



Short introduction to the European Marine Observation and Data Network (EMODnet)

EMODnet data for Offshore Renewable Energy

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Cost of Ocean Observation in EU

Space data:
€400M per year

In-situ data
(collected in water)
> €1 billion per year



There is only one Earth, with only one history, and we get only one chance to record it. Ideas not followed through can be taken up again later. A record not made is gone for good. **Editorial - Nature 450**, 761 (6 December 2007)

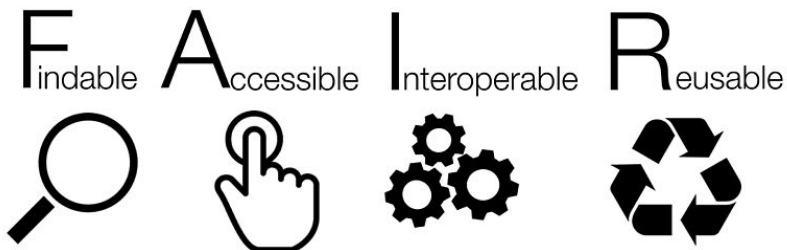
Historically: a fragmented landscape of *in situ* marine data in Europe



Sound ocean data is indispensable if we want to tackle major global issues such as climate change, marine litter, illegal fishing or marine protection. It is also a bare necessity if we want to develop the blue economy and create sustainable economic growth in the EU.

Karmenu Vella, European Commissioner for Environment, Maritime Affairs and Fisheries

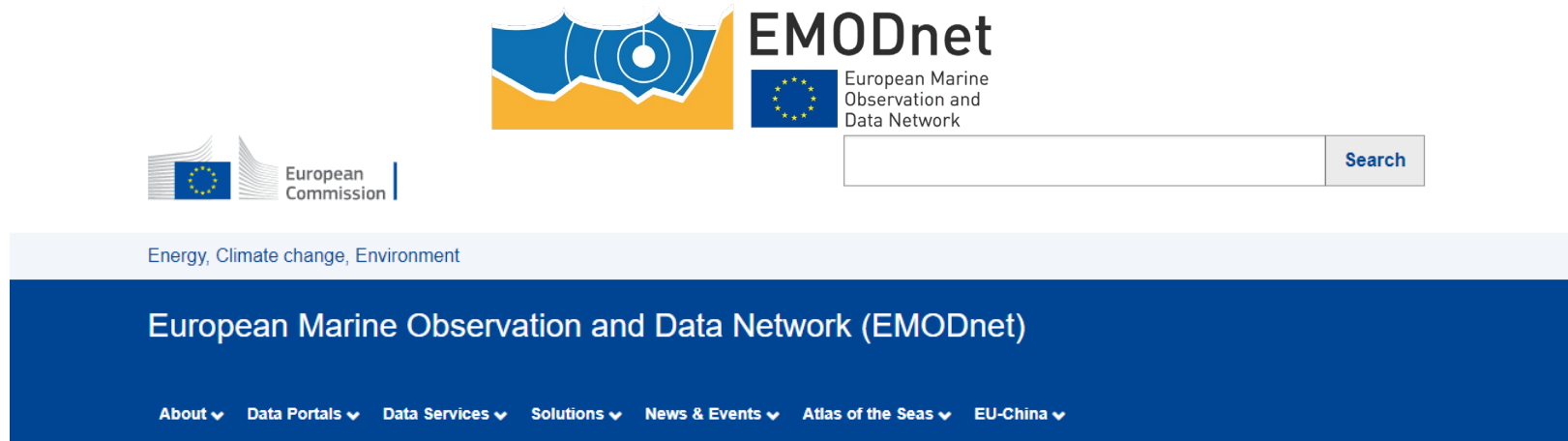
#E00SConference18



Before EMODnet, at EU level there was a:

- **Lack of access to high resolution integrated *in situ* marine data sets:** few open source data repositories at regional and European level & lack of funding to support EU *in situ* marine data aggregation efforts beyond Member State/national level;
- **Lack of FAIR data:** low levels of harmonization, standardization and interoperability particularly at EU level, resulting in a lack of trust and a low volume / diversity of users.

Move to “Collect once, use many times”



The European Marine Observation and Data Network (EMODnet)

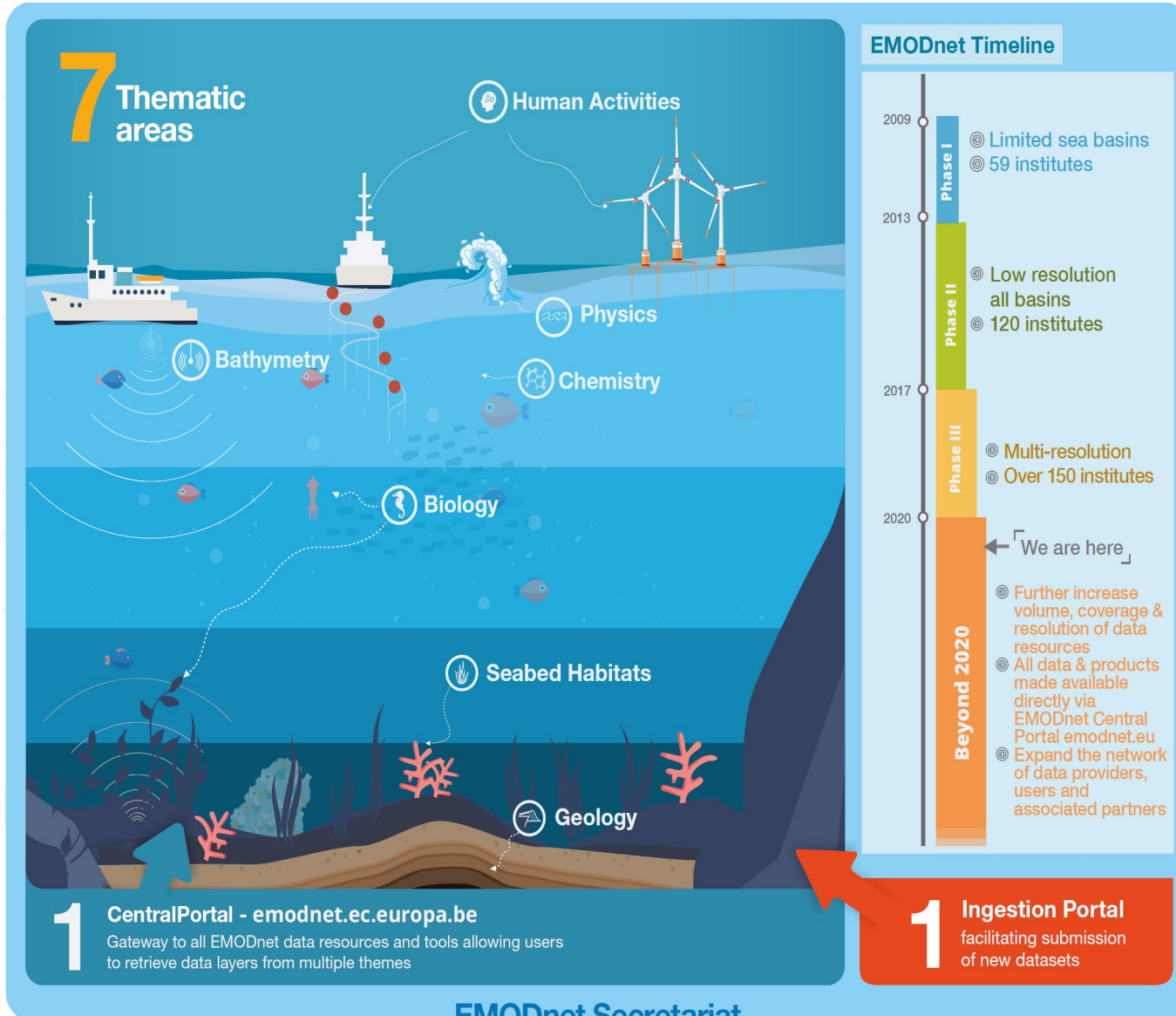
- **A Network of > 120 leading organisations, jointly delivering:**
- **Long-term *public* marine data service and marine knowledge initiative funded by the European Commission (DG MARE);**
- **European authority and regional best practice in the marine data domain;**
- **Key marine knowledge initiative which together with Copernicus Marine Service provides the back-bone for the European marine data space, a key contributor to the Global Ocean Data Ecosystem and digital commons.**

