

## ***Interactive comment on “On the utility of land surface models for agricultural drought monitoring” by W. T. Crow et al.***

### **Anonymous Referee #2**

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General comments: The manuscript evaluates the drought prediction skills (through NDVI) of three modern Land Surface Models (LSMs) as opposed to the skills of a simple Antecedent Precipitation index (API). The evaluation of LSMs for drought monitoring is highly important. The scope of the manuscript is well defined, it is clearly presented and well written. I recommend the manuscript for publication after minor revision

Minor remarks: -p5173.l5: Since long-term AVHRR data with lack of inter-annual variability are used for vegetation parameterization, my impression is that capabilities of LSMs are not exploited to the fullest extent. Can you please describe into more detail how the vegetation parameterization is performed, and whether improvements in rank

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cross-correlations between soil moisture and NDVI could be expected when improved vegetation products would be used in the LSMs?

-p5173.l24: It would be interesting to evaluate the quality of the root-zone soil moisture products, in particular, to show the agreement between the API and LSMs moisture values.

-p5175.l6: I do not completely understand why the soil moisture rank autocorrelations need to be standardized. In my opinion, the autocorrelation is a model quality that needs to be preserved when evaluating its skill for drought monitoring. Furthermore, standardization by simply adjusting the layer depth of Noah to 40 cm is somewhat arbitrary. Also, in case standardization is performed, then all models (also CLM and/or CLSM) should be standardized.

Technical corrections: Page5175.l20: In the in the

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