

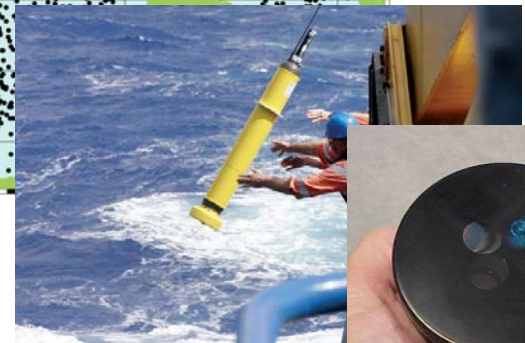
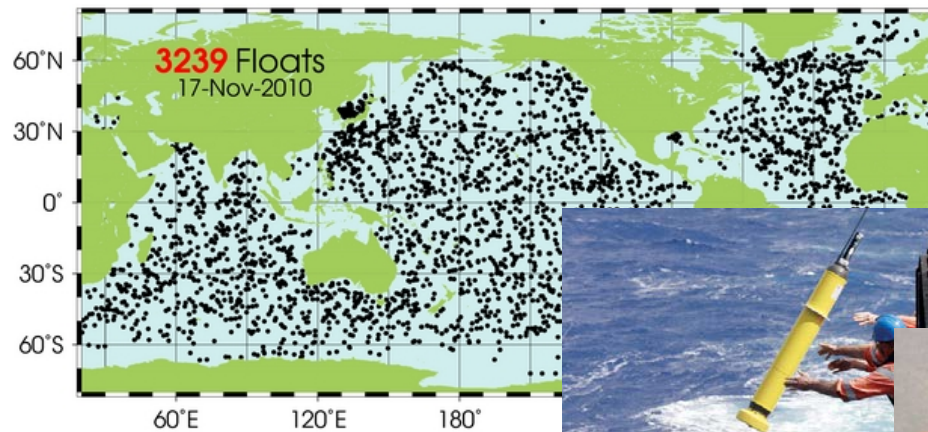


Argo Data Management Team - 13th Meeting

12-16 November, 2012,
INCOIS, Hyderabad, India



Bio-Argo Workshop Feedback



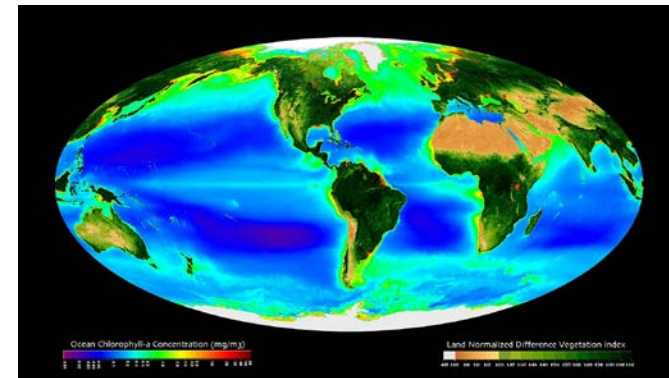
OUTLINE

- The variables
- Regional projects vs global array
- The sampling strategy
- The competition for the resources
- The various “practical” actions



Beside O₂, the biogeochemical community has identified the first variables ready to be implemented

- ❑ **Oxygen**: exchange with atmosphere, marine photosynthesis and respiration.
- ❑ **Nitrate** : New production (build up of organic material) ; remineralization; potential for being a core variable for GCM/biogeochemical.
- ❑ **Chlorophyll a** : Proxy of phytoplankton biomass, photosynthesis; required by spatial agencies (OCR); potential for being a core variable for GCM/biogeochemical.
- ❑ **Particulate backscattering** : Stock of particulate matter (detrital and living). Proxy of Particulate Carbon. required by spatial agencies (OCR)_potential for being a core variable for GCM/biogeochemical.



Selection of these variables through an international consensus : IOCCG Working group "Bio-optical sensors on Argo floats Argo", OceanObs09



Other variables on their way to become mature

- ❑ **pH**: Great potential for a global array
- ❑ **Radiometry**
 - **PAR**: Photosynthetically Available Radiation (400-700 nm). Photosynthesis (euphotic zone). Heat deposition (?)
 - **Downwelling irradiance** (E_d s) => derive **K_d s** robust products (e.g. insensitive to drift) to refine retrieval of Chla and CDOM. Great potential for CAL-VAL activities (OCR).
- ❑ **Transmissiometry cp** : Proxy of phytoplankton biomass; precise measurement useful for flux (primary production, exportation at depth) estimation.
- ❑ **CDOM**: Water mass tracer (coastal, melting ice). CAL-VAL of OCR

Regional vs global

- Rather than dispersing resources in a « scattered » Bio-Argo global array, the community prefer to **target first regional hotspots** (expecting a large return in term science for a restricted number of floats)
- These targeted areas have been identified/ chosen (not by the Bio-Argo community but by the biogeochemical community) because their are **climate- change hotspots** (take the pulse in key areas)
- When this regional approach will have been proven to be valid at the regional scale and with less expensive sensors (the manufacturers can do it), it might become the time of thinking and implementing global.

Bio-Argo HOTSPOTS

- **Arabian Sea (INCOIS):** OMZ
- **North Atlantic (remOcean, NAOS):** AMOC and CO₂ drawdown
- **Mediterranean Sea (NAOS)** => miniature Ocean with shorter time scale for the thermohaline circulation
- **Austral Ocean (SOBOM):** CO₂ drawdown, experimental for coupled model-observation

Sampling strategy and Argo label

- Most of the floats will be Argo compliant
 - Every 10 (5) days, 1000m drift, 2000-0 profile every 3 (6) cycles
- Few floats will be more process study research-oriented and not Argo compliant.
 - Diel cycles and flux measurements which impose intermediate drift at sub-surface.
 - Some of these floats are amenable to be recovered

The competition for resources...the three concerns and the actions

- The float procurement
- The cost linked to additional sensors
 - Energy cost (life-time reduced)
 - Iridium cost
- The human resources with respect to data management and QC (the DAC needs to be re-inforced).
- Bio-Argo has to find additional resources (e.g. space agencies) to enhance the system
- In each country, scientist interested in Bio-Argo should contribute to identify where additional resources can be seek for
- Capacity building » is required with this new iridium floats to attract more scientists.

Some principles to set up BIO-Argo DM

Prerequisite: We should follow as much as possible what has been defined by Argo, and that is working fine for T and S.

«Do not reinvent the wheel...»

However: specificities of some Bio-data might require some minimal «flexibility» and «adaptation»

=> add a new (spectral) dimension for managing NO3