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**NHESS-2017-446 - response to the reviewers' comments for the manuscript:  
Estimating network related risks: A methodology and an application in the transport sector**

Dear Prof. Dr. Fuchs and reviewers,

Thank you very much for accepting our manuscript for publication in the Journal of Natural Hazards and Earth System Sciences. We appreciate your careful review of the manuscript and the well structured constructive feedback received. Please find our [response](#) below that includes descriptions of the resulting changes in the manuscript.

**Reviewer 1's comments**

The authors address the topic of network infrastructure exposed to natural hazard risk taking the road network around Chur, Switzerland, as an example, and as such, the topic is of relevance for the target journal.

During their review, the authors clarified the main points I raised during my first review, so from my point of view the paper can be published now.

[Thank you very much. Your comments and suggestions have significantly improved the content of our manuscript.](#)

1. I only have some very minor comments: On page 3, line 23 f. the authors state that "with a changing climate, exacerbated by an increase in urbanization, the frequency of extreme hydrometeorological hazard events is expected to rise, impacting economic corridors, disrupting supply chain, and stressing emergency and rescue operations, among other effects." It would be nice to see some references here, in particular because the assumed increase in urbanization is highly variable over space and in time. For CC in the Alps, Keiler et al. (2010) have nicely shown the expected effects, and with respect to the question of urbanization, recent works include those of Fuchs et al. (2017) or earlier works by Fuchs and Bründl (2005) explicitly focusing on the canton of Grisons, Switzerland. The general need of including spatio-temporal dynamics in risk management is also summarized by Fuchs et al. (2013) showing examples from the Swiss Alps.

[Thank you for this comment and the references. We agree, these articles are very interesting and a good addition to our literature review. Therefore we have extended our manuscript with the proposed articles.](#)

Overall, the discussion paper increased in accessibility, and will be a major contribution to the NH community, in particular due to the envisaged multi-hazard approach. So I recommend some minor adjustments as indicated

before final acceptance, and wish the authors good success with their future works.

Thank you very much.

References mentioned as suggestion:

- Fuchs, S., and Bründl, M.: Damage potential and losses resulting from snow avalanches in settlements of the canton of Grisons, Switzerland, *Natural Hazards*, 34, 53-69, 2005.
- Fuchs, S., Keiler, M., Sokratov, S. A., and Shnyparkov, A.: Spatiotemporal dynamics: the need for an innovative approach in mountain hazard risk management, *Natural Hazards*, 68, 1217-1241, 2013.
- Fuchs, S., Röthlisberger, V., Thaler, T., Zischg, A., and Keiler, M.: Natural hazard management from a coevolutionary perspective: Exposure and policy response in the European Alps, *Annals of the American Association of Geographers*, 107, 382-392, 2017.
- Keiler, M., Knight, J., and Harrison, S.: Climate change and geomorphological hazards in the eastern European Alps, *Philosophical Transactions of the Royal Society of London. Series A: Mathematical, Physical and Engineering Sciences*, 368, 2461-2479, 2010.

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On behalf of our research team



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