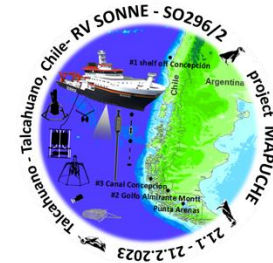


RV SONNE – SO296/2

21.01. - 21.02.2023

Talcahuano (Chile) - Talcahuano (Chile)



3rd Weekly Report (30.01. - 05.02.2023)

After leaving Lirquén on 29.1. we had a long and rather uneventful journey to our 2nd working area, the Golfo Almirante Montt, during which, however, the bird lovers got their money's worth (Fig.1). In the afternoon of 2.2. we drove into the Patagonian fjords and since then we are working in the middle of a breathtakingly beautiful landscape.

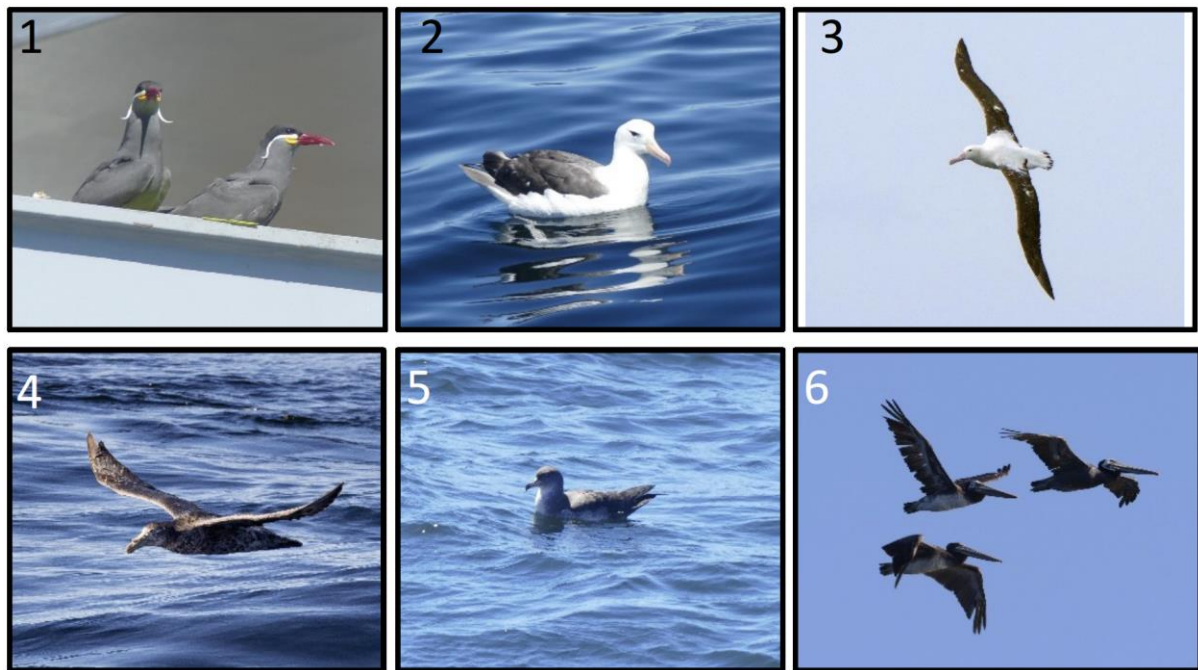


Fig.1: Bird observations on the way to the 2nd working area compiled and determined by K. Jürgens. 1: Inca Tern; 2: Black-browed Albatross; 3: Wandering Albatross; 4: Giant Petrel; 5: Pink-footed Shearwater; 6: Peruvian Pelican.

Photos: K.Jürgens (1, 2, 3, 5), T. Heene (6), N. Mönnich (4).

Our destination, the up to 180 m deep Golfo Almirante Montt, differs from the many other fjords in southern Chile in that it has only a very narrow and shallow connection to the Pacific. In this respect, it resembles the Baltic Sea, but in miniature. The Golfo Almirante Montt has two entrances on its western side, one northwest of the island Diego Partales via the strait "Angostura White" and one southeast of the same island via the "Canal Kirke". Captain Meyer decided to use the strait "Angostura White", which is somewhat deeper than the "Canal Kirke" and 90 m wide at its narrowest point (Fig.2). Beforehand, the dinghy was sent through the channel to report on the current conditions.



