

MSM146

BAFFINGAS



2. Weekly report

24.08. – 30.08.2026

On Monday, 24 August 2026, we reached our working area and began hydroacoustic measurements in Greenlandic waters. Our first detailed mapping and sampling activities focused on the so-called “Holsteinborg Dyb” in the southern part of our working area. This glacially formed trough on the shelf reaches a maximum depth of 450 m, while the surrounding shelf area is very shallow, with water depths of only about 50 to 100 m. For the mapping, we use the echosounders mounted on the hull of the MARIA S. MERIAN. Two different multibeam echosounders and a sediment echosounder are used to map both the seafloor morphology and sediment characteristics, and additionally to search the water column for gas bubble emissions. Based on the resulting maps, we then can determine the locations for subsequent sampling.



Figure 1: View into the sonar control room. During the first week in the working area, intensive mapping was carried out with the hydroacoustic systems, searching for indications of fluid seepage. Photo: E. Burwicz-Galerne.

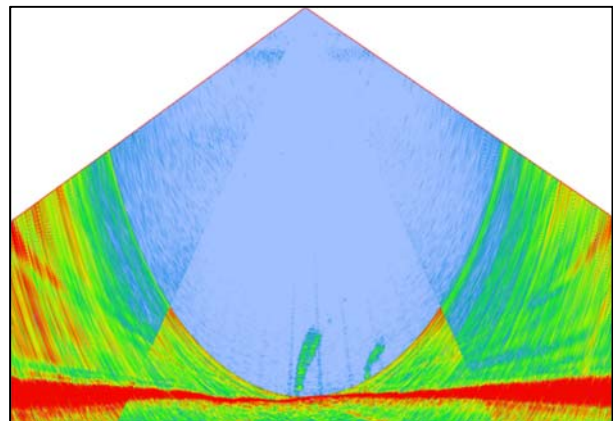


Figure 2: Visible gas bubble emissions in the multibeam echo sounder. The seafloor here is about 300 m deep, and the gas bubbles reach a water depth of approximately 200 m before dissolving.

In the “Holsteinborg Dyb”, we were not able to detect any gas bubble emissions. The sediments in the deepest part of the trough were sandy and showed no elevated methane concentrations. Therefore, on Wednesday, 26 August 2026, we decided to move to the next area, one trough farther north, the “Disko Trough”. In an area where numerous circular depressions, some more than 300 m in diameter and 25 m deep, have been described as “giant pockmarks”, we wanted to investigate whether we could find and study evidence of recent fluid seepage within or around these structures. After an intensive mapping program over two nights, one day of sediment and water column sampling, and an ROV dive into one of the conspicuous structures,

we found no evidence of hydrocarbon seepage. However, in one of the gravity cores, we measured a freshening of the pore waters with increasing sediment depth. Later analyses after the cruise will hopefully tell us whether this observation may also provide an explanation for the formation of the seafloor structures.

Since we had still not found any active gas emissions, we again left this area quickly on Friday, 28 August 2026, and mapped another area farther toward the shelf edge within the same trough, where data from previous cruises had indicated possible gas bubble emissions. And finally, we were successful. The excitement in the hydroacoustics group, as well as among the entire shipboard party, was enormous. We have now mapped numerous gas emissions and are seeing first distribution patterns. The most intense gas flares are concentrated in an area only about 100 m in diameter, which therefore became our sampling target. On Saturday, 29 August 2026, we collected water samples in this area using the CTD rosette and measured a clear enrichment of methane in the water samples closest to the seafloor. In addition, a specially brought fish-finder echosounder was used to precisely calculate the flow rates of the gas bubble emissions. Today, Sunday, 30 August 2026, we are diving at this location with the ROV and have now also been able to visually observe and sample the gas bubble emissions. The gas samples will be analyzed on board for their hydrocarbon composition, so that we will soon learn how and where they were formed.

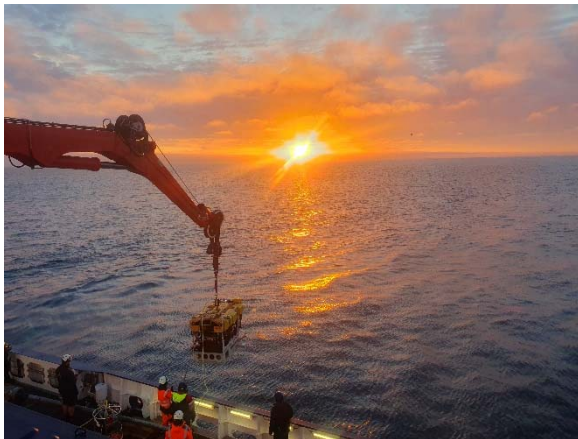


Figure 3: The ROV MARUM-SQUID is deployed during a beautiful sunrise. Photo: M. Römer.



Figure 4: The ROV dive is followed and documented in the conference room. The first gas samples are being collected here. Photo: E. Burwicz-Galerie.

This first week in the working area has been highly satisfactory. So far, the weather has not restricted us in the slightest, and no technical difficulties have caused delays in our planned sampling program. We are now looking forward to the next working area, which will take us to Disko Bay tomorrow.

On behalf of all participants, we send our warmest greetings from aboard the R/V MARIA S. MERIAN!

Miriam Römer