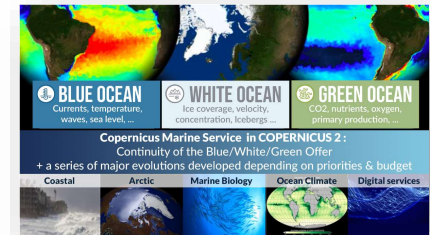


# Copernicus Marine Service status and coastal activities

2nd EMODnet-Copernicus Marine Thematic Workshop on Coastal Issues  
22 September 2022

# FROM COPERNICUS 1 TO COPERNICUS 2 (2021 – 2028)

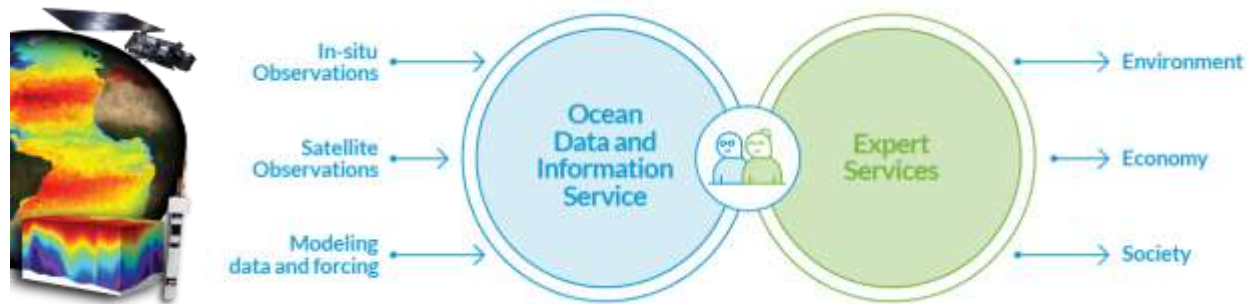
- ❑ End of Copernicus 1 service in July 2021.
- ❑ Continuity of service between Copernicus 1 and Copernicus 2.
- ❑ Technical annex of Copernicus 2: continuity, improved continuity, new services. Signature of the contribution agreement mid-July 2021.
- ❑ Selection of new consortia (2022-2024) for production centers (TACs, MFCs) and Marine Data Store (December 2021)
- ❑ Official launch at the Commission (October 2021)
- ❑ General kick off in February 2022 (> 700 participants), <https://marine.copernicus.eu/news/summary-copernicus-marine-phase-2-kick>



Building on Copernicus Marine 1 successes for a new ambition:

**We plan a competitive Copernicus Marine** based on (1) continuity, (2) enhanced information & service (3) digital integration, (4) re-enforced links with the other Copernicus services (land, climate, emergency, CO<sub>2</sub>) and EMODnet (5) stronger governance (marine stakeholder committee).

**User/policy needs, observation/science/technology advances**







## BLUE OCEAN

Currents, temperature,  
waves, sea level, ...



## WHITE OCEAN

Ice coverage, velocity,  
concentration, Icebergs ...



## GREEN OCEAN

CO<sub>2</sub>, nutrients, oxygen,  
primary production, ...

### Copernicus Marine Service in COPERNICUS 2 :

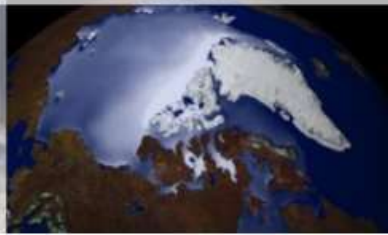
Continuity of the Blue/White/Green Offer

