Comment on gmd-2021-340
Anonymous Referee #2

Referee comment on "Tracing and visualisation of contributing water sources in the LISFLOOD-FP model of flood inundation" by Matthew D. Wilson and Thomas J. Coulthard, Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2021-340-RC2, 2022

The authors have presented a water source tracing approach for hydrodynamic models used in flood inundation studies. The demonstrated method in this study is also independent of the hydraulic formulation and therefore has the potential to be used in other hydrodynamic/hydraulic models. The paper is well-written, and the formulation of the proposed methodology is presented neatly. The three case studies were demonstrated with complete details and strengthened the quality of the presented work. I feel the paper can be accepted with minor revisions after addressing the concerns presented below.

The wiki section of caesar-lisflood says "In the file tab - there are no additional boxes, but the tracer boxes have been removed. Tracer was rarely used yet added quite some complexity to the code, so for now has been removed." It looks like perhaps some earlier version of the model has already some sort of tracing mechanism with the caesar-lisflood model. If yes, how the current mechanism is different from the earlier one and why is it not even mentioned once in the manuscript?

https://sourceforge.net/p/caesar-lisflood/wiki/Moving%20From%20CAESAR%20to%20CAESARlisflood/

Why tracking algorithm is not implemented in the pure LISFLOOD-FP model and implemented in the caesar-lisflood model, when the focus of the study was only on "LISFLOOD-FP model of flood inundation".

In the abstract, the line "A key advantage of the formulation developed is that the number
of water sources which may be traced is limited only by computational considerations." is too general (especially in the field of hydrodynamics) and does not look appropriate as a main novelty of the proposed methodology.

The introduction section needs a lot of improvement. What was done and their brief motivation is only presented in the current manuscript. The relevant studies (especially make one section for related water source tracing studies in computational models) and different choices made in this study should be thoroughly discussed.

Although differences in the approach exist between the current work and the work related to water source tracking presented in Qi et al. (2021, 2022), I would like to see authors to highlight/compare the advantages of the current (online) approach against the integrated multimodel (offline) water source tracking presented in Qi et al. (2021, 2022).


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Qi, W., Ma, C., Xu, H., Chen, Z., Zhao, K., & Han, H. (2021). Low impact development