EMODnet - *European Marine Observation and Data Network* ***- 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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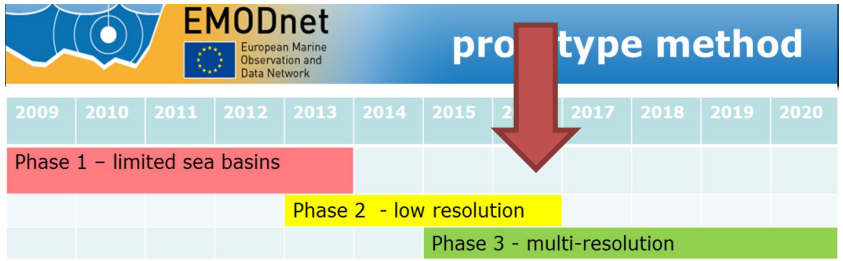
EMODnet European Marine Observation and Data network

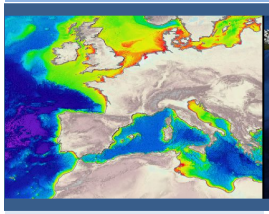
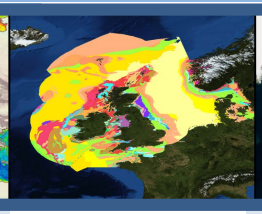
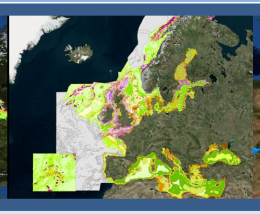
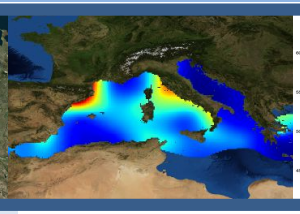
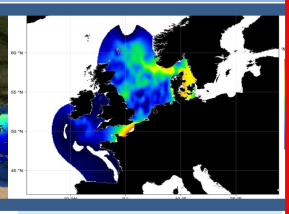
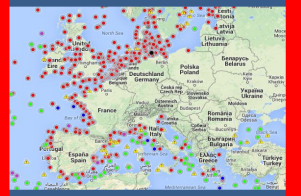
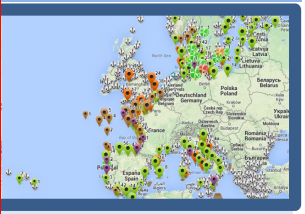
- Long term marine data initiative from the European Commission Directorate-General for Maritime Affairs and Fisheries (DG MARE)

- Data infrastructure is developed through a stepwise approach in three major phases

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



- More than 100 organisations assembling marine data, products and metadata

Bathymetry	Geology	Seabed habitats	Chemistry	Biology	Physics	Human activities
						
Minimum cell water depth Maximum cell water depth Average cell water depth Standard deviation of cell water depth Number of values used for interpolation of cell water depth Horizontal coordinate reference system Depth reference system Lowest Astronomical Tide	Seabed substrate Sediment accumulation rate Sea-floor geology Seabed lithology Stratigraphy Coastline migration Aggregate resources Geological events	Depth Seabed substrate Energy at seabed (waves & current) Salinity Temperature Light at seabed Oxygen at seabed	DDT PCB TBT TPT Oxytetracycline Mercury Cadium Lead Anthracene Fluoroanthene Cs137 Pu239 Nitrogen (Din, TN) Phosphorus (DIP, TP) pH pCO2 alkalinity O2 CO2 Polyethylene Polypropylene Chlorophyll Silicates Organic Matter	Biomass Abundance Gridded Abundance (DIVA) *species groups* phytoplankton zooplankton angiosperms macro-algae invertebrate bottom fauna birds mammals reptiles Fish	Waves Water temperature Water salinity/conductivity/density Currents Light attenuation/ fluorescence Sea level Atmospheric parameters Wind Underwater noise River Ice	Aggregate Extraction Dredging Fisheries Hydrocarbon Extraction Main Ports Mariculture Ocean Energy Facilities Pipelines and Cables Protected Areas Waste Disposal Wind Farms Other Forms of Area Management / Designation

EMODnet

EMODnet Physics[3]

