

***Interactive comment on* “Impact of tropospheric nitrogen dioxide on the regional radiation budget” by A. P. Vasilkov et al.**

Anonymous Referee #2

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The paper discussed computed global and local atmospheric heating from tropospheric NO₂ using satellite data and model calculations. Several aspects related to uncertainties in the retrieval and heating calculation are discussed and quantified. I find the paper well organized and easy to read.

Some specific comments: 1. Abstract: It would help the reader if the abstracts contains more quantitative information in the NAH and its uncertainty. Now it mostly states what is studied in the paper. 2. Section 4.2.1: It is not clear how the modelled NO₂ data is constrained by the NO₂ column data from OMI. Does it only affect the data at 13:30, or the whole diurnal cycle. 3. It is not clear how relevant the findings are. The authors state that NO₂ absorption is currently not included in most GCM calculations. Is it possible to give the reader an idea how GCN results will alter when this absorption is

taken into account?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 12675, 2009.

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