EuroGOOS
European Global Ocean Observing System

Operational marine data exchange in Europe and links to global Systems

Erik Buch
EuroGOOS

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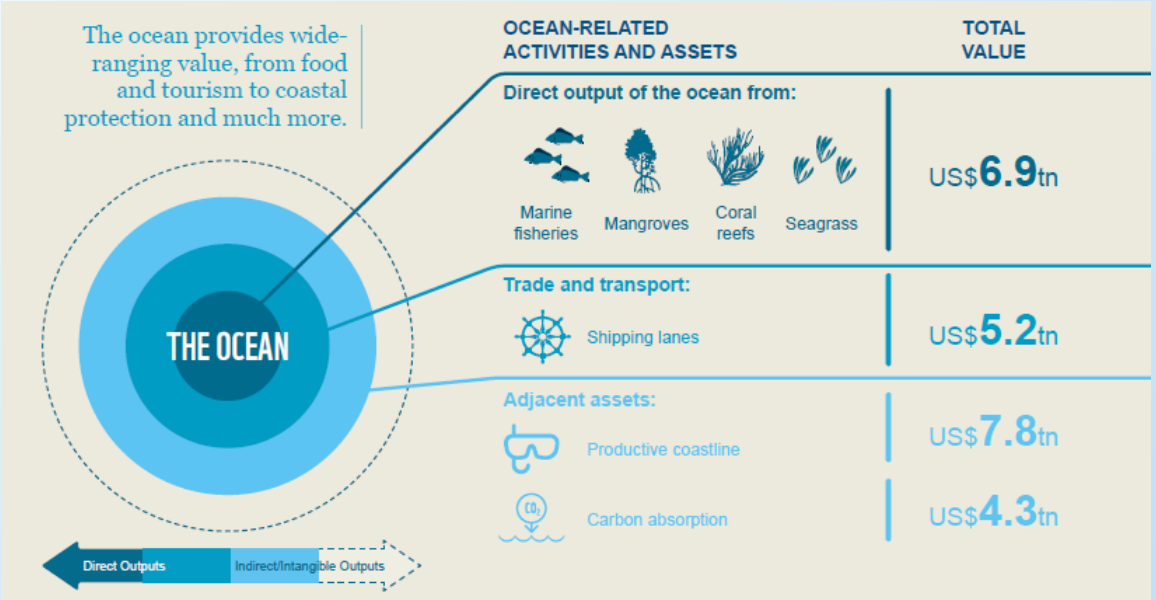
Ocean Economy



- Ocean Economy worth 24 Trillion USD – seventh largest economy in the world
  - Food
  - Energy
  - Raw materials
  - Transport
  - Commerce
  - Tourism

http://wwfintcampaigns.s3.amazonaws.com/ocean/media/RevivingOceanEconomy-REPORT-lowres.pdf

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Call to Action

Ocean health is declining due to local stresses such as habitat destruction, overfishing and pollution as well as rapid and unprecedented changes in ocean temperature, water level and acidity

The message is clear:

The ocean is a major contributor to the global economy, but we are running down our ocean assets and will push the ocean economy into the red if we do not respond to this crisis with bold and decisive actions as an international community. We must do more, much more, to protect our ocean asset base. A prudent treasurer or CEO would not wait until the next financial report to correct course. They would act now

It calls for global leadership

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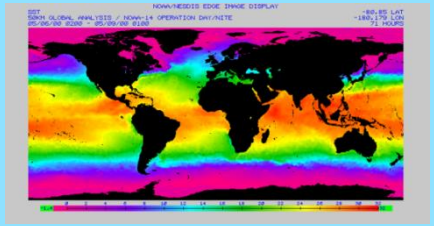
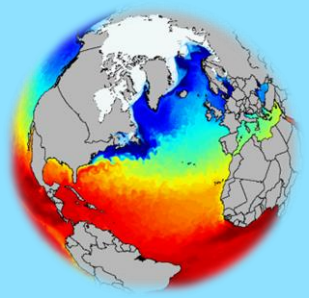
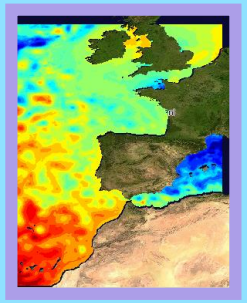
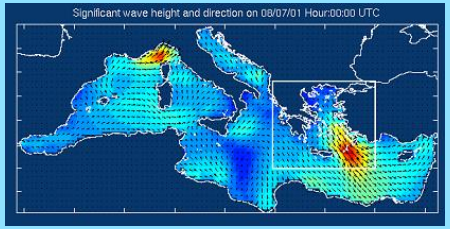
Operational Oceanography