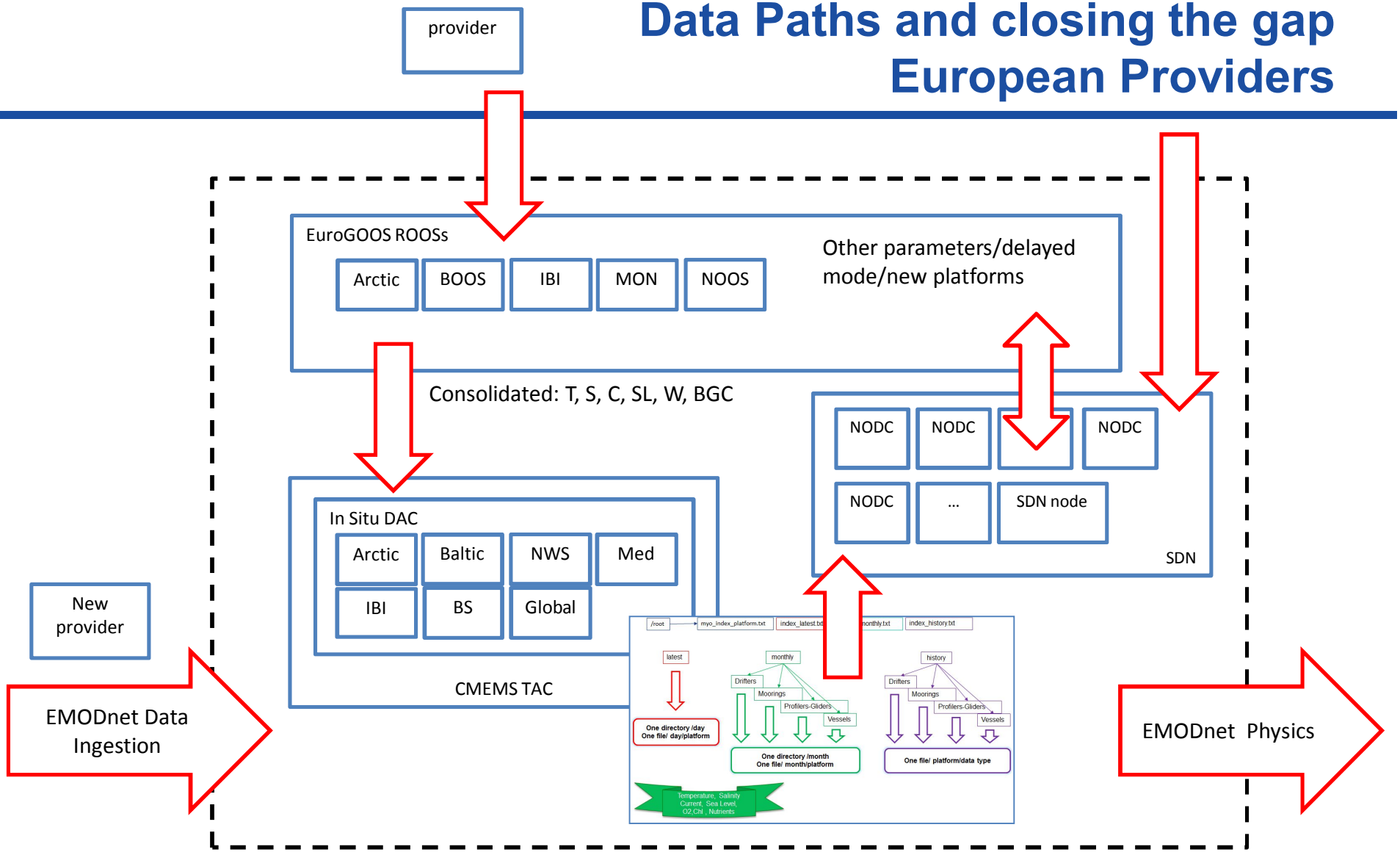
To develop an **operational service where near real time and historical validated marine data is made interoperable and freely available**

To develop **data products based on observation of the sea**, providing free and open access to these data products and to observations on which these data products were built.

- To include **additional monitoring systems**, make available **additional products** and **strengthen the underlying infrastructure**
- **close the gap** between operational data centres (connected to **CMEMS** and **EuroGOOS ROOSs**) and the quality controlled data archives (**SeaDataNet NODC's**);
- to make available **products** constructed from one or more data sources that provide users with **information about the distribution of parameters in time and space**;
- To develop **interoperability** and **machine-to-machine connections** to data and data products
- a strong **collaboration with EMODnet Ingestion** project

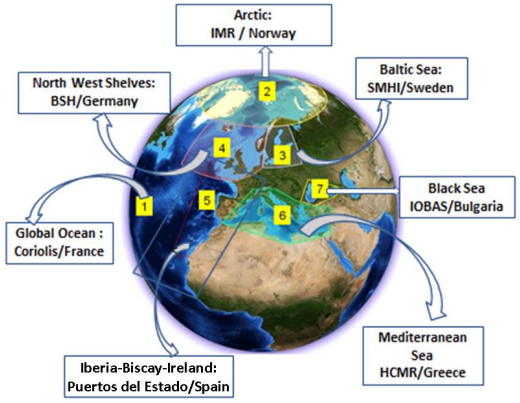
wave height and period; temperature of the water column; wind speed and direction; salinity of the water column; horizontal velocity of water column; water clarity (light attenuation); changes in sea-level; data from rivers; ice cover; underwater sound

