

Introduction to the NERC Vocabulary Server (NVS)

Alexandra Kokkinaki

What is the NVS?

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

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

Collections

Concepts

mappings

The NERC Vocabulary Server (NVS)

Service Status

[NVS Home](#) | [Vocabularies](#) | [Thesauri](#) | [Search NVS](#) | [SPARQL](#) | [Other Tools](#) | [About NVS](#)

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 ↑
C07	NERC Vocabulary Server Version 1 mappings index	1078	2022-01-20	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 Support for this vocabulary will be gradually withdrawn as NVS V1 is replaced by NVS V2.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	1055	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	448	2022-01-29	Concepts used to populate 'organisation' fields in BODC metadata schemas. When used in conjunction with the C75PK group of functions (NMNOIW, NMTHEN, NMALL) they provide access to past organisation names. For example, the C75 code 'ISB' translates to 'Froudman Oceanographic Laboratory' for a date in 1995, but to 'National Oceanography Centre, Liverpool' for a date in 2015.	British Oceanographic Data Centre	

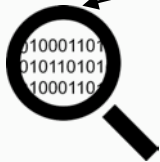
NVS:

- Is managed by BODC at NOC
- Receives funding from NERC
- EU projects NETMAR, SeaDataNet, SeaDataCloud, ENVRI-FAIR

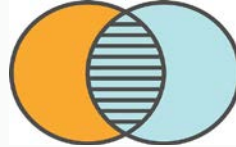
- Vocabularies: [291](#)
- Terms: [333,229](#)
- Schemes: [21](#)

Make data FAIR with FAIR vocabularies

Annotate (encode) data with standardised
FAIR terminologies



Improve
Findable



Facilitate
Interoperable



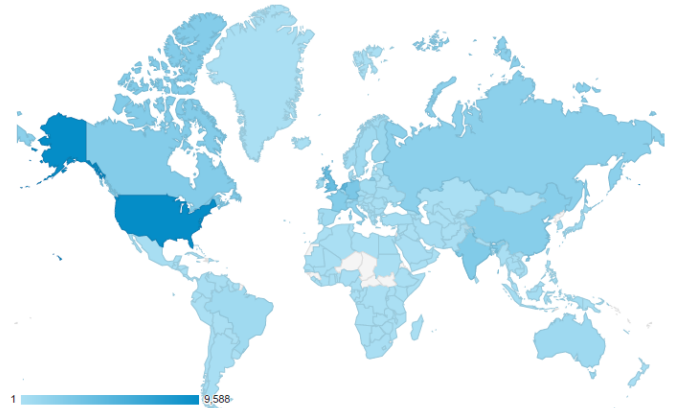
Optimise
Re-usable

The NVS in operation

- Underpins elements of large international observing data networks, including for example
 - EMODnet / SeaDataNet in Europe
 - Argo Floats programme
 - Ocean Biodiversity Information System (OBIS)
 - MOVEBANK database for animal tracking data

Geographic distribution by monthly number of sessions (Dec 2021- Dec 2022)

1-UK (35k); 2-US (27k); 3-Switzerland (16k); Netherlands (12k); 5-Germany (8k)



Governance

Community

Vocabulary
Management
Group

Collaborative tools
(github)

Publication

Linked Data
REST API

SPARQL endpoint

SOAP service

Human Interface
• VocPrez

Standards

RDF

- XML
- Json-LD
- Turtle

JSON-LD



W3C SKOS

pav,
Dublin Core,
OWL

LinkedOpen Data

- Unique URIs for vocabularies, terms and mappings

Tools

[NVS search](#)

[NVS Editor](#)

[SDN facet search](#)

[SDN vocabulary search](#)

[SDN parameter thesaurus](#)

Monitoring

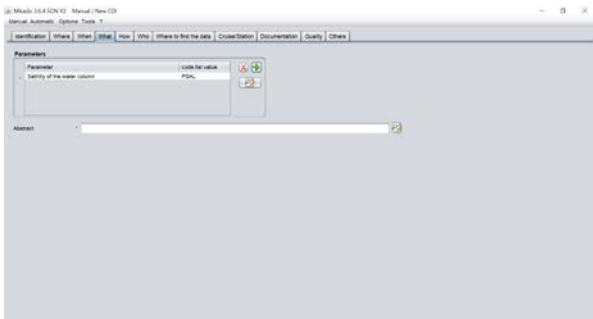
SeaDataNet Argo

BODC-Internal
NVS Dashboard

Ten simple rules for making a vocabulary FAIR

• <https://doi.org/10.1371/journal.pcbi.1009041>

<https://vocab.nerc.ac.uk/>



SEADATANET CDI PROFILE OF ISO 19139 METADATA - INSPIRE COMPLIANT

NERC Vocabulary Server (NVS)

