Geoffrey W. Harris

PUBLICATIONS

Refereed Journal Publications

1. G.W. Harris and R.P. Wayne, Reactions of OH with NO, NO_2 and SO_2, J. Chem. Soc., (Farad II), 71, 610, (1975).
2. D.J. Giachardi, G.W. Harris and R.P. Wayne, Excited State Formation in the H + O_2 System, Chem. Phys. Letters, 32, 586, (1975).
3. J. Giachardi, G.W. Harris and R.P. Wayne, Energy Transfer from Excited NO_2 to Molecular Oxygen, J. Chem. Soc. (Farad II), 72, 619, (1976).
4. J.P. Burrows, G.W. Harris and B.A. Thrush, Rates of Reaction of HO_2 with OH and O Studied by Laser Magnetic Resonance, Nature, 267, 233, (1977).
5. J.P. Burrows, D.I. Cliff, G.W. Harris and B.A. Thrush, Atmospheric Reactions of the HO_2 Radical Studied by Laser Magnetic Resonance Spectroscopy, Proc. Roy. Soc. (Lond.), A368, 463, (1979).
6. J.P. Burrows, D.I. Cliff, G.W. Harris, B.A. Thrush and J.P.T. Wilkinson, Pressure Broadening of the Lowest Rotational Transistion of OH Studied by LMR, Chem. Phys. Letters, 65, 197, (1979).
7. G.W. Harris, and J.N. Pitts, Jr., Rate Constant for the Reaction of OH with H_2O_2 at 298 K, J. Chem. Phys., 70, 2581, (1979).
8. G.W. Harris, R. Atkinson and J.N. Pitts, Jr., Kinetics of the Reactions of OH with Hydrazine and Methylhydrazine, J. Phys. Chem., 83, 2557, (1979).
9. G.W. Harris, R. Atkinson and J.N. Pitts, Jr., Temperature Dependence of the Reaction OH + SO_2 + M = HSO_3 + M for M = AR and SF_6, Chem. Phys. Letters, 69, 378, (1980).
10 U. Platt, D. Perner, G.W. Harris, A.M. Winer and J.N. Pitts, Jr., Detection of NO_3 in the Polluted Trosposphere by Differential Optical Absorption, Nature, 285, 312, (1980).
11. G.W. Harris, T.E. Kleindienst and J.N. Pitts, Jr., Rate Constants for the Reactions of OH Radicals with CH_3CN, C_2H_5CN and CH_2=CH.CN in the Temperature Range 298 to 424K., Chem. Phys. Letters, 80, 479, (1981).
12. H-W. Biermann, G.W. Harris and J.N. Pitt, Jr., Photoionization Mass Spectrometer Studies of the Collisionally Stabilized Product Distribution in the Reaction of OH Radicals with Selected Alkenes at 298K, J. Phys. Chem., 86, 2958, (1982).
13. G.W. Harris, W.P.L. Carter, A.M. Winer, R.A. Graham and J.N. Pitts, Jr., Studies of Trace Non-Ozone Species Produced in a Corona Discharge Ozonizer, J. Air Poll. Control. Assoc., 32, 275, (1982).
14. T.E. Kleindienst, G.W. Harris and J.N. Pitts, Jr., Rates and Temperature Dependences of the Reaction of OH with Isoprene, its Oxidation Products and Selected Terpenes, Environ. Sci. & Technol., 16, 844, (1982).
15. G.W. Harris and J.N. Pitts, Jr., Absolute Rate Constants and Temperature Dependences for the Gas Phase Reactions of H atoms with Propene and the Butenes in the Temperature Range 298 to 445K, J. Chem. Phys., 77, 3994, (1982).

