

GEOTRACES Activities in China

An annual report for 2009-2010

June 2, 2010

By China-GEOTRACES Working Group

A. Activities:

- 1) Participation to the international GEOTRACES activities- intercomparison (second round): Th, Ra, Cd, Cu, Al, Pb, Ag (by Xiamen University, East China Normal University and Ocean University of China).
- 2) Invite Prof. Billy Moore from University of South Carolina to train researchers in China to run the Radecc system for measurement of radium isotopes.
- 3) “973” Carbon project—part of China-GEOTRACES has been accommodated in this project and there have been two cruises to Chinese Marginal Seas.
- 4) Field observations were carried out in the Changjiang drainage basin (main stream and major tributaries) during September-October of 2009 to understand the impacts of Three Gorges Dam’s construction on the weathering characteristics of the drainage basin and also the variations of terrestrial flux on the marginal seas of China.
- 5) Planning of a GEOTRACES process cruise in the Pacific in the spring of 2012

B. Products:

- 1) Preliminary results from GEOTRACES inter-calibration exercise are available. Details not shown.
- 2) Preliminary results from Ra study indicate that Ra distribution is strongly influenced by submarine groundwater discharge (SGD), coastal upwelling, and river plumes. Based on a mass-balance model, a crude estimate of SGD into the northern South China Sea is about 25% of that of Pear River.

C. Promotion of GEOTRACES in China:

- 1) A “clean” systems has been tested for underway and stationary trace metal sampling in the “973” cruises to the South China Sea.
- 2) A new MC-ICP-MS system (Nu) has been set up in Xiamen University and we have used it to measure Pb, Cu, and Fe isotopes in seawater samples.
- 3) A New ICP-MS system (Agilent 7700) has been set up in Xiamen University. Trace metal samples have been run in this system.

China-Taipei

Scientists in Taiwan have secured funds from the National Science Council and Academia Sinica to host a GEOTRACES-Asia planning workshop, to be held 4-6 October, 2010, in Taipei. The objective of the workshop is to coordinate planning of GEOTRACES activities throughout Asia, including research in the Indian Ocean as well as in the western Pacific Ocean. Announcements of the workshop have been distributed to GEOTRACES email lists and a web site has been set up to provide additional information and to accommodate reservations at: <http://proj3.sinica.edu.tw/%7Egeotrace/index.htm>.

Motivation for the workshop is summarized as follows (from the web site):

East and South Asia, the most populous region on Earth, face the Western Pacific Ocean, the Indian Ocean, and their marginal seas. Diverse anthropogenic and natural forcings coexist and interact in the biogeochemical cycling of trace elements and isotopes (TEIs) in these waters. However, their key regulating processes remain largely to be explored. In this workshop, potential key processes that regulate and control the biogeochemical cycles of TEIs, such as their sources, distributions, internal cycling, sinks, and their use as tracers or proxies, will be identified and discussed. These discussions will culminate in the formation of a future action plan in TEIs research in the region. Contributors are invited to present highlights of their relevant research and provide suggestions on future actions and cruise plans. Here, we would like to invite researchers to participate in this workshop.

Contact person for the workshop is Tung-Yuan Ho <tyho@gate.sinica.edu.tw>.

SCOR will provide travel funds for participants from developing nations.

Taiwan has a small society but active research on TEIs:

- 4 labs focus on trace metal concentrations in seawater, particles, aerosols, plankton et al. (T.Y. Ho, S.C. Hsu, K.T. Jiann, L.S. Wen), with clean sampling technology & HR-ICPMS
- 3 labs on isotopic composition in seawater, aerosols, corals, marine sediments (D.C. Lee, C.C. Shen, C.F. You) all 3 labs are equipped with both HR-ICPMS & MC-ICPMS
- 7 labs on using radioactive and C/N isotopes to study marine geochemistry & biogeochemistry (C.A. Huh, C.C. Hung, S.J. Kao, K.K. Liu, S.D. Luo, D.D. Sheu, C.L. Wei)
- More than 30 papers focusing on TEIs in the ocean were published during the past 3 years, mainly in the East China Sea and South China Sea.
- Cruise schedules of the 3 RVs are tight. New 3,000 ton RV will be launched in 2012. Will be used for open ocean research, including GEOTRACES !