	SO233 **Walvis II** **Weekly Report No. 5** **(9.06.2014 - 15.06.2014)**	 **R/V SONNE** 20°29´ S / 07°21´ E

This week we began working on the northern portion of the Walvis Ridge. There were lots of ups and downs, due to bad weather, which made work difficult and sent some scientists back to their bunks for a few days. The sea has calmed down again and the weather the last couple of days has been beautiful with warm sunny days, like summer in northern Germany.

Geological highlights this week in addition to successful dredges included recognition of additional evidence for large-scale extensional tectonic movements along the central part of the Walvis Ridge. On the eastern side of the central Walvis Ridge, we identified a large ~100 km in the N-S direction by ~40 km in the E-W direction block with a flat erosional surface located at ~3 km depth. This erosional surface is located ~1 km deeper than other such surfaces in this region. On the eastern edge of the block we discovered very steep canyons with nearly vertical sides that we believe could only have formed as submarine canyons just below sea level at the margin of an ocean island volcano. We interpret a steep scarp on the west side of the block, separating it from an erosional platform to the west located at only ~2 km depth, as a normal fault. We believe that the block was dropped down ~1 km after the erosion occurred, similar to the large graben structure that we mapped further south last week. Both structures were most likely related to the rifting apart of the Walvis and Rio Grande Rises.

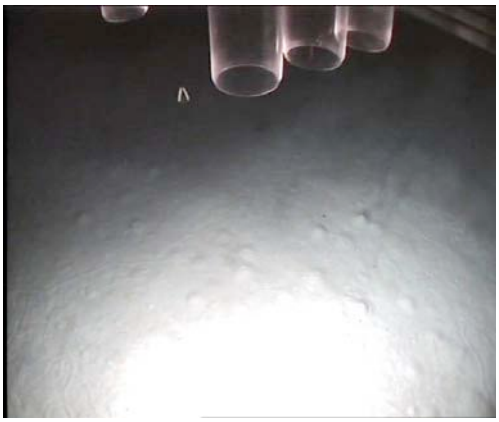
Despite the unsuitable weather conditions at the beginning of the week, the biologists also had a great week. They successfully deployed the multi-corer twice and the TV grab once. The multi-corer, similar to the TV-Grab, is equipped with a camera that recorded all sorts of planktonic life as it descended to the bottom. The ultimate goal is to collect undisturbed sediment cores in the seven plastic tubes attached to the central block of the multi-corer. The camera ensures that we sample soft sediments and do not destroy the device by landing it on crusts or rocky substrates. Once the sediment cores are onboard again parameters like oxygen content and salinity are measured from the supernatant water in the tubes. The upper 5-10 cm of sediment are preserved in formaldehyde for later extraction of the meiofauna, the microscopic life between the sediment grains. The extracting procedures are the same as for the sediment from the traps in the geological dredge and include rinsing through a 40µm mesh and centrifugation with the tensid Levasil. Collecting the meiofauna in undisturbed sediment cores has two advantages: The larger amount of sediment compared to the traps in the dredge contains far more organisms especially in the upper layer of the core and the sample comes from a geographically defined spot making biogeographical correlations between spots much more accurate. With the TV-Grab we wanted to collect invertebrate assemblages growing on hard substrate exposed on a slope – a difficult terrain for this device. After several tries, we were able to grab crusts and sediments, which mysteriously had disappeared when the fine sediment cloud cleared after the shovels closed. Only a few large twigs of octocorals remained. The corals were colonized by sea anemones, soft corals, barnacles, brittle stars, feather stars and snails and the extremely fragile corals but life on them survived the more than 2000 m journey to the surface almost completely undamaged.

All on board are doing well and send their best greetings.

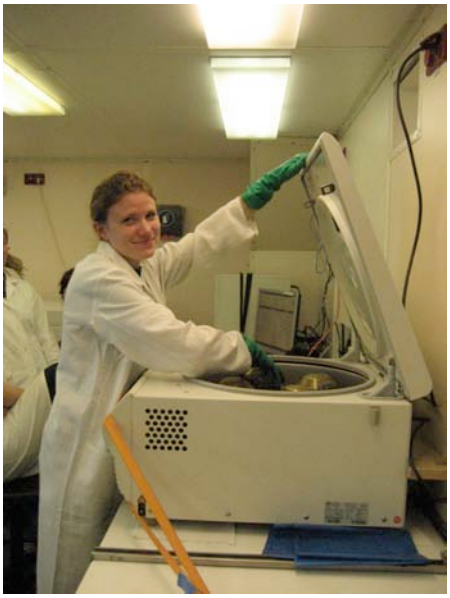
Kaj Hoernle (chief scientist SO233) and the cruise participants

No she wasn't on deck during a storm just sawing rocks.

A good dredge..



The multi-corer shortly before touching the seaflloor and sampling deep sea sediments.



A biologist loads the centrifuge to spin the sediment for microscopic life.

Stems of living isidid (bamboo) corals from 2145 m depth with a large, yellow feather star (Crinoida) clinging to it.

Fotos: Kaj Hoernle (2), Carsten Lüter (3), Sandra Wind (1)