EMODnet
European Marine Observation and Data Network

Your gateway to marine data in Europe

EMODnet Physics

EASME/EMFF/2016/006 - Operation, development and maintenance of a European Marine Observation and Data Network

EASME/EMFF/2016/1.3.1.2 – Lot 3/SI2.749411

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EMODnet

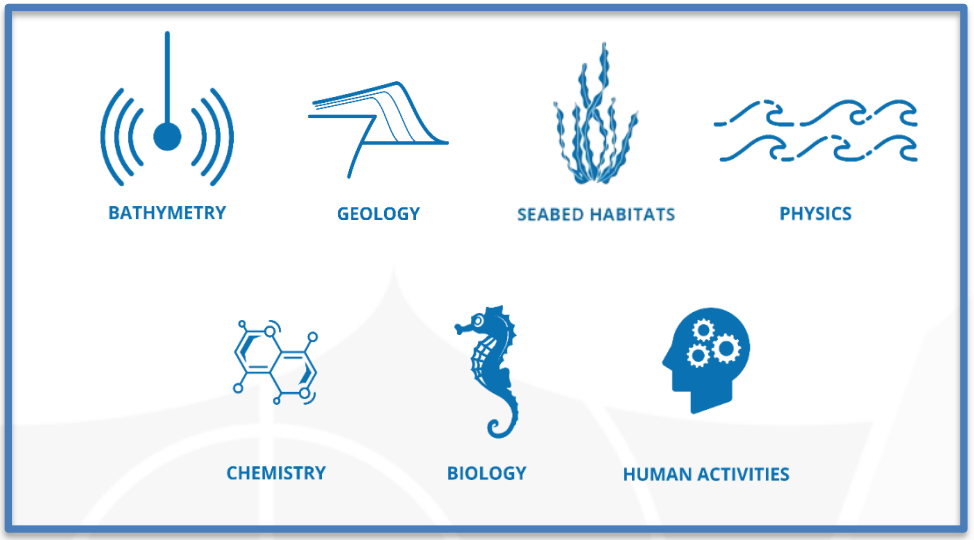
Launched in 2009 by DG MARE to unlock hidden and fragmented marine data resources

Principles:

- Collect data once, use many times
- Develop data standards across and within disciplines
- Build on existing efforts from data communities
- Accompany data with statements on data ownership, accuracy and precisions
- Make the data, free and open, avaialble to any user

EMODnet
European Marine Observation and Data Network

Network of >150 organisations participating to 5 strands and 7 portals



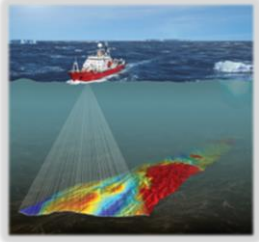
EMODnet
European Marine Observation and Data Network

- 7 thematic portals
- Central Portal
- 6 Sea-basin Checkpoints
- Data Ingestion Portal
- Secretariat

1. Save costs
2. Develop new products & services
3. Adds value to your data
4. Improve our knowledge of the seas

Thematic DATA coverage

Bathymetry



Survey tracks

Water depth and depth profiles

Undersea features

Wrecks

High resolution bathymetry in coastal areas

Geology

Seabed substrate

Sediment accumulation rates

Seafloor lithology

Seafloor stratigraphy

Coastal behaviour

Geological events and probabilities

Mineral occurences

Seabed habitats

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

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 / biochemical parameters

Atmospheric parameters

Underwater noise

Chemistry

Acidity

Antifoulants

Chlorophyll

Dissolved gases

Fertilisers

Hydrocarbons

Marine litter (micro, beach, seafloor)

Heavy metals

Organic matter

Polychlorinated biphenyls

Pesticides and biocides

Radionuclides

Silicates

Biology

Occurrences and abundances of species of:

Phytoplankton

Zooplankton

Macro-algae

Angiosperm

Fish

Reptile

Benthos

Bird

Sea mammal

Human activities

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

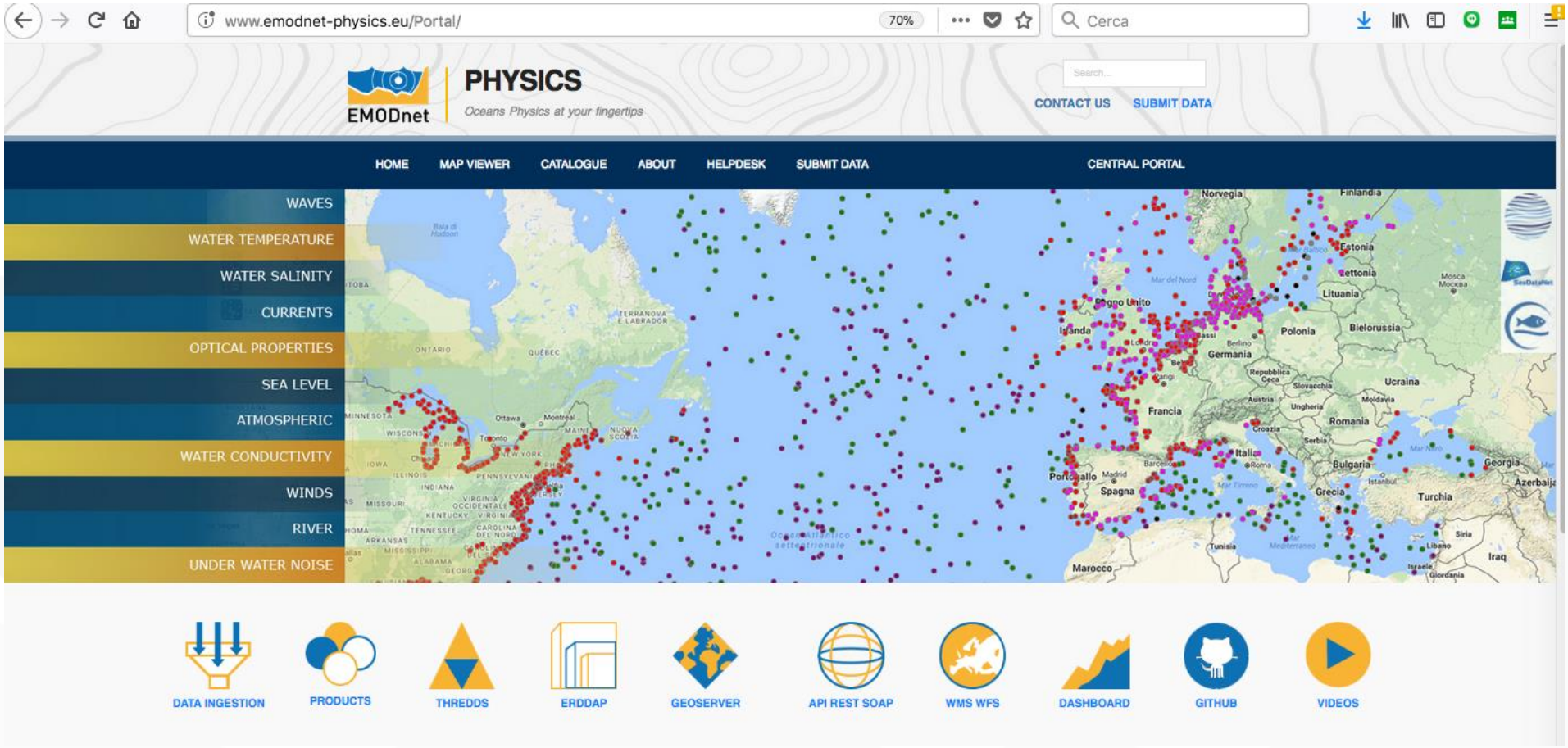
Waste disposal (solids)

Wind farms

Other forms of area management/ designation

EMODnet Physics

One portal, thousands of datasets, many products and services



more than 25.000 connected platforms, more than 800.000 datasets

EMODnet Physics

- A **single access** gate for **near real time and multi-year historical data** on **physical conditions** of the seas and oceans as monitored by **in-situ platforms**
- Build on and in collaboration with **EuroGOOS, Copernicus Marine, SeaDataNet**
- A **data portal** interface:
  - Easily **accessible**, **interoperable**, **free** of restriction on use
  - Easy **identification** of and **links** to the data **provider**
  - Provides **feedback** on the **impact and use** to **data providers**
- A federated infrastructure with a "**Data Translator" engine:**
  - **Collect once and use many** times, reduce fragmentation and increase our knowledge of the oceans
  - **Facilitate the ingestion/connection** of new data sources and make available more data

In a nutshell

Data age
Near real-time (NRT) data at in situ observatories at sea
Reprocessed NRT data (average/trends)
Archived data derived from further elaboration and validation

