Arctic Data and Systems Interoperability: report on Polar Connections Workshop

17 November 2016

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Opportunities, Challenges and the Way Forward

Sustaining Arctic Observing Network (SAON)

SAON Data Management Workshop Report

Developing a Strategic Approach

Prepared By:
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The Importance of the Polar Regions for Humankind

The polar regions are experiencing dramatic change. Understanding their complex dimensions (environmental, climatic, social, economic, and geophysical) is critical to grasping the global system and defining our future. Data are an invaluable resource. The

Canada, to address these challenges. Data managers, scientists, funding program managers, Indigenous people and their representatives, students, and others from eighteen nations shared their knowledge, experience, and ideas on how to make polar data more useful and valuable in solving global problems.

In 2013, at the First Polar Data Forum (PDF I) in

International Forum on
Polar Data Activities in Global Data Systems
Communiqué

Recommendations & Observations Arising From the 'International Polar Data Forum'

15–16 October 2013, Tokyo (Japan)

Participants in the International Polar Data Forum (comprising of data managers, scientists, and research coordinators) share their observations about the current state of polar data activities and their recommendations for enhancing and sustaining core data services into the future.

General Remarks

Despite the focus generated by the International Polar Year 2007–2008 (http://www.ipy.org/) there are still unresolved deficiencies in the way polar data are managed. These shortcomings continue to hamper our ability to discover and reuse existing and new data assets. The significant public investment in polar science made through national and international research programs is accompanied by an expectation that data should be preserved and be openly available for reuse and verification purposes. This is the responsibility of both scientists and science funders supported by data managers. Achieving these goals requires implementation of open data policies, development of long-term funding strategies to support data repositories, and a change in scientific practices to require the sharing and citation of data. In addition, the ideas and interpretations that have traditionally underpinned research publication need to be updated accordingly. Scientists must factor the costs of managing and publishing data in their research/monitoring funding proposals, and explicitly address these tasks in research/observing system plans.

Report on
WORKSHOP ON CYBERINFRASTRUCT FOR POLAR SCIENCES
Minneapolis, MN
September 10–12, 2013

Coordination at IPY 2012, Montreal

a Coordination Network will be held at IPY 2012, Montreal, Friday 27 April, 1:30-17:00, Room 512G

strategy and proposed structure for an Arctic Data Coordination Network (ADCN) under the auspices of SAON, IASC, and the Arctic Co
a proposal to the US National Science Foundation for a Research Coordination Network to make this all possible. The idea is to use th
n and then use this workshop to define practical ways to move forward. A short report will be prepared and submitted to the SAON Boar

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Response to the

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OPEN GEOSPATIAL CONSORTIUM (OGC)

PHASE 1 REPORT: SPATIAL DATA SHARING FOR THE ARCTIC

OGC Arctic Spatial Data Pilot

Data Management for Arctic Observing

A Community White Paper
Prepared for the Arctic Observing Summit 2013

Peter L. Pulsifer[1], Lynn Yarmey[1], Øystein Godøy[2], Julie Friddell[3], Warwick F. Vir DeBruin[5], Mark A. Parsons[1]

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3 Canadian Cryospheric Information Network, University of Waterloo, Waterloo, Canada
4 CEN: Centre d'Etudes Nordiques, Laval University, Quebec City, Canada
5 NIOZ Royal Netherlands Institute for Sea Research, Texel, The Netherlands

Interoperability

Interoperability: Interoperability, the ability to easily share data across systems and users, is one of the most important priorities identified by the polar data community. An interoperable system must enable data access that can support many different users. This may require visualization or other mediation such as translating vocabularies to make data usable by different communities. Achieving interoperability will require adequate resources, a certain level of standardization, and a connected community.

