



SO233 Walvis II

Weekly Report No. 3
(26.05. – 1.06.2014)



R/V SONNE
26°40' S / 05°20' E

Besides for a high swell, the bad weather expected this week never materialized. Instead, we were blessed with lots of sunshine, little wind, north German summer-like temperatures (25°C) and at the end of the week calm seas. Besides for occasional whales and rare container ships, its only water and sky as far as one can see.

Over the last week, we primarily mapped and sampled the central part of the Walvis Ridge and the nearby seafloor with the dredge, multi-corer and TV grab. One of the many dredge hauls was particularly successful, bringing ~ 300 kg of rock (e.g. basalts and gabbros) on board. The rocks included so-called pillow lavas that look like pillows in cross section but are actually tube-like lava flows that are characteristic of lava that erupts underwater. Many of the pillows contained fresh glassy rinds, resulting from very rapid cooling of the basaltic magma before it has a chance to crystallize, due to quenching from seawater. The glasses are particularly useful for geochemical analyses, because they represent the composition of the magma. To obtain fresh glass via dredging on such an old structure as the Walvis Ridge (presumably about 100 million years old here) is extremely rare, because glass is not stable when in contact with water over longer time periods and is converted to clay. Many of the lava samples were also very fresh and contained large fresh feldspars, which will allow us to determine accurately the age of the samples. The dredge was from a very steep slope that looked like it was part of an extinct rift system, related to the separation of the Rio Grande Rise, a large plateau-like structure in the western South Atlantic off-shore of Brazil, from the Walvis Ridge as a result of seafloor spreading.

The geological dredges were also very successful at collecting sediment containing meiofaunal organisms within the sediment traps screwed to the inner part of the dredge. The sediment samples, recovered in each of the dredges carried out this week, were fixed with formalin and then washed with tap water over a 40µm mesh sized sieve to hold back the minute organisms living in the sediment together with the coarser fraction of the sediment. Afterwards, a tensid-solution called Levasil and the preserved sediment/organism sample were loaded into centrifuge tubes and spun at 4000 revolutions per minute to separate the meiofaunal organisms. The organisms were then preserved in alcohol for further investigation.

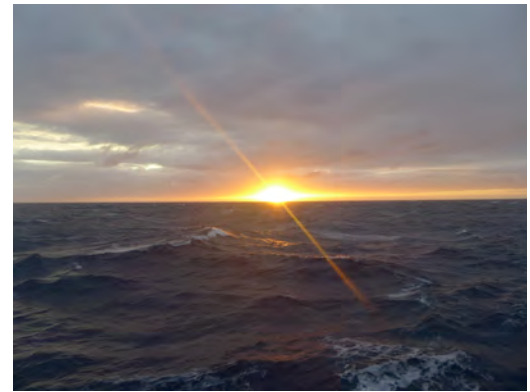
Thus far, larger epibenthic or encrusting organisms were rarely found on the dredged rocks. This is surprising, since we are in an area strongly influenced by the nutrient rich Benguela current, which runs along the South African and Namibian Atlantic coasts. Accordingly, all videos recorded with the TV-multicorer and the TV-grab showed a rich plankton community with shrimps, fish, jelly fish and large tunicate colonies, which are sometimes caught in the dredges as they pass through shallow water on their way to the surface. An exception was Saturday's late afternoon dredge from about 1500-2000m depth. Several big chunks of porous sediment contained lots of sponges, huge eunicid bristle worms, sipunculids, bryozoans and two species of brachiopods, *Novocrania* sp. and *Eucalathis* sp.

All on board are doing well and send their greetings to family and friends.

Kaj Hoernle (chief scientist SO233) and the cruise participants



A dredge about to come on board during the early morning hours of Christi Himmelfahrt (the day christ journeyed to heaven) - a national holiday in Germany, which is also Father's Day. On board, we work around the clock, seven days a week, including holidays.



Sunrise from the Sonne marking the end of the night shift.



System operator and biologists enjoying the sun between dredge stations.



An exuberant shift leader and member of his shift after a successful dredge! Note the cowboy workboots left-over from his days in College Station as IODP (Integrated Ocean Drilling Program) Staff Scientist: You can take Jörg out of Texas but not Texas out of Jörg.



Biologists hard at work photographing and picking organisms off of recently recovered rock samples.



Looks like glubber, slimy substance that children love to play with, but it's actually a colony of living organisms called salps (or tunicates).