16. G.W. Harris, W.P.L. Carter, A.M. Winer, J.N. Pitts, Jr., U. Platt and D. Perner, Observations of Nitrous Acid in the Los Angeles Atmosphere and Implications for Predictions of Ozone-Precursor Relationships, Environ. Sci. & Technol, 16, 414, (1982).
17. G.W. Harris, A.M. Winer, J.N. Pitts, Jr., U. Platt and D. Perner, Measurements of HONO, NO_3 and NO_2 by Long-path Differential Absorption Spectroscopy in the Los Angeles Basin, In Optical and Laser Remote Sensing, D.K. Killinger and A. Mooradain (eds)., Springer Ser. Optical Sci., 39, 97-105, (1983).
18. G.W. Harris and J.N. Pitts, Jr., Rates of Reaction of OH with N,N-Dimethylaminoethanol and 2-Amino-2-Methyl-1-Propanol in the Gas Phase at 300+/-2K, Environ. Sci. & Technol., 17, 50, (1983).
19. J.N. Pitts, Jr., A.M. Winer, G.W. Harris, W.P.L. Carter and E.C. Tuazon, Trace Nitrogeneous Species in Urban Atmospheres, Environ. Health Perspectives, 52, 153, (1983).
20. J.N. Pitts, Jr., E. Sanhueza, R. Atkinson, W.P.L. Carter, G.W. Harris and C.N. Plum, An Investigation of the Dark Formation of Nitrous Acid in Environmental Chambers, Int. J. Chem. Kin., 16, 919, (1984).
21. F. Slemr, G.W. Harris, D.R. Hastie, G.I. Mackay and H.I. Schiff, Measurement of Gas Phase Hydrogen Peroxide in Air by Tunable Diode Laser Absorption Spectroscopy, J. Geophys. Res., 91, 5371, (1986).
22. G.W. Harris, G.I. Mackay, T. Iguchi, H.I. Schiff and D. Schuetzle, Measurement of NO_2 and HNO_3 in Diesel Exhaust by Tunable Diode Laser Absorption Spectroscopy. Environ. Sci.& Technol., 21, 299, (1987).
23. H.I. Schiff, D.R. Karecki, G.W. Harris, D.R. Hastie and G.I. Mackay. 1990. A Tunable Diode Laser System for Aircraft Measurements of Trace Gases, J. Geophys. Res. (Atmospheres), 95, 10147-10154.
24. G.L. Gregory, J.M. Hoell, M.A. Carroll, B.A. Ridley, D.D. Davis, J. Bradshaw, M.O. Rodgers, S.T. Sandholm, H.I. Schiff, D.R. Hastie, D.R. Karecki, G.I. Mackay, G.W. Harris, A.L. Torres and A. Fried. 1990. An Intercomparison of Airborne Nitrogen Dioxide Instruments, J. Geophys. Res. (Atmospheres), 95, 10103-10128.
25. M.A. Carroll, D.R. Hastie, B.A. Ridley, M.O. Rodgers, A.L. Torres, D.D. Davis, J.D. Bradshaw, S.T. Sandholm, H.I. Schiff, D. Karecki, G.W. Harris, G.I. Mackay, G.L. Gregory, E.P. Condon, M. Trainor, D.D. Montzka, S. Madronich, D.L. Albritton, H.B. Singh, S.M. Beck, J.M. Hoell, M.C. Shipman and A.S. Bachmeier. 1990. Aircraft Measurements of NO_x Over the Eastern Pacific and Continental United States and Implications for Ozone Production, J. Geophys. Res., (Atmospheres), 95, 10205-10234.
26. T.J. Johnson, F.G. Wienhold, J.P. Burrows and G.W. Harris. 1991. FM Spectroscopy at 1.3 microns using InGaAsP Lasers: A Prototype Field Instrument for Atmospheric Chemistry Research, Applied Optics, 30, 407-413.
27. D.R. Hastie, M. Weissenmeyer, J.P. Burrows and G.W. Harris. 1991. A Calibrated Chemical Amplifier for Atmospheric Radical Measurements, Analytical Chemistry, 63, 2048-2057.
28. T.J. Johnson, F.G. Wienhold, J.P. Burrows, G.W. Harris and H. Burkhard. 1991. Measurements of Line Strengths in the HO_2 Overtone Band at 1.5 microns using a In GaAsP Laser:Implications for Atmospheric Measurements, J. Phys. Chem., 95, 6499-6502.

