

Home

Online Library ACP

- Recent Final Revised Papers
- [Volumes and Issues](#)
- Special Issues
- Library Search
- Title and Author Search

Online Library ACPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper



[Volumes and Issues](#) [Contents of Issue 16](#) [Special Issue](#)

Atmos. Chem. Phys., 8, 4517-4528, 2008

www.atmos-chem-phys.net/8/4517/2008/

© Author(s) 2008. This work is distributed under the Creative Commons Attribution 3.0 License.

## Comparison of OMI ozone and UV irradiance data with ground-based measurements at two French sites

V. Buchard<sup>1</sup>, C. Brogniez<sup>1</sup>, F. Auriol<sup>1</sup>, B. Bonnel<sup>1</sup>, J. Lenoble<sup>1,2</sup>, A. Tanskanen<sup>3</sup>, B. Bojkov<sup>4,5</sup>, and P. Veefkind<sup>6</sup>

<sup>1</sup>Laboratoire d'Optique Atmosphérique, Université des Sciences et Technologies de Lille, France

<sup>2</sup>Interaction Rayonnement Solaire Atmosphère, Université Joseph Fourier de Grenoble, France

<sup>3</sup>Finnish Meteorological Institute, Helsinki, Finland

<sup>4</sup>Goddard Earth Sciences and Technology Center, University of Maryland, Baltimore County, Baltimore, Maryland, USA

<sup>5</sup>Atmospheric Chemistry Dynamics Branch, NASA Goddard Space Flight Center, Greenbelt, Maryland, USA

<sup>6</sup>Royal Netherlands Meteorological Institute, De Bilt, The Netherlands

**Abstract.** Ozone Monitoring Instrument (OMI), launched in July 2004, is dedicated to the monitoring of the Earth's ozone, air quality and climate. OMI is the successor of the Total Ozone Mapping Spectrometer (TOMS) instruments and provides among other atmospheric and radiometric quantities the total column of ozone (TOC), the surface ultraviolet (UV) irradiance at several wavelengths, the erythemal dose rates and the erythemal daily doses. The main objective of this work is to compare OMI data with data from ground-based instruments in order to use OMI products (collection 2) for scientific studies. The Laboratoire d'Optique Atmosphérique (LOA) located in Villeneuve d'Ascq (VdA) in the north of France performs solar UV measurements using a spectroradiometer. The site of Briançon in the French Southern Alps is also equipped with a spectroradiometer operated by Interaction Rayonnement Solaire Atmosphère (IRSA). The OMI total ozone column data is obtained from the OMI-TOMS and OMI-DOAS algorithms. The comparison between the TOC retrieved with ground-based measurements and OMI-TOMS data shows good agreement at both sites for all sky conditions with a relative difference for most of points better than 5%. For OMI-DOAS data, the agreement is generally better than 7% and these data show a significant dependence on solar zenith angle. Comparisons of spectral UV on clear sky conditions are also satisfying with relative differences smaller than 10% except at solar zenith angles larger than 65°. On the contrary, results of comparisons of the erythemal dose rates and erythemal daily doses for clear sky show that OMI overestimates surface UV doses at VdA by about 15% and that on cloudy skies, the bias increases. At Briançon, such a bias is observed if data corresponding to snow-covered surface are excluded.

[Final Revised Paper](#) (PDF, 2274 KB) [Discussion Paper](#) (ACPD)

Citation: Buchard, V., Brogniez, C., Auriol, F., Bonnel, B., Lenoble, J., Tanskanen, A., Bojkov, B., and Veefkind, P.: Comparison of OMI ozone and UV irradiance data with ground-based measurements at two French sites,

Search ACP

Library Search

Author Search

News

- Sister Journals AMT & GMD
- Financial Support for Authors
- Journal Impact Factor
- Public Relations & Background Information

Recent Papers

01 | ACPD, 14 Nov 2008: SCIAMACHY formaldehyde observations: constraint for isoprene emissions over Europe?

02 | ACPD, 14 Nov 2008: Observation of nitrate coatings on atmospheric mineral dust particles

03 | ACP, 14 Nov 2008: FRESKO+: an improved O<sub>2</sub> A-band cloud retrieval algorithm for tropospheric trace gas retrievals

04 | ACPD, 14 Nov 2008:

