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Title: Contribution of soil moisture feedback to hydroclimatic variability

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General Comments:

This study evaluated the impact of soil moisture feedback on the spatial and temporal scales of seasonal to annual climate anomalies using a common general approach. The results are interesting. In fact, this is a comparison of two model simulations, without any ground-based validation. It will be better if the authors choose some regions, e.g., Illinois and Oklahoma, with enough soil moisture and precipitation observation to evaluate the model simulations. Discussion part did provide several valuable points. In general, I think paper can be published in HESS after some minor revisions.

Specific comments:

1. For model-data comparison, a reference is suggested:

Dirmeyer P. A. et al., 2006: Do global models properly represent the feedback between land and atmosphere? *J. Hydrometeorol.*, 7, 1177–1198, doi:10.1175/JHM532.1.

2. In discussion section, the authors mentioned that “the model soil layer can be many meters deep ....., and trees are found to access water down to 10 m depth ....”. A little bit more discussion may be added. Suggest a reference:

Niu, G.-Y., et al., 2007: Development of a simple groundwater model for use in climate models and evaluation with Gravity Recovery and Climate Experiment data, *J. Geophys. Res.*, 112, D07103, doi:10.1029/2006JD007522.

3. In section 3.1 Mean state, 4<sup>th</sup> paragraph, first two lines (p6975): “Cloud fraction decreased by 0.2% over land, concentrated during spring and summer, ...”. However, Table 1 indicates that cloud fraction increases during summer.

Technical corrections:

1. In section 2.1 Model simulations, 4<sup>th</sup> paragraph, 6<sup>th</sup> line (p6972): change “mean monthly” to “monthly mean”.