



Ancient water reservoirs and cisterns as archaeological and palaeoenvironmental archives in the Negev Highlands, Israel

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Ancient open water reservoirs and subterranean cisterns are frequently occurring archaeological installations in drylands. These water collection and storage installations can sustain settlements, agriculture and nomadic pastoralism under dry conditions. During precipitation events surface runoff from adjoining slopes erodes and transports sediments, which are then deposited in the reservoirs and cisterns. Therefore, these archaeological installations serve also as sediment traps, representing fluvial processes in their catchments. Additionally, the structures are usually constructed to prevent any water outlet, resulting in an undisturbed, often continuous sediment record of the infilling. Crucial for investigating water harvesting systems and their sediments is the establishment of robust chronologies, with optical stimulated luminescence (OSL) dating as the preferred dating method. This enables to determine the time of construction, utilisation and abandonment of the reservoirs and cisterns. In addition, the sediment record within the installations may include numerous environmental proxies (e.g. pollen, phytoliths, botanical macroremains), which can be used for palaeoenvironmental reconstruction, serving as an important palaeoenvironmental archive in dryland areas where continuous sediment records are rare.