29. U. Platt, J. Rudolph, T. Brauers, and G.W. Harris. 1992 Atmospheric Measurements During Polarstern Cruise ANT VII/1, 54^{o} N to 32^{o} S: An Overview, J. Atmos. Chem., 15, 203-214.
30. G.W. Harris, D. Klemp, T. Zenker, J.P. Burrows and B. Mathieu, 1992, Measurements of Trace Gases using Tunable Diode Lasers during the 1988 Polarstern Cruise and Intercomparisons with Other Methods, J. Atmos. Chem., 15, 315-326.
31. G.W. Harris, D. Klemp and T. Zenker. 1992. An Upper Limit on the HCl Near-Surface Mixing Ratio at 28^{o}N, 30^{o}W Measured using TDLAS, J. Atmos. Chem., 15, 327-332.
32. M. Schupp, P. Bergamaschi, G.W. Harris and P.J. Crutzen. 1993. Development of a tunable diode laser absorption spectrometer for measurement of the $^{13}C/^{12}C$ ratio in methane, Chemosphere, 26, 13-22.
33. T.J. Johnson, A. Simon, J.M. Weil and G.W. Harris, 1993, Applications of Time-Resolved Step-Scan and Rapid-Scan FTIR Spectroscopy: Dynamics from 10 Seconds to 10 Nanoseconds, Applied Spectroscopy, 47, 1376-1381.
34. F.G. Wienhold, H. Frahm and G.W. Harris, 1994, Measurements of N_2O fluxes from Fertilized Grassland using a fast response tunable diode laser spectrometer, J. Geophys. Res., 99, 16,557-16,567.
35. P. Bergamaschi, M. Schupp and G.W. Harris, 1994, High Precision Direct Measurements of $^{13}CH_4/^{12}CH_4$ and $^{12}CH_3D/^{12}CH_4$ Ratios in by means of a Long Path Diode Laser Absorption Spectrometer, Applied Optics, 33, 7704-7716.
36. K.A. Smith, H. Clayton, J.R.M. Arah, S. Christensen, P. Ambus, D. Fowler, K.J. Hargreaves, U. Skiba, G.W. Harris, F.G. Wienhold, L. Klemedtsson, and B. Galle. 1994. Micrometeorological and chamber methods for measurement of nitrous oxide fluxes between soils and the atmosphere: Overview and conclusions. J. Geophy. Res., 99, D8, 16,541-16,548.
37. F.G. Wienhold, T. Zenker and G.W. Harris, 1994, A dual channel two tone frequency modulation tunable diode laser spectrometer for gound-based and airborne trace gas measurements, Proc. SPIE-Int. Soc. Opt. Eng., 2112, 31-44.
38. F.G. Wienhold, M. Welling & G.W. Harris, 1995, Micrometeorological measurement and source region analysis of nitrous oxide emissions from an agricultural soil, Atmos. Environ., 29, 2219-2227.
39. A. Bergman, P. van Velthoven, F.G. Wienhold, A. Waibel, T. Zenker, A. Frenzel, M. Bolder, J. Lielieveld, G.W. Harris and F. Arnold, 1995, Aircraft measurements of O_3, HNO_3 and N_2O in the winter arctic lower stratosphere during STREAM I. J. Geophys. Res. - Atmospheres, 100, D6, 11,245-11,260.
40. G. Saueressig, P. Bergamaschi, J. Crowley, H. Fischer, G.W. Harris, 1995, Carbon kinetic isotope effect of the reaction of CH_4 with Cl atoms, , Geophy. Res. Letts., 22, 1225-1228.
41. Peter Bergamaschi and Geoffrey W. Harris. 1995. Measurements of stable isotope ratios ($^{13}CH_4/^{12}CH_4$) in landfill methane using a tunable diode laser absorption spectrometer (TDLAS), Global Biogeochemical Cycles, 9, 439-447.
42. LeCanut, P., M.O. Andreae, G.W. Harris, F.G. Wienhold, and T. Zenker, 1996, Airborne studies of emissions from savanna fires in southern Africa. 1. Aerosol emissions measured with a laser optical particle counter, J. Geophys. Res., 101, 23,615-23,630.
43. M.O. Andreae, E. Atlas, G.W. Harris, G. Helas, A. de Kock, R. Koppmann, S. Manoe, W.H. Pollock, J. Rudolph, D. Scharffe, G. Schebeske and M. Welling, 1996, Methyl

halide emissions from Savanna fires in southern Africa, J. Geophys. Res., 101, 23,603-23,613.

