POLAR ICE – Integrated Arctic and Antarctic Sea Ice monitoring Services

Robin Berglund⁽¹⁾, Lauri Seitsonen⁽¹⁾, Teppo Veijonen⁽¹⁾, Marko Mäkynen⁽²⁾

⁽¹⁾VTT Technical Research Centre of Finland, Vuorimiehentie 3, Espoo, Finland ⁽²⁾ Finnish Meteorological Institute, Erik Palménin aukio 1, Helsinki Finland

Access to sea ice information derived from satellite earth observation data is critical to support the increasing numbers of Arctic and Antarctic shipping and off-shore operations while protecting the rapidly changing polar environment.

POLAR ICE will establish an operational sea ice information service, integrating products from a wide range of sources and ensuring these are accessible and useable by end users, through purpose built visualization systems.

One of the challenges, when integrating products from different providers, is to harmonize the visual appearance so that it is easy for the user to interpret the products independent of provider. When visualizing several physical parameters on a map, it is desirable to choose distinct color palettes for different parameters to minimize the risk of misunderstandings. As one of the target group is the navigators on ships that make route planning decisions based on the information available via the system, this is also a safety issue.

POLAR ICE uses building blocks developed in earlier projects such as the ICEMAR ordering and delivery system. The project consortium is coordinated by eOsphere in the UK and the project partners are the meteorological institutes in Finland, Norway, Denmark and Sweden, Polar View Earth Observation Ltd. and British Antarctic Institute from UK, Technical University of Denmark, University of Bremen, Norwegian Computing Center, Kongsberg Satellite Services from Norway and from Canada C-CORE and Hickling Arthurs Low. VTT's focus in this project is on the visualization aspects of the ice information products through the purpose built client software called ViewIce.

To meet existing gaps, the project will develop advanced products (sea ice pressure, sea ice thickness charts like the thin ice product by FMI, and sea-ice forecasts), integrating data from the new Sentinel satellites and facilitate a wider engagement with users operating in the polar waters. Bringing the output of advanced numerical ice forecast models to the users is an important aspect of the project.

The system will be piloted in demonstrations by users operating in the Arctic and Antarctic seas from October 2015 to May 2016.



Fig 1. The POLAR ICE User interface