



FS MARIA S. MERIAN
Cruise MSM118, Ponta Delgada – St. John's
Weekly Report Nr. 2, 19.06. - 25.06.2021



NOVA SCOTIA MARGIN (NOVAMAR 2)

Leaving the port of Ponta Delgada on the Azores island San Miguel, expedition MSM118 started as planned in the morning of Sunday, June 18th. Tuesday, June 20th, after leaving the Exclusive Economic Zone (EEZ) of Portugal, we started the underway surveys using the shipboard ADCP (Acoustic Doppler Current Profiler) and the seafloor multibeam swath bathymetry system. The first sampling station in the western North Atlantic Basin at 41°12'N / 042°17'W was reached, Wednesday, June 21st, when the so-called NAMOC channel became apparent in the seafloor multibeam mapping. This channel is a prominent feature that can be traced from the entrance of Hudson Strait to the abyssal plains of Labrador Sea and the western North Atlantic. Its origin stems from glacier debris transported to the shelf break and subsequently excavating the seafloor like a deep-sea river by turbidites and high-density sediment flows for more than 4000 km. Within this channel a station with a CTD cast and water column sampling was executed reaching down to more than 5 km water depth.

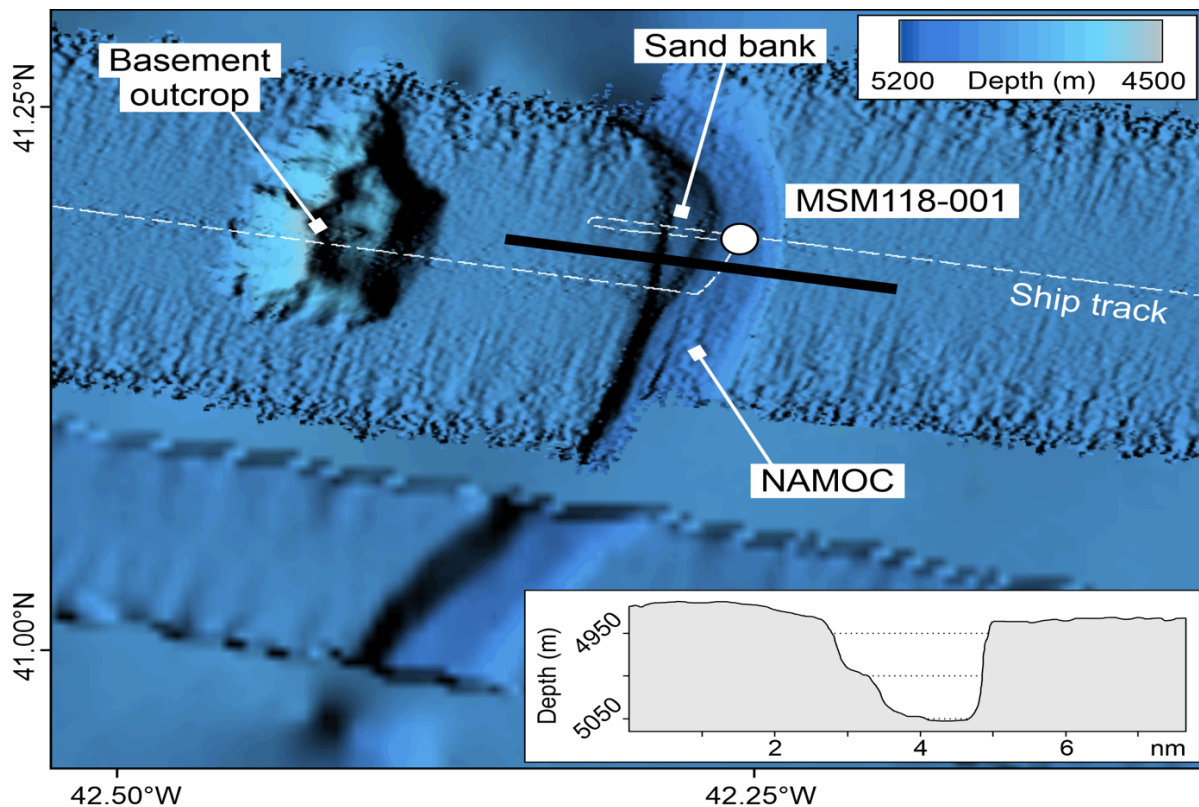


Fig.: NAMOC Channel meander with CTD Station MSM118-001 (R. Barrett, Multibeam Seafloor Mapping).

