

Field Portable-XRF

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Geochemical Contrast

Kimberlite Indicator Element	Average Abundance in Kimberlites (ppm)	Undifferentiated Archean Granitoids (ppm)
Ni	965	64
Cr	893	103
Nb	171	6
Mg	16.8 %	2.8 %
Ce	200	99
La	150	45
Y	22	15
Sr	847	1287
Ba	885	1095
Zn	69	13

Operation

- -180 micron, dried sample powders
- Plastic sample cups
- 4 micron prolene window
- 30 second reading for each filter
- Geochem and Soil mode
- 1 in 20 Field duplicates
- 1 in 20 analysis duplicates
- 1 in 20 CRMs
- Reflex Software
- 50 KV hood.
- **Instrument calibrated.**



Calibration

- 15 soil samples from 3 Till projects
 - Fusion ICP-MS / 4Acid ICP-MS
- 4 CRMs –
 - OREAS25a, NR-Can Till-1, 2, 3
- Sufficient?
- Not wide enough range for some elements.

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ORE RESEARCH & EXPLORATION

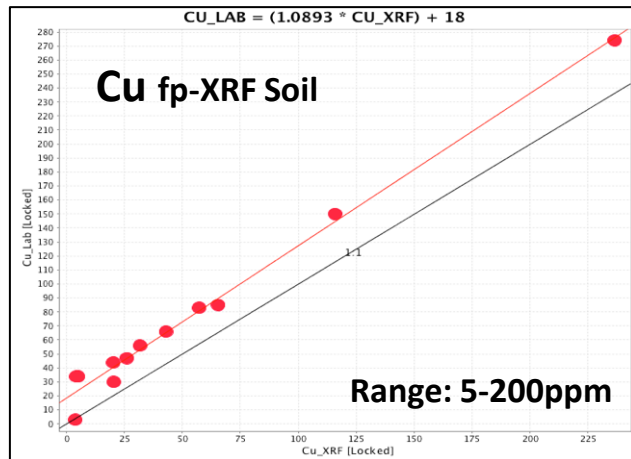
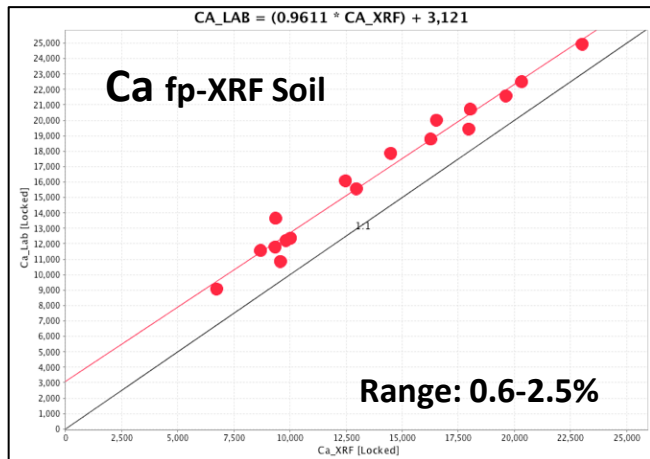
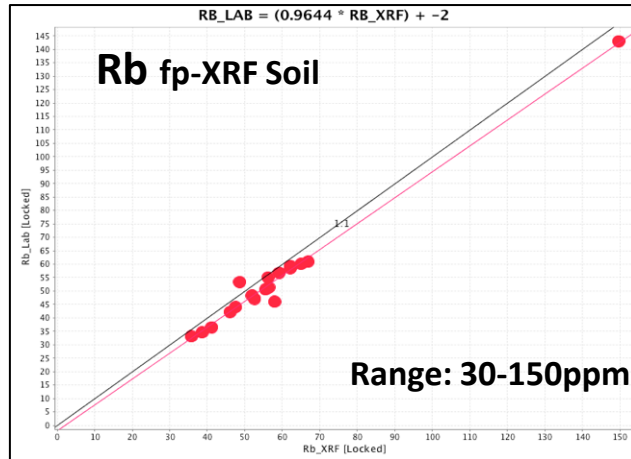
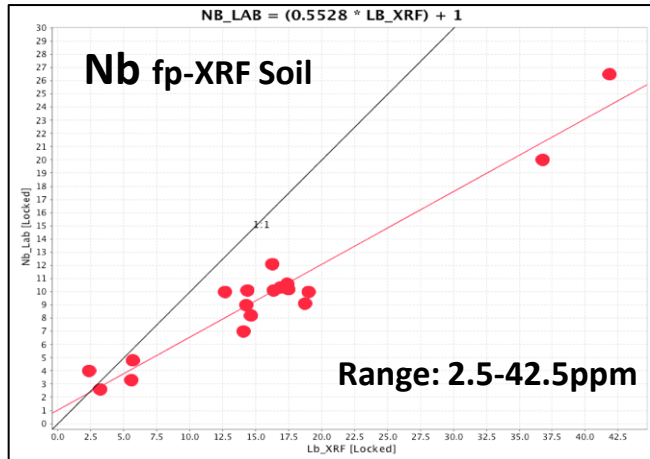
CERTIFICATE OF ANALYSIS FOR
SOIL LITHOGEOCHEM / BLANK
REFERENCE MATERIAL
OREAS 25a

Summary Statistics for Key Analytes (see Tables 1 to 5 for additional certified values).

Constituent	Certified Value	95% Confidence Limits		95% Tolerance Limits	
		Low	High	Low	High
Pb Five Assay					
Gold, Au (ppb)	33.9	160	IND	IND	IND
4-Acid Digestion	25.2	2.29	32.3	26.6	35.6
Copper, Cu (ppm)	2.95	1.87	23.8	2.69	26.8
Lead, Pb (ppm)	45.8	0.156	2.41	2.40	2.70
Molybdenum, Mo (ppm)	2.84	4.05	43.0	48.7	47.9
Nickel, Ni (ppm)	44.4	0.088	42.9	2.78	3.09
Uranium, U (ppm)		2.60	45.9	42.2	46.6
Zinc, Zn (ppm)					

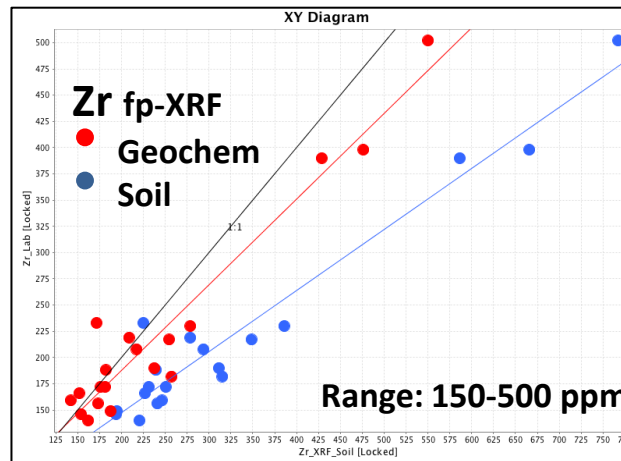
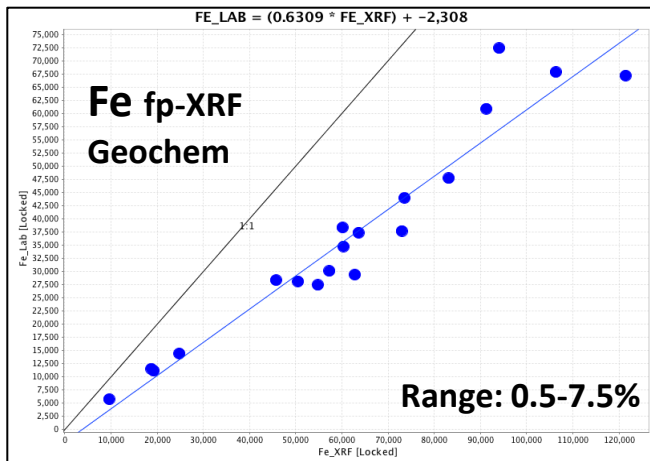
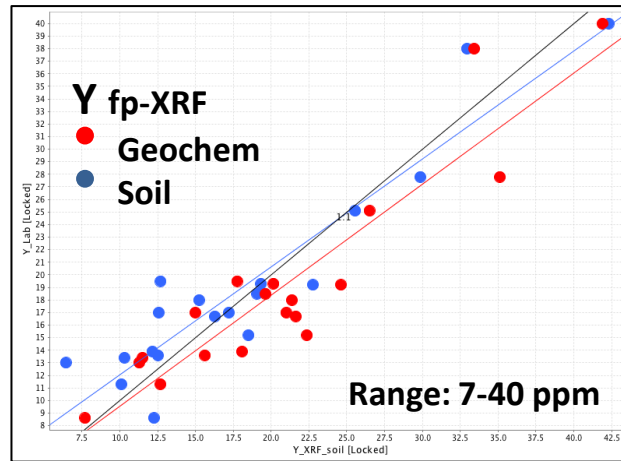
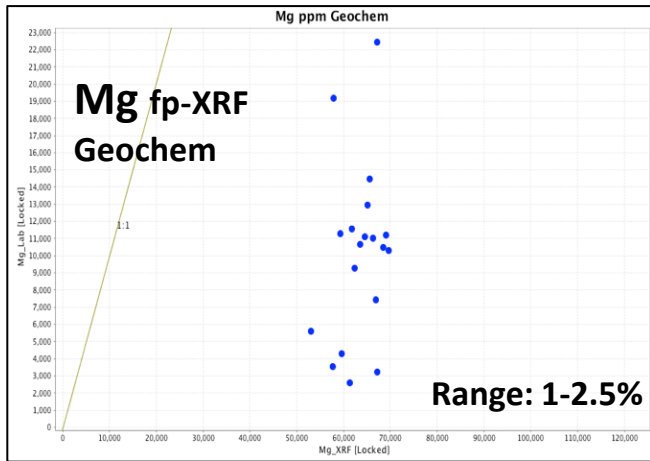
Note: intervals may appear asymmetric due to rounding; IND = Indeterminate.

