



Dealing with data and metadata

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IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-
Mission 4 “Education and Research” - Component 2: “From research to business” - Investment
3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”



Outline of topics covered:

- 🌐 Metadata in SeaDataNet/EMODnet directories
- 🌐 Metadata format for reporting on cruises (Cruise Summary Report- CSR), datasets (European Directory of Marine Environmental Data sets EDMED), projects (EDMERP) and organizations (EDMO).
- 🌐 Common Data Index (CDI): SeaDataNet metadata content standard (<https://www.seadatanet.org/Metadata/CDI-Common-Data-Index>)
- 🌐 SeaDataNet NVS controlled vocabularies (for metadata and data)
- 🌐 Data submission in the EMODnet Ingestion Workflow (phases for data submitters , metadata, and NODC processing).

A **DATA** is an objective and uninterpreted representation of reality.

18.2 [GIVEN]

Source: Polytechnic University of Milan

Metadata : is data that describes some property of another data.

18.2 [GIVEN]

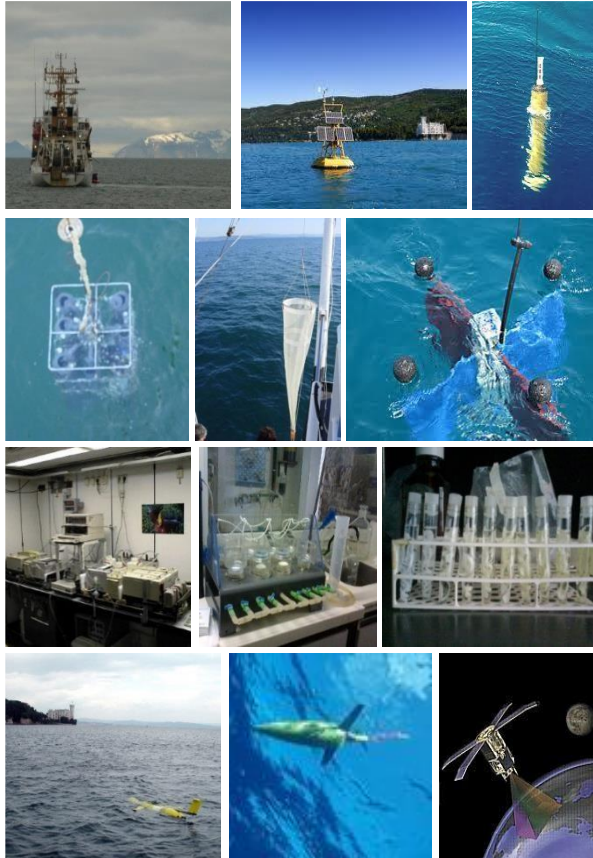


[METADATA]

OGS – CTD – T°-2013/02/02- 45.69/13.70

Complexity of information

Multiplicity of oceanographic data



The data processed are

- of different disciplines,
- on different matrices,
- acquired with different tools and methodologies,
- at different spatial and temporal resolution.

Specific procedures are developed to manage and distribute data with the help of metadata.

Metadata in SeaDataNet: Project Overview



Access to marine data is **vital** for marine research and is a key issue for a variety of studies, from climate change prediction to offshore engineering .

The marine observation system is highly fragmented.

is collected using **various sensors** on board research vessels, submarines, fixed and drifting platforms, aircraft and satellites, to measure physical, geophysical, geological, biological and chemical parameters, biological species etc. The data collected are not easily **accessible** or **standardized** . They are not always validated and their security and availability must be ensured in the future.

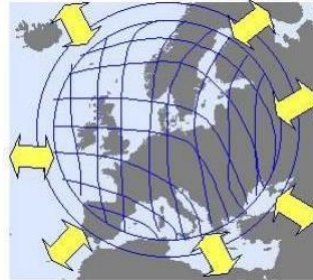
Therefore SeaDataNet is **a standardized infrastructure** for the management of large and diverse data sets collected by oceanographic fleets and automatic observation systems. The SeaDataNet infrastructure network enhances the currently existing infrastructures, which are the **national oceanographic data centers** , active in data collection.

The network of these professional data centers provides integrated data sets of standardized quality online.

Metadata in SeaDataNet: Project Overview



Medar/MedAtlas
90's



EuroNODIM (FP3)
1998-2001



Sea-Search (FP5)
2002-2005



SeaDataNet (FP6)
2006-2011



SeaDataNet 2 (FP7)
2011-2015



SeaDataCloud (H2020)
2016-2020

The SeaDataNet infrastructure was implemented during the [SeaDataNet project](#) (2006-2011), Sixth Framework Programme of the EU.

The second phase, the [SeaDataNet 2 project](#) (2011-2015), EU Seventh Framework Programme, upgraded the SeaDataNet infrastructure into a pan-European infrastructure.

The SeaDataCloud project (2016-2020), an EU H2020 programme, aims to significantly advance SeaDataNet services and increase their use by adopting cloud technology.

Metadata in SeaDataNet: Project Overview



SeaDataNet connects **over 100 data centers** with the goal of **preserving** and **reusing** marine observations ranging from ocean physics to chemistry and biology.

The infrastructure provides up-to-date, high-quality **access** to ocean and marine metadata, data and data products through: the adoption and promotion of **standards** data management **commons**, the realization of technical and semantic interoperability with other data management systems and initiatives.

Online access to data, metadata and in situ products is provided through a **single portal** that interconnects interoperable node platforms consisting of SeaDataNet data centres.

The development and adoption of common standards and adapted technologies ensure **the interoperability** of the platforms. The quality, compatibility and coherence of data from so many sources are ensured by the adoption of standardized methodologies for **data control**, dedicating part of the activities to the formation and preparation of regional and global statistical **products** synthesized from the most complete in situ datasets made available by SeaDataNet partners.

The data, value-added products and dictionaries are widely **used**: for example in research, modelling, industrial projects, teaching and marine environmental assessment.

The European landscape in terms of marine data management is well established and is based on three main components: SeaDataNet, EMODnet and Copernicus CMEMS

Metadata in SeaDataNet: Project Overview

SeaDataCloud is undertaken by a large and ambitious **consortium** of 56 partners and 5 subcontractors from 32 countries, bordering the European seas plus Australia, including 43 data centers and 18 international institutes or bodies bringing additional expertise in IT, INSPIRE, OGC, ISO, W3C standards, cloud and HPC facilities.

The main partners are the **National Oceanographic Data Centres** and the marine data centres of the major marine research institutes that have created and operate the current SeaDataNet infrastructure for marine and ocean data management. They are highly qualified and actively engaged for decades in ocean and marine data management for in situ and remote sensing data for oceans, marine and coastal waters.



SeaDataNet standards

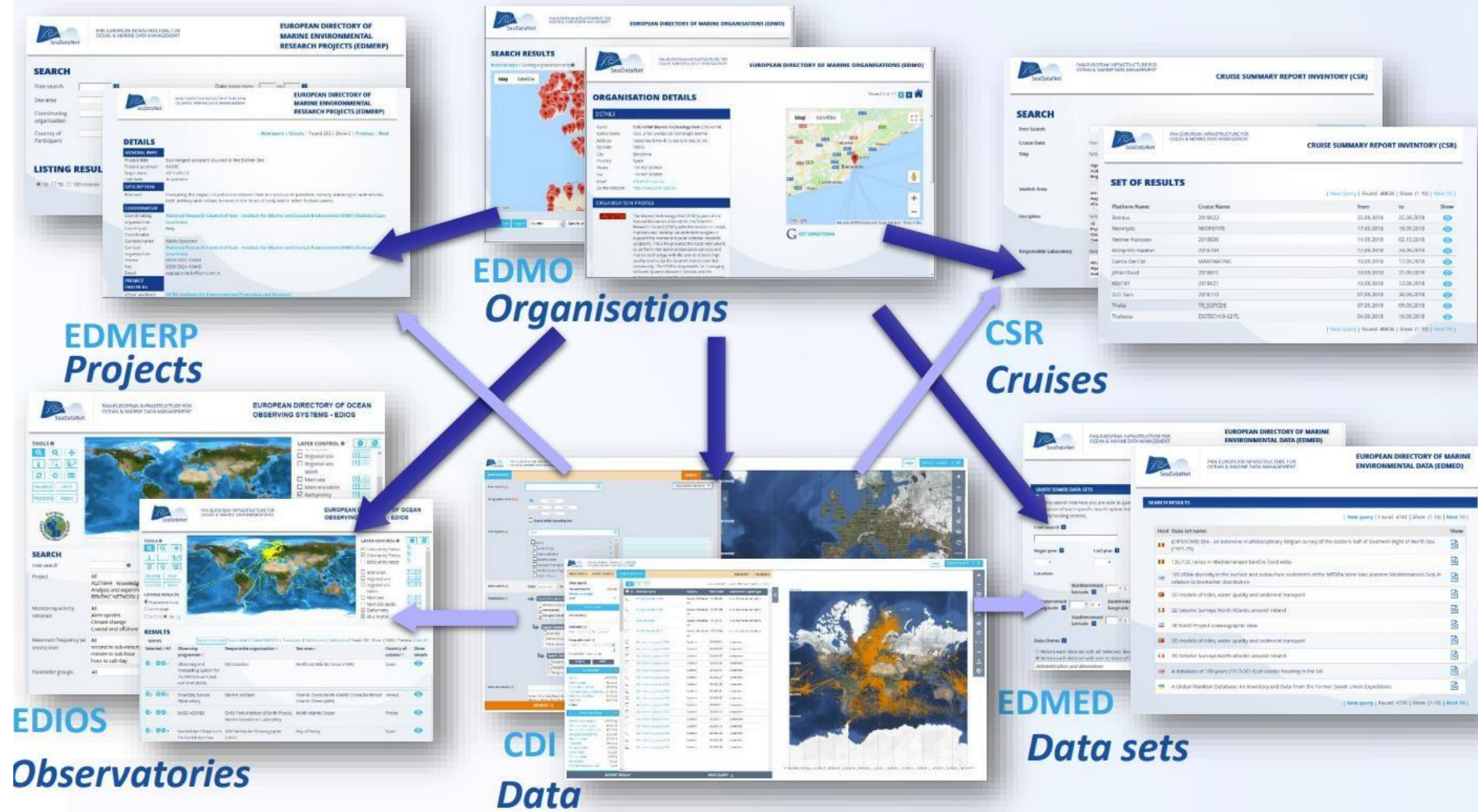
- Common **standards** for the marine domain, adapting ISO and OGC standards and achieving INSPIRE compliance.
 - Metadata **formats** for datasets, research cruises, monitoring networks, organizations and research projects
- exchange** formats : ODV ASCII and NetCDF (CF), fully supported by controlled vocabularies
- Controlled **vocabularies** for the marine domain (>90,000 terms in over 110 lists), with international governance and web services
 - Maintenance and dissemination of standard QA-QC **procedures** , together with IOC/IODE and ICES



