A big step forward for the international research cooperation in Svalbard

In January, 24 institutions from 9 countries formally joined forces in an extra-ordinary initiative towards long-term research cooperation - the Svalbard Integrated Arctic Earth Observing System (SIOS). SIOS establishes and maintains coordination between research infrastructures in and around Svalbard and promotes open access to infrastructure and data. The common goal of all SIOS partners is to establish an observing system that will improve knowledge of environmental changes in the Arctic. SIOS will enhance our understanding of climate change and its effects collaboratively yet efficiently.

On 26 January 2018, state secretary Rebekka Borsch from the Norwegian Ministry of Education opened the General Assembly during which the consortium for the Svalbard Integrated Arctic Earth Observing System (SIOS, www.sios-svalbard.org) was consolidated through the signing of a Memorandum of Understanding. This event marked the transition of SIOS into its operational phase after ten years of preparations and pilot activities.

SIOS develops a coordinated network of high-quality scientific observations

Environmental change is one of the most important challenges we face today. Global climate models demonstrate that Polar Regions play a crucial role in the Earth's climate system. The Arctic region will experience the most severe and rapid warming worldwide, with a computed annual average temperature increase of 4-8 degrees and significant increases in precipitation in scenario simulations for the end of the 21st century. This will have consequences for humans and the natural environment locally, but also has implications globally. For this reason Svalbard, situated in the High Arctic, is an important arena for investigations of environmental and climate change.

“SIOS is a high priority for the Government.” said Borsch. She explained that the aim of SIOS, to integrate Arctic Earth observations by coordinating and giving mutual access to infrastructure and data on Svalbard, always had appealed to the Ministry. In Svalbard, a broad spectrum of high-end research infrastructure has been established by many international institutions and there are already good relations between the infrastructure providers. Thus, Svalbard is the best place to realise such an ambitious goal. SIOS connects the world-class research infrastructure owned by several international institutions into a

coordinated network of scientific observations in the Svalbard region. All main nodes for research in Svalbard, Ny-Ålesund, Longyearbyen, Barentsburg and Hornsund are committed to SIOS and the consortium includes partners from Europe as well as Asia.

The establishment of such a systematic network will help to address important questions related to Global Environmental Change. SIOS is offering a single-point of access to infrastructure, tools and services on behalf of its membership. It also supports the development of new methods and increased use of satellite data. SIOS cooperates with organisations across the Arctic to share data and best practices, thus facilitating a better understanding of the role of the Arctic in the Earth System.

“I expect that SIOS will be of great importance for the scientific development, not only on Svalbard itself, but also for the circumpolar research cooperation in general, among others to the SAON project organised by the Arctic Council“, concluded Borsch.

The SIOS consortium (23 members and 1 observer):

- Akvaplan-NIVA (APN), Norway - www.akvaplan.niva.no
- Alfred-Wegener-Institut, Helmholtz Zentrum fuer Polar-und Meeresforschung (AWI), Germany (Founding Member) - www.awi.de
- Andøya Space Center (ASC), Norway - www.andoyaspace.no/
- Arctic Centre, University of Groningen (RUG), The Netherlands - www.rug.nl/research/arctisch-centrum/
- Consiglio Nazionale delle Richerche (CNR), Italy (Founding member) - www.cnr.it
- Geological Survey of Norway (NGU), Norway - www.ngu.no/en/
- Institute of Geophysics, Polish Academy of Sciences (IGF PAS), Poland (Founding Member) - www.igf.edu.pl/home.php
- Institute of Marine Research (IMR), Norway - www.imr.no
- Nansen Environmental and Remote Sensing Center (NERSC), Norway (Founding Member) - www.nersc.no/
- National Institute for Polar Research (NIPR), Japan (Founding Member) - www.nipr.ac.jp/english/
- Natural Environment Research Council (NERC) - Arctic office, UK (Observer) - www.arctic.ac.uk/
- Norut Northern Research Institute (Norut), Norway - www.norut.no/
- Norwegian Institute for Air Research (NILU), Norway - www.nilu.no
- Norwegian Institute for Nature Research (NINA), Norway - www.nina.no
- Norwegian Institute for Water Research (NIVA), Norway - www.niva.no
- Norwegian Meteorological Institute (MET Norway), Norway (Founding Member) - www.met.no/en
- Norwegian Water Resources and Energy Directorate (NVE), Norway - www.nve.no/english/
- Stockholm University (SU), Sweden (Founding Member) - www.su.se
- The Norwegian Polar Institute (NPI), Norway (Founding Member) - www.npolar.no
- The University Centre in Svalbard (UNIS), Norway (Founding Member) - www.unis.no
- UiT The Arctic University of Norway (UiT), Norway - www.uit.no
- University of Bergen (UiB), Norway - www.uib.no
- University of Helsinki (UH), Finland (Founding Member) - www.helsinki.fi/en
- University of Oslo (UiO), Norway - www.uio.no

Facts about SIOS:

- SIOS is an international research infrastructure for Earth System Science in and around Svalbard.
- SIOS focuses on processes within and interactions between the different spheres in Earth System Science (Atmosphere, Biosphere, Hydrosphere, Geosphere, cryosphere).
- The observing system consists of systematic observations which are stable over time, yet dynamic as new methods and questions from society arise.
- SIOS is included in both the Norwegian and the European list of prioritised research infrastructure.
- The Norwegian node of SIOS has recently received in total more than 100 MNOK from the Research Council of Norway (RCN) and the Norwegian Space Centre for new or upgraded infrastructure for marine, terrestrial and atmospheric research.
- SIOS is part of the pan-Arctic Sustaining Arctic Observing Networks (SAON) project initiated by the Arctic Council (https://www.arcticobserving.org/).
- The preparatory phase (2010 – 2014) was funded by the European FP7 – programme; the interim phase (2014 - 2018) was funded by the RCN and in-kind contributions of the member institutions.
- The SIOS Knowledge Centre is funded by the RCN through 2021.

Contact:

Christiane Hübner, SIOS Information Officer, information@sios-svalbard.org; phone: +47 7902 33 66

Kim Holmén, Chair of the SIOS Board of Directors, kim.holmen@npolar.no; phone: +47 7902 26 12

Pictures:

SIOS Founding Members. Photo: Inger Jennings/SIOS Knowledge Centre

SIOS General Assembly 2018. Photo: Christiane Hübner/SIOS Knowledge Centre

This measuring station on a glacier is just one example of the large diversity of research infrastructure in Svalbard. Photo: Kim Holmén/NPI