Supporting information for

Influence of Photochemical Loss of VOCs on Understanding Ozone Formation Mechanism

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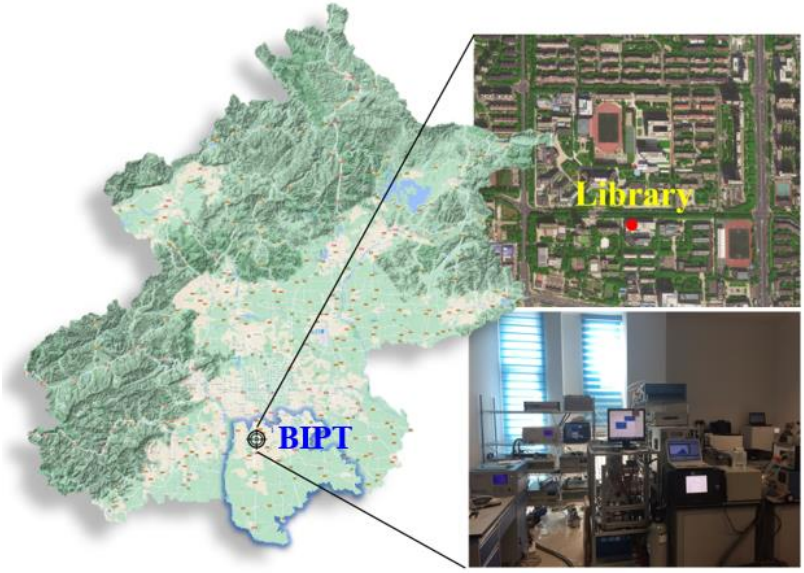

Figure S1. Location of the observation station (Zhan et al., 2021). The map is originated from © Google Maps.

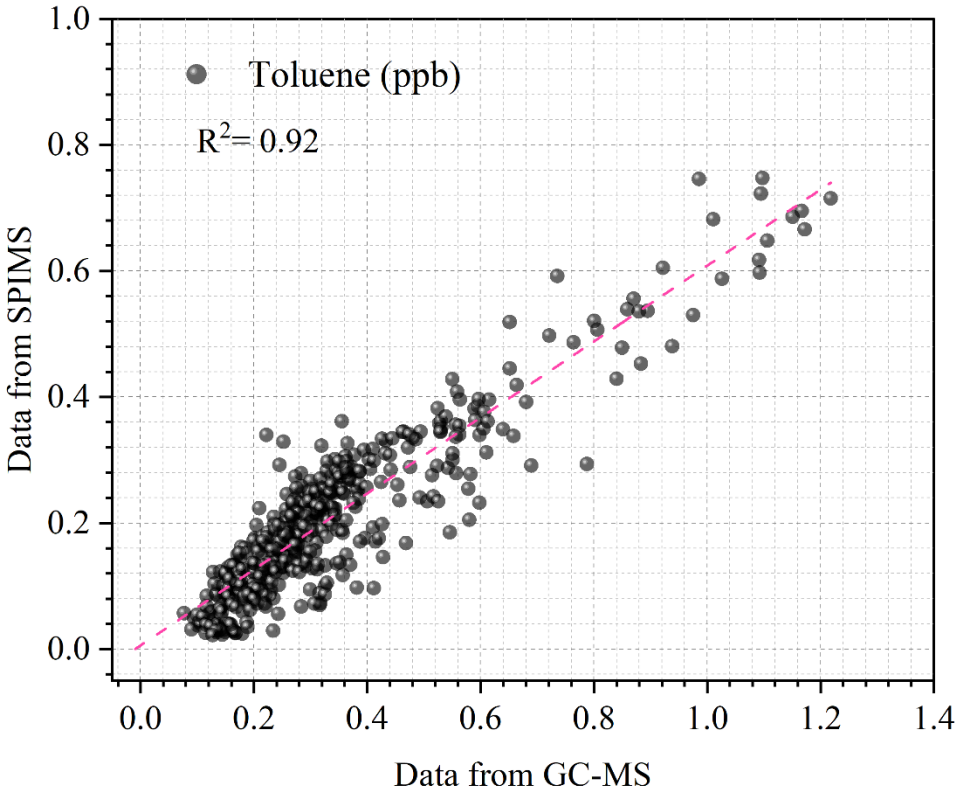

Figure S2. The comparison of toluene from SPIMS and GC/FID.

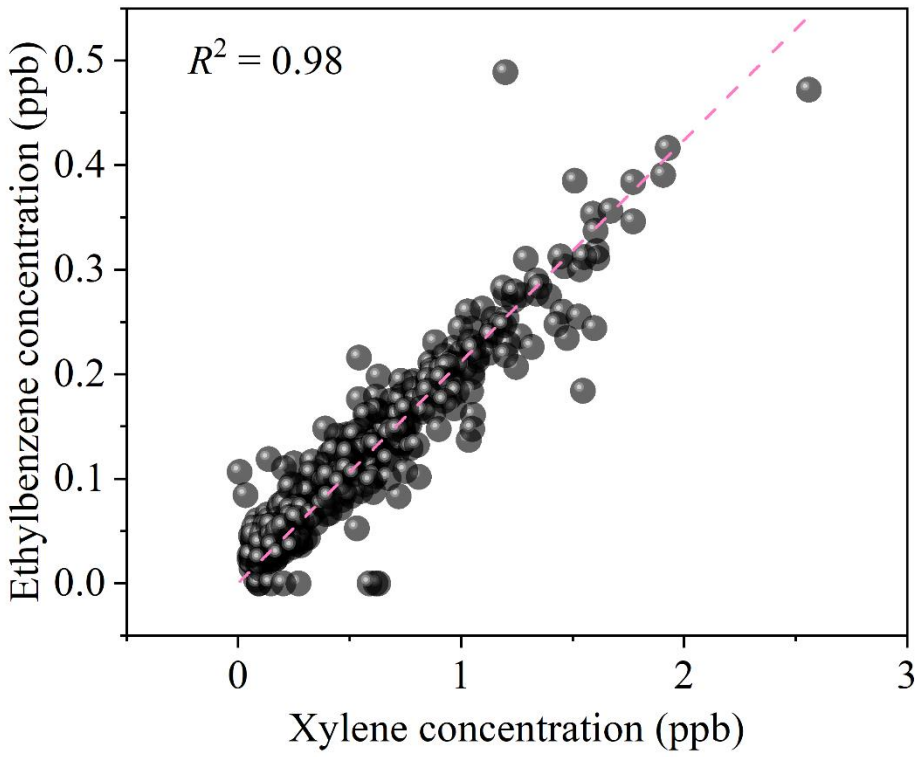

Figure S3. The relationship between the concentration of ethylbenzene and xylene.

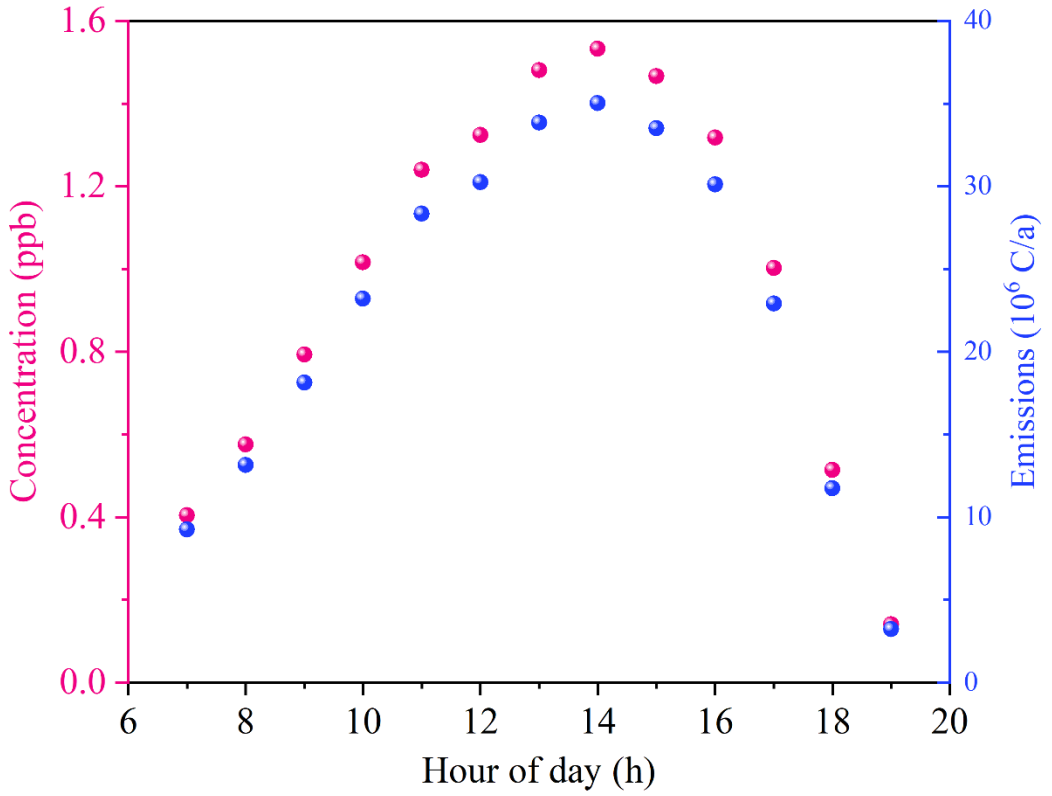

Figure S4. The average diurnal variation of isoprene emission.

The volume concentration of isoprene is calculated based on daily emission curve using the Eq. S1,

$$C_{isoprene} = \frac{Emi}{Day \times S \times H} \times \frac{RT}{PM} \quad \text{(S1)}$$

where Emi is the emission flux; Day, S and H are the total days of a year, the core urban area of Beijing, and the boundary layer height (~500 m, median of mean diurnal variation), respectively; R, T, P and M are the ideal gas constant, temperature, pressure and the molar molecule mass of isoprene).

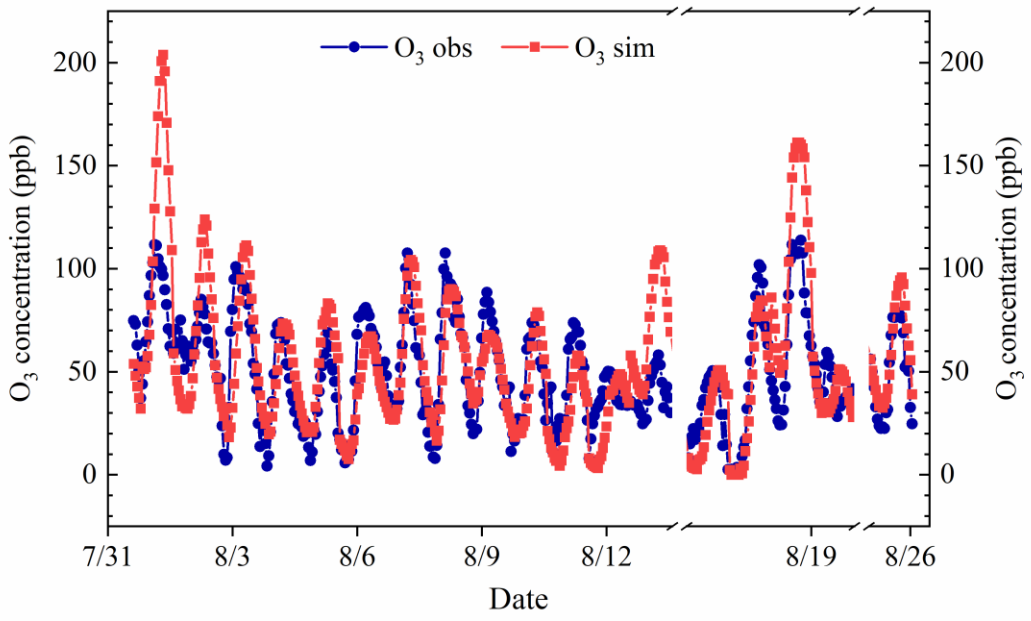

Figure S5. The time series of observed and simulated O_3

