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NATURAL ENVIRONMENT RESEARCH COUNCIL

# **“Ontologist’s” perspective - Marine environmental data**

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## **Overview**

- A history lesson**
- An aside**
- Use cases**
- Recent developments**
- The future?**



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## **A History Lesson**

- The concept of “controlled vocabularies” is well established in the oceanographic domain**
  - Decades!**
- Initially published in hard copy form**
- Then as .CSV via FTP**
- Governance issues ensued!**



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## **A History Lesson**

- Content governance improvements**
- Projects that care about content**  
e.g. NERC Data Grid, SeaDataNet
- Committees and mailing lists**  
e.g. CF Standard Names, SeaVoX



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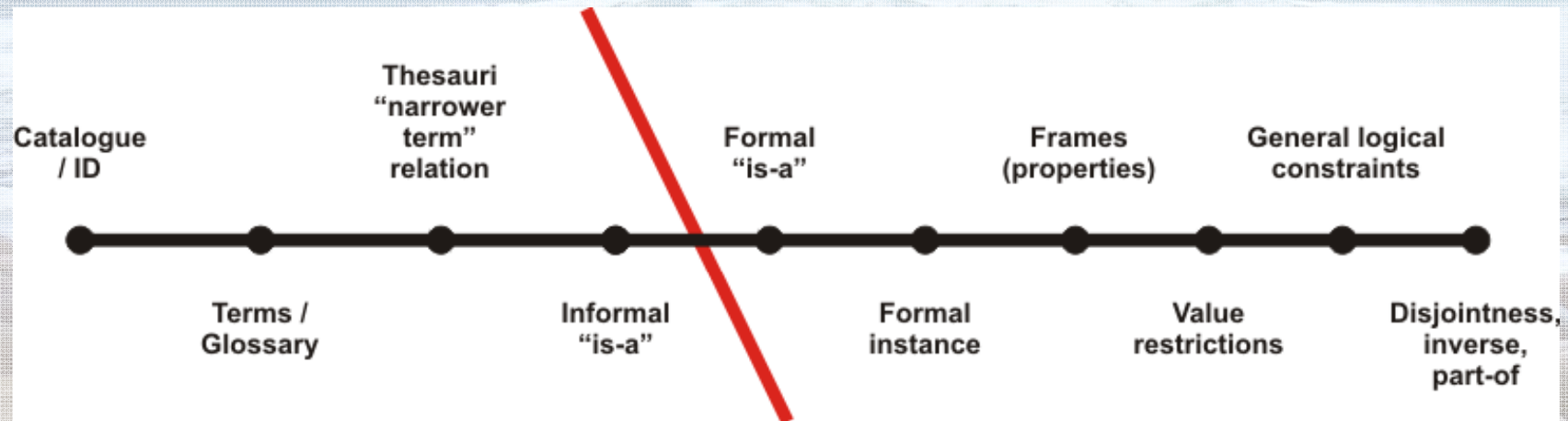
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## **A History Lesson**

- Technical governance improvements**
- Development of the NERC Vocabulary Server (NVS)**
- V 1.X uses a vocabulary data model**
- Entries comprise: key, term, abbreviated term, definition, semantic relationships**



## An Aside



- We work in the “thesauri” area of the spectrum
- With > 30,000 concepts; > 100,000 mappings



