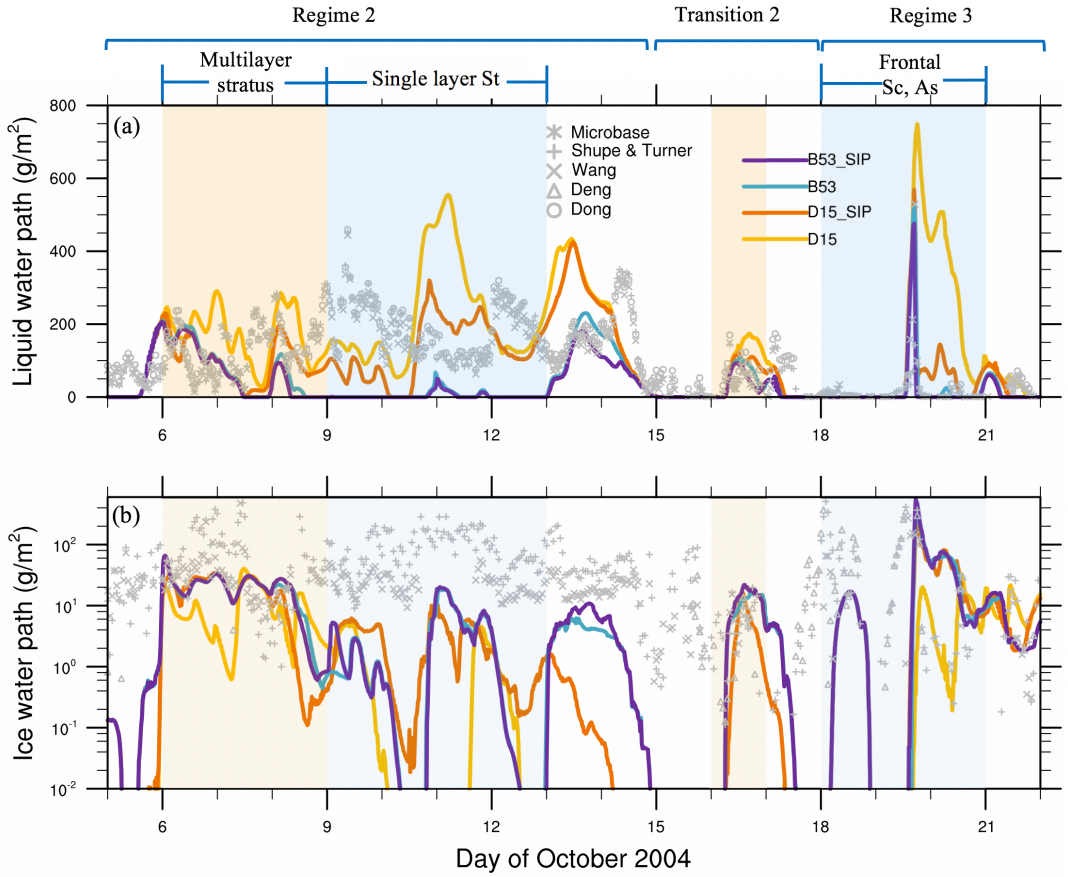

Figure S1. Temporal evolution of (a) LWP and (b) IWP from remote sensing retrievals (symbols) and D15, D15_SIP, B53, and B53_SIP experiments. The light orange shadings show the multilayer stratus and transition period; light blue shadings show the single-layer stratus and frontal clouds periods.

