Apps for Arctic Science Planning: ARMAP & AOV

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armap.org
arcticobservingviewer.org
A Challenge ...

... is knowing who is doing what where.

What networks and assets already exist?

Where are the gaps?

Is there overlap?

How can we better plan, coordinate, and achieve scientific objectives?
Each project location is a logistical base of operation.

Each observing site is an instrument, platform, or repeat measurement.

Each observing site can have many datasets.
Meet User Needs

**Project Planning**
- Who is doing what, when and where?
- How do we plan for logistics?
- Where are medical facilities, field research stations, ship tracks, airports, etc.?
- How do we best achieve the science?

**Observations & Networks**
- Where are existing data collection sites?
- Where are more sites needed?
- Who operates and manages existing sites?
- Which sites can I use?

**Dataset Usage & Understanding**
- Is this dataset suitable for my research?
- Does it cover my area for the right time period?
- How was it created?
- What are the errors?
- Who do I contact with questions?
Scope

Project Planning
- The big picture of Arctic science
- 2700+ research projects
- For science planning, logistics, and more

Observations & Networks
- A high-resolution view of observing
- 13,000+ observing sites
- For network planning, data discovery, and more

Dataset Usage & Understanding
- By geographic area, discipline, or initiative
- A million+ scientific datasets
- For data discovery, access, reuse, and synthesis
Web Services

Field Research Project Locations, Observing Sites, Location Placenames, Arctic Base Map, Arctic Countries, Arctic World Cities

ISO 19115-1, ISO 19115-2, FGDC, TXT, WMS, WFS, KMZ, ArcGIS
Guide to Interoperability

Annotated template ISO XML's, use case ISO XML's, contributors' template spreadsheet, data dictionaries, picklists ...
Alaska Data Integration Working Group (ADlwg)

Working on methods to efficiently integrate and share data across US federal and state entities in Alaska.

- Project metadata standard (ISO, FGDC)
- Data metadata standard (ISO)
- mdJSON Schemas – for documentation and validation
- mdTranslator – for translation and conversion
- mdEditor -- web app for authoring
- mdTools – user friendly interface
  and more, on GitHub.
Interoperability

**Goal:** to easily find, assess, access, reuse, and integrate data and metadata

**Challenges:** for project-level and site-level metadata, a fragmented data landscape & incompatible conceptual models, metadata structures, and vocabularies
Solutions?

• **Share** schemas, templates, data dictionaries, code lists, use cases, crosswalks, transforms, web services, ...

• Groups starting out: proceed with **eyes wide open** to avoid later effort

• Enable **federated search**

• **Avoid silos**: Arctic, Antarctic, disciplinary, organizational, etc.

• **Communicate and coordinate**: ADC, IARPC, SCADM, SOOS, RDA, etc.
Specific Suggestions

- Standardize vocabularies for **observation/measurement type** (controlled vocabulary for essential variables)

- Include full project-level and site-level metadata inside dataset-level metadata records
Thank you