

Implementing global BGC-Argo: towards a sustained program synergistically interacting with other components of the global observation system.

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Developing in-depth scientific understanding of on-going changes in oceanic biogeochemical cycles and ecosystems requires broadening and intensifying global observations of key variables including Essential Ocean Variables. The BGC-Argo program aims at filling the gaps in the observation of these variables to support science research, management and exploration. The BGC-Argo science and implementation plan of 2016 recommends, at a 25 M\$ annual cost, the operation of a 1000 float network measuring six variables (Chla, suspended particles, O₂, NO₃, pH, irradiance) in close synergy with the Argo program. Presently the ~200 floats network is supported through national projects and is entering the challenging phase of organizing its sustainability through long-term commitments of various agencies. Besides the 1000 float density target, this sustainability will rely on the setup of a program environment maximizing its outcomes by contributing to a more integrated global observation system with a large number of users. In this context, the keystone areas for BGC-Argo development are twofold. (1) Complete the establishment of an ambitious and evolving data management system that will combine: (a) real-time data delivery for operational purposes; (b) delayed-mode quality-controlled data delivery for science purposes; and (c) new products complying with end-user requirements. (2) Develop tighter and synergistic interactions with other observing and modeling programs for a cost-effective and truly integrated observation system. In particular coordination will be essential with (a) GO-SHIP for optimizing ship-time for float deployments and calibration; (b) IOCCP, GLODAP and SOCAT for a integrated set of biogeochemical products that have seasonal coverage and extend into the ocean interior; (c) IOCCG for strengthening the mutual use of in situ and satellite measurements for validation purposes and the development of merged 3D products; and (d) the GODAE modeling community.