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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Receptor modeling of near-roadway aerosol mass spectrometer data in Las Vegas, Nevada, with EPA PMF" *by* S. G. Brown et al.

Anonymous Referee #2

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The manuscript is technically good, well written and with enough details for a comprehensive reading of the text.

I consider very relevant the outcomes of the novel approach of exploring the sensitivity of results when pulling to different kind of target profiles. Also the detail of evaluating the robustness of results comparing source profiles with previous studies is appreciated. However, in my opinion, the measured levels of traffic-related pollutants are surprisingly low for being measured next to a 200,000 vehicles/day freeway. In this sense, it would be helpful to look at rainfall data in the area during the measurements.

Other minor comments are showed below:

1. Can authors justify their choice of maximum dQ of 1% in general? I am not saying this value is too high or too low but it would be very interesting to know the reason of this threshold (and of possible exceptions allowed) since the degree of tolerance can be critical when determining the spectrum of possible solutions/rotations.

2. According to this, please revise the maximum dQ allowed for the edge points pulling: table 2 says 31%, but in the text is different.

3. The average value of OM in page 22917 has changed from the previous version of the paper, but the averages of different wind scenarios did not. Please check if they need revision as well.

4. A modest correlation was found between OM and BC, CO and NOx. Some discussion is needed here about the formation and transport of SOA

5. Nitrate does not correlate with any other pollutants (traffic-primary pollutants nor SV-OOA). Can authors discuss possible reasons for this? Too low and/or sporadic concentrations measured?

6. There seems to be a repetition in the abstract when HOA is mentioned to be about half of OM under downwind conditions.

7. It would be nice to look at the wind direction patterns. We do not know when the wind is blowing from the sector of the freeway.

8. Please, clarify also in the methodology section that measurements were made outdoor.

9. Please, justify the choice of not including inorganic species in the source apportionment analysis. High S/N?

10.The additional fifth factor could be related to BB, but BB is actually increasing its contribution. Is that possible?

11.In Figure 3 Nitrate shows a minimum value, often repeated. Is that the Detection

Limit?

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 22909, 2011.