

# Linked Data Developments in SeaDataCloud

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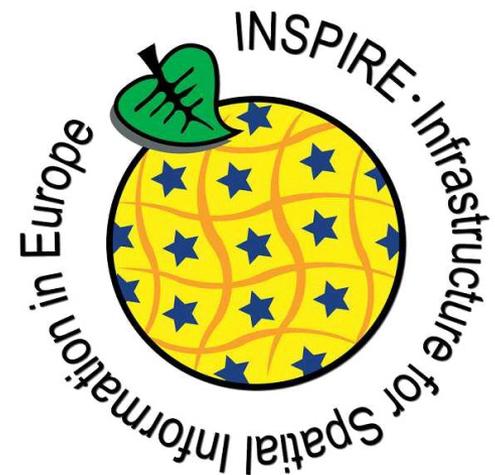
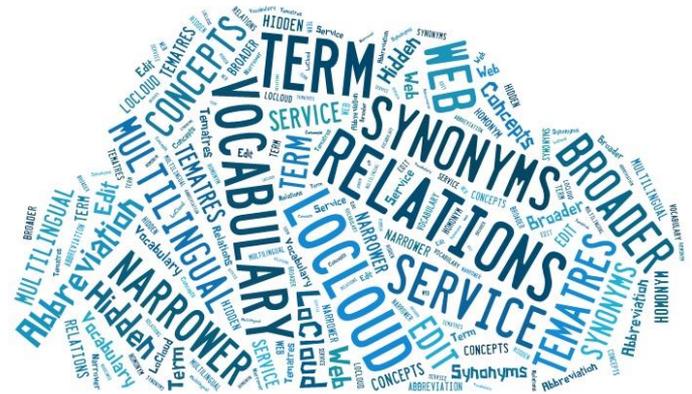
**Alexandra Kokkinaki, Chris Wood (BODC)**

**Dick Schaap (Maris)**



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# Why Linked Data for SeaDataNet?



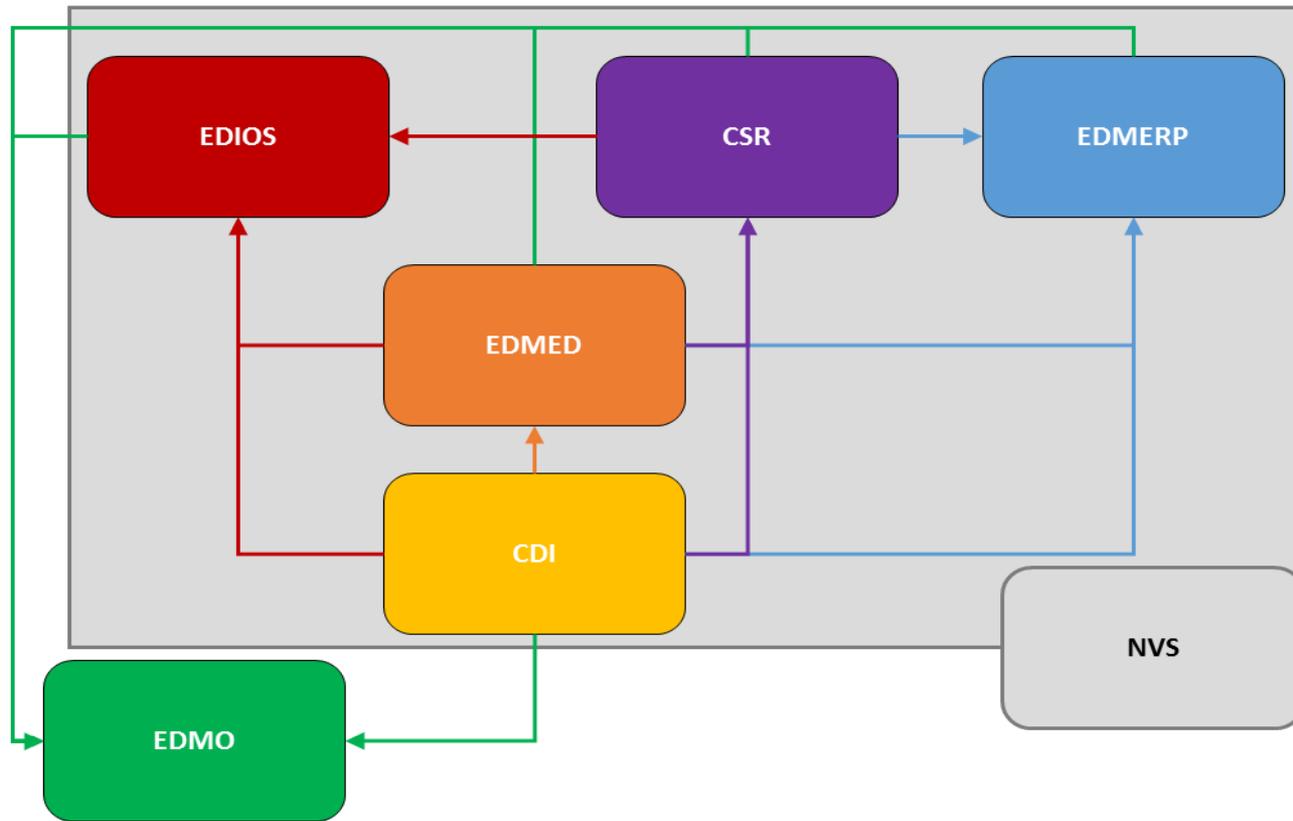
# Why Linked Data for SeaDataNet?

