Supplementary material

Ammonium nitrate promotes sulfate formation through uptake kinetic regime

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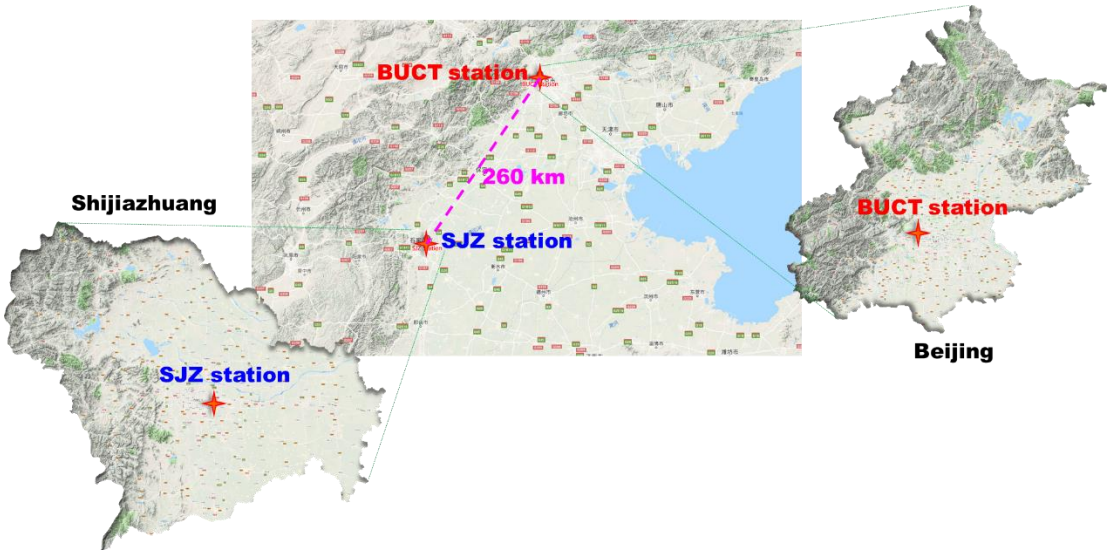

Fig. S1. The locations of the observation stations. The maps are originated from © Google Maps.

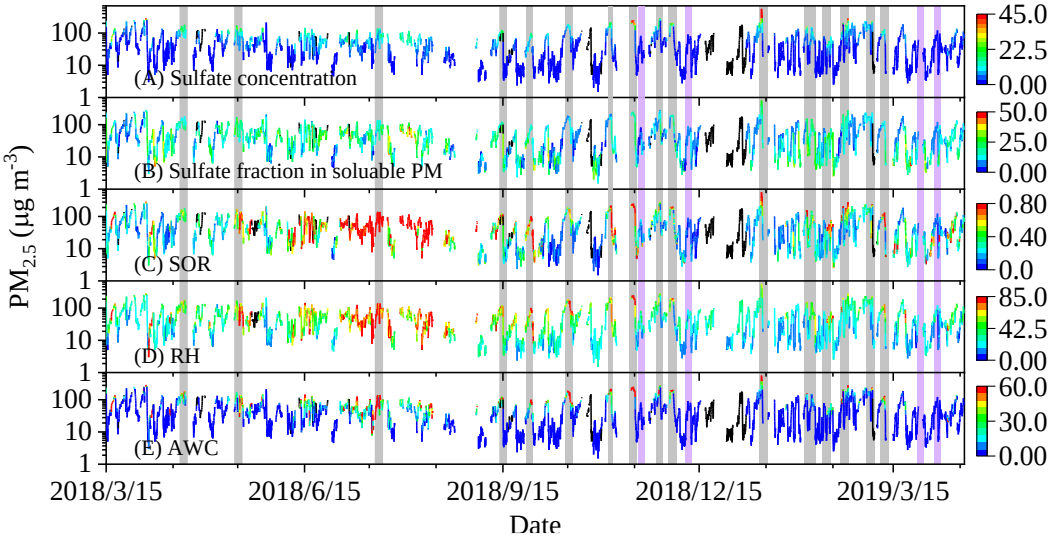

Fig. S2. Mass concentration of $PM_{2.5}$ colored according to (A) sulfate concentration, (B) sulfate fraction in soluble PM, (C) SOR, (D) RH and (E) AWC in Beijing.