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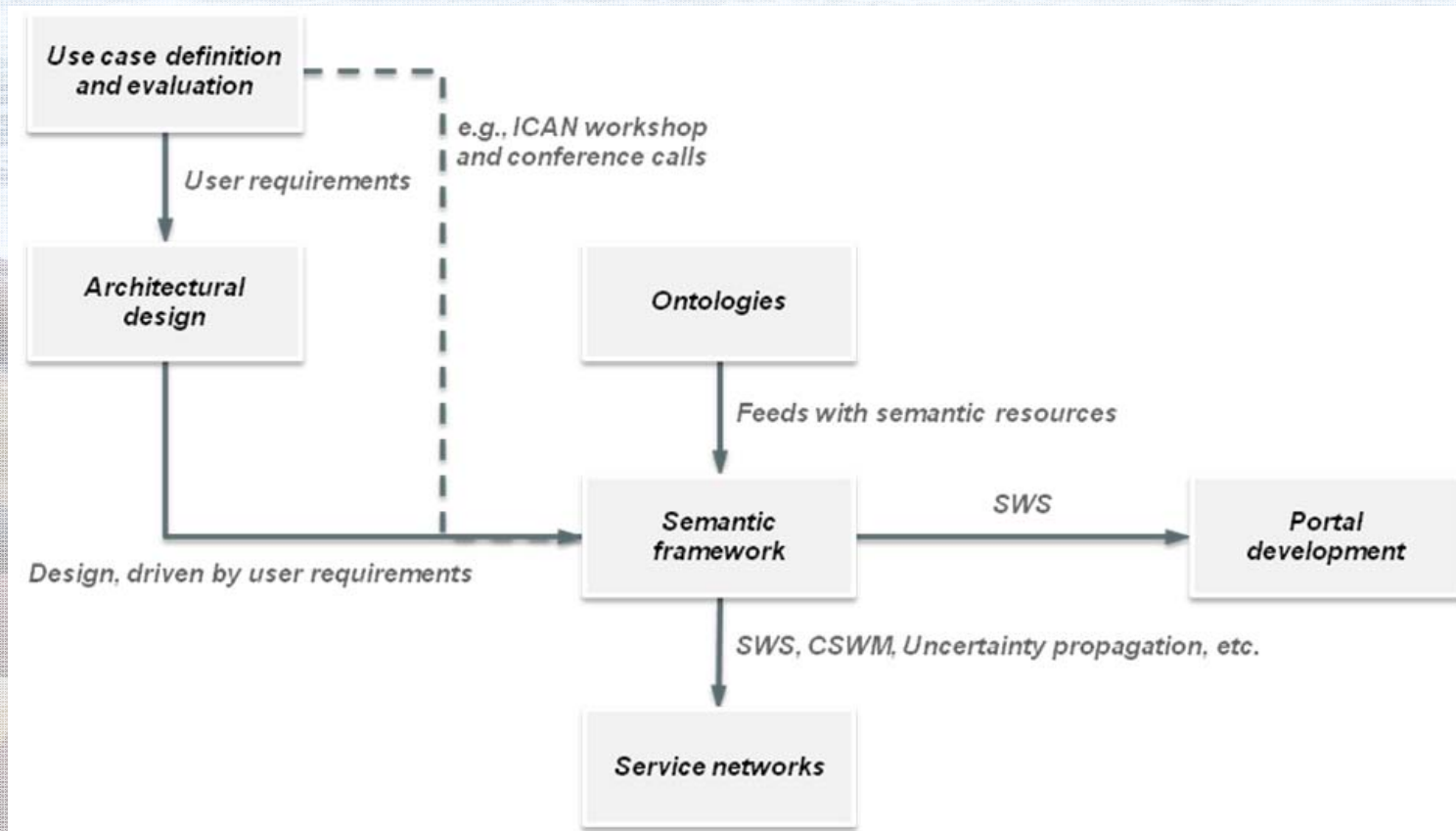
## **Use Cases**

- Metadata markup with verifiable content**
- Dynamic drop down lists**
- Semantic cross-walk**
- “Smart” discovery**
- Semantic enablement of WPSs**



