

# Webinar: 'Copernicus Marine Service: A Game-Changer for Ocean Energy Sector'



Marine Monitoring

## Copernicus Marine Service introduction

*Tina Silovic*

*Mercator Ocean International*



Implemented by





# THE OCEAN IS CENTRAL TO THE FUNCTIONING OF THE PLANET



# THE OCEAN IS CENTRAL FOR HUMAN WELLBEING

## O<sub>2</sub> reservoir

The ocean provides nearly half of the world's oxygen

## Ocean currents

Ocean currents act as major navigation routes

## A crucial factor in weather and climate

Linked to the Earth system cycle and ocean currents

## Carbon Storage

Pivotal role in the circle of life: the ocean contains 50% more carbon than the atmosphere

## Protein tank

World largest source of protein

## Biodiversity tank

Production of about half the world's oxygen - phytoplankton  
90% of the planet's living biomass is found in the ocean

## Ocean waves

Vital role in transporting energy around the globe and shaping the coastline

## Earth water reservoir

97% of Earth water supply

## Maritime Space

71% of Earth's surface and over 90% of the habitable space on the living planet

## Sea Ice

Vital role in global climate, polar ecosystems and human systems

## Heat Storage

The most important climate regulator

## Food Security

20% average per capita animal protein intake for 3 billion people, provided by fish food

## Urban and regional planning

Disaster Risk Management  
(40% of the world population lives within 100 km from the coast)

## Public Health

Oxygen, food and novel pharmaceutical provision

## Recreation and Tourism

Marine and coastal areas are the top tourism and recreational destinations and represent over one third of the maritime economy

## Ocean governance,

Legal Frameworks and maritime spatial planning  
(the ocean offers an enormous space resource)

## Blue Economy

Renewables | Aquaculture | Fisheries | Trade and Transport







# THE OCEAN, A MOST UNDERVALUED RESOURCE FOR MEETING ENERGY DEMAND

ECONOMIST  
IMPACT

## Global Maritime Trends 2050

What does the future of the maritime industry look like?

The coming decades will see the growth of other sources of ocean-based renewable energy, such as wave and tidal, both of which are in relatively mature phases of development.

### New centres of energy power

Offshore wind is now one of the fastest growing energy technologies,

# 90%

Most electricity expansion over the next five years will be renewable

International Energy Agency





# Copernicus Marine Service



Services Opportunities Access Data Use Cases User Corner About

**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
<p><b>OCEAN PRODUCTS</b></p> <p>A robust ocean data catalogue, to download or visualise data including hindcasts, nowcasts and forecasts.</p>	<p><b>OCEAN STATE REPORT</b></p> <p>Extensive annual analysis on the state of the ocean over nearly 20 years and severe/notable annual events.</p>	<p><b>OCEAN CLIMATE TRENDS</b></p> <p>Monitoring the health of the ocean.  <a href="#">Ocean Monitoring Indicators</a>  <a href="#">Ocean Climate Portal</a></p>	<p><b>OCEAN VISUALISATION</b></p> <p>Dive into our 4D digital oceans through our 3 visualisation tools for beginner, intermediate and advanced users</p>

Online Catalogue

More than 300 scientifically qualified products

User-driven

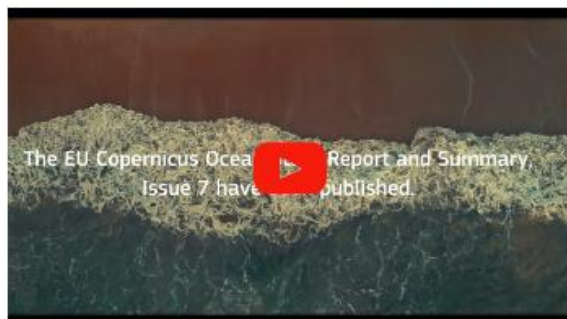
Common format *Netcdf*

Spatial resolution from 25 km to 100 m

Temporal resolution from monthly to 15 min

Open & Free

## Copernicus Ocean State Report 7 Release



The seventh issue of the Copernicus Ocean State Report and its summary is now available online, coordinated by Mercator Ocean International, the implementing entity of the Copernicus Marine Service. It provides a comprehensive overview on the state, variability and change of the global ocean for scientists, members of the blue economy, decision makers and the public. The latest edition of the Ocean State Report details several unusual patterns across ocean systems, including, among others, changes in ocean circulation currents, intensifying marine heatwaves and unexpected biological production events.

