**GOOS Network OCG-15 Report Template**

We ask that you follow this template for reporting prior to OCG-15. Please note that we ask each Network to complete this **reporting document** by April 12 2024 to highlight the advances during the **last intersessional period** and prepare a **poster** for the OCG-15 meeting (template to be provided). Please use this report to highlight what your **key challenges are, any ask for the OCG** (Exec, networks, OceanOPS, and/or GOOS), and **how OCG can support your network and activities towards an expanded, integrated and more fit for purpose global ocean observing system**.

These reports will be reviewed by the OCG Exec prior to OCG-15 and will help guide the conversation and action planning at the meeting, and inform the network posters.

This year, the reporting will be primarily through this written report - with opportunities to discuss the content and show advances through the poster session, and to collectively discuss challenges, opportunities and ‘asks’ in Session 10: Network issues and opportunities.

* Please be concise in your reporting, 4 page limit
* Network reports should be submitted to [t.yu@unesco.org](mailto:t.yu@unesco.org) by end ofday **April 12 (Friday)**, 2024

**GOOS Network Name**

Prepared/submitted by \*\*\*\*

1. Highlight the key network successes

* Over the past six months, OASIS has been developing a manuscript outlining the details of the Uncrewed Surface Vehicles (USVs) for GOOS network and it’s progress towards meeting the ten OCG attributes. Over forty co-authors have contributed to ensure that this paper truly represents a community perspective and this includes scientists from multiple disciplines (physical, biological, biogeochemical and ecological) and USV manufacturers. This paper is currently in prep, with the intention of submitting to Frontiers in Marine Science before the OCG-15 meeting in May 2024. This will be referred to throughout this document as ‘the paper’.
* OASIS held a face-to-face/remote workshop at OSM24, and gathered 54 in-person participants with Early Career Ocean Professionals from Africa, South America, Asia, Australia, Europe and North America, and included USV manufacturers. Significant portions of the workshop were spent discussing the USVs for GOOS network, its importance for multidisciplinary observations and its place in GOOS. This workshop led to valuable content for the paper. As a group we:
  + Established and documented the proposed network missions.
  + Shared important lessons learned from USV operations, which are communicated through the paper.
* In mid-2023 OASIS started a regular webinar to develop a community of practice amongst USV manufacturers and USV scientific adopters. We have done six webinars so far, with guest speakers from South Africa, U.S., New Caledonia, Sweden, Japan and Australia. This has been a crucial meeting space for the community to present and discuss issues related to USV capability, data sharing, experience sharing and scientific/societal application.

1. How has the network advanced across the OCG Network Attribute areas[[1]](#footnote-0)

* In developing the USVs for GOOS paper we made significant progress on our vision for the network. The following activities are documented in the paper:
  + During the OASIS face-to-face meeting at OSM24 we defined the network mission and goals, and developed a clear picture as to how the USVs for GOOS network fills in observation gaps and complements the existing networks.
  + OASIS developed a comprehensive list of EOV/ECVs that are being collected using USVs using information from a systematic literature review and expert input.
  + We quantified the network’s global reach via a literature review and gathered data from individual USV scientific projects, most of whom subsequently joined the USVs for GOOS community via co-authorship on the paper. Now we are connected and the scientific community is discussing aspects of the 10 attributes through the paper-writing process.
* In April 2024 OASIS Submitted UN Ocean Decade funding pitches for the following attribute-related activities:
  + Creation of a website and data portal for the network, with the intent to feed metadata into OceanOPS (Ensuring data delivery according to FAIR principles).
  + Creation of a Scientist in Residence program, enabling scientists to take extended visits to meet other scientists in SIDS and the Global South, and short (2-6 months) paid internships to foster institutional collaboration (capacity building and technology transfer)

1. Future Plans[[2]](#footnote-1) and Opportunities - at network and/or cross-network OCG level

* A major outcome of the face-to-face workshop was the interest and need of our community to perform thorough intercomparison studies between USV platforms and other OCG network platforms. The community felt that establishing data quality standards was required independently across all platforms was a priority, and that well-defined and documented data uncertainties would increase the uptake of USVs to do scientific monitoring.
* The workshop group agreed that a shift from research towards operational USV adoption would lead towards sustaining the network mission. This has been documented in the conclusion of the paper and we hope that this would provide opportunities and collaborative action between USV manufacturers and scientists.
* We also agreed that a priority was to develop guidelines around how USV manufacturers can start to design and comply with ‘recommended practices’ set out by GOOS (and OASIS). The feeling was that USV manufacturers were unaware of how to meet and help establish those standards, which OASIS agreed was crucial for future growth of the network. We refer specifically to data file formats, precision and accuracy requirements for particular monitoring purposes, methods for calculating uncertainty, and potentially an ‘instruction set’ for how to do ideal intercomparisons with other network platforms.

1. Challenges and Concerns - at network and/or cross-network OCG level

* We have not yet secured funding for network coordination, management and activities, and we feel this is going to be a major challenge. Currently OASIS relies mostly on volunteers to contribute time to develop internal and cross-network activities. We are conscious that relying on volunteers is unsustainable, and we are looking forward to learning how other networks have secured funding.
* Public-private partnerships are essential for the success of this network, and there is some hesitancy from USV manufacturers in sharing lessons learned due to the fear of advancing competitors. We are putting a lot of energy into bringing them along with us on the journey and trying to create ownership amongst them.

1. Asks from OCG (Exec, networks, OceanOPS, and/or GOOS), perhaps related to the responses to parts 3 and 4 and how OCG can support your network

* It would be ideal if GOOS leadership could express support of the USVs for GOOS emerging network to regional/national network leads, and encourage those leads to support our (and other) emerging networks at a regional level. This may help with securing funding to grow and maintain the global USV network, which could and should be done in conjunction with developing regional/national USV networks. We have found that some regional/national networks are forward-thinking when it comes to USV adoption and are pro-actively implementing leadership initiatives and developments, whom we are working closely with to co-develop capability. However, other networks appear to be risk-averse to the emerging technology, despite USVs being readily adopted for scientific ocean and atmospheric observing.
* We appreciate GOOS covering the costs of the flights to enable us to attend the OCG-15 meeting in person. This will be very beneficial for the USVs for GOOS network to become known across other networks, and will enable us to connect with these networks.

1. Recent publications, articles, etc. (if you want to share)

* In Prep: **Patterson, R.G.\***, Edholm\*\*, J.M., Beja, J., Swart, S., Hormann, V., Du Plessis, M.\*, McMahon, C., Zhang, C., Addey, C.I.\*\*, Kuhn, C., Cronin, M., Looney, L.\*\*, Foltz, G., Sutton, A., Burris, J., Bhuyan, P.\*\*, Flanigan, M., Mordy, C., Lenain, L., Grare, L., Boone, W., Ramasco, V., Palter, J., C., Stienbarger\*, Ueki, I., Ponsoni, L., Thomson, J., Zhang, D., Siddle, E.\*, Honda, M., Hole, L.R., Camus, L., Peddie, D., Mitarai, S., Tada, N., Nagano, A., Kosaka, N., Rozenauers, N., Burger, E., Nickford, S., Parker, A., Nicholson, S-A\*, Uncrewed Surface Vehicles in the Global Ocean Observing System: A new frontier for observing and monitoring at the air-sea interface

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1. <https://oceanexpert.org/downloadFile/45372> [↑](#footnote-ref-0)
2. Future plans on implementation, instrumentation, data management, test, new sensors, plan for new EOV/ECV observations, capacity development, etc. [↑](#footnote-ref-1)