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The relationship between WP pattern and its upstream circulation anomalies

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The relationship of the Cold Vortex of Northeast China (NCCV) and Northeast Asian blocking with the west Pacific (WP) teleconnection Pattern in the warm season (May to August) have been investigated using a long-term daily data (1965-2007). A NCCV event is defined as at least one closed contour around a central minimum value at 500 mb, which persists at least three days over Northeast China (35º-55ºN, 115º-140ºE). The Northeast Asian blocking is detected from the blocking index, as defined by Tibaldi and Molteni (1990). The monthly WP pattern index from Climate Prediction Center of National Oceanic and Atmospheric Administration has been adopted. It is found that the occurrence frequencies of NCCV and the Northeast Asian blocking are closely related to the WP pattern in its negative phase. It is shown that an NCCV event tends to be preceded by the WP pattern in its weak positive phase. But a negative phase of WP pattern tends to form during the mature phase of the NCCV event. As a consequence, the NCCV events are favorable to the formation and maintenance of the WP pattern in its negative phase. The Northeast Asian blocking events have similar effects on the WP pattern, as analogous to that in the NCCV event.

KEY WORDS: East Asian; NCCV; Blocking; WP