Supplement of

A novel method for calculating ambient aerosol liquid water content based on measurements of a humidified nephelometer system

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Figure S1. Locations of sites are marked with star markers. The four locations are Wangdu (WD), Gucheng (GC) and Xianghe (XH) in Heibei province and Wuqing (WQ) in Tianjin. Colors represent average distribution of aerosol optical depth at 550 nm during summer from 2012 to 2014. The dataset of aerosol optical depth at 550 nm is from Moderate Resolution Imaging Spectroradiometer onboard satellite Aqua.
Figure S2. (a) Calculated size-resolved accumulative contribution to $V_d$ (dry) of PM$_{10}$ for all PNSDs measured during six field campaigns listed in Table 2 and (b) Simulated size-resolved accumulative contribution to $\sigma_{sp}$ at 550 nm. The color scales (from light gray to black) represent occurrences.

Figure S3. X-axis and y-axis represent $\kappa_{sca}$ are fitted with and without consideration of RH$_0$ in the “dry” nephelometer, respectively. The red line is 1:1 line, the blue dashed line is the 15% relative difference line.
Figure S4. Modelled $f(RH)$ and $V_g(RH)$ (scatter points) and fitted $f(RH)$ and $V_g(RH)$ (solid lines) using formula form of equation (5).

Figure S5. The average size-resolved $\kappa$ distribution during Haze in China campaign (Liu et al., 2014).
Figure S6. The enhancement factor of particle scattering efficiency at different RHs due to aerosol hygroscopic growth for different diameters of dry aerosol particles. The used hygroscopicity parameter $\kappa$ is 0.3.

References: