

[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 10](#) [Special Issue](#)

Atmos. Chem. Phys., 7, 2527-2550, 2007

[www.atmos-chem-phys.net/7/2527/2007/](http://www.atmos-chem-phys.net/7/2527/2007/)

© Author(s) 2007. This work is licensed under a Creative Commons License.

## Simulating organic species with the global atmospheric chemistry general circulation model ECHAM5/MESSy1: a comparison of model results with observations

A. Pozzer, P. Jöckel, H. Tost, R. Sander, L. Ganzeveld, A. Kerkweg, and J. Lelieveld

Air Chemistry Department, Max-Planck Institute of Chemistry, P.O. Box 3060, 55020 Mainz, Germany

**Abstract.** The atmospheric-chemistry general circulation model ECHAM5/MESSy1 is evaluated with observations of different organic ozone precursors. This study continues a prior analysis which focused primarily on the representation of atmospheric dynamics and ozone. We use the results of the same reference simulation and apply a statistical analysis using data from numerous field campaigns. The results serve as a basis for future improvements of the model system. ECHAM5/MESSy1 generally reproduces the spatial distribution and the seasonal cycle of carbon monoxide (CO) very well. However, for the background in the Northern Hemisphere we obtain a negative bias (mainly due to an underestimation of emissions from fossil fuel combustion), and in the high latitude Southern Hemisphere a yet unexplained positive bias. The model results agree well with observations of alkanes, whereas severe problems in the simulation of alkenes and isoprene are present. For oxygenated compounds the results are ambiguous: The model results are in good agreement with observations of formaldehyde, but systematic biases are present for methanol and acetone. The discrepancies between the model results and the observations are explained (partly) by means of sensitivity studies.

[Final Revised Paper](#) (PDF, 2537 KB) [Supplement](#) (47 KB) [Discussion Paper](#) (ACPD)

Citation: Pozzer, A., Jöckel, P., Tost, H., Sander, R., Ganzeveld, L., Kerkweg, A., and Lelieveld, J.: Simulating organic species with the global atmospheric chemistry general circulation model ECHAM5/MESSy1: a comparison of model results with observations, Atmos. Chem. Phys., 7, 2527-2550, 2007. [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, 10 Dec 2008: Sulfur isotope analyses of individual aerosol particles in the urban aerosol at a central European site (Mainz, Germany)

02 | ACP, 10 Dec 2008: Spatial and temporal variation of historical anthropogenic NMVOCs emission inventories in China

03 | ACPD, 10 Dec 2008: What would have happened to the ozone layer if chlorofluorocarbons (CFCs) had not been regulated?