

Towards an improved European observing system: lessons learned from the EuroSea H2020 project.

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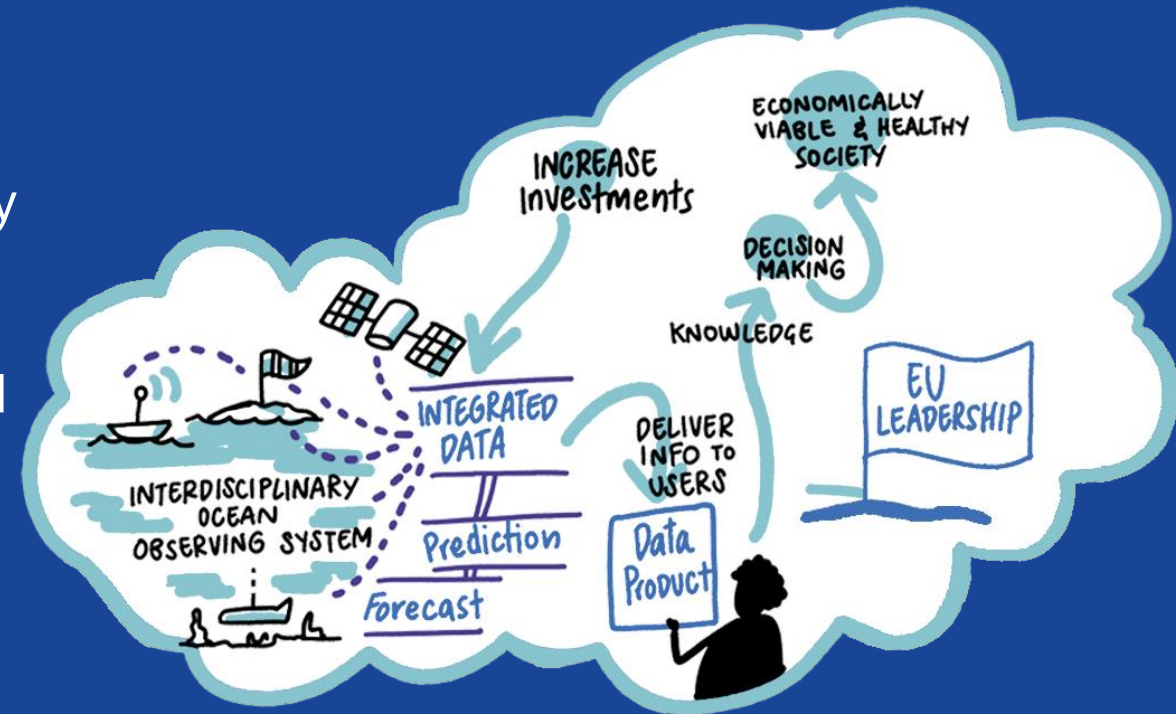
Learn more here:

<https://eurosea.eu/>



Vision

Research and innovation towards a user-focused, truly interdisciplinary, and responsive European ocean observing and forecasting system, that delivers the essential information needed for human wellbeing and safety, sustainable development and blue economy in a changing world.



**Improve the European
ocean observing system**



**Integration into
global context**

**Deliver ocean
observations & forecasts**



**Knowledge about ocean climate,
marine ecosystems & their
vulnerability to human impacts**

**Demonstrate the
importance of the ocean**



**Significance for an
economically viable
& healthy society**

A strategic long-term vision of ocean integration

Ocean observing is complex – need to integrate and combine:

- Multiple disciplines
- In situ and remote observations
- Multiple numerical models
- Multiple spatiotemporal scales

Ocean observing integration =

Optimally combine all elements to form a coherent whole



GLOBAL OCEAN OBSERVING SYSTEM

The oceans are the basis of the life support system. GOOS monitors ocean weathering and provides an opportunity for the human system to respond.

Current issues

Observing Systems are only partially adequate

- Gaps in coverage
- Some processes insufficiently observed

Most observations cannot be used to their full extent

- Many observations not FAIR
- Many observations not fit for multipurpose use

Duplication of efforts

- Non-optimal use of resource



Ocean integration can be achieved through:

Building a mission-based organization:

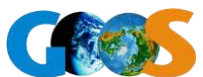
- Agreeing on a common agenda & principles
- Establishing clear design & implementation plan
- Redesigning a robust governance structure

Reaching sustainability:

- Elaborating sustainable funding strategies
- Efficiently communicating the value of ocean observing
- Facilitating the transition from research to operations

Promoting a culture shift:

- Connecting the diverse communities
- Fostering FAIR data and best practices
- Redefining scientific "excellence"



