



European Ocean Observing System for Digital Twins of the Ocean

Inga Lips
EuroGOOS

International
Hydrographic
Organization

IHO



Organisation
Hydrographique
Internationale

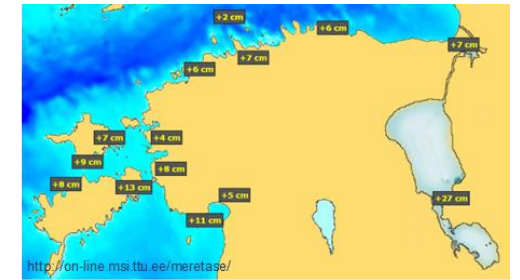
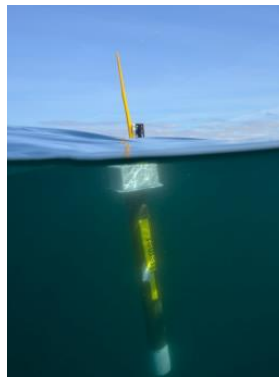
OBSERVATIONS

National level → Trigger → Information/Assessment

Environmental Agencies
Research Institutes
Universities
Local environment centres
NGOs
Private sector
Citizens

National priorities
European Policies
Research interests
Private sector needs
International commitments

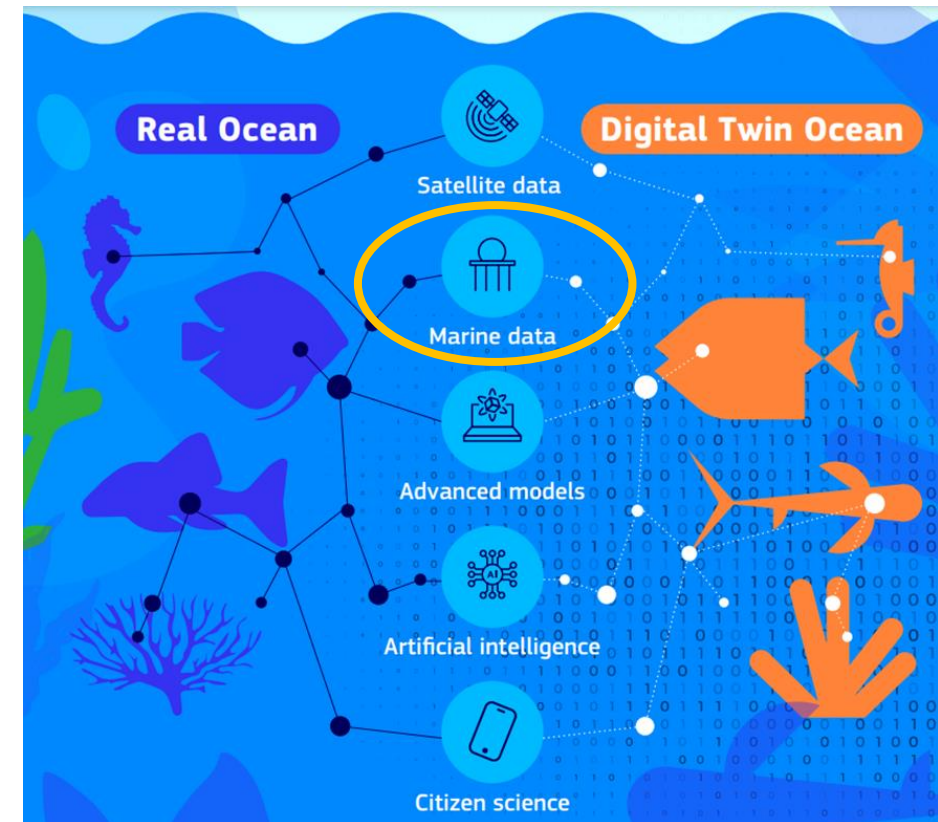
Public
Private
Academia
Governments
Decision-makers



