How to use schema, transforms, and style sheets to help write ISO metadata.

Data Documentation Session

EDMC 2012

Topics to be Covered

- Schema
  - What are they?
  - Which ones do I use?
  - What are namespaces?
- Transforms
  - What are they?
    - Schema-aware
  - Which ones do I use?
- Style sheets
    - What are they?
    - What are available?

XML Schemas

- Defines the structure, content, and some semantics of XML documents
- Pattern that represents the data's model and defines the objects, attributes, and relationships
- Defines the rules for the structure and content of an XML document

Which schema do I use?

- Use the schema reference at http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd
  - MD_Metadata root (19115) is found at gmd.xsd
  - MI_Metadata root (19115-2) is found at gmi.xsd
  - FC_FeatureCatalogue root (19110) is found at gfc.xsd
- Use biological schema set to document biological records (extends either MD or MI Metadata)

Namespaces

```
<gmi:MI_Metadata>
        <gmd:fileIdentifier>
                <gco:CharacterString>insert text</gco:CharacterString>
        </gmd:fileIdentifier>
        <gmd:language>
                <gco:CharacterString>insert text</gco:CharacterString>
        </gmd:language>
```

xmlns:gmi="http://www.isotc211.org/2005/gmi"
xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gco="http://www.isotc211.org/2005/gco"

These codes are called namespaces. The namespace is a container providing context and rules for items. A definition of a term may change, depending on what namespace is applied.

Validation Tips

```
<gmi:MI_Metadata
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:gmd="http://www.isotc211.org/2005/gmd"
    xmlns:gco= “http://www.isotc211.org/2005/gco”
    xmlns:xlink="http://www.w3.org/1999/xlink"
    xmlns:srv="http://www.isotc211.org/2005/srv"
    xmlns:gml="http://www.opengis.net/gml/3.2"
    xmlns:gsr="http://www.isotc211.org/2005/gsr"
    xmlns:gss="http://www.isotc211.org/2005/gss"
    xmlns:gts="http://www.isotc211.org/2005/gts"
    xmlns:gmx="http://www.isotc211.org/2005/gmx"
    xmlns:gmi="http://www.isotc211.org/2005/gmi"
    xsi:schemaLocation="http://www.isotc211.org/2005/gmi
    http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd">
```

Altova XMLSpy - [metadata2fix2.xml]

File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic DB Convert View Browser XBRL Tools Window Help

```
1  <gmd:MD_Metadata xmlns:gmi="http://www.isotc211.org/2005/gmi" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gco="http://www.isotc211.org/2005/gco" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:srv
   ="http://www.isotc211.org/2005/srv" xmlns:gml="http://www.opengis.net/gml" xmlns:gsr="http://www.isotc211.org/2005/gsr" xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:gmx="http://www.isotc211.org/2005/gmx"
   xsi:schemaLocation="http://www.isotc211.org/2005/gmi ..\schemas\ISOngdc\schema.xsd">
2    <gmd:fileIdentifier>
3      <gco:CharacterString>EX1003</gco:CharacterString>
4    </gmd:fileIdentifier>
5    <gmd:language>
6      <gco:CharacterString>eng; USA</gco:CharacterString>
7    </gmd:language>
8    <gmd:characterSet>
9      <gmd:MD_CharacterSetCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode" codeListValue="utf8" codeSpace="004">utf8</gmd:MD_CharacterSetCode>
10   </gmd:characterSet>
11   <gmd:hierarchyLevel>
12     <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="fieldSession" codeSpace="012">fieldSession</gmd:MD_ScopeCode>
13   </gmd:hierarchyLevel>
14   <gmd:hierarchyLevelName>
15     <gco:CharacterString>cruise-level metadata</gco:CharacterString>
16   </gmd:hierarchyLevelName>
17   <gmd:contact xlink:title="NOAA/OAR/OER - Ocean Exploration and Research">
18     <gmd:CI_ResponsibleParty uuid="08D95C427FB12847994589325
19       <gmd:organisationName>
20         <gco:CharacterString>NOAA/OAR/OER - Ocean Exploratio
21       </gmd:organisationName>
22       <gmd:contactInfo xlink:type="simple">
23         <gmd:CI_Contact>
24           <gmd:phone xlink:type="simple">
25             <gmd:CI_Telephone>
26               <gmd:voice>
27                 <gco:CharacterString>301-713-9444</gco:Ch
28               </gmd:voice>
29               <gmd:facsimile>
30                 <gco:CharacterString>301-713-4252</gco:CharacterString>
31               </gmd:facsimile>
32             </gmd:CI_Telephone>
```

XML Spy

Choose a file:

Q:\MetadataTrainingMaterial\ISO\schemas\ISOngdc\schema.xsd | Browse... | Window...

☐ Make path relative to metadata2fix2.xml

OK | Cancel

Please choose a file from your hard disk, a remote server, a global resource or select one of the other open windows.

Text | Grid | Schema | Authentic | Browser

metadata2fix2.xml

Messages

File Q:\MetadataTrainingMaterial\ISO\exercises\metadata2fix2.xml is not valid.

- Element <gmd:contentInfo> is not allowed at this location under element <gmd:MD_Metadata>
  - Reason: The following elements are expected at this location (see below)
  - Annotations of type 'gmd:MD_Metadata_Type' (see below)
  - Error location: gmd:MD_Metadata / gmd:contentInfo
  - Details

Messages | XPath | XSL Outline | Find in Files | Find in Schemas

XMLSpy v2009 Registered to Mary O'Cherry (NCDDC) ©1998-2009 Altova GmbH

Ln 73, Col 3 CAP NUM SCR

Untitled2.xml [Q:\MetadataTrainingMaterial\ISO\exercises\Untitled2.xml] - <oXygen/> XML Editor

File Edit Find Project Perspective Options Tools Document Window Help

Content Completion
Edit
File
Folding
Font Size
Schema
Select
Source
Transformation
Validate
Validate as you type
XML Document
XML Refactoring
Edit Mode

Show Definition Ctrl+Shift+Enter
Associate Schema
Open External Schema
Generate/Convert Schema... Alt+Shift+T

Outline

gmi:MI_Metadata
gmd:fileIdentifier
gmd:language eng; USA
gmd:characterSet utf8
gmd:hierarchyLevel dataset
gmd:contact
gmd:dateStamp 2010-12-02
gmd:metadataStandardName ISO 19115-2 Geogr
gmd:metadataStandardVersion ISO 19115-2:200
gmd:identificationInfo
gmd:contentInfo
gmd:distributionInfo
gmd:metadataMaintenance

```
coding="UTF-8"?>
:gmd="http://www.isotc211.org/2005/gmd"
:gmi="http://www.isotc211.org/2005/gmi"
:gmx="http://www.isotc211.org/2005/gmx"
:gsr="http://www.isotc211.org/2005/gsr"
="http://www.isotc211.org/2005/gmi"
:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.isotc211.org/2005/gmi Q:/users/mize.jacqueline/ISO/ISOngdc/schema/gmi/gmi.xsd">
  <gmd:fileIdentifier>
    <gco:CharacterString>gov.noaa.nodc.ncddc.file:/Q:/MetadataTrainingMaterial/ISO/exercises/Metadata%20to%20Transform</gco:CharacterString>
  </gmd:fileIdentifier>
  <gmd:language>
    <gco:CharacterString>eng; USA</gco:CharacterString>
  </gmd:language>
  <gmd:characterSet>
    <gmd:MD_CharacterSetCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode"
                             codeListValue="utf8"
                             codeSpace="004">utf8</gmd:MD_CharacterSetCode>
  </gmd:characterSet>
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode"
                      codeListValue="dataset"
                      codeSpace="005">dataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
```

