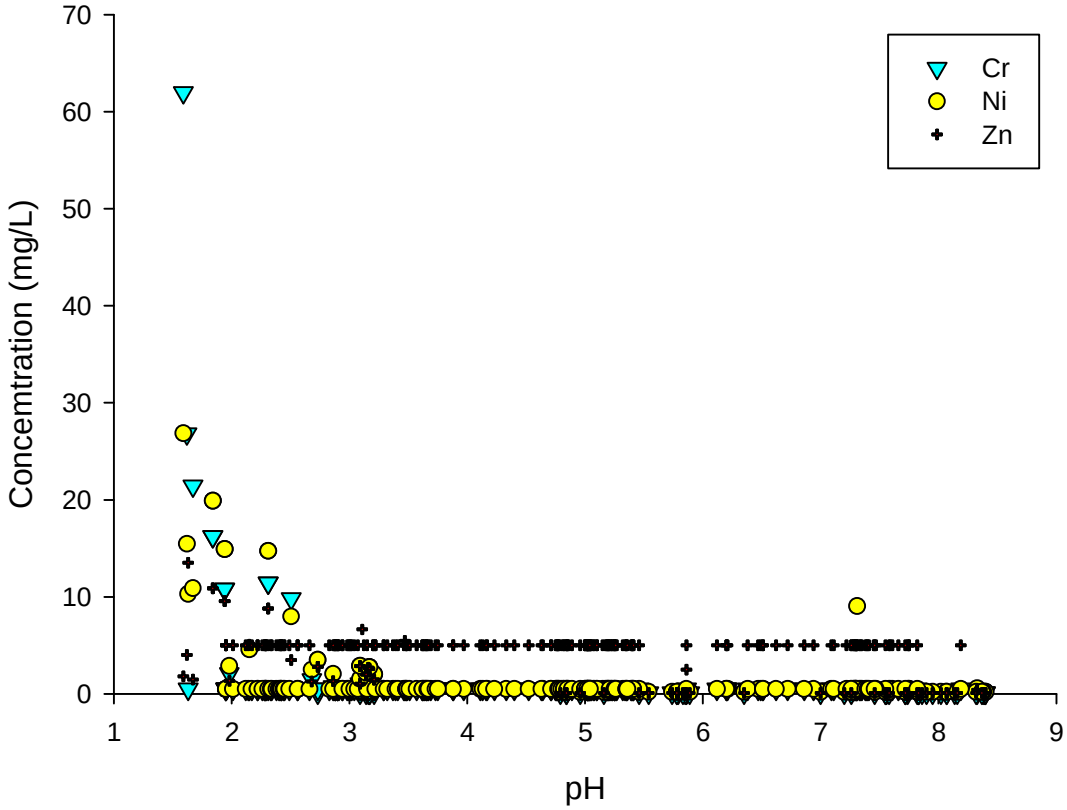
	pH	EC	Eh
pH			
EC			
Eh			
Al			
Fe			
S			
Mg			
Ca			
Si			
Mn			
B			
Cr			
Ni			
Zn			
Cu			
Pb			
Cd			
Na			
Cl			
K			

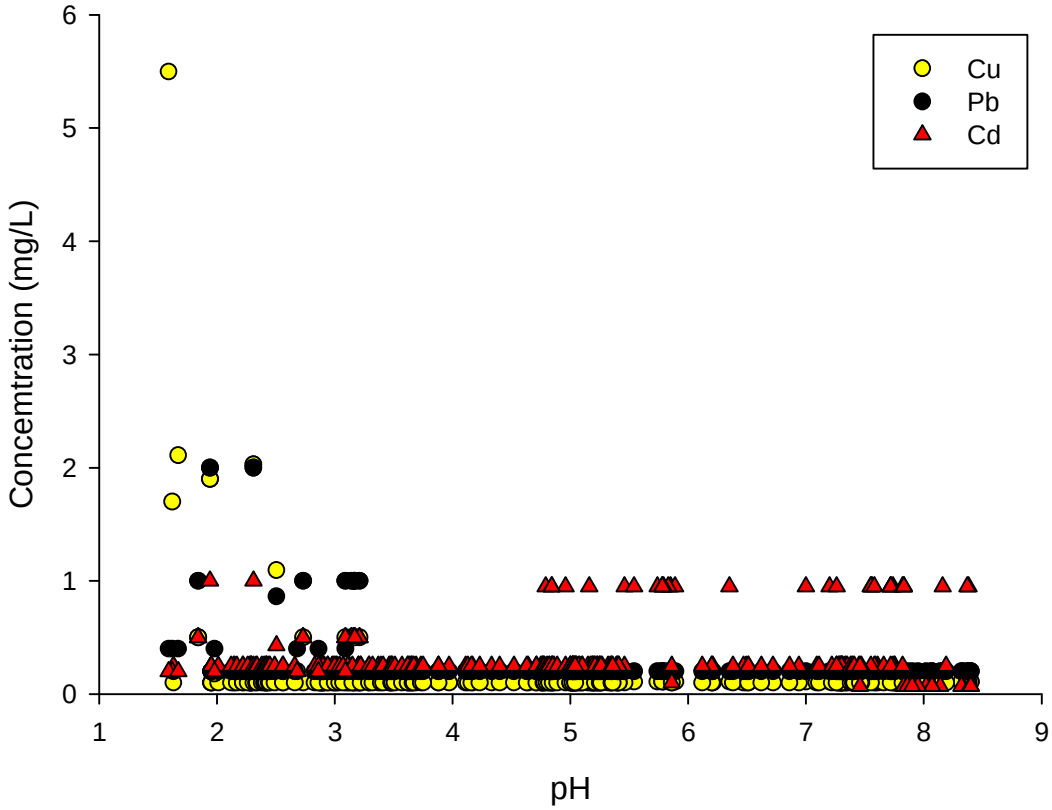

6000
5000
4000
3000
2000
1000
0
Concemtration (mg/L)
1
2
3
4
5
6
7
8
9
pH
Al
K
Fe

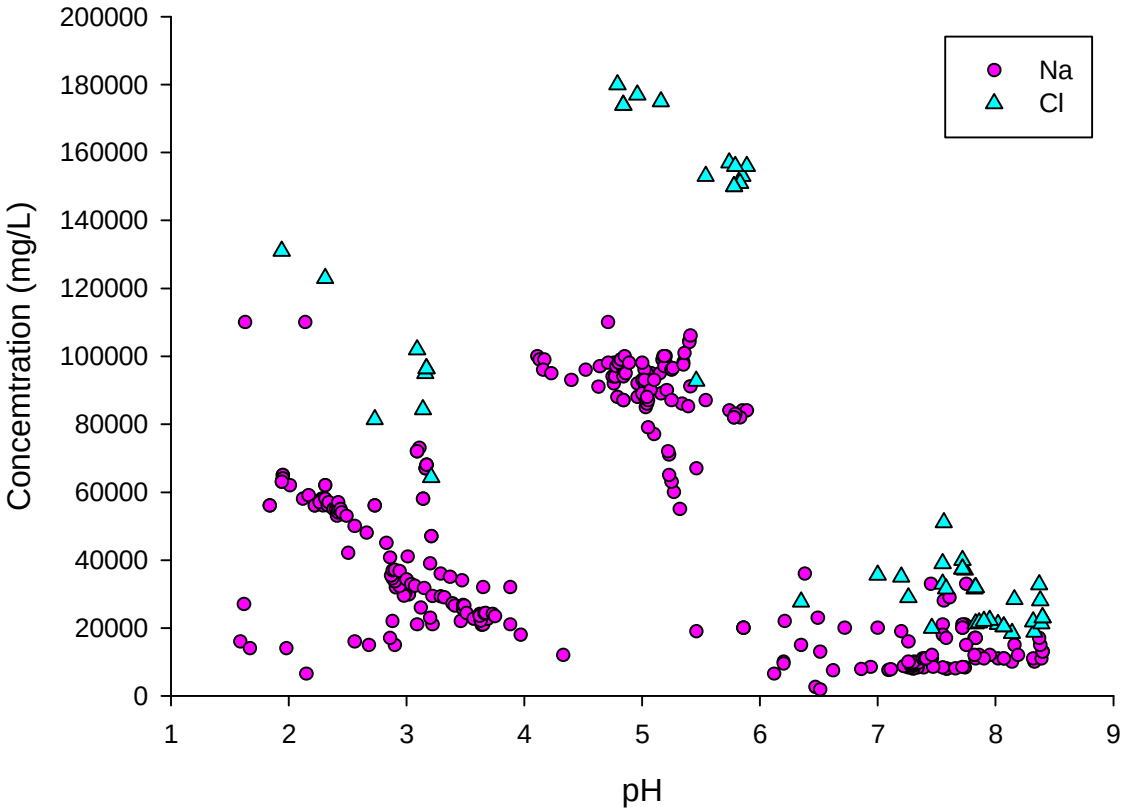

30000
25000
20000
15000
10000
5000
0
Concemtration (mg/L)
1
2
3
4
5
6
7
8
9
pH
S
Mg
Fe

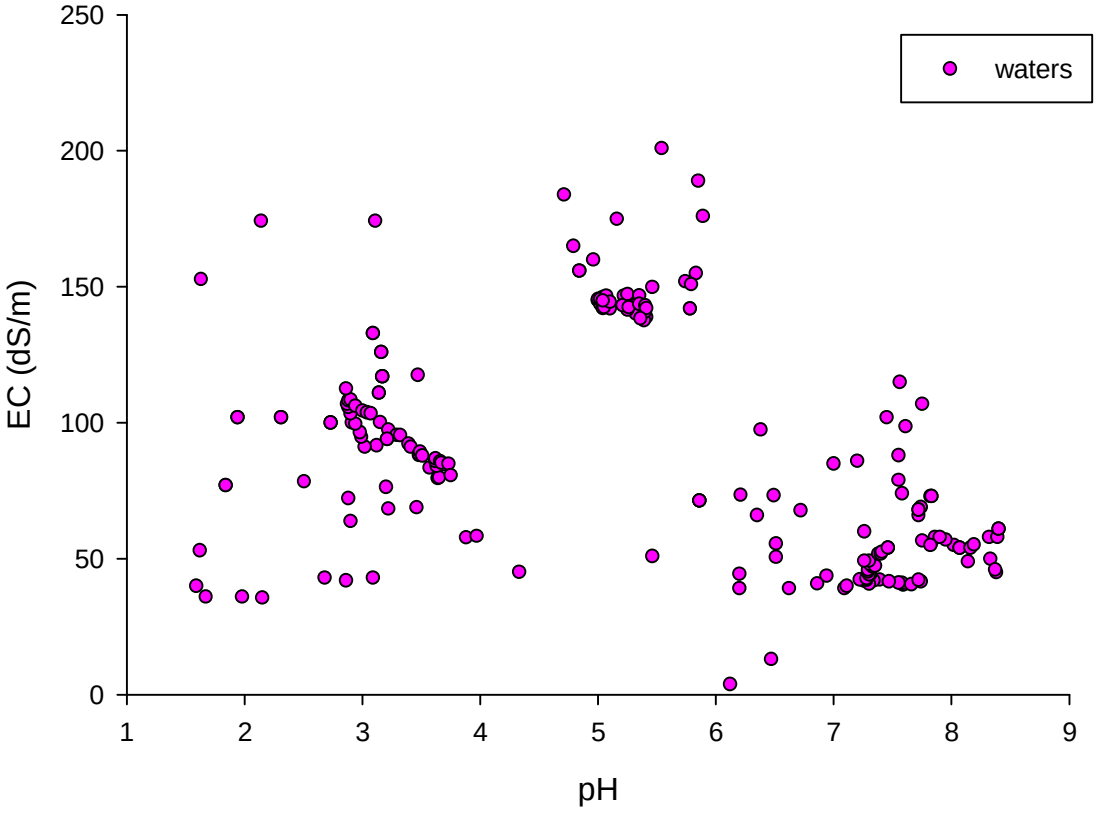

4000
3000
2000
1000
0
Concemtration (mg/L)
1
2
3
4
5
6
7
8
9
pH
Ca
Fe

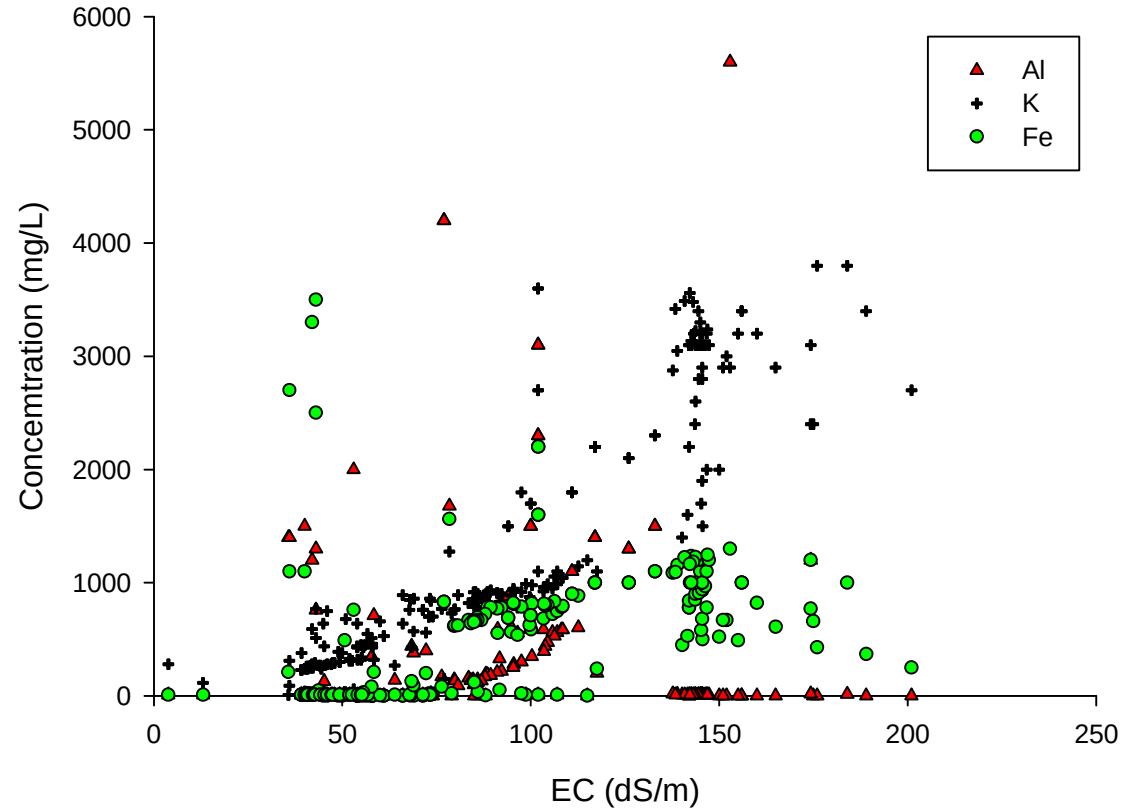

180
160
140
120
100
80
60
40
20
0
Concemtration (mg/L)
1
2
3
4
5
6
7
8
9
pH
Si
Mn
B

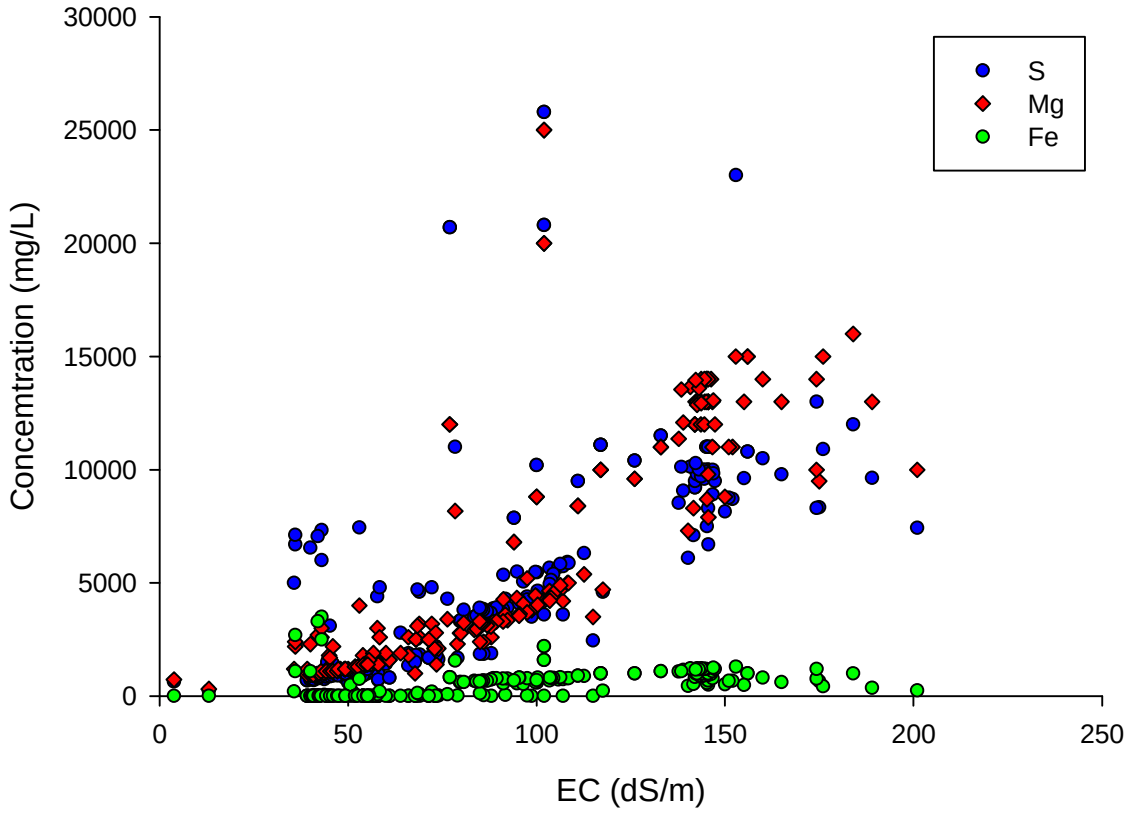

Concemtration (mg/L)
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
pH
Cr
Ni
Zn

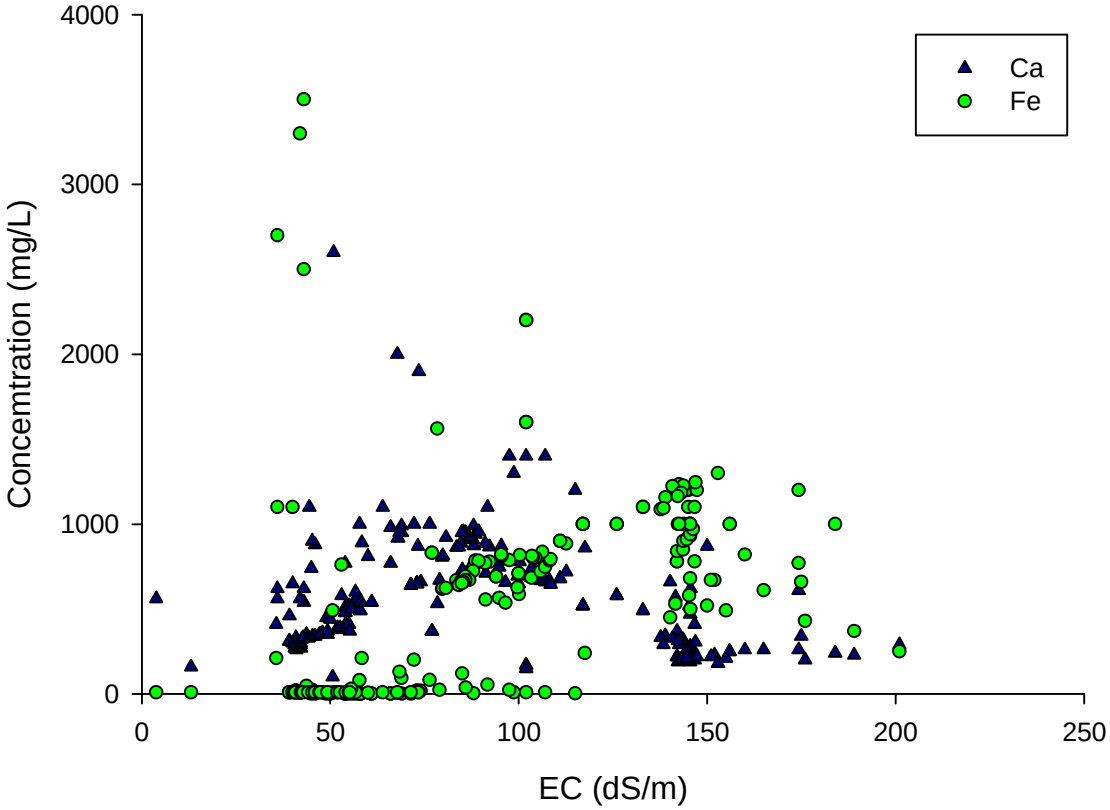

Concemtration (mg/L)
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
pH
Cu
Pb
Cd

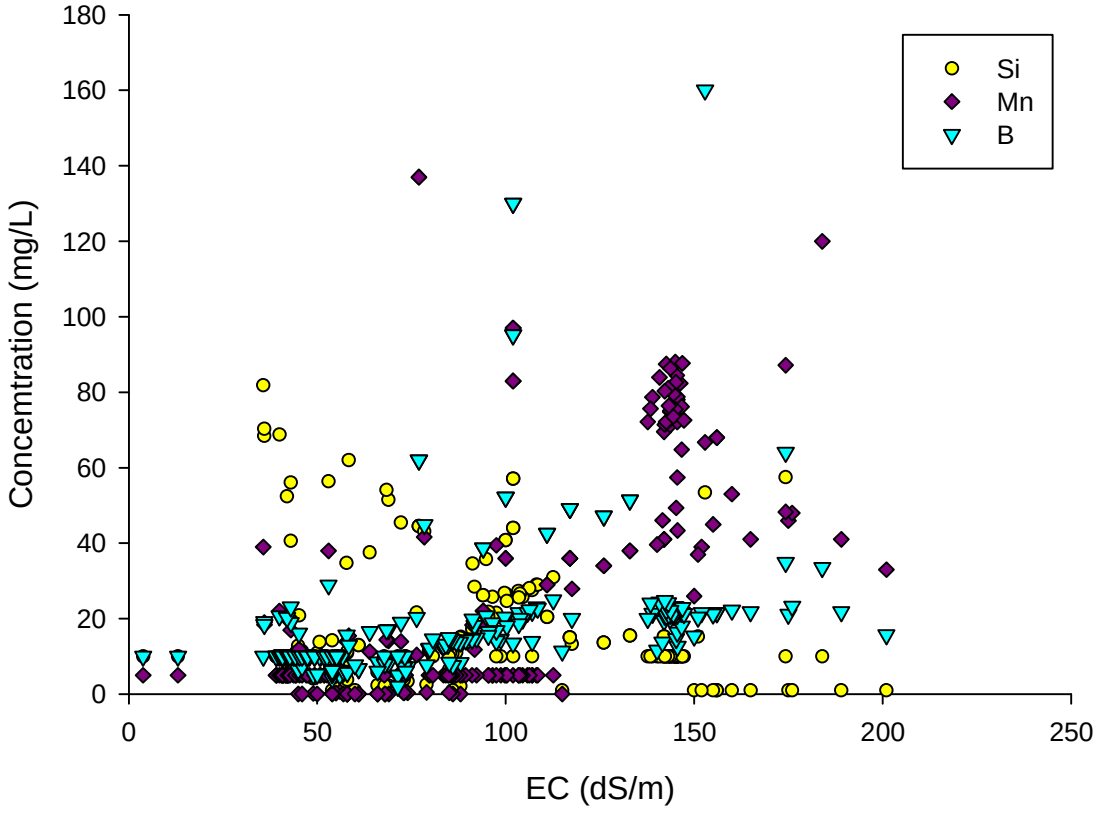

Concemtration (mg/L)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1
2
3
4
5
6
7
8
9
pH
Na
Cl

