

RV Sonne

Cruise SO308 South Indian Ocean GEOTRACES GI07

31st October – 22nd December 2024

Durban (South Africa) – Fremantle (Australia)



2. Weekly Report

Reporting Period: 4th November - 10th November 2024

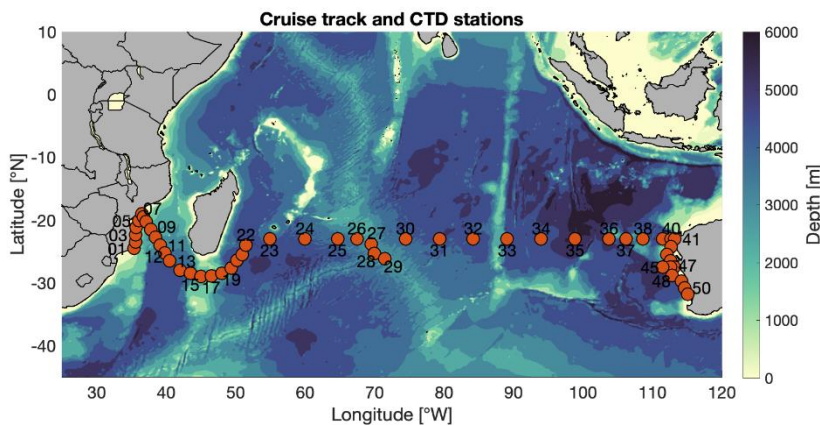


Fig. 1. The planned cruise track with 51 stations (red dots).



Fig. 2. Titanium CTD frame comes on deck on RV SONNE. Photo A. Hollister.

The GEOTRACES research cruise SO308 is one week underway, and we are now sampling at station 12 (Fig. 1), in the middle of the Mozambique Channel and in the French exclusive economic zone. Over the last 7 days we have sampled shelf and slope stations along the Mozambique coast

and in the Mozambique Channel. The waters were relatively shallow and there were multiple stations per day. The depth at station 12 is 4300 m and therefore the operations on the stations takes longer and are more relaxed. We are getting into our routine and we are getting used to our tasks at the stations.

We have established a very efficient routine of the deployment of our equipment and sampling from our water bottles. The team on board the SONNE is now organised and effective. Each station we sample in detail the water column from the surface ocean to the seafloor, and collect waters and particles. We use a titanium CTD rosette frame (Fig. 2) for contamination prone elements. The stainless steel CTD frame is used for non-contamination prone sampling of elements and isotopes like radium, thorium, uranium, rare earths and neodymium. This CTD is also used for sampling of microbial communities, metagenomics and proteomics. Every 2 or 3 days we have so-called superstations, where we also add an additional stainless steel CTD cast, and deploy 9 in situ pumps to a maximum depth



Fig. 3: Mini MUC hanging on crane, before attachment to CTD frame. Photo E. Achterberg.

of 800 m for particle collection and radium isotope sampling. At the superstations we spend up to 9 to 12 hours. Dominik Jasinski, Thorsten Schott and Anton Theileis are working hard every day in deploying the CTDs, camera systems and in situ pumps.

In addition to the sampling of waters, we sample sediments with a multicorer (MUC). This is the first German GEOTRACES section cruise where we also sample the sediments. The first couple of days we deployed the GEOMAR mini MUC separately in the shallow waters. To be more time efficient at the deep stations, we are now hanging the mini MUC at about 13 m below the CTD frame (Fig. 3). The bosun and rest of the crew have been excellent at facilitating this challenging activity. The combined deployments have been very successful and we have managed to collect sediment cores at all the deep stations.

One of our regular activities on the cruise will be the deployment of ARGO floats. We have a total of 19 floats to deploy, from the US and German ARGO communities. The float are the standard ARGO units with temperature, salinity, oxygen and fluorescence sensor, but also biogeochemical floats with additional nitrate, pH, suspended particle and irradiance sensors. At station 11, we deployed the first US Argo float (Fig. 4) which will add to the global array of more than 15000 deployed floats that will sample the ocean down to 2000 m.



Fig. 4: ARGO float deployment from RV SONNE. Photo E. Achterberg.

RV SONNE at sea 25°21 S/39°53 E

Eric Achterberg
GEOMAR Helmholtz Centre for Ocean Research
Kiel/University of Kiel