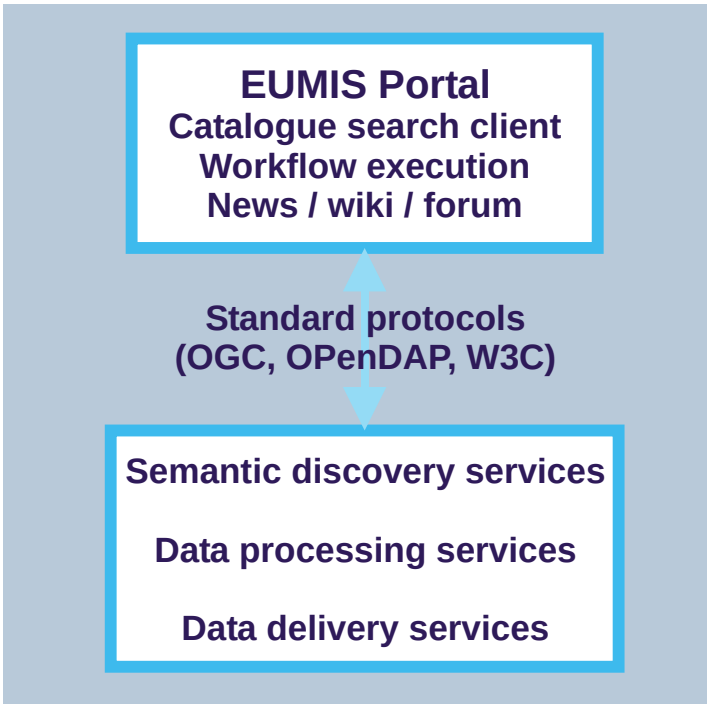
British Oceanographic Data Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

NETMAR

Open Service Network for Marine Environmental Data



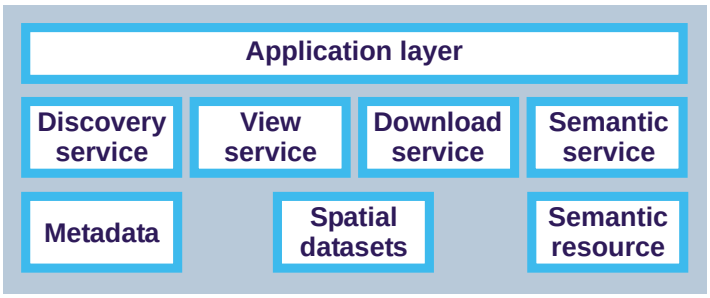
What is Netmar?

NETMAR aims to develop a pilot European Marine Information System (EUMIS) for searching, downloading and integrating satellite, in situ and model data from ocean and coastal areas.

It will be a user-configurable system offering service discovery, access and chaining facilities using OGC, OPeNDAP and W3C standards.

It will use a semantic framework coupled with a knowledge organisation system for identifying and accessing distributed data, such as near-real-time, model forecast and historical data.

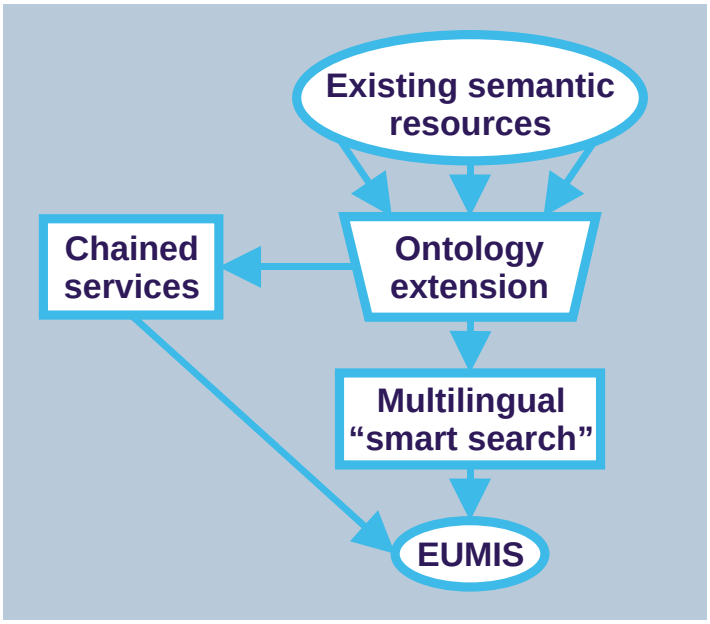
EUMIS will also enable further processing of such data to generate composite products and statistics suitable for decision making.



