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Practical examples how improved marine data FAIRness supports developers and end-users in current developments in Virtual Research

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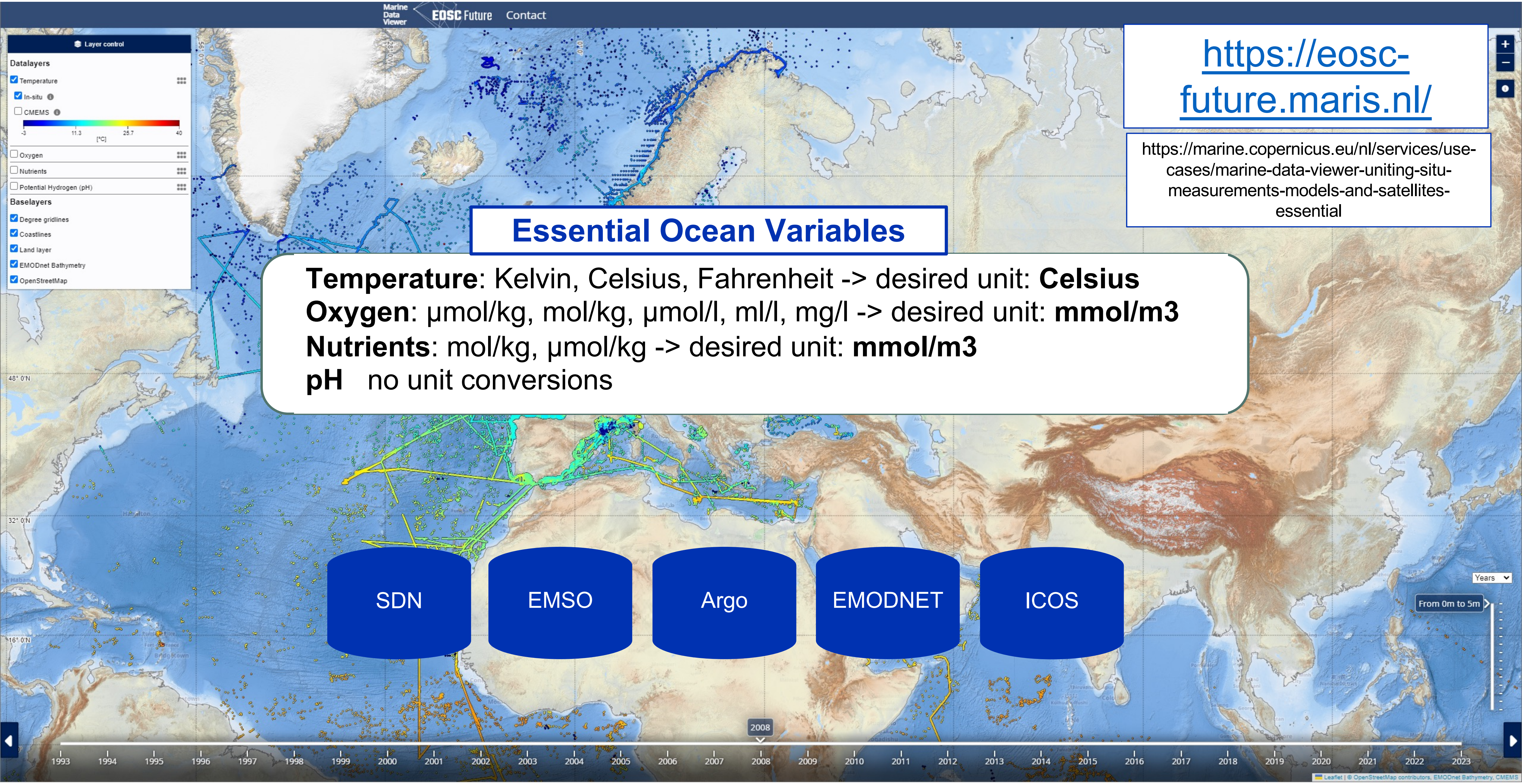
Funded by the European Union



https://eosc-future.maris.nl/

https://marine.copernicus.eu/nl/services/use-cases/marine-data-viewer-uniting-situ-measurements-models-and-satellites-essential

Essential Ocean Variables

Temperature: Kelvin, Celsius, Fahrenheit -> desired unit: **Celsius**
Oxygen: µmol/kg, mol/kg, µmol/l, ml/l, mg/l -> desired unit: **mmol/m3**
Nutrients: mol/kg, µmol/kg -> desired unit: **mmol/m3**
pH no unit conversions

SDN

EMSO

Argo

EMODNET

ICOS

Steps

- Check if the Essential Ocean Variables (EOVs) defined by GOOS are published as machine readable terms in a FAIR semantic resource?
- Identify the semantics (language) the RIs data/metadata are annotated with
- Translate EOV parameters to the terminology each RI understands
  - Create mappings between the EOVs and the underlying vocabularies
- Identify all units an EOV parameter can be measured at
- Provide unit conversions between the different units

Inorganic Nutrients

The amount of dissolved inorganic macro nutrients (NO_3, PO_4, Si and NO_2) in seawater using water column measurements.

https://vocab.nerc.ac.uk/collection/A05/current/EV_NUTS/

Temperature

The temperature of seawater expressed against the International Temperature Scale 1990 (ITS-90) standard.

https://vocab.nerc.ac.uk/collection/A05/current/EV_SEATEMP/

Oxygen

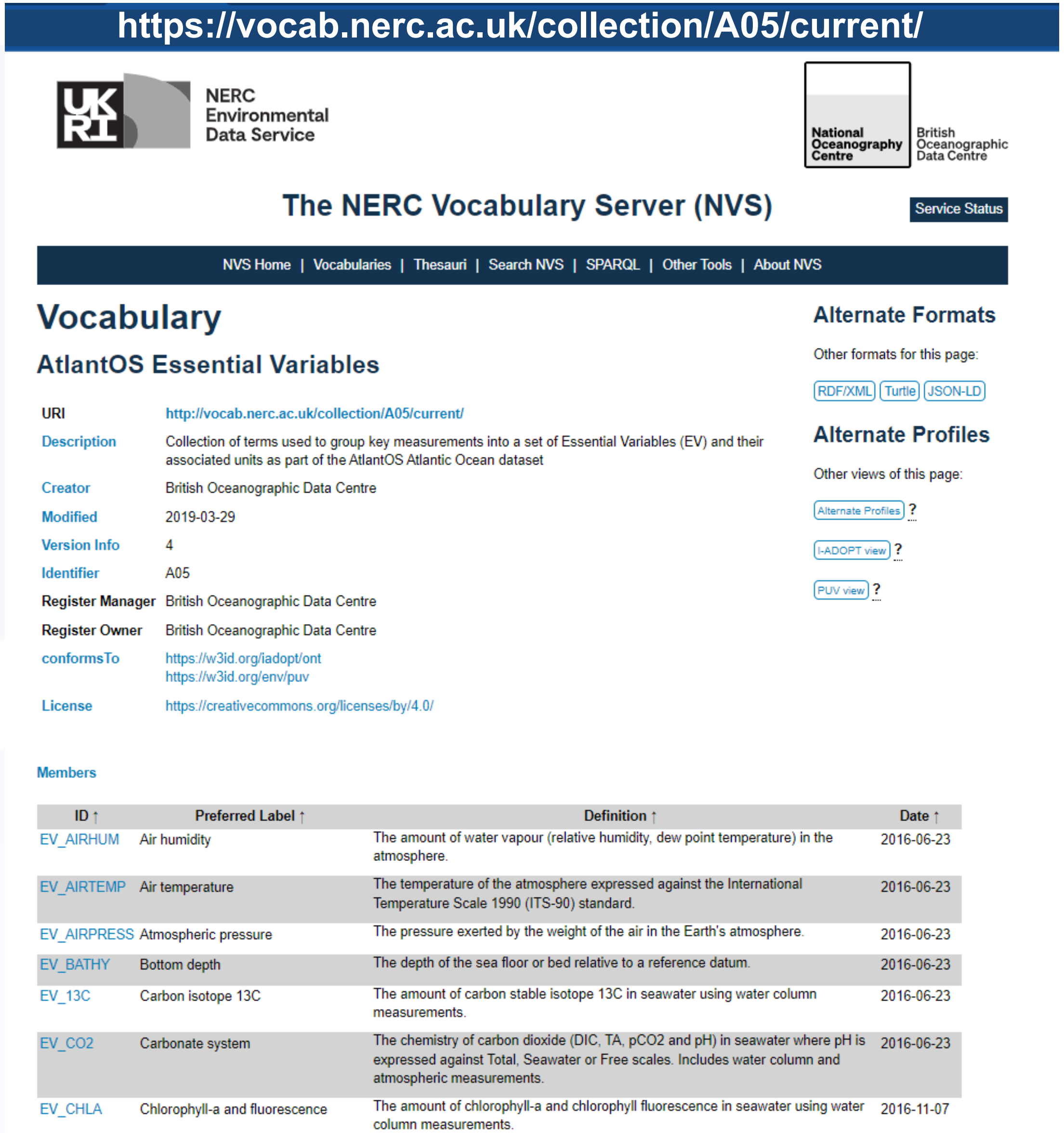
The amount of dissolved oxygen in seawater using water column measurements.

