"Earth Science-Ontolog" Mini-series Home Page

This is a Joint EarthCube-Ontolog Mini-series on "Ontology and Semantic Technology for the Earth Science Community" ... dubbed: "*EarthScienceOntolog*" - **the Earth Science Ontology Dialog**.

This mini-series of events are co-organized or supported by members of the EarthCube community, the Ontolog community, the Spatial Interoperability Community of Practice (SOCoP), and the International Association for Ontology and is Applications (IAOA) community.

Description, Goals and Objectives

The Earth Science ontology series is designed to explore the current status and application of multi-level ontologies towards developing a semantically enabled cyberinfrastructure for the Earth Science Community. In addition, one key mission of the mini-series is to bring together members of both communities (Earth Science and ontology/semantics) into a meaningful dialog. We anticipate that the sharing of requirements and use cases, geo-science problems and issues, ontological engineering architectures and approaches, and prospective tools, will enable collaborative understanding of the challenges and potential value in the application of ontology and semantics in Earth Science.

The Earth Science community is well known for its array of data types that range from:

> 1) large volumes of structured and homogeneous data (gathered by various remote sensing technologies)
>
> to
>
> 2) extremely heterogeneous and distributed data (usually only several gigabytes) generated by individuals (commonly referred to as the Long tail of Science).

These two fundamentally different data environments reflect significant variations in methods that can be deployed to solve earth

science questions. Typically, sensor data with well characterized outputs and structures are used to measure, evaluate and model present day earth processes, but are unable to capture processes and events that have occurred in the past. To solve these more complex views of the earth through time requires gathering a spectrum of data types, using a large number of instruments and techniques, by thousands of individuals around the world with resultant syntactic and semantic heterogeneity associated with both data and services.

The goal of ontologies is to make it easy for the community to share data and services in both environments: ranging from datacenters with large volumes of homogeneous and structured data to a distributed system with only partially structured and heterogeneous data. Therefore ontologies must be applicable to both environments, and must enable the end user to readily share and identify the data of interest. It is also necessary to develop ontologies that can facilitate the sharing, access and discovery of services that enable data to be modeled and interpreted, including inference capabilities.

The objective of the Earth Science Ontolog mini-series is to help start the collaborative investigation and help evolve a path to implement methods for community supported development of both data and service ontologies, as well as to demonstrate application of ontologies during the five stages of data related activities identified below:

1) enabling providers to SHARE data
2) enabling ease of access to both centralized and distributed data
3) enabling discovery of data of interest to the end user
4) enabling integration and fusion of data
5) enabling modeling capabilities

Topics for Sessions of the Mini-series:

We identify five prospective topics for the series:

1) Value Proposition of Ontology and Semantic Technology for the Earth Science Community

2) Ontology development and application across Earth Science Lifecycle
3) Methodologies: including, what *is* semantics, image approaches, etc.
4) Review of the field of ontologies for earth science (and existing ontologies)
5) Tutorials

We also anticipate that the mini-series may provide suggestions for creating a catalog of earth science ontologies at multiple levels of granularity.

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Discussion Archives & Shared-File Workspace   (3CWW)

- Discussion Archives: (for organizing)
  http://ontolog.cim3.net/forum/mini-series-org/   (3CWX)
- Shared-File Workspace:
  http://ontolog.cim3.net/file/work/EarthScienceOntolog/ (3CWY)
- Wiki workspace: (for organizing)
  EarthScienceOntolog/GettingOrganized   (3CX7)

Resources   (3CWZ)

- ...(put link here)...   (3CX0)

- ...*(put description and other pertinent info here)*... **(3CX1)**

- **EarthCube Project** Homepage - http://earthcube.ning.com/ **(3CX2)**
  - EarthCube "Semantics and Ontologies" workgroup - http://earthcube.ning.com/group/semantics-and-ontologies   **(3CX3)**
  - EarthCube "Semantics and Ontologies" Mailing List - **[Sem-cg]**: msg-archives ; listinfo   **(3CX4)**