**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Detection of pollution transport events southeast of Mexico City using ground-based visible spectroscopy measurements of nitrogen dioxide" *by* M. L. Melamed et al.

Anonymous Referee #1

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Comments on ACP-2008-1002 Detection of pollution transport events southeast of Mexico City using ground-based visible spectroscopy measurements of nitrogen dioxide by M.L. Melamed, R. Basaldud, R. Steinbrecher, S. Emeis, L.G. Ruiz-Suarez, and M. Grutter

General Comments

This is a clearly written description of analysis that can be accomplished when multiple observing techniques can be applied to a problem. The authors have made clear and concise analyses of pollution cases near Mexico City that should be useful in further studies of the dynamics and chemistry of the area. They have been selective in the

scope of their project and assumptions are clearly stated. Their results and conclusions are substantial and useful. Their error analysis is sufficient and proper reference is given to previous work.

Specific Comments

p. 4770 line 11 Is it accurate to call lightning produced NO2 a pollution source?

p. 4770 line 19 "The primary sources of pollution in Mexico City are transportation, industrial processes and domestic related activities." Are there any other categories?

p. 4772 line 10 What was the dimension of the "small sized telescope" ?

p. 4772 line 18 What was the range of integration time? What effect does that have on the measurements?

p. 4775 What is the effect of having only one IBG, from a single day, that is used for all days?

p. 4780 line 7 In Figure 6, the NO2 VCD in plume 2 does not reach a value of 2.0X 1016.

p. 4782 line 2 (and elsewhere) Is ppb by mass (ppbm) or by volume (ppbv)?

Figure 2 is not clear to me. Residual is the difference between the observed and the retrieved. Residual = observed – retrieved. So the plotted curve, retrieved + residual = observed.

Figure 4. It might be helpful to include a few SZA values in the figure.

Technical Comments

p. 4771 line 14 delete "to use a team of international researchers"

p. 4774 line 9 Figure 4 seems to come before Figures 2 and 3

p. 4774 line 22 407-505 nm here , but 470 nm in Figure 2

p. 4778 line 10 insert "to" after According.

p. 4779 line 2 and 4 remove "in order"

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 4769, 2009.