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Comment

***Interactive comment on “Weekly patterns of  
México City’s surface concentrations of CO,NO<sub>x</sub>,  
PM<sub>10</sub> and O<sub>3</sub> during 1986–2007” by S. Stephens  
et al.***

**S. Stephens et al.**

Received and published: 17 July 2008

**Responses to Referee 2**

by S. Madronich et al.

We thank the referee for the useful comments, particularly with respect to the availability of two earlier studies.

**[Referee 2] General Comments**

**In this paper the authors showed that measurements by an air quality network could be use in order to address sensitivity of the atmospheric chemistry. Also**

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**address the limitations and uncertainties of the method used. I recommend publication.**

[Reply] We agree that the measurements from the air quality network are extremely useful and, with proper consideration of uncertainties, can be used to understand the prevailing photochemical regime.

### **Specific Comments**

**[....]My concern on the above mentioned particular lines and paragraphs is the lack of a well bibliographical research on similar issues. I like to call the attention to the Ph.D. research thesis made by Torres-Jardón, R. (Comparative Assessment of the Sensitivity of Ozone to Nitrogen Oxides and Volatile Organic Compounds in Two Dissimilar Metropolitan Areas of North America: Cincinnati, Oh (U.S.A.) and México City, D.F. (México). University of Cincinnati, 2004) (available at: [http://www.ohiolink.edu/etd/view.cgi?acc\\_num=ucin1100032213](http://www.ohiolink.edu/etd/view.cgi?acc_num=ucin1100032213))**

We thank the reviewer for leading us to this work. Although it is only based on measurements of indicator species over a few weeks at one urban location (the other location was not urban), it is an important addition to the weight of evidence that Mexico City's O<sub>3</sub> production is VOC limited, in agreement with our conclusion. We have added two sentences in the introduction:

*Measurements of several sensitivity indicators (O<sub>3</sub>, NO<sub>x</sub>, and NO<sub>y</sub> = total reactive nitrogen) were made 14-25 April 2004 at a location within Mexico City (Santa Ursula) by Torres-Jardón (2004), with their ratios indicating VOC-sensitive conditions....Torres-Jardón (2004) found that at the Santa Ursula station during 1-30 April 2004 weekend NO concentrations (6-9 am) were 37% lower than on workdays, while maximum O<sub>3</sub> concentrations were only 10% lower, consistent with a VOC-limited regime.*

S5016

**ACPD**

8, S5015–S5017, 2008

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We have also added a number of citations to those already listed in the introduction, on the weekend effect in other locations around the world, as well as the low  $\text{H}_2\text{O}_2$  concentrations observed during MILAGRO published very recently by Nunnermacker et al. (2008).

**An additional article that address the use of monitoring data and can be useful is Cruz Nuñez, X., Jazcilevich Diamant, A. On the usefulness of atmospheric measurements for air quality evaluation in the context of recent urban meteorology findings in Mexico City (2007) *Atmosfera*, 20 (4), pp. 329-339.**

The article by Cruz Nuñez and Jazcilevich Diamant provides an important perspective on how urban circulation can affect the distribution of  $\text{O}_3$ , and is now cited in the discussion of the anomalous values for the SW sector (see reply to comments by Sillman).

**Figure 1 is hard to see and differentiate Friday and Thursday.**

The figure has been improved to differentiate better between Thursday and Friday.

**As suggestion, the authors can include a Methodology section (after section 2) where describe all the statistical,  $\text{O}_3$  production, and extract that description from the discussion section.**

We have moved to Section 2 the derivation  $L_N/Q$  and most discussion of assumptions.

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