Geophysical Research Abstracts, Vol. 7, 01798, 2005
SRef-ID: 1607-7962/gra/EGU05-A-01798

Limnic Response to DO-Cycles: Exemplified from the Sequence of Les Echets, France.

L. Ampel (1), D. Veres (1), B. Wohlfarth (1), A. Hormes (2), G. Possnert (2), F. Preusser (3), J. Risberg (1), V. Andrieu (4), J. L. de Beaulieu (4), S. Björck (5), G. Digerfeldt (5)

(1) Department of Physical Geography and Quaternary Geology, Stockholm University, SE-106 91 Stockholm, Sweden. (2) Ångströmlaboratoriet, Uppsala University, P.O. Box 534, Uppsala 751 21, Sweden. (3) Institut fur Geologie, Universität Bern, Baltzerstrasse 1-3, CH 3012 Bern, Switzerland. (4) Laboratoire de Botanique historique et Palynologie, C.N.R.S., No. 404, Faculté des Sciences et Techniques St. Jérôme, F-13397 Marseille Cedex 13, France. (5) Department of Geology, Lund University, Sölvegatan 12, SE-223 62 Lund, Sweden

Dansgaard-Oeschger (DO) cycles and Heinrich events (HE) have been intensively studied in ice-cores and in marine sediment records, while studies demonstrating the impact of these events on land are still sparse. To fill this gap, a Swedish-French-American team recently obtained two long sediment sequences from the site Les Echets in central France (45º54'N; 4º56'E). This basin, which formed during the penultimate deglaciation, provides a continuous sedimentological record covering the last glacial period and has a strategic position with its proximity to the northern Hemisphere ice-sheets, the North Atlantic and the Mediterranean. Of the two sequences recovered in 2001, one was located in the central part (core 1) and one in the shallower part (core 3) of the basin. Both sequences show a great potential to identify millennial- to centennial-scale climate events during the last glacial period.

The focus of our multi-proxy study is on OIS 3 (60-30 ka BP), a period characterised by several H-events and DO-cycles. A well-constrained chronology (AMS ^{14}C, OSL) will make it possible to correlate the sequence with ocean and ice-core records, thereby identifying the extent and impact of H-events and DO-cycles on the European continent and to determine if there are leads or lags between ocean, atmosphere and land. This will contribute to the understanding of mechanisms and causes behind these abrupt climatic events. Here we present preliminary results, based on LOI, biogenic

silica, diatom and chironomid assemblages, which indicate dramatic fluctuations in the lake's organic production and which can be interpreted as a strong response of the limnic environment to the millennial- and centennial-scale climatic variations during OIS 3.