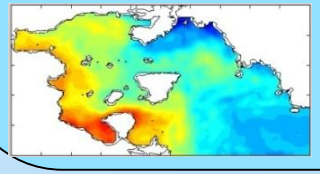
Observations



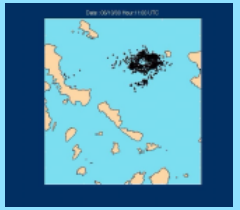



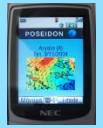
Processing & Modeling



Services







End Users

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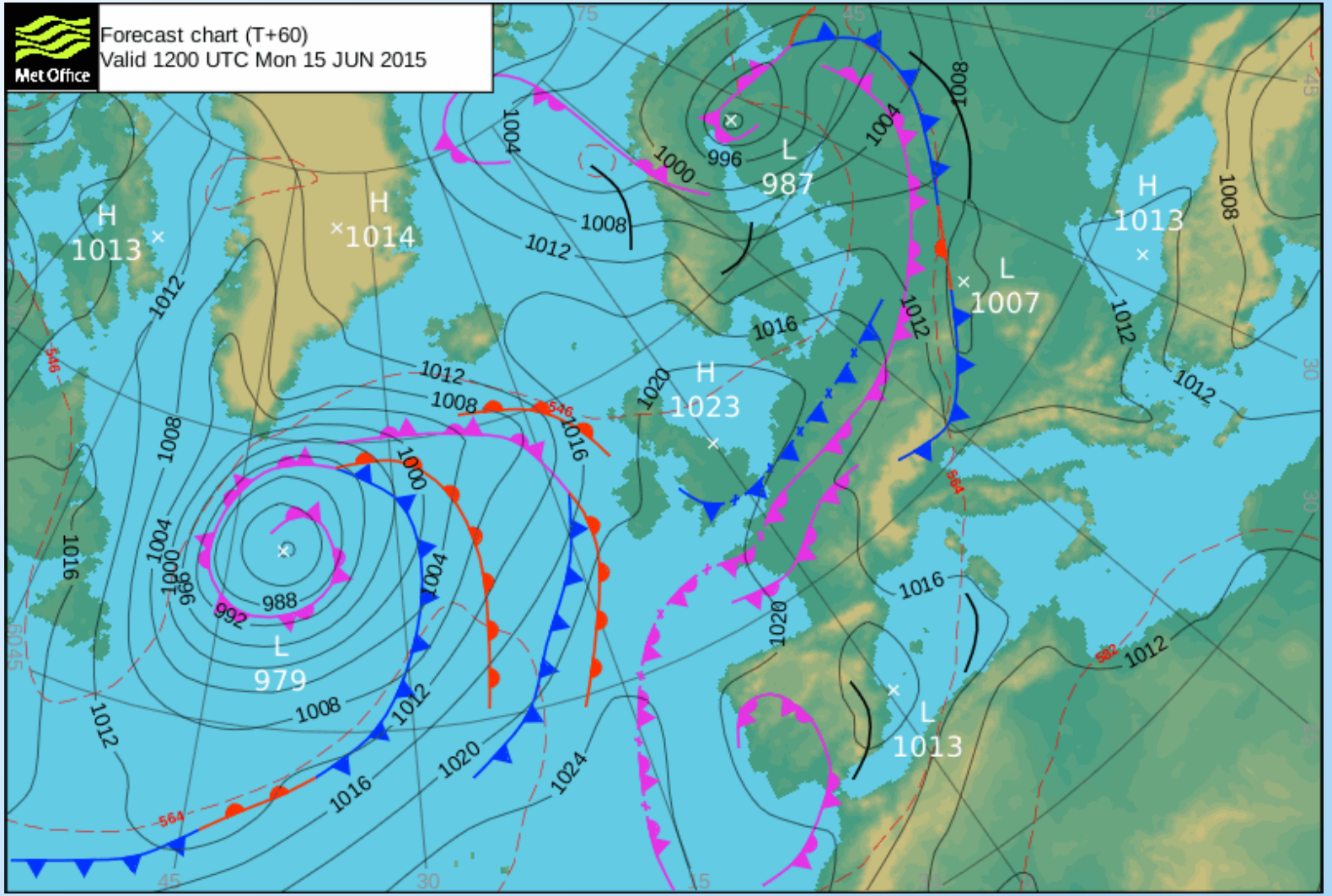
International cooperation essential



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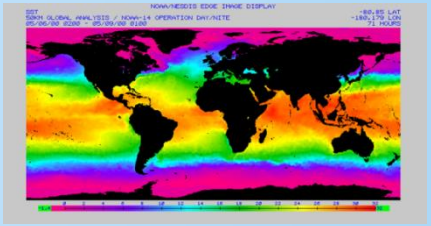
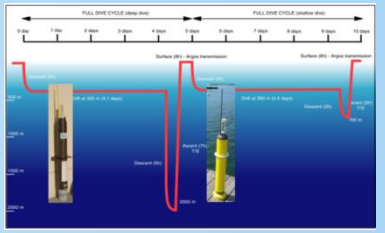
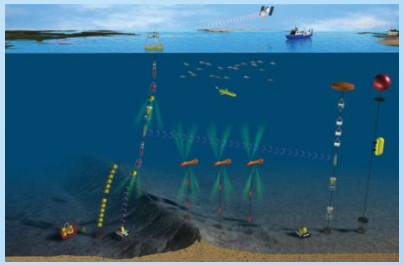
Ocean Observations





- Technologically complex and high cost infrastructures. Variety of platforms/technologies
  - Remote sensing (satellite and coastal radars)
  - Drifting-profiling floats
  - Fixed moorings (time-series stations)
  - Ships of opportunity
  - Gliders
  - Research vessels
  - Coastal networks



- Multi – platform, multi-parametric, observatory approach

- Diversity of operators (national, local, research, …..) & funding mechanisms

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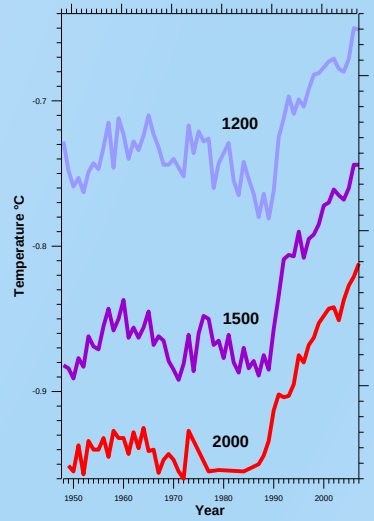
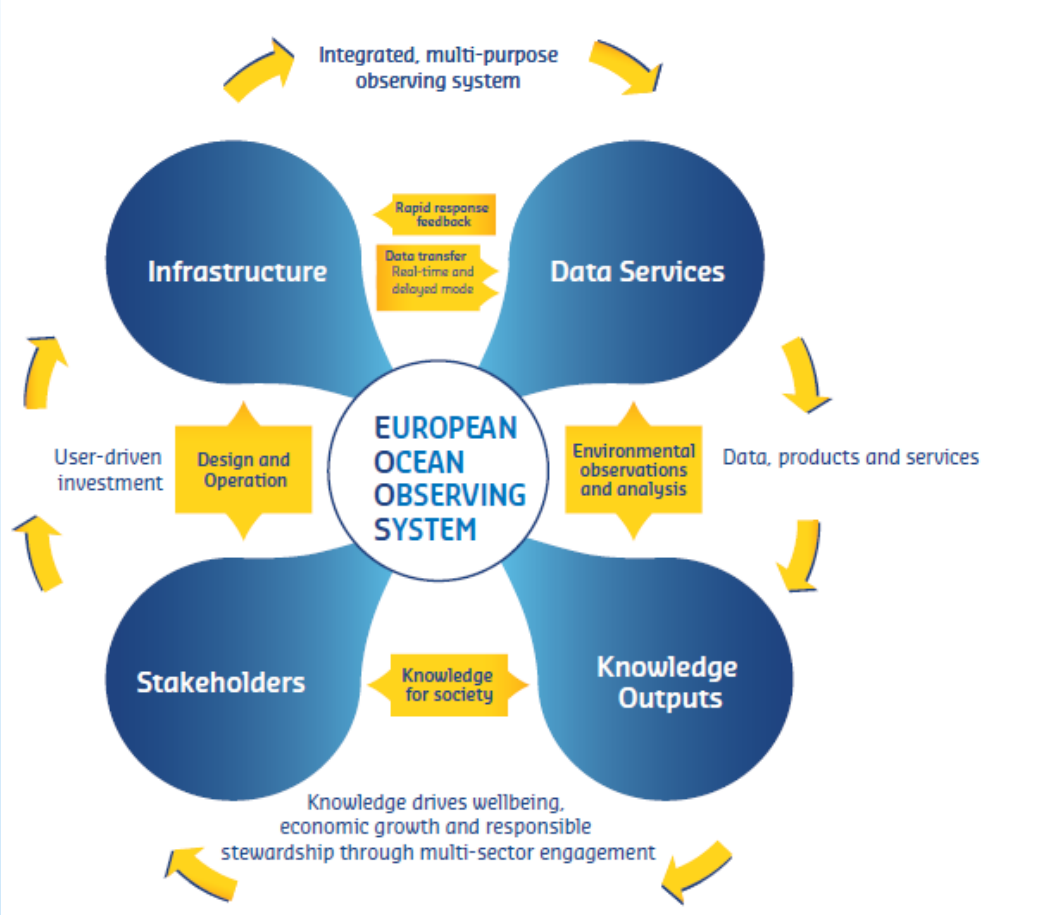
What is missing ? (gaps)

