

Interactive comment on “New continuous total ozone, UV, VIS and PAR measurements at Marambio 64° S, Antarctica” by Kaisa Lakkala et al.

Anonymous Referee #1

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General comments:

The manuscript by Lakkala et al. discusses a new dataset which consists of UV and visible solar irradiance measurements, effective biological doses, and the total column of ozone. The measurements of the solar irradiance – from which the effective doses and the total column of ozone have been calculated – are performed at the Antarctic station of Marambio. Part of the discussion has been focused on the procedures which ensure the good quality of the measurements. The described dataset is of high scientific significance since analysis of the products would contribute to the assessment of the impacts of changes in total ozone and climate over the sensitive environment of Antarctica. The manuscript is within the scope of the journal and should be published after minor revision by the authors.

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What I mainly miss is some discussion (maybe a small paragraph) regarding the uncertainty in the GUV measurements performed at Marambio. Comparison with other instruments provides very strong evidence of the reliability of the measurements. Are however the calculated differences representative for the overall measurement uncertainties? I believe that some discussion regarding the magnitude of the overall uncertainties – not necessarily a precise determination of the uncertainty budget - and the main uncertainty factors would be useful for the readers, as well as for people interested for the data.

More analytical comments are provided below:

References are missing at several points in the introduction. I suggest adding references to the following phrases: P2, L4 – 5: “The international . . . UV levels” P2, L5 – 6: “The . . . materials” P2, L17 – 19: “As . . . effects” P2, L26 – 27: “Both . . . Ocean” P2, L27 – 28: “Changes . . . series”

P3, L6: Please replace “measurements were” with “was”

P7, L7: in “ki”, i is an index

P7, L8 – 9: “A sensitivity . . . time” is there any reference which can be used to support this statement?

P8, L7: Was the sky clear in August 2016? Please specify since the conclusions from Figure 2 might be slightly different if the sky was cloudy.

Figure 2: Could the apparent dependence of the ratio on SZA (or part of it) be a masked effect of temperature on the response of any of the instruments?

Section 3.3: Is this change in the response of the instrument (taking place within the 1 or 2 years between sequential calibrations) somehow taken into account, e.g. by interpolating the calibration factors?

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