

Interactive comment on “Calibration and sequential updating of a coupled hydrologic-hydraulic model using remote sensing-derived water stages” by M. Montanari et al.

Anonymous Referee #4

Received and published: 31 December 2008

This is a well written and interesting paper. The presented methodology sounds very promising and in my opinion this paper is worth to be published. However, some points need to be clarified.

Comments:

1.The PUB-discussion:

It is true that a certain amount of observed data is necessary for the calibration of the

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model parameters – therefore the PUB perspective is not fully met. However, the presented methodology is certainly a step in the right direction. It is better to have an estimate of the discharges based on remote sensing (even if the uncertainty is high), than no information at all. In my opinion this point has been clarified by the authors (response to comments of referee #2).

2. Hydraulic simulation:

Is this methodology only adequate for river reaches with “simple” geometry (which can be modelled one dimensional)? How does the topography of the river valleys affect the accuracy of the remote sensed water stages (steep narrow valley – flat open flood plains)? If possible it would be nice to add a sentence about to limits of applicability for this methodology.

3. Transferability of model parameters:

This is a very important point. It is necessary to separate the constant parameters from those are depending on the event to reduce the number of unknown model parameters. The events as of table 2 are all in the same order of magnitude – therefore the transferability of the Nash-parameters is not surprising. In case of higher flood peaks (extreme events) I would expect faster runoff response due to the non-linearity in catchment behaviour. However, the use of constant Nash-parameters is an adequate assumption in this case. It would be fine if table 2 could be extended by the estimates of the event return periods and the base flow at the beginning of the events.

4. Figure 1: Please add the catchment area of Pfaffenthal (figure caption)

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 3213, 2008.

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