EMODnet
European Marine Observation and Data Network

Your gateway to marine data in Europe

EMODnet Physics: a horizontal platform serving blue growth

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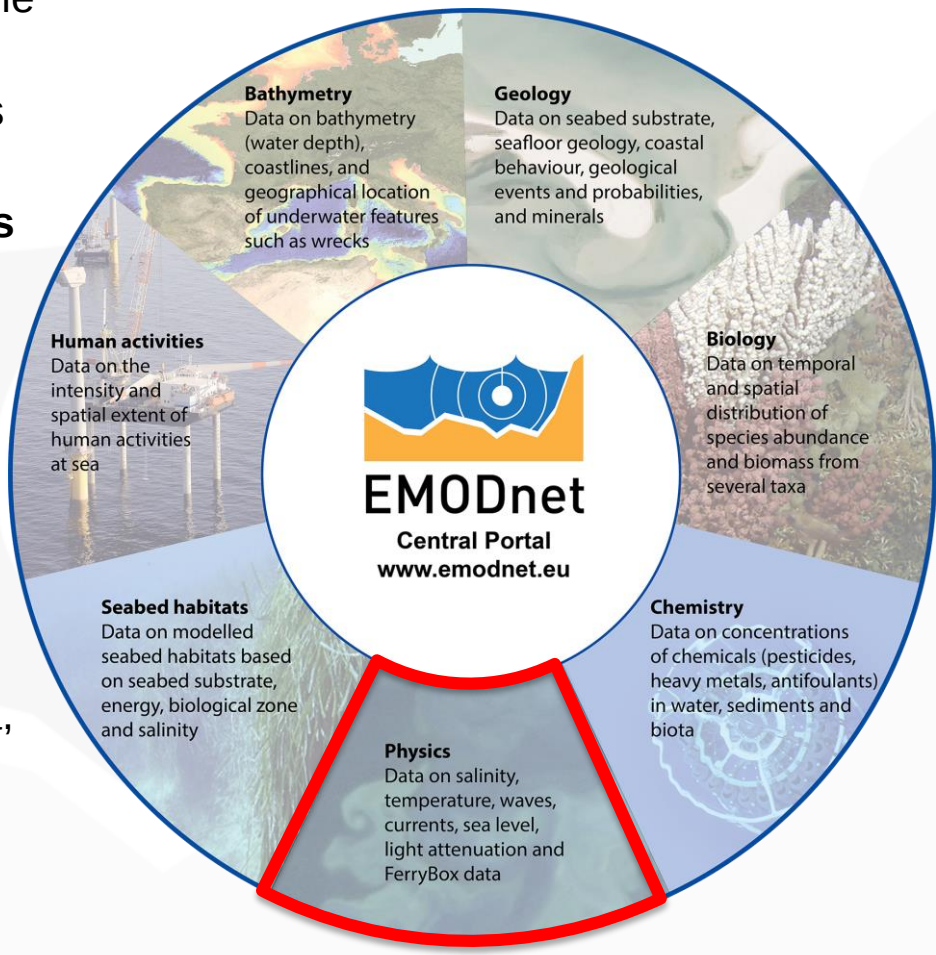
The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.

European Marine Observation and Data network

- **Long term data initiative** from the European Commission Directorate-General for Maritime Affairs and Fisheries (**DG MARE**)
- Collect marine data once, use it many times
- Data infrastructure is developed through a **stepwise approach in three major phases**

- Consists of:
  - 7 thematic portals
  - Data Ingestion and Safe Keeping
  - 6 check points
  - Central portal + Secretariat

- >160 organizations assembling marine data, products and metadata



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

A common infrastructure to serve many users

Near Real Time data/operational data

Repositories:
- CMEMS INSTAC - EuroGOOS ROOS (5 regional assembly centres + 1)
- Institutes*
- GDAC/IOOS/IMOS**

Platforms:
- fixed mooring, ferrybox, tide gauge, drifting buoy, ARGO, profiling mooring, HF Radar, ships

Time dimension:
- Daily files, Monthly aggrg., Rep long term

Metadata + Transport format:
- Netcdf (CF convention), csv

Historical validated data sets

Repositories:
- CDI: centralized
- Datasets: NODC and SeaDataNet nodes (100 centres)

Platforms:
- fixed stations (mooring, tide gauge)

Time dimension:
- Depending on datasets (ranging from month to years)

Metadata + Transport format:
- CDI + ODV4/Netcdf (CF)

Reprocessed data/Products

Repositories:
- SDN, CMEMS INSTAC, PSMSL, SONEL, GRDC, MEOP, …

Time dimension:
- Depending on products

Geo dimension:
- Depending on products

Metadata + Transport format:
- Netcdf (CF), OGC

For the parameters (and platforms) that are not managed according this data flow, **EMODnet Physics is supporting/developing the full data management, hosting and dissemination chain (including RT)**:

HFR, River Outflow, Water noise

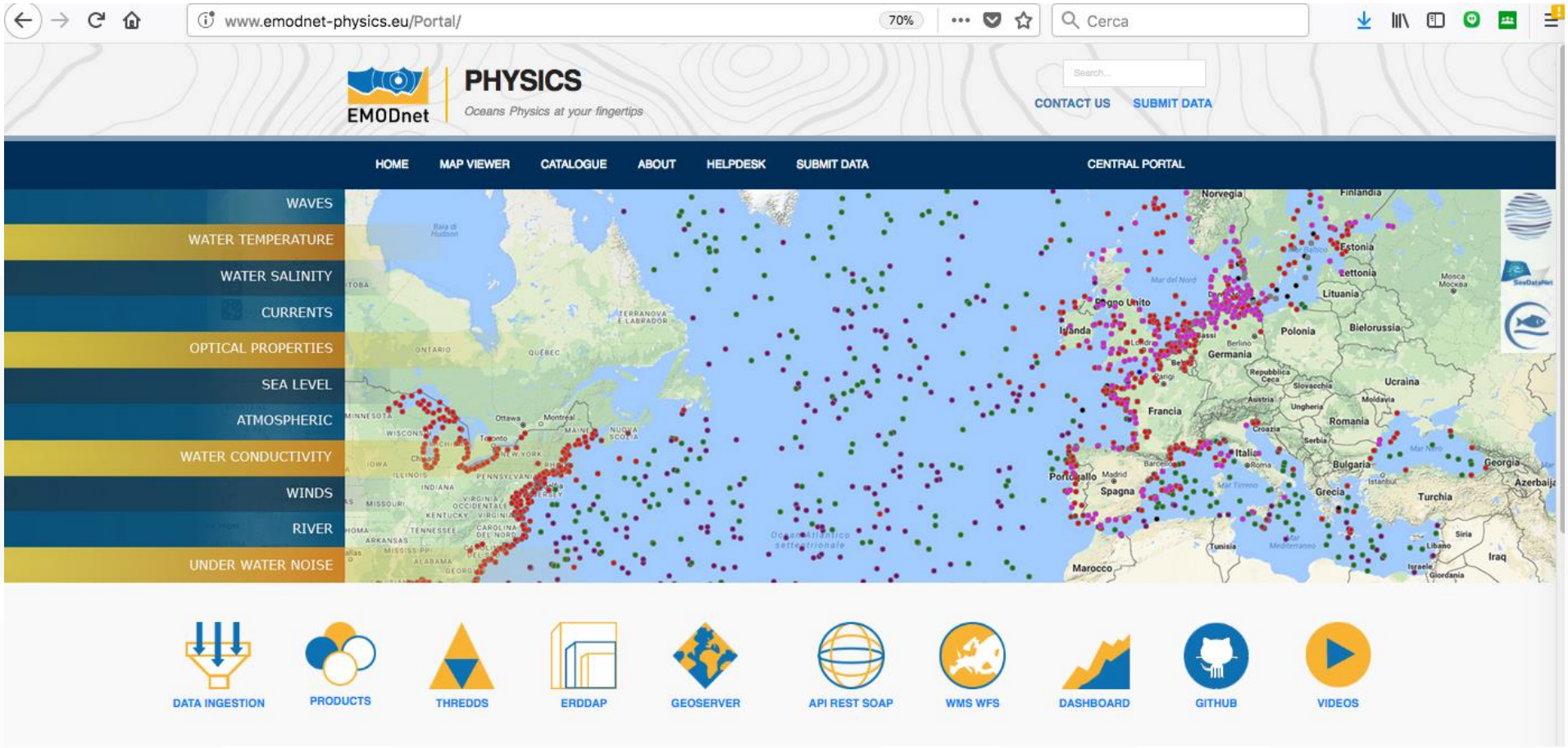
Data origin

International organizations sharing their data

Credit: Dan Costa, SMHI, SOCIB, REDMAR

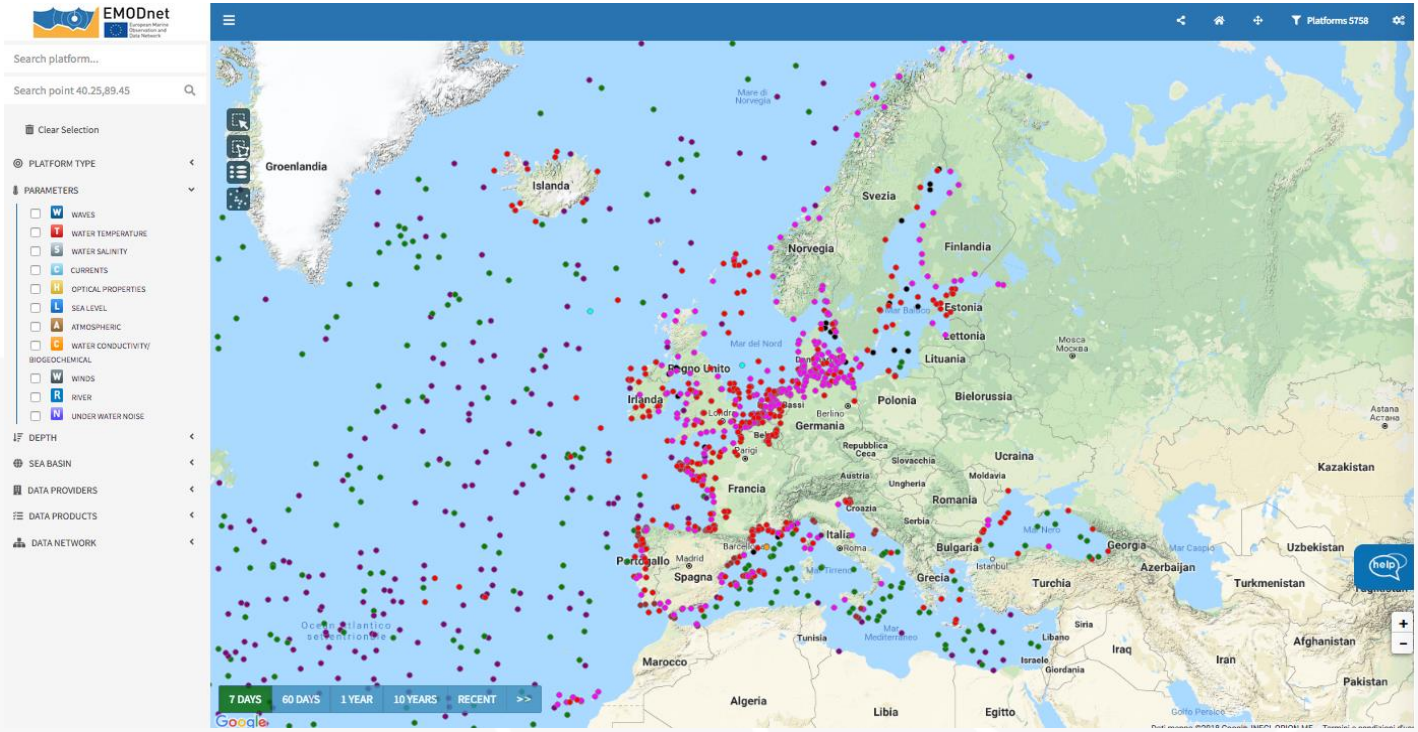
EMODnet Physics

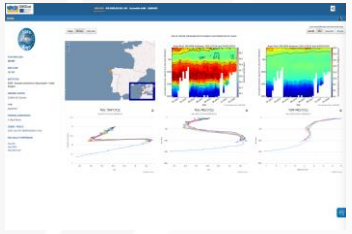
One portal, thousands of datasets, many products and services

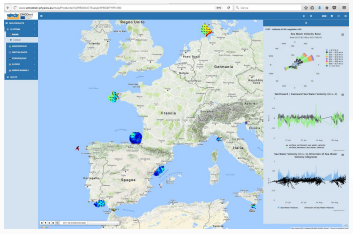


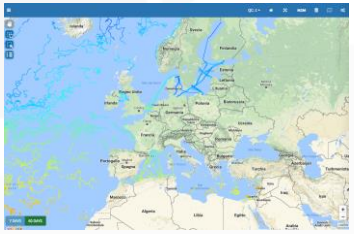
more than 25.000 connected platforms, more than 600.000 datasets

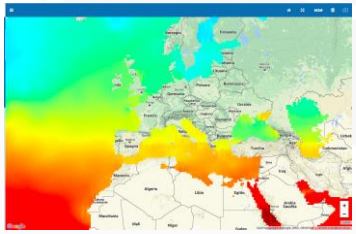
What you see, what you get

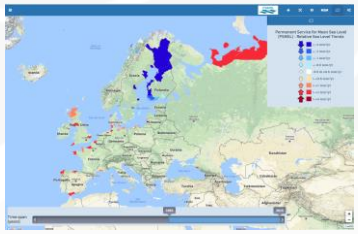


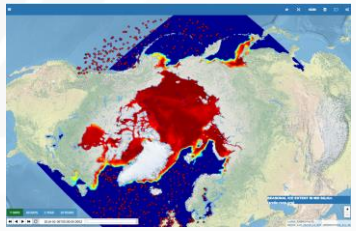




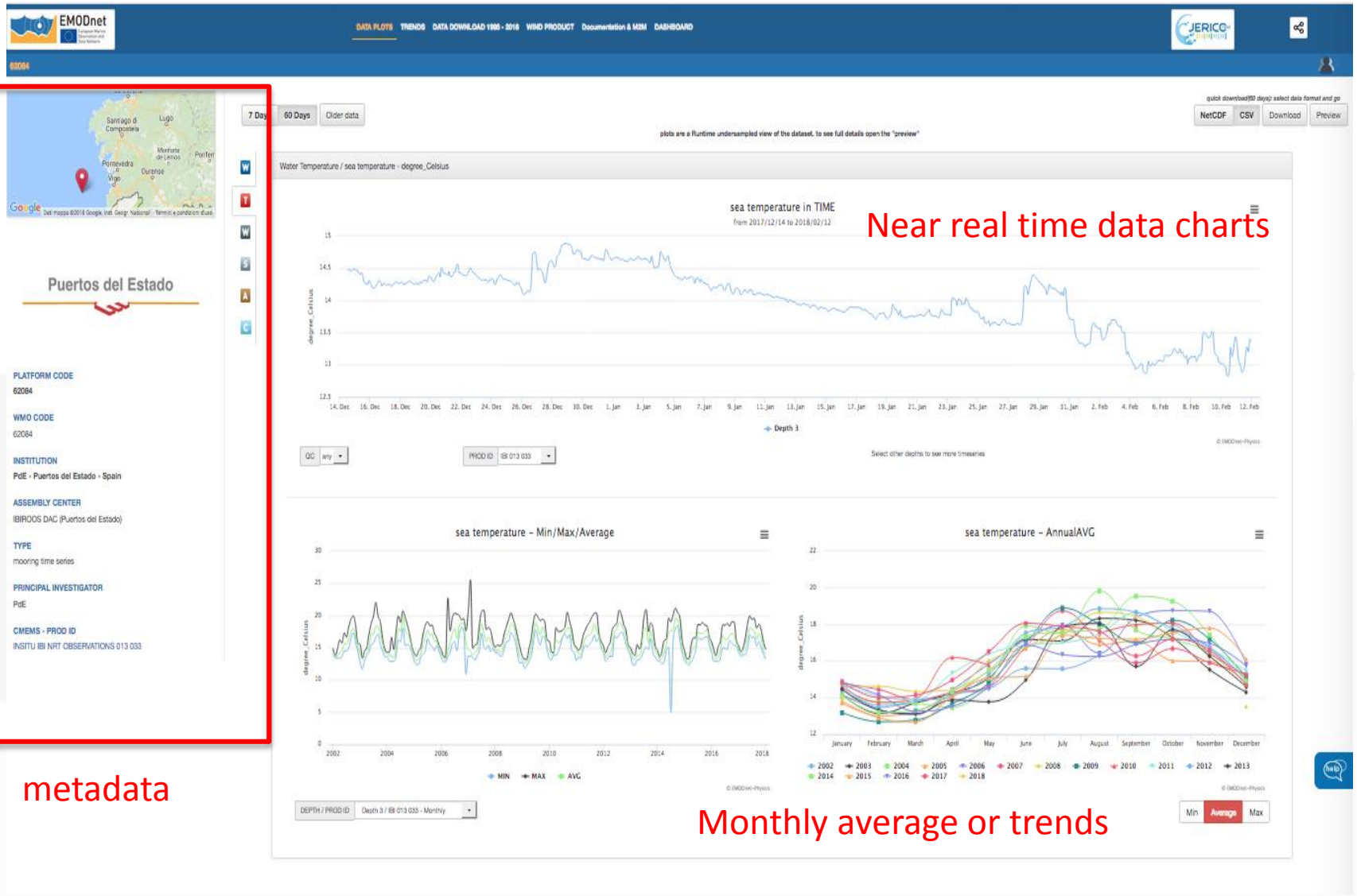








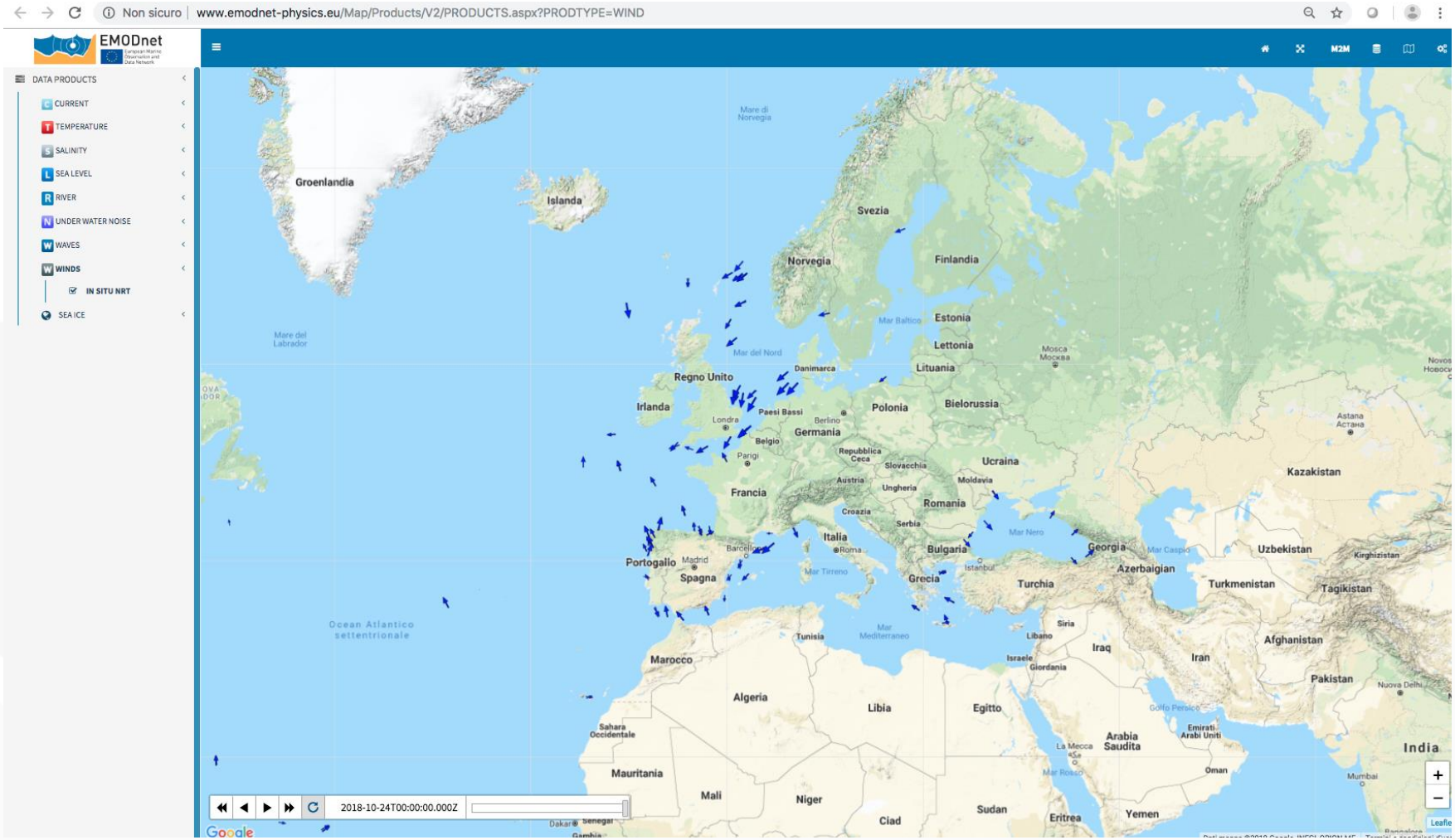
time series and trends



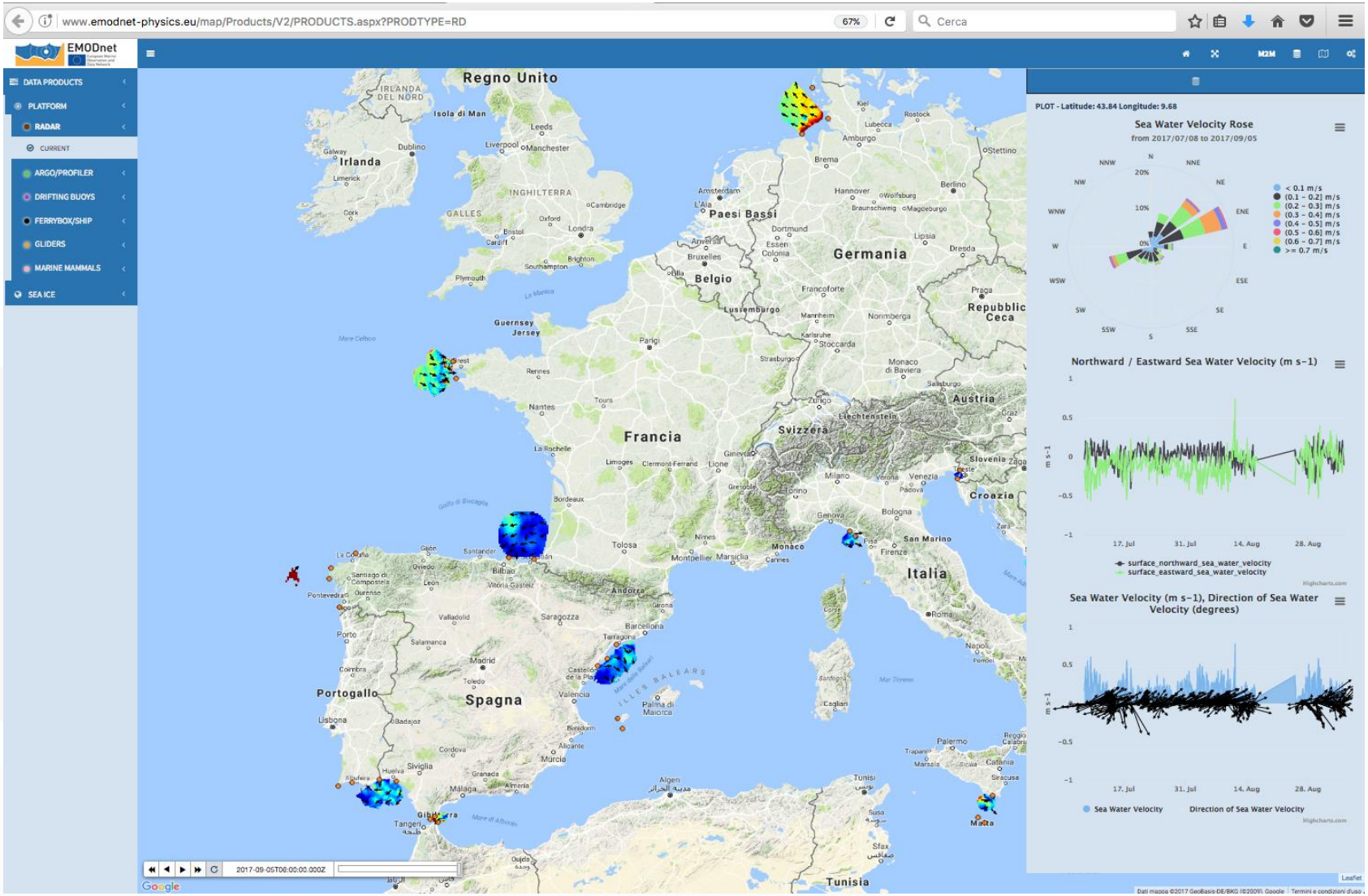
