Quasi-weekly oscillation of regional PM$_{2.5}$ transport over China driven by the synoptic-scale disturbance of East Asian Winter Monsoon circulation

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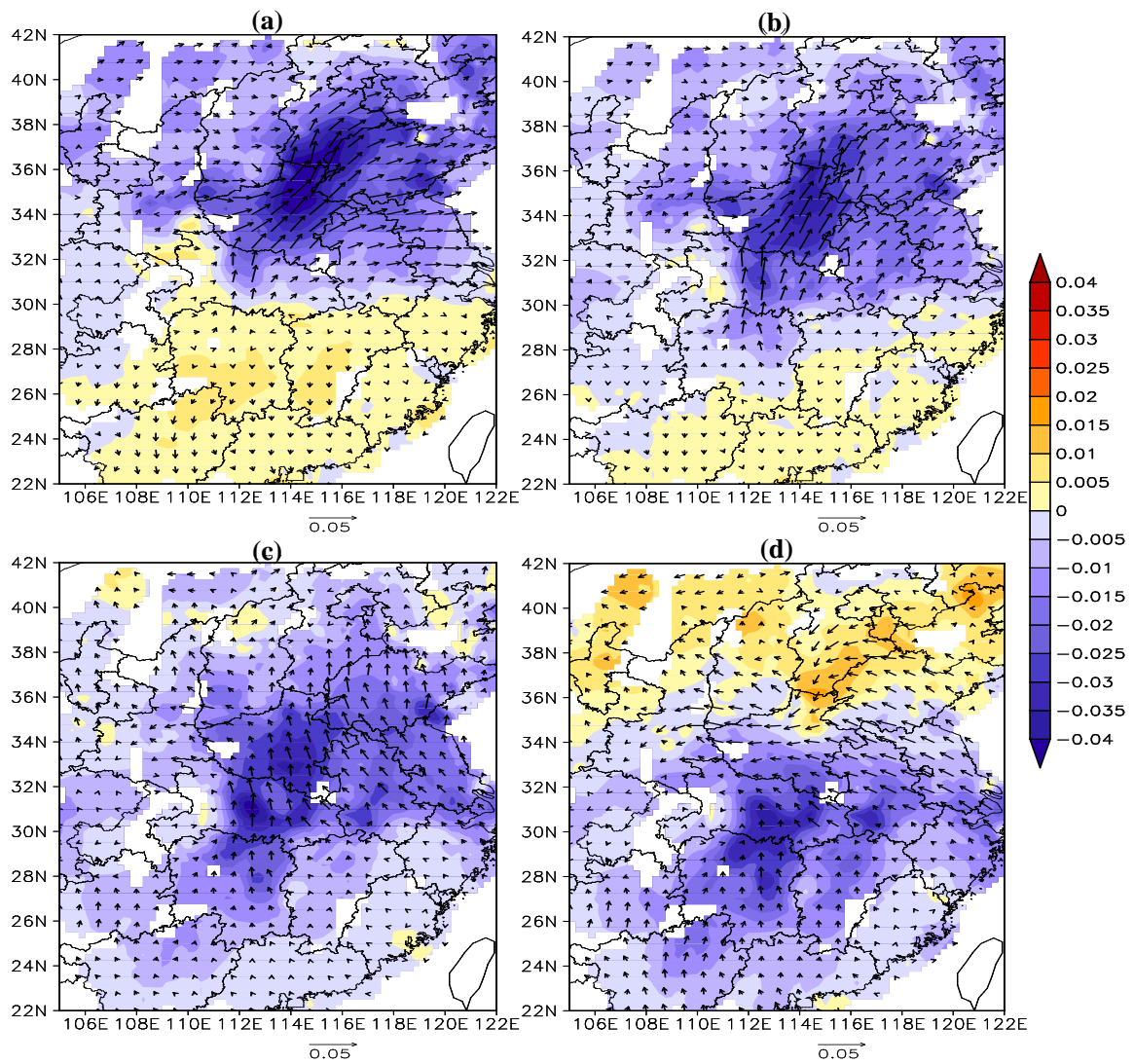
Figure S1. Same as Fig. 2. (a)-(d) The last four phases (days) of QWO (8-d) of the regional PM$_{2.5}$ transport over CEC. The loads of PM$_{2.5}$ TFM anomalies (color contours) for EEOF2 and TFV anomalies (vectors) for EEOF1 with lag time (a) 4 d, (b) 5 d, and loads of TFM anomalies (color contours) for EEOF3 and TFV anomalies (vectors) for EEOF2 with lag time (c) 0 d, (d) 1 d over CEC in the winters of 2015-2019.