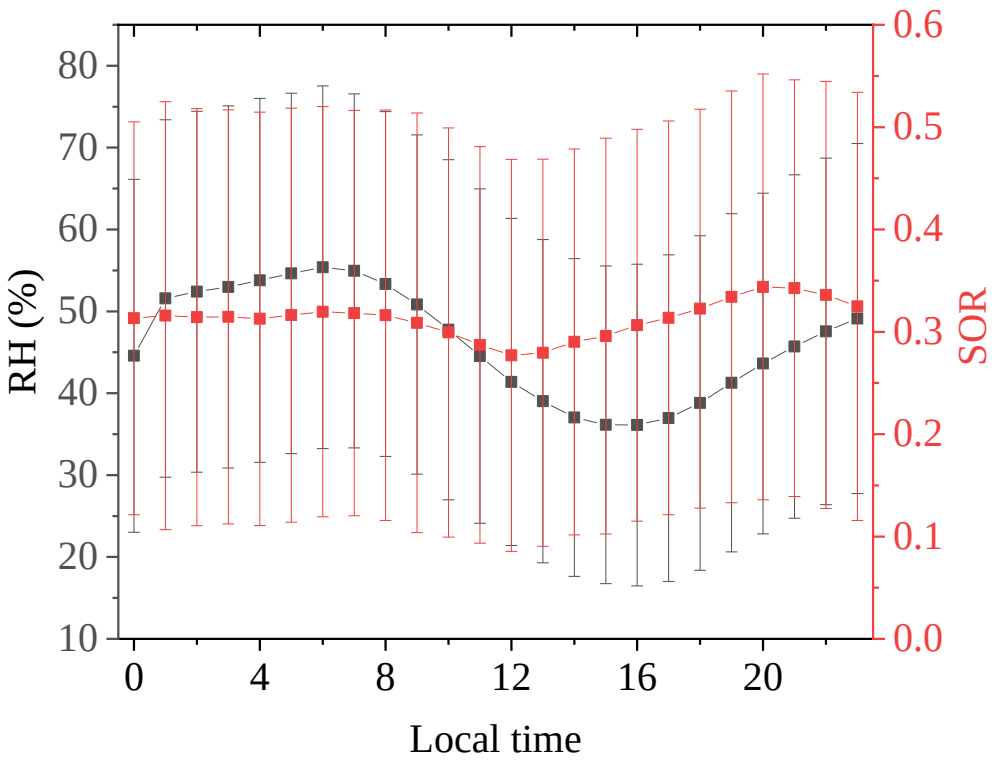

Fig. S3. The diurnal curve of RH and SOR.

