

## ***Interactive comment on “Suppression of chlorine activation on aviation-produced volatile particles” by S. K. Meilinger et al.***

### **Anonymous Referee #2**

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This paper presents an interesting analysis of a particular aspect of the interaction of contrail/cirrus with chemistry, an aspect rather often ignored and should therefore be published. A few points of clarification are offered below in the hope that these will be helpful. I apologize that these are offered rather late in the review process but none of the issues raised are stumbling-blocks for the authors. An overall impression is that for the reader, it is sometimes not clear whether impacts of sub or supersonics are being referred to. Of course, since the paper is process-oriented, this may be of secondary importance but on the other hand, if it is partially oriented to the poor ignorant global modeller, a little guidance always helps!

1. Abstract 'nm' -> full word.
2. Abstract, sentence starting "In contrast..." I understand the difficulty over choice

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- of words here but "ozone depletion" might be misconstrued, would it be better to say "reductions in ozone levels"? [see above point on sub vs SST impacts]
3. Introduction, sentence starting "In addition, scavenging losses..": a simple explanation would help the reader over the "grow more readily", just extending it to "..because.."
  4. Introduction, IPCC (1999) reference - its a thick report and citing a particular chapter would be really helpful.
  5. Model description, Para 2. a reference(s) to the heterogeneous reaction rates used is rather critical as my understanding is that these are not well known.
  6. Model description, para 3 it is worth mentioning a value (assumed) for the fuel S conversion efficiency (by the way, how sensitive are the calculations to this? The value of this parameter is still a 'hot' topic, with new results emerging)
  7. Model description, "reactands" -> "reactants"

...rest is really nice until conclusions....

8. Conclusions, para 2, "Therefore, additionally chlorine..." - do you mean "Therefore, additional chlorine...".?
9. Conclusions, para 4 (starting "Similar...") two points here, is it really fair to conclude this given that you state "Similar calculations (not discussed here)...", also, I don't understand the last sentence, this really needs some clarification as surely in the polar stratosphere, persistent contrails do not form from present-day subsonic aircraft. Is the assertion relevant to future high-flying SSTs, as implied by the start of the next para.?

10. The last paragraph could do with some clarification: do you mean that there are two opposing effects, the balance of which we don't yet know?

Nice paper: I hope the above is useful in clarifying some aspects.

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Interactive comment on Atmos. Chem. Phys. Discuss., 2, 983, 2002.

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