

Nat. Hazards Earth Syst. Sci. Discuss., author comment AC1
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Reply on RC1

Nicola A Pino

Author comment on "Brief communication: The crucial assessment of possible significant vertical movements preceding the 28 December 1908, $M_w = 7.1$, Messina Straits earthquake" by Nicola Alessandro Pino, Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-49-AC1>, 2022

Dear Dr. Katz,

I red the comments from RC1, which I agree with and consider quite appropriate. Thus, at the end of the "Conclusive remarks" section added a sentence summarizing my view about the source of the 1908 earthquake, based on the published results of geodetic and seismological investigations. In particular, I added the text enclosed here below.

With my best regards

NAP

"Overall, based on the available data some constraints can be put on the causative fault of the 28 December 1908 earthquake. By jointly considering the published results of geodetic, seismic instrumental, and macroseismic analyses (see Pino et al., 2009, for a comprehensive review), the most likely source corresponds to an about 40 km-long fault, roughly N-S oriented and dipping eastward at low angle. The rupture should have nucleated at the southern end of the Straits, at 8-12 km depth, and propagated northward, as confirmed by the seismograms' analysis (Pino et al., 2000) and the modelling of the macroseismic data (Convertito and Pino, 2014). These characteristics appear to be quite robust; nevertheless, in principle, future investigations could demonstrate their fallacy, but whatever criticism should be grounded on solid elements and rigorous analyses, rather than unfounded hypotheses.

Apparently, the above elements represent the best constrained indications that can be derived from measurements dating more than one century ago. On the other hand, the many geophysical prospections carried out in the Messina Straits did not succeeded in finding the fault. Maybe it is time to start thinking of specific investigations, such as drilling the upper crust looking for the fault."

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