

Interactive comment on “The SPARC water vapour assessment II: Comparison of annual, semi-annual and quasi-biennial variations in stratospheric and lower mesospheric water vapour observed from satellites” by Stefan Lossow et al.

H. C. Pumphrey (Referee)

hugh.pumphrey@ed.ac.uk

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General remarks

The paper presents a very careful and detailed description of the annual, semiannual and quasi-biennial variations in middle-atmosphere water vapour, as observed by a large suite of satellite instruments. It is a very useful summary and should be published subject to some minor and technical corrections.

The written English is mostly very good. It has signs of being written by a non-native
C1

speaker (which is fine) but also has a few sentences which make no sense; these should be fixed. The writer has a tendency towards over-long sentences with inadequate punctuation; it would benefit from an attempt to improve the wording in these cases.

The figures are produced to a good standard and are very much improved from the pre-discussion technical review. I note that the zonal mean plots (e.g. Figure 1) appear in a wide variety of aspect ratios. In Figure 1 the plots are taller than they are wide, in Figure 5 (and much of the appendix) they are wider than they are tall, and in Figure 15 they are almost square. This makes it harder than it needs to be for the reader to compare one figure with another.

The typesetting of equations is not very good, especially considering that it was done with LaTeX. In particular:

- You do not need a dot for “multiply” and especially not between 2 , π and t .
- Function names `sin`, `cos`, `tan`, `atan`, etc. should be set in upright font. Use `\sin`, `\cos` etc. in LaTeX and `\mathrm{fnord}` for a function `fnord` which is too obscure for LaTeX to know about.
- It is not made clear why a number of quantities are typeset in bold.
- It is not good style to use long words like “offset” and “linear” as subscripts. If you insist on doing it, they too should be in upright font: `C_\mathrm{offset}` to give C_{offset} .

Specific corrections

- Page 2, Lines 3–4: This sentence either makes no sense or the word order is very strange.

- Page 2 Line 12: The AMT house style is to write 0.3 W m^{-2} , not 0.3 W/m^2 .
- Page 3, Line 2: Between “dehydration” and “the” strikes me as a good place to use a colon (:).
- Page 3, Line 21: Space should be after comma, not before it.
- Page 3, Lines 23–24: This sentence is particularly oddly worded and should be re-written.
- Page 5, Line 18. The use of “Be reminded” seems odd. Maybe replace with “Note”?
- Page 8, Line 4 and Page 15, Line 21: In both cases, “likely” should be replaced with “probably”. Despite ending in “ly”, the word “likely” is an adjective (synonymous with “probable”) and should not be used as an adverb.
- Page 9 Lines 1–2: Box 2 in Figure 1 is in the middle and *upper* stratosphere, not the middle and *lower* stratosphere.
- Page 11, Line 21: “reveals” should read “is revealed”.

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