The Importance of the Polar Regions for Humankind

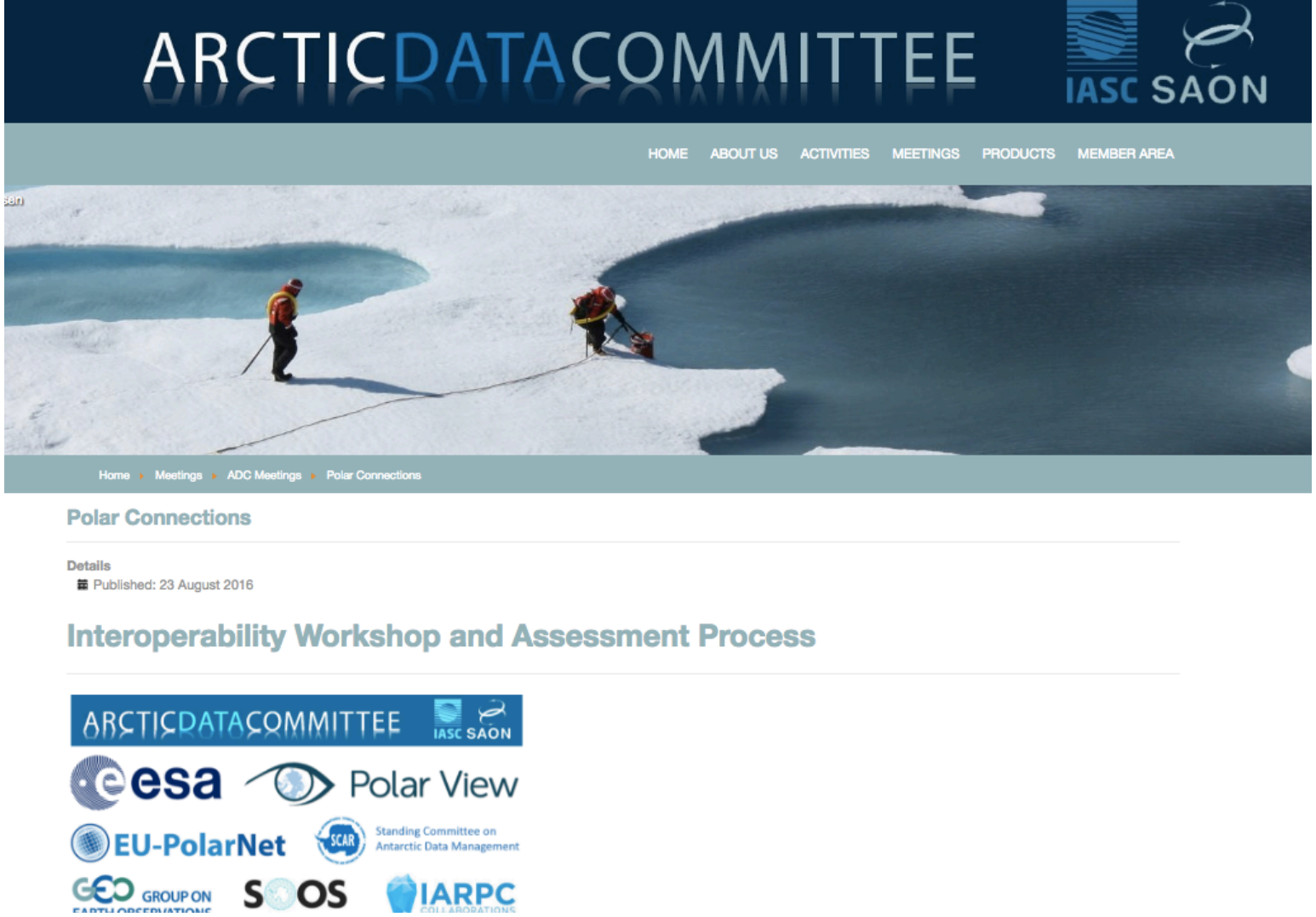
The polar regions are experiencing dramatic change. Understanding their complex dimensions (environmental, climatic, social, economic, and geophysical) is critical to grasping the global system and defining our future. Data are an invaluable resource. The coordinated capture, analysis, storage, stewardship, and sharing of scientific data along with Indigenous knowledge helps society better understand the regional and global impacts of polar changes. But these data management activities present considerable technical, social, policy, and economic challenges.

The Second Polar Data Forum

In October 2015, more than 110 people gathered at the Second Polar Data Forum (PDF II) at the University of Waterloo, Canada, to address these challenges. Data managers, scientists, funding program managers, Indigenous people and their representatives, students, and others from eighteen nations shared their knowledge, experience, and ideas on how to make polar data more useful and valuable in solving global problems.

In 2013, at the First Polar Data Forum (PDF I) in Tokyo, Japan, the community identified issues and made observations and recommendations on polar data management. PDF I focused on improving how people and systems can share data in a meaningful way. The goal was to move towards open and connected systems based on a culture of trust and acknowledgement of data production and use.