Continuing the transit to the continental margin of Nova Scotia we approached the planned working area on Saturday, June 24th. Here we executed a first deep-sea hydroacoustic survey with the multibeam swath bathymetry and sediment echosounder systems in order to identify undisturbed glacial and postglacial sediment layers in between the canyon systems at about 3000 m water depth. Afterwards, during the night to Sunday, June 25th, the outer Nova Scotia shelf was surveyed for Holocene sediment deposits within glacial valleys. One of the contourite shaped bodies was then sampled with the multi- and gravity corer.

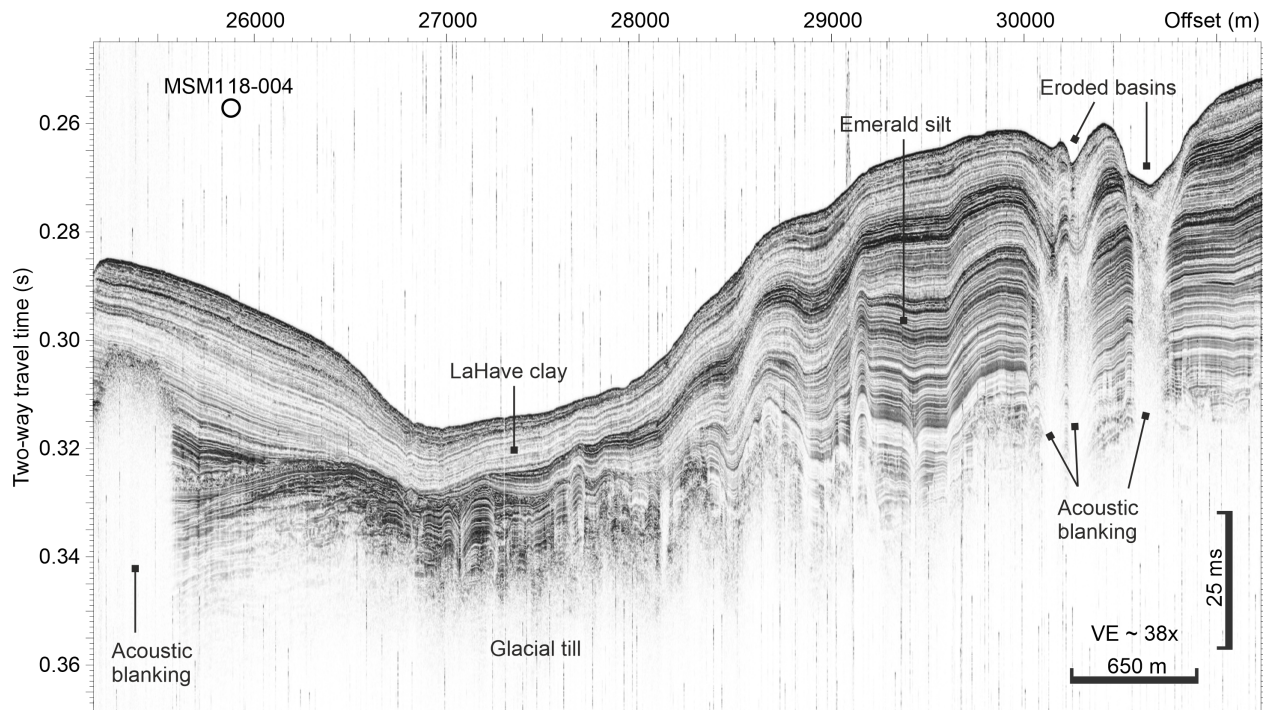


Fig.: Postglacial sediment layers in a glacial valley on the shelf (R. Barrett, Sediment echosounder image)

A second similar sampling station was executed in the Scaterie Basin on the inner shelf at 283 m water depth, deploying again the CTD as well as the multi- and gravity corer. Based on the temperature and salinity profiles from the water column, we were able to identify the inflow of cold and less saline waters from the Gulf of St. Lorenz. During the night to Monday, June 25th, we transit to the Canso Basin in southwesterly direction, where the next shallow sampling station will be performed.

With the always great support of the crew of Maria S. Merian, the first sampling activities were successfully achieved. Crew members and scientists are well and analytical work in the shipboard laboratories and on the deck become more and more routine also for the young colleagues. With best regards from FS MARIA S. MERIAN

Ralph Schneider

June 25th, 2023