



## **Loess-/Paleosol Sequences of the Middle and Upper Pleistocene in Upper Austria**

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Investigations on paleopedology and Quaternary stratigraphy were carried out in the area of fluvio-glacial terraces of the rivers Inn and Traun/Enns. Research projects have been financed by the German Research Foundation (DFG) and the ICSU Grant Programme so far. Detailed studies were carried out on paleosols and loess sequences of different ages.

The investigations of the research group were focused on loess/paleosol sequences in Mindel and Günz terraces as well as in covering layers located on top of Riss terraces (OIS 6).

Loess records of the last glacial/interglacial cycle can be well observed in the study areas.

Older fluvio-glacial terraces of Mindel and Günz age (in the classical stratigraphy) show a completely different structure of the covering layers (c.f. Kohl, 1999). In this case, several thick interglacial paleosols are embedded within records of loess loam and redeposited material. However, four to five interglacial paleosols are developed inside the studied sequences.

Paleomagnetical investigations are leading to the assumption that different Middle Pleistocene excursions could provide chronological data in the future.

Generally, the Eemian soil (O/S 5e) is developed as a reddish Bt-horizon in fluvio-glacial gravels. U/Th-datings of calcites in the fluvio-glacial sediments are indicating that soil formation took place in the catchment area about  $113.000 \pm 4.400$  ka

(Terhorst et al., 2002). The interglacial paleosol was truncated and a redeposited colluvial layer was deposited on top of the Bt-horizons containing charcoal with characteristic relicts of coniferous trees. After this land surface destabilisation phase, sedimentation of loess became the predominant process. Pedogenesis in form of a brown paleosol occurred, which partly has been redeposited. The pedocomplex is characterized by intense bioturbation of steppe animals. OSL-datings show that this part of the sequence correlate to the Middle Pleniglacial stage. The pedocomplex is overlain by a Cambisol corresponding to the youngest Middle Würmian interstadial. The paleosol is covered by thick loess deposits of the Upper Pleniglacial. Well-developed Tundra-gleysols subdivide the loess deposits. The uppermost soil corresponds to the Holocene Luvisol.

The studies give a complete overview on landscape formation and a chronostratigraphical framework for the studied region.

Terhorst, B., 2007. Korrelation von mittelpleistozänen Löß-/Paläobodensequenzen in Oberösterreich mit einer marinen Sauerstoffisotopenkurve. *E & G, Quaternary Science Journal*, 56/3: 172 - 185.

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