



**ARCTIC**  
**SDI** Arctic Spatial  
Data Infrastructure



## Enabling Access to Arctic Location Based Information

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**Arctic SDI Board Chair, United States Geological Survey**

*Alaska Surveying and Mapping Conference, GeoJam*

*15 February 2017*

# What is Arctic SDI?

## Video:

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



# Arctic SDI Video on YouTube



## Arctic SDI Fact Sheet



**ARCTIC SDI** Arctic Spatial Data Infrastructure

### GEOSPATIAL DATA – A TOOL FOR BETTER INFORMED DECISIONS AND MORE EFFICIENT ADMINISTRATION IN THE ARCTIC

Improved access to geospatial data can help us better to predict, understand and react to changes in the Arctic. Responses to the impact of climate change and human activities in the Arctic requires accessible and reliable data to facilitate monitoring, management, emergency preparedness and decision making.

Important data sets are produced and distributed by many stakeholders – public and private sector – and most of it can be geographically referenced. A spatial data infrastructure provides tools for data distributors to ensure that their geospatial data is easier for users to access, validate and combine with other data.

The Arctic SDI provides such an infrastructure and its development is facilitated by the National Mapping Agencies of the eight Arctic countries.

The Arctic SDI Geoportal and the initial Arctic SDI Reference Map – the basic building blocks in the Arctic Spatial Data Infrastructure are available

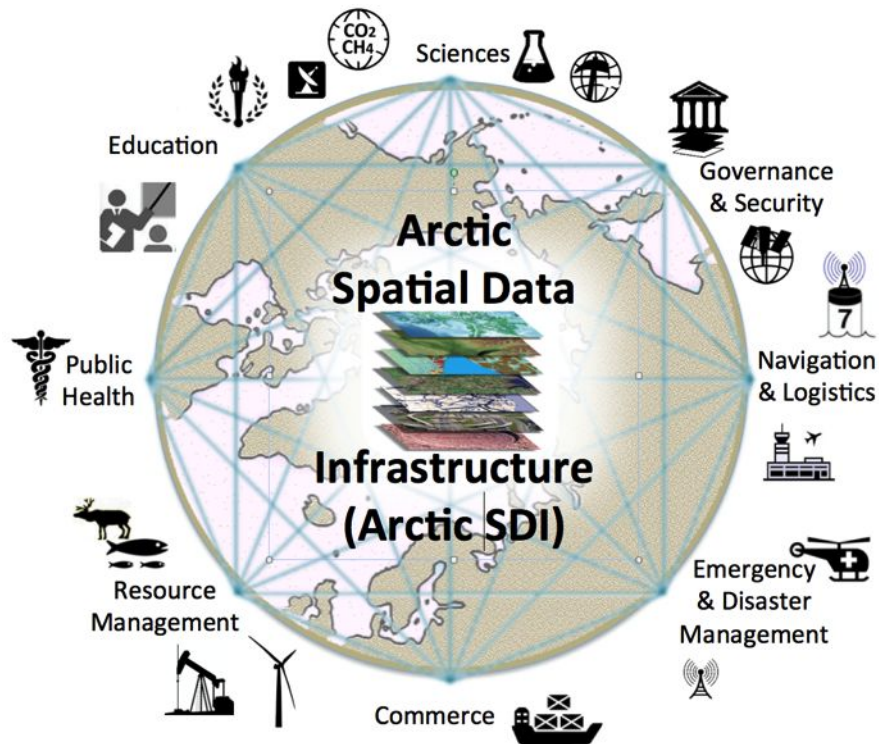
- The Arctic SDI Geoportal providing a web map viewer for use by any interested user to access the Reference Web Map Services covering the



