

Interactive comment on “Measurements of UV irradiance within the area of one satellite pixel” by P. Weihs et al.

P. Weihs et al.

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ANSWERS TO REFEREE 1

First of all we would like to thank the reviewer for the comprehensive review and constructive remarks and suggestions that will help to improve the quality of the revised manuscript.

Here follow the answers to the reviewer remarks:

"The paper should also be checked for writing errors and language use"

Answer: This will be done.

"P. 3694, L7 to L9: It is stated in the abstract that the sub pixel variation of the UV index under clear sky conditions is within the measurement uncertainty of 8% whereas

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in section 3.1.1., P. 3698....

Answer: This will be corrected. Measurement uncertainty is $\pm 5\%$.

"Referring to the whole abstract, wording might be changed such that it becomes more clear, what the range of sub pixel variations of the UV index is, and what the uncertainties of satellite-based UV data are, at least a new paragraph may be started after 3h averages."

Answer: We will improve the abstract so that the magnitude of sub pixel variation and of satellite based UV data becomes more clear.

"P. 3697: Include at noon time after UV radiation"

Answer: This will be done.

P. 3697, line 19 to line 24: Fig. 2a to 2c: Fig. 2b shows a stronger scatter than fig 2c that refers to overcast conditions. This appears to be in contrast to table 2.

Answer: Table 2 shows the average deviation (the mean bias) whereas fig 2b and 2c show the fluctuations of UV of and between the stations. Results will be of course checked again, but at a first glance the authors do not see any contradiction between both results. This will be clarified in the text. Wording average deviation will be replaced by mean bias.

P. 3698, line 10: constant.

Answer: Change will be performed.

P. 3699, line 13: Overcast sky is usually defined by a cloud cover of 8 okta, i.e. ... I recommend to replace the wording totally overcast by overcast throughout the paper....;

Answer: Totally overcast will be replaced by overcast throughout the paper.

P. 3701, line 14: outliers; Is 0 to 40 per cent difference between satellite based and ground based UV radiation meant to be an average? According to fig. 6, many higher

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values do occur.

Answer: No this is not meant to be an average. These numbers are for clear sky conditions, they refer to fig. 6a and 7. In fig. 7 the largest ratio is around 1.42. In fig. 6a one value is just above 1.5 and one other value between 1.4 and 1.5. The other values are below 1.4. Note that both fig. do not totally correspond because of data gaps of the sunphotometer. This will be clarified in manuscript.

P. 3701, line 27: values

Answer: will be changed

P. 3702, line 9 and 21, P3703, line 12: on average

Answer: will be changed

P. 3702, line 20: It is said that the OMI UV algorithm does not agree very well with ground based observations. This wording appears to be quite positive, if the differences discussed before are taken into account.

Answer: We will rewrite this part.

P. 3704: It is said that current.... improvement of their retrieval algorithms;

Answer: We agree with this very good summary of the potential and the problems of satellite based measurements and satellite retrieved ground UV. Text will be changed accordingly.

P. 3704: line 8, under, P.3709 Table 2..., P. 3717 fig. 5. Answer: changes will be performed.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 3693, 2008.

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