

Jesswein et al., Tracing elevated abundances of CH₂Cl₂ in the subarctic upper troposphere to the Asian Summer Monsoon

Responses to comments by Anonymous Referee #1

We thank the anonymous reviewer for the thorough review of the manuscript and the suggestions for improvement. All comments are addressed below, with the reviewer's comments in black and responses in blue with improvements listed in italics.

Comments:

Figure 1: The 1:1 line is yellow not red in the Figure.

Done.

Overall, figures with light colored axes are hard to read. An example is the light blue for Figure S5, perhaps a slightly darker shade of the color at least for the axes and label.

We have replaced the light colors in these figures with slightly darker ones so that the contrast is stronger.

In the supplement could you add figures showing the CH₂Cl₂ as a function of altitude or POT? It would be great to see the data visualized in this way as well to help readers comparing to recent literature work.

We included such a plot as Figure S4 in the supporting information and the reference to it can be found in Section 3.2.

Body of Text:

Line 67: It would be nice either here or the supplement to list the altitude or POT range covered by the flights.

The potential temperature and altitude range of the research flights were included in this section.

Line 83: Would be nice to have the instrument names spelled out the first time it is used for the reader to know.

We included the instrument names in parentheses behind the abbreviation.

Line 321: 2023 and not 2024

Done.

Section 3.4: This analysis is really interesting. It would be great to see a rough estimate of the CH₂Cl₂ chlorine injection for PVU>4 to bring it back to the ozone assessment information.

The section on the stratospheric contribution is merely an outlook and is not the focus of this manuscript. This would require a more in-depth investigation beyond this case study. Therefore, elaboration of the stratospheric contribution with estimated CH₂Cl₂ chlorine injection would go beyond the scope of this manuscript and is not discussed in more detail.