Propagation of FGDC-Endorsed Metadata Standards across the Great Lakes Basin

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Project Narrative:
This project addressed training and outreach assistance for spreading metadata knowledge across the Great Lakes Basin. It consisted of three tasks: (A) creation of teaching materials, (B) hands-on training, and (C) distribution via the internet. RS&GIS successfully completed each of these tasks under the provision of the FGDC-Endorsed Standards Implementation Assistance and Outreach grant.

RS&GIS created teaching materials and presented hands-on training sessions at four training sessions. Modifications to these teaching materials were made subsequent to each training session, according to the feedback provided by workshop participants. Final modifications to these teaching materials were made after the last presentation. Following these modifications, all instructional materials were converted to a dynamic format (Microsoft PowerPoint and Adobe Acrobat Connect Professional), and uploaded to the internet as lectures and/or narrated training modules. These materials, and other metadata resources, are available through the RS&GIS *Geospatial Resources* (http://www.rsgis.msu.edu/resources/index.html) website and, with approval, will be linked to the FGDC website.

Training and Outreach:

Metadata training in all RS&GIS training sessions targeted two FGDC-endorsed metadata standards: (1) the Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998) and (2) the Content Standard for Digital Orthoimagery (FGDC-STD-008-1999). The targeted audiences were geospatial data producers and consumers around the Great Lakes region from all backgrounds, including academia, government, business, and not-for-profits. Training sessions were advertised to the public and offered in association with geospatial technical conferences and a university initiative.

All presentations were created by RS&GIS staff members Justin Booth and Robert Goodwin, and all presentations were given by Mr. Booth. On a regular basis, both Mr. Booth and Mr. Goodwin are responsible for ensuring that FGDC-compliant metadata is included with various RS&GIS geospatial products, including large vector (e.g., LU/LC classifications) and raster (e.g., orthoimagery) datasets. Mr. Booth also leads the Geospatial Information Support Team (GISt) of Michigan State University and Mr. Goodwin advises and facilitates aerial orthoimagery acquisition for municipal, county, and state organizations. Their practical experience with troubleshooting metadata issues provided valuable insight in preparation of education materials and presentations.

In general, all workshop attendees were versed in the manipulation of geospatial data, either as GIS analysts or Image Processing specialists. As such, all were generally familiar with basic metadata fields but most were uncertain of the differences between standards (e.g., ISO, FGDC), how to identify the correct FGDC-endorsed standard for their work, and how to create, edit, and validate their metadata to FGDC-endorsed standards. In addition, no participants knew how to publish and harvest their metadata through a metadata clearinghouse. Some were familiar with searching for geospatial data through metadata clearinghouses. Participant feedback was provided via informal discussions and via a formal written survey.

Additional detail on each of the completed training sessions is provided below.

Workshops Completed
1. Metadata Training at MiCAMP
The Michigan Counties Association of Mapping Professionals (MiCAMP) Annual GIS Conference, Boyne Mountain Resort, MI, 12-14 September 2007.
Title: Getting the Most Out of Metadata

Total: 35 attendees, all from county government agencies
Date: 13 September 2007
Duration: 1.5 hour
Venue: Meeting room at conference hotel (no computers)
Means of instruction: Lecture with exercises on paper

Types of Exercises: Two different exercises. The first exercise was designed to familiarize the participants with the organization of FGDC-endorsed metadata standards, and was

administered early in the presentation. Participants were given FGDC-compliant hydrography metadata from the National Hydrography Dataset (NHD) and asked a series of questions that required them to search through the metadata fields. The second exercise was designed to give participants experience on writing thorough, meaningful metadata. It involved filling in a series of metadata fields for a specific product that was handed out.

2. Metadata Training at AAG East Lakes Meeting
The Association of American Geographers East Lakes Region Annual Meeting, Michigan State University, East Lansing, MI, 19-20 October 2007.
Title: Practical Strategies for Sharing Your Data: FGDC Metadata Standards

Total: 9 attendees, geographers from MI and OH
Date: 19 October 2007
Duration: 2 hours
Venue: The William R. Enslin Computer Training Lab, RS&GIS, Michigan State University.
Means of instruction: Lecture with exercises on paper and computer.