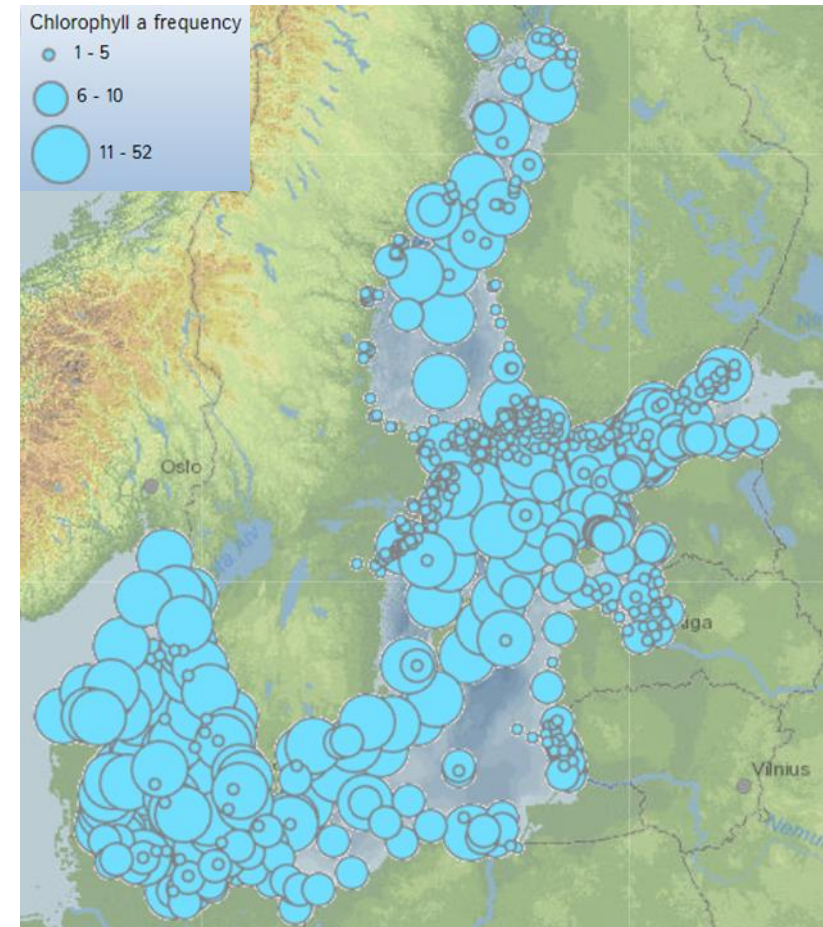
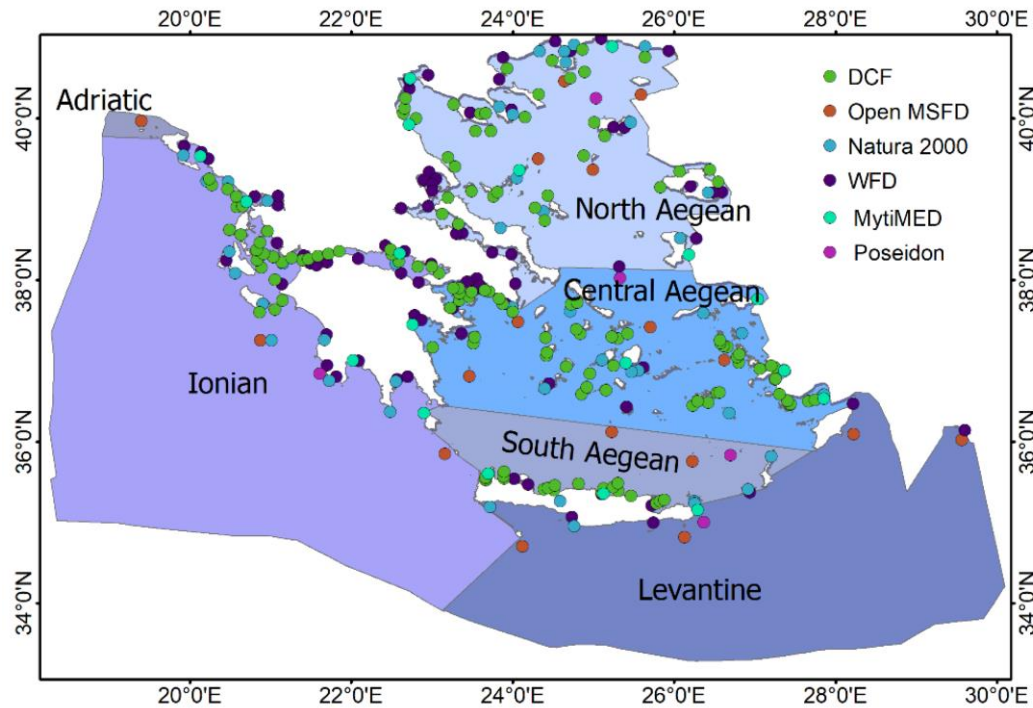
European Digital Twin of the Ocean