ALS Lithochemical Package



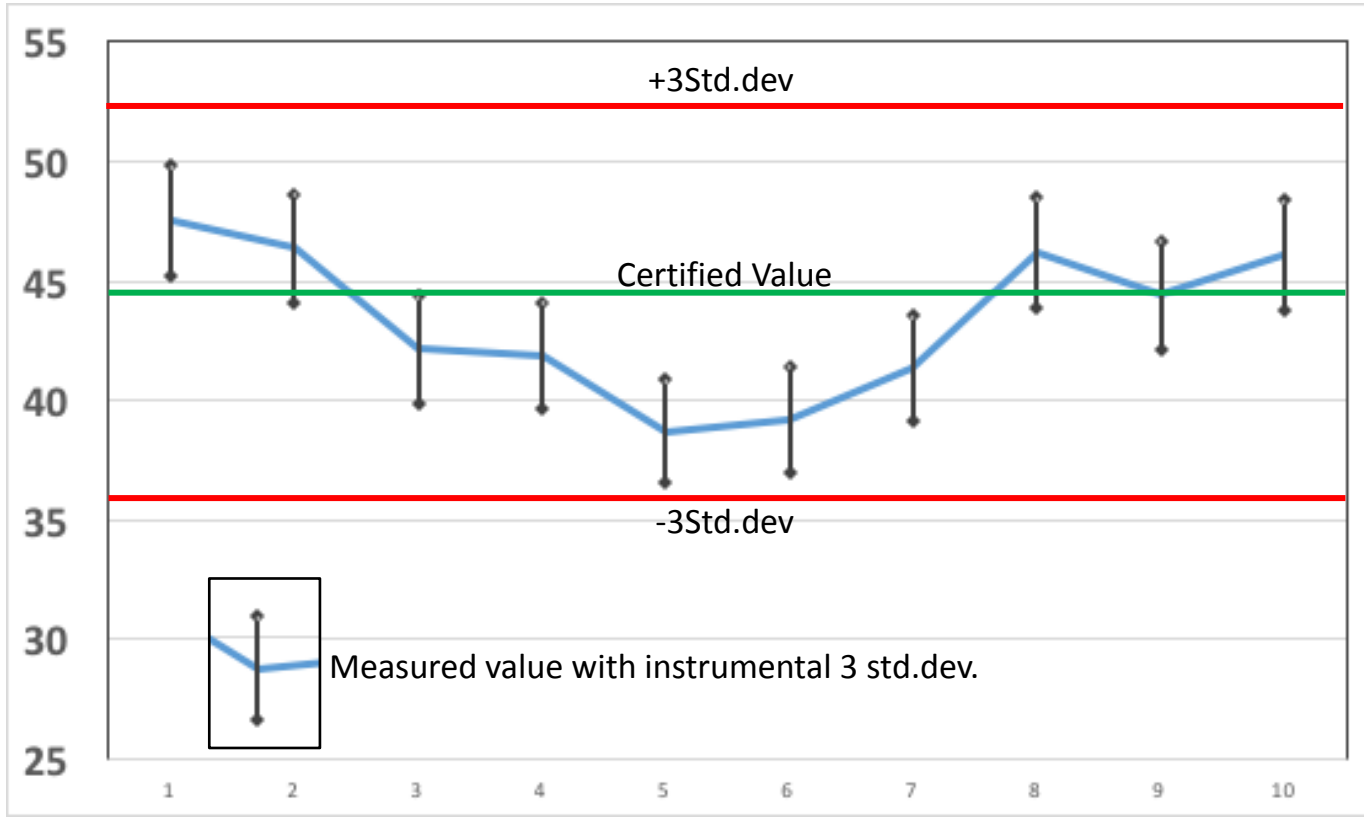
fp-XRF

ALS Lithochemical Package

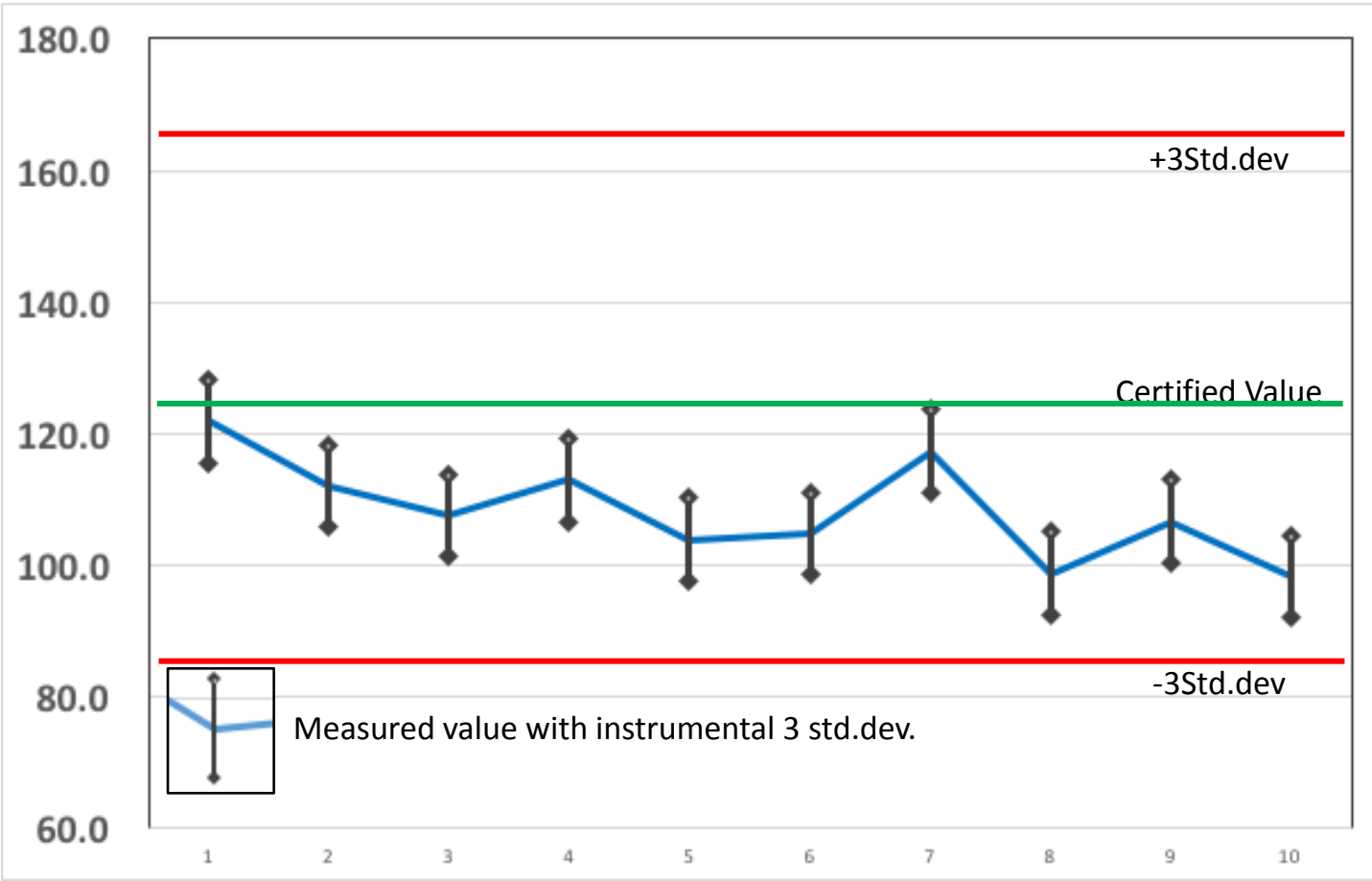


fp-XRF

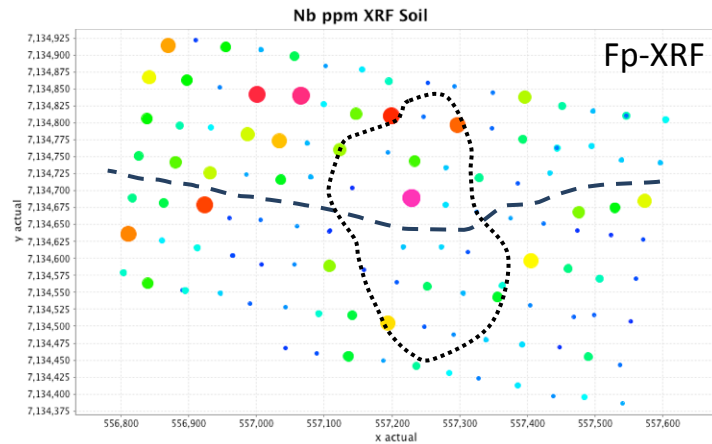
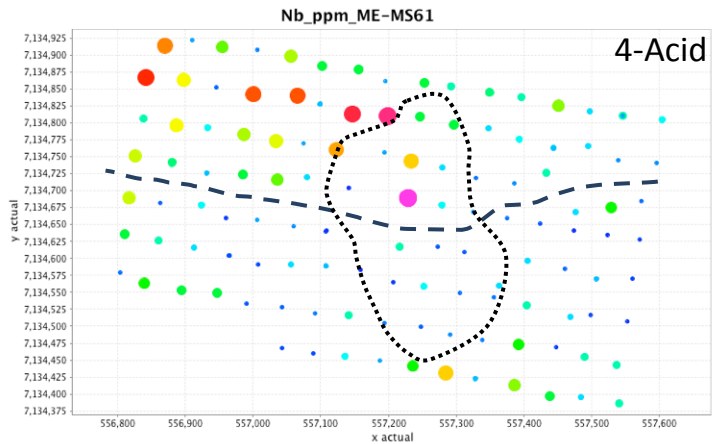
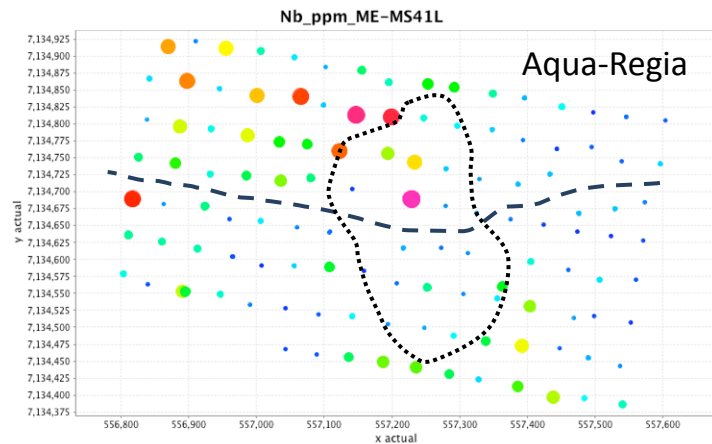
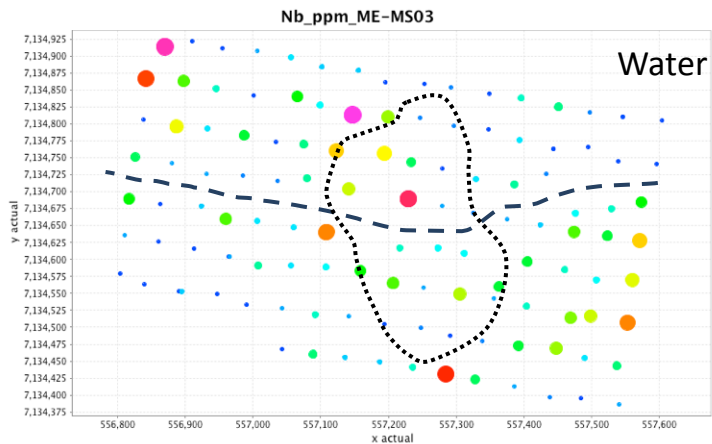
Zn ppm – OREAS25a



