PALEOSOLS IN AUSTRIAN LOESS DEPOSITS

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Soil characteristics of paleosols in loess deposits give information on past climate and vegetation (VANCAMPENHOUT et al., 2008). Clay minerals, soil organic matter and carbonate content are indicators of environmental conditions during former pedogenesis (BAJNÓCZI et al., 2006; KARLSTROM et al., 2008). Loess deposition occured during cold, glacial climates, pedogenesis during relatively warm interglacials and interstadials.
Different loess-paleosoil-sequences from three sites in Lower Austria (Wolkersdorf, Niederabsdorf and Krems) were studied. The mineralogical composition (bulk sample and clay fraction < 2 μm) was determined using X-ray diffraction. Dominating clay minerals in samples from all sites are chlorite, illite, and smectite, in some of the samples considerable amounts of vermiculite were found.
Grain size analysis were made by a combination of wet sieving and sedigraphy.
Soil analyses included chemical parameters like pH-value, C/N-ratio, carbonate content and cation exchange capacity of the fine soil as well as of the clay fraction.
The type of humus substances may serve as an indicator of the conditions under which ancient soils have been formed. The composition of soil organic matter was characterised using Fourier transform infrared (FT-IR) spectroscopy, thermogravimetry and differential scanning calorimetry.

Keywords: Paleosol, Clay minerals, Organic matter.

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