

Dear Editor,

Thank you very much for the supportive feedback and consideration of our paper for final publication on ACP. Our point-to-point replies to the technical corrections are listed below:

1. Abstract: line 25: please remove the first % mark (22-27%). Please correct the other occurrences in the text as well.

We have removed the first ‘%’ in the sentence. We also checked all units in the manuscript and made corrections accordingly.

2. Abstract: line 25: total number of observed particles.

This sentence has been changed as: “... with a low-density mode (named sub-density mode) accounting for 22-27% of total number of observed particles.”

3. Introduction: line 95, please indicate the time and location of the campaign already here: (McFan) in Hebei province in October-November, 2019.

We have added the time and location of the campaign as suggest: “*In this study, size-resolved effective density of ambient particles was measured with a DMA-CPMA-CPC system during Multiphase chemistry experiment in Fogs and Aerosols in the North China Plain (McFAN) in Hebei province in October-November, 2019.*”

4. Methods: line 128: Please correct the sentence starting "Particles with size ranging..." for example as "The measurements were conducted for the aerosol particles in the size range 50 to 500 nm, which are not very sensitive ..."

Thanks for the correction. We have revised the sentence as: “*The measurements were conducted for the aerosol particles in the size range from 50 to 500 nm, which are not very sensitive to the three main loss mechanisms (i.e., diffusion loss, sedimentation loss and impaction loss) (Baron and Willeke, 2001; Von Der Weiden et al., 2009).*”

5. Methods: line 130: The particle losses...

Thanks for the correction. We have added ‘the’ in the sentence.

6. Figure 2 caption: Instead of "Trend lines", I suggest formulation the caption as follows: "Size dependency of effective density (ρ_{eff}) in this study and from selected laboratory experiments for comparison.

Thanks for the suggestion. The caption of Fig.2 has been revised as: “*Size dependency of effective density (ρ_{eff}) in this study and from selected laboratory experiments for comparison.*”.

We really appreciate your time invested in our paper. We would like to extend our warm wishes for the upcoming holiday season, and wish you and your family a Merry Christmas!

Best regards,

Nan and Qiaoqiao