

Interactive comment on “Lightning-produced NO_x during the Northern Australian monsoon; results from the ACTIVE campaign” by L. Labrador et al.

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Interactive comment on “Lightning-produced NO_x during the Northern Australian monsoon; results from the ACTIVE campaign”. Response to referee #3

We thank the referee for his/her useful comments.

P. 10648, line 17: here and many other places in the manuscript the word “accretion” is used. I think the word “accumulation” would be better.

R. Done

P. 10648, line 26: LNOX is a more standard notation than LtNO_x.

R. Changed

C4012

P. 10649, line 22: Another paper from STEP demonstrating the impact of LNO_x is Pickering et al. (1993).

R. The paper in question has been referenced, although with the caveat that the results therein reflect conditions typical of the maritime continent.

P. 10651, line 8:

R: Counts per second. Spelled out in the text now.

P. 10652, line 5.

R: Done.

P. 10656, line 23

R: Done.

P. 10656, lines 25 and 28: Done.

P. 10658, lines 5 and 8.

R: Done.

P. 10659, lines 8-9:

R: Agreed. A 5-panel figure has been added that consists of the 5-day back-trajectory for transect 6 for each day along with the LINET strokes for that day. The figure shows that the air mass sampled on transects 1-5 which originated due east of the sampling point, on the northern end of the Cape York peninsula, were exposed to the highest lightning activity on 21 and 22 January, as it approached the Darwin area, whereas those sampled on transects 6-9, originating south of the sampling points, had a longer exposure to convection, including 17 and 22 January. This is now discussed in the text.

P. 10660, lines 2-3.

R: Done

C4013

P. 10661, line 14:

R: TTL. The presence of VOCs in a highly convective environment, with its attendant potential for fast vertical transport and NO_x production by lightning increases the possibility of ozone production in the tropical tropopause layer.

Figure 6: Image taken on 22/01/06 at 0730 UTC. Added to the caption.

Please also note the Supplement to this comment.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 10647, 2009.