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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The contribution of anthropogenic bromine emissions to past stratospheric ozone trends: a modelling study" *by* B.-M. Sinnhuber et al.

B.-M. Sinnhuber et al.

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We thank all the referees for their detailed and helpful comments. We have now revised our manuscript taking into account the specific reviewer comments. In particular we have repeated the model calculations with the now available JPL-06 reaction rate recommendations, as suggested by the referee Ross Salawitch. We also have modified the technical details of how to calculate alpha: calculations are now performed with increased chlorine and bromine loadings of 10, 30 and 50%. With the new calculations the values of alpha have slightly changed (annual averaged alpha is now calculated as 64, in contrast to a value of 69 from our earlier calculations). Below we give a detailed reply to Ross Salawitch's comments.

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1. We have included a sentence in the abstract, that the ozone trend due to bromine depends on the chlorine loading due to the role of the BrO/ClO cycle.

2. We have now updated our calculations using the JPL-06 reaction rate recommendations.

3. This is indeed an interesting suggestion. However, for the present study we have decided not to include another model scenario.

4. We have now included a reference to the 2006 WMO/UNEP Ozone Assessment which gives a range of 18 to 25 pptv for the total bromine loading and a likely contribution of 3 to 8 pptv from VSLS. We have modified the text accordingly and also included a reference to the paper of Sioris et al.

5. Ross Salawitch makes an important point here. However, for the reasons given in his comment we do not make any changes to the manuscript in this respect.

6. Corrected, thank you!

7. Corrected, thank you!

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 6497, 2006.

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Interactive Comment