

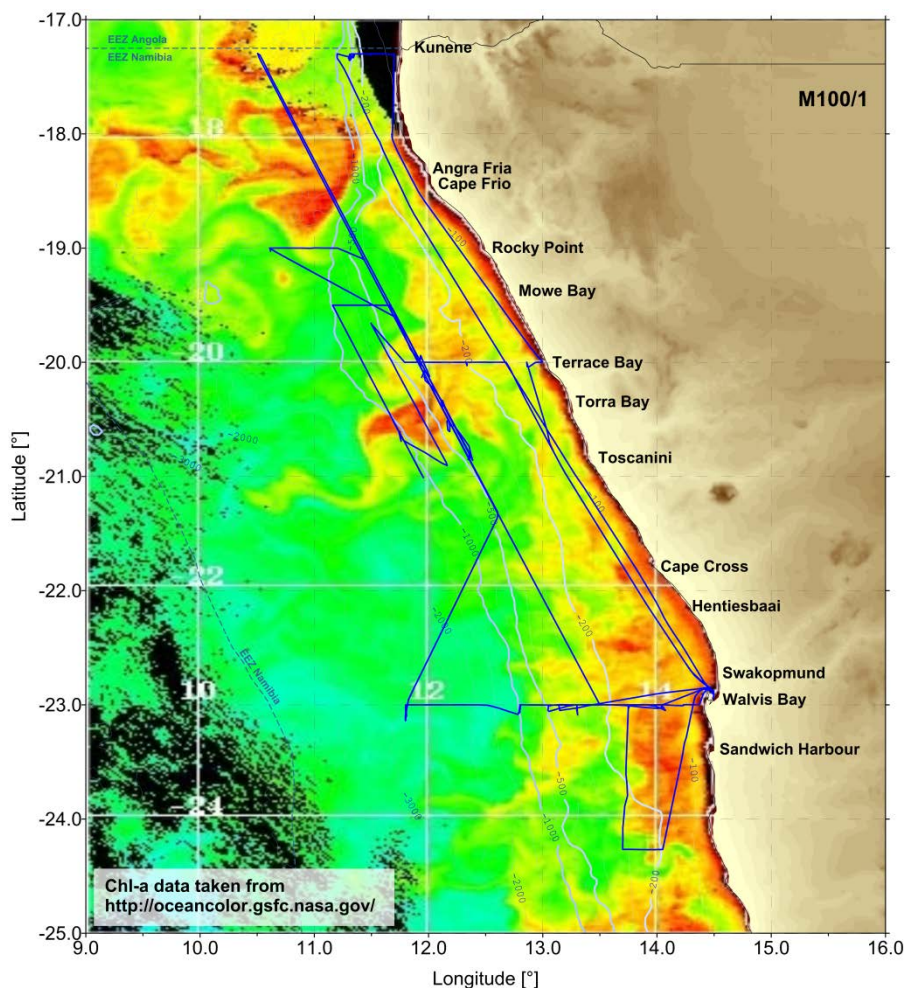
**FS METEOR Reise M 100/1**  
**Vierter Wochenbericht**

**Walvis Bay – Walvis Bay**  
**1. September bis 1. Oktober 2013**



The fourth weekly report indicates the fast approaching end of a densely packed cruise.: We will have finished 75 stations with more than 350 individual deployments of various instruments – and it was worth it! After a transect south down to 23°S to complete the Walvis Bay transect in the seaward direction, we made a deviation to 24°S to investigate a prospective mining area for phosphate at 180 m depth. Benthos and plankton samples were taken by our Namibian colleagues and together with them GENUS will observe the environmental development of this area with its unprecedented technique of harvesting phosphate for fertilizers from the seabed. The following outer station of the Walvis Bay transect revealed completely different hydrographic and ecological conditions compared to station on the shelf.

