

Supplementary Materials

Table S1. Correlation matrix of the major ionic constituents of PM_{2.5} and their gaseous precursors on a 24 hr basis.

	SO ₂	NH ₃	HONO	HNO ₃	HCl	SO ₄ ²⁻	NO ₃ ⁻	Cl ⁻	Na ⁺	K ⁺	NH ₄ ⁺	Ca ²⁺	Mg ²⁺
SO ₂	1.00												
NH ₃	0.02	1.00											
HONO	-0.09	0.21	1.00										
HNO ₃	0.14	-0.29	-0.35^I	1.00									
HCl	0.13	-0.12	-0.23	0.36^{II}	1.00								
SO ₄ ²⁻	0.64^{III}	0.36^{II}	0.06	-0.12	-0.05	1.00							
NO ₃ ⁻	0.02	0.41^{II}	0.36^{II}	0.34^I	-0.13	0.47^{II}	1.00						
Cl ⁻	0.01	0.24	0.44^{II}	0.27	0.16	-0.03	0.37^{II}	1.00					
Na ⁺	0.06	-0.08	-0.06	-0.28	-0.11	0.52^{III}	0.36^{II}	0.33^I	1.00				
K ⁺	-0.13	-0.02	0.26	0.16	-0.14	0.24	0.58^{III}	0.56^{III}	0.23	1.00			
NH ₄ ⁺	0.34^I	0.55^{III}	0.15	-0.09	-0.04	0.93^{III}	0.61^{III}	0.17	0.55^{III}	0.41^{II}	1.00		
Ca ²⁺	0.04	0.12	0.09	-0.24	-0.05	0.01	-0.14	0.19	0.06	-0.29	-0.01	1.00	
Mg ²⁺	0.01	-0.17	-0.01	0.13	-0.04	0.27	0.44^{II}	0.26	0.22	0.45^{II}	0.35^I	-0.41^{II}	1.00

* Bold marked are statistically significant; subscripts I, II and III denote that correlation is significant at $0.01 \leq P < 0.05$, $0.001 \leq P < 0.01$, $P < 0.001$.

Table S2. Correlation matrix for temperature, relative humidity and secondary species on a 1 hr basis.

	HONO	HNO ₃	NH ₄ ⁺	SO ₄ ²⁻	NO ₃ ⁻	Cl ⁻	Temp	RH
HONO	1.00							
HNO ₃	-0.01	1.00						
NH ₄ ⁺	0.09	-0.04	1.00					
SO ₄ ²⁻	-0.28^{III}	0.06	0.89^{III}	1.00				
NO ₃ ⁻	0.17^{II}	0.15^I	0.46^{III}	0.27^{III}	1.00			
Cl ⁻	0.23^{III}	0.07	0.08	-0.18^{II}	0.14^I	1.00		
Temp	-0.16^{II}	0.15^I	0.17^{II}	0.29^{III}	-0.14^I	-0.13^I	1.00	
RH	0.27^{III}	0.06	0.07	0.05	0.21^{II}	0.15^I	-0.91^{III}	1.00

Temp for temperature and RH for relative humidity; Bold marked are statistically significant; subscripts I, II and III denote that correlation is significant at $0.01 \leq P < 0.05$, $0.001 \leq P < 0.01$, $P < 0.001$.

Table S3. Correlation coefficients between K⁺ and other species.

	HCl	HONO	HNO ₃	SO ₂	NH ₃	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻	Na ⁺	NH ₄ ⁺	Mg ²⁺	Ca ²⁺
Case-1 ^a	-0.12	0.24	0.03	-0.05	-0.18	0.44^{II}	0.35^I	0.11	0.33^I	0.33^I	0.52^{II}	0.20
Case-2 ^b	-0.11	0.02	-0.26	-0.11	-0.16	0.59^{III}	0.48^{II}	-0.06	0.04	0.04	0.03	-0.26

^aCase-1 with the observations of K⁺ < 0.3 μg m⁻³; ^bCase-2 with the observations of K⁺ ≥ 0.3 μg m⁻³. Bold marked are statistically significant; subscripts I, II and III denote that correlation is significant at $0.01 \leq P < 0.05$, $0.001 \leq P < 0.01$, $P < 0.001$.

