

Interactive comment on “Brewer spectrometer total ozone column measurements in Sodankylä” by T. Karppinen et al.

Anonymous Referee #2

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This manuscript gives a very good and detailed description of how the total column ozone data series are obtained at the arctic site of Sodankyla. The dataset has been uninterrupted since 1998, making it one of the longest time series in the arctic and extremely valuable for the detection of ozone recovery which is expected to occur in the next decades. The manuscript is well written, previous work is acknowledged in the reference sections and covers well the subject. The figures support the manuscript. I recommend the manuscript to be published after the authors have addressed my minor comments: Line 273: The moon is not a true grey body, but its reflection properties, especially in the UV show a marked spectral dependence which might affect the ozone retrieval when using the same calibration constants ETC) as for the sun mode. Can the authors comment on this and produce some validation data for the total ozone retrieved from lunar measurements (Rolo ref). Line 211: The description of the ozone

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retrieval algorithm of the brewer is described in detail. To avoid any confusion to the readership, it would be good to distinguish between counts and photons, as this is not the same quantity in the Brewer spectrophotometer. In fact, a prescaler mounted directly on the photomultiplier reduces the photon rate by a factor of four by issuing one count for every four photon-events of the photomultiplier. This conversion from counts to photons is done explicitly in equation 1 ($\text{photons/sec} = (F_i - F) \cdot 4 / (T \cdot 2 \cdot C_Y)$), but should from then on be called photon count rate. Line 243 : The standard ozone algorithm uses 4 wavelengths (double ratio), not 5.

Line 249: citation is missing.

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