Additional replies to the comments by Reviewer #1.

Comments

Reviewer #1

1) The title is too vague. The changes presented here concern only ozone, NO2 and NO3. It seems that "Case studies of . . . (giving the dates) . . ." will be more appropriate.

Authors

The title is changed to "Polar-night O_3, NO_2 and NO_3 distributions during sudden stratospheric warmings in 2003-2008 as seen by GOMOS/Envisat".

Reviewer #1

The main criticism concerns the references.

2) I think this subject was already studied in the past with other satellite data. Can the author provide a survey of what have been done previously ?

Authors

In the revised version, we have added many references on previous studies using ground-based, in-situ and satellite measurements.

Reviewer #1

10) Page 23332 line 10: The fact that the January 2006 and January 2008 events differ from what is observed during the other events can give some troubles on the general rules the authors want to propose.

Authors

In the revised version, we have clarified what is different for these SSW events (temporal shift with respect to the stratospheric changes). During the discussion of our paper, the paper [*Gao et al.*, 2011] has been published. This paper has reported dramatic decrease of atomic oxygen mixing ratio up to ~95 km altitude with onset on SSWs, thus confirming one of our hypotheses on possible reason of observed changes in secondary ozone. We have included the corresponding discussion into the revised version of our paper.

References

Gao, H., J. Xu, W. Ward, and A. K. Smith (2011), Temporal evolution of nightglow emission responses to SSW events observed by TIMED/SABER, *J. Geophys. Res.*, *116*(D19), D19110, doi:10.1029/2011JD015936.