Hydrology and
Earth System
Sciences

Discussions

Interactive comment on "Impact of ENSO regimes on developing and decaying phase precipitation during rainy season in China" *by* Qing Cao et al.

Anonymous Referee #1

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General Comments:

ENSO has huge influence on precipitation in east Asia. This paper investigated the impact of different ENSO regimes on rainy-season precipitation in China at the developing and decaying phases, and it also explored the possible physical mechanism of precipitation change from the large-scale atmospheric circulation aspect. It will contribute important new knowledge to the study of the spatiotemporal rainy-season precipitation variability in China under different ENSO types. There are significant opportunities for improving the paper, which are presented as the following points:

Major comments

1. In study area and data part, how did the authors select the precipitation stations for analysisïij§How about the data quality? Any missing data? As far as I know, there might

have much more precipitation stations in China Meteorological Data Sharing Service System. What are the screening conditions for the selected stations?

2. In the methodology part, this paper defined the CPW, EPC and EPW regimes based on the definition proposed by Kim et al. (2009), and presented the years dominated by CPW, EPC and EPW regimes. However, the determination of conventional ENSO and ENSO Modoki in this paper is judged by the rainy reason rather than the whole year based on SD values. Could you explain why did do like this?

3. Line 194: the authors need to present a brief introduction why 850-mb vector is selected for the analysis of composites of circulation.

4. In the Results and Discussion part, the climate in China is largely affected by East Asian monsoon, which determines the spatiotemporal patterns of precipitation. How could you explain the connections between the monsoon effects and precipitation anomalies under different ENSO types?

Minor comments 1. Line 13-14: higher than normal average precipitation doesn't always mean flooding unless you conduct hydrological modeling. I would use precipitation anomaly only rather than "flood". I suggest "the precipitation anomaly can reach up to 30% above average precipitation during decaying CPW and EPW phase......" 2. Line 25: what does "rainy season characteristics represent?" 3. Line 29: Provide references for the statement "china is an ENSO-sensitive country" 4. Line 30: delete "Chinese" 5. Line 31: Nino3 → Niño 3. Global check over the manuscript. 6. Line 53: suggest revise "in different parts of china" to "among locations in china" 7. Line 74-78: Suggest delete the introduction of paper structure. It is more like the statement in a report. 8. Line 81: delete "Climate of" 9. Line 106: "Mann-Kendall test at 0.05 confidence level". Do you mean significance level? 10. Line 130: delete "It is seen that" 11. Line 226: try not to use vague words like "seems to. . ." 12. Line 240: "most parts of china": this statement should be more specific at which part. It is not good to use vague words like "most" in research paper. 13. Line 241-242: "the positive and negative anomaly

ranges from 0 to 30%...", Is this change significant at a certain confidence level?

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