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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The H Lyman-α actinic flux in the middle atmosphere" *by* T. Reddmann and R. Uhl

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Scientific points:

Neglection of natural linewidth:

Absorption in the Lorentz wings have to be included only for very high optical depths in the line center (> 100), see for example Meier 1991. For Lyman-alpha this condition is not reached in the atmosphere. We will include this reference in the new version.

Reference to Neumann + Box Muller

Neumann's rejection method is very commonly used as a Monte Carlo technique and self-evident. Hence we think it is not necessary to be explained or referenced.

The Box-Muller method will be referenced in the new version and the text will be extended.

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Figures

The stong dependence on SZA is clear in Fig. 2, but also evident in figures 4, 5 and 7. Fig. 3 and Fig. 6 are intended to demonstrate the accuracy of the parameterisations, with no explicit reference to the specific conditions. In addition, the important parameter is the temperature and not the season. We think, additional figures according the referee's suggestion would nearly double the space for figures, which seems not to be appropriate.

Dependence on thermospheric parameters

The solar conditions have been specified in the text now in the first paragraph of section Results. Tests for different solar conditions, which cause changes in density of H and temperature, showed no strong influence on the results. This has been also stated in the first paragraph of Section 3 now.

Changes of the text has been tried to realize according the suggestions of the referee.

Specific remarks: The formulation with z_{new} has been extended, and we think a list for z_{new} as proposed is not necessary now.

The sentence starting with "As the column is the parameter..." was aimed at parameterisation using one temperature profile. To avoid that this sentence is connected to our parameterisation, we leave it out.

Interactive comment on Atmos. Chem. Phys. Discuss., 2, 1635, 2002.