



# International Ross Sea Region Collaboration and Coordination Workshop

21 July 2019  
Songdo Convensia  
Incheon, Korea

## WORKSHOP SUMMARY

Researchers and program managers of six Antarctic national programs convened for the first International Ross Sea Region Collaboration and Coordination Workshop on July 21, 2019 prior to the Scientific Committee on Antarctic Research (SCAR) XIII International Symposium on Antarctic Earth Sciences (ISAES) Conference in Incheon, Korea. Participating national Antarctic Programs included China, Germany, Italy, New Zealand, South Korea, and the United States of America.

The international science community has a critical part to play in informing how environmental change is affecting, and will continue to affect, ecosystems and the cryosphere in Antarctica and the Southern Ocean. As such, the goal of the workshop was to bring together national Antarctic programs operating in the Ross Sea, and leading researchers, to discuss existing research plans and emerging future priorities in the Ross Sea Region over the next decade as a forum to explore future opportunities for collaborative research and logistical efficiencies.

The workshop was organized into three sessions:

- Session 1: Marine and Terrestrial Ecosystem Research
- Session 2: Influence of Climate Change on the Cryosphere
- Session 3: Logistics Activities in the Ross Sea

Later, during the SCAR ISAES conference, two town halls were convened to inform the broader research community of workshop discussions and further explore potential areas for collaboration.

### Workshop Sessions Summaries

#### 1. *Marine and Terrestrial Ecosystem Research*

The Ross Sea region is a major Southern Ocean ecosystem. In recognition of this, the Ross Sea Marine Protected Area (MPA) was established in 2016. During the *Marine and Terrestrial Ecosystem Research* session, presentations describing a large number of ecosystem research projects in, and near, the Ross Sea, were identified by each national program. Many of these research programs were collaborative between one or more countries.



After presentations in the session, concern was raised by session participants that, although the results from some of the research discussed was directly tied to the Ross Sea MPA, in general, there appears to be little coordination with The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), the group responsible for MPA data collection.

Some highlights from the session include:

- Research themes: biodiversity, ecosystem structure, and function in a warming world, importance of polynyas.
- Novel observing technologies are allowing enhanced access to better understand ecosystem dynamics.
- An important challenge was identified highlighting the need to standardize methods and equipment to help with comparative studies.
- Opportunities were identified to coordinate efforts and have international deployments where researchers can supply standardized equipment for deployment by other programs (e.g., moorings, benthic surveys, etc.).
- Better coordination of research efforts with monitoring strategies that are part of the Ross Sea region MPA research and monitoring plan was identified as a challenge. The attendees recommended that individual national programs investigate how best to connect occurring and planned research for the Ross Sea with the work being undertaken by CCAMLR. Coordinated research would be beneficial for monitoring ecosystem variability in the Ross Sea MPA.

## ***2. Influence of Climate Change on the Cryosphere***

The Ross Sea is an important component of the global cryosphere with Antarctica's largest floating ice shelf and numerous connected ice streams. During the *Influence of Climate Change on the Cryosphere* session, several presentations were given summarizing outcomes of new international research projects, notably initial results from the International Ocean Discovery Program (IODP) Expedition 374. Also discussed were proposed plans for future sediment sampling in the Ross Sea using the Antarctic Intermediate Depth Drill (AIDD) as well geophysical surveys in the Ross Sea.

- Research themes: ice dynamics, subglacial hydrology, grounding line dynamics and history, oceanography, modelling to project future change, sea level rise.
- Presentations validated that long-term monitoring programs are critically important to better understand the underlying physics driving the changes being observed in the cryosphere and to improve the ability to model future variability and connect critical drivers in the cryosphere system.



### 3. *Logistics Activities in the Ross Sea Region*

Discussions in the *Logistics Activities* session described the broad range of assets the national programs operate in the region. Participants acknowledged that multi-national projects have broad appeal to scientists, governments, and funding agencies as they provide enhanced and distributed program impacts. However, participants also acknowledged the challenge presented by the fact that funding cycles are typically shorter than natural environmental variability, making it challenging to sustain long-term efforts. Discussions highlighted that strong International collaborations can help maintain long-term observational programs.

Discussions in each of the three sessions was lively and wide ranging and many new research results were presented. There was also sharing of plans for future research and logistical activities in the Ross Sea. A major highlight of the workshop was recognition of the number of research activities currently underway as well new activities in the planning stages. Overall, the workshop was a great success. Those in attendance agreed that they were unaware of the extensive research underway and in the planning stages for the Ross Sea. To address this lack of awareness, strategies to increase information sharing and collaboration were discussed as outlined below. Participants of both the workshop and townhalls identified community tools and integrative activities to enhance scientific research in the Ross Sea region.

#### **Key workshop recommendations include:**

- A centralized web portal to share future Ross Sea research field plans that displays geographically and temporally for researchers seeking collaborative research opportunities (e.g., field camps, research vessels, sampling/deployment campaigns).
- Implementation of an annual International Ross Sea Region Collaboration and Coordination workshop to be held in conjunction with SCAR conferences (e.g., biennial SCAR Open Science Conference, quadrennial SCAR Biology or ISAES conferences) to help stimulate science collaboration, enable better coordination between Ross Sea region partners, facilitate logistics efficiencies, and provide an opportunity to discuss longer-term aspirations and how to accomplish them.
- Enhanced coordination of research and logistics capabilities using existing community networks should be explored (e.g., SCAR and the Council of Managers of National Antarctic Programs (COMNAP)).
- Enhanced coordination of the deployment, maintenance, and recovery of monitoring equipment (e.g., moorings, gliders, automatic weather stations) through national programs should be explored.
- A SCAR expert group with a focus on the Ross Sea Marine Protected Area (MPA) should be explored to help enhance international collaboration and coordination on MPA research priorities and the development of long-term monitoring efforts.