



Stable isotope records for the past 2000 years from ice cores in central Dronning Maud Land, Antarctica

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Ice coring on the plateau of the inland ice of Dronning Maud Land, Antarctica, took place in the period 1998 through 2006. The central ice core is the EDML ice core (75.0017 S, 0.0678 E, 2882 m a.s.l.) drilled adjacent to the German Kohnen station in the frame of the European Project for Ice Coring in Antarctica (EPICA). It covers more than 150 kyrs in time and can serve as a reference core for the complete Holocene, too. In this paper the focus is on the past 2 kyrs of 18-O data. During the EPICA pre-site survey in the 1997/98 field season two ice cores were drilled and analysed reaching back in time approximately 2 kyrs. The core B32 was located 1.6 km west of EDML, the core B33 (75.1670 S, 6.4985 E, 3160 m a.s.l.) approximately 190 km to the east and at a 300 m higher elevation. In the surroundings of Kohnen station in 2004 another 200 m deep core (B34) was drilled, covering more than 2 kyrs of accumulation. It was synchronized with the age scale of EDML by means of DEP measurements. The paper compares the 18-O records, which are converted to temperature with the local isotope-temperature relationship. None of the cores shows an increase of the 18-O content indicating a stable temperature regime during the past 2 kyrs. However, decadal and centennial variations are detectable. Thus, a slight increase of 18-O content in the 20th century can be observed. It peaks around 1985 AD and does not continue afterwards. Some of the cooling periods appear after volcanic eruptions. The cores are used to construct a stacked isotope/ temperature record for central Dronning Maud Land. The work was done in the frame of the ESF PolarCLIMATE joint research project HOLOCLIP, with financial support of the German Ministry of Education and Research (BMBF).