

Suggestions for revision or reasons for rejection (will be published if the paper is accepted for final publication)

We thank the reviewer for careful reading and suggestions. We have incorporated all the suggestions given by the reviewer. The changes are indicated in blue color and corresponding line numbers are also mentioned in the replies given below.

(1) P7, L139: space missing between "and" and "168" .

Reply(1) : Above mentioned suggestion has been incorporated in the manuscript at L139.

(2) P13, L252: add "the" so that it reads "the model overestimates".

Reply(2) : Above mentioned suggestion has been incorporated in the manuscript at L252.

(3) P13, L259-260. This sentence is somewhat weird. It should be rephrased. What do you mean with "a location of maximum"? Do you mean "the location of maximum in the CO (distribution)? Wouldn't it then be better to write "Similar to ozone the maximum in the CO distribution is not collocated with.....". The second part of the sentence is also not clear and thus should be rather an own sentence. One could continue: "Further, slight differences between model simulations and MIPAS observations are found." Why are there differences between model simulation and observation? What is the reason for these differences?

Reply(3) : Above mentioned sentence has been reframed and the reasons for differences between model and observations is explained in the manuscript at L259-262.

(4) P16, L326: long lived -> long-lived

Reply(4) : Above mentioned suggestion has been incorporated in the manuscript at L327.

(5) P16, L326: studeies -> studies

Reply(5) : This word has been removed from the manuscript.

(6) P16, L326: This sentence should also be rephrased. What do you mean with should behave in the model simulation similar to inert gases? I guess it should rather read "model simulation" than "model studies".

Reply(6) : Above mentioned suggestion has been incorporated in the manuscript at L328.

(7) P16, L333: indicated by boxes? Where in the figure? Please clearly state that.

Reply(7) : Above mentioned suggestion has been incorporated in the manuscript at L335.

(8) P17, L344-345: "of from" should be either "of" or "from".

Reply(8) : Above sentence has been reframed as "Ozone distributions from CTRL simulations show stratospheric intrusion" at L346-347.

(9) P17, L347: add "the" so that it reads "in the Asia10 simulations...".

Reply(9) : Above mentioned suggestion has been incorporated in the manuscript at L348.

(10) P17, L353: add "the" so that it reads "from the surface to ~180 hPa....

Reply(10) : Above mentioned suggestion has been incorporated in the manuscript at L355.

(11) P17, L354: skip "be" after may and "to" after likely, so that it reads "may likely be".

Reply(11) : Above mentioned suggestion has been incorporated in the manuscript at L356.

(12) P17, L357: It -> This

Reply(12) : Above mentioned suggestion has been incorporated in the manuscript at L359

(13) P18, L365: add "in the simulation" so that it reads "in the CTRL simulation".

Reply(13) : Above mentioned suggestion has been incorporated in the manuscript at L367.

(14) P18, L376: also see -> see also

Reply(14) : Above mentioned suggestion has been incorporated in the manuscript at L379.

(15) P19, L392: show -> showed

Reply(15) : Above mentioned suggestion has been incorporated in the manuscript at L395.

(16) P20, L404: space between 5-6 and days is missing.

Reply(16) : Above mentioned suggestion has been incorporated in the manuscript at L407-408.

(17) P20, L407: employ -> employed

Reply(17) : Above mentioned suggestion has been incorporated in the manuscript at L410.

(18) P20, L417: evaluate -> evaluated

Reply(18) : Above mentioned suggestion has been incorporated in the manuscript at L420.

(19) P21, L431ff: this text part needs to be rephrased, too. How can emission change dynamics? What do you mean with "induced by reduced of NO<sub>x</sub> and OH? Do you mean by reduced emissions or do you mean by lower concentrations of NO<sub>x</sub> and OH in the simulation?

Reply(19) : Above mentioned suggestion has been incorporated in the manuscript at L433.

(20) P21, L440:show -> showed L443

Reply(20) : Above mentioned suggestion has been incorporated in the manuscript at L443.

(21) P22, L448: One fullstop obsolete.

Reply(21) : Above mentioned suggestion has been incorporated in the manuscript at L451.

(22) P22, L448-449: these leaves the question open why are there differences found. What is the reason for the differences?

Reply(22) : The reasons for observed differences are explained in the revised manuscript at L451-454.