



The Ocean Data Dojo project and workshop objectives

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Ocean Data Dojo Workshop 2 – Recommendations for improved data value chains,
Online, 15-16 December 2022





Outline

- Svalbard Science Forum & Svalbard Scientific Grants
- Project objectives
- A generic data delivery chain
- Main elements of the workshops
- Example data delivery chains



Svalbard Science Forum



<https://www.forskningsradet.no/en/svalbard-science-forum/>

Svalbard Science Forum

Q Search

Menu

Svalbard Science Forum (SSF)

SSF provides information about research infrastructure and activities in Svalbard. The SSF facilitates coordination, collaboration and data sharing between researchers to avert unnecessary duplication and encourage smaller environmental footprint of research in Svalbard.



Forskningsradet

Instruments: [Arctic Field Grant](#) [Svalbard Strategic Grant](#) [Research in Svalbard \(RiS\)](#) [Svalbard Science Conference](#) [Research Communities](#) (Ny-Ålesund, Longyearbyen, Hornsund and Barentsburg) [Planning & Logistics](#) [Research Permissions](#)





Objectives

- The Ocean Data Dojo project aims to **identify and propose solutions for closing gaps in FAIR data management practices for ice-ocean observing** around Svalbard across disciplines and projects.

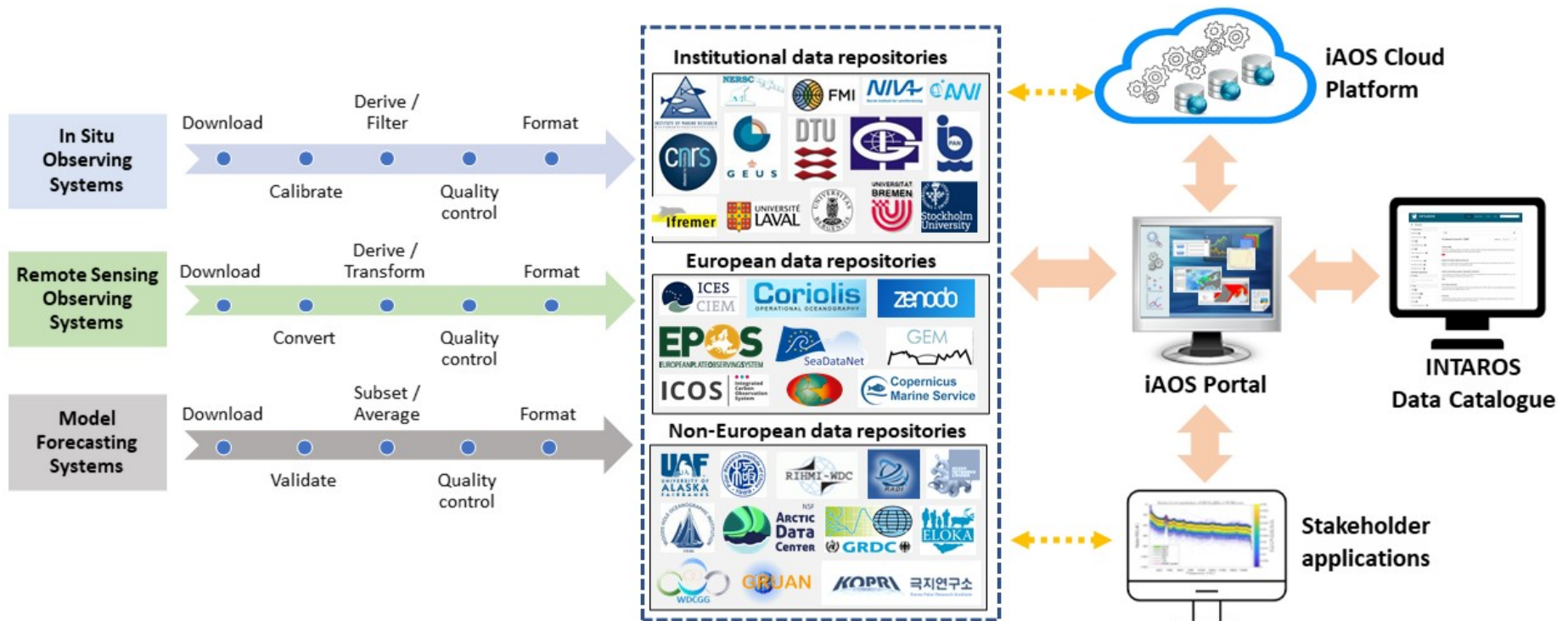
Specific objectives:

- Organise **two workshops to gather documentation about data delivery chains, standards and workflows** used in ongoing ice-ocean research projects. Furthermore, **discuss mechanisms to stimulate collaboration on FAIR data management among Norwegian initiatives.**
- **Promote the workshops and the results** through the [CAPARDUS](#) (Capacity-building in Arctic Standardisation Development) project's web site, and in relevant national and international networks for wider competence building in FAIR data management.
- **Recommend activities to stimulate collaboration** on FAIR data management around Svalbard.



A generic data delivery chain

- Focus in Ocean Data Dojo: Selected **sea ice - ocean in situ observations**



INTAROS Data Delivery Chain (Hamre et al., 2021)

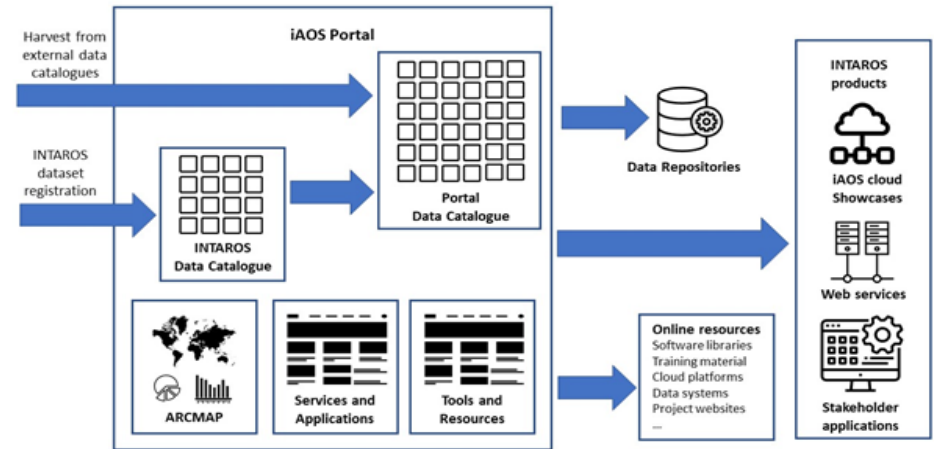




iAOS Portal



- Data catalogue and portal platform established
- Generic portal design
 - INTAROS data catalogue
 - Portal data catalogue
 - ARCMAP
 - Services & Applications
 - Tools and resources
- Data stored in sustained repositories
- Open standard interfaces
- Portal data catalogue
 - >500 datasets harvested
 - Leveraging open APIs
 - Reusing community plugins



Major components of the iAOS Portal and their interconnections.



