

Interactive comment on “Spatiotemporal Patterns and Trends of Precipitation and Their Correlations with Related Meteorological Factors by Two Sets of Reanalysis Data in China” by Jinhui Jeanne Huang et al.

Anonymous Referee #2

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This paper describes a study on the distributions of the correlations of climate variables (precipitation, temperature, ...) and trends of individual variables over China based on two reanalysis data sets. A wide range of climate variables have been analysed over the whole country. The topic is within the remit of HESS, and should be of interest to the HESS community. However, the paper has several weak areas that should be addressed:

Major issues 1) Since there are many global data sets available, please justify why GLDAS2 phase 2 and NCEP data sets are selected in this study (e.g., any evidence

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that they are more suited to China than other data sets); 2) There are a variety of ways to divide China into different zones. The zones should try to be homogeneous for the study purpose. It would be useful if the paper could describe what zoning options are available in China, and why the 3-Zone approach (with H24m and T50) by Wang (2002) is selected in the study. It would be also useful to explain if the decision was correct in view of the results. IT is possible that a better zoning system could be developed; 3) For the hydrological community, precipitation and evapotranspiration (ET) are the main concerns instead of other variables such as air temperature, long wave, radiation, surface pressure, etc. It would be useful to add potential ET and actual ET in the study; 4) Since reanalysis data sets are generated by computer models, it would be useful to validate the results using the ground observations (e.g., at some selected points); 5) It seems that the authors are concerns about the agricultural development and its link with the shift in precipitation patterns. It would be useful to show the history of land use/land cover in China instead of just one snap shot (e.g., LULC maps over several decades) so that the agriculture development trend can be compared with the precipitation trend. The trends of Potential PE and actual PE could also be considered in assessing the agricultural impact by climate change.

Minor issues: 1) It is useful to mask out the area outside of China 2) One legend is sufficient for each figure. 3) Although the paper is generally well written, some minor typos/grammatical errors should be checked and removed.

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