Supplementary for

The important roles of surface tension and growth rate in the contribution of new particle formation (NPF) to cloud condensation nuclei (CCN) number concentration: evidence from field measurements in southern China

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Table S1. The growth rate and CS of background particle distribution during different NPF events.

	2019.10.18 Heshan	2019.10.29 Heshan	2014.12.12 Panyu
Growth Rate ($nm\ h^{-1}$)	10:00-14:00: 12.1 14:00-20:00: 3.5	10:00-20:00: 8.0	11:00-14:00: 6.1 14:00-20:00: 3.5
CS (s^{-1})	0.017	0.011	0.014

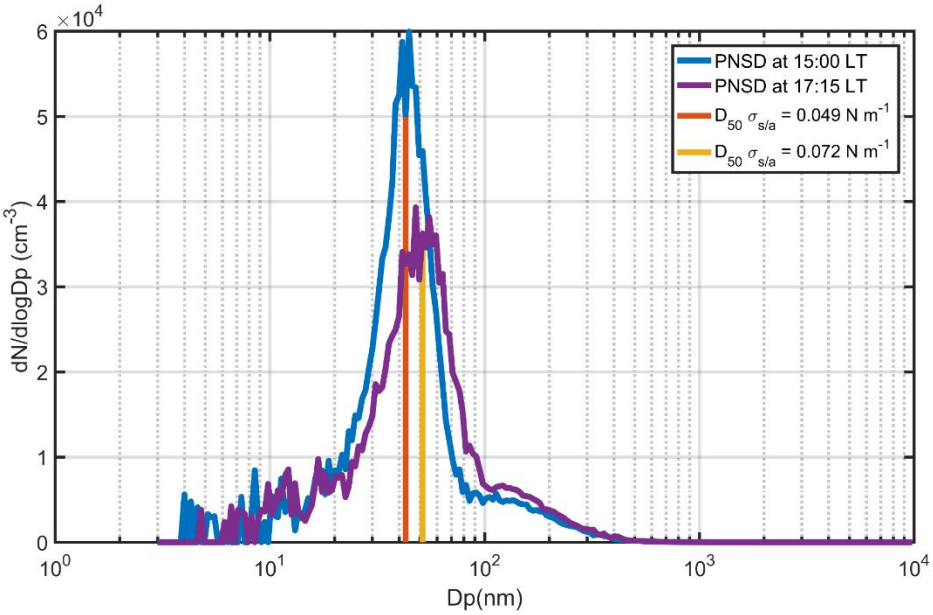

Figure S1. The PNSD and D_{50} based on surface tension of 0.049 and 0.072 N m^{-1} at 15:00 and 17:15 LT. The blue line represents the PNSD at 15:00 LT. The purple line represents the PNSD at 17:15 LT. The red line represents the measured D_{50}. The yellow line represents the recalculated D_{50} based on the surface tension of pure water.

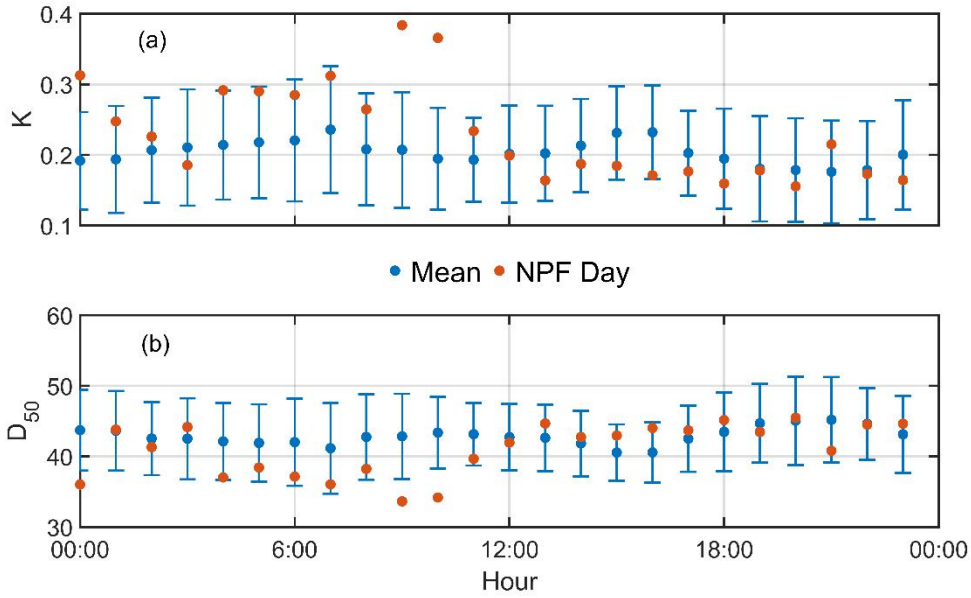

Figure S2. The diurnal variation of κ (a) and D_{50} (b) measured at 1.0% SS. The blue color represents the average value during the campaign. The red color represents the value during the NPF events.