+ a series of major evolutions developed depending on priorities & budget

Coastal



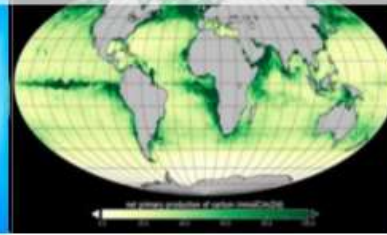
Arctic



Marine Biology



Ocean Climate



Digital services



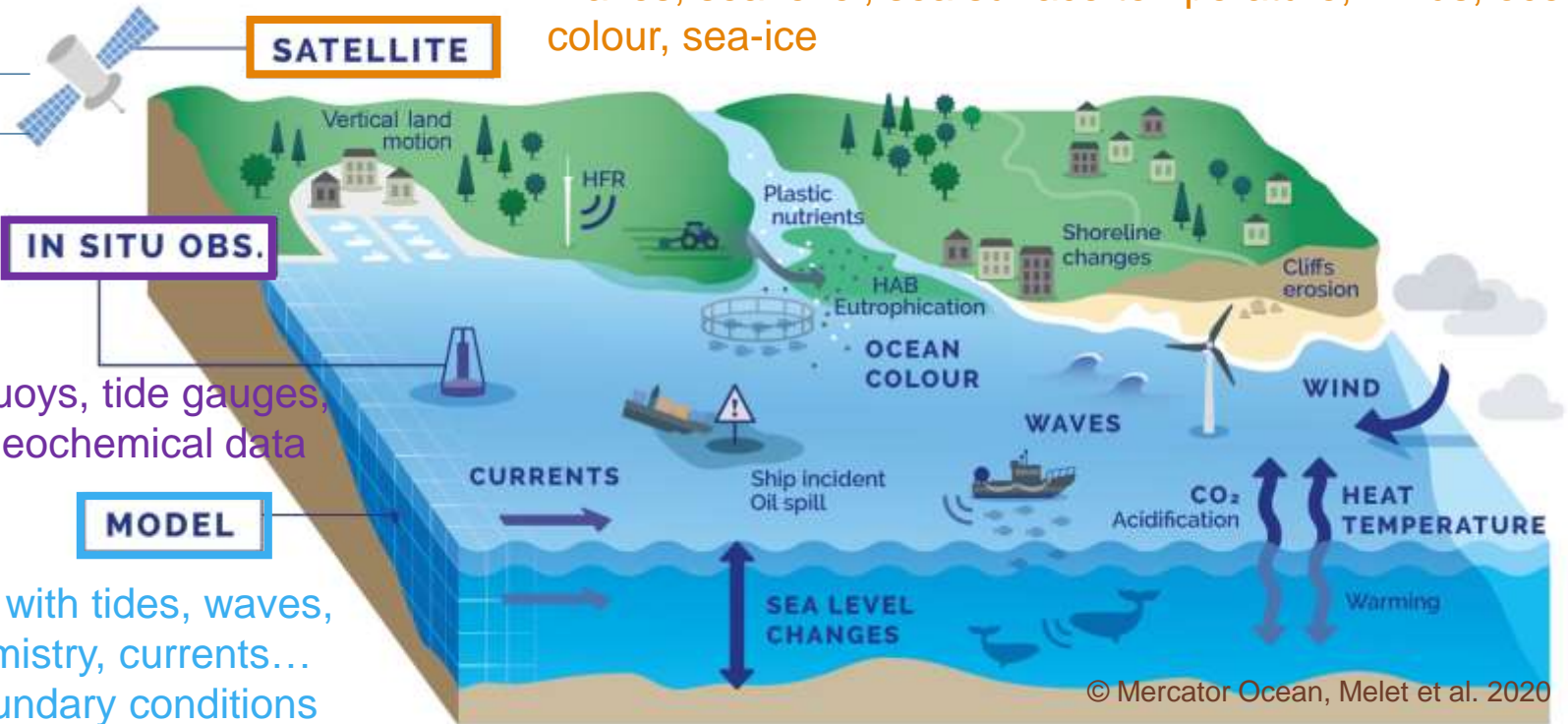
## Coastal Zone :

- Tremendous social, economic & biological value but high level of pressure
- User needs for a wide range of applications
- Needs of European Policies (Green Deal, WFD, MSFD, MSP)