Arctic SDI Geoportal in the



# A Cooperative Model in the Arctic



## The Arctic SDI is focused on

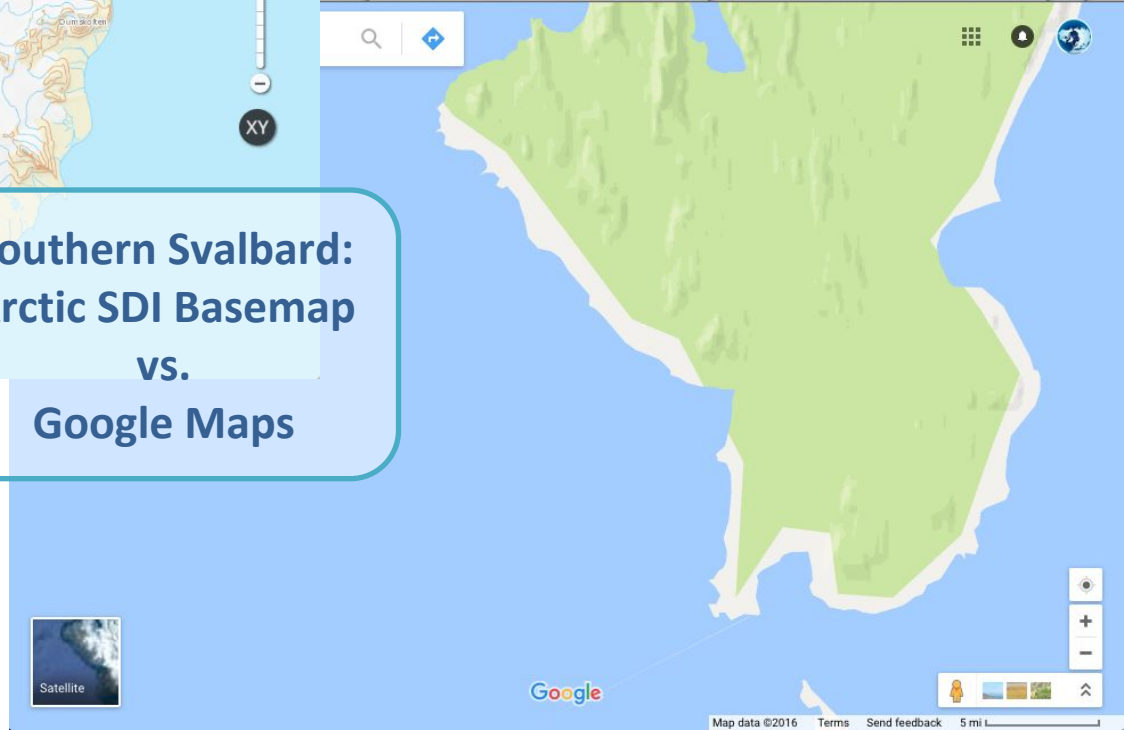
- Working with organizations to make their data available, with a focus on the Arctic Council,
- Understanding the needs and requirements of stakeholders,
- Information Management best practices (lifecycle of geospatial data),
- Open data standards and provision of authoritative data,
- Helping users and data contributors understand how to participate and why it's important.



Arctic SDI provides an **Authoritative Reference Basemap** Provided Directly from the **8 Arctic National Mapping Agencies**

**Southern Svalbard:  
Arctic SDI Basemap  
vs.  
Google Maps**

**Arctic SDI provides  
access to all forms of  
authoritative data**



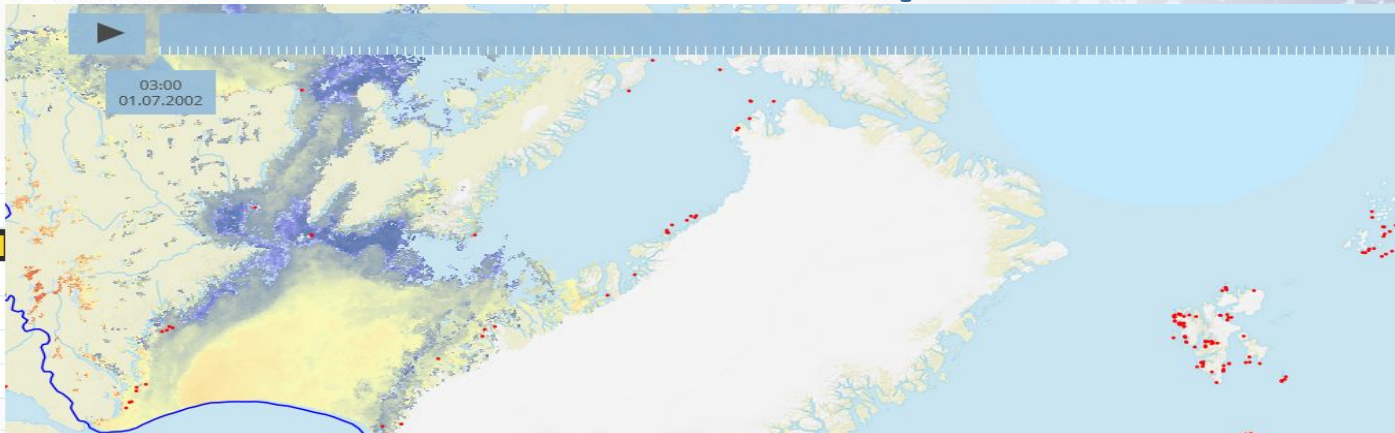
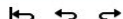
# Authoritative Reference Basemap

