

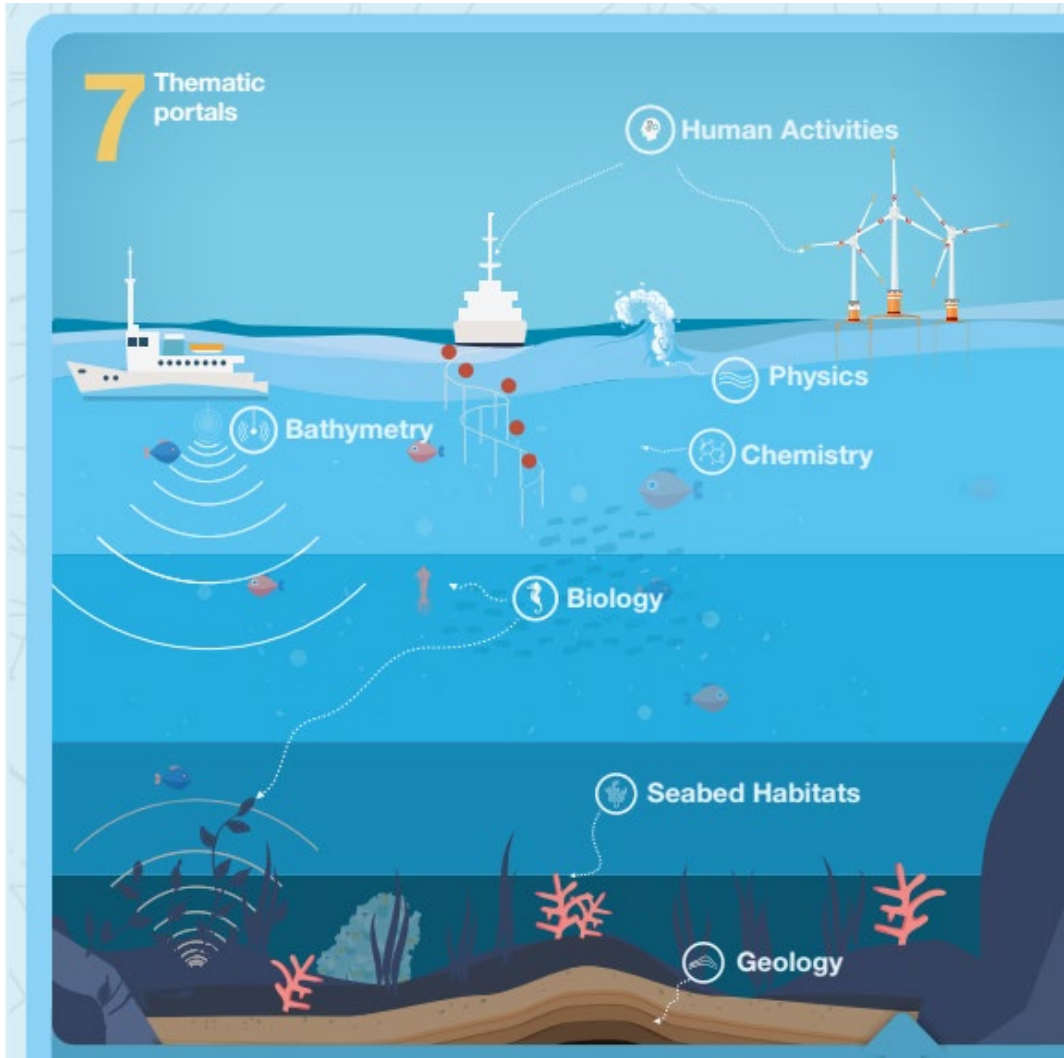


EMODnet: Open Source Marine Data, Digital Products and Services for Europe and beyond

Patrick Gorringer
SMHI/EMODnet Physics/EMODnet
Secretariat

www.emodnet.eu

What is EMODnet?

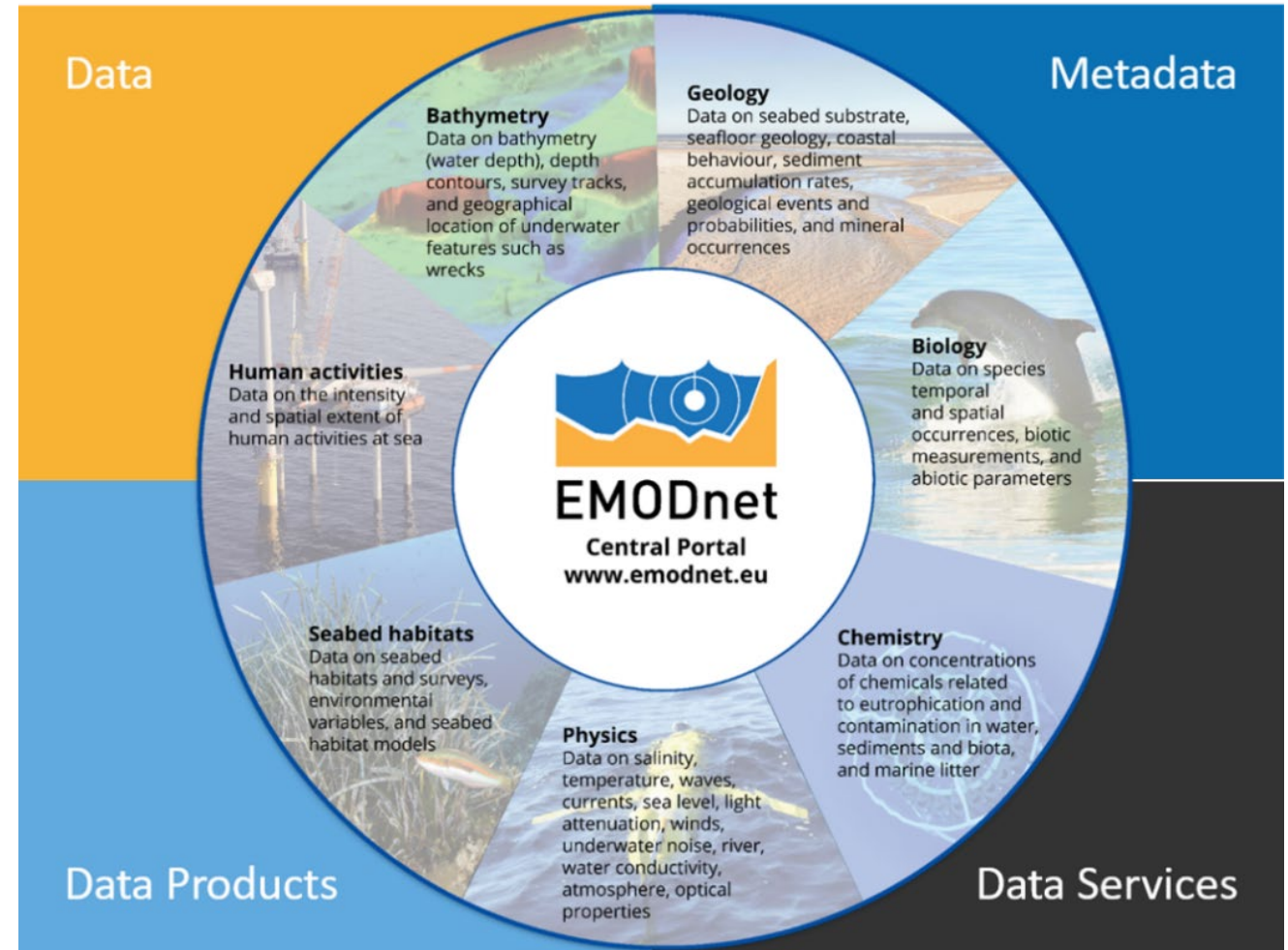
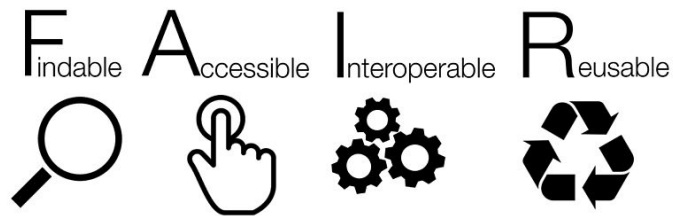