[Ten Years of EMODnet in Ten Minutes - watch the full movie - YouTube](#)

[Introduction to the European Marine Observation and Data Network \(EMODnet\) - Bing video](#)

EMODnet: A trusted *in situ* EU marine data service.

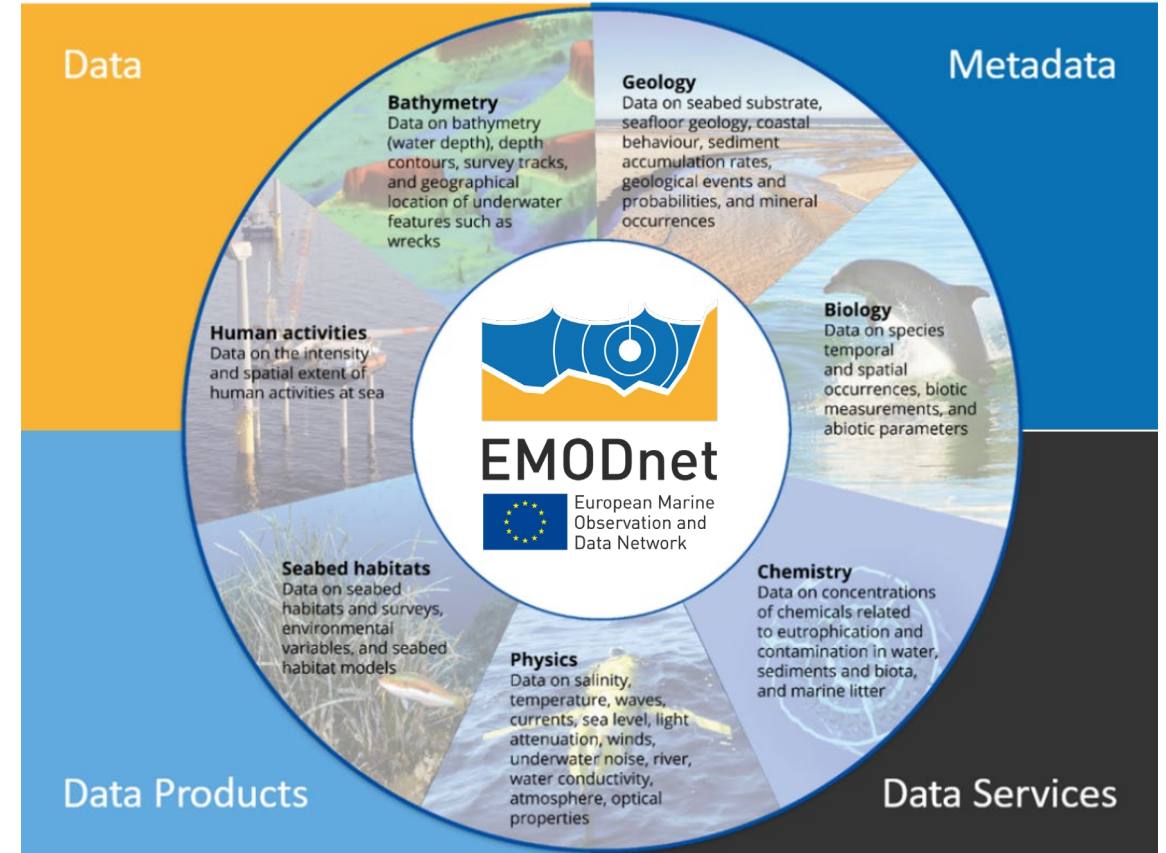
Unlocking and democratising marine data: Open and free for all



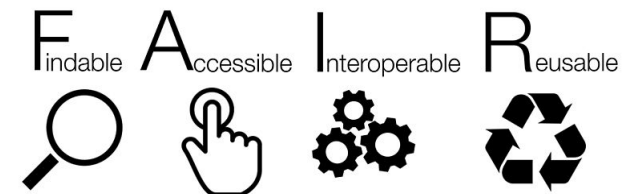
- **7 EMODnet thematic domains** marine environment and human activities (100s of parameters)
- **Datasets**
 - ✓ from *hundreds of data providers* (academia, private sector, government marine monitoring, citizen science)
 - ✓ **Standardized, harmonised & integrated**
 - ✓ from *seafloor to surface*
- **Data products** (e.g. maps, composite maps, predictive capability);
- **European seas and beyond** (global datasets and maps)
- **More than 10 years data service**

