



14th GOOS Steering Committee meeting (SC-14) | 19-21 February 2025 (Paris)
Background paper

Session:

2.5

Agenda item:

Carbon and GHGs

Introduction/Background

Including links to relevant documents, mandates etc.

There are approximately twenty GOOS-related ocean carbon and ocean greenhouse gas (GHG) activities proposed in active WMO and IOC implementation plans and reports: the [Global Greenhouse Gas Watch \(G3W\) Implementation Plan](#), [2022 Global Climate Observing System \(GCOS\) Implementation Plan](#), and [Integrated Ocean Carbon Research \(IOC-R\) Report](#).

Current status

Several proposed actions overlap across the WMO and IOC plans and fall within three major focal areas: 1) coordination of ocean GHG networks, 2) ongoing core GOOS responsibilities, and 3) coordination of various ocean carbon network design development activities. The GOOS BGC Panel has been coordinating a suite of activities responding to these mandates in all focal areas, including development of a guiding document with the timeline for delivery of major outcomes through coordination, communication, and implementation efforts over the next 3-5 years. This guiding document will be discussed as part of the Cross-Panel meeting on February 18th before SC-14.

Work/Project plan

Including Deliverables (e.g. Activities/Actions/ KPIs) and Budget / Resource needs

→ 2025

→ 2026-2027

Coordination of ocean GHG networks is within the scope of IOCCP / GOOS BGC Panel. Six of seven actions under focal area 1 are completed or underway, including:

- formalization of a Surface Ocean CO₂ Observing Network (SOCONET) and its Steering Committee,
- creation of an inventory of surface ocean pCO₂ observations by ocean experts, which



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is being led by the WMO G3W Networks Task Team that includes GOOS GBC Panel representation

- revitalized coordination of ocean N₂O and CH₄ observations and data products by a new IOCCP SSG member with this expertise, and
- pursued funding opportunities for the Surface Ocean CO₂ Atlas (SOCAT) that delivers surface ocean pCO₂ data used to generate global gridded products of air-sea CO₂ flux.

Focal area 2 includes ongoing core GOOS responsibilities, such as developing monitoring standards, guidance and best practices for each ECV, which will be discussed during other sessions.

Focal area 3 includes mandates related to ocean carbon observing network design. Deliverables related to global ocean carbon observing over the next two years include 1) a research-oriented, cross-network strategy describing the dependencies and required coordination across the GOOS networks that play a central role in global ocean carbon observing and 2) enhancing collaboration of observationalists and modelers to set the stage for a potential observing network design workshop in 2026.

There are stakeholder needs beyond the fundamental global-scale research questions and the mandates covered in the G3W, GCOS, and IOC-R plans and reports. Over the next five years, the UN Decade Marine Carbon Co-Design Exemplar will lead the vision for co-design of regional and application-oriented ocean carbon observing efforts, bringing together relevant GOOS elements and stakeholders. This work is described in further detail [here](#).

Expected outcomes for GOOS

Recommendations for optimizing and enhancing ocean carbon observing networks
Integration of ocean GHG data and products in an operational G3W

Considerations for the GOOS Steering Committee

Uncertainty in funding that supports coordination of the ocean carbon community may delay progress in responding to these mandates. Prioritizing, consolidation where possible, and limiting engagement in other tasks will be key to our success. Crucial need of 1 FTE to ensure a proper implementation of the carbon plan in the coming years (2025-2027).

Proposed decisions/recommendations

- Adopt the proposed work plan
- Use existing forum for communicating collective progress across GOOS elements