metadata

Wind @ sea level

Last 30 days of Wind direction and intensity

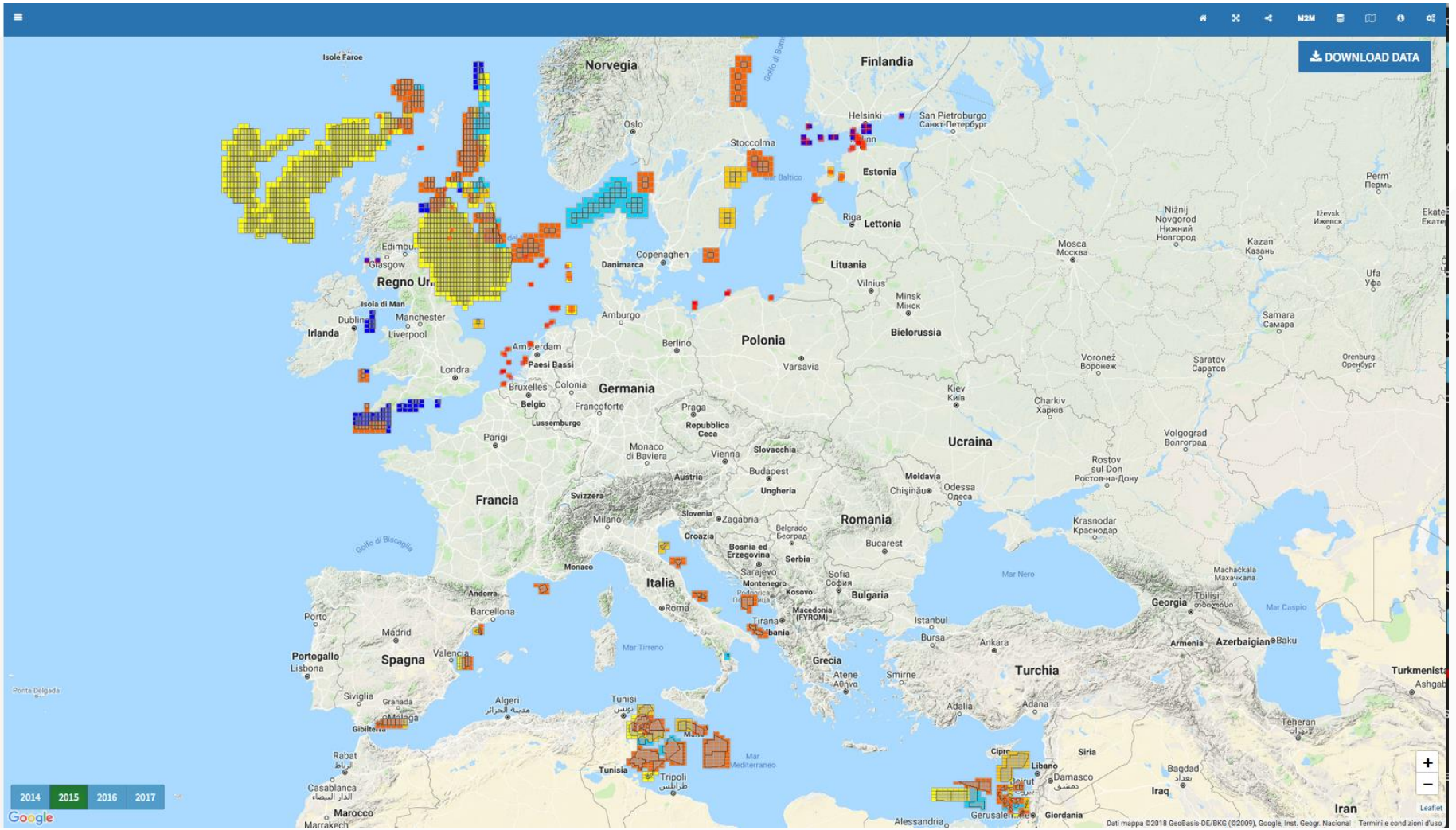


Surface Current Field Maps

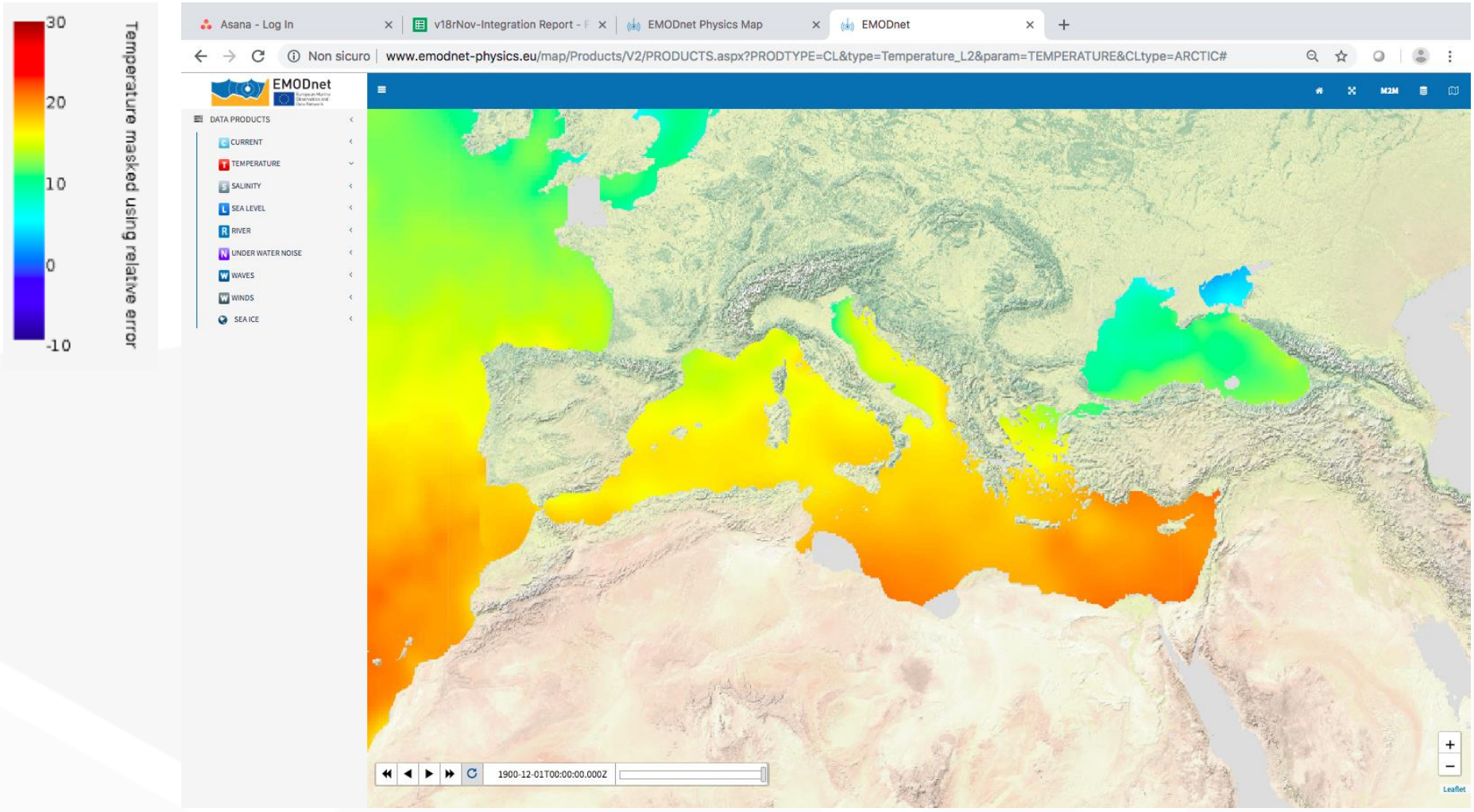


Underwater impulsive noise registry

Latitudinal row 10’ * longitudinal cols 20’, pulse event days per block



