

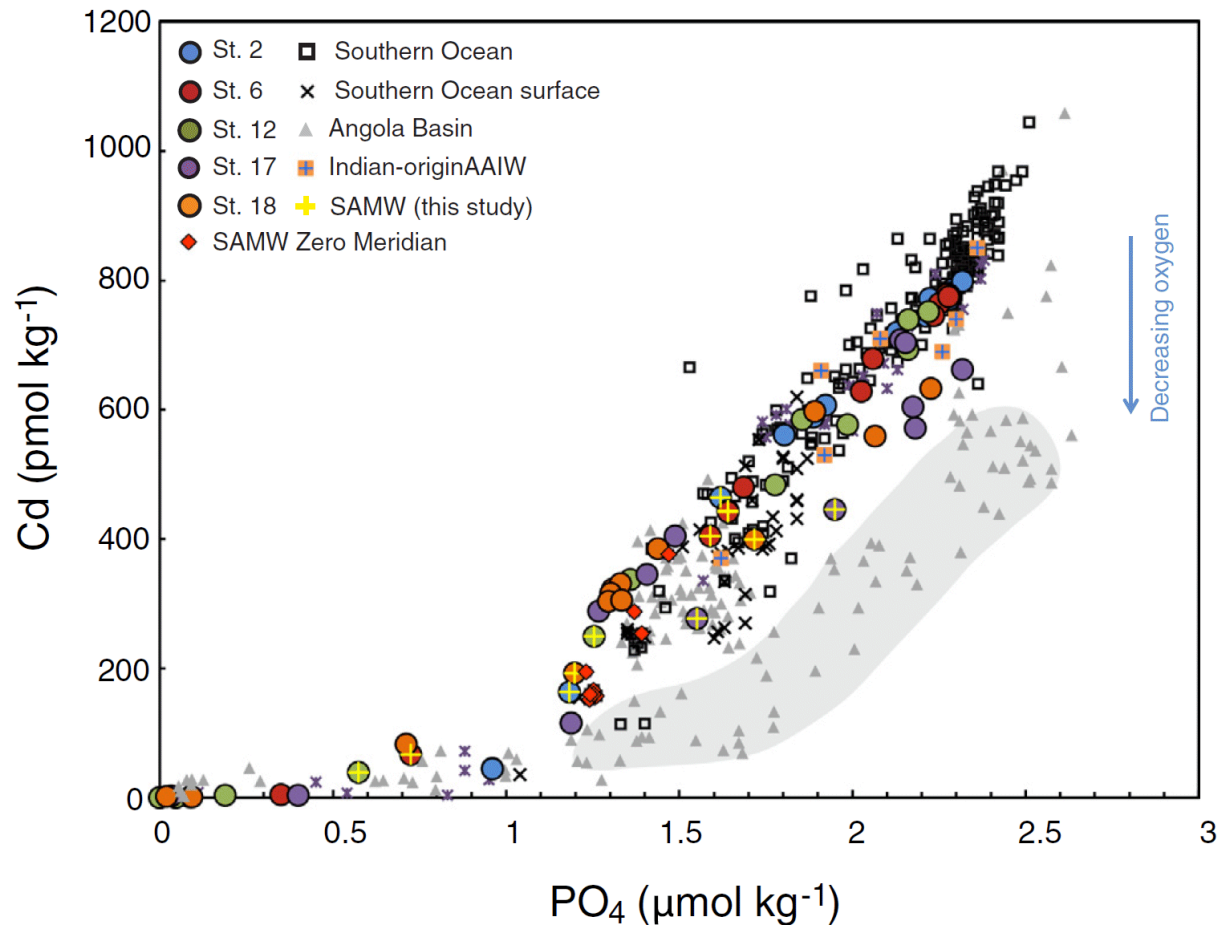


- Activities in Germany

2014-2015

Research Highlights

New Cd concentrations from the South Atlantic (GA02) suggest that the kink in the global Cd/PO₄ relationship is due to the injection of SAMW into the thermocline

