



## Snow Monitoring - Baltic Sea Area

Polar View's Snow Monitoring Service in the Baltic Sea area delivers maps of the regional fraction of the snow covered area (SCA) in the Baltic Sea drainage area during the melting period. The snow maps are used primarily for hydrological monitoring purposes and for hydropower management. They are based on 500 meter resolution Terra/MODIS-images and are published on weekdays within 2-3 hours of the satellite overpass, whenever cloudiness permits. The satellite images are down linked at the Arctic Research Centre of Finnish Meteorological Institute (FMI) and further processed in Finnish Environment Institute (SYKE), which operates the value-added service chain.

Given the unpredictable nature of snow and melting conditions in the Baltic Sea area, snow monitoring is essential for effective water management and planning. The lowlands in Northern Europe and in the Baltic Sea drainage basin are characterized by several accumulations and melting periods until a permanent seasonal snow cover appears. In spring, the melting process may cause rapid changes on water storages, which leads to flooding. Snow maps are also useful for monitoring the regional climate.

Snow Maps are can be access at <http://environment.fi/snowcover>.

### Service Provider

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The Finnish Environment Institute (also known as SYKE, after the Institute's Finnish acronym) is both a research institute, and a centre for environmental expertise. The expertise is based on long-term environmental monitoring, wide-ranging research results, and the Institute's highly-qualified staff. SYKE's expert services can provide vital expert assistance on a wide-range

of environmental issues for administrators, local authorities, industries, firms and other organizations. SYKE also closely monitors environmental trends and the state of the environment in Finland in co-operation with Finland's 13 regional environment centres.

<http://www.ymparisto.fi>

## Geographical Coverage

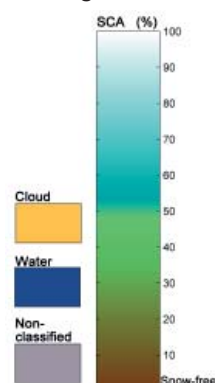
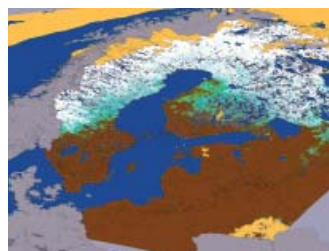
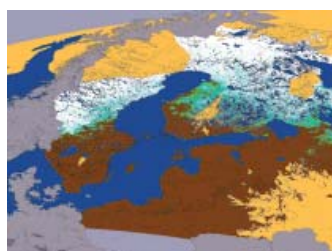
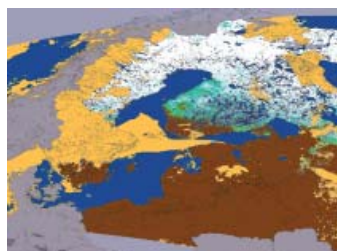
The snow maps for the 2007 melting period cover the Baltic Sea and its surrounding area (Finland, Sweden, Estonia, Latvia and Lithuania, as well as parts of Western Russia and Belarus) with 0.05 x 0.05 degrees resolution. Non-mountainous areas (both forested and non-forested) are mapped.

## Current Users

Current users include the Hydrological Services Division of SYKE, Kemijoki Ltd (hydropower company), Estonian Environment Information Centre, Estonian Meteorological and Hydrological Institute and Blom Kartta Oy (aerial photography and digital mapping). Numerous non-registered users can also access the data via [environment.fi/snowcover-pages](http://environment.fi/snowcover-pages). These comprise Finnish regional environment centres, other research institutes and universities, recreation services and individual citizens.

## Benefits and Impacts of the Service

Snow monitoring using satellite data assists with effective decision making and planning in regards to water management and is of particular interest to power supply companies. By utilizing regular remote sensing observations, value information can be delivered on spatial distribution, formation and melting of snow cover. The snow information is useful in hydrological modeling and can assist with flood forecasting which in turn can prevent loss of lives and property. Snow maps are also a valuable data source for organizations studying the regional climate. They are also quite useful to the winter sports tourism industry in the region.



*Baltic Region Snow Map for March 24th, 26th, and 27th, 2007.*

## Training Available

Training is available upon request.

## Technical Specifications

**Data Format:** Maps are presented as georeferenced JPG-images

**Spatial Coverage:** 50-71 degrees northern latitude, 8-36 degrees eastern longitude (WGS-84 system); Baltic Sea and surrounding areas.

**Spatial Resolution:** 0.05 x 0.05 degrees

**Availability of Data:** Daily during snow melting period (depending on cloud coverage)

**Data Content:** Percentage of snow covered ground in the cell (0-100%)

## 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 and ice-edge. Polar View services support safe and cost-effective marine operations, improved water management, balanced and sustainable economic development and environmental monitoring.

## Contact Information

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