

Supplement of Atmos. Chem. Phys., 17, 7965–7975, 2017  
<https://doi.org/10.5194/acp-17-7965-2017-supplement>  
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*Supplement of*

## **Size distribution and source of black carbon aerosol in urban Beijing during winter haze episodes**

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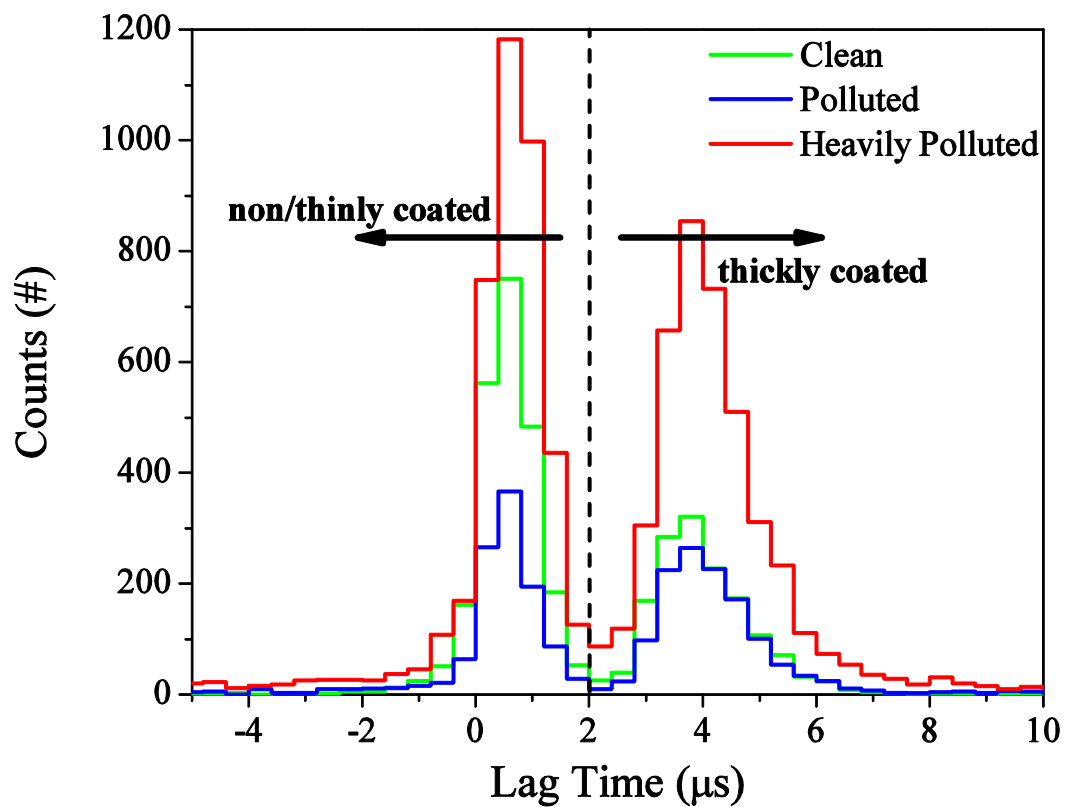
Fig. S1: Histogram of the lag times between the incandescence and scattering peak locations at three typical pollution levels: clean (green), polluted (blue) and heavily polluted (red).

Fig. S2: Size distributions of rBC in volume-equivalent diameter during the campaign from 24 February to 15 March 2014 (down panel) and from 9 to 27 January 2013 (up panel). The red and blue lines are the lognormal fittings to the primary and secondary modes, respectively, and the black ones correspond to the combined mode.

