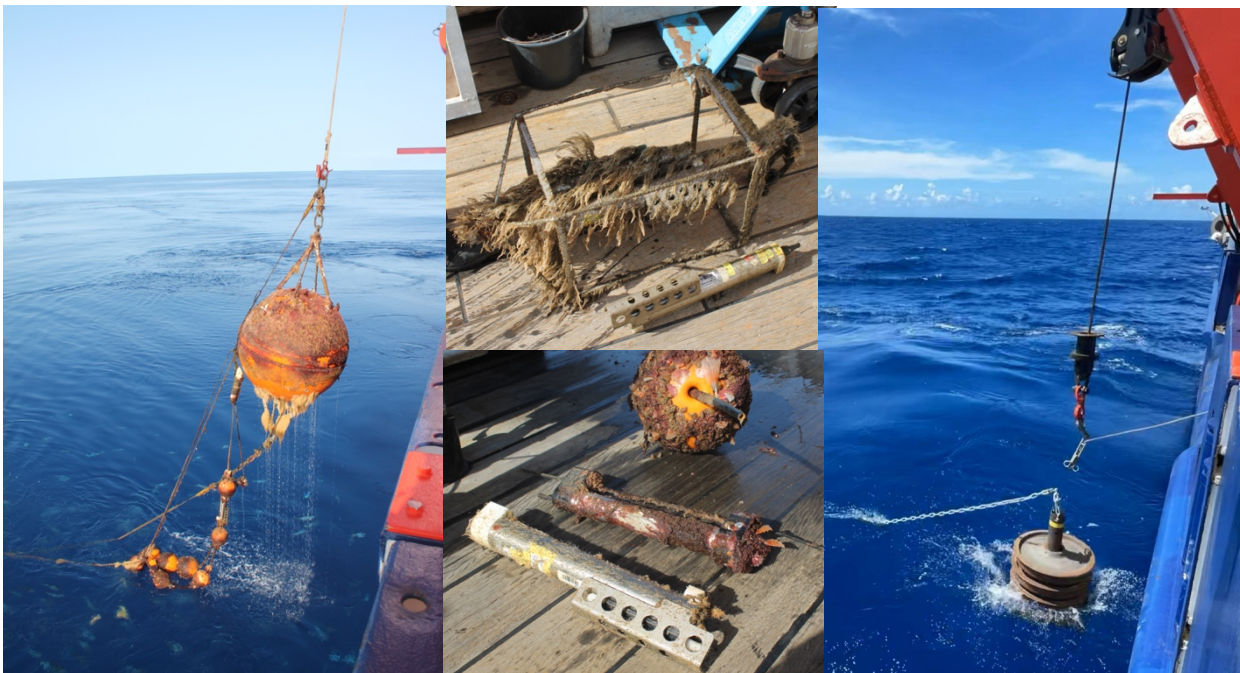


After the transit from the equatorial mooring, we reached the position of the mooring in the north of the Cape Verde Islands (Cape Verde Ocean Observatory) on June 8, 2023 at 08:00. Actually, this mooring is equipped with a surface telemetry buoy, with which the data of the topmost instruments are transmitted in real time to Kiel. However, since the buoy has not sent any data since November 2022, it was already suspected that it might be gone. Nonetheless, we kept a lookout for the buoy for a while, but could not spot it. In the end, we then released and recovered the mooring normally.

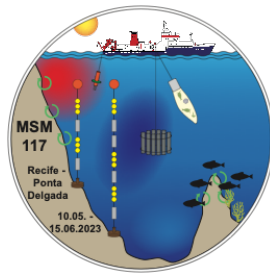
In fact, the telemetry buoy and the top two instruments were missing. The mooring wire showed no particular abnormalities. Probably the buoy was run over by another ship and torn off. All other instruments could be recovered and were partly very overgrown. In addition, some knots had to be untangled, since - as is often the case with CVOO - the many instruments in short succession cause knots in the mooring wire when coming to the surface during the recovery (Fig. 1).



