



D9.7

Marine subdomain EOVS product version 1

Work Package	WP9
Lead partner	IFREMER
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Deliverable abstract

This document D9.7 presents the publicly available “Marine subdomain EOVS product version 1”.

The overarching goal of ENVRI-FAIR is that all participating research infrastructures (RIs) will improve their FAIRness and become ready for connection of their data repositories and services to the European Open Science Cloud (EOSC). Deliverable 9.1 has reported on the roadmap of the RIs in the marine subdomain towards improving their FAIRness. It presented the approach of using FAIR questionnaires (together with WP5) to identify the strengths and weaknesses of each RI and a first indicative set of activities to improve identified weaknesses or gaps. After formulation in Deliverable D9.2 of implementation plans for mitigating these gaps during the next phase of the ENVRI-FAIR project, the RIs from the marine subdomain have specified in Deliverable D9.3 the technical services and interfaces to be implemented at RI level and have undertaken the implementation. The RI services will be demonstrated in D9.4 (M27) and will be operational for EOSC operations in D9.5 (M36). Deliverable D9.6 is linked to Task 9.8 going from M24 to M48 and aiming to demonstrate the marine subdomain FAIRness. D9.6 describes the technical specifications of the Marine EOVS product Version 1 and Version 2 to run in 2022 and 2023.



DELIVERY SLIP

	Name	Partner Organization	Date
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DELIVERY LOG

Issue	Date	Comment	Author
V0.1	31-01-2022	Draft version	Thierry Carval
V1.0	10-03-2022	Finalised version	Thierry Carval

DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the Project Manager at manager@envri-fair.eu.

GLOSSARY

A relevant project glossary is included in Appendix A. The latest version of the master list of the glossary is available at <http://doi.org/10.5281/zenodo.4471374>.

PROJECT SUMMARY

ENVRI-FAIR is the connection of the ESFRI Cluster of Environmental Research Infrastructures (ENVRI) to the European Open Science Cloud (EOSC). Participating research infrastructures (RI) of the environmental domain cover the subdomains Atmosphere, Marine, Solid Earth and Biodiversity / Ecosystems and thus the Earth system in its full complexity.

The overarching goal is that at the end of the proposed project, all participating RIs have built a set of FAIR data services which enhances the efficiency and productivity of researchers, supports innovation, enables data- and knowledge-based decisions and connects the ENVRI Cluster to the EOSC.

This goal is reached by: (1) well defined community policies and standards on all steps of the data life cycle, aligned with the wider European policies, as well as with international developments; (2) each participating RI will have sustainable, transparent and auditable data services, for each step of data life cycle, compliant to the FAIR principles. (3) the focus of the proposed work is put on the implementation of prototypes for testing pre-production services at each RI; the catalogue of prepared services is defined for each RI independently, depending on the maturity of the involved RIs; (4) the complete set of thematic data services and tools provided by the ENVRI cluster is exposed under the EOSC catalogue of services.

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not yet accepted by EC

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1 Rationale

The Task 9.8 “Marine Essential Ocean Variable - EOVS” (started end of 2020) is a use case based on the data and metadata services set up by the Research Infrastructures – RIs in the marine subdomain. It will provide interoperable access to RI data to end users, in particular the VIP users Copernicus Marine In Situ, SeaDataNet or EMODnet involved in the project.

Each RI involved in WP9 has developed an implementation plan [D9.2] that addresses the results of their FAIRness self-analysis, with the shared objective to improve the FAIRness at the Marine subdomain level as illustrated in the following figure.