Cr ppm – OREAS25a

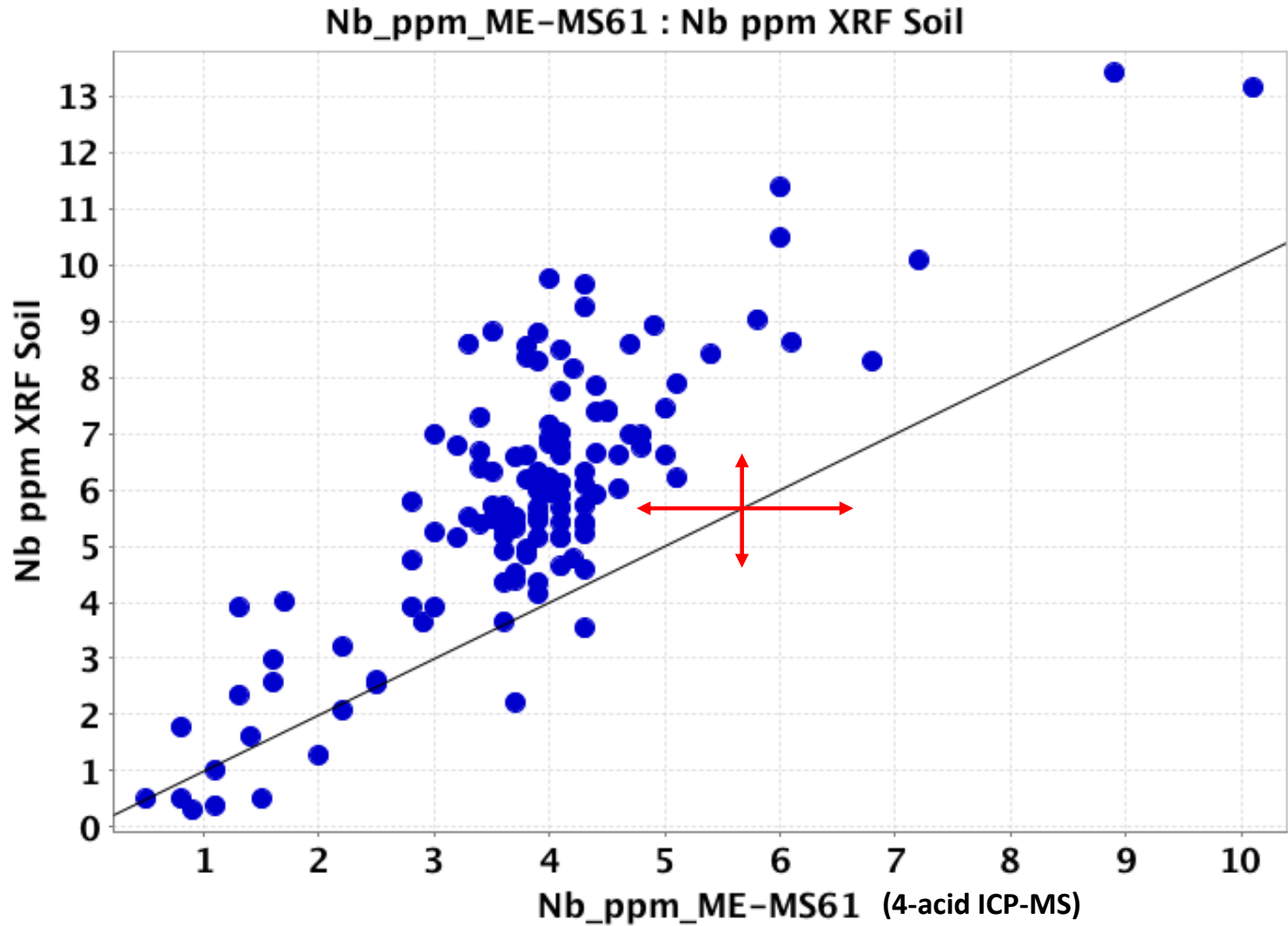


Nb

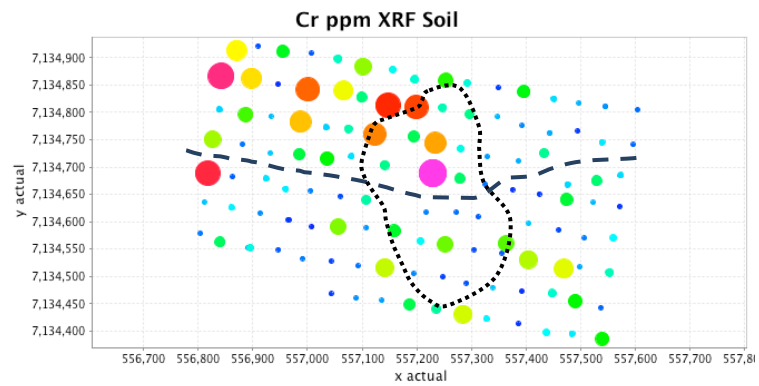
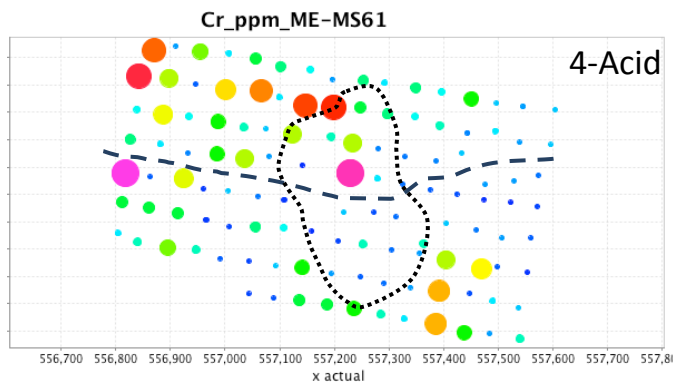
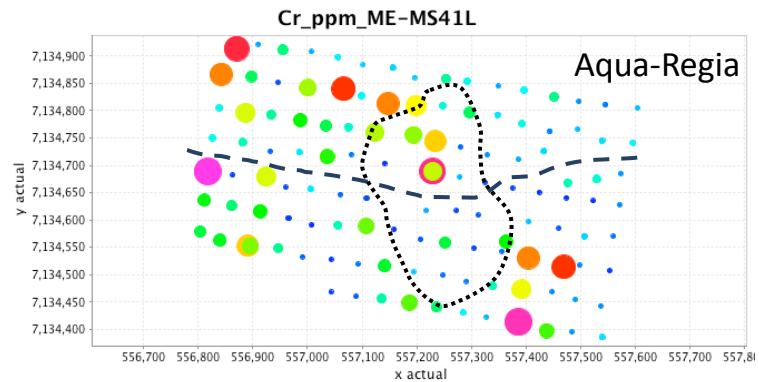
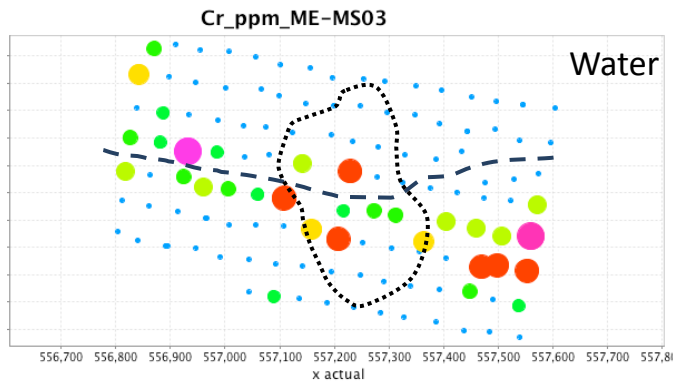


