

## **ANT-XXIX/3 - Weekly Report No. 1**

**January 22 - 27, 2013**

On the way into the ice

Our expedition started with a delay in Punta Arenas, which was caused by the ship's front crane damaged while loading containers. Unfortunately, at this stage, the front hatches of the ship were open. These hatches have to be closed for the ship to leave port. To close the hatches, however, the broken crane is needed. Aware of the implications of this damage, people on board as well as on land in Punta Arenas and in Bremerhaven worked restlessly on a solution. In the end, we were lucky. It was possible to close the hatches with ship's equipment and we were able to leave Punta Arenas earlier than initially apprehended with only a slight delay. On Tuesday morning, we commenced expedition ANT-XXIX/3 on the research icebreaker "Polarstern".



Fig1: In the infamous Drake Passage, a wave washes over the deck of "Polarstern". Foto: Daniel Kersken.

"Polarstern", our home now for the next two month, is a more than 30 years old research icebreaker. Working all these years in the harsh condition of the high latitudes certainly took a toll, but experienced participants as well as those on board for the first time were amazed by the good shape she still is and by some comfort provided. "Polarstern" is one of the biggest research vessels in the world with the capacity to operate in polar regions independently for few months. Such a platform, as opposed to land stations, achieves a positive and beneficial relationship between scientist and the supporting crew. Furthermore, the mobility of the ship provides the scientist with the opportunity to investigate large marine areas and to support land operations.

In high spirits, Captain Pahl, his crew and the scientific party left Punta Arenas and commenced the voyage to Antarctica. In total we are 44 crewmembers and 50 scientists including a helicopter team and two meteorologists. Also two observers from Chile and Argentina were on board. Our voyage took us along the scenic route westward through the Magellan Strait and into the Pacific Ocean. Sailing this route is uncommon as "Polarstern" usually leaves Punta Arenas and heads eastwards towards the Atlantic. In addition to the more beautiful scenery, this route also saved us time. It did not require pilot assistance which would have had to be requested 48 hours in advance.

During the past months, expedition ANT-XXIX-3 was thoroughly prepared to investigate three aspects of marine science in the Larsen Area off the eastern Antarctic Peninsula. Unfortunately, this Austral summer, the sea-ice conditions in the targeted research area turned out to be the most severe ones of the past 10 years. As a consequence, we have to adjust our plans to adapt to the nature of the situation. This illustrates, once again, how unpredictable the high latitudes are and how working in these regions requires a high degree of flexibility. Never the less, all three scientific topics of the expedition can still be addressed.

One major scientific topic of this voyage should have followed-up on expeditions from 2 and 6 years ago. We would have investigated the response of marine ecosystems to the climate induced collapse of the Larsen A and B ice shelves along the eastern coast of the Antarctic Peninsula. Due to the severe ice conditions this year, work in this area seems to be impossible. As an alternative, we will shift our geographic focus to the areas to the west and north of the Antarctic Peninsula. The initial overarching scientific objective – how nature responds to the significant climatic changes in this area – will still be addressed. Due to the new study area, the oceanographers have to trace the deep-water further north, away from its source off the Larsen C ice shelf.

From the Thünen-Institute for high-sea fisheries in Hamburg, a working group will conduct krill-research. Krill is a small pelagic crustacean. As the main food source for birds, penguins and marine mammals, these organisms play a key role in the Antarctic ecosystem. This expedition will study the distribution and abundance of krill will be studied in an area for which few data exist. The study area is furthermore characterized by very specific oceanographic conditions that probably play a key role for the krill stocks in the Atlantic sector of the Southern Ocean. Throughout the campaign, the oceanographic studies will support the biological work. Many marine organism assemblages, for example the Krill, and also the sea-floor inhabiting organism are closely coupled to processes in the water column. Whale and seal counts during helicopter survey is another topic supplementing the marine ecological topic and the Krill research.

By now, we have crossed the Drake Passage. Separating South America and Antarctica, this area is infamous for gales. So far we are lucky with the ship rolling mild. We expect to arrive at our first station during Friday night or Saturday morning. For this first station, all the equipment has been prepared and “rookies” as well as “old stagers” await our arrival with anxious excitement. Still we do not know what the next days will bring: will we be able to work in the ice-covered areas? Will we find proof for our working hypotheses? Will our equipment work after the long travel the southern hemisphere? Which exciting discoveries await us? For the next weekly report we will bring you the answers to some of these questions.

If you like you can follow our expedition at: [ice-blog.zdf.de](http://ice-blog.zdf.de) (in German) and [apecpolarstern2013.wordpress.com](http://apecpolarstern2013.wordpress.com) (in English)

Despite some cases of sea sickness and colds, we are all well, awaiting in anticipation what the next days will bring...

Greetings,  
Julian Gutt