

4TH GEO

BLUE PLANET SYMPOSIUM

4-6 July 2018 – Toulouse, France

Mercator Ocean
International



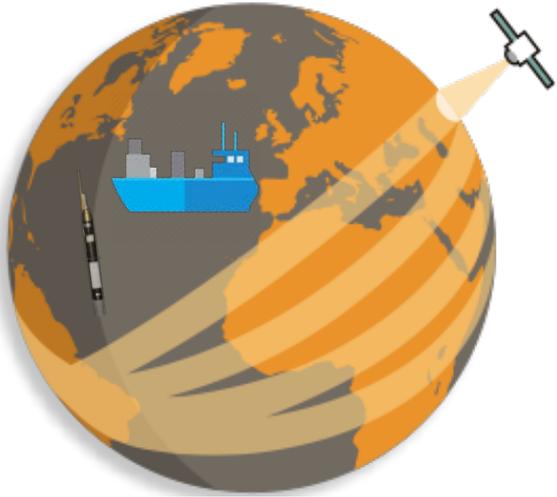
The Copernicus Marine Service Ocean State Report and its role to inform sustainable development policies

Karina von Schuckmann



#GEOBluePlanet4

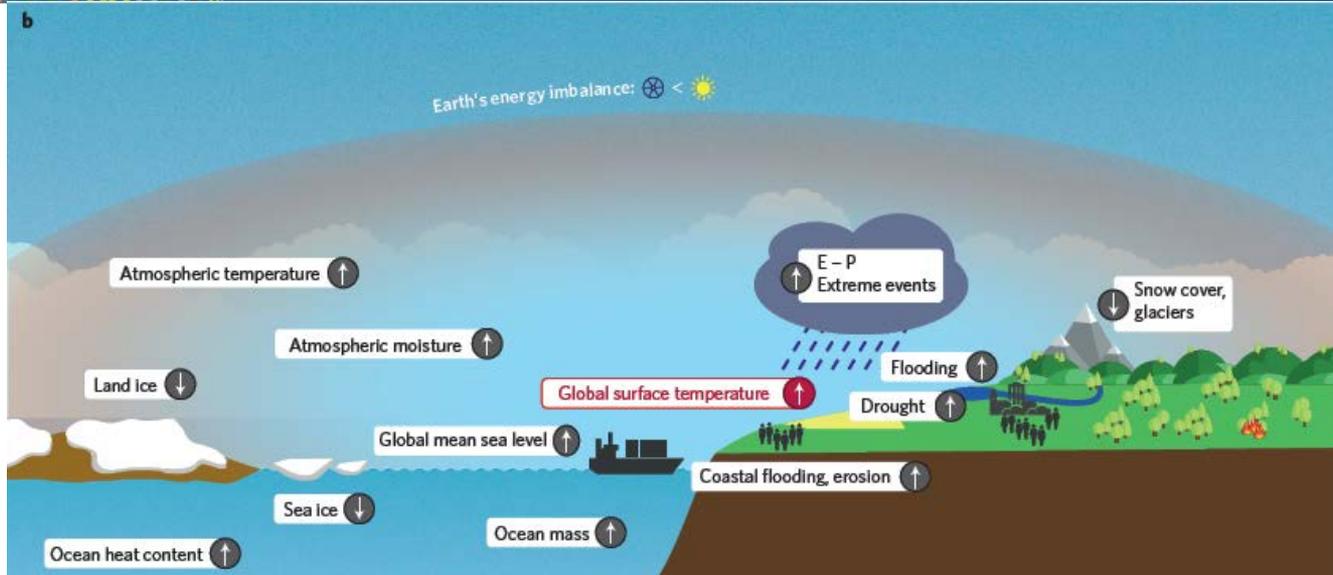
Added value expert information to inform sustainable development: what have we learned so far?



Added value expert information to inform sustainable development: what have we learned so far?