A digital representation of ocean processes

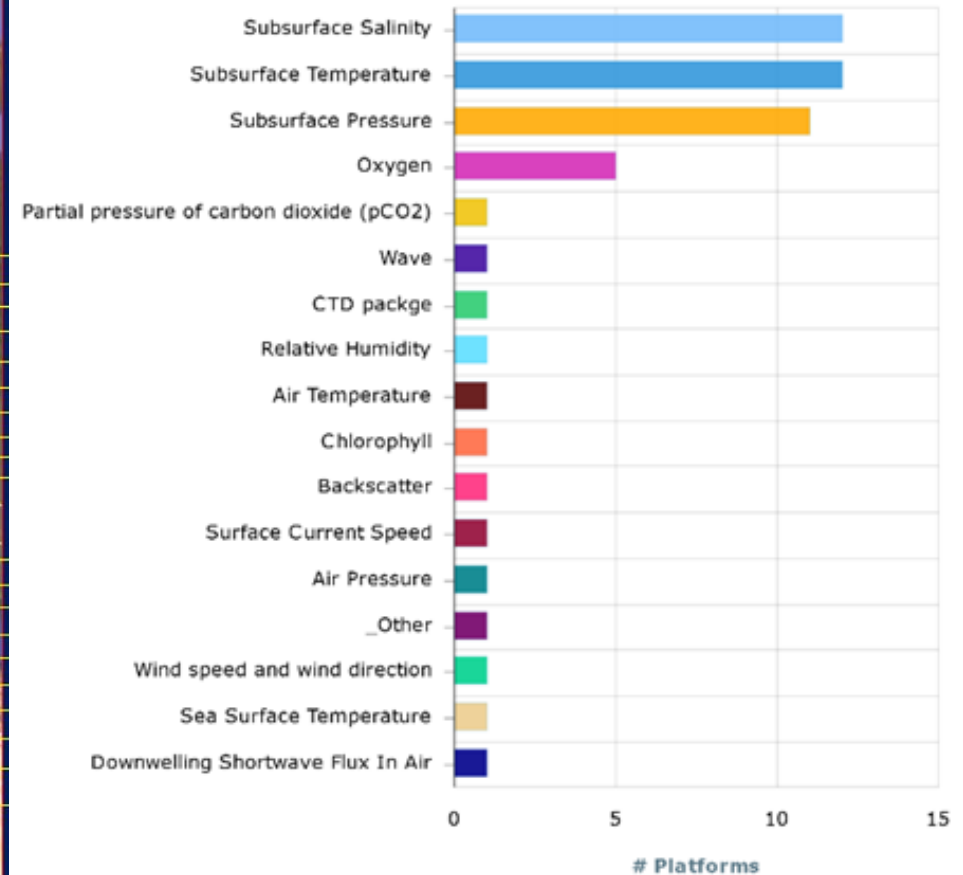
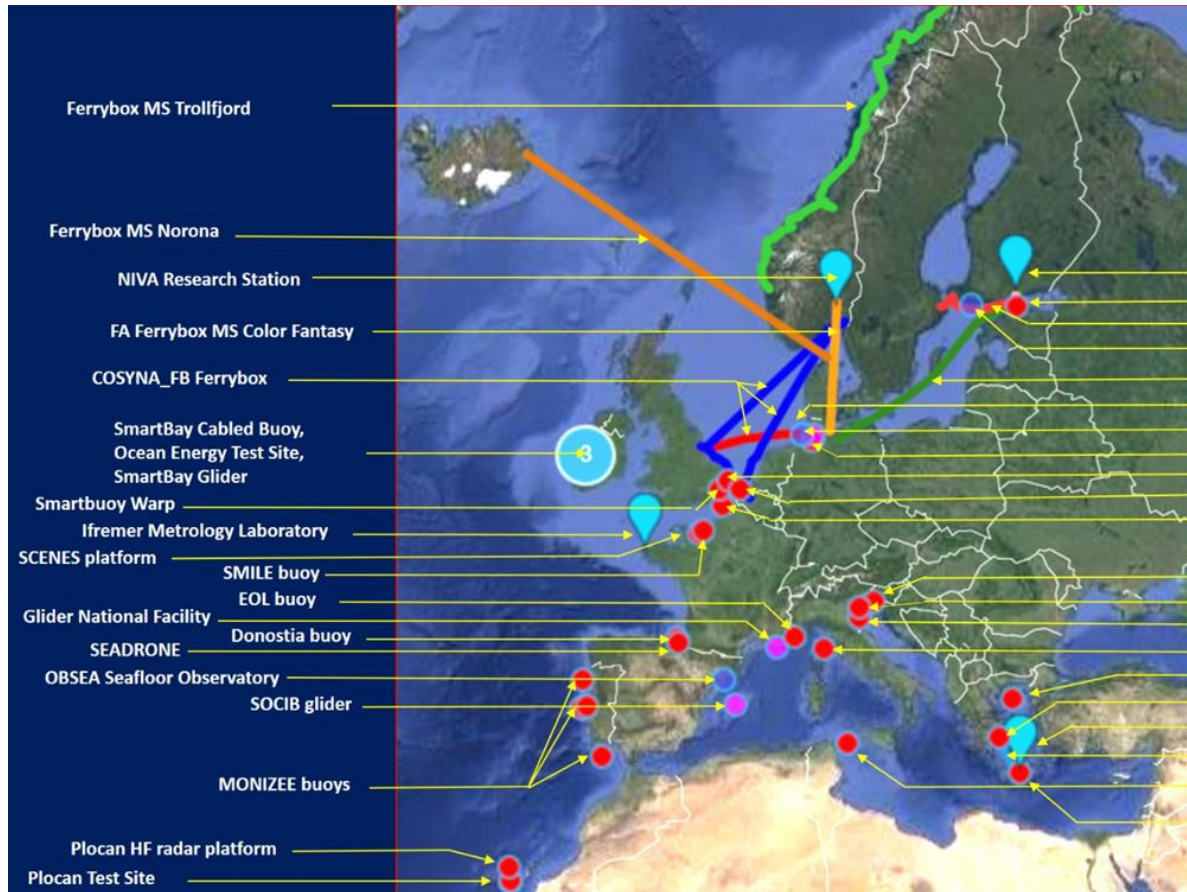
- digital space providing access to vast amounts of **data**, models, artificial intelligence and other tools, to allow the replication of the properties and behaviours of marine systems and their interaction
- use of **real-time and historical data** to represent the past and present, and create models to simulate future / what-if scenarios



