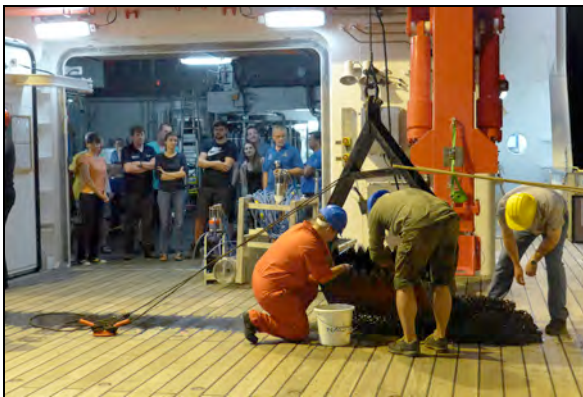




SO258 Leg 1
INGON
Weekly Report No. 5
(03.07. – 09.07.2017)



In the last week of R/V SONNE cruise SO258 leg 1, we initially finished the studies at the Afanasy Nikitin Complex. Three dredge hauls at its northern tip recovered aphyric and olivine-phyric lava fragments and volcanoclastic rocks. Monday evening SONNE headed towards a thus far largely unexplored area ~300 nm southeast off Sri Lanka. Bathymetric maps based on satellite altimetry reveal a NE-SW-striking chain of seamounts and ridges, which are referred to as Buried Hills. The Buried Hills are important for us because they are most likely the only part of the "85° Ridge" north of the equator not covered by sediments of the Bengal fan (even though their name implies the opposite). Before we reached the Buried Hills, we have carried out one dredge at S-shaped, E-W-trending ridge. This feature is located on the "85° Fracture Zone" which we have already sampled ~2,000 km further south on our journey. The S-shape of the ridge is probably caused by tectonic movements at the "85° Fracture Zone". A dredge haul at this feature turned out to be one of the best of the cruise. The dredge returned olivine-feldspar-phyric and biotite(!)-pyroxene-feldspar-phyric lava as well as large amounts of volcanic glass.



A large audience wonders "what is in the dredge?" while scientists change the sediment traps, which are installed in the dredge. (photo: Nora Krebs)

On Wednesday morning we finally arrived at the Buried Hills. Unfortunately deep sea cables hindered us to sample the south-westernmost seamount of this chain. However, a dredge haul at a seamount located slightly further northeast yielded olivine-phyric lava fragments. The following five dredges have been conducted at an S-shaped SW-NE-trending ridge. Four of them recovered aphyric lava fragments. The last dredge of the journey aimed at a seamount located ~40 km east of the ridge but unfortunately returned empty. Besides extensive multi-beam mapping and sediment-echosounder profiling, a total of 39 dredge hauls in an average water depth of 4,150 m were carried out on SO258 Leg 1. Of these, 32 (= 82%) delivered *in situ* samples of which 29 obtained volcanic rocks, 15 volcanoclastics, and five sedimentary rocks. No equipment was lost or seriously damaged.



Of particular interest was a well preserved specimen of the barreleye *Dolichopteryx* caught during the last trawl of the journey. It was clearly different from the one caught previously and needs further investigation for reliable identification. (photo: Wensung Chun)

The last Tucker trawl was carried out on Tuesday, July 4th, during transit to the Buried Hills. As before the net contained a high number of specimens allowing the successful completions of ongoing experiments. In the remaining days of the cruise current experiments (circadian rhythms, electrophysiology, visual pigment regeneration) were completed. In summary, the catches during the cruise SO258 leg 1 were much better than we had hoped. In total the number of specimens by far exceeds 2,000. Over 150 species of fish from 81 genera and 38 families were caught. These were typical of the mesopelagic assemblage but included interesting abundancies and exclusions. For example, only 3 juvenile *Anoplogaster* were caught and no *Diretmus sp*, while many *Stylephorous* (11) were caught along with stomiiforms from at least 22 genera including hundreds of hatchefish (*Stenoptix* and *Argyropelecus*), viperfish (*Chauliodus*), bristlemouth (*Gonostoma*) and the rare *Malacosteus niger* or *australis* (22 individuals) and *Eustomias sp* (28 Individuals). The diversity of cephalopods, too, was unexpectedly large with 33 cephalopod species (225 specimens from 17 Families and 27 Genera) brought on board. Crustaceans included many decapod shrimp, hyperiid amphipods, ostracods and an assortment of other isopods and amphipods. The catch, like fish, was again in some ways typical of what was to be expected in mesopelagic trawls but with some gaps.

On Friday, July 7th, we left our working area and R/V SONNE headed towards Colombo. Among others, the transit was used for preliminary studies of the data and samples as well as for cleaning, maintenance, and packing of our equipment. In the evening of July 7th, we celebrated the end of a successful expedition. On Saturday, July 9th, we finally reached the port of Colombo according to schedule at 08:00 am.



The SO258 leg 1 Scientific Party. (photo: E. Reize)

The scientists would especially like to thank Captain Meyer and the crew of R/V SONNE. Their hard work, high level of experience, great flexibility and willingness to help, as well as the pleasant working atmosphere on board, contributed directly to the success of the SO258 leg 1 expedition. We are also grateful to the German Federal Ministry of Education and Research for continuing support of marine research. Lastly we would like to thank “our” team, the SO258 Scientific Party, not only for their excellent work on board but also that they crucially contributed to the good atmosphere on board throughout this expedition.

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