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Supplement of

Variation of CCN activity during new particle formation events in the North China Plain

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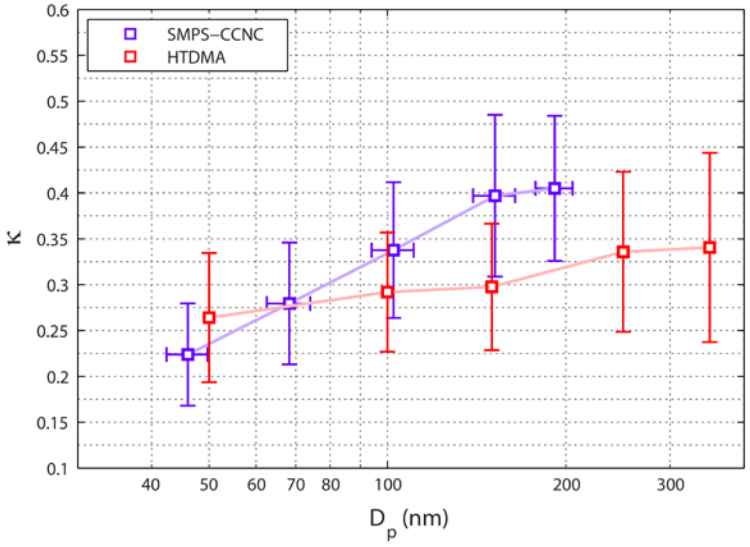

Figure S1. Comparison of κ derived with DMA-CCNC measurement and HTDMA measurement.

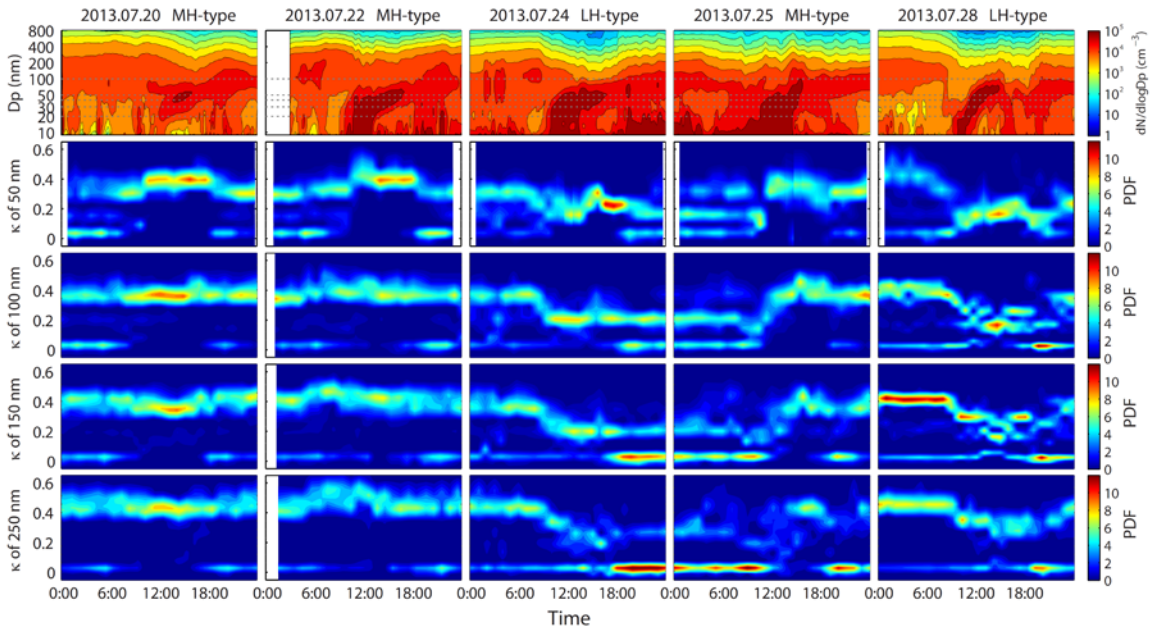

Figure S2. 5 NPF events observed during the campaign period. Subplots show the time series of particles number size distribution, and κ-PDF of 50, 100, 150 and 250 nm particles.