Ocean observations – national, regional



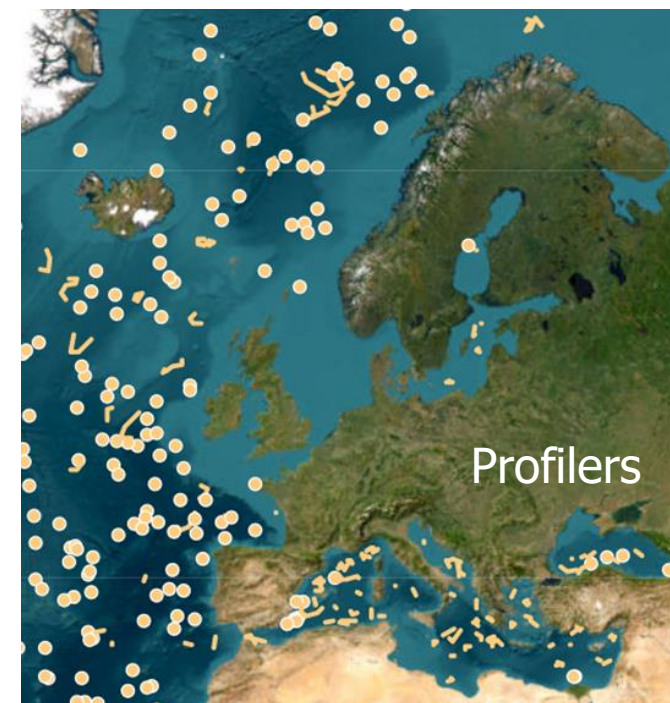
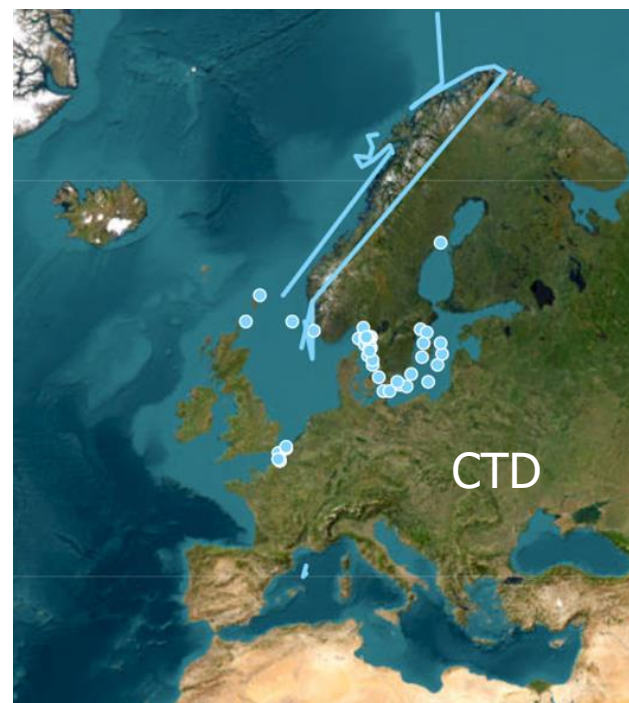
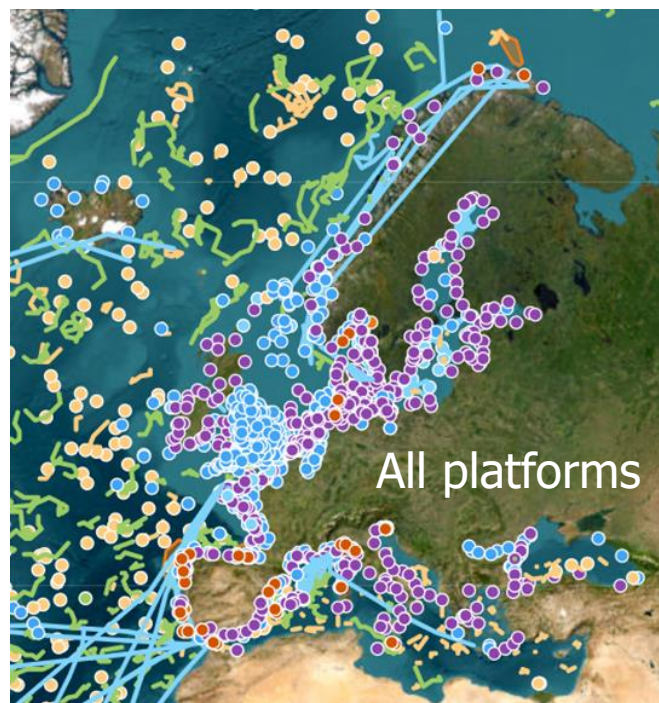
Ocean observations – national, regional



Location of field observatories participating in the JERICO network in 2020.

