Research Cruise SO 313 with RV SONNE

Louisville Ridge

At See 27° 38.06'S, 174° 28.21'W

1. Weekly Report (03.06. – 08.06.2025)

The scientific expedition SO313 - Louisville Ridge started on 3 June 2025 in Auckland (New Zealand) with unloading the containers and the installation of the scientific equipment on board RV Sonne. With the exception of three 'stragglers', all scientific participants moved into their cabins on board on 3 June. The three 'stragglers' were 'victims' of the cancellation of flights due to a large thunderstorm cell in southern Germany on 31 May. It took until the morning of 4 June before we were finally able to welcome our exhausted colleagues on board. RV SONNE then cast off and set course for the first working area of SO313.

As soon as the vessel left the protective bay of Auckland and set course for the NNE, we were greeted by headwinds with winds of 6-8, gusting up to 10, and waves 5-6 metres high. These conditions accompanied the transit for the first two days and only as we approached the working area did the wind and waves subside. As expected, some of the participants found it quite difficult to get used to these unusual conditions, but by the time we arrived in the working area, all participants had recovered from this initial shock and were now looking forward to the days and weeks ahead.

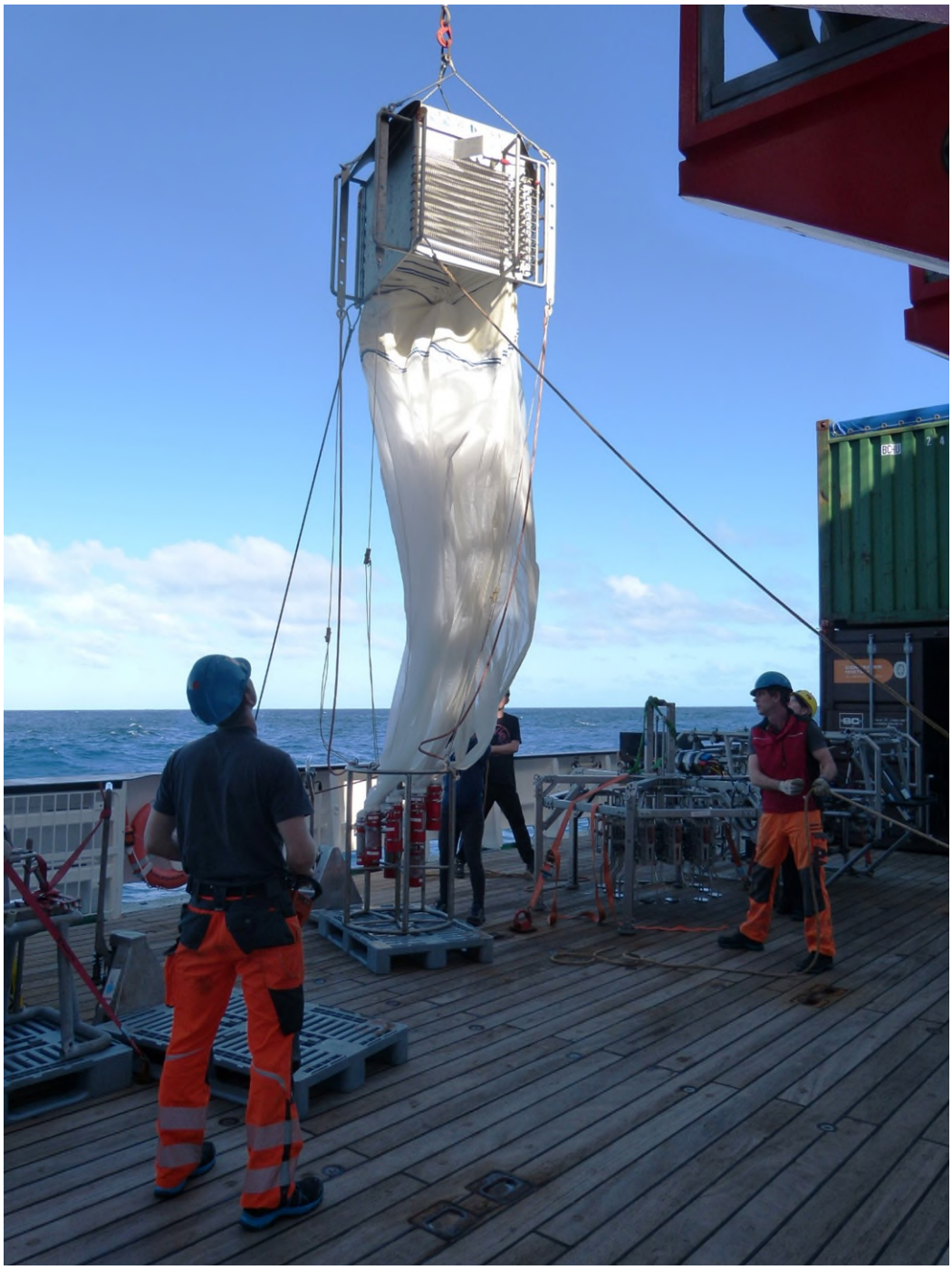
The working area of SO313 comprises six submarine seamounts that rise from 4500 - 5000 m water depth to approx. 1500 - 1000 metres. Metal-rich iron-manganese oxide crusts, to which various benthic faunal communities are attached, occur on the flanks and in the summit area of the seamounts. The aim of the project, including research cruise SO313, is to investigate the interaction of geological and hydrographic processes in relation to the diversity and distribution of these benthic communities on the seamounts of the northern Louisville Ridge. Scientific teams from the Senckenberg Institute Wilhelmshaven, the University of Bremen, the Constructor University Bremen, the Federal Institute for Geosciences and Natural Resources Hanover and colleagues from the Spanish Geological Survey, the Biology Centre Linz and the Universities of Łódź and Hannover are taking part in the expedition. The trip will also be accompanied by an employee of the German Weather Service, who will support us in the search for usable weather windows under the conditions of winter in the southern hemisphere.

The northernmost seamount, which we were heading for at the beginning of the cruise, lies just outside New Zealand's 200 nautical mile zone, so we were only able to start the hydro-acoustic measurements shortly before reaching the seamount on the morning of 8 June. In good weather, the station work started with a CTD profile, whereby the hydro-acoustic profile was also used to calibrate the EM 122 multibeam echosounder. The northern seamount is currently being mapped with the EM 122 before we continue the station work tomorrow with the deployment of an approx. 2500m long mooring equipped with current meters, acoustic doppler current profilers (ADCP) and passive samplers.

All participants of SO313 are doing well and are looking forward to the scientific programme of the coming weeks.

Best regards,

Thomas Kuhn (Chief Scientist)



Preparation of the mutlinet for deployment during SO313 (Photo: S. Sturm).