

# Arctic Observing Summit 2024

## Program overview

<b>Day 1: Wednesday, March 27</b>	
Time	
8:00	Registration
9:00	Plenary: Welcome to the Arctic Observing Summit
10:30	Plenary: Keynote presentation on wildfire observing needs from Indigenous and scientific perspectives
10:30	Coffee
11:00	Working group sessions <ul style="list-style-type: none"> <li>• WG 1: Local to Global Observing</li> <li>• WG 2: Data Sharing</li> <li>• WG 3: System Implementation/SAON ROADS</li> <li>• WG 4: Observing System Benefits</li> </ul>
12:30	Lunch
13:30	Breakout Sessions <ul style="list-style-type: none"> <li>• An Arctic Acoustic Observing Network</li> <li>• The use of low-cost and open-source technologies in community-based monitoring approaches: emerging areas, scaling, and training requirements.</li> <li>• Toward equitable Arctic Observing Systems – tracking human well-being and advancing environmental observations through societal and intersectional lenses</li> </ul>
16:00	Coffee
16:30	Poster session

<b>Day 2: Thursday, March 28</b>	
Time	
8:00	Registration
9:00	Plenary: Day 1 recommendation summaries
10:30	Plenary: Panel discussion on Equity in Arctic Observing

AOS 2024 PROGRAM - DRAFT

10:30	Coffee
11:00	<p>Working group sessions</p> <ul style="list-style-type: none"> <li>• WG 1: Local to Global Observing</li> <li>• WG 2: Data Sharing</li> <li>• WG 3: System Implementation/SAON ROADS</li> <li>• WG 4: Observing System Benefits</li> </ul>
12:30	Lunch
13:30	<p>Breakout sessions</p> <ul style="list-style-type: none"> <li>• Guiding Observing Network and Data System Development with Societal Impact Approaches: A Dialog Toward Establishing an Arctic Community of Practice</li> <li>• Towards a GOOS Regional Alliance for the Arctic</li> <li>• Making an inclusive and holistic Arctic Observing system through inclusion of diverse knowledge systems - how to progress?</li> </ul>
15:30	Coffee
16:00	<p>Breakout sessions</p> <ul style="list-style-type: none"> <li>• Guiding Observing Network and Data System Development with Societal Impact Approaches: A Dialog Toward Establishing an Arctic Community of Practice</li> <li>• Towards a GOOS Regional Alliance for the Arctic</li> <li>• Understanding the value of capacity sharing in Arctic research: Progress, lessons learned, and next steps from the AOS Capacity Sharing Working Group</li> </ul>

**Day 3: Friday, March 29**

Time	
8:00	Registration
9:00	<p>Working group sessions</p> <ul style="list-style-type: none"> <li>• WG 1: Local to Global Observing</li> <li>• WG 2: Data Sharing</li> <li>• WG 3: System Implementation/SAON ROADS</li> <li>• WG 4: Observing System Benefits</li> </ul>
10:30	Coffee
11:00	<p>Working group sessions</p> <ul style="list-style-type: none"> <li>• WG 1: Local to Global Observing</li> <li>• WG 2: Data Sharing</li> <li>• WG 3: System Implementation/SAON ROADS</li> <li>• WG 4: Observing System Benefits</li> </ul>
12:30	Lunch

## AOS 2024 PROGRAM - DRAFT

13:30	<b>Breakout Sessions</b> <ul style="list-style-type: none"> <li>• Supporting coordination and engagement of Indigenous-led and community-based monitoring programs in the Arctic</li> <li>• Launch of the EUPolarnet2 White Paper with recommendations to accelerate the development of a sustained and fully integrated Polar observing system</li> <li>• Wildfire Shared Arctic Variable Expert Panel</li> </ul>
13:30	Coffee & Drafting recommendations
16:00	Plenary: Meeting conclusions and recommendations
18:00	<i>Meeting concludes</i>

<b>Working Group Descriptions</b>	<b>4</b>
Working group 1: Local to Global Observing	4
Working group 2: Data Sharing	4
Working group 3: System Implementation and SAON ROADS	4
Working group 4: Observing for Adaptation and Benefit	5
<b>Breakout Session Descriptions</b>	<b>5</b>
An Arctic Acoustic Observing Network	5
The use of low-cost and open-source technologies in community-based monitoring approaches: emerging areas, scaling, and training requirements.	5
Toward equitable Arctic Observing Systems – tracking human well-being and advancing environmental observations through societal and intersectional lenses	6
Guiding Observing Network and Data System Development with Societal Impact Approaches: A Dialog Toward Establishing an Arctic Community of Practice	6
Towards a GOOS Regional Alliance for the Arctic	7
Making an inclusive and holistic Arctic Observing system through inclusion of diverse knowledge systems - how to progress?	7
Understanding the value of capacity sharing in Arctic research: Progress, lessons learned, and next steps from the AOS Capacity Sharing Working Group	8
Supporting coordination and engagement of Indigenous-led and community-based monitoring programs in the Arctic	8
Launch of the EUPolarnet2 White Paper with recommendations to accelerate the development of a sustained and fully integrated Polar observing system	8
Wildfire Shared Arctic Variable Expert Panel	9

