



## **OSL and TT-OSL dating of sediments and pottery from a paleoseismological trench across the Gyrtioni Fault, Central Greece: Preliminary results**

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The preliminary results from optically stimulated luminescence (OSL) ages from a paleoseismological trench excavated in the Gyrtioni Fault, Tyrnavos Basin, Central Greece are presented. The initial preliminary interpretation of the trench wall structure provided indications of recent reactivations of the fault. The footwall of the fault consists of well stratified lacustrine deposits, while the hanging wall consists of poorly stratified scarp-derived deposits. Seven samples, one for each lithologic unit, were collected from the upthrown fault block in order to establish a reliable chronological framework and nine sediment and pottery samples were collected from the downthrown fault block to constrain the timing of the linear morphogenic earthquakes observed in the trench and thus reconstruct the recent seismotectonic behaviour. The samples were dated following the OSL dating method, using the Riso TL/OSL DA-20 reader. The OSL ages were obtained from chemically purified quartz and a single-aliquot regenerative-dose (SAR) protocol was followed for the equivalent dose ( $D_e$ ) determination. Also, the natural radioactivity of soil from the surroundings of the original sample location was assessed, using gamma spectrometry. The dose rates were calculated using the appropriate dose conversion factors and corrected for the humidity content of the surrounding soils. The OSL ages from the upthrown fault block are in stratigraphic order (except one sample), but the signal of the five oldest samples occurs above the saturation level of the exponential part of the dose response curve and thus the reliability of the calculated  $D_e$  value for use in dating is uncertain. To obtain a more reliable  $D_e$  value, thermally transferred optically stimulated luminescence (TT-OSL) signal has been investigated for five samples. The age of the earthquakes observed in the trench and the recent seismotectonic behavior of the fault are also discussed.