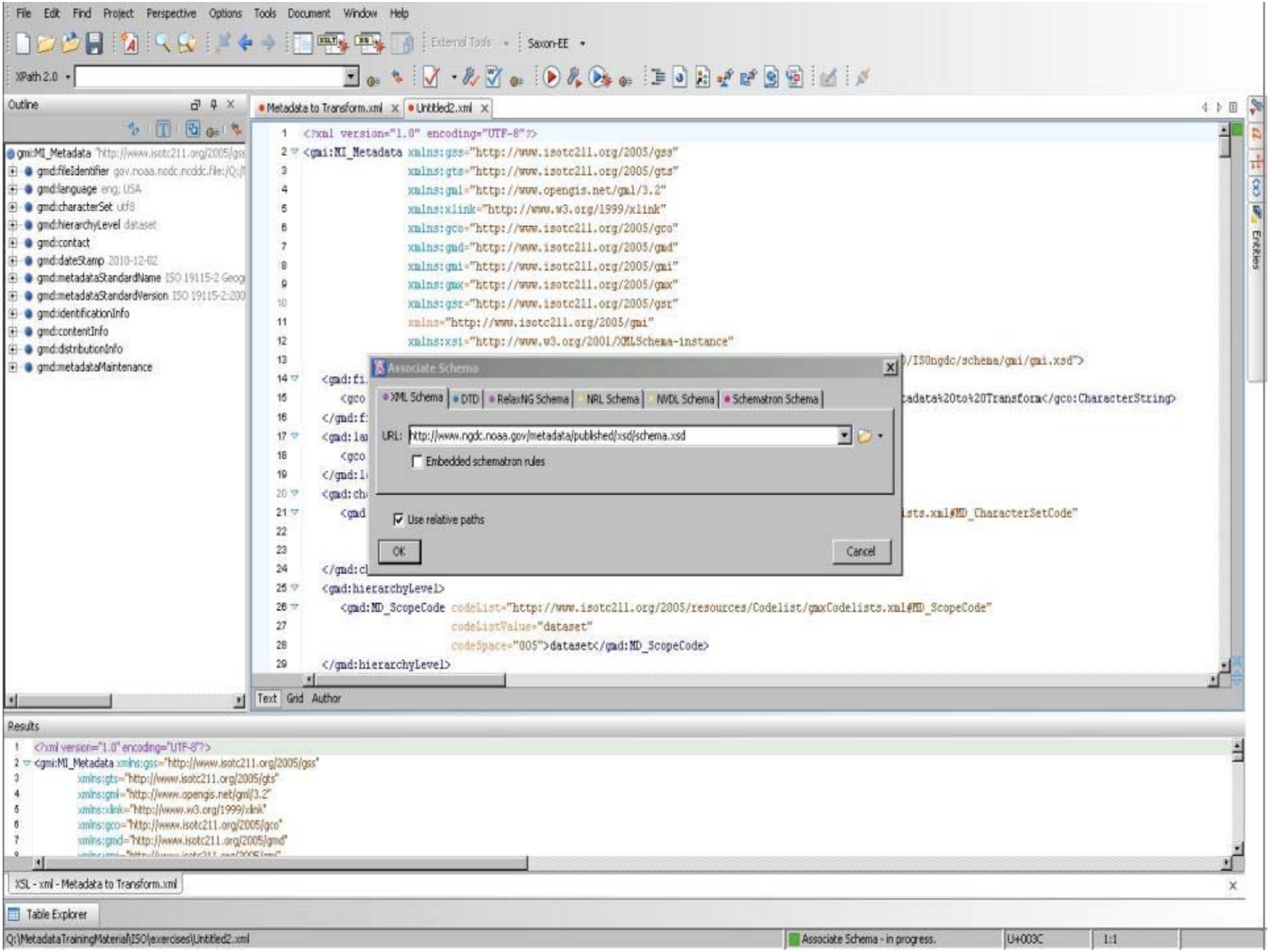
Text Grid Author

Results

```
<?xml version="1.0" encoding="UTF-8"?>
<gmi:MI_Metadata xmlns:gss="http://www.isotc211.org/2005/gss"
        xmlns:gts="http://www.isotc211.org/2005/gts"
        xmlns:gml="http://www.opengis.net/gml/3.2"
        xmlns:xlink="http://www.w3.org/1999/xlink"
        xmlns:gco="http://www.isotc211.org/2005/gco"
        xmlns:gmd="http://www.isotc211.org/2005/gmd"
```

XSL ... to Transform.xml

Table Explorer


File Edit Find Project Perspective Options Tools Document Window Help
External Tools
Saxon-EE
XPath 2.0
Outline
gmi:MI_Metadata
gmd:fileIdentifier
gmd:language eng; USA
gmd:characterSet utf8
gmd:hierarchyLevel dataset
gmd:contact
gmd:dateStamp 2010-12-02
gmd:metadataStandardName
gmd:metadataStandardVersion
gmd:identificationInfo
gmd:contentInfo
gmd:distributionInfo
gmd:metadataMaintenance
Metadata to Transform.xml
Untitled2.xml
<?xml version="1.0" encoding="UTF-8"?>
<gmi:MI_Metadata xmlns:gss="http://www.isotc211.org/2005/gss"
xmlns:gts="http://www.isotc211.org/2005/gts"
xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gmi="http://www.isotc211.org/2005/gmi"
xmlns:gmx="http://www.isotc211.org/2005/gmx"
xmlns:gsr="http://www.isotc211.org/2005/gsr"
xmlns="http://www.isotc211.org/2005/gmi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
Associate Schema
XML Schema
DTD
RelaxNG Schema
NRL Schema
NVDL Schema
Schematron Schema
URL: http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd
Embedded schematron rules
Use relative paths
OK
Cancel
<gmd:hierarchyLevel>
<gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode"
codeListValue="dataset"
codeSpace="005">dataset</gmd:MD_ScopeCode>
</gmd:hierarchyLevel>
Text Grid Author
Results
XSL - xml - Metadata to Transform.xml
Table Explorer
Q:\MetadataTrainingMaterial\ISO\exercises\Untitled2.xml
Associate Schema - in progress.
U+003C
1:1

Online Validation Help

- ISO Validation FYI
  - https://geo-ide.noaa.gov/wiki/index.php?title=ISO_Validation
- Validation Error Guidance for both XMLSpy and oXygen
  - https://geo-ide.noaa.gov/wiki/index.php?title=Validation_Error_Guidance
- Online Validation
  - http://www.ngdc.noaa.gov/MetadataTransform/XLinkResolver.jsp

Transforms and Style Sheets

- Extensible Stylesheet Language Transformations (XSLT) is an XML-based language used for the transformation of XML documents into other XML or "human-readable" documents via stylesheets (XSL).
- The original document is not changed; rather, a new document is created based on the content of an existing one.
- It does NOT guarantee valid XML records against a particular schema!!!! (simply displays the content in a new way.)

