

We thank the editor very much for the very helpful suggestions.

Technical corrections for Manuscript No. ACP-2021-600-Revised

General: space between number and unit missing in several occasions

We correct as suggested

P1, L5: Add comma → Here, we compare

We correct as suggested

P4, L115: add “the” before “meteorological” and “TROPOMI” and I would suggest to split the sentence in two sentences starting the second one with “In Sect. 3.....”. Otherwise, rephrase the sentence so that it reads more smoothly and it becomes more clear what will be shown/done in these sections.

We split as suggested and rephrase:

The article is structured as follows: in Sect.~\ref{sect:time} the methodology for comparing the meteorological parameters and the TROPOMI OCIO SCDs are introduced. In Sect.~\ref{sect:pacs} the methodology for comparison of the TROPOMI OCIO SCDs with CALIPSO PSCs dataset are described.

P4, L122: PSCs → PSC?

In abstract and on other before we have used “CALIOP PSC observations”, we make this consistent throughout the paper

P5, L123: Something missing? Add “and thus” so that it reads “and thus consequently plays a role.....” or simply add a comma?

We add a comma

P5, L129: write “and” instead of colon between the references

Done

P5, L131: I am not sure if the term “in limits” is correct. I would suggest to write it rather the other way that doing an other/larger SZA range would be beyond the scope of this study.

We follow the suggestion by reformulating:

Such an investigation, however, is beyond the scope of this study.

P5, L143: Abbreviation PT already used, but introduced one line later.

We fix this

P5, L150: Abbreviation RTM has not been introduced.

We write it out: radiative transfer modelling

P6, L156: PT already introduced.

Fixed

P7, L188: boolean → “a” boolean (?)

Yes, a boolean, We add “a”

P8, L215: add comma after “plotted”

Done

P11, L228: write “degree” or use the degree sign instead of “deg”

We correct by using degree sign

P14, L247: space after full stop missing

Corrected

P14, L249: Add comma after “However”

Corrected

P16, L252: I would suggest to rephrase as follows: “complete lack of NAT and STS PSCs”.
Further, what exactly do you mean with here? At a certain day, for this winter or this time period?
This should be more clearly stated than solely “here”.

We replace “here” with “this time period” since it refers to the beginning of February 2018 as mentioned at the beginning of the paragraph.

P16, L255: very → quite

Done

P16, L260: barelly → barely

Corrected

P16, L260: rephrase as follows: “at the longitudes (around 120°W) at which the largest OclO SCDs are observed”.

Done

P17, L286: for a few → at a few and add “only? So that it reads “only at a few”

Done

P17, L289: From the other hand → On the other hand

Done

P17, L294: I would suggest to make a new sentence: "Further, these look like remnants of earlier chlorine activation"

We follow the suggestion

P18, 297: add either a comma after T_NAT or continue with "and"

We add a comma

P18, L301: very → quite

Done

P18, L302: skip "very"

Done

P18, L306: of the → for the

Done

P18, L316: drop T_NAT → drop below T_NAT

Done

P18, L318: till → until

Done

P18, L323: change as follows:appear to be mixed with air from outside the polar vortex (with low PV values)

Changed

P18, L323: What is "8" the PV Value or date?

It is a typo. There is a reference to Fig. 8, so we add Fig. before 8.

P19, L337: Sentence not clear → check. Maximum of what?

There should be "if" instead of "and", so it reads "maximum of OCIO SCDs". We correct.

P21, L338: rather "could" than "can"?

We modify as suggested

P21, L345: space between opening parenthesis and number obsolete

Fixed

P22, L350-351: Check sentence. Something missing here?

Second part of the sentence “also enhanced PSC evidences are found” is also redundant as it tries to say the same as the rest, so we skip it.

P22, L252: Same here? “but changes during the season” feels a bit lost.

We skip “but” to make the sentence more clear

P22, L355: lowers → decrease

We change as suggested

P22, L358: “in the SH” obsolete → remove

Done

P24, L364: beginning October → beginning of October

Done

P24, L389: add comma after “seen”?

Done

P27, L390: sudden warming → sudden stratospheric warming

Done

P28, L396: SH winter 2020 → the SH winter 2020

Done

P28, L398: I guess this holds for the time period October to December, thus I would suggest to write that more clearly: “ during the time period October to December”

Done

P28, L401: either it should read “In June and August” or “During June to August”

It should read “During June to August”. We modify.

P28, L410: of the → within?

We follow the suggestion

P29, L433: Here it is not clear if you mean with the number the vortex size or the OCIO column. Thus, you should clearly state here that these are the OCIO values.

We move “reaching at maximum $3 \times 10^{14} \text{ cm}^{-2}$ ” to the beginning of the sentence after “OCIO SCDs”, to make this clear.

P29, L445: add comma after “both” and “horizontally” ?

If the comma should or could be used then before “both” and after “horizontally”. We would leave it up to the English proofreading service.

P30, L465: typically → typically

Corrected

P30, L469: righ → right

Corrected

P30, L474: Add comma after “Therefore”

Added

P31, L484: voundaries → boundaries

Fixed

Fig A4: x-labels are not appearing fully

Fixed

P34, L490: Add comma after “Here”

Added

P34, L491: Add comma after “Therefore”

Added

P34, L493: space between comma and “and” missing

Added

P34, L495: right for just May → right just for May (and better to write “only” or “solely” instead of “just”?)

Corrected

P34, L496: axis scales → y-axis scales

The scales are different for both x- and y- axis, so we write change to “x- and y-axis scales”

P34, L503: plot correlation → plot the correlation

Corrected

P34, L504: respectively → respectively

Corrected

P34, L504: I would suggest to write it as follows:”.....between the OCIO SCDs and either the PSC evidence or the mean backscatter ratio.....”

Rewritten as suggested

P35, L507: datapoints → data points

Corrected