

ANT-XXIX/5 - Weekly Report No. 1
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Falkland Island

After a 2 day flight we finally arrived on the Falkland Islands. After having escaped the end of the “northern winter”, we are now facing the beginning of the southern hemisphere autumn with temperatures around 10°C. Though the Falkland Islands are well known for their 300 rainy days per year, the weather was reasonable good during our 5 day stay on the islands, Port Stanley. However, strong and cold winds are more common. The Falkland Islands with around 3000 inhabitants and an estimated 500.000 sheep are British Overseas Territory. Some of you might recall the Argentine-British Falkland War in 1982. As a consequence there are around 2000 soldiers stationed on the islands to ensure the security of the citizens. During our short stay in Port Stanley, the capital of the islands, several issues were surprising: the government agencies are friendly, pragmatic and very cooperative; neither the 4x4-vehicles nor the houses are locked - thieves cannot easily escape from the islands (!). There are hardly any trees - the wind and the rough climate are obviously not beneficial for the growth. This is even more surprising if one takes into account that Bremerhaven (Germany) is almost on the same (northern) geographical latitude as the Falkland Islands, but with a completely different climate. However, what is the reason for our scientific crew to travel to such remote islands in the South Atlantic? It is Alfred Wegener’s theory on the continental drift! Though his theory has finally been confirmed after more than 50 years of scientific dispute, the question on the driving forces of the continental drift is still not solved. Today, there is no technology available, which definitely allows us to describe the geodynamic processes in the earth’s crust. Thus, during our expedition we want to investigate the tectonic evolution of the Falkland Plateau. What is the nature of its deeper crust? To find an answer we have to deploy 2x40 ocean bottom seismometers (OBS) along a 1200 km long E-W profile. The OBS sensors will record seismic waves, which are generated with airguns on board Polarstern. After they have travelled through the crust (down to 20 km depth), they are detected by our instruments on the seafloor. More details about our experiment will follow with the next weekly reports. RV Polarstern anchored for almost 3 days in Port Stanley to allow the scientific crew to assemble and test their equipment. Finally, on April 22nd we left Port Stanley and arrived at the first station only after 3 hours steaming. Not to our surprise we had to interrupt the instrument deployment on April 22nd, because of a strong low pressure system. Wind forces up to 10 Beaufort (Bft) and wave heights of more than 6 m did not allow us to continue our work. We had to wait for 2 days. On Wednesday we started to operate our airguns for 3 days generating acoustic waves travelling through the crust. Over the weekend we recovered all 40 OBS. Only after the retrieval of the OBS and an initial quality



Position of southern continents some 120 Ma ago (König and Jokat, 2006). The red dotted line indicates the position of our deep seismic line along the Falkland Plateau. Red labelled areas: Regions, which are covered by basalts. Abbreviations: ANP: Antarctic Peninsula, ELW: Ellsworth Whitmore Mountains, IND: India; MAD: Madagascar, MEB: Maurice Ewing Bank, MOZR: Mozambique Ridge, SRI: Sri Lanka



Fig. 2 and 3: Central part of the island (© Stefan Schwarze)



Fig. 2 and 3: Central part of the island (© Stefan Schwarze)

control of the data, we will know, whether the experiment was successful.

The first days were quite stressful for the scientific crew, since all activities were performed under high time pressure. Also the rough sea conditions had their share. Meanwhile all scientists have become used to the work flow and the sea motion.

28. April 2013 Falkland Islands 6°C 51°20'S 54°23'W

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