

EMODnet Status Update

EMODnet – Copernicus Marine Service coordination meeting
2 February 2023

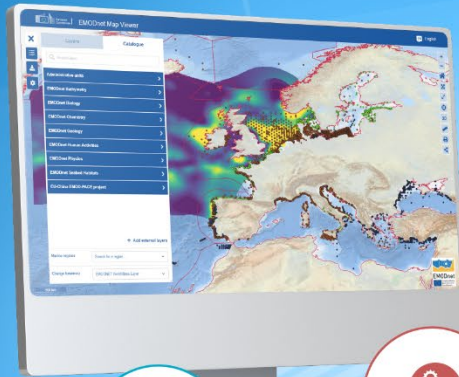
Jan-Bart Calewaert, Kate Larkin & Conor Delaney
EMODnet Secretariat

secretariat@emodnet.eu

Unification of EMODnet Service: January 2023

One central map viewer

to visualise all EMODnet data



BATHYMETRY



HUMAN ACTIVITIES



PHYSICS



GEOLOGY



SEABED HABITATS



CHEMISTRY



BIOLOGY

1 OCEAN 1 EMODnet

One single portal

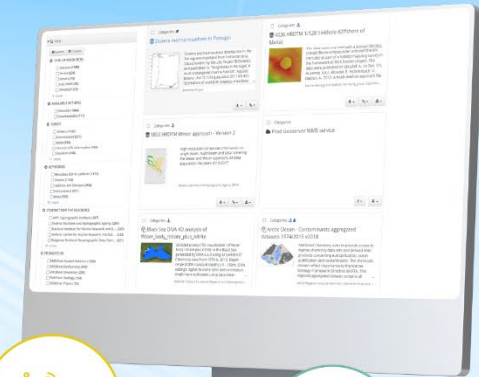
140
partners

One central metadata catalogue

to enhance data search and discovery

+100
use cases

Discover, visualise and
download marine data and products
across 7 thematics and hundreds of parameters



EMODNET.EC.EUROPA.EU



The European Marine Observation and Data Network (EMODnet) is financed by the European Union under regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund

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YOUR GATEWAY TO *IN SITU* MARINE DATA IN EUROPE AND BEYOND



EMODnet
European Marine
Observation and
Data Network

emodnet.ec.europa.eu



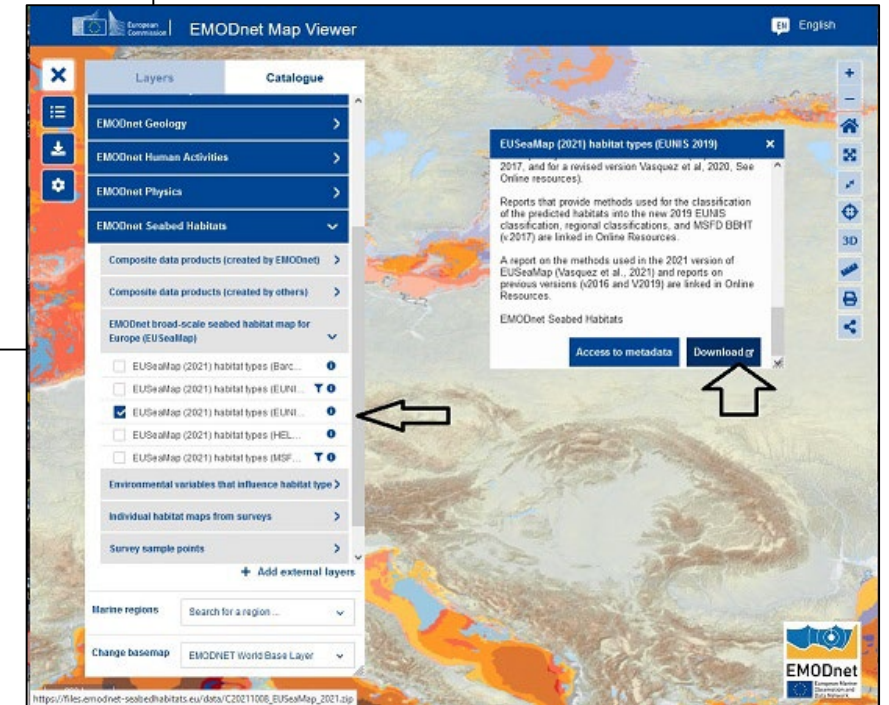
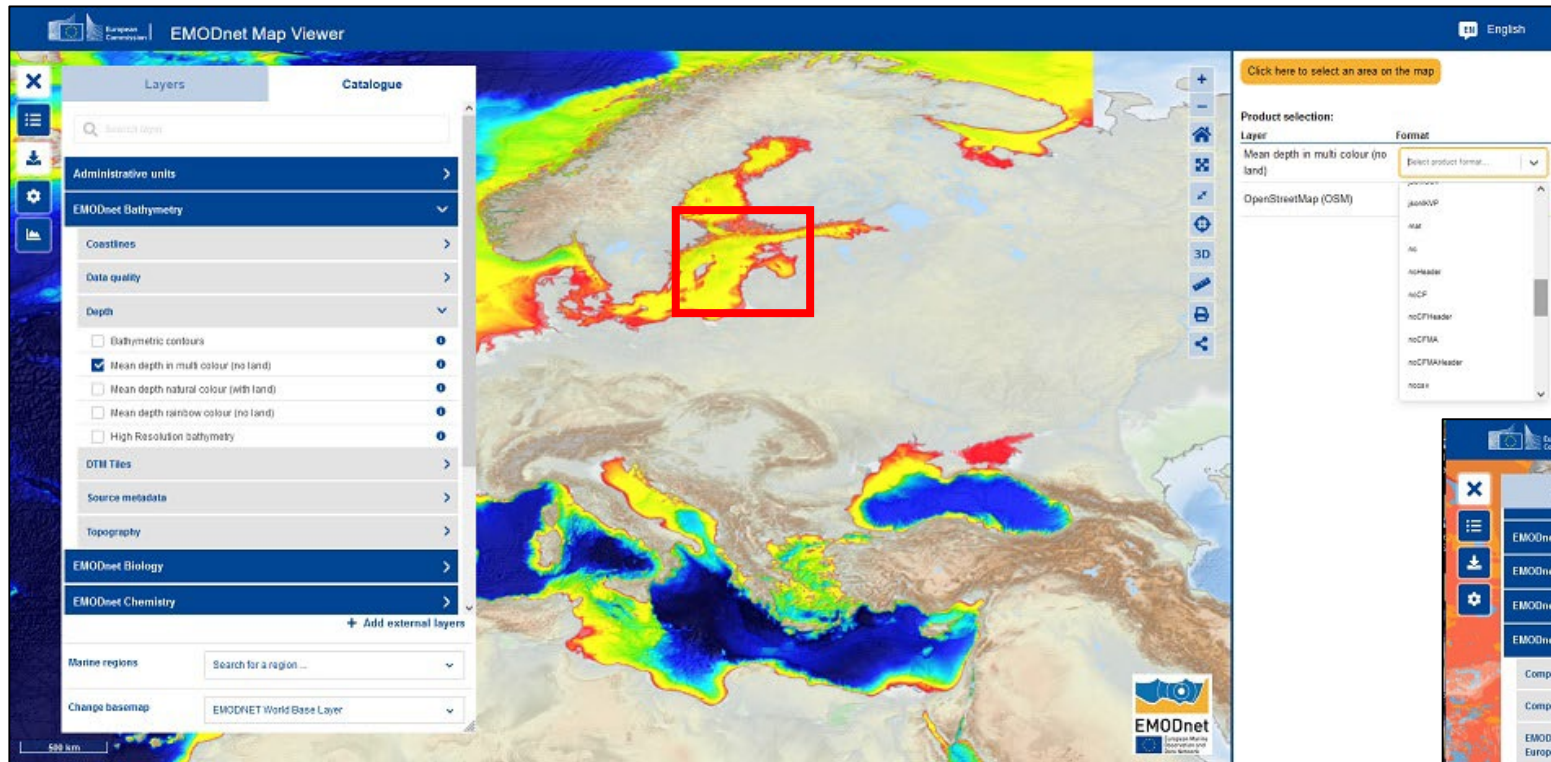
New EMODnet portal.



The screenshot shows the new EMODnet portal homepage. At the top left is the European Commission logo. A search bar is located at the top right. Below the header, the text "Energy, Climate change, Environment" is displayed. The main heading is "European Marine Observation and Data Network (EMODnet)". A navigation menu includes "About", "Data Services", "Solutions", "Themes", "Community Pages", "Atlas of the Seas", "EU-China", and "News & Events". The "Themes" menu is open, listing: Bathymetry, Biology, Chemistry, Geology, Human Activities, Physics, and Seabed Habitats. The main content area features a large blue banner with the text: "ONE EMODNET", "The new Central Portal unites all EMODnet thematic marine data services into a single access point.", and "Find out what it can do for you!". A yellow circle on the left says "NEW FOR 2023". The EMODnet logo is in the bottom right of the banner. Below the banner are three preview cards: "EMODnet Map Viewer" (showing a bathymetry map), "EMODnet Data Products Catalogue" (showing a grid of data products), and "EMODnet ERDDAP" (showing a data viewer interface).

