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Loess research and migration of early modern humans in southeastern and centraleastern Europe

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The CRC806 “Our way to Europe” archeological and geoscientific research projects focuses especially on loess sections in Europe. The detailed environmental context of Upper Paleolithic cultural evolution is still a matter of controversial debates, as most of its find horizons lack the required temporal and stratigraphic resolution (e.g. Kels et al., 2014). Well before the first Anatomically Modern Humans (AHM) dispersed into Europe around 40 ka, dry steppe environments dominated the wider Danube Basin. Here aeolian mineral dust accumulated as loess-paleosol sequences (LPS; e.g. Zeeden et al., 2016) forming the preservation matrix of Upper Paleolithic finds and structures. The reconstruction of paleoclimate variability based on grain size, geochemical and magnetic proxy parameters from LPS suggests a close match to isotopic ice core, speleothems, and sea surface temperature records resembling Greenland stadial-interstadial climatic fluctuations (Zeeden et al., in press; Obreht et al., 2017). This may provide a better chronostratigraphic framework and an environmental context for the archaeological findings. The late Quaternary archeological findings are usually found in short sections, while longer loess sections provide evidence of paleoenvironmental conditions. Establishing a catena from long lowland to short hillslope loess sections, we are aiming for a better understanding of human and climate interaction. Also, we present the late Quaternary Carpathian Basin as a specific context area of early modern human dispersal into Europe (Hauck et al., in press). The multitude of Early Upper Paleolithic sites in this region suggests that it was part of a major dispersal corridor along the Danube and within the catchment area of the Danube River some 40,000 years ago. An Aurignacian land-use model describes the interaction of early modern humans with their environment and specific eco-zones. To reconstruct the latter, paleo-environmental proxies and archaeological data are examined together in regional vector models and in a GIS-based archaeological landscape approach.

Kels, H., Protze, J., Sitlivy, V., Hilgers, A., Zander, A., Anghelinu, M., Bertrams, M., Lehmkuhl, F. (2014): Genesis of loess-like sediments and soils at the foothills of the Banat Mountains, Romania – Examples from the Paleolithic sites Românești and Coşava. Quaternary International, 351: 213-230.

Hauck, T.C., Lehmkuhl, F., Zeeden, C., Bösken, J., Thiemann, A., Richter, J. (in press): The Aurignacian way of life: Contextualizing early modern human adaptation in the Carpathian Basin. - Quaternary International, doi: /10l1016/j.quaint.2017.10.020

Obreht, I., Hambach, U., Veres, D., Zeeden, C., Bösken, J., Stevens, T., Marković, S.B., Klasen, N., Brill, D., Burow, C., Lehmkuhl, F. (2017): Shift of large-scale atmospheric systems over Europe during late MIS 3 and implications for Modern Human dispersal. Scientifc Reports 7: 5848

Zeeden, C., Kels, H., Hambach, U., Schulte, P., Protze, J., Eckmeier, E., Marković, S.B., Klasen, N., Lehmkuhl, F. (2016): Three climatic cycles recorded in a loess-palaeosol sequence at Semlac (Romania) – Implications for dust accumulation in south-eastern Europe. Quaternary Science Reviews154: 130-142.

Zeeden, C., Hambach, U., Veres, D., Fitzsimmons, K., Obreht, I., Bösken, J., Lehmkuhl, F., (in press): Millennial scale climate oscillations recorded in the Lower Danube loess over the last glacial period. Palaeogeogr. Palaeoclimatol. Palaeoecol., doi:/10.1016/j.palaeo.2016.12.029