

STATE-OF-THE-ART OF ACTIVE FAULT STUDIES IN ITALY

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Italy has a long record of historical seismicity, with a time window useable for probabilistic seismic hazard estimation spanning ca. 500 years. All the damaging earthquakes are located in the upper crust and magnitudes reach 7-7.3. The strongest events in this century have induced surface faulting, ca 20 and 37 km long for the 1915, Fucino, and 1980, Irpinia, earthquakes respectively. As well, the historical sources describe features easily interpretable as surface faulting for many of the most destructive events. Finally, paleoseismological studies have demonstrated that latest Pleistocene-Holocene displacements have affected many structures considered silent before. Therefore, the accurate mapping of faults with evidence of recent surface offset is essential for greatly improving our seismic hazard estimation, by assigning most of the destructive earthquakes to sources characterizable for length, geometry, kinematics, Holocene offset, slip rate and recurrence interval. Here I introduce the inventory of capable faults being realized for Italy, with contribution of many research groups. Re-evaluation of existing data and new studies have allowed to map and categorize most of the surface structures capable of damaging earthquakes for a large part of the territory, that including the known most damaging events (central and southern Italy, part of oriental Alps). The compilation is still incomplete for the submarine areas and those of active shortening (southern Alps, Po plain), where blind thrusting may give only subdued evidence of surficial deformation. All the information is summarized in a relational database and G.I.S. and can be accessed in Internet.