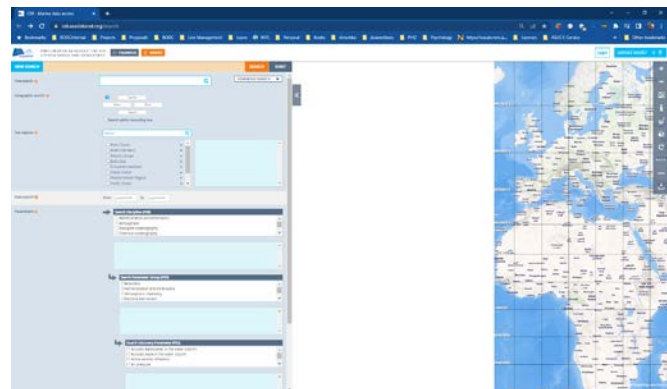
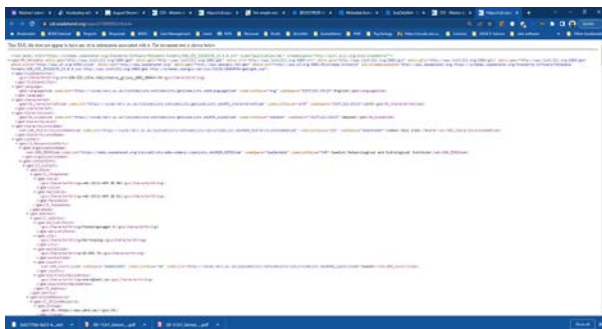
NVS Vocabularies

Description
 NVS is an online metadata tool in the INSPIRE Vocabulary Server. A concept collection is a specific subset of a group of metadata classes belonging to a domain, and it is a component of a group that under a common label. In the NVS, concept collections are represented with controlled vocabularies or terms lists. Each collection is associated with its governance body. An external metadata link is displayed when applicable.

Vocabularies

Sort by: view in table headings | Filter using the search in the right

ID	Title	Website	Version	Description	Governance	External Link
001	NERC Vocabulary Server/Vocabulary 19139	19139	2022-01-28	A catalogue of the metadata classes NVS.VT with root in the NERC Vocabulary Server. Support for the vocabulary will be gradually withdrawn as NVS.VT is replaced by NVS.V2.	British Oceanographic Data Centre	
002	ROCC Parameter Usage Vocabulary 1084	1084	2022-01-24	Parameter names and ROCC parameter names used in the ROCC parameter metadata. May be used to map to terms in other vocabularies or to other ROCC metadata.	British Oceanographic Data Centre	https://vocab.nercc.gov.uk/vocab/1084
017	IGES Platform Codes	982	2022-01-20	Identifies and measures for various business combinations of terms and phrases across such as their application.	International Council for the Exploration of the Sea	
022	SeaPAR Device Catalogue	814	2022-01-20	Terms for devices relating to measuring devices that may be identified in the metadata or other metadata.	SeaPAR and International Vocabulary for Oceanographic Data Centre	https://vocab.nercc.gov.uk/vocab/814
018	ROCC Organisation names	448	2022-01-28	Concepts used to provide information on ROCC metadata elements. Used in conjunction with the ODPN group of terms in the ODPN Vocabulary. MAU/lines provide access to the ROCC metadata. The ODPN group of terms is used to provide information on ROCC metadata. The ODPN group of terms is used to provide information on ROCC metadata.	British Oceanographic Data Centre	



Identification Where When What How Who Where to find the data Cruise/Station Documentation Quality Others

Parameters

Parameter	code list value
* Salinity of the water column	PSAL



Parameters

FVLT - Raw fluorometer output
 RGAS - Raw gas analyser output
 NUTV - Raw in-situ nutrient analyser output
 LVLT - Raw light meter output
 OXYC - Raw oxygen sensor output
 PHLT - Raw pH sensor output
 TVLT - Raw suspended particulate material concentration sensor output
 TCNT - Raw temperature and/or salinity instrument output
 RPOT - Redox potential in sediment
 IS4R - Reduction rates in bed sediments
 ACYC - Reference numbers
 AMUP - Regenerated production in water bodies
 GP068 - Reptile abundance
 GP067 - Reptile disease and parasites
 GP069 - Reptile reproduction
 RVDS - River flow and discharge
 RAGE - Rock age
 RALT - Rock alteration
 ROGS - Rock grain size
 RPER - Rock porosity and permeability
 RTCO - Rock thermal conductivity
 PSAL - Salinity of the water column

SALINITY

Name * Salinity of the water column

Code P02 * PSAL

```

<pre>
</pre>

```

Add

Ok

NEW SEARCH | SEARCH | RESET

Free search [SEARCH] [ADVANCED SEARCH]

Geographic search North | West | East | South | Search within bounding box

Sea regions Search

- Arctic Ocean
- Asian mainland
- Atlantic Ocean
- Baltic Sea
- European mainland
- Indian Ocean
- Mediterranean Region
- Pacific Ocean

Date search From To

Parameters Search Discipline (P08)

