

# Curriculum Vitae - Paul I. Palmer

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## Research Appointments

University Research Fellow (Tenure-track)	7/2005 -	School of Earth and Environment, <b>University of Leeds</b> , UK
Honourary Research Fellow	11/2005-	School of GeoSciences, <b>University of Edinburgh</b> , UK
Research Associate Postdoctoral Fellow	2002 – 2005 1999 – 2002	Division of Engineering and Applied Sciences, <b>Harvard University</b> , Cambridge, MA, USA
Postdoctoral Fellow	Summer 1999	School of Geography, <b>Oxford University</b> , UK

## Education

D.Phil., Physics, **Oxford University**, Oxford, UK, 1999.

Title: *Analysis of atmospheric temperature and humidity from radio occultation measurements*

B.Sc., Physics, **Bristol University**, Bristol, UK, 1995.

## Awards and Honours

- Visiting Research Scientist, NCAR, Summer 2006.
- Honourary Research Fellowship, Edinburgh University, 2005-
- National Science Foundation Early Career Award to participate at the Gordon Research Conference on “Biogenic Hydrocarbons and Climate,” Italy, May 2004.
- Invited Participant at the Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS), Brookhaven National Laboratory, 2001.
- Natural Environment Research Council CASE (Co-operative Awards in Sciences of the Environment) research studentship, 1995-1998. CASE sponsor: UK Meteorological Office.

## Recent Invited Presentations

Max Planck Institute for Chemistry, Mainz (2006); University of East Anglia (2006); Rutherford Appleton Laboratory (2006); University of Sheffield (2005); University of York (2005); University of Edinburgh (2005); University of Utah (2004); National Center for Atmospheric Research (2004); University of Toronto (2004); Meteorological Service of Canada (2004); Leeds University (2004); AGU Fall Meeting, San Francisco (2003); Massachusetts Institute for Technology (2003); California Institute for Technology (2003); Atmospheric Environmental Research (2002); Cambridge University (2002); National Center for Atmospheric Research (2002).

## Professional Activities

Session Chair	“Reactive chemistry in the troposphere: Hydroxy and Hydroperoxy radicals,” AGU Fall Meeting, San Francisco, 2003.
Session Organizer/Chair	“Satellite observations of trace species in the global troposphere,” AGU Spring Meeting, Boston, 2001.
Reviewer	Journal of Geophysical Research; Geophysical Research Letters; Atmospheric Environment; Journal of Atmospheric and Oceanic Technology; Atmospheric Chemistry and Physics; Natural Environmental Research Council; NASA.

## Teaching

EPS133 Harvard University (Substitute lecturer)	2001-2005	Topics covered: biogeochemical cycles, greenhouse effect, chemistry in the stratosphere and troposphere, air pollution.
Physics tutor, Earth Sciences, Oxford University	1996-1997	Tutored first-year undergraduates in basic physics.

## **Publications**

### In Preparation

- 34) **Palmer, P. I.** and O. Wild, “The role of the remote marine atmosphere on determining the chemical composition of the global troposphere,” in preparation, 2005.
- 33) T. J. Garrett, L. Avey, **P. Palmer**, C. Brock, J. de Gouw, and T. Ryerson, “Quantifying loss of CCN by wet scavenging processes during ITCT-2K4,” in preparation, 2005.

### In Review

- 32) **Palmer, P. I.**, P. Suntharalingam, D. B. A. Jones, D. J. Jacob, G. W. Sachse, S. Vay, D. G. Streets, and Q. Fu, “Exploiting observed CO:CO<sub>2</sub> correlations in Asian outflow to invert simultaneously for emissions of CO and CO<sub>2</sub>,” in preparation, 2005.
- 31) Koike, M., N. B. Jones, **P. I. Palmer**, H. Matsui, Y. Zhao, Y. Kondo, Y. Matsumi, D. J. Jacob, H. Tanimoto, “Seasonal variation in carbon monoxide in the North part of Japan: FTIR measurements and source-labeled model calculations,” *J. Geophys. Res.*, in review, 2005.
- 30) Liu, X., K. Chance, C. E. Sioris, T. P. Kurosu, R. J. D. Spurr, R. V. Martin, M. Fu, J. A. Logan, D. J. Jacob, **P. I. Palmer**, M. J. Newchurch, I. Megretskaia, R. Chatfield, “First directly-retrieved global distribution of tropospheric column ozone from GOME: comparison with the GEOS-CHEM model,” *J. Geophys. Res.*, in review, 2005.
- 29) Guenther, A., T. Karl, C. Wiedinmyer, **P. I. Palmer**, and C. Geron, “The Model of Emissions of Gases and Aerosols from Nature (MEGAN) Estimates of Global Isoprene Emissions,” *J. Geophys. Res.*, in review, 2005.
- 28) **Palmer, P. I.**, D. S. Abbot, T-M. Fu, D. J. Jacob, K. Chance, T. Kurosu, A. Guenther, C. Wiedinmyer, J. Stanton, M. Pilling, S. Pressley, B. Lamb, and A. L. Sumner, “Constraints on seasonal and interannual variability of North American isoprene emissions from satellite observations of formaldehyde column,” *J. Geophys. Res.*, in review, 2005.

