INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Executive Summary of the Sixteenth Meeting of the GOOS Observations Coordination Group (OCG-16)

07 -10 April 2025

Hosted by IFREMER, Salon de l'Océan, Brest, France

The Sixteenth meeting of the GOOS Observations Coordination Group (OCG-16) was held in April/May 2025 at IFREMER in Best. With kind thanks to our hosts, IFREMER and OceanOPS, who added to our meeting with impeccable support. IFREMER is the host of OceanOPS, Coriolis and a strong supporter and innovator for ocean observing.

Sixteen is synonymous with coming of age and this could also be said of the GOOS Observations Coordination Group (OCG). The OCG is now larger and more diverse with the addition of new 'emerging' networks, the SUN Fleet joined as an 'emerging' network, and the 13 mature GOOS ocean observing networks. OCG-16 will also be noted for the GOOS networks, advancing the standards around what it means to be an operationally mature GOOS network, with progress on agreed minimum metadata standards, data strategy, Service Level Agreements with OceanOPS, and on defining the features of emerging and mature status for networks to reach, which to adds greater precision to the earlier defined OCG Network Attributes (see Successes and Highlights, below).

The meeting highlighted the growing evidence of the impacts of ocean observations on weather, climate and ocean prediction, with multiple lines of evidence from seasonal and shorter term weather forecasting, tropical cyclone forecasting, ENSO prediction, fuel savings via optimal weather/ship routing from ocean prediction, and forecasting of ocean conditions that affect, for example, fisheries. A concrete effort to compile and communicate on these examples was highlighted for future action, to support the sustained financing of these critical observing networks (see below).

The OCG looked into the future and identified new areas that will require work as the Global Ocean Observing System evolves (see Looking to the Future, below). These

new action areas are truly cross-network and oriented towards an integrated, transparent and operational system, supporting the maturing of global ocean observing as an integrated system.

Successes and Highlights:

The SUN Fleet was adopted as an emerging GOOS network under the OCG. This Surface UNcrewed Fleet (SUN Fleet), is able to monitor numerous GOOS Essential Ocean Variables and measure important air-sea exchanges in remote areas and under harsh conditions (news). This grows the unique set of global networks that are coordinated under the OCG to 17: 13 mature networks and 4 emerging networks. It also deepens the links with industry as the SUN Fleet and other emerging networks have strong partners in the private sector. The 13 mature, and 3 emerging networks endorsed at OCG-15, had all made progress (see Network Reports and Session 6).

A framework for the Service Level Agreements (SLAs), between OceanOPS and the GOOS networks, was adopted. This is a big step forward in defining the baseline services that OceanOPS provide, funded through WMO and GOOS resources, and the specific services that are needed by networks for their management, which are supported through specific national contributions. This also supports the transparency and stability of OceanOPS structure and support networks, and gives a clear rationale for fundraising for OceanOPS vital services. OceanOPS also reported on key successes against its Strategic Plan 2021 - 2025 (Session 8), and the OCG congratulated the OceanOPS team! However, significant challenges remain and work on defining the next OceanOPS Strategic Plan 2026 - 2030 will consider the long term funding outlook. This work will start in September 2025.

Data was a key topic at OCG-16 with several key items discussed in session 7. The IOC Data Architecture concept was highlighted as an important step forward for future data access and services. However, the additional support needed to truly implement a robust and open global federated system needs to be clearly identified. In addition, a Metadata Passport concept was outlined - this identifies the minimum set of metadata required to gain a unique ID (WIGOS identifier) and to enable tracking of data delivery across the system. As work on the IOC Data Architecture develops, this Metadata Passport may develop to include user-focused metadata to ensure appropriate discovery, use and attribution. It was noted that many networks may need additional support to undertake the data advances required under the evolving Data Architecture, including implementing Global Data Assembly Centres for all GOOS networks.