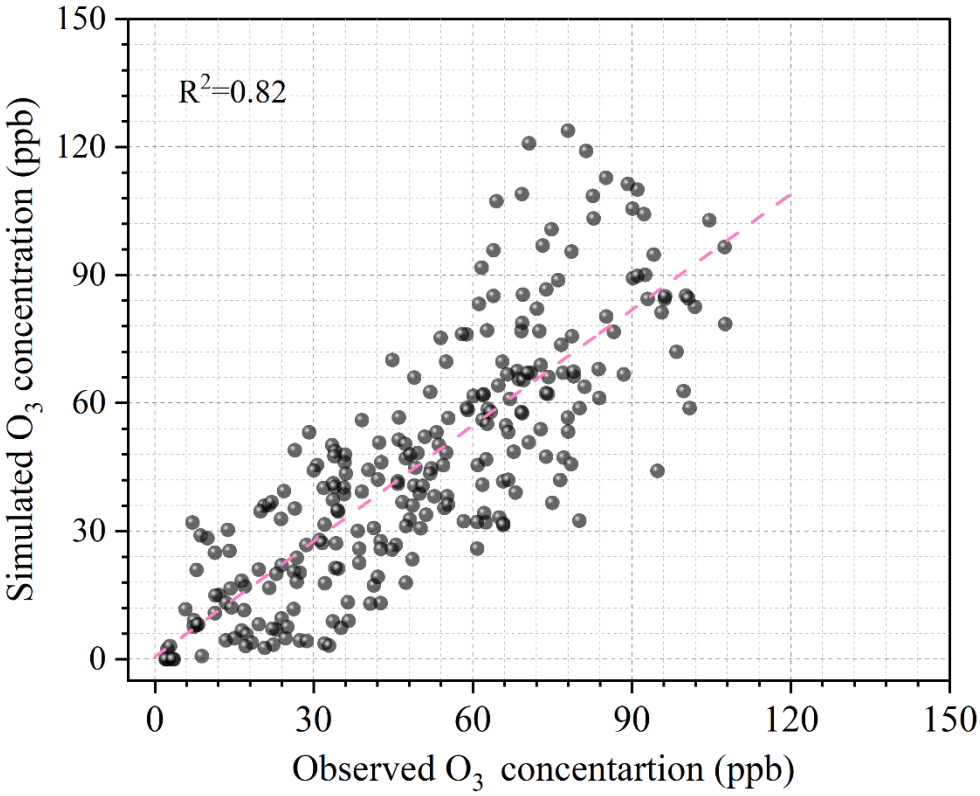

Figure S6. The relationship between observed and simulated O_3.

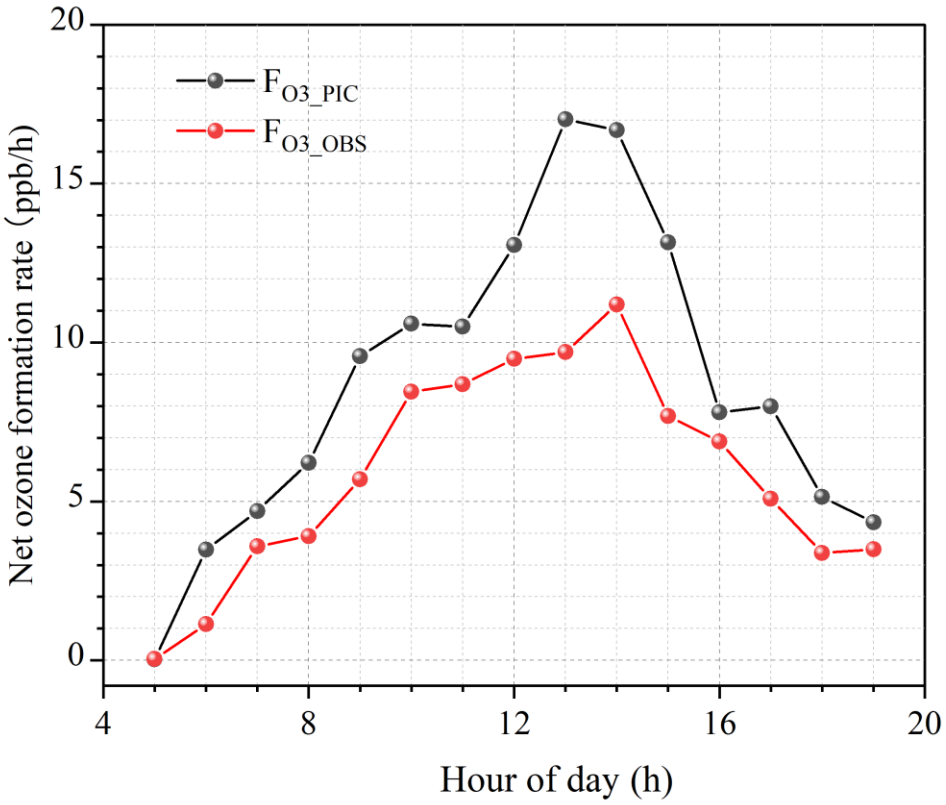

Figure S7. The average diurnal variation of $F(O_3)$.

Table S1. Measured parameters for the observation-based model.

Parameters	Measurement Technique	Time Resolution
J_{NO2}	J_{NO2} radiometer, Metcon	20 s
O_3, NO*x*, SO_2, CO	42i, 43i, 48i, and 49i, Thermal Scientific	60 s
HONO	LOPAP, ICCAS	60 s
Meteorological parameters	AWS310, Vaisala	60 s
NMHCs	GC-FID, RCEES	1 h
Halohydrocarbon	SPIMS., Hexin Instrument Co., Ltd	1 h
OVOC	HPLC, GL Sciences	2 h