Benefits of ocean integration

Better alignment with society needs

- Fostering transdisciplinary approaches
- Improving modelling and prediction frameworks

Faster advances in ocean knowledge

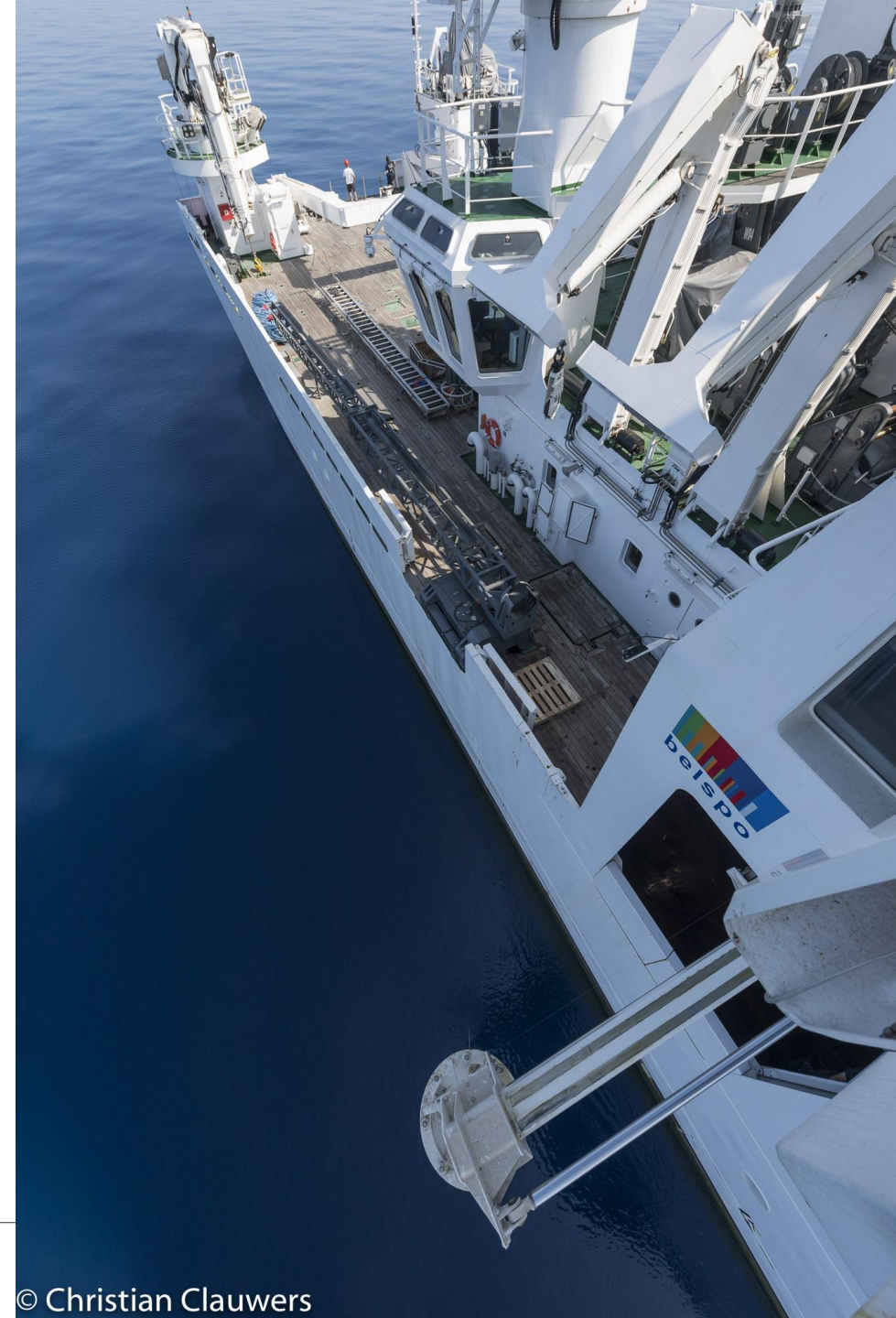
- More complete, sustained and useful observations
- Better characterization of multiple scales

More efficiency















- Mutually beneficial relationships
- Enhanced benefit/cost ratio of ocean observations

Better well-being

- Greater recognition of all aspects of the work needed
- More collaborative culture



