National Snow and Ice Data Center
Advancing knowledge of Earth's frozen regions

Advanced Cooperative Arctic Data & Information Service

University of Colorado Boulder

Metadata Standards in Theory and Practice

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AGU 2013 discussions

- We planned to talk about how:
  - Metadata is important
  - Metadata work is ongoing
  - Content is as important (or more important) than structure
- I've heard a lot of this over the course of the week
  - Great!
  - Also starting to hear 'interoperability silos'
- So let's reconnect to the big picture

Starting with practices

- IASOA
  - Ideal workflow
  - Actual workflow
- ACADIS Arctic Data Explorer
  - Ideal workflow
  - Actual workflow
- Lessons Learned
- Recommendations

IASOA – Introduction, Consortium Structure

Coordination effort born out of the IPY among international flagship atmospheric activities

Goal is to develop and share interoperable datasets to address pan-Arctic questions

IASOA NOAA NSIDC Advanced Cooperative Arctic Data & Information Service ACADIS

IASOA – Introduction, Consortium Structure

Important to emphasize that observatories are *independently funded* –

We need to aim for targets that can be *independently approached*

IASOA DATA ACCESS PORTAL– *Ideal workflow*

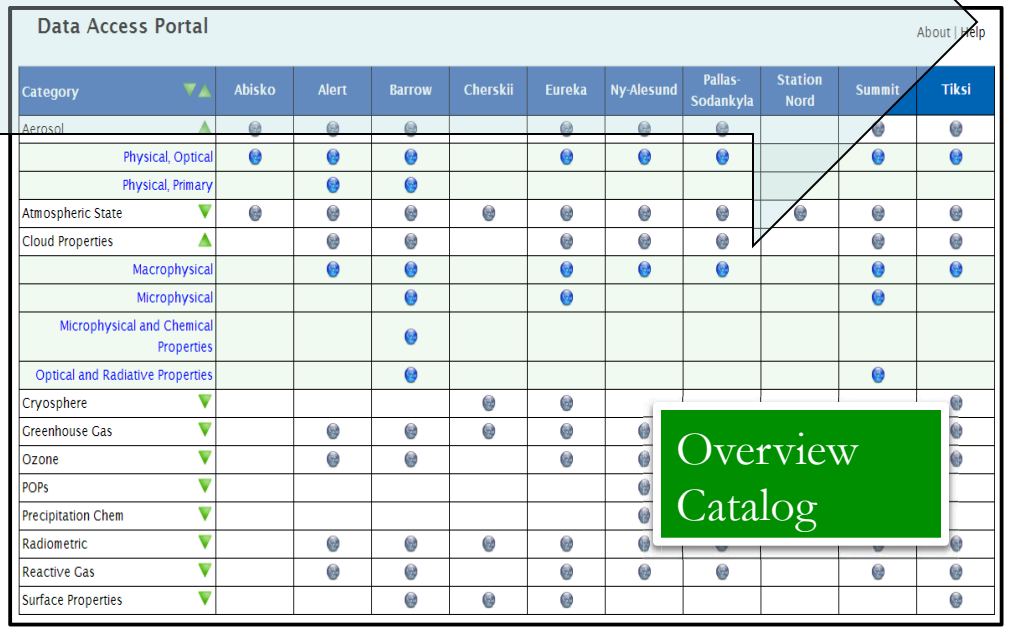
Donor Archives with Structured Metadata

- Global Atmosphere Watch WDC's
- ACADIS
- U.S. Department of Energy
- NOAA Monitoring Programs
- BSRN
- Canadian Research Group (CANDAC)
- …