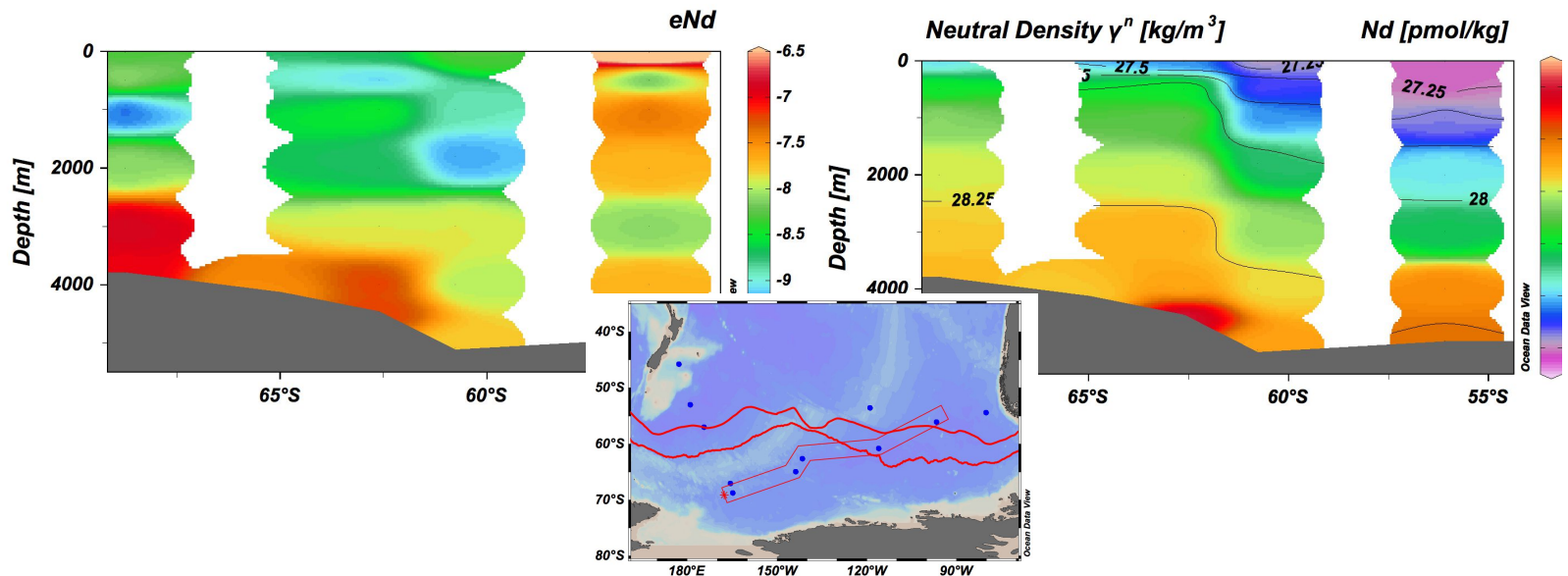


Xie, R.C., Galer, S.J.G., Abouchami, W., Rijkenberg, M.J.A., De Jong, J., de Baar, H.J.W., Andreae, M.O., in press. Marine Chemistry

Research Highlights

South Pacific dissolved Nd isotopes confirm the distinct ϵ_{Nd} signature of Ross Sea Bottom Water ($\epsilon_{\text{Nd}} \sim -7$).

Dissolved [Nd] across the circum-Antarctic fronts follows southward shoaling density lines, suggesting lateral transport component in [Nd] distribution in the Southern Ocean.



Basak, C., Pahnke, K., Frank, M., Lamy, F., Gersonde, R., 2015. Earth and Planetary Science Letters 419, 211-221. doi: <http://dx.doi.org/10.1016/j.epsl.2015.03.011>

Cruises

SE Atlantic GA08 (R/V Meteor): approved, scheduled for Nov 22 - Dec 26, 2015
(PIs: E. Achterberg, M. Frank, A. Koschinsky)

Indian Ocean GI05 (R/V Sonne): approved, scheduled for early 2017
(PIs: E. Achterberg, M. Frank)

Central Arctic (R/V Polarstern): Aug 10 – Oct 10, 2015
(PIs: M. Rutgers v.d. Loeff, K. Pahnke, M. Staubwasser, L.-E. Heimbürger, S. Galer)

South Pacific subtropical gyre (R/V Sonne), Process Study: Dec 2015 – Jan 2016
(PIs: P. Croot, K. Pahnke, C. Ehlert, R.F. Anderson)

National & International Services

- Germany is represented on the following GEOTRACES committees:

Standards & Intercalibration Committee by Walter Geibert and Lars-Eric Heimbürger

SSC by Reiner Schlitzer (co-Chair) and Katharina Pahnke

- Lars-Eric Heimbürger and Daniel Cossa coordinated the 2014 GEOTRACES intercalibration exercise for total mercury and methylmercury in seawater on the GEOVIDE cruise.