# COASTAL USERS: THE COPERNICUS MARINE SERVICE OFFER

Waves, sea level, sea surface temperature, winds, ocean colour, sea-ice



Coastal buoys, tide gauges, HFR, biogeochemical data

3D models with tides, waves, biogeochemistry, currents... provide boundary conditions for coastal models

© Mercator Ocean, Melet et al. 2020





## Improved coastal zone monitoring:

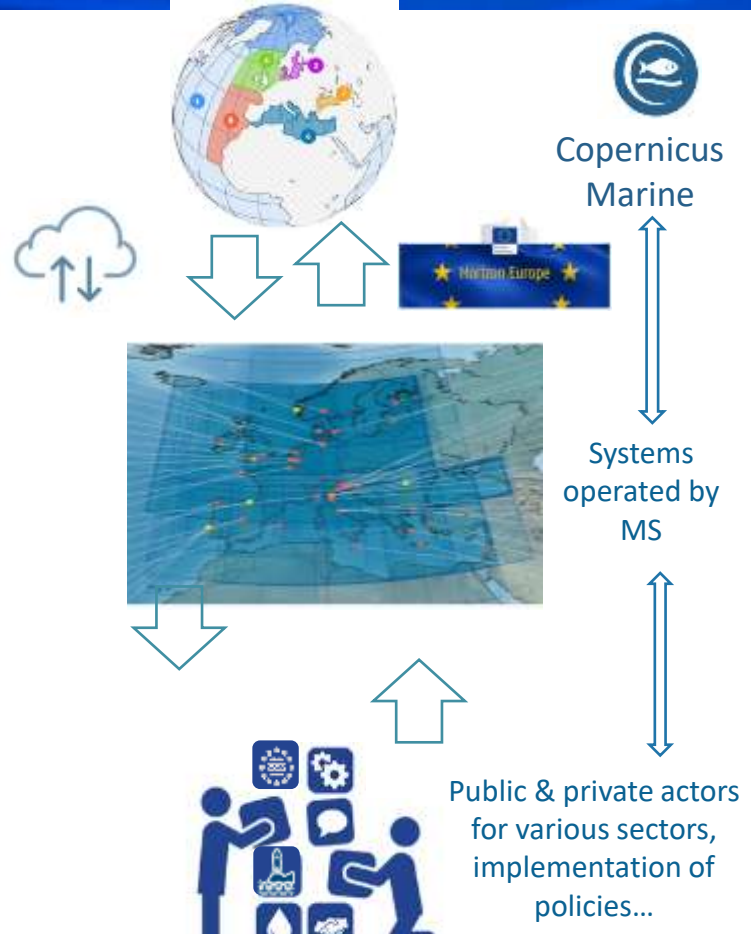
**New satellite products** (e.g. time evolving bathymetry, waves, winds, sea level,...).

Towards standardized (freshwater, nutrients, particulate and dissolved matter) **modelled river discharges**.

Cooperation with EMODnet, Emergency and Land Services

## Co-design/co-production with Member States :

**Coupling** between **Copernicus Marine** and a series of **coastal models** operated by Member States. **Integration** in Marine portfolio of **coastal model derived information**.



MOi is starting **new activities to strengthen the links with Member States coastal marine systems:**

- **Cross-cutting Working Group** with Copernicus Marine Monitoring and Forecasting Centers (MFCs) dealing with the interfaces with coastal systems (January).
- The setting up of a **National Marine Forum** (October).
- A **User Engagement Call For Tender** on coastal interfaces (October/November).

**Service Evolution R&D projects** (Tier 2 R&D) kicked-off in July 2022. Several projects dealing with the coastal ocean.

