ANNUAL REPORT ON GEOTRACES ACTIVITIES IN NORWAY

April 1st, 2020 to March 31st, 2021

New GEOTRACES or GEOTRACES relevant scientific results

- See under Publications below

GEOTRACES or GEOTRACES relevant cruises

- Winter cruise in the Barents Sea (bio-essential and toxic element and DOC characterization) 19th Feb to 24th March 2021
- Spring cruise in the Barents Sea (bio-essential and toxic element and DOC characterization) 16th April – 20th May 2021

New Funded projects:

- Norwegian Institute for Water Research (NIVA) and Norwegian University of Science and Technology (NTNU). Bio-essential and toxic elements transformation and transport in the Arctic under pressure of Siberian Continental Shelf permafrost thawing (Funded by the Norwegian Research Council),
- NTNU. Building Capacity to Crosslink Coastal Pollution with Climate Change_BC5, in coastal waters of Ghana & Tanzania (toxic metals and organic pollutants, e-waste (funded by Norwegian Agency for Development Cooperation – Norad)

Other GEOTRACES activities

- The Biogeochemistry group at NTNU led by Dr. Ardelan have strengthened their trace element lab by adding a new DMA-80 and a Brooks Rand total Hg and MeHg determination instruments. They are also acquiring a new triple Quad ICP-MS to be housed in a newly built trace metal clean lab
- The department of chemistry has now hired a new laboratory technician to work on the ICP MS analysis. Kyyas Seyitmuhammedov, has recently obtained his PhD degree from Otago university, under the supervision of Claudine Sterling, Rob Middag and Malcolm Reid.

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

- *1.* Mathew KA, Ardelan MV, Gonzalez SV, Vadstein O, Veena S V, Leiknes Ø,. Olsen Y. (2021). Seasonal dynamics of carbon sequestration in coastal temperate Atlantic waters using molecular characterisation of dissolved organic matter. https://doi.org/10.1016/j.scitotenv.2021.146402.
- 2. Rios-Yunes, D, Santiago ARB, Mathew KA, Gonzalez SV, Ciesielski TM, Asimakopoulos AG; Ardelan MV. (2021) Potential effect of CO2 seepage at high pressure on the marine organic matter. Accepted- in International Journal of Greenhouse Gas Control. 106: 103276, https://doi.org/10.1016/j.ijggc.2021.103276
- 3. Bonnail, E. et al-, ... Ardelan, MV. (2021) Climate change mitigation effects: How do potential CO2 leaks from a sub-seabed storage site in the Norwegian Sea affect Astarte sp. bivalves? Chemosphere, 264, Part 2, 2021,128552,https://doi.org/10.1016/j.chemosphere.2020.128552.

- Hunnestad, A.V.; Vogel, A.I.M.; Armstrong, E.; Digernes, M.G.; Ardelan, M.V.; Hohmann-Marriott, M.F. (2020) From the ocean to the lab - assessing iron limitation in cyanobacteria: an interface paper. Microorganisms. https://doi.org/10.3390/microorganisms8121889.
- Hunnestad, A.V.; Vogel, A.I.M.; Digernes, M.G.; Ardelan, M.V.; Hohmann-Marriott, M.F. (2020). Iron Speciation and Physiological Analysis Indicate that Synechococcus sp. PCC 7002 Reduces Amorphous and Crystalline Iron Forms in Synthetic Seawater Medium. J. Mar. Sci. Eng. 8, 996. https://doi.org/10.3390/jmse8120996
- Borrero-Santiago, A.R., Netzer, R., Bonnail, E., Ribicic, D.; Koseto, D., Ardelan, M.V. (2020). Response of bacterial communities in Barents Sea sediments in case of a potential CO2 leakage from carbon reservoirs. Marine Environmental Research. 160: 105050, https://doi.org/10.1016/j.marenvres.2020.105050.

GEOTRACES presentations in international conferences

- Seasonal scavenging of inorganic mercury during transition to Arctic polar night. Stephen G. Kohler, Lars-Eric Heimburger-Boavida, Mariia V. Petrova, Murat V. Ardelan. Arctic Frontiers 2021 conference presentation.

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