M159

(29.10. – 20.11.2019)

1. Weekly Report from 3. November 2019

On Tuesday, October 29, we left the port of Recife in Brazil. This marked the beginning of the M159 expedition “Ocean Circulation off Brazil”. The scientific program consists of gathering observations for the BMBF collaborative research program RACE – North Atlantic Synthesis, the base funding from Helmholtz for GEOMAR and the BMBF collaborative research program REEBUS.

METEOR berthing in Recife.

The objectives of the expedition is to document the variability of the western boundary circulation of the coast of South America. This current system influences tropical climate variability and is part of the meridional overturning circulation in the Atlantic (AMOC).

The work along 11°S focuses on this overturning circulation and velocity measurements of a moored array is the centerpiece with continuous time series since 2013. Off the coast of Brazil the transport variability of the North Brazil Undercurrent is the main objective. The measurements along the northward section at 35°W longitude provide additional information on water masses and signal propagation along the equator.


CTD rosette and LADCP system on deck.

Christian-Albrechts-Universität zu Kiel

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At the end of the expedition the moored observatory north of the Cape Verde islands we be serviced.

Deploing a mooring over the stern of METEOR.

From Wednesday until Saturday we sampled along a section between the coastal town of Macei near 10°S and 33°W and 11°S with more than 20 CTD-rosette profiles in water depths between 70m and more than 4800m. During the daylight we serviced the four moorings of the GEOMAR observatory. For that the moorings, which were sampling over the last 18 months, were acoustically released, then all instruments were recovered, the data downloaded during the night, fresh batteries installed, and the moorings reset the next day. More than 95% of the instruments provided continuous and extremely valuable records of temperature, currents and salinity. These data will later be fully analyzed in Kiel and the information published.

The mooring wire is stored on a winch system.

The scientific crew is made up from an ideal mixture of technicians, students and more experienced researchers. Many of the work at the physical oceanography department of GEOMAR, with important additions from Universities from Kiel, Brazil, Argentina, Columbia and Nigeria. For many of them this is the first time on METEOR so there is a lot to discover and learn.

The topics of the southern hemisphere bring warm temperatures of about 27°C and modest easterly winds provide some welcomed cooling during the sweaty deck work replacing the moorings.

The mood on ship is excellent, the food wonderful and the collaboration with the captain and the crew fantastic.

A temperature recorder is recovered and it's ID registered.

With many regards from 11° South and 33° West,
Martin Visbeck and the crew of the expedition M159.
GEOMAR Helmholtz Centre for Ocean Research Kiel

The scientific crew assembled during the safety training on deck.