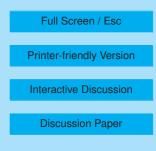**Atmospheric
Chemistry
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Discussions**

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Interactive comment on "Aerosol Single Scattering Albedo retrieval in the UV range: an application to OMI satellite validation" *by* I. Ialongo et al.

Anonymous Referee #1

Received and published: 23 October 2009

This study deals with the determination of the absorbing characteristics of aerosols by using among others measurements of spectral UV irradiance and of aerosol optical depth performed at the Observatory of Sapienza University, Rome. For this purpose, a methodology described by Bais et al. (2005) was used. The obtained single scattering albedo values were then used to test different procedures for the correction of the OMI-derived ground UV. 3 different correction procedures to correct for the missing aerosol absorption characteristics of the OMI algorithm were tested. Results showed that the correction procedures considerably reduced the differences between OMI derived UV and ground measurements. No recommendation as to which correction procedure to choose was made, however. The inclusion of the absorption characteristics of aerosols in satellite UV algorithms is an actual topic of research, where lot of work is still required. The present study is a very valuable contribution to this research. The authors

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are very much aware of the state of the art in this domain. They use the latest developments and they apply the correct methodology for this investigation. One week point which should be addressed is that no recommendations as to the procedure to be chosen are made. At least a more thorough discussion, why this eventually is not possible should be included. Based on the statements made above I recommend acceptance of the manuscript after minor revisions. Other minor comments:

P. 19013 line 8: A correction is made to the erythemal action spectrum to include irradiance of 325 – 400 nm band. The erythemal action spectrum is used to weight the spectral irradiance before integration. Here spectral irradiance from 325 to 400 nm is missing. How can the erythemal action spectrum be corrected? Are you increasing the multiplication factor at some wavelengths in order to take into account the missing wavelength range? This needs some more explanation. Please specify what you exactly mean.

P. 19014, line 9: OMI products consist in . . .. => OMI products consist of column ozone, aerosols, clouds. . .. Or OMI products include column ozone. . ..

P. 19015, line 12: "FWHM = 0.63 nm". => "with a FWHM of 0.63 nm"

P. 19015, line 20: "According to Tanskanen" => "Following the procedure of Tanskanen"

P. 19017, line 8: " The dispersion on SSA" Please replace the word "dispersion" Or at least replace "dispersion on" by dispersion of"

P. 19019, line 2: " was applied at" => "was applied to"

P. 19019, line 4: " The corrected OMI UV irradiances at 324.1 nm. . .. using the retrieved by means. . ..": a word is missing after "retrieved"

P. 19020, line 10: "acount" => "account"

P. 19020, line 10: "descreasing" => "decreasing"

P. 19021, line 3: "The AAODs have been derived. . .. from January 2005 to June 2008."

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=>"The AAODs were derived. . .. from January 2005 to June 2008."

P. 19021, line 17: "..led to an improvements.." => "..led to an improvement.."

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 19009, 2009.

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