

Interactive comment on “Insights from a joint analysis of Indian and Chinese monsoon rainfall data” by M. Zhou et al.

Anonymous Referee #1

Received and published: 16 May 2011

The paper discusses a joint analysis of Indian and Chinese monsoon rainfall data to identify the teleconnection between Sea Surface Temperature anomaly (SSTa) and monsoon rainfall in China and India. The Principle Component Analysis (PCA) method was used to obtain the primary patterns of Chinese and Indian monsoon rainfall, and then the correlation analysis was performed between derived principle components and SSTa. The paper is interesting and contains original results. The overall presentation is well structured and clear.

Here are some questions and comments:

1) The study indicates the significant influences of the ENSO on the India PCs, China PCs and joint PCs (Section 3.3). However, the influences of couple ENSO and inter-

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decadal oscillation of SSTa over Pacific Ocean (such as Pacific Decadal Oscillation, PDO) on those PCs have not been discussed. There are other previous studies, for example, showing the role of couple PDO and ENSO affecting the monsoon rainfall over China region (Chan and Zhou, 2005).

2) The study shows that the SSTa in winter months (Dec, Jan, Feb, or DJF) can influence the Indian and Chinese monsoon rainfall (Jun-Sep, or JJAS). However, there is no discussion on the influence of the Mar-May SSTa on the Indian and Chinese monsoon rainfall months. How well does it influence?

3) Section 3.4: Table 3 shows the years in which the joint PC have the highest and the lowest values. Are the years in which the joint PC have the highest values related to La Niña years and the years having the lowest values related to El Niño years? If those years are related to El Niño/La Niña years, it could be discussed in this Section (Section 3.4).

4) Section 3.1, last paragraph: It would be better to describe in more detail the Indian Monsoon Index (IMI) and western North Pacific Monsoon Index (WNPMI). It could be added in the introduction section. Why do the authors select these indices among other Monsoon indices?

5) It is mentioned in the introduction, result or discussion sections: Yangtze River basin, Mei-Yu, Ganges River basin, etc. Some basins are located in China and others are in India. It would be easier to follow the discussion if the authors presented a map which shows the location of those related basins.

6) In Section 2 (Data): What does the acronym WCRP GCOS stand for?

Reference: Chan J.C.L. and W. Zhou (2005), PDO, ENSO and the early summer monsoon rainfall over south China, *Geophysical Research Letters*, 32, L08810, doi:10.1029/2004GL022015.