Schema-aware

- You can validate input documents
- You can validate output documents
- You can refer to elements, attributes, and types defined in a schema

So, why do we use schema-aware processors?

Transforming Metadata

FGDC Name	FGDC XML Tag	ISO Name	Comment
Identification Information	idinfo		
Citation	citation	MD_Metadata, identificationInfo, MD_DataIdentification?, citation	
Description	descript		Compound element, unnecessary mapping
Abstract	abstract	MD_Metadata, identificationInfo, MD_DataIdentification?, abstract	
Purpose	purpose	MD_Metadata, identificationInfo, MD_DataIdentification?, purpose	
Supplemental Information	supplinf	MD_Metadata, identificationInfo, MD_DataIdentification?, supplementalInformation	
Time Period of Content	timeperd		
Time Period Information	timeinfo	MD_Metadata, ide MD_DataIdentifica temporalElement, gml:TimePeriod?	ice
Currentness Reference	current	MD_Metadata, ide MD_DataIdentifica temporalElement, gml:TimePeriod?.g	ied
Status	status		
Progress	progress	MD_Metadata, identificationInfo, MD_DataIdentification?, status	FGDC content needs converted MD_ProgressCode?, refer to FGDC to ISO library progress function

This is a part of the mapping for FGDC CSDGM to ISO 19115.

Comments are Best Practices or Questions

Transforming Metadata

Your input here is an xml version of a CSDGM record.

XSLT Transformation
csdgm2iso19115.xslt

Your result is an xml instance of an ISO 19115 record.

Transforming FGDC Metadata using XMLSpy

- Open XMLSpy XML Editor
- Open FGDC RSE XML file named Metadata to Transform.xml
- Select F10 or XSL/XQuery>XSL Transformation
  - Select transform (RSE to ISO use fgdcrse2iso19115-2.xsl)
- Run transformation

Altova XMLSpy - [XSL Output.html *]

File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic DB Convert View Browser XBRL Tools Window Help

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <gmi:MI_Metadata xmlns="http://www.isotc211.org/2005/gmi" xmlns:gco="http://www.isotc211.org/2005/gco" xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gmi="http://www.isotc211.org/2005/gmi" xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmx="
   http://www.isotc211.org/2005/gmx" xmlns:gsr="http://www.isotc211.org/2005/gsr" xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="
   http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.isotc211.org/2005/gmi http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd">
3    <gmd:fileIdentifier>
4      <gco:CharacterString>EX1004_Bathymetric</gco:CharacterString>
5    </gmd:fileIdentifier>
6    <gmd:language>
7      <gco:CharacterString>eng; USA</gco:CharacterString>
8    </gmd:language>
9    <gmd:characterSet>
10     <gmd:MD_CharacterSetCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode" codeListValue="utf8" codeSpace="004">utf8</gmd:MD_CharacterSetCode>
11   </gmd:characterSet>
12   <gmd:hierarchyLevel>
13     <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="dataset" codeSpace="005">dataset</gmd:MD_ScopeCode>
14   </gmd:hierarchyLevel>
15   <gmd:contact>
16     <gmd:CI_ResponsibleParty>
17       <gmd:organisationName>
18         <gco:CharacterString>National Geophysical Data Center</gco:CharacterString>
19       </gmd:organisationName>
20       <gmd:positionName>
21         <gco:CharacterString>NGDC Data Officer</gco:CharacterString>
22       </gmd:positionName>
23       <gmd:contactInfo>
24         <gmd:CI_Contact>
25           <gmd:phone>
26             <gmd:CI_Telephone>
27               <gmd:voice>
28                 <gco:CharacterString>303-497-6826</gco:CharacterString>
29               </gmd:voice>
30               <gmd:facsimile>
31                 <gco:CharacterString>303-497-6513</gco:CharacterString>
32               </gmd:facsimile>
33             </gmd:CI_Telephone>
34           </gmd:phone>
35           <gmd:address>
36             <gmd:CI_Address>
```

Text | Grid | Schema | Authentic | Browser

Metadata to Transform.xml | XSL Output.html *

Find in Files

Find what: http://www.ngdc.noaa.gov/metadata/published/xsd/schema/gmi/gmi.xsd | Find | Match whole word | Match case | Regular expression | More...

Replace with: | Replace | Where: Current file

Summary of search parameters:

Files searched but no matches found:

Stats: Matches = 0, Files checked = 1, Bytes read = 178712, Files skipped = 0, Time taken = 15 ms

Messages | XPath | XSL Outline | Find in Files | Find in Schemas

Start | Inbox in jaci.mize... | NCDDC Geoportal... | Q:\MetadataTrain... | Q:\users\mize.jac... | 2 Microsoft Offic... | Altova XMLSpy - [... | Transitioning fr... | Transitioning from... | 11:30 AM

Transforming FGDC Metadata using <oXygen/>

- Open <oXygen/> XML Editor
- Open FGDC RSE XML file named Metadata to Transform.xml
- Set up transformation scenario (only needs to be set-up for the first time)
  - Name the scenario such as “RSE to ISO 19115-2”
  - Select transform and transformation engine (RSE to ISO use fgdcrse2iso19115-2.xsl and select Saxon-PE or EE transformers)
- Run transformation

Metadata to Transform.xml [Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml] - <oXygen/> XML Editor

File Edit Find Project Perspective Options Tools Document Window Help

XPath 2.0

Outline

- metadata
  - idinfo EX1004_Bathymetric
  - distinfo
  - metainfo 20101202

Metadata to Transform.xml

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<metadata>
<idinfo>
<datsetid>
EX1004_Bathymetric
</datsetid>
<citation>
<citeinfo>
<origin>Dr. Stephen R. Hammond
</origin>
<origin>NOAA Office of Ocean Exploration and Research (OER)
</origin>
<origin>Cdr. Joseph A. Pica
</origin>
<origin>NOAA Office of Marine and Aviation Operations (OMAO)
</origin>
<origin>Mashkoor Malik
</origin>
<origin>University of New Hampshire, Center for Coastal and Ocean Mapping Joint Hydrography Center (UNH CCOM/JHC)
</origin>
<origin>Meme Lobecker
</origin>
<origin>University of New Hampshire Center for Coastal and Ocean Mapping Joint Hydrography Center (UNH CCOM/JHC)
</origin>
<pubdate>20100819
</pubdate>
<title>Multibeam Sonar (Kongsberg SIMRAD EM302) Bathymetric Collected Between Jun 08 2010 and Aug 19 2010 onboard the NOAA Ship Okeanos Explorer duri
</title>
<geoform>Binary Data
</geoform>
<lworkcit>
<citeinfo>
<origin>Dr. Stephen R. Hammond
</origin>
<origin>NOAA Office of Ocean Exploration and Research (OER)
</origin>
<origin>Dr. Sugiarta Wiransantosa
</origin>
```

