

## ***Interactive comment on “MobRISK: A model for assessing the exposure of road users to flash flood events” by Saif Shabou et al.***

### **Anonymous Referee #2**

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**Summary** This is an interesting paper presenting the development of a methodology and application to a test site of a model to better understand how time of day and types of journey might affect the exposure to flooding of road users. I particularly like the risk index which has value for applied forecasting of risk. With appropriate minor to medium level revisions, I believe this paper will make a sound addition to the literature.

The main recommended element to work on is communication – both in terms of English language and technical language used in the methodology:

For several parts of the paper, the English is to a high standard, but in other places, some work is needed. I suggest the authors ask a native speaker to go over the paper to improve this which would not take a lot of time. Examples include the first sentence of the abstract ‘...highlight that road network is often’ which should either

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be 'highlight that road networks are often' or 'highlight that the road network is often'. Other examples include the use of 'don't' (should be 'do not') use of the word 'itinerary' (page 2, line 10).

In terms of communication of technical language, I found section 3 challenging to follow in places. For example, terms like 'discrepancy analysis', 'substitutions operations', 'child nodes' and 'Dijkstra's shortest path algorithm' are hard to understand if the reader is not already familiar with fields of research such as graph theory. It is hard to fully understand the motivations for the methods chosen, and would be hard to repeat the methodology with only the information currently given in the paper. I suggest that adding some small real-world examples might help to illustrate some of the methods here, and that the authors work on giving more intuitive explanations of their approach that an intelligent non-expert would be able to follow.

The remainder of my comments are suggestions for minor corrections: Page 2, line 9. Please add a little more contextual information here about the data and location of the studies, as it is unlikely that fatalities from flooding in developing country settings would be of the same nature. Page 3, line 4. Terms like 'link criticality' need further explanation (i.e., a couple of sentences introducing the basics of network analysis such as links and nodes). Page 3, paragraph 2 (starting at line 14). This is a very long paragraph, and it is hard to follow the overall argument (especially when introducing disagreements in the literature). Please split into shorter paragraphs to help with the structure. Section 3. Consider a short paragraph introducing the study site here. It is hard to understand the 'scale' of the model in the methodology (i.e., how many people, how many journeys, how many kilometres of road). Page 8, line 3. Check the meaning of the word scholars here. Do you mean school and university students? Also explain how this data was collected. General: make clearer if there is any distinction between individual cars and forms of motorized public transport. Section 5: This is a long conclusion, please move some of this to a discussion section. Page 17, line 23. Please avoid terms like 'probably' Conclusion section – although it is an excellent and com-

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prehensive discussion of the limitations of the approach, the way this is communicated feels a little like it erodes the legitimacy of the work done. Try to frame this in terms of what your model has laid a foundation for in terms of further work, and emphasise what your work has contributed to our scientific or operational knowledge of flood risk in the study region. Figures: General – please ensure each figure caption is stand-alone, so that the reader would not have to return to the text to fully understand the figure. Figure 4. Do not start with ‘let’s take an example’ as this is quite informal language. First outline what the figure is showing, and then explain the example. Figure 6. text will need to be bigger. Figure 14. y axis ‘percent’ – percent of what?, consider using log axes for the x axis or an axis break, as most of the variability is visualised in a very small portion of the graph.

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