44. Harris, G.W., F.G. Wienhold and T. Zenker, 1996, Airborne Observations of Strong Biogenic NO_x Emissions from the Namibian Savanna at the End of the Dry Season, J. Geophys. Res., 101, 23,707-23,711.
45. LeCanut, P., M.O. Andreae, G.W. Harris, F.G. Wienhold and T. Zenker, 1996, Aerosol optical properties over southern Africa during SAFARI-92, in Biomass Burning and Global Change, edited by J. S. Levine MIT Press, Cambridge, Mass., p. 441-459.
46. T. Zenker, A.M. Thompson, D.P. McNamara, T.L. Kuscera, G.W. Harris, F.G. Wienhold, P. LeCanut, M.O., Andreae and R. Koppmann, 1996, Regional trace gas distributions and airmass characteristics in the haze layer over southern Africa during the biomass burning season (Sept/Oct 92): Observations and modelling for the STARE/SAFARI'92 DC3, in Biomass Burning and Global change, edited by J.S. Levine, MIT Press, Cambridge, Mass, pp. 296-308.
47. J. Roths, U. Parchatka, T. Zenker and F. Wienhold, G.W. Harris, 1996, A four laser airborne tunable diode laser spectrometer for atmospheric research, Applied Optics, 35, 7075-7084.
48. F.G. Wienhold, H. Fischer and G.W. Harris, 1996, Fast Response tunable diode laser spectroscopy for trace gas flux measurements, Infrared Physics and Technol., 37, 67-74.
49. J. Roths and G.W. Harris, 1996, The tropospheric distribution of carbon monoxide as observed during the TROPOZ II Experiment. J. Atmos. Chem., 24, 157-188.
50. M.O. Andreae, E. Atlas, H. Cachier, W.R. Coffer III, G.W. Harris, G. Helas, R. Koppmann, J.P. Lacaux, and D.E. Ward, 1996, Trace gas and aerosol emissions from savanna fires, J.S. Levine (ed.): Biomass Burning and Global Change, MIT Press, Cambridge, Mass.: p.278-295.
51. J.A. Lindesay, M.O. Andreae, J.G. Goldammer, G.W. Harris, H.J. Annegarn, M. Garstang, R.J. Scholes and B.W. van Wilgen, 1996, The IGBP/IGAC SAFARI-92 field experiment: Background and overview, J. Geophys. Res., 101, 23,521-23,530.
52. K.J. Hargreaves, F.G. Wienhold, L. Klemedtsson, J.R.M. Arah, I.J. Beverland, D. Fowler, B. Galle, D.W.T. Griffith, U. Skiba, K.A. Smith, M. Welling and G.W. Harris. 1996. Measurement of nitrous oxide emission from agricultural land using micrometeorological methods, Atmospheric Environment, 30, 1563-1571.
53. Joanne H. Shorter, J. Barry McManus and Charles E. Kolb, Eugene J. Allwine and Brian K. Lamb, Byard W. Mosher and Robert C. Harriss, Uwe Partchatka, Horst Fischer, Geoffrey W. Harris and Paul J. Crutzen, H.J. Karbach, 1996, Methane emission measurements in urban areas in eastern Germany, J. Atmospheric Chemistry, 24, 121-140.
54. G. Saueressig, P. Bergamaschi, J.N. Crowley, H. Ficher, and G.W. Harris, Aug. 1996, D/H kinetic isotope effect in the reaction CH_4 + Cl, Geophys. Res. Letts., 23, 3619-3622.
55. T.J. Johnson, G.W. Harris, J. Bonifer, J.N. Crowley, T. Zenker, H. Fischer, 1996, The TDLAS instrument for the detection of total inorganic chlorine in the stratosphere, Geophys. Res. Letts, 23, 3611-3614.
56. P.A. Ariya, V. Catoire, R. Sander, H. Niki & G.W. Harris, 1997, Trichloroethene and tetrachloroethene: tropospheric probes for Cl- and Br-atom reactions during the polar sunrise, Tellus, 49B, 583-591.

