

## ***Interactive comment on “Resolving structural errors in a spatially distributed hydrologic model” by J. H. Spaaks and W. Bouten***

**E. Zehe (Editor)**

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Dear Dr. Spaaks,

I appreciate the elaborated and well-reasoned manner you addressed the reviewer comments. I very much agree that a study condensed around one main take home message does very much support a targeted scientific learning process. I admit that you cannot address all possible sources of error, without loosing the focus on the fact that state pattern updating might be a key for improving model performance. If the approach does not work in a perfect world it will never work in real world. From such a study we can also learn in which type of observation technology we should primarily "invest" because they provide the most useful information either for improved model

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diagnostics or for constraining the model identification process (which are to me two sides of the same medal).

In line with this and in line with the reviewer comments, I felt that the issue of non-perfect observations could and should be addressed in this study, without losing the focus on the main message. This can be done in a targeted manner, by keeping the focus on state observations and keeping the assumption that you observe pressure heads at the hot spots. You could easily introduce a random error band and work out how these errors propagate through your approach. This helps to learn how additional precision in our observations translates into a reduced uncertainty in the proposed model diagnostics. This way you can address this key point in an exemplary manner, discuss implications, maybe provide an outlook on how to add additional sources of observation errors or displacements and keep this for a follow up study.

I think this requires a moderate revision of your study and a few extra runs. I am sure this will improve the study, which is already pretty nice, and assures that you reach a wider audience.

Best regards,

Erwin Zehe

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 1819, 2013.

## HESSD

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