

Second Review of the manuscript "Evaluation of land surface model simulations of evapotranspiration over a 12 year crop succession: impact of the soil hydraulic properties"

The manuscript needs further significant corrections before possible publication. The structure is still unclear and redundant. Focusing on soil key parameters (θ_s , θ_{FC} , θ_{WP}), the results should be thoroughly re-organized in a simple and clear structure. I suggest to implement only 3 simulation cases. First two with constant parameters in time (θ_s , θ_{FC} , θ_{WP}) retrieved either by PTF or LAB methods. The third case exploits the FIELD measurements in order to obtain time-variable soil parameters (θ_{FC} , θ_{WP}). The new results-section might be re-written by following these suggestions:

1) constant parameters (θ_s , θ_{FC} , θ_{WP}) in time: run a sensitivity analysis to see the effect (and uncertainty) on ET for realistic ranges. Which soil parameter influences ET significantly? Why? Then run two case-scenarios with constant parameters: PTF and LAB. For the LAB scenario I would consider θ_{FC} as deriving from $K=0.1$ mm/d (as in the standard-PTF method) and delete θ_{FC} as deriving from $h=-3.3$ m.

2) the model can be then improved by using FIELD parameters (θ_{FC} , θ_{WP} variable in time) and test associated uncertainty.

3) the impact of the vegetation parameter (mesophyll conductance) is still not clear. Root depth is a vegetation parameter as well!

4) Please, delete all qualitative discussions on structural model errors (Section 6.2) that require deeper analysis

5) Section 2.2 ("Field measurements") is still unclear. A new figure showing map, transect, positions, legend etc. would be optimal in order to better understand the methodology. It is still unclear how many soil profiles? What's their inter-distance? How large is the experimental field? How about the measurements on the plants? The crop characteristics were regularly measured on a single crop or on different crops? Which techniques have been used for LAI, height, biomass etc? Where is the weather station?

MINOR COMMENTS

The title should be changed as " Evaluation of land surface model simulations of evapotranspiration over a 12 year crop succession: impact of the soil hydraulic and vegetation properties "

Table 1 is not a Table but Nomenclature or Appendix 1

The Table and Figure captions are too long. Please reduce words and descriptions that are already in the text

Please add the dashed lines in the legend in Fig. 3 and Fig. 4. Add vertical bars too to split crop and inter-crop seasons