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## Quasi-biweekly oscillation of East Asian winter monsoon and its relationship with East Asian winter climate

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The quasi-biweekly oscillation (QBWO) of East Asian winter monsoon (EAWM) is analyzed and the relationship with East Asian winter climate is discussed in the present study. The meridional wind at 850 hPa shows significant QBWO over East Asian winter monsoon region. Both the first two empirical orthogonal functions (EOF) patterns exhibit two centers in (90°-180°E, 10°-60°N), one in the west and the other in the east. The first two principal components (PCs) have significant lag correlation with each other. The first two EOF modes work together to reveal the evolution of QBWO of EAWM. Based on the EOF analysis, we define an EAWM\_QBWO index and divide each cycle of QBWO into eight phases. The evolution of winds and geopotential height at 850hPa has an obvious eastward propagation. During Phase 1, there are two pairs of cyclonic and anticyclonic circulations over Europe-Pacific region at mid-latitudes. Corresponding with the winds, there are also two pairs of negative and positive centers in the map of geopotential height, showing a Eurasian teleconnection pattern. During Phase 3, East Asia is mainly subjected to southerly wind. While during Phase-7, the distribution is almost opposite with that during Phase-3; indicating the active phase of EAWM. The QBWO of 300-hPa winds, geopotential height, and sea level pressure also have eastward propagation. The QBWO of EAWM has great impact on East Asian winter climate, including temperature and precipitation. During Phase 3 and Phase 4, there are warm anomaly over East Asia and cold anomaly over Siberia. The precipitation over East Asia shows positive anomaly with the center over central China. While during Phase 7 and Phase 8, most part of East Asia is featured by negative temperature and precipitation anomaly.

### Biography

Yunting Qiao has completed her PhD from Sun Yat-sen University, China. She is an Associate Professor of School of Atmospheric Sciences, Sun Yat-sen University; China. She has published more than 30 papers in various journals.

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