Monitoring depth of frost, Baffinland

Remote installation site

Onsite Training, how to use the data acquisition system

DL series acquisition system with telemetry by satellite antenna

Installation of the casing and solar panel

GKM is proud to have assisted with the deployment and commissioning of automated monitoring systems to follow the depth of frost at the Baffinland Mary River mine.

This project is part of a feasibility study for the construction of a one-of-a-kind railroad that will greatly facilitate mine operations. This world-class iron mine hauls large amounts of ore overland with trucks on roads and structures built on the permafrost. In addition to trucking systems' limited volume capacity, any road built on permafrost is prone to distortion caused by the inherent movements of this type of soil.

These systems will contribute to the construction of a new railroad connecting the extraction site to the port. This critical asset will significantly increase the mine's annual exports and minimize the mining complex's dependence on the road system.

Our novel system collects temperature data autonomously using a battery and solar panel system. Temperature depth profiles collected over more than one year will provide a baseline for temperature variations and will help estimate the soil's load capacity throughout the year.

Measuring stations are installed at locations that are difficult to access, especially during extreme cold weather and winter storms. Despite these difficulties, the intrepid GKM Consultants team was dispatched in winter to carry out this extraordinary installation, which included deploying autonomous acquisition systems and satellite modems.
Data is thus automatically transferred to the Internet through an Inmarsat network satellite modem—a first for GKM Consultants.

The engineers in charge of this infrastructure now have access to the data they need at all times from their Ontario offices: they can thus help mine operators minimize risks for their field teams and lower data collection costs.

GKM consultants offers fully autonomous long-term monitoring solutions for even the most remote northern regions.