

Interactive comment on “Assessing road segment impact on accessibility to critical services in case of a hazard” by Sophie Mossoux et al.

Anonymous Referee #2

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The authors of this paper have had a good inspiration focusing their analysis on the road networks impact on accessibility of the people at the emergency services in a case of hazard. Nevertheless, there is a rich literature on the prevention and mitigation of the impact of different hazards, there are still many things to be done for a useful mapping of the relationships between three pillars: location of the emergency services, hazard probability and the impact of the roads on rapid accessibility of population to medical assistance. The paper is very well-written, with a synthetic abstract for the reader to be interested in the content. After crossing the relevant literature in the field, there is the necessary framework to insert own results in the international ideas' circuit which ensures the guaranty of a general scientific interest. There are some strong points of this paper: a) the methodology, based on two metrics (road accessibility risk

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and users' path vulnerability), which is clear and applicable in a diversity of hazards; b) clear results, reflected by specific maps; c) utility of the conclusions for the next academic development and for a better functional risk management. This paper offers practical ideas to rethink and improve the entire road network of Ngazidja Island. The figure 10 shows the necessity to multiply the medical services' locations in some strategic points, and to reevaluate the speed on the roads for a rapid accessibility to emergency services. Through the methodology, the results and especially the practical importance of such studies, the paper deserves to be published in the journal. So, I highly recommend it for publication with minor suggestions. First, I believe that the title needs to be clearer. I understand that the authors wish to reveal the importance of the analysis of the road networks at the segment level for a strategic risk management in the case of a hazard. But why is necessary to analyze an entire network, when is possible to individualize the possible affected segments? So, my proposal is to modify the title which could have the next form: Assessing "the impact of affected road segment" on accessibility. Secondly, please specify clearer what means road segment? In your paper, you mention individual road segment! It's about the road between the successive villages? Analyzing the maps, it results that the road segment is defined by two nearest road connected villages on the same road. Usually the road segment is a very relative term, connecting two villages at variable distance, or between two different localities. Thirdly, the authors should appreciate better the road access vulnerability impact in a case of hazard and to have a general image on a possible disaster, technically speaking, there is the possibility to increase the maps relevance, introducing the population size of the localities.

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