EMODnet Physics

EASME/EMFF/2020/3.1.11/Lot4/SI2.838612 - EMODnet Physics

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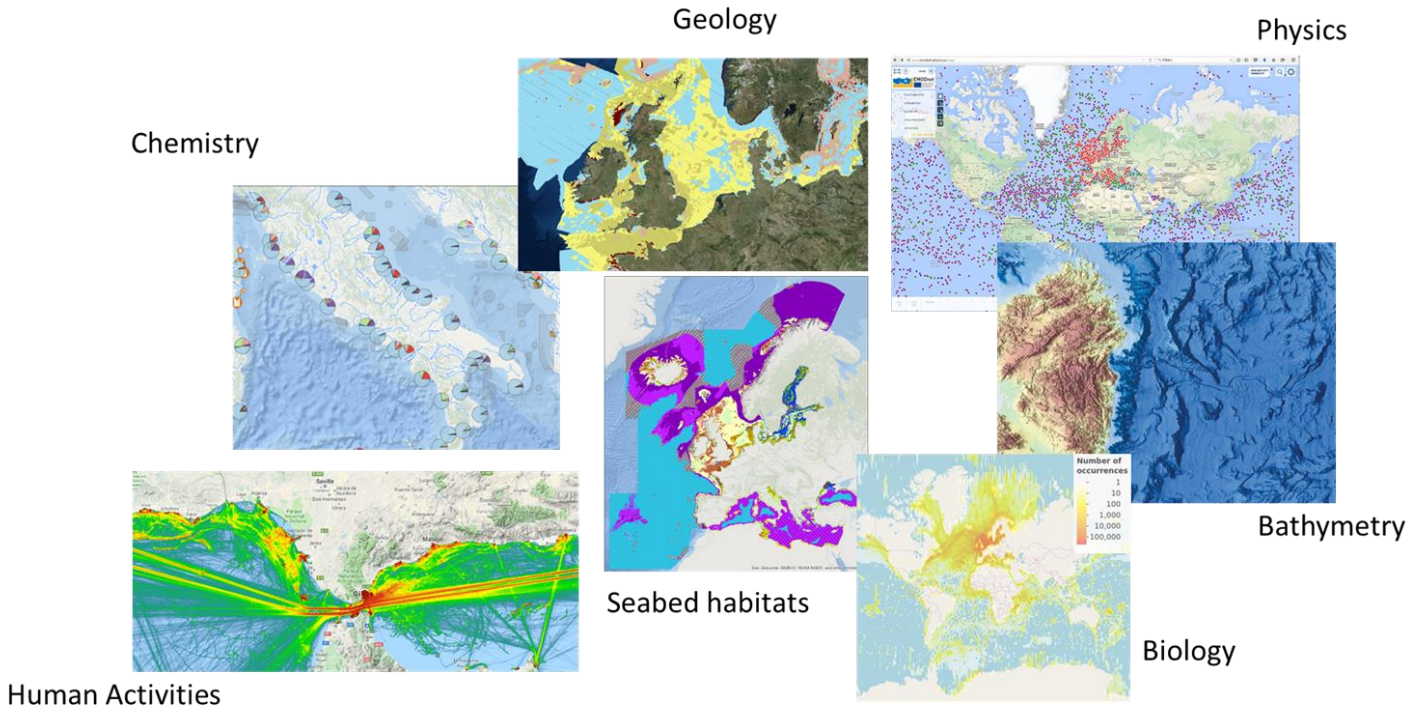
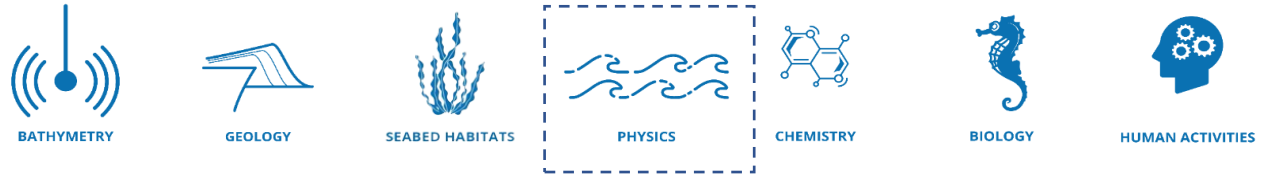
EMODnet Physics
www.emodnet-physics.eu

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

- EMODnet is an initiative by the EU DG MARE since 2008 and it has been organised by building thematic communities for physics, chemistry, geology, biology, seabed habitats, human activities, and bathymetry
- Each of the communities are in charge for data aggregation, data processing, … data dissemination and develops its own products and services,
- In 2016 the program was complemented by the EMODnet Central portal and EMODnet Ingestion.
- 2022 Centralization Phase





EMODnet Physics

in situ data and reanalysis

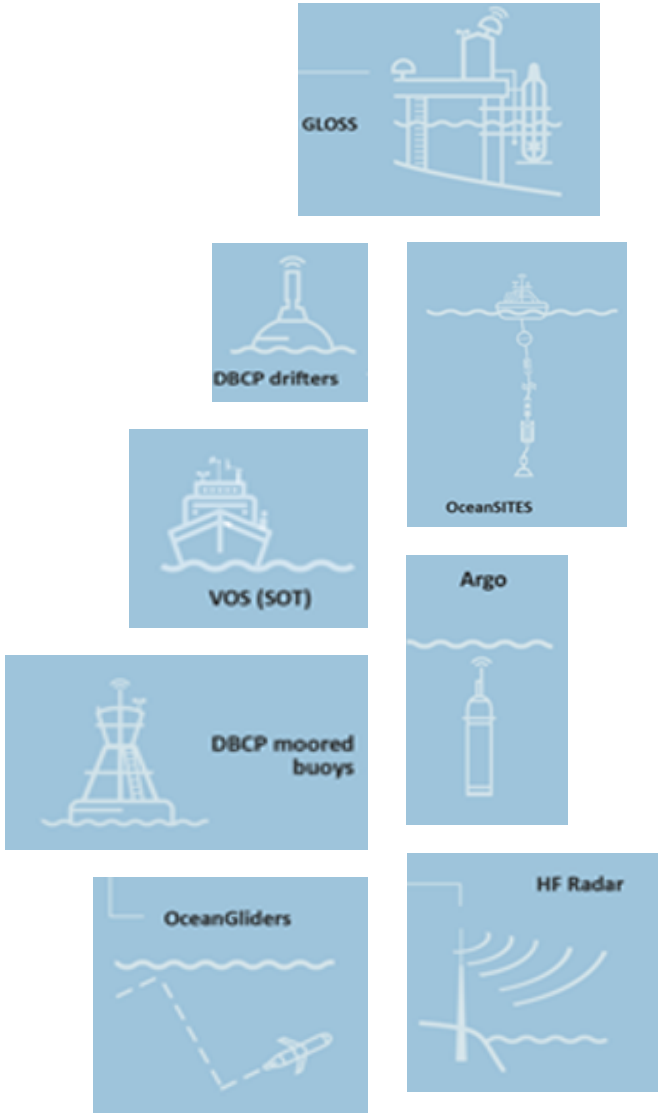
- Integrate and make available Ocean Physics data
  - Operational Real Time, Near Real Time, and Delayed Mode, Reprocessed & Validated
- Make available Products on Ocean Physics
  - Build on available infrastructures
  - redistribute available products
  - develop products (collection of data and elaborations)
- Make data, metadata and products Findable, Accessible, Interoperable, Reusable
  - Use and promote harmonization and common standards