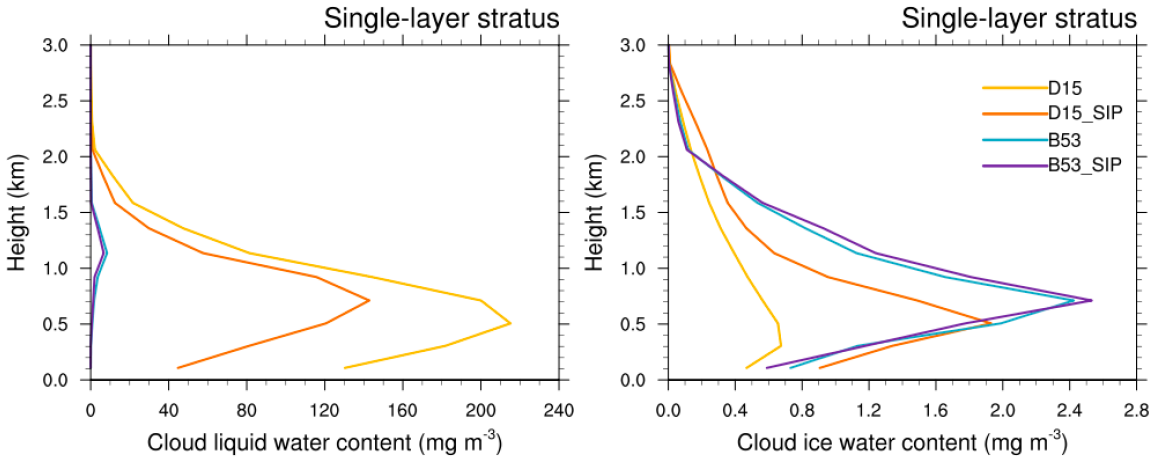

Figure S2. Vertical profiles of LWC (left) and IWC (right) during the single-layer mixed-phased cloud period (October 9-12) from the D15, D15_SIP, B53, and B53_SIP experiments.

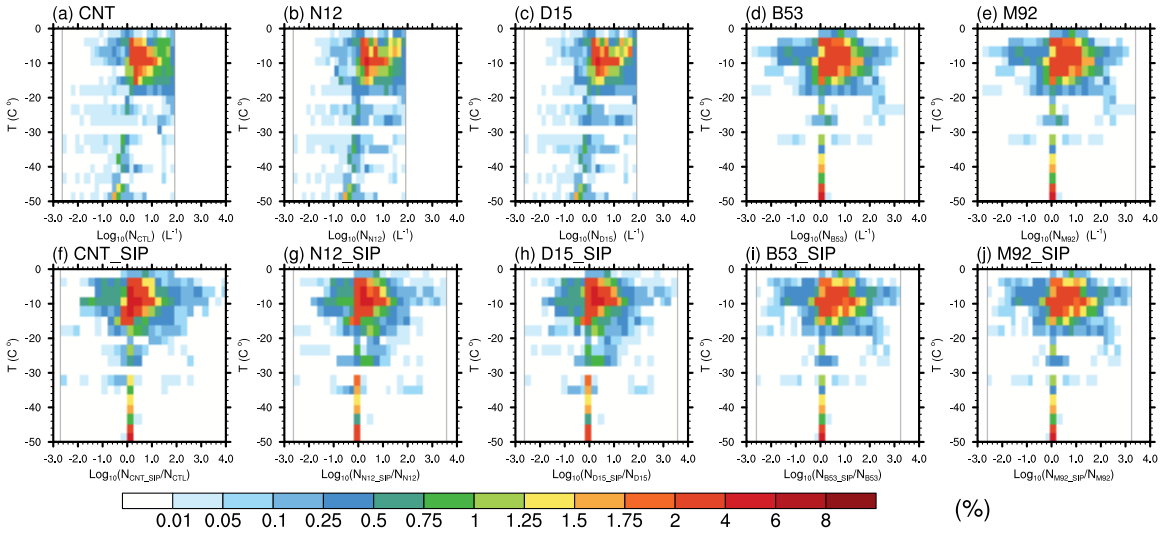

Figure S3. Bivariate joint probability density functions (PDF) of (a)-(e) ice crystal number concentration (L^{-1}); and (f)-(j) enhancement ratios of ice crystal number concentration from the respective SIP experiment to that from the ice nucleation experiment without SIP as a function of temperature. A logarithmic scale is used for x-axis.

