The Sea Ice Prediction Network Phase 2: Improving Arctic Sea Ice Forecasts through an Interdisciplinary Research Network

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PRESENTED AT:

PROJECT OVERVIEW

The Sea Ice Prediction Network—Phase 2 (SIPN2, 2018–2022) is a collaborative network focused on improving seasonal and sub-seasonal Arctic sea ice forecasts. Major SIPN activities include modeling, community forecasting exercises (the Sea Ice Outlook), development of new products, data analysis, linkages with prediction users and stakeholders, and outreach activities. These activities have resulted in a better understanding of processes that govern seasonal sea ice dynamics and prediction methods, as well as the information needs of the Alaska shipping industry.
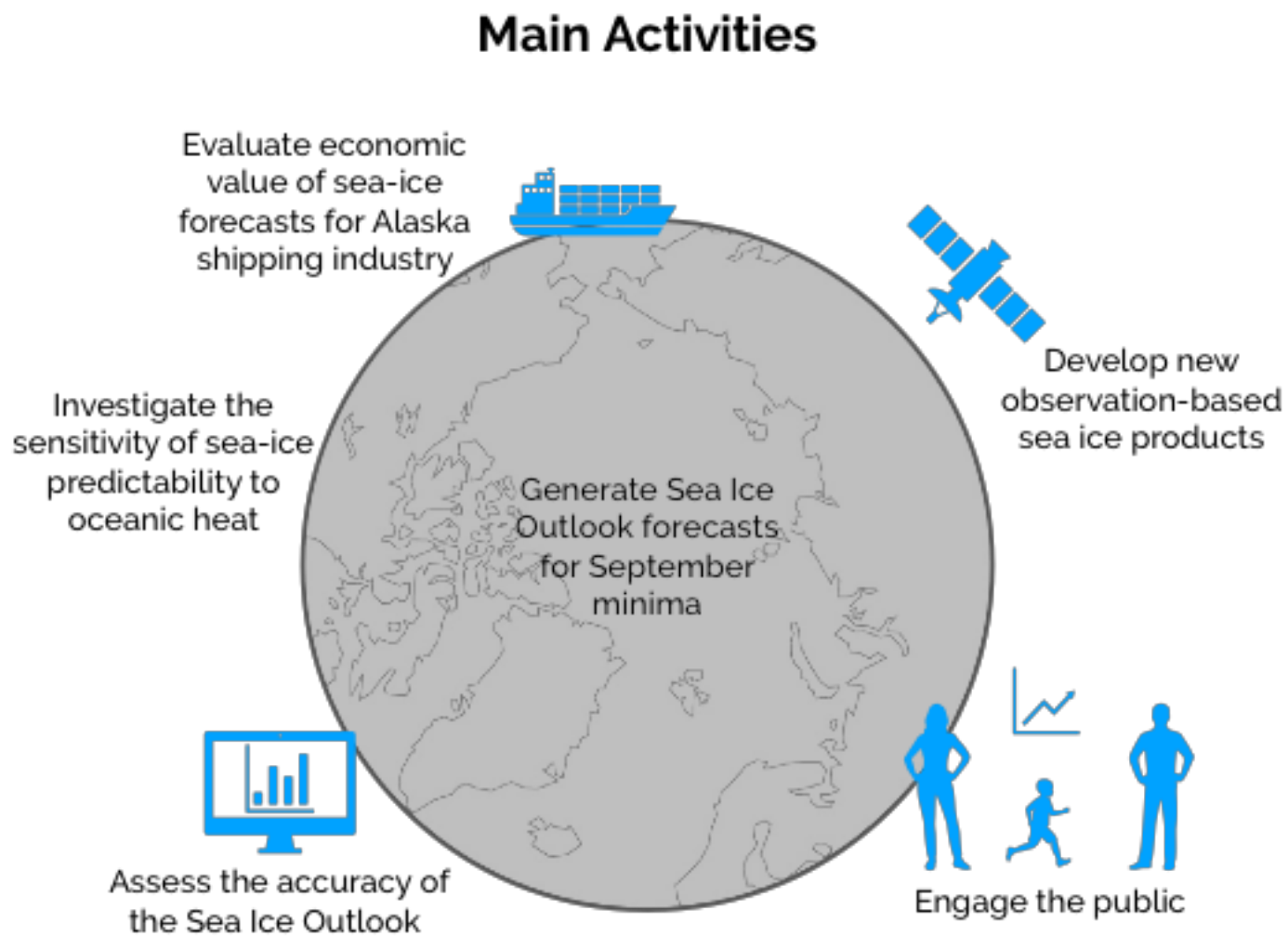
Main Activities

