Natural Hazards
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comment

Interactive comment on "Data-mining for multi-variable flood damage modelling with limited data" *by* Dennis Wagenaar et al.
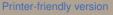
Anonymous Referee #2

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The authors present a very interesting study on multi-variable flood damage modelling using data from the Netherlands. They use software-based statistical approaches to overcome the challenge of data scarceness in damage documentation, which is an important step towards an enhanced flood risk management. As such, the topic is of considerable interest to the readers of NHESS, and the manuscript should be considered for publication.

However, there are some shortcomings in the current version of the NHESSD paper which I will address below. These shortcomings should be considered by the authors before the manuscript may become acceptable for inclusion in NHESS.

First of all I suggest to change the title a bit since according to my opinion the term "data mining" is a bit misleading in comparison to the work undertaken in this paper.

What about just "multi-variable flood damage modelling with limited data"?

Second, I have the feeling that some of the existing (and relevant) literature on this topic is not included in the Introduction so far. It would be interesting to see more than the presented references to (mostly) Dutch researchers and the Potsdam group, e.g., by broadening the focus a bit towards works on flooding with sediment transport – here similar problems are described that somehow the deposition height is the only available parameter, but in turn this parameter is not fully representing the processes leading to loss. Examples include the works of Papathoma-Köhle or Fuchs, to just drop some names.

Third, in the discussion on vulnerability of buildings exposed to flood hazards there are some works not comparing direct losses, but the degree of loss, which is a relative measure taking into account the different building values. As such, and I am not completely familiar with Dutch building regulations, different loss heights are also a result of different values of the elements at risk. How did the authors consider this challenge during their analysis (which is also perfectly mirrored by Figure 1)?

Fourth, I kindly would like to suggest that the Results and Discussion (!) sections are more carefully written since so far, the first includes lots of discussion, and the current Conclusion and Discussion section is rather short. This should also include some paragraphs on the uncertainties behind the analysis, as mentioned in the Methods section.

Fifth I would like to recommend that the authors show a more detailed situation as the one presented in Figure 2 – the current scale is hardly readable. A possible solution is to show the overall extent as an inlet map and then in the main map just a zoom of the most interesting river section or so. For the legend: the water depths of 0.5, 1.0 and 2.0 m are not clearly distinguishable, and technically should be presented differently (e.g., by using the ">"). For some of the other Figs. presented I also would like to recommend to clearly state the abbreviations (e.g., td, sd, cd,...) in the Figure caption.

Finally, I would recommend to extent the discussion on Fig. 5 – as already indicated there may be variables other than the water height responsible for the loss height available. . .

I strongly encourage the authors to perform towards the suggestions since the work presented is of particular interest and importance to the flood hazard community. I am looking forward to review a revised version.

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