



Supplement of

Assessment of the error budget for stratospheric ozone profiles retrieved from OMPS limb scatter measurements

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Supplementary information

This document presents some plots to support the discussion in the paper about the treatment of parameter errors.

Considering the five parameters chosen for the error analysis, we can see that temperature, pressure and aerosol errors could be assumed to vary randomly in altitude or to be perturbed by the same amount at all altitudes. On the contrary, surface albedo is a single value as well as TH pointing, as it is related to the pointing of the instrument as a whole.

We investigated the difference between considering the perturbation constant over altitude (correlated) or free to change randomly with height (uncorrelated) for the three parameters. Fig. 2 shows the comparison between these two cases, in terms of ozone errors, i.e. standard deviations of 50 retrieved profiles with perturbed aerosol, temperature and pressure profiles, with correlated (magenta shaded area) and uncorrelated (green) errors. In the first case we used 50 generated noise sequences as SNR, whereas in the second we kept the SNR from the actual OMPS-LP measurement. Superimposed are also shown the two cases of fixed perturbation (blue and red lines), using the SNR from the OMPS-LP observation. Differences are negligible for aerosol but not for temperature and pressure. We have to note that from the nature of pressure and temperature data, i.e. model, a systematic error in the altitude domain is more probable.

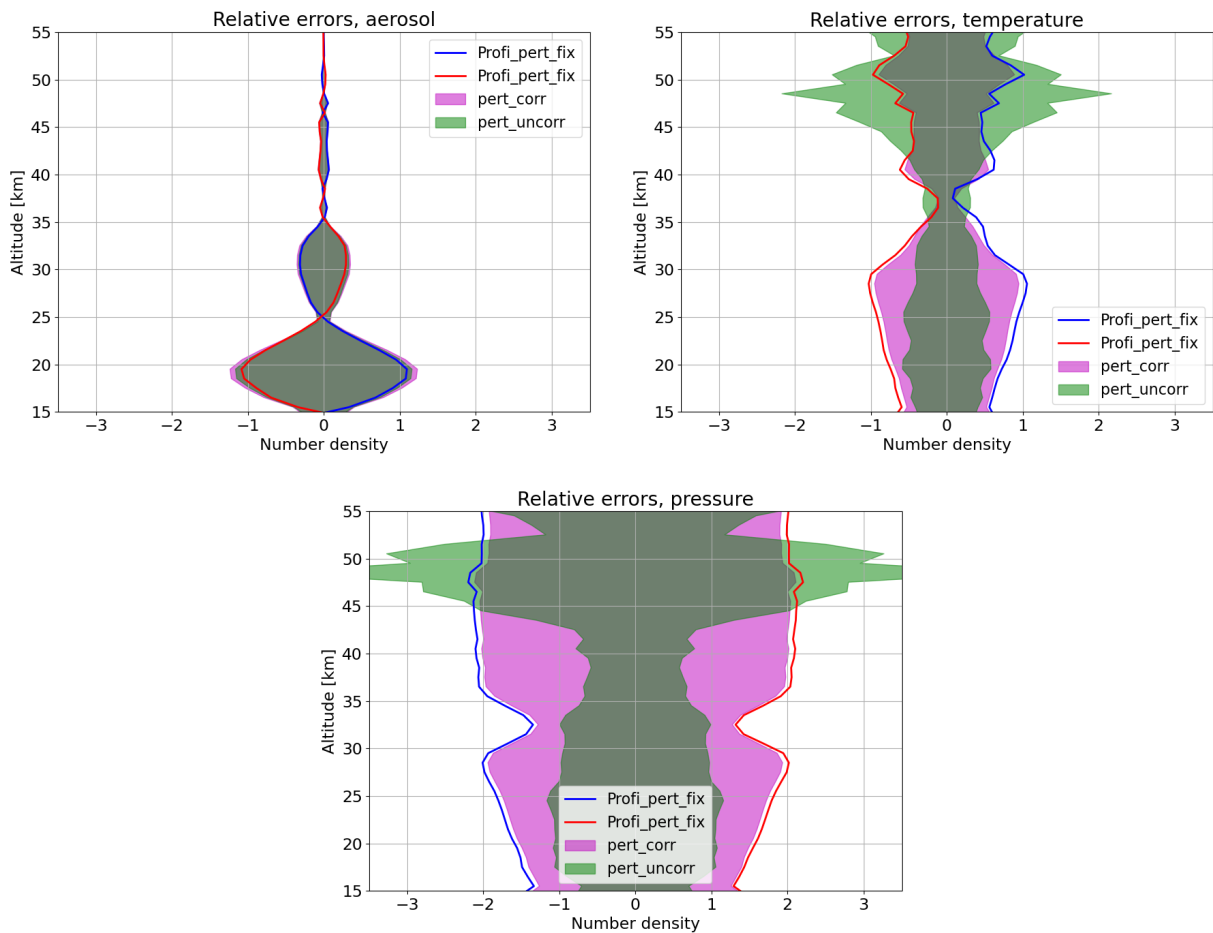


Figure S1: Comparison of estimated ozone uncertainties when using altitude correlated or uncorrelated parameter errors, for aerosol, temperature and pressure.