SYMPTOMS OF EARTH SYSTEM REGULATION



WARMING OF THE OCEANS



ACIDIFICATION OF THE OCEANS



CHANGES OF OCEAN CIRCULATION



Increasing & pressing ocean monitoring needs

Recognized at the highest levels

(e.g. UN/Agenda 2030/SDG, IPCC/Ocean&Cryosphere, OECD/the future of ocean economy, G7/future of the oceans and seas)



Blue Growth and Societal Challenges

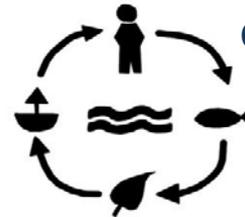


To understand and predict the evolution of our weather and climate

For an increasing number of ocean services and the development of the blue economy



Better and sustainable management of the oceans and its resources.



Marine data and information in support of sustainable development

EU Marine Strategy Framework Directive (MSFD):
protecting the marine environment across Europe
and to achieve « Good Ecological Status »



... in support of main policy objectives...

- Climate change in the Arctic Environment
- Sustainable development in the Arctic
- International cooperation



Sustainable Development goals: Economies and societies are embedded parts of the society

The wedding cake
presentation for the SDGs:



... moving away from the current sectorial approach where social, economic, and ecological development are seen as separate parts.

... transition toward a world logic where economy serves society to evolves within the safe operating space of the planet.

13 CLIMATE ACTION



Climate indicators in support of the SDGs highlighted by WMO & GCOS



Surface temperature



Ocean heat



Sea Level



Carbon dioxide



Changing cryosphere

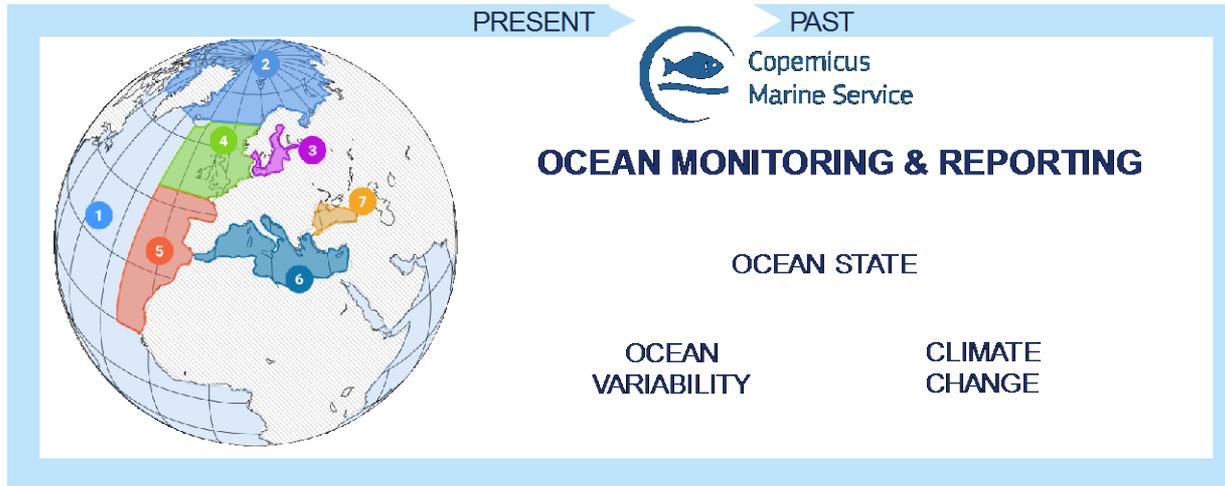


Precipitation



The Copernicus Marine Service Reporting

Objective: Develop a fundamental source of CMEMS value-added information and indicators for the monitoring & reporting of the European regional seas and the global ocean state, variability and change from the past to the present.

