Supplement of

Vertical profiles of cloud condensation nuclei number concentration and its empirical estimate from aerosol optical properties over the North China Plain

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Table S1. The fitting results of Eq. (1) for the 11 level flights

Flight code	Altitude(km)	C	k	R^2
RF1_a	3.6	156	0.18	0.59
RF2_a	0.4	3029	1.71	0.94
RF2_b	3.6	2317	0.86	0.88
RF2_c	0.4	6560	1.75	0.92
RF6_a	2.5	282	0.46	0.91
RF6_b	1.1	9981	0.79	0.83
RF7_a	3.1	391	0.62	0.95
RF7_b	0.4	3218	0.65	0.73
RF7_c	1.8	828	0.37	0.91
RF8_a	0.6	8120	0.89	0.91
RF11_a	0.7	10310	0.97	0.96
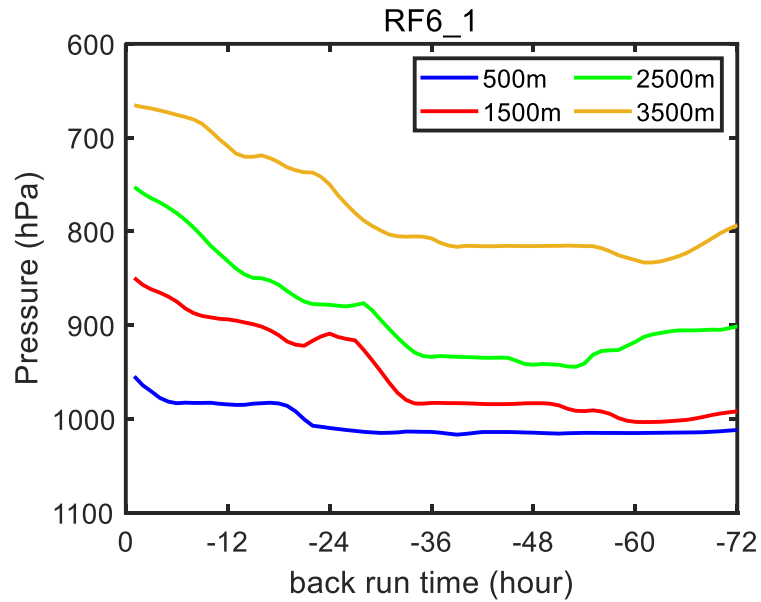
Figure S1. Seventy-two-hour HYSPLIT back trajectories in southeast air masses at 0.5, 1.5, 2.5, and 3.5 km starting altitudes (showing RF6_1 as the example).
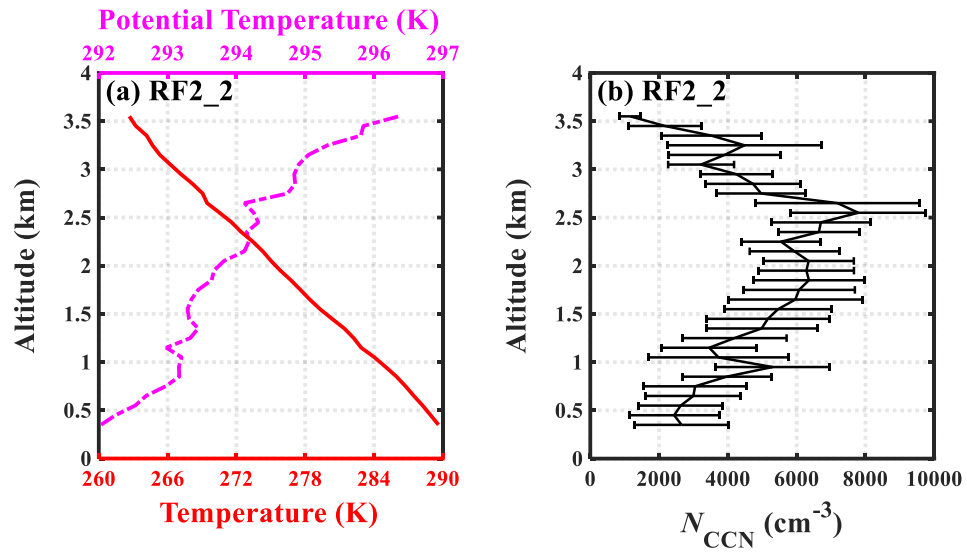
Figure S2. Same as Fig.3 but for RF2_2 N_{CCN} profile with no TIL.