PDF II highlighted the significant progress in polar data management made since PDF I and also identified priorities as we move forward. The community reconfirmed the themes of PDF I, identified key new themes that have evolved,



http://arcticdc.org/meetings/adc-meetings/interoperability-workshop

Meeting Overview

- 3 combined meetings: EU-PolarNet, Workshop, ADC
- 60 participants from 17 countries
- Combination of thematic plenary and ‘lightning’ talks
- Most of the two days were working sessions
- Focus on practical outcomes

Interoperability Workshop and Assessment Process

ARCTICDATACOMMITTEE IASC SAON esa

Polar View EU-PolarNet WMO OMM

Standing Committee on Antarctic Data Management SOOS GCW GEO GROUP ON EARTH OBSERVATIONS

polar tep YOPP YEAR OF POLAR PREDICTION AMAP IARPC COLLABORATIONS

7 - 10 November 2016

European Space Agency ESRIN
Via Galileo Galilei
Casella Postale 6400044 Frascati (Roma)
Italy

*** BE PART OF THE PROCESS - TAKE OUR BRIEF SURVEY ***

Related Events

- EU-PolarNet Task 3.3 Annual Meeting (Open) : Afternoon and evening of **November 7th** Agenda
  - Gathering **at 14:45** at the **Old Reception in Building 1**
- Interoperability Workshop: **November 8th, 9th** Draft Agenda: Polar Connections Interoperability Workshop and Assessment Process
  - Registration **from 8:30** at the reception desk close to the **Big Hall in Building 14**
- Third Meeting of the Arctic Data Committee (Open) : **November 10th** (Draft Agenda)
  - Gathering **at 8:20** at the **Old Reception in Building 1**

Access to the ESRIN site is restricted to persons pre-registered using the online conference registration system, **presenting a print of the email sent on 2 November** and an original valid form of ID; as you are already registered, security has received your name on the list of participants for the conference. For security reasons, cars cannot be parked inside the ESRIN premises. A private parking area (open until 23:40) is available close to ESA/ESRIN in Via delle Perazzeta (Frascati) in front of the Train Station Tor Vergata.

