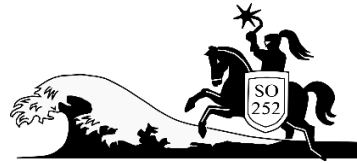


SO252: Ritter Island

2. Weekly Report



This is the second weekly report on expedition SO252 "Ritter Island". After we left the influence of typhoon Meari in the course of Wednesday, we made good progress and reached the Challenger Deep of Mariana Trench as planned on Thursday afternoon. We continued about 3 miles beyond the target point for the mooring, to check that the existing maps are correct and we indeed aimed for the deepest point. We found a spot about a mile further southwest, on which the water is even deeper. There we sailed and began the measurement program.

First, we dropped the CTD to 8000 m to measure complete pressure, temperature and salinity records for the water column. We then hoisted the CTD back on board and put a protective cap on the pressure sensor, which is only rated up to 8000 m. Afterwards we deployed the CTD once more and lowered it to 10905 m water depth, but now only activated the temperature and salinity sensors. This deployment was one of the very few CTD measurements that have ever been carried out in the Mariana Trench, because only few ships have the ability to handle deep sea instrumentation down to water depth as great as those encountered in the Mariana Trench.



Figure 1: Deep sea research vessel Sonne conducting a CTD cast at the Challenger Deep, Mariana Trench.

The data will be used by our colleague Hans van Haren from the Dutch Institute of Oceanography (NIOZ) to calibrate the temperature data that will be measured over the next two years using the mooring which we deployed next. This deployment lasted nearly six hours because of the great length of 7 kilometers. The mooring holds 400 highly sensitive temperature sensors which are designed to measure the fine structure of the mixing of the water column and, in particular, the influence of internal waves on the composition of the water column in deep-sea trenches. As we had to wait during the morning for the CTD to come back on board which did not happen until 12:00, we used the morning to carry out a drone rise and practice the use of the drone at sea and to get a sample record of the video footage. This we used to gain experience for the 3D survey of Ritter Island. Figure 1 shows a video still of R/V Sonne.

Since Thursday evening, we are now on the way to Papua New Guinea, where we should arrive tomorrow morning at 06:00 local time.

On behalf of the cruise participants,

Christian Berndt (Chief scientist)