The NETMAR architecture aims to provide a common user interface to both semantic web services and ontologies and to a service chaining editor and workflow engine.

It is designed using service-oriented architecture and described using the language of the Reference Model for Open Distributed Computing.

Knowledge Organisation Systems

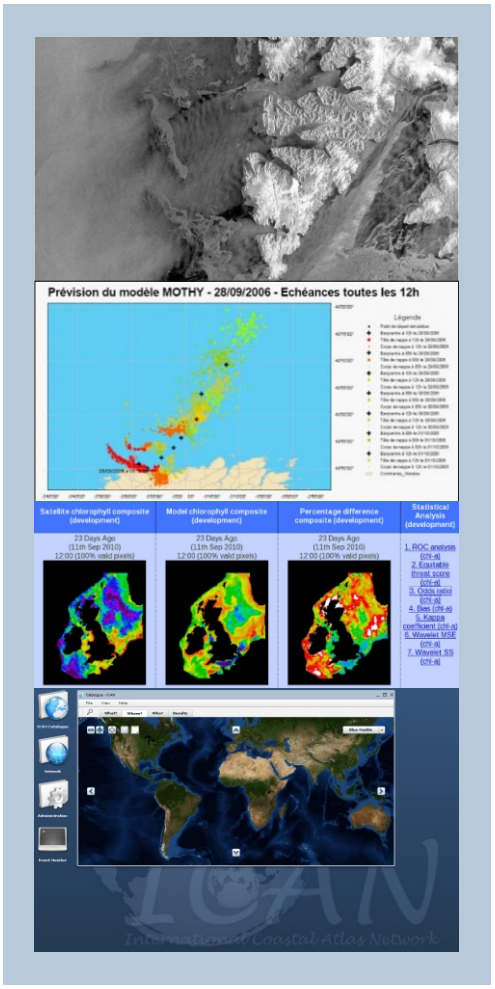


The approach taken to building a knowledge organisation system for NETMAR will be to analyse existing semantic resources and provide mappings between them, gluing together their definitions. The concept of ontology extension is well documented in the domains of computer science, bioinformatics and eLearning, but not in the oceanographic community.

The mappings between the terms aim to provide better support for the construction of client interfaces and web services than those implemented by previous projects.

Tools for the development and population of ontologies will also be provided by NETMAR.

http://netmar.nersc.no



Pilots

The NETMAR project will develop products and services, ontologies and a semantic framework for four pilot studies:

- Arctic Sea Ice and Met-Ocean Observing System
- Near-real-time monitoring and forecasting of oil spill
- Ocean Colour - Marine Ecosystem, Research and Monitoring
- International Coastal Atlas Network (ICAN) for coastal zone management

All pilots will be integrated in the EUMIS (European Marine Information System) portal, which can be accessed using a web browser.

The user requirements for the case studies are currently being defined. More information about these case studies, including examples of developed products and services will be announced on this page as they become available.

BODC's role

In order to make the resulting portals truly interoperable, NETMAR requires a detailed definition of the services being called and the data requested.

Browser

Query

Ontology Language

XML

Building blocks of the semantic web used by NETMAR

This is done through the development of multi-domain and multilingual semantic web ontologies for environmental information systems, to allow searches across human language and scientific domains. These ontologies describe concepts and the relationships between the concepts.

BODC, building on the experience of the Enabling Parameter Discovery and NERC DataGrid projects, is involved in the development of these semantic web ontologies.

These ontologies allow 'smart discovery' when searching for data. For example, searching on the word 'precipitation' or 'précipitation' in a data portal will return all data labelled with, say 'rain', 'pluie', 'snow' or 'neige'.

The NETMAR consortium comprises: Nansen Environmental and Remote Sensing Center, Norway; British Oceanographic Data Centre, UK; Centre de documentation de recherche et d'expérimentations sur les pollutions accidentelles des eaux, France; Coastal and Marine Resources Centre, Ireland; Plymouth Marine Laboratory, UK; Institut français de recherche pour l'exploitation de la mer, France; Norwegian Meteorological Institute, Norway.