

Expedition SO286 - IceDivA2

05.11. - 08.12.2021, Emden - Las Palmas

5th Weekly Report

29.11. - 05.12.2021

**The Home Straight!**

Greetings once again from the RV Sonne from our fifth week on board. The further south we get, the better the weather conditions became, as most of the low pressure areas moved to where we were just a moment ago. While hurricane-like storms are now on their way towards Iceland and Europe, we have had an excellent time since our last report, because we had perfect weather for steaming to our third and final working area, reaching it around Midday on Tuesday. We then proceeded with the CTD for eDNA and sound velocity profile to assist with the 25-hour mapping effort. We knew as we were closer to the MAR than originally designed that we would have to dedicate extra time to mapping (Fig. 1) to protect our gear, and we're glad we did. What looked relatively flat from GEBCO satellite data proved to be a seamount range with sedimented plains nearby. With this knowledge we carefully devised a station plan and locations for the safe deployment of our benthic gear.

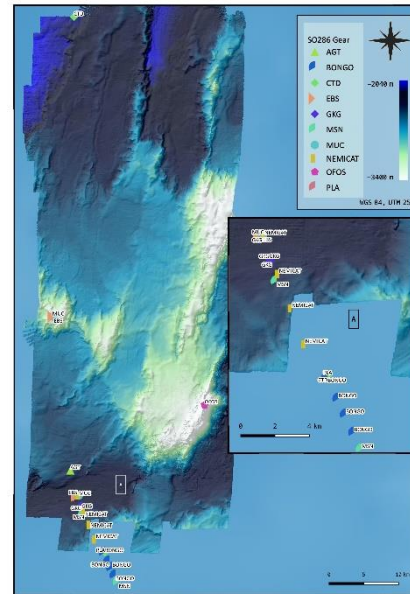


Figure 1. Image of the seafloor in our third working area, a fracture zone on the western side of the Mid-Atlantic Ridge- It shows 1000m high walls, seamounts and sedimented plain areas, where we deployed our gear. Map © Mia Schumacher, GEOMAR

Our first gear deployed after mapping was the OFOS on Wednesday evening, conducting our traditional abyssal plains survey for megafaunal community analysis. This was



Figure 2. An OFOS snapshot of the marine fauna settling on the hard substrate along the wall near the top of the eastern seamount. Sponges, corals and crinoids are visible in this foto.

followed by the completion of our final plankton block (4x Bongo, 2x Multinet, CTD, WP2) over night. The Thursday morning saw us preparing for our final OFOS dive, and this one was pretty special. We ran along the ridge of the largest seamount in the region, eventually running down the mount which was home to spectacular corals (Fig.2). For those who were not able to join us for our livestream I would highly recommend watching it back on the Briese YouTube channel. The afternoon saw the successful deployment of our "Anna" EBS.

Thursday Night saw our fortunes change slightly, with three boxcorer failures in a row. Between each deployment we altered the set up to test for the problem, but the solution was not found that night, with the Bosun using the time until next deployment to correct the issue. Following the boxcorer, on the Friday we deployed the EBS, TV-MUC, Neuston Catamaran, and Agassiz trawl, all with great success. It was the time for the revitalized and fully functioning boxcorer to do its thing, which it did. This completed our abyssal station ahead of schedule.



Figure 3. Alexander Kieneke (Senckenberg am Meer) checks on the OFOS camera mounted on the 20 cores Multicorer. Deployed as "TV-MUC" we were able to sample soft sediment on top of the seamount in our working area, which is geologically characterized as spreading axis west of the MAR. Foto © Viola Siegler, Senckenberg am Meer

As equivalent to our last IceDivA1 (SO280) station sampling in January 2021, we proceeded to a flat-topped sea mount 1.5 nm from our abyssal station. Here we planned to deploy a reduced set of complete benthic gear, first deploying the TV-MUC to assess the environment we intended to sample, to ensure we weren't harming a potential VME. The TV-MUC and EBS sampling was successful, however we are sad to report that once again the weather has turned against us. Whilst we knew this may happen as we were watching the weather situation closely, the formation of a low pressure front and it encroaching on our working position means that on Saturday the conditions were not suitable for working, with high wind and waves from the storm forcing us to leave for our final transit to Las Palmas. We are now using time on the transit to Las Palmas to add Neuston Katamaran stations at wish positions from our colleagues of the PLASTISEA project (Erik Borchert, GEOMAR) based on what they had sampled during SO279 December 2020 and us with SO280 in January 2021. The last Katamaran deployment is expected tomorrow, 6th of December before we will finally clean up the labs and pack our containers on the 7th of December.

Here, at the home straight of our expedition, we would like to express how much we appreciated to be able to sample three working areas in these challenging North Atlantic winter conditions. The crew was always motivated to do everything possible and thanks to the careful weather chess with the captain, we could follow our scientific plan although we were forced to shift the positions of our stations to completely different locations. This flexibility in international waters was our luck. The IceDivA motto to be "creative, spontaneous and multiflexible" once more proved to be truly needed.

We wish everybody a nice 2^{sd} Advent and send our warmest wishes home.
Sunday, December 5th 2021, South from the Azores,

Saskia Brix & James Taylor

Cruise Leader team, Senckenberg am Meer