



**Supplemental Figure 1:** Mean (solid line) +/- one standard deviation (dashed line) (A) NI for sizes greater than 100 microns, (B) NC, (C) IWC, and (D) LWC along the aircraft track above 500 meters from 1km nest time slice at 23Z 8 April 2008, in units of  $L^{-1}$ ,  $cm^{-3}$ ,  $g m^{-3}$ , and  $g m^{-3}$ , respectively. 15<sup>th</sup>-85<sup>th</sup>-percentile range of Ni, Nc, and LWC from aircraft measurements (after Avramov et al. (2011) Figure 10 bottom row) shown with red solid lines. Estimates of habit-independent IWC (red dash) and habit-dependent IWC assuming low density dendrites and aggregates (red solid line) from horizontally-averaged aircraft measurements shown in (C).