Supplement of

Efficient droplet activation of ambient black carbon particles in a suburban environment

Ping Tian et al.

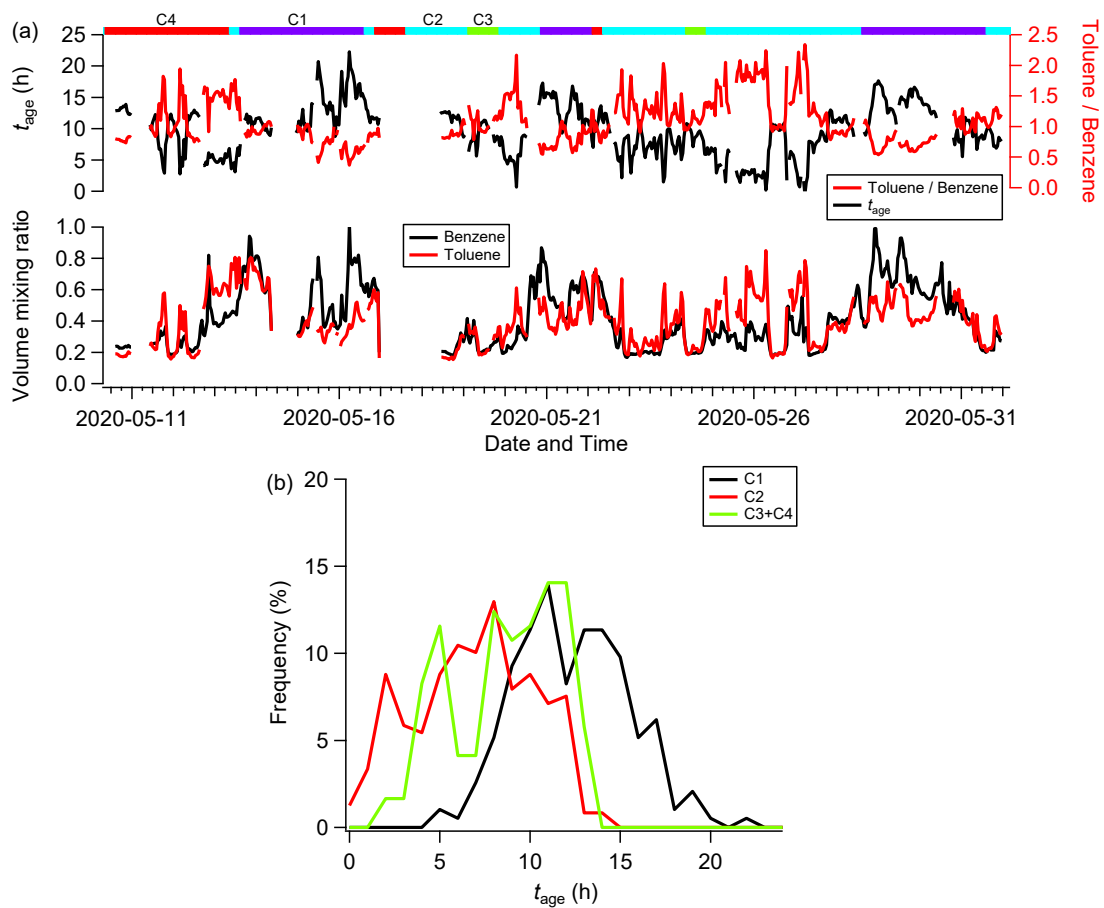*Correspondence to:* Dantong Liu (dantongliu@zju.edu.cn)

