National Spatial Data Infrastructure

Cooperative Agreement Program

Metadata Training for Earth Science and Cyberinfrastructure Communities

Interim Project Report

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Interim Report Summery Information

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Organization:

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Interim Report

Executive Summary

The project is to provide metadata training for the communities of Earth Science and Cyberinfrastructure. As of the today, the project has provided trainings to Earth Science Information Partners (ESIP) 2008 summer meeting in New Hampshire, GMU 2008 summer training group at George Mason Univ., ESIP 2009 Winter Meeting in D.C., and a course on scientific databases at GMU. There are a total number of around 120 professionals and students received training. CISC is actively organizing and improving training materials of metadata using online systems for these communities under the support of this project. CISC is working with ESIP and other organizations to implement and provide metadata services supporting FGDC endorsed metadata standards.

The following trainings will be implemented as the project scheduled. 1) the AAG 2009 annual meeting with an estimated audience of about 40; 2) Intergraph Geospatial World 2009 with an audience of about 30; and 3) the ESIP 2009 summer meeting with a total of 40. 4) the CISC international summer training program with 20+ geospatial professionals.

Project Narrative

Activity I: Publish, Harvest, and Query Metadata via OGC CSW2.0.1 and Geo-Clearinghouse

This activity is trying to address OGC interoperability standards including Web Map Service (WMS), Web Feature Service (WFS), Web Coverage Service (WCS) by setup a community catalog for air quality working group to publish, harvest and query metadata. The development of the community catalog is to utilize OGC Web Catalogue Service (CSW) standard to build both catalog server for publishing, harvesting and conducting transaction of geometadata. Meanwhile, CSW client would also be built to train domain users to understand the working mechanism of catalogue service as well as how to correctly format and send a metadata query from the metadata catalogue. Currently, the operational CSW server is hosted at GMU site (http://129.174.65.115:8083/aq/srv/csw?request=GetCapabilities&service=CSW&version=2.0.1). Metadata training in this activity includes guiding AQ community researchers on ISO19115/ISO19139 metadata creation, metadata and OGC service publication, CSW client development, as well as harvest CSW services into GEOSS clearinghouse.

Activity II: Metadata Within Cyberinfrastructure: An Introduction to the Geospatial Metadata Needs, Practice, and Future within the Cyberinfrastructure.

We are planning another metadata workshop during the annual meeting of Association of American Geographers on March 22nd, 2009. We would integrate our metadata research experiences from several projects like NASA ESG (Earth Science Gateway), ESIP EIE (Earth Information Exchange), and WECHO (WaterCycle for Earth Clearing HOuse) to instruct the attendees on FGDC metadata standards, how we could use these metadata for? What are the online tools available for us to create metadata? How to search data by using metadata catalogs? How metadata relate to knowledge representation and ontology? How metadata can help with knowledge-based reasoning and computing scheduling, as well as data management and visualization? How metadata can be utilized within grid computing, cloud computing, and other advanced CyberInfrastructure topics.

Activity IV: Semantic-Enabled Meta-Catalogue Research

Semantic enabled metadata-catalogue research is to employ the cutting-edge semantic web technology in order to seamlessly connect various geo-catalogues such as FGDC's Geospatial One Stop portal, NASA's Earth Science Gateway Portal, NOAA's National Climate Data Center Portal, NASA's Earth Clearinghouse Portal, NASA's Global Climate Master Directory to form an integral portal for geospatial data and metadata discovery. Semantic technology is added to the query layer to improve the accuracy of traditional keyword-based search functionality. We present this new research outcome on 2008 summer training program to international researchers in geospatial fields. The current available operational system can be found from: http://eie.esipfed.org/c/portal/layout?p_1_id=PUB.1.113

Training and outreach assistance:
Four workshops are conducted and four more are expected before the end of this project.
1. ESIP summer one hour workshop, 10 attendees, NASA, EPA, NOAA, academic and NGO, most are metadata creators and administrators.
2. GMU summer GeoInformation Science one-day metadata training: 33 attendees, China Geological Survey agencies and international students at GMU.
3. GMU scientific database classes two hour metadata training, 30 attendees, students from companies and agencies.
4. ESIP 2009 winter meeting on Jan 6, 2009 for one hour training in the Embassy Suites Convention Center, Washington DC with about 50 attendees.

Four other workshop are expected including
1) The AAG 2009 annual meeting: March 22, 2009;
2) The ESIP 2009 summer conference: July, 2008.
3) The CISC international summer training program July, 2008.
4) Intergraph Geospatial World 2009.

Status of Metadata Service
The metadata is harvest by Geospatial One Stop portal and Global Earth Observation *System of Systems* GOESS system.
In Activity I, we have maintained and harvested 60 metadata files;
In Activity II, we have maintained and harvested 18 metadata files;
In our Earth System Science Gateway, we have over 1000 registered layers of Web Map Services, Web Feature Services and Web Coverage Services.

Next Steps:
This project's activities will be continued as scheduled. This project helps us conduct training in ESIP community and international geospatial professionals. The next phase of our project is Phase three which will be to offer the modules to targeted audiences and to further improve the modules for a broader audience. 1) The improved modules will be offered at the Intergraph annual meeting and feedback will be conducted to evaluate the learning and modules. 2 The improved modules will be offered at the ESIP summer meeting for further improvements based on course evaluations and learning exercises. 3) The improved modules will be offered at the CISC international training session for adaptability to the international community for the GSDI.