



A chronology for the EPICA Dronning Maud Land (EDML) ice core, Antarctica for the last 200kyr

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The European Project for Ice Coring in Antarctica (EPICA) aims at reconstructing past climate and environmental conditions from two deep ice cores in Antarctica. The two cores are drilled at Dome C (EDC) and in Dronning Maud Land (EDML) in the Indian and Atlantic sectors of the East Antarctic Plateau, respectively. We will present the problems, the strategy and the result of constructing a core chronology for EDML, which involved the combination of multiple methods. Rather than building two independent time scales for EDML and EDC the two cores were stratigraphically interconnected via a very detailed volcanic match over the last 120kyr and a match based on mineral dust concentrations beyond. The relative dating uncertainty in between two adjacent volcanic match points is estimated to be typically below 50 years and seldom exceeds 200 years. Finally the chronology from EDC was adopted for EDML because of simpler ice flow configurations at EDC. However, the construction of the EDC chronology considered primary dating information from EDML such as independently dated volcanoes in the last millennium (identified through annual layer counting), a synchronization to INTCAL via ^{10}Be for the period 1-6kyr BP, and a synchronization to Greenland via CH_4 for the period 10-41kyr BP. Further, a nested 3D ice flow model was used to calculate snow accumulation rates from stable water isotopes for EDML and to quantify corrections for upstream advection of ice for this non-dome location. The stratigraphic link between the two cores clearly indicates a thinning-anomaly at EDML beginning at 2300m depth; this corresponds to anomalous borehole deformations which have been observed in that depth range and suggest a complex ice flow regime.