[Learn more](#)



PROGRAMME OF THE EUROPEAN UNION



implemented by

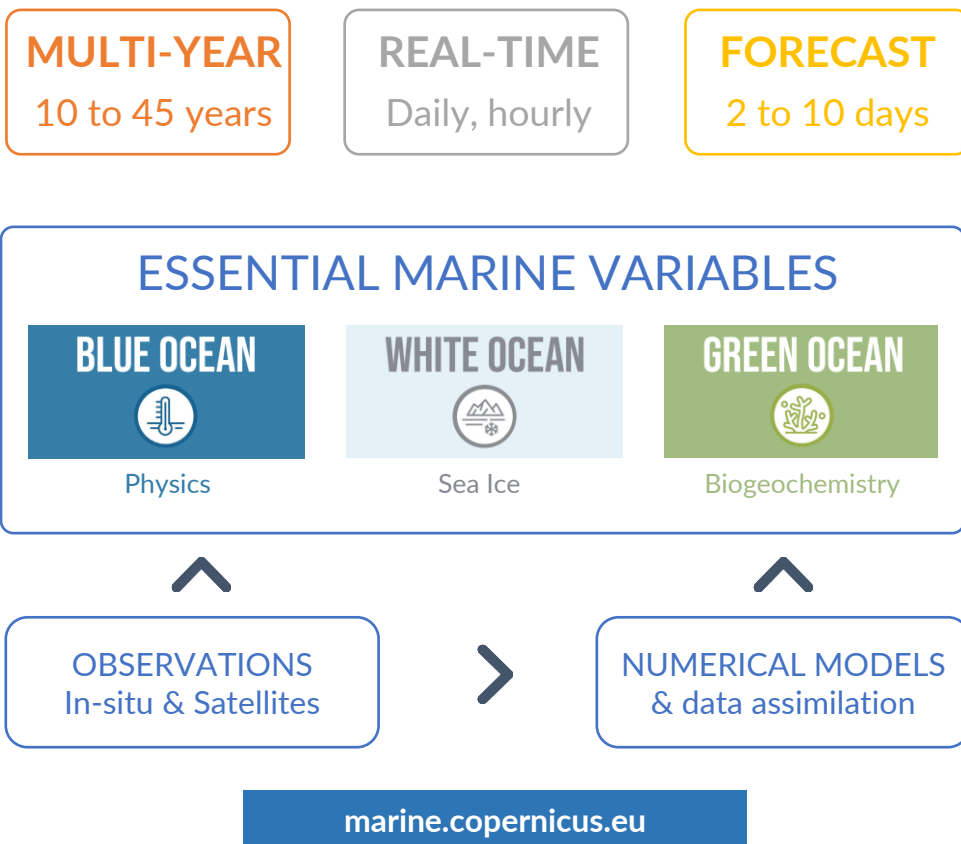






# The EU Copernicus Marine Service

## Global & Regional Monitoring and Forecasting



### COPERNICUS MARINE REGIONAL OCEAN PRODUCT DIVISIONS

- 1 Global Ocean
- 2 Arctic Ocean
- 3 Baltic Sea
- 4 European North West Shelf Seas
- 5 Iberian Biscay Ireland Seas
- 6 Mediterranean Sea
- 7 Black Sea