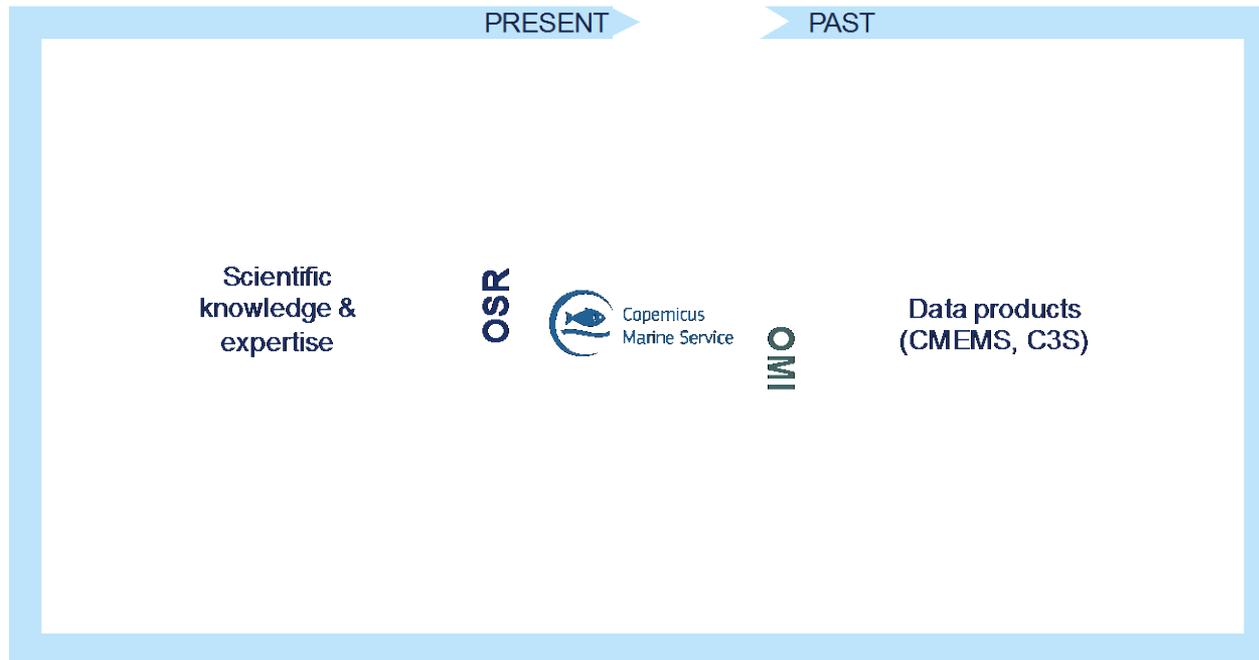


EUROPE: Link to C3S, EEA/MSFD, ICES, EC, EuroGOOS, ...

INTERNATIONAL: Link to SDG, BAMS, GCP, WMO, Ocean & Climate platform,⁹...

The Copernicus Marine Service Reporting

Two principal tools: Ocean State Report & Ocean Monitoring Indicators



Found 152 products matching your criteria.

GLOBAL_ANALYSIS_FORECAST_PHY_001_024
 GLOBAL OCEAN 1/2° PHYSIC S ANALYSIS AND FORECAST UPDATED DAILY

MODEL	GLO									
SSH 3DUV MLD T SIT SIC S SILV										
0.083 degree x 0.083 degree (50 depth levels)										
From 2006-12-27 to Present										
daily-mean, hourly-mean										
MORE INFO	ADD TO CART	WMS	Sub-setting							

GLOBAL_ANALYSIS_FORECAST_BIO_001_014
 GLOBAL OCEAN BIOGEOCHEMISTRY ANALYSIS AND WEEKLY FORECAST

MODEL	GLO									
CHL O2 NO3 PO4 SI PHYC FE										
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							

Copernicus Marine Service multi-year-products: Observations

GLOBAL



Sea level
SST
Sea Ice
Sea Wind
Ocean Color



Currents (drifters)
T/S (profiles & gridded)
Waves (significant wave height from buoys)
BGC (Chl O2)