- **Spatial gaps**
  - horizontal – SE European seas;
  - vertical – deep sea is under-sampled;
- **Temporal gaps**
  - few complete time series;
- **Parameter gaps**
  - biochemical; sensors are now available;
- **Long term commitments**
  - more than 70% based on research funding;
- **Integrated monitoring strategy at European level**
  - Reduce overlaps; maximize synergies and benefits



European Ocean Observing System EOOS



- Fit for purpose
  - Societal needs –not national or personal priorities
- Full system – instruments to data services
- Economy
  - New investments
  - Re-design of existing network
- Governance
- Avoid duplications

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Structure of the Framework

Issues (Scientific and societal drivers)

Requirement

What to Measure

Essential Ocean Variables

Observations Deployment and Maintenance

Data Assembly

Data/Info. Products

Issues Impact

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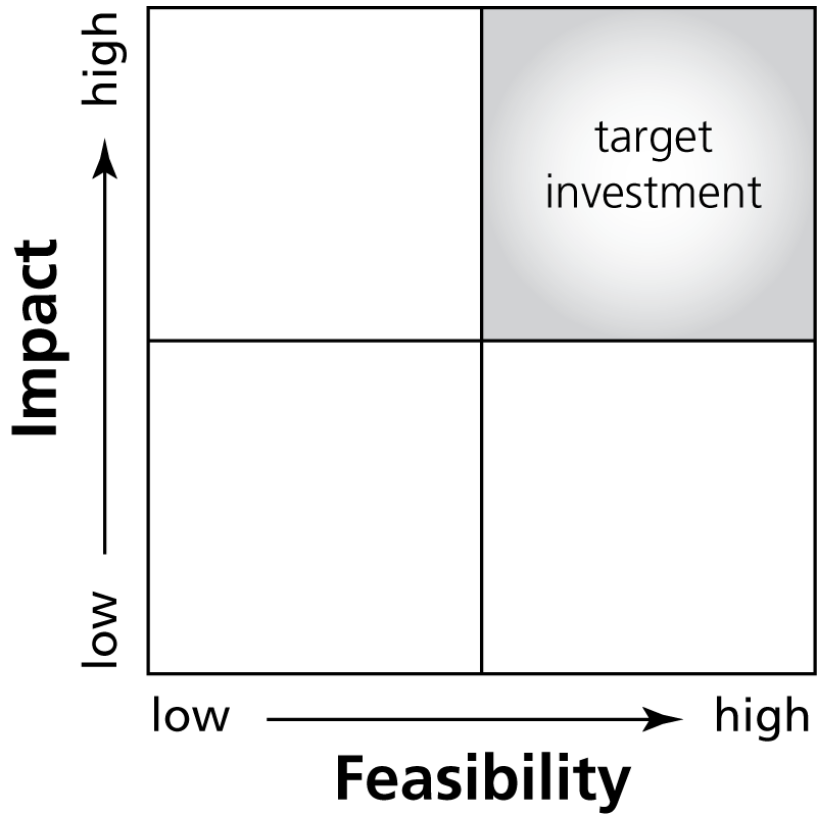
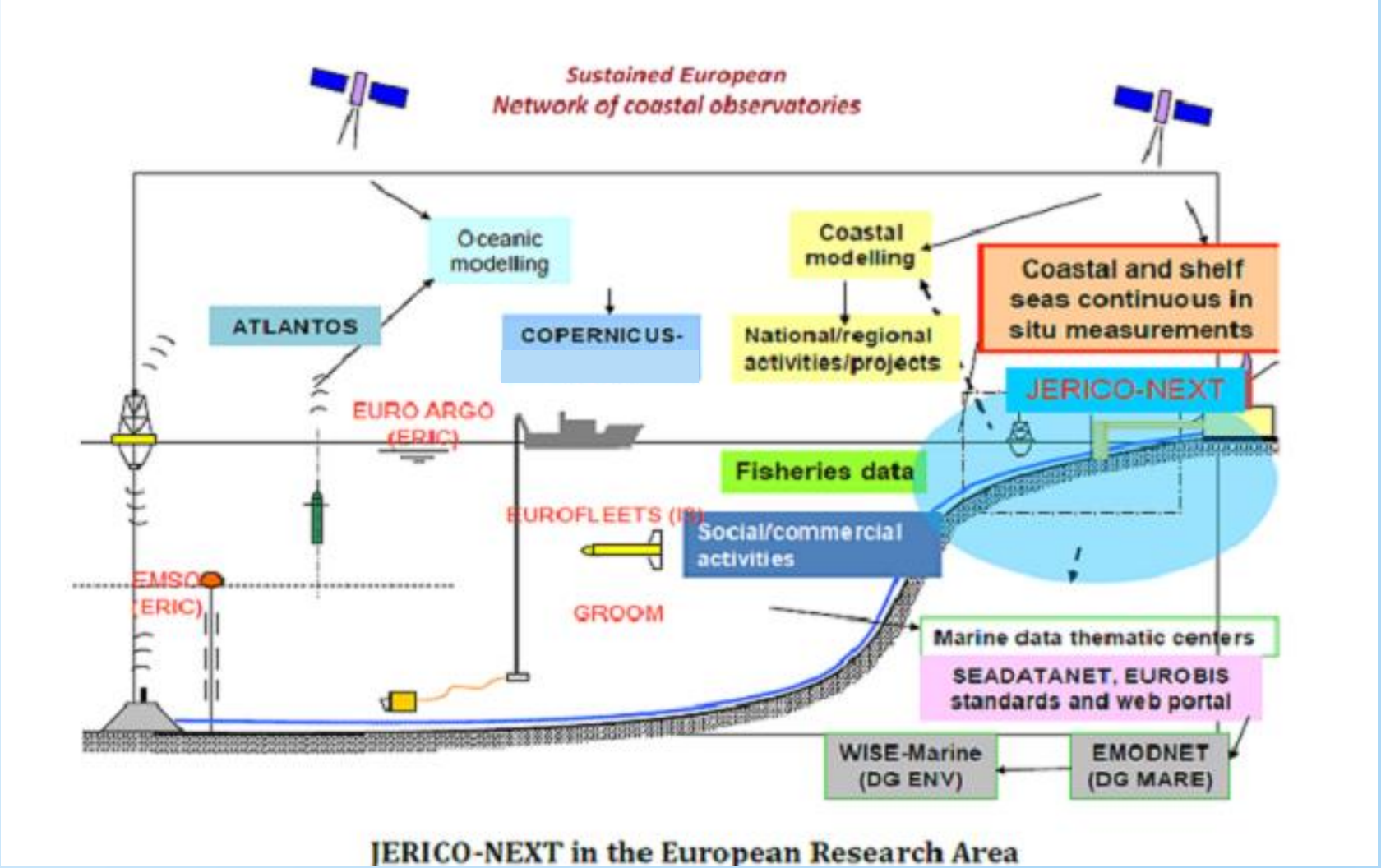
Essential Ocean Variables

