

## **SIOS input to the public consultation on the Management Plan for Central Spitsbergen, the expansion of Nordenskiöldland National Park and investigation of the need to enhance the protection of Lower Adventdalen**

SIOS (Svalbard Integrated Arctic Earth Observing System) is an infrastructure project involving the major part of science infrastructure on Svalbard. The goal is to gather the well-developed research infrastructure in and around Svalbard into a coherent observing system serving Earth System Science (ESS) projects and models. Reliable long term and open data, optimising the use and development of the infrastructure as well as scientific and technical innovation are all central aspects of SIOS and do contribute to minimise the environmental impact of research in Svalbard.

The majority of data collection in the SIOS network is and will continue to be concentrated near the main settlements (Ny-Ålesund, Longyearbyen and Hornsund). Members of SIOS already have a diverse range of instruments located within these settlements and beyond that are essential for environmental research. It is however likely to be necessary to set up long-term monitoring of certain parameters at other locations also, including in national parks, on the east coast of Spitsbergen and on the eastern islands of Svalbard. This is because accounting for the various climatic and environmental gradients that exists within the archipelago (east to west, coast to inland, valley bottom to mountain top) is essential for accurately modelling the environment and predicting future change. The feedback SIOS has received from ESS modellers is that there is not enough monitoring data available away from coastal areas, that more continuous measurements from the same place are needed and that there is not enough data from Eastern Svalbard.

The need for better long-term weather data in inland areas has been highlighted by the Climate-Ecological Observatory for Arctic Tundra (COAT), the Svalbard component of which is a central part of the terrestrial portion of SIOS. The current suite of weather stations operated by the Norwegian Meteorological Institute is concentrated in coastal areas, which provides an incomplete picture of the weather conditions affecting the tundra ecosystem. The installation of automatic weather stations in inland areas in COAT will allow researchers to better understand how the biology of the tundra relates to temperature and other abiotic factors.

SIOS is committed to developing techniques and promoting working practices that will produce the data necessary for ESS work while at the same time minimising the environmental footprint. The overall goal of SIOS is to become the authoritative provider of data about the state of the environment in and around Svalbard. The need for such data is recognised as a pressing concern in the Norwegian Government White Paper about Svalbard (St. Meld. 32 (2015-2016); chapter 8.1). This requires innovative new technologies, greater use of autonomous and remote controlled sampling equipment, more efficient batteries to reduce the number of visits to replace them, better coordination of field logistics and more co-location of instruments with shared power and communications solutions.

The University Centre in Svalbard (UNIS) places emphasis of field based education for its students. There is a desire to concentrate research and education activity in the areas close to Longyearbyen, for environmental and safety reasons. It is therefore important that the protection of areas easily accessible from Longyearbyen (including Svea and the Van Mijen fjord area) do not become so heavily protected so as to result in these areas no longer being accessible to UNIS researchers and students.

### **Recommendations from SIOS**

Specifically, SIOS would like to see the following considerations in the management plan:

- Access to protected areas for the purposes of research and education should hold more weight than access for recreation;
- Access to protected areas for research purposes should be given more weight if the research is the result of a joint national and international prioritisation of a large network of institutions like SIOS;
- Permissions for installations where scientific instrumentation is already established should have a greater chance of being approved, based on the scientific and environmental benefits of co-location;
- Permissions for installations lasting more than one year should be considered, especially in the case of essential long-term monitoring data where one year of data collection has little value;
- Changes in the Svalbard Environmental Law should be considered in cases where the current wording hinders the possibility of carrying out long-term research according to the points above.