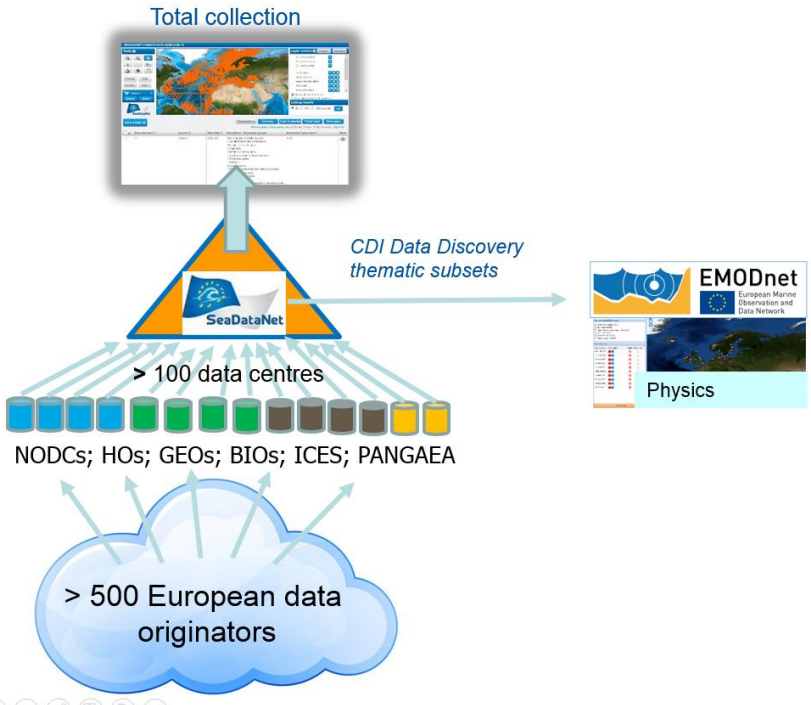
Products
• Sea Level trends • Temp & Salinity maps • Surface Currents fields • Ice coverage and thick. • River runoff & TSM • Impulsive Noise registry • (in situ) Wind @ sea level

Parameters	
Temperature	Wind
Salinity	Atmospheric param.
Waves	Biogeochemical param.
Currents	Optical properties
Sea Level	Ice data
Under water noise	River Runoff

Services	
Data portal	Catalogue
Products portal	Newsletter & digest
Monitoring tools	Reports (mail)
http & permaURLs	API REST/SOAP
OGC WMS, WFS, WCS	THREDDS
ERDDAP	widgets

