

## **Equity in Arctic Observing**

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This statement is a contribution of the NSF-funded project “Research Networking Activities for Sustained Coordinated Observations of Arctic Change (RNA CoObs)” to the ongoing discourse on equity in Arctic observing. Herein, the word ‘we’ represents the authors—who are non-Indigenous and Indigenous researchers working within the US academic system—with insights from RNA CoObs team and partners. We thus are neither representing the Arctic observing community, nor do we have representation from Indigenous communities in the authorship. In addition to this contribution, we also author two companion AOS short statements “Substantive training in Indigenous history and engagement is a necessary step towards equity in Arctic Observing” and “Evaluating Equity in Arctic Observing In Practice.”

Within RNA CoObs, we recognize the importance of embracing diverse perspectives and fostering collaboration, particularly with circum-Arctic Indigenous communities. Our goal is to contribute to a more inclusive Arctic observing community that incorporates varied viewpoints, worldviews, and knowledge systems. It is crucial to note that our insights and perspective, as drawn from our experience as academic researchers, are just a piece of the puzzle, and we acknowledge the diverse tapestry that shapes Arctic observation initiatives not represented in our project and this statement e.g., the fair inclusion of women, LGBTQ+, People of Color, and other minorities. In this statement we focus on the relationship between the - partially overlapping - broader Arctic science and Indigenous communities.

### **The Importance of Equity in Arctic Observing**

Ensuring equity in Arctic observing emerges as a core principle critical to the success and legitimacy of our scientific endeavors. Understanding the Indigenous lands and waters we work on demands thoughtful consideration and collaboration with circum-Arctic Indigenous communities. At its core, achieving community buy-in hinges on the recognition and treatment of Indigenous community leaders as equal partners. Addressing equity goes a step beyond this to focus on gaps in resourcing and capacity that prevent some groups from participating on equal footing with others. Without this acknowledgment, collaboration becomes a challenging feat, hindering the broader Arctic observing community's ability to secure trust and support.

Trust building is crucially and intrinsically linked to treating Indigenous communities as essential partners in Arctic observing. Trust is the bedrock upon which meaningful collaboration is built, ensuring that scientific efforts are not only well-received but also valued by the communities with whom researchers seek to engage. Moreover, building observing strategies that resonate with Indigenous needs and respecting Indigenous unique insights and methodologies is essential to fostering genuine collaboration.

On building capacity for observing, supporting at the local level is more than a logistical consideration; it respects Indigenous sovereignty and self-determination leading towards community resilience. It is also a strategic move towards enhancing the relevance and scalability of Arctic research. Strengthened local

capacity not only addresses immediate needs but also sets the stage for connecting local observations to broader global initiatives, fostering a more comprehensive understanding of Arctic changes. Building capacity will support both scientific understanding as well as Indigenous leadership within global initiatives. Methodological considerations are equally vital for equity in Arctic observing as it should be inclusive to both Indigenous and scientific knowledge systems. Indigenous methodologies are cultural ways of doing research that are equivalent to scientific methodologies with their respective processes for determining credibility and legitimacy (Kovach 2009). Acknowledging and integrating diverse methodologies enriches the quality and comprehensiveness of our observations, contributing to a more holistic understanding of the Arctic environment.

In the dynamic context of the Arctic Observing Summits over the past decade, aligning observing efforts with trust and capacity building to address the diverse needs expressed by circum-Arctic communities has proven consistently challenging. Observing strategies are often exclusively designed along academic scientific objectives and do not contribute to answering questions that are important for the communities directly affected by the Arctic environment. In addition, in-place mechanisms to fund observing efforts are often linked to scientific and/or operational objectives rather than community needs. This is particularly salient when the justification for Arctic research draws on climate change impacts arguments. Furthermore, equity is often an afterthought with corrective measures being attempted through retrofitting into a project at a later stage. These attempts have proven challenging and less effective than building a project on a foundation of equity through partnering with Indigenous communities from the outset.

Ultimately, centering observing efforts around the people most impacted thus becomes an imperative ethical consideration, ensuring that our research aligns with the principles of justice and equity. By prioritizing equity in our scientific pursuits, we not only lay the groundwork for more inclusive research but also demonstrate a commitment to collaborative, impactful, and ethically sound Arctic observations.

### **Defining Equity and Identifying Systemic Inequities in Arctic Observing**

Equity in Arctic observing embodies a comprehensive approach that draws from various frameworks and perspectives. Rooted in SAON's Roadmap for Arctic Observing and Data Systems (Arctic ROADS)-developed aspects of equity (Starkweather et al., 2021) and Indigenous frameworks such as the Indigenous Peoples' Centre for Documentation, Research and Information (<https://www.docip.org>) and United Nations Sustainable Development Goals (UN SDGs), it encapsulates a commitment to fairness, justice, and inclusivity in all facets of Arctic research. Emphasizing the importance of community-driven, bottom-up research and observing networks and co-production of knowledge, frameworks such as the Ellam Yua et al. (2022) call for the respect of Indigenous sovereignty and self-determination, acknowledgement of Indigenous intergenerational and interlinked connection to the Arctic system and methodologies to assess its changes and impact on the Indigenous way of life.

