

Interactive comment on “Seasonal hydrologic prediction in the United States: understanding the role of initial hydrologic conditions and seasonal climate forecast skill” by S. Shukla and D. P. Lettenmaier

S. Shukla and D. P. Lettenmaier

shrad@hydro.washington.edu

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Reviewer 4

This study analyzed the relative contributions of initial hydrologic conditions and atmospheric forcings to overall monthly forecasting skill in the conterminous US. A land surface model, VIC, was used in this study to conduct ESP and reverse ESP experiments during the reforecast period from 1971-2003. A similar methodology has been

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adopted by several other investigators but this study provides detailed analysis over different hydrologic sub-regions in the conterminous US at monthly time step. The manuscript is relevant for publication in Hydrol. Earth Syst. Sci. Discuss.

Overall, the manuscript is well written and will be of interest to broader audiences. I recommend the manuscript to be accepted for publishing with minor changes.

Thank you for your valuable comments.

1. It is not clear whether the soil moisture is aggregated over all the three layers of the VIC model. Provide a general range of the soil depth that was used to estimate soil moisture.

Response: We now mention on page 6572 line 11-13, that the soil moisture used in this study is the sum of moisture in all three layers. As mentioned on page 6571, line 16-18, we used NLDAS parameters (including soil depth parameter) as described in Maurer et al., 2002; however we have now provided a typical range of the soil depth for each soil layers.

2. There are too many abbreviations in the manuscript which make it difficult to read. Reduce some of them. In the abbreviation list, full form of USDM is not included.

Response: See our responses to other reviewers. We have now reduced the number of abbreviations by eliminating abbreviations for phrases that appear less than 3 times, in the manuscript. We also now include the full form of USDM in the appendix.

3. P6572, lines 11-13: “We aggregated : : : : .. hydrologic regions. ” “regions” should be “sub-regions”

Response: We have corrected that sentence.

4. Please include some of the limitations of this study

Response: We have added a few lines in the summary and conclusion section of the manuscript, which lists the potential limitations of this study.

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