



Permafrost Science Workshop

Ground Ice Detection and Implications for Permafrost Geomorphology

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Workshop on State of the Science at ESS



Natural Resources
Canada

Ressources naturelles
Canada

Canada



Background

Ground ice types

- pore ice
- lenses
- wedges
- massive ice



Implications

- volume loss
- thermal properties
- landscape history



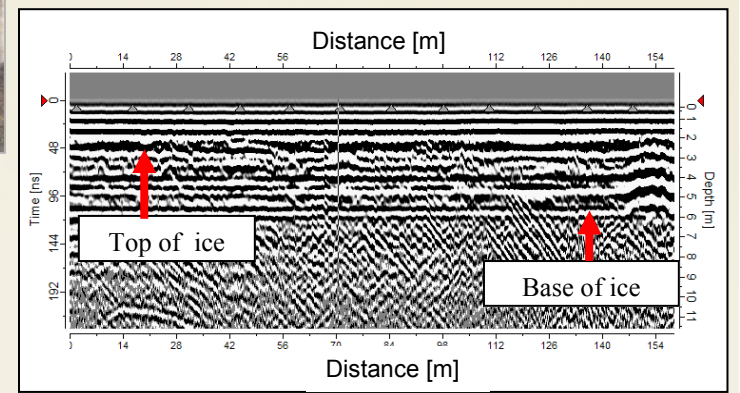
Applications



How much?



Where?



Natural Resources Canada

Ressources naturelles Canada

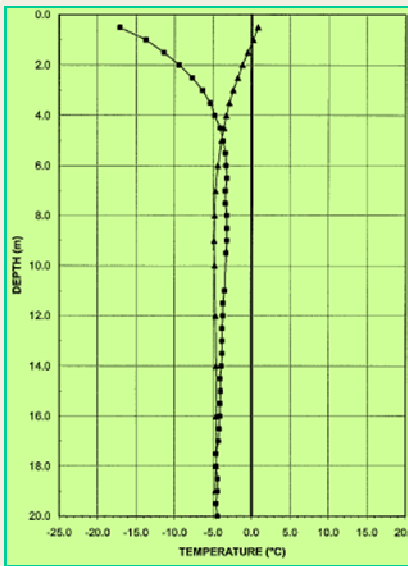




Applications

Effects on the landscape

Effects of surface changes using thermal modelling



Slope instability



Subsidence



Hydrology



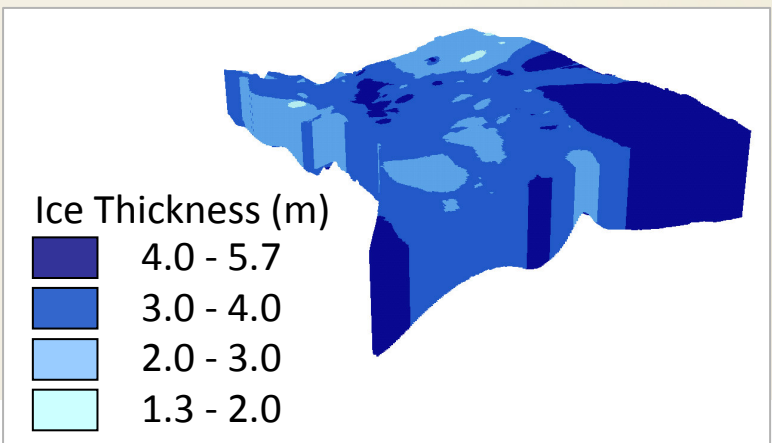
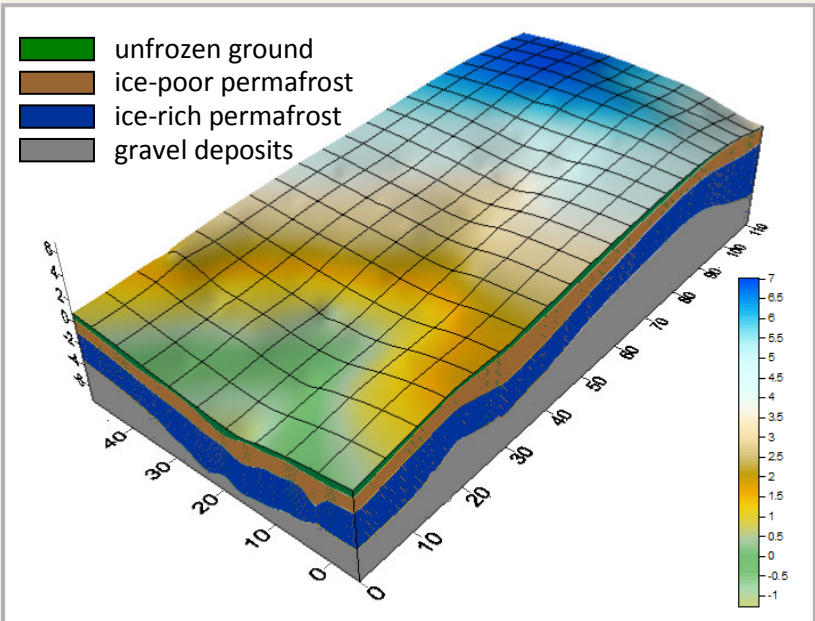
Geochemistry



