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Global Ocean Carbon and Biogeochemistry Coordination

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The complexity of the marine carbon cycle and its numerous connections to carbon's atmospheric and terrestrial pathways means that a wide range of approaches have to be used in order to establish it's qualitative and quantitative role in the global climate system. Ocean carbon and biogeochemistry research, observations, and modelling are conducted at national, regional, and global levels to quantify the global ocean uptake of atmospheric CO_2 and to understand controls of this process, the variability of uptake and vulnerability of carbon fluxes into the ocean. These science activities require support by a sustained, international effort that provides a central communication forum and coordination services to facilitate the compatibility and comparability of results from individual efforts and development of the ocean carbon data products that can be integrated with the terrestrial, atmospheric and human dimensions components of the global carbon cycle. The International Ocean Carbon Coordination Project (IOCCP) was created in 2005 by the IOC of UNESCO and the Scientific Committee on Oceanic Research. IOCCP provides an international, program-independent forum for global coordination of ocean carbon and biogeochemistry observations and integration with global carbon cycle science programs.

The IOCCP coordinates an ever-increasing set of observations-related activities in the following domains: underway observations of biogeochemical water properties, ocean interior observations, ship-based time-series observations, large-scale ocean acidification monitoring, inorganic nutrients observations, biogeochemical instruments and autonomous sensors and data and information creation. Our contribution is through the facilitation of the development of globally acceptable strategies, methodologies, practices and standards homogenizing efforts of the research community and scientific advisory groups as well as integrating the ocean biogeochemistry observations with the multidisciplinary global ocean observing system.

Over the past 4-5 years IOCCP's long standing experience in coordinating biogeochemical observations and data flows globally, resulted in assuming a leadership role during the design and implementation of the biogeochemistry portion of the Framework for Ocean Observing (FOO, 2012). To optimize and enhance the global ocean observing system IOCCP started to implement major elements of the system's approach outlined in the FOO. Starting by setting of ocean observing requirements representing the needs of societal and scientific stakeholders, followed by development of a set of essential ocean variables (EOVs) with spatial and temporal resolution specifications to best meet current demands for data and information services given current and potential national capabilities.

The IOCCP works directly with projects and programs programmatically connected to GOOS as well as the WMO-IOC JCOMM to integrate ocean carbon and biogeochemistry observation information into the plans of the Global Climate Observing System in support of the United Nations Framework Convention on Climate Change, the World Summit on Sustainable Development, the Group on Earth Observations, and other international and intergovernmental strategies.

We would like to update our partners across disciplines and domains on our short- and long-term strategies as well as learn from their combined experience and knowledge so that our individual activities align more with those undertaken by our counterparts in biological and physical oceanography as well as in terrestrial and atmospheric domains.