

# Argo-type Floats with Biogeochemical Sensors

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**AST-13**  
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**Important note:**

**Apex/Iridium/CTD: US\$18,000**

**Apex/Iridium/CTD/O<sub>2</sub>/ISUS/FLBB/pH: ~US\$60,000**

BIO Argo

• Dissolved Oxygen (197)    • Bio-optics (13)    • Nitrate (13)

February 2012

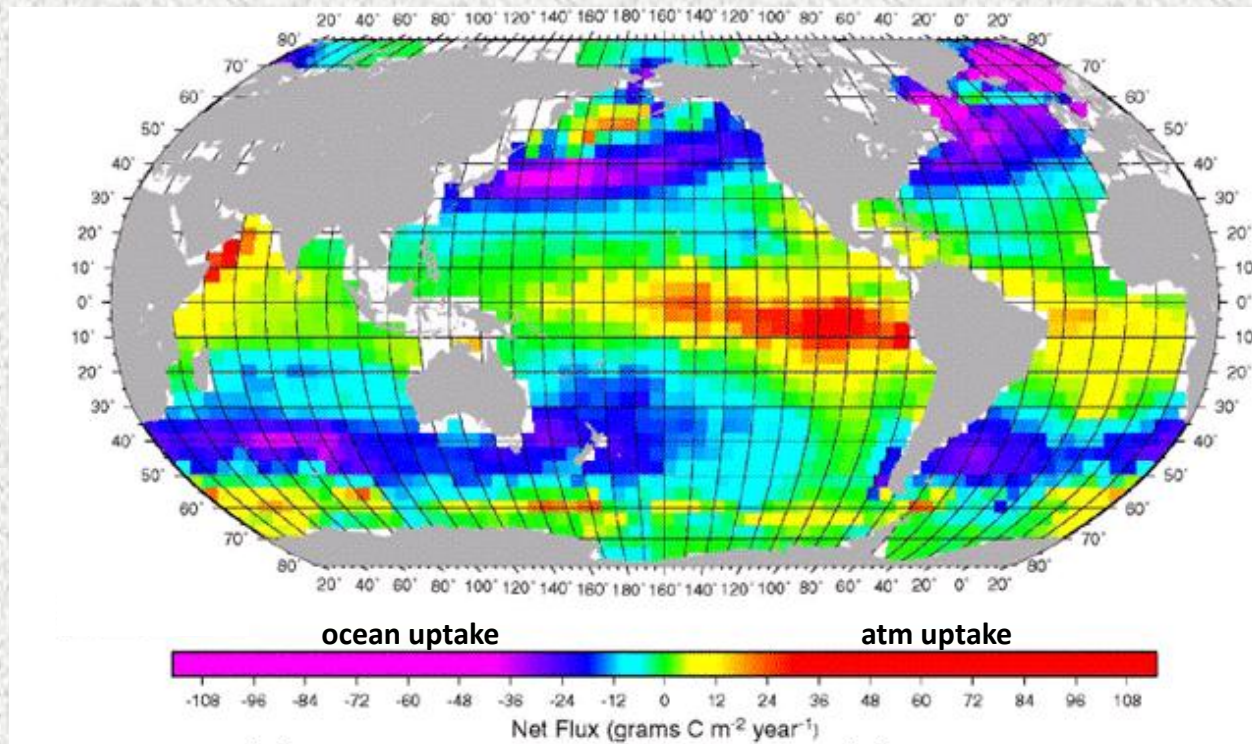
jcommops  
JCOMM-OS Chemistry Program Support Office

The present distribution of Argo floats with biogeochemical sensors

(coming soon: pH)

## Center for *Southern Ocean Biogeochemical Observations and Modeling* (SOBOM)

**Rationale:** The Southern Ocean is a site of very large uptake of CO<sub>2</sub> by the oceans and is an area of high biological productivity. It is a place with major water mass transformations. The observational database in the region is poor. Existing models of physical and biogeochemical processes in the region are inadequate and can only be improved with better observations.



annual exchange of CO<sub>2</sub> between the ocean and atmosphere

**Goal:** deploy 250-300 Argo-type floats that each carry BGC sensors in the Southern Ocean (i.e., the Southern Hemisphere south of 30° S) over a 5-year period from research vessels; collect shipboard-based carbon system parameters at deployment sites. Use the data for model improvement and in outreach. A number of countries have agreed to provide deployment opportunities.

**PI group:** J. Sarmiento (lead), K. Johnson, S. Riser, L. Talley, etc.

**Status:** Proposal submitted to US NSF as a Science and Technology Center; decision in late 2012, early 2013

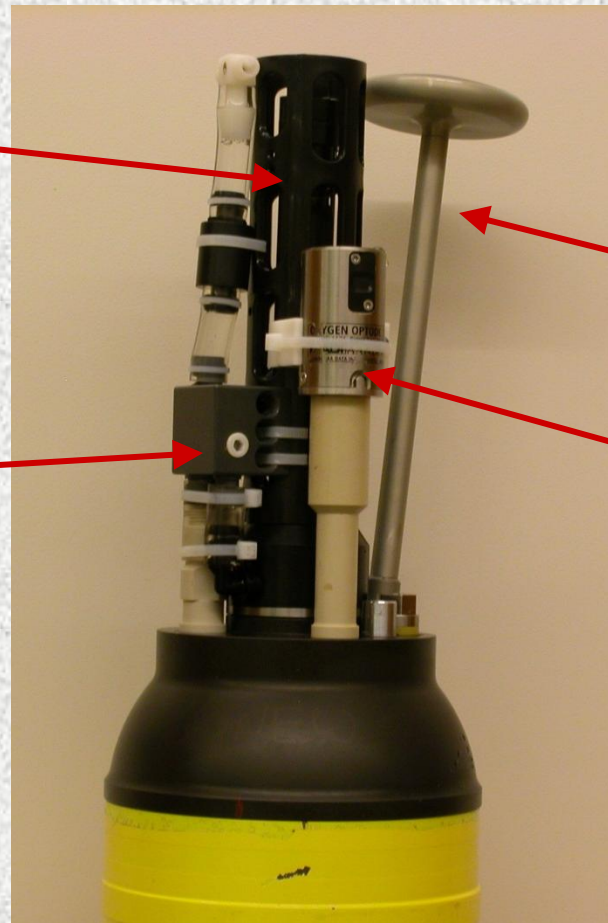
**Float configuration:** Argo-type floats (Teledyne/Webb Apex, UW configuration) equipped with Aanderaa Optode, Satlantic ISUS, MBARI pH, WetLabs FLBB. A number of similar floats have already been deployed and have lasted over 200 profiles.

Roughly 50% of these floats would be new, non-Argo floats sponsored by NSF. The other 50% would be contributed by US Argo. All of the sensors, batteries, Iridium time, and data QC would be funded through US NSF. All data would be made public via Argo protocols.

SeaBird 41-CP CTD

ISUS (embedded in  
CTD outflow)

FLBB sensor



Iridium antenna

Optode O<sub>2</sub> sensor



**The general configuration of SOBOM floats**

**A new pH sensor developed  
by MBARI for use on floats**

**(first deployment on a UW  
float at HOT 3/25/2012)**

**pH sensor and reference electrode  
(in the CTD outflow)**

