

Seismic hazard assessment of Campotosto, Italy

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Between 1997 and 2017, central Italy was struck by several seismic sequences that cumulatively claimed more than 600 victims, besides producing widespread destruction in historical towns and damage to vital infrastructures. Based on the integration of geological and seismological datasets, this new study published in the *Geological Society of America Bulletin* provides a 4-D, high-resolution image of a crustal volume hosting an active linkage zone between two major seismogenic faults.

This, in turn, furnishes new insights into the behavior of interacting faults in the incipient stages of connection. In fact, this study proposes an innovative interpretation for a key area—that of Campotosto—believed to represent a seismic gap located between the seismogenic [fault](#) responsible for the 2009 L'Aquila earthquake (of magnitude 6.3) and that activated during the 2016 Amatrice-Visso-Norcia earthquakes (of maximum magnitude 6.5).

The Campotosto area is characterized at the surface by a major geological structure; i.e. the Mount Gorzano fault. Mainly due to its geomorphological expression, this fault has been considered as an active and silent structure—able to generate an earthquake of maximum magnitude of 6.5-7.0. However, the [geological evidence](#) provided by this study indicates that this fault accumulated most of its displacement between about seven million and five million years ago, and it does not represent a direct surface expression of a major seismogenic fault.

The results of this study bear major implications for seismic hazard assessment in the study area, also taking into account that the issue of temporarily "silent" seismogenic sources are receiving much attention in the earthquake faulting debate following the deadly 2016 earthquakes in central Italy.

More information: Emanuele Tondi et al. The Campotosto linkage fault zone between the 2009 and 2016 seismic sequences of central Italy: Implications for seismic hazard analysis, *GSA Bulletin* (2020). [DOI: 10.1130/B35788.1](https://doi.org/10.1130/B35788.1)

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