Monitoreo de Océanos

March 22nd

Using the Copernicus Marine Data Services for Implementing Operational Ocean Monitoring and Forecasting Systems

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The importance of the Ocean:

Some relevant figures

70% of the Earth surface

50x absorption of carbon compared to atmosphere

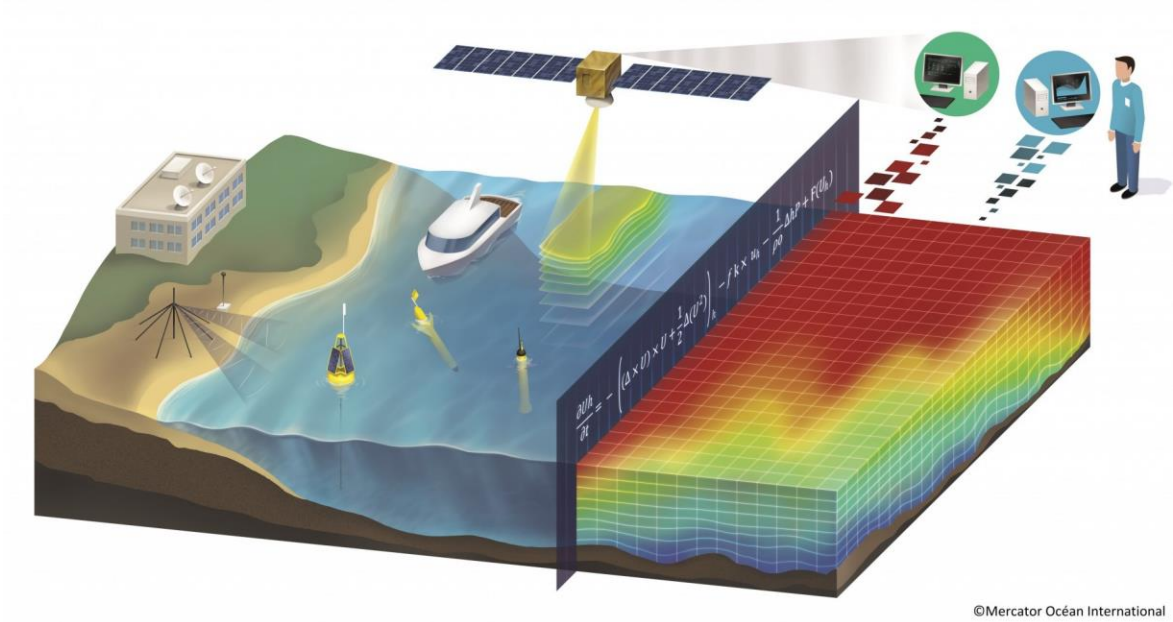
40% of the world population concentrated on coastlines

15.7% fish protein consumed worldwide

90% of the world's trade

Ocean monitoring: Observations are needed…

But we need to integrate into a forecasting service



TAC Thematic Data Assembly Centers

- ICE TAC
- WIND TAC
- SL TAC
- INS TAC
- OC TAC
- SST TAC
- WAVE TAC
- MULTI OBS TAC

MFC Monitoring and Forecasting Centers

- GLO MFC
- ARC MFC
- BAL MFC
- NWS MFC
- IBI MFC
- MED MFC
- BS MFC

Present: observations

↓

Mathematics and discretization

↓

Forecast on a grid

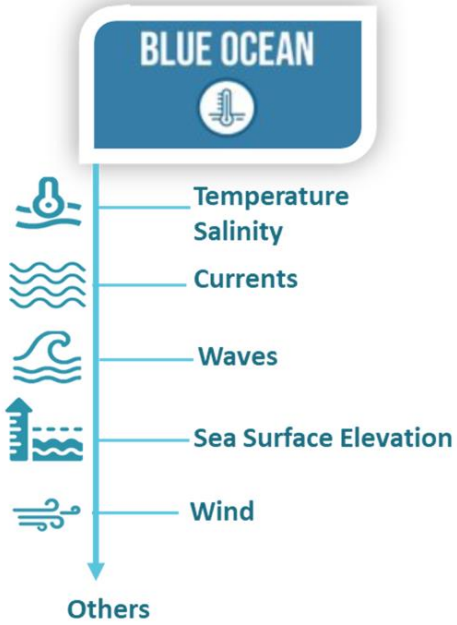
Copernicus Marine service:

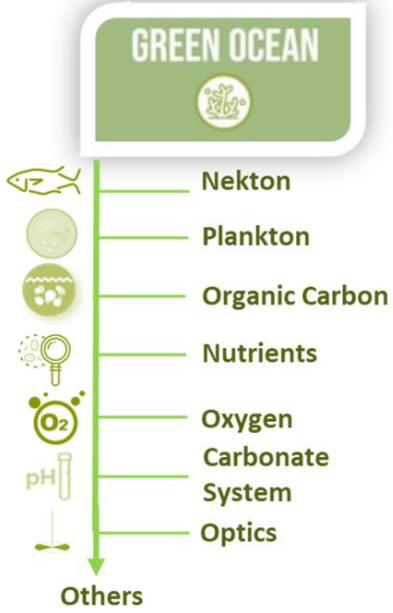
The European response to the challenge

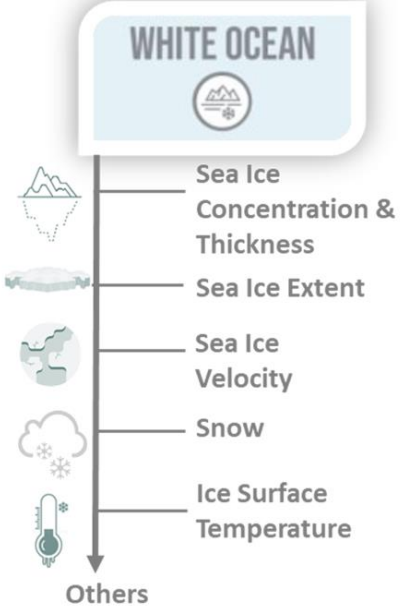
MULTI-YEAR
10 to 45 years

REAL-TIME
Daily, hourly

FORECAST
2 to 10 days







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

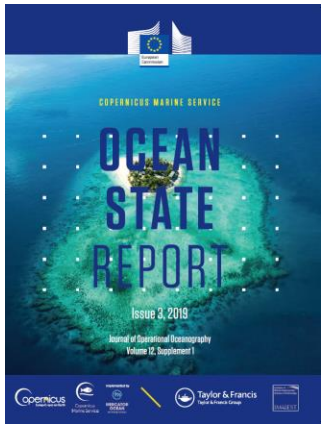
Open and Free access

One example at the regional scale:

The Northeast Atlantic regional service

COPERNICUS OCEAN STATE REPORT:

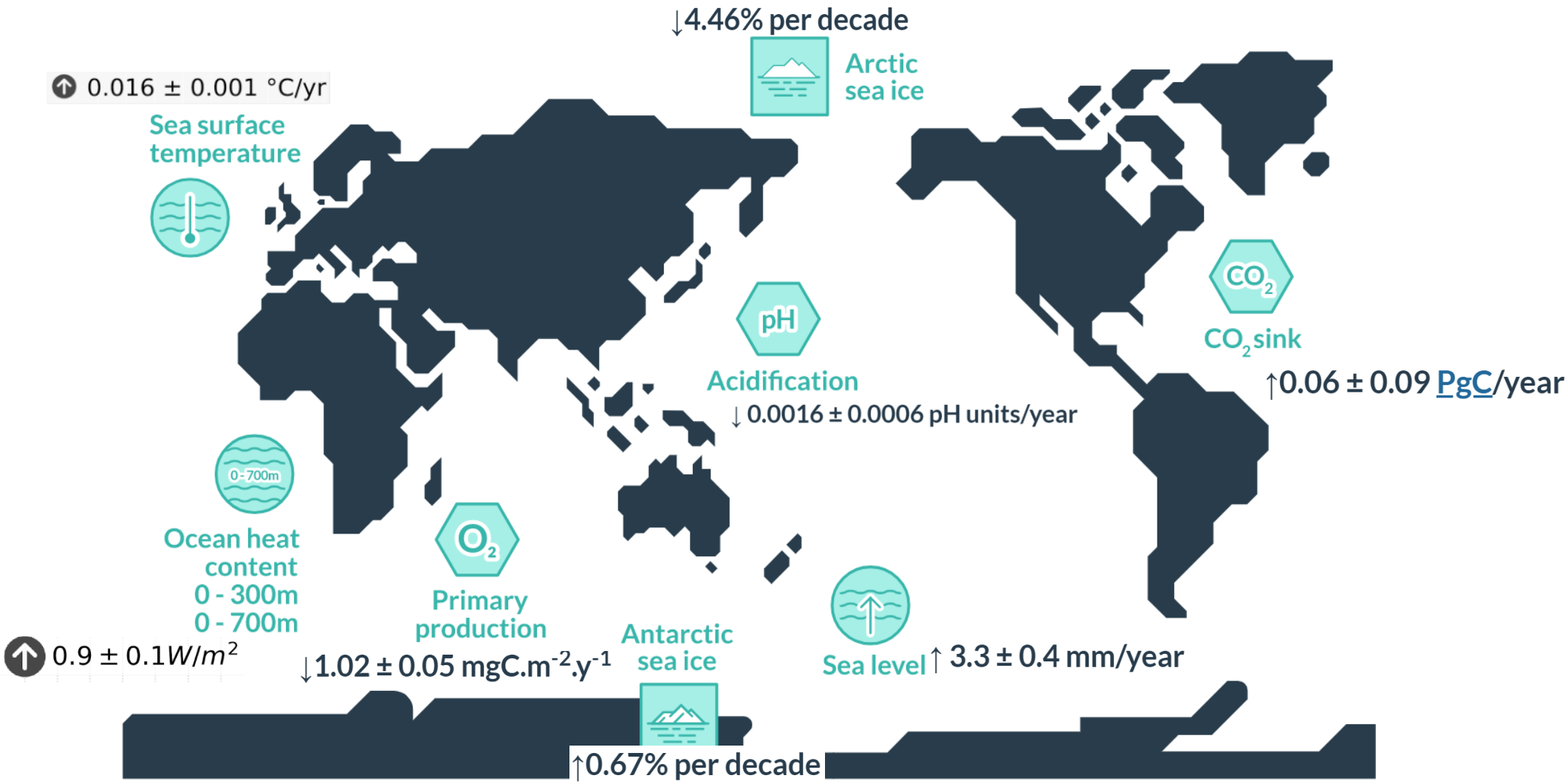
Monitoring the status of the ocean



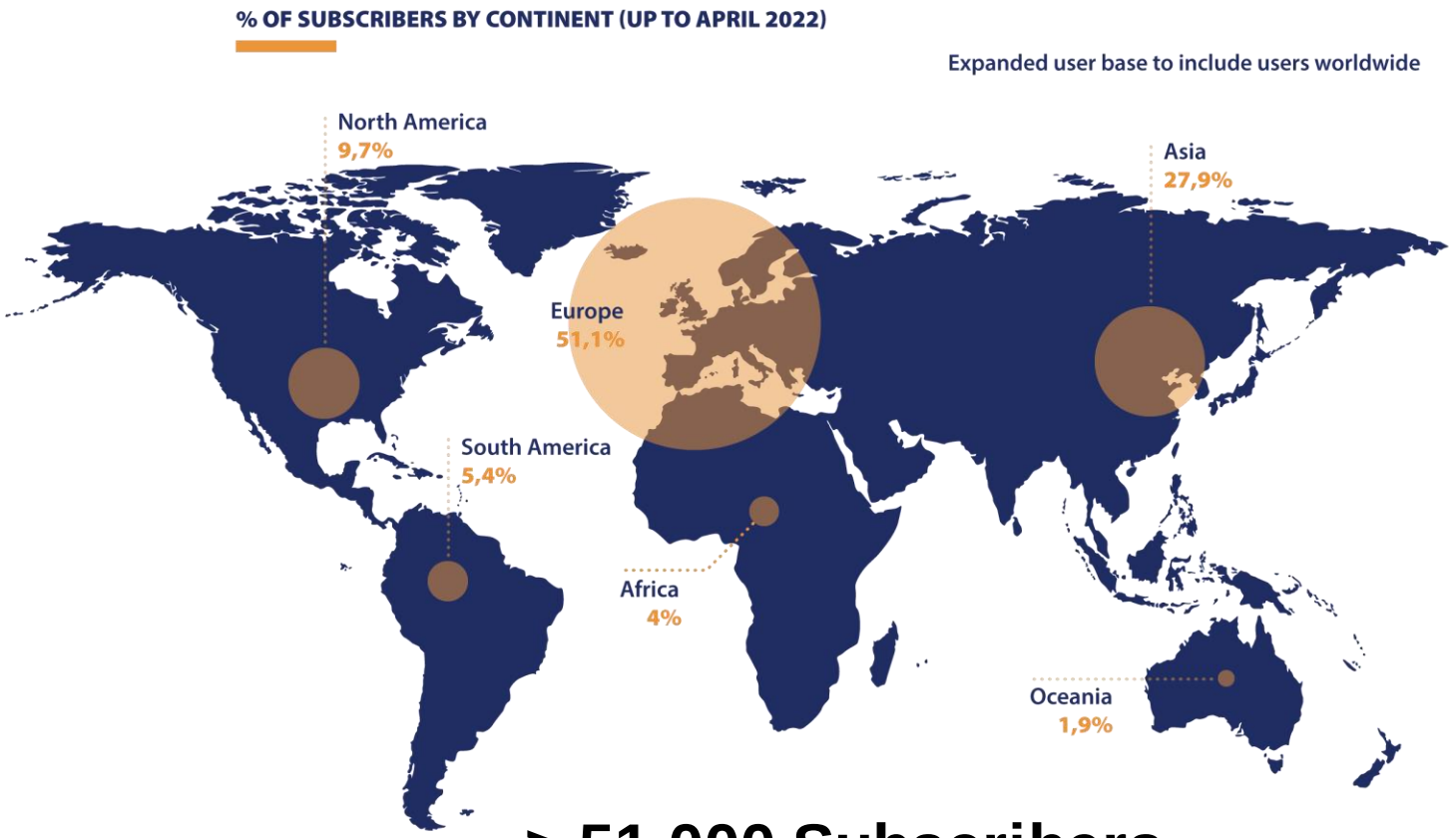
- Launched in 2015, continued provision of Copernicus Ocean Reporting
- Collaboration of more than 150 scientific experts
- Collaboration of more than 25 European institutions
- Already in the 7th cycle

