

*Supporting material for*

# Occurrence and reverse transport of severe dust storms associated with synoptic weather in East Asia

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**Figures S1-S4**

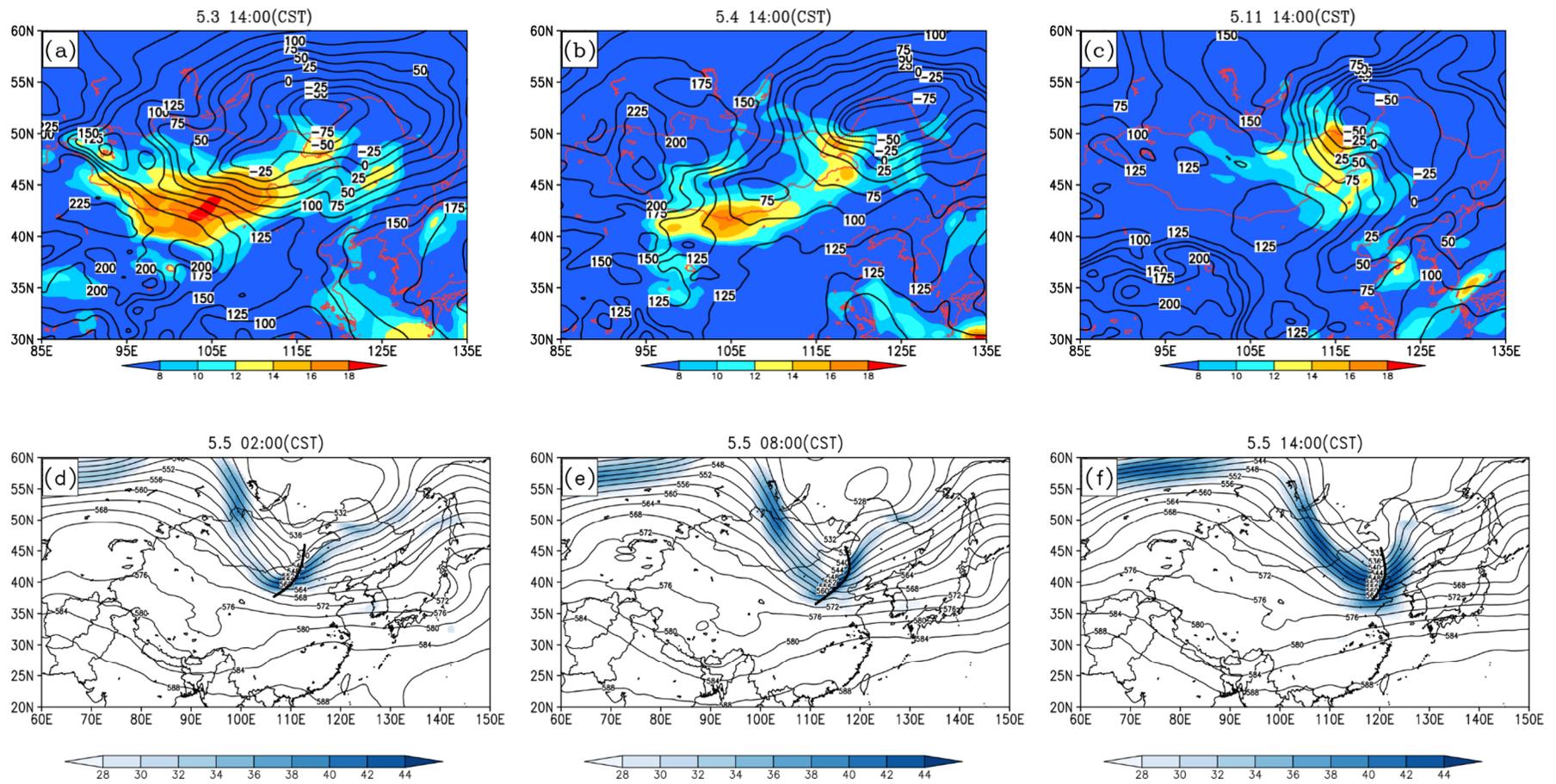
### **Figures captions**

**Figure S1** (a)–(c) Synoptic maps at 1000 hPa. Geopotential heights (gpm, solid lines) are analyzed at 25-gpm intervals. Shaded areas indicate the magnitude of wind speed. (d)–(f) Geopotential heights (thin black curves, unit: gpm) and jet streams (shading, unit: m/s) at 500 hPa. The thick black curves in (d–f) stand for the troughs.