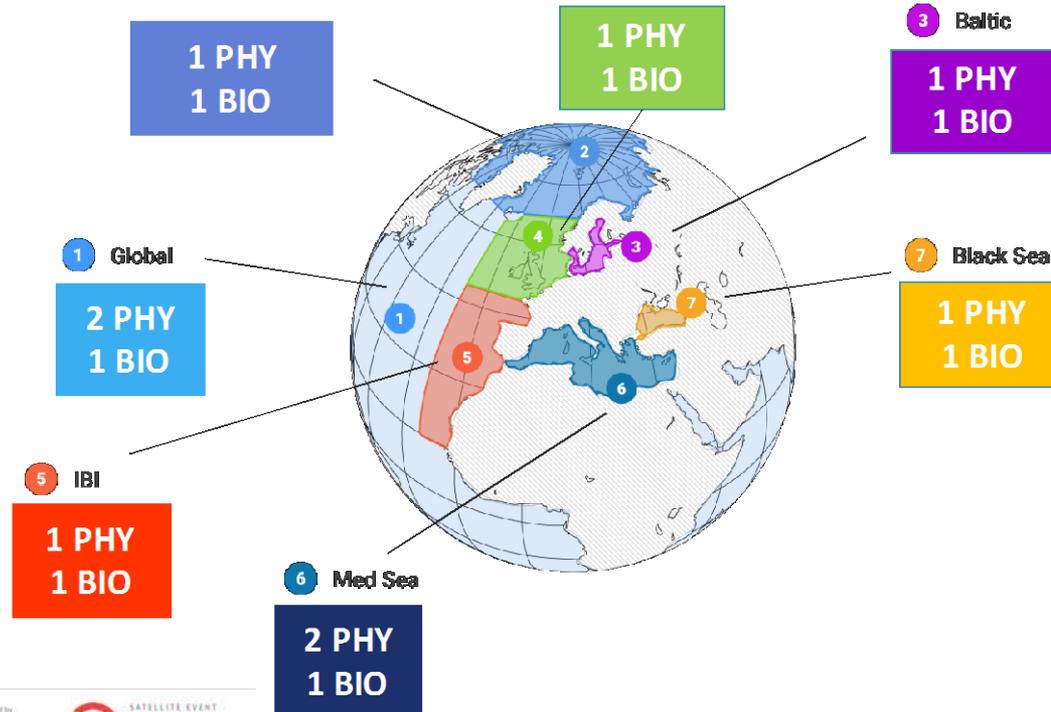
European regional seas



Sea level
SST
Sea Ice
Ocean Color

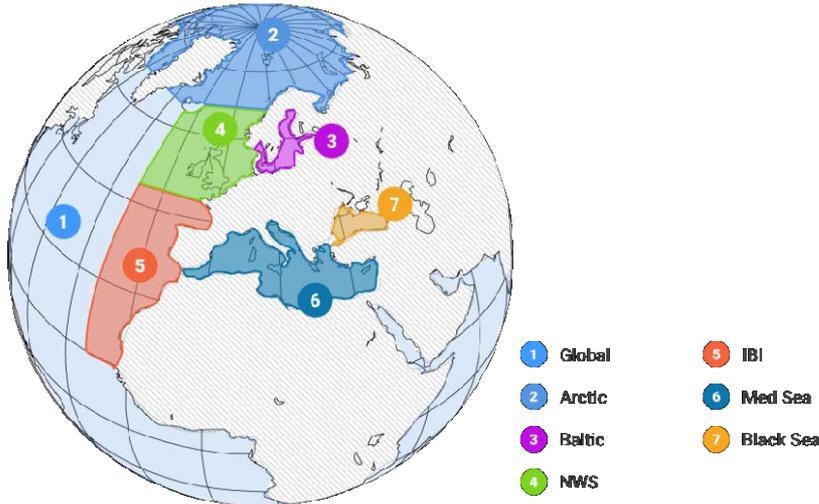
T/S (profiles & gridded)

Copernicus Marine Service multi-year-products: Reanalyses



The Copernicus Marine Service Ocean State Report

... provides a state-of-the-art
assessment of the state of the global
ocean and European regional seas



