



DestinE Sea Ice Decision Enhancement (DESIDE)

Ships operating in the polar regions encounter hazards that present elevated levels of risk and more severe consequences when accidents occur. The DESIDE project will develop a Use Case utilizing DESP/DestinE system capabilities and data to provide comprehensive sea ice and related information for policy and operational decision makers in the Baltic Sea, European Arctic Ocean, and other polar regions.

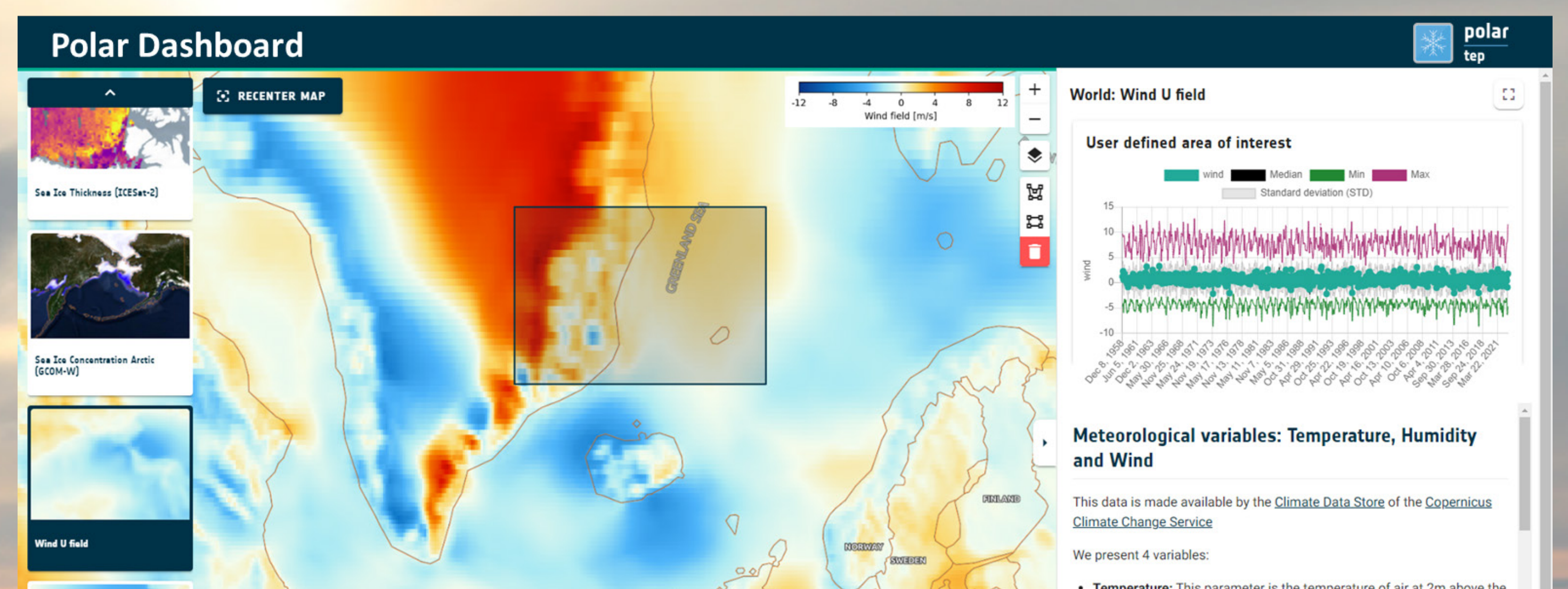
Objectives

- Aggregating diverse information sources to provide common products across jurisdictional boundaries.
- Producing new forecast products to improve decision-making by users.
- Customizing delivery of products to different user communities based on their needs.



