

Update on Arctic Data Committee Activities

IASC Council, SAON Board, ASSW, May 2019

Peter L. Pulsifer (NSIDC, CIRES, U Colorado)

Co-Lead, **IARPC** Arctic Data Sub-Team

Chair, IASC-SAON Arctic Data Committee (ADC)

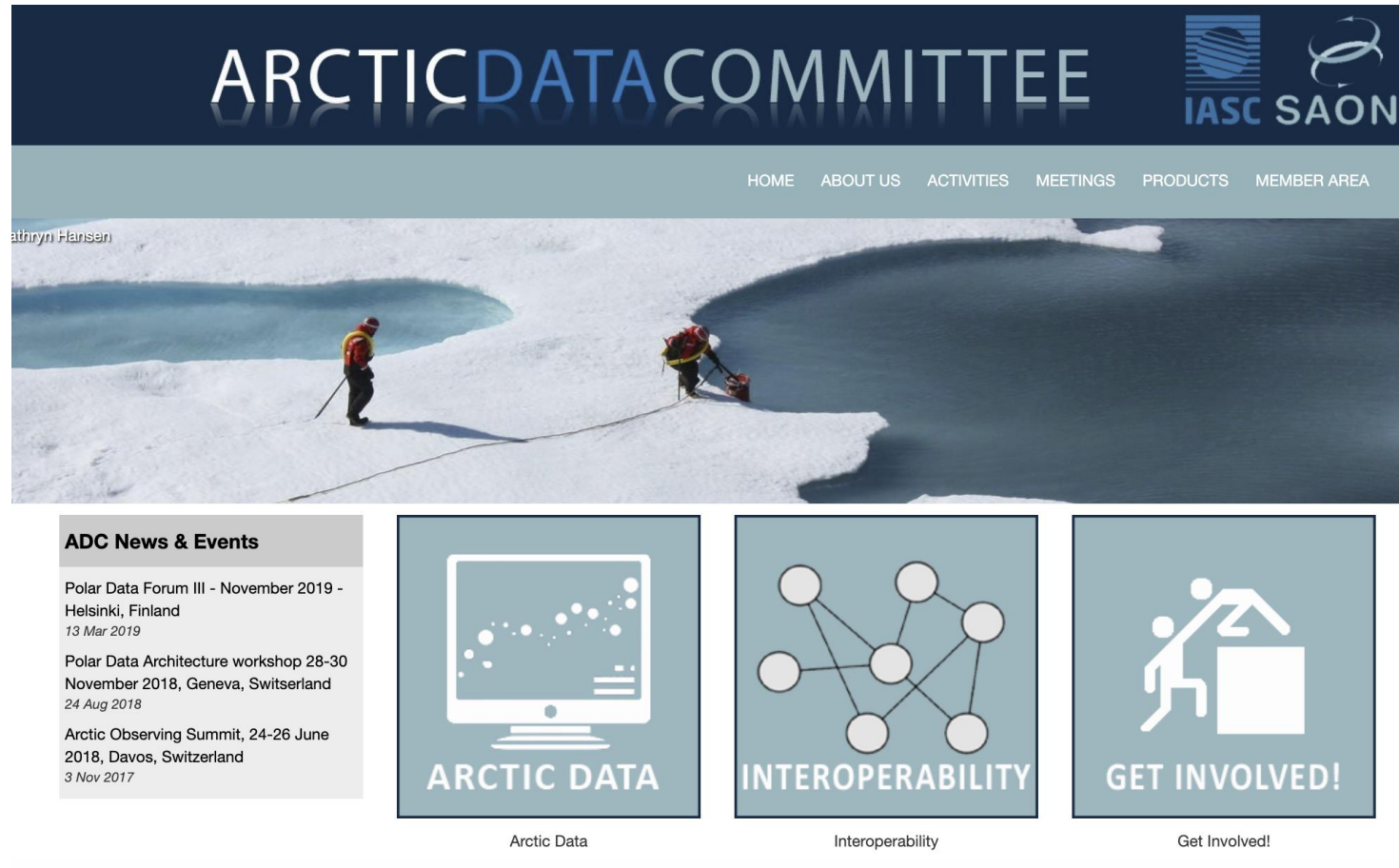
Co-Lead GEO Cold Regions Initiative

Marten Tacoma, Stein Tronstad (ADC Co-Chairs)