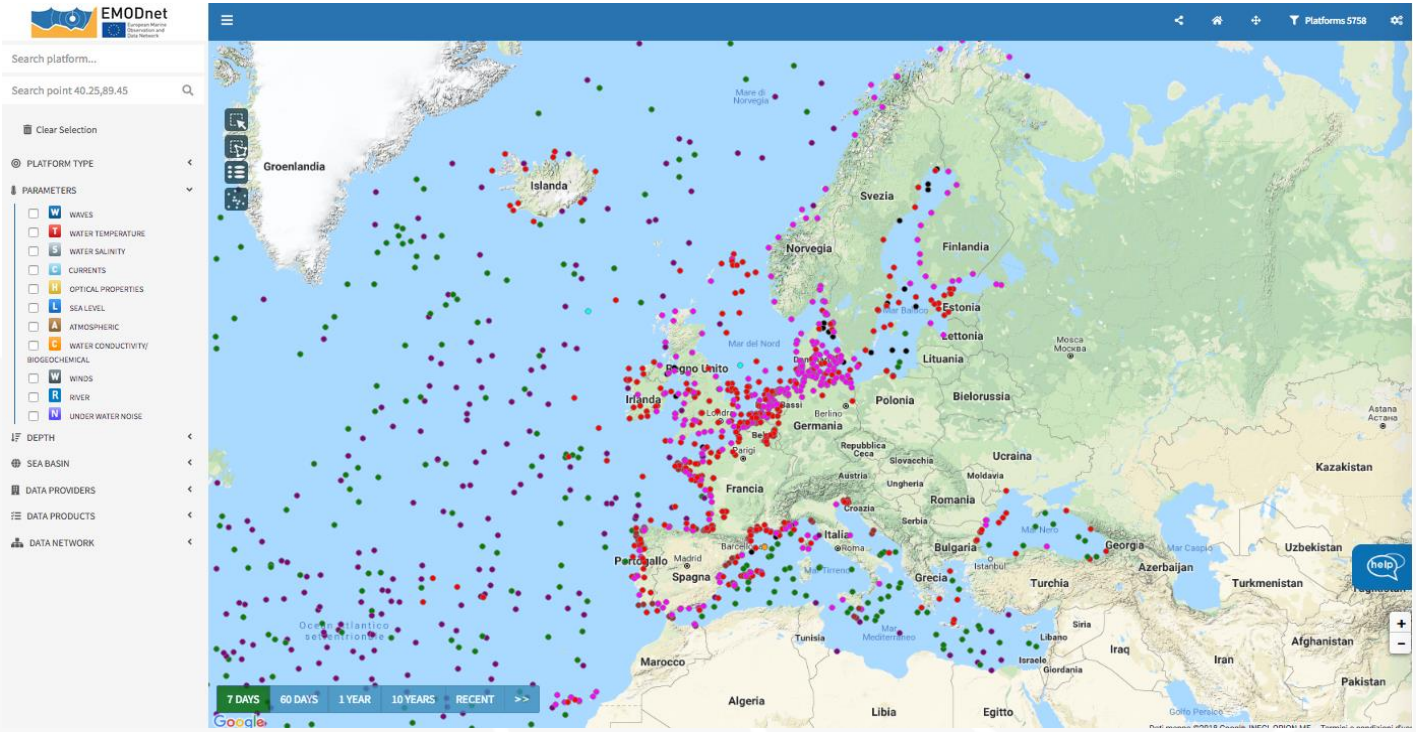
EMODnet Physics and SDN

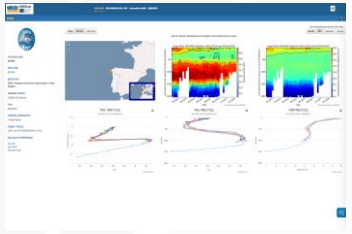
European historical validated data is organized in coordination and cooperation with SeaDataNet and the network of National Oceanographic Data Centres (NODCs)

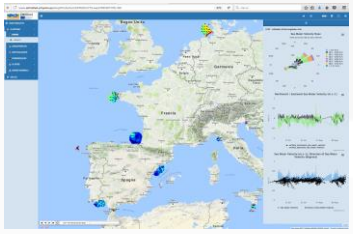


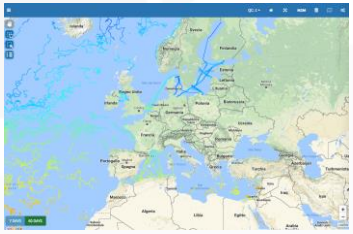
- **SDN Collect Data:** 1,78 million CDI entries from 102 data centres in 34 countries (October 2015)
- **Quality control:**
  - Detecting missing mandatory information
  - Detecting errors made during the transfer or reformatting
  - Detecting duplicates
  - Detecting remaining outliers (spikes, out of scale data, vertical instabilities etc)
  - Attaching a quality flag to each numerical value in order not to modify the observed data points
- **Validation/Assessment:** assessment and labelling of individual data values by **QC Flags**.
- **Distribution:** Set of **common standards for metadata** and data formats for the marine domain, adapting ISO and OGC standards and achieving INSPIRE compliance

