Wochenbericht M75-1b, la Reunion – Dar es Salaam

20 January 2008

The present M75-1b cruise of FS Meteor is a special one in that it is a so-called barter cruise. Barter cruises are carried out in the framework of the Ocean Facility Exchange Group (OFEG) in which a number of European countries exchange ship time (and other large and expensive ocean instrumentation). Germany, England, France, Norway, Spain and the Netherlands participate in this consortium. Efficiency in the expensive use of ship time is increased a.o. by combining research programs from different countries on one vessel. Another possibility is that a research program from one country is performed on a research vessel from another country. By this, especially long and expensive transit times of the vessels towards research areas can be avoided. The present cruise is an example of the latter: a Dutch research program in the Indian Ocean is carried out by the German RV Meteor that was planned to be in this area to carry out a number of German research programs. Similarly, the Dutch RV Pelagia will carry out a German research program in the Gulf of Cadiz in early 2008.

The M75-1b cruise forms part of the Dutch Long-term Ocean Climate Observations (LOCO) program. The scientific goal of the LOCO- programme in the Indian Ocean is to determine the variability in the currents and fluxes through the Mozambique Channel. This flow forms an important part of the inflow into the Agulhas Current which transports enormous amounts of heat from the tropical towards the polar regions in the Indian Ocean. Moreover, inter-basin leakage between the Indian and Atlantic ocean is largely controlled by the strength of the Agulhas Current. There are strong suggestions that the strength of the flow through the Mozambique Channel at the upstream edge of the Agulhas Current ultimately influence this inter-ocean exchange. Moreover, observations during a pilot experiment in 2000-2002 have shown that there is a relatively strong northward flowing current at great depths along the continental slope of Mozambique. This current consists of North Atlantic Deep Water (NADW). Thus, both the near surface and the near bottom currents form part of the global overturning circulation. Quantification of the (variability in) this overturning circulation is one of the most important goals of this research programme.

As a part of this program long-term oceanographic moorings with current meters, temperature and salinity sensors and sediment traps have been deployed in the narrowest passage of the Mozambique Channel, along a section between Madagascar and Mozambique, in late 2003. These moorings are recovered, serviced and redeployed every 1-2 years, depending on the availability of shiptime. Servicing of the moorings is combined with a hydrographic survey along the mooring array to increase the spatial resolution of the measurements and to obtain information on additional hydrographic and geochemical parameters to determine the variation of the water mass and sediment characteristics of the flow.

FS Meteor in the harbor of la Reunion

Outside the harbor in la Reunion

The cruise started on Saturday 19 January on the French island la Reunion, to the west of Madagascar. The transit to the working area is along the northern site of Madagascar and takes about 4 days. During these transit days everybody is busy with preparations for the work that has to be done along the mooring section. Meetings are organized for discussions between scientists and crew members to harmonize the ships facilities (and habits) with those from the Dutch science team. Thus far, everything seems to work out smoothly.

The weather is very nice: tropical temperatures above 27 degrees (both air and sea) and an easterly breeze of some 3-4 Bft. Also the sea is very calm. Detailed weather predictions are made daily by 2 scientist from the ´Deutsche Wetter Dienst´ that participate on this cruise. These

helped to decide to take the northern route (and not the southern) to the Mozambique Channel since the weather and sea state (swell) was predicted to be much better along that route. Compared to normal practice there is one additional meteorological scientist because of the relatively high chance of cyclones in this area in this part of the year. Happily, thus far no cyclones have been predicted!

Best regards,

Herman Ridderinkhof

Fahrtleiter FS Meteor M75-1b