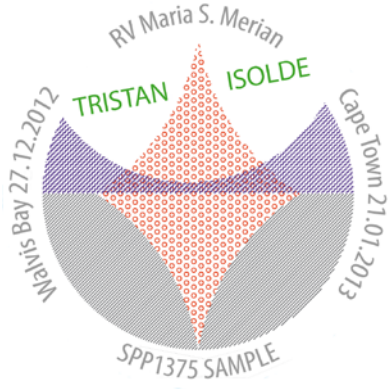
RV Maria S. Merian, MSM 24

27.12.2012 Walvis Bay – 21.1.2013 Cape Town



Weekly Report No 1 (27.12. - 30.12.2012)

Investigation of the active volcanic island Tristan da Cunha, the most remote inhabited island, is the aim of expedition MSM24. Tristan da Cunha is situated in the middle of the South Atlantic Ocean and represents, according to the classical theory of plate tectonics, the position of a hot spot that is assumed to be in close relation to the break-up of the super continent Gondwana and the opening of the South Atlantic. Expeditions MSM17-1, MSM17-2 und MSM20-1 investigated traces left by this hot spot originating back to 130 Ma close to the Namibian continental margin, the Walvis Ridge. Now we want to study the hot spot in its present position beneath Tristan da Cunha.

It is not yet sure that Tristan da Cunha is really a hot spot, because due to the extreme remoteness of the region only sparse geophysical data exist. We want to image geophysical anomalies that should reach deep into the Earth's mantle by means of electromagnetic, seismological and gravity measurements. For this purpose we plan to recover 26 electromagnetic and 24 seismological ocean-bottom stations that were deployed eleven months ago during expedition MSM 20-2. Additionally, we map the seafloor using Kongsberg EM122 multibeam and Atlas Hydrographic Parasound sediment echo sounders. We are 14 scientists from four German and Japanese research institutions: Alfred Wegener Institute Bremerhaven, GEOMAR Kiel, University of Tokyo and University of Heidelberg. Furthermore, we have a South African coastal engineer from WSP Africa Coastal Engineers as guest on board. He will disembark at Tristan da Cunha to maintain the local harbour. Since the island is only accessible by a few ships a year, the Operations Control Office for German Research Vessels allowed this transfer.

In the afternoon of December 26 our group embarked RV Maria S. Merian in Walvis Bay. One of our containers with expedition freight was already loaded December 21. Unfortunately, the second container arriving from La Reunion did not make it in time, since the cargo vessel had to wait in the roads. That's why we are missing essential parts of our freight that we normally need. Luckily, Umwelt- und Meerestechnik Kiel (KUM) provided us with the most important devices and cables to allow the successful recovery of the ocean-bottom seismometers. In the evening of December 26 we immediately checked these things, which were brought by plane from Germany. In the morning of December 27 we unloaded the available container and prepared our laboratories. In the afternoon finally also the last parts of the freight of our Japanese colleagues arrived to the vessel. These boxes were already in Walvis Bay on-board of a container vessel, but could not be unloaded in time before Christmas. At the end we could start our expedition to Tristan da Cunha in the late afternoon.

RV Maria S. Merian in Walvis Bay (photograph: M. Tsekhmistrenko)

Mapping of the seafloor by multibeam and sediment echo sounders started after we had left the exclusive economic zone of Namibia in the afternoon of December 28. To calibrate the multibeam echo sounder we measure sound velocity profiles in the water column. We use the transit to our working area to get used to the onboard instruments and to map previously uncovered areas in the South Atlantic.

After some signs of sea sickness immediately after leaving the Walvis Bay, now almost all are used to the waves and movements of the vessel and enjoy the meals onboard Maria S. Merian. All are in good mood.

30.12.2012, 31° 2.1' S 0° 51.0' E, 19°C Wolfram Geissler