

Interactive comment on “What does the global mean OH concentration tell us?” by “M. G. Lawrence et al.”

M. G. Lawrence et al.

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We appreciate the comments and recommendations of both referees, and have taken most of them into account in revising the paper.

We agree with the referee’s comment that our use of the term “oxidizing efficiency” could be clarified further, and have tried to do so in the revised version. It has now been given the symbol OE_X , where X is a chosen gas, and is defined in an equation explicitly as the inverse of that trace gas’s lifetime. It is also pointed out that we focus on the oxidizing efficiency with respect to CH_4 and CH_3CCl_3 in this study, and that consideration of the oxidizing efficiency with respect to other gases, such as CO , might be interesting topics for future studies, but will need careful analysis to interpret properly when their spatial distributions are highly inhomogeneous. The fact that CO is the primary sink for OH is pointed out in the introduction, as well as the main source (excited atomic oxygen plus water vapor).

In addition, we have now broadened our recommendation to suggest that both the mass-weighted and CH₄-reaction-weighted [OH]_{GM} values be provided. This helps to provide information about how the atmospheric oxidizing efficiency of OH would vary with respect to other gases which have a less dramatic temperature dependence than CH₄ in their reaction with OH.

We have removed the reference to the Collins et al. OH distribution, and appreciate that this misinterpretation was pointed out.

Interactive comment on Atmos. Chem. Phys. Discuss., 1, 43, 2001.

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