ANT XXII/4 Weekly Report No. 1 08.04.05 - 16.04.05

The days in Punta Arenas before the departure of Polarstern didn't show the typical stormy weather like expected in autumn. The sunlight, which forced its way through the clouds, gave a very friendly flair to the city next to the Magellan Channel. This was the perfect frame for a successful meeting on 7th April with invited VIPs from Punta Arenas and Santiago on board of Polarstern. On the day of departure the weather became stormy. In the harbour of Cabo Negro Polarstern invited all participants with very strong gust of wind. We set sail after the obligatory gravity calibration measurements for the sea-gravity meter on 8th April at 8 o'clock pm local time with 29 scientists from five countries.

We couldn't observe any open fire on the land while passing through the Magellan Channel. In fact these open fires gave the land its name Tierra del Fuego when Fernando de Magellanes discovered this sea route in 1520. The sea became clearly heavier as we passed the southern edge of Tierra del Fuego at 55°S. So there were little difficulties in getting everything in place at the labs, what is the main work during the first days on board and this had to be done with the appropriate caution.

The scientific program on this cruise gets carried out from five working groups: geophysics, geology, hydrography, geodesy and biology; and is interconnected closely. The main target of this expedition is to make a contribution to the examination of the opening of the Drake Passage. Very precise measurements of the sea floor shall be done with the help of the multibeam system Hydrosweep DS-2, the sub-bottom profiler Parasound DS-2, the ship-borne gravity meter KSS-31 and the ship-borne magnetometer.

Despite of the season, as I said it is autumn, the Scotia Sea was very friendly to us till now. We crossed the Drake Passage on southeastern course while the waves came up to three to four meters and the wind maximum up to 5 Beaufort. The first destination was the British research station Signy on the South Orkney Islands. We reached Signy with very good weather conditions on Tuesday 12th April. The view of the islands and the surrounding icebergs were just breathtaking. There were hundreds of icebergs which were forced by the wind and the stream out of the Weddell Sea that gathered in the south of the islands. They offered a scenic view with very nice shadings differing from turquoise blue to light green and so there was always a reason to take some pictures.

The British research station which is just used in the Antarctic summer got closed in March. They left us some very friendly hints for the water reservoirs. A lot of sea elephants and fur seals didn't seem to be as interested in us as we were interested in them. So it was quite easy to take some very nice pictures of them always remaining in a safe distance. A geodetic GPS-observation station will be installed near the research base of Signy. A two-channel GPS-receiver will be installed on the geodetic reference marker, which was established and surveyed during the Geodetic Antarctic Pro--

ject (GAP) in 1995 and 1998. Two observers will stay in a field party near Signy Base in order to look after the correct technical operation of the receiver and check the high rate data recording. The transport of the measuring device, the food and the so-called „tomatoes“ (weather resistant igloos) went without any problems with the helicopters. The field party was set up quickly.

Because of the very nice weather and the nearly five weeks of measuring in the Scotia Sea, which are about to happen, almost every participant or crewmember took the offer to visit the station.

At the same time the Russian program of the measurement and sample taking of a glacial erosion trench started on the South Orkney Plateau. The biggest glacier on Coronation Island, the Sunshine Glacier, left dis-- tinc---tive tracks of several hundred meters in depth on the shelf due to the glaciation. A sediment core with a length of 18 m got pulled after a survey measurement with Hydrosweep and Parasound. The multicore taken at the same position rounded up the sample taking.

We left the South Orkney Islands in the afternoon of the 12th April and got on our way to the main working area in the central Scotia Sea. However two more core positions further in the northeast and in the northwest of the Bruce Rise were taken beforehand. The Bruce Rise is a distinctive elevation under the sea northeast of the South Orkney Islands and we reached it on 13th April. The sediment cores on these two stations reached the lengths of 22.60 m and 23.40 m. These cores shall give us information about the pa--- le--ooceanographic and paleoclimatic history of the Scotia Sea.

We arrived at the southwest border of our survey area on 15th April. The next weeks will be filled with the investigation of an area 190 sm times 140 sm, which is approximately the size of Lower Saxony (Niedersachsen). This area will be observed systematically through Hydrosweep, Parasound, ship-borne gravity meter and ship-borne magnetometer. In addition to that air-borne magnetics with helicopter flights will be carried out.
More information will be given in the next weekly report.

Best regards from everyone and the scientific cruise leader
Hans Werner Schenke