Driven by requirements, negotiated with feasibility



- We cannot measure everything, nor do we need to
- Including new elements of the system is driven by requirements, negotiated with feasibility
- Allows for innovation in the observing system over time

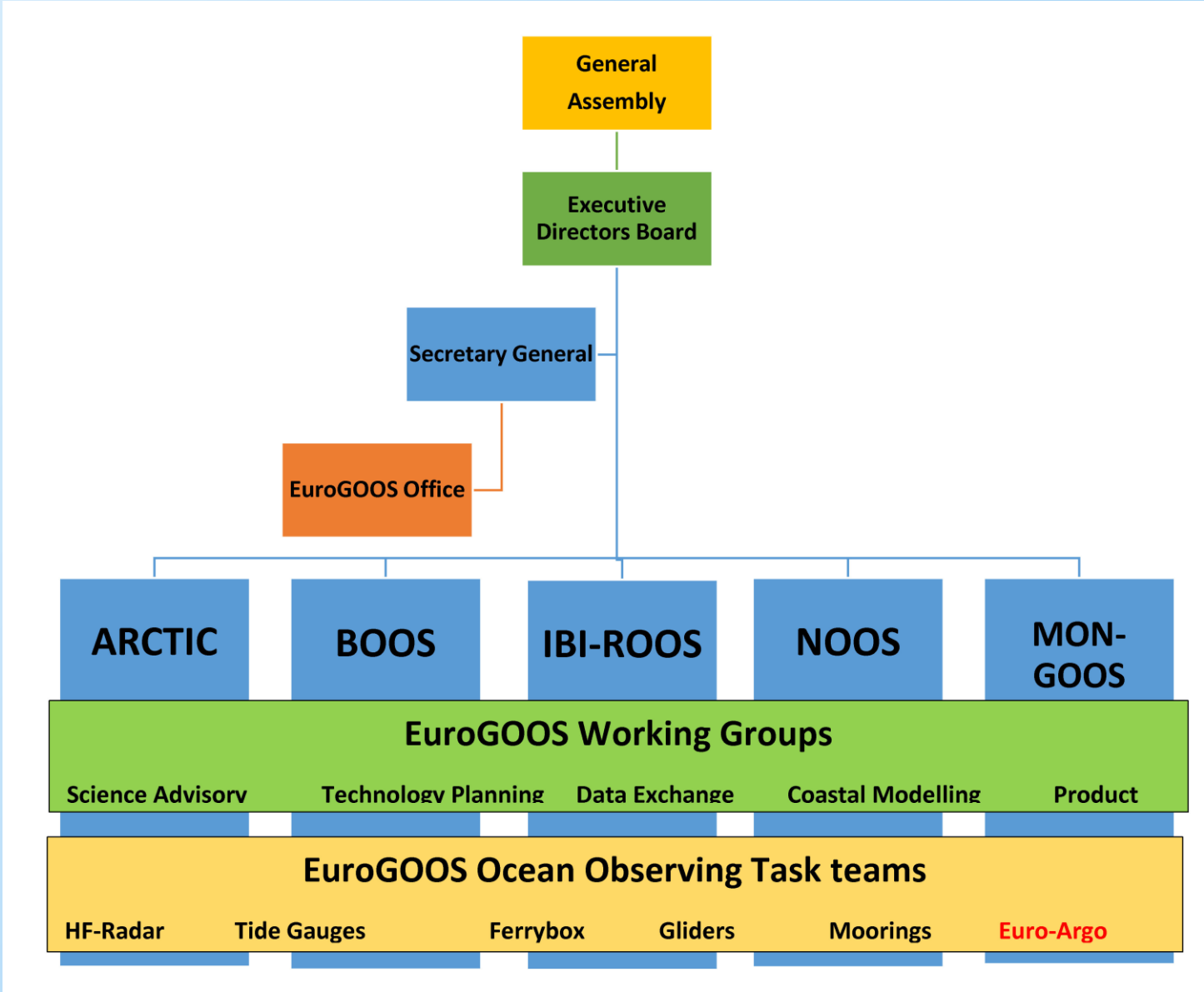


JERICO-NEXT in the European Research Area

EuroGOOS
European Global Ocean Observing System

Structure

- ✓ EuroGOOS was based (1994-2012) on an interagency MoU but in 2013 it was transformed to a legal entity: an International Non Profit Association under the Belgian law (AISBL)
- ✓ Strategies and actions are decided by an General Assemby and the Executive Directors
- ✓ Actions are carried out by the EuroGOOS Office, the Board, the Chair and the members/partners.
- ✓ Development of O.O. systems is carried out by the Regional Systems
- ✓ Working groups produce strategies, priorities and standards for O.O.

