

Interactive comment on “Uncertainties in calculating precipitation climatology in East Asia” by J. Kim and S. K. Park

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Replies: We greatly appreciate the referee for thorough reading of the manuscript and useful comments. Below are our replies to the specific comments from the referee and actions to address referee's concerns:

(1) Comments: "However, there seems to be little reference to the datasets in the discussion and summary, instead focusing on the means, interannual variability and linear trends. I would expect that some datasets agree more than with others."

» Replies: "Presenting only the multi-data ensemble characteristics in this paper is intentional because we try to avoid discussing accuracy of individual datasets. We treated all datasets as if they are of the same accuracy or uncertainty because there

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is no ground to argue accuracy of a specific dataset. We think this is the right way to address uncertainties in deriving precipitation climatology from available multiple observational data in the region."

(2) Comments: "Specific Comments The datasets are described and cited in Table 1. Three datasets are of the same horizontal resolution (0.5 x 0.5) whilst the other two have different resolutions. This may not be a sound method for analysis of inter-dataset variability and may affect the calculation of the ensemble reference."

»> Replies: "This is an important point indeed. In real world, observational data comes in various resolutions and discretizations. In fact, datasets of the same horizontal resolution can be defined different grid structures. Because of this, all datasets are interpolated onto a common grid so that we can compare all datasets at the same locations. The spatial interpolation procedure can affect the characteristics of spatial variability of the interpolated data. This is an important concern in deriving the characteristics of horizontal variability, e.g., spatial power spectra, but is not expected to have serious effects on deriving temporal variability of the interpolated data. Because all of the properties we concern in this study (temporal means, standard deviations, trends) are related with the temporal variability, we expect the differences in the horizontal resolutions and subsequent spatial interpolation have minimal impacts on the reported results."

(3) Comments: "But perhaps the starting point should be to show a graph with annual cycles of the five rainfall datasets . . ."

»> Replies: "This will be very useful if we concern the variability at a single point or averages over a large area. This study concerns the spatial variations of selected properties of temporal variability. Hence, examining the annual cycle at all data points within the domain will be impractical."

(4) Comments: "I would suggest to analyze the datasets for trends which are not necessarily linear, for example polynomial trends"

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»> Replies: "Very interesting suggestion of its own virtue. Nonlinear fitting is also straightforward as well. In this study, however, the record length of 28years may not be sufficient to derive nonlinear trends. In addition, we don't have any prior information on the plausible shape of the nonlinear trend that can be of interest."

(5) Technical Corrections:

»> Responses: "We will incorporate these suggestions in the next draft. Thanks again for careful reading."

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