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## Reconsidering the paleoclimate implications of magnetic susceptibility records of Holocene loessic soils

**Diana Jordanova** and Neli Jordanova

National Institute of Geophysics, Geodesy and Geography, Bulgarian Academy of Sciences, Sofia, Bulgaria  
(diana\_jordanova77@abv.bg)

Mass specific magnetic susceptibility variations with depth along soil profiles developed on loess parent material is one of the most frequently used physical parameters in local, regional and global correlations of loess deposits. It is also utilized as a paleo-precipitation proxy, defined either as absolute difference between susceptibilities of the enhanced B-horizon and parent loess, or as relative enhancement using ratios of magnetic parameters. These different approaches in the application of magnetic susceptibility as paleoclimate proxy lead us to perform a comparative study on a number of Holocene soil profiles developed on loess from European loess area and the Chinese Loess Plateau (CLP). We made a compilation of data including 20 profiles from North Bulgaria, 28 profiles from Eastern and Central Europe; and 26 profiles from the CLP. Minimum magnetic susceptibilities of the last glacial loess ( $X_{min}$ ) from the compiled data base for European and Chinese profiles show climate related variability, revealing multi linear relationship with both present day MAP and MAT values for the corresponding locations. Strong deviations of  $X_{min}$  from this dependence display sites located at low elevation river terraces, Black sea coast and possessing large content of coarse silt and sand fractions. Pedogenic magnetic susceptibility ( $X_{pedo}$ ) defined as ( $X_{max} - X_{min}$ ) with  $X_{max}$  determined from the youngest part (last 1500 – 2000 years B.P.) of the Holocene magnetic susceptibility records of Chinese sections and absolute  $X_{max}$  of the European sites show systematic dependence on modern MAP and MAT values. This dependence is uniform for all sites with steppe vegetation, while higher scatter and steeper regression trends are observed for sites under mixed (steppe – forest) and forest vegetation. The study is financially supported by project No KP-06-N34/2 funded by the Bulgarian National Science Fund.