

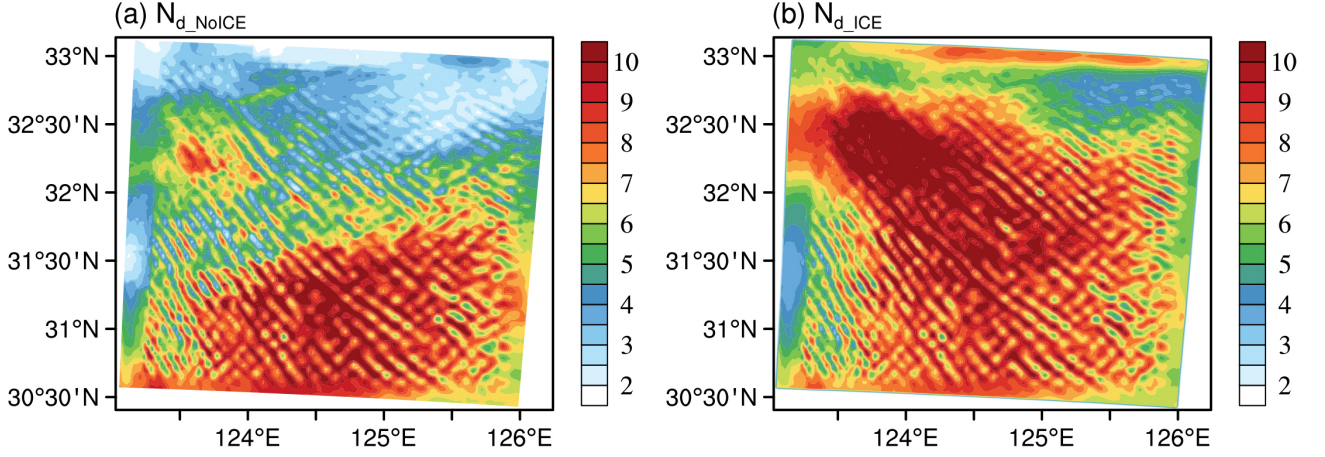


Figure S1. Spatial distribution (Control experiment) of column-mean N_d (in cm^{-3}) averaged over the simulation period without (a) and with (b) ice-phase and mixed-phase clouds.

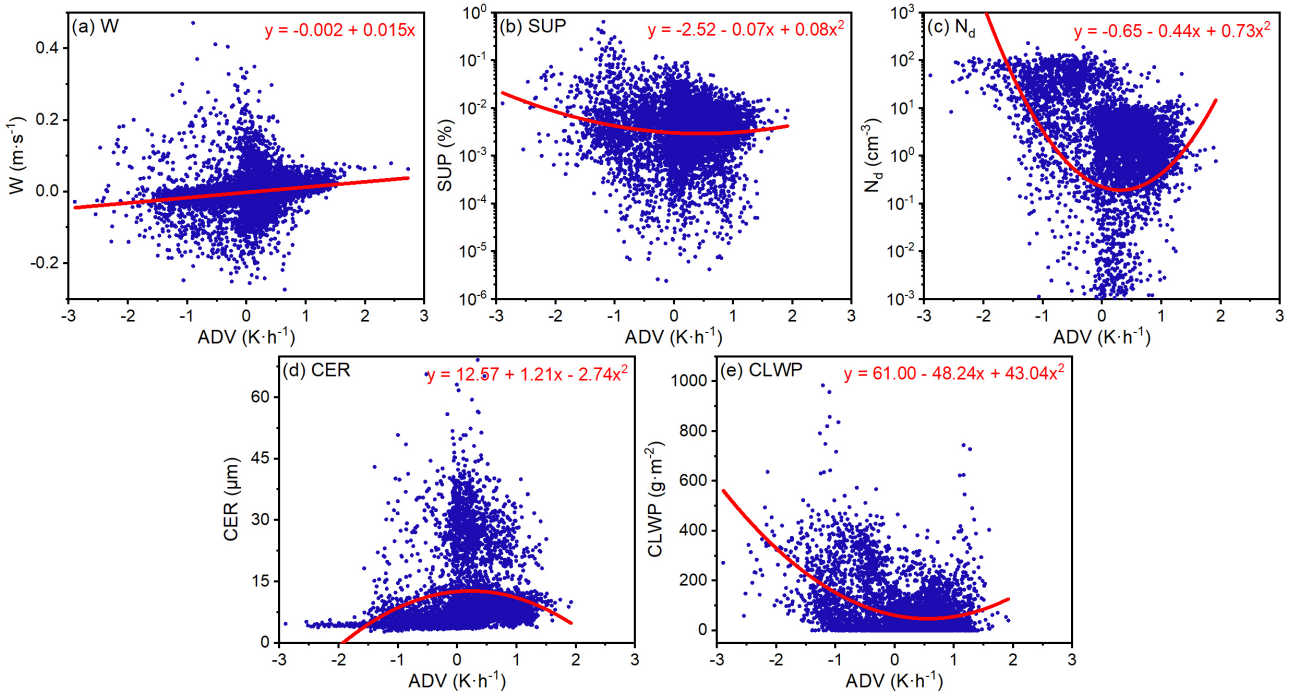


Figure S2. Variations of vertically weighted average vertical wind speed (a) and supersaturation (b) from near the surface up to 1300 m, column average N_d (c), as well as CER (d) and CLWP (e) with vertically weighted average ADV from near the surface up to 1300 m (blue dots in the figure, sampled at intervals of 10 horizontal grids due to excessive total sample sizes of all the grid cells at all the time points) and the fitted curves (red lines in the figure, the optimal fitting solution among the linear and polynomial fits was selected as the fitted curve for each variable).

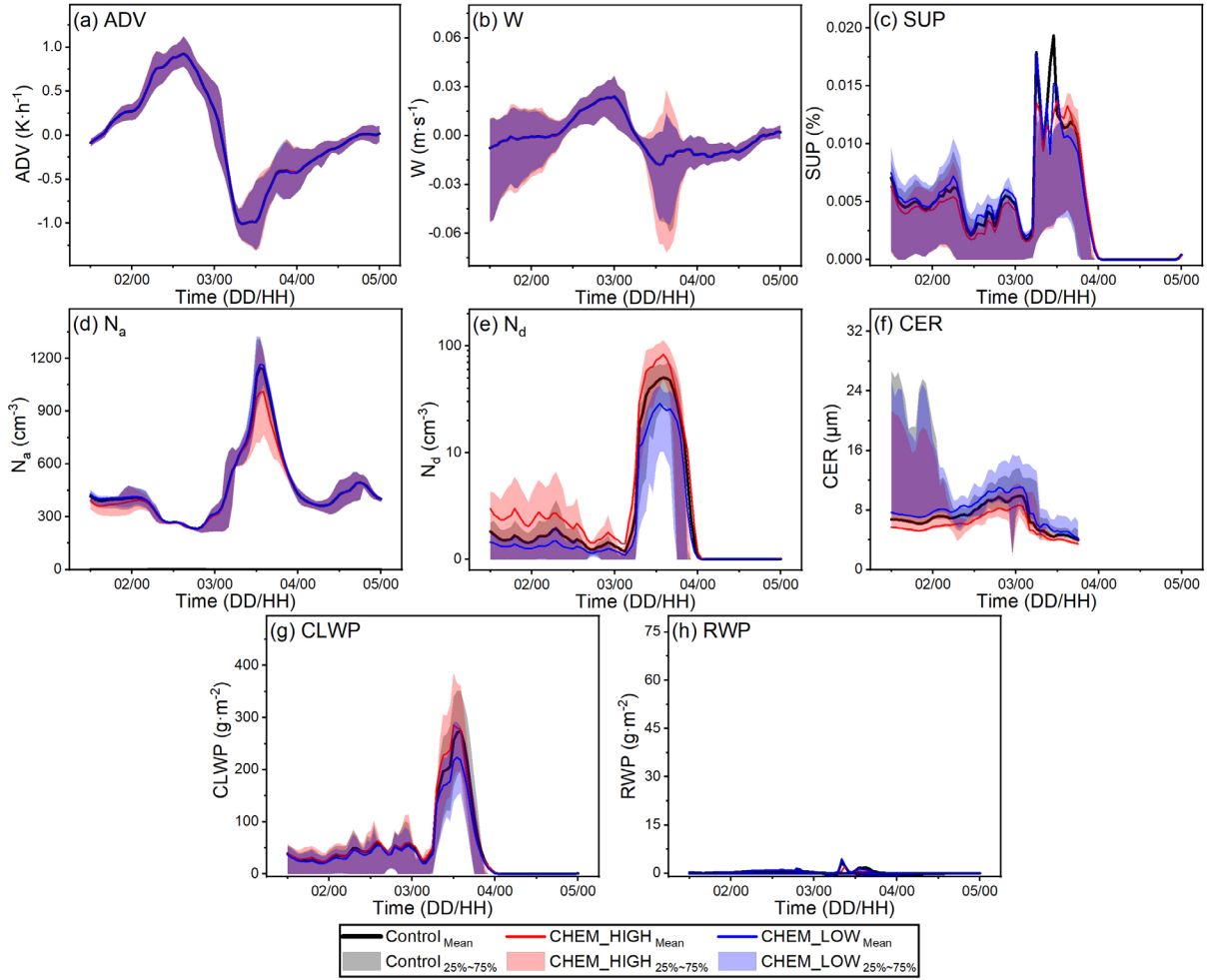


Figure S3. Same as Fig. 2, but red and blue lines and shaded areas represent the results of CHEM_HIGH and CHEM_LOW experiments, respectively.