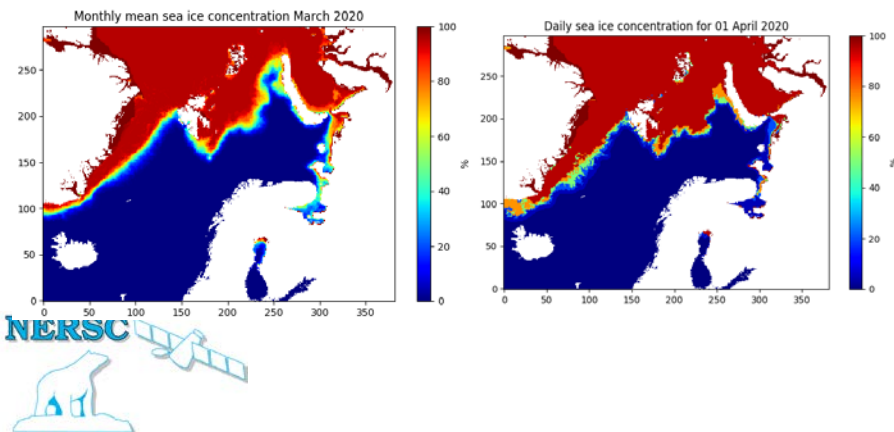
<https://portal-intaros.nersc.no/>





iAOS Portal

- Promotion spaces for
 - Showcases/Applications
 - Cloud services
 - WPS services
 - Geostatistics libraries
- Open for new entries
- Marketplace for future iAOS developments
- Will be maintained by NERSC



Services

INTAROS develops services for multiple user segments, including science, environmental and ecosystem management, natural hazards monitoring, risk assessment and support for mitigation planning. Services combine in situ, remote sensing and model data from a multitude of providers to provide a data product that user can apply in their daily work.

Services are developed using the iAOS Cloud Platform and Jupyter Notebook. Some examples of INTAROS services are shown below.

Geostatistics for gridding in situ oceanographic data

This service was developed to generate ocean temperature and salinity fields for validation of climate model projections. Marine in situ observations are typically scattered in space and time, while models generate gridded data. The service uses geostatistic methods to interpolate a dispersed set of in situ point measurements to a regular grid, allowing comparison with model projections.

The service was applied to a 22 year long time series of CTD data held by the Norwegian Marine Data Centre. In total the input data amounted to 5.5 billion samples measured over 63500 positions (vertical profiles). Figure 1 shows one of the outputs from the service, a gridded field of ocean temperature for the whole time period. Read more about the geostatistics service in INTAROS Deliverable D5.6.

Temperature at 20m depth

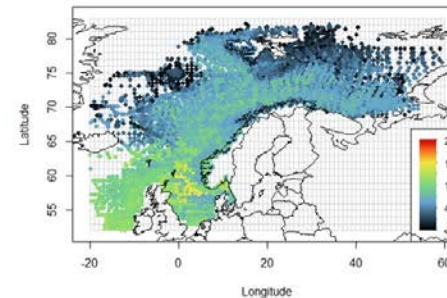


Figure 1. Base map of the whole IMR dataset – Temperature (°C) at 20m depth.

Jupyter Notebook files: RGeostats workshop
Software packages needed:

- Latest Conda package build for RGeostats (build recipe)
- Latest Conda package build for Rintaros (build recipe)

Developer: ARMINES

Analysis of passive acoustic data

This service processes and characterizes passive acoustic data, and produces spectrograms and noise statistics plots that can be used for analysis in combination with time series of satellite remote sensing derived parameters. It is implemented using the R version of the open source PAMGuide software package, and has extended support for new data formats (NetCDF) and data access through the OPeNDAP protocol.

The service has been tested with datasets from several sources (NERSC, CNRS, PANGAEA). Figure 2 shows an example of passive acoustic collected by CNRS in Kongstjorden, Svalbard, as part of the INTAROS field campaigns. The spectrum is dominated by low-frequency noise below 10 Hz. Local peaks around 10 Hz and 60 Hz are also seen, which could be mammal vocalization. Intermittent broad-band signals are also seen in the spectrogram. Read more about the passive acoustic service in INTAROS Deliverable D5.7.

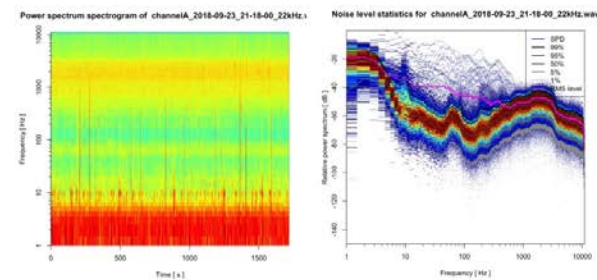


Figure 2. Examples of power spectrum spectrogram (left) and noise statistics plot (right) generated by the passive acoustic service when analysing acoustic data collected in Kongstjorden, Svalbard, during the INTAROS project.

