

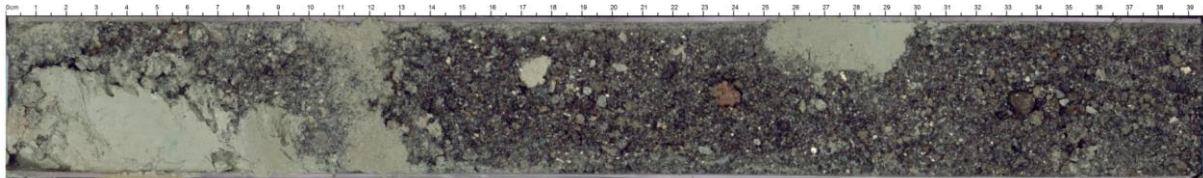
# FS METEOR Expedition M154-2 SEKT

## Sector collapse kinematics and tsunami implications



3<sup>rd</sup> weekly report: 13.05. – 19.05.2019

Last Sunday, the MeBo drilled at leg GeoB23714 the landslide masses of Deposit 2. After the opening of the cores, a similar picture emerged as during the last drilling at this location. We recovered material over the entire well in all sections of the landslide deposit; however with a general poor core recovery. Particularly, the core obtained in the shallower section of the slide body of Deposit 2 - the so-called Deposit 2b - was minimal. Liners and the core catchers were filled with coarse-grained volcanoclastic sands and gravel as well as slightly deformed mud clasts (Fig. 1). Despite the low core recovery, the extracted material provides valuable information on the material of Deposit 2.



*Fig. 1 shows the very coarse-grained, clastic sediments and embedded mud clasts from the area of the Deposit 2 slide body (GeoB23725).*

As a major aim of the project was to sample deposits spanning the entire slide masses, we drilled at a second leg GeoB23725. At a drill depth of 26 mbsf, drilling slowed down to 2mm/hr, with no further progress possible. Despite several flushing tests with up to 60 bar, in an attempt to release the drill head, the borehole had to be abandoned and the drill string had to be dismantled. In the second attempt we decided to flush down to 40.30 mbsf with the solid drilling unit. After starting coring, the core barrel got stuck again at 41 mbsf, after only 70 cm drilling. Back on deck the core barrel caps could only be released from the drill string with the help of chain pliers, whereupon the liner



*Fig. 2 shows the MeBo core barrel cap after drilling Deposit 2.*

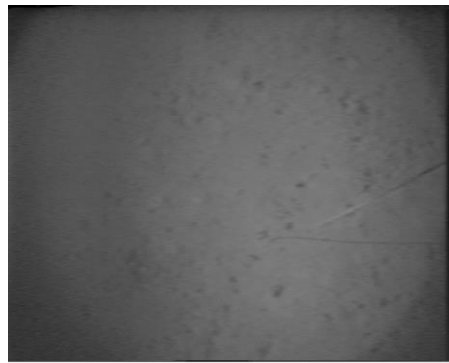
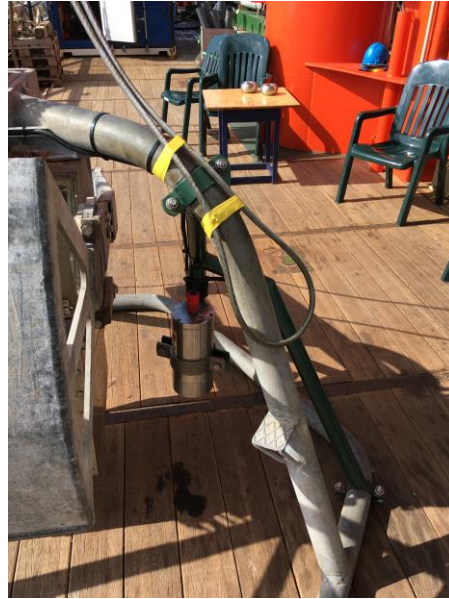
shot out. Some of the core barrel caps were so firmly cemented (Fig. 2) that the core sediments and the core catcher could not be detached from the core barrel, even with great force. Finally, we had to flex the cap of the deepest drill core to get the material out.

Each MeBo leg is also used for a borehole logging. The first results of this reveal that the data correlate very well with the results of the core description, as well as MSCL measurements

and Parasound profiles. Therefore, the last MeBo stations will be used primarily for borehole measurements, with the aim of identifying distinctive horizons over the entire landslide complex and to learn something about the landslide timing.

As in previous weeks, the MeBo maintenance time was used for mapping and gravity coring. Due to the very sandy subsurface sediment, however, we had only low core penetration depth in some cases and unfortunately bent a few gravity cores.

Due to the coarse nature of the sediment, the box grab was equipped with a video camera for the first time. This was tested in the area of a small submerged volcanic cones, which would otherwise be very difficult to sample with coring (Fig. 3). Already on the first mission, we had a picture of the seafloor at GeoB23727 in a water depth of 970 mbsf, in the centre of an old volcanic cone located south of Montserrat (Fig.3). Although it is only an old black and white camera, the pictures were very helpful.



*Fig. 3 shows the modified box grab and a first image approx. 7m above ground from the central area of a volcanic cone*

Now the final week begins on board. On Tuesday afternoon we will finish our research program and return to Pointe-à-Pitre on Wednesday lunchtime. We would like to take this opportunity to thank everyone on board - from the bridge to the mess. Especially to our colleagues under the deck, who are often rarely seen. Thanks to the kind guidance of the chief engineer, we now also know what it looks like "below" deck, how noisy it is, how much work it is and everything that goes with it, so that we can work on our research and have a good time on board. So, on behalf of all participants of the M154-2, many thanks to all of you, a good onward journey, we are all looking forward to the next time, with best regards from on board the FS METEOR.

Katrin Huhn