



# Ocean Colour: Description & Monitoring

Copernicus User Uptake Information Sessions  
Marine Monitoring



- **Objectives of this module :**
  - To understand ***what*** is *Satellite Ocean Colour*
  - To show you *the Copernicus CMEMS catalogue* with the various types of Ocean Colour products.
  - To show you ***how to access*** *Ocean Colour CMEMS products*
  - To use CMEMS functionality to ***visualize*** *Ocean Colour products*
- **Demo :**
  - Download of ocean colour products in the Iceland Sea (for ex. to evaluate the presence of algae bloom & suspended matter in sea water).



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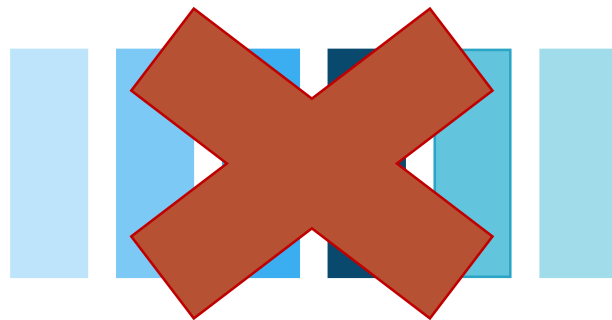
Ocean Colour

# WHAT is Satellite Ocean Colour



# What is Ocean Colour

- Not literally the “color of the ocean”

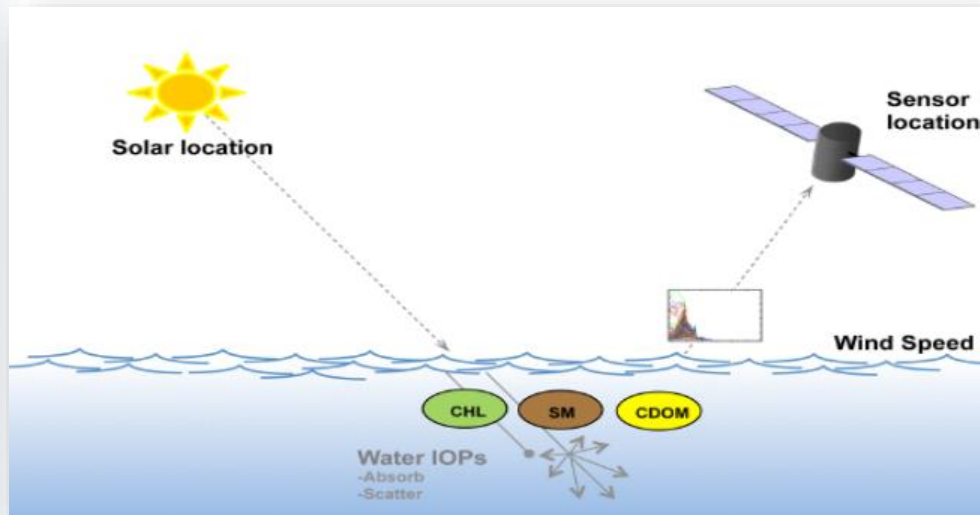


- Depending of the sea water constituents, 3 categories of colours can be observed :
  - **Chlorophyll-A**
  - **Non Algal Suspended Matter**
  - **Colour Dissolved Organic Matter**



# Ocean Colour : How does it works ?

- **Instrument used** : A spectrometer on board of satellites.
- **How does satellite measure ?**

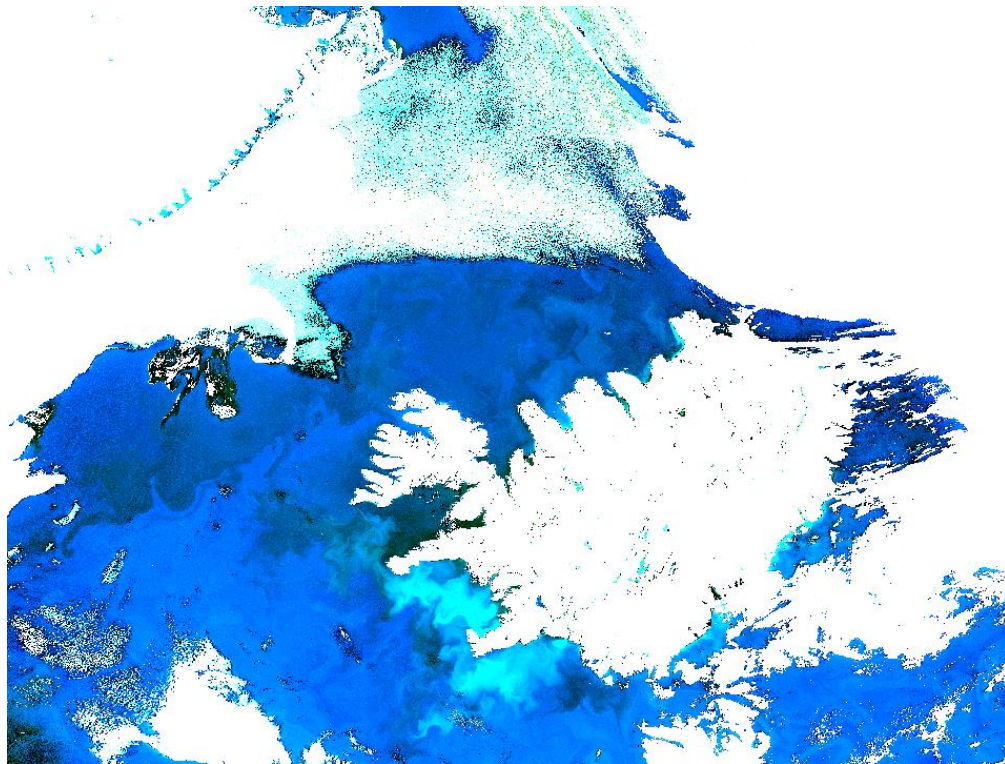






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# What is Ocean Colour



*Sentinel-3A (OLCI), acquired June 20, 2018 (ESA)*



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# Ocean Colour = The Usage ?

