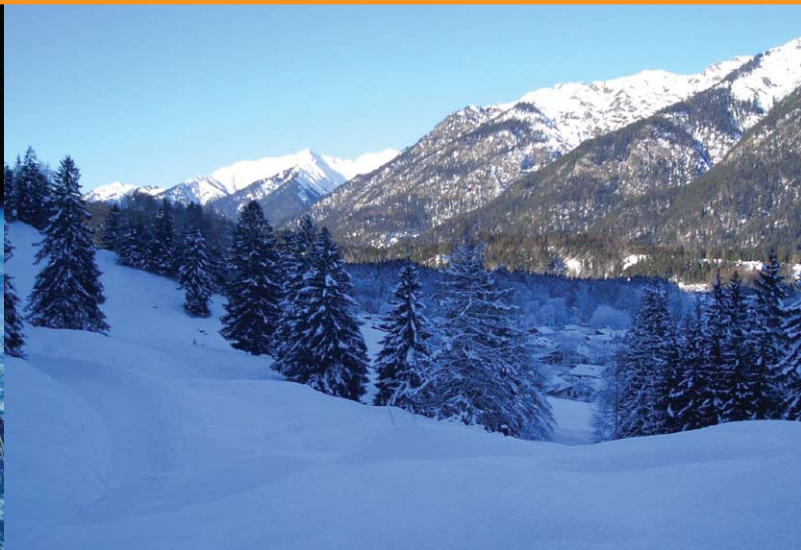


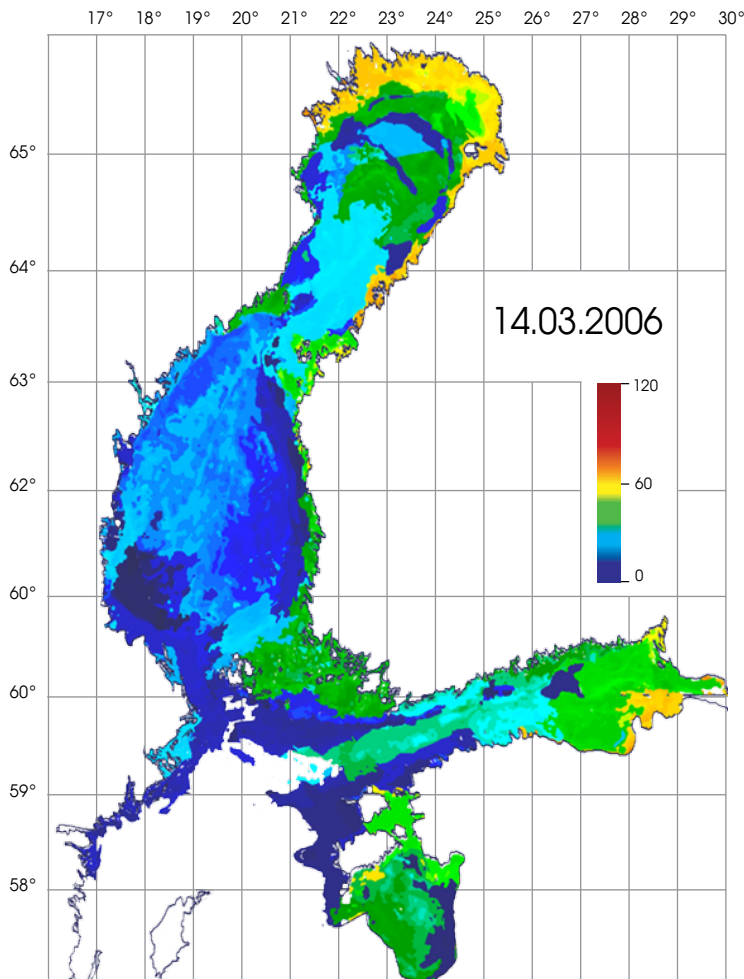
Polar View



EARTH OBSERVATION FOR POLAR MONITORING

A UNIQUE VIEW OF THE ENVIRONMENT, THE ECONOMY, AND SAFETY





EARTH OBSERVATION IN THE CRYOSPHERE: A POWERFUL TOOL

The Polar Regions and other parts of the cryosphere are areas of limited accessibility, low population densities, sensitive ecosystems, and in the case of the Arctic, rich resources and increasing commercial activity. Effective monitoring strategies are vital to living and working in these unique regions of the planet, not to mention understanding them and taking advantage of the natural resources they have to offer.

Earth observation is a powerful tool, especially in the remote Polar Regions, where conventional, field-based data collection is often logistically difficult and expensive. Polar View services can provide a cost-effective and technically feasible alternative to gathering data in these parts of the world.

