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Atmospheric Chemistry and Physics Discussions

Interactive comment on "A meteorological overview of the MILAGRO field campaigns" *by* J. D. Fast et al.

Anonymous Referee #1

Received and published: 9 March 2007

I believe this manuscript achieves its goal of providing a meteorological overview of MILAGRO. Overview manuscripts tend to be strange creatures—they need to describe what happened during the period and at the same time provide enough new science to justify publication in a journal instead of a technical report. Although this manuscript seems a bit short on new science, I believe it is appropriate for journal publication. The manuscript is well written and generally easy to read. I have no quarrels with the methodologies or the conclusions. I will point out below that some of the figures have very small lettering that is difficult to see. I am sure that the manuscript will be cited by most of the MILAGRO manuscripts that are currently being written.

I recommend publication with only minor modifications. It is not necessary for me to examine the revised version.

Points to Consider:

1. Dividing the total MILAGRO period into three components was a convenient way to organize the manuscript.

2. This is a matter of style, but you should consider reserving the words “high” and “low” when referring to altitude. “Larger” and “smaller” are better for describing magnitudes. This goes back to my days in high school English class, but I have found it useful in meteorology because we often refer to both altitudes and magnitudes.

3. Fig. 3 would benefit from having 700 hPa as the bottom panel and 500 hPa as the top panel. That way, it is easier for readers to think three dimensionally.

4. Also in Fig. 3, can you provide an approximate percentage of time when wind directions were favorable for transport over T1 and T2? I believe this would be useful to the readers.

5. Perhaps it is my poor eye sight, but many figures have axis labels and numbers that are very small and difficult to read. The first example is Fig. 3, but there are many more. It would be kinder to readers if this lettering would be larger.

6. page 10, second full paragraph, first sentence—You can infer “shear” from the wind vectors, but what you actually show is vertical profiles of vector winds.

7. page 10, third full paragraph. Isn’t the strong pressure gradient due both due to low in the east AND the high in the west?

8. It is difficult to differentiate between the various colored circles in Fig. 12. I suggest that they made a bit larger.

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9. You note that the third Norte is the most potent; yet it seems to this reviewer that more figures relate to the second Norte—usually before and after. Is there a reason for this.?

10. Bottom of page 15—use “neither” and “nor” .

11. Page 15, second sentence of second full paragraph—“The strongest cold surge. . . . . ” I do not understand this sentence.

12. Fig. 16 is extremely busy with various colored dots all over the place. Is there an alternative better way of depicting this information? As it stands, this reader cannot verify your statements based on this figure—it is too cluttered.

13. Bottom of page 17–Don’t you mean that no southwesterly transport occurs during 2005 (not 2004)? The panels in Fig. 17 are not denoted a), b), c) etc.

14. At many spots in the manuscript, you mention local and regional circulations. I was expecting you to show an actual example of this or at least a schematic showing the diurnal variability. I believe this would be helpful to those not well versed on the subject, and it would be easy for you to incorporate. I realize that later manuscripts probably will cover this subject in greater detail.

15. To the extent that you know, it would be good to cite future MILASGRO papers that provide in-depth discussions of some of the factors that you only mention briefly. This would provide a good linkage to these future papers.

16. page 10—You stress the importance of mechanical mixing, but isn’t thermally induced mixing during the day also important?

17. What was the role of dust during MILAGRO? I recall hearing about observations of dust devils during some flights.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 2037, 2007.