Fp-XRF

Nb

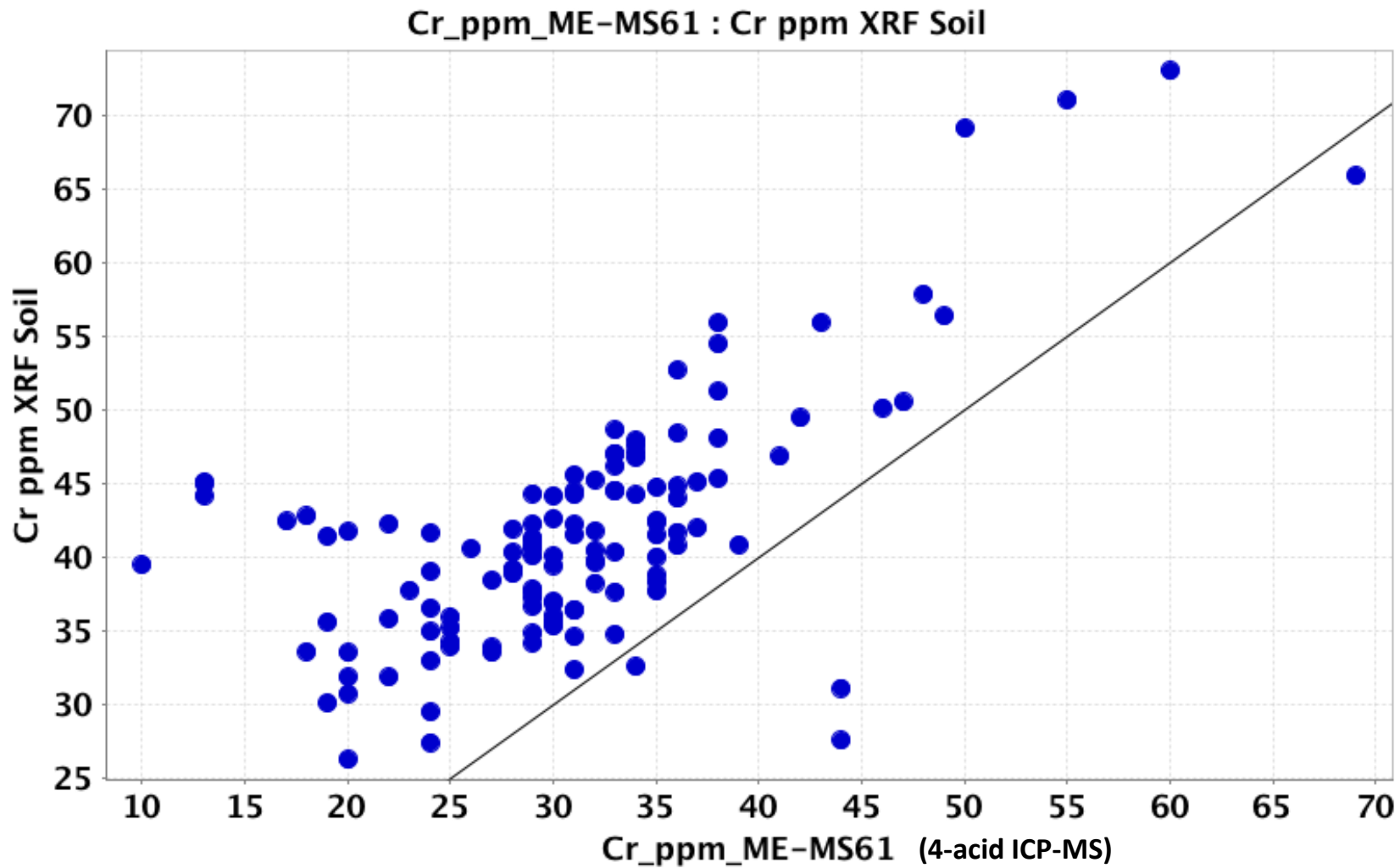


Cr

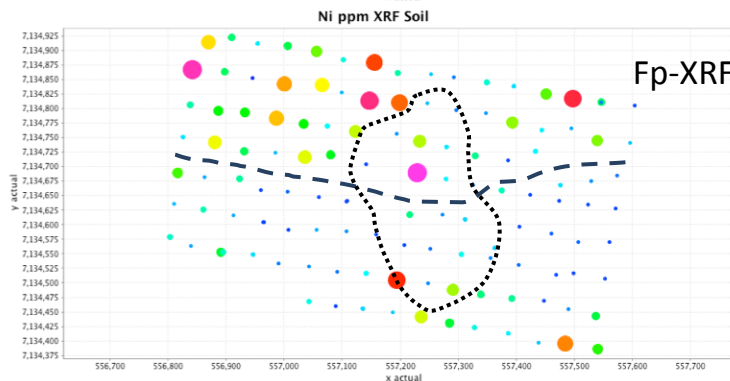
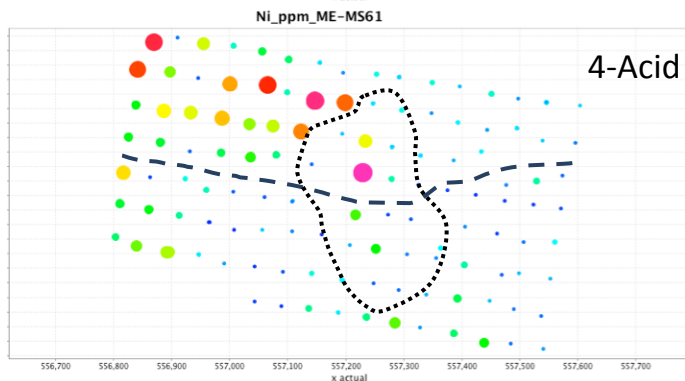
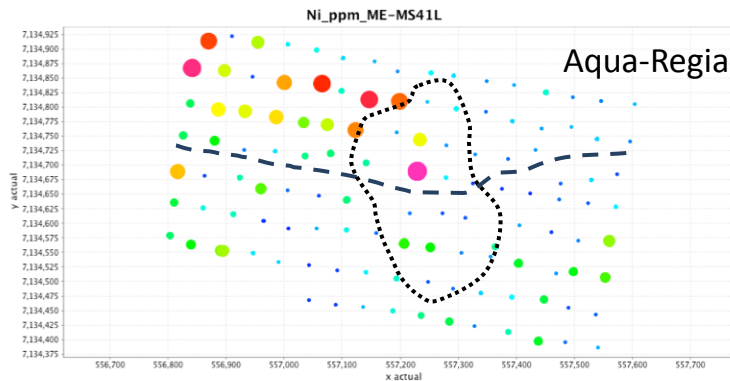
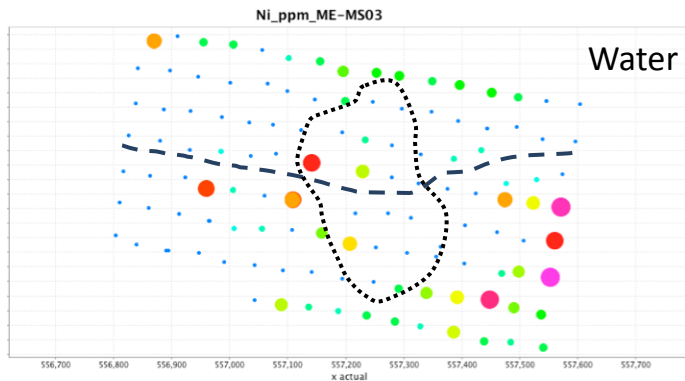


