Atmos. Chem. Phys. Discuss., 5, S4604–S4605, 2005
www.atmos-chem-phys.org/acpd/5/S4604/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Concentrations of OH and HO_2 radicals during NAMBLEX: measurements and steady state analysis" *by* S. C. Smith et al.

Anonymous Referee #2

Received and published: 19 December 2005

This paper describes surface measurements of HO2 and OH obtained during the NAMBLEX campaign at Mace Head during summer of 2002. Parameterized expressions are developed by fitting the data to equations with assumptions about the significance of various sources and sinks. Results are used to explore some theories about additional losses for HO2 including aerosols and/or halogen species.

Overall, this paper is very well written and clearly presented. The introduction was very thorough and understandable. My biggest concern with the paper is that it is too long with too many non-essential details. For instance, I do not see the necessity of

including the detailed description of observations for the four days of case studies. I could not find where these case studies were highlighted in the analysis. (Are the parameterizations derived from only these days, or from all data, as I have assumed?) Additionally, while the development of these parameterized equations to explain conditions observed at this particular location and time was interesting, it would be useful to point out why this type of analysis is necessary when boxmodel calculations are available for the same set of data. What new or differenct information does this type of analysis provide?

With respect to equation 2, what rate is used for O1D+N2? The rate published by Ravishankara, GRL, 2002 is about 18% faster for surface conditions than previous recommendations (Sander 2003). I'm wondering if some of the daytime overpredictions of OH might be improved by the new rate if you are not already using it.

I am interested in the nighttime observations of HO2 that were observed. Do the authors have any suggestions for an explanation of these?

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 12403, 2005.