

Interactive comment on “Validation of MIPAS CIONO₂ measurements” by M. Höpfner et al.

Anonymous Referee #1

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This paper describes validation of MIPAS-Envisat CIONO₂ data compared with independent balloon-borne, aircraft, and satellite measurements of CIONO₂. This careful and detailed validation work should certainly be published in ACP. However, I noticed some points which had better modified before published in ACP.

#General Comments:

This is a validation paper which compared MIPAS CIONO₂ data with other independent data sets. However, in my point of view, “validation” means that the “validated” data should be compared with somewhat more reliable datasets. In this point of view, the inclusion of FIRS2 and MIPAS-STR data in this paper produces too small information for readers, because their data quality or data coverage (altitude region) are much poorer compared with MIPAS CIONO₂ measurement. I recommend the authors to delete the discussion on FIRS2 and MIPAS-STR parts, shorten the paper, and re-

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format the paper structure.

#Specific Comments:

1. Introduction The purpose of CIONO2 measurement is not well described. The role of CIONO2 in ozone depletion, especially in polar region should be more described in the introduction.

Also, some recent works for CIONO2 measurements are not enough introduces. Please consider to introduce i.e. the following works in the introduction.

Michelsen et al., (1999), J. Geophys. Res., 104, 26419-26436. Riese, M., et al., (2000), Geophys. Res. Lett., 27, 2221-2224. Nakajima, H., et al., (2006), J. Geophys. Res., 111, D11S09, doi:10.1029/2005JD006441.

3.3 FIRS2 As stated in the general comments, I would propose to delete the comparison with FIRS2 from this paper, because the quality of FIRS2 CIONO2 is not supposed to be high, and not enough to use as validation data.

3.4 MIPAS-STR Also, I would propose to delete the comparison with MIPAS-STR from this paper, because the altitude range of MIPAS-STR CIONO2 is not enough for comparison (below the peak altitude of CIONO2 profile). Another reason is that the MIPAS-STR retrieval is too much affected by the above apriori CIONO2 profile.

4. Comparison with ground-based measurements: FTIR P.9783, L.5: The matching criteria of Delta_d_max=800 km seems too large for me. I did similar validation study before, and have found that matching criteria should be more or less smaller than 500 km in many cases, due to the nature of air mass. I recommend the authors to re-sort the validation data for those within 500 km and 300 km for stricter criterion.

5. Comparison with spaceborne measurements: ACE-FTS P.9785, L.19: The satellite name is not ACE, but SCISAT-1.

P.9786, L22 and L24: co-incidences → coincidences

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