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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Climate regime and soil storage capacity interact to effect evapotranspiration in western United States mountain catchments" *by* E. S. Garcia and C. L. Tague

Anonymous Referee #3

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The authors investigate the controls on evaporation in three catchments in western US. On purpose, I did not look on the two previous reviews before my own reading of the manuscript, but when I did afterwards, I found many of my concerns already expressed. Most importantly, I think what the authors actually did, was a detailed sensitivity analysis of the RHESSys, but this does not become really clear, especially they also talk about a conceptual model of ET. After the introduction I expected another model, but after reading the entire manuscript, I think the conceptual refers just to the relations between the various controls and ET derived from RHESSys. So, I agree with

the other two reviewers, that a clear statement of the objectives of this study is missing. I am also confused about what we can learn from this study, and the authors do not help the reader in this respect by not providing any conclusion or concluding remarks section. A sensitivity study of RHESSys might be interesting, but then the results should be analyzed and discussed more in this respect. I also got the impression that the authors actually wanted to present their results not only as a model sensitivity study on ET controls but as a discussion of the 'real' controls on ET. However, for this, more evidence needs to be provided that RHESSys actually is a good representation of reality. As far as I can see, the authors do not provide any information on how their model performed in the three catchments.

In the end, I feel rather confused on what can be learnt from this study. Sure, soils are important for the sensitivity of ET on P and T, but in which respect do the results provide information beyond common hydrologic understanding. Where there any surprising results? Is a general quantification of the sensitivities possible based on these results (especially given the lack of model validation I am a bit skeptical).

To summarize, the study addresses a potentially important issue, but the work needs to be improved by a clearly stated objective, conclusions which clarify what can be learnt from this study and evidence that the model actually is a suitable representation of reality.

Minor comment: R75: I might be able to guess what you mean by this, but the def in Table 1 sounds strange, I assume it is the day until which 75% of the annual recharge has accumulated, not the single day at which 75% of some soil water recharge might occur.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 2277, 2014.