

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN SWEDEN

June 1st, 2015 to April 30th, 2016

Fieldwork (Per Andersson)

- “Particle transport derived from isotope tracers and its impact on ocean biogeochemistry: a GEOTRACES project in the Arctic Ocean”. A joint French-Swedish Research Council (VR) funded project to study particle transport by U-series nuclides. Sandra Gdaniec (PhD student) participated on R/V Polarstern cruise ARK XXIX/3 (PS94), 17 August to 15 October, 2015 in the Arctic Ocean. The field work was partly funded by the Swedish Research Council and the Swedish Polar Research Secretariat <http://polar.se/en/expedition/transarc-ii/>

Intercalibration

- Per Andersson participated in the GEOTRACES Si isotope intercalibration led by Mark Brzezinski UC Santa Barbara, USA. Results reported and participate in writing a report (manuscript in prep.).

Publications

- Rosén, P.-O., Andersson P.S., Alling V., Mörth C.-M., Björk G., Semiletov I., and Porcelli D. (2015). Ice export from the Laptev and East Siberian Sea derived from $\delta^{18}\text{O}$ values. doi:10.1002/2015JC010866. *Journal of Geophysical Research. Oceans*, 120, 5997-6007.
- Valk O., Gdaniec S., Rutgers van der Loeff M., Puigcorbe Lacueva V., and Paffrath R. (2016) ^{230}Th and ^{231}Pa : tracers for deep water circulation and particle fluxes in the Arctic Ocean. Abstract presented at Ocean Science Meeting New Orleans, Louisiana 21-26 February 2016.

Meetings

- Per Andersson and David Turner: Biological and climatic impacts of ocean trace element chemistry. Royal Society, London 7 to 8 December, 2015.
- Per Andersson and David Turner: Quantifying fluxes and processes in trace metal cycling at ocean boundaries. Royal Society meeting at Chicheley Hall, Buckinghamshire, UK. 9 to 10 December, 2015. Contributions to the group reports “Coastal ocean and shelf-sea biogeochemical cycling of trace elements and isotopes: lessons learned from GEOTRACES” (Per Andersson); and “Hydrothermal Impacts on Trace Element and Isotope Ocean Biogeochemistry” (David Turner)
- Per Andersson: Biogeochemical studies in the Siberian Shelf Seas Workshop 27 to 28 January, 2016 in Kiel, Germany. Workshop funded by the International Arctic Science Committee (IASC). Presentation “Biogeochemical observations along the Eurasian-Arctic continental shelf, results from the ISSS-08 and the Lena River”.

Outreach activities

- Sandra Gdaniecs participation on R/V *Polarstern* 2015 will be part of an exhibition at the Swedish Museum of Natural History showing different types of research expeditions both modern and in the past. The GEOTRACES expedition will be an example of a modern expedition to the Polar Sea. The exhibition is planned to be opened in June 2016.

Relevant SCOR Working Groups

- WG145 MARCHEMSPEC (chair David Turner): The WG met in New Orleans on 21 February, hosted a Town Hall at Ocean Sciences 2016 (22 February) and together with WG139 convened a session “Trace Metal Speciation in Seawater: Measurements, Modelling, and Impact on Marine Biogeochemistry”.

New funding proposals

- Per Andersson has applied for funding of field work in the Lena River and tributaries during 2017-2020. The main objective is to study a large basin dominated by permafrost and the impact of changing temperatures on the delivery of TEI to the Arctic Ocean.
- David Turner has applied for funding for the development of chemical models for the binding of trace metals by natural organic matter in seawater. Collaboration is planned with Martha Gledhill (Kiel) and Alessandro Tagliabue (Liverpool).

Submitted by David Turner (davidt@chem.gu.se).