



The Global Ocean Observing System



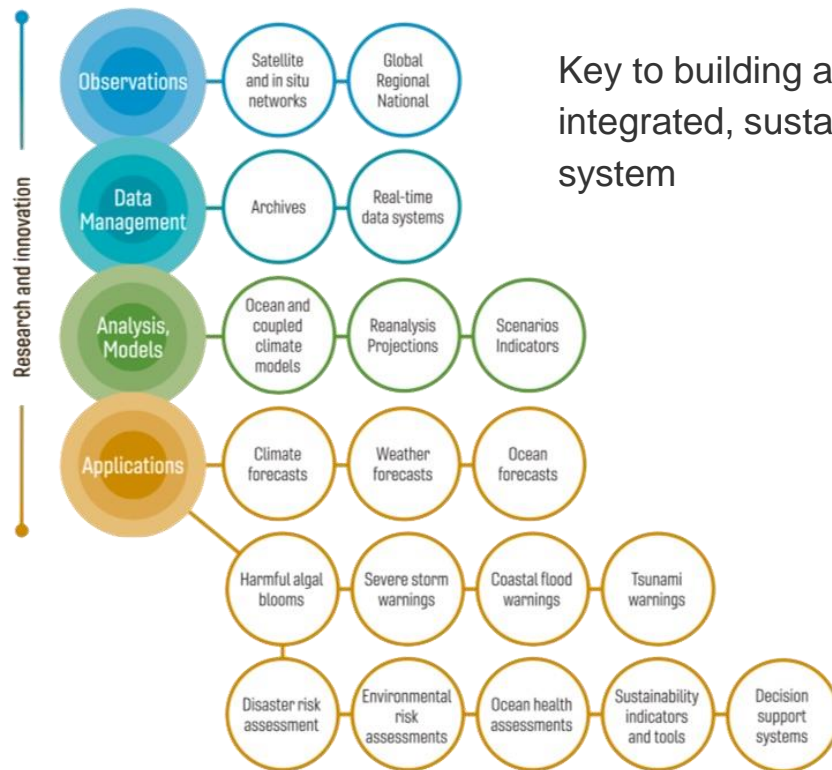
Building a fit-for-purpose global ocean observing system

Dr. Emma Heslop - Acting Director GOOS Office - IOC/UNESCO
EuroSea / Ocean Predict Workshop 2
11 July 2023

The Global Ocean Observing System

2030 Strategy

Underpinning a wide range of applications



**How can we better connect for delivery?
EuroSea what have we learnt?**



EuroSea - Ocean Integration

Ocean Management: will require effective collaboration at each step of the value chain

Nine approaches: mission-oriented (Mazzucato et. al.), connecting diverse communities, transition from research to integrated and sustained

Orange: GOOS, OceanPredict, EU, governments;
Blue: ocean observing/modelling/data community work together;
Green: partners other disciplines, science management, economics, social science, and private sector



Revelard et al. (2021)

<https://www.frontiersin.org/articles/10.3389/fmars.2021.737671/full>

EuroSea - Integration Demonstrators, WP2 & WP4

Challenges & successes

- Challenges in gaining and maintaining user interest / trust / engagement for implementation sites, also some success
- Public-private partnership, some issues with timescales and focus
- Connection with observing and modelling for product integration was successful
- System assessment (OSSEs) less so, at an earlier stage of development

Recommendations

- Funding for coordination was not wasted
- Funding not well geared to support successful products
- Assessing value (OSSE/OSEs/statistical) is at earlier stage development - clear target for co-development and investment
- Ensemble predictions are potentially very important to develop impact forecasting



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Ocean Decade - an opportunity for change... beyond business as usual science



DIALOGUES WITH INDUSTRY

1 Improving the market

- Ocean Observing and Services not seen as an independent market activity
- Understanding/articulating the market size drives investment
 - **Fragmented market hinders investment**
- Aggregation of demand is missing
- Lack of sustained funding in the public sector stymies growth
- Ocean observing can de-risk Blue Investment but Investors do not understand the capability the Ocean Enterprise
- New markets will be driven by applications rather than general concepts
- Low cost/easy to use NOT low cost/low risk to develop
 - **Industry needs assurance of market after development or sharing or risk**
- New actors and new technology, need a systemic approach



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Ocean Observing Co-Design will develop a more **user-focused co-design process** to evolve a truly integrated, responsive ocean observing system.

