



SO277 (GPF 19-2\_012)

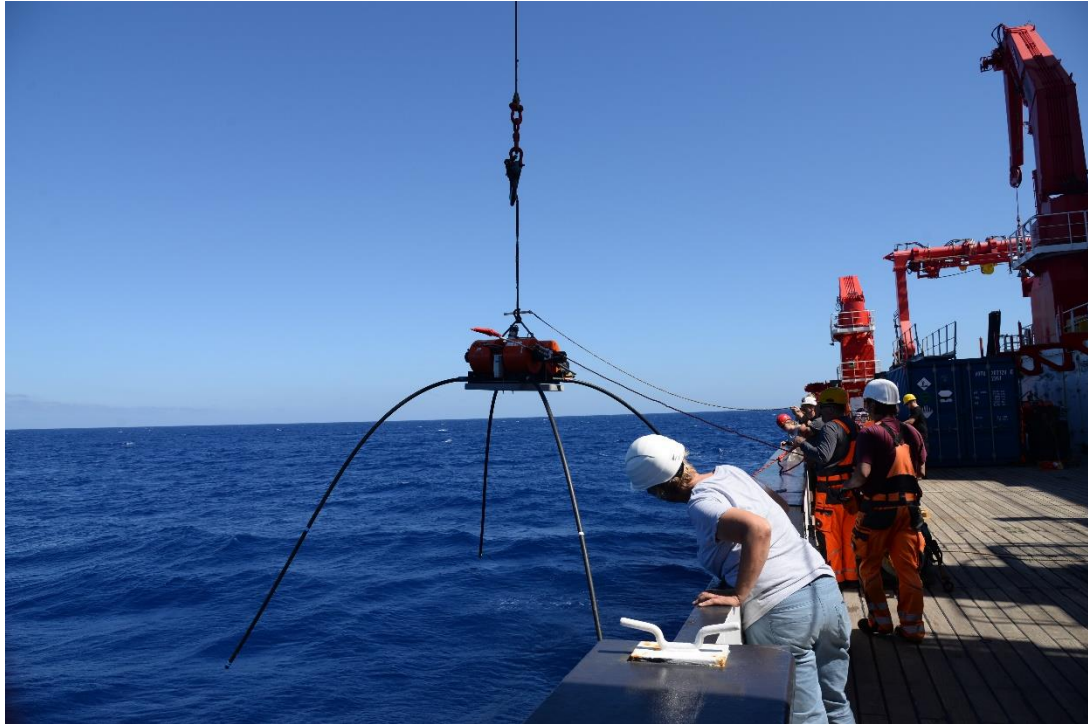


#### 4. Weekly report, 31.8-6.9.2020

In the beginning of the week we continued the regional 2D seismic experiment. Because of various fish farms, reefs, anchor areas, wracks, and protected areas the survey planning was 'interesting'. In addition many fishing vessels, fishing equipment, and pleasure craft meant that we had to deviate from the track several times. As a result the final 2D seismic track is not as straight and regular as one would expect in a less crowded area. Nevertheless the data give a useful picture of the regional geology and in particular the structural configuration of the offshore area of Malta. This will inform the further survey planning and the hydrological modeling.

We continued collecting 2D seismic data until 10:00 on Tuesday when the tow cable of the streamer started to show signs of wear. We retrieved the streamer and continued shooting into the OBS until 15:30. Afterwards, we took the seismic source on board. Then we retrieved the two outermost ocean bottom seismometer that were carrying the experimental mini-ocean bottom seismometers because their batteries only last for five days. We also deployed three more ocean bottom electromagnetic stations in the study area off Gozo. Afterwards, we started a multi-beam survey beyond the escarpment to ascertain that there are no obstacles for the controlled source electromagnetic tow planned for the following day.

On Wednesday at 08:00 we deployed the controlled source electromagnetic system and towed it along a track below and parallel to the escarpment along the NE coast of Gozo. Unfortunately, only the first two of the four receivers logged data but those are of good quality and will show if there are resistivity anomalies this far offshore that may point to offshore freshened groundwater. The tow lasted for 23 hours and we recovered the controlled source electromagnetic system between 07:00 and 09:00 on Thursday morning. Afterwards we surveyed a video-CTD track down the escarpment across a phase reversal in the seismic data and crossing the CSEM line that was acquired in the night before. There were no signs of fluid escape along this track and the entire seafloor including the escarpment turned out to be covered with soft sediment. Originally, we had planned to deploy the AUV in the morning but sometime between the last AUV deployment on the 27.8. and the 3.9. the container that holds the AUV ultra-short baseline modem must have opened and the transponder was lost.



*Marion Jegen and crew deploying one of the ocean bottom electromagnetic receivers off Malta. Photographer: Thore Sager.*

From 14:00 onwards we deployed the P-Cable 3D seismic system which was operational at 15:30 and we started to acquire 3D seismic data. In spite of a fresh easterly breeze the P-Cable was operating fine until one of the air pipes of the seismic source came loose and we had to take the source on board for repairs at 11:00 on Friday morning. The system was back in operation at 14:00 and since then we have acquired 3D seismic data in fine weather. Today (Sunday) we have almost finished  $\frac{3}{4}$  of the cube and we hope to be finished with the seismic program on Tuesday if the weather continues to be as good as it is now.

From Tuesday onward, the plan is to continue with controlled source electromagnetic operations, AUV dives, and sediment coring operations until Friday when we expect to take onboard a new AUV transponder which is being shipped from Kiel at the moment.

Everybody onboard is well.

On behalf of all on board,

Christian Berndt, Chief scientist

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