



The Temporal and Spatial Quantification of Holocene Sediment Dynamics for Reconstructing Soil Erosion: Pros, Cons and Challenges

Markus Fuchs

Justus-Liebig-University Giessen, Department of Geography, Giessen, Germany (markus.fuchs@geogr.uni-giessen.de, +49-(0)641-9936259)

Since the early beginning of farming, humans have a strong impact on the landscape, on its land cover and therefore on the sediment dynamics. It is assumed that an increase of farming activity is documented by truncated soil profiles due to soil erosion on the slopes and deposition of the eroded material as colluvium and alluvium at foot-slope positions and in floodplains of rivers. In this respect, these sediment archives play a major role in reconstructing human induced soil erosion and in establishing catchment wide quantitative sediment budgets. However, the response of sediment archives to an external impact like the human impact on the landscape or climate events is not homogeneous within a catchment, but might be variable in time and space. This is well known and considered in the geomorphological concept of sediment cascade systems and therefore needs to be included as a basic idea in studies on past soil erosion and its driving factors, using sediment archives. However, the identification of representative sediment archives within a catchment and especially their temporal quantification is challenging. In this presentation I will discuss the importance of sediment archives for reconstruction past soil erosion, the significance of these archives for identifying possible causes of sediment redistribution and the pros, cons and challenges, which are involved.