



NRI Final Report 2018: Geological bedrock mapping in the Steensby Inlet – Barnes Ice Cap area

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Executive Summary

This report describes fieldwork conducted by the Geological Survey of Canada (GSC), a division of Natural Resources Canada, in the surroundings of the Barnes Ice Cap and Steensby Inlet of northern Baffin Island. The represents the second year of a mapping project by the GSC, the first of which, in 2017, was focused on the Pond Inlet area and led to the release of multiple reports and maps (Skipton et al., 2017, 2018a; Saumur et al., 2017; 2018a, b). The aim of this project was a better understanding of the bedrock geology of the area to help improve and modernize the geoscience framework of north Baffin. Fieldwork occurred between July 11 and August 13, based at a temporary camp located along the Isortoq River, which has since been demobilized. Fieldwork consisted of low-impact ground traversing by teams of geologists, with helicopter support. Community involvement included logistical support from businesses in Pond Inlet, and the hiring of wildlife monitors from Clyde River and Igloolik. Reports stemming from the 2018 fieldwork are complete (Saumur et al., 2018c; Skipton et al., 2018b) and new bedrock maps are currently in production and set for public release in 2019; once released these can be used to educate land-use decisions and potential mineral exploration in the area.

Project Title: GEM-2 North Baffin Bedrock Mapping (License # 02 025 18R-M)

Principal Investigators

The two principal investigators for the project were Diane Skipton (diane.skipton@canada.ca) and Benoit Saumur (benoit.saumur@canada.ca)

Research Team

- Geological Survey of Canada (NRCan)
 - Diane Skipton
 - Benoit Saumur
 - Erin Bros (M.Sc. student)
 - Annick Morin
 - Mylène O'Brien (B.Sc. student)
 - Pedro Acosta-Gongora
 - Colter Kelly
- Cambridge University
 - Owen Weller
- University of Alberta

- Stephen Johnston
- Nunavut Arctic College
- Summit Helicopters
 - Erik Polzin (pilot)
- HTO Igloolik
 - Paul Ivalu
- HTO Clyde River
 - Leeno Joe Apak

Fieldwork dates

July 11 to August 13 2018

Fieldwork location

Fieldwork occurred in the Steensby Inlet – Barnes Ice Cap area, within portions of NTS sheets 37E, 37F and 37G (Figure 1)

