

## Climate impacts and adaptation in the Far North of Ontario – Change like no one has seen before ?

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Observations show that climate is changing more rapidly and more severely than suggested even as recently as 2007 by the Intergovernmental Panel on Climate Change. Current projections for the Far North of Ontario in 2050 developed by the Canadian Climate Change Scenarios Network strongly suggest more severe change in the Far North than anywhere else in Ontario. Winter temperature and precipitation projections are especially disturbing. A winter season shorter by several weeks along with considerably more snow implies an earlier and more voluminous Spring run-off causing more frequent and severe flooding in communities, as well as winter transportation issues and less reliable ice cover on Hudson Bay. Systematic analysis of climate change vulnerability involving traditional community knowledge, and the assessment of risk to Far Northern communities in the light of the best available projections, are prerequisites for pro-active as opposed to reactive adaptation in land use planning, infrastructure development, and resource extraction.

Weather events that are currently exceptional and extreme become more frequent as seasonal and annual averages shift. More monitoring is necessary to better understand the likely trends of extreme events accompanying rapid climate change in the Far North.

Included in the impacts from projected temperature and soil moisture changes are highly significant potential shifts in the contribution of cold climate peatlands in storing carbon. Potential warming feedbacks in the carbon cycle in the Far North and possible strategies for hindering those feedbacks or protecting carbon storage capacity are further and immediate challenges.

The backdrop of rapid climate change in a vulnerable environment will require on-going consideration of science at all scales in the Far North, from communities to watersheds and ecozones.

### Vulnerability Assessment and Risk Management for Adaptation