**Horizon Europe (Tier 3 R&D) (Copernicus Evolution, Digital Twin Ocean)**

MOi will also lead the development of a **Copernicus Thematic Hub for Coastal Zones**



## First meeting of the Marine Forum will take place on October 17, 2022

### Objectives of the Marine Forum:

- ⇒ Foster deeper interactions with Member States (MS) representatives and national entities in the marine domain.
- ⇒ Specific and direct discussions between MS and Mercator Ocean International for the Marine Service
- ⇒ Contribute to a better integration of the Copernicus Marine Service with MS expectations and assets.
- ⇒ Of particular importance to co-design and implement actions with MS in the coastal marine areas.

**Functioning:** 1 to 2 meetings/year, Member States (Copernicus User Forum) to nominate one person, non-binding discussions

# USER ENGAGEMENT CALL FOR TENDER

During first 2015-2021 Copernicus phase, Six User Engagement Call for Tenders were launched, with a total of 122 bids received and 40 contracts selected.

During the 2<sup>nd</sup> Copernicus phase, Mercator Ocean resumes its User Engagement program. **A new call for tender will be launched in Fall 2022.** The aim is to further develop **National Collaboration with EU Member States and EU Contributing Countries for the development of high resolution marine coastal monitoring.**



Call for tenders : Fall 2022

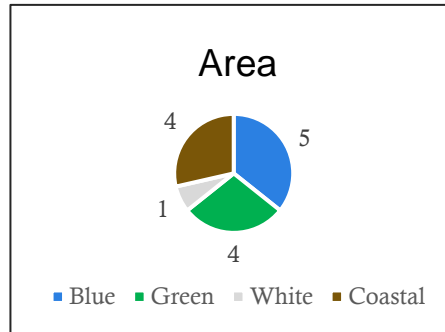
18-month contracts

**National Collaboration  
Program / Coastal**

# Service Evolution R&D tenders

- 14 R&D projects have been selected and kicked-off in July 2022
- Total budget = 2 097 109 €
- 25 months until August 2024

Status of PI organisation		Main themes
foundation	1	Next generation of ocean forecasting systems
private	5	<b>Marine Coastal Environment</b>
public	8	Artificial Intelligence
		Ocean Climate



## Main selected projects :

- ensemble based forecasting
- improvement of wave modelling
- calibration of sea-ice forecasts
- interfacing rivers and ocean
- prediction of risks under extreme events
- coastal ocean colour products merging Sentinel 2 & 3
- Ocean colour derived particulate and dissolved Organic Carbon
- Ocean colour derived Sargassum products
- Next generation sea level products
- Use of gravity mission data (GRACE)
- AIS derived ocean currents

# COPERNICUS THEMATIC HUB FOR COASTAL ZONE



Mercator Ocean has been selected by the EC to lead the development of a proof of concept **Copernicus Thematic Hub for Coastal Zones**. Collaboration with EEs+KCEO (JRC, DG DEFIS) and design phase will start this Fall 2022. First demonstration web portal will be launched by mid-2023, and will include all existing coastal Copernicus data. It will be based on WEkEO platform.



- ❑ Improved coastal zone (marine) monitoring and forecasting is one of the top priorities for Copernicus Marine in Copernicus 2 (2021-2028)
- ❑ Co-design and co-production with member states. Reinforced governance (Member States): National Marine Forum
- ❑ New coastal satellite products. Start in 2023 with bathymetry/S2 and winds/S1.
- ❑ More in-situ coastal observations. Improved access to existing coastal data. In-situ TAC in interaction with EMODnet and JERICO.
- ❑ Interfaces with coastal monitoring and forecasting systems operated by Member States.
- ❑ Copernicus Coastal Thematic Hub (marine/land/emergency/climate).



