Supplement Information of

Characterization of fog microphysics and their relationships with visibility at a mountain site in China

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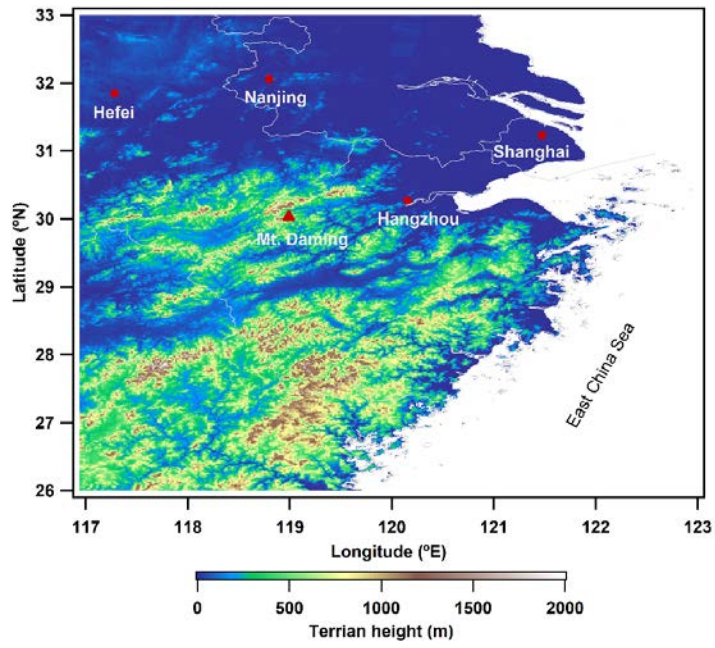
Fig. S1 Location and terrain of the Mt. Daming observation site (triangle symbol).
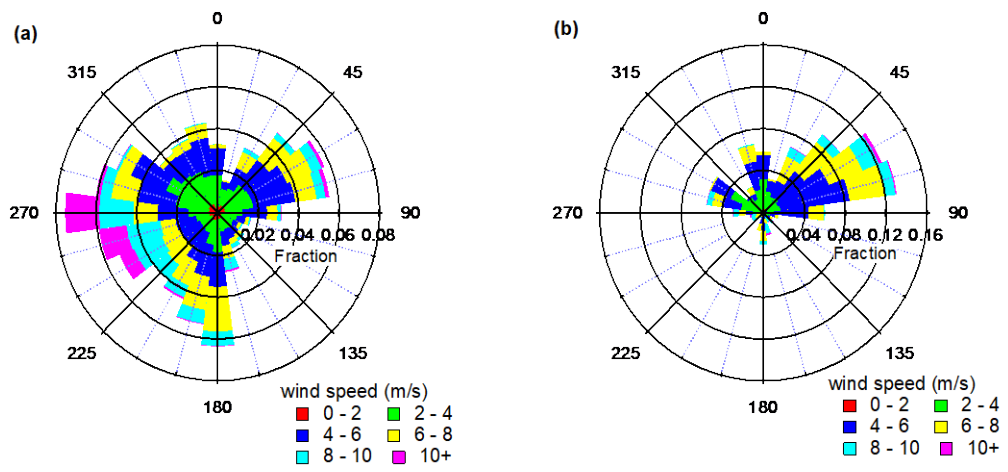
Fig. S2. Wind rose plots during (a) the whole observation period, (b) fog periods.
