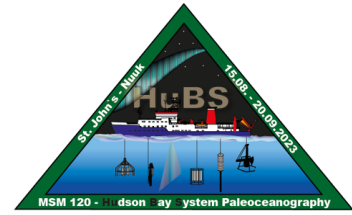


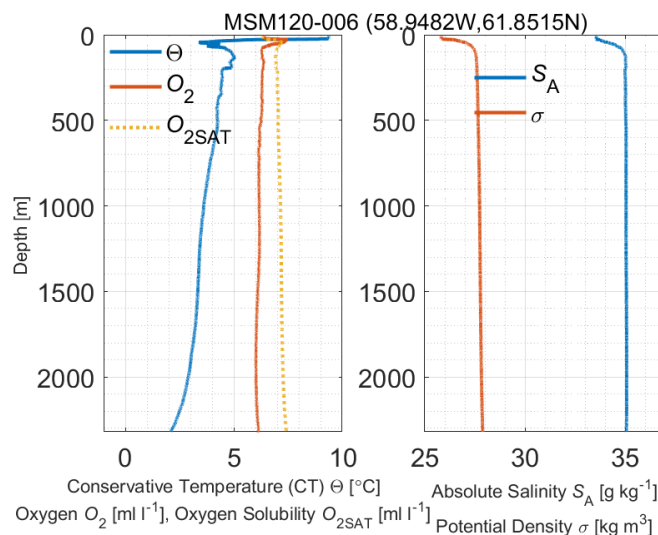


FS MARIA S. MERIAN
Cruise MSM120, St. John's - Nuuk
Weekly Report Nr. 2, 21.08. - 27.08.2023



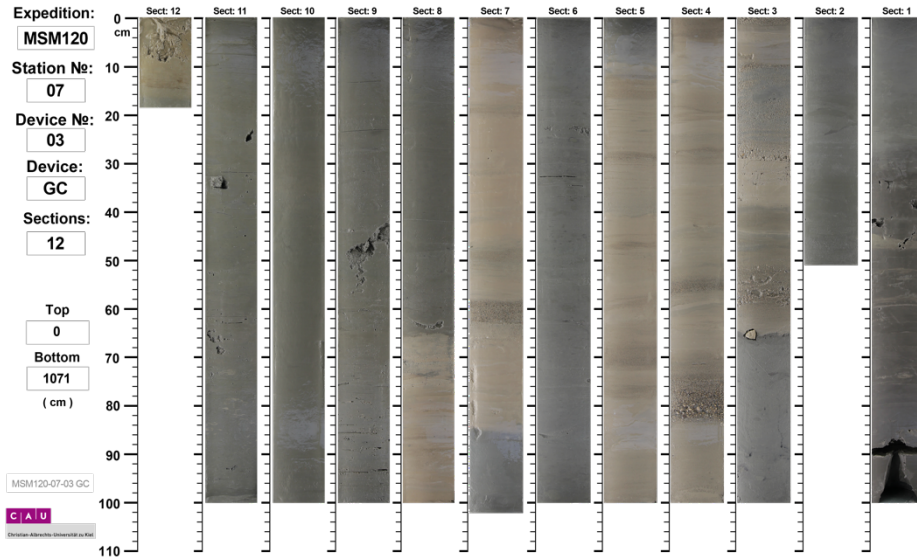
Hudson Bay System (HuBS)

Following the hydroacoustic mapping of the sea-floor along the Labrador shelf and northern slope during the first week of expedition **MSM120**, we started our station work for water column and near-surface sediment sampling on Monday, August, 21st. At two locations at about 2200 and 2300 water depth, east of the outlet of Hudson Strait towards the Labrador Margin, the CTD, multicorer and a 15m long gravity corer were successfully deployed. The CTD profiles indicate the two major water masses characteristic for the open Labrador Sea, with the cold and high saline intermediate and deep waters, superimposed by a warmer, but low saline, surface layer.



CTD profiles for temperature, salinity and oxygen concentration for the water masses along the Labrador Slope off Hudson Strait (Station MSM120-006-01), with warmer low-saline surface waters covering cold and high saline deeper water masses (Fig. T. Neumann).

The deployments of the multicorer and gravity corer provided soft hemipelagic clayey muds with core lengths of up to 11 m. At station MSM120-07 they can be separated into a about 4 m thick dark-olive green mud at the top, underlain by about 7 m thick light to dark brown mud, intercalated by centimeter to decimeter thick silt, sand, and gravel layers. This sequence is typical for the Labrador Sea region with Last Glacial brownish sediments, containing silty and sandy Heinrich Layers due to ice-berg drift of terrigenous detritus, that are superimposed by Holocene darker clayey muds. The dark colour is probably the result of higher organic matter in the younger mud sequence, due to higher marine plankton productivity under warmer climate conditions with less annual sea-ice cover, and perhaps enhanced input of terrigenous organic material.



*Sediment core
 MSM120-007-3
 retrieved from the
 northern Labrador
 Slope, east of Hudson
 Strait (Compilation of core
 section photos P.
 Mazerath).*

At Tuesday, August 22nd, we continued the hydroacoustic surveying in the northernmost part of the work area on the Labrador Shelf, with a westerly heading towards Hudson Strait. The echosounder profiles revealed the coverage of the entire upper slope with debris flows and turbidites, originating from the transport and deposition of vast amounts of glacier debris through Hudson Strait to the outer shelf and upper slope during the Laurentian Glaciation and postglacial sea-level rise.

During the night from Tuesday to Wednesday, August, 23rd, the hydroacoustic surveying on the Labrador Shelf was finished at the entrance of Hudson Strait. It was followed by a 4-days transit through Hudson Strait towards the southern Hudson Bay, west of Belcher Islands. During the coming week, we here will start with hydroacoustic surveying using the shipboard multibeam and sediment echosounder systems across small basins filled with Holocene sediments, the target for geological sampling stations.

Expecting the calm weather conditions and moderate temperatures to continue also next week, we foresee successful surveying and sea-floor sampling within the southern part of Hudson Bay.

With best regards from FS MARIA S. MERIAN

Ralph Schneider

August 27th, 2023