Figure S1. Time series of Benzene and Toluene mass concentrations, the ratio of Toluene and Benzene, and t_{age} (a). Frequency analysis of t_{age} at three different clusters (b).
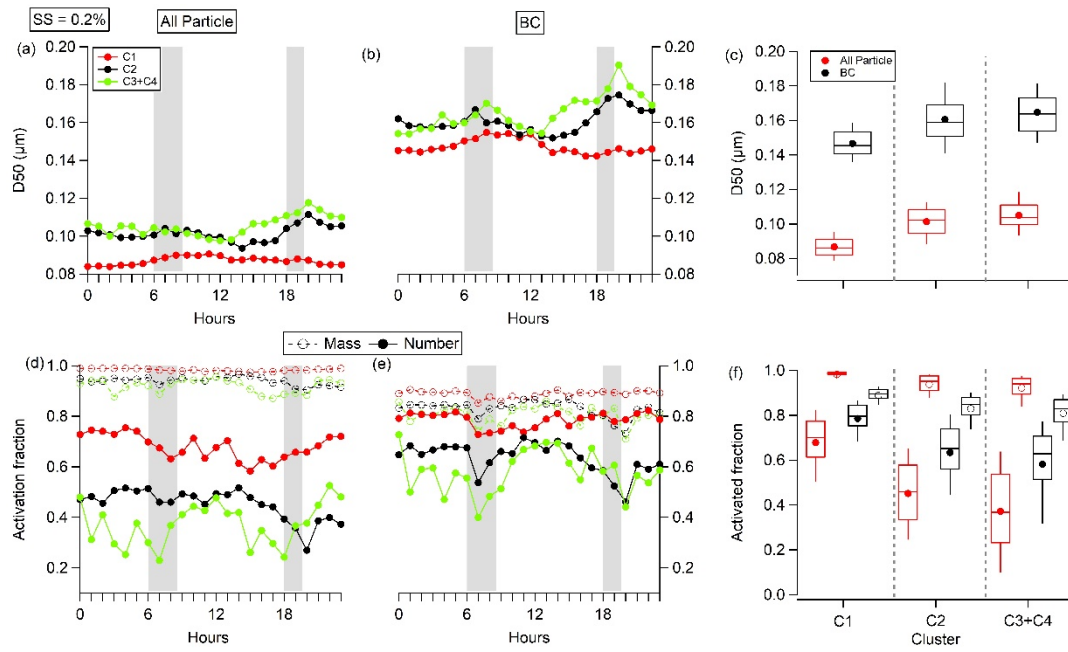
Figure S2. Under SS=0.2%, a) and b) four clusters diurnal variations of activation diameter (D50), d), e) mass and number activation fraction (F_{act}) for all particle and BCc, respectively. c) D50 and f) F_{act}, distributions of all-particles and BCc for four clusters, with solid circle indicating the average; in each box, the solid line and top and bottom boundaries represent the median, 75th and 25th, respectively.
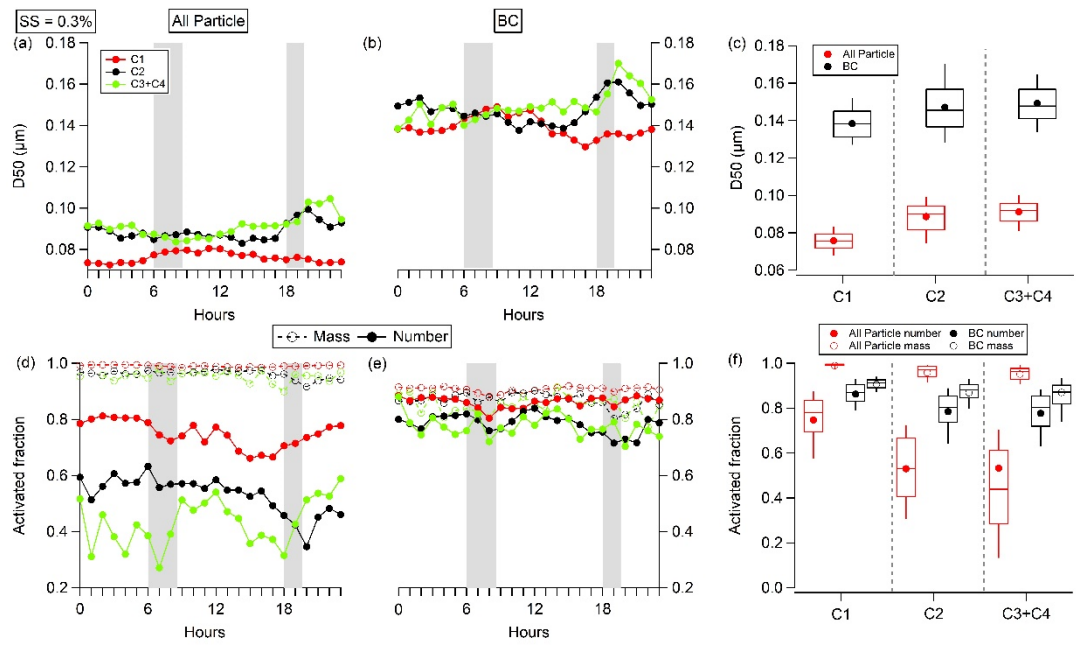
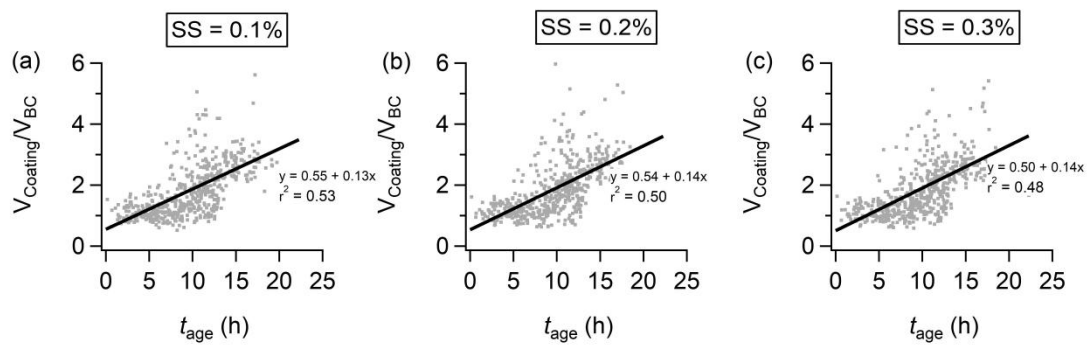**Figure S3.** Identical plots with Fig. S2 but for SS=0.3%.

Figure S4. The evolution of volume ratios of coating over rBC with photochemical age (t_{age}) under SS at 0.1%, 0.2%, c) 0.3%.