

# SONNE 303

## BIOGIN – IIOE2

La Réunion – Colombo, 23.01. – 19.02.2024

### 6. Weekly Report

12.02.-18.02.2024



## The last week in the equatorial Indian Ocean

On February 16, we were able to complete our work at 4°S and 80°E, at the southernmost station of our second trans-equatorial profile section. The only task was to recover the last drifter after it had been collecting samples for 48 hours. We had released it at 2°S and we found it a little further north after it had drifted about 24 nautical miles to the west.

We studied the biogeochemistry in the equatorial Indian Ocean at a total of 23 stations and took plenty of core material back to the home laboratory for sediment studies. In total, we took water and suspension samples at 23 stations and ran CTD profiles to determine the water column physics in high spatial resolution. In addition to phytoplankton nets, a total of 35 multinetts were deployed at depths between 100 m and 600 m. At eight stations we deployed drifters with sediment traps at depths of 50 m to 600 m. Overall, we collected a large quantity of samples, which we will analyze in our home laboratories. We will only be able to evaluate the results of the filtration and ultrafiltration as well as from incubations on deck and in the climate laboratory at 10°C, after the laboratory analysis at our institutes will have been completed. Close cooperation between the working groups of the participating research institutions and universities is yet again required in order to gain a better understanding of the physical, biogeochemical and geological processes in the equatorial Indian Ocean.

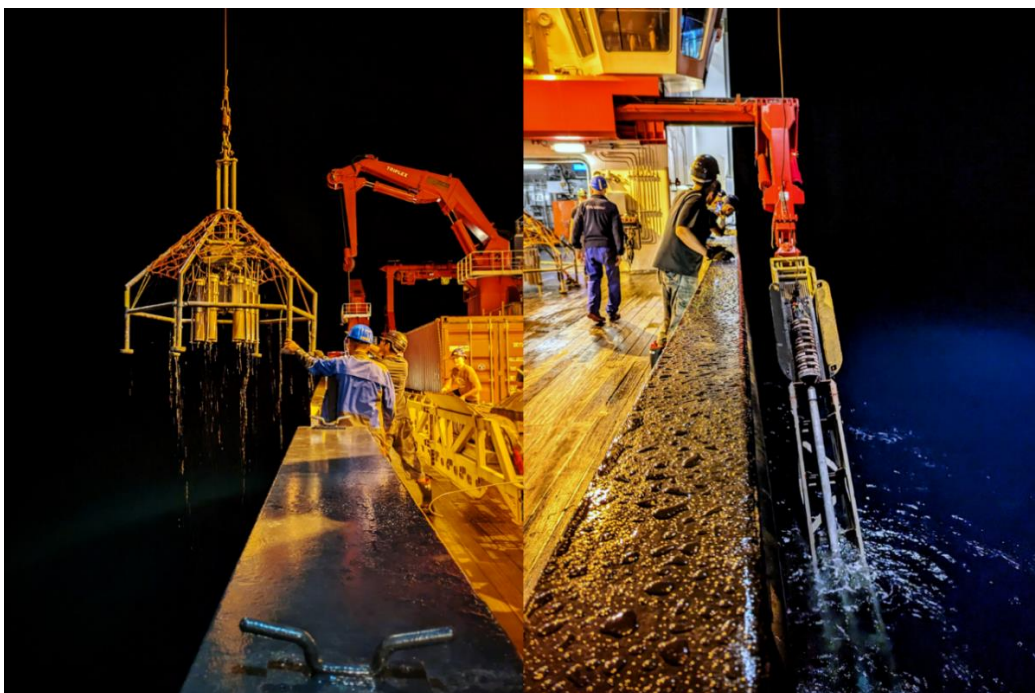


Photo 1: Operation of the multicorer (left) and the gravity corer (right) © Yves Sorge

The geological stations were examined in detail using hydroacoustic methods prior to sediment sampling. The bottom topography was mapped using the multibeam echo sounder and the upper sediment layers were explored with the parasound. This was particularly important on the first profile section, as our transect was located on the Central Indian Ridge. At this geologically young spreading axis new oceanic crust is formed with partly very thin sediment cover. The multibeam echo sounder was used specifically to search for basin structures in which sediments are deposited. During the 24-hour operation on board, many of the sediments were collected at night (Photo 1). The cores, which are up to 9.80 m long, are sawn into 1 m sections on board, transported to the home laboratory in a refrigerated container and only opened and sampled there. Sampling of the multicores, which were between 25 cm and 40 cm long, was carried out directly on board (Photo 2). The core samples will give us an insight into the geological past of sedimentation and climate in the Indian Ocean.



Photo 2: Multicore and sampling © Lisett Kretzschmann

We are pleased that after the delayed arrival of the containers and the restrictions with regard to the working area, we can look back on a harmonious and successful cruise with plenty of analysis results and sample material and are now preparing for the arrival in Colombo on February 19. On behalf of the scientists, we would like to thank the crew of RV SONNE for their excellent support and the very pleasant atmosphere on board. As the BIOCAN cruise had to be canceled, we are looking forward to returning, hopefully soon, to complete our work in the Arabian Sea.

With a hearty "Glück auf" from on board to all those who stayed at home.

Birgit Gaye  
Chief Scientist