

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 2](#) [Special Issue](#)

Atmos. Chem. Phys., 6, 339-348, 2006
www.atmos-chem-phys.net/6/339/2006/

© Author(s) 2006. This work is licensed
under a Creative Commons License.

Model simulations and aircraft measurements of vertical, seasonal and latitudinal O₃ and CO distributions over Europe

H. Fischer¹, M. Lawrence¹, Ch. Gurk¹, P. Hoor¹, J. Lelieveld¹,
M. I. Hegglin², D. Brunner², and C. Schiller³

¹Max Planck Institute for Chemistry, Airchemistry Division, P.O. Box 3060, 55020 Mainz, Germany

²Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology, Zürich, Switzerland

³FZ Jülich, ICG-1, Jülich, Germany

Abstract. During a series of 8 measurement campaigns within the SPURT project (2001-2003), vertical profiles of CO and O₃ have been obtained at subtropical, middle and high latitudes over western Europe, covering the troposphere and lowermost stratosphere up to ~14 km altitude during all seasons. The seasonal and latitudinal variation of the measured trace gas profiles are compared to simulations with the chemical transport model MATCH. In the troposphere reasonable agreement between observations and model predictions is achieved for CO and O₃, in particular at subtropical and mid-latitudes, while the model overestimates (underestimates) CO (O₃ in the lowermost stratosphere particularly at high latitudes, indicating too strong simulated bi-directional exchange across the tropopause. By the use of tagged tracers in the model, long-range transport of Asian air masses is identified as the dominant source of CO pollution over Europe in the free troposphere.

[Final Revised Paper](#) (PDF, 1744 KB) [Discussion Paper](#) (ACPD)

Citation: Fischer, H., Lawrence, M., Gurk, Ch., Hoor, P., Lelieveld, J., Hegglin, M. I., Brunner, D., and Schiller, C.: Model simulations and aircraft measurements of vertical, seasonal and latitudinal O₃ and CO distributions over Europe, Atmos. Chem. Phys., 6, 339-348, 2006. [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, 23 Dec 2008: Measurement of glyoxal using an incoherent broadband cavity enhanced absorption spectrometer

02 | ACPD, 23 Dec 2008: Single particle characterization using a light scattering module coupled to a time-of-flight aerosol mass spectrometer

03 | ACP, 23 Dec 2008: Corrigendum to "Modeling the effect of plume-rise on the transport of carbon monoxide over Africa with NCAR CAM" published in