

India

All the nine projects of GEOTRACES (India) have initiated work to achieve the goals of GEOTRACES programme. A cruise onboard Sagar Sampada was conducted in the Arabian Sea. Initially, this cruise was planned to follow GIO2 track along 65° E, however, due to security threat from pirates, it followed 68° E from 1° N to 21° N. Water samples at various stations were collected for measuring isotope compositions of Nd, Hf, Th and Ra. In addition, chemical composition of the ambient aerosols over the Arabian sea were measured online and aerosol samples were collected for their source determination.

As far as clean sampling is concerned, we have already acquired CTD, bottles etc. We expect to get the clean van within next 15 days. Winch and cables are expected to come within next two to three months. The entire system should be operational by the end of this year.

Nd isotope compositions in water columns of the Bay of Bengal along 87° E transect were analysed. Results display significant contribution of non-radiogenic Nd from the Ganga and the Brahmaputra river system to the Bay of Bengal water. 10 to 65% of the dissolved Nd in the BoB is contributed by its release from particulate matters or from shelf sediments (Excess Nd, Figure 2). This study emphasises the important role of boundary exchange in contributing to the dissolved Nd budget of the global oceans.

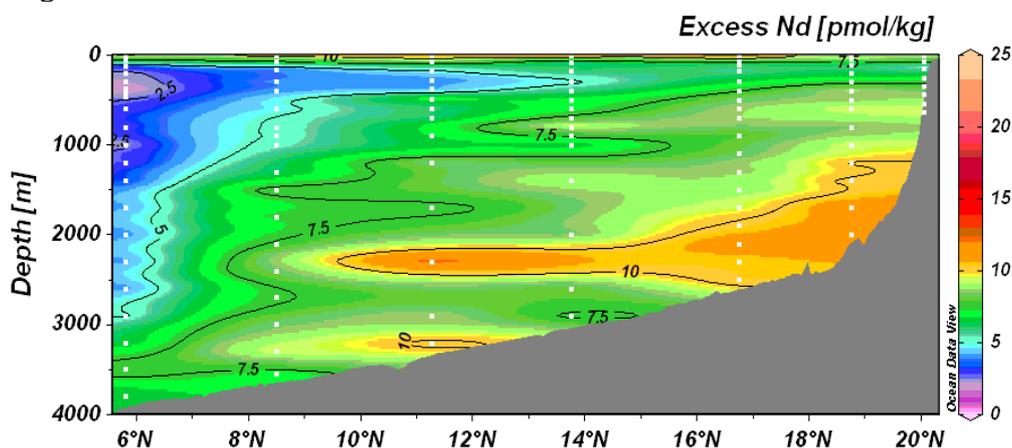


Figure 2. Dissolved Nd released from particulate matter in the water columns of Bay of Bengal

Publications

- Goswami Vineet, Singh Sunil K., Bhushan Ravi (2012) Dissolved redox sensitive elements, Re, U and Mo in intense denitrification zone of the Arabian Sea, *Chemical Geology* 291, 256–268.
- Rahaman, W., Singh, S.K. (2012) Sr and $^{87}\text{Sr}/^{86}\text{Sr}$ in estuaries of western India: Impact of submarine groundwater discharge, *Geochimica et Cosmochimica Acta*, 85, 275-288; doi: 10.1016/j.gca.2012.02.025.
- Singh, S.P., Singh, S.K., Goswami, V., Bhushan, R., Rai, V.K. (2012) Spatial distribution of dissolved neodymium and ϵNd in the Bay of Bengal: Role of particulate matter and mixing of water masses, *Geochimica et Cosmochimica Acta*, doi: <http://dx.doi.org/10.1016/j.gca.2012.07.017>.
- Rahaman, W., S. K. Singh, and A. D. Shukla (2012) Rhenium in Indian rivers: Sources, fluxes and contribution to oceanic budget, *Geochem. Geophys. Geosyst.* Doi:10.1029/2012GC004083.

Completed Cruise

- Arabian Sea: Cochin – Goa, April- May, 2012: along 68° E from 1° N to 21° N
Basic Objectives of this cruise were:

- (i) online measurement of chemical constituents of the ambient aerosol and collecting aerosol samples to determine their sources using isotopes,
(ii) collecting water samples for measuring Nd, Th, Hf, Ra and stable isotopes.

Planned Cruise

- Indian ocean: Chennai-Australia-Chennai: March to May 2013, onboard Sagar Kanya.

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