



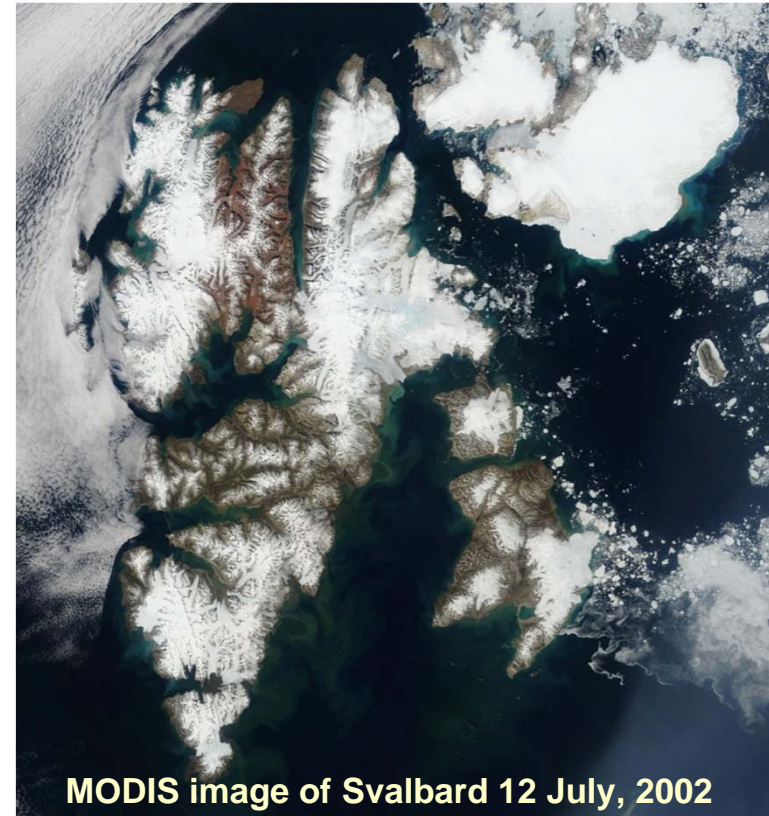
# Svalbard Integrated Earth Observing System From PP to .ORG – Status and Challenges

FARO Meeting, 15 April 2013



# The main goal of SIOS

- Establish an **(Arctic) Earth System Observing Facility** in and around Svalbard, which covers meteorological, hydrological, cryospheric, oceanic, other geophysical as well as marine and terrestrial biological processes from a set of observational platforms, including use of satellite data.
- Strengthen coordinated European Arctic research and establish an important node in the envisaged Sustained Arctic Observing Networks (**SAON**).
- One of 44 proposals in the 2008 roadmap of the European Strategy Forum on Research Infrastructures (**ESFRI**)





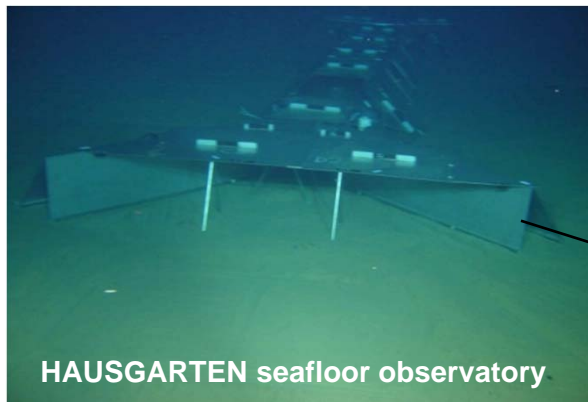
# Geographical target area of SIOS



- the main archipelago of Svalbard
- Small islands: Hopen, Bear Island
- NW Barents Sea
- NE Norwegian Sea
- Fram Strait
- Shelf areas north of Svalbard
- Flexible border towards Greenland, Franz Josef Land, Northern Fennoscandia

