

ANNUAL REPORT ON GEOTRACES ACTIVITIES IN SWITZERLAND

May 1st, 2024 to April 30th, 2025

GEOTRACES or GEOTRACES relevant cruises

- The research group of Prof. S. L. Jaccard (University of Lausanne) was involved in a 3-week campaign in southwestern Greenland in the context of the GreenFjord project funded by the Swiss Polar Institute, <https://greenfjord-project.ch/>
- The research group of Prof. Jaccard participated in a cruise to Baffin Bay on CCGS Amundsen in September–October 2024.
- The research group of Prof. N. Casacuberta (ETH Zurich) participated in the following cruises during the reporting period:
 - R/V *Polarstern* PS144 to the Central Arctic Ocean (PIs Walter Geibert and Ben Rabe)
 - R/V *Neil Armstrong* UFO-I to the Nordic Seas (PI Robert Pickart)
 - R/V *Sarmiento de Gamboa* FARDWO-DS2 to Denmark Strait (PI Anna Sanchez)
 - Research cruise in Bering Strait (PI Rebecca Woodgate)
 - R/V *Amundsen* cruise to Baffin Bay (PI Jean-Éric Tremblay)
 - R/V *Shinsei Maru* KS24 offshore Fukushima (PI Shigeyoshi Ootosaka).

New projects and/or funding

- CCGS Amundsen research cruise to Baffin Bay in 2024. CHF 53.65k from the Swiss Polar Institute to Prof. S. L. Jaccard.
- 5-year project funding of €1.25 million from the Fundación Ramón Areces to Prof. N. Casacuberta (return call project NAUTILICA).

New GEOTRACES or GEOTRACES-relevant publications (Researchers at Swiss institutions in bold)

Cloete, R., H. Planquette, N. R. van Horsten, S. Samanta, X.-G. Chen, E. P. Achterberg, R. Middag, **D. J. Janssen**, A. R. Bowie, P. van der Merwe, J. C. Loock, T. N. Mtshali, S. Fietz, A. N. Roychoudhury (2024). Drivers of nickel distribution and seasonality in the Southern Ocean: New perspectives from the GEOTRACES GIp07 transect. *JGR: Oceans* 130, <https://doi.org/10.1029/2024JC021542>.

Dale, D., M. Christl, C. Vockenhuber, A. Macrander, S. Ólafsdóttir, R. Middag, **N. Casacuberta** (2024). Tracing ocean circulation and mixing from the Arctic to the Subpolar North Atlantic using the 129I-236U dual tracer. *JGR: Oceans* 129, <https://doi.org/10.1029/2024JC021211>.

de Souza, G. F., A. K. Morrison (2024). The Southern Ocean hub for nutrients, micronutrients and their isotopes in the global ocean. *Oceanography* 37, <https://doi.org/10.5670/oceanog.2024.414>

Gilliard, D., D. J. Janssen, N. Schuback, S. L. Jaccard (2025). Controls on the distribution of dissolved Cr in the upper water column of the Atlantic Basin. *Geochimica et Cosmochimica Acta* 390, <https://doi.org/10.1016/j.gca.2024.10.017>.

- Hassler, C. S., R. Simó, S. E. Fawcett, M. J. Ellwood and S. L. Jaccard** (2025). Marine biogenic humic substances control iron biogeochemistry across the Southern Ocean. *Nature Communications* 16, <https://doi.org/10.1038/s41467-025-57491-5>.
- Hoogakker, B. A. A., Davis, C., Wang, Y., Kusch, S., Nilsson-Kerr, K., Hardisty, D. S., Jacobel, A., Reyes Macaya, D., Glock, N., Ni, S., Sepúlveda, J., Ren, A., Auderset, A., Hess, A. V., Meissner, K. J., Cardich, J., Anderson, R., Barras, C., Basak, C., Bradbury, H. J., Brinkmann, I., Castillo, A., Cook, M., Costa, K., Choquel, C., Diz, P., Donnenfeld, J., Elling, F. J., Erdem, Z., Filipsson, H. L., Garrido, S., Gottschalk, J., Govindankutty Menon, A., Groeneveld, J., Hallmann, C., Hendy, I., Hennekam, R., Lu, W., Lynch-Stieglitz, J., Matos, L., Martínez-García, A., Molina, G., Muñoz, P., Moretti, S., Morford, J., Nuber, S., Radionovskaya, S., Raven, M. R., Somes, C. J., **Studer, A. S.**, Tachikawa, K., Tapia, R., Tetard, M., Vollmer, T., Wang, X., Wu, S., Zhang, Y., Zheng, X.-Y., and Zhou, Y. (2025). Reviews and syntheses: Review of proxies for low-oxygen paleoceanographic reconstructions. *Biogeosciences*, 22, <https://doi.org/10.5194/bg-22-863-2025>.
- Janssen, D. J., A. Damanik, N. Tournier, J. Tolu, L. Winkel, S. Y. Cahyarini, H. Vogel** (2024). Biogeochemical cycling of trace elements and nutrients in ferruginous waters: Constraints from a deep oligotrophic ancient lake. *Limnology and Oceanography* 69, <https://doi.org/10.1002/lno.12687>.
- Leimbacher, M., L. Raimondi, M. Castrillejo, C. Vockenhuber, H. Pérez-Triboullier, K. Schroeder, T. Tanhua, N. Casacuberta** (2024). Spatial distribution and decadal variability of ^{129}I and ^{236}U in the western Mediterranean Sea. *Journal of Marine Science and Engineering* 12, <https://doi.org/10.3390/jmse12112039>.
- Leist, L. G. T., M. Castrillejo, J. N. Smith, M. Christl, C. Vockenhuber, A. Velo, P. Lherminier, N. Casacuberta** (2024). ^{129}I and ^{236}U distribution in the subpolar North Atlantic unravels water mass provenance in AR7W and A25 lines. *Frontiers in Marine Science* 11, <https://doi.org/10.3389/fmars.2024.1470675>.
- Payne, A., A.-M. Wefing, M. Christl, C. Vockenhuber, W. Williams, J. N. Smith, N. Casacuberta** (2024). Circulation timescales and pathways of Atlantic Water in the Canada Basin: Insights from transient tracers ^{129}I and ^{236}U . *JGR: Oceans* 129, <https://doi.org/10.1029/2023JC020813>.
- Pérez-Triboullier, H., S. L. Jaccard, P. Blaser, M. Christl, L. Creac'h, J. Hölemann, M. Scheiwiller, C. Vockenhuber, A. M. Wefing, N. Casacuberta** (2025). The role of the St. Anna Trough in Atlantic Water transport into the Arctic Ocean: A novel radiogenic isotope assessment using iodine, uranium and neodymium. *JGR: Oceans* 130, <https://doi.org/10.1029/2024JC022050>.