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Interactive comment on “Non-local deformation effects in shear flows” by A. V. Popova et al.

Anonymous Referee #2

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In the paper the authors propose an algorithm to find temporal-spatial connections between earthquakes based on specific criteria. The understanding and quantifying the clustering of earthquakes is an important problem in modern statistical seismology. There exist many algorithms which try to solve this problem with varying degrees of success.

I do not think that the presented algorithm is a completely new one. It is mainly based on the Gardner-Knopoff declustering algorithm with an additional "shear direction" part. It is applied to a specific seismogenic zone where several clusters of earthquakes are identified.

The paper is not clearly written and structured. The authors use rather strange expressions and notions which are not always well defined or explained. For example, the authors use the notion of "shear flow" in reality it is the average coseismic dis-

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placement. So it is not the same as the shear deformation typically defined in seismic or geodetic studies. Another not well translated term is "summary energy" I think the authors meant the cumulative energy. There are other such examples of improper use of terms to describe specific concepts. Some sentences are simply incorrect or meaningless.

The authors are also not that familiar with other existing declustering algorithms. One has to show how the new algorithm differs from others and what it can offer what others fail to accomplish.

I also have some reservations concerning the produced results. Consider two clusters (#23 and #47 in Figure 2) identified by the proposed algorithm. They span almost the same time interval and spatial area. The events in these two clusters occur not consequently but are spread among the events of both clusters. This is rather unexpected and strange.

Based on above I do not think that the paper is suitable for publication in Nonlinear Processes in Geophysics.

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