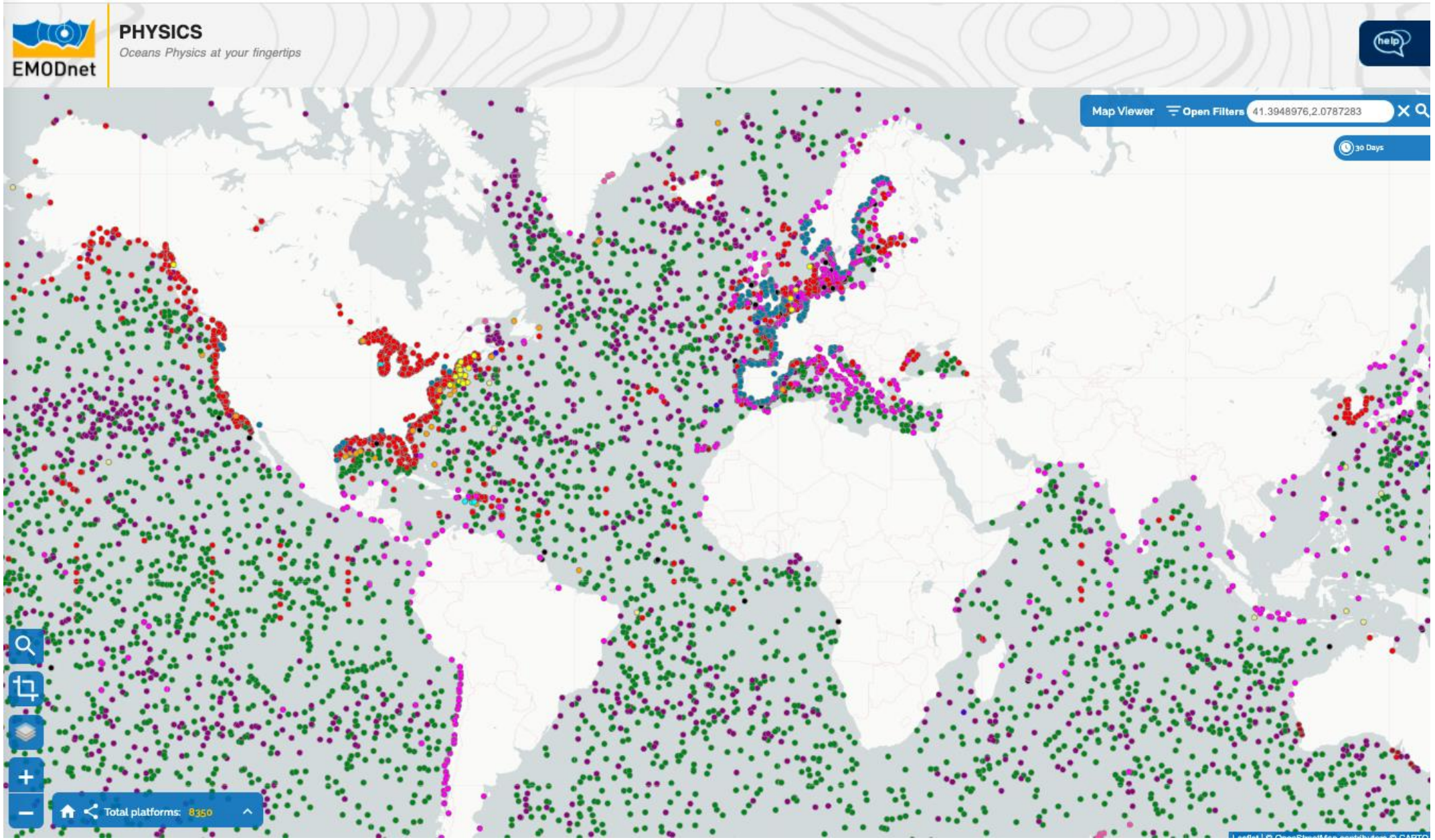
Parameters
Temperature
Salinity
Waves
Currents
Sea Level
Under water noise
Wind
Atmospheric param.
Biogeochemical param.
Optical properties
Ice data
River Runoff

Data age
Near real-time (NRT) data at in situ observatories at sea
Delayed mode and recovered/reporcessed
Reanalysis, climatology, trend maps, …

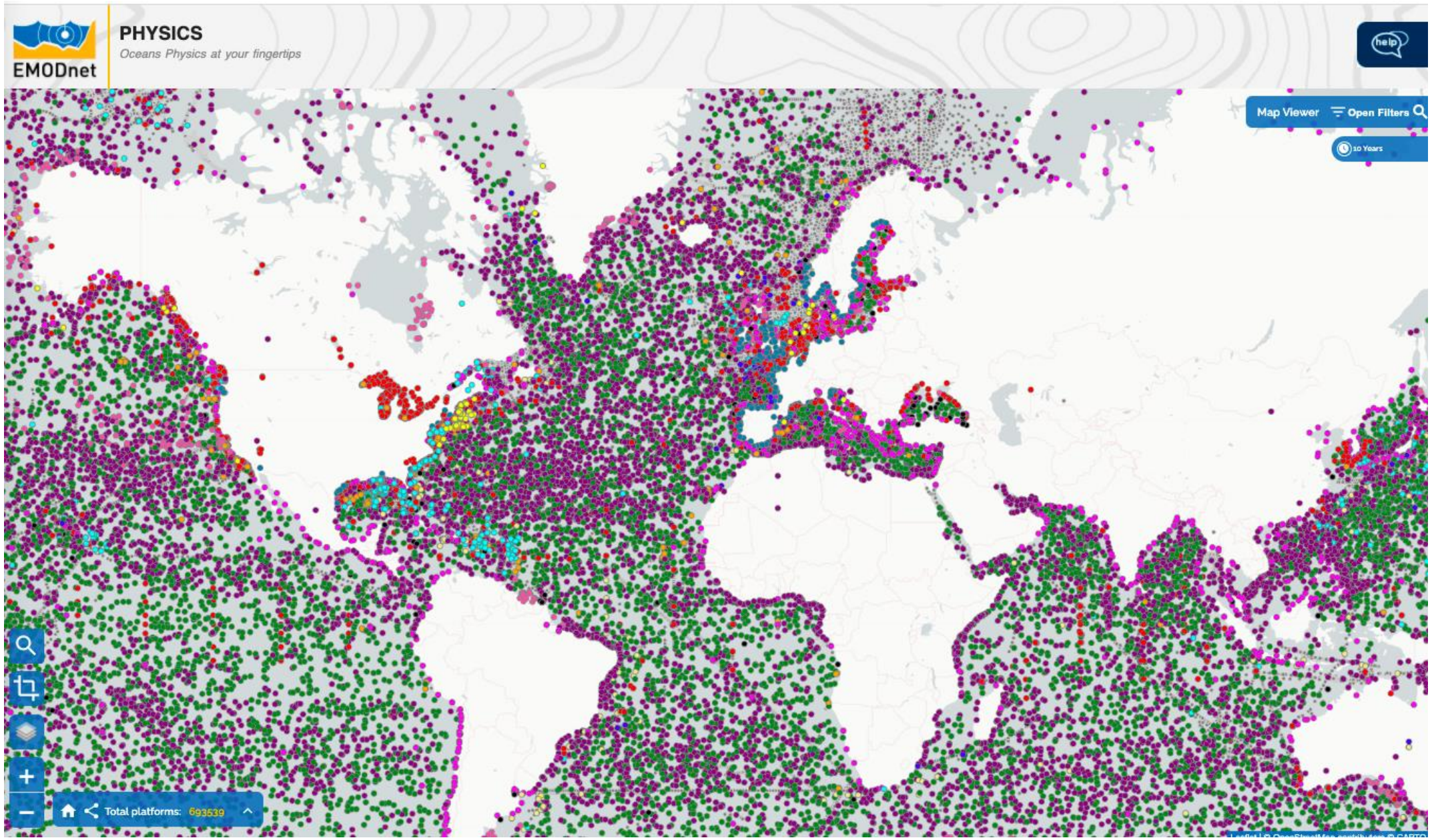
Data and Scope

- Temperature in the water column
- Salinity in the water column
- Wave direction, height
- Wind @ Sea Level, direction, intesity
- Sea Currents direction, intensity
- Sea Level and sea level trends
- Optical properties
- Sea Ice
- River outflow
- Acoustic pollution
- Atmospheric - Meteorological data @ sea level





