

***Interactive comment on “MIPAS reference  
atmospheres and comparisons to V4.61/V4.62  
MIPAS level 2 geophysical data sets” by  
J. J. Remedios et al.***

**Anonymous Referee #1**

Received and published: 24 July 2007

The authors discuss the comparison of MIPAS operational products pressure/temperature, H<sub>2</sub>O, O<sub>3</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HNO<sub>3</sub>, and NO<sub>2</sub> as well as CO<sub>2</sub> to current versions of reference atmospheres. Relatively good agreements between the MIPAS mean data and the reference atmospheres were found for mid-latitudes and the tropics. The standard deviations from MIPAS data and the Initial Guess climatology were also found to be in reasonable agreement. The accuracy of processed MIPAS data was found to depend on clouds, particularly upper tropospheric CH<sub>4</sub> and N<sub>2</sub>O. The manuscript is generally well-written and provides extremely valuable information about the accuracy and precision of MIPAS data. I have nine ‘Minor concerns’ and eight ‘Technical corrections’ that should be addressed by the authors before publication in

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

ACP.

Minor concerns:

1) p. 9976, lines 4-10: General information about the two sets of reference databases - These sound like very useful databases for others with atmospheric constituent measurements. I am aware that the UARS reference atmosphere is located online at <http://code916.gsfc.nasa.gov/Public/Analysis/UARS/urap/home.html> Are these two sets of reference databases available online as well?

2) p. 9977, line 1: Possibly rewrite “mesopause (and into the mesosphere” as “stratopause (and into the mesosphere”

3) p. 9978, lines 10-12: The IG2 database is used as the initial guess in the processing. Does the use of the IG2 database have any influence on the final MIPAS processed data product? Has the MIPAS processing used other initial guesses and has there been any influence from the initial guess?

4) p. 9981, line 8: The MOZART model apparently goes only up to 3 mb. Are SLIMCAT results used above that level?

5) p. 9992, lines 9, 13: Change ordering of Figures 13 and 12. Fig. 12 would then be discussed before Fig. 13 which seems more logical.

6) p. 10000, Figures 1a), 1b), and 1d): Why do the gases have different lowest values? For example, in Figure 1a) NH<sub>3</sub> has a lowest level of about 2.E-11, whereas OCS has a lowest level of about 1.E-8. Please add a sentence or two in the manuscript explaining this.

7) p. 10000, Figure 1 - Title for the panels indicates latitude from 65 to 90, however, the figure caption indicates that these are Equatorial profiles. Please change one or the other.

8) p. 10002, Figure 3 - Title for the left panel indicates latitude from -65 to -20, however,

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

the figure caption indicates that the CO<sub>2</sub> profiles for all 6 latitude bands are plotted. Please change one or the other.

9) pp. 10003-10017, Figures 4-18 - I suggest a few changes for these figures and the caption given on p. 10003: a) Use same color of blue for the standard atmosphere profile as for the minimum and maximum values; b) Change 'dash-dot' line style to 'solid' line style for the standard atmosphere profile, also, use a thicker line for easier reading; c) Use a thicker solid orange line so it is easier to see; d) Note in the figure caption that the 'long dash' blue line represents the minimum values and the 'short dash' blue line represents the maximum values; e) The 'large red' and 'large green' crosses are difficult to see. Perhaps a thicker cross symbol will be easier to see.

Technical corrections:

- 1) p. 9975, line 12: Change "sitations" to "situations"
- 2) p. 9980, line 7: Change "are specified" to "specified"
- 3) p. 9981, line 13: Change "a updated" to "an updated"
- 4) p. 9982, line 12: Change "(1986)data" to "(1986) data"
- 5) p. 9987, line 10: Change "indentify" to "identify"
- 6) p. 9989, line 23: Change "immediately" to "immediately"
- 7) p. 9990, line 16: Change "with the neither" to "with neither"
- 8) p. 10015, figure caption: Change "Comparisonfor" to "Comparison for"

---

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 9973, 2007.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper