



Metadata
Data Management Workshop
May 1st, 2017
Gatineau, Quebec

What is Metadata?

WHO created the data?

WHAT is the content of the data?

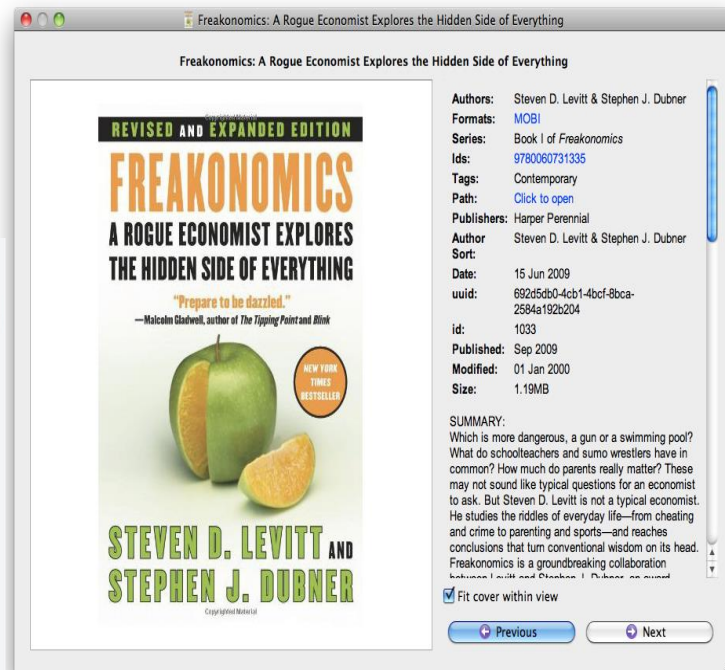
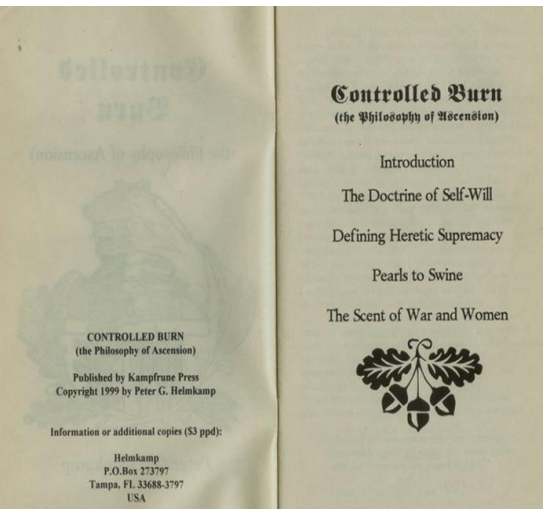
WHEN were the data created?

WHERE is it geographically?

HOW were the data developed?

WHY were the data developed?

Metadata is everywhere..



