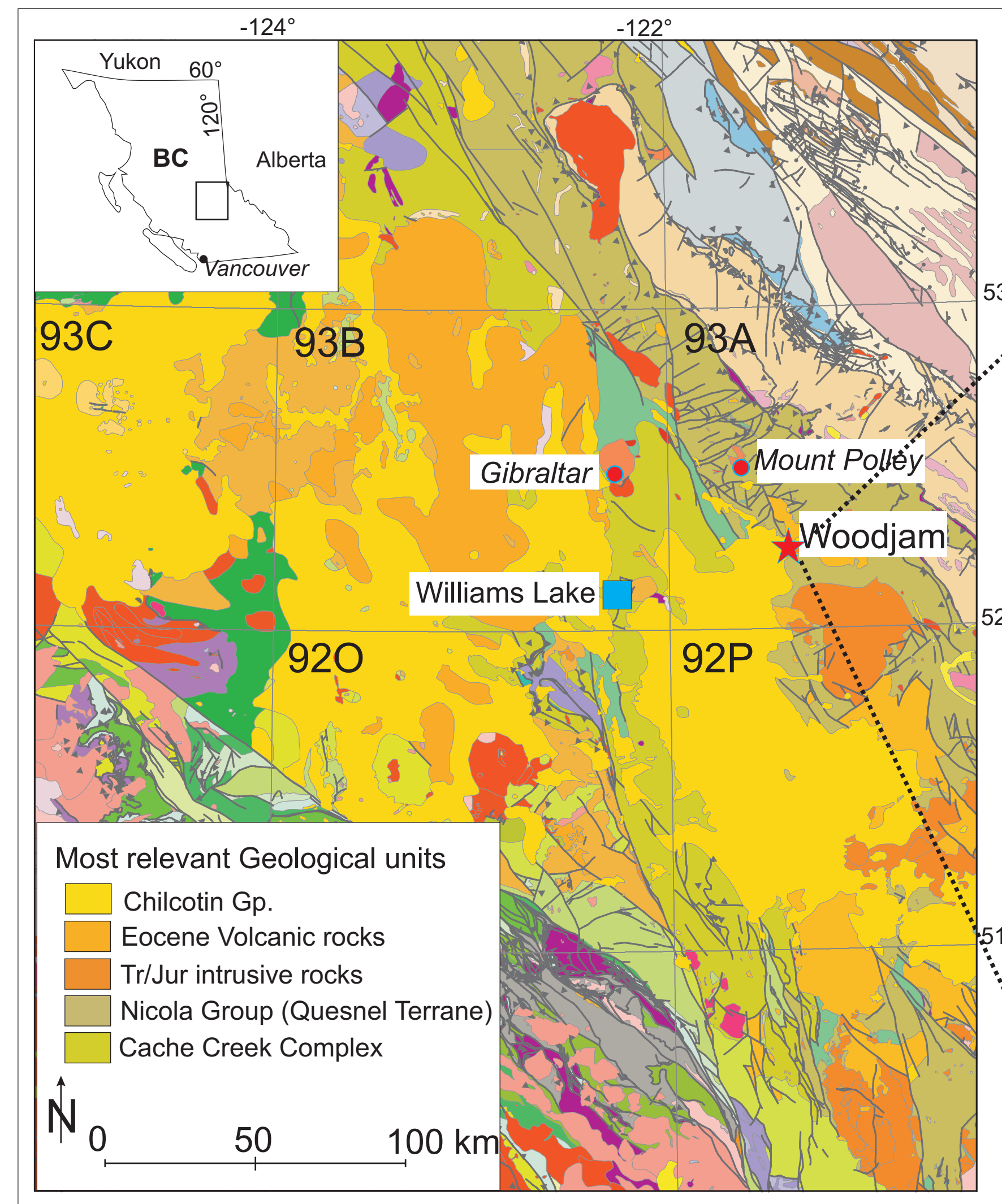


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Introduction



In central British Columbia, large parts of the Quesnel Terrane, prospective for Porphyry Cu-Au (Mo) Mineralization, are covered by Miocene Basalts of the Chilcotin Group. This project examines geochemical techniques to see through the basalt. Case study site is Woodjam porphyry Cu-Au prospect (Deerhorn and Three Firs zones). The results for two sampling traverses at Deerhorn and the chemistry of basalts and amygdules are presented on this poster.