Text Grid Author

Table Explorer

Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml | Learn completed | U+003C | 1:1

Start | Inbox in jaci.mi... | NCDDC Geopo... | Q:\MetadataTr... | Q:\users\mize... | 2 Microsoft O... | Altova XMLSpy... | Transitioning fr... | Transitioning fr... | Metadata to Tr... | 11:32 AM

Metadata to Transform.xml [Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml] - <oXygen/> XML Editor

File Edit Find Project Perspective Options Tools Document Window Help

XPath 2.0

Outline

- metadata
  - idinfo EX1004_Bathymetric
  - distinfo
  - metainfo 20101202

Metadata to Transform.xml

```
1  <?xml version="1.0" encoding="ISO-8859-1"?>
2
3  <metadata>
4  <idinfo>
5  <datsetid>
6  EX1004_Bathymetric
7  </datsetid>
8  <citation>
9  <citeinfo>
10 <origin>Dr. Stepl
11 </origin>
12 <origin>NOAA Off:
13 </origin>
14 <origin>Cdr. Jos
15 </origin>
16 <origin>NOAA Off:
17 </origin>
18 <origin>Mashkoor
19 </origin>
20 <origin>Universi                                   Center (UNH CCOM/JHC)
21 </origin>
22 <origin>Neme Lob
23 </origin>
24 <origin>Universi                                   Center (UNH CCOM/JHC)
25 </origin>
26 <pubdate>2010081
27 </pubdate>
28 <title>Multibeam                                   d Aug 19 2010 onboard the NOAA Ship Okeanos Explorer duri
29 </title>
30 <geoform>Binary
31 </geoform>
32 <lworkcit>
33 <citeinfo>
34 <origin>Dr. Stephen R. Hammond
35 </origin>
36 <origin>NOAA Office of Ocean Exploration and Research (OER)
37 </origin>
38 <origin>Dr. Sugiarta Wiransantosa
39 </origin>
40 <origin>Indonesia Ministry of Marine Affairs and fisheries (KKP)
41 </origin>
```

Text Grid Author

Edit scenario

Name: RSE to ISO 19115-2

XSLT | FO Processor | Output

XML URL: ${currentFileURL}

XSL URL: /MetadataTrainingMaterial/ISO/transforms/fgdcrse2iso19115-2.xslt

More about ${currentFileURL} ...

Use "xml-stylesheet" declaration

Transformer: Saxon-PE 9.2.0.6

Parameters (0)

Extensions (0)

Additional XSLT stylesheets (0)

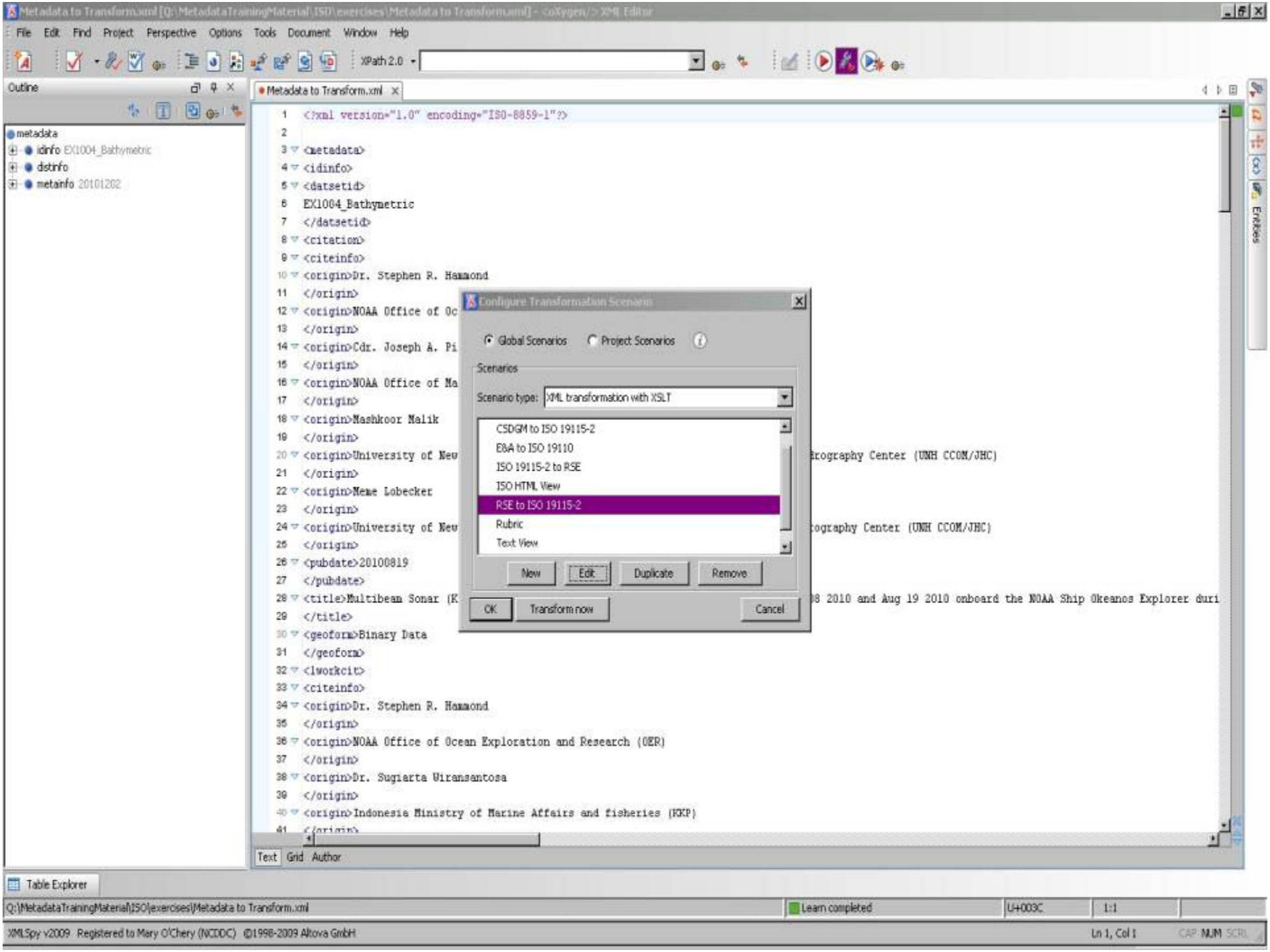
Append header and footer

OK Cancel

Table Explorer

Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml | Learn completed | U+003C | 1:1

