Supplement of

Characterization of black carbon-containing fine particles

in Beijing during wintertime

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Figure S1. Map of the sampling site (IAP-Tower Division, CAS).
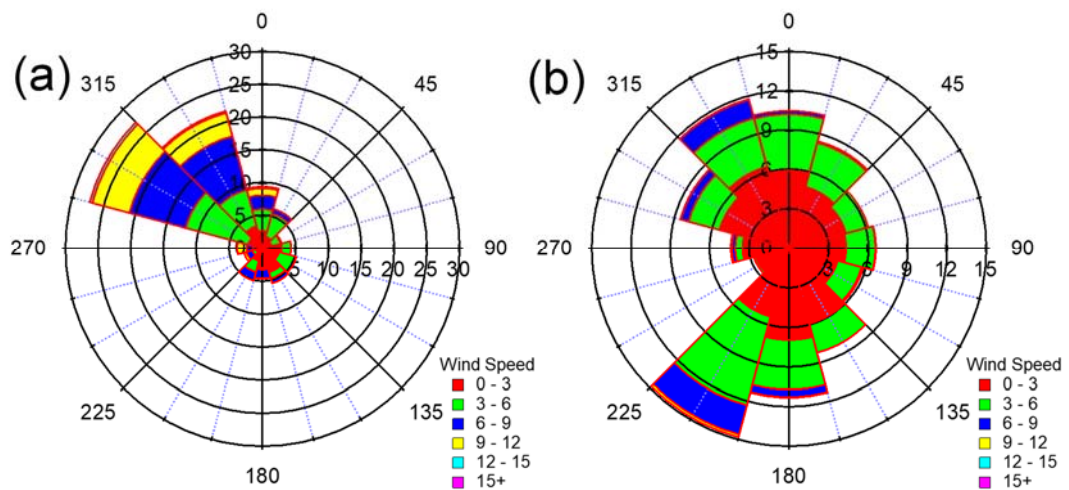
Figure S2. Rose-plots of wind direction and wind speed of (a) clean periods and (b) pollution periods.
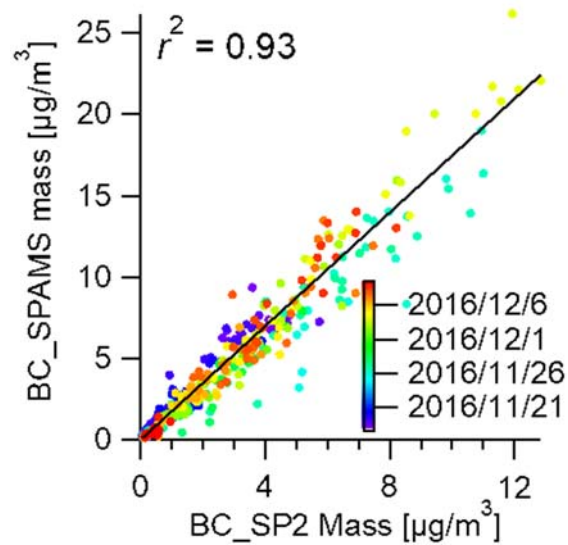
Figure S3. Scatter plots of SP-AMS measured BC *vs.* SP2 measured BC.
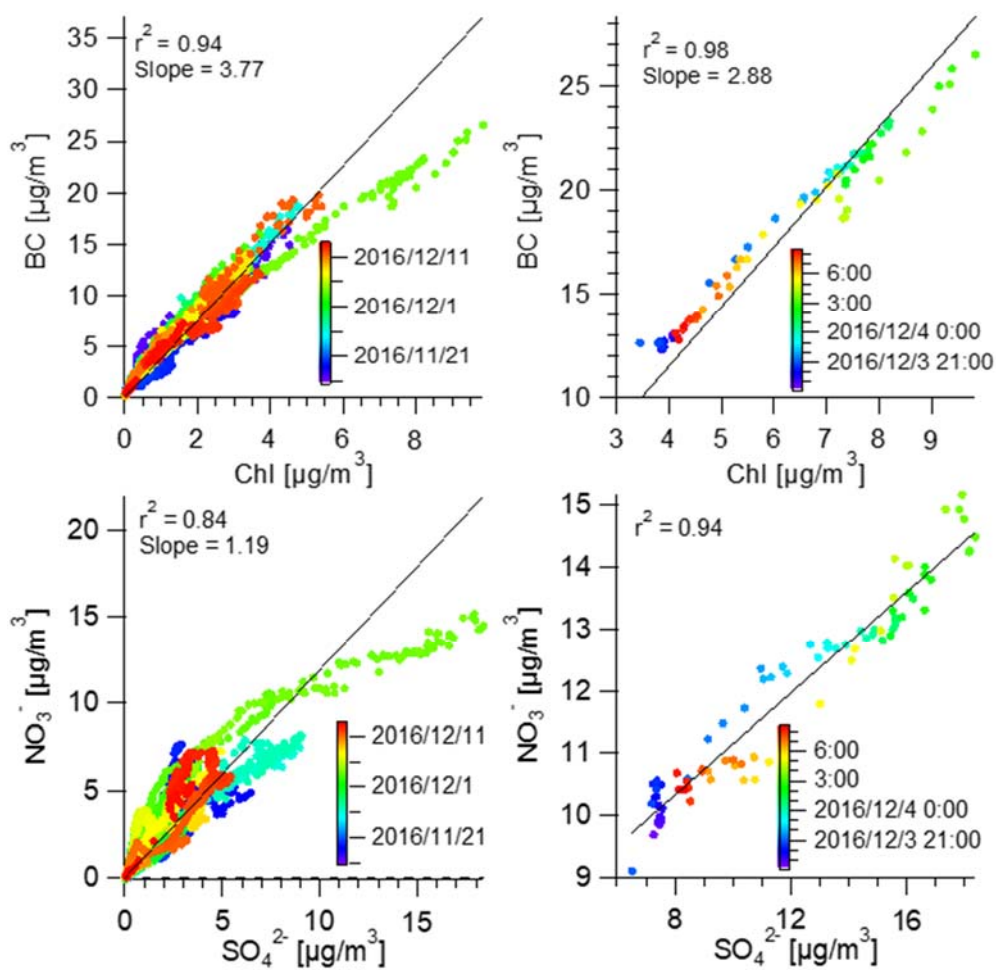
Figure S4. Scatter plots of BC *vs.* chloride, and nitrate *vs.* sulfate during the whole

