Chartered as a CENRS Subcommittee

Tasked with coordinating civil Earth observation activities across Federal agencies


OSTP released the National Strategy for Civil Earth Observations in 2013 and the National Plan for Civil Earth Observations in 2014 following USGEO coordination

These and other documents can be accessed at http://usgeo.gov
COMMON FRAMEWORK PURPOSE

• Promote interoperability of Earth observations data
  ▪ Discoverability
  ▪ Accessibility
  ▪ Usability

• Establish recommendations to make data more readily usable by portals and tools

• Support U.S. government open data strategy, policies, and practices

• Promote practices and standards that comply with the Data Management Principles of the National Strategy for Civil Earth Observations

• Serves as guidance, not a mandate
AUDIENCE

- Federal Data Providers and Data Managers
  - Guidance for improving and standardizing data management practices in Federal agencies
- Data users
  - Government and non-government
  - Communicates what standards are, or will be, used for Federal Earth observations data
  - Ease the creation and enhance the utility of tools and services used to interact with the data
- 12/09/15 release for public comment; deadline for comments is 1/15/16

https://www.whitehouse.gov/blog/2015/12/09/improving-access-earth-observations
https://www.whitehouse.gov/administration/eop/ostp/library/shareyourinput
The aspects of data management are organized as follows:
- Data Search and Discovery Services
- Data Access Services
- Data Documentation
- Compatible Formats and Vocabularies

In each category, recommendations are discussed at three levels
- Standards and protocols
- Methods and practices
- Implementations
• **Data Search and Discovery Services:**
  - Provides guidance on the creation and organization of searchable catalogs of data
  - Example: Schema.org, OpenSearch, Digital Object Identifiers (DOIs)

• **Data Access Services:**
  - Encourages data providers to offer standards-based services and application programming interfaces (APIs)
  - OGC Web Map Service (WMS), Data Access Protocol (DAP)

• **Data Documentation:**
  - Documentation, in the form of structured metadata, makes it easier for users outside of a particular group or community to discover, access, use, and understand
  - Example: ISO 19115, ISO 19115-2, ISO 19115-1 + 19157 (for quality)

• **Compatible Formats and Vocabularies:**
  - Compatibility of data at the format level facilitates the ability to combine, integrate and synthesize observations
Share Your Input on the Draft Common Framework:
https://www.whitehouse.gov/administration/eop/ostp/library/shareyourinput
COMMON FRAMEWORK CONCEPTUAL MODEL

- **User Tools**
  - Data.gov and Other Portals
  - Decision Support Tools
  - Scientific Software
  - Numerical Models
  - Value-Adding Reseller

**Data Sources**
- EPA
- NSF
- USDA
- NOAA
- USGS
- NASA
- USN
- USAF
- DOE

**Common Framework**
- **Data Search & Discovery Services**
- **Data Access Services**
- **Data Documentation**
- **Compatible Formats and Vocabularies**

**Shared Standards**
• Provides guidance on the creation and organization of searchable catalogs of data

• Machine-to-machine interfaces should be supported

• The National Strategy for Civil Earth Observations called for establishment of formal standards-based catalog services which could be indexed by commercial search engines

• Some examples of standards and protocols
  ▪ Schema.org
  ▪ OGC Catalog Service for the Web (CSW)
  ▪ OpenSearch
  ▪ Open Archives Initiative Protocol for Metadata Harvesting (OAI/PMH)
  ▪ Digital Object Identifiers (DOIs)
DATA ACCESS SERVICES

• Methods users retrieve data for exploration, analysis, and decision-making

• Encourages data providers to offer standards-based services and application programming interfaces (APIs) on the data such as:
  ▪ Subsetting
  ▪ Aggregation
  ▪ Visualization
  ▪ Other

• Allows for more advanced access than simply bulk downloads

• Standards-based services facilitate interoperability by making it easier to obtain and combine data from multiple sources
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• Some examples of standards and protocols
  - OGC Web Map Service (WMS)
  - Data Access Protocol (DAP)
  - OGC Web Coverage Service (WCS)
  - OGC Sensor Observation Service (SOS)
  - OGC Web Feature Service (WFS)

• More information on methods, practices, and implementations available on the CFEOD document
DATA DOCUMENTATION

• Documentation, in the form of structured metadata, makes it easier for users outside of a particular group or community to discover, access, use, and understand.

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<td>ISO 19115-1 + 19157 (for quality)</td>
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• Note: FGDC CSDGM is accepted for legacy data sets that can not comply with newly defined and adopted standards

• Sensor ML for instrument descriptions
COMPATIBLE FORMATS AND VOCABULARIES

• Interoperability among data assets is a primary goal of the CFEOD

• Compatibility of data at the format level facilitates the ability to combine, integrate and synthesize observations

• Includes machine encodings but also data models and vocabularies

• Limits (in a good way) the potential solution space for exchanging information
COMPATIBLE FORMATS AND VOCABULARIES

• Formats
  - NetCDF4
  - HDF5
  - GeoTIFF
  - Geography Markup Language (GML)

• Controlled vocabularies
  - European Petroleum Survey Group (ESPG) Geodetic Parameter Dataset
  - National Hydrography Dataset
  - Office of Management and Budget Circular A-16
  - Global Change Master Directory (GCMD)
  - Climate Forecast (CF) Metadata Conventions Standard