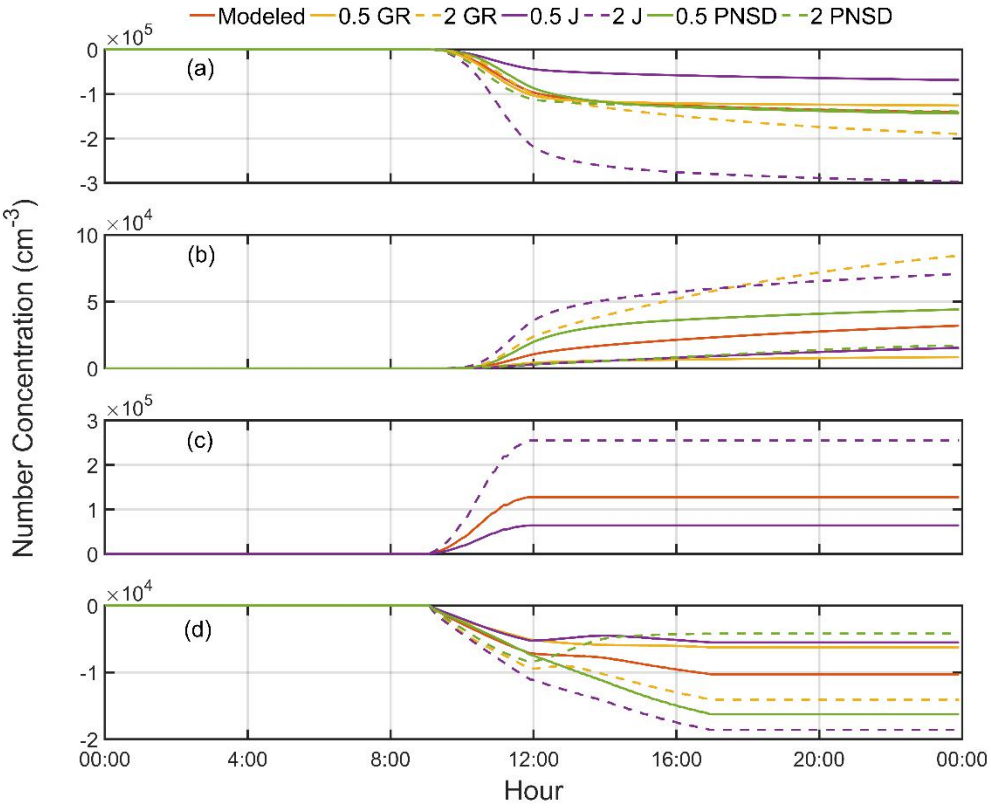

Figure S3. The contribution of coagulation sink term (a), coagulation source term (b), formation term (c), and growth term (d) to the N_{CN} in different simulations.

