

Interactive comment on “Validation of stratospheric and mesospheric ozone observed by SMILES from International Space Station” by Y. Kasai et al.

Anonymous Referee #2

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Referee report

AMT Validation of stratospheric and mesospheric ozone observed by SMILES from International Space Station by Kasai et al.

General comments: This article provides a comprehensive account of the validation of the SMILES ozone product from National Institute of Information and Communications Technology (NICT). The article also presents comparison of the NICT ozone with the operational ozone product from the Japan Aerospace Exploration Agency (JAXA). The article is well written. Regarding the structure of the article the section 5 (diur-

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nal variation) is quite isolated from the rest of the article. Perhaps this part could be extended and published separately? The main results of the paper show that ozone (NICT) deviates quite a much from other validating measurements above the ozone layer. The authors claim that the reason for this deviation is now well understood and the processing will be improved in the next version of data release. I wonder if it would be reasonable for authors to delay the publication of this article and use the new data version for these validations? Anyway, even now the article is worth of publishing in AMT. My minor comments are listed below.

Detailed comments:

Abstract and p 2646, lines 1: The abstract and article start by mentioning diurnal variation. As mentioned above it does not reflect the main focus of the article.

p. 2650, line 12: Is χ^2 for each altitude or is it for the whole scan?

p. 2650, line 18: The limit $\chi^2 < 0.8$ looks quite strict. Could you provide information about the distribution of χ^2 -values. Do you have any outliers in data not detected by this limit?

p. 2650, line 13: Define the measurement response m

p. 2653, line 25: inwhich -> in which

p. 2655, lines 18-20: Define parameters γ and n

p. 2660, line 23-24: Provide an estimate how much of data is rejected by these two limits

p. 2660, line 23-24: Are the limits applied to all altitudes? Is the whole profile rejected if a limit is exceeded at one altitude?

p. 2662, Eq. (3): Are you sure that this kind of average is a good measure for the relative difference. As you notice later (page 2675), this formula weighs differences by the values themselves.

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p. 2662, Eq. (3): Dividing by the average of the measurements of these two instruments is reasonable when the values are near each other and well validated. Now the values often differ by a large amount and perhaps it would be wiser to use as a reference measurement values from the already validated instruments?

p. 2663, line 4: Harris (2002) should be Harris (1998)

Fig. 3: Some misspellings: panel->panels, antscan->?

All figures: The font size of labels is quite small.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 2643, 2013.