Observing Networks: A more pragmatic view on integration

	European networks	Global networks
HF Radar	 HF Radar EuroGOOS Task Team	 Global HF Radar Network
Glider	 Glider EuroGOOS Task Team	 Ocean Gliders
Fixed Platforms	 Fixed Platforms EuroGOOS Task Team	 OceanSITES  OSGO
Autonomous Surface vehicle	Not established yet	
Profiling floats	 Euro Argo	 Argo
Research ships	No logo yet	 GO-SHIP
Commercial ships	 FerryBox EuroGOOS Task Team + ...	 OSPAR
Tide gauges	 Tide Gauge EuroGOOS Task Team	 GLOSS

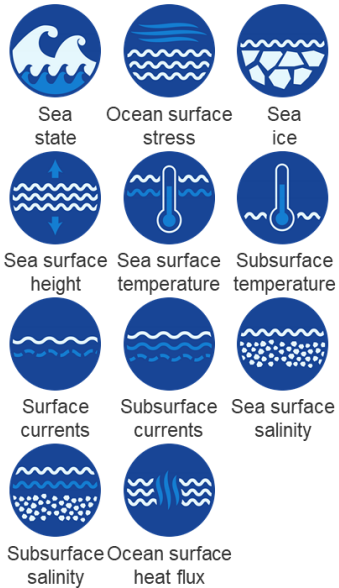
Key attributes

- Community of practice
- Best practices
- Coordination and operational tracking
- Meta data standards
- Vocabulary
- FAIR data management
- Evolution and Integration
- Cost assessment

