Atmos. Chem. Phys. Discuss., 7, S3608–S3610, 2007
www.atmos-chem-phys-discuss.net/7/S3608/2007/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "MIPAS: an instrument for atmospheric and climate research" *by* H. Fischer et al.

Anonymous Referee #1

Received and published: 1 August 2007

This is a long-awaited paper that gives an overview of MIPAS. It generally does a satisfactory job, although it does not attempt to put MIPAS in context relative other related remote sensing instruments (e.g., TES and MLS are not mentioned). Similarly for the science results that are outlined, there is no real attempt to review the topic: just the (excellent) MIPAS contributions are given. I would have liked some of this extra material, but the paper is already massive. My comments are therefore intended mainly to improve the presentation and are almost entirely minor points. 1. Brizi reference, H15NO3, 15 should be a left superscript on N. 2. Weatherhead reference, "signs" not "science" 3. Figure 2 needs to be broken into 5 panels and then the panels stacked vertically. It is currently too small to be legible. 4. pg. 8806, l. 8, change to "MCT (mercury cadmium telluride)". There is actually a reason for this customary chemical

notation i.e., tellurium is more electronegative than the other two elements and so it is named like a salt (sodium chloride). 5. pg. 8809, l. 3, “etalon” the e is lower case and has an acute accent. 6. pg. 8809, l. 23, “Newtonian” 7. pg. 8810, l. 16, “(PC-MCT)”, l. 18, “(PV-MCT)” 8. pg. 8817, l. 13, “allowing the acquisition” 9. pg. 8817, l. 18, “a specific in-orbit” 10. pg. 8818, l. 9, “retrieved as a function of tangent pressure” 11. pg. 8819, l. 27, “follows an order determined by the degree of spectral interference” 12. pg. 8823, l. 8, “use” 13. pg. 8823, l. 17, “(Rodgers, 1976; 2000)” 14. pg. 8823, l. 18, add the reference to the ATMOS database, Brown et al. Appl. Opt. 26, 5144 (1987). 15. pg. 8827, l. 20, “permits the observation of special targets” 16. pg. 8828, l. 8, “As a consequenceĚwhich are not the subjectĚ” 17. pg. 8829, l. 21, “allows oversampling, i.e., Ě, to be used to achieveĚ” How is it possible to exceed the spatial resolution limit? Through deconvolution? Please comment. 18. pg. 8830, l. 7, “e.g. for HCFC-22” 19. pg. 8833, l. 14, “altitude range” 20. pg. 8838, l. 12, “Over time” 21. Replace Lahoz et al. ACPD reference with the ACP reference, 7, 1773 (2007) and this replacement (ACP for ACPD) should be done as much as possible when the final corrections are made. 22. pg. 8841, l. 25, “with meteorological” 23. pg. 8845, l. 5, “last PSCs” 24. pg. 8846, l. 17, “on the basis of” 25. pg. 8847, l. 15, “Arctic” 26. pg. 8851, l. 20, “allow the mean age of stratospheric air to be assessed” 27. pg. 8851, l. 26, This is very unclear. What do you mean? Both the English and the meaning are a problem. 28. pg. 8854, l. 1, “allowing the emission to be measured”; l. 5, Greek nu4, not v4; l. 8, use a left superscript for the second last number for CO2 notation; l. 15, “modes (Greek nu1, nu3)”; l. 16, replace “most equivocal” with something else e.g. “remarkable”; l. 20, what does O2(1) mean? O2 (v=1)?; l. 21, 3 should be a left superscript on the P; l. 24, NO (v=2) ?; l. 26, This is very confusing because they are not rotational or spin transitions!, I suggest: “vibration-rotation transitions for both 2Pi1/2 and 2Pi3/2 spin-orbit components” with a Greek cap. Pi, superscript 2 and subscript1/2 and 3/2. 29. pg. 8855, l. 2, “spin component temperature”; l. 3, “has also shed light on”; l. 4, Greek nu3 not v; l. 15, “allow the Arctic and Antarctic to be investigated”. 30. pg. 8856, l. 8, “to testĚ forecasts.”; l. 17, “on average” 31. pg. 8857, l. 2, delete “essentially”

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32. pg. 8893, figure caption, similar to problem above “NO vibration-rotation lines from both spin-orbit components”.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 8795, 2007.