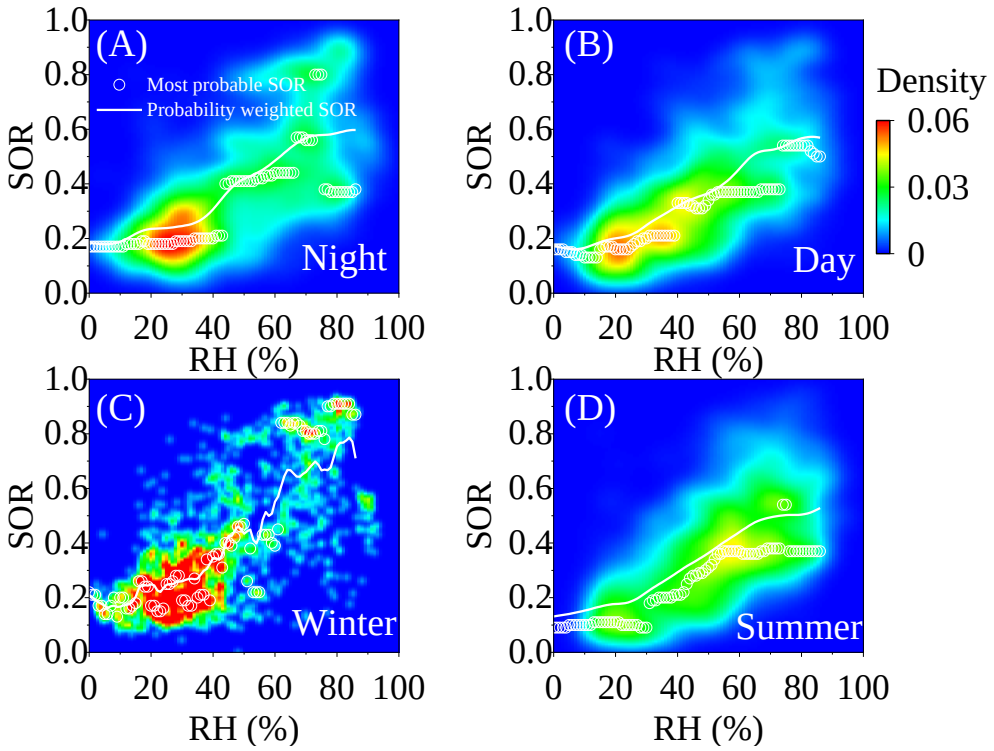

Fig. S4. The dependency of SOR on RH in Shijiazhuang (A) in the night, (B) in the day, (C) in winter and (D) in summer.

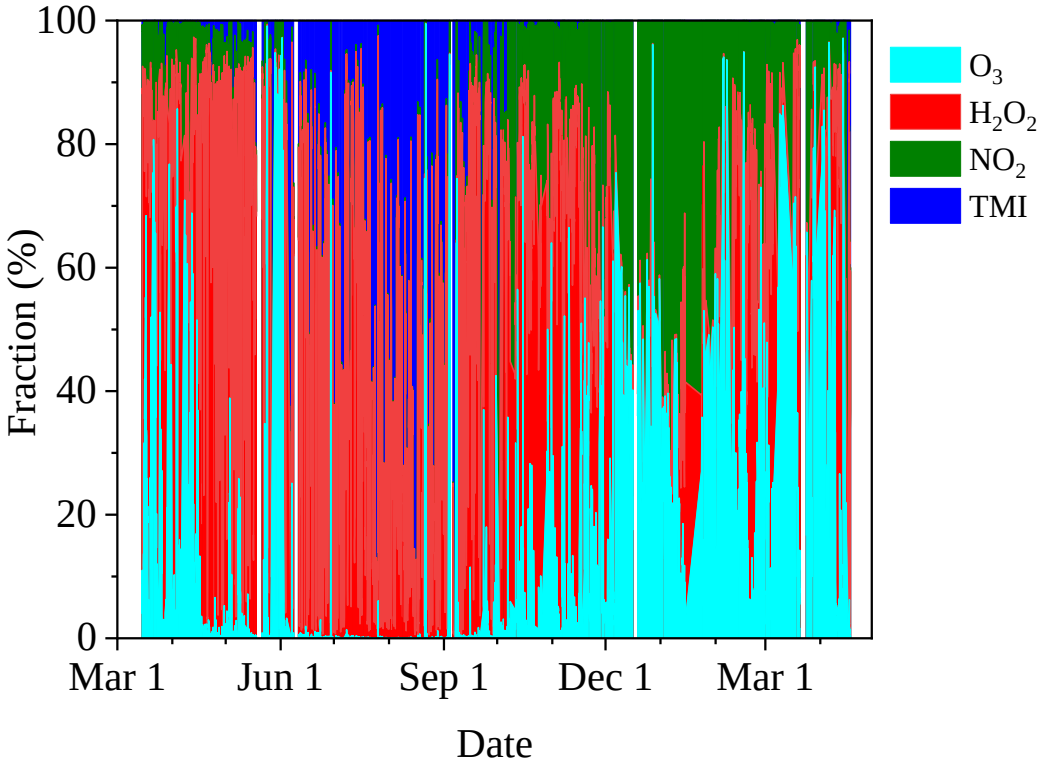

Fig. S5. Relative importance of oxidation paths of S(IV) in aqueous phase.

