



## Supplement of

## Variation of size-segregated particle number concentrations in wintertime Beijing

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Figure S1: Total particle number concentration in size range of 3-42 nm from NAIS and PSD system. There are 1271 data points on the plots of NPF days and 887data points on the plots of haze days. The time resolution was 5 minutes.



Figure S2: Median particle number size distribution of data from NAIS (blue line) and PSD system (red line) on NPF event days (left panel) and haze days (right panel) during our observation. The time resolution we used here for every point was 1h.



Figure S3: An example of how the appearance time method was used to calculate growth rate. The appearance time was recorded as a function of particle diameter as the black stars in the figure. The black lines are the fitted growth periods. The growth rates were calculated by calculating the slopes of the black lines.



Figure S4: Condensation sink on NPF event days and haze days. The lines in the boxes represent the median value, the lower of the boxes represent 25% of the condensation sink and the upper of the boxes represent 75% of the condensation sink. Data marked with red pluses represent outliers.