## **Working Group Descriptions**

### **Working group 1: Local to Global Observing**

Given the rising interest in the utilization of Indigenous knowledge in global observing and monitoring activities, the Local to Global Working Group will focus on the role of Indigenous knowledge, community-based monitoring, and the co-production of knowledge in relation to the Arctic Council's Conservation of Arctic Flora and Fauna (CAFF) Circumpolar Biodiversity Monitoring Programme (CBMP). This working group will be co-hosted by representatives from the CAFF Kingdom of Denmark Chairship and leads of the Circumpolar Biodiversity Monitoring Programme in partnership with the Inuit Circumpolar Council, to explore how CBMP can bring Indigenous knowledge and Indigenous engagement in at the local and regional scales, with policy and conservation outcomes at the global scale. We will consider values, goals, and approaches for partnering science and Indigenous knowledge for application in real-world monitoring and decision making. Invitations will go out to individuals engaged on CBMP through any of the national implementation teams or projects, the Permanent Participants, and possibly individuals working on related co-production of knowledge projects in CAFF/AMAP/PAME.

### **Working group 2: Data Sharing**

Building on previous Arctic Observing Summit (AOS) efforts, the objectives of the Data Sharing Working Group are to:

- Identify existing and new issues in sharing data.
- Address the issues to bring Arctic data into action.
- Support various communities within and beyond the Arctic.

This working group intends to look at data sharing through the lens of relationships between Indigenous data sovereignty and knowledge mobilization. Another important aspect of data sharing is moving towards actionable data beyond meta-data. Actionable data refers to data that can be used or interoperated to inform decision-making and take action, while meta-data refers to data that describes other data. By providing advice on how the Shared Arctic Variables related to wildfire and permafrost can be integrated into existing data systems and by looking at data sharing through the lens of Indigenous data sovereignty, the Data Sharing Working Group will discuss the challenges of the observing programs in producing actionable data that is relevant and useful to Indigenous peoples and communities. The group will also discuss how these programs should be designed and used in ways that respect Indigenous data sovereignty.

### **Working group 3: System Implementation and SAON ROADS**

WG 3: System Implementation will focus on SAON's Arctic ROADS in developing an expert panel process for co-defining observables to meet the needs of Arctic Indigenous communities. Specifically, the group will focus on how to define, assess, and evaluate impactful observables.

## **Working group 4: Observing for Adaptation and Benefit**

The Observing System Benefits WG has several objectives for AOS 2024 that build on the outcomes from AOS 2022. Those outcomes included identification of: 1) needed observational information to support the development of sustainable infrastructure in a changing permafrost environment; 2) needed observations to support the transition to renewable, affordable energy systems across the Arctic; 3) improving access to and understanding and utilization of earth observation data to support safe transportation, fire management, and Indigenous land management and co-management; and 4) ways to advance the application of unique observing tools (i.e., genomics) to support biodiversity monitoring, conservation and Indigenous food sovereignty. Objectives for AOS 2024 involve using a case study approach to jointly identify priority actions that will move forward use of observational information for broad benefit and the development of solutions to real world problems including achieving environmental justice. There remain legal, political, and economic barriers to fully realizing observing system benefits but with a diverse array of experts and organizations at the table, WG 4 strives to determine where and how benefits can be achieved on short, medium and long-term scales and by leveraging ongoing and existing efforts within the Arctic observing space.

## **Breakout Session Descriptions**

### **An Arctic Acoustic Observing Network**

The Conservation of Arctic Flora and Fauna (CAFF) initiated a pan-Arctic database of passive acoustic monitoring data holders in 2019. The initial results of this showed that there have been many tens of hydrophone deployments throughout the Arctic (with the exception being in Russian Federation waters). Although incomplete at the time, this effort made it clear that by collaborating internationally, an Arctic Acoustic Observing Network might be established. This network has the potential to provide semi-pan Arctic marine mammal distributions including endemic Arctic species but also acoustically active subarctic species. Passive acoustic monitoring has the advantage of providing year-round data over a broad range of frequencies and spatial scales. Such data can be used to understand changes in the phenologies of Arctic endemic species as well as document the potential borealization of the Arctic. The overall goal of this session is to bring together data holders to establish an Arctic Acoustic Observing Network. To this end, we will locate gaps in our coverage and look for ways to fill those gaps, and identify other partners in the proposed observing network. We will introduce the AWI's Open Portal to Underwater Soundscapes as a means for standardizing data integration and analysis.

