

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN BRAZIL
JUNE 2013 – JUNE 2014

Activities

- *Transects Rio Grande do Sul-Sao Paulo*
Three institutions (FURG, UFPR and IPEN) will carry out a 14 days cruise in July 2014 on board of the *RV Atlantico Sul* from Rio Grande to Sao Paulo. In nine transects, in different latitudes, water samples will be taken from 3 depths in several stations up to the 200 m isobath. Intended measurements: all nutrients, POC, PN, carbon and nitrogen isotopes, trace metals (As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Zn), ²³⁴Th, ²³⁸U, ²²³Rn, ²²⁴Rn, ²²⁶Ra, ²⁸⁸Ra, Rn.

- *Acquisition of new sampling system*
Although a new sampling system (listed below) has already been purchased and received at FURG it will not be used this time:
 - GEOTRACES WATER SAMPLER (custom) - 24-bottle sampler for use with modem equipped 911plus CTD and 12-liter Go-Flo or C-Free bottles. Includes titanium electronics/release and lifting bail, standard XSG series connectors all-welded aluminum guard frame with polyurethane electrostatic powder coat finish, and complete documentation. Bottles GOFLO 24 liters.
 - Winch from Dybnacon, model 10030.
 - Kevlar cable, /electro /mech Cable, from Cortland Cable Company.

- Brazil has now a research network dedicated to Ocean Acidification, called Brazilian Ocean Acidification Research Group (BrOA - www.broa.furg.br), recognized by the CNPq (Diretório de Grupos de Pesquisa). BrOA leaders are Prof. Rodrigo Kerr (IO-FURG) and Prof. Leticia Cotrim da Cunha (FAOC-UERJ). The network involves many aspects of OA research, from impacts in marine ecosystems, seawater chemistry, to biogeochemistry modelling.

- January 2014 - Leticia Cotrim da Cunha is the new SOLAS representative in Brazil. The 2013 activity report can be downloaded at http://www.solas-int.org/files/solas-int/content/downloads/Community/National%20Networks%202013/SOLAS_Annual_Report_2013_Brazil.pdf

Analyses of samples

- The Picarro Cavity Ring-Down Spectroscopy equipment had to be twice forward to US for repair and is now back in PUC finally allowing José M. Godoy the determinations of U, Ba e Mo, δD and $\delta 18O$ in 1200 samples from the 2013 Mediterranean Cruise.

Training and Joint Research

- Vanessa Hatje from UFBA was in 2013 a Visiting Scholar at the lab of Ken Bruland. She worked with rare earths determination in seawater and analytical method development. The following publications resulted:
Vanessa Hatje, Kenneth W. Bruland, A. Russell Flegal. Determination of rare earth elements after pre-concentration using NOBIAS-chelate PA-1(R)resin: Method development and application in the San Francisco Bay plume. *Marine Chemistry* 160, 2014, 34-41.

A second article is in preparation reporting the evolution of rare earth concentration in the San Francisco Bay after analysis of archive water samples from 1994 to 2013.

Project MIT-PUC-Rio

- The project initiated in 2013 is progressing well and data is already available for lead isotopes in a short sediment core and for trace metals in coastal water samples. A PhD student from PUC-Rio is presently in the lab of Ed Boyle to determine lead isotopes in the long sediment cores. The main objective is to use dated sediments to understand the transport of land materials to the inner platform off Rio de Janeiro occurring during the last 500 years, since the beginning of colonization.
- Water samples were sampled for trace metal determination along a transect extending from the Guanabara Bay to the inner platform and results are now available.

Submitted by Angela Wagener (angela@puc-rio.br).