

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 11](#) [Special Issue](#)

Atmos. Chem. Phys., 5, 2901-2914, 2005

www.atmos-chem-phys.net/5/2901/2005/

© Author(s) 2005. This work is licensed under a Creative Commons License.

Global carbon monoxide vertical distributions from spaceborne high-resolution FTIR nadir measurements

B. Barret^{1,*}, S. Turquety^{2,**}, D. Hurtmans¹, C. Clerbaux^{1,2}, J. Hadji-Lazaro², I. Bey³, M. Auvray³, and P.-F. Coheur¹

¹Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles, Bruxelles, Belgium

²Service d'Aéronomie, Institut Pierre-Simon Laplace, Paris, France

³Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

* now at: Laboratoire d'Aérodynamique, CNRS, Toulouse, France

** now at: Division of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts, USA

Abstract. This paper presents the first global distributions of CO vertical profiles retrieved from a thermal infrared FTS working in the nadir geometry. It is based on the exploitation of the high resolution and high quality spectra measured by the Interferometric Monitor of Greenhouse gases (IMG) which flew onboard the Japanese ADEOS platform in 1996-1997. The retrievals are performed with an algorithm based on the Optimal Estimation Method (OEM) and are characterized in terms of vertical sensitivity and error budget. It is found that most of the IMG measurements contain between 1.5 and 2.2 independent pieces of information about the vertical distribution of CO from the lower troposphere to the upper troposphere-lower stratosphere (UTLS). The retrievals are validated against coincident NOAA/CMDL in situ surface measurements and NDSC/FTIR total columns measurements. The retrieved global distributions of CO are also found to be in good agreement with the distributions modeled by the GEOS-CHEM 3D CTM, highlighting the ability of IMG to capture the horizontal as well as the vertical structure of the CO distributions.

[Final Revised Paper](#) (PDF, 1029 KB) [Discussion Paper](#) (ACPD)

Citation: Barret, B., Turquety, S., Hurtmans, D., Clerbaux, C., Hadji-Lazaro, J., Bey, I., Auvray, M., and Coheur, P.-F.: Global carbon monoxide vertical distributions from spaceborne high-resolution FTIR nadir measurements, Atmos. Chem. Phys., 5, 2901-2914, 2005. [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 | ACPD, 14 Jan 2009:
The impact of tropical recirculation on polar composition

02 | ACPD, 14 Jan 2009:
Lightning NO_x emissions over the USA investigated using TES, NLDN, LRLDN, IONS data and the GEOS-Chem model

03 | ACP, 14 Jan 2009:
Properties of aerosols and their wet deposition in the arctic spring during ASTAR2004 at Ny-Alesund, Svalbard