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Investigating the mechanism of typhoon tracks on ozone pollution episodes in Guangdong, China

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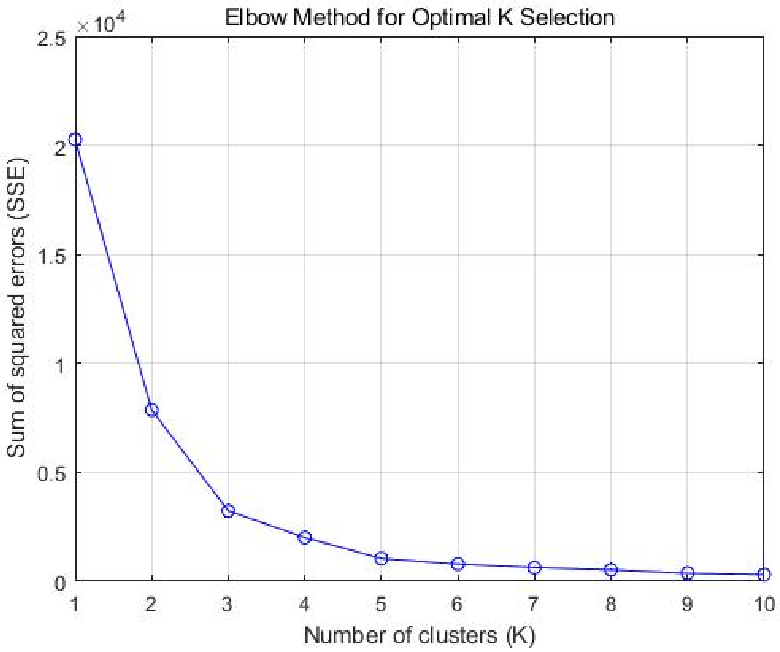

Figure S1. Cluster number sensitivity test for typhoon track classification using K-means method.

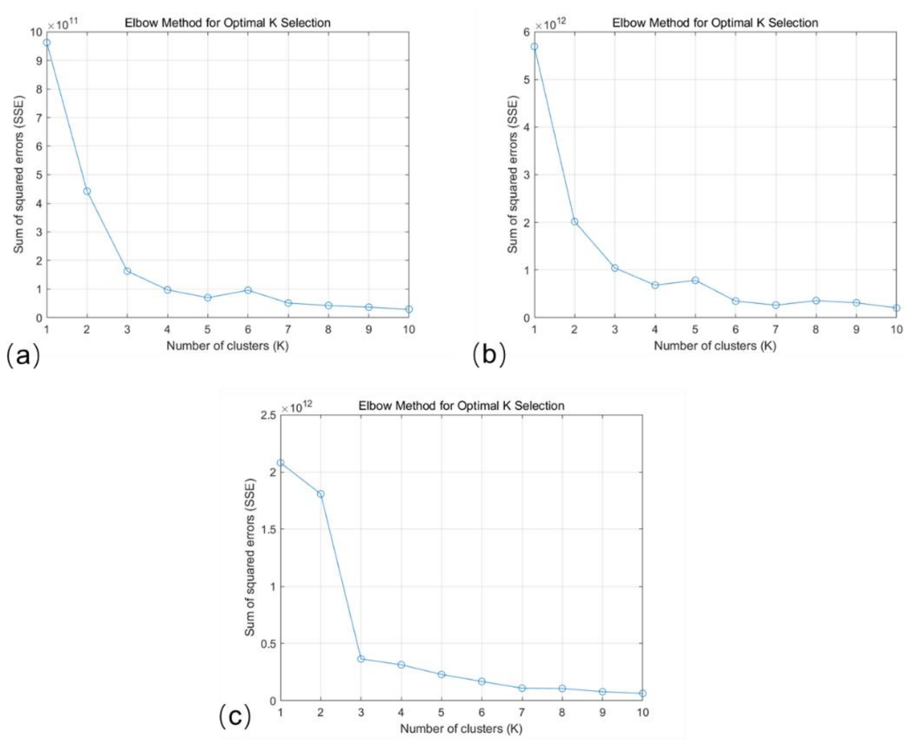

Figure S2. Sensitivity tests of air mass source classification using K-means clustering under different typhoon tracks.

