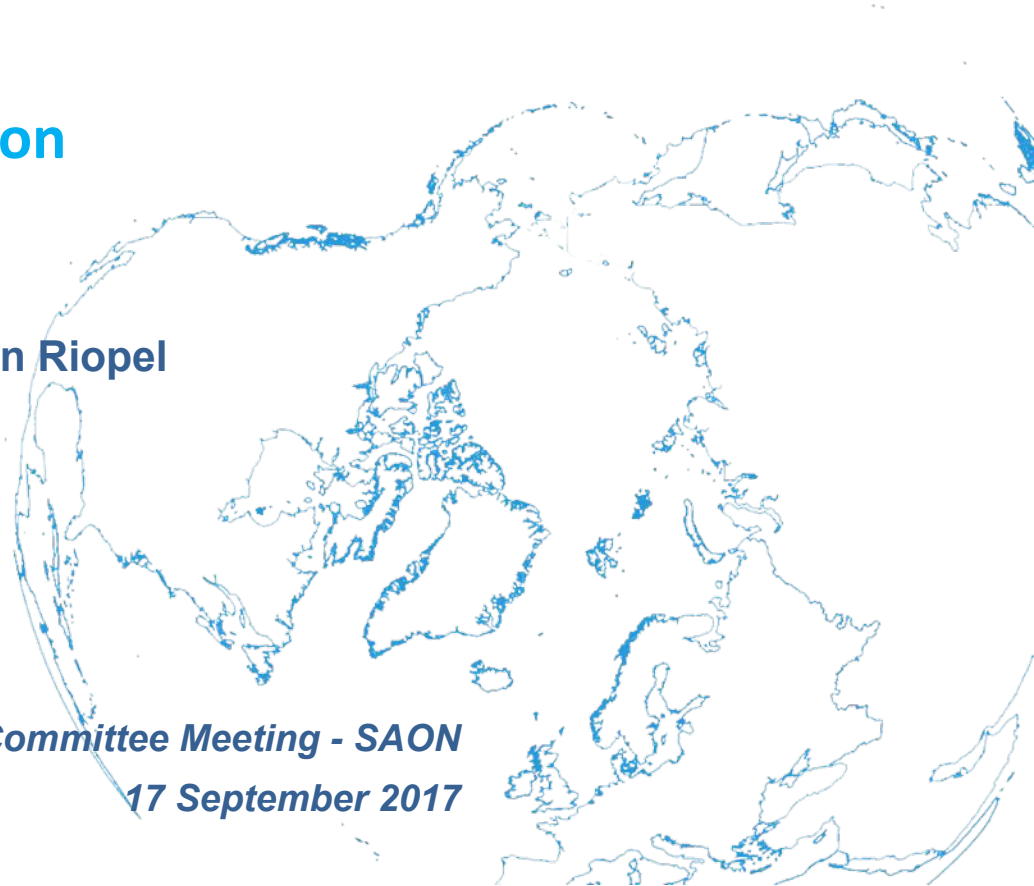
ARCTIC SDI
Arctic Spatial Data Infrastructure

Enabling Access to Arctic Location Based Information

Matthew Maloley, Cameron Wilson, Simon Riopel
Natural Resources Canada



Arctic Data Committee Meeting - SAON
17 September 2017

arctic-sdi.org

ARCTIC SDI
Arctic Spatial Data Infrastructure

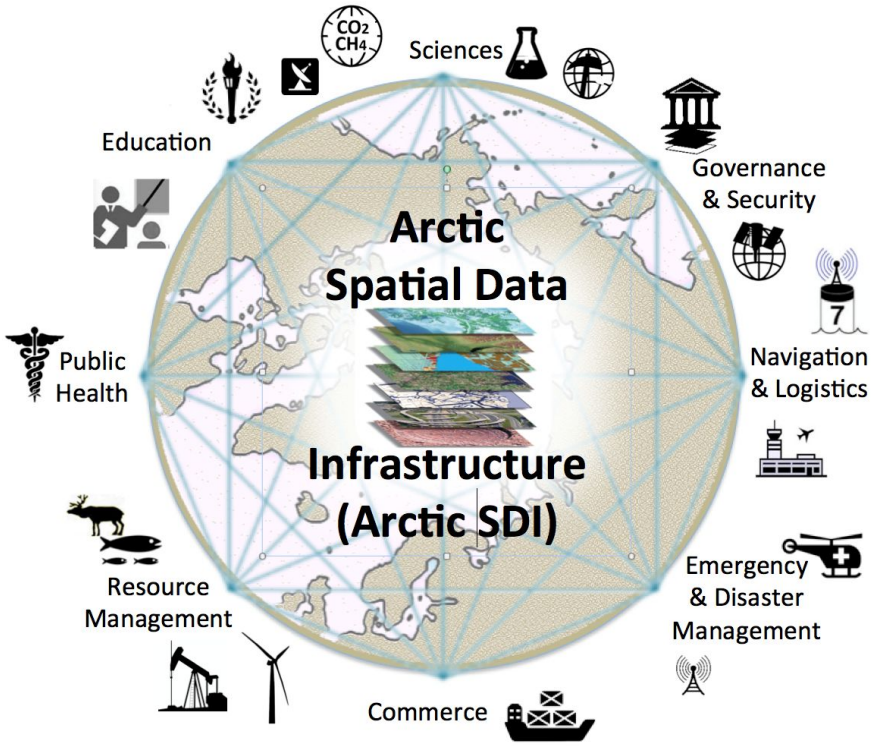
What is Arctic SDI?

