Data Exchange in the marine domain: The Essential Ocean Variable (EOV) demonstrator

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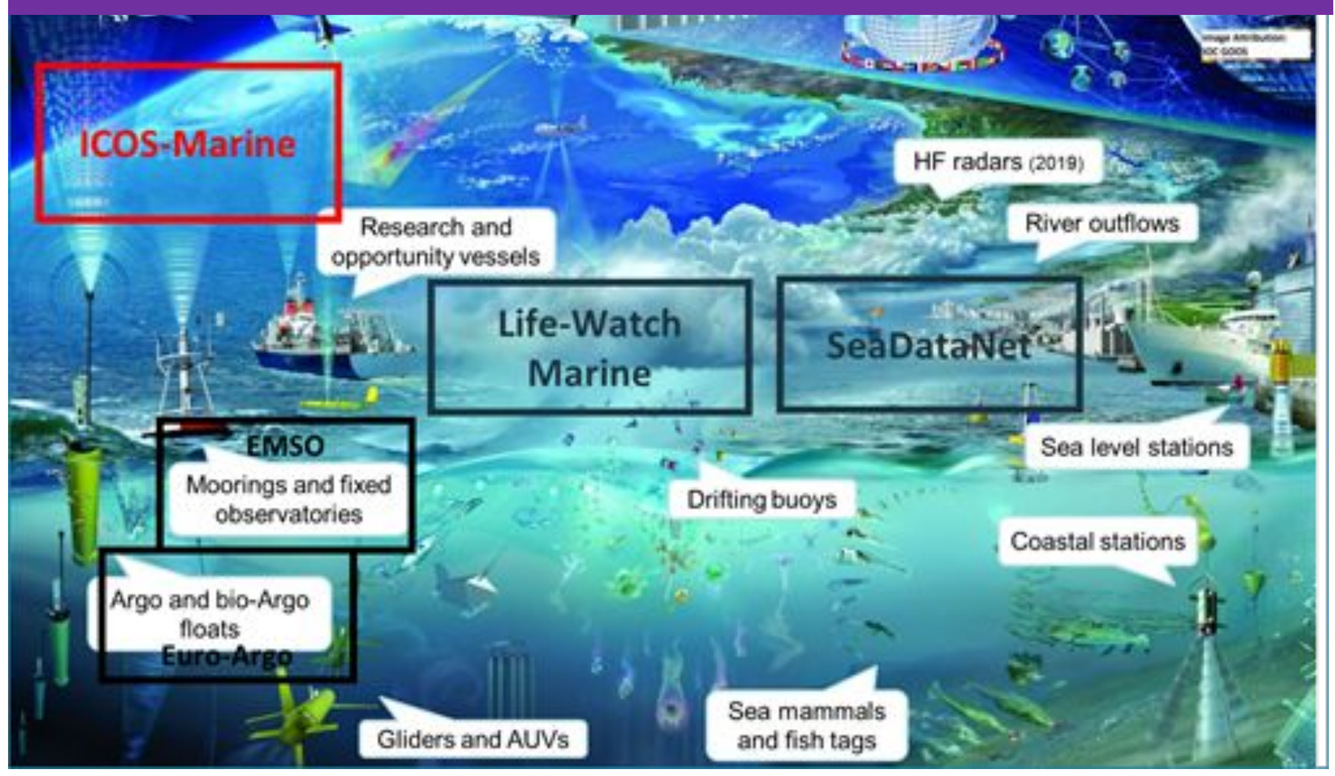
Abstract

As part of the ENVRI-FAIR project, the marine subdomain is developing the "Marine Essential Ocean Variable (EOV) demonstrator". This poster focuses on the technical aspects of the demonstrator, which highlights how the RI's FAIRness improvements enable interoperable access to multiple RI data to end users, including operational service providers such as Copernicus Marine and EMODNet.

