Geophysical Research Abstracts
Vol. 14, EGU2012-2943, 2012
EGU General Assembly 2012

The NERC Vocabulary Server: Version 2.0

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The NERC Vocabulary Server (NVS) has been used to publish controlled vocabularies of terms relevant to the marine environmental sciences domain since 2006 (version 0) with version 1 being introduced in 2007. It has been used for

• metadata mark-up with verifiable content
• populating dynamic drop down lists
• semantic cross-walk between metadata schemata
• so-called smart search
• and the semantic enablement of Open Geospatial Consortium Web Processing Services

in projects including: the NERC Data Grid; SeaDataNet; Geo-Seas; and the European Marine Observation and Data Network (EMODnet).

The NVS is based on the Simple Knowledge Organization System (SKOS) model and following a version change for SKOS in 2009 there was a desire to upgrade the NVS to incorporate the changes in this standard. SKOS is based on the "concept", which it defines as a "unit of thought", that is an idea or notion such as "oil spill". The latest version of SKOS introduces the ability to aggregate concepts in both collections and schemes. The design of version 2 of the NVS uses both types of aggregation: schemes for the discovery of content through hierarchical thesauri and collections for the publication and addressing of content.

Other desired changes from version 1 of the NVS included:

• the removal of the potential for multiple Uniform Resource Names for the same concept to ensure consistent identification of concepts
• the addition of content and technical governance information in the payload documents to provide an audit trail to users of NVS content
• the removal of XML snippets from concept definitions in order to correctly validate XML serializations of the SKOS
• the addition of the ability to map into external knowledge organization systems in order to extend the knowledge base
• a more truly RESTful approach URL access to the NVS to make the development of applications on top of the NVS easier
• and support for multiple human languages to increase the user base of the NVS

Version 2 of the NVS underpins the semantic layer for the Open Service Network for Marine Environmental Data (NETMAR) project, funded by the European Commission under the Seventh Framework Programme.

Here we present the results of upgrading the NVS from version 1 to 2 and show applications which have been built on top of the NVS using its Application Programming Interface, including a demonstration version of a SPARQL interface.