The Global Ocean Observing System
www.goosocean.org

GOOS Update

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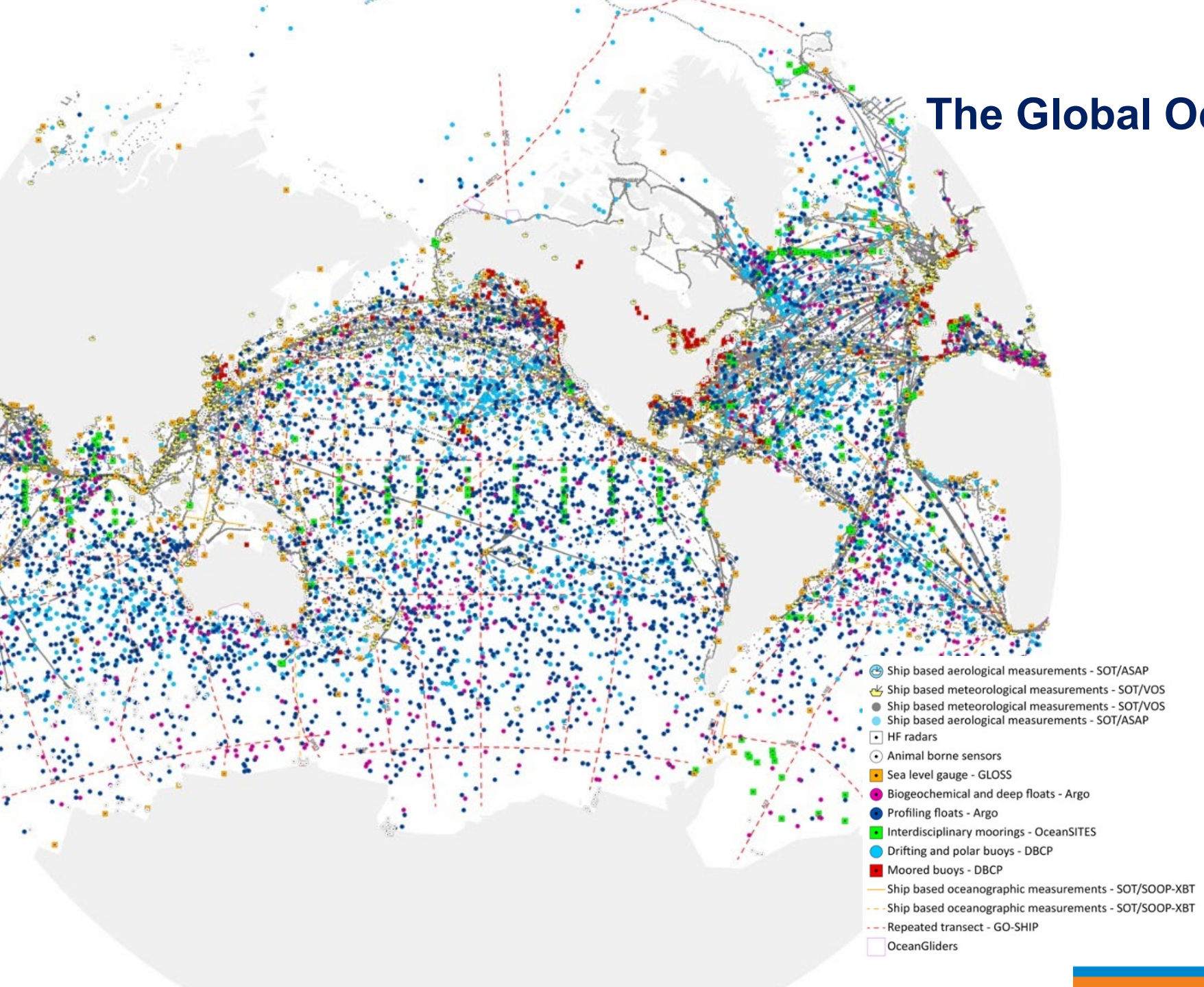
Interagency Ocean Observation Committee

