

16th Lme

Meeting with
Coastal Partners

Paris (FR) 8 - 11 July 2014



Ocean observations and ecosystem monitoring

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Session: **2**
Day of presentation: **9 July 2014**





The Global Ocean Observing System
www.ioc-goos.org

Ocean observations and ecosystem monitoring: building synergies with LME projects

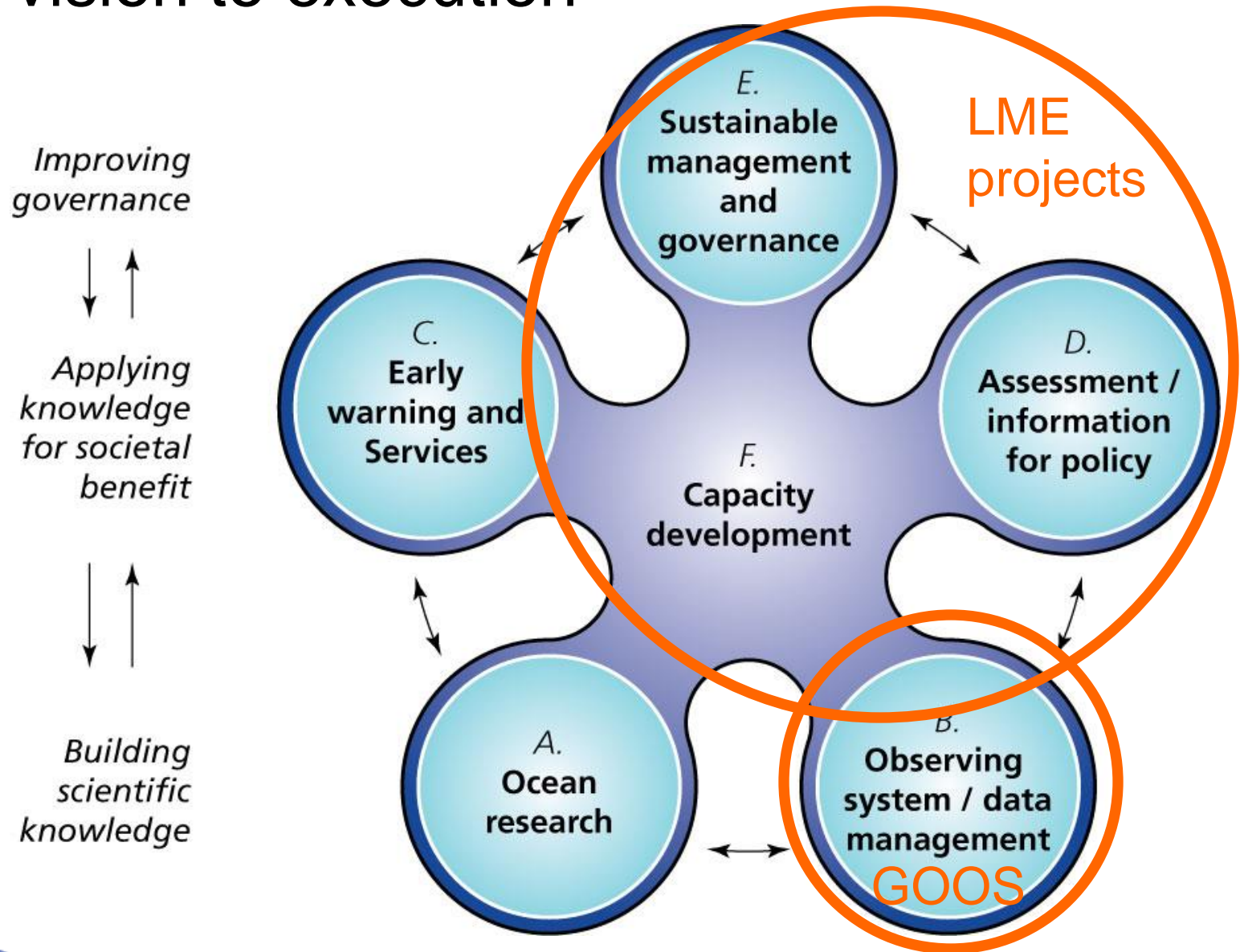
Albert Fischer

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16th LME consultative meeting, Paris, 9 July 2014



From vision to execution



Observing system / data management

- Overall framework (with WMO, UNEP, ICSU)



- Cooperation with meteorology in observations, data management, and services (with WMO)



