Expedition M149 with FS Meteor

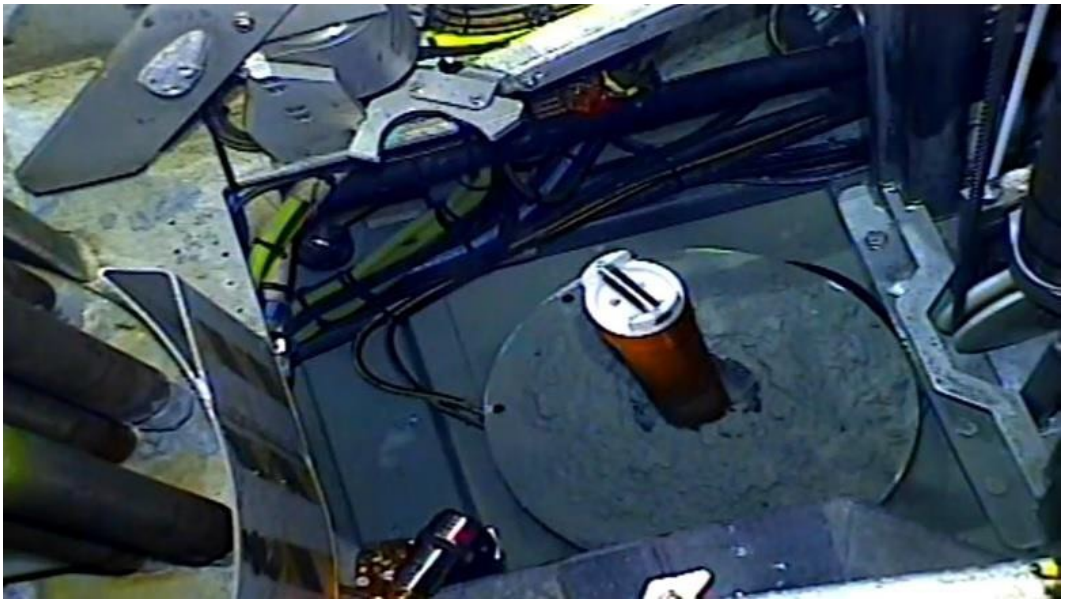
2. Weekly report

At the beginning of week 2 we continued with the heat flow profile across a mud volcano and an adjacent NW-SE trending strike-slip fault. On Tuesday the drill rig MeBo was again deployed to drill into the crest of a mud volcano and install a long-term observatory. Due to problems with the hydraulic system the drilling was aborted at a depth of 2.8m below seafloor. The remainder of the day was spent with additional gravity coring of a mud volcano to validate preliminary results of the onboard measurements. The gravity coring continued the next day with sampling the strike-slip fault previously investigated with the heat flow probe. Installation of the observatory was finally successful on Friday after drilling 18m into the summit of the mud volcano „Ginsburg“ and closing the borehole with an observatory. The observatory will log the pressure and temperature in the borehole over the next few years and document the activity of the mud volcano.

Fig. 1

Left: The 3 log-term observatories for Meteor expedition M149.

Below: One of the observatories closes the borehole on the crest of the mud volcano „Ginsburg“.



After the successful MeBo deployment, the gravity coring was resumed to sample another NW-SE trending strike-slip fault that crosses the entire Golf of Cadiz further south. By the end of the second week, 30 gravity cores have been taken with a total length of ~90m. The MeBo drilling on the mud volcano „Ginsburg“ returned another 7.7m. In addition, the seafloor mapping with the ship-intern multi-beam system covers an area of approximately 3000km^2 by now. Currently the MeBo is on the seafloor again to test a prototype of a MARUM developed cone penetration testing (CPT) device. After the test, the drill rig will be moved slightly to drill and sample the outer rim of the „Ginsburg“ mud volcano to 20m below seafloor.

Abb. 2: The particpants discuss fist results of the expedition.

Andre Hüpers (Chief Scientist) on behalf of the entire science party