EMODnet: Data services and web services to discover open and free access to data and data products from a trusted source

- INSPIRE (EU) standards and FAIR (International) data principles
- Aggregated, harmonized multi-parameter data sets
- Searchable metadata (ISO standards)
- Data services (maps, query)
- Integrated data products
- Web services e.g. OGC, machine-machine readability e.g. WMS, WFS, WebS



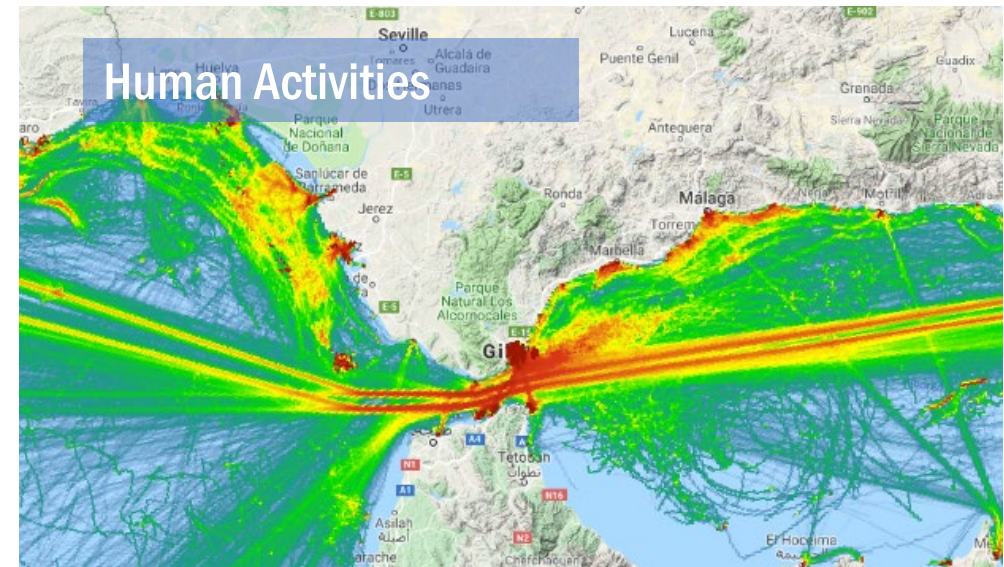
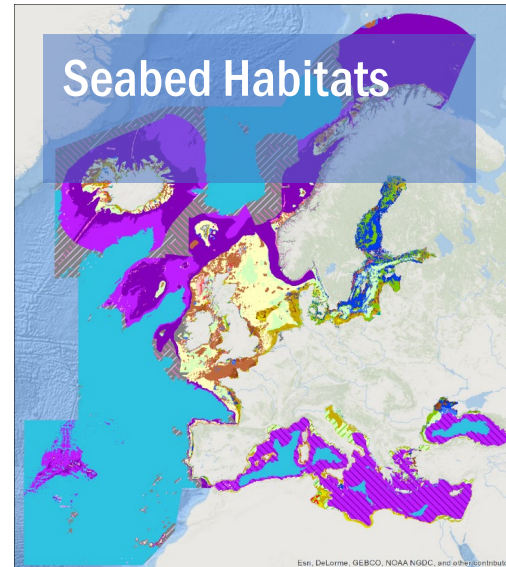
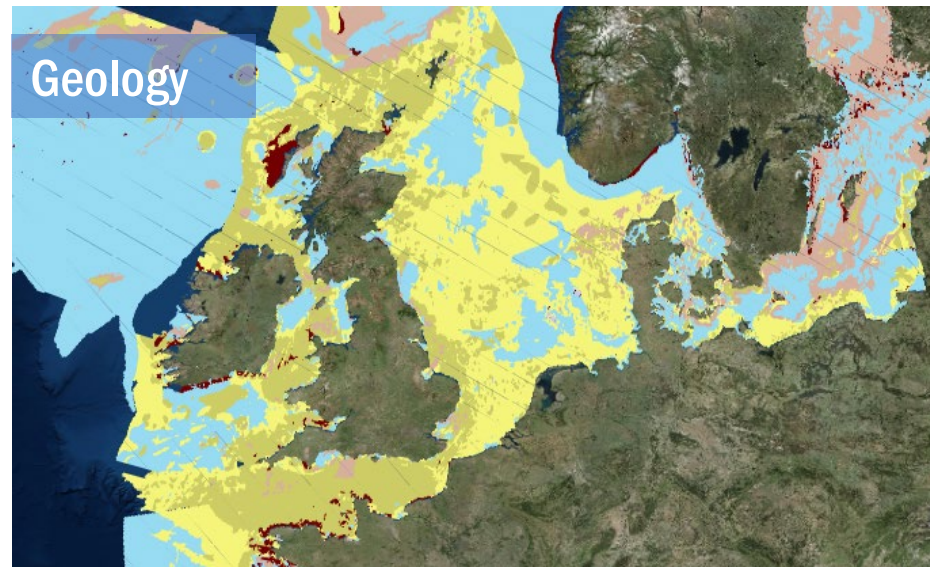
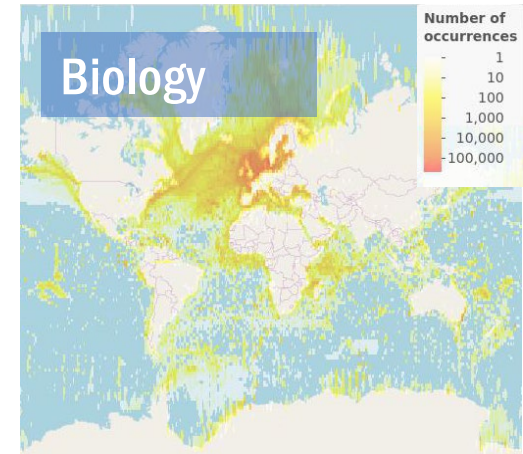
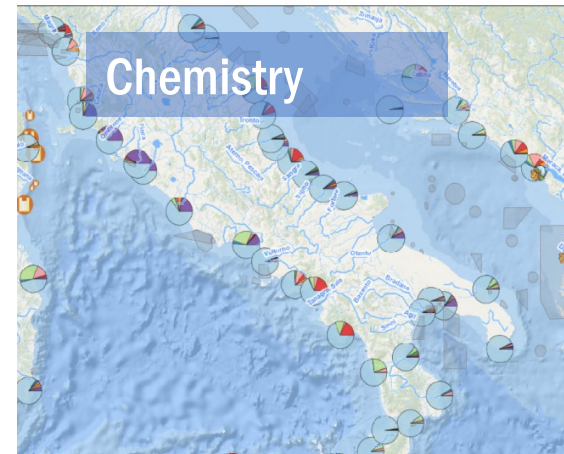
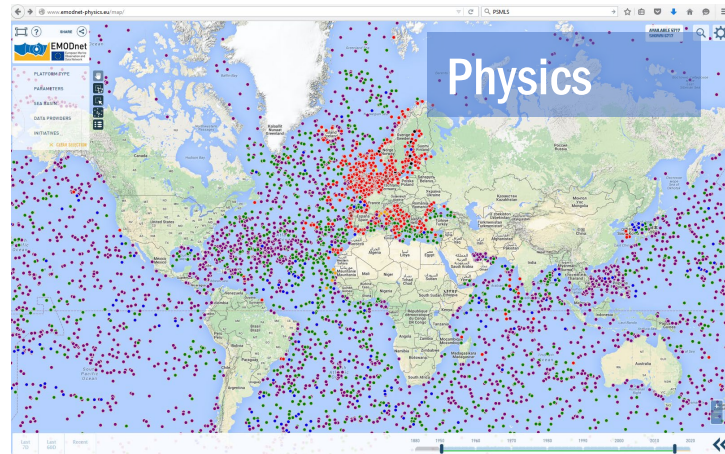
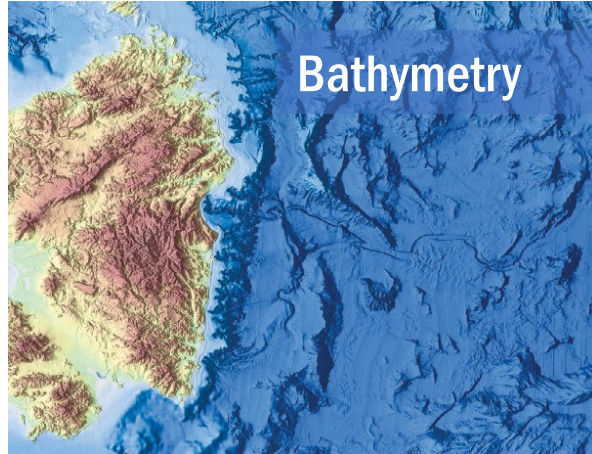
<https://github.com/EMODnet/Web-Service-Documentation>



