



RV SONNE – SO297 "PISAGUA"

24.02.2023 - 11.04.2023

Talcahuano (Chile) - Guayaquil (Ecuador)

1st Weekly Report

23. - 26.02.2023



Auf See, 27°48'S/73°53'W

The objective of cruise SO297 is to map in detail the deep structure offshore Taltal with 2D and 3D refraction experiments to analyze the relationship between deformation behavior and forearc structures using the northern Chilean subduction zone as a type location and thus contribute to regional hazard studies. For a better understanding of the processes, the required knowledge of the deep structure of the marine forearc and the seismogenic zone is lacking to date since this seaward region has not been investigated with modern technology. Therefore only limited information is available on the structure and composition of the subducted oceanic and overriding continental crust.

On Thursday, 23 February, at 12:30, RV SONNE departed San Vicente a day earlier than planned in very calm seas to bunker overnight at Talcahuano - roadstead. Four containers were already aboard RV SONNE from previous sailings, and two more containers from Kiel were picked up at the port call and by RV SONNE. Immediately after embarkation, we started unpacking the boxes and setting up the labs in the late afternoon. A safety briefing and a safety maneuver was already carried out in the harbor.

After the ship was supplied overnight near Quiriquina Island by a bunker vessel, and the pilot boat arrived at noon on February



Figure 1: OBS prepared for installation in front of the OBH container. Foto: D. Lange, GEOMAR.



Figure 2: Releser mounted on the CTD rosette for a releser test. Foto: D. Lange, GEOMAR.

24, the transit north toward the work area began. During the three-day transit, the releasers, OBS (Fig. 1), airguns, MCS streamer and pressure sensors were prepared, and safety briefings were conducted. The transit was interrupted by a releser test during the night of February 25-26 after 350 nautical miles of northbound travel. All 44 releasers functioned as desired. Since a releser test was performed on the CTD rosette of SONNE (Fig. 2), we could also successfully record the first CTD profile.

The remaining 20 hours of transit to the first seismic profile were characterized by intensive preparations for the deployment of a total of 39 Ocean Bottom Seismometers (OBS) and Ocean Bottom Hydrophones (OBH), which will begin after arrival at the first profile on the night of February 27.

In addition to the 20 GEOMAR scientists and technicians, two scientists from the University of Santiago de Chile, six scientists from the University of Concepción, one from the University of Amsterdam, and one from the Pontificia Universidad Catolica de Valparaiso and one observer are on board.

Everyone on board is well, and the Pacific has greeted us with calm seas in keeping with its name. The atmosphere on board is very good, and the cooperation with captain and crew is excellent as expected.

Greetings from aboard RV SONNE on behalf of all participants,

Dietrich Lange

GEOMAR Helmholtz Centre for Ocean Research Kiel