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Comment

Interactive comment on “Greenhouse gas relationships in the Indian summer monsoon plume measured by the CARIBIC passenger aircraft” by T. J. Schuck et al.

Anonymous Referee #1

Received and published: 7 March 2010

This is a well written paper that I recommend for publication following one minor change. There is one caveat in that given the range of data presented in the paper it is quite possible that other reviewers will indicate slight modification of their inferences or to add a reference; an example is from the interactive comments about AIRS methane. Consequently, it might be useful to wait an extra 2-3 weeks prior to acceptance to allow others to weigh in on these results.

Suggested Changes: As discussed in the manuscript, the upper tropospheric ozone is controlled by convective lifting of ozone poor PBL air. However, middle tropospheric ozone is likely controlled by photochemical production of ozone pre-cursors from Asia

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and from lightning. However, as also shown in the Liu et al. 2009 and Worden et al., 2009 papers, the westerly jet shows significant ozone concentrations which could be due to stratospheric exchange. Given that the aircraft primarily samples air parcels in the upper troposphere, it is likely that this mechanism, and not photochemical production in the middle troposphere, is causing the high ozone / low water correlations. I suggest adding this potential mechanism to the paper.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 2031, 2010.

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