



AMS
American Meteorological Society

Supplemental Material

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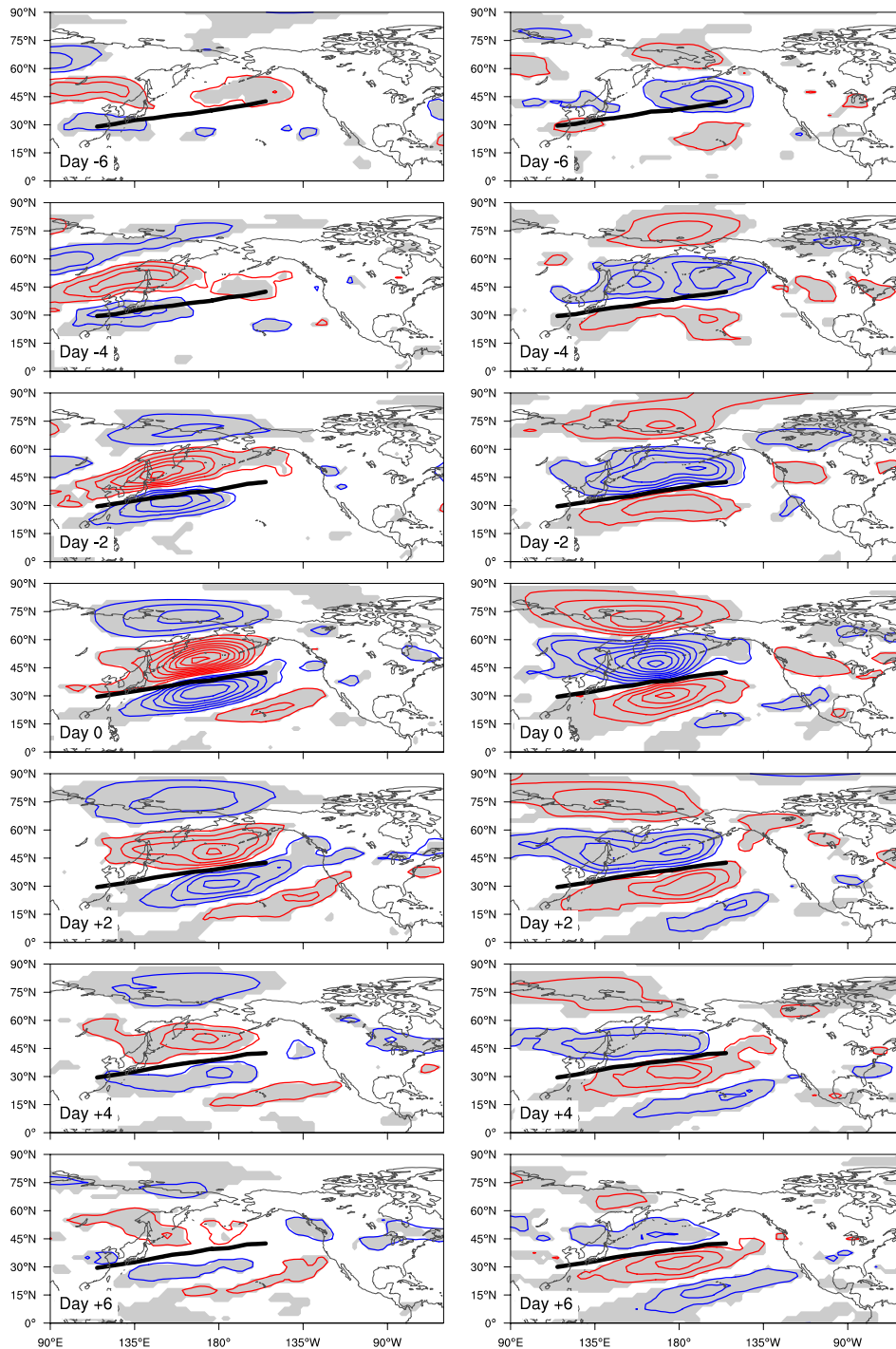


Fig. S1. Lagged-composites of the 250-hPa zonal wind anomalies for (left) positive and (right) negative WP events from lag day -6 to day +6 with an interval of 2 days. Red (blue) contours indicate positive (negative) values. Contour interval is 3 m/s with the zero lines omitted. Grey shadings indicate anomalies that are statistically significant at $p < 0.10$ for a two-tailed Monte Carlo test. Thick solid line denotes the axis of the climatological Pacific jet.