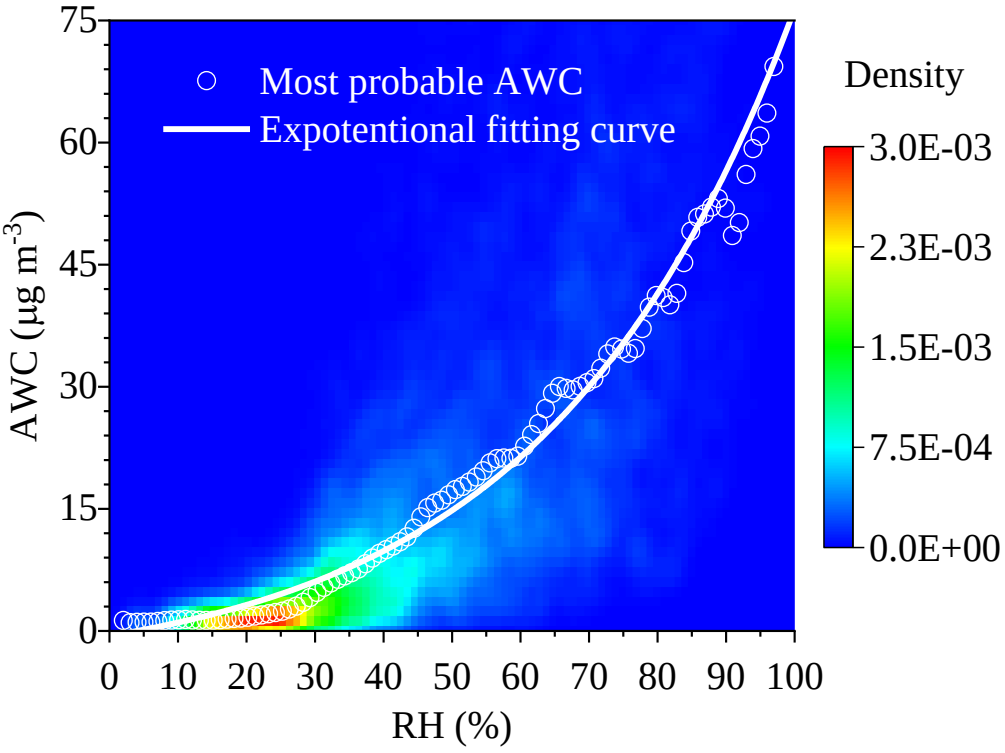

Fig. S6. Relationship between the AWC and RH in Shijiazhuang.

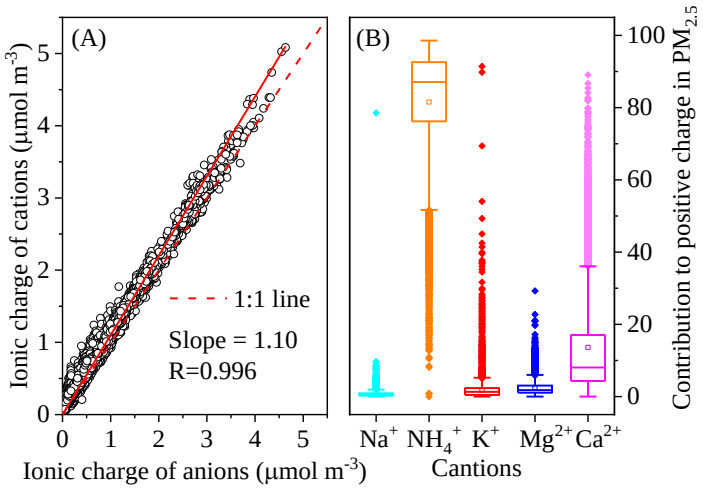

Fig. S7. (A) Correlation of the ionic charge between inorganic anions (NO_3^-, SO_4^{2-}, Cl^-) and cations (Ca^{2+}, Mg^{2+}, K^+, Na^+, NH_4^+) and relative contribution of cations to the positive charge in soluble $PM_{2.5}$.

