

## ***Interactive comment on “A strategy for “constraint-based” parameter specification for environmental models” by S. Gharari et al.***

**S. Gharari et al.**

shervangharari@yahoo.com

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We are pleased to have such interest expressed in our technical note. We agree with Dr. Gong and with the second anonymous reviewer that our technical note might need more material to stand for itself. Although the paper may currently appear simply a "tool" which we proposed to address the issues raised in HESS-2013-519, we believe that it covers an interesting and novel ground, and that it can be made more general. We will therefore revise it to provide more depth to the topic, and include case studies to support our motivations.

This paper tries to find a balance between two different extremes, hoping that one can benefit from both of them. The first extreme is to rely blindly on the calibration

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approach, hoping that this will result in a meaningful parameterization of the model. The other extreme is to reject automatic calibration altogether, and rely on manual adjustment or "inspired guesses". We try to bring together the power of automatic calibration, and incorporate expert judgment in the form of constraints. In this way, we try to achieve a model parameterization which is meaningful from both perspectives.

The proposed search algorithm is just a basic step in that direction. As we feel that the issues we address are relevant and general, we think that this paper should stand by itself. Merging this technical note with HESS-2013-519 would make the paper too long and it would distract the readers from our main message, which is model structure and formulation of constraints. On the other hand HESS-2013-520 might be a start to a very broad application of constraints, which is not heavily joint to FLEX-TOPO (HESS-2013-519) directly. For this reasons we would like to keep the papers apart.

We are in the process of designing two case studies to support this technical note, one would be a synthetic case study and the other would be a hydrologically-relevant case study.

We would be happy to have your opinion before submitting the revised version of the technical note.

With best regards

Shervan Gharari – on behalf of the co-authors

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 14857, 2013.

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