2017 CPD Workshop Lightning Talks

Tools

1. Chris Southcott – Managing Socio-economic Data for the Arctic: The ReSDA Atlas
2. Amos Hayes – Nunaliit
3. Joel Heath – The SIKU.org platform as a cutting edge tool for documenting and mobilizing Inuit knowledge and observations
4. David Arthurs – Polar Thematic Exploitation Platform (Polar TEP) **(see video "03_Heath.wmv")**

Databases

5. David Baker – Scaling the Tower of Babel Together: The IRIDIUM Glossary
6. Christine Barnard – Meeting the Needs for Arctic Data Archiving and Dissemination: Development of the Environmental Data Repository Nordicana D
7. Louis Poirier – Beaufort Sea Engineering Database
8. Andrew Stewart – A Canadian Integrated Ocean Observing System (CIOOS)
9. Dana Church – Outreach at the Polar Data Catalogue

Organizations/Committees

10. Scot Nickels – Inuit national relationships with the Tri-council
11. Lisa van Buren – Co-development of an Arctic Policy Framework - science and data
12. Jason Stow – The Northern Contaminants Program
13. Sarah Kalhok – Arctic Monitoring and Assessment Programme (AMAP)
14. Peter Pulsifer – The Arctic Data Committee
15. Claire Herbert – Canadian Watershed Information Network (CanWIN)
16. Kristine Hirschkorn – Northern Canada Geospatial Innovation Centre Concept

Data (general)

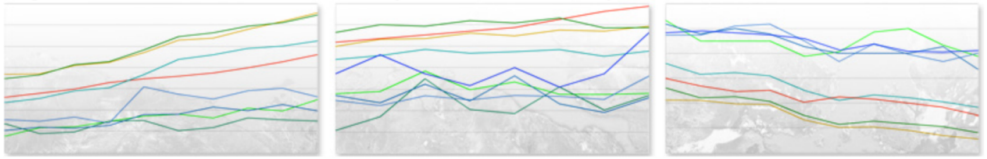
17. Alexander Trishchenko – Arctic Satellite Records for Climate Change Applications
18. Jeff Saarela – Polar data in natural history collections: documenting species occurrences in time and space
19. Julie Friddell – Antarctic data management and research
20. Stephan Gruber – Permafrost Data

21. Alexandre Forest – Amundsen Science

Managing socio-economic data: ReSDA Atlas

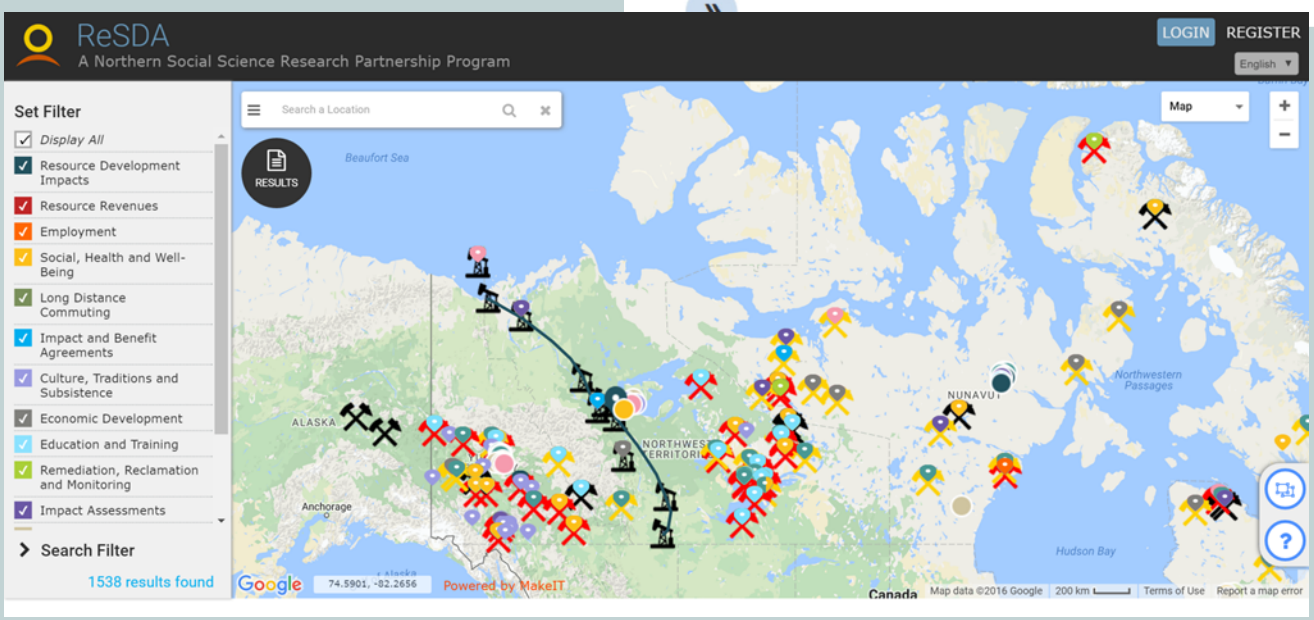
Inuvialuit Indicators

PopulationEducationCultureLabour ForceWellbeingIncomeGovernmentHousing All



Inuvialuit Indicators uses Inuvialuit Regional Corporation's database of statistics to track how our people and our communities change over time.

