The Copernicus Marine Service and ocean observation requirements

Marine Monitoring

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Mercator Ocean International
and Copernicus Marine Service partners

European Commission | Copernicus Europe's eyes on Earth | Implemented by | MERCATOR OCEAN INTERNATIONAL

Copernicus Marine Service: user and policy driven service

Ocean Information

OCEAN PRODUCTS

Ocean product catalogue, to download or visualize data accross more than 10 variables, including historic, current and forecasted data.

DATA →

OCEAN MONITORING INDICATORS

Essential variables monitoring the health of the ocean

TRENDS →

OCEAN STATE REPORT

Extensive annual analysis on the state of the ocean over nearly 20 years and severe/notable annual events

EXPERTISE →

User Support

#CMEMSTraining

WORKSHOPS

OUTREACH

SERVICE DESK

Applications

> 31 000 subscribers

ENVIRONMENT

- POLAR ENVIRONMENT MONITORING
- OCEAN HEALTH
- CLIMATE & ADAPTATION
- MARINE CONSERVATION & BIODIVERSITY

SOCIETY

- POLICIES & OCEAN GOVERNANCE & MITIGATION
- EDUCATION, PUBLIC, HEALTH & RECREATION
- SCIENCE & INNOVATION
- EXTREMES, HAZARDS & SAFETY

ECONOMY

- COASTAL SERVICES
- MARINE FOOD
- NATURAL RESOURCES & ENERGY
- TRADE & MARINE NAVIGATION

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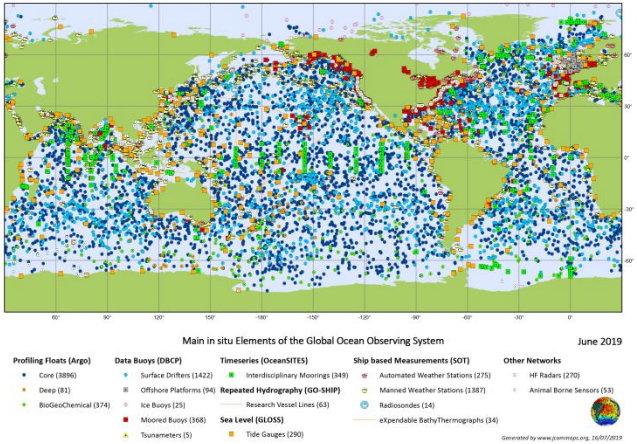
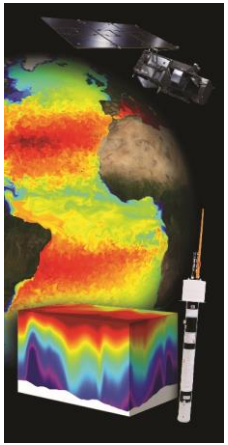
The essential role of observing systems

The Copernicus Marine Service is highly dependent on the satellite (Sentinels) and in-situ observing capabilities





Role of Copernicus Marine Service wrt agencies in charge of observing systems: requirements, design, impact assessment & advocacy

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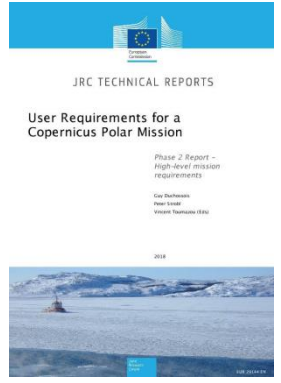
The essential role of observing systems

Present and future **requirements both for in-situ and satellite observations** (Sentinels) have been defined.

Based on **impact assessment** (OSE/OSSEs) and expert analyses. **Feedback loop across the value chain** : users <=> service <=> products (based on models & observations) <=> observations

Network of a **large number of Copernicus Marine Service experts.**



SYSTEMATIC REVIEW ARTICLE Provisionally accepted The full-text will be published soon. Notify me

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From observation to information and users: the Copernicus Marine Service perspective

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Satellite requirements

- Ensure a **continuity of the present capability** of the Sentinel missions (S1, S3, S6) (+ S2)
- Develop **new capabilities for wide swath altimetry (S3 NG)**
- Fly a **European microwave mission for high spatial resolution observations of ocean surface temperature and sea ice** concentration.
- Fly a **geostationary ocean colour mission** over Europe to strongly improve the time resolution of ocean colour observations over European seas.
- Ensure **continuity (with improvements) of the Cryosat-2 mission** for sea ice thickness monitoring and sea level monitoring in polar regions (CRISTAL).
- R&D actions should be developed to advance our capabilities to observe **sea surface salinities and ocean currents** from space.

+Participation of MOI/CMEMS experts in the EU Polar Expert Group [PEG-I/PEG-II reports]. The EG recommends to retain as first priority the **Copernicus Imaging Microwave Radiometer (CIMR).**

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In- Situ Requirements

Summary

- **Consolidation and sustainability of in-situ observing systems remain a strong concern**. There are critical sustainability gaps and **major gaps for biogeochemical observations** (carbon, oxygen, nutrients, chl-a).
- **New mechanisms need to be set up between the EU and member states to address them**, in particular, in the perspective of **EOOS**.
- To follow the evolution of ocean models, there is a clear need of more sensors deployed at global and regional scale.
- **Timeliness is also an important parameter** to be improved; this is particularly important for **coastal applications** where ocean dynamics evolve on a rather short time.
- In terms of platforms, consolidation of the Argo core mission (T&S–0-2000 m) including the sampling of polar seas and marginal seas and **developing its two major extensions (BGC Argo and Deep Argo) is a strong priority**.
- Improving ROOSes and key observing systems such as **ferry-boxes, gliders, tide gauges and HF Radars** are strong priorities.
- A **specific effort for the Arctic region** is needed. More ITPs and Argo floats are needed. IMB buoys are needed to measure ice thickness and snow depth.
- Need **Fiducial Reference Measurements** for Copernicus satellite calibration/validation.

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