Pip Bricher, SOOS

Anton Van de Putte, SCADM

IASC – SAON Arctic Data Committee



<https://arcticdc.org/>

ASM2 Deliverable Statement

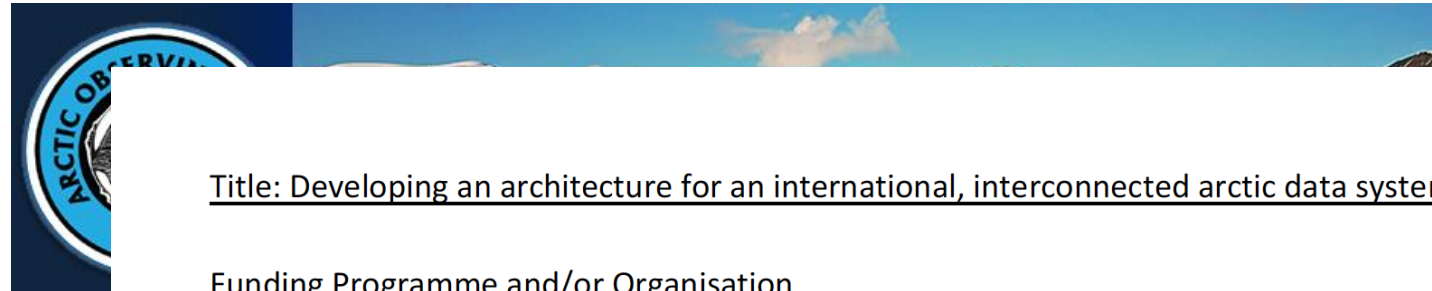
Sub-Theme 2: Implementing and Optimizing a Pan- Arctic Observing System

Working Group 4: Participants of this group will f system implementation.

Co-chairs: Dr. Peter Pulsifer (National Snow and Meteorological Institute)

Rapporteur: Dr. Anja Rosel (Norwegian Polar Inst

Thematic Working Group members: Dr. Paul Berkman (Tufts University); Dr. Maribel Calgary); Dr. Roberta Pirazzini (Finnish Meteorological Institute); Ms. Sarah Marie Strar Centre in Svalbard); Mr. Mikko Strahlendorff (Finnish Meteorological Institute); Dr. Tan Oceanic and Atmospheric Administration).



Arctic

Title: Developing an architecture for an international, interconnected arctic data system

Funding Programme and/or Organisation

Sustaining Arctic Observing Networks (SAON)

Description of the deliverable

Coordinating organisations:

- The Arctic Data Commit
- Standing Committee on
- Southern Ocean Observ

Main contact person: Peter Colorado, Boulder, USA; e-n

Arctic societies, science and services are entering a new era that increasingly require cross-cultural, interdisciplinary integration of data to provide critical understanding and products. These needs require an integrated Arctic data system that is not only part of the global system, but which also allows exchange and usage of data between disparate data systems. Such a data system will allow enhanced understanding that is critical for mitigating risk to humans and infrastructure, reducing costs of adaptation and development, and supporting much needed research that spans disciplines and knowledge systems, including science and Indigenous Knowledge.

Data are an integral element in the observing system value chain. Without a data system that makes well documented data accessible, many kinds of observations are ephemeral and their value is limited. As such, we must ensure that the overarching observing



Components of the Data System

Infrastructure

(technology, standards, network)

The slide features a large blue arrow that originates at the bottom left, near the 'Data' section, and points diagonally upwards towards the 'Infrastructure' section at the top right.

Data

Infrastructure
(technology, standards, network)

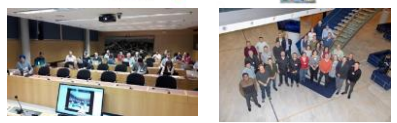
The slide includes several small inset images:

- A hierarchical tree diagram showing a central orange node connected to various colored nodes (purple, green, orange).
- A complex network graph with numerous circular nodes and connecting lines.
- A detailed schematic of a Polar Data System architecture, showing components like FIP, GDS, GDC, RFS 3.0, BGC, GCN, and their interconnections.
- A world map showing data distribution or coverage across different regions.
- A screenshot of a software interface displaying a table of data records.
- A circular visualization composed of many small, multi-colored dots arranged in a ring-like pattern.

