



## **Deriving the extent of Chernozems and Phaeozems in Central Germany during the Neolithic period from sediments buried in Neolithic structures**

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Material found in Neolithic pits, ditches or postholes was often buried quite fast, and since that time it was largely cut off from input of younger sediments and from subsequent transformation processes. Thus, this kind of material can be used as a discontinuous sedimentary archive that can give valuable information about the former palaeoenvironment such as the Neolithic soil type distribution.

The largest region of Germany that is recently covered by black-coloured Chernozems and Phaeozems is located in the rain-shadow of the Harz Mountains in Central Germany. However, similar to other regions of Germany the former occurrence of Chernozems and Phaeozems in areas of Central Germany that are covered by other soil types today is suggested by black-coloured colluvia and by black fillings of Neolithic pits, ditches and postholes, as well as by dark-coloured clay coatings in the Bt-horizons of Luvisols (Luvic Phaeozems). Whereas for some German regions as the Lower Rhine Basin or Central Bavaria it could be demonstrated that buried black material does not originate from former Chernozems or Phaeozems but is of anthropogenic origin, similar investigations were not carried out in Central Germany yet. Thus, in this study we investigated whether Chernozems and Phaeozems had a larger distribution in Central Germany during the Neolithic period. This is achieved by comparatively analyzing sedimentologic and micromorphological properties of black-coloured material taken from Neolithic structures in the recent Luvisol area with Neolithic and Medieval material derived from the recent Chernozem/Phaeozem-region. Furthermore, carbonate contents from individual sites are compared with each other. Doing so it could be shown that the Neolithic distribution of Chernozems and Chernozems in Central Germany was not significantly larger than today. Instead, most black material buried in Neolithic structures obviously has an anthropogenic origin or is derived from former Ah-horizons of humus-rich Luvisols. Apart from a sub-continental climate, the main factor determining the recent and former distribution of Chernozems and Phaeozems in Central Germany was obviously the carbonate content of the parent material of pedogenesis.