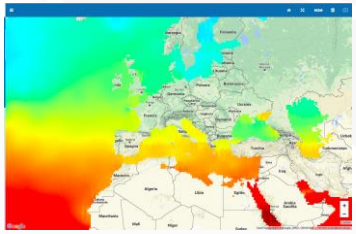
What you see, what you get

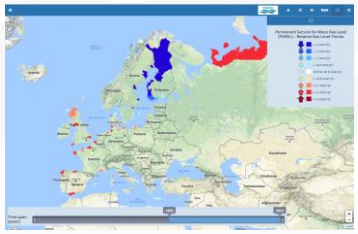


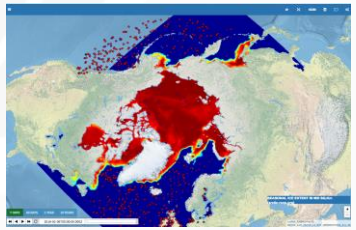






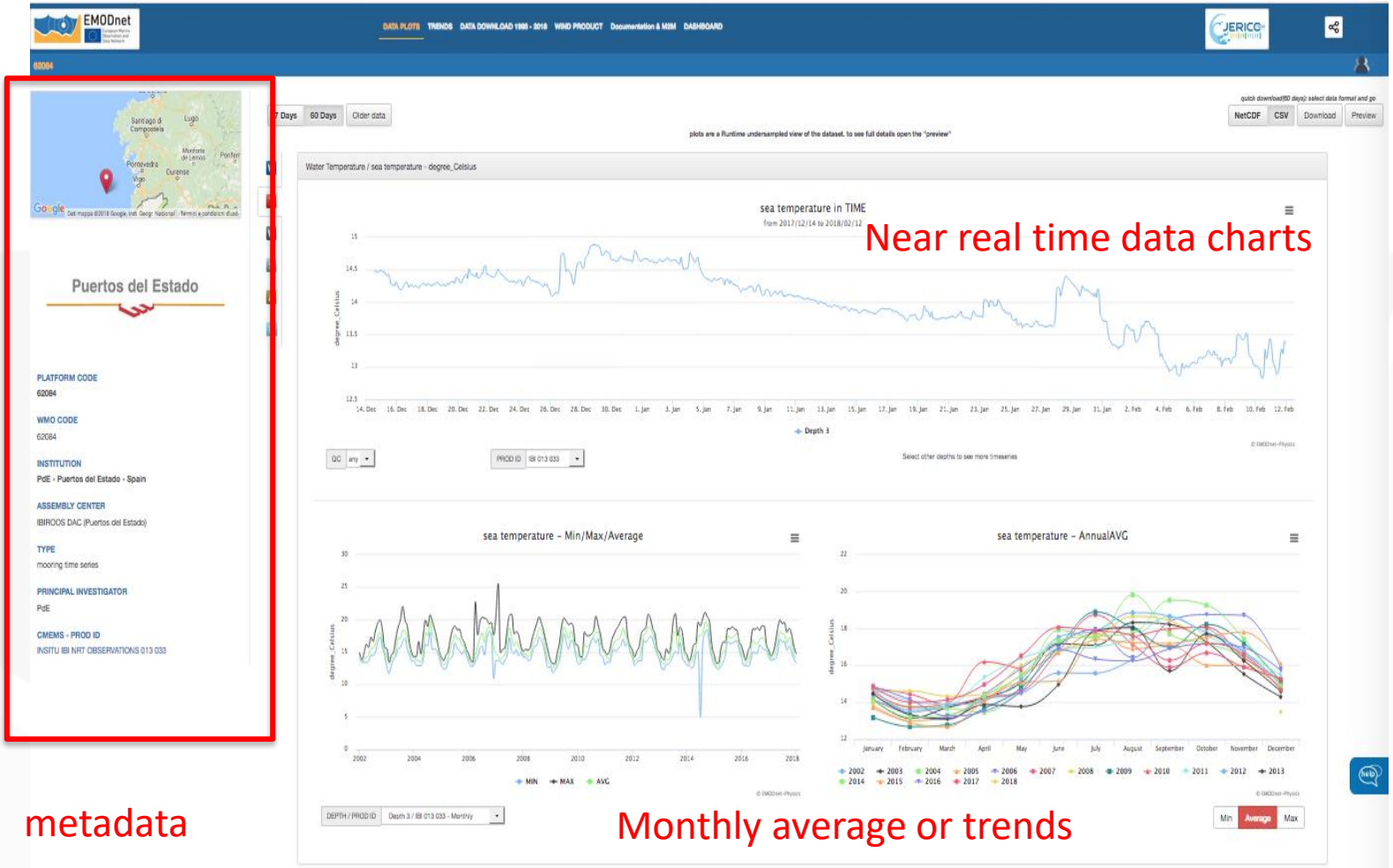






Fixed Station/Mooring

Producer (data production) → DAC (e.g. CMEMS INSTAC; IOOS, IMOS) → EMODnet Physics