... draws on expert analysis



... provides

- ❖ a 4-D view
- ❖ a view from above
- ❖ a view directly from the interior



The Copernicus Marine Service Ocean State Report

- ❖ Collaboration of more than 100 scientific experts
- ❖ Collaboration of more than 25 European institutions
- ❖ Fundamental step forward into the development of regular Copernicus Marine Service regular reporting



Scientific community

Policy and decision makers, Blue Economy

European and international agencies and organisations, Regional Sea Conventions

General public awareness



The Copernicus Marine Service Ocean State Report

ISSUE #1:

- ❖ Published in the Journal of Operational Oceanography: Open access
- ❖ Summary for policy makers
- ❖ Mentioned as Copernicus achievement 2017
- ❖ Chair & team medal award
- ❖ More than 8000 views since publication

ISSUE #2:

- ❖ Accepted, and in progress for publication

ISSUE #3:

- ❖ Preparation started since FEB 2018

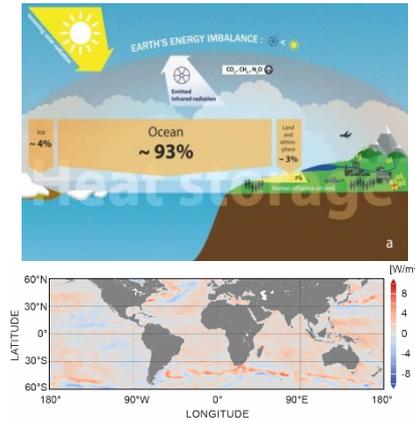
The Copernicus Marine Service Ocean State Report

4 principal chapters for issue 1 and 2

Essential Variables



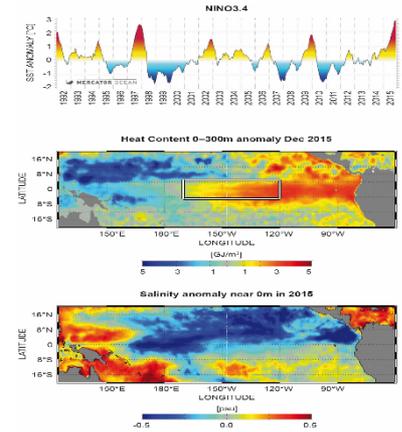
Ocean climate



European Seas



Remarkable events



The Copernicus Marine Service Ocean State Report

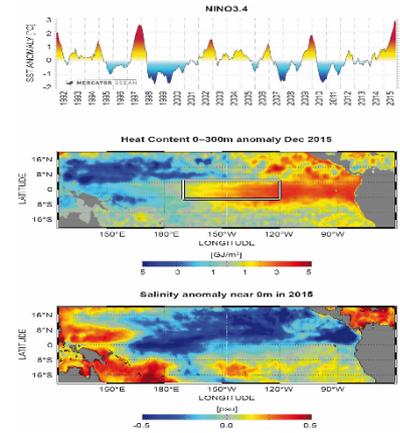
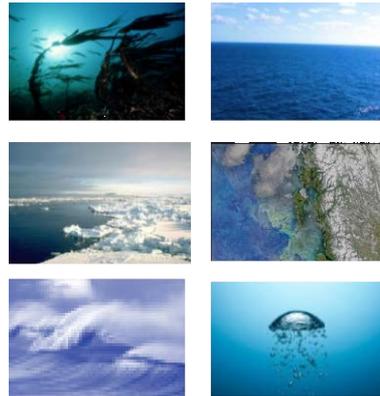
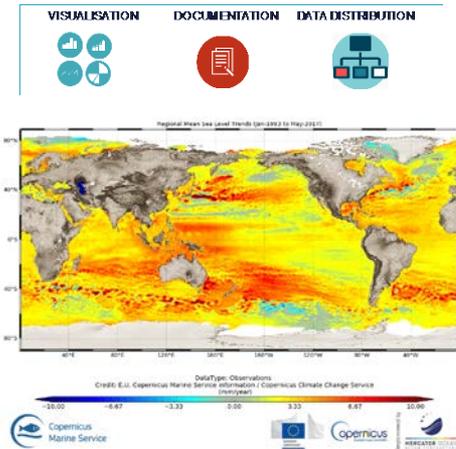
4 principal chapters for issue 3 and future issues...

