

Characterization of discontinuous permafrost through elevation transitions between different types of vegetation, Yukon Territory

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Fifteen electrical resistivity tomography (ERT) profiles were completed at vegetation transitions on selected Yukon slopes to better understand the relationship between mountain permafrost, elevation and vegetation cover. The 160 to 240 m long profiles, were completed in July 2015 near Whitehorse and Dawson. Organic layer thickness and vegetative species composition were recorded along each profile. Attempts were made to detect and characterize permafrost bodies from each profile and to describe how they related to the vegetation cover. Ground truthing via frost probing, pit digging, and ground temperature data from past and present weather stations aided in the analysis of ERT profiles. Data processing and analysis of the profiles is currently underway. One of the profiles, located on the north-west facing slope of Coal Ridge indicates permafrost presence along most of the slope covered by shrubs of varying height and scattered black spruce trees. Several different patterns in resistivity values are seen across the profile and appear to correspond with changes in surficial geology, organic mat thickness, and shrub height. The remaining profiles are being analyzed with a view to testing the hypothesis that changes in permafrost distribution and characteristics occur at vegetation type boundaries, as they do in latitudinal permafrost.