- **Types of questions we can ask...**
  - **“Which cruises have physical oceanographic data?”**
  - **“Give me all temperature data for the Celtic Seas for 2015”**



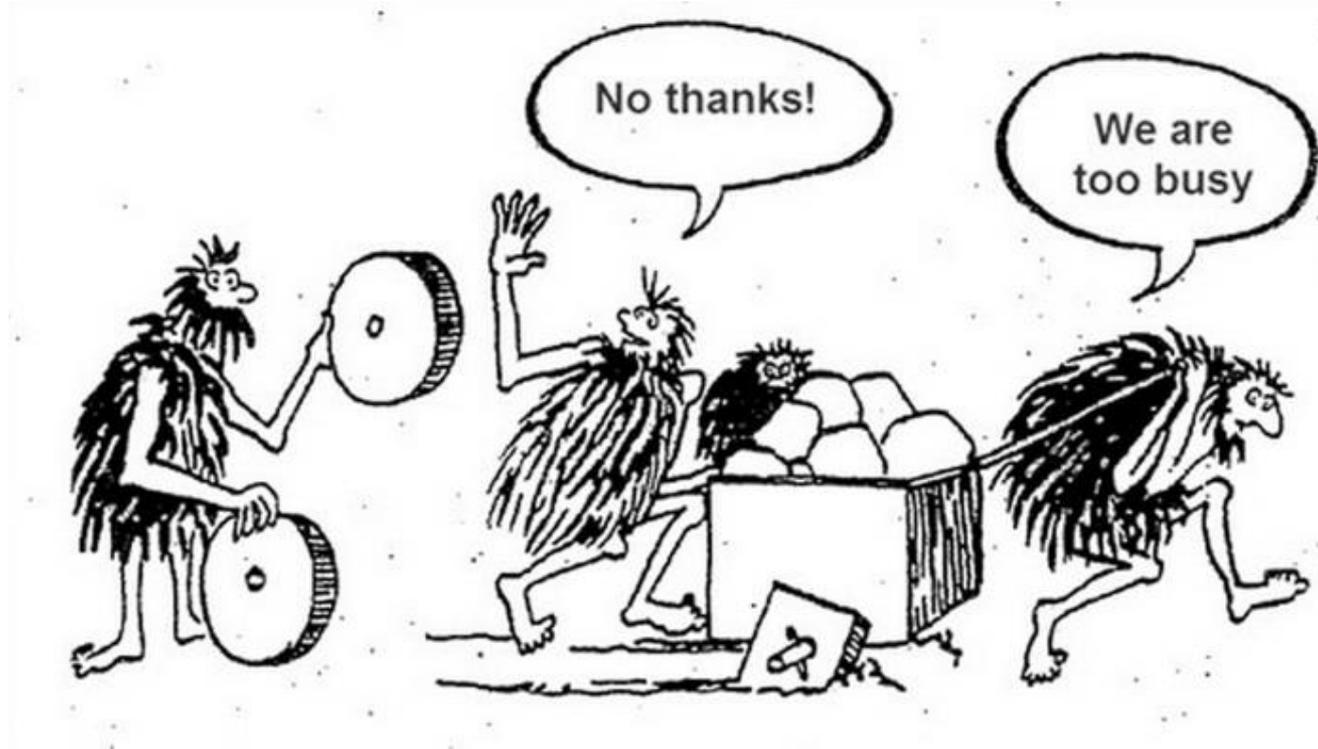
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# Why Linked Data for SeaDataNet?



