Journal: ACP

Title: Comparison of UV irradiances from Aura/Ozone Monitoring Instrument(OMI) with Brewer measurements at El Arinosillo (Spain):II. Analysis of site aerosol influence

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The paper is an interesting and valuable study which focuses on the correction of the OMI irradiances based on the detailed determination of absorbing aerosols properties at the site, by means of two approaches: the first one based on a constant SSA value and the second one based on variable SSA values (daily and spectral values). The relative reductions of the OMI bias are achieved by means of the application of an expression of the aerosol correction obtained with both approaches. Improvements are encouraged to be made in a near future since the results of the effective reduction achieved using the variable SSA approach seems incongruent and not well justified.

The correction of the English grammar as well as a revision of the English is **urgently needed** all over the text. Some sentences are not all understandable from the English point of view therefore a revision by an English expert is needed.

The subject, the methodology and the results are suitable to be published in this journal.

As to the different sections, please read the following comments and suggestions:

Abstract

Besides the English corrections, please explain what is mean by **AOD features**, inserted in a sentence, between brackets, in the 3rd paragraph, after "….SSA value of 0.915..";

Why the relative reductions of the OMI irradiances by the application of both approaches (8,4% and 11.6%) are not presented also in the Conclusions? It should be written that these relative reductions are average values.

Introduction

The specification of the wavelength in the AOD values is needed. AOD(440) > or< ???? instead of AOD> or<????

Please indicate a reference or the criteria used to set up the thresholds of 0.25, above which is considered moderate-high aerosol load, or the thresholds of 0.1, below which is considered low aerosol load

2. **Site, Instruments and data**

The paragraph starting with the description of the site (3rd paragraph) should come after the 1st paragraph, before the sentence starting with "Aerosols were characterized……";

Please specify the AERONET data quality level (1.5, 2????) used in this study.

Page 6, when mentioning that daily OMI data is used, please specify the meaning of daily: average of how many overpasses?

Since the distance between the centre of the satellite pixel and the station vary from 0.1 up to 48km and an average value of 11.5 was considered, please specify the standard deviation

3. Methodology

Page 7, 2nd paragraph after equation 4, specify the wavelengths of AOD greater than 0.4.

Ppage 8, three approaches for selecting the absorbing aerosols were used and not only the two based on SSA or AAOT? The justification to use the three approaches is short.

4.1 Absorbing aerosol determination based on AOD-alpha and AI information

Page 9 – Specify what is the meaning of "both branches are joined" for AOT(λ???) values lower than 0.25, since it is not clear.

Why is it expected that the two groups of aerosols identified in Fig 2b may represent absorbing aerosols? In what spectral range?

Page 10- Please note the value of R2 = 0.17 is not the value indicated in Figure 3a (R2 = 0.16)

Page 10 and 11- I don't see much difference between the findings in Figures 3b and 4, in terms of BB aerosols: they are only identified when AI$>$ 0.5, in the 2nd quadrant like in Fig.4.

Page 11- Please explain the meaning of the sentence "….and not very sensitive to the aerosol boundary layer" in the last paragraph.

4.2. Absorbing aerosol based on SSA values and its relation with AOD, alpha and AI.

In the first sentence of the first paragraph specify the AOD-alpha conditions of the selected two groups of aerosols of high AOD with potential absorbing properties

2nd paragraph- It would be better to give information about the number of cases that were eliminated due to the restriction of AOD(440)$\geq$0.4

3th paragraph- What is the dimension of the AERONET level 2 data set used in this study?

4.3. Application of corrections for OMI bias. Approaches of SSA constant and SSA variable

Please note that in Figure 7 the SSA value is of 0.916 and not of 0.915 as in the text

Last paragraph, 1st sentence of this section instead of Figure 4a it should be Figure 3a

5. Conclusions (attention, not section 4)

The same relative reductions of OMI irradiances by the application of both approaches (8,4% and 11.6%) should be also presented in this Section, besides of being in the Abstract.