Scientific Cruise SO315 with RV SONNE

CARNIVAL

08.10.2025 (Antofagasta/Chile) –

17.11.2025 (Balboa/Panama)

1. Weekly Report (08.10.–12.10.2025)

On 8 October 2025, all participants in Expedition SO315 boarded the SONNE in the port of Antofagasta (Chile). The containers were unloaded, the equipment was set up and serviced, and the laboratories were set up. On the evening of 8 October, the SONNE finally set sail and headed directly for the first working area south of Antofagasta. Due to the challenging topography of the northern Chilean continental margin, a detailed hydroacoustic survey of the seafloor was carried out in the working area to identify suitable stations for sediment core sampling. Multicores and/or gravity cores were obtained at a total of seven stations at water depths between 80 and 2500 metres. In addition, extensive sampling of the water column at various depths was carried out at one station using a CTD probe, water crown sampler, marine snow catcher, in-situ pumps and multi-net. On the evening of 12 October 2025, the station work in the first working area was completed. The SONNE is now heading for the next working area north of Mejillones (Chile).

The sampling of the water column and seafloor along the northern Chilean continental margin and offshore seamounts over the course of Expedition SO315 serves the overarching goal to investigate coupling processes between the Southeast Pacific, the West Atlantic (reflected in the runoff of the Río Loa) and the palaeoclimate of the Atacama Desert in the late Quaternary. The hyperarid climate of the Atacama Desert is the result its location north of the westerly wind drift and the lack of moisture from the South Atlantic and Southeast Pacific. Since the Miocene (approx. 23 million years ago), however, there have been significant shifts between hyperarid and more humid (arid) conditions in the hyperarid core of the Atacama Desert (precipitation < 2 mm/a; 19–23 °S). The mechanisms behind the spatial and temporal variability of these palaeoclimatic fluctuations are not well understood. The newly obtained sediment cores and water samples provide a unique basis for investigating the coupling between palaeoceanography and palaeoclimate in the hinterland on orbital and suborbital time scales.

Everyone on board is well and in good spirits, looking forward to the next station work.

With best regards,

Patrick Grunert (Chief Scientist)

Frank Lamy, Andrea Jaeschke (Co-Chief Scientists)

First sediment core of Expedition SO315 on deck.