The path to achieving Equity necessitates the identification of systemic inequities in the current landscape of Arctic observing. Disparities persist when, for example, standard observing-derived data products remain inaccessible to or fail to address communities' needs (Wong et al., 2020), or when observing frameworks focus solely on abstract research or favoring large-scale non-sustainable development efforts for economic gains while conflicting with community values and foci on important measures of well-being (Donkersloot et al., 2020).

Eradicating systemic inequalities requires systemic rethinking and restructurizing to challenge the *status quo*. For example, hypothesis-driven research to inform observations in basic science frameworks should be replaced with a synthesized framework that is respectful and better addresses community-desired outcomes (Marshall et al., 2015). For observing programs, this may require an emphasis on essential variables directly linked to specific decision-making needs (Bradley et al., 2021). For example, at an RNA coObs facilitated workshop on Observing for Community Decision-Making at the Alaska Forum for the Environment in 2023, participants emphasized that acquisition and delivery of coastal erosion data in formats and based on requirements by federal and state agencies is more important than observations focused on fundamental research questions.

For approaches, systemic changes toward equity include establishing community engagement early in the research project lifecycle, valuing multiple knowledge systems, ensuring that research aligns with community needs and priorities, fostering a more inclusive and collaborative approach, and advocating for equitable distribution of funding within projects and from funding programs to address historical imbalances (Rudolf et al. in prep). For assessment, funded research, expertise, and a collective effort are necessary to establish comprehensive metrics for evaluating equity in Arctic observing and Arctic research. With cultural differences in metrics, Indigenous-led funding programs—through compacting (i.e. Tribal administered) or federal-administered—would support Indigenous metrics of credibility, legitimacy, and innovation (Carlo & Shapiro n.d.). Trusting Indigenous-led people to lead at that scale would be a sign of systemic change within Arctic research. Respecting Indigenous Knowledges, ethics grounded in Indigenous values, and data sovereignty underscore ethical and responsible research practices.

### **Actionable Steps Towards Equity**

Recognizing the urgent need for Indigenous-led efforts is fundamental to fostering equity in Arctic observing. Genuinely acknowledging and respecting the guidance provided by Indigenous leaders and scholars is a crucial step in this process, as emphasized by the Indigenous contributions to past AOS within the Food Security/Sovereignty Working Group (e.g., FSWG, 2023; AOS, 2022).

Toward ensuring a balanced representation of knowledge in planning and as part of the implementation for Indigenous-led efforts, thorough documentation outlining community priorities is essential. This involves meticulous research and a commitment to understanding and incorporating community perspectives into the fabric of Arctic observing initiatives. These deliberate approaches can bring about a shift towards a more inclusive research environment beyond the traditional focus on scientific literature. Incorporating community documents in collaborative research can consequently reorganize how we think, discover, cite, and view community documents as an indispensable part of research.

Toward addressing the disparity between extensive training in research skills and the lack of similar expectations for ethical aspects, comprehensive and continuous training focusing on equity and Indigenous community engagement is urgently needed. Relatedly, recognizing the need to understand unbiased historical context, setting, priorities and perspective as a prerequisite for non-Indigenous researchers in co-production of knowledge efforts, we recommend investing in Indigenous-led training for Arctic observing efforts to address gaps, particularly in ethical and human interaction aspects (see AOS short statement “Substantive training in Indigenous history and engagement is a necessary step

towards equity in Arctic Observing”, Bradley et al., 2024). Such training should mirror the rigor expected in scientific and observational skills, creating a more holistic approach to the individual researcher’s development and a pivotal approach for advancing system-wide equity (Wong et al., 2020).

Developing equitable metrics of success is an actionable strategy to embed equity into research practices (see AOS Short Statement “Evaluating Equity in Arctic Observing In Practice”, Rudolf et al., 2024). Applying these metrics as criteria in proposal and project evaluations ensures a consistent commitment to equity throughout the research lifecycle, fostering a culture of accountability and inclusivity. Furthermore, sharing examples of successes within the Arctic observing community creates a reservoir of inspiration and practical insights. Highlighting efforts such as The Indigenous Knowledge Social Network (SIKU.org), developed by the Arctic Eider Society (arcticeider.com), and the Atlas of Community-Based Monitoring in a Changing Arctic (Johnson et al., 2016, arcticcbm.org), provides tangible illustrations of successful equity-driven initiatives. Turning to the critical aspect of funding, we emphasize the need for nuanced strategies and a holistic approach, including partnership building with processes such as Arctic ROADS (Starkweather et al., 2021) and directing funding towards capacity building, especially for Indigenous students and communities.

As a concluding remark, equity is not a one-size-fits-all concept, and the above outlined actions should be viewed as valuable contributions rather than a universal checklist. The dynamic nature of Arctic Research and Arctic Observing demands an adaptive and nuanced approach that acknowledges the diverse perspectives and challenges inherent in fostering true equity within the observing community. Embracing this complexity ensures that our efforts are responsive, inclusive, and attuned to the unique needs of the Arctic and the communities sharing its lands.

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