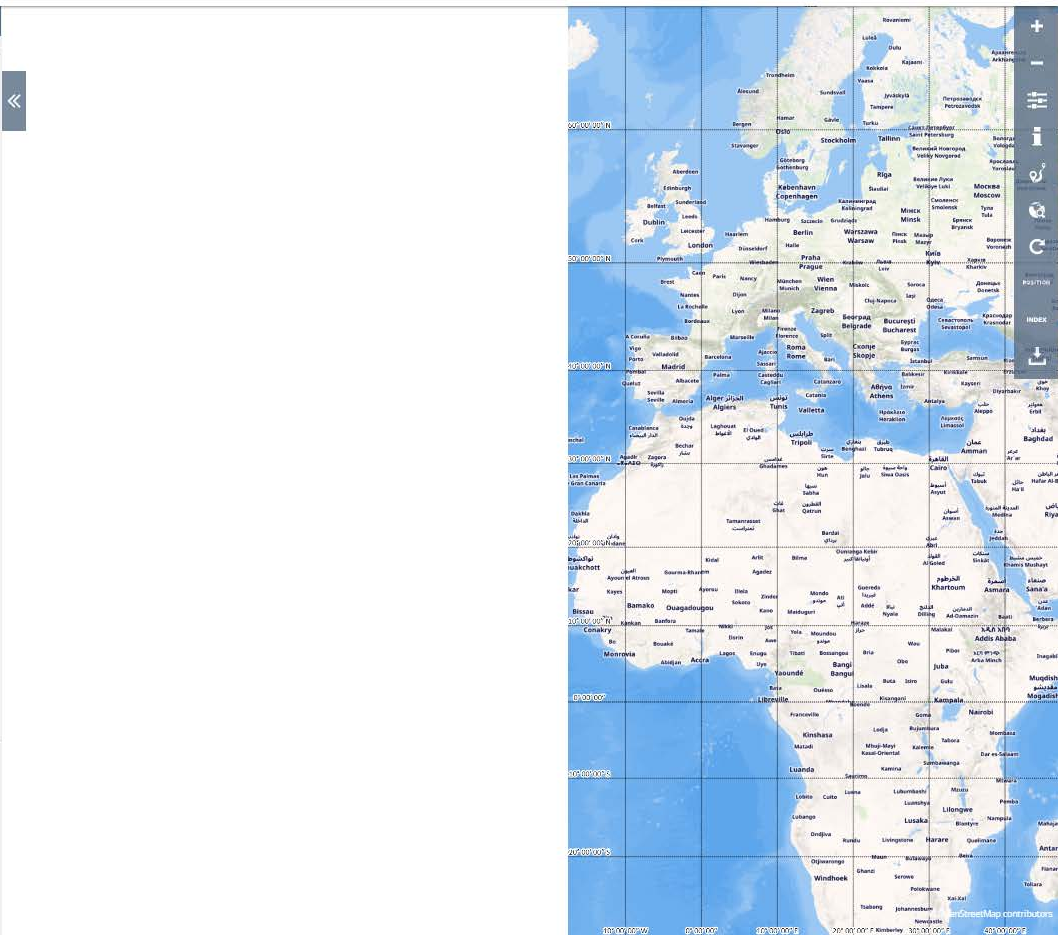
- Administration and dimensions
- Atmosphere
- Biological oceanography
- Chemical oceanography

Search Parameter Group (P03)

- Acoustics
- Administration and dimensions
- Atmospheric chemistry
- Bacteria and viruses

Search Discovery Parameter (P02)

- Acoustic backscatter in the water column
- Acoustic noise in the water column
- Active seismic refraction
- Air pressure



Unique URI pattern

- Collection
 - Pattern: <http://vocab.nerc.ac.uk/collection/{XXX}/current/>
 - Example : <http://vocab.nerc.ac.uk/collection/L22/current/>
- Concept
 - Pattern: <http://vocab.nerc.ac.uk/collection/{XXX}/current/{conceptID}/>
 - Example: <http://vocab.nerc.ac.uk/collection/L22/current/TOOL0690/>

Vocabulary

SeaVoX Device Catalogue

URI	http://vocab.nerc.ac.uk/collection/L22/current/
Description	Terms for distinct sampling or measuring devices that may be identified in the real world in terms of manufacturer and model number.
Creator	SeaDataNet and MarineXML Vocabulary Content Governance Group
Modified	2022-12-01
Version Info	599
Identifier	L22
Register Manager	British Oceanographic Data Centre
Register Owner	SeaDataNet and MarineXML Vocabulary Content Governance Group
See Also	https://github.com/nvs-vocabs/L22
License	https://creativecommons.org/licenses/by/4.0/

Concept

ASL Environmental Sciences Shallow Water Ice Profiler

URI	http://vocab.nerc.ac.uk/collection/L22/current/TOOL1250/	
Within Vocab	SeaVoX Device Catalogue	
Alternative Labels	ASL SWIP	
Definition	An upward-looking sonar device which can be mounted on lake, river or ocean floors to measure ice draft for monitoring of ice dynamics in shallow water environments. Ice thickness is measured in real-time using an acoustic transducer, tilt sensor, high-precision pressure sensor and temperature sensor, all providing suitably high resolution for shallow water measurements. The instrument can be operated in an internal recording mode with a connection to an underwater battery pack for power, or with RS-422 serial output for real-time operation using an underwater cable which also allows for external power. The SWIP has a storage capacity up to 16 Gb, an operating frequency of either 542 kHz (standard) or 235 kHz (optional), a half-beam width of 3 degrees (standard) or 5.5 degrees (optional), a sampling rate of up to 2 Hz, and a maximum range of 20 metres. The tilt sensor has a range -20 to +20 degrees, an accuracy -0.5 to +0.5 and a precision of 0.01 degrees.	
Date	2018-07-31T10:42:08	
Identifier	SDN:L22::TOOL1250	
Note	accepted	
Has Current Version	1	
version	1	
inScheme	http://vocab.nerc.ac.uk/scheme/SDNDEV/current/	
Broader	L19:SDNKG17	sensor_model
	L05:ICEP	ice thickness profilers
Related	B75:ORG00454	ASL Environmental Sciences