Fp-XRF

Cr

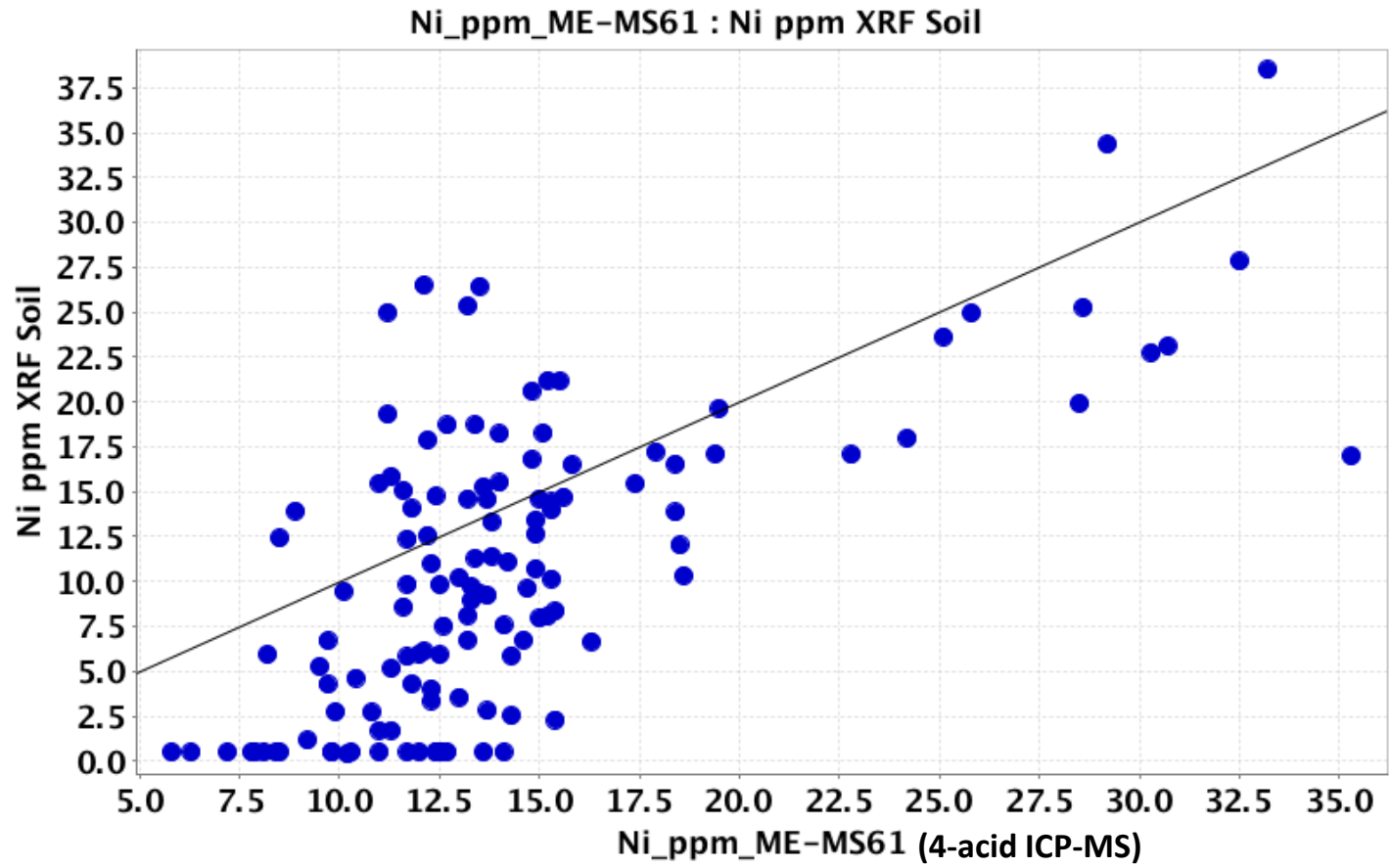


Ni

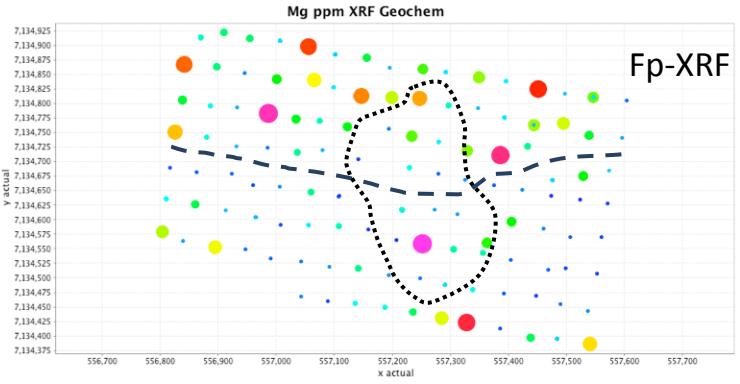
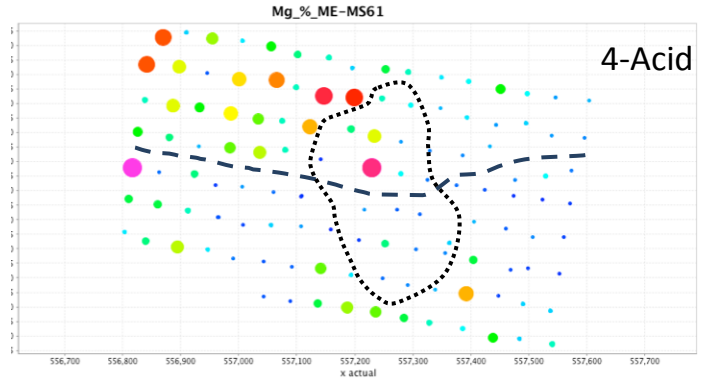
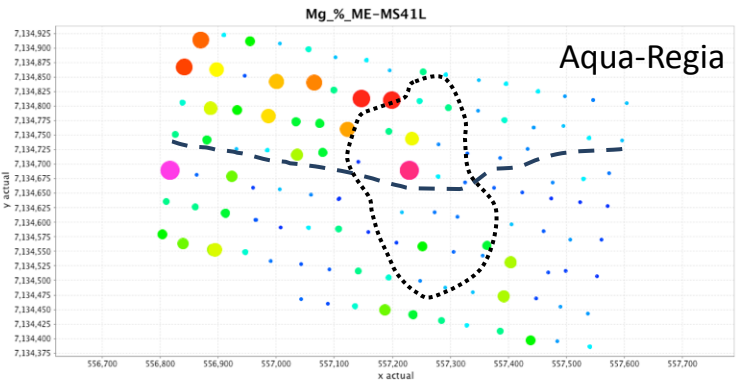
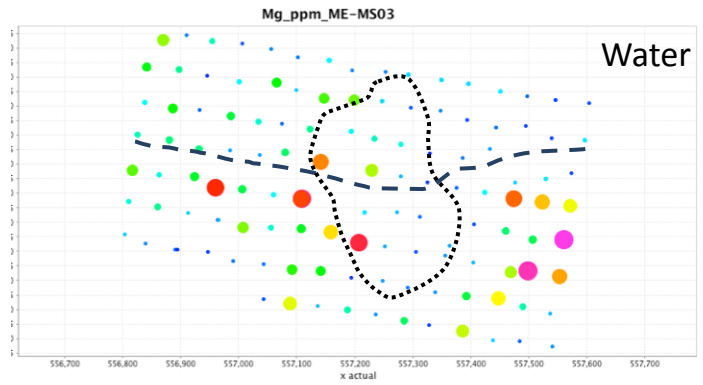


