

# Copernicus Marine in situ TAC and EMODnet (Physics, Chemistry)



Marine Monitoring

Coordination meeting EMODnet - Copernicus  
February 2023



Implemented by





## In Situ data in Copernicus marine service

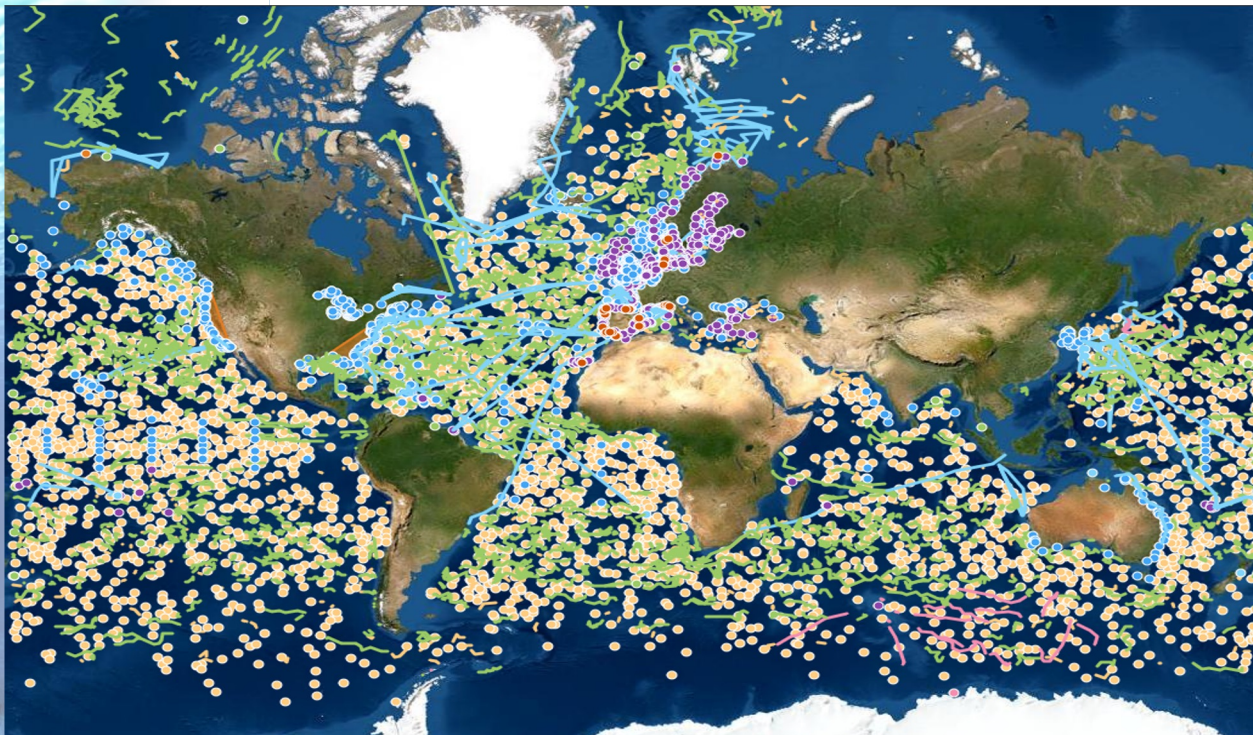
### In situ data and products in Copernicus

- Data come from a large span of platforms worldwide, from the open to the coastal ocean
- Variables considered are :
  - Physics: temperature, salinity, currents, waves, sea level
  - Biogeochemistry: chlorophyll, oxygen, nutrients: nitrate, phosphate & silicate
  - Carbonate system: pH, carbon, alkalinity
- Data from 1950 to near real time
- Data & products respect FAIR principles, INSPIRE directives (continuous work)
- Products built by region, by variable groups independently of platforms –available through the Copernicus marine catalogue
- QC (operational) on near real time products (which are hourly updated)
- Delayed mode products with higher level of QC



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## Copernicus marine In Situ TAC platforms



