

Interactive comment on “Validation and data characteristics of methane and nitrous oxide profiles observed by MIPAS and processed with Version 4.61 algorithm” by S. Payan et al.

S. Payan et al.

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Please find below answers to the referees and explanations on how their comments/questions were taken into account (added in quota in the referee comment). When "Done" is used as answer, this means that we agree and we have changed the manuscript as suggested by the referee.

Answer to Anonymous Referee #1 :

1. The full resolution and reduced resolution modes are confusing to many people. The time period covered by this paper should be explicitly stated in the abstract (i.e. that this paper is about full resolution MIPAS data covering the period 9 July 2002 to 26 March 2004 (I think!))

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"Done"

2. pg. 18045, l. 2 'balloon-borne'; l. 25, quote the maximum optical path difference.

"Done"

3. pg. 18046, l. 9, missing period; l. 26, 'tracers'.

"Done"

4. pg. 18048, l. 16, 'HNO₃'; l. 23, 'and purely systematic'.

"Done"

5. pg. 18049, l. 11, 'cycles; however'; l. 26, 'rather than altitude'.

"Done"

6. pg. 18050, l. 5, 'precisions'.

"Done"

7. pg. 18051, l. 7, 'show'; l. 19, 'yield a reduction'; l. 24, 'derivatives'

"Done"

8. There are many problems with figures: Figure 2 needs a legible x-axis label on the bottom; Figures 9 and 10 are too small and need to be split into 2 or 3 parts; Figures 11, 12, 21, 22, 26 are of very poor quality; caption of Figure 13, missing degree symbols; Figures 19 and 20, at the top remove '-P[ppm]'.

"Figure 2 has been modified to be more legible. Figures 9 and 10 have been split into 3 parts. Quality of figure 11, 12, 26 have been improved, figure 21 and 22 have been removed. Caption of figure 13 corrected, '-P[ppm]' removed in figure 19 and 20 (split in space figures)."

9. pg. 18053, l. 4, 'in the lower stratosphere'; l. 27, 'as discussed'.

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"Done"

10. pg. 18054, l. 1, 'Before...we must therefore check'; l. 16, 'obeys the two following'; last line, 'using the sum'.

"Done"

11. pg. 18055, l. 9, 'equipment', l. 18, 'microwindows'; l. 20, 'contributes'; footnotes 1 to 3 should be moved to the references and updated (1 has appeared in ACPD and 2 will appear in a few days, 3 has appeared in JGR, not ACPD).

"Done. Note that this was an error from the technical manuscript preparation department. This section was originally in section 7 and should be put back there."

12. pg. 18057, l.16, 'purposes', l. 17, the correlations with CFC-11 and CFC-12 are confusing: please clarify. If MIPAS-STR measures N₂O and CH₄, what is the point of using correlations?

"Explanations have been added."

13. pg. 18058, l. 8 'only at a tangent', l. 12, 'The corresponding...also have problems.:'; l. 14, 'In contrast to N₂O, for which the profiles oscillate around the MIPAS-STR values, many of the CH₄ profiles are completely different from the MIPAS-STR measurements (e.g.,...). This kind of problem cannot be explained by the lack of regularization.'

"Done. The sentence has been removed. "

14. pg. 18060, l. 3 and 4, missing degree symbols.

"Done"

15. pg. 18062, l. 15, 'criteria'.

"Done"

16. pg. 18082 and 18083, Table 3 and 4 captions, 'small number of coincidences'.

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"Done"

17. pg. 18065, l. 8, 'unrealistic'.

"Done"

18. pg. 18066, l. 21, 'in detail', l. 21, 'Two papers in ACPD and one in JGR...'; l. 22, 'De Mazière'. "This was an error from the technical manuscript preparation department. This section was originally in section 7 and should be put back there."

19. pg. 18067, l. 8, 'solar absorption and gas correlation'.

"Done"

20. pg. 18069, l. 9, 'is in any case', l. 12, 'ODIN-SMR', l. 13-15, delete. The obvious conclusion is that there may be a problem with ODIN-SMR and perhaps also the ASUR retrievals, as stated just below. l. 22, 'and temperature'. "Following the referee recommendation, the intercomparison with ODIN has been removed and the corresponding ODIN validation paper has been mentioned."

21. pg. 18070, l. 7, 'In addition, the data'.

"Done"

22. pg. 18071, l. 8-9, missing degree symbols.

"Done"

23. pg. 18074, l. 1, 'The MIPAS data version 4.61 still exhibits unphysical oscillations in individual CH₄ and N₂O profiles caused... As a consequence'; l. 13, 'using a temperature'; l. 26, remove the acknowledgement to the ACE team as ACE data was not used in this paper.

"Done"

24. Check the references, there are a considerable number of small problems with names, punctuation, journal abbreviations, etc.

S9932

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"Done"

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 18043, 2007.

ACPD

7, S9929–S9933, 2008

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S9933