To get started, you can:



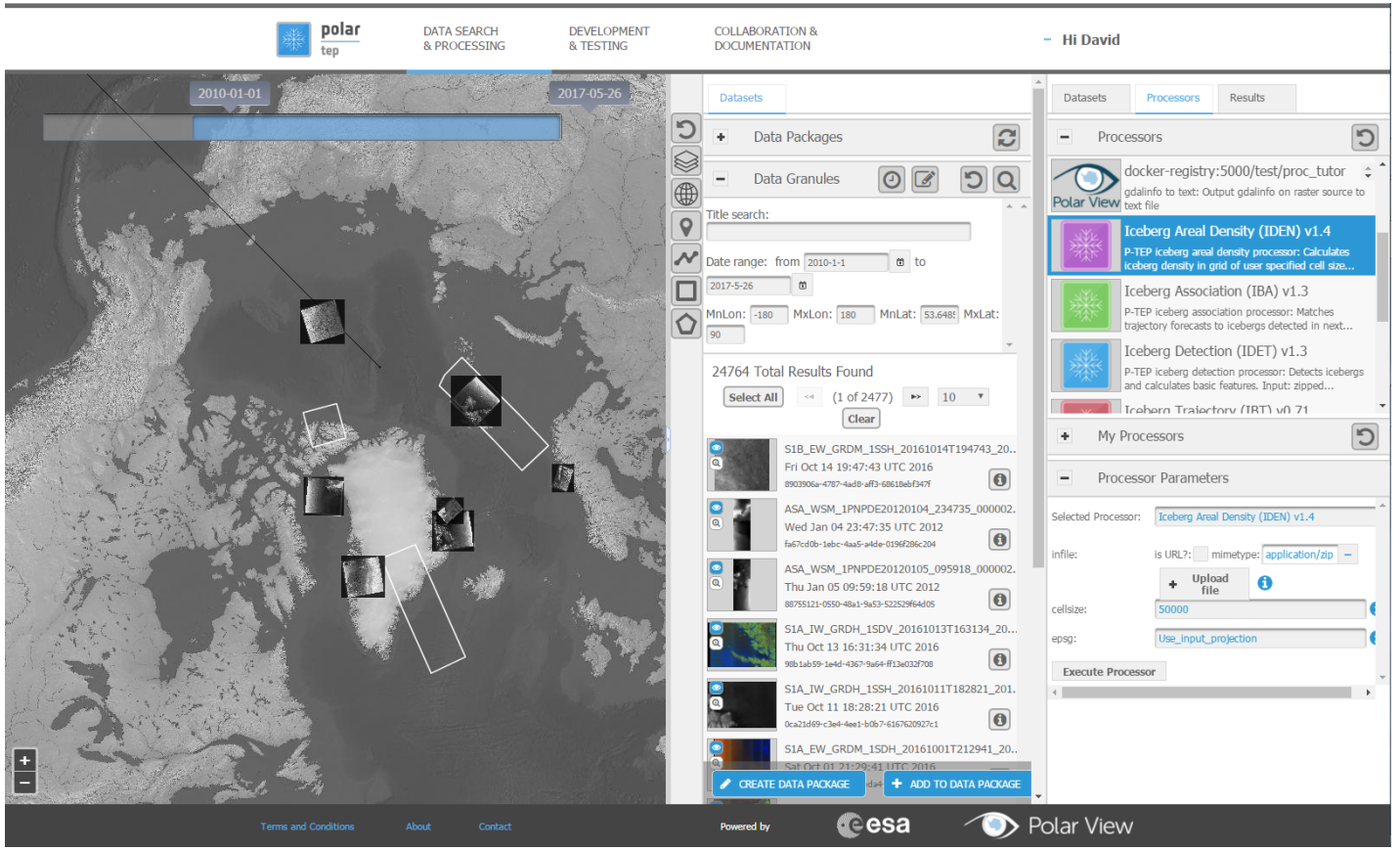
ReSDA
RESOURCES and SUSTAINABLE DEVELOPMENT in the ARCTIC

Carleton UNIVERSITY | Geomatics and Cartographic Research Centre

- Legal and Ethical Policy and Innovation
- Participatory Mapping R&D
- Nunaliit Framework
  - Collect, organize, present, preserve, collaborate
  - Multiple representations (oral histories, maps, graphs, timelines, spoken features, custom visualizations, etc.)
  - Relate qualitative and quantitative data
  - Multiple simultaneous uses from single system
  - Distributed architecture
  - Developed with communities
  - Open Standards, Open Source

Polar Thematic Exploitation Platform

- A virtual research platform
- A central hub in the polar data ecosystem
- Provides polar-relevant data, tools, and processing in the cloud
- Brings users' algorithms to the data
- Governed by a Board representing the operational and scientific communities
- Interested in collaborating with potential users and data providers



Scaling the Tower of Babel Together: the IRIDIUM Glossary

What: a glossary of RDM terms

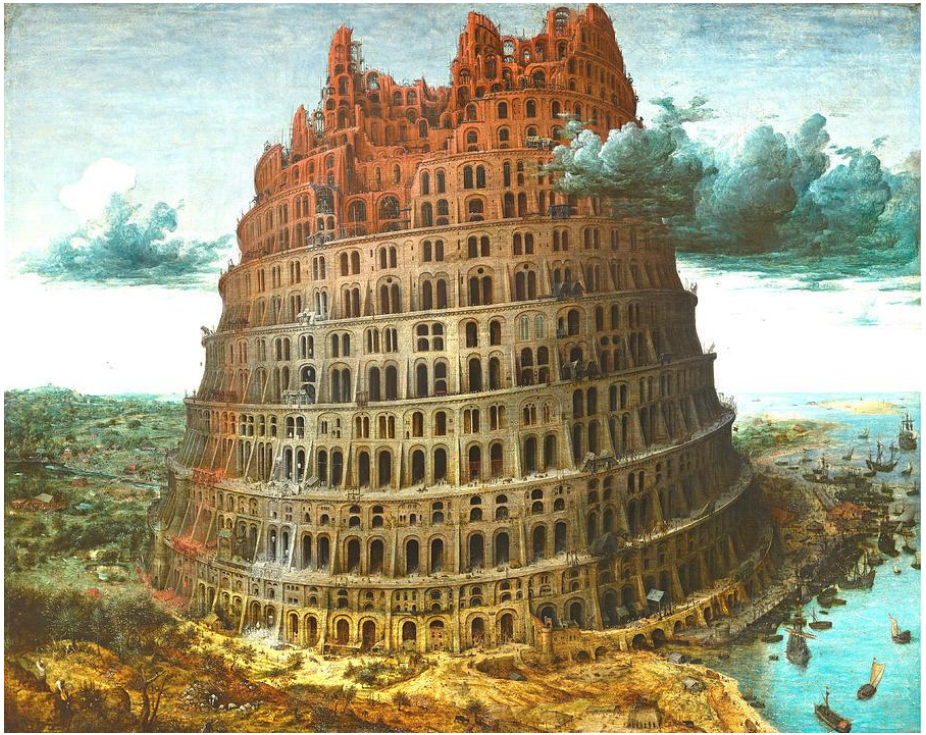
- Simple/extended textual definitions/synonyms

Why: consistency across diversity

- disciplines/practices

Help: review and edit terms

- https://forum.casrai.org/groups/ca-IRiDiuM



casrai

Meeting the Data Challenge
Environmental Data Repository: Nordicana D

Christine Barnard,
CEN Science Coordinator

Luc Cournoyer,
Lead Developer

Warwick F. Vincent,
Senior Editor

CEN

Interuniversity research centre of excellence for northern research
120 environmental monitoring stations across a 4000 km N-S transect

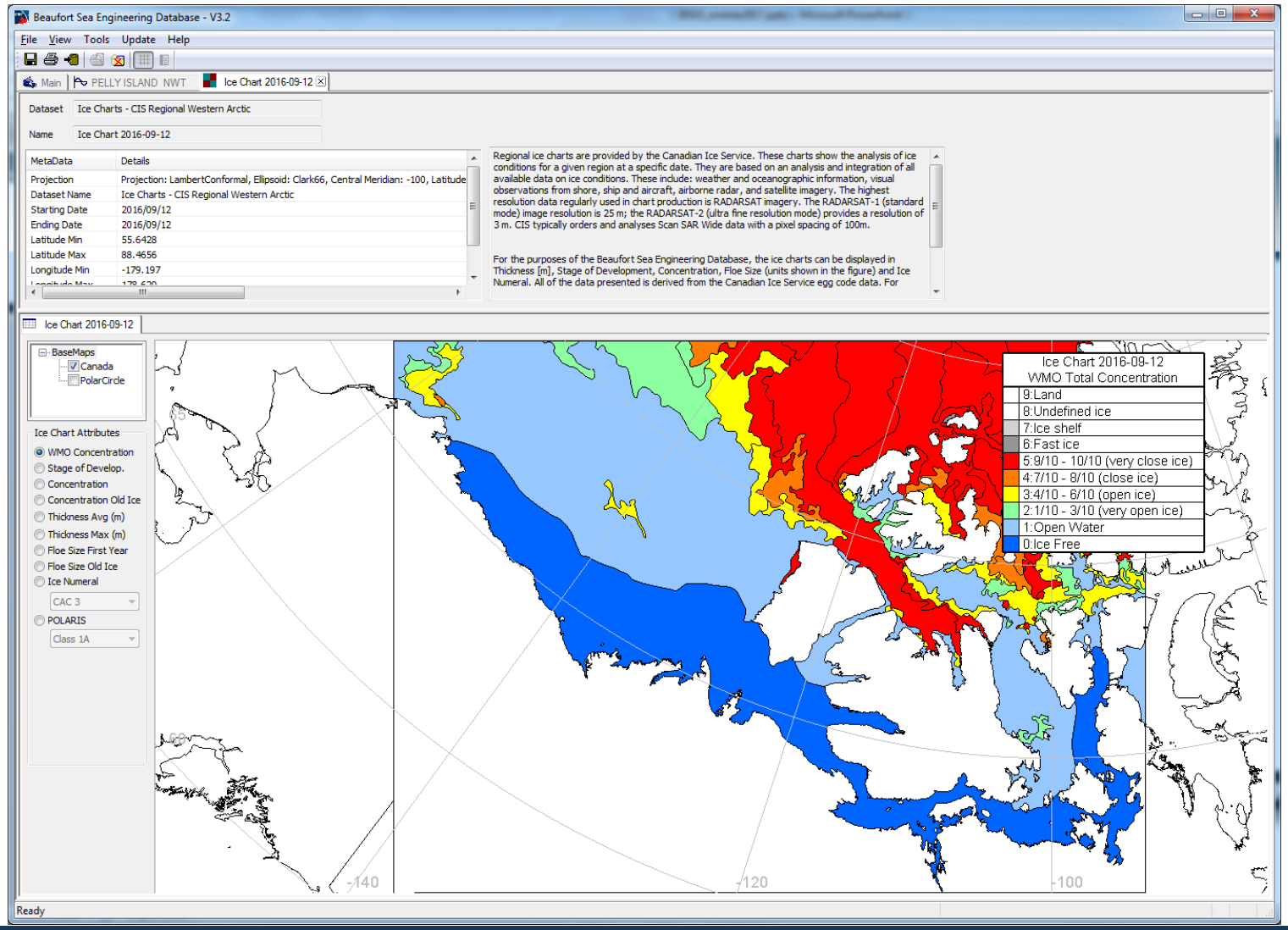
Nordicana D

- Free, open-access to data
- Legacy of CEN research
- Interactive map, search tools, terms of use, detailed metadata, citation details
- Each issue has a DOI with history of versions
- Linked to PDC
- 30 datasets published to date and more to come!