### **The use of low-cost and open-source technologies in community-based monitoring approaches: emerging areas, scaling, and training requirements.**

The Arctic is experiencing rapid climate-driven environmental change, increasing the need for baseline data collection to monitor change. Community-based monitoring (CBM) offers the

opportunity to expand environmental data collection over greater temporal and spatial scales while increasing inclusivity of Arctic research approaches. This session will explore the potential

for low-cost and open source technologies to aid data collection in areas of emerging research, including infrastructure development (e.g. relocation/managed retreat from erosion and storm recovery) and changes to the marine environment. We will discuss what appropriate data collection methods look like with regard to feasibility and collaboration across cultural, country, and disciplinary boundaries. We will highlight the value of interdisciplinary approaches to environmental CBM which can support the progression towards more inclusive research processes. We will identify what support is required for researchers looking to utilise these approaches. Focus will be placed on identifying needs for key roles within interdisciplinary teams including Early Career Researchers, project leaders, and Indigenous team members.

## **Toward equitable Arctic Observing Systems – tracking human well-being and advancing environmental observations through societal and intersectional lenses**

Arctic communities experience profound environmental, socio-economic and cultural changes that put their well-being and adaptability to the test. Attempts of tracking well-being through a set of robust social indicators aim at being a fundamental part of social monitoring along with biophysical indicators of ecosystem health (Larsen et al. 2014). However, there is currently no integrated, cross-regional, long-term monitoring and indicator system in place for the Arctic. Benefits of large-scale and integrated pan-Arctic observation attempts are still not entirely clear. Simultaneously, the efforts aimed at bringing about such a system raise fundamental questions of what is to be observed, monitored, and measured? Who decides on these issues? What are the methods, and what are their ethical ramifications? How to collect data in ways that account for local knowledge and needs? How can we ensure that the resultant tracking system is equitable in an intersectional sense and addresses rights of Arctic peoples and the users of such a system? Those questions also pertain to environmental observations of Arctic change and recent efforts toward more diverse inclusive, gender-sensitive and intersectional approaches into Arctic observing systems.

## **Guiding Observing Network and Data System Development with Societal Impact Approaches: A Dialog Toward Establishing an Arctic Community of Practice**

Creating ethical, equitable, and impactful connections between researchers from western traditions and Indigenous communities has been a long-standing focus within the Arctic Observing Summit, even as researchers and funding agencies have put an increased emphasis on research with tangible benefits to communities and other regional and global actors engaged

in decision-making. Increasingly, traditional science projects and funders aim to center societal benefits, while community-centered work requires building and maintaining meaningful relationships. Engaging with Indigenous communities through societal impact evaluation is one path toward achieving these diverse objectives in observing and data system design. The goal of this session is to explore the diverse practices of societal impact evaluations (inclusive of benefit, risk, resilience or causality-oriented framings) in guiding observing and data system planning and development and to identify actionable areas where greater work is needed or where practices can converge to achieve broader goals. In particular, the discussion will highlight opportunities to achieve greater equity for Indigenous-led work using these

approaches, as reflected in recommendations from the AOS 2022 Food Security Working Group report. This includes reflecting on how these practices are in conversation with Indigenous data sovereignty considerations encapsulated in the CARE principles such as collective benefit, ethics, and responsibility concerns related to research, observations, and data governance.

## **Towards a GOOS Regional Alliance for the Arctic**

This session will advance discussions on the developing process to develop an Arctic-wide ocean observing system, such as a GOOS Regional Alliance (GRA). Following a roundtable meeting at ASSW 2023 in Vienna, an international task team was formed to develop this process, and work towards a co-design stage for an Arctic GRA. This session aims to: (1) Review and refine challenges and opportunities associated with advancing an Arctic GRA, (2) Develop and articulate an understanding of the benefits an Arctic GRA would provide to Arctic rights holders and stakeholders.

The session is planned to consist of opening presentations to provide context and overview of the current state of ocean observing coordination globally and, in the Arctic, followed by two panel discussions. The first focused on existing GRAs and other regional coordination around the world, and current large-scale networks in the Arctic, and the second focused on coastal observations and the needs/contributions of Arctic communities. Panels will be followed by breakout sessions for participants to discuss the strengths, weaknesses, opportunities, and threats (SWOT analysis) of a potential future Arctic GRA, before reconvening in plenary to share outcomes.