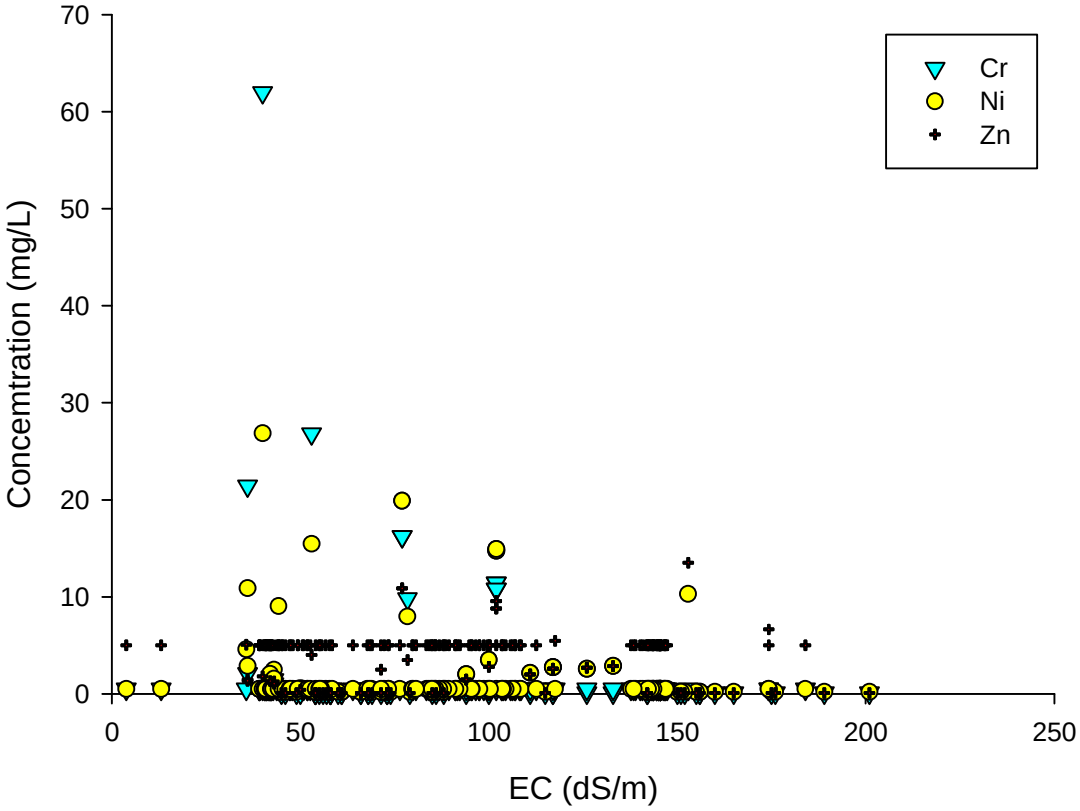

EC (dS/m)
250
200
150
100
50
0
1
2
3
4
5
6
7
8
9
pH
waters

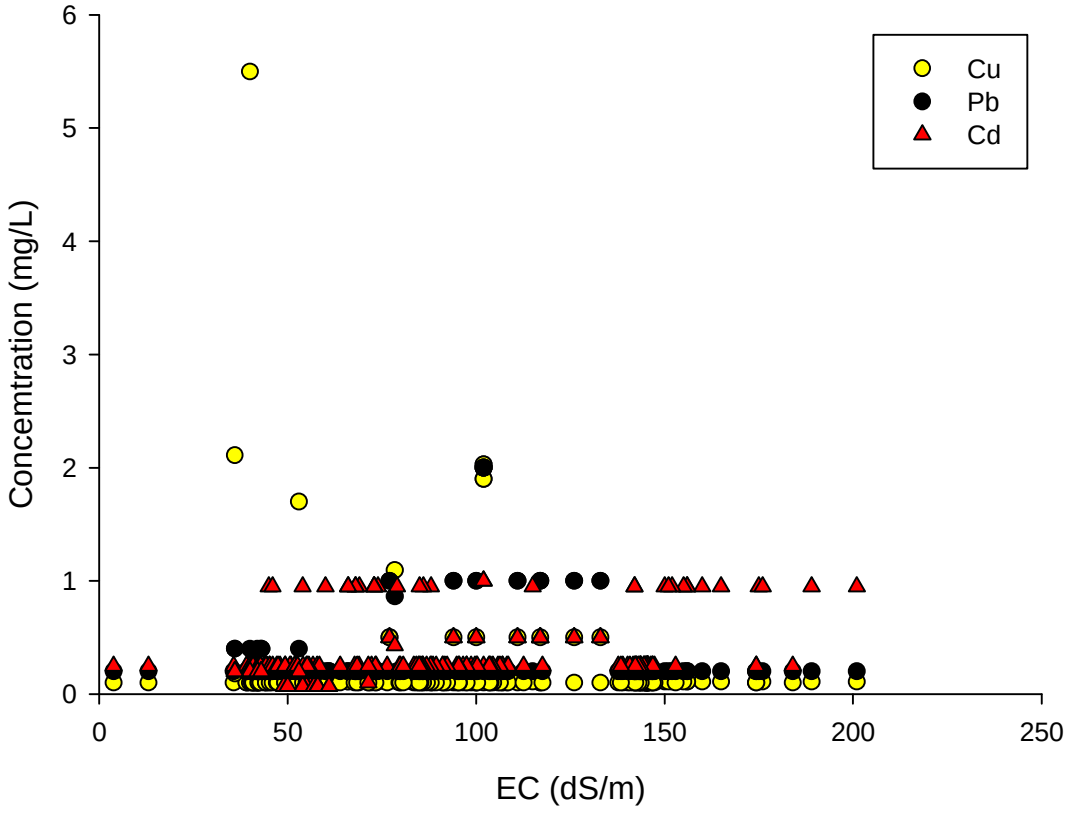

6000
5000
4000
3000
2000
1000
0
Concemtration (mg/L)
0
50
100
150
200
250
EC (dS/m)
Al
K
Fe

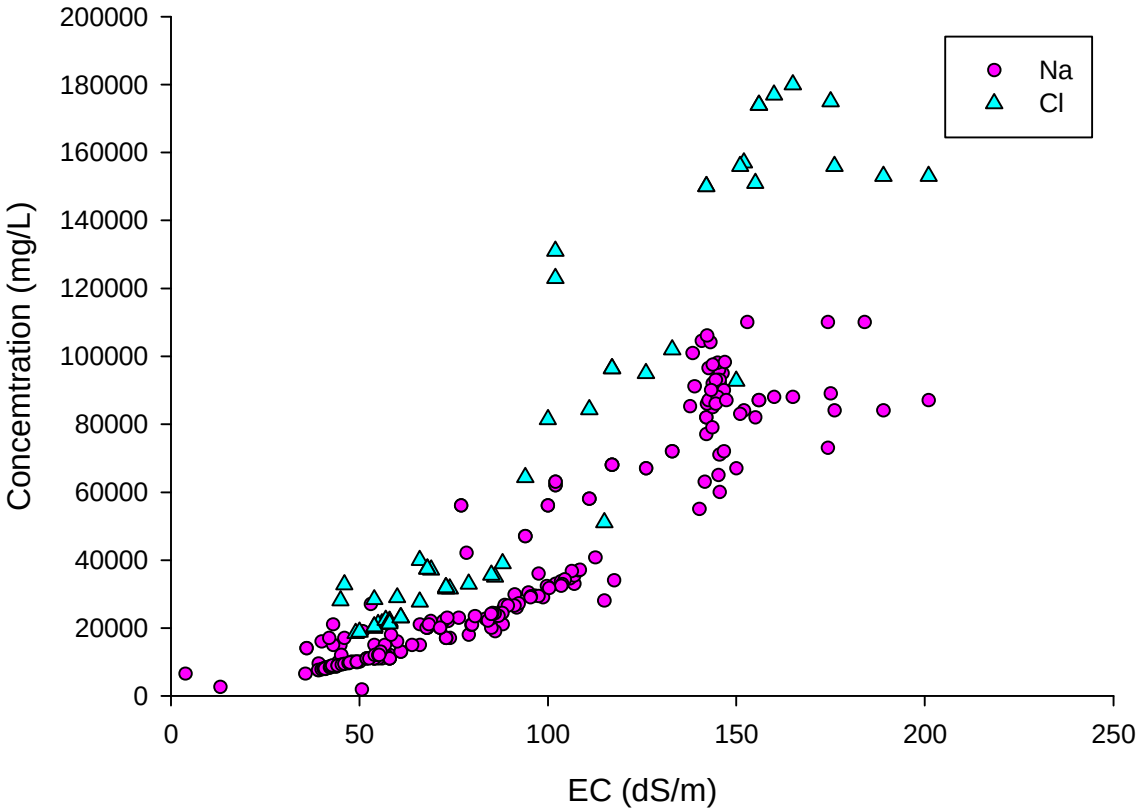

30000
25000
20000
15000
10000
5000
0
Concemtration (mg/L)
0
50
100
150
200
250
EC (dS/m)
S
Mg
Fe

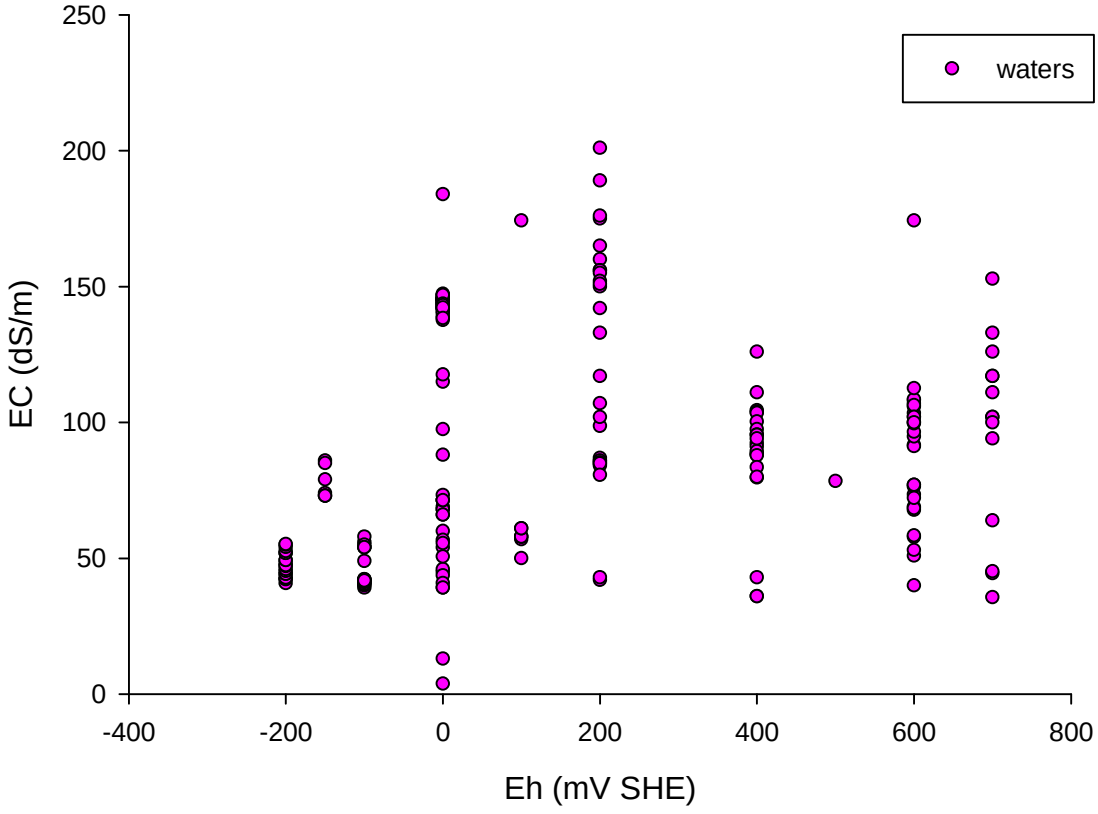

Concemtration (mg/L)
4000
3000
2000
1000
0
0
50
100
150
200
250
EC (dS/m)
Ca
Fe

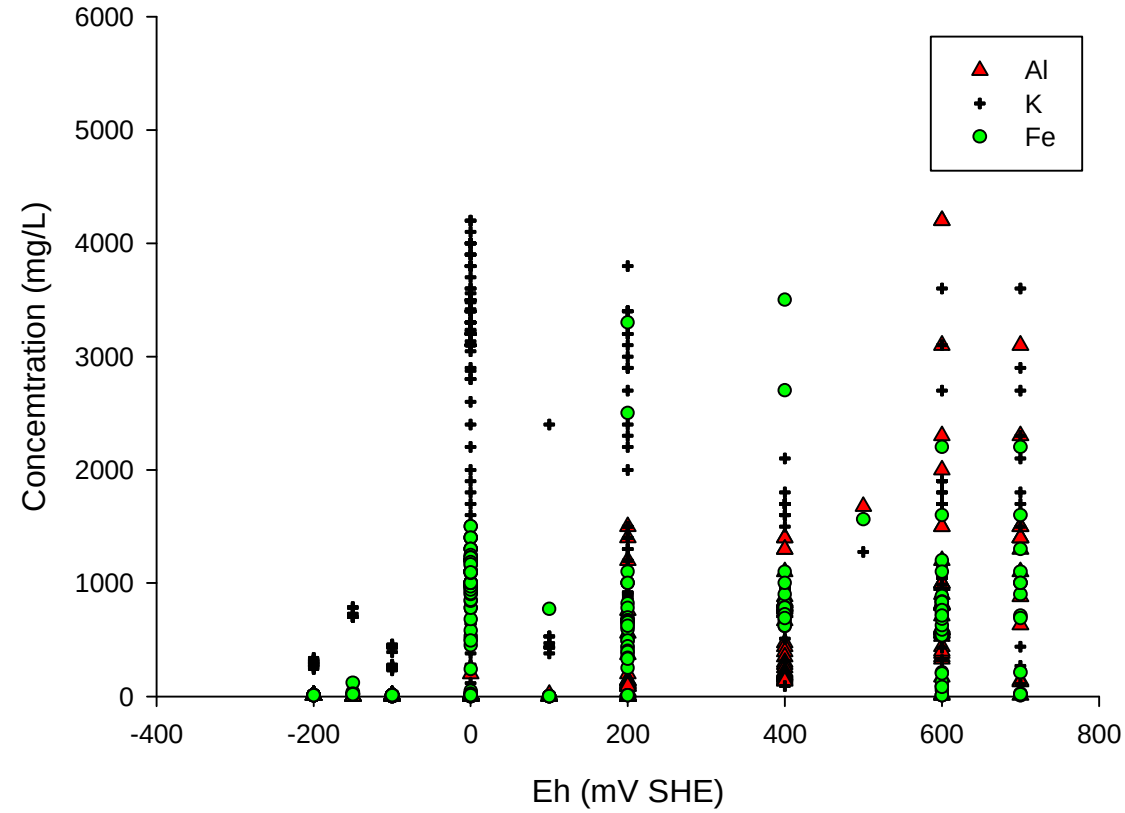

Concemtration (mg/L)
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
250
EC (dS/m)
Si
Mn
B

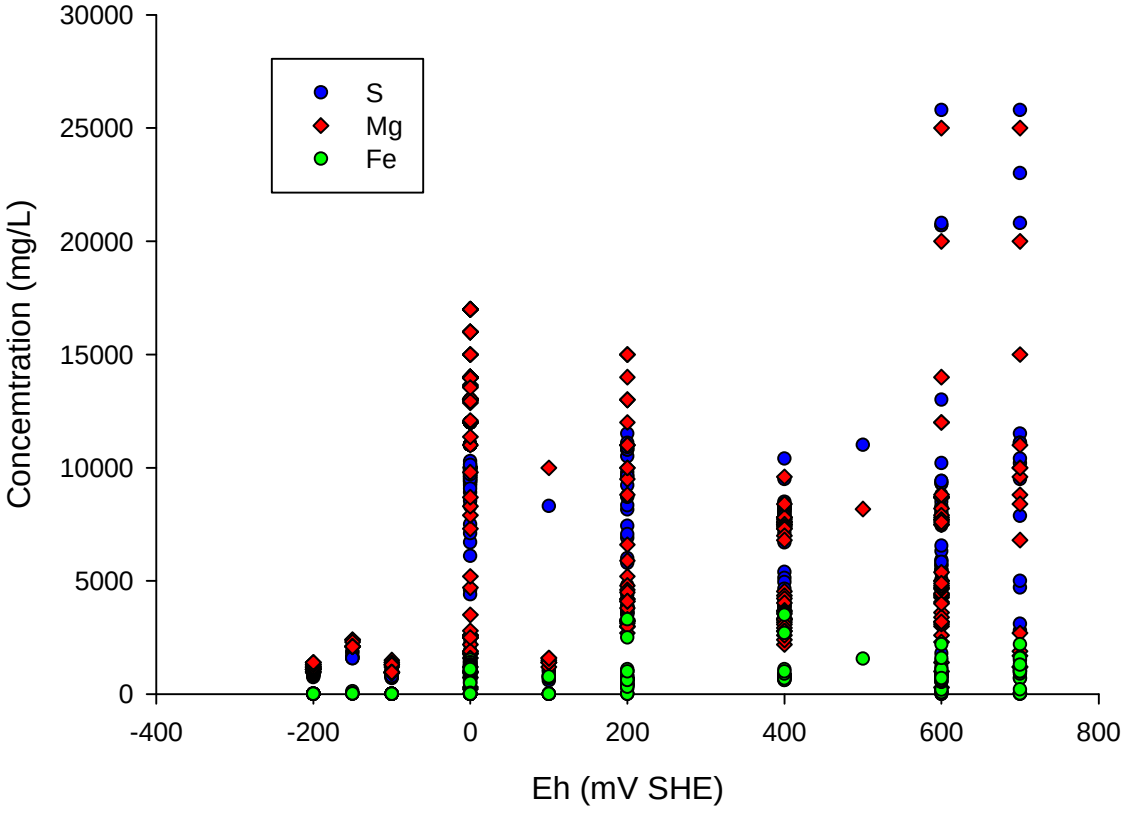

Cr
Ni
Zn
Concemtration (mg/L)
EC (dS/m)
0
10
20
30
40
50
60
70
0
50
100
150
200
250

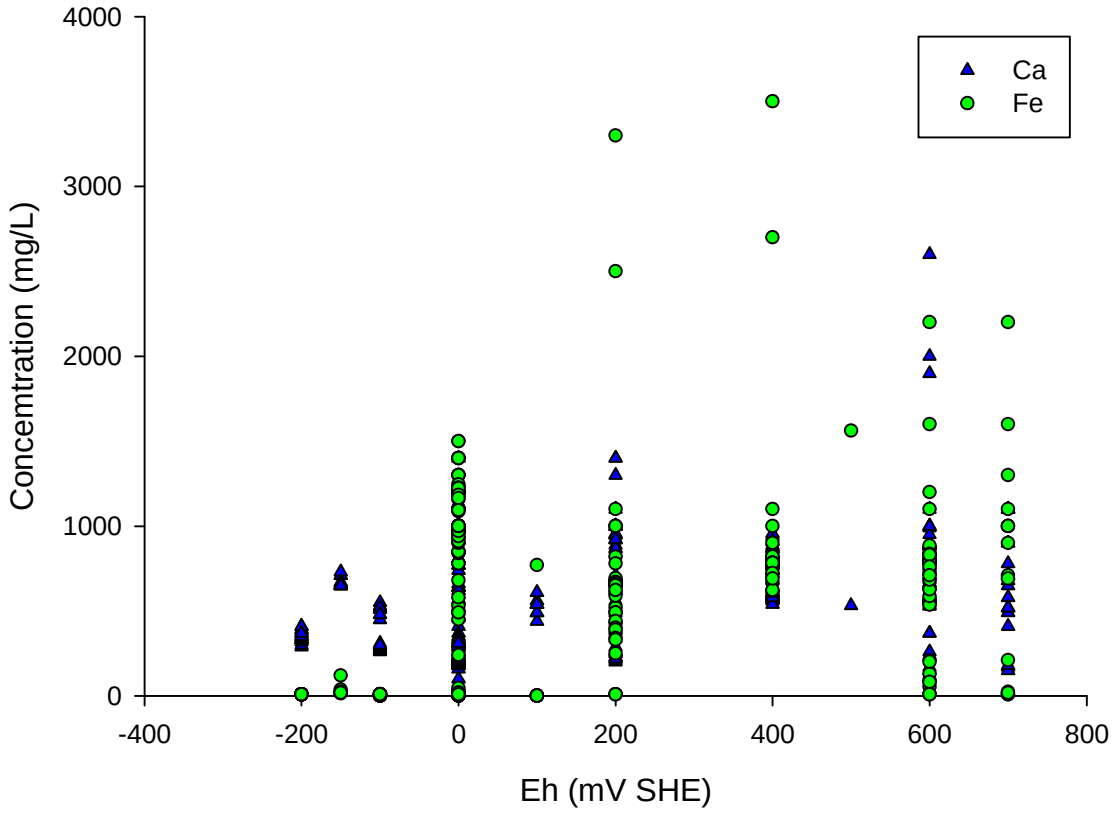

Cu
Pb
Cd
Concemtration (mg/L)
EC (dS/m)
0
1
2
3
4
5
6
0
50
100
150
200
250

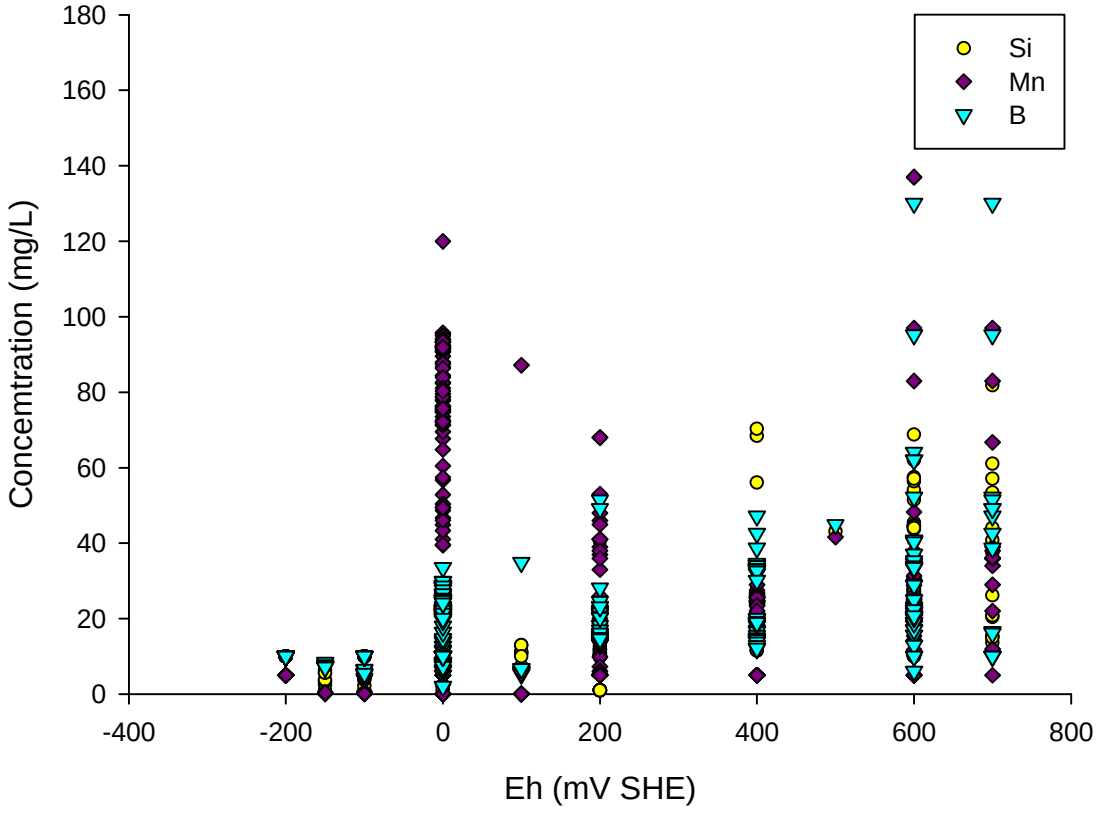

Concemtration (mg/L)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
0
50
100
150
200
250
EC (dS/m)
Na
Cl

