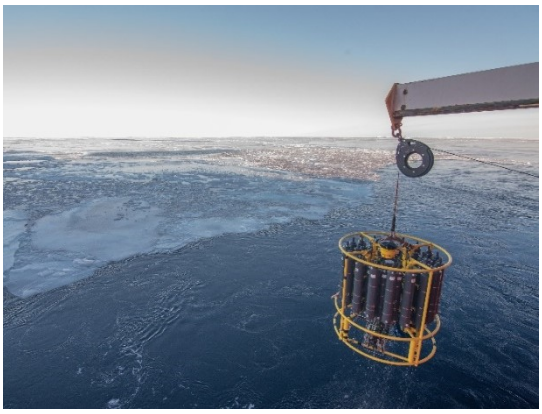
E3 NERC Overseas Visit Research Fund – Ribanna Dittrich

From March to May 2018, I was part of the U.S. Global Ocean Ship-based Hydrographic Investigations Program (US GO-SHIP) collecting data for international CO_2 and climate variability programmes. This opportunity has arisen after a successful application to join this particular cruise covering the Southern Ocean from Tasmania along the Ross sea ice shelf to Chile. Parts of the Southern Ocean are the study region of my Ph.D. project entitled "The role of organic matter in the oceans around Antarctica". The work conducted on the cruise is directly linked to the big questions of Southern Ocean climate science with research about primary and microbial production, physical oceanography, and different CO_2 parameters.

For the duration of the cruise, 67 days at sea, I was part of the day-shift CTD watchstander team. As CTD watchstander our duties were deploying and recovering the CTD rosette at every cast safely and to make sure water samples are collected at the prescribed depths. The CTD rosette contains multiple sensors measuring different parameters while the instrument travels through the water column – such as temperature, salinity, pressure, oxygen, fluorescence and more. The rosette is surrounded by 36 so-called niskin bottles which can be "fired" separately at the desired depth. Once back on board, samples have to be taken most considerably but also fast – to avoid possible contamination by e.g. air when sampled for gasses. I was designated sampler for radiocarbon which is prone to contamination and requires extra attention for the whole sampling procedure.



On the left: A quick photo taken in -35C. On the right: The CTD comes back on board from collecting water samples in sea-ice covered water

While the U.S. institutions covered all costs that were directly linked to the cruise, i.e. air travel to Tasmania and from Chile, the stay on-board the research vessel *RV Nathaniel B Palmer,* accommodation directly before and after the cruise and meals associated with these, the E^3 Overseas Research Visit Fund helped me financing the extensive costs of the necessary medical examinations in order to be allowed in such remote field regions by the U.S. government.

Working directly with international and world-leading researchers across the full spectrum of relevant disciplines offered an outstanding opportunity to develop new and further existing collaborations and opportunities. Overall, this research cruise has been a very valuable experience.