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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Ozone and fine particle in the western Yangtze River Delta: an overview of 1-yr data at the SORPES station" *by* A. J. Ding et al.

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The authors would like thank Referee # 2 for an overall positive comment on this manuscript and many detailed specific and technical comments. We response each point raised, and the manuscript will be revised accordingly.

Specific comments 1. Section 2.1: since this is the first report of the measurements at the SORPES station, it would be better to give a more detailed description of the measurements, including QA/QC procedures, uncertainty estimation, etc., maybe in the supplementary material. For example, how often were the multi-point calibrations performed? Was the internal zero automatically done for the CO analyzer? How to

calibrate the NOy converter and what's the conversion efficiency during the measurements? What's the performance of the PM2.5monitor under conditions of high RH (e.g. fogs)?Was there any available inter-comparison among different techniques, such as online and filter-based PM2.5measurements? What are the accuracy, precision, and uncertainty of all the measurements?

Response: Many thanks for the suggestion. We will add a paragraph to discuss the QA/QC procedure and discuss the uncertainties. Briefly, the multi-point calibrations were performed once a month. CO analyzer was not operated with an automatic internal zero, but the zero calibrations were performed every day. N-propyl nitrate (NPN) was used to calibrate the NOy converter, and the converter efficiency was higher than 95% during the1-year measurement period. The PM2.5 monitor was operated with a internal heater to keep the RH of samples no larger than 35%. The inter-comparison among different techniques were not available at the site but the same type of instrument has been used and compared in many other studies. We will add a reference here and discuss the uncertainty. The precisions of each instrument will be added in the text.

2. Section 2.2: indicate the source of the meteorological data. Were they recorded at the SORPES site?

Response: We will give descriptions on the source of the met data.

3. P2841, L17-18, "The residence time of particles at100 m level was used to identify footprint. . .": I wonder if it is "at 100 m" or "within the 100 m level".

Response: Yes. It is at 100 m but the we can assume a constant flux in the surface layer in the calculation.

4. P2843, the last paragraph: I think the variation of the boundary layer height should be another factor shaping the seasonal cycle of PM2.5".

Response: Yes. We will add this point.

ACPD
13, C1075–C1079, 2013

5. P2845, L2-3: indicate the SO2/NOy ratios obtained from the presents study and at Lin'an ten years ago.

Response: We will mention the difference.

6. P2850, L16: change to "wheat and rice production alternating in cold and warm seasons".

Response: We will make the change.

7. P2852, Section 3.4,title: change to "...implications for air pollution control measures".

Response: Ok. We will change the title.

8. Table 2: I think the units for O3concentrations should be ugm-3, other than mg m-3.

Response: Yes. It's ug m-3.

9. Table 3: re-format the heading row of the table.

Response: We will reformat it.

10. Figure 4: what do the dotted lines in Fig. 4b and 4c mean? Indicate the equation and coefficient of the polynomial fitting in Fig. 4d.

Response: We will remove the dashed line and the polynomial fit.

11. In the manuscript there are both some "mid-YRD" and many "middle-YRD". Please make consistent.

Response: We will use mid-YRD for consistent.

Technical corrections 1. P2836, L8: delete "also indicates".

2. P2837, L6: change "favor"to "favors".

3. P2837, L7: delete "all".

ACPD

13, C1075–C1079, 2013

4. P2838, L14: define “GAW”.

5. P2838, L17: change “in urban sites”to “in urban areas”.

6. P2839, L26: change “the SORPES sites”to “the SPRPES site”.

7. P2840, L17: delete “of trace gases and aerosol concentrations”.

8. P2840, L27: change “measurement”to “measurements”.

9. P2841, L20: change “if”to “for”.

10. P2842, L5-6 and 8: change “were generally originating from”to “generally originated from”.

11. P2843, L3: change “in November”to “in winter (November)”.

12. P2843, L14: change “cause for”to “cause of”.

13. P2845, L2: change “previous”to “previously”.

14. P2847, L3: change “upwind from Nanjing”to “upwind of Nanjing”.

15. P2852, L10: “in this region”.

16. P2852, L16: change “combustions”to “combustion”.

17. P2853, L17: change “but nevertheless”to “nevertheless”.

18. P2853, L20: change “for”to “from”.

19. P2853, L25: change “they”to “there”.

20. P2854, L5: a typo,“Summary”.

21. P2854, L11: change “can be”to “are”.

22. Fig. 5a. Legend: change “episodes”to “O3episode”.

Response to 1-22: We will make change to these technical comments accordingly.

ACPD
13, C1075–C1079, 2013

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 2835, 2013.

ACPD

13, C1075–C1079, 2013