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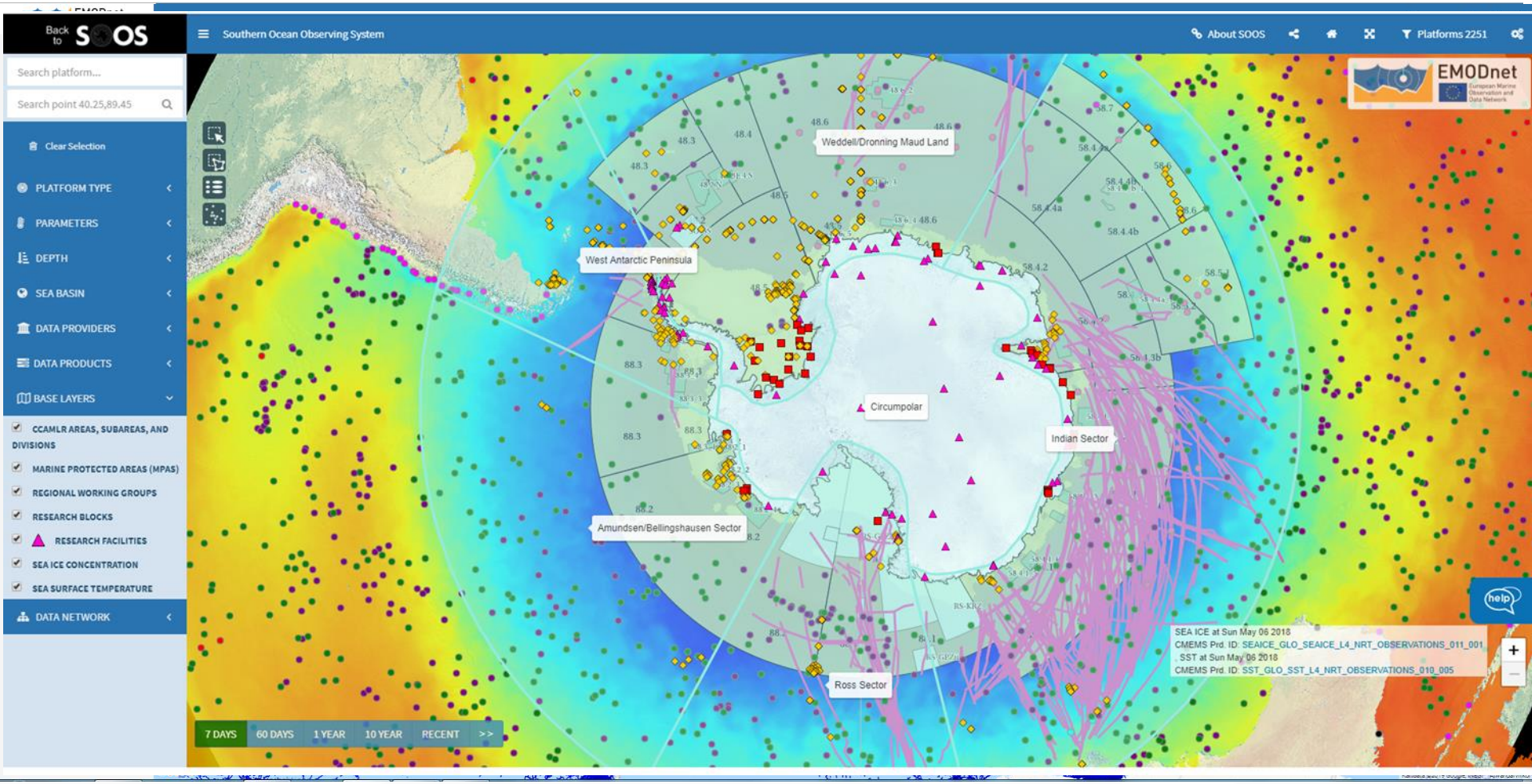

