

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC3
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Comment on nhess-2022-218

Anonymous Referee #3

Referee comment on "Spatial accessibility of emergency medical services under inclement weather: a case study in Beijing, China" by Yuting Zhang et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-218-RC3>, 2022

This empirical study investigates the impact of inclement weather on the time emergency medical response (EMS) time intervals for the city of Beijing. It is broken into two stages. Firstly, to explore the impact of inclement weather (i.e., precipitation) on traffic and EMS accessibility to come with the worst-case scenarios of the year 2029 (i.e., days including different times per day). Secondly, to evaluate EMS accessibility under the identified worst-case scenario and evaluate the distribution of EMS with particular focus on the difference in population and road network distribution between urban and suburban areas. The study can be useful to identify the scenarios needing improvement to ensure more fair access to EMSs for populated cities. The paper is generally well-written and easy to read but can be improve in terms of clarity.

The abstract. It seems to overlook a key impact that seems important from the results: The day of snowfall seems to have more significant impact than the days of rainfall (among the worst-case scenario considered). Can the authors add a mention about this fact somewhere in the abstract.

The introduction. In Line 107, Please be specific on what is meant by "The latter". It can be more effectively used to also introduce to lay reader some common terms that will be occurring later, such as "coverage area" and "waterlogging".

What platform was used to “Combining the topology road network with medical facility locations and the distribution of the population, we could further analyse the spatial accessibility to EMSs.” Was this work GIS based? What was the tool employed?

Line 162: the sub-section numbering here down to line 189 is missing a third digit. I suppose it should be 2.2.1, 2.2.2, 2.2.3 and 2.2.4.

Methodology. As in any study, there should some assumption made by the authors and aspects that were not addressed. A mention of these would be useful.

Line 232: Is there any citation that you can use to justify the choice of the 15-minute arrival time?

Line 255: please define OD. Does it stand for Origin-Destination?

Line 258-259: More discussions on the calculation cost is welcome so one can justify the rationale behind increasing the resolution from 100 and 1000 m. How much would this impact the predictions vs. reduce the cost for the analysis?

Line 265: there is always a mention of a grid. Should this be meaning that the analysis

was GIS based?

Line 306: Figure 4 deserves a discussion as such in 4.1.1 before moving to 4.1.2 and quoting it there. I guess it was used to support further the choice for the days considered as worst-case scenario.

Line 331: "The results demonstrate ..." what results? Any figures I should be looking at? Or, from which equation? Are you talking about the "coverage rates". Please specify.

Line 359: The clarity of the sub-figures in Figure 7 can be significantly improved. Same for Figure 8.

Overall, the snowfall seems to have the greatest impact and it useful to highlight in key locations including the abstract and conclusions. This could be hinting at the fact that such a study is more of relevance to cities affected by snowfall.