Provided Directly from the  
**8 Arctic National Mapping  
Agencies**



- Common Cartographic Specification
- A Trusted Source of Detailed Information





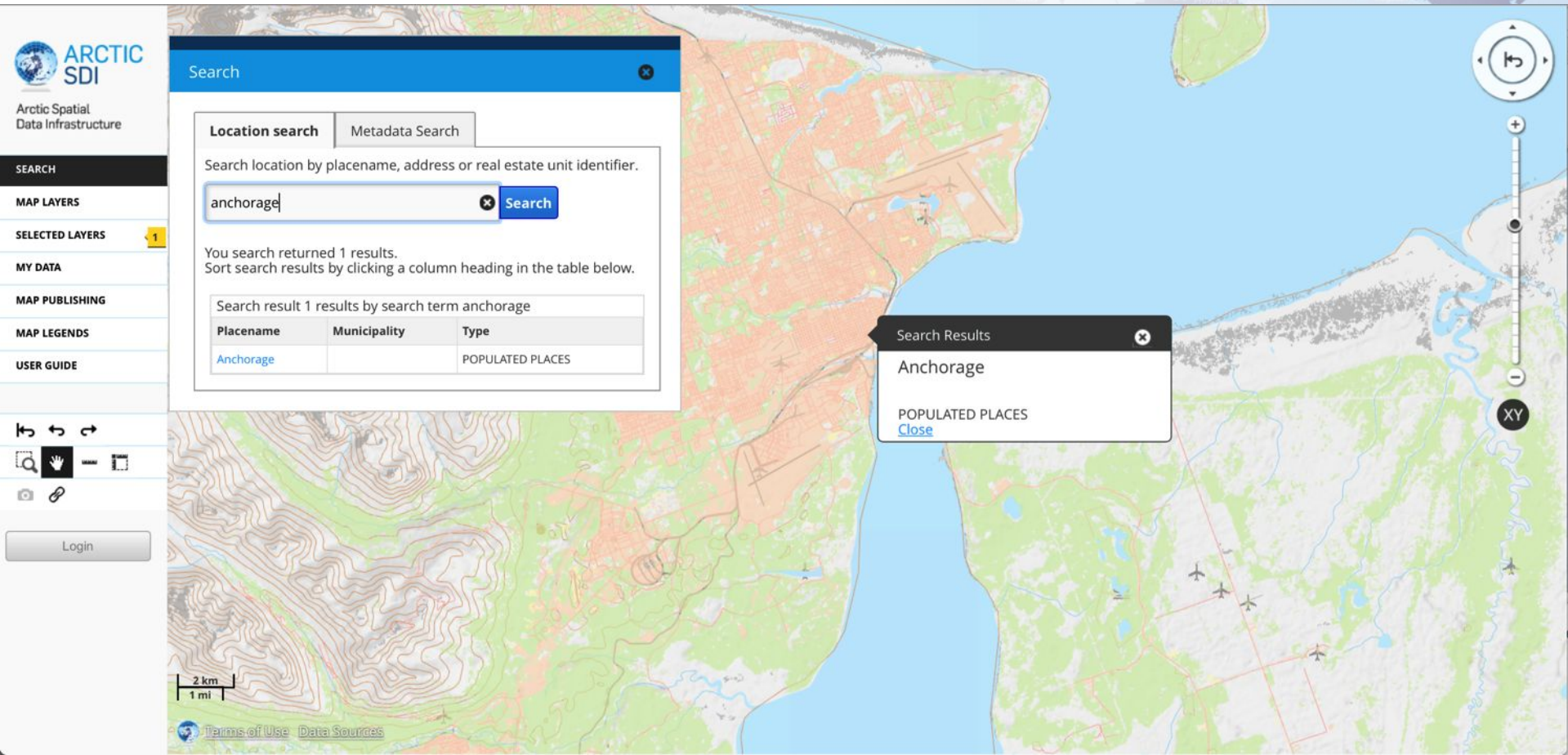
XY

## Selected Layers

- Murres as indicators of a changing Arctic   
[Hide](#) 100% Publication permitted
- AMAP Boundary   
[Hide](#) 100% Publication permitted
- Sea Surface Temperature  
MODIS Sea Surface Temperature   
[Hide](#) 100% Publication permitted
- Arctic SDI Background Map  
Arctic SDI WMTS Background Map   
[Hide](#) 100% Publication permitted



# Location Search



**ARCTIC SDI** Arctic Spatial Data Infrastructure

**SEARCH**

**MAP LAYERS**

**SELECTED LAYERS** 1

**MY DATA**

**MAP PUBLISHING**

**MAP LEGENDS**

**USER GUIDE**

**Login**

**Search**

**Location search** Metadata Search

Search location by placename, address or real estate unit identifier.

anchorage **Search**

You search returned 1 results.  
Sort search results by clicking a column heading in the table below.

Search result 1 results by search term anchorage

