Atmos. Chem. Phys. Discuss., 6, S82–S83, 2006
www.atmos-chem-phys.org/acpd/6/S82/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Vertical profiles of NO_x chemistry in the polluted nocturnal boundary layer in Phoenix, AZ: I. Field observations by long-path DOAS" *by* S. Wang et al.

Anonymous Referee #3

Received and published: 17 February 2006

The authors present a very interesting framework of measurements and interpretation of nitrogen and ozone chemistry of the nocturnal boundary layer. The paper reports vertical profiles of a number of chemical species such as NO2, O3, HONO, HCHO and NO3 complemented with a rather detailed examination of the observations and their implications in an urban nocturnal environment. This paper presents an interesting perspective on the use of LP-DOAS to gain information on the vertical distribution and temporal evolution of the nocturnal chemistry. In my opinion the title "Vertical profiles of NOx chemistry in the polluted nocturnal boundary layer in Phoenix, AZ: I. Field observations by long-path DOAS" should be changed to one that indicates that not

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only NOx vertical profiles are reported but also those of O3, HONO and HCHO since clearly the paper provides with more information than that inferred from the title.. The data are excellent and the thorough interpretation is clearly written helping the reader to understand the different processes influencing the nocturnal boundary layer chemistry. This paper fits well into the scope of ACP and I strongly recommend publication in ACP as is.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 45, 2006.