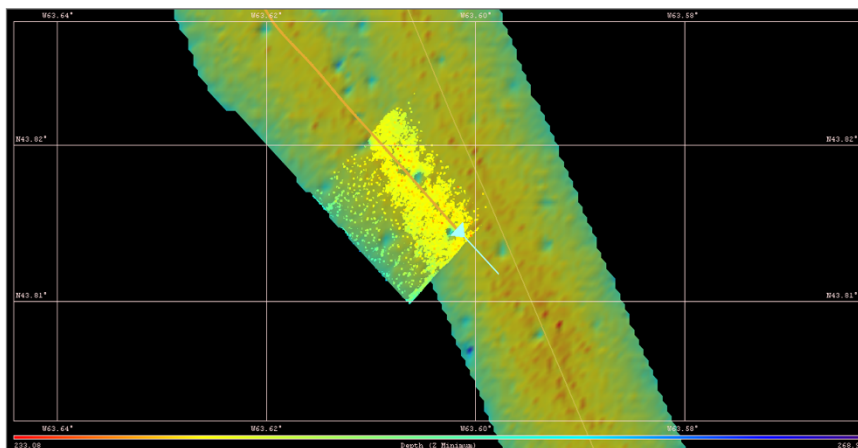


**FS MARIA S. MERIAN**  
**MSM101, Emden - Emden, 12.06. - 20.07.2021**  
**3<sup>rd</sup> Weekly Report, 21.06. - 27.06.2021**



## **NOVA SCOTIA MARGIN** **(NOVAMAR)**

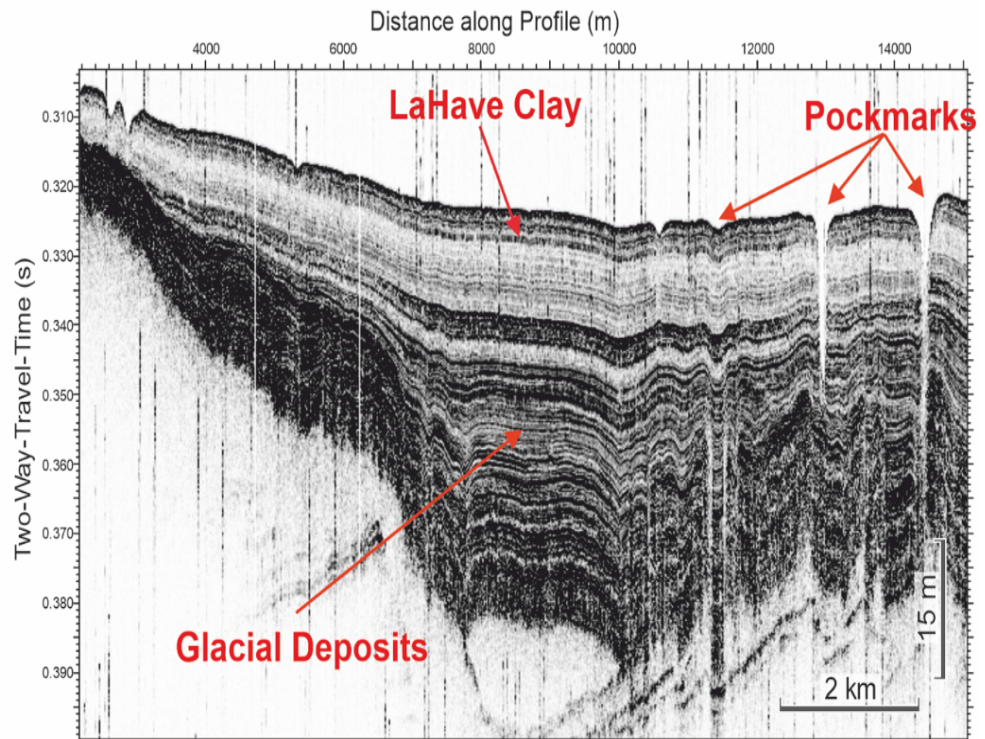
After a complete E-W transit through the two planned working areas of expedition MSM101 off Newfoundland and Nova Scotia, the first detailed survey work began late in the evening of Tuesday, June 22, in the far southwest in water depths around 3,000m. Suitable locations for geological sampling were identified on the upper continental slope using the shipboard multi-beam and sediment echosounders. This search turned out quite difficult at the Nova Scotia continental margin, which is dominated by submarine landslides and turbidites, but one sampling station with CTD, multicorer and gravity corer was carried out in 2,750 m water depth on Wednesday, June 23. Here, we sampled hemipelagic clayey muds of the last Glacial, the following deglaciation phase (Deglacial) and the Holocene. Subsequently, on Thursday, June 24, we continued surveying, sampling the water column, and recovered Holocene sediments on the shelf east of the Northeast Channel. In water depths between 150 and 170 m, LaHave clay, the youngest Holocene deposits on the shelf, was recovered at two stations. With CTD profiles we identified water masses from the Labrador Current, mixed with those from the Gulf of St. Lawrence, based on low temperatures and salinities at the southwest tip of Nova Scotia. With hydroacoustic surveys at night, sediment sampling of the LaHave clay, and CTD profiling at another eight stations, work continued as planned in the Roseway and LaHave shelf basins from Friday, June 24 to today, Sunday, June 26.



*Fig. 1: The seafloor mapped with the multibeam echo sounder, showing a number of circular depressions (pockmarks) indicating fluid and gas seeps.*

A surprisingly high number of pockmark structures was found in the central LaHave Basin, indicating degassing and drainage processes of Last Glacial and Holocene sedimentary sequences deposited over moraines of the last Wisconsin glaciation.

Fig. 2: Cross section from a sediment echo-sounder profile through the central LaHave Basin with water depths between 200 and 250 m. The layered glacial and postglacial sediments with pockmarks overlying the moraines of the last glacial period in the subsurface are well to distinguish.



Tonight, we will first conduct a survey program on the continental slope in water depths between 1200 and 2500 m. This depth range of the so-called Nova Scotia Slope Water, a mixture of water masses from the Labrador Sea and the western North Atlantic Intermediate Water, will be sampled afterwards with CTD, multicorer and gravity corer. For this we will again move more than a hundred nautical miles away from the coast and hope for one or two sunny days without the permanent fog that has surrounded us for days and prevents any visibility of the sky, horizon and water surface. Nevertheless, the mood of the crew and science is very good. All the planned work so far has been carried out very successfully without any problems.

With best regards from the science and ship's crew on board R/V MARIA S. MERIAN over the southern continental slope of Nova Scotia.

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(Kiel University)

27 June 2021

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