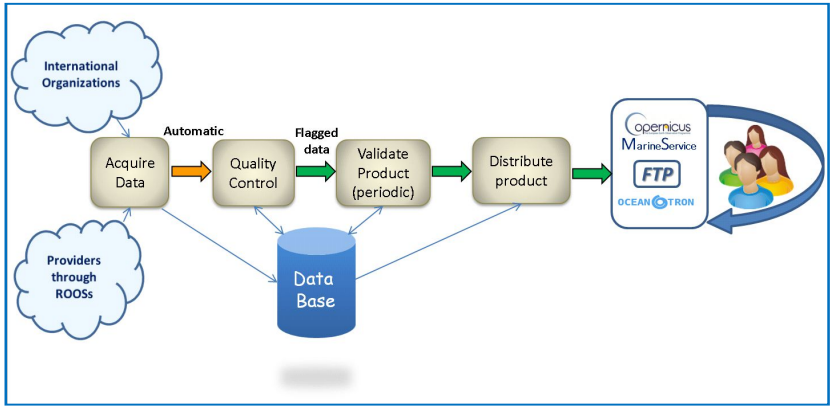
Data Paths and closing the gap
European Providers



NRT data pathway

- European NRT data is organized in coordination and cooperation with EuroGOOS ROOSs (Regional Operational Oceanographic Systems) and CMEMS INS TAC (developed by MyOCEAN prjs)





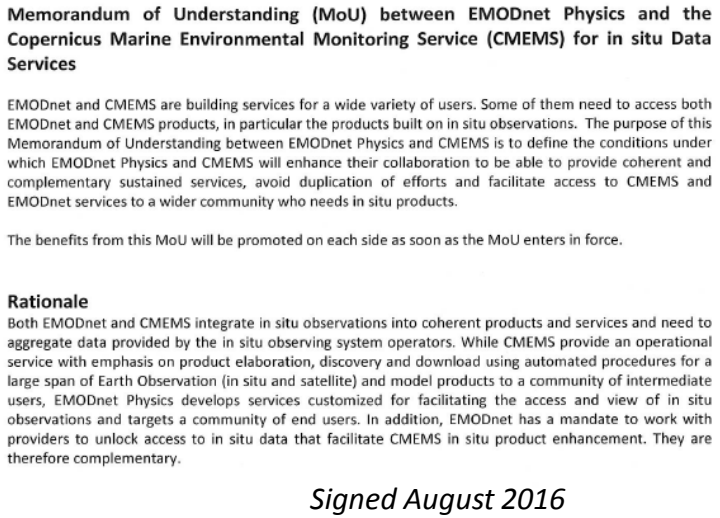
- **Acquire Data:** Gather data available on international networks or though collaboration with regional and national partners.
- **Quality control:** apply automatic quality controls that have been agreed at the In Situ TAC level. These procedures are defined by parameter, elaborated in coherence with international agreements, in particular SeaDataNet, and documented in CMEMS Catalogue.
- **Validation/Assessment:** Assess the consistency of the data over a period of time and an area to detect data that are not coherent with their neighbors but could not be detected by automatic QC.
- **Distribution:** make the data available within CMEMS and to the external users.

EMODnet Physics & CMEMS MoU

[…] to integrate in situ observation into coherent products and services […]

Service agreement - is already working for the following products:

- INSITU_GLO_NRT_OBSERVATION_013_030
- INSITU_ARC_NRT_OBSERVATIONS_013_031
- INSITU_BAL_NRT_OBSERVATIONS_013_032
- INSITU_NWS_NRT_OBSERVATIONS_013_036
- INSITU_IBI_NRT_OBSERVATIONS_013_033
- INSITU_MED_NRT_OBSERVATIONS_013_035
- INSITU_BS_NRT_OBSERVATIONS_013_034



Memorandum of Understanding (MoU) between EMODnet Physics and the Copernicus Marine Environmental Monitoring Service (CMEMS) for in situ Data Services

EMODnet and CMEMS are building services for a wide variety of users. Some of them need to access both EMODnet and CMEMS products, in particular the products built on in situ observations. The purpose of this Memorandum of Understanding between EMODnet Physics and CMEMS is to define the conditions under which EMODnet Physics and CMEMS will enhance their collaboration to be able to provide coherent and complementary sustained services, avoid duplication of efforts and facilitate access to CMEMS and EMODnet services to a wider community who needs in situ products.

The benefits from this MoU will be promoted on each side as soon as the MoU enters in force.

Rationale

Both EMODnet and CMEMS integrate in situ observations into coherent products and services and need to aggregate data provided by the in situ observing system operators. While CMEMS provide an operational service with emphasis on product elaboration, discovery and download using automated procedures for a large span of Earth Observation (in situ and satellite) and model products to a community of intermediate users, EMODnet Physics develops services customized for facilitating the access and view of in situ observations and targets a community of end users. In addition, EMODnet has a mandate to work with providers to unlock access to in situ data that facilitate CMEMS in situ product enhancement. They are therefore complementary.