Figure 1 displays two screenshots of web-based GIS applications. The left screenshot shows a map of the Arctic region with various data layers and a sidebar with search and layer controls. The right screenshot shows a web application interface with a globe, a search bar, and a sidebar with navigation options.

[illegible]

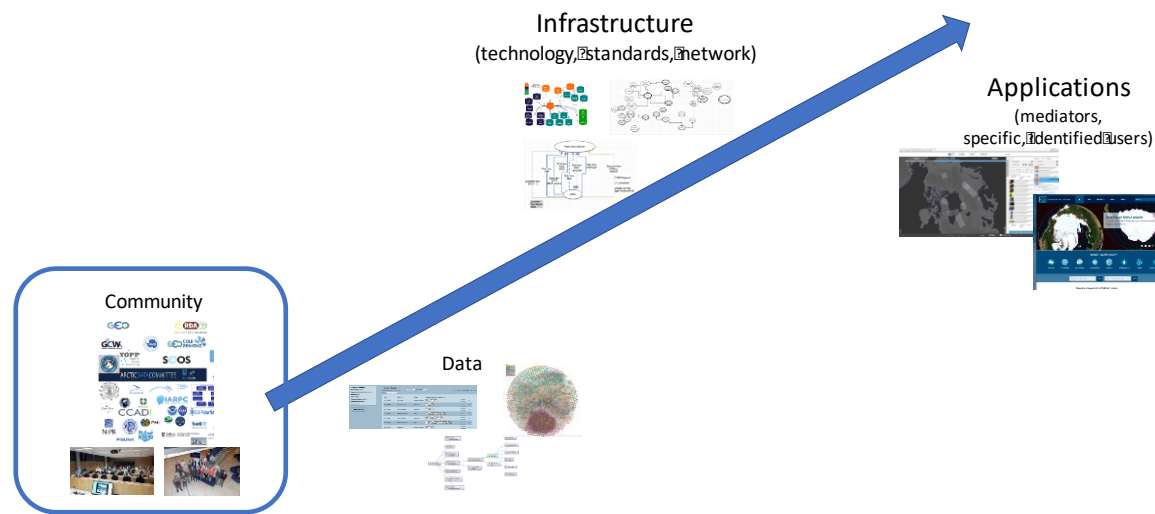
A collage of logos for various Arctic research and policy organizations. The logos include: GEO (Global Earth Observation), RDA (Research Data Alliance), GCW (Global Change Watch), SCAR (Scientific Committee on Antarctic Research), COLD REGIONS (Cold Regions Research and Engineering Laboratory), YOPP (Year of Polar Observations and Policy), SOOS (State of the Ocean Observing System), ARCTIC DATA COMMITTEE (Arctic Data Center), IARPC (International Arctic Research Programme), CCADI (Canadian Centre for Arctic Data Integration), NIPR (National Institute of Polar Research), FISUNA (Finnish Institute of Marine Research), and others. The logos are arranged in a grid-like fashion, with some overlapping.





