



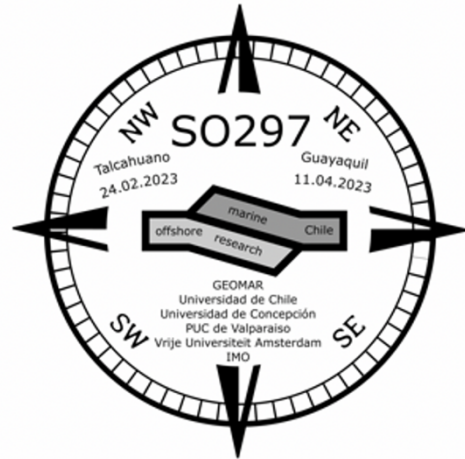
RV SONNE - SO297 "PISAGUA"

24.02.2023 - 11.04.2023

Talcahuano (Chile) - Guayaquil (Ecuador)

2nd Weekly Report

27.02. - 05.03.2023



At Sea, 27°26'S/71°22'W

After the transit from San Vicente, we began deploying a profile consisting of 39 OBS and OBH stations at station spacing of 3.8 nautical miles on 27 February. After deploying 29 stations, a CTD was run at 14:00 to obtain a water sounding profile. The deployment of the stations continued until 02:00 on 28 February. At one station the floating line got caught under the OBS. This unit was immediately released, a new anchor attached and was reinstalled after a short time. On the morning of 28 February, the air pulsers and MCS streamer, as well as the ocean bottom seismometers (OBS) and ocean bottom hydrophones (OBH), were further prepared while the ship was cruising previously unmapped areas of the marine forearc with multibeam bathymetry.

In the afternoon, the air pulsers were launched and marine mammal mitigation measures were started. Acquisition of the profile took place until 08:00 on 2nd March. After retrieval of the air pulsers and the MCS streamer, we started dismantling the stations. After the successful recovery of 17 OBS/OBH, one OBH (station P217) surfaced very slowly to finally be located at a constant water depth of 590 metres. After three hours of waiting, we decided to recover two more OBS and returned to P217 after another four hours. OBH P217 continued to ascend very slowly. After triangulating the station using acoustic distance measurements in the water, we determined the remaining station depth to be 530 m and a slow drift to the south. We continued to dismantle the other stations. One station, which was installed between two large seamounts and



Figure 1: View from the bridge during the recovery of an OBS at night. The OBS is the red object to the right of the light cone. Photo: B. Bauer.



was released at 18:48, drifted very quickly with peak speeds between 1 and 2 m/s from the point of emergence to the southwest. Despite high drift velocity and two changes of direction of the drift of almost 180 degrees, the unit was recovered at 00:22 on 04 March at a distance of 3.5 nautical miles from the deployment point (Figure 1). The successful recovery of the remaining stations took place by the evening of 04 March.

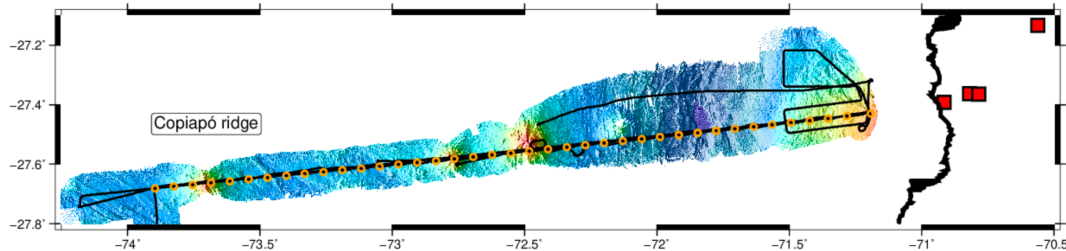


Figure 2: Map showing the new multibeam bathymetry along profile P2. The seamounts on the oceanic plate and the deep-sea trench are clearly visible. Orange dots show the positions of the OBS/OBH, and the red squares represent land stations.

On the night of 5 March, we returned to OBH P217 and recorded previously unmapped seabed during the transit (Figure 2). We reached the installation position at 06 am, but could not receive any visual or acoustic signals from the station and unfortunately had to leave this station site without OBH P217. We continued northeast to reach the first station of the 3D experiment and performed a releaser test and two float tests during the 12-hour transit. We are currently preparing for the deployment of the 42 OBS stations for the 3D experiment. The deployment will start on 5 March at 23:30.

Everyone on board is well and greetings are extended on behalf of all those on board the RV SONNE,

Dietrich Lange
(GEOMAR Helmholtz Centre for Ocean Research Kiel)