Objectives

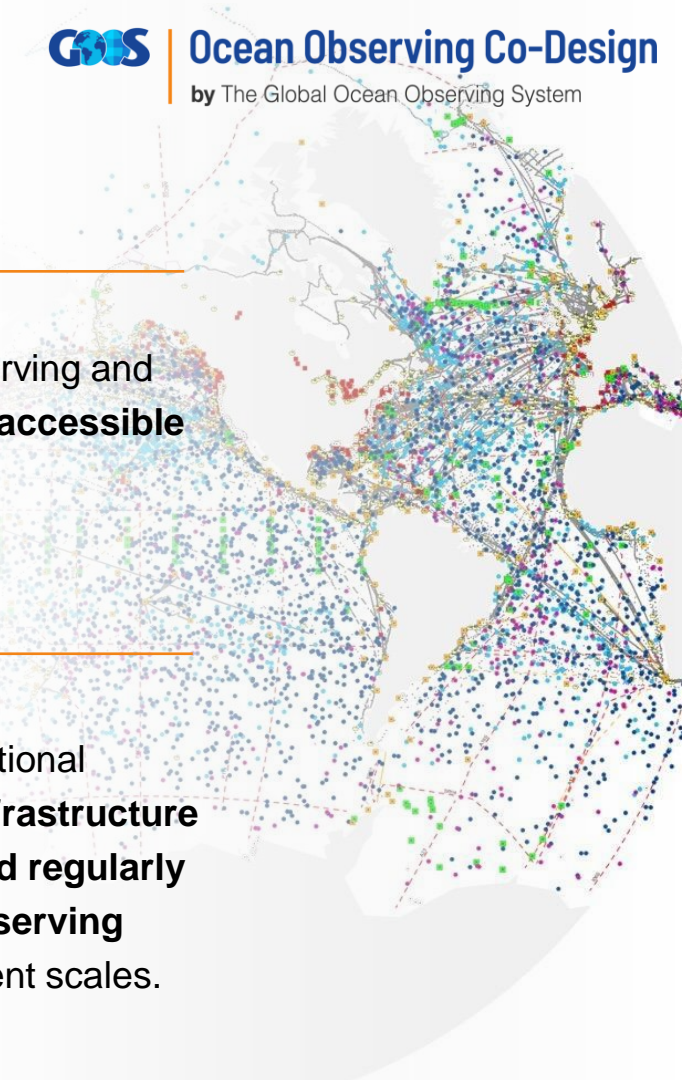
1.

 - Provide national government funders the **information needed to target investment globally, regionally and locally.**
2.

 - Make ocean observing and information more **accessible and impactful.**
3.

 - **Develop system diagnostics, tools and reporting capability** to better assess fitness-for-purpose across evolving requirements and use-inspired needs.
4.

 - Establish international **capacity and infrastructure to co-design and regularly evaluate the observing system** at different scales.