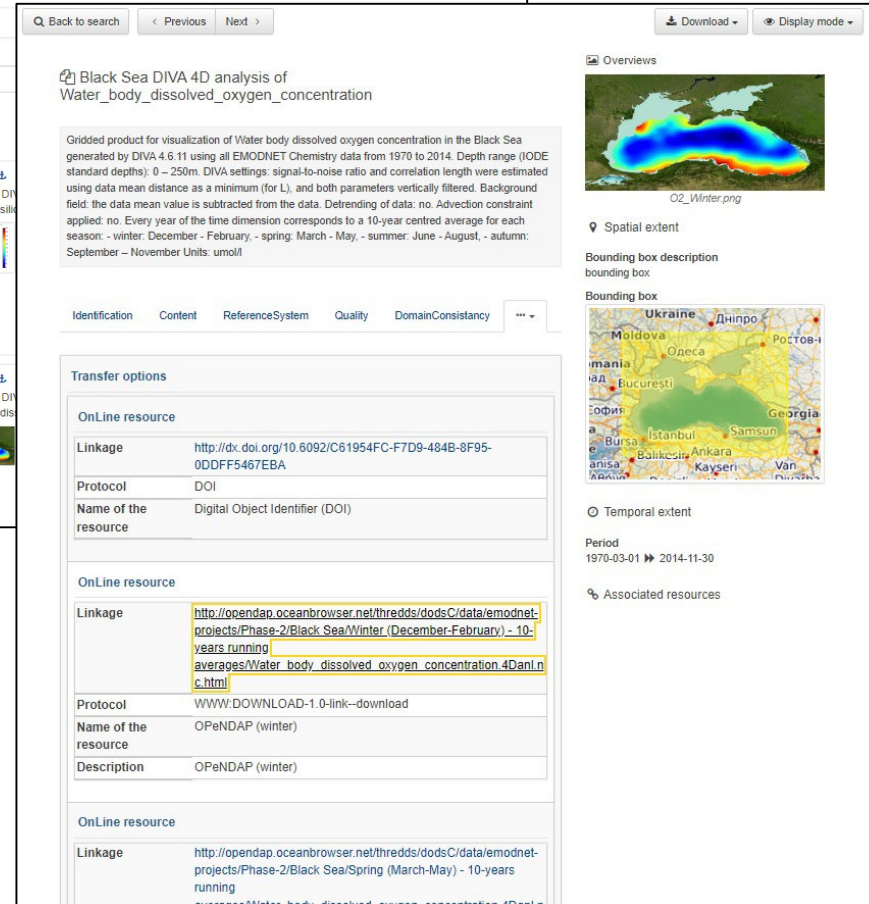
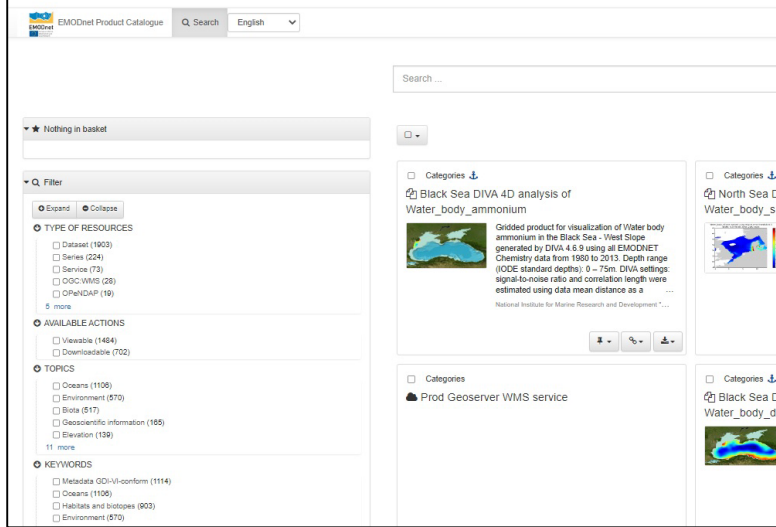
- One EMODnet portal.
- One EMODnet Map Viewer
- One EMODnet Catalogue
- One EMODnet ERDDAP
- Thematic portals are gone
- Striving for consistency across themes in:
 - Metadata
 - File formats
 - Download APIs
 - Web Services

OneEMODnet Map Viewer



Users can now download direct from the map viewer via two different methods

OneEMODnet Catalogue



Each thematic lot is publishing an OGC Catalogue Service for the Web. The EMODnet Catalogue is harvesting these and combining them into one catalogue.

Users can now access metadata and data service information in the catalogue

ERDDAP server @ EMODnet
Easier access to scientific data

English ?
Brought to you by EMODnet

ERDDAP

ERDDAP is a data server that gives you a simple, consistent way to download subsets of scientific datasets in common file formats and make graphs and maps. This particular ERDDAP installation has oceanographic data (for example, data from satellites and buoys).

Easier Access to Scientific Data

Our focus is on making it easier for you to get scientific data.

Different scientific communities have developed different types of data servers.

For example, OPeNDAP, WCS, SOS, OBIS, and countless custom web pages with forms. Each is great on its own. But without ERDDAP, it is difficult to get data from different types of servers:

- Different data servers make you format your data request in different ways.
- Different data servers return data in different formats, usually not the common file format that you want.
- Different datasets use different formats for time data, so the results are hard to compare.

ERDDAP unifies the different types of data servers so you have a consistent way to get the data you want, in the format you want.

- ERDDAP acts as a middleman between you and various remote data servers. When you request data from ERDDAP, ERDDAP reformats the request into the format required by the remote server, sends the request to the remote server, gets the data, reformats the data into the format that you requested, and sends the data to you. You no longer have to go to different data servers to get data from different datasets.
- ERDDAP offers an easy-to-use, consistent way to request data: via the OPeNDAP standard. Many datasets can also be accessed via ERDDAP's Web Map Service (WMS).
- ERDDAP returns data in the common file format of your choice. ERDDAP offers all data as .html table, ESRI .asc and .csv, Google Earth .kml, OPeNDAP binary, .mat, .nc, ODV .txt, .csv, .tsv, .json, and .xhtml. So you no longer have to waste time and effort reformatting data.
- ERDDAP can also return a .png or .pdf image with a customized graph or map.
- ERDDAP standardizes the dates-times in the results. Data from other data servers is hard to compare because the dates-times often are expressed in different formats (for example, "Jan 2, 2018", "02-JAN-2018", "1/2/18", "2/1/18", "2018-01-02", "days since Jan 1, 1900"). For

ERDDAP server @ EMODnet
Easier access to scientific data

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Start Using ERDDAP:
Search for Interesting Datasets

- Do a Full Text Search for Datasets

ERDDAP server @ EMODnet
Easier access to scientific data

English ?
Brought to you by EMODnet

ERDDAP > List of All Datasets

154 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub set	Table DAP Data	Make A Graph	W M S	Source Data Files	Title	Summary	FGDC, ISO, Metadata	Back-ground Info	RSS	E mail	Institution	Dataset ID
set	data	graph				* The List of All Active Datasets in this ERDDAP *		M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body dissolved oxygen concentration 1965/2017 v2021 [time][depth][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body dissolved oxygen concentration 1965/2017 v2021 [time][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body phosphate 1965/2017 v2021 [time][depth][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body phosphate 1965/2017 v2021 [time][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body silicate 1965/2017 v2021 [time][depth][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Arctic Ocean, DIVA 4D 6-year analysis of Water body silicate 1965/2017 v2021 [time][lat][lon], 0.1deg, 1967-2014		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body chlorophyll-a 1980/2018 v2021 [time][depth][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body chlorophyll-a 1980/2018 v2021 [time][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body dissolved inorganic nitrogen (DIN) 1980/2018 v2021 [time][depth][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body dissolved inorganic nitrogen (DIN) 1980/2018 v2021 [time][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body dissolved oxygen concentration 1980/2018 v2021 [time][depth][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body dissolved oxygen concentration 1980/2018 v2021 [time][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body phosphate 1980/2018 v2021 [time][depth][lat][lon], 0.1deg, 1982-2015		F I M	background				
data		graph	M			Baltic Sea, DIVAnd 6-year seasonal analysis of Water body phosphate 1980/2018 v2021 [time][lat][lon], 0.1deg, 1982-2015		F I M	background				

ERDDAP server @ EMODnet
Easier access to scientific data

English ?
Brought to you by EMODnet

ERDDAP > griddap > Make A Graph

Dataset Title: **EMODnet Physics - TEMPERATURE ANOMALY 10 YEARS**

Institution: EMODnet Physics (Dataset ID: ERD_EP_TEMP_ANO_10Y)
 Information: Summary | License | FGDC | ISO 19115 | Metadata | Background | Data Access Form | Files

Graph Type: Surface
 X Axis: longitude
 Y Axis: latitude
 Color: ANOMALY

Dimensions: Start: 2019-06-30T00:00:00Z, Stop: 2019-06-30T00:00:00Z
 time (UTC): specify just 1 value
 depth (m): 2.0102019E7, specify just 1 value
 latitude (degrees_north): 77.0104751588914, 89.8962631225586
 longitude (degrees_east): -180.0, 179.5

Graph Settings: Color Bar, Continuity, Scale, Draw land mask, Y Axis Minimum

Redraw the Graph (Please be patient. It may take a while to get the data.)

