Hydrology and Earth System Sciences Discussions

Interactive comment on "Throughfall and temporal trends of rainfall redistribution in an open tropical rainforest, south-western Amazonia (Rondônia, Brazil)" *by* S. Germer et al.

S. Germer et al.

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H. Savenije (Referee)

(RC = referee comment, AC = author comment)

First we want to thank the referee for his thoughtful and constructive short comments, which we address in detail below:

RC 1: I do not like the use of the word loss. The authors mention interception losses throughout the paper. In hydrology there is no such thing as a loss. Evaporation from interception is direct feedback of moisture to the atmosphere, which is no loss to the terrestrial water cycle (if we can speak of losses at all). The moisture feedback replenishes the atmospheric moisture content, which in turn sustains rainfall. In the

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Amazonian forest moisture recycling is a very important mechanism to sustain rainfall. The word loss stems from the perspective of the water user who thinks water is wasted for his purpose, and even then it is only from the perspective of the narrow-minded water user, who does not recognize the larger scale processes. So please remove or replace the word loss throughout the paper. **AC 1:** We agree, and we will delete the word loss throughout the paper. This is an interesting point and we share the view that one should take care to choose correct terms and not rely on conventions.

RC 2: Rainfall, evaporation, discharge etc. are fluxes, not stocks. The correct unit is in L/T (mm/d or m/s or whatever, as long as it is a length or volume per unit of time). In some cases we can use the integral over time of this flux, resulting in a depth, but even then it only has significance if we mention the period over which it was integrated. A rainfall of 100 mm has significance only if we mention the period over which the rainwater was accumulated. Obvious, but often sinned against. Please correct the units on page 2716 lines 10 and 11 into mm/a. In the vertical axis of Figure 1, I guess you mean mm/month. Please correct. **AC 2:** We agree and will change units where needed in the revised manuscript.

RC 3: In the journal HESS we want to avoid parameters of more than one symbol. TF could mean T times F. Please use T (with a subscript if need be). Also do not use SF (in Table 2). **AC 3:** As that is the policy of HESS we will of course change the symbols throughout the paper.

RC 4: I guess on page 2710 line 25 you mean "Palma verdadeira" instead of Pama verdadeira. **AC 4:** "Pama verdadeira" is correct. It is a tree, not a palm.

RC 5: page 2711 line 17. an accuracy of 0.1 inch means an accuracy of at most 0.25 mm and not 0.254. There is no way this tipping bucket has an accuracy up to 0.001 mm. In a scientific publication it is not acceptable to suggest a higher accuracy than what you have. **AC 5:** The tipping bucket has a resolution of 0.254 mm, but the accuracy is of $\pm 2\%$ at 1" to 19.7"/hr (500 mm/h) (http://www.campbellsci.com/tb4-l).

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As we explicitly used the term "resolution" in the original manuscript, the suggested change does not seem warranted.

RC 6: If on page 2716 line 22 you mention that within 100 km of your site the same throughfall was measured, then what is new about your research? **AC 6:** Uberana (1996) sampled throughfall weekly, and over some periods up to monthly, which is adequate to estimate interception. Our main objective, however, was to improve process understanding by gaining insight into the temporal variability of throughfall and interception. In this sense, we view our study as a fundamental contribution to hydrologic process research, rather than as just yet another regional interception study.

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 2707, 2005.

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