



Navigating the New Arctic Community Office

ARCTIC OBSERVING SYSTEMS & TECHNOLOGY CONVERGENCE WORKING GROUP

May 2024 - May 2025

In the Arctic, data and observing systems are critical infrastructure, and Indigenous Knowledge Systems are observing systems. Our group raises awareness of understanding the importance of low-cost, open-source, and community-based methods of data collection for comprehensive observation systems in the Arctic. We hope to drive progress forwards in this topic. Our goals as a working group center around three major topics:

1. Advanced understanding of low-cost and open-source technologies that can be used in community-based/citizen science research approaches.
2. Identification of environmental data requirements for infrastructure development (e.g. relocation/managed retreat from erosion and storm recovery) and appropriate data collection methods.
3. Support development of skills required for researchers applying community-based monitoring/observing approaches in the Arctic.

CWG past activities:

- Early Career Co-Leads (Louise and Casey) co-hosted a session at the Arctic Science Summit Week (ASSW) 2025, Boulder, Colorado with the Fostering Indigenous-Led Research Convergence Working Group. The session was designed for Arctic researchers at all career stages, with a special early morning session tailored for graduate students. Our training: “Low-cost, open-source, community-based methods” highlighted how recent advances in low-cost, open-source observing methods provided an opportunity for researchers at all stages of their academic careers – from early-career researchers and students to principal investigators (PIs) – to combine cutting-edge technologies with local observations and community priorities. The session outlined the benefits and appropriate uses of these approaches aligning with FAIR and CARE principles, explored case studies of projects using these methods, discussed the training requirements for scaling environmental observations ethically in Arctic communities and collaboratively troubleshooting barriers alongside practical solutions. The session was a success, with ~30 participants who were very engaged and provided positive feedback.
- The AOST CWG supported Early Career Researchers travel to Boulder, Colorado to participate in the ASSW and 4th International Conference on Arctic Research Planning (ICARP IV). One supported attendee organized a potluck event in the Indigenous Pavilion which became a space for connecting, sharing thoughts, concerns, and emotions among participants. The participants shared their experiences and reflections on our [website](#).
- The AOST CWG supported three projects to develop methods for the use of low-cost and emerging technologies in community-based research programs. Locations of these projects span from Greenland and Alaska to supporting rural communities in New Hampshire. These include:
 - 1) Exploring an innovative and low-cost approach to addressing critical changes in wintertime lake freezing states, which hold profound implications for hydrology, climate systems, and local communities.
 - 2) Developing capacity for remotely monitoring phytoplankton blooms.
 - 3) Greenlandic community-led monitoring using camera technologies.



UPCOMING ACTIVITIES

- Developing a summary report and publication following the completion of our WG activities. The final report will be released in June 2025 and a journal publication submitted in the Fall 2025.
- Early Career Co-Lead Louise Mercer participated in an Arctic Together podcast. This was facilitated by the Fostering Indigenous-led Research Working Group and will be released in the next couple of months.
- Collaboration with ELOKA (Exchange for Local Observations and Knowledge of the Arctic) to support efforts to document community-based monitoring programs in the Arctic.
- Continued Working Group member participation in ICARP IV and International Polar Year 5 (IPY 2032-2033) planning processes.
- Developing a report following the Community-Based Environmental Monitoring Training camp at Ilisagvik College. This will include lessons learned and recommendations to support similar training events in the future.
- We will continue to update our website with materials, reports from projects we have supported and relevant guidance materials relating to WG goals.



[Arctic Observing Systems & Technology CWG webpage](#)

WORKING GROUP MEMBERS, PAST AND PRESENT

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