

FS MARIA S. MERIAN
MSM101, 12.06. - 20.07.2021, Emden - Emden
1st Weekly Report, 11.06. - 13.06.2021

NOVA SCOTIA MARGIN
(NOVAMAR)



The Northwest Atlantic along the Scotian Shelf and Slope provides a unique environment to monitor modern and reconstruct past variability of critical components of the Atlantic Meridional Overturning Circulation (AMOC), including both surface and deep currents. Hence, Cruise MSM101 **NOVAMAR** is devoted to execute a sampling program for sediment biogeochemistry as well as for retrieving Deglacial to Holocene sediment sequences off Nova Scotia and Newfoundland in order to understand past climate variability at high resolution and element fluxes between the water-column and underlying sediments. Sediment echo sounder surveys along the shelf and upper slope of southeastern Canada will allow us to identify proper locations for sediment sequences sampling. Sediment samples will provide important data for the reconstruction of changes of surface and deep-water masses at the convergence of cold Labrador Sea and warm North Atlantic Currents. The project aims to reconstruct natural climate variability at time scales of centuries beyond historical records and to unravel interactions between Labrador Sea and North Atlantic water masses converging offshore Nova Scotia closely linked to North Atlantic surface and deep circulation. The cruise is part of a bilateral collaboration in marine science between Dalhousie and Kiel Universities and GEOMAR Helmholtz Centre for Ocean Research.

After ten days in hotel quarantine and three Covid-19 tests with negative results, all new expedition members cruise MSM101 started as planned on Friday, June 11th, 2021 with uploading the scientific equipment and embarkment of scientists and crew members.

After leaving through the Emden Port locks on June 12th, 2021, we began the ten-day journey to the work area off Nova Scotia and Newfoundland. The first day on the North Sea was spent preparing the laboratories for the hydroacoustic surveys and for geological sampling. On Sunday, June 13th, we passed the chalk cliffs of Dover at 09:00 am and are now on a westerly course for the approximately 2800 mile transit towards the Canadian east coast. In two days on Tuesday, June 15th, after leaving the Exclusive Economic Zone (EEZ) of Ireland, we will begin profiling "en route data" surveys using the shipboard ADCP (Acoustic Doppler Current Profiler), seafloor multibeam swath bathymetry, and sediment echosounder systems. These survey data will be transferred and stored directly into the data archive of the German Alliance for Marine Research

(DAM) on the PANGAEA platform of the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven.



Fig.: R/V MARIA S. MERIAN on westerly heading towards the English Channel (Foto R. Schneider).

For many of the scientific participants on board, this is the first exciting experience of working at sea and living on board a large research vessel. The enthusiasm is correspondingly great, despite the hygiene measures that must continue for a few days on board and the challenge of working on a moving ship in the North Sea. Supported by glorious sunshine and now calm seas, we all, science and ship's crew, look forward with confidence to the coming weeks of cruise MSM101.

With best regards from FS MARIA S. MERIAN at the western exit of the English Channel towards the open Atlantic.

Ralph Schneider
(Kiel University)

June 13th, 2021