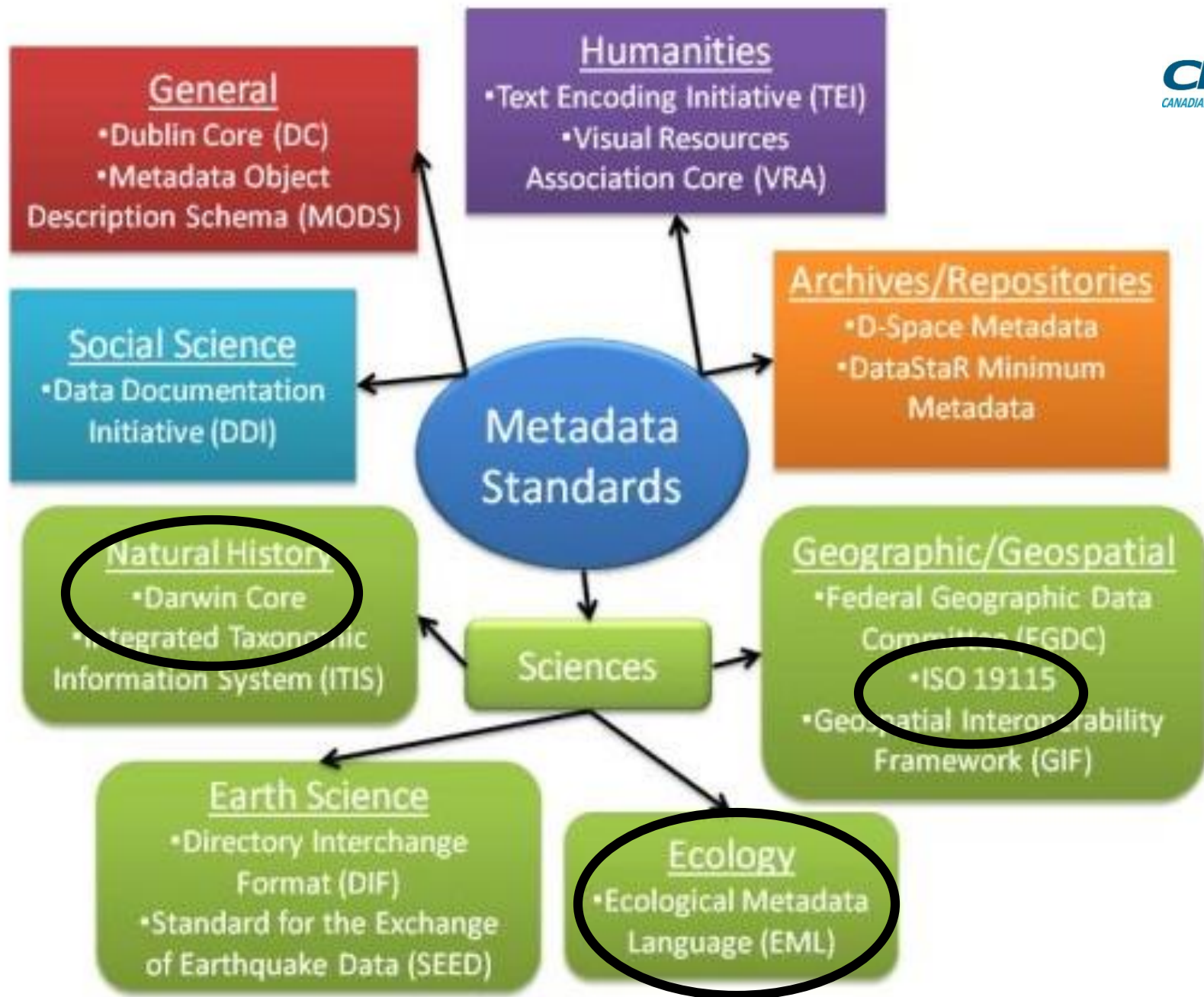
Nutrition Facts	
Serving Size 125g	
Amount Per Serving	
Calories 65	Calories from Fat 2
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat	
Cholesterol 0mg	0%
Sodium 1mg	0%
Total Carbohydrate 17g	6%
Dietary Fiber 3g	12%
Sugars 13g	
Protein 0g	
Vitamin A 1%	Vitamin C 10%
Calcium 1%	Iron 1%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.



Metadata

- is data documentation
- completes a dataset
- captures critical information about the content of a dataset
- essential for data to be discovered, accessed, and re-used
- metadata standards provides structure and consistency to data documentation



Metadata

Identification -- What is the name of the data set? Who developed the data set? What themes of information does it include? How current are the data?

Methodology – What methods were used to create/collect data? What equipment/software were used?

Data Quality -- How good are the data? What is the precision/accuracy? Is information available that allows a user to decide if the data are suitable for his or her purpose? Are the data complete? Were the data verified for quality control?

Spatial Reference – What geographic coverage is the data? Are coordinate locations encoded using longitude and latitude? What horizontal and vertical datums are used?

Temporal Reference – What temporal coverage is the data? Is data continuous or discrete?

Entity and Attribute Information -- What information is included? Were codes, acronyms or units of measure used? What do these mean?

Taxonomic Coverage -- What taxa are included in the data?

Access and Sharing -- From whom can I obtain the data? What formats are available? Are the data available online? What is the price of the data? Are there restrictions on accessing or using the data?

Metadata: What are they good for?

USGS Groundwater Data for the Nation - National Water Information System (NWIS)

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entry and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:

Citation:

Citation Information:

Originator: U.S. Geological Survey
Publication Date: 2014
Title: USGS Groundwater Data for the Nation - National Water Information System (NWIS)
Edition: 1.0
Geospatial Data Presentation Form: digital data
Publication Information:
Publication Place: Reston, Virginia, USA
Publisher: U.S. Geological Survey
Online Linkage: http://water.usgs.gov/lookup/getspatial?nwis_groundwater
Larger Work Citation:

Citation Information:

Originator: U.S. Geological Survey
Publication Date: October 1, 2007
Title: National Water Information System: Web Interface
Geospatial Data Presentation Form: Web application
Series Information:
Series Name: USGS Water Data for the Nation
Issue Identification: 1
Publication Information:
Publication Place: Reston, Virginia
Publisher: U.S. Geological Survey
Online Linkage: <http://waterdata.usgs.gov/nwis>

Description:

USGS
U.S. Geological Survey Science Data Catalog: BETA

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Data Search

Limit search by location

Current Selection(s): 5012 Results Found
All Catalog Holdings

Displaying 1 to 10 of 5012

Filter By:

Keywords

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- oceans and coastal (910)
- Geology (850)
- environment (787)
- geophysics (477)
- magnetic field (409) (403)
- aeromagnetic surveying (456)
- remnant magnetism (455)
- aeromagnetic data (452)
- magnetic (451)
- airborne surveys (451)
- isalt field (451)
- magnetic field (451)
- magnetic surveys (451)

USGS Mission Area

Energy and Minerals (1508)

USGS Groundwater Data for the Nation - National Water Information System (NWIS)

Data Source: Water National Spatial Data Infrastructure Node
Mission Area: Water Resources
The USGS compiles online access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa.

