



Product portfolio and data access

Copernicus Marine Environment Monitoring
Service



Space



Copernicus EU



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www.copernicus.eu



User
Uptake

OVERVIEW OF THIS CMEMS SUBMODULE

- **Information about Copernicus Marine Environment Monitoring Service (CMEMS) products:**
 - Presentation of the Copernicus Marine Environment Monitoring Service website.
 - Presentation of the different types of data you can find on CMEMS website.
 - Browsing CMEMS online catalogue and access to specific types of products
 - How to access and download data from the CMEMS service through the online portal
 - How to visualize the downloaded products
- **Use case:**
 - **We want to download temperature data along the Cyprus coast for fishery activities**
 - We will show you how to access and download this data from **CMEMS: The Copernicus Marine Environmental Monitoring Service**



Marine
Monitoring

C M E M S Website

- **Website Copernicus Marine Service:** <http://marine.copernicus.eu/>
- **Implemented by Mercator Océan**
- **Data Policy: full, free and open access**

Search & Browse



- 151 products
- Global ocean and 6 regional seas

Discover & Visualise



- Visualise/analyse data
- Access info

Register



Download



- Download
- One-off or by scripts

Compute



- Use data
- Integrate
- Merge

Join Up



- Get trained
- Get inspired
- Meet partners



Marine
Monitoring

C M E M S Applications Overview

- Both **Public and Private users** need response to today's climate and marine challenges.
- The Copernicus Marine Environment Monitoring Service provides **regular and systematic** core reference information on the **state of the physical oceans and regional seas**. The observations and forecasts produced by the service support all marine applications:
 - **Marine safety**
 - **Marine resources**
 - **Coastal and marine environment**
 - **Weather, seasonal forecasting and climate.**



Marine
Monitoring

CMEMS Portfolio

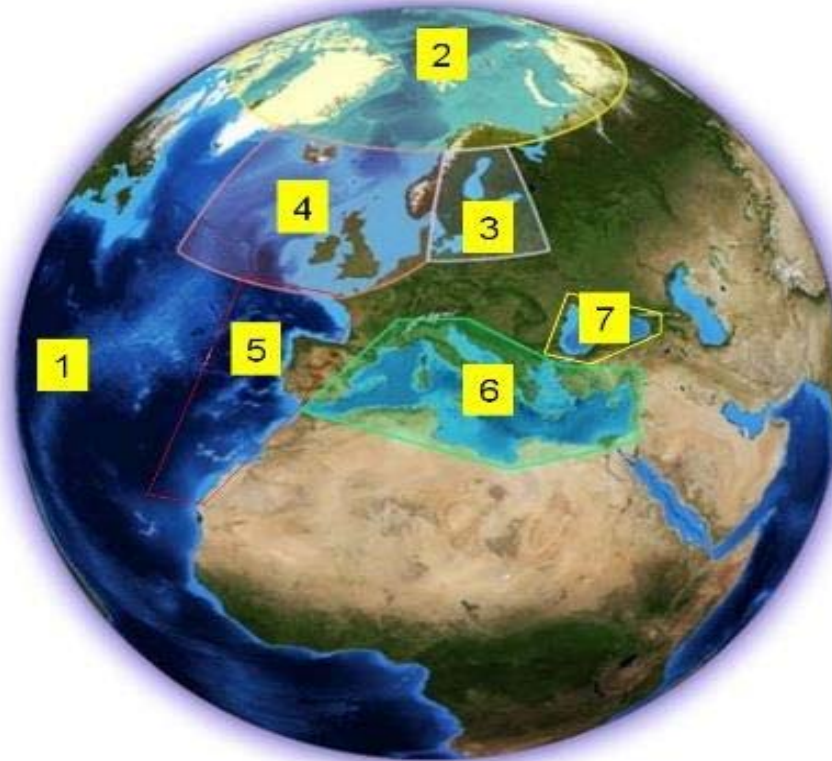
- CMEMS is the **one stop shop** for all the Copernicus marine data.
- On CMEMS website, you can find all the **152 products** gathered in a **unique catalogue**
 - online catalogue <http://marine.copernicus.eu>
 - common format (Netcdf)
 - INSPIRE compliant





Marine
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Global Ocean and 6 European Regional Seas



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



Marine
Monitoring

C M E M S P r o d u c t s O v e r v i e w

15 marine parameters:

- **Sea Surface Temperature**
 - Different area (Global, Black sea, Mediterranean Sea...)
 - Different resolution (more or less precise)
 - Different sources: altimetry ("reanalysis"), model ("forecast"), in-situ...
- **Sea Salinity**
- **Sea Surface Height**
- **Velocity**
- **Sea Ice**
- **Mixed layer thickness**
- **Turbidity**
- **Transparency**
- **Reflectance**
- **Nutrients**
- **Primary production**
- **Wind**
- **Wave**
- **Plankton**
- **Oxygen**



Marine
Monitoring

Time period covered by products

REPROCESSING (20years in the past)

Real Time

Real time products: A new product update every day, a few hours after sensing

Reprocessed products: A new product every 1 to 2 years with optimal accuracy and homogeneous time series