- Ocean data management



OceanObs'09

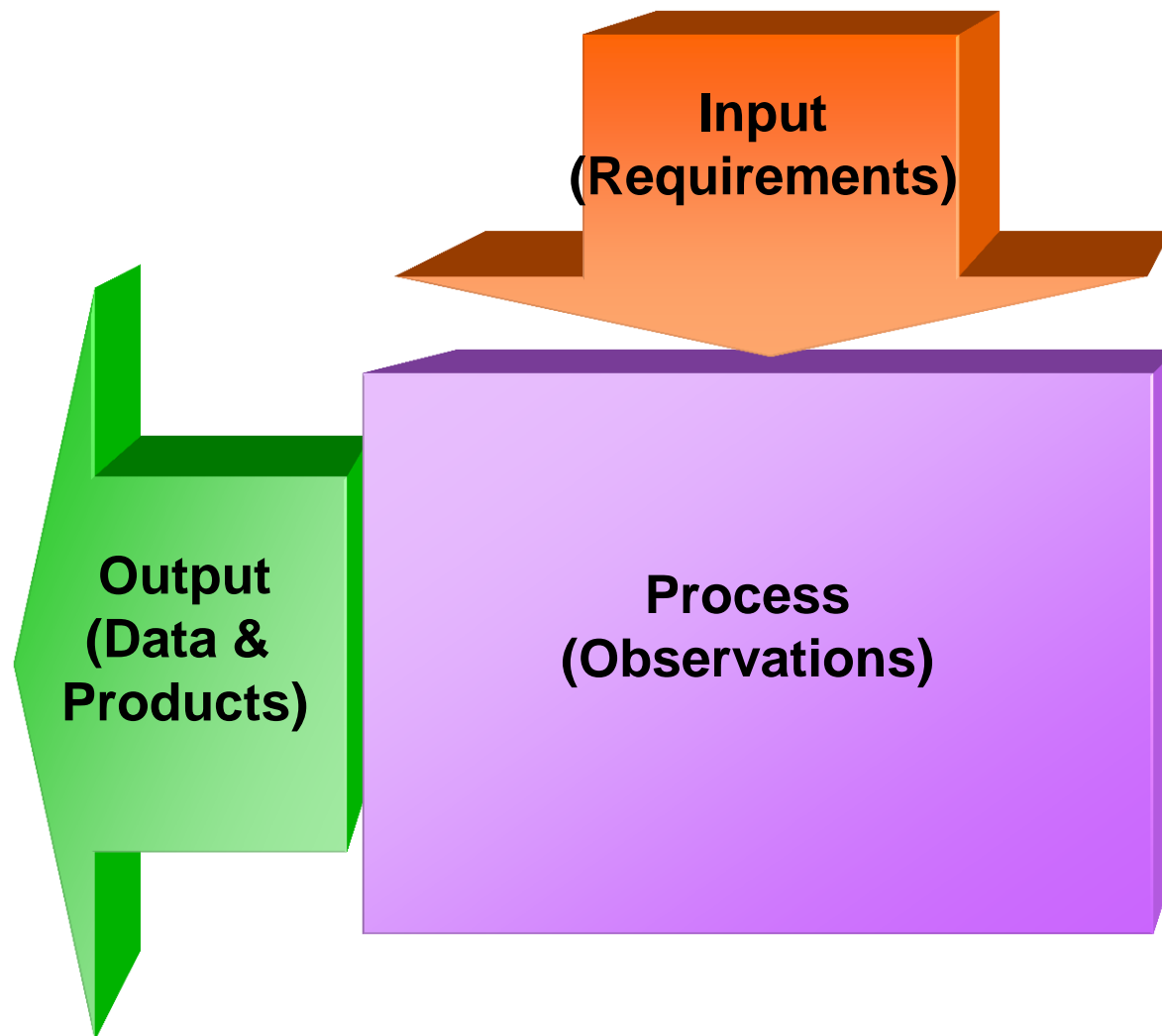
Ocean information for society: **sustaining the benefits, realizing the potential**

Why a Framework?