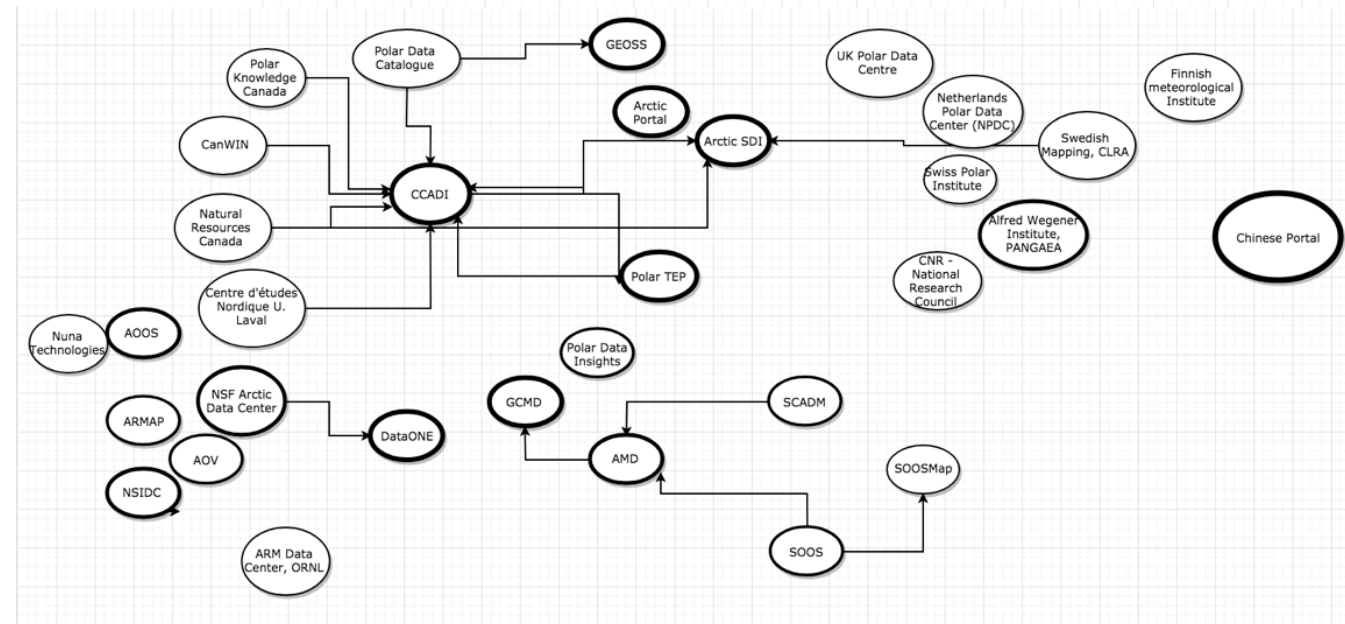
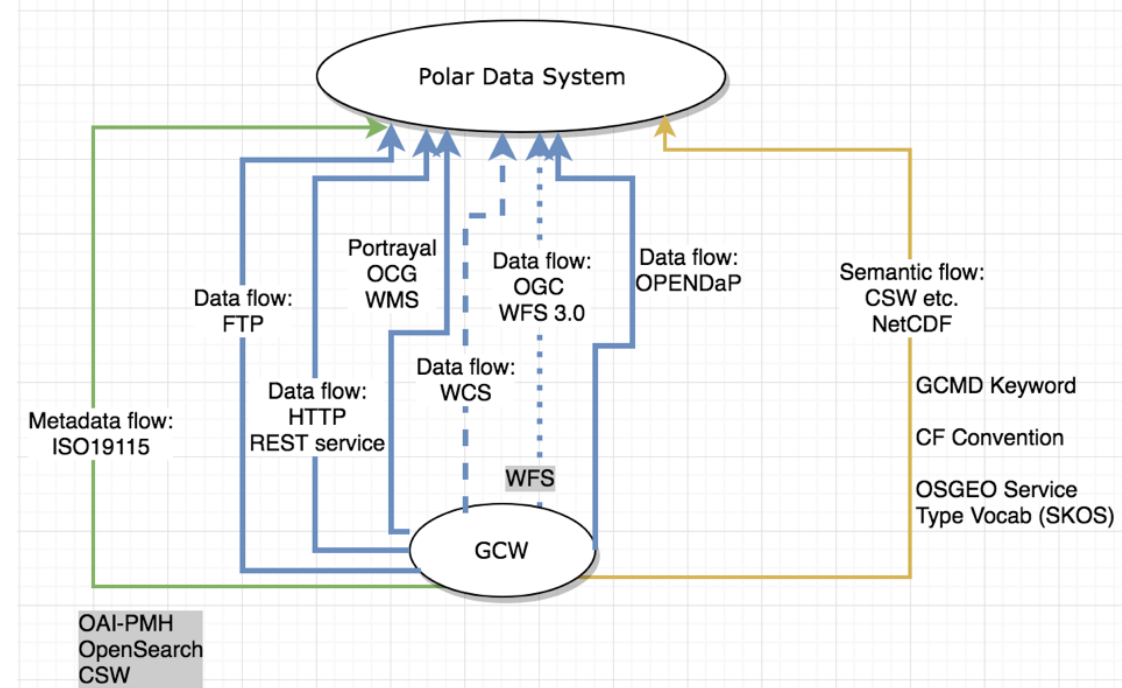
Recent Activities