https://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/

CO2

The chemistry of carbon dioxide (DIC, TA, pCO_2 and pH) in seawater where pH is expressed against Total, Seawater or Free scales. Includes water column and atmospheric measurements.

https://vocab.nerc.ac.uk/collection/A05/current/EV_CO2/



https://vocab.nerc.ac.uk/collection/A05/current/

NERC Environmental Data Service

National Oceanography Centre | British Oceanographic Data Centre

The NERC Vocabulary Server (NVS)

Service Status

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Vocabulary

AtlantOS Essential Variables

URI	http://vocab.nerc.ac.uk/collection/A05/current/
Description	Collection of terms used to group key measurements into a set of Essential Variables (EV) and their associated units as part of the AtlantOS Atlantic Ocean dataset
Creator	British Oceanographic Data Centre
Modified	2019-03-29
Version Info	4
Identifier	A05
Register Manager	British Oceanographic Data Centre
Register Owner	British Oceanographic Data Centre
conformsTo	https://w3id.org/iadopt/ont https://w3id.org/env/puv
License	https://creativecommons.org/licenses/by/4.0/

Alternate Formats

Other formats for this page:

RDF/XML | Turtle | JSON-LD

Alternate Profiles

Other views of this page:

Alternate Profiles ?

I-ADOPT view ?

PUV view ?

Members

ID ↑	Preferred Label ↑	Definition ↑	Date ↑
EV_AIRHUM	Air humidity	The amount of water vapour (relative humidity, dew point temperature) in the atmosphere.	2016-06-23
EV_AIRTEMP	Air temperature	The temperature of the atmosphere expressed against the International Temperature Scale 1990 (ITS-90) standard.	2016-06-23
EV_AIRPRESS	Atmospheric pressure	The pressure exerted by the weight of the air in the Earth's atmosphere.	2016-06-23
EV_BATHY	Bottom depth	The depth of the sea floor or bed relative to a reference datum.	2016-06-23
EV_13C	Carbon isotope 13C	The amount of carbon stable isotope 13C in seawater using water column measurements.	2016-06-23
EV_CO2	Carbonate system	The chemistry of carbon dioxide (DIC, TA, pCO2 and pH) in seawater where pH is expressed against Total, Seawater or Free scales. Includes water column and atmospheric measurements.	2016-06-23
EV_CHLA	Chlorophyll-a and fluorescence	The amount of chlorophyll-a and chlorophyll fluorescence in seawater using water column measurements.	2016-11-07

Vocabularies

Collections

A **semantic repository** for **standardised hierarchical terminologies** used for the management of data in the **marine and related domains**

concepts

It stores and serves **terms and relationships** between terms in a **human and machine-readable** format

mappings

Natural Environment Research Council

National Oceanography Centre British Oceanographic Data Centre BODC

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NVS Vocabularies

URI

http://vocab.nerc.ac.uk/collection/

Description

SKOS concept collections held in the NERC Vocabulary Server. A concept collection is useful where a group of concepts shares something in common, and it is convenient to group them under a common label. In the NVS, concept collections are synonymous with controlled vocabularies or code lists. Each collection is associated with its governance body. An external website link is displayed when applicable.

Alternate Formats

Other formats for this page:

RDF/XML | Turtle | JSON-LD

Alternate Profiles

Other views of this page:

Alternate Profiles ?

Filter

Filter | Clear

?

Vocabularies

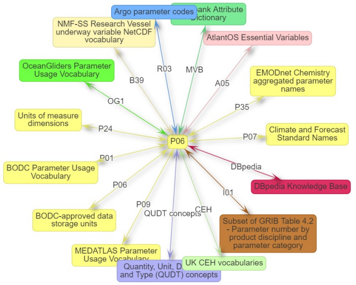
Sort by click on table headings, Filter using the search to the right.

ID ↑	Title ↑	Version ↑	Version Date ↑	Description ↑	Governance ↑	External Link ↑
C97	NERC Vocabulary Server Version 1 mappings index	1978	2022-01-29	A catalogue of the mappings between NVS V1 lists held in the NERC Vocabulary Server. Support for this vocabulary will be gradually withdrawn as NVS V1 is replaced by NVS V2.	British Oceanographic Data Centre	
P01	BODC Parameter Usage Vocabulary	1065	2022-01-25	Terms built using the BODC parameter semantic model designed to describe individual measured phenomena. May be used to mark up sets of data such as a NetCDF array or spreadsheet column.	British Oceanographic Data Centre	https://github.com/nvs-vocabs/P01
C17	ICES Platform Codes	992	2022-01-20	Identifiers and metadata for platform instances (combinations of names and physical entities such as hulls or airframes).	International Council for the Exploration of the Sea	
L22	SeaVoX Device Catalogue	543	2022-01-29	Terms for distinct sampling or measuring devices that may be identified in the real world in terms of manufacturer and model number.	SeaDataNet and MarineXML Vocabulary Content Governance Group	https://github.com/nvs-vocabs/L22
C75	BODC Organisation Histories	446	2022-01-29	Concepts used to populate 'organisation' fields in BODC metadata schemas. When used in conjunction with the C75PK group of functions (NMNOW, NMTHEN, NMALL)they provide access to past organisation names. For example, the C75 code 'ISB' translates to 'Proudman Oceanographic Laboratory' for a date in 1995, but to 'National Oceanography Centre, Liverpool' for a date in 2015.	British Oceanographic Data Centre	
					British	

Table 1

Summary of FAIR principles applied to a vocabulary.

F	Each vocabulary is denoted by a persistent unique web identifier	http://vocab.nerc.ac.uk/collection/A05/current/
	Each term is denoted by a persistent unique web identifier	http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/
	It is possible to search for a term or vocabulary and get a web identifier for it	https://vocab.nerc.ac.uk/search_nvs/
	The vocabulary is available from at least one repository recognised by the community	http://vocab.nerc.ac.uk/
A	When the vocabulary or term identifier is de-referenced, a machine- or human-readable representation is returned, as requested	SKOS, RDF, SPARQL, TURTLE, RDF/XML, JSON-LD
I	At least one representation conforms to a community standard for vocabularies	
	The vocabulary includes mapping relations to other vocabularies	
R	The license for use of the vocabulary is clear and accessible	https://creativecommons.org/licenses/by/4.0/
	Enough metadata at vocabulary and term-level is provided, including provenance and maintenance information	
	The definitions are sufficient for a user to understand what each term means	http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/



Cox, Simon & González-Beltrán, Alejandra & Magagna, Barbara & Marinescu, maria-cristina. (2020).
Ten Simple Rules for making a vocabulary FAIR.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8238180/

Support offer #1: FAIRness assessment challenge for datasets and semantic artefacts

Context

More harmonised use of semantic artefacts such as ontologies, terminologies, taxonomies, thesauri, vocabularies, metadata schemas and standards is a key element to achieving a high level of FAIRness. However, it can often be difficult to find and use semantic artefacts as they themselves are not always FAIR.

Building on the successful "FAIRness hackathon approach" that was used by the French agri-food project FooSIN as well as on the FAIRsFAIR iterative FAIR pilot assessment and consultation experience, this targeted support action will help a cohort of dataset providers or semantic artefact developers to self-assess the level of FAIRness of their resources (datasets, semantic artefacts, or any collections of those) with several FAIRness assessment tools and methods put at their disposal by FAIR-IMPACT. The cohort will participate in a joint challenge that will last one month during which they will apply a variety of assessment tools including F-UJI, O'FAIRe and FOOPS, and methods such as the FAIR Data Maturity Model (FDMM) and the Ten simple rules for FAIR vocabularies to self-assess their resource(s). The objective for all participants will be to maximise the FAIRness of their own resources as expressed by the scores obtained using the various tools used during the span of the challenge.

