

SIOS KC - Data management and observational practices

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SIOS – a Norwegian initiated international collaboration to create a regional observing system

The regional scope

- The Norwegian archipelago Svalbard and surrounding waters
- 28 members, 10 countries



Geosphere
Cryosphere
Atmosphere
Hydrosphere
Biosphere

The Observing System

- A cooperating international research infrastructure for improved knowledge of environmental and climate change in the Arctic
- Focus to answer Earth System Science questions
- Systematic long term observations – stable over time, yet dynamic as new questions from society arise
- Minimizing environmental footprint, optimizing measurements and resources, new technologies, remote sensing, integration of data
- Open, free and harmonized data
- **Improving research conditions** for scientists working in ESS

SIOS – The Mission



Coordination, development and optimisation of the distributed research infrastructure – owned by the member institutions

- Develop an efficient observing system
- Share technology, experience and data
- Decrease the environmental footprint of science

The State of Environmental Science in Svalbard report

The purpose

- Become the authoritative **source of information** about the state of the environment in and around Svalbard
- Convey **knowledge** to stakeholders and the public
- Ensure **synergy** between research and societal needs
- **Develop** the observing system based on science

Research groups can actively influence the prioritisation within SIOS!



How is SIOS working? – Our services

Science
Optimisation



Data Management



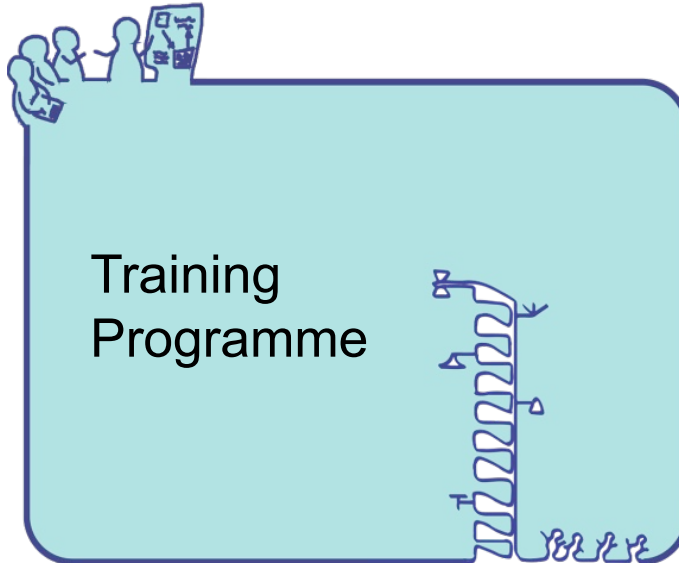
Remote Sensing



Access and
Logistics



Training
Programme

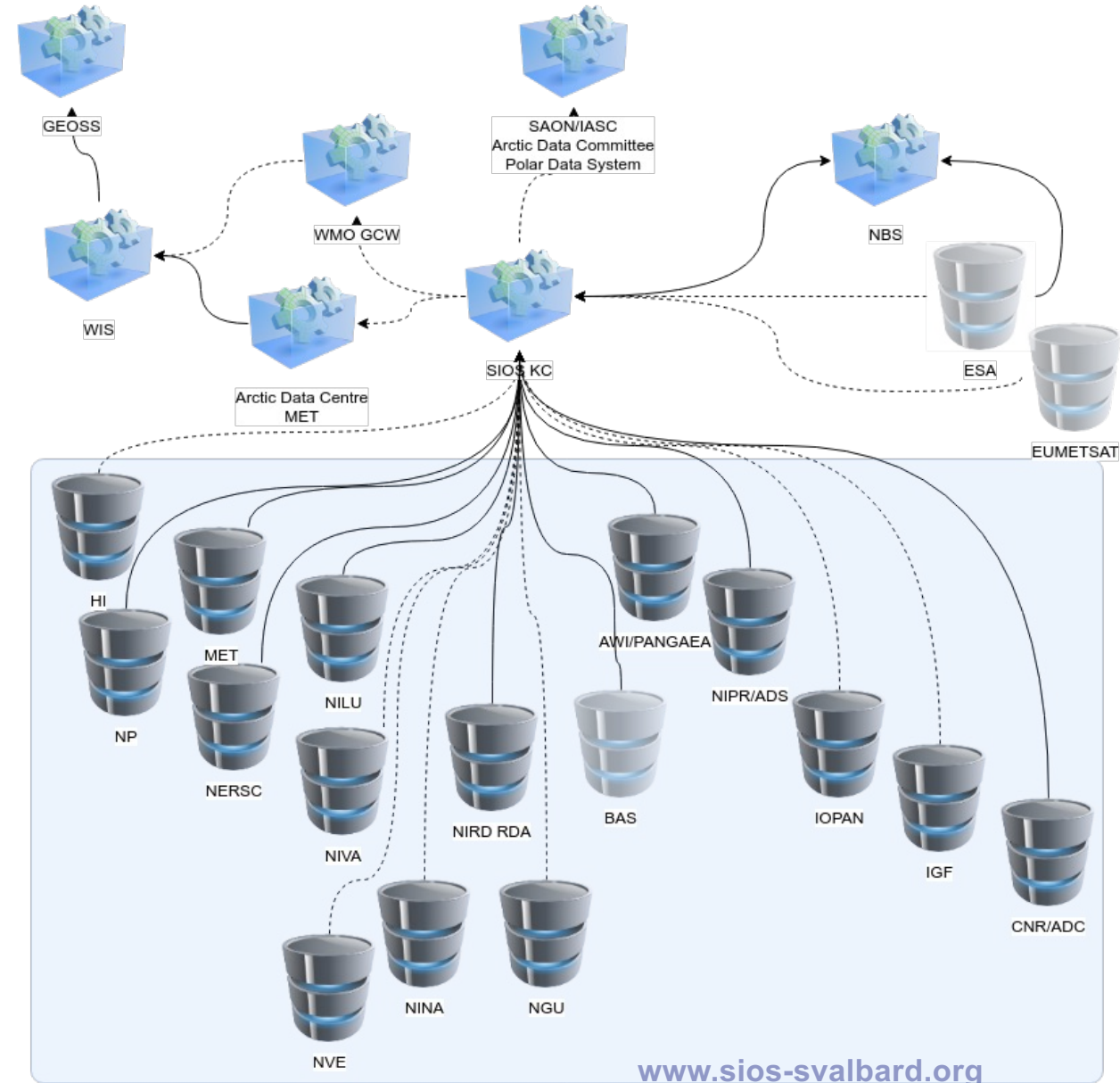


Communication and
Outreach



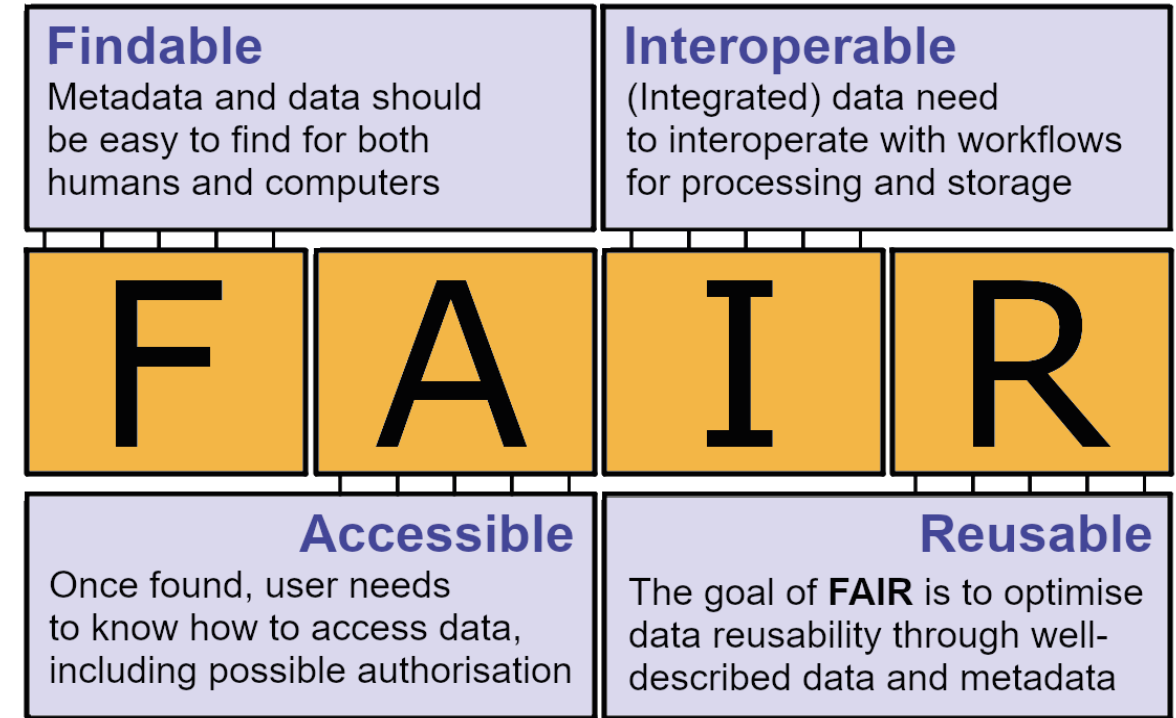
SIOS Data Management System

- Virtual data centre
- Harvest metadata from collaborating data centres
- Make data available through central Data Catalogue
- Provide cross-disciplinary services and products on top of data