Community



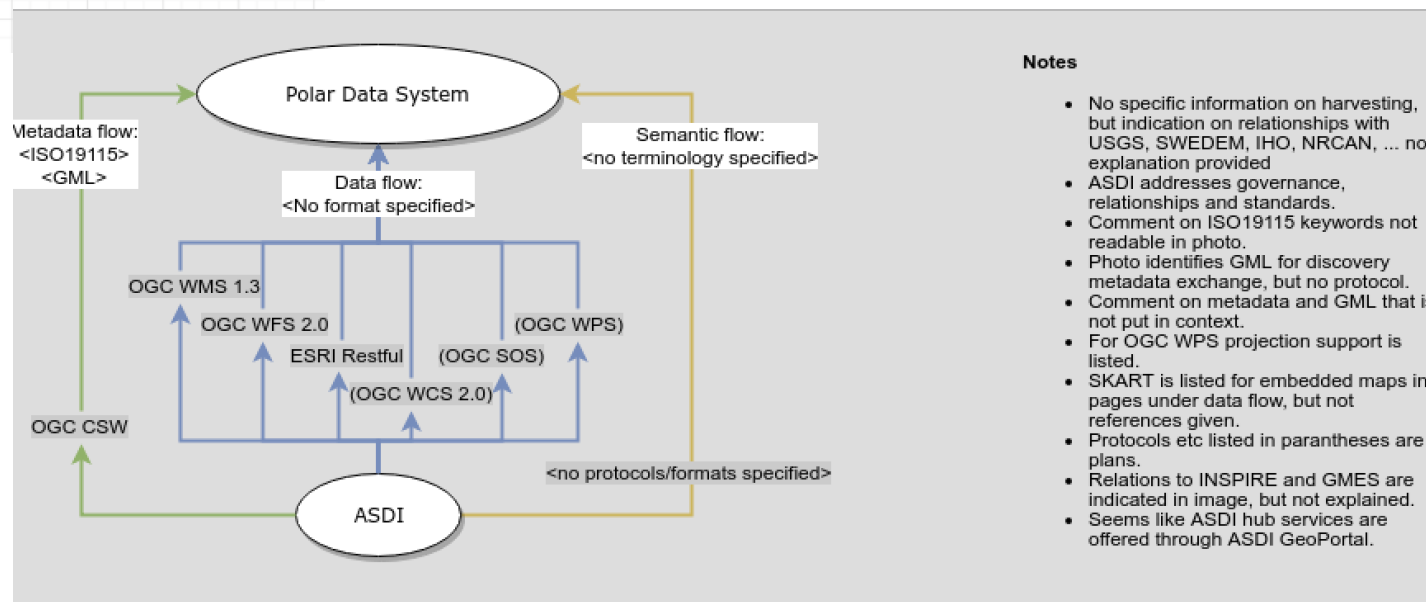
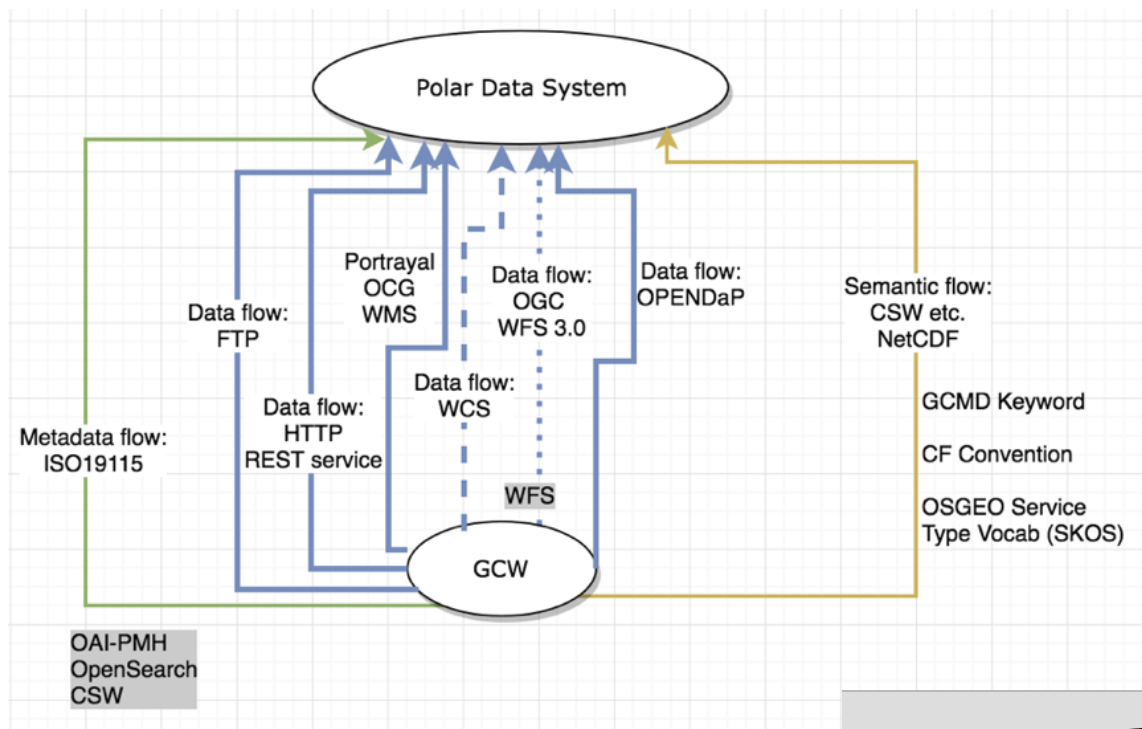
Polar Data and Systems Architecture Workshop