Fp-XRF

Ni

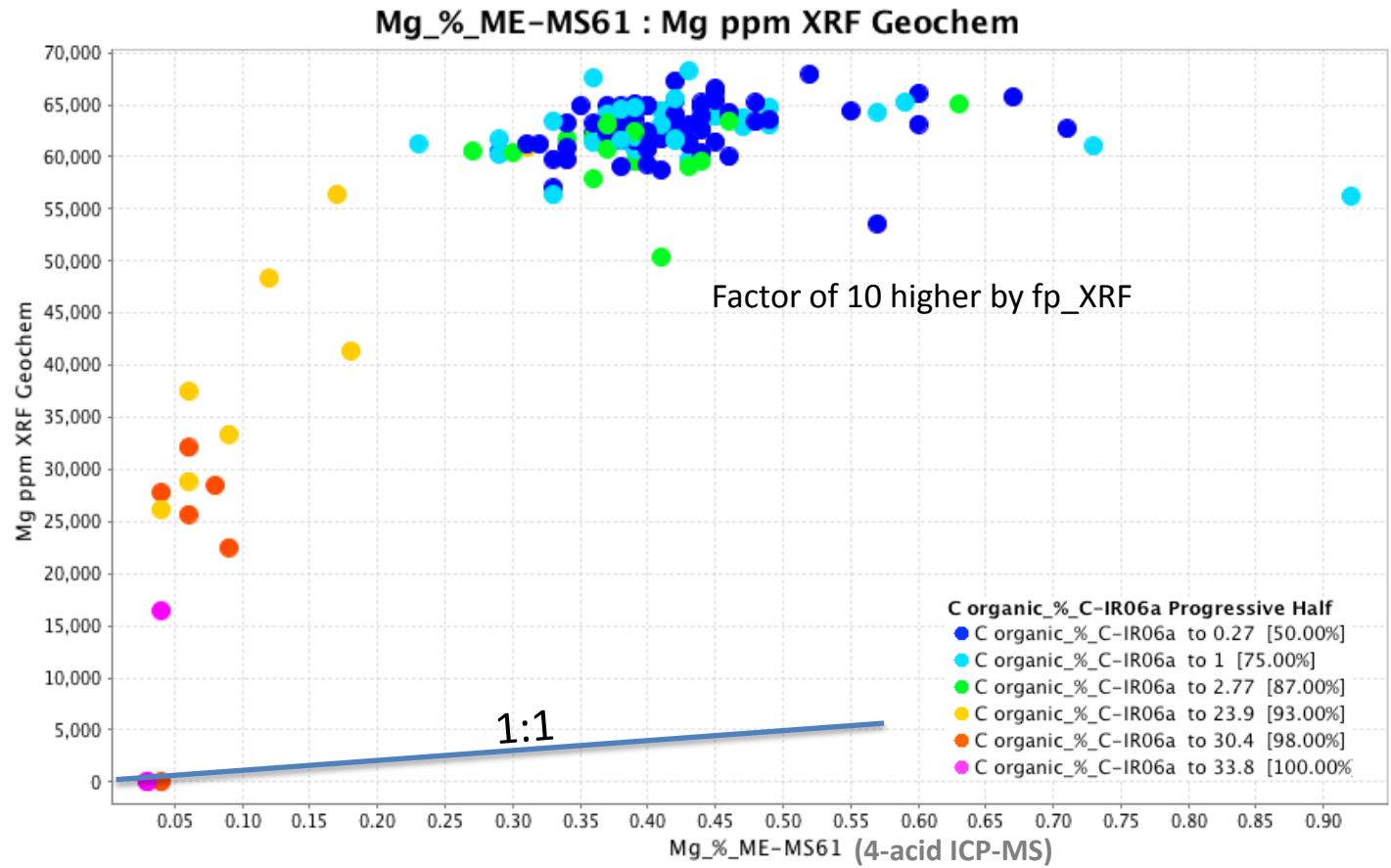


Mg

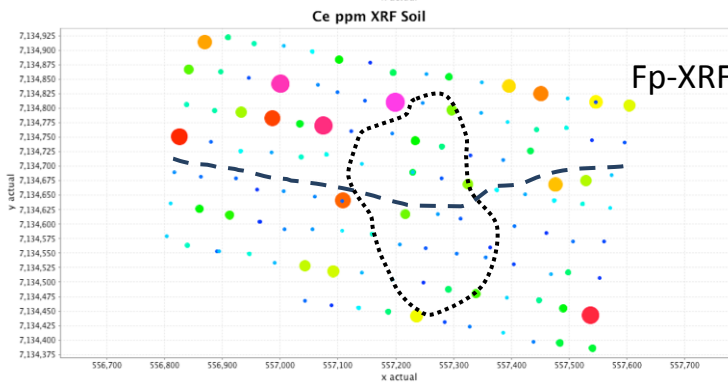
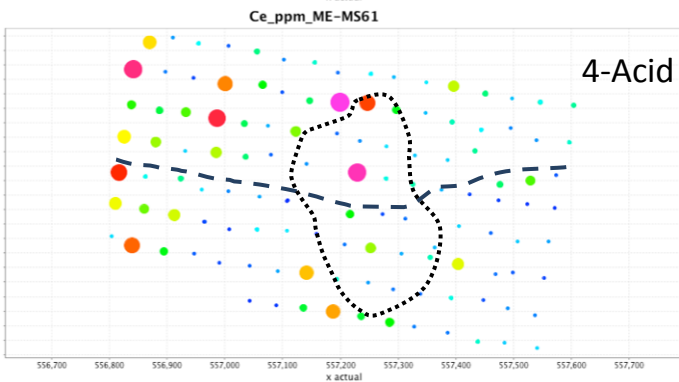
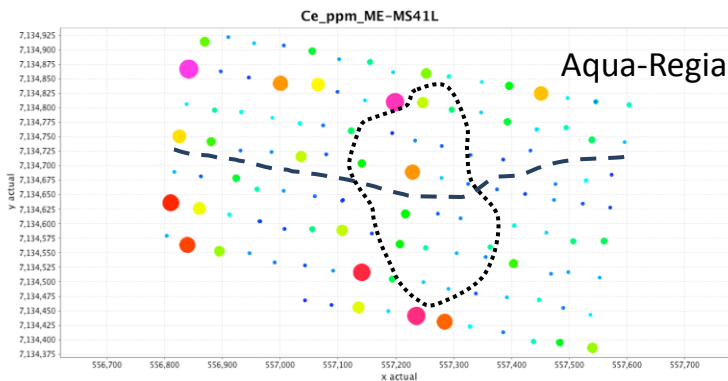
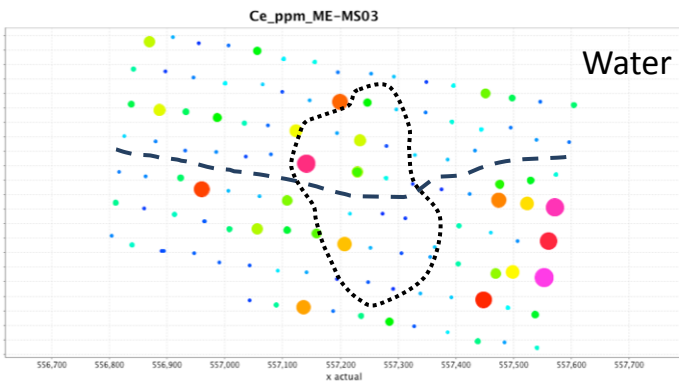


Fp-XRF

Mg

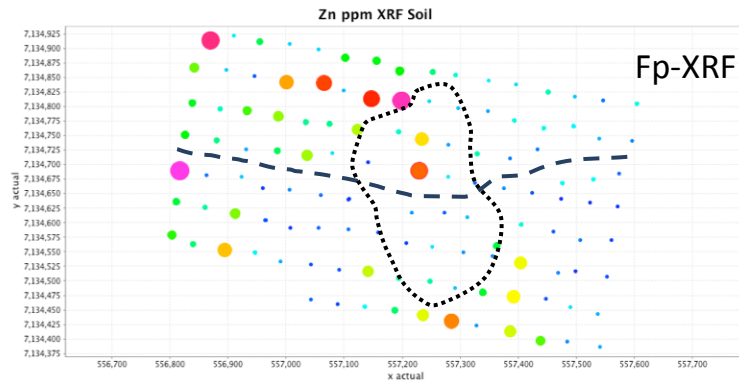
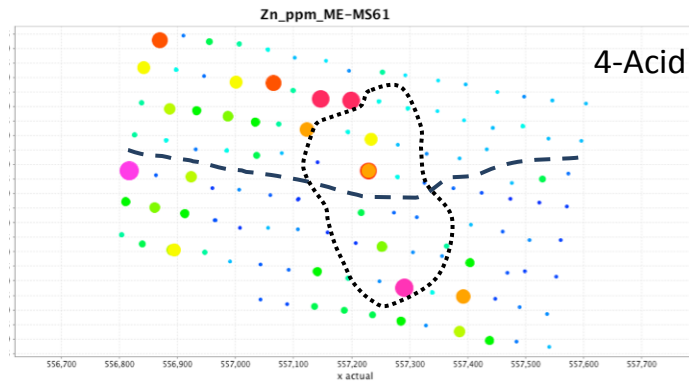
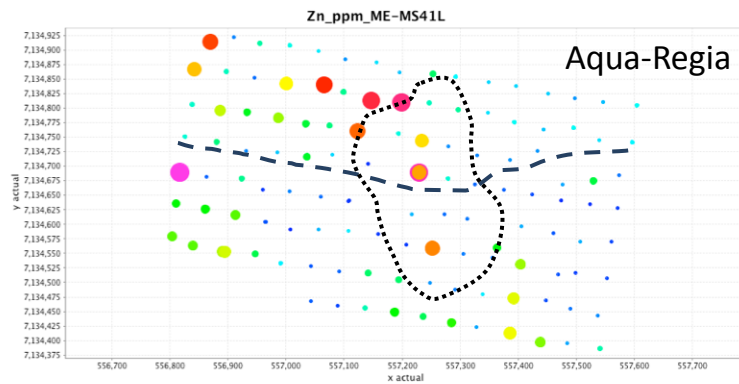
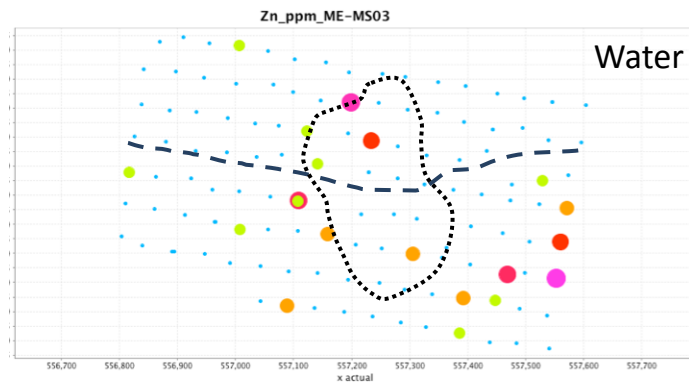