One month of platforms data



10 years of platforms data

More than a data portal

2014
EMODnet to work on HFR
EuroGOOS HFR TT

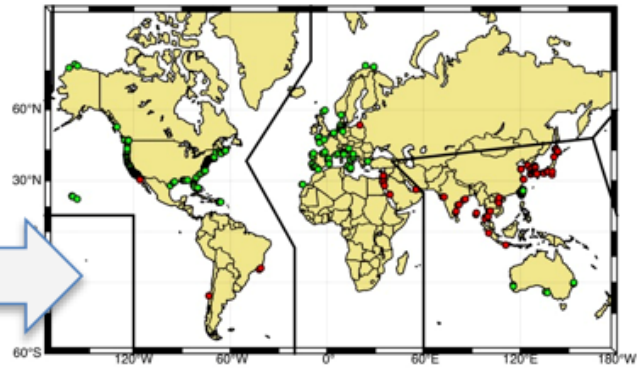
HFR coord. event

2016
CMEMS SE INCREASE
HFR towards CMEMS

2019
CMEMS INSTAC
Operational HFR prod.

H2020 SeaDataCloud
Long term HFR data man.

R&D



2015
HFR data
in EMODnet Physics

H2020 JERICO NEXT
HFR data QC/QF

2018
HFR EU node

2020

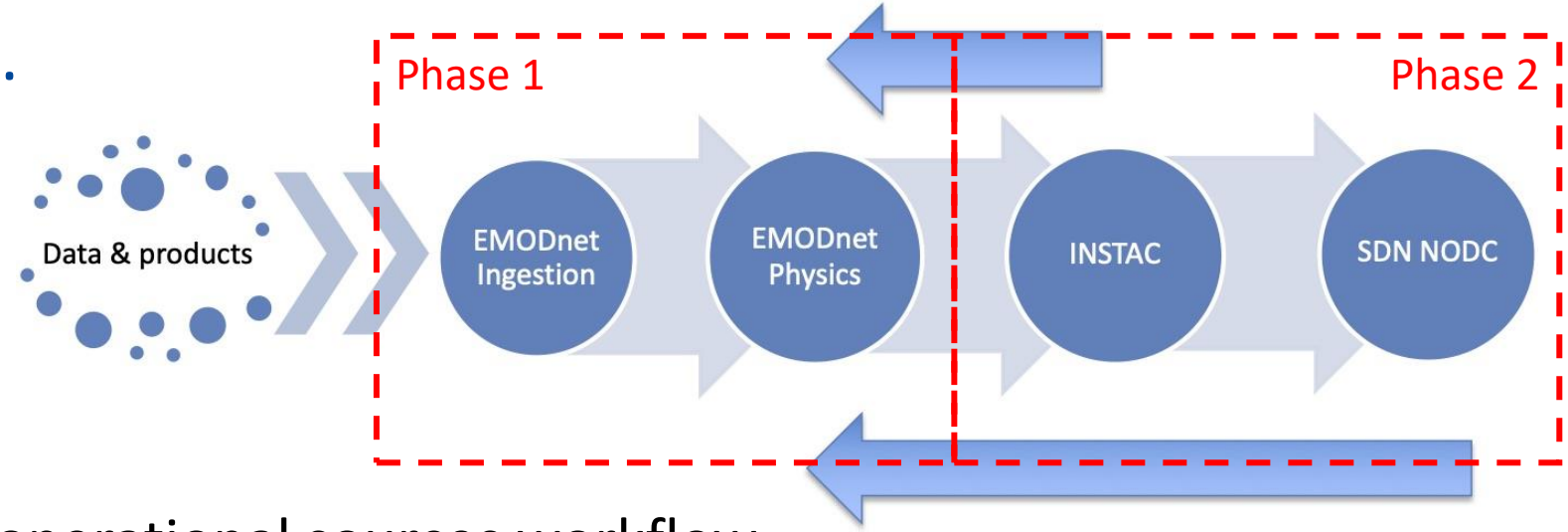
EMODnet Physics
CMEMS INSTAC
SeaDataCloud
JERICO S3

Global HFR network

http://global-hfradar.org

HF operations continue. Working to develop products with ocean modellers and other stakeholders

Connecting more operators … Ingestion Process



- Collaboration for ingesting new operational sources workflow:
  - Identification of the source
  - Analysis of the dataset, data transport format, data access protocol
  - Mapping of the minimum set of metadata (time, datum, institute, platform type, parameters, units,)
  - Presentation on EMODnet Physics (=Data Ingestion phase 1)
  - further mapping vs INSTAC metadata and application of INSTAC QC/QF
  - Integration into INSTAC products
  - Presentation on EMODnet Physics (=Data Ingestion phase 2)

Connecting more operators … backend workflow

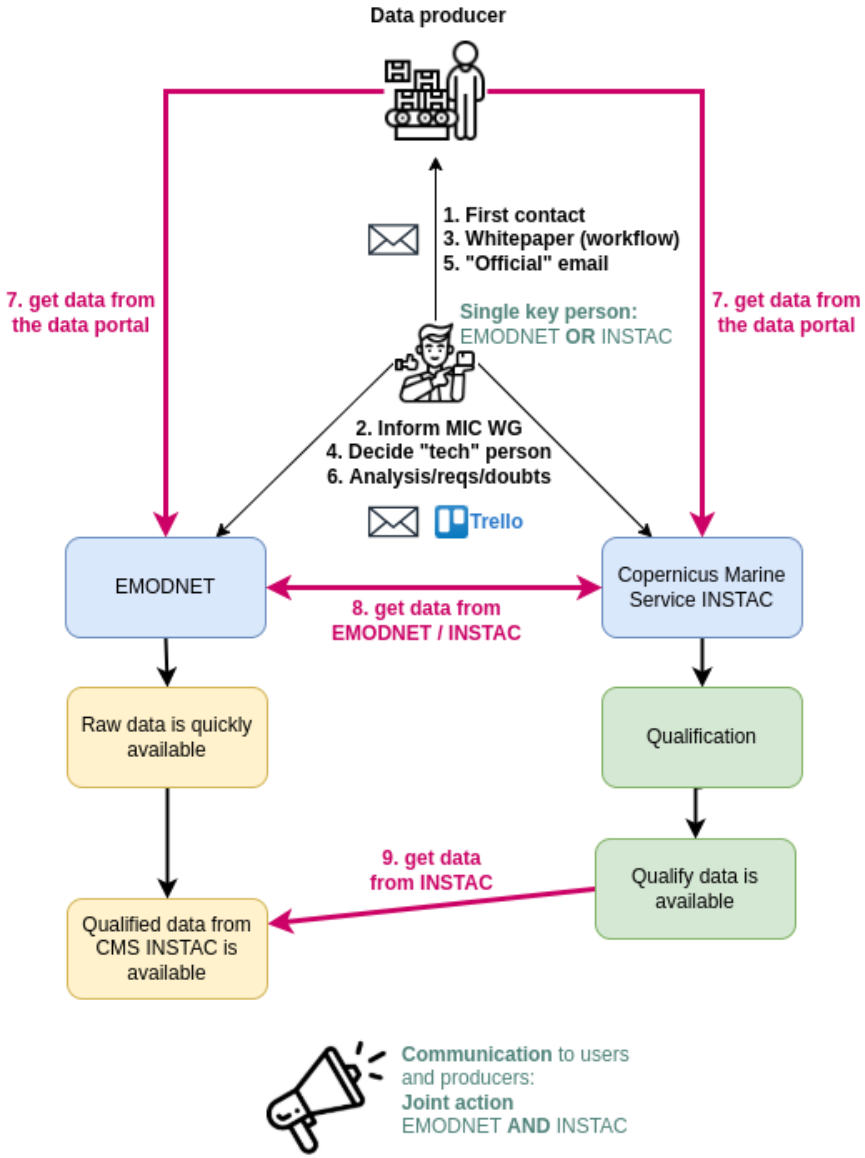
Since November 2021

Marine Insitu Collaboration Working Group [MIC WG]

is joining together EMODnet, EuroGOOS, SDN and CMS INS to manage better this task and sharing common tools (e.g. defined workflow, trello …)

ongoing actions:

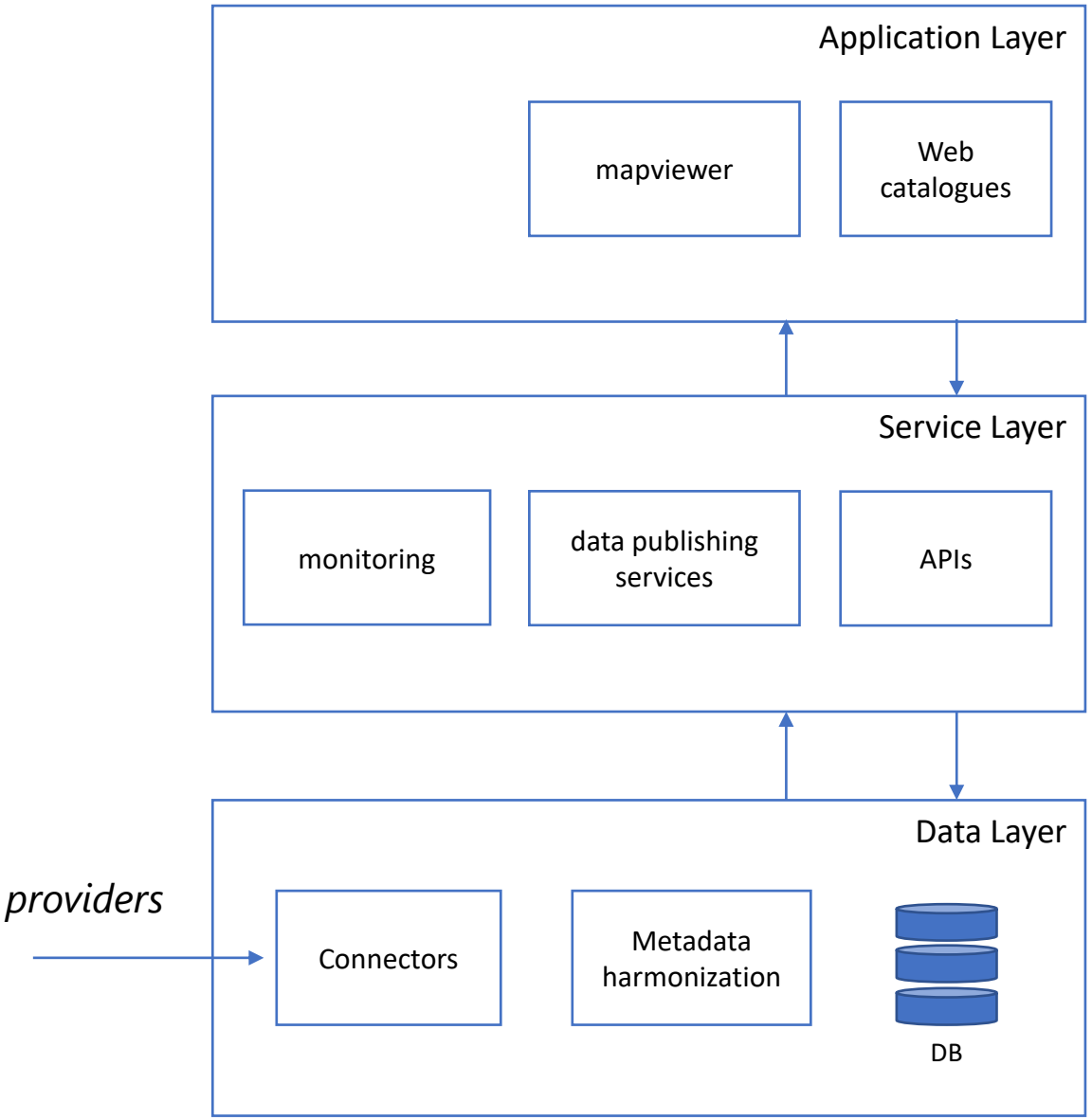
- review of metadata (global attributes)
- guidelines
- tools



examples of recommendations: identification

	descr	
Platform identification.	Each platform/station should be identified by a unique ID	WMO code - https://www.ocean-ops.org/ ICES – SHIPC https://vocab.ices.dk/?ref=315
Variable	basic metadata to be associated with the variables are: the measuring device (instrument type) used, the precise definition of the variable, its standard name and abbreviation, the unit used and the quality flag associated.	Instrument type, refer to SDN L22 (i.e. NETTZZZZ or TOOLZZZZ) https://vocab.seadatanet.org/v_bodc_vocab_v2/search.asp?lib=L22 Definition of variable, refer to SDN P01 & subset (i.e. SDN:P01::VVVVZZXX) https://vocab.seadatanet.org/bandit/browse_step.php Standard name following the CF convention https://cfconventions.org /Data/cf-standard-names/79/build/cf-standard-name-table.html Unit of the variable, refer to SDN P06 (i.e. ZZZZ, 4 uppercase letters) https://vocab.nerc.ac.uk/collection/P06/current/ Quality flag, refer to SDN L20 (i.e. number between 0 and 9 or letter: A, B, Q) https://vocab.seadatanet.org/v_bodc_vocab_v2/search.asp?lib=L20
Time	The time associated to the data	ISO 8601 format where Date is expressed as YYYY-MM-DD time is in 24-hour mode and UTC, e.g. T13:05:15Z meaning 13 hours 5 minutes 15 seconds UTC (representing by Z)
Geographical position	latitude and longitude coordinates	The reference coordinate system to be used to characterise the data is the WGS84

Backend



MapViewer and a series of standalone webGIS pages with advanced features

Combination of open sw tools (ERDDAP, GeoServer, GeoNetwork) + ad hoc tools (APIs)

Combination of tools implementing the «machinery» behind the data and products publication → EMODnet Physics Factory

