

Interactive comment on “Transfer of organic Br and Cl from the Biosphere to the Atmosphere during the Cretaceous/Tertiary Impact: Implications for the stratospheric Ozone Layer” by K. Kourtidis

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Referee #1 has thoroughly read the paper, as is evident by the extensive comments and editing suggestions (for which I would like to thank the referee, since both the comments and editing are very helpful in improving the readability of the manuscript).

In the revised version, all editing suggestions will be taken into account. Here, the comments will be addressed, and changes that will be made to the revised manuscript will reflect these comments.

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Specific comments

Page 6770, Line 11: “active” can be replaced by “organic”, as, indeed, the methyl halides themselves are not considered active; they are source gases for active Cl and Br.

Page 6772: Not all source terms are included in the manuscript, hence the large apparent imbalance. However, the reader should keep in mind, that even with all BEST ESTIMATE source terms included, the budget of both CH₃Br and CH₃Cl would still remain imbalanced, by -45 Gg/yr and -1.05 Tg/yr, respectively. If the FULL RANGE of the source/sink estimates is considered, the budgets end up with a net imbalance range -220 to +71 Gg/y for CH₃Br and -4.6 to +9.3 Tg/yr for CH₃Cl (Montzka and Fraser, 2003). The imbalance most probably results from uncertainties in current source/sink estimates and/or unidentified source terms. Montzka and Fraser provide an up-to-date review of the subject.

Page 6772: A Table with the relative emission rates might indeed help the reader here, and will be included in the revised version.

Page 6775: The description of the model can be shortened, although I would not like to make it shorter than 0.5 of its present size, so that the reader won't miss any useful information. Equations 1, 3 and 4 can be omitted.

Page 6770, Line 22: “..result from $\ddot{E}$ ” cannot be replaced with “ $\ddot{E}$ yield $\ddot{E}$ ”, as this would change the meaning of the sentence. Maybe “Reported stratospheric impacts result from $\ddot{E}$ ” should be replaced with “Reported stratospheric consequences result from $\ddot{E}$ ”, to clear up the confusion.

Page 6775, Line 16: patm is pico-atmospheres.

References

Montzka S.A. and P.J. Fraser (lead authors), Chapter 1: Controlled Substances and other Source Gases, In: Scientific Assessment of Ozone Depletion:2002, Global

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Ozone Research and Monitoring Project - Report No. 47, WMO, 498 pp., Geneva, 2003.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 6769, 2004.

ACPD

4, S3006–S3008, 2004

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