57. Catoire, V., P.A. Ariya, H. Niki, and G.W. Harris, 1997, FTIR study of the Cl- and Br-atom initiated oxidation of trichloroethylene, Chemical Kinetics, 29, 695-704.
58. K. Strong, T.J. Johnson and G.W. Harris, 1997, Visible intracavity laser spectroscopy using a step-scan fourier transform interferometer, Applied Optics, 36, 8533-3540.
59. Rolf Sander, Rainer Vogt, Geoff W. Harris and Paul J. Crutzen, 1997, Modelling the chemistry of ozone, halogen compounds and hydrocarbons during Arctic Spring, Tellus, 49B, 522-532.
60. P.A. Ariya, B.T. Jobson, R. Sander, H. Niki and G.W. Harris, K.G. Anlauf and J.F. Hopper, 1998, Measurements of C_2-C_7 hydrocarbons during the polar sunrise experiment 1994: Further evidence for halogen chemistry in the troposphere, J. Geophy. Res., 103, 13,169-13,180.
61. Andreae, M.O., T.W. Andreae, H. Annegarn, F. Beer, H. Cachier, W. Elbert, G.W. Harris, W. Maenhaut, I. Salma, R. Swap, F.G. Wienhold and T. Zenker, 1998, Airborne studies of emissions from savanna fires in southern Africa. 2. Aerosol chemical composition, J. Geophys. Res., 103, 32,119-32,128.
62. H. Fischer, C. Nikitas, U. Parchatka, T.Zenker, G.W. Harris, P. Matuska, R. Schmitt, D. Mihelcic, P. Muesgen, H.W. Paetz, M. Schultz and A. Volz-Thomas, 1998, Trace gas measurements during the oxidizing capacity of the tropospheric atmosphere campaign 1993 at Izana, J. Geophy. Res., 103, 13,505-13,518.
63. T. Zenker, H. Fischer, C. Nikitas, U. Parchatka, and G.W. Harris, D. Mihelcic, P. Muesgen, H.W. Paetz, M. Schultz, and Volz-Thomas, R. Schmitt, T. Behmann, M. Weissenmeyer, and J.P. Burrows, 1998, Intercomparison of NO, NO_2, NO_y, and RO_x measurements during the Oxidizing capacity of the trospospheric atmosphere campaign 1993 at Izana, J. Geophy. Res., Atmospheres, 103, 13,615-13,634.
64. Andreae, M.O., T.W. Andreae, H. Annegarn, F. Beer, H. Cachier, W. Elbert, G.W. Harris, W. Maenhaut, I. Salma, R. Swap, F.G. Wienhold and T. Zenker, 1998, Airborne studies of emissions from savanna fires in southern Africa. 2. Aerosol chemical composition, 1998, J. Geophys. Res., 103, 32,119-32,128.
65. Bergamaschi, Peter, Harris, Geoffrey W., 1998, Measurements of stable isotope ratios (13CH4/12CH4; 12CH3D/12CH4) in landfill methane using a tunable diode laser absorption spectrometer. [Erratum to document cited in CA124:65076], Global Biogeochem. Cycles, 12, 211.
66. Parisa A. Ariya, Hiromi Niki and Geoffrey W. Harris, 1999, Polar sunrise experiment 1995: Hydrocarbon measurements and tropospheric Cl and Br-atoms chemistry, Atmospheric Environment, 33, 931-938.
67. F.G. Wienhold, H. Fischer, P. Hoor, V. Wagner, and R. Königstedt, G.W. Harris, J. Anders, R. Grisar, M. Knothe, W.J. Riedel, F.-J. Lübken and T. Schilling, 1998, TRISTAR - A tracer in-situ TDLAS for atmospheric research, Applied Physics, B67, 411-417.
68. P.A. Ariya, J.F. Hopper, and G.W. Harris, 1999, C2-C7 hydrocarbon concentrations in Arctic snowpack interstitial air: potential presence of active Br within the snowpack, J. Atmos. Chem., 34, 55-64, 1999.
69. J.N. Crowley, G. Saueressig, P. Bergamaschi, H. Fischer, G.W. Harris, 1999, Carbon kinetic isotope effect in the reaction CH4 + Cl: A relative rate study using FTIR spectroscopy, Chemical Physics Letters, 303, 268-274.

70. J. Williams, H. Fischer, G.W. Harris, P.J. Crutzen, P. Hoor, A. Hansel, R. Holzinger, C. Warneke, W. Lindinger, B. Scheeren, J. Lelieveld, 2000, Variability-lifetime relationship for organic trace gases: A novel aid to compound identification and estimation of HO concentrations, J. Geophys. Res., Atmospheres, 105, 20,473-20,486.
71. C. L. Schiller, S. Locquiao, Timothy J. Johnson and G.W. Harris, 2001, Atmospheric measurements of HONO by tunable diode laser absorption spectroscopy, Journal of Atmospheric Chemistry, 40, 275-293.
72. H. Fischer, D. Brunner, G.W. Harris, P. Hoor, J. Lelieveld, D.S. McKenna, J. Rudolph, H.A. Scheeren, P. Siegmund, H. Wernli, J. Williams, and S. Wong, 2002, Synoptic tracer gradients in the upper troposphere over central Canada during the Stratosphere-Troposphere Experiments by Aircraft Measurements 1998 summer campaign, J. Geophys. Res., 107, 10.1029/2000JD000312.
73. L. Lange, H. Fischer, U. Parchatka, C. Gurk, T. Zenker, and G.W. Harris, 2002, Characterization and application of an externally mounted catalytic converter for aircraft measurements of NO_y, Review of Scientific Instruments, 73, 3051-3057.
74. R.A. Salmon, C.L. Schiller, G.W. Harris, 2004, Evaluation of the salicylic acid – Liquid phase scrubbing technique to monitor atmospheric hydroxyl radicals, Journal for Atmospheric Chemistry, 48, 81-104.
75. K.J. Wall, C.L. Schiller and G.W. Harris, 2006, Measurements of the HONO photodissociation constant, J. Atmospheric Chemistry, 55, 31-54.
76. Schiller, C.L., H. Bozem, C. Gurk, U. Parchatka, R. Königstedt, G.W. Harris, and H. Fischer, 2008, Applications of quantum cascade lasers for sensitive trace gas measurements of CO, CH_4 and HHO, Applied Physics B., 92, 419-430.

Other Refereed Publications

1. J.N. Pitts, Jr., A.M. Winer, D.M. Lokensgard, S.D. Shaffer, E.C. Tuazon and G.W. Harris, Interactions between Diesel Emissions and Gaseous Co-pollutants in Photochemical Air Pollution: Some Health Effect Implications, Health Effects of Diesel Emissions, US EPA Off. Res. Dev. 600/9-80-057a, 188, (1980).

