

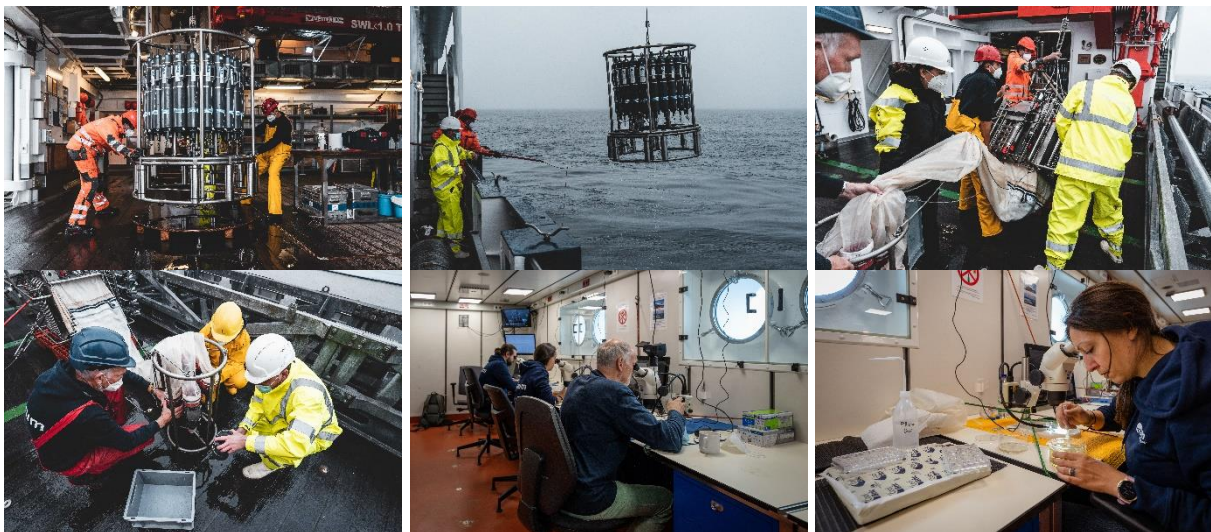
RV MARIA S MERIAN
MSM111 "BAFFDEEP"
02.09. - 04.10.2022



2nd Weekly Report
05. - 11.09.2022

During the second week of the expedition, we circumnavigated southern Greenland around Cape Farewell, crossed the Labrador Sea along the Greenland coast and reached our destination - Baffin Bay - through Davis Strait. Along the route, CTD with water sampler and plankton net were deployed daily. This allows us to decipher the distribution of water masses in the water column down to the seafloor and understand their relationship with the occurrence of plankton in the uppermost layers of the ocean. From the water and plankton samples obtained, the particle load and biomass are filtered, and living individuals of the polar foraminifera *Neogloboquadrina pachyderma* are isolated and cultivated in cold storage. There, the behavior of these unicellular organisms during feeding and reproduction is monitored.

The embarkation and the first week of the expedition proceeded under strict Covid-19 measures. After all, we are supposed to spend several weeks in the Arctic, far away from medical infrastructure. In addition to mandatory masks and distancing at work and during meals, everyone on board was tested daily. It was only on Tuesday, after all tests had always been negative, that the measures could be terminated.



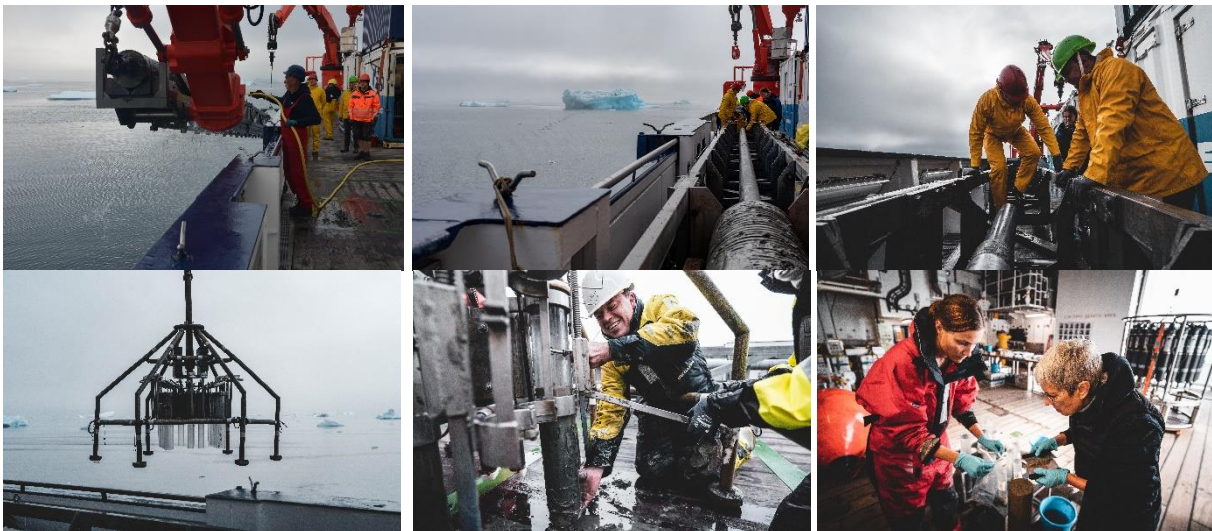
From top left: the CTD with water sampler is prepared for deployment and lowered into the water. The plankton net is released, and after retrieval it provides samples of the plankton, which are collected immediately after deployment and examined in the laboratory under the microscope. Photos: Raphael Morard and Johan Faust.

