

Review of Elshorbany 2024

Tropospheric Ozone Precursors: Global and Regional Distributions, Trends and Variability

The revised paper is much improved, shorter and more evidenced. On the whole the three reviewer's comments have been addressed. I would however recommend that the authors address the below outstanding comments before it can be recommended for publication.

Review 1

Mostly addressed. References are missing in the responses to the reviewer.

Review 2

- 1) Addressed sufficiently
- 2) Needs a reference for the response to the comment around ocean emissions/regions. Issues with this statement were also highlighted within Reviewer 3's comments and this needs more substance and discussion in the text.
- 3) Addressed sufficiently
- 4) Addressed sufficiently
- 5) Addressed sufficiently
- 6) Addressed sufficiently

Review 3

- 1) Based on the importance of methane to future tropospheric ozone burden highlighted by Cooper's review (in particular with respect to the IPCC AR6 reference); this needs more attention before considering the impact of the reactive species. Discussion of methane distribution and trends and impact on ozone with reference to other studies should be included in the introduction and also the emphasis of the new paragraph should be the other way around. Suggest discussing methane importance first and then move the focus for the paper to higher reactivity precursors as this is then the new work.
- 2) Addressed sufficiently
- 3) Addressed sufficiently
- 4) As this is a paper discussing trends for TOAR-II and contributing to the Community special issue then the guidance should be observed and as advised the authors should try and change the wording they have used from 'significant' to statements about 'confidence'.
- 5) Addressed sufficiently
- 6) Addressed sufficiently
- 7) Addressed sufficiently
- 8) Addressed sufficiently

Minor comments

Mostly addressed but some detail is missing in the responses, *if* changes have been made- and it doesn't look like it- they are not described in the response. Authors need to respond to the comments around Figure 6, line 326, line 343, Figure 14, lines 355-357.