Signed August 2016

EMODnet Physics Products by platform

→ Unlock access to in situ data
→ Create customised service
- Viewing of the products
- Detailed information about producers (credit to data originators)
- Extract platforms from CMEMS products to answer user needs

CMEMS Products by EU sea basin

→ Quality controlled products

→ Operational service
- Discovery & distribution of product
- Detailed data policy (commitments, licence)
- Service desk support
- Service monitoring

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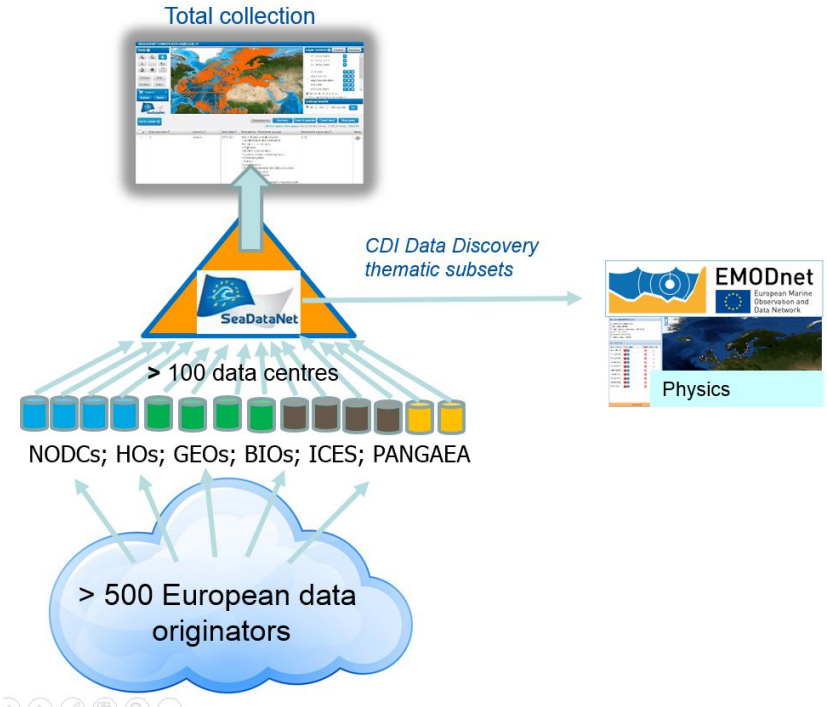
EMODnet Physics & SeaDataCloud

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



Arctic Ocean
- T&S Observation Collection V.2.0
- T&S Climatology V1.1
- T&S Observation Collection V.1.1

Baltic Sea
- T&S Observation Collection V.2.0
- T&S Climatology V1.1
- T&S Observation Collection V.1.1

Black Sea
- T&S Observation Collection V.2.0
- T&S Climatology V1.1
- T&S Observation Collection V.1.1

