



Discussion on Metadata Usage



Session Leader: Lola Olsen (NASA GCMD)
August 15, 2012

Objective of Session

1. Understand how people (and machines?) use metadata
2. Distinguish among the types of metadata
3. Recognize user needs
4. Understand management needs

The end goal should be a best practices document that can be utilized by the federal agencies.

How Do You Use Metadata?

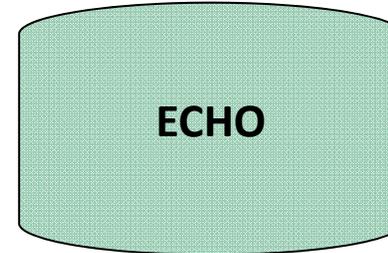
- To describe data
- To find data
- To understand data
- To help others understand your data
- To exchange between machines (web services)

ECHO-GCMD Collaboration

ECHO Data Providers



Collection level Metadata
Including Entry_ID



Call API to Retrieve
Entry_ID list



Update Portal

ECHO A Global Change Master Directory Portal for ECHO Middleware
Earth Observing System Clearinghouse

Record Search Query: Science Keywords=>OCEANS=>OCEAN PRESSURE=>SEA LEVEL PRESSURE
NCEP/DOE Reanalysis II in HDF-EOS5, for GSSTF2b, 1x1 deg Daily grid
Entry ID: GES_DSIS_GSSTF_NCEP_2b

[Get Data] [Update this Record]

Summary
Abstract: These data are the Goddard Satellite-based Surface Turbulent Fluxes Version-2b (GSSTF2b) Dataset recently produced through a MEASUREs funded project led by Dr. Chung-Lin Shie (LINCHGESH, NASA/GSFC), converted to HDF-EOS5 format. The stewardship of this HDF-EOS5 dataset is part of the MEASUREs project.
<https://community.nas.nasa.gov/measures/measures.cfm>
... [Click to view more]

Related URL
Link: [GET DATA > MIRADOR](#)
Description: Search, visualize, subset, and download data in HDF-EOS5
Link: [GET DATA > REVERS](#)
Description: Refine your granule search with ECHO's next generation Earth Science discovery tool (Revers) using information from this record.
Link: [VIEW RELATED INFORMATION](#)
Description: The data as originally organized in binary format.
Link: [VIEW RELATED INFORMATION > USER'S GUIDE](#)
[Click to close]

Geographic Coverage

(Click for Interactive Map)
Spatial coordinates
N: 90.0 S: -90.0 E: 180.0 W: -180.0

Data Set Citation
Dataset Creator: Chung-Lin Shie, Long Chiu, Robert Adler, I-H Lin, Eric J. Nelkin, Joe Anziano
Dataset Title: NCEP/DOE Reanalysis II in HDF-EOS5, for GSSTF2b, 1x1 deg Daily grid
Dataset Release Place: Greenbelt, MD, USA
Dataset Publisher: Goddard Earth Science Data and Information Services Center (GES DSIS)
Version: 2b
Data Presentation Form: Digital Science Data

Temporal Coverage
Start Date: 1998-07-09
Stop Date: 2008-12-31

Location Keywords
[GEOGRAPHIC REGION > GLOBAL OCEAN](#)

Data Resolution
Latitude Resolution: 1 degree
Longitude Resolution: 1 degree
Horizontal Resolution Range: 100 km - < 250 km or approximately 1 degree - < 2.5 degrees
Temporal Resolution: 24 hr
Temporal Resolution Range: Daily - < Weekly

Science Keywords
[ATMOSPHERIC > ATMOSPHERIC PRESSURE > SEA LEVEL PRESSURE](#)
[ATMOSPHERIC > ATMOSPHERIC RADIATION > ATMOSPHERIC HEATING](#)
[Click to view more]

ISO Topic Category
[CLIMATE/CLIMATE OBSOLOGY/ATMOSPHERE](#)
[OCEANS](#)

Distinguish Between the Types of Metadata



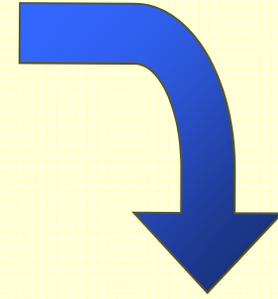
What are the Needs of a Metadata User?

- Discover data sets
- Have direct links to data
- Document data sets
- Have effective metadata authoring tools
- Others???

