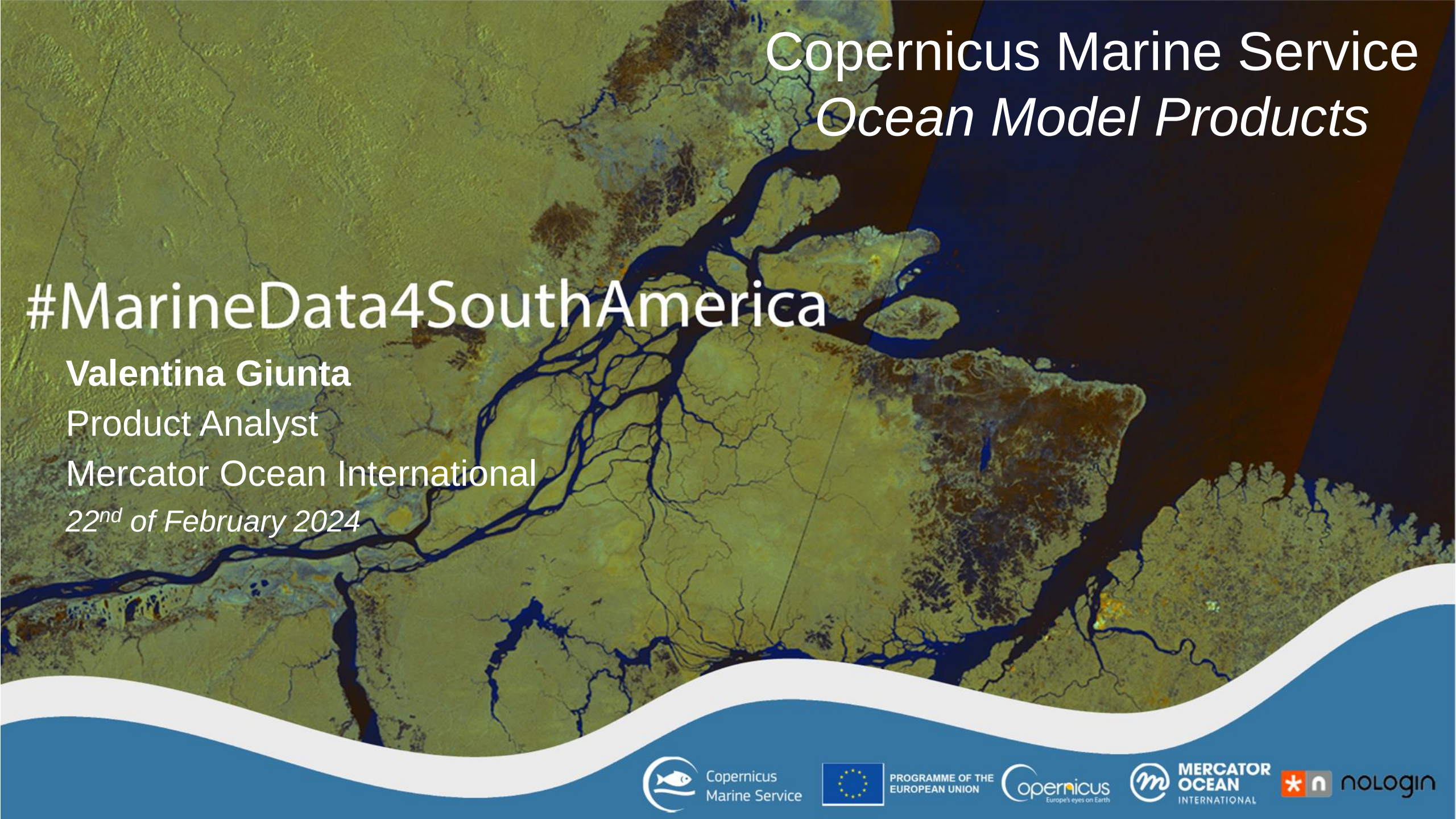

Copernicus Marine Service
Ocean Model Products

#MarineData4SouthAmerica

Valentina Giunta
Product Analyst
Mercator Ocean International

22nd of February 2024

Copernicus Marine Service
PROGRAMME OF THE EUROPEAN UNION
Copernicus Europe's eyes on Earth
MERCATOR OCEAN INTERNATIONAL
