


SeaDataNet, an enhanced ocean data infrastructure giving services to scientists and society.

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Some uses of ocean and marine data for society

- Climate Change
- Blue Economy (marine energy, aquaculture, tourism, coastal fishing, etc)
- Marine Pollution
- Marine ecosystems



The availability of great amount of high quality ocean data allows a better understanding of the ocean and give the opportunity to scientists to support politicians for decision making

High tide in Venice
(01dec2008)



Credit: Consorzio Venezia Nuova

Economy of data acquisition

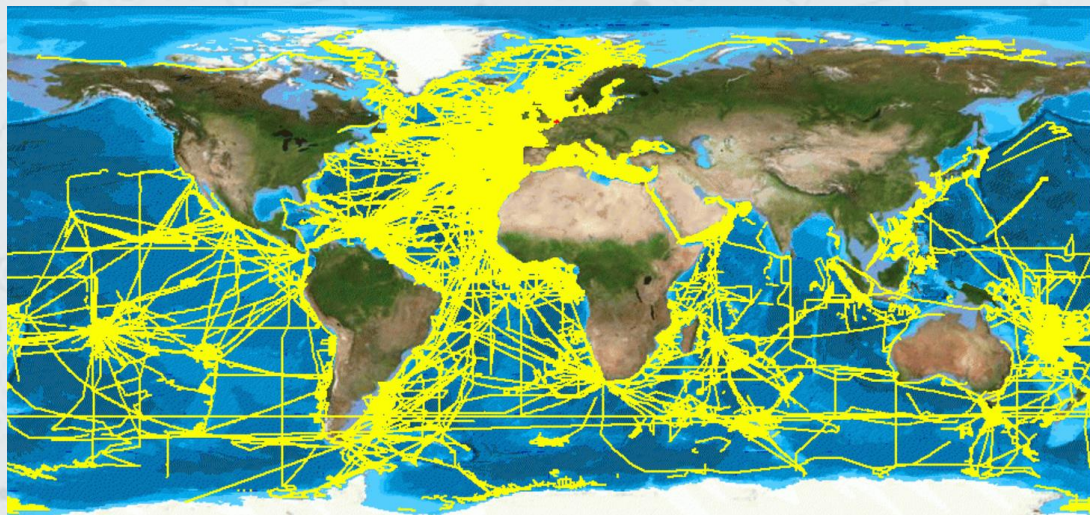
- © Data is collected by governments, research institutes and private industry (more than 1,000 organisations in Europe)
- © In situ sampling: water column measurements and water samples are collected from research vessels, ships of opportunity, small boats, moored buoys or drifting autonomous systems
- © Acquisition of marine data is expensive : annual cost in Europe estimated at

1.4 Billion € (1 for in-situ data, 0.4 for satellite data)

Team of qualified people engaged from the data collection to the data dissemination

What is SeaDataNet?

SeaDataNet is a comprehensive Pan-European semi-distributed marine data infrastructure, providing access to multidisciplinary, integrated marine and ocean data and products of standardised quality, services, as well as an overview of marine organisations, research and monitoring activities related to the sea.



Selection of data along tracks

Physical oceanography

Meteorology

Chemistry

Geophysics

Marine Geology

Biology

Origins



De facto standards for data and metadata, a data quality check guideline, the use of standardised vocabularies

SeaDataNet started in the 90s and has been developing over the years. Thanks to EU funded projects:

90	Metadata directories Medar/MedAtlas
2002-2005	Sea-Search (FP5)
2006-2011	SeaDataNet (FP6)
2011-2015	SeaDataNet II (FP7)
2016-2020	SeaDataCloud (H2020)



Data Services

<http://www.seadatanet.org>

The screenshot displays the SeaDataNet data discovery interface. At the top left, a 'TOOLS' section contains icons for zooming and navigation. Below it, a 'Datasets' section shows a 'BASKET' and 'RESET' button. The central part of the interface is a world map. To the right of the map is a 'LAYER CONTROL' panel with checkboxes for 'Grid Lines', 'Regional sea', 'Regional sea labels', 'Main sea', 'Main sea labels', 'Bathymetry', 'Blue Marble', and 'World'. Below the map, there is a 'SEARCH' section with a 'Free search' input field and 'SEARCH', 'CLEAR', and '?' buttons. At the bottom, there are two columns of search criteria: 'Discipline', 'Parameter', and 'Instrument' on the left; 'Cruise', 'Country', and 'Platform' on the right. A magnifying glass icon is visible on the right side of the interface.