Metadata Submission/Lifecycle (docBUILDER)

Metadata Author

Validate and Submit



Import to Queue

ID	Sender	Date	Type	Identifier	Operation	Count	Time In	Time Completed	Job Status
0011170gcm	SCMD	2008-01-23 15:15	gov.noaa.nc	gov.noaa.nc	insert	1	2008-01-23 15:15	2008-01-23 15:15	Accepted
0011170gcm	SCMD	2008-01-23 15:15	gov.noaa.nc	gov.noaa.nc	insert	1	2008-01-23 15:15	2008-01-23 15:15	Accepted
0011170gcm	SCMD	2008-01-23 15:15	gov.noaa.nc	gov.noaa.nc	insert	1	2008-01-23 15:15	2008-01-23 15:15	Accepted
0011170gcm	SCMD	2008-01-23 15:15	gov.noaa.nc	gov.noaa.nc	insert	1	2008-01-23 15:15	2008-01-23 15:15	Accepted
0011170gcm	SCMD	2008-01-23 15:15	gov.noaa.nc	gov.noaa.nc	insert	1	2008-01-23 15:15	2008-01-23 15:15	Accepted

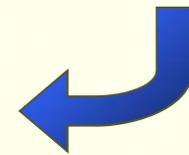
```

Status Message: New
Feed Identifier: gov.noaa.nc
Full Multiple Entries: 1
Cancel

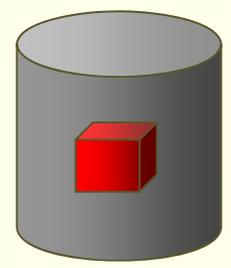
Processing Item:
Show Differences: [X]
Lockable Editor: [X]
Lockable DocBuilder: [X]

<?xml version="1.0" encoding="ISO-8859-1" ?>
<CF xmlns="http://gcm.gov.noaa.gov/docbuilder/submit" xmlns:db="http://gcm.gov.noaa.gov/docbuilder/submit" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://gcm.gov.noaa.gov/docbuilder/submit http://gcm.gov.noaa.gov/docbuilder/submit.xsd">
  <Entry ID="gov.noaa.nc:00000000000000000000" Entry_ID="gov.noaa.nc:00000000000000000000" Title="Title" Creation="Creation"
    <Database_Creator="National Climatic Data Center, NESDIS, NOAA, U.S. Department of Commerce" Database_Creation="Creation"
    <Database_Tier="Global Tropical Cyclones - ISCCP B1 Satellite Observations (DS-3841)" Database_Tier="Global_Tier"
    <Database_Release_Date="2006-10-30" Database_Release_Date="Release_Date"
    <Database_Release_Place="Asheville, North Carolina, U.S." Database_Release_Place="Release_Place"
    <Database_Publisher="National Climatic Data Center, NESDIS, NOAA, U.S. Department of Commerce" Database_Publisher="Publisher"
    <Version="1.0" Version="Version"
    <Data_Presentation_Form="remote sensing image" Data_Presentation_Form="Data_Presentation_Form"
  </Entry>
  </CF>
  
```

Review (QA/QC) Metadata



Load in Database



Retrieve from Database to Update



Write/Update Metadata

A Global Change Master Directory Portal for EOSDIS
NASA's Earth Observing System Data and Information System
Distributed Active Archive Centers (DAACs)

FILE DOCUMENT HELP

Submit to GCMD

- Entry ID
- Entry Title
- Science Keywords
- ISO Topic Category
- Data Center
- Summary
- Data Set Citation
- Personnel
- Related URL
- Instrument
- Platform
- Temporal Coverage
- Paleo-Temporal Coverage
- Spatial Coverage
- Location
- Data Resolution
- Project
- Quality
- Access Constraints
- Use Constraints
- Distribution Information
- Data Set Language
- Data Set Progress
- Ancillary Keyword
- Originating Center
- Multimedia Sample
- Publication/Reference
- Parent DIF
- IDN Node
- DIF Creation Date
- Last DIF Revision Date
- DIF Revision History
- Future DIF Review Date
- Privacy Status

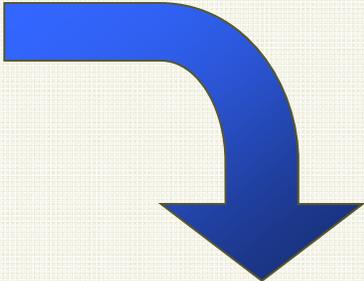
Note: This document is automatically saved and can be retrieved up to 90 days using the Entry ID (Document Identifier) "TEST_212". Please complete the document and submit it for publication within that period.

Legend: = Required = Highly Recommended = Recommended

Metadata Submission/Lifecycle (Harvest)

Harvest Repository	Metadata Format	SetSpec	Harvest Interval	Manually Harvest	Harvest Settings
NCAR DSS Base URL: http://dss.ucar.edu/cgi-bin/oai Harvested to: A:\oai\ncar\oai View harvest history and progress	dif	-	Manual	Next All	Edit Delete
NPOLAR Base URL: http://metadata.data.npolar.no/oai Harvested to: A:\oai\california\weapps View harvest history and progress Last harvest: 38 files, Wed Oct 14 13:17:14 EDT 2009 Download zipped harvest Most recent View harvest history and progress	dif	IPYNO	Manual	Next All	Edit Delete
ORNL Base URL: http://mercury.ornl.gov/oai/provider/ Harvested to: C:\Documents and Settings\steve\Documents\ORNL_Harvest_New_Harvest Last harvest: 346 files, Wed Feb 22 13:56:58 EST 2010 Download zipped harvest Most recent View harvest history and progress	oai_dif	-	Manual	Next All	Edit Delete