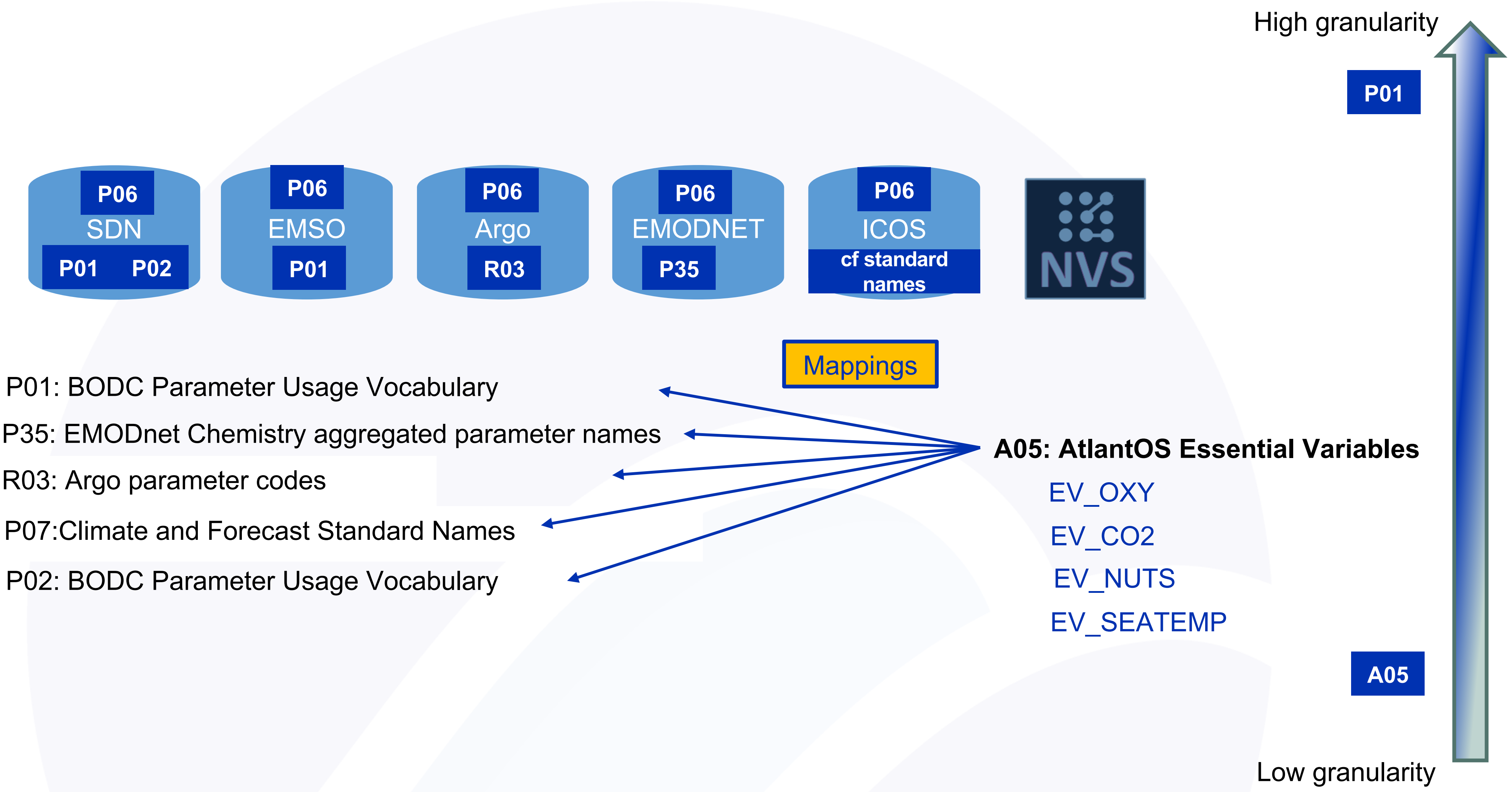
During the event, FAIR-IMPACT mentors will provide guidance and tips on how to improve their score by providing support either directly on the tools methodology available or with general FAIR-enabling feedback and advice. Based on their FAIRness score at the beginning of the challenge, participants will develop a plan to implement changes to improve those scores and their effort will be measured with the new score obtained at the end of the challenge period.

The call is now closed

Support offer details

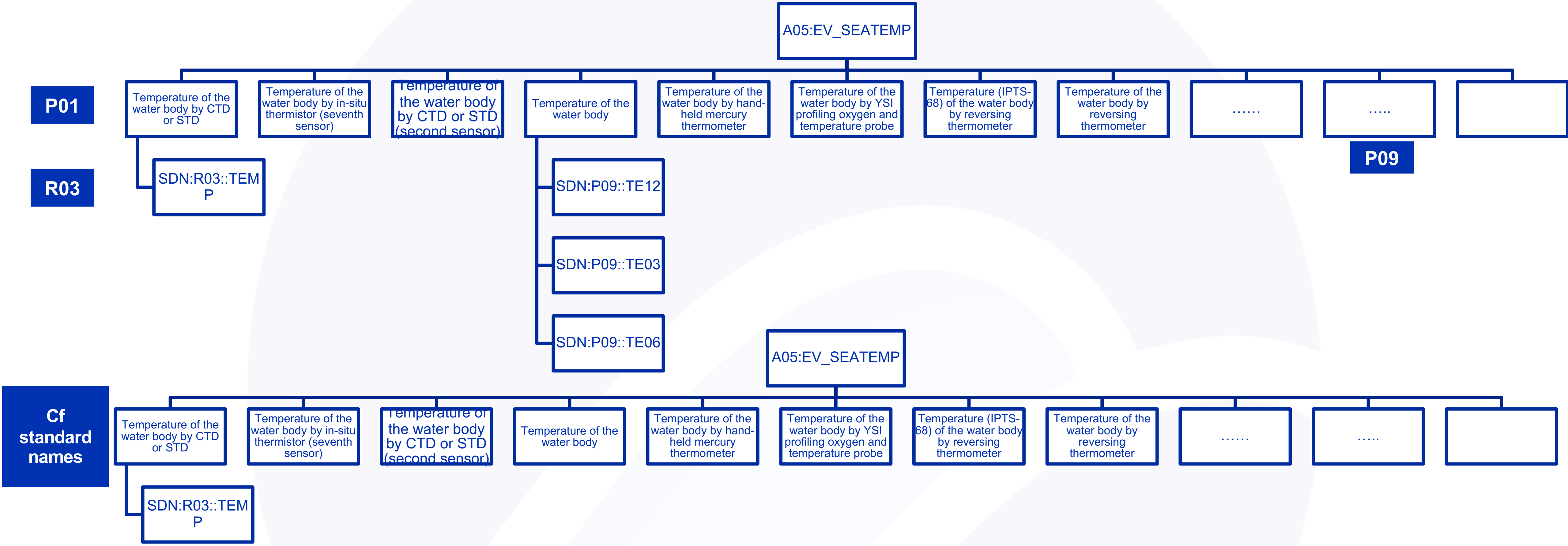
Who should apply?	Data repository service providers (any level) and curators and/or developers of semantic artefacts and datasets.
Skills needed to participate	No specific technical need required. Tuition on assessment tools and methods will be provided during the support. However, a good knowledge of the FAIR principles is recommended and willingness to embrace that approach.

Identify the semantics the RIs data/metadata are annotated with



Create mappings between the high level vocabulary and the underlying ones for each one of the selected EOVs

