Hydrol. Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/hess-2017-71-RC2, 2017

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Event-based stochastic point rainfall resampling for statistical replication and climate projection of historical rainfall series" *by* Søren Thorndahl et al.

L. Bengtsson (Referee)

Lars.Bengtsson@tvrl.lth.se

Received and published: 22 June 2017

The paper aims at determining rainfall for urban design. It is excellently written up to the result section, well describing previous research and the methodology used. However, the result section can be improved. When comparing observations and modeling it is not sufficient to conclude good or satisfactory agreemnet or letting the reader interprete figures by himself.

Since the main objective, besides deriving a new method for simulating rain series in a new climate, is to derive rain series that can be used for urban design, idf-curves should be shown in the conventional way as intensity vs duration for different return

periods. Although this is done in Fig. 5, the scale is not relevant. It would be better to use linear scale and not extent the duration further than 3 hours. I would like to see such curves directly after and based Fig. 1 and after Fig. 6. The two new figs should be compared and discussed more explicitly in the text.

Concerning climate change projections, I Think it should be told how large bias was used when improving the direct projections. As far as I know after simulating the present climate, correction factors are used to fit to observations and this bias is kept when modelling rain in future climate.

I agree with the authors that the expected increase of the number of 20 mm rain in a year seems unrealistic. I have done studies of several daily rains series extending more than 150 years and found significant increase of the number of 10 mm events, significant but minor increase of 20 mm daily events but none of 30 mm events. Perhaps the authors could look into long series of daily rainfall to investigate changes that have occurred.

A morec technical aspect is that the intensity in Fig 1 and 6 ought to be mm/min OR it should be clear from the legend that the graph shows rains over minutes. Also I Think the scale in Fig 3 should be changed. Usually log-scale is used or linear scale extending maybe up to 15 Days. On page 5 line 26 there is one value too much.

I am not sure whether my suggestions can be considered major revision or minor. I marked major.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2017-71, 2017.