IUGS Commission for Geoscience Information

International Geoscience Data Model Collaboration Working Group

Model & Encoding Task Group

Report on activities 2005-2006

Meetings

The task group held two face-to-face meetings since the last CGI Council meeting:

3rd meeting at GSC in **Ottawa** 29th August – 2nd **September 2005**
GSC - Boyan Brodaric, Eric Boisvert
USGS - Bruce Johnson
AzGS - Steve Richard
BGS - John Laxton, Tim Duffy
GSV - Bruce Simons
CSIRO - Simon Cox.

4th meeting at BRGM in **Orleans** 24th August – 28th **April 2006**
BRGM – Francois Robida, Jean-Jacques Serrano, Christian Bellier, Dominique Janjou
GSC - Boyan Brodaric, Eric Boisvert
USGS - Bruce Johnson
AzGS - Steve Richard
BGS - John Laxton, Marcus Sen, Tim Duffy
GSV - Bruce Simons
GA - Lesley Wyborn, Dale Percival
SGU – Tomas Lindberg, Jonas Holmberg
CSIRO - Simon Cox
SCO – Rob Atkinson (by telecom, one morning only)
EuroGeoSurveys – Patrice Christiansen (Friday only)

The focus was on designing and refining the GeoSciML model and encoding to be used for a WFS interoperability testbed, to be launched at IAMG 2006.

This is the second CGI WFS testbed, following the XMML-based boreholes testbed run by BGS and BRGM in 2004.

GeoSciML progress

Key points:

- CGI-GML now to be known as “GeoSciML”
- CGI Testbed #2 will be based on GeoSciML version 1.1.0
    - US, Canada, UK, Australia, France, Sweden to participate
- Model developed and formally represented in UML. Scope is
    - MappedFeature, GeologicUnit, GeologicStructure, Earth Material, ControlledConcept (adapted from NADM)
        - A limited set of specialized units is implemented
        - A limited set of specialized structure objects is implemented

    - Site, Observation (adapted from XMML/OGC)
    - Borehole (minimal adaptation of Testbed #1 XMML model)
        - pending full harmonization with O&M)
- A generic "Value" model has been developed, to allow "simple" attribute values to capture the detail conventionally recorded by geologists (i.e. text or number, with qualifiers and/or uncertainty, optionally as a range)
- Transfer encoding is a "GML Application Schema" implementation of the model, as required for compatibility with the WFS Web Service interface

Testbed

CGI Testbed #2 is based on deploying WFS and WMS services in the participant organizations, delivering GeoSciML data. Test clients are deployed by GSC and BGS, which can connect to the servers to

- display a fused map based on live data from multiple services
- support basic queries of the objects displayed in the maps
- allow download/transfer of the datasets corresponding with features selected on the maps.

This functionality is accomplished by a combination of WMS and WFS functionality.

The test bed has exposed

1. limitations in the available software implementations, particularly related to
    a. standards conformance
    b. support for a community-defined application schema defined independently of the storage schema
2. need to develop best practices for use of the data-model and schema, which provides for alternative representations of the same information
3. need to develop best practices for deploying a WMS services displaying and querying data in combination with a WFS service deployed over the same data sources
4. model updates and improvements to be implemented in GeoSciML v2
5. the requirement for standard value-spaces (vocabularies) for representation of the properties of feature instances

Future plans

1. **Adoption**: GeoSciML is to be submitted to European INSPIRE program, through EuroGeoSurveys, as a reference model for the geoscience domain.
2. **Documentation**: GeoSciML information is currently only available on the SEEGrid TWiki. Formal documentation must be prepared in order to allow GeoSciML to be submitted to IUGS and EuroGeoSurveys. Funding required is required to support this. Estimate is ca. AUD50k.
3. **Governance**: immediately following Testbed 2, attention will shift to GeoSciML v2.0. Preliminary work has already started.
4. **Vocabulary** work is required to support proper interoperability between services provided by different jurisdictions.

Simon Cox
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