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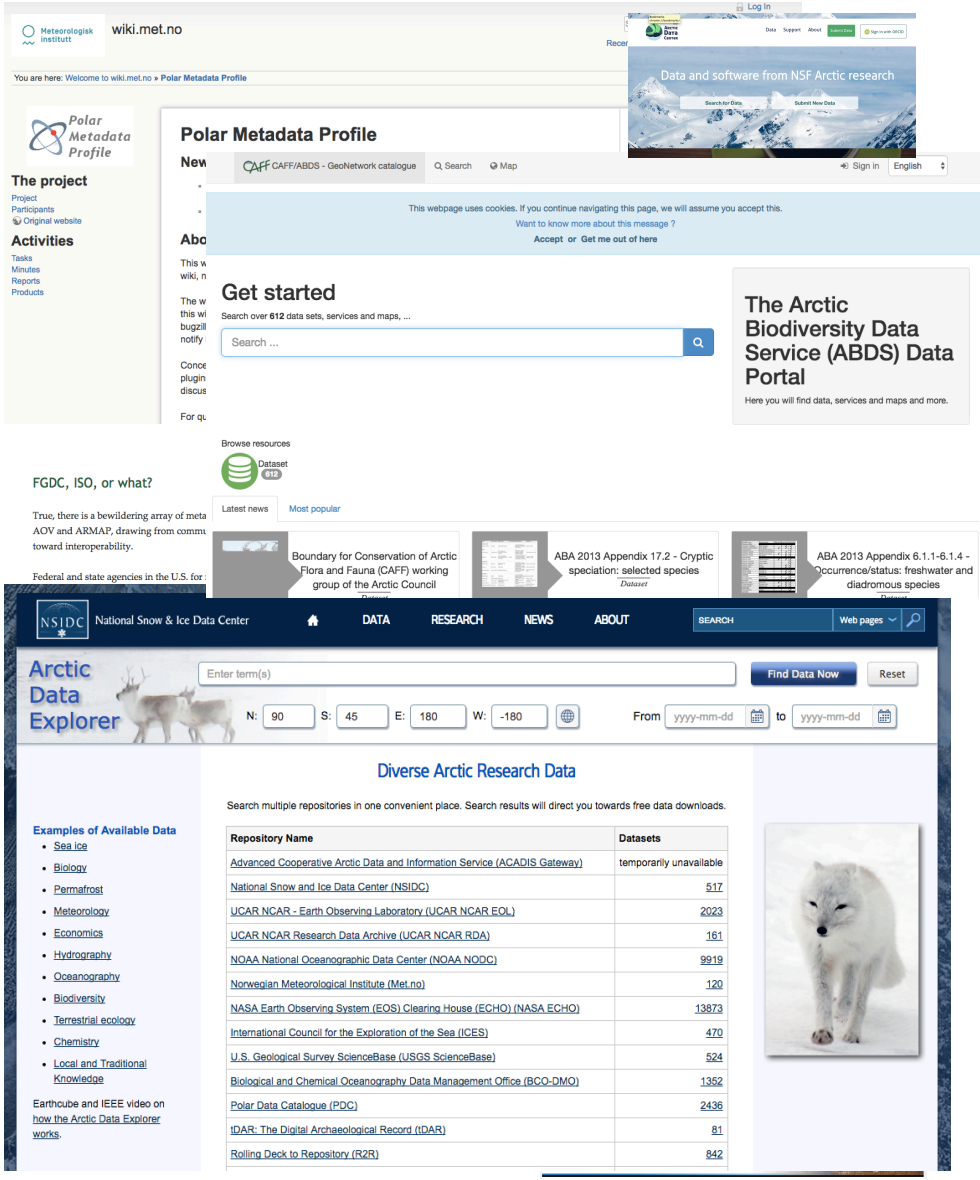
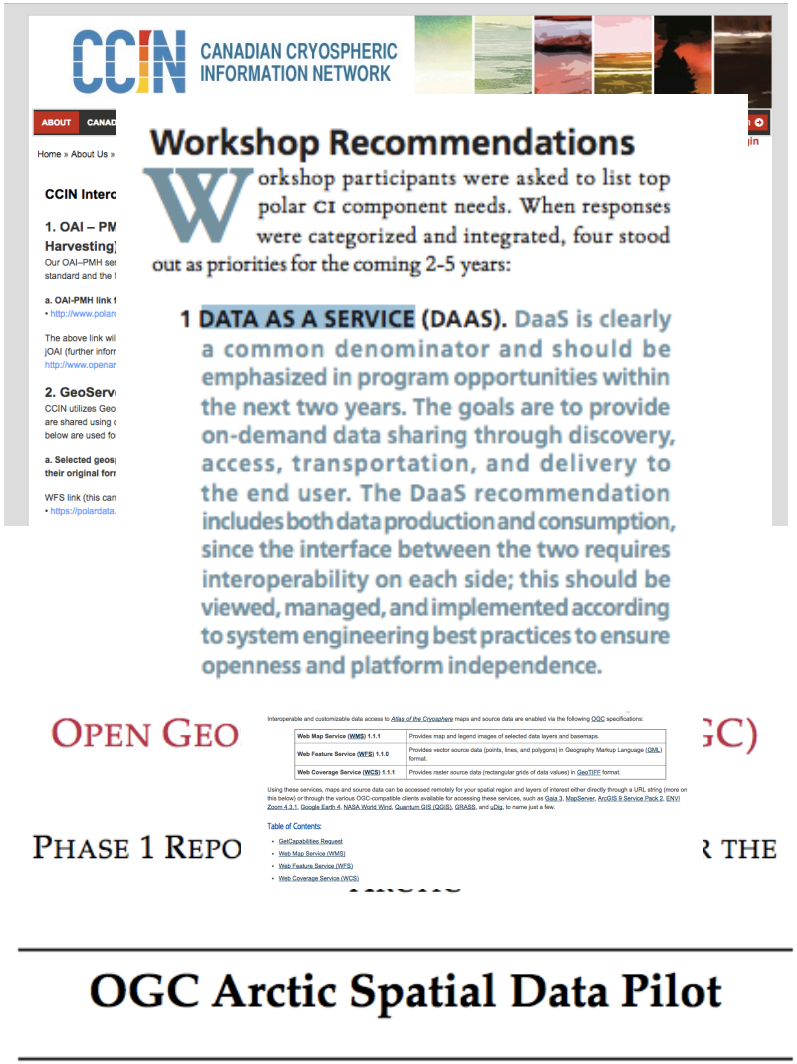
Data Discovery and Documentation