The Global Ocean Observing System

a key infrastructure for climate, weather, disaster risk reduction, and ocean health



- **86** countries, **8,000+** observing platforms, **12** global networks under OCG
- Ocean and marine metrological EOVs and EVCs
- DBCP– drifting, moored, ice buoys – are vital components of the global integrated system

"The weather forecasting systems will run off the rails if they don't have the surface pressure information over the ocean to constrain them," Lars Peter Riishojgaard, Director of the Earth System Branch WMO.

www.ocean-ops.org/reportcard2020

GOOS today

Ocean Observing Report Card 2020

GOOS *in situ* networks[1]	Implementation	Data & metadata			Best practices[6]	GOOS delivery areas[7]		
	Status[2]	Real time[3]	Archived high quality[4]	Meta-data[5]		Opera-tional services	Climate	Ocean health
Ship based meteorological measurements - SOT/VOS	★★☆	★★☆	★★★	★★☆	★★☆	✓	✓	
Ship based aerological measurements - SOT/ASAP	★★☆	★★☆	☆☆☆	★★☆	★☆☆	✓	✓	
Ship based oceanographic measurements - SOT/SOOP	★★☆	★★★	★★★	★★☆	★★☆	✓	✓	✓
Sea level gauges - GLOSS	★★★	★★☆	★★★	★☆☆	★★☆	✓	✓	
Drifting and polar buoys - DBCP	★★★	★★☆	★★☆	★★☆	★★☆	✓	✓	
Moored buoys - DBCP	★★☆	★★★	★☆☆	★★☆	★★☆	✓	✓	
Interdisciplinary moorings - OceanSITES	★★☆	★☆☆	★☆☆	★★☆	★☆☆		✓	✓
Profiling floats - Argo	★★★	★★★	★★★	★★★	★★☆	✓	✓	
Repeated transects - GO-SHIP	★★★	★☆☆	★★★	★★☆	★★★		✓	✓
OceanGliders	★☆☆ Emerging	★★☆	★☆☆	★★☆	★☆☆	✓	✓	✓
HF radars	Emerging	★★★	★★★	★☆☆	★★★	✓	✓	✓
Biogeochemistry & Deep floats - Argo	★☆☆ Emerging	★★★	★☆☆	★★★	★★☆	✓	✓	✓
Animal borne ocean sensors - AniBOS	Emerging	★★★	★☆☆	★☆☆	★★☆	✓	✓	✓

Essential Ocean Variables (EOVs)
Expressing requirements: high impact, high feasibility

Physics	Biogeochemistry	Biology and Ecosystems
• Sea state • Ocean surface stress • Sea ice • Sea surface height • Sea surface temperature • Subsurface temperature • Surface currents • Subsurface currents • Sea surface salinity • Subsurface salinity • Ocean surface heat flux	• Oxygen • Nutrients • Inorganic carbon • Transient tracers • Particulate matter • Nitrous oxide • Stable carbon isotopes • Dissolved organic carbon	• Phytoplankton biomass and diversity • Zooplankton biomass and diversity • Fish abundance and distribution • Marine turtles, birds, mammals abundance and distribution • Hard coral cover and composition • Seagrass cover and composition • Macroalgal canopy cover and composition • Mangrove cover and composition • Microbe biomass and diversity (*emerging) • Invertbrate abundance and distribution (*emerging)
Cross-disciplinary		
• Ocean colour	• Ocean sound	• Marine debris (*emerging)