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# What we didn't want to do



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# What we did about it

- **Reusing existing patterns**
  - **Better understanding outside of SDN**
  - **Better interoperability with other organisations**
  - **Better INSPIRE compliance**



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# What we did about it

- Reusing existing patterns
  - EDMO
  - EDMED
  - EDMERP
  - CDI
  - CSR
  - EDIOS



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# What we did about it

- **Reusing existing patterns**
  - **EDMO – W3C Organisation**
  - **EDMED – W3C DCAT**
  - **EDMERP – W3C Prov / DBPedia Research Project**
  - **CDI – W3C DCAT**
    - **ODV metadata to INSPIRE / ISO O&M**
  - **CSR - ...**
  - **EDIOS – INSPIRE Environmental Monitoring Facilities**



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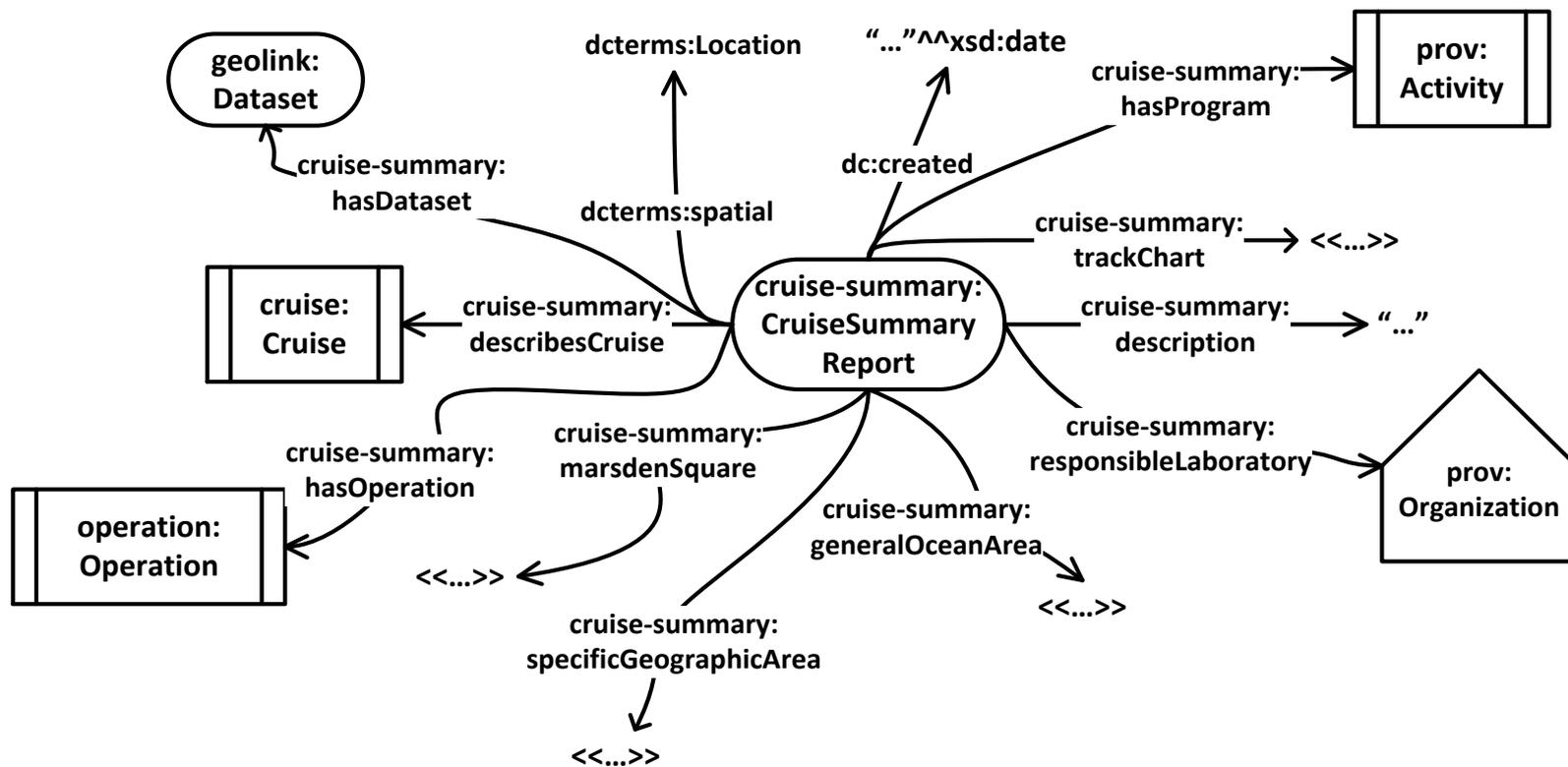
# What we did about it

