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Atmospheric Measurement Techniques Discussions

Interactive comment on "Homogenizing and Estimating the Uncertainty in NOAA's Long Term Vertical Ozone Profile Records Measured with the Electrochemical Concentration Cell Ozonesonde" *by* Chance W. Sterling et al.

Anonymous Referee #3

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General comments

The authors can be congratulated for this important and comprehensive study! It is a major step in the effort for a global homogenization of the ozonesonde data sets. I rate the overall quality as excellent. I recommend publication after some minor revisions.

Specific comments

1. Page 5, Line 32: "RS-80 pressure sensors are known to have degraded over time." How is this meant? Are they aging or became production worse? Please give refer-

ence.

2. P6L1-3: Is this part of this study? If yes, give more details. If not, give a reference.

3. P7L10-11: Don't understand this sentence.

4. P7L12-14: Figure 1 doesn't show any changes.

5. P14L22: How was it determined? Is it part of this study? Reference? Same questions for the values 0.98 and 0.94 at P15L2 and P15L7.

6. P15L9: Don't understand why 0.96 is used instead of 0.94.

7. P16L6: I assume "constant" is meant instead of "linear".

Technical corrections

1. P4L19: Delete empty space character in front of "Changes".

2. P4L24: Delete most empty spaces between "2" and "KI".

3. P6L5: Explain "SkySonde" here and not later (page 7).

4. P6L16+: Introduce variable symbols used in equations consistently in the text (when it is mentioned the first time). E.g. at this place: "... the ozone partial pressure, P_O3, is determined ...". An introduction is missing or too late at many other places, e.g. P9L25, P10L11,12, P12L12,13. Please use a consistent notation: "..., symbol, ..." or "... (symbol) ..." but not both.

5. P6L25: "cannot BE measured"

6. P7L16: First occurrence of the notion n.nx buffer solution in the main text. Please give a hint that the notion is defined in table 2.

7. P7L16+: Write "buffer solution" in a consistent way with upper or lower characters throughout the text.

8. P10L10+: Get the subscript depths right.

9. P12,13 Equations 8-13: Add unit “K”.

10. P12L21, P17L23: “degree” is not part of the unit Kelvin. Please delete.

11. P13L1: Exchange “truest” by “best estimate of the”.

12. P16L14,17: Please use “ïA■A” instead of “microamps”.

13. P16L20: Please use “cm**3” instead of “cc”.

14. P16L22: Check place of equation number.

15. P17L26,27,28: Add “estimated” before temperature, e.g. “estimated 1.0 K”.

16: P17L28: Add a space between “0.5” and “K”.

17: P20L8: Delete on “and”.

18: P20L9: Add “. . . average DIFFERENCES of the . . .”.

19. P20L23 & Figures S5-S8: I assume the captions for S5-S8 mentioning Dobson instead of SBUV are wrong.

20. P21L4: “Figures 11 and S7”

21. P21L7: “(Figure 13)” instead of “(Figures 8 & 9)”

22. Figure 1: What is the meaning of a longitude of 169 (East of West?) at a latitude of -90. Please add East and North units.

23. F1: Good place to mark the different eras graphically.

24. F2: Explain large bars at the end of histograms (A) and (B).

25. F3: Use lower case characters.

26. Table 3: Add units for second column.

27. F9-12: It would be nice to have the eras mark as in later figures.

28. F13-15: The relation layer to panel character is somewhat hidden. Please repeat in the caption.

29. F13-15, FS1-8: Explain colour code.

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