### Accepted for Publication

- 27) Shim, C., Y. Wang, Y. Choi, **P. I. Palmer**, D. S. Abbot, and K. Chance, “Constraining global isoprene emissions with GOME formaldehyde column measurements,” *J. Geophys. Res.*, accepted, 2005.

### Published

2005

- 26) Wiedinmyer, C., J. Greenberg, A. Guenther, B. Hopkins, K. Baker, C. Geron, **P. I. Palmer**, B. P. Long, J. R. Turner, G. Petron, T. E. Pierce, B. Lamb, H. Westberg, W. Baugh, P. Harley, M. Koerber, and M. Jannsen, “The Ozarks Isoprene Experiment (OZIE): measurements and model interpretations of the ‘isoprene volcano’,” *J. Geophys. Res.*, 110, doi:10.1029/2005JD005800, 2005.
- 25) **Palmer, P. I.** and S. Shaw, “Global marine biosphere emissions of isoprene using MODIS chlorophyll observations,” *Geophys. Res. Lett.*, 32, L09805, doi:10.1029/2005GL022592, 2005.
- 24) Park, R. J., D. J. Jacob, **P. I. Palmer**, A. D. Clarke, B. E. Anderson, G. Sachse, and T. C. Bond, “Export efficiency of black carbon aerosol in continental outflow: Global implications,” *J. Geophys. Res.*, 110, D11205, 2005.

- 23) Liu, X., C. E. Sioris, K. Chance, T. P. Kurosu, M. J. Newchurch, R. V. Martin, and **P. I. Palmer**, "Mapping tropospheric ozone profiles from an airborne ultraviolet/visible spectrometer," *J. Appl. Opt.*, 44, 3312-3319, 2005.

2004

- 22) Wang, Y., M. B. McElroy, T. Wang, **P. I. Palmer**, and R. M. Yantosca, "Asian emissions of CO constraints from aircraft and Chinese station data," *J. Geophys. Res.*, 109, D24304, 2004.
- 21) Heald, C. L., D. J. Jacob, D. B. A. Jones, **P. I. Palmer**, J. A. Logan, D. G. Streets, G. W. Sachse, J. C. Gille, R. N. Hoffman, T. Nehrkorn "Comparative inverse analysis of satellite (MOPITT) and aircraft (TRACE-P) observations to estimate Asian sources of carbon monoxide," *J. Geophys. Res.*, 109, D23306, 2004.
- 20) Suntharalingam, P., D. J. Jacob, **P. I. Palmer**, J. A. Logan, R. Yantosca, Y. Xiao, M. J. Evans, D. G. Streets, S. L. Vay, and G. W. Sachse, "Improved quantification of Chinese carbon fluxes using CO<sub>2</sub>/CO correlations in Asian outflow," *J. Geophys. Res.*, 109, D18S18, 2004.
- 19) Xiao, Y., D. J. Jacob, J. S. Wang, J. A. Logan, **P. I. Palmer**, P. Suntharalingham, R. M. Yantosca, G. W. Sachse, D. R. Blake, and D. G. Streets, "Constraints on Asian and European sources of methane from CH<sub>4</sub>-C<sub>2</sub>H<sub>6</sub>-CO correlations in Asian outflow," *J. Geophys. Res.*, 109, D15S16, 2004.
- 18) Mari, C., M. J. Evans, **P. I. Palmer**, D. J. Jacob, G. W. Sachse, J. Escobar, and D. Gazeen, "The effect of clean warm conveyor belts on the export of pollution from East Asia," *J. Geophys. Res.*, 109, D15S17, 2004.
- 17) Todd, M. C., R. Washington, and **P. I. Palmer**, "Water vapour transport associated with tropical-temperate trough systems over southern Africa and the Southwest Indian Ocean," *Int. J. Clim.*, 24, 555-568, 2004.

