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Exchange for Local Observations and Knowledge of the Arctic

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Indigenous Foods Knowledges Network (IFKN) colleagues visit the Finnish Festival of Northern Fishing Traditions



Delegation members of Indigenous Foods Knowledge Network (IFKN) join Tero Mustonen of Snowchange Cooperative at the Festival of Northern Fishing Traditions in Tornio, Finland. Photo credit: Brie Van Dam

Tornio, Finland—In early September, the Indigenous Foods Knowledges Network (IFKN) sent a delegation to participate in the Festival of Northern Fishing Traditions in Tornio, Finland. ELOKA research scientist Noor Johnson, IFKN principal investigator, and Mary Beth Jäger from the University of Arizona (Citizen Potawatomi Nation) accompanied

IFKN Steering Committee members Althea Walker (Akimel O’otham), Amy Juan (Tohono O’odham), and Shawna Larsen (Ahtna Athabascan and Supiaq). The group first visited northern Finland, where they joined Skolt Sámi hosts to visit a river restoration project in the Näätämo River catchment area. Pauliina Feodoroff, one of the project leaders, organized the river visit along with partner organization Snowchange Cooperative, while other members of her

family and community organized a seining demonstration. Seining is a traditional fishing method. Through the river restoration project and other initiatives, the Skolt Sámi are working to maintain the health of the lands and waters where they fish and graze reindeer.



Pauliina Feodoroff describes the growth of algae due to warm temperatures in spite of river restoration efforts she has led on behalf of the Skolt Sámi community. Photo credit: Noor Johnson

After the site visit, the group traveled to Tornio, Finland, where they joined Indigenous delegations from Europe, Russia, Greenland, British Columbia, and New Zealand. Participants learned about traditional fishing knowledge and methods, and exchanged information about cultural fisheries and foods restoration projects. They also enjoyed hands-on fishing demonstrations and activities on the banks of the Tornio River, an important river for traditional fishing activities in both Sweden and Finland. This was the second site visit that IFKN members participated in, following the launch of the network at a meeting hosted by the Gila River Indian Community in March 2018. The Steering Committee is in the process of organizing several meetings to be held

in 2019.



Participants in the Festival of Northern Fishing Traditions join a seining demonstration. Photo credit: Noor Johnson

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ELOKA staff contribute to ArcticNet conference

Ottawa, Canada—ELOKA principle investigator (PI) Peter Pulsifer and ELOKA research scientist Noor Johnson both participated in the 14th Annual Scientific Meeting of ArcticNet, held in Ottawa from December 10 to 14. This gathering brought together northern researchers, Indigenous Peoples, stakeholders, and government decision-makers from across Canada and beyond to discuss efforts to study and respond to environmental and social change in the Arctic.

Johnson co-chaired a three-part session entitled “Co-management, co-

production of knowledge, and the integration of community-based monitoring to support effective wildlife resource decision-making and Inuit self-determination.” The session included talks from community members and representatives of co-management institutions from across northern Canada. Within this session, Johnson presented on “Community-based monitoring and data sovereignty: Learning through the ELOKA and Integrated Arctic Observation System (INTAROS) networks.” Her talk discussed the growing emphasis on data sovereignty within Indigenous research projects and collaborations and offered some insights from the INTAROS community-based monitoring workshops held in 2017 as well as some tools and approaches to supporting data sovereignty developed through the ELOKA network.