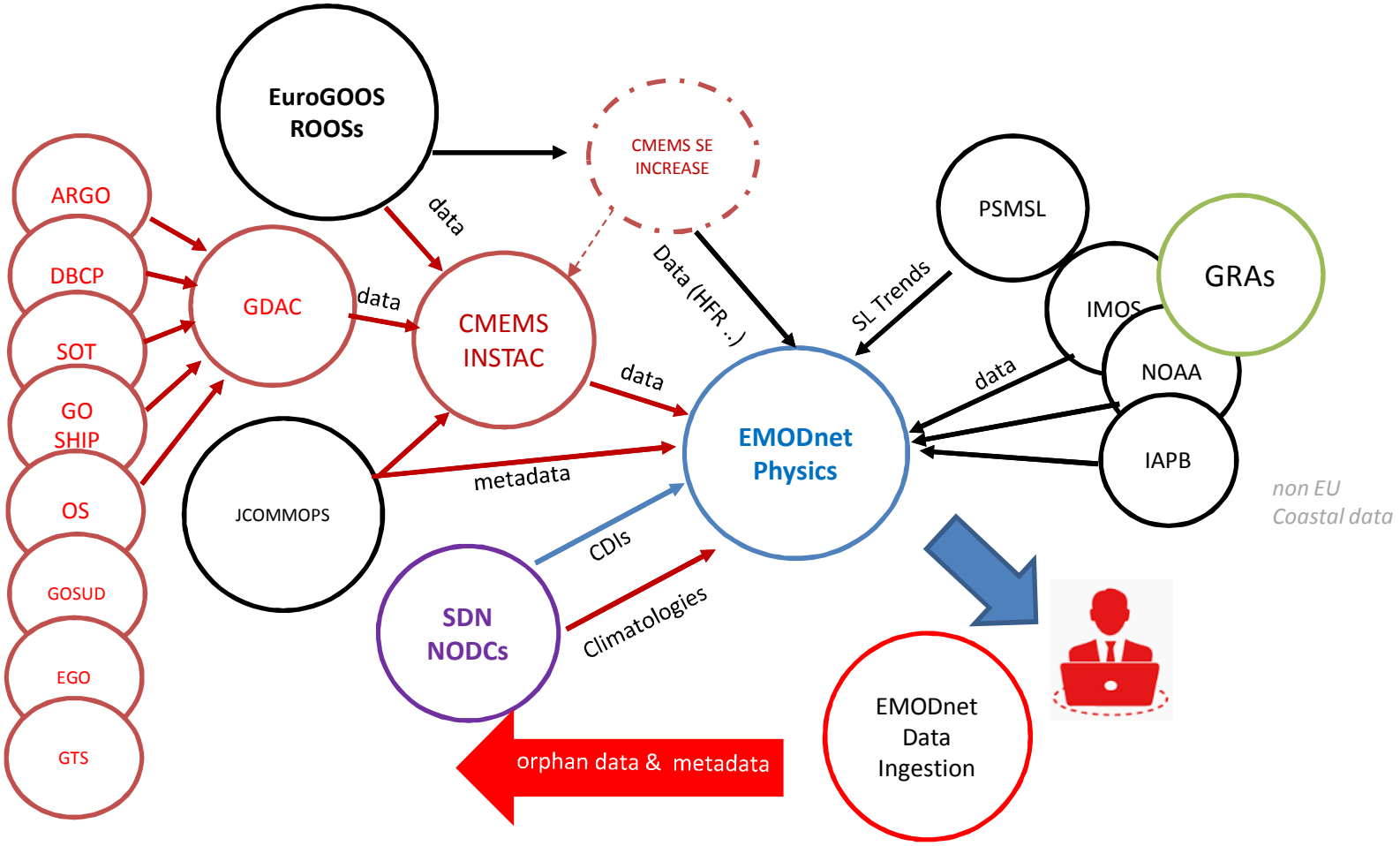
North Atlantic Ocean
- T&S Observation Collection V.2.0
- T&S Climatology V1.1
- T&S Observation Collection V.1.1

North Sea
- T&S Observation Collection V.2.0
- T&S Observation Collection V.1.1

Mediterranean Sea
- T&S Observation Collection V.2.0
- T&S Climatology V1.1
- T&S Observation Collection V.1.1

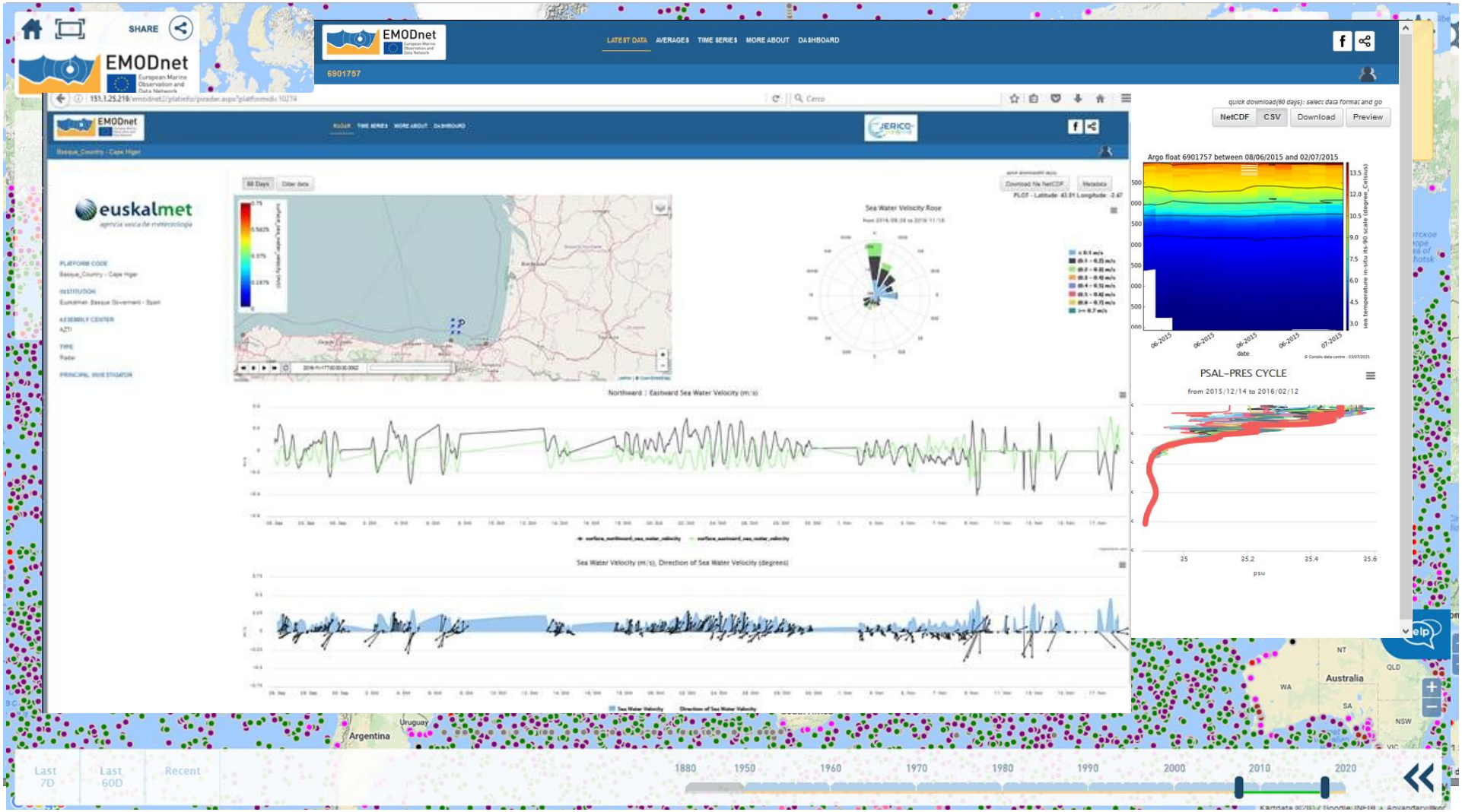
http://www.emodnet-physics.eu/portal/Catalogue