Building on the GOOS 2030 Strategy

Vision
A truly global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity

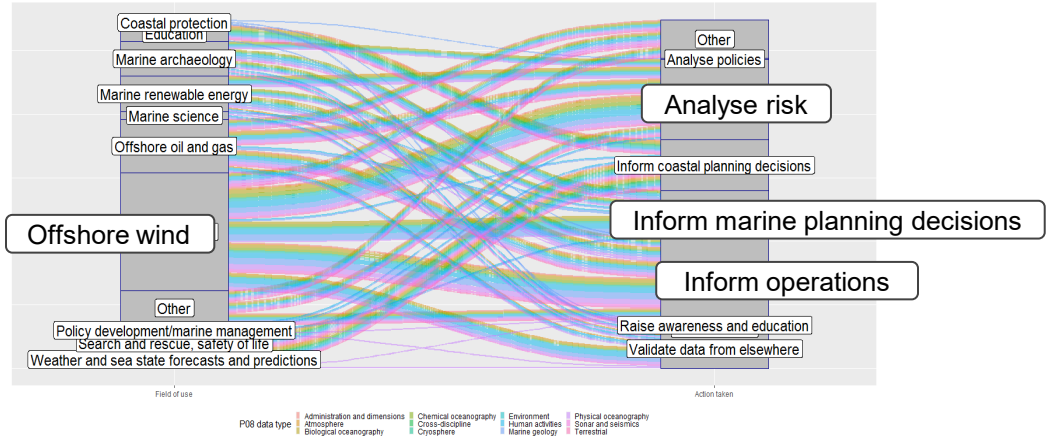
Mission
To lead the ocean observing community and create the partnerships to grow an integrated, responsive and sustained observing system

goosocean.org/2030strategy

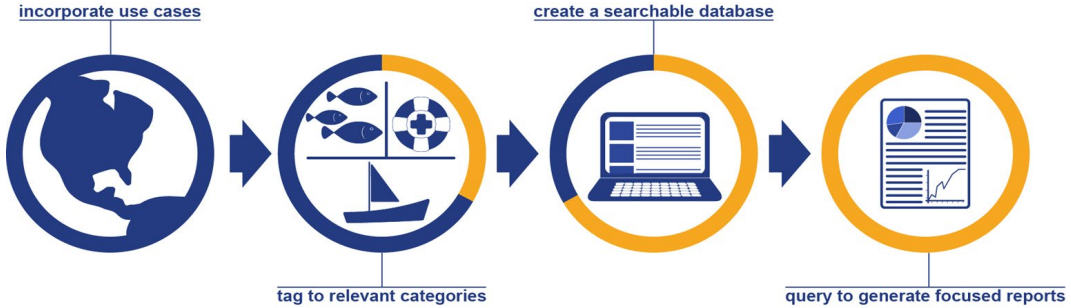
Identifying the value of ocean observations

with **OECD**

- mapping of data flows into economies and industry
  (initial survey with UK MEDIN)
- best practice in economic valuation



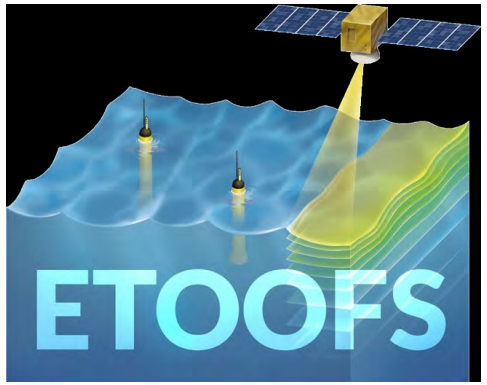
GOOS Regional Alliances (**GRAs**) work led by US **IOOS**

