

Interactive comment on “Ozone response to emission changes: a modeling study during the MCMA-2006/MILAGRO campaign” by J. Song et al.

Anonymous Referee #3

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Review of “Ozone response to emission changes: a modeling study during the MCMA-2006/MILAGRO campaign” by Song et al.

The manuscript studies the sensitivity of different emissions to the calculated ozone formation during the MILAGRO field experiment. The paper is well written and organized. The comparison between the model and measured result are very good, showing a very careful work by the authors. The scientific topic is interesting. The weak part is that the concept of the paper is basically following the previous works of Tie et al. [2007] and Lei et al. [2007]. However, the paper adds up some strength, especially the calculation under different meteorological conditions. This addition has scientific merit to publishing this paper in ACP. However, this reviewer has some important comments. The authors should address these comments prior the publication of the paper.

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Specific comments;

(1) Abstract; Line 9. The words of “ozone was well reproduced by...” is too strong. I suggest to change to “.. fairly..”. (2) Introduction; Line 5. Ozone production is not only formed by NO_x and VOCs. CO has also important contribution to ozone production, especially in the surrounding area of MC. Please see Tie et al. [2009], ACP. By the way, this paper should be added in the reference. (3) Introduction; P23421, Line 15. The work of Ying et al. [2009] Atmos. Environ should be added in the introduction. Ying et al. tested the changes in ozone formation by changing the emission patterns in MC. Their results are important for this paper. (4) Introduction; P23422, Line 15. The authors state that “.. they are rarely evaluated using arrays of aircraft measurement...”. This is not true. For example, Tie et al. [2009] ACP, analyzed aircraft data and compared with the WRF-Chem model calculation. Their result should be stated in the introduction. (5) P23425, Line 1. The authors should state how the lateral chemical conditions were used in the largest domain of the model. If they did not use lateral conditions, the uncertainty should be mentioned. (6) P23426, Line 6. For the emission of outside MC, the model used population distribution to construct the emissions. Why the authors did not use Marcelo’s emission? What is the difference between their emission and this work? (7) What is about biomass burning emission in the model?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 23419, 2009.

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