

Interactive comment on “Validation of TROPOMI Surface UV Radiation Product” by Kaisa Lakkala et al.

Anonymous Referee #2

Received and published: 1 July 2020

This is a thorough and well written manuscript detailing comparison of TROPOMI UV products with ground based data from across the globe. There are a few corrections or additions that should be made to provide additional clarity:

Abstract line 13 For compete clarity please state 'relative differences...were a little biased towards negative values (i.e. ground-based measurement > satellite data).

Line 40-41 This somehow implies that there is no more chemical ozone depletion. Please rephrase.

Line 53-54 Provide resolution of e.g. OMI UV products to give context to the claim of better resolution.

Line 95-97 Are the changes in ozone product version and aerosol index product version

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significant? Please comment in either case.

Section 2.2 The sites are well described, but quantification of the uncertainty in measurements from each site is inconsistent or missing. Ideally all uncertainties would be described in the same way, and added to tables 3 and 4 after the traceability column. Please do what is possible in this respect (at the least provide uncertainties in the text, for those sites currently without).

Please provide a summary statement about the uncertainties in the ground-based data. It is important to know how the ground based data compare as a benchmark for the satellite data comparison. For example, do all instruments that have been compared with the QASUME instrument fall within x% of this world calibration standard? Or, are all expanded uncertainties within y%?

Line 338 Please state which method was then used for the rest of the analysis.

Line 398 Comment briefly on how this improved the relative difference statistics for Davos. For this, and the previous comment, readers should not have to go to supplementary material to find the outcome, only to see the detail.

Results / Conclusion Please provide a summary of comparative results for OMI and TOMS UV products. Specific cases are detailed in the results – mainly those with large relative differences. Please also give the comparators for the 'easier' sites. From what is provided it appears that TROPOMI results are similar to those for OMI – this is important with respect to the final paragraph of the manuscript and the desire for a long time series of satellite derived UV data. Please summarise whether this is the case, or whether significant improvements have been made.

There are multiple minor grammatical errors that can be corrected in editing or permitted by the journal. They do not impact on understanding.