FS METEOR Cruise M189

April 16 – May 13, 2023
Walvis Bay (Namibia) – Walvis Bay (Namibia)

1. Weekly Report (April 16, 2023)

This morning on Sunday 16 April we left the port of Walvis Bay in Namibia at 9:30 local time. Just after 6 hours our work program started off the Namibian coast on a section along 23°S. With sunny weather, light winds and moderate seas, we could already take hydrographic measurements on three stations, deploy a drifter, and conduct turbulence measurements by the evening.

The objective of the physical - biogeochemical measurement program on our cruise is to measure the variability of the circulation and the coastal upwelling off Angola and Namibia. Emphasis will be placed on studies of processes relevant to coastal upwelling, greenhouse gas production and emission, and biological productivity. Physical processes include oceanic forcing by the wind, the role of tide-generated internal waves and the turbulent mixing they cause, the role of freshwater inputs, and dynamic processes associated with the Angola-Benguela Front.

For the detection of internal waves on the shelf off Namibia, we deployed a drift body this afternoon in a water depth of 200m (Fig. 1), equipped with two acoustic Doppler current profilers and a suite of temperature and conductivity sensors. From the velocity measurements, which cover the entire water column, and the hydrographic measurements, we can track the movement of internal waves that we sample landward through our ship-borne measurements while FS METEOR is there.

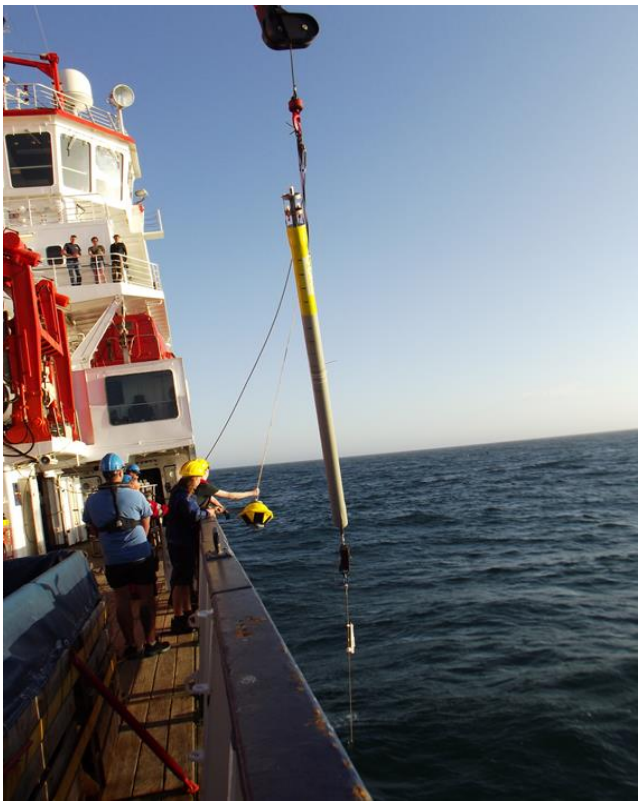

Fig. 1: Deployment of a drift for observing the variability of currents and hydrography during the measurement program along 23°S (Photo: Martina Nielsen).

The projects related to the cruise are the BMBF collaborative project "Benguela Niños: Physical processes and long-period variability (BANINO)" and the EU collaborative project "Tropical and South Atlantic climate-based marine ecosystem predictions for sustainable management (TRIATLAS)". Within BANINO we want to further extend the ocean observing system off the coast of Southwest Africa to measure and understand the variability of coastal upwelling on time scales from weeks to decades. In TRIATLAS, we are studying the current state of the ecosystem in the Southern and tropical Atlantic to better predict future changes.

We are an international group of researchers from GEOMAR Helmholtz Centre for Ocean Research Kiel, the Institute for Baltic Sea Research Warnemünde, Radboud University, and the universities of Cape Town, Southern Denmark, and Copenhagen. Today we grew together quickly after we had to adjust our planned sailing route at short notice due to a pending tax exemption for FS METEOR from Angola. So, 3 days of preparation became only 6 hours. Thanks to the professional support of the METEOR crew our measuring instruments were ready in time.

Best regards from the southeastern tropical Atlantic Ocean on behalf of all cruise participants of M189,

Marcus Dengler

(GEOMAR Helmholtz Centre for Ocean Research Kiel)