

Review of “Atmospheric conditions and composition that influence PM_{2.5} oxidative potential in Beijing, China” by Steven J. Campbell et al., (MS No.: acp-2020-1024).

Overall the manuscript is improved significantly. I suggest a minor revision before the acceptance of it to be published in Atmos. Chem. Phys.

1. Line 33 in page 1: the ‘(APHH-Beijing)’ can be after the ‘campaign’.
2. Line 42 in page 2: why the number of ‘107’ needs to be highlighted? I did not see the importance of this number to the abstract and the manuscript.
3. Line 46 in page 2: the ‘SOA’ should be defined.
4. Line 82 in page 3: change the ‘electron paramagnetic spectroscopy (EPR)’ to ‘electron paramagnetic resonance (EPR) spectroscopy’.
5. Line 94 in page 3: suggest to add some more recent publications to the citation.
6. Line 121 in page 4: you may need to cite the work of ‘(Shi et al., 2019)’ to provide more background information about the APHH campaign.
7. Line 125 in page 4: delete the first ‘datasets’, which is surplus.
8. Line 128 in page 4: I am still confused by the number ‘107’.
9. Line 196 in page 7: add ‘in this study’ after the ‘source apportionment’.
10. Line 200-201 in page 7: the phrase ‘PMF would not ultimately give useful models’ is confusing. It is clear that a model will not give another model.
11. Line 264 in page 9: the ‘PM_{2.5} OP_v’ looks strange.
12. Line 265 in page 9: the unit format of ‘nM [DHA] m⁻³’ is different from the one in Figure 1. Keep them to be uniform in the manuscript.
13. Line 279-297 in page 10: change the ‘Figure 2B, 2C and 2D’ to ‘Figure 2b, 2c, and 2d’ and the same for other figures. Recent studies found that peroxide-containing highly oxygenated organic compounds (HOMs) associate with the radical formation by PM_{2.5} in water (Chowdhury et al., Environ. Sci. Technol., 53, 23, 13949-13958, 2019; Tong et al., Environ. Sci. Technol., 53, 21, 12506-12518, 2019; Wei et al., Environ. Sci. Technol., 55, 1, 260-270, 2021). Thus, what is the potential contribution of HOM to the observed superoxide radicals in Figure 2d?
14. Line 374: why the summer data points are n=33? Because it is shown that n=34 for summer in line 141.
15. Line 409: add a full stop after the ‘secondary organic aerosol’.
16. Line 509: suggest to cite: Tong et al., Atmos. Chem. Phys., 16, 1761-1771, 2016.
17. Line 567-568: there are different meanings of the ‘models’ here. I suggest not use ‘assay’ rather than ‘model’ for describing AA and DTT.