EV_NUTS EV_OXY EV_CO2



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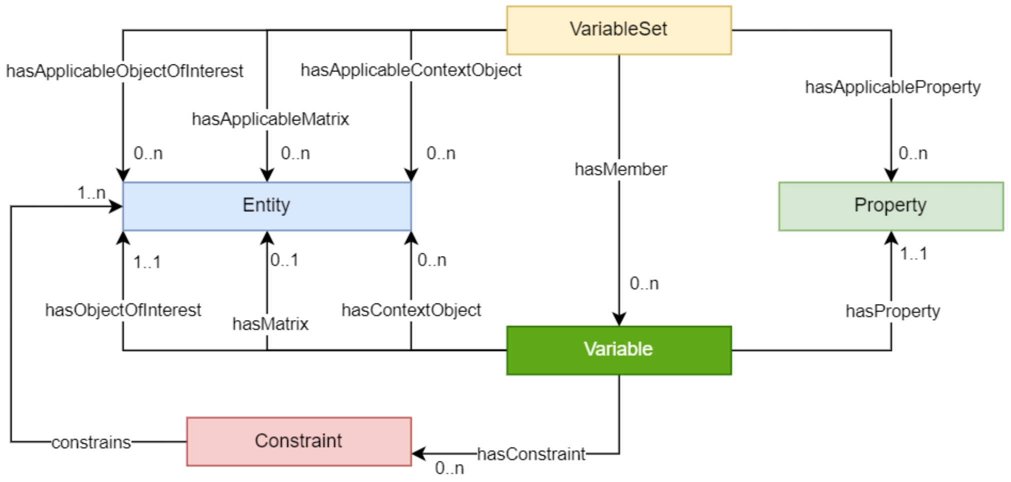
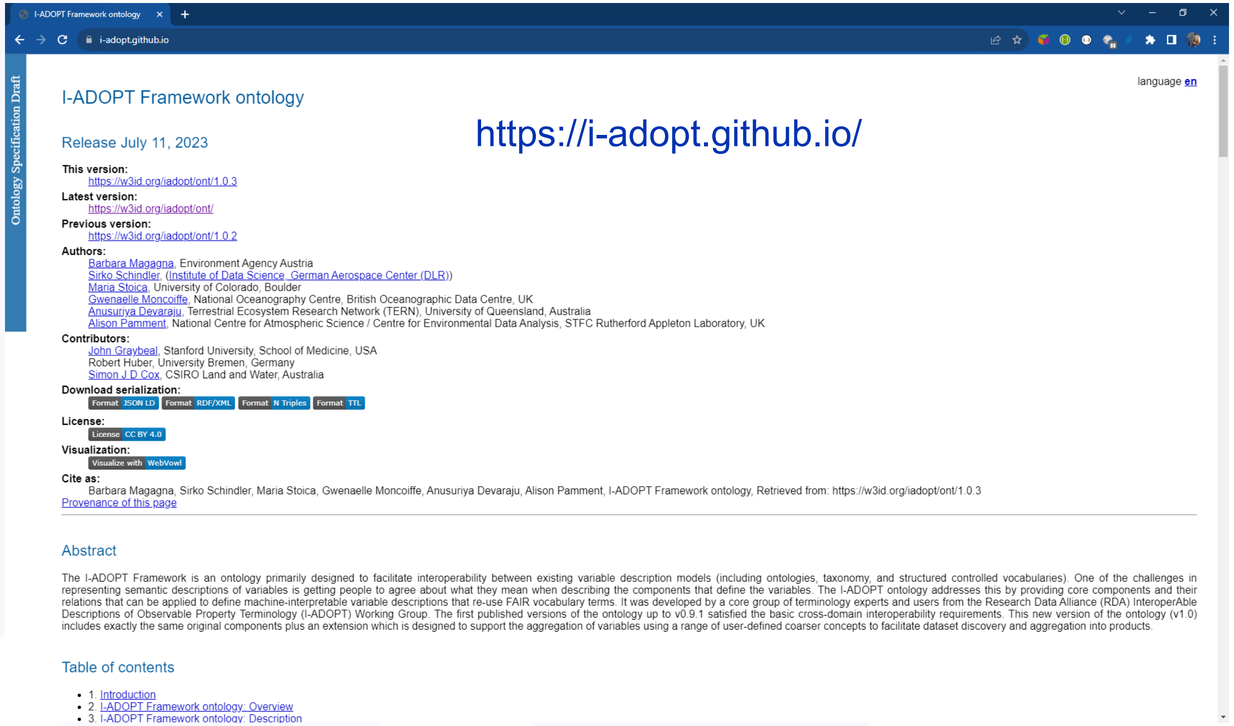
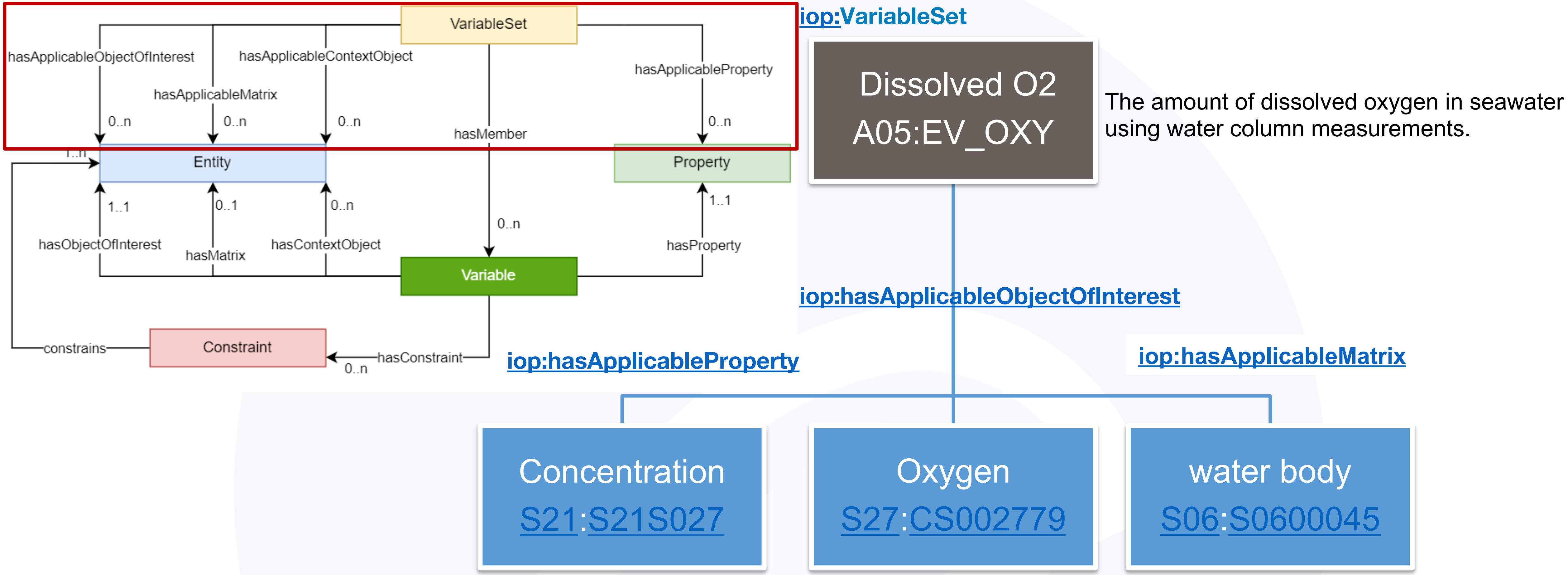
The I-ADOPT Framework is an ontology primarily designed to facilitate interoperability between existing variable description models (including ontologies, taxonomy, and structured controlled vocabularies).





Research Data Alliance iadopt WG

Make variables interoperable by providing a common method to systematically express or represent them


VariableSet
hasApplicableObjectOfInterest
hasApplicableContextObject
hasApplicableMatrix
hasApplicableProperty
hasMember
0..n
1..n
Entity
Property
1..1
0..1
0..n
hasObjectOfInterest
hasMatrix
hasContextObject
hasProperty
Variable
constrains
Constraint
hasConstraint
iop:VariableSet
Dissolved O2
A05:EV_OXY
The amount of dissolved oxygen in seawater using water column measurements.
iop:hasApplicableObjectOfInterest
iop:hasApplicableProperty
iop:hasApplicableMatrix
Concentration
S21:S21S027
Oxygen
S27:CS002779
water body
S06:S0600045

Dissolved O2 in NVS using iadopt


```
<http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/>
        rdf:type                  skos:Concept ;
        dce:identifier            "SDN:A05::EV_OXY" ;
        dc:date                   "2016-06-23 15:58:53.0" ;
        dc:identifier             "SDN:A05::EV_OXY" ;
        pav:authoredOn            "2016-06-23 15:58:53.0" ;
        pav:hasCurrentVersion     <http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/1/> ;
        pav:version               "1" ;
        void:inDataset            <http://vocab.nerc.ac.uk/.well-known/void> ;
        owl:deprecated            "false" ;
        owl:versionInfo           "1" ;
        skos:altLabel             "Dissolved O2" ;
        skos:definition           "The amount of dissolved oxygen in seawater using water column measurements."@en ;
        skos:notation             "SDN:A05::EV_OXY" ;
        skos:note                 "accepted"@en ;
        skos:prefLabel            "Oxygen"@en ;
        qudt:hasQuantityKind      <http://vocab.nerc.ac.uk/collection/P24/current/MOLPMASS/> , <http://vocab.nerc.ac.uk/col
<http://vocab.nerc.ac.uk/collection/P24/current/MOLPVOL/> , <http://vocab.nerc.ac.uk/collection/P24/current/NASSMASS/> ;
        iop:hasApplicableMatrix   <http://vocab.nerc.ac.uk/collection/S21/current/S21S027/> ;
        iop:hasApplicableObjectOfInterest
                <http://vocab.nerc.ac.uk/collection/S27/current/CS002779/> ;
        iop:hasApplicableProperty  <http://vocab.nerc.ac.uk/collection/S06/current/S0600045/> .
```


tml

onmental Service

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The NERC Vocabulary Server (NVS)

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made by Vocf

Concept

Oxygen

URI	http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/
Within Vocab	AtlantOS Essential Variables
Alternative Labels	Dissolved O2
Definition	The amount of dissolved oxygen in seawater using water column measurements.
Date	2016-06-23T15:58:53
Identifier	SDN:A05::EV_OXY
Note	accepted
Has Current Version	1
version	1
hasQuantityKind	[mass]/[length*length*length] — Mapping: 1739940
	[amount of substance]/[mass] — Mapping: 1739938
	[mass]/[mass] — Mapping: 1739942
	[amount of substance]/[length*length*length] — Mapping: 1739939
	[length*length*length]/[length*length*length] — Mapping: 1739941

iop Properties

hasApplicableMatrix	S21:S21S027	water body	Mapping: 1710021
hasApplicableObjectOfInterest	S27:CS002779	oxygen	Mapping: 1710020
hasApplicableProperty	S06:S0600045	Concentration	Mapping: 1710019

Alternate Formats

Other formats for this page:

RDF/XML | Turtle | JSON-LD

Alternate Profiles

Other views of this page:

Alternate Profiles ?

NVS html view ?

PUV html view ?

I-ADOPT html view ?