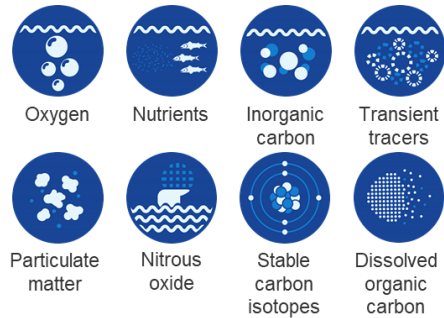


Essential Ocean Variables

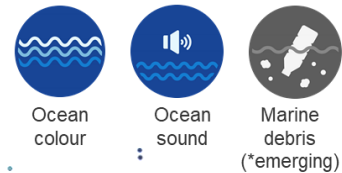
Physics



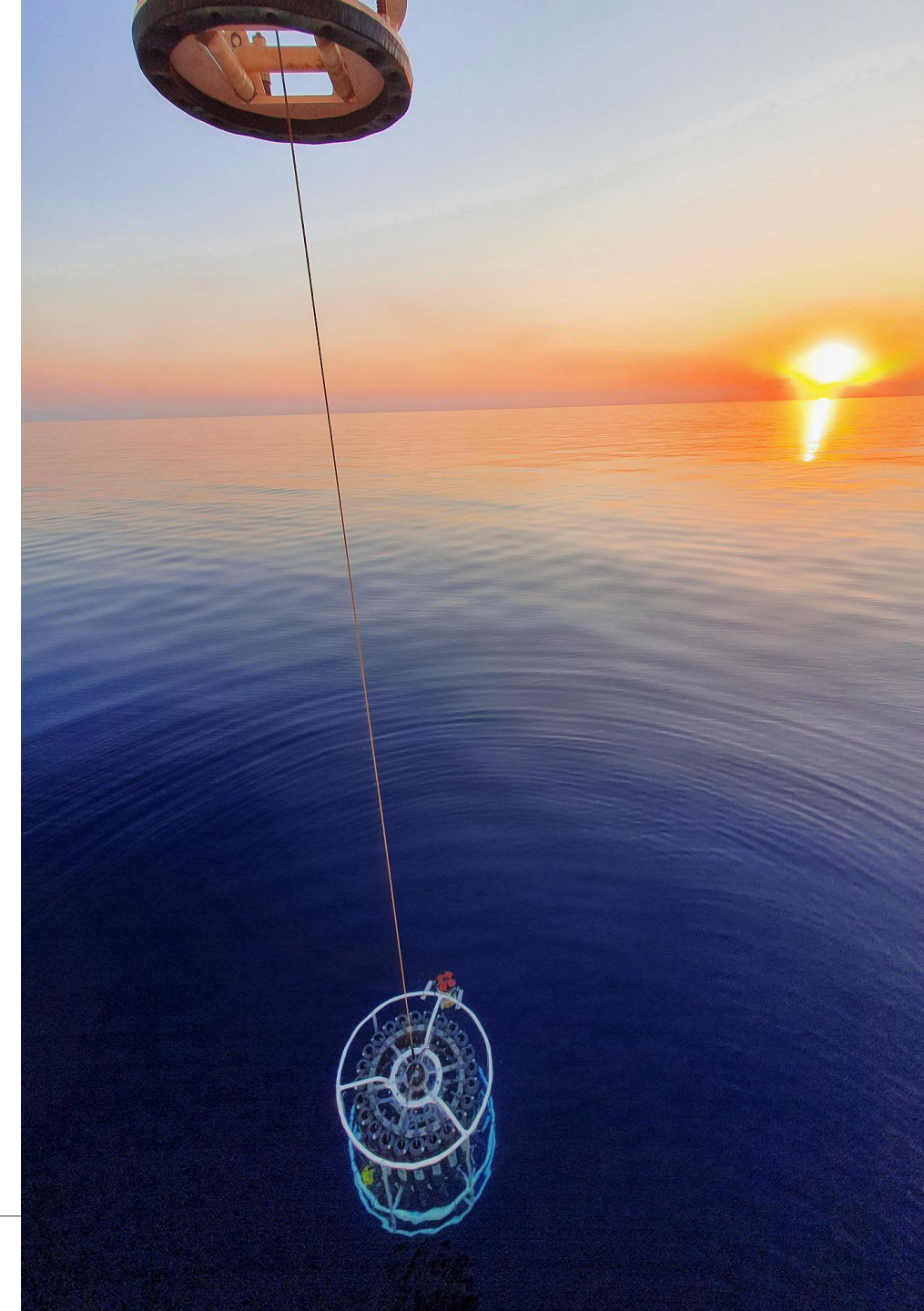
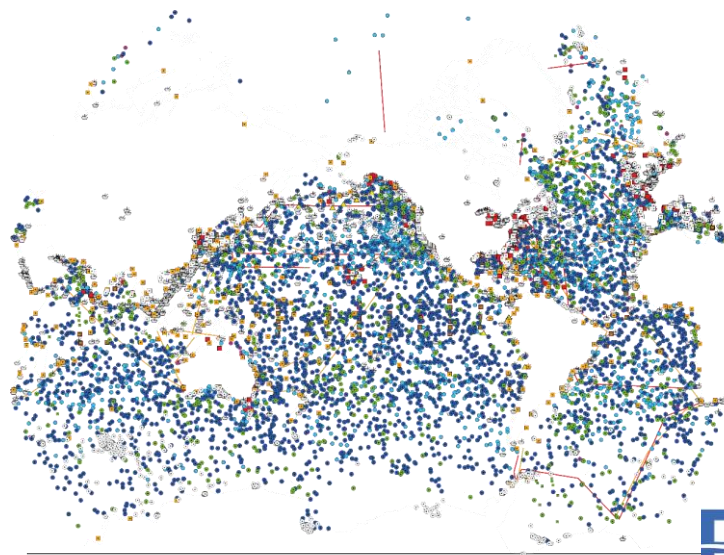
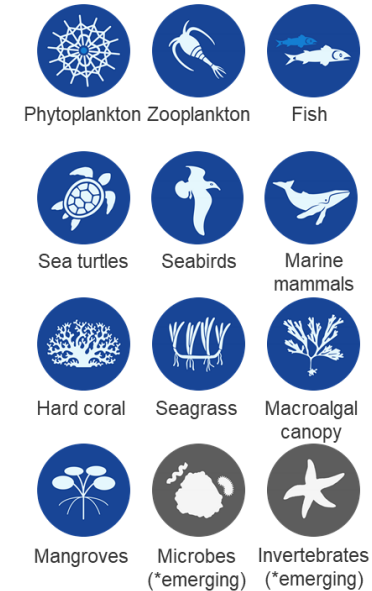
Biogeochemistry



