

1st Weekly Report M219, Recife-Mindelo-Emden

29.5.-31.05.2026



With the departure from the port of Recife, Brazil, on 29 May 2026, the METEOR cruise M219 began under the leadership of GEOMAR Helmholtz Centre for Ocean Research Kiel. Expedition M219 focuses on long-term variability in the circulation system of the tropical Atlantic. Particular emphasis is placed on the North Brazil Undercurrent and the Deep Western Boundary Current off the Brazilian coast. In addition, measurements at the equator are intended to provide insights into the propagation of water masses and oceanic signals from the western boundary into the ocean interior. Another key focus is the observing system north of the Cape Verdean island of São Vicente, the Cape Verde Ocean Observatory (CVOO), which monitors, among other things, how the ocean absorbs and stores carbon dioxide.

During the cruise, several deep-sea moorings will be recovered, serviced, and redeployed. Some of these moorings have been maintained for well over 20 years, making the data they provide among the longest direct observational records of ocean circulation worldwide. The moorings are equipped with current, temperature, oxygen, and particle sensors and provide continuous time series of the physical and biogeochemical state of the ocean. In addition, inverted echo sounders equipped with bottom pressure sensors are deployed on the seafloor to support estimates of the Atlantic Meridional Overturning Circulation (AMOC) in the tropical Atlantic. Extensive hydrographic station work will also be carried out to collect data on temperature, salinity, oxygen, nutrients, currents, and particle distributions throughout the water column.

The cruise was able to begin one day earlier than planned because METEOR also arrived in Recife a day ahead of schedule following her transit from Chile, and all containers and airfreight shipments were delivered on time. As a result, our advance team was able to begin unloading containers and setting up the scientific equipment as early as 27 May. By the time of departure from Recife, preparations for the research

expedition had been largely completed, and scientific operations commenced as scheduled on 30 May with the successful recovery of the first two moorings at 11°S and the deployment of the first inverted echo sounders.

On the day before departure, 28 May, a seminar was held at UFPE (Federal University of Pernambuco). The collaboration between GEOMAR, its predecessor institutions, and UFPE has existed for many years. This joint seminar was already the ninth event featuring presentations by members of the METEOR scientific party and the oceanography group at UFPE. On the same evening, a reception was held on board METEOR, hosted by Captain Rainer Hammacher and the Consul General of the Federal Republic of Germany in Recife.

In his address, Captain Rainer Hammacher highlighted the long tradition of German marine research conducted aboard the research vessels bearing the name METEOR. The current METEOR is already the third research vessel of this name and is undertaking her final research voyage with our expedition. After 40 years of successful service to marine science, she is scheduled to be replaced by the new METEOR IV.

Greetings from the tropics,

Peter Brandt and the participants of Meteor cruise M219



Fig. 1: Participants of the IX Seminar of the Bilateral Cooperation DOCEAN (Recife) – GEOMAR (Kiel)