

Interactive comment on “Measurements of spectral irradiance during the solar eclipse of 21 August 2017: reassessment of the effect of solar limb darkening and of changes in total ozone” by Germar Bernhard and Boyan Petkov

Anonymous Referee #2

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The paper presents in a detailed way spectral solar measurements during an eclipse and provides improved insights on RT modeling and LD effect approaches.

One important aspect is the comparison of the results of this study with previous papers Zerefos (2000, 2007), Kazadzis, Blumthaler, Grobner concluding major or minor differences in the methodological approaches and results.

Most of these studies have been performed based on the Brewer spectroradiometer. The major differences among this instrument and the instrument used in this study are:

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- The methodology of deriving the total column ozone (Brewer uses pairs of different wavelength ratios and GUV one fixed ratio)
- The use of direct instead of global solar irradiance
- The spectral response of each wavelength measured (Brewer wavelength are fixed exactly at absorbing / non absorbing wavelengths with 0.5nm slits)
- And mostly: the FOV of the instruments.

In the current study the instrument (effective) FOV is defined by the dimensions of the shadowband and the corresponding dimensions of the shadow in combination with the sun dimensions.

A further examination on the effect of the above (mainly the FOV) issues have to be considered when comparing results of this and older papers using different principles of measurements. For example the definition of the diffuse (or direct) irradiance calculated using a shadow (band) that has spectral, solar zenith angle, (and in this case) also sun- dimensions dependent, apparent shadow dimensions compared with the instrument diffuser, could impact the presented results.

What do you mean by: P6, L10 The calibration was further optimized for the conditions (solar zenith angle, TOC, AOD, etc.) at the measurement site.

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