Supplement of 

Optical and hygroscopic properties of black carbon influenced by particle microphysics at the top of the anthropogenically polluted boundary layer

Shuo Ding et al.

Correspondence to: Dantong Liu (dantongliu@zju.edu.cn) and Deping Ding (zytddp@vip.sina.com)

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Supplements

Fig. S1. Diurnal variations of RH for the three PBL types in both seasons. The solid circles, lines and whiskers denote the mean, median, 25th, 75th percentile respectively.
Fig. S2. BC core MMD as a function of PM$_1$ in winter (a) and summer (b) for the three PBL types, with solid circles, whiskers denoting the median, 25$^{th}$, 75$^{th}$ percentiles.
Fig. S3. Diurnal variarions of BC core CMD (a-c), BC coated CMD (d-f) and BC $D_p/D_c$ (g-i) for the three PBL types in both seasons. The solid circles, lines and whiskers denote the mean, median, 25th, 75th percentile respectively.
Fig. S4. Diurnal variation of SSA$_{550}$ (a-c), MAC$_{550, \text{uncoated}}$ (d-f) and MAC$_{550, \text{coated}}$ (g-i) for the three PBL types in both seasons. The solid circles, lines and whiskers denote the mean, median, 25th, 75th percentile respectively.
Fig. S5. Examples of critical supersaturation calculation for the three typical BC containing particles, using the coated BC CMD and corresponding $\kappa_{BCc}$ as inputs. The dashed line denotes the critical supersaturation to activate the BC with given CMD and $\kappa_{BCc}$. 