



Supplement of

Comparison of the influence of two types of cold surge on haze dispersion in eastern China

Shiyue Zhang et al.

Correspondence to: Gang Zeng (zenggang@nuist.edu.cn)

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14 Figure S1. (a) Spatial distribution of the annual haze days (day) in China averaged from 1980 to 2017. (b) Monthly

- 15 variation of the regional-averaged haze days in the area of $22^{\circ}N-37^{\circ}N$, $106^{\circ}E-121^{\circ}E$.
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Figure S2. Composite of GPH anomalies (shading; gpm) at 300 hPa from day -2 to day 6 for blocking CSs outbreak
(a, e, i, m, q), and wave-train CSs outbreak (c, g, k, o, s), and the related spatial distribution of PM2.5 anomalies
(shading; µg m-3) (b, f, j, n, r and d, h, l, p, t) from 2014 to 2019.



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Figure S3. Regional averaged (a) TIP anomalies (K), (b) UV_sfc anomalies (m s⁻¹), (c) SAT anomalies (K), and (d) SLP anomalies (hPa) in EC during 9 days before and after the outbreak of the blocking CSs (blue lines) and wavetrain CSs (red lines) over 90°E–130°E and 40°N–65°N, respectively. Shading represents plus/minus one standard deviation among the CSs.

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Figure S4. Composite anomalies of Rhum (shading; Dotted areas are statistically significant at the 95% confidence
level) from day -2 to day 6 relative to the outbreak of blocking CSs (a, c, e, g, i) and the wave-train CSs (b, d, f, h,

31 j).