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Discussions

Interactive comment on "On the importance of observational data properties when assessing regional climate model performance of extreme precipitation" *by* M. A. Sunyer et al.

Anonymous Referee #2

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The paper focused on an area often overlooked by some of researcher worked on the area. It is well written and concise. It should be informative to the climate change impact and application community who try to use the observation and model projection of precipitation extremes in their study. But there are some crucial informations still lacking in the paper. Also additional clarification and extension are probably needed for people working on more conventional performance metrics study.

The first issue that should be addressed is about the virtue and property of 4 different observations. For the user community, the first question would be which observational data should one use and why. I found the authors did not provide enough guidances

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on that. There could be various sources for the differences. For example, for the precipitation extreme indices from two gridded data, it could be due to the number of stations, data resolutions, interpolation method, etc. It should be nice if the authors can explore and show the individual influences from each factor.

The differences between point measurement and gridded data is also quite confusion to the users. But this is also a unavoidable representativeness issue. There is always differences between the two if one try to interpolate from one to the other. That part should also be clarified in additional to the sources of differences mentioned above.

It would be great if the authors can consider all that and give some guidance for the user community how to use these "different" data. For example, if two gridded observation data are different, which one is more reliable and why. Or when should one use station data and when to use the gridded analysis?

The second issue to me is about the metrics that authors use to compare difference data sets. The use of box-whistler plot is only highlighting the range of data, a mix of biases in magnitude and phase (pattern). More traditional metrics used in climate community for model bias is taylor diagram (including spatial pattern and variability part of RMSE).

The use of semivariogram for "spatial correlation" is also not conventional to climate community that use spatial correlation (literally). It might be confusing to some people. I actually like the idea. But I would suggest the authors to use the terminology more precise. Here we are examining the spatial similarity when the distance of two data varied. That is a quantity rarely examined by climate community working on extremes. One the other hand, the so-call "decorrelation length" are used by researcher in the gridded (interpolation) method (Alexander et al. on HadEX data in their 2007 JGR paper).

Finally, one result from the authors' analysis is inconsistent to me (page 7024, line 6-9). If the E-OBS data tends to over-smooth the precipitation extremes, why the E-OBS

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data differ more at larger distance as shown in the semivariogram.

There are some more technical issues that can be waited until later discussions.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 7003, 2013.