Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2022-155

Anonymous Referee #1

Referee comment on "Revisiting large-scale interception patterns constrained by a synthesis of global experimental data" by Feng Zhong et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2022-155-RC1, 2022

The paper was a pleasure to read and helps to improve global interception estimates. The main aim is to constrain the vD-B model based on a large dataset of field observations. This constrain would improve the outcome of the model. My main concerns of the manuscript are:

- The vD-B model is central in this study, but how the model works is not explained in the manuscript. It would help the reader if the main model concepts are provided.
- To me the problem statement is not entirely clear. The vD-B model has already been successfully applied (L64-66), but is up for improvement. Maybe elaborate on the past performance and the need for improvement (/parameter constrainment). How was the parameterization done before?
- After constraining the vD-Bmodel, has it been improved in comparison to non-contrained vD-B model results? Now the authors only compare their results with GLEAM and PML, but not with the past vD-B model. So how can you conclude that your model has been improved?
- In the manuscript many abbreviations are used, which sometimes makes the paper difficult to read. It would help the reader if the number of abbreviations is reduced (especially the land-use types names)

Minor comments

- Section 2.1 L104: define 'insufficient' in your criteria.
- L142: What means TSGF?
- Eq 1: please use single character parameters in formulas. cc or LAI can be confused with c times c or L times A times I. This comment holds for other equations as well.
- Table 2: it's a bit confusing that you present here the formulas and parameter values, while you explain later in Section 4 how you determined them
- Table 2-second equation: I think some parathesis would help. Now it's not clear

whether it is Ec/ [R(p-p-')] or (Ec/R)*(p-p')

- Table 2 -third equation: LN not italic
- Table 2: please only use single character parameters names
- Table 2: explain abbrevations EBF, DBF, NF (e.g., in caption)
- Fig 4: What is the color scale of a) and b)?
- Fig 8: what is the color bar on the right hand side?
- L463: the new model results (dataset) will be published on the GLEAM website, but is this not confusing as GLEAM is a different model?
- L465: when will the data become available? It should be acessible before acceptance, right?