Geophysical Research Abstracts
Vol. 19, EGU2017-6081, 2017
EGU General Assembly 2017

Biogeochemical-Argo: achievements, challenges for the future and potential synergies with other components of ocean observation systems

Hervé Claustre (1) and Ken Johnson (2)

(1) Laboratoire d'Océanographie de Villefranche, CNRS-UPMC, Villefranche-sur-mer, France (claustre@obs-vlfr.fr), (2) Monterey Bay Aquarium Research Institute, Moss Landing, CA, USA (johnson@mbari.org)

The recently launched Biogeochemical-Argo (BGC-Argo) program aims at developing a global network of biogeochemical sensors on Argo profiling floats for acquiring long-term high-quality time-series of oceanic properties. BGC-Argo is in particular poised to address a number of challenges in ocean science (e.g. hypoxia, carbon uptake, ocean acidification, biological-carbon pump and phytoplankton communities), topics that are difficult, if not impossible, to address with our present observing assets. Presently six variables are considered as core BGC-Argo variables (O_2, NO_3, pH, Chla, suspended particles and downwelling irradiance). Historically, BGC-Argo has been initiated through small-scale "showcase" projects progressively scaling up into regional case studies essentially addressing key biological pump-related questions in specific regions (e.g. sub-tropical gyres, North Atlantic, Southern Ocean). Now BGC-Argo is transitioning towards a global and sustained observation system thanks to progressive international coordination of national contributions and to increasingly mature and efficient data management and distribution systems. In this presentation, we will highlight a variety of results derived from BGC-Argo observations and encompassing a wide range of topics related to ocean biogeochemistry. Challenges for the future and long-term sustainability of the system will be addressed in particular with respect to maintaining a high-quality and interoperable dataset over long-term. Part of this can be achieved through a tight interaction with programs (e.g. GOSHIP) and their historical databases, which should constitute a corner stone to assess data quality. Example on the interplay between BGC-Argo and GlodapV2 databases will be particularly exemplified in this context. Furthermore, we will illustrate the potential synergies between synoptically measured surface satellite-quantities and their vertically resolved (BGC-Argo) counterparts into the development of 3D biogeochemical products.