

FS METEOR Expedition M140 “FORAMFLUX”



Weekly report 3
21 – 27.8.2017

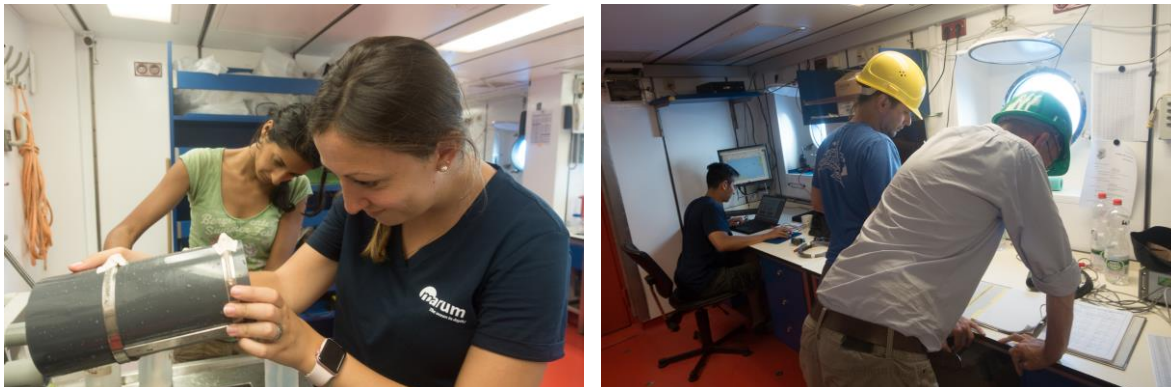
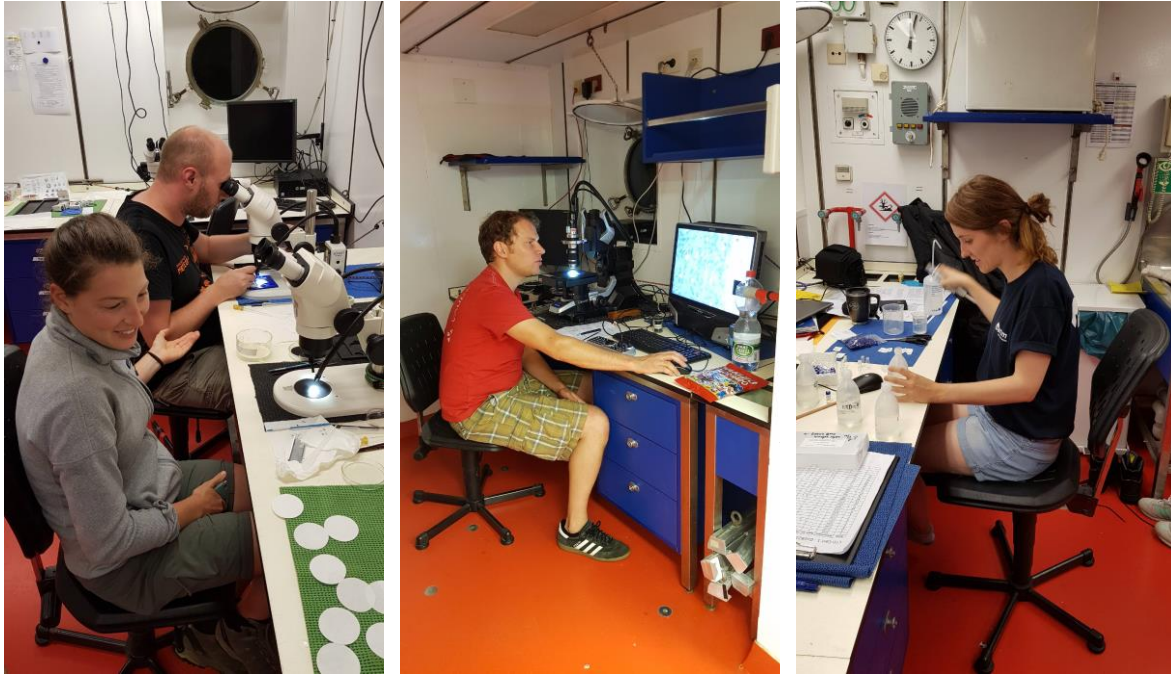
During the third week of our expedition station we worked mainly in the area of station M1 south of Cabo Verde. The sea remained calm, the weather was however typical for the tropical low pressure zone, where intense rain can set in at any time. On Monday we reached the position of mooring M1, which was successfully released (it accepted the acoustic command to let go of its anchor weight) in the second attempt. It took significantly more attempts and time to find it after surfacing. The recovery was hampered by heavy rains but was performed smoothly and quickly. On the same afternoon we had enough time to deploy a test mooring and collect water from 1250 m water depth with the shipboard CTD and water sampling rosette. The water is needed to prepare the sampling vials for the next de deployment of the sediment traps.

