MSM 95 (GPF 19-2_05)

09.09.- 07.10.2020, Emden - Emden

2nd weekly report, 14. – 20.09.2020

We have just completed our second exciting week aboard the R/V MARIA S. MERIAN, and our first full week of work in the waters of the Svalbard archipelago.

Our expedition is focusing on mapping the seafloor with various instruments, to determine what sort of physical impacts have occurred from depths of greater than 1000 m to a few hundred meters. We have been looking for signs of icberg impacts on the seafloor, the occurrence of litter and indications of any deep water fishing activity.

Our main devices for work are the PAUL 3000 Autonomous Underwater Vehicle (a robot programmed to swim to the seafloor and map it with cameras and sonar) and the towed Ocean Floor Observation and Bathymetry System (OFOBS) (a set of cameras and sonars on a cable, towed behind the ship).

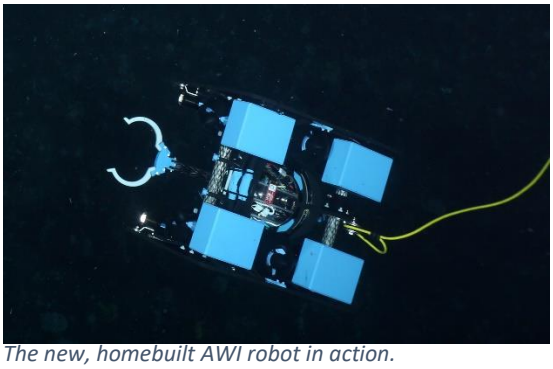
The PAUL 3000 Autonomous Underwater Vehicle, on the deck after a successful dive. PHOTO: Autun Purser

With our PAUL 3000 vehicle we have already collected 70000 images of the seafloor and generated some maps with the acoustic systems mounted on the device, and also used some of the collected photos to produce 3D models of the deep sea seafloor. These models allow us to see how the shape oft he seafloor is altered by trawling or iceberg impacts.

With our towed OFOBS we have collected 4000 or so high resolution pictures of the seafloor, both of disturbed and undisturbed seafloor, and of a range of beautiful marine creatures. On Friday 19th September we made a long dive at 1000 m depth, discovering an area south of Svalbard with very many beautiful ‚basket star' starfish living on top of almost every small or large rock on the seafloor.

Two basket stars, an anenome and a soft coral observed on a large rock at 1000 m depth, south Svalbard. PHOTO: Lilian Böhringer, AWI OFOBS team.

We have been surprised by the diversity of animals living in the different areas of the Svalbard archipelago, and have exlored the north, west and south of the islands. In the shallower areas very large iceberg marks can be seen with the ships own mapping systems, and we have seen these in much greater detail with our PAUL 3000 and OFOBS equipment, as well as the marks made be fishing activity. We have also seen occasional pieces of plastic litter on the seafloor, despite us being so far from major land and towns.



The new, homebuilt AWI robot in action.
PHOTO: Lilian Böhringer, AWI OFOBS team.

Most of the participants of our cruise are part of the Alfred Wegener Institute for Polar and Marine Research Deep Sea Ecology and Technology group. Part of our work is to develop new tools for exploring the deep sea. During the last year Ulrich Hoge, onboard our research expedition has designed and built with colleagues a small robot which can be flown from our towed camera to investigate items of interest in close detail. We have tested this device during three dives so far and we hope to use it to investigate trench features.

Next week we will finish our work at the Svalbard archipelago and proceed to our deeper research area of the FRAM strait. Scientists and crew are in good spirits. We send our best wishes to relatives, friends and colleagues ashore and we keep our fingers crossed for good weather!

Autun Purser - Alfred-Wegener-Institut

Deutsche Übersetzung - Lilian Böhringer