Optional: Then set the File Type: [htmlTable] (File Type information) and Download the Data or an Image or view the URL: https://erddap.emodnet.eu/erddap/griddap/ERD_EP_TEMP_ANO_10Y.html (Documentation / Bypass this form)

Things You Can Do With Your Graphs

Well, you can do anything you want with your graphs, of course. But some things you might not have considered are:

- Web page authors can embed a graph of the latest data in a web page using HTML tags
- Anyone can use ERDDAP's Slide Sorter to build a personal web page that displays graphs with the latest data (or other images or HTML content), each in its own, draggable slide.

https://erddap.emodnet.eu/erddap/index.html

Unification of EMODnet Service: External Communication Toolkit

The infographic is set against a dark blue background with a large white circle in the center. The central text reads "1 OCEAN 1 EMODnet" in large white letters, with "One single portal" in orange below it. Surrounding this central text are several examples of communication assets:

- press release:** A white document with a blue header "ONE OCEAN, ONE EMODNET" and placeholder text.
- newsflash:** A white document with a blue header "ONE OCEAN, ONE EMODNET" and a small image of a map.
- infographic:** A colorful graphic titled "1 OCEAN 1 EMODnet" with icons for "140 partners" and "+100 user cases". It features a map and the text "Discover, visualise and download marine data and products across 7 thematic and hundreds of parameters".
- social media:** A blue social media post with a map image and the text "ONE OCEAN, ONE EMODNET".
- banner:** A blue horizontal banner with the text "ONE OCEAN, ONE EMODNET" and the EMODnet logo.
- other (updated) assets:** A list including "portfolio, brochure, homepage, tutorial videos".

At the bottom right, the EMODnet logo is displayed, consisting of a stylized blue and orange wave icon above the text "EMODnet European Marine Observation and Data Network".

Communication Toolkit has been shared with > 120 EMODnet partner organisations, EMODnet Associated Partners, and key external stakeholders e.g., Copernicus Marine Service, European Marine Board, EuroGOOS, JPI Oceans, EurOcean.....



Unification of EMODnet Service: Events




EMODnet
European Marine
Observation and
Data Network

REGISTER

EMODnet Public Webinar

EMODnet Centralisation: One Ocean, One EMODnet

16 February 2023 | 15:30-17:00 CET

© Pixabay

Unification of EMODnet Service: Events

OPEN SEA LAB 3.0 HACKATHON Virtual



**One Ocean.
One EMODnet:**
Surf a brand new
Marine Data & Innovation wave!

Ideation & Team Formation:
6-24 March 2023
HACKATHON:
27-28 March 2023
Pitching & Award Event:
30 March 2023



Unification of EMODnet Service: Events

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VLIZ

Copernicus

ICES
CIEM

MARINE
UGENT

European
Commission

8 February 2023: Meeting for coaches & mentors
6-24 March 2023: Ideation and team formation
27-28 March 2023: Virtual Hackathon
30 March 2023: Pitching and Awards

EMODnet Open Sea Lab III

Copernicus collaboration:

Copernicus coaches:

- Cédric Giordan
- Elena Di Medio, User Support Officer
- Anaïs Perrin, User Support Officer
- Martin Pasquier, User Support Officer

Copernicus mentors:

- Fabrice Messal
- Corine Derval ,product manager,
- Romane Zufic, capacity Development Officer.
- Aurore Biardeau, Product Owner.
- Andreia Ferreira de Carvalho, training officer.

Information provided on Copernicus Marine data, download, tutorials



Unification of EMODnet Service: **Events**

SAVE THE DATE

**EMODnet Open Conference
& Jamboree 2023**

27 November - 1 December



EMODnet
European Marine
Observation and
Data Network

Fourth EMODnet Secretariat cycle (2020-2023)

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Phase I – Limited sea basins														
				Phase II – Low resolution all basins										
								Phase III – Multi -resolution						
													Phase IV - Centralisation	

- Consortium

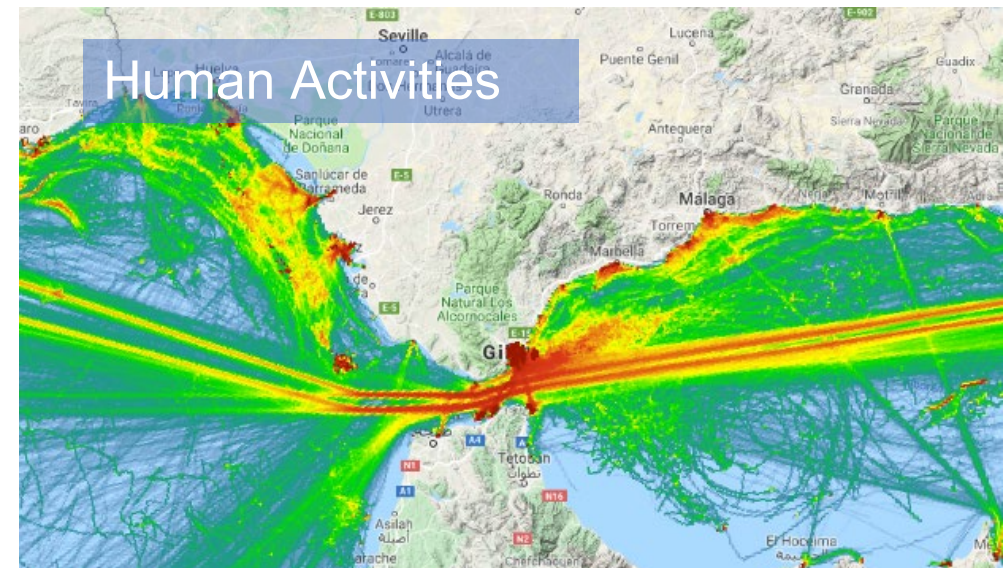
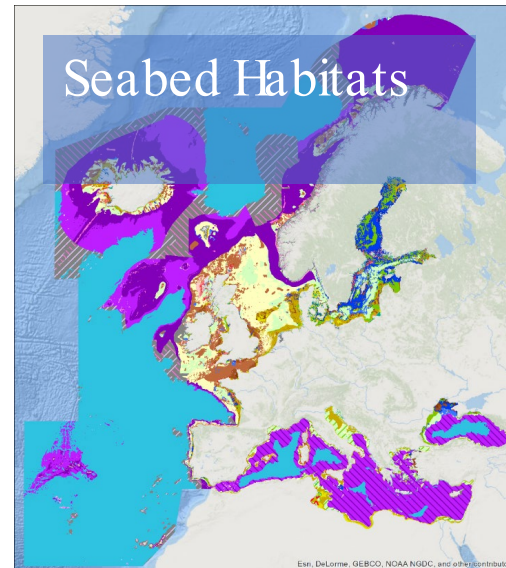
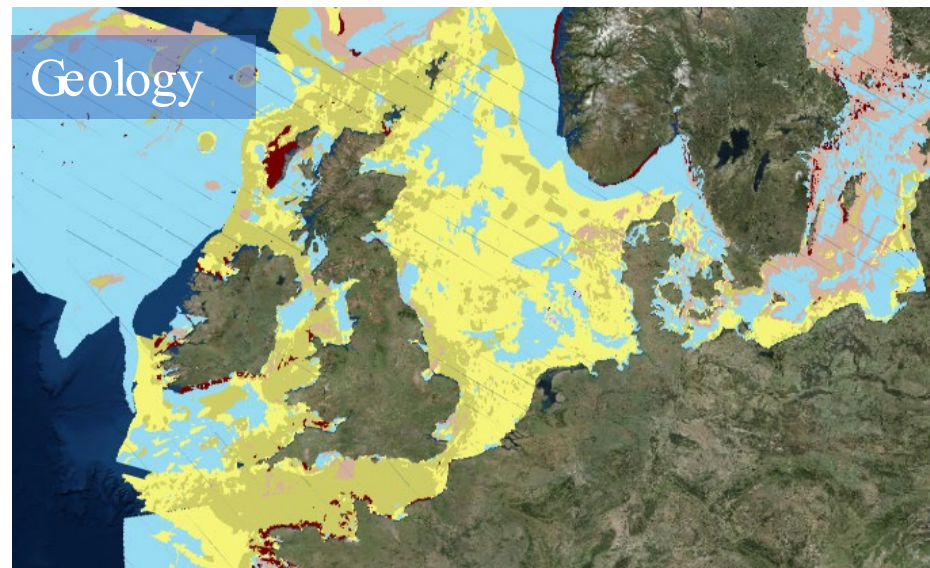
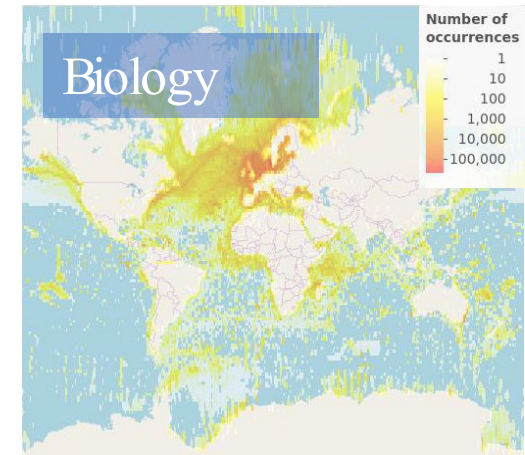
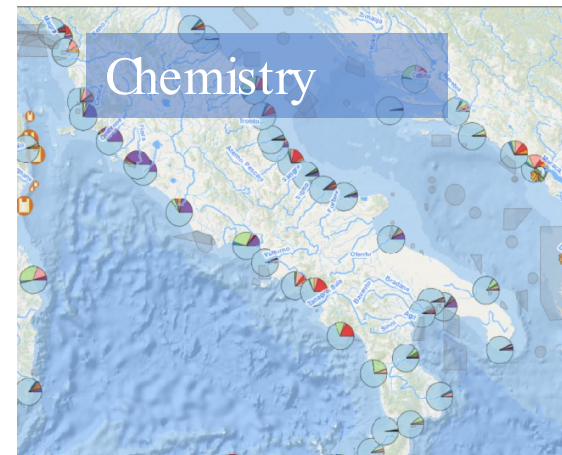
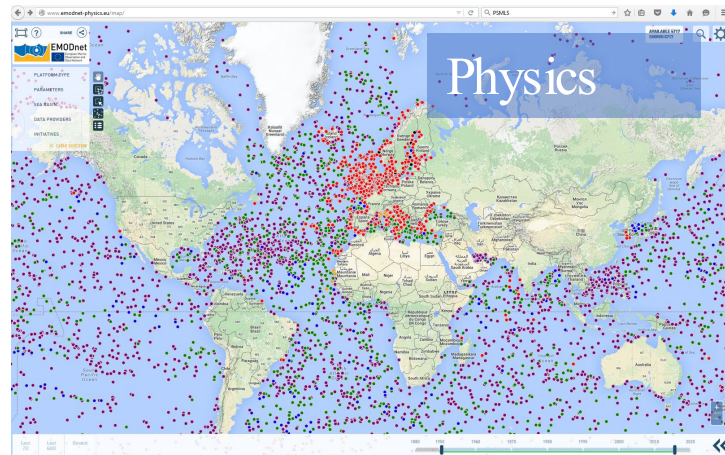
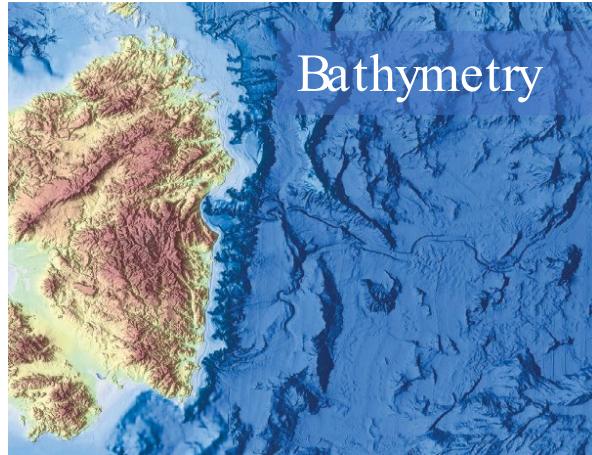