USGS Water-Quality Data for the Nation - National Water Information System (NWIS)

Data Source: Water National Spatial Data Infrastructure Node
Mission Area: Water Resources
The USGS compiles online access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa.

DataONE

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- ☐ USA National Phenology Net...
- ☒ USGS Science Data Catalog
- ☐ University of Kansas - Biodive...

Creator

Year

Identifier

Datasets 1 to 25 of 4,465

Sort by: Most recent

1 2 3 ... 179 Next

USGS U.S. Geological Survey, 2013. **Soil Organic Carbon Stock**. USGS Science Data Catalog. 91d20cc-56b3-4d1f-9dc1-b637e17c2848.

USGS U.S. Geological Survey, 2013. **LandCarbon Continuous United States Land-Use/Land-Cover Mosaics 1992-2050**. USGS Science Data Catalog. 854c83b3-6a16-47f4-a19c-83b4e9ebdcf.

USGS U.S. Geological Survey, 2013. **Biomass**

Map Data 1000 km Terms of Use Report a map error

DataONE is a collaboration among many partner organizations, and is funded by the US National Science Foundation under a Cooperative Agreement. Acknowledgement: This material is based upon work supported by the National Science Foundation under Grant Numbers 0809644 and 1430098. Disclaimer: The material is the property of the author(s) and does not necessarily reflect the views of the National Science Foundation.

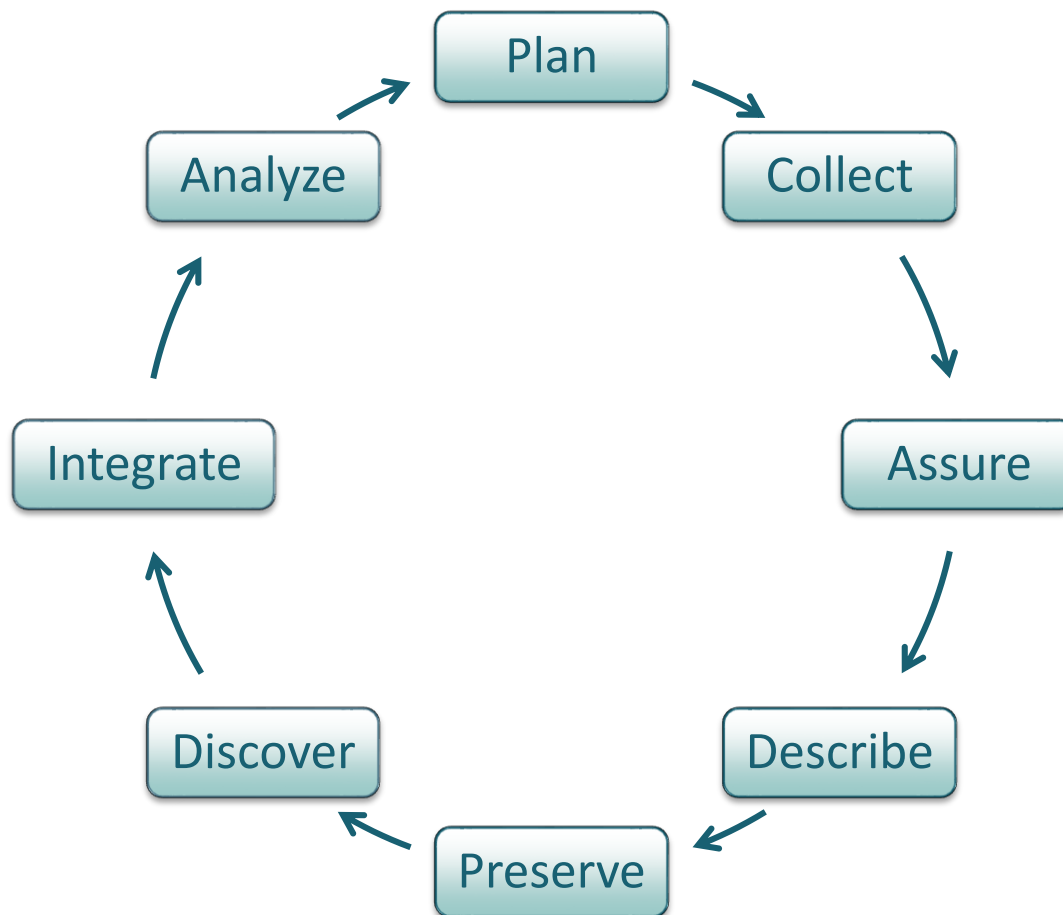
Data Repository:
Enables exchange
e.g. Dryad

Data Catalog:
Enables discovery
e.g. CHONE website

Metadata:
Captures information
e.g. EML

Tips for Writing Quality Metadata

Metadata should be developed continuously throughout the entire data lifecycle



Tips for Writing Quality Metadata

Which title is better?