### In Situ platforms

- HF radars
- Tide gauges
- Moorings
- Gliders
- Drifting buoys
- Argo
- Ferryboxes
- CDT data

In situ platforms the last 30 days

→ from 170 different providers, 7000 active platforms and ~14 GB data

→ Used to build in situ products available in the Copernicus Marine catalogue

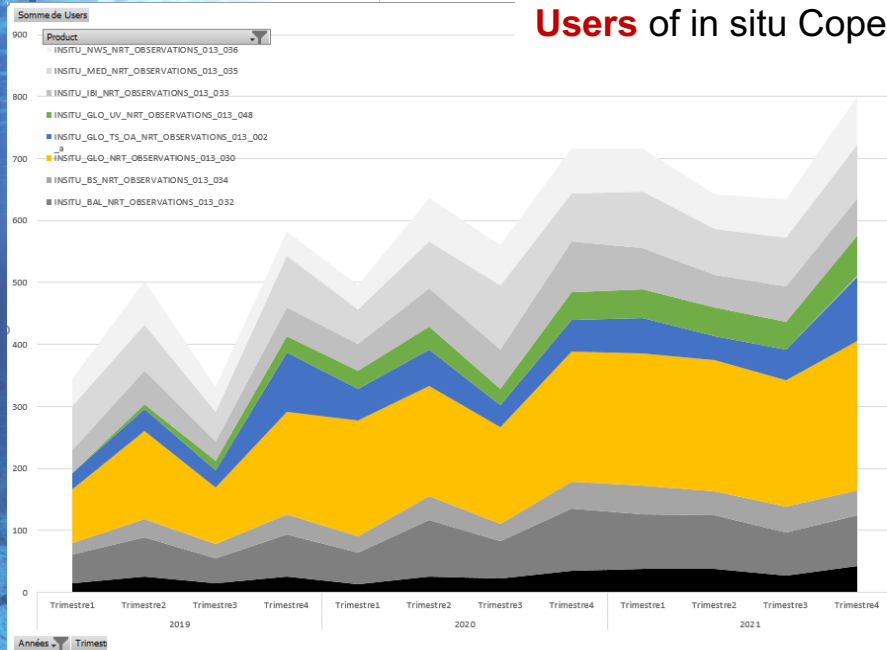


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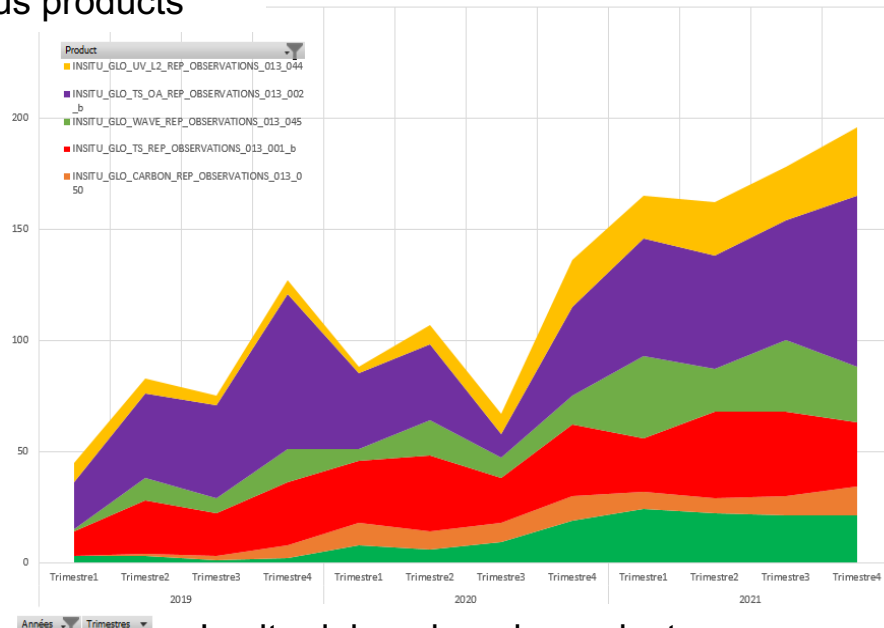
## In Situ products in Copernicus marine

- In situ products made for the Copernicus marine models (assimilation and validation) and for any external registered users to the service

**Users** of in situ Copernicus products



In situ near real time products



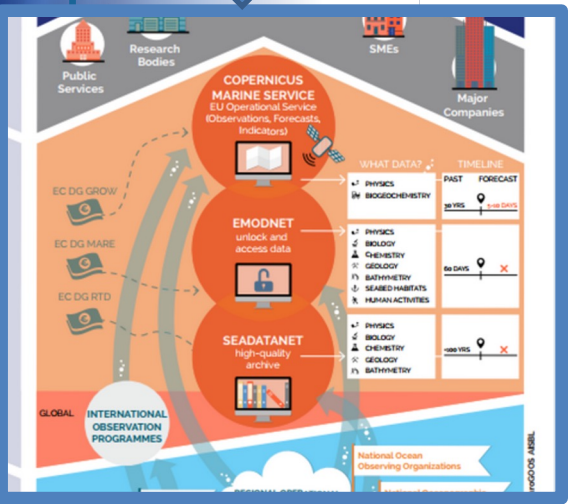
In situ delayed mode products



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# In Situ TAC -EMODnet physics & chemistry links MIC COMMON WG

- Unlock & access to data → collaboration between EMODnet physics, chemistry & ingestion and INSTAC (through MIC WG, 2<sup>nd</sup> meeting held 29 Sept)
  - Reach a new provider in a harmonised way
  - On behalf on the other one (EMODnet to Copernicus & Copernicus to EMODnet)
  - With engagement of feedback on the usage of data to the provider
- Some work also done in the frame of COINS (contracts with EEA) to one side work on data traceability and on the other one to map the differences of platforms ingested in EMODnet and Copernicus (and afterwards reduce it).



- Physical data (NRT or DM):
  - As soon as unlocked, available in EMODnet physics
  - Quality Controlled (QC) by In Situ TAC before being added in Copernicus catalogue
  - and also in EMODnet physics (in place on the non-QC data). Completed by min, max, mean product

River, atmospheric and acoustic data in EMODnet but not in the In Situ TAC frame

- Chemical data (DM)
  - When unlocked, important QC on both side EMODnet and In Situ TAC. Then in the respective catalogues.
- Chemical data (NRT)
  - QC in In Situ TAC then in Copernicus catalogue
  - No NRT chemical data in EMODnet chemistry



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## In Situ TAC and EMODnet links **higher level**

- In Situ TAC is part of the EMODnet for Ocean Decade Coordination Group (E4ODCG)
  - Kick-off meeting June 2022 (comments on strategic draft)
  - Next meeting planned in March
- In Situ TAC contributes to the 1<sup>st</sup> EU-Canada ocean partnership forum dedicated to International ocean observation & data sharing organised by DG-MARE (3-4 October 2022)



# In Situ TAC collaboration with JERICO - 2022 & PLANS for 2023-2024

2022: JERICO: member of the In Situ TAC stakeholder board

→ 2023-2024:

- Tagging of JERICO in situ data provided via In Situ TAC
- Collaboration via different projects to display & highlight coastal data: Blue Cloud 2026, Horizon Europe cluster 2023 calls

## JERICO data

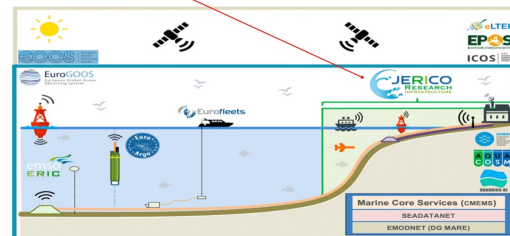
- ❖ Strong analyses of bio-geo-chemical processes (thanks to research community involved)
- ❖ Data from coastal observatories include variables such as turbidity, carbonate and biological data: benthos population and e-DNA.
- ❖ New platform types as: bottom-based observatories, manual sampling.
- ❖ Ensuring sea and land continuum (then taking account on anthropogenic drivers)
- ❖ Scale form long term changes to extreme events



## To be integrated in In Situ TAC

- ❖ QC of data could be done on both sides (JERICO & In Situ TAC)
- ❖ Coastal data to be added to existing In Situ TAC products and to become new products

A strategic position within the RI Landscape  
The Coastal Domain, at the Interface btw. Land and Ocean



JERICO-RI, the Joint European Research Infrastructure for Coastal Observatories

Laurent Delauney - Coordinator JERICO-S3 and JERICO-D5  
#remer Brest



### Continue and strengthen collaboration

2022: Marine In Situ Coordination (MIC) WG was established with 1st actions concerning interactions with providers (creators) to get their data and provide usage of data to them

#### → 2023-2024

- Upgrade of the interaction with creators
- Homogenisation of information provided on both websites, display of the differences of the services ....





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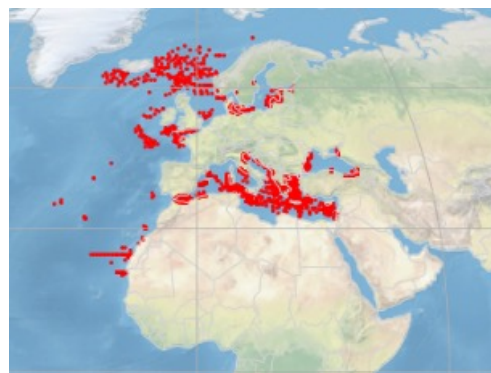
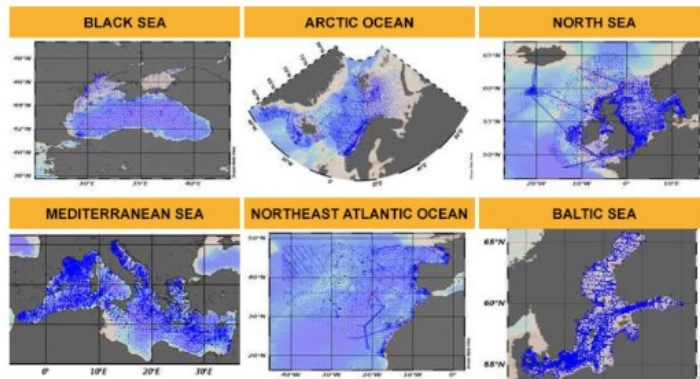
## 2022 & PLANS for 2023-2024

Continue and strengthen collaboration

2022: Comparison of differences between **Copernicus Marine In Situ** and **EMODnet** has been initiated with a rough analysis by platform

→ 2023-2024 this comparison will continue *precisely* by platforms by working with index files (should be available from EMODnet physics in March)

**EMODNET Chemistry fully ingested in In Situ TAC / QC of O<sub>2</sub>, Nutrients and Chlorophyll**





### New sea level in situ reprocessing (DM) product in Copernicus marine released for the 1<sup>st</sup> time 29 November 2022

#### Validated:

- QC (tide/surge computation, attenuated signal, buddy-checking completed),
- Visual inspection of total sea levels and surge for all stations

#### → 2023-2024 plans

To add the GLOSS platforms with the GLOSS agreement  
**(and GLOSS tag on their data)**

- Discussion between EMODnet & In Situ TAC to agree on how to proceed
- In Situ TAC met GLOSS leaders Nov 2022





## Conclusion

### Good collaboration between EMODnet physics – chemistry and Copernicus In Situ TAC

- Will continue and be enhanced in 2023 and 2024, in order
  - To have the same platforms and measurements in both services
  - To know the differences and the reasons (data out of scope, QC issue ...) between the 2 services
  - To work together to increase the number of platforms (and data associated) on both services
- Partners in several projects
  - EuroSEA for recommendations of data harmonisation
  - Blue Cloud 2026 to enhance QC/QA on some EOVS datasets

### In Situ TAC will integrate more coastal data thanks to JERICO collaboration

- Answer in common to EU calls to enhance and display this common work