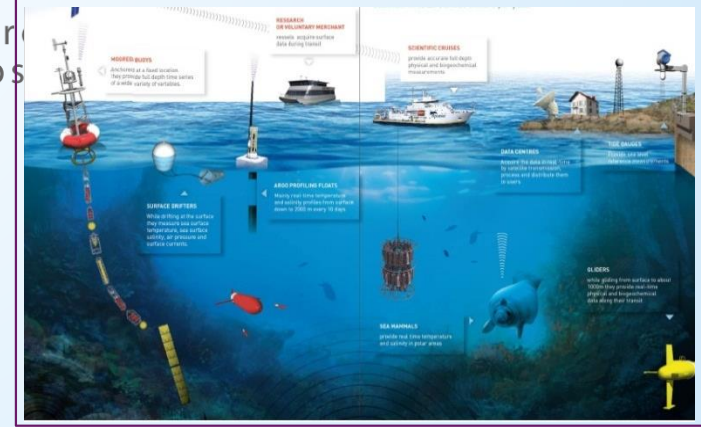


EuroGOOS

jcomm OCEANOGRAPHY & MARINE METEOROLOGY

&

EuroGOOS ROOSes



Data Mgt by Platform Owner Data Center

Data Collection , Processing Delayed mode Correction

Users

Users

Data Integration, Assessment and distribution for Operational Use and Research

Near Real Time + Historical

Hist… al

SeaDataNet network of NODCs

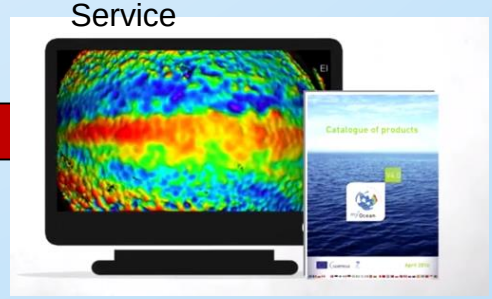
INS TAC/ROOS

Copernicus IN SITU TAC - CMEMS

Unlock

Data Discovery, Archiving and Distribution via NODCs

Copernicus Marine Service



Users

EMODnet European Marine Observation and Data Network Portal

Data Discovery and Viewing , and Download

Maritime Users

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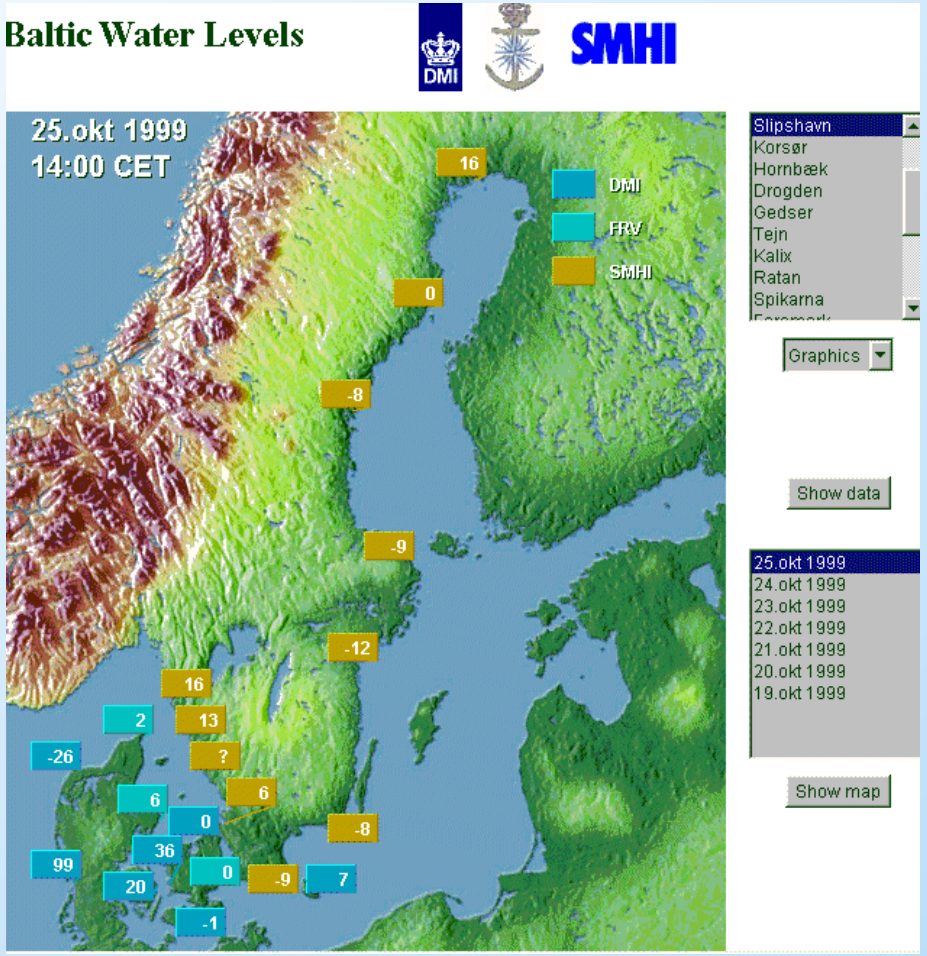
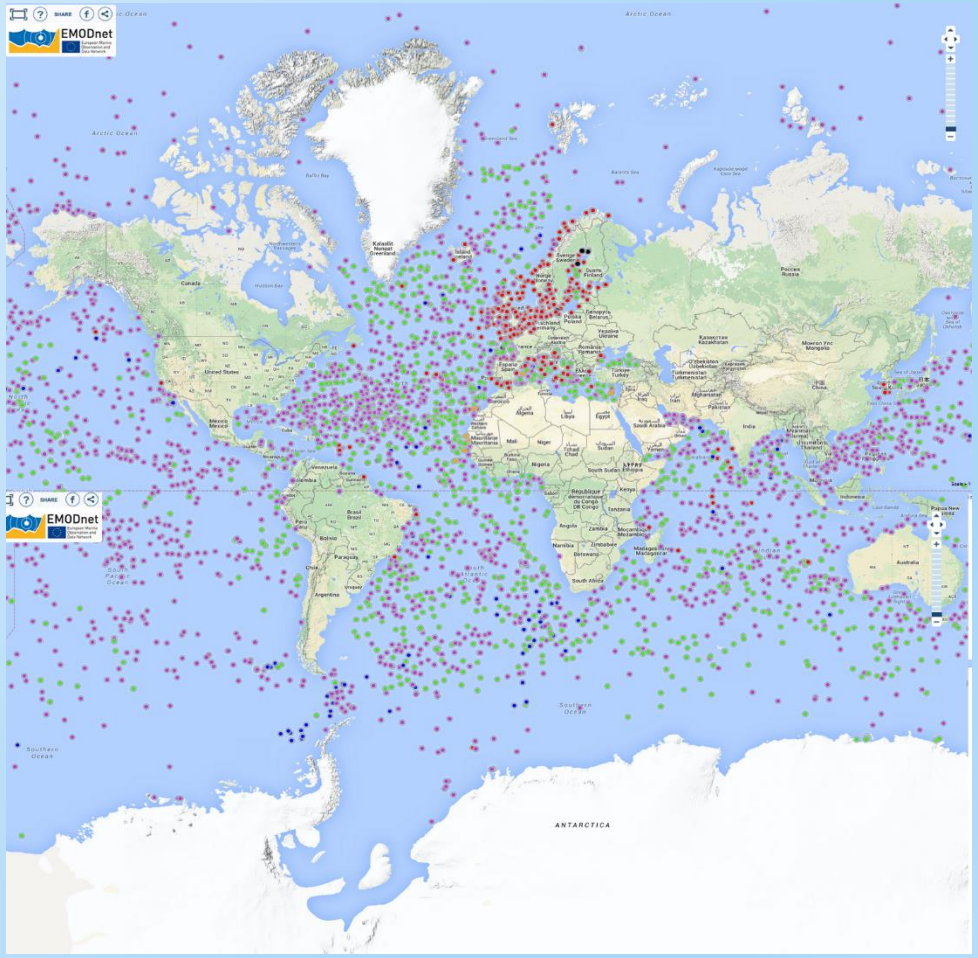
Development in Europe