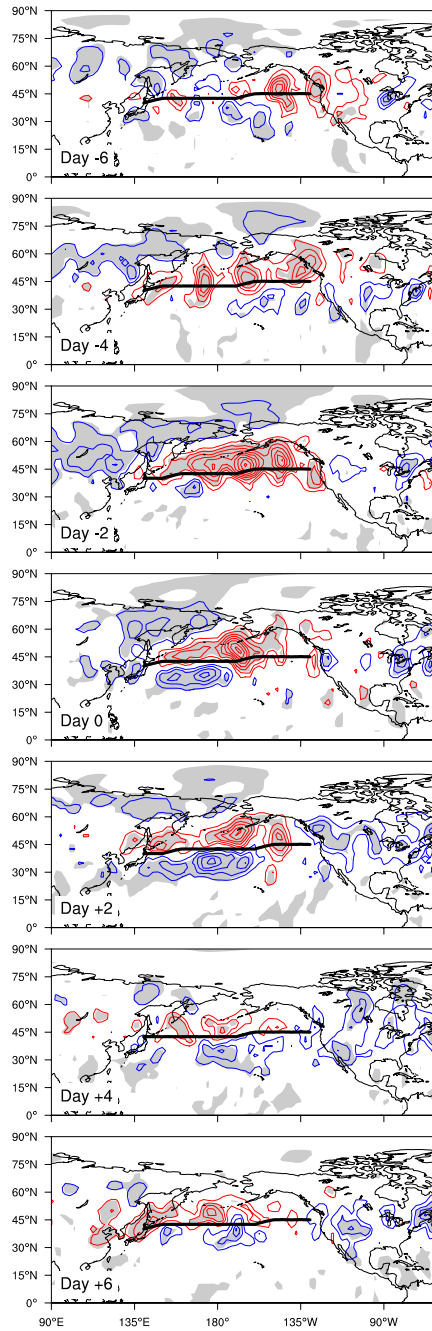


Fig. S2. Difference of lagged-composites of the 250-hPa storm track anomalies between positive and negative WP events from lag day -6 to day +6 with an interval of 2 days. The storm tracks are defined as the square of the 10-day high-pass filtered meridional wind anomalies. Red (blue) contours indicate positive (negative) values. Contour interval is $20 \text{ m}^2/\text{s}^2$ with the zero lines omitted. Grey shadings indicate anomalies that are statistically significant at $p < 0.10$ for a Student's t test. Thick solid line denotes the axis of the climatological Pacific storm tracks.

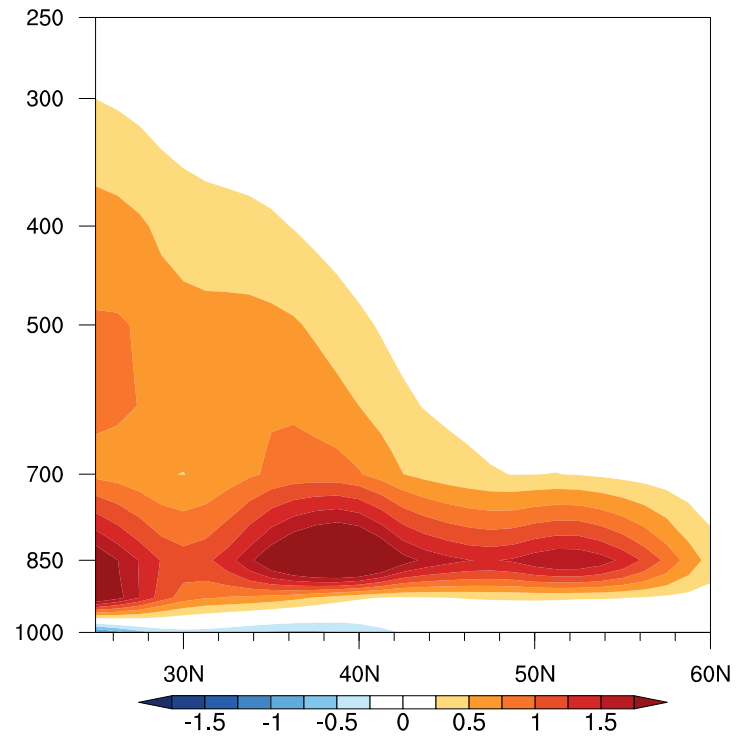


Fig. S3. Latitude-height distributions of the climatological mean of convective heating rates (unit: K/day) averaged from 165oE to 170oW for springs from 1958-2018.