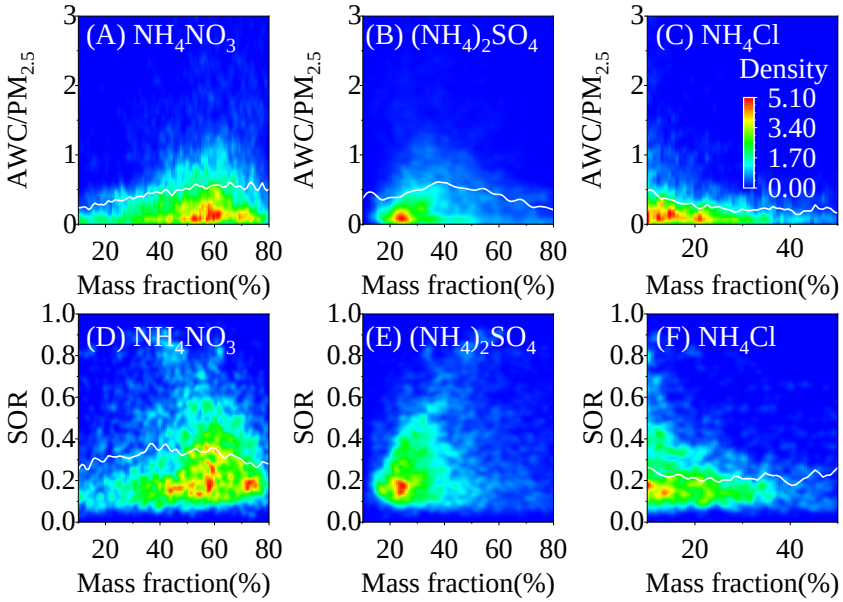

Fig. S8. Correlation of (A)-(C) the $AWC/PM_{2.5}$ and (D)-(F) the SOR with the mass fraction NH_4NO_3, $(NH_4)_2SO_4$ and NH_4Cl. The lines are probability weighted values.

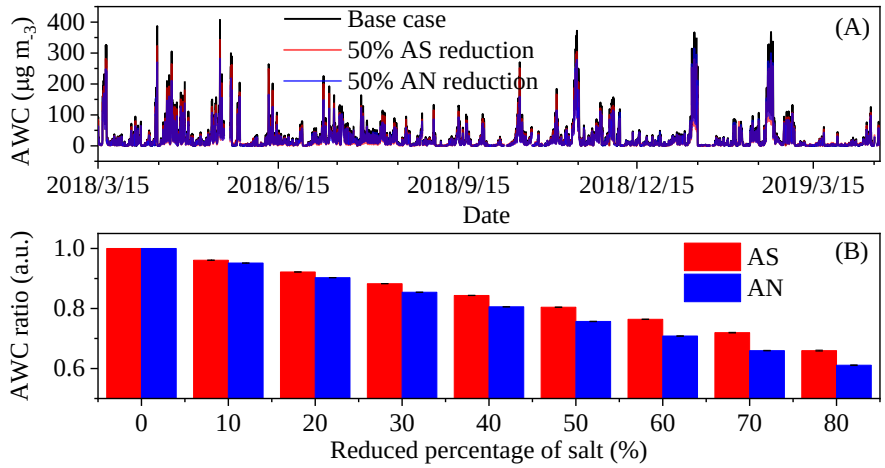

Fig. S9. Sensitivity of AWC to nitrate and sulfate concentration in $PM_{2.5}$

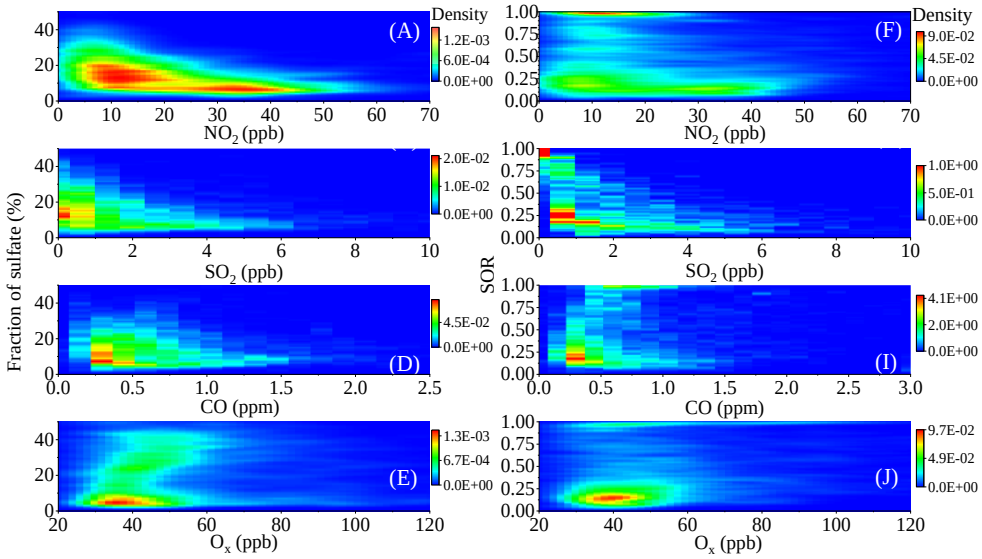

Fig. S10. Dependence of the sulfate fraction in soluble PM and the SOR on gaseous pollutant concentration in Beijing.