

## ***Interactive comment on “Forced and internal modes of variability of the East Asian summer monsoon” by J. Liu et al.***

**J. Liu et al.**

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Thank you for your comments. Below is our point-by-point reply.

1. Page 657, Lines 14-16: Based on the analyses of data during the period of 1979-2006, the authors argued that a strong EASM should be defined as abundant Meiyu, because such a definition captures the variability of the leading mode. The sequence of EOF modes depends on the time period. Since the recent decade of 1979-2006 is featured by an excessive rainfall along the Yangtze River valley, the corresponding mode appears as the first mode. If we perform corresponding analysis by using data prior to 1979, the first mode may be featured by an excessive rainfall over North China. A simple examination by using either PREC or CRU data may answer this question. This comment is only for the authors' consideration.

This is a very good comment. Indeed, the EOFs are not stationary. We have taken the PREC/L data and made EOF analysis for the pre-1980 and post-1980 periods. It is found that the first two major modes of interannual variability of the EA-WNP summer monsoon have indeed changed considerably since the late 1970s. However, the spatial structures of the leading modes in the two epochs are similar. The differences are (1) the leading mode for the post-1980 period accounts for 35% of the total variance but only 25% for the pre-1980 period; and (2) the leading mode during the pre-1980 period is linked to the Indian Ocean Dipole development while it is associated with decaying phase of the strong El Nino during the post-1980 epoch. These results will be reported in a separate paper as they are beyond the scope of the present paper.

2. Figure 1 is not clear, please revise it.

Done. The density of the wind vectors is reduced.

3. The wave train in Figure 4 is not clear, how about using zonal wind?

The directions of the arrows were not very clear. The revised figure has improved in this regard. Also for clarity, the anti-cyclonic and cyclonic circulation centers are marked out to highlight the wave trains.

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Interactive comment on Clim. Past Discuss., 4, 645, 2008.

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