Ocean Observing Co-Design Workshop

7-9 June 2022

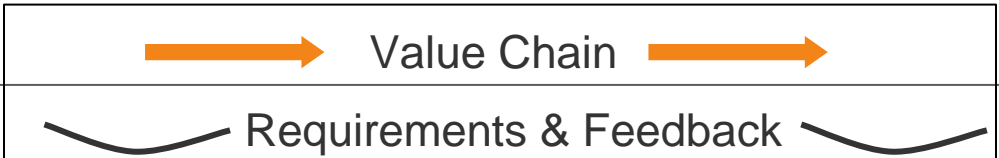
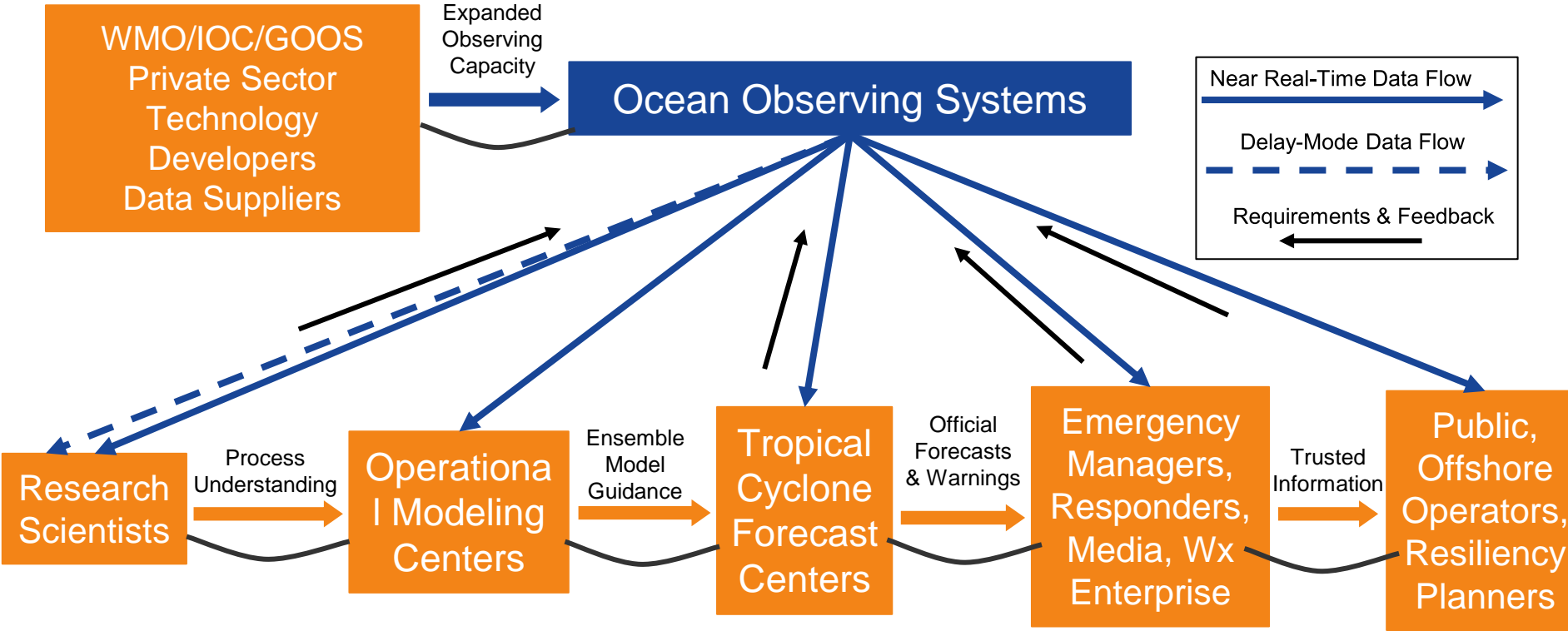
276 attendees from 41 countries

- User engagement is not funded & methods not well established - paradigm shift
- Co-design is iterative & requires collaboration across in situ, satellite, prediction, and users (intermediaries)
- Map value chains and establish economic case

