

ANT XXII/3
Weekly Report No. 7
07.03.05 - 13.03.05

Finally, on Friday morning we reached the sea ice edge. Already on Thursday the sea surface temperature had dropped to near freezing temperature, so that it became obvious that sea ice is not far. This was consistent with the ice maps derived from satellite data and which we receive via email.

The visibility was impaired by light snowfall when we could observe a layer of grease ice to cover the sea surface. It was swaying in the damped waves and torn to pieces by the wind. Gradually the grease ice consolidated to plate-like structures, pancake ice. The friction between edges of the pancakes moving with the waves is the origin of his shape. With increasing distance from the ice edge, the size of the pancakes increased and the wave motion was dissipated. Some times older floes were scattered in the new-ice layer.

Finally we reached a snow covered closed ice layer which was only interrupted by a few cracks and leads. At noon time the snowfall ceased, the clouds dissolved, and unique Antarctic scenery presented itself in the sunshine. After many days during which grey shades either in the water or in the sky prevailed, only interrupted by white caps, the sun had a stimulating and cheering effect in spite of outside temperatures of -14°C . Consequently even those who have been sieving shortly before mud on the cold deck were ready with their cameras, to fix the unprecedented views. During this cruise, the documentation of these scenes happens in rather special way because we have an expedition painter, Gerhard Rießbeck, on board. He retains the atmosphere of each day filtered by the eye and the hand of the artist in an oil painting. He transforms even a greyish, stormy day with snow showers into an appealing view. Today on Sunday he presented a choice of his products to us framed in music by cello and vocals.

Meanwhile we became familiar with the less comfortable aspects of the presence of sea ice. The CTD station planned for Saturday 14:15 h finally started at 22:30 h because we had to cross a huge, sturdy floe that blocked our course to the west. Only with endlessly repeated ramming we could slowly break our way through it.

Besides CTD work, the week was again devoted to deep-sea biology stations during which the now well-known suite of instruments came into action to sample the deep-sea fauna. In contrast to the macrofauna which is easily seen with the naked eye, the meiofauna remains hidden. It consists of tiny animals of less than 1 mm size, which can be as small as 0.03 mm. When collecting these animals, particular difficulties are encountered because most of them live in the uppermost centimetres of the sea floor or just above it in the „fluff layer“, a thin layer of minute particles in suspension. Even if the meiofauna could be sampled with the box corer, parts of the fluff might be lost because the bow wave of this huge instrument pushes

it to the side when it approaches the bottom. An instrument that is less violent to this biologically very active and sensible layer is the multicorer (MUC). It is a construction reminiscent of the poles of a tent by means of which 8-12 tubes of plexiglass are pushed into the sea floor. Then they are filled with sediment as well as with the overlying water, and they carry both back to the surface. By a hydraulic mechanism, the penetration of the tubes in the bottom occurs in a gentle way, so that almost nothing of the fluff layer is lost. The multicorer is applied several times at each station, and several groups are using the samples which have to be processed very carefully.

With the best regards from all on board
Armin Rose and Eberhard Fahrbach