A communication and coordination service for marine biogeochemistry

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Operationalizing the value chain of Surface Ocean Carbon Observations

• Much of the network is supported by short term research funding rather than longer term operational funding (similar to Met obs.), which is rather counterproductive at the time of the climate emergency when we are asked to deliver ocean carbon uptake in near-real time for a wide variety of purposes.

• We are in the process of describing a fully operational Ocean Carbon Observing System Strategy capable of operationally delivering ocean carbon flux information.

• Current efforts are focused on:
  • Agreement on the objectives, goals and structure of the System and development of the Strategy elements (Nov 2021 – Nov 2022, mostly online)
  • Organizing a technical workshop focused on the technical, financial and organizational solutions for the Strategy allowing for sustainable ocean carbon flux monitoring required to deliver an annual traceable, robust estimate of ocean carbon uptake (Q4 2022)
  • Continue liaison with stakeholders: via COP (26, 27), UNFCCC SBSTA, UN Oceans Conference, GCOS, national and regional funding mechanisms
Carbon (and wider BGC) Data Management needs an overhaul

The infrastructure supporting the management of carbon and biogeochemistry data is extremely vulnerable:

- **Reliance on 1-2 key groups** to develop software and provide hardware infrastructure
- Data from various platforms have different, often non-crossing pathways
- Most of the infrastructure is **research-funded** or in best case, **short term funded**

**Volunteer basis (!!!) for Quality Control** (e.g. SOCAT)

Issue impacts SOCAT, GLODAP, GO2DAT, SDG 14.3, GOA-ON

Community asked to deliver information on an operational basis but not provided with dedicated resources for development, integration and delivery of products

We are currently working with several partners to:

- Move away from community-based volunteer QC efforts run purely on voluntary basis;
- Develop dedicated resources to produce data synthesis products (e.g. SOCAT, GLODAP, GO2DAT) in an automated, operational manner which would increase the TRL of the whole operation;
- Make sure that services and applications depending on data synth. products clearly acknowledge that dependence;
- Initiate national efforts to operationalize funding for global oceanographic data management across disciplines
- Implement recommendations of the IOCCP Position Paper: Global Data Assembly center for BGC -> easy access, fit for purpose (e.g. uncertainties) and user friendly...
Operationalizing the value chain of Surface Ocean Carbon Observations

Current Surface Ocean Carbon Monitoring System

- **Operational**
  - Adopt New technology
  - Deploy in Ocean
- **Acceptance Step**
  - Calibrate, QC and Archive data
  - Calculate Fluxes
  - Advise Governments
- **Research to improve Value Chain**
  - Innovate Technology
  - Deployment Strategy
  - Better Calibration Strategies/ data QC
- **Resources Mobilization Step**
  - New Sensors, new platforms
  - How Many sensors? What platforms? Where?
  - New QC methods (AI etc) Intercomparison Strategies
  - New algorithms, new theory
  - Better links to other components of global C cycle,
- **Requirements described in Monitoring Strategy**
  - Support for innovation
  - Support for deployment/ installations
  - Support for calibration and data synthesis
  - Support in Flux calculations
  - Support for linking to stakeholders
A global ocean oxygen database and atlas for assessing and predicting deoxygenation and ocean health in the open and coastal ocean.
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Thank You!