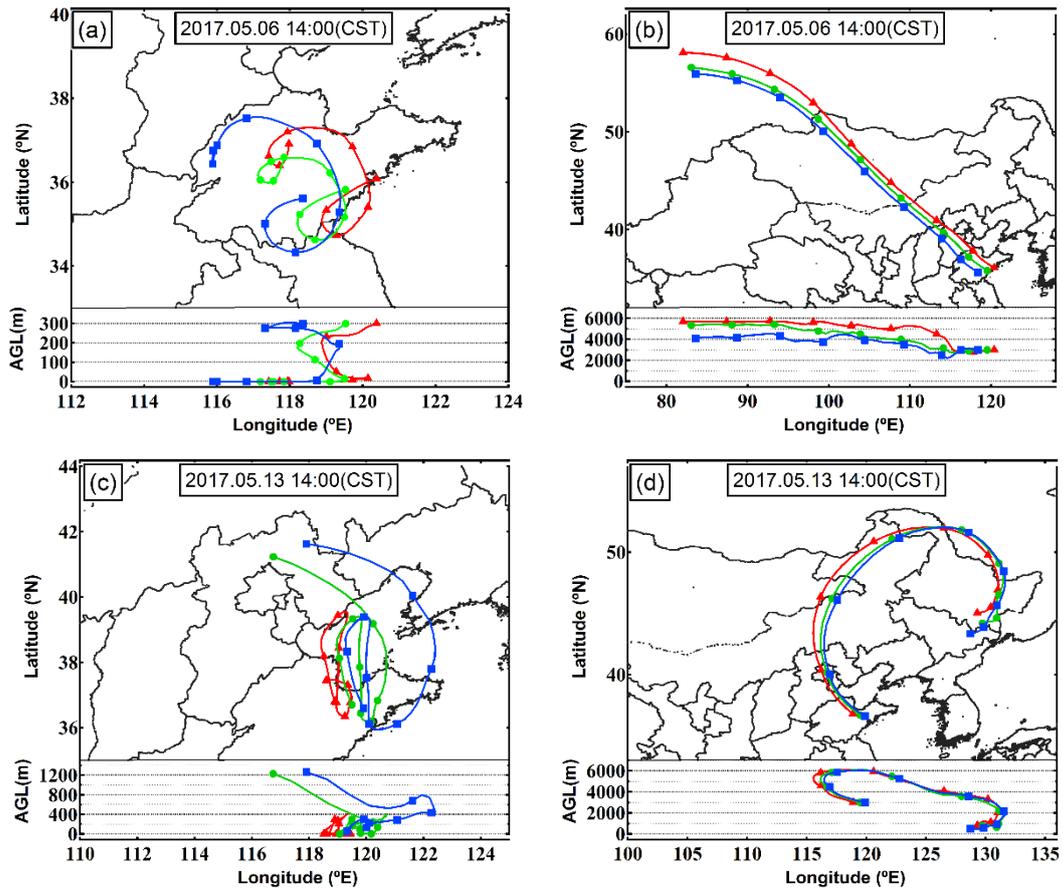
**Figure S2** Air mass back-trajectories for 48 hours at three sites (red, green, and blue curves) with the ending heights of (a) (c) 300 m and (b) (d) 3000 m above ground level (AGL). The interval between two adjacent markers is 6 hours.

**Figure S3** The flow field profiles between location A (33.0° N, 117.3° E) and B (36.0° N, 120.3° E) from 6 May 14:00 to 7 May 20:00 (CST), 2017.

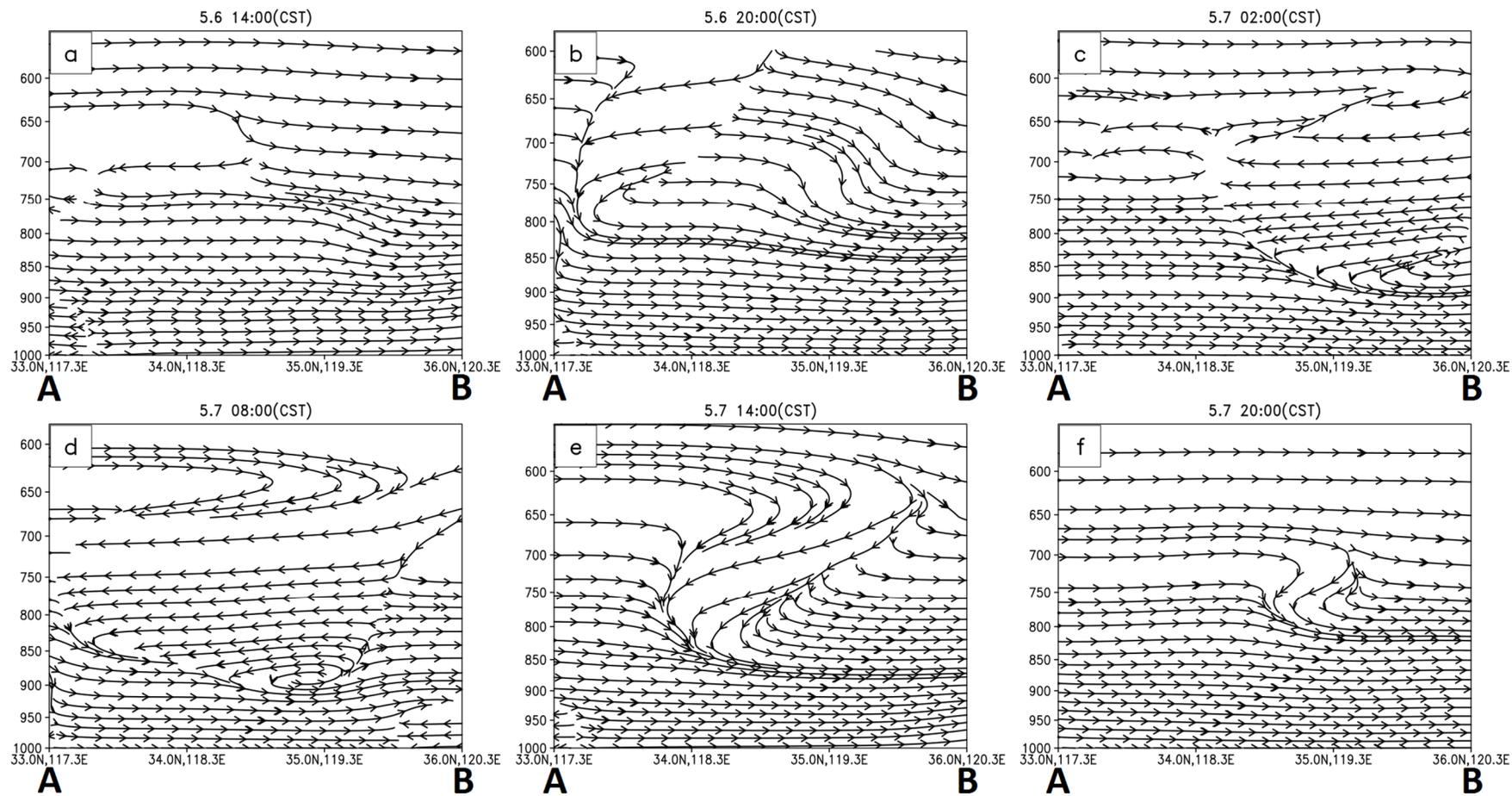
**Figure S4** PM<sub>10</sub> mass concentrations in the surface layer (shading, unit:  $\mu\text{g}/\text{m}^3$ ) and the synoptic pattern at 1000 hPa at 12 May 14:00 (CST). The corresponding geopotential heights (black curves, unit: gpm) are analyzed at 10-gpm intervals, and the light blue vectors stand for winds (unit: m/s).



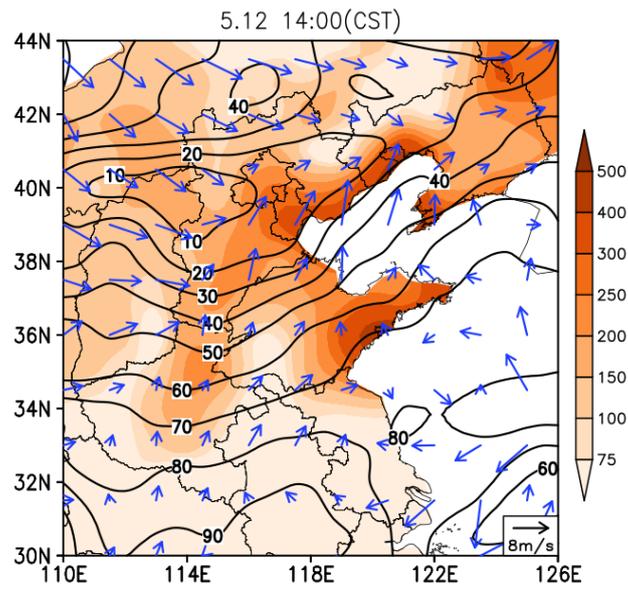
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