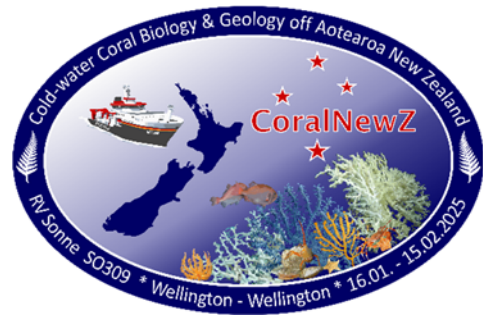


FS SONNE

Voyage SO309 CoralNewZ

16.01. – 15.02.2025

Wellington – Wellington (New Zealand)



3rd weekly report (27.01.-02.02.2025)

This week will remain an unforgettable memory for everyone on board - entering the largely unspoilt Fiordland with its numerous sounds, high mountain ranges, glacial landscapes and dense stands of trees - simply 'fabulous Fiordland' (Figure 1).



Fig. 1. Research vessel SONNE in the narrow Acheron Passage. © Tom Leymann

Our 96-hour permit started ticking at 18:00 on 26 January and we exhausted the time window with research until 30 January, just a few minutes before the time limit expired. Our work boxes were located in Thompson Sound, the Acheron Passage and Dusky Sound. The aim of our work was to investigate the cold-water corals and their associated communities in the deeper and previously little-explored rocky flanks between 280 and 100 metres water depth using the MARUM SQUID ROV. We encountered dense populations of *Eguchipsammia* and *Madrepora* colonies. We also found extensive, colourful stylasterid populations and, in places, large accumulations of a living fossil, the large bivalve *Pulvinites exempla*, the only living representative of a group known since the Upper Cretaceous. Our attempts to detect bioluminescence with UV lamps mounted on the ROV were crowned with success (Fig. 2). The fjord troughs were also the target of our geological investigations. Longer sediment cores were taken for MARUM and for the University of Otago. Three YOYO-CTD stations from different locations in the Sund Basin, which extended from sunset to sunrise, proved to be very busy. Jorit Kniest (Geomar), Helen Bostock (Queensland University) and Laura Macdonald (Auckland University) were able to compile a unique oceanographic data set on the variability of water mass parameters.



Fig. 2 top left: A cluster of Pulvinites exempla at 200 m depth from the Acheron Passage. Scale = 10 cm. MARUM - Centre for Marine Environmental Sciences, University of Bremen. Top right: Image of a live sampled P. exempla with its strong byssus strands. Scale = 2 cm. Peter Marriott, NIWA. Bottom left: Sea anemone under visible light and under UV illumination with bioluminescence. Scale = 4 cm. MARUM - Centre for Marine Environmental Sciences, University of Bremen.

Apart from the passage of a storm depression with gusts of up to 12 force winds, the weather was very pleasant. We received the news that the planned second harbour entry in Wellington would be delayed by one day. To make good use of the time, we were granted an ad-hoc research permit to work on the continental slope off Milford Sound for a further two days. This allowed us to optimally compare the cold-water coral communities on the open slope with those from the inner sounds. We began our transit to Wellington late in the evening on 1 February. Our mountain party rounded off the successful work around South Island.

Everyone on board is doing well.

André Freiwald,

voyage leader