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Olive Mounds, Roman cisterns, erosion pins – potential to characterize erosion in a Mediterranean catchment in north Jordan.

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In the framework of a three years' time period of a PhD thesis it is luck to catch the "right" rain events for good general erosion approximations. Methods that (i) cover longer time periods, (ii) are not confined to constructed boundaries, and finally (iii) include all possible erosion processes are crucial for good average estimates of sediment yields from different landscapes.
The aim of the study was to get a first understanding of erosion processes and sediment yields in a Mediterranean to semi-arid catchment in NW Jordan, wherefore different measurement methods were tested in the predominant landscape units: olive orchards (27%), fields (14%) and natural shrubs on steep slopes (∼30%). One of the applied methods was the measurement of topographic olive mounds within 7 orchards with an average size of 800 m2 in synergy with tree-coring and age estimation of the orchards. Furthermore the OSL dating of deposited sediments in two roman cisterns adjacent to fields was conducted and the 9 erosion pin fields, each about 200m2 large, were installed on steep slopes with natural vegetation.
The methods cover different time scales from 560 years for the fields, an average of 32 years for the olive orchards and up to two rainy seasons for the erosion pin fields. Results show that olive orchards on steep slopes (>10%) have the highest erosion potential in the region with 95±8 t ha-1year-1 followed by natural vegetated slopes with 37±4 t ha-1year-1 of dislocated material and fields with 1.22±0.06 t ha-1year-1 sediment yield. These spatially constrained outcomes are supported by geochemical sediment fingerprint results of lake sediments from the catchment and will be discussed in regard to the basic assumption that underlie the principle of measurement and the limitations of the methods.