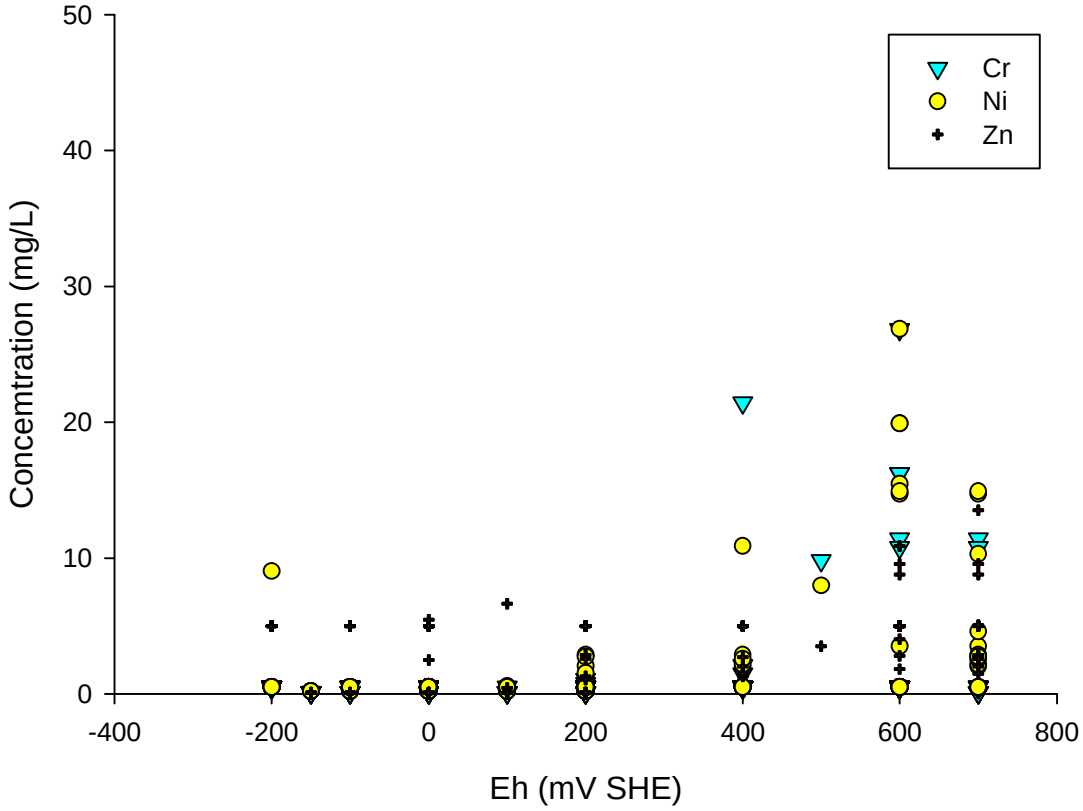

EC (dS/m)
250
200
150
100
50
0
-400
-200
0
200
400
600
800
Eh (mV SHE)
waters

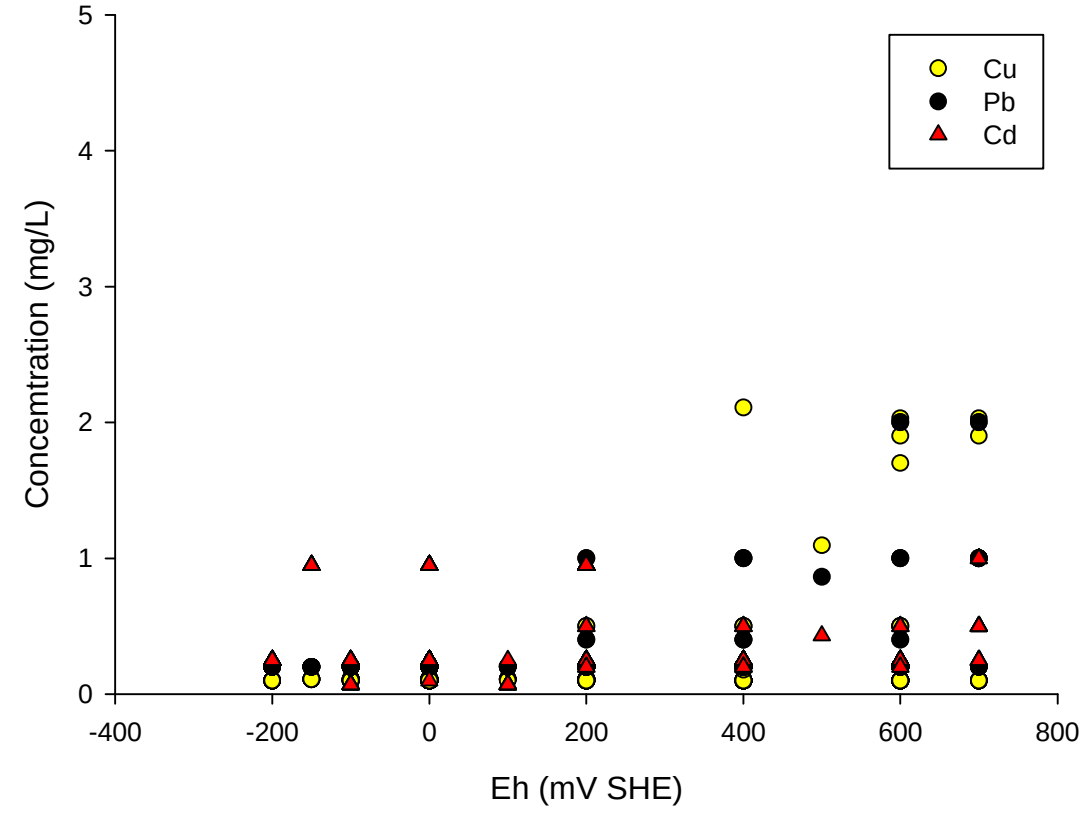

6000
5000
4000
3000
2000
1000
0
Concemtration (mg/L)
-400
-200
0
200
400
600
800
Eh (mV SHE)
Al
K
Fe

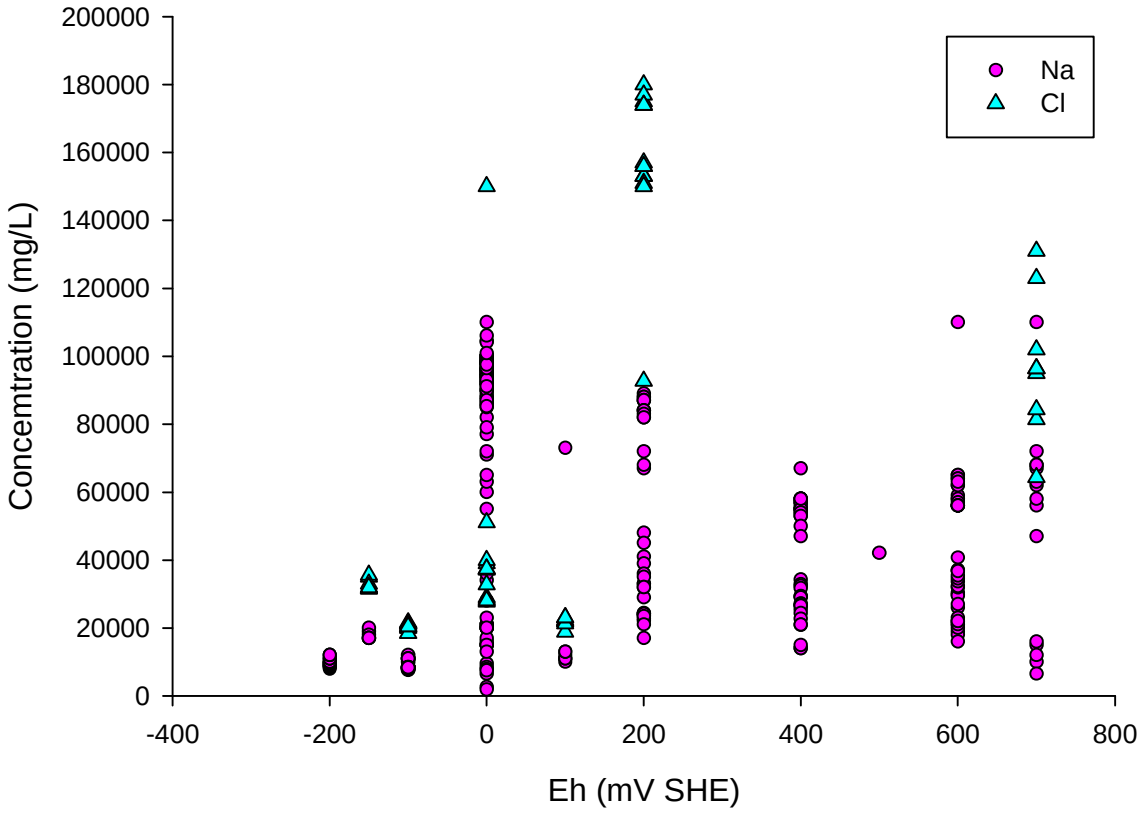

30000
25000
20000
15000
10000
5000
0
Concemtration (mg/L)
-400
-200
0
200
400
600
800
Eh (mV SHE)
S
Mg
Fe

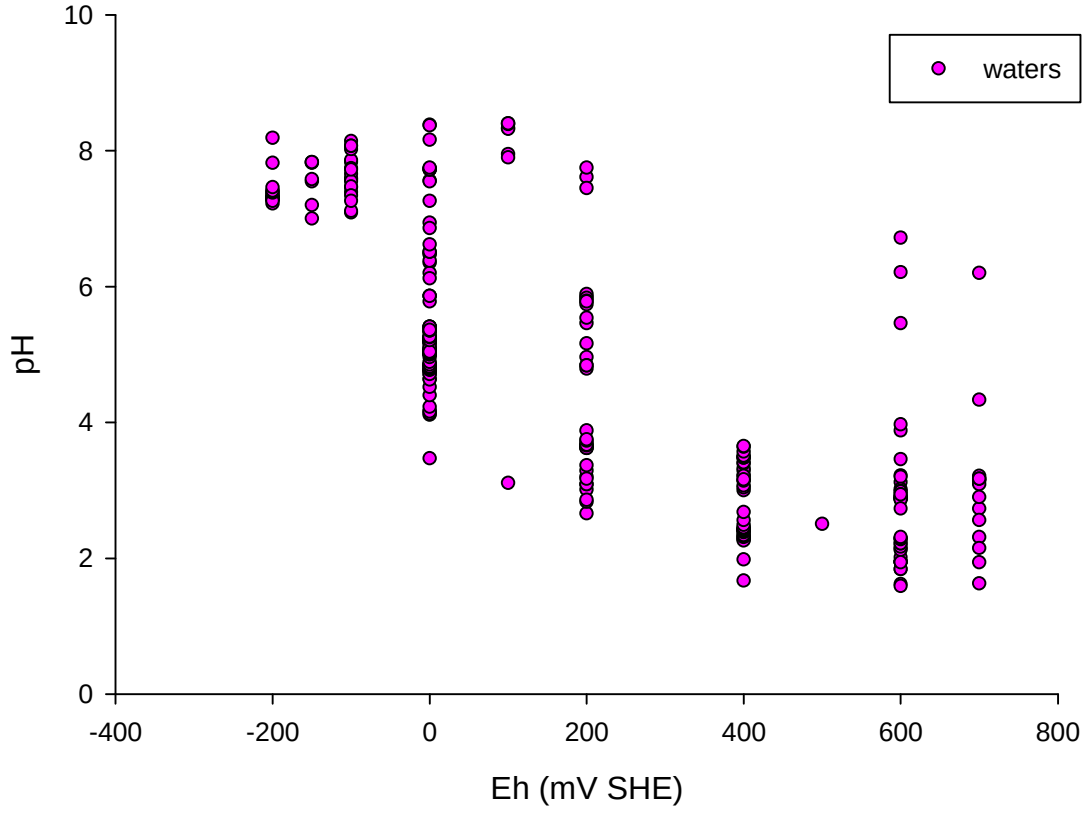

4000
3000
2000
1000
0
Concemtration (mg/L)
Ca
Fe
-400
-200
0
200
400
600
800
Eh (mV SHE)

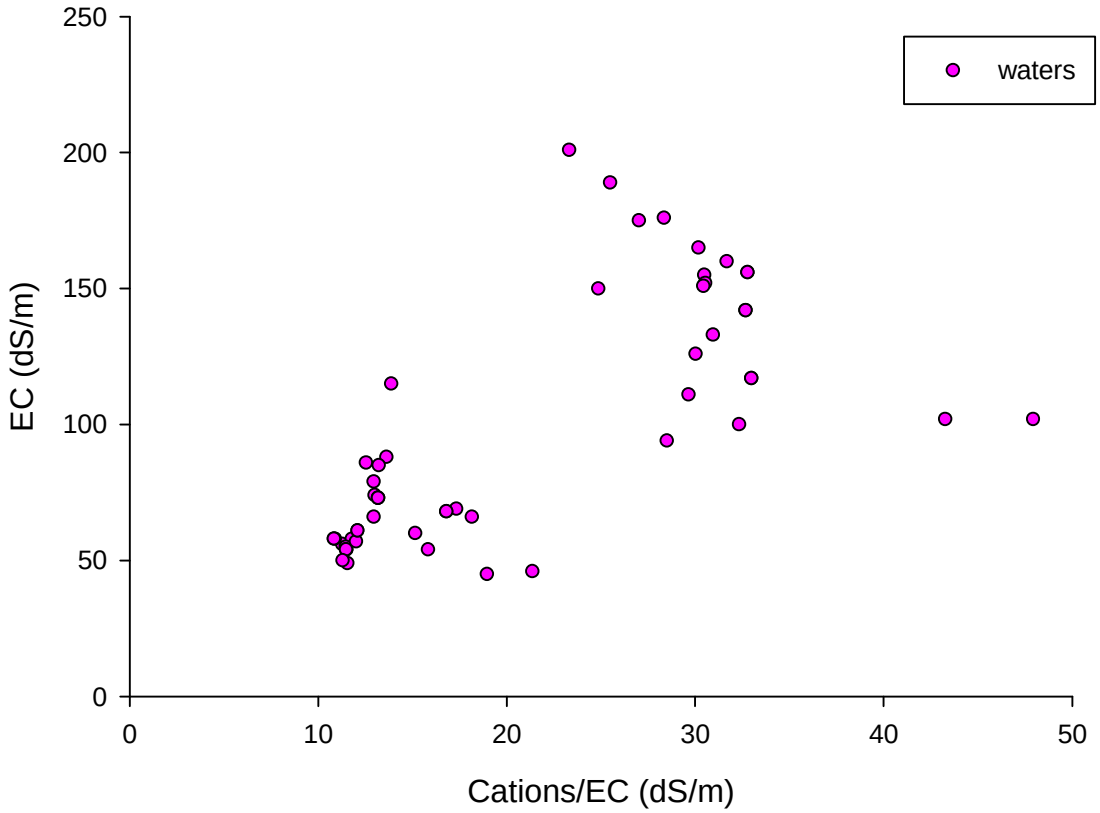

180
160
140
120
100
80
60
40
20
0
Concemtration (mg/L)
Si
Mn
B
-400
-200
0
200
400
600
800
Eh (mV SHE)


Cr
Ni
Zn
Concemtration (mg/L)
Eh (mV SHE)
50
40
30
20
10
0
-400
-200
0
200
400
600
800


Cu
Pb
Cd
Concemtration (mg/L)
Eh (mV SHE)
5
4
3
2
1
0
-400
-200
0
200
400
600
800

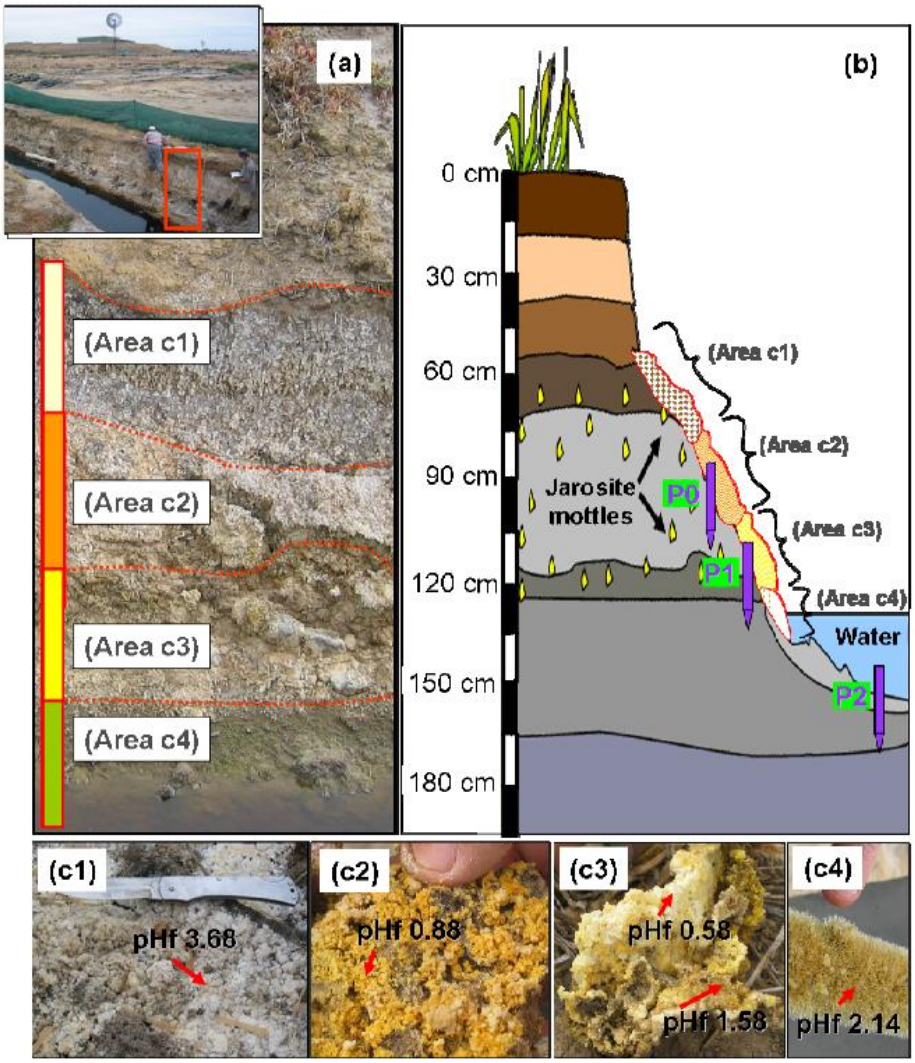

Concemtration (mg/L)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
-400
-200
0
200
400
600
800
Eh (mV SHE)
Na
Cl