| Placename                 | Municipality | Type             |
|---------------------------|--------------|------------------|
| <a href="#">Anchorage</a> |              | POPULATED PLACES |

**Search Results**

Anchorage

POPULATED PLACES  
[Close](#)

2 km  
1 mi

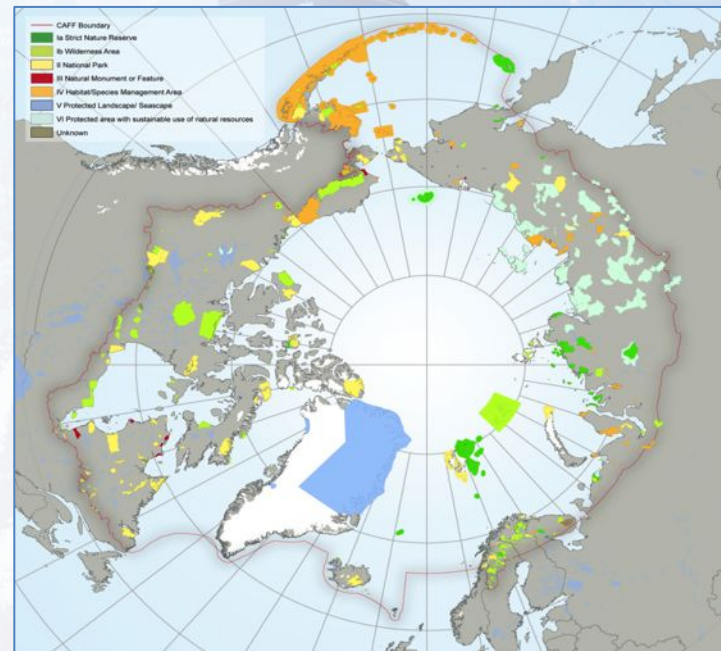
[Terms of Use](#) [Data Sources](#)



# 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.



**The SDI Manual for the Arctic provides data management practices and guidelines for efficient monitoring and decision making in the Arctic.**

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



# Arctic Spatial Data Pilot - Climate Change Scenarios

- Sponsored by USGS and NRCan, in collaboration with the Arctic SDI participants, this Open Geospatial Consortium Arctic Spatial Data Pilot will:
  - Define land and sea 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 value of available data when standards and a common approaches to data management are deployed.
  - Address technology issues to meet the realities of Arctic frontier economies, such as in zero/low bandwidth Internet.