PROGRAMME OF  
THE EUROPEAN UNION

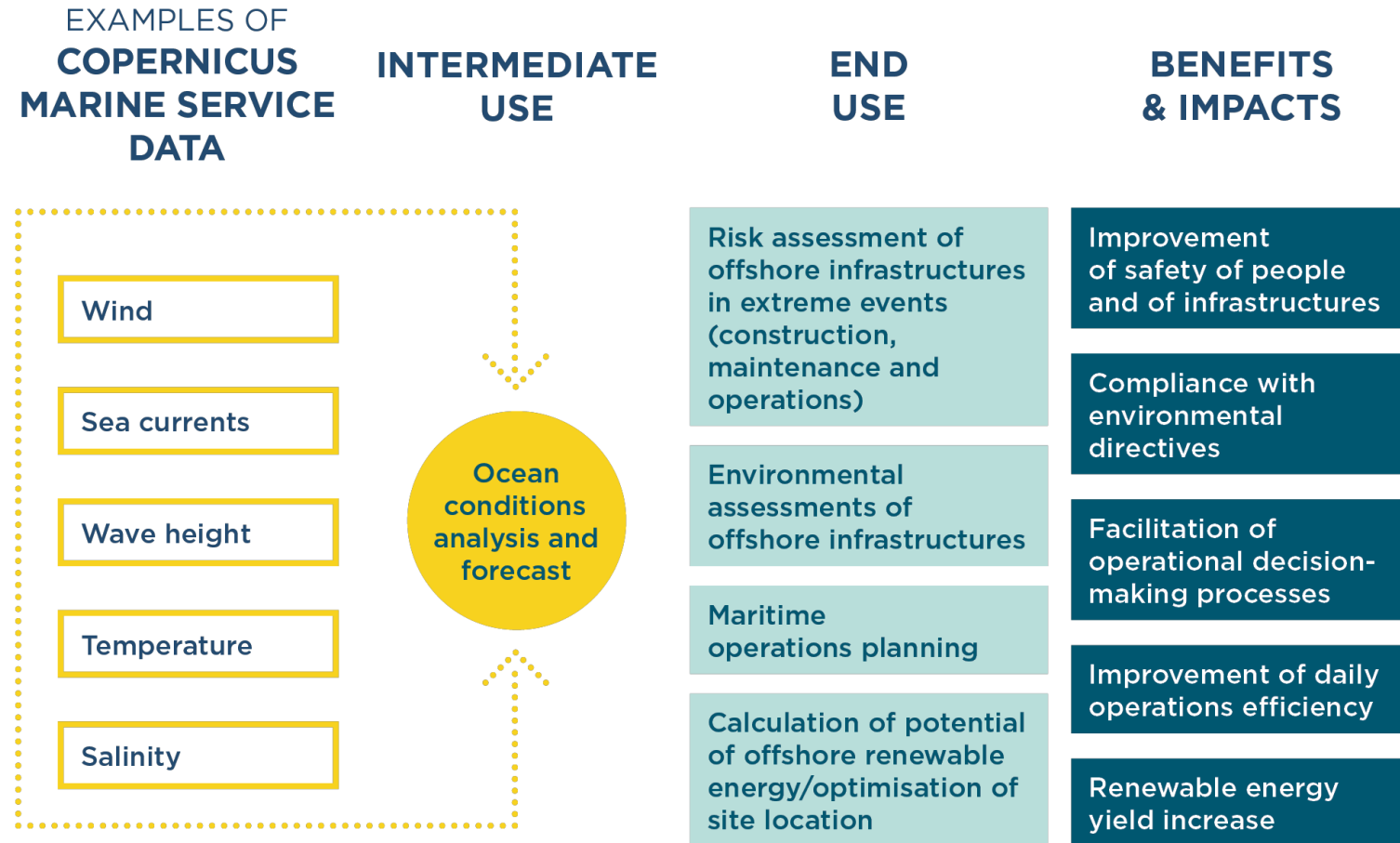


implemented by





# Copernicus Marine Service – What is there for you?



PROGRAMME OF THE EUROPEAN UNION



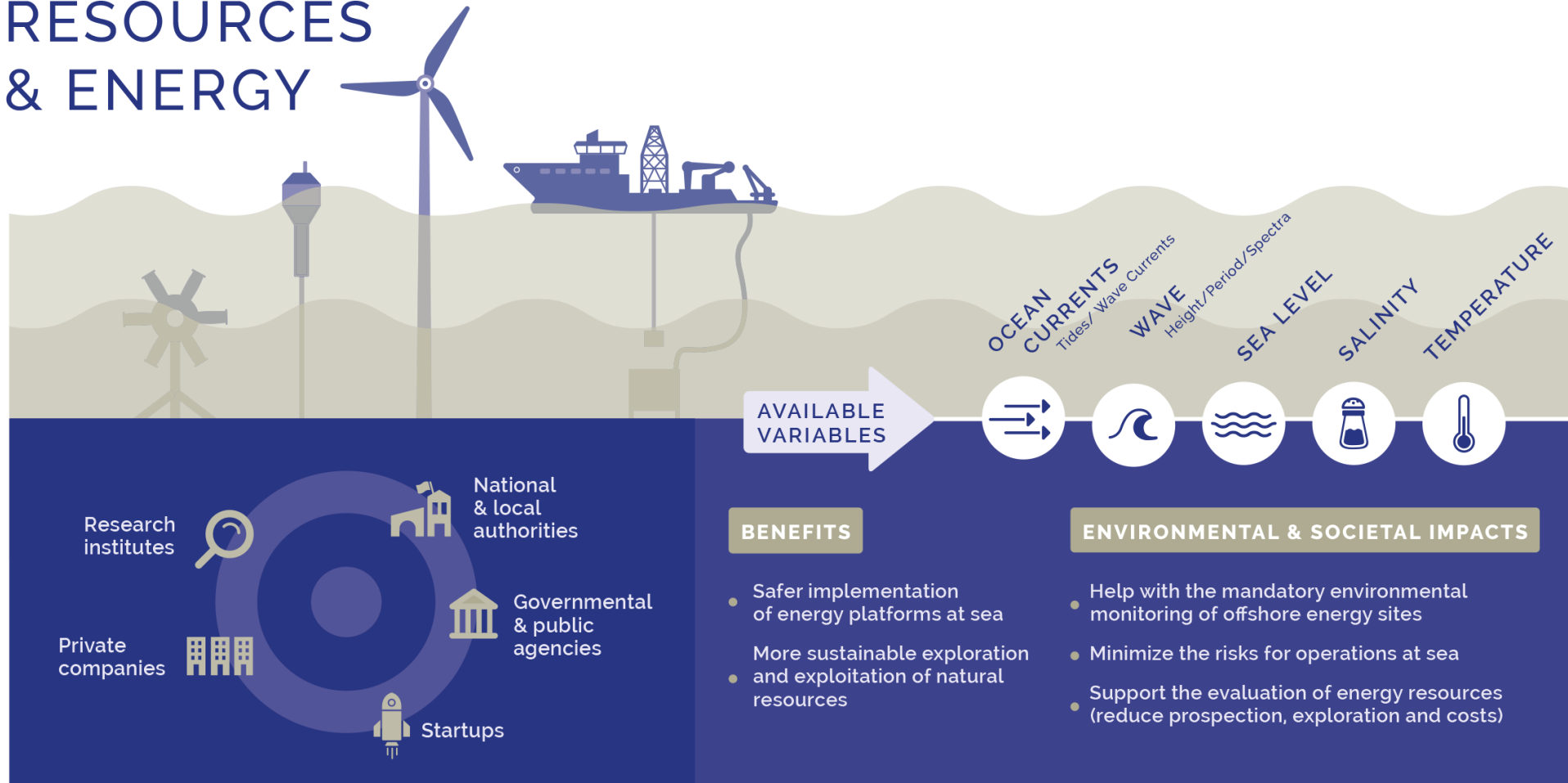
implemented by





# Copernicus Marine Service – What is there for you?

## NATURAL RESOURCES & ENERGY



PROGRAMME OF THE EUROPEAN UNION



implemented by





# Copernicus Marine Service – Use cases

Home > Services > Use Cases

The Copernicus Marine Service provides ocean products and services for many marine applications worldwide. We publish here Use Cases sorted by region, country, market sectors, highlighting examples on how marine data we provide for free is used and what are the benefits for users.