Concept version

Pattern: <http://vocab.nerc.ac.uk/collection/{XXX}/current/{YYYY}/{version}>

Example: <http://vocab.nerc.ac.uk/collection/P06/current/UUUU/2/>

- URIs are not deleted
- URIs are deprecated

Concept

Bacteria generic abundance in water bodies

URI	http://vocab.nerc.ac.uk/collection/P02/current/BNTX/
Within Vocab	SeaDataNet Parameter Discovery Vocabulary
Alternative Labels	BactGenAbundWater
Definition	Any enumeration of bacteria (Kingdom Monera so includes cyanobacteria) designated by terms other than taxonomic names (e.g. total) in any body of fresh or salt water.
Date	2010-10-22T10:06:41
Identifier	SDN:P02::BNTX
Note	accepted
Has Current Version	3
Version	1, 2
version	3
inScheme	http://vocab.nerc.ac.uk/scheme/EDMED_DCAT_THEMES/current/
Broader	P05:002 biota D01:00100001 Parameters P22:32 Species distribution L19:005 theme

Concept **DEPRECATED**

11TH Pjatiletka

URI	http://vocab.nerc.ac.uk/collection/C17/current/90UW/
Within Vocab	ICES Platform Codes
Alternative Labels	
Definition	OCL REQUEST
Date	2012-02-07T09:42:36
Identifier	SDN:C17::90UW
Note	deprecated
Has Current Version	2
Version	1
isReplacedBy	Unknown
version	2