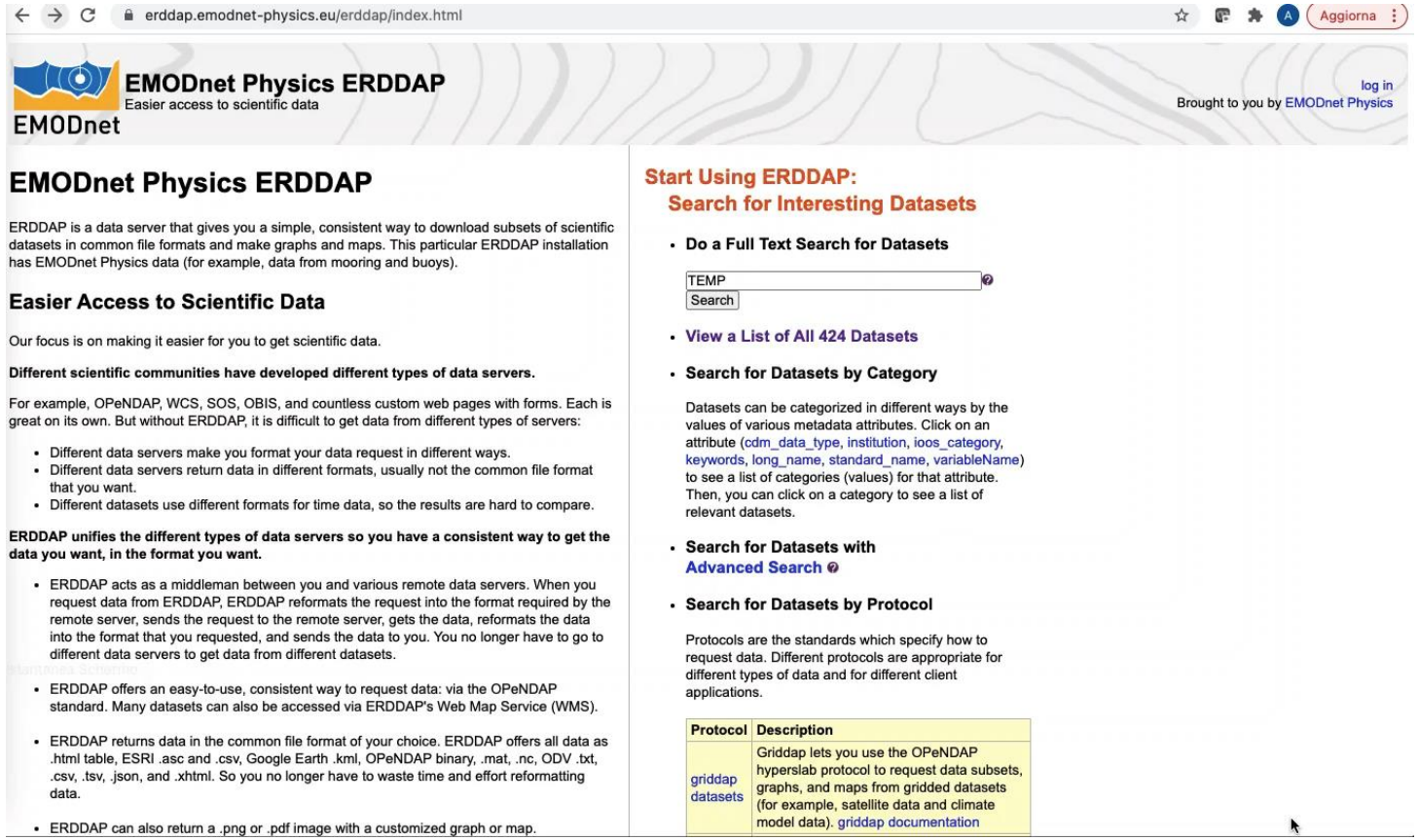
Developing tools for facilitating M2M exchange

ERDDAP

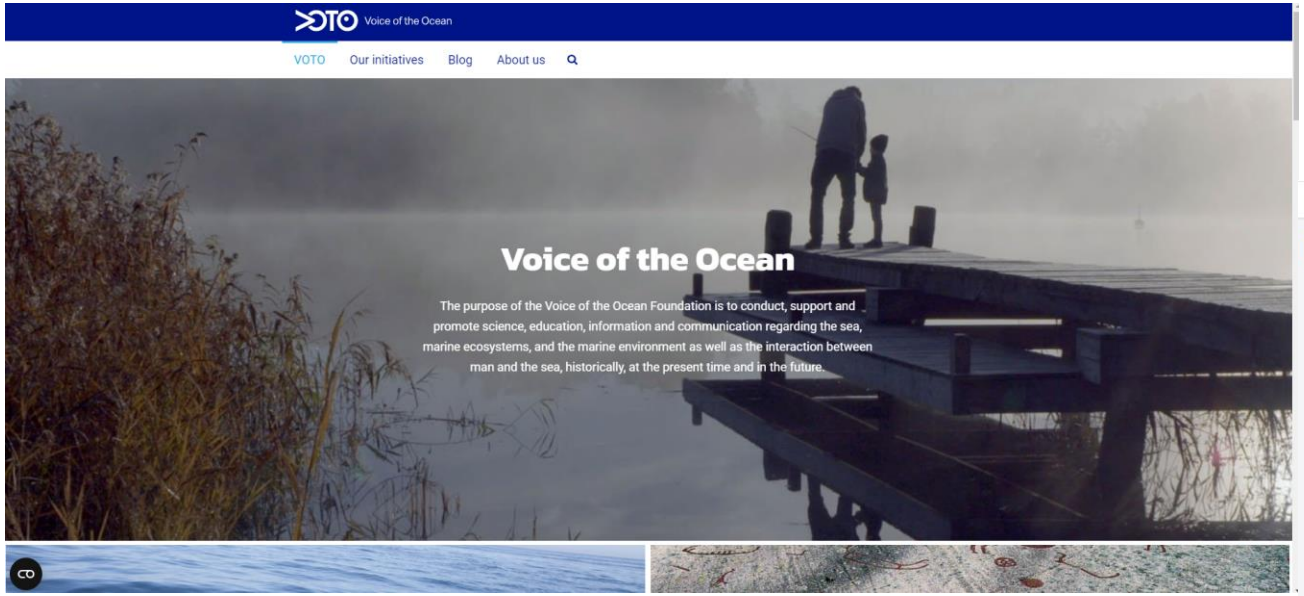
This is an Apache based data server that offers an easy and consistent way to download subsets of gridded and tabular scientific datasets in common file formats and make graphs and maps

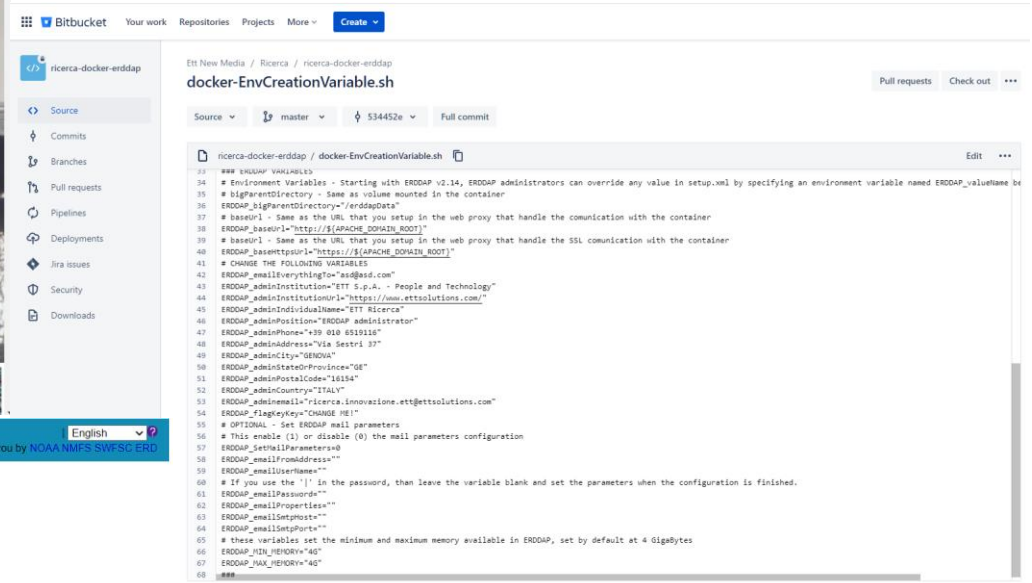
Initiated by NOAA nowdays it is promoted by GOOS and adopted by a large community

EMODnet Physics/Ingestion are contributing to new features development and dockerization



