

Interactive comment on “An analyses of long-term precipitation variability based on entropy over Xinjiang, northwestern China” by C. Zhao et al.

Anonymous Referee #3

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The work is important for understanding the climate variability, however there is no novelty in the work. I did not see any new methods or the informations obtained are strong enough. There are several drawbacks as highlighted below:

1. How the author deal with the missing values in the data sets?
2. There is a need on discussion about how the author deal with the 'uncertainties' occurring due to the change in the bin size for the entropy calculation. This is a significant draw back.
3. The author should use a kernel-density based or other nonparametric methods for estimating the PDF and therefore the entropies. The histogram based approaches are

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always going to sensitive to the number of bins.

4. Several major discussions resembles to Mishra et al. (2009) published in J Hydrol-ogy, however the author did not gave proper credit to their article.

5. Page 2980: Calculation of entropy values: It is not clear. What are the values of 'n' as well as how they calculate pi is not discussed the article. The authors need to discuss as how they calculate different set of time series for calculating entropy. For example, in page 2980, the 'H' measures the temporal variability of monthly precipitation over the year. What is the bin size here?

6. More discussion are needed on the discussion section and it is weak. Proper dis-cussion on why these variability happens?, What implications were observed in water resources due changing pattern of temperature. There are several papers published on change detection, however there is need to be more discussion on impacts otherwise there no contribution.

Other comments: Methodology is not properly highted in the abstract Check the study area values (page 2978, line 21) The title of the paper says 'long-term', however the length of the data is less than 50 years. The title needs to be changed. Page 2983, line no 3, needs to be changed.

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