Supplement of

Size-resolved hygroscopicity and volatility properties of ambient urban aerosol particles measured by the VH-TDMA system in the autumn of 2023

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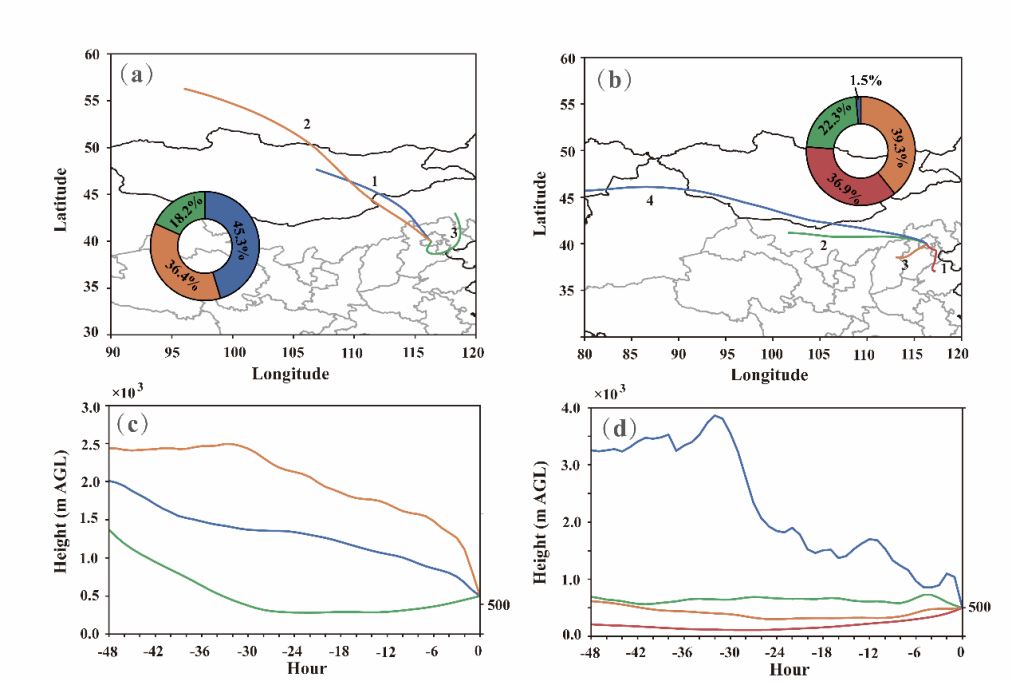

Figure S1. 48-h air mass back trajectories arriving at the height of 500 m AGL at the CAMS site (a) different clusters, (c) the height of the back trajectories of different clusters during the clean period, (b) (d) same as (a) (c), respectively, but during the pollution periods.