ERDDAP - Docker





ERDDAP
Easier access to scientific data

English

Brought to you by NOAA NMFS SWFSC ERD

ERDDAP > List of All Datasets

18 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	WMS	Source Data Files	Title	Sum-mary	FGDC, ISO, Metadata	Back-ground Info	RSS	E mail	Institution	Dataset ID
	set	data	graph			* The List of All Active Datasets in this ERDDAP *		M	background			Voice of the Ocean	allDatasets
	set	data	graph		files	Kaprifol55-20220104T1536		F I M	background	RSS		Voice of the Ocea...	nrt_SEA055_M31
	set	data	graph		files	Kaprifol55-20220324T0939		F I M	background	RSS		Voice of the Ocea...	nrt_SEA055_M35
	set	data	graph		files	Kaprifol55-20220428T0739		F I M	background	RSS		Voice of the Ocea...	nrt_SEA055_M37
	set	data	graph		files	Kaprifol55-20220523T1012		F I M	background	RSS		Voice of the Ocea...	nrt_SEA055_M39
	set	data	graph		files	Kvanne45-19700101T0005		F I M	background	RSS		Voice of the Ocea...	nrt_SEA045_M54
	set	data	graph		files	Kvanne45-20220412T0807		F I M	background	RSS		Voice of the Ocea...	nrt_SEA045_M56
	set	data	graph		files	Ljung63-20220104T1519		F I M	background	RSS		Voice of the Ocea...	nrt_SEA063_M33
	set	data	graph		files	Ljung63-20220227T0835		F I M	background	RSS		Voice of the Ocea...	nrt_SEA063_M35
	set	data	graph		files	Ljung63-20220428T0737		F I M	background	RSS		Voice of the Ocea...	nrt_SEA063_M37
	set	data	graph		files	Ljung63-20220530T1231		F I M	background	RSS		Voice of the Ocea...	nrt_SEA063_M38
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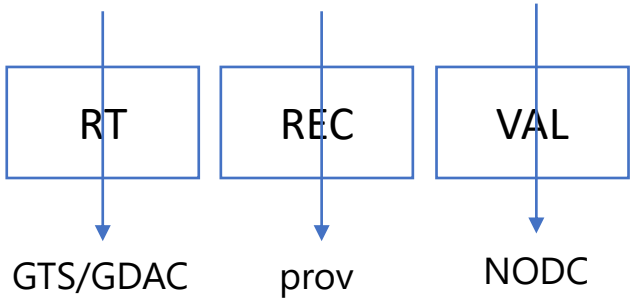
	set	data	graph		files	Marviol67-20220506T0748		F I M	background	RSS		Voice of the Ocea...	nrt_SEA067_M27
	set	data	graph		files	Marviol67-20220601T1308		F I M	background	RSS		Voice of the Ocea...	nrt_SEA067_M29
	set	data	graph		files	Saltarv66-20220115T1049		F I M	background	RSS		Voice of the Ocea...	nrt_SEA066_M16
	set	data	graph		files	Vass61-20180712T1609		F I M	background	RSS		Voice of the Ocea...	nrt_SEA061_M50
	set	data	graph		files	Vass61-20220415T1004		F I M	background	RSS		Voice of the Ocea...	nrt_SEA061_M56
	set	data	graph		files	Vass61-20220505T0910		F I M	background	RSS		Voice of the Ocea...	nrt_SEA061_M57

EMODnet

EMODnet Physics and Gliders

- EMODnet Physics + EuroGOOS Glider TT - OceanGlider Workshop [Sept 2018] a global event to discuss on data and metadata harmonization and data flow
- Key otucomes:
  - OceanGlider data model/data format
  - Seed for OCEANOPS monitoring and KPIs
    - Registration of “Observing Program”: ONE country, agencies, contributors
    - Registration of mandatory metadata about the glider mission :
      - program, WMO ID, glider model, glider serial number,
      - deployment location (Lat, Lon, Time), deployment end date (if mission completed),
      - PI, operating agency,
      - sensor onboard.
    - Real Time data flow (GTS, GDAC) and archived data access (GDAC)
      - Platform status (Registered, Inactive, Operational, Closed).
      - Data availability



https://www.oceangliders.org/wp-content/uploads/2021/03/OceanGliders-Steering-Team-Meeting-Minutes-2020.pdf

OceanOPS Dashboard

Glider mission uploading facility :

- JSON (EGO V1.2 and EGO V1.3),
- CSV files,
- Wizard (simplified tool with redeployment option).

EMODnet Phy collects NRT data from Coriolis and provides OcenaOPS with metatada and info on data flow

