

[Home](#)[Online Library ACP](#)

- Recent Final Revised Papers
- [Volumes and Issues](#)
- Special Issues
- Library Search
- Title and Author Search

[Online Library ACPD](#)[Alerts & RSS Feeds](#)[General Information](#)[Submission](#)[Review](#)[Production](#)[Subscription](#)[Comment on a Paper](#)

Impact
Factor
4.865

ISI
indexed

[Volumes and Issues](#) [Contents of Issue 1](#)

Atmos. Chem. Phys., 2, 67-78, 2002

www.atmos-chem-phys.net/2/67/2002/

© Author(s) 2002. This work is licensed under a Creative Commons License.

Tropospheric NO₂ columns: a comparison between model and retrieved data from GOME measurements

A. Lauer¹, M. Dameris¹, A. Richter², and J. P. Burrows²¹DLR Institut für Physik der Atmosphäre, Oberpfaffenhofen, D-82234 Wessling, Germany²Institut für Umweltp Physik, Universität Bremen, D-28359 Bremen, Germany

Abstract. Tropospheric NO₂ plays a variety of significant roles in atmospheric chemistry. In the troposphere it is one of the most significant precursors of photochemical ozone (O₃) production and nitric acid (HNO₃). In this study tropospheric NO₂ columns were calculated by the fully coupled chemistry-climate model ECHAM4.L39(DLR)/CHEM. These have been compared with tropospheric NO₂ columns, retrieved using the tropospheric excess method from measurements by the Global Ozone Monitoring Experiment (GOME) of up-welling earthshine radiance and the extraterrestrial irradiance. GOME is part of the core payload of the second European Research Satellite (ERS-2). For this study the first five years of GOME measurements have been used. The period of five years of observational data is sufficiently long to facilitate for the first time a comparison based on climatological averages with global coverage, focussing on the geographical distribution of the tropospheric NO₂.

A new approach of analysing regional differences (i.e. on continental scales) by calculating individual averages for different environments provides more detailed information about specific NO_x sources and of their seasonal variations. The results obtained enable the validity of the model NO₂ source distribution and the assumptions used to separate tropospheric and stratospheric parts of the NO₂ column amount from the satellite measurements to be investigated.

[Final Revised Paper](#) (PDF, 945 KB) [Discussion Paper](#) (ACPD)

Citation: Lauer, A., Dameris, M., Richter, A., and Burrows, J. P.: Tropospheric NO₂ columns: a comparison between model and retrieved data from GOME measurements, Atmos. Chem. Phys., 2, 67-78, 2002. [Bibtex](#) [EndNote](#) [Reference Manager](#)

[Search ACP](#)Library Search [»](#)Author Search [»](#)[News](#)

- Sister Journals AMT & GMD
- Financial Support for Authors
- Journal Impact Factor
- Public Relations & Background Information

[Recent Papers](#)

01 | ACP, 11 Mar 2009: Measurements of Pollution In The Troposphere (MOPITT) validation through 2006

02 | ACP, 11 Mar 2009: Air-sea fluxes of biogenic bromine from the tropical and North Atlantic Ocean

03 | ACPD, 10 Mar 2009: Characterization of organic ambient aerosol during MIRAGE 2006 on three platforms

04 | ACPD, 10 Mar 2009: Regional differences in