Mapping

Pattern: <https://vocab.nerc.ac.uk/mapping/I/{XXXX}/>

Pattern: <https://vocab.nerc.ac.uk/mapping/E/{XXXX}/>

Example: <https://vocab.nerc.ac.uk/mapping/I/191265/>

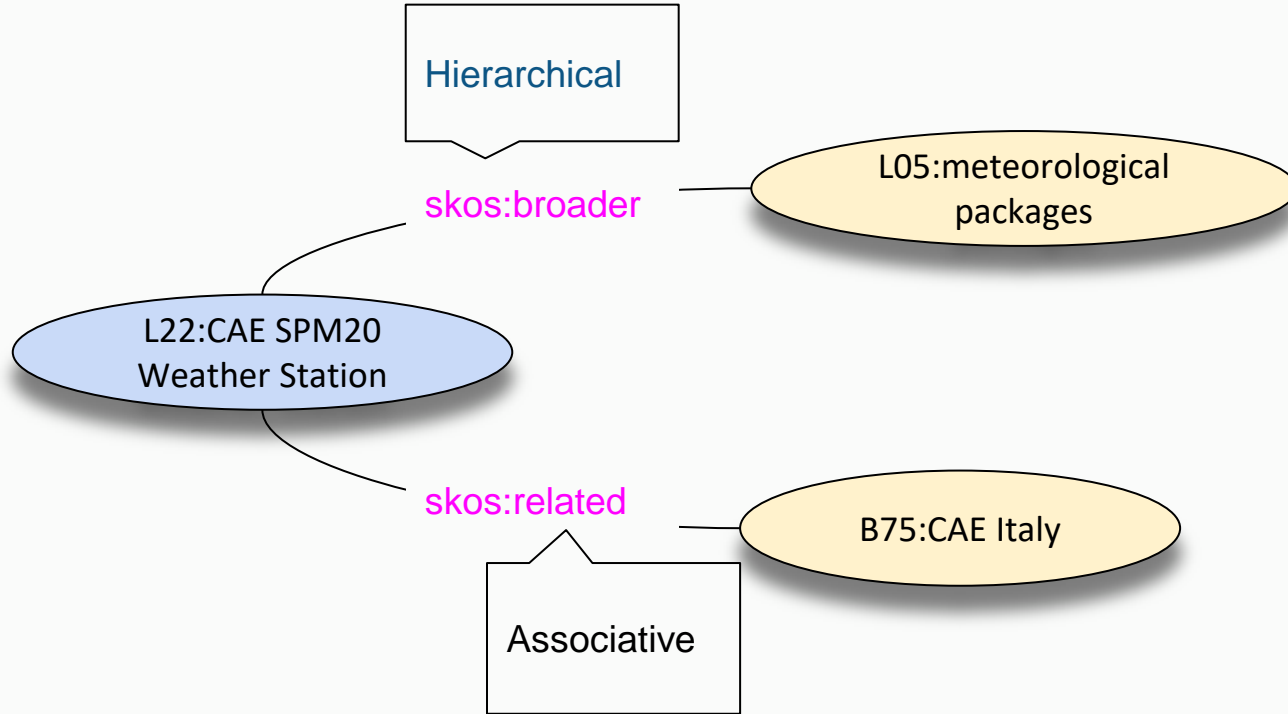
Mapping

An RDF mapping statement

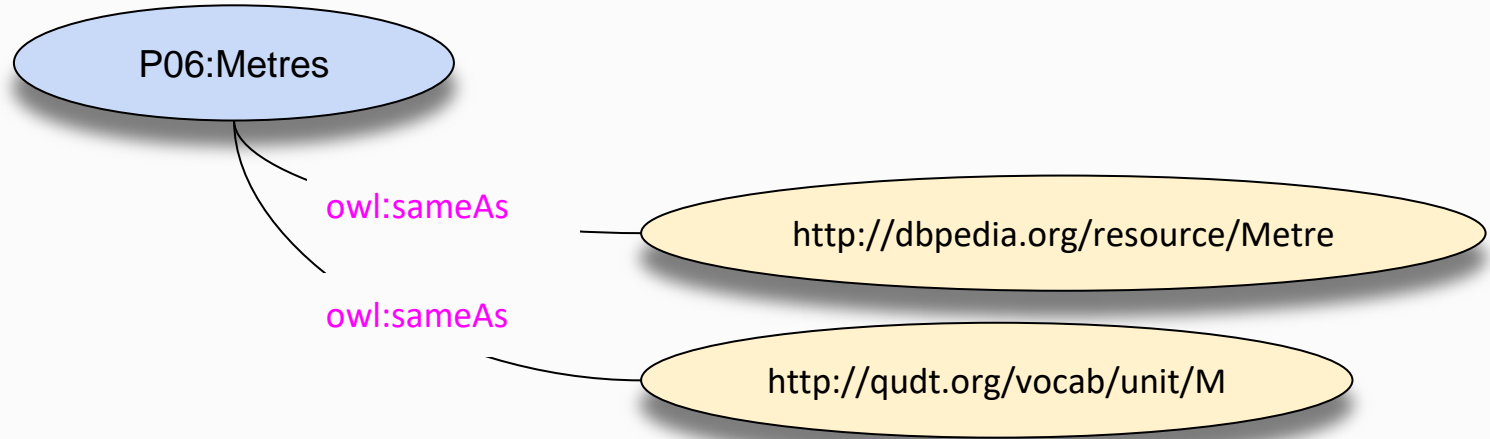
URI	http://vocab.nerc.ac.uk/mapping/I/502196/
Subject	http://vocab.nerc.ac.uk/collection/P02/current/CHUM/
Predicate	sameAs
Object	http://vocab.nerc.ac.uk/collection/P64/current/G239/
Modified	2013-12-18 10:12:31
Status	Valid
Submitter	Dr Adam Leadbetter BOD

Semantic relations

skos: = <http://www.w3.org/2004/02/skos/core#>
L05: = <https://vocab.nerc.ac.uk/collection/L05/current/>
L22: = <https://vocab.nerc.ac.uk/collection/L22/current/>
B75: = <https://vocab.nerc.ac.uk/collection/B75/current/>



NVS external mappings



skos: = <http://www.w3.org/2004/02/skos/core#>

owl: = <http://www.w3.org/2002/07/owl#>

P06: = <https://vocab.nerc.ac.uk/collection/P06/current/>

Mapping

Pattern: <https://vocab.nerc.ac.uk/mapping/I/{XXXX}/>

Pattern: <https://vocab.nerc.ac.uk/mapping/E/{XXXX}/>

Example: <https://vocab.nerc.ac.uk/mapping/I/191265/>

Mapping

An RDF mapping statement

URI	http://vocab.nerc.ac.uk/mapping/I/502196/
Subject	http://vocab.nerc.ac.uk/collection/P02/current/CHUM/
Predicate	sameAs
Object	http://vocab.nerc.ac.uk/collection/P64/current/G239/
Modified	2013-12-18 10:12:31
Status	Valid
Submitter	Dr Adam Leadbetter BOD

Unique URI patterns

- Thesauri
 - **Pattern:** <http://vocab.nerc.ac.uk/scheme/{XXX}/current/>
 - **Example :** <http://vocab.nerc.ac.uk/scheme/SDNDEV/current/>

SeaDataNet Device Thesaurus

URI	http://vocab.nerc.ac.uk/scheme/SDNDEV/current/
Description	A thesarus comprising categorisations of devices (sensors, instrument packages and sample collectors) developed by SeaDataNet mapped to a catalogue of specific devices maintained by SeaVoX.
Creator	SeaDataNet
Modified	2022-12-01
Version Info	525
Identifier	SDNDEV

Concept Hierarchy

expand all, click '+' to expand individually

- + SeaDataNet sample collector categories
- SeaDataNet sample processor categories
 - benthic incubation chambers
 - shipboard incubators
 - in-situ incubators
 - centrifuges
- + sieves and filters
 - bioreactors and chemostats
- + equilibrators
 - thermal cyclers
 - Applied Biosystems ABI PRISM 7000 Sequence Detection System
 - labelling tags
- + SeaDataNet sample measurer categories
- + SeaDataNet in-situ sensor and instrument package categories
- + SeaDataNet remote sensor categories
- + SeaDataNet positioning system categories
- + SeaDataNet seismic source types
- + SeaDataNet numerical model categories



The NERC Vocabulary Server (NVS)

[Service Status](#)

[NVS Home](#) | [Vocabularies](#) | [Thesauri](#) | [Search NVS](#) | [SPARQL](#) | [Other Tools](#) | [About NVS](#)

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 ↑
C30	Active vocabulary content governance authorities	36	2022-11-08	Bodies responsible for the intellectual control of vocabularies served by the NDG/SeaDataNet vocabulary server.	British Oceanographic Data Centre	
C34	Activity purpose categories	4	2011-08-27	Terms used to specify why an activity was undertaken.	SeaDataNet	
R20	Argo GROUNDED flags	2	2021-02-09	Codes to indicate the best estimate of whether the float touched the ground during a specific cycle	Argo Data Management Team	https://github.com/nvs-vocabs/R20
				Flag code for values in all STATUS	Argo Data	https://github.com/nvs

