

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN BRAZIL

May 1st, 2016 to April 30th, 2017

Activities

- Three activities related to GEOTRACES occurred during the Brazilian Conference on Oceanography (www.CBO2016.org), which was held in Salvador November 5-9, 2016. Those activities were:

1. The GEOTRACES session: 12 oral presentations and 3 posters;
2. II GEOTRACES BRAZIL meeting. This meeting followed the actions initiated in 2015 with the aim to bring Brazilian scientists together to plan activities and promote collaborations to increase participation in the scope of the GEOTRACES program;
3. Ocean Data View (ODV) hands-on workshop. This 8 hours workshop presented the basic ODV methods for the analysis of environmental data. The GEOTRACES Intermediate Data Product 2014 (IDP2014) and the Surface Ocean CO₂ Atlas (SOCAT) were used as examples.

- We were successful to secure the participation of GEOTRACES investigators (Catherine Jeandel, Gideon Henderson, Peter Croot, Antonio Cobelo-Garcia and Felipe Niencheski) as invited speakers for the 46th World Chemistry Congress (IUPAC-2017) to be held in São Paulo, Brazil between July 9th to July 14th.
- The Scientific Committee on Oceanic Research (SCOR) awarded US\$2500 towards sponsoring a three weeks visit by C. Jeandel to Salvador, Brazil in order to teach a course on marine geochemistry and the use of isotopic dilutions.
- V. Hatje is a Full Member of SCOR Working Group 145: Modelling Chemical Speciation in Seawater to Meet 21st Century Needs (MARCHEMSPEC).

Projects/grants

- A proposal to fund the Research and Development Network in Non-conventional Gas – GASBRAS, was approved by FINEP in January 2015. The proposal will cover the purchase of an ICP-MS ICAP RQ to be installed at the Federal University of Bahia.
- The renew proposals of the National Institute for Science and Technology in Tropical Environments/ INCT-Ambtropic and the Institute for the Science and Technology in Energy and Environment/ INCT- E&A were approved by CNPq. However, the payment of funds is delayed.
- Research in Brazil has taken a heavy toll from the economic crisis. The 2017 Federal Science budget decreased in 44%, being the lowest in the past 12 years. Many of the research grants awarded in 2016 have not yet been paid by CNPq and State funding agencies. The exchange programme to enable Brazilian students and scientists to visit leading institutions abroad, although resumed is investing a very small amount of resources.

Cruises

- One expedition was performed along the continental shelf of Bahia which included sample collection of surface and bottom waters to evaluate the impacts of anthropogenic and natural sources of REE and dissolved trace elements in coastal waters (CNPq 441829/2014-7).
- Four cruises, between 15N and 23S, will be carried out in partnership with the PIRATA-BR XVII on the new R/V Vital de Oliveira. We will share the hydrographic data with PIRATA scientists, and we will collect water samples at 12 full depth profiles (Fig.1). The ship still do not have trace metal sampling system, hence water samples will be collected only for the determination of REE and Ra isotopes (at least in one cruise). We are still evaluating the possibility to determine Nd isotopes.

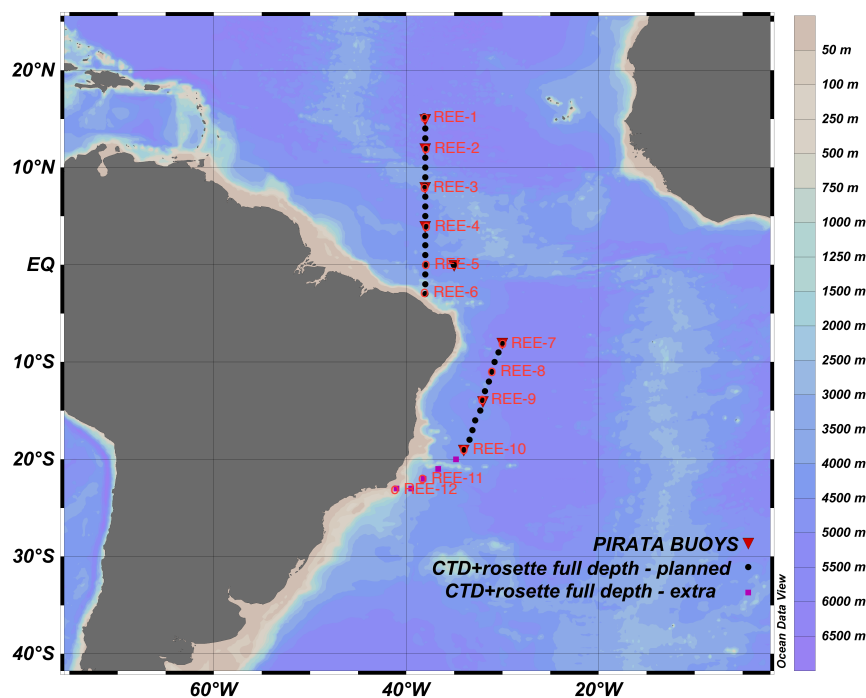


Figure 1. Location of the 12 full depth profiles (REE1-12) that will be performed during the PIRATA-Br XVII where a single hydrographic cast will sample seawater for selected hydrography stations parameters, REE, sulfluramid and perfluorooctanesulfonate (PFOS) dissolved oxygen.

- Two expeditions were postponed due to lack of funding.

GEOTRACES-related articles

- Turner, D.; Achterberg, E. P.; Chen, C. A.; Clegg, S.; Hatje, V.; Maldonado, M.; Sander, S. G.; Berg, C. M. V. D.; Wells, M. Towards a quality-controlled and accessible Pitzer model for seawater and related systems. *Frontiers in Marine Science*, v. 3, p. 139, 2016.
- Charette, M.S.; Harette, M. A.; Lam, P. J.; Lohan, M. C.; Kwon, E. Y.; Hatje, V.; Jeandel, C.; Shiller, A. M.; Cutter, G. A.; Thomas, A.; Boyd, P.W.; Homoky, W. B.; Milne, A.; Thomas, H.; Andersson, P. S.; Porcelli, D.; Tanaka, T.; Geibert, W.; Dehairs, F.; Garcia-

Orellana, J. Coastal ocean and shelf-sea biogeochemical cycling of trace elements and isotopes: lessons learned from GEOTRACES. *Philosophical Transactions of the Royal Society A- Mathematical Physical and Engineering Sciences*, v. 374, 20160076, 2016.

Contributions to conferences

- GEOTRACES presentations and co-authorships by Brazilian Scientists at the following meetings: AGU Fall Meeting (San Francisco, USA, Dec 2016), CBO 2016 (Salvador, Brazil, Nov 2016).

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