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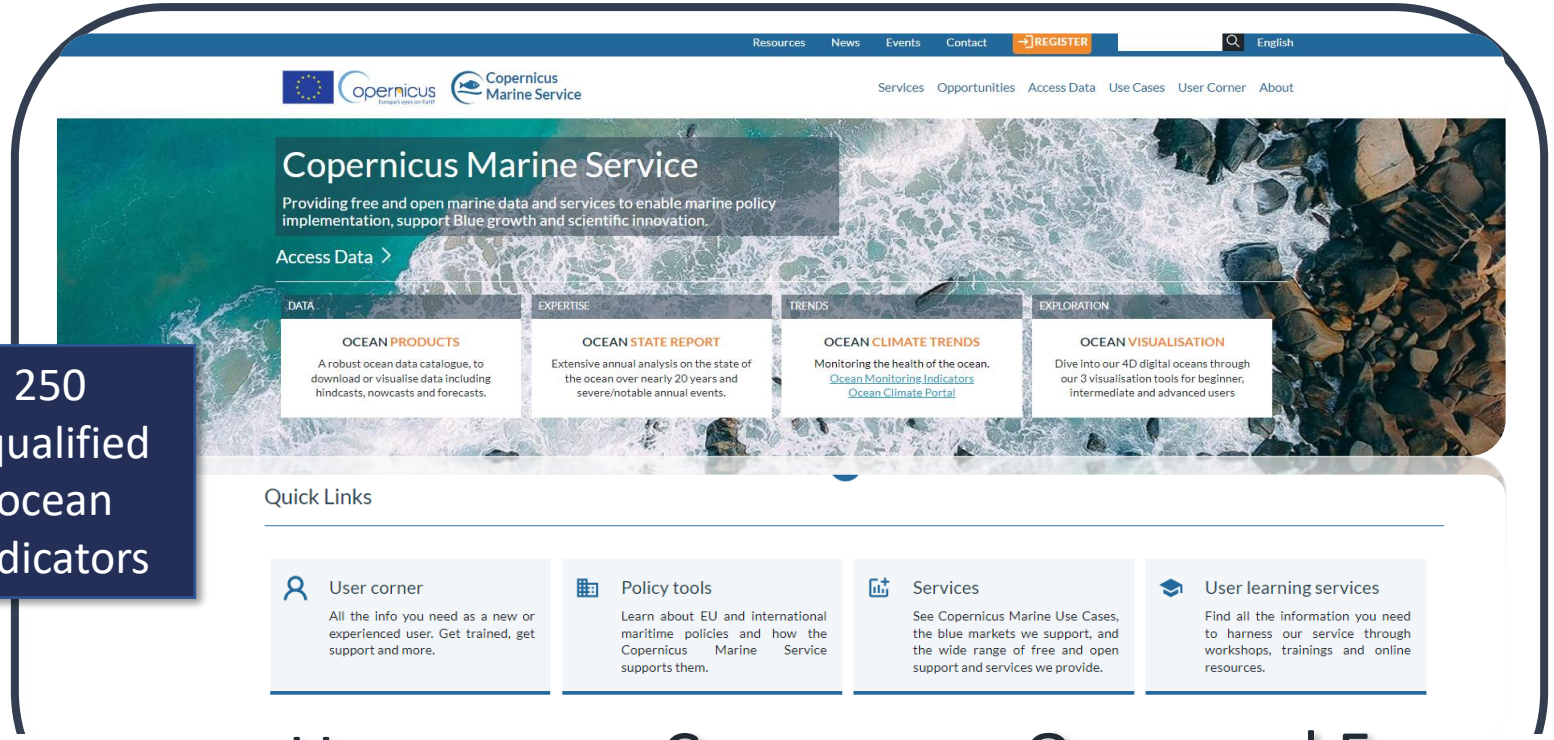
SINGLE ACCESS POINT
marine.copernicus.eu

93 ocean model products

More than 250 scientifically qualified products & ocean monitoring indicators

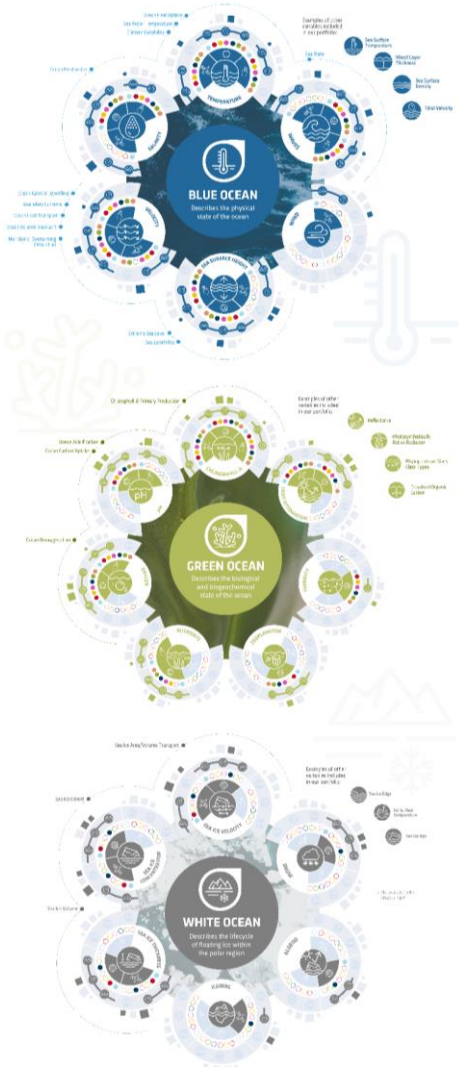


User driven

Common format (NetCDF)

