Pliocene-Quaternary transversal seismogenic faults in the Valdelsa Basin (Southern Tuscany, Italy)

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Keywords: transversal faults, inner Northern Apennines, earthquakes.

The seismogenic role of transversal SW-NE striking faults in the inner Northern Apennines has recently gathered a renewed attention due to the occurrence of several 3 Many of these faults, however, do not show clear surface evidence even when releasing earthquakes and their recent and/or Quaternary evidence often a matter of discussion.

For these reasons they can be extremely dangerous as they receive relatively little attention and are difficult to identify.

We focus our attention on the integration of different datasets: seismic reflection profiles, surface kinematic data and the relocation of seismological data, to identify and characterize active faults whose dimension and earthquake potential would otherwise not be large enough to make them identifiable. We take as an example the Montespertoli NE-trending fault in southern Tuscany (central Italy) with which we associate the 2016 M=3.9 Castelfiorentino earthquake. This structure is part of a wider (in the order of 15–20 km) crustal-scale shear zone, which may be responsible for strong historical earthquakes in the area.