Fourth EMODnet Secretariat cycle (2020-2023)

- **European Marine Observation and Data Network (EMODnet)**
 - *Focus on supporting **centralisation** process, guide transition towards fully integrated online presence via EMODnet Central Portal*
 - *While remaining operational and maintaining/expanding all other essential services and tasks (**consolidation**)*
 - *Resulting in more **user-friendly**, useful and **fit-for-purpose** EMODnet*
 - *Will be more coherent, efficient and easier to manage and ready for supporting Europe's Green Deal and Digital Agenda Mission Ocean priorities, Digital Twin Ocean public service etc.*
- **European Atlas of the Seas**
 - *Build on foundations established over the past four years*
 - *Further **development** of the Atlas*
 - ***Expand its impact** across Europe and beyond*
 - *Integrate Atlas in formal and informal **Ocean Literacy** curricula*
 - *Establish Atlas as a **communication tool***
- **EC Ocean Observing initiative**
 - *Dedicated support to DG MARE to advance activities in its work programme related to EOO*
 - *Assess the benefits of the EMODnet **Seas in Checkpoints***

EMODnet: Diverse marine data and data products

Result of working together: democratizing in situ marine data, for all



EMODnet: A EU focal point for Maritime Spatial Planning offering harmonised in situ marine data spanning the marine environment and human activities

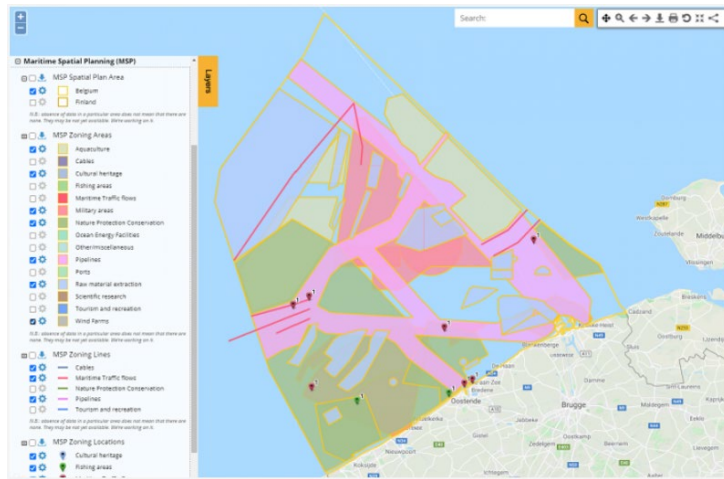
«EMODnet Human Activities is a focal point for EU Member State Marine Spatial plans and in the future this can be expanded to include MSP data products, for examples at the European level».

Joni Kaitaranta, HELCOM

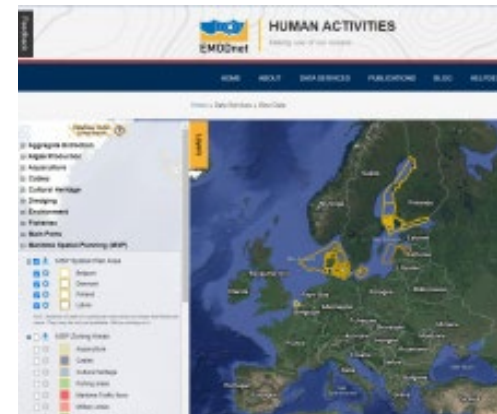


- EMODnet bathymetry, biology, chemistry, geology, physics, seabed habitats:
 - High resolution transboundary *in situ* marine environmental and human activities data, essential for **climate-smart MSP** and offering **trusted multi-disciplinary data** to underpin **cumulative impact assessments**;

- EMODnet Human Activities:
 - **Wind farm database** and other data and information related to MSP;
 - National (EU MS) **Maritime Spatial Plans**;
 - works in close co-operation with Regional Sea Conventions, and the EC JRC Technical Group (TG) on Data for MSP towards a technical solution for harmonising EU MSP within EMODnet.



