

Answer to referee 1.

Dear referee, thank you very much for your interest in our work and your valuable comments.

Our work was motivated mostly by satellite retrievals, therefore Brewer and Dobson-related wavelength received fewer attention in our paper. We did perform corresponding analysis for the whole spectral region, but did not include the results for the sake of the size. We will add missing information in relevant parts you've mentioned and expand the discussion.

Reply on specific comments:

Abstract:

We agree to expand the abstract and include more highlights.

6615, 2:

The temperature variation in the Huggins band is strongly wavelength dependent (in "peaks" and "valleys", or minima and maxima of the spectral features), with differences up to 70% for minimum around 335nm and 10% for maximum. We will provide more details it in the new manuscript revision.

6615, 6-7:

We agree with your remark and we will rephrase the sentence. We'll also include a brief comment on the temperature dependence of the Wulf band.

6615, 17:

The spectral regions of the BMD dataset for different temperatures are listed in the table 1.

6615, 19:

"Broadband" is widely used in the spectroscopic community to describe wide wavelength range of the considered spectra, therefore we think this word choice is appropriate.

6615, 22:

Here, the invariance of band-integrated optical density of ozone is meant.

6617, 5-9:

We did not use single wavelength calibration for spectra scaling. We performed "absolute" (i.e. using the known controlled concentration of pure ozone in the cell) measurements for 310-335nm, and 450-780nm regions using FT spectrometer. Spectra for adjacent wavelength regions were linearly scaled using overlapping parts. In fact, recorded wavelength regions were wider for all independent measurements, with enough overlap to allow for reliable scaling.

6621, 16:

We will add information on Dobson and Brewer instrument spectral channels in this section.

6622, 6:

We only performed preliminary rough analysis of datasets. In general, slit functions for different spectral regions are wavelength-dependent and not well documented. More detailed analysis is expected from the groups which possess precise information on specific instruments.

6622, 13:

We assume that the referee meant Fig. 4b, but not Fig. 5b, which is indeed a little bit crowded. We think that suggestion to include more information in the legend is relevant. It will be provided in the updated manuscript.

6622, 19:

We will provide comparison of BP and BMD datasets on Fig.5

6623, 1:

We will provide analysis for differences and shifts at wavelengths shorter than 325nm, although we believe that due to the smoother shape of the spectra in the region below 325 nm shifts are less critical for retrievals.

6623, 22:

We observe that parameterized BP and BMD disagree within the reported accuracy, independent of the quality of the particular dataset.

The mean difference between BP and BMD before applying the shift is about 5%, we will update the manuscript with more precise values.

6623, 26:

All mean differences are indeed positive here, because absolute values of differences were taken. This corresponds to "worst case scenario" for mean differences, when summands are not compensating each other due to alternating sign. This happens when, for example, within the considered range of 325-340nm two cross-section curves are intersecting and have different inclination. Clarification will be provided in the manuscript.

Thank you for pointing out the misprint, the % sign will be removed from the Y-axis.

Caption for Fig.6 will be updated as well according to your remark.

There is a reason for duplicate symbols for BMDexp. BMDexp values for 218K and 228K were compared with our closest data at 213K, 223K and 233K. It is mentioned in the manuscript but apparently needs to be more elaborated.

The plot will also be checked for missing symbols.

6625, 6:

BP parameterization is basically a 2<sup>nd</sup> order polynomial fit for temperature dependence of several cross-section values at specific wavelength. Coefficients

for this polynomial are pre-calculated based on the fit of available experimental data. We used coefficients provided by Liu et.al, 2007, who used BMD experimental data for 4 different temperatures.

6627, 4:

By “good agreement” of two datasets we mean discrepancy within experimental uncertainty, which actually differs for various temperatures and wavelength regions.

Specific values are mentioned in the manuscript, we will provide a short summary in the reviewed manuscript.

6627, 10

No disagreement here!

Technical comments:

6614-6627

Will be corrected with exception of the term “broadband” which we think is used properly.