



## **1st International Workshop on Arctic Ocean Observation Future Collaboration by Research Vessels and Icebreakers**

Name of session:

International Collaboration, Policy, Indigenous Peoples

Chair: Hajo Eicken (International Arctic Research Center, University of Alaska Fairbanks)

This session provided an exclusive platform for exploring essential subjects pivotal to fostering international collaboration, often overlooked within the domain of scientific cruise or research vessel planning. The insights shared by the presenters in this session held considerable significance within a broader context, encompassing collaboration with policy and Indigenous Peoples in scientific research, as well as strategic planning for research vessel observations. The session's objectives were designed to guide subsequent discussions, facilitating a nuanced examination of strategies and opportunities aimed at maximizing the effectiveness of Japan's new Arctic research vessel as a platform for fostering international collaboration in Arctic research.

To structure the session, each presenter was provided with the following two predetermined questions:

- From your perspective, how can Japan's new Arctic research vessel best be utilized as a platform for international collaboration in Arctic research?
- Can you point to opportunities or examples of specific activities or initiatives that hold promise in supporting this goal?

Betsy Baker (Wilson Center Polar Institute Global Fellow / IARC-UAF Affiliate Faculty) presented on "Discovery across Disciplines: R/V-based International Collaboration for Science, Law, and Policy." She shared her experience as the sole social scientist aboard a US research icebreaker tasked with mapping the bathymetry and sampling the geology of the US extended Continental Shelf in the Arctic. Collaborating with natural scientists, she interpreted and applied provisions of the UN Convention on the Law of the Sea in real time, enhancing comprehension and contributing to scientific and legal arguments supporting US continental shelf rights in the Arctic, while also advancing understanding of Arctic marine geophysics and geology. Additionally, she discussed how collaborative research on treaty-focused cruises can yield both pure and applied outcomes, such as data collection for ecosystem understanding and policy development for area-based management. She highlighted the example of Ecologically and Biologically Sensitive Marine Areas (EBSAs),

which provide scientific information on key ecological features across different treaties, albeit without prescribing management measures or jurisdiction.

Jihoon Jeong (Korea Polar Research Institute) discussed “What the new icebreaking research vessel would mean for the international Arctic research community: A Korean, future generation, social scientist's perspective.” He presented data indicating that not all countries can afford the investment or have the policy direction to construct and operate vessels capable of navigating high Arctic regions, with Arctic coastal states primarily utilizing icebreakers for sovereignty missions and select non-Arctic countries deploying vessels for scientific research, including Japanese and Korean ships covering the Pacific-Arctic gateway. He highlighted the potential roles of the new vessel as a platform for international collaboration in Arctic research, including its unique scientific contributions such as access to the Central Arctic Ocean and observation trajectory spanning the Pacific-Arctic gateway. Additionally, he emphasized its significance in providing research and education opportunities for future-generation polar researchers and newly emerging Arctic science teams, along with facilitating knowledge co-production through onboard Arctic Indigenous experts, particularly those in early career stages, and conducting prior and post consultations with coastal communities.

Hajime Kimura (JAMSTEC) addressed “Japan's new Arctic research vessel for international cooperation: Revisiting marine scientific research under international law.” He initially shared his experience working within the Japanese government to organize the Arctic Science Ministerial Meeting co-hosted by Iceland and Japan in 2021, along with his personal experiences aboard the R/V MIRAI. Then, he outlined Japan's policy initiatives concerning Arctic science, underscoring the interplay between policy and scientific endeavors. Additionally, he introduced the concept of utilizing an ice-breaking-capable Arctic research vessel as an “international research platform,” initially proposed in the Third Basic Plan on Ocean Policy (2018) decided by the Cabinet. He mentioned that for utilizing Japan's new Arctic research vessel as an international research platform, academic research programs should integrate societal engagement, policy, and legal considerations upstream, rather than treating them as downstream or isolated elements of scientific inquiry.