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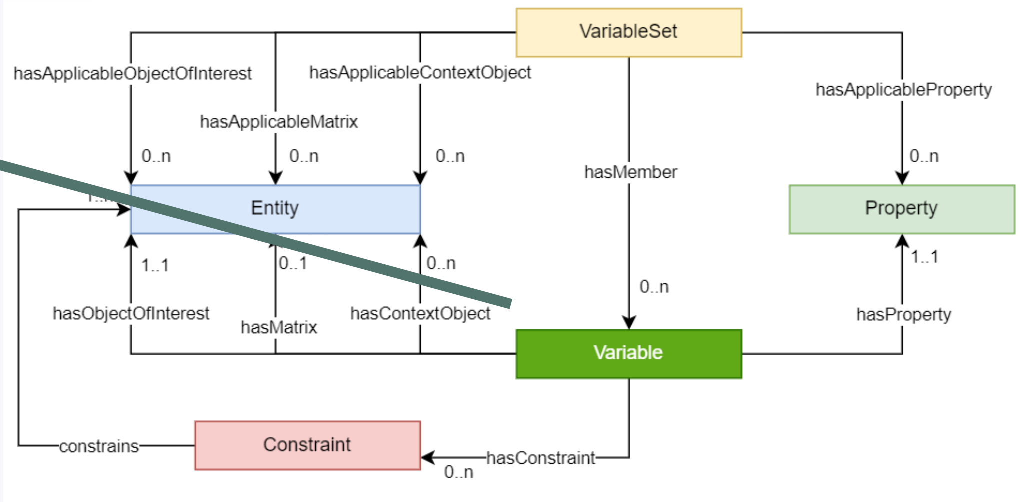
P01 & cf standard names

iop:Variable

P01:DOXYAAOP

Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by optode



iop:hasProperty | iop:hasObjectOfInterest | Iop:hasMatrix

Concentration S21:S21S027	Oxygen S27:CS002779	water body S06:S0600045

The amount of dissolved oxygen in seawater using water column measurements modelled in NVS using iadopt

NVS

Not secure | vocab.nerc.ac.uk/collection/P01/current/DOXYAAOP/?_profile=iop&_mediatype=text/html

UKRI NERC Environmental Data Service

National Oceanography Centre British Oceanographic Data Centre

made by VocPrez for NVS

The NERC Vocabulary Server (NVS)

Service Status

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Concept

Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by optode

URI	http://vocab.nerc.ac.uk/collection/P01/current/DOXYAAOP/
Within Vocab	BODC Parameter Usage Vocabulary
Alternative Labels	WC_dissO2_optode
Definition	Unavailable
Date	2015-08-26T15:08:03
Identifier	SDN:P01::DOXYAAOP
Note	accepted
Has Current Version	3
Version	1 , 2
version	3

iop Properties

hasMatrix	S21:S21S027	water body	Mapping: 1740408
hasObjectOfInterest	S27:CS002779	oxygen	Mapping: 1740197
hasProperty	S06:S0600045	Concentration	Mapping: 1740002

Alternate Formats

Other formats for this page:

RDF/XML Turtle JSON-LD

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Other views of this page:

Alternate Profiles ?

NVS html view ?

I-ADOPT html view ?

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National Oceanography Centre

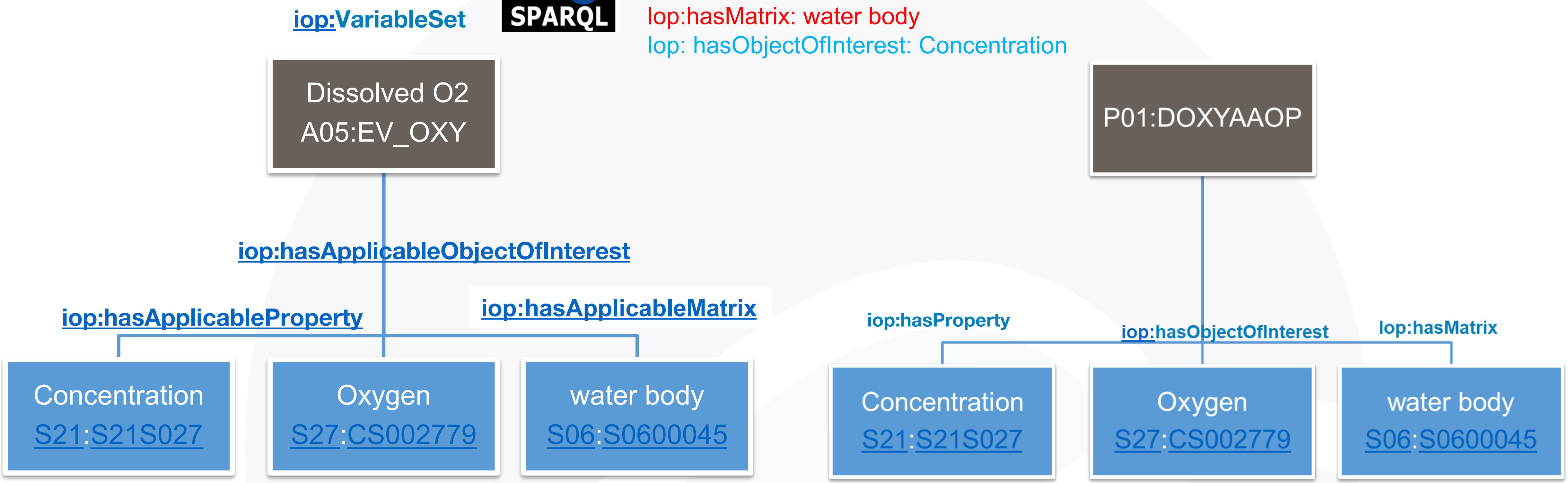
Disclaimer

Find all P01 terms and their mappings to P02, R03, P09 that fullfill:

Iop:hasProperty: Concentration

Iop:hasMatrix: water body

Iop: hasObjectOfInterest: Concentration



NVS

vocab.nerc.ac.uk/sparql/

This page allows you to lodge SPARQL queries against the triplestore (graph database) that stores all of this systems' vocabularies'.

Use the interactive Query UI below to lodge queries interactively or send queries directly to the system using the instructions below that.

made by VocPrez for NVS

Interactive UI

Enter SPARQL queries in the text box below to lodge them interactively:

Query

```
        ?v4 skos:notation ?P09notation .
        }

        OPTIONAL {
        ?dt ?rel5 ?v5 .
        FILTER (regex(str(?v5), 'P02/current/')) .
        ?v5 skos:notation ?P02notation .
        }

        OPTIONAL {
        ?dt?rel6 ?v6.
        FILTER(REGEX(STR(?v6), 'P06/current/'))
        ?v6 skos:notation ?P06notation.
        }

        FILTER (langMatches(lang(?prefLabel), 'en'))

        ?dt skos:notation ?P01 .
}
GROUP BY ?dt ?P01 ?prefLabel ?P09 ?P02 ?R03 ?P06
```

Table | Response | 22 results in 0.296 seconds

Simple view ☐ Ellipse ☑ Filter query results Page size: 50

	dt	P01	prefLabel	R03	P09	P02	P06
1	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYPR02	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ Beckmann probe (second sensor)"@en			SDN:P02::DOXY	SDN:P06::UPOX
2	<http://vocab.nerc.ac.uk/collection/P01/current/OXY...	SDN:P01::OXYSMOD1	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by model prediction"@en			SDN:P02::DOXY	SDN:P06::UMMC
3	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSCKG	"Concentration of oxygen {O2 CAS 7782-44-7} per unit mass of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor and calibration against sample d...			SDN:P02::DOXY	SDN:P06::KGUM
4	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSC02	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor (second sensor) and calibratio...			SDN:P02::DOXY	SDN:P06::UPOX
5	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYOP01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ oxygen optode"@en			SDN:P02::DOXY	SDN:P06::UPOX
6	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSU01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor and no calibration against sam...			SDN:P02::DOXY	SDN:P06::UPOX
7	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSE01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by YSI in-situ oxygen and temperature probe"@en			SDN:P02::DOXY	SDN:P06::UPOX
8	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYCZ01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ sensor and calibration against sample data"@en			SDN:P02::DOXY	SDN:P06::UPOX
9	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYUCKG	"Concentration of oxygen {O2 CAS 7782-44-7} per unit mass of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor and no calibration against sampl...			SDN:P02::DOXY	SDN:P06::KGUM
10	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXMZZXX	"Concentration of oxygen {O2 CAS 7782-44-7} per unit mass of the water body [dissolved plus reactive particulate phase]"@en	SDN:R03::DOXY	SDN:P09::DOX2	SDN:P02::DOXY	SDN:P06::KGUM
11	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYPE01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ pulsed electrode"@en			SDN:P02::DOXY	SDN:P06::UPOX
12	<http://vocab.nerc.ac.uk/collection/P01/current/DOK...	SDN:P01::DOKGWITX	"Concentration of oxygen {O2 CAS 7782-44-7} per unit mass of the water body [dissolved plus reactive particulate phase] by Winkler titration"@en			SDN:P02::DOXY	SDN:P06::KGUM
13	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYZZ01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ sensor"@en			SDN:P02::DOXY	SDN:P06::UPOX
14	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYZZXX	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase]"@en	SDN:R03::MLPL_DOXY	SDN:P09::DOXY,SDN:P09::DOX1	SDN:P02::DOXY	SDN:P06::UPOX
15	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYUZ02	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ sensor (second sensor) and no calibration again...			SDN:P02::DOXY	SDN:P06::UPOX
16	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSE02	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by YSI profiling oxygen and temperature probe"@en			SDN:P02::DOXY	SDN:P06::UPOX
17	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSC01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor and calibration against sample...			SDN:P02::DOXY	SDN:P06::UPOX
18	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYPR01	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by in-situ Beckmann probe"@en			SDN:P02::DOXY	SDN:P06::UPOX
19	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYSU02	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by Sea-Bird SBE 43 sensor (second sensor) and no calibr...			SDN:P02::DOXY	SDN:P06::UPOX
20	<http://vocab.nerc.ac.uk/collection/P01/current/DOX...	SDN:P01::DOXYWITX	"Concentration of oxygen {O2 CAS 7782-44-7} per unit volume of the water body [dissolved plus reactive particulate phase] by Winkler titration"@en			SDN:P02::DOXY	SDN:P06::UPOX

