

Interactive comment on “Evaluation of land surface model simulations of evapotranspiration over a 12 year crop succession: impact of the soil hydraulic properties” by S. Garrigues et al.

Anonymous Referee #2

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The authors use 12-year crop field measurements to evaluate uncertainty of model predictions resulting from pedotransfer function. It is shown that evapotranspiration and soil moisture predictions are sensitive to the parameters of soil saturated water content, field capacity, wilting point and rooting depth. Field soil inhomogeneity is the principal factor to bias parameter representativeness. The main concerns are as listed as: 1. The simulated cumulative ET is more than 20% lower than the measurement, then, where has the input precipitation/irrigation gone? The eddy covariance ET is usually lower than the real ET value. On this aspect, the predicted ET is much lower than the measurement. The time series of water balance components should be pre-

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sented to justify the period the model failing. As shown in Fig.1, in some crop growth periods, the predicted and measured soil moistures are greatly and unreasonably deviated. It is seemed that there is some inconsistency between the precipitation input and soil moisture measurements. 2. Soil hydraulic conductivity and its curve shape parameters are also important to soil water dynamic. Their effects on soil moisture should be considered. 3. The authors claimed that the soil vertical profile is sensitive to the moisture simulation, but only the averaged parameters from field measurements are used. I am concerned how you derive these parameters representing the soil heterogeneity at field scale. 4. The model uncertainty should be carried out to discern the contribution of soil hydraulic parameters to the model prediction deviation comparing with the above ground energy partitioning parameters, such as stomatal conductance, canopy extinction coefficients. 5. The section about eddy covariance uncertainty is not relevant to the model prediction, should be removed.

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