

Florida Coastal Everglades LTER Program

Metadata Workshop
April 13, 2007

Linda Powell, FCE Information Manager



Workshop Objectives

I. Short Introduction to the FCE Metadata Policy

- *What needs to be submitted to FCE Data Manager*
- *FCE EML Compliance & Why use an Excel Template*
- *Where to find the FCE Metadata Template*

II. Detailed Review of the FCE Metadata Template

- *Describe the general format of the metadata template*
- *Closely examine each of the metadata fields*

III. Open Discussions and Questions about Template

- *Questions and Concerns*
- *Template Shortcomings*



Florida Coastal Everglades LTER

FCE Data & Metadata Policy



What is Metadata???

Metadata is 'information' about Data

EML metadata is extremely important to the
FCE IMS

- Provides detailed information on FCE Data, Projects, Attributes and Methods for the Oracle database, which drives the FCE Website
- Allows FCE LTER to contribute data information to LTER Network EML database



FCE IMS *Data Collection Protocols*

To ensure that the FCE data are properly **archived and protected**, researchers are strongly encouraged to routinely submit data from ongoing research to the FCE Information Manager.

- *Researchers must submit all data collected during a calendar year by no later than June 1 of the following year*



FCE IMS *Quality Assurance Procedures*

A goal of the FCE IMS group is to create and maintain an archive of data files which are error free and fully documented.

- *FCE researchers who submits data to the FCE database will be responsible for the quality assurance of those data, including the metadata content.*
- *Quality assurance procedures are required to be documented in the accompanying metadata.*



FCE IMS *Data Organization*

FCE Data Files must be submitted with an accompanying metadata file.

- The two files names are the same with the exception of the word 'eml' added in file name:

LT_ND_Childers_001 & LT_ND_Childers_001_eml

- *Data Submission Information* and a copy of the *FCE EML Template* can be found at:

http://fcelter.fiu.edu/research/information_management/documents/



FCE IMS *Metadata Protocol*

- The FCE adheres to the LTER network-wide *Ecological Metadata Language (EML 2.0.1)* standard
 - A full description of EML can be found at <http://knb.ecoinformatics.org/software/eml/>
 - LTER Network goal is that all EML metadata submitted by LTER sites is at Tier 5, data discovery and access level