Ocean colour = **window into the ocean ecosystem**

Examples of applications :



*Coastal water quality*



*Marine resource management*



*Sediment transport*



*Harmful algal Bloom*



*Global Ocean Primary Production*



*Monitor climate change*



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Ocean Colour

# The Copernicus CMEMS catalogue with the various types of Ocean Color products





# Ocean Colour : How to access to Copernicus Ocean Colour data ?

- Go to the website of the Copernicus Marine Environment Service:  
<http://marine.copernicus.eu>

## Search & Browse



- Sentinel data
- Graphical user interface

## Discover & Visualise



- Visualise/analyse data
- Access info

## Register



- Order
- Customise
- Helpdesk

## Download



- Select and download
- One-off or by scripts

## Compute



- Use data
- Integrate
- Merge

## Join Up



- Get trained
- Get inspired
- Meet partners



# Demo : search Ocean Colour products around Iceland

- Search for **Ocean Colour products** :

- Overview of Ocean Colour products;
- Choose a product displaying **NRT** ocean colour from satellite observation;
- Choose your **area of interest** : **Global**





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# Demo : Visualize Global Ocean Colour products

- Visualize Ocean Colour products :

The screenshot displays the Copernicus Marine Environment Monitoring Service (MEMS) website. The header includes the European Commission logo, the service name, and a search bar. A navigation menu lists various sections: ABOUT US, MARKETS & BENEFITS, NEWS, SCIENCE & MONITORING, TRAINING & EDUCATION, and SERVICES PORTFOLIO. A 'SHORT-CUT TO SERVICES' dropdown is also present.

The main content area shows a search for 'oceancolour' with 11 results. The first result is 'OCEANCOLOUR\_GLO\_CHL\_L4\_NRT\_OBSERVATIONS\_009\_033', which is a 'GLOBAL OCEAN CHLOROPHYLL (COPERNICUS-GLOBECOLOUR) FROM SATELLITE OBSERVATIONS - NEAR REAL TIME'. The product details include:

- OBSERVATION: L4
- CHL: 4 km x 4 km (Surface only)
- From 2016-04-25 to Present
- weekly-mean, monthly-mean
- More info, Add to cart, WMS, Sub-setting

The second result is 'OCEANCOLOUR\_GLO\_CHL\_L3\_NRT\_OBSERVATIONS\_009\_032', which is a 'GLOBAL OCEAN CHLOROPHYLL (COPERNICUS-GLOBECOLOUR) FROM SATELLITE OBSERVATIONS : DAILY (NEAR REAL TIME)'. The product details include:

- OBSERVATION: L3
- CHL: 4 km x 4 km (Surface only)
- From 2016-04-25 to Present
- daily-mean
- More info, Add to cart, WMS, Sub-setting

Both results feature a 'Satellite Observations Copernicus GlobColour' logo and a 'Chlorophyll' label. The footer includes the European Commission logo, the Copernicus logo, and a navigation menu: ABOUT US, PARTNERS & STAKEHOLDERS, BENEFITS, FEEDBACK SURVEY, and ANY QUESTIONS? Ask the Service Desk.

11



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# Use case : Download Global Ocean Colour products

- Download Ocean Colour products :

The screenshot displays the Copernicus MERS website interface. At the top, the header includes the European Commission logo, the service name 'COPERNICUS MARINE ENVIRONMENT MONITORING SERVICE', and a search bar. Below the header is a navigation menu with links like 'ABOUT US', 'MARKETS & BENEFITS', 'NEWS', 'SCIENCE & MONITORING', 'TRAINING & EDUCATION', 'SERVICES PORTFOLIO', and a 'SHORT-CUT TO SERVICES' dropdown.

The main content area shows a search for 'oceancolour' with 11 results. The first result is 'OCEANCOLOUR\_GLO\_CHL\_L4\_NRT\_OBSERVATIONS\_009\_033'. The search filters on the left include 'REGIONAL DOMAIN' (Global Ocean), 'PARAMETERS' (Chlorophyll), 'TEMPORAL COVERAGE' (1992-01-01 to 2018-09-24), and 'PRODUCT WITH DEPTH LEVEL'.

The product details for the first result are as follows:

OCEANCOLOUR_GLO_CHL_L4_NRT_OBSERVATIONS_009_033	
GLOBAL OCEAN CHLOROPHYLL (COPERNICUS-GLOBECOLOUR) FROM SATELLITE OBSERVATIONS - NEAR REAL TIME	
OBSERVATION	L4
CHL	GLO
4 km x 4 km (Surface only)	L4: Monthly, 8-days, Daily, Interpolation
From 2016-04-25 to Present	
weekly-mean, monthly-mean	
MORE INFO	ADD TO CART
WMS	Sub-setting

The second result is 'OCEANCOLOUR\_GLO\_CHL\_L3\_NRT\_OBSERVATIONS\_009\_032'. Its details are:

OCEANCOLOUR_GLO_CHL_L3_NRT_OBSERVATIONS_009_032	
GLOBAL OCEAN CHLOROPHYLL (COPERNICUS-GLOBECOLOUR) FROM SATELLITE OBSERVATIONS : DAILY (NEAR REAL TIME)	
OBSERVATION	L3
CHL	GLO
4 km x 4 km (Surface only)	L3: Daily
From 2016-04-25 to Present	
daily-mean	
MORE INFO	ADD TO CART
WMS	Sub-setting