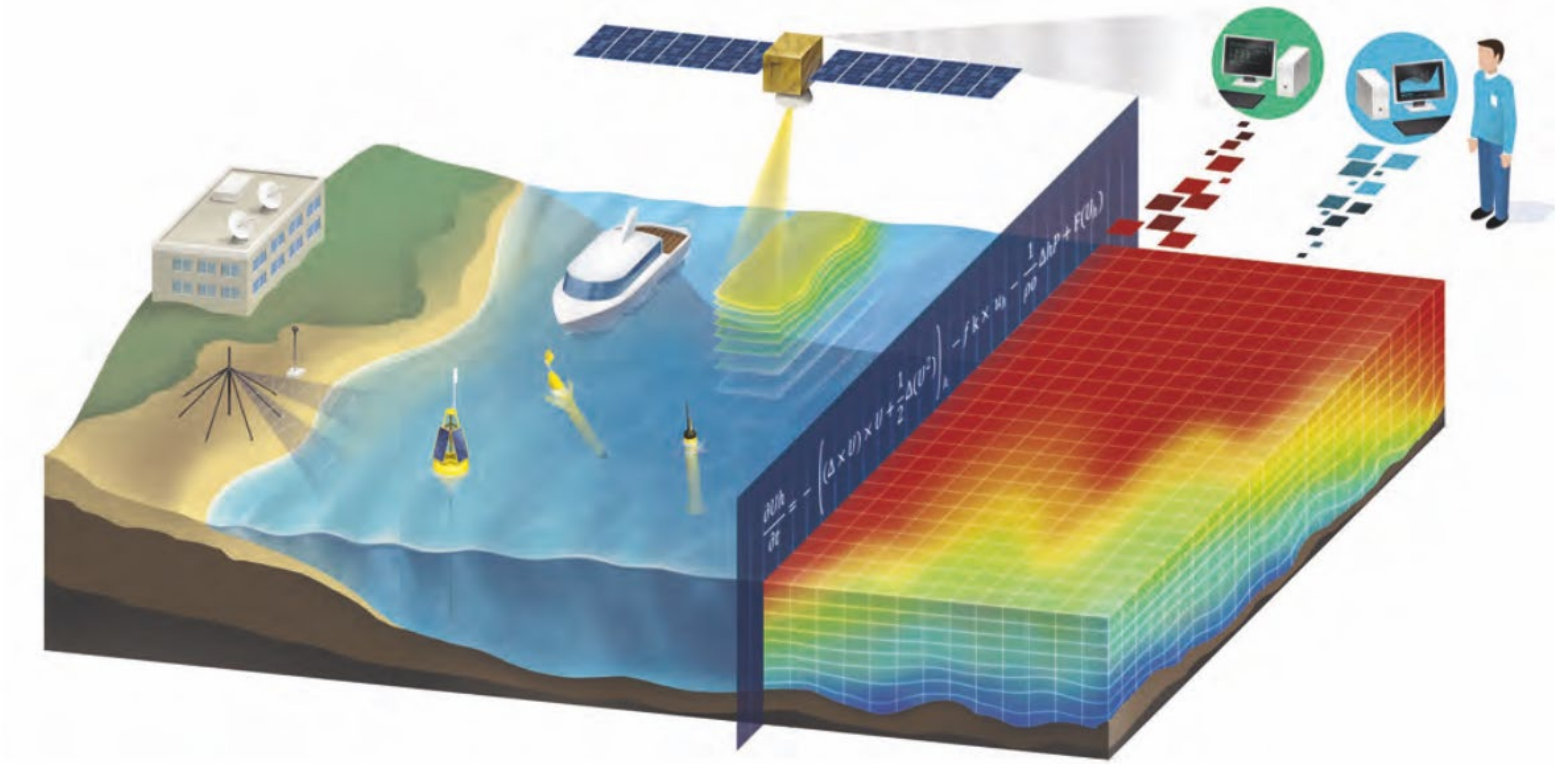


Benefits of Ocean Observations Catalog
www.booc.info

JCOMM legacy in GOOS

Operational ocean forecast systems





June 14-16th:
Awareness Workshop

Understanding the benefits of Operational Ocean Monitoring and Forecasting Systems

June 22-24th:
Practical Workshop

Implementing Operational Ocean Monitoring and Forecasting Systems

WITH THE SUPPORT OF :

OTGA

MERCATOR OCEAN INTERNATIONAL

110 participants selected

53 countries

Steps to developing an ocean best practice

SCOPE AND RECRUIT

Confirm the need

- Consider best practices training
- Review similar methods
- Survey the community
- Develop scoping report

Form a working group

- Identify leaders
- Invite contributors and institutions
- Be inclusive
- Set scope of method

DEVELOP AND RELEASE

Develop content

- Assess/integrate related methods
- Consult in working group
- Create strawman
- Complete final draft

Review final draft

- Invite full community review
- Respond and revise
- Maintain adjudication record

Release

- Publish at repository
- Notify stakeholders
- Promote to target audiences

REVISE AND RATIFY

Invite feedback

- Survey users
- Publish in journal
- Assess uptake via repository
- Consider new version

Obtain community endorsement for an accepted best practice!

