

The Finnish Environment Institute SYKE – Arctic cooperation from the edge of the ice to international summits

SYKE supports the protection of the sensitive Arctic environment.

We are closely involved in the work of the Arctic Council in the northern regions.

We collaborate with partners in developing sustainable business and safeguarding Arctic nature.

the authorities, businesses

ARCTIC COUNTRIES ARE PREPARING FOR LOCAL CLIMATE CHANGE



In a changing climate, it is increasingly important to evaluate and monitor changes, even at local level. The EU's Copernicus service provides information on the daily snow conditions in different regions of Europe. The service generates information on the extent of snow cover, using a method developed by SYKE. This enables authorities in EU countries to prepare for various incidents, such as floods and avalanches, and allows companies to anticipate their own activities. SYKE also produces information for the service through remote sensing methods, together with the Finnish Meteorological Institute and an Austrian company in the sector. The Copernicus service will be extended from Europe to the entire Northern Hemisphere.

the authorities, non-governmental organizations

BARENTS REGION PROTECTED AREA NETWORK SECURES ARCTIC NATURE



The Barents Region's unique forest and mire nature is particularly valuable on a global scale. Increasing use of natural resources and climate change pose a serious threat to northern nature in the area. Authorities in the Barents region and environmental organisations have used SYKE's GIS expertise to map ecologically valuable forest and coastal areas. The results are used in the monitoring of international nature conservation commitments, the development of the protected area network, and in adapting to climate change. Some of the mapped areas have already been included in protected area plans.

policy makers

CURBING OF BLACK CARBON EMISSIONS COMBATS CLIMATE CHANGE



Short-lived compounds such as black carbon have a major influence on the warming of the Arctic region. Rapid action to reduce such compounds and CO₂ emissions can improve air quality and limit climate change. SYKE and its research partners have prepared recommendations for curbing black carbon emissions in non-Arctic countries. The Arctic Council will use the results when issuing recommendations on emission reduction. SYKE's strong expertise in modelling the combined effects of air pollution supports climate work in the Arctic region. SYKE has also produced a Policy Brief for decision-makers on black carbon and its importance to climate change.

businesses, the authorities



REINDEER OWNERS' ASSOCIATIONS PRODUCE GEOGRAPHICAL INFORMATION SERVICES

Reindeer herding pasture areas are also valuable to forestry, energy production and tourism. Reindeer owners' associations use the Poro-Harava tool to produce geographical information services to support land-use planning, including information on the location of pastures and transport routes. Thus the tool and operating model, designed by SYKE alongside its partners, help to reconcile reindeer herding with other land use goals. Materials produced by reindeer owners' associations have been used in applications such as the preparation of Kuusamo's master plan, the regional land use plans of Rovaniemi and Eastern Lapland, and master plans for wind power. In addition, dialogue has been promoted between the various parties involved in land use planning.

international partners



AUTOMATIC OIL SPILL DETECTION SYSTEM FOR THE BALTIC SEA

SYKE and Meritaito Ltd are developing an oil spill detection and alert system for the Baltic Sea, based on modern Smart Buoys. The system will improve the detection of oil spills, reducing their impacts on northern sea ecosystems. SYKE and its partners are investigating the environmental effects of various oil spill response methods, particularly in cold climates. The work will benefit countries in the Arctic Region and international organisations that plan and implement cross-border oil spill response cooperation in maritime areas.

citizens and non-governmental organizations



CITIZENS COLLECT INFORMATION ON THE EFFECTS OF CLIMATE CHANGE ON WINTER

Citizens' observations complement the authorities' monitoring data on change in winters, creating a better overall picture. For example, winter monitoring involved the collection of citizens' observations of the impacts of climate change on winter and nature in general. Participants reported information on issues such as species, snow water equivalent, the ice cover and the melting of ice in waterways. Information collected by citizens was stored in databases, which are available to researchers. A mobile service developed by SYKE, Havaintolähetti, facilitated the collection of information. The same service was previously used for recording findings in the Lake and Sea Wiki.

policy makers, the authorities, businesses



EMISSIONS OF HAZARDOUS SUBSTANCES ARE BEING REDUCED IN THE ARCTIC REGION

Chemicals pose significant risks in the Arctic Region, where the environment is rapidly transforming due to climate change. SYKE has long been coordinating a number of international Arctic Council projects, thereby seeking solutions to the problems caused by emissions of hazardous substances. The greatest potential for reducing emissions lies in Russia, where the risks posed by old pesticides and other hazardous waste, industrial plants and landfills have been reduced in cooperation with local authorities.

Photos: Ari Meriruoko, Olle Höjer, Riku Lumiaro, Pentti Sormunen, Lars Demant-Poort, Jutta Kuure.



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