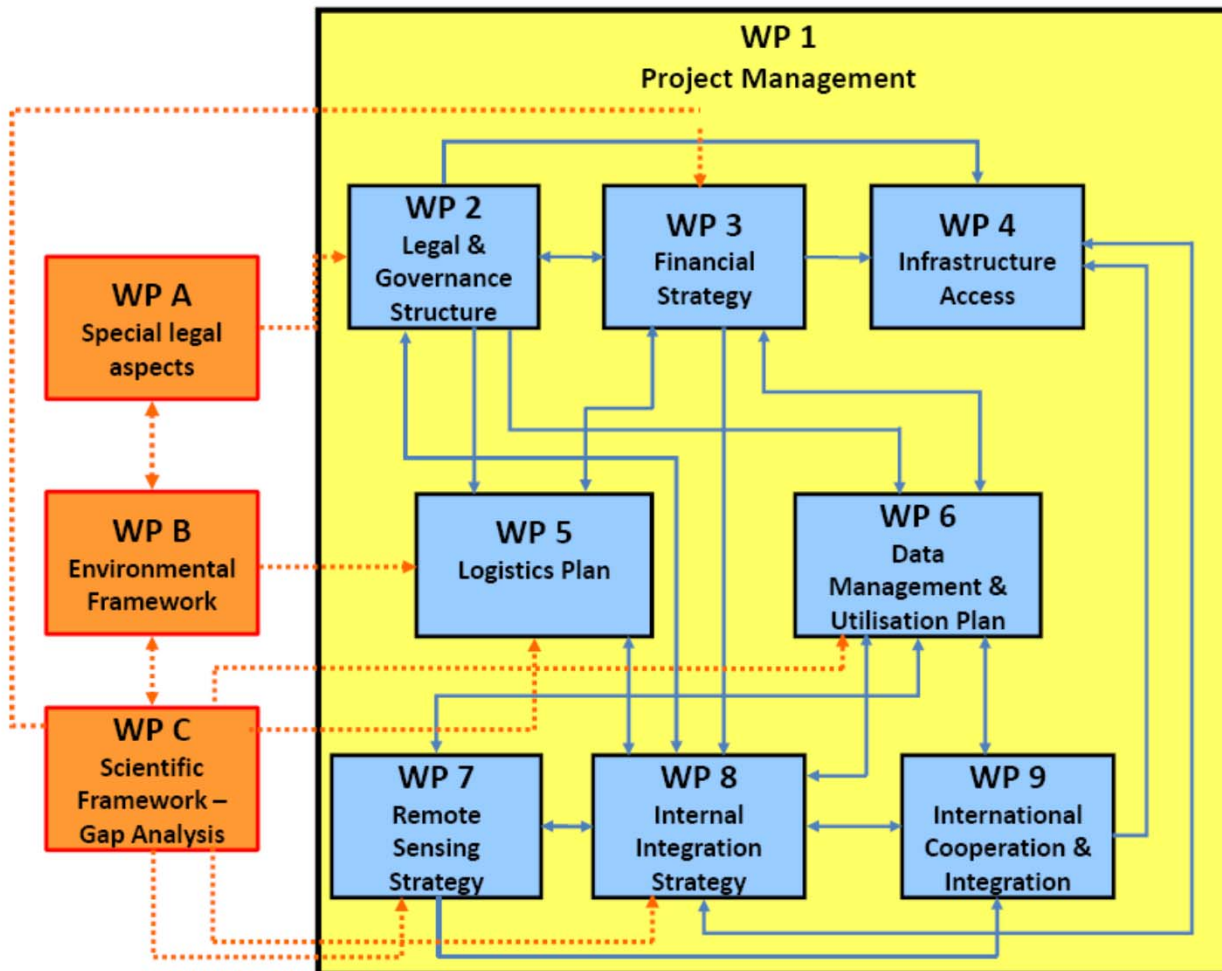


# Existing Major Research Sites





# The SIOS Preparatory Phase Project



## EU-funded project:

- 4 mill. Euro over a 3-yr period (01/10/2010 – 30/09/2013 /2014)
- Establishment of formal and financial framework of a possible future research infrastructure
- National Norwegian funding of WPs A-C



# Participating countries

- Norway
- Germany
- Poland
- Italy
- UK
- Russia
- France
- Finland
- Netherlands
- Sweden
- Denmark

- Korea
- China
- Japan

## Associated:

- India
- Czech Republic
- USA (NSF and NOAA)
- Spain
- Canada (t.b.c.)