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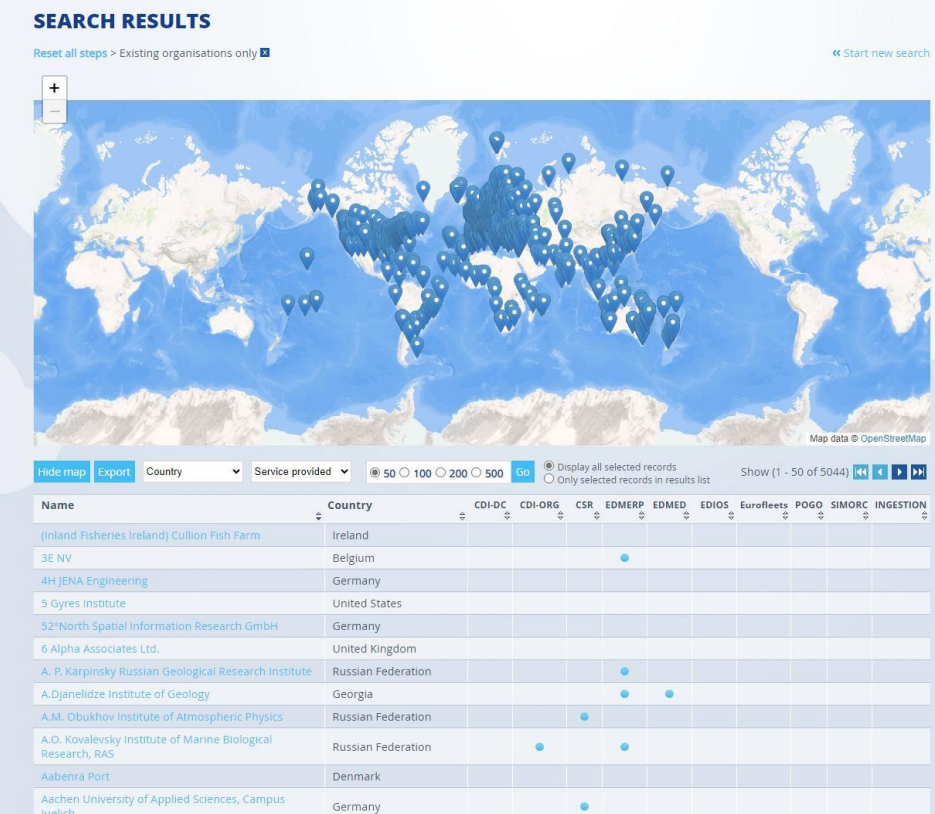
SeaDataNet metadata directories



Metadata in SeaDataNet: EDMO - Marine Research Organizations

EDMO contains up-to-date addresses and activity profiles of **research institutes**, data storage centers, monitoring agencies, government and private organizations, which are in one way or another engaged in oceanographic and marine research, data and information management and/or data acquisition activities. Currently, EDMO lists and describes 4,000 organizations.

The **interface** allows you to search based on a set of criteria, including a geographic box on a map. The selected organizations are **listed** and displayed on the map. Clicking on the organization name retrieves its address and profile. Where applicable, the listing and address page indicate via **icons** the organization's engagement in any of the other SeaDataNet metadata services and/or Data Access Service (CDI) via icons. Clicking on an icon retrieves associated entries from the selected directory.



SEARCH RESULTS
 Reset all steps > Existing organisations only ← Start new search

Map data © OpenStreetMap

Hide map | Export | Country: [v] | Service provided: [v] | 50 100 200 500 | Go | Display all selected records Only selected records in results list | Show (1 - 50 of 5044) | [left] [right]

Name	Country	CDI-DC	CDI-ORG	CSR	EDMERP	EDMED	EDIOS	Eurofleets	POGO	SIMORC	INGESTION
(Inland Fisheries Ireland) Cullion Fish Farm	Ireland										
3E NV	Belgium					•					
4H JENA Engineering	Germany										
5 Gyres Institute	United States										
52°North Spatial Information Research GmbH	Germany										
6 Alpha Associates Ltd.	United Kingdom										
A. P. Karpinsky Russian Geological Research Institute	Russian Federation					•					
A. Djanelidze Institute of Geology	Georgia					•	•				
A.M. Obukhov Institute of Atmospheric Physics	Russian Federation				•						
A.O. Kovalevsky Institute of Marine Biological Research, RAS	Russian Federation		•		•						
Aabenraa Port	Denmark										
Aachen University of Applied Sciences, Campus Juelich	Germany				•						

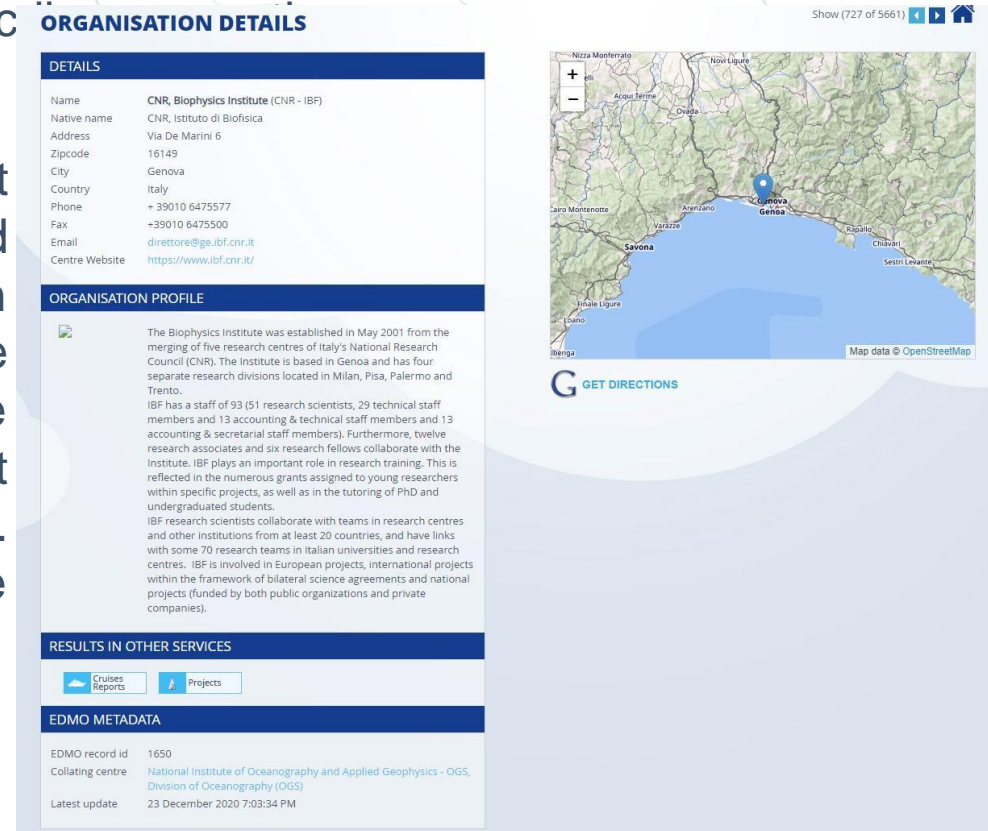
<https://edmo.seadatanet.org/search>

Metadata in SeaDataNet: EDMO - Marine Research Organizations

EDMO contains up-to-date addresses and activity profiles of **research institutes**, data storage centers, monitoring agencies, government and private organizations, which are in one way or another engaged in oceanographic and marine research, data and information management and/or data acquisition activities. Currently, EDMO lists and describes 4,000 organizations.