Evaluate economic value of sea-ice forecasts for Alaska shipping industry

Develop new observation-based sea ice products

Investigate the sensitivity of sea-ice predictability to oceanic heat

Generate Sea Ice Outlook forecasts for September minima

Assess the accuracy of the Sea Ice Outlook

Engage the public

USE AND ECONOMIC VALUE OF FORECASTS

One set of SIPN2 activities involves exploring the sea-ice forecasting needs of a variety of user groups, including the Alaska shipping sector. For example, earlier this year, a survey of members of the Bering Sea fishing industry indicated that one-month forecasts of sea ice location (particular in January) would be most useful to operational planning. Additional results of stakeholder needs will be available in 2021.
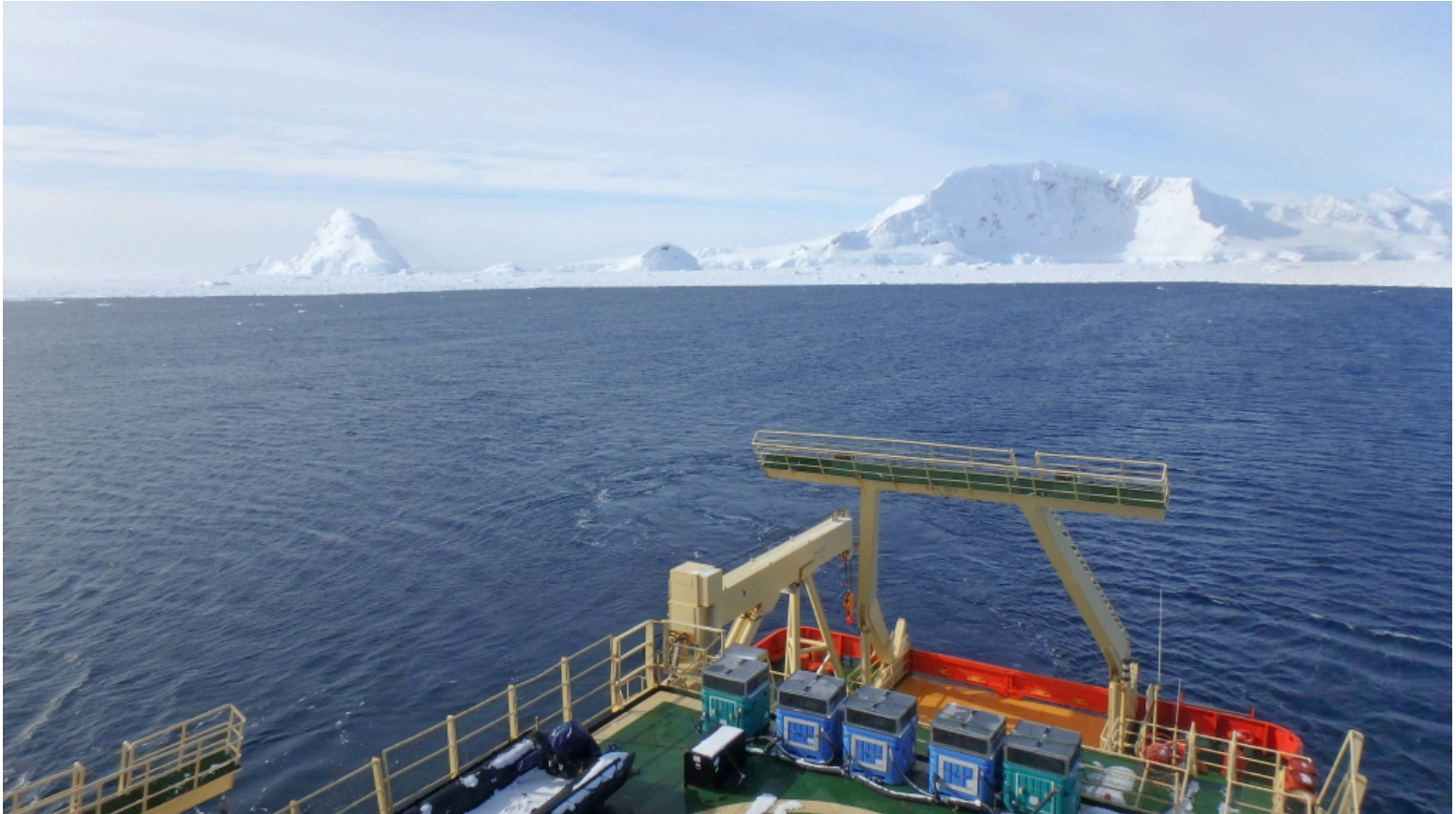

