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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characteristics and the origins of the carbonaceous aerosol at a rural site of PRD in summer 2006" *by* W. W. Hu et al.

Anonymous Referee #1

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The manuscript "Characteristics and the origins of the carbonaceous aerosol at a rural site of PRD in summer 2006" by Hu et al. evaluated the measurements of OC and EC at a rural site in PRD region. The mass concentrations and diurnal profiles of OC and EC are reported. Further the secondary OC was estimated using a modified EC tracer method, and its potential sources and processes were discussed. Since measurements of carbonaceous aerosols in PRD region are rather limited, this study is helpful to improve our understanding of the characteristics and sources of organic species in this region.

Comments:

1.Xiao et al. (2011) also analyzed the same OC and EC data at same site and discussed their sources and processes. A brief summary and a comparison with Xiao et

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al.'s work are necessary.

2.Page 21606, line 4-5: Xiao et al. (2011) identified three organic aerosol components, including HOA, SV-OOA, and LV-OOA. Is OOA here the sum of LV-OOA and SV-OOA or the results from 2-factor PMF analysis?

3.Page 21607, line 5: The regression slope of OM vs. OC is 1.01, suggesting that OM is almost carbon. This value is even lower than those ($\sim$1.2) of primary organic particles from traffic emissions (Mohr et al., 2009). A more detailed explanation is needed.

4.Page 21609, line 27-28. I didn't see a peak of OC around 02:00. In addition, 07:00 or 19:00?

5.Fig. 8b: the legend is not correct. Should be SOC = *$\times$WSOC + **

6.The English is readable, but needed to be improved. For example, page 21602, line 3: "by using" to "using"; page 21609, line 14: "showed" to "shown"

References:

Mohr, C., Huffman, J. A., Cubison, M. J., Aiken, A. C., Docherty, K. S., Kimmel, J. R., Ulbrich, I. M., Hannigan, M., and Jimenez, J. L.: Characterization of primary organic aerosol emissions from meat cooking, trash burning, and motor vehicles with High-Resolution Aerosol Mass Spectrometry and comparison with ambient and chamber observations, Environ. Sci. Technol., 43, 2443-2449, doi:10.1021/es8011518, 2009.
Xiao, R., Takegawa, N., Zheng, M., Kondo, Y., Miyazaki, Y., Miyakawa, T., Hu, M., Shao, M., Zeng, L., Gong, Y., Lu, K., Deng, Z., Zhao, Y., and Zhang, Y. H.: Characterization and source apportionment of submicron aerosol with aerosol mass spectrometer during the PRIDE-PRD 2006 campaign, Atmos. Chem. Phys., 11, 6911-6929, 10.5194/acp-11-6911-2011, 2011.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 21601, 2011.