The HTML query interface allows you to search based on a set of criteria, including a geographic box on a map. The selected organizations are listed and displayed on the map. Clicking on the organization name retrieves its address and profile. Where applicable, the listing and address page indicate via icons the organization's engagement in any of the other SeaDataNet metadata services and/or Data Access Service (CDI) via icons. Clicking on an icon retrieves the associated entries from the selected directory.

<https://edmo.seadatanet.org/search>



ORGANISATION DETAILS

DETAILS

Name	CNR, Biophysics Institute (CNR - IBF)
Native name	CNR, Istituto di Biofisica
Address	Via De Marini 6
Zipcode	16149
City	Genova
Country	Italy
Phone	+ 39010 6475577
Fax	+39010 6475500
Email	direttore@ge.ibf.cnr.it
Centre Website	https://www.ibf.cnr.it/

ORGANISATION PROFILE

The Biophysics Institute was established in May 2001 from the merging of five research centres of Italy's National Research Council (CNR). The Institute is based in Genoa and has four separate research divisions located in Milan, Pisa, Palermo and Trento. IBF has a staff of 93 (51 research scientists, 29 technical staff members and 13 accounting & technical staff members and 13 accounting & secretarial staff members). Furthermore, twelve research associates and six research fellows collaborate with the Institute. IBF plays an important role in research training. This is reflected in the numerous grants assigned to young researchers within specific projects, as well as in the tutoring of PhD and undergraduate students. IBF research scientists collaborate with teams in research centres and other institutions from at least 20 countries, and have links with some 70 research teams in Italian universities and research centres. IBF is involved in European projects, international projects within the framework of bilateral science agreements and national projects (funded by both public organizations and private companies).

RESULTS IN OTHER SERVICES

[Cruises Reports](#) [Projects](#)

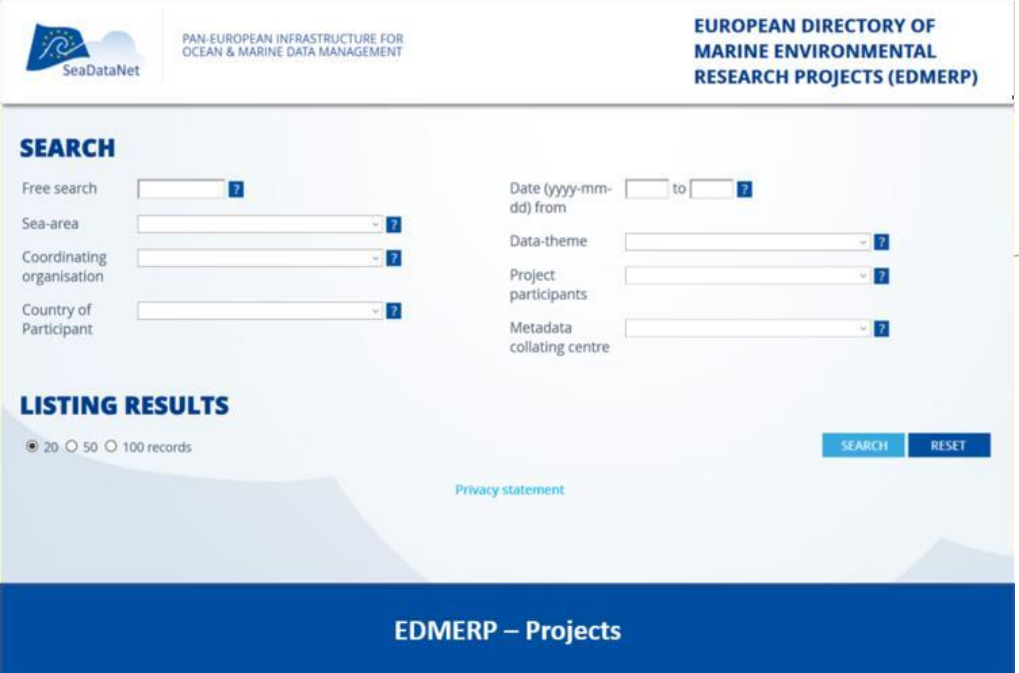
EDMO METADATA

EDMO record id	1650
Collating centre	National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography (OGS)
Latest update	23 December 2020 7:03:34 PM

Metadata in SeaDataNet: EDMERP - Marine Research Projects

EDMERP covers marine research **projects for a wide range of disciplines, including marine meteorology; physical, chemical and biological oceanography; sedimentology; marine biology and fisheries; environmental quality; coastal and estuarine studies; marine geology and geophysics etc. Research projects are described as metadata factsheets** with their most relevant aspects. The main goal is **to support users** in identifying interesting research activities and in connecting them with research managers and involved organisations across Europe. Currently, EDMERP describes around 3,000 research projects from organisations across Europe.

The interface allows you to search based on a set of criteria. The selected research projects are then listed. The list can be sorted by a number of key fields. Clicking on the view icon retrieves the full description of the research project.



The screenshot shows the search interface for the European Directory of Marine Environmental Research Projects (EDMERP). The header includes the SeaDataNet logo, the text 'PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT', and the title 'EUROPEAN DIRECTORY OF MARINE ENVIRONMENTAL RESEARCH PROJECTS (EDMERP)'. The search section contains several input fields: 'Free search' with a text box and a magnifying glass icon; 'Sea-area', 'Coordinating organisation', and 'Country of Participant' with dropdown menus; 'Date (yyyy-mm-dd) from' with two text boxes and a magnifying glass icon; 'Data-theme', 'Project participants', and 'Metadata collating centre' with dropdown menus. Below the search fields is a 'LISTING RESULTS' section with radio buttons for '20', '50', and '100 records'. At the bottom right of the search area are 'SEARCH' and 'RESET' buttons. A 'Privacy statement' link is located below the search area. The footer of the interface reads 'EDMERP - Projects'.

<https://edmerp.seadatanet.org/search>

Metadata in SeaDataNet: EDMERP - Marine Research Projects

EDMERP covers marine physical, chemical and environmental quality projects are described to support users in identifying and involved organisations from organisations

The query interface criteria. The selected list can be sorted by view icon retrieves project.

<https://edmerp.org>

DETAILS

GENERAL INFO

Project title ITINERIS -Italian Integrated Environmental Research Infrastructures System
 Project acronym ITINERIS
 Project website <https://itineris.cnr.it>
 Begin date 2022-11-01
 End date To present

LOCATION

Sea area (C19) Mediterranean Region

DESCRIPTION

Data-themes (P08) Atmosphere,Biological oceanography,Chemical oceanography,Cross-discipline,Environment,Marine geology,Physical oceanography,Terrestrial

Abstract
 ITINERIS -Italian Integrated Environmental Research Infrastructures System is a project funded by EU - Next Generation EU PNRR-Mission 4 "Education and Research" - Component 2: "From research to business" - Investment 3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures". The project is coordinated by the CNR (Italian National Research Centre). It started in November 2022, and during 30 (+6) months will carry out an ensemble of cross-disciplinary actions across the different environmental sub-domains, with the main aim to build the network of the Italian environmental Research Infrastructures, connect it to the user community and establish access, through the ITINERIS HUB, to the vast array of knowledge, data, analytical tools, and service produced by the participating RIs. The project is articulated in eight Work Packages (WPs), each structured into multiple activities aimed at achieving specific intermediate objectives and delivering planned outcomes. Four vertical WPs focus on the key environmental subdomains: atmosphere (WP4), marine domain (WP5), terrestrial biosphere (WP6), and geosphere (WP7). Within these WPs, the participating Research Infrastructures (RIs) collaborate to harmonize development, ensure interoperability, and standardize methods. WP8 serves as a horizontal, cross-sectorial WP, leveraging capacities developed in WP4-WP7 to foster a cross-disciplinary approach via Virtual Research Environments. WP2 establishes the ITINERIS HUB, serving as a singular access point to comprehensive resources provided by participating RIs, while WP3 develops the ITINERIS Training Programme, coordinating training plans and producing training materials. Finally, WP1 is dedicated to overseeing overall project coordination and management, ensuring alignment with objectives and efficient execution across all activities.

