

Geochemical mapping of porphyry deposits and associated alteration through transported overburden

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Anomalous geochemical responses in the Ah soil horizon over the blind Deerhorn Cu-Au porphyry in central BC, were documented by Bissig *et al* [1] and over similarly buried sulphide deposits by Eppinger [2] and Hamilton [3]. Improvements remain in our ability to interpret these geochemical responses so as to develop robust exploration tools for the discovery of economic, but concealed mineralisation.

A critically overlooked component in the interpretation of geochemical soil surveys is quantifying the history of the horizon to be sampled. Frequently geochemical responses in till covered areas are evaluated without due consideration to the geology of the material sampled at the selected horizon; the relative age of the land surface; the mineralogical and chemical composition of the horizon, vegetation and land use influences and the geomorphological setting. Integration of the surface, environment, relative age and composition allows for a filtering of the surface noise and will enable the identification of cleaner and subtle geochemical anomalies

Extensive geomorphological and surface mapping undertaken over the Deerhorn deposit is being integrated with the organic, inorganic and physicochemical results from 150 sample sites cross cutting the porphyry and extending into background to differentiate true anomalous response from background noise and false anomalies.

- [1] Bissig *et al* (2013) *Geoscience BC Report* NTS 093A/03, /06 [2]. Eppinger *et al* (2013) *Economic Geology* **3**, 495-527 [3] Hamilton *et al* (2004) *GEEA* **4**, 33-44