



## **Semantics in NETMAR (open service NETwork for MARine environmental data)**

Adam Leadbetter, Roy Lowry, and Oliver Clements

British Oceanographic Data Centre, Liverpool, United Kingdom (alead@bodc.ac.uk)

Over recent years, there has been a proliferation of environmental data portals utilising a wide range of systems and services, many of which cannot interoperate. The European Union Framework 7 project NETMAR (that commenced February 2010) aims to provide a toolkit for building such portals in a coherent manner through the use of chained Open Geospatial Consortium Web Services (WxS), OPeNDAP file access and W3C standards controlled by a Business Process Execution Language workflow. As such, the end product will be configurable by user communities interested in developing a portal for marine environmental data, and will offer search, download and integration tools for a range of satellite, model and observed data from open ocean and coastal areas. Further processing of these data will also be available in order to provide statistics and derived products suitable for decision making in the chosen environmental domain.

In order to make the resulting portals truly interoperable, the NETMAR programme requires a detailed definition of the semantics of the services being called and the data which are being requested. A key goal of the NETMAR programme is, therefore, to develop a multi-domain and multilingual ontology of marine data and services. This will allow searches across both human languages and across scientific domains. The approach taken will be to analyse existing semantic resources and provide mappings between them, gluing together the definitions, semantics and workflows of the WxS services. The mappings between terms aim to be more general than the standard “narrower than”, “broader than” type seen in the thesauri or simple ontologies implemented by previous programmes. Tools for the development and population of ontologies will also be provided by NETMAR as there will be instances in which existing resources cannot sufficiently describe newly encountered data or services.