

Interactive comment on “Concentrations of OH and HO₂ radicals during NAMBLEX: measurements and steady state analysis” by S. C. Smith et al.

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The authors present a very nice analysis of HO_x chemistry during NAMBLEX. In particular, this paper and that by Sommariva provide evidence that HO₂ loss to aerosols could be substantial at Mace Head because assuming a reaction probability of 1 improves the average model to measurement comparison. I would like to make one comment, and one suggestion.

I think it is worth pointing out more clearly that there aren't laboratory measurements which support a reaction probability of 1. The authors only note that there is a large

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range in measured values for the HO₂ reaction probability. This is somewhat misleading, since, to my knowledge, there are few to no laboratory studies of HO₂ uptake to aqueous sea salt aerosol, which might be dominating at Mace Head. In addition, for most of the uptake experiments done in the laboratory, a reaction probability of > 0.1 has been observed only when using aerosols containing Cu(II).

I suggest that to strengthen the case that aerosol loss is significant at Mace Head, the authors might want to discuss the measurement/model ratio as a function of aerosol surface area (and to show such a figure if possible). If there is strong correlation between these two quantities, it adds confidence that aerosols indeed play an important role. If there is no correlation, then it becomes harder to argue that the measurement model bias is not due to some other missing sink.

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

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