Unit Harmonisation

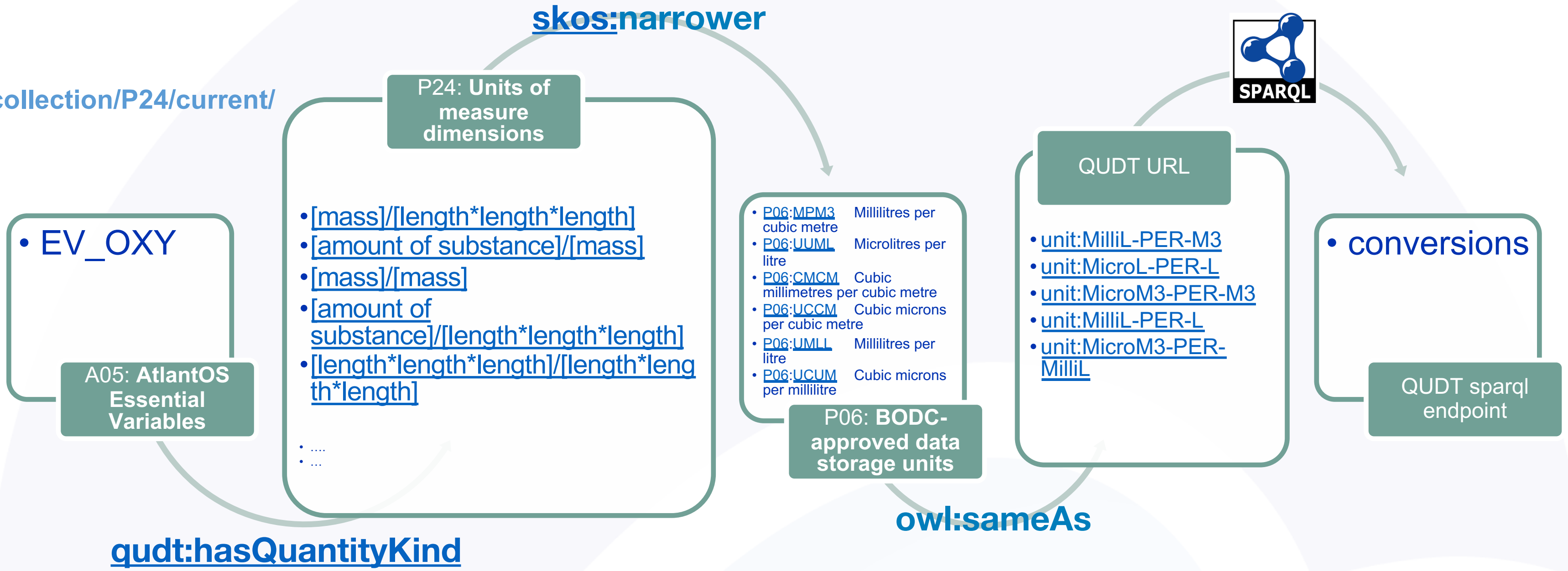
Funded by
the European Union

Our approach

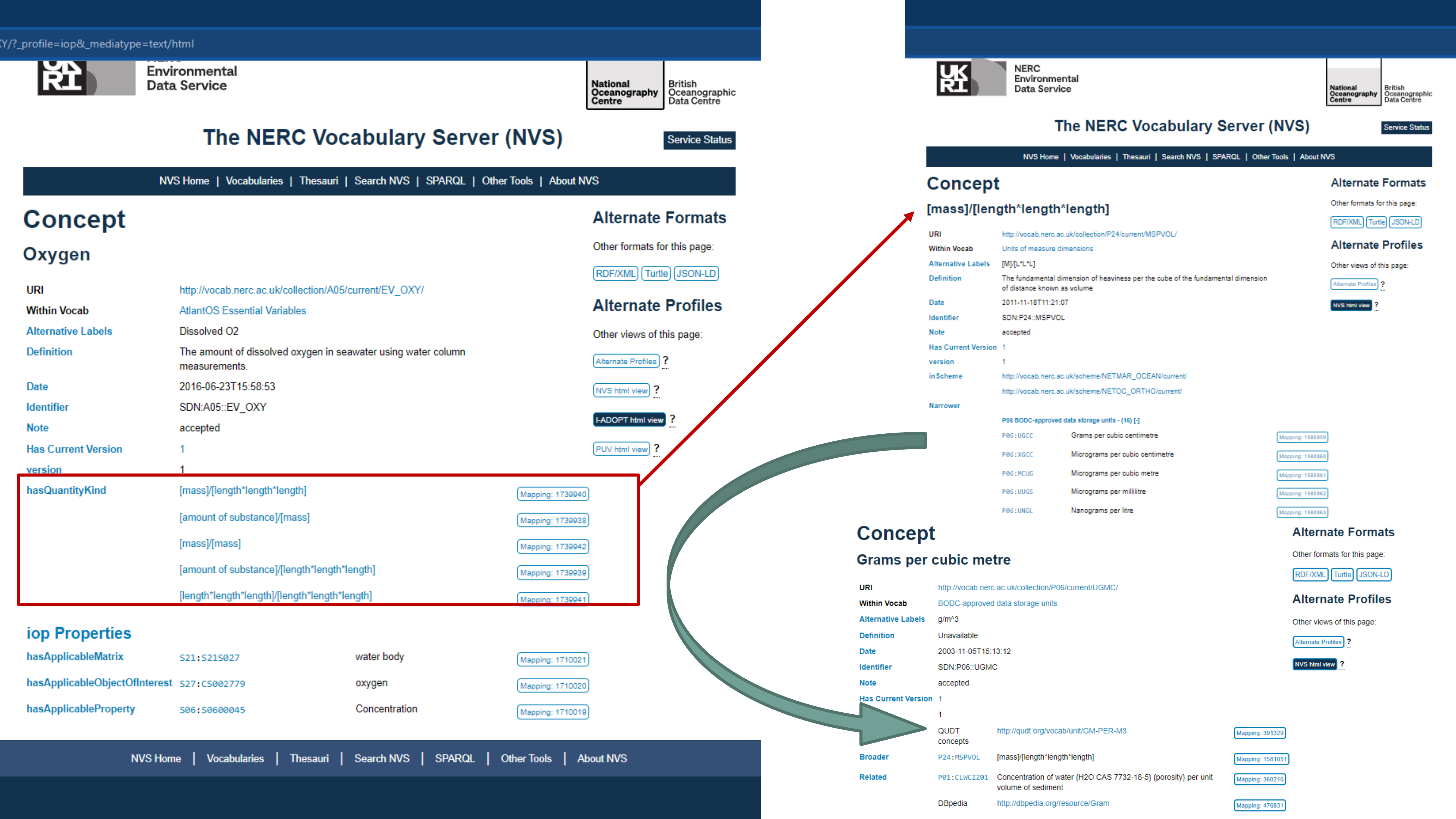
QUDT.org is a 501(c)(3) public charity nonprofit organization founded to provide semantic specifications for units of measure, quantity kind, dimensions and data types. QUDT is an advocate for the development and implementation of standards to quantify data expressed in RDF and JSON. Our mission is to improve interoperability of data and the specification of information structures through industry standards for Units of Measure, Quantity Kinds, Dimensions and Data Types.

