



## **Rapid landscape change in 6th century northern Jordan: interdisciplinary geoarchaeological perspectives**

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Landscapes of the ancient fertile crescent are considered affected by soil degradation as result of long-term farming since the Neolithic, and impressive ruins of antiquity led to assumptions that their abandonment must have been connected with reduced agricultural productivity. In this context, a valley fill near the site of Abila of the Decapolis in northern Jordan was apparently deposited largely during the 6th century AD, and provides evidence for a rapid and intense landscape change during the Late Byzantine period. However, an interdisciplinary case study of land use, soil development, and sediments found that the valley fill cannot be connected with large-scale soil erosion in the vicinity of the site. On the one hand, this is indicated by the distribution of soil development and archaeological material as marker of past land use activity in the past, which suggests that the best soils were and still are used intensively. On the other hand, the sediments seem to point to the occurrence of climatic extremes such as heavy floods, the occurrence of soil creep after water saturation, but also a significant shift to aridity which may have triggered socio-economic changes of subsistence strategies from agriculture to pastoralism. The dates of sediments which are available so far indicate that the climatic change seemingly occurred rapidly within approximately 100 years during the late 6th and early 7th century AD, possibly connected with the "year without sun" or 'Mystery Veil' which the Byzantine historian Procopius described in the year 536 AD. Modern analogies of the Pinatubo eruption in 1991 let it seem possible that a volcanic event, perhaps the outbreak of the Ilopango volcano, was connected with these environmental turbulences. Such events cannot be understood by isolated studies: without a broad interdisciplinary framework, single archives are prone to misinterpretation, and our understanding of the environmental history of Abila is still very limited.