



Collecting and Preserving Local and Traditional Climate Knowledge

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<http://eloka-arctic.org/>

About ELOKA

The Exchange for Local Observations and Knowledge of the Arctic (ELOKA) facilitates the collection, preservation, exchange, and use of local observations and knowledge of the Arctic. Local and Traditional Knowledge (LTK) provides rich information about the Arctic that complements data acquired via conventional quantitative data collection methods. ELOKA seeks to make LTK and community observations discoverable and accessible to community members, scientists, educators, policy makers, and the general public.

Cultural considerations

ELOKA operates on the principle that all knowledge should be treated ethically, and intellectual property rights should be respected. LTK and community observation data are at high risk of loss or, when preserved, may be difficult to access for a variety of reasons, including concerns regarding the distribution of sensitive or culturally important information and the difficulty of initiating or maintaining community-based research without an established data management infrastructure.

The ELOKA team includes a Knowledge Exchange Coordinator who fosters connections with local communities and researchers.

Challenges posed by unique data types

LTK data are often presented in formats quite different from satellite or model data sources (e.g., interviews, maps, and photographs), which adds to the challenge of using LTK in concert with other climate data sets. The ELOKA team works together with local experts, Indigenous organizations and researchers to design systems for responsibly curating these data, making them available to the contributing Arctic communities, and where possible, available to the climate research community in formats suitable for linking to satellite or model data.



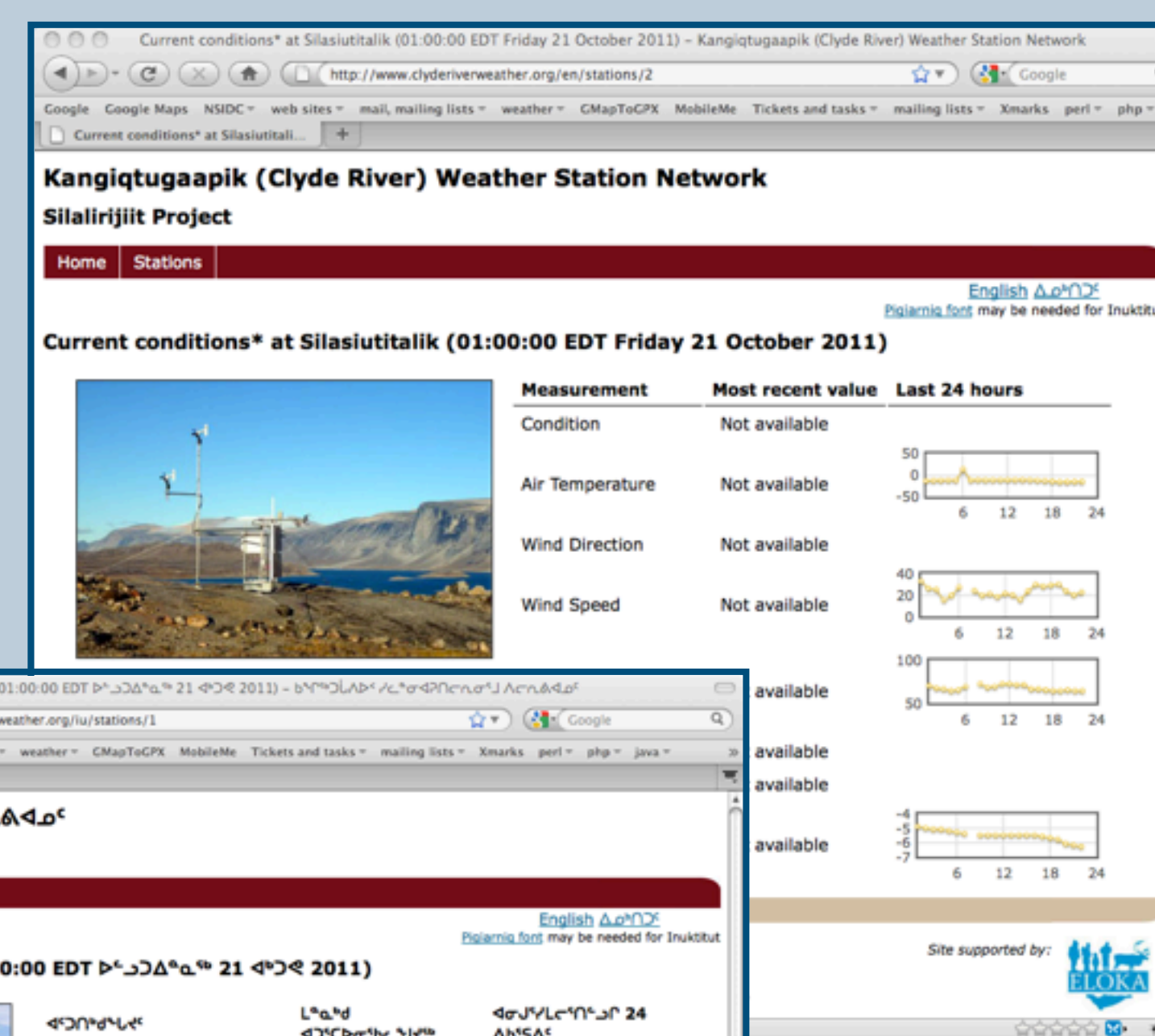
Clyde River-based researcher Esa Qillaq changes an anemometer at the northern station. Photo credit: Henry Huntington

