Comment on nhess-2021-386
Anonymous Referee #1

Referee comment on "Hydrometeorological analysis of the 12 and 13 September 2019 widespread flash flooding in eastern Spain" by Arnau Amengual, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-386-RC1, 2022

General comments

Author presents an interesting paper very dense of meteorological and hydrological information. In a sense I would say too dense. Author describes the 12 and 13 September 2019 very accurately, providing analysis of precipitation, even with the help of spatial moments of catchment rainfall, and analysis of flood response including runoff coefficients and lag times. Then a reconstruction of the model through a spatial distributed hydrological model is provided, including model performance analysis. Then author introduces a scale dependency analysis framework to relate rainfall to discharge. Finally the framework is applied by using data from an ensemble prediction system.

With all these points presented, I cannot understand the real objective of the work. From the title I understand this paper should be an analysis of the flood event, but more than this is presented. Author himself states that there are two objectives (L 90-97). I understand that the final objective should be to evaluate methods to assess hydrological risk in semiarid basins, but I think results presented are at too early stage.

So, given that the topic of the paper is very interesting to NHESS readers, I suggest to simplify the paper by removing section 5, not because it is not relevant, but to give it the proper space in a dedicated paper, to be submitted when work will be more mature.

Specific comments:

L 375 Has the precipitation-discharge relationship been applied to observed data of the event?

L 415 How can the power law relationship be used to perform analysis for different return periods? Maybe using synthetic rainfall coming from intensity duration frequency curves? Is the precipitation return period equal to peak discharge return period in a highly non linear response basin like the semiarid karst ones presented in the paper?
Technical corrections

L 102 "areat"