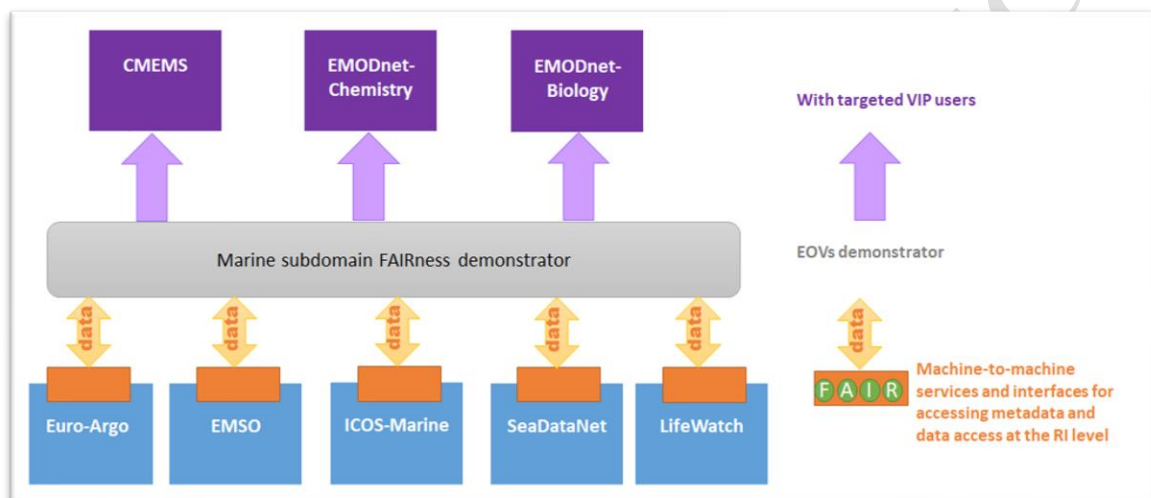


Figure 1: Marine sub-domain implementation plan

The demonstrator targeted within Task 9.8 aims to set up a workflow that will serve data files answering to EOVS requests, in particular of the VIP users (SeaDataNet, Copernicus Marine In Situ and EMODnet) to allow them to process data aggregation and product assessment (QA/QC) on the extracted data.

This D9.7 report documents the public access to the version 1 of the Marine EOVS product as it was specified in the previous deliverable D9.6. This version 1 is built upon the cross domain and RI operational services presented in the D9.5 report and the EOVS broker set up within Task 9.8.

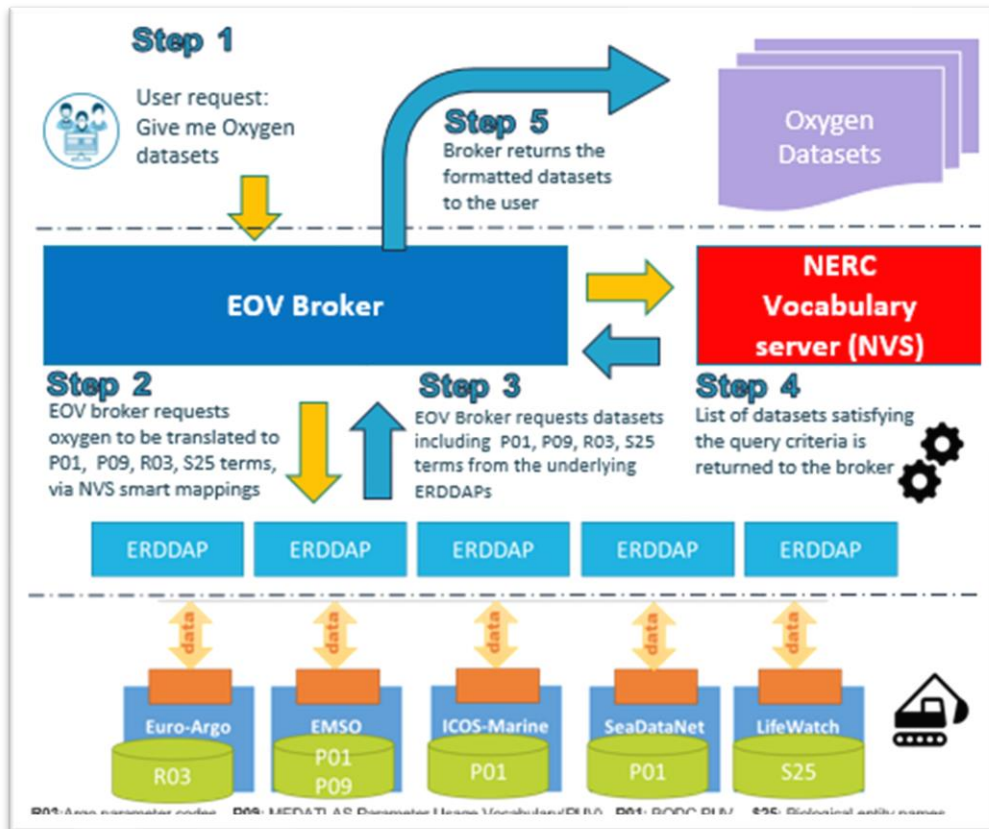


Figure 2: The services and principles of the Marine EOJ implementation

The Marine EOJ product is implemented as a Jupyter notebook that allows a search on the data/metadata services of the RIs on a specific set of EOJs (oxygen or chlorophyll-A, temperature, salinity, and zooplankton biomass and diversity).

The integration of the Marine EOJ within the ENVRI-hub is underway: it is key component to query data and metadata from the Research Infrastructures (RI) services developed or enhanced within ENVRI-FAIR project.

