International Workshop on Arctic Ocean Observation Future Collaboration by Research Vessels and Icebreakers

Name of session: Panel Discussion
Moderator: Tetsuo Sueyoshi (Japan Agency for Marine-Earth Science and Technology, JAMSTEC)

A panel discussion with eight panelists was held in the afternoon of Day 2. It followed the reporting presentations from each session and served as a forum for discussion to summarize the workshop.

The panel consisted mainly of representatives from the five breakout sessions: Dr. Hajo Eicken (University of Alaska Fairbanks, USA), Dr. Jackie Grebmeier (University of Maryland, USA), Dr. Takashi Kikuchi (JAMSTEC, Japan), Captain David Duke Snider (Martech Polar Consulting Ltd, Canada), Mr. Rocky Taylor (Memorial University of Newfoundland, Canada), Dr. Lisa Winberg Von Friesen (University of Copenhagen, Denmark). Two additional panelists were added: Ms. Hannah-Marie Garcia (Indigenous Sentinels Network, USA), who works to support the collection of Indigenous, local, and traditional knowledge and scientific information for Indigenous communities in Alaska, and Dr. Michael Karcher (Alfred-Wegener-Institut, Germany), who leads the EU-funded project Arctic PASSION, which aims to implement the Arctic observing system on the contribution of Indigenous knowledge and community-based monitoring systems.

As shown below, two themes were discussed in the panel: the first topic is on the need for science and research, and how to improve cruise planning and operations. The second is how to further promote international collaboration or cooperation with Indigenous communities. As there was a wide range of discussions in an interactive and cross-disciplinary way, some selected points are presented in this summary.

Selected points of discussion

Discussion topic 1: Towards the better research cruise planning and operation

- There are urgent scientific needs due to the very rapid warming of the Arctic. Both gateways are facing many changes and require more frequent and detailed monitoring, while the central Arctic Ocean still lacks good data coverage.
- One of the expectations for the new ship is to increase the observing opportunities, especially in the ice-covered Arctic Ocean. The importance of maintaining observation time series and seasonality was emphasized. A multidisciplinary team and international cooperation to cover the observation items and time period is also essential, for which international and regional meetings (Arctic Science Summit Week, Pacific Arctic Group, etc.) are useful.
- The involvement of social scientists, early career researchers and indigenous communities in cruise planning at an early stage will be an asset in developing key

themes for cruises and in addressing knowledge gaps. Such involvement is also crucial for intergenerational collaboration, as time is very limited, and we need to act now.

- We need to get away from the idea that a research vessel has a research side and an operational side, and always work together. The gap between scientific requirements and operational limitations has to be bridged by both sides, both have to manage each other's expectations.
- When Japan moves from a ship that does not go beyond the marginal ice zone to a ship that is designed and built to go into the polar ice, the concept of the ship, the limits and capabilities, and the way to operate will change. There is a new challenge in understanding the differences in the environment, including the risks and opportunities. Scientists need to work with engineers, the bridge team and the crew, with flexibility, to reduce risk.

Discussion topic 2: Towards the better international collaborations

- It is encouraged that the new ship will continue to engage with communities, work to incorporate indigenous knowledge, and recognize the importance of data protection and data sovereignty. Indigenous communities also want data to be available, usable and integrated into decision-making, while data sovereignty is an inherent right of Indigenous peoples. They should have control over how it is used and the information should be properly cited.
- This workshop was successful in bringing the Indigenous perspective into the research design process at an early stage. We expect this approach to go beyond mere collaboration and move towards co-production methods. It will have valuable benefits as we work together across disciplines to address all these challenges in the Arctic.
- The Sustaining Arctic Observing Network (SAON) has the Roadmap for Arctic Observing and Data System (ROADS) process. It's a tool that can be used by users of a Japanese research vessel to have more impact through the measurements and get more benefits for Japan, but also more benefits for the communities in the region. Researchers can join the expert panel of ROADS, such as the one on salmon, and help identify key variables to monitor and what kind of measurements can be added during the cruise. It is also mutually beneficial to work with coastal community organizations (in Alaska, Canada and Greenland) to share and expand the users of the data collected.
- The biggest challenge for co-creation with communities would be the time it takes to build good relationships and trust. It takes more than a decade and doesn't fit well with the current funding mechanism. There is still a lot of value in having different knowledge systems on board to address the challenges in the Arctic. We shouldn't underestimate the value of this diversity of knowledge.
- As an international research platform, we expected the new ship to be a bridge between European and non-European countries and to work together on a pan-Arctic scale. This has become even more important as we are currently missing a lot of data

from the Russian part of the Arctic. Coordination of observations, such as the second phase of the Synoptic Arctic Survey (SAS), is something we should be planning for IPY. ICARP IV is another process where we could all combine our efforts.

- Investing in Arctic observations has a clear importance as a measure against climate change. There is concern about the reduction of winter sea ice, while it is very likely that summer sea ice will largely disappear by the middle of the century. A reduction in winter sea ice could have significant impacts on the Northern Hemisphere's circulation, water cycles, ecosystems and more. For Asian countries, tracking such changes has clear implications in terms of extreme weather events and regional economies. The value of improved seasonal forecasting, for example, is becoming increasingly clear. In the context of international cooperation, the scope is expected to expand rapidly in the future.