



*Supplement of*

## **Distinct impacts on precipitation by aerosol radiative effect over three different megacity regions of eastern China**

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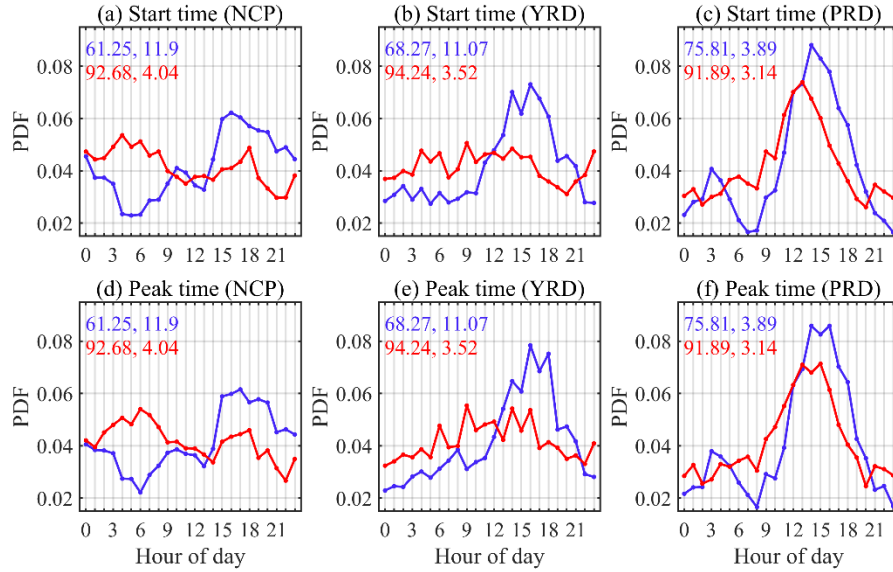


Figure S1: Normalized PDFs of precipitation (a-c) start time and (d-e) peak time (units: LT), represented as ratios of their corresponding precipitation frequency at a given hour to those accumulated over 24 h under low humidity (blue line) and high humidity (red line) conditions over NCP, YRD and PRD, respectively. The blue (red) numbers are the average (the first column) and standard deviation (the second column) of the relative humidity (unit: %) under low (high) humidity condition.

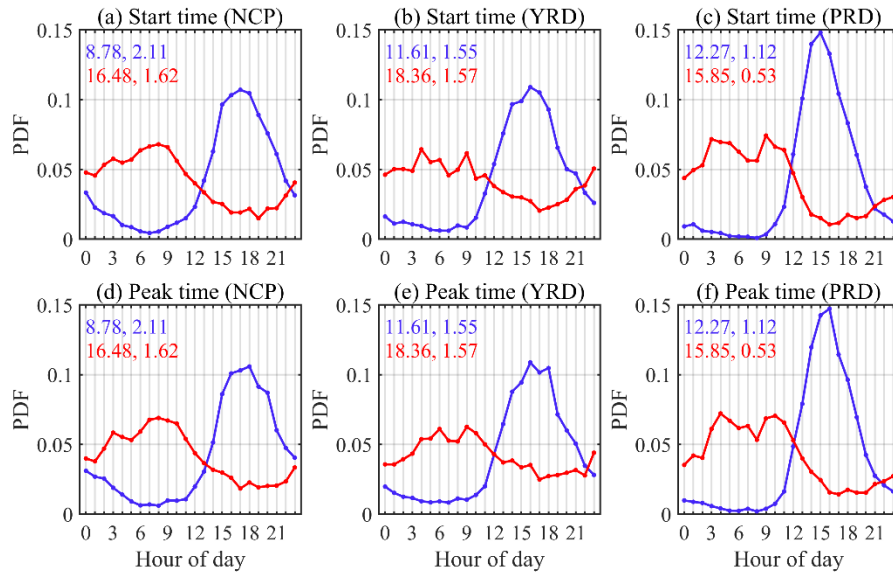


Figure S2: Same as Figure S1, but under low LTS condition (blue line) and high LTS condition (red line). The LTS (unit: K) represents low troposphere stability.

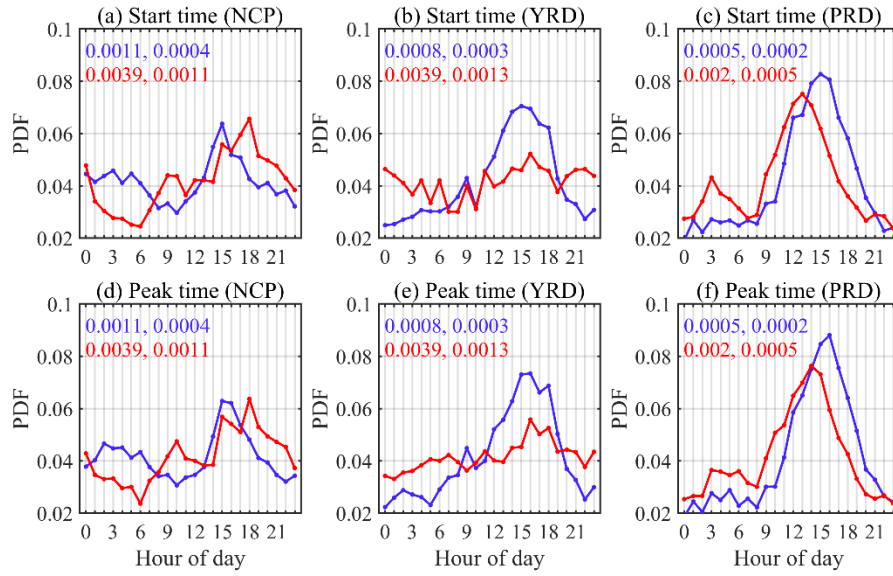


Figure S3: Same as Figure S1, but under low WS condition (blue line) and high WS condition (red line).

The WS (unit:  $s^{-1}$ ) represents vertical wind shear between 5500m and 1500m.