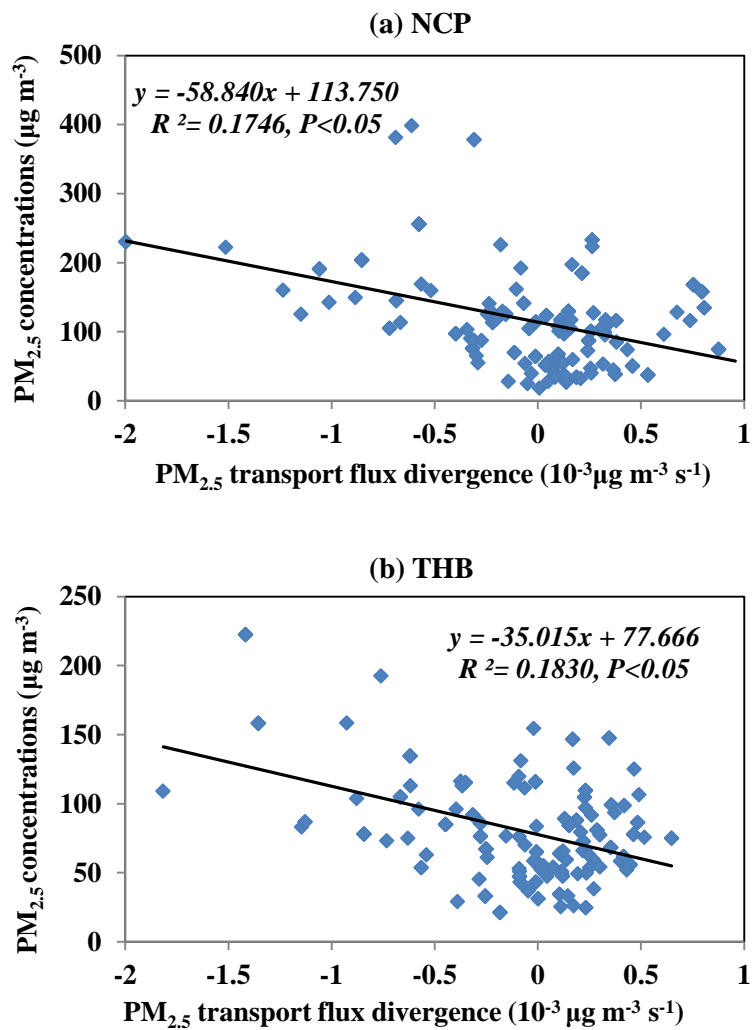
Figure S2. Scatter plot of PM$_{2.5}$ transport flux divergences and PM$_{2.5}$ concentrations over (a) NCP and (b) THB during the 23 typical events of regional PM$_{2.5}$ transport over CEC.
