

Anonymous Referee #1

We appreciate the suggestion from the referee. Reviewer report are marked as black, our response as blue and changes to the revised manuscript as red.

I am happy to see the results the authors added regarding size-resolved picture of aerosol impacts on precipitation obtained from disdrometer measurements (Figs. 10 and 11). To better illustrate the results, I would suggest to show the droplet size in millimeter, instead of nX, as the horizontal axis label in Figs. 10 and 11.

We appreciate the reviewer for recognizing the value of this work. Many thanks for this suggestion. We re-plotted the droplet size in millimeter instead of nX, as the horizontal axis label in Fig. 10 and Fig. 11. The paragraph has been rewritten as below (lines: 261-266 in the revised manuscript):

Higher populations of raindrops were observed from 0.359 to 0.656 mm (bins n1-n4), with the peak in 0.455 mm (bin n2) for both clean and polluted days (Fig. 10b). The difference is plotted in Fig. 10c. The results illustrate (Fig. 10c) that during polluted days, the droplet numbers appear lower for the smaller raindrop size (< 1.5 mm) compared to clean days and higher for the larger raindrop size (≥ 1.5 mm). A significant reduction in droplet number (decreased from 68 min^{-1} on clean days to 56 min^{-1} on polluted days) was observed in the 0.455 mm (bin n2), corresponding to a reduction in drizzle.

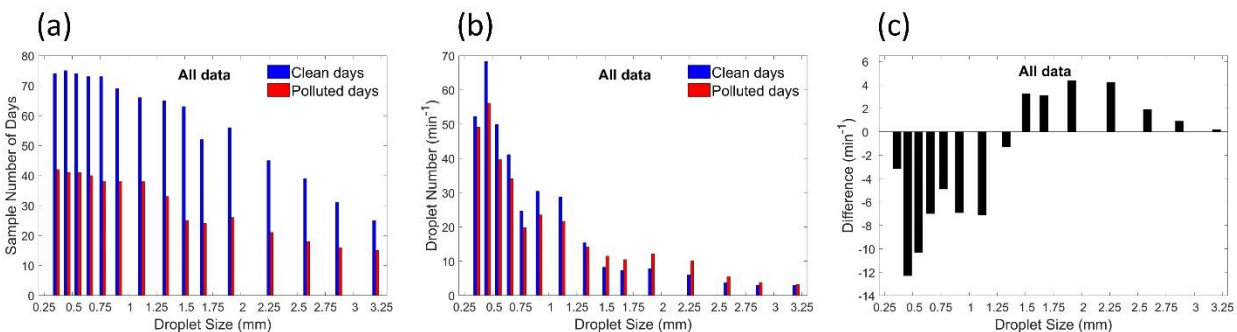


Figure 10: Multiyear (2005-2017) (a) JWD sample number of days in each raindrop size bin, (b) mean droplet number per minute for clean and polluted days, and (c) the differences in the mean droplet number between polluted and clean days. The droplet size for each bin is, in order, 0.359,

0.455, 0.551, 0.656, 0.771, 0.913, 1.116, 1.331, 1.506, 1.665, 1.912, 2.259, 2.584, 2.869, and 3.198 mm.

Lines: 275-277 and lines: 280-284 (in the revised manuscript) have been rewritten as below:

The results are similar with Fig. 10c; the droplet numbers, on polluted days compared to clean days, appear lower for the smaller raindrop size (≤ 0.771 mm, bin n5) and higher for the larger raindrop size (> 0.771 mm) (Fig. 11a).

We determined that when rainfall was $\leq 1 \text{ mm h}^{-1}$, polluted days accounted for a more significant proportion when raindrop size ≤ 0.5 mm than clean days (especially in the raindrop size distribution n1, which accounted for 2.3 %) (Fig. 11b). On the other hand, a decreased proportion when raindrop size > 0.5 mm was observed during polluted days, as compared with clean days.

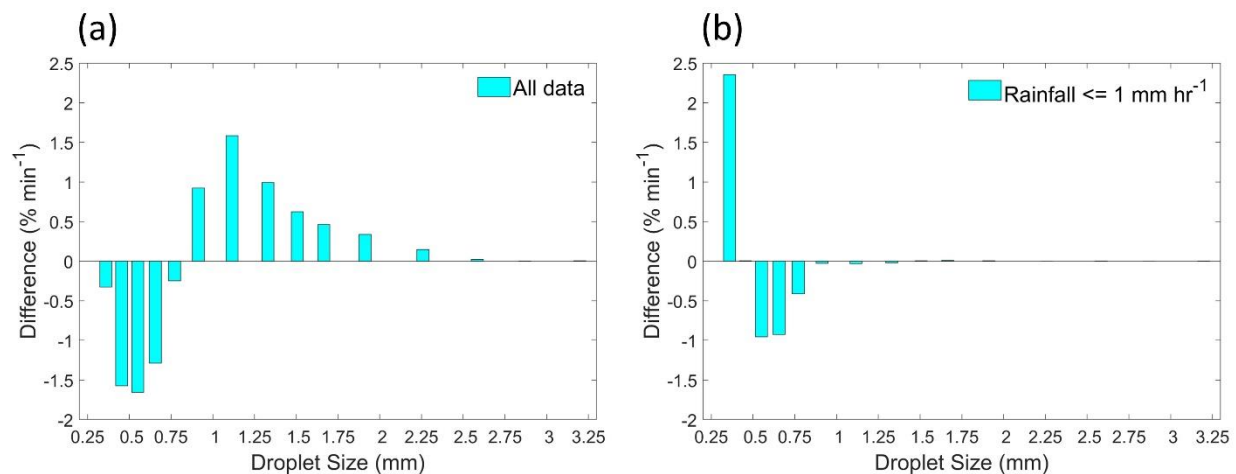


Figure 11: Multiyear (2005-2017) differences between polluted and clean days as percentages of the cumulative droplet number distribution for (a) all data and (b) the data with precipitation less than or equal to 1 mm h^{-1} . The droplet size bin information of x-axis is same as Fig. 10.