

## RV SONNE cruise SO299/2

### REE\_T

#### Reconstructing volcanic eruptions and tsunamis of Krakatau volcano (Indonesia)

15 August – 2 September 2023  
Singapore – Port Louis (Mauritius)

At sea, 12°07'S 84°57'E



### Weekly Report No. 2 (21/08 – 27/08)

On Sunday night, six gravity corer stations in the west, south and east of the Krakatau archipelago were approached, five of which recovered well-filled barrels. In addition to greenish-grey background sediments, the cores also contained various layers of ash and tephra. Detailed sample and Parasound data analyses will be used to reveal whether these were primary deposits or remobilised, and whether they originate from Anak Krakatau. On Monday morning we completed the coring program so that we could deploy the multichannel seismic again. The aim of the second survey was to map the distal deposits to allow for a robust estimation of Krakatau deposit volumes. During the early hours of Tuesday morning, the seismic equipment was then recovered so that we could start the transit back to Bakauheni. This was also the end of the scientific program (with the exception of secondary use).

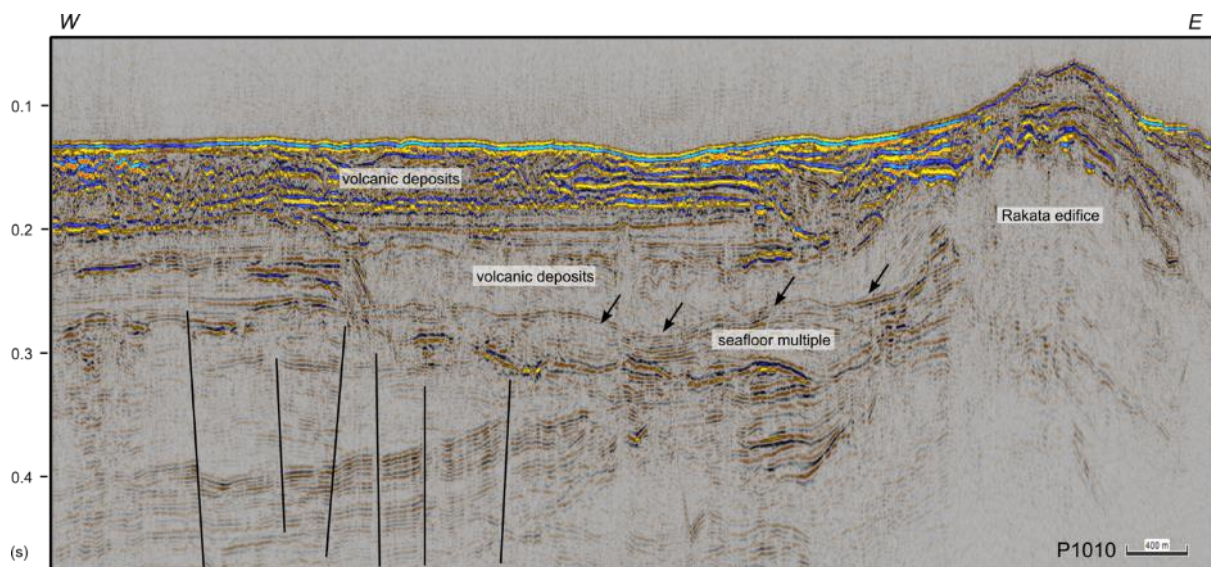
Despite the short working time of only 60 hours, we were able to acquire 380 km of seismic profiles and recover 34 m of sediment. Due to the uniqueness and high quality of the data, it is already foreseeable that the gain in knowledge will be large. To date, there have been no high-resolution multichannel seismic data, sediment samples from >1 m in the seafloor, or detailed bathymetric information. The tight work schedule was made possible by the great flexibility and unlimited support of the master and crew of the SONNE. Thank you!

Back on anchorage in Bakauheni, on Tuesday representatives of the German embassy in Jakarta and the Indonesian scientific organization BRIN visited SONNE. The new data was discussed and exchanged and plans for further cooperation were made. After a small ceremony, the Indonesian scientists and guests left the ship.

Since the late evening of 22 August, we are now on the direct route to Mauritius. The transect across the Indian Ocean is used by scientists from the Institute for Chemistry and Biology of the Sea (ICBM) at the University of Oldenburg to make continuous bio-optical observations as well as discrete laboratory measurements of the surface water. We also record underway research data with the deep-water multibeam echo sounder and the current profiler for the German Alliance for Marine Research (DAM). For the Australian Argo program, the first Argo float was deployed at 87°E on Friday evening. Another float followed on Saturday at 84°E.

Greetings from aboard RV SONNE on behalf of all participants.

Morelia Urlaub, GEOMAR Helmholtz Centre for Ocean Research Kiel  
Chief Scientist



Data example of a 2D seismic profile. The profile illustrates the proximal deposits that onlap the toe of Krakatau south of Rakata Island.



Impressions of the work program during cruise SO299/2. Clockwise: Work on sediment cores in the hangar, seismic profiling in front of Krakatau archipelago, ceremony for the farewell of the Indonesian scientists, RV SONNE at anchorage in Bakauheni (Indonesia). Pictures: Séverine Furst (GEOMAR).