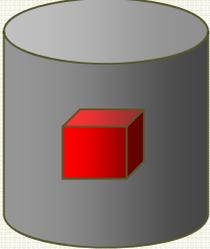
Harvest Metadata (FTP, OAI-PMH, WAF)



Import to Queue

ID	Sender	Status	Type	Identifier	Operation	Created	Time	Type	Completed	Action/Item Size
80310	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80311	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80312	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80313	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80314	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80315	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80316	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80317	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80318	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80319	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80320	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80321	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80322	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80323	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80324	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	
80325	gov.noaa.no	Success	DCMO	gov.noaa.no	insert	2009-01-02 15:15	2009-01-02 15:15	Accepted	Commit	

Update



Load in Database

Review (QA/QC) Metadata



Science Coordinator

GCMD: DIF to ISO Translation

- Translation of collection level metadata is performed through an XSLT.
- Coded by Dave Connell (Australian Antarctic Data Centre) and Andy Townsend (Australian Antarctic Data Centre).
- <http://data.aad.gov.au/aadc/metadata/difconvert/DIF-ISO.xsl>

GCMD: DIF to ISO Translation

- GCMD DIF metadata extracted from the GCMD collection and translated to ISO-19115 daily.
- ISO metadata is indexed in the International Directory Network (IDN) Catalog Services for the Web (CS-W) server.

GCMD: IDN CSW Server

- Runs GeoNetwork CS-W open-source Catalogue.
- Follows the OGC OpenGIS Catalogue Services Specification.

GCMD: CSW URLs

- Production:

- <http://gcmdsrv1.gsfc.nasa.gov:8080/geonetwork/srv/en/main.home>

- Failover:

- <http://gcmdsrv2.gsfc.nasa.gov:8080/geonetwork/srv/en/main.home>

- Testing:

- <http://gcmdsrv3.gsfc.nasa.gov:8080/geonetwork/srv/en/main.home>

GCMD: CSW Partners

- GEOSS/CI - Global Earth Observation System of Systems
Common Infrastructure
- CEOS/CWIC - Committee on Earth Observation Satellites
WGISS Integrated Catalog
- EURO-GEOSS - European approach to GEOSS
- Climate.gov - NOAA Climate Services Climate.gov (New
Partner)

How will the GCMD Support ISO?

Option1:

Replace the DIF with ISO in the GCMD system.

Recognized by NASA's Standards Processing Group as a NASA standard.

Used by scientists and data centers worldwide.

Plain-language fields make it more likely scientists will document their data.

How will the GCMD Support ISO?

Option2:

Implement a DIF-ISO Profile

Scientists can continue to document their data using the core DIF fields with the option to populate ISO fields not available in the DIF.

ISO metadata can be imported and exported from the GCMD without loss of information.

GCMD “key-value-pair” feature will permit users to imbed fields not offered by the DIF or ISO.

DIF-ISO Profile Example

Example of the DIF/Related URL field in DIF-ISO Profile

```
<gmd:onLine>
  <gmd:CI_OnlineResource>
    <gmd:linkage>
      <gmd:URL>http://edcsns17.cr.usgs.gov/EarthExplorer/</gmd:URL>
    </gmd:linkage>
    <gmd:protocol>
      <gco:CharacterString>WWW:LINK-1.0-http--link</gco:CharacterString>
    </gmd:protocol>
    <gmd:name>
      <gco:CharacterString>GET DATA</gco:CharacterString>
    </gmd:name>
    <gmd:description>
      <gco:CharacterString>
        Query and order satellite images, aerial photographs, and cartographic products
        through the U.S. Geological Survey. Log in as a guest or as a registered user.
        Registered users have access to more features than guests do. If you plan on using
        EarthExplorer frequently, you may wish to register. Please note that this site uses
        Session Cookies and Java applets.
      </gco:CharacterString>
    </gmd:description>
  </gmd:CI_OnlineResource>
</gmd:onLine>
```

Key-Value-Pair Example



Extended Metadata :

Extended Metadata

+ - Metadata

Name Space:

Name:

Value:

+ - Metadata

Name Space:

Name:

Value:



[NASA Privacy Policy and Important Notices](#)
Responsible NASA Official: [Lola Olsen](#)
Webmaster: [Monica Holland](#) · Contact [GCMD User Support](#) for assistance

What Are the Metadata Needs of Management?

- Metadata interoperability among agencies
- Contribution mandates
 - Data.gov, GEOSS, GCMD, ECHO, Mercury
- Funding metadata activities