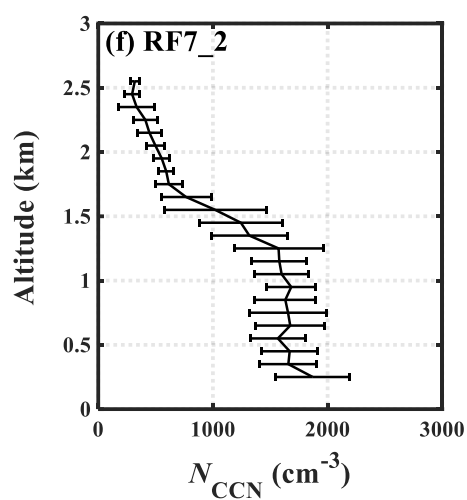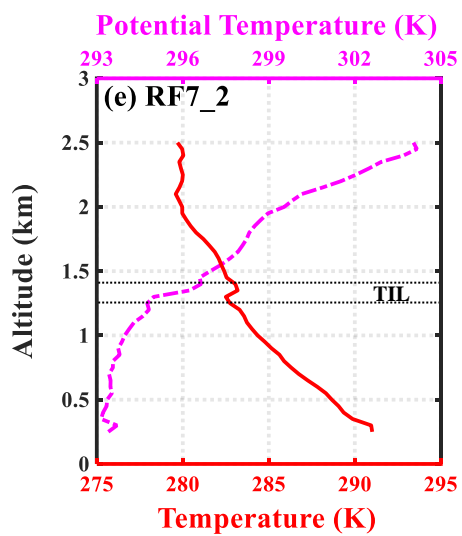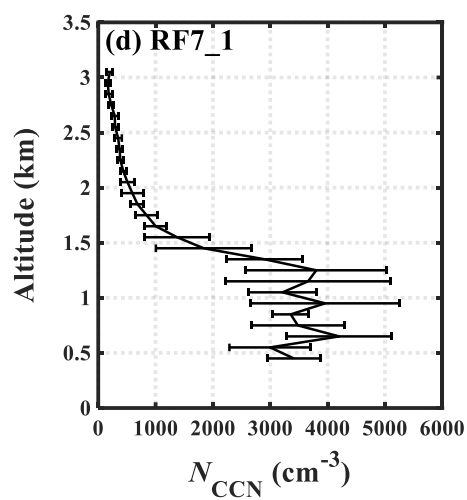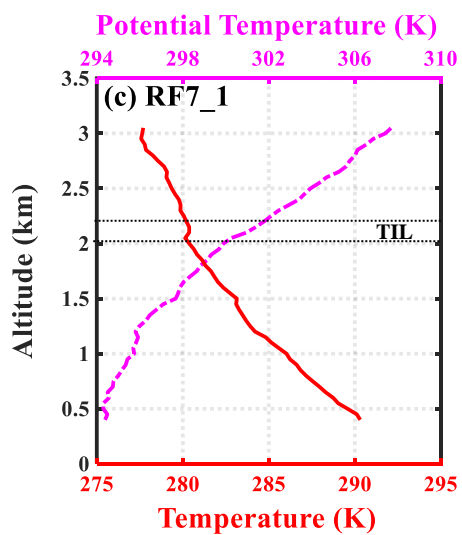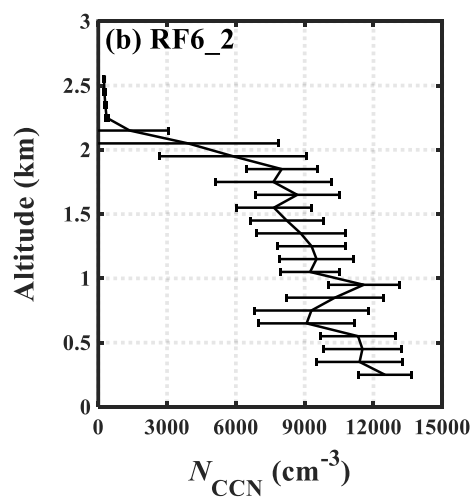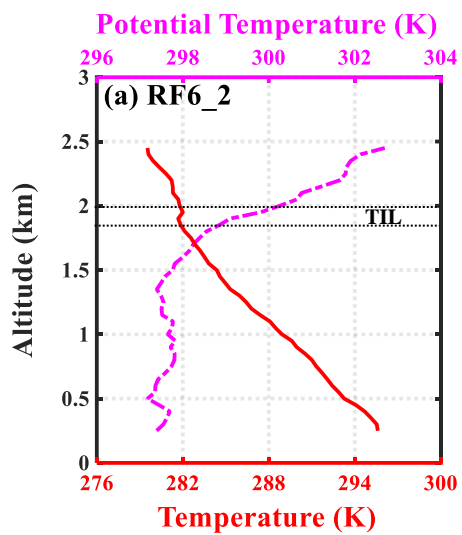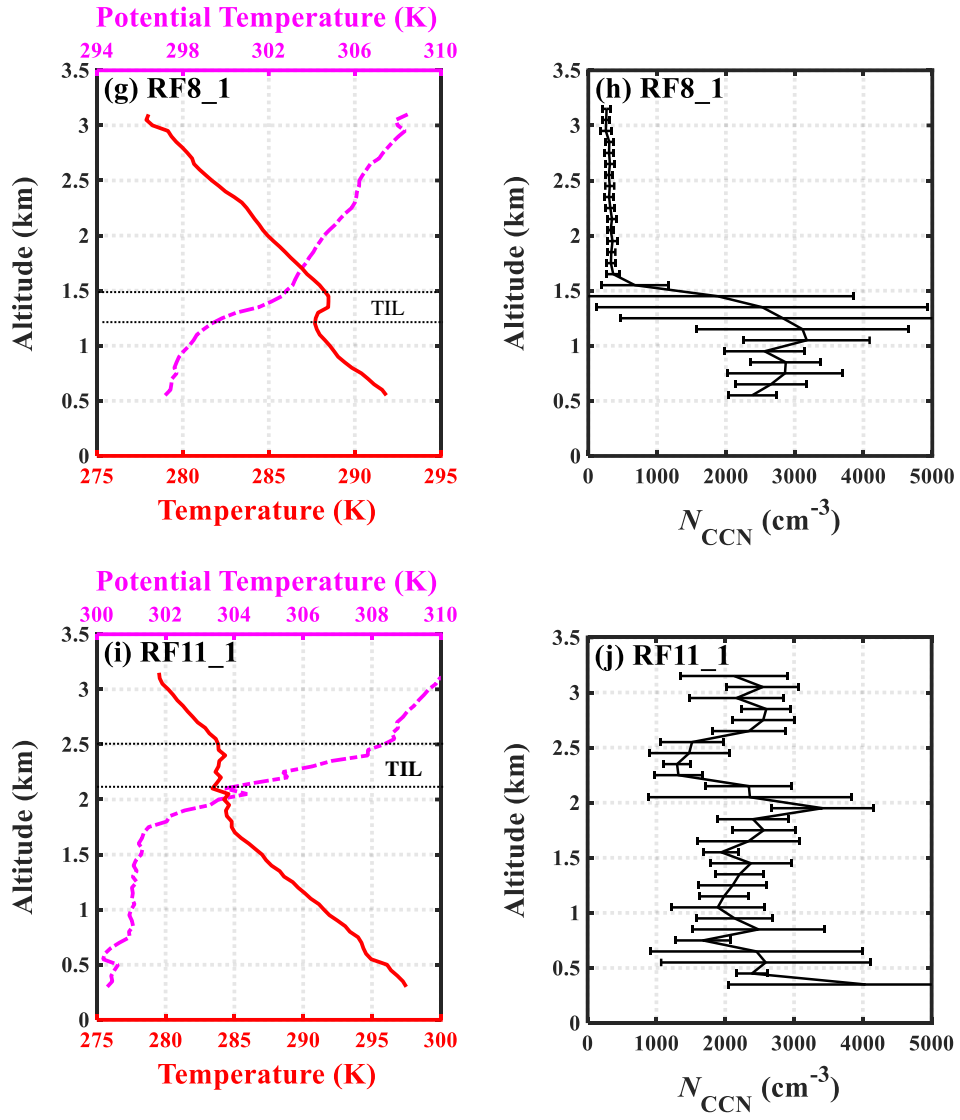