www.cen.ulaval.ca/nordicanad/

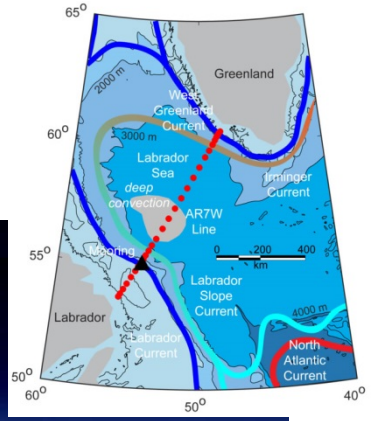
CENTRE D'ÉTUDES NORDIQUES
CEN Centre for Northern Studies

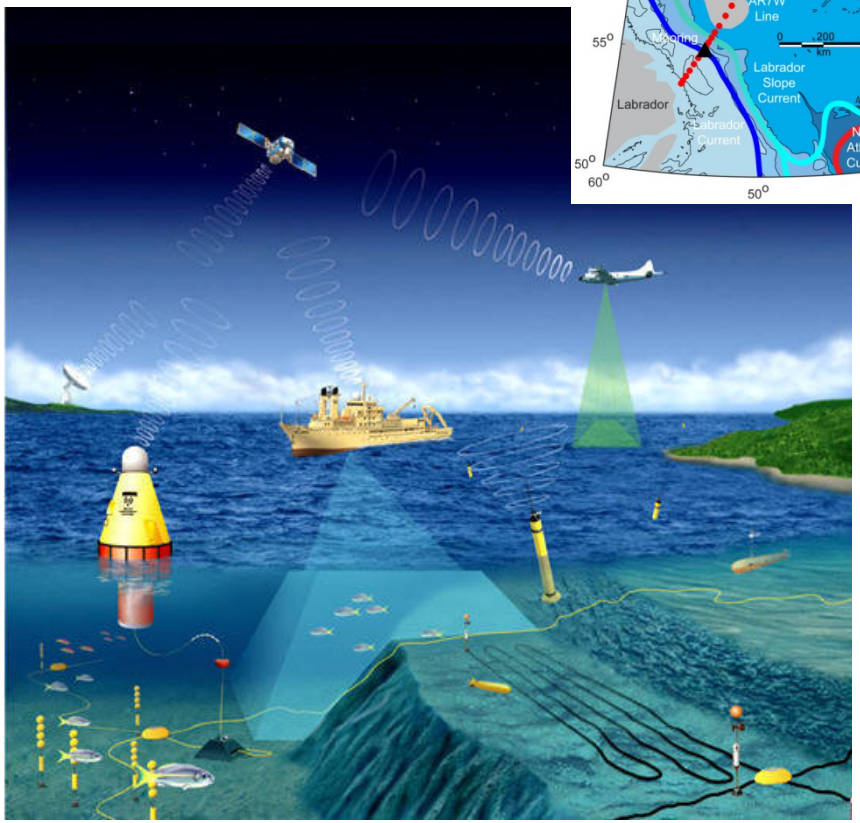
Beaufort Sea Engineering Database



Canadian Integrated Ocean Observing System (CIOOS)

- Bring together and leverage existing Canadian and international ocean observation data;
- Provide data on an external, publically accessible web-based platform that maximizes utility to end-users;
- Increase availability of scientific data to support evidence-based decision making.





Credit: Consortium for Ocean Leadership

The Global Ocean Observing System GOOS

ARGO

The Canadian Cryospheric Information Network & Polar Data Catalogue (CCIN/PDC)

- Recent developments:
  - DOIs
  - PDC Input en Français
  - Over 2.8 million data files, over 2,600 metadata records
- Outreach:
  - PDC Lite
  - SciDataCon 2016
  - ArcticNet ASM 2016
  - ASSW 2017
  - Arctic Yearbook

CCIN
Canadian Cryospheric Information Network

www.ccin.ca

POLAR DATA CATALOGUE

www.polardata.ca

Inuit Tapiriit Kanatami (ITK)

- ITK Strategy and Action Plan (2016-2019)
  - Objective #6. Strengthening Self-Determination in Research
    - National Inuit Strategy on Research (December 2017)
      - Priority: Self-determined Inuit-specific data and information stewardship for improved research, policy and action.

To reduce contaminants in traditionally harvested foods, while providing information that assists informed decision making by individuals and communities in their food use

- Human Health
- Environmental Monitoring and Research
- Community Based Monitoring and Research
- Communications Capacity Building and Outreach
- National/International Coordination and Indigenous Partnerships

Arctic Monitoring and Assessment Programme (AMAP)

Mandate:

- **Monitor and assess** the status of the Arctic region with respect to pollution and climate change issues
- **Document** levels and trends, pathways and processes, and effects on ecosystems and humans
- **Propose actions** to reduce associated threats for consideration by governments
- **Produce** sound science-based, policy-relevant assessments and public outreach products to **inform** national and international policy and decision-making processes.