Jupyter Notebook files: PAMGuide-R-Tutorial
Software packages needed:

- R
- PAMGuide
- Jupyter notebook

Developer: NERSC



INTAROS Zenodo community

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INTAROS H2020 Project

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- Ocean Observing Systems (16)
- OSSE, Ocean State Estimates (11)
- Atmosphere Observing Systems (8)
- Greenland (7)

August 19, 2022 (v2) Project deliverable Open Access View

Deliverable 1.12 Collaboration with Arctic Shipping Operators

Sagen, Hanne; Storheim, Espen; Sandven, Stein;

This report describes the experiences working with the Norwegian Coast Guard ship KV Svalbard and the expedition ship Le Commandant Charcot during the INTAROS and CAATEX projects. The first part of the report deals with our experiences working with the Norwegian Coast Guard. The coast guard has sup

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1 more version(s) exist for this record

December 16, 2021 (v1) Project deliverable Open Access View

Deliverable 5.9 Data integrated from existing repositories V2

Schewe, Ingo; Caumont, Hervé; Ors, Fabien; Morvik, Arnfinn; Thorne, Peter;

The INTAROS project develops an integrated Arctic Observation System (iAOS) by extending, improving and unifying existing systems in the different regions of the Arctic. Within INTAROS, WP5 (Data integration and management) is tasked with designing and implementing evolution of the cloud platform wi

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June 10, 2020 (v1) Project deliverable Open Access View

Deliverable 5.8 iAOS Platform and Tools

Caumont, Hervé; Schewe, Ingo; Ors, Fabien;

The "Integrated Arctic Observation System" (INTAROS) is a 5-year project funded by Horizon 2020 under the Blue Growth Programme. The overall objective of INTAROS is to build an efficient integrated Arctic Observation System (iAOS) by extending, improving and unifying existing systems in

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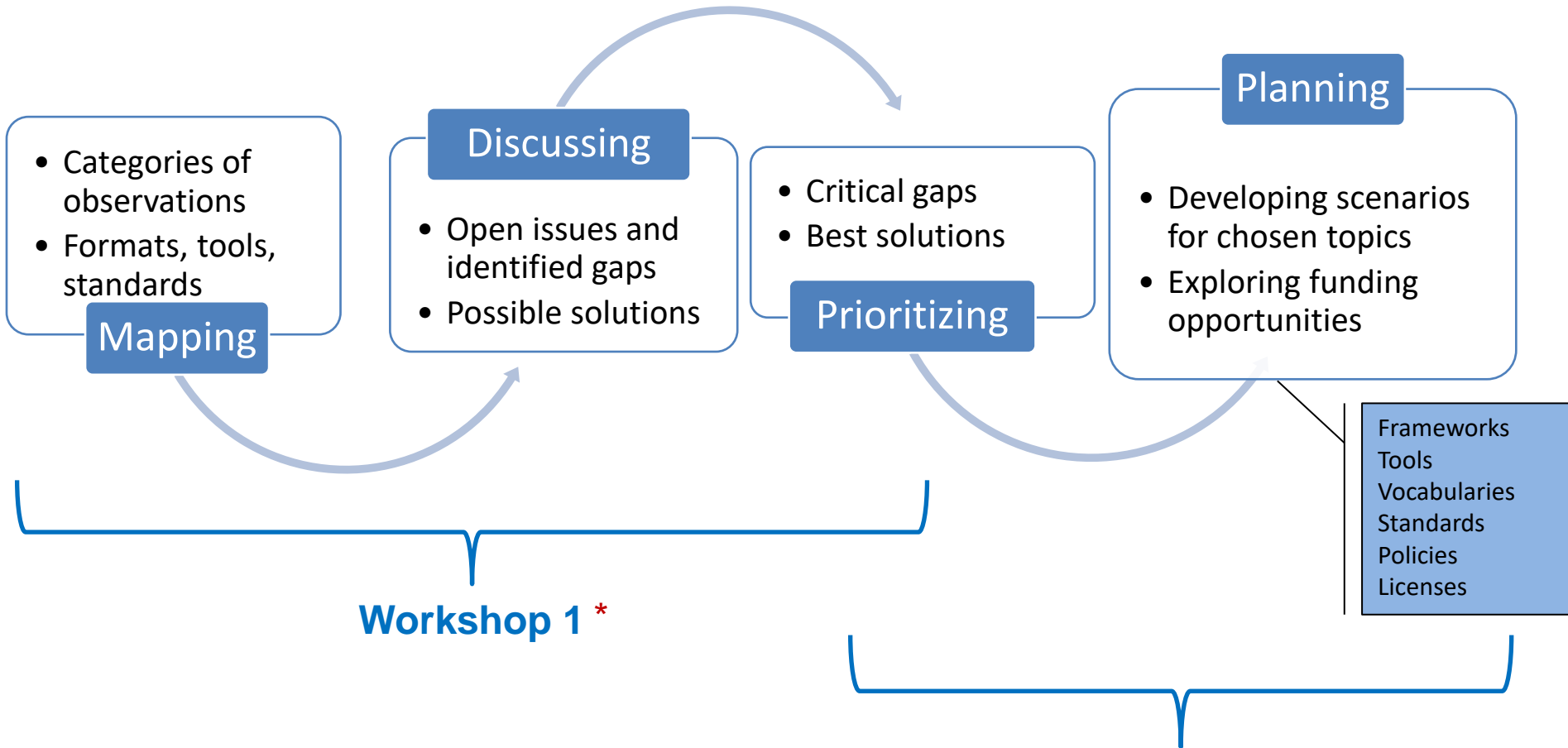
<https://zenodo.org/communities/intaros-h2020>



