ABSTRACT:

This diploma thesis deals with the research of primary and secondary magnetic fabric of aeolian loess sediments and paleosols on the cross-section temporary cropping out during the construction work in Prague 6. Magnetic enrichment - and the formation of magnetic nanoparticles in soil horizons - occurs during pedogenesis in warmer interglacials periods. The aim of this work is the interpretation of the paleoenvironment, weathering and pedogenic processes, by measuring the magnetic properties of sediments. Magnetic susceptibility, frequency-dependent magnetic susceptibility, anhysteresis remanent magnetization and natural remanent magnetization are used to detect the increased occurrence of magnetic particles, which indicate these pedogenic processes. The most developed paleosol horizon within the cross-section was the horizon of black soil and subsoil brown soil. Small signs of pedogenesis were revealed in the upper and lower loess part of the section. The magnetic fabric of loess, measured by means of anisotropy of magnetic susceptibility, reflects secondary sedimentary processes. This involves the displacement of clastic particles by flowing water and the redeposition of the material along the slope. The direction of movement of these sediments corresponds to the current geomorphology of the surroundings. This means, the section was not deposited solely by aeolian processes. This diploma thesis further tests whether viscous remanent magnetization may be used to determine the relative concentration of magnetic nanoparticles and whether this metod may substitute the conventionally used frequency-dependent magnetic susceptibility.

Key words: Quaternary, loess, paleosol, paleoenvironmental reconstruction