MSP Spatial Plan Area for Belgium, EMODnet Human Activities



EMODnet Human Activities Map viewer and data visualization (centralising by end 2022)

EMODnet – Copernicus Marine collaborations: Status of ongoing actions

Updates on each thematic focus areas was provided in presentations at the 2nd coastal meeting (September 2022)

EMODnet – Copernicus Marine INSTAC (updates)

- EMODnet Physics co-led the setting up of the **Marine In Situ Collaboration (MIC) Working Group**.
 - EMODnet Chemistry and Data Ingestion are also represented;
- Additional **coordination meetings** between INSTAC and EMODnet Physics;
- Co-developed a **common strategy to ingest/link new operational data** for serving both services
 - Ingestion workflow:
 - phase 1 - “as is” dataset displayed in EMODnet Physics, then if it’s a Copernicus “quality checkable parameter” (according to EuroGOOS DATAMEQ recommendations) EMODnet Physics and INSTAC work together to include in the INSTAC collection;
 - phase 2 EMODnet Physics via EMODnet Central Portal and central metadata catalogue;
- Ocean parameters joint areas of dialogue/activities: **River, Wind, Sea Level**:
 - **River, underwater noise, wind parameters**: stay in EMODnet physics who manage the “official” collections. Collaboration with INSTAC who send any new *in situ* data identified for these parameters to EMODnet Physics;
 - **Sea Level parameters**: Collaboration on extending data and products (EMODnet Physics supports INSTAC on a reprocessed product)

EMODnet – Copernicus Marine collaborations: Status of ongoing actions

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EMODnet – Copernicus Marine INSTAC (updates continued)

- EMODnet Physics and Copernicus Marine INSTAC agreed on a common citation/statement to reward/award the providers (core message being EMODnet and INSTAC do not own the data but run the data services and add value to the data by making data FAIR in an integrated system);
- Collaboration on standards and recommendations also via European projects e.g., EuroSea
- EMODnet Physics are anticipating the management of Citizen Science data (these are more complex to be included in phase 2 collection for many reasons, but the primary goal now is to engage the community and make links and teach the people), in dialogue with INSTAC;
- Future areas and requests: These joint groups/coordination groups across EMODnet and INSTAC are not funded (they are not featuring in the EMODnet Physics or Chemistry workplan and have no budget associated). EMODnet Physics suggests a dedicated funding stream



EMODnet – Copernicus Marine collaborations: Status of ongoing actions

Copernicus Biodiversity workshop, September 22nd 2022

EMODnet Biology: At the workshop suggested the possibility of a collaboration with Copernicus regarding biodiversity products. I would like to encourage this action again as I believe the expertise both initiatives hold could be useful to improve the biodiversity products being published. Better coordination and alignment in objectives would be a welcomed outcome.

EMODnet Seabed Habitats: Attended the Copernicus biodiversity in coastal ecosystems workshop in October 2022 along with EMODnet Biology and presented what we had done so far and how our data and products can contribute to coastal biodiversity protection.

EMODnet Thematics and Data Ingestion: Status Updates

Actions from previous EMODnet - Copernicus Marine Service meetings include:	Action status (EMODnet Coordinator to complete)
<p>1- Organise a follow up meeting between EMODnet Chemistry and Copernicus Marine INSITU TAC. The first meeting was considered very fruitful. (action from coastal w/shop 2 on 22 September 2022)</p>	<p>Not yet a bilateral meeting. EMODnet Chemistry invited Copernicus INSTAC to the stakeholder consultation meeting to be held on 10 March 2023. We have already invited Dominique Obaton but the invitation is open to the any Copernicus representative.</p>
<p>2- Organise a meeting between Copernicus Marine coordination and EMODnet Bathymetry project coordinator. Copernicus Marine aims at developing a global bathymetry product from S2 data, first static, then a dynamic version. An interaction is much needed between Copernicus Marine and EMODnet bathymetry to discuss the details and the synergies between the different approaches. See also the different user requirements/analyses/surveys on bathymetry that have also recently been published (Copernicus Marine, EMODnet Checkpoints) (e.g. https://www.frontiersin.org/articles/10.3389/fmars.2021.740830/full). (action from coastal w/shop 2 on 22 September 2022)</p>	<p>There has been a meeting at 14 October 2022 between Pierre-Yves (MOI) and Thierry (Shom), Dick (MARIS) and George (GGSGC). Copernicus Marine is preparing a tender for satellite derived bathymetry. It was agreed that a few core experts from EMODnet Bathymetry will be involved in the scientific requirements of the Tender description in order to achieve that the data sets resulting from the Tender would be fit for purpose and use of EMODnet Bathymetry as contributions to the EMODnet DTM.</p>
<p>3- Organise a meeting with Copernicus Land, Marine coordination and EMODnet Geology project coordinators for coastline monitoring activities shared between the two groups (action from coastal w/shop 2 on 22 September 2022)</p>	
<p>4 - Propose a new methodology to extend in a more automatic way the development of a common catalogue for the MSFD (action from 18 March 2022)</p>	

1. Invitation to attend the EMODnet Chemistry stakeholder consultation meeting, 10 March 2023, Trieste, Italy & online (hybrid): <https://forms.gle/VV8MkyAg8zQkHeFr5>
2. EMODnet Bathymetry experts are involved in the Copernicus Marine scientific requirements setting for Copernicus Bathymetry tender. Is there an update on the Copernicus funding call date and volume?
3. Set a date for a Copernicus Land, Marine and EMODnet Geology meeting on coastline monitoring?
4. Discuss MSFD joint catalogue: Plans for different sea-basins


EMODnet – Copernicus Marine collaborations: Status of ongoing actions

EMODnet Chemistry – Copernicus Marine Service

Copernicus INSTAC started using BGC data from EMODnet Chemistry data collections e.g., eutrophication and acidification datasets integrated in INSTAC BGC products

← → ↻ <https://emodnet.ec.europa.eu/en/use-case/emodnet-datasets-eutrophication-and-acidification-integrated-copernicus-marine-service-situ>

An official website of the European Union How do you know? ▾

 Search

Energy, Climate change, Environment

European Marine Observation and Data Network (EMODnet)

About ▾ Data Services ▾ Solutions ▾ Themes ▾ Community Pages ▾ Atlas of the Seas ▾ EU-China ▾ News & Events ▾

Home > Solution > Use Cases >

EMODnet Chemistry Datasets provide high quality harmonised and integrated data to the Copernicus Marine Service Thematic Assembly Centre products

EMODnet Chemistry Datasets provide high quality harmonised and integrated data to the Copernicus Marine Service Thematic Assembly Centre products

16 Jun 2022

User organisation

[Copernicus Marine Service](#) delivers and operates a rigorous, robust and sustainable Ocean Monitoring and Forecasting system to users for all marine applications: maritime safety, marine resources, marine and coastal environment and climate, seasonal and weather forecasting. Within Copernicus Marine Service, the In Situ Thematic Assembly Centre (INSTAC) ensures a steady supply of *in situ* ocean measurements to other service components and to external users. It is a distributed centre made up of 6 regional centres that work closely with a Global centre in collaboration with the Joint Technical Commission for Oceanography and Marine Meteorology, the SeaDataNet infrastructure and the EMODnet thematic lots.

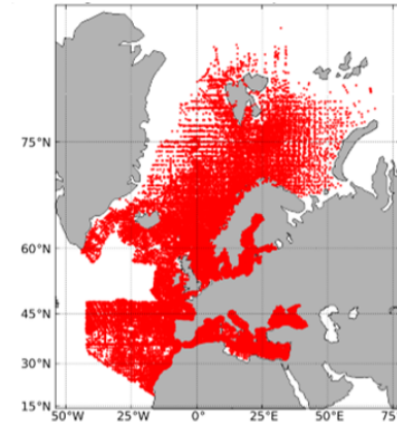
Challenges faced by the user

INSTAC provides integrated products for a core set of parameters: Temperature, Salinity, Current, Sea Level, Waves, Chlorophyll, Oxygen and Nutrients. These are highly needed to forecast, analyse and re-analyse ocean physical and biogeochemical conditions. Additionally, these parameters are used for satellite validation, research and downstream applications requiring Near Real Time (NRT) data. INSTAC prepares two types of products:

Impact of EMODnet

As a first step, only vertical profiles from version 2018 of EMODnet Chemistry datasets were integrated. The next step is to process the version 2021 of the EMODnet Chemistry time series files for inclusion in INSTAC products as well. At the same time the vertical profiles will be updated including the latest data sets. Moreover, the EMODnet Chemistry aggregated and validated data sets for ocean acidification will be used to complement the CMEMS-INSTAC Carbon product. Finally, as the ingestion of EMODnet data has increased coastal data, INSTAC intends to refine its control soon.

Media



EMODnet Chemistry vertical profiles (version 2018) ingested in the In Situ TAC product of the Copernicus Marine Service.

<https://emodnet.ec.europa.eu/en/use-case/emodnet-datasets-eutrophication-and-acidification-integrated-copernicus-marine-service-situ>

EMODnet: Use cases

Biology

Chemistry

Human Activities

Physics

Seabed Habitats

15 Jun 2021

EMODnet partners with Copernicus Marine for a joint data catalogue supporting evaluation of Good Environmental Status for the Marine Strategy Framework Directive.

A joint Copernicus Marine and EMODnet data catalogue for the Marine Strategy Framework Directive (MSFD) has been developed. It gathers all relevant marine data products from Copernicus Marine Service and EMODnet for all the MSFD descriptors (except Descriptor 4) in the Baltic Sea.