2003

- 16) Abbot, D. S., **P. I. Palmer**, R. V. Martin, K. Chance, D. J. Jacob, and A. Guenther, "Seasonal and interannual variability of isoprene emissions as determined by formaldehyde column observations from space," *Geophys. Res. Lett.*, 30, 1886, 2003.
- 15) Heald, C. L., D. J. Jacob, **P. I. Palmer**, M. J. Evans, G. W. Sachse, H. B. Singh, and D. R. Blake, "Biomass burning emission inventory with daily resolution: application to aircraft observations of Asian outflow," *J. Geophys. Res.*, 108, 8811, 2003.
- 14) Jaegle, L., D. Jaffe, H. U. Price, P. Weiss, **P. I. Palmer**, M. J. Evans, D. J. Jacob, and I. Bey, "Sources and budgets of CO and O<sub>3</sub> in the Northeastern Pacific during the spring of 2001: Results from the PHOBEA-II Experiment," *J. Geophys. Res.*, 108, 8802, 2003.
- 13) Jones, D. B. A., K. W. Bowman, **P. I. Palmer**, J. R. Worden, D. J. Jacob, R. N. Hoffman, I. Bey, and R. M. Yantosca, "Potential of observations from the Tropospheric Emission Spectrometer to constrain continental sources of carbon monoxide," *J. Geophys. Res.*, 108, 4789, 2003.
- 12) Kiley, C. M., H. E. Fuelberg, **P. I. Palmer**, D. Allen, G. R. Carmichael, D. J. Jacob, C. Mari, B. Pierce, K. Pickering, Y. Tang, O. Wild, T. D. Fairlie, J. A. Logan, D. G. Streets, "An intercomparison and evaluation of aircraft-derived and simulated CO from seven chemical transport model during the TRACE-P experiment," *J. Geophys. Res.*, 108, 8819, 2003.
- 11) Martin, R. V., D. J. Jacob, K. V. Chance, T. P. Kurosu, **P. I. Palmer**, M. J. Evans, "Inventory of nitrogen oxide emissions derived from space-based observations of NO<sub>2</sub> columns," *J. Geophys. Res.*, 108, 4537, 2003.
- 10) **Palmer, P. I.**, D. J. Jacob, A. M. Fiore, R. V. Martin, K. Chance, and T. P. Kurosu, "Mapping isoprene emissions over North America using formaldehyde column observations from space," *J. Geophys. Res.*, 108, 4180, 2003.

- 9) **Palmer, P. I.**, D. J. Jacob, D. B. A. Jones, C. L. Heald, R. M. Yantosca, J. A. Logan, G. W. Sachse, D. G. Streets, “Inverting for emissions of carbon monoxide from Asia using aircraft observations over the western Pacific,” *J. Geophys. Res.*, 108, 8825, 2003. [Ranked within top 1% of articles in atmospheric science, Web of Science.]
- 8) **Palmer, P. I.**, D. J. Jacob, L. J. Mickley, D. R. Blake, G. W. Sachse, H. E. Fuelberg, and C. M. Kiley, “Eastern Asian emissions of anthropogenic halocarbons deduced from aircraft concentration data,” *J. Geophys. Res.*, 108, 4753, 2003.

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- 7) Kasibhatla, P., A. Arellano, J. A. Logan, **P. I. Palmer**, and P. Novelli, “Top-down estimate of a large source of atmospheric carbon monoxide associated with fuel combustion in Asia,” *Geophys. Res. Lett.*, 29, 1900, 2002.
- 6) Li, Q., D. J. Jacob, I. Bey, **P. I. Palmer**, B. N. Duncan, B. D. Field, R. V. Martin, A. M. Fiore, R. M. Yantosca, D. D. Parrish, P. G. Simmonds, and S. J. Oltmans, “Transatlantic transport of pollution and its effects on surface ozone in Europe and North America,” *J. Geophys. Res.*, 107, 2002.
- 5) Martin, R. V., K. Chance, D. J. Jacob, T. P. Kurosu, R. J. D. Spurr, E. Bucsela, J. F. Gleason, **P. I. Palmer**, I. Bey, A. M. Fiore, Q. Li, and R. M. Yantosca, “An improved retrieval of tropospheric nitrogen dioxide from GOME,” *J. Geophys. Res.*, 107, 4437, 2002.

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- 4) **Palmer, P. I.** and J. J. Barnett, “Application of an optimal estimation inverse method to GPS/MET bending angle observations,” *J. Geophys. Res.*, 106, 17147-17160, 2001.
- 3) **Palmer, P. I.**, D. J. Jacob, K. Chance, R. V. Martin, R. J. D. Spurr, T. P. Kurosu, I. Bey, R. Yantosca, A. Fiore, and Q. Li, “Air-mass factor formulation for spectroscopic measurements from satellites: Application to formaldehyde retrievals from the Global Ozone Monitoring Experiment,” *J. Geophys. Res.*, 106, 14539-14550, 2001.

2000

- 2) Chance, K., **P. I. Palmer**, R. V. Martin, R. J. D. Spurr, T. P. Kurosu, and D. J. Jacob, “Satellite observations of formaldehyde over North America from GOME,” *Geophys. Res. Lett.*, 27, 3461-3464, 2000.
- 1) **Palmer, P. I.**, J. J. Barnett, J. R. Eyre, and S. B. Healy, “A nonlinear optimal estimation inverse method for radio occultation measurements,” *J. Geophys. Res.*, 105, 17513-17526, 2000.