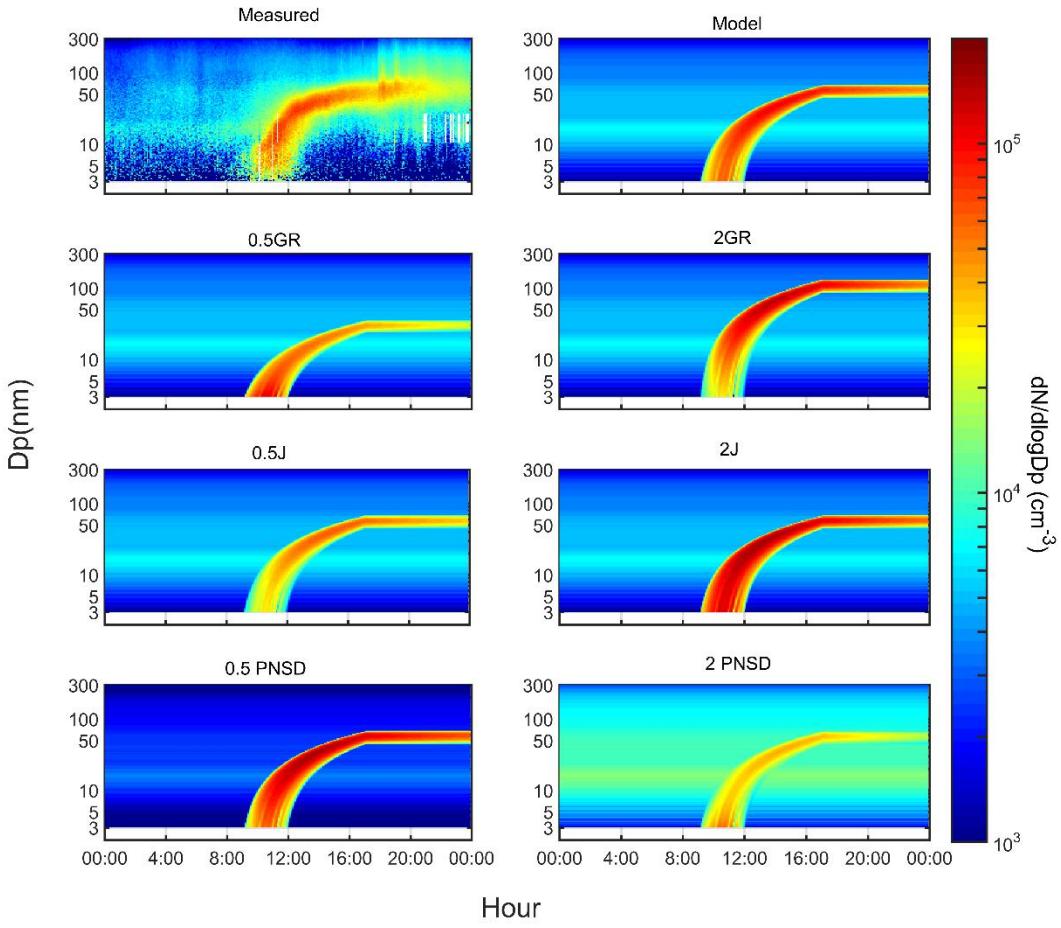

Figure S4. The PNSD obtained from measurements and simulations under different scenarios.

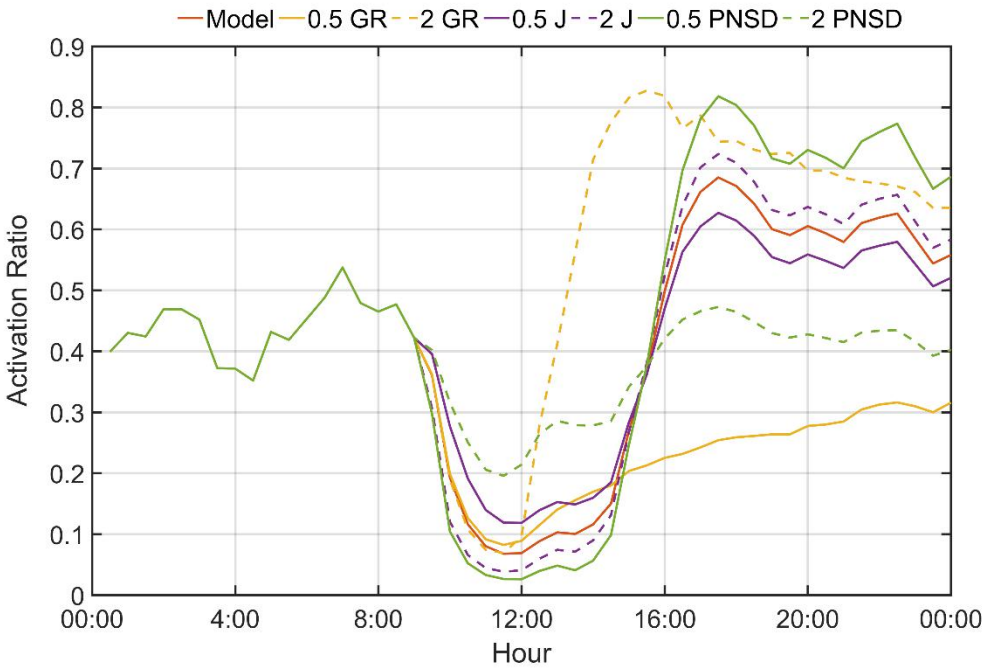

Figure S5. The activation ratio obtained from different simulations.

