Interactive comment on "Model cascade from meteorological drivers to river flood hazard: flood-cascade v1.0" *by* Peter Uhe et al.

Peter Uhe et al.

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Reviewer comment

As a person who has been working with all the three components featured in this paper, i.e., meteorology, hydrologic modeling, and flood inundation mapping, I am seriously confused about this flood-cascade. I thoroughly read the paper. Overall, it is very well-written. The methodology is reasonable. Yet, I think that the authors' justification of creating a flood-cascade sends a wrong message to the new-generation of readers, disavowing the long history of hydrologic-hydraulic modeling research (apologies for the use of strong words here).

After reading the abstract and introduction, a reader might think that this "flood-cas-

cade" is a brand-new concept. But that would be wrong. In fact, the so-called flood-cascade, integrating meteorology drivers to flood hazard predictions and hence assessment of climate change impacts, has existed in our scientific community for a long time with different forms, scales, and names. For example, the GLOFRIM for integrated hydrological–hydrodynamic global modelling by Hoch et al. (2017) and the National Water Model in the United States are just two examples of many existing, globally applicable flood-cascade frameworks. Each of these existing frameworks are well-resolved flood-cascades with cascading input-output structures according to the authors' definition. I hereby strongly oppose the author's narrative in the existing version of the paper.

In summary, the merit of this paper comes down to evaluation of a relatively new LISFLOOD modeling framework for one of the world's data-poor flood-prone basins. The paper has all the potential to getting accepted for publication, however, with major changes in the title, abstract, and introduction.

Response

Thank you for your frank review of our manuscript. We take the major point of this review, that the concept of a model cascade for flood inundation is not new, and there are previous examples of this. It was not our intention to imply otherwise, so we will take this onboard and modify the article to emphasise previous research in this area.

The novelty of this model framework relates to the way the different modelling components have been linked together and the models built and calibrated using globally available data. The techniques used here include improvements compared to previous flood modelling frameworks for data-scarce regions, so this should not simply be dismissed as solely a model evaluation paper.