



## FS SONNE Reise SO288

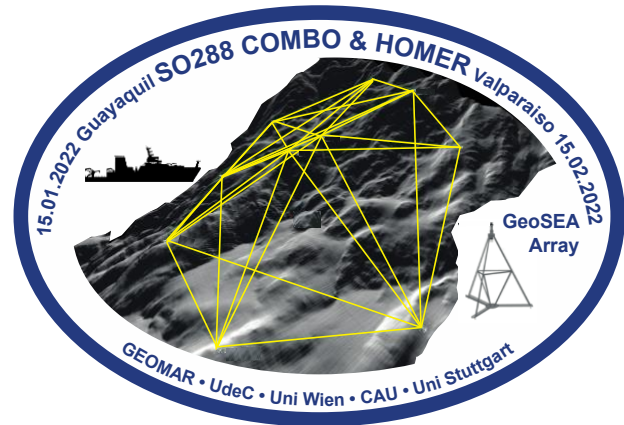
### COMBO & HOMER

15.01.2022 – 15.02.2022

Guayaquil (Ecuador) – Valparaiso (Chile)

### Weekly Report Nr. 2

17.-23.01.2022



### *At Sea, 21°10'S/72°05'W*

The second week of expedition SO288 COMBO & HOMER started with the transit to the first working area off northern Chile, which the 26 scientific crew members initially used for further preparation of laboratories and instruments (Fig. 1). On Jan. 17, 2022, a member of the scientific crew tested positive for COVID-19 by the shipboard physician due to cold symptoms. The participant acted in accordance with the 'Outbreak Management Plan' guidelines for the current research cruise (OMP-SO288) and remained on her single cabin where the physician performed a PCR test. The participant was isolated in her cabin and the scientific team and ship's crew were informed in a timely manner. Antigen tests were performed on all individuals on board, which confirmed a second positive test from a crew member. This individual showed no symptoms and was also isolated to a single cabin.

In addition, containment measures (cohorting the scientific team as well as the crew) took effect simultaneously, flanked by a tight testing regime. The reporting chain to the shipping company Briese and to the control center German Research Fleet (Leitstelle Deutsche Forschungsschiffe) was set in motion, so that the following measures could be decided at a roundtable discussion together with the directorate of GEOMAR on 18.01.2022: Cessation of all work not necessary for ship operation, prohibition of off-duty meetings, tightening of the mask requirement (only FFP2 masks are to be used), fixed assignment of seats at individual tables in the mess hall as well as expansion to the conference room, closure of the bridge to personnel not on watch as well as closure of the recreation rooms, cessation of cabin cleaning by ship personnel. Official meetings are conducted via video conference, for which a SONNE-internal video client was installed. During this time, the SONNE was close to the coast of Peru, so that in the event of serious symptoms of the disease, it would have been possible to disembark participants quickly at any time.

In order to gain control over the further infection and to prevent all unnecessary movements on board, the research work was interrupted for at least 7 days, combined with daily antigen tests. This measure of 'ship's own quarantine' was essential from the point of view of the chief scientist and captain in order to prevent an interruption of the voyage as well as to continue to enable the implementation of the research program. There is a consensual desire among both the crew and the scientific team to continue the voyage and to carry out the planned research work.



*Fig. 1: Deserted working deck during FS SONNE SO288. In the foreground, the ocean bottom seismometers can be seen, prepared for their deployment in water depths up to 6000 m.*

*Foto: S. Konradowitz, GEOMAR*

On Jan. 18, 2022, one additional person on the scientific team tested positive without symptoms and was isolated in a single cabin, followed by two more confirmed infections on Jan. 19, 2022, again without symptoms. These individuals are two crew members. Safe ship operations continue; the nearest ports in Arica and Iquique can be reached at short notice. In the following two days, Jan. 20, 2022 and Jan. 21, 2022, no further infections have been detected and no change has developed regarding the symptomatology in the infected persons.

On Jan. 21, 2022, we reached our work area off the coast of northern Chile and began a program of high-resolution mapping of the previously unmapped northern flank of the Iquique Ridge. This work is easily accomplished under the strict hygiene constraints, as only one person is required to be in the hydroacoustics lab at a time, and watch handovers are not direct, but are staggered by 15 minutes so that watchstanders do not encounter each other.

