

Interactive comment on “The global lightning-induced nitrogen oxides source” by U. Schumann and H. Huntrieser

U. Schumann and H. Huntrieser

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We thank the reviewer for the thoughtful and supportive comments.

We are very grateful to the reviewer for his careful reading. The suggestions and corrections will be taken into account for proper revision.

We agree to most comments and the suggestions and corrections will be taken into account for proper revision.

A few remarks:

p. 2626: we prefer to leave the list of references short at this stage and to refer mainly to first publications in this connection. DeCaria et al. (2000) were the first (with a 2d model) and Fehr et al. (2004) were the first using a 3d model. DeCaria et al. (2005) is cited later with other related papers.

p. 2644. We agree. We will include, in particular, the recent paper by Rahman et al. (2007) who show that NO_x is produced also during the "continuous current" of the lightning event, not necessarily only within strokes.

p. 2667. A more complete explanation will be given, though it should be short.

p. 2687, instead of Blitz et al. (2004) we will cite Arnold et al. (2005) discussing this point.

p. 2690: In fact, Gallardo and Rhode (1997) do not make firm conclusions on an upper limit. The conclusion cited comes from the preprint paper (Gallardo and Rodhe, 1995) and is referred explicitly in Lee et al. (1997).

New References

Arnold, S. R., Chipperfield, M. P., and Blitz, M. A.: A three-dimensional model study of the effect of new temperature-dependent quantum yields for acetone photolysis, *J. Geophys. Res.*, 110, D22305, doi:10.1029/2005JD005998, 2005.

Gallardo, L., and Rodhe, H., Evaluation of a global 3-D model of tropospheric oxidized nitrogen, 36 pp, Department of Meteorology, Stockholm University, International Meteorological Institute, Stockholm, Sweden, CM-85, 1995.

Rahman, M., Cooray, V., Rakov, V. A., Uman, M. A., Liyanage, P., DeCarlo, B. A., Jerauld, J., and Olsen III, R. C.: Measurements of NO_x produced by rocket-triggered lightning, *Geophys. Res. Lett.*, 34, L03816, doi: 10.1029/2006GL027956, 2007.

We would like to note that since publication of our review several further studies have been published. Some of them will be included in the revised version.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 7, 2623, 2007.

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