Video:

- **Arctic SDI 101**
- **AC endorsed 2009**
- **MoU in Place**
- **Strategic Plan**
- **Technical Implementations**
- **Publications**

http://wallpaper.imcphoto.net/animals/polar-bear/polar-bear-on-ice.jpg

A Cooperative Model in the Arctic



Graphic Source: OGC

The Arctic SDI is focused on

- Working with organizations to make their data available, with a focus on the Arctic Council.
- Understanding the needs and requirements of stakeholders.
- Information Management best practices (lifecycle of geospatial data).
- Open data standards and provision of authoritative data.

Arctic SDI provides an Authoritative Reference Basemap provided directly from the 8 Arctic National Mapping Agencies

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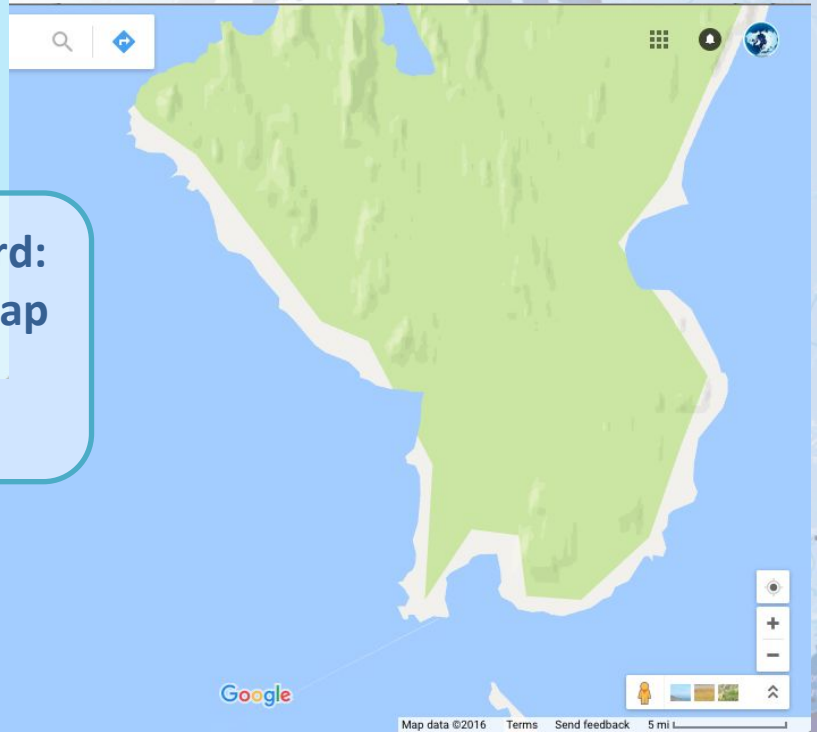
Southern Svalbard: Arctic SDI Basemap vs. Google Maps