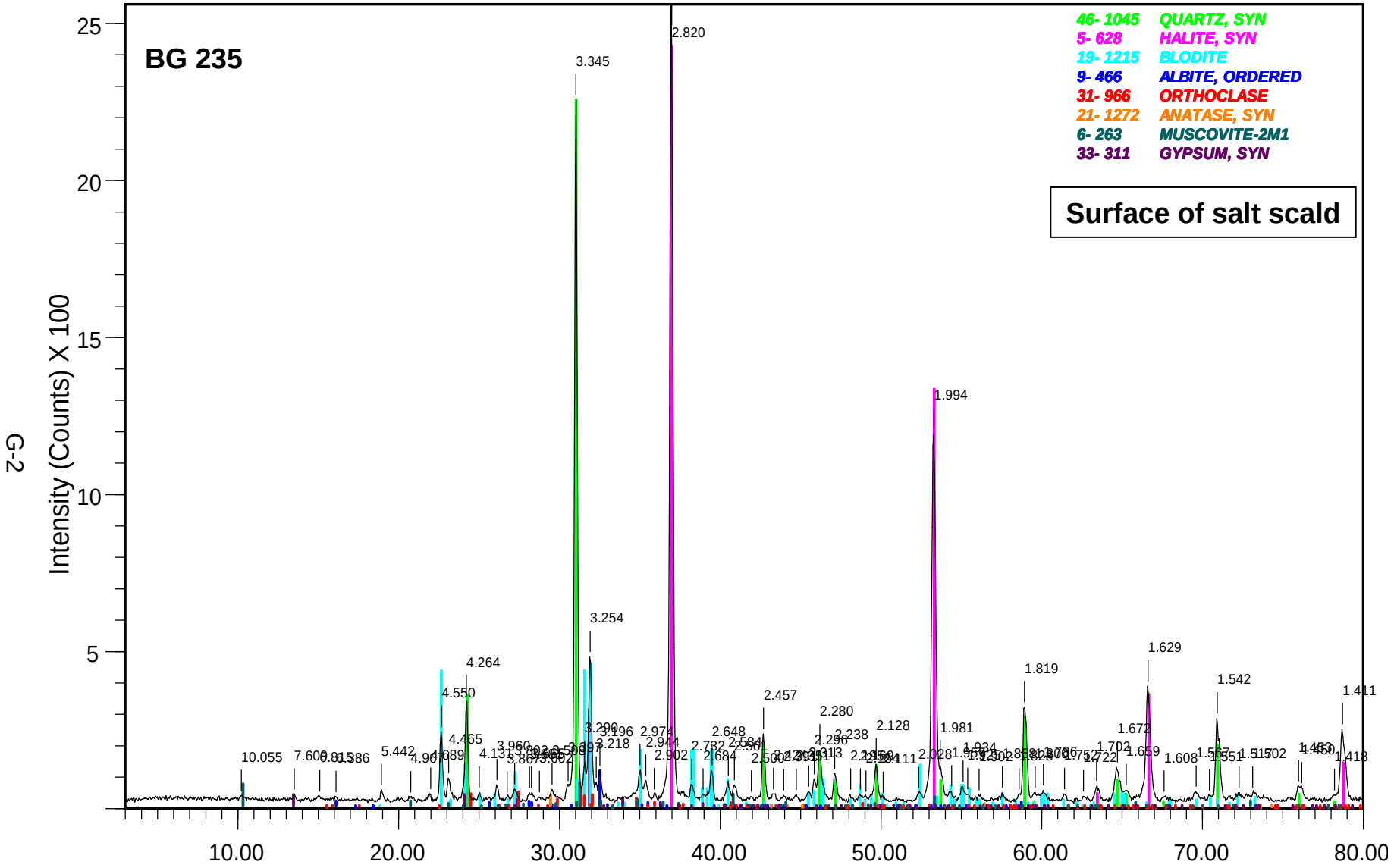

pH
10
8
6
4
2
0
-400
-200
0
200
400
600
800
Eh (mV SHE)
waters

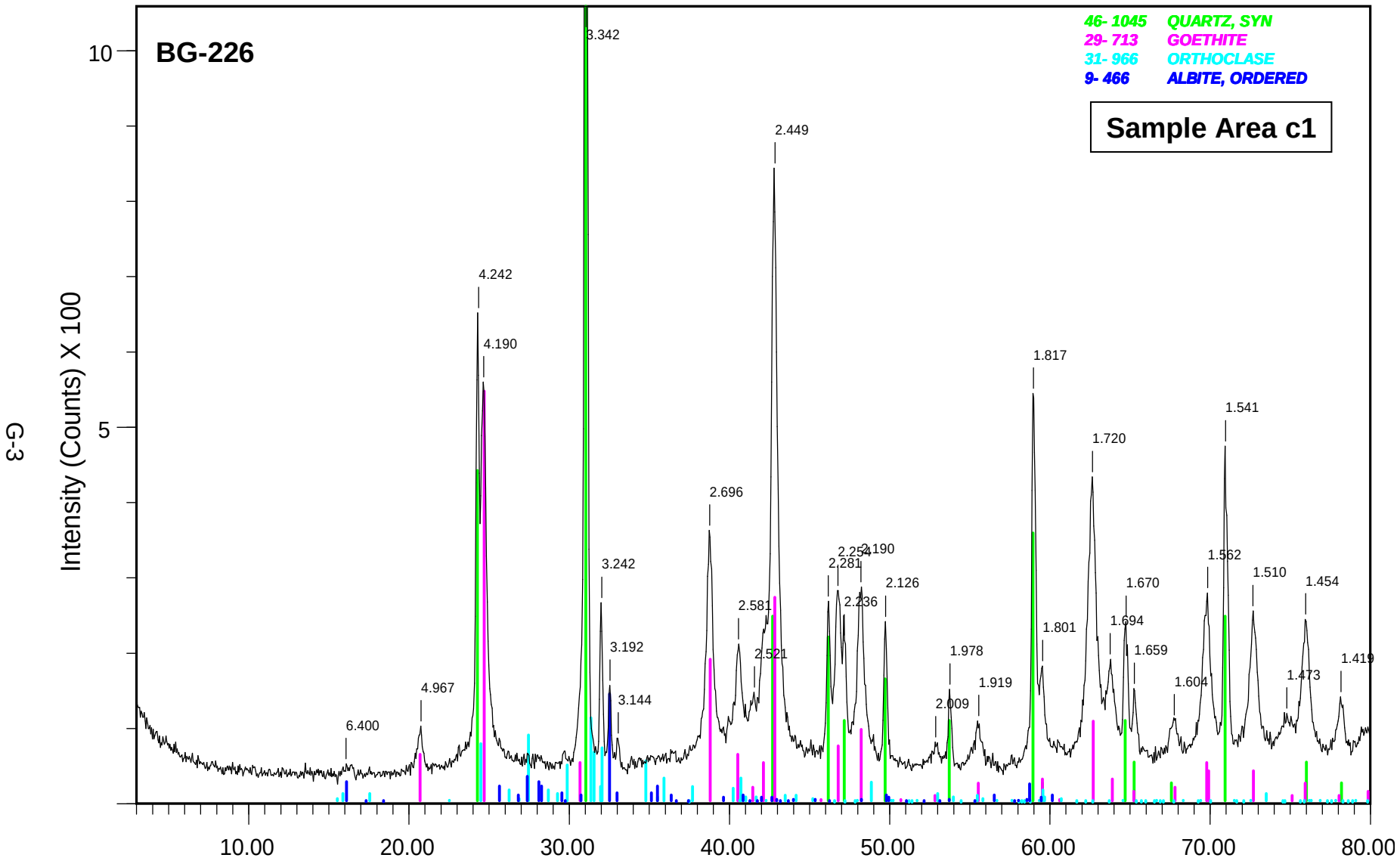

250
200
150
100
50
0
EC (dS/m)
0
10
20
30
40
50
Cations/EC (dS/m)
waters

Appendix G

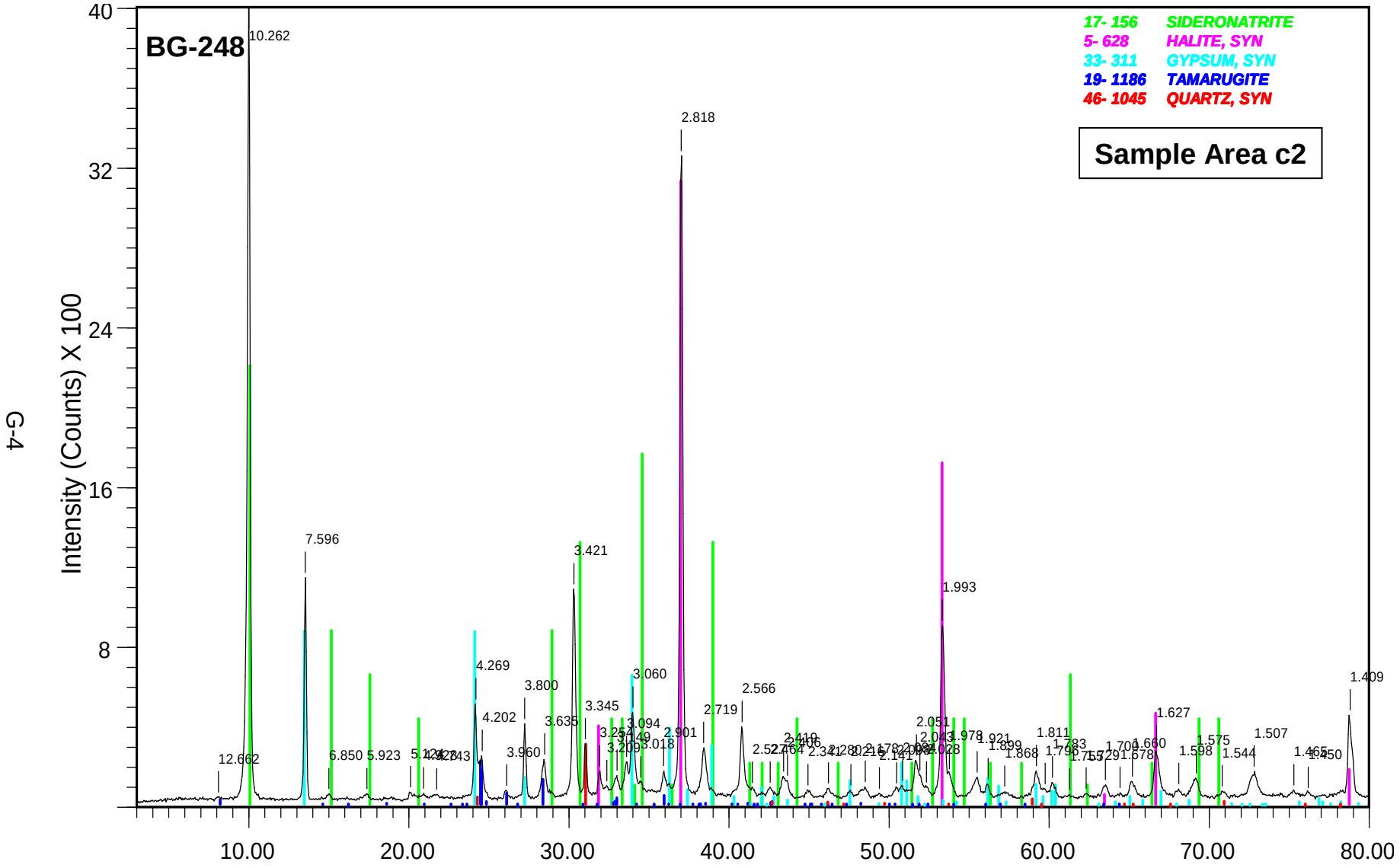
Mineralogy, XRD spectra and EDX spectra



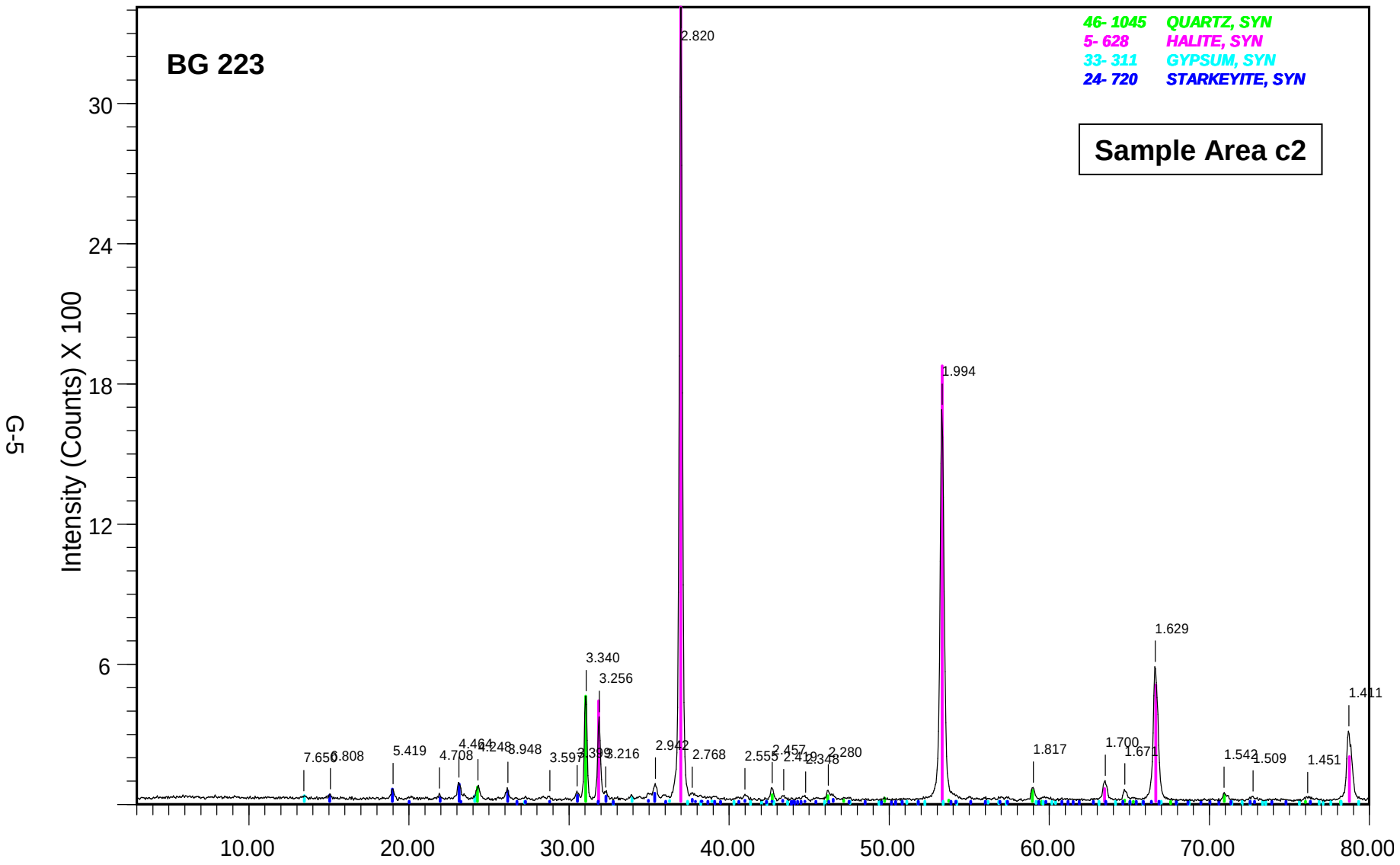

BG 235
G-2
Intensity (Counts) X 100
25
20
15
10
5
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
19- 1215 BLODITE
9- 466 ALBITE, ORDERED
31- 966 ORTHOCLASE
21- 1272 ANATASE, SYN
6- 263 MUSCOVITE-2M1
33- 311 GYPSUM, SYN
Surface of salt scald
2.820
3.345
1.994
3.254
4.264
4.550
4.465
2.457
2.280
1.819
1.629
1.542
1.411
10.055
5.442
3.290
3.196
3.218
2.974
2.944
2.902
2.782
2.684
2.648
2.584
2.561
2.238
2.128
1.981
1.934
1.702
1.672
1.639
1.608
1.453
1.418

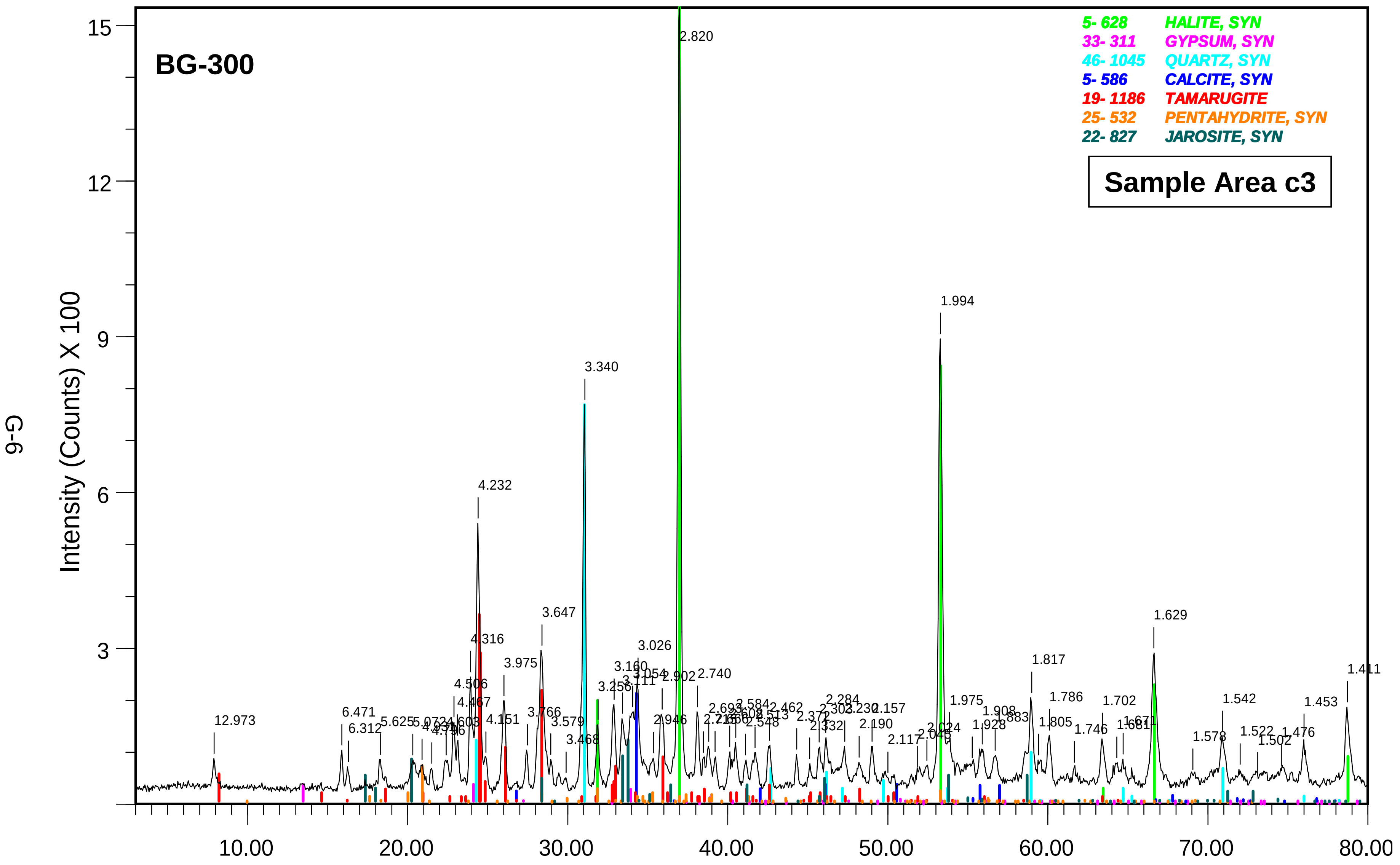

BG-226
46- 1045 QUARTZ, SYN
29- 713 GOETHITE
31- 966 ORTHOCLASE
9- 466 ALBITE, ORDERED
Sample Area c1
Intensity (Counts) X 100
10
5
3.342
2.449
4.242
4.190
1.817
1.541
1.720
2.696
3.242
2.254
2.281
2.190
2.126
1.562
1.510
1.454
1.670
2.581
2.236
1.801
1.694
1.659
1.978
1.604
1.473
1.419
2.521
1.919
3.192
3.144
4.967
6.400
2.009
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

G-3

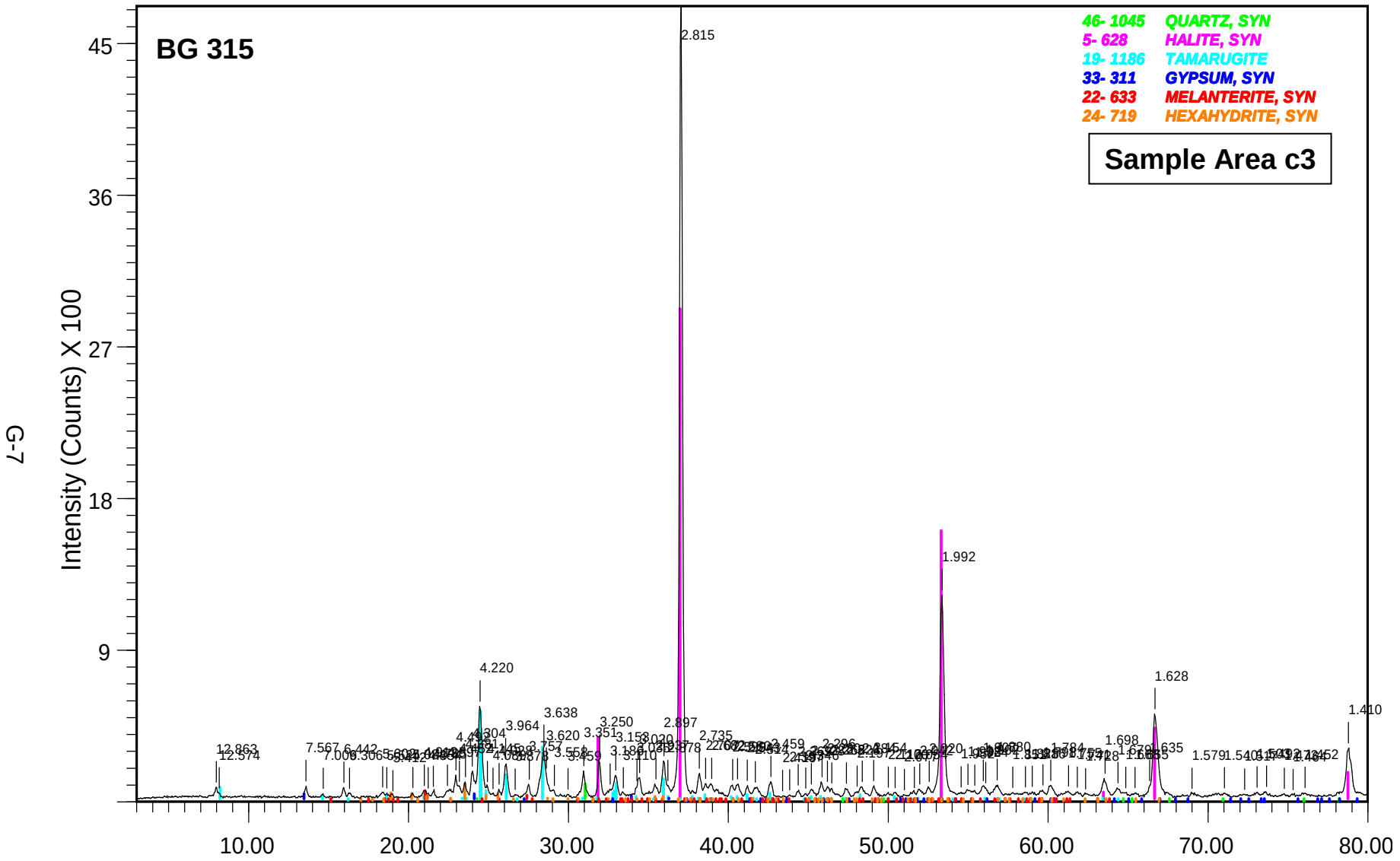

BG-248
17- 156 SIDERONATRITE
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
19- 1186 TAMARUGITE
46- 1045 QUARTZ, SYN
Sample Area c2
Intensity (Counts) X 100
40
32
24
16
8
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
10.262
2.818
7.596
3.421
1.993
4.269
3.800
3.060
2.566
3.345
2.719
4.202
3.635
3.094
2.901
3.960
12.662
6.850
5.923
1.627
1.409
1.507
1.575
1.544
1.558
1.465
1.450