What can you find in NVS

What you can find

- **What was observed**

- Observable properties in different levels of granularity
 - **Climate and Forecast Standard Names**
 - <https://vocab.nerc.ac.uk/collection/P07/current/>
 - BODC Parameter Usage Vocabulary
 - <https://vocab.nerc.ac.uk/collection/P01/current/>
 - Humans better use: https://vocab.nerc.ac.uk/search_nvs/P01/
 - P01 follows a semantic model explained: <https://github.com/nvs-vocabs/P01>
- **Discovery parameters**
- Terms describing fine-grained related groups of measurement phenomena designed to be used in dataset discovery interfaces.
 - <http://vocab.nerc.ac.uk/collection/P02/current/>
- **SeaDataNet Agreed Parameter Groups**
 - <http://vocab.nerc.ac.uk/collection/P03/current/>
- **Units of measure**
 - <https://vocab.nerc.ac.uk/collection/P06/current/>

How the observation was made

- **Instruments**
 - <http://vocab.nerc.ac.uk/collection/L22/current/>
- **Instrument categories**
 - <https://vocab.nerc.ac.uk/collection/L05/current/>
- **SeaDataNet device category types**
 - <https://vocab.nerc.ac.uk/collection/L21/current/>
- **SeaVoX Platform Categories**
 - <https://vocab.nerc.ac.uk/collection/L06/current/>
- **ICES Platform Instances**
 - <http://vocab.nerc.ac.uk/collection/C17/current/>
- **SeaDataNet Device Thesaurus**
 - <http://vocab.nerc.ac.uk/scheme/SDNDEV/current/>

Where

- **SeaVoX salt and fresh water body gazetteer**
 - <http://vocab.nerc.ac.uk/collection/C19/current/>
- **International Standards Organisation countries**
 - <http://vocab.nerc.ac.uk/collection/C32/current/>
- **SeaDataNet geographic co-ordinate reference frames**
 - <https://vocab.nerc.ac.uk/collection/L10/current/>
- **SeaDataNet depth measurement reference planes**
 - Terms used to describe the zero point for vertical co-ordinate reference systems (datums).
 - <https://vocab.nerc.ac.uk/collection/L11/current/>

Who (made the observation)

- Who manufactured the instrument
 - **SenseOcean device developers and manufacturers**
 - <https://vocab.nerc.ac.uk/collection/L35/current/>
 - BODC Organisations
 - <https://vocab.nerc.ac.uk/collection/B75/current/>
 - ROR
 - <https://ror.org/>
 - EDMO
 - <https://edmo.seadatanet.org/search>



SeaDataNet

PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

Training course – Ostende – 2-6 July 2012



MIKADO and SDN vocabulary lists (2)

List code	List Name	List code	List Name
C16	SeaDataNet Sea Areas	L061	SeaDataNet Platform Classes
C77	ICES ROSCOP data types	L071	SeaDataNet data access mechanisms
C174	SeaDataNet CSR ship metadata	L081	SeaDataNet Data Access Restriction Policies
C320	ISO countries	L101	SeaDataNet geographic co-ordinate reference frames
C371	Ten-degree Marsden Squares	L111	Height and Depth Vertical Co-ordinate Reference Datum
C381	Ports Gazetteer	L181	ROSCOP sample quantification units
L05	SeaDataNet device categories	L231	SeaDataNet metadata entities
L021	SeaDataNet Geospatial Feature Types	L241	SeaDataNet data transport formats
L031	SeaDataNet Measurement Periodicity Classes	P021	BODC Parameter Discovery Vocabulary
EDMERP	European marine projects	P081	SeaDataNet Parameter Disciplines
EDMO	European marine organisation		

sdn-userdesk@seadatanet.org – www.seadatanet.org

NVS-Governance

-Creator

-Register Owner

Argo Data Management Team

Baltic Marine Environment Protection Commission

Bonn Agreement

British Oceanographic Data Centre

Centre de documentation de recherche et d'expérimentations sur les pollutions accidentelles des eaux

