Hydrol. Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/hess-2019-254-RC3, 2019

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Temporal-dependent effects of rainfall characteristics on inter-/intra-event stemflow variability in two xerophytic shrubs" *by* Chuan Yuan et al.

Anonymous Referee #3

Received and published: 11 June 2019

After careful review, I think, in many ways, this is a good manuscript. The work has been well done and the manuscript is well organized. The paper has an appropriate length and the topic is of interest to the general readers of HESS. My major concern is the reasonability of the stemflow variables used in this study. For instance, in Line 207, the authors said that the average (SFI) and 10-min maximum (SFI10) stemflow intensities were calculated by the branch stemflow as recorded by the tipping-bucket rain gauges (mm) and rainfall duration (h). In my opinion, stemflow intensities should be defined as the branch stemflow depth (which can be calculated from branch stemflow volume as divided by branch basal area) in a certain time. In the current form, the authors underestimated stemflow intensities. Also, in Line 216, the ratio of the intra-

event stemflow intensity (RSFI, unitless) should be calculated basing on the suggested calculation of stemflow intensity. I recommend this manuscript for publication after a minor revision. I also state minor comments as follows. L1: Only seven branches were used to measure stemflow for each shrub species (The studied shrubs had a total of 180 and 261 branches), So the suggested title is: Temporal-dependent effects of rainfall characteristics on inter-/intra-event branch-scale stemflow variability in two xerophytic shrubs. L220-226: It could be better if the authors provide the formula for each stemflow variables. L658. Table 1: What is the standard for base diameter (BD) categorization? In the current form, the class interval (5-10, 10-15, 15-18, 18-25, >25 mm) is variable. Why not 5-10, 10-15, 15-20, 20-25, and >25 mm? Please explain it. L662. Table 2: Do the rainfall indicators including RA, RD, RI, I, I10, Ib10 etc differ statically significantly among Event A, Event B, Event C and Others? Please provide the ANVOA results here. L670. Table 3: The comment is the same with the last one. Please provide the statistical results to depict the difference in the stemflow variables among Event A, Event B, Event C and Others.

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