



The deuterium excess record of the last climatic cycle from the EPICA – Dome C ice core

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The deuterium record obtained from the two ice cores drilled at Dome C in East Antarctica (elevation 3233 m, mean annual temperature - 54.5°C) in the framework of the European Project for Ice Coring in Antarctica (EPICA), provided a climatic reconstruction of the last 800 ky. We present here high resolution $\delta^{18}\text{O}$ and deuterium excess ($d = \delta\text{D} - 8 \cdot \delta^{18}\text{O}$) records covering the last 120 ky. The $\delta^{18}\text{O}$ and δD measurements are performed on 55 cm samples ("bag samples") with an analytical precision of ± 0.05 per mil and ± 0.5 per mil respectively. The final precision on the calculated d is ± 0.7 per mil. The oxygen and deuterium measurements are performed in Italy and France respectively. The climatic interpretation of the ice cores is usually based on either hydrogen or oxygen isotopic ratios in the ice, while the deuterium excess provides additional information on climate conditions at the oceanic moisture sources.

Combining the information on deuterium and deuterium excess and using a simple isotopic model, we interpret these records in terms of site (Dome C) and moisture source (mainly the sub-Antarctic Indian Ocean) temperatures variations. This approach has already been applied over different time scales and to various Greenland and Antarctic ice core records. The isotopic and the inversion temperature profiles obtained from the EPICA-Dome C ice core will be compared to similar records obtained from the Vostok ice core.