Fig.2: Left: The Golfo Almirante Montt with the two accesses "Angostura White" and "Canal Kirke" (map google Earth). Right: Passage through the "Angostura White". The red arrow points to the dinghy ahead (photo H. Schulz-Vogt).

After this exciting entry into the fjord, we began our work program by launching the drifter, which had already been used in the first work area. However, it is not allowed to drift in the fjord and was therefore converted into a mooring with a base weight and additional buoyancy bodies, which gave it a somewhat strange appearance (Fig.3). A sediment trap from Chilean colleagues was also attached to the mooring, which will trap several days of particle rain from the water column. After a first deployment of the rosette at the previously selected main station GAM-21 in the northwest of Golfo Almirante Montt, hydroacoustic mapping of the western area of the gulf then began (see Fig.1).



Fig.3: Deployment of the drifter converted to mooring near the first main station GAM-21. (Photo H. Schulz-Vogt).

On the way back from the so far southernmost station GAM-15, the individual stations were approached and the water column sampled with the rosette as well as the sediment with multicorer and gravity corer. Due to the very good pre-mapping on the way there (Fig.4), it was possible to select stations on which very long sediment cores of up to 16 meters could be taken during the night of February 3 to 4. These cores probably date back at least up to 12,000 years, maybe even 16,000 years, and can thus make a valuable contribution to the study of the history of the Patagonian fjords since the last ice age.

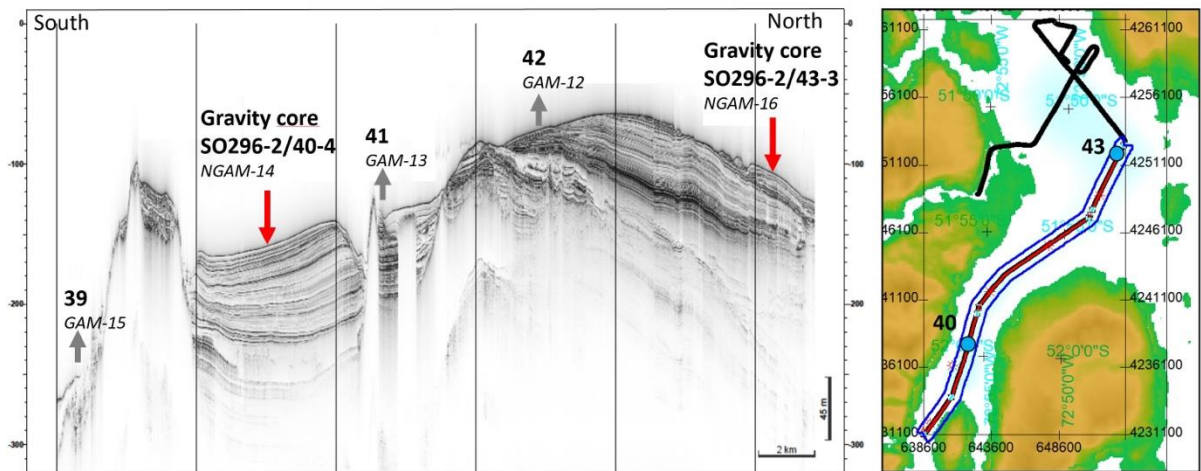


Fig.4: Sediment acoustic south-north profile in western Golfo Almirante Montt showing the stations where sediment (red arrows) and water (gray arrows) sampling took place.

Back at station GAM-21, detailed sampling of the water column including high-resolution nutrient profiles then began, lasting into the night of February 5. Unfortunately, the east-west profiles with the microstructure probe planned after that could not be conducted due to excessive winds, so instead another sediment sampling station and more detailed hydroacoustic mapping of the northwestern basin were brought forward in the schedule. Following this, hydroacoustic mapping of the much shallower eastern basin began at noon on February 5, which will then serve as the basis for the selection of additional stations throughout the day and the coming night.



Abb.5: A rainbow and a small tornado inside the Golfo Almirante Montt. (Photo left: T. Heene, right: N. Mönnich)

The weather situation in the Golfo Almirante Montt is very changeable, which leads to many beautiful photos of rainbows and tornados but of course often becomes a challenge for the navigators and the scientific schedule (Fig.5).

Greetings in the name of all participants,

Heide Schulz-Vogt

(Leibniz Institute for Baltic Sea Research Warnemuende)