*Photo by Cara Pekarcik (PolarTREC 2016), Courtesy of ARCUS*

THE SEA ICE OUTLOOK

Since 2008, the Sea Ice Outlook (SIO) has provided an open process to share predictions and ideas about the September minimum sea ice extent. In recent years, SIPN-2 has added additional variables that are applicable to a variety of users and stakeholders, including regional forecasts, sea ice probability, first ice-free date, and others.
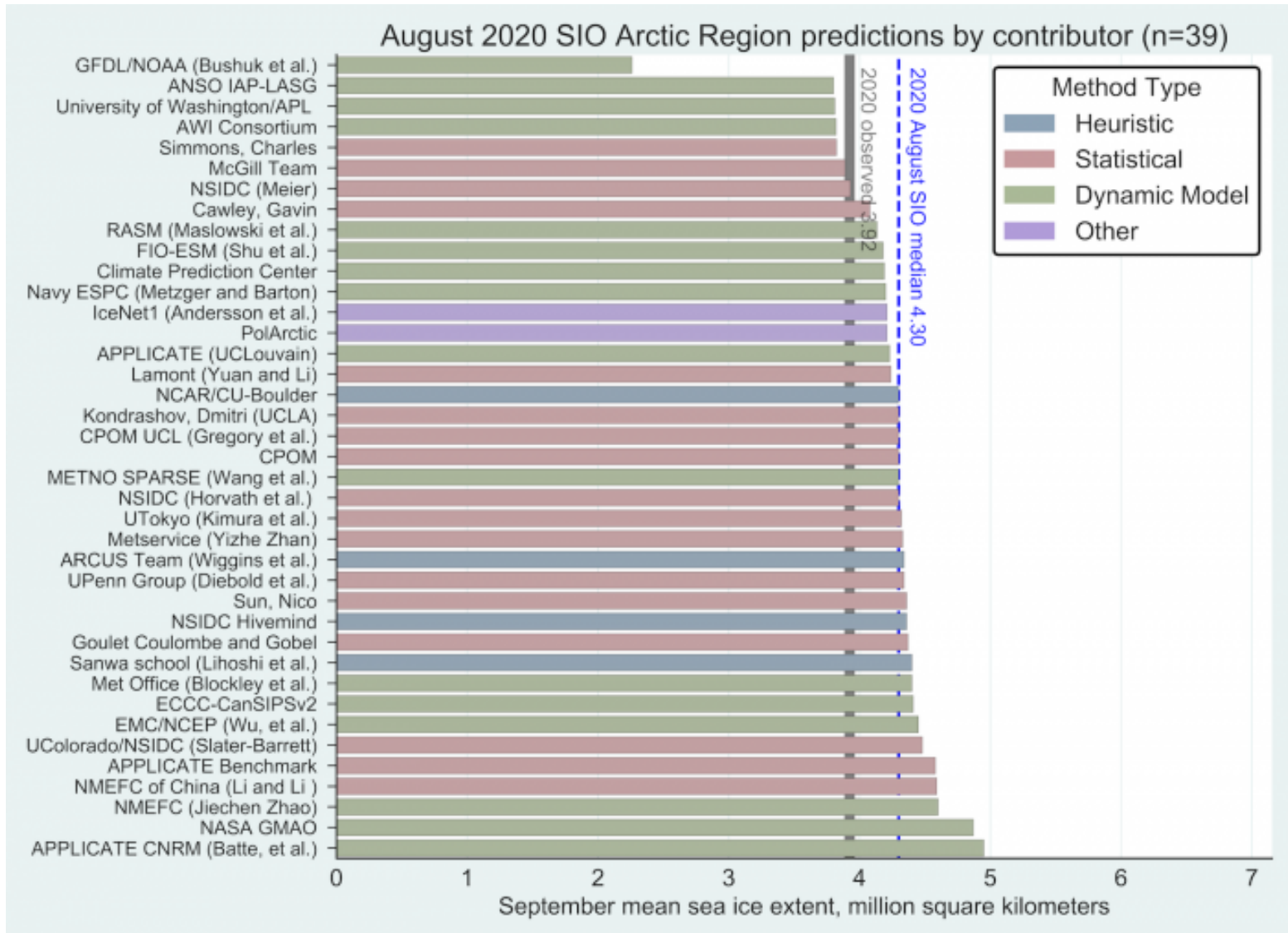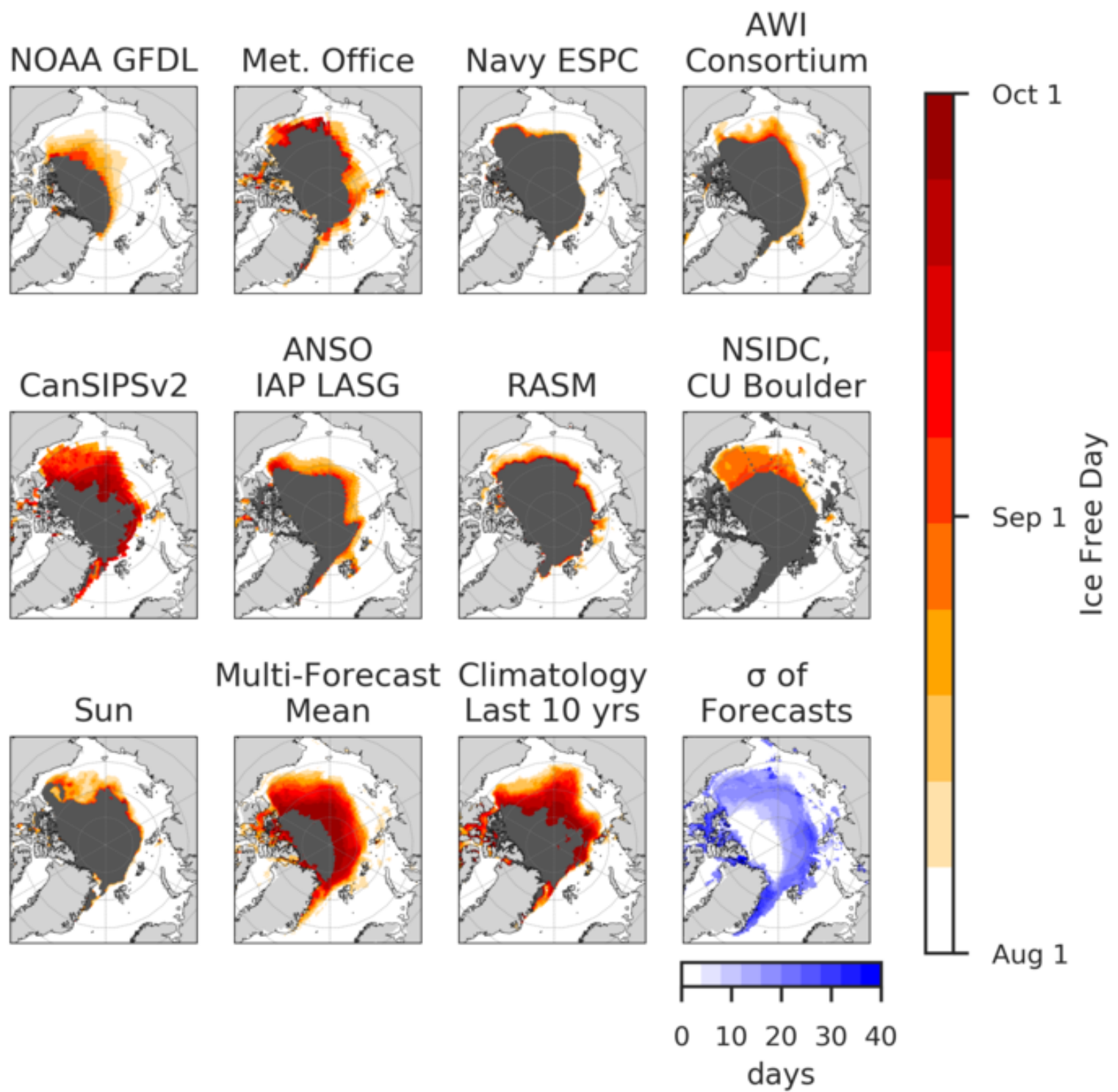