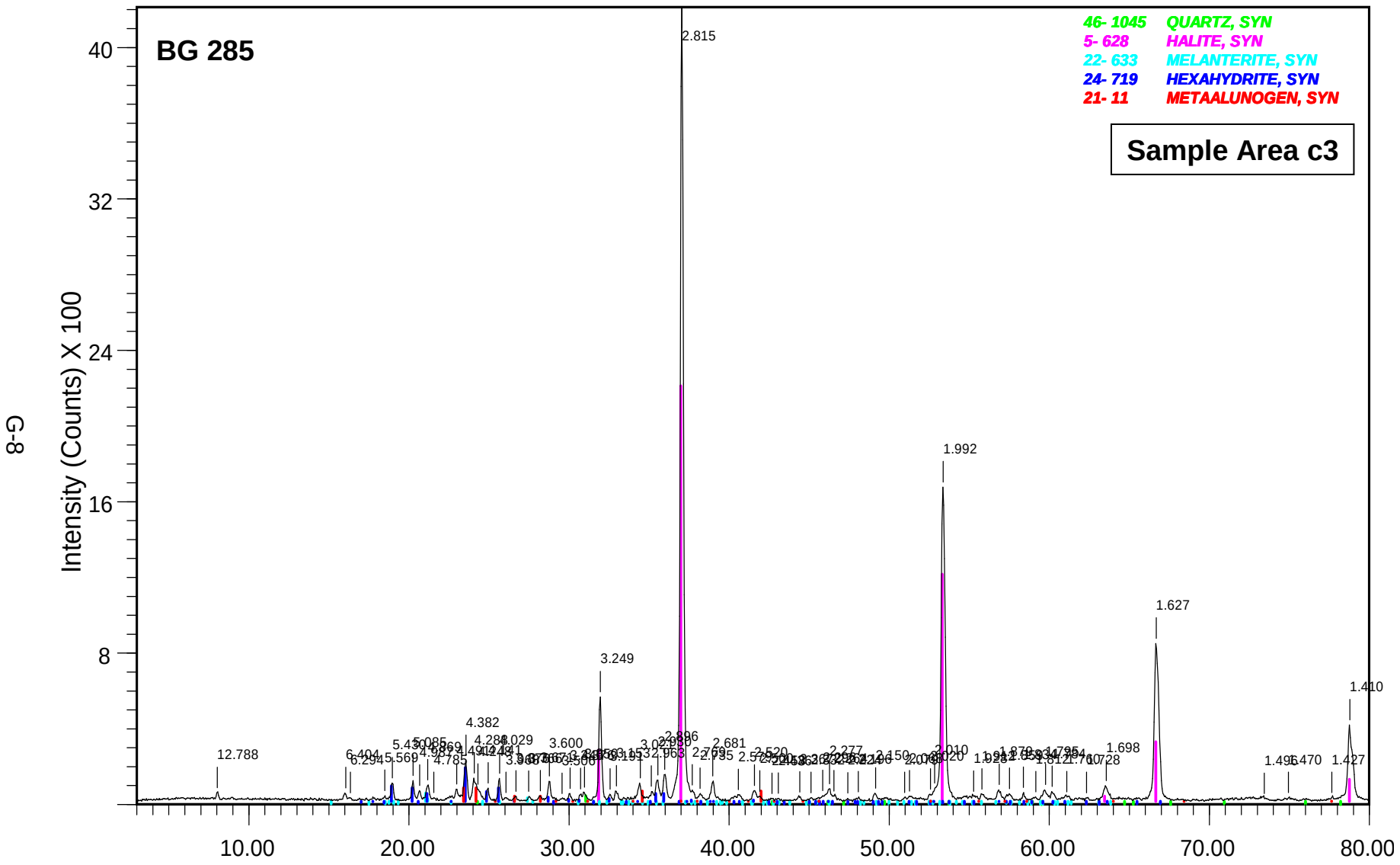
G-4

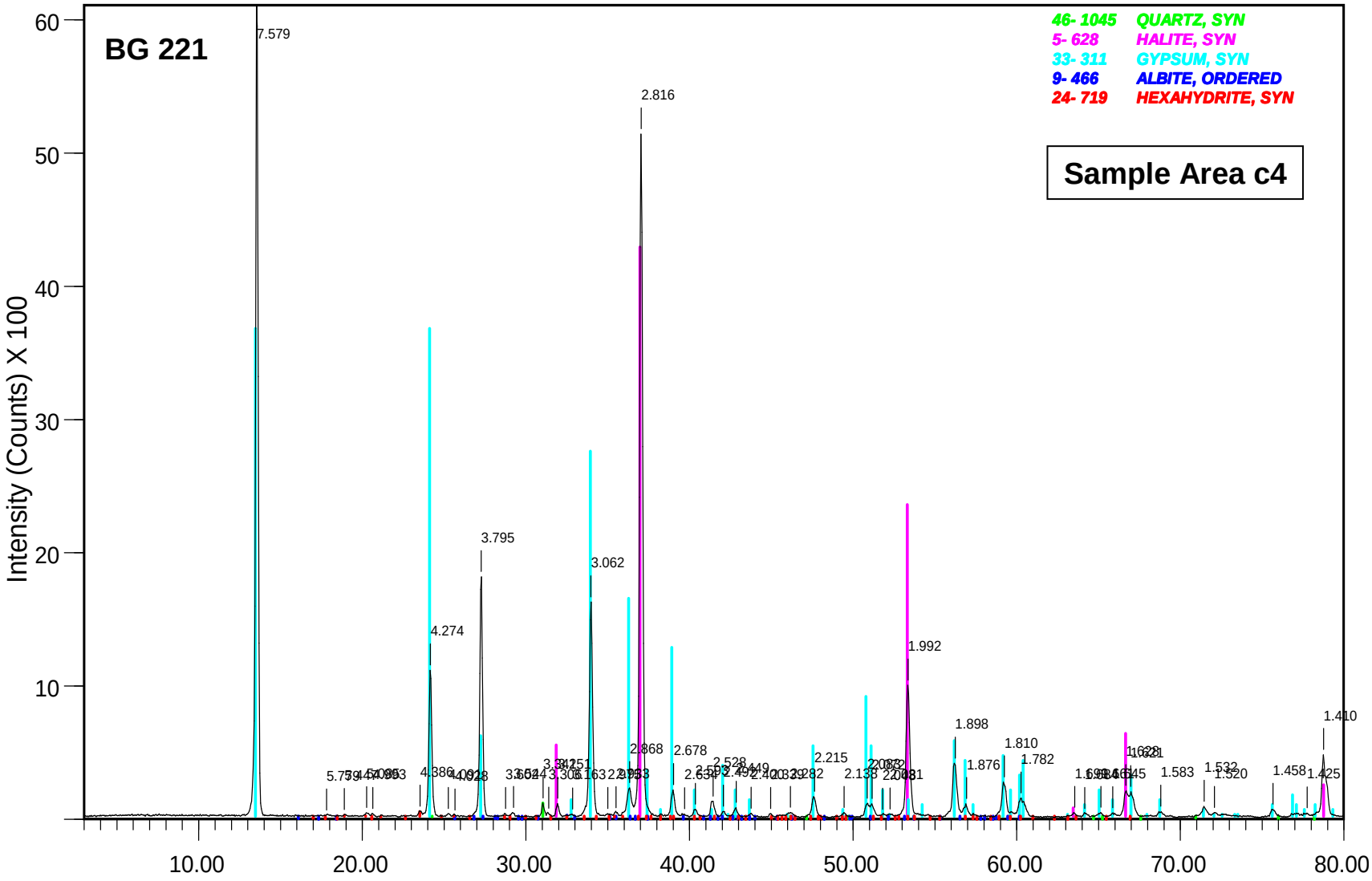

BG 223
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
24- 720 STARKEYITE, SYN
Sample Area c2
Intensity (Counts) X 100
G-5
30
24
18
12
6
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
2.820
1.994
3.340
3.256
1.629
1.411
7.656
6.808
5.419
4.708
4.464
4.248
3.948
3.597
3.399
3.216
2.942
2.768
2.555
2.457
2.419
2.348
2.280
1.817
1.700
1.671
1.542
1.509
1.451

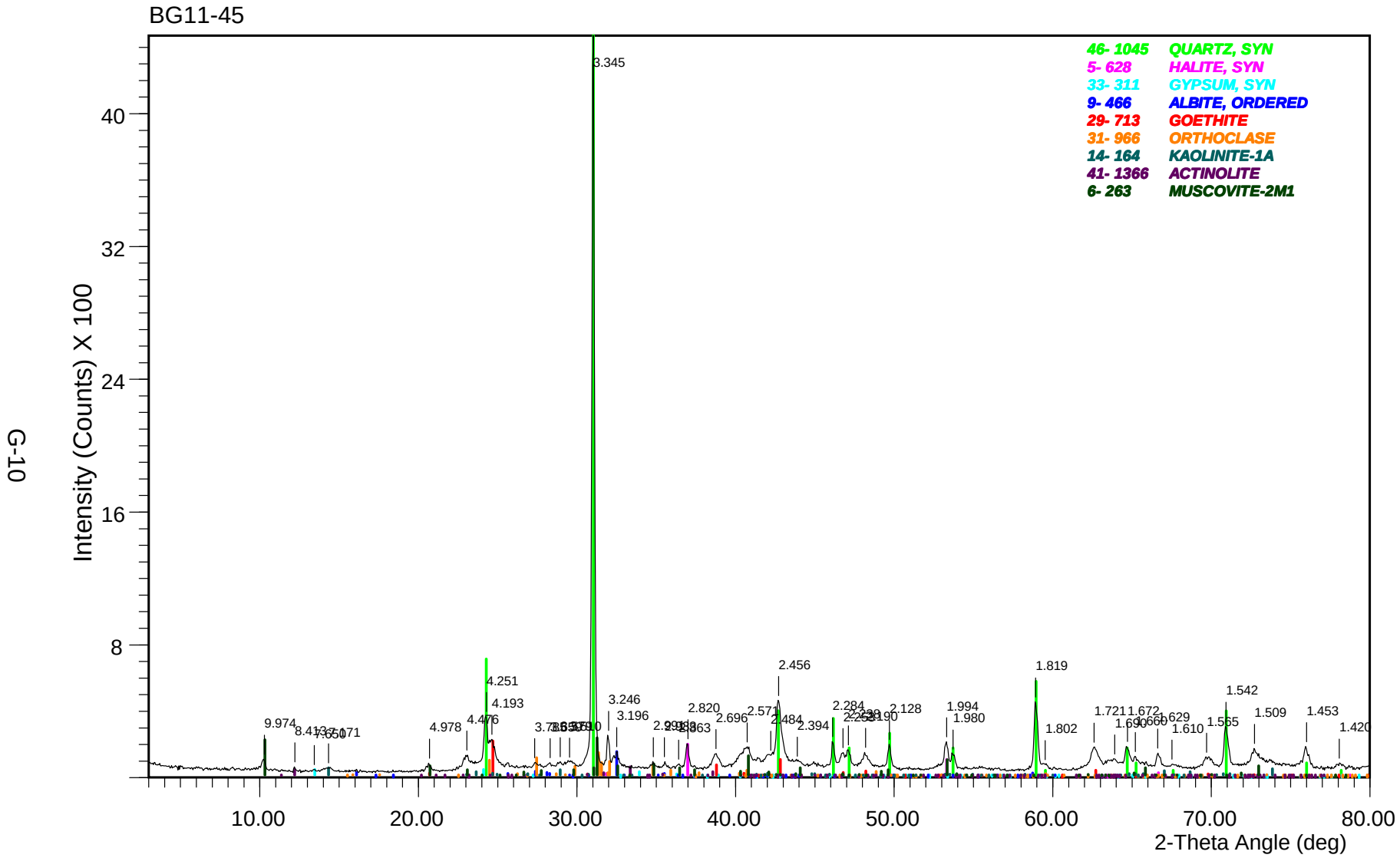


BG-300
Sample Area c3
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
46- 1045 QUARTZ, SYN
5- 586 CALCITE, SYN
19- 1186 TAMARUGITE
25- 532 PENTAHYDRITE, SYN
22- 827 JAROSITE, SYN
Intensity (Counts) X 100
G-9
2.820
1.994
3.340
4.232
3.647
1.629
1.817
1.411
12.973


BG 315
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
19- 1186 TAMARUGITE
33- 311 GYPSUM, SYN
22- 633 MELANTERITE, SYN
24- 719 HEXAHYDRITE, SYN
Sample Area c3
Intensity (Counts) X 100
45
36
27
18
9
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
2.815
1.992
4.220
1.628
1.410
3.638
3.964
3.250
3.351
2.897
3.620
2.735
12.863
12.574
7.567
1.698
1.579
G-7

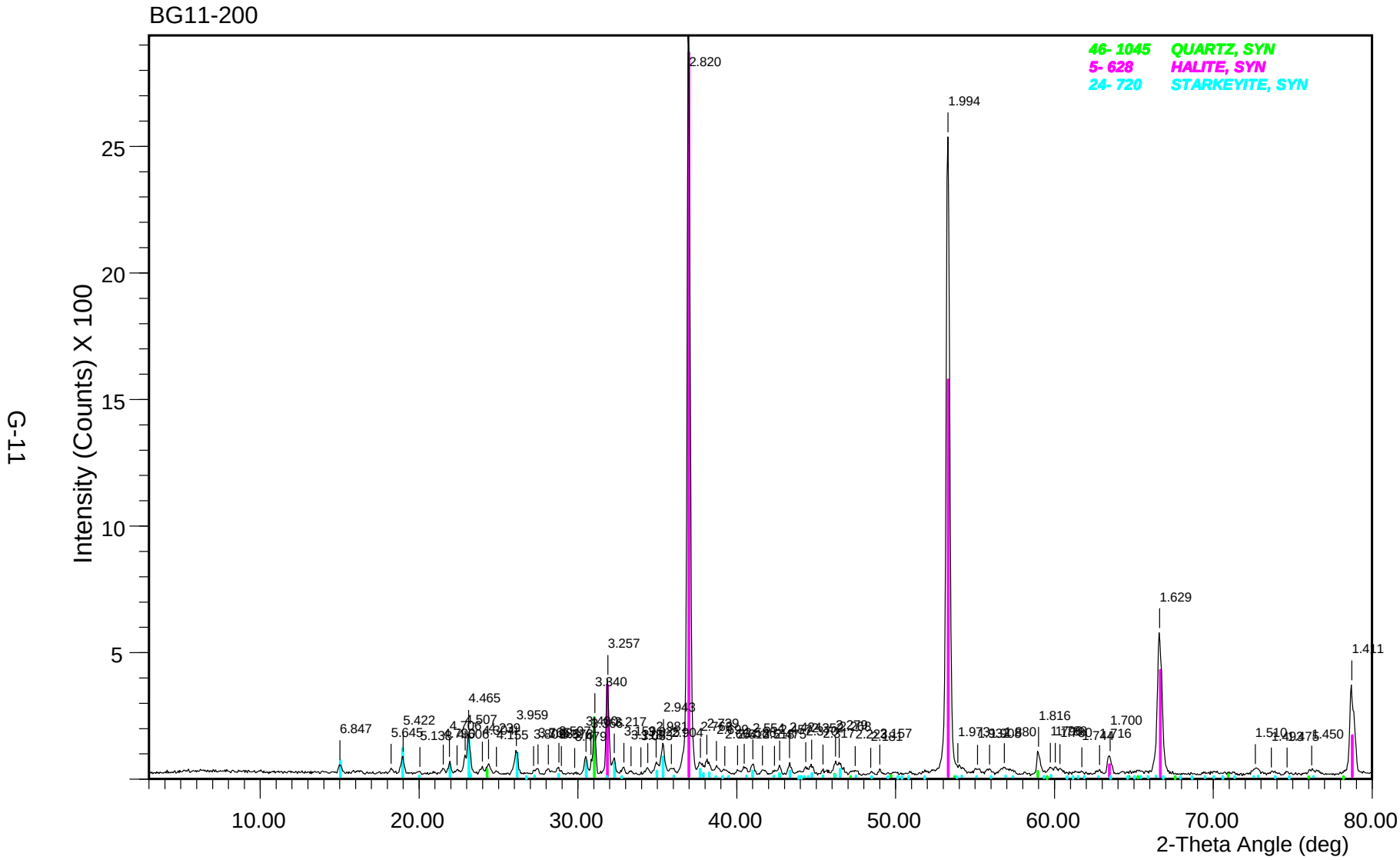

BG 285
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
22- 633 MELANTERITE, SYN
24- 719 HEXAHYDRITE, SYN
21- 11 METAALUNOGEN, SYN
Sample Area c3
Intensity (Counts) X 100
G-8
40
32
24
16
8
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
2.815
1.992
1.627
3.249
1.410
4.382
12.788
1.698
1.496
1.470
1.427

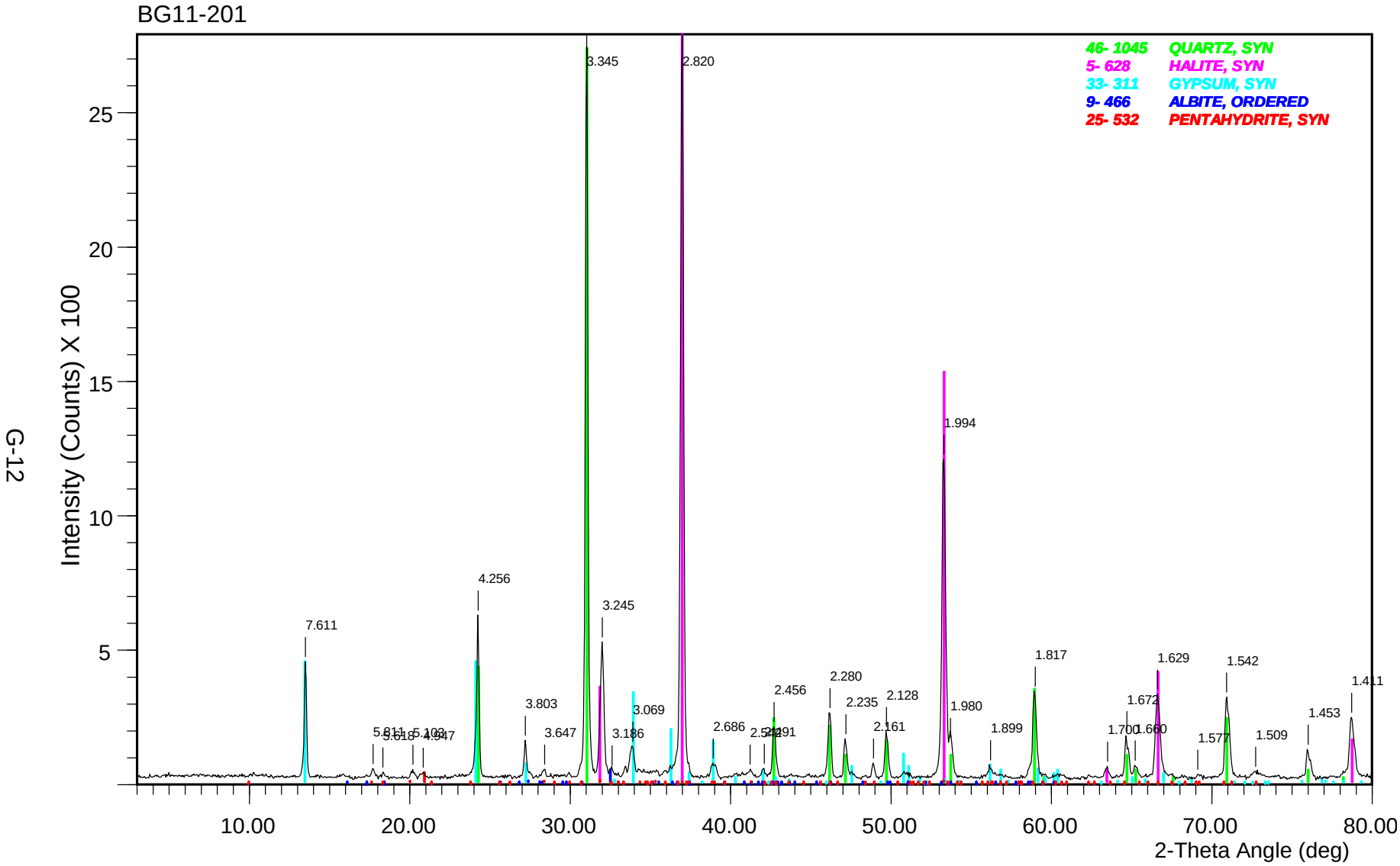

BG 221
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
24- 719 HEXAHYDRITE, SYN
Sample Area c4
Intensity (Counts) X 100
60
50
40
30
20
10
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
7.579
4.274
3.795
3.062
2.816
2.868
2.678
2.215
1.992
1.898
1.876
1.810
1.782
1.583
1.532
1.520
1.458
1.425
1.410


BG11-45
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
29- 713 GOETHITE
31- 966 ORTHOCLASE
14- 164 KAOLINITE-1A
41- 1366 ACTINOLITE
6- 263 MUSCOVITE-2M1
Intensity (Counts) X 100
2-Theta Angle (deg)
3.345
4.251
4.193
4.476
4.978
9.974
3.246
3.196
2.820
2.696
2.571
2.456
2.484
2.394
2.284
2.128
1.994
1.980
1.819
1.802
1.721
1.672
1.629
1.610
1.565
1.542
1.509
1.453
1.420

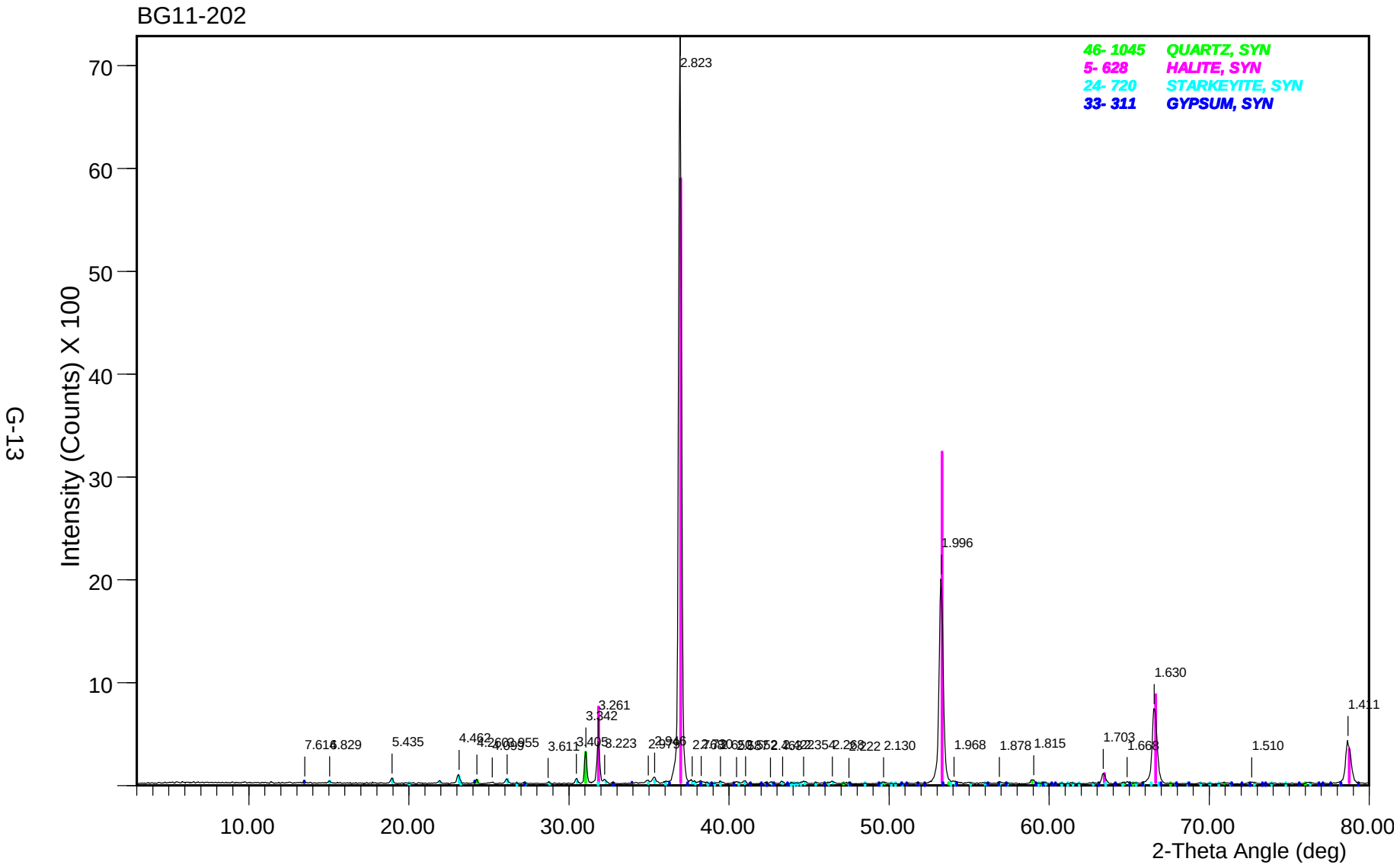
G-10

G-11

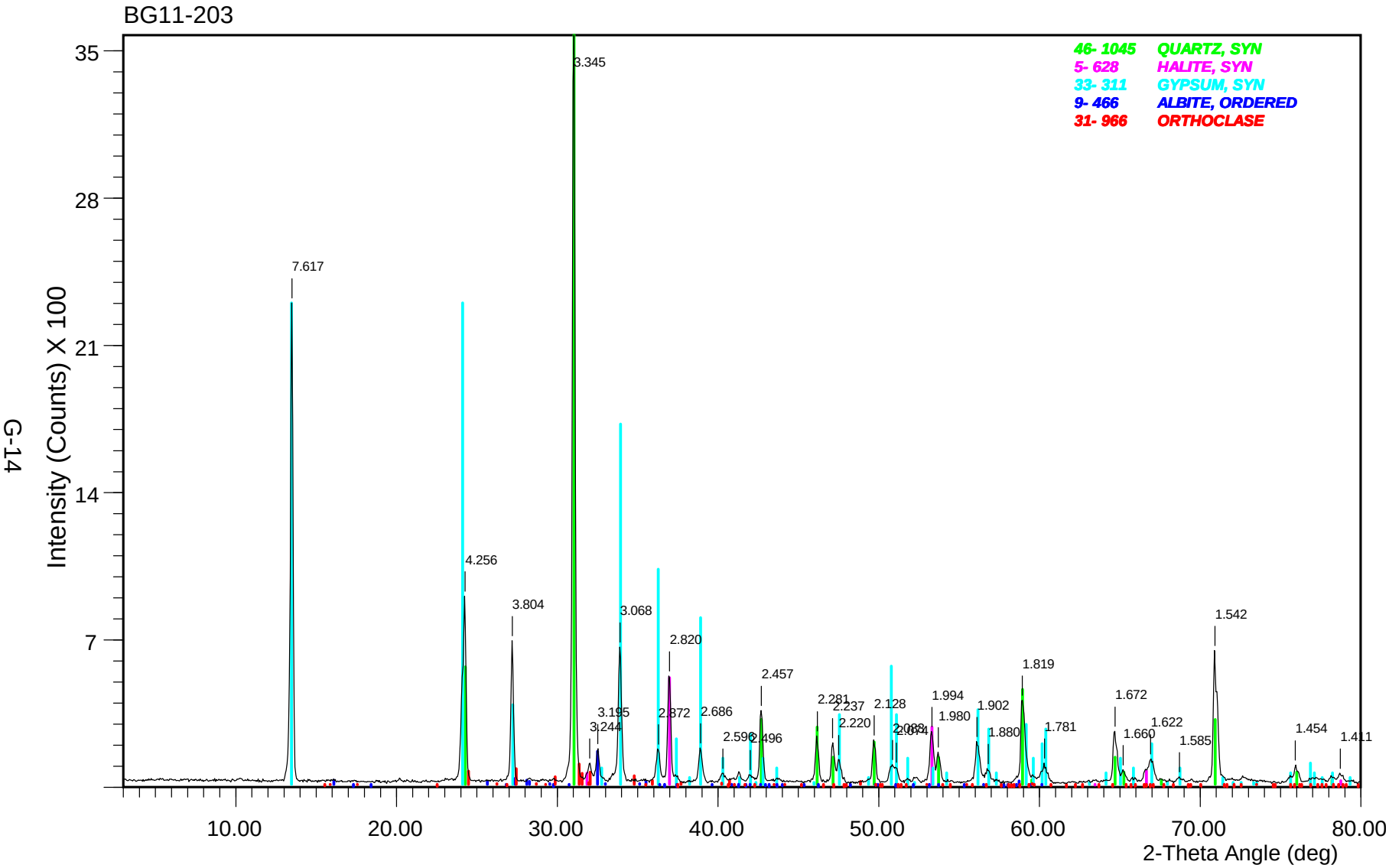

BG11-200
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
24- 720 STARKEYITE, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
2.820
1.994
1.629
1.411
3.257
3.840
4.465
3.959
2.943
6.847
5.422
5.645
1.816
1.700
1.510
1.450

