**Hydrology and
Earth System
Sciences**

Discussions

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Interactive comment on "On the lack of robustness of hydrologic models regarding water balance simulation – a diagnostic approach on 20 mountainous catchments using three models of increasing complexity" *by* L. Coron et al.

J. Seibert (Editor)

jan.seibert@geo.uzh.ch

This is an interesting manuscript on the (lack of) robustness in hydrological modeling. Based on the comments by the reviewers, who recommended minor or major revisions, and my own reading, I find that this study can make a valuable contribution to this important issue, especially if the good points raised by the reviewers can be addressed. These are mainly requests for clarification or suggestions for additional analyses and should be rather straight-forward to address. In addition I would like to raise the follow-

ing questions:

1) Can you differentiate between the effect of using periods with different weather conditions on average and being outside of the calibration conditions for certain parts of the simulation period?

2) As far as I understand one single best parameter set has been calibrated per period, catchment and model. How much could this have affected results and might it be possible to obtain more robust results by allowing for several 'best' parameter sets using some type of Monte Carlo approach?

3) For mountainous catchments variations with elevations are important. Therefore, please describe which lapse rate you used for temperature and precipitation and how many elevation zones where used in the different models.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 11337, 2013.