Atmos. Chem. Phys. Discuss., 8, S8509–S8510, 2008
www.atmos-chem-phys-discuss.net/8/S8509/2008/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Ozone Monitoring Instrument spectral UV irradiance products: comparison with ground based measurements at an urban environment" *by* S. Kazadzis et al.

Anonymous Referee #2

Received and published: 24 October 2008

Review of the manuscript with MS-NR: acpd-2008-0380, OMI spectral UV irradiance products: comparison with ground based measurements at an urban environment by Kazadzis et al.

The paper presents results related with the OMIUV satellite product validation. The authors investigate the OMIUV overestimation results that have been reported also by Tannskannen et al., 2008 (Journal of Geophysical Research, - only for daily erythemal calculations). Within this work there is an analysis of the spectral OMIUV product, combined with an aerosol related ground-base dataset. This approach allows to quantify spectral aerosol effects and also to avoid the uncertainties introduced by the calcula-

tion of daily erythemal dose from a single overpass satellite measurement. In addition, it presents an overview of already published but also new approaches-methodologies for post correction of OMIUV data accounting for absorbing aerosols that are not included in OMI algorithms. Most methodologies rely on the use of aerosol absorption characteristics. It is very important that the aerosol absorption optical depth is used for this investigation and not simply the aerosol optical depth. The authors show in this paper that for urban areas like Thessaloniki OMI can be overestimate (e.g.) UV index by even more than 20%. It is of great importance to correct OMI retrievals for absorbing aerosols, and thus, the paper makes a significant contribution to the field of satellite algorithm corrections and for both satellite and aerosol scientific communities. The results of this work can be used for substantial improvement of future OMIUV, possibly partly included in the next level OMIUV product. Advanced instrumentation and methods are used within this study, the paper is well written and the results are clearly presented. As such, the paper should be accepted for publication after considering some minor remarks that follow: Clarify that single scattering albedo used in this work is a columnar property, so an effective single scattering albedo 1. Page 17468, Line 13: Replace are in with of 2. Page 17472, Line 1: Explain the CIE abbreviation 3. Page 17474: Please mention the total days analyzed in the beginning of the paragraph (810 days that are mentioned later in page 17475) 4. Page 17476, line 14: Previous work on the specific subject: Balis D. S., et al., Study of the effect of different type of aerosols on UV-B radiation from measurements during EARLINET, Atmos. Chem. Phys., 4, 307-321, 2004

5. Page 17476, line 17: According to Bais et al., (2005), the SSA is retrieved by a combination of Brewer measurements and radiative transfer estimations. Please rephrase, clarify this.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 17467, 2008.