

EXPERIMENTAL Sea Ice Forecasts



The Arctic region is experiencing greater environmental changes than any other place on Earth and at unprecedented rates, including: record-setting, high winter temperatures; annually increasing areas of open ocean in summer; and reductions in sea ice extent, age, and thickness.

SWIPA 2017

THE NEED

In response to environmental changes, access to the Arctic ocean has increased. Additional presence and activity in the Arctic requires reliable weather and environmental information. Improved ice-ocean-atmosphere, short-term forecasts are critical for many sectors including transportation, energy, tourism, fisheries, and ecosystem, community and emergency management.

A UNIQUE MODEL SOLUTION predicting a dynamic, complex, and inter-connected ice, ocean, and atmosphere

The NOAA ESRL Physical Sciences Division (PSD) produces 0-10 day forecast guidance products during the fall freeze-up season (September - November) from a coupled model, which takes into account interactions between Arctic sea ice, ocean, and atmosphere. The model is run daily and a variety of products, such as sea ice extent and thickness, atmospheric winds and pressure, and sea surface temperatures, are posted online each day.

TESTING 1-2-3

Since 2015, PSD has provided these short-term Arctic sea ice and weather forecasts. The primary goal is to compare the modeled processes to

observations, assess forecast skill, and improve model accuracy.

PRIORITIES, PARTNERS, AND PROJECTS

Arctic observations are sparse but crucial for understanding the interwoven processes linking the ice, ocean, and atmosphere. Obtaining high-quality measurements is a continuing priority in concert with model improvements and forecast skill assessment.

By comparing ice, ocean, and atmospheric measurements obtained by PSD and our international partners, we can analyze and improve the representation of processes critical for predicting the timing of ice melt and advance.

PSD is collaborating with the National Weather Service to 1) inform NOAA's Next Generation Global Prediction System development, 2) gain insight into forecaster use of these experimental guidance products for decision making, and 3) assess the skill and utility of providing ensemble model and uncertainty information.

<https://www.esrl.noaa.gov/psd/forecasts/seaic/>

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