



20th Meeting of the International Ice Charting Working Group Executive Summary Report

The 20th meeting of the International Ice Charting Working Group (IICWG) was held in Copenhagen, Denmark during September 23-27, 2019. The meeting was hosted by the Danish Meteorological Institute. Ninety-two attendees representing 40 organizations from 18 countries participated. The theme for the meeting was “*Responsive Ice Services: Innovating Science and Service for a Changing Environment*”.

Significant Outcomes

ROSE-L

The Radar Observing System for Europe at L-band (ROSE-L) is one of 6 Copernicus High Priority Candidate Missions under discussion at the European Space Agency. Wolfgang Dierking reported on the activities of his task team investigating the use of L- and C-band Synthetic Aperture Radar data for operational charting of sea ice and icebergs. The team, which includes representatives from ten Ice Services, did a preliminary assessment of 60 overlapping PALSAR (L-band), Sentinel-1 and Radarsat-2 (C-band) scenes over 5 test sites in the Northern Hemisphere. Early findings show L-band provides enhanced iceberg detection capability, more visible ridging in sea ice, greater discrimination between rough and smooth sea ice types and more contrast between open water and sea ice. First results will be reported to the European Space Agency in November this year. Further work includes the addition of Southern Hemisphere sites with SAOCOM L-band and COSMO X-band data and possible use of Sentinel-2 optical data.

Mariner Survey

Building on an emphasis on mariner training for polar navigation at the 2018 meeting, a task team led by Keld Qvistgaard undertook an extensive survey of polar mariners to get a better, up-to-date understanding of their needs. Ninety-five responses were received, the majority of which were from ship captains or crew with experience operating in ice in both Polar Regions with a wide range of vessels. Important messages from the survey include:

- the most-used ice information for navigation are regional ice charts, local information, and optical and SAR satellite images;
- ice information must have a resolution better than 300 metres (and preferably better than 50 m);
- in addition to parameters currently displayed on ice charts, mariners would like more information on ice drift, deformation and thickness;
- 12 hour latency of near-real-time information is acceptable but 6 hours would be preferable;
- Internet and e-mail are the most common means of receiving ice information but communication to ships remains bandwidth-limited; and,
- satellite data, scalable ice charts, and mariner training are issues that Ice Services should focus on next.

In response to the survey results, IICWG task teams will resume work with maritime training institutes to develop better training tools and to initiate a pilot project to explore new products for the marine community.



INTERNATIONAL ICE CHARTING WORKING GROUP (IICWG)

Ice Analyst/Forecaster Competencies

Over the year, a team led by Catalin Tita of the Canadian Ice Service developed competency frameworks for ice analysts and forecasters: i.e. the minimum competence requirements to effectively perform the duties of ice analysts and forecasters for all operational Ice Services and institutes in the world. The frameworks identify the knowledge, skills and behaviours that should be demonstrated. Implicit in the background knowledge and skills is the recommendation that analysts/forecasters should have successfully completed the Ice Analyst/Forecaster Training Program or relevant parts thereof. It is recognised that national personnel qualification requirements may be set at higher levels. The competency standards were approved by the Joint Commission on Oceanography and Marine Meteorology (JCOMM) Expert Team on Sea Ice and will be submitted to the World Meteorological Organization Congress in 2020 for approval.

Automated Ice Information Products

The IICWG is concerned about the number of automated ice information products becoming available on the Internet and the potential for confusion among mariners with a resulting risk to maritime safety. The meeting devoted a major session to a panel of experts from the scientific community developing automated products and the National Ice Services providing direct support to mariners. The purpose of this session was to explore ways that organizations developing automated products could work more closely with the Ice Services on improving automated results for their mutual benefit and that of the maritime public. Following opening remarks by Pierre Bahurel, head of Mercator Océan Int'l, the session was moderated by IICWG co-chair Marianne Thyrring. The session brought to light some significant misunderstandings between the groups - most notably, of the terms "high resolution" and "ice edge". The scientific community measures "high resolution" in kilometres while mariners and Ice Services measure it in metres. "Ice edge" to mariners and Ice Services is the 0% concentration boundary whereas the science community defines it as the 15% concentration line. These are important distinctions because they refer directly to the marginal ice zone, where the majority of mariners using ice information operate. The session also clarified that the Copernicus Marine Environment Monitoring Service (CMEMS), being implemented by Mercator Océan, considers the Ice Services, and not mariners, to be its primary clients.

Going forward from the session, the IICWG formed a task team to initiate a pilot project, involving mariners and scientists, to develop a new ice information product. A key objective of the pilot project will be to involve both mariners and scientists at the outset.

IICWG-XX Press Release

The IICWG issued a press release with the statement - "As noted by the Intergovernmental Panel on Climate Change, the extent of Arctic sea ice is declining in every month of the year, and it is getting thinner. As the impacts of climate change become more evident, information about sea ice and icebergs is becoming available on many Internet sites. While most of this information is credible, much of it is not designed for maritime operations and may not take into consideration requirements important to vessels. Ice navigators are cautioned to ensure that they know the limitations of any ice information source they access. When in doubt, contact your National Ice Service or maritime authority."

IICWG-XXI

The 21st meeting of the IICWG will be held in Buenos Aires, Argentina during September 21-25, 2020 at the invitation of the Argentine Naval Hydrographic Service.

IICWG Secretariat – October 10, 2019