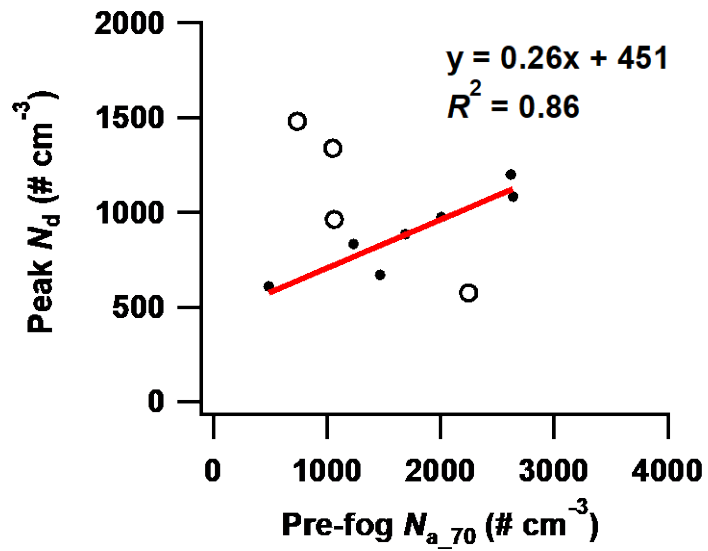
Fig. S3. Peak N_d value for each fog event vs. Pre-fog N_a in the last hour before the event, measured by TSMPS with the size range larger than 70 nm. Hollow circles represent fog events occurring after precipitation, which are excluded from the correlation analysis.
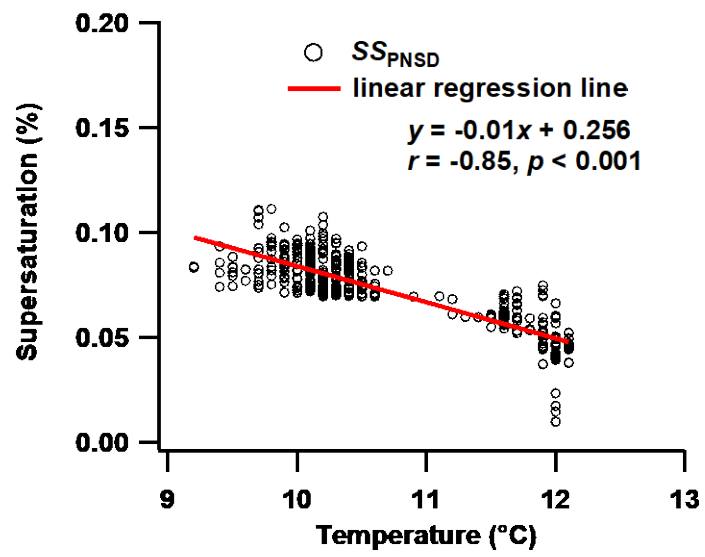
Fig. S4. The relationship between supersaturation (SS_{PNSD}) and temperature for E3.
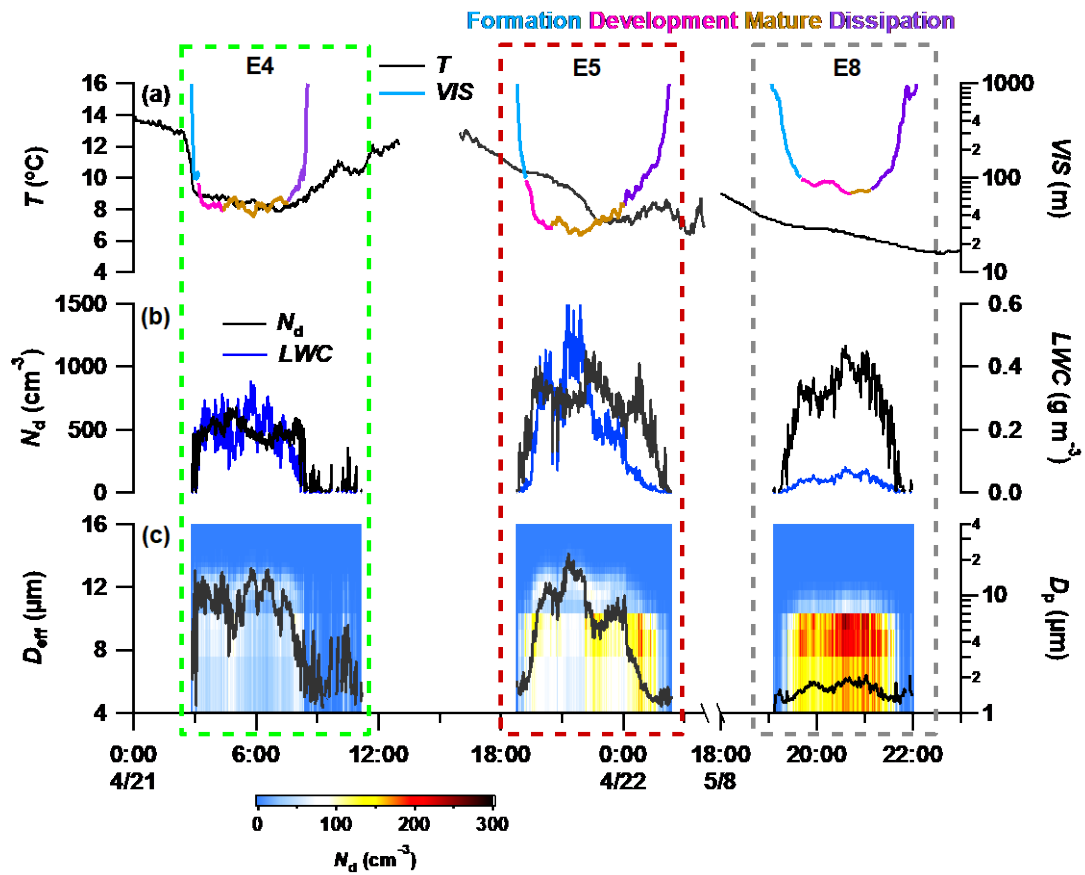