Map tools

Data discovery interface

SEARCH
Free search
Disciplines - Topics
Discovery parameter

Discipline
Parameter
Instrument

Cruise
Country
Platform

LAYER CONTROL

- ☐ Grid Lines
- ☐ Regional sea
- ☐ Regional sea labels
- ☐ Main sea
- ☐ Main sea labels
- ☒ Bathymetry
- ☒ Blue Marble
- ☒ World

LAT/LONG
Upper-left
Lower-right

.....

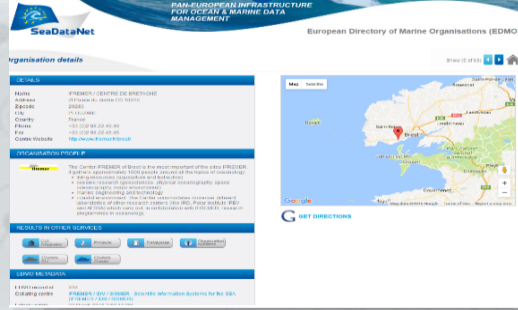
Metadata Services

SDN provides useful information to know the organisations that operate in marine environment, what they do and where, to give chances for future collaborations in research or in the private sector

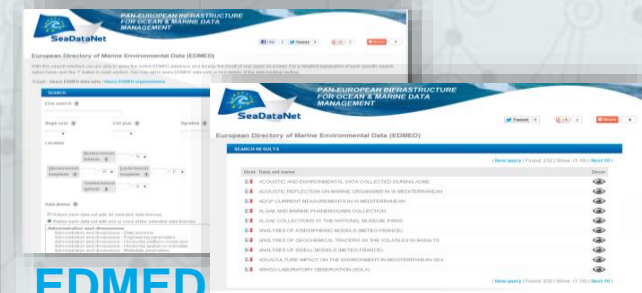


Metadata Services

EDMO Organisations




CSR Research cruises



EDMED Data sets

EDMERP Projects



EDIOS Observing programmes



CDI Data index

Data Products



PAN-EUROPEAN INFRASTRUCTURE FOR
OCEAN & MARINE DATA MANAGEMENT

PARTNERS



USERS



ABOUT US

METADATA

DATA ACCESS

STANDARDS

SOFTWARE

PRODUCTS

EVENTS

PUBLICATIONS

PRODUCTS

SeaDataNet provides aggregated datasets (ODV collections of all SeaDataNet measurements of temperature and salinity by sea basins) and climatologies (regional gridded field products based on the aggregated datasets) for all the European sea basins.

[Read more](#)

Aggregated datasets

Climatologies

Documentation

Catalogue

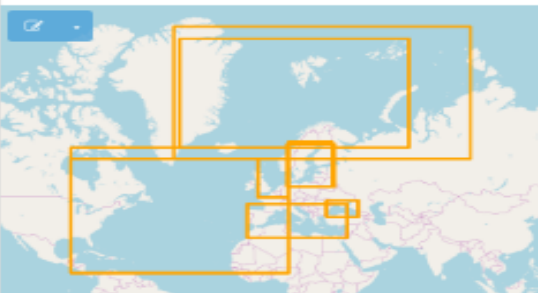
Historical data collections of all T and S measurements within SeaDataNet covering all EU sea basins (DOI)

Gridded climatologies (DOI)

Reports describing products' characteristics and quality (DOI)

Products Catalogue


Search ...

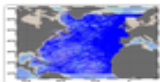


Reset filters

CATALOGMY DOWNLOADS




<>Results 1 to 17 on 17 : 20 by page -Sort by : Popularity -


**NORTH ATLANTIC OCEAN - TEMPERATURE AND SALINITY OBSERVATION COLLECTION V1.1**

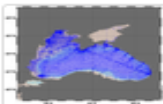


SeaDataNet Temperature and Salinity historical data collection, including revised quality flags after quality control with ODV. For data access please register at <http://www.marine-id.org>. The dataset format is ODV binary collections. You can read, analyse and...

Source: Seadatanet







**BLACK SEA - TEMPERATURE AND SALINITY OBSERVATION COLLECTION V2**

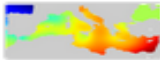


The Black Sea historical dataset includes all open access temperature and salinity in situ data from the Black Sea and Sea of Azov for period 1868-2014. The data were retrieved from the SeaDataNet infrastructure in the mid of 2015. Data quality has been analysed and checked...

