

## ***Interactive comment on “Applications of Lagrangian dispersion modeling to the analysis of changes in the specific absorption of elemental carbon” by J. C. Doran et al.***

### **Anonymous Referee #1**

Received and published: 7 December 2007

This paper presents a clear and valuable study on aerosol ageing. This is an issue which is part of one of the main goals of the MILAGRO campaign. I would therefore recommend its publication in ACP.

As a general comment, while I appreciate the authors' desire for conciseness I would suggest a little extra description of the specific context of the field campaign. For example: 1. listing of MILAGRO (or MAX-MEX) goals and how this paper relates to those. 2. whether the weak evidence of absorption increase from T1 to T2 was unexpected or not. 3. description of past work, especially IMADA & MCMA-2003 (this applies to both aerosol measurements and basin wind transport) 4. I don't know if this

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is a legitimate request. Given the posting of other aerosol papers in the MILAGRO special issue, could a short paragraph or two relate the present work to other studies?

Fig. 8 and 10 should include some measure of the variance in the data to see if the diurnal variation is significant or not. Some statistical significance test could also be applied to the trends in Table 2.

Likewise, Fig. 7 shows median age when there is a wide range of ages in the air mass. The diurnal pattern of the range in ages is itself interesting. If the data does not fit on the graph, then mention of this should at least be made in the text.

In the evaluation of the wind simulations, it should be made clear if you are comparing model results to the same winds that were assimilated with FDDA. Ideally, one would separate the data into 2 sets: one for assimilation and one for verification.

Minor technical comments: The abstract begins with a run-on sentence. pg 14996 line 4: 30-min intervals (not 30-m) "Volkamer" not "Volkhamer" Why not use "diurnal" instead of "diel"? It's been in use roughly 600 years longer. (www.m-w.com) Caption for table 2: do you mean "sample hours" rather than "samples hours"?

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Interactive comment on Atmos. Chem. Phys. Discuss., 7, 14989, 2007.

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