Sample materials



Analytical techniques

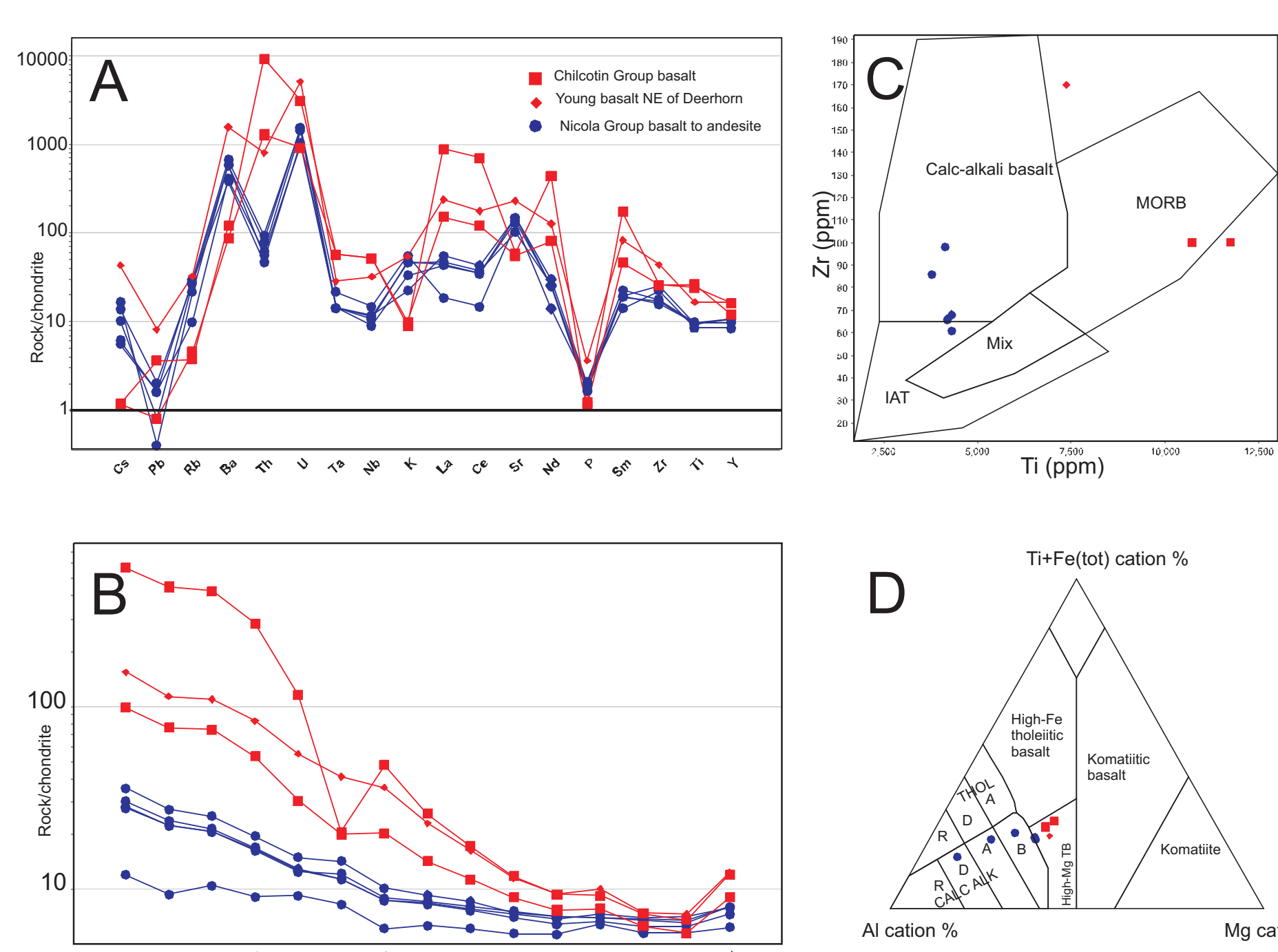
B-horizon soils:
Four Acid digestion (ALS)
Aqua Regia digestion (ALS)
Bioleach (Actlabs)
Enzyme Leach (Actlabs)
Ionic Leach (Actlabs)
MMI (SGS)