Ocean Monitoring Indicators

New indicators

Case studies

Remarkable events



Copernicus Marine Service Ocean Monitoring Indicators

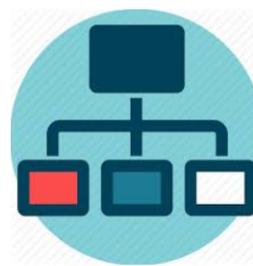
VISUALISATION



DOCUMENTATION



DATA DISTRIBUTION



Copernicus Marine Service Ocean Monitoring Indicators

Implementation of the Ocean Monitoring Indicators in April 2018

OCEAN HEAT CONTENT

Global OHC
1993-2016

Reg. OHC
1993-2016

Reg. OHC
2016

SEA LEVEL

Global SL
1993-2017

Reg. SL
1993-2017

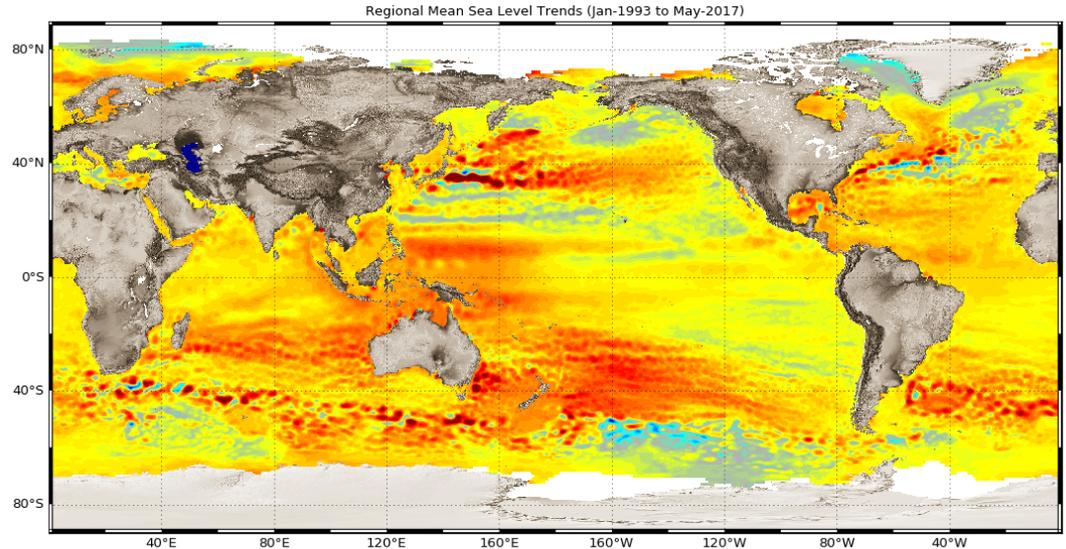
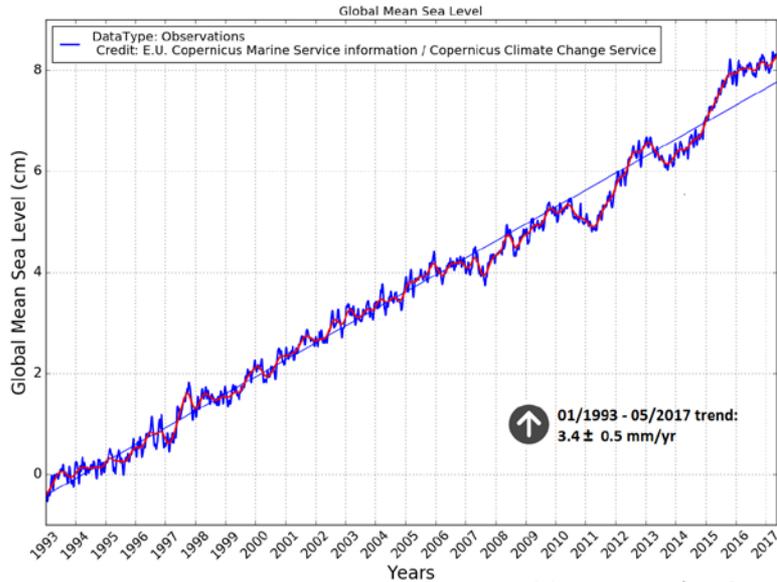
SEA ICE