Marine
Monitoring

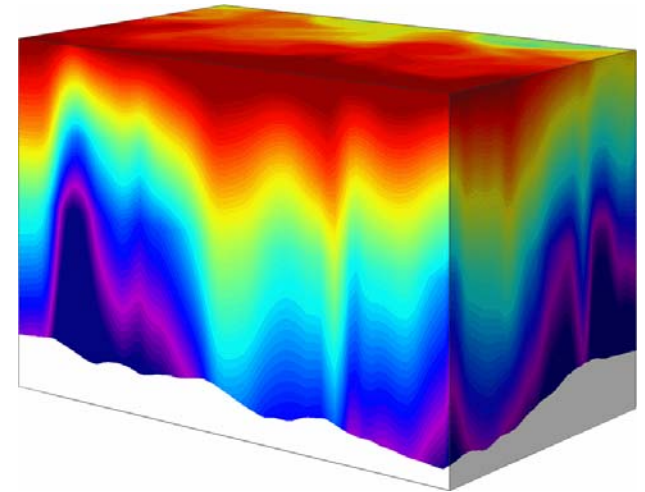
Portfolio gathers Data from 3 sources



**SATELLITE
OBSERVATION**



**IN SITU
OBSERVATION**



**OCEAN MODEL
COMPUTATION**



Marine
Monitoring

Spatial and temporal characteristics

- **In-situ Observations**
 - From surface to 2000 meters depth
 - Covers **long time series** (20 years in the past), **real time products** (today)
 - **3D** non gridded products (available where the measure is done)
- **Satellite Observations**
 - At the **surface only**
 - Covers **long time series** (20 years in the past), **real time products** (today)
 - **2D** surface gridded products
- **Ocean Models**
 - From surface to bottom
 - Covers **long time series** (20 years in the past), **real time products** (today) & **10-day forecast**
 - **3D** gridded products



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Discover and search for CMEMS products





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C M E M S product: M e d i t e r r a n e a n S e a

In our Use case, that means:

- Select the area and the parameter of interest : “**Mediterranean Sea**” and “**Temperature**”
- Select your product: « **Mediterranean Sea Physics Analysis and Forecast** »
- Various criteria:
 - Overview, Variables, Characteristics (geographical coverage, spatial resolution, vertical coverage, temporal resolution ...) → Opportunity to download them in .pdf or .xml formats
- Documentation:
 - Product user manual
 - Quality information document



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CMEMS product: How to view it?

marine.copernicus.eu/services-portfolio/access-to-products/

ONLINE CATALOGUE

CATALOGUE PDF FIRST VISIT ? MY CART 0 My Account

YOUR SEARCH ?

Search by keyword

REGIONAL DOMAIN ▶

All areas

PARAMETERS ▶

TEMPORAL COVERAGE

From 1992-01-01 To 2018-03-16

☐ If checked, the search results will only show products containing the whole selected time range

PRODUCT WITH DEPTH LEVEL ☐

Found 152 ocean products matching your criteria. Export results

GLOBAL_ANALYSIS_FORECAST_PHY_001_024

GLOBAL OCEAN 1/12° PHYSICS ANALYSIS AND FORECAST UPDATED DAILY

MODEL	● ● ● ● ●	GLO
T bottomT S SSH UV MLD SIC SIT SIUV	①	
0.083 degree x 0.083 degree (50 depth levels)		
From 2006-12-27 to Present		
monthly-mean, daily-mean, hourly-mean		

MORE INFO ADD TO CART 1 WMS Sub-setting

GLOBAL_ANALYSIS_FORECAST_BIO_001_014

GLOBAL OCEAN BIOGEOCHEMISTRY ANALYSIS AND WEEKLY FORECAST

MODEL	● ● ● ● ● ✕ ✕	GLO
CHL PHYC O2 NO3 PO4 SI FE PP	①	
0.5 degree x 0.5 degree (50 depth levels)		
From 2012-01-01 to Present		
weekly-mean		

MORE INFO ADD TO CART WMS Sub-setting



Marine
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CMEMS product: Download the product

The screenshot displays the CMEMS ONLINE CATALOGUE interface. The top navigation bar includes the URL marine.copernicus.eu/services-portfolio/access-to-products/, a 'CATALOGUE PDF' button, a 'FIRST VISIT ?' button, a 'MY CART' button with a '0' item count, and a 'My Account' button. The main content area is titled 'ONLINE CATALOGUE' and shows 'Found 9 ocean products matching your criteria.' with an 'Export results' button.

On the left, the 'YOUR SEARCH' sidebar includes a search bar and filters for 'REGIONAL DOMAIN' (Mediterranean Sea), 'PARAMETERS' (Temperature), 'TEMPORAL COVERAGE' (From 1992-01-01 To 2018-03-16), and 'PRODUCT WITH DEPTH LEVEL'.

The search results list two products:

- MEDSEA_ANALYSIS_FORECAST_PHY_006_013**
MEDITERRANEAN SEA PHYSICS ANALYSIS AND FORECAST
MODEL: T bottom T S SSH UV MLD
Resolution: 0.042 degree x 0.042 degree (141 depth levels)
Temporal Coverage: From 2015-01-01 to Present
Temporal Resolution: daily-mean, hourly-mean
A map of the Mediterranean Sea shows Potential Temperature [°C] for 01.01.2015 00:00 UTC, with a color scale from 12 to 22.
- MEDSEA_REANALYSIS_PHYS_006_004**
MEDITERRANEAN SEA PHYSICS REANALYSIS (1987-2015)
MODEL: T S SSH UV
Resolution: 0.063 degree x 0.063 degree (72 depth levels)
Temporal Coverage: From 1987-01-01 to 2015-12-31
Temporal Resolution: monthly-mean, daily-mean
A map of the Mediterranean Sea shows Potential Temperature [°C] for 01.01.2015 00:00 UTC, with a color scale from 12 to 22.

- ... To perform this step, the registration to CMEMS is needed !



Marine
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CMEMS product: Show the product

- With Google Earth
- With a picture (PNG)