Open and Free

DATA IN A NUTSHELL



Copernicus Marine Service

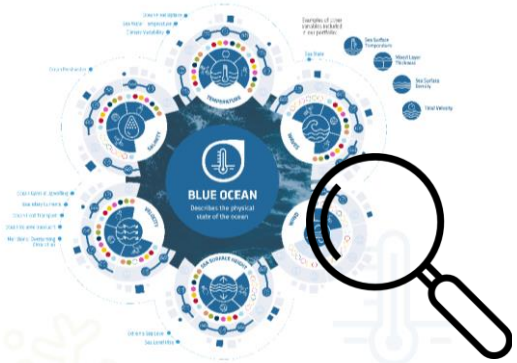
PROGRAMME OF THE EUROPEAN UNION

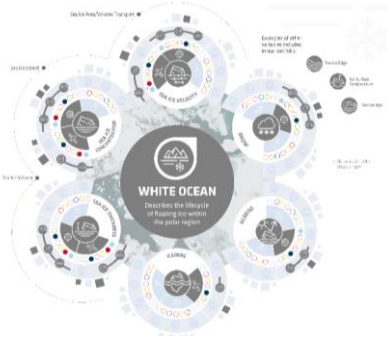
Copernicus Europe's eyes on Earth

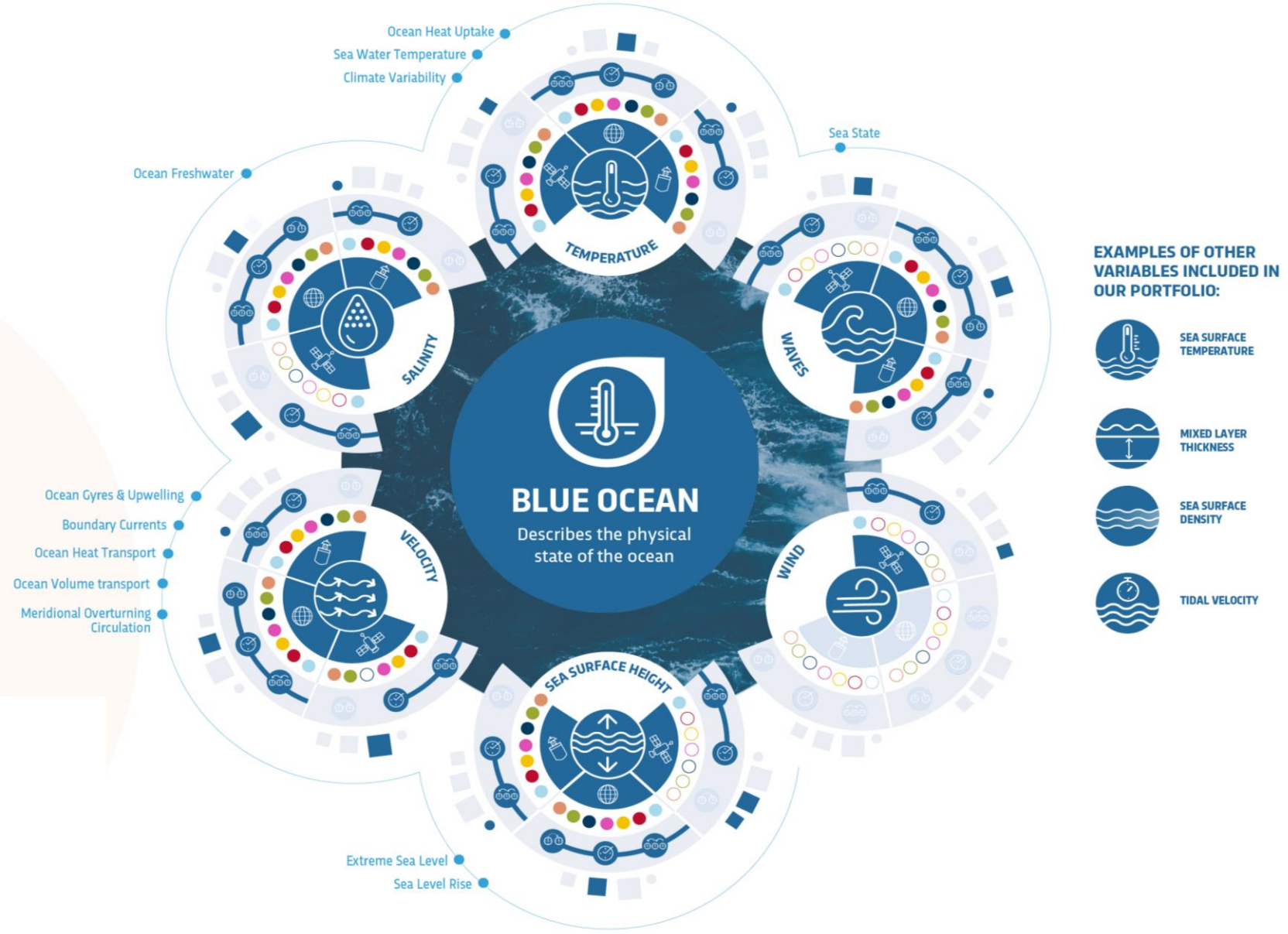
MERCATOR OCEAN INTERNATIONAL

nologin

