

Seismically induced ground effects of the 1805, 1930 and 1980 earthquakes in the Southern Apennines, Italy

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Seismically induced environmental effects (in particular, surface faults, ground cracks, slope failures, liquefaction, soil compaction, hydrological changes, tsunamis) are assumed to provide fundamental information on the earthquake size and its intensity field, crucial for a more efficient seismic hazard assessment. Accordingly, this study is aimed at substantiating this assumption by showing that the knowledge about ground effects acquired in recent earthquakes, when combined with that illustrated in historical documents, allows to build an improved picture of historic seismic events, with respect to that usually provided by the solely damage-based macroseismic scales. In this perspective, the environmental effects are analysed and catalogued of three of the most ruinous earthquakes in Southern Italy of the last two centuries: the July 26, 1805, Molise event (XI MCS, M 6.8), the July 23, 1930, Irpinia event (X MCS, M 6.7), and the November 23, 1980 Campania-Basilicata event (X MSK, Ms 6.9). The distribution of the earthquake environmental effects, in particular their distance from the known or supposed causative fault, has been investigated to obtain a more detailed and comprehensive picture of the macroseismic field, a key parameter in seismic hazard assessment and seismic zonation.

KEY WORDS: *historical seismicity, intensity, ground effects, earthquakes, Southern Apennines.*

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