Figure S1. Latitude-height cross sections of the zonal component of the parameterized gravity wave forcing. The black contours are the
zonal-mean zonal winds in 1–5 January 2021. The solid, dashed, and thick solid lines denote positive, negative, and zero wind, respectively.
Dots indicate the statistically significant regions (please refer to Figure 1).

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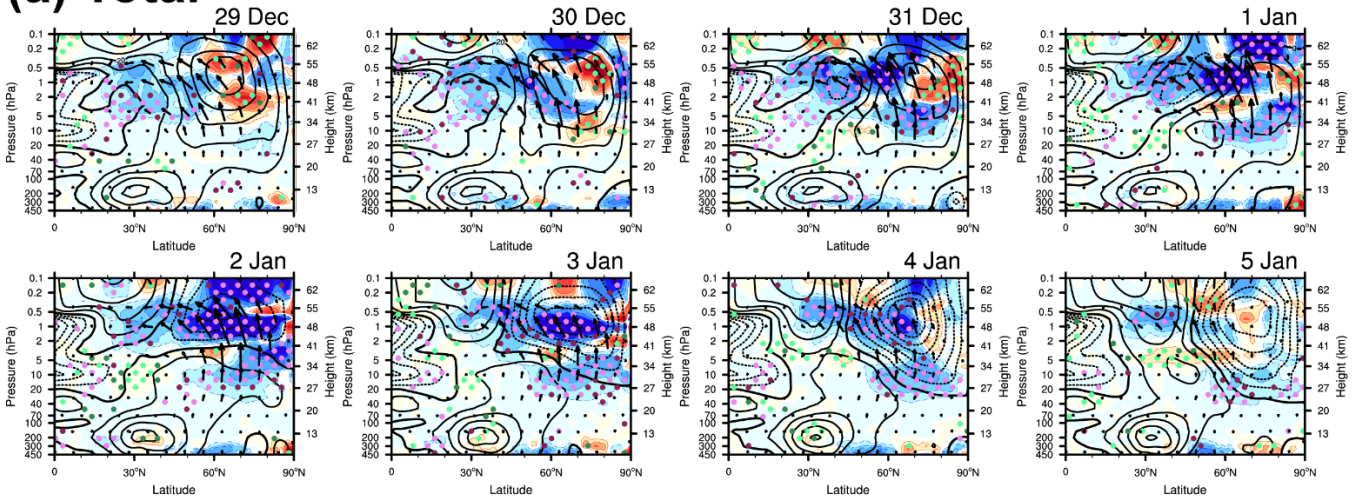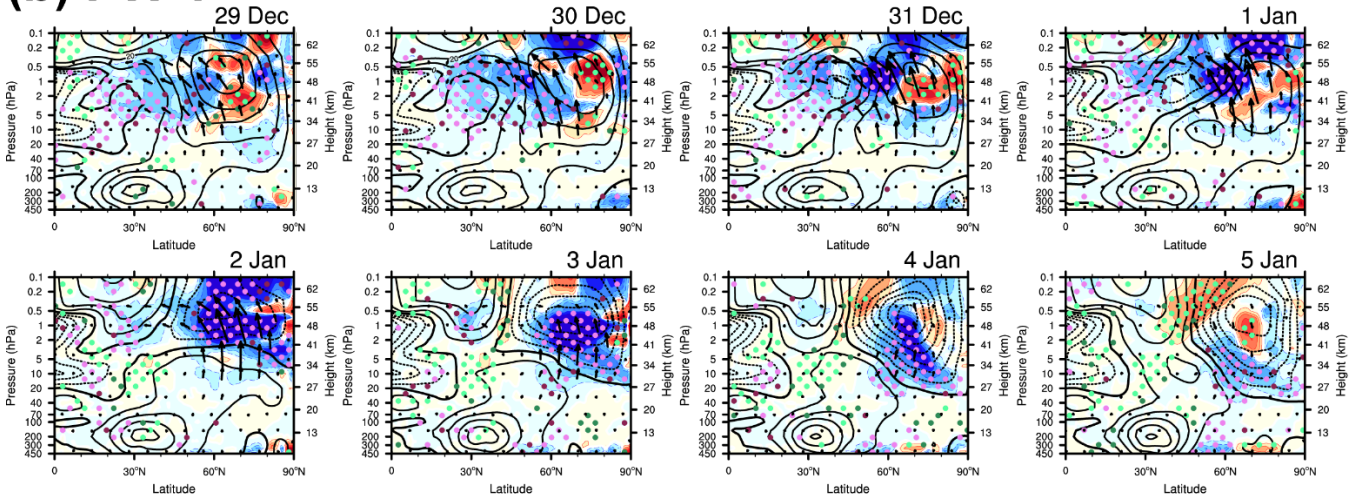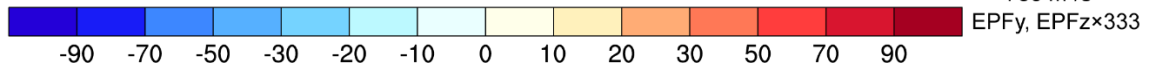
Figure S2. Latitude-height cross sections of EP-fluxes (vectors) overlaid on EPFD (colors) of (a) the resolved waves (Same as Figure 7b for comparison purpose) and (b) PW1 component from 29 December 2020 to 5 January 2021. The black contours in (a)–(b) are the zonal-mean zonal winds. The solid, dashed, and thick solid lines denote positive, negative, and zero wind, respectively. Dots indicate the statistically significant regions (please refer to Figure 1).