- Reusing existing patterns
  - Also
    - Sextant catalogue to W3C DCAT



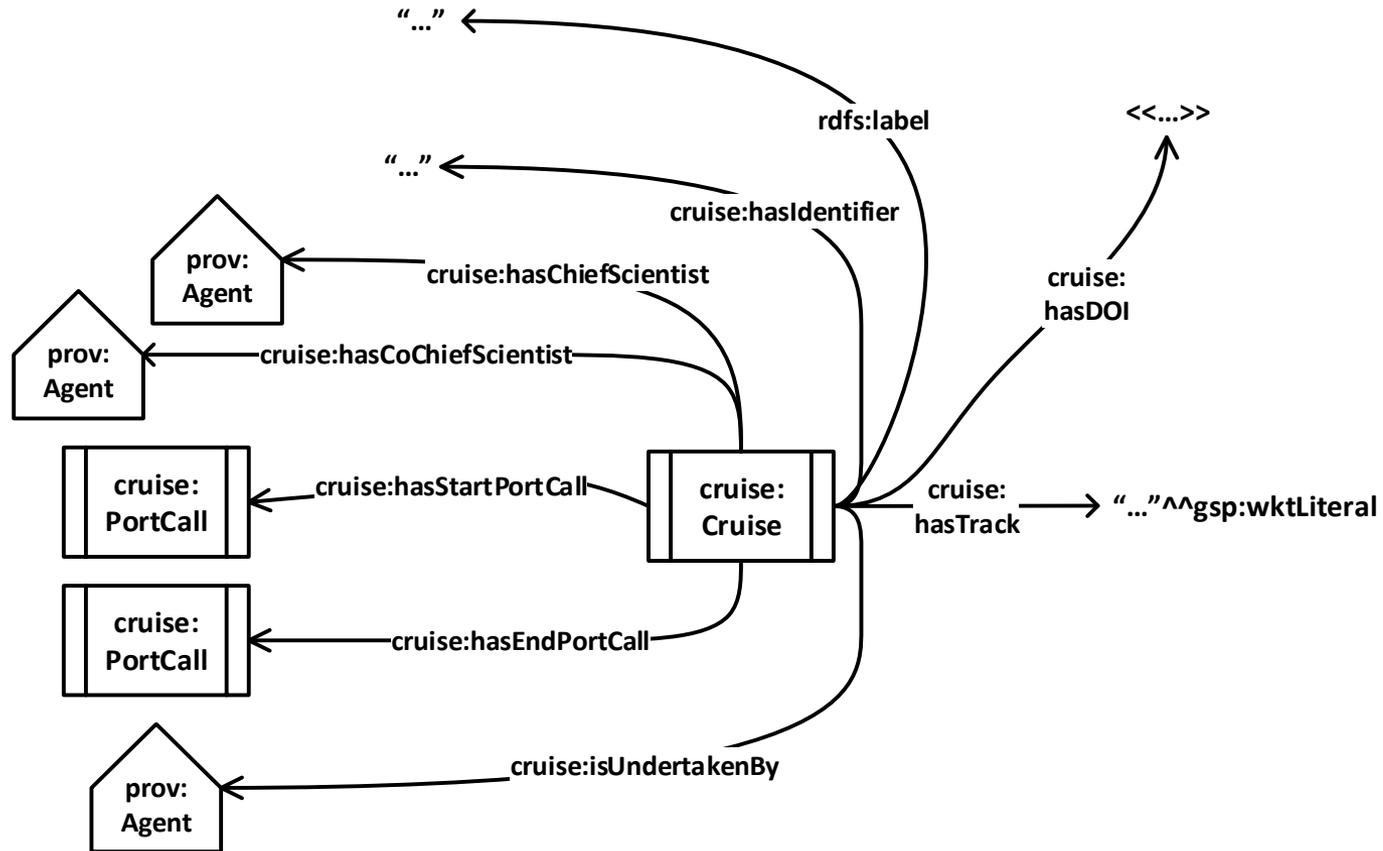
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# CSR Patterns



