

## **Point-by-point response to the issues raised by referee#1 (Matthew S. Johnson)**

We thank the referee for the positive evaluation of our manuscript and for the helpful comments to improve the manuscript. Requested changes were taken into account.

### **Referee #1**(*referee's comments are in italics*)

*This is a solid paper that presents a convincing case, that earlier measurements of the isotope effects in methyl chloride oxidation should be revised. It should be published subject to technical corrections to address the points below.*

Authors: We very much thank the referee for the positive evaluation of our manuscript. The technical corrections are addressed below.

*1. The authors use the unit 'mUr' for milli-Urey. This is not an accepted/defined unit in the SI or IUPAC systems. It is an unnecessary unit, as we already have the per mil symbol, ‰ which can be found in for example the IUPAC green book. Science should avoid a situation where each sub-field has it's own obscure pet units or we shall soon see CO<sub>2</sub> mixing ratios expressed in microKeeling.*

Authors: Change applied. We have replaced mUr by ‰ throughout the entire manuscript.

*2. In some places the grammar should be corrected e.g. Line 20 'but yet lacks'.*

Authors: Changes applied.

*3. Line 27, 'increasing stable hydrogen isotope values', unclear, does it mean 1H or 2H, concentration, atom ratio, molecular ratio?*

Authors: To avoid confusion we have removed "increasing" from the sentence.

*4. Line 37 change 'named' to 'called'*

Authors: Change applied.

*5. Line 119, Agilent has made a lot of different GC-MS systems. Please specify which one.*

Authors: We have added the requested information to the text (Hewlett Packard HP 6890 gas chromatograph coupled to a MSD 5973 mass spectrometer).

*6. Lines 217, 225, etc. 'f' and 'c' and other variables for physical quantities should be italicised.*

Authors: Changes applied.

*7. Line 309, 'differences in the experimental smog chamber set-up', the phrase seems to be saying that the smog chamber was different from itself? Simply saying that FTIR is different from IRMS seems too obvious to be worth mentioning. Please give a specific cause or, leave it out.*

Authors: We have appropriately modified the sentence.

*I am wondering if there might be a better way to present the information in Figure 5, perhaps as a table, or a plot that would show both the fractionation of a given source and it's magnitude. The argument should not simply be the fractionation of each process, but it's effect on the atmospheric composition: isotopic mass balance.*

Authors: All available information regarding known source and sink strengths of chloromethane and the related stable isotope data have been provided in Tables 2 & 3. However, in addition to these Tables we would like to keep Figure 5 in the manuscript as it schematically summarizes the global chloromethane budget and the application of stable hydrogen isotopes and thus gives the reader a quick overview of the results and their relationship to the isotopic mass balance. We have slightly modified the text of this section.