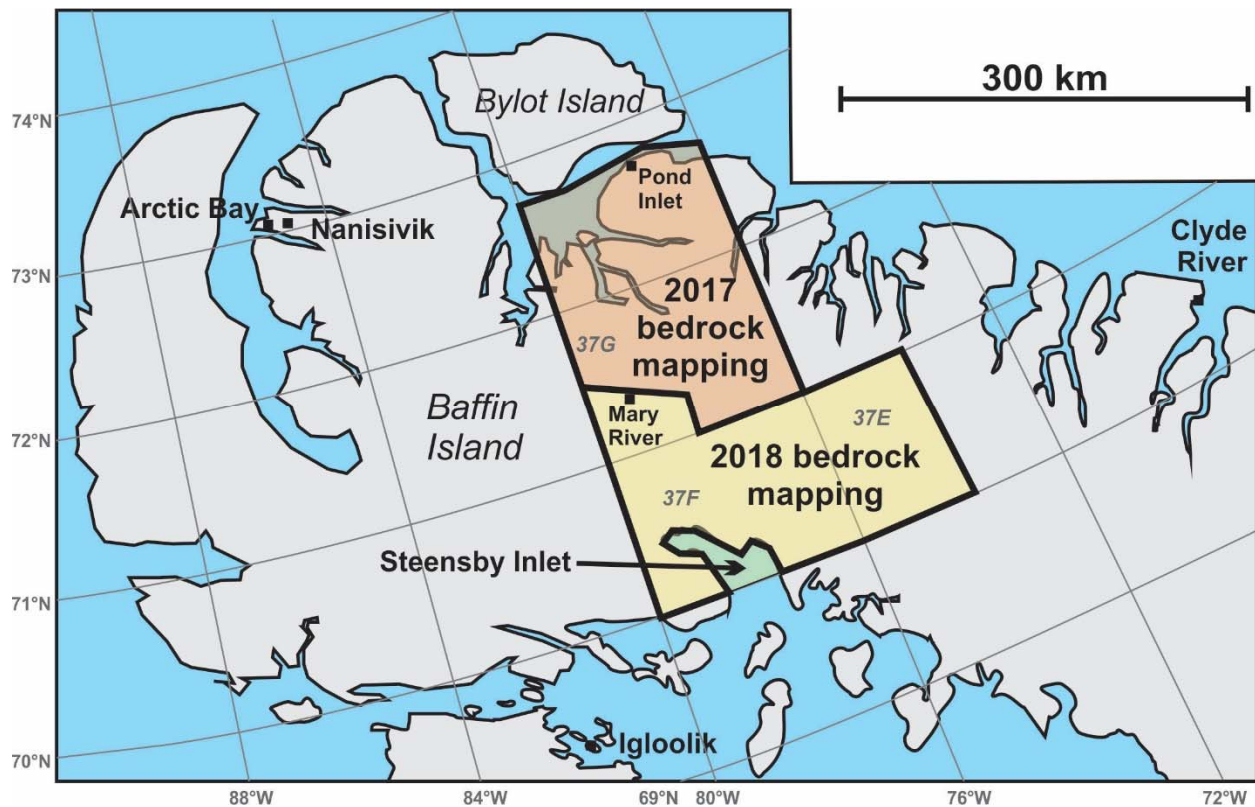


Figure 1: GEM-2 North Baffin Bedrock Mapping project area (2018).

Field Activities

Every day 6 to 8 geologists were dropped off by helicopter in teams of two on the land where they hiked for 10-15 km to study the rocks. Locations of bedrock mapping traverses were planned prior to fieldwork using topographic maps and satellite images.

During mapping, geologists made observations of rocks and minerals, took digital photos, used a compass to take measurements of rock orientations, and made notes and collected GPS location data using a hand-held tablet. Occasionally, fist-sized rock samples were collected using a hand-held rock hammer (3 lb to 8 lb).

The mappers and any rock samples they collected on their mapping traverse were picked up by helicopter at the end of each day and brought back to camp. The rock samples were shipped back to Ottawa for follow-up (and ongoing) laboratory analysis.

Our traverse plan was successful, as we were able to cover approximately 80% of the ground we had expected to cover. This will lead to new, updated bedrock geology maps of the area (to be published and publically available in 2019).

Preliminary Results

Preliminary results have already been detailed in two publically available post-fieldwork reports. The first (Skipton et al., 2018) is a Geological Survey of Canada Open File. The second (Saumur et al., 2018) is in press, and will be published in the forthcoming Summary of Activities volume published by the Canada-Nunavut Geoscience Office (available online: www.cngo.ca). The reader is referred to these for details on preliminary findings.

New geology maps are in preparation and are expected to be published and publically available in 2019.

Community Consultation and Involvement

- Community engagement and consultation visits occurred in January 2018 (Pond Inlet) and May 2018 (Clyde River and Igloolik), and included meetings with local Hamlet Office and Hunter's and Trapper's organizations.
- Pond Inlet served as our base of operations. We utilized local businesses for purchases and logistical support.
- Two camp managers / wildlife monitors were hired for two-week shifts to work at our camp: Paul Ivalu (Igloolik) and Leeno Joe Apak (Clyde River).
- Future meetings in all three communities are planned to present results of our research.

Occupied Lands / Land Use

Isortoq Camp

Land was used for the purposes of a temporary field camp located at 70.315728° LAT, -76.240819° LONG, on a high sand bar along the east side of the Isortoq River (Fig. 2). The camp was a small operation, consisting of 10 people, with 5 large tents (kitchen, office, storage, shower) and personal tents for sleeping quarters. The site also served as our main fuel storage area. Fuel drums were stored in a berm.

Water, extracted from a nearby stream, never exceeded 1 cubic metre per day. Sewage and grey water also never exceeded 1 cubic meter per day. All other waste was backhauled to Pond Inlet for proper disposal at the municipal waste disposal site.

All tents, equipment and fuel drums were removed from the campsite, between August 11-13, 2018. The site is now back in its original state.

Pond Inlet Airport Area

Empty drums were removed from Isortoq Camp and are temporarily stored in Pond Inlet, in a containment berm just outside the limits of the airport runway. An application to the Polar Continental Shelf Program (PCSP) by NRCan is underway to organize the removal of these drums, so that they can be shipped to and crushed at PCSP's facilities in Resolute in 2019. Drum removal from Pond Inlet is tentatively planned for March 2019, pending PCSP approval.

Old Camp Cleanup

Twenty-two rusty drums from an old abandoned camp located ~2 km south of Isortoq Camp were removed from this site, and sent to Resolute on a flight of opportunity.

Other Work

No other lands were occupied for the purposes of this work. Daily hikes by geologists to cover the geology of the field area were for the sole purposes of gathering observations, data and rock samples. No other fuel caches were established.



Figure 2: Isortoq Camp (circa July 22 2018), viewed from helicopter, tangent view facing west. Field of view ~400m.

Plans for next season

The GEM-2 North Baffin Bedrock Mapping activity is complete. No further fieldwork under this activity will be carried out.

References

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