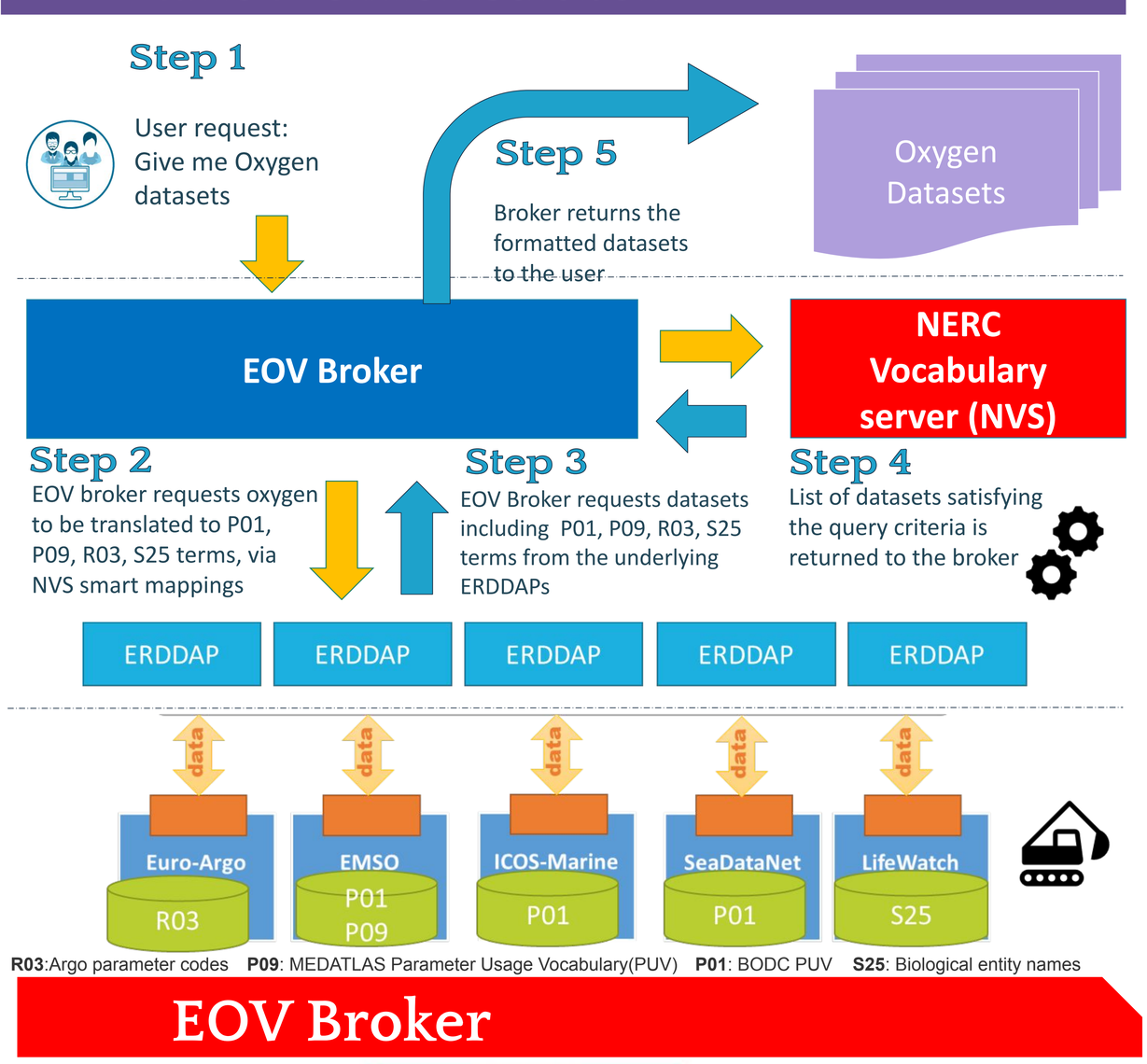
Results

The EOV **demonstrator** scenario instigated the identification of the required components as: a broker, a vocabulary server, data and metadata APIs per RI and a file formatting service. After the analysis, the NERC Vocabulary Server (NVS) was chosen as a common vocabulary server and ERDDAP as the common data and metadata API, for **version 1** release. The gaps analysis triggered the creation of two new components, the NVS '**smart mappings**' and the **EOV broker** orchestrator.

