

Weekly Report POS 508 (30.01-06.02.2017)

We are currently heading toward Las Palmas, Gran Canaria (Spain), with 6-7 knots against wind and waves. We decided to leave the research region Friday the 3rd of February and allow a bit more time for the return transit due to the weather conditions. The second and last week of our research voyage has been very successful too. Everybody in the scientific team is very satisfied with the station work and the amount of samples we are bringing back from the upwelling region off Cape Blanc, Mauritania. We have managed to make a detailed mapping of the particle and zooplankton distribution in the upper water column along an east-west transect from the upper part of the continental slope at 20°41.68'N 17°39.80'W and to the open ocean station CB at 21°12.85'N 20°52.12'W. This is a transect with a distance of ~340 km where we deployed the In Situ Camera (ISC) and the plankton net with camera (LOKI) to a depth of 500 m. These deployments have provided detailed information of the vertical and horizontal distribution of particle types, sizes, and abundances as well as vertical and horizontal distribution of zooplankton species, sizes, and abundances. We further investigated three key stations along the transect, which included deployments of our drifting trap, detailed laboratory studies of settling aggregates collected with the Marine Snow Catcher, CTD-Rosette profiles for water analysis, Secchi depth determinations, and deployments of In Situ Pumps for collections of large amounts of particulate matter that will be used for age-determination and lipid composition analysis in our home laboratory in Bremen. There have been great collaborations between members of the scientific team from Alfred Wegener Institute and Marum during the cruise and we all look forward to continue those when we return to Bremen.

Monday morning the 30th of January, after recovery of In Situ Pumps, we investigated the particle dynamics at this more coastal influenced station until noon, when it was time to recover the second drifting trap (DF-16). The second drifting trap had also collected a good amount of material. Since we are deploying the drifting trap with gel-traps as well, it is important that the particles collected in the gel are not so abundance that they overlap with each other. Overlapping particles will be analysed as one large aggregate when we perform image processing of the gels and would return incorrect size-distribution and abundance of the settling aggregate. However, the 24 hours deployments of the drifting traps turned out to be perfect for having enough material collected at all depths for biogeochemical analysis and still avoid having overlapping particles in the gel-traps. We deployed the In Situ Pumps (ISP) overnight and recovered those Tuesday morning the 31st of January.