Hannah-Marie Garcia (Tribal Government of St. Paul Island, Alaska / Indigenous Sentinels Network (ISN)) presented on “The Indigenous Sentinels Network: A Model for Collaborative Research that Weaves Local and Traditional Knowledge with Science in the Arctic,” with a particular focus on explaining the Indigenous Sentinels Network (ISN). In 2002, ISN was launched by the Tribal Governments of the Aleut Communities of St. Paul and St. George Island as a technology-based tool for integrating diverse knowledge systems for environmental monitoring in the Bering Sea. Over the past 20+ years, ISN has become increasingly recognized for its flexibility in implementing community-driven and Indigenous-led environmental data collection programs, allowing it to expand its geographical focus

from the Bering Sea region to areas in mainland Alaska and beyond. ISN aims to bridge divides between institutions, cultures, and knowledge systems. Indigenous, traditional, and local knowledge (ITLK) plays an increasingly significant role in ecology and climate science, but there are still procedural gaps in integrating it respectfully into research processes.

She highlighted “Strategies for Equitable Arctic Research” as follows:

- 1) Practice Cultural Curiosity (in addition to guest lectures find ways to engage community elders and storytellers)
- 2) Foster Indigenous-Led Research (invite Indigenous leaders onboard)
- 3) Build Long-Term Community Capacities (provide training to communities)
- 4) Build Long-Term Relationships
- 5) Co-Create Research Agreements
- 6) Respect Indigenous Knowledges (prioritize Data Sovereignty and technical capacities to do so)
- 7) Share Research Benefits
- 8) Practice Creative Science Communication

Henry Burgess (NERC Arctic Office, United Kingdom / President, International Arctic Science Committee (IASC)) shared insights “International collaboration for better Arctic science – putting equitable partnerships at the centre of research & planning.” His presentation focused on practical examples, at different scales and locations, of ways to put equitable partnerships at the centre of both the delivery of research and of identifying and planning future research priorities. He outlined the International Polar Year in 2032-33 and presented the initial plans and concepts, setting these in the context of new opportunities for international collaboration, including with infrastructure and vessels such as Japan’s new research icebreaker. He also highlighted the International Conference on Arctic Research Planning IV and identified its aims and objectives; ways to participate; and how it will inform future priorities.

Hajo Eicken (International Arctic Research Center, University of Alaska Fairbanks) presented on “The SAON Roadmap for Arctic Observing & Data Systems: Towards equitable observing partnerships and co-production of knowledge with Arctic Indigenous Peoples.” He pointed to the Roadmap for Arctic Observing and Data Systems (ROADS) framework under the Sustaining Arctic Observing Networks (SAON) initiative as an inclusive process that can help to address the new research vessels emerge as platforms for international collaboration. SAON ROADS rests on the principles emphasizing equitable partnerships and funding for Indigenous Peoples, shared benefits, integration with existing planning approaches, and flexible and evolving grassroots identification of foci. In advancing ROADS, several initiatives are currently supporting the creation of expert panels comprising Indigenous knowledgeholders, university researchers, agency scientists and others. These panels are tasked with developing and documenting observing priorities and approaches for Shared Arctic Variables, which serve as the focal point for observing network discourse and

integration within SAON ROADS. Additionally, both providers and users of Arctic observations contribute various elements to the implementation of the observing network.

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In conclusion, the workshop has underscored the critical importance of integrating various elements into the design, planning, and operations of research vessels to enhance collaboration, promote inclusivity, and drive progress in Arctic research. Moving forward, it is imperative to prioritize the following strategies:

1. Research vessel design & cruise planning: Develop vessel design elements that prioritize social spaces conducive to interdisciplinary collaboration, fostering an environment where new ideas can incubate across different knowledge systems. Research vessel-supported observing activities deliver Indigenous- community benefits on a routine, intrinsic basis.
2. International treaty systems & co-production: Ensure that planning and communication processes actively involve and address concerns of Arctic communities and integrate treaty experts into shipboard research activities to navigate the complexities of international treaty systems effectively. Additionally, leverage and support Indigenous networks and liaison bodies to foster meaningful partnerships.
3. Education and Training: Incorporate educational initiatives and next-generation training programs into research vessel operations, empowering the future leaders of Arctic research.
4. Cruise Planning and Collaboration: Elevate collaboration around research vessel cruise planning to the next level by strategically utilizing vessels based on their specific capabilities and functions, thereby maximizing efficiency and effectiveness. Drive process improvements around important initiatives such as ICARP and IPY 2032-33 timelines to ensure timely and impactful research outcomes.

By embracing these points and fostering a collaborative, inclusive, and forward-thinking approach, we can enhance the capabilities and impact of research vessels in advancing our understanding of the Arctic and addressing the challenges facing the region and its communities.