

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

Anonymous Referee #1

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General comment

This paper presents measures of EC, OC and TC taken at supersites T1 and T2 during the experimental campaign of MILAGRO project, also a descriptive analysis of the campaign. Also shows results about methods to obtain primary organic carbon (POC) and secondary organic carbon (SOC).

An interesting paper from the experimental point of view, gives useful data for future health studies on population exposed to EC, OC and TC. Nevertheless, contribution to scientific knowledge is small.

My recommendation is: The paper needs more work to be published in ACP journal. Improve data analysis for a more detailed interpretation of the origin variables mea-

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sured (EC, OC, gasses, etc.)

Specific comments

1.- It is important that every 6 hours data be given for OC; EC and TC , helping to understand the evolution of aerosols in both sites, and also to associate with local emissions or transport from other areas.

2.- Characterize well T1 and T2 respect to EC and OC concentrations, compare with results by Marley et al, 2008, Paredes et al, 2009 and Querol et al, 2008 (every 6 hours).

3.- Make a better use of meteorological data (wind speed and direction) trying to identify the origin of EC and OC in both sites. Take into account, for example, that during March there were fires at a municipal dump (located at South West of site T1), as well as in farm fields near both sites.

4.- At sites T1 and T2 differentiate days with or without influence from Mexico City (according to Fast et al, 2007) and compare behaviors of EC, OC. Gasses, temperature and boundary layer. Report important differences.

Detailed comments

- Table 3. According to the authors $TC=OC+EC$. Reported values of TC do not add up.

- Fig.3. The authors say: "A distinctive diurnal pattern is observed for OC, EC and TC at T1. OC arrived at the first maximum at 8 a.m. (LST) at T1. A second peak of OC occurred at 2 p.m.. EC reached its first peak at 6 a.m. Then it reached its second maximum at much reduced amplitude between 8-11 p.m. TC peaked first at 6 p.m., then at 2 p.m. during the early afternoon rush hour". The figure is not well explained in the text, for example, a correlation of EC and TC with the boundary layer is no apparent. The 6 a.m. peaks for EC and TC are not to be seen

- The authors say: "The boundary layer height remained shallow at night and early

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morning until approximately 8.30 a.m. (LST) it then began to grow and reached its maximum of 3300m above ground between 4-5 p.m." But according to their figure, it starts growing around 3 p.m. and reaches the 3300 maximum around 11 p.m.

- Figures in 5b should be made clear.

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

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