Climate and Forecast Standard Names Committee

Coastal and Marine resources Centre

EMODNet Chemistry Lot

European Commission

European Environment Agency

Geo-Seas

Global Change Master Directory

International Coastal Atlas Network

International Council for the Exploration of the Sea

International Oceanographic Commission

International Organization for Standardization

Joint Nature Conservation Committee

MEDIN Standards Group

METEO FRANCE

Marine Flow Cytometry Vocabulary Governance

Max Planck Institute of Animal Behavior

NETMAR Ontology Governance Group

National Aeronautics and Space Administration

Natural Environment Research Council

Nippon Foundation-GEBCO Seabed 2030 Project Team

ODATIS vocabulary governance

OSPAR Commission

Ocean Biogeographic Information System

OceanGliders Data Management Task Team

Oregon State Coastal Management Program

Partnership for Observation of the Global Oceans

Ramsar Convention on Wetlands vocabulary governance

SeaDataNet

SeaDataNet and MarineXML Vocabulary Content Governance Group

Sensor Web Enablement Marine Profiles

Systèmes d'Informations Scientifiques pour la Mer


The Crown Estate

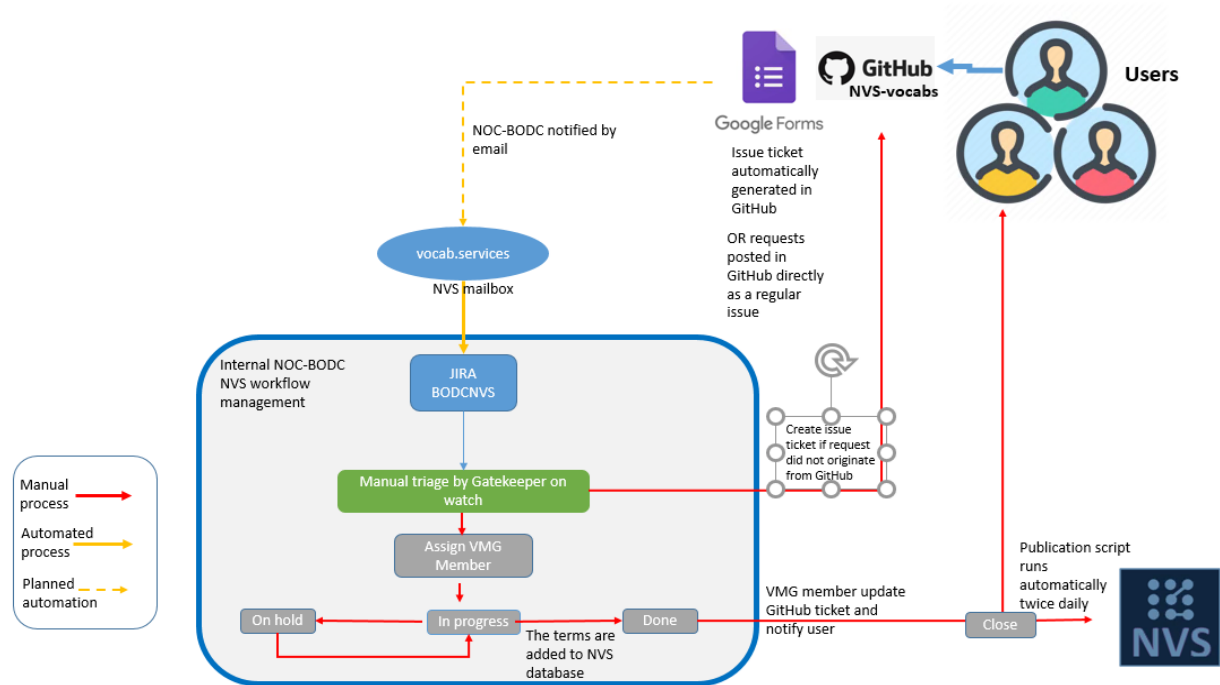
UK Polar Data Centre

University of Wisconsin Sea Grant Institute

World Meteorological Organisation

Procedure for requesting new terms

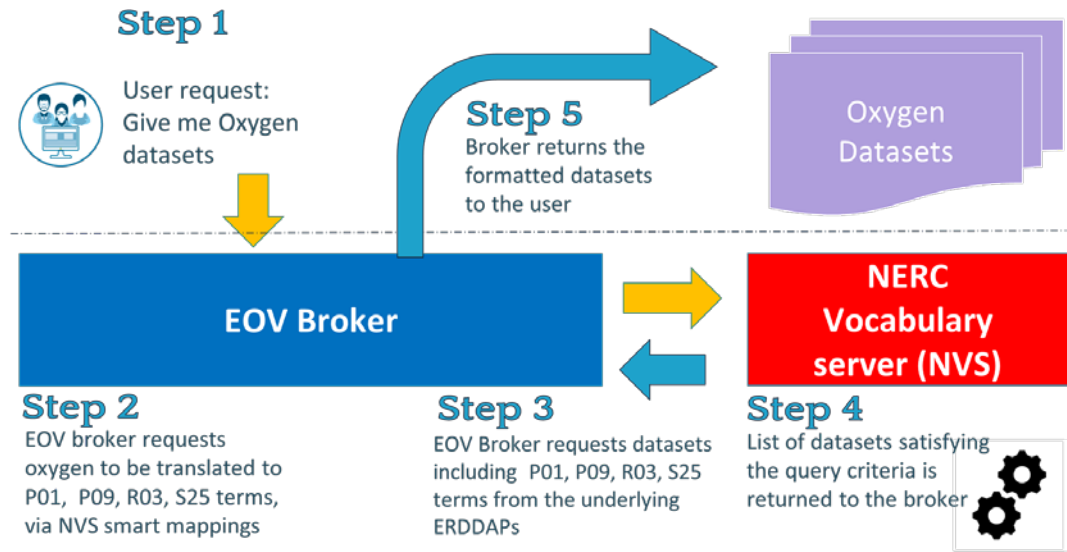
1. <https://github.com/nvs-vocabs/{ID}> where ID is the collection ID
e.g. L22: <https://github.com/nvs-vocabs/L22>
2. vocab.services@bodc.ac.uk
3.  Vocab Editor



