

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2022-254

Anonymous Referee #2

Referee comment on "Uncertainty estimation of regionalised depth–duration–frequency curves in Germany" by Bora Shehu and Uwe Haberlandt, Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-254-RC2>, 2022

The manuscript "Uncertainty estimation of regionalized depth-duration-frequency curves in Germany" by Shehu and Haberlandt reports a study on how to compute the uncertainty of parameters and quantiles of the DDF curves computed using regionalization techniques based on kriging. The manuscript is well written and both methods and results are discussed in depth; it is suitable for publication after the discussion of a few minor issues reported below.

Comments

Short durations have a quite large uncertainty that, in absolute value, may be very relevant for practical applications (e.g., from Fig 12 it can be about +/- 2 or 3 on a mean value of 6 or 7). This can be expected as the rainfall processes that generate short-duration extremes are usually different from those generating hourly/daily maxima. In general, these short-duration events are more difficult to interpolate because are very "local". Do the authors have investigated this aspect and studied how the variogram characteristics (in particular the range) vary with the duration and impact the uncertainty?

In fig 10, bottom row, there are several outliers. Do the authors have an interpretation for this behavior (e.g., can be related short time series)? Are these points also "extreme" in terms of parameters (μ , σ , θ and/or η) or this behavior emerges only looking at quantiles? Are these stations geographically clustered?

P12 L360 the meaning of "reduction factor" is not clear and the symbol λ is already used in eqs 7-8. I suggest removing it.

FIG 14 Please consider using the same color scale for each plot of the same duration to facilitate comparison

Typos

P7 L223 "Wakely" should be "Wakeby"

EQ 5 fix the parenthesis

P14 L428 "In contract" should be "in contrast"