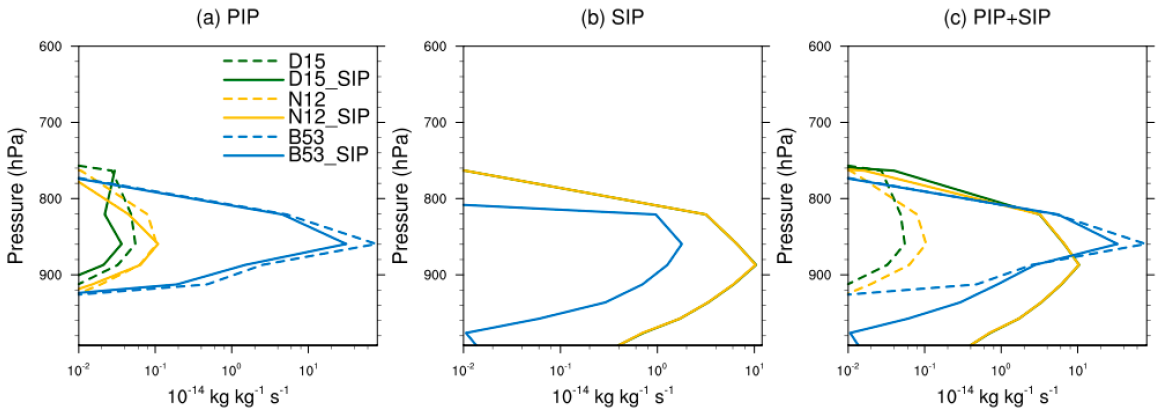

Figure S4. Vertical profiles of (a) primary ice production rate, (b) secondary ice production rate, and (c) primary plus secondary ice production rate averaged over the single-layer mixed-phase cloud period from the D15, D15_SIP, N12, N12_SIP, B53, and B53_SIP experiments.

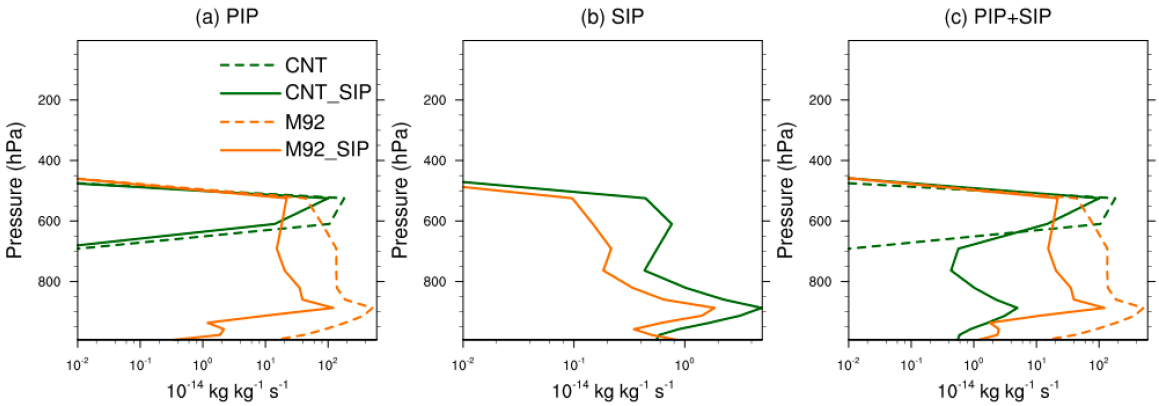

Figure S5. Vertical profiles of (a) primary ice production rate, (b) secondary ice production rate, and (c) primary plus secondary ice production rate averaged over the whole M-PACE campaign period from the CNT, CNT_SIP, M92, and M92_SIP experiments.