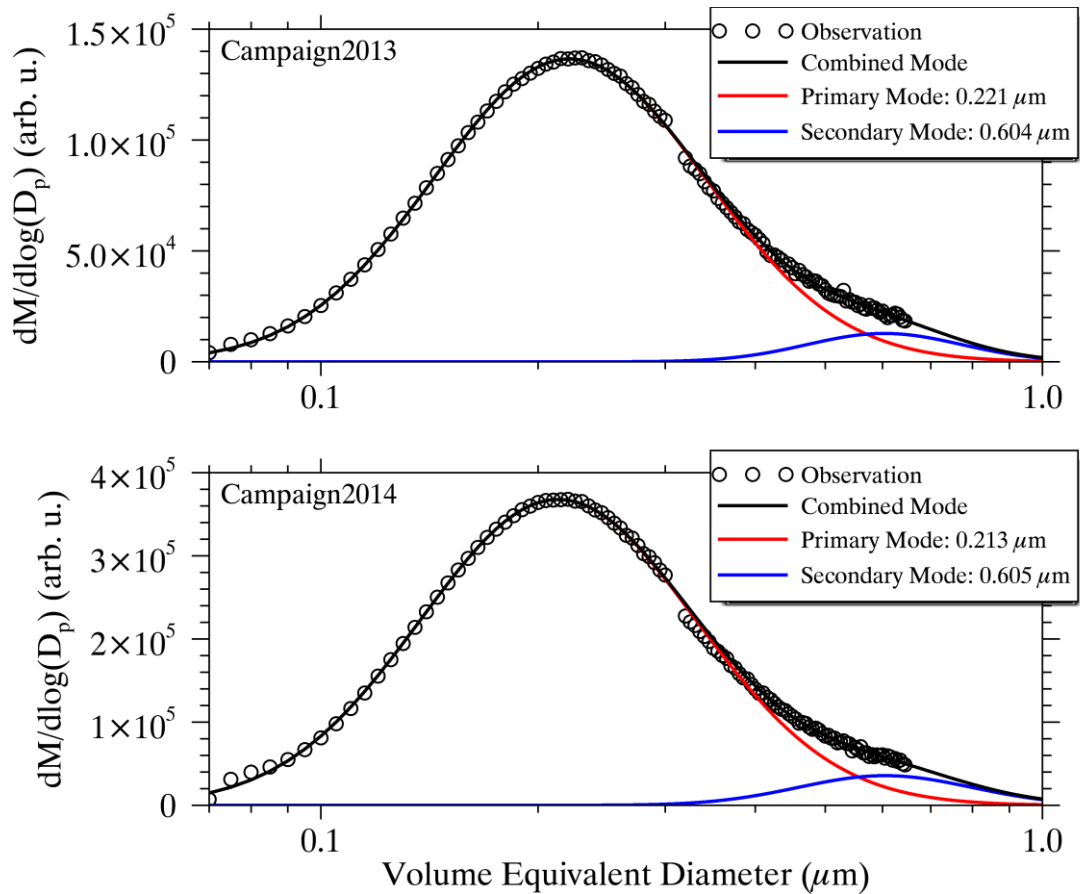
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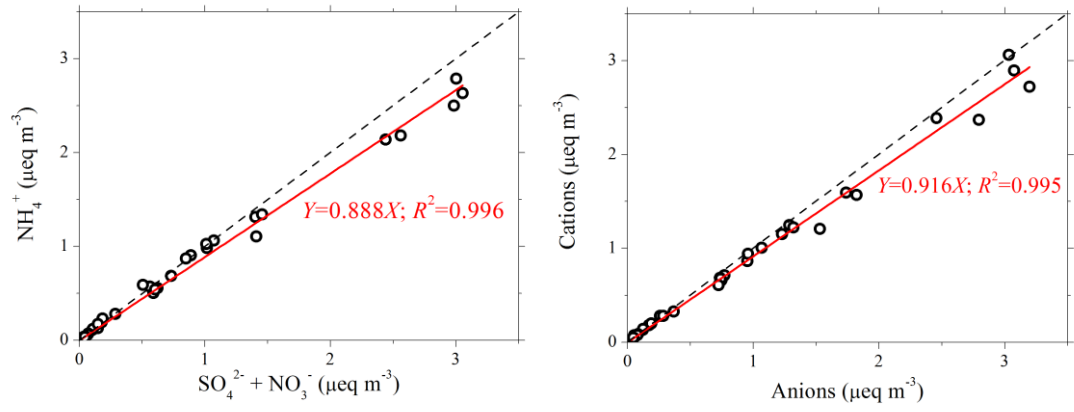
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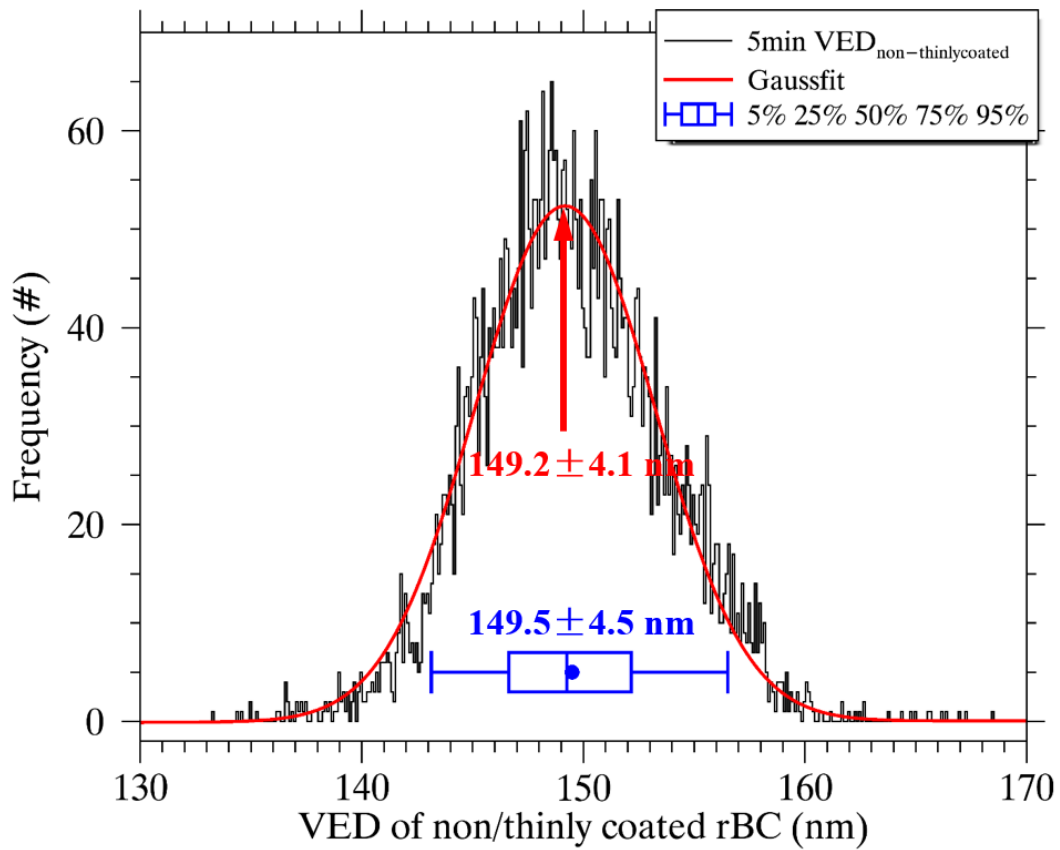
**Fig. S1.** Histogram of the lag times between the incandescence and scattering peak locations at three typical pollution levels: clean (green), polluted (blue) and heavily polluted (red). A bimodal distribution is found with the minimum at  $\sim 2 \mu\text{s}$  regardless of the pollution level. The rBC-containing particles with the lag time greater than  $2 \mu\text{s}$  were considered to be thickly coated. Otherwise, the rBC-containing particles were non/thinly coated.



