Interactive comment on "Fault distance-based approach in thermal anomaly detection before strong Earthquakes" *by* Arash Karimi Zarchi and Mohammad Reza Saradjian Maralan

Anonymous Referee #2

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The current manuscript presents a new method for correlating strong earthquakes with thermal anomalies using LST records for the purposes of earthquake prediction and/or forecasting. The subject is within the scope of the journal but even the idea is interesting, the manuscript at its current form cannot be published due to the following major issues:

1) In literature, there are many proposed methods for strong earthquake prediction based on observed singularities of physical quantities. The non-prevalence of a specific one (or at least a limited set of them) means that the detection of the aforementioned singularities in not enough to have an operationally complete method. What is usually

missed is the performance of each proposed method during the periods or situations where there is no intense activity (or at periods with mild activity). This is linked to what we called "false alarm avoidance". the current manuscript suffers from this lack also: the authors did not present the results of their proposed method in the periods where no strong events existed in order to compare both results. If this is not done then this study is incomplete

2) In the case that authors can successfully implement the previous suggestions, the authors must justify the selection of some crucial parameters of their method such as: a) how the k coefficient was selected b) how the value of radius R was selected? based on topographic criteria or due to some signal processing axioms? in order to catch up a very common answer, the significance of the proposed method could not be based on "empirical selection" and thus must justified in a solid framework

3) the authors claim the use of an ANN in order to estimate the EQ intensity. this could be acceptable only if the authors provide details about the implementation of the ANN that they used (topology, comparison to relevant implementations, performance, training data set, criteria for selection of training and evaluation data sets, scoring of individual runs, computing requirements)

For the above reasons i suggest a major revision of the current manuscript