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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Primary and secondary organic carbon downwind of Mexico City" *by* X.-Y. Yu et al.

Anonymous Referee #3

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General comments:

This paper describes measurements of elemental carbon (EC) and organic carbon (OC) made at the T1 and T2 sites during the MILAGRO campaign. Using these measurements, various ratios (e.g., OC/EC) are presented. The paper also attempts to quantify the percentage of the OC that is SOC, etc.

This paper only modestly advances science; its primary value is as a reference for the OCEC data. My opinion is that for a big field campaign such as MILAGRO, these “data description” papers serve a distinct and useful purpose and should be published, because others can use the summarized information to advance their own scientific agendas. Therefore I recommend publication, subject to consider-

ation of the following specific comments.

Specific comments:

(1) The uncertainties in some of this work seem very large and are not discussed in the paper. For example, the method used to derive the SOC/TC ratio seems fraught with uncertainty. Might the author provide error bounds for the SOC/TC percentages? If these errors cannot be quantified, then the authors should state this in the paper.

(2) In Sect. 3.7, an EC/CO ratio is given, 0.0045. Baumgartner et al. (2002) has done a comprehensive study of this ratio for the Mexico City area, and they get a much lower number, about 0.001. There are many possible reasons for this difference, including the measurements of carbon; for example, the paper under review uses an OCEC instrument, while Baumgartner et al. mostly uses absorption measurements (aethelometer, PSAP) to measure BC. I suggest that at the very least the authors cite Baumgartner et al., and speculate why Baumgartner et al.’s BC/OC ratio is different than their EC/OC ratio.

Baumgartner et al. (2002), JGR, 107, D21, 8342, doi:10.1029/2001JD000626.

(3) If this paper is going to be a useful reference for others, the authors should exert every effort to make the paper “user friendly”. For example, the time axes in Fig. 3, Figs. 10a, 10b., are given in UT, but the discussion in the paper is in LST. If LST is going to be referred to in the text, I suggest making the time axes LST.

Technical comments:

(1) Page 554, paragraph starting on line 7: this paragraph seems out of place and maybe should be deleted, or placed a the beginning of section 3.4

(2) Page 554, line 25 “deferred” should be “inferred”?

(3) The authors should ensure that the final figures are big enough to be legible. In the ACPD article, some of the figures were so small that I could barely read this axes

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 541, 2009.

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Interactive Comment