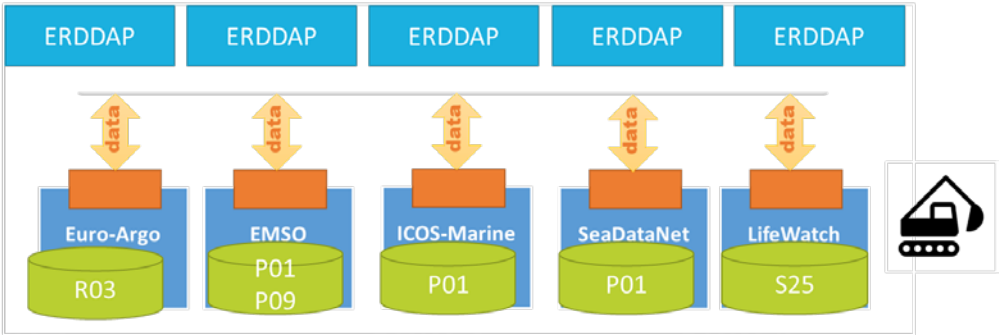


The EOVS demonstrator

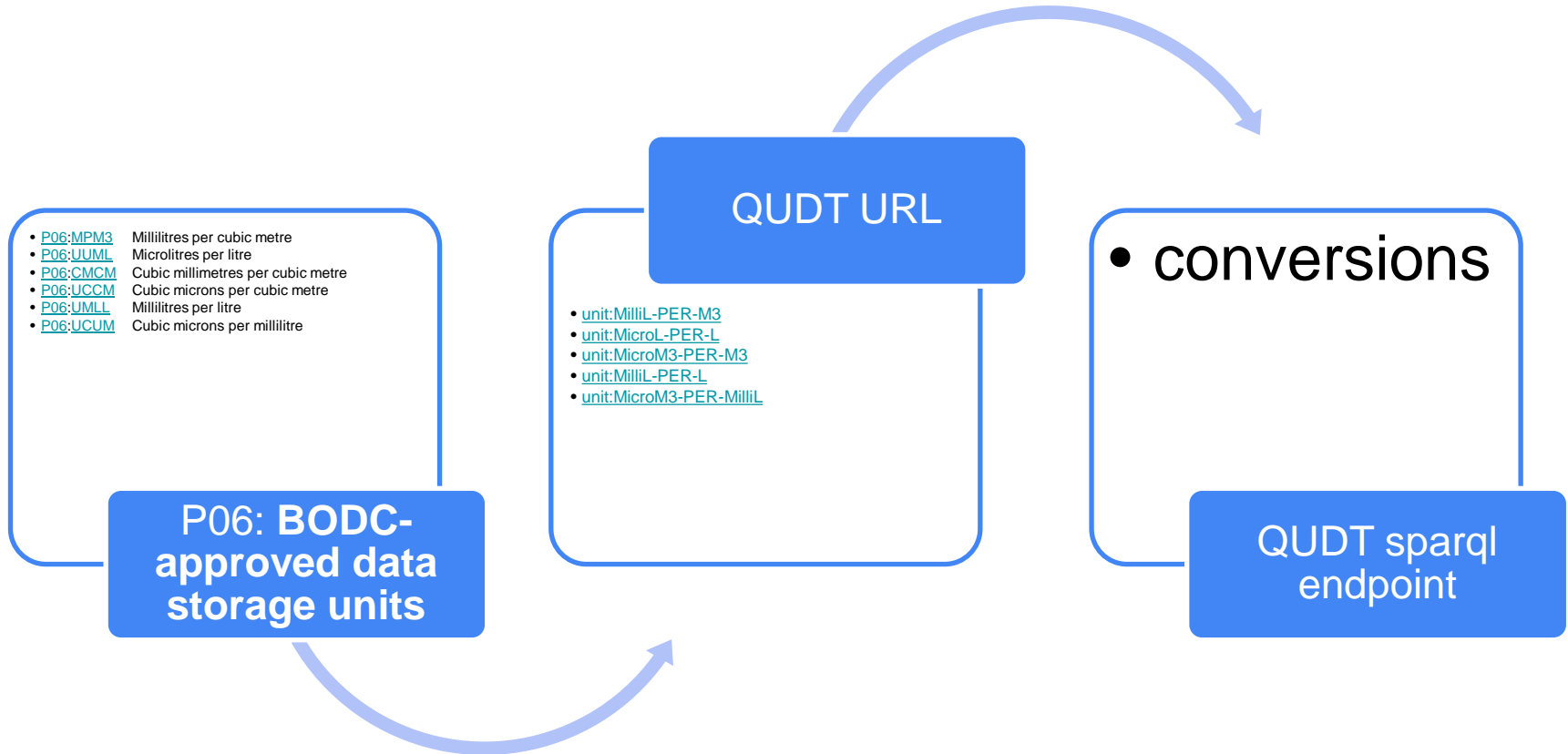
iadopt
Smart mappings



Find all the datasets that observe what is defined to be EOVS oxygen



Unit conversions for EOSC Future –Linked Data pleasureland

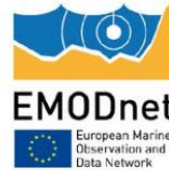


Terminology proliferation

Driven by e.g.:

- Disconnection of activities
- Regional variations
- Pressure to deliver

Build on what already exists,
create links between resources
and fill the gaps but avoid
duplication of effort.



Beach Litter guidelines

It is possible to report beach litter items using the following reference lists:

Code	Description
UNEP	UNEP Litter Reference List
OSPAR	OSPAR Guidelines on Survey and Monitoring of Marine Litter on the Beaches in the OSPAR Maritime Area
TSG_ML	TSG_ML MSFD Technical Guidelines on Monitoring Marine Litter in European Seas
UNEP_MARLIN	UNEP reference list adapted for the project Marlin - litter monitoring in the Baltic marine Litter
OSPAR_1000	OSPAR reference list for 1000 m surveillance of the Beaches in the OSPAR Maritime Area
BAL	Baseline Aggregated List to aggregate items used in the Baseline Assessment of Marine Litter
ITA	ITALIAN reference list according to the monitoring program of the Italian Ministry of Environment (Programmi di Monitoraggio della Strategia Marina Art. 11, D.lgs. 190/2010)



Global Partnership
on Marine Litter

<http://www.emodnet-chemistry.eu/lists/beach#ItemsReferenceLists>