SDN TEMP climatology



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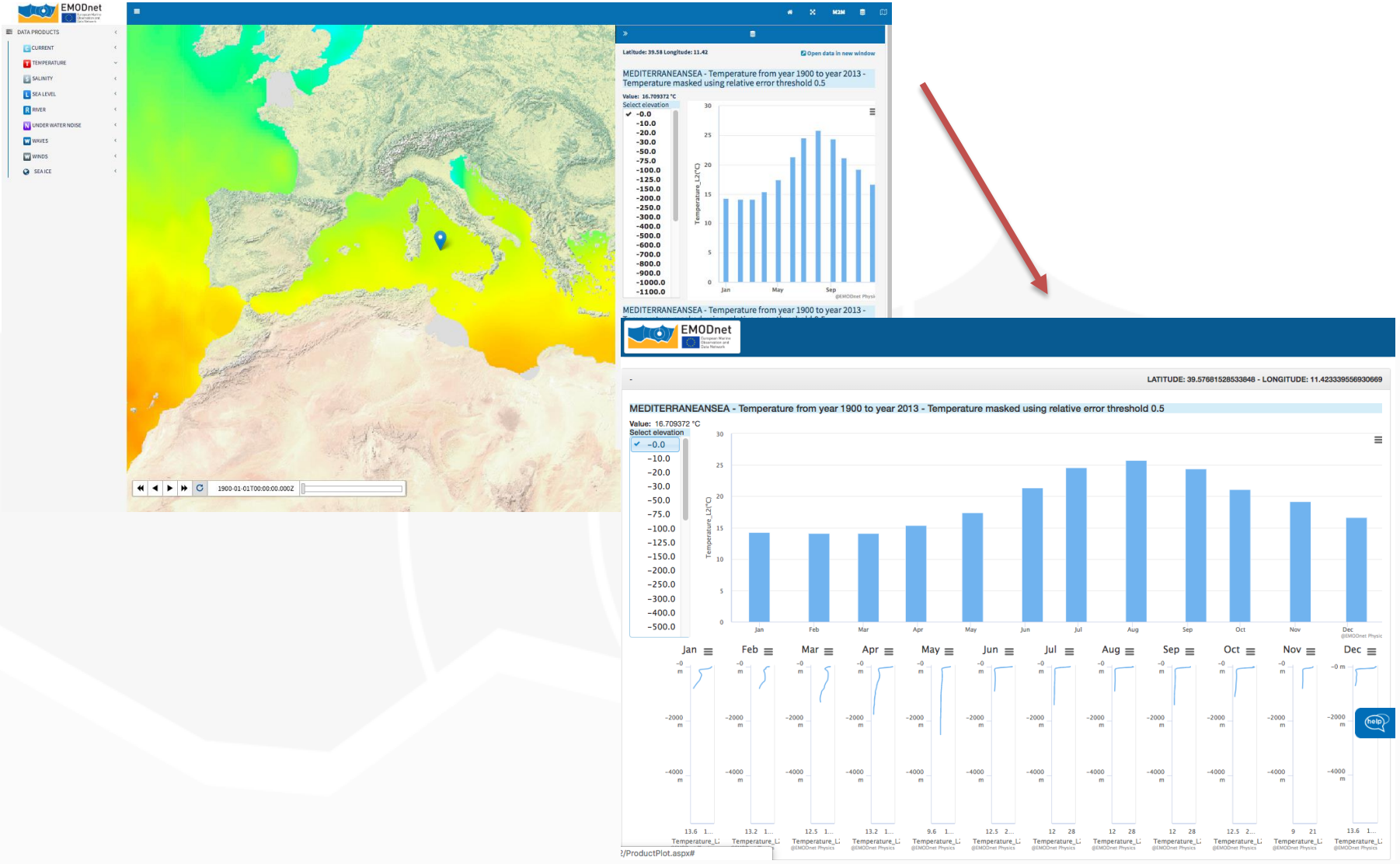
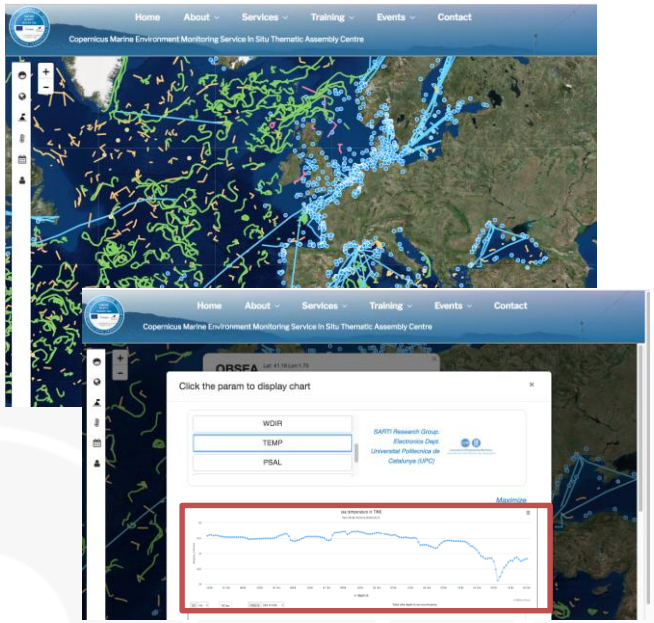


CMEMS In Situ TAC

CMEMS INSTAC uses the EMODnet Physics widgets to improve the viewing service developed for outreach and promotion activities



The Copernicus Marine Environment Monitoring Service (CMEMS) In Situ Thematic Assembly Centre (In Situ TAC) is the component of the Copernicus Marine Service which ensures a consistent and reliable access to a range of *in situ* data for the purpose of service production and validation.