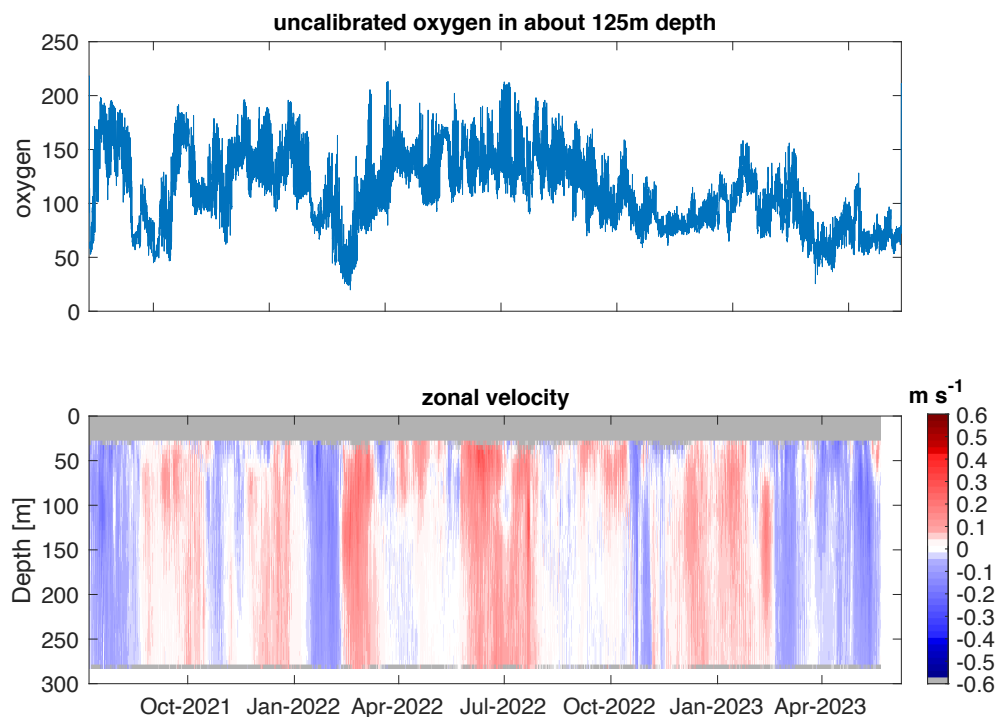
*Fig. 1: Picture of the large buoyancy sphere near the surface at CVOO (left, photo: Linus Gummert). Various instruments more or less overgrown (middle images, photos: Linus Gummert). Throwing of the very last anchor stone on MSM117 (right, photo: Sunke Schmidtko).*

The first look at the time series shows that most of the instruments worked well and we were able to retrieve many complete time series.

As observed many times before at this mooring, low-oxygen eddies in this region move from the coast toward the open ocean. This is evident when comparing the current measurements from the ADCP with the oxygen time series from 123m depth. Here it can



be seen that the drop in oxygen levels in February 2022 coincides exactly with the passage of a so-called anticyclonic (meaning clockwise rotating in the northern hemisphere) eddy. The east-west velocity changes from initially westerly (blue) to easterly (red). At the same time, the oxygen content, which previously fluctuated around values of 150, drops to about 30. This points to the passage of a so-called ACME (Anticyclonic Mode Water Eddy). Such eddies contribute to the continued existence of the shallow oxygen minimum zone, as they trap oxygen-poor water from the coastal regions inside and transport it to the open ocean. This phenomenon is not only interesting with respect to the distribution or transport of water mass properties. It could also be shown that an own ecosystem can develop within these eddies, since the special hydrographic properties within this eddy form a niche for certain species that would not otherwise exist in this region.



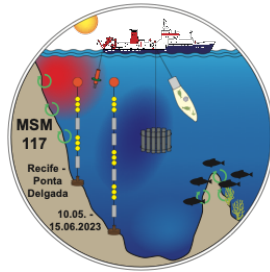
*Fig. 2: Time series of uncalibrated oxygen at about 125m depth (top) and time series of east-west velocities measured by the CVOO's moored ADCP (current meter) (bottom). Fig.: Rebecca Hummels*

During the night after recovering CVOO we dealt with 2 calibration CTDs to be ready for the deployment the next morning. This was done very effectively as usual and shortly after lunch we were able to drop the last anchor stone for this cruise and start our final transit to Ponta Delgada.

On the way, we stopped again on Saturday afternoon for a very last CTD to calibrate the last instruments. With this, the work of MSM117 has been completed very successfully

# RV MARIA S. MERIAN MSM117

10.05.-15.06.2023  
Recife – Ponta Delgada



## 5. Weekly Report 05.06.-11.06.2023

and on behalf of the whole scientific team I would like to thank very much the captain, officers, and the crew of the Maria S. Merian for a great cruise! We will come back!



Fig. 3: Group picture of the scientific team of MSM117. Picture: Claudeilton Santana

Rebecca Hummels on behalf of the team of MSM117  
(GEOMAR Helmholtz Centre for Ocean Research Kiel)