

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2022-238

Anonymous Referee #2

Referee comment on "The potential of open-access data for flood estimations: uncovering inundation hotspots in Ho Chi Minh City, Vietnam, through a normalized flood severity index" by Leon Scheiber et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-238-RC2>, 2022

General comments:

The paper demonstrated how to process and applying open-access data to an urban surface run-off model. The authors also combined flood depth and duration into a so-called normalized flood severity index (NFSI) to identify urban inundation hotspots. Overall, this paper might be useful in demonstrating how open access data can be processed into hydrological model. However, the methodology to achieve this need to be more systematically presented. Whether this methodology can be considered novel or not is unclear as the process seemed quite intuitive. Besides, the applicability of the research is thin. Vulnerability assessment is being conducted in cities to identify the areas that need response measures. Moreover, the application of the flood severity index is rather thin. As mentioned above, inundation hotspots can be identified through vulnerability assessment. The thresholds for the NFSI were not mentioned. What insights or new implications can be extracted from using the NFSI?

How can the data processing method be applied to other megacities? Why the authors selected HCMC for model validation? Why not different locations around the planet?

Specific comments:

Line 24: adaptation to what, increasing precipitation? Sea level rise? Usually, adaptation refers to responses to changing risk. I don't think it is applicable to this manuscript. In this case it is more like responding to floods.

Line 55 – 59: why there is a need for the complete surface runoff model while

vulnerability assessment is being conducted? What is the application of the proposed flood severity index?

Line 66: how about flood frequency? Why is flood frequency excluded from this index?

Table 1: this table can be improved by incorporating errors or each DEM, and how these errors can be addressed.

Figure 2: if my understanding is right, it should be: subtract (c) from (b) rather than add (b) to (c).

Line 172 – 174: how about natural waterways inside HCMC? There is informal settlement encroaching on natural waterways inside HCMC, which also get flooded frequently during high tides and heavy rains (ex. Tran Xuan Soan street).

Line 231: why not using data from Phu An station?

Line 244: why an eight-day time series?

Line 261: why only a 2-year flood selected? How about 5-year, 10-year floods?

Comment for the 2.2. section: How about reservoirs and groundwater? Why are these excluded from the model?

Method section: there should be one graph summarize the proposed methodology. So far, these are scatter over different section of each type of date, which is difficult to grasp the big picture of the proposed methodology. Besides, methodology for processing each element should be presented in equation form rather than figures (i.e., figure 2 and figure 7).

Line 335: what do the authors mean by the threshold of the NFSI is at its maximum? Maximum of what? How are the factors of changing climate considered? Why did the authors give equal weights to flood depth and duration? How about flood frequency?