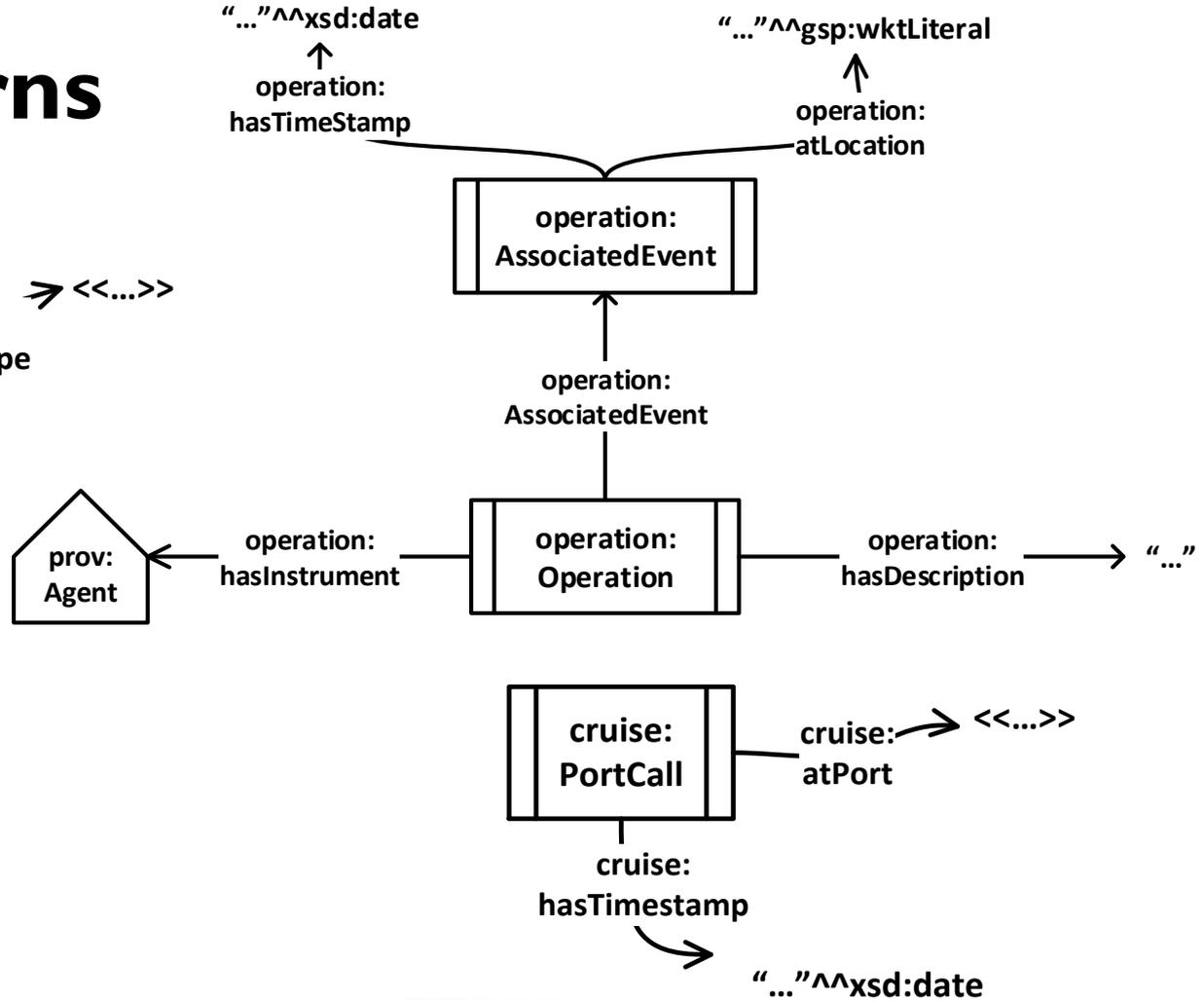
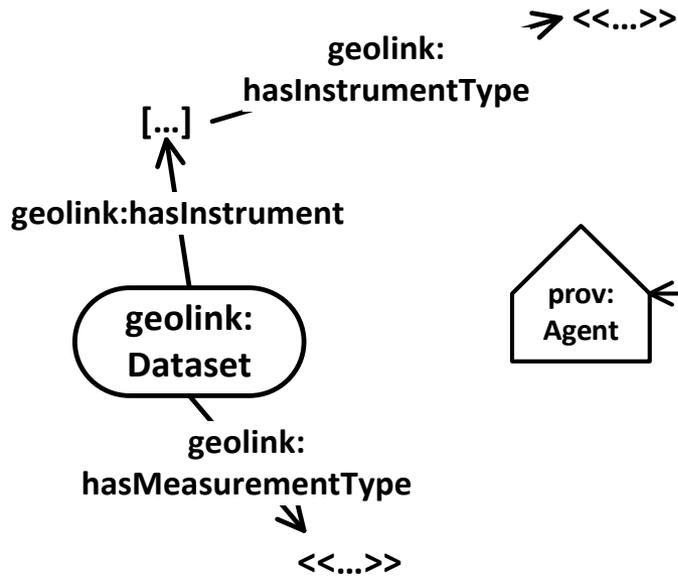
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# CSR Patterns



