

Response to the editor comments (ACP-2020-1143)

Dear Jan Kaiser,

We thank you for your acceptance for publication and your relevant final comments. You will find below your comments in bold followed by our answers.

1) Fig. 1 axis labels: Please add "amount of ..." before x- and y-axis labels.

Revised as requested.

2) I. 129: $\Delta(^{17}\text{O})$ uncertainty is most likely an overestimate because the uncertainties in $\delta(^{17}\text{O})$ and $\delta(^{18}\text{O})$ are correlated. This is confirmed by the Appendix B1. Please provide a more realistic estimate of the $\Delta(^{17}\text{O})$ uncertainty.

As we don't have reference nitrite standards with a known ^{17}O anomaly, we estimate the $\Delta(^{17}\text{O})$ uncertainty using uncertainty on $\delta(^{17}\text{O})$ and $\delta(^{18}\text{O})$. Overall uncertainty on $\delta(^{17}\text{O})$ and $\delta(^{18}\text{O})$ are estimated to be ± 1.1 and ± 2.5 ‰, respectively, resulting from measurement uncertainty and NO_2^- storage uncertainty. Using the linear approximation of $\Delta(^{17}\text{O})$ ($\Delta(^{17}\text{O}) = \delta(^{17}\text{O}) - 0.52 \times \delta(^{18}\text{O})$), it results a $\Delta(^{17}\text{O})$ uncertainty of ± 1.7 ‰.

3) You should remove the trademark (™) and registered (®) signs (e.g. used after Finnigan, Corning, 2B Technologies). They are marketing symbols and unnecessary in academic writing.

Revised as requested.

**4) Times of day should be reported using a 24 hour-clock
(<https://www.atmospheric-chemistry-and-physics.net/submission.html#math>)**

Revised as requested in Table 1 and Table 3.

5) I. 190: "keeps", "reaches", "maximum" (singular), not maxima (plural)

Thank you for pointing this mistake out.

6) I. 261: 30 pmol mol^{-1} would be a very low NO_x concentration - please check this statement.

This value is stated in Seinfeld and Pandis, 2006, page 229. Additionally, below a figure taken from Monks, 2005 which shows the balance point between net ozone production and destruction. The compensation point between A and B is between 30 and 100 pptv. We modified the value stated in the manuscript with "above 30-100 pmol mol^{-1} ".

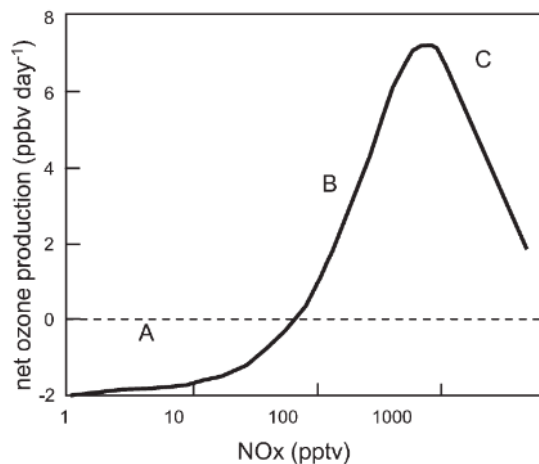


Figure: Schematic representation of the dependence of the net ozone ($\text{N}(\text{O}_3)$) production (or destruction) on the concentration of NO_x . The magnitudes reflect clean free tropospheric conditions (from Monks, 2005).

7) l. 299: The last term should be $(6.6 \pm 1.5) \text{‰}$.

Thank you for pointing this mistake out.

8) l. 368 & l.681 : Please add unit K after 2470, 1310 and 360 and remove "molecule⁻¹" ("molecule" is not a unit).

Revised as requested.

9) At various places (e.g. l. 167 to 187) you use the term "concentration", but refer to amount fractions. In Table 1 and Fig. 2, l. 159 and 162 you call these amount fractions "mixing ratios". The term "mixing ratio" is ambiguous because it can refer to amount fractions, mass fractions and so-called reduced concentrations (at a specific temperature and pressure, eg. 273.15 K and 1bar).

Instead of "amount fraction", the deprecated term "mole fraction" is often used although this would be equivalent to referring to a mass fraction as "kilogram fraction".

You should preferably use the term "amount fraction", but provided you define the term appropriately, I can accept "mixing ratio" or "mole fraction" as well.

Thank you for pointing this out. The paper has been revised as requested using the term mixing ratio and defined as mole fraction.