- Obtain GOOS endorsement
- Obtain institutional endorsement
- Include in permitting recommendations
- Maintain and update

The ocean best practices system can provide

- A searchable repository
- A journal theme
- Training
- User support, outreach

Benefits of using a best practice

- Collaborative opportunities
- Efficient use of time
- Improved systems interoperability
- Data comparability and collatability
- Greater trust in data
- Streamlined regulatory approval
- Higher funding success

The Ocean Best Practices System is supported by UNESCO Intergovernmental Oceanographic Commission, Global Ocean Observing System, and the International Oceanographic Data and Information Exchange.

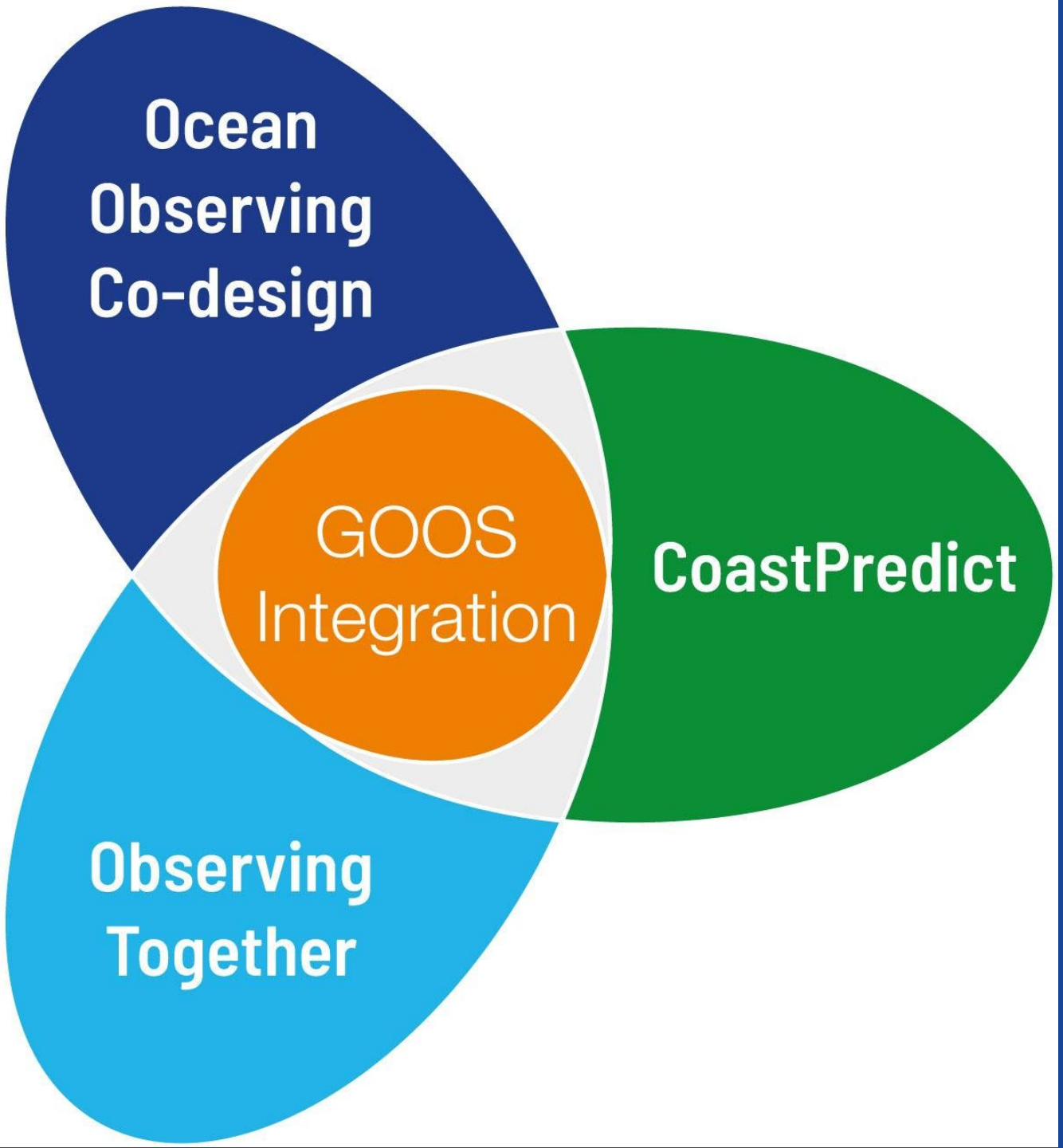
www.oceanbestpractices.org

GOOS | At the heart of the Ocean Decade

The Global Ocean Observing System at the heart of The Decade of Ocean Science for Sustainable Development 2021-2030