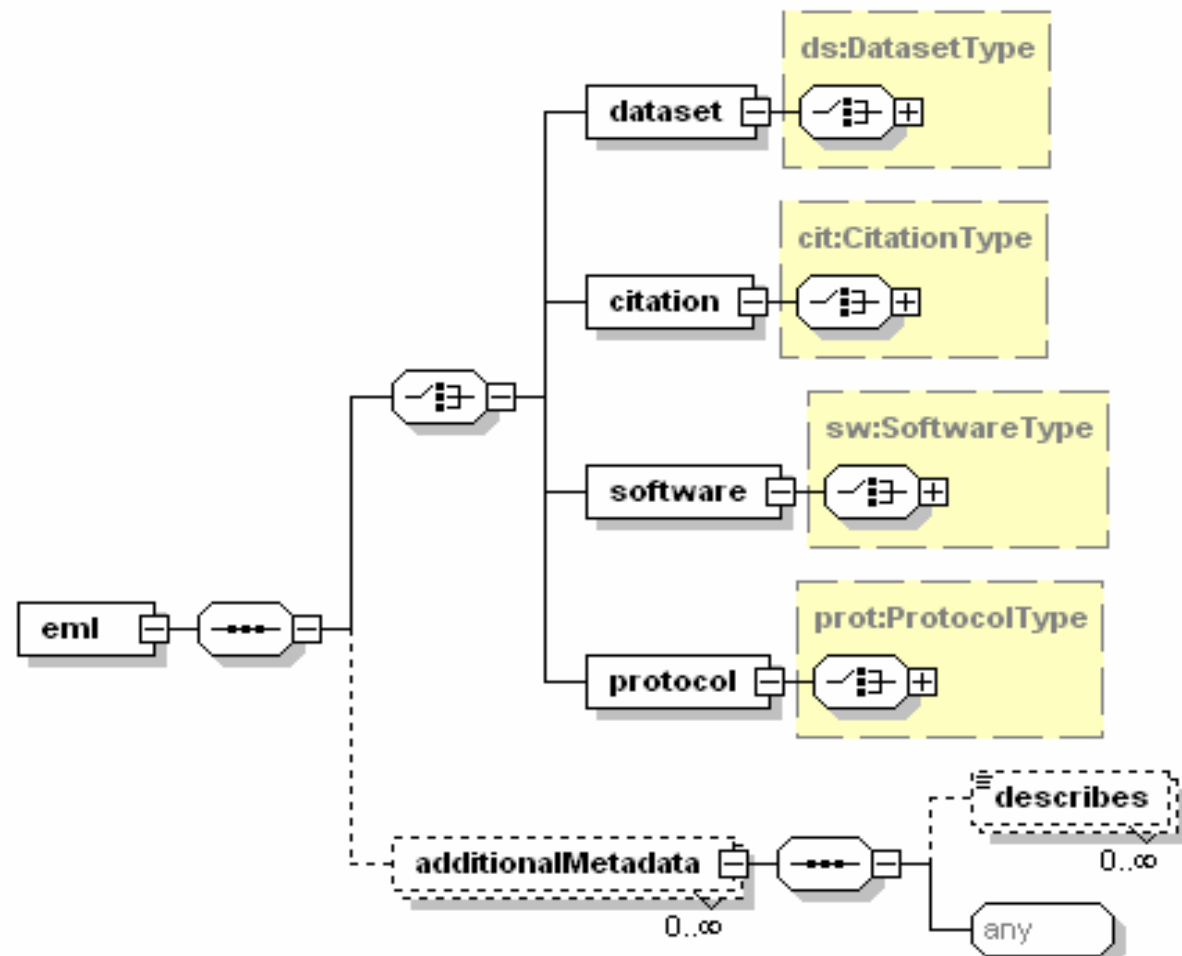


Ecological Metadata Language (EML)

- EML is implemented in an Extensible Markup Language (XML) known as *XML Schema*, which is a language that defines the rules that govern the EML syntax
- The complete EML package is a series of XML document types that can be used in a modular and extensible manner to document ecological data

Ecological Metadata Language (EML)

Example
of the
schema
for an *EML*
metadata
package



FCE IMS *Metadata Tiers*

Network EML Tiers

- Tier 0: **NO EML** - Structured Legacy Metadata Text documentation to structured metadata but no use of EML
- Tier 1: **Identification** - Minimal Registry Information
- Tier 2: **Discovery** - Use Basic Resource Information
- Tier 2.5: **Enhanced Discovery** - (Discovery+) Level 2 plus coverage to enable spatial data, location discovery
- Tier 3: **Evaluation** - Use Core Candidate 2 excluding access but adding attribute, coverage, method and project/abstract
- Tier 4: **Access** - Use Core Candidate 3, adding physical attributes
- Tier 5: **Integration** (including QA/QC) - Use Core Candidate 3, adding constraint
- Tier 6: **Semantic** - Metadata Currently under development by SEEK Necessary for automated integration of datasets.

FCE





FCE IMS *EML Metadata Template*

Built EML Template in Excel for two main reasons:

- 1) Scientists were used to working in Excel and didn't want to learn new EML software such as Morpho**
- 2) Excel Template is easily copied and renamed for future metadata**

FCE IMS *EML* Metadata Template

Step 1:

Scientists complete Excel Metadata Template

Template Completion = High level EML

Microsoft Excel spreadsheet showing the FCE IMS EML Metadata Template. The spreadsheet is divided into columns B, C, and D. Column B contains the metadata fields, and columns C and D contain the data for two different dataset creators: Robert Twilley and Victor Rivera-Monroy.

Information Requested (Red box): Points to the metadata fields in column B.

Added Information (Red box): Points to the data entries in columns C and D.