"I'm happy to see this kind of information out there for the vessels working in the Antarctic...We in the research community rely a lot on this kind of easily accessible information, and that makes a big difference both to vessel safety and research programs."

- Dr. John Mitchell of New Zealand's National Institute of Water and Atmospheric Research (NIWA) and leader of a Census of Antarctic Marine Life (CAML) marine biodiversity survey.

WHO WE ARE

Since 2005, Polar View has been a "one stop shop" consortium providing a wide variety of earth observation products which monitor sea ice cover, glacier runoff, snow cover, snow melt, icebergs, river ice and lake ice. Products are delivered in a timely manner to meet the specific needs of its growing number of diverse end users.

The Polar View team includes government agencies, research institutes, system developers, service providers and end users from 17 countries. The consortium is supported by the European Space Agency (ESA) and the European Commission, with participation by the Canadian Space Agency (CSA).

OUR SERVICES

Polar View offers integrated monitoring and forecasting services in the Polar Regions and parts of the midlatitudes with significant snow and ice cover using satellite Earth observation data. Covering Europe, Russia, Canada, the North Atlantic and the Antarctic, Polar View's services provide accurate, real-time cost-saving information.

SEA ICE MONITORING

Sea ice can make safe and efficient marine transport a challenge. Polar View's sea ice monitoring service provides timely sea ice information from satellite observations to shipping, scientific and fishing operators in the Arctic, Baltic Sea and Southern Ocean.

ICEBERG MONITORING

Polar View's iceberg monitoring service ensures safe maritime travel in the Arctic, North Atlantic, and Southern Oceans and facilitates safe drilling operations in the Arctic by providing near real-time detection of icebergs.

ICE EDGE MONITORING

Polar View's ice-edge monitoring service helps Northern residents navigate safely and efficiently when hunting or travelling between communities. This service provides up-to-date information on the location of the ice edge, regions of land-fast ice, moving ice and historical averages of ice cover in different areas of the Arctic.

RIVER ICE MONITORING

Polar View's river ice monitoring service delivers information about the location and extent of river ice cover to decision-makers in near real-time. This information is used to assess the level of threat ice-jam floods pose and facilitates early warning and risk mitigation measures.

LAKE ICE MONITORING

Polar View's lake ice monitoring service delivers information about the location and extent of lake ice cover for a variety of purposes. The service also improves transportation safety, as frozen lakes are an important component of northern transportation networks.

GLACIER MONITORING

Polar View's glacier monitoring services provide operational analysis and assessment of glaciers within the context of water resource management and hydropower generation. The service provides monitoring products and integrated glaciological analyses focusing on changes in glacial discharge, current mass balance distribution and glacier dynamics and stability.



SNOW COVER MONITORING

Snow has a large impact on water resource management, flood forecasting, hydropower production and the daily life of Northern residents. Polar View's snow services provide the latest information on snow cover and the amount of water stored as snow. Service providers supply daily information to involved users working in the fields of early warning services, global change analysis, local consulting and renewable resources.

CLIMATE CHANGE ADAPTATION AND MITIGATION

Climate change is having a greater impact on the cryosphere than other parts of the planet: many centuries-old glaciers that feed rivers are melting at a faster rate, forcing hydrological services to re-evaluate their meltwater runoff predictions; indigenous peoples who have lived in the Arctic for generations are seeing freeze-thaw cycles and Arctic ecosystems change. Polar View's services serve as a tool to help with monitoring these changes so that decision-makers can take appropriate mitigation and adaptation measures.

"Polar View's sea ice monitoring service has greatly improved the safety of navigating through the ice. After having used it for a few years now, it has become necessary for planning, especially in the long-term for figuring out potential safety hazards and determining if traffic restrictions need to be imposed. The service is getting better and better all the time."

- Ulf Gullne, Head of the Icebreaking Service at the Swedish Maritime Administration.

BENEFITS OF OUR SERVICES

Relying predominantly on satellite radar and optical imagery, Polar View's monitoring and analysis services offer remarkable benefits to both business and society in three areas: sustainable economic development, safety and environmental stewardship.

