



Does snails always feel cold during the last glacial ?

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The molluscan analysis of two loess sequences from Nussloch (Rhine Valley, Germany) provided a synthetic malacological record of the last glaciation between 70 and 20 ka BP. For the time interval of MIS 2, the cyclical pattern in mollusc abundance (number of individuals) has been correlated with Dansgaard-Oeschger (DO) climatic oscillations. The highest proportion in juvenile individuals during abundance increases supports this correlation. These oscillations are associated with changes in the composition of the malacofauna reflecting alternations between a humid and poorly vegetated environment and drier conditions more favourable to the development of vegetation. According to the composition of the malacofauna of other loess sequences in western-Europe, these oscillations reflect variations in the longitudinal continentality gradient. Each DO event would thus be preceded by an increase in precipitations on the continent and on the southern part of the fennoscandinavian ice-sheet. The largest local increase in humidity, characterised by very percentages of three species adapted to cold and moist environments, just precede the Heinrich (H) event 3. Consequently, ice discharges in the North Atlantic Ocean originating from the fennoscandinavian ice-sheet may result from growth periods of the ice-sheet triggered by changes in the atmospheric circulation pattern and increases precipitations in northern Europe. During the MIS 3 and 4, the cyclical pattern of abundance is also clear but the lower sedimentation rate and the lack of absolute datings preclude a distinct attribution of abundance maxima to DO events. The impact of the H4 event is clearly expressed by a strong decrease in abundance that is however not as important as those of H2 and H3. Finally, during the MIS 4, three abundance increases associated with composition changes reflect significant climatic/environmental improvements characterised by a better veg-

etation development than during MIS 2. Each DO and H event is characterised by a particular malacofauna composition suggesting slightly different environmental and climatic conditions during each of these events. Luminescence datings are in progress to clarify the chronology of these climatic improvements as well as amino acid ratio measurements to characterise the course of thermal fluctuations along this sequence.