



SO277 (GPF 19-2_012)



3. Weekly report, 24.-30.8.2020

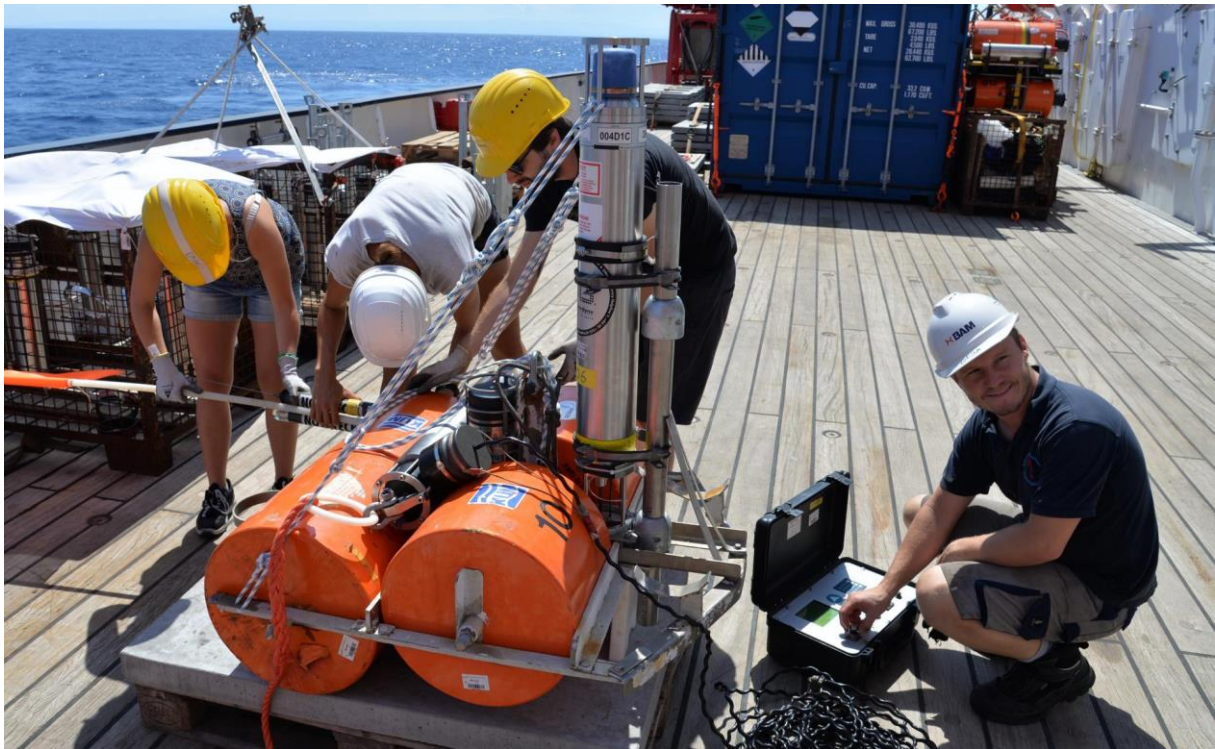
Because of the long transit, the third week of SO277 was the first week with scientific data acquisition.

We arrived in the study area off Catania at midnight on Monday, 24.8.2020. First, we conducted a CTD cast until 7:00 in the morning. Apart from measuring the CTD profile we also used the video link to obtain seafloor images in the area where the geodesy stations had to be deployed. The seafloor was covered with marine mud and showed abundant bioturbation but no clear signs of tectonic deformation. At 08:00 we began with the deployment of two geodesy stations which was completed by 15:00. While progressing to the first multi-beam line we spotted a bright red item at the location of the first deployment site. Concerned that one of the geodesy stations might have surfaced accidentally, we returned back only to find a bright red fairground balloon that was swimming in the water. Nevertheless, we took the opportunity to communicate with both stations to check that they were operating properly before commencing with a multibeam survey of Etna's flank during the night.

On Tuesday, we woke up to a fresh northerly breeze. We continued to deploy the seafloor geodesy stations. The work progressed exceptionally well and we managed to place the remaining four stations on the seabed between 8:00 in the morning and 17:00. Afterwards we continued to collect multibeam data over the lower slope of Mount Etna.

Wednesday morning we were back on location and communicated with the geodesy stations to ascertain that they were functioning properly and retrieve the first 12 hours of data. After we were satisfied that this is the case and that the stations could all range each other, we started on our transit to the next study area off Malta initially collecting multibeam data along the Malta Escarpment. We reached Malta shortly before midnight on

On Thursday we started with a first our work program of the SMART project with a CTD cast off Gozo to acquire a sound velocity profile for the calibration of the hydroacoustic data and to obtain water samples for the background geochemistry. Afterwards until 07:00, we did a Video-CTD transect closer to the coast off the eastern tip of Gozo. At 08:00 we deployed the AUV off St. Paul's Bay and conducted a video survey of the seafloor in an area known for gas seepage. The seafloor was covered with sediment and showed signs of bioturbations but no evidence for fluid escape. At 14:00 we retrieved the AUV and started to deploy ocean bottom receivers until 23:00. Afterwards we carried out a multi-beam survey of the lower slopes throughout the night.



Preparation of a geodesy station for deployment off Etna. From left: Johanna Klein, Bettina Schramm, Felix Kästner, Florian Petersen. Photographer: Thore Sager.

On Friday morning, we completed the multi-beam survey at 09:00 and started to deploy the 2D seismic system off Camino at 10:00. The system was up and running at 10:45, but after half an hour a fishing line got entangled and we had to retrieve the streamer to unhook it. From 13:00 onwards we acquired 2D seismic lines off the central and eastern parts of Malta. This survey is still ongoing and we expect to finish with 2D seismic acquisition around lunchtime on Tuesday. First checks of the 2D seismic lines show the difficulty of imaging the limestones that are our target. Although the system produces very good data further offshore and gives some exciting insights into the structural geology of the area, the limestones in the coastal region are seismically almost transparent which will pose several challenges to the data analysis.

Everybody onboard is well and happy to have finished the first third of the cruise.

On behalf of all on board,

Christian Berndt, Chief scientist

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