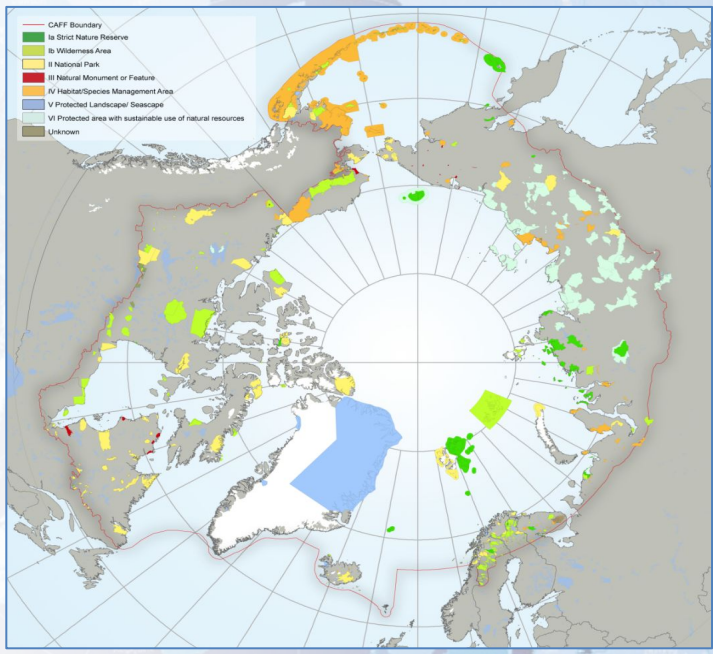


Arctic SDI provides access to all forms of authoritative data

Arctic SDI is Partnering to Enhance Data Management Best Practices

Collaborating with Arctic Council Working Groups to develop common data sharing methodologies and best practices:

- MODIS satellite data derived products (2002-2012) and migratory birds index published ABDS based SDI web standards (ISO, OGC),
- Contributing to the data management plan of the Biodiversity Monitoring Stations (Iceland, Canada, Greenland) project lead by CAFF,
- Collaborating with CAFF and PAME to enable time series embedded maps of the new protected areas database (1900-2016),
- Assisting with CAFF's Earth Observation Plan to acquire and distribute derived products for Landsat EO data (1970 to present),
- Arctic Council Working Group Meeting, September 2015, Tromsø; Standardized Geospatial Data Management and Sharing.



11,4 % protected
4,7 % marine
20,2 % terrestrial

Arctic SDI is Partnering to Enhance Data Management Best Practices - *Engagement*

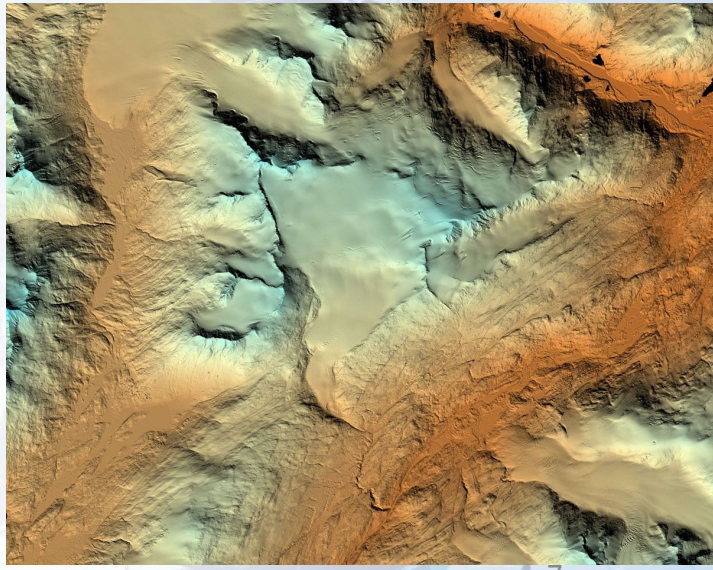
Collaborating with different Arctic stakeholders:

- **Provinces and Territories** –The SDI Manual for the Arctic provides data management practices and guidelines for efficient monitoring and decision making in the Arctic.
- **Academia / Indigenous Communities** – Canadian Consortium for Arctic Data Interoperability, Polar Data Workshop II
- **Industry** - Spatineo Harvesting of Web Services (+1000)
- **NGO** - OGC Request for Information (30+ organisations replied), Gordon Foundation - DataStreams

Pan-Arctic Digital Elevation Map

US Arctic Council Chairmanship Initiative Gets World Visibility: President Obama Announces Investments to Combat Climate Change

- Funded by the USA National Science Foundation,
- Arctic SDI Board provided elevation experts to review and increase product accuracy,
- Arctic SDI published a position statement providing enthusiastic support,
- National Mapping Authorities provide sustainable support of elevation models and continuous improvement as part of their operations.



Arctic Spatial Data Pilot - Climate Change Scenarios

- Sponsored by NRCan and USGS, this Open Geospatial Consortium Arctic Spatial Data Pilot:
  - Defined land and sea climate change scenarios to break down *information management silos* with technical piloting activities:
    - Improve access to reliable data for monitoring, management, emergency preparedness and decision making in the Arctic,
    - Produce a video to showcase how standards and common approaches to data management are deployed.
  - Addressed technology issues to meet the realities of Arctic frontier economies, such as in zero/low bandwidth Internet.

http://www.opengeospatial.org/projects/initiatives/arcticsdp
http://www.opengeospatial.org/pub/ArcticSDP/pilot-initiative.html

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Making location count.