EMODNET Physics
June 2015





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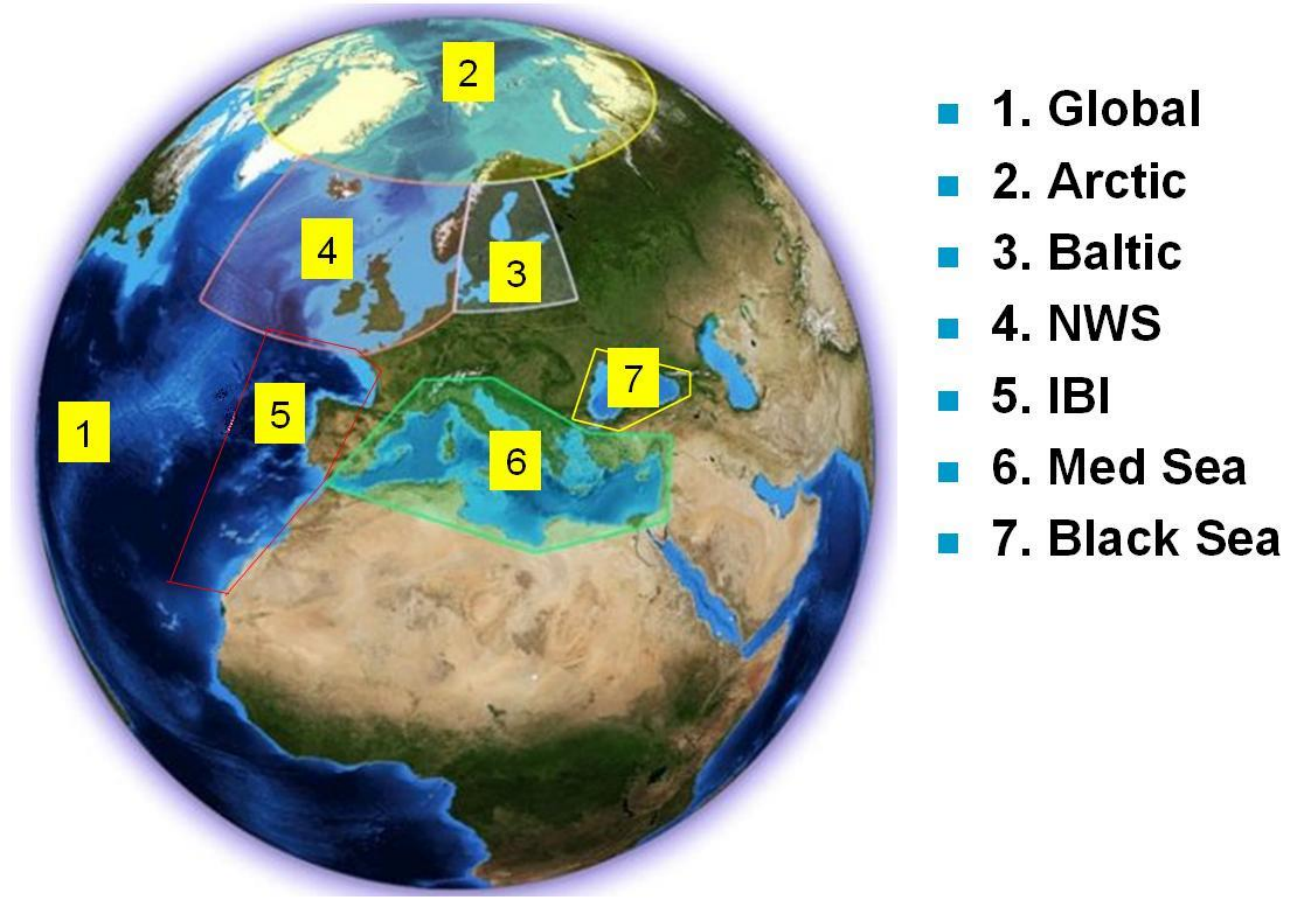
Copernicus Marine service