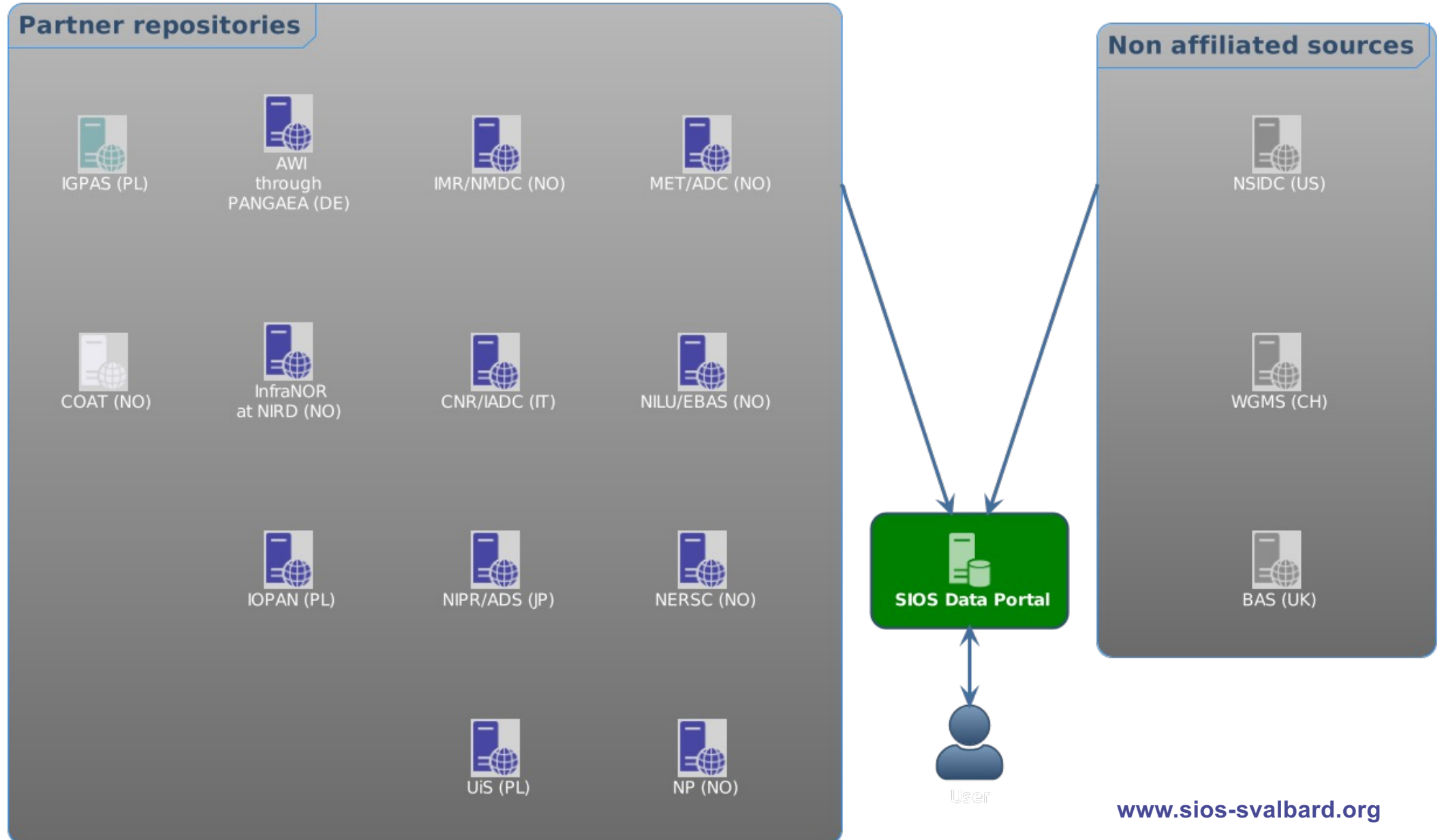


SDMS – Main Principles

- Open and free data sharing
- FAIR data compliance
- Support for use and contribution through workshops/ trainings/ tutorials/ tools



SDMS – Harvested data centres



Data Catalogue

Search

Enter your search here

Start Date

dd/mm/yyyy

End Date

dd/mm/yyyy

Has children

- Any -

Check whenever datasets is parent and have children

Search

Reset

Iso Topic Category

- climatologyMeteorologyAtmosphere (8907)
- oceans (1684)
- imageryBaseMapsEarthCover (1670)
- Oceans (1131)
- Not available (42)
- environment (28)
- geoscientificInformation (17)
- boundaries (4)
- ['climatologyMeteorologyAtmosphere', 'oceans'] (3)
- [biota, oceans] (3)