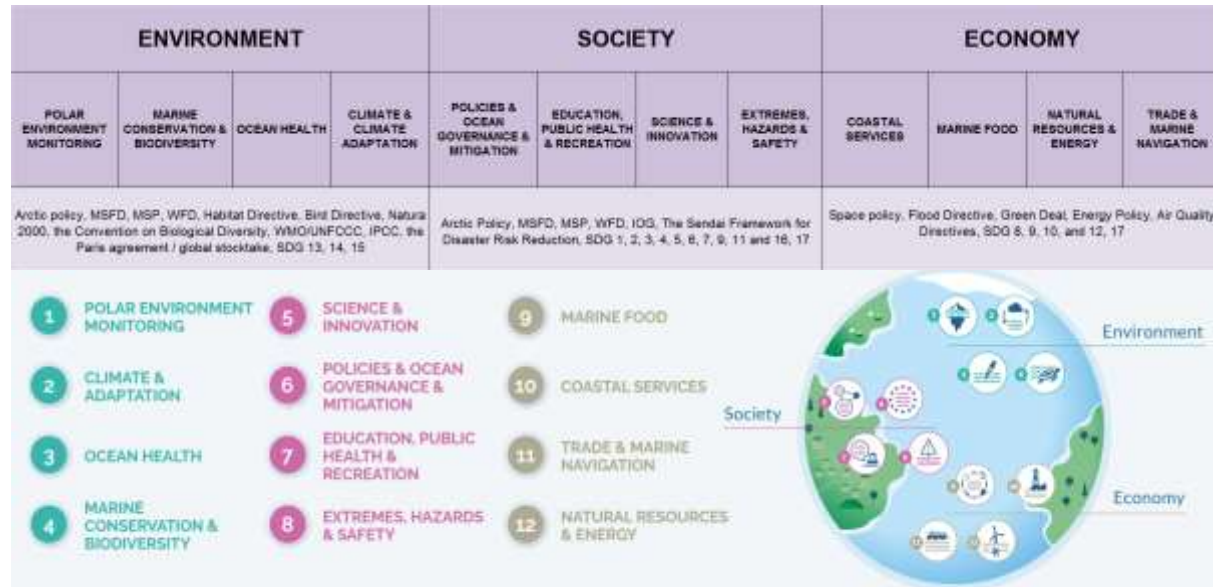
**=> Re-enforced links with EMDODnet. Ensure our activities are well aligned (this workshop)**



## A wide range of applications (environment, society, economy) Support to EU policies (Green Deal)

**>44,000**  
subscribers  
(+ 30% per year)

**450,000**  
single visitors  
per year on the  
web portal in 2021



# The EU Copernicus Marine Service Global & Regional Ocean Monitoring and Forecasting

**MULTI-YEAR**

10 to 45 years

**REAL-TIME**

Daily, hourly

**FORECAST**

2 to 10 days

## ESSENTIAL OCEAN VARIABLES

Blue  
(Physics)

White  
(Sea Ice)

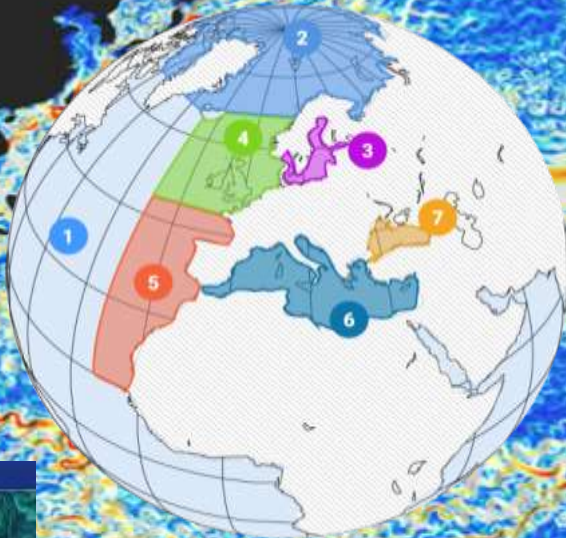
Green  
(Biogeochemistry)

OBSERVATIONS  
In-situ & Satellites

NUMERICAL MODELS & data  
assimilation

[marine.copernicus.eu](http://marine.copernicus.eu)

Free and Open




- 1 Global
- 2 Arctic
- 3 Baltic
- 4 NWS
- 5 IBI
- 6 Med Sea
- 7 Black Sea





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## Copernicus Marine Service

Providing free and open marine data and services to enable marine policy implementation, support Blue growth and scientific innovation.