Figure S3. Same as Fig.3 but for RF6_2, RF7_1, RF7_2, RF8_1, and RF11_1 N_{CCN} profiles with one TIL.
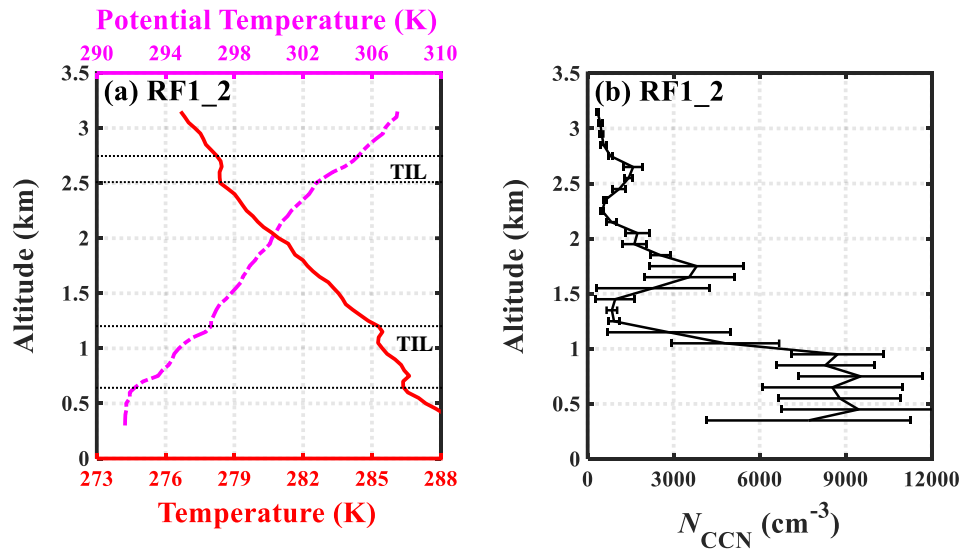
Figure S4. Same as Fig.3 but for RF1_2 N_{CCN} profiles with dual TIL.
