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Interactive comment on "Using Satellite-Based Evapotranspiration Estimates to Improve the Structure of a Simple Conceptual Rainfall-Runoff Model" *by* Tirthankar Roy et al.

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This article explores three approaches to use newly available actual ET (AET) data from satellite products into conceptual hydrologic models to improve predictions of streamflow and AET of simple hydrological models:

1. Calibrate the model with AET data 2. Change model structure to improve ET process parameterization 3. Combination of both

The authors compare the performance of the three approaches and concluded by stressing the importance of structural medications within the model. By only calibrating the model with AET data, the improvements from initial estimates of the state does not

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sustain into future time steps. But if the GAET data is used to modify model structure, such improvements prevail over subsequent time steps. As the authors have rightly pointed out in the article, inadequacy of model structure tend cause the state estimates to drift away from their ideal ("ideal" is a confusing choice of word, pp13) values over time so that model performance deteriorate with increasing time away from the model calibration period. I think the above is consistent with the parsimony principle (i.e. Occam razor). With new information available (in this case AET data), more complex models may become more necessary. The take-home message from this exercise to all modellers is that when presented with new data, they should double check whether the current model is too simple. Strategies that allow increasing model complexity like the one in the present study are needed.

In my opinion, I think this work make important contributions in terms of using a new kind of data (satellite-based AET), as well as how to best use it (structural modifications). Its findings will shed light on future efforts to bring in more remote sensing data for regional hydrological predictions. Specific comments:

1. I believe there may be inconsistency in symbols for correlation coefficient. In Table 1, you use rho for correlation coefficient, but R in subsequent tables.

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