Response to comments on "Atmospheric three-dimensional inverse modeling of regional industrial emissions and global oceanic uptake of carbon tetrachloride"

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Please note: we provide our replies in bold font after each Referee's comments.

Anonymous Referee #1

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Recommendation – Manuscript is acceptable with only minor revisions.

The authors do a good job showing how the industrial emissions of CCl4 have not decreased as much as industry data suggest. Instead the rapid decline is due to the fact that the sink strengths exceed the emissions. They also show a shift in the distribution of the industrial emissions. The shift shows relatively higher emissions from South and Southeast Asia.

The MATCH model and Kalman filter are good. The data used to generate the initial emissions distributions and to constrain the atmospheric mixing ratios are high quality. The approach is sound and well documented in the paper. I can't really find anything wrong with this paper.

Some specific comments:

p. 12227 line 4 – correct the typo in CCl4 where a number 1 was typed instead of a letter l.

Typo corrected (Page 2, Line 4).

Figure 6. The offsets are confusing, and I don't really think they are necessary. The graphs should still be readable with all values plotted properly on the y-axis. An alternative might be to use two plots for each of those graphs with offsets. The axes could then be correct for the values shown.

Offsets removed. A priori and a posteriori sets are still in the same graphs to display the comparison.

Figure 9. I realize that the authors specifically state that the net loss is shown as a positive value to distinguish it from the ocean sink, but it is still confusing to look at. If there is some other way to show this, I think it would be better.

Figure 9 has been revised. The net loss term is now put on a separate subplot.