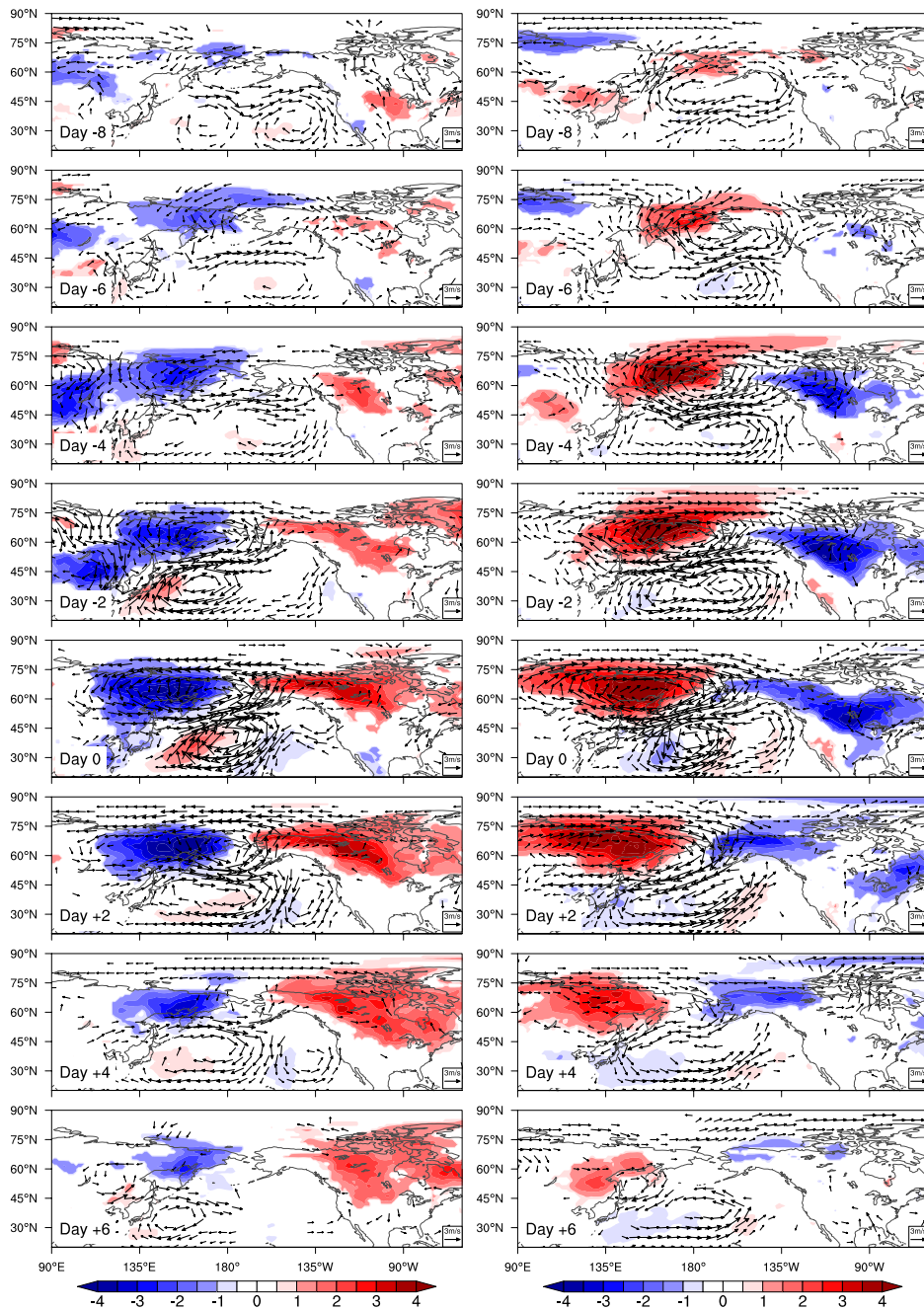


Fig. S4. Lagged-composites of the SAT anomalies (shading) and 850-hPa wind anomalies (arrows) for (left) positive and (right) negative WP events. Warming (cold) shadings indicate positive (negative) anomalies. SAT anomalies plotted are statistically significant at $p < 0.10$ for a two-tailed Monte Carlo test, and wind anomalies displayed are statistically significant at $p < 0.10$ level at least for one component on a two-tailed Monte-Carlo test. Scaling for wind anomalies is given at the bottom-right corner for each panel (units: 3 m/s).