28 – 30 November 2018, Geneva



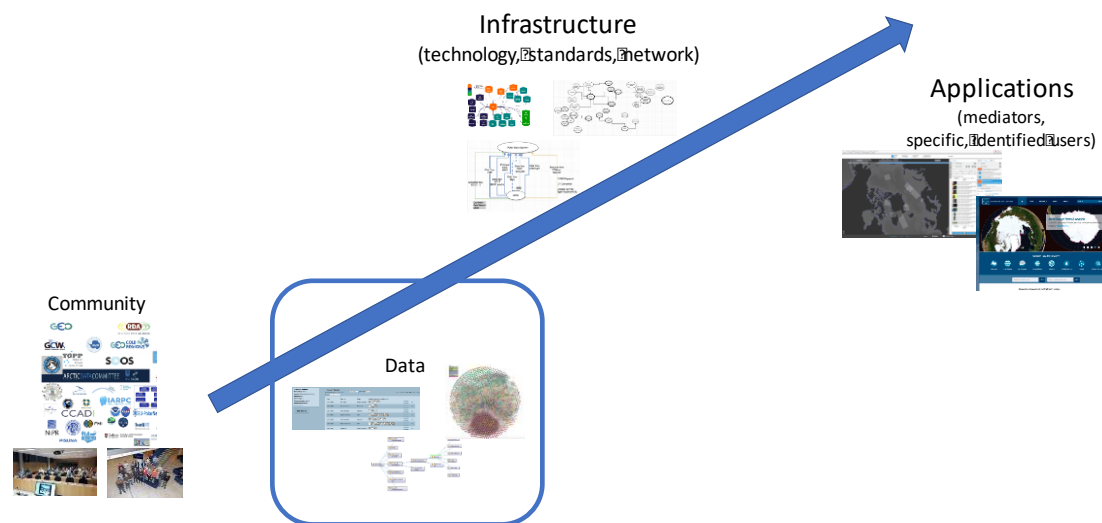
PDSAW Summary

- <https://arcticdc.org/meetings/conferences/polar-data-architecture-workshop>
- WMO Headquarters, Geneva, Switzerland
- 40 + experts, 20 Organizations, 17 nations
- Continuing work of Polar Data Planning Summit
- <https://arcticdc.org/meetings/conferences/polar-data-planning-summit>