XMLSpy v2009 Registered to Mary O'Chery (NCDDC) ©1998-2009 Altova GmbH | Ln 1, Col 1 | CAP NUM SCRL


Metadata to Transform.xml [Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml] - <oXygen/> XML Editor
File Edit Find Project Perspective Options Tools Document Window Help
XPath 2.0
Outline
metadata
idinfo EX1004_Bathymetric
distinfo
metainfo 20101202
Metadata to Transform.xml
<?xml version="1.0" encoding="ISO-8859-1"?>
<metadata>
<idinfo>
<datsetid>
EX1004_Bathymetric
</datsetid>
<citation>
<citeinfo>
<origin>Dr. Stephen R. Hammond
</origin>
<origin>NOAA Office of Oc
</origin>
<origin>Cdr. Joseph A. Pi
</origin>
<origin>NOAA Office of Ma
</origin>
<origin>Mashkoor Malik
</origin>
<origin>University of New
</origin>
<origin>Meme Lobecker
</origin>
<origin>University of New
</origin>
<pubdate>20100819
</pubdate>
<title>Multibeam Sonar (K
</title>
<geoform>Binary Data
</geoform>
<lworkcit>
<citeinfo>
<origin>Dr. Stephen R. Hammond
</origin>
<origin>NOAA Office of Ocean Exploration and Research (OER)
</origin>
<origin>Dr. Sugiarta Wiransantosa
</origin>
<origin>Indonesia Ministry of Marine Affairs and fisheries (KKP)
Configure Transformation Scenario
Global Scenarios
Project Scenarios
Scenarios
Scenario type: XML transformation with XSLT
CSDGM to ISO 19115-2
E&A to ISO 19110
ISO 19115-2 to RSE
ISO HTML View
RSE to ISO 19115-2
Rubric
Text View
New
Edit
Duplicate
Remove
OK
Transform now
Cancel
Text Grid Author
Table Explorer
Q:\MetadataTrainingMaterial\ISO\exercises\Metadata to Transform.xml
Learn completed
U+003C
1:1
XMLSpy v2009 Registered to Mary O'Chery (NCDDC) ©1998-2009 Altova GmbH
Ln 1, Col 1
CAP NUM SCRL

Untitled1.xml [Q:\MetadataTrainingMaterial\ISO\exercises\Untitled1.xml] - <oXygen/> XML Editor

File Edit Find Project Perspective Options Tools Document Window Help

XPath 2.0

Outline

- gmi:MI_Metadata http://www.isotc211.org/2005/gss
  - gmd:fileIdentifier EX1004_Bathymetric
  - gmd:language eng; USA
  - gmd:characterSet utf8
  - gmd:hierarchyLevel dataset
  - gmd:contact
  - gmd:dateStamp 2010-12-02
  - gmd:metadataStandardName ISO 19115-2 Geog
  - gmd:metadataStandardVersion ISO 19115-2:200
  - gmd:identificationInfo
  - gmd:contentInfo
  - gmd:distributionInfo
  - gmd:metadataConstraints
  - gmd:metadataMaintenance
  - gmi:acquisitionInformation

Metadata to Transform.xml | Untitled1.xml

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <gmi:MI_Metadata xmlns:gss="http://www.isotc211.org/2005/gss"
3                   xmlns:gts="http://www.isotc211.org/2005/gts"
4                   xmlns:gml="http://www.opengis.net/gml/3.2"
5                   xmlns:xlink="http://www.w3.org/1999/xlink"
6                   xmlns:gco="http://www.isotc211.org/2005/gco"
7                   xmlns:gmd="http://www.isotc211.org/2005/gmd"
8                   xmlns:gmi="http://www.isotc211.org/2005/gmi"
9                   xmlns:gmx="http://www.isotc211.org/2005/gmx"
10                  xmlns:gsr="http://www.isotc211.org/2005/gsr"
11                  xmlns="http://www.isotc211.org/2005/gmi"
12                  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
13                  xsi:schemaLocation="http://www.isotc211.org/2005/gmi http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd">
14    <gmd:fileIdentifier>
15       <gco:CharacterString>EX1004_Bathymetric</gco:CharacterString>
16    </gmd:fileIdentifier>
17    <gmd:language>
18       <gco:CharacterString>eng; USA</gco:CharacterString>
19    </gmd:language>
20    <gmd:characterSet>
21       <gmd:MD_CharacterSetCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode"
22                                codeListValue="utf8"
23                                codeSpace="004">utf8</gmd:MD_CharacterSetCode>
24    </gmd:characterSet>
25    <gmd:hierarchyLevel>
26       <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode"
27                         codeListValue="dataset"
28                         codeSpace="005">dataset</gmd:MD_ScopeCode>
29    </gmd:hierarchyLevel>
30    <gmd:contact>
31       <gmd:CI_ResponsibleParty>
```

Text Grid Author

Results

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <gmi:MI_Metadata xmlns:gss="http://www.isotc211.org/2005/gss"
3                   xmlns:gts="http://www.isotc211.org/2005/gts"
4                   xmlns:gml="http://www.opengis.net/gml/3.2"
6                   xmlns:xlink="http://www.w3.org/1999/xlink"
6                   xmlns:gco="http://www.isotc211.org/2005/gco"
7                   xmlns:gmd="http://www.isotc211.org/2005/gmd"
```

XSL - xml - Metadata to Transform.xml

Table Explorer

Q:\MetadataTrainingMaterial\ISO\exercises\Untitled1.xml | U+003C | 1:1

XMLSpy v2009 Registered to Mary O'Chery (NCDDC) ©1998-2009 Altova GmbH | Ln 1, Col 1 | CAP NUM SCRL

Other Transformations and Style Sheets

- ISO to FGDC
- DIF to ISO
- FGDC THREDDS
- netCDF to ISO
- Various ISO and FGDC views (html, faq, table)
- Rubrics
- Custom transforms (from databases to metadata standards)

- <metadata>
  - <idinfo>
    - <citation>
      - <citeinfo>
        - <origin>
          NOAA/NOS/CO-OPS -- Center for Operational Oceanographic Products and Services
        </origin>
        <pubdate>Unpublished material</pubdate>
        - <title>
          Water Level Data Collected at the Center for Operational Oceanographic Products and Services (CO-OPS) Station 8747766, Waveland, MS, from November 1996 through Present
        </title>
        - <onlink>
          http://www.co-ops.nos.noaa.gov/data_o
        </onlink>
      </citeinfo>
    </citation>
    - <descrip>
      - <abstract>
        This data set contains water level data colle
        1996 through present. Under the National O
        meteorological and oceanographic data. Da
        Observation Network (NWLON). Data are s
        reviewed by NOS. Historic water level data
        high and low waters, and daily heights. Dat
        and can include air temperature, water temp
        periods are those for the longest operating
        usually available. Data sets, data inventone
        /station_info.cgi?stn=8747766+Waveland+,
        Oceanographic Products and Services (CO-
      </abstract>
      - <purpose>
        The National Ocean Service (NOS) Center f
        and currents to ensure safe, efficient and en

