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Luminescence Dating of the Stratzing Loess Profile (Austria) – New Insights into Landscape Evolution

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The Stratzing site is located in the Kremser Field (Lower Austria), an area that is covered by thick (up to ∼30 m) loess deposits and is famous for its archaeological finds. The loess sequence investigated here has a thickness of 7.5 meters and includes several weak to well developed paleosols.
Zöller et al. (1994) have dated the upper part (0-4 m) of the sequence using thermoluminescence, and Neugebauer-Maresch (1993) has presented radiocarbon ages for an artefact horizon from a nearby site which can be correlated with the Stratzing loess profile. From their results, the loess sequence has been attributed to the Middle to Late Weichselian. However, the age of the lower part (4-7.5 m) of this profile and the well developed paleosol is still uncertain.

This study presents age estimates for the entire sequence, using optically stimulated luminescence (OSL) of fine grained quartz, and standard as well as elevated temperature infra-red stimulated luminescence (IRSL) of polymineral fine grains. The results are compared with published dating results and implications from archaeological finds as well as palaeopedological interpretations. Our luminescence ages reveal an important hiatus above the paleosol (between ∼100 and ∼200 ka). Based on our chronology of the Stratzing loess sequence, possible models of the landscape evolution of this area will be discussed.

Neugebauer-Maresch, C., 1993. Zur altsteinzeitlichen Besiedlungsgeschichte des Galgenberges von Stratzing/Krems-Rehberg. Archäologie Österreichs, 4, 10-19.

Zöller, L., Oches, E. A., McCoy, W. D., 1994. Towards a revised chronostratigraphy of loess in Austria with respect to key sections in the Czech Republic and in Hungary. Quaternary Geochronology/Quaternary Science Reviews, 13, 465-472.