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Interactive comment on "Determination of Heavy Rain Damage-Triggering Rainfall Criteria Based on Data Mining" *by* Jongsung Kim et al.

Anonymous Referee #1

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Comment on Manuscript NHESS: Determination of Heavy Rain Damage-Triggering Rainfall Criteria Based on Data Mining

The manuscript deals with a methodology to determine rainfall thresholds associated with damage-triggering in Korea. The topic is relevant, and the objectives are clearly explained at the beginning. However, in my opinion the manuscript presents important problems regarding both its form and content. For example, the structure of the manuscript does not help the reader to get a clear idea of the methodology proposed, it seems more a technical report, for internal use, than a scientific paper, intended for global dissemination. While some aspects are presented in detail others are omitted or not discussed. For example it is not clear to this reviewer if maximum rainfall for the different time periods are considered with local references (for example from local IDF

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Discussion paper

series) or to some other framework, as described for rain gauge point measurements by [1] or gridded two dimensional radar derived precipitation field, as described by [2].

English language should be reviewed in depth as current problems hamper following authors descriptions. Besides there are additional issues, that should be carefully reviewed by authors. I do not intend at this stage to provide a list of specific comments, but some are: the abstract does not provide an overview, it seems part of the introduction, presenting too many details; lines 37 and 38 present inconsistent information (3.4 trilion KRW correspond to different USD amounts in each line); in line 62 authors enumerate list methods considering “statistical, empirical, and satellite” which does not make any sense; the introduction of Monte Carlo methods (line 174-175) is not done properly; Figure 15 is mentioned in line 419 but is missing, etc. Perhaps part of the problems can be solved by improving the English issues, but I think the manuscript cannot be reviewed properly in its current form.

For all the above I recommend authors to reconsider what do they want to explain, to select carefully the examples and describe in a concise way their proposal of new methodology and finally to check in depth the English version before submitting a new version of the manuscript.

References

[1] Gonzalez, S., & Bech, J. (2017). Extreme point rainfall temporal scaling: a long term (1805–2014) regional and seasonal analysis in Spain. International Journal of Climatology, 37(15), 5068-5079.

[2] Pöschmann, J. M., Kim, D., Kronenberg, R., & Bernhofer, C. (2020). An analysis on temporal scaling behavior of extreme rainfall of Germany based on radar precipitation QPE data. Natural Hazards and Earth System Sciences Discussions, 1-21.

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