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comment

Interactive comment on "Phosgene in the UTLS: seasonal and latitudinal variations from MIPAS observations" *by* Massimo Valeri et al.

Anonymous Referee #1

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The manuscript presents the retrieval of phosgene ($COCl_2$) profiles from MIPAS limb-emission spectra based on new spectroscopic line parameters. The applied retrieval scheme is described together with reasonable diagnostic material, like averaging kernels and error analysis. The scheme has been applied to a limited set of MIPAS data, which, nonetheless, seems adequate to fulfil the goal of the paper. From this period, mean profiles indicating the seasonal and latitudinal dependence of $COCl_2$ are discussed. For validation, comparisons with co-located measurements from the ACE-FTS instrument are shown. Since this manuscript contains essentially all information needed for characterization of a new MIPAS product, it is well suited for publication in AMT. Still I would strongly suggest to consider inclusion of results from the period when MIPAS measurements were obtained with higher spectral resolution. Further, the retrieval would be even more convincing if the improvement of the fit by including

COCl2 could be shown in the spectral residuals.

Specific comments:

P3L22: 'ESA-supported project'

Please specify the project (project title/number, reference if possible)

P4L15:

In the error analysis further down in the manuscript, also the line-width uncertainty has been considered. Could this be included here?

P5L25: 'error budget'

The assumptions on the error quantities should be given or referenced (e.g. how large was the radiometric uncertainty assumed . . .)

P7L1: 'interpolated'

How has the interpolation been performed?

P7L30: 'interpolated'

How has the interpolation been performed?

P8L12: 'Thanks to a new spectroscopic database of phosgene. . .'

Is it really the new database which made the retrieval possible? E.g. ACE-FTS has obtained COCl2 profiles without this new dataset. Please consider another wording.

Technical:

P1L10: 'ratios' -> 'ratio'

P1L20: 'carbon tetrachloride -> '(carbon tetrachloride)'

P2L11: 'the phosgene' -> 'phosgene'

P2L12: 'bands' -> 'band'

P4L5: '169K' -> '169 K'

P4L23 and elsewhere in the document: 'fig.' -> 'Fig.'

P7L22: 'with respect to' -> 'compared to' (?)

P8L10: 'season' -> 'seasons'

Table 1 heading: 'Frequency' -> 'Wavenumber' and please check if 'Initial' and 'Final' is the correct wording

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Discussion paper