

## ***Interactive comment on “Technical Note: A novel parameterization of the transmissivity due to ozone absorption in the $k$ -distribution method and correlated- $k$ approximation of Kato et al. (1999) over the UV band” by W. Wandji Nyamsi et al.***

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First of all, we thank Referee Peter Koepke for his positive remarks on the manuscript. The authors believe that they have understood the concerns of the referee. His remarks have been taken into account for revising a part of the text following recommend

Comment 1. Why the number of sub-intervals has been set to four? Thank you for this valuable remark. It is also a comment from the referee #3, hence the answer is the same. We have selected 4 sub-intervals for KB #3 and 4 sub-intervals for KB #4. The

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question is why 4? Why not more or less? It is understandable that the accuracy of the parameterization depends mainly on the choice of weight, number of sub intervals and their position in the KB. The primary goal of this paper is to demonstrate that it is possible to obtain a better representation of the transmissivity due to ozone absorption with fairly simple changes to the Kato et al. method. We performed a few tests with two to five sub-intervals and this is now mentioned in the text together with your suggestion to perform an additional study. We have replaced the following sentence in the paper: One solution is obtained by setting  $n$  to 4 and adopting equal weights for the sub-intervals for both KB #3 and #4. by

Many solutions are possible. No systematic scan of possible solutions in  $n$ , weight  $\alpha_i$  and  $\delta\lambda_i$  was made. This could be a further work that is computationally expensive and that requires setting up a protocol for selection of the best trade-off between accuracy and number of calculations. Here, a few tests were made with  $n$  ranging from 2 to 5. The best trade-off was found at  $n=4$ . A further study was performed for  $n=4$  by adopting equal weights for the sub-intervals for both KB #3 and #4.

Technical points: Comment 2. P1029, l.1: Mention the meaning of KB (explanation of the abbreviation) We fully agree with this remark. We added Kato bands after the abbreviation KB. The sentence is now: Hereafter, these spectral intervals are abbreviated in KB (Kato bands)

Comment 3. P. 1030, l.9: Repeat the meaning of  $IO\Delta\lambda$  or, even better, show Eq.2 as fraction of two integrals over  $\Delta\lambda$ , with spectral irradiance with attenuation as the numerator and without attenuation as the denominator. We fully agree with this remark. Done as requested.

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