

The relationship between the boreal summer intraseasonal oscillation and the Pacific-Japan pattern

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Convective activities over the Philippine Sea in boreal summer have been known to be associated with circulation anomalies over the midlatitude western north Pacific (WNP), called the Pacific-Japan (PJ) pattern. In this study, the relationship between the PJ pattern and tropical intraseasonal variability, called the boreal summer intraseasonal oscillation (BSISO), which influences the convective activities over the Philippine Sea is investigated. The monthly PJ indices are not correlated with the amplitude of the BSISO indices, but correlated with the phases of the BSISO indices. This result indicates that the negative (positive) PJ pattern, which is associated with warm (cold) anomalies over the midlatitude East Asia, tended to appear when the strong convective active (suppressed) signals of the BSISO are located over the tropical WNP. In the negative PJ years, convective activities over the tropical WNP drastically develop from the BSISO phase 6 simultaneous with significant increases of the eddy kinetic energy representing synoptic disturbances, compared to the positive PJ years and the other years. The development of the synoptic disturbances over the Philippine Sea might play a key role for exciting the PJ pattern.

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