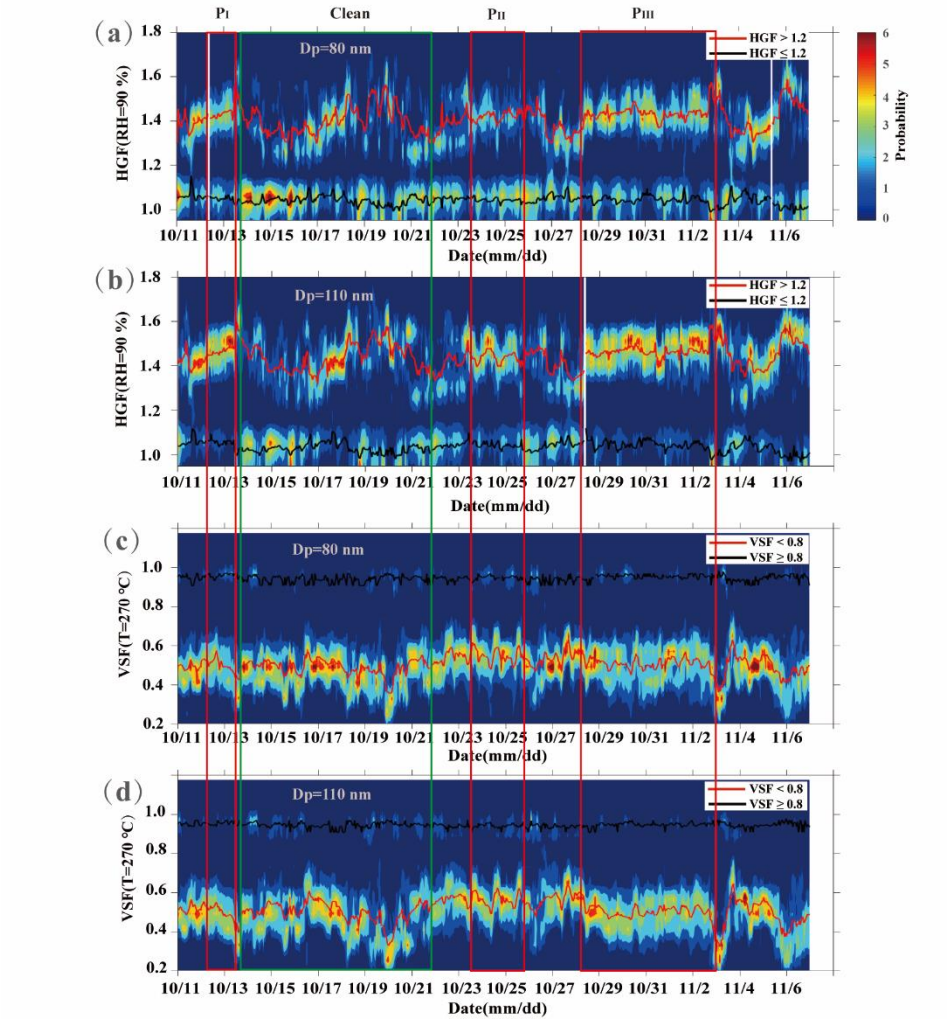

Figure S2. Hygroscopic growth factor probability density function (HGF-PDF) for 80 nm (a) and 110 nm (b) particles at RH = 90%, and volatile shrink factor probability density function (VSF-PDF) for 80 nm (c) and 110 nm (d) particles at T = 270℃. In the HGF-PDFs, the black line represents the mean HGF of the nearly hydrophobic mode (HGF_{NH}), and the red line represents the mean HGF of the more hygroscopic mode (HGF_{MH}). In the VSF-PDFs, the black line represents the mean VSF of the non-volatility mode (VSF_{NV}), and the red line represents the mean VSF of the very volatility mode (VSF_{VV}).

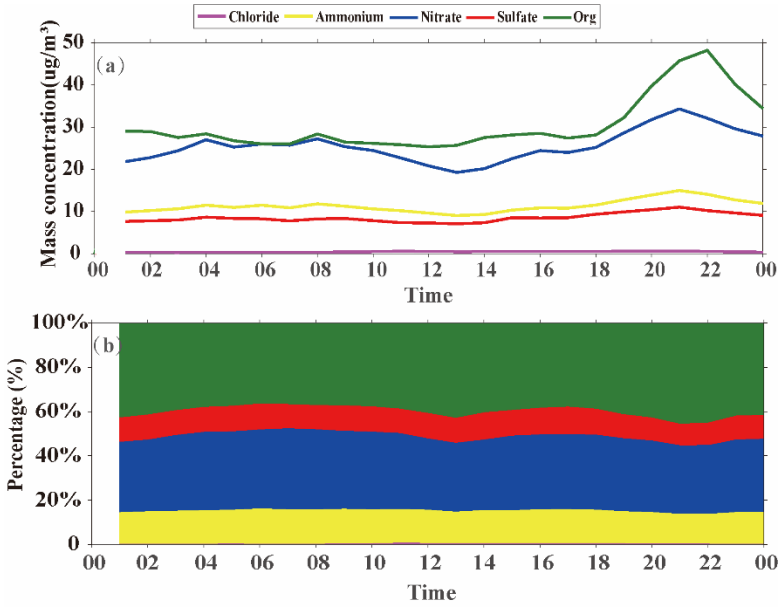

Figure S3. Average diurnal variation of main chemical components in PM_1 during the pollution period based on the available AMS data, (a) mass concentration, (b) mass fraction.