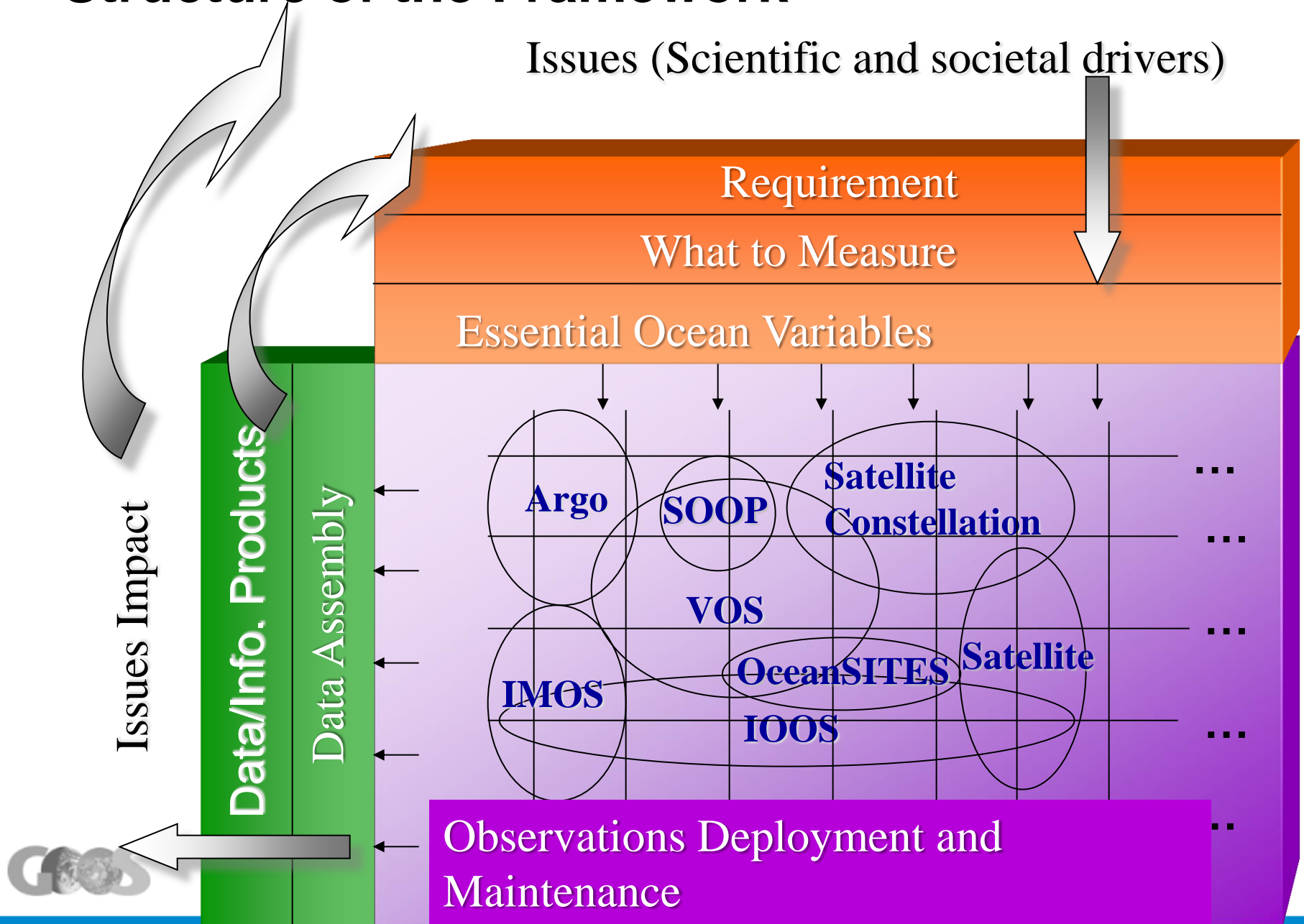
- OceanObs'09 identified tremendous opportunities, significant challenges
- Called for a **framework for planning and moving forward with an enhanced global sustained ocean observing system over the next decade**, integrating new physical, biogeochemical, biological observations while sustaining present observations



