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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Cirrus cloud-temperature interactions in the tropical tropopause layer: a case study" *by* J. R. Taylor et al.

J. R. Taylor et al.

taylor@ucar.edu

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The authors wish to thank the referee for his/her insightful comments and feedback on the manuscript entitled Cirrus cloud-temperature interactions in the tropical tropopause layer: a case study that is currently being considered for publication in Atmospheric Chemistry and Physics. To the best of our effort, we have endeavoured to address each of the referee's suggestions. Below is a detailed account of how this was done. We welcome any further feedback that the editor and/or reviewers may have.

1) Page 15746 - 15747: 'TTL cirrus are typically thin lamina, with low optical depths (often subvisible, opticaldepths less than 0.03 (Sassen and Cho, 1992)). These thin, often sub-visible clouds can have optical depths of less than 0.03 and are the most common form of cloud in the TTL (Wang and Dessler, 2006). ' I think this should be:

TTL cirrus are typically thin lamina, with low optical depths. These thin, often subvisible clouds can have optical depths of less than 0.03 (Sassen and Cho, 1992) and are the most common form of cloud in the TTL (Wang and Dessler, 2006).

Changed

2) Page 15746, line 12: (super)saturated -> supersaturated

Changed

3) Page 15751, line 26 (Fig. 1): please indicate in the text and in the caption of Fig. 1 the parameter which is shown.

The description "The image shows the CALIOP lidar vertical profile backscatter along the orbit track" has been added.

4) Page 15753, 3rd paragraph: please indicate the absolute cloud temperature range.

This sentence has been added for clarification: "The average temperature in this region, over this time period, is approximately 191 K."

5) Page 15754, line 8: I would find it much more interesting to see the vorticity patterns of the intrusion instead of Fig. 5!

We have calculated the vorticity anomalies associated with the intrusion and we have attached the figure to this review (Fig. 1 below). We chose not to include this figure in the paper as it did not add any value beyond what was discussed in the text. Should the editor feel that our discussion was insufficient, we would be willing to add this figure and its associated description.

6) Page 15755, first paragraph: I would not enclose parts of sentences in brackets as is done three times in this paragraph.

These sentences have been modified and some of the brackets have been removed.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 15745, 2011.

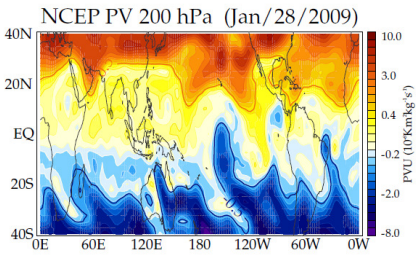

Figure 1: Potential vorticity anomalies derived from NCEP 200 hPa reanalysis on 28 July 2009.

Fig. 1.