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: 23 June 2017

As pointed out by the reviewer there is fundamental difference between the probability that a given value is exceeded in any of the 1-km pixels within the 20-km radius area (statistics of regional maximum extremes) and the probability that a given value is exceeded at a given location within that area (statistics of extremes at a given location). In this study we are using the regional maximum peaks to derive statistics of extremes at a given location. If the goal was to obtain statistics on regional maximum extremes, we would have taken 10 years as the effective length of the timeseries (i.e. the length of the radar dataset). Our goal is to obtain the probability of exceeding a value for a given

location in the region and, therefore, we use an effective length based on the number of pixels within the area and the number of independent peaks. This length is much larger than 10 years and gives realistic return period estimates. It is directly related to the average over all pixels of the mean number of exceedance per year. That 's why our approach is similar to the one of Wright et al., 2013. More advanced approaches to study spatio-temporal extremes can be considered but these are beyond the scope of the present study.

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