Response-to-Comments

Title: Hygroscopic properties and CCN activity of atmospheric aerosols under the influences of Asian continental outflow and new particle formation at a coastal site in East Asia

We would like to sincerely thank the valuable comments from the reviewers who has helped to improve the quality of this manuscript. In response to the comments by Reviewer#1, we have made some technical corrections to the manuscript. For the comments by Reviewer#4, the references cited in the manuscript have been revised and some missing references have been added. In addition, we agreed that the comparison between the kappa calculation by "cut-out" and "D50" diameters is worth to be examined, but given that we do not have the size-resolved CCN-counter system, this is beyond the scope of the present study. Indeed, this is a topic which could be further investigated in next study. This point needs to be noted and a statement has been added in the manuscript accordingly.

Technical corrections:

Page 2, line 9. "transported on" has been revised to "transported by".

Page 2, line 13. "the" was omitted.

Page 3, line 22. "Betancourt and Nenes, 2014" has been revised to "Morales and Nenes, 2014".

Page 3, line 30. "Besides" has been revised to "Furthermore".

Page 4, line 30. "the schematics" has been revised to "the schematic".

Page 5, line 23. "5 minutes data" has been revised to "5-minute data".

Page 6, line 19. "5 mins averaged data" has been revised to "5-minute averages".

Page 7, line 27. "in every 4 hours" has been revised to "every 4 hours".

Page 9, line 9. "Chou et al., 200, 2010, 2017" has been revised to "Chou et al., 2008, 2010, 2017".

Page 12, line 11. "in early stage" has been revised to "at early stage".

Page 14, line 2. "science discussion" has been revised to "scientific discussions".

Page 16. The reference of Kerminen et al., 2018 has been deleted.

Page 18, line 3-12. The reference of Rose et al., 2008 and 2010 have been added.

"Rose, D., Gunthe, S.S., Mikhailov, E., Frank, G.P., Dusek, U., Andreae, M.O., and Pöschl, U.: Calibration and measurement uncertainties of a continuous-flow cloud condensation nuclei counter (DMT-CCNC): CCN activation of ammonium sulfate and sodium chloride aerosol particles in theory and experiment. Atmos. Chem. Phys., 8, 1153-1179, https://doi-org/10.5194/acp-8-1153-2008, 2008.

Rose, D., Nowak, A., Achtert, P., Wiedensohler, A., Hu, M., Shao, M., Zhang, Y., Andreae, M.O., and Pöschl, U.: Cloud condensation nuclei in polluted air and biomass burning smoke near the mega-city Guangzhou, China – Part 1: Size-resolved measurements and implications for the modeling of aerosol particle hygroscopicity and CCN activity. Atmos. Chem. Phys., 10, 3365-3383, https://doi.org/10.5194/acp-10-3365-2010, 2010."

Page 19.. The reference of Sihto et al., 2011 has been deleted.

Page 20. The reference of Wu et al., 2015 has been deleted.

Caption of Figure 1. "exactly at northern tip" has been revised to "at northern tip".

Caption of Figure 3. "were shown" has been revised to "are shown"; "were originating" has been revised to "originated".

Affiliation of the authors, Hing Cho Cheung and Celine Siu Lan Lee have been updated.

Specific corrections for comments from reviwer#4:

1) Page 18, line 17-26. The reference of Rose et al., 2008 and 2010 have been added.

"Rose, D., Gunthe, S.S., Mikhailov, E., Frank, G.P., Dusek, U., Andreae, M.O., and Pöschl, U.: Calibration and measurement uncertainties of a continuous-flow cloud condensation nuclei counter (DMT-CCNC): CCN activation of ammonium sulfate and sodium chloride aerosol particles in theory and experiment. Atmos. Chem. Phys., 8, 1153-1179, https://doi-org/10.5194/acp-8-1153-2008, 2008.

Rose, D., Nowak, A., Achtert, P., Wiedensohler, A., Hu, M., Shao, M., Zhang, Y.,

Andreae, M.O., and Pöschl, U.: Cloud condensation nuclei in polluted air and biomass burning smoke near the mega-city Guangzhou, China – Part 1: Size-resolved measurements and implications for the modeling of aerosol particle hygroscopicity and CCN activity. Atmos. Chem. Phys., 10, 3365-3383, https://doi.org/10.5194/acp-10-3365-2010, 2010."

2) Page 7, line 9. These sentences have been added. "It should be noted that the kappa value calculated by the cut-off diameter is an alternative approach by using integrated CCN concentration measurements of polydisperse aerosols and should be used with caution when comparing with the kappa values obtained by alternative approaches such as size-resolved CCN measurement in which aerosols are not poly-dispersed.".