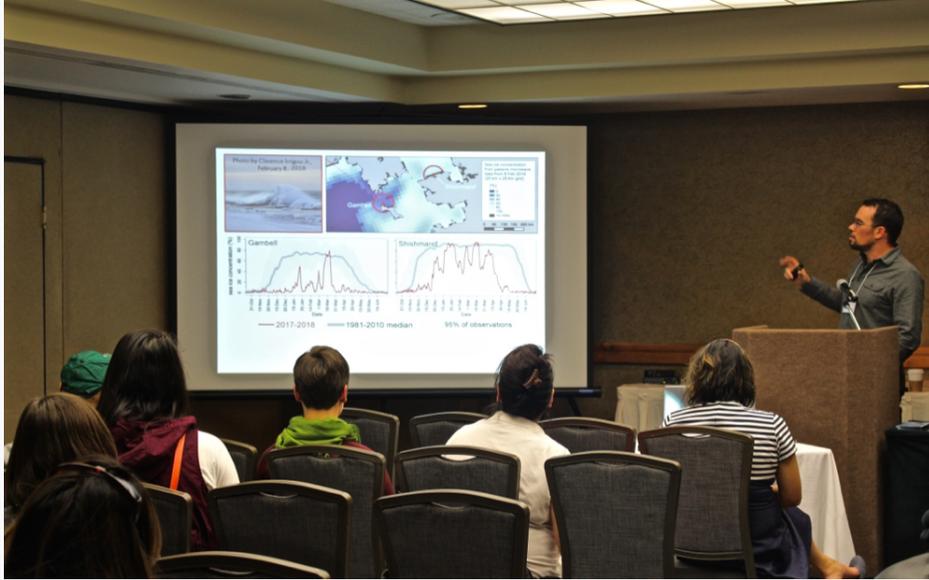
Pulsifer presented in a session entitled “From environmental monitoring and stewardship to a dialogue about training, education and knowledge mobilization in Nunangat.” He focused on ELOKA’s engagement with partners in the area of education and training. In particular, his talk highlighted how information systems are being used for language revitalization and teaching in K-12 environments.

Pulsifer also co-chaired a session entitled “Arctic data management, access, and interoperability: Advances in national and international programs and initiatives.” This session highlighted the importance of information sharing with and for Indigenous Peoples.

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ELOKA collaborates at the Alaska Tribal Conference for Environmental Management

Anchorage, AK—The



Matt Druckenmiller leading a session at the Alaska Tribal Conference for Environmental Management. Photo credit: Anna Ponurkina, Alaska Native Tribal Health Consortium

Alaska Tribal Conference for Environmental Management (ATCEM), organized by the Alaska Native Tribal Health Consortium, is one of the largest gatherings of tribal representatives in Alaska. Their recent meeting in November 2018 continued the conference's focus on

“my changing climate,” a collection of multiple sessions organized by Erica Lujan from the Local Environmental Observer (LEO) Network. Together with Erica and Donna Hauser of the Alaska Arctic Observation and Knowledge Hub (AAOKH) at the University of Alaska Fairbanks, ELOKA co-organized a session on “Northern Alaska coastal community observing networks: Building connections, sharing information, and exploring usefulness.” The open-format of the session allowed participants to share their perspectives on how local observations and scientific information can be brought together to promote healthy and responsive communities.

Overall, the many dimensions of food security were strongly reflected in the shared comments, ranging from concern over new species showing up in local waters, less reliable windows of opportunity for hunting and fishing, and the need for accessible forms of information to ensure safe travel, especially on sea ice and rivers during the fall and spring transition seasons. Recognizing that Internet connectivity is still very unreliable and variable across Alaska communities, many participants voiced the charge to scientists to not overlook

the already well-established ways of sharing information with communities, including the use of local radio, local newspapers, and social media. This session naturally led into the conference's subsequent climate sessions focused on the [unprecedented low sea-ice conditions observed in the Bering Sea](#) during winter 2017 to 2018 and the resulting implications for coastal communities.

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[Pulsifer discusses Arctic research at Second Arctic Science Ministerial forum](#)

Berlin, Germany—In the follow-up to the first Arctic Science Ministerial (ASM1) held in Washington, DC, in September of 2016, the European Commission, the Republic of Finland, and the Federal Republic of Germany co-hosted the Second Arctic Science Ministerial (ASM2) in Berlin on October 25 and 26, 2018. The meeting included representatives from 26 governments and six organizations representing the Indigenous peoples of the Arctic (Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North and Saami Council). On the first day of the gathering, a science forum was held to discuss achievements in Arctic research. Science ministers and Indigenous leaders met on day two, which concluded with the release of a [joint statement](#) on international co-operation in the Arctic.