2. H.I. Schiff, G.W. Harris and G.I. Mackay , Measurement of Atmospheric Gases by Laser Absorption Spectroscopy. ACS Monograph No. 349, "The Chemistry of Acid Rain, Sources and Atmospheric Processes", American Chemical Society Press, Washington DC, (1987).

3. H.I. Schiff, G.W. Harris and G.I. Mackay, Measurement of Atmospheric Gases by Tunable Diode Laser Absorption Spectroscopy. In "Monitoring of Gaseous Pollutants by Tunable Diode Lasers", R. Grisar, H. Preier, G. Schmidtke and G. Restelli, eds., D. Reidel Publishing Co., Dordrecht. pp 4-16, (1987).

4. G.W. Harris, G.I. Mackay and H.I. Schiff. Measurements of Formaldehyde in the Tropophere. In "Monitoring of Gaseous Pollutants by Tunable Diode Lasers", R. Grisar, H. Preier, G. Schmidtke and G. Restelli, eds., D. Reidel Publishing Co., Dordrecht., pp 81-92, (1987).

5. G.W. Harris, Trace Gas Measurements in the Troposphere using Tunable Diode Lasers. In "Atmosphärishes OH". BPT Bericht 7/87. F.J. Comes and K. D.Höfken, (Herausgeber), pp 99-104. 1987.

6. T.J. Johnson, F.G. Wienhold, J.P. Burrows and G.W. Harris, A Diode Laser FM spectrometer for monitoring weak atmospheric absorptions in the Near-Infrared. Transact. Am. Geophys. Union, 70, 1007, (1989).

7. G.W. Harris, J.P. Burrows, D. Klemp and T. Zenker. 1989. Measurements of Trace Species in the Remote Maritime Boundary Layer using TDLAS. In "Monitoring of Gaseuos Pollutants by Tunable Diode Lasers", R. Grisar, G. Schmidtke, M. Tacke and G. Restelli, eds., Kluwer Academic Publishers, Dordrecht, pp 68-76.

8. G.W. Harris, D. Klemp, T. Zenker, J.P. Burrows, B. Mattieu and P. Jacob. 1990. Polarstern 88: Measurements of Trace Gases using Tunable Diode Lasers and Intercomparisons with other Methods. In "Physico-chemical Behaviour of Atmospheric Pollutants", G. Restelli and G. Angeletti eds., Kluwer Academic Publishers, Dordrecht, pp 644-651.

9. J.H. Shorter, J.B. McManus, C.E. Kolb, B. Mosher, R.C. Harriss, B. Lamb, E. Allwine, G. Harris, H. Fischer, U. Partchatka, H.J. Karbach, 1994, Data Report on Urban Methane Measurements in Germany, April 23-May 24, 1992. Prepared for K.B. Hogan, Global Change Division, Office of Air and Radiation, Environmental Protection Agency, Washington, D.C., Contract No. 68-D90068, WA #3-05.

10. Harris, G.W., T. Zenker, F.G. Wienhold and M. Welling, 1993, Trace gas distributions in the southern African boundary layer during SAFARI 92, Proceedings of the 1st IGAC International Symposium, Eilat, Israel, April.

11. F.G. Wienhold, T. Zenker & G.W. Harris, 1994, A dual channel two tone frequency modulation diode laser spectrometer for ground based and airborne trace gas measurement. SPIE Proceedings, 2112, 31-44.

12. Johnson, T.J., K. Strong, G.W. Harris, A. Simon, and J.M. Weil. 1995. Time-Resolved Infrared and Visible Laser Spectroscopy Using a Step-Scan Interferometer. Invited plenary lecture at the First Australian Conference on Vibrational Spectroscopy, Sydney, Australia. Proceedings of the Australian Conference on Vibrational Spectroscopy, 1-3 Feb 95 University of Sydney, pp. 17-20.

13. H. Fischer, P. Bergamaschi, F.G. Wienhold, T. Zenker and G.W. Harris, 1996, Development and application of multi-laser TDLAS instruments for ground-based, shipboard and airborne measurements of trace gases in the atmosphere, SPIE Proceedings, 2834, 130-141.

14. H. Fischer, R. Zitzelsberger, T. Zenker, J. Roths, D. Trapp, H. Harderl, A. Volz-Thomas and G.W. Harris, 1997, Development and application of multi-laser TDLAS instruments for groundbased, shipboard and airborne measurements in the troposphere: Field intercomparisons with other methods for CO, HCHO and NO_2, Proceedings of EUROTRAC Symposium '96, 693-696.