Ah-horizon soils:
Aqua Regia digestion (ACME)
Spruce Bark/Spruce Twigs
Ultrace aqua regia digestion (ACME)

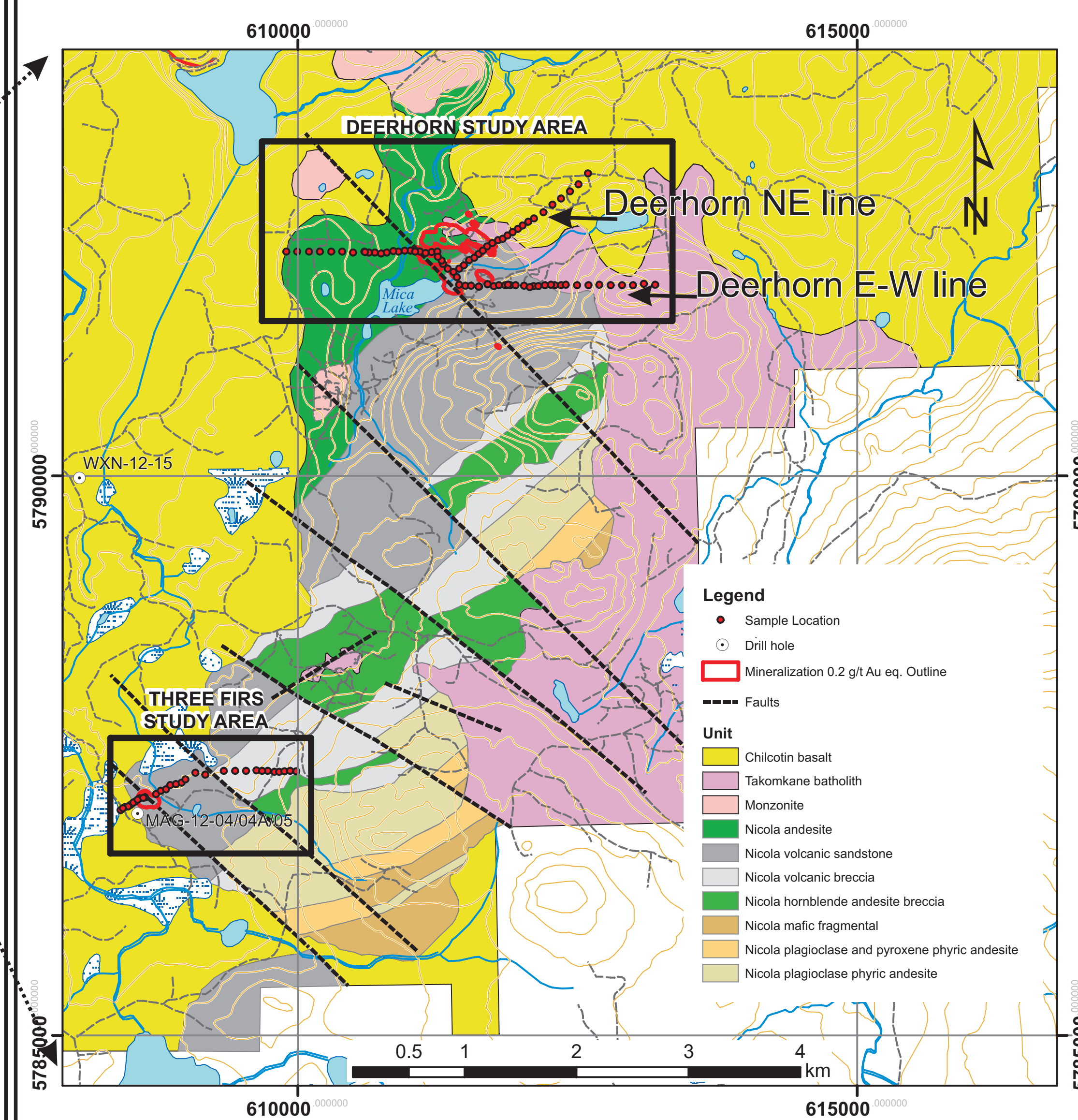
Basalt amygdules:
Aqua Regia digestion (ALS)
Basalt Whole Rock:
Li-Borate fusion (ALS)



