



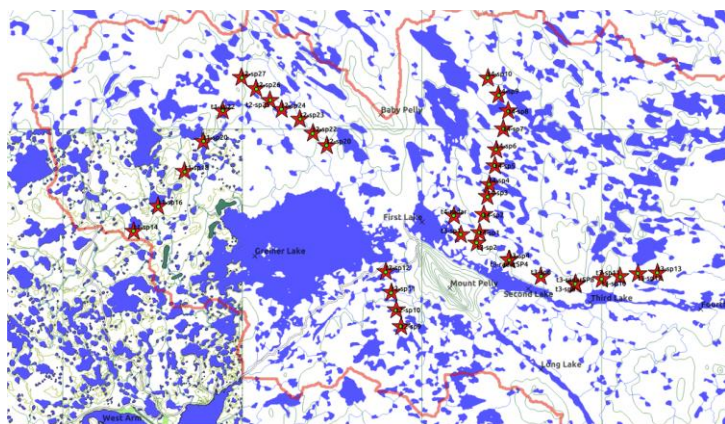
2017 Annual Report: from the Université de Sherbrooke research group (GRIMP) – Research license 04 010 15R-M

Prepared by: Alex Langlois, PI

The group from the Université de Sherbrooke was in Cambridge Bay for 26 days in April-May 2017. Five researchers took part in snow measurements around Greiner Lake. The project is motivated by the increase in extreme weather events in the Arctic such as rain-on-snow (ROS) events, which change snow characteristics. Those events lead to the formation of ice layers that affect travel on the land and caribou grazing conditions. Several events killed many animals, not only in Canada.

The main objective of this project is three-fold: 1) to develop a ROS detection method using satellite image, 2) use a snow model to simulate caribou grazing conditions and 3) characterize snow from satellites. The short term use of the data allowed us to validate the snow model. 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).

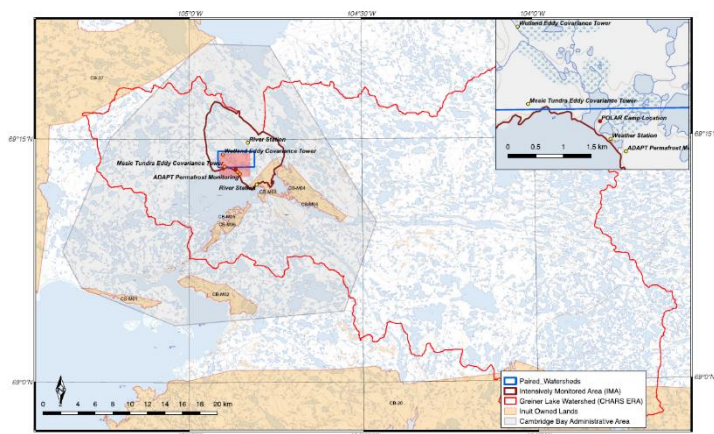
2017 sites surveyed (36 sites):



Staff that was on the field in 2017: Dr. Alain Royer (prof., U. de Sherbrooke), Dr. Alex Langlois (prof, U. de Sherbrooke), Ms. Caroline Dolant (PhD student, U. de Sherbrooke), Ms. Chloé Martineau (MSc student, Université de Sherbrooke) and Mr. Daniel Kramer (PhD student, Université de Sherbrooke).

Snow properties during the field campaign: density, temperature, resistance, grain size and distributed depths, brightness temperatures.

2018 plans (7 people, 4 weeks): Repeat the surveys from the map above and include snow microwave measurements using our radiometers; Fly our unmanned aerial vehicle (UAV) in the Intensively Monitored Area (IMA; blue square in flowing map. We were suppose to fly in 2017 but that was not possible.



UAV work details :

- 1 flight : 30 minutes, for 10 hectares;
- 5 flights total, 50 hectares inside IMA during 5 separate days (weather permissive);
- 60 m altitude, SFOC obtained, pilot is certified by Transport Canada;

