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Titel

Biomarkers as Proxies to Analyse Land-Use History in Northern Jordan

Abstract

In the semi-arid 'Decapolis region' in northern Jordan, due severe land degradation in the past, 'barren' and 'impoverished' landscapes can be found today. It is widely believed that land degradation in these regions was caused by ancient land use, e.g. overgrazing due to 'Arab mismanagement'. However, the connection of degradation with land use is far from certain. The 'Decapolis region' is located in an approximately 100 km wide transition zone from Mediterranean to steppe and desert climate. Therefore, the landscape in this region is highly sensitive to climate variations. A major sedimentation phase in the late 6th century AD appears to represent a significant climate change towards more aridity, and might be connected with a cluster of heavy rainfall events in northern Jordan. In fact, more recent studies have found that periods of predominantly pastoral land use in northern Jordan were connected with natural reforestation. Since a dating of sedimentation alone does not deliver clues about the precise reason of deposition, a multidisciplinary team is analyzing the land-use history in the 'Decapolis' region. This presentation focusses on ongoing biomarker analyses. Samples were selected considering geoarchaeological data, including phosphorus concentrations, archaeological data, including distribution of potsherds and other fragments on ancient fields and data of further disciplines. Vegetation changes are investigated by analyses of n-alkanes and terpenoids. Manuring with faeces is analysed by specific steroids that are indicative for faeces deposition. Preliminary results showed a high input of omnivorous (pigs, humans) faeces in some areas. Manuring with faeces of herbivores seemed to be less important.