



Stable isotope records from the new TALDICE ice core (East Antarctica)

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In 2004 a new ice core project TALDICE (Talos Dome Ice Core Project) has been started at Talos Dome (72° 49' S, 159° 11' E; 2315 m; 80 kg m⁻² yr⁻¹; -41°C). Talos Dome is an ice dome on the edge of the East Antarctic plateau and is located about 280 km from the Southern Ocean and the Ross Sea. In December 2007 the drilling team reached the depth of 1619.2 m, more than expected on the basis of geophysical surveys (1550 m). The aim was to recover an ice core covering the last climatic cycle (120,000 yr) from a near costal site with an accumulation rate which allows for a higher climate resolution study of the Holocene and of the last glacial than provided by the oldest ice core of the inner plateau (EPICA-Dome C and Vostok).

The paleotemperature reconstructions from Antarctic ice cores relies mainly on δD and $\delta^{18}O$ records and the key factors controlling the observed distribution of their surface values in Antarctic snow are mainly related to the condensation temperature and the origin of moisture. Measuring both isotopes in the ice allow the determination of the deuterium excess ($d = \delta D - 8 * \delta^{18}O$) which is mainly controlled by the climatic conditions in the moisture source regions. Moreover, this parameter allows to take into consideration the effect of the moisture source regions on the temperature reconstructions. The $\delta^{18}O$ and δD measurements are performed on a continuous basis of 100 cm ("bag samples") and 10 cm (detailed samples). The $\delta^{18}O$ and δD of the bag samples

are measured in Italy and France, respectively, with an analytical precision of ± 0.05 and ± 0.5 per mil. The ice cores recovered during the previous years have been cut in the cold laboratory of the Alfred Wegner Institute at Bremerhaven. At the moment of the writing, the δD and $\delta^{18}O$ measurements have been carried out on the first 478 m and 196 m of ice respectively. Preliminary considerations suggest an ice age of about 6 ky for the upper 478 m. More data will be available for the time of the meeting. Moreover, high resolution $\delta^{18}O$ measurements have been performed on the first 200 m of ice. These new isotopic records will be compared with the available records from both the inner plateau (EPICA records, Vostok) and the near coastal area (Law Dome, Taylor Dome).