

Interactive comment on “Ground-based stratospheric O₃ and HNO₃ measurements at Thule, Greenland: an intercomparison with Aura MLS observations” by I. Fiorucci et al.

Anonymous Referee #2

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1 Introduction

The paper presents stratospheric measurements of O_3 and HNO_3 at an arctic location. The main topic of the publication concerns validation and intercomparison with profiles from Aura MLS. Apart from a few issues in style and phrasing I think that the paper is ready to be published.

C1011

2 General remarks

Please shorten the sentences overall, it would significantly improve the readability of the document.

Errors are better presented on a relative scale (i.e. as percent) and not on an absolute scale.

Aura-MLS is referred to before you actually spell it out, and then you spell it out twice (in the end of sect. 1 and beginning of sect. 4).

You use high/low and positive/negative bias the same way, meaning more or less the same thing. Is there an actual difference? If not, be consistent and use only one of them.

Quite often you speak about the atmosphere as the true atmospheric profile, atmospheric state or similar. If you refer to the actual atmosphere, just using “atmosphere” is enough in most cases.

3 In text

p. 2980

I. 8 Aura-MLS, see general remark.

I. 11 “to be the larger of”, this is a new expression to me

p. 2981

I. 23 The microwave spectroscopy - Microwave spectroscopy

p. 2984

I. 1 atmospheric pressure profile allows - atmospheric pressure allows

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p.2985

I. 5 - 9 Are there baseline artifacts or not in the GBMS spectra? Please rephrase and explain more clearly.

I. 9 Remove "As for O_3 measurements

p. 2986

I. 2 the true atmospheric profile - the atmosphere

I. 2 information that is added to x_a - No information is *added* to the a priori. The resulting profile is a *combination* of the a priori and the measured spectrum.

p. 2987

I. 13 following - according to

I. 18 retrieval, cannot - retrieval cannot

I. 19 achieved - carried out

I. 20 employed - as

p. 2988

I. 29 Please explain data scaling procedures

p. 2989

I. 16 Remove "lack of resolution"

I.17 of the true atmospheric state - see general remark, atmosphere is enough

I.18 what do you mean by "original profiles"?

p. 2992

I. 19 - 22 Please rephrase

p. 2994

I. 4 On I. 22 you describe the process as convolving - why not use that term here as well?

C1013

I. 15 It is quite useless information that the "absolute difference" decrease, the relative difference is of much larger importance. See general remark concerning absolute/relative errors.

p. 2997

I. 25 This is consistent . . . - Please explain more clearly.

Figure 1 and 2

Please use frequency instead of channel number in panel 1 (the retrieved spectrum).

Figure 8

Please use smaller symbols.

Interactive comment on *Atmos. Meas. Tech. Discuss.*, 6, 2979, 2013.

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