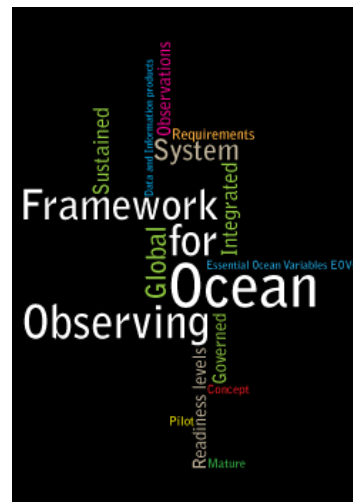
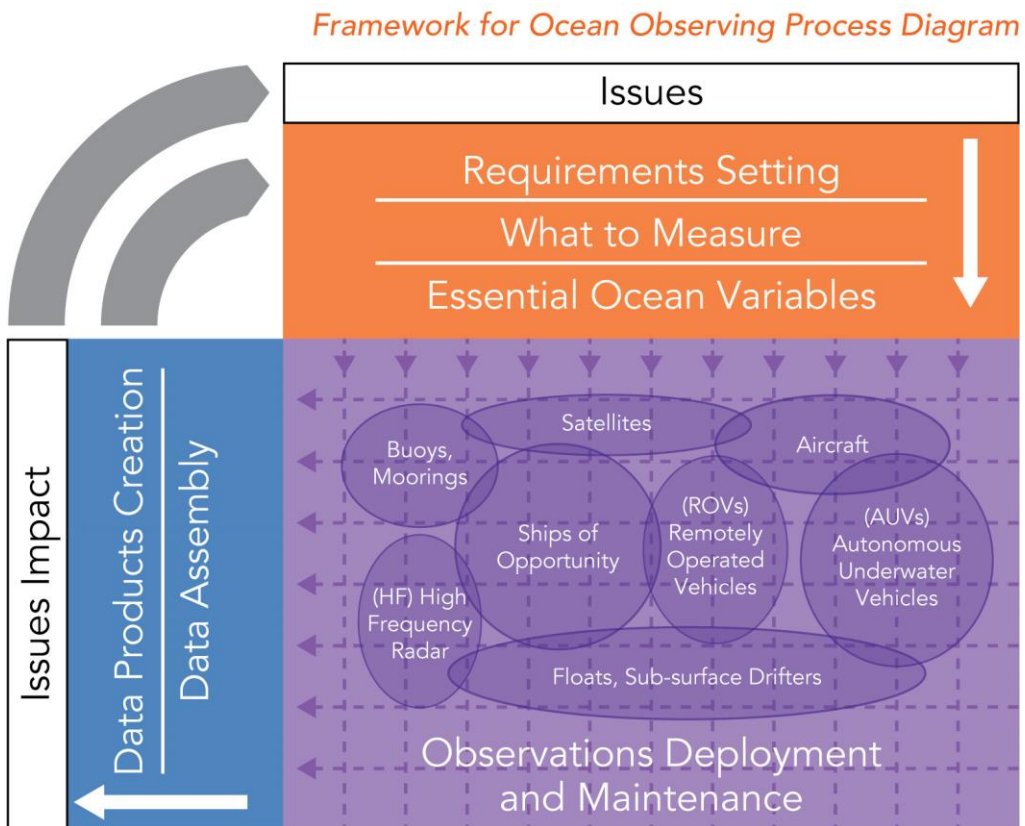
Cross-disciplinary



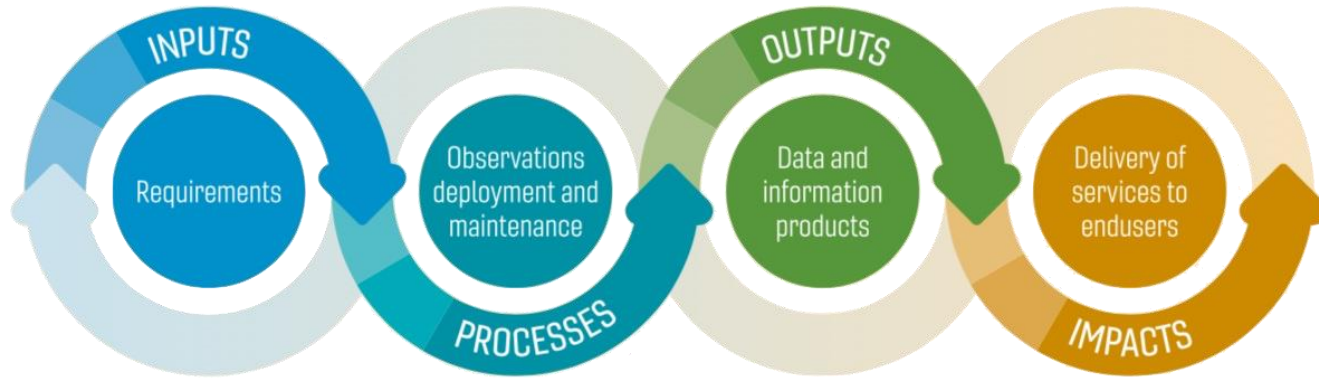
Biology & ecosystems



The Framework of Ocean Observing (FOO)

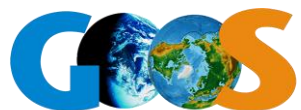


The Value Chain of Ocean Observing



- An ocean observing system needs all links in the (value) chain (no chain is stronger than its weakest link)
- The observing community needs to build strong partnerships along the value chain
- The return arrow (e.g. the feedback chain) is as important as the forward arrow – constant evaluation of the effectiveness and efficiency





The Global Ocean Observing System

Thank you

goosocean.org

eurosea.eu



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