

The siting and environmental change of a high medieval monastery in central German highlands

Christian Büdel, Angela Tintrup, and Roland Baumhauer

University of Würzburg, Institute of Geography & Geology, Physical Geography, Würzburg, Germany
(christian.buedel@uni-wuerzburg.de)

The geology of central German highlands is dominated by Triassic sandstones of the Bunter sandstone unit (German: Buntsandstein). These rocks commonly lack of minerals and they are unsuitable for beneficial agriculture. Early settlers in the Spessart highlands in central Germany therefore preferred patches of Pleistocene loess accumulation for the siting of their residences. The occurrence and distribution of this preferred loess-sites at high medieval times is of high interest and still under discussion. The investigated monastery site of Elisabethenzell was founded, developed and abandoned during a short medieval period and in an exposed and delimited area. The investigation of its environmental history and landscape offers insights to the careful decision of the former settlers.

Both, historical maps and the data from laser altimetry were assessed in order to compile a comprehensive overview of the monasteries situation. In addition, pedologic, sedimentologic and geomorphologic prospections were conducted and all data was assessed using a geographic information system (GIS). At selected sites ramming core probes, and sections helped to determine specific soil and sediment characteristics.

The results show subsoils of mineral-poor sandstones and Pleistocene periglacial layers with a thickness of up to 4-6 meters. The constructional elements of the monastery take advantage of the shape of the Pleistocene landforms, which was observed together with a local melioration of the mostly acidic Cambisols. This is provided by the delimited occurrence of loamy loesses in relict Luvisols. The meliorated soils coincide with a better availability of water, which is due to the local geomorphology and higher clay contents in underlying Miocene and Pliocene sediments. As a consequence, medieval agriculture and gardening is likely and the landforms reveal preferable areas offering a confined gradation as well as evidence for the prevention of soil erosion. A prospection of soil phosphates also revealed key areas of the former land use.

The interpretation of the findings supports the thesis of a carefully selected site, which was situated at a medieval trading route close to the ancestral castle of the Counts of Rieneck, and therefore far from productive soils and water resources. Although, small-scale advantages were optimally occupied in regards of the shape of the monastery site, its soil quality and water supply.