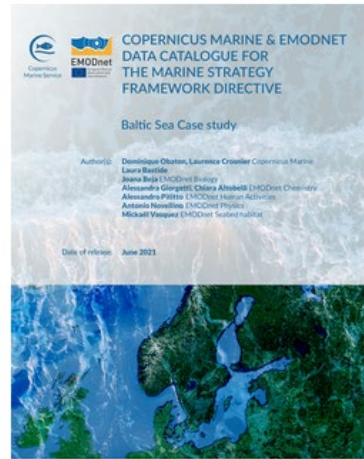
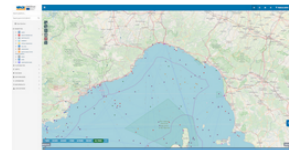
Continue reading

Bathymetry

Physics

EMODnet Bathymetry & Physics data supporting Sea Situational Awareness for tourist navigation

SINDBAD+, is a project co-funded by the European Commission (POR FESR 2014-2020), that aims at providing a service that can predict weather conditions and analyse its consequences on the navigation depending on the characteristics of the boat such as length, width and depth. The service targets luxury and leisure boaters. The SINDBAD partners use EMODnet Physics and EMODnet Bathymetry to initiate and validate data forecast models.



MSFD 01, 03, 05, 06, 07, 08, 09, 010, 011

Seabed Habitats

19 Sep 2020

OSPAR intermediate assessments: evaluation the ecological status of the marine environment in the NE atlantic

Users identified the main areas where disturbance from bottom-contact fishing was predicted to cause the most significant impact to benthic marine habitats. This work fed directly into the OSPAR Intermediate Assessment (2017) with future implications towards the Marine Strategy Framework Directive assessments.

Physics

31 Jan 2022

Development of a new sea level product covering European Seas and the Global Ocean

The Euro-Mediterranean Center on Climate Change (CMCC) has developed a first version of a web application with the "Total Sea Level" variable from EMODnet Physics. This solution presents a demonstrator of end-user application and decisional support dashboard systems to support public authorities in their daily management activities.

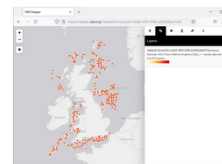
Biology

Seabed Habitats

31 Jan 2022

Holistic, standards-based access and interoperability for marine biodiversity data

Collaboration between EMODnet Biology, EMODnet Seabed Habitats and OBIS (Ocean Biodiversity Information System) has facilitated richer dataset publication and ensured the greatest volume of high-quality species and habitat data are available for reporting, assessments and informed decision making.



Continue reading

Physics

04 Mar 2021

EMODnet-Physics a win-win cooperation with OceanOPS to improve performance monitoring for Ocean Observing Platforms, data and information systems

In close collaboration with OceanOPS, EMODnet Physics is connecting multiple data sources with the OceanOPS metadata repository thanks to the unique identification system managed by OceanOPS. This is automatically reducing the duplication issues related to multi data sources and increasing the quality of the information system developed by EMODnet Physics. At the same time, EMODnet Physics is connecting OceanOPS to networks that are not yet under its radar to continuously improve the monitoring of the Ocean Observing systems operating in the global ocean.

Bat

Improving storm surge modelling in the North Sea

Changes in coastal sea level caused by the combined effect of surface winds and air pressure have the potential to cause widespread coastal flooding, damage to infrastructure and loss of life.

The low-lying lands bordering the North Sea are particularly vulnerable as was seen most notably in the catastrophic events of 1953. It is expected that climate change will increase the frequency and severity of such events.



Part 1.
Marine habitats

EMODnet: Sea-basin Checkpoints assessing data adequacy and data gaps



Arctic Checkpoint



Atlantic Checkpoint



Baltic Sea Checkpoint



Black Sea Checkpoint



MedSea Checkpoint



North Sea Checkpoint

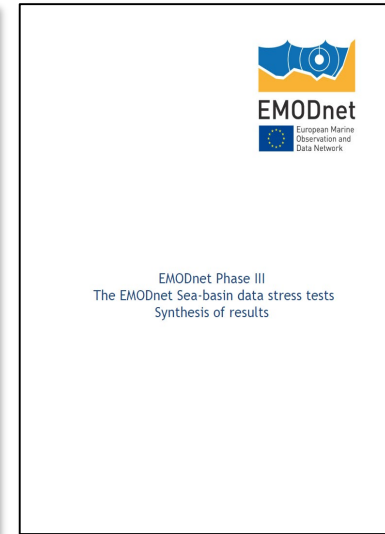
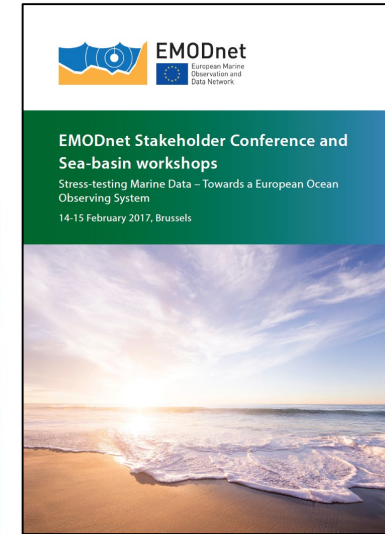
Are marine data fit for purpose?

A user perspective

Initiated in 2013, the EMODnet Sea-basin Checkpoint data stress test¹ was the first of its kind to adopt a user perspective to assess if the current ocean observation monitoring data were fit for purpose. In each case, the availability and suitability of open access marine data were tested against 11 specific end-user challenges at the level of 6 European sea-basins (see image below). Each challenge was designed to simulate a real-life application e.g. tracking an oil spill, siting of a wind farm, or assessing environmental impact of fisheries on the sea floor. The requirements for each challenge, including the diversity of datasets required, depended on the application. Each Checkpoint had to demonstrate how well the current monitoring systems and data collection frameworks provide data to meet the needs of users. In doing so, data gaps and duplications as well as significant bottlenecks could be highlighted.



Overview of the 6 EMODnet Sea-basin Checkpoints and the 11 end-user challenges (stress tests)



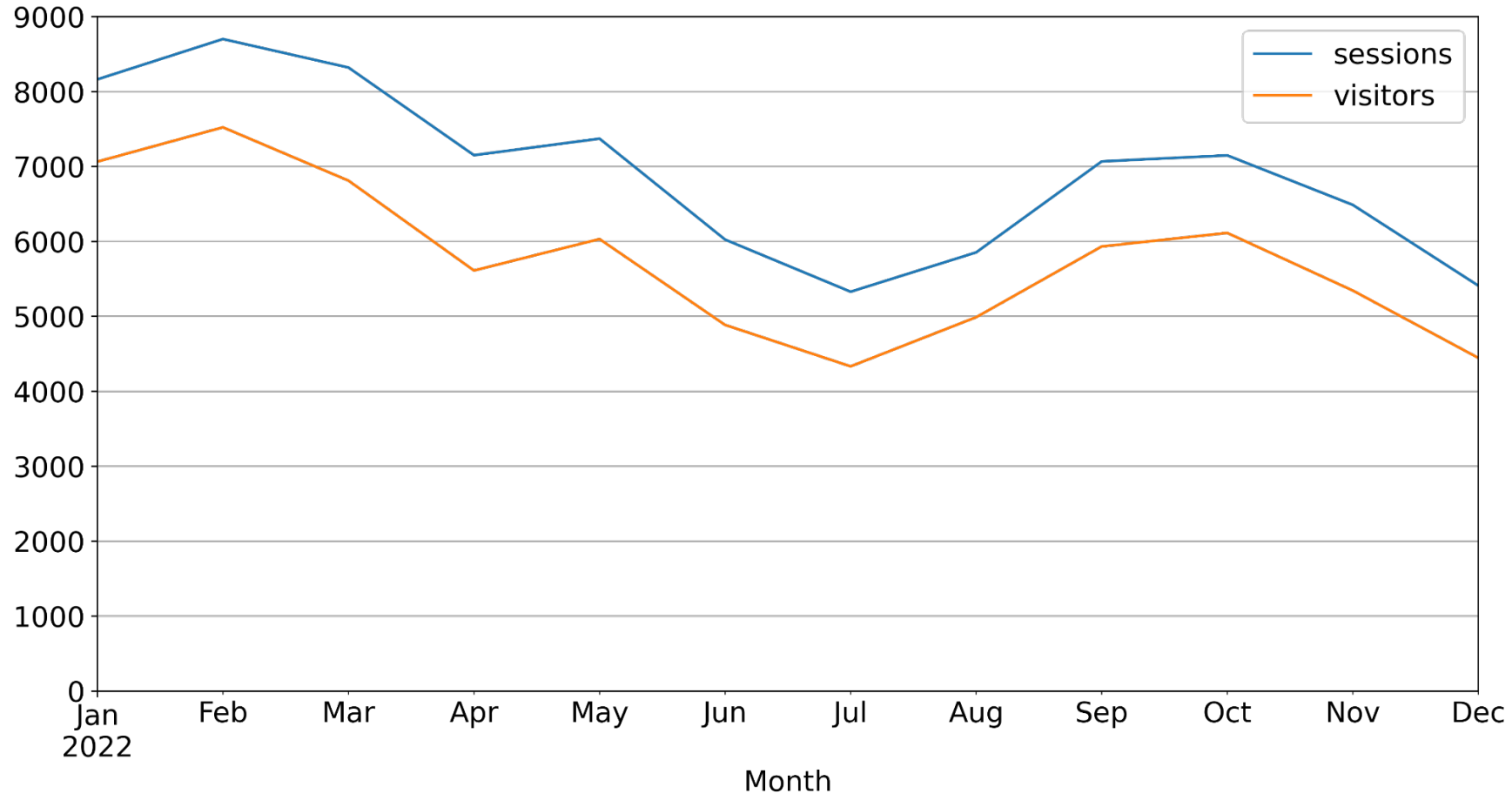
EMODnet Sea-basin Checkpoints: 2015-2018