campaign (left panel) and the first episode (FE) (right panel).
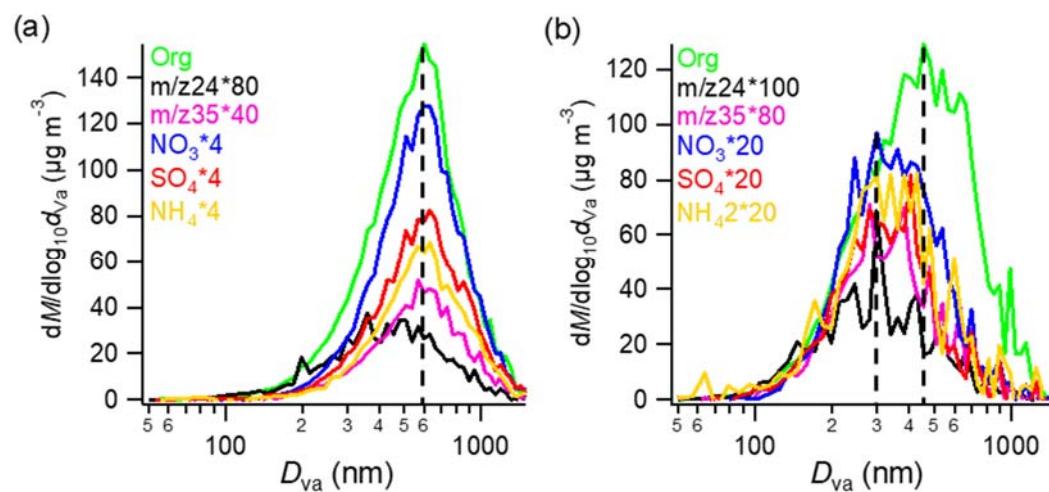
Figure S5. Mass-based average size distributions of BC cores and its coating

components during (a) first episode (FE) and (b) second episode (SE).