Accomplishments



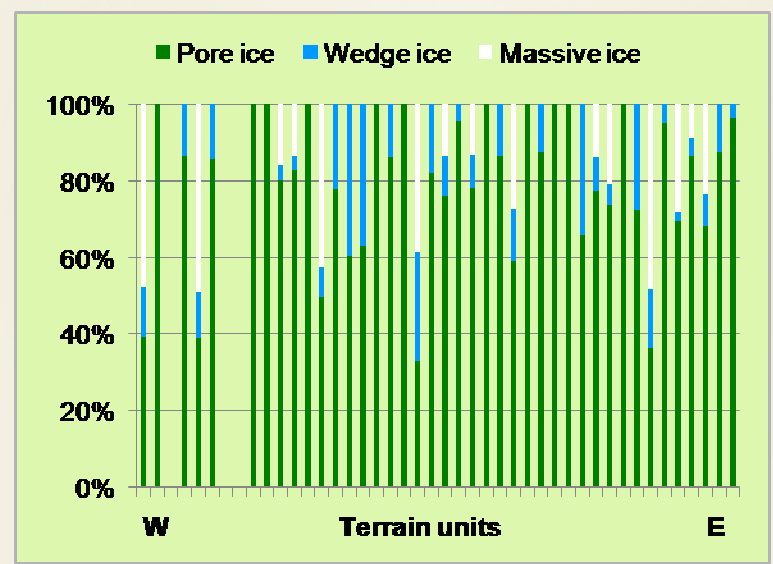
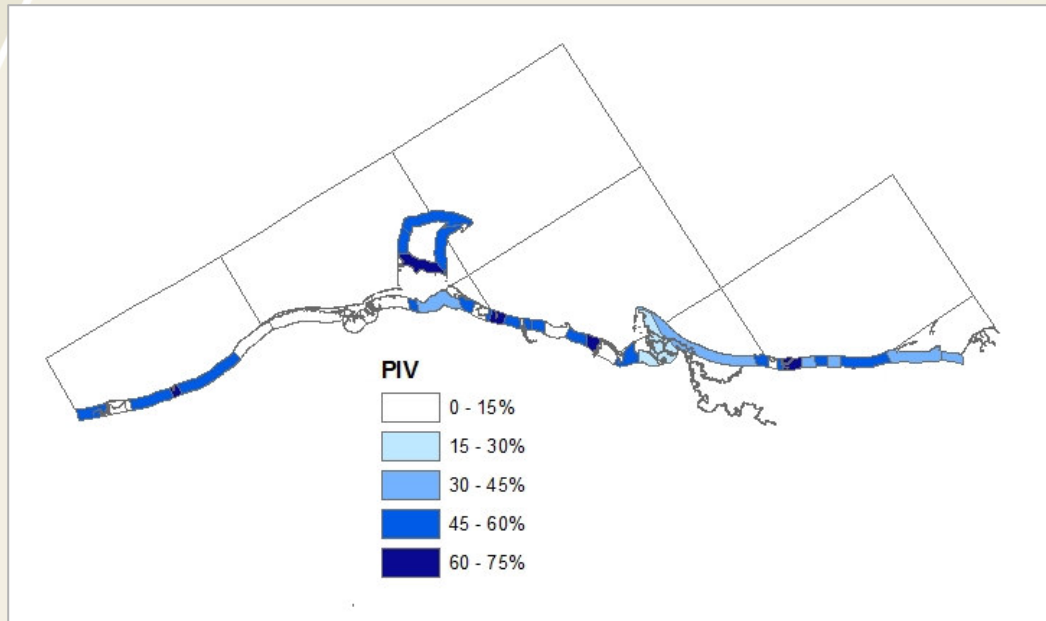
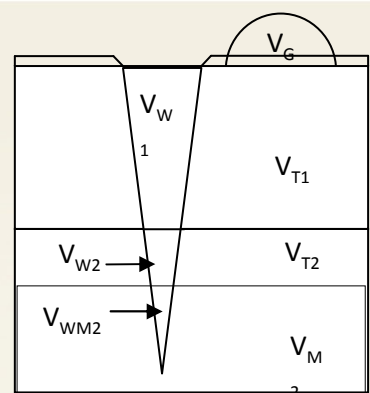
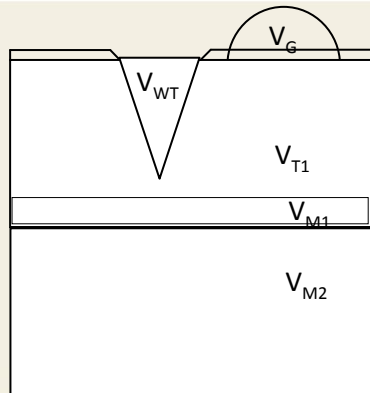
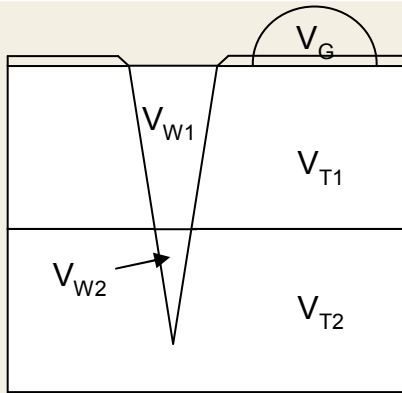
Geophysics to create 3D subsurface models