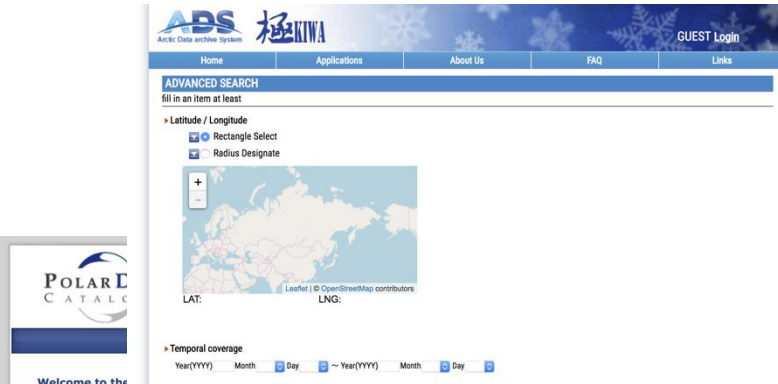
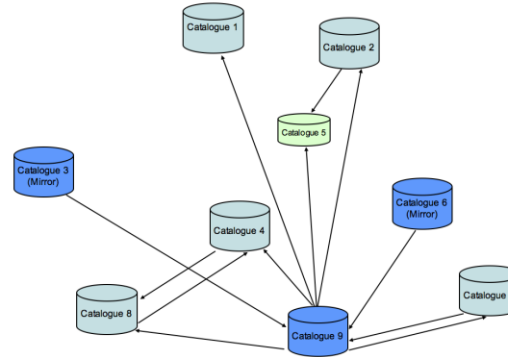


Notes

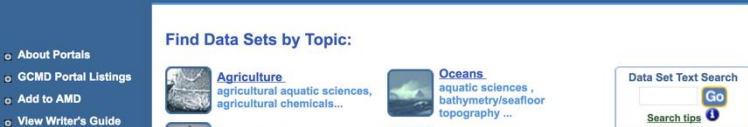
- No specific information on harvesting, but indication on relationships with USGS, SWEDEN, IHO, NRCAN, ... no explanation provided
- ASDI addresses governance, relationships and standards.
- Comment on ISO19115 keywords not readable in photo.
- Photo identifies GML for discovery metadata exchange, but no protocol.
- Comment on metadata and GML that is not put in context.
- For OGC WPS projection support is listed.
- SKART is listed for embedded maps in pages under data flow, but not references given.
- Protocols etc listed in parentheses are plans.
- Relations to INSPIRE and GMES are indicated in image, but not explained.
- Seems like ASDI hub services are offered through ASDI GeoPortal.



Data Discovery



Welcome to the
The Polar Data Catalogue is a database of metadata and data that describes, indexes, and provides access to diverse data sets generated by Arctic and Antarctic researchers. The metadata records follow ISO 15915 and Federal Geographic Data Committee (FGDC) standard formats to provide exchange with other data centres. The records cover a wide range of disciplines from natural sciences and policy, to health and social sciences. The PDC Geospatial Search tool is available to the public and researchers alike and allows searching data using a mapping interface and other parameters.



Welcome to Schema.org

Schema.org is a collaborative, community activity with a mission to create, maintain, and promote schemas for structured data on the Internet, on web pages, in email messages, and beyond.

Schema.org vocabulary can be used with many different encodings, including RDFa, Microdata and JSON-LD. These vocabularies cover entities, relationships between entities and actions, and can easily be extended through a well-documented extension model. Over 10 million sites use Schema.org to markup their web pages and email messages. Many applications from Google, Microsoft, Pinterest, Yandex and others already use these vocabularies to power rich, extensible experiences.

Founded by Google, Microsoft, Yahoo and Yandex, Schema.org vocabularies are developed by an open community process, using the public-schemaorg@w3.org mailing list and through GitHub.

A shared vocabulary makes it easier for webmasters and developers to decide on a schema and get the maximum benefit for their efforts. It is in this spirit that the founders, together with the larger community have come together - to provide a shared collection of schemas.

We invite you to [get started!](#)

Google Dataset Search Beta

Search for Data Sets

Try [boston education data](#) or [weather site: noaa.gov](#)

[Learn more](#) about including your data sets in Dataset Search.



