



Photo: Harvey Goodwin, Norwegian Polar Institute

Backward Sea Ice Trajectories

Polar View's ice drift service monitors sea ice to determine its trajectory and therefore the sources of environmental pollutants and toxic material. Backward trajectories of sea ice are simulated by selecting several points from the April marginal ice zone which is the month of maximum ice extent. By using ice drift vectors we can compute back in time the trajectory taken by the sea ice.

IFREMER (French Research Institute for Exploitation of the Sea) produces ice motion vectors during the winter months (October to April). The motion vectors are derived on a 3 and 6 day frequency from QuikSCAT and SSM/I data. To ensure that only sea ice trajectories are used, a mask is employed to identify the marginal ice zone and mask out the ocean. Passive microwave data from the DMSP SSM/I sensor series are employed to identify the ice edge.

For each chosen point along the ice edge in the Barents Sea, backward trajectories are calculated to their position at the beginning of the previous October. In addition, several points within the Barents Sea ice pack are chosen, and backward trajectories calculated.

Data is made available via email.

Service Provider _____

The Norwegian Polar Institute is Norway's central institution for research, environmental monitoring and mapping of the Polar Regions. The Institute is the Norwegian authorities' consultant and supplier of knowledge, and contributes to the best possible administration of Norwegian polar areas. Through active

participation in national and international bodies, the Polar Institute is of central importance in protecting national interests in matters of research and the environment. Approximately 110 persons are employed at the Institute in Tromsø, Svalbard and Dronning Maud Land.

<http://www.npolar.no/>

Geographical Coverage _____

Arctic Ocean.

Current users _____

European Environmental Agency, EEA – The information is used as a tool in monitoring the state of the environment of the Arctic.

Benefits and Impacts of the Service _____

This service provides detailed information on the potential source of contaminants entrapped in sea ice, transported, through the Arctic Ocean and released by ice melt in the Barents Sea. The environmental state of the Barents Sea is important for management of resources in this region, such as the fisheries.

Training Available _____

The product is accompanied by a short report describing the annual results.

Technical Specifications _____

Platform: 1 PC Workstation

Sensor: QuikSCAT and SSM/I – merged sea ice drift (product produced by IFREMER)

Spatial Coverage: Arctic Ocean

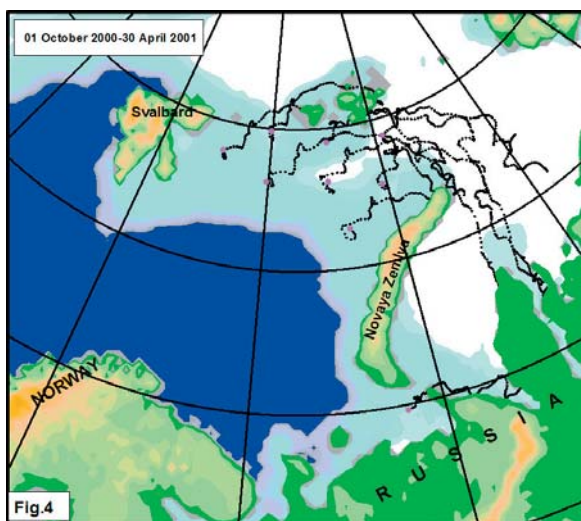
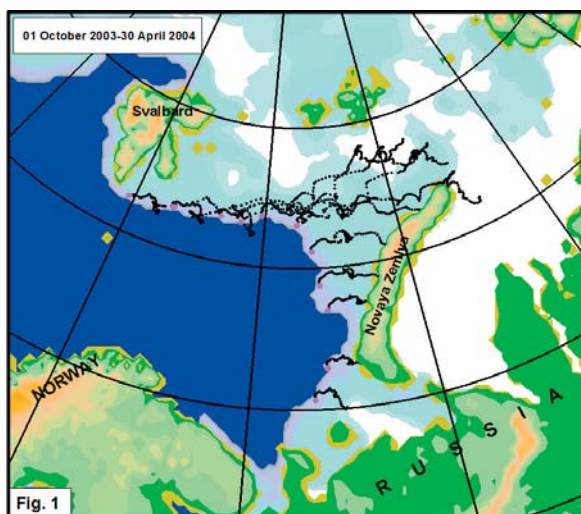
Spatial Resolution: 25 km

Duration of season: October to April

Availability of data: Available annually on May 31st

What is Polar View? _____

Polar View offers integrated monitoring and forecasting services in the Polar Regions as well as mid-latitude areas using satellite earth observation data to support improved decision-making, planning and adaptation to climate change. Polar View is funded by the European Space Agency (ESA) under the GSE programme, which promotes the utilization of satellites for public good and in support of public policy. Our services take the form of enhanced sea ice information (charts and forecasts), snow maps and glacier and iceberg monitoring data. We also provide monitoring services of lake and river ice, ice-edge and coastal erosion. Polar View services support safe and cost-effective marine operations, improved water management and marine environmental security.



*Examples of Backward
Sea Ice Trajectories
maps*

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