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Comment on nhess-2021-399

Anonymous Referee #1

Referee comment on "A morphotectonic approach to the study of earthquakes in Rome"
by Fabrizio Marra et al., Nat. Hazards Earth Syst. Sci. Discuss.,
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The paper presents an attempt to infer the hidden seismotectonic setting from a morphological analysis. In this regard, the study may be of some interest to improve the knowledge of the Rome area. Beyond this possible contribution, no inference about the present seismic hazard can be obtained as claimed by the Authors in the abstract and conclusions. In my view, by no way the analysis carried out supports this statement: neither as concerns the "weakness" of the present tectonic regime nor the small dimensions of the faults (which, as expression of deeper fault systems that may be not segmented as the respective surface expressions seem to be). In essence the main conclusion (low hazard) only relies on the lack of strong earthquakes in the historical records (which is a strong evidence in my view). Thus, abstract and conclusions should be modified to reduce ambitions of the paper.

As concerns the seismotectonic interpretation, it is not clear to me what is the origin of the new "competing" tectonic regime responsible for the sinistral reactivation of dextral strike slip faults. Possibly this is not the core of the present paper: in this case, discussions about active strain regimes could be safely removed by only focusing the paper on inferring the apparent geometry of fault systems.

In summary, the paper could be shortened and re-focused on the main issue: the use of morphometric tools to infer geometry of main "active" faults.