Source: Seadatanet







**MEDITERRANEAN SEA - TEMPERATURE AND SALINITY CLIMATOLOGY V1.1**

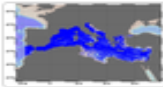


Mediterranean Sea Climatology computed from the SeaDataNet V1.1 aggregated dataset. The version used for the DIVA software is the 4.6.9. The period covers 1900-2013. For data access please register at <http://www.marine-id.org> ...

Source: Seadatanet






**MEDITERRANEAN SEA - TEMPERATURE AND SALINITY OBSERVATION COLLECTION V1.1**



SeaDataNet Temperature and Salinity historical data collection contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of 2013. The data span between -9.25 and 37 degrees of longitude, thus including an Atlantic ...


Source: Seadatanet



Vocabularies

Controlled vocabularies used in all metadatabases and data formats (interoperability) organised with international governance, user interfaces and web services

BODC WEBSERVICES V2 (LIBRARIES) CL12

Library	Thesaurus	Title	Alt Title	Version	Members	Modified
C16		SeaDataNet sea areas	SDN sea areas	9	127	11/7/2012 2:00:06 AM
C17		ICES Platform Codes	ICES Platforms	709	5571	3/13/2018 2:00:03 AM
C19		SeaVoX salt and fresh water body gazetteer	SeaVoX water bodies	17	263	2/21/2018 2:00:03 AM
C32		International Standards Organisation countries	ISO countries	7	251	1/14/2016 2:00:02 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	8	91	6/21/2017 3:00:03 AM
C37		Ten-degree Marsden Squares	Marsden-10	3	612	1/9/2009 2:00:05 AM
C38		SeaDataNet Ports Gazetteer	SeaDataNet Ports	61	4912	12/5/2017 2:00:02 AM
C39		World Meteorological Organisation sea	WMO sea states	1	10	9/30/2009 3:01:08 AM