EMODnet Physics^3 Data Path



ROOS: Regional Oceanographic Operational Sys.; NODC: National Oceanographic Data Centre;
CMEMS: Copernicus Marine Environment Monitoring Service; SDN: SeaDataNet;
JCOMMPOS: JCOMM in situ Observing Platform Support Centre;
GDAC: Global Data Assembly Centre; PSMSL: Permanent Service Mean Sea Level
DBCP: Data Buoy Coop. Panel; SOT: Ship Obs. Team; OS: OceanSITES;

EMODnet Physics[3]



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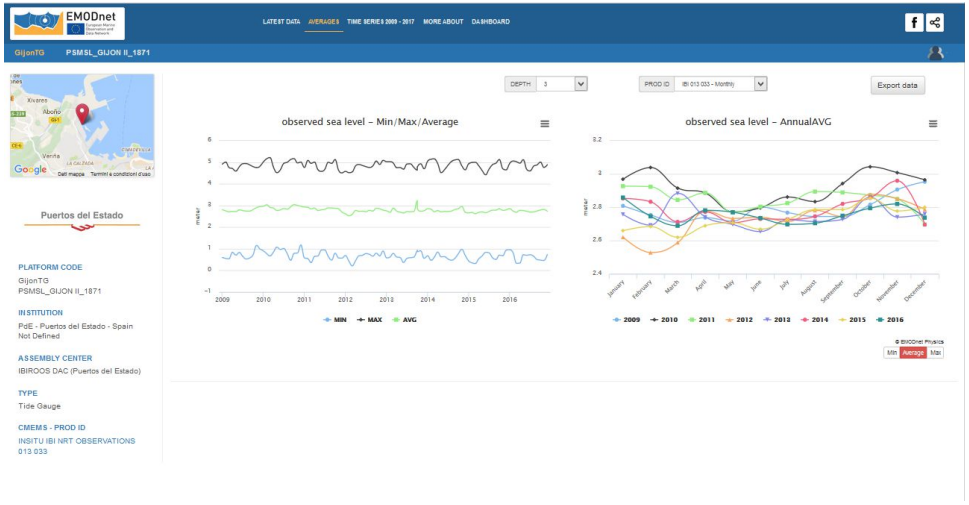