15. J. Roths and G.W. Harris, 1997, Tropospheric profiles of CO, H_2O_2, HCHO and NO_2, measured by in situ airborne tunable diode laser absdorption spectroscopy, Proc. EUROTRAC Symp. '96: Transp. Transform. Pollut. Troposphere, 4th, Vol. 2, 683-688.

16. T.J. Johnson, K. Strong and G.W. Harris, 1998, Visible intracavity laser spectroscopy with a step-scan FTIR, AIP Conference Proceedings, 430, 373-374.

Conferences and presentations (Since 1993)

1. T.J. Johnson, A. Simon, J.M. Weil and G.W. Harris, 1993, Time resolved measurements with an integrated step-scan spectrometer demonstrating a temporal resolution of 25 nanoseconds, Infrared Spectroscopy (AIRS), 23-25 March, University of Tokyo, Tokyo, Japan. Summary published in Conference Proceedings of the Symposium for Advanced Infrared Spectroscopy (AIRS), pp. 14-15.

2. T.J. Johnson, A. Simon, J.M. Weil and G.W. Harris, 1993, New time-resolved step-scan FTIR spectroscopy in absorption and emission modes demonstrating micro- and nano-second temporal lresolution, 48th International Symposium on Molecular Spectroscopy, Columbus, Ohio, June 17. Abstract published in Ohio State University International Symposium on Molecular Spectroscopy, 48, 214.

3. G.W. Harris, T. Zenker, F.G. Wienhold, M. Welling, U. Parchatka and M.O. Andreae, 1993, Airborne measurements of trace gas emission ratios from southern African veld fires. (STARE/SAFARI-92/DC3-Component), Abstract, presented at the 1993 Fall AGU meeting, Dec. 6-10, San Francisco.

4. M.O. Andreae, T.W. Andreae, W. Elbert, G.W. Harris, F.G. Wienhold and T. Zenker, 1993, Airborne studies of aerosol emissisons from Savanna fires in southern Africa, Abstract, presented at the 1993 Fall AGU meeting, Dec. 6-10, San Francisco.

5. G.W. Harris, T. Zenker, F.G. Wienhold, M. Welling, U. Parchatka M.O. Andreae, 1993, Airborne studies of trace gas emission ratios from savanna fires in southern Africa, paper presented at the 1993 Fall AGU meeting, Dec. 6-10, San Francisco.

6. F.X. Meixner, A-L. Ajavon, G. Helas, D. Scharffe, T. Zenker, G.W. Harris, M.O. Andreae, 1993, Abstract, presented at the 1993 Fall AGU meeting, Dec. 6-10, San Francisco.

7. G.W. Harris, T. Zenker, F.G. Wienhold, M. Welling, U. Parchatak, and M.O. Andreae, R. Koppmann and J. Rudolph, 1993, Abstract, presented at the 1993 Fall AGU meeting, Dec. 6-10, San Francisco.

8. F.G. Wienhold, M. Wellup, H. Fischer and G.W. Harris, 1994, Measurements of N_2O emissions from a wheat field using TDLAS, European Geophysical Soc. XIXth General Assembly Grenoble, April.

9. G.W. Harris, 1994, Air pollution in an urban environment, invited paper at the First Inter-American Conference in Environmental Issues, San Salvador, May.

10. P. Bergamaschi and G.W. Harris, 1994, Measurement of stable Isotope ratios in land fill methane using TDLAS, presented at 1994 Western Pacific Meeting of the AGU, Hong Kong, July.

11. F.G. Wienhold, H. Fischer and G.W. Harris, 1994, Fast response tunable diode laser spectroscopy for trace gas flux measurements, 4th Int. Symposium on TDLAS Applications, Freiburg, Oct.

12. Harris, G.W., Current research topics in atmospheric chemistry at CAC, York. Presented at the Joint Meeting of Atmospheric Researchers of the Max Planck Society, Schloss Ringberg, Bavaria, November 4, 1995.

13. Johnson, T.J., K. Strong, and G.W. Harris, Applications of step scan FT-Intracavity Laser Spectroscopy, Max Planck Institute of Chemistry, November 25, 1995.

14. Ariya, P.A., B. Fu, V. Young, T. Bisenthal, G.W. Harris and H. Niki. 1995. Polar Sunrise Experiment Halogen chemistry in the arctic troposphere. Presented at the AGU Fall Meeting, December, 1995.

15. Harris, G.W., Trent University, “Infrared spectroscopic techniques applied to atmospheric composition measurements”. Invited Presentation, January 17, 1996.

16. Harris, G.W., Invited Presentation, Atmospheric chemistry in the arctic and rural environments, and New spectroscopic methods for atmospheric chemistry research, British Gas Research Centre, Loughborough, UK., May 2, 1996.

