Comparability of Oceanic Nutrient Data: SIO’s Oceanographic Data Facility Support for GO-SHIP and ARGO/SOCCOM

Susan Becker¹, Dan Schuller¹, Lynne Talley¹, Robert Key², Kenneth Johnson³, Emmanuel Boss⁴

¹ Scripps Institution of Oceanography, UC San Diego 9500 Gilman Dr, mc 0236 San Diego CA 92093
² Atmospheric and Oceanic Sciences Program, 300 Forrestal Road, Sayre Hall, Princeton University, Princeton NJ 08544
³ Monterey Bay Research Institute 7700 Sandholdt Rd, Moss Landing, CA 95039
⁴ University of Maine 5706 Aubert Hall Orno ME 04469-5706

ABSTRACT

The Oceanographic Data Facility (ODF) at the Scripps Institution of Oceanography (SIO) provides high-quality hydrographic technical services. ODF has participated in numerous large-scale, worldwide oceanographic expeditions from Geochemical Ocean Sections Study (GEOSECS) to Climate Variability and Predictability (CLIVAR) and now Ship-based Hydrographic Investigations Program (GO-SHIP) and Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) programs. The advice and support ODF provides enables these programs to obtain the high quality reference data required to meet the scientific program objectives.

The ODF chemistry laboratory has been producing world-class reference data for over 40 years. Current analyses include salinity, dissolved inorganic nutrients, and dissolved oxygen both at sea and ashore. ODF is a full member of the international Scientific Committee on Oceanic Research (SCOR) working group 147- Towards comparability of global oceanic nutrient data (COMPONUT).

SOCCOM Argo-equivalent floats are being deployed from numerous cruises in the Southern Ocean. ODF participates in many of these cruises. ODF provides shipboard nutrient and/or oxygen data that are used to calibrate nitrate and oxygen sensors on the floats. For some cruises where shipboard participation is precluded, samples are returned to the lab for analyses.

Shipboard Data Services

Website and Data Server, CTD data processing, CTD and hydrographic data quality control

Shipboard website with cruise track, station information, links to CTD data, water bottle data, and other cruise information

Chemical Analysis Services

Shipboard and Shore Based analysis of Dissolved Inorganic Nutrients, Dissolved Oxygen, and Salinity. Collection of HPLC and POC samples

Sections from 2016 GO-SHIP/CLIVAR 108S on the R/V Roger Revelle


SOCCOM

Float Deployments: 2016 GO-SHIP 108S

- I = Ice Enabled
- O = Oxygen
- N= Nitrate
- P = pH
- F = FLBB optics

Comparison of the first profile from float 9602 with shipboard data from the station where the float was deployed. CTD/bottle data from 2016 GO-SHIP line 108S on R/V Revelle. (figure courtesy of Earle Wilson)

SOCCOM Float deployment from the R/V Investigator during GO-SHIP 2016 P15S expedition. (photo courtesy of Melissa Miller)

Sections from 2016 GO-SHIP/CLIVAR 108S on the R/V Roger Revelle