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Hydrology and Earth System Sciences Discussions

Interactive comment on "Spatial and temporal patterns of land surface fluxes from remotely sensed surface temperatures within an uncertainty modelling framework" *by* M. F. McCabe et al.

Anonymous Referee #1

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General Comments: The authors present an innovative and interesting approach to minimize the uncertainty of an evaporation model. This approach is based on temporal changes of remotely sensed land surface temperature data, combined with a GLUE approach. Especially the analysis of the spatial patterns of model uncertainty (Fig. 4) and its temporal development, depending on the hydrological boundary conditions (paragraph 3.2), deserve to be published.

I suggest to accept the paper with minor revisions, regarding the following points:

Specific Comments:

Paragraph 2.5: As far as I understood it, 15 parameters were calibrated for each of the 300 pixels independently, i.e., 4500 parameter values in total. Was there an attempt to decrease the degrees of freedom of the model, e.g., by using different vegetation type classes?

Paragraph 3: The results exhibit some spatial correlation, does this hold for the parameter sets as well? How could this be used to constrain the model?

Technical Corrections:

Paragraph 2.3: Please give the exact location of the study area. P 584, l 3: Define the acronym “EF” here.

Fig. 1: Marking the study area would help comparison with subsequent graphs. On the other hand, it would help to mark the site of in-situ measurements in Fig. 2 as well.

Fig. 2 - 4: Please give the units on the axes (seem to be km). Again, using the same scaling in Fig. 1 and Fig. 2-4 would help to compare the graphs. In addition, give the units for the colour bars. Does the right colour bar refer to the entire period only? Why is Fig. 2 substantially smaller compared to Fig. 3 and 4?

Fig. 5: Figure caption for the upper panel reads Ďwater table depth below surface“, however, the graph actually shows water table above a certain datum.

Fig. 6: The unit should be given on the y-axis; it seems to be W m-2, and not water flux density.

Fig. 8: There were some problems with this figure when trying to download the pdf file.

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 569, 2005.