



Forschungsschiff Maria S. Merian

Expedition MSM-56; 02.07. - 25.07.2016

Longyearbyen – Reykjavik



4th weekly report

18.07. – 25.07.2016

At the beginning of the last week of our cruise, we finalized the time series station in the Nordvestfjord and started with the last stations in the main part of Scoresby Sund. First we accomplished several transects with the echosounder to get a better picture of the bottom topography. Sills at the end of fjords are typical remnants of ancient glaciers and strongly influence the water exchange with the fjord. In the inner Nordvestfjord, we have already observed that the available topographic information for some areas did not match with the real water depths. The echosounder transects showed that some areas at the entrance of the Nordvestfjord were much shallower than shown in the navigation maps. After finishing our station program, in a mixture of sun and fog, the Scoresby Sund presented itself once again in its best light (which filled the memory cards on board).



Exit of the Scoresby Sund in emerging fog.

Our following trip to Iceland started half a day earlier than originally planned, to drop-off one member of the science team who had to leave the ship for family reasons. In the morning of July 20th, the station work in the Arnarfjörður began - our third and last fjord during this cruise. The Arnarfjörður is part of the so-called Westfjords in Iceland and its size is comparable to the Kongsfjord, which we studied in Svalbard at the beginning of the cruise. For our biogeochemical understanding of the fjord processes, the Arnarfjörður is an important region, because it is an Arctic fjord, which, in contrast to the two other systems, has no glacier anymore. It is an important part of our data evaluation to identify differences, which are connected to the extent of glaciation. For example, Dr. Uwe John and Dr. Sylke Wohlrab of the Alfred Wegener Institute (Bremerhaven) and Dr. Lennart Bach (GEOMAR, Kiel) study differences in the species composition and function of unicellular algae. Dr. Dedmer van de Waal (Netherlands

Institute of Ecology) determines which proportion of the algae is consumed by zooplankton grazing. The chemists on board, for example Prof. Philippe Schmitt-Kopplin (Helmholtz Zentrum München) and Dr. Oliver Lechtenfeld (Helmholtz Zentrum für Umweltforschung, Leipzig), study the flux of carbon and the chemical composition of the organic matter in the water. Both are related to species composition and productivity of plankton. We are following the working hypothesis that all of these parameters are connected to salinity changes in the water and by that to the meltwater extent and climate warming.



The ice-free Arnarfjörður (Iceland), which is an important reference fjord for our expedition.

As a main attraction in the middle of the Arnarfjörður, a curious minke whale examined each of our instrument deployments for several hours. After ten stations, our sampling program ended. Several team members were still busy with extractions and incubations which lasted another 36 hours. At the same time, we started with packing the equipment and containers. On July 25th at 8:40 a.m., we reached the harbour of Reykjavík. With the excellent weather conditions we experienced during our cruise, we accomplished even more stations than originally planned. All scientific team members were very satisfied with the expedition and now, back in the home labs, the tedious analyses of the samples will start - we are all very much looking forward to the results.

The success of the expedition MSM56 was especially possible due to the commitment and competence of Captain Ralf Schmidt and his crew. Thank you very much for the friendly and cooperative atmosphere on board.

Best wishes from Reykjavík,

Boris Koch