

Response to the Editor:

Dear Editor,

Thank you very much for your feedback. We considered all comments. Please find below the comments (in black) and our responses (in blue), and changes or additions to the text (in red).

Comments to the author:

Dear Authors:

Thank you for revising the MS.

I find the revision OK and the MS is now ready to be published.

However, I have some suggestions here. Please consider them.

L1: Delete “In this study” and start “We present”

Done.

L4-5: to examine the regional patterns and seasonal dependency

Changed.

L8-9: the uncertainty and trend value are same (i.e. 1.0). Then how can it be significant? Please rewrite.

Rewritten to “barely significant negative trends”.

L10: trends correlate with tropopause pressure?

Changed.

L31: Ball et al., 2018; 2019; 2020; need not write separately

Changed.

L32: increase in what? Ozone?

“in ozone” has been added.

L83: “and” Garane et al.

Changed.

L91: Total Column Ozone (TCO)

Changed.

L94: 2018; 2019

According to the Copernicus style file, it seems that papers from the same authors are separated by a comma. Kept as is.

L137: "The year 1997 is.... "
Changed.

L137: ODS peaked, where? Need to write the region.
"in the middle latitudes" has been added here.

L166: where are these upwelling and downwelling processes?
Explanation has been added.

L167: impact on ozone
Added.

L185: how much is this strong correlation, give a number
The correlation coefficient is ~0.3-0.4.

L219: between 50 "and" 60
Changed.

L263: "more evident" is enough, not more and more
Removed.

Table 3: Why there is a positive trend in northern north Atlantic?
The positive trend could be related to decreasing temperatures observed in this region (→ North Atlantic warming hole).

L318: this "between" is for latitudes or latitude and longitudes?
It is for latitudes and longitudes.

L325-326: Note that there is no corresponding seasonal pattern in the tropopause pressure.
Rewrite THE sentence like this. Delete "Please".
Done.

L360-364: In addition to the points mentioned here, the studies also used high resolution ozone sonde data. This could be also a reason for the difference with the trends estimated from satellite data.
Done.

L379: "The key aspect"
Changed.

L404: "study shows"
Changed.