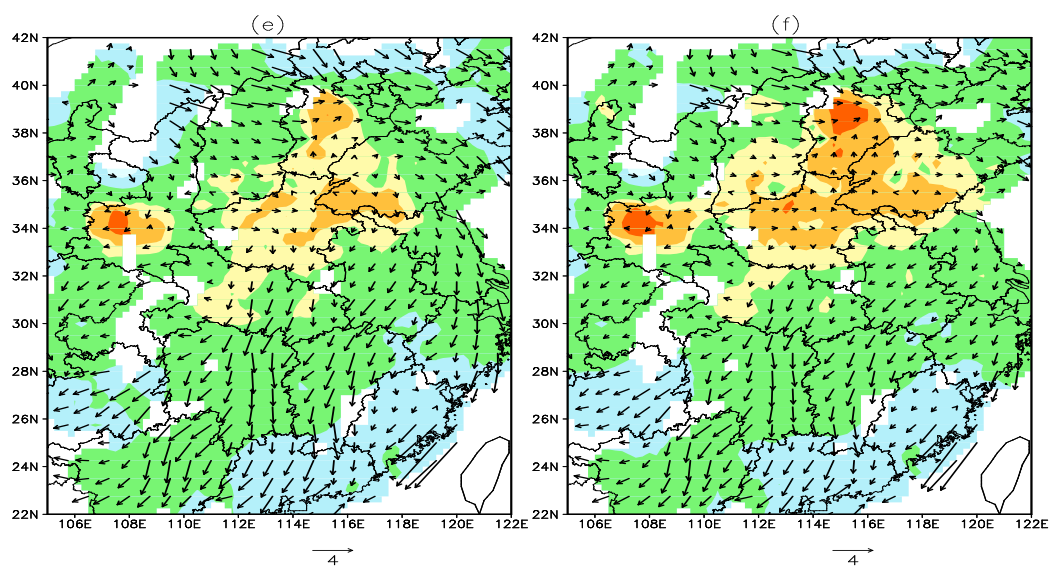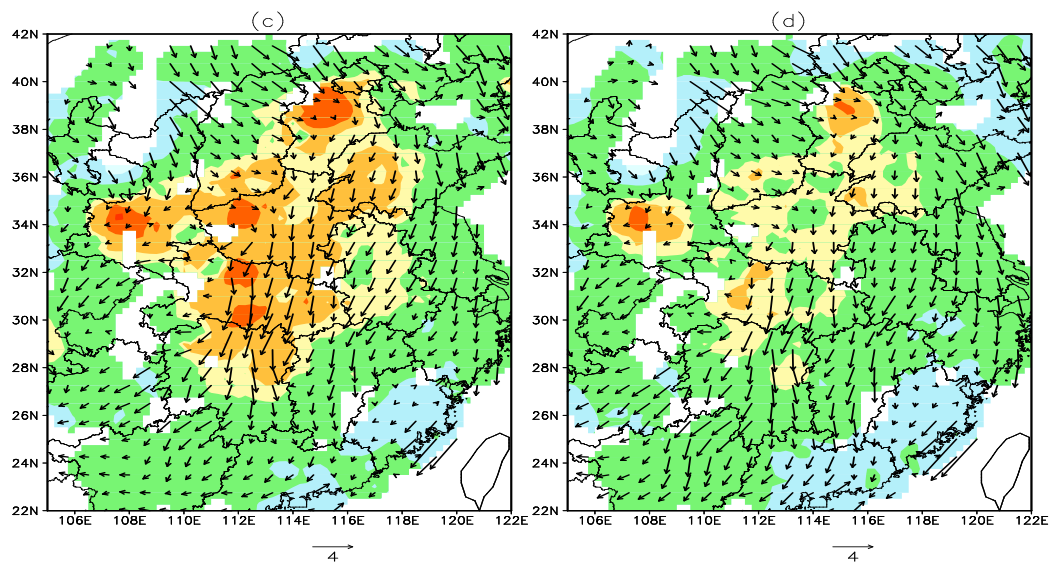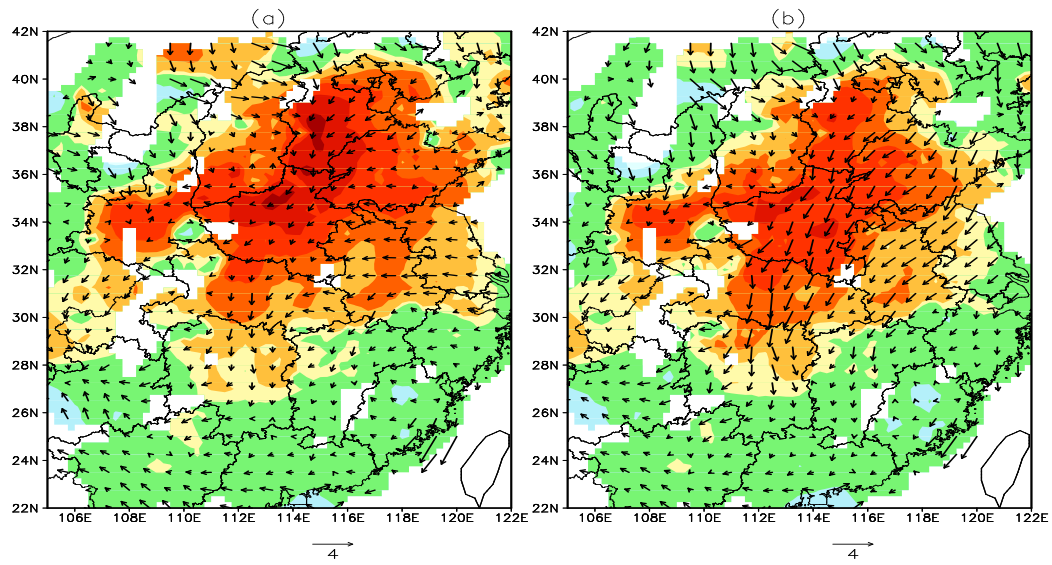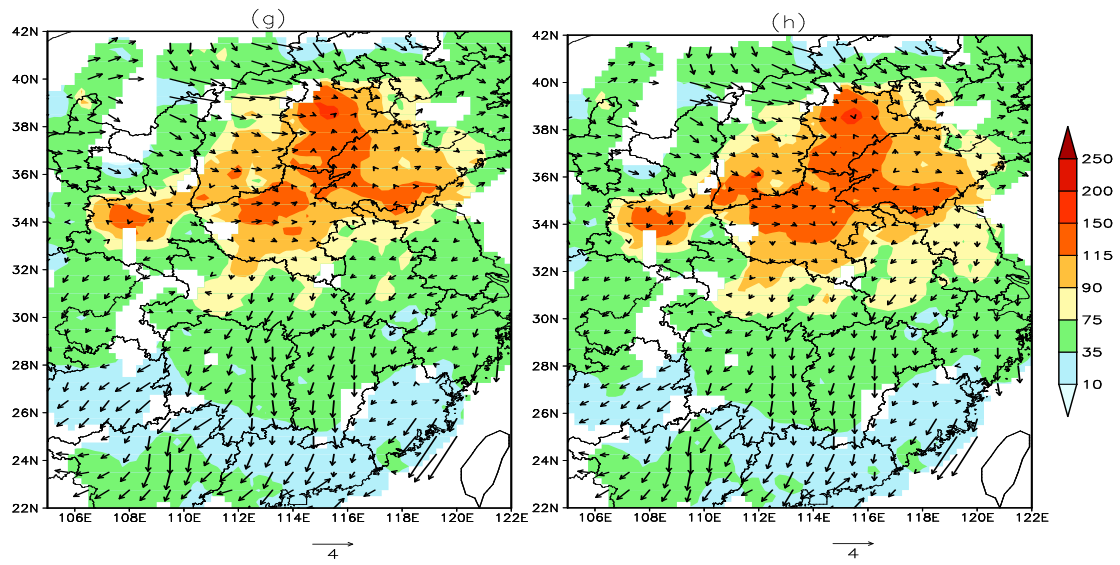
Figure S3. The composited PM$_{2.5}$ concentrations (color contours, unit: μ g m^{-3}) and 10-m wind (vector, unit: m s^{-1}) in the 8 phases (a-h) of QWO during the 23 typical events of regional PM$_{2.5}$ transport over CEC.