Workshops

GEOTRACES Intercalibration exercises for Hg species in seawater discussion forum: http://mercury2015.com/sub/sub02_05_pop16.asp

L.-E. Heimbürger, 12th International Conference on Mercury as a Global Pollutant, Jeju, South Korea

Water & sediment sampling

Jim Hurley, Seunghee Han, **L.-E. Heimbürger**, 12th International Conference on Mercury as a Global Pollutant, Jeju, South Korea

Publications

- 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. doi:10.1016/j.gca.2013.10.022.
- Basak, C., Pahnke, K., Frank, M.,** Lamy, F., Gersonde, R., 2015. Neodymium isotopic characterization of Ross Sea Bottom Water and its advection through the southern South Pacific. *Earth and Planetary Science Letters* 419, 211-221. doi:10.1016/j.epsl.2015.03.011.
- Hathorne, E.,** Stichel, T., **Brück, B.,** and **Frank, M.** (accepted): Rare earth element distribution in the Atlantic sector of the Southern Ocean: the balance between particle scavenging and vertical supply. *Marine Chemistry*.
- Heimbürger, L.-E.,** Sonke, J.E., Cossa, D., Point, D., Lagane, C., Laffont, L., Galfond, B.T., Nicolaus, M., Rabe, B., van der Loeff, M.R., 2015. Shallow methylmercury production in the marginal sea ice zone of the central Arctic Ocean. *Scientific Reports* 5. doi:10.1038/srep10318
- Heimbürger, L.-E.,** Migon, C., Losno, R., Miquel, J.-C., Thibodeau, B., Stabholz, M., Dufour, A., Leblond, N., 2014. Vertical export flux of metals in the Mediterranean Sea. *Deep Sea Research Part I: Oceanographic Research Papers* 87, 14-23. doi:10.1016/j.dsr.2014.02.001.
- Lamborg, C.H., Hammerschmidt, C.R., Bowman, K.L., Swarr, G.J., Munson, K.M., Ohnemus, D.C., Lam, P.J., **Heimbürger, L.-E.,** Rijkenberg, M.J.A., Saito, M.A., 2014. A global ocean inventory of anthropogenic mercury based on water column measurements. *Nature* 512, 65-68. doi: 10.1038/nature13563
- Mawji, E., **Schlitzer, R.** *et al.*, in press. The GEOTRACES Intermediate Data Product 2014. *Marine Chemistry*. doi:10.1016/j.marchem.2015.04.005.
- Stichel, T., Hartman, A.E., Duggan, B., Goldstein, S.L., Scher, H., **Pahnke, K.,** 2015. Separating biogeochemical cycling of neodymium from water mass mixing in the Eastern North Atlantic. *Earth and Planetary Science Letters* 412, 245-260. doi:10.1016/j.epsl.2014.12.008.
- Xie, R.C., Galer, S.J.G., Abouchami, W.,** Rijkenberg, M.J.A., De Jong, J., de Baar, H.J.W., Andreae, M.O., in press. The cadmium-phosphate relationship in the western South Atlantic – the importance of mode and intermediate waters on the global systematics. *Marine Chemistry*. doi:10.1016/j.marchem.2015.06.011.

Other activities

- The **IDP14 Version 2** was compiled and published by Reiner Schlitzer, it contains corrected and new data and additional data formats (excel and netCDF)
- IDP14 publication in Marine Chemistry lead by R. Schlitzer
- GEOMAR received winch (LEBUS) for their GO-FLO rosette, completing the acquisition of a trace metal clean sampling system.

nature

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and aluminium
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South Pacific

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