# The SIOS consortium

- Alfred Wegener Institute for Polar and Marine Research, Germany
- Institute of Geophysics - PAS, Poland
- National Research Council, Italy
- National Environmental Research Council, UK
- Arctic and Antarctic Research Institute, Russia
- Finnish Meteorological Institute, Finland
- Aarhus University - National Environmental Research Institute, Denmark
- University of Groningen, Netherlands
- Korea Polar Research Institute, Korea
- Polar Research Institute of China, China
- Institut Polaire Paul Emile Victor, France
- Institute of Oceanology – PAS, Poland
- Polar Geophysical Institute – RAS, Russia
- ITM, Stockholm University, Sweden
- National Institute of Polar Research, Japan
- National Centre of Ocean & Antarctic Research, India
- Institute of Botany – Czech Academy of Sciences, Czech Republic
- Ministry of Science and Innovation, Spain
- National Science Foundation, USA
- Scottish Association for Marine Science, UK
- EISCAT Scientific Association
- Arctic Centre, University of Lapland, Finland
- University of Leicester, UK
- Kola Science Center – RAS, Russia
- Geophysical Survey – RAS, Russia
- University of Helsinki, Finland
- Research Council of Norway (coordinator)
- Norwegian Polar Institute
- University Centre in Svalbard
- Norwegian Space Centre
- University of Bergen
- University of Tromsø
- Norwegian Meteorological Institute
- Nansen Environmental & Remote Sensing Center
- Institute of Marine Research
- Norwegian Institute for Air Research
- Andøya Rocket Range
- NORSAR
- Norwegian Institute of Water Research
- Kings Bay AS
- Akvaplan-niva AS
- University of Oslo
- Norwegian Institute of Nature Research
- Norwegian University of Science & Technology
- Norwegian Energy and Water Resources Directorate
- Kongsberg Satellite Services AS
- Northern Research Institute Tromsø
- Norwegian Mapping Authority
- Norwegian Ministry of Education and Research

***SIOS-PP full partners***

*SIOS-PP associated partners*



## **SIOS – «The Arctic ESFRI» What are we trying to achieve?**

### ***A Global Distributed Localized RI in the European Arctic***

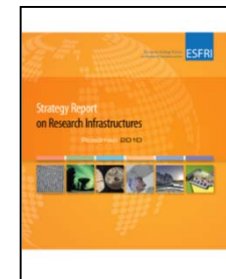
Building on existing Extensive Research Infrastructures:

- Research facilities and stations from many nations collocated on Svalbard
- 4 major permanent settlements/research stations
- Numerous minor/temporary observation and monitoring sites
- Numerous offshore facilities, especially along the west coast



### **Need for better integration and collaboration under a joint framework**

- SIOS posted by Norway for the ESFRI Roadmap 2008, PP-funding by EC/FP7
- Setting up joint institutions and facilities for the provision of world class RI
- Establishing common management solutions, a strategy/development plan, user access.





## SIOS – What are we going to provide?

SIOS will provide upgraded **Observing System and Research Facilities** of world class in and around Svalbard guided by an Earth System Science (ESS) Perspective, this international joint effort will

- Provide a joint **Research Infrastructure Development Plan** for SIOS
- Requiring **national funds** on the basis of variable geometry and national funding proposals in the different partner countries

Building on **existing research infrastructure and excellence** provided by the international partners

SIOS will establish a **Joint operational Knowledge Center** for coordination and provision of world class management in setting up new core services of added value to the international polar research community, providing:

- Better coordinated access to the research infrastructure under an open **access policy**
- Better sharing of data and observations under an open **data policy**
- More effective logistical services under a joint **logistics policy**
- Best Practice **Knowledge Management System** involving new training programs and meeting places
- Requiring **joint funding** on the basis of membership fees



## SIOS – On what do we built on:

SIOS shall contribute to the further development of the research infrastructure in and around Svalbard, into **the world leading large scale research infrastructure in the Arctic**, providing state-of-the-art research infrastructure to the international polar research community, building on the **Norwegian Governmental** Research- and Svalbard Policies **ESFRI, EC and OECD principles** of Best Practice & Excellence **Established qualities of the international partners**, the research communities and their research priorities

**The SIOS Preparatory Phase (2011-2013 +1)**, funded by the European Commission (FP7) and some national contributions, will elaborate the **Statutes** (reflecting the governance, administrative, legal plans) for the new joint organisation,  
**Scientific & technical description** (status, needs, tasks and strategy) for the whole RI,  
**Business plan** first 5 years for the organisation and upgrade, reflecting that all investments will come from the participating countries, not the EC,  
**Governance, Rules of Procedure** (Policies on access, data, logistics etc. and by laws),  
**Infrastructure strategy plan** for the upgraded observing system.