Natural Resources Canada

USGS
science for a changing world

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Arctic Spatial Data Pilot – Summary Video

Goal: Demonstrating the diversity, richness and value of providing geospatial data using international standards in support of spatial data exchange.

This summary video provides the key results of the Arctic Spatial Data Pilot. It integrates highlights from the various scenarios, adds statements from key stakeholders that we interviewed and can be used to get a quick overview of the power and value of data and processing capacitities served at standardized Web services.

Arctic Spatial Data Pilot - Videos

VIDEOS

Case Studies by Pilot Participants

OGC / 7:46 MIN

The Arctic Spatial Data Pilot Summary

This video highlights essential elements that have been addressed by the Arctic Spatial Data Pilot, an initiative of the OGC Innovation Program

LUCIAD / 2:56 MIN

New Shipping Routes in the Arctic

The Arctic encompasses a number of shipping routes, grouped into a Northwest Passage and a Northeast Passage. Each passage crosses a ...

COMPUSULT / 4:50 MIN

Search & Rescue in the Hudson Strait

The Canadian Coast Guard receives a distress message from an oil tanker in the Hudson Strait. Coast Guard initiates a search and ...

PYXIS / 7:03 MIN

Modeling, Forecasting & Complex Data Analysis

Analysis of scientific data to project thawing of permafrost Modeling Land Susceptibility to Failure due to Permafrost Loss.

ECERE / 9:18 MIN

3D Data Visualization & Temporal Patterns

The Porcupine caribou herd's migration patterns have been overlaid with topographic and climatic information in a 3D environment.

ESRI CANADA / 6:56 MIN

Food Security in the Arctic

Building a Web Platform on Food Security: Governments and NGOs are continually assessing and monitoring the situation to ensure ...

ARCTIC SDI / 5:32 MIN

ArcticSDI: Functionality & Sustainability

Demonstration of the Arctic SDI Geoportal, a cooperative effort between the National Mapping Agencies of the eight Arctic Council Member countries.

VIDEO

PYXIS / 5:56 MIN

Landslide Susceptibility Mapping

NRCan completed a pilot study on a region within the Mackenzie Valley to test a method of mapping slope stability in a permafrost environment.

VIDEO

LUCIAD / 3:11 MIN

Sea Ice Age Evolution: Beaufort Gyre

Arctic Sea Ice Age measurements show that the sea ice is becoming younger. Since the 1980s, the amount of multiyear ice has declined ...

VIDEO

Arctic Spatial Data Pilot - Conclusions

- If data is documented and standardized, integration in data processing workflows is extremely efficient.
- Limited telecom resources/bandwidth issues in North.
- High value data not being delivered via standard services, lack of consolidated catalogs, and almost no relevant inventory of available services produce high entry hurdles for Northerners.
- End users need to implement with best practices, provide appropriate descriptions, categorize information, and link to information and services.
- Semantic Web is still in its infancy, humans remain at key positions for data discovery, exploration, and application.

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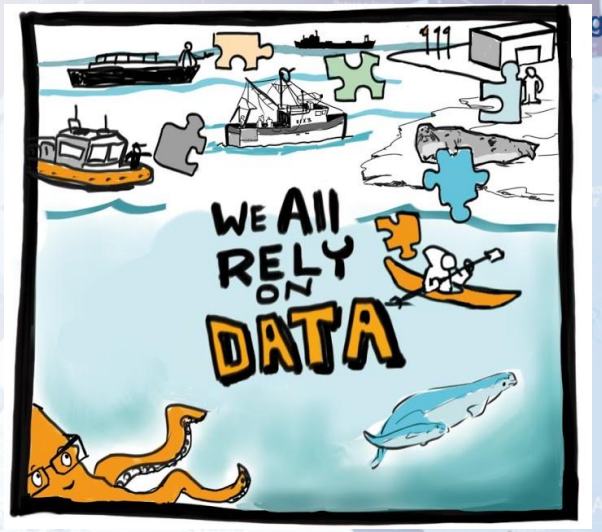
We Are All Stakeholders

- Ecosystem-based analysis requires seamless sharing of data across jurisdictions and organizations.



Source: blogs.vmware.com

- Arctic SDI is providing shared tools and information management practices to Arctic stakeholders to break down silos.
- Arctic SDI brings together the National Mapping Agencies, trusted map data and geospatial data expertise.

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