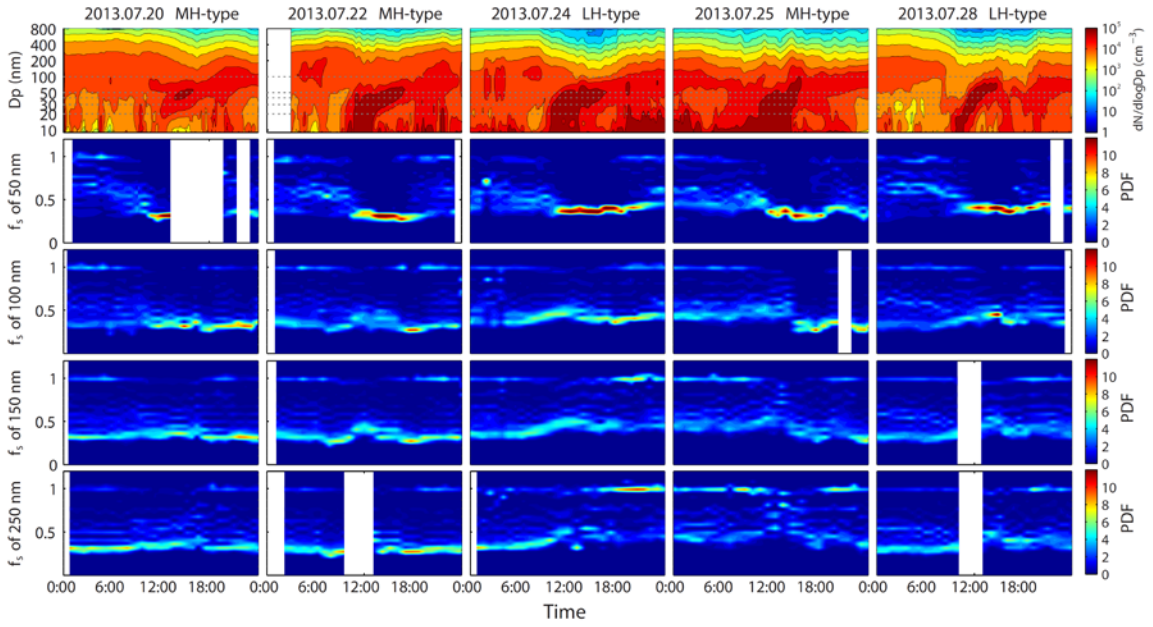

Figure S3. 5 NPF events observed during the campaign period. Subplots show the time series of particles number size distribution, and f_s-PDF of 50, 100, 150 and 250 nm particles.

Table S1. Size-resolved activation ratio at SS=0.80% (Fig. 5a)

Dp (nm)	AR_{ave}	AR_{MH1}	AR_{MH2}	AR_{MH3}	AR_{LH1}	AR_{LH2}	AR_{LH3}
9.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9.898	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.836	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18.184	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19.846	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23.653	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25.831	0.001	0.000	0.001	0.000	0.000	0.000	0.000
28.217	0.003	0.001	0.002	0.000	0.000	0.001	0.002
30.832	0.009	0.010	0.019	0.001	0.000	0.002	0.017
33.700	0.035	0.033	0.121	0.004	0.004	0.005	0.049
36.849	0.105	0.103	0.322	0.024	0.047	0.024	0.093
40.308	0.235	0.243	0.561	0.092	0.170	0.122	0.150
44.113	0.396	0.411	0.739	0.197	0.349	0.335	0.250
48.301	0.546	0.576	0.822	0.311	0.530	0.589	0.398
52.917	0.655	0.697	0.850	0.414	0.662	0.772	0.550
58.012	0.729	0.782	0.858	0.511	0.737	0.852	0.660
63.643	0.777	0.814	0.852	0.598	0.780	0.884	0.723
69.879	0.811	0.818	0.848	0.655	0.794	0.905	0.763
76.797	0.838	0.824	0.846	0.695	0.821	0.920	0.792
84.488	0.860	0.849	0.853	0.726	0.852	0.913	0.805
93.058	0.878	0.879	0.875	0.759	0.880	0.890	0.801
102.633	0.893	0.897	0.901	0.781	0.898	0.886	0.783
113.362	0.907	0.924	0.930	0.802	0.899	0.906	0.758
125.422	0.920	0.947	0.947	0.826	0.906	0.947	0.731
139.025	0.932	0.966	0.956	0.843	0.923	0.978	0.719
154.425	0.943	0.972	0.957	0.868	0.950	1.002	0.723
171.931	0.952	0.967	0.946	0.883	0.974	1.017	0.748
191.913	0.961	0.971	0.943	0.903	0.987	1.021	0.765
214.821	0.970	0.976	0.968	0.924	0.986	1.013	0.768