Show more

Keywords



Metadata Search

About the Data Access Portal

Select Projection: ☐ EPSG:4326 ☒ UPS North ☐ UPS South

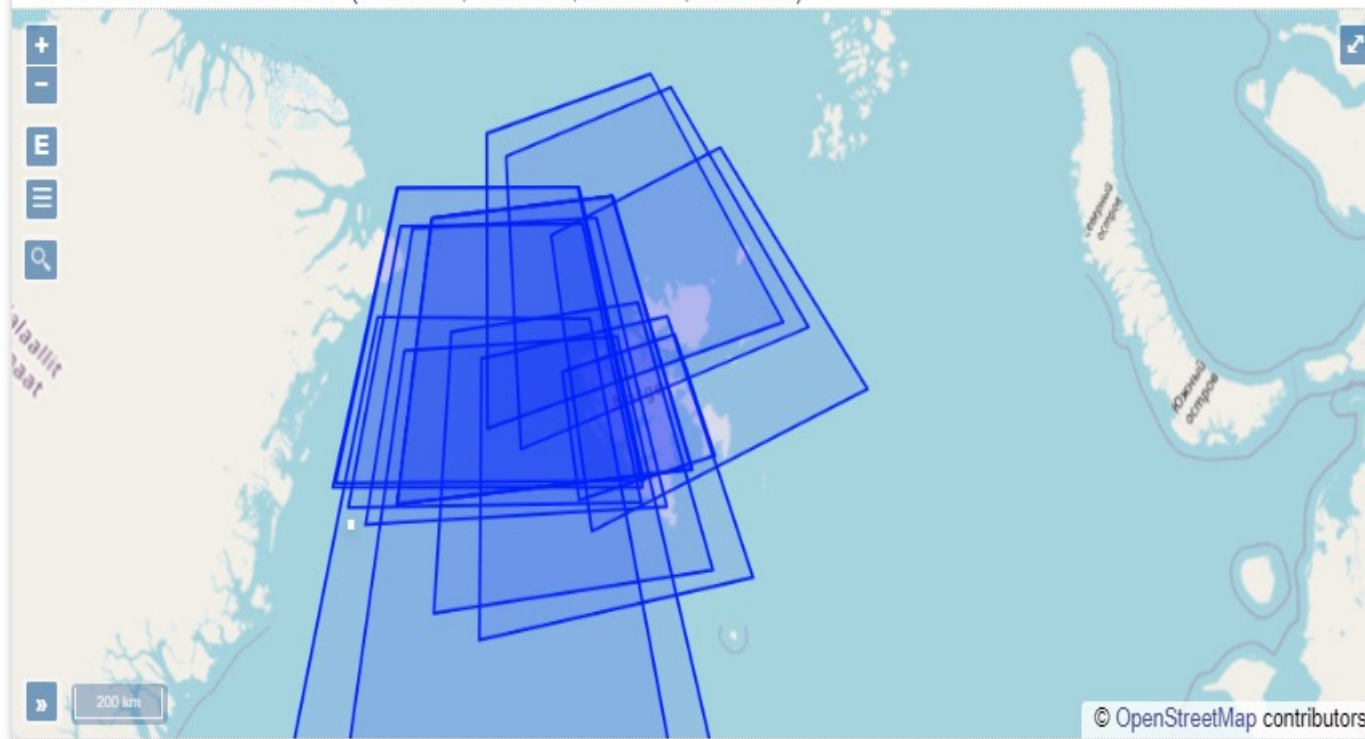
Create bounding box filter

Visualise all Sentinel products in Map

Reset search

Reset map

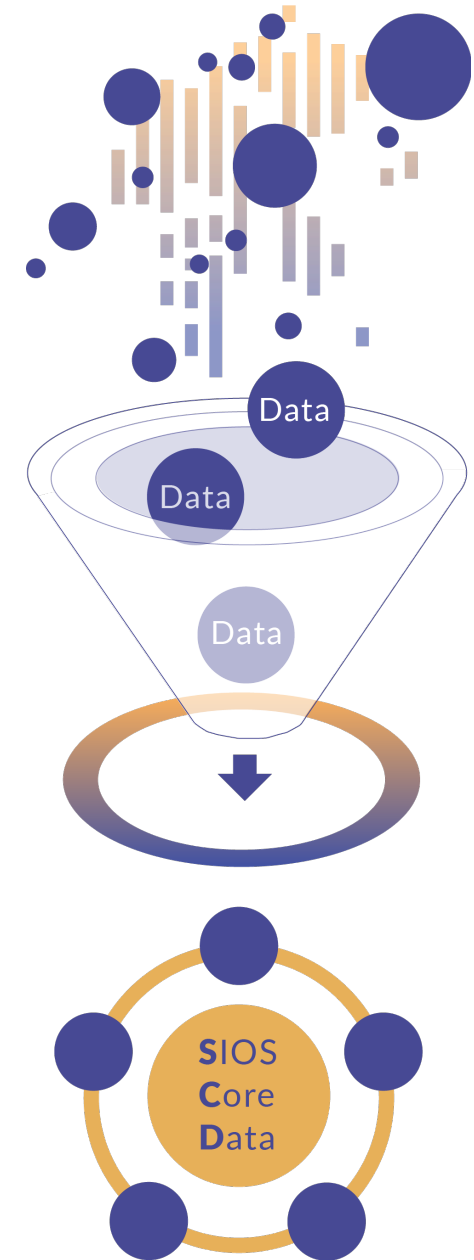
Current filter: Contains ENVELOPE(11.9045516,11.9445516,78.9457958,78.9057958)



10201 datasets found. Showing datasets 46 - 60 on page 4 of 681 pages.

