

Interactive comment on “GOMOS bright limb ozone data set” by S. Tukiainen et al.

Anonymous Referee #1

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This short paper describes a new GOMOS ozone data product based on limb scatter measurements. It outlines corrections to the levels 1 data and the retrieval methodology. Comparisons are made with ground-based (NDACC) and other satellite data products (GOMOS-stellar, MLS, OSIRIS) and the overall results were found to be reasonable with some larger (>10%) biases. This is a reasonable algorithm/validation paper that describes hits the highlights. The content, layout, and English are good. I recommend acceptance if the following points can be addressed (in particular the request for more information on uncertainties).

General comment: There is not real mention of uncertainties, other than they exist. How are they calculated, what do they include, how do they vary with altitude? The uncertainty estimates are a key aspect of any data set and should be summarized, even if they are provided in another paper. This can be easily done in a table or

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(preferably) a figure and a paragraph of text.

page 989, line 16-17, "... referred to from now on"

page 990, line 14: state the accuracy of the tangent height registration; it may be accurate, but this needs to be quantified

page 991, equation 2: why not simply have this as the ratio of the modelled limb radiance to the modelled reference; that is, why use $R \times I_{ss}$? I am sure other readers will be confused by this as well. This should be clarified.

page 991, line 5: Why retrieve neutral density? Would you not be better off using the ECMWF neutral density? This might allow you to retrieving an angstrom exponent instead. A sentence on why this approach was adopted should be added.

page 991, line 25: what is 'CCD'? Define.

page 990, line 7: Do not begin a sentence with 'Or'. Perhaps try "Since GOMOS records two ... there are actually twice ..."

page 992, line 10: Define the OSIRIS acronym upon its first use (here) in the body of the article.

page 993: It seems your best bet in terms of coincidences for validation is comparison with SCIAMACHY-limb. Can you comment on this.

page 994, top: a more recent OSIRIS overview reference is: McLinden, C. A., A. E. Bourassa, S. Brohede, M. Cooper, D. A. Degenstein, W. J. F. Evans, R. L. Gattinger, C. S. Haley, E. J. Llewellyn, N. D. Lloyd, P. Loewen, R. V. Martin, J. C. McConnell, I. C. McDade, D. Murtagh, L. Rieger, C. von Savigny, P. Sheese, C. E. Sioris, B. Solheim, and K. Strong, OSIRIS: A decade of scattered light, Bull. Am. Met. Soc., 93, 1845-1863, doi: 10.1175/BAMS-D-11-00135.1, 2012.

page 996, line 9: The LST of the GBL measurement should be first mentioned in section 2 as this is an important, and general attribute of the product.

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