Operationally Ingested into Backend, Differences Mediated w/ Code

IASOA Backend Database

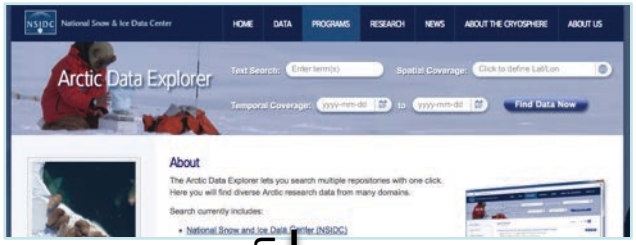
Consistently Merged on the Front End



IASOA – Actual workflow

Global Atmosphere Watch WDC's	• GAW – designed ISO implementation around single parameter datasets, puts measurement parameter keyword into file format section!!
U.S. Department of Energy	• US DOE vocabulary conflicts with GAW (e.g. aerosols) need experts to create cross walks. Archive attribution high priority.
NOAA Monitoring Programs	• NOAA Monitoring metadata very complete, but narrative, not structured. Hire students!
BSRN	• BSRN requires logins, has very confusing navigation and creates a metadata file for each month of observations. We want to extend and amend.
Canadian Research Group (CANDAC)	• CANDAC uses Data Mentor and won't provide direct links to data. Instrument-based organization. More experts & crosswalks.

Arctic Data Explorer – Ideal



Other interfaces or services

Web portal

OpenSearch

Web Services

SOLR

Query handling

GICat Metadata Broker

Metadata translators

THREDDS

OAI-PMH

OAI-PMH

OAI-PMH

CSW-ISO

Metadata Feed

EOL Field Catalogs

ACADIS Gateway

NSIDC

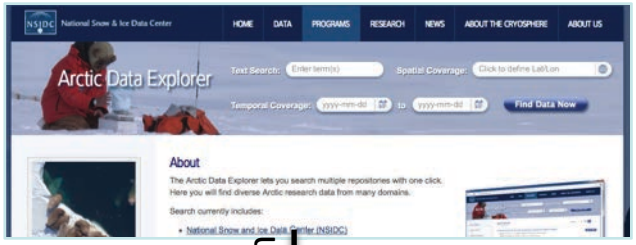
Met.no

NODC

Coming Soon

Repositories

Challenge – Metadata consistency



Web portal

More metadata translators

Web Services

OpenSearch

Query handling

SOLR

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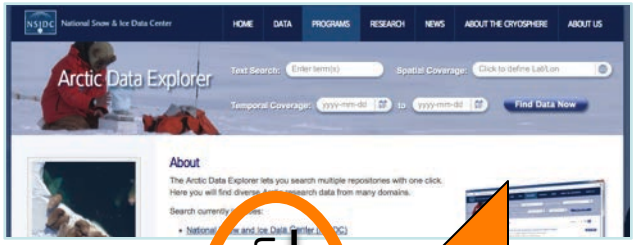

Web portal

OpenSearch

In development

Web Services

Query handling

SOLR

GICat Metadata Broker

Metadata translators

THREDDS

OAI-PMH

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CSW-ISO

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Repositories

Lessons Learned/Reminders

- There are practical reasons for non-standard content (ex. Optimization based on data holdings and local needs)
- Full standardization isn't realistic
- Need to gracefully handle non-standard content = human-in-the-loop

Recommendations

- Remember the diversity in the stakeholders, processes, and needs
  - We stop when we get to where we need to go
  - Others do too
- Emerging Specialists
  - Data curators bridging technologies, processes, needs
- We need to talk to each other
  - Coordination mechanisms and forums at and across multiple levels are needed
    - Example levels: Research team, project, program, regional, domain, national, international

Recommendations

- We need to talk to each other (continued)
  - Sharing current/best practices
    - Through on-line tools (ex. NOAA wiki, ArcticHub)
    - Face-to-face meetings (ex. RCN)
      - Implementation and best practices as RCN topics
    - Federal & non-Federal exchanges (ex. IARPC)
    - International coordination (ex. SAON)
  - Maturing/progressing conversations
    - Informal to formal
    - Bottom-up and top down mutually informed
    - Iterative, be prepare to adapt and overcome
    - Get to know your metadata colleagues

Recommendations

- We need to talk to each other (continued)
  - Example - Current Polar Activities
    - Arctic Data Coordination Network (ADCN)
    - Arctic/Antarctic Data Coordination Network (A^2DCN)
    - Many more
    - How/when do we bring these together?
  - Governance
  - Community-driven consensus
  - Success built on collaboration vs. competition

Thank you!

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Comments?
Questions?

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