

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



[Volumes and Issues](#) [Contents of Issue 7](#) [Special Issue](#)

Atmos. Chem. Phys., 6, 1953-1976, 2006

www.atmos-chem-phys.net/6/1953/2006/

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

Comparisons between SCIAMACHY and ground-based FTIR data for total columns of CO, CH₄, CO₂ and N₂O

B. Dils¹, M. De Mazière¹, J. F. Müller¹, T. Blumenstock², M. Buchwitz¹¹, R. de Beek¹¹, P. Demoulin⁵, P. Duchatelet⁵, H. Fast³, C. Frankenberg⁷, A. Gloudemans¹², D. Griffith⁴, N. Jones⁴, T. Kerzenmacher¹⁰, I. Kramer², E. Mahieu⁵, J. Mellqvist⁶, R. L. Mittermeier³, J. Notholt¹¹, C. P. Rinsland¹³, H. Schrijver¹², D. Smale⁸, A. Strandberg⁶, A. G. Straume¹², W. Stremme⁹, K. Strong¹⁰, R. Sussmann⁹, J. Taylor¹⁰, M. van den Broek¹², V. Velasco¹¹, T. Wagner⁷, T. Warneke¹¹, A. Wiacek¹⁰, and S. Wood⁸

¹Belgian Institute for Space Aeronomy, Brussels, Belgium

²Forschungszentrum Karlsruhe and University Karlsruhe, IMK-ASF, Karlsruhe, Germany

³Environment Canada, Downsview, Ontario, Canada

⁴University of Wollongong, New South Wales, Australia

⁵Institut d'Astrophysique et de Géophysique, Liège, Belgium

⁶Chalmers University of Technology, Radio & Space Science, Göteborg, Sweden

⁷Institute of Environmental Physics, University of Heidelberg, Heidelberg, Germany

⁸National Institute for Water and Air Research (NIWA), New Zealand

⁹Forschungszentrum Karlsruhe, IMK-IFU, Garmisch-Partenkirchen, Germany

¹⁰Department of Physics, University of Toronto, Toronto, Ontario, Canada

¹¹Institute of Environmental Physics, University of Bremen, FB1, Germany

¹²Netherlands Institute for Space Research (SRON), Utrecht, The Netherlands

¹³NASA Langley Research Center, Hampton, VA, USA

Abstract. Total column amounts of CO, CH₄, CO₂ and N₂O retrieved from SCIAMACHY nadir observations in its near-infrared channels have been compared to data from a ground-based quasi-global network of Fourier-transform infrared (FTIR) spectrometers. The SCIAMACHY data considered here have been produced by three different retrieval algorithms, WFM-DOAS (version 0.5 for CO and CH₄ and version 0.4 for CO₂ and N₂O), IMAP-DOAS (version 1.1 and 0.9 (for CO)) and IMLM (version 6.3) and cover the January to December 2003 time period. Comparisons have been made for individual data, as well as for monthly averages. To maximize the number of reliable coincidences that satisfy the temporal and spatial collocation criteria, the SCIAMACHY data have been compared with a temporal 3rd order polynomial interpolation of the ground-based data. Particular attention has been given to the question whether SCIAMACHY observes correctly the seasonal and latitudinal variability of the target species. The present results indicate that the individual SCIAMACHY data obtained with the actual versions of the algorithms have been significantly improved, but that the quality requirements, for estimating emissions on regional scales, are not yet met. Nevertheless, possible directions for further algorithm upgrades have been identified which should result in more reliable data products in a near future.

[Final Revised Paper](#) (PDF, 5833 KB) [Discussion Paper](#) (ACPD)

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, 08 Jan 2009: Ambient new particle formation parameter indicates potential rise in future events

02 | ACPD, 08 Jan 2009: Changing sources and environmental factors reduce the rates of decline of organochlorine pesticides in the Arctic Atmosphere

03 | ACP, 08 Jan 2009: The SCOUT-O3 Darwin Aircraft Campaign: rationale and meteorology

Citation: Dils, B., De Mazière, M., Müller, J. F., Blumenstock, T., Buchwitz, M., de Beek, R., Demoulin, P., Duchatelet, P., Fast, H., Frankenberg, C., Gloudemans, A., Griffith, D., Jones, N., Kerzenmacher, T., Kramer, I., Mahieu, E., Mellqvist, J., Mittermeier, R. L., Notholt, J., Rinsland, C. P., Schrijver, H., Smale, D., Strandberg, A., Straume, A. G., Stremme, W., Strong, K., Sussmann, R., Taylor, J., van den Broek, M., Velazco, V., Wagner, T., Warneke, T., Wiacek, A., and Wood, S.: Comparisons between SCIAMACHY and ground-based FTIR data for total columns of CO, CH₄, CO₂ and N₂O, Atmos. Chem. Phys., 6, 1953-1976, 2006. [Bibtex](#) [EndNote](#) [Reference Manager](#)