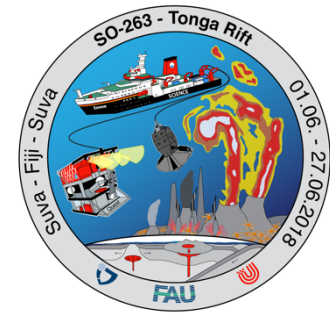


4. Weekly report RV Sonne SO263

Expedition TONGARIFT

18.06. to 24.06.2018



The last seven working days of cruise SO263 passed quickly and we performed four dives with ROV QUEST in the large Niuatahi Caldera and two at Maka Seamount on the spreading axis of the NE Lau Spreading Centre (NELSC). During the dives we recovered numerous volcanic and hydrothermal samples. Altogether we found and sampled three hydrothermally active areas in Niuatahi Caldera, that are all lying along the boundary fault. Large hydrothermal fields with hot venting are apparently concentrated on faulted volcanic cones. At all three hydrothermal vent sites we sampled fluids, sulphides, rocks and fauna which will allow the study of the interaction of magmatic, hydrothermal and biologic processes. The TV grab and the CTD were also used to sample rocks and the water column in the caldera. We then continued working further to the west on the NELSC where we recovered rock samples using the wax corer and TV grab. The last two dives of QUEST were on Maka Seamount, a volcanic ridge with impressive lava flow fronts consisting of pillow lavas and a hydrothermally active area on top of the volcano. During the dive we collected more samples that will help studying the evolution of the volcano and the hydrothermal vents. The black smokers at the spreading axis differ considerably from those of Niua and Niuatahi volcanoes so that we will be able to compare the magmatic and hydrothermal processes at the different settings as well as their consequences for the associated faunas. The last station today was a wax corer on the NELSC and after this RV Sonne starts a final bathymetric survey in order to close some gaps in the existing maps of the working area. Altogether we carried out 131 stations in 21 working days including 17 ROV dives, 62 TV grabs, 22 wax corers and 19 CTD stations. Within this programme we collected more than 300 rock and more than 50 sulphide samples as well as numerous fluid and biology samples. Thus, all students and postdocs on board have plenty of material for their work and will be able to study the samples and publish their results in the next years. Currently, we are writing up the cruise report and started cleaning the laboratories of the ship. Additionally, we are packing the equipment and material because RV Sonne will arrive in the morning of the 27th of June at the port of Suva where the containers will be sent on the transport back to Germany.

Best wishes from the crew and the scientists,

Karsten Haase