emodnet.ec.europa.eu

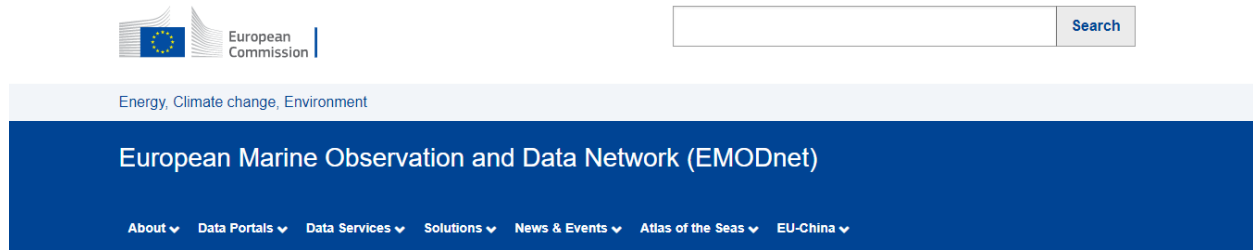
EMODnet: Diverse marine data and data products

Some results of working together: democratising in situ marine data, for all



EMODnet: A true European partnership

A large community of *in situ marine data experts* connecting ocean observations with data infrastructures and users for a user-driven, operational service