## SIOS Assets and best practice principles of coordination and collaboration

- **ESFRI “best practice” management principles:** Implement joint “best practice” governance, coordination and integration of the distributed research infrastructure, building on already existing research infrastructures, institutions and cooperation structures,
- **SIOS Knowledge Center:** The new joint SIOS.ORG shall provide added value through provision of relevant services (Data, Access, Logistics, Knowledge) to the research community and stakeholders,
- **SIOS Observing System and RI Development Plan:** SIOS will manage a joint strategy for further upgrade of the research infrastructure, with emphasis on Earth System Science,
- **SIOS Data Policy:** Open access and established policy directives in Europe. The SIOS meta-database system relevant for all observations in Svalbard,
- **Other ESFRI-projects and networks:** Establish close collaboration with other ESFRI projects that include Arctic Segments, with the aim to accomplish the coordinated build-up and operation of a multi-platform and multi-disciplinary integrated network in the European Arctic Sector, as a contribution to **SAON**.
  - EMSO, EPOS, Euro-Argo, Eiscat3d, COPAL.
  - Observations, Standards, Methodologies, Advisory Boards, MOUs...



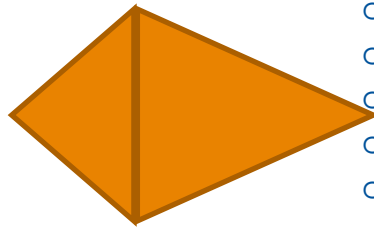


# From SIOS.PP (Preparatory Phase) to SIOS.ORG

## *Road to the establishment of a new joint organisation with added value and useful services*

### • SIOS – Preparatory Phase:

- Work Package 1-9
- Work Package A,B,C
- Ad hoc working groups
- Reports and Concept Papers
- Implementation Plans
- Consortium Meetings
- Stakeholder Meetings...



### • SIOS – Joint Organisation :

- Scientific & Technical Description
- Statutes (Governance, Organisation)
- Business Plan and Budget
- Strategy and Development plan
- Rules of Procedure / by laws: Joint Access, Data, IPR and Logistic policies, Best Practice Management of RI and Knowledge



### • SIOS – Stakeholders

- Policy Contact Group (KD)
- Research Councils, Ministries
- ESFRI/EU consultation
- Governor of Svalbard, KD, MD
- User / research community

