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Discussions

Interactive comment on "Construction of an Integrated Social Vulnerability Index in urban areas prone to flash flooding" *by* Estefania Aroca-Jimenez et al.

Anonymous Referee #2

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First of all, I very much enjoyed reading the manuscript. I have, however, a few comments to improve the manuscript. Please find them below.

- Abstract, line 16: 'it has not yet provided'. Please rephrase this a bit, the sentence is unclear.

- some additional explanation is required on the inclusion of exposure in the social vulnerability index. In the traditional risk framework, exposure and vulnerability are two different components of the framework. As many researchers from the risk field read this journal, it should be specifically emphasized that including exposure is common practice in the social vulnerability field, even though this may contradict to the definition of risk and vulnerability which is more commonly used in the disaster risk community.

This is important for the interpretation of the results.

- I have a few questions and a suggestion regarding Figure 2: - why is there an arrow going from Flash flood low probability municipalities to socioeconomic variables? Because the flash flood box is blue, it now seems like a hazard variable is added to the socioeconomic variables. This is, however, not the case (and should not be the case either). - why are sensitivity and exposure 'clustered' and is resilience not in this cluster? - Perhaps add a third colour that specifies the (final) results. This would make it more clear why some arrows exist in the framework (for instance the arrow from factor scores to clusters of municipalities).

- Section 2.2.2: I do not fully understand the use of the Euclidian distance method. If I do understand it correctly, the sum of the differences between variable values is considered to be the distance? So distance is not spatial? I think it would be good to explain this a bit more clearly, as some parts of the paper are spatial (the clusters of municipalities for instance). This causes (at least for me) some confusion.

- Captions of Figure 4 and Figure 5 could be a bit longer. Figure + figure caption should be self-explanatory.

- Figure 3 is perhaps not required, as it shows roughly the same as table 2? Perhaps move to appendix, as table 2 shows everything we would like to know (the variable clusters and the factor names)

- Section 3.2: I am a bit puzzled with the notion of 'optimum number of clusters'. What does an optimum amount of clusters mean? Ok the statistics say so, but as a practitioner, what would it matter if you would have four clusters? How would this change the interpretation of the results?

- Section 4.1: I would suggest to move parts of this to the method section. Most parts of this section are regarding the interpretation of the results. It is better to make this clear before the results section, instead of afterwards. A discussion after the results,

weakens, in my opinion, the results.

- Section 4.3: I suppose the clustering of municipalities is interesting from a policy making perspective. It would be good to link the clustering to this section. How can it improve policy making if we can identify similar municipalities?

- Please make the conclusions a bit more specific for this paper. What can we really learn from this paper, especially from a policy making perspective. What does this paper add, besides being the first study on flash floods? A few lines on the conclusions for the study region (specific patterns identified) would be interesting as well.