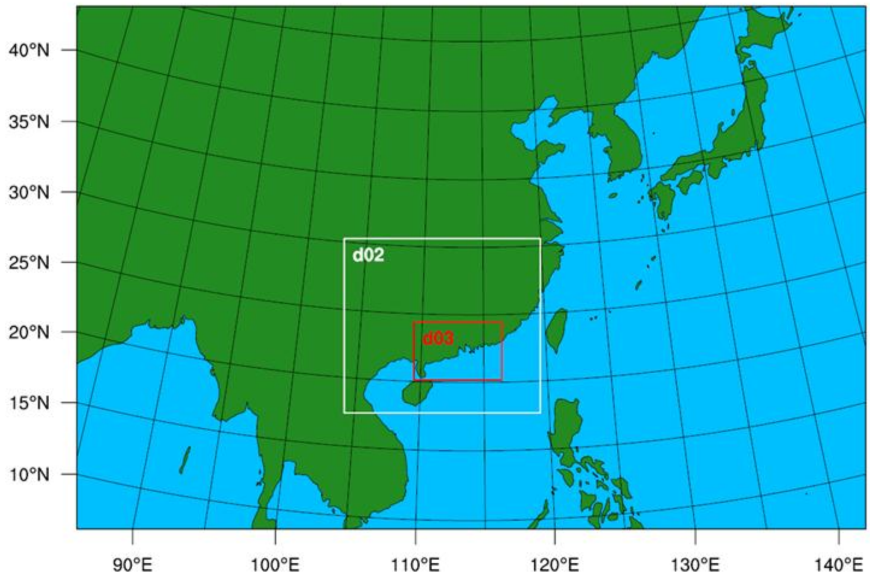

Figure S3. WRF-CMAQ grid settings

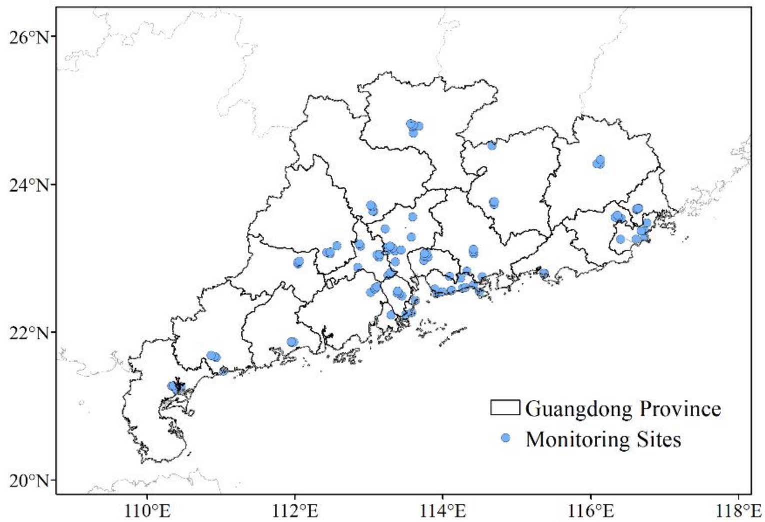

Figure S4. Location of monitoring stations in Guangdong Province

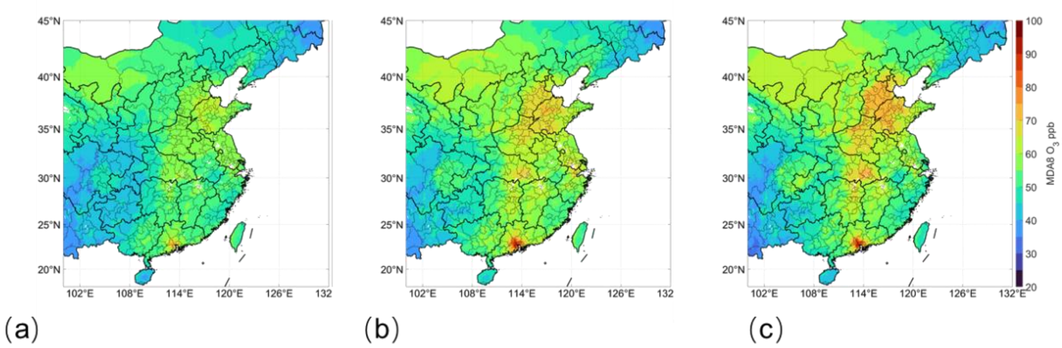

Figure S5. Spatial distribution of MDA8 O3 by China 1km High-Resolution Daily Ground-Level Ozone Dataset under three distinct typhoon track types: (a) type 1; (b) type 2; (c) type 3

