

Interactive comment on “Reliability of meteorological drought indices for predicting soil moisture droughts” by D. Halwatura et al.

Anonymous Referee #2

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The present study analyses the reliability and effectiveness of SPI/RDI in predicting soil moisture droughts. The research has significance in agriculture drought monitoring in places without adequate soil moisture observations. However, some revision comments are proposed below:

1. As the key idea about the research is testing the ability of meteorological drought indices in predicting soil drought. Why only use soil water pressure to quantify the ‘soil moisture droughts’? I suggest the author should use the observed soil moisture to test the capability of these drought indices. You may not use the SM data of all layers studied, at least the average condition of SM and its correlation with the drought indices should be revealed.
2. As agricultural drought or ecodrought are usually measured by soil moisture. The

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relationship between soil moisture and soil water pressure used in current research should be further studied in the 3 stations.

3. I suggest the author also analyze the effect of drought timescale on soil moisture. You may analyze more on soil moisture and drought with changing timescales e.g., 1-12months.
4. In addition to model parameter setting, the input of the model including the climatic data should be clarified to enhance the comparison between model output and the drought indices calculated from precipitation/PET.
5. In discussion, the author mentioned that ‘our results point to the simplest being the best’. Such kind of expression should be very careful as the study only analyses SPI and RDI. Actually there are many effective drought indices with precipitation and PET, e.g. SPEI. The author can read more literatures on this.

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