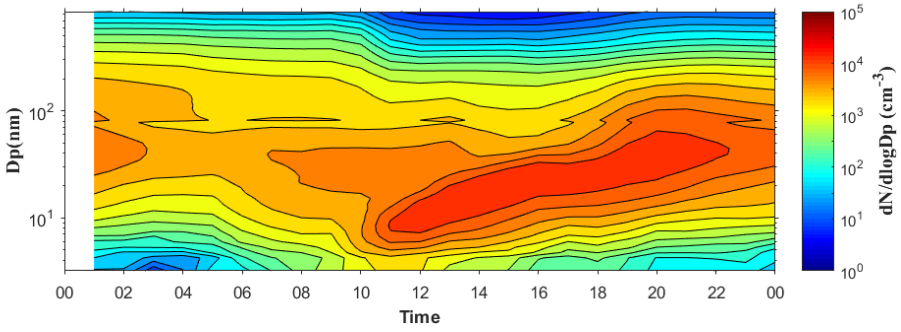

Figure S4. Mean particle number size distribution during the clean period.

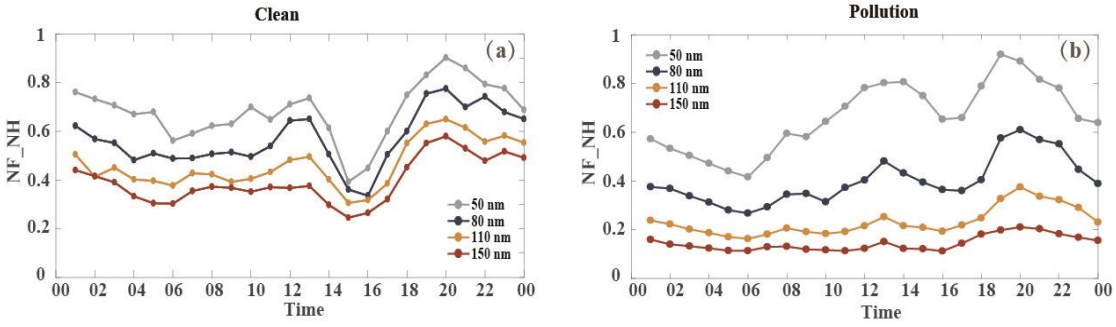

Figure S5. Diurnal variation of the number fraction of nearly hydrophobic particles for different diameters during the clean (a) and pollution (b) periods.

