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# Paleoseismic results of the east strand of the Lower Tagus Valley Fault Zone, Central Portugal.

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The Lower Tagus Valley Fault Zone (LTVFZ) is a northeast-southwest trending tectonic structure located within the Lower Tagus Valley (LTV), in central Portugal associated with at least two historical events: the 1909 Mw 6.0-6.2 Benavente earthquake and the 1531 Mw 6.9 earthquake. Recent investigations indicate that the relatively linear valley associated with the Lower Tagus River is controlled by active faults in varying geometry and slip rates. Based on mapped traces, LTVFZ is about 80 kilometers long and transects Miocene to Holocene deposit. The east and west strands of the fault zone may have different level of activity based on the variable clarity of mapped morphological expressions.

In recent studies new fault strands were identified using aerial photos and field survey on eastern side of LTV. These eastern faults have a trend that almost parallel those active traces previously mapped by Besana-Ostman et al., 2012 on the western side of the valley. Quaternary activity of this fault deforms fluvial terraces and produces morphological features related to left-lateral strike-slip movement like river offsets.

In this work we present the results of the first paleoseismic analysis carried out on this strand of the fault. Trenching studies shows that surface rupture events have occurred affecting Tagus fluvial terraces. The geometry of faulting exposed in the trench provides valuable insights into the kinematics of the fault, and provides a preliminary minimum net slip rate. New relative ages of the deformation are established on preliminary trenching results, and recurrence intervals will be determined upon receipt of results of sample processing for C14 dating.

The aim of this work is to contribute with new data to parameterize the paleoseismic activity of this active fault in order to be included in the future seismic hazard assessments. Further studies are proposed and underway to characterize the LTVFZ, including high-resolution LIDAR images analysis, more active fault mapping and paleoseismic excavations.