

Authors' responses to reviews follow. A copy of the editor's comment is given (with comment 'number') followed by a response (blue font).

Response to referee 1

1. General comments

The unit of emissions is mass per time. In the present case, emissions are reported over annual periods, so the units should be corrected to "Gg a⁻¹" etc. There are numerous instances in main text.

We thank you for accepting our paper. We tried to reflect your comment on our manuscript and revised the unit of emission in the main text.

2. l. 25: "a measurement uncertainty"

L25: Corrected

3. l. 28: "above background mole fractions"

L28: Corrected

4. l. 32: "2.0±0.1"

L32: Corrected

5. l. 114: Please convert 5.5 psig to SI units (bar or Pa).

L114: Corrected to 0.38 bar

6. l. 152: "is the $\Delta(14\text{CO}_2)$ value of ..."

L152: Corrected: where Δ is the $\Delta(^{14}\text{C})$ of each CO_2 component of Equ. (1)

7. l. 158: $\Delta(14\text{CO}_2)$.

L158: Corrected: $\Delta(^{14}\text{CO}_2)$ is reported as a per mil

8. I. 159: " $\approx R_{\text{sample}}(^{14}\text{C}/\text{C}) / R_{\text{standard}}(^{14}\text{C}/\text{C}) - 1$, where $R(^{14}\text{C}/\text{C})$ is the $^{14}\text{C}/\text{C}$ amount ratio" [a chemical symbol alone cannot represent a quantity]

L159: Corrected: $\Delta(^{14}\text{C}) \approx [R_{\text{sample}}(^{14}\text{C}/\text{C})/R_{\text{standard}}(^{14}\text{C}/\text{C})-1]1000\text{‰}$, where $R_{\text{sample}}(^{14}\text{C}/\text{C})$ is the $^{14}\text{C}/\text{C}$ amount ratio

9. I. 169: $\Delta(^{14}\text{CO}_2)$

L170: Corrected: ... CO_2 that have a $\Delta(^{14}\text{C})$ differing by a small

10. I. 223: Please delete the tilde (~) sign. All quantities should be reported with an appropriate number of significant figures and rounded according to their uncertainty.

L224: Corrected: 1000 m

11. I. 492: Please change "absence" to "contribution", for clarity. station. Or even lower bound values of the AMY station based on Hysplit selection.