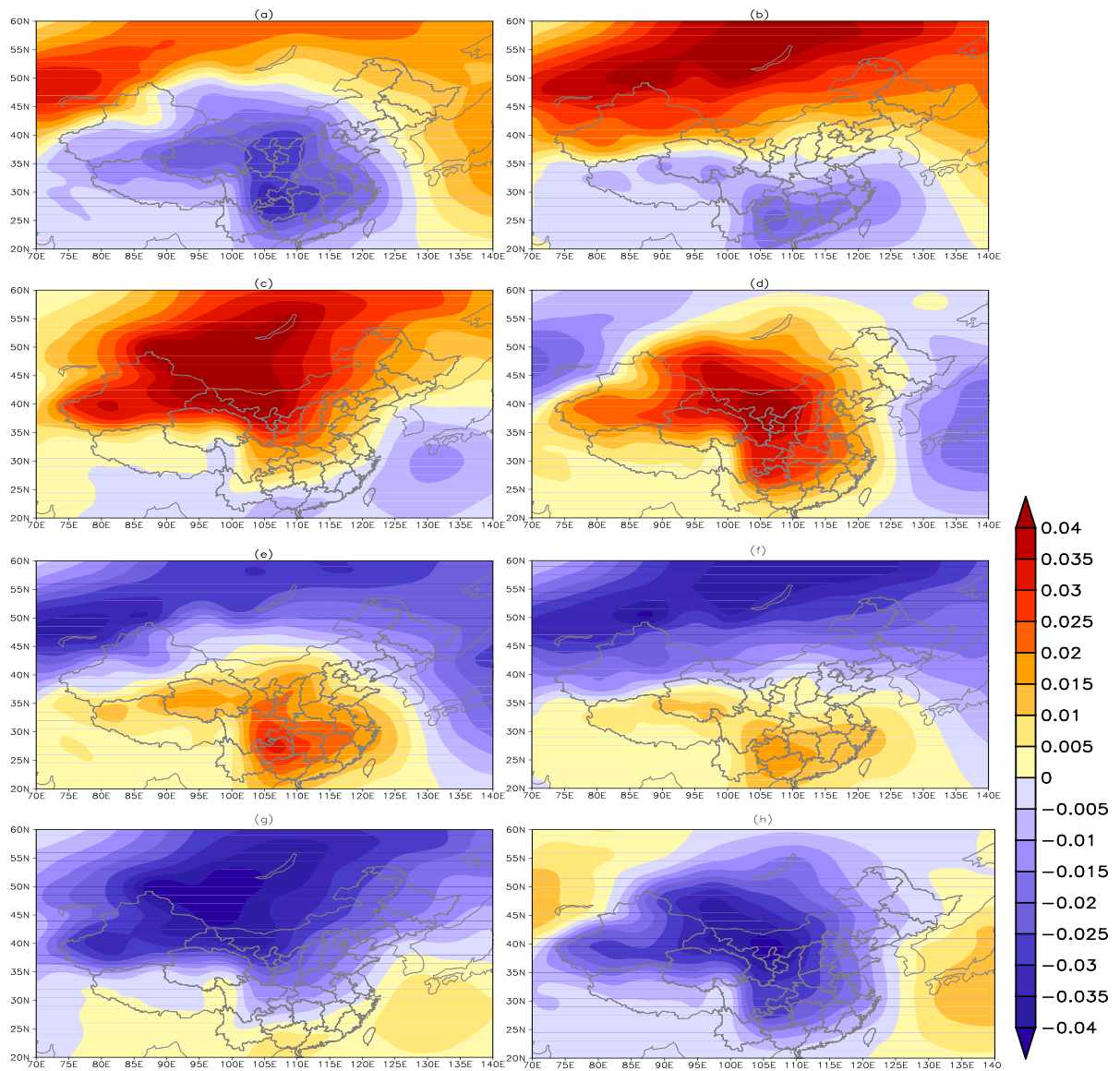
Figure S4. EEOF analysis of the SLP$_{QWO}$ in the winters of 2015-2019, and the 8-d QWO formed by the lag time (a) 1 d, (b)2 d, (c) 3 d, (d) 4 d, (e) 5 d of its second mode and by the lag time (f) 0 d, (g) 1 d, (h) 2 d of its first mode. The color contours represent the loads of SLP$_{QWO}$.