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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Comparing multi-criteria methods for landslide susceptibility mapping in Chania Prefecture, Crete Island, Greece" *by* M. Kouli et al.

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First of all I would like to thank the referees and Chief-Executive Editor for providing a very useful discussion that definitely should help the authors to better focus on the most important critical issues of their work. From my side I can say that while the paper treated an interesting topic, it presents several critical issues, that here I try to summarize:

1. Suitability of landslide inventory: one cannot find any description about landslides types and size (a map of landslide inventory is missed). How the landslide inventory

has been collected? A description of the processes that activated the analyzed landslides is also missed. Too many uncertainties are related to this section, and this really can mine the whole paper at its foundation.

2. The authors decided to consider the landslide points instead of landslide areas. Is this suitable? What is the uncertainty related to this decision?

3. DEM used in the analysis and the related topographic attributes: a 20 m DEM generated from the topographic maps of the Hellenic 5 Military Geographical Service, at a scale of 1:50,000, has been used for the analysis of topography (slope, aspect, curvature, channel network extraction): well, what is the accuracy of this DEM? What is the uncertainty on the final results using such kind of information? Also this point is critical for the suitability of the results.

4. Channel network extraction: nobody in the open discussion underlined this critical issue that absolutely is one of the weak points of the work. The drainage network was automatically extracted from the DEM (pag. 6, line 24-25). . .well, according to which method? What about the real network? Surely the extracted network is affected by several uncertainties related to the DEM resolution, algorithm for the flow directions calculation, and methods used for the extraction. The fact that the authors used this network as one of the most important factor in characterizing landslide susceptible areas, without any statistical analysis about the related errors/uncertainties on the final results, leaves me rather puzzled.

5. Validation and prediction of future landslides: all the comments in the open discussion, highlighted the weakness of this section that should definitely be rethought.

Concluding, based on the critical point #1, #2, #3, #4 and #5, in addition to the others raised in the open discussion, I have some doubts about the effectiveness of the landslide susceptibility maps generated according to the two methods presented. The work needs to be rethought and restructured in several sessions, in order to make it ready for a new submission and peer-review stage.

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