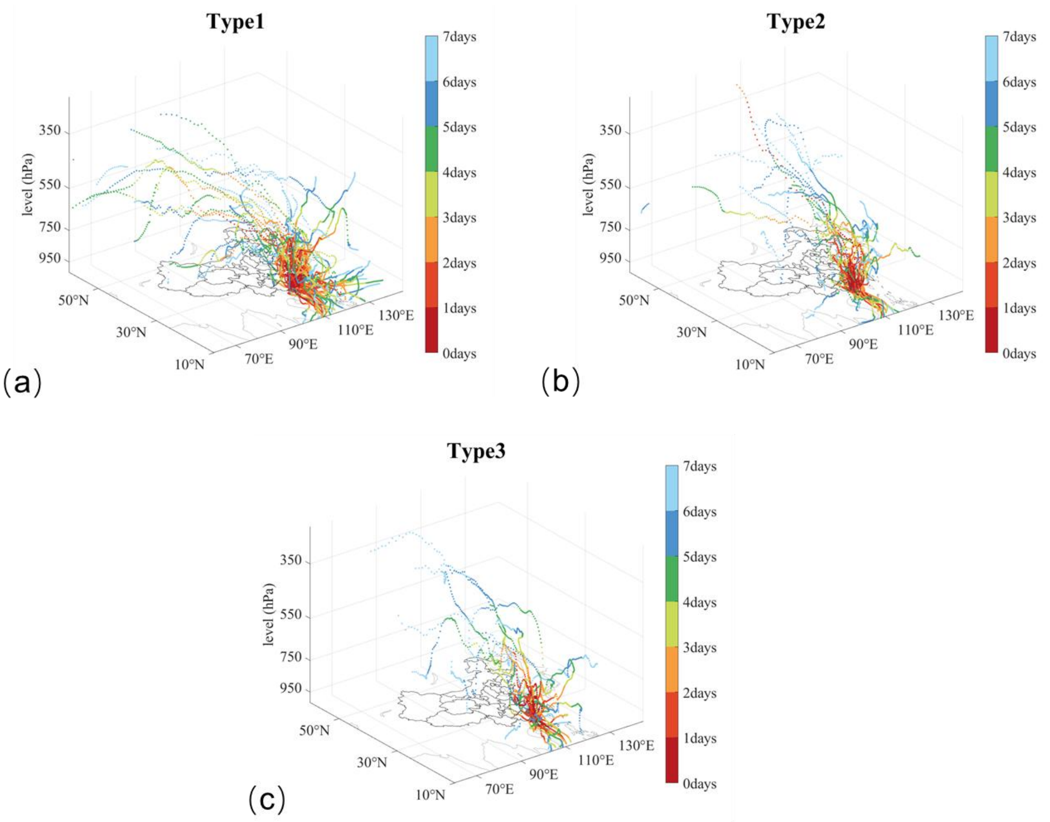

Figure S6. Seven-day backward trajectory analysis of air mass sources under different typhoon tracks (colorbar indicates temporal variation).