<http://www.opengeospatial.org/projects/initiatives/arcticsdp>



Natural Resources  
Canada



ARCTIC  
SDI Arctic Spatial  
Data Infrastructure

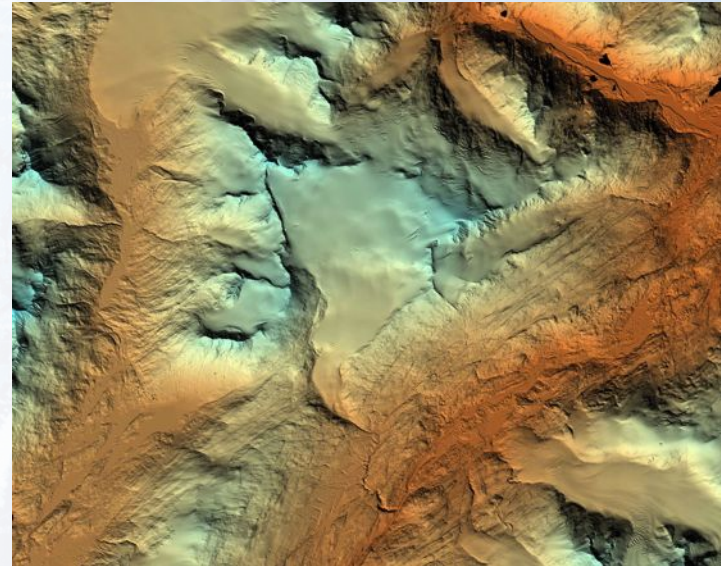




# Pan-Arctic Digital Elevation Map

## US Arctic Council Chairmanship Initiative

- 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.



***Major step forward: A significantly important contribution to national and international mapping of the Arctic***

# We Are All Stakeholders

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



Source: [blogs.vmware.com](https://blogs.vmware.com)

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

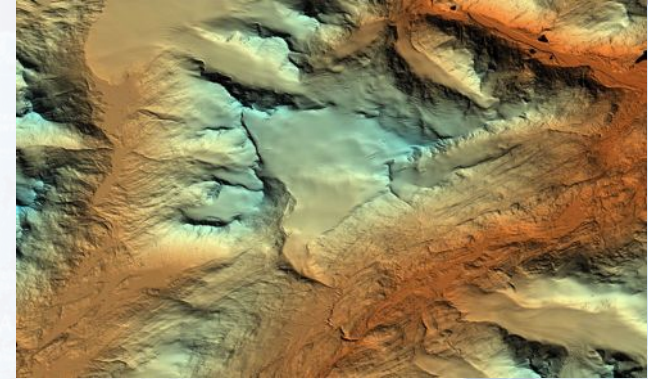




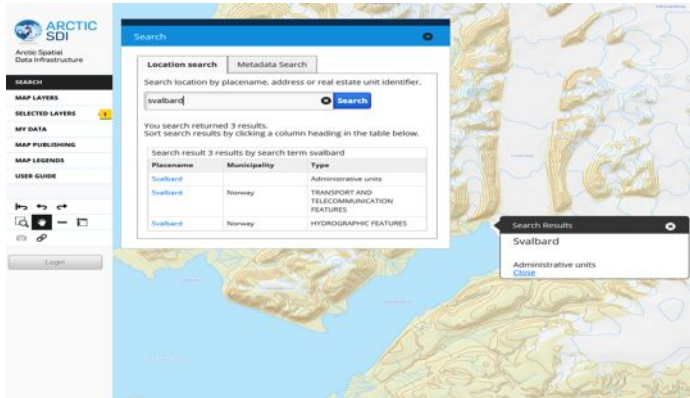
*[arctic-sdi.org](https://arctic-sdi.org)*

# Data Resources

- Pan-Arctic Digital Elevation Map
- Marine Data
- Gazetteer Database and Search
- Arctic Reference Basemap



Pan-Arctic DEM



Gazetteer search



Shaded relief for depths