- a **long-term European marine knowledge** initiative funded by the EC (DG MARE);
- **marine knowledge broker**, providing open and free access to marine data, products, services;
- **Large network of >150 organizations, experts & wider community** of data providers and users;
- **Complimentary and aligned to other data services** e.g. Copernicus Marine Service (satellite/remote sensing focus)
- **data & products from the surface to seafloor** (focus on data collected in water *in situ*);
- **7 thematics & central portal & data ingestion & Secretariat**

What is the added value of EMODnet?

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

- INSPIRE and FAIR data principles
- Aggregated, harmonized multi-parameter data sets
- Searchable metadata
- 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>

What is the added value of EMODnet?

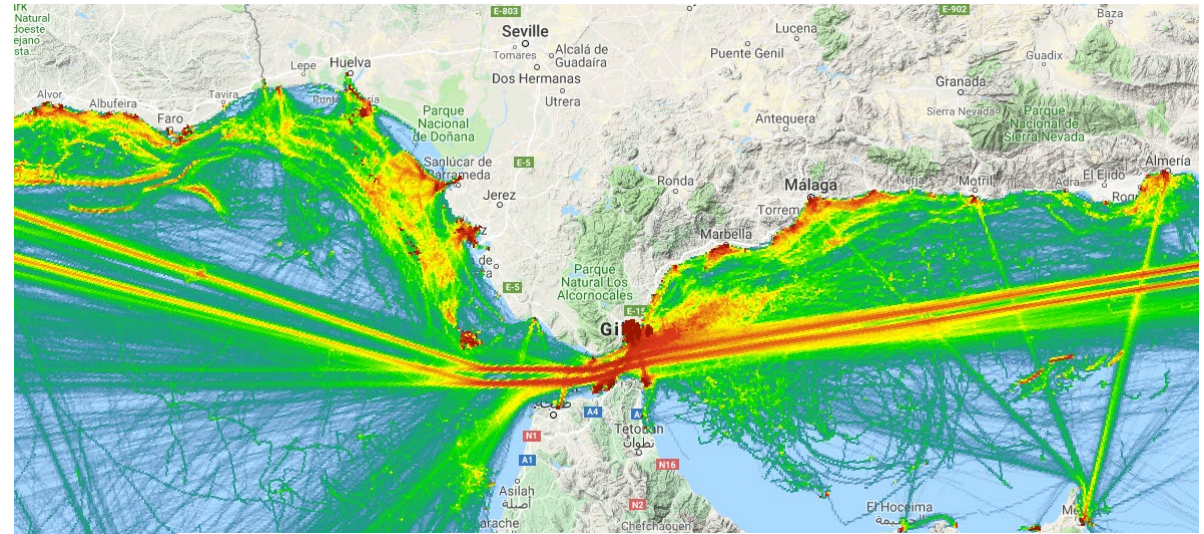
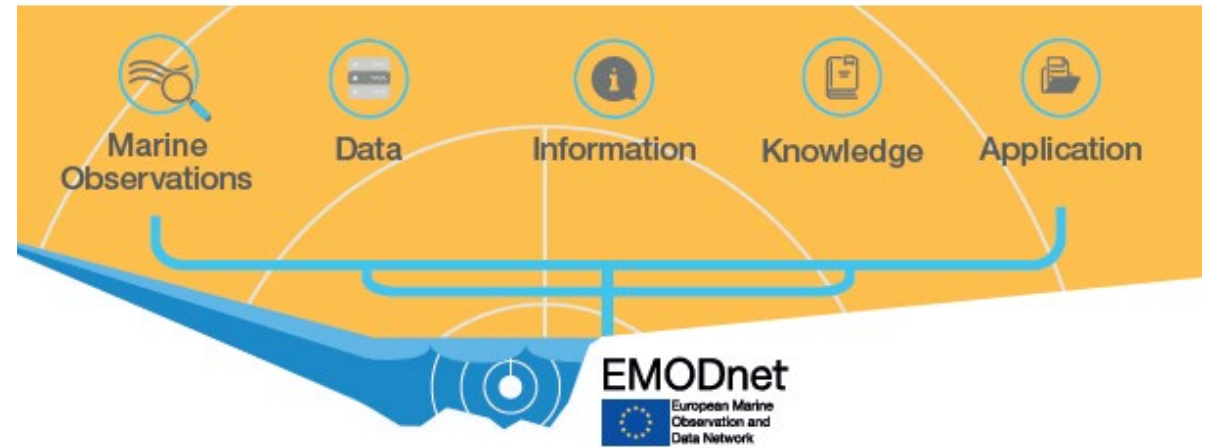
Collect data once, use many times.
Visualize and make data come alive.