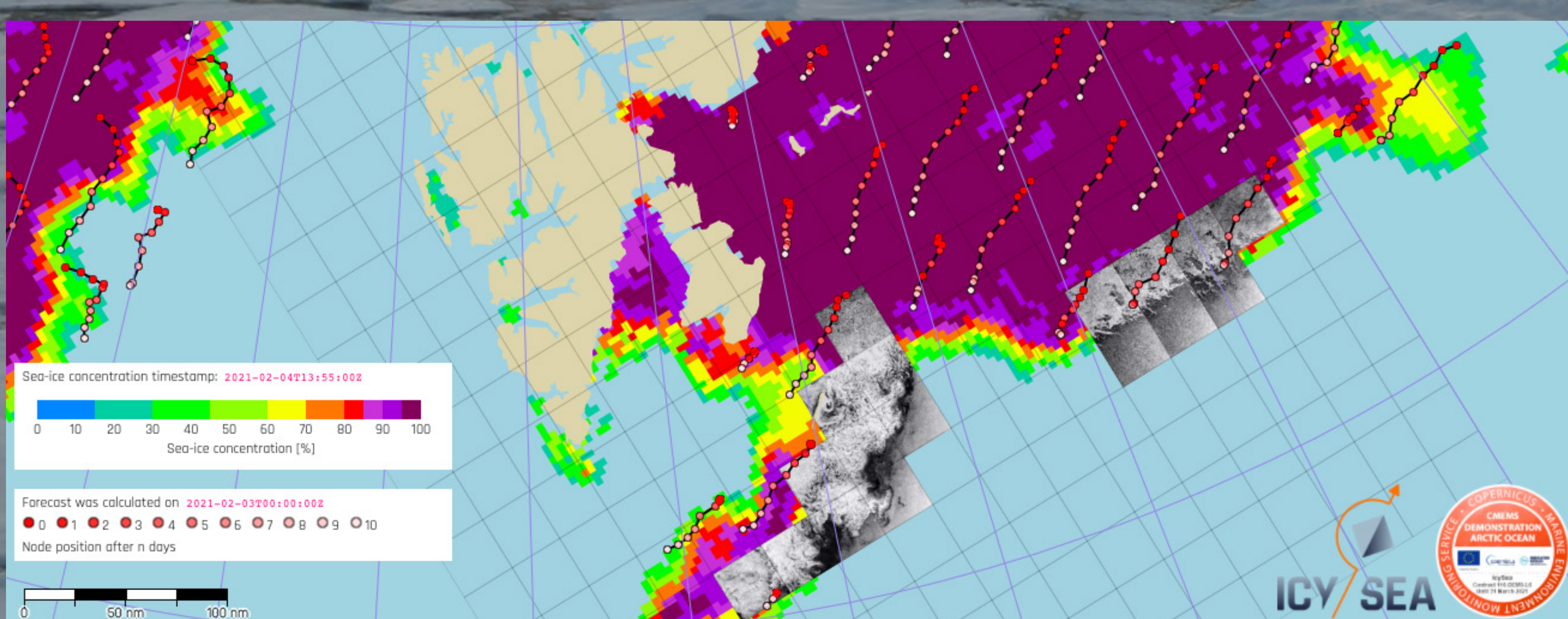
Benefits to Polar Operations and Society

- Increased Safety:** Accurate information supports strategic and tactical decision-making, enhancing safety of life and property.
- Pollution Reduction:** Efficient route optimization minimizes fuel consumption and emissions.
- Protection of Sensitive Environmental Areas:** Better forecasts can help policymakers protect environmentally sensitive areas affected by changing polar conditions.



Drivers

- Regulatory Compliance:** Deliver short and medium-term forecasts of ice, meteorological, and ocean conditions, meeting the requirements of the IMO Polar Code.
- Climate Change Effects:** Provide long-term forecasts on changing ice and other conditions, enabling planning and policy development for the fishing, tourism, research, and oil and gas industries.



Use Case Workflow

- Data Ingestion:** Collect past, current, and forecasted information on sea ice, snow thickness, icebergs, ocean currents and waves, wind, temperature, visibility, and Sentinel 1 imagery from DESP/DestinE.
- Data Processing, Modeling, and Analysis:** Use models, machine learning, and algorithms to process data for different user communities.
- Information Product Generation:** Create short, medium, and long-term sea ice charts, risk profiles, and route optimization suggestions for better decision-making.
- Dissemination:** through decision support platforms.



Decision Support Levels

- The Use Case will demonstrate the added value of the DestinE system in supporting policy and decision making at three levels within the context of polar operations:
- Execution support:** supporting ships needing to avoid or navigate through sea ice.
 - Planning support:** supporting ship operators in planning polar voyages, guided by the information requirements of the IMO Polar Code.
 - Strategy and policy support:** supporting organizations and policy analysts wanting to assess the impact of climate change on future decisions regarding polar operations.

Decision Support Platforms

- Decision support will be provided in three ways to meet different needs and levels of sophistication of user groups:
- IcySea:** Tactical decision support for ships operating in polar regions.
 - Polar Dashboard:** Strategic decision support for policy analysts and residents.
 - Polar TEP:** Research collaboration platform for private, academic, and public sectors.