

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/nhess-2022-33-RC2>, 2022
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Comment on nhess-2022-33

Anonymous Referee #2

Referee comment on "Brief communication: Impact forecasting could substantially improve the emergency management of deadly floods: case study July 2021 floods in Germany" by Heiko Apel et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-33-RC2>, 2022

Thank you for providing some insights about the recent flood event in Germany. Overall I think the methods and results are well described. There are some issues related to novelty and outreach that I would like to authors to comment on and incorporate into their paper.

The question about novelty falls into two categories. The first is the claim on Line 20-22 that river flood forecasts are typically provided only at river gauges. Since I rarely work with forecasting I may be wrong, but as far as I am aware there are existing European flood forecasts that already provide spatially distributed data, from the global Copernicus Emergency Management Service to specialized tools for riverine flooding. So adding a few lines and references that justifies the statement would be an advantage.

More importantly the choice of simplified 2D model seems rather arbitrary (L50). Much has happened over the past 12 years and at least 5 European research institutions have worked on the field suggesting a wide number of models and also outside of Europe this is an research field. So justifying the choice of tool should go beyond a subjective assessment of the model performance using a single metric stating that the model is sufficiently accurate. As far as I know the most recent review of methods is in Thrysøe et al (2021).

My last point is that it is not clear from the paper how the input data are related to the forecasts. Precipitation forecasts are inherently quite uncertain as the authors correctly state (L174-175). Nevertheless the study seems to use a reconstruction of data that ignores this important source of uncertainty. A forecast should hence include this uncertainty and then there is an additional discussion of e.g. ROC curves. Hence the title of the paper should be adjusted to reflect the fact that the paper mainly focus on providing a spatial distribution of a given flow than to provide an impact forecast where the uncertainty of the forecast is also included.

Reference

Thrysoe, C., Balstrøm, T., Borup, M., Löwe, R., Jamali, B., and Arnbjerg-Nielsen, K. 2021. FloodStroem: A fast dynamic GIS-based urban flood and damage model. *Journal of Hydrology*, 600, 126521. DOI: [10.1016/j.jhydrol.2021.126521](https://doi.org/10.1016/j.jhydrol.2021.126521)