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Chronostratigraphical investigations on Pleistocene fluvioglacial terraces of NW-Austria

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Investigations on paleopedology and Quaternary stratigraphy were carried out in the area of fluvioglacial terraces of the rivers Inn and Traun/Enns. Research projects have been financed by the German Research Foundation (DFG) and the ICSU Grant Programme. 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 located on top of Riss terraces (OIS 6 and older) as well as in areas with Mindel and Günz terraces.

Loess records of the last glacial/interglacial cycle can be well observed in the study areas.
Generally, the Eemian soil (O/S 5e) is developed as a reddish Bt-horizon in fluvioglacial gravels. U/Th-datings of calcites in the fluvioglacial 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 charcaol 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 belong to the Middle Würmian 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 Tundragleysols subdivide the loess deposits. The uppermost soil corresponds to the Holocene Luvisol that includes hydromorphic properties.

Older fluvioglacial 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.

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