



21st Meeting of the International Ice Charting Working Group

Executive Summary Report

The 21st meeting of the International Ice Charting Working Group (IICWG) was held by videoconference during September 21-25, 2020. One hundred and fifty-six people representing 51 organizations from 22 countries registered for the meeting and about 100 participated in each session. The meeting was held for 2 hours each day Monday to Friday.

Significant Outcomes

Multi-Spectral Synthetic Aperture Radar (SAR)

Wolfgang Dierking (AWI/UiT) reported on the activities of his task team investigating the use of multi-spectral SAR data for operational charting of sea ice and icebergs. At the previous IICWG meeting, Wolfgang reported that the ROSE-L (Radar Observing System for Europe at L-band) project had conducted preliminary assessments of overlapping PALSAR (L-band), Sentinel-1 and Radarsat-2 (C-band) scenes in the Northern Hemisphere. In the past year, ROSE-L has merged with the LC-ICE project of the European Space Agency under Wolfgang's leadership and been expanded to include L-band data from the SAOCOM satellites and X-band from Cosmo SkyMED and TerraSAR-X. The area of investigation has been extended to the Antarctic with the participation of Southern Hemisphere ice services. In addition to developing processing methods for combining bands and testing automated algorithms for sea ice classification and iceberg detection, the nine ice services in the task team will undertake practical exercises to assess the merits of multi-spectral SAR data for operational monitoring and ice charting. The task team will continue its work through 2021.

Marine Training Centre Engagement

Following an extensive survey of polar mariners in 2019, a task team led by Keld Qvistgaard (DMI) conducted a focused survey of marine training centres to get a better understanding of training center needs for integrating ice service expertise, data, and products into training modules and to enhance training center awareness of ice service capabilities. The team received detailed responses from 13 highly accredited marine training centres in 8 countries and 5 responses from international companies using training centre services. A report on the survey findings was distributed to all ice services containing specific recommendations for ice information production including the need for simplified products, ice forecast products, and risk-based products. The survey also revealed a need for training products including handbooks for ice observation, ice analysis, and product descriptions; frequent updates of formal documents such as the WMO-259 Sea Ice Nomenclature and WMO-574 Ice Services of the World; and, ice situation examples for use in ship simulators. For the coming year, a task team will focus on awareness and promotion, feedback and interaction, and follow up on the recommendations in the surveys.

E-Navigation

The IICWG has been addressing the prospect of ice information for Electronic Navigation Chart Systems (ENCS) for many years. Over the past couple of years, a task team led by Jürgen Holfort (BSH) brought to fruition a number of specific objectives including the development of the S-411 International Hydrographic Organization standard for ice information in ENCS and the availability of ice charts from global ice services in S-411 format on the Ice Logistics Portal (<http://www.bsis-ice.de/IcePortal/>). Despite these successes, there has been little uptake from the marine community



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and the electronic chart system manufacturers. At IICWG-XXI, the Group heard from a panel of experts discussing how ice information may be best utilized in electronic chart systems. Significant recommendations include the need to consider products that integrate weather, ice, and wave information and the suggestion to treat shipping fleet operations centres as intermediate users of ice information. A new effort will be defined to examine the content of ice information products and services considering these recommendations and the survey feedback received.

Ice Modelling in Operational Production

A session was held highlighting the work that has been done to transfer the North American Ice Service iceberg model to the Argentine ice service for use in the South Atlantic, as well as the development of daily and monthly sea ice forecasts in Argentina. A panel of ice modellers and managers from six ice services then discussed how models were being used in operational ice information production, what difficulties are encountered, and how they are addressed. Resource limitations vary across organizations but common to all are the accuracy and reliability of model input data, lack of data and data assimilation, difficulty of validation and verification, and the small community of modellers. A number of actions arose from the session including new initiatives to make better use of ice observations from marine operators. As a result of the session, ice modelers from several ice services were introduced to one another and committed to work collaboratively.

Maritime Operations in the Southern Oceans

In anticipation of the next IICWG meeting, a session was held in which Alvaro Scardilli (SNHA) gave an overview of the ice information currently available for the Southern Ocean followed by a panel of four ice captains with experience in Antarctic waters outlining how they use ice information and discussing what they would like to have. Not surprising, more frequent and reliable ice information, ice forecasts, indications of ice dynamics and pressure, and integration with weather and waves were all noted as lacking at the current time. After the panel, Andrew Fleming (BAS) presented Polar View and entertained discussion on the role of Polar View as a key provider of ice information in the Southern Ocean. It was confirmed that Polar View is committed to working with the national ice services to validate new ice products before making them publicly available and actions were adopted to facilitate the interaction.

Other Initiatives

Several other initiatives were reported to the meeting including: development of a methodology to derive uncertainty measures from operational ice charts and a new initiative to work with modelers to evaluate the utility of these measures; a paper describing a best practice was presented as a model that ice services could follow for managing the full value chain of ice information services; collaborative work to help implement the Arctic Regional Climate Centre is considered complete and now an on-going activity of the ice services and a team was identified to help similarly with the Antarctic RCC once it gets going; and, both the Data Assimilation workshop and the Ice Analysts' Workshop, originally scheduled for 2020, were held over to 2021. Finally, several new tasks were sketched out including development of a circumpolar Southern Ocean Limit of Known Ice product and the design of new risk-based and ice forecast products. These tasks are to be detailed by the first Co-Chairs' Coordinating Committee meeting in November.

IICWG-XXII

The 22nd meeting of the IICWG is planned be held in Buenos Aires, Argentina during September 20-24, 2021 at the invitation of the Argentine Naval Hydrographic Service.

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