“Crabs in the Atlantic ”

OR

“Occurrence of Green Crab in Gilbert Bay Marine Protected Area (2015-2016) CHONE Project 1.1.1”


“Occurrence of Green Crab **(what)** in Gilbert Bay Marine Protected Area **(where)** (2015-2016) **(when)** CHONE Project 1.1.1” **(who)**

Tips for Writing Quality Metadata

Which description is better?

“We checked our work and it looks complete. “

OR



“We checked our work using a random sample of 5 monitoring sites reviewed by 2 different people. We determined our work to be 95% complete based on these visual inspections.”

**Be specific and quantify when you can!
The goal of a metadata is to give the user enough information to know if they can use the data without contacting the dataset owner.**

Tips for Writing Quality Metadata

Use Standard Vocabulary

- Marine taxon (**WoRMS**)
- **Darwin Core** terms
- Place name and area (**Marine Regions**)



DataOne

Tips for Writing Quality Metadata

Morpho is loading...

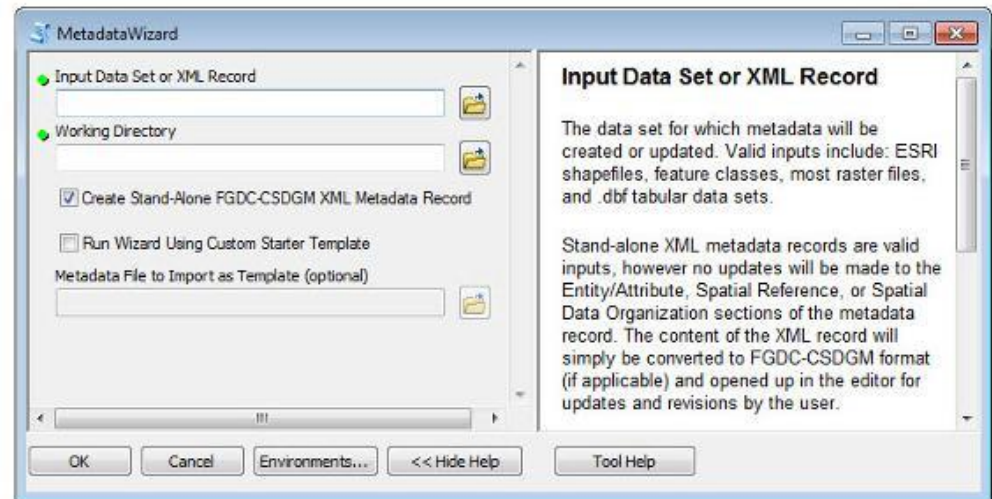
Use a Metadata Tool



Morpho

Data Management for Ecologists

- **Morpho** (EML, Darwin Core)
- **MetadataWizard** (GIS data)



Tips for Writing Quality Metadata

Consistency with commonly used fields

Examples for a FGDC CSDGM record:

Publisher:

`<publish>U.S. Geological Survey</publish>` 

`<publish>USGS</publish>` 

Date:


`<pubdate>MM/DD/YYYY</pubdate>` 

`<pubdate>May 27, 2003</pubdate>`

`<pubdate>YYYYMMDD</pubdate>` 

`<pubdate>YYYY</pubdate>`

Location:

`<placekt>Geographic Names Information System</placekt>` 

`<placekey>Roosevelt National Forest</placekey>`

`<themekey>Roosevelt Forest</themekey>` 

Steps to Create Quality Metadata

1. Organize your information

- Did you write a project abstract to obtain funding for your proposal? Re-use it in your metadata!
- Did you use a lab notebook to record measurements and other parameters?
- Do you have the contact information for colleagues you worked with?
- What about citations for other data sources you used in your project?

2. Write your metadata using a metadata tool

3. Review for accuracy and completeness

4. Have someone else read your record

5. Revise the record, based on comments from your reviewer

6. Review once more before you publish

Metadata Resources:

Data One: [Education Modules](#)

Dalhousie Library: [Guide to Research Data Management](#)

UBC Library: [Research Data Management](#)

Me (the Data Manager): angela.grant@mun.ca, 1-(709)-864-2298,
or on the [CHONe Slack page](#).