Response to Reviewer #2

Minor point 1: While I appreciate the authors taking into consideration the ratio method, they did not perform their analysis correctly. The revised analysis is done taking the average and standard deviation, and states that it is less robust, yet I specifically stated in my first review that it is the median, and not the mean, of the individual ratios that is more robust to outliers than the regression slopes. I've highlighted the points below:

While it is true that both the average and the median give equal weight to each observation, it is not relevant because the mean and median are calculated in two different ways. To illustrate this, consider a made up 10-point data set of ratios: [4,4,5,5,6,4,5,3,6,100]
This set has a mean of 14.2, but a median of 5.
Given that you are looking for a ratio that is representative of the bulk of your data, this shows how the median, while still giving equal weight to all values, is more representative of the bulk of the ratio data, and therefore more robust to outliers, than the mean (and regression slopes). Therefore, I am not surprised by the authors revised analysis to see that the mean value of the ratios is not different than the regression slope method. However, the median of the ratios could be, and should be included.
The median annual ratio (not the mean) is easily calculated (since you have already done the bulk of the work getting the mean values) and then added to Table S1. Assuming this does not change the results in a meaningful way, after this is added the paper is ready for publication from my perspective. If there is a significant change, the results should be updated.

→ Thank you for pointing out again what we overlooked and did not present. We have no doubt that using the median of the proposed ratio is also a very robust emission estimation method. As shown in Figure R1 below, the result of our regression slope is much more similar to the median of the ratio values than the mean. (As the reviewer mentioned, the mean is definitely more sensitive to outliers). We added the annual median values and the 16^{th} ~ 84^{th} percentile range for all data in Table S1, and described the similarities in the main text with reference to Miller et al., 2012.

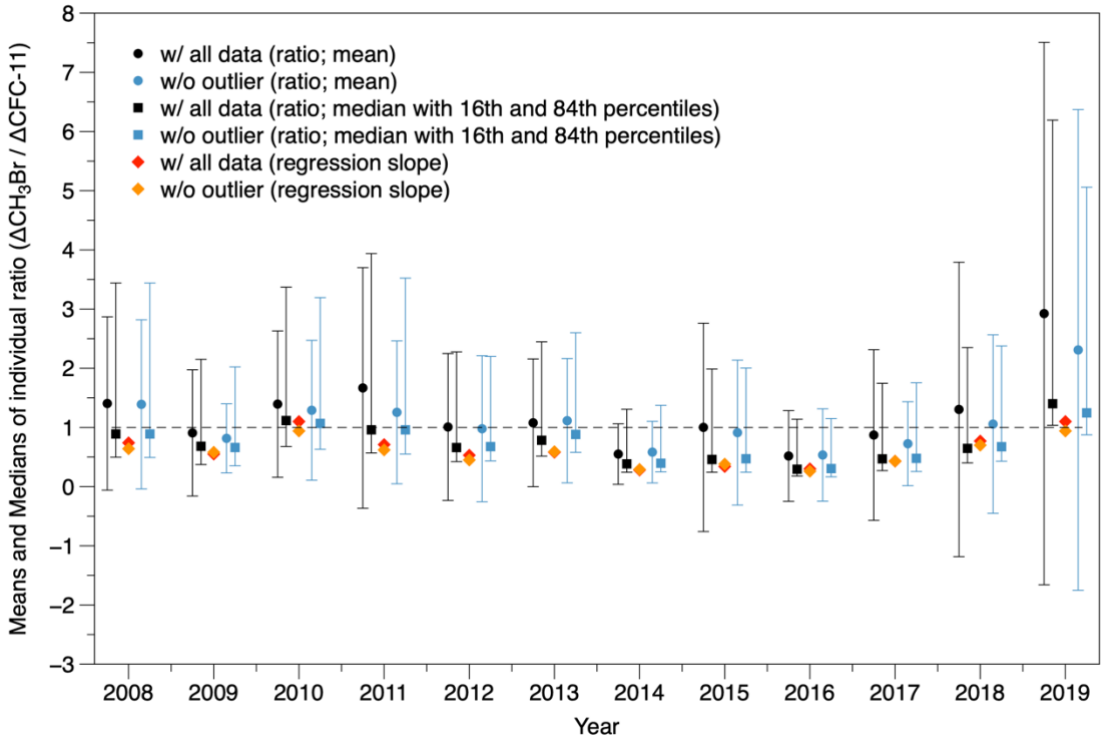

Fig. R1 Comparison of annual means and medians of individual ratio values (i.e., ΔCH3Br/ΔCFC-11) with annual regression slopes for all data and outlier-filtered data. Error bars of means and medians denote 1-σ standard deviation ranges and 16th to 84th percentile ranges, respectively.