

Interactive comment on “Direct satellite observation of lightning-produced NO_x” by S. Beirle et al.

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In addition to the revisions according to the reviewers' comments, we applied the following changes in the revised manuscript:

- For lucidity, we merged some of the figures (3&4→Fig. 3, 5&6→Fig. 4, 7&8→Fig. 5, 10&11→Fig. A2, 12&13→Fig. A3, 15&16→Fig. A5). The content of these figures remains unaffected.
- In Table 2, we corrected the date of event #191, which was mixed up (day and month interchanged).
- For each event, we additionally calculated spatial correlation coefficients between C9600

NO₂ TSCD and FRD for the SCIAMACHY ground pixels within about 200 km around the event, and include this information in Table 2, to substantiate the discussion of “matching spatial patterns”.

- In section 4, we added a reference to Bertram et al., 2007, who estimate the fraction of PBL air in convective outflows as 0.17.
- We modified the calculation of PCT at 37 GHz according to Cecil et al., 2002. The change in PCT is quite low (Minimum PCT becomes about 3K higher), but the contrast to ocean is improved (figures 15/16, which is now Fig. A5).
- For clarity, figures 18&20, both showing WWLLN flashes back in time for different spatial clippings, are replaced by a single new figure (C1) which covers all the aspects discussed in Appendix C (High NO₂ events).

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