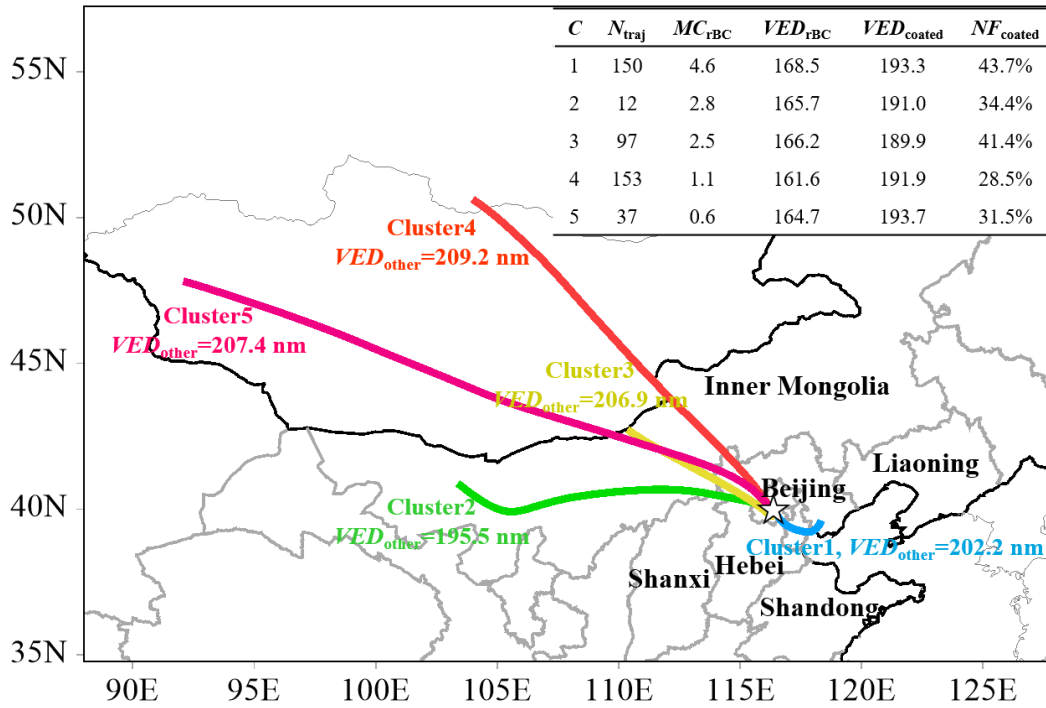
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