Kangiqtugaapik (Clyde River) Weather Station Network

<http://www.clyderiverweather.org/>

A collaboration between hunters, community Elders, and researchers

The Clyde River Weather Station Network supports local community activities as well as research involving regional-scale models for wind and blowing snow.



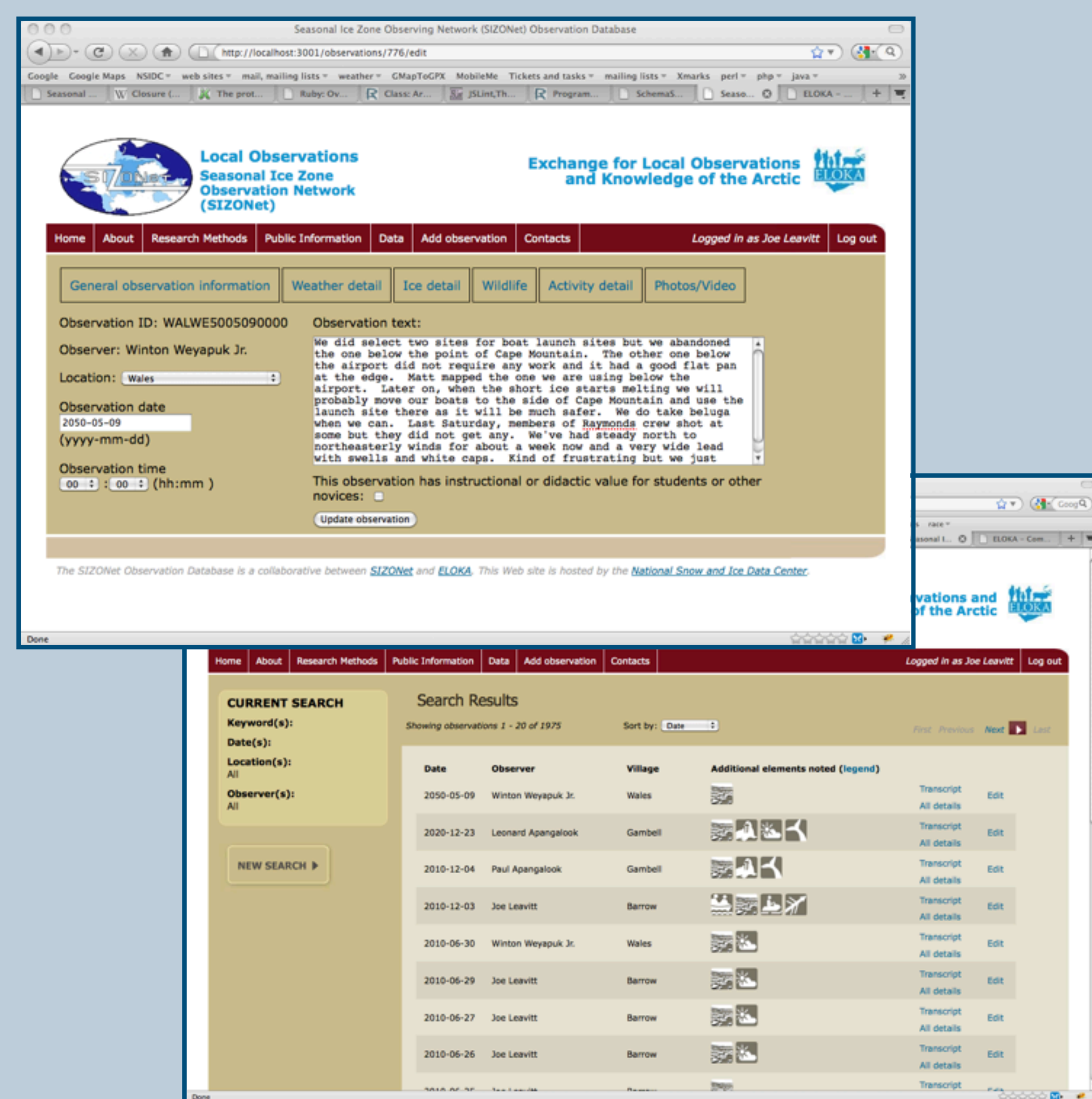
Translated site allows community members to view current weather data in their preferred language.