SIE Arctic
1993-2016

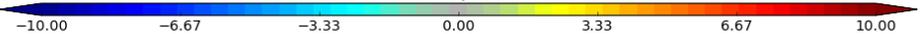
SIE Antarctic
1993-2016

SIE Arctic
1979-2016

Copernicus Marine Service Ocean Monitoring Indicators: Sea Level

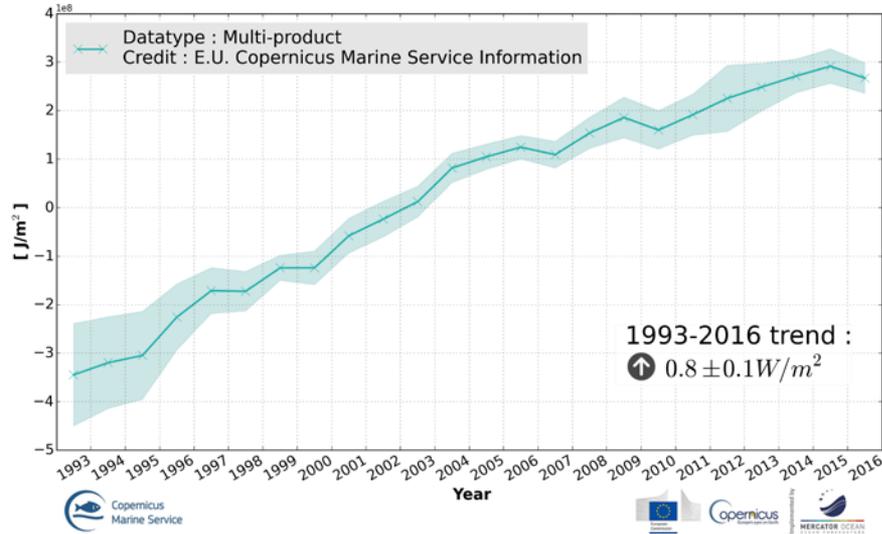


Data Type: Observations
Credit: E.U. Copernicus Marine Service information / Copernicus Climate Change Service