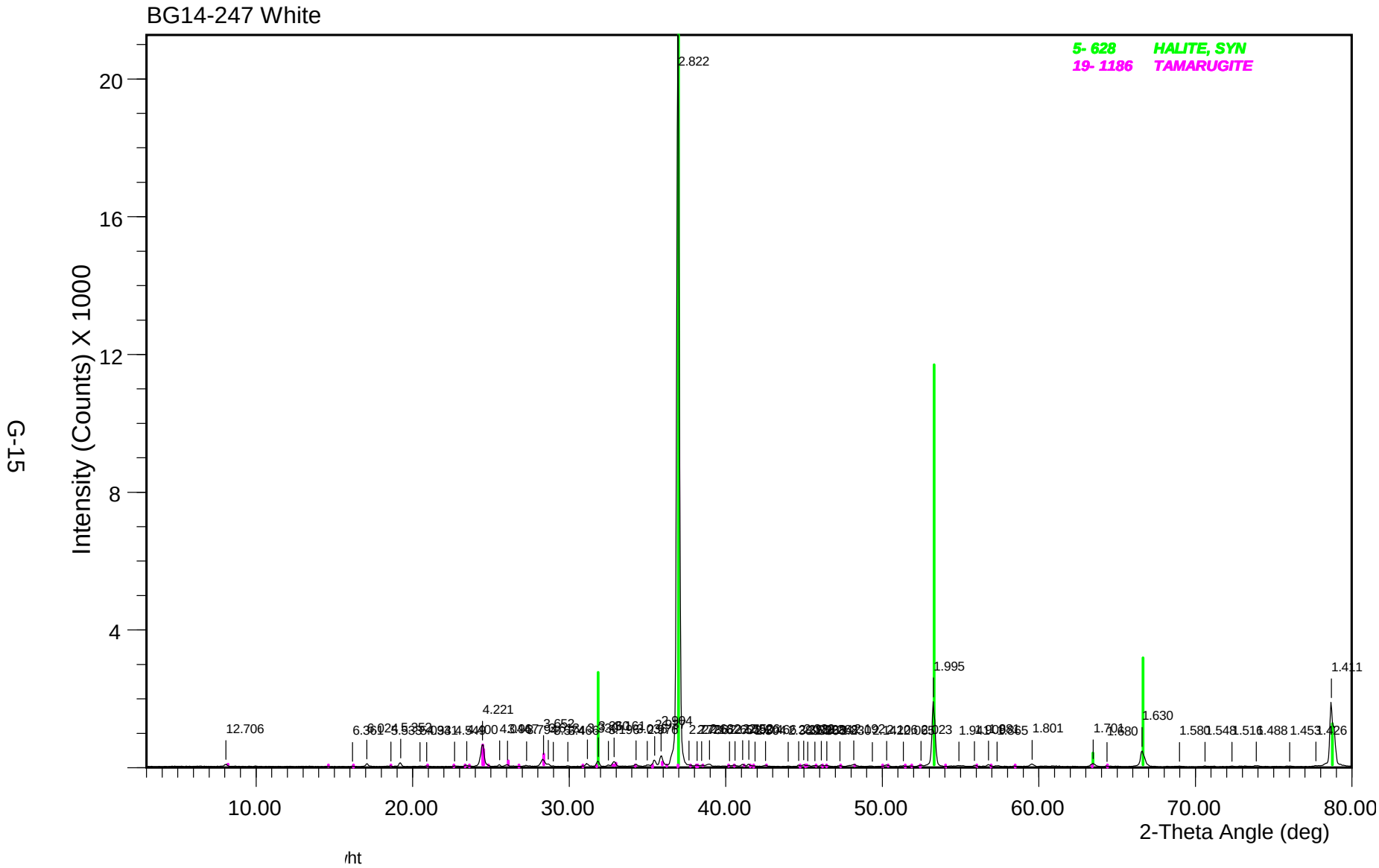

BG11-201
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
25- 532 PENTAHYDRITE, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
7.611
4.256
3.345
3.245
3.803
3.647
3.186
3.069
2.820
2.686
2.456
2.280
2.235
2.161
2.128
1.994
1.980
1.899
1.817
1.700
1.672
1.660
1.629
1.577
1.542
1.509
1.453
1.411

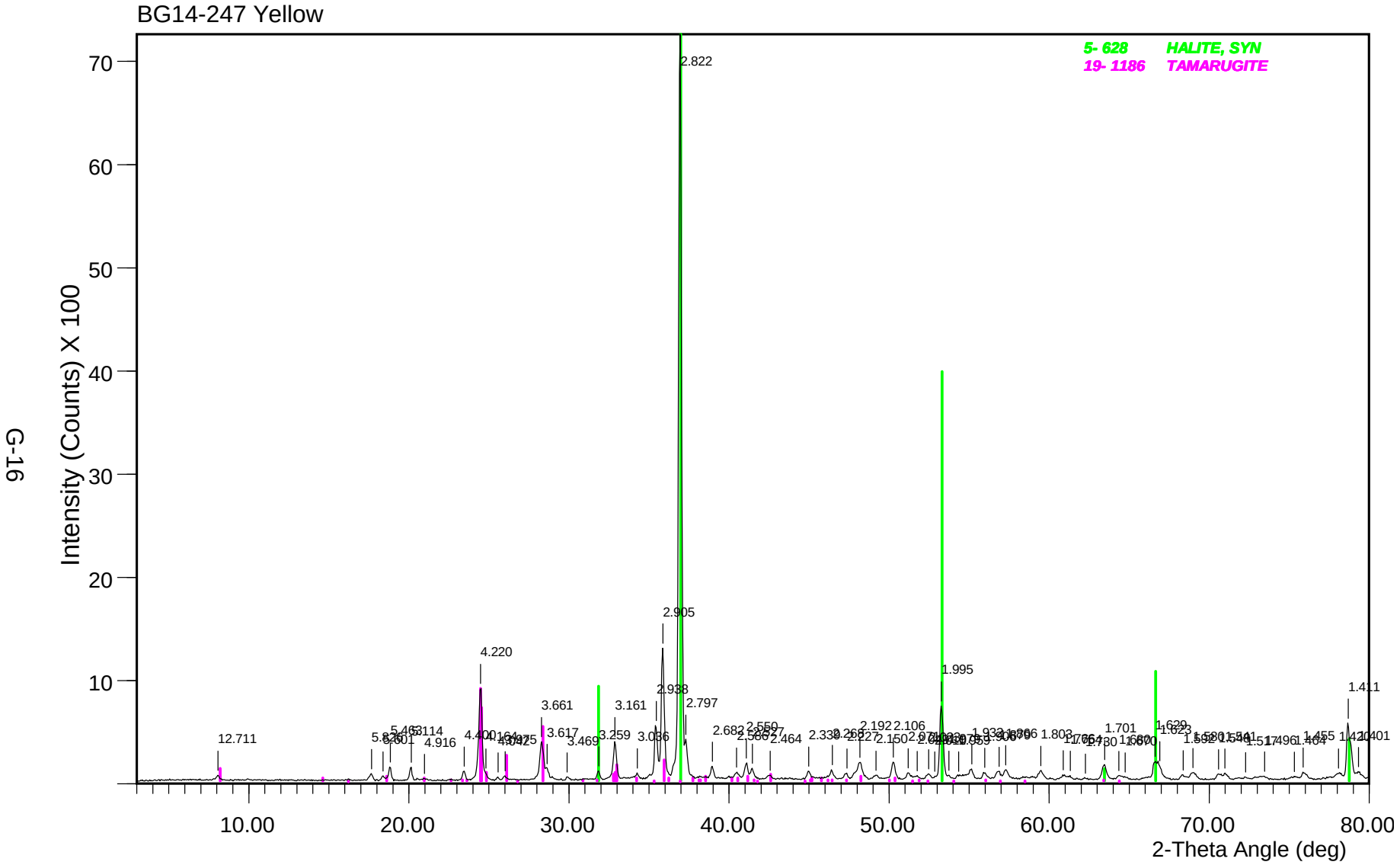
G-12

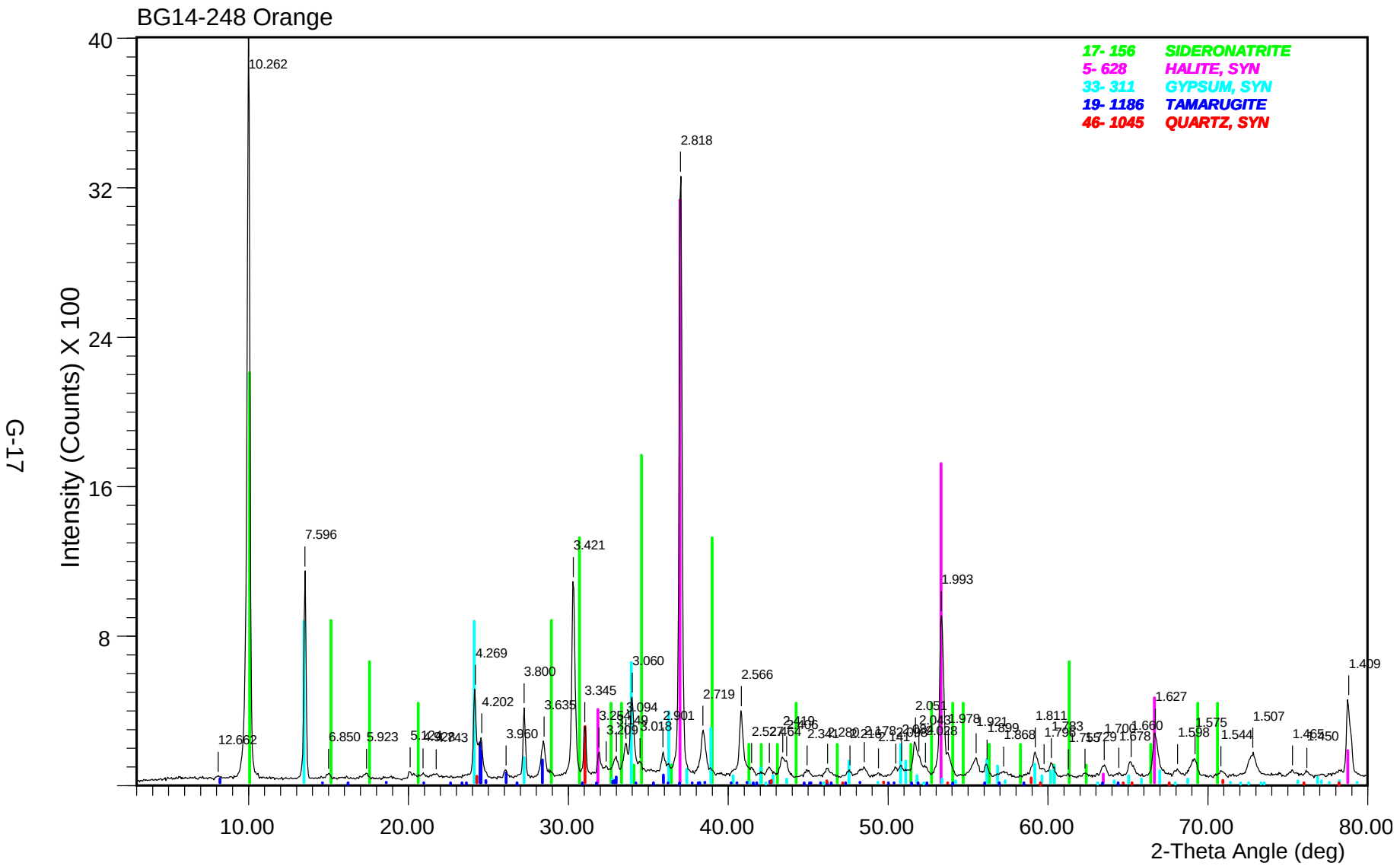

BG11-202
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
24- 720 STARKEYITE, SYN
33- 311 GYPSUM, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
10
20
30
40
50
60
70
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
2.823
1.996
3.261
3.342
1.630
1.411
7.616
6.829
5.435
4.462
3.611
3.405
3.223
2.130
1.968
1.878
1.815
1.703
1.668
1.510

G-13

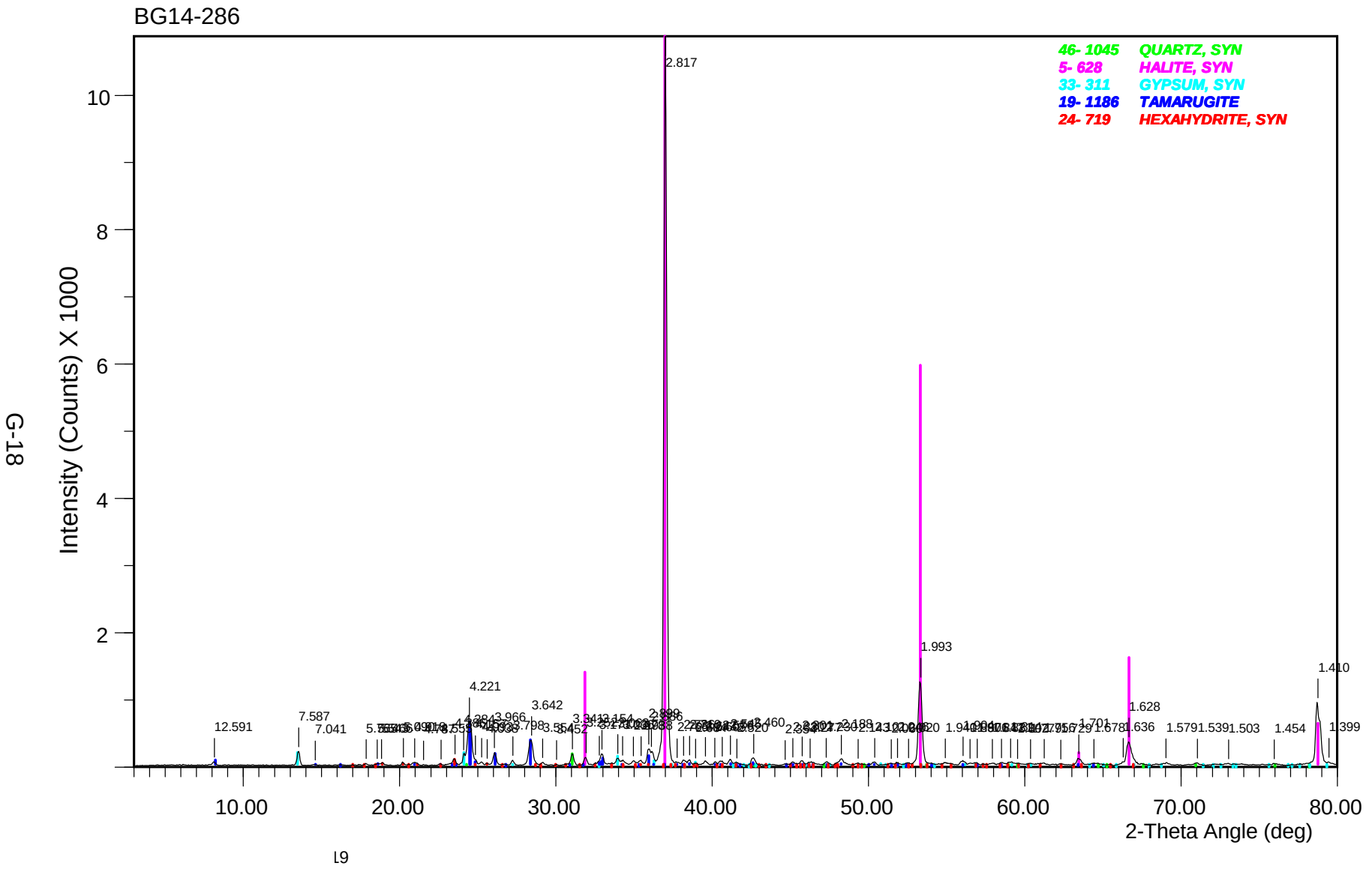

BG11-203
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
31- 966 ORTHOCLASE
Intensity (Counts) X 100
2-Theta Angle (deg)
G-14
7.617
4.256
3.804
3.345
3.195
3.244
3.068
2.872
2.820
2.686
2.596
2.496
2.457
2.281
2.237
2.220
2.128
2.074
1.994
1.980
1.902
1.880
1.819
1.781
1.672
1.660
1.622
1.585
1.542
1.454
1.411


BG14-247 White
5- 628 HALITE, SYN
19- 1186 TAMARUGITE
Intensity (Counts) X 1000
2-Theta Angle (deg)
G-15
2.822
1.995
4.221
12.706
1.801
1.630
1.411
20
16
12
8
4
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00


BG14-247 Yellow
5- 628 HALITE, SYN
19- 1186 TAMARUGITE
Intensity (Counts) X 100
2-Theta Angle (deg)
G-16
2.822
2.905
4.220
1.995
2.938
2.797
3.661
3.161
1.411
12.711
4.916
3.617
3.469
3.259
3.086
2.464
2.192
2.106
1.701
1.629
1.455
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

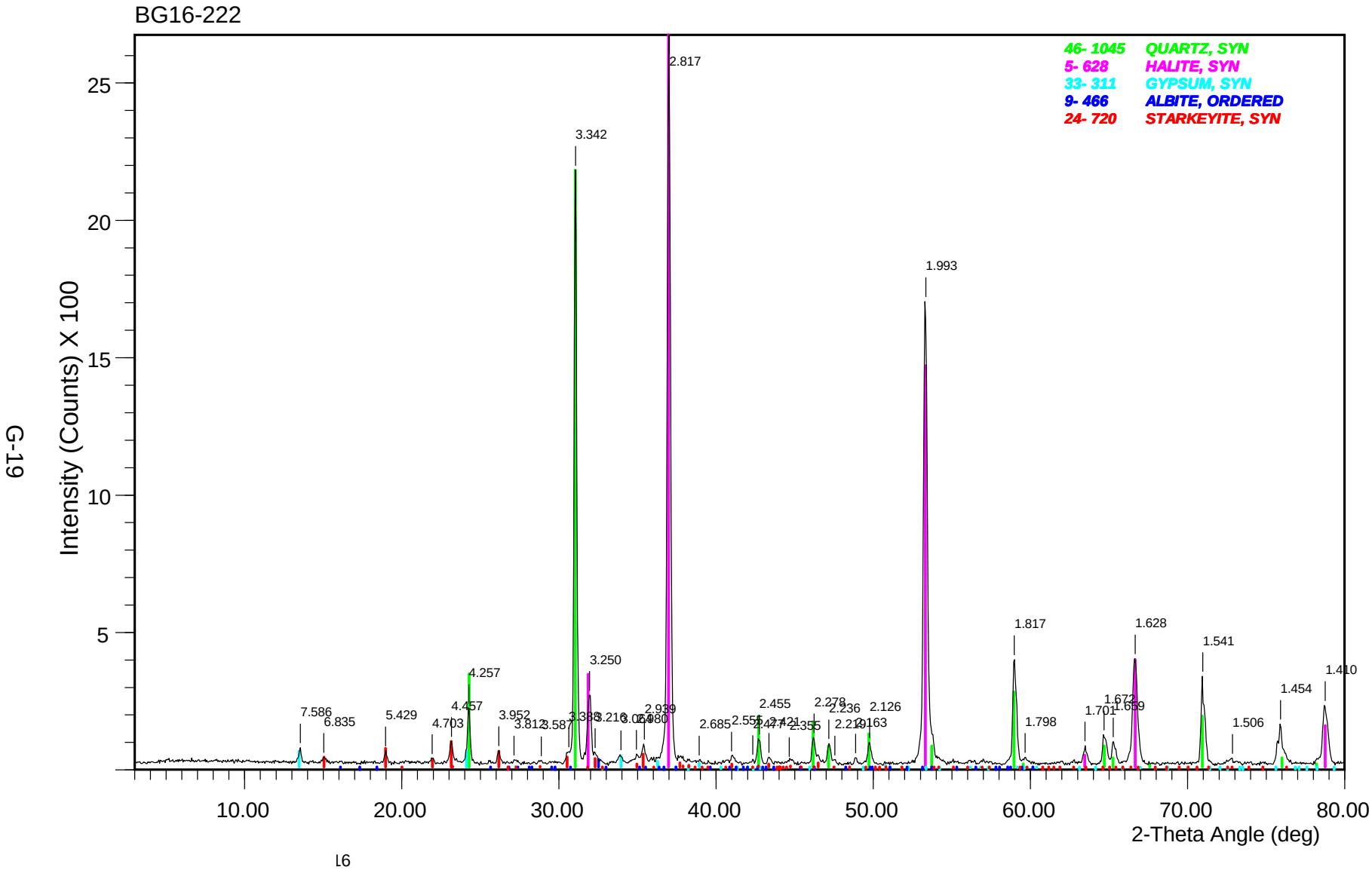

BG14-248 Orange
17- 156 SIDERONATRITE
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
19- 1186 TAMARUGITE
46- 1045 QUARTZ, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
40
32
24
16
8
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
10.262
7.596
6.850
5.923
4.269
4.202
3.960
3.800
3.635
3.421
3.345
3.254
3.209
3.149
3.094
3.060
3.018
2.901
2.818
2.719
2.566
2.051
1.993
1.978
1.921
1.899
1.868
1.811
1.796
1.783
1.729
1.700
1.678
1.660
1.627
1.598
1.575
1.544
1.507
1.465
1.450
1.409

