

SO270 MASCARA

Weekly Report 3 – 15th to 21st Sept. 2019

During this report period, we continued with our transit over the Indian Ocean. On the 21st of September at 06:00 ship time, we reached the first station in the proposed working area around Saya de Malha Bank and started our scientific data collection. However, some groups already acquired data during the transit when we were in international waters outside the Exclusive Economic Zone (EEZ). Data collected on the transit route included current measurements in the water column (ADCP), salinity and water temperature, as well as bathymetry (Multibeam). We also continued our underway analyses on water chemistry and micro-plastic concentration. This comprehensive data set will provide an interesting transect through the tropical Indian Ocean and by doing so we have used the long transit time in the best way.

After leaving the EEZ of Indonesia on the 16th, we had a test station for CTD and the multi closing net (MCN). Both instruments worked fine and we had the possibility to gain first oceanographic data and plankton samples from different water depths (Fig. 1).

On the 17th we deployed the digital streamer to install the digitizing modules as well as the birds that control streamer tow depth. This was followed by a test of the complete system that will be used for reflection seismics. Beside crew and seismic group, also members of other working groups joined in and helped with deploying the heavy equipment.



Fig. 1: Station work with the 100 μm multi closing net (MCN). **A)** Deployment of gear. Photo T. Wasilewski, CEN, Uni Hamburg; **B)** Pteropod; **C)** Living planktic foraminifer *Globigerinoides sacculifer*. Photos Björn Taphorn, MPIC, Mainz

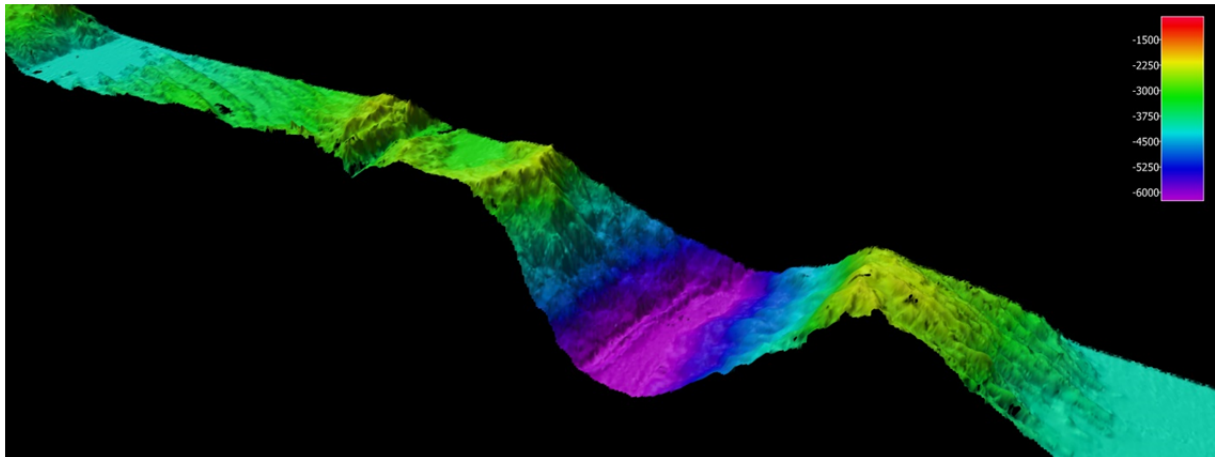


Fig. 2: Multibeam (EM122) transect crossing the Vema Trench (8.78°S/67.68°E), one of the deepest parts of the Indian Ocean (Colour scale in m).

Some technical issues that arose during the seismic test could be solved very quickly with the great support of the RV SONNE crew.

One highlight for the hydroacoustics group was the passage over the Vema Trench on the 20th of September. This trench is part of the Vema Fracture Zone located in the Central Indian Ocean (not to be confused with the structure with the same name in the Atlantic), where it displaces the Central Indian Ridge by about 300 km. The Vema Trench hosts one of the deepest points in the Indian Ocean with a water depth of up to 6500 m (Fig. 2).

This morning, the 21st, we started the scientific main program of the cruise SO270 MASCARA. The working program during the next 2 days includes a north-south transect of combined CTD and multi-closing net stations along 65°E, east of the Saya de Malha Bank. Measurements will cover water depths of up to 4000 m, and aim to gain a better understanding of the different water masses that impact the carbonate platform. The main surface current being the South Equatorial Current flowing from an easterly direction and southerly direction. These data will be important to reconstruct the oceanographic framework that possibly controls the development of the Saya de Malha Bank.

All onboard are fine.

In the name of all cruise participants

Sebastian Lindhorst, Chief Scientist

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