

Cruise SO 313 with RV SONNE

Louisville Ridge

Auckland (New Zealand)



6. Weekly Report (07.07. – 13.07.2025)

We spent the last days of SO313 in the working area with combined sampling programmes on the plateau of the Louisville Seamount. Four TV multicorers as well as one epibenthos sledge and one seamount sledge were deployed in the central, southern, eastern and northern areas of the approx. 570 km² summit plateau. Ferromanganese crusts were recovered with the TV grab at four positions with *in-situ* rocks and the L-ADCP/CTD, the trace element CTD and the multinet were deployed over the central summit area and at greater water depths to the north and south of the seamount. Two planned TV grab stations at the foot of the western slope of the Louisville Seamount could no longer be carried out due to the severe weather deterioration. EM 122 mapping in the eastern area also had to be cancelled for the same reason. Thus, the station work on SO313 was completed after 187 scientific stations and RV Sonne started her transit towards Auckland on Tuesday, 8 July. During this transit, we additionally mapped six seamounts with the EM 122 system on 9 July as part of the 'SEAMAP' project for colleagues from GEOMAR in Kiel. Shortly afterwards, the EM 122 was switched off and RV Sonne entered the New Zealand EEZ. On the morning of 13 July 2025, the ship moored at the pier in Auckland and, after unloading the scientific equipment and disembarking of the scientific crew, the research cruise SO 313 came to an end.

The objective of the Louisville Ridge research project is to investigate the interdependencies between the shape, size and structure of the seamounts with current patterns in the surrounding water column, the occurrence of benthic faunal communities and the occurrence of ferromanganese crusts as well as the concentration and speciation of dissolved metals in the water column. With the samples and data sets obtained, we will be able to address these scientific questions and answer some, though certainly not all, of them. Good co-operation between the various disciplines is important here, and we have laid a good foundation for this on this cruise. As the chief scientist, I would therefore like to thank all of the scientific participants for their commitment, good cooperation and the friendly atmosphere.

A scientific expedition on the high seas always involves a great deal of technical and logistical effort. Without a professional nautical and technical crew on the respective research vessel, this is of course impossible. However, the cruises on RV Sonne are always outstanding in this respect and, on behalf of science, I would like to thank Captain Oliver Meier and his crew most sincerely.

A particular challenge on this trip was the location and timing, namely in winter in the southern hemisphere. It was therefore very helpful to have Tobias Schaaf, a meteorologist from the German Weather Service, on board, who always gave us timely and accurate warnings of the next approaching low-pressure area. As a result, we were almost always able to adjust the station programme so that no ship time was lost.

One incident also showed us that living and working at sea is definitely associated with objective dangers that are sometimes forgotten on such a large ship. We had to rush to the aid of a sailor in distress, who, fortunately, was ultimately able to continue his journey by his own means. Here too, the crew acted in a calm, level-headed and professional manner.

I would now like to wish all scientific cruise participants and crew members who are signing off a safe journey home and a pleasant summer, and to the crew remaining on board a hopefully not too stressful shipyard period in Auckland.

Best regards

Thomas Kuhn (Chief Scientist)



Figure 1: Scientific participants of SO 313. Photo: M. Großmann.

Sitzend, von links: Tobias Schaaf¹, Natasha van Horster², Nicole Gatzemeier³, Magdalini Christodoulou⁴, Pedro Martinez³, Christoph Gaedicke⁵, Robin Rolland⁶, Jonathan Mette⁶, Maren Walter⁶, Muhammad Bin Hassan⁷.

Stehend, von links: Ralf Freitag⁸, Sebastian Fuchs⁸, Stefanie Kaiser⁹, Marco Bruhn³, Fritz Stiller³, Annika Hellmann³, Gina Dambrowski³, Henning Wedemeyer⁸, Lea Fischer³, Simone Sturm⁸, Kornelia Dietzel⁸, Andreas Lückge⁸, Thomas Kuhn⁸, Stephan Deike⁸, Egidio Marino¹⁰, Natalia Mora Mendoza², Houssein Sass², Adrian Hollister².

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