

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
4.927

ISI
indexed



▣ Volumes and Issues ▣ Contents of Issue 4

Atmos. Chem. Phys., 10, 1649-1660, 2010

www.atmos-chem-phys.net/10/1649/2010/

© Author(s) 2010. This work is distributed under the Creative Commons Attribution 3.0 License.

Pollution events observed during CARIBIC flights in the upper troposphere between South China and the Philippines

S. C. Lai¹, A. K. Baker¹, T. J. Schuck¹, P. van Velthoven², D. E. Oram³, A. Zahn⁴, M. Hermann⁵, A. Weigelt⁵, F. Slemr¹, C. A. M. Brenninkmeijer¹, and H. Ziereis⁶

¹Max Planck Institute for Chemistry, Air Chemistry Division, J.-J.-Becherweg 27, 55128, Mainz, Germany

²Royal Netherlands Meteorological Institute (KNMI), P.O. Box 201, 3730 AE, de Bilt, The Netherlands

³National Centre for Atmospheric Science, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK

⁴Institut für Meteorologie und Klimaforschung (IMK), Forschungszentrum Karlsruhe, Weberstr. 5, 76133 Karlsruhe, Germany

⁵Leibniz-Institut für Troposphärenforschung (IFT), Permoserstr. 15, 04318 Leipzig, Germany

⁶Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Physik der Atmosphäre, 82230 Wessling, Germany

Abstract. A strong pollution episode in the upper troposphere between South China and the Philippines was observed during CARIBIC flights in April 2007. Five pollution events were observed, where enhancements in aerosol and trace gas concentrations including CO, CO₂, CH₄, non-methane hydrocarbons (NMHCs) and halocarbons were observed along the flight tracks during four sequential flights. The importance of the contribution of biomass/biofuel burning was investigated using chemical tracers, emission factor analysis, back-trajectory analysis and satellite images. The Indochinese peninsula was identified as the probable source region of biomass/biofuel burning. However, enhancements in the urban/industrial tracer C₂Cl₄ during the events also indicate a substantial contribution from urban anthropogenic emissions. An estimation of the contribution of fossil fuel versus biomass/biofuel to the CO enhancement was made, indicating a biomass/biofuel burning contribution of ~54 to ~92% of the observed CO enhancements. Biomass/biofuel burning was found to be the most important source category during the sampling period.

▣ [Final Revised Paper](#) (PDF, 1471 KB) ▣ [Discussion Paper](#) (ACPD)

Citation: Lai, S. C., Baker, A. K., Schuck, T. J., van Velthoven, P., Oram, D. E., Zahn, A., Hermann, M., Weigelt, A., Slemr, F., Brenninkmeijer, C. A. M., and Ziereis, H.: Pollution events observed during CARIBIC flights in the upper troposphere between South China and the Philippines, Atmos. Chem. Phys., 10, 1649-1660, 2010. ▣ [Bibtex](#) ▣ [EndNote](#) ▣ [Reference Manager](#)

Search ACP

Library Search

Author Search

News

- Bringing Down Geoscientific Barriers
- New Tax Regulation for Service Charges
- Sister Journals AMT & GMD
- Public Relations & Background Information

Recent Papers

01 | ACP, 19 Feb 2010: Tropospheric photooxidation of CF₃CH₂CHO and CF₃(CH₂)₂CHO initiated by Cl atoms and OH radicals

02 | ACP, 19 Feb 2010: Estimations of climate sensitivity based on top-of-atmosphere radiation imbalance

03 | ACP, 19 Feb 2010: Numerical simulations of contrail-to-cirrus transition – Part 2: Impact of initial ice crystal number, radiation, stratification, secondary nucleation and layer depth