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Fast particulate nitrate formation via N_2O_5 uptake aloft in winter in Beijing

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Lists of support information:

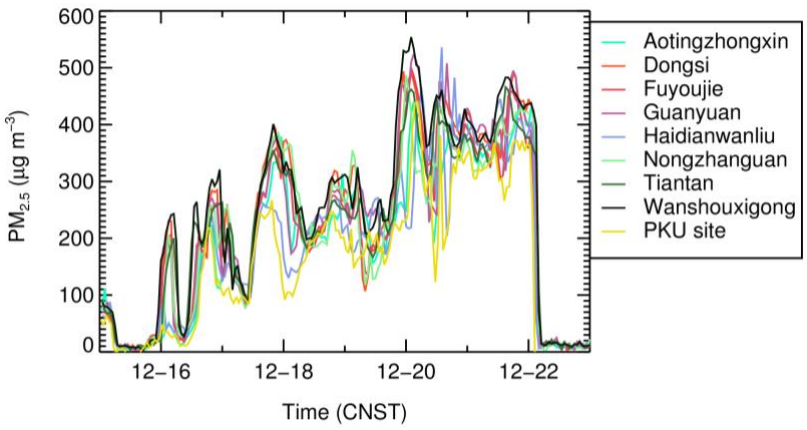

Figure S1. The similarity of the $PM_{2.5}$ concentrations at different sites throughout urban Beijing demonstrated that the observed PM pollution was a regional event.

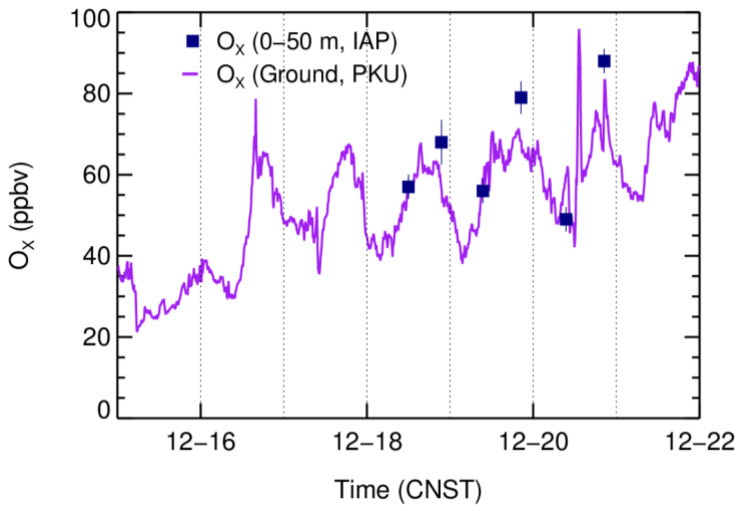

Figure S2. The intercomparison of the O_x concentrations at PKU (purple line) and IAP site (navy square), the navy line shows the standard deviation at IAP site, the consistency in the two sites demonstrated that the observed O_x pollution was also a regional event.

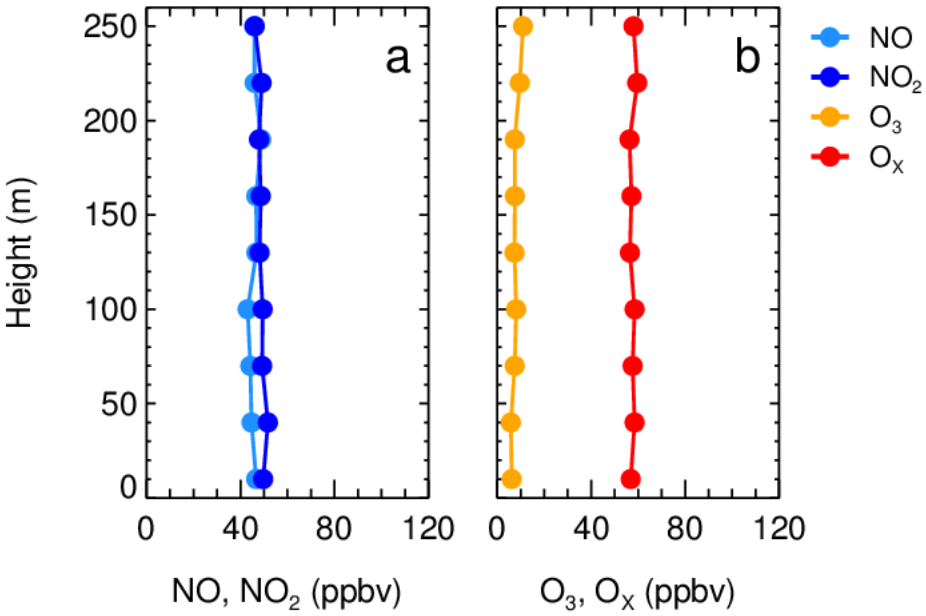

Figure S3. Vertical profiles of NO_2, NO, O_3, and O_x at 11:31-12:00 in the morning of December 18, 2016. Suggesting the trace gases was well mixed in the noon.

Table S1. Measured parameters and the corresponding measurement instruments from PKU site.

Species	Detection of limit	Method	Accuracy
NO	60 pptv (2σ, 1min)	Chemiluminescence (CL)	± 20%
NO_2	0.3 ppbv (2σ, 1min)	Photolytic converter + CL	± 20%
O_3	0.5 ppbv (2σ, 1min)	UV photometry	± 5%
$PM_{2.5}$	0.1 μg m^{-3} (1 min)	TEOM 1400A analyzer	± 5%
PNSD	14 nm -697 nm (4 min)	SMPS	± 20%