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Plain Language Summary: The dominant intraseasonal mode in the tropics during boreal summer is called the boreal summer intraseasonal oscillation (BSISO). In this study, the development mechanism of synoptic-scale disturbances over the tropical western North Pacific (WNP) associated with the BSISO is investigated under different interannual conditions of the summertime tropical-extratropical teleconnection called the Pacific-Japan (PJ) pattern. Intraseasonal convection and synoptic-scale disturbances for convectively active phases of BSISO are enhanced in different locations between the positive and negative PJ years, likely leading to different teleconnection to midlatitude East Asia.

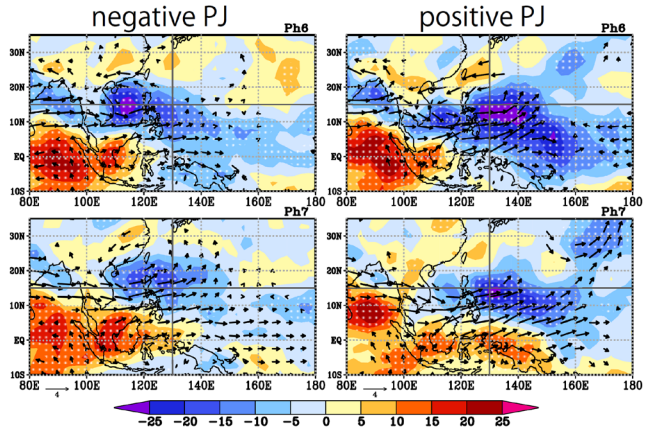

Figure 1. Composite intraseasonal OLR anomalies (shading; W m^{-2}) for BSISO phases 6 and 7 in (left) the negative and (right) positive PJ years. The dotted area represents statistical significance of more than the 95% confidence level. Vectors indicate composite wind anomaly fields at 850 hPa (m s^{-1}).

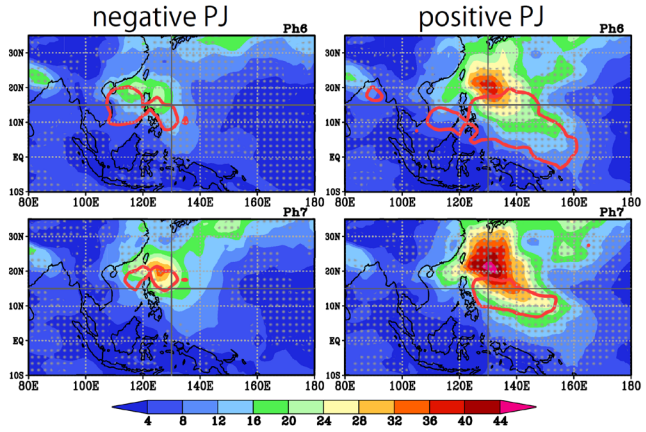

Figure 2. Same as Fig. 1 except for composite eddy kinetic energy representing the activity of synoptic-scale disturbances (*K'*; shading; m^2 s^{-2}) at 850 hPa. The thick red contours represent composite intraseasonal OLR anomalies of –15 W m^{-2}.

- Intraseasonal convection and synoptic-scale disturbances are enhanced widely over the WNP for BSISO phases 5–7 in the positive PJ years, while they are confined over the South China Sea in the negative PJ years.
- A *K'* budget analysis reveals that the energy conversion associated with synoptic convection and the barotropic energy conversion primarily contribute to *K'* generation.
- Intraseasonal sea surface warming during convectively suppressed phases of the BSISO and convergence or shear of seasonal-mean horizontal winds associated with interannual monsoon fluctuations over the WNP can determine the differences between the two PJ years.