17. Harris, G.W., Invited Presentation, Atmospheric chemistry in the arctic and rural environments, and New spectroscopic methods for atmospheric chemistry research, British Gas Research Centre, Loughborough, UK., May 2, 1996.

18. Sander, Rolf, Geoff W. Harris, Rainer Vogt, and Paul J. Crutzen, Modeling the chemistry of ozone, halogen compounds and hydrocarbons during Arctic Spring. Presented, May 6, 1996. General Assembly of the European Geophysical Society, Hague, Netherlands, Oceans and Atmosphere Session.

19. **Verheggen, B**. , Narayan, J., Hastie, D.R., Harris, G.W. , Mozurkewich, M., Plummer, D., McConnell, J.C., Modelling a sulphate aerosol production event in SONTOS, Canadian Meteorological and Oceanographic Society Congress, Toronto, May 26-31, 1996.

20. Harris, G.W., Johnson, T.J., Bonifer, J., Crowley, J., Fischer, H., Development of a spectroscopic technique for the measurement of total reactive chlorine in the stratosphere, Canadian Meteorological and Oceanographic Society Congress, Toronto, May 26-31, 1996.

21. Johnson, T.J., Khoo, J.M., Harris, G.W., Detection of Atmospheric Trace Gases Using Matrix Isolation Fourier Transform Infrared (MIFTIR) Spectroscopy, Canadian Meteorological and Oceanographic Society Congress, Toronto, May 26-31, 1996.

22. **Ariya, Parisa**, Valery Catoire, Hiromi Niki and Geoffrey Harris. FTIR and GC/FID studies of Cl and Br atom reactions of chlorinated ethylenes in air. Presented at the XXII Informal Conference on Photochemistry, Minneapolis, Minnesota, June 21, 1996.

23. V. Catoire, **P.A. Ariya**, G.W. Harris, Kinetics and mechanisms of Cl- and Br-atom initiated oxidations of chloroethylenes. Oral communications at European Geophysical Society XXI General Assembly, The Hague (The Netherlands), 6-10 May 1996.

24. Sander, Rolf, Harris, G.W., Vogt, Rainer, Crutzen, Paul J., Modeling gas-phase and aerosol chemistry in the marine layer: halogens, ozone, and the aerosol pH, presented at the ACS National Meeting, Las Vegas, NV, September 7-11, 1997.

24. C.L. Schiller, K. Anlauf, J.F. Hopper, A. Wiebe, T. Dann, D. Wang, T.J. Johnson, and G.W. Harris, Formaldehyde measurements at St. Anicet during NARSTO-CE 1996, Presented at AGU Fall Meeting, San Francisco, Dec. 1997.

25. **P.A. Ariya**, J.F. Hopper and G.W. Harris, C_2-C_7 hydrocarbon concentration in Arctic snowpack interstitial air, European Geophysical Society, XXIII, General Assembly, Nice, France, 20-24 April 1998.

26. Wong, S, for the Stream Team, including G.W. Harris, Investigation of the variability of trace gases in the tropopause region during STREAM 98, presented at the 27th General Assembly of the European Geophysical Society, April 2002, Nice, France.

27. C.L. Schiller, J.F. Gouin, and G.W Harris, Ammonia and Hydrogen Peroxide Measurements by TDLAS in the Lower Fraser Valley during PACIFIC 2001 - Presented at 85th Canadian Society for Chemistry (CSC), June 1-5, 2002, UBC, Vancouver, B.C.

28. **Rhian A. Salmon**, Corinne L. Schiller, Geoffrey W. Haris, A radical detection technique: Examination of a liquid-phase method to measure atmospheric OH, Paper Presented to the Joint EGS-AGU meeting, April 7-11, 2003, Nice, France.

29. **N. Dave** and C. Schiller, G. Harris, Investigation of oxidation processes in freezing solutions, Poster presented at the 32nd annual SOUSCC, March 20, 2004, Trent University.

30. **K.J. Wall**, C. Schiller, G.W. Harris, Development and evaluation of a high sensitivity liquid derivatization technique to measure gas phase nitrous acid, Poster presented at the 32nd annual SOUSCC, March 20, 2004, Trent University.

31. Jeremy, Wentzell, K. Wall, C.L. Schiller, G.W. Harris, The development of a detection system for measuring HONO, Poster presented at the Annual General Meeting of the Canadian Surface Oceanic Lower Atmosphere Study (C-SOLAS), Montreal, May 13-14, 2004.

32. Schiller, C.L., R. Hall, G. Harris, HCHO and CO measurements using tunable diode laser absorption spectroscopy in Ridgetown, ON, during BAQs-Met 2007, Poster, AGU Annual Conference, San Francisco, CA, Dec. 13-19, 2008.

Date Printed: June 18, 2010