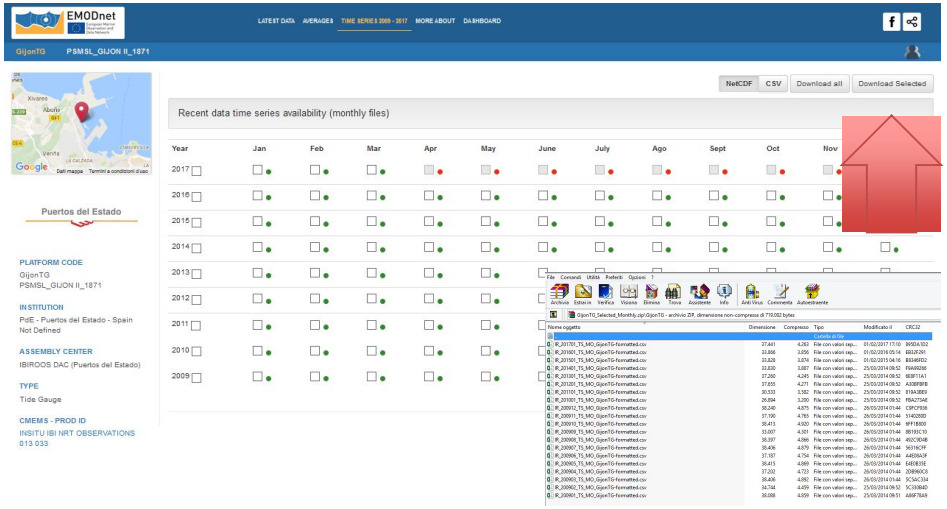

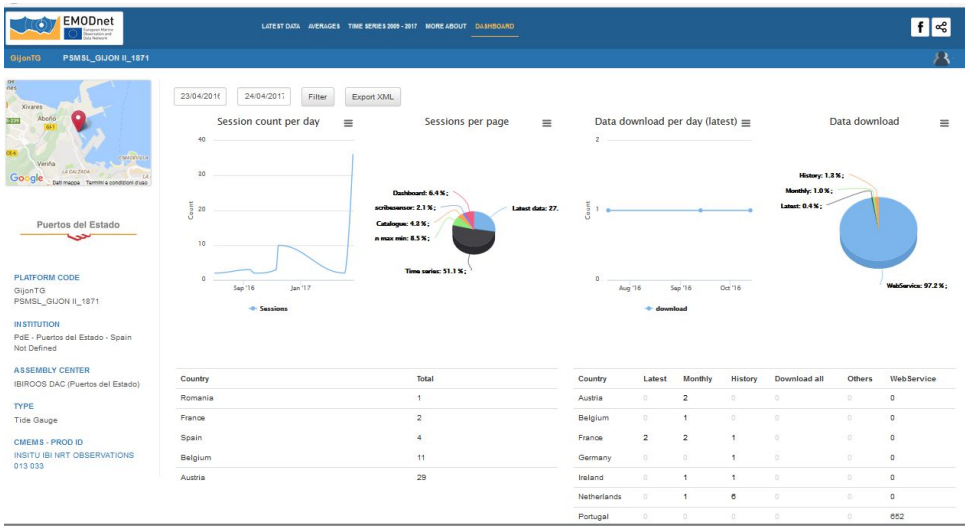

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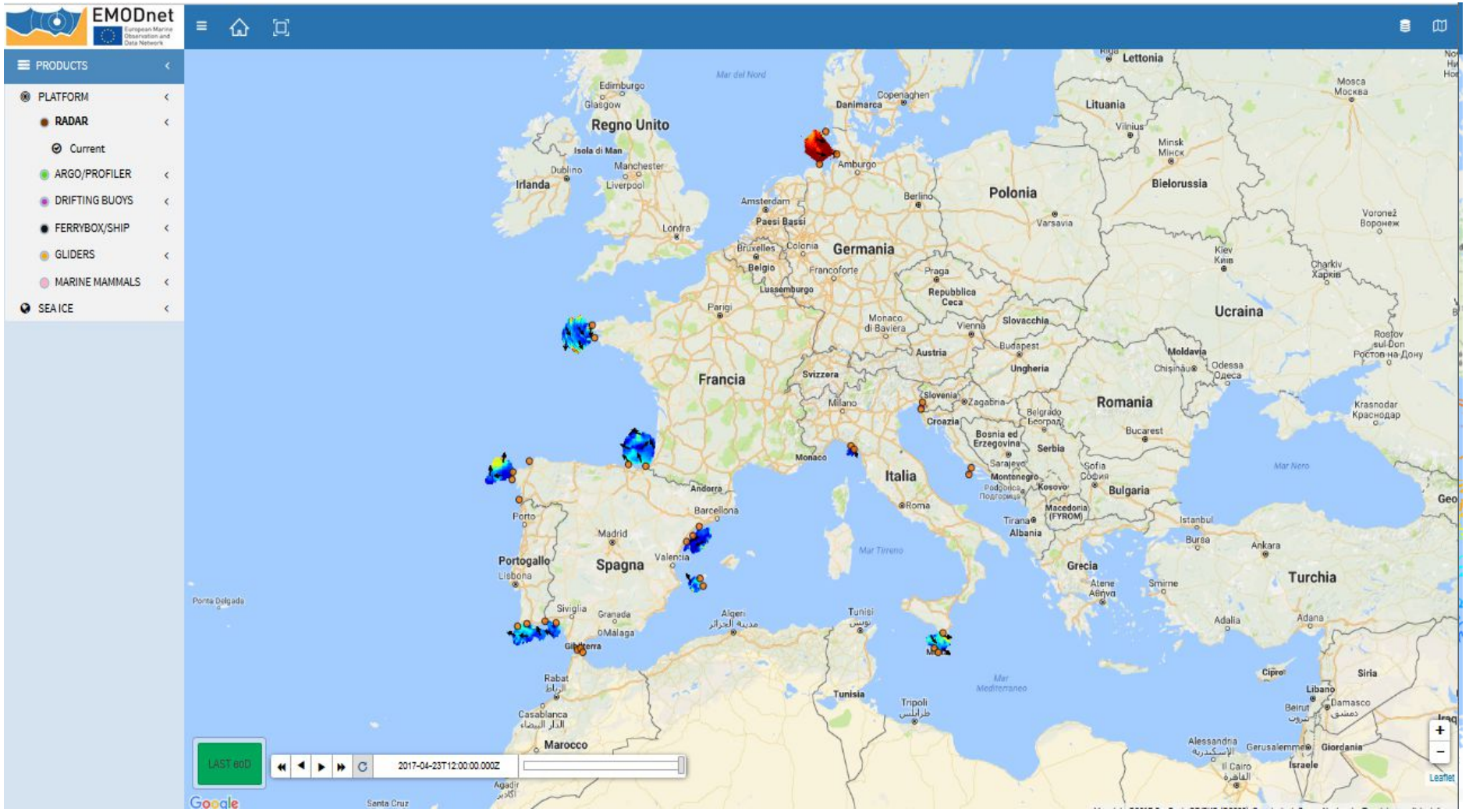