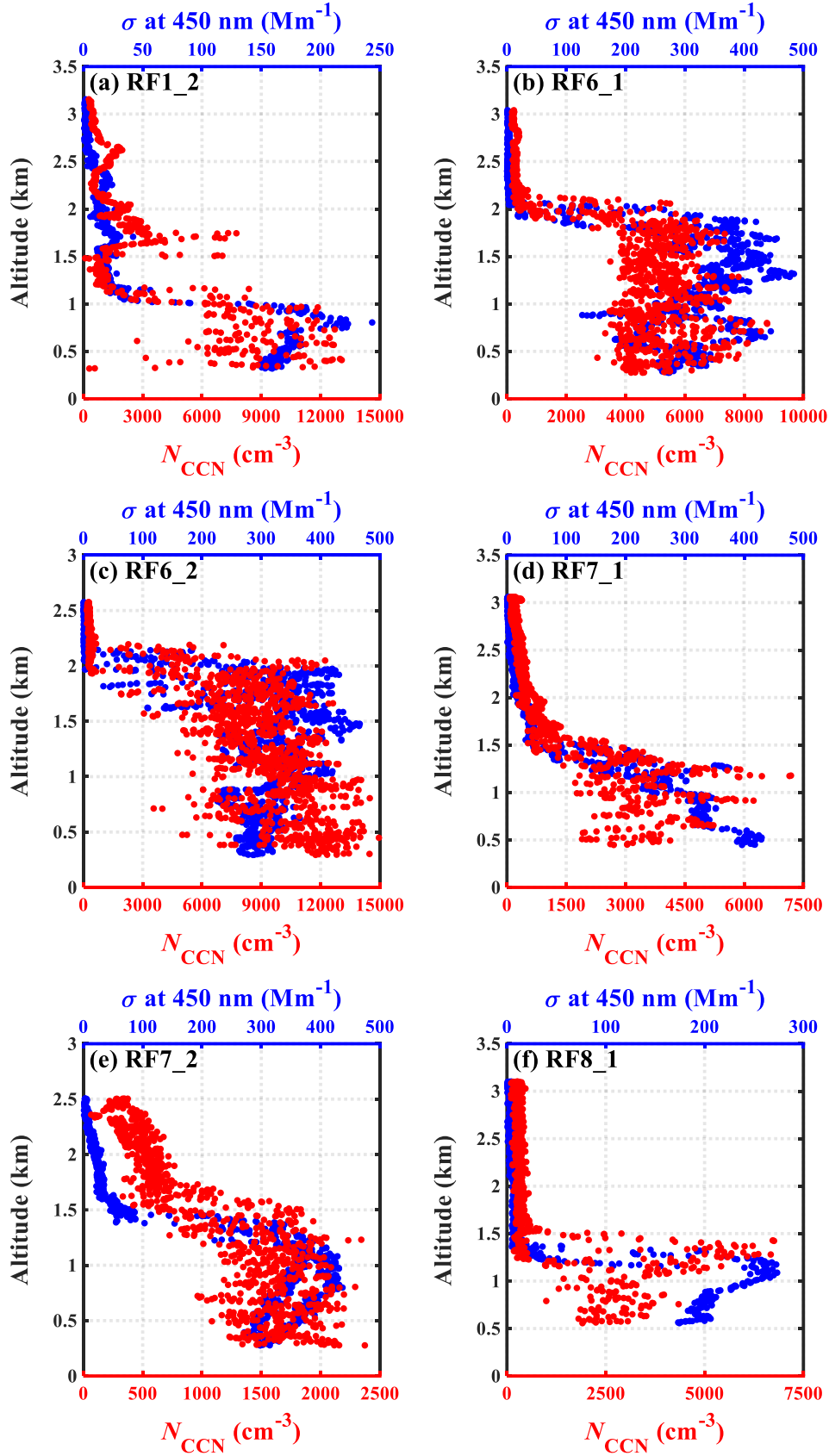
Figure S5. Same as Fig. 6b but in (**a**) RF1_2, (**b**) RF6_1, (**c**) RF6_2, (**d**) RF7_1, (**e**) RF7_2, and (**f**) RF8_1 vertical spiral flight.