

## ***Interactive comment on “Wildfire impact on Boreal hydrology: empirical study of the Västmanland fire 2014 (Sweden)” by Rafael Pimentel and Berit Arheimer***

### **Anonymous Referee #2**

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The manuscript investigates the hydrologic effects of the wildfires after the Västmanland fire 2014 in Sweden using a paired-watershed approach. The subject of the manuscript is of interest to a wide range of audience and is well within the scope of HESS. Overall, I think the paper can be published after a thorough technical revision and addressing some minor comments as brought below.

My major concern is with regard to the availability of the observed streamflow data for different time periods at different watershed outlets. It would be helpful if the authors add some information with regard to this issue and if it may have caused some bias in the inferences regarding the hydrologic effects. The other issue is with lack of

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accounting for burn severity of the subwatersheds. Often the burn severity is in direct relationship with the extent of the hydrologic effects (please see Havel et al., 2018). So, adding that into the analysis would also add to the scientific content of the manuscript.

The introduction of the manuscript should be revised such that it accentuates the novelty of the study. There is a huge literature on hydrologic effects of wildfires and application paired-watershed approach for detecting the changes pre/post some natural or anthropogenic perturbation in the watershed. The introduction should explicitly mention how this study stands out in the literature and how it contributes to the current understandings.

It would be beneficial if the authors look at the baseflow as another component of the streamflow. Often baseflow is greatly changed as a result of wildfires and assessing that would add to the understanding of how the hydrologic regime has changed during the post-wildfire conditions. In table 1, the column “Forest area” seems to be in ratio no percent. Please revise.

Reference: Havel, A., Tasdighi, A., and Arabi, M.: Assessing the hydrologic response to wildfires in mountainous regions, *Hydrol. Earth Syst. Sci.*, 22, 2527-2550, <https://doi.org/10.5194/hess-22-2527-2018>, 2018.

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