Expedition M149 with FS Meteor

3. Weekly report

During Sunday night the prototype of a cone penetration testing (CPT) device was successfully tested during a deployment of the sea floor drill rig MeBo. The CPT probe was pushed 30m into the seafloor und recorded the force acting on the tip and sleeve of probe as well as the pore water pressure. A dissipation test was conducted at 6 and 30m below seafloor, respectively, to determine the in situ pore water pressure in the sediment. The subsequent drilling of the outer rim of the „Ginsburg“ mud volcano was aborted due to problems with the hydraulic system. On Monday the NW-SE trending strike-slip faults „Lineament Center“ and „Lineament South“ were sampled with the gravity corer accompanied by heat flow measurements in this area. The MeBo was deployed again on Wednesday and drilled eventually 40m into the outer rim of the mud volcano „Ginsburg“ with a core recovery of 92%.

Fig. 1: Configuration of the drill string with the CPT probe.

On Thursday the sea floor drill rig was deployed at the „Lineament Center“ and the borehole reached the target depth of 20m below seafloor and was successfully closed with a long-term observatory. This is the second observatory that was installed during this expedition in the Gulf of Cadiz. These two observatories will provide important information on the activity

of mud volcanoes and fault zones in this region in the next few years. During the weekend MeBo drilled 50m into a pull-apart basin along the „Lineament Center“, sampling a sediment succession that will provide information on the activity of the strike-slip fault in the past. Between the MeBo deployments further mud volcanoes were sampled using the gravity corer – including two newly discovered mud volcanoes, which the participants named „R2“ and „D2“.

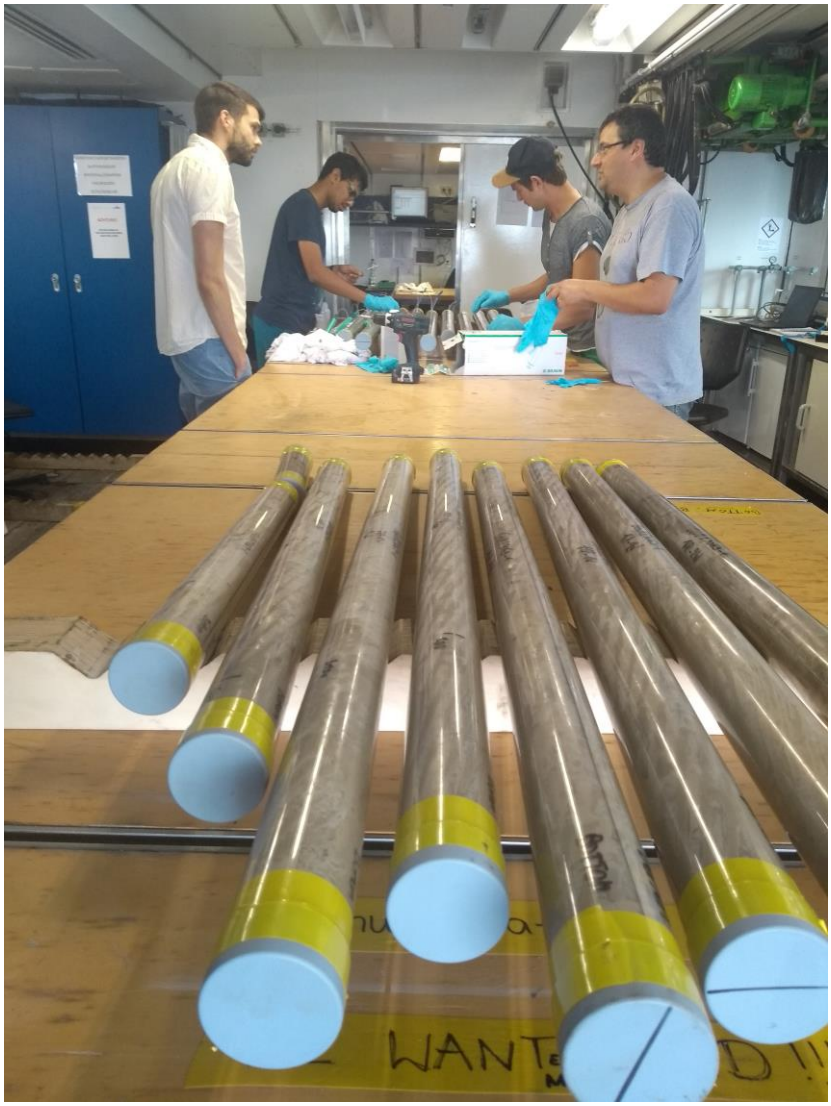

Fig. 2: MeBo cores are ready for onboard analysis.

Andre Hüpers (Cief Scientist) on behalf of all participants