Hydrology and Earth System Sciences

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Discussions

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Interactive comment on "At-site and regional frequency analysis of extreme precipitation from radar-based estimates" *by* Edouard Goudenhoofdt et al.
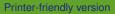
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Received and published: 21 June 2017

Dear authors,
thank you for the exhaustive reply. I am well satisfied by your responses and updates to the manuscript, and I think it is now significantly improved with respect to the original one. However, I am still not convinced by one point in the "interpretation of some results" (point 3 of my review letter).
You confirm your interest in *"the extreme at a given location"* rather than *"the regional maximum extreme"*, but did not actually answer the comment. The proposed edit is: *"We also consider that the extremes observed within the 20 km radius during a time*

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window of 12 h are dependent. As in Wright et al. (2014b), we keep only the maximum amongst dependent values. We therefore implicitly assume that the regional maximum follows the same distribution as the local extremes", but my concern is related to the use of maximum values within 20-km range areas rather than to the independence of the extremes.

Using the maximum values within 20-km range areas provides the probability of exceeding a given value in any of the 1-km pixels within the area ($\sim$1250 km^2); this probability can be significantly different from the probability of exceeding that particular value in a single given 1-km pixel – i.e. the extreme at a given location – even if the mentioned implicit assumption holds. I think this point still needs to be discussed and dealt with.

Kind regards,

Francesco Marra

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2017-150, 2017.