

# ***Interactive comment on* “The influence of long-term changes in canopy structure on rainfall interception loss: a case study in Speulderbos, the Netherlands” by César Cisneros Vaca et al.**

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Reply to Referee 1

This study provide a comprehensive measurements and modelling of forest water and energy budgets, and discussed in depth on the canopy interception of rainfall and subsequent evaporation from interception, in comparison to estimates in the same but younger forest stand. Canopy interception is of course an important component in vegetated surface water balance as it can account for a large proportion of gross precipitation, and thus affect soil and groundwater recharge, storage, and catchment discharge. One of the difficulties in studying interception is that it is subject to many interactive fac-

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tors including climatic factors as mentioned in this paper the wind and rainfall intensity etc., and forest structures and species composition. Regarding this paper, it is well written, methods used are appropriate, data analyses and interpretations sufficiently accommodate the results and discussion, in particular the possible reasons why evaporation was lower when canopy was denser and canopy storage capacity was higher, which is important to clarify. I have no major comments therefore but only a few minor for the authors to consider corrections, given below

We would like to thank Reviewer1 for being interested and recognizing the value of our paper. In the following, we respond to each individual comment.

1. Page 9, Line 11. You talked ‘the performance of the sonic anemometer (CSAT3) during wet conditions was evaluated by. . .’. Can you given the reason why doing this right after this sentence, maybe in just one sentence.

This is a good suggestion and we thank Reviewer1 for this. We have added the following sentence in the revised version: “According to Monin-Obukhov similarity theory  $\sigma_w/u^*$  in neutral conditions is a universal constant, therefore the ability of the anemometer to measure  $\sigma_w/u^*$  during wet and dry conditions was tested (Gash et al., 1999)”.

2. Page 11, Line 20. You referenced Fig 4c, but there is no such figure. Please provide it. Line 23, IET method gave mean values of p in Table 4 is 0.17, but in text is 0.22. Double check.

In response to the first part of the comment: thank you for pointing this out. Following the comments and suggestions from Reviewer2, we have decided to reorganize the figures and remove Figure 4c from the manuscript. We also removed the reference to this figure. In response to the second part of the comment: this was a mistake. The correct value for p using IEA method is 0.17. We have corrected this in the revised version.

3. Page 12, use of figure numbers: you may want to swap Fig No. 7 and 8 as the latter

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appears first in the text.

Thank you for pointing this out - we have corrected the sequence of the figures in the revised manuscript.

4. Page 2, Line 24: insert 'such' before 'as'

Done.

5. Page 3, Line 26: as DBH appears for the first time in the text, expand in full here rather than Page 5 Line 7-8

Done

6. Page 4, Line 23: insert 'm' after 32 and before 'x 64 m'

Done.

7. Page 13, Line 14: delete 'predicted'

Done.

8. Page 5, Line 9: insert 'mm' for 0.14

Done (in page 15, Line 9)

Figures: please increase marker size in Fig 4, 5 for the dots for better visual. Table 9: unit of LAI:  $m^2 m^{-2}$

Done.

## References

Gash, J., Valente, F., and David, J. S.: Estimates and measurements of evaporation from wet, sparse pine forest in Portugal, *Agricultural and Forest Meteorology*, 94, 149-158, [http://dx.doi.org/10.1016/S0168-1923\(99\)00008-8](http://dx.doi.org/10.1016/S0168-1923(99)00008-8), 1999.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018->

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