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# CSR Patterns



# Issues

- Creation of a SeaDataNet Linked Data ontology.
- **Clean URIs for each catalogue**
- Content negotiation
- NERC Vocabulary Server v.1 is deprecated.
- **EDMO links to external vocabularies**
- All terms in C19 are equated to prov:Location.
- **A register of individuals and publications.**
- Project record to an associated research programme links to another EDMERP record not an XML snippet.
- Dbpedia to PROV-O alignment.
- CDIs with EDMED codes included should be used to populate the DCAT Distribution information.
- Consider alignments in the DCAT keywords specification to the research classification vocabularies.
- **A non-SDN/SDC namespace is used for the publication of the Linked Data terms.**
- Port entries in C38 should be given an RDF linkage to their countries.
- Port entries in C38 should be made instances of geolink:Place and prov:Location.
- Research vessels entries in C17 should be made instances of prov:Entity.
- A CDI SKOS scheme should be set up on the NVS incorporating the P02, L05 and C19 vocabularies.
- **Include links to ICES station dictionary URIs.**
- Include links to terms from the BODC Series Feature Type vocabulary (C10).

# Issues – URLs

[http://seadata.bsh.de/Cgi-csr/retrieve\\_sdn2/viewReport.pl?csrref=\[csr\\_code\]](http://seadata.bsh.de/Cgi-csr/retrieve_sdn2/viewReport.pl?csrref=[csr_code])

[http://www.bodc.ac.uk/data/information\\_and\\_inventories/edmed/report/\[edmed\\_code\]/](http://www.bodc.ac.uk/data/information_and_inventories/edmed/report/[edmed_code]/)

[http://seadatanet.maris2.nl/v\\_edmo/print.asp?n\\_code=\[n\\_code\]](http://seadatanet.maris2.nl/v_edmo/print.asp?n_code=[n_code])

[http://seadatanet.maris2.nl/v\\_edmerp/print.asp?n\\_code=\[n\\_code\]](http://seadatanet.maris2.nl/v_edmerp/print.asp?n_code=[n_code])

[http://seadatanet.maris2.nl/v\\_cdi\\_v3/print\\_ajax.asp?n\\_code=\[n\\_code\]](http://seadatanet.maris2.nl/v_cdi_v3/print_ajax.asp?n_code=[n_code])

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[http://seadatanet.maris2.nl/v\\_edios\\_v2/print\\_ajax.asp?screen=1&n\\_code=\[n\\_code\]](http://seadatanet.maris2.nl/v_edios_v2/print_ajax.asp?screen=1&n_code=[n_code]) series



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# Issues – URLs

[http://www.seadatanet.org/cruise-summary/\[csr\\_code\]](http://www.seadatanet.org/cruise-summary/[csr_code])

[http://www.seadatanet.org/edmed/\[edmed\\_code\]](http://www.seadatanet.org/edmed/[edmed_code])

[http://www.seadatanet.org/edmo/\[n\\_code\]](http://www.seadatanet.org/edmo/[n_code])

[http://www.seadatanet.org/edmerp/\[n\\_code\]](http://www.seadatanet.org/edmerp/[n_code])

[http://www.seadatanet.org/cdi/\[n\\_code\]](http://www.seadatanet.org/cdi/[n_code])

[http://www.seadatanet.org/edios/programme/\[n\\_code\]](http://www.seadatanet.org/edios/programme/[n_code])

