

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

Meetings

- Meetings of the Data Management Committee and the Standards and Intercalibration Committee were held in Bremerhaven in conjunction with the SSC meeting (organized by Reiner Schlitzer, AWI).

Cruises

- There have been no dedicated GEOTRACES cruises in 2013.

New Funding

- The requested 2015 (central Arctic) and 2016 (Fram Strait) Polarstern expeditions with GEOTRACES programs have been funded and scheduled.

National and international service

- Germany is represented on the International GEOTRACES Standards and Intercalibration Committee by Michiel Rutgers van der Loeff and on the International Scientific Steering Committee by Katharina Pahnke. Reiner Schlitzer serves as co-chair of the international SSC.

New Results

- Seawater $^{143}\text{Nd}/^{144}\text{Nd}$ profiles from the West Pacific (*R/V Sonne* cruise SO223T, South Korea-Fiji, GEOTRACES Process Study) (Melanie Behrens, Katharina Pahnke, Max Planck Institute for Marine Microbiology and University of Oldenburg, presented at Ocean Sciences Meeting 2014).
- Seawater $^{143}\text{Nd}/^{144}\text{Nd}$ profiles from Station ALOHA and coastal waters around Oahu, Hawaii (*R/V Kilo* Moana cruise KM1107, GEOTRACES Process Study) (Henning Fröllje, Katharina Pahnke, Max Planck Institute for Marine Microbiology and University of Oldenburg).

Publications

Together with the GDAC at BODC, AWI compiled hydrographic and TEI data from 15 IPY and GEOTRACES cruises and created the IDP2014 digital data packages that are now publicly available for download at <http://www.bodc.ac.uk/geotraces/data/idp2014/>. In addition, AWI created the eGEOTRACES electronic atlas (<http://www.egeotraces.org>) containing more than 300 section plots and 80 animated 3D scenes for a large number of hydrographic parameters as well as trace elements and isotopes measured along GEOTRACES cruise tracks.

- Abouchami, W., Galer, S.J.G., de Baar, H.J.W., Middag, R., Vance, D., Zhao, Y., Klunder, M., Mezger, K., Feldmann, H., Andreae, M.O. (2014). Biogeochemical cycling of cadmium isotopes in the Southern Ocean along the Zero Meridian. *Geochimica et Cosmochimica Acta* 127, 348-367.
- Baars, O., Abouchami, W., Galer, S., Boye, M., Croot, P.L. (2014). Dissolved cadmium in the Southern Ocean: Distribution, speciation, and relation to phosphate. *Limnology and Oceanography* 59, 385-399.

- Chen, T.-Y., Stumpf, R., Frank, M., Beldowski, J., Staubwasser, M. (2013). Contrasting geochemical cycling of hafnium and neodymium in the central Baltic Sea. *Geochimica et Cosmochimica Acta* 123, 166-180.
- de Souza, G.F., Reynolds, B.C., Rickli, J., Frank, M., Saito, M.A., Gerringa, L.J.A., Bourdon, B. (2012). Southern Ocean control of silicon stable isotope distribution in the deep Atlantic Ocean. *Global Biogeochemical Cycles* 26, n/a-n/a.
- Molina-Kescher, M., Frank, M., Hathorne, E. (2014). South Pacific dissolved Nd isotope compositions and rare earth element distributions: Water mass mixing versus biogeochemical cycling. *Geochimica et Cosmochimica Acta* 127, 171-189.
- Xue, Z., Rehkämper, M., Horner, T.J., Abouchami, W., Middag, R., van de Flierd, T., de Baar, H.J.W. (2013). Cadmium isotope variations in the Southern Ocean. *Earth and Planetary Science Letters* 382, 161-172.
- Zhao, Y., Vance, D., Abouchami, W., de Baar, H.J.W. (2014). Biogeochemical cycling of zinc and its isotopes in the Southern Ocean. *Geochimica et Cosmochimica Acta* 125, 653-672.

Abstracts

- Behrens, M.K., Pahnke, K., 2014. Neodymium Isotope Distribution in the West Pacific Between South Korea and Fiji, Ocean Science Conference, Honolulu, HI, USA, Abstract ID: 13518.
- de Baar, H., van Heuven, S., Middag, R., Neven, I., Klunder, M., van Ooijen, J., Xue, Z., Abouchami, W., Rehkämper, M., and Galer, S. (2013). Interactions of Dissolved CO₂ with Cadmium Isotopes in the Southern Ocean. *Mineralogical Magazine*, 77(5), 956.
- Galer, S. and Abouchami, W. (2013). Consumption-Regeneration Cycle of Micronutrients and their Isotopes in Seawater. *Mineralogical Magazine*, 77(5), 1131.
- Hathorne, E., Frank, M., Rutgers van der Loeff, M., Roeske, T., Rickli, J. (2013). Rare Earth Elements in the surface Ocean under the Saharan dust belt. *Mineralogical Magazine*, 77(5), 1271.
- Pahnke, K. and Basak, C. (2013). Distribution of dissolved neodymium isotopes across the southern South Pacific. *Mineralogical Magazine*, 77(5), 1913.
- Pahnke, K., Stichel, T., Hartman, A., Duggan, B., Scher, H. (2014). US GEOTRACES North Atlantic zonal transect of dissolved Nd isotopes and concentrations, Ocean Sciences Conference, Honolulu, HI, USA, Abstract ID: 14598.
- Poehle, S., Schmidt, K., Koschinsky, A. (2014). Distribution of Zr, Nb, V, Mo and W in the water column of the Atlantic. Ocean Sciences Conference, Honolulu, HI, USA, Abstract ID: 13346.
- Stichel, T., Pahnke, K., Hartman, A. E., Goldstein, S. L., Scher, H. (2014). The geochemistry of seawater neodymium isotopes in the TAG hydrothermal plume at the mid-Atlantic ridge. Ocean Sciences Conference, Honolulu, HI, USA, Abstract ID: 15095.
- Xie, R., Galer, S., Abouchami, W., Rijkenberg, M., de Jong, J. (2014). Cadmium isotope distribution along the western boundary of the South Atlantic. Ocean Sciences Conference, Honolulu, HI, USA.
- Zieringer, M., Frank, M. and Hathorne, E. (2013). Factors controlling the distribution of Neodymium isotopes and REEs in tropical Atlantic seawater. *Mineralogical Magazine*, 77(5), 2618.

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