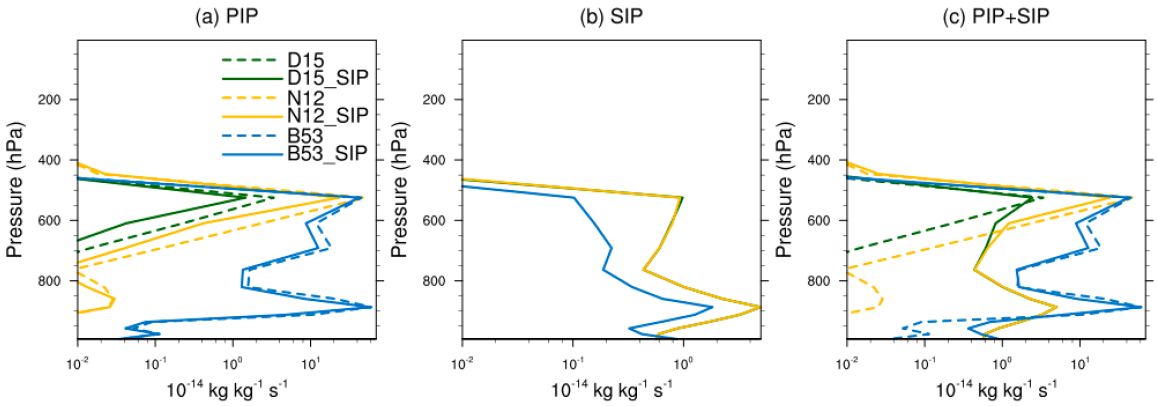

Figure S6. Vertical profiles of (a) primary ice production rate, (b) secondary ice production rate, and (c) primary plus secondary ice production rate averaged over the whole M-PACE campaign period from the D15, D15_SIP, N12, N12_SIP, B53, and B53_SIP experiments.

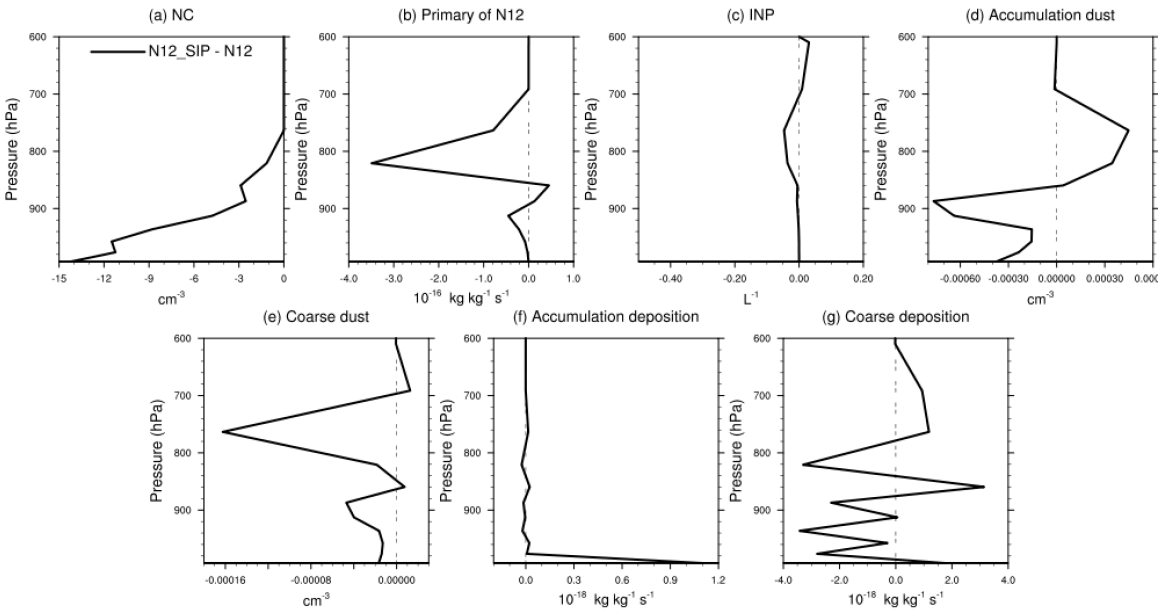

Figure S7. Vertical profiles of differences of (a) cloud droplet number concentration, (b) ice production rate from immersion freezing of cloud droplets, (c) immersion freezing INP number concentration, (d) interstitial dust number concentration in the accumulation mode, (e) interstitial dust number concentration in the coarse mode, (f) dry and wet deposition rate of interstitial accumulation mode dust, and (h) dry and wet deposition rate of interstitial coarse mode dust between the N12_SIP and N12 experiments.