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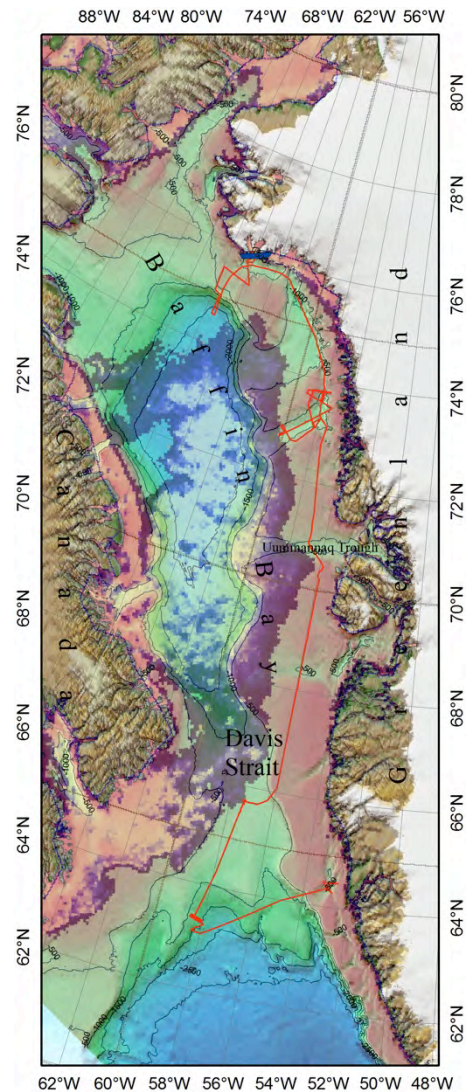


## 2<sup>nd</sup> Weekly Report

It is now close to two weeks on board the RV MARIA S. MERIAN and nobody is showing any sign of boredom. We have, however, adapted to a kind of routine. Working teams have developed, workflows have become smoother and everybody has found her or his place on board. But the nice weather, the breath-taking scenery, the entertainment during our time off and ever more oddly-shaped icebergs ensure that nobody gets bored.

At the start of the week, we commenced our transit to the Melville Bay. On the way, we briefly stopped to collect a sediment core from the Ummannaq Trough northwest off Disko Island. This trough is interesting for paleoceanographic studies; containing sediments from which the past development of the West Greenland Current can be reconstructed. By bringing warm Atlantic waters to the Baffin Bay, the intensity of the West Greenland Current influences the waning and waxing of the glaciers in west Greenland. After this, we have continued our northward journey.

We have now finished the reconnaissance work in the southernmost trough of the Melville Bay. We crossed the trough lengthwise and across with several transects. We now have a pretty good idea of the past advances and retreats of glaciers through this trough during the last glaciation. Drumlins, mega-scale glacial lineations and long elongated furrows in the seabed show up nicely in the multibeam echosounder data, especially in basins close to the shore. These features develop at the base of glaciers and indicate its flow direction. The balance of the flow velocity and the calving rate of a glacier determine



if a glacier advances across the shelf or retreats towards the land. These advances and retreats are often oscillating movements the timing of which are driven by climatic changes. So in order to understand these movements, we need stratigraphic information to date the sediments from the trough. As long as an ice shelf covers the seafloor, no marine sediments are deposited. So if we can recover marine sediments from the shelf and date them, we receive a minimum age from when back in the past, this area of the seabed was free of glaciers. However, a lack of dateable material in the sediments makes this particularly challenging in the Baffin Bay.. For this reason, we have often taken two parallel sediment cores in order to have more material for analysis.

In the meantime, we have also collected more plankton samples with the multinet. They often contain an extremely large amount of material. Besides copepods and ostracods, the dominant components are unicellular algae such as diatoms and dinoflagellates. The tireless plankton-team has then the difficult task to extract foraminifers from among the algae, which they often depreciatively referred to as 'green soup'. After a long day over the microscope you can see all these tiny green, red and white creatures even with your eyes closed.

Also from a socio-cultural and touristic point, this week has offered quite a lot. Even after two weeks, the icebergs still have not lost much of their fascination. In the southern Melville Bay is an area that is referred to iceberg graveyard. In this area, due to wind and currents, icebergs ground on the seabed where they get stuck until they disintegrate and melt. Furthermore, the play-offs for the in-official Greenland offshore table-soccer championships have started. And although the scientists have put up a decent fight, in the end, they stand little chance against the hyper-trained teams from the crew. Another touristic highlight was when we crossed an area of sea ice where seals were basking in the sun. In the meantime the atmosphere on board is very good and we slowly survey and sample our way homeward in south-easterly direction.

On behalf of all scientists and crew on board, I send greeting back home from a brilliant Arctic summer,

Boris Dorschel



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