- reduce uncertainty;
- increase productivity and cost-effectiveness;
- add value and impact to your data;
- stimulate innovation.

Linking ocean - climate

- EMODnet is offering a public service of "blue" data for the EU Green Deal to meet the targets of EU Climate Pact / Climate Action

From raw data to real-life applications



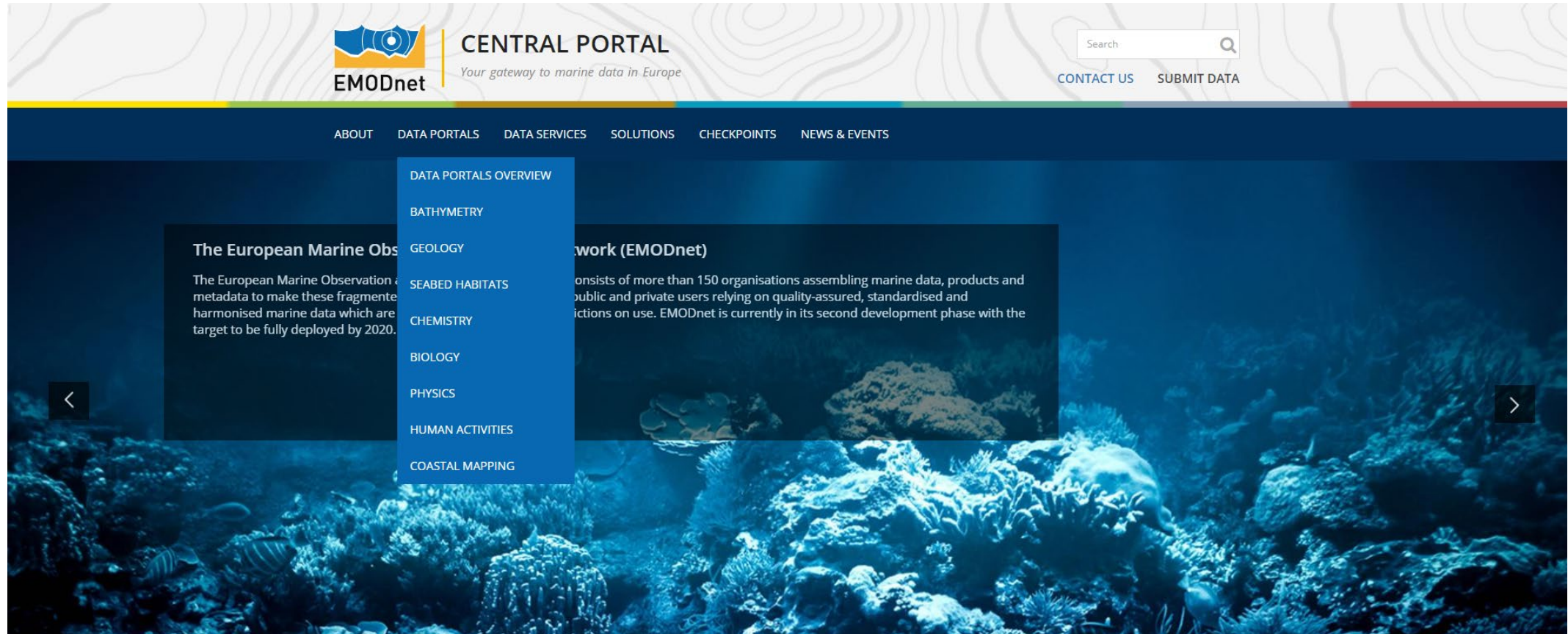
HUMAN ACTIVITIES

Vessel density by EMODnet Human Activities. The map is a grid with 1 square kilometre cells, each with a colour gradient for vessel density.

www.emodnet-humanactivities.eu

The EMODnet Central Portal provides a single point of access to the 7 thematic areas: **Centralisation towards a common map viewer**

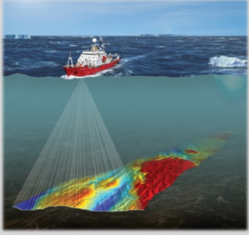






www.emodnet.eu



Discover the EMODnet tutorials to help you find the data and data products you need!

<https://www.emodnet.eu/en/videogallery>

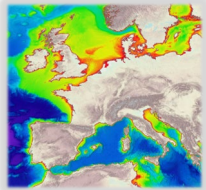
Thematic DATA coverage by the portals

Bathymetry	Geology	Seabed habitats	Physics	Chemistry	Biology	Human activities
						
Survey tracks	Seabed substrate	Seabed habitat maps (broad-scale and specific per basin)	Wave height and duration	Acidity	Occurrences and abundances of species of:	Aggregate extraction
Water depth and depth profiles	Sediment accumulation rates	Individual seabed habitat maps from surveys	Sea temperature	Antifoulants	Phytoplankton	Aquaculture
Undersea features	Seafloor lithology	Environmental variables influencing habitat type (depth, salinity, currents, light, ...)	Wind speed and direction	Chlorophyll	Zooplankton	Cultural heritage
Wrecks	Seafloor stratigraphy		Salinity	Dissolved gases	Macro-algae	Dredging
High resolution bathymetry in coastal areas	Coastal behaviour		Horizontal speed of the water column	Fertilisers	Angiosperm	Fisheries
	Geological events and probabilities		Water clarity	Hydrocarbons	Fish	Hydrocarbon extraction
	Mineral occurrences		Changes in sea level	Marine litter (micro, beach, seafloor)	Reptile	Traffic in main ports
			Inflow from rivers	Heavy metals	Benthos	Ocean energy facilities
			Water conductivity / biochemical parameters	Organic matter	Bird	Pipelines and cables
			Atmospheric parameters	Polychlorinated biphenyls	Sea mammal	Protected areas
			Underwater noise	Pesticides and biocides		Status of bathing sites
				Radionuclides		Vessel density
				Silicates		Waste disposal (solids)
						Wind farms
						Other forms of area management/ designation



Thematic DATA PRODUCT coverage by the portals

Bathymetry



Digital Terrain Model
of:

Survey tracks

Water depth and
depth profiles

Undersea features

Wrecks

High resolution
bathymetry in
coastal areas

Geology



Maps of:

Seabed substrate

Sediment accumulation
rates

Seafloor lithology

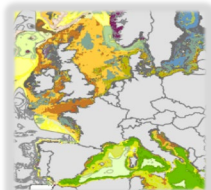
Seafloor stratigraphy

Coastal behaviour

Geological events and
probabilities

Mineral occurrences

Seabed habitats



**EMODnet broad-scale
seabed habitat map for
Europe (EUSeaMap)**

Confidence maps

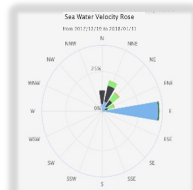
Maps of:

Seabed habitat maps
(broad-scale and
specific per basin)

Individual seabed
habitat maps
from surveys

Environmental variables
influencing habitat type
(depth, salinity,
currents,
light, ...)

