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Deposition of planktonic foraminifera on the Pacific margin of the Antarctic Peninsula (ODP Site 1101) during the last 1 Myr

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The evolution of the Antarctic ice sheets and the surrounding Southern Ocean during the Quaternary is crucial for our understanding of global climate. To date, Antarctic paleoclimate during the Quaternary is reconstructed from either ice cores drilled in central Antarctica, e.g. the EPICA Dome C ice core that spans the last 800kyr, or proxies measured in marine sediments that were recovered in oceanic areas far away from Antarctica. Proxies such as the δ13C or δ18O of benthic foraminifera tests are analysed on samples from deep oceanic basins in order to infer changes in Antarctic ice volume and Southern Ocean hydrography. However, all conclusions drawn from these distal marine records give only indirect evidence for Antarctic climate evolution. Unfortunately, high-resolution marine records from the Antarctic continental margin, that could be compared to the ice core records from central Antarctica are extremely rare. The explanation is the paucity of calcareous micro-organisms in the marine sediments, which is caused by low production rate of carbonates in the surface waters (due to seasonal or even multi-year sea ice cover) and/or dissolution in both the water column and the seafloor sediments. The lack of foraminifera hampers an accurate dating of the sedimentary sequences and the reconstruction of sea-water properties. Nevertheless, even the sporadic occurrence of calcareous foraminifera during previous interglacials document episodes when considerable numbers of calcareous microorganisms were produced and/or preserved, and thus point to ocean conditions in contrast to the present one.

Ocean Drilling Program (ODP) Leg 178 Site 1101 was drilled at the crest of a sed-

imentary drift in the Bellingshausen Sea, west of the Antarctic Peninsula. The sediments at Site 1101 bear calcareous foraminifera almost continuously throughout the last 1 myr, with their abundance varying significantly. A preliminary, very low resolution isotopic study on the planktonic foraminifera from Site 1101 demonstrated the potential of the foraminifera record at this site. Here we present new results of a foraminifera study. We report concentrations of biogenic calcareous components in the fraction $>$150 microns, that comprise mainly planktonic foraminifera (dominated by the species Neogloboquadrina pachyderma sin.), but also benthic foraminifera tests and shell fragments. Interglacial periods at Site 1101 are recognised by the largest abundance of carbonate components. We present δ18O data obtained on N. pachyderma sin. and tentatively compare this record to the climate record of the EPICA Dome C ice core.