# Use Cases

## - EC FP7 Project NETMAR

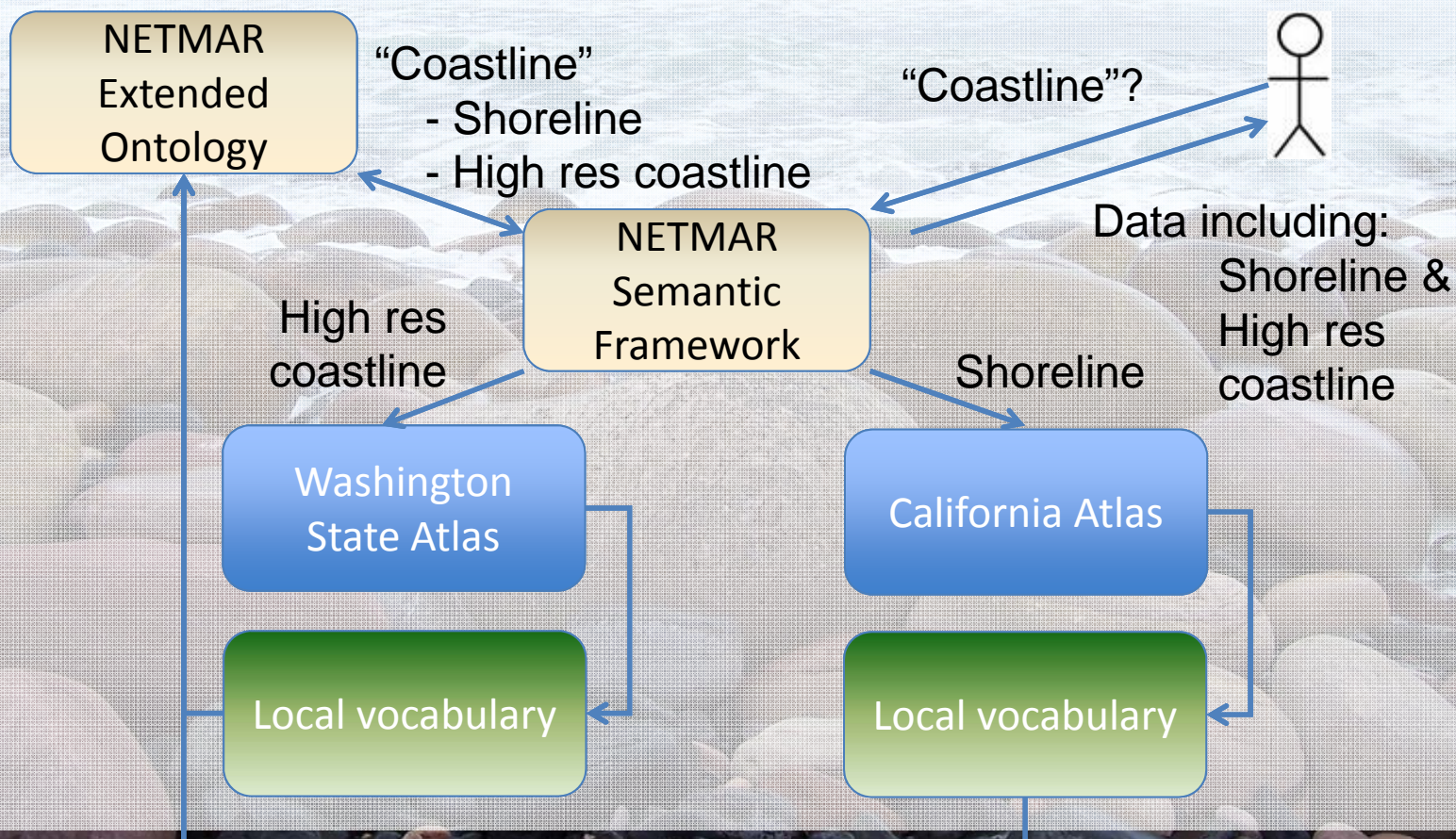






# Use Cases

## - EC FP7 Project NETMAR: ICAN Pilot





## **Recent Developments**

- Design and construction of NVS V2.0**
- Move from original version of SKOS to latest**
- Payload includes governance & provenance information**
- Ability to deliver true thesauri as concept schemes**
- Provision for multilingual (human!) support**



## **Recent Developments**

- NVS V2.0 also upgrades the API**
- RESTful and SOAP interfaces**
- Nine methods available in API**
- Concept deprecation now an option**
- Visualisation, search and edit tools**



# Recent Developments

VocabEditor Client (version 1.0)

## Edit options

All items from the list you selected are displayed below for your consideration. You may opt to insert new entries (via single or bulk insert) and modify or deprecate existing items.

1. To insert new items - select either the single or bulk insert button from the edit toolbar.

A single item insert may be entered via a form

For a bulk insert you will be required to upload a pre-prepared tab-separated ASCII file containing the details for each item, one item per line.

2. To modify or deprecate existing items

First please select the item(s) in question using the check boxes provided, then select the edit tool you require from the edit toolbar.

