

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN THE NETHERLANDS

April 1st, 2020 to April 30th, 2021

New GEOTRACES or GEOTRACES relevant scientific results

- Progress is being made with the interpretation and publication of results from cruises GA04N, ANA08B and PS117
- Sample analyses from cruise ANA08B and PS117, two GEOTRACES Process studies, is being finalised

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

- Ardiningsih, I., Seyitmuhammedov, K., Sander, S.G., Stirling, C.H., Reichart, G.J., Arrigo, K.R., Gerringa, L.J.A. and Middag, R., 2020. Sources of Fe-binding organic ligands in surface waters of the western Antarctic Peninsula. *Biogeosciences Discussions*, 2020: 1-25 (moderate revisions for final publication submitted).
- Ardiningsih, I., Zhu, K., Lodeiro, P., Gledhill, M., Reichart, G.-J., Achterberg, E.P., Middag, R. and Gerringa, L.J.A., 2021. Iron Speciation in Fram Strait and Over the Northeast Greenland Shelf: An Inter-Comparison Study of Voltammetric Methods. *Frontiers in Marine Science*, 7(1203).
- van Haren, H., Brussaard, C.P.D., Gerringa, L.J.A., van Manen, M.H., Middag, R. and Groenewegen, R., 2021. Diapycnal mixing across the photic zone of the NE Atlantic. *Ocean Sci.*, 17(1): 301-318
- Gerringa, L.J.A., Alderkamp, A.-C., van Dijken, G., Laan, P., Middag, R., and Arrigo, K.R., 2020. Dissolved Trace Metals in the Ross Sea. *Frontiers in Marine Science*, 7(874).
- Neuholz, R., Kleint, C., Schnetger, B., Koschinsky, A., Laan, P., Middag, R., Sander, S., Thal, J., Türke, A., Walter, M., Zitoun, R., and Brumsack, H.-J., 2020. Submarine Hydrothermal Discharge and Fluxes of Dissolved Fe and Mn, and He Isotopes at Brothers Volcano Based on Radium Isotopes. *Minerals*, 10(11):969.
- Menzel Barraqueta, J.-L., Samanta, S., Achterberg, E.P., Bowie, A.R., Croot, P., Cloete, R., De Jongh, T., Gelado-Caballero, M.D., Klar, J.K., Middag, R., Loock, J.C., Remenyi, T.A., Wenzel, B. and Roychoudhury, A.N., 2020. A First Global Oceanic Compilation of Observational Dissolved Aluminum Data With Regional Statistical Data Treatment. *Frontiers in Marine Science*, 7(468)
- Schine, C.M.S., Alderkamp, A.-C., van Dijken, G., Gerringa, L.J.A., Sergi, S., Laan, P., van Haren, H., van de Poll, W., Arrigo, K.R., Massive Southern Ocean phytoplankton bloom fed by iron of possible hydrothermal origin. *Nature communications* [Paper #NCOMMS-20-07481C]
- Lenstra, W.K., Hermans, M., Seguret, M.J.M., Witbaard R., Severmann, S., Behrends, T. Slomp, C.P. (2020) Coastal hypoxia and eutrophication as key controls on benthic release and water column dynamics of iron and manganese. *Limnology and Oceanography*. 66, 807–826.
- Hermans, M., M. Astudillo Pascual, T. Behrends, W.K. Lenstra, D. J. Conley, C.P. Slomp. 2021. Coupled dynamics of iron, manganese and phosphorus in brackish coastal sediments populated by cable bacteria. *Limnology and Oceanography*. <https://doi/10.1002/lno.11776>

Completed GEOTRACES PhD or Master theses

- Ardiningsih, Indah, 2021. Organic Iron-binding ligands in the Arctic, Antarctic and subtropical Regions. PhD thesis, University of Utrecht, the Netherlands.
- Hermans, Martijn, 2020. Impact of cable bacteria and changes in bottom water oxygen on coastal sediment biogeochemistry. PhD thesis, Utrecht Studies in Earth Sciences, 210, Utrecht University, the Netherlands.

GEOTRACES presentations in international conferences

- Middag, R., Rolison, J.M., George, E., Gerringa, L.J.A., Stirling, C.H.. Basin scale distributions of nickel, zinc and cadmium in the Mediterranean Sea. Poster presentation at the 2021 NAC (Netherlands earth science meeting), 09-04-2021, online, Netherlands.
- Ardiningsih, I., Seyitmuhammedov, K., Sander, S. G., Stirling, C. H., Law, C., Reichart, Gert-Jan., Gerringa, L.J.A., Middag, R.. Organic Fe speciation in the Hauraki Gulf, New Zealand. Poster presentation at the 2021 NAC (Netherlands earth science meeting), 09-04-2021, online, Netherlands.
- Zitoun, R., Achterberg, E.P, Browning, T.J., Hoffmann, L.J., Kirsch, S., Sander, S. G., and Koschinsky, A.. The complex provenance of Cu-binding ligands in the South-East Atlantic. Oral presentation at the 2021 NAC (Netherlands earth science meeting), 09-04-2021, online, Netherlands
- Van Manen, M., Wille, F., Laan, P, Gerringa, L., Reichart G., Tian, H., and Middag, R.. Dissolved and Particulate iron and manganese in the Southern Ocean (Amundsen Sea). Poster presentation at the 2021 NAC (Netherlands earth science meeting), 09-04-2021, online, Netherlands.
- Van Manen, M., Ardiningsih, I., Gerringa, L., Reichart G., Tian, H., and Middag, R.. Dissolved bio-essential metals in the Lazarev and Weddell Sea. Poster presentation and flash talk at SOOS Weddell Sea-Dronning Maud Land Working Group online workshop, 22-10-2020, online, Germany
- Tian, H., Wille, F., Laan, P., Reichart G., Van Manen, M., and Middag, R.. Biogeochemistry of zinc and cadmium in the Amundsen Sea, Antarctica. Oral presentation at the 2021 NAC (Netherlands earth science meeting), 09-04-2021, online, Netherlands.

Submitted on behalf of all Dutch GEOTRACES participants by Rob Middag (rob.middag@nioz.nl).