Types of Exercises: Four different exercises, two on paper, two on computer. The first two exercises were the same as those administered in the previous workshop session at MiCAMP (see above). The third exercise was a hands-on computer exercise designed to familiarize participants with the metadata editing capabilities of ArcCatalog. In particular, this exercise introduced participants to methods for converting metadata (i.e., formats and standards), identifying required fields, and creating and editing FGDC-compliant metadata. The fourth exercise was a hands-on computer exercise designed to familiarize participants with one of the online free resources for validating the metadata that they create. Specifically, participants were given an incomplete metadata set which they were to validate with the USGS metaparser (MP) program. Those fields which were incomplete were then to be filled in using a metadata editor (e.g., in ArcCatalog) and validated a second time with MP.

3. Metadata Training at IMAGIN (Improving Michigan's Access to Geographic Information Networks)
IMAGIN Annual Meeting, The Dearborn Inn, Dearborn, MI, 5-7 May 2008.
Title: NSDI Metadata Workshop

Total: 15 attendees, geospatial professionals from public and private sectors
Date: 5 May 2008
Duration: 1.5 hour
Venue: Meeting room at conference hotel (no computers)
Means of instruction: Lecture with exercises on paper

Types of Exercises: Similar to MiCamp (see above).

4. Metadata Training in conjunction with the GISt (Geospatial Information Support Team) Initiative at Michigan State University
Title: Getting the Most Out of Your Metadata

Total: 7 attendees, geospatial professionals from academia, and the public/private sectors
Date: 18 August 2008
Duration: 3 hours
Venue: The William R. Enslin Computer Training Lab, RS&GIS, Michigan State University.
Means of instruction: Lecture with exercises on paper and computer.

Types of Exercises: Similar to AAG (see above).

RS&GIS *Geospatial Resources* Website Content
http://www.rsgis.msu.edu/resources/index.html

1. *Getting to Know Metadata*
   - Instructional materials provided in a dynamic format (Microsoft PowerPoint and Adobe Acrobat Connect Professional)
2. *Training Modules*
   - Narrated training videos provided in Camtasia Sudio 4
     o Understanding FGDC Metadata Standards
     o How to Use the ArcCatalog Metadata Editor
     o Validate Your Metadata
3. *Additional Resources*
   - Comprehensive listing of online metadata resources

Additional Presentations
In addition to the above mentioned workshops, these metadata training materials were also presented in a graduate geography course at Michigan State University titled *GIS in Government and Business*. Specifically, this metadata training was given in a one-hour lecture on 24 October 2007.

Exercises created for the metadata workshops have been integrated into RS&GIS workshops offered quarterly in the William R. Enslin Training Lab, RS&GIS, Michigan State University.

Future Opportunity
Additional metadata training will be provided, as requested, utilizing the lecture/exercise materials developed through the grant. To date, the State of Michigan has requested metadata training for staff members of the Center for Shared Solutions (formerly the Center for Geographic Information). Hands-on training will be provided in Fall, 2008.

Through its integration with ongoing RS&GIS and Michigan State University initiatives, the metadata lecture materials and dynamic exercise modules will continue to be enhanced and updated on the RS&GIS *Geospatial Resources* website (http://www.rsgis.msu.edu/resources/index.html).

Feedback

It has been a pleasure working with NSDI staff on this Cooperative Agreement Program (CAP). E-mail communication was valuable and effective, with regular reminders/announcements and rapid response to inquiries. The only hindrance incurred, a delayed start date, was due to the complicated nature of the University grant system and was diligently addressed by MSU/NSDI staff.

RS&GIS staff felt this was a valuable project and would certainly consider similar efforts again. Responses from the training participant surveys reflected this same sentiment. Metadata, while critical to quality geospatial data, is often overlooked or developed improperly. Funding for training/outreach endeavors result in an educated geospatial community and, therefore, higher quality data.

Screen Capture:
RS&GIS *Geospatial Resources* website (http://www.rsgis.msu.edu/resources/index.html)