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Interactive comment on “Modeled and observed ozone sensitivity to mobile-source emissions in Mexico City” by M. Zavala et al.

Anonymous Referee #3

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General comments

In general I find the article suitable for publication in ACP since it provides information about the state of the air pollution problem in Mexico City and possible abatement policies for the Ozone problem in the region. This information is based on an historical analysis of measurements and modeling. Especially important is the conclusion not only that historically the atmosphere in Mexico City has migrated from a NO_x to VOC sensitivity, but how sensitive the atmosphere is to the emission changes.

The issue about VOC sensitivity was already mentioned in Lei et al. 2006, Characterizing ozone production in the Mexico City Metropolitan Area: a case study using a chemical transport model. This reference should be included.

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Specific comments

The most important missing issue is whether biogenic emissions were taken into consideration, especially for the discussion about the AD domain contained in paragraph 10, page 15001.

Paragraph 15, page 15009: Increase on Diesel transportation is mentioned as possible cause for no NO_x abatement, but no data supporting this fact is put forward.

In paragraph 10 page 15006, the sensitivity to alkenes and aromatics is rather an obvious conclusion.

In paragraph 15 and 20 on page 14996, just to be safe: has the possible effect of summer time (beginning of April) been taken into account? This program started in Mexico around 2002. More emissions during dark conditions may have an influence later in the day? Same in paragraph 5 on page 14999.

Figs 6 should be enlarged by dividing them in two sets per page of six

In paragraph 10, page 15006, is mentioned that emission of NO_x has not been reduced as much as VOCs, is there any other similar case, for example Los Angeles?

Regarding the discussion in paragraph 15, page 15013 there is no data to sustain this assertion: according to local information traveling time increased from 45 to 60 minutes between 1994 and 2007. Source: Encuesta origen destino 1994, GDF, Encuesta origen destino 2004, GDF

I found more references on modeling with MM5 in Mexico City that should be added:

Jazcilevich A., A. R. García and E. Caetano, 2005. Locally induced surface air confluence by complex terrain and its effects on air pollution in the Valley of México. Atmos. Environ. 39, 5481-5489.

A study of air flow patterns affecting pollutant concentrations in the Central Region of México, Aron D. Jazcilevich, Agustín R. García, L.Gerardo Ruiz-Suárez, Atmospheric

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Environment, 37, pp. 183-193, 2003.

A modelling study of air pollution modulation through land-use change in the Valley of Mexico, Aron D. Jazcilevich, Agustín R. García, L.Gerardo Ruiz-Suárez , Atmospheric Environment, 36, pp.2297-2307, 2002.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 14991, 2008.

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8, S7567–S7569, 2008

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