

# ***Interactive comment on “Flood-Related Extreme Precipitation in Southwestern Germany: Development of a Two-Dimensional Stochastic Precipitation Model” by Florian Ehmele and Michael Kunz***

## **Anonymous Referee #1**

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This study extended the previous models from Smith and Barstad (2004) and Barstad and Smith (2005) to stochastically generate extreme precipitation events. The model relates extreme precipitation to atmospheric conditions, kind of circulation-based model. This model is exclusively for extreme precipitation events, different from those models for long-term weather generation. The paper presented a lot of details to interpret the procedures about development, calibration and validation of the proposed model. The topic falls within the scope of HESS.

Although the manuscript gave enough information about the model, it is not so easy to

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follow in the current form. I strongly suggest adjustments of the paper structure. First, a flowchart should be given to show the development, calibration and validation of the model. Second, it is better to first give the model description following by data description, which is the usual way for method development. Third, it is necessary to simplify some sections, but focus on how to connect atmospheric conditions with extreme precipitation so that the modeled data can represent the regional condition instead of one site. Fourth, usually, for model development, a comparison with a paralleled model is necessary. Please consider the possibility to add this part. Although it takes time to do additional comparison, it is persuasive to highlight the strength of your model. Further, people would wonder how your model's performance compare with the models for long-term weather generation. With the above adjustments, the manuscript would be easier for readers to understand.

Furthermore, the authors should state the potential extension of the proposed models to the other regions in the world, which would be helpful for readers to know how to use it. Otherwise, it is a model just applicable to a specific region, which is not necessary to publish it in an international journal.

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