Chilcotin vs. Nicola Group basalts

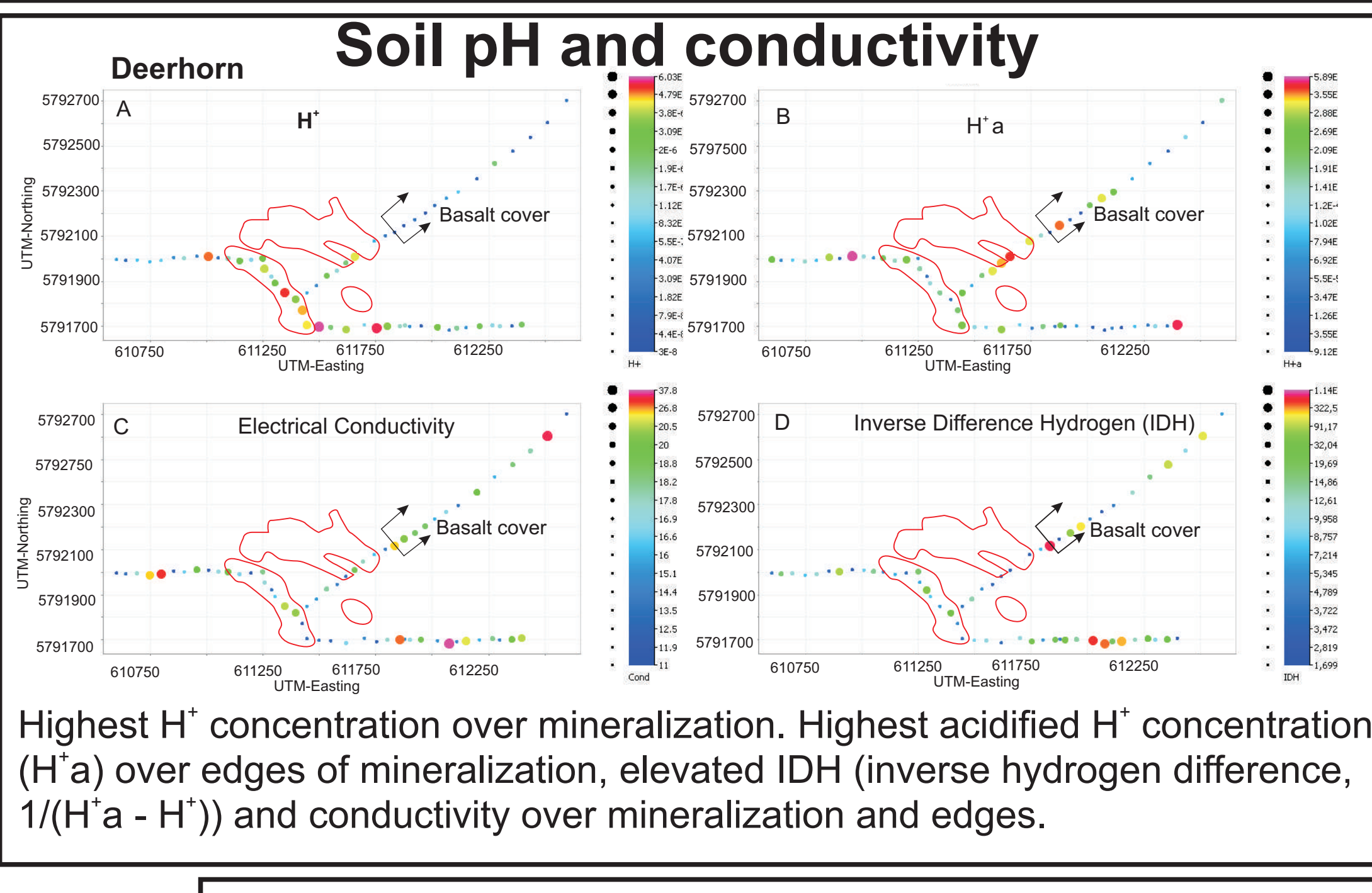