5 Possible Sheets of Information (Red box): Points to the sheet tabs at the bottom of the spreadsheet.

Field	Robert Twilley	Victor Rivera-Monroy
FCE	knb-lter-fce.0139.1	
Metacat package ID	LT_PP_Rivera_001	
Dataset Title	Mangrove Litterfall from the Shark River Slough and Taylor Slough	
Dataset Creator Salutation	Dr.	Dr.
Dataset Creator First Name	Robert	Victor
Dataset Creator Last Name	Twilley	Rivera-Monroy
Dataset Creator Organization Name	Wetland Biogeochemistry Institute	Wetland Biogeochemistry Institute
Dataset Creator Position Name	LTER Project Collaborator	LTER Project Collaborator
Dataset Creator Mail Street Address	Department of Oceanography and Coastal Sciences	Department of Oceanography and Coastal Sciences
Dataset Creator Mail City	Baton Rouge	Baton Rouge
Dataset Creator Mail State	LA	LA
Dataset Creator Mail Zip Code	70803	70803
Dataset Creator Mail Country	USA	USA
Dataset Creator Voice Telephone	(225) 578-8806	(225) 578-2773
Dataset Creator Facsimile Telephone	(225) 578-6423	(225) 578-6423
Dataset Creator Electronic Mail Address	rtwilley@lsu.edu	vh_rivera@earthlink.net
Dataset Creator URL	http://www.wetlandbiogeochemistry.lsu.edu/	http://www.wetlandbiogeochemistry.lsu.edu/
Dataset Abstract	Monthly litterfall data is being collected in 2 mangrove dominated regions (Shark River and Taylor Slough) in South Florida. Ten litterfall samples were collected in the Shark River Slough and Taylor Slough, Everglades National Park.	
Dataset Keywords	Shark River Slough; Everglades National Park; Taylor Slough	
Dataset Geographic Description	Data were collected in the Shark River Slough and Taylor Slough, Florida Coastal Everglades LTER Study Area: South Florida, Everglades National Park.	
Dataset West Bounding Coordinate	-81.078	-81.078
Dataset East Bounding Coordinate	-80.625	-80.490
Dataset North Bounding Coordinate	25.410	25.761
Dataset South Bounding Coordinate	25.233	24.913
Dataset Beginning Temporal Coverage Date	2001-01-25	
Dataset Ending Temporal Coverage Date	2001-12-17	
Dataset Taxon Rank Name		
Dataset Taxon Rank Value		
Dataset Common Taxon Names		
Dataset Intellectual Rights	These data are classified as 'Type 3' whereby original FCE data are made available to the public.	
Dataset Download URL	http://fcelter.fiu.edu/data/metadata/?datasetid=LT_PP_Rivera_001	
Dataset Offline Medium Name		
Dataset Offline Medium Density		
Dataset Offline Medium Density Units		
Dataset Offline Medium Volume		
Dataset Offline Medium Format		
Dataset Associated Party First Name	Daniel	Victor

FCE IMS *EML Perl Converter Program*

Step 2:

Load
Completed
Excel
Template
into Perl
Program
and
**Convert to
EML**

Excel Metadata to EML - Version 0.1

Optional conversion information

Number of spaces per indent (default=2)

EML Schema URL (defaults to LNO URL)

STMML Schema URL (defaults to LNO URL)

XSL Stylesheet URL (optional)

Embed data in EML (EML 2.0.1 and higher only)

Validate against the specified EML schema

List of Excel Metadata files to convert to EML

Destination directory for EML files

F:/FCE_LTER_Data/FCE_LTER_Datasets/Current_FCEDatasets/FCEDataset_Metadata/C...

Log

Starting to convert LT_ND_Grahl_001_eml_modified.xls to LT_ND_Grahl_001_eml_modified...
Done! Validating against schema...
F:/WUTemp/test/LT_ND_Grahl_001_eml_modified.xml was created - No EML errors de...

File Loaded

File Conversion Progress

Progress

Exit

FCE IMS *EML* (XML Format) Metadata

Step 3:

Post EML document on the Web & add to LTER Harvest List

```
<?xml version="1.0" encoding="UTF-8" ?>
- <eml:eml packageId="knb-lter-knb-lter-fce.0139.1" system="knb" xsi:schemaLocation="eml://ecoinformatics.org/eml-2.0.1 http://cvs.lternet.edu/cgi-bin/viewcvs.cgi/*checkout*/eml/eml-2.0.1/eml.xsd" xmlns:ds="eml://ecoinformatics.org/dataset-2.0.1" xmlns:eml="eml://ecoinformatics.org/eml-2.0.1" xmlns:stmm="http://www.ecoinformatics.org/schema/stmm" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
- <dataset id="LT_PP_Rivera_001">
  <alternateIdentifier>LT_PP_Rivera_001</alternateIdentifier>
  <title>Mangrove Litterfall from the Shark River Slough and Taylor Slough, Everglades National Park, South Florida from January 2001 to December 2001</title>
  <creator>
    - <individualName>
      <salutation>Dr.</salutation>
      <givenName>Robert</givenName>
      <surName>Twilley</surName>
    </individualName>
    <organizationName>Wetland Biogeochemistry Institute</organizationName>
    <positionName>LTER Project Collaborator</positionName>
    - <address>
      <deliveryPoint>Department of Oceanography and Coastal Sciences</deliveryPoint>
      <deliveryPoint>Louisiana State University</deliveryPoint>
      <deliveryPoint>3211 Energy, Coast, and Environment Building</deliveryPoint>
      <city>Baton Rouge</city>
      <administrativeArea>LA</administrativeArea>
      <postalCode>70803</postalCode>
      <country>USA</country>
    </address>
    <phone phonetype="voice">(225) 578-8806</phone>
    <phone phonetype="fax">(225) 578-6423</phone>
    <electronicMailAddress>rtwilley@lsu.edu</electronicMailAddress>
    <onlineUrl>http://www.wetlandbiogeochemistry.lsu.edu/</onlineUrl>
  </creator>
  - <creator>
    - <individualName>
      <salutation>Dr.</salutation>
      <givenName>Victor</givenName>
      <surName>Rivera-Monroy</surName>
    </individualName>
    <organizationName>Wetland Biogeochemistry Institute</organizationName>
    <positionName>LTER Project Collaborator</positionName>
    - <address>
      <deliveryPoint>Department of Oceanography and Coastal Sciences</deliveryPoint>
      <deliveryPoint>Louisiana State University</deliveryPoint>
      <deliveryPoint>3211 Energy, Coast, and Environment Building</deliveryPoint>
      <city>Baton Rouge</city>
      <administrativeArea>LA</administrativeArea>
      <postalCode>70803</postalCode>
      <country>USA</country>
    </address>
    <phone phonetype="voice">(225) 578-2773</phone>
    <phone phonetype="fax">(225) 578-6423</phone>
    <electronicMailAddress>vh_rivera@earthlink.net</electronicMailAddress>
```

FCE EML Conversion Document Produced with *Excel2EML* Tool

FCE IMS *EML XML To HTML*

Step 4:

Convert
EML XML
document
into HTML
using XSL
Stylesheet
with HTML
code &
post to the
FCE
Website

Florida Coastal Everglades LTER - LT_PP_Rivera_002.v1 Metadata - Microsoft Internet Explorer

Address: http://fcelter.fiu.edu/data/metadata/EML?datasetid=LT_PP_Rivera_002.v1

Florida Coastal Everglades
Long Term Ecological Research

This site is a member of the LTER Network. Links to other LTER Sites: [All site profiles \(LTER Site Database\)](#)

Home Research Personnel Data Publications Education Meetings Maps Links

Metadata: Mangrove Forest Growth from the Shark River Slough, Everglades National Park, South Florida from January 1995 to May 2005

[Return to the Data Set Summary Table](#)
[Search for FCE Data Sets](#)

[View this metadata as:](#)
[HTML](#) [Text](#) [XML](#)

View Metadata in 3 Formats

[Download this data set](#)
[LT_PP_Rivera_002.v1.txt](#)
(Public access, ASCII text)

Download Data Directly from metadata page

Dataset title
Mangrove Forest Growth from the Shark River Slough, Everglades National Park, South Florida from January 1995 to May 2005

Dataset ID
LT_PP_Rivera_002.v1
Research type: Long-term

Dataset Creator

Name: Dr. Robert Twilley
Position: LTER Project Collaborator
Organization: Wetland Biogeochemistry Institute
Address: Department of Oceanography and Coastal Sciences
Louisiana State University
3211 Energy, Coast, and Environment Building
Baton Rouge, LA 70803 USA
Phone: (225) 578-8806
Fax: (225) 578-6423
Email: rtwilley@lsu.edu
URL: <http://www.wetlandbiogeochemistry.lsu.edu/>

Name: Dr. Victor Rivera-Monroy
Position: LTER Project Collaborator
Organization: Wetland Biogeochemistry Institute
Address: Department of Oceanography and Coastal Sciences
Louisiana State University
3211 Energy, Coast, and Environment Building
Baton Rouge, LA 70803 USA
Phone: (225) 578-2773



Florida Coastal Everglades LTER

FCE Metadata Template



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FCE Metadata Shortcomings



FCE Metadata Template Shortcomings

- *Metadata Template cannot handle multiple data entities as one dataset*
 - For Example: Tabular data with accompanying map
- *No field to collect Taxonomic Information*
 - Must format separately and add to EML
- *No fields to collect GIS information*
 - Must format separately and add to EML
- *Not sure if EML can handle Social Science data at Tier 5 level*
 - For Example: Video interviews and surveys



Florida Coastal Everglades LTER

Useful URLs:

- **FCE Data Policy, Submission and EML Template Download Found at:**

http://fcelter.fiu.edu/research/information_management/documents/

- **A full description of EML Found at:**

<http://knb.ecoinformatics.org/software/eml/>