

ANT XXIII/6 Weekly Report No. 1 (Cape Town - Cape Town)
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RV „Polarstern“ departed from Cape Town at 9 pm on the 17th June 2006 with 92 persons on board of which 45 are crewmembers and 47 are involved with carrying out the scientific mission of this research cruise. The latter represent 11 institutes and 3 companies from Argentina, Australia, Belgium, Canada, Columbia, Germany, Great Britain, Holland, Russia, Sweden, and South Africa. At the evening of a sunny winter day we sailed into a glorious sunset watching the twinkling lights of Cape Town gradually merge with the starry sky. Everything had gone according to plan and even the weather has been in our favour all along so we are in excellent spirits.

The aim of the cruise is to study the over wintering strategies of Antarctic krill. Our cruise is part of the international science program "Global Ocean Ecosystem Dynamics" (GLOBEC), that was started "to advance our understanding of the structure and functioning of the global ocean ecosystem, its major subsystems, and its response to physical forcing so that a capability can be developed to forecast the response of the marine ecosystem to global change". In the Southern Ocean the target organism is krill (*Euphausia superba*), its fluctuations in biomass standing stocks in relation to ocean circulation and sea ice dynamics, krill physiology and the role of krill in the Antarctic ecosystem. One of the mysteries still to be explained is how krill survives the long periods of the Antarctic winter where food is extremely sparse.

The first few days on board were spent unpacking the innumerable boxes and setting up the multifarious instruments. Some newcomers however had to adapt to the long swell, before they could start setting up their laboratories that are now ready awaiting the first station work. Planning meetings were held, to inform everybody about the activities to come and to adjust some fine-tuning of the operations between the groups involved. Thanks to the efficiency of the logistics department of the AWI and the great help from the ships crew, everybody is happy and grateful.

We intend investigating the over wintering strategies of krill and of other marine organisms in the Lazarev Sea, an area east of the Weddell Sea along the Greenwich meridian, between 60°S and the edge of the shelf-ice that covers most of the Antarctic continent.

North of that area, at 52°S we intended to start our station work. The fast eastward flowing water of the Antarctic Circumpolar Current may transport organisms over long distances, e.g. krill and its larvae from the South Georgia and South Shetland Islands along with zooplankton and phytoplankton, both being potential food sources for our target species. In order to gain an overview of the hydrographical field we commence surface measurements in the Polar Front that we reach at dawn of Thursday (June 22). Due to a strong depression system and wind forces around Beaufort 10 we had to skip the station work and steamed south instead for escape. Approaching the

next possible station we have continued surface measurements of water temperature and salinity that indicates the surface extensions of the different water masses we cross. In addition we continuously measure the phytoplankton pigment chlorophyll and collect surface zooplankton species by means of a Continuous Plankton Recorder (CPR). Visual observations of birds, whales and other vertebrates are performed during the daylight hours that still extend from 7 am to 4 pm.

Polarstern is a secure life-supporting system and we are fortunate in that many members of the crew who looked after us so well during the previous summer campaigns are again on board. They are doing their best to make our stay profitable and comfortable. The food is delicious, well sorted and splendidly served.

Today, the Southern Hemisphere is celebrating mid-winter (Solstice), and we send our best wishes to the wintering over team at Neumayer station on the Antarctic ice shelf. From now on the day of the first sunrise at Neumayer is not so far any more, and although we on board Polarstern still have considerable day light hours, we are well prepared for some cold, dark Antarctic winter days as well.

With our best wishes to summer solstice from the purring forties, to all beloved in the northern hemisphere.

Uli Bathmann
21 June 2006