COORDINATOR

Coordinating organisation [National Research Council](#)
 Country of Coordinator Italy
 Contact name Gelsomina Pappalardo
 Contact organisation [National Research Council](#)
 Email sdn-userdesk@seadatanet.org

PROJECT PARTNERS

Other partners [Institute for Environmental Protection and Research](#)
[Istituto Nazionale di Geofisica e Vulcanologia, Geomagnetism, Aeronomy and Environmental Geophysics Department](#)
[National Institute of Nuclear Physics, Catania](#)
[National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography](#)
[Universita' di Firenze, Laboratorio di Ecologia, Dipartimento di Biologia Vegetale](#)
[Universita' di Venezia, Dipartimento di Scienze Ambientali, Sezione Geo-Mineralogica](#)

EDMERP METADATA

Edmerp id 13774
 Collating centre [National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography](#)
 Latest update 2024-07-09

es, including marine meteorology; marine biology and fisheries; and geophysics etc. Research aspects. The main goal is to bring them with research managers around 3,000 research projects

EUROPEAN DIRECTORY OF MARINE ENVIRONMENTAL RESEARCH PROJECTS (EDMERP)

SEARCH RESET

EDMERP – Projects

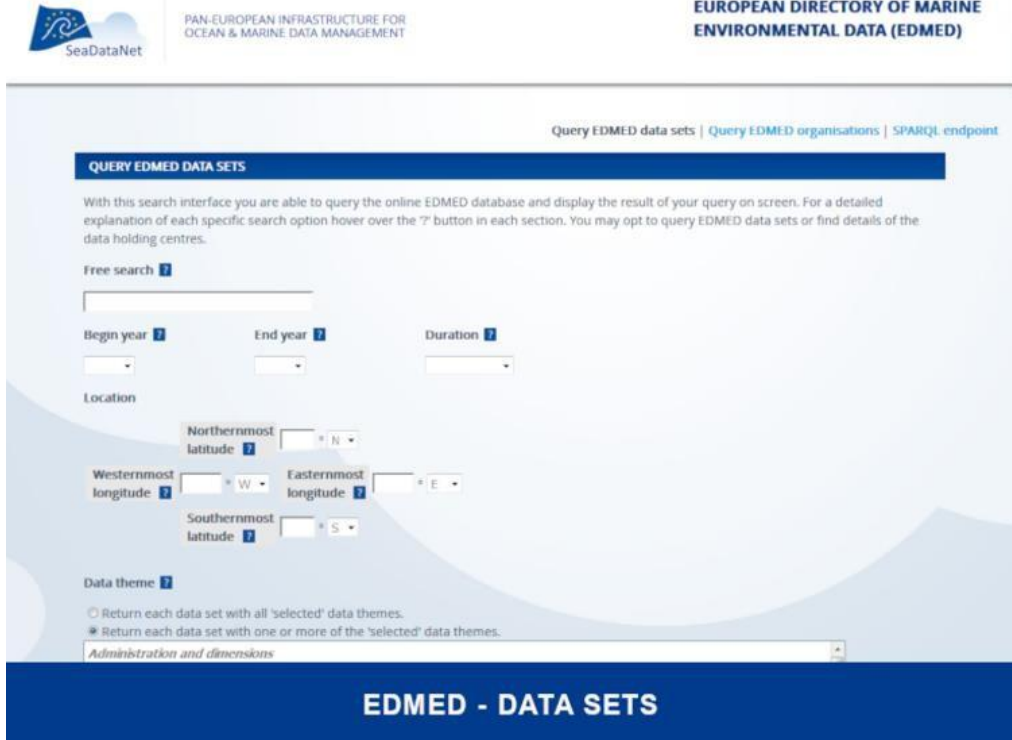
Metadata in SeaDataNet: EDMED - Marine Data Sets

EDMED is a comprehensive reference to marine **datasets** and collections held in European research laboratories, providing marine scientists, engineers and policy makers with a simple mechanism for their **identification** . It covers a wide range of disciplines, including marine meteorology; physical, chemical and biological oceanography; sedimentology; marine biology and fisheries; environmental quality; coastal and estuarine studies; marine geology and geophysics; etc.

Datasets are described in EDMED **regardless of their format** (e.g. digital databases or files, analogue recordings, paper graphs, paper tabulations, photographs and videos, geological samples, biological samples, etc.). Currently, EDMED describes more than 4,000 datasets, stored in over 700 data storage centres across Europe.

The interface allows you to search based on a set of criteria, including a **geographic box** . References to the selected dataset are listed with the flag of the country of the organization that holds the data.

<https://edmed.seadatanet.org/search/>



The screenshot shows the 'QUERY EDMED DATA SETS' interface. At the top, it features the SeaDataNet logo and the text 'PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT' and 'EUROPEAN DIRECTORY OF MARINE ENVIRONMENTAL DATA (EDMED)'. Below this, there are navigation links: 'Query EDMED data sets | Query EDMED organisations | SPARQL endpoint'. The main search area includes a 'Free search' text input field, and three dropdown menus for 'Begin year', 'End year', and 'Duration'. Under the 'Location' section, there are four dropdown menus for 'Northernmost latitude' (with an 'N' indicator), 'Westernmost longitude' (with a 'W' indicator), 'Easternmost longitude' (with an 'E' indicator), and 'Southernmost latitude' (with an 'S' indicator). Below these, there is a 'Data theme' section with two radio button options: 'Return each data set with all 'selected' data themes.' and 'Return each data set with one or more of the 'selected' data themes.'. At the bottom of the search area, there is a dropdown menu with the selected option 'Administration and dimensions'. The entire interface is set against a light blue background with a dark blue footer bar containing the text 'EDMED - DATA SETS'.

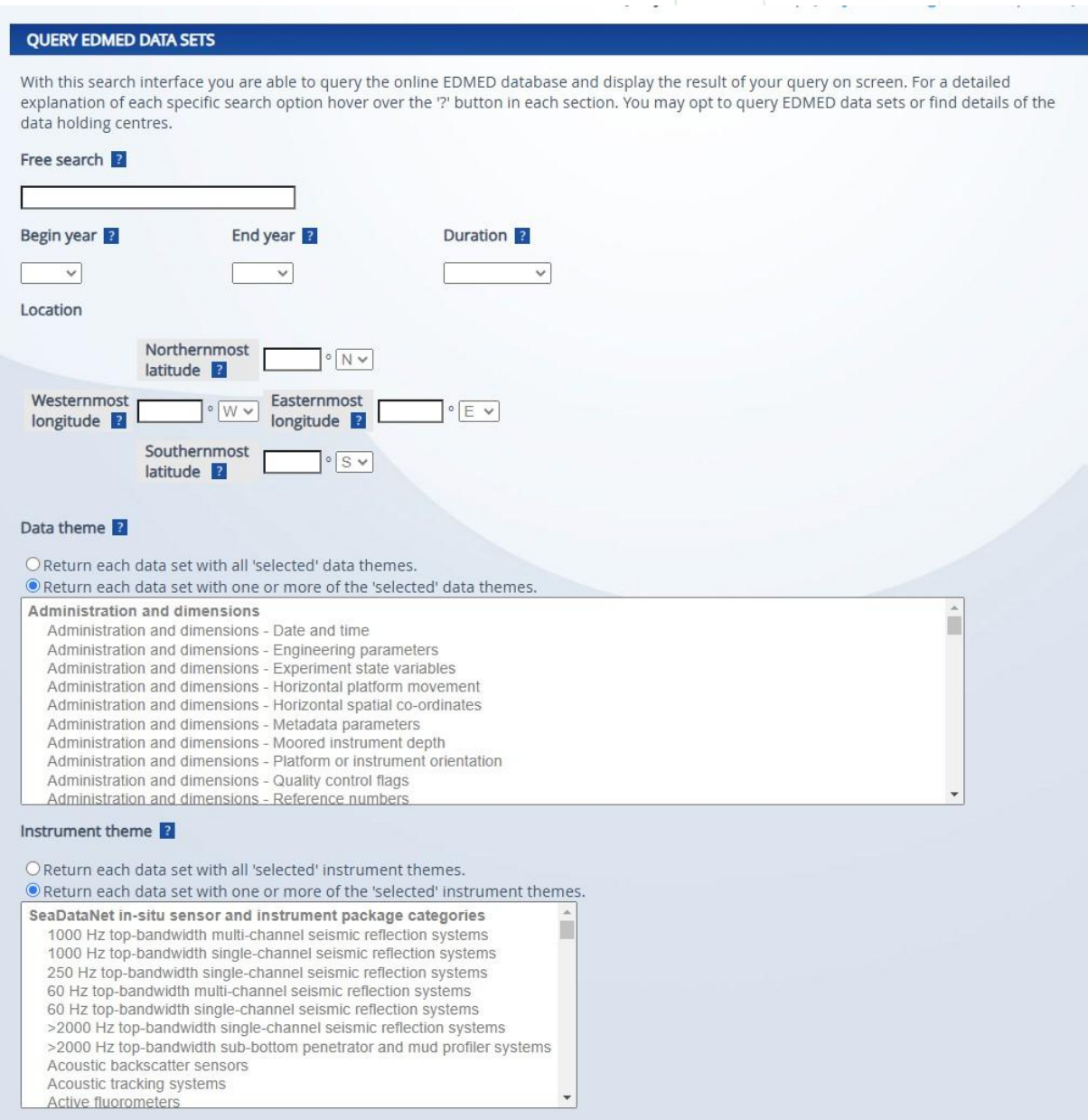
Metadata in SeaDataNet: EDMED - Marine Data Sets