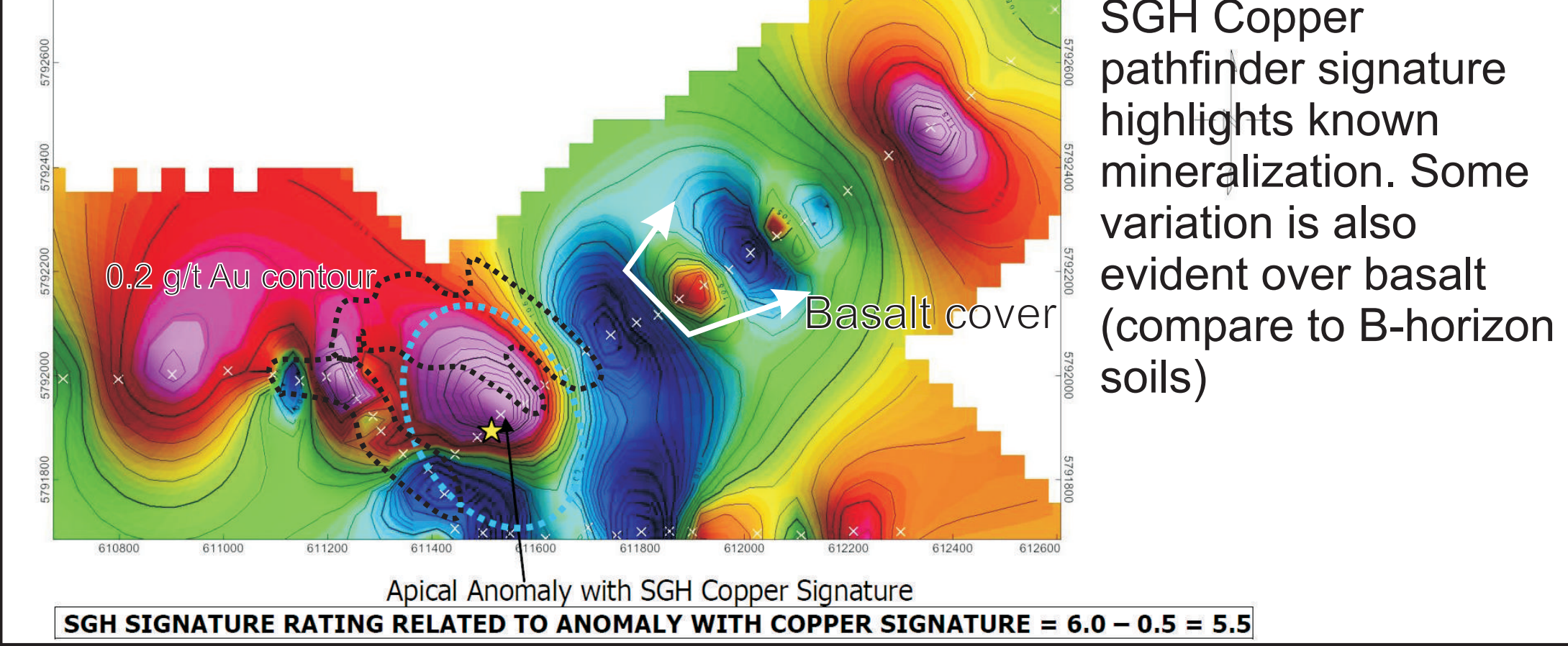