Selected list : C740

Pending updates : None

Options:     [List options](#)

Select	Key	Full name	Short name	Definition	Modified
<input type="checkbox"/>	019	IOS(W)/CURRENTS/A	019	(null)	2/17/2006 11:19:39
<input type="checkbox"/>	021	SMB(A)/CURRENTS/B	021	(null)	2/17/2006 11:19:39
<input type="checkbox"/>	023	IOS(S)/CURRENTS/D	023	(null)	2/17/2006 11:19:39

**Vocabulary Server**

exact term only

**Vocabulary Server**

results: 187 from 16 lists in 2.15s - displaying 10 per page  
results page 10

1 2 3 4 5 6 7 8 9 10 11 Last

[Aanderaa RCM 45 temperature and salinity recorders \(RCM 45.TS\)](#)  
Withdrawn RCM4 or RCM5 current meters fitted with conductivity and temperature sensors given a new lease of life as temperature and salinity recorders.  
member of Skoskos Discovery Catalogue (L221) show tree

[Stockdale salinity of the water body \(A\\_sal\)](#)  
Unavailable  
member of BODC Parameter Usage Vocabulary (P011) show tree

**Vocabulary Server**

**BODC Parameter Usage Vocabulary** Conversion factor (volume to mass) for the water body by thermosalinograph and computation of density reciprocal from pressure, temperature and salinity

Lexicon: TOKGG01

(preferred) Conversion factor (volume to mass) for the water body by thermosalinograph and computation of density reciprocal from pressure, temperature and salinity

altname: TSG

description: Unavailable

last modified: 2009-11-03 16:19:38

**Mappings and related terms**

SEARCH MATCH  
FOUND 100%

foundAt: Parameter Discovery Vocabulary (P023)

[Density of the water column](#)

RELATED TERMS  
ALIAS MATCHES

Inapplicable (+)

Unknown (+)

World (-)

African freshwater bodies (+)

Antarctic freshwater bodies (+)

Asian freshwater bodies (+)

Atlantic Ocean (+)

Definition: <Spatial\_Coverage><Southernmost\_latitude>-69.5400225350063</Southernmost\_latitude><Northernmost\_latitude>-66.7664772182701</Northernmost\_latitude><Westernmost\_longitude>-100.88107292377</Westernmost\_longitude><Easternmost\_longitude>-22.168904630175</Easternmost\_longitude></Spatial\_Coverage>

North Atlantic Ocean (-)

Definition: <Spatial\_Coverage><Southernmost\_latitude>-2.02739373666743</Southernmost\_latitude><Northernmost\_latitude>66.474646520277</Northernmost\_latitude><Westernmost\_longitude>-98.6366075146413</Westernmost\_longitude><Easternmost\_longitude>12.191601420124</Easternmost\_longitude></Spatial\_Coverage>

Northwest Atlantic Ocean (40W) (-)

Definition: <Spatial\_Coverage><Southernmost\_latitude>-0.373285122439995</Southernmost\_latitude><Northernmost\_latitude>65.155855274362</Northernmost\_latitude><Westernmost\_longitude>-98.1619359692944</Westernmost\_longitude><Easternmost\_longitude>-40</Easternmost\_longitude></Spatial\_Coverage>

The user selected thesaurus : <http://vocab.ndg.nerc.ac.uk/list/C191/current/>

with query :

```
SELECT ?b WHERE { ?a skos:prefLabel ?b . OPTIONAL { ?a skos:narrowMatch ?child } FILTER(!bound(?child)) }
```

the result of the query is:

- Bay of Bengal
- Adriatic Sea
- Baffin Bay
- Markermeer
- Torres Strait
- Molucca Sea
- Halmahera Sea
- Flores Sea
- Somov Sea
- Andaman Sea
- Bass Strait
- Unknown
- Bay of Fundy
- Teluk Berau
- Labrador Sea
- Sea of Okhotsk
- Sound Sea
- Teluk Tomini
- Ligurian Sea
- Alboran Sea
- Bismarck Sea
- Joseph Bonaparte Gulf
- Celebes Sea



## **The future?**

- **Ontology extension**
- **Already have “soft” links to WoRMS & ITIS**
- **GEMET, MMI ORR**
  
- **Multilingual concept titles, definitions**
  
- **More API methods?**
  
- **SPARQL?**



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**Thank you!**