The Research Council of Norway



Main elements of workshops



*Workshop reports and presentations

Workshop 2 *





Example data delivery chains

Ocean moorings

Vessels

Drifters

Drones

Citizen Science

Seismometers

Ice stations

FAIR data principles

Metadata harmonisation

Vocabularies and conventions

Data policies and licenses

Rosetta file conversion tool

Nansen Legacy tools

CMEMS Arctic INSTAC tools



capardus.nerisc.no

Capacity-building in Arctic Standardisation Development

Capacity-building in Arctic standardisation development
H2020 Grant agreement no. 869673



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Ocean Data Dojo workshop - 01 November 2022

The Ocean Data Dojo project will engage experts in Arctic in situ data collection in ice-ocean sciences, Citizen Science for Arctic communities, and scientific data management. The aim is to develop a joint understanding of the current practices and gaps in the data delivery chain from research driven ice-ocean observing and citizen science programs in the Svalbard region. The workshop programme is available below.

Location

Bergen, Hotel Terminus

Start date

Tue, 11/01/2022 - 09:00

End date

Tue, 11/01/2022 - 17:00

Document files

- [Workshop agenda](#)
- [The Ocean Data Dojo project and workshop objectives, Torill Hamre, NERSC](#)
- [FAIR data principles, metadata and data standards, documentation and formatting tools, Lara Ferrighi, METNO](#)
- [INTAROS metadata harmonisation for ocean mooring data, Arnfinn Morvik, IMR](#)
- [IOPAN oceanographic measurements from vessels and moorings in the Svalbard region, Agnieszka Beszczynska-Möller, IOPAN](#)
- [UAV real-time data acquisition, processing and visualization system: current challenges and future developments, D. Petrocelli](#)
- [Developing and using new drifters to measure drift and waves in sea ice and in open ocean, Gaute Hope, METNO](#)
- [Using the ICEWATCH system for collecting sea ice data through citizen science, William Copeland, METNO](#)
- [Data delivery chains for SIOS Core Data SCD4 Oceans, Ilkka Matero, SIOS](#)





Questions?