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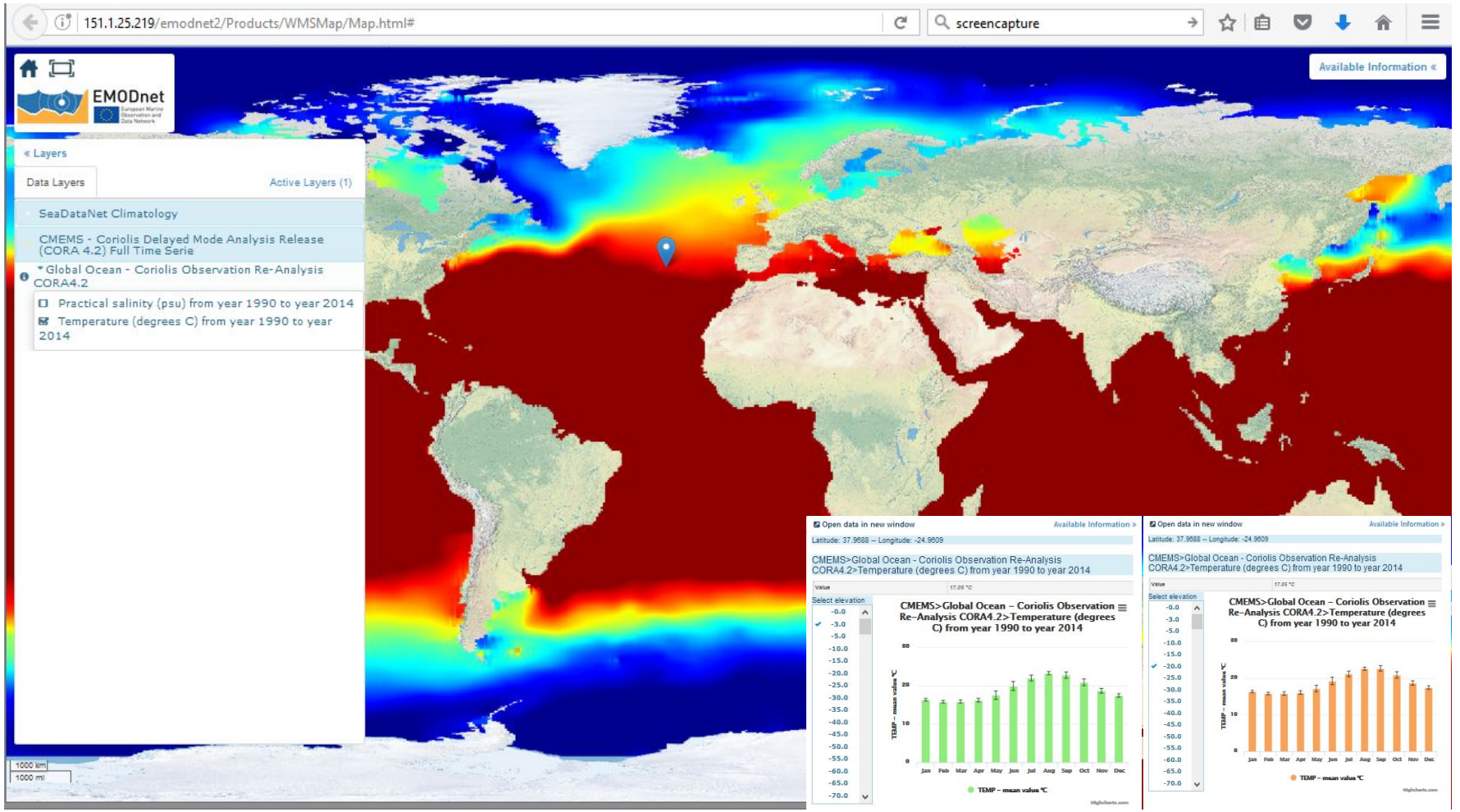
Coming soon



EMODnet

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