Distribution of SIO contributions for August estimates of September 2020 pan-Arctic sea-ice extent. Figure courtesy of Molly Hardman, NSIDC.
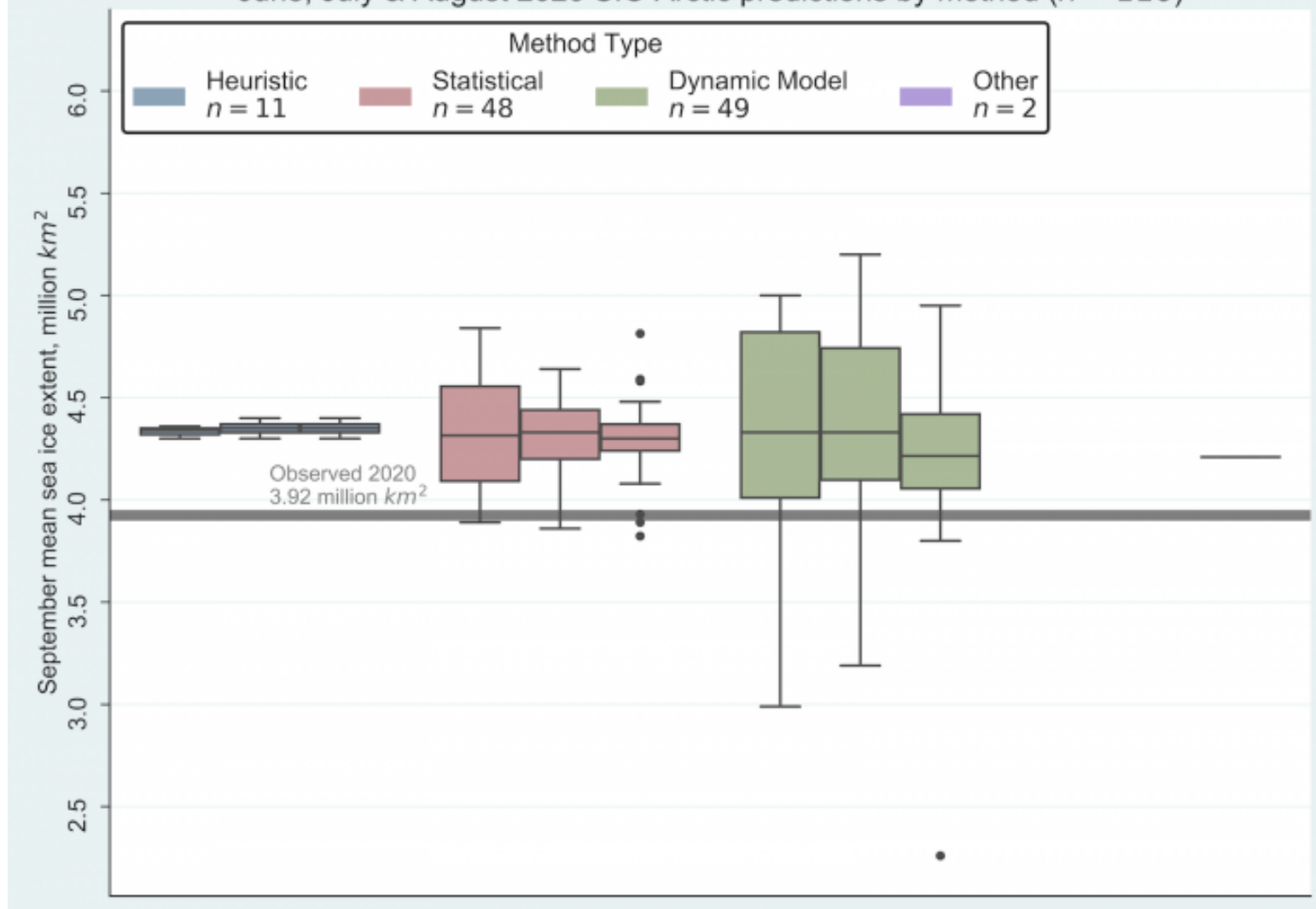
June, July, and August 2020 Pan-Arctic Sea Ice Outlook submissions, sorted by method. The individual boxes for each method represent, from left to right, June, July, and August. Figure courtesy of Molly Hardman, NSIDC.

First ice-free date forecasts for a 15% sea-ice concentration threshold, from the SIO August 2020 report. The black region indicates where a location is forecasted to be above the threshold for all lead times. The standard deviations (last panel) indicate where contributions diverge. Figure courtesy of Bitz and Blanchard-Wrigglesworth.

COMMUNICATIONS AND NETWORKING

SIPN2 has a variety of networking activities that are open to anyone interested:

- Contribute to the Sea Ice Outlook

- Join a webinar

- Join or initiate an Action Team

- Join the mailing list

- Connect via social media

ABSTRACT

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This poster presentation will provide an update on SIPN2 activities, plans, knowledge gaps, and will solicit input from poster session attendees on priorities for future inter-disciplinary prediction network activities that link sea ice with other components of the Arctic system.