Region: All | Country: All | Markets: Natural Resources & Energy |  Mobile Application |  Demo | Search

<p>Innovative Solutions for Offshore Energy: MESPAC's AI-Powered Data Enhancement</p>	<p>Identifying global wave energy potential &amp; projecting future energy systems</p>	<p>Optimising wave energy: Copernicus Marine Data for site selection and performance analysis</p>	<p>Background and operational information for gas terminals and marine pipelines</p>
<p>Finding the best deployment site for a combined floating wind and wave energy system</p>	<p>SSW-RS: The Scottish Shelf Waters Reanalysis Service</p>	<p>The Brazilian Sea Observatory - Coastal Service</p>	<p>StArt provides Metocean statistics for Coastal and Offshore projects</p>
<p>Resource assessment for Renewable Energy</p>	<p>Wello - Wave resource assessment and cost of energy world map</p>	<p>Combining desalination and wave energy farms</p>	<p>Estimating wave energy resources in the North Aegean Archipelago</p>



PROGRAMME OF  
THE EUROPEAN UNION



implemented by



**MERCATOR  
OCEAN**  
INTERNATIONAL





# Copernicus Marine Service – Products/Data



Services Opportunities Access Data Use Cases User Corner About



Services Opportunities Access Data Use Cases User Corner About

## Copernicus Marine Data Store



Home > Marine Data Store

### Filters

#### FREE-TEXT SEARCH

Wavd

TIME RANGE  
dd/mm/yyyy  
Covering full interval

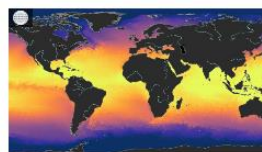
WITH DEPTH 6  
DEPTH RANGE

UNIVERSE  
Blue Ocean 76  
White Ocean 11  
Green Ocean 23

MAIN VARIABLES  
Mixed layer thickness 7  
Optics 12  
Oxygen 7  
Plankton 23  
Salinity 14  
Sea ice 10  
Sea surface height 23  
Temperature 33  
Velocity 26  
Wave 38  
Wind 1

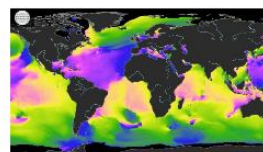
AREA  
Global Ocean 22  
Antarctic Ocean 2  
Arctic Ocean 17  
Atlantic: Iberia-Biscay-Ireland 26  
Atlantic: NW European Shelf 23  
Atlantic: North 37

### Products 97



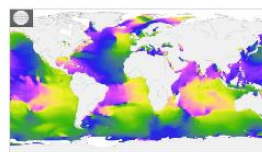
Global Ocean Physics Analysis and Forecast

GLOBAL\_ANALYSISFORECAST\_PHY\_001\_024  
Models  
Global, 0.083° × 0.083° × 50 levels  
1 Jan 2019 to 27 Jun 2024, hourly, daily, monthly  
Temperature, salinity, sea surface height, velocity, mixed layer thickness, wave, sea ice



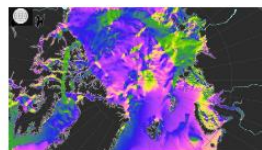
Global Ocean Waves Analysis and Forecast

GLOBAL\_ANALYSISFORECAST\_WAV\_001\_027  
Models  
Global, 0.083° × 0.083°  
1 Oct 2021 to 26 Jun 2024, hourly  
Temperature, salinity, sea surface height, velocity, mixed layer thickness, wave, sea ice



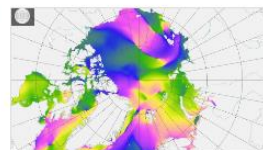
Global Ocean Waves Reanalysis

GLOBAL\_MULTYEAR\_WAV\_001\_032  
Models  
Global, 0.2° × 0.2°  
1 Jan 1993 to 31 Jan 2024, hourly, monthly  
Velocity, wave