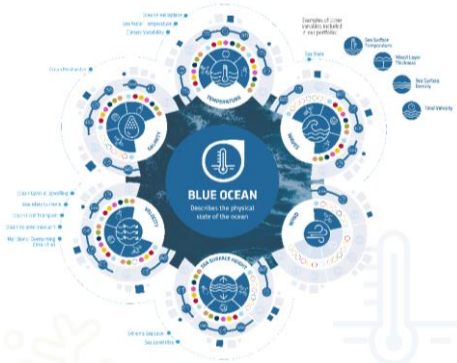
DATA IN A NUTSHELL-BLUE OCEAN

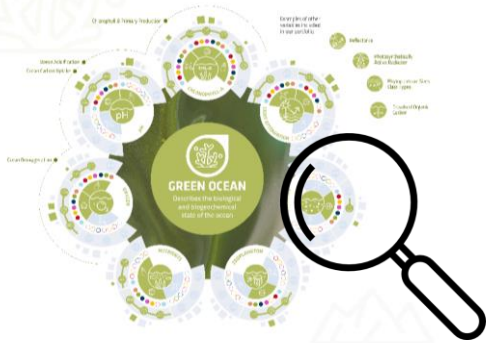


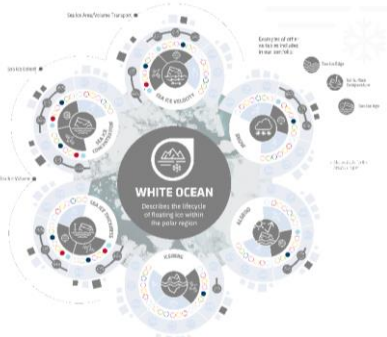


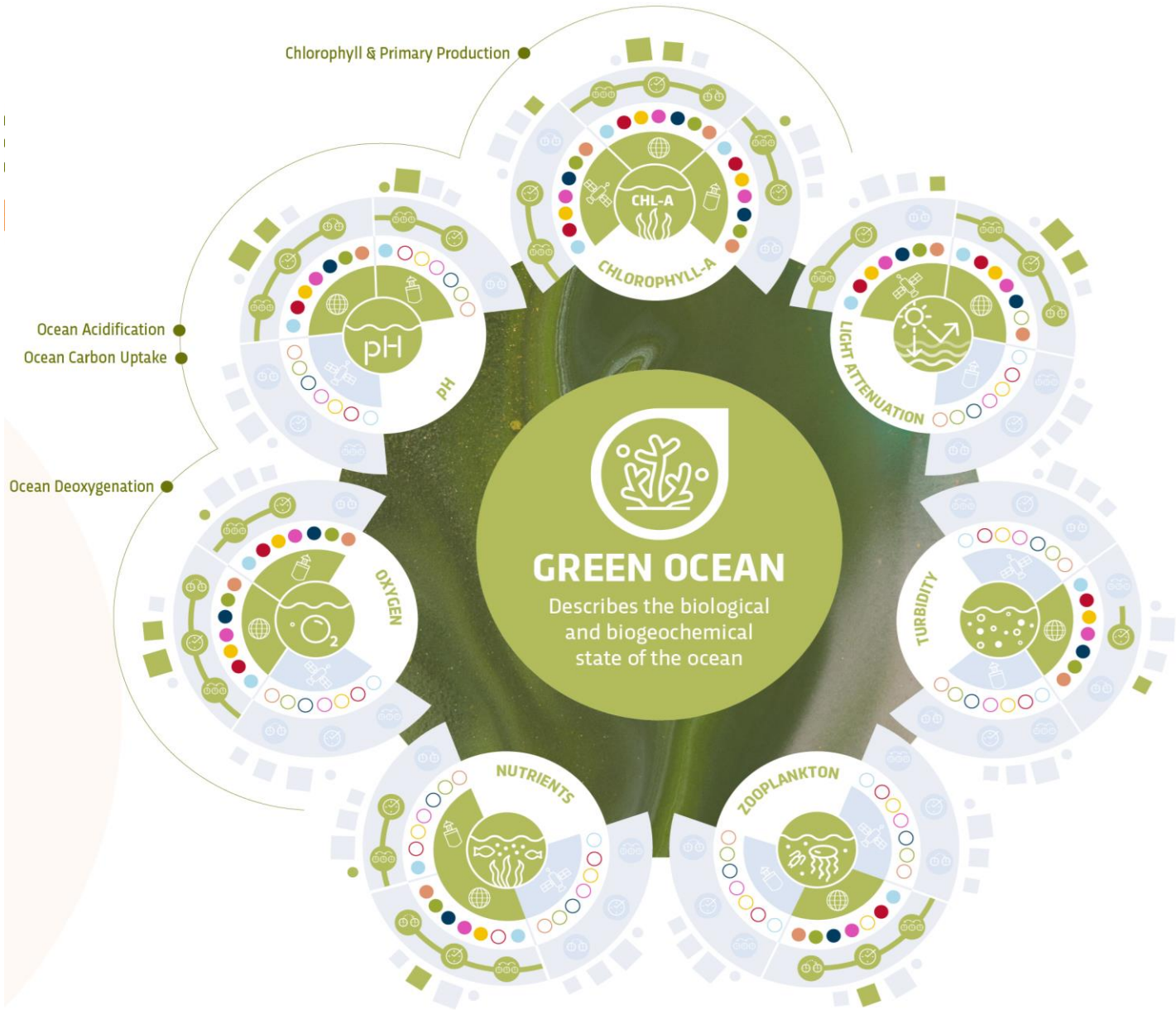


DATA IN A NUTSHELL – GREEN OCEAN

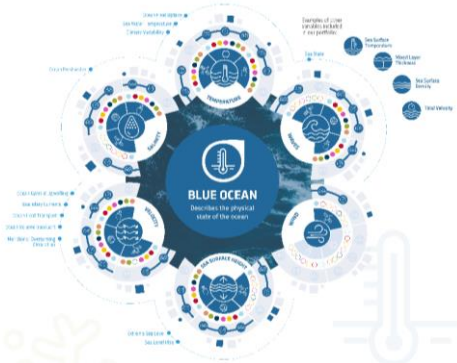


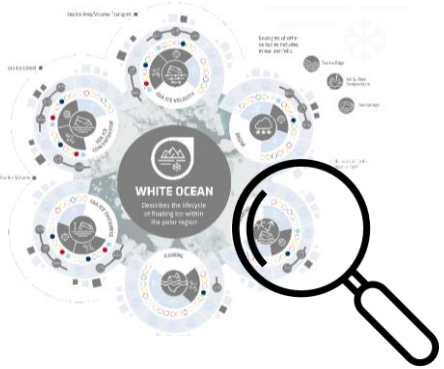