A simple system

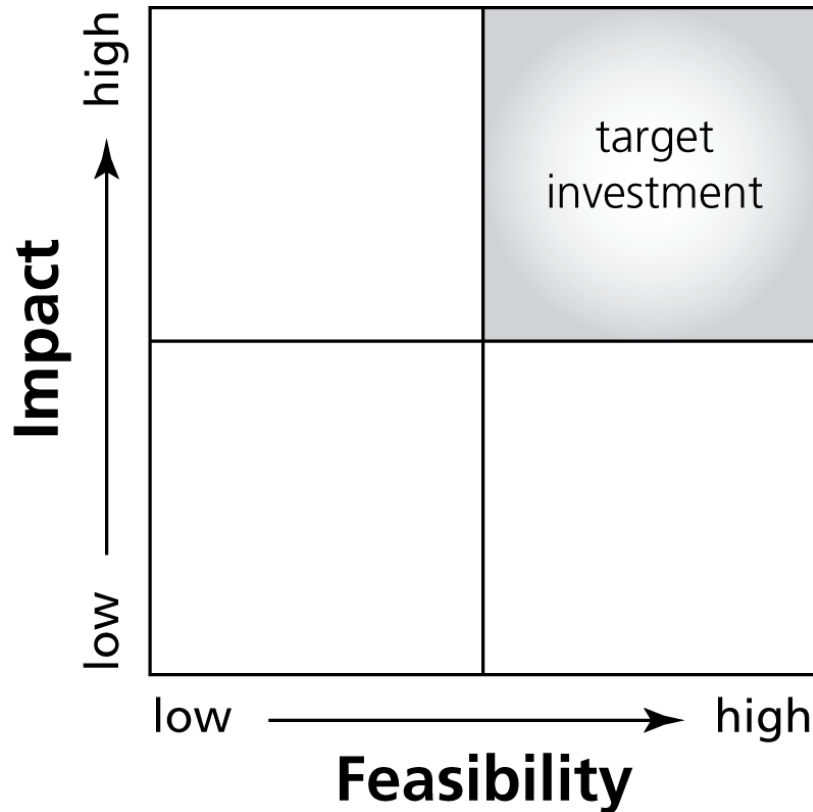


Structure of the Framework



Driven by requirements, negotiated with feasibility

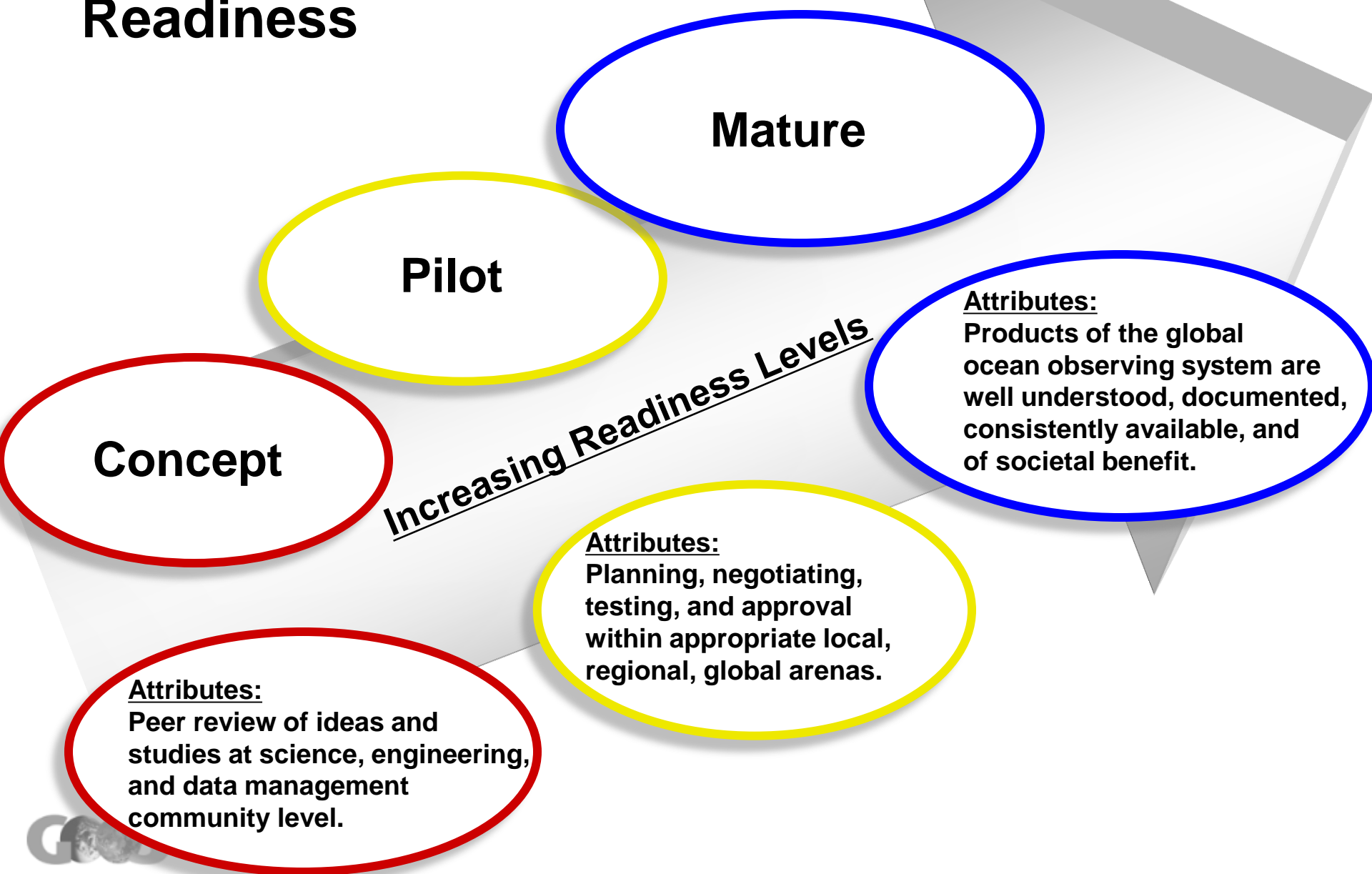
Essential Ocean Variables



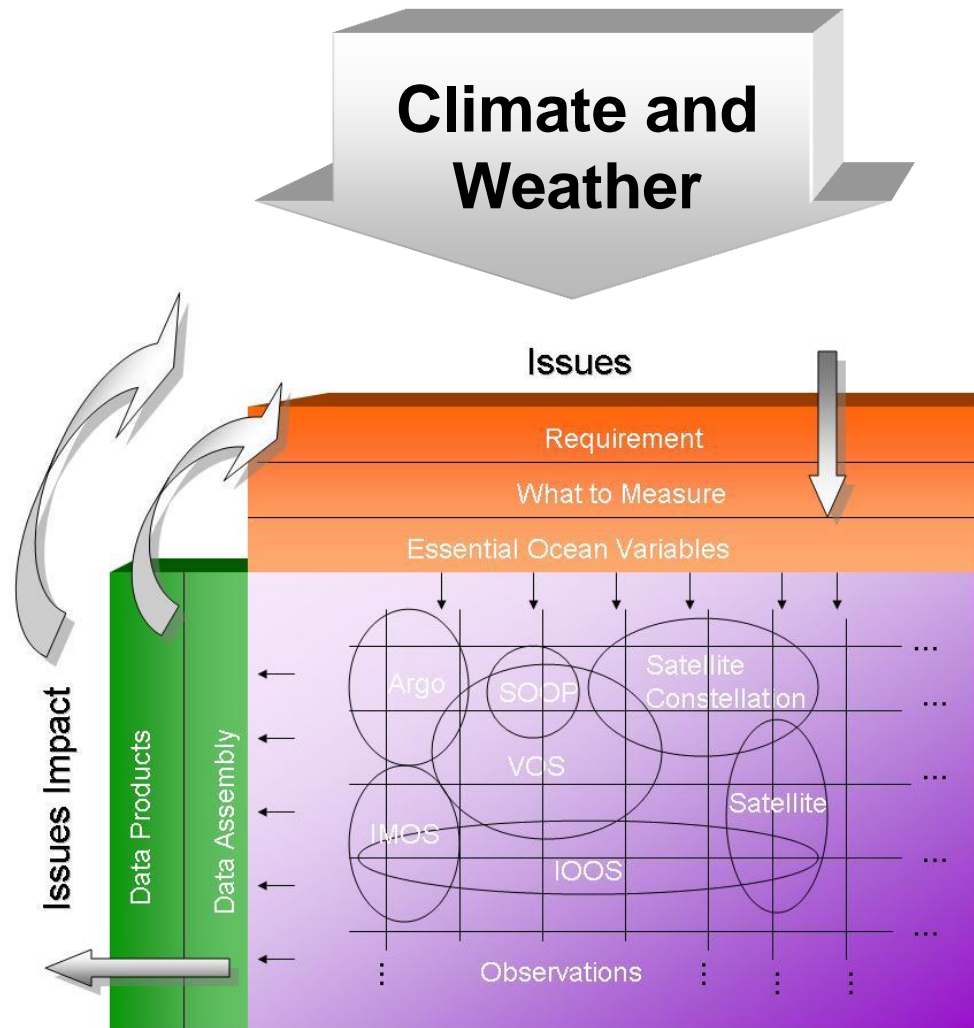
- **We cannot measure everything, nor do we need to**
- basis for including new elements of the system, for expressing requirements at a high level
- Driven by requirements, negotiated with feasibility
- Allows for innovation in the observing system over time

