

## ***Interactive comment on “Comparing OMI UV index to ground-based measurements at two Finnish sites with focus on cloud-free and overcast conditions” by M. R. A. Pitkänen et al.***

**Anonymous Referee #1**

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Comment on "Comparing OMI UV index to ground-based measurements at two Finnish sites with focus on cloud-free and overcast conditions" by M. R. A. Pitkänen, A. Arola, K. Lakkala, T. Koskela, and A. V. Lindfors

The paper deals with the OMI UV index compared to ground based measurements in Finland. An algorithm is set up to distinguish between clear sky, broken sky and overpass in order to better understand the OMI UV index performance compared to ground based SL501 radiometer measurements.

Major Objections: - the last line of the abstract together with the last paragraph of

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the conclusions summarizes the overall objection: there is little progress reported in understanding the observation that the OMI UVI algorithm overestimates ground based observations. This observation alone would not be enough ground for a new paper, as this was already established previously. The authors should make a far better effort in explaining what is gained with the approach presented in this paper and what is gained in understanding the cause of the overestimation. It should also be reflected in the title of their paper. - the current title is a bit of a problem "...focus on cloud-free and overcast conditions". It reads as if all cloud conditions are considered, hence, there is no focus. On second thought, it could mean that broken cloud conditions are not considered in this paper (why?). However, broken cloud conditions are equally discussed and presented in tables and figures as clear sky and overcast conditions. - the authors are encouraged to cite at first original work instead of (only) their own papers that are of a more recent date.

Minor comments: Please explain what is meant with the FOV for the ground based instruments. All instruments, Brewer, Solar Light radiometer and pyranometer measure an irradiance. One could say that for these instruments the FOV is the full hemisphere. However, it is stated that the FOV of OMI is larger. Please clarify and add text to explain this issue.

First paragraph of 2.4 leads to the suggestion of MODIS being a ground based instrument.

The use of the word "validated" seems a bit odd when differences are found of 21% to 56%.

Figure 5 is not clear.

English: many missing words like 'to' and 'the' Example: 504 L27 "...is due to the presence of clouds and is not mainly due [to] clear sky patches within the OMI pixel."

p500 I20 "... was less than one .." please use "...was less than 1..".

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