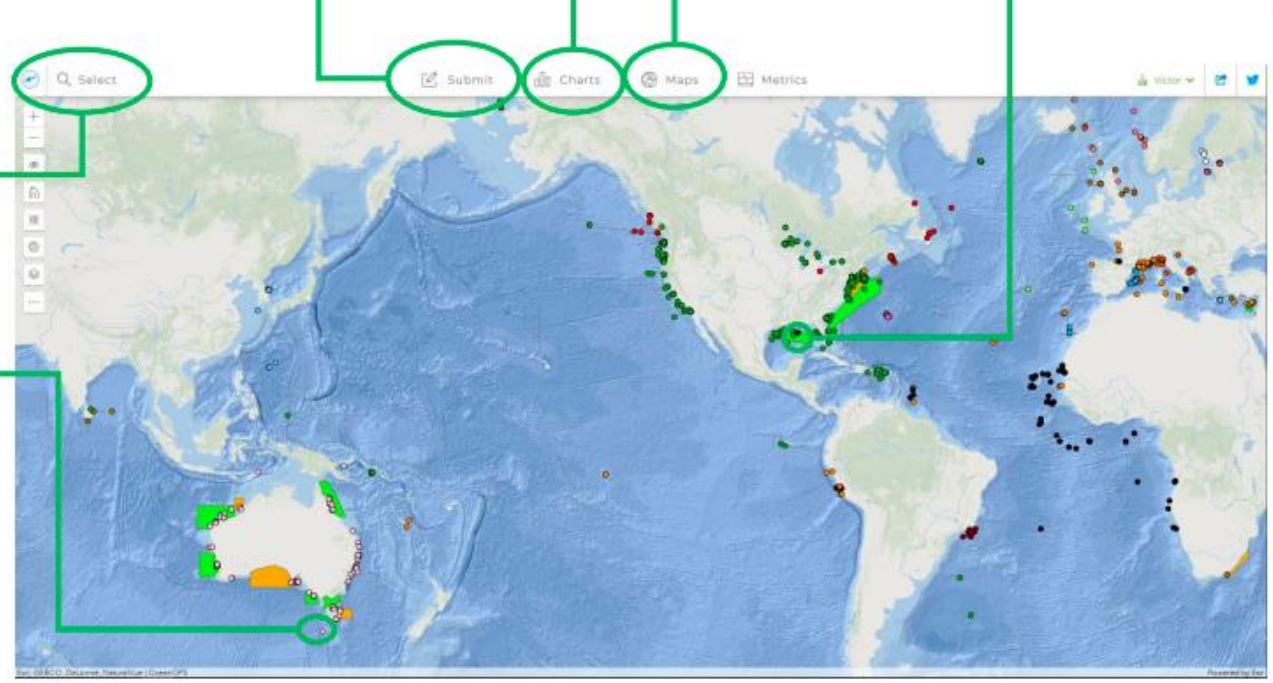
Charts:
- Summary
- Implementation

Maps:
- Automated Monthly map

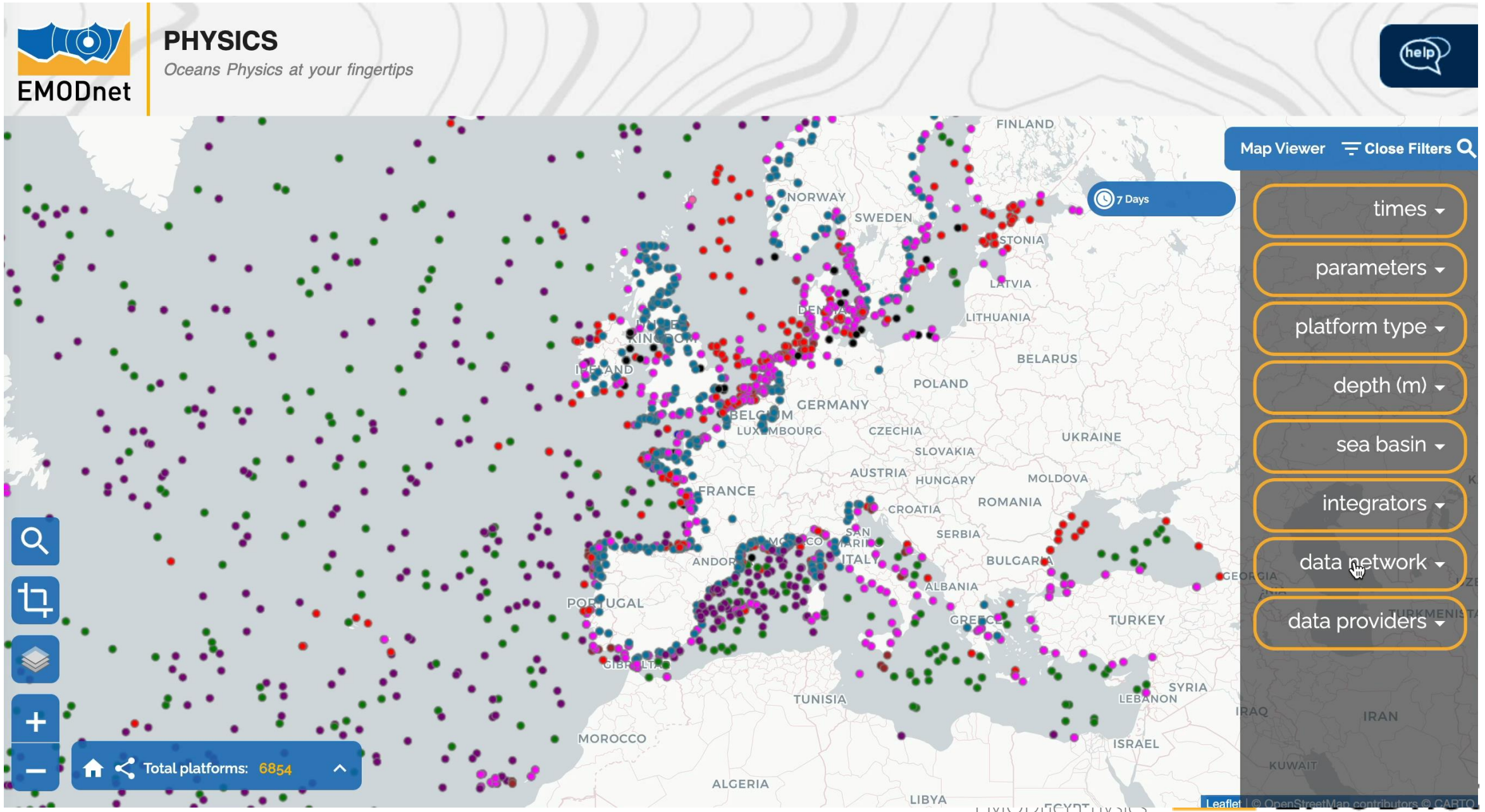
Monitoring OceanGliders sites:
Timeline on activity

