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Late Pleistocene and Holocene climatic variability in the Carpathian-Balkan region. Abstracts volume



**Late Pleistocene and Holocene Climatic Variability
in the Carpathian-Balkan Region**

ABSTRACTS VOLUME



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Human impact on Mid-Holocene vegetation and landscape development in the Carpathian region using a fuzzy approach

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This study contributes to the joint research project “Textile Revolution” which aims to elucidate temporal and spatial aspects of the introduction and spread of wool bearing sheep during the Mid-Holocene by integrating data from different research fields such as archaeology, archaeozoology, assyriology and geoarchaeology. The geoarchaeological approach presented here focuses on the environmental impact of increased animal herding with a spatial focus on the Carpathian region.

21 case studies were compiled to give a large-scale perspective on Holocene environmental dynamics. Sediment sequences provide c^{14} -dated pollen records (n=21), charcoal (n=10) and geochemical data (n=4). Dates were recalibrated using Intcal13 and linear age-depth-models were calculated using Clam2.2 except for cases where published age-depth-models were adjusted according to standard profiles in the environs. Pollen of secondary indicator species were used to trace herding impact. Changes of arboreal pollen/non-arboreal pollen-ratios and charcoal data were used to approximate the degree of disturbance in the wood cover. Geochemical data was used to assess environmental disturbance as represented by increased input of detrital sediment. Intensified herding was assumed as represented by increasing values of indicator pollen and decreasing arboreal pollen values, respectively. Indicator pollen and arboreal pollen values were combined by applying a fuzzy analysis based on a semi-quantitative approach. Ordinal scaled classes of degrees of herding impact were assigned to temporal units of 500-year time slices. Detailed interpretation incorporates the occurrence of *cerealia* pollen, time of *fagus* expansion and regional climate development.

First results imply overall low absolute values for herding indication. Nevertheless, three phases of increased respectively reduced herding impact can be observed. Hypsometric differentiation of the sites results in an asynchronous sequence of these phases, starting with increased herding indication in the colline zone between 6500 and 7000 years cal BP. Herding pressure in the montane zone is overall lower than in the colline zone. In subalpine zones, herding indication might be emphasized due to increased sensitivity of vegetation. Additionally, postglacial succession processes may have lasted longer and natural dynamics of arboreal pollen values might superimpose or simulate anthropogenic impacts. For a more detailed view, distances between palynological archives and archaeological sites as well as results from the other studies of the project will be taken into account. However, for the Mid-Holocene, one may already state that a “Textile Revolution” in the sense of an abrupt increase of animal herding leading to accelerated and intensified land degradation is not recorded in any of the sediment archives.