NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

The proposed research project “Mapping Pearya Terrane”, in collaboration with German federal Institute for Geosciences (BGR), is a continuation of a long-term study of the geological history of the Canadian Arctic Islands. Through sampling at faults, researchers are looking to model how the ancient continents collided to form the modern Arctic archipelago. Sampling for metal content of black shales would help researchers to learn more about the initial presence and subsequent movement of naturally-occurring metals as a consequence of modern climate change. This project would also produce modernized and updated bedrock maps of northern Ellesmere Island.

The research team, led by Dr. Thomas Hadlari, Geological Survey of Canada (NRCan), plans to setup a camp at Yelverton Inlet for approximately 2 weeks (stage 1), in early July, 2024, with no more than 9 personnel on site. We hope to employ the services and expertise of a wildlife monitor from Grise Fiord. There would be a 40 drum fuel cache for a helicopter. We would use the helicopter for daily transportation to rock outcrop sites.

Scientists will walk up to 10km per day, taking photos, GPS or other measurements, and samples of fist-sized surface rocks sometimes using a small rock hammer. Samples will be analyzed for chemical and mineral content. We will also collect bread-loaf-sized samples of peat. Researchers would examine peat layers for remains for plants (macrofossils, pollen, spores) that would tell them what vegetation has been growing in the area over time and how it has changed due to climate change. A second stage of 1 week would be based at the Eureka weather station, and similarly visiting sites by helicopter. There is no drilling or blasting.

There could be potential impacts associated with storing fuel on the land. In the case of a spill, the contaminated soil will be removed by shovel and a bucket of contaminated soil will be removed from site for proper disposal. If large spill occurs, CIRNAC inspectors will be advised. The crew will take photographs and coordinates of the spill site. Other environmental impacts are largely from the use of a helicopter, mainly noise. To decrease stress on animals, we will follow the recommended altitude for aircraft by the Government of Nunavut of 610 meters during point-to-point travel. In addition, we will provide a wide birth to any animals spotted, including migratory birds. The field camp, 9 persons or less, will also impact the environment with the use of water and the production of waste. We will have safety protocols in place for predatory wildlife.

Data collected and generated will be stored in internal databases at the GSC. These are structured to include samples, lab and paleontological data. All results, publications, maps, and data produced by GSC research are made available publicly, for free, and will be shared upon release. It often takes several years for results to be published, we would provide updates as new information becomes available. We hope to return to Grise Fiord to present preliminary results in 2025.