A successful IOCARIBE GOOS Workshop (Session 9) was held during the OCG-16 meeting, and IOCARIBE representatives joined the OCG enabling many opportunities for exchange between this developing GOOS Regional Alliance and the GOOS mature and emerging networks. This was a great aid to IOCARIBE

GOOS in setting their plans and provided many ideas for future collaboration in the region.

Finally, a new initiative to dramatically expand the number of commercial vessels involved in supporting the taking of ocean observations under GOOS (SOT networks and others) was discussed - this became the WMO/IOC 10 000 Ships initiative as launched at UNOC3 in June 2025.

Looking to the future:

The evolving nature of the Global Ocean Observing System and its operational landscape were considered, and key areas for OCG cross-network activity were identified:

1. OCG expansion: The success of the OCG in expanding the number of networks that contribute to the global ocean observing system was noted. However, this is now bringing challenges of scale. The OCG Executive was asked to consider how to best manage the growing number of emerging networks, the impact on the OCG's work, the impact on the support structure (OceanOPS, secretariat), and how work is prioritised to ensure a cohesive and integrated system.

2. Cross-network System design: This was noted across the meeting as an area that the networks would like to collectively engage and work on, perhaps taking the work under the WMO Rolling Review of Requirements (RRR) or the Co-Design Programme as a starting point, and considering the complementarity and reliance between networks across the system. It was also recognised that the development of new AI powered services will increase the need for ocean observational data and OCG should ensure we consider and demonstrate the value of these advances.

3. Use cases and value of ocean observing: A need for OCG to consider valuing the observing system through demonstrating the advances in services and predictions that ocean data provide was highlighted as an important to consider for the future, developing ideas towards a method for providing insight into system benefits and cost. A concrete effort to compile use cases and communicate on these was highlighted for future action.

4. Annual connection with modeling community: Interaction with seasonal and coastal modelling managers identified interest from both OCG observing and modelling/service managers in having more regular meetings.

5. Interaction with private sector: The interaction of networks, including the emerging networks, with the private sector came up at several points in the discussions, and the need to develop cross network ideas towards a process to set the 'bar' for sensor/equipment manufacturers was raised as vital for the commercial viability of sensors and increasingly important for the networks, as well as how achieving such a benchmark could be evaluated.

Summary of key decisions:

OCG approved the OceanOPS Service Level Agreements (SLA) framework (2025).

OCG approved the OceanOPS WorkPlan for 2025-2026, considering the points noted during the session.

OCG welcomed the SUN Fleet as an OCG emerging network, with the following recommendations:

- report annually on progress towards meeting the OCG network attributes
- ensure that its operators adopt the up to date BUFR template (from WMO)
- finalise its network governance structure and report back to OCG-17
- connect with OceanOPS for SLA discussion

OCG to consider using the outcomes of the WMO Rolling Review of Requirements (RRR) for initial assessment of requirements vs EOV coverage (see forward looking topics - session 10) as the WMO RRR Statements of Guidance become complete.

OCG Executive Team to consider how OCG effectively manages the growing number of emerging networks and prioritises support to ensure a cohesive and integrated system.

OceanOPS to provide a plan for refreshing the OceanOPS 5 Years Strategy to the OCG, WMO, and IOC, and request feedback, aiming to start in September 2025.

OCG Data Task Team to:

- identify the work required across the networks for the OCG Data Implementation Strategy and the IOC Data Architecture (including Global Data Assembly Centres (GDACs), metadata, machine-to-machine (m2m) data and metadata flow).
- develop an uncertainty framework for OCG data/metadata, then discuss with the OCG at a Roundtable

OCG Executive Team to consider forward-looking topics (see below) and suggest lines of action for long term goals, considering the OCG ToRs. It should aim that actions towards these long term goals be identified by the end of 2025 and in place by OCG-17. The following forward looking topics were identified:

- RRR - GBON - cross platform planning
- Uncertainty / precision in observations
- OCG Data Strategy/IOC Data Architecture support and develop
- Testing new technology/links with private sector
- Value, risk, and resourcing of the observing system

For more details please access the OCG-16 Meeting Report available - here.