

	<p>SO225 MANIHIKI II Weekly No. 7 (31.12.2012 – 06.01.2013)</p>	 <p style="text-align: center;">R/V SONNE 36°50,5'S / 174°46,8'W</p>
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The last week of R/V SONNE cruise SO225 was characterized by the c. 2,000 nm long transit from our working area Manihiki Plateau to our final destination Auckland, located on the northern island of New Zealand. Among others, the transit was used for preliminary studies of the samples and their preparation for the analyses in the home labs. While doing so the paleoceanography group discovered to their great delight, that it is possible to correlate the sediment cores of the entire, more than 1,100 km core transect extending from the ocean floor to the north of the Manihiki Plateau to the southern foothills of the High Plateau. Furthermore writing of reports, the big cleaning, and packing was on the agenda during the transit. And then of course there was New Year, which we have celebrated on the colorful decorated working deck with a BBQ and thereupon a party at New Year Eve. A further noteworthy social event was the final of the SO225 table tennis tournament in the evening of January 2nd, from that crew member Robert Schernick emerged victorious.

The scientific work of SO225, however, was not completely finished yet. On request of colleagues from Kiel we intended to map the submarine volcano Monowai en route. Monowai is located in the Kermadec-Tonga Arc, which extends from south of Samoa to New Zealand. The Kermadec-Tonga subduction zone is marked by powerful and quite explosive volcanism. R/V SONNE already passed large amounts of floating pumice on its way to the arc. Pumice forms by foaming of volatile rich magmas during explosive eruptions. These rocks swim because they mainly consist of thin bubble walls and vesicles. We could manage it to fish some pumice out of the water. With that we will try to reconstruct the origin of this pumice later in our home lab.



Pumice of (still) unknown origin, sampled at the Kermadec-Tonga Arc from the water surface of the Pacific (Foto: Maxim Portnyagin).



Yellowish coloured water by volcanic activity above the top of Monowai volcano (Foto: Torsten Bierstedt).

In the early morning of New Year's Day R/V SONNE arrived at Monowai, which already has been mapped and investigated on several earlier expeditions. According to the newest data compiled in 2012, its top rises already 50 m beneath the water surface. Our renewed mapping should contribute to a time series of maps which continuously document the evolution of the volcano. A light discoloration of the water and faint rumble indicated slight activity of Monowai when we were approaching its top. During profiling close to the top area, however, a sudden and significant increase in volcanic activity with most likely explosive hydroclastic eruptions was accompanied by thunder and shock waves rapidly spreading out on the water surface. That hindered us in mapping the top

area but was a very impressive experience for all of us.

In order to preempt an upcoming cyclone, R/V SONNE entered the port of Auckland already in the afternoon of January 4th and so a bit earlier than originally planned. After packing of several containers, the SO225 scientists will disembark on Sunday, January 5th. We look forward to short vacations in New Zealand and to our homes and we look back on a long, memorable cruise which was characterized by several problems but also by great success and surprising events.



The SO225 Scientific Party (Foto Stefan Meinecke).

Complementing 2,930 nm multi-beam mapping and 2,250 nm sediment echo-sounding, a total of 62 deployments of various devices have been carried out during R/V SONNE cruise SO225. Ten of 11 multi corers yielded sediment samples, 16 piston corer and 3 gravity corer deployments recovered altogether 131.6 m sediment cores. Foraminiferal sand and ooze dominate among the sediment samples, some cores also contained nanno ooze. The sampling of the water column by CTD and multi net was successful. Four ROV dives yielded 32 rock samples and 23 dredge hauls have been conducted in an average water depth of 4,380 m. Of these, 20 delivered magmatic rocks, 12 volcanoclastics, 8 sedimentary rocks, and 13 Mn-Fe-Oxide crusts.

The scientists would especially like to thank Captain Mallon and the crew of FS SONNE. Their hard work, high level of experience, great flexibility and willingness to help, as well as the pleasant working atmosphere on board, contributed directly to the success of the SO225 expedition despite all problems. We are also grateful to the German Federal Ministry of Education and Research for continuing support of marine research. Lastly I would like to thank “my” team, the SO225 Scientific Party, not only for their excellent work on board but also that they crucially contributed to the good atmosphere on board throughout this expedition despite some disappointments.

Reinhard Werner