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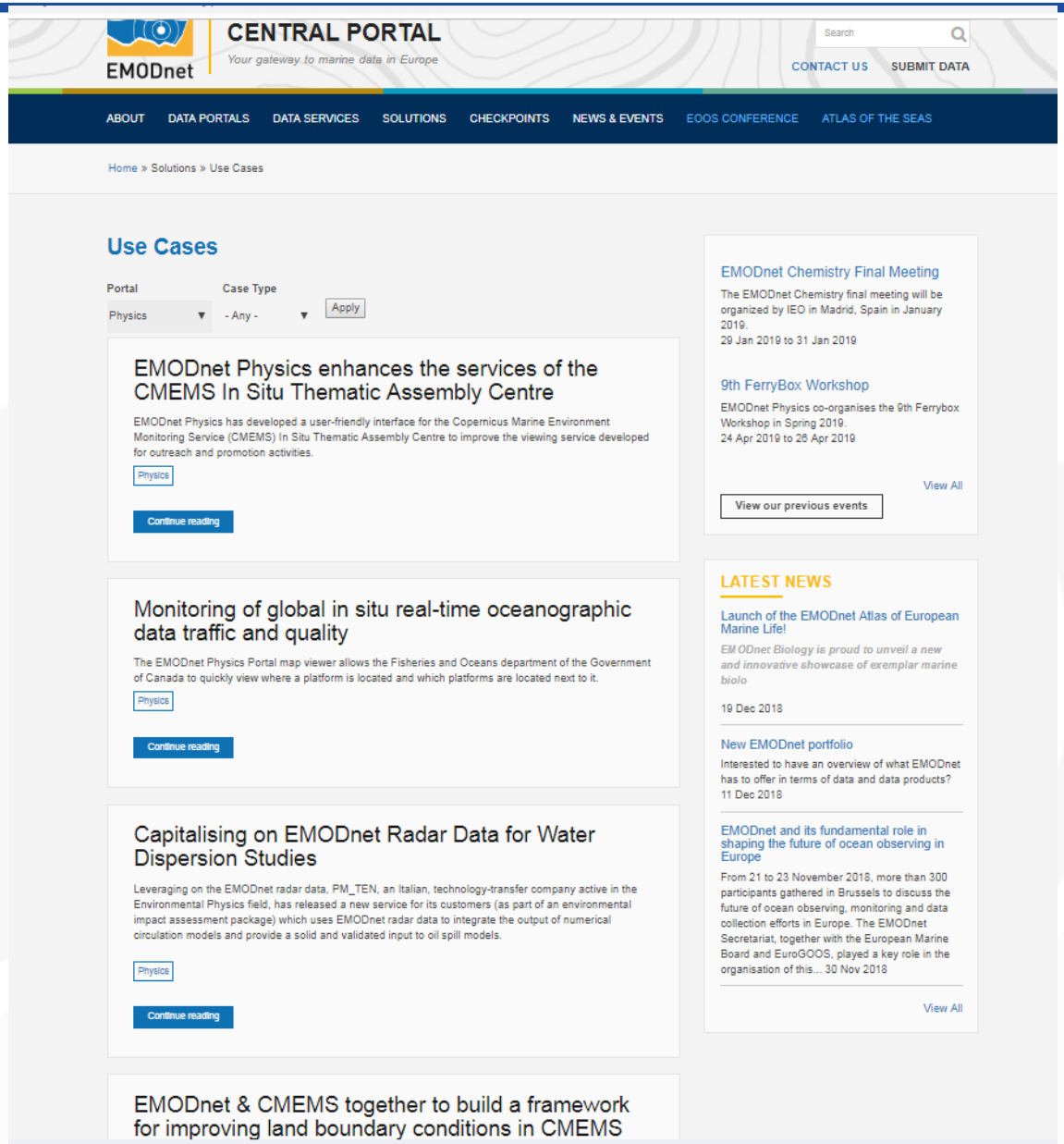
/M2M

Service	Description	Examples
permaURL	All platforms	http://http://www.emodnet-physics.eu/Map/platinfo/piroosplot.aspx?platformid=8427 http://www.emodnet-physics.eu/Map/spi.aspx?code=Arkona Service description @ http://www.emodnet-physics.eu/map/spi.aspx
API REST/SOAP	Latest 60 days of data	www.emodnet-physics.eu/map/Service/WSEmodnet2.aspx www.emodnet-physics.eu/map/service/WSEmodnet2.asmx
OGS WMS, WFS,	Postgresql + Geoserver	geoserver.emodnet-physics.eu/geoserver/web examples and service description @ www.emodnet-physics.eu/map/service/GeoServerDefaultWMS www.emodnet-physics.eu/map/service/GeoServerDefaultWFS
THREDDS (OpenDAP, WMS, WCS)	Latest 60 days + HFR data + Ice	thredds.emodnet-physics.eu/thredds/catalog.html
ERDDAP	Latest 60 days	erddap.emodnet-physics.eu
widgets	All plots	www.emodnet-physics.eu/Map/Charts/PlotDataTimeSeries.aspx?paramcode=TEMP&platid=8427&timerange=7

