

Interactive comment on “Comparing the performances of WRF QPF and PERSIANN-CCS QPEs in karst flood simulations and forecasting with a new Karst-Liuxihe model” by Ji Li et al.

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The authors found that some of the responses to the comment #1 are incorrect or incomplete in the original file "Reply to the comments of Anonymous Referee #1-AC1" in the supplement. These revised responses are mainly include: Response 1. For the innovation of modeling scheme in this paper, a new karst hydrological model, i.e., the Karst-Liuxihe model are proposed. Unlike other distributed hydrological models, which require a lot of data for modelling because of the complexity of the structure. The application of this Karst-Liuxihe model in karst area has certain data advantages due to its structural characteristics. There are only 3 layers in both vertical and hor-

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izontal directions, the model structure is explicit and has physical significance, which makes modeling data volumes less complex. Other distributed models usually divide the whole karst area into a series of karst sub-basins according to the DEM data. In this study, the karst sub-basins will be further divided into smallest grid units known as karst hydrology response units (KHRUs) in the Karst-Liuxihe model. This KHRUs is small enough to ignore spatial differences in rainfall and terrain data of the underlying surface, thus requiring less modeling data. Response 4. The purpose of coupling PERSIANN-CCS QPEs with the Karst-Liuxihe model in this paper is to simulate and perform inverse analysis of karst floods. In contrast, the purpose coupling WRF QPF with the Karst-Liuxihe model is to forecast floods. And unlike the rainfall observed by rain gauge, the rainfall estimated by PERSIANN-CCS has errors regarding rainfall magnitude and cannot be regarded as the real rainfall in the basin. However, if there are no rain gauges in the study area (and the lack of rain gauge is a common problem in karst areas), the rainfall estimated by PERSIANN-CCS can be used to approximate actual rainfall in the basin. This means that the results of this study can be generalized to other karst areas without rain gauges.

And other revised responses are not shown here, after revised, a new pdf file will be submit in the supplement.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2019-285/hess-2019-285-AC2-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-285>, 2019.

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