A Virtual Geological Field Trip Across Victoria Island, Northwest Territories

GEM

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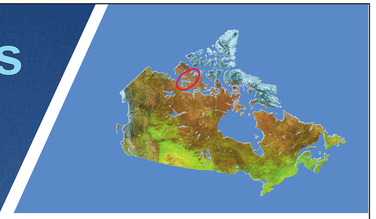

GEM-MINERALS COMMUNITY OUTREACH

The Geo-mapping for Minerals (GEM-Minerals) and Polar Continental Shelf Program provided support for geological field work on Victoria Island in 2010 and 2011(**Figure 1**). The operations involved over 30 geologists and the community of Ulukhaktok each summer (**Figures 2-5**). In keeping with the GEM-Minerals objective of *acquiring new information on northern resource potential,* the Victoria Island project targeted new geoscience knowledge required for base and precious metal exploration.

The objectives of the GEM-Victoria Island outreach project are to: (1) introduce some aspects of the geoscience that could assist the community of Ulukhaktok on questions related to mineral exploration and resource development; (2) promote the GEM-Victoria Island project goals and showcase discoveries; (3) communicate the details on access, aircraft and logistics support, field safety protocols, mapping tools and technology; (4) increase public awareness about career opportunities in the Earth Sciences; and (5) promote networking amongst GEM-Minerals stakeholders in northern communities, industry, territorial governments, universities, and colleges. First and foremost, the deliverable is a tangible way to thank the residents of Ulukhaktok for their support of the field campaigns since 2009.

LIFE IN CAMP

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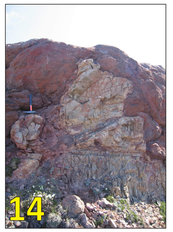
GEOLOGY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ISLAND RESOURCES

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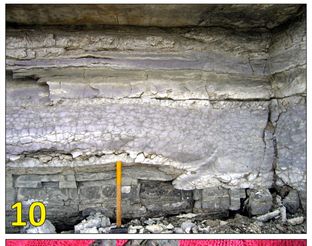
Carving Stone Deposit: An ancient deposit of gypsum formed by the evaporation of seawater was discovered by GSC geologist Rob Rainbird in 2005 (**Figure 6**). The outcrop provides an accessible source of alabaster used for stone carving (**Figures 7,8**). The outcrop was quarried by residents of Ulukhaktok in 2010 to provide carving stone as a resource for local artists (**Figure 9**). A closer look at the deposit reveals the delicate light purple to pale pink colour of the rock (**Figure 10**).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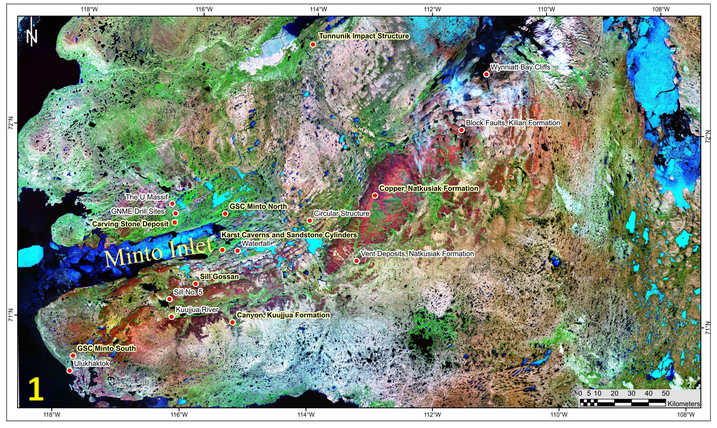
Copper, Natkusiak Formation: The tabular sheets of native copper that are found in the Natkusiak Formation have long been a source of metal for the fabrication of tools by the people of Victoria Island. The lava flows in the volcanic succession were described in detail by students involved in field work (**Figure 11**). Large sheets of native copper in basalt flows of the Natkusiak Formation are highly resistant to erosion compared to the host rocks. Luke Ootes (NWT Geoscience Office) explored the nature of the copper sheets with Rob Rainbird (GSC) during reconnaissance mapping of the Natkusiak Formation (**Figure 12**). Weathering of the native copper sheets gives the metal a green tarnish known as 'patina' (**Figure 13**).



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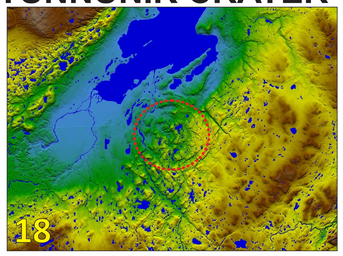
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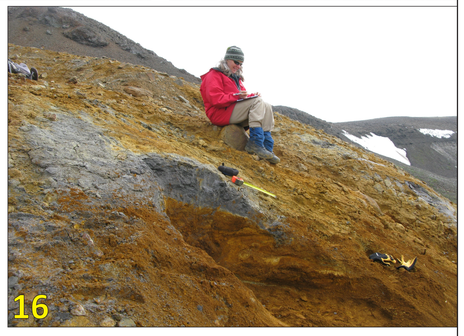
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Karst Caverns and Sandstone Cylinders: At this locality, we found ancient caves filled with sand in contact with the host limestones (**Figure 14**). Circular structures form by water escaping upwards through the sand (**Figure 15**). **Sill Gossan**: We investigated a well-exposed gossan associated with a mafic sill. The orange soils contain gypsum and iron-rich minerals (**Figure 16**). **Canyon, Kuujjua Formation**: Panoramic view of sandstone beds exposed along a tributary of the Kuujjua river (**Figure 17**). **Tunnunik Impact Structure**: A circular topographic structure associated with a meteorite impact was discovered in 2010 (**Figure 18**). Steeply dipping strata could have formed in the uplifted, central area of a complex crater (**Figure 19**).

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COMMUNITY ENGAGEMENT

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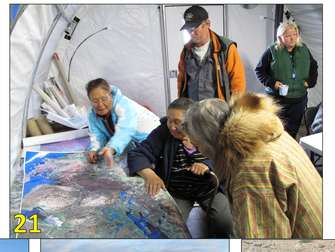
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