

ANT XXIII/4 Weekly Report No. 1 (to the Amundsen Sea, West Antarctica)  
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This is the first weekly letter of the RV Polarstern expedition to the rarely visited and, therefore, hardly scientifically investigated Amundsen Sea. The Polarstern departed from Punta Arenas (Chile) in the morning of 11 February with a small delay due to a jam at the fuelling station at Cabo Negro. All expedition participants arrived until the afternoon of the previous day and, at fine weather, were shuttled to the ship by a tug, because Polarstern moored outside the harbour. After departure, everybody enjoyed the passage of Polarstern through the western Magellan Strait which separates Terra del Fuego from Patagonia and leads into the southern Pacific. Not alone that this passage shortens the voyage time to Rothera Station, our first destination in Antarctica, compared to the eastern route due to favourable current and wind directions, it also allowed unpacking and stowing of expedition goods at calm sea conditions. Increasing winds towards the westernmost Magellan Strait, however, let us foresee bad conditions .... Indeed, Polarstern was welcomed by high seas at the exit into the open Pacific Ocean. Some expeditioners, including the chief-scientist, had to take it slow during the first two days at sea. As soon as Antarctic latitudes were reached and the sea became calmer, everybody was fit again and eager to continue the installation and preparatory work for the scientific gear and the experiments.

On 16 Feb, we arrived at Marguerite Bay, in which the British research station Rothera is located on the coast of Adelaide Island. While the first biological experiments of the expedition were conducted with water samples from Marguerite Bay, Claus-Dieter Hillenbrand of the British Antarctic Survey was flown by helicopter from Rothera to Polarstern to join the expedition. He just returned from an expedition with the British research icebreaker RRS James C. Ross. During this expedition, important data of the seafloor and sub-bottom of the southern Amundsen Sea were collected in proximity to our main area of investigation. These data will be of great use for our geoscientific investigations.

Along the farther track heading toward Peter I Island in the western Bellingshausen Sea, surveys of the earth magnetic field, using a helicopter-magnetometer system, were conducted successfully. Unusually fine weather accompanied us during our visit to Peter I Island from the evening of 18 Feb until middle of next day. This island rises 1640 m from sea level and is a "dormant" volcano. Its last eruption occurred about 100.000 years ago as dated from a few rock samples. In geological times, this is quite young. With a so-called dredge, we collected rock samples from the submarine flanks of the volcanic cone which may provide new data on eruption ages. We landed on the island with the helicopters for more reasons: Firstly, we recovered a seismological recording unit which was deployed on the island 5 years ago to record any potential seismic activity of the volcano. Secondly, geophysical instruments were deployed for the duration our expedition to record the earth magnetic field and to conduct a GPS

positioning measurement. This very precise measurement was first done on this island 8 years ago and is now being repeated in order to determine the motion of the earth's crust of this region compared to measurement points on the Antarctic continent and South America. This motion is only a few millimetres per year. Further on, one of our teams installed an automatic weather station on Peter I Island. This station will transmit weather data into the worldwide weather data network which is in particular important, as this southern Pacific and West Antarctic region has been lacking any weather stations. Due to the perfect weather and the well-prepared deployment teams, all work on the island went very well and timely, so that there was time to enjoy the view to this gigantic glaciated volcanic mountain.

We are now on our way to a few seamounts of the western Bellingshausen Sea where we will try to bring light into the complicated geological and tec---tonic history of this southern Pacific region with a bathymetric surveying and geological sampling program. But soon after that, we will be on our way to the southern Amundsen Sea and the West Antarctic coastal zone which are our main areas of investigation. In the next weekly letters, the scientific groups and their expedition goals will be described in more detail.

All voyage participants are doing well and sending their best regards.

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(Chief Scientist)