R/V SONNE, 21 April 2024

2nd Weekly Report (15 - 21 April 2024), R/V SONNE cruise SO305 BIOCAT-IIOE2, Colombo (Sri Lanka) - Singapore

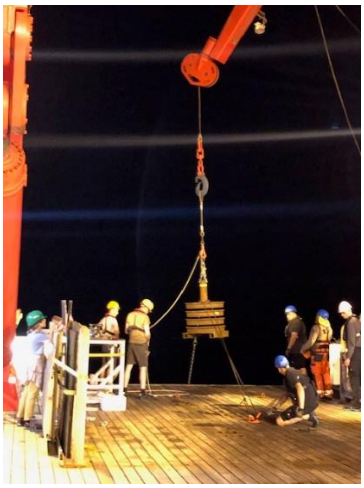
We left the port of Colombo at 20:30 on the evening of 13 April. On the following transit to the first station (#01) at 01°S 88°44'E, we completed a test station on 16 April to test the use of the CTD/Ro and to optimize the sequence of water sampling from the CTD/Ro. Our cruise plan comprises a total of 40 stations, seven of which are designed as so-called 24-hour stations, where we remain at one position for one day. On 17 April, we started our regular station program with station #01. This was followed by stations #02 to #06, which form a section at 0.5° intervals across the equator from 88°44'E to 01°N. We then travelled a little further west to 88°E, to the start of our main section through the Bay of Bengal. Stations #07 to #09, spaced 1° apart along 88°E, have been sampled so far. Today, 21 April, we will start with the first 24h station (station #10) around noon.

The regular, repetitive station work includes the use of the CTD/Ro (from the water surface to the sea floor at a maximum water depth of 4500 m), microstructure measurements (with a free-falling microstructure probe up to 200 m water depth) and the use of Go-Flo water samplers (up to a water depth of 500 m). At the 24-hour stations, the regular station program is supplemented by inflatable boat deployments to sample the uppermost meter of the water column, the use of a submersible pump (up to a water depth of 150 m) and the deployment of drifting sediment traps (which are collected again after 48 hours). In addition to the station work, continuous measurements are carried out in the atmosphere (trace gases, aerosols) and in the surface water (dissolved trace gases and sampling for trace metals with a towed towfish).

CTD/Ro retrieval (right); Go-Flo (left) and Towfish deployment (right) at dusk on 20 April.

At the equator (station #04, approximately at 00°S 88°44'E), the team led by Dr Rena Czeschel (GEOMAR, Kiel) has successfully deployed a long-term mooring in a water depth of approx. 4500 m. The mooring is equipped with instruments for measuring water temperature, salinity, dissolved oxygen and currents at various water depths. These measurements at fixed water depths are supplemented

by a so-called profiler, which regularly moves up and down the wire in a specific water depth range and also measures water temperature, salinity, etc. The mooring is designed for a measurement period of two years and is then to be resumed.

Deployment of the mooring on 18 April.

The weather conditions have been very good so far: it is tropically warm (around 30° during the day) with high humidity, low to medium wind speeds and calm seas. The water surface temperatures are around 30°C and higher. As we have been travelling in the Intertropical Convergence Zone (ITCZ) for the last few days, we have also had some rain showers and a thunderstorm with lightning and thunder.

Rain showers approaching; 17 April, south of the equator.

Herman W. Bange

and the Scientifc Party of SO305

at 05°00'N, 88°00'E

(all pictures by H. Bange, GEOMAR, Kiel)