

## ***Interactive comment on “A new method for estimating UV fluxes at ground level in cloud-free conditions” by William Wandji Nyamsi et al.***

### **Anonymous Referee #1**

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The manuscript by Wandji Nyamsi et al describes a new, time-efficient method for modeling UV irradiance. The manuscript is concise and well-written, and will be proper for publication in AMT after taking into account the following comments:

In the introduction, few lines of text regarding the reasons for which the authors choose to perform the evaluation of the method using ground based measurements only from high latitude stations (and not from mid-latitudes or the tropics) would be useful.

I suggest using abbreviations for phrases that are often referred in the manuscript (e.g. total column content of ozone could be written as TOC).

I suggest including Figures 2-6 in a single figure, similar to figure 8.

In Figures 2-6 the distribution of the data points around the  $y=x$  line is uneven. You

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claim that part of this uneven distribution is explained by the imperfect description of the effective UV albedo in the model. In some of the graphs (e.g. in figure 2) there seems to be a “branch” of data where the UV-A is importantly underestimated ( $\sim 20\%$  or more) by the model, even for high values of the UV-A (which possibly do not correspond to low SZAs). This branch becomes clearer in the case of UV-B (in all graphs of figure 8). Could you be more specific on what is the cause of this branch (explain more accurately what its cause is, or even provide a graph which proves that this branch is for high/low values of a specific parameter)?

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