The Nunavut Impact Review Board may require additional location information in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

Evaluation of simulated snow properties across the Arctic

Prof. Alexandre Langlois
Université de Sherbrooke

Project location: Cambridge Bay area (south Victoria Island)
April 7th-17th 2015

Project Description:

The project is motivated by the increase in extreme weather events in the Arctic such as rain-on-snow (ROS) events. ROS are known to be the consequence of global warming, and given the anticipated increase in arctic temperatures; more events are likely to occur. Those events lead to the formation of ice layers that affect transportation, travel on the land while have direct consequences on permafrost melt. ROS events also affect caribou grazing conditions, and several events killed many animals, not only in Canada but also in other parts of the Arctic.

The main objective of this project is two-fold: 1) to develop a ROS detection method using satellite image, and 2) use a snow model to simulate caribou grazing conditions. While on the field, the researchers will use snowmobiles and no permanent infrastructure are to be erected. The measurements are non-destructive so that no restoration plans are required.

Our research group will be on the field to collect snow data (temperature, grain size, density, wetness, layers structure). The data will be collected along pre-designed transects (see map above) on a daily basis, for 10 consecutive days. A field guide will be hired for the field days, and the process will be facilitated by CHARS in Cambridge Bay.

A short term use of the data will allow us to validate the snow properties simulated by our model. In order to use the model to evaluate access to food for caribous, it is required to know the uncertainties in the simulations. In the long-term, the data collected on the field will be compared to satellites in order to see if they can detect changes in snow conditions (especially those during ROS events). We will also use the data form e meteorological station (CHARS license) that will provide the weather observation we need to conduct the snow simulations and identifying ROS events.

The results will be shared with the community and the process is to be facilitated through local contacts. Pamphlets of results will be produced and shared, and we hope to be able to develop a community based-monitoring program of weather observations. This program will be discussed with the community during our April 2015 visit. We aim this to be a long-term project (i.e. multi-year). It is also anticipated that peer-review publications be published from this project.