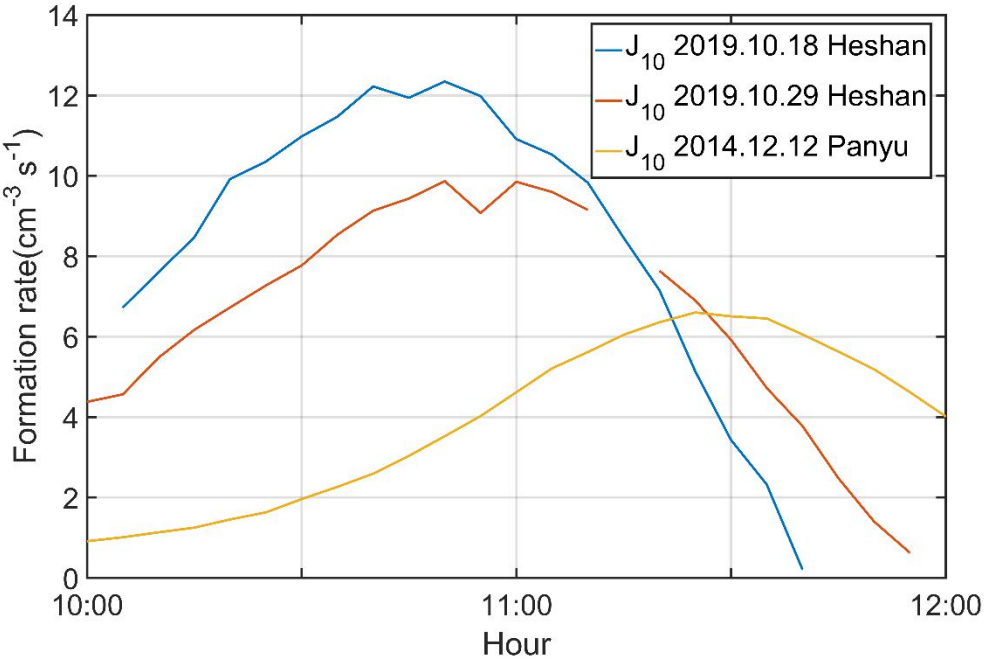

Figure. S6 The measured J_{10} during different NPF events.

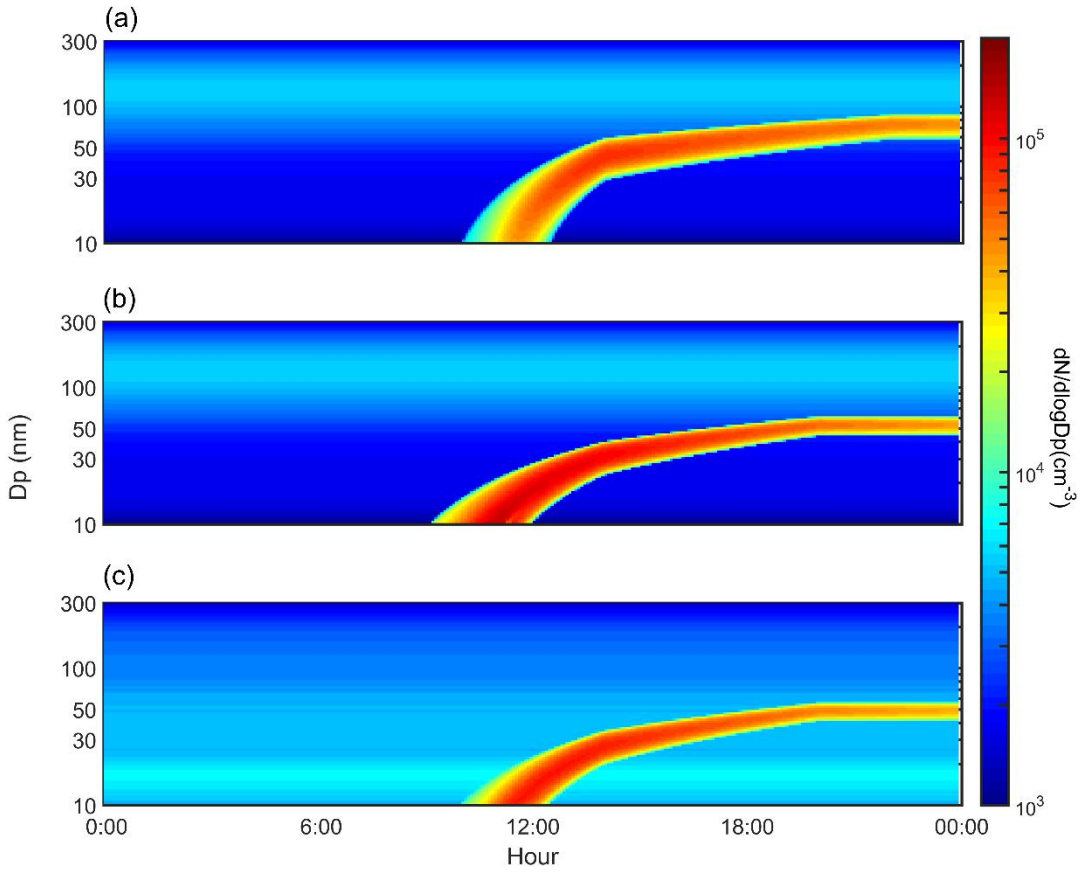

Figure S7. The simulated NPF event on 12th December, 2014 based on the new growth rate (a), the new formation rate (b), and the new background PNSD (c).