The discussion outcomes will be prepared in a session statement, with recommendations taken forward by the existing task team.

## **Making an inclusive and holistic Arctic Observing system through inclusion of diverse knowledge systems - how to progress?**

Our understanding of Arctic systems comes in many forms, from deep and diverse knowledge passed on through generations to the next through to dedicated scientific measurements and data collection efforts. To co-create an inclusive pan-Arctic observing system that meets the needs of the people living and working in the Arctic (including science and governance), we must broaden the information we gather to understand the state and development of the entire social-ecological system.

For a fully functioning observing system, the whole should be greater than the sum of its parts. To achieve this, we need to be able to be aware of consented Indigenous, traditional, and local knowledge (ITLK) as well as scientific understanding. In recent years, several programmes and initiatives have been actively working on developing concepts for a more inclusive and better coordinated Arctic Observing system. While this ambition has aspects in the technical and governance domains, clearly the overall concept for an impactful observing system needs to be based on a holistic understanding inclusive of the wealth of ITLK that exists in the Arctic. With this session we will initiate a discussion among participants, starting with a sequence of short presentations from invited speakers who represent different approaches, followed by a panel and finally an open floor discussion.

## **Understanding the value of capacity sharing in Arctic research: Progress, lessons learned, and next steps from the AOS Capacity Sharing Working Group**

Arctic research is moving towards being application-oriented and based on the needs of those directly facing the impacts of accelerating change in the Arctic. Capacity sharing is a two-way knowledge exchange process developed on the basis of reciprocity, communication and collaboration. It can exist in a variety of contexts including the spheres of intercultural collaboration and the science-policy interface. The creation of the Capacity Sharing Working Group at the AOS 2022 was an important initiative, reflecting the need for cross-cutting attention on this topic. During this session we will discuss Working Group progress since the last AOS and talk about recommendations and next steps moving forward.

Our goals address progress addressing recommendations from the AOS 2022:

1. Creating spaces to improve our understanding of what capacity sharing means and its valuable contribution to research processes.
2. Increase connection and support bridging processes between early career researchers and Arctic youth.
3. Develop a “resource hub” of relevant trainings, videos and reports.

## **Supporting coordination and engagement of Indigenous-led and community-based monitoring programs in the Arctic**

Documenting and sharing Indigenous and local observations of a changing Arctic is important for decision-making and policy, transmission of Indigenous Knowledge, research, and community safety. With increased pressures from climate change, it is especially important to center Indigenous and local communities in discussions surrounding policy and decision making, and to include data and knowledge from community observations in these decisions. Organized by five programs focused on documenting and sharing observations and cultural knowledge in the Arctic, this session will provide a space for increased coordination across Indigenous-led and community-based monitoring (CBM) and observing programs. During this session, we will discuss priorities and practices for increased coordination, including potentials for cross-training and data management and sharing. We will consider how shared practices can support connections across CBM programs that can contribute to sustained Arctic observing systems. We will share how programs promote and represent expertise and knowledge within their program and to broader audiences, and will consider ways to enhance equity in program representation. A final topic of discussion will be priorities for enhancing uses of CBM data locally and regionally.

## **Launch of the EUPolarnet2 White Paper with recommendations to accelerate the development of a sustained and fully integrated Polar observing system**

EU-PolarNet 2 (funded by the EU-H2020) aims to co-develop and advance the European polar research actions, and to give evidence-based advice to policy making processes. It is composed of 25 European Member States and Associated Countries with polar research expertise and infrastructures.

This session will support the launch of the EU-PolarNet2 White Paper with recommendations to accelerate the development of a sustained and integrated Polar observing system. The



session will be used as a platform to discuss how to concretely activate the actionable recommendations from the White Paper and implement the observing system.

At the time of the AOS, the EU-PolarNet2 White Paper will be ready to be delivered to a wide range of international stakeholders, funding bodies and policy makers from outside and inside the EU, including the European Commission. The White Paper will include actionable recommendations collected from the polar research, observing and data communities to develop an observing system that will provide a coordinated system for continuous, standardized data and transnational Polar observation and research actions of high societal relevance.

The session will bring together and engage EU and non-EU participants in order to activate the recommendations and concretely initiate the development of the integrated Polar observing system. Discussion themes will include possible contributions and involvement of the Polar scientific communities, stakeholders, funding bodies, governments and policy makers into the development of the observing system. The discussions will also involve many aspects of the implementation of the system, including: international agreements, international collaboration, inclusion of local communities, governance, data, funding, organizational structure, services, societal applications, etc...

## **Wildfire Shared Arctic Variable Expert Panel**

Description TBD.