L493: Corrected: ...no contribution of

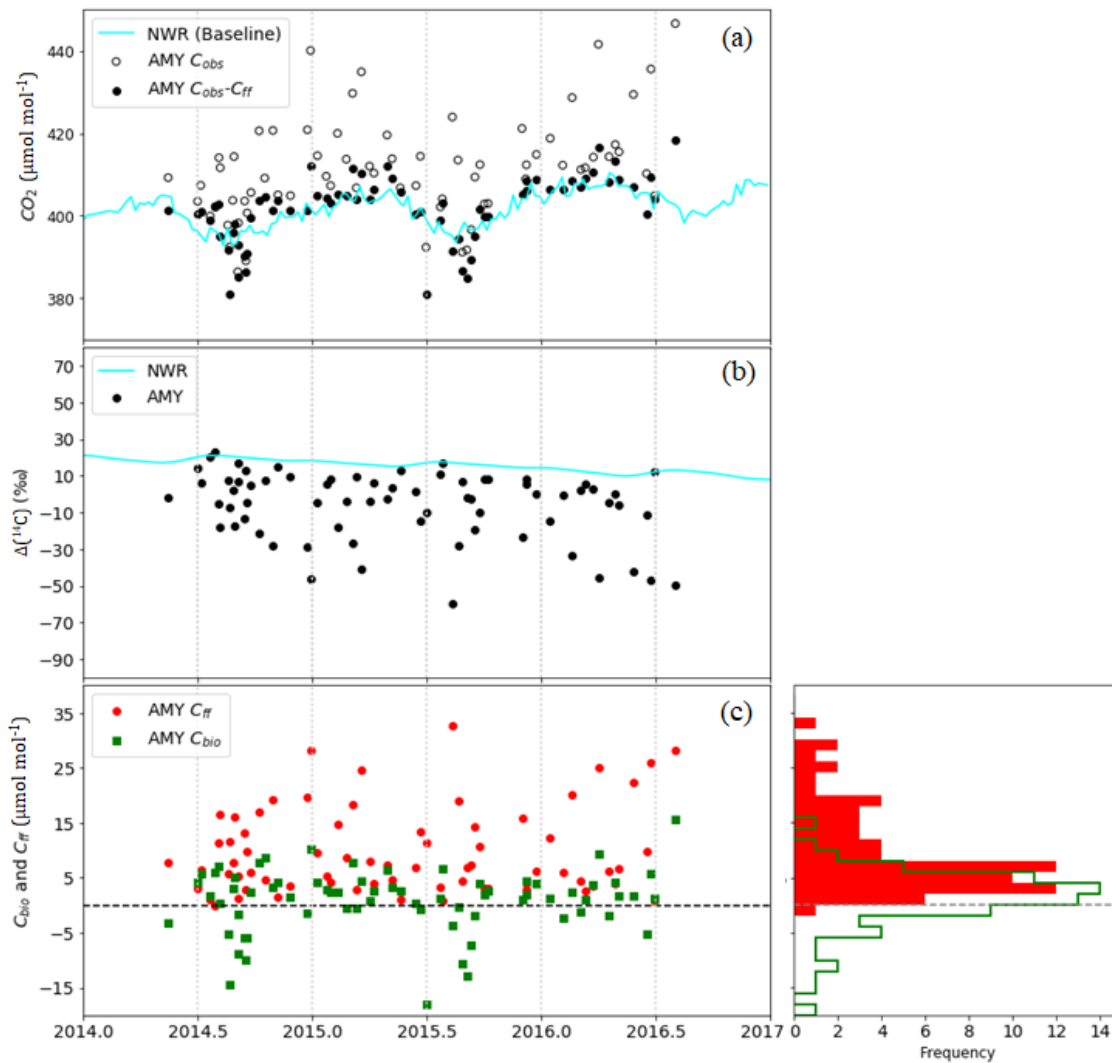
This described that the bottom of inventory missed the sources from oxidation of CH_4 and non-methane VOC.

12. Fig. 2a: The y-axis label should be $x(\text{CO}_2)$

Fig. 2a indicated atmospheric CO_2 level (not a enhancement value) so that we thought just CO_2 is right. Therefore we just retained this.

13. Fig. 2b: The y-axis label should be $\Delta(^{14}\text{CO}_2)$

Corrected.



14. Table 1: Add "mole fraction" after CO and SF6 in the table caption. The row headings should be $C_{ff} / (\mu\text{mol mol}^{-1})$, $x(\text{CO}) / (\text{nmol mol}^{-1})$, $x(\text{SF6}) / (\text{pmol mol}^{-1})$, $R_{\text{CO}} / (\text{nmol } \mu\text{mol}^{-1})$ and $R_{\text{SF6}} / (\text{pmol } \mu\text{mol}^{-1})$. The units should be removed from the caption. You may want to insert a separate row 3 to indicate the number of data N and remove this information from row 2. Please add to the caption the meaning of the abbreviations CB, CN, CE, OB, KL and PL (in case the table is displayed out of context)

We just retained the description of unit in the caption since the room is too small to include all. We added the meaning of the abbreviation of CB, CN, CE, OB, KL and PL.

15. Fig. S3: Please change y-axis label to "SF6 emissions (Gg a-1)"

Corrected

16. Fig. S4: Please change y-axis labels to "fossil CO₂ emissions (10⁵ Gg a⁻¹)" and "CO emissions (10³ Gg a⁻¹)"

Corrected

17. Fig. S4: Please change y-axis labels to "fossil CO₂ emissions (10⁴ Gg a⁻¹)" and "CO emissions (10 Gg a⁻¹)"

Corrected