EDMED is a comprehensive database of marine data sets, providing marine data identification. It covers a wide range of biological oceanography; sedimentary and estuarine studies; marine geology

Datasets are described in EDMED format (e.g. digital database, paper graphs, paper tabulations, geological samples, biological samples). EDMED describes more than 700 data storage centres across Europe

The interface allows you to search for criteria, including a geographic location. Selected datasets are listed with their organization that holds the data

<https://edmed.seadatanet.org/>



QUERY EDMED DATA SETS

With this search interface you are able to query the online EDMED database and display the result of your query on screen. For a detailed explanation of each specific search option hover over the '?' button in each section. You may opt to query EDMED data sets or find details of the data holding centres.

Free search **?**

Begin year **?** End year **?** Duration **?**

Location

Northernmost latitude **?** ° N

Westernmost longitude **?** ° W Easternmost longitude **?** ° E

Southernmost latitude **?** ° S

Data theme **?**

Return each data set with all 'selected' data themes.

Return each data set with one or more of the 'selected' data themes.

Administration and dimensions

- Administration and dimensions - Date and time
- Administration and dimensions - Engineering parameters
- Administration and dimensions - Experiment state variables
- Administration and dimensions - Horizontal platform movement
- Administration and dimensions - Horizontal spatial co-ordinates
- Administration and dimensions - Metadata parameters
- Administration and dimensions - Moored instrument depth
- Administration and dimensions - Platform or instrument orientation
- Administration and dimensions - Quality control flags
- Administration and dimensions - Reference numbers

Instrument theme **?**

Return each data set with all 'selected' instrument themes.

Return each data set with one or more of the 'selected' instrument themes.

SeaDataNet in-situ sensor and instrument package categories

- 1000 Hz top-bandwidth multi-channel seismic reflection systems
- 1000 Hz top-bandwidth single-channel seismic reflection systems
- 250 Hz top-bandwidth single-channel seismic reflection systems
- 60 Hz top-bandwidth multi-channel seismic reflection systems
- 60 Hz top-bandwidth single-channel seismic reflection systems
- >2000 Hz top-bandwidth single-channel seismic reflection systems
- >2000 Hz top-bandwidth sub-bottom penetrator and mud profiler systems
- Acoustic backscatter sensors
- Acoustic tracking systems
- Active fluorimeters

in European research the mechanism for their physical, chemical and biological quality; coastal and estuarine studies

base and display the result of your query on screen. For a detailed explanation of each section. You may opt to query EDMED data sets or find details of the data holding centres.

Metadata in SeaDataNet: CSR - Cruise Summary Reports



Cruise Summary Reports (CSR) are the usual means of describing **crises** or field experiments at sea. This provides a first-level inventory of measurements and samples collected at sea. Currently, the Cruise Summary Reports directory covers cruises from **1873** to the present day from over 1,500 research vessels: a total of almost **65,000** cruises, throughout European waters and global oceans. This also includes historical CSRs from European countries, which have been uploaded from the ICES database from 1960 onwards.

An online "CSR back-office" tool is available to create and update CSR entries by submitting CSR XML files in [SeaDataNet CSR format](#) or by completing online forms. This tool uses [Marine-id services](#). You can choose to use your Marine-id account.

<https://csr.seadatanet.org/>

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

CRUISE SUMMARY REPORT INVENTORY (CSR)

68654 results

Everywhere

ALL

YEAR

- 2024 413
- 2023 804
- 2022 921
- 2021 870

COUNTRY (PLATFORM)

- Algeria 10
- Antigua and Barbuda 15
- Argentina 4
- Australia 532

PLATFORM

- 1500 Let Kiyevu (90TU) 1
- 30-Dec (73DE) 1
- 60 Let Vlksm (905P) 1
- A. T. Cameron (18AT) 8

Name	Country (Collate centre)	Chief scientist	Platform	Period
<input type="checkbox"/> EMB353 21034164	Germany	Kube, Sandra	Elisabeth Mann Borgese (06EZ)	07.11.2024 > 22.11.2024
<input type="checkbox"/> EDANA 2024-11 21034112	Spain	EUGENIO FRAILE NUEZ	Ramon Margalef (29RM)	06.11.2024 > 17.11.2024
<input type="checkbox"/> SOCIB_CanalesAutumn24 21034088	Spain	Juan Martinez	SOCIB (29SO)	05.11.2024 > 08.11.2024
<input type="checkbox"/> 2024K31 21034050	Sweden	Åsa Hallberg	Botnica (77XV)	05.11.2024 > 05.11.2024
<input type="checkbox"/> MSFD06_2024 21034097	Poland	Ms. Natalia Drgas	Baltica (67BC)	04.11.2024 > 09.11.2024
<input type="checkbox"/> Atlantic Technological University (ATU Ireland) Applied Marine Biology Survey 2024 21034073	Ireland	Roisin Nash	Tom Crean (45TC)	02.11.2024 > 05.11.2024

Metadata in SeaDataNet: CSR - Cruise Summary Reports



Cruise Summary Reports (CSR = formerly ROSCOP) are the usual means of reporting cruises or field experiments at sea. Traditionally, it is the Chief Scientist's obligation to submit a CSR to his National Oceanographic Data Centre (NODC) no later than two weeks after the cruise. This provides a first-level inventory of measurements and samples collected at sea. Currently, the Cruise Summary Reports directory covers cruises from 1873 to the present day from over 1,500 research vessels: a total of almost 65,000 cruises, across all European waters and global oceans. This also includes historical CSRs from European countries, which have been uploaded from the ICES database from 1960 onwards.

An online "CSR back-office" tool is available to create and update CSR entries by submitting CSR XML files in [SeaDataNet CSR format](#) or by completing online forms. This tool uses [Marine-id services](#). You can choose to use your Marine-id account.

GENERAL INFORMATION

ID	21034112	Platform/Ship	Ramon Margalef
Cruise begin	06.11.2024	Cruise end	17.11.2024
Port of Departure	Alicante, Spain	Port of Return	Valencia, Spain
Chief Scientist(s)	EUGENIO FRAILE NUEZ - IEO-CSIC, Oceanographic Centre of Canary Island		
Responsible(s) Laboratory	IEO-CSIC, Oceanographic Centre of Canary Island		

DESCRIPTION

Acquisition and processing of bathymetric data, generation of reflectivity maps, use of the ROV for direct visualization of anthropogenic objects. CSIC disaster and emergency advisory protocol.

LOCATION

General Ocean Areas
Mediterranean Sea, Western Basin

Specific Geographic Areas
Gulf of Valencia

Link to Charts

Marsden Squares (S, N, E, W)
109 (30.0, 40.0, 0.0, -10.0)

Bounding Box(es)

West	East	South	North
-0.18	-0.07	39	39.25

ADDITIONAL INFORMATION

Parameters measured

- Air pressure
- Biodiversity indices
- Coastal geomorphology
- Date and time
- Density of the water column

Linkage / Report / Station list:

Instruments used

- CTD
- Differential Global Positioning System receivers
- Volume measures
- active fluorometers
- beam trawls