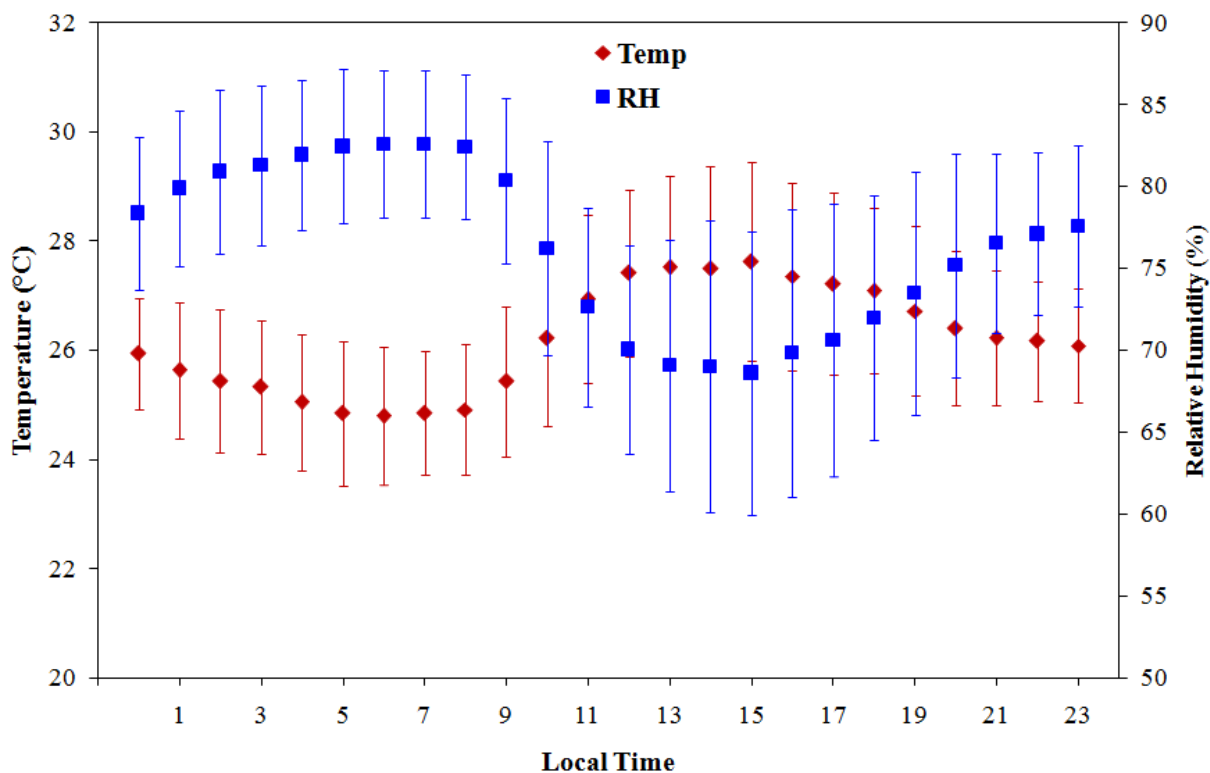


Fig. S1. Diurnal variations of temperature and relative humidity during the measurement period. The error bars represent the corresponding standard deviations.

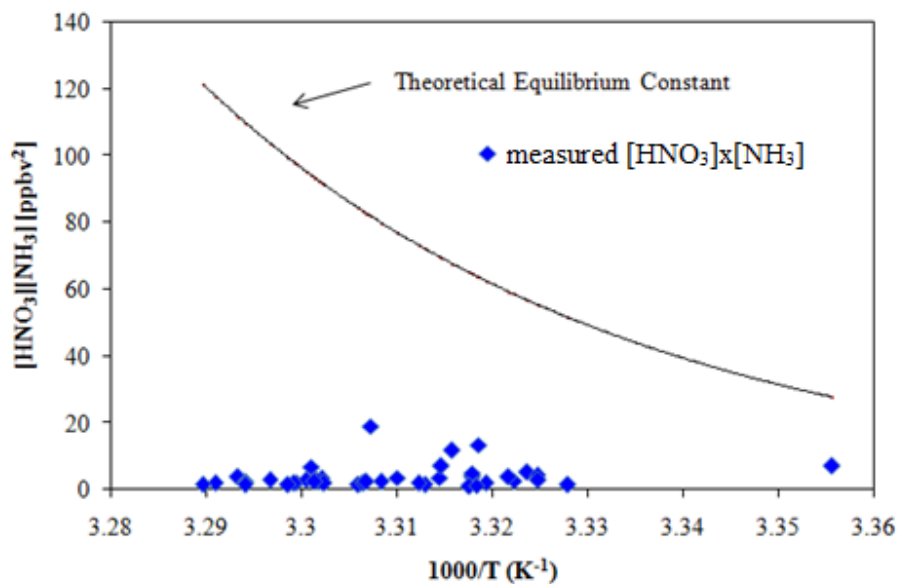


Fig. S2. Comparison of concentration product of gas-phase $[\text{HNO}_3] \times \text{gas-phase } [\text{NH}_3]$ with the theoretical equilibrium constant of solid ammonium nitrate when RH was lower than the DRH of NH_4NO_3 .