

MSM146

BAFFINGAS



4. Weekly Report

07.09. – 13.09.2026

Since discovering gas seeps in the northern part of the Vaigat Strait last weekend, we have been intensively surveying the area until the morning of Saturday, September 12, 2026. Fortunately, following the previous weekend's high winds, the weather has calmed down enough that we have faced no further operational restrictions. The only challenge is having to occasionally make way for the numerous icebergs drifting relentlessly through the strait. The seep area here has now been extensively mapped using hydroacoustic systems, allowing for the first interpretations of the gas seepage distribution patterns. We were able to identify several hundred „flares“ (the term used for these anomalies in our hydroacoustic imagery when interpreted as gas plumes) at water depths ranging from approximately 100 to 600 meters. We classify most of these flares as relatively weak and often intermittent gas bubble emissions, though some are more distinct and continuous. Additionally, we conducted several measurements using the calibrated EK80 fish-finding echosounder to quantitatively determine the gas flow rates of flares with varying intensities. Three distinct emission sites were selected as our sampling and study areas. The first dive with the ROV MARUM-Squid took place on Monday, September 7, 2026, amidst a cluster of flares at a water depth of approximately 330 meters. We were very eager to see the morphology and microbial activity evidence of yet unknown seafloor. The first gas bubble emissions were successfully located and sampled using the Gas Bubble Sampler.

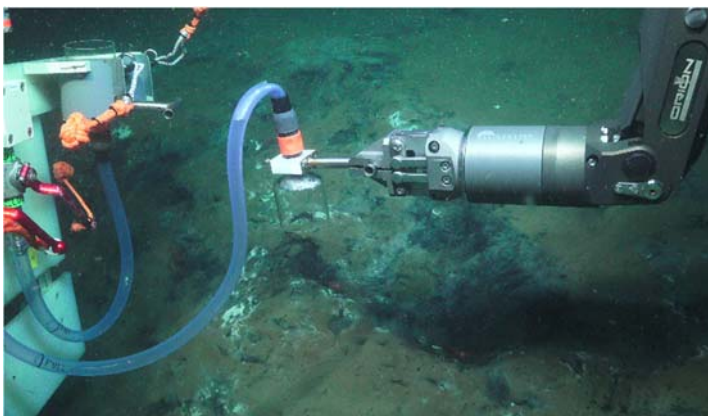


Figure 1: Sampling of a gas bubble stream at a water depth of approximately 560 m using a funnel connected via a hose to the pressure-resistant Gas Bubble Sampler attached to the ROV MARUM-Squid.
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Figure 2: As the gas bubbles accumulate in a funnel, we could observe gas hydrates forming immediately at water depths within the gas hydrate stability zone.
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Subsequent onboard analysis of the gas composition revealed a predominance of thermogenic volatile hydrocarbons. This differs significantly from the gas seeps on the shelf off Disko Bay, where the composition indicates the release of purely biogenic hydrocarbons and provides significant insights for the regional carbon cycle dynamics. However, we were unable to detect any trace of oil at the gas seeps, despite its abundant presence in the outcropping onshore formations. On Tuesday, September 8, 2026, and Wednesday, September 9, 2026, further ROV dives were conducted at a much more active gas seep at a water depth of approximately 560 meters. Here, we were able to sample sediments in addition to gas bubbles. We were also able to deploy the ROV again on Thursday, September 10, 2026. Our third site was located at a flare position at a water depth of approximately 400 m, completing our set of samples. Ultimately, we conducted four consecutive ROV dives at three different flare locations. Before and after the ROV dives, we carried out additional CTD deployments and sediment sampling using a multicorer and a gravity corer.



Figure 3: A sediment core in 1-m segments is brought into the hangar of RV MARIA S. MERIAN for labeling and sampling. Photo: S. ten Hietbrink.



Figure 4: After the individual segments are opened, samples can be extracted and the sediments described. Photo: S. ten Hietbrink.

On Friday, September 11, 2026, and the morning of Saturday, September 12, 2026, we collected additional water samples and sediment cores, thereby concluding the station work in this area. Our dataset from the Vaigat Strait is now very extensive. It is interpreted by the scientists and discussed during our daily science meetings.

After leaving the Vaigat Strait, we resumed mapping the shelf in a northerly direction, investigated several indications of further fluid seeps, and reached the southern Melville Trough today, Sunday, September 13, 2026. From here, we will leave Greenlandic waters overnight and head west into our Canadian study area. An active gas and oil seep area has been reported in the Scott Inlet area but not yet extensively investigated. We will be able to report more on our studies there in the next weekly report.

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

Miriam Römer