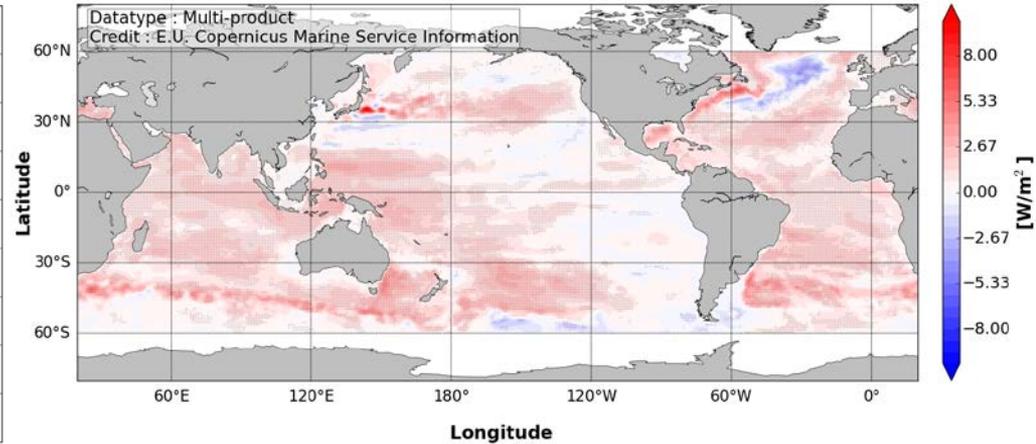


Copernicus Marine Service Ocean Monitoring Indicators: Ocean Heat

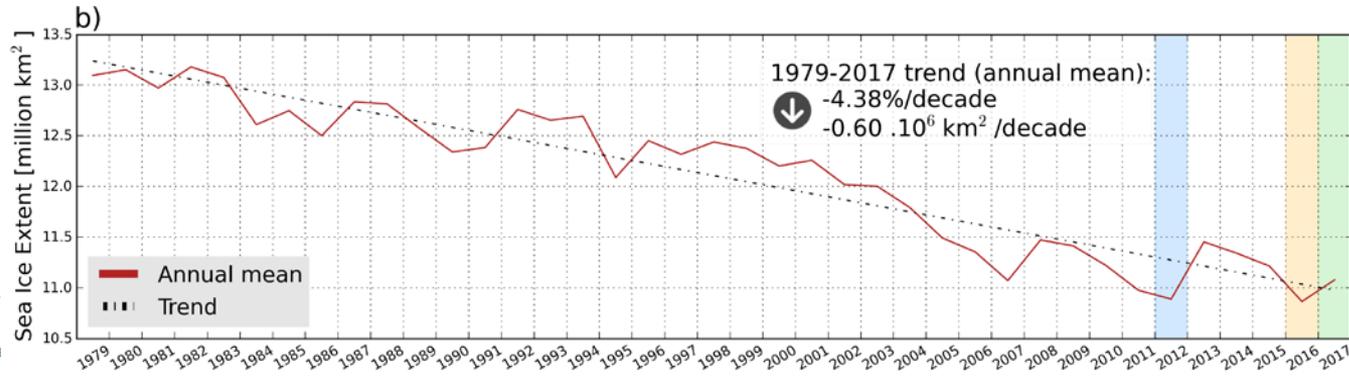
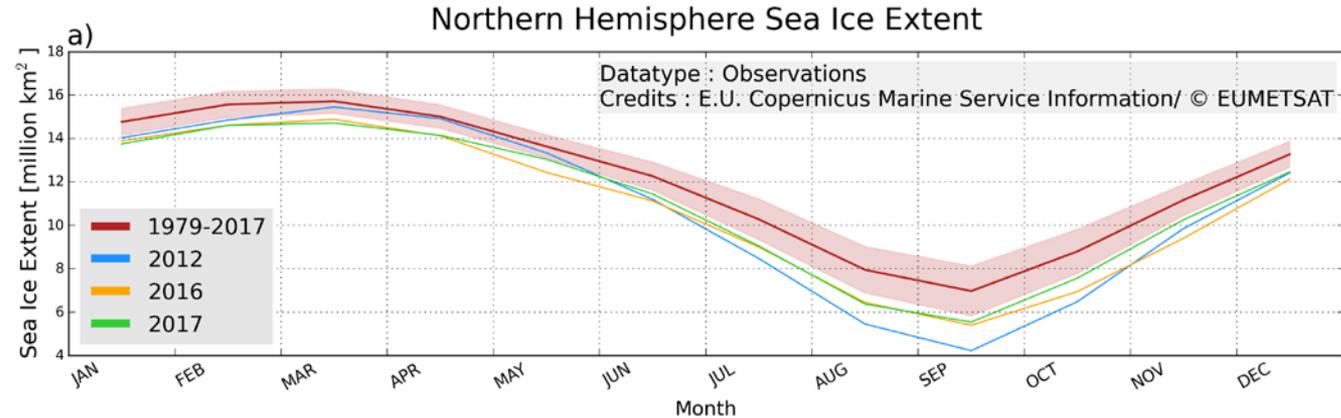
Global Ocean Heat Content (0-700m)



Global Ocean Heat Content trends 1993-2016 (0-700m)



Copernicus Marine Service Ocean Monitoring Indicators: Sea Ice



THANK YOU !

Knowing more about :

the program

the service

the entrusted entity

copernicus.eu

marine.copernicus.eu

mercator-ocean.eu



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