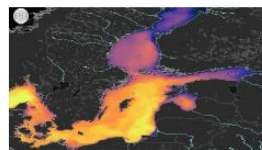
Arctic Ocean Wave Analysis and Forecast

ARCTIC\_ANALYSIS\_FORECAST\_WAV\_002\_014  
Models  
Arctic, 3 × 3 km  
Since 3 Dec 2017, hourly



Arctic Ocean Wave Hindcast

ARCTIC\_MULTYEAR\_WAV\_002\_013  
Models  
Arctic, 3 × 3 km  
1 Jan 1980 to 30 Nov 2022, hourly, multi-yearly



Baltic Sea Physics Analysis and Forecast

BALTICSEA\_ANALYSISFORECAST\_PHY\_003\_006  
Models  
Baltic, 2 × 2 km × 56 levels  
1 Nov 2021 to 22 Jun 2024, sub-hourly, hourly,...

### Filters

#### FREE-TEXT SEARCH

wind

TIME RANGE  
dd/mm/yyyy  
Covering full interval

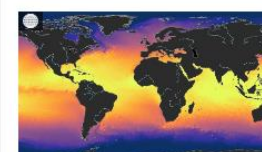
WITH DEPTH 4  
DEPTH RANGE

UNIVERSE  
Blue Ocean 47  
White Ocean 6  
Green Ocean 3

MAIN VARIABLES  
Carbonate system 3  
Mixed layer thickness 2  
Nutrients 2  
Optics 1  
Oxygen 2  
Plankton 2  
Salinity 2  
Sea ice 5  
Sea surface height 6  
Temperature 14  
Velocity 20  
Wave 21  
Wind 6

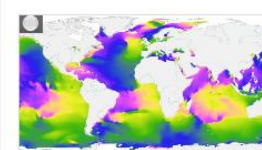
AREA  
Global Ocean 22  
Arctic Ocean 8  
Atlantic: Iberia-Biscay-Ireland 12  
Atlantic: NW European Shelf 8  
Atlantic: North 14

### Products 54



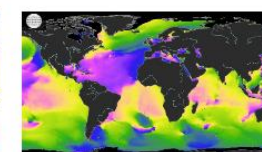
Global Ocean Physics Analysis and Forecast

GLOBAL\_ANALYSISFORECAST\_PHY\_001\_024  
Models  
Global, 0.083° × 0.083° × 50 levels  
1 Jan 2019 to 27 Jun 2024, hourly, daily, monthly  
Temperature, salinity, sea surface height, velocity, mixed layer thickness, wave, sea ice



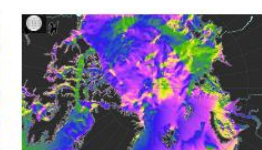
Global Ocean Waves Reanalysis

GLOBAL\_MULTYEAR\_WAV\_001\_032  
Models  
Global, 0.2° × 0.2°  
1 Jan 1993 to 31 Jan 2024, hourly, monthly  
Velocity, wave



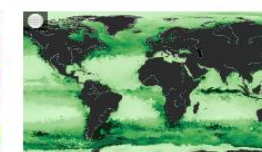
Global Ocean Waves Analysis and Forecast

GLOBAL\_ANALYSISFORECAST\_WAV\_001\_027  
Models  
Global, 0.083° × 0.083°  
1 Oct 2021 to 26 Jun 2024, hourly  
Temperature, salinity, sea surface height, velocity, mixed layer thickness, wave, sea ice



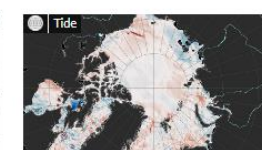
Arctic Ocean Wave Analysis and Forecast

ARCTIC\_ANALYSIS\_FORECAST\_WAV\_002\_014  
Models  
Arctic, 3 × 3 km  
Since 3 Dec 2017, hourly  
Velocity, wave