<https://csr.seadatanet.org/>

Metadata in SeaDataNet: EDIOS - Permanent Observing Systems

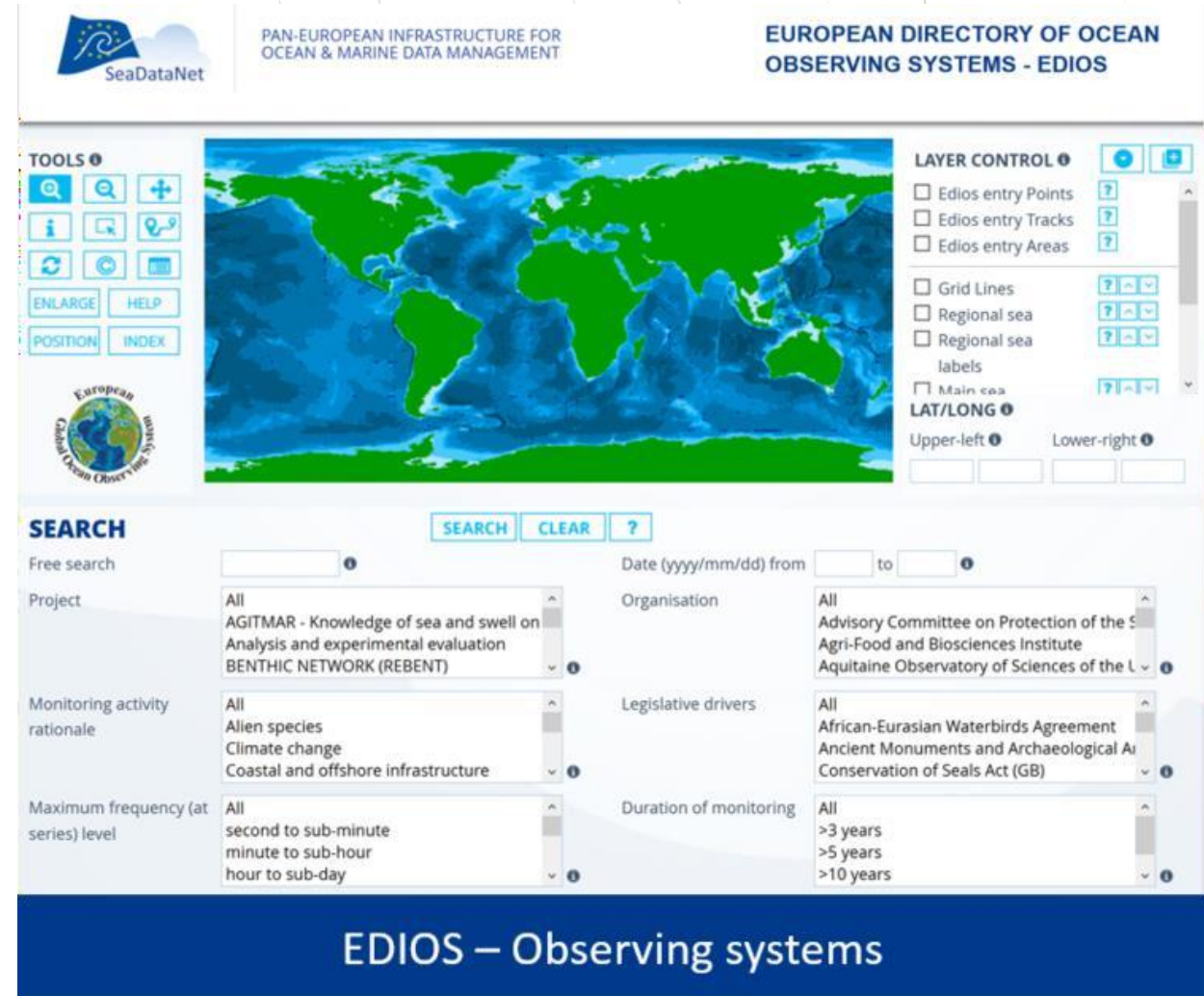
EDIOS provides an overview of the **measurement and monitoring systems** of oceans operated by European countries.

This information provides the basis for optimal **implementation** of new tools and design of sampling strategies.

This directory includes information on **location** , measured **parameters** , data **availability** , responsible institutes and links to agencies holding data, as well as other technical information about the instruments such as sampling frequency. EDIOS is also well suited to create and provide an overview of marine **monitoring programmes** relevant for the implementation of the Marine Strategy Framework Directive (MSFD).

Metadata in SeaDataNet: EDIOS - Permanent Observing Systems

The user interface allows searching and browsing EDIOS entries at monitoring programme level and monitoring series/station level. It also includes additional search criteria relevant to the Marine Strategy Framework Directive (MSFD).

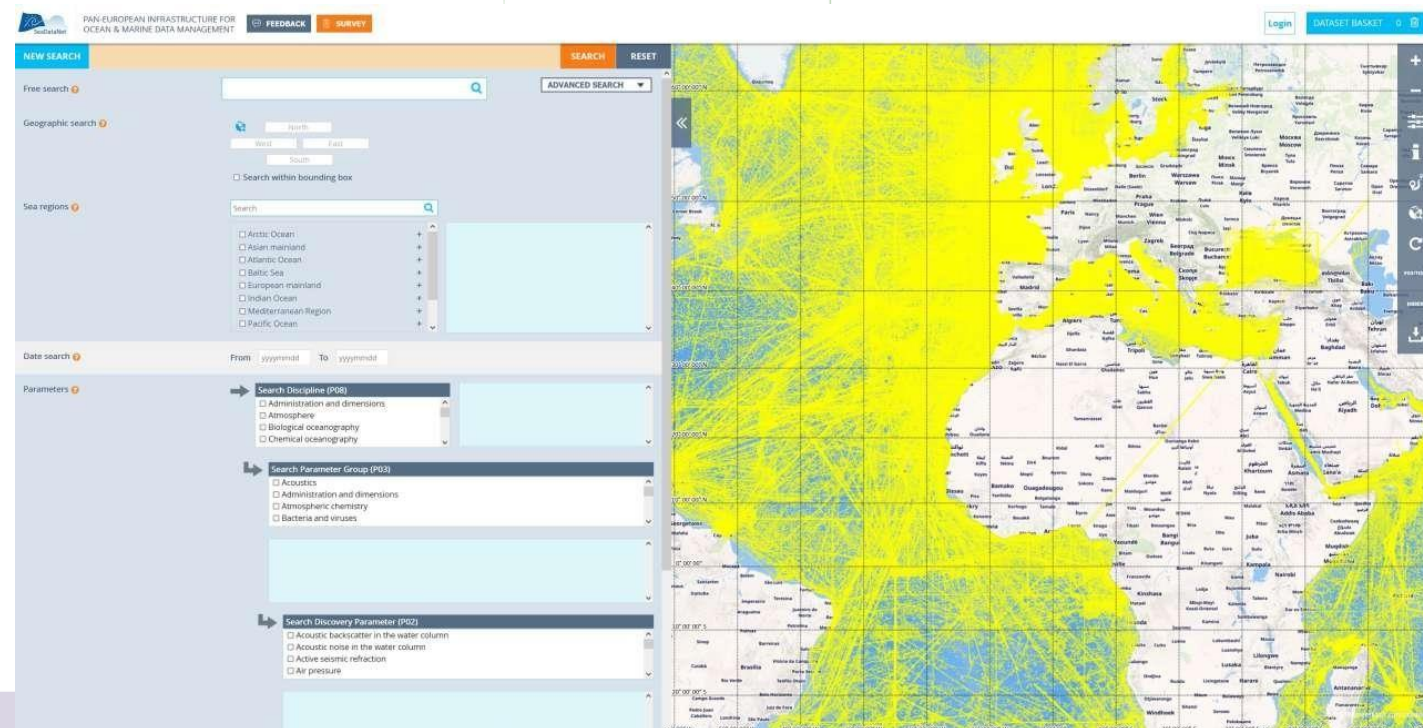


The screenshot displays the EDIOS web interface. At the top, it features the SeaDataNet logo and the text 'PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT' and 'EUROPEAN DIRECTORY OF OCEAN OBSERVING SYSTEMS - EDIOS'. The main area contains a world map with a green overlay. To the left of the map are 'TOOLS' including search, zoom, and navigation icons, along with 'ENLARGE', 'HELP', 'POSITION', and 'INDEX' buttons. To the right is a 'LAYER CONTROL' panel with checkboxes for 'Edios entry Points', 'Edios entry Tracks', 'Edios entry Areas', 'Grid Lines', 'Regional sea', and 'Main coa labels', along with 'LAT/LONG' settings for 'Upper-left' and 'Lower-right'. Below the map is a 'SEARCH' section with a 'SEARCH', 'CLEAR', and '?' button. The search filters include: 'Free search' (text input), 'Date (yyyy/mm/dd) from' and 'to' (date inputs), 'Project' (dropdown menu with options like 'AGITMAR - Knowledge of sea and swell on Analysis and experimental evaluation BENTHIC NETWORK (REBENT)'), 'Monitoring activity rationale' (dropdown menu with options like 'Alien species', 'Climate change', 'Coastal and offshore infrastructure'), 'Maximum frequency (at series) level' (dropdown menu with options like 'second to sub-minute', 'minute to sub-hour', 'hour to sub-day'), 'Organisation' (dropdown menu with options like 'Advisory Committee on Protection of the S', 'Agri-Food and Biosciences Institute', 'Aquitaine Observatory of Sciences of the L'), 'Legislative drivers' (dropdown menu with options like 'African-Eurasian Waterbirds Agreement', 'Ancient Monuments and Archaeological Ai', 'Conservation of Seals Act (GB)'), and 'Duration of monitoring' (dropdown menu with options like '>3 years', '>5 years', '>10 years'). At the bottom, a blue banner reads 'EDIOS – Observing systems'.