The ideal weather conditions of the first few days meant that we made good progress on our transit. However, since the forecast for Baffin Bay was worse, with strong southerly winds, we decided to extend the transit by one day and use this time to calibrate the ship's Underwater Positioning System (USBL) on the shelf off Greenland and recover a sediment core as an archive of the history of the climate at the southern tip of Greenland. Thus, we sighted land again in the evening and reached Ikersuaq (Breddefjord) on Wednesday morning. The long and narrow fjord impressed us very much with its numerous icebergs of all shapes and colors, as well as with the dramatic glacial landscape. It was hard for us to imagine that the landscape we saw was the current agricultural center of Greenland, with crop fields and sheep farming.



Icebergs in Ikersuaq (Bredefjord). Photo: Volker Diekamp and Tilo von Dobeneck.

Despite the numerous icebergs, the fjord proved to be easily navigable for our ship and at noon we reached our destination, Narsaq Sound. The settlement of Narsaq was not in sight, but our cell phones had brief reception and we were "greeted" by the local provider on Greenland and informed about the local hefty fees. Narsaq is one of the regions on Greenland first settled by the Icelandic Vikings. Erik the Red landed nearby and some of the oldest remains of Viking settlements are preserved in the area. Sediments from the surrounding fjords can provide valuable records of environmental conditions during this early settlement. That's why we resampled the sediment in Narsaq Sound with multicorer and gravity corer at a position where Danish scientists conducted the first surveys more than ten years ago. The result was excellent - we recovered a sediment core over 10 m long, which should contain the history of the last 10,000 years.



Sediment sampling in Narsaq Sound. From top left: the full gravity corer is captured in the outboard cradle, recovered on board, and then the liner with the sediment core has to be pulled out from the metal tube of the corer. The multicorer before it is lowered to the seafloor, with icebergs in the background, after retrieval on board, full of fjord mud and with sediment samples taken from single cores in the hangar. Photos: Volker Diekamp, Tilo von Dobeneck and Raphael Morard.

With the best weather we left Ikersuaq again in the evening and resumed our transit to Baffin Bay along the shelf edge of Greenland. Thursday, land was sighted for the last time on the latitude of Nuuk, before we then reached Davis Strait, with fog and increasingly rough seas. Here we crossed the Arctic Circle on Friday evening and reached Baffin Bay. The unfavorable weather forecast came true and the planned survey of bottom conditions with hydroacoustics on the continental slope near Disko Island around 69°N had to be carried out on Saturday and Sunday under partly heavy conditions. The southerly wind with gusts up to Bf8 led to swells of up to 3 m, and the sea remained rough even after the wind calmed down on Sunday.

Life on the ship has settled well into a routine for us. Thanks to public lectures by Tilo von Dobeneck on auroras and Katharina Streuff on marine geology of the fjords, we were able to get to know the crew better, which contributed even more positively to the already very good

working atmosphere. We are looking forward to the sea calming down soon, because then the main focus of our program can start - the deployment of the robotic drilling rig MeBo-200, with which we want to reach sediment layers deposited more than 100 m deep below the seafloor. All cruise participants are still in good health and greet all friends and colleagues at home.

For all participants

Michal Kucera, 11.9.2022
(MARUM, / University of Bremen)

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Lecture about auroras in the hangar. Photo: Johan Faust.