Distribution of the Italian Observing effort by EOVs

Ocean observations – national, regional, global

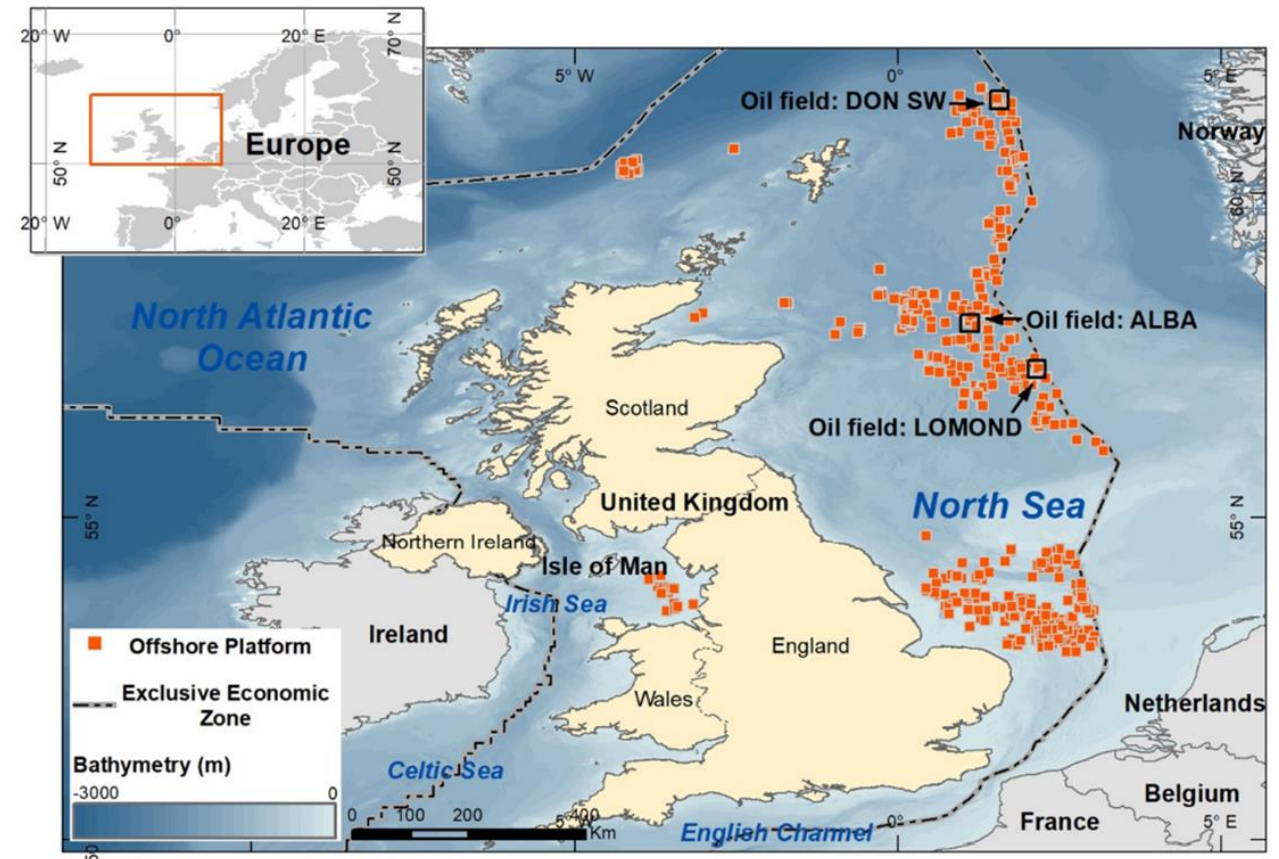


Stations spatio-temporal coverage follows the national priorities
Research vessel data stream to data aggregators is not operational
Argo profiling float array is decreased in deployments across the last 4 years

