



**Polar View**

<http://www.polarview.org>



FINNISH METEOROLOGICAL INSTITUTE

# High-Resolution Ice Forecasts over the Baltic Sea

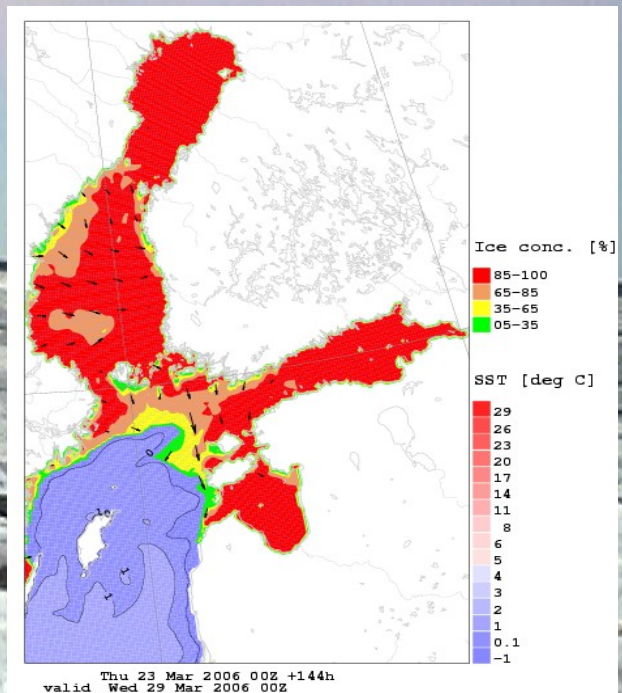
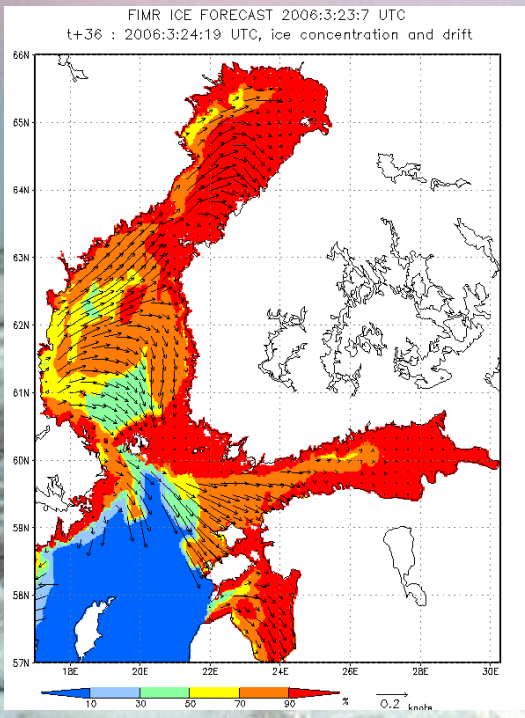


## What is Polar View?

Polar View is an earth observation (or satellite remote-sensing) project (2005-2009), focused on both the Arctic and the Antarctic. Polar View is supported by the European Space Agency under GMES Service Element programme and promotes the utilization of satellites for public good and in support of public policy. The Polar View team consists of companies, government agencies and research institutes across Europe and Canada. Each organization brings diverse, complementary skills and experience in polar earth observation technologies and is committed to establishing dedicated services to address polar issues. Our services take the form of enhanced sea ice information, snow maps and glacier and iceberg monitoring data. We also provide monitoring services of lake and river ice, ice-edge and coastal erosion. Our services support safe and cost-effective marine operations, improved water management and marine environmental security.

<http://polarview.fimr.fi>

<http://www.smhi.se/polarview>



## Service Details

Finnish Meteorological Institute (FMI) provides forecasts of the total sea ice concentration, un-deformed ice thickness, deformed ice mean thickness and concentration, ridge thickness, ice velocity and ice compression.

Initial conditions for sea-ice thickness, concentration and sea surface temperature are obtained from the digitized ice charts. The ice charts include all available EO-data (including Radarsat-1 and Envisat ASAR) and in situ observations. Sea ice model is forced by theHIRLAM atmospheric forecast and sea ice forecasts in 3 hour steps and in one nautical mile resolution for the next 54 hours. Forecasts are published daily and can be accessed at <http://polarview.fimr.fi>.

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## Service Details

Swedish Meteorological and Hydrological Institute (SMHI) provides 10 day forecasts of the total ice concentration, level ice thickness, ridged ice thickness, ice ridge density, ice ridge sail height, ice drift velocity, ice compression/divergence and sea surface temperature (SST).

The forecasts are made with the circulation model Hiromb forced with atmospheric model data from ECMWF. Data assimilation of ice parameters based on products made from satellite images, as well as assimilation of SST and salinity data from other sources is used in Hiromb when available. Results are published daily as maps and can be accessed at <http://www.smhi.se/polarview>.

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## Benefits of our Services

Polar View services assist in providing safe and cost-effective shipping/transport routes in the Baltic Sea during the ice season.

The Baltic Sea annual marine transportation is more than 800 million tons, 40% of which is transported during winter months. It has the largest marine transportation in the World's ice covered seas. At any given time there are more than 2000 large vessels sailing in the Baltic Sea. During the last ten years the marine traffic has increased by 34%, and the trend is expected to continue. In the same period, however, the number of icebreakers has not increased. The smoothness of traffic has been possible due to better ice monitoring, where use of satellite data has become more and more important. Icebreakers need detailed ice information for route planning.

Timely and variable information on sea ice conditions are essential for all operations in ice-covered areas. The safety and efficiency of sea transportation, off-shore operations, fisheries and other activities in regions covered by sea ice have been the motive for establishing operational sea ice monitoring and forecasting services in many countries.

National ice services are providing ice information on daily basis at different scales. There is a need for high-resolution ice information and ice forecasts. Polar View provides Baltic Sea ice thickness charts in near ship resolution, and ice forecasts, including ice drift and ridging within hours or several days.



## Current users with Service Level Agreement

*Finland:* Finnish Maritime Administration, Finstaship Ltd, Ice Advisors Ltd

*Sweden:* Swedish Maritime Administration, Swedish Coastguard

## Polar View Regional Contacts

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**FMI**, the Finnish Meteorological Institute, is a research institute operating under the Ministry of Transport and Communications of Finland. It produces information in the sea sciences for the benefit of decision-makers and to meet operational needs.

FMI performs research in e.g. marine physics. The main research areas are the Baltic Sea and other polar seas.

FMI offers services to the authorities, industry, commerce and private citizens. It actively participates in pertinent national and international collaboration.

**SMHI**, the Swedish Meteorological and Hydrological Institute, operates under the auspices of the Swedish Ministry of Sustainable Development and uses its meteorological, hydrological and oceanographic expertise to promote efficiency, safety and a better environment in various areas of society.

SMHI's products are designed to meet the needs of customers in various sectors. General forecasts and severe weather warnings are processed to provide forecasts for different sectors of society. The services are made available in different forms, including consulting assignments and expert opinions. SMHI's meteorological, hydrological and oceanographic expertise is used in extensive analyses and surveys.



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