The Way Forward

Build on Successful Model

- Maintain community building momentum and productivity:
 - **Third Polar Data Forum - 18-22 November 2019, Helsinki, Finland**
 - Reporting on recent activities (publications, synthesis papers, data system “map”)
 - Report at AOS 2020, ASM3 etc.
 - Welcome and cultivate new partners



Third Polar Data Forum

Third Polar Data Forum

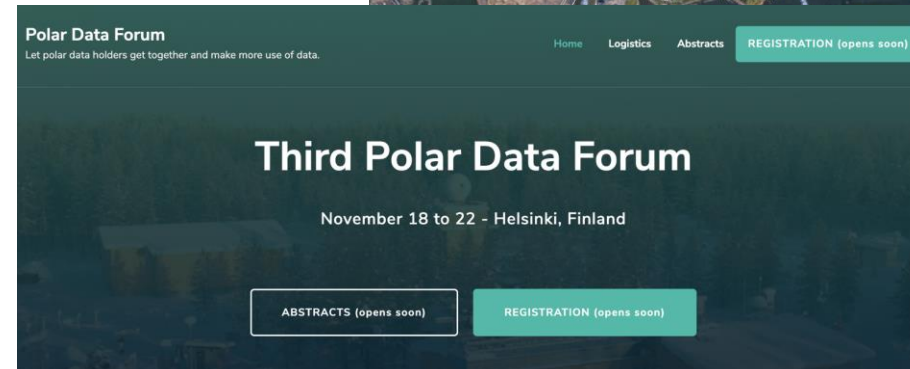
- Week of 18 November 2019, FMI HQ, Helsinki, Finland
- 2 days plenary ; 3 days "hackathon"
- Convened by ADC, SOOS, SCADM, WDS, GCW, others
- Hosted by FMI, INTAROS, NIOZ, EPB, others
- General knowledge sharing +
- Concrete activity/progress on:
 - Federated search
 - Semantics
 - Data interoperability
- Several planning activities ; committees forming
- Aiming for detailed materials for ASSW

Temporary URL: <http://bit.ly/PDFIIISite>

Polar Data Forum III

Following conversations at the Polar Data Planning Summit in Boulder, and the Polar Data and Systems and Architecture Workshop in Geneva in 2018, we are pleased to announce that the Third Polar Data Forum (PDF III) will be hosted by the [Finnish Meteorological Institute](#) at their Dynamicum campus in Helsinki from November 18th to 22nd, 2019. PDF III will be co-organized with regional partners including the [INTAROS](#) project in conjunction with the [EU Arctic Cluster](#), the [Royal Netherlands Institute for Sea Research](#), and other European organizations. The Forum will be co-convened by the [IASC-SAON Arctic Data Committee](#), [Southern Ocean Observing System](#), [Standing Committee on Antarctic Data Management](#), the [World Data System](#) and other organizations engaged in polar data management.

PDF III will be a two day conference style meeting in support of information exchange, with the remainder of the week using a "hackathon" approach that will build on the development work done in [Boulder](#), [Geneva](#) and other related meetings.



How Can You Help?

1. Identify individuals and organizations in your country (or organization) who are responsible for data... encourage / assign / force engagement in the process! 😊
2. Identify individuals and organizations in your country (or organization) who are researchers, community members, decision maker... encourage / assign / force engagement in the process.
3. Generate resources to support the effort.

Arctic Data Committee Steering Group

Peter L. Pulsifer	USA	Chair
Stein Tronstad	Norway	Vice-Chair
Marten Tacoma	Netherlands	Vice-Chair

National and Organizational Members and Representatives

Oscar Bermudez	Spain
Gabrielle Alix	Canada
Oystein Godøy	WMO
Halldór Jóhannsson	Iceland
Matthew Jones	NSF Arctic Data Center (USA)
Max Petzold	Sweden
Siri-Jodha Singh Khalsa	IEEE
Hanna K. Lappalainen	Finland
Paolo Mazetti	Italy
B.K. Park	Korea
Neil Holdsworth	ICES
Stefanie Schumacher	Germany
Serge Scory	EU-PolarNet
Mikko Strahlendorf	Finland
Wang Dali	China
Hironori Yabuki	Japan
Zhang Beichen	China
Henrik Andersen	European Environment Agency





Thank you!

Questions: peter.Pulsifer@colorado.edu