SUSTAINABLE ECONOMIC DEVELOPMENT

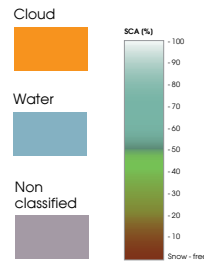
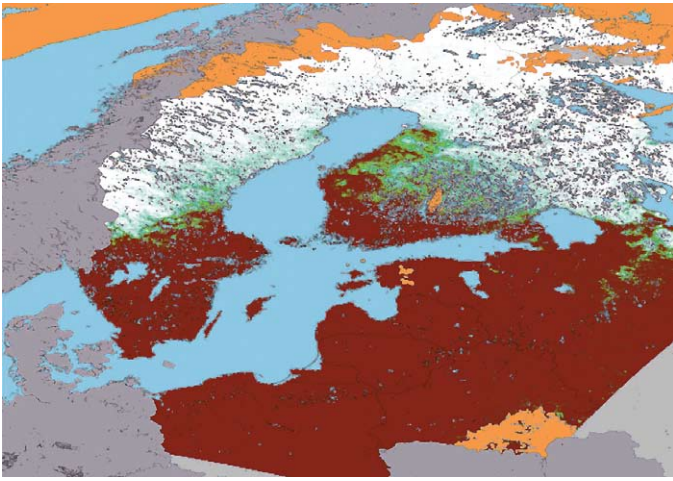
The Arctic is experiencing an explosion of economic activity with plans to exploit its untapped natural resources and forecasts of diminishing sea ice, making increased commercial shipping and tourism in the Arctic more likely. Meanwhile on the other side of the world in the Southern Ocean, shipping, fishing, tourism and scientific research activities are steadily on the rise.

In light of this, Polar View aims to balance commercial interests while protecting the fragile ecosystems of the Polar Regions and the values and traditions of indigenous communities in the Arctic by:

- Providing information to optimize transportation routes
- Assisting with hydropower generation management
- Providing key information to resource extraction operations
- Involving indigenous communities

SAFETY

The harsh environments found in the Polar Regions often make maritime navigation challenging. Polar View's services mitigate the risk of accidents in these environments by providing easy-to-access information that:



PHOTOS (from left to right, top to bottom)

- 01**
Baltic Sea ice thickness chart (FMI)
- 02**
Iceberg in Labrador Sea (International Polar Foundation)
- 03**
Map of Baltic snow cover (SYKE);
- 04**
Results of ice jam flooding, Badger, Newfoundland and Labrador, Canada (C-CORE)
- 05**
Nenet reindeer herder, northern Siberia, Russia (RF)



- Allows vessels to chart safe routes around sea ice and icebergs
- Guides fishing and hunting expeditions for Northern residents
- Helps protect offshore drilling operations
- Improves the efficacy of flood warning services

OUR USERS

Polar View not only delivers services that address the specific needs of its clients; its services constantly evolve, taking into consideration constructive feedback it receives from its end users so it can improve the quality of the services it delivers.

Currently, Polar View works with over 60 different end user groups, including government departments, scientific institutes, Northern residents, and private sector clients with commercial interests in the Polar Regions, including:

- Merchant vessels and icebreakers that need to navigate ice-covered areas safely and cost-effectively
- Scientists working in the Polar Regions
- Oil and gas companies in need of sea ice information for construction and marine safety
- Northern residents requiring the latest ice information to ensure safety during travel and hunting expeditions
- Hydrological utilities working to understand and improve the management of their water resources
- Government agencies needing detailed snowmelt forecasts to improve flood prediction and protection
- Polar tourism operators
- Competitors in international sailing races travelling through ice-infested waters

Many Polar View clients contribute to the continuing development of the services by participating in trials and demonstrations, actively helping us define infrastructure requirements and develop service delivery options.

ENVIRONMENTAL STEWARDSHIP

The Polar Regions are home to some of the most unique ecosystems on Earth. These ecosystems are coming under increasing pressure from a rapidly changing climate, greater resource extraction and increased ship traffic. Polar View services address environmental concerns by:

- Monitoring polar freshwater cycles
- Providing information that helps to understand and manage animal populations and habitats
- Increasing awareness of the impacts of climate change as well as adaptation and mitigation strategies

"Using satellite data to monitor the surface of the Earth allows us to have another perspective when monitoring river ice. It is especially useful for monitoring large, sparsely populated territories like Siberia... We are very pleased by the quality and efficiency of Polar View's services."

- Dr. Dimitri Burakov, Professor and Director of the Krasnoyarsk Krai Science and Research Center for Weather and Environmental Monitoring, Siberia, Russia.



