Loess research and migration of early modern humans in southeastern and central-easter 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 archeological findings. The late Quaternary archeological findings are usually found in short sections, while longer loess sequences 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 archeological data are examined together in regional vector models and in a GIS-based archeological landscape approach.