District map and Sample traverses

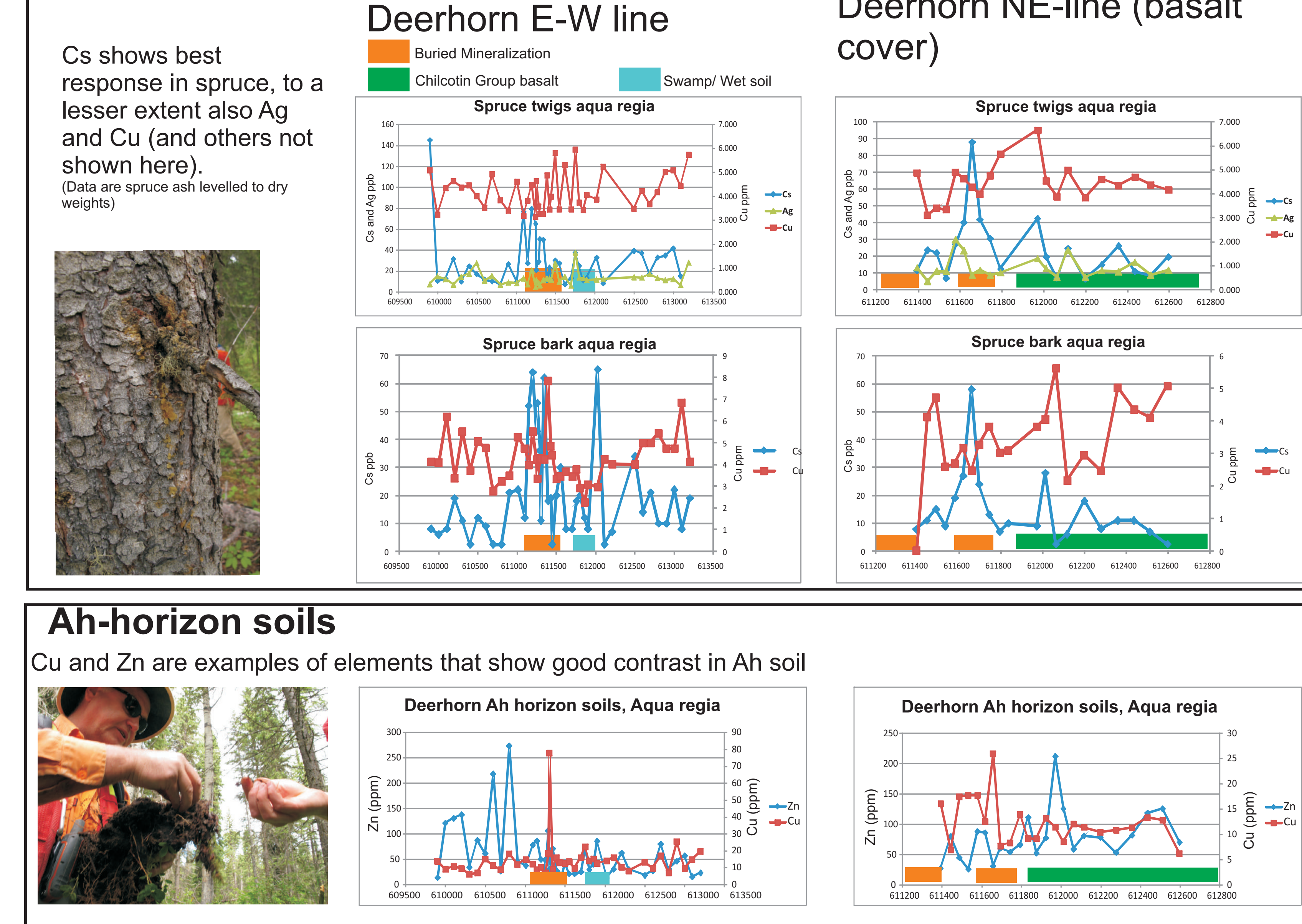


Geological Map of the Woodjam prospect. The soil sampling traverses are indicated. Bedrock geology of the Woodjam South prospect, south-central British Columbia. Geology from J. Blackwell, G. Lesage and