Fig. S5. Temporal evolution of temperature, visibility, fog microphysical parameters, and droplets size distribution for E4, E5, and E8. The colored lines separate each fog event into four stages based on the evolution of visibility.
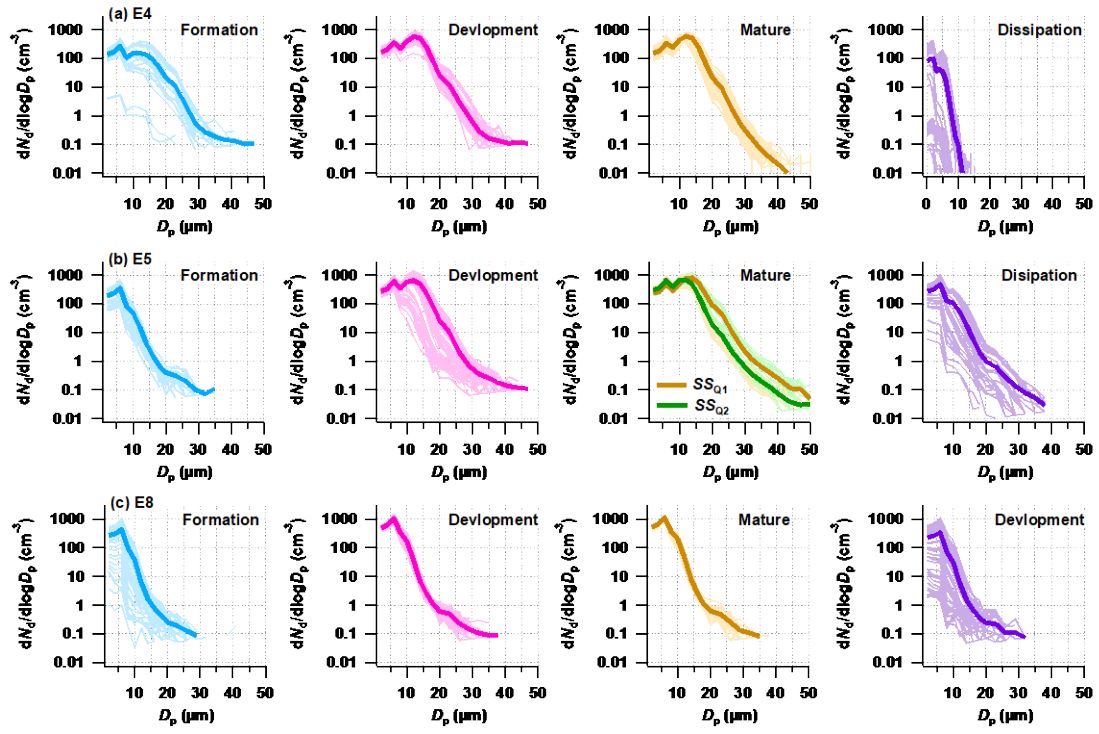
Fig. S6. Evolutions of fog droplets size distribution (DSD) at various stages during (a) E4, (b) E5, and (c) E8, respectively. Thin lines in each stage represent 1-min averaged DSDs, while the thick line is their average.