[Access Data](#) >

DATA	EXPERTISE	TRENDS	EXPLORATION
<h3>OCEAN PRODUCTS</h3> <p>A robust ocean data catalogue, to download or visualise data including hindcasts, nowcasts and forecasts.</p>	<h3>OCEAN STATE REPORT</h3> <p>Extensive annual analysis on the state of the ocean over nearly 20 years and severe/notable annual events.</p>	<h3>OCEAN MONITORING INDICATORS</h3> <p>Essential variables monitoring the health of the ocean over the past quarter of a century.</p>	<h3>OCEAN VISUALISATION</h3> <p>Dive into our 4D digital oceans through our 3 visualisation tools for beginner, intermediate and advanced users</p>



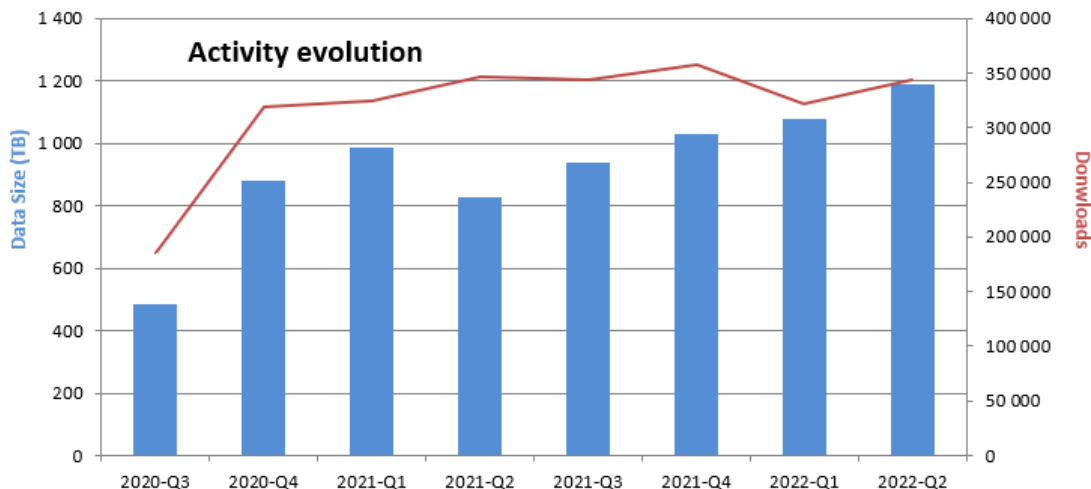
Copernicus  
Marine Service

# USER UPTAKE: UPWARD TREND

## 44 300 Subscribers

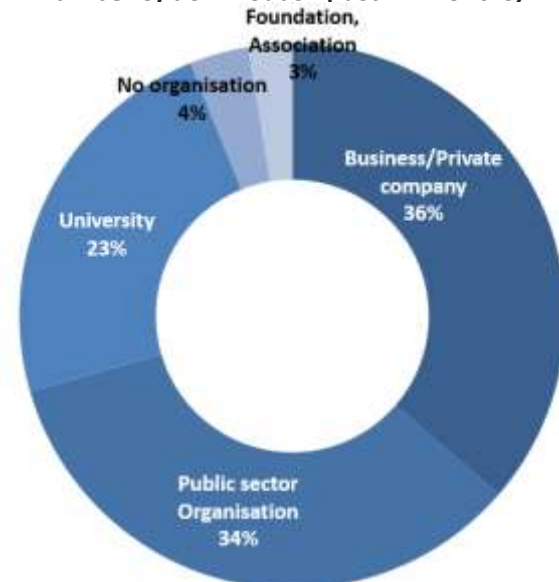
1 300 new subscribers over the last 2 months

19 000 new subscribers over the last 2 years



36% Downloads by Business  
57% Downloads by Public sector

Number of downloads\* (last 12 months)



\* Download = pair user/dataset per day