Physics



**Time series
Dynamic plots**

Profiles

Statistics (trends, max,
min, average, ...)

Maps of:

Wave height and duration

Sea temperature

Wind speed
and direction

Salinity
Horizontal speed
of the water column

Water clarity

Changes
in sea level

Inflow from rivers

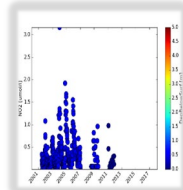
Water
conductivity/biogeochemi
cal parameters

Atmospheric parameters

Ice cover

Underwater noise

Chemistry



**Concentration maps
using DIVA software**

Dynamics plots

Profiles of:

Acidity

Antifoulants

Chlorophyll

Dissolved gases

Fertilisers

Hydrocarbons

Heavy metals

Organic matter

Polychlorinated
biphenyls

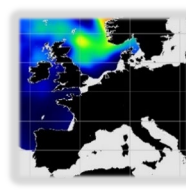
Pesticides
and biocides

Radionuclides

Silicates

Marine litter (micro,
beach, seafloor)

Biology



Map viewer of:

Phytoplankton

Zooplankton

Macro-algae

Angiosperm

Fish

Reptile

Benthos

Bird

Sea mammal

Dynamic gridded
abundance plots
showing geographical
variability of species of:

Benthos

Birds

Fish

Sea mammals

Micro-organisms

Physoplankton

Reptiles

Zooplankton

Human activities



Map viewer of:

Aggregate extraction

Aquaculture

Cultural heritage

Dredging

Fisheries

Hydrocarbon extraction

Traffic in main ports

Ocean energy facilities

Pipelines and cables

Protected areas

Status of bathing sites

Vessel density

Waste disposal (solids)

Wind farms

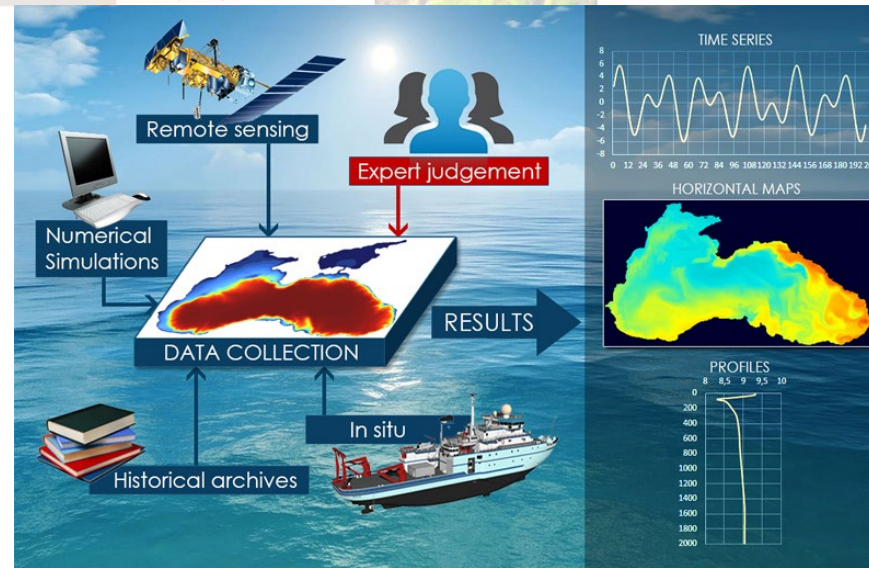
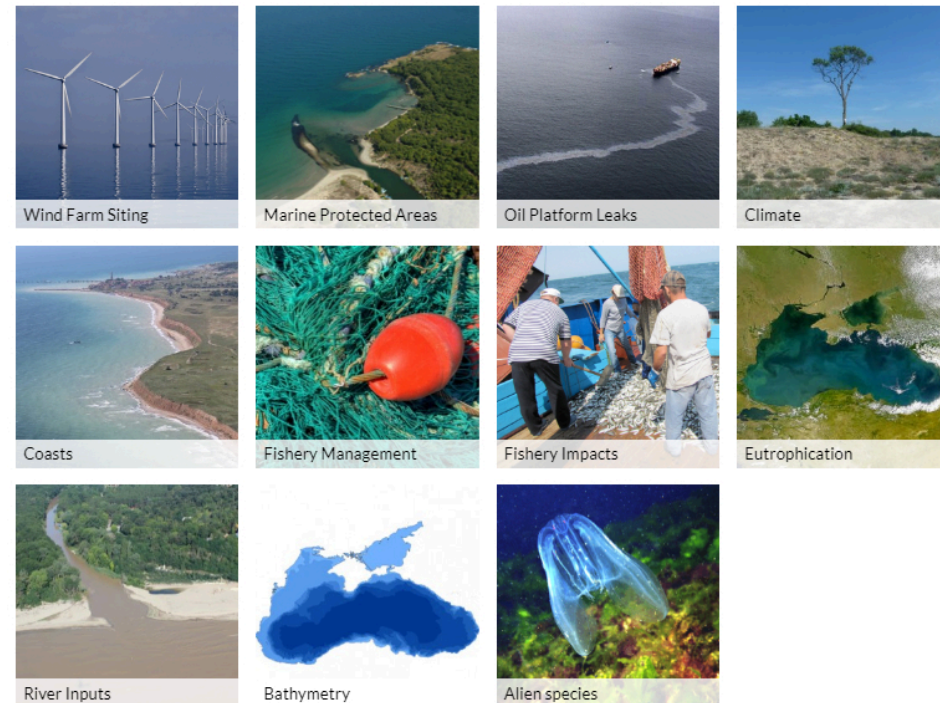
Other forms of area
management/
designation



