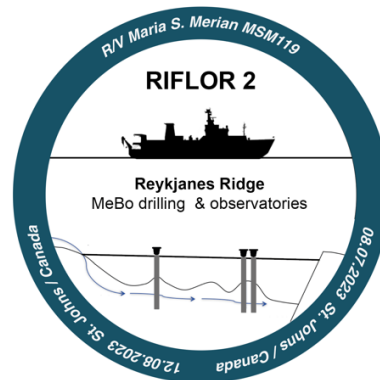


R/V Maria S. Merian

Expedition MSM119 “RIFLOR2”

08.07.2023 – 12.08.2023

St. John’s – St. John’s



## Weekly report #2

In the week from 10.-16.07. we reached the working area at the southern tip of the Reykjanes Ridge in the middle of the Atlantic on Wednesday morning. The station work initially served to explore a small sediment trough on the eastern flank of the ridge. In the so-called Squid Pond we recorded a velocity sound profile and recorded hydroacoustic data before using gravity corers and in situ temperature lances (Fig. 1) to collect material and data where our understanding was still incomplete after the preliminary investigations on the METEOR M183 cruise in 2022. Both methods have been used primarily on the eastern side of the sediment trough, where cold seawater is charged into the seafloor and continues to circulate westward through the crust, being heated and expelled as hydrothermal fluid again. Changes in oxygen and alkalinity confirm this fluid movement.



**Figure 1** Left: The temperature gradient probe after recovery on deck.  
Right: The working half of the gravity cores is sampled with rhizons for geochemical analyses.

Over the weekend, the MARUM MeBo70 drilling rig was used for the first time on the seabed for a pilot drilling in the Squid Pond. After a good 24m of sediment cover, we encountered ocean crust material and had to drill carefully with slow drilling progress. Some pieces of basalt blocked the core barrel at the end of the drilling, as we were able to determine on deck after successfully recovering the drill (Fig. 2).



**Abbildung 2** Above: MeBo recovery via the A-frame of the MERIAN. Bottom: The rig's terminal drill rod could not be stowed in the rig (left) because basalts blocked the core barrel (right).

The weather continues to be stable, allowing us to carry out all station work safely and efficiently. We will now explore the region near the spreading axis of the Mid-Atlantic Ridge in the coming days, first studying the changing topography and temperature regime as a function of oceanic crust age.

*With best regards on behalf of the entire MSM119 team*

*Achim Kopf (Chief Scientist)*