Service: WIDGET

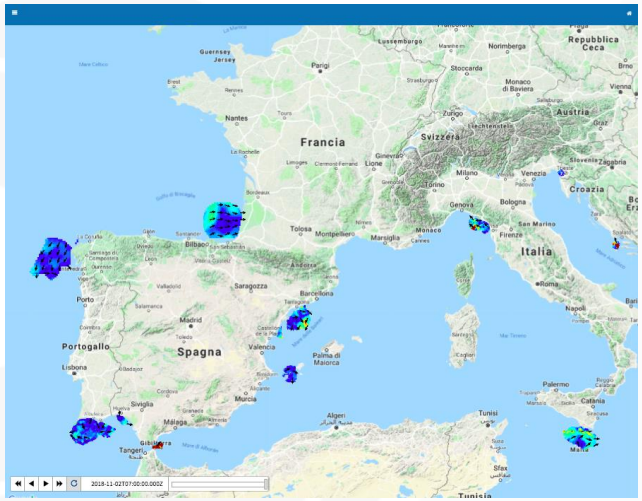
http://www.emodnet-physics.eu/MapTest/Charts/PlotDataTimeSeries.aspx?paramcode=TEMP&platid=8805&plattype=MO&timerange=7

Paramcode: TEMP, PSAL, SLEV, WDIR, …
Plattype: MO, FB, AP, GL …
timerange: 7, 60,

http://www.emodnet.eu/emodnet-physics-enhances-services-cmems-situ-thematic-assembly-centre

PM_TEN

Water-pollutants-dispersion studies are usually performed with numerical codes, which require both meteorological and marine **surface current inputs**. The inputs are usually provided by circulation models and/or by radar data analysis, **such as those available in the EMODnet Physics database.**



PM_TEN (Physical Methods and Technologies for Environmental Needs) is an Italian supporting assesssment on the analysis of air pollution, atmospheric impact and the effects of harbours and ships on urban air quality.

Service: THREDDS SERVER

- http://thredds.emodnet-physics.eu/thredds/catalog.html
- http://thredds.emodnet-physics.eu/thredds/HFRADARCatalog.html

http://www.emodnet.eu/capitalising-emodnet-radar-data-water-dispersion-studies

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DLR

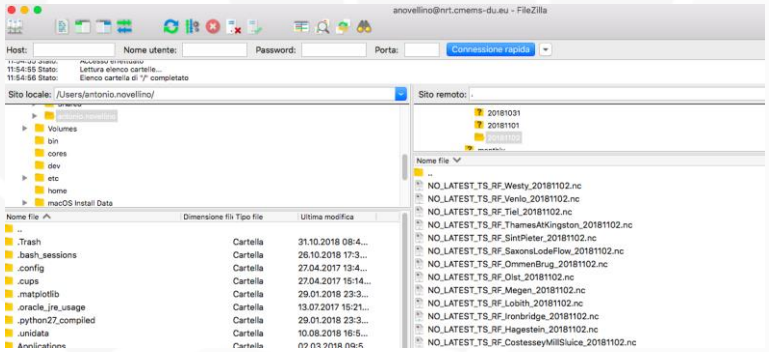
DLR's German Remote Sensing Data Center (DFD) implemented a **validation chain of SAR** (Synthetic Aperture Radar) **satellite based products (wind and wave) on the in situ station data distributed by EMODnet Physics**

DLR Deutsches Zentrum für Luft- und Raumfahrt

The German Aeropspace Center (DLR) DLR has been given responsibility by the federal government for the planning and implementation of the German space program.

Service:

ad-hoc FTP-distribution-server



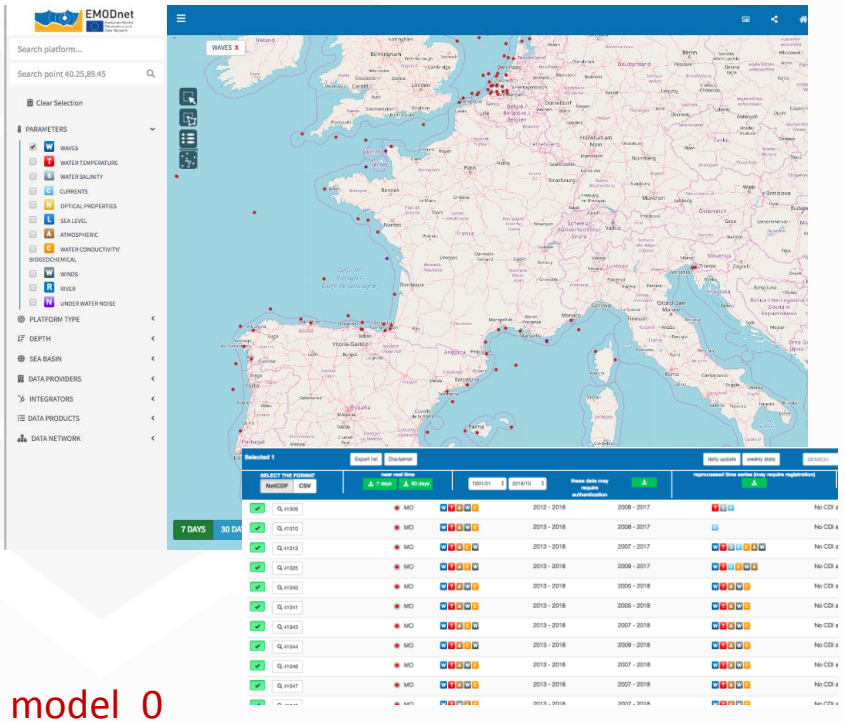
http://www.emodnet.eu/validation-sar-satellite-based-information-products-wave-height-and-combination-emodnet-station-data

DHI and HyMOLAB

Mediterranean Wind Wave Model is a **met-ocean database** aimed at providing nearly 40 years of hourly time series of wind and wave conditions for the entire Mediterranean Sea.

EMODnet Physics data were and are used for calibration and continuous validation purposes

DHI is an international firm with its headquarters in Denmark, which specializes in delivering solutions to various water challenges.

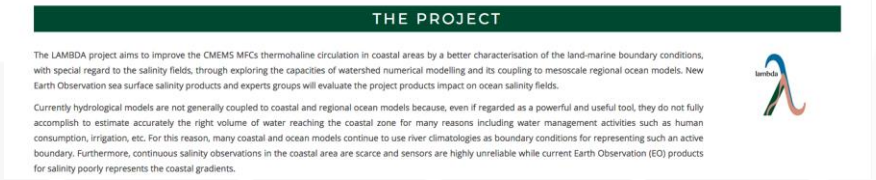


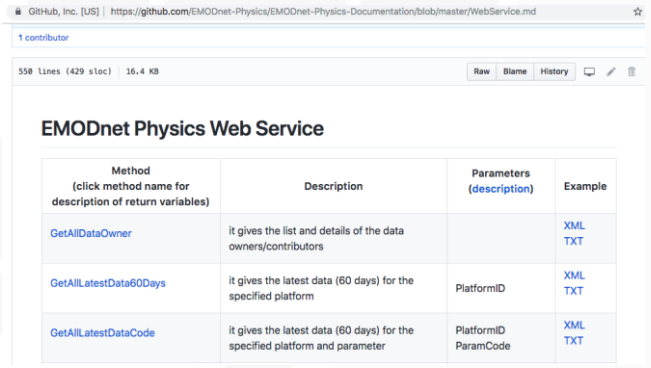
Service: webmap and platforms list download

http://www.emodnet.eu/mediterranean_wind_wave_model_0

LAMBDA

EMODnet Physics River data service supports the LAMBDA project to demonstrate the quality of modelling results produced by the watershed models.





