ANNUAL REPORT ON GEOTRACES ACTIVITIES IN AUSTRALIA

May 1st, 2021 to April 30th, 2022

New GEOTRACES or GEOTRACES relevant scientific results

- Newly compiled Southern Ocean Ligand (SOLt) Collection of all publicly available Fe complexation datasets for the Southern Ocean including dissolved Fe concentrations, Fe-binding ligand concentrations, and complexation capacities for 25 studies between 1995 – 2019. Link to dataset

GEOTRACES or GEOTRACES relevant cruises

- Southern Ocean Time Series 2021: Process study GIpr08 by Elizabeth Shadwick/Zanna Chase/ Andrew Bowie (Th, Nd isotopes, [REE], TM aerosols)
- RV Investigator Jan-Mar 2022 voyage GIpr11 was cancelled due to COVID. Rescheduled for Jan-Mar 2023.

New projects and/or funding

- Successful ARC Infrastructure grant for $552K: *HydroBox: A containerised hydrochemistry lab for Australian oceanography* led by Chase, Lannuzel et al.
- Australian Research Council Special Research Initiative, Australian Centre for Excellence in Antarctic Research (https://antarctic.org.au/) with two upcoming science voyages on the new Australian Icebreaker RVS Nuyina: Aug-Sep 2023 Marginal Sea Ice Zone (MIZ) voyage around 110^{o}E; Feb-Mar 2025 Denman Ocean voyage on continental shelf adjacent to the Denman Glacier/ Shackleton ice shelf
- A number ACEAS of postdoctoral job vacancies with deadlines on the 26th June: see https://antarctic.org.au/vacancies/

New GEOTRACES or GEOTRACES-relevant publications (published or in press)

- Genovese, C., Grotti, M., Ardini, F., Wuttig, K., Vivado, D., Cabanes, D., … Lannuzel, D. (2022). Effect of salinity and temperature on the determination of dissolved iron-binding organic ligands in the polar marine environment. *Marine Chemistry*, *238*(August 2021), 104051. (Student-led)
- Seyitmuhammedov, K., Stirling, C. H., Reid, M. R., van Hale, R., Laan, P., Arrigo, K. R., … Middag, R. (2022). The distribution of Fe across the shelf of the Western Antarctic Peninsula at the start of the phytoplankton growing season. *Marine Chemistry*, *238*, 104066.
- Smith, A. J. R., Ratnarajah, L., Holmes, T. M., Wuttig, K., Townsend, A. T., Westwood, K., … Lannuzel, D. (2021). Circumpolar Deep Water and Shelf Sediments Support Late Summer Microbial Iron Remineralization. Global Biogeochemical Cycles, 35(11), e2020GB006921. (Student-led; 3 post docs)
- Tagliabue, A., Bowie, A. R., Holmes, T., Latour, P., van der Merwe, P., Gault-Ringold, M., … Resing, J. A. (2022). Constraining the Contribution of Hydrothermal Iron to Southern Ocean Export Production Using Deep Ocean Iron Observations. *Frontiers in Marine* (1 student; 3 post docs)

Completed GEOTRACES PhD or Master theses (please include the URL link to the pdf file of the thesis, if available)

Masters:

- Talitha Nelson: *The influence of Antarctic Krill (Euphausia superba) swarms on the iron and carbon cycles in the Southern Ocean*, University of Tasmania

PhD:

- Pauline Latour: *Manganese biogeochemistry in the Southern Ocean*, University of Tasmania
- Abigail Smith: *The distribution and availability of iron in the Antarctic coastal ocean,* University of Tasmania

GEOTRACES presentations in international conferences

- Creac'h et al. 2021 *Neodymium isotopes in co-located sediment and seawater samples from the East Antarctic margin*

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