Priorities : Arctic Pollution & Climate Change Issues

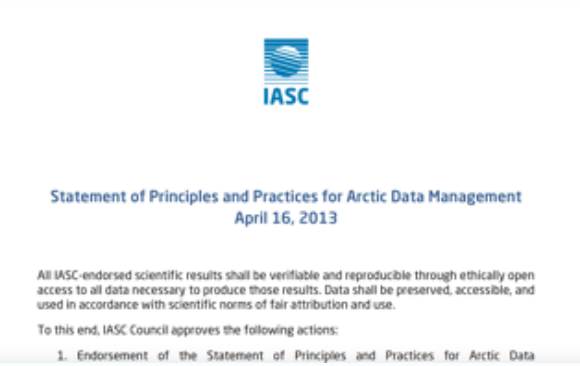
- Persistent organic pollutants(POPs); Mercury; Air pollutants (including SLCF's-black carbon+methane); (Radioactivity); (Oil and gas pollution); Effects of pollution on human health in the Arctic;
- Arctic cryospheric change; Arctic Ocean acidification;
- Combined effects of pollutants and other stressors on both ecosystems and humans; Adaptation; Resilience.
- SAON – Sustaining Arctic Observing Networks

ARCTICDATACOMMITTEE

IASC SAON

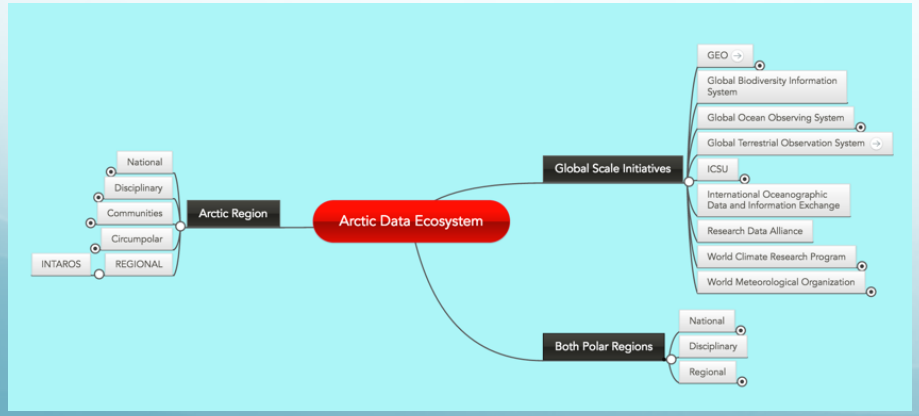
Connecting science and observing with the data management community

Promoting ethically open data



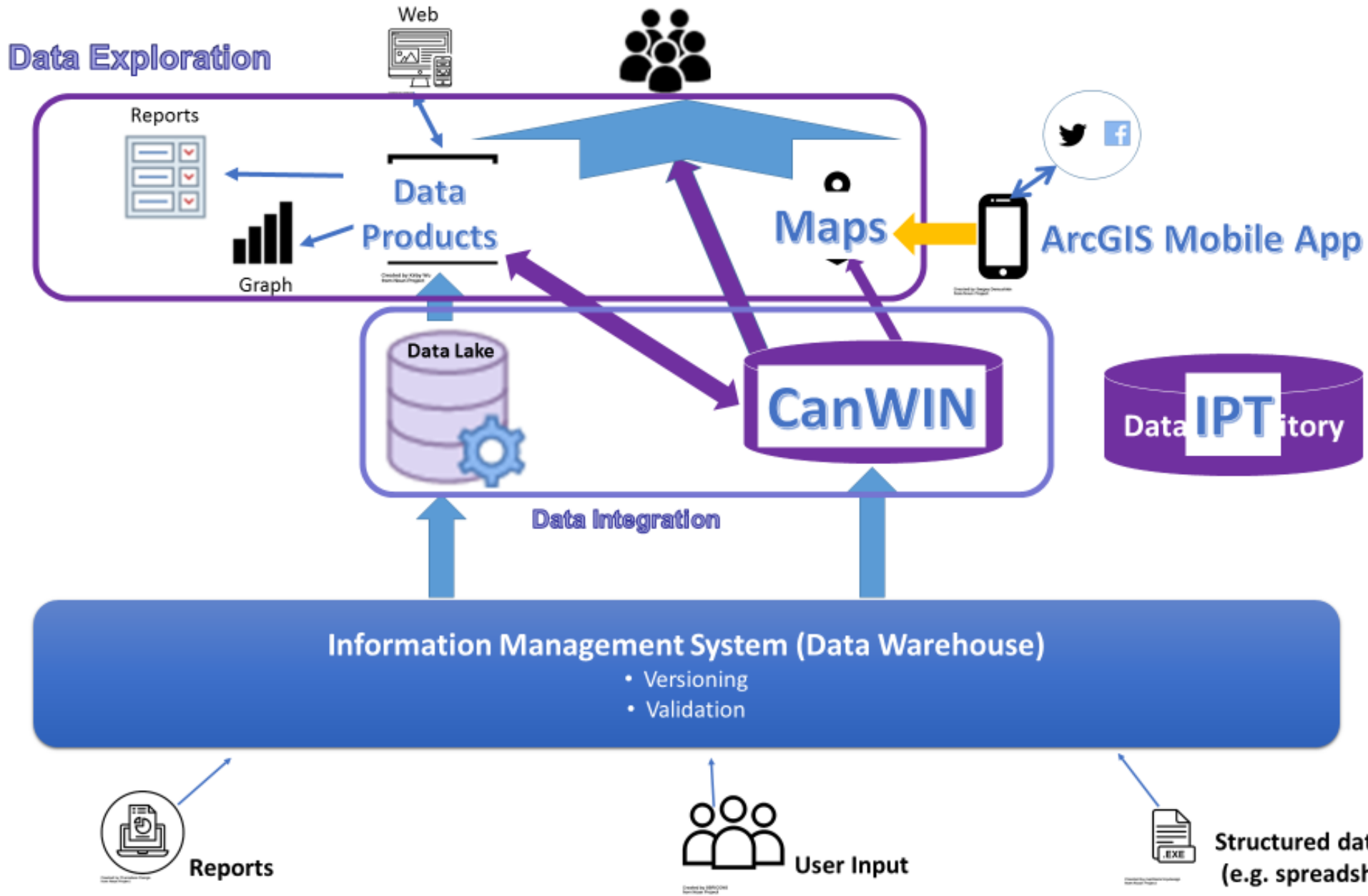
Understanding community needs

Mapping the Arctic Data Ecosystem



http://arcticdc.org

@ArcticDCN



Northern Canada Geospatial Innovation Centre Concept – Inuvik

Local Benefits
- *Enhanced monitoring, management & local decision-making capability*
- *Regional digital economy, capacity building & employment opportunities*

