

## ***Interactive comment on “An analytical model for soil-atmosphere feedback” by B. Schaefli et al.***

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We would like to thank this reviewer for his/her critical review of our manuscript. The main comments relate to our simplifying assumptions, for which he/she would like to see more data-based justification. In particular, this reviewer put the focus on the main assumptions for the atmospheric model.

The simplifications proposed in our manuscript are, of course, the result of our quest for "an elegant and solvable analytical system". We can understand that the reviewer misses a certain level of details in the description of the atmospheric processes, but at the same time, the proposed simplifications represent the great advantage of our model. Namely that our toy model allows anyone to play with the parameters and study the resulting first order estimates of the system behavior. As such, this analytical toy

C6143

model provides certain (hydrological) insights into the basics of the soil-atmosphere feedback process on the continental scale, which cannot as easily be obtained from state-of-the-art multimodel comparison studies (such as, e.g., Koster et al., 2004; Pitman et al., 2009), where the models (at least for the majority of hydrologists) are perceived as black boxes. Hopefully, our toy model can then also help us to better understand the implications of the research results of continental moisture recycling studies (e.g. Dirmeyer et al., 2009; Goessling and Reick, 2011; van der Ent et al., 2010).

*The detailed answers to all comments are given in the supplement to this response.*

### **References**

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C6144

Please also note the supplement to this comment:  
<http://www.hydrol-earth-syst-sci-discuss.net/8/C6143/2012/hessd-8-C6143-2012-supplement.pdf>

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C6145