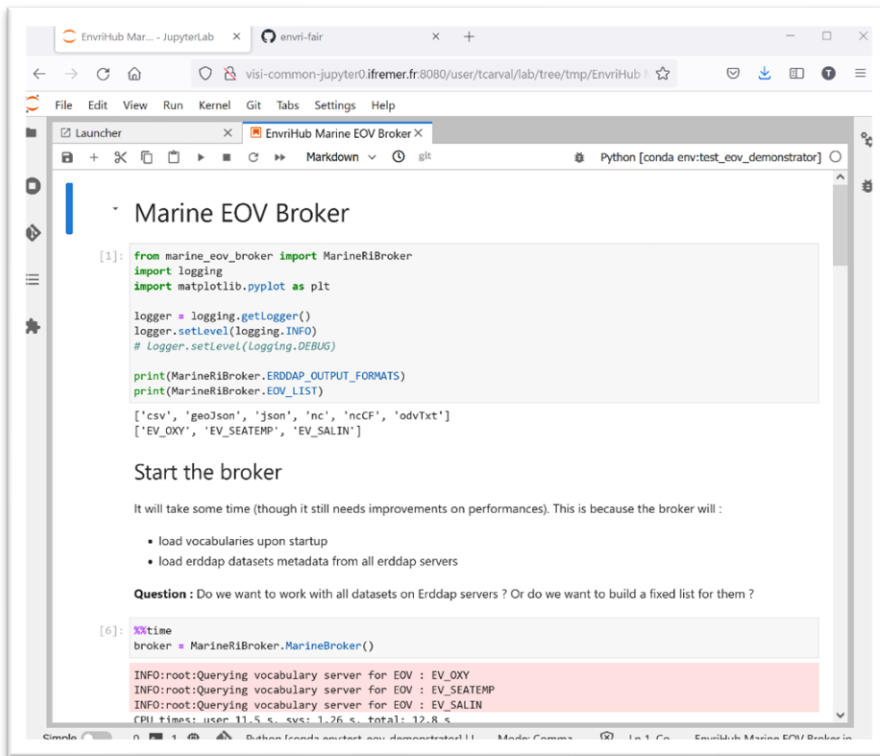


Figure 4: Create a query with the Marine EOVB Broker in a Jupyter notebook

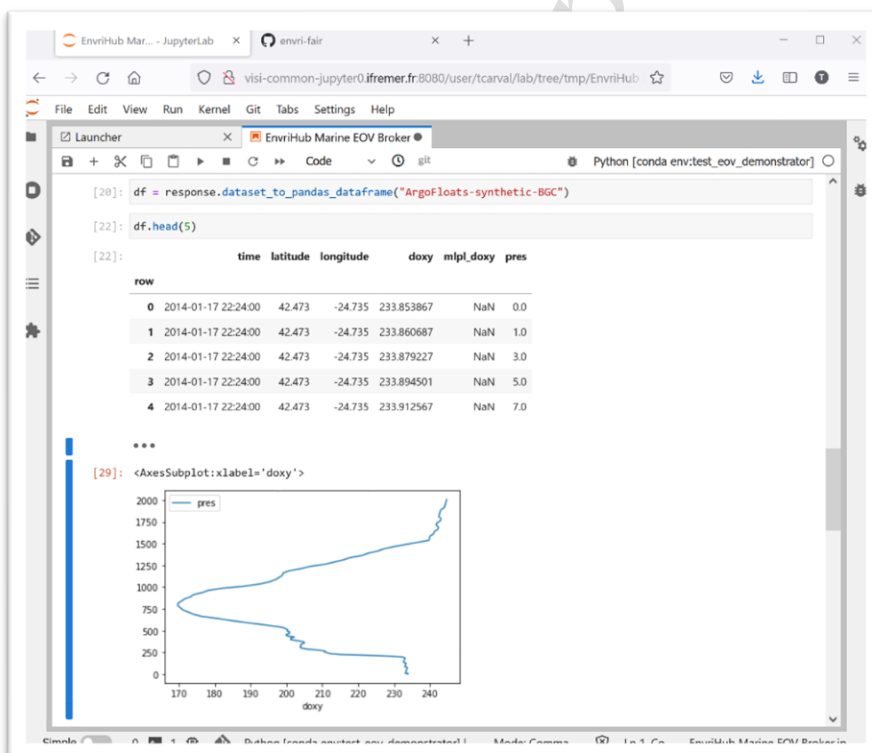


Figure 5: Explore data results returned by the EOVB Marine Broker in a pandas dataframe

2 Marine EOV publicly available

The Marine EOV broker is now publicly available from ENVRI-FAIR GitHub:

- <https://github.com/envri-fair/marine-eov-broker>

The project licence is Creative Commons [CC0](https://creativecommons.org/licenses/by/4.0/) (universal public domain).

