



High-resolution, multi-proxy analyses of the MIS3/2 loess-paleosol sequence Krems-Wachtberg, Austria

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Loess-paleosol sequences (LPS) are complex subaerial formations that form by alternating dust deposition and pedogenesis. Several localities have great potential for high-resolution paleoclimatic and -environmental reconstructions and thus to make valuable contributions to the INTIMATE initiative (Heiri et al., 2014). Here we present a high-resolution, multi-proxy record from the 8 m thick Paleolithic excavation site Krems-Wachtberg. Granulometric data at 2.5 cm intervals provide detailed information on dust accumulation (middle-coarse silt), pedogenesis (increase in clay content), and slope processes (increase in coarse fractions). Spectrophotometry in the same resolution provide quantitative information on deviations from loess color; several bleached horizons indicate repeatedly reducing conditions due to the presence of permafrost, whereas darker, brownish colors reflect terrestrial pedogenesis, milder conditions, and less dust input. Geochemical data characterize pedogenic processes and variations of the sediment sources. Moreover, we are currently analyzing leaf waxes (long-chain n-alkanes and n-alkanoid acids) and their compound-specific D/H ratios at 10 cm resolution in an attempt to provide more quantitative paleoenvironmental and -hydrological information. Radiocarbon dating of the leaf waxes (Häggi et al., 2014) is in progress and will be presented as innovative and promising approach to establish more robust and precise chronologies from LPS.

Häggi, C., Zech, R., McIntyre, C., Zech, M. and Eglinton, T.I., 2014. On the stratigraphic integrity of leaf-wax biomarkers in loess paleosols. *Biogeosciences*, 11(9): 2455-2463.

Heiri, O., Koinig, K.A., Spötl, C., Barrett, S., Brauer, A., Drescher-Schneider, R., Gaar, D., Ivy-Ochs, S., Kerschner, H., Luetscher, M., Moran, A., Nicolussi, K., Preusser, F., Schmidt, R., Schoeneich, P., Schwörer, C., Sprafke, T., Terhorst, B. and Tinner, W., 2014. Palaeoclimate records 60–8 ka in the Austrian and Swiss Alps and their forelands. *Quaternary Science Reviews*, 106: 186-205.