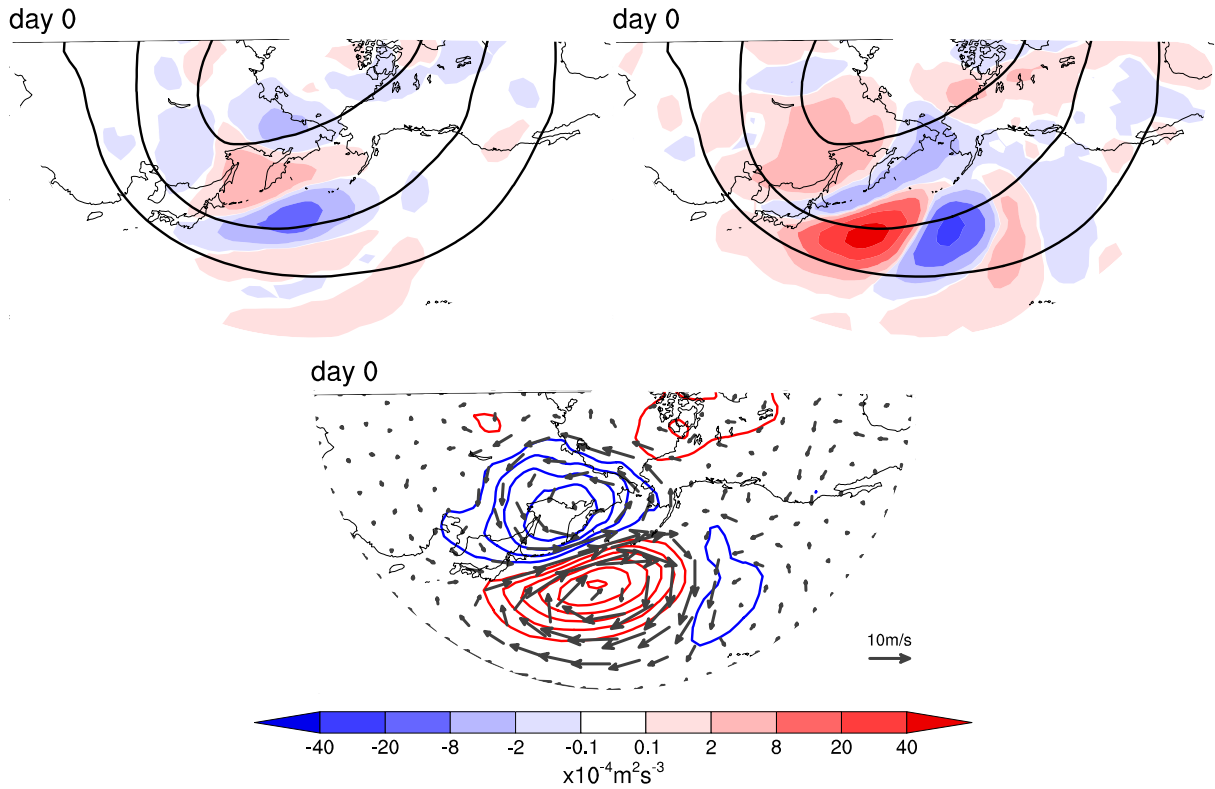


Fig. S5. (upper) Composites of the 500-hPa baroclinic energy conversion (shadings) due to (left) CP_{Bx} and (right) CP_{By} on day 0 for positive spring WP pattern. Black lines indicate the climatological mean temperatures (240K, 250K, and 260K). (bottom) Composites of the 500-hPa air temperature anomalies on day 0 for positive spring WP pattern. Red (blue) contours indicate positive (negative) values with an interval of 1K and zeros omitted. Arrows denote the 500-hPa wind anomalies.