Sea-basin Checkpoints

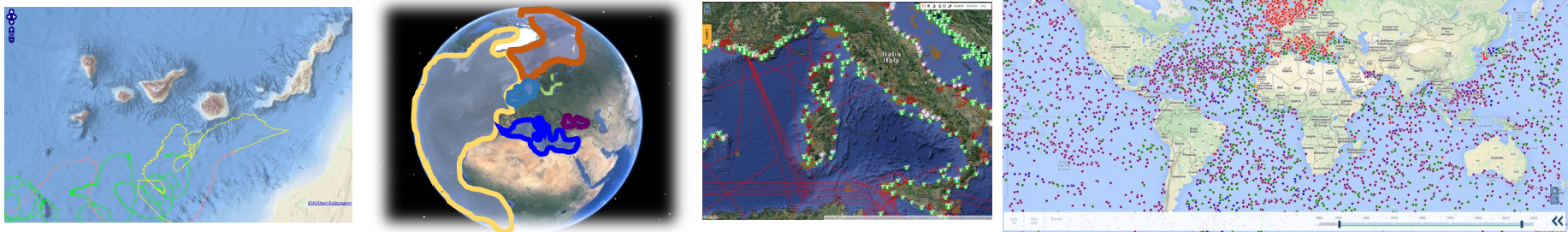
- 2013-2018
- By testing the data against specific **end-user challenges**;
- Checkpoints evaluated how well the **current monitoring systems** and data collection frameworks provided data to meet the needs of users;
- Highlighted data **gaps**, **duplications** and **bottlenecks** at sea-basin scale.
- **Climate change** and the related coastal protection/management were common challenges of all Sea-basin Checkpoints.

<https://emodnet.eu/en/checkpoints>



EMODnet: A decade of achievements – connecting marine data to knowledge

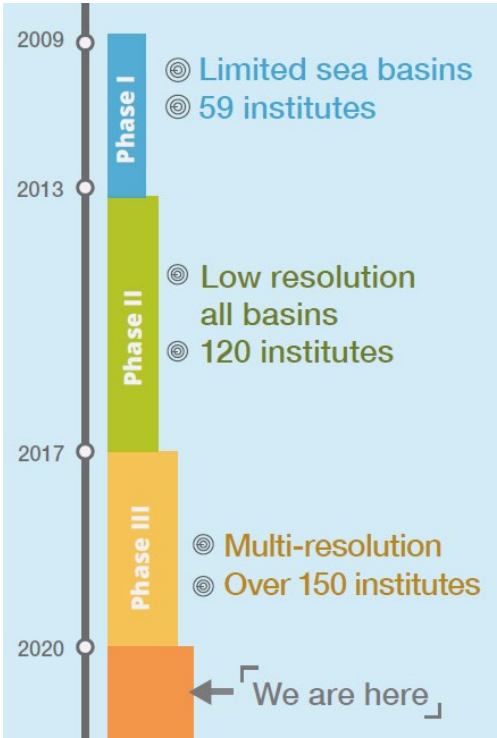
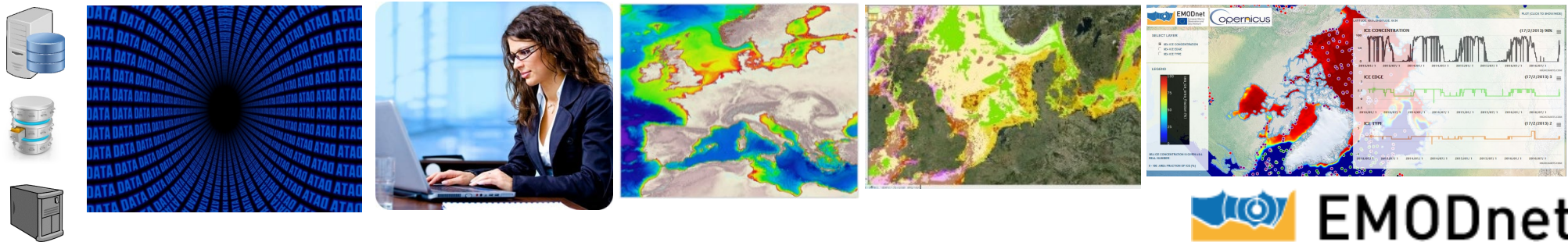
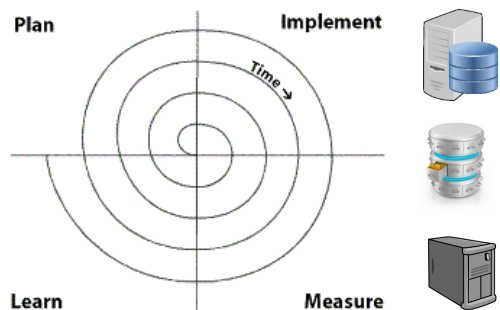
- From *regional* to *pan-European* coverage and onwards to *global* remit