6 Exemplar Projects developed...work on change through 'exemplars' in key areas of high impact



Stakeholder mapping: Tropical cyclones example



Co-Design Exemplars

*Each exemplar is at different levels of maturity



The Ocean Carbon Cycle



Tropical Cyclones



Storm Surge



Marine Life



Boundary Currents



Marine Heatwaves

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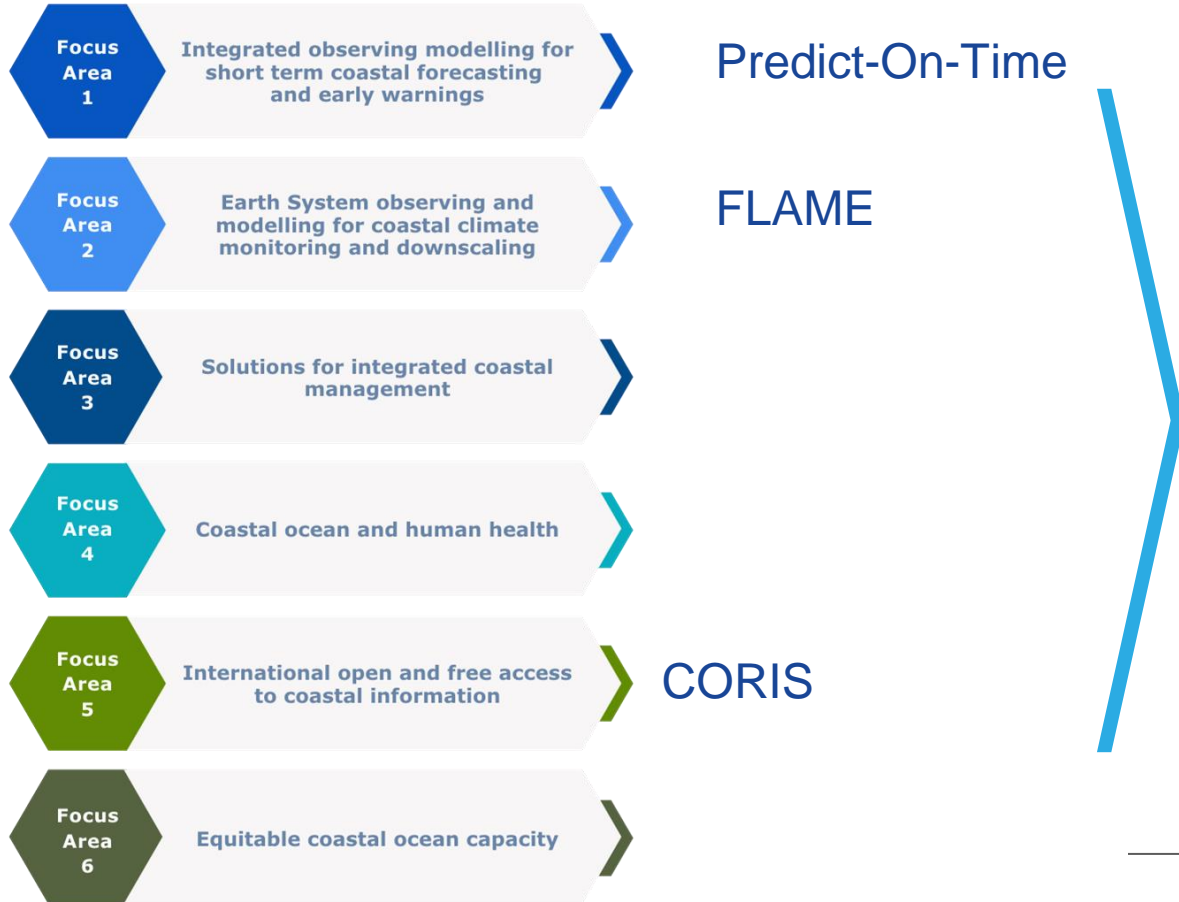
CoastPredict will revolutionise Global Coastal Ocean observing and forecasting, offering **open and free access** to coastal information and predictions.

Objectives

1. _____
 - A **predicted** Global Coastal Ocean
2. _____
 - The upgrade to a **fit-for-purpose** oceanographic information infrastructure;
3. _____
 - Co-design and implementation of an **integrated coastal ocean observing and forecasting system** adhering to best practices and standards, designed as a global framework and implemented locally.



Focus areas and Core Projects



Call for Pilot Sites launched this week at coastpredict.org

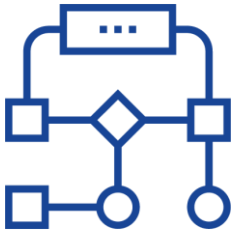
What is needed now?



A level of **international agreement & common goals**



Investment into change – through the Ocean Decade



A **clear, transparent data flow**, tracked across GOOS and the value chain



Advance the **evolution of GOOS Governance** & adapt **GOOS structure**



The Global Ocean Observing System

Thank you

goosocean.org