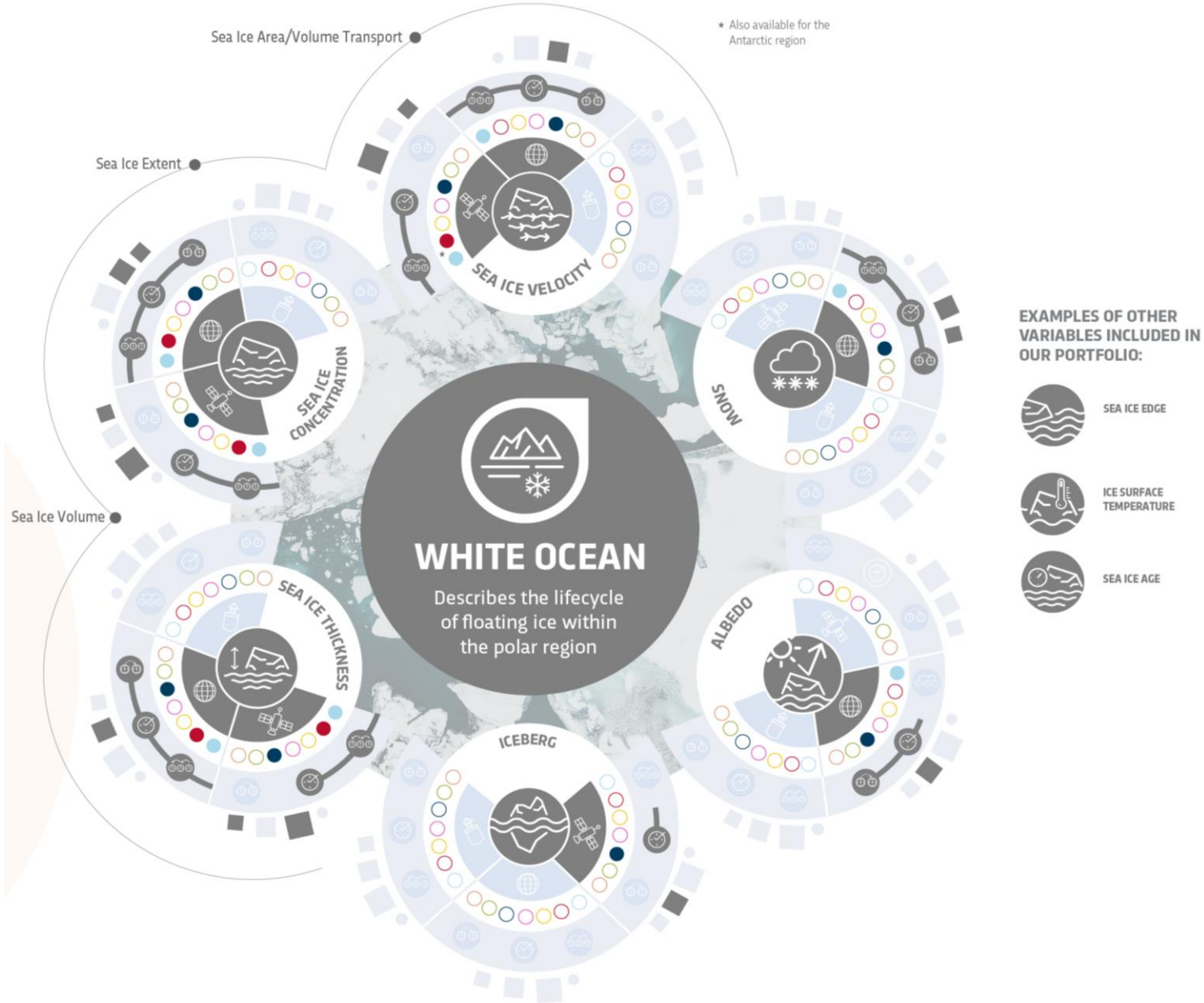




DATA IN A NUTSHELL – WHITE OCEAN







COPERNICUS MARINE SERVICE PORTFOLIO

DATA SOURCES	TEMPORAL COVERAGE	GEOGRAPHICAL COVERAGE
MODEL DATA	**Multi-Year** ~45 years	
INSITU DATA	**REAL-TIME** Daily, hourly, 15’	
SATELLITE DATA	**FORECAST** 10 days	

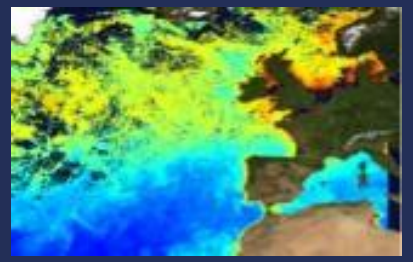
1 Global
2 Arctic
3 Baltic
4 NWS
5 IBI
6 Med Sea
7 Black Sea

COPERNICUS MARINE SERVICE PORTFOLIO

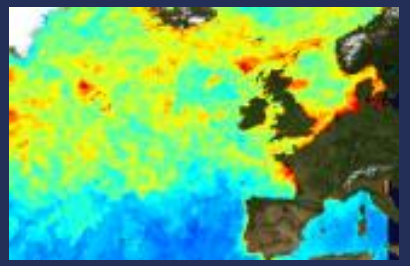
Satellite observation data

SATELLITE

- **L3** – daily composite products, single/multi sensor (Along Track or gridded product)