http://marine.copernicus.eu/science-learning/ocean-state-report/

OCEAN CLIMATE MONITORING

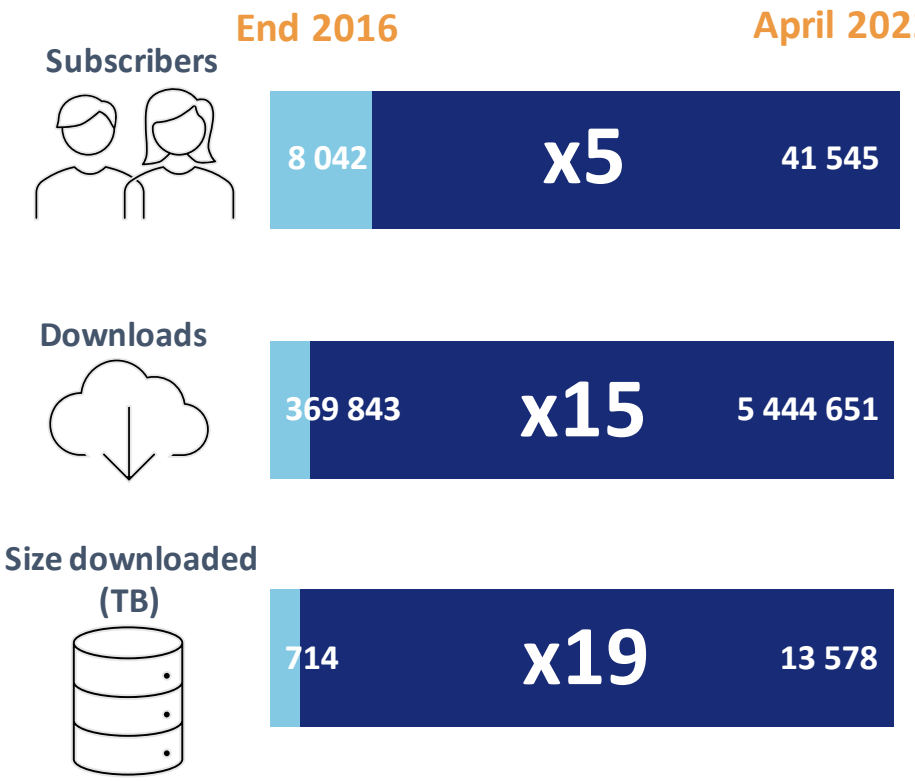


USERS IN NUMBERS



> 51 000 Subscribers

User activity



Users:

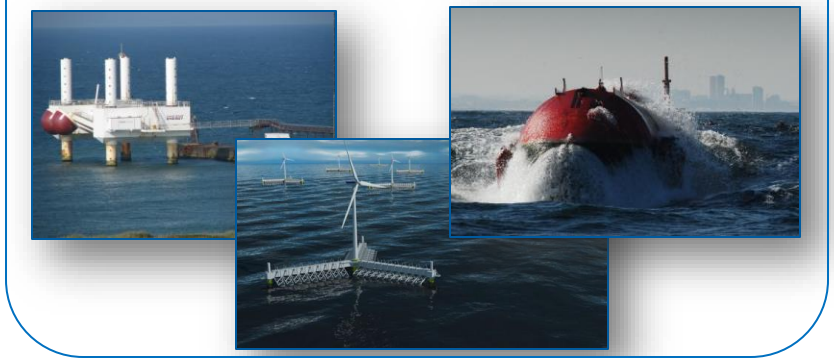
Some examples

Aquaculture & fisheries

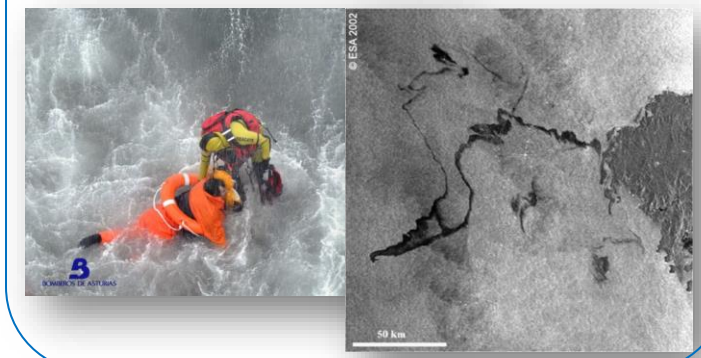
Aids to navigation, and ship routing

Tourism & maritime sports

Energy



Maritime safety, search and rescue. Oil Spill.



Incomming future:

Digital twins

Incoming future:

The OceanPrediction Decade Collaborative center voyage

2020: THE OCEAN FORECAST
WE HAVE

- Useful but partially disconnected services
- Poor presence in developing countries

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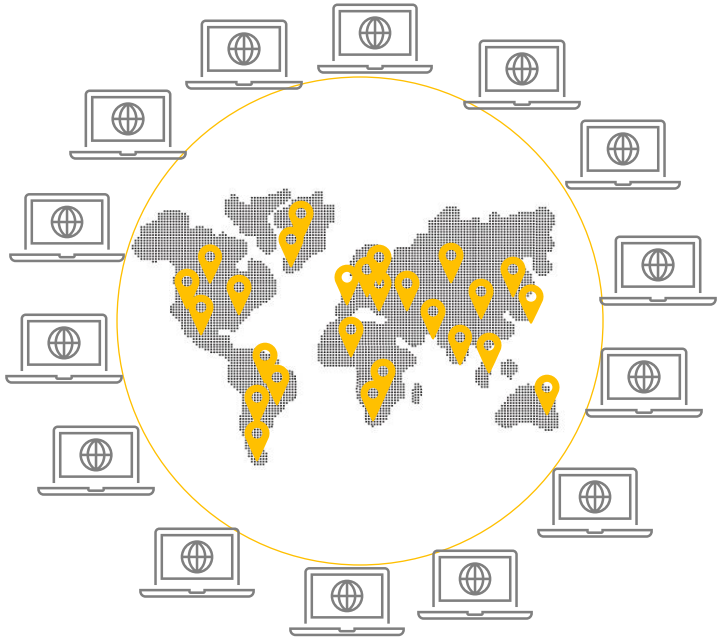
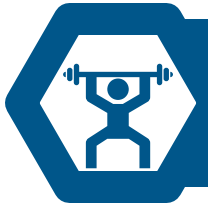
2030: THE OCEAN FORECAST
WE WANT



- Connected community and services
- Many robust systems worldwide

Conclusions

Service answering a real need 2015



Continuous evolution though a rigorous service evolution operational process

A Growing family of users, providing high resolution and tailored solutions for problems