Identification_Information:
  Citation:
    Citation_Information:
      Originator: NOAA/NOS/CO-OPS -- Center for Operational Oceanographic Products and Services
      Publication_Date: Unpublished material
      Title: Water Level Data Collected at the Center for Operational Oceanographic Products and Services (CO-OPS) Station 8747766, Waveland, MS, from November 1996 through Present
      Online_Linkage: http://www.co-ops.nos.noaa.gov/data_options.shtml?stn=8747766+Waveland+MS
  Description:
    Abstract: This data set contains water level data collected at the Center for Operational Oceanographic Products and Services (CO-OPS) station 8747766, Waveland, MS, from November 1996 through present. Under the National Ocean Service (NOS), CO-OPS collects, analyzes and distributes real-time and historical observations of water level and other meteorological and oceanographic data.
    Data are collected using a Next Generation Water Level Measurement System (NGWLMS) as part of the National Water Level Observation Network (NWLON). Data are subsequently processed and archived at CO-OPS. Recent water level data (tides) are considered preliminary (raw) and have not been reviewed by NOS. Historic water level data (tides) from the CO-OPS databases are verified by NOS. These data may include recent verified 6-minute data, historic hourly heights, high and low waters, and daily heights. Data gaps may exist. Meteorological and oceanographic data, considered as ancillary data by CO-OPS, may be measured at some stations and can include air temperature, water temperature, barometric pressure, wind speed and direction, wind gusts, dew point, rainfall, and solar radiation. Data availability time periods are those for the longest operating sensors so that information for other measured parameters may not be available during indicated time periods. Tidal predictions are usually available. Data sets, data inventories, predictions, station information, and benchmarks are available from http://www.co-ops.nos.noaa.gov/cgi-bin/station_info.cgi?stn=8747766+Waveland+,+MS. Data not available online can be obtained by request from the National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS) (see contact organization information below).
    Purpose: The National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS) collects and distributes observations and predictions of water levels and currents to ensure safe, efficient and environmentally sound maritime co
  Time_Period_of_Content:
    Time_Period_Information:
      Range_of_Dates/Times:
        Beginning_Date: 19961112
        Ending_Date: Present
    Currentness_Reference: ground condition
  Status:
    Progress: In work
    Maintenance_and_Update_Frequency: Continually
  Spatial_Domain:
    Bounding_Coordinates:
      West_Bounding_Coordinate: -89.36667
      East_Bounding_Coordinate: -89.36667
      North_Bounding_Coordinate: 30.28167
      South_Bounding_Coordinate: 30.28167
  Keywords:
    Theme:
      Theme_Keyword_Thesaurus: None
      Theme_Keyword: Wind Speed
      Theme_Keyword: Wind Direction
      Theme_Keyword: Wind Gust
      Theme_Keyword: Air Temperature
      Theme_Keyword: Water Temperature
      Theme_Keyword: Barometric Pressure
      Theme_Keyword: Water Level
      Theme_Keyword: Tide
    Place:
      Place_Keyword_Thesaurus: None
      Place_Keyword: Gulf of Mexico

Water Level Data Collected at the Center for Operational Oceanographic Products and Services (CO-OPS) Station 8747766, Waveland, MS, from November 1996 through Present

Metadata:

- Identification_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Citation_Information:

Originator:

NOAA/NOS/CO-OPS -- Center for Operational Oceanographic Products and Services

Publication_Date:

Unpublished material

Title:

Water Level Data Collected at the Center for Operational Oceanographic Products and Services (CO-OPS) Station 8747766, Waveland, MS, from November 1996 through Present

Online_Linkage:

http://www.co-ops.nos.noaa.gov/data_options.shtml?stn=8747766+Waveland+MS

Description:

Abstract:

This data set contains water level data collected at the Center for Operational Oceanographic Products and Services (CO-OPS) station 8747766, Waveland, MS, from November 1996 through present. Under the National Ocean Service (NOS), CO-OPS collects, analyzes and distributes real-time and historical observations of water level and other meteorological and oceanographic data. Data are collected using a Next Generation Water Level Measurement System (NGWLMS) as part of the National Water Level Observation Network (NWLON). Data are subsequently processed and archived at CO-OPS. Recent water level data (tides) are considered preliminary (raw) and have not been reviewed by NOS. Historic water level data (tides) from the CO-OPS databases are verified by NOS. These data may include recent verified 6-minute data, historic hourly heights, high and low waters, and daily heights. Data gaps may exist. Meteorological and oceanographic data, considered as ancillary data by

```
- <gmi:MI_Metadata xsi:schemaLocation="http://www.isotc211.org/2005/gmi Q:\MetadataTrainingMaterial\ISO\schemas\ISOngdc\schema.xsd">
  - <gmd:fileIdentifier>
      <gco:CharacterString>DWH_GG_Cruise01_processedCTD_NODC</gco:CharacterString>
    </gmd:fileIdentifier>
  - <gmd:language>
      <gco:CharacterString>eng; USA</gco:CharacterString>
    </gmd:language>
  - <gmd:characterSet>
      <gmd:MD_CharacterSetCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode" codeListValue="utf8" codeSpace="004">utf8</gmd:MD_CharacterSetCode>
    </gmd:characterSet>
  - <gmd:hierarchyLevel>
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    </gmd:hierarchyLevel>
  - <gmd:hierarchyLevelName>
      <gco:CharacterString>processed ctd level metadata</gco:CharacterString>
    </gmd:hierarchyLevelName>
    <gmd:contact xlink:href="http://www.ngdc.noaa.gov/docucomp/component/7c7d17a0-4d66-11df-9879-0800200c9a66" xlink:title="DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development Center
    (pointOfContact)"/>
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        ISO 19115-2 Geographic Information - Metadata - Part 2: Ex
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        http://www.ncddc.noaa.gov/approved_recs/dwh/ssm/Gordon_
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Provisional Processed CTD Data from the R/V Gordon Gunter in the Gulf of Mexico Cruise 01 May 28, 2010 - June 04, 2010

Spatial Representation Information
Reference System Information
Metadata Extension Information
Identification Information
Content Information
Distribution Information
Data Quality Information
Metadata Maintenance Information
Acquisition Information

Metadata:

File identifier:
DWH_GG_Cruise01_processedCTD_NODC

Language:
eng; USA

Character set:

Character set code:
utf8

Hierarchy level:

Scope code:
dataset

Hierarchy level name:
processed ctd level metadata

Metadata author: xlink: http://www.ngdc.noaa.gov/docucomp/component/7c7d17a0-4d66-11df-9879-0800200c9a66 title: DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development C

Date stamp:
2011-03-14

Metadata standard name:
ISO 19115-2 Geographic Information - Metadata - Part 2: Extensions for Imagery and Gridded Data

Metadata standard version:
ISO 19115-2:2009(E)

Dataset URI:
http://www.ncddc.noaa.gov/approved_recs/dwh/ssm/Gordon_Gunter/Cruise_01/DWH_GG_Cruise01_processedCTD_NODC.xml

Return To Index

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▼<gmi:MI_Metadata xmlns:gmi="http://www.isotc211.org/2005/gmi" xmlns="http://www.isotc211.org/2005/gmi" xmlns:gco="http://www.isotc211.org/2005/gco"
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 xmlns:gsr="http://www.isotc211.org/2005/gsr" xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
 xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.isotc211.org/2005/gmi
 http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd">
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   </gmd:characterSet>
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     <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="dataset"
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     <gco:CharacterString>processed ctd level metadata</gco:CharacterString>
   </gmd:hierarchyLevelName>
  ▼<gmd:contact xlink:title="DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development Center (pointOfContact)">
   ▼<gmd:CI_ResponsibleParty uuid="7c7d17a0-4d66-11df-9879-0800200c9a66">
    ▼<gmd:organisationName>
     ▼<gco:CharacterString>
        DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development Center
      </gco:CharacterString>
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        ▼<gmd:deliveryPoint>
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ISO 19115 Summary

This report displays some of the contents of ISO 19115 record

This report is produced using this stylesheet. Please contact Ted Habermann if you have questions or suggestions.

Identifier: DWH_GG_Cruise01_processedCTD_NODC (dataset (1))

Citations | Citation Responsible Parties | Other Responsible Parties | Bounding Extent | Sources | Process Steps | OnlineResources | Distributors | Services | Platforms | Instruments | Operations

Citations

ID	UUID	Identifier Code	Title	Date
		NODC Accession 0065140	Provisional Processed CTD Data from the R/V Gordon Gunter in the Gulf of Mexico Cruise 01 May 28, 2010 - June 04, 2010 (dataset)	

Citations | Citation Responsible Parties | Other Responsible Parties | Bounding Extent | Sources | Process Steps | OnlineResources | Distributors | Services | Platforms | Instruments | Operations

Abstracts

Count (Refs)	Abstract
1	Initial Conductivity Temperature and Depth (CTD) was conducted aboard the R/V Gordon Gunter to determine water column stratification or other physical oceanographic parameters that will help determine depth of samples collected and further validate the model. Note this is provisional data.

Responsible Individuals and Organizations

Count (Refs)	ID	Link/UUID	Individual	Organization	Position	Email	Role	Linkage
1				British Petroleum (BP)				
1				British Petroleum (BP)			originator	
1				British Petroleum (BP)			resourceProvider	
1				Deepwater Horizon Subsurface Monitoring Unit (SMU)			pointOfContact	
3		DOC/NOAA/NESDIS/NODC/NCDDC>		DOC/NOAA/NESDIS/NODC/NCDDC>		ncddc@noaa.gov	pointOfContact	

```
▼<gmi:MI_Metadata xmlns:gmi="http://www.isotc211.org/2005/gmi" xmlns="http://www.isotc211.org/2005/gmi" xmlns:gco="http://www.isotc211.org/2005/gco"
 xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmx="http://www.isotc211.org/2005/gmx"
 xmlns:gsr="http://www.isotc211.org/2005/gsr" xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
 xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.isotc211.org/2005/gmi
 http://www.ngdc.noaa.gov/metadata/published/xsd/schema.xsd">
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 ▼<gmd:hierarchyLevel>
    <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="dataset"
    codeSpace="005">dataset</gmd:MD_ScopeCode>
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 ▼<gmd:hierarchyLevelName>
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  </gmd:hierarchyLevelName>
 ▼<gmd:contact xlink:title="DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development Center (pointOfContact)">
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    ▼<gco:CharacterString>
       DOC/NOAA/NESDIS/NODC/NCDDC> National Coastal Data Development Center
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     ▼<gmd:CI_Address>
      ▼<gmd:deliveryPoint>
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```


ISO 19115 SpiralTracker Report

This report identifies ISO metadata elements described in spirals of documentation development described in Creating Good Documentation. Together these spirals build a strong foundation for high-quality documentation. The ISO Standard includes a number of options for building on that foundation by addressing specific scientific needs. See Use Cases to CRUD for some examples.

The elements are listed by name and are followed by M, C, or O if they are Mandatory, Conditional or Optional. They are followed by UDD (attribute name) if they are included in the NetCDF Attribute Convention for Dataset Discovery.

The ISO 19115 Standard recommends Core Elements for inclusion in metadata. This tool tests also conformance with those recommendations.

The Rubric at the top of the report summarizes the results. Each spiral is represented by a row in the rubric. The columns show the % of the elements in that spiral that exist in the record. Click the spiral name for more details.

This report is produced using this stylesheet. Please contact Ted Habermann if you have questions or suggestions.

Title: Provisional Processed CTD Data from the R/V Gordon Gunter in the Gulf of Mexico Cruise 01 May 28, 2010 - June 04, 2010

Total Spiral Score: 16/41

Spiral	None ☆☆☆☆	1-33% ★☆☆☆	34-66% ★★☆☆	67-99% ★★★☆	All ★★★★
Total Spiral			■		
Identification				■	
Connection		■			
Extent			■		
Distribution		■			
Description		■			
Content	■				
Lineage					■
Acquisition Information		■			

Total ISO Core Score: 13/23

Note: The Total ISO Core Score does not count toward the Total Spiral Score.

Rubrics

- Style sheet that is a reporting mechanism
- Scores records based on set criteria
  - Criteria definitions are customizable
- To be used as part of documentation spirals

Style Sheets in Action

- http://ngdc.noaa.gov/metadata/published/NOAA/NOS/OCS/enc_direct/iso/

Style Sheets in Action

- CSS
- Skins

templateCOLLECTION.XML [C:\Documents and Settings\jmize\Desktop\templateCOLLECTION.XML] - <oXygen/> XML Editor

File Edit Find Project Perspective Options Tools Author Document Window Help

External Tools Saxon-EE

XPath 2.0

CSS

Outline

templateCOLLECTION.XML*

gmi:MI_Metadata gmd:fileIdentifier gco:CharacterString

-stylesheet type="text/css"
MI_Metadata "http://www.w3.org/2001/XMI
gmd:fileIdentifier *generate uuid or use som
gco:CharacterString *generate uuid or u
gmd:language eng; USA
gmd:characterSet utf8
gmd:MD_CharacterSetCode "http://www
gmd:hierarchyLevel collectionSession
gmd:hierarchyLevelName cruise-level metada
gmd:contact "http://www.ngdc.noaa.gov/dc
gmd:dateStamp *YYYY-MM-DD insert date m
gmd:metadataStandardName ISO 19115-2 G
gmd:metadataStandardVersion ISO 19115-2
if data is not projected or in
gmd:referenceSystemInfo "*insert link to ref
gmd:identificationInfo
gmd:contentInfo
gmd:metadataMaintenance
gmi:acquisitionInformation

MI_Metadata:

File identifier:

generate uuid or use some other unique identifier such as EX1003 or OE's assigned short title

Language:

eng; USA

Character set:

MD_CharacterSetCode: utf8

(@codelist: http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_CharacterSetCode, @codelistValue: utf8)

Hierarchy level:

MD_ScopeCode: collectionSession

(@codelist: http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode, @codelistValue: collectionSession)

Hierarchy level name:

cruise-level metadata

Metadata author: (@xlink:href: http://www.ngdc.noaa.gov/docucomp/component/ED9AE398-D6CE-A63A-D75D527D366248E3, @xlink:title: NOAA/OAR/OER - Ocean Exploration and

E [Xerces] cvc-datatype-valid.1.2.3: '*YYYY-MM-DD insert date metadata was created*' is not a valid value of union type 'Date_Type'.

Text Grid Author

File Edit Find Project Perspective Options Tools Document Window Help

External Tools Saxon-EE

XPath 2.0

Outline

templateCOLLECTION.XML*

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <?xml-stylesheet type="text/css" href="http://www.ngdc.noaa.gov/metadata/published/xsl/ISO.css"?>
3  <gmi:MI_Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gco="http://www.isotc211.org/2005/gco"
4      <gmd:fileIdentifier>
5          <gco:CharacterString>*generate uuid or use some other unique identifier such as EX1003 or OE's
6              assigned short title* </gco:CharacterString>
7      </gmd:fileIdentifier>
8      <gmd:language>
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15         <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="collectionSession" codeSpace="
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17     <gmd:hierarchyLevelName>
18         <gco:CharacterString>cruise-level metadata</gco:CharacterString>
19     </gmd:hierarchyLevelName>
20     <gmd:contact xlink:href="http://www.ngdc.noaa.gov/docucomp/component/ED9AF398-D6CF-A63A-D75D527D366248F3" xlink:title="NOAA/OAR/OER - Ocean Exploration and
21     <gmd:dateStamp>
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23     </gmd:dateStamp>
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27     <gmd:metadataStandardVersion>
28         <gco:CharacterString>ISO 19115-2:2009(E)</gco:CharacterString>
29     </gmd:metadataStandardVersion>
```

E [Xerces] cvc-datatype-valid.1.2.3: '*YYYY-MM-DD insert date metadata was created*' is not a valid value of union type 'Date_Type'.

Text Grid Author

Description - 0 items | Resource | System ID | Location

Errors

C:\Documents and Settings\jmize\Desktop\templateCOLLECTION.XML | U+003C | 6:35 | Modified

Altova XMLSpy - [NODC_0080979 (use)_iso.xml *]

File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic DB Convert View Browser XBRL Tools Window Help

ISO Metadata Skin

Section

Best Practice

Contact

Optional

Mandatory

Metadata Information:

What is the metadata file identifier (UUID)? gov.noaa.nodc.ncddc.file:///Q:/MetadataTrainingMater add gco:nilReason

What is the granularity of this metadata?

What is the hierarchy level, select one: dataset add gmd:hierarchyLevelName

Who is the contact for this metadata?

Do you have a component to use?

URL? add xlink:href

Title? add xlink:title

UUID? add uuid

Name? add gmd:individualName

Organization? US National Oceanographic Data Center

Position? Data Officer

Phone? 301-713-3272

Text Grid Schema WSDL XBRL Authentic Browser

NODC_0080979 (use)_iso.xml *

Altova XMLSpy - [templateCOLLECTION.XML *]

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1. General Desscription of Data to be Managed

1.1 Name of the Dataset or data collection project

insert title including who, what, when, where such as proposal title with dates and location

1.2 Keywords that could be used to characterize the data, and vocabulary from which those keywords were obtaind (e.g., GCMD, CF Conventions, etc.)

Keywords:	*gcmd keywords*		
Keywords:	*repeatable gcmd keyword*	Vocabulary used:	GCMD
Keywords:	*insert keyword*		
Keywords:	*insert keyword*	Vocabulary used:	Ocean Exploration and Research (OER) Discovery Ke
Keywords:	*ship name*	Vocabulary used:	None
Keywords:	*insert theme keyword or phrase*		
Keywords:	*insert theme keyword or phrase*		
Keywords:	*example:* coastal ecology		
Keywords:	*example:* geoarchaeology	Vocabulary used:	None
Keywords:	*insert place keyword*		
Keywords:	*insert place keyword*	Vocabulary used:	None

1.3 Summary description of the data to be generated

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Altova XMLSpy - [templateCOLLECTION.XML *]

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EDIT HERE

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```
21      <gco:Date>*YYYY-MM-DD insert date metadata was created*</gco:Date>
22    </gmd:dateStamp>
23    <gmd:metadataStandardName>
24      <gco:CharacterString>ISO 19115-2 Geographic information - Metadata - Part 2: Extensions for Imagery and Gridded Data</gco:CharacterString>
25    </gmd:metadataStandardName>
26    <gmd:metadataStandardVersion>
27      <gco:CharacterString>ISO 19115-2:2009(E)</gco:CharacterString>
28    </gmd:metadataStandardVersion>
29    <!--if data is not projected or include a spatial reference, then delete the reference system info-->
30    <gmd:referenceSystemInfo xlink:href="*insert link to reference system*" xlink:title="*insert reference system title*"/>
31    <gmd:identificationInfo>
32      <gmd:MD_DataIdentification>
33        <gmd:citation>
34          <gmd:CI_Citation>
35            <gmd:title>
36              <gco:CharacterString>EDIT HERE</gco:CharacterString>
37            </gmd:title>
38            <gmd:alternateTitle>
39              <gco:CharacterString>*insert short title such as EX1003 or OE's cruise id*</gco:CharacterString>
40            </gmd:alternateTitle>
41            <gmd:date>
42              <gmd:CI_Date>
43                <gmd:date gco:nilReason="unknown"/>
44                <gmd:dateType>
45                  <gmd:CI_DateTypeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#CI_DateTypeCode" codeListValue="publication" codeSpace="002">publication</gmd:CI_DateTypeCode>
46                </gmd:dateType>
47              </gmd:CI_Date>
48            </gmd:date>
49            <gmd:identifier>
50              <gmd:MD_Identifier>
51                <gmd:code>
52                  <gco:CharacterString>*same as alternative title*</gco:CharacterString>
53                </gmd:code>
54              </gmd:MD_Identifier>
```

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templateCOLLECTION.XML *

Transforming Metadata
Additional Links

http://www.ncddc.noaa.gov/metadata-standards/metadata-xml/

https://geo-ide.noaa.gov/wiki/index.php?title=Extensible_Stylesheet_Language_Transformation_(XSLT)