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Climate of the Past Discussions

Interactive comment on "Long-term regional precipitation disparity in northwestern China and its driving forces" *by* H. F. Lee et al.

Anonymous Referee #2

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Regional rainfall difference is controlled by many factors and this paper provides a valuable insight to reveal this difference. However, I do not think this draft at present is merited to the high-quality journal CP, because of insufficient details and discussion. My comments are as follows: 1. The introduction part is far from the topic of this draft. The authors mentioned lots of studies but few of them are relevant. 2. In data and method section, There is no information describing their data. How many sites did they use? Where they are? As I know, there are many missing points in flood-drought indices, especially ones of Northwest China. How did they deal with these missing values? How did they combine local time series into a regional one? 3. How did they divide their study area into to two subpopulations, i.e. Shaanxi and GNQR? Additionally, Helanshan Mountain Range, which lies in Ningxia Province, is the most important geomorpholocial and climatological margin within their study area. I cannot understand

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why they ignored its presence. 4. The authors stated that they reconstruct regional precipitation, but what they did is only to count times of drought and flood in each decade and did wavelet analysis on this time series. Neither new data nor "reconstruction" was reported, and all original data were initially reported by other researchers. 5. Result part. Flood/drought index was extracted from Chinese historical documents and thus has more or less difference in different regions. As a key index in this paper demonstrating regional disparity, I do not see any statistical test on this time series. What is its uncertainty? What is the significance level of this difference between two regions? 6. Discussion part. It looks like that their discussion, such as Asian monsoon and their driving forces (land-sea thermal-difference) and ENSO impacts on Asian climate, is original. But actually, so many papers stated and the authors only repeated in this draft. Please cite references clearly. 7. Why only wavelet coherence was used in this draft? What are their phase lags (or leads)? Why those lags or leads appear? Furthermore, the authors can also isolate various frequency components for comparison 8. Figures. In Fig.1, the dash line is not the limit of East Asian summer monsoon. Its margin should be a zone with an annual precipitation 200-400 mm. Where are color legends and axis units in Figs 3, 4, 5 and A1? Why some subfigures are so small? It is hard to identify. All figures should be improved.

Interactive comment on Clim. Past Discuss., 10, 3097, 2014.