

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2020-497

Alberto Redondas (Referee)

Referee comment on "Consistency of total column ozone measurements between the Brewer and Dobson spectroradiometers of the LKO Arosa and PMOD/WRC Davos" by Julian Gröbner et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2020-497-RC2>, 2021

This is an important work confirming the compatibility between Brewer and Dobson observations when new ozone cross-section, line spread function, and temperature correction are used. In general, it is a very good manuscript that will be making an impact on future works. An open question is how the trend calculations of the total ozone long term series from Arosa-Davos will be affected when the ozone layer temperature correction is applied to the observations and how the possible trend in effective ozone temperatures.

I suggest accepting it for publication after minor revisions:

Most of the datasets used are not available and will difficult the reproducibility of the results, this include, ozone cross-section of the EMPR-ATMOZ, line Spread functions, and the Brewer /Dobson Ozone datasets.

Straylight correction is applied to the single brewer, this should be detailed in the methodology section. Also, the straylight on Dobson can be explained Can be estimated by TUPS measurements?

Specific comments and technical corrections

Section 2.1 Total ozone measurements: Aerosol term and its cancelation is missing from the discussion.

line 100: Calibration reports can be cited by his DOI in particular 2017 <https://dx.doi.org/10.31978/666-20-019-9> and 2018 <https://dx.doi.org/10.31978/666-20-018-3> calibrations,

line 130: Please explain the normalization of the ozone sounding.

line 138: please correct the link (the correct one ends in .php)

line 150: Brewer and Dobson use different ozone effective heights on the operational procedure for the air mass calculation the effect of the ozone height is different, even if

the effect is reduced due to the horizon minor please clarify.

line 230: Units missing for Rayleigh coefficients.

line 275: Explanation for the large difference on the offset of ACS dataset.

Figure 5: BOp and Bop are confusing terms of the first panel, please change.

line 325: To explicit the straylight, could usefully use a common calibration for both instruments, Brewer is calibrated against the Dobson or vice versa, using low OSC conditions and then see the comparison at high OSC conditions. We have to take into account that the Dobson has a considerably bigger FOV (Dobson nominal from FOV 7° to 8° whereas the Brewer is around 2°-3°) and is more affected by atmospheric straylight.