The EMODnet Physics - River data service provides a unique one stop shop for operational near real time river data in a standardised format for several countries facilitating the access, download and validation of this kind of data

Service: API and web services

https://github.com/EMODnet-Physics/EMODnet-Physics-Documentation/blob/master/WebService.md

http://www.emodnet.eu/emodnet-cmems-together-build-framework-improving-land-boundary-conditions-cmems-regional-products

Southern Ocean Observing System

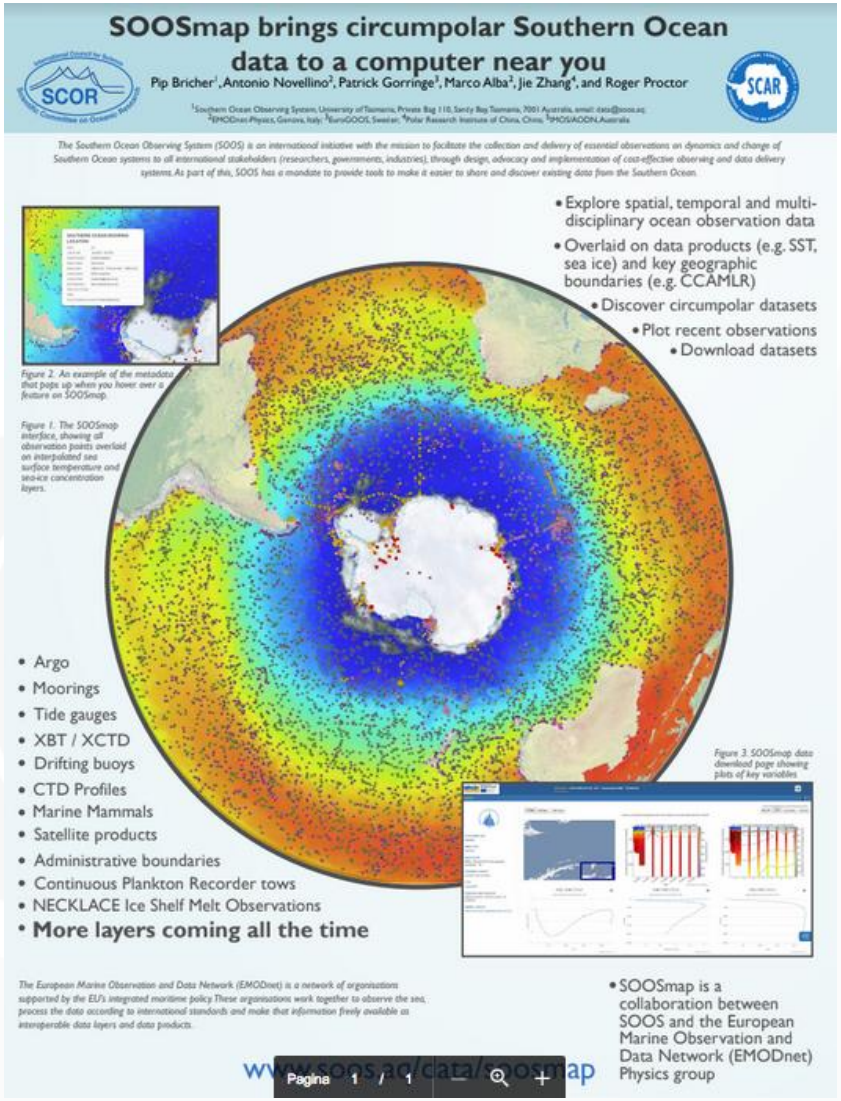
SOOSmap builds on the data aggregation and sharing **infrastructure of EMODnet** to bring circumpolar datasets into a single web-based discovery portal.

Through SOOSmap, users can discover, plot, explore, and download datasets of relevance to biologists, ecologists, ice scientists, and physical oceanographers.

The use of EMODnet allows SOOS to develop the data-sharing tools it needs **without duplicating existing infrastructure** and without placing undue burden on its member organisations

Service: child portal

http://www.soos.aq



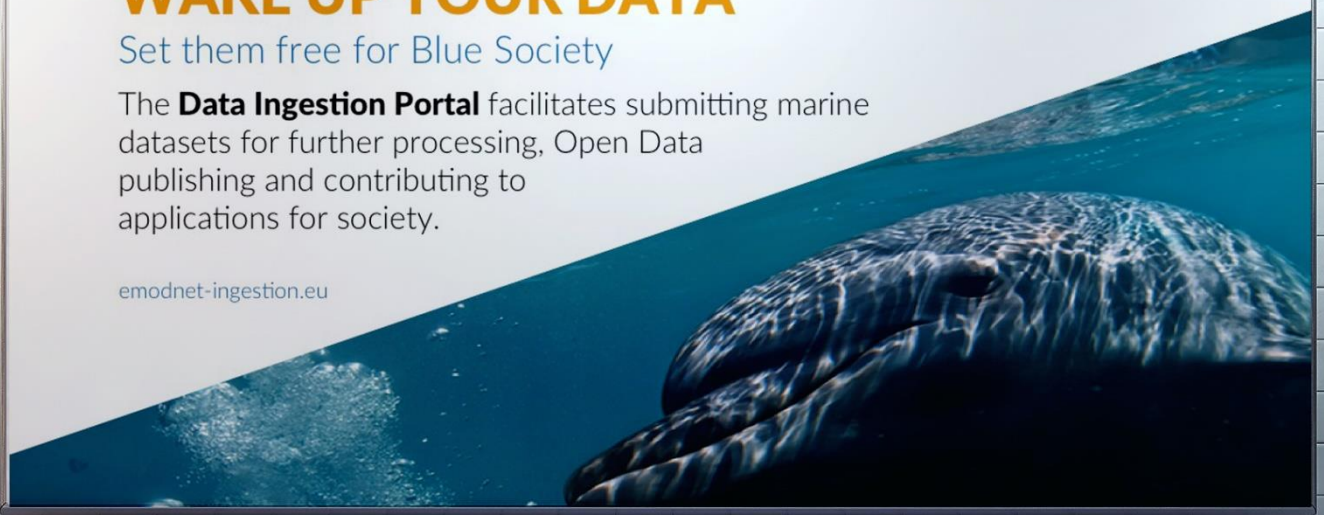
EMODnet Data Ingestion

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

contacts@emodnet-physics.eu

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