other Gold Fields exploration geologists (Gold Fields Internal Data, Oct. 2012). Map is in UTM NAD83 projection, Zone 10. Red outlines denote surface projection of the >0.2 g/t Au-equivalent mineralization.

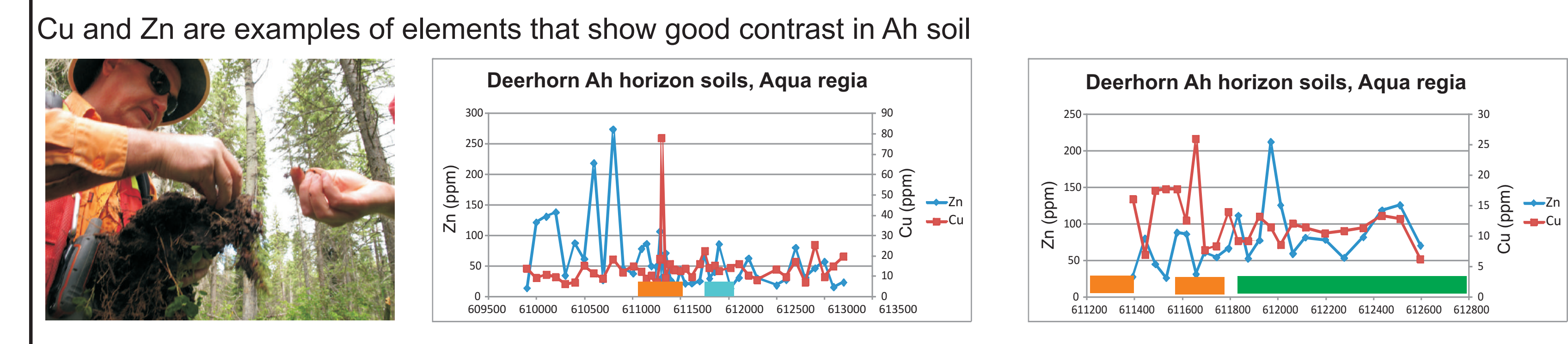
Soil Gas Hydrocarbons (SGH)