Focusing efforts on SIOS Core Data

- Identified by SOAG
- Long-term data series collected by partners
- Guideline for SIOS development and projects
- Criteria for SIOS core data:
 1. Essential in answering ESS questions
 2. Data available through SDMS
 3. Collecting commitment (5 years +)



Met data from Hopen

Dynamic visualisation of time series

Select variable:

air_temperature_2m

surface_air_pressure_2m

wind_from_direction_10m

air_temperature_2m

wind_speed_10m

air_pressure_at_sea_level

relative_humidity

air_pressure_at_sea_level_qnh

mean_surface_downwelling_shortwave_flux_in_air

mean_surface_downwelling_longwave_flux_in_air

Observations from Hopen

Institutions: Norwegian Meteorological Institute, Norwegian Meteorological Institute, Norwegian Meteorological Institute, Norwegian Meteorological Institute

Last metadata update: 2021-11-04T16:50:00Z

Temporal Extent

Start date: 1945-01-01T13:00:00Z

Show more...

Timeseries Plot

Select variable:

air_temperature_2m

surface_air_pressure_2m

wind_from_direction_10m

air_temperature_2m

wind_speed_10m

air_pressure_at_sea_level

relative_humidity

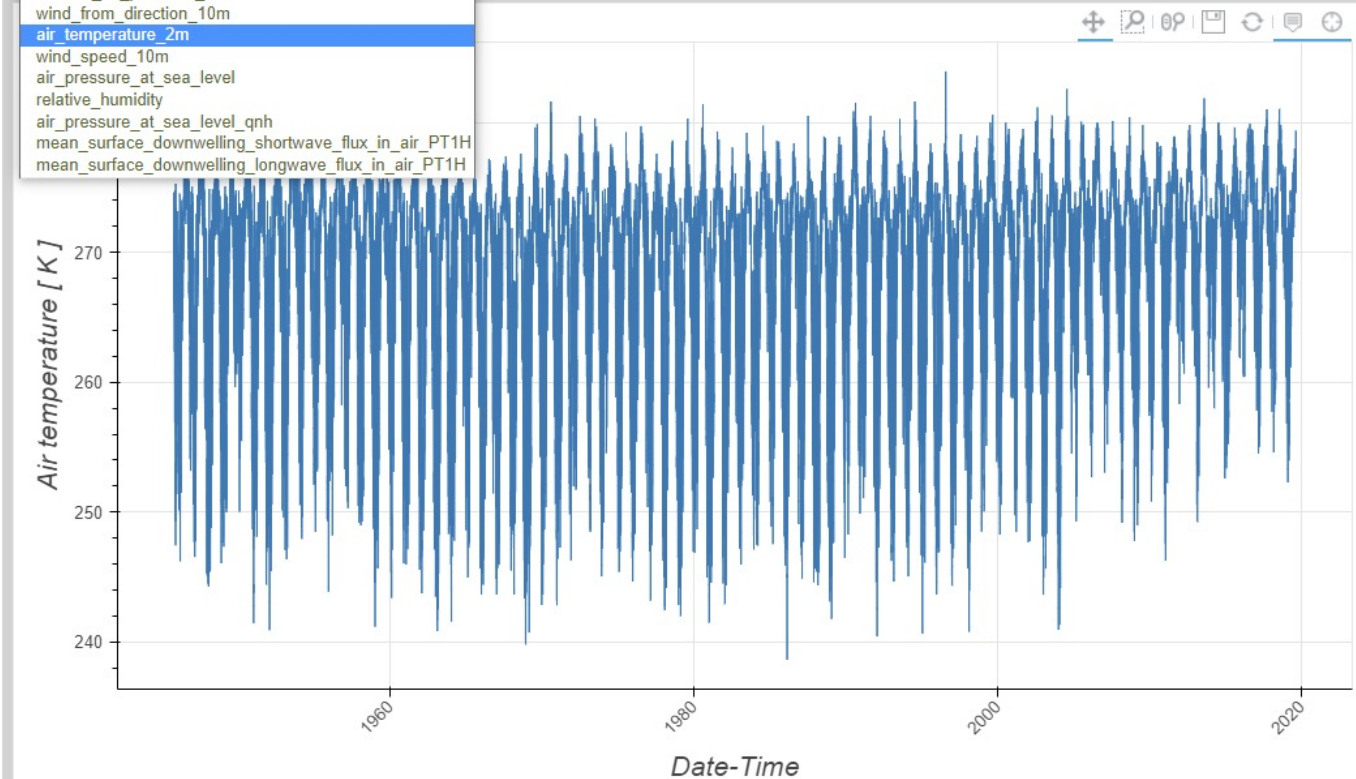
air_pressure_at_sea_level_qnh

mean_surface_downwelling_shortwave_flux_in_air_PT1H

mean_surface_downwelling_longwave_flux_in_air_PT1H

Frequency:

D



Observational practices

- Support operation, setup and data flow of members Research Infrastructure
- Make better use of new & existing infrastructure through collaboration
 - Shared logistics
 - Co-location of measurement efforts
 - Avoid duplication of efforts



Observation Facility Catalogue

- Overview of facilities collecting SIOS data
- 230 unique entries currently

SIOS observation facility catalogue

This catalogue has been developed to provide an overview of the observation facilities which collect SIOS data. An observation facility can be one instrument or a collection of instruments, e.g. a weather station, and is a term used by the World Meteorological Organization (WMO). The annotation is standardised following the WMO standards as far as possible, in order to make entries unambiguous and interoperable internationally.