Hydrographic and maritime organisations / private industry

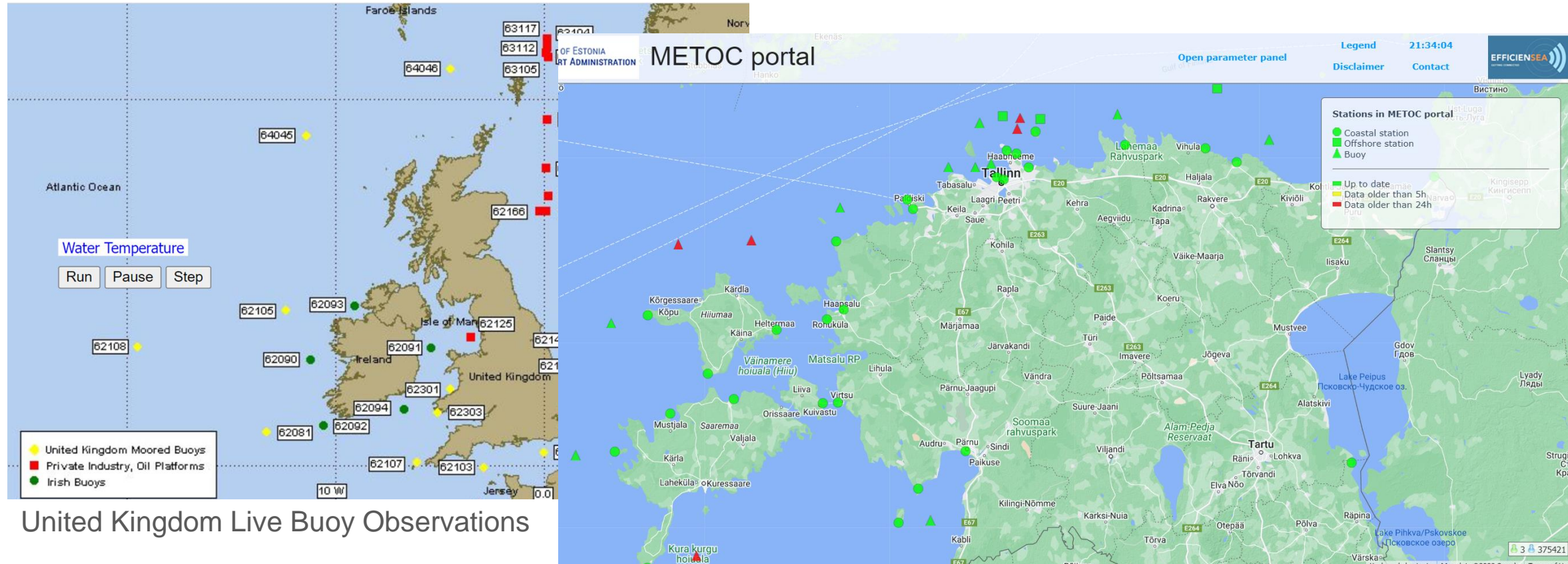


Trinity House buoys around the coast of England and Wales



Distribution of UK offshore platforms in the North Sea (Chao Sun et al., 2020)

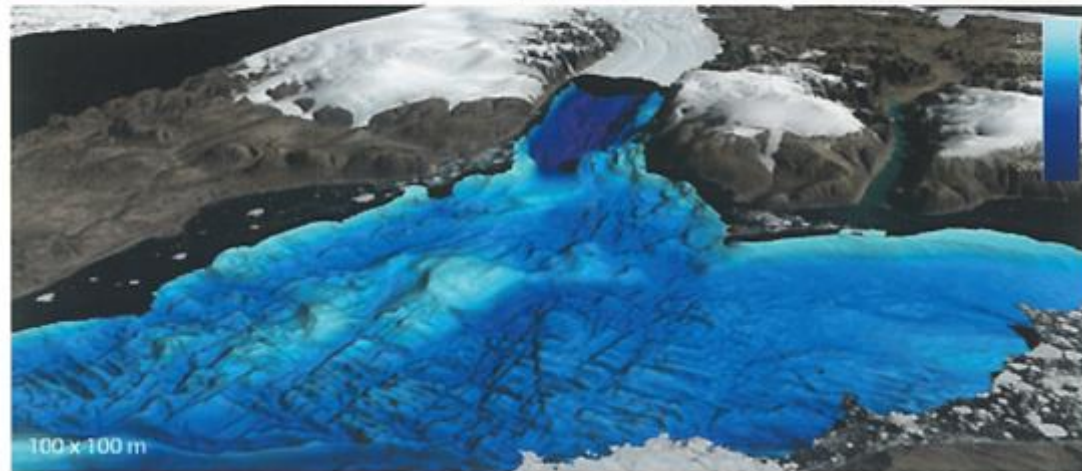
Collaboration – United Kingdom Live Buoy Observations