- From small network to a movement - bringing people & ideas together

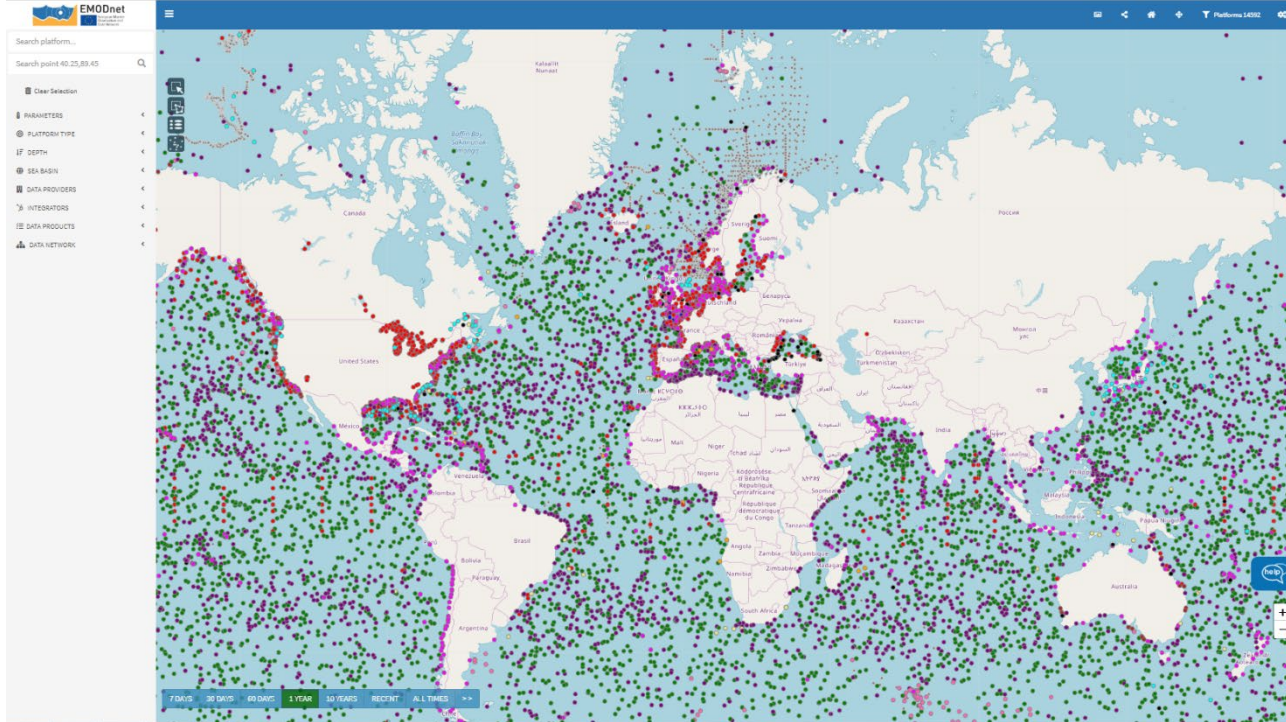


- From prototypes to an operational, mature and user-driven distributed infrastructure

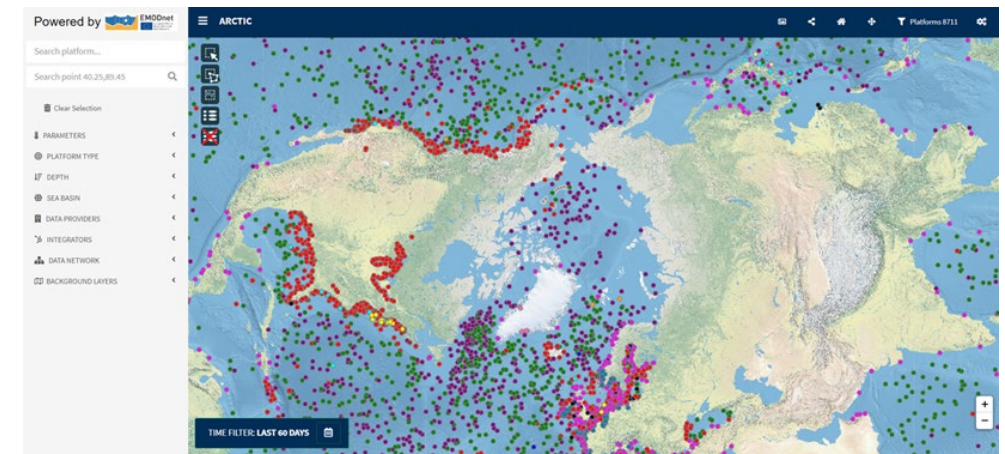
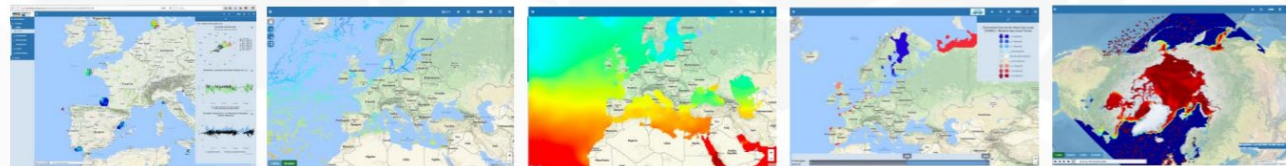


EMODnet: A decade of achievements – connecting marine data to knowledge

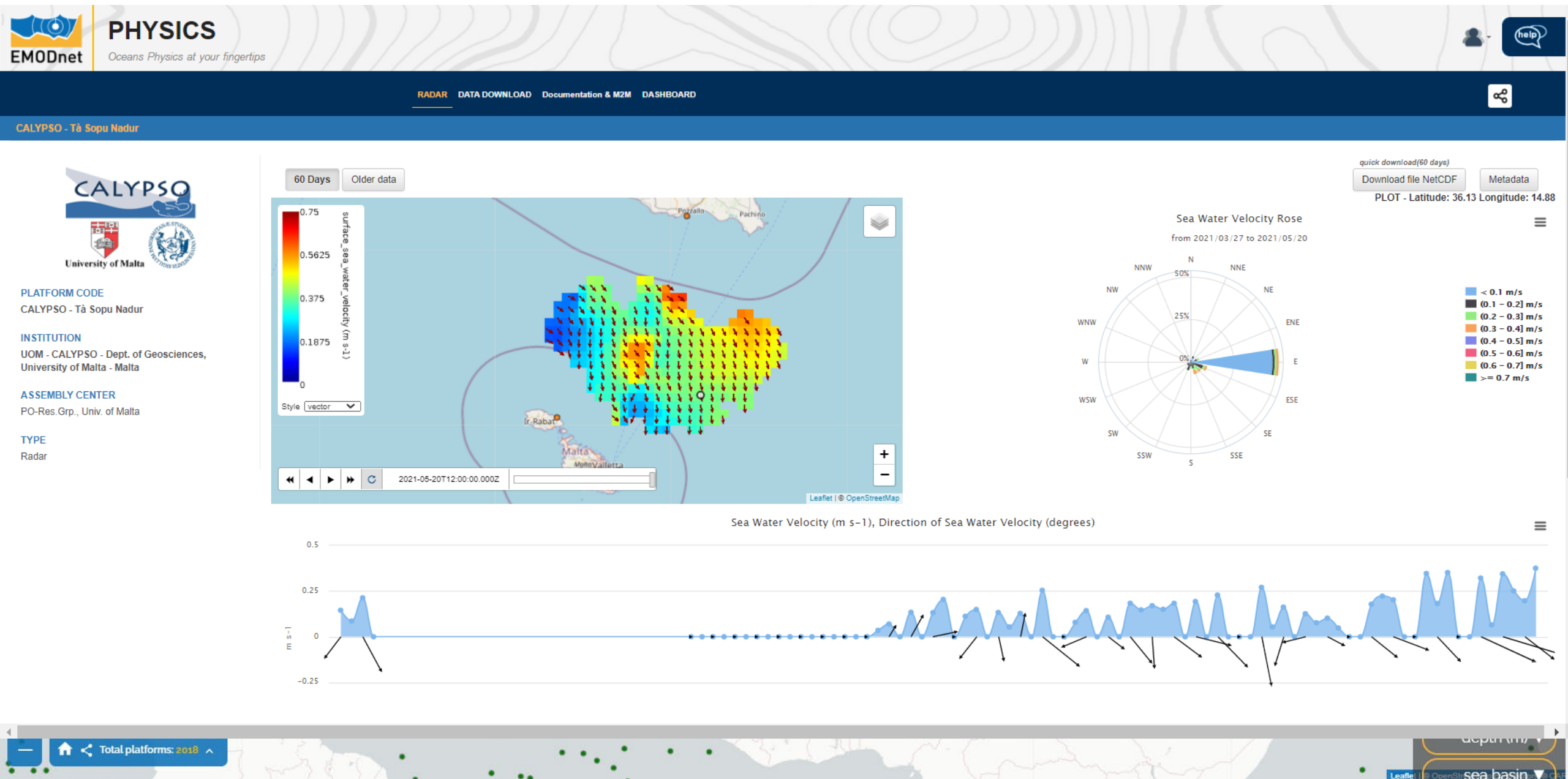
EMODnet Physics – global coverage and a service to international communities