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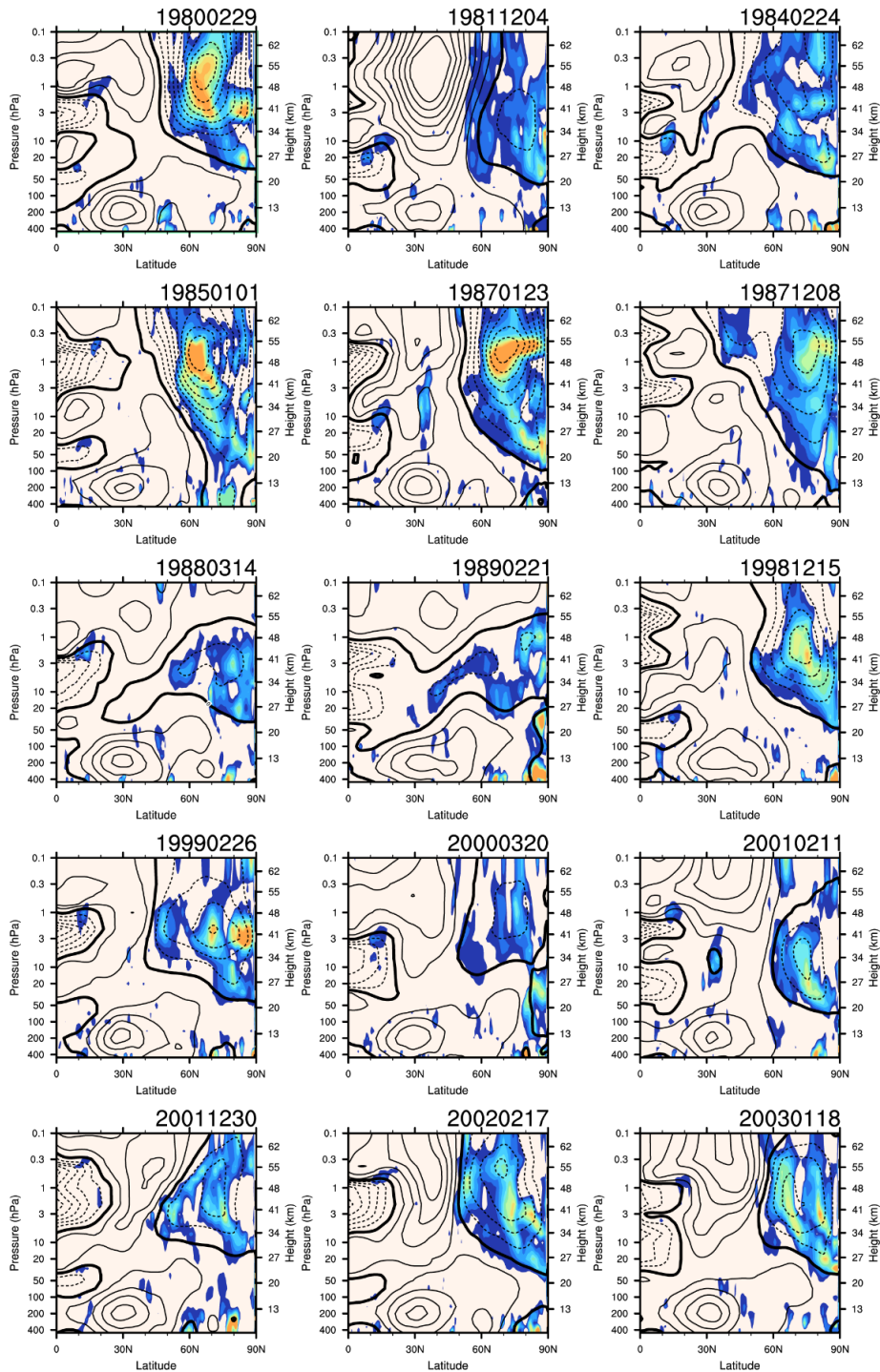
Figure S3. Latitude-height cross sections of negative $\bar{q}_y$ (shading) and zonal-mean zonal wind (contours) at the onset date of the major 26 SSW events selected following CP07. The solid, dashed, and thick solid lines indicate positive, negative, and zero wind, respectively.

Figure S3. (Continued)