Ce



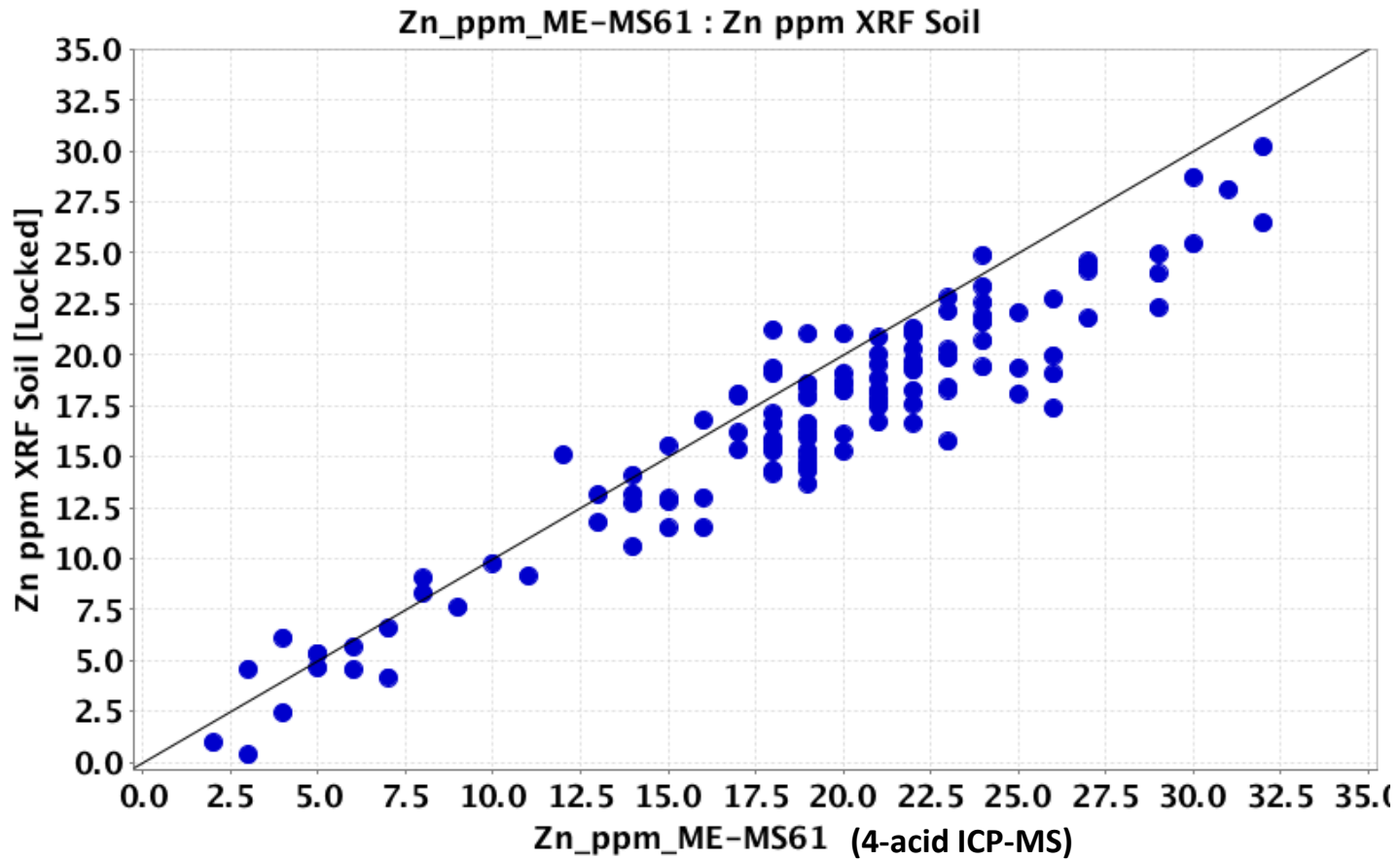
Fp-XRF

Zn



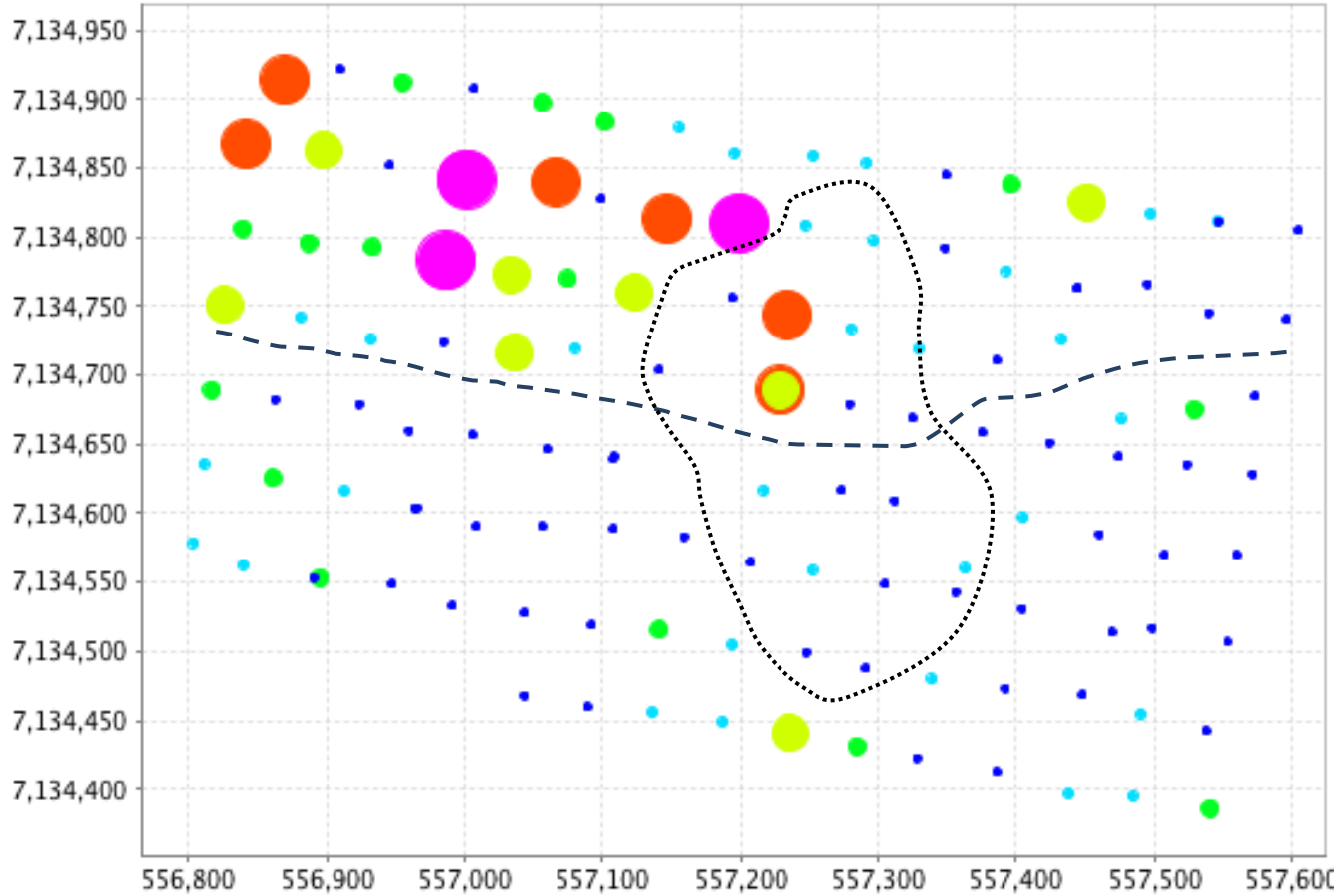
Fp-XRF

Zn



Sum of Ni, Cr, Nb, Mg, Ce, & Zn by fp_XRF.

Normalised
to standard scales



Summary comments

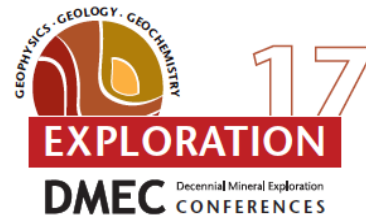
- Key Kimberlite indicator elements (Cr, Nb, Rb, Ni, Ce) identified in till by:
 - Aqua-regia ICP-MS
 - 4-acid ICP-MS
 - **Field Portable XRF**
- Despite very low concentrations.
- Mg content of soil too low for reliable analysis.
- Require a greater compositional range of till RMs for calibration. Insufficient on market.



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