ACCOMPLISHMENTS

Polar View's proactive approach to finding solutions to a wide range of specific user needs has allowed the consortium to achieve a number of noteworthy accomplishments, including:

- Establishing the first ice charting service in Antarctica to offer high-resolution real-time images, providing much-needed navigational assistance to tourism and scientific research vessels in the region
- Establishing the first publicly available service for both short-term and long-term sea ice forecasts in the Baltic Sea region, resulting in safer and easier maritime travel in the region
- Developing the Ice Logistics Portal (Polar View's contribution to the International Polar Year 2007-08) at the request of the International Ice Charting Working Group (IICWG), making all ice charting services in the Polar Regions accessible from one web portal
- Expanding and improving the quality of monitoring river and lake ice in Northern regions, making it easier to monitor and predict costly natural disasters such as ice jam floods
- Bringing together various stakeholders to set up the award-winning Icebergfinder.com service, which helps tourists and tour boat operators locate scenic icebergs off the coast of Newfoundland and Labrador
- Acting as a catalyst to establish new partnerships among snow service providers

PHOTO ABOVE:
Icy waters off the coast of Greenland (International Polar Foundation)

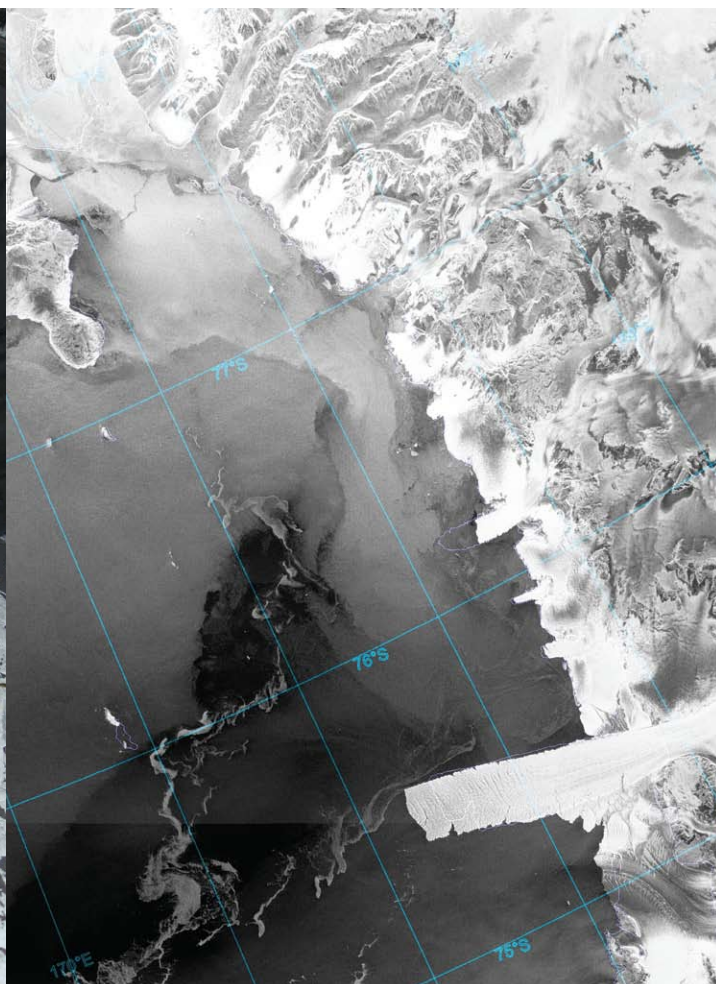
POLAR VIEW AND GMES

Global Monitoring for Environment and Security (GMES) is a joint initiative of the European Space Agency (ESA) and the European Commission. Polar View is a project under the GMES Service Element (GSE).

The overall goal of GSE is to raise the profile of Earth observation services among policymakers by building awareness and acceptance of such services among non-traditional users, delivering targeted services to key user groups.

"I used Polar View's data in the Southern Atlantic from Cape Horn to Cape Agulhas. I only wish I'd had this service for the entire length of the Antarctica Cup Racetrack. This would have given peace of mind to me and my support crew on shore all 102 days of the race...I hope that future competitors circumnavigating Antarctica will benefit by having detailed iceberg tracking data provided by Polar View."

- Fedor Konyukhov, Russian extreme sportsman and first competitor in the Antarctica Cup Ocean Race



"Polar View's service helps us out by telling us where the floe edges are and where the thin ice is, especially during the winter when it's dark all the time or when the ice break-up happens between mid-June and early July. And since they use radar to take the images, we can get images in all sorts of weather, even at night."

- Brian Koonoo, park warden at Sirmilik National Park, Baffin Island, Canada

CONTACT INFORMATION

GENERAL INFORMATION

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TO LEARN MORE ABOUT OUR VARIOUS SERVICES, PLEASE VISIT OUR WEBSITE AT:

www.polarview.org

PHOTOS ABOVE:

Inuit in Nunavik, Québec, Canada looking at a map of lake ice cover (Nunavik Research Centre)
Satellite image of the Antarctic coast (British Antarctic Survey)

COVER PHOTOS:

Envisat satellite (Canadian Space Agency)
German Alps near Garmisch-Partenkirchen (VISTA)
Ship navigating Davis Strait (International Polar Foundation)

