

Interactive comment on “On the role of the runoff coefficient in the mapping of rainfall to flood return periods” by A. Viglione et al.

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General comments:

This paper is the follow-up to an earlier paper by Viglione and Blöschl (2009), both papers focusing on different issues in the mapping of rainfall to flood return periods. Whereas the first paper considered different storm durations, this paper focuses on the effect of runoff coefficients.

The two papers complement each other without more overlap than necessary. The currently submitted paper is, as the first one, well written, contains new results and should be of interest for the audience of HESS. I will therefore recommend the manuscript for publication in HESS.

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Detailed Comments:

I find the results and discussion regarding the runoff coefficients giving a 1:1 correspondence of T_P and T_Q quite essential for this paper, as the authors are searching for the conditions that will correspond to the general assumptions when applying the design-storm-procedure. Although the authors emphasize the complexity of finding the correct runoff coefficient in the discussion, I think it can be expanded with a short paragraph discussing more directly the consequences of the current practise with respect to possible over- or underestimation of T_Q .

Below are some minor textual comments/suggestions:

P629, L13

Change "unless for very" to "except from very".

P629, L22-24

The sentence appears a bit clumsy, consider rewriting.

P635, L23

There should be a comma after "occur".

P637, L1

Change "to have" to "of having".

P646 L14

Although there is a reference to Sivapalan et al. (2005) on P632, it could be repeated here.

P648 L18, P650, L11

I think "greater than or equal to" should be "smaller than or equal to".

Multiple places

"space" could several places be exchanged with "parameter space".

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Fig 2 a) and b)

The key could include the envelope curves

Fig 3

I think the main part of this figure is from Merz and Blöschl (2009), a reference could be added to the caption.

References:

Merz, R. and Blöschl: A regional analysis of event runoff coefficients with respect to climate and catchment characteristics in Austria, *Water Resour. Res.* 45, W01405, doi:10.1029/2008WR007163, 2009.

Sivapalan, M., Blöschl, G., Merz, R., and Gutknecht, D.: Linking flood frequency to long-term water balance: Incorporating effects of seasonality, *Water Resour. Res.*, 41, W06012, doi:10.1029/2004WR003439, 2005.

Viglione, A. and Blöschl, G.: On the role of storm duration in the mapping of rainfall to flood return periods, *Hydrol. Earth Syst. Sci. Discuss.*, 5, 34198211;3447, 2008.

Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 6, 627, 2009.

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