https://qudt.org/

https://vocab.nerc.ac.uk/collection/P24/current/



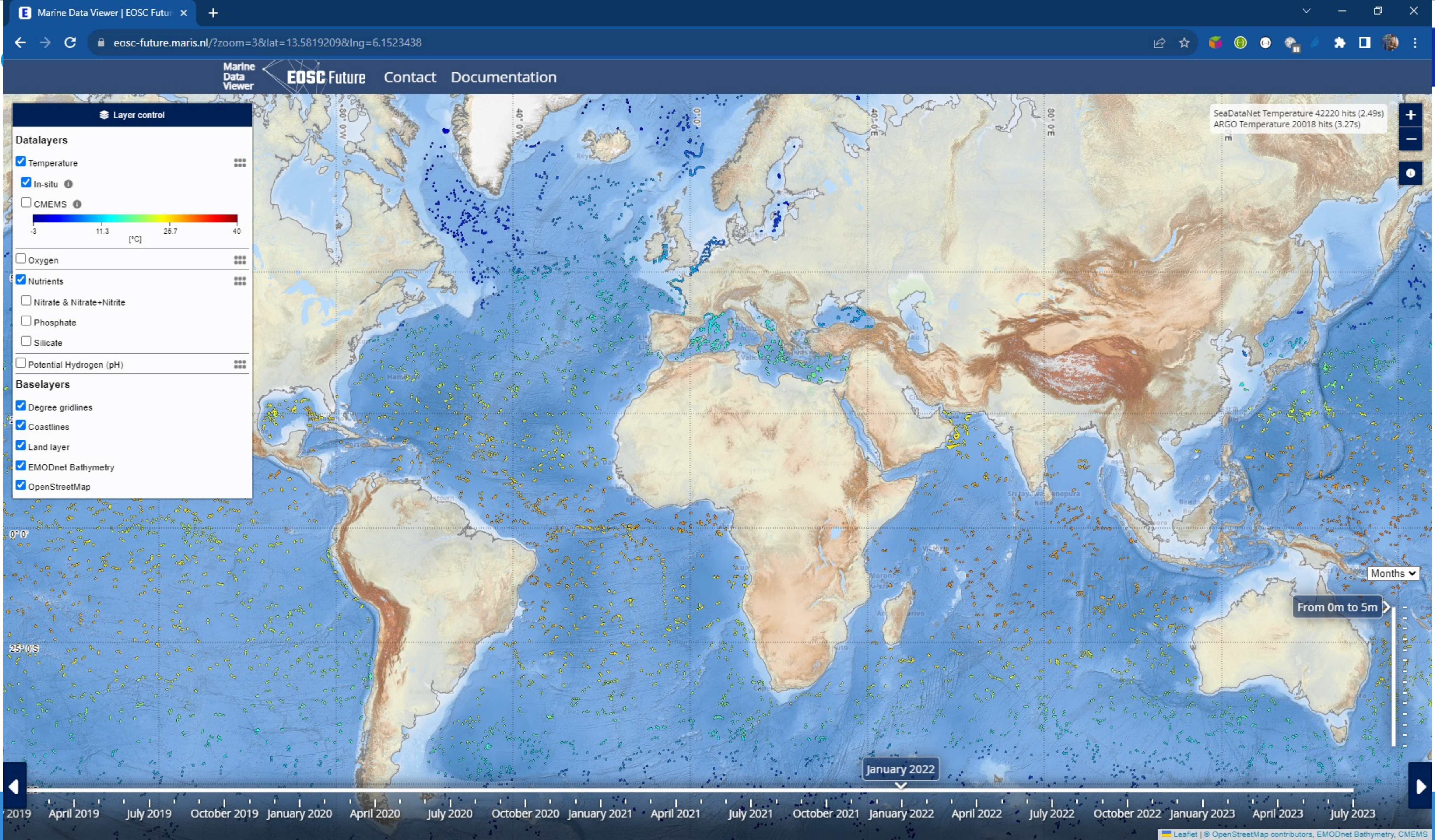
https://vocab.nerc.ac.uk/collection/P06/current/


Y/?_profile=iop&_mediatype=text/html
Environmental
Data Service
National Oceanography Centre
British Oceanographic Data Centre
The NERC Vocabulary Server (NVS)
Service Status
NVS Home | Vocabularies | Thesauri | Search NVS | SPARQL | Other Tools | About NVS
Concept
Oxygen
URI http://vocab.nerc.ac.uk/collection/A05/current/EV_OXY/
Within Vocab AtlantOS Essential Variables
Alternative Labels Dissolved O2
Definition The amount of dissolved oxygen in seawater using water column measurements.
Date 2016-06-23T15:58:53
Identifier SDN:A05::EV_OXY
Note accepted
Has Current Version 1
version 1
hasQuantityKind [mass]/[length*length*length] Mapping: 1739940
[amount of substance]/[mass] Mapping: 1739938
[mass]/[mass] Mapping: 1739942
[amount of substance]/[length*length*length] Mapping: 1739939
[length*length*length]/[length*length*length] Mapping: 1739941
iop Properties
hasApplicableMatrix S21:S21S027 water body Mapping: 1710021
hasApplicableObjectOfInterest S27:CS002779 oxygen Mapping: 1710020
hasApplicableProperty S06:S0600045 Concentration Mapping: 1710019
Alternate Formats
Other formats for this page:
RDF/XML Turtle JSON-LD
Alternate Profiles
Other views of this page:
Alternate Profiles ?
NVS html view ?
I-ADOPT html view ?
PUV html view ?
NVS Home | Vocabularies | Thesauri | Search NVS | SPARQL | Other Tools | About NVS
NERC
Environmental
Data Service
National Oceanography Centre
British Oceanographic Data Centre
The NERC Vocabulary Server (NVS)
Service Status
NVS Home | Vocabularies | Thesauri | Search NVS | SPARQL | Other Tools | About NVS
Concept
[mass]/[length*length*length]
URI http://vocab.nerc.ac.uk/collection/P24/current/MSPVOL/
Within Vocab Units of measure dimensions
Alternative Labels [M]/[L*L*L]
Definition The fundamental dimension of heaviness per the cube of the fundamental dimension of distance known as volume
Date 2011-11-18T11:21:07
Identifier SDN:P24::MSPVOL
Note accepted
Has Current Version 1
version 1
inScheme http://vocab.nerc.ac.uk/scheme/NETMAR_OCEAN/current/
http://vocab.nerc.ac.uk/scheme/NETOC_ORTHO/current/
Narrower
P06 BODC-approved data storage units - (16) [-]
P06:UGCC Grams per cubic centimetre Mapping: 1580859
P06:XGCC Micrograms per cubic centimetre Mapping: 1580860
P06:MCUG Micrograms per cubic metre Mapping: 1580861
P06:UUGS Micrograms per millilitre Mapping: 1580862
P06:UNGL Nanograms per litre Mapping: 1580863
Alternate Formats
Other formats for this page:
RDF/XML Turtle JSON-LD
Alternate Profiles
Other views of this page:
Alternate Profiles ?
NVS html view ?
Concept
Grams per cubic metre
URI http://vocab.nerc.ac.uk/collection/P06/current/UGMC/
Within Vocab BODC-approved data storage units
Alternative Labels g/m^3
Definition Unavailable
Date 2003-11-05T15:13:12
Identifier SDN:P06::UGMC
Note accepted
Has Current Version 1
1
QUDT concepts http://qudt.org/vocab/unit/GM-PER-M3 Mapping: 391329
Broader P24:MSPVOL [mass]/[length*length*length] Mapping: 1581051
Related P01:CLWCZZ01 Concentration of water {H2O CAS 7732-18-5} {porosity} per unit volume of sediment Mapping: 360216
DBpedia http://dbpedia.org/resource/Gram Mapping: 476931
Alternate Formats
Other formats for this page:
RDF/XML Turtle JSON-LD
Alternate Profiles
Other views of this page:
Alternate Profiles ?
NVS html view ?

```
select DISTINCT ?toConvert ?label ?P06notation ?into ?otherUnitLabel ?multiplyBy ?multiplier
where {
    {
        <http://vocab.nerc.ac.uk/collection/P24/current/MOLPVOL/> skos:narrower ?P06.
        ?P06 owl:sameAs ?unit .
        ?P06 skos:notation ?P06notation .
        SERVICE <http://qudt.org/fuseki/qudt/query> {
            BIND ("To convert" AS ?toConvert) .
            BIND ("into" AS ?into) .
            BIND ("multiply by" AS ?multiplyBy) .
            ?unit rdfs:label ?label .
            ?unit qudt:conversionMultiplier ?cm1 .
            ?unit qudt:hasQuantityKind/qudt:hasDimensionVector ?qkdv .
```