Spruce Twigs and Bark

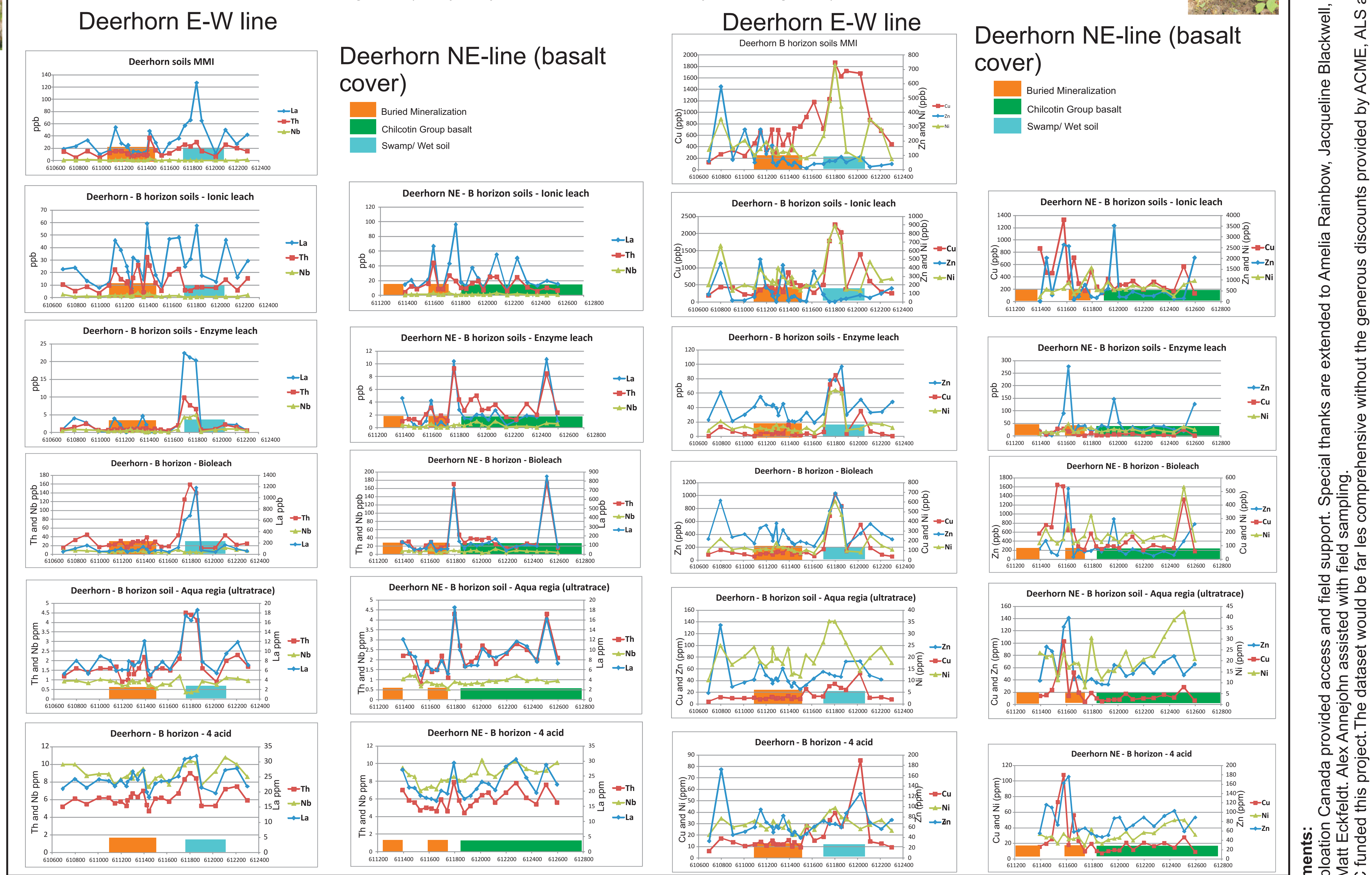


Ah-horizon soils



B-horizon soils: Effect of different analytical techniques.

- For La, Th, Zn, Ni and Cu: Signal vs. background best by Bioleach, Aqua Regia, Enzyme Leach. For Cu and Zn also good contrast for Ionic leach. Ni elevated over basalt by 4 acid and Aqua regia
- Care is needed with false anomalies over wet ground (Nb by Enzyme leach shows contrast only over wet ground).



Conclusions:

Geochemical variability in soils and plants over basalt suggests that basalt does not obscure the signal from below. However, the geology beneath the basalt is unknown and this variability is not necessarily related to buried mineralization. Selective sampling and geochemistry of clay or carbonate from amygdules can potentially help exploration under basalt cover (more work needed). At Woodjam partial leach techniques work best on B-horizon soils. Most promising for many pathfinder elements (e.g., Cu, Zn, As) are Aqua Regia, Bioleach and Enzyme Leach. Less commonly used elements (REE, Th) may also have good contrast.

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