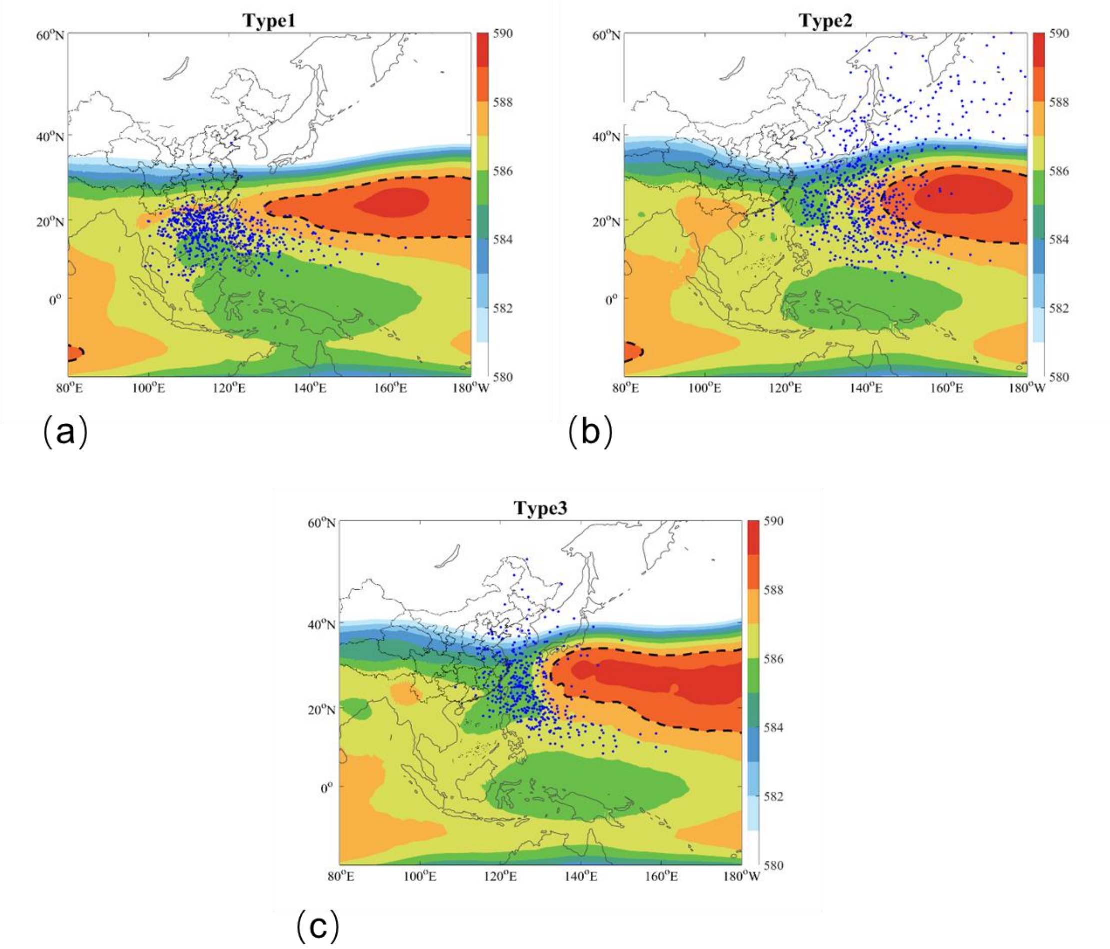

Figure S7. Positions of the subtropical high under different typhoon tracks (blue dots indicate typhoon transit locations; The bold dashed line is the 588 dagpm line.)

Table S1. Percentage contributions and ozone concentration characteristics of different air mass source trajectories.

Types	Type 1			Type2			Type 3		
	Proportion	Ozone along the Trajectory (ppbv)	Surface Ozone (ppbv)	Proportion	Ozone along the Trajectory (ppbv)	Surface Ozone (ppbv)	Proportion	Ozone along the Trajectory (ppbv)	Surface Ozone (ppbv)
Traj_1	8.1%	59.8	14.3	**21.7%**	**61.9**	**45.2**	**15.2%**	**66.4**	**57.8**
Traj_2	**13.5%**	**50.3**	**21.7**	23.9%	59.5	34.4	18.2%	62.0	35.0
Traj_3	17.6%	58.9	20.8	26.1%	48.9	17.0	30.3%	43.3	27.5
Traj_4	60.8%	37.1	10.7	28.3%	47.0	29.2	36.4%	36.5	20.0