Private sector role:
-Solutions & services

Academic role:
-Teaching & research

Aurora Research Institute & College

Beaufort Delta Region Community role (Town of Inuvik, Gwich'in Tribal Council, Inuvialuit Regional Corporation, other Indigenous organizations):
-Define needs & interests

Canada Centre for Mapping & Earth Observation role:
- Remote sensing research
- Infrastructure: ground stations (e.g., ISSF), archives
- Data collection, processing, management, dissemination
- Standards for interoperability & integration
- Governance

NWT Centre for Geomatics role:
- Provision of geomatics & GIS services to NWT departments
- Provision of data, maps & applications to public

GoC Priorities:
- Open data
- Innovation
- Arctic Policy Framework
- Climate Change
- Renewable energy in North
- Reconciliation

GNWT priorities:
- Community wellness & safety
- Education, training & youth development
- Economy, Environment, & Climate Change

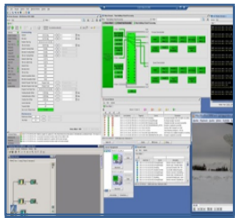
Clean technology / green energy mapping & monitoring	Sea ice navigation, polar ice monitoring, ship detection
Wildlife monitoring	Spill detection
Ice thickness (road), ice break up monitoring	Flood mapping
Infrastructure integrity monitoring	Wildfire detection
Permafrost monitoring	911 services, search & rescue
Monitoring & management of changing northern landscape	Safety & security preparedness, response & support
Sensor network integration	R&D on remote sensing with UAVs & drones

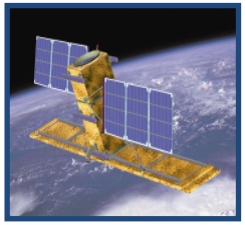
Enabling Northern Geospatial Infrastructure
- Coordinated data storage & management
- Single window data access
- Facilitation & support for local applications

Existing Infrastructure & Legacy
- Mackenzie Valley Fiber Link
- Inuvik to Tuktoyaktuk highway
- Inuvik Satellite Station Facility (ISSF) - 598 ha
- Inuvik = strong & vibrant northern community
- Aurora Research Institute supporting research > 50 years

To get involved or provide feedback:
caroline.cloutier@canada.ca
Rick_Wind@gov.nt.ca





Long-Term Satellite Data Records (LTSDR) Over Canada and Circumpolar Arctic for Climate Change Applications

Alexander P. Trishchenko, CCRS/NRCan

Moderate Resolution Sensors

Advanced Very High Resolution Radiometer -AVHRR

(5 bands, 1km) since ~ 1980's

Moderate Resolution Imaging Spectrometer - MODIS

(**250m**, 7 bands out of 36) since 2000

Visible Infrared Imaging Radiometer Suite -VIIRS

(scaled to **250m &500m** -21 bands*) under development*

Period

Canada: AVHRR+MODIS +VIIRS > 30 yrs

Circumpolar Arctic: MODIS since 2000

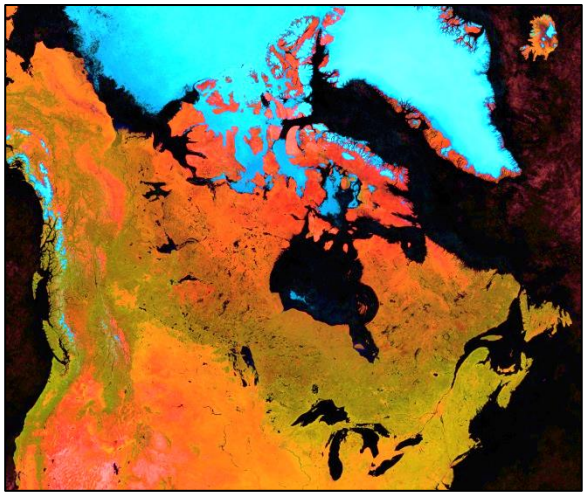
We are processing data 24/7, 100's granules every day. One image granule covers ~5 x10^6 km^2

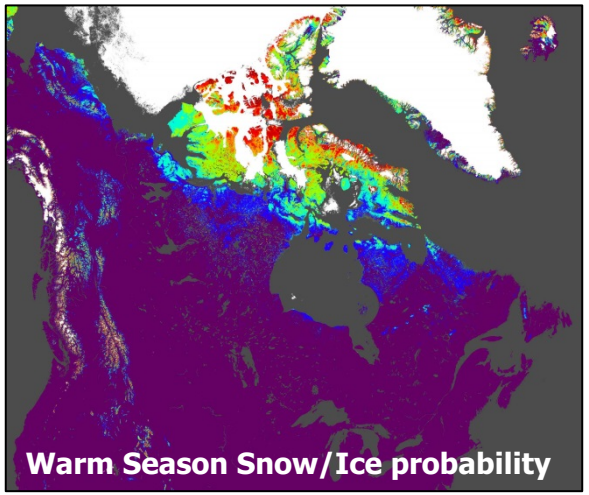
10-day clear-sky composites, surface (terrestrial) parameters and requirements – as much as possible consistent with international requirements from UNFCCC and GCOS