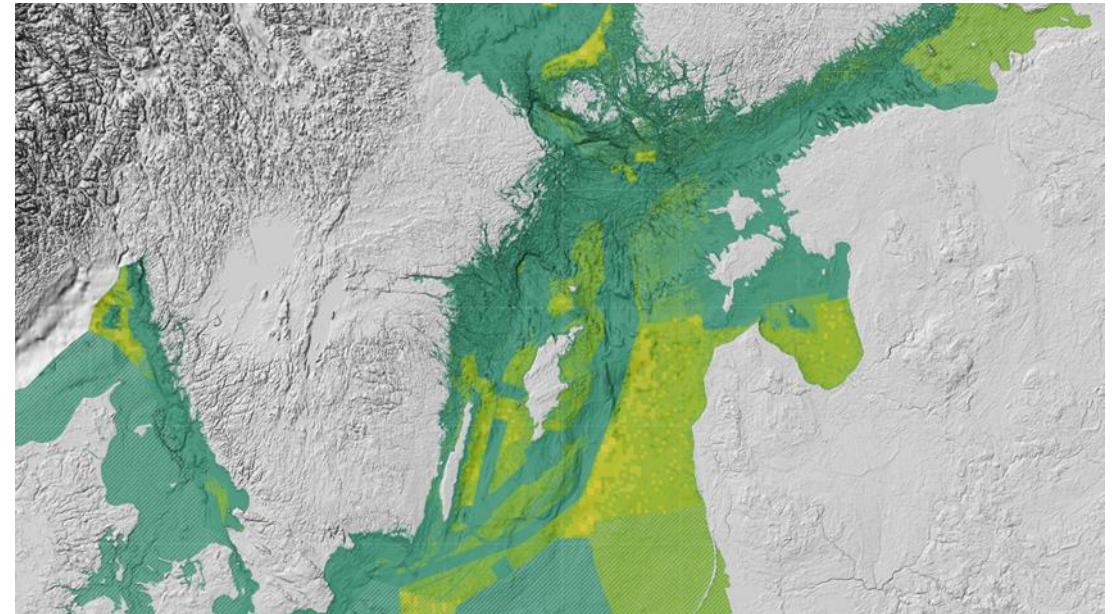
United Kingdom Live Buoy Observations

Estonian coastal and offshore station and buoy observations

Seabed topography



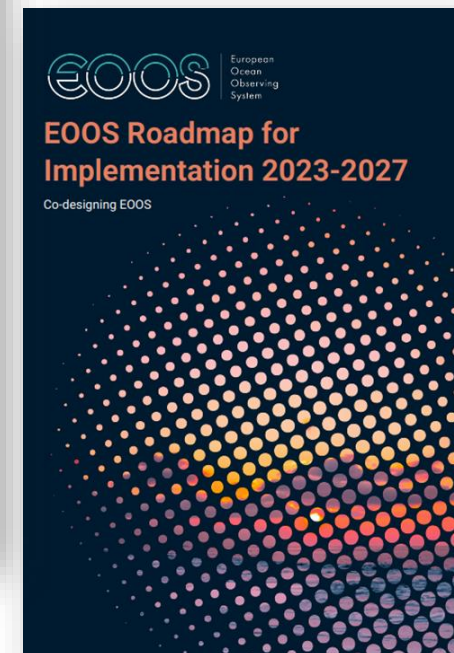
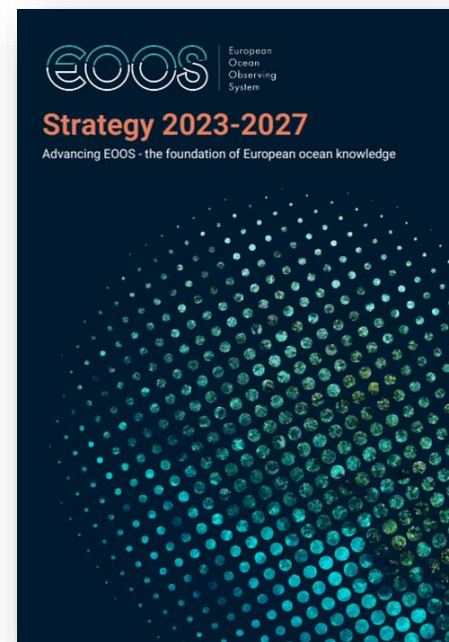
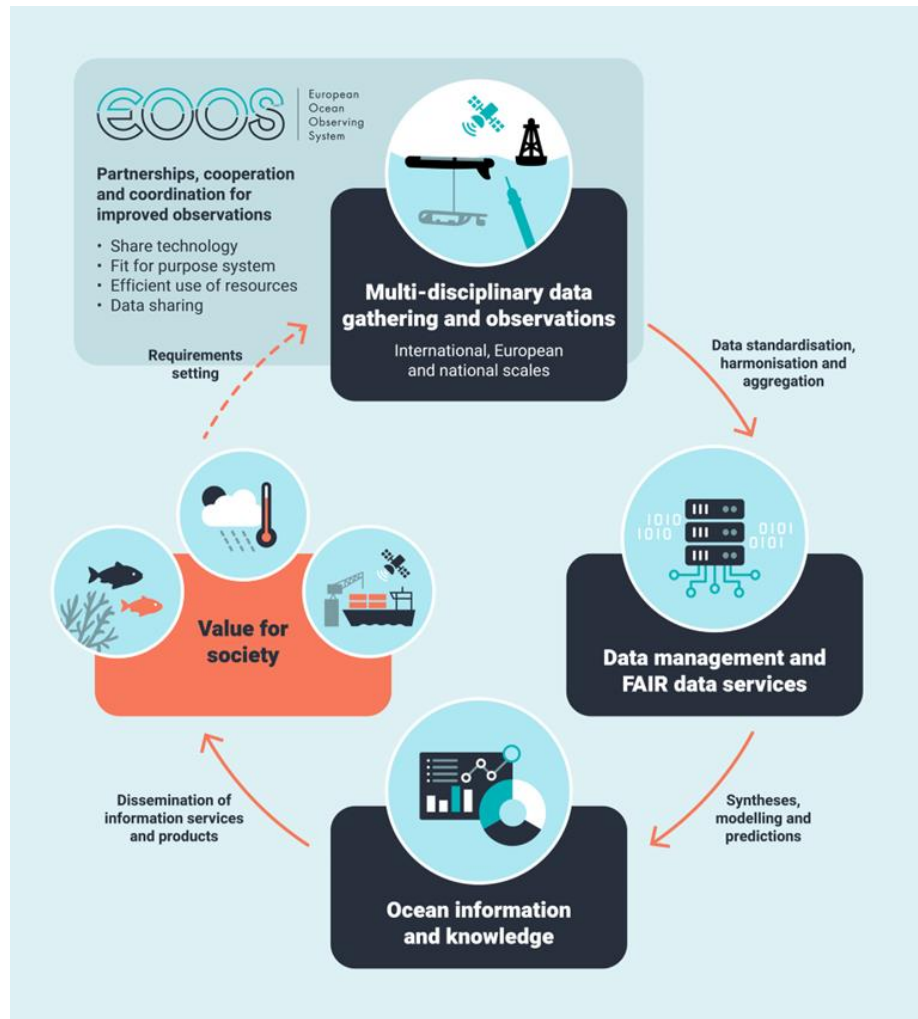
Hydrographic knowledge is essential in ocean modelling