Metadata in SeaDataNet: CDI - Common Data Index

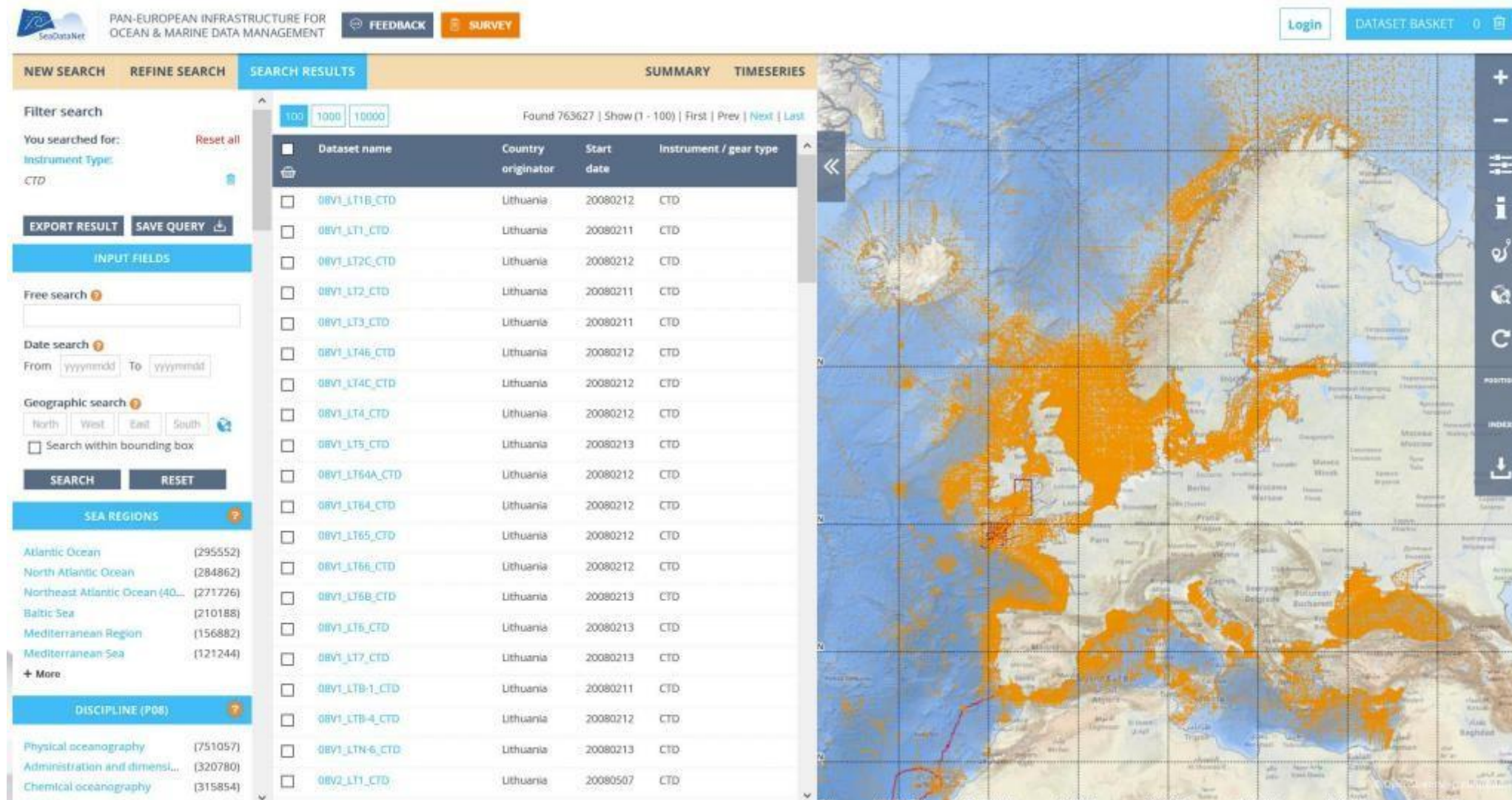
The SeaDataNet Common Data Index (CDI) service provides users with a very detailed overview of the availability and geographical spread of marine **datasets** managed by over 100 marine and oceanographic data centres, located in 34 countries, around and adjacent to European seas. It also provides interfaces to request access and, if granted, to **download** subsets of marine datasets for physics, chemistry, geology, biology, geophysics and bathymetry that these distributed data centres manage. Currently, the CDI service provides access to over **2.8 million metadata records** and associated datasets, mostly available in standard SeaDataNet data formats and using SeaDataNet controlled vocabularies for many aspects.

The CDI V5 service provides powerful search options by combining full-text free search, faceted search, and geographic search options, powered by Elastic Search, SQL search and GeoServer. Additionally, users are provided with a service mechanism for **downloading** data.



<https://cdi.seadatanet.org/search>

CDI Data Discovery & Access Service



SeaDataNet PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

FEEDBACK SURVEY

Login DATASET BASKET 0

NEW SEARCH REFINED SEARCH SEARCH RESULTS SUMMARY TIMESERIES

Filter search

You searched for: Instrument Type: CTD

EXPORT RESULT SAVE QUERY

INPUT FIELDS

Free search

Date search

Geographic search

SEARCH RESET

SEA REGIONS

DISCIPLINE (P08)

Dataset name	Country originator	Start date	Instrument / gear type
08V1_LT1B_CTD	Lithuania	20080212	CTD
08V1_LT1_CTD	Lithuania	20080211	CTD
08V1_LT2C_CTD	Lithuania	20080212	CTD
08V1_LT2_CTD	Lithuania	20080211	CTD
08V1_LT3_CTD	Lithuania	20080211	CTD
08V1_LT4E_CTD	Lithuania	20080212	CTD
08V1_LT4C_CTD	Lithuania	20080212	CTD
08V1_LT4_CTD	Lithuania	20080212	CTD
08V1_LT5_CTD	Lithuania	20080213	CTD
08V1_LT64A_CTD	Lithuania	20080212	CTD
08V1_LT64_CTD	Lithuania	20080212	CTD
08V1_LT65_CTD	Lithuania	20080212	CTD
08V1_LT66_CTD	Lithuania	20080212	CTD
08V1_LT6B_CTD	Lithuania	20080213	CTD
08V1_LT6_CTD	Lithuania	20080213	CTD
08V1_LT7_CTD	Lithuania	20080213	CTD
08V1_LTB-1_CTD	Lithuania	20080211	CTD
08V1_LTB-4_CTD	Lithuania	20080212	CTD
08V1_LTB-6_CTD	Lithuania	20080213	CTD
08V2_LT1_CTD	Lithuania	20080507	CTD

<https://cdi.seadatanet.org/search>

SeaDataNet standards

- Common **standards** for the marine domain, adapting ISO and OGC standards and achieving INSPIRE compliance.
- Metadata formats for datasets, research cruises, monitoring networks, organizations and research projects
- Standard data exchange **formats : ODV ASCII and NetCDF (CF)**, fully supported by controlled vocabularies
- Controlled vocabularies for the marine domain (>90,000 terms in over 110 lists), with international governance and web services
- Maintenance and dissemination of standard QA-QC procedures, together with IOC/IODE and ICES

CDI Data Discovery & Access Service

SeaDataNet metadata and data formats for:

- Physical datasets, developed with NODCs
- Chemical datasets, developed with EMODnet Chemistry
- Biological datasets, developed with EurOBIS
- Geological and geophysical datasets, developed with EuroGeoSurveys
- Bathymetric datasets, developed with EMODnet Bathymetry
- HF-Radar datasets, developed with EuroGOOS and EMODnet Physics
- Glider dataset , developed with the Ocean Glider network
- Flow cytometry data together with CNRS and JERICO
- Marine litter data (beach, seabed and micro-litter), developed with EMODnet Chemistry and TG ML

SeaDataNet standards



- Common **standards** for the marine domain, adapting ISO and OGC standards and achieving INSPIRE compliance.
- Metadata formats for datasets, research cruises, monitoring networks, organizations and research projects
- Standard data exchange formats: ODV ASCII and NetCDF (CF), fully supported by controlled vocabularies
- Controlled **vocabularies** for the marine domain (>90,000 terms in over 110 lists), with international governance and web services
- Maintenance and dissemination of standard QA-QC procedures, together with IOC/IODE and ICES

Common Vocabularies

The use of common vocabularies across all metadata and data formats is an important prerequisite for **consistency** and **interoperability**. Common vocabularies consist of **lists of standardized terms** covering a broad spectrum of disciplines of relevance to the oceanographic and broader community.

Using standardized term sets solves the problem of **ambiguity** associated with data and also allows records to be **interpreted** by computers. This opens data sets to a whole world of possibilities for computer-aided manipulation, distribution, and long-term reuse.

The vocabulary services are technically managed and hosted by the British Oceanographic Data Centre (**BODC**) via the NERC Vocabulary Server (NVS2.0). The vocabularies are made available as **web services** to machines and via client interfaces to end users. The client **interfaces** provide end users with options for searching, browsing and exporting selected entries to CSV format.

