



History of atmospheric carbon dioxide from MIS 11 to MIS 16 from the EPICA Dome Concordia ice core

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Compared to the last four glacial-interglacial cycles, the period between 420 ky and 650 ky was characterized by less pronounced but longer lasting interglacials. The drilling of the EPICA Dome Concordia ice core has allowed to measure atmospheric carbon dioxide concentration further back as marine isotope stage (MIS) 11. The new measurements show that the close correlation between deuterium, a proxy for local temperature, and CO₂ persists also in this time period. During MIS 11 to 15 the partial pressure of Atmospheric carbon dioxide lie within the range of 260 ppmv and 190 ppmv in warm periods and glacial periods, respectively. The lowest value of the new record was measured during MIS 16, one of the coldest glacials of the last 650 ky as seen in the marine-sediment records. In the Dome C ice core deuterium values are not exceptionally low for glacial conditions during MIS 16. Furthermore the new CO₂ record shows some interesting features concerning timing, duration and phase relationship with deuterium.