Press Release

The transfer of iron therefore scales with the seawater residence time in the cavity rather than directly to the freshwater discharge. This is an intriguing finding because it means the transfer of iron out of the cavity is actually ten times larger than expected based on freshwater discharge alone. “As climate change drives a loss of the ice tongue, we will likely see a much stronger connection emerge between freshwater and ocean chemistry”, says Stephan Krisch. “In that context, the collapse of the Spalte glacier in July 2020 may have altered iron cycling underneath the 79° North Glacier. Climate change is affecting these systems so fast, that we are struggling to keep up with our measurements”.

In coming decades, the loss of floating ice shelves in response to climate change will affect the chemical and physical impacts that freshwaters have on the ocean. Professor Eric Achterberg at GEOMAR, who’s research group leads the GEOTRACES component of the project says: “These subpolar coastal environments are incredibly challenging places to work, especially to deploy the robust, clean sample collection methods required for high quality trace chemical measurements. Our future challenge will be to employ greater automation so that we can better study the environmental and ecosystem changes occurring as a result of ice shelf retreat and increasing land runoff.”

Reference:

Krisch, S., M. J. Hopwood, J. Schaffer, A. Al-Hashem, J. Höfer, M. M. Rutgers van der Loeff, T. M. Conway, B. A. Summers, P. Lodeiro, I. Ardiningsih, T. Steffens & E. P. Achterberg (2021): The 79°N Glacier cavity modulates subglacial ironexport to the NE Greenland Shelf. , https://doi.org/10.1038/s41467-021-23093-0

Please note:

This study was made possible by