

POS538

Weekly report No. 3

21.10.2019 - 27.10.2019

On the 21st of October, we continued with our uninterrupted (to date) P-Cable survey. While the weather conditions during the first week of the science programme were ideal for seismic surveying, the wind conditions on the 21st steadily picked up to the extent that we had to suspend the survey at 10:30 p.m. The Poseidon was positioned into the wind and we were able to leave the seismic equipment in the water. On the morning of the 22nd we were able to survey the last two remaining profiles and then recover the P-Cable system at 3:00 p.m., completing seven days of acquisition. Rather than recovering the trawl doors to the stern hull, we steamed toward the sheltered seas of the Santorini caldera to be able to recover them fully and stow them on deck.

On the following morning, we left the caldera again to begin collecting 2D seismic profiles in the Christiana Basin west of Santorini. These 2D data will be very helpful for research related to the proposed IODP project. In addition, the data will help us improve our understanding of the spatial distribution of pyroclastic flow deposits from two large historical eruptions of Santorini. The work in Christiana Basin took us through to the 24th of October. We then began collecting additional 2D seismic profiles in the Amorgos Basin northeast of Santorini. The main objective of these profiles was to investigate the Amorgos Fault, which hosted a Mw7.6 earthquake in 1956. The profiles should also help to clarify whether the opening of the basin east of Santorini is at least partially associated with strike slip motion, a hypothesis that has been proposed in previous research.



Figure 1: Group photo of the POS538 science team

On the 25th we had to suspend our seismic operations due to increasing wind speeds. We again took shelter in the Santorini Caldera. On the 26th of October, we left the caldera again and began the acquisition of a seismic refraction profile above the ocean bottom seismometers (OBS) that were

deployed within and around Kolumbo volcano. At the completion of this refraction profile we recovered the OBS. All OBS surfaced and were recovered without any problems. Because the weather report for the coming night indicated strong winds, we did not re-deploy the seismic gear. We waited until 8:30 a.m. on the following day to begin with further 2D seismic profiles in the Anafi Basin east of Santorini. These profiles were completed at 5:00 p.m., the gear was recovered, and we began our transit to Heraklion.

All on board are very satisfied with the data we have collected and the preliminary results of the cruise. Thanks to good weather conditions during the two weeks of data acquisition we were able to collect a 3D seismic dataset with a footprint of 40 km², as well as more than 650 line kilometres of 2D seismic data. We would like to extend our thanks to the captain, the bridge, the deck crew and the galley for their hospitality and support.

On behalf of the science team,
Jens Karstens