Global Ocean Biogeochemistry Analysis and Forecast

GLOBAL\_ANALYSISFORECAST\_BGC\_001\_028  
Models  
Global, 0.25° × 0.25° × 50 levels  
1 Oct 2021 to 21 Jun 2024, daily, monthly  
Plankton, nutrients, oxygen, carbonate system, optics



Arctic Ocean Tidal Analysis and Forecast

ARCTIC\_ANALYSISFORECAST\_PHY\_TL\_002\_015  
Models  
Arctic, 3 × 3 km  
Since 19 Dec 2017, sub-hourly  
Velocity, wave



PROGRAMME OF THE EUROPEAN UNION



implemented by

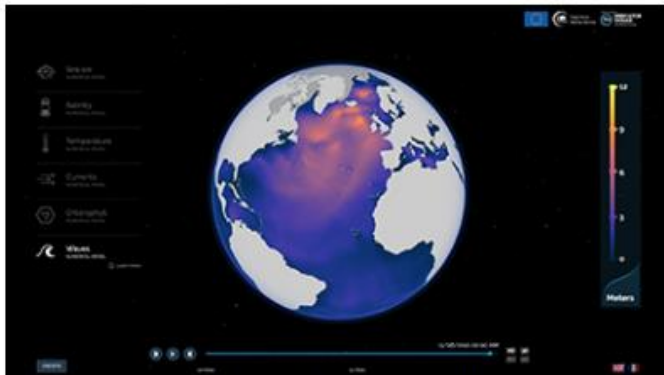




# Copernicus Marine Service – MyOcean Viewer

## MYOCEAN LEARN

(BEGINNER) GLOBE

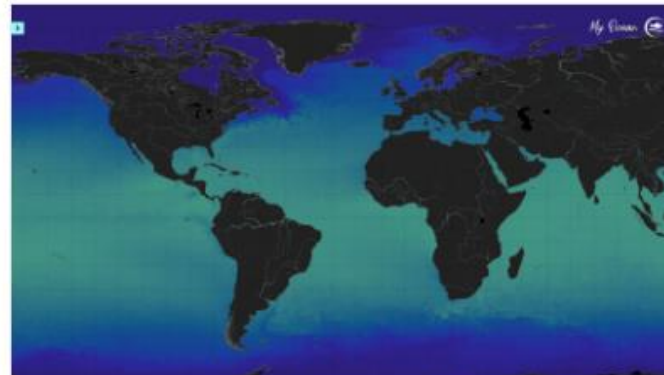


Understand key variables

[Explore MyOcean Learn](#)

## MYOCEAN LIGHT

(INTERMEDIATE) PLANISPHERE

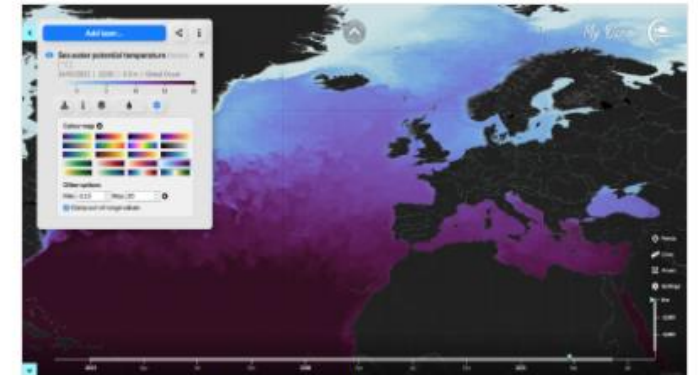


Access key variables

[Explore MyOcean Light](#)

## MYOCEAN PRO

(EXPERT) PLANISPHERE



Access full catalogue

[Explore MyOcean Pro](#)



PROGRAMME OF  
THE EUROPEAN UNION



implemented by



# THANK YOU!



Marine Monitoring



@CMEMS\_EU



Copernicus Marine Service



Newsletter