

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

Impact  
Factor  
4.865

ISI  
indexed



▣ [Volumes and Issues](#) ▣ [Contents of Issue 11/12](#)

Atmos. Chem. Phys., 4, 2543-2552, 2004

[www.atmos-chem-phys.net/4/2543/2004/](http://www.atmos-chem-phys.net/4/2543/2004/)

© Author(s) 2004. This work is licensed under a Creative Commons License.

## Improved sky imaging for studies of enhanced UV irradiance

J. M. Sabburg<sup>1</sup> and C. N. Long<sup>2</sup>

<sup>1</sup>Centre for Astronomy, Solar Radiation and Climate, Faculty of Sciences, Univ. Southern Queensland, Toowoomba, Australia

<sup>2</sup>Pacific Northwest National Laboratory, Richland, WA, USA

**Abstract.** A recent World Meteorological Organisation report discussed the importance of continued study of the effect of clouds on the solar UV radiation reaching the earth's surface. The report mentions that the use of all-sky imagery offers the potential to understand and quantify cloud effects more accurately. There are an increasing number of studies investigating the enhancement of surface solar, UV irradiance, and UV actinic flux, using automated CCD and sky imagers. This paper describes new algorithms applicable to a commercially available all-sky imager (TSI-440), for research investigating cloud enhanced spectral UV irradiance. Specifically, these include three new algorithms relating to cloud amount at different spatial positions from 1) zenith and 2) from the solar position and 3) the visible brightness of clouds surrounding the sun. A possible relationship between UV enhancement and the occurrence of near-sun cloud brightness is reported based on this preliminary data. It is found that a range of wavelength dependent intensities, from 306 to 400 nm, can occur in one day for UV enhancements. Evidence for a possible decreasing variation of intensity with longer wavelengths is also presented.

▣ [Final Revised Paper](#) (PDF, 601 KB) ▣ [Discussion Paper](#) (ACPD)

Citation: Sabburg, J. M. and Long, C. N.: Improved sky imaging for studies of enhanced UV irradiance, Atmos. Chem. Phys., 4, 2543-2552, 2004. ▣ [Bibtex](#) ▣ [EndNote](#) ▣ [Reference Manager](#)

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, 10 Mar 2009:  
Characterization of organic ambient aerosol during MIRAGE 2006 on three platforms

02 | ACPD, 10 Mar 2009:  
Regional differences in organic composition of submicron and single particles during INTEX-B 2006

03 | ACPD, 10 Mar 2009:  
First steps towards the assimilation of IASI ozone data into the MOCAGE-PALM system