/Use cases



CENTRAL PORTAL
Your gateway to marine data in Europe
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Physics
Case Type
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EMODnet Physics enhances the services of the CMEMS In Situ Thematic Assembly Centre
EMODnet Physics has developed a user-friendly interface for the Copernicus Marine Environment Monitoring Service (CMEMS) In Situ Thematic Assembly Centre to improve the viewing service developed for outreach and promotion activities.
Physics
Continue reading
Monitoring of global in situ real-time oceanographic data traffic and quality
The EMODnet Physics Portal map viewer allows the Fisheries and Oceans department of the Government of Canada to quickly view where a platform is located and which platforms are located next to it.
Physics
Continue reading
Capitalising on EMODnet Radar Data for Water Dispersion Studies
Leveraging on the EMODnet radar data, PM_TEN, an Italian, technology-transfer company active in the Environmental Physics field, has released a new service for its customers (as part of an environmental impact assessment package) which uses EMODnet radar data to integrate the output of numerical circulation models and provide a solid and validated input to oil spill models.
Physics
Continue reading
EMODnet & CMEMS together to build a framework for improving land boundary conditions in CMEMS
EMODnet Chemistry Final Meeting
The EMODnet Chemistry final meeting will be organized by IEO in Madrid, Spain in January 2019.
29 Jan 2019 to 31 Jan 2019
9th FerryBox Workshop
EMODnet Physics co-organises the 9th Ferrybox Workshop in Spring 2019.
24 Apr 2019 to 26 Apr 2019
View All
View our previous events
LATEST NEWS
Launch of the EMODnet Atlas of European Marine Life!
EMODnet Biology is proud to unveil a new and innovative showcase of exemplar marine biolo
19 Dec 2018
New EMODnet portfolio
Interested to have an overview of what EMODnet has to offer in terms of data and data products?
11 Dec 2018
EMODnet and its fundamental role in shaping the future of ocean observing in Europe
From 21 to 23 November 2018, more than 300 participants gathered in Brussels to discuss the future of ocean observing, monitoring and data collection efforts in Europe. The EMODnet Secretariat, together with the European Marine Board and EuroGOOS, played a key role in the organisation of this... 30 Nov 2018
View All

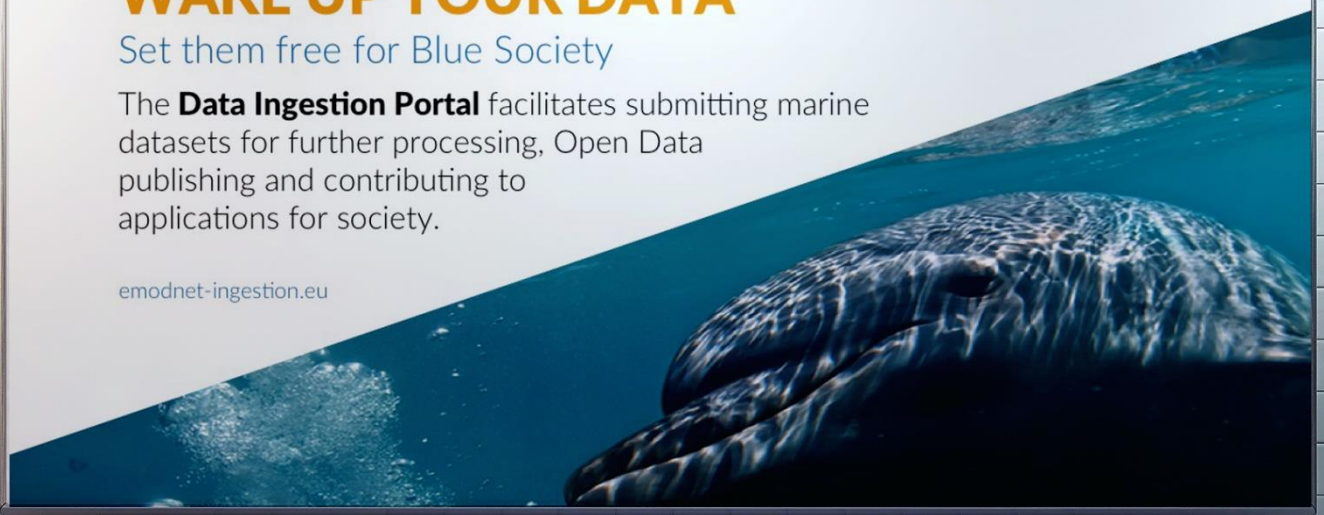
EMODnet Data Ingestion

WAKE UP YOUR DATA

Set them free for Blue Society

The **Data Ingestion Portal** facilitates submitting marine datasets for further processing, Open Data publishing and contributing to applications for society.

emodnet-ingestion.eu



Ocean physics at your fingertips

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