Software for data producers, data centres and data users

To create
metadata CDI,
CSR, EDMO, EDIOS,
EDMERP

MIKADO

To convert data
file

NEMO

To convert to the
internal formats



OCTOPUS

To present and analyse data

ODV

DIVA

To make available
data in data
centres

DOWNLOAD MANAGER

To generate the
spatial objects
for CDI files

ENDSANDBENDS

→ a single access for a wide range of data of different types

CDI discovery and access service

> 2.3 Million
of data sets

SeaDataNet portal



Search
and
Share



data
download



European data sources

data centres ← ≈ 650 originators

Metadata



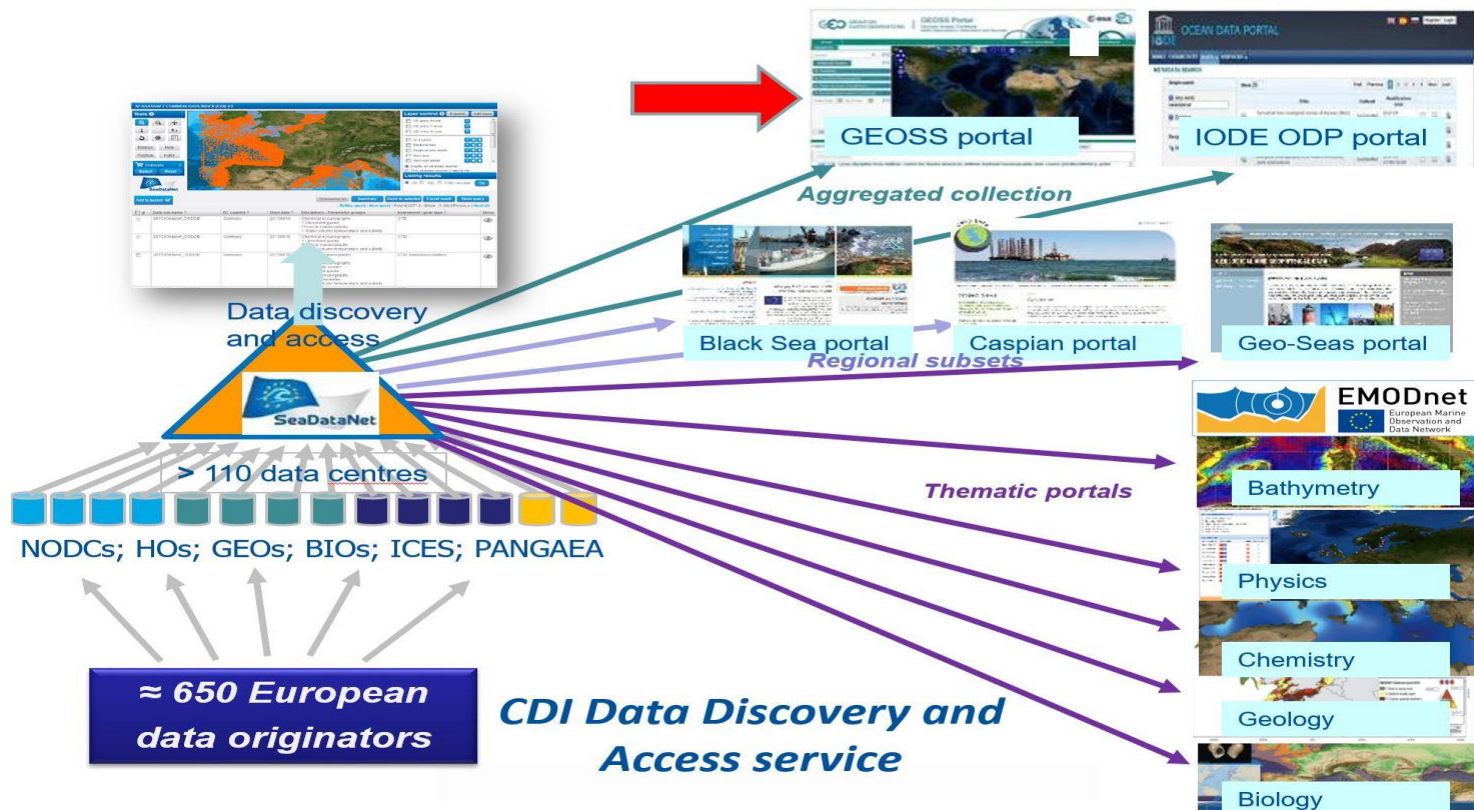
Cooperation and involvement

- ◎ European Marine Observation and Data Network (EMODnet): driving and serving many EMODnet thematic portals
- ◎ Copernicus Marine Environmental Monitoring Services (CMEMS): providing long-term archives and standards (MoU)
- ◎ Marine Strategy Framework Directive (MSFD): providing infrastructure, standards and data collections for several indicators
- ◎ Large ocean monitoring systems (EuroGOOS, AtlantOS, Euro-ARGO, JERICO-Next, EuroFleets, ..): providing standards and validation + long-term archiving services

Cooperation and involvement

- ◎ Ocean Data Interoperability Platform (ODIP): exploring and demonstrating common standards and interoperability with leading data management infrastructures in USA and Australia
- ◎ GEOSS - EuroGEOSS: feeding GEOSS portal with SeaDataNet in-situ data collections from large community of European data holders (> 100 data centres; >600 data originators)
- ◎ European Open Science Cloud (EOSC): shaping the pilot Blue Cloud

CDI service
driving and
serving many
portals and
communities



SeaDataCloud project activity

This project has received funding from the European Union's Horizon 2020 Research Infrastructures programme, under the grant agreement No 730960".



Upgrading and innovating existing services for users and data providers:

- Advancing the CDI service by adopting cloud
- Introducing 'Linked Data Principle' to catalogues for semantic web
- Adding transformation facility for INSPIRE compliance



Developing new services for users and data providers:

- SWE Ingestion service for Real Time data streams
- Brokerage service for mutual exchange with international data networks

SeaDataCloud project activity

This project has received funding from the European Union's Horizon 2020 Research Infrastructures programme, under the grant agreement No 730960”.



- Virtual Research Environment (VRE) with advanced services: subsetting, visualisation, online ODV, DIVA and data sharing
- Development of cloud-based services to facilitate individual and collaborative research (MySeaDataCloud)
- Make use of the cloud environment to improve the performance of the CDI data access and to improve capacities for data processing including additional quality checks
- Improve the data quality by implementing more checks on the data file and by improving the QC loop when generating the SeaDataNet products

Services for data providers (*)

- ◎ Software to prepare data and metadata
- ◎ Long term archiving
- ◎ Data and metadata visibility
- ◎ DOI minting service
- ◎ Workshops and on line video on Ocen Teacher

Services for data users (**)

- ◎ Catalogues of metadata

Services for policy makers, *, **

- ◎ **Data services, visualisation, search and download**
- ◎ **Data Products**

In the coming months:

- ◎ Virtual Research Environment, My SeaDataCloud – New visualisation and analysis software on line
- ◎ More efficient data access – near real time data from sensors – Metadata services more findable