

Interactive comment on “Validation of UV-visible aerosol optical thickness retrieved from spectroradiometer measurements” by C. Brogniez et al.

Anonymous Referee #1

Received and published: 4 March 2008

General comments:

The manuscript describes a method to obtain spectral aerosol optical thicknesses from measurements with a spectroradiometer in the UV-visible range. The direct solar light is inferred from the difference between total radiation and diffuse radiation. The latter is obtained by the use of a sun blocking disc. An error budget is presented. The results are validated against the measurements with a co-located sunphotometer from the aeronet/photons network. The comparisons are presented with a lot of figures but the authors leave the interpretation to a large part to the reader. Some figures could be more clarified (see specific comments).

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Specific comments:

It would be nice to include a comparison of the performance of this technique with the performance achieved with other methods to determine the AOT in the UV. For example one could discuss the results in comparison with different methods to retrieve Aerosol information from observations with Brewer spectrophotometers. As the authors have here spectral information on the the AOT, the differences attributed to the difference in wavelength of the observations can be quantified, and compared with differences found when UV AOT's from Brewers (320 nm) are compared to CIMEL/AERONET data (240 or 380 nm)

Fig 3 and 7: the legend does not explain where the error bars stand for.

What is the additional information of fig 10? The discussion at the end of section 3 (bottom p 3904-top page 3905) is very brief and should be extended/clarified. If not, the fig can be omitted.

Additionally possible seasonal effects in the differences could be investigated

The abstract and the conclusion should mention more quantitative results on the performance of the method, in support of the "very good agreement"; (line 9 p 3905). This could be done on the basis of the error budget calculations and the results of the intercomparisons.

Technical corrections:

p 3897 line 17: replace "later"; by "latter";

p 3898 line 27-28: this could be formulated simpler: The error introduced by this approximation depend on the aerosol content and on the variation of the SZA during the registration of the spectra.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 3895, 2008.

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