

Hydrol. Earth Syst. Sci. Discuss., author comment AC2  
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## Reply on RC2

Salvatore Manfreda et al.

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Author comment on "Impact of detention dams on the probability distribution of floods" by  
Salvatore Manfreda et al., Hydrol. Earth Syst. Sci. Discuss.,  
<https://doi.org/10.5194/hess-2021-47-AC2>, 2021

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we would like to thank also the second referee for his/her effort and constructive suggestions, that allowed us to improve the quality of the manuscript. We have carefully considered all his/her observations and reviewed the manuscript accordingly.

**RC:** *I believe the reference to "flood control systems" in the title raises the expectations beyond what is presented in the paper, as there are other types of flood control systems that cannot be treated with the same mathematical framework proposed by the authors. I therefore recommend changing the title to refer more specially to "flood detention basins". The symbol  $D$  is not defined in the notation list. Given that the symbol  $q$  is used for discharge, I recommend using a different symbol for the height of the low-level opening instead of  $qf$ .*

**AC:** We agree with the reviewer. Title will be changed to ... "Impact of Detention Dams on the Probability Distribution of Floods". We will also add the flood event duration  $D$  in the notation list. Finally, we will change  $qf$  to  $h_f$ .

RC: *List of minor corrections*

*P80,90: Use italic style for mathematical variables.*

*P10: "the undisturbed flood distribution is assumed to be Gumbel distributed" => "the undisturbed flood peaks are assumed to be Gumbel distributed"*

*P50: "see i.e., Manfreda et al." => "e.g." not "i.e."*

*P165: "... mathematically inverting Equation..." => "mathematically by inverting Equation..."*

*P140: "computed comparing... and setting..." => "computed by comparing... and*

*imposing..."*

*P255: Remove "realized"*

*P235: "the impact due to the approximation adopted by the rectangular hydrographs" =>*

*I suggest changing this as follows: "the impact of the assumption of rectangular inflow hydrograph"*

*P235: "allowed to reproduce correctly the flood mitigation that looks very similar to those..." => "produced probability distributions of the outflow that look very similar to those..."*

*L375: 15,000.00 => 15,000*

**AC:** All these suggestions have been already implemented in the revised version of the manuscript.