In another excursion to the oceanic region at 19°S we identified a distinct oxygen minimum zone (OMZ between 100 and 400m water depth) typical for the Benguela Current system. Zooplankton was sampled and experiments set up to assess the animals’ tolerance to hypoxia, which greatly determines their spatial distribution. This topic is continuously tackled in our investigations of the Benguela Current.



On the route to 19° S we already deployed the Scanfish to survey “our” filament at 20° S once more: It still existed after two weeks and meanwhile reached far into the ocean (Fig.). We are presently repeating the 30 nm transect to look into the temporal development of the filament.

*Cruise track M100/1 over Satellite picture of Chlorophyll content off Namibia on 24.09.2013*

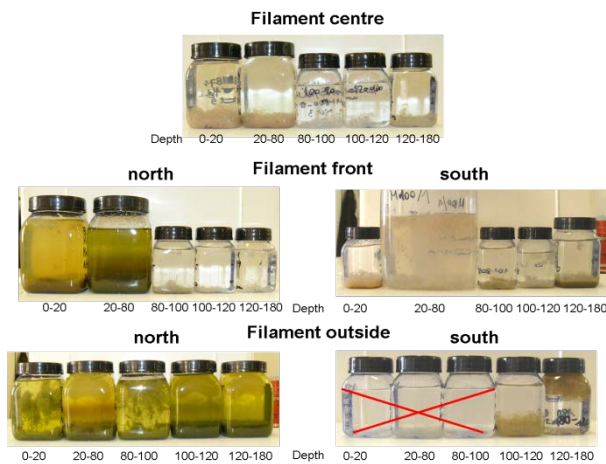


Fig. 1: Illustration of sampling vials from within the filament, at the fronts and outside of the filament. Foto: A. Schukat

along the filament transect are also clearly shown in the profiles of oxygen, CO<sub>2</sub>, temperature and pH. Nevertheless, at home we will have to count, analyze, and measure for quite a long time, before we can put together all the pieces of the puzzle rendering an oceanographic – geochemical – ecological picture. We are looking forward to the exciting exchange of results and interdisciplinary comparisons!

At present our tasks include the organization of the end of the cruise with transport of frozen samples to various distinctions and container exchange. Yet the good bye party will also commence as our “Thank you” for the diligent, always good-humoured, perfect commitment of engine, deck and bridge, WTD and DWD. The guest book already contains a photo over 2 pages of ship and scientific crew titled:

We are Meteor!

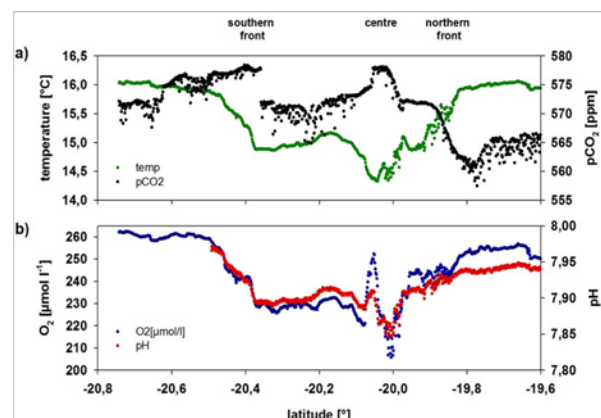
There is no better way to characterize this unusually successful and harmonious cruise. We are already looking forward to M103, which will take place over the change of the year.

Cordially, Fritz Buchholz, chief scientist M 100/1, 29. September 2013.



Foto T. Heene

Some exemplary results of the last transect are following: Before plankton samples can be properly analysed, simple photographs of the sampling containers from Multinet catches already show the great differences. We found distinctly different waterbodies north and south of the filament, easily distinguished by the green colour of the phytoplankton in the samples, while in the center of the filament brown material in the flasks was zooplankton that probably diminished the phytoplankton by grazing. The dynamics



Preliminary results of the surface expression of the filament as observed in a) xCO<sub>2</sub> (ppm) and temperature (°C) and b) O<sub>2</sub> (μmol l<sup>-1</sup>) and pH during a scan fish cross section. c/o A. Flohr