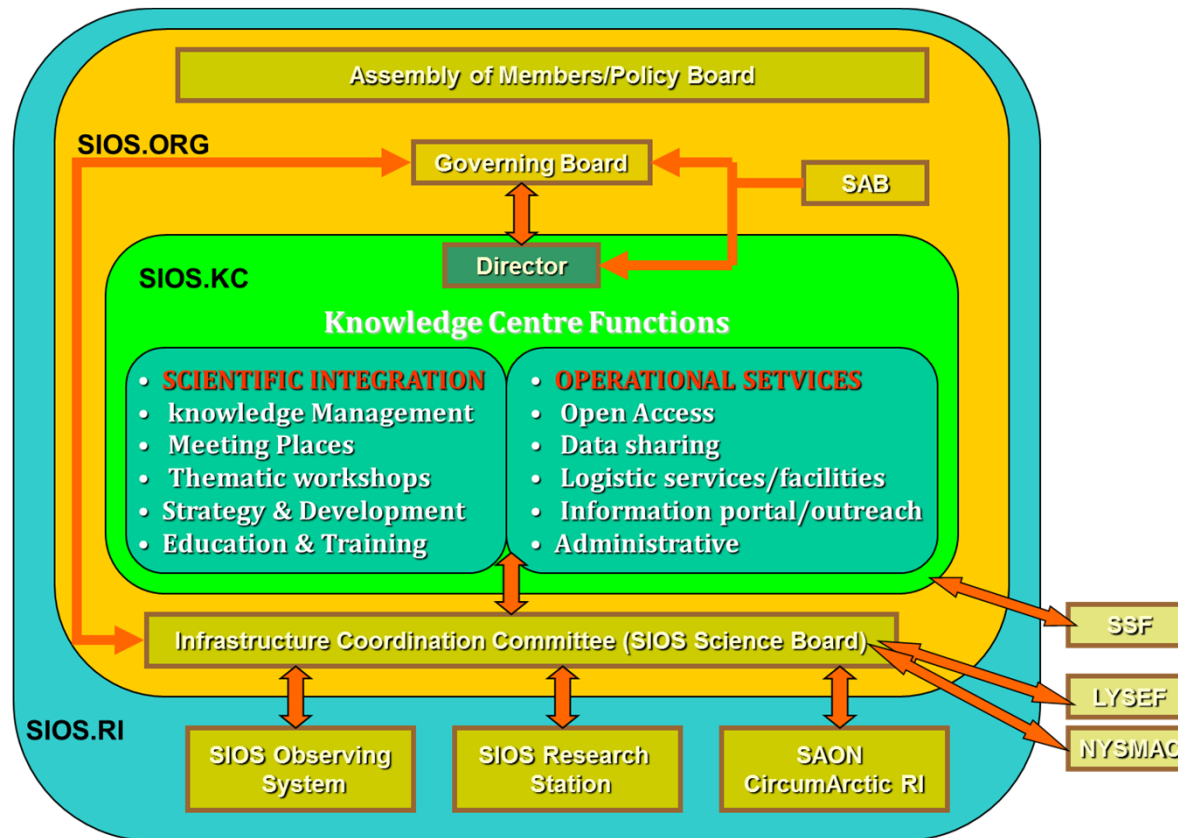


### • SIOS – Variable Geometry:

- SIOS Legal Organisation (Consensus)
- SIOS Infrastructure (Proposal based)
- SIOS Access, Data, IPR, LG policies



# SIOS: Knowledge Centre: Legal and Governance Organization



## Governance of the SIOS.RI:

- **SIOS.ORG:** The new joint SIOS coordinating organisation with the **SIOS.KC** and governing bodies
- **Governing Board** (Steering + Executive board) elected by the Assembly of Members.
- **Infrastructure Coordination Committee:** RI-Committee providing link between the SIOS.KC and the distributed research infrastructure (possibly similar to the internal Science Board).
- **SIOS.RI:** The overall SIOS research infrastructure including the SIOS observatories and facilities owned by the participating member countries, as well as the necessary links with SAON (Sustaining Arctic Observing Networks).
- Formal organisational links to existing research coordinating bodies must be established.

## 3 alternative legal forms could be recommended:

- SIOS as an ERIC
- SIOS as a MoU and contractual links with other partners
- SIOS as a «national» instrument





**Thank you very much for your attention**



# SIOS – Building on Best Practice Principles & Open Access

## ESFRI – Research Infrastructure – Definition & Best Practice:

- **OPEN ACCESS POLICY:** SIOS should be open to all interested researchers, based on *open competition and selection of proposals evaluated on the sole scientific excellence by international peer review*.
- **BEST PRACTICE MANAGEMENT:** SIOS, as a European Distributed Research Infrastructure recognized by ESFRI, shall establish a **single Research Infrastructure with a common legal form and a single management board responsible for the whole Research Infrastructure**, and with a governance structure including among others a **Strategy and Development Plan** and one access point for users although its research facilities have multiple sites.
- **ADDED VALUE:** SIOS, as a European Distributed Research Infrastructure, must addressing a **clear integration and convergence of the scientific and technical standards** offered to European and global users.

## OECD – Principles and Guidelines for Access to Research Data from Public Funding:

- **ACCESS TO DATA:** SIOS will create a culture of openness and stimulate “**best practice**” with respect to and sharing of data, building on the OECD principle of “**Full and open access to scientific data**, which should be adopted as the international norm for the exchange of scientific data derived from publicly funded research”.



## SIOS Knowledge Center: A common data policy for research in Svalbard?

- ***State-of-the-art data policy and framework.***
- **SIOS data sharing principles:**
  - SIOS promotes **free and open access to data** to any person or any organisation who requests them.
  - Requested **data shall be made available in a timely manner, preferably online and free of charge.**
  - **When serving third party data** made available to the SIOS community through the SIOS data management system, **SIOS will manage these data according to the constraints imposed on those datasets by the owner of them.**
  - An **INSPIRE compliant set of metadata** shall be offered for any SIOS data set including the required data citation information as required by the SIOS IPR policy
  - **SIOS recommends the application of licencing models** such as Creative Commons, ideally the Polar Information Commons model, to define use restrictions and guidelines.



# Possible SIOS Legal Entity and Governance

