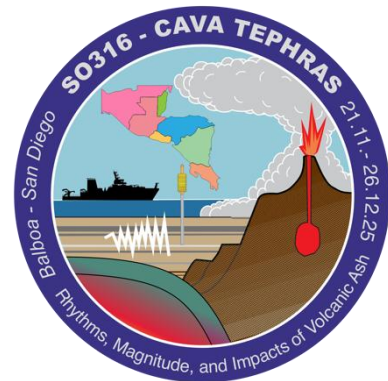


RV SONNE Expedition SO316 CAVA Tephtras

21.11. – 26.12.2025

Balboa (Panama) – San Diego (USA)



1. Weekly Report (21. - 23.11.2025)

Predicting volcanic hazards is socially relevant, but the driving forces and succession of explosive eruptions are poorly understood, hindering a better understanding of these processes. The cruise SO316 offshore Central America and Mexico aims to improve the understanding of these poorly constrained processes and their links to climate and tectonic forcing. By acquiring seismo-acoustic pre-site data and sampling surface sediments (with multi-corer and gravity corer), the expedition will reconstruct eruption time series, determine volcanic ash provenance, and assess geochemical alteration. These datasets will help test hypotheses on how volcanic activity, sediment composition, and reactive silicates interact with carbon and silicate cycles, as well as with microbial occurrence. The results will support an IODP³ proposal (International Ocean Drilling Programme) and enable a regionally connected Holocene–Late Pleistocene tephrostratigraphy.

All 27 scientific participants boarded on 20. November 2025 but had to go ashore again to apply on short notice for a work visa for Mexico. With the tireless support of the Mexican consulate as well as the German embassy in Mexico, the visas were issued in time.

On Friday, 21. November 2025, RV *SONNE* departed Balboa (Panama) at 06:00 local time to anchor off the port for bunkering, which was completed at 16:00. Afterwards, she set course for Golfito (Costa Rica) in order to carry out the crew change there which was not possible in Panama due to official regulations. After the successful crew change, we set course for our first station in Nicaragua's territorial waters.

During the transit, the containers were unloaded and the laboratories were prepared for the upcoming work.

Unfortunately, we are still waiting for the formal issuance of the research permit for Guatemalan waters, which has already been informally promised. However, we are confident that we will receive it by the time of arrival.



RV Sonne at berth in the port of Balboa, Panama, with the Bridge of the Americas (Puente de las Américas) in the background. Photo by Mariana Andrade

In addition to the 18 scientific participants from the University of Kiel and GEOMAR Helmholtz Centre for Ocean Research Kiel (Germany), researchers from the University of South Carolina (USA), the University of California in Riverside (USA), Oregon State University (USA), Woods Hole Oceanographic Institution (USA), Université Clermont Auvergne (France), the Universidad Nacional Autónoma de México (UNAM, Mexico), the University of Costa Rica (Costa Rica), the Shanghai Ocean University (China), and the University of Münster (Germany) are on board.

All participants are doing well, and we are optimistic about starting our planned research activities soon.

The chief scientist sends greetings on behalf of all the scientific participants.

Steffen Kutterolf
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)