<http://data.bshc.pro/#2/59.4/20.7>

https://www.gebco.net/about_us/seabed2030_project/

European Ocean Observing System



<https://www.eoos-ocean.eu/>

EOOS Strategy 2023-2027

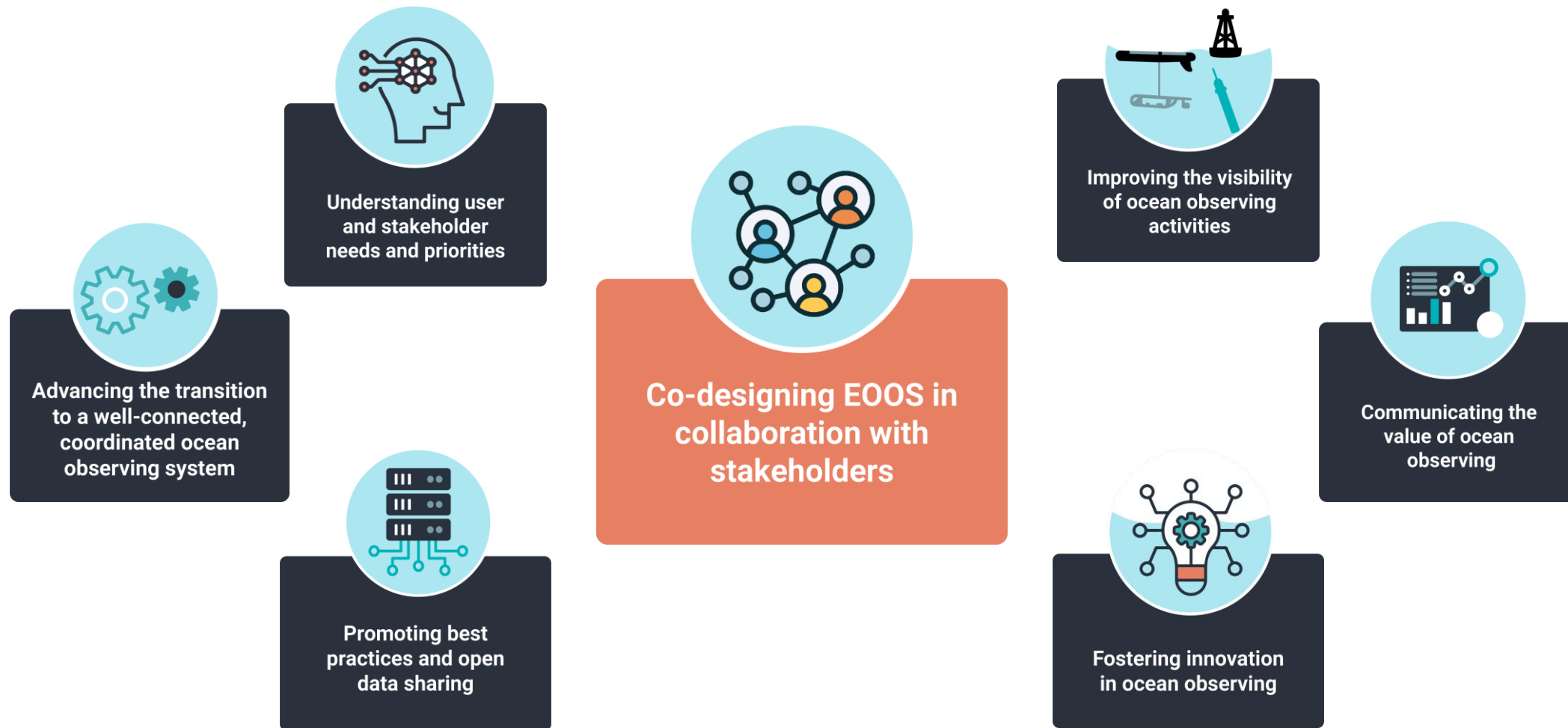
Unite the European ocean observing community through the EOOS Framework, to collaboratively design and work towards a sustained multi-platform, multi-network and multi-thematic EOOS that meets the specific needs of users

EOOS Framework as a collaborative structure

Engage with European providers of services and products derived from ocean observations to improve collaboration across the marine knowledge value chain

Advise governance, funding and policymaking to implement recommendations towards a sustained EOOS

Roadmap for Implementation





Thank you

<https://eurogoos.eu/>

<https://www.eoos-ocean.eu/>

