

## ***Interactive comment on “Spatial and temporal UV irradiance and aerosol variability within the area of an OMI satellite pixel” by S. Kazadzis et al.***

**Anonymous Referee #1**

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The present manuscript deals with satellite derived UV irradiance. First, ground derived UV for Thessaloniki and surroundings is compared with ground measurements. Second, the temporal and spatial variability within the area of the ozone monitoring instrument (OMI) satellite pixel is investigated. Here, mainly, the influence of aerosols and cloudiness on sub pixel variation is investigated.

The topic addressed in this work is innovative. To my knowledge, only one investigation (Weihs et al. (2008) ACP, 8, 5615-5626) has looked at the subpixel variation of UV radiation until now. These investigations are shown for the area of Thessaloniki and its surroundings, an area of big interest because of its high turbidity. The quality of the measurements performed within the scope of this study follows the standards and includes not only ground erythematous UV measurements but also measurements

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of turbidity, total ozone, cloud observations and imaging and aerosol vertical profiles. Analysis is sound and shows interesting results. The quality of the graphs is appropriate. I suggest to accept this manuscript in ACP after taking into account following minor comments.

In general I miss X-Y graphs which show the dependence of e.g. erythematous UV as a function of aerosol optical depth. Most of the graphs show timely sequences. Figures including other kind of presentations of the interdependence of the different quantities would be valuable.

P. 7279: "Same results have been found for for the irradiance at 305 nm (more overestimation) ..." Except the repetition of the word "for", this sentence is confusing. Where were these same results found? Within the scope of which study? Of the present study? Is this information not already included in the previous sentence?

P. 7279, line 24: "Occasionally and under variable cloudiness, OMI reported twice as high irradiance, at least..." in fig. 3, I can not see that the OMI values are twice as high as the measured ground UV.

Fig. 7: It seems that there is an increase in the difference between OMI derived and ground based irradiance with increasing duration of the cloudless sky periods. Can you say something about that.

Typing mistakes:

P. 7276: ... that only few studies have approached (Weihs et al., 2008). In the work of Weihs et al. (2007) measurements... => ... that only few studies have approached (Weihs et al., 2008). In the work of Weihs et al. (2008) measurements...

P. 7281, line 7: "can mainly attributed..." => "can mainly be attributed..."

P. 7281, line 26: "may suffer form such..." => "may suffer from such..."