Thank you for the additional comments. Reviewer comments are in black; author responses are in red

Editor review

Dear Kane Stone and coauthors,

thank you for submitting the revised version of you manuscript on the OH cycle and the H2 sink via observations of HFC-152. I think that you reasonably addressed the points raised by the reviewers. However, assessing the changes you made to the manuscript, I came across a these minor aspects that I would like to see addressed prior to publication of the study. Line numbers in the following refer to version 2 of the manuscript.

Thank you for your additional comments.

L70: "a much smaller stratospheric sink " -- please add the mechanism of the stratopsheric loss process - is that via reation with O1D?

Yes, it is mainly through reaction with stratospheric OH, $O(^1D)$, and Cl.

Have added in Line 69-70: “There is also a much smaller stratospheric sink with a lifetime of 44.3 years due to reaction with stratospheric OH, Cl, and $O(^1D)$”

L74/L74: "However, HFC-152a emissions are not expected to vary seasonally;" -- I could not find any mentioning of the applications or pupose that HFC-152a is used for. Given that the reviewers asked for more details on the compound, please add that information to the text, presumably to justify the statement on emission seasonality, or elsewhere. The discussion of the NH/SH gradient also demands for a statement on the interhemispheric asymmetry of the emissions which is typical for industrial gases. This could be included when the gradient is mentioned relating to Fig. 1 in Line 112 but would be more approprate in the introduction.

This is a good suggestion thanks. We have added in:

Line 73-74. “The main uses of HFC-152a are as a propellant for industrial aerosols and as a blowing agent for extruded polystyrene foams (Liang and Rigby, 2023).”

Line 76-77. “HFC-152a is also emitted mostly in the NH which results in a large North-South gradient (see Fig. 1)”

Figures 5 and S7: One of the reviewers mentioned the missing error bars, in your response

you state that you only include three error bars to avoid clutter. Please add a corresponding statement to the captions of these figures.

Thanks, done.

Line 316: Added in: “for select months of January, July, and December”