- **L4** – daily interpolated and weekly/monthly composites



InSitu observation data

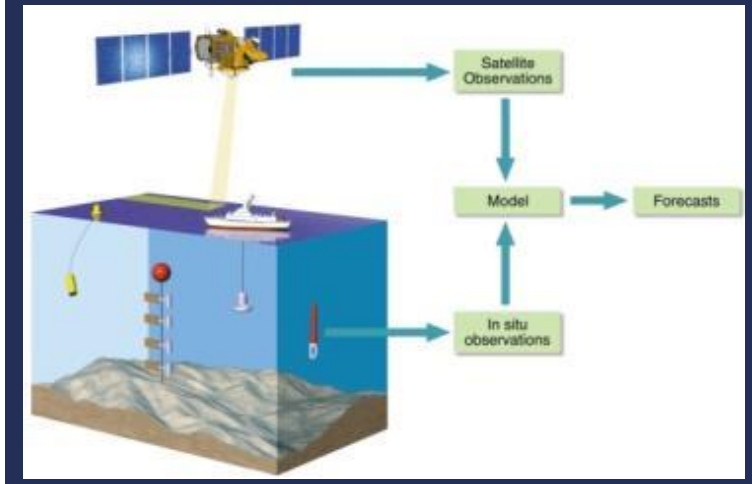
IN SITU

From different networks and platforms

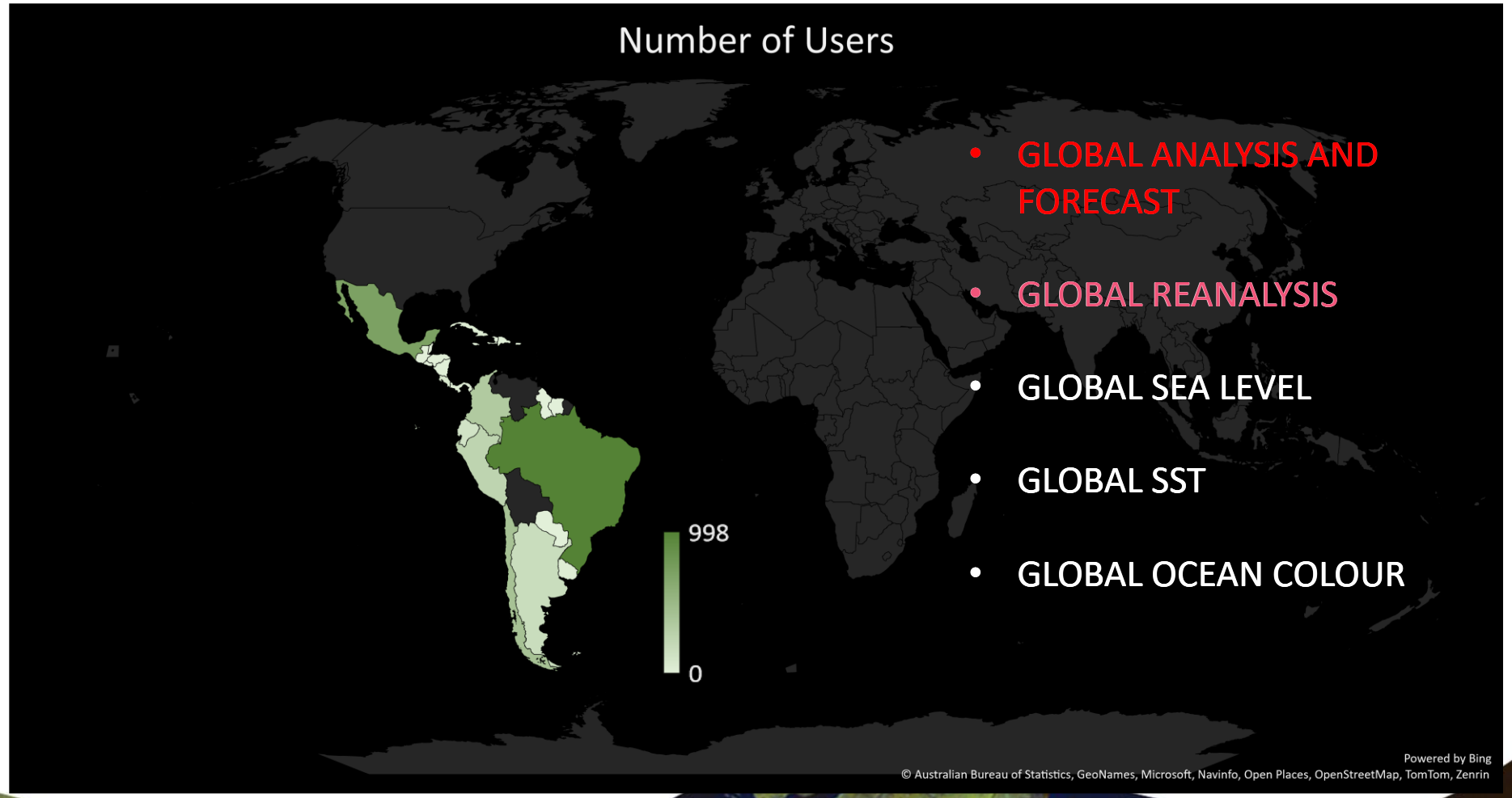
Model data

MODEL

From 3D numerical representation of the ocean with an assimilation of « real » data



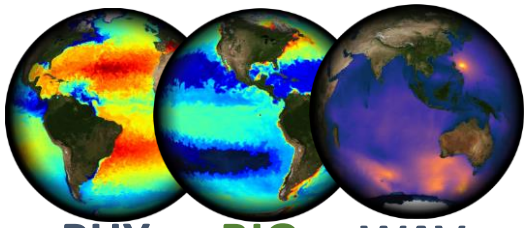
FEATURED PRODUCTS



- GLOBAL ANALYSIS AND FORECAST
- GLOBAL REANALYSIS
- GLOBAL SEA LEVEL
- GLOBAL SST
- GLOBAL OCEAN COLOUR

MODEL

Data Types



PHY BIO WAV

Models

Modelling the state of the ocean over a long period of time (several years) while correcting it with the best available past observations.

An assessment of the past state of the ocean variables made using numerical models, with or without data assimilation.

It is an assessment of the future state of the ocean variables, made using numerical models.

Reanalysis

- Reanalysis
- Ensemble

It considers multiple simulations to account for uncertainties

Hindcast

- Simulation

Without data assimilation

- Analysis
  - Best-Analysis
  - NRT-Analysis

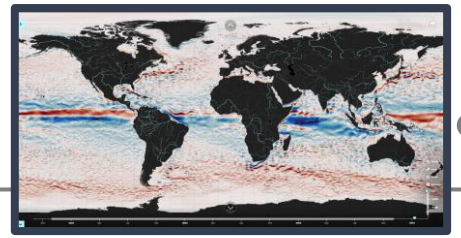
Snapshot of the state of the ocean at any given time.

Forecast

The first day of the forecast series is called "**nowcast**".

