Connecting the World with Ocean Observations: Interoperability and Governance

• Chair:
  - **Katy Hill**, Ocean Observations (GCOS/GOOS) at WMO

• Panelists
  - **Toste Tanhua**: Co-Chair of the GOOS SC; GEOMAR, Germany.
  - **Patricia Miloslavich**: Project Officer, GOOS Biology and Ecosystems Panel, University of Tasmania senior professor, Simon Bolivar University in Venezuela.
  - **Dick Schaap**, Managing Director, MARIS company, the Netherlands, and Technical Coordinator SeaDataNet.
  - **Caine Taiapa**, General Manager at Manaaki Te Awanui Charitable Trust in New Zealand.
How we got here.
– WOCE, TOGA, JGOFs, set foundations, community collaboration
– OceanObs’99, Sustained Observing System for Climate.
– OceanObs09: opened doors to broader uses. FOO.

OceanObs19?

Goal: An integrated multiplatform, multidisciplinary, multi-scale, multi use (and user driven), observing system (interoperable!).
– Governance to enable the funding, development, implementation, use and evaluation.
• How do we ensure we develop:
  – An interoperable observing system
  – A governance framework that is interoperable!
  – Interoperable practices and methods:
    – Interoperable data and information

• Equity in participation, access, use, and benefit
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TOSTE TANHUA – GOOS Co-Chair and GEOMAR.
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The Framework for Ocean Observing has transformed ocean observing the last decade.
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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.
A fully-integrated ocean observing system will deliver ocean information across three key application areas:

- **Operational Services**
- **Climate**
- **Ocean health.**
What is the governance structure needed to ensure interoperability of the observing system?

How to:

- Ensure that the observing networks are interoperable?
- Ensure that the data delivery system are interoperable?
- Better deliver on GOOS themes / service areas?

There is a need for an overall coordination and steering body to make sure the parts of the machinery works. Some parts of the GOOS machinery need refurbishing and some more “grease and tuning” is needed. Time for service and update of GOOS!

Now

Future?
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Three main themes (might be more)
- Operational Services
- Climate
- Ocean health.

Status compared to OO‘09:
- A much broader community
- More pull from stakeholders
- A much more complex system
- ...
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What is the governance structure needed to ensure interoperability of the observing system?

How to:

- Ensure that the observing networks are interoperable?
- Ensure that the data delivery system are interoperable?
- Ensure sustained delivery on societal relevant areas?
- How do we create efficient cooperation between partners?

There is a need for an overall coordination and steering body to make sure the parts of the machinery works. Some parts of the OO machinery need refurbishing and some more „grease and tuning“ is needed. Time for service and update of the Global Ocean Observing System!
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PATRICIA MILOS'LAVICH – GOOS BioEco Coordinator, UTAS, USB.
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DICK SCHAAP - Managing Director, MARIS company, the Netherlands, and Technical Coordinator SeaDataNet.
Importance of ocean and marine data management

- Data are collected by governments, research institutes, and private industry (in Europe already more than 1,000 organisations)
- Data for physics, geophysics, meteorology, chemistry, biology, geology, bathymetry
- Acquisition of oceanographic and marine data is expensive; **annual** costs in Europe estimated at **1.4 Billion Euro** (1.0 = in-situ; 0.4 = satellites)

Professional data management is required with agreements on standardisation, quality control protocols, long term archiving, catalogues, and access

‘Measure once, use multiple times’
Overarching European infrastructures for marine data and data products

- **Pan-European infrastructure for marine data management, run by NODcs**: Network of data centres interacting directly with data collectors, providing standards, validation services and long term stewardship. Providing data discovery and access services to users for multiple marine disciplines. Bottom-up approach, co-funded by EU RTD since end 90’s.

- **European Marine Observation and Data Network**, funded by EU DG MARE since 2008. Focus on developing and providing generic data products for European marine waters. Top-down approach, funded by EU DG MARE since 2008.

- **Copernicus Marine Environmental Monitoring Service**, funded by EU DG GROW. Focus on developing and providing marine environmental forecast products; includes INSTAC service for operational oceanography data exchange.

- **EuroGOOS, European component of GOOS**. Network of oceanographic observing systems in European waters. Focus on providing access to operational observations.
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Relations between infrastructures:

- Data discovery and access
- >110 data centres
- >650 European data originators

Delayed mode data; all marine data themes

Operational oceanography data

- Argo GDAC
- GTSSP
- OceanSITES
- Gosud
- DBCP drifters
- EGO gliders
- Carbon-BGC

Daily/Yearly

US NCEI WOD
CCHDO-ICES

Yearly

6 monthly

Copernicus in situ

EU SeaDataNet

EU NODCs

EuroGoos
RODSS

jcomm

EMODnet

SeaDataNet
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CAINE TAIAPA - General Manager at Manaaki Te Awanui Charitable Trust in New Zealand.
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