V_{T1}

Accomplishments

Morphological mapping of ground ice types



Activities



Landscape change

Ground truth for InSAR

- Herschel Island

(CCRS, McGill, Yukon Parks)

Sediment and contaminant fluxes

Coastal process monitoring

- Mackenzie Delta

(GSC-A, McGill, ACD)

- Beaufort Sea coast

(AMAP, INAC, U of Man. AWI)

Cultural site loss

Coastal erosion

- Ivvavik Park

(Parks Canada, CCRS)

Terrain response to development

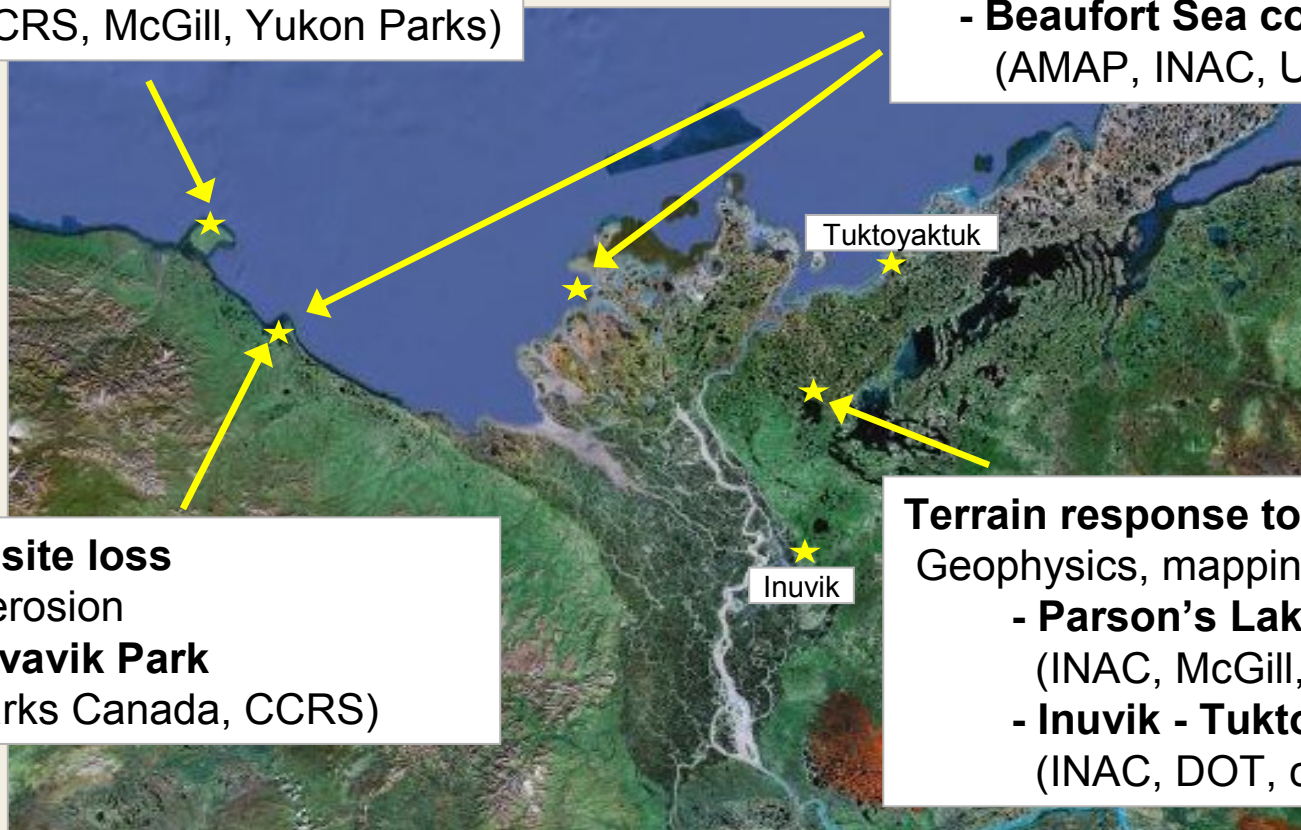
Geophysics, mapping and modelling

- Parson's Lake

(INAC, McGill, Conoco Phillips)

- Inuvik - Tuktoyaktuk road

(INAC, DOT, communities)





Scientific Gaps

- More ground truthing for integrated geophysical methods
- Relationship between ground ice and coastal processes