6 European Seas + Global Ocean



http://marine.copernicus.eu/web/69-myocean-interactive-catalogue.php

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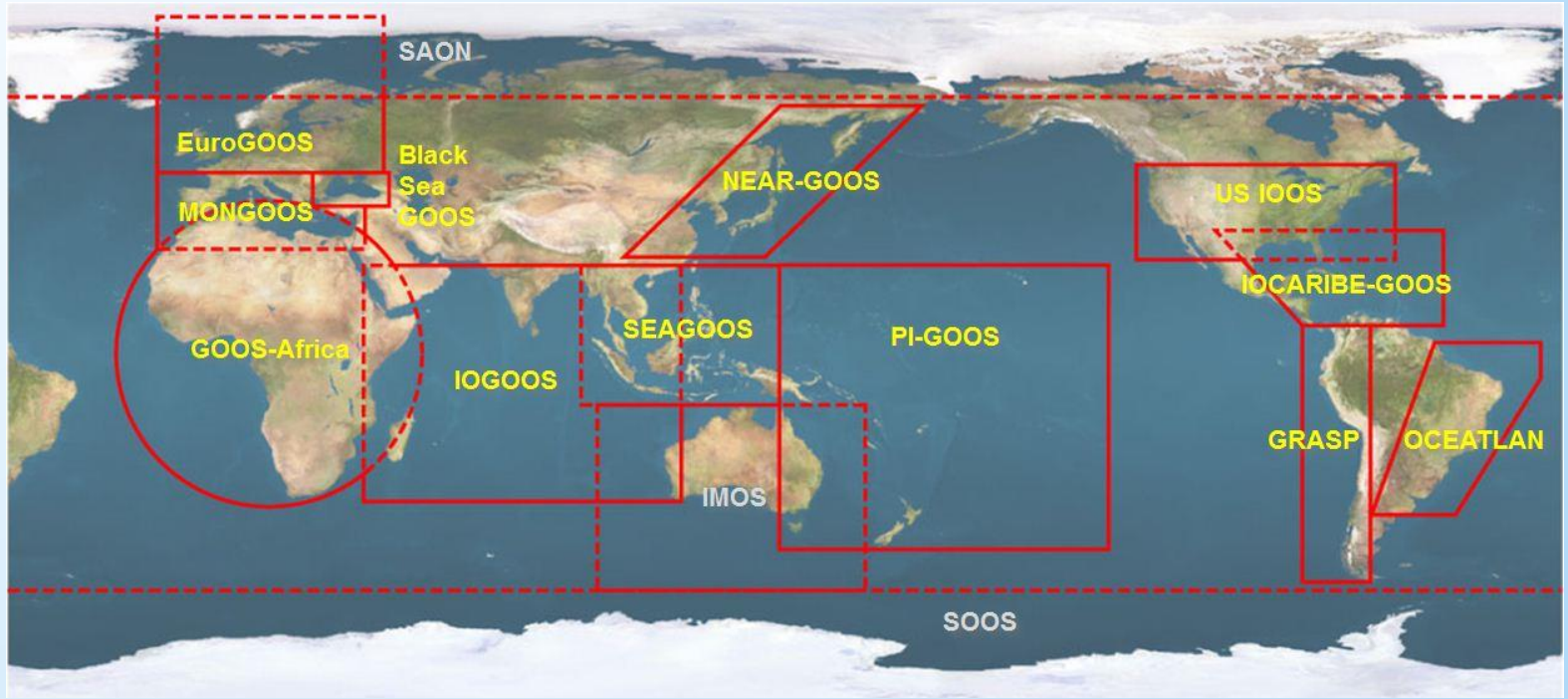
Global Ocean Observing System GOOS

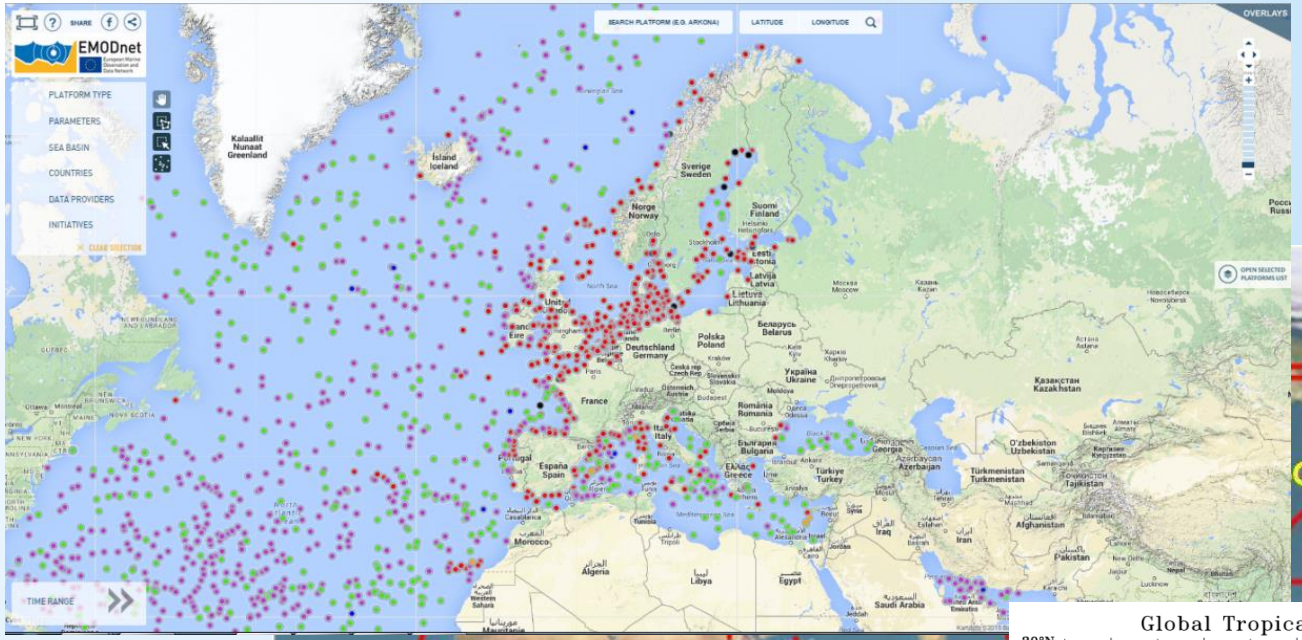


13 GOOS Regional Alliances (GRA)

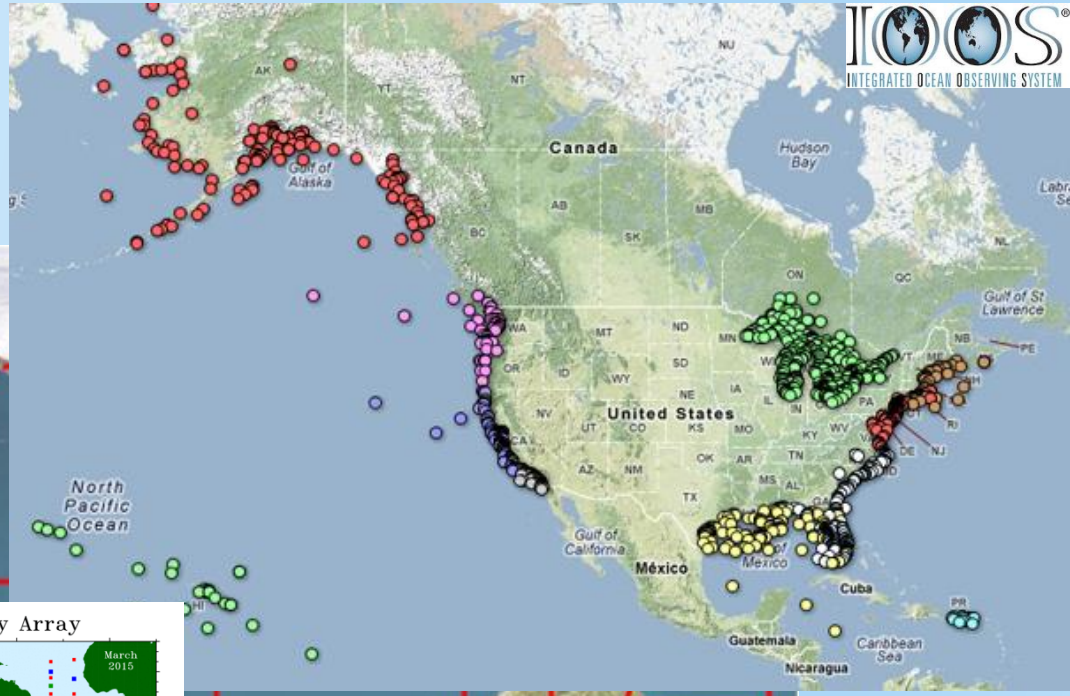
GOOS establishes a permanent global system for observations, modelling and analysis of marine and ocean variables to support operational ocean services worldwide

