Atmos. Chem. Phys. Discuss., 9, C9165–C9166, 2010
www.atmos-chem-phys-discuss.net/9/C9165/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Chemical evolution of volatile organic compounds in the outflow of the Mexico City Metropolitan area" *by* E. C. Apel et al.

Anonymous Referee #1

Received and published: 3 January 2010

The paper deals with the emission and conversion of volatile organic compounds (VOC) in the Mexico City Metropolitan Area. The paper includes interpretations of measurements of both oxygenated (OVOC) and nonoxygenated compounds (NMHC) from airborne platforms and stationary measurement sites. Also, data from different measurement techniques are combined, e.g. online and offline gas chromatography data, mass spectrometry data, and data of colorimetric formaldehyde determination. The dataset is unique with respect to its comprehensiveness. Such amount of data is always hard to interpret, and sometimes even harder to condense to be published in a paper, so the authors have focussed on comparing the total OH reactivity of VOC and OVOC and the formation of selected OVOC. The authors show that the OH reactivity is determined by nonoxygenated VOC except in the afternoon hours, when OVOC dominate, and that this behaviour can largely be explained by the MOZART and the

WRF-Chem models. Moreover, the evolution of VOC in a plume was monitored on a selected flight and their general trend and the formation of OVOC could largely be described with a detailed chemistry model. The paper underlines the importance of a rather comprehensive data set of both OVOCs and NMHC for interpreting field campaign data, especially of the OVOC which are still rarely measured, despite their great importance. The paper is well structured, and easy to read. The paper should be published.

Small remarks:

Table 1 The abbreviation DFGAS does not appear in the text. Fig 4. In figure 4 data with a different time set a compared. This should be mentioned in the text. Also, the sampling duration should be given. Fig 11. Units should be given.

24109 line 20 3.5x106 24109 line 15 1.22x10-12

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 24085, 2009.