



SO-255
Vitiaz
3. Weekly Report
(13.03. – 19.03.2017)



Monday through Thursday of the last week was spent attempting to sample the area between the Kermadec arc and deep-sea trench (forearc). Dredges were carried out at depths of up to 8800 m in the Kermadec deep-sea trench, being the deepest dredges thus far with the new (and probably also old) Sonne. Unfortunately most of the dredges only brought up consolidated mud, reflecting sediments accreted to the forearc. Three dredges however recovered a variety of rocks ranging from diorite and a variety of plagioclase phyric basalts to sediments with abundant small volcanic clasts. Some clasts were oxidized bright red pointing to derivation from a subaerial arc volcano. Overall our forearc dredging confirmed the hypothesis that accretion is the dominant process when the deep-sea trench is sediment-filled.

On Thursday we returned to the Kermadec Arc and carried out three successful dredges on the west-facing faulted scarp of the Kermadec Ridge, which should provide further insights into the earlier history of the Kermadec/Vitiaz Arc system. Then we proceeded to the Giggenbach seamount cluster, named after a German geochemist. We successfully sampled five seamounts, recovering large amounts of basaltic to dacitic lavas and pumice. Some of the pumice showed beautiful evidence of mingling between basaltic and dacitic magmas, indicating that both were liquids when they came into contact. The injection of basaltic magma into a dacitic reservoir was most likely the trigger of the explosive eruption forming the pumice. Some of the pumice appears to be very young and is certainly related to the eruption of the submarine Havre Voclano in 2012, which created a huge blanket of floating pumice, covering an area twice the size of New Zealand within three months. Moved by the ocean currents, the pumice blanket reached the beaches in Sydney in 2013 and those in Tasmania in 2014. Of the 59 dredges thus far, 44 (=75%) successfully recovered hard rocks.

For much of the week, the weather was windy and seas rough, sending a number of scientists to their bunks. Almost as if planned, the winds died down, the sun came out and the seas calmed for the Bergfest (mid-cruise party). Although a few days early, the opportunity for the Bergfest was provided by the necessity to map several profiles across the Havre Trough and along the Colville Ridge to identify future dredge sites. We also used the break in dredging and laboratory work to switch the day and night shifts.

All on board are doing well, having recovered from the windy weather and the Bergfest, and send their greetings to those at home.

Kaj Hoernle and the SO255 scientific crew



Grilling on deck during the Bergfest (mid-cruise party). (Nina Hinz)



Delicious fruit plate at the Bergfest. (Nina Hinz)



Sawing rocks is a wet and dirty job. (Kaj Hoernle)



Lots of great side dishes to go with the grilled steaks, pork, lamb and salmon. (Nina Hinz)



Wouldn't you like to have this wrench set at home in your workshop. (Kaj Hoernle)



Who says that describing rocks isn't fun? (Kaj Hoernle)