G-17

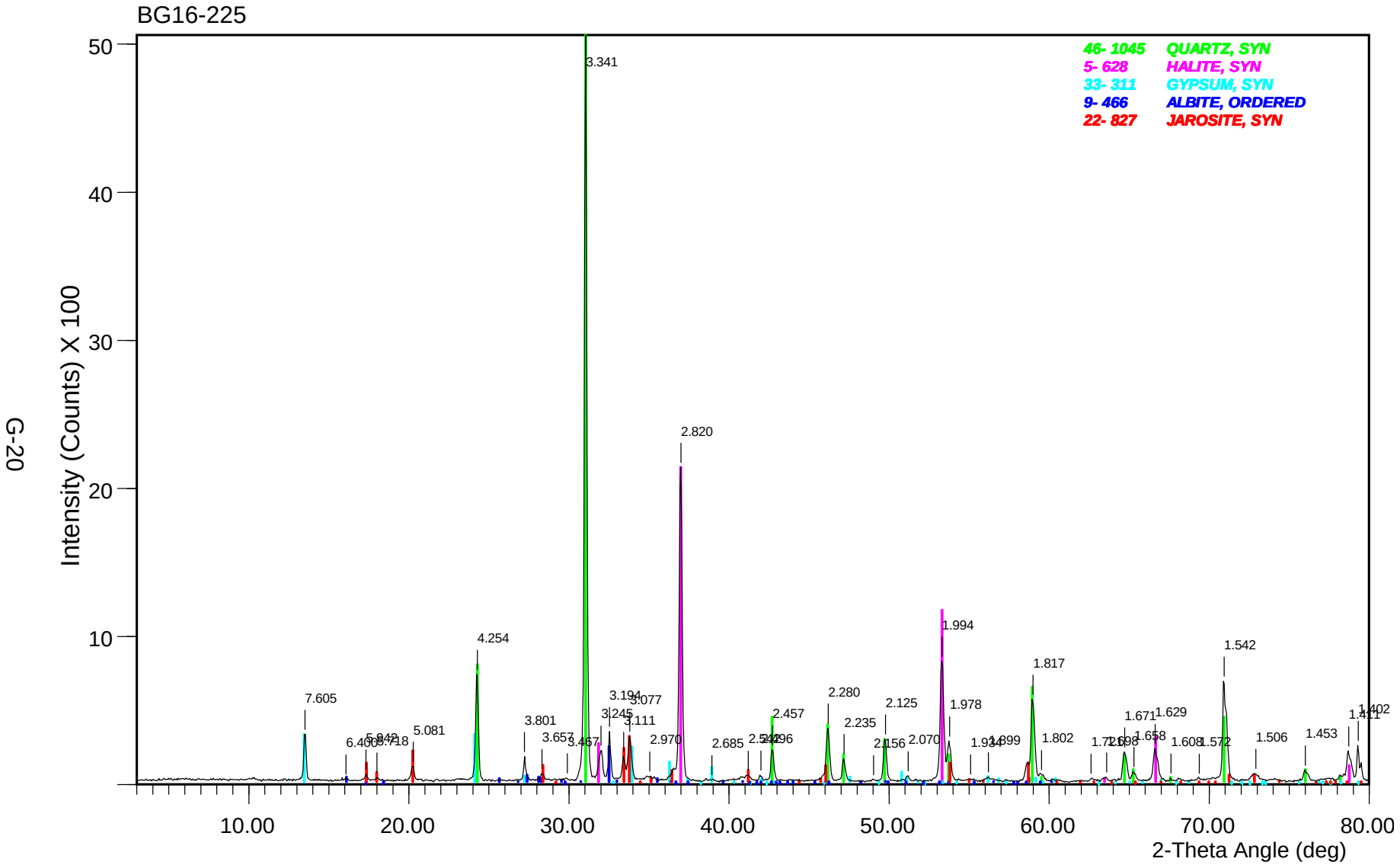

BG14-286
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
19- 1186 TAMARUGITE
24- 719 HEXAHYDRITE, SYN
Intensity (Counts) X 1000
2-Theta Angle (deg)
2.817
1.993
4.221
3.642
7.587
12.591
7.041
1.628
1.410
1.399
1.454
1.503
1.539
1.579
1.636
1.678
1.701
3.966
3.452
3.460
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
2
4
6
8
10

G-18

L9


BG16-222
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
24- 720 STARKEYITE, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
2.817
3.342
1.993
3.250
4.257
4.457
1.817
1.628
1.541
1.454
1.410
1.798
1.506
7.586
6.835
5.429
4.703
3.952
3.812
3.587
2.939
2.685
2.455
2.278
2.236
2.126
1.701
1.672
1.659
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
5
10
15
20
25

G-19


BG16-225
G-20
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
9- 466 ALBITE, ORDERED
22- 827 JAROSITE, SYN
3.341
2.820
4.254
7.605
5.081
3.801
3.657
3.467
3.194
3.245
3.077
3.111
2.970
2.685
2.457
2.280
2.235
2.125
2.156
2.070
1.994
1.978
1.817
1.802
1.671
1.629
1.658
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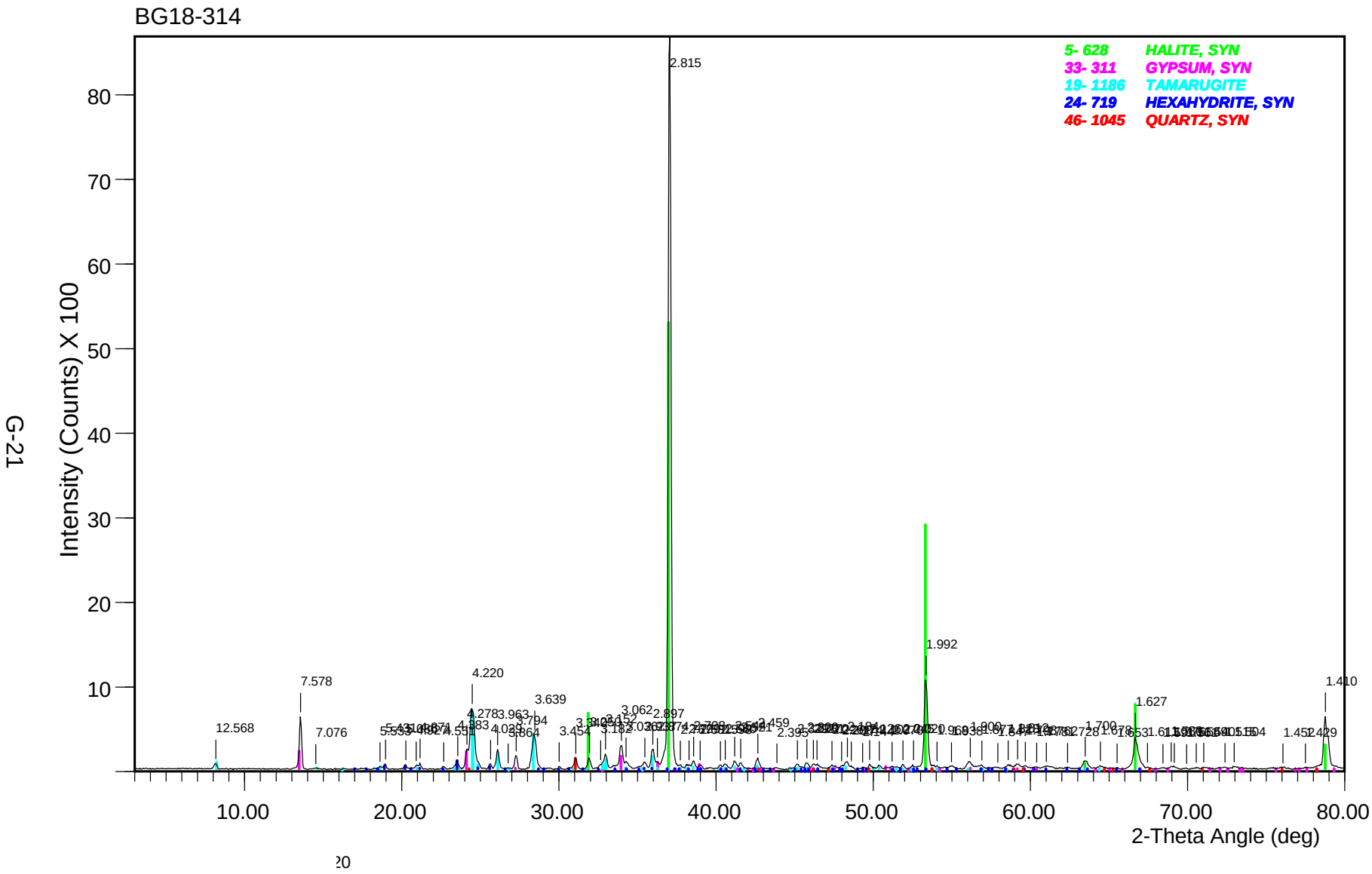
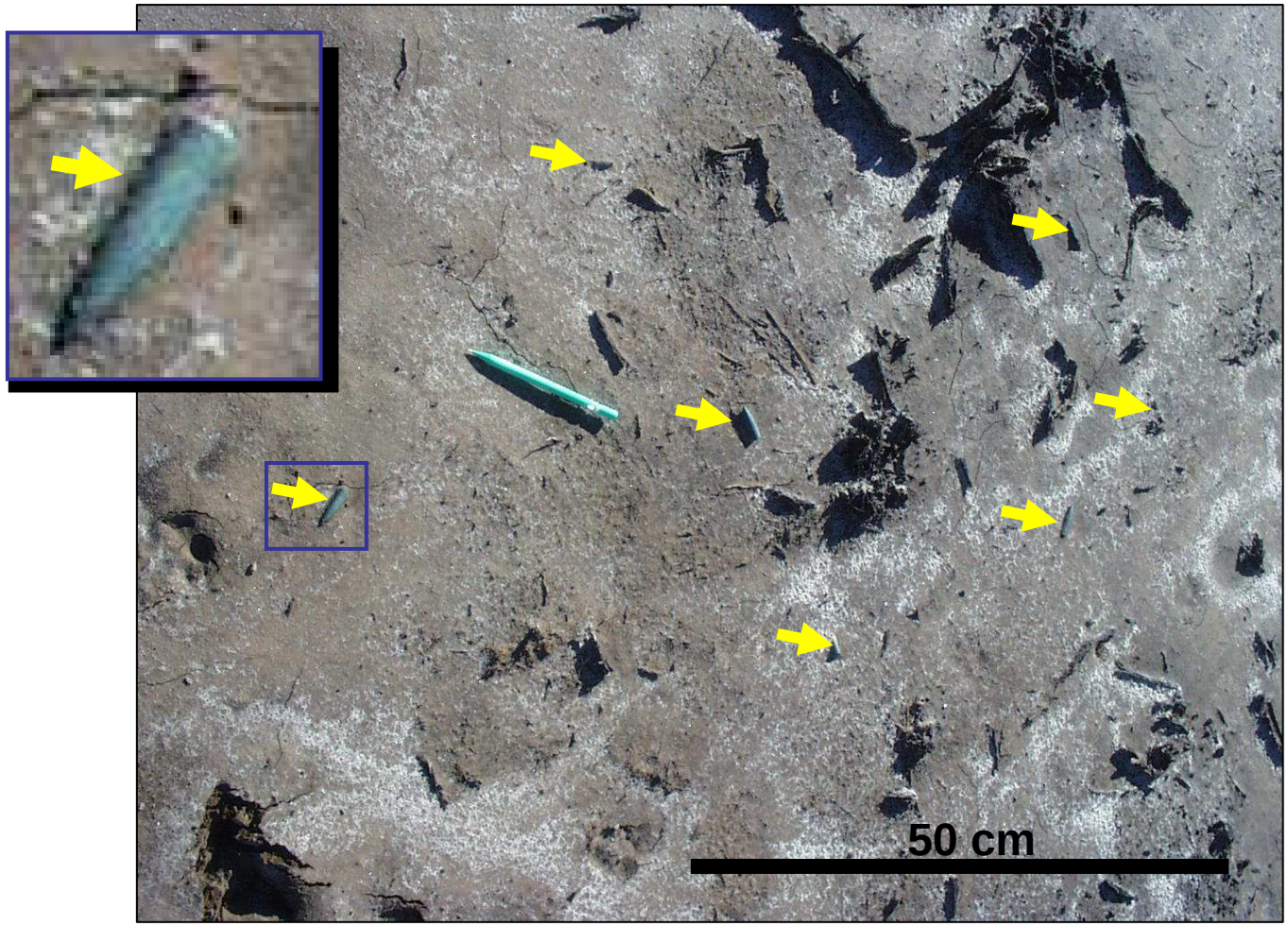
1.572
1.542
1.506
1.453
1.402
1.411


BG18-314
5- 628 HALITE, SYN
33- 311 GYPSUM, SYN
19- 1186 TAMARUGITE
24- 719 HEXAHYDRITE, SYN
46- 1045 QUARTZ, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
2.815
1.992
4.220
7.578
1.627
1.410
3.639
3.062
2.897
12.568
7.076
3.963
3.794
3.454
2.459
2.395
1.700
1.452
2.429
10
20
30
40
50
60
70
80
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

G-21

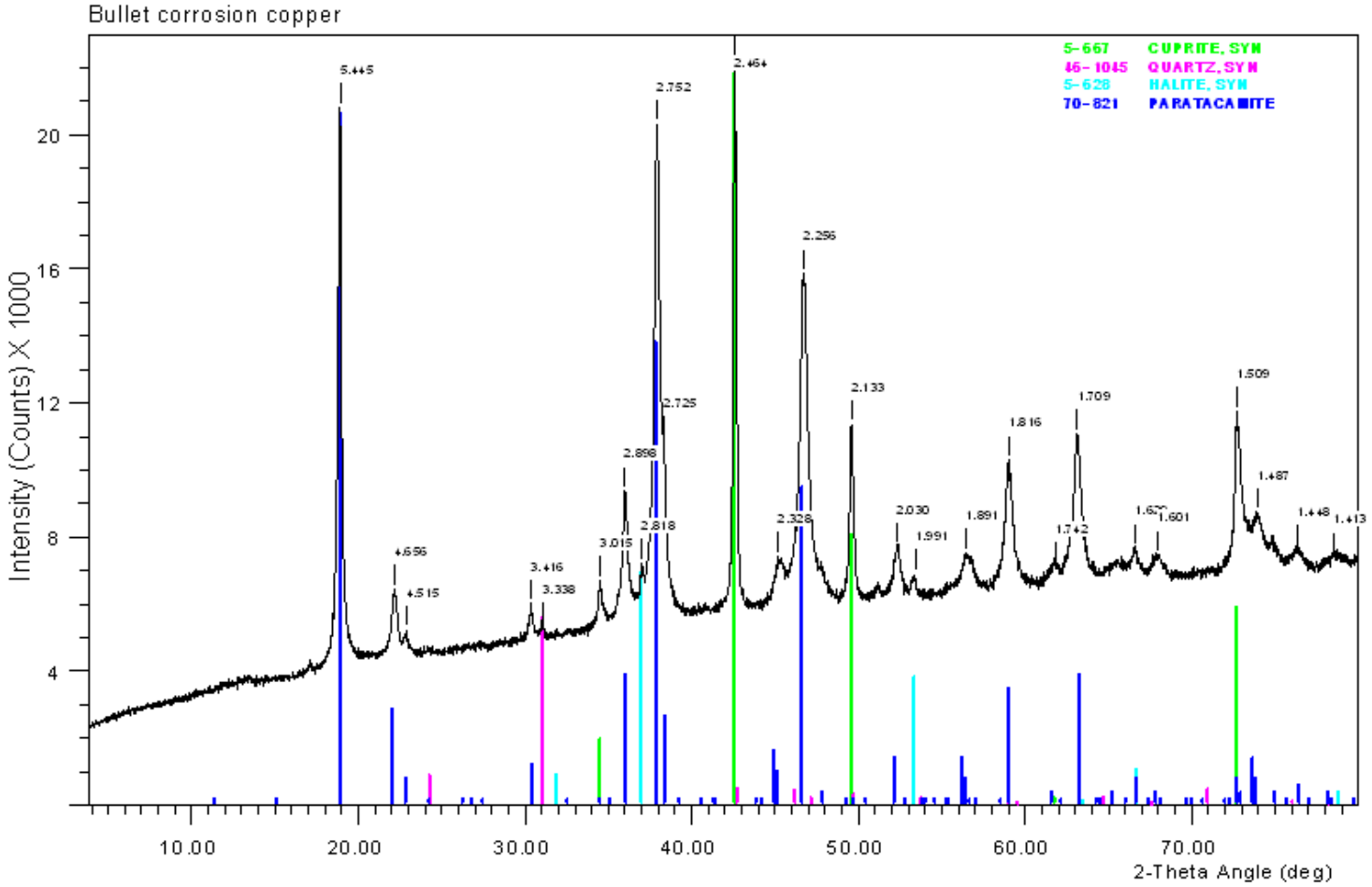


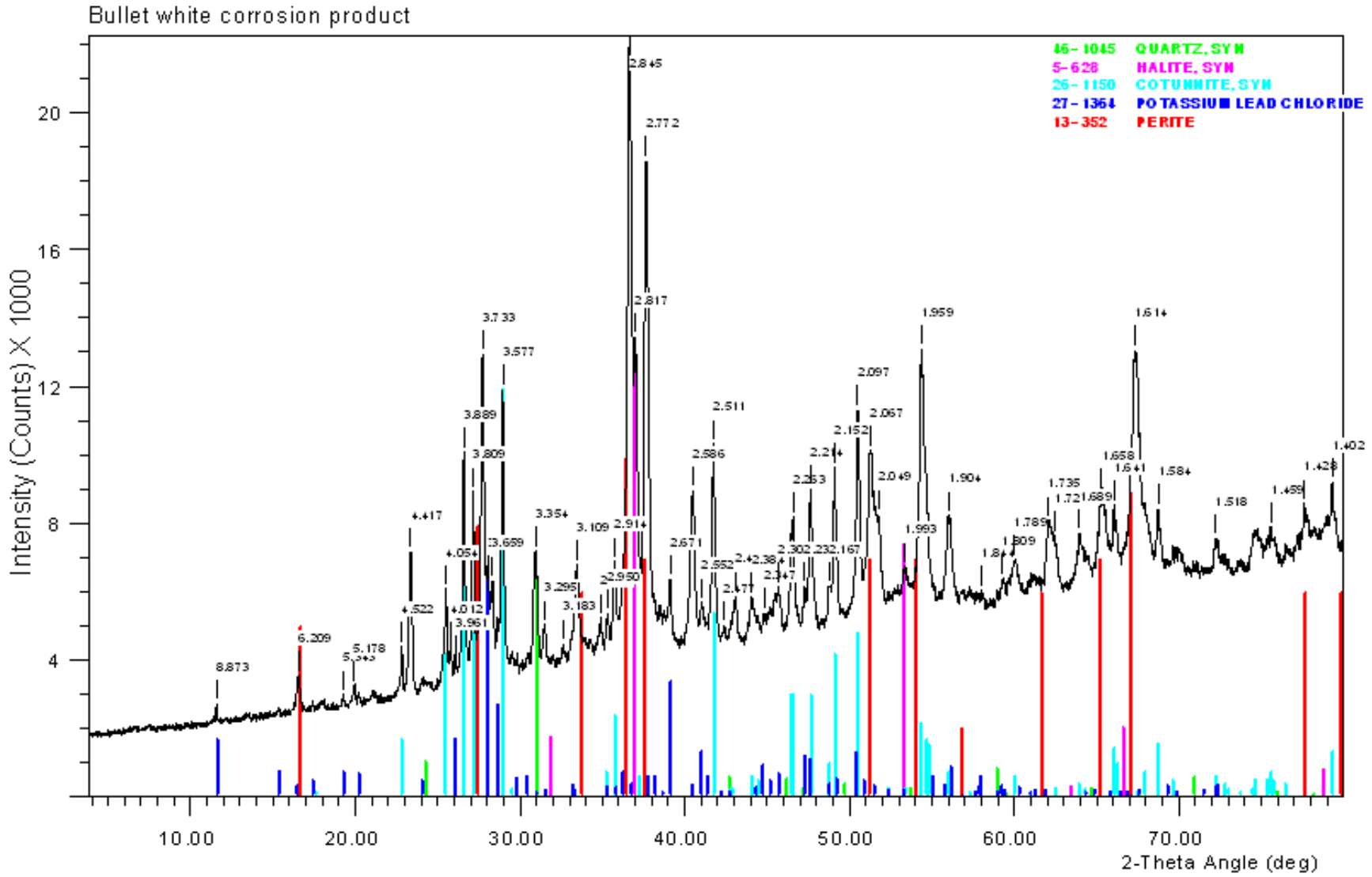
Typical concentration of bullets observed within a 1m x 1m square area in Map unit 3, Gillman.

Arrows point to bullets (pen is scale (15 cm)). Inset shoes green oxide coating the bullet.

The composition of the green sample was paratacamite (Cu2 Cl (OH)3), cuprite (Cu2O), quartz and halite.

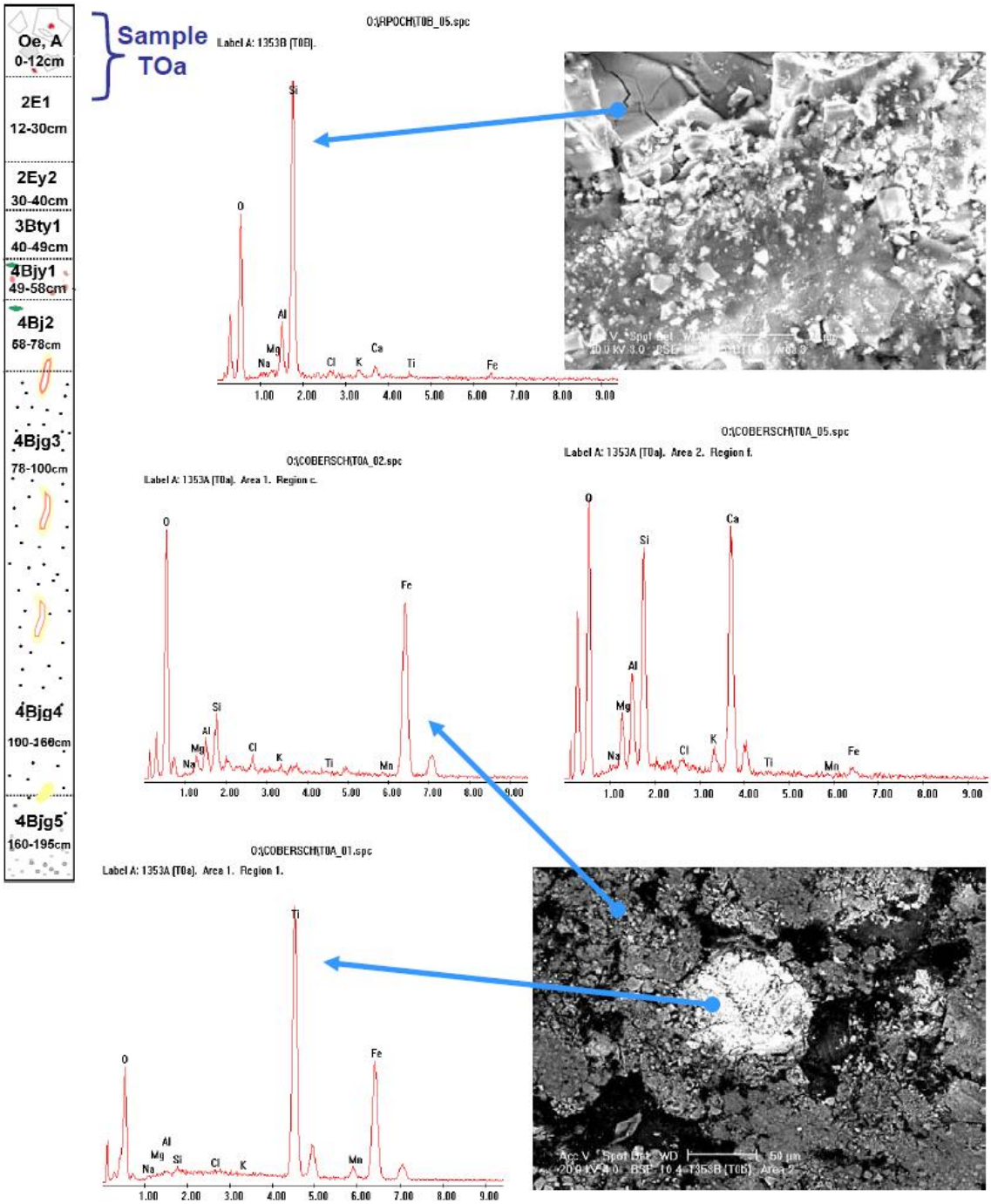
The composition of the white sample was possible perite (PbBiO2Cl), cotunnite (PbCl2), potassium lead chloride (KPb2Cl5) quartz and halite plus some unidentified phase(s).



