

## SmartICE community ice monitoring

*Can technology, combined with Inuit knowledge, help make sea ice travel safer?*

### Key messages

- SmartICE connects communities across Inuit Nunangat with ice monitoring technology and satellite imagery. The combination of monitoring technology with Inuit sea ice knowledge allows community members to adapt their travel plans for unprecedented and unpredictable ice conditions.
- SmartICE is a social enterprise that delivers ice information services across Inuit Nunangat that prioritizes community collaboration.
- SmartICE works with northern businesses to demonstrate how its ice information services can help reduce harmful effects of climate change on northern business operations.
- Trained operators working for the benefit and safety of their communities continue to operate SmartICE throughout the COVID-19 pandemic.



### Community ice monitoring

This project combines Inuit knowledge of ice travel safety with new community-operated monitoring technology and satellite imagery. SmartICE makes sea ice travel safer by providing near real-time information on ice conditions. It uses automated sensors (SmartBUOYs), set up anywhere on the ice, and operator-run sensors (SmartQAMUTIKs), towed by a snowmobile along trails, to measure and report ice thickness to communities.

Community members can view the data on SIKU ([siku.org](http://siku.org)), a website by and for Inuit, which provides tools and services for ice safety. From its original northern pilot sites in Nain and Pond Inlet, SmartICE expanded to 24 locations across Inuit Nunangat during the 2020–21 ice season. SmartICE is a work-integrated social enterprise that trains and employs young Inuit as producers, operators, and technicians of its technology.

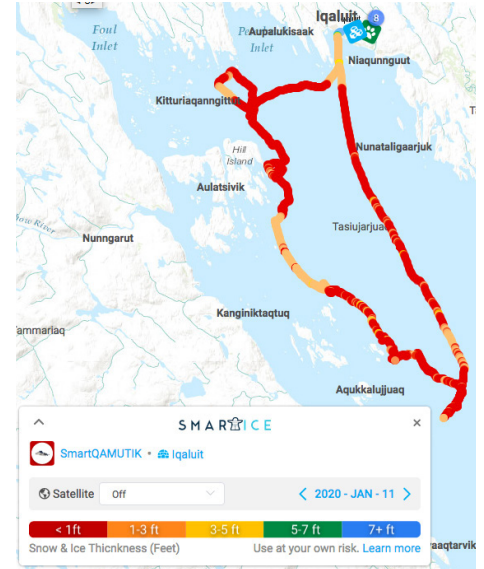
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**More information:** [www.smartice.org](http://www.smartice.org)



*On-ice training for satellite image interpretation of sea-ice features: SmartICE*





(Left) Pond Inlet Community Operator Andrew Arreak surveys the floe edge in Eclipse Sound with the SmartICE mobile sea ice thickness sensor – the SmartQAMUTIK: SmartICE. (Right) SIKU screen view of ice thickness data collected by the SmartQAMUTIK off Iqaluit in January 2020: SmartICE

## Community management

With the support of Polar Knowledge Canada (POLAR), SmartICE has been working in partnership with the SmartICE Community Management Committee in Pond Inlet to understand local ice information needs and create technology and services to respond to those needs. A cross-section of sea ice users, from young hunters to elders, sit on the committee. It is self-titled *Sikumiut*, meaning “people of the ice.”

*Sikumiut* not only manages local SmartICE operations but also coordinates new sea ice projects for the community. For example, the committee has been documenting *Inuit Qaujimagatuqangit* (IQ) of safe ice travel to educate youth in the community.

## Community ice mapping

SmartICE is co-designing a program to train local operators to make ice travel safety maps for their communities by combining Inuit knowledge and observations with satellite images. This program builds on the legacy of POLAR’s support in Pond Inlet and operates in the spirit of self-determination. This is the first project to make sea ice maps in a size and time scale that is specific to on-ice travel for communities.

This project is timely, considering the unprecedented and unpredictable ice conditions caused by changing climate. Operators make these maps locally, combining technology and sea ice knowledge, which Inuit trust. Sea ice knowledge uses all aspects of Inuit culture, including values and language. As a result, elders believe these maps will engage the community effectively.



## Northern Production Centre

SmartICE trains Inuit to be the producers, operators, and technicians of its technology. In 2019, SmartICE launched its Northern Production Centre in Nain, Nunatsiavut, where Inuit youth trainees learn how to assemble the SmartBUOY for deployment in communities across Inuit Nunangat. Training considers the whole community, is person-centred, and culturally safe.