

2th Weekly report 28th April – 4th May 2025

This week has been very busy, but we were very lucky with the weather and sea conditions. We only had one day of strong winds and big waves, which we tried to avoid by moving to the shallowest part of the study area, where we also wanted to collect surface sediments and bottom water samples. For the rest of the week the meteorological conditions were excellent, especially for this area of the North Atlantic Ocean, which is known for its rough seas. We even received wonderful visits from a pod of pilot whales that were feeding near the vessel. We were able to complete our entire scientific program of sampling the water column and the seafloor surface along two main transects. We were also able to map the study area and identify many different types of sedimentary deposits and structures including contourites (deposits formed by ocean currents), submarine landslides, pockmarks (depressions formed by fluid seepage) and cold-water coral mounds.

We have paid particular attention to the contourites, which were mainly muddy in the deepest part of the slope and sandy on the upper slope, as shown by the sediment collected by the multicores. In order to better understand the processes that form these deposits, we continuously measured current velocity using the vessel-mounted Acoustic Doppler current profilers and deployed a lander on the upper slope and a mooring at the foot of the slope. Both deployments were successfully recovered and provided very interesting data.



Recovery of surface sediments with the multicorer.

A wide range of methods were used to analyse the origin and abundance of organic matter in the water column and to decipher its pathways to the seafloor. They were carried out along two main transects across the western slope of the Rockall Bank. Some of the methods consisted of punctual sampling of water at different water depths (using Niskin bottles, marine snow catchers and hand nets), while others collected particles during 1 day (drifting trap) and 8 days (moored sediment trap). This cruise brought together a team with diverse expertise: experts in marine snow, plankton, organic geochemistry, nitrogen geochemistry, geophysics, oceanography and sedimentology. We have all learned a lot from each other and we are all very pleased with the data collected during this cruise.



Deployment of the drifting trap.

In the morning of the 7th of May we will arrive at our final destination in the harbour of Reykjavik. Now we have a few days of transit, which will be a good opportunity to celebrate the success of the cruise, thank the captain and crew for their fantastic work, and pack up all the material and samples used and collected during the cruise. The instruments and samples will then be shipped from Reykjavik to Bremen and hopefully we will have them back soon and be able to continue unravelling the mysteries of the deep sea.

On behalf of all cruise participants of the MSM136

Elda Míramontes