Data gaps:

- Parameters e.g., underwater noise
- Resolution: temporal and spatial
- Geographical coverage

2022-2023: Assessing the added value and benefits of the methodology, progress in filling data gaps and recurring and emerging data gaps

European Atlas of the Seas: Status of ongoing actions

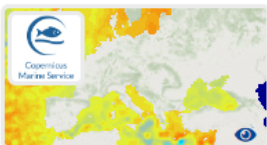


Overview of number of visitors and sessions (Europa Analytics visits equivalent) to the European Atlas of the Seas on a monthly basis (January-December 2022). Source: Europa Analytics

European Atlas of the Seas: Status of ongoing actions

Climate change

Global mean sea level regional trend



The Global mean sea level regional trend (Millimeters per year) is provided by the Copernicus Marine Service. Sea level is rising as a result of ocean heating and land ice -mass loss. Water expands when heated and about 30% of contemporary global mean sea level rise can be attributed to this thermal expansion alone. Sea level rise can seriously affect human populations in coastal and island regions as well as natural environments such as marine ecosystems.

The [time series](#) shows that the average global sea level has risen by more than 8 cm since the early 1990's and it continues to rise at a rate of 3.3 mm each year. New calculations reveal that global mean sea level rise is accelerating, with this rate increasing by 0.12 ± 0.073 mm each year.

Sea levels do not rise homogeneously and thus some regions are more threatened than others. The map shows the spatial distribution of sea level trends since 1993. It reveals that sea level is rising for the vast majority of the global ocean but there is large-scale variation with regions like the western tropical Pacific Ocean reaching amplitudes of up to +8 mm/year. In this area, the regional trends are mainly due to thermal expansion. The regional sea level trend uncertainty is on the order of 2-3 mm/year with values as low as 0.5 mm/year or as high as 5.0 mm/year depending on the region.

This sea level ocean monitoring indicator is derived from the DUACS delayed-time (DT-2018 version). These products are distributed by the Copernicus Climate Change Service and also available in the [Copernicus Marine Service catalogue](#).

Global sea surface temperature regional trend



The Global sea surface temperature regional trend (degree Celsius (°C) per year) is provided by the Copernicus Marine Service. Sea surface temperature is one of the Essential Climate Variables, defined by the Global Climate Observing System, required for monitoring and characterizing the state of the global climate.

The [time series](#) shows that the average global sea surface temperature has risen by more than 0.3 °C since the early 1990s and continues to rise at an unprecedented rate of 0.014 ± 0.001 °C per year. The past four years we observed the warmest ocean surface temperatures since records began.

Sea Surface Temperature does not rise homogeneously and thus some regions are more threatened than others. The map shows the spatial distribution of the mean sea surface temperature trends over the Global Ocean since 1993. It reveals that warming is occurring for the vast majority of the globe between 1993 and 2018. One of the exceptions to this trend is the North Atlantic, particularly the region south of Greenland where a cooling trend is observed.

This sea surface temperature ocean monitoring indicator is based on daily, global climate sea surface temperature (SST) analyses generated by the European Space Agency (ESA), SST Climate Change Initiative (CCI) and the Copernicus Climate Change Service (C3S) and is available from the [Copernicus Marine Service catalogue](#).

- **2 Copernicus Marine Service data layers related to Climate Change**
- **No new Copernicus base maps added in 2022.**
- **For 2023 the Atlas is interested in the Surface Ocean Acidification Trend OMI (dialogue has been initiated)**
- **Below are the European Atlas of the Seas user statistics for 2022 on Copernicus based maps.**

Date (group by year)	Layer	Times loaded
01/01/2022	ID:128 Global mean sea level regional trend	681
01/01/2022	ID:499 Global Ocean Chlorophyll (daily)	708
01/01/2022	ID:679 Global Ocean Chlorophyll (monthly-mean)	768
01/01/2022	ID:999 Global sea surface temperature regional trend	452

EMODnet Ongoing contributions to coastal related initiatives



JPI Oceans Sea Level Rise Knowledge Hub as:

- Presenter/participant at kick-off meeting, April 2020
- Co-Chair of Task Group on Communication and Outreach, member of the Steering Committee
- Contributor to Sea Level Rise event, Venice, October 2022 and the Assessment Report



UN Ocean Decade activity as:

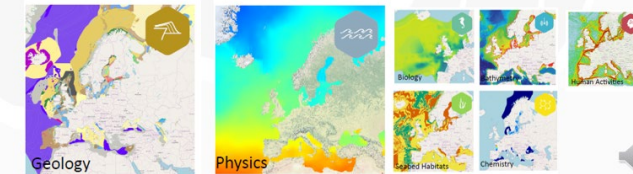
- **COAST Predict-CORE** Advisor
- **Collaborative Centre on Ocean Prediction** Advisor
- DITTO on digital Twins + TURTLE & many more

.....



What can EMODnet contribute to the European Knowledge Hub on Sea Level Rise?

- **Open & free access to integrated marine datasets & data products for knowledge-creation** for science, business and policy to:
 - reduce uncertainty through evidence-based operations & decisions;
 - increase productivity and cost-effectiveness;
 - add value and impact to data;
 - stimulate innovation.



CoastPredict - Observing and Predicting the Global Coastal Ocean

EMODnet: A key contributor to the Ocean Decade

EMODnet is relevant to all 6 Ocean Decade objectives:

- A safe **ocean**
- A sustainable and productive **ocean**.
- A transparent and accessible **ocean**.
- A clean **ocean**.
- A healthy and resilient **ocean**.
- A predicted **ocean**.

«EMODnet – a true hallmark in Marine Observations, Data and networking – is hugely important, not only for Europe, but as an example for other regions, and a valuable partner for IOC of UNESCO». Vladimir Ryabinin, Executive Secretary of the Intergovernmental Oceanographic Commission (IOC-UNESCO)



Intergovernmental
Oceanographic
Commission

2021
2030
United Nations Decade
of Ocean Science
for Sustainable Development

EMODnet has a key role to play – together with other marine knowledge actors across the world - to realise a truly transparent and accessible ocean whereby all nations, stakeholders and citizens have:

- **simplified access to ocean data, information and knowledge**, through user-driven interfaces and online data discovery and access services based on machine-machine communication;
- **trust in the provenance of the data** (through standardized, rich metadata) to increase the uptake and use and;
- **the capacity and knowledge to use marine data services and web-based collaborative spaces/digital ecosystems** where marine data can be utilized for solution-oriented applications and informed decisions.

EMODnet: Strengthening Partnerships for International Interoperability and Impact



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

- A key partner for open data, open science, data diplomacy and digital data stewardship in Europe, and beyond;
- Interoperable data discovery and access, in collaboration with other key data services
- Further diversifying data parameters and sources (e.g. industry, citizen science)
- Extending FAIR to FAIR, CARE and TRUST



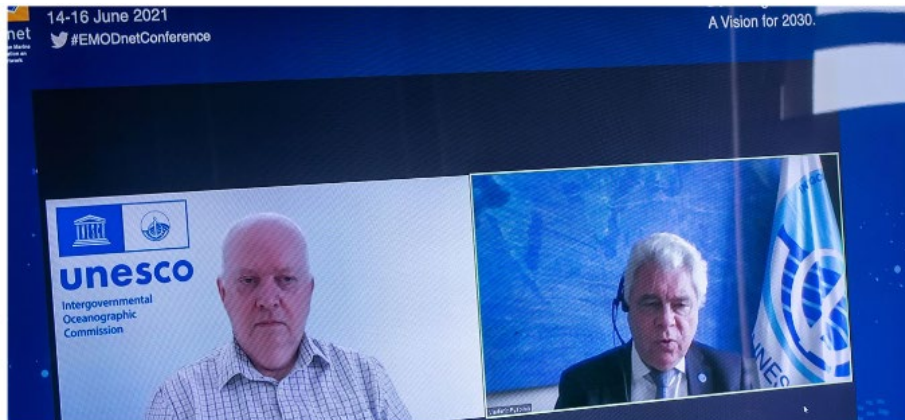
Transparency,
Responsibility,
User focus,
Sustainability and
Technology

EMODnet: A regional marine data, information and knowledge service directly contributing in diverse ways to the UN Ocean Decade



Ongoing activities

- Co-Chair of the UN Ocean Decade (OD) Data Coordination Group (EMODnet Secretariat);
- Contributor and expert to the **IWSODIS** Intersessional Working Group Strategy on Ocean Data and Information Stewardship for the UN Decade (EMODnet Coordinators);
- Multiple inputs to UN OD Actions:
 - DITTO (Digital Twins of the Ocean, Steering partner)
 - COAST PREDICT (Advisor role)
 - Ocean Best Practices (EMODnet referenced)
- **Ocean Data and Information System (ODIS)**: EMODnet thematic portals/central portal are registered on ODIS catalogue. Additional records will be added from the **Ebina** EMODnet PACE marine data project;
- **IOC Ocean InfoHub Project (OIH)**: EMODnet is a European focal point & technical advisor to the development of ODIS architecture & interoperability with EMODnet.