ELOKA principal investigator Peter Pulsifer was invited to speak at the science forum. Pulsifer made a presentation on the state of data sharing among Arctic researchers and communities, including connections to the broader global data system. He concluded his remarks by highlighting the growing group of Indigenous organizations, communities, and researchers actively working to ethically share Indigenous Knowledge, information, and

data. Pulsifer recognized needed progress on bridging worldviews, concepts, and semantics represented in information systems. Most importantly, Pulsifer stated that Indigenous Peoples must lead engagement and work with their knowledge—information sovereignty is important.

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Enhancing polar data at the Second Polar Data and Systems Architecture Workshop

Geneva, Switzerland—From November 28 to 30, researchers and data managers from around the world gathered at the headquarters of the World Meteorological Organization in Geneva, Switzerland, to discuss [polar data and systems architecture](#). This workshop followed on the [Polar Data Planning Summit](#) hosted by the National Snow and Ice Data Center (NSIDC) and ELOKA in Boulder in May 2018. More than 40 experts joined in person and via remote connection to move forward on enhancing the ability of polar data systems to share and utilize data and information, including improving the findability and interoperability of data across systems. The meeting was chaired by ELOKA principal investigator Peter Pulsifer in his role as Chair of the Arctic Data Committee. ELOKA is currently working with a number of Indigenous organizations to leverage this process to ensure that Indigenous perspectives and information systems are an integral part of the broader polar and global information system.

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Attu Natural Resource Council receives Nordic Council Environment Prize

Attu, Greenland—



Attu hunter prepares to fish. Photo credit: Naturresursrådet i Attu vid Grönlands västkust

Congratulations to the Natural Resource Council of Attu, West Greenland, for receiving the 2018 Nordic Council Environment Prize! The Council was recognized for its forward thinking in establishing a program to document local observations of subsistence marine and terrestrial animals, and for providing suggestions for managing the resources to the local

Greenlandic government. The Attu Natural Resource Council of West Greenland received the prestigious annual award for its work on “documenting the marine environment and proposing new ways of managing it.” Hunters and fisherman in Greenland have deep knowledge about the marine animals on which their sustenance depends. A community effort by the Attu Council began in 2009 to note the quantity of animals encountered, their health, behavior, and interaction with the environment. The Council collected these written observations of the marine and terrestrial ecosystems and utilized these observations to inform the local government on how to steward and manage the animals in their environment. These observations were documented for years on a spreadsheet managed by the Council. In 2016, ELOKA was honored to partner with the Attu Council to create an online interface to store and display their observations. For this interface, called

PISUNA-net, ELOKA repurposed code from an online Alaskan observations platform to store and display the local natural resource conditions collected by hunters in Greenland.

PISUNA is an abbreviation of the Greenlandic “Piniakkanik sumiiffinni nalunaarsuineq” (documentation and management of living resources). ELOKA archives and distributes the Council's data on species online at [PISUNA net](#). Read about the prize at [Nordic Co-operation](#).

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Sea ice and hunting observations online interface celebrates seven years with ELOKA

