

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

### **Anonymous Referee #1**

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**General Comment** This paper introduces a new microsimulation system for estimating exposure of drivers/travelers to flooded roads during flash flood events. The system builds on a physical model for understanding and quantifying the vulnerability of certain road segments to flash floods using different classes of risk. Furthermore, the system includes other components regarding the road network's and road users' characteristics. The authors acknowledge that this is an early attempt to address this pressing topic and provide an insightful discussion on how this modeling approach can be improved in future research. The manuscript is technically sound and is generally well written. The reviewer has a few suggestions for improving and revising the manuscript. The reviewer suggests that the article be 'accepted with minor revisions'.

**Specific Comments:** 1. The paper needs a discussion on how such a model can be validated with real-life data. 2. A discussion on potential practical applications of

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the model is also needed. 3. The authors can expand the discussion of “road-cuts”. This is similar to the “low-water crossing” term used in some parts of the US. Also, road flooding is not necessarily at the intersection of a road and a stream. 4. Fatal accidents occur at road-cuts only when water level and velocity would cause a vehicle to be washed away. This is not highlighted.

**Technical Corrections:** 1. Page 1, Line 17: Better use “enable prediction of the sequence of activities performed by individuals and locating them ...”. 2. Page 1, Line 18: Better use “MobRISK microsimulation system: a model...”. 3. Page 1, Line 23: Better use “The results show that risk of flooding mainly exists (or occurs) in...”. 4. Page 5, Line 10: Better use “section 5 discusses the results and provides insights (ideas)...”. 5. Page 7, Line 4: Better use “they have some differences regarding the activity...”. 6. Page 7, Lines 16, 17 : Define SpatialiTE and SQLiTe. 7. Page 9, Line 6: Better use “also called Optimal...”. 8. Page 9, Line 8: Lesnard et al., 2009 not on the reference list. 9. Page 11, Line 20,21: Better use “The more important the probability of crossing submerged road cut is, the higher is the individual exposure”. 10. Page 13, Line 13: Better use “Similar to ANOVA test...”. 11. Page 14, Line 2: Use male and female or men and women. 12. Page 17, Line 13-15: Better split into two sentences. 13. Page 18, Line 18: Replace “several perspectives for future research remain” with “several issues need to be addressed in future research. 14. Page 18, Line 28: Better use “future efforts are needed...”. 15. Page 19, Line 5: Better use “This underestimation...”.

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