

Interactive comment on “Assessing the impact of climate variability on catchment water balance and vegetation cover” by X. Xu et al.

Y. Friend

2241929366@qq.com

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This manuscript assesses impacts of climate variability on catchment water balance and vegetation cover, which is an interesting topic of ecohydrology. It is well written and organized. The data and analysis are solid, and fully support the conclusions. Following comments may help you improve the manuscript:

- (1) Figure 1 and 2 are switched. That is, Figure 1 should be Figure 2, and vice versa.
- (2) Provide one reference or more to support your statement in Lines 21-22 on page 6298.
- (3) It seems that the statement in Lines 6-8 ("Woody vegetation ... $E_0/P < 2.0$.") is
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reversed.

- (4) What is "litter" in Line 19 on page 6309?
- (5) What is "tot" in Line 7 on page 6311?
- (6) In sections 4 and 5, the methods (e.g., equations) and results are mingled. They should be separated and documented in different sections.
- (7) "This might be caused by the error introduced by the baseflow separation" (Line 19 on page 6303). Is it possible to quantify the accuracy of your baseflow separation? Does the separation have acceptable accuracy?
- (8) "...from the error introduced in F_p and F_r separation" (Line 12 on page 6308). Is it possible to quantify the accuracy of the separation? Does the separation have acceptable accuracy?
- (9) It feels misleading by negative correlations between F_r and precipitation and E , and positive correlation between F_r and E/P (Table 1 and 2, and texts). It sounds that the more precipitation, the worse the non-woody vegetation. Same is true for E and E/P . Why don't you use LAI? You could use LAI_t, LAI_w, and LAI_n, respectively, to describe total vegetation, woody vegetation, and non-woody vegetation. By doing this, the relations with the three climate variables will be consistent with common knowledge.
- (10) There are too many symbols. Is it possible to define them in a summary table?
- (11) The section of "Conclusions" is too long. It should be re-written and concisely summarize your study and taken-home findings. The last paragraph in this section (Lines 8-19 on page 6313) is very speculative. Do you really think that this study could "provide guidance and motivation for detailed ecohydrologic modeling studies?"

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