

RV METEOR - M181 - "TRATLEQ2"

17.04. - 28.05.2022, Cape Town - Mindelo

2nd Weekly Report (18. - 24.4.2022)

In the first few days after RV METEOR left the port of Cape Town, we set up the laboratories, installed instruments for the underway measurements and prepared the mooring work. The CTD measurements then began on April 21st with a first stop in the Angola-Benguela frontal zone. In this area, the transition from the cold coastal upwelling areas off Namibia to the tropical water masses off Angola takes place. This area is particularly characterized by the occurrence of extreme warm and cold events - the so-called Benguela Niños and Niñas, which occur every few years. Warm events are regionally associated with increased precipitation, but they can also influence biological productivity in coastal waters and are therefore an important factor for fisheries. The emergence of the Benguela Niños is often caused by an increased southward transport of warm tropical waters. After a longer phase without extreme warm and cold events, two strong Benguela Niños were observed again in 2019 and 2021. Thus, we were particularly excited to see the data from our mooring, which measures the strength of the southward-flowing Angola Current at around 11°S.

The mooring recovery at 11°S then took place on April 23rd after some CTD stations along the continental slope (Fig. 1). All mooring devices were successfully recovered and all instruments provided full data sets except for one oxygen sensor. In particular, the current measurements show a southerly flow anomaly (Fig. 2), the beginnings of which could already be observed when the mooring was laid out in May 2021 during the RV SONNE cruise SO283. The mooring deployment for the next period then took place the very next day, on Sunday morning. The mooring deployment went smoothly and the anchor could be placed at the planned position.

Another focus of our work off Angola is the mixing of nutrient-rich water from greater depths into the euphotic zone, i.e., the area in which there is enough light for photosynthesis. To do this, we use a nutrient sensor that is installed at the CTD and that is later calibrated with water samples measured in the laboratory. On the other hand, the turbulence in the water is measured with a microstructure probe. The turbulence on the shelf is mainly generated by the interaction of the tides with the topography. The interplay of tidal induced turbulence and the presence of nutrients below the euphotic zone appears to determine the annual cycle of biological productivity off Angola. Since the microstructure measurements were in full swing on Sunday, we are also looking forward to the first analyses of the data obtained.

Of course, there is always time for scientific discussions and our daily seminars, but also leisure activities, such as using the fitness room, which can now be taken up without restrictions after the CORONA measures have ended - we had no positive CORONA tests on board. The atmosphere is excellent overall, also characterized by very good cooperation with the crew.

Greetings from the tropics and the cruise participants of M181,
Peter Brandt
(GEOMAR Helmholtz Centre for Ocean Research Kiel)



Fig. 1: Mooring recovery in the Angola Current at 11°S (Photo: Gerd Krahnmann).

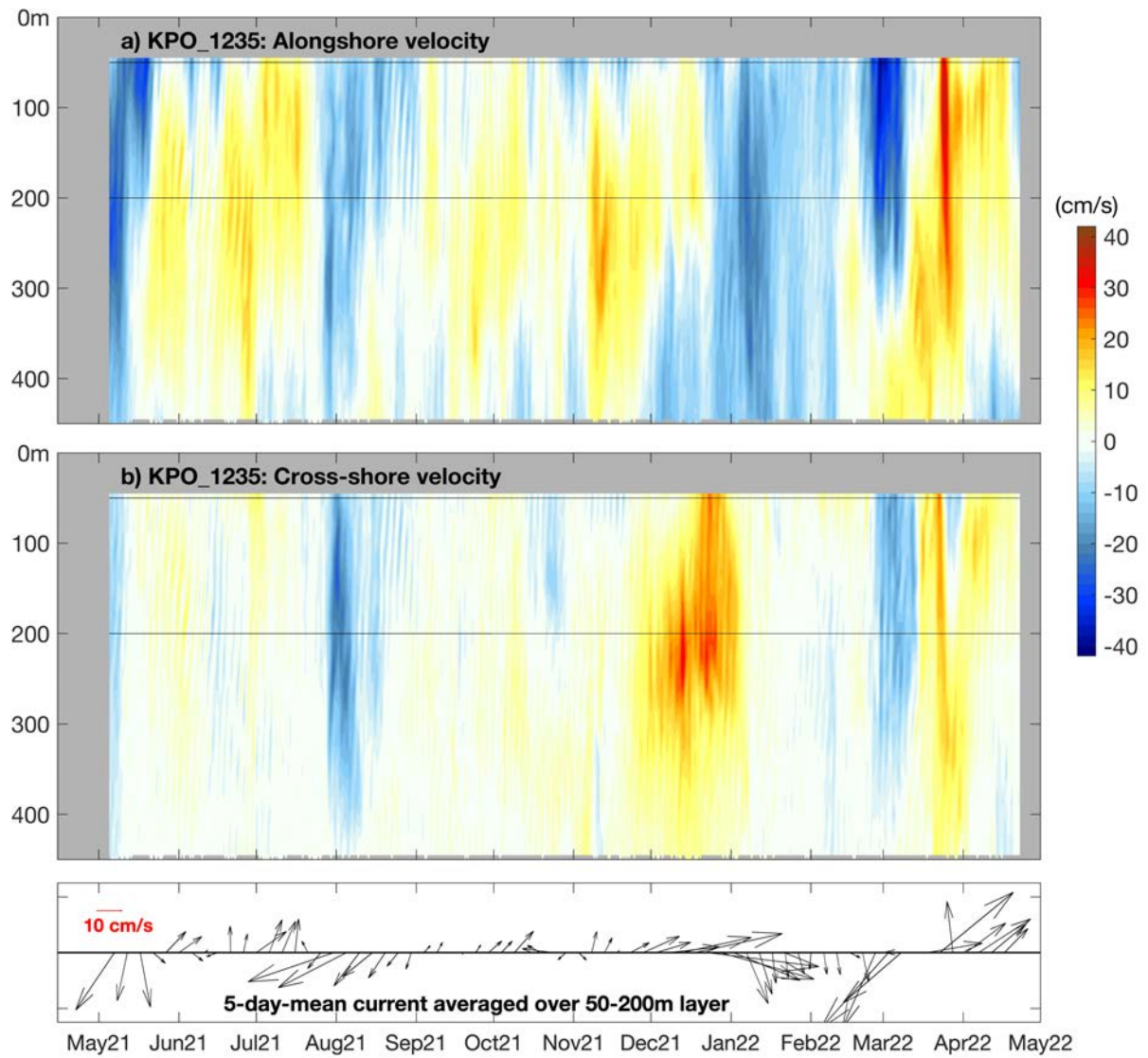


Fig. 2: Velocity data measured with an acoustic Doppler current profiler (ADCP) installed in the mooring at 11°S off Angola. The current along the topography is directed mainly southward. Strong flow fluctuations are superimposed on this mean flow (Figure: Rodrigue Anicet Imbol Koungue).