

ANT XXIII/5  
Weekly Report No. 5  
(Punta Arenas - Cape Town)  
8 May - 14 May 2006

The complaints about the weather last week proved to be successful. This week we had excellent conditions so the geophysical/petrological groups have been able to conduct their programme without problems.

Over the weekend we recovered all of our ocean bottom seismometers. This is accomplished by transmitting an acoustic signal from the vessel to a releaser unit linked to the bottom unit. The coded signal triggers the bottom unit to disconnect a heavy anchor. The seismometer then dives up because of its own buoyancy. When preparing for such an operation the geophysicists must work very accurately, otherwise the instrument will remain on the sea floor. Recovery of all our instruments shows that the team did an excellent job.

The signals generated by the airguns can be recognized clearly in the seismic records. In addition, the instruments recorded a strong earthquake close to the islands of Tonga (May 3rd, 15:26:00). This earthquake, with a magnitude of 8.1, is most likely one of the strongest quakes to have occurred this year worldwide. The first signals from the earthquake arrived at our bottom stations after 15 minutes having travelled almost 13200 km through the interior of the earth. Signals from this earthquake were recorded for another 30 minutes by our sensors. On the vessel nobody noticed any sign of this event.

The petrology program in the Discovery region concluded on Tuesday evening with the successful recovery of basaltic rocks. Overall the dredge sampling has been a success, despite losing time due to poor weather conditions and facing the challenge of dredging old manganese coated volcanic ridges in rough seas. We have sampled seamounts clustered to the south of the Discovery Tablemount and others flanking it to the North. These are the first dredge samples from the Discovery region. With suitable rock samples in hand the petrologists will be able to obtain geochemical and age information after the cruise from along the Discovery and Shona volcanic chains. This information in conjunction with geophysical data acquired during the expedition will establish for the first time how well these apparent hotspot trails fit the predictions of the mantle plume hypotheses.

In the middle of the week we sailed once again further north towards the Walvis Ridge. This ridge is a giant submarine mountain range stretching for more than 3000 km from the Namibian coast to the central South Atlantic. Here, we will continue the petrological/geophysical programme during the coming weeks. Over the course of Thursday we deployed again the ocean bottom stations along the next seismic line.

Seabirds accompanying Polarstern also demonstrate that we have reached

warmer latitudes. Large albatrosses are rarer now, whereas petrels and shearwaters visit us from their colonies on the Tristan da Cunha archipelago approximately 1100 km to the West. Yesterday we spotted Spectacled petrels, which only occur in a restricted distribution range around their isolated breeding colony on Inaccessible Island in the Tristan da Cunha archipelago. This species breeds exclusively on this single island and is therefore among the rarest and most endangered seabird species worldwide.

In addition to the unusual opportunity for sunbathing on deck, the entertainment programme on board has significantly improved. The choice includes ballroom dancing, Spanish lessons and a table-tennis tournament.

With kind regards on behalf of all cruise participants,

Wilfried Jokat und Holger Auel

14. May 2006

Position 34°00'S 004°30'E, +19°C