

Logbook 7 (from 04/11/26)

Asked which sort of ice he favours, *Polarstern's* captain *Uwe Pahl* doesn't hesitate to answer: vanilla topped with raspberries. But cutting through heavy sea ice is a different story – nothing like putting a spoon through a soft desert. The “icebreaker” *Polarstern* has to make use of all of her 20 000 hp to cut through the Weddell sea-ice. Well ... icebreaker is not quite an appropriate term. The ship was designed to be a vessel for science and to supply Germany's Antarctic *Neumeyer-Station*. It is a compromise that proved to be successful for some hundred thousand nautical miles: good in water, good in storm, and pretty good in ice.

Cruising in sea ice is a matter of patience. And *Captain Pahl* and his bridge officers (*Sebastian Grimm, René Hartung, and Thomas Wunderlich*) have bunkered quite a bit of that. On one hand there is no way without exercising brute force. But that is definitely not sufficient to keep on heading through heavy sea ice. When the vessel is under ice pressure – for example when giant floes press their edges against it – it is pointless to let the propellers froth up the sea. That will cause nothing but severe vibrations and no progress. There are better ways to escape the icy grip. The so-called Interling plant shifts ballast water from one side of the ship to the other in order to create little space at both sides. If that also fails – and it did several times since *Polarstern* entered the ice belt – the so-called “Spare Diesel” is switched on. This machine partly takes over *Polarstern's* electricity supply and in this way allows the dynamo to be disconnected from the shaft – another 15% extra power.

It is not only the thickness of the ice that caused problems during the last 300 to 400 nm. The snow cover on the ice works like a break – the friction seems to be a tremendous handicap. The scientists are also not totally happy thinking of snow-covered floes. The heavy weight of this cover submerges the sea ice below the ocean surface (freeboard) making the ice soggy and unpleasant to work on. But that does not matter as long as it does not seriously keep them from doing their jobs.

Quotation of the day:

Two emperor penguins watch *Polarstern* trying to force her way through piled up ice ridges: “Well, they do walk upright, but I doubt they're intelligent creatures, moving a bulky pile of something around instead of simply walking on ice.”