Towards sustained system: requirements, observations, data management

Readiness



Societal drivers now



Societal drivers next decade

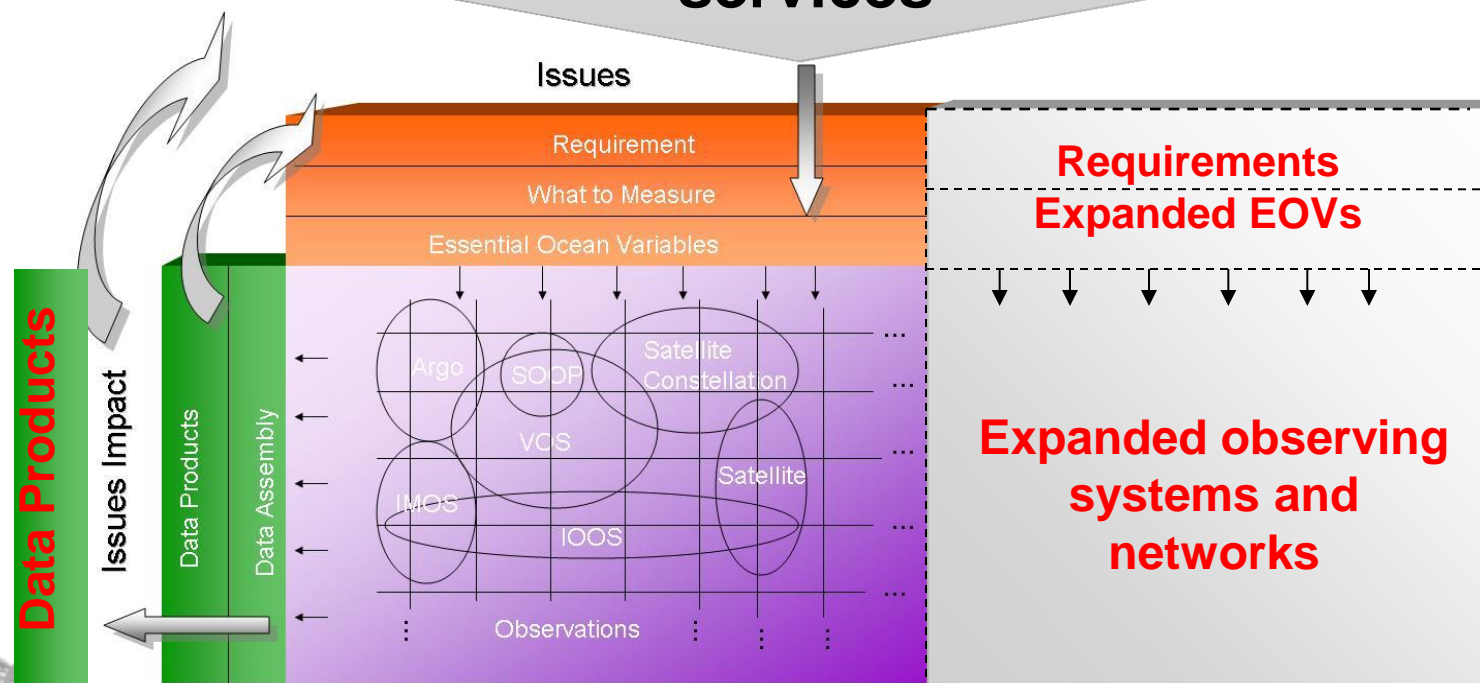
Fisheries

**Climate and
Weather**

**Assessments and
management of
ecosystem services**

**Regional
priorities**

**Real-time
services**



GOOS Framework for Ocean Observing **Governance structure**



GOOS Steering Committee

(John Gunn and Eric Lindstrom, co-chairs;
Peak Bodies, Sponsors, Observing Panel Chairs,
Observing System leaders)

Observing System Panels

(focused on EOVs e.g. Physics through **OOPC**, Carbon/Biogeochemistry
through **IOCCP**, new **Biology/Ecosystems panel**); Coordination for
observing system elements

Technical Advisory Groups / Projects / GRAs

(Observing technologies and networks,
Variable focus: data and products, synthesis, link to models)



