

10.08.2019 Östlicher tropischer Südatlantik

Research cruise M157 EVAR

First weekly report for the period 04.08. to 10.08.2019

The Meteor cruise M157 is the first field expedition of the project EVAR (The Benguela Upwelling System under climate change – Effects of variability in physical forcing on carbon and oxygen budgets) funded by the German Federal Ministry of Education and Research (BMBF). In this research project, which runs until 2021, a consortium of scientists from the Leibniz-Institute for Baltic Sea Research Warnemuende (IOW), the Bremen Centre for Marine Environmental Sciences (MARUM) and the Helmholtz Centre for Ocean Research (GEOMAR) in Kiel together with their colleagues from the University of Namibia and the National Marine Information and Research Centre NatMIRC are investigating possible consequences of climate change for the Benguela upwelling system.

Using the Benguela upwelling area as an example, the scientists involved are investigating how the complex network of physical drivers, geochemical processes and microbial activities can change in the course of climate change and what consequences this has for the release of climate gases, the spread of oxygen minimum zones and living conditions on the sea floor. The project team wants to record how the intensity of upwelling varies from the recent geological past to the present.

However, before the actual measurements can begin, the extensive laboratory equipment on board must first be installed and tested. Captain Korte and the entire crew of the Meteor support us actively and expertly during this task.



Figure 1: Equipment test by the chemistry working group in the wet laboratory.

On Thursday evening, after leaving the EEZ of Liberia, we were able to start the actual measurements. These currently consist of on-the-go measurements of the flow field,

surface water properties and air pollutants. The measuring systems used for this purpose have been working faultlessly so far.

In the meantime we have crossed the equator and continue southeast into the Angola Basin. The ship-mounted current meters have already provided important data on the position and intensity of the equatorial undercurrent connecting the tropical West Atlantic with the Gulf of Guinea. This information is of particular interest for our investigations in the Benguela upwelling area, as the undercurrent influences the water exchange between the tropical Atlantic and the northern Benguela.

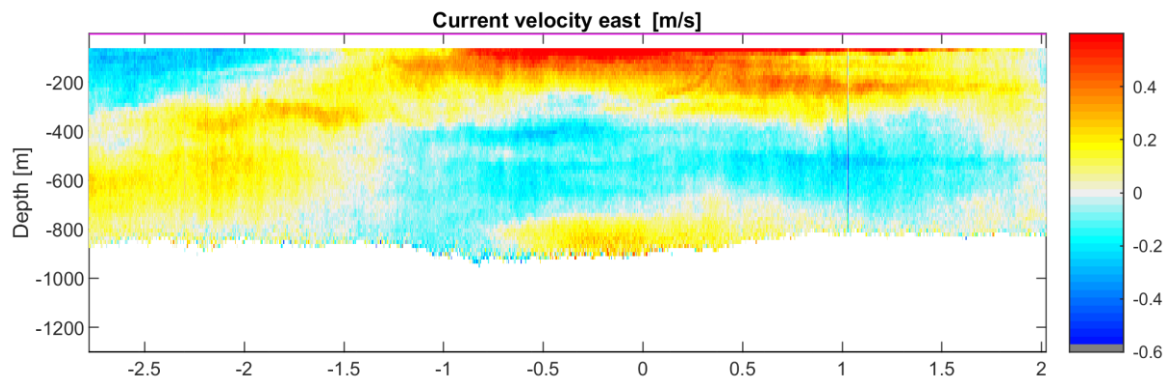


Abbildung 2: Signature of the equatorial undercurrent (red) in the current measurements of the shipborne acoustic current meter (VMADCP). The east-facing flow component is shown above the latitude.

The weather is sunny and tropical warm with 26°C. The atmosphere on board is good, and we are looking forward to the upcoming expedition with lots of data, samples and exciting new results.

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