FEATURED PRODUCTS: **GLOBAL ANALYSIS AND FORECAST**

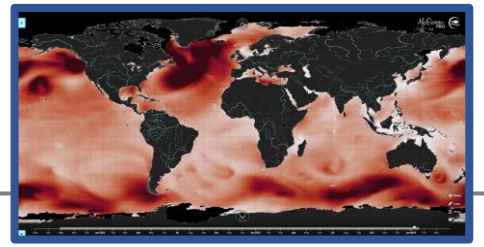
PHYSICS



- 1/12° resolution
- Hourly, daily, and monthly means
- Temperature, salinity, currents, sea level, MLD and others
- 50 vertical levels (0 to 5500m)
- Nov. 2020 to Jan. 2024
- 10 days of 3D global ocean forecasts

Global Ocean Physics Analysis and Forecast | Copernicus Marine MyOcean Viewer

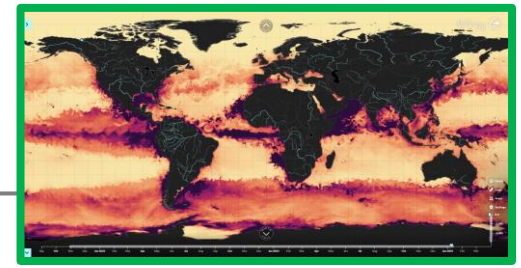
WAVES



- 1/12° resolution
- Hourly
- wave parameters from the total spectrum (significant height, period, direction, Stokes drift) and following partitions: the wind wave, the primary and secondary swell waves
- Oct. 2021 to Jan. 2024
- 10 days forecast of global ocean sea surface waves

Global Ocean Waves Analysis and Forecast | Copernicus Marine MyOcean Viewer

BIOGEOCHEMESTRY

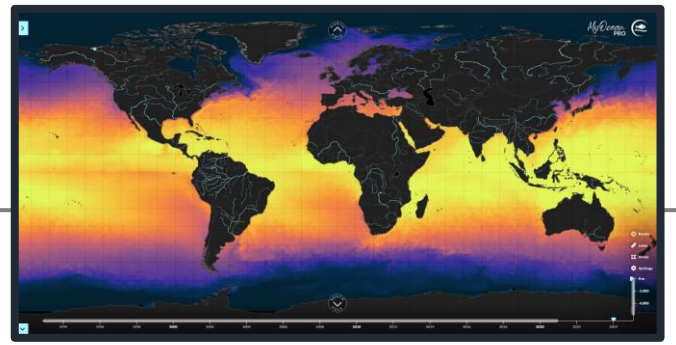


- 1/4° resolution
- Daily and monthly means
- Chlorophyll, nitrate, phosphate, dissolved oxygen, primary production, PH, carbon dioxide and others
- 50 vertical levels (0 to 5700m)
- Oct. 2021 to Jan. 2024
- 10 days of 3D global ocean forecasts

Global Ocean Biogeochemistry Analysis and Forecast | Copernicus Marine MyOcean Viewer

FEATURED PRODUCTS: **GLOBAL REANALYSIS**

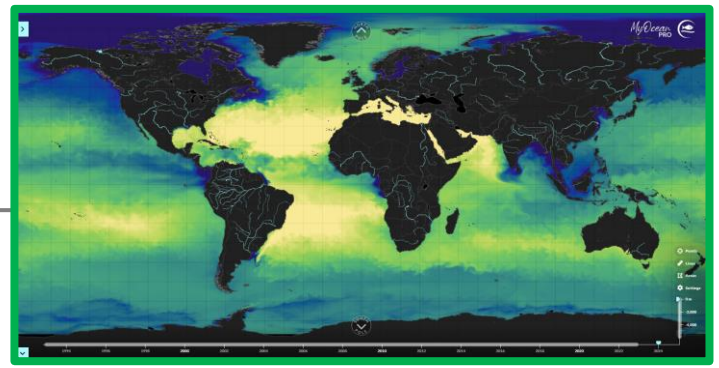
OCEAN PHYSICS



- 1/12° resolution
- Daily and monthly means
- Temperature, salinity, currents, sea level, mixed layer depth and ice parameters from the top to the bottom
- 50 vertical levels
- Jan. 1993 to Oct. 2023
- Covering the altimetry (1993 onward)
- It is based largely on the current real-time global forecasting CMEMS system.

Global Ocean Physics Reanalysis | Copernicus Marine MyOcean Viewer

OCEAN ENSEMBLE PHYSICS



- 1/4° resolution
- Daily and monthly means
- Temperature, salinity, currents, sea level, mixed layer depth and ice parameters
- 75 vertical levels
- Jan. 1993 to Dec. 2022
- It uses four reanalyses to create the ensemble, covering “altimetric era” period (starting in January 1993)
- The multi-model ensemble approach allows uncertainties or error bars in the ocean state to be estimated.

Global Ocean Ensemble Physics Reanalysis | Copernicus Marine MyOcean Viewer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