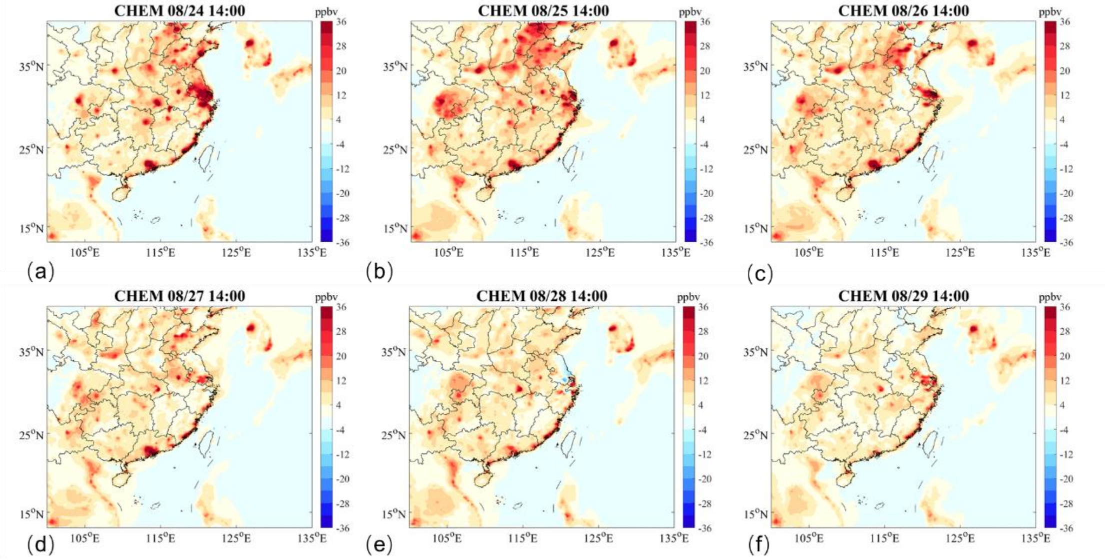

Figure S8. Daily 1400 LST contributions of chemical processes (CHEM) to surface ozone concentrations from 24 to 29 August 2020.

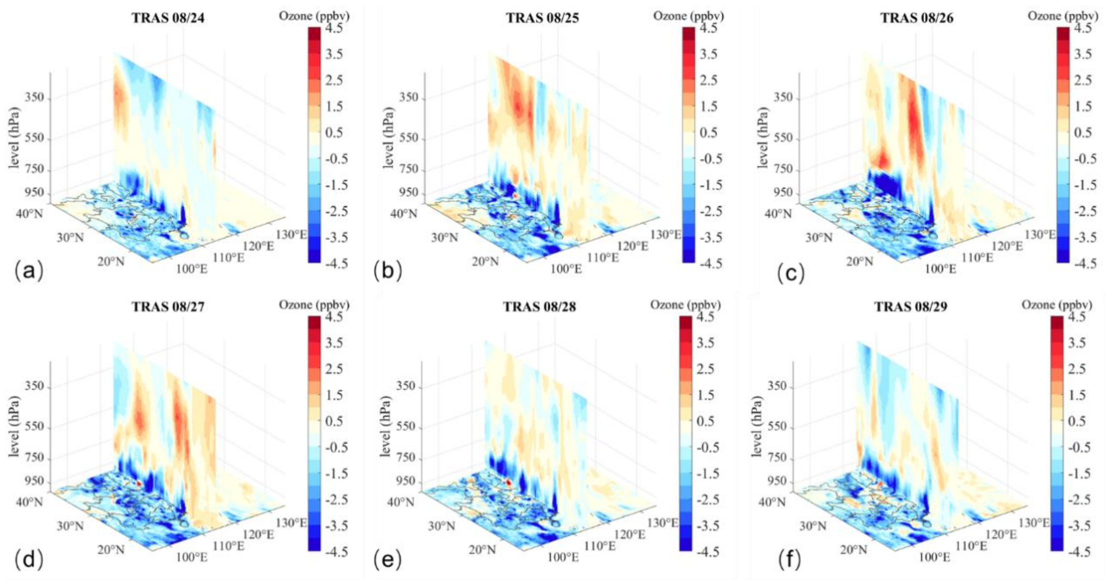

Figure S9. Daily mean contributions of atmospheric transport to surface ozone concentrations from 24 to 29 August 2020.