

## ***Interactive comment on “Fault Network Reconstruction using Agglomerative Clustering: Applications to South Californian Seismicity” by Yavor Kamer et al.***

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Received and published: 12 August 2020

The study presents a novel clustering principle to capture faults network from earthquake catalog. The authors proposes an agglomerative clustering algorithm similar to previous only here they gather clusters to faults starting with highest possible complexity level (as many kernels as possible) and gradually converge to a simpler structure.

The paper begins with a practical presentation of the problem, a failure to reconstruct a reasonable fault network based on the Landers 1992 sequence, with an unrealistic horizontal fault plain resulting the a simplify approach. The authors also address to computational limitations due to the tremendous amount of computational power (and

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time) need to gather clusters with a large regional catalogs (e.g. the Southern California KaKiOS-16). In the end, authors validate the resulted fault network.

The paper is well written and figures are useful.

I have only one concern and this is the validation of the faults network. I would expect a more deterministic approach to validate the resulted faults geometry. I think that exploring a small region using FMS data + mapped fault will be much appreciated to judge, is method is more capable to detect the natural faults network?

Specific comments:   L. 33: The use of “large durations” is confusing. Please clarify.  
  Fig. 10: It seems that the colors of the ellipses is correlated with the size of the kernel. If so, a color bar is useful here.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-231>, 2020.