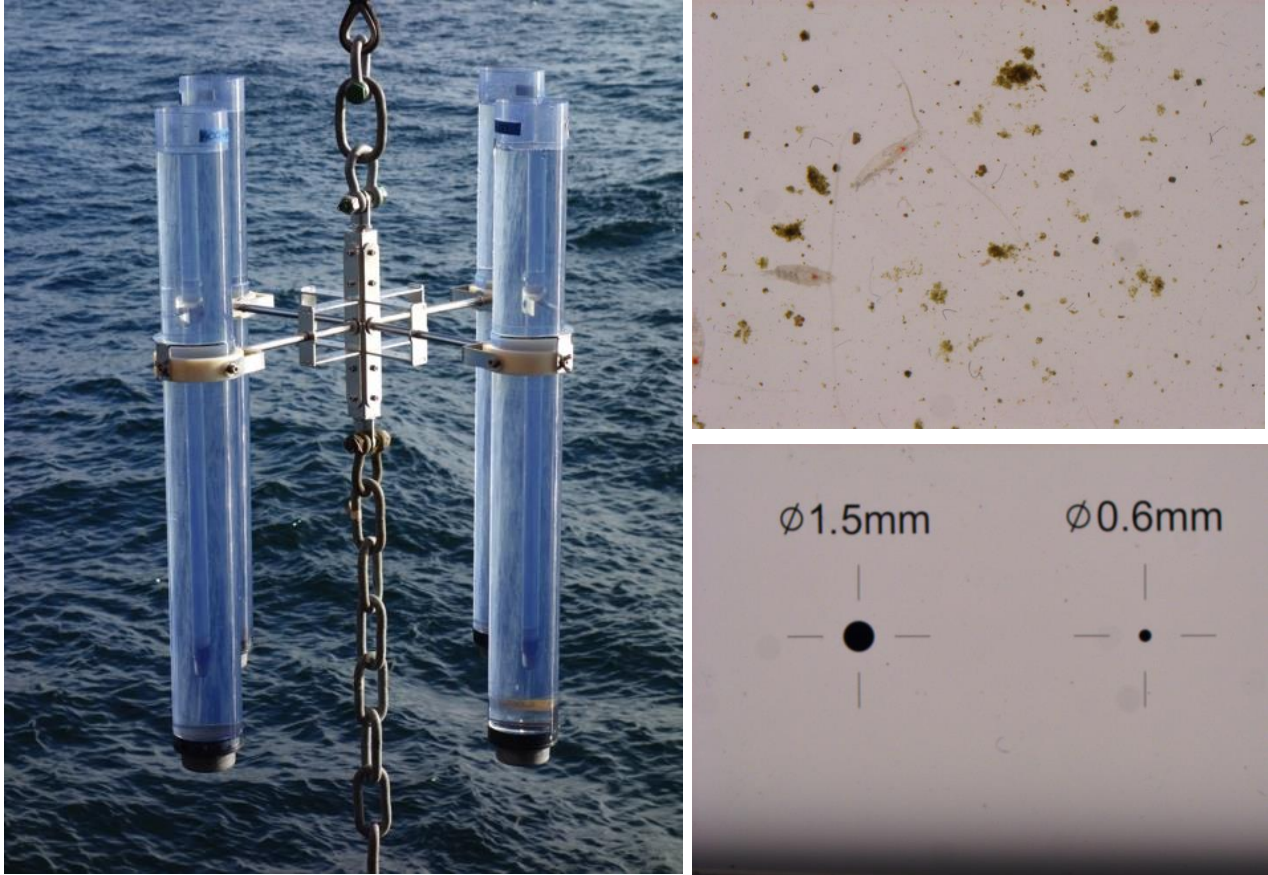
Tuesday 31st of January we started a short transect from CBi towards the upper part of the continental slope, where we wanted to sample the formation origin of the nephloid

layers that we often observe in the study region. We investigated two stations before we arrived at the upper continental slope on Wednesday the 1st of February. This station had a depth of ~280 m. We deployed the CTD-Rosette, LOKI, and ISC before we sampled particulate matter with the ISPs during a 4 h period between 11:00 and 16:00. Once the ISPs were recovered, we headed back towards the CBI station in order to reach deeper waters with less ship traffic so we could deploy our third and last drifting trap. We again made two transect stations on the way where we deployed LOKI and ISC to 500 m.

On Thursday the 2nd of February we arrived at our drifting trap station 20°51.28'N 18°36.40'W where we first deployed the CTD-Rosette to 400 m and determined the Secchi depth before we deployed the drifting trap DF-17. After the deployment of DF-17, we investigated the particle dynamics with deployments of In Situ Camera, Camera net, Marine Snow Catcher, CTD-Rosette, Hand-nets, and In Situ Pumps.

Friday morning the 3rd of February we recovered the drifting traps and made a short CTD-Rosette deployment to 400 m before we began our steaming back towards Las Palmas.

During the rest of Friday, Saturday, and Sunday we finished the last analyses in the laboratories and started packing our equipment so everything is ready for demobilizing of the ship once we arrive in Las Palmas. It is planned that the pilot will board Poseidon at 09:00 Monday the 6th of February. The container will be waiting for us at the pier and after we have unloaded the ship, cleaned the laboratories and cabins, we will be brought to the hotel at 16:00 and spend the evening in Las Palmas until we fly back to Bremen on Tuesday the 7th of February at noon.



Left column: Image of four drifting trap cylinders from one of the collection depths. One of the four cylinders contained a viscous gel that preserves the size, shape, and structure of the collected particles. Right column: Upper panel shows an image of the collected particles in the gel-trap. The lower panel provide the scale, the large black circle has a diameter of 1.5 mm and the smaller black circle has a diameter of 0.6 mm.

On behalf of the whole scientific team, I thank the captain and whole crew aboard Poseidon many times for making the cruise and station work a pleasure and a great success!

Viele Grüße von der Crew und dem Forschungsteam.

Dr. Morten Iversen