ARK XXI/1b Weekly Report No. 1 13 August - 20 August 2005

At 00:50 h. on 13 August the group flight arrived in Longyearbyen. After a night in the hotel “Spitsbergen” and a free morning, a bus brought us at 13:00 h to the pier. Because of POLARSTERN’s draught of 11.20 m, she had to stay moored in the fjord and we boarded by Zodiak. At 18:00 h we sailed as planned, leaving Isfjord and bearing south toward Storfjord. We are now a group of 45 cruise participants and 44 experienced crewmembers. The scientists come from 11 nations and 10 institutes or organisations and cover a wide range of disciplines. Part of the group was also on board during the first leg and continues their work in the new area of operations. The newlings had first to undergo briefings on safety measures and regulations for life on board before they could start working. Sunday was filled with unpacking the containers and installing the instruments in the labs.

Essentially, the cruise takes place in three areas: Storfjord, the Fram Strait and the Yermak Plateau. In Storfjord work is focussed on biogeochemistry. Measurements will be carried out to better understand the processes that determine the role of the ocean in releasing the greenhouse gas methane into the atmosphere. In the Fram Strait a long term programme in physical oceanography is continued by measurements and mooring work to observe the heat transport from the North Atlantic into the Arctic Ocean. The “Hausgarten” of the deep-sea biology group is located in the Fram Strait as well and is visited to keep up a long term time series to detect effects of long-term changes of oceanic condition on the deep-sea fauna. The deep-sea biology group will leave POLARSTERN at the end of next week to join the French research vessel ATALANTE with the remotely operating vehicle VICTOR6000 on board. For this purpose POLARSTERN will return to Longyearbyen on 27 August. Then, the chief scientist will change as well. This is necessary because the originally planned chief scientist Ursula Schauer had and accident and needed to be replaced at short notice. We wish her all the best for the further recovery. After the short visit to Longyearbyen POLARSTERN will head again to the Fram Strait and continue the programme. A geology project will take place further to the north on the Yermak Plateau.

After having finished the oceanographic section in the western Greenland Sea, POLARSTERN will return to Bremerhaven. In addition to the work mentioned above, biogeochemical and bio-optical investigations as well as counting of birds and mammals, which occurred during the last leg, will be continued. Samples are taken to determine the distribution of plutonium isotopes that serve as well as the measured chemical parameters as tracers for pathways of water mass transport in the Arctic Ocean and the Nordic Seas. Plankton organisms will be filtered out of the seawater to determine proxy data for paleo-oceanographic investigations of the temperature distribution in past oceans. By means of bottom samples the biogeographic pattern of deep-sea foraminifera is studied.

On our way from the Storfjord to the oceanographic section along 78°50’N we

met the sailing vessel LOVIS with a group of students from the AWI school-project HIGHSEA on board. There is no doubt that the visit on POLARSTERN was a further highlight on their adventurous trip. Since then, they have carried out measurements in Storfjord and are now on their way to Tromsø.

Even if midnight sun had blessed us only once until now, the mild and calm weather is very favourable to the progress of work on deck and in the labs. On Saturday night we crossed some open fields of drifting ice floes, with a large population of seals. Most likely this will remain the only encounter with sea ice, which we will meet during this leg before returning to Longyearbyen.

With the best regards from all on board
Eberhard Fahrbach