Boulder, CO—In May 2012, the release of a new ELOKA product was imminent. At the time, this product contained nearly 3,500 records of sea ice and hunting observations from hunters along the Alaskan Arctic coast dating back to 2006. A team of software developers was putting the finishing touches on the online interface, providing first-time access to six years of environmental observations and data for the general public. The product, called “Local Observations from the Seasonal Ice Zone Observing Network (SIZONet),” was produced in partnership with the SIZONet research team at the University of Alaska Fairbanks (UAF). In the almost seven years since its release, it has grown to over 6,400 observations. The project is currently led by UAF’s Alaska Arctic Observatory & Knowledge Hub (AAOKH). ELOKA regularly adds new features to the interface. Recent features include options to directly download data in CSV format, download photographs taken by observers, and to use new application programming interface (API) capabilities. These new features have enabled ELOKA and UAF researchers to more easily gain insights from the growing collection of observations, and in particular track how specific subjects, such as ice conditions during fall freeze

up, have been captured by observers over the last twelve years. ELOKA continues to work with the AAOKH project team to enhance the data's usefulness and ensure that the observations will be maintained for community members and researchers into the future. Visit the product at [SIZONet](#) and abide by the terms of use when accessing the data.

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[ELOKA partners with Chevak Traditional Council to produce two online resources](#)

Boulder, CO—In 2017, ELOKA partnered with the Chevak Traditional Council (CTC) in the Yukon-Kuskokwim Delta region of western Alaska to provide software development services for their community. The Council worked for some years with researchers from the US Geological Survey (USGS) to collect water quality data along the Yukon River and active layer data from the land. To further document their local knowledge, the Council worked with ELOKA staff and collaborator Nicole Herman-Mercer of the USGS to create two online applications. A project called Landscape Change on the Outer Yukon-Kuskokwim Delta Project, which is a collaboration between the Chevak Traditional Council, the US Geological Survey, and the US Forest Service, established two weather monitoring stations in the area. For our part, ELOKA created a website to provide access to current weather conditions in the villages of Chevak and Kotlik. To view the data, gathered hourly, visit the [Cillaput: Our Weather](#) site.

The second software development effort established an online interactive atlas to display physical data about the Chevak area and to allow community members to add their own environmental observations. Called *Nunaput: Our Land*, this community atlas for Chevak, Alaska, has been developed in close relationship with the CTC. Currently, access to the atlas is solely available to

community members. Herman-Mercer plans to conduct training in the near future for the community members to add their own observations to the atlas and to eventually migrate relevant data and information to a public atlas interface.

ELOKA is honored to be in partnership with the CTC to play a role in preserving their local knowledge and understanding their environment.

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ELOKA presents at Boulder's TedX Salon on the Melting Arctic

Boulder, CO—
ELOKA Knowledge Exchange Coordinator Heidi McCann participated in a TedX Salon public event on October 10, 2018, at the University of Colorado Boulder Natural History Museum. Themed “The melting Arctic,” the evening began with an interactive poster session showcasing

ELOKA, dataARC and the Indigenous Foods Knowledges Network
at the National Snow and Ice Data Center

Heidi McCann, Noor Johnson, Betsy Sheffield, Peter L. Pulsifer, Chris McNeave, Agnieszka Gaudier, and Julia Collins | eloka-arctic.org & data-arc.org

What is ELOKA?
The Exchange for Local Observations and Knowledge of the Arctic (ELOKA) facilitates the collection, preservation, exchange, and use of local observations and Indigenous Knowledge of the Arctic. ELOKA provides data management and user support, and fosters collaboration between resident Arctic experts and visiting researchers. With partners in all parts of the Arctic, ELOKA supports online applications that document local place names, sea ice and wildlife observations, oral history of environmental change, and local weather data and photographs.

What is dataARC?
dataARC works to connect archaeologists, climate scientists, Inuit/Siqa scholars, and local communities around the North Atlantic. Through online tools and infrastructure, dataARC will enable researchers across many disciplines to study human conditions of the North Atlantic, which is experiencing rapid climate and environment change in unpredictable ways requiring quick adaptation. Data-intensive online tools and infrastructure will provide a central location for researchers and community members to deposit and discover data on the long-term human ecodynamics of the North Atlantic.

What is IFKN?
The Indigenous Foods Knowledges Network is a research collaboration network led by Indigenous communities interested in the ethical collection, sharing, access, and visualization of knowledge to address food sovereignty for Indigenous communities. The core network members are Indigenous peoples, nations, and organizations, supported by researchers who are committed to issues of Indigenous food, knowledge, and data sovereignty.

