Hydrology and Earth System Sciences

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Discussions

Interactive comment on "Transferring model uncertainty estimates from gauged to ungauged catchments" *by* F. Bourgin et al.

Anonymous Referee #5

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The paper presents an interesting approach allowing for assessing uncertainty of flow estimates in ungauged catchments. It is well motivated, refers to the relevant sources and well structured. Illustrative material is adequate. It is a very welcome addition to the PUB, and at the same time to the uncertainty-related studies. It can recommended to publication provided the comments below are addressed.

This review is one of the last submitted, so I can be brief since a number of points raised by other reviewers I share as well. However there are couple of additional points that are worth stressing, and which are recommended to address in the revision.

I would define the notion a of the total uncertainty clearer pointing at the main source of it. The problem is that in some earlier studies the 'total' and 'residual' uncertainty are

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sometimes used interchangingly so some clarity in definitions is needed ('total' may be treated as including all possible sources of uncertainty (e.g. including input) which is not the case here).

The paper is very concise but not always easy to understand due to lack of formal representation of ideas; I would introduce more formalism in describing the main procedure on pp 8045-8046, e.g. use some notations for flows for catchments NGC, groups, multiplicative coefficients, etc. This is easy to do.

Some more clarity and rigour may be needed in the statements like:

8046, L7: The groups are based on the quantiles of the simulated discharges, so that each group is equally populated. L8: The subdivision into flow groups allows accounting for the heteroscedasticity of model errors. L11: Put together the relative errors from the donors according to the group they belong to.

On p 8050 (Sec. 5) the reader may find more explanation of the methodology but it comes a bit late; I would be clearer in the description of the methodology in Section 3, I think this is an important point to address.

P 8046: groups: would they be better described as intervals?

The presented methodology contains couple of elements that may require somewhat stronger justification, e.g. creating 10 groups, using multiplicative coeffs.

907 catchments is great to have, but I suppose many readers would like to read about the recommendations on using this method in less data-rich cases.

In the version for printing most figures are hardly readable, it is suggested to check this.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 8039, 2014.

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