Table | Response | 44 results in 22.177 seconds | Simple view | Ellipse | Filter query results | Page size: 50

	toConvert	label	P06notation	into	otherUnitLabel	multiplyBy	multiplier
1	To convert	"Mole per Cubic Meter"@en-us	SDN:P06::MLM3	into	"Millimoles per cubic metre"@en	multiply by	"1000.0"^^xsd:decimal
2	To convert	"Mole per Cubic Metre"@en	SDN:P06::MLM3	into	"Millimoles per cubic metre"@en	multiply by	"1000.0"^^xsd:decimal
3	To convert	"Micromoles per litre"@en	SDN:P06::UPOX	into	"Millimoles per cubic metre"@en	multiply by	"1.0"^^xsd:decimal
4	To convert	"millimoles per litre"@en	SDN:P06::MMPL	into	"Millimoles per cubic metre"@en	multiply by	"1000.0"^^xsd:decimal
5	To convert	"millimoles per litre"@en-us	SDN:P06::MMPL	into	"Millimoles per cubic metre"@en	multiply by	"1000.0"^^xsd:decimal
6	To convert	"Mole Per Liter"@en-us	SDN:P06::MPLT	into	"Millimoles per cubic metre"@en	multiply by	"1000000.0"^^xsd:decimal
7	To convert	"Mole Per Litre"@en	SDN:P06::MPLT	into	"Millimoles per cubic metre"@en	multiply by	"1000000.0"^^xsd:decimal
8	To convert	"Picomoles per litre"@en	SDN:P06::UPML	into	"Millimoles per cubic metre"@en	multiply by	"0.000001"^^xsd:decimal
9	To convert	"Picomoles per cubic metre…	SDN:P06::UPMA	into	"Millimoles per cubic metre"@en	multiply by	"0.000000001"^^xsd:decimal
10	To convert	"Femtomoles per litre"@en	SDN:P06::UPFM	into	"Millimoles per cubic metre"@en	multiply by	"0.000000001"^^xsd:decimal
11	To convert	"Millimoles per cubic metre"…	SDN:P06::MMCM	into	"Millimoles per cubic metre"@en	multiply by	"1.0"^^xsd:decimal
12	To convert	"Mol per Kilogram"@en	SDN:P06::MLKG	into	Millimoles per cubic metre	multiply by	"1025000.0"^^xsd:decimal
13	To convert	"Micromoles per kilogram"…	SDN:P06::KGUM	into	Millimoles per cubic metre	multiply by	"1.025"^^xsd:decimal
14	To convert	"Nanomoles per kilogram"@en	SDN:P06::KGNM	into	Millimoles per cubic metre	multiply by	"0.001025"^^xsd:decimal
15	To convert	"Picomoles per kilogram"@en	SDN:P06::KGPM	into	Millimoles per cubic metre	multiply by	"0.000001025"^^xsd:decimal
16	To convert	"Femtomoles per kilogram"…	SDN:P06::FMKG	into	Millimoles per cubic metre	multiply by	"0.000000001025"^^xsd:decimal
17	To convert	"Millimole Per Kilogram"@en	SDN:P06::MMKG	into	Millimoles per cubic metre	multiply by	"1025.0"^^xsd:decimal
18	To convert	"kilogram per cubic meter"…	SDN:P06::UKMC	into	Millimoles per cubic metre	multiply by	"31251.17191894696051101916 3219"^^xsd:decimal
19	To convert	"kilogram per cubic metre"…	SDN:P06::UKMC	into	Millimoles per cubic metre	multiply by	"31251.171918946960511019163219"^^xsd:decimal
20	To convert	"Milligram Per Cubic Meter"…	SDN:P06::UMMC	into	Millimoles per cubic metre	multiply by	"0.031251171918946960511019"^^xsd:decimal
21	To convert	"Milligram Per Cubic Metre"…	SDN:P06::UMMC	into	Millimoles per cubic metre	multiply by	"0.031251171918946960511019"^^xsd:decimal
22	To convert	"Nanograms per litre"@en	SDN:P06::UNGL	into	Millimoles per cubic metre	multiply by	"0.000031251171918946960511"^^xsd:decimal
23	To convert	"Milligram Per Liter"@en-us	SDN:P06::UMGL	into	Millimoles per cubic metre	multiply by	"31.251171918946960511019163"^^xsd:decimal
24	To convert	"Milligram Per Litre"@en	SDN:P06::UMGL	into	Millimoles per cubic metre	multiply by	"31.251171918946960511019163"^^xsd:decimal
25	To convert	"Gram Per Cubic Meter"@e…	SDN:P06::UGMC	into	Millimoles per cubic metre	multiply by	"31.251171918946960511019163"^^xsd:decimal


Marine Data Viewer | EOSC Futur
eosc-future.maris.nl/?zoom=3&lat=13.5819209&lng=6.1523438
Marine Data Viewer
EOSC Future
Contact
Documentation
Layer control
Datalayers
Temperature
In-situ
CMEMS
-3
11.3
25.7
40
[°C]
Oxygen
Nutrients
Nitrate & Nitrate+Nitrite
Phosphate
Silicate
Potential Hydrogen (pH)
Baselayers
Degree gridlines
Coastlines
Land layer
EMODnet Bathymetry
OpenStreetMap
SeaDataNet Temperature 42220 hits (2.49s)
ARGO Temperature 20018 hits (3.27s)
Months
From 0m to 5m
January 2022
2019
April 2019
July 2019
October 2019
January 2020
April 2020
July 2020
October 2020
January 2021
April 2021
July 2021
October 2021
January 2022
April 2022
July 2022
October 2022
January 2023
April 2023
July 2023
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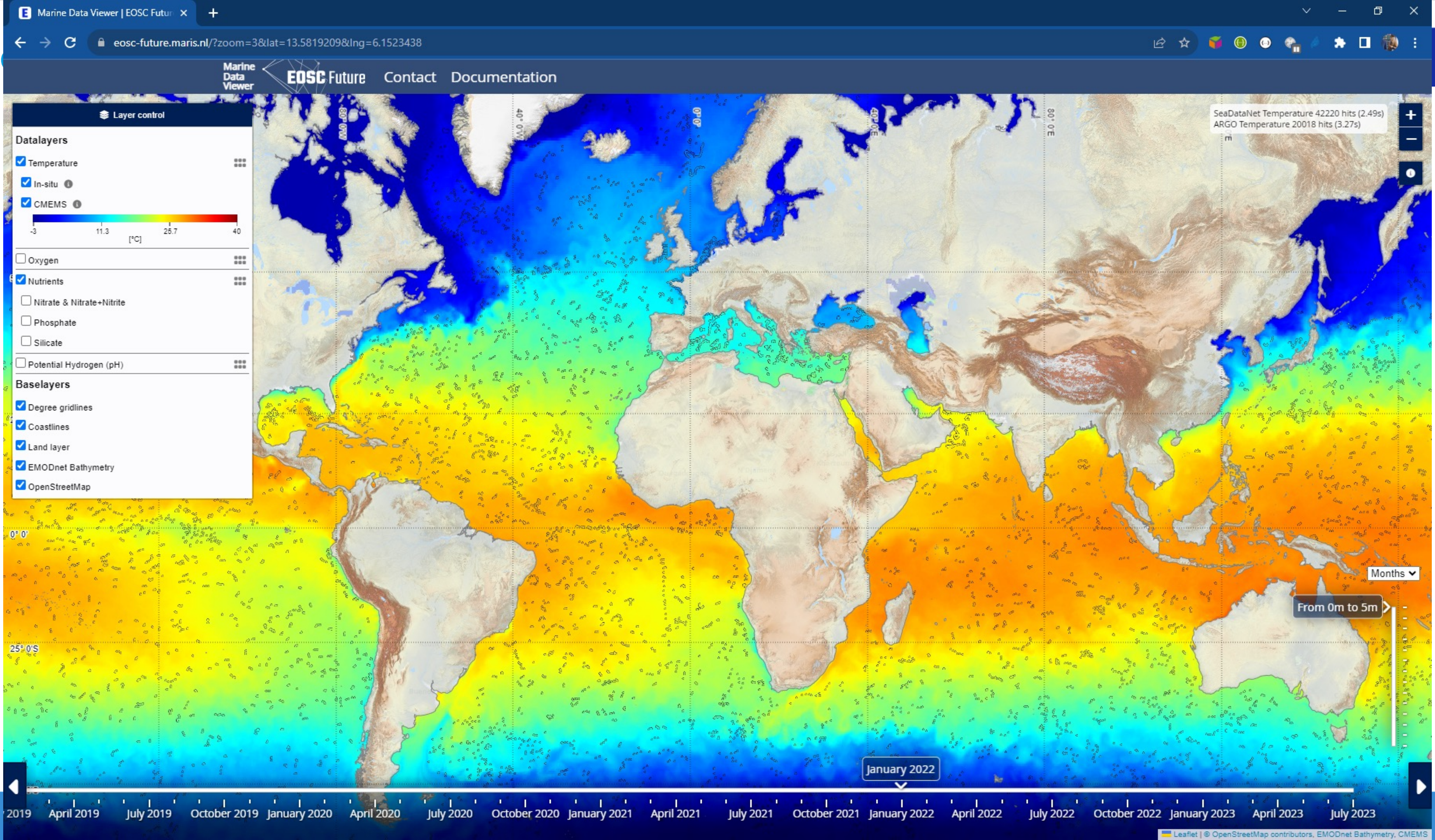
Marine Data Viewer | EOSC Futur
eosc-future.maris.nl/?zoom=3&lat=13.5819209&lng=6.1523438
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Documentation
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-3
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April 2022
July 2022
October 2022
January 2023
April 2023
July 2023
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Lessons learnt

- By applying the iadopt framework:
  - We avoided manual mappings between different granularity parameters
  - Instead we invested in the long term interoperability of NVS parameters
  - Align with other (iadopt –enabled) terminologies
  - Enabled smart mappings

- Reuse as much as possible what already exists e.g. QUDT