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Endorsed by **the UN Decade of Ocean Science**

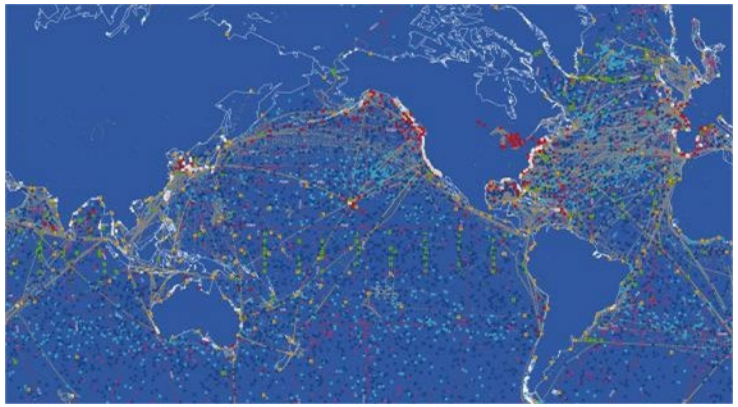


- **Three GOOS Ocean Decade Programmes**

- Integrating and co-designing ocean observing and forecasting systems driven by user needs, integrating from the open ocean to the coast to serve a wider range of users, and integrating efforts and building capacity so more people benefit.

GOOS | At the heart of the Ocean Decade

GOOS Ocean Decade Programmes



Ocean Observing Co-Design

by The Global Ocean Observing System

Ocean Observing Co-Design will transform our **ocean observing system assessment and design processes.**

CoastPredict

with The Global Ocean Observing System

CoastPredict will revolutionise **global coastal ocean observing and forecasting.**