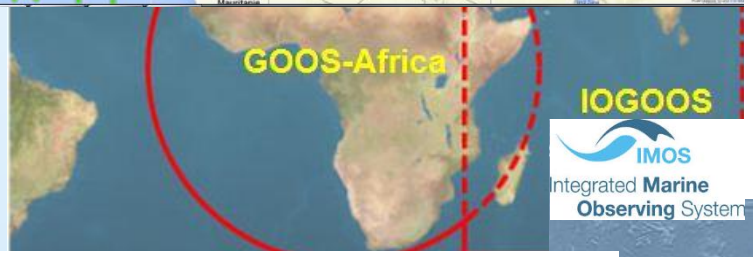
GOOS is a platform for:

- International cooperation for sustained observations of the oceans
- Generation of oceanographic products and services
- Interaction between research, operational, and user communities

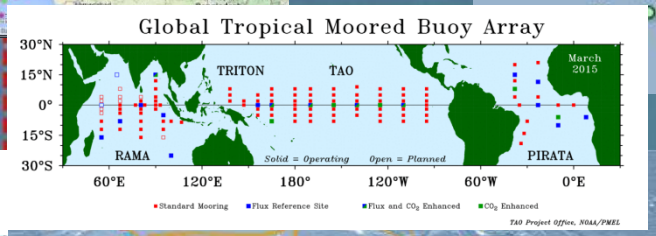

EMODnet
PLATFORM TYPE
PARAMETERS
SEA BASIN
COUNTRIES
DATA PROVIDERS
INITIATIVES
TIME RANGE


GOOS


IOOS
INTEGRATED OCEAN OBSERVING SYSTEM
Canada
United States
México
North Pacific Ocean
Gulf of Alaska
Hudson Bay
Gulf of California
Gulf of Mexico
Gulf of St Lawrence
Cuba
Guatemala
Nicaragua
Caribbean Sea

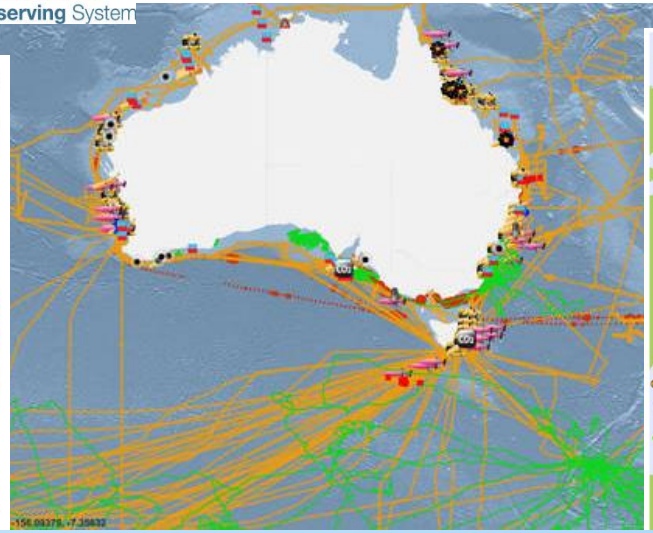

GOOS-Africa
IOGOOS

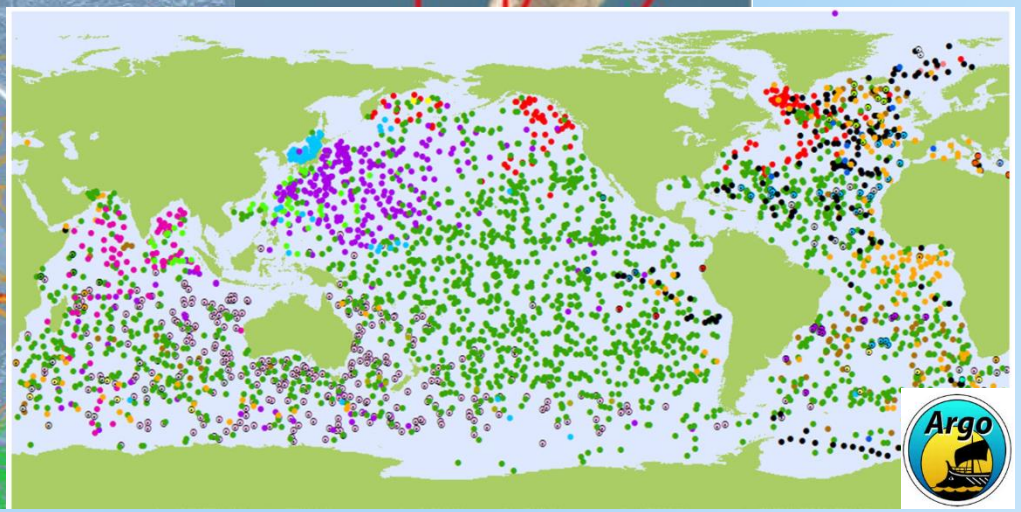
IMOS
Integrated Marine Observing System


Global Tropical Moored Buoy Array
30°N
15°N
0°
15°S
30°S
TRITON
TAO
March 2015
RAMA
PIRATA
Solid = Operating
Open = Planned
60°E
120°E
180°
120°W
60°W
0°E
Standard Mooring
Flux Reference Site
Flux and CO2 Enhanced
CO2 Enhanced
TAO Project Office, NOAA/PMEL


GRASP
OCEATLAN


GLOSS
GLOBAL SEA LEVEL OBSERVING SYSTEM




Argo

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Future Global Perspective

- Data from all GRA's must be integrated
- Data must easily accessible
  - User friendly overview
  - Easy download facility

- Observation network
  - Right parameters at the right time and at the right place
  - Gap analysis
  - Strategy for upgrade