Connections
While they are distinct projects at NSIDC, all three agree that Local and Indigenous Knowledge and scientific expertise are complementary, reinforcing ways of understanding environmental systems. Collecting, documenting, preserving, and sharing knowledge is a cooperative endeavor. All knowledge should be treated ethically, and intellectual property rights should be respected. Through this philosophy, these projects are responsive to diverse community and research needs.

Featured social science and Indigenous Knowledge activities

dataARC online prototype
dataARC is creating data-intensive online tools and infrastructure to connect archaeologists, climate scientists, Inuit/Siqa scholars, and local communities with data and vignettes directly from researchers to study the long-term human ecodynamics of the North Atlantic. The goal is to make data discoverable and usable over multiple decades by multiple disciplines. Visit the prototype at data-arc.org.

Yup'ik Environmental Knowledge Project
This project aims to document Indigenous place names and environmental knowledge in the Yup'ik communities of the Yukon-Kuskokwim Delta in Alaska under the guidance of Cultural Education and Culture — a non-profit research organization representing 1,300 Yup'ik tradition bearers. The Yup'ik people share their deep environmental and historical knowledge in an online atlas, which contains over 3,000 Indigenous place names and a rich collection of stories, videos, and other related information.

Indigenous Foods Knowledges Network
• An Indigenous-led network supporting food and knowledge sovereignty for Indigenous communities in the Arctic and the US Southwest
• Working to:
• Engage and support Indigenous Knowledge holders, community members, and scientists to build capacity for community-driven research and initiative
• Identify and build on community-driven products/services, access, and control that support increased data and knowledge sovereignty via Indigenous data governance mechanisms
• Visit ifkn.org for more information and to join our mailing list.

Website: The Northern Bering Sea: Our Way of Life
The Northern Bering Sea: Our Way of Life highlights large hunting and fishing areas, overlaid with the distribution of key species. The publication illustrates that the entire area supports Indigenous peoples' way of life. The Bering Sea Elders Group in Alaska published this project, while ELOKA developed it into an interactive website.

This poster presents how three different projects, The Exchange for Local Observations and Knowledge of the Arctic (ELOKA), dataARC, and the Indigenous Foods Knowledges Network (IFKN), work together to understand environmental changes and their impact on people. Credit: Heidi McCann, NSIDC

[High-resolution image](#)

Arctic research

across Boulder

science organizations, including NSIDC, Cooperative Institute for Research in Environmental Science (CIRES) and the National Oceanic and Atmospheric Administration (NOAA). ELOKA presented a scientific poster titled “ELOKA, dataARC and the Indigenous Foods Knowledges Network,” which speaks to the human, cultural, and social aspects of Arctic climate change, and highlights three social science projects at NSIDC. The poster session was followed by a four-person panel of experts speaking to their respected area of Arctic science. CIRES Director Waleed Abdalati moderated the panel session and highlighted the rich Arctic scientific expertise in Boulder. The Salon was attended by a variety of people from the Boulder community, including campus affiliates, area residents, scientists, and non-scientists. Participation in the event provided ELOKA an opportunity to inform the broad CU and Boulder communities about its unique data sets. To read more on the event click here: [TedX Salon](#).

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About ELOKA



ELOKA fosters collaboration between resident Arctic experts and visiting researchers to facilitate the collection, preservation, exchange, and use of local observations and Indigenous knowledge

Sea ice disperses on the Chukchi Sea. Photo credit: Matt Druckenmiller

of the Arctic. ELOKA provides data management and user support to Indigenous

communities to ensure their data and knowledge are managed, visualized, and shared in an ethical manner in order to work toward information and data sovereignty for Arctic residents.

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ELOKA is a collaborative international effort; the Web site is hosted by the National Snow and Ice Data Center. Contact: eloka@nsidc.org