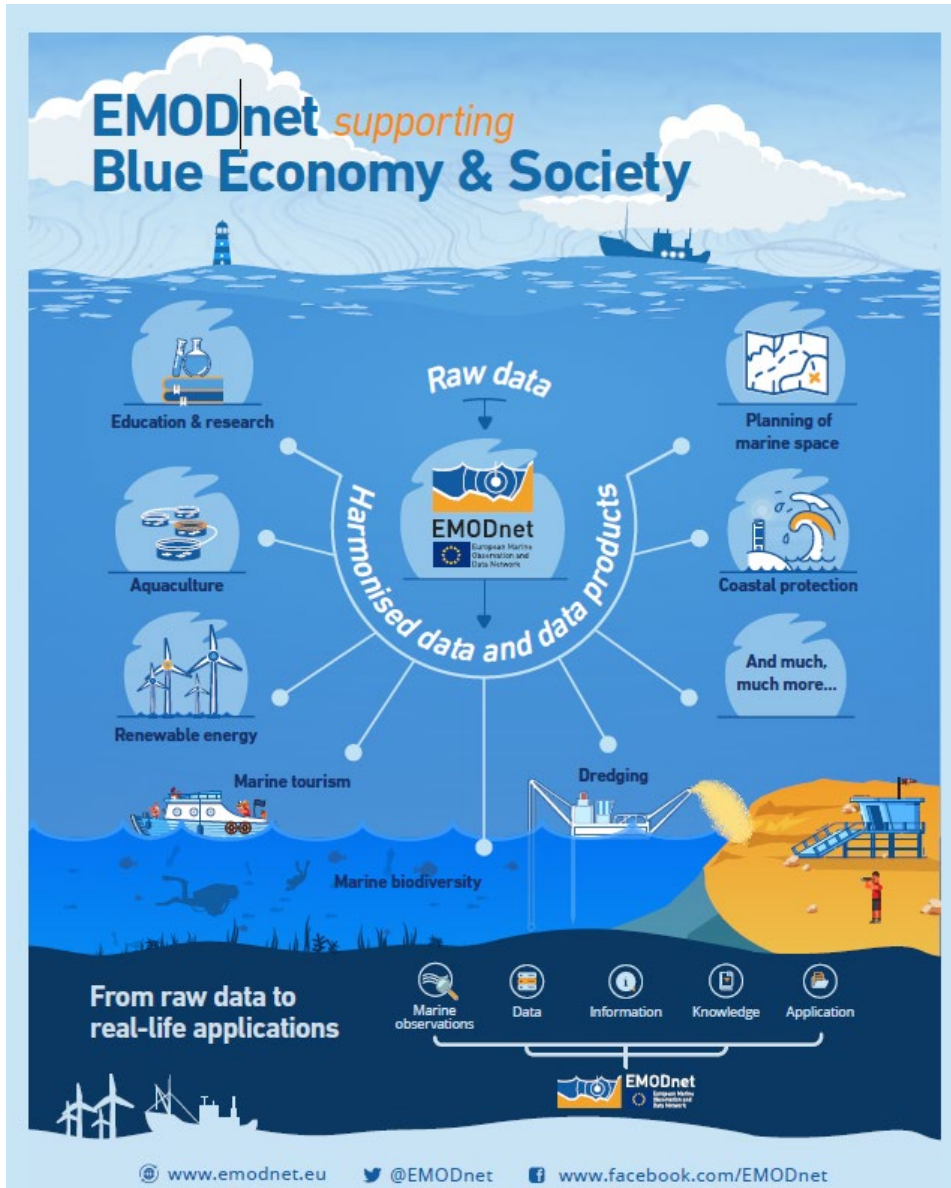


More than a decade of partnership, collaboration and excellence

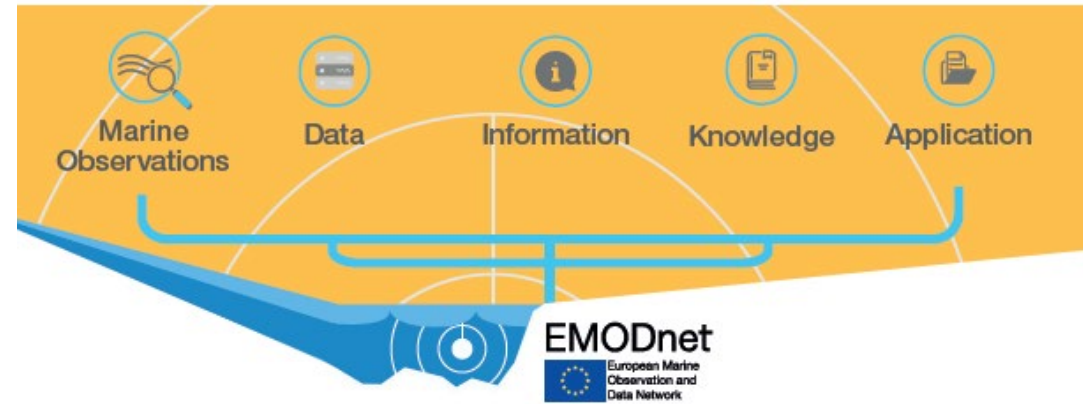


- **Large core network of >120 organizations** & hundreds of experts across the marine knowledge value chain;
- **Expert communities** Specialised in data management, visualisation, developing products and services;
- **Guided by EC Policy guidance & vision objectives**
- **Data Ingestion service**
- **Supported by a Secretariat**

EMODnet: Added value



From raw data to real-life applications



- ❑ Collect data once, use many times.
- ❑ Assemble, standardise, harmonise, quality control, integrate.
- ❑ Visualize and make data come alive.
 - reduce uncertainty;
 - increase productivity and cost-effectiveness;
 - add value and impact to your data;
 - stimulate innovation.

EU Strategy on Offshore Renewable Energy



Brussels, 19.11.2020
COM(2020) 741 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**An EU Strategy to harness the potential of offshore renewable energy for a climate
neutral future**

{SWD(2020) 273 final}

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“.....The Commission invites Member State developers and stakeholders to improve the quality and use of the Copernicus Marine Environment Monitoring Service and the European Marine Observation and Data Network (EMODnet). As open data platforms, these services provide highly valuable information to sea users, notably offshore renewable energy developers.”

EMODnet for Business and the Blue Economy: Offshore Renewable Energy

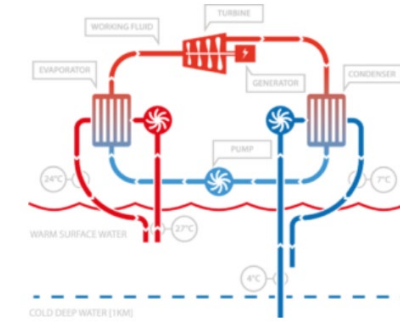


Offshore wind energy comes from the deployment of wind farms sited in bodies of water (fixed or floating platforms) *Image credit: © balipadma - stock.adobe.com full article on EMFF projects on offshore renewable energy*

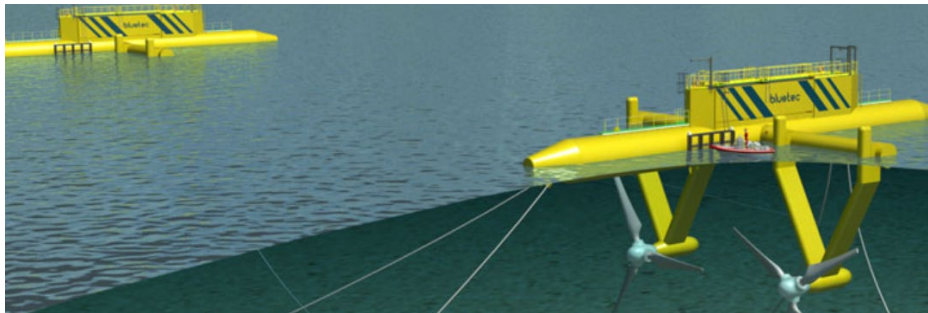
<https://webgate.ec.europa.eu/maritimeforum/en/node/7330>



Wave energy captures kinetic energy from waves (surface or sub-surface). *Image credit: The European Marine Energy Centre Ltd*
<https://www.emec.org.uk/about-us/wave-clients/corpower-ocean/>



Ocean Thermal Energy Conversion (OTEC) uses the difference between cooler (deep) and warmer (shallow) seawaters. *Image credit: Deltares*
<https://www.deltares.nl/en/issues/sustainable-energy-water-subsoil/energy-from-temperature-differences/>