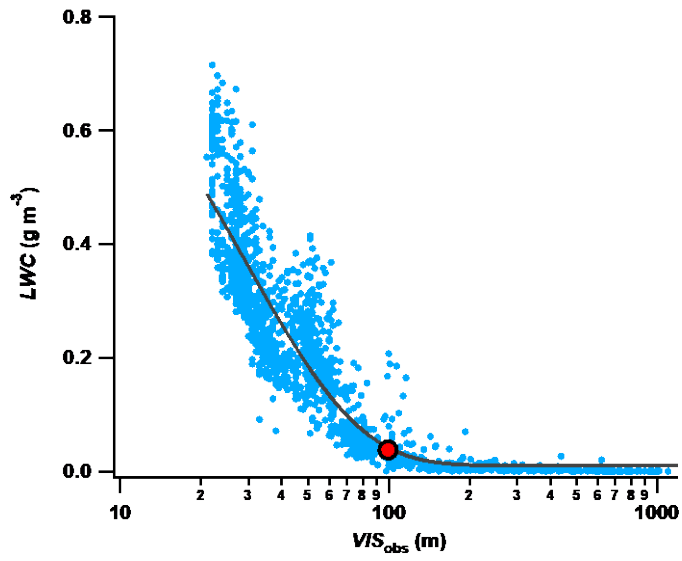
Fig. S7. The relationship between *LWC* and *VIS*_{obs} during this campaign. The red circle indicates the inflection point in the power-law fitting curve.
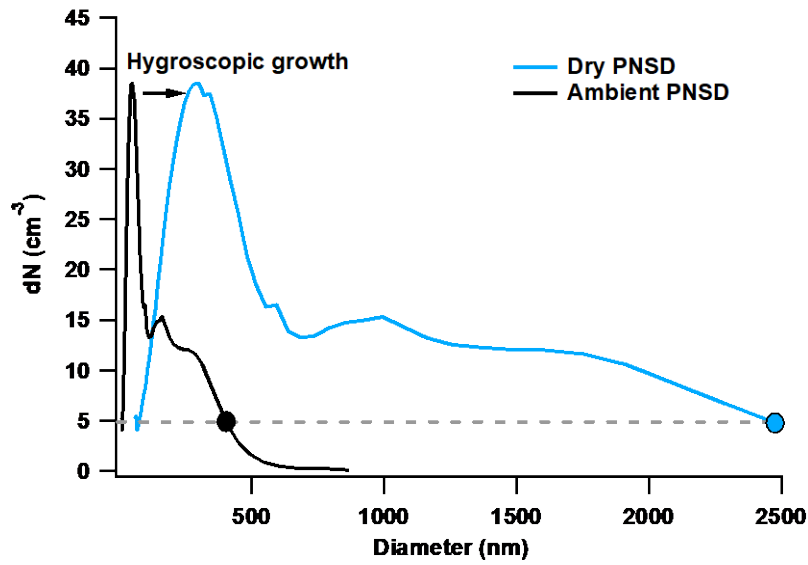
Fig. S8. Schematic of estimating bulk hygroscopic growth factor (GF) of fog interstitial particles. The black circle represents the maximum dry diameter measured in fog interstitial particles, with a corresponding number concentration of not less than 5 cm^{-3}. The blue circle represents the cut-size of PM$_{2.5}$ cyclone inlet, which defined as the maximum diameter of ambient PNSD after hygroscopic growth. Upon this, the bulk GF in this case approximates to 6.1.

Table S1. Density, hygroscopicity parameter (κ) and refractive indices of pure composition used in this study.

Species	Density (kg m^{-3})	κ	Refractive index
NH_4NO_3	1725	0.68	$1.6 - 0i$
$(NH_4)_2SO_4$	1769	0.52	$1.53 - 0i$
NH_4HSO_4	1780	0.56	$1.47 - 0i$
Organics	1400	0.1	$1.46 - 0.021i$
Black Carbon	1800	0	$1.85 - 0.79i$
Water	1000		$1.3 + 0i$