

INSIGHT INTO THE ENVIRONMENT OF AN EARLY MODERN OXBOW LAKE (RHEINLAND, GERMANY), USING A MULTI-PROXY APPROACH

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Key words: Interdisciplinary investigations, Land use change, Early modern time

In a multi-proxy approach, an oxbow lake on the lower reaches of the river Inde in the Rheinland was analysed. The investigation area is situated in one of the most fertile landscapes in western Germany, in the vicinity of the cities of Aachen, Köln and Jülich. Using archaeological and natural scientific methods, such as pollen analyses, macro remains, micromorphology and element analyses, the environment and land use of early modern time were studied.

The pollen analyses from the oxbow lake showed an intense cultivation in this area producing plenty of cultivated plants (crops, cannabis, flax, horse bean). The floodplain grassland was used as meadow and/or pasture, whereas the arable land was situated on the elevated loess areas. Seeing the diversity of species and the amount of pollen grains from grassland and cultivated plants, it seems likely that the food for cities such as Köln was produced in this area.

The micromorphological results show a distinct horizontal lamination of differing thickness. The silt- and clay-dominated layers are broken up by several thin layers of clay or light organic layers. Parts of the sediments contain a high proportion of charcoal. The deposits indicate a slow and steady sedimentation in the oxbow lake.

Furthermore, grain size analyses and other geochemical analyses like CNS were carried out. To measure element concentrations, the sediment samples were investigated by a mobile X-ray analyser. The first results show that different sedimentation phases have special distributions of the content as well as composition of heavy metals. The increase of contamination caused by human activities, attributed to mining within the catchment area, is plainly visible within the sediments.

The different human land use activities become apparent when combining these diverse analyses. The environmental history is stored both in archaeobotanical and sedimentological archives.

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