Tidal energy generates power by exploiting ocean tides and currents. *Image credit: BlueWater Energy Services*
<http://www.bluewater.com/new-energy/bluetec/>

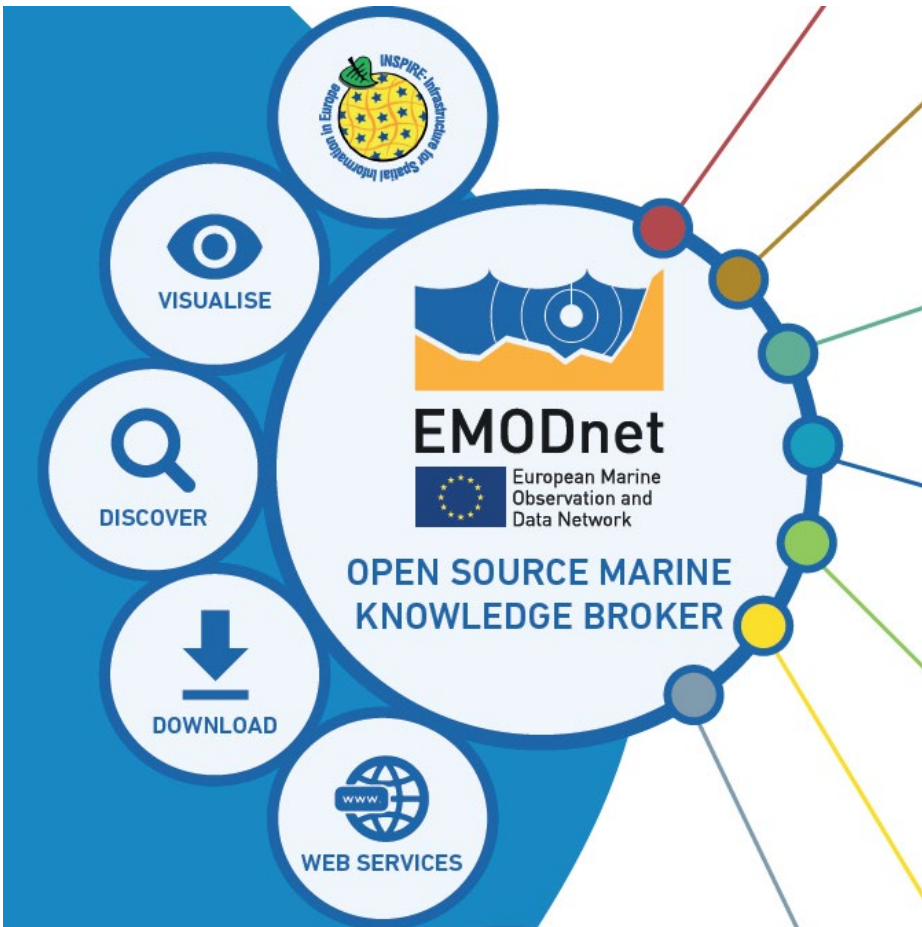


Floating solar
Image credit: Norwegian Solar Energy Cluster
<https://www.solenergiklyngen.no/>

.....and more.....

EMODnet: Demonstration of EMODnet services

The EMODnet Central Portal



The screenshot shows the EMODnet website homepage. The browser address bar displays "https://emodnet.ec.europa.eu/en". The page features the European Commission logo and a search bar. The main navigation menu includes "Energy, Climate change, Environment" and "European Marine Observation and Data Network (EMODnet)". A secondary menu lists "About", "Data Portals", "Data Services", "Solutions", "Atlas of the Seas", "EU-China", and "News & Events". The main content area features a "Home" section with a video player titled "Ten Years of EMODnet in Ten Minutes - watch the full movie". Below this is a "News" section with the heading "Read the latest news on EMODnet." Two news items are visible:

- Digging up the oceans' past**: A news announcement from 30 Aug 2022. The text states: "Digging up the oceans' past is a crowdsourcing project of the zooniverse platform developed within the framework of EMODnet Biology."
- EMODnet Chemistry responds to EC survey on chemical data for safety assessments**: A news announcement from 30 Aug 2022. The text states: "EMODnet Chemistry has provided expert input to a consultation on a new EC initiative on 'Chemical safety – better access to chemicals data for safety assessments'."

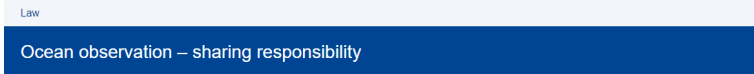
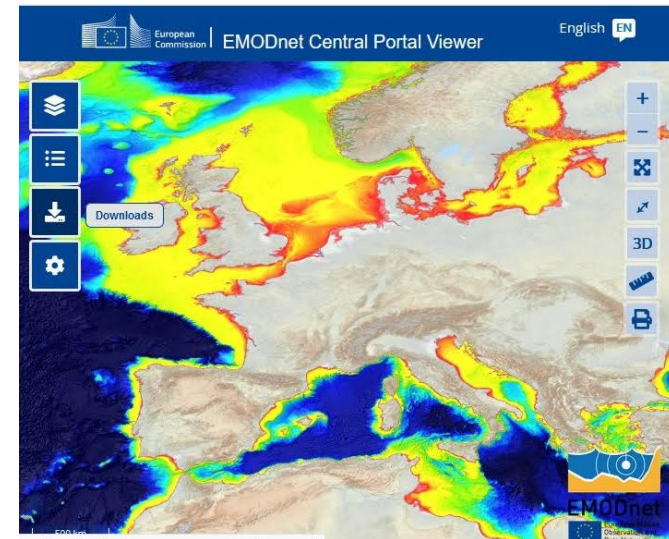
EMODnet: Continued evolution for a fit-for-purpose user-driven service

EMODnet new phase (by end 2022) will complete the consolidation stage to deliver a fully centralized service with:

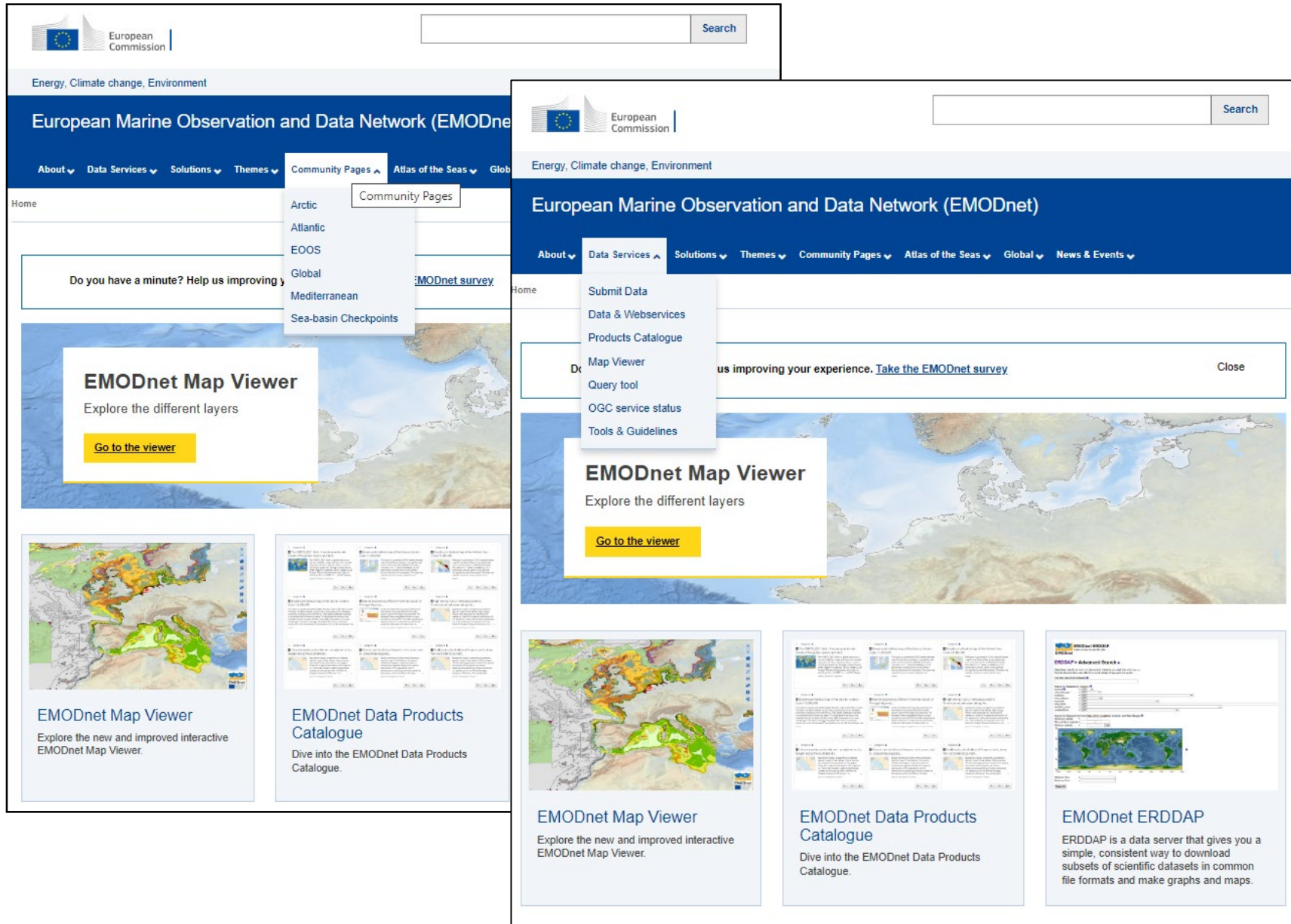
- A simplified single-entry point to all data/data products;
- A data cache approach more suited to today's data driven world towards next phase ocean data and information management;
- An enhanced data discovery service using a central metadata catalogue and machine-machine search engine;
- A central map viewer;
- Interoperability across the digital (marine data) commons.



emodnet.ec.europa.eu



EMODnet | One new portal to replace all thematic portals.

