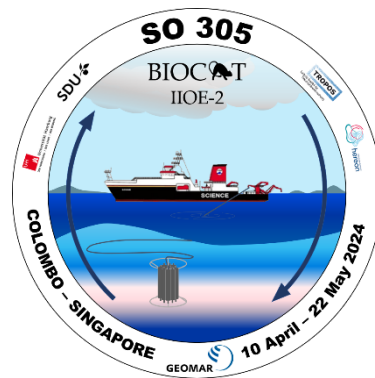
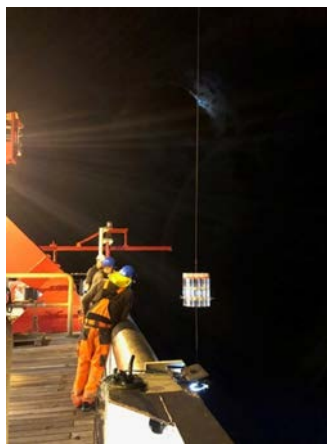


R/V SONNE, 28 April 2024



3rd Weekly Report (22 - 28 April 2024), R/V SONNE cruise SO305 BIOCAT-IIOE2, Colombo (Sri Lanka) - Singapore

This week we sampled 11 stations along our main transect at 88°E between 5°N and 12°N (Stat. #10 - Stat. #20). Stations #10 and #18 were 24h stations. Regular station work includes 1. CTD/Ro deployments down to the seafloor, 2. shallow CTD/RO deployments (mostly down to a water depth of 500 m), 3. the use of a free-falling microstructure probe and 4. the use of Go-Flo water samplers (for sampling trace metals such as iron etc.). Water samples are mainly taken to determine the depth distributions of nutrients, oxygen, trace gases and metals, ¹⁵N isotopes, microbiological rate measurements, but also for incubation experiments and metagenomics analyses, among other parameters. In addition to the regular station program, the drifting sediment traps are deployed at the 24-hour stations, as well as a submersible pump (for sampling dissolved nitrogen monoxide) and the inflatable boat for sampling the uppermost meter of the water column.

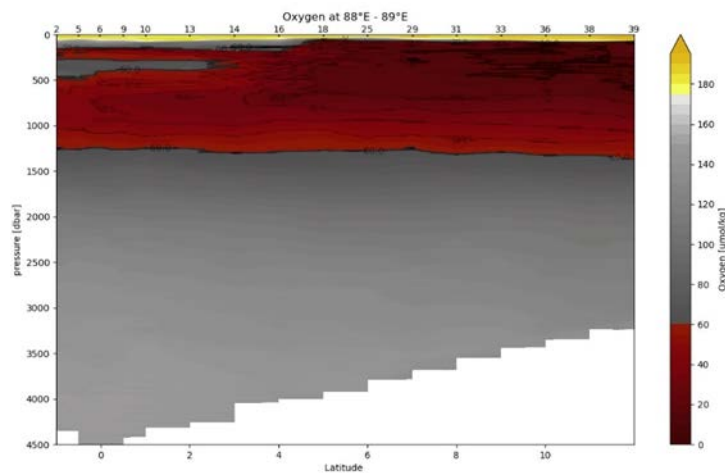


Deployment of the sediment traps on 27 April at 12°N 88°E.
The sediment traps are taken up again after approx. 48 hours.

We have now left the ITCZ on our way north and have had plenty of sunshine with tropical temperatures, calm seas and low to moderate winds for several days:



Initial preliminary results of the oxygen measurements show, as expected, a pronounced oxygen minimum zone (defined here as $O_2 < 60 \mu\text{mol L}^{-1}$) in a depth range from approx. 100 to approx. 1200 m:



The lowest oxygen concentrations measured so far were around $2 \mu\text{mol L}^{-1}$ (non-calibrated CTD sensor data). So far we have not measured a secondary nitrite maximum in the oxygen minimum zone, which would be an indicator for denitrification (= microbial reduction of nitrate under anoxic conditions). We are curious to see whether the oxygen concentrations will continue to decrease on our way north.

Herman W. Bange

and the Scientific Party of SO305
at $12^{\circ}30'N, 86^{\circ}00'E$

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