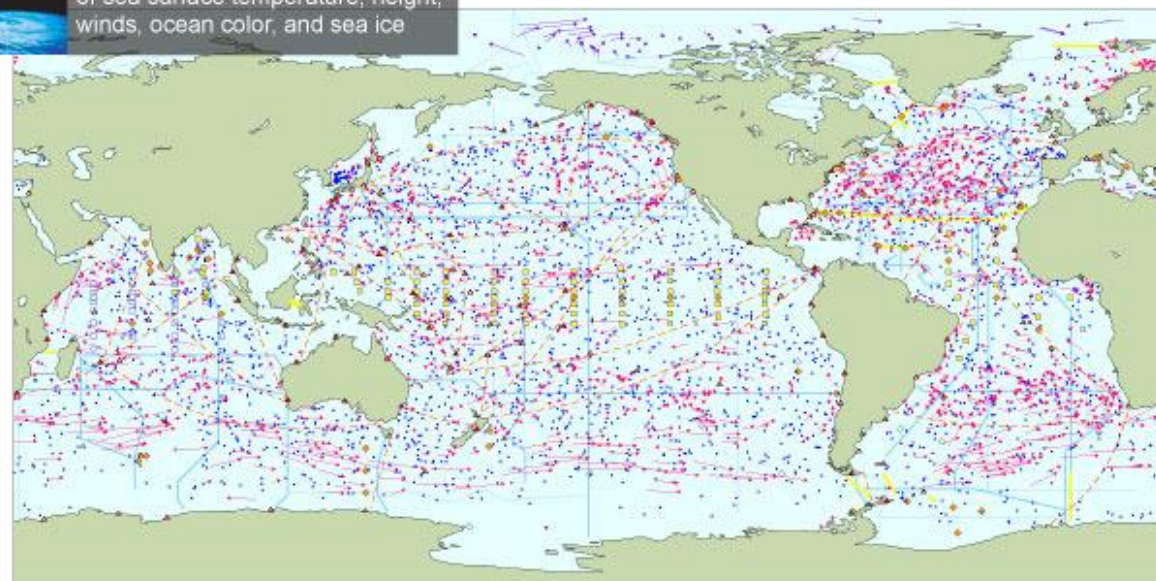
Global networks coordinated through GOOS panels



continuous satellite measurements of sea surface temperature, height, winds, ocean color, and sea ice

Total *in situ* networks **61%**

April 2013



Transport monitoring

48%

29 sites



Global time series network



58 moorings planned



Global tropical moored buoy network



119 moorings planned



100% Surface measurements from volunteer ships (VOS)

250 ships in VOSclim pilot project



75% Global drifting surface buoy array

5° resolution array; 1250 floats



66% Tide gauge network (GCOS subset of GLOSS core network)