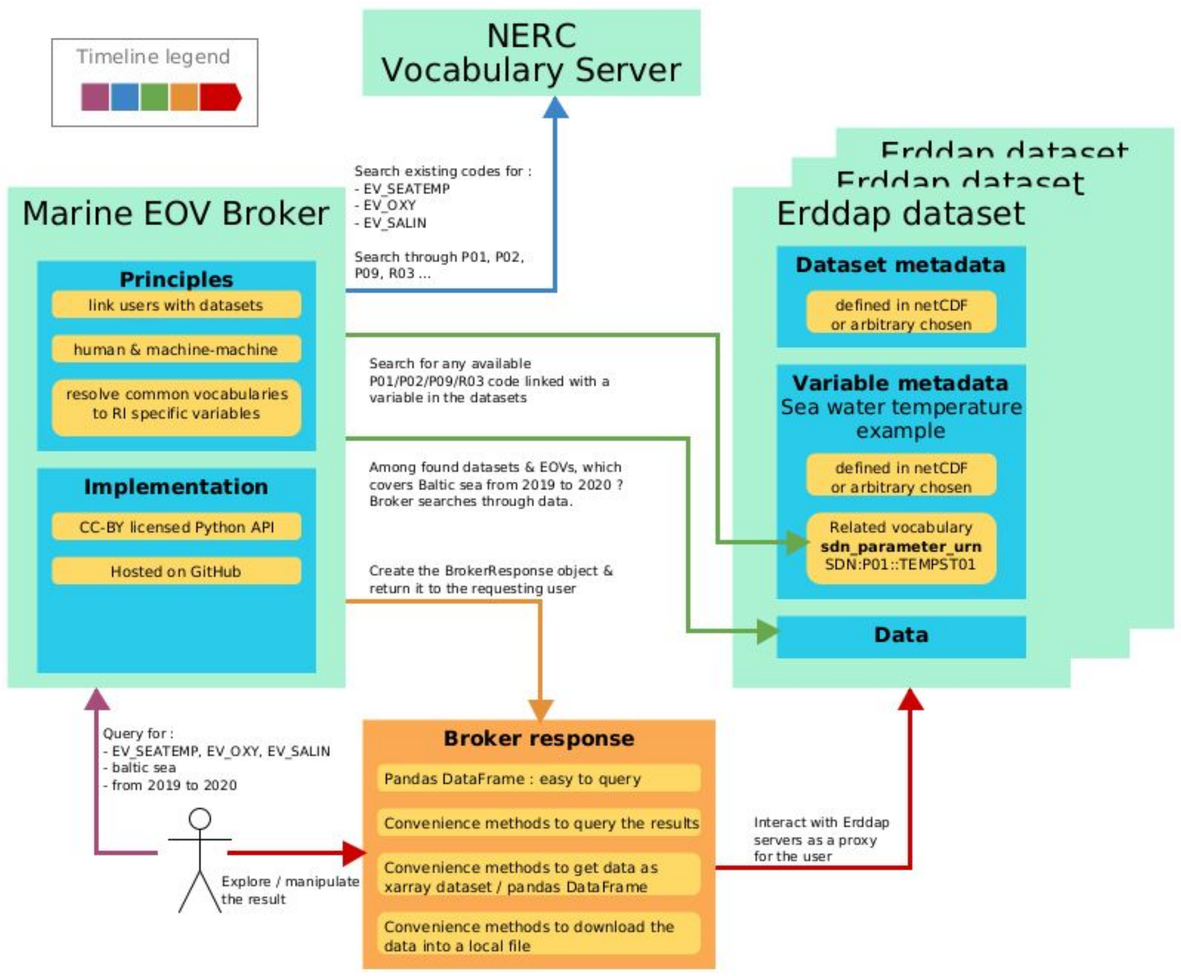
Marine Subdomain



The Demonstrator

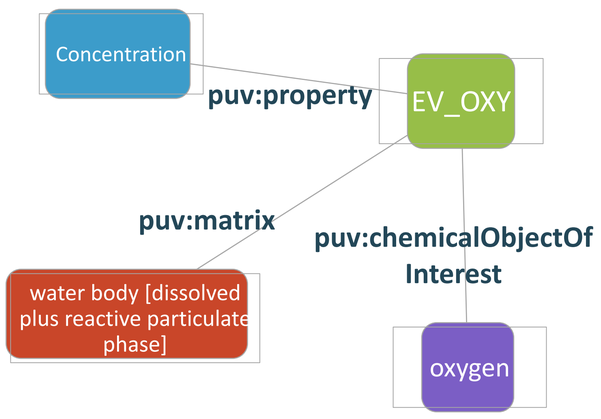


EOV Broker

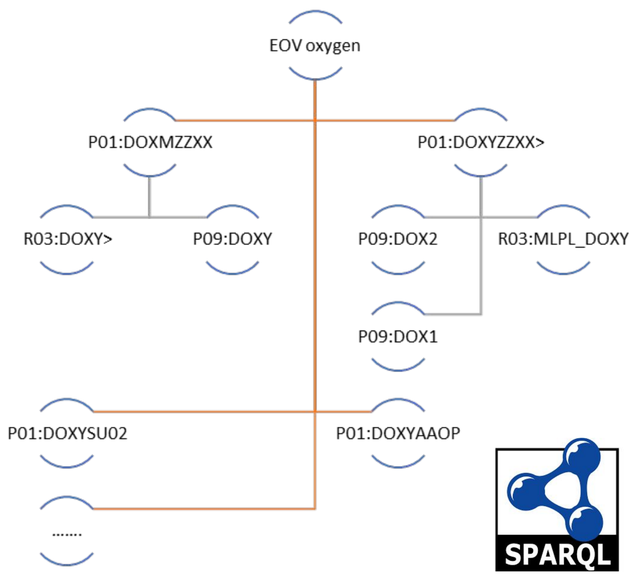


ERDDAP was identified as a common webservice to distribute data, whether already installed at RI level or not. Additional efforts are made on the metadata level in order to match data variables vocabulary codes to the relevant EOV code. **https://github.com/twnone/marine-eov-broker**

NVS smart mappings

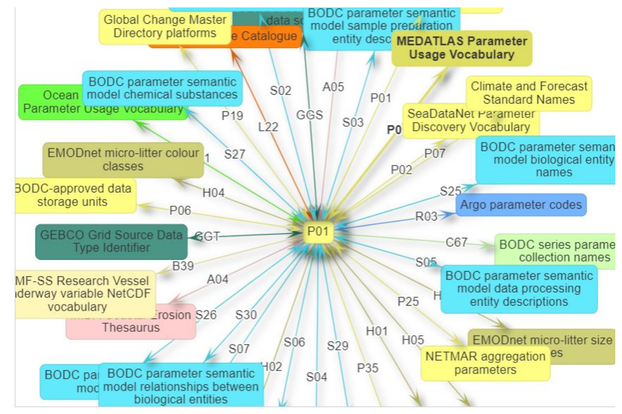


EOV oxygen rules defined using the PUV properties

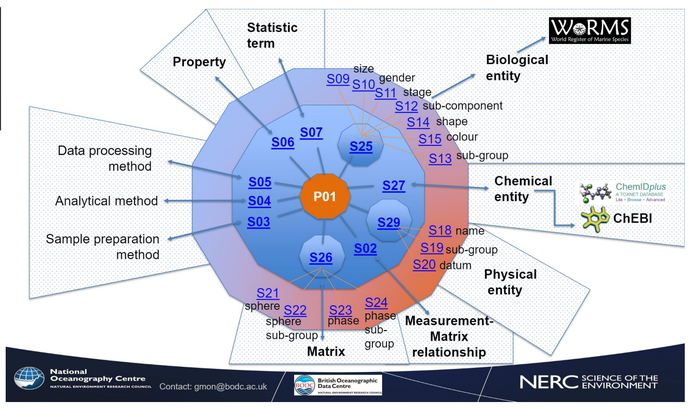


Smart mappings: Smart mappings express EOV variables as rules using the **PUV ontology** properties. Leveraging the **P01 semantic model,** these rules are used to discover P01 concepts satisfying the EOV rules, via SPARQL queries. Then utilizing the **P01 mappings,** R03, P09, P02 and S25 terms are discovered

The PUV ontology: https://w3id.org/env/puv



P01 mappings to other vocabularies



P01 semantic model: https://github.com/nvs-vocabs/P01

Future steps

Version 2 of the EOV Demonstrator will have a broader focus and involve other technological services like sparql endpoints and Restful API's. The EOV demonstrator will be available in ENVRI-HUB[1], it will be used in EOSC-FUTURE[2] project and is planned to be enhanced with the BlueCloud[3] development.

1. https://envri.eu/envri-hub/
2. https://eoscfuture.eu/
3. https://www.blue-cloud.org/

Conclusions

Collaboration that fosters reuse, agreements and improvements, can be one of the necessary ingredients for more interoperability and integration of data and metadata especially as demand increases for cross discipline research.

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