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Hydrology and Earth System Sciences Discussions

Interactive comment on "Spatial interpolation of daily rainfall at catchment scale: a case study of the Ourthe and Ambleve catchments, Belgium" *by* S. Ly et al.

Anonymous Referee #2

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In this paper different interpolation techniques for generating rainfall maps are compared and the effect of number of rain gauges on the interpolation results is assessed. Unfortunately, the paper does not yield any innovative result: basically, the results found confirm the many studies that preceded this one.

Nevertheless, the dataset allows for learning some interesting things: as for each day, an optimal interpolation scheme is sought; it would have been interesting to see if the type of algorithm changes in time with e.g. different precipitation types (e.g. stratiform versus convective), and maybe one could learn something from the temporally

changing interpolation parameters.

Unfortunately, a cross section was not performed (due to the high load of data). I believe that such cross validation is necessary, maybe not on the full dataset, but it could be limited to some cases of very distinct rainfall patterns. From such exercise, one could learn whether there is an impact of the position of the rain gauges (which currently is not addressed, although it was stated as one of the objectives) and whether there is an impact of the type of rainfall.

I further have some questions with respect to how was dealt with zero rainfall and the way you treated the negative rainfall values predicted when kriging. Trying to get rid of negative values through changing the variogram model seems somewhat awkward: this may lead to very bad overall fits: why weren't all negative interpolated values replaced with a zero value?

Definitely, this paper should undergo a thorough revision before it can be published, in which the authors seek for results that are innovative rather than confirmative.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 7383, 2010.