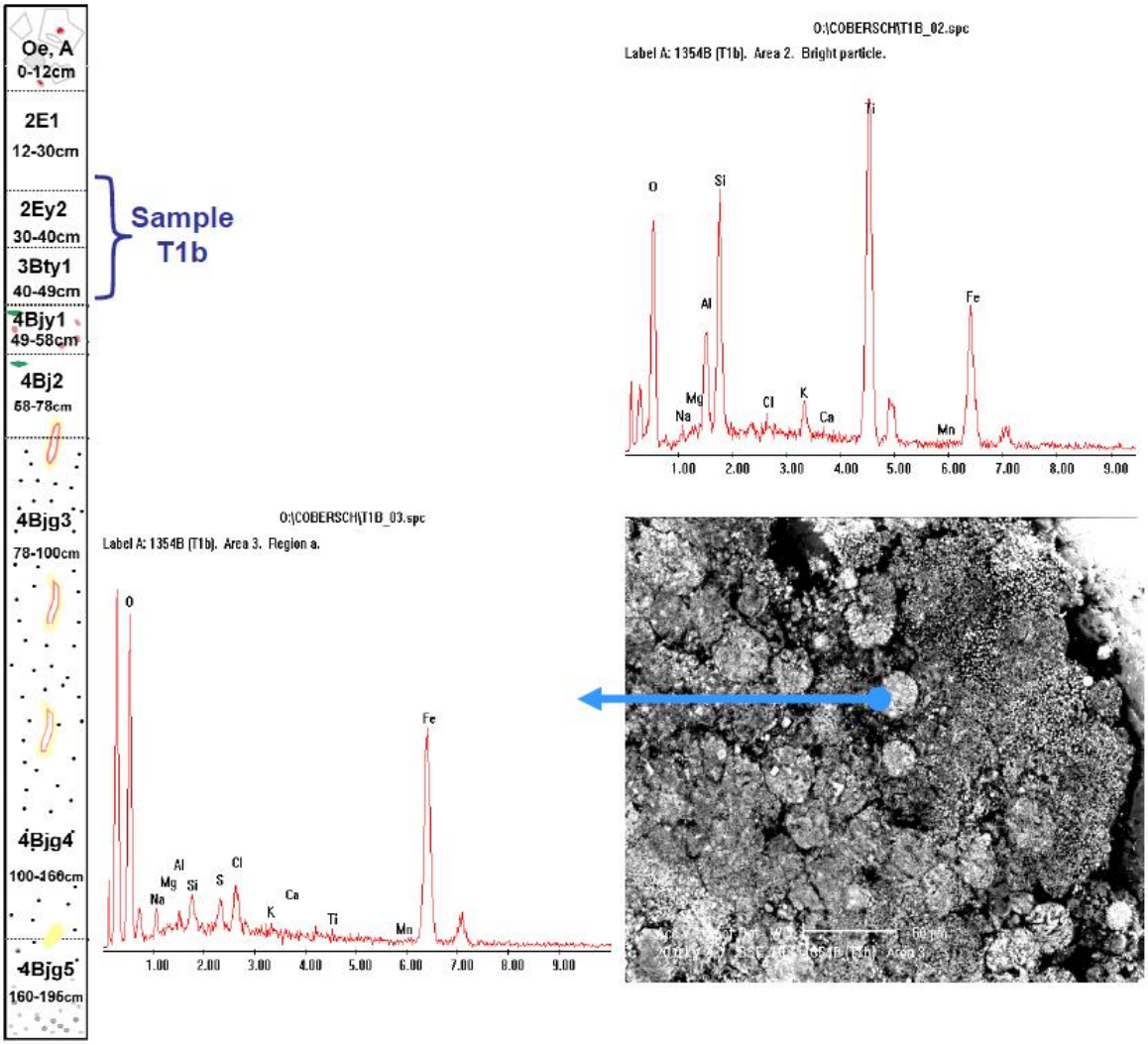

Bullet white corrosion product
46-1045 QUARTZ, SYN
5-628 HALITE, SYN
26-1150 COTUNNITE, SYN
27-1364 POTASSIUM LEAD CHLORIDE
13-352 PERITE
Intensity (Counts) X 1000
2-Theta Angle (deg)
10.00
20.00
30.00
40.00
50.00
60.00
70.00
4
8
12
16
20
8.873
6.209
5.178
4.522
4.417
4.054
4.012
3.961
3.889
3.809
3.733
3.669
3.577
3.354
3.295
3.183
3.109
2.990
2.914
2.845
2.817
2.772
2.671
2.586
2.552
2.511
2.477
2.424
2.384
2.347
2.302
2.253
2.232
2.214
2.167
2.152
2.097
2.067
2.049
1.993
1.959
1.904
1.809
1.789
1.735
1.721
1.689
1.658
1.641
1.614
1.584
1.518
1.459
1.423
1.402

List of salt efflorescence minerals identified at Gillman	Formula	Colour	Area on drain wall (refer to figure on page G1)
blödite	$Na_2Mg(SO_4)_2.4H_2O$	yellow	Surface of salt scalded area
goethite	FeOOH	strong brown	c1, c2
halite	NaCl	white	c1, c2, c3, c4
gypsum	$CaSO_4.2H2O$	white to pale brown	c1, c2, c3, c4
tamarugite	$NaAl(SO_4)_2.6H_2O$	yellow	c1, c2, c3
pentahydrite	$MgSO_4.5H_2O$	green	c2, c3
jarosite	$KFe_3(SO_4)_2(OH)_6$	yellow	c2, c3
sideronatrite	$Na_2Fe(SO_4)_2(OH).3H_2O$	reddish yellow	c2, c3
starkeyite	$MgSO_4.4H_2O$	cream	c2, c3
hexahydrite	$MgSO_4.6H_2O$	white	c2, c3, c4
metaalunogen	$Al_4(SO_4)_6.27H_2O$	white	c3
melanterite (alpersite)	$2Fe^{2+}(SO_4)_2.7H2O$	green	c3

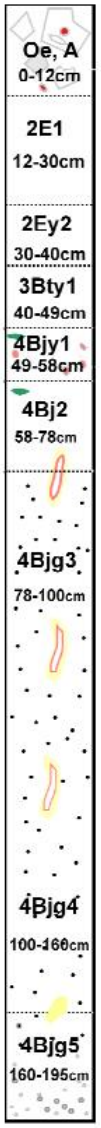
EDX spectra for SEM samples of profile BG 11 – Sample TOa



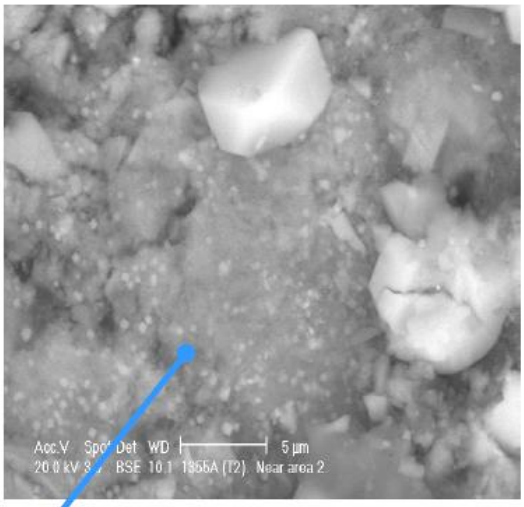
EDX spectra for SEM samples of profile BG 11 – Sample T1b

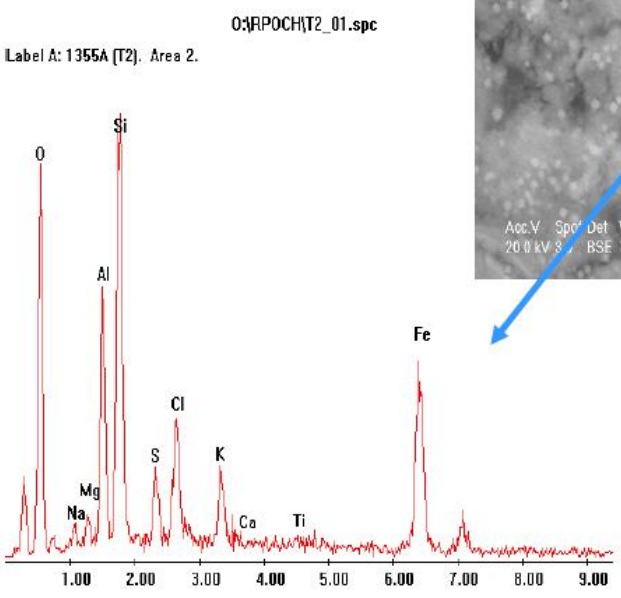


EDX spectra for SEM samples of profile BG 11 – Sample T2

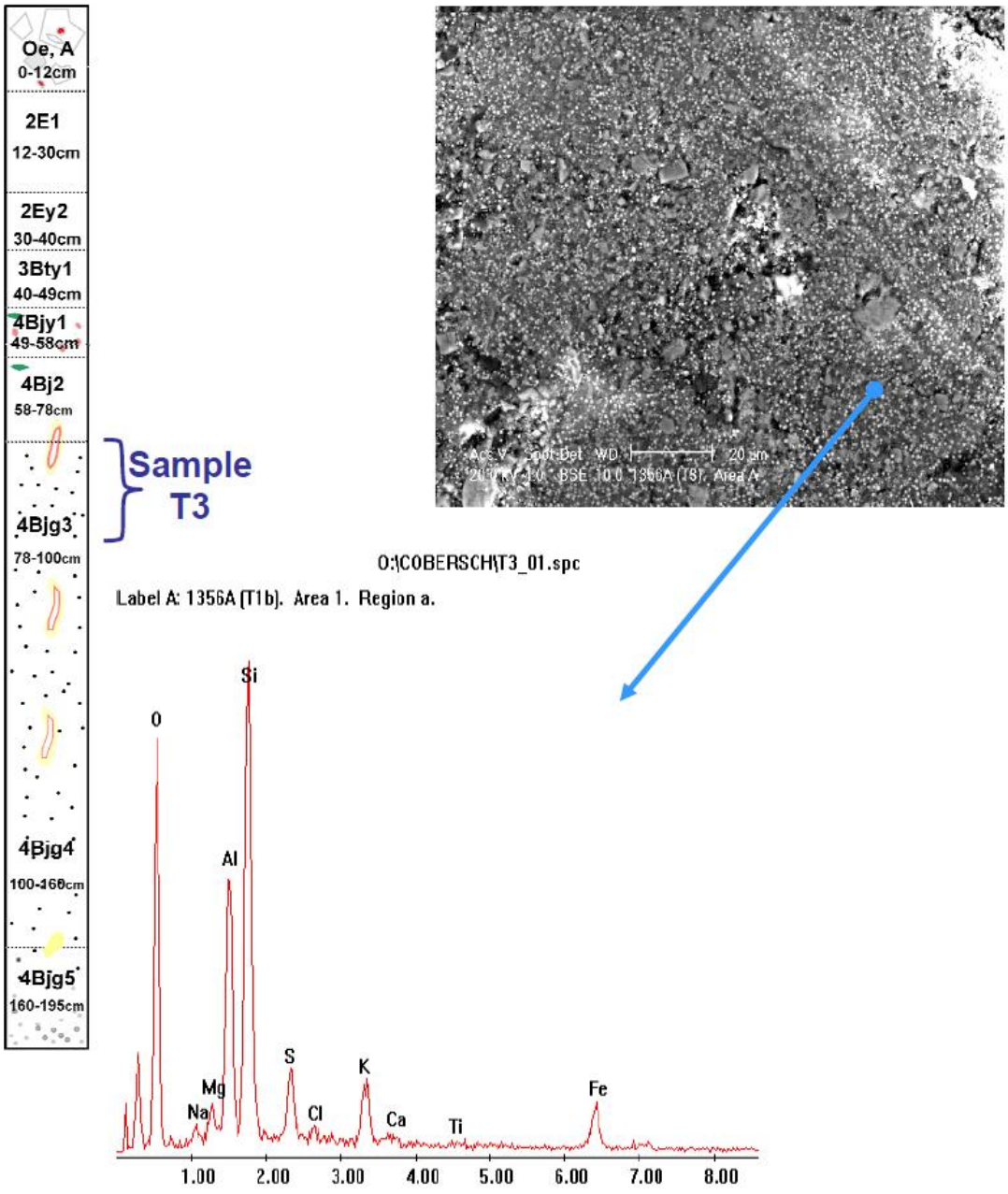


Sample T2

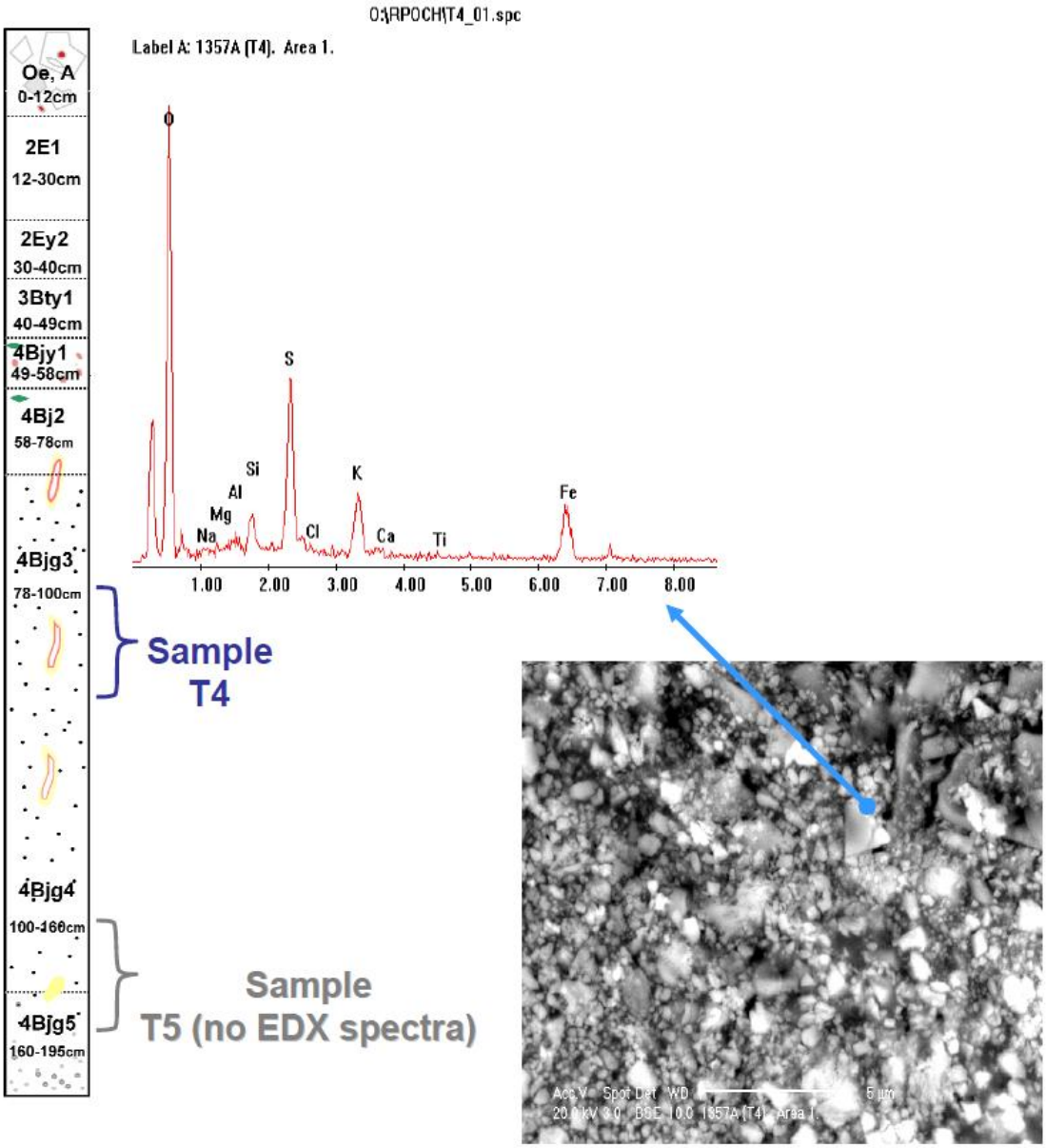




EDX spectra for SEM samples of profile BG 11 – Sample T3



EDX spectra for SEM samples of profile BG 11 – Sample T4



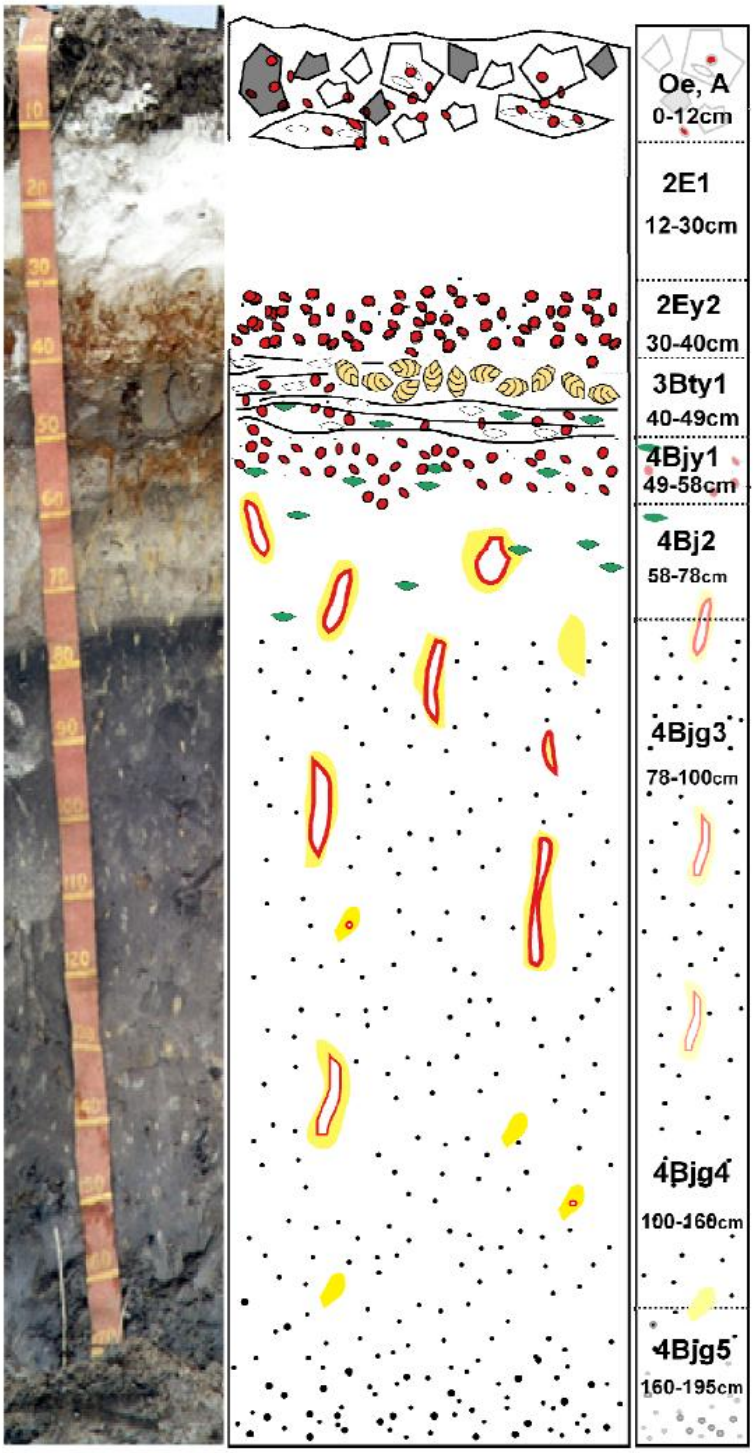
EDX analysis of: (i) blodite sampled from profile BG 17 (salt crust)
(ii) goethite samples from profile BG 11 (45 cm depth)

EDAX ZAF Quantification	Standardl					
Element Normalized						
Element	Wt %	At %	K-Ratio	Z	A	F
C K	21.65	36.78	0.0313	1.0745	0.1343	1.0002
O K	27.57	35.17	0.0774	1.0541	0.2663	1.0002
NaK	4.9	4.35	0.0239	0.9834	0.4955	1.0016
MgK	1.05	0.88	0.0063	1.0071	0.5891	1.003
AlK	3.03	2.29	0.0209	0.9773	0.7016	1.0048
SiK	5.18	3.76	0.0409	1.0041	0.7807	1.0062
S K	1.6	1.02	0.0143	0.9918	0.8861	1.018
ClK	22.53	12.97	0.1972	0.948	0.9209	1.0027
K K	0.97	0.51	0.0085	0.9508	0.9083	1.0051
CaK	0.76	0.39	0.007	0.9714	0.934	1.007
LaL	9.36	1.38	0.0694	0.7189	1.0292	1.0014
FeK	1.39	0.51	0.012	0.8776	0.9854	1
Total	100	100				

EDAX ZAF	Standardl	BG 45	BG 11_45			
Element Normalized						
Element	Wt %	At %	K-Ratio	Z	A	F
C K	48.77	66.36	0.1193	1.0415	0.2348	1.0002
O K	17.28	17.65	0.0403	1.0218	0.2281	1.0003
NaK	5.6	3.98	0.0286	0.9536	0.5347	1.0009
AlK	1.44	0.87	0.0102	0.9455	0.745	1.0032
SiK	3.28	1.91	0.0264	0.9682	0.8298	1.004
P K	0.49	0.26	0.004	0.9347	0.876	1.0068
S K	4.81	2.45	0.0429	0.9586	0.9235	1.0063
ClK	4.69	2.16	0.0404	0.9171	0.934	1.0041
K K	4.07	1.7	0.0363	0.92	0.9658	1.0023
CaK	1.08	0.44	0.0098	0.9394	0.9694	1.0016
FeK	2.08	0.61	0.0179	0.8458	1.0034	1.0142
ZnK	6.4	1.6	0.0519	0.8072	1.0038	1
Total	100	100				

Sample	**Element**	**C**	**O**	**Na**	**Mg**	**Al**	**Si**	**S**	**Cl**	**K**	**Ca**	**La**	**Fe**
Blodite in surface salt crust	Wt %	21.65	27.57	4.9	1.05	3.03	5.18	1.6	22.53	0.97	0.76	**9.36**	1.39

		C	**O**	**Na**	**P**	**Al**	**Si**	**S**	**Cl**	**K**	**Ca**	**Zn**	**Fe**
Goethite mottle at 45 cm de	Wt %	48.77	17.28	5.6	0.49	1.44	3.28	4.81	4.69	4.07	1.08	**6.4**	2.08


Oe, A
0-12cm
2E1
12-30cm
2Ey2
30-40cm
3Bty1
40-49cm
4Bjy1
49-58cm
4Bj2
58-78cm
4Bjg3
78-100cm
4Bjg4
100-160cm
4Bjg5
160-195cm
Fe-oxides (goethite and ferrihydrite)
Lenticular voids
Calcareous sand and aggregates
Non-calcareous aggregates
Sand
Shells
Gypsum
Pyrite
Jarosite
Clay

APPENDIX H

Selected Published Papers and Documents

Mobility and storage of metals, metalloids and trace elements in disturbed acid sulfate soils from a tidal estuary in South Australia

Thomas, B., Fitzpatrick, R., Merry, R. & Hicks, W (2010) `Mobility and storage of metals, metalloids and trace elements in disturbed acid sulfate soils from a tidal estuary in South Australia' in G. Heemskerk (ed), *19th World Congress of Soil Science, Soil Solutions for a Changing World*, Brisbane, Australia.

CSIRO PUBLISHING
www.publish.csiro.au/journals/ajsr *Australian Journal of Soil Research*, 2009, **47**, 403–422

Poch, R.M., Thomas, B.P., Fitzpatrick, R.W., & Merry, R.H. (2009) Micromorphological evidence for mineral weathering pathways in a coastal acid sulfate soil sequence with Mediterranean-type climate, South Australia
Australian Journal of Soil Research, v. 47(4), pp. 403 -422

coastline

Fitzpatrick, R.W., Merry, R.H., Davies, P.J., Thomas, B.P., Fotheringham, D.G., & Hicks W.S. (2003).
A strategy for implementing CPB policies on coastal acid sulfate soils in South Australia.
Coastline bulletin (No 33), South Australian Coastal Protection Board

Thomas, B., (2001), *Mangrove Muds, Acid Sulfate Soils Educational Pamphlet, St Kilda Mangrove Boardwalk*. Coastal Acid Sulfate Soils. CSIRO Land & Water