

Atmos. Chem. Phys. Discuss., referee comment RC2
<https://doi.org/10.5194/acp-2021-167-RC2>, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on acp-2021-167

Anonymous Referee #2

Referee comment on "Impact of stratospheric air and surface emissions on tropospheric nitrous oxide during ATom" by Yenny Gonzalez et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-167-RC2>, 2021

This manuscript reports results relating to N₂O from a series of flights. The manuscript is well written and presents interesting results, that are useful for the rest of the scientific community. My comments are minor, mainly looking to clarify the presentation.

Line 40 – I suggest clarifying “is rapidly increasing” by stating “its mixing ratio is rapidly increasing” (or similar phrasing)

Line 47 and 467 - “factor of 3” relative to what? I know what is meant having read the whole paper, but I think this needs to be explicitly stated in the abstract/ conclusions.

Line 85 – I was surprised that N₂O emissions from tropical river systems in Africa were so high, so I checked this reference. The bibliography of this manuscript is missing an entry for Valentini 2014, which needs to be added in, I assume it’s <https://bg.copernicus.org/articles/11/381/2014/>. Having skimmed this paper, 3.3 Tg N₂O yr⁻¹ seems to come from Table 9, which is total emissions for Africa, of which rivers seem to be a minor contributor. Please check where this number came from, and clarify in the text if necessary.

Line 87 – “and the balance from agriculture”, I suggest changing “balance” to “rest”?

Line 97, 465, 501 - “highly resolved” in what?

Figure 2 – the figure caption refers to d-g but no plots are labelled d-g.

Line 310 /Figure 3 – the months of the subplots are inconsistent between the figure and the text.

Line 321 / Figure 4 – the text says Fig. 4a-d, but no subplots are labelled c or d. Each subplot needs to be labelled, and that label used consistently in the text, caption, and figure.

Line 448 - I'm unclear how EDGAR has been used to create a profile, some extra explanation is needed here.