

## ***Interactive comment on “Will climate change increase the risk of infrastructure failures in Europe due to heavy precipitation?” by Katrin M. Nissen and Uwe Ulbrich***

**Katrin M. Nissen and Uwe Ulbrich**

katrin.nissen@met.fu-berlin.de

Received and published: 20 March 2017

We would like to thank the Anonymous Referee 1 for his/her constructive comments on our manuscript “Will climate change increase the risk of infrastructure failures in Europe due to heavy precipitation?”. In the following we give a short and first reply to the referee’s comments. A point-by-point reply will follow with the actual revision process after the decision of the editor

*A first major drawback is related to the discrepancy between the title of the paper and its content. Aside from some references taken from the literature that aim to determine the thresholds that must be considered by the infrastructure designers and providers (3. Thresholds), there are no others approaches on the general concept named and*

C1

*widespread used: element of risk (as part of the risk assessment). For a detailed framing of the content of this paper in the scientific approaches of the risks associated with natural hazards, you can consult many papers (e.g. van Westen, 2013).*

Both reviewers pointed out that the title of our paper suggests that we will present a risk analysis. We can see that this raises expectations that are not fulfilled by the manuscript as this is not the scope of our paper. We think the best solution to this problem is to change the title of our article, as suggested by the reviewer, so that it better reflects our research topic. As the new title we suggest: “Increasing frequencies and changing characteristics of infrastructure threatening heavy precipitation events in Europe under climate change”.

*A second major conceptual approach that must be reframed refers to much more complexity of the impact of meteorological events on the infrastructural lifelines. There are some examples (pag. 1, rows 12-17) but this part of the paper, I think, should be improved. Also the spatio-temporal relations between different natural hazards (e.g. precipitations that trigger floods and/or landslides etc.) must be detailed. You can see the paper of Gill and Malamud, 2014.*

We will enhance this section and add further information on the different types of precipitation related threats to infrastructure and the characteristics of such events.

*For solving these problems, I can suggest 2 ways: (i) modify the title of the paper according to the main results of the paper (otherwise with novel results in the field), or (ii) try to emphasize (theoretically and more exemplified) the risk approach, by taking into account your results as a complete societal relevance.*

We think changing the title is the better solution as a theoretical discussion of the risk approach would artificially inflate the manuscript without offering scientifically new aspects to the reader.

*When we use the abbreviations we must to detail the meaning starting from the first*

C2

*use.*

We would like to thank the reviewer for highlighting in detail the abbreviations that are not properly explained. We will add the missing explanations.

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-337, 2016.