

FS METEOR Reise M 100/1

Third weekly report

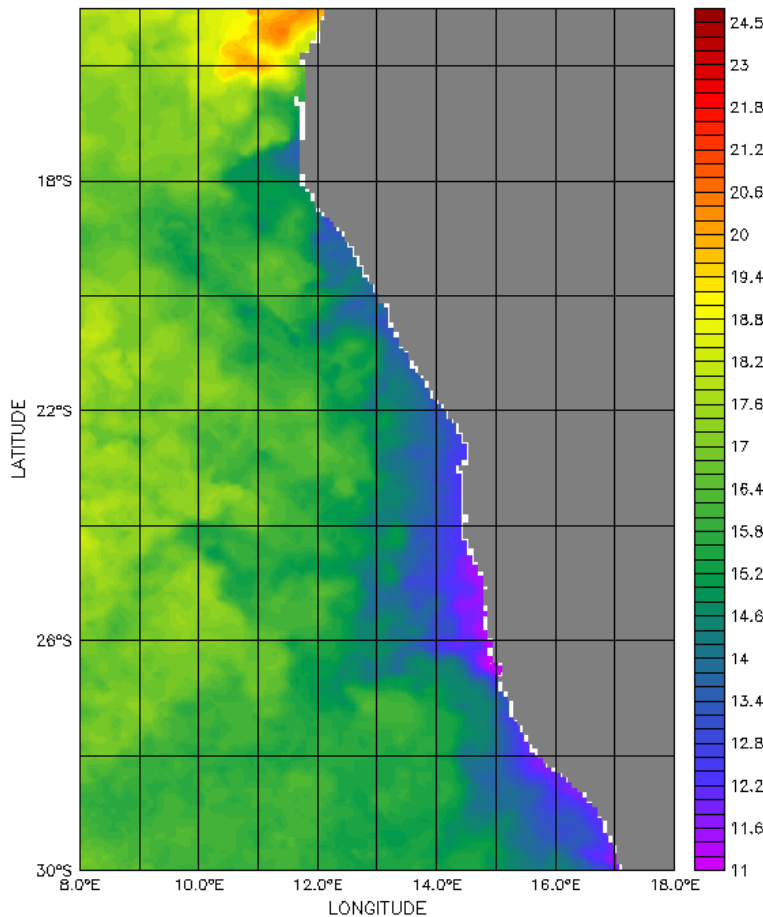
Walvis Bay – Walvis Bay

1st September to 1st October 2013



We are having the Trades! The name trade wind goes back to the times when the sailing merchant fleet relied on them for ocean passages. However, the position of the trade belts varies seasonally and that is a strong case here, off Namibia. In the current early year maximum, the SE-Trades blow steadily – within a diurnal cycle freshening and weakening at a mean of 5 Beaufort winds. Local depressions from the warm land lead to increased wind forces from time to time. The trades in turn drive the Benguela current and the upwelling. The hydrographic picture, here depicted as SST sea surface temperature, is typical (Fig 1.): We find permanent upwelling along the Namibian coast, characterized by blue colour, i.e. cold water. The Lüderitz Cell at 26°S is always most prominent but further North upwelling cells are clearly visible as well. The Angola current bringing tropical water from the North has been shifted far up North by the

Satellite image of sea surface temperatures off Namibia on 21 09 2013



SST mw_ir.fusion (18 UTC) (Celsius)

Benguela current. From the blue upwelling cells filaments extend perpendicularly from the coast like fingers far into the ocean until they dissipate. “Our” filament, at the 20th Latitude which we have studied a couple of weeks ago, is still viable: we will return to it towards the end of the cruise to repeat the initial cross section transect: will it prove to be a semi-permanent structure? New and exciting! The cool water causes cool spring air temperatures constantly around 14°C, accompanied by mostly overcast skies – we did not come here just for the fun... However, we are not far away from decreasing autumn temperatures back home on the Northern hemisphere.



Science starts hands on.

Fotos: l. Jörg Bruhn, r. Ralf Lendt

At any rate spring time in the sea means highest productivity and this is what we were looking for, finding it and following it! Nutrient levels are high, the plankton blooms and turnover rates are at their maximum. This is reflected in our frequent meetings with the highest members of the food web, the warm blooded animals: We are constantly observing many birds, seals, dolphins, humpback whales looking for and finding favourable feeding conditions. We do the sampling – using the small Apstein net up to the large Double-MOCNESS with 18x 1m² - single nets – aiming at not only to describe the food web but also to assess the fluxes of matter within. In the end we want to assess the regional productive potential. In combination with the long term observation series of our cooperation partners we wish to better understand the functioning of the eco-system in an end-to-end approach. We will not be satisfied with the essential status assessment but plan to contribute to prognoses of the changing Benguela upwelling system with the help of our models. A transfer into assessments of future fisheries is intended, finally to the benefit of the adjoining nations. The exemplary study should in turn serve for the global comparison of the development of the four large upwelling areas of the globe with a view to scenarios of climatic change. At the same time we are learning a lot about the details and ups and downs of seasonal and regional marine productivity.

Cordially, Fritz Buchholz, chief scientist M 100/1, 22 September 2013

The top level members of the food web accompany us: Albatrosses and humpback whale!

Fotos: l. Dieter Peterke, r. Toralf Heene

