

Interactive comment on “An urban agglomeration effect on surface UV doses: Comparison of the Brewer measurements in Warsaw and at Belsk, Poland, for the period 2013–2015” by Agnieszka E. Czerwińska et al.

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I still have two comments that could potentially improve the manuscript based on this last versions

Frist issue:

"Such estimate looks probable, as the Warsaw observing site is located in the most polluted part of the city because of high vehicle emissions from the nearby main city road."

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This suggestion is very tricky as Warsaw and Belsk have similar AOD. So heavy pollution in Warsaw would have an effect on AOD too and not only on SSA.

So I would suggest: Thus, we assume that the surface albedo in Warsaw can be in the range of 0.03 up to 0.12 and 0.03 at Belsk. If we also assume, that SSA at Belsk is 0.92, which is a mean value measured by CIMEL photometer at 440 nm, using RTM we calculate an SSA down to 0.86 and 0.85, (for SZA=60° and 30°, respectively), for the maximum albedo difference. Such hypothesis could be only backed up with additional aerosol absorption measurements at the two sites.

second issue: In my comment:

"Our study proves that the UV level in Warsaw is slightly lower than that found in cleaner suburbs of the city. The differences that were attributed due to AOD differences are in the order of the accuracy of the instruments used. Based on the Brewer measurements, urban aerosols and clouds over Warsaw only partially act as an effective shield against excessive UVR. In addition, it would be interesting to try to justify this conclusion.

By justifying this conclusion I did not mean presenting the impact of such an effect (UV Index analysis). I mean are there any suggestions for having similar AOD at Belsk and Warsaw ? for example any additional information or assumptions about possible outflow of aerosols from Warsaw ro Belsk ? any other aerosol source that could affect both locations ? any aerosol removal mechanisms present in Warsaw ? or something else ?

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