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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Characteristics of ozone and particles in the near-surface atmosphere in urban area of the Yangtze River Delta, China" *by* Huimin Chen et al.

**Anonymous Referee #3**

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The paper written by Chen et al., performed the continuous measurements of particles and trace gases in Nanjing during cold seasons. Although the interaction of atmospheric components (e.g., trace gases, aerosols) and meteorological conditions has been analyzed, the originality should be addressed especially in abstract before publication. Besides, the paper still suffered from many minor flaws throughout the manuscript. Thus, I suggest this paper could be published after revising the minor errors. The detailed suggestions are as follows: 1. It was well documented that the air pollutants were closely linked to the weather system and meteorological conditions. (Line 32) The author only revealed the important effects of weather system and human activities on the environment in the YRD region, which has been investigated by



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many previous studies. The originality was not addressed in the manuscript. In my opinion, the abstract should be rewritten to stress the new contribution of this paper to atmospheric chemistry rather than reporting the pollution level simply. 2. Line 71, the author said observation-based studies of particles were relatively limited. I think it was very subjective because there were hundreds of observation-based studies about the aerosol particles in the past decades. Meanwhile, in line 75, the author said there were only very limited studies of O3 in the urban of YRD. Actually, the O3 concentration has been widely monitored in YRD because it was one of the most important gaseous pollutants in YRD. I think the author should review a large amount of papers before writing this paper. 3. Line 108-112, the author should highlight the objective of the present study. In addition, the sentence between line 110 and line 112 should be replaced by the environmental implication of the research. 4. Line 123, the instruments used to monitor the gaseous pollutants such as O3 should be added in the methods. Additionally, NOy generally consisted of a large of N-bearing gaseous pollutants. The detailed NOy species should be introduced in this part. 5. Line 263-264, the author did not show the variation trend of BC, PM10, and PM2.5. Furthermore, how do you know the sources of these pollutants shared the similar sources? The relevant references were also missing. Line 265, what does transport emission mean? 6. Line 272-274, the author said the high loadings of particulate matter in early October was mainly due to the increase in aerosol concentrations with high scatter coefficient (SC). I do not understand the association between PM concentration and the aerosol concentrations with high SC. Please explain the reasons in details. 7. Line 284-286, Nanjing is located in Southeast China. The combustion of fossil fuels for domestic heating is not common in the winter of Nanjing. I do not understand why the increased anthropogenic emission of fossil fuels in the winter of Nanjing contributed to the high aerosol loadings. 8. Line 294, the diurnal variation of BC concentration was generally associated with the vehicle volume. I am very curious about the higher BC levels during 8-11 pm. I think Nanjing showed the higher vehicle volume during 5-8 pm. The author should explain the unusual characteristics. 9. Line 336, the author inferred that the BC and CO in the





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atmosphere were mainly originated from biomass burning. The fire point data should added to demonstrate the potential source of BC and CO. 10. Line 495-496, what does the sentence mean? The author should point out the relationship between CO and ozone production. 11. The conclusion should be condensed and stress the new contribution to the atmospheric chemistry. 12. There are many grammar and format errors throughout the paper. I suggest the author should revise all of these minor flaws from words to words carefully.

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