The mooring M1 is one of the central pieces of the research plan of our expedition. It is equipped with three sediment traps, which are programmed to sample the sinking particles of the water column in four day resolution for the period of a full year. After recovery we noticed that two of the motor units, which move the sample cups below the trap funnel, malfunctioned at some time during the deployment. Still it was a great success as the samples cover 260 consecutive days in unprecedented temporal resolution. These samples will allow us to investigate the influence of the lunar cycle on plankton reproduction and the dust flux during single dust storm events.



The search for the surfaced sediment trap mooring M1 occupied everybody on the bridge. The waiting and effort was well rewarded: the full sample cups were recovered by very happy scientists.

After recovering mooring M1 we headed for the position of dust buoy Laura. The buoy, well guarded by a large group of Mahi-Mahi fish, was reached at night and quickly recovered the next day. In the afternoon we deploy another drifting sediment trap and started our second high resolution full day sampling scheme. This time we covered a smaller area of ~ 140 km² with 46 plankton net deployments. Our plankton net worked flawlessly we will now be able to return home with a very valuable and unique sample set. The first results from the first full day sampling already show some unexpected variability, letting us hope for further interesting discoveries.



The plankton net deployment is controlled from the lab (lower right), plankton samples are transferred from the sample cups (lower left), foraminifera are picked from the samples (upper left) and scanned (upper centre). Water samples are analysed in the chemistry lab (upper right).

The recovered mooring M1 was serviced on board and successfully redeployed during heavy rain on Wednesday. The releases near the anchor weight were pinged and by repeated distance measurements from different positions the precise position of the anchor weight triangulated. Meanwhile dust buoy Laura had been serviced and cleaned and was redeployed on Thursday. We collected the drifting trap again and deploy an ARGO probe just before leaving the working area. The success of the last three day is result of the efforts of the mooring team together with the deck crew and nautical officers, who did their job sometimes during truly unfavourable weather conditions. Once we measured 38 mm of rain during 25 minutes, extrapolated to twelve hours this intense rain equates to the annual mean in central Europe.



Marine life on and around the ship: a storm petrel requiring some assistance, a flying fish no longer requiring assistance and plankton from our samples.

On our return towards Mindelo we were greeted by sunshine again. During a short stop over in Mindelo on Saturday morning we had a few changes in the scientific crew and a hand over of cruise leadership. We left the port quickly again and the scientist are now looking to the upcoming work in the Cape Blanc area north of Cabo Verde. Greeting to all friends, colleagues and families on land.

For all participants of M140
Michael Siccha and Michal Kucera,
RV Meteor, 27th of August 2017, 20° 7.7' N 22° 0.8' W

You can also follow Expedition M140 on one of our two blogs:

www.nioz.nl/en/blog/dust/m140

www.marum.de/wir-ueber-uns/AG-Mikropalaeontologie-Palaeozeanographie/FORAMFLUX-Blog.html