

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 7](#)

Atmos. Chem. Phys., 4, 1945-1960, 2004
www.atmos-chem-phys.net/4/1945/2004/

© Author(s) 2004. This work is licensed
under a Creative Commons License.

Global carbon monoxide as retrieved from SCIAMACHY by WFM-DOAS

M. Buchwitz, R. de Beek, K. Bramstedt, S. Noël, H. Bovensmann, and
J. P. Burrows
Institute of Environmental Physics (iup), University of Bremen FB1, Bremen,
Germany

Abstract. First results concerning the retrieval of tropospheric carbon monoxide (CO) from satellite solar backscatter radiance measurements in the near-infrared spectral region ($\sim 2.3\mu\text{m}$) are presented. The Weighting Function Modified (WFM) DOAS retrieval algorithm has been used to retrieve vertical columns of CO from SCIAMACHY/ENVISAT nadir spectra. We present detailed results for three days from the time period January to October 2003 selected to have good overlap with the daytime CO measurements of MOPITT onboard EOS Terra. Because the WFM-DOAS Version 0.4 CO columns presented in this paper are scaled by a constant factor of 0.5 to compensate for an obvious overestimation we focus on the variability of the retrieved columns rather than on their absolute values. It is shown that plumes of CO resulting from, e.g. biomass burning in Africa, are detectable with single overpass SCIAMACHY data. Globally, the SCIAMACHY CO columns are in reasonable agreement with the Version 3 CO column data product of MOPITT. For example, for measurements over land, where the quality of the data is typically better than over ocean due to higher surface reflectivity, the standard deviation of the difference with respect to MOPITT is in the range $0.4\text{--}0.6 \times 10^{18}$ molecules/cm² and the linear correlation coefficient is between 0.4 and 0.7. The level of agreement between the data of both sensors depends on time and location but is typically within 30% for most latitudes. In the southern hemisphere outside Antarctica SCIAMACHY tends to give systematically higher values than MOPITT. More studies are needed to find out what the reasons for the observed differences with respect to MOPITT are and how the algorithm can be modified to improve the quality of the CO columns as retrieved from SCIAMACHY.

[Final Revised Paper](#) (PDF, 10755 KB) [Discussion Paper](#) (ACPD)

Citation: Buchwitz, M., de Beek, R., Bramstedt, K., Noël, S., Bovensmann, H., and Burrows, J. P.: Global carbon monoxide as retrieved from SCIAMACHY by WFM-DOAS, Atmos. Chem. Phys., 4, 1945-1960, 2004. [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, 06 Mar 2009:
Lightning characteristics
observed by a VLF/LF
lightning detection network
(LINET) in Brazil, Australia,
Africa and Germany

02 | ACP, 06 Mar 2009:
Summertime PM_{2.5} ionic
species in four major cities of
China: nitrate formation in
an ammonia-deficient
atmosphere

03 | ACPD, 05 Mar 2009:
A~model study of the
January 2006 low total ozone
episode over Western Europe
and comparison with ozone