

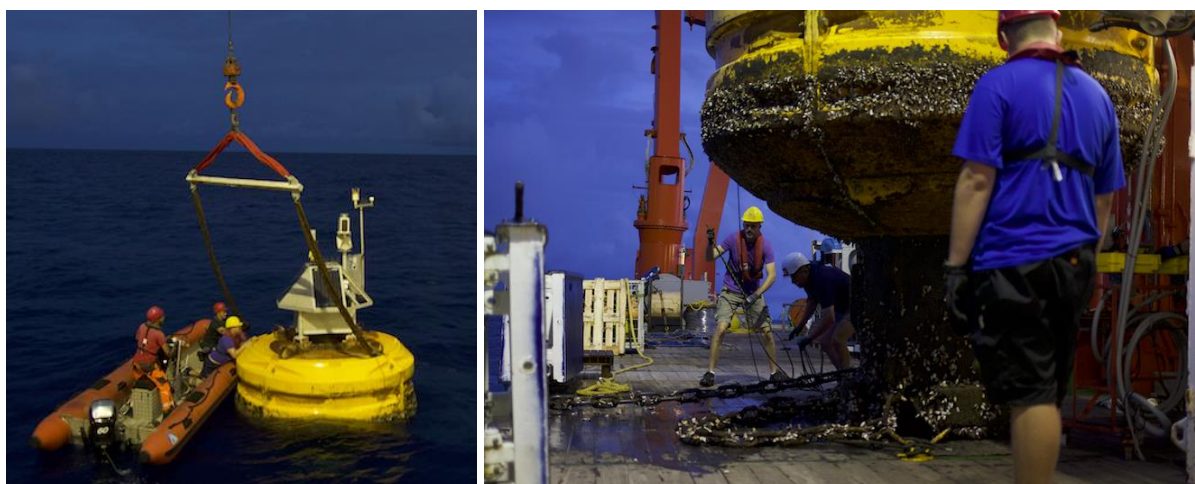
FS METEOR Expedition M140 “FORAMFLUX”



Weekly Report 2 14 – 20.8.2017

In the second week of our expedition, we reached the westernmost point of our journey. It is the location of the NIOZ-operated buoy Michelle, which is monitoring the dry deposition of Saharan dust over the central Atlantic. After several years of faithful service, the buoy is now to be recovered and transported with its valuable data and samples back to NIOZ. With over two meters in diameter, the buoy is large enough to act as an artificial island in the sea. It offers protection and attachment area for a large variety of marine life. Indeed, on our approach to the buoy, the METEOR was greeted by an entire ecosystem of small and large fishes – even a shark fin has been spotted by the crew. Under best weather conditions, on Tuesday morning, the buoy was successfully recovered by the experienced NIOZ team with excellent support from the crew.

The buoy recovery proceeded so fast that already the same day in the afternoon we could begin with our complex sampling program aimed to characterize the spatial variability of plankton distribution in the ocean. First, a drifting sediment trap was deployed, followed for the next 26 hours by a suit of over 40 plankton net stations, probing 400 km² of the water column in a random pattern considering the movement of the ship and the local currents. To our great relief, the plankton net withstood such intensive use and the calculation of the sampling positions and the communication of the bearings and waypoints to the bridge worked as expected. At the end of each shift, the scientists, deck crew and the bridge worked like a well-oiled clockwork. The night shift crew enjoyed a wonderful moonrise over the sea, bioluminescence in water agitated by the ship and the many fish and squid attracted by the lights on deck.



Recovery of the dust-collecting buoy Michelle in the middle of the Atlantic: after fixing from a rubber boat, the buoy with its ecosystem of attached lifeforms was lifted by a crane on deck.

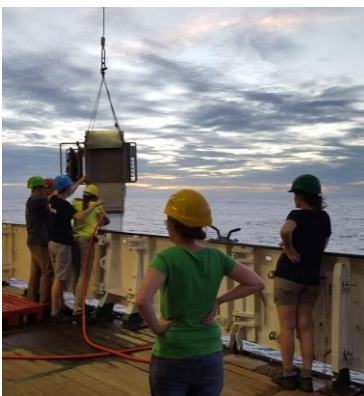
On Wednesday afternoon the drifting trap was brought back on board and then it was time to recover the M3 mooring with its two sediment traps. The mooring was deployed close to buoy Michelle to simultaneously monitor particle flux in the water column. The collected material will be later used to reconstruct the seasonal variation of dust delivery and growth of foraminifera populations in the plankton. After one repetition of the acoustic release procedure, the mooring surfaced and was sighted from the ship's bridge only a few hundred meters on the portside. Within a few hours, the first sediment trap was on deck. To our relief,

we could see that the traps appear to have operated correctly and their valuable catch has been secured for further analyses on land.



Left: the first sediment trap of the M3 mooring is taken on deck. Right: recovery of the sampling cylinders from the drifting sediment trap.

Before parting from Station M3, an ARGO float, dubbed *truncatulinoides*, after an eponymous deep-dwelling planktonic foraminifera, was released, and we began a transit eastwards to the station M1, south off the Cape Verdes. With this, we left the up to 6200 m deep abyssal plain close to the Mid-Atlantic Ridge and sailed east through the waters of the North Equatorial Current over the Gambia Basin. With good wind, best weather and calm sea, we continued our daily sampling of the plankton and could confirm the eastward increase in foraminifera populations, as seen during the first transit of our expedition.



The night shift begins.

The program at Station M3 was completed with full success and earlier than expected. This means that despite the lower speed of the ship, we are likely to arrive at the next station on Monday, well on time. The transit provided an opportunity for maintenance of the winches with coaxial cable on which our net is deployed and a rust-affected 800 m long section was successfully removed. On Thursday evening, we witnessed the passing of the International Space Station over the ship and on Saturday, we celebrated on deck of the METEOR the passing of the first half of our journey south of the Cap Verdes, combined with three birthdays.

All cruise participants are well, enjoy the splendid evenings on deck, admire the unforgettably charming starry sky of the tropics, and send their greetings to all colleagues, friends and family at home.

For all participants of M140

Michal Kucera, 20.8.2017

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