How to add observation facilities

About OCF



Observation Facility	Variables	Contact	Additional Information
COSMOS - black carbon	Observed Variable: ATMOSPHERE>AEROSOLS>CARBONACEOUS AEROSOLS Start Date: 2012-07-01T12:00:00Z Sampling procedures: continuous	Makoto Koike koike@eps.s.u-tokyo.ac.jp National Institute for Polar Research	Landing Page: Type: land platform (fixed) Status: Operational SIOS project: - RIS ids: 5460

Search with Filters

Observation facility

RIS ID

Institution

Akvaplan-NIVA
Alfred Wegener Institute
Andøya Space Center
Arctic Centre, University of Groningen
Geological Survey of Norway
Institute of Geophysics, Polish Academy of Sciences
Institute of Marine Research
Nansen Environmental and Remote Sensing Center
National Institute for Polar Research

Status

Planned
Pre-operational
Operational
Partly operational
Non-reporting
Stand-by
Closed
Not applicable
Unknown

SIOS project

SIOS-InfraNor

Type

land platform (fixed)
land platform (mobile)
land platform (on ice)
sea platform (fixed)
sea platform (mobile)
sea platform (on ice)
air platform (fixed)
air platform (mobile)
space-based platform

Observed Variable

SIOS Core data

Planned activities related to citizen science

- SIOS remote sensing group is interested in a sustained observational programme using citizen science projects.
- The remote sensing working group will circulate a survey to understand the observational needs of the scientific community from Svalbard.
- Observations that are important for building an observation system and cal/val activities are essential for SIOS.
- The citizen science model will be built based on these needs from scientists and the possibilities of conducting measurements using the involvement of residents in different parts of Svalbard.

Thanks – any questions?

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