- >600,000 global datasets e.g. physics, temperature
- Near real-time data/operational, historical validated data sets, reprocessed data/ products
- Close collaboration with Copernicus Marine Service (CMEMS) *in situ* Thematic Assembly Centre (INSTAC) and EuroGOOS
- New datasets on river runoff, noise, total suspended matter,....
- Southern Ocean Observing System (SOOS) interface with centrally-curated circumpolar datasets



EMODnet Physics – global coverage and a service to international communities




EMODnet Data Ingestion

**EMODnet**

DATA INGESTION PORTAL

Wake up your data - set them free for Blue Society



[CONTACT](#)

[ABOUT](#) [DATA SUBMISSION](#) [GUIDELINES](#) [SUBMISSIONS](#) [DATA WANTED](#) [HELP](#) [OPERATIONAL DATA](#) [PROMOTION](#) [CENTRAL PORTAL](#)

[Home](#)

Welcome to the EMODnet Data Ingestion portal

The European Marine Observation and Data Network (EMODnet) consists of more than 160 organisations that together work on assembling, harmonising and making marine data, products and metadata more available to public and private users. This Data Ingestion portal facilitates additional data managers to ingest their marine datasets for further processing, publishing as open data and contributing to applications for society.

[READ MORE](#)

EMODNET INGESTION

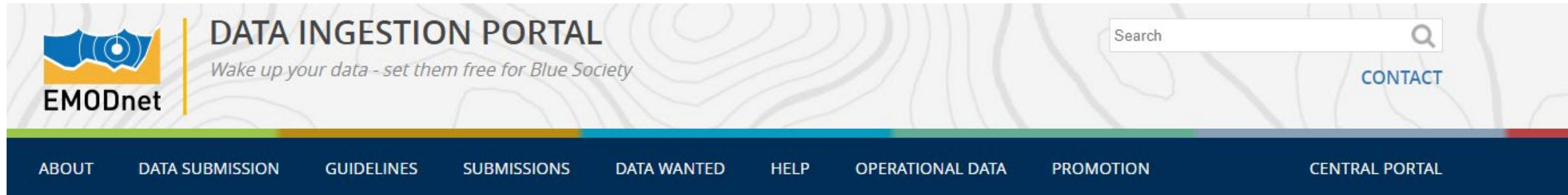
CHECK OUT THE MOVIE

3:30 MINUTES



<https://www.emodnet-ingestion.eu/>

EMODnet Data Ingestion



- (()) EMODnet Data Ingestion is a component of the present EU marine data management infrastructure
- (()) **Identify** potential data sources and data providers
- (()) **Reach out** to potential data providers
- (()) **Motivate** data providers to participate with their data submissions
- (()) Market and promote the Data Ingestion service and its function in the overall EMODnet scheme
- (()) Data Centres function as EMODnet ambassadors
- (()) Links at all EMODnet portals and other marine data management infrastructures such as CMEMS, SDN,....

EMODnet Data Ingestion

Hello.

My name is XXXX XXXX, and I work in the newly-created Decarbonization group within A. P. Møller – **Mærsk**. We have discussed various ways we could **contribute to the understanding and prevention of climate change**, and one such possibility we have identified is to **share** the weather **data collected by 250 of our ocean-going container vessels**. This data is collected every ten minutes and includes the following data points:

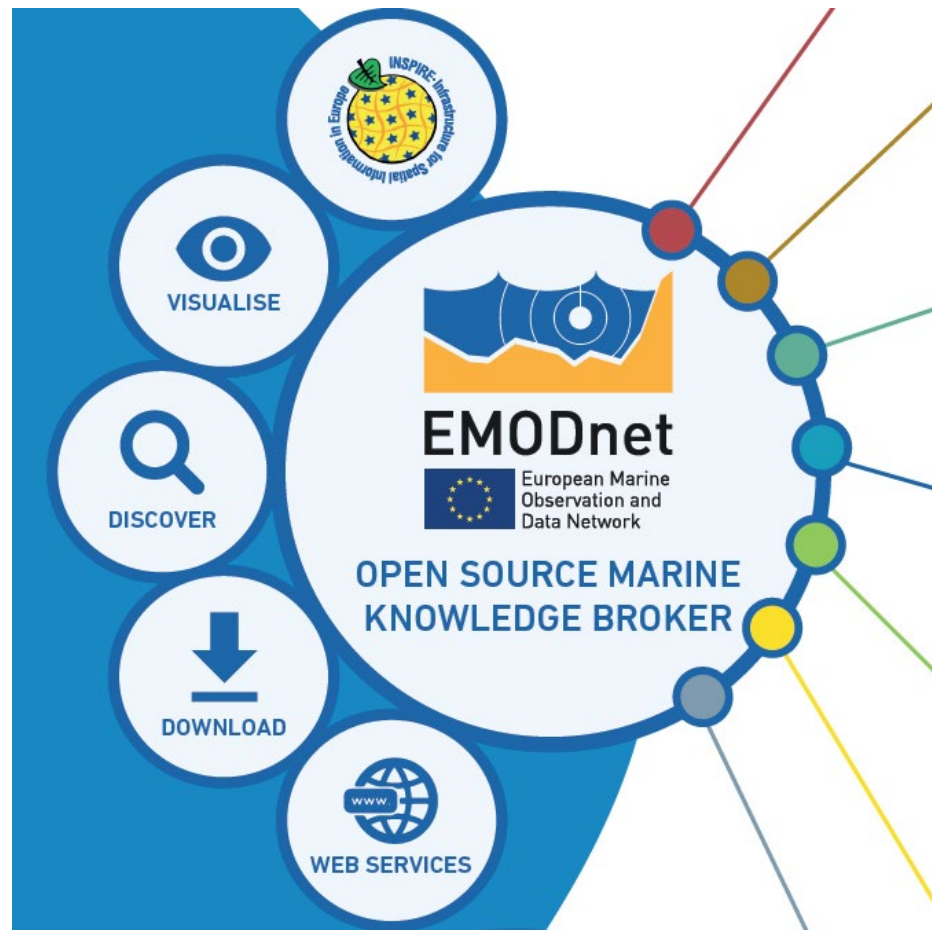
- Position, Ambient sea temperature, Ambient air temperature, Ambient air pressure, Wind speed, Wind direction

We have **26 million observations** already and are adding **13 million observations each year**. The data is already streamed to shore automatically and stored in a central database.

To **aid climate monitoring and research**, Maersk is considering making this dataset available to the global scientific community **free of charge** if it would **bring value to climate monitoring** and research. Therefore, we'd like to hear whether or not this dataset has sufficient value that you would be interested in including it into your observing system.

Future Outlook: What's next for EMODnet?

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



- **Build on existing capability**, as a long-term European trusted data service;
- **Consolidation, centralisation and Interoperability**;
- **User-driven** with clear, user-friendly interfaces.

Future Outlook *What's next for EMODnet and the wider community?*

EMODnet 2nd Open Conference and Jamboree, 14-16 June 2021



Key themes:

- **EMODnet Partnerships & collaborations:** Data producers, data management services, data and data product users, long-term data initiatives e.g. Copernicus Marine Service (CMEMS);
- **EMODnet for user tracks:** Policy, Industry, Research, Society;
- **EMODnet for Global:** Supporting the UN Decade of Ocean Science, UN 2030 Agenda;
- **Ocean Observing and Data Collection:** including a workshop on European Ocean Observing, 16 June PM

<https://www.emodnet.eu/en/conference2021>

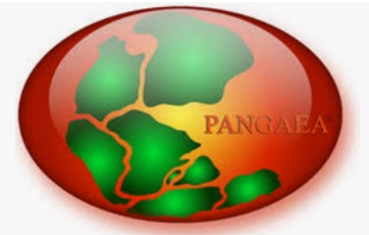
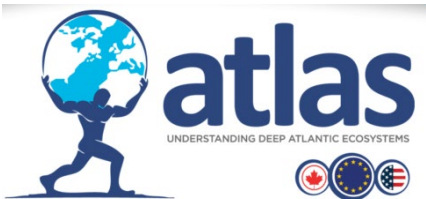
A full week of EMODnet Jamboree for the EMOD-network

European partnerships include:



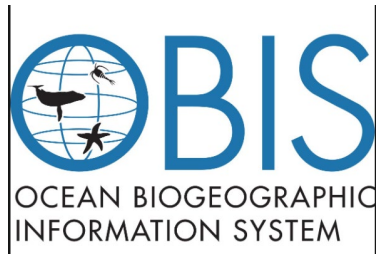
4 Regional Sea Conventions
OSPAR
HELCOM
UNEP-MAP
Black Sea Convention

Dialogue with European Research Infrastructures, data repositories, projects, for optimizing data sharing and flow e.g.,



Global context, collaborations & contributions

EMODnet collaborates internationally as an open source data and data product and web services provider, collaborator and contributor of best practice and technical solutions to European and international marine data initiatives:



Global collaborations: Future Outlook

Strengthening Partnerships for International Interoperability and Impact



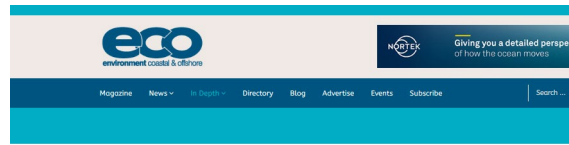
- **EMODnet:** A key partner for Open Data, Open Science and Data diplomacy in Europe, and beyond
- **Interoperable data discovery and access**, in collaboration with other key data services
- **Further diversifying data parameters and sources** (e.g. industry, citizen science)
- **Extending FAIR** to FAIR, CARE and TRUST

Thank you!

- **Discover EMODnet data and data products**
- **Connect with the online EMODnet community @EMODnet** (Twitter, LinkedIn and Facebook)
- **Help shape the future of EMODnet! Join us for the EMODnet Open Conference & Jamboree 14-18 June 2021, Ostend, Belgium**

www.emodnet.eu

info@emodnet.eu



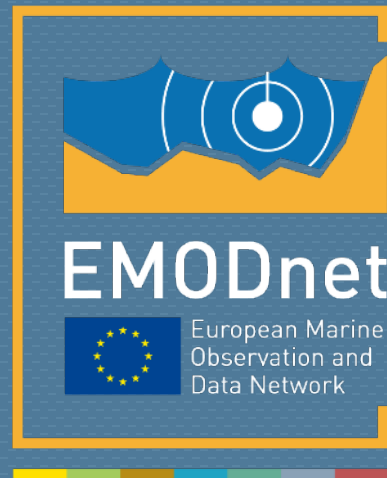
Breaking Borders in Ocean Information: A European Success Story

EMODnet Secretariat | POSTED ON OCTOBER 14, 2020



<https://bit.ly/2IMZAgv>





@EMODnet
www.emodnet.eu

Your gateway to marine data in Europe