Selection tool

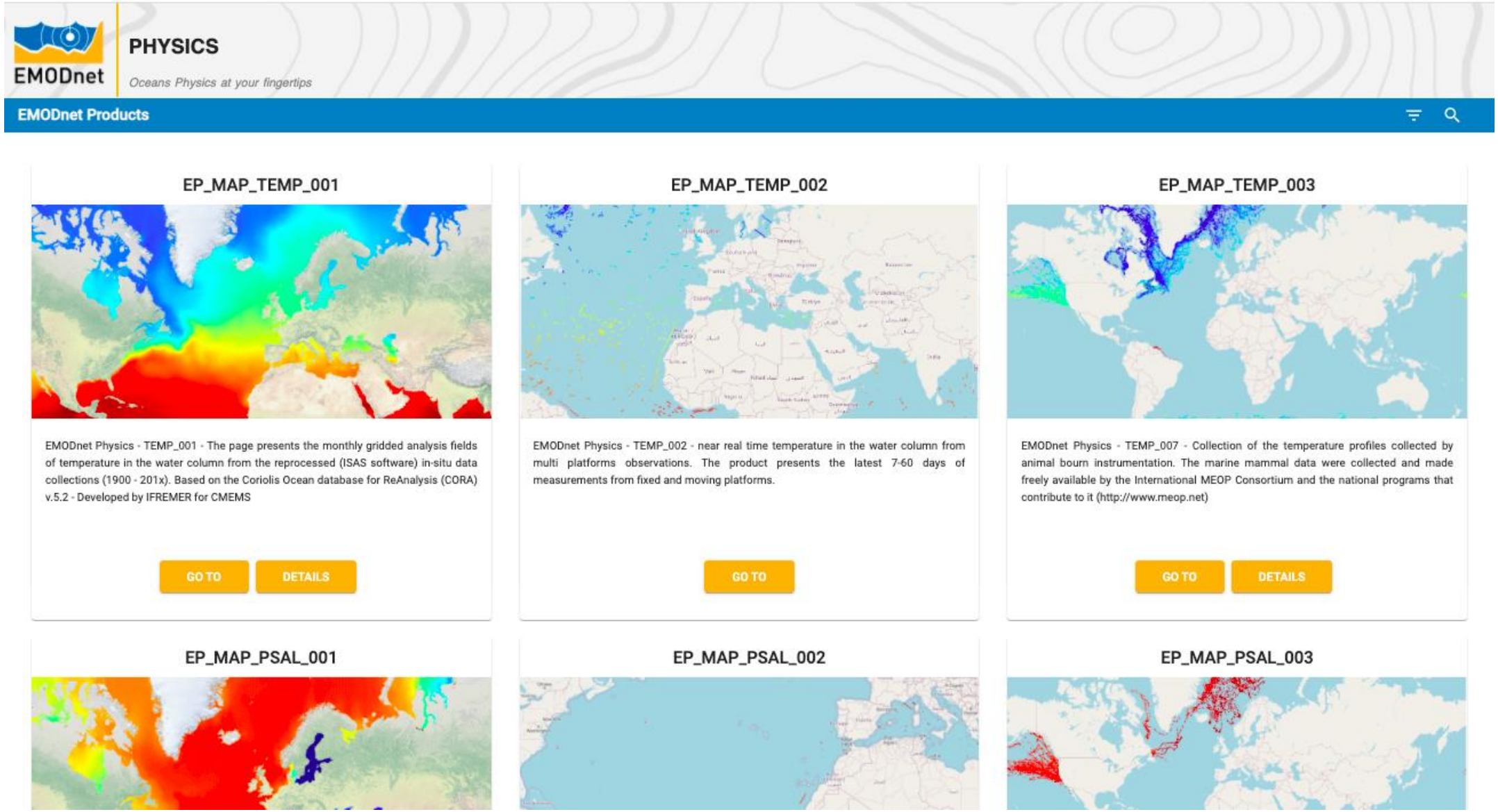
Inspect glider mission



Glider & Products



Products



https://pèroducts.emodnet-physics.eu/

Glider & Products

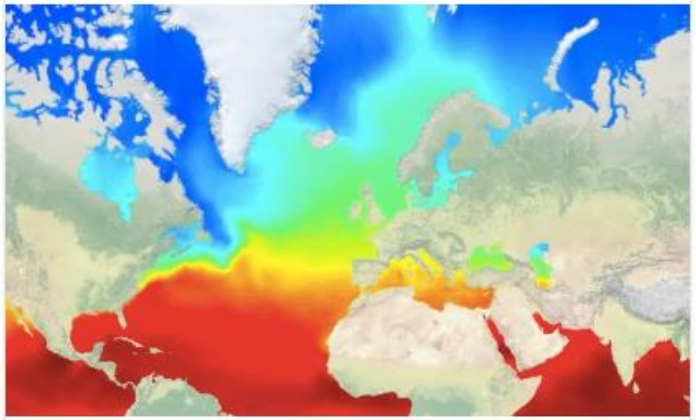
products.emodnet-physics.eu

EMODnet PHYSICS

Oceans Physics at your fingertips

EMODnet Products

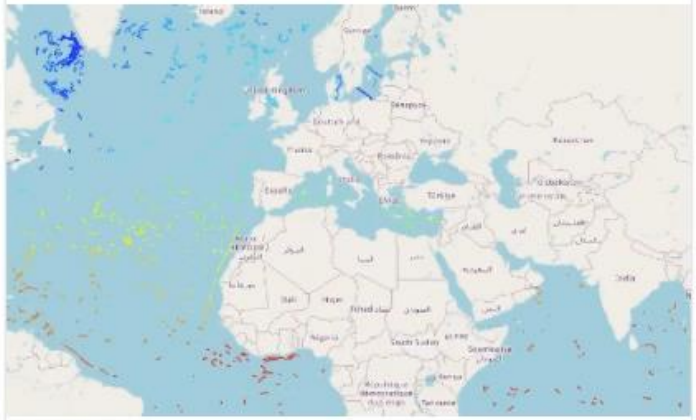
EP_MAP_TEMP_001



EMODnet Physics - TEMP_001 - Monthly gridded analysis fields of temperature throughout the water column from the reprocessed (ISAS software) in-situ data collections (1990 to present). The product is based on the Coriolis Ocean database for ReAnalysis (CORA) v.5.2., developed by IFREMER for CMEMS

GO TO DETAILS

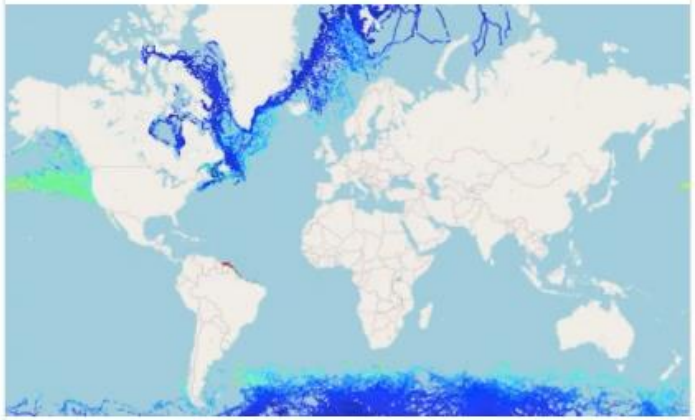
EP_MAP_TEMP_002



EMODnet Physics - TEMP_002 - Near real-time temperature of the water column from multi-platform observations. The product presents the latest 7-60 days of measurements from fixed and moving platforms.

GO TO DETAILS

EP_MAP_TEMP_003



EMODnet Physics - TEMP_003 - Temperature profiles collected by animal-borne instrumentation. Marine mammal data were collected and made freely available by the International MEOP Consortium and by the contributing national programmes (http://www.meop.net).

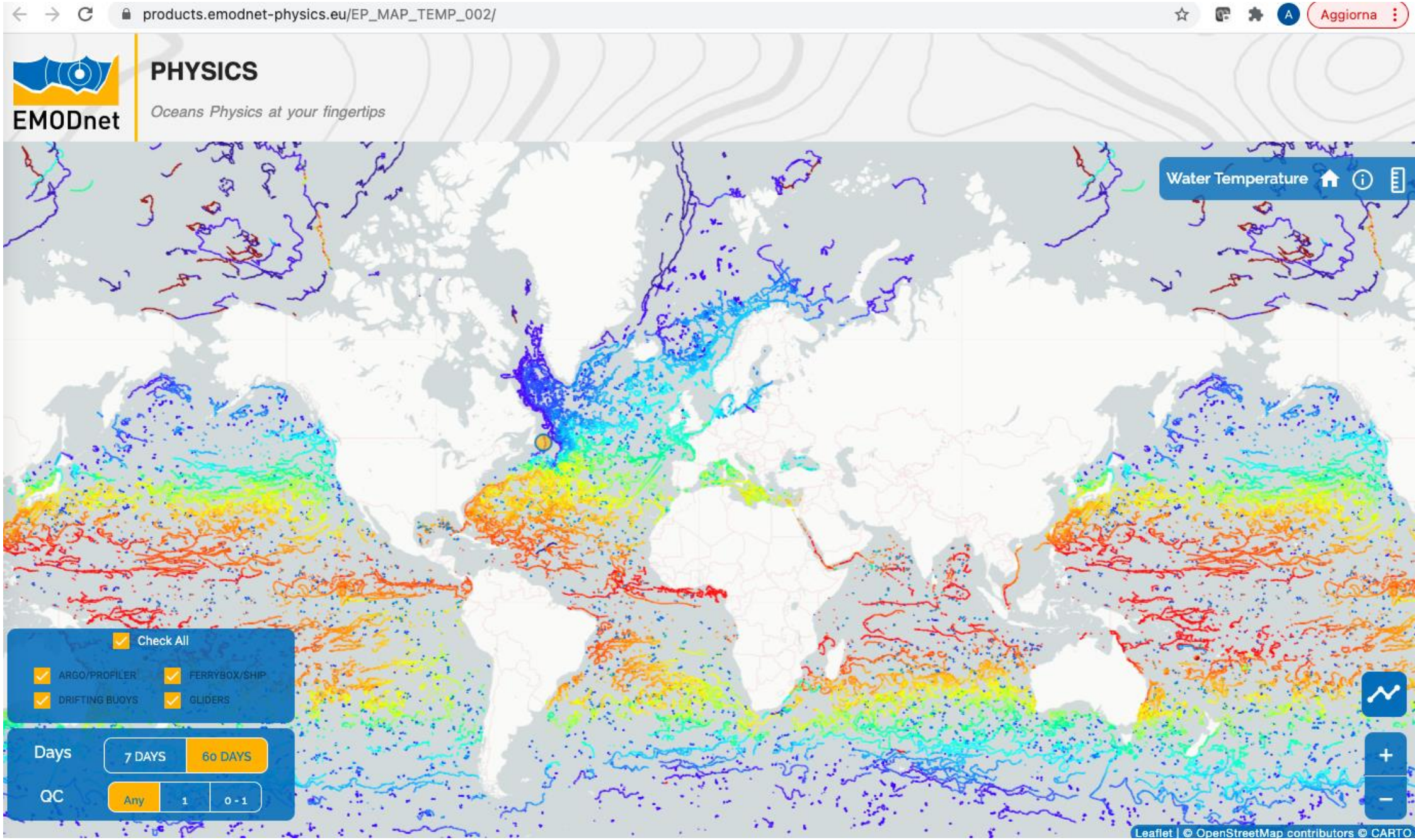
GO TO DETAILS

EP_MAP_TEMP_004

EP_MAP_TEMP_005

EP_MAP_PSAL_001

Spaghetti is ready



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EMODnet
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Your gateway to marine data in Europe