"We want global data and information systems and EMODnet's guidelines are great for community of practice. The network is also a role model for other regions."
Peter Pissierssens, IOC-IODE UNESCO

EMODnet for Global

- Contributions to the Ocean Decade as a Decade Implementing Partner: strengthen contributions to **international developments and initiatives**, in support of the **UN Decade of Ocean Science for Sustainable Development** and the **IODE programme of IOC-UNESCO**.
- An informal working group ‘**EMODnet for the Ocean Decade Coordination and Implementation Group**’ (E4D-CIG) aligning the work plans with the Data and Information Strategy of the Ocean Decade, amongst other activities.
- **Collaboration between EMODnet and the Chinese National Marine Data and Information Service** will be maintained and even strengthened as agreed via a Memorandum of Understanding.

EMODnet for the Ocean Decade Coordination Group (E4OD-CG) Terms of Reference (ToR)

- First version in February 2022
- Approved at the 16th EMODnet Steering Committee Meeting (April 2022)
- Presented and approved at the EMODnet for the Ocean Decade Coordination Group Kick-off Meeting (June 2022)
- Updated in January 2023 to reflect application for Decade Implementing Partner

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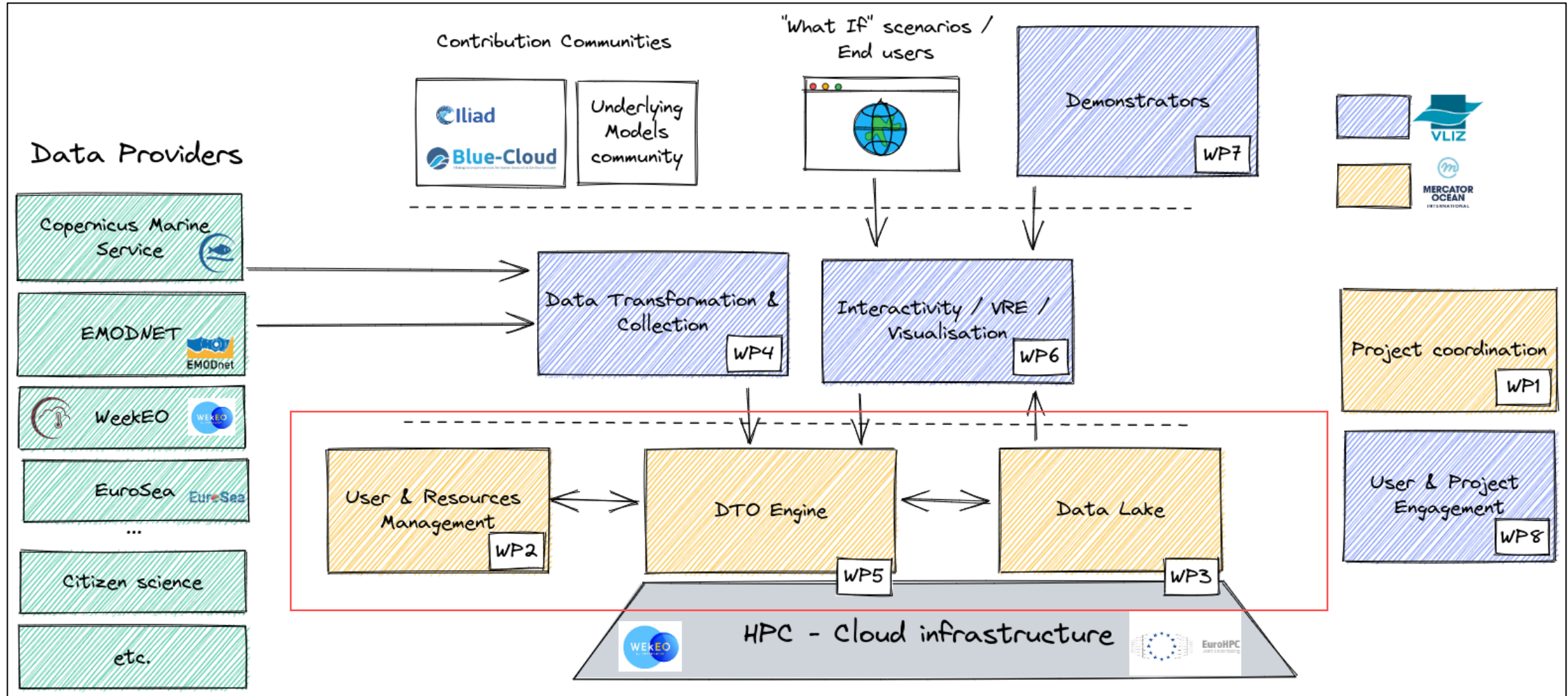
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APPLICATION FOR DECADE IMPLEMENTING PARTNERS

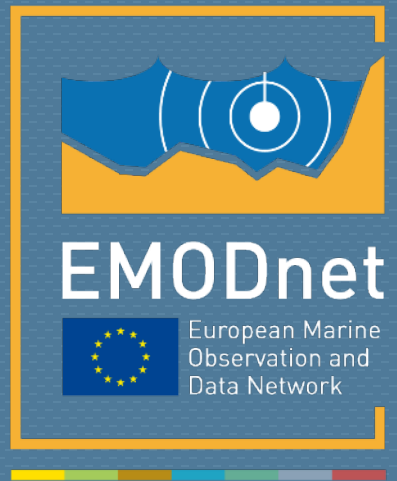
To be submitted electronically to the Decade Coordination Unit (DCU), including attachments as relevant. Please send the completed application to l.barbieri@unesco.org, with a copy to a.clausen@unesco.org.

1. PROPONENT	
Institution name: European Marine Observation and Data Network (EMODnet) Secretariat	Focal point title and contact name: Jan-Bart Calewaert, Head of the EMODnet Secretariat
Institution Type:	Focal point contact email: janbart.calewaert@emodnet.eu
Country and City: Belgium, Oostende	Focal point phone number: +32(0)59 34 14 28
Physical address: Wandelaarkaai 7 pakhuis 68 8400 Oostende	Legal representative name (if different from above):
Webpage & social media: @EMODnet	Legal representative email (if different from above):
Institution background: <i>(Please state the vision, objective or mission of the institution, describe the technical field in which the institution operates, the years of operation, and describe any parent institution if applicable).</i>	
<p>The European Marine Observation and Data Network (EMODnet) is a flagship Marine Knowledge initiative of the European Commission (EC) Directorate-General for Maritime Affairs and Fisheries (DG MARE), supported by the EU's Integrated Maritime Policy. For over a decade, EMODnet has evolved bottom up from a series of prototype portals to a fully operational sustained data service. It has developed a pan-European network of more than 120 organisations that collectively assemble and integrate marine environmental (bathymetry, biology, chemistry, geology, physics and seabed habitats) and human activities data collected and ingested from the diverse EU capability in ocean observation, marine monitoring and data collection, and making these pan-European datasets available with descriptive metadata, complying with European (e.g., INSPIRE) and international (e.g., ISO) standards. In addition, the hundreds of EMODnet marine <i>in situ</i> data experts co-produce added value data products that further provide a service to a large and growing community of end-users spanning research, marine and wider environmental policy, blue economy and wider business, civil society and citizens. EMODnet is committed to working towards truly FAIR¹ data and data products, to ensure key contribution and use of EMODnet data and data products for international marine users and global platforms and applications.</p>	
Institution structure: <i>(Please indicate if the institution's activities are international, national, or regional, describe the management and operational structure – centralized or decentralized-, number of permanent and temporary personnel linked to the institution, budget mobilized and managed by the institution in the last 3 years and the sources of these</i>	

¹ <https://www.go-fair.org/fair-principles/>



- Technical team (VLIZ, Moi and Seascope) meeting every week
- Progress has started on the parts in the red box.



emodnet.ec.europa.eu

Your gateway to marine data in Europe





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