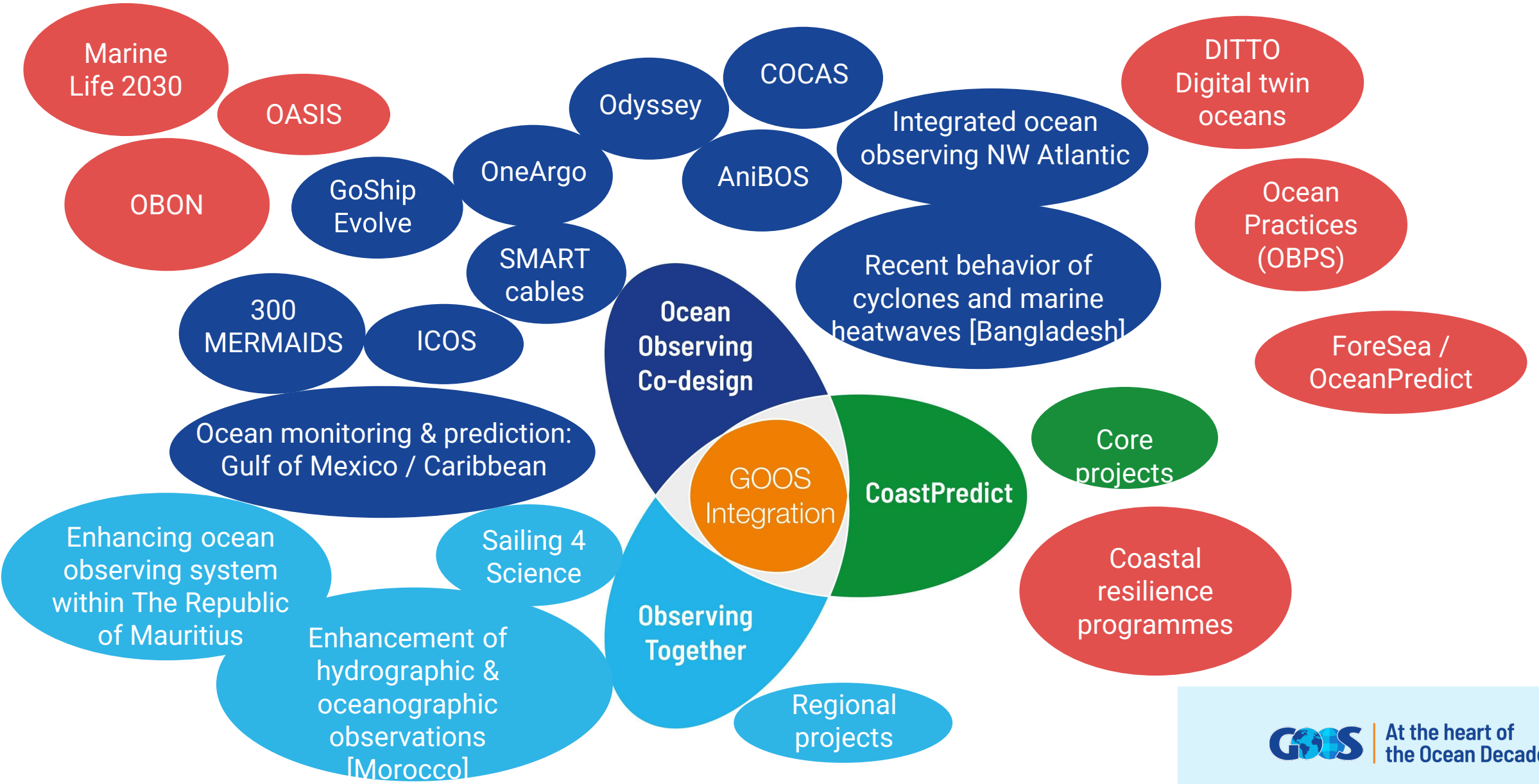
Observing Together

by The Global Ocean Observing System

Observing Together will **meet stakeholder needs and make every observation count** through enhanced support to both new and existing community-scale projects.

GOOS | At the heart of the Ocean Decade

Complex landscape - elevated level of collaboration for the Decade



GOOS | At the heart of the Ocean Decade

Opportunities to collaborate in the Decade?

Ocean Observing Co-Design

by The Global Ocean Observing System

Ocean Observing Co-Design Workshop - April 6-8 2022

Lessons learnt from observing system analysis and review

Call out for teams to work on shaping use area exemplar projects - e.g. carbon budgets, hurricanes… DRR interest?

CoastPredict

with The Global Ocean Observing System

Ocean Decade Collaboration Centre for coastal resilience - in Bologna - will support CoastPredict and connections across the decade in this area - important centre for collaboration

Focus Area-1: Integrated observing and modelling for short term coastal forecasting and early warnings Giovanni Coppini (IT), Pierre De Mey (FR) Guimei Liu (China)

Observing Together

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Contact Mairéad O`Donovan, Support for GOOS OCean Decade Programmes, - to connect to these initiatives: m.o-donovan@unesco.org

Thank you

Please get in touch to build a GOOS together

e.heslop@unesco.org

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