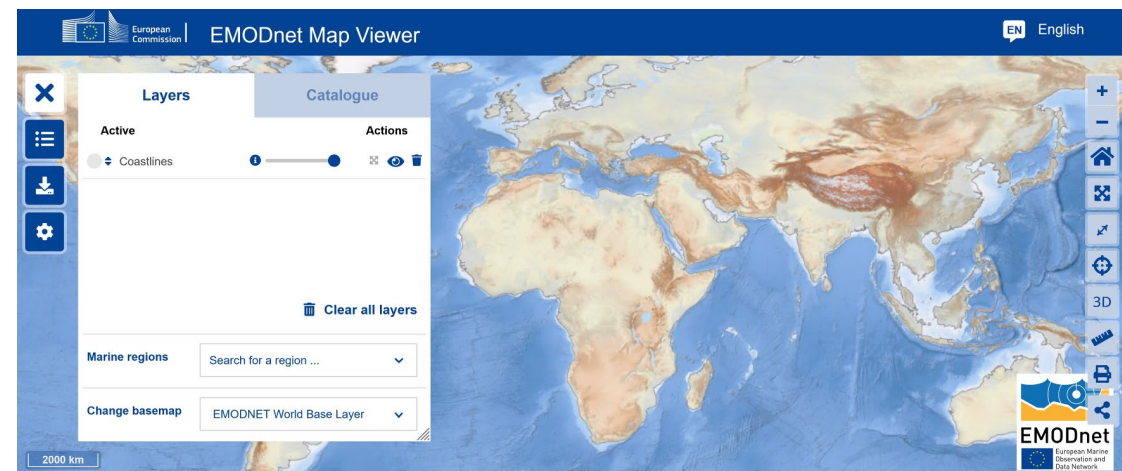
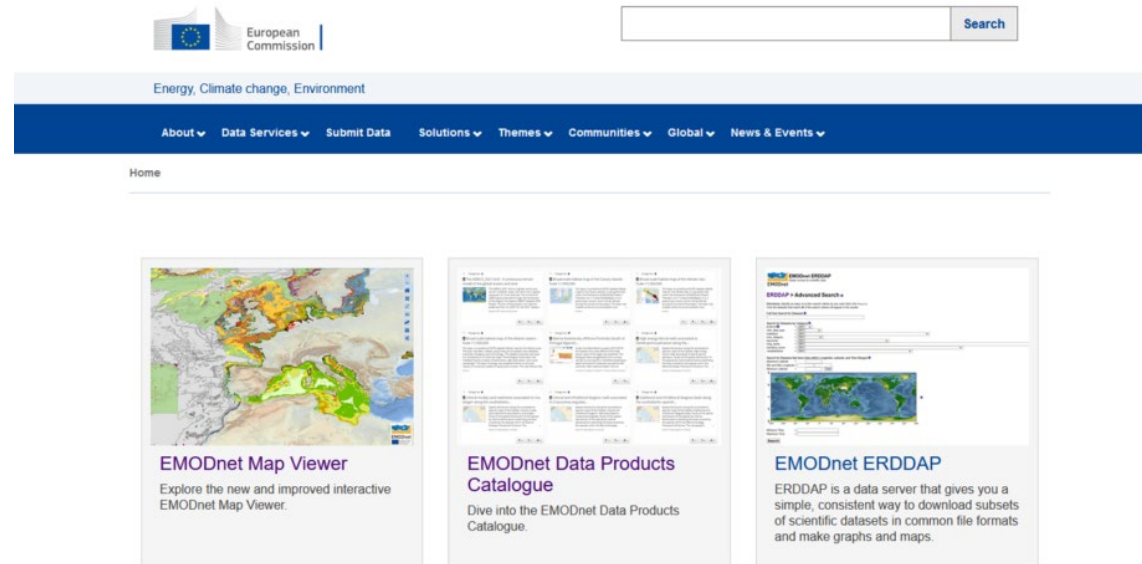
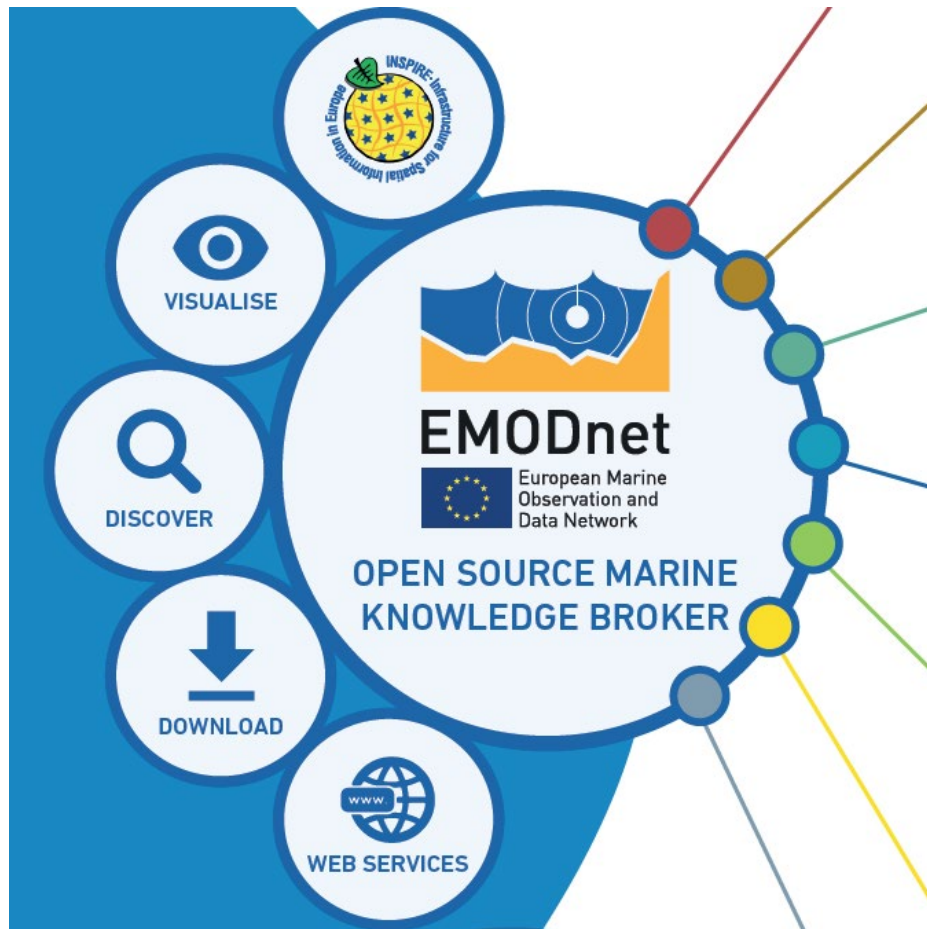


- **One web site.** The content from other portals migrated to Central Portal.
- **One catalog** containing metadata and links to all data sets and products.
- **One map viewer** covering all themes.
- **Close** EMODnet thematic portals by end of 2022.

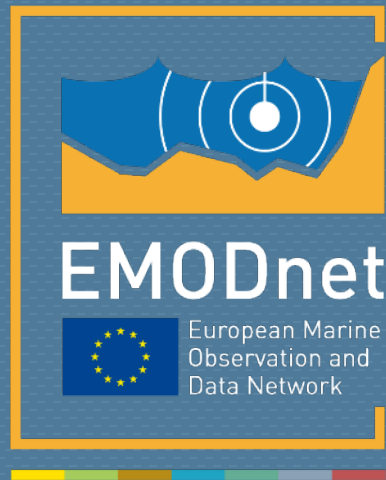
EMODnet | One new map viewer to replace all other map viewers.

The screenshot displays the EMODnet Map Viewer interface. At the top left, the European Commission logo and the text 'EMODnet Map Viewer' are visible. The top right corner shows the language 'EN English'. The main interface is divided into a left sidebar and a central map area. The sidebar contains a 'Layers' and 'Catalogue' section with a search bar and a list of categories: Administrative units, EMODnet Bathymetry, EMODnet Biology, EMODnet Chemistry, EMODnet Geology, EMODnet Human Activities, EMODnet Physics, EMODnet Seabed Habitats, and EU-China EMOD-PACE project. Below this list is an 'Add external layers' button and a 'Marine regions' dropdown menu. The central map area shows a satellite-style map of the Mediterranean region with various data layers overlaid in different colors (green, yellow, red, blue). A 'Filter layers' dialog box is open in the bottom right corner, showing a search for 'Orcinus orca' and an 'Apply' button. The bottom left corner of the map shows a scale bar for 500 km and coordinates: -15.69950, 40.79526. The EMODnet logo is visible in the bottom right corner of the map area.

EMODnet: Continued evolution of EMODnet, to deliver a fit-for-purpose user-driven service



Screenshots from development website, 'soft launch from October 2022'



emodnet.ec.europa.eu

Your gateway to marine data in Europe

