A Framework for Earth Science Search Interface Development

Design and Implementation of S2S

S2S: the Seafloor to Surface Ocean Data Finder

Knowledge Panel

Search Dashboard

Data Source:
- Biological and Chemical Oceanographic Data Management Office

Search Facets:
- Bounding Box:
  - North: 30.514429
  - East: 146.836197
  - West: 20
  - South: -60

- SeaDataNet Category:
  - aerosol samplers
  - anemometers
  - bathythermographs
  - continuous air samplers
  - CTD profilers
  - current profilers
  - discrete water samplers
  - fluorometers

- Programs:
  - Census of Marine Life
  - Iron Synthesis
  - U.S. Joint Global Ocean Flux Study

- People:
  - Abraham, Edward
  - Allison, Dicky
  - Almgren, Daniel
  - Azam, Farooq
  - Bakker, Dorothee
  - Baich, William
  - Barber, Richard
  - Bender, Michael

- Equipment:
  - Acoustic Doppler Current Profiler

Rearrange Search:
- Bounding Box
- SeaDataNet Category
- Programs
- People
- Equipment
- Unused Facets:
  - Awards
  - Deployments
  - Projects
  - Date Range

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Use Cases

• Faceted Browsing Interface
  – Search by…
    • award number and principal investigator
    • geographic region and parameter
    • publication date

• Maintain current value chain
  – BCO-DMO acts as archivist, curator, and provider

• S2S enables…
  – Faceted browsing
  – Discovery portals and self-deployed interfaces
Research Methodology

Semantic Web Methodology & Technology Development Process

- Establish and improve a well-defined methodology vision for semantic technology based on application development
- Leverage controlled vocabularies, etc.

Fox et al., 2009
Interaction Paradigm

ExView (Maffei et al., 2007) and 4DGeoBrowser (Lerner and Maffei, 2001)
Framework Ontology
Prototype Implementation

**Technology**
- OpenSearch services
- jQuery interface
- PHP backend

**Data Resources**

**S2S: the Seafloor to Surface Ocean Data Finder**

**HydroBase 2**
A Global Database of Hydrographic Profiles and Tools for Climatological Analysis
Summary

• Extensible Framework
  – Add web service standards
  – Add search and analysis widgets
  – Add data services

• Enables community development
  – Data managers
  – User Interface designers

• Uniform search interface
  – Customizable, reusable
Future Work

• Evaluations (usability, extensibility)

• Implement additional web service standards
  – Semantic Annotations for Web Service Definition Language (SAWSDL)
  – SPARQL - a query language for RDF
  – The OpenGIS® Web Processing Service (WPS)

• Federated search interface

• Incorporate web service discovery techniques
References


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Questions or Comments?
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Slides: