**Hydrology and
Earth System
Sciences**

Open Access

Discussions

Interactive comment on "Soil storage influences climate–evapotranspiration interactions in three western United States catchments" *by* E. S. Garcia and C. L. Tague

Anonymous Referee #2

Received and published: 9 October 2015

Authors have performed an interesting study to assess the role of soil storage on climate-evapotranspiration (ET) interactions in three mountainous catchments using a distributed ecohydrologic model. In particular, the role of soil storage is considered by incorporating uncertainty of soil storage parameters in deriving precipitation, recharge and temperature relationships with ET. The manuscript is very well written and discussion of the results is very clear. However, the readers can benefit from a more focused conclusions summarizing main take home messages of the paper and its broader impact.

Detailed comments: 1) Authors have used a spatially distributed model to perform sim-

ulations across three catchments but the final results are aggregated at the catchment scale. It will be very interesting to see how these climate sensitivities change across the catchment? Are they observing differences between uplands and lowland areas?

2) Does the sensitivity of ET change for different land cover types in a given catchment?

3) What about sensitivities of plant transpiration and NPP to AWC and precipitation?

4) Can authors specify which of the soil parameters generate most of the scatter in their results like in Figure 5 or 6? In other words, what is the most sensitive parameter? Is the most sensitive parameter different among the catchments?

5) Can authors specify which metric they used for annual NPP during calibration (page 7899)?

6) Since R75 is not the actual recharge, I suggest authors rephrase it to timing of potential recharge.

7) Can authors briefly describe patch elements in RHESSys (page 7898)?

8) A brief description of snow module will be helpful. How the results are impacted by the snow parameters?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 7893, 2015.