170 real-time reporting gauges



81% XBT sub-surface temperature section network

51 lines occupied



100% Argo profiling float network

3° resolution array; 3000 floats



62% Repeat hydrography and carbon inventory

Full ocean survey in 10 years

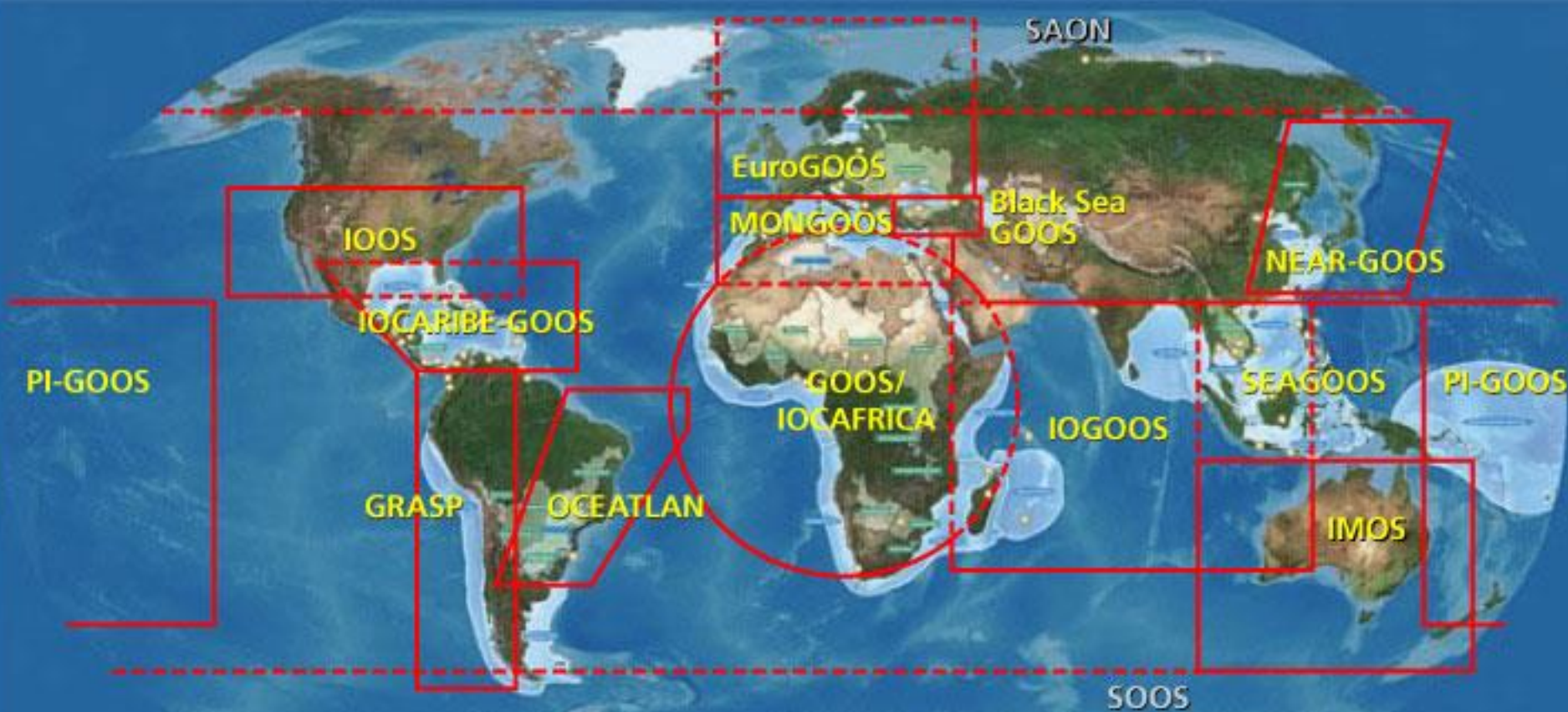
Representative milestones



original goal for full implementation by 2010

System % sustained, of initial goals

Regional implementation of GOOS



GEF-funded LMEs and GOOS Regional Alliances

GOOS Regional Alliance Accomplishments

Coordinated by Zdenka Willis, US IOOS

- Completed individual **assessments** of each GRA
 - <http://www.ioc-goos.org/GRF-VI-Documents>
- Overall Summary Analysis of Assessments
 - <http://www.ioc-goos.org/GRA-Assessments-2013>
- **GOOS Regional Policy** updated in line with restructuring of GOOS governance, and with Framework guidance for GRAs (*IOC-INF/1308*)
- Sixth Session of **GOOS RA Forum** held in May 2013: exchange of best practices in observation, data management, services, advocacy
- Data interoperability test with IODE Ocean Data Portal
- Ongoing survey of **modeling capacity and tools**



GOOS Regional Alliance

SWOT Analysis

Strengths

- Adopted new Regional Policy for GRAs
- Broad country participation (105 nations)
- Well positioned to support GOOS and the framework for ocean observing going forward
- Serves as the entry into GOOS for many member nations
- Coordinates observing systems across GRA member nations
- Allows for the exchange and access of oceanographic data, development of downstream services, and strengthening of capacity building
- Modeling capability, focused on physical models

Weaknesses

- Spatial gaps in observing, mostly coastal
- Undersampling of in situ observations
- Limited biological/geochemical observing networks
- Capacity to maintain observing networks
- Varying observing capability and maturity among the Regional Alliances

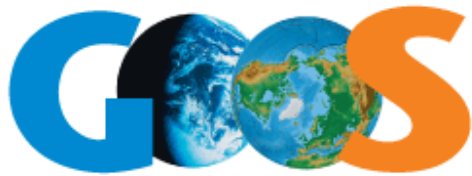
Opportunities

- Project to inventory modeling capabilities in each of the regions
- Pilot projects for the coupling of social science and ecosystem modeling with physical modeling
- Ocean Tracking Network partnership
- Baseline level of data access

Threats

- Lack of resources at IOC for coordination and capacity building
- Lack of support for GRA structure at national levels
- Sustaining of existing observing networks due to declining resources
- Willingness of nations to share biogeochemical and biological observations from within EEZs

Improving communications



The Global Ocean Observing System



- Quarterly newsletter
- April issue at **ioc-goos.org**
 - *Co-chairs introduction*
 - *Framework for Ocean Observing, Developing biogeochemical and biological/ecosystems EOVs, regional developments, job announcements*
 - *link to GRA activities and calendars*
- Receive these updates and webinar announcements by email: **ioc-goos.org/join**

GOOS and LMEs

- GOOS Regional Alliances and Large Marine Ecosystem projects stand to mutually benefit
 - LME projects as **drivers of requirements**, and **users** to reach
 - GRAs coordinating the **delivery of ocean information**
 - together to evaluate the **fitness-for-purpose** of ocean observations