

## ***Interactive comment on “ACE-FTS observation of a young biomass burning plume: first reported measurements of C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>6</sub>O, H<sub>2</sub>CO and PAN by infrared occultation from space” by P.-F. Coheur et al.***

**N. Glatthor**

Norbert.Glatthor@imk.fzk.de

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This is a nice investigation, demonstrating that various constituents in biomass burning plumes can well be detected by spaceborne infrared remote sounding.

However, during discussion of their PAN measurements (p. 7915, ln. 12–15) the authors refer to the paper of [Glatthor et al. (2007)], stating that “recent measurements by the MIPAS satellite instrument only use a narrow portion of the PAN 794 cm<sup>-1</sup> band”. We do not agree with this statement, since in our PAN retrievals we used a

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comprehensive analysis window covering the main signatures of this band, namely the wavenumber region 775–800  $\text{cm}^{-1}$ . Given the large amount of MIPAS data, we did not use the weaker part of this band between 800 and 840  $\text{cm}^{-1}$  to save computational time. We consider this approach justified, because the resulting noise error is around 10% for moderate and well below 10% for enhanced tropospheric PAN amounts (cf. Figure 2 in [Glatthor et al. (2007)]).

In this context we would also like to mention that in our test calculations for the MIPAS/ENVISAT experiment the band at 794  $\text{cm}^{-1}$  showed the strongest PAN signatures as well as the largest signal-to-noise ratio (cf. Figure 1 in [Glatthor et al. (2007)]). Of course we are aware that this can well be different for another experiment (ACE-FTS) and another observation method (absorption instead of emission).

## References

[Glatthor et al. (2007)] Glatthor, N., von Clarmann, T., Fischer, H., Funke, B., Grabowski, U., Höpfner, M., Kellmann, S., Linden, A., Milz, M., Steck, T., and Stiller, G.P.: Global peroxyacetyl nitrate (PAN) retrieval in the upper troposphere from limb emission spectra of the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS), *Atmos. Chem. Phys.*, 7, 2775–2787, 2007, <http://www.atmos-chem-phys.net/7/2775/2007/>.

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