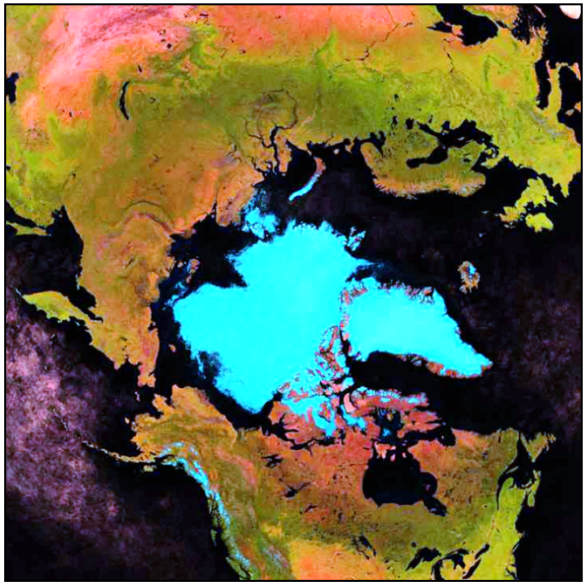
Example

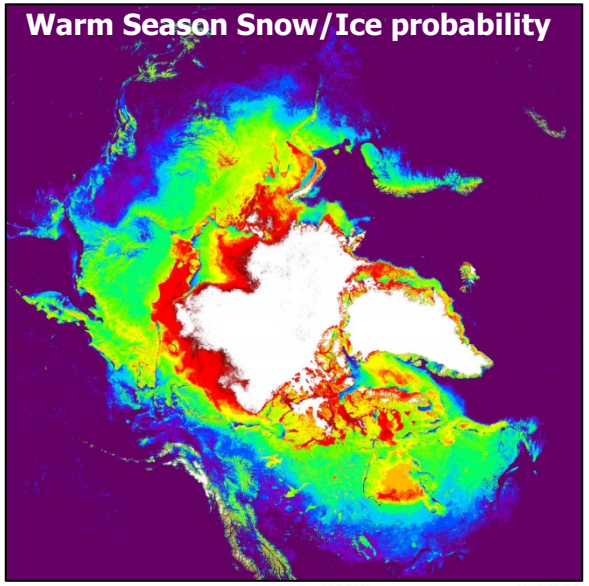
Minimum (perennial) Snow/Ice (MSI)

Sensitive climate indicator
Water resource
Essential geographic information about landmass









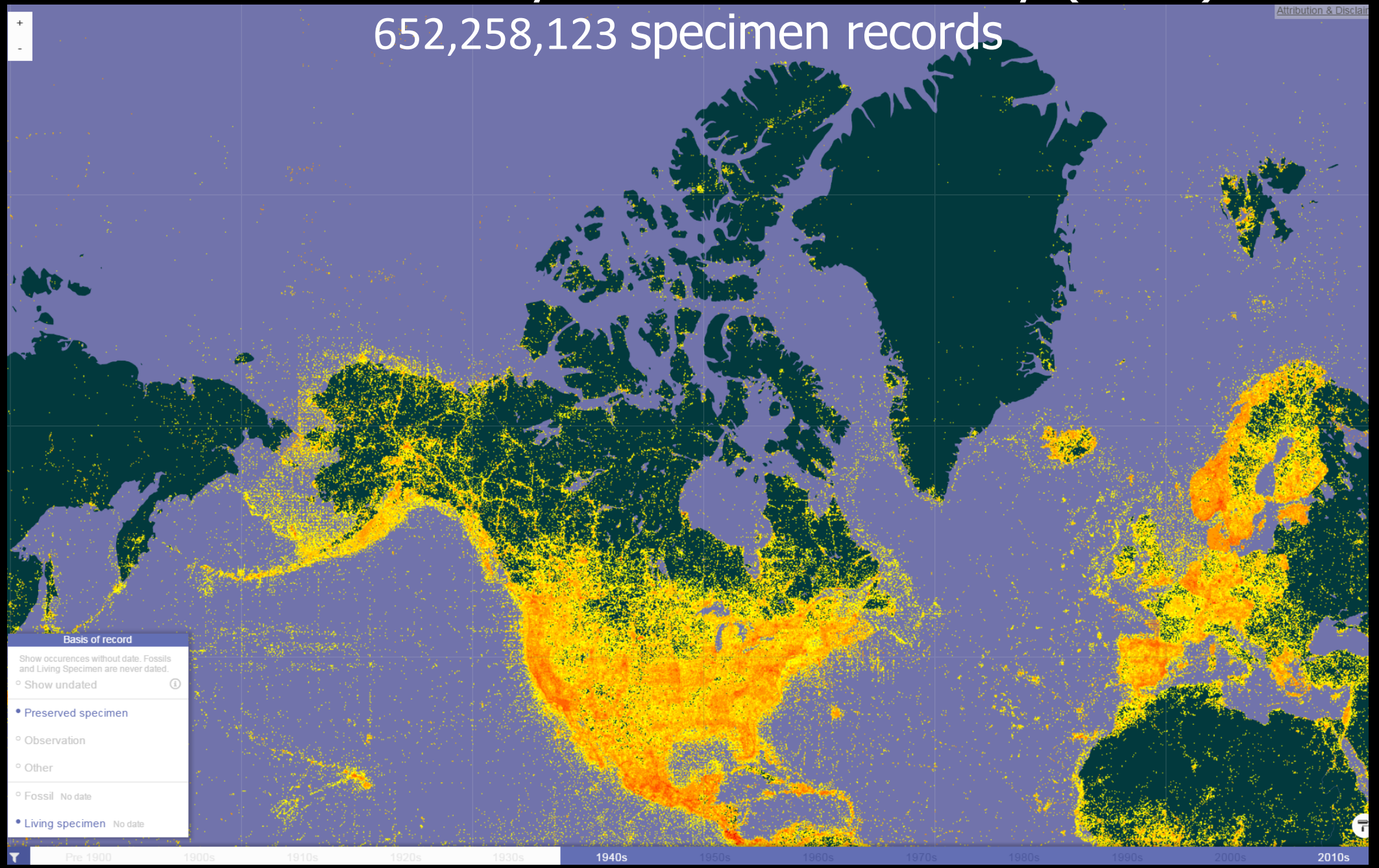
Trishchenko et al., 2009: ***Int. J. Rem. Sensing.*** **30, 1635-1641**
Trishchenko et al., 2016: ***Bull .Amer. Meteor. Soc.,*** **97 (1), pp. 19-24**
Trishchenko et al., 2016: ***Can J. Rem Sensing,*** **42(3), pp. 214-242**
Trishchenko et al., 2017: ***J. Climate*****. Submitted**

Initiated during the IPY

Natural Resources Canada | Ressources naturelles Canada

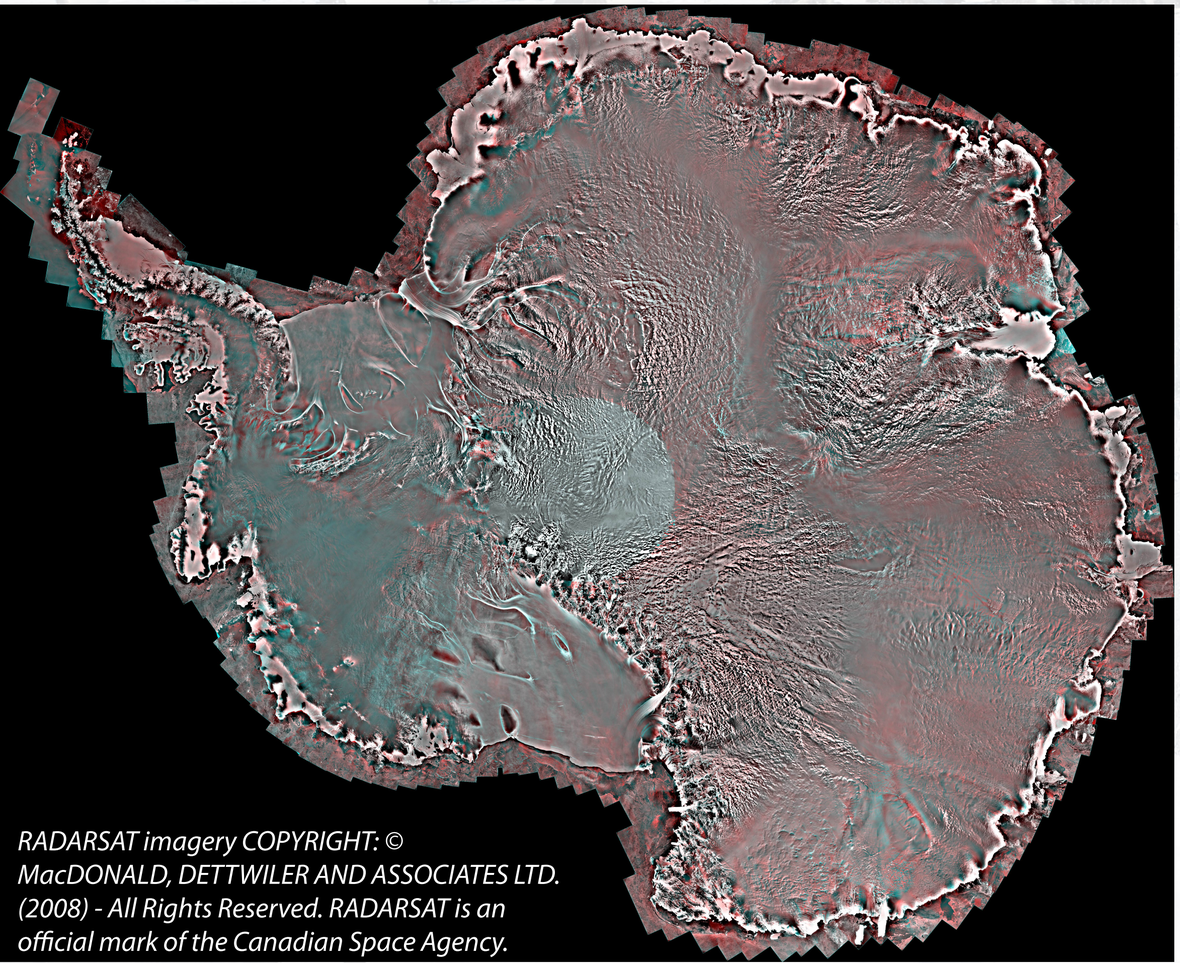
Canada

Global Biodiversity Information Facility (GBIF) – 652,258,123 specimen records



Antarctic Data…the **South** Polar Data!

Antarctic Treaty, 1959 → All data must be freely available



- Standing Committee on Antarctic Data Management (SCADM)
- National Antarctic Data Centres (NADC)
- Polar Data Catalogue is Canada's NADC!
- Canadian Committee on Antarctic Research (CCAR)
- Southern Ocean Observing System (SOOS)

Permafrost Data

Stephan Gruber, stephan.gruber@carleton.ca

Carleton UNIVERSITY

Canada's Capital University

Amundsen Science

http://www.amundsen.ulaval.ca/

For further information, please contact
alexandre.forest@as.ulaval.ca

- Not-for-profit organization hosted at Université Laval and responsible for coordinating the science expeditions of the research icebreaker *Amundsen*, maintaining equipment and managing core data
- The Amundsen Science core data collection consists as of today of about 65Gb of data recorded with the pool of *Amundsen*'s equipment including mooring data from diverse partnerships
- Amundsen Science expects to collect and share another 40Gb of QA/QCed data over the 2018-2022 period
- The *Amundsen* core data are archived at the Polar Data Catalogue
- Member of the Canadian Consortium for Arctic Data Interoperability