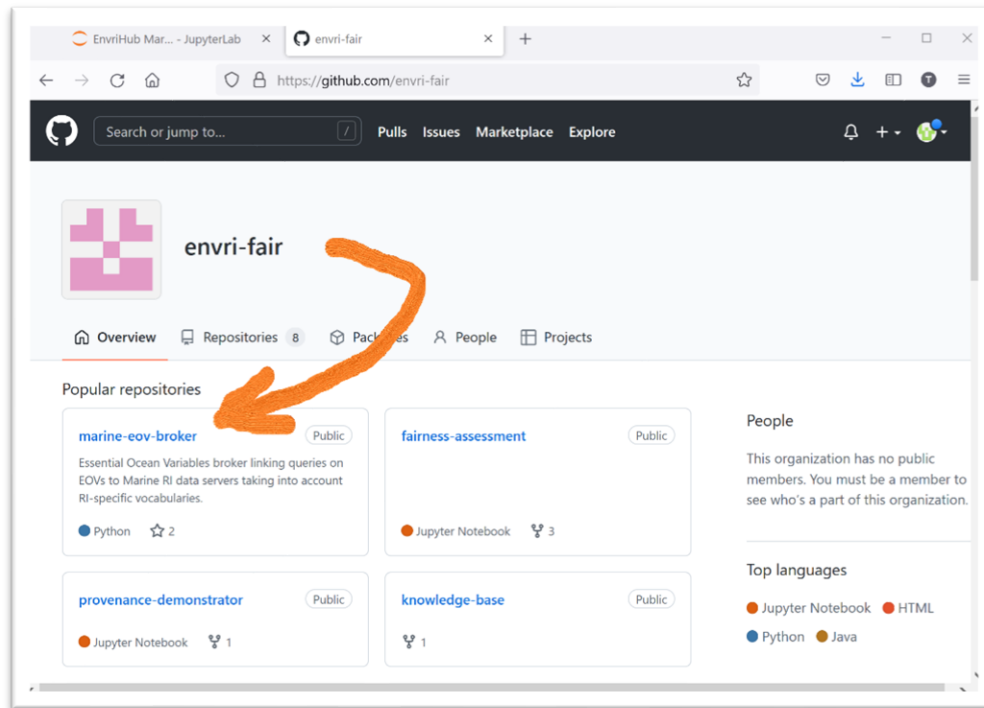


Figure 3: The Marine EOV broker V1 is published on ENVRI-FAIR GitHub public repository, it was the top 1 application in March 2022 (<https://github.com/envri-fair>)

3 References

Ref	Title	Version / Date
D9.1	Marine subdomain FAIRness roadmap https://doi.org/10.5281/zenodo.3885296	V2.0 August 31, 2019
D9.2	Marine subdomain implementation plan https://doi.org/10.5281/zenodo.3885327	V1.0 November 30, 2019
D9.3	RIs technical specification https://doi.org/10.5281/zenodo.3885330	V1.0 May 19, 2020
D9.5	RIs operational FAIR services https://doi.org/10.5281/zenodo.5843412	V1.0 January 12, 2022
D9.6	Marine EOVS product specification https://doi.org/10.5281/zenodo.4766796	V1.0 May 11, 2021

4 Appendix A

AAI	Authentication and Authorisation Infrastructure
ACDD	Attribute Convention for Data Discovery
API	Application Programming Interface
CDI	Common Data Index (metadata format and data access system by SeaDataNet)
CF	Climate and Forecast (semantics for NetCDF)
CMEMS	Copernicus Marine Environment Monitoring Service
COPERNICUS	A major earth observation programme run by European Commission and European Space Agency
CP	Carbon Portal
DwC-A	Darwin Core Archive file format
EMSO	European Multidisciplinary Seafloor and water column Observatory
ENVRI	1) An environmental RI cluster FP7 project 2) Environment research infrastructures (in ESFRI level or upcoming) as a community
EOSC	European Open Science Cloud
EOV	Essential Ocean Variable(s)
ERDDAP	NOAA developed science data server technology
ERIC	European Research Infrastructure Consortium (legal entity type)
ESFRI	European Strategy Forum on Research Infrastructures
EuOBIS	European OBIS
FAIR	Findable Accessible Interoperable Reusable
GUI	Graphical User Interface
ICOS	Integrated Carbon Observation System
IPT	Integrated Publishing Toolkit
M	Month
NetCDF	Network Common Data Format
NVS	NERC Vocabulary Server
NOAA	US National Oceanic and Atmospheric Administration
OBIS	Ocean Biogeographic Information System
OGC	Open Geospatial Consortium
PID	Persistent Identifiers
QA/QC	Quality Assurance/Quality Control
RDF	Resource Description Framework
RI	Research Infrastructure
SDN	SeaDataNet pan-European infrastructure for marine data management
SPARQL	SparQL Protocol and RDF Query Language
TF	Task Force