- * Application language: Ruby, using the Ruby on Rails framework; Javascript.
- * Supporting database: PostgreSQL with PostGIS extensions

Related poster: C21-T240B

Sea Ice Zone Observation Network (SIZONet) support

Data management of observations made by local sea ice experts



ELOKA team members are supporting improvements to the user interface and underlying database used to manage sea ice knowledge and use observations made as part of the Sea Ice Zone Observing Network (SIZONet). These observations are carried out by sea ice experts in several Alaska coastal communities.

- * Application language: Ruby language, using the Ruby on Rails framework; Javascript.
- * Supporting database: PostgreSQL with PostGIS extensions to support spatial searching. Earlier project prototypes experimented with noSQL databases Riak and elasticsearch.

Data discovery will include free text, spatial and temporal search options.

SIZONet project information: <http://www.sizonet.org/>

Release of new interface to internal users anticipated end of 2011.

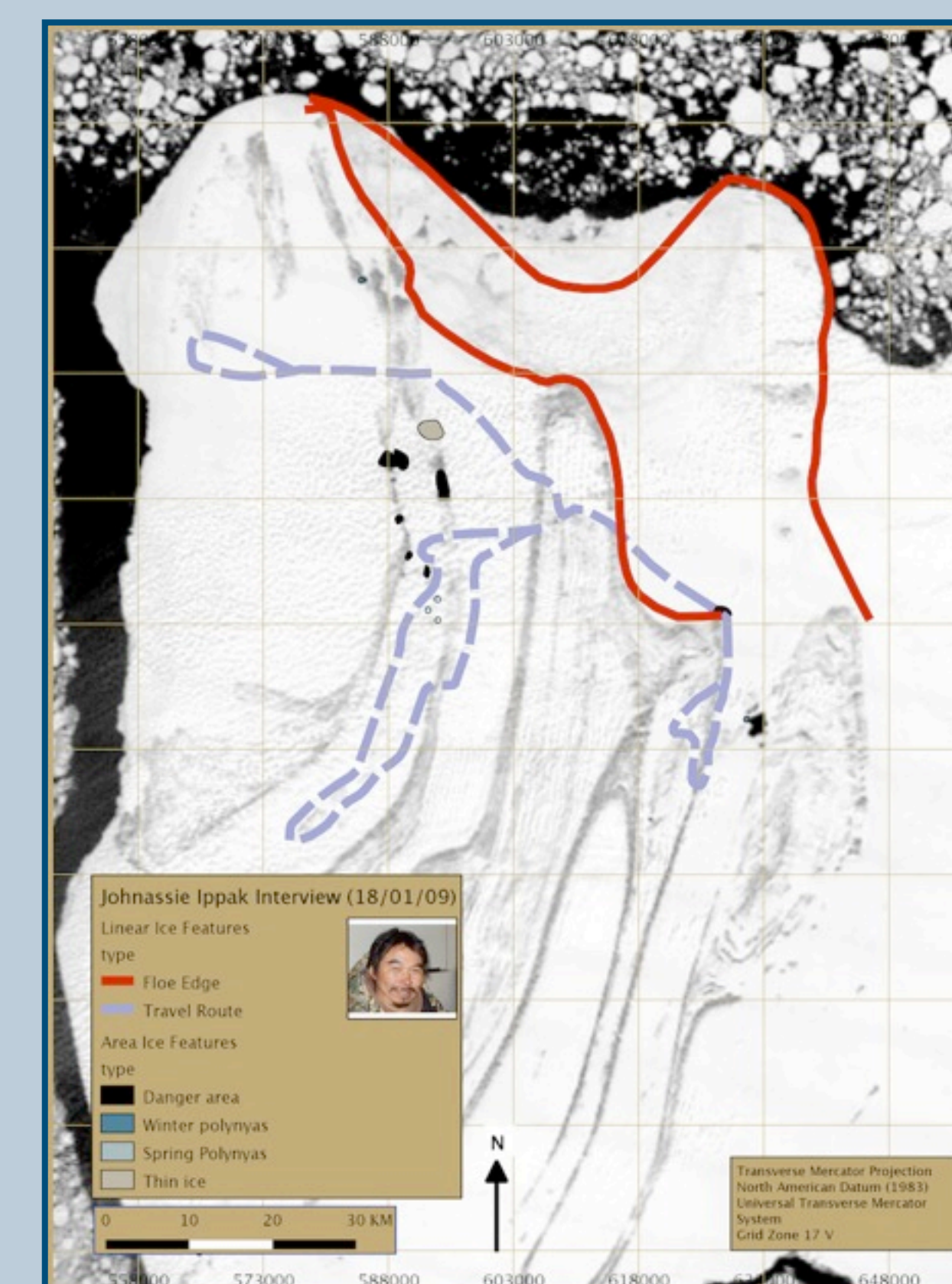
Sanikiluaq Sea Ice Project

http://eloka-arctic.org/communities/sanikiluaq/seaiice_project.html

Interviews, maps, and integration with remote-sensing data



Sanikiluaq is located on the Belcher Islands in southeastern Hudson Bay. The Sanikiluaq Sea Ice Project is a result of an effort by the Sanikiluaq Environmental Committee to gather observations documenting changes in sea ice conditions, water currents, and animal populations.



Data include:

- * Interview video files and electronic versions of maps annotated by hunters available for download via FTP.
- * Example comparisons with MODIS data available on web site pages describing each hunter's observations.

Johnassie Ippak's Sea Ice Observations Overlain on a Moderate Resolution Imaging Spectroradiometer (MODIS) Satellite Image

Conclusion

Local (community-based) observations and LTK can make significant contributions to understanding the Arctic environment and its recent changes. In some cases, traditional data management strategies can be applied to preserve LTK and community-based monitoring data. These strategies include the generation of standards-compliant metadata and use of a relational database to manage the metadata and data. Interviews and imagery (e.g., maps and photographs) can also be described with well-formatted metadata, but standards for these metadata are less well-known to the scientific research community. In all cases, associating temporal and spatial metadata with the data will enhance future discovery and the ability to integrate LTK and community-based observations with other scientific data sources.

Acknowledgements

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