- Dominant technical topic
- Federated search needed
- Open components in place (e.g. ADIwg; ADE etc); community actively working to establish solution



Data as a Service

- Service model becoming increasingly mature – data centers actively implementing
- Need education and training (e.g. reference implementations) to move to mainstream
- More important is stability – “infrastructure”



Cloud Data and Computing Platforms

- Increasingly important, potentially “keystone species” in the data ecosystem
- Brings code to the data rather than data to the code
- These platforms are becoming aggregators/hubs
- New challenges for interoperability

Social Sciences, Indigenous Knowledge, Community Based Observing

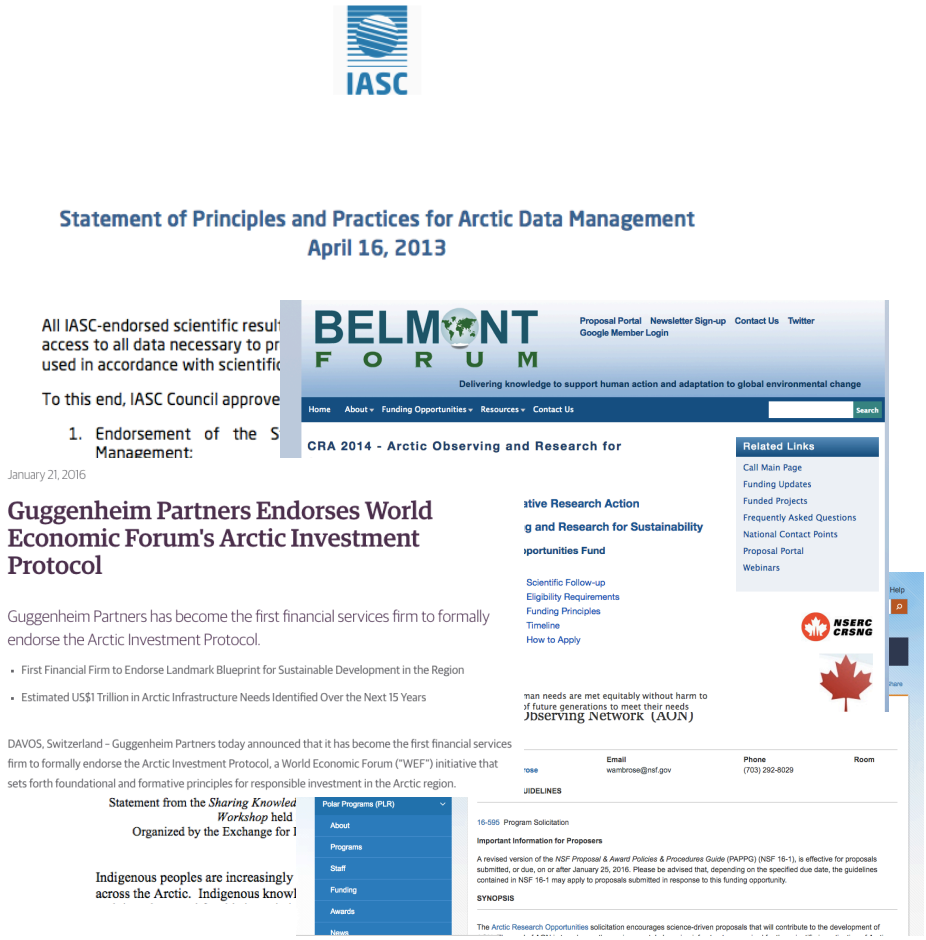
- Need more direct engagement with Indigenous organizations and communities
- Resources to “do data” and engage required
- Understand the context and sensitivities
- Outcome: recognition of new groups; representation on ADC

Connecting to the Global

- Many global bodies working on relevant issues
- Polar community can benefit from AND contribute to
- Move towards more proactive engagement –
- SAON/GEO;
- ADC-SCADAM/RDA

Governance & Sustainability

- Strongest message: **main challenges today are social and organizational rather than technical**
- Coordination, appropriate level of governance required (command-control -> anarchy)
- Enhance existing bodies rather than adding more to crowded landscape (resource implications)
- ADC/SCADM/SOOS MoC ; SAON + GEOCRI work plan



Next Steps

- Process records of the meeting
- Collaborative development of report, including recommendations and scenarios
- Dissemination to sponsor organizations
- Actively seeking resources for community efforts