

Reconstruction of settlement phases at Intermediate Bronze Age structures in the Negev Highlands (Israel) using luminescence dating

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OSL dating is usually applied to sediments in paleoenvironmental sciences. However, there is only limited experience with determining the age of archaeological stone structures by OSL using dust deposits associated with these structures. The age of trapped dust deposits may be used to date the onset of settlement (sediment below structures), settlement activity (occupation layer), or the time after settlement (sediment between collapsed walls and roofs). In this study, OSL dating is applied for establishing a chronology of settlement structures situated in the Negev Highlands, Israel. Two archaeological sites are investigated to identify the occupation history, by dating the aeolian dust trapped within the remains of ancient buildings. OSL dating techniques are applied using coarse grain quartz and a standard SAR protocol. First results indicate that the luminescence properties of the trapped sediments are suitable for OSL dating. Therefore, it was possible to date the onset of sedimentation in a later phase of the human occupation or shortly after the settlement was abandoned, which is supported by archaeological evidence gained from pottery finds and the architecture of the buildings.