

Southern Ocean

Research vessel Polarstern expected in Bremerhaven

Antarctic season ends in the home port after half a year

[11. May 2016] On Wednesday, 11 May 2016, the research vessel Polarstern is expected back in its home port of Bremerhaven after a good six months of Antarctic expeditions. In the austral summer, the research vessel of the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI), penetrated into the southern Weddell Sea as far as the Filchner-Ronne Ice Shelf, where oceanographic and biological work was the focus. In addition, the expedition members provided logistical support for a research camp there.

Few research vessels in the world are able to penetrate as far into the Antarctic Ocean as the Polarstern has managed to do on this Antarctic expedition. The area around the so-called Filchner trough is extremely exciting for oceanographers and biologists, though: very cold ice shelf water from the South and relatively warm deep water from the Weddell Sea interact here. The clash of these different water masses drives global ocean circulation and ensures the ventilation of the deep ocean. The scientists suspect that the biological diversity of species is also related to the hydrographic peculiarities in this region.



Fischerei (Photo: Hannes Grobe)

Measurements conducted by a Polarstern expedition in the 2013/14 winter season as well as subsequent model calculations suggest that the hydrographics in this area are becoming altered as a result of climate change. The exploration of the current situation is particularly important in order to classify any future changes. That is why the oceanographers are examining the different water masses and currents, just as biologists are scrutinizing the diversity of the Antarctic biota.

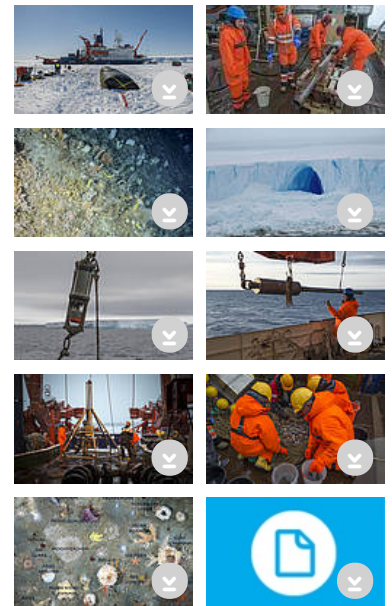
In addition to the measurements on the ship, an international drilling campaign is taking place on the Filchner Ice Shelf. Together with the British Antarctic Survey and Norwegian partners, AWI researchers are cutting through four places in the ice shelf between 2015 and 2017 in order to moor instruments in the water column below the 400- to 1,200-metre thick ice shelf. For this project, the Polarstern delivered scientific equipment and supplies to a depot at the edge of the Ronne Ice Shelf during this austral summer so that drilling can take place in the following 2016/17 season.



Ronne-Schelfeis (Photo: Julia Fruntke/DWD)




"We arrived at the ice shelf edge better than I had dared to hope," says AWI oceanographer Dr Michael




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Schröder, who led the early December to mid-February leg of the voyage to the Filchner-Ronne Ice Shelf. Supported by the German Aerospace Centre (DLR), the spin-off project "Drift and Noise" and the AWI sea ice group on board, he had high-resolution satellite images of the sea ice at his disposal. Together with the captain, he was able to use this as a basis for assessing the ice situation effectively and choosing the easiest route through the ice.

This expedition into the southern Weddell Sea was followed by an eight-week geoscientific trip to the Drake Passage before the Polarstern made its way back to Bremerhaven on 10 April from Punta Arenas, Chile, where its focus was on atmospheric research. Following a stopover in the Canary Islands, 39 scientific expedition participants, 25 of whom are participating in a training course on echo sound systems, currently join the ship's crew. The Polarstern will be in the Lloyd shipyard until mid June for standard maintenance and repair work before the Arctic season begins.

The Alfred Wegener Institute pursues research in the polar regions and the oceans of mid and high latitudes. As one of the 18 centres of the Helmholtz Association it coordinates polar research in Germany and provides ships like the research icebreaker Polarstern and stations for the international scientific community.

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