



Multi-proxy approach for palaeoclimate reconstruction using a loess-palaeosol sequence from Süttő, Hungary

Christine Thiel (1), Paul Königer (1), Christian Ostertag-Henning (2), Georg Scheeder (2), Ágnes Novothny (3), Erzsébet Horváth (3), Lara Wacha (1,4), Astrid Techmer (1), and Manfred Frechen (1)

(1) Section S3: Geochronology and Isotope Hydrology, Leibniz Institute for Applied Geophysics, Hannover, Germany (christine.thiel@liag-hannover.de), (2) Federal Institute for Geosciences and Natural Resources, Hannover, Germany, (3) Department of Physical Geography, Eötvös Loránd University Budapest, Hungary, (4) Croatian Geological Survey, Zagreb, Croatia

The loess-palaeosol sequence at Süttő, Hungary contains a high-resolution terrestrial archive of palaeoenvironmental changes. The sequence is about 20 m thick and overlies travertine which was dated using Uranium-series to 235-314 ka (Sierralta et al., in press). Imbedded with the loess are two greyish stratified horizons, three brownish steppe-like soils and a pedocomplex composed of a reddish-brown palaeosol covered by a chernozem. Detailed dating studies were carried out (Novothny et al, 2009, Novothny et al., in press) revealing more or less continuous sedimentation from marine isotope stage (MIS) 6 to MIS 2. High-resolution grain size and magnetic susceptibility data exist (Novothny et al., in prep.) which allow for palaeoenvironmental reconstructions.

In addition to those data sets we analysed the carbon and oxygen isotopic composition of bulk carbonate, carbonate nodules, and organic material in order to get further insight into palaeoprecipitation and palaeoclimatic conditions. To strengthen the interpretation based on isotopic data, we examined biomarkers derived from land plants (long-chain n-alkanes) for both loess and palaeosols to add information on the vegetation changes.

We will discuss the new results in comparison with the published data sets and highlight inherent problems of the individual approaches.

Novothny, A., Frechen, M., Horváth, E., Wacha, L., Rolf, C., in prep. High resolution grain size and magnetic susceptibility record of the last glacial cycles in the Süttő loess section, Hungary. *Quaternary International*.

Novothny, A., Frechen, M., Horváth, E., Krbetschek, M., Tsukamoto, S., in press. Infrared stimulated luminescence and radiofluorescence dating of aeolian sediments from Hungary. *Quaternary Geochronology*, doi:10.1016/j.quageo.2009.05.002.

Novothny, A., Frechen, M., Horváth, E., Bradák, B., Oches, E. A., McCoy, W. D., Stevens, T., 2009a. Luminescence and amino acid racemisation chronology of the loess-paleosol sequence at Süttő, Hungary. *Quaternary International* 198, 62-76.

Sierralta, M., Kele, S., Melcher, F., Hambach, U., Reinders, J., van Geldern, R., Frechen, M., in press. Uranium-series dating of travertine from Süttő: Implications for reconstruction of environmental change in Hungary. *Quaternary International*, doi:10.1016/j.quaint.2009.04.004.