AR_{ave}: campaign average
AR_{MH1}: MH-type, before nucleation
AR_{MH2}: MH-type, during growth
AR_{MH3}: MH-type, in the evening
AR_{LH1}: LH-type, before nucleation
AR_{LH2}: LH-type, during growth
AR_{LH3}: LH-type, in the evening

Table S2. Size-resolved activation ratio at SS=0.40% (Fig. 5b)

Dp (nm)	AR_{ave}	AR_{MH1}	AR_{MH2}	AR_{MH3}	AR_{LH1}	AR_{LH2}	AR_{LH3}
9.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9.898	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.836	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18.184	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19.846	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23.653	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25.831	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000
33.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
36.849	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40.308	0.000	0.000	0.000	0.000	0.000	0.000	0.000
44.113	0.007	0.011	0.005	0.007	0.000	0.001	0.002
48.301	0.023	0.036	0.029	0.014	0.005	0.003	0.005
52.917	0.064	0.082	0.130	0.033	0.040	0.010	0.015
58.012	0.158	0.182	0.328	0.089	0.139	0.047	0.034
63.643	0.305	0.330	0.556	0.198	0.303	0.177	0.097
69.879	0.470	0.488	0.719	0.336	0.477	0.407	0.245
76.797	0.607	0.611	0.787	0.453	0.605	0.648	0.450
84.488	0.696	0.697	0.811	0.524	0.680	0.804	0.628
93.058	0.749	0.756	0.816	0.568	0.732	0.862	0.715
102.633	0.785	0.793	0.836	0.606	0.790	0.875	0.723
113.362	0.812	0.822	0.854	0.640	0.842	0.873	0.701
125.422	0.835	0.852	0.872	0.668	0.879	0.877	0.676
139.025	0.854	0.877	0.885	0.694	0.897	0.891	0.660
154.425	0.871	0.889	0.901	0.731	0.916	0.911	0.654
171.931	0.886	0.886	0.922	0.764	0.934	0.940	0.651
191.913	0.903	0.901	0.942	0.795	0.952	0.976	0.644
214.821	0.921	0.921	0.953	0.817	0.956	0.980	0.643

AR_{ave}: campaign average
AR_{MH1}: MH-type, before nucleation
AR_{MH2}: MH-type, during growth
AR_{MH3}: MH-type, in the evening
AR_{LH1}: LH-type, before nucleation
AR_{LH2}: LH-type, during growth
AR_{LH3}: LH-type, in the evening

Table S3. Size-resolved activation ratio at SS=0.20% (Fig. 5c)

Dp (nm)	AR_{ave}	AR_{MH1}	AR_{MH2}	AR_{MH3}	AR_{LH1}	AR_{LH2}	AR_{LH3}
9.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9.898	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.836	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18.184	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19.846	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23.653	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25.831	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000
33.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
36.849	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40.308	0.000	0.000	0.000	0.000	0.000	0.000	0.000
44.113	0.000	0.000	0.000	0.000	0.000	0.000	0.000
48.301	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52.917	0.000	0.000	0.000	0.000	0.000	0.000	0.000
58.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000
63.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000
69.879	0.023	0.031	0.027	0.015	0.027	0.003	0.003
76.797	0.059	0.078	0.096	0.035	0.065	0.012	0.010
84.488	0.140	0.182	0.228	0.080	0.118	0.031	0.021
93.058	0.281	0.336	0.431	0.179	0.224	0.090	0.048
102.633	0.452	0.514	0.621	0.318	0.384	0.215	0.117
113.362	0.595	0.640	0.740	0.440	0.553	0.399	0.238
125.422	0.681	0.702	0.789	0.516	0.683	0.595	0.365
139.025	0.730	0.738	0.804	0.566	0.766	0.742	0.456
154.425	0.763	0.768	0.823	0.617	0.821	0.836	0.505
171.931	0.790	0.799	0.841	0.665	0.859	0.889	0.532
191.913	0.816	0.835	0.870	0.701	0.887	0.911	0.543
214.821	0.840	0.865	0.903	0.726	0.921	0.936	0.546

AR_{ave}: campaign average
AR_{MH1}: MH-type, before nucleation
AR_{MH2}: MH-type, during growth
AR_{MH3}: MH-type, in the evening
AR_{LH1}: LH-type, before nucleation
AR_{LH2}: LH-type, during growth
AR_{LH3}: LH-type, in the evening