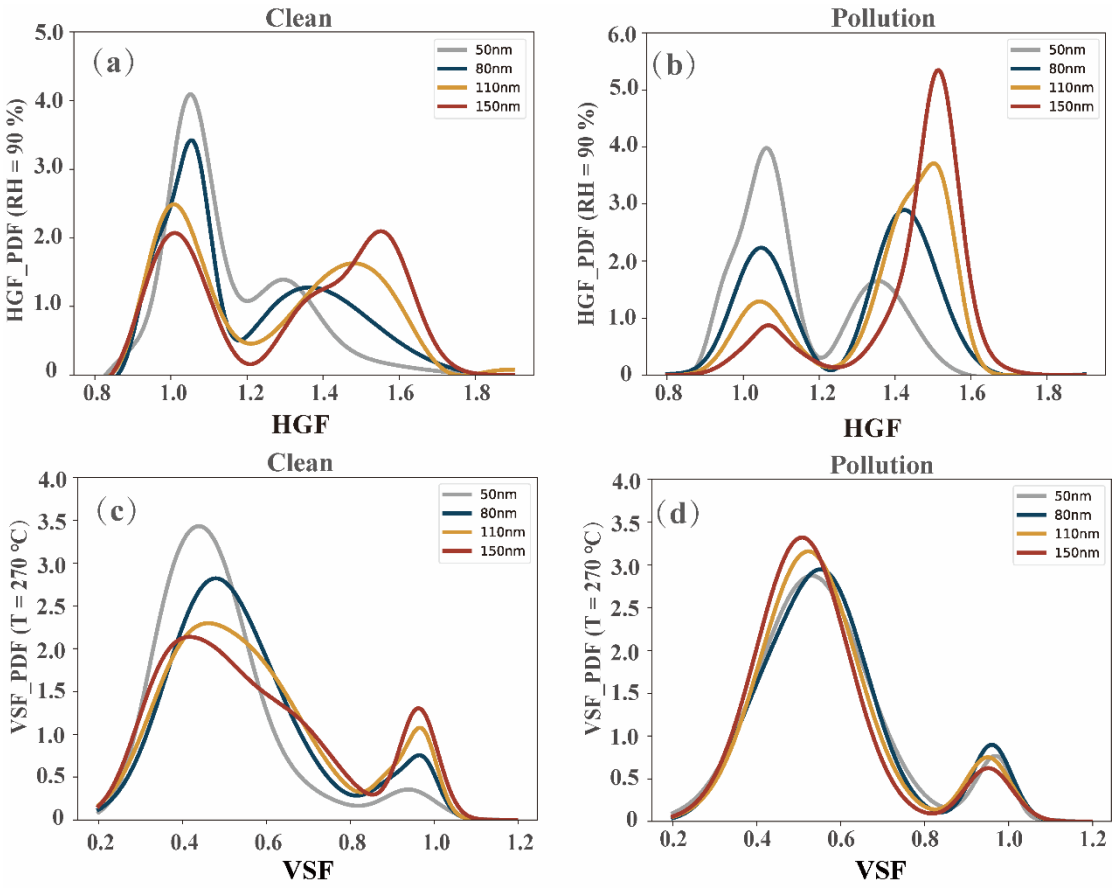

Figure S6. Mean hygroscopicity growth factor probability density functions (HGF-PDFs) for particles ranging from 50 nm to 150 nm during the clean (a) and pollution periods (b). Mean volatility shrink factor probability density function (VSF-PDFs) for particles ranging from 50 nm to 150 nm during the clean (c) and pollution periods (d).

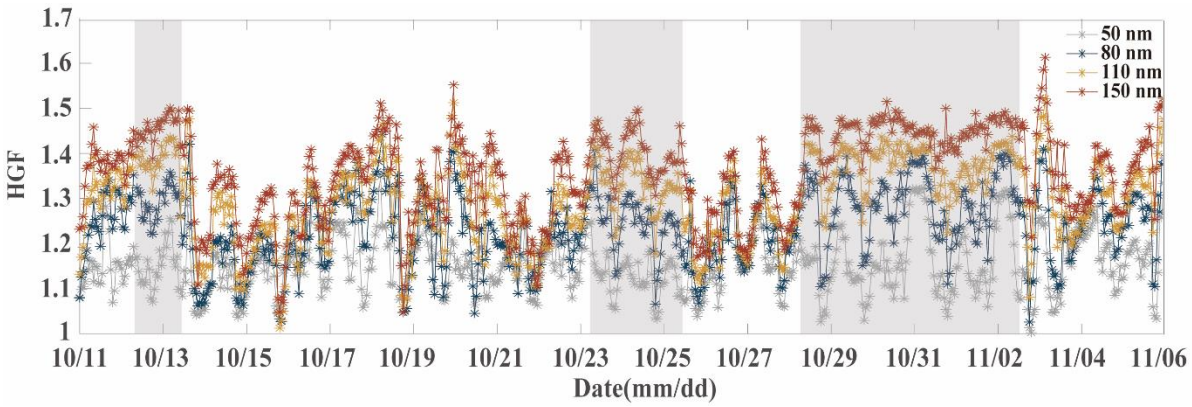

Figure S7. Time series of the hygroscopic growth factor (HGF) during the sampling period. The shadows represent the pollution period.