

Interactive comment on “Contrasting roles of interception and transpiration in the hydrological cycle – Part 2: Moisture recycling” by R. J. van der Ent et al.

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We thank the editor for providing an overview of the most important issues raised by the reviewers. We have carefully revised the manuscript based on the review process. The remarks from the editor are in italic and our answers in upright text.

The referees support publication of this manuscript after revisions. The authors are welcome to submit a carefully revised manuscript. Based on the point-by-point response and the suggestions by the reviewers I have the following remarks

1. As suggested by the referees, Fig.1 needs to be improved. The point of the outgoing blue arrow is confusing, as the numbers in Fig.1 suggest that this is 0 (see remark

C266

Goessling)

We have carefully re-examined this figure and came to the conclusion that Helge Goessling was indeed right. In the revised version we have kept the blue part of the arrow, but modified the labels so that the blue arrow makes sense now.

2. Definitions: It is clear that you do not like the term evapotranspiration, but as seen in your reply the term is often used. So define the term E very clear in the manuscript as the total amount of all sources of evaporation, including transpiration; In addition to that, all recycling definitions must be made clearer in the manuscript.

In the revised version the term E is clearly defined in the text preceding Eq. (1) as total evaporation. In this equation it can be seen that E consists of several components, of which transpiration is one. We have included a new table (Table 1), which list all the recycling definitions used in the manuscript, which we hope prevents possible misinterpretations.

3. The regional study of Western Africa: All referees have a problem with that. One referee asks for more details, while two other referees do not see the additional value for it. The authors can choose to make it more logical and informative or simply remove it.

We still believe this section nicely illustrates the contrasting roles of interception and transpiration for a specific region, however, we have removed this section from the revised manuscript.

4. The point-by-point response of referee 3 on the reliability of the numbers needs to be improved. The authors response that they still think it is robust, is not very strong and should be checked with figures.

Based on this comment, we have run our atmospheric moisture tracking model WAM-2layers, with different partitioned evaporation estimates that were obtained by other parameterisations of STEAM (Part 1). In Sect. 3.6 and Table 2 we now show that with

C267

these different input data the main differences between interception and transpiration in the hydrological cycle remain.

I look forward to see the new revised manuscript

Due to some minor changes in the model of Part 1, we are in the process of rerunning WAM-2layers, which causes some figures to change slightly, but does not affect any of our conclusions. However, we are waiting for the final years to finish before we upload the revised version.

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