<https://vocab.seadatanet.org/search>

Common Vocabulary

The use of common vocabulary is essential for **interoperability**. Common vocabularies are used in various disciplines of relevance to the project.

Using standardized terms ensures that they are **interpreted** by computers consistently across different systems, distribution, and long-term use.

The vocabulary services are provided by the NERC Vocabulary Server (Vocab) which provides interfaces to end users. The following are selected entries to CSV format.

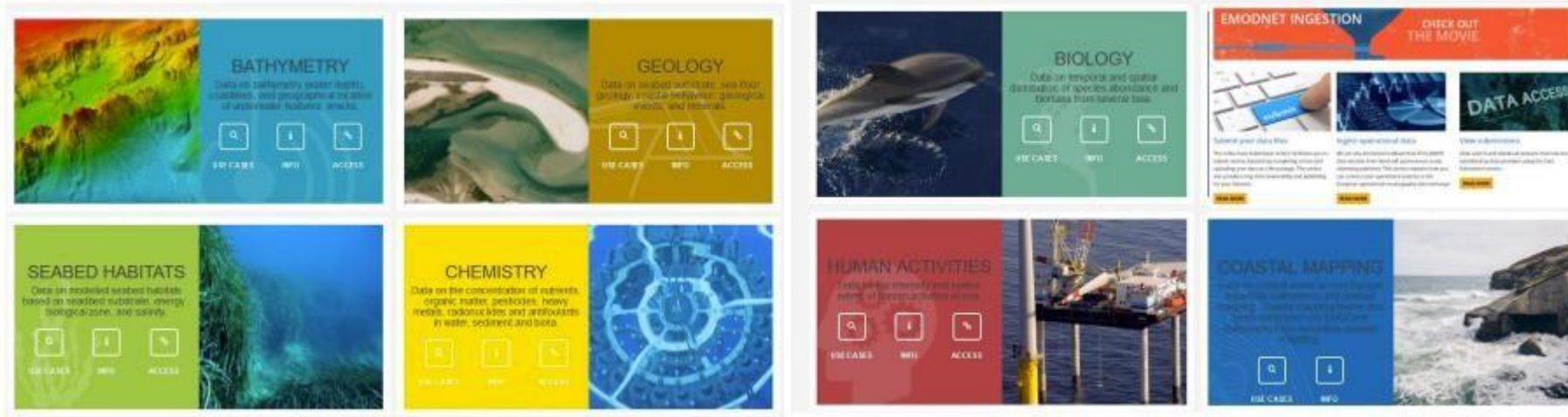
BODC WEBSERVICES V2 (LIBRARIES) CL12

Library	Thesaurus	Title	Alt Title	Version	Members	Modified
A05		AtlantOS Essential Variables	AtlantOS EVs	4	24	3/29/2019 2:01:22 AM
BQ1		EMODnet Bathymetry Quality Indicators of horizontal accuracy (QI_Horizontal)	EMODnet Bathy QI_Horizontal	1	4	7/15/2023 4:00:03 AM
BQ2		EMODnet Bathymetry Quality Indicators of vertical accuracy (QI_Vertical)	EMODnet Bathy QI_Vertical	1	5	7/15/2023 4:00:03 AM
BQ3		EMODnet Bathymetry Quality Indicators of survey purpose (QI_Purpose)	EMODnet Bathy QI_Purpose	1	4	7/15/2023 4:00:03 AM
C16		SeaDataNet sea areas	SDN sea areas	9	127	11/7/2012 2:00:06 AM
C17		ICES Platform Codes	ICES Platforms	1131	13275	11/29/2024 2:00:01 AM
C19		SeaVoX salt and fresh water body gazetteer	SeaVoX water bodies	24	271	9/13/2023 4:00:02 AM
C32		International Standards Organisation countries	ISO countries	10	282	11/18/2020 2:00:03 AM
C34		Activity purpose categories	Purpose categories	4	22	8/27/2011 3:00:05 AM
C35		European Nature Information System Level 3 Habitats	EUNIS3 Habitats	1	56	2/19/2010 2:01:37 AM
C36		Monitoring activity legislative drivers	Monitoring drivers	10	92	4/28/2022 4:00:03 AM

<https://vocab.seadac.org/>

Cooperation with EMODnet

The European Marine Observation and Data Network (EMODnet) was launched in 2008 by the EU's DG MARE



- SeaDataNet has qualified as the leading **infrastructure** for the EMODnet data management component and is driving several thematic portals
- This synergy has brought many other **data center** to adopt the SeaDataNet standards and connect to the CDI Data Discovery and Access service
- EMODnet focuses on European data products and services to support the Blue Economy, Blue Environment and Marine Knowledge 2020 agendas
- The datasets collected, harmonised and delivered by SeaDataNet provide essential input for the generation and regular updating of EMODnet data **products**

EMODnet Ingestion (<https://www.emodnet-ingestion.eu>)

The European Marine Observation and Data Network (EMODnet) is made up of over 160 organisations working together to assemble, harmonise and make marine data, products and metadata more accessible to public and private users. This Data Ingestion portal facilitates the data input by other marine data managers for further processing, publication as open data and contribution to societal applications.



Date Submitted

DATA INGESTION PORTAL
Wake up your data - set them free for Blue Society
Data Submission Service

WELCOME ELENA PARTESCANO (DS) | ? | LOGOUT

Process Info | Organizations | Dataset Identification | Data Types | Locations & Dates | Data Links & Finish

Process Info

FORM INFORMATION

Submission Identifier (UUID) cde2875e-145d-44dc-b484-ae4b0cb78096

Status *Drafting form part 1 by Data Submitter*
Rejected by DC Contact: NO

Assigned Data Centre

Contact Data Centre

Last Update 2024-12-02 18:24:20.579354

Dataset URL

Date of phase 1 dataset publication

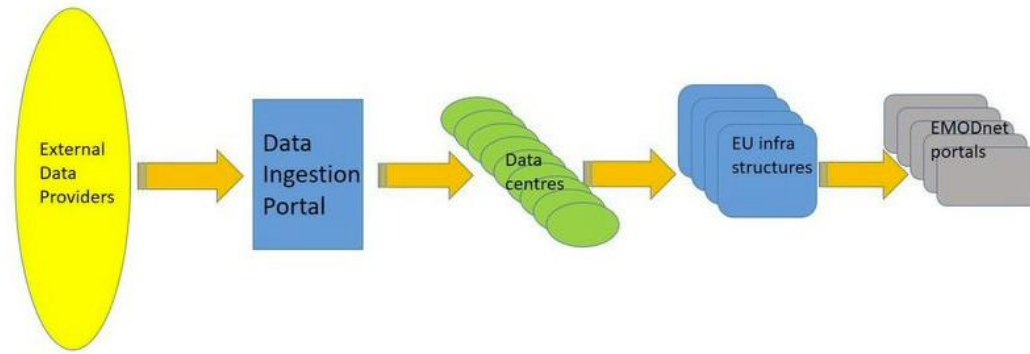
Date of phase 2 dataset publication

DOI

How to cite

EMODnet Ingestion (<https://www.emodnet-ingestion.eu>)

Data Submission Flow



Questi percorsi seguono per tutti i temi EMODnet un flusso di lavoro comune:

1. i dati vengono raccolti dalle organizzazioni di osservazione;
2. i dati vengono convalidati, elaborati e archiviati in centri dati nazionali dedicati;
3. i dati convalidati vengono popolati nell'infrastruttura europea appropriata (come SeaDataNet, EurOBIS e altre a seconda del tema);
4. I dati convalidati vengono inseriti nei gruppi tematici EMODnet per una possibile inclusione nei prodotti e servizi di dati EMODnet.

I **potenziali fornitori di dati** sono detentori di dati marini che non inviano ancora regolarmente set di dati ai centri dati nazionali e non sono (ancora) abituati alle pratiche e agli standard utilizzati dalla comunità internazionale di gestione dei dati marini. Pertanto, devono essere supportati per inviare i loro pacchetti di dati per l'accesso aperto e l'uso nei centri dati nazionali ed EMODnet.

Il servizio di invio dati online fornisce un mezzo semplice per i potenziali fornitori di dati per inviare pacchetti di set di dati marini, che hanno raccolto e stanno gestendo. Ogni pacchetto dovrebbe consistere in una raccolta di set di dati e documentazione pertinente, accompagnata dalla compilazione di un modulo di invio con un set limitato di metadati per descrivere la raccolta di set di dati.

Viene fatta una distinzione tra 2 fasi nel ciclo di vita di un invio dati

- **Fase I: dall'invio dei dati alla pubblicazione del pacchetto di set di dati inviati "così com'è";**
- **Fase II: ulteriore elaborazione del pacchetto di set di dati e integrazione (dei sottoinsiemi) nei portali tematici nazionali, europei ed EMODnet.**



THANKS!

IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-
Mission 4 “Education and Research” - Component 2: “From research to business” - Investment
3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”



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