

## ***Interactive comment on “MIPAS measurements of upper tropospheric C<sub>2</sub>H<sub>6</sub> and O<sub>3</sub> during the Southern hemispheric biomass burning season in 2003” by T. von Clarmann et al.***

### **Anonymous Referee #1**

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The paper by von Clarmann et al. presents some useful new atmospheric measurements from MIPAS satellite instrument. In particular, they provide the first global distribution of ethane, with clear enhancements due to biomass burning in the Southern Hemisphere. Although the observation of C<sub>2</sub>H<sub>6</sub> in biomass burning plumes is hardly new, the paper makes some interesting observations about ozone enhancements (and their lack of strong correlation with C<sub>2</sub>H<sub>6</sub>). The paper is generally clear and well written. The major weakness of the paper is that it works with only with a small number of tracers although MIPAS produces a considerable number of potentially useful species. The choice of CFC-11 as a tracer to determine stratospheric contamination is also a bit surprising given that MIPAS also provides temperature and water vapour profiles.

Interactive  
Comment

Detailed comments: 1. pg. 12068, l. 19, “2004 and 2005...seasons” 2. pg. 12071, l. 1. The discussion about spectroscopic line parameters is not satisfactory. As a reasonably reliable set of line parameters for the 820 cm<sup>-1</sup> band is now available from the work of Vander Auwerra et al., I am tempted to say that the retrievals should be redone! Given the extensive experience of the three authors of the Vander Auwerra et al. paper, I don’t think that the comment that the laboratory data for this band are “currently under debate” should be included. If the authors do not want to redo the retrievals, then they should provide a reasonable estimate for a correction factor to bring their retrieved VMRs in line with what would be obtained with the new lab data. The corrected values should then be used in the comparisons with other C<sub>2</sub>H<sub>6</sub> data. 3. pg. 12071, l. 25, “Although these measurements were made in 1992,” 4. pg. 12087, 12090, 12092 and 12093, the x and y axes should be labelled in the figures. 5. pg. 12093 something is wrong with the white lines in the figure. 6. pg. 12076, l. 25, “contributes to convection”

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