

# Final Response to Editor

**Overall comments:** *Dear authors, please find enclosed a referee report on the revised version of your manuscript. Additional to the technical corrections suggested by the referee I would like to ask you to consider additionally the following technical corrections before submitting your final files for publication:*

**Overall Response:** Dear Editor, thank you for your decision on our manuscript with “Publish subject to technical corrections” and also for handling our manuscript during this whole process, we really appreciate! We have carefully addressed your remaining technical comments as well as the few technical comments from the Reviewer in our final version for the production office. The details on this are noted Point by Point below. In addition, we made two or three last technical/language edits we had spotted finally now. The one of these that we like to mention here, since made it in the title, is that we replaced the technically-looking “(1980-2021)” in the title by “since 1980”. We note we had inserted this in the revised manuscript and we now realized it is indeed easier to read if there is not a parenthesis but just a text phrase (the meaning is anyway the same).

## **Detailed handling of the remaining technical editor comments:**

**Point 1:** *P5, L134: increase -> increased*

**Response 1:** OK, we have changed to “increased”.

**Point 2:** *P5, L135: add "was" and "a" so that it reads "increase was jointly observed with a wind reversal"*

**Response 2:** OK, we have added “was” and “a” in the updated manuscript.

**Point 3:** *P9, L276: add "the" -> in the mid-stratosphere*

**Response 3:** OK, we have added “the” in the updated manuscript.

**Point 4:** *P9, L277: delete "is" or write "where values are about" or "with values of about"*

**Response 4:** Thanks. We have written “with values of about” in the updated manuscript.

**Detailed handling of the remaining technical reviewer comments:**

**Overall comment:** *The revised version of the paper is much improved, thanks to the authors' effort! The new figure 2 is important and very helpful. All of my comments and suggestions are properly considered. Before accepting the paper, I raise three minor issues to improve this paper:*

**Overall Response:** We thank the Reviewer for the positive assessment of our revised manuscript. We have addressed the three minor technical issues in the updated manuscript as follows.

**Point 1:** Line 63: solar radiation are ... : please provide corresponding references.

**Response 1:** OK. We have added two references at the end of this sentence.

**Point 2:** Figure 1 and similar figures: 50 N overlap with 180 E

**Response 2:** OK. For Figure 1, we finally decide to label on 60 N and 80 N to avoid the overlap and also for a better visualization. For other similar figures, we suppress the label 50 N since the big circle margin line is then just the 50 N line.

**Point 3: Figure 7o: it is impossible to read the text on the blue color.**

**Response 3:** Thanks. We have changed the font color from black to white for a better visualization.