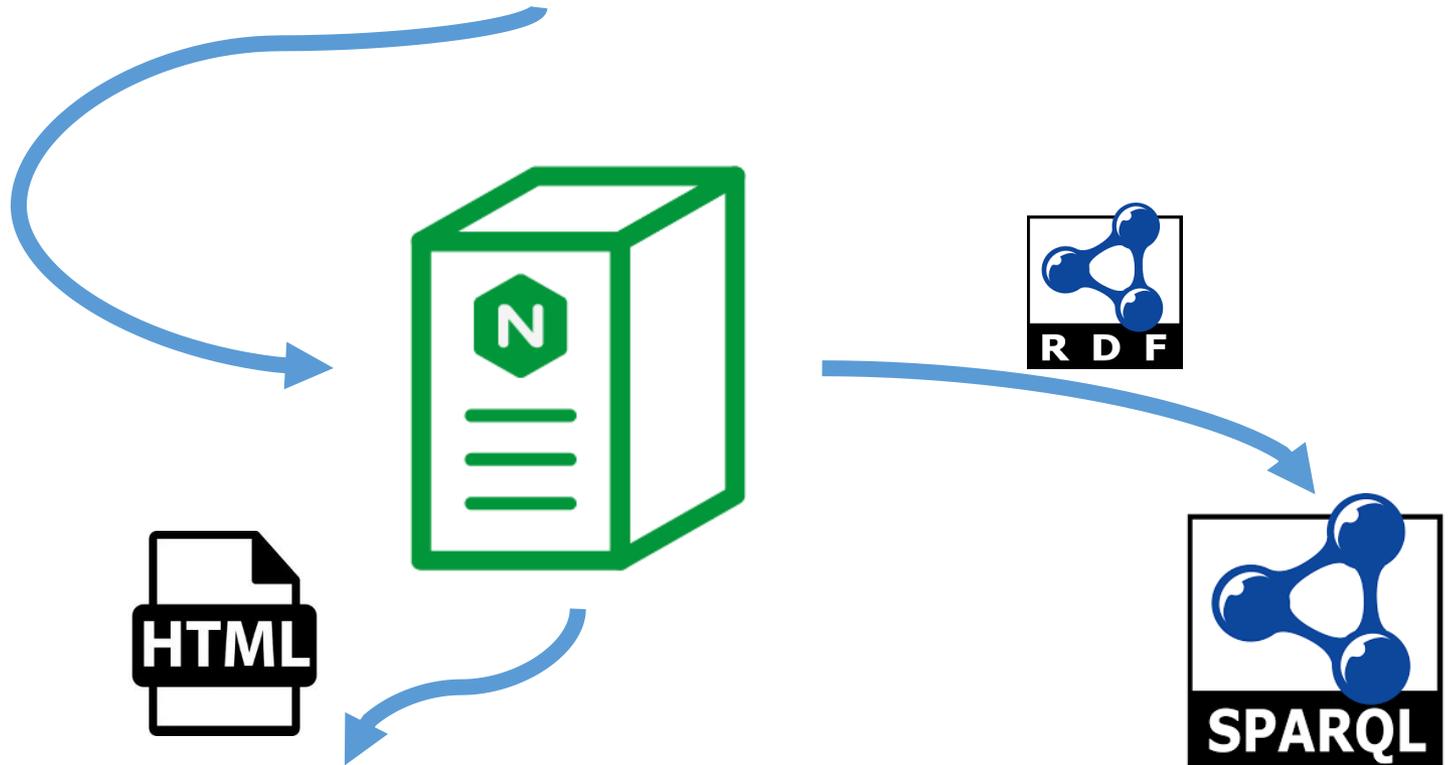
[http://www.seadatanet.org/edios/series/\[n\\_code\]](http://www.seadatanet.org/edios/series/[n_code])



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# Issues – URLs

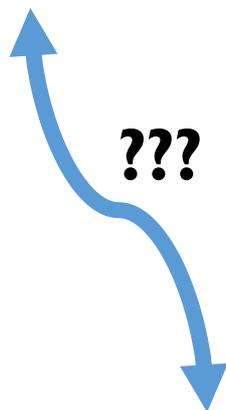
[http://www.seadatanet.org/cruise-summary/\[csr\\_code\]](http://www.seadatanet.org/cruise-summary/[csr_code])



[http://seadata.bsh.de/Cgi-csr/retrieve\\_sdn2/viewReport.pl?csrref=\[csr\\_code\]](http://seadata.bsh.de/Cgi-csr/retrieve_sdn2/viewReport.pl?csrref=[csr_code])

# Issues – EDMO interoperability

<http://vocab.aodn.org.au/def/organisation/entity/I> a skos:Concept;  
skos:inScheme <http://vocab.aodn.org.au/def/organisation/I>.



<http://linked.seadatanet.org/edmo/I> a org:Organization.



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# Issues – EDMO interoperability



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# Issues – EDMO interoperability



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# Issues – EDMO interoperability

owl:sameAs

skos:exactMatch



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# Issues – EDMO interoperability

**owl:sameAs**

**rdfs:seeAlso**

**skos:exactMatch**



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# Issues – EDMO interoperability

so:claimsIdentical  
rdfs:seeAlso

owl:sameAs

skos:exactMatch



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# Issues – EDMO interoperability



Recommended reading:  
*When owl:sameAs isn't the Same* by Halpin et al  
<http://iswc2010.semanticweb.org/pdf/261.pdf>

# Next Steps

- **Address pre-requisites in the issues**
- **Develop RDF implementation of catalogues**
  - **Alexandra will present EDMED developments**
- **Develop Schema.org mappings**
  - **Done for EDMED**
  - **More on this later...**



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