

**From a polar opposite to the dawn of the icy continent
– fundamental change at the South Pole**

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Exotic worlds were hiding under the Antarctic ice for millions of years. A specialized seafloor drill rig finally enabled to recover those enigmatic sediments, witnessing lush and warm climate conditions near the South Pole – unexpected for those highest latitudes with more than four months of polar night darkness. This knowledge changed our view of the severity of global climate conditions during phases of peak global warmth and reveal the significance modern ice-sheet presence has for buffering future climate runaway. Because then, some 55 million years later, permanent ice cover started to increasingly characterize the continent towards the icy world we know today. However, this happened as asymmetric and erratic as the Antarctic ice sheet reacts to external forcing today. But it is this knowledge, which is not only indispensable for re-evaluating Earth's past climatic extremes but also for calibrating and improving numerical models that ultimately try to predict Earth's future climate as reliably as possible.