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Grain-size analysis of loess-paleosol sequences from the Carpathian Basin

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Loess-paleosol records in the Carpathian Basin provide excellent archives for studying paleoclimate- and paleoenvironment changes.
Five loess-paleosol sequences (Süttő, Basaharc, Hévízgyörk, Villánykövesd, Beremend; Hungary) were sampled high resolution and detailed grain-size investigation was carried out on the samples. Time frame for the investigation was elaborated by luminescence (post-IR IRSL) and Amino Acid Racemization (AAR) dating.
The samples were only treated by 1% ammonium hydroxid, therefore they can be considered bulk samples. Grain-size distributions were determined using a Beckman-Coulter LS 13320 PIDS laser diffraction particle size analyzer, covering the range of 0.02-2000 μm, at the Leibniz Institute for Applied Geophysics (LIAG), in Hannover.
Clay- and sand content and U-ratio were calculated from the grain-size distribution of each sample and these values were plotted against the depth of the profiles. Comparing the variation of these values and trends, temporal and spatial changes could be concluded. Numerical partitioning was applied using Weibull distribution to separate finer and coarser components of each curve. Changes in the relative proportions of these components throughout all sequences can be interpreted as temporal and spatial changes of the different transport mechanism. Limitations, practicability of the method, as well as results and their interpretation will be presented in this study.

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