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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Low temperature mid-infrared cross-sections for peroxyacetyl nitrate (PAN) vapour" *by* G. Allen et al.

**G. Allen et al.**

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Firstly, we take this opportunity to thank Dr. Cathy Clerbaux for her valued and constructive comments and suggestions. We now respond to each of Dr. Clerbaux's specific comments in turn:

1/ Page 5670, line 24: We note that it is indeed inappropriate to describe PAN as a super greenhouse gas as there are no published results detailing the global warming potential for PAN at this time. We propose to remove this sentence.

2/ Page 5671, Line 10-15: We thank Dr. Clerbaux for alerting us to the work of the ACE mission and we propose to note this mission in the text in light of the potential for the detection of PAN described by Dr. Clerbaux.

3/ Page 5675, Line 27-28: Page 5676, Line 20-22 and Page 5678, Line 1-2: These statements may be redundant as noted by Dr. Clerbaux. The statement that "...there is the possibility of overlap between all values..." is intended to describe that the errors assigned to calculated PAN integrated band intensities, may at their extreme, allow an overlap between individual PAN band intensities calculated at 295 K and 250 K, and that there is a small possibility that the inferred temperature dependence may in fact be due to the error component. We feel that it is important to bring this to the reader's attention and we propose to make this statement in a clearer manner.

4/ Conclusions: Ten will be replaced by twelve as necessary.

5/ References: The reference to Nett et al. will be removed as necessary.

6/ Figure 1: We will add a sentence to the figure caption as suggested to describe that measurements above 1500 cm-1 were not performed at 273 K.

Technical corrections of note: Emmons reference should be for the year 2000; we will correct this as necessary in the text. Page 5678: This should refer to the 1741 cm-1 band; we will correct as necessary.

Other technical corrections are noted and will be made as suggested.

We thank Dr. Clerbaux again for her valued and constructive comments.

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Interactive comment on Atmos. Chem. Phys. Discuss., 5, 5669, 2005.