The Iquique Ridge is of volcanic origin and represents a swell in the deep ocean plain of the oceanic Nazca Plate, which is subducted beneath the South American plate and returned to the deep mantle as a result of plate tectonics. This process produces strong earthquakes and potentially tsunamis, and is influenced by the Iquique Ridge in the Arica Bend, along the curvature of the South American coastline from Chile to Peru. Numerous smaller volcanoes have formed on the ridge structure (see Fig. 2) and are subducted with the oceanic plate beneath the South American plate along the deep-sea trench. The influence of these structures on the seismogenesis, i.e., the generation of earthquakes, as well as on their rupture behavior is essential for a detailed assessment of marine geohazards, to which knowledge of seafloor morphology from the ongoing mapping of the SONNE on the northern slope of the Iquique Ridge is crucial.

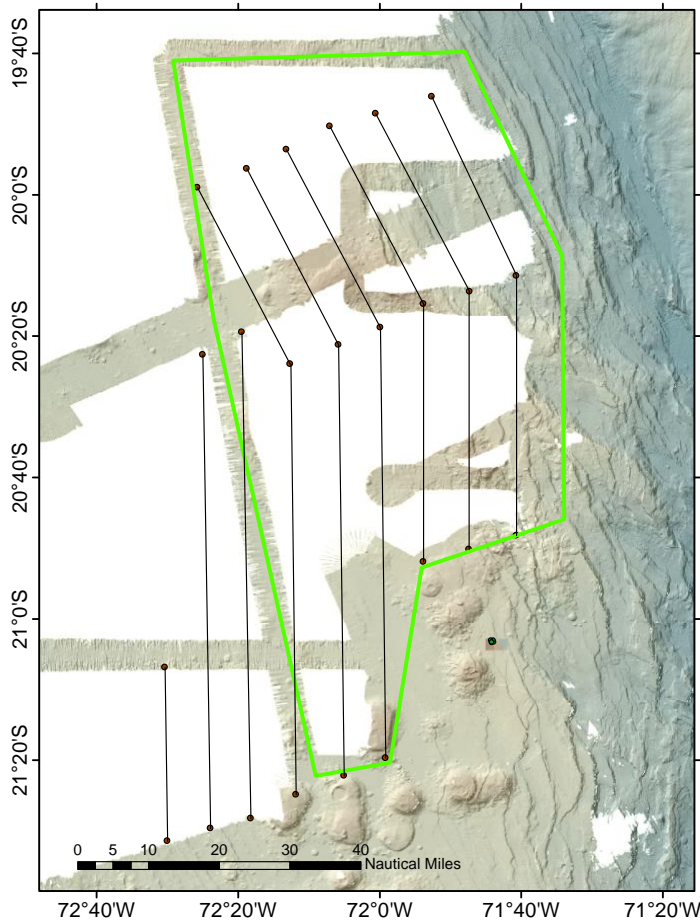


Fig. 2: Area to be mapped of the seafloor off northern Chile. On the right of the image in blue colors, the deep-sea trench can be seen, which here reaches water depths of up to 9000 m and is characterized by pronounced fracture and fault structures. Several volcanic structures are visible in the lower center of the image. The green polygon encompasses the data gap to be filled during the ongoing mapping; the black lines indicate the ship profiles that are currently being mapped by SONNE.

Figure: M. Riedel, GEOMAR

On Jan. 22, 2022 the mapping work was continued. No new infections were confirmed on this day either. On Jan. 23, 2022 the equipment deployment preparatory meeting took place, which was held via SONNE-internal video conference in preparation for a possible equipment deployment starting on Jan. 25, 2022. Also on Jan. 23, 2022 no further infections were confirmed, so that we are looking forward with increasing optimism to the planned PCR screening on Jan. 24-25, 2022.

I am confident that the consensual and close agreements between the ship's command and the science crew will guide us well through this difficult phase of Expedition SO288, and I thank all the participants of the Round Table for their intensive support from shore. Special thanks, of course, to everyone here on board for their strict adherence to the measures, which made a decisive contribution to breaking the chains of infection.

Greetings on behalf of all cruise participants from aboard the very calm FS SONNE,

Heidrun Kopp

Chief Scientist

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