



Reconstruction of a Late Pleistocene Paleorelief in Lower Austria

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Geomorphodynamic and pedogenetic processes were studied on the summit of Kranawetberg (a paleolithic site) and the northfacing slope towards a dry valley (Langer Grund) on the east boundary of the Austrian loess region Weinviertel near the standard sections "Stillfrieder Komplex" and "Stillfried B" [Fink, 1979, Peticzka et al., 2007]. The paleolithic (Gravettien) site was studied since 1994, therefore several drillings and sections were already analysed [Peticzka and Riegler, 2004]. Furthermore, the results of drillings, which were carried out in 2004, were available for the entire slope of the Kranawetberg. The studies show the occurrence of two pedocomplexes, one originating from an interglacial period, the other gives evidence of an interstadial period. Laboratory analyses of grain size distribution and carbonate content were done to confirm the field survey. The samples of paleolithic excavation were grouped by model-based clustering and integrated in a 3-dimensional model of the summit. A transection of the slope between summit and valley bottom shows the development of the interacting pedocomplexes. Under the Upper Pleniglacial loess the interstadial pedocomplex is traceable from the summit to the backslope. The underlying interglacial pedocomplex covers parts of the shoulder continuing on the backslope. In the footslope and the valley bottom no paleohorizons were found. The thinning out of the interglacial pedocomplex is the result of denudational processes on the summit. The upper horizons of the interglacial pedocomplex and the interstadial horizons are mixed in the backslope. This situation implies downward movement of material during the interstadial soil development. A horizon of carbonate leaching and an underlying horizon with enhanced clay content combined with carbonate coatings were found in the drillings of the summit. This fact indicates different stages of interstadial soil formation in the Late Pleistocene of Austria.

References

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