

Jana Beth Milford
Department of Mechanical Engineering
Environmental Engineering Program
University of Colorado Boulder

Education

J.D., University of Colorado School of Law, May 2004.

Ph.D., Engineering and Public Policy, Carnegie Mellon University, May 1988.

M.S., Civil Engineering, Carnegie Mellon University, May 1985.

B.S., with distinction, Engineering Science, Iowa State University, May 1983.

Professional History

Professor, Department of Mechanical Engineering, University of Colorado at Boulder, June 2008 – present.

Chair, Department of Mechanical Engineering, University of Colorado at Boulder, July 2013 – June 30, 2014.

Director, Environmental Engineering Program, University of Colorado at Boulder, July 2010 – June 2012. (On sabbatical, July 2012 – June 2013.)

Associate Professor, Department of Mechanical Engineering, University of Colorado at Boulder, August 1997 - present. (On leave, September 2001 – August 2002; half-time August 2002 – January 2007.)

Senior Scientist and Staff Attorney, Environmental Defense, May 2004 – January 2007. (Half-time).

Director, Environmental Engineering Program, University of Colorado at Boulder, June 1998 - July 2001.

Assistant Professor, Department of Mechanical Engineering, University of Colorado at Boulder, January 1994 - July 1997.

Assistant Professor, Department of Civil Engineering and Environmental Research Institute, University of Connecticut, September 1989 - December 1993.

Faculty-in-Residence, Washington Internships for Students of Engineering, American Society for Engineering Education, summer 1990.

Congressional Fellow and Analyst, Office of Technology Assessment, United States Congress, September 1987 - July 1989.

Research and Teaching Assistant, Carnegie Mellon University, 1983 - 1987.

Engineering Intern, General Motors Corporation, 1983.

Teaching Experience – Courses Taught

Sustainable Energy (undergraduate/graduate), Environmental Law for Engineers (graduate), Environmental Modeling (graduate), Air Pollution Control Engineering (undergraduate/graduate), Engineering Projects (freshman engineering design course), Thermodynamics (undergraduate), Quantitative Methods for Policy Analysis (graduate), Computational Methods (undergraduate), Introduction to Research (graduate), Methods of Engineering Analysis I (graduate), Air Quality Modeling

(graduate), Heat Transfer (undergraduate) Civil Engineering Projects (senior design course), Fundamentals of Environmental Engineering (undergraduate), Transport and Transformation of Air Pollution (graduate), Analysis of Civil Engineering Systems (undergraduate), Numerical Methods (graduate), Atmospheric Chemistry (professional development short course).

State, National, and Professional Service

Colorado Air Quality Control Commission, March 2013 – present. Chair, June 2017 to June 2018.

Health Effects Institute, Research Review Committee, January 2016 to present.

National Academy of Sciences, Committee on Science for EPA's Future, June 2011 to August 2012.

National Academy of Sciences, Board of Environmental Studies and Toxicology, January 2010 to August 2015.

National Academy of Engineering, Chinese Academy of Sciences and Chinese Academy of Engineering, Committee on U.S.-Chinese Cooperation on Electricity from Renewable Resources, November 2008 to December 2010.

Regional Air Quality Council, Board Member, August 2007 to March 2009.

U.S. Environmental Protection Agency, Science Advisory Board, 2005 - 2011. Lead reviewer for three SAB reports. Chair of the SAB Risk and Technology Review Methods panel.

National Academy of Engineering, Chinese Academy of Sciences and Chinese Academy of Engineering, Committee on Energy Futures and Air Pollution in Urban China and the United States, 2005 to 2008. Lead author for report chapter on institutional and regulatory frameworks; co-author for two additional chapters.

Environmental Science and Technology, Editorial Advisory Board, November 2002 to January 2006.

National Academy of Sciences, Committee on Air Quality Management in the United States, member, May 2001 to January 2004.

Regional Air Quality Council Ozone Modeling Review Panel, 2003-2004.

Department of Engineering and Public Policy, Carnegie Mellon University, Advisory Board, 1993 to 2008.

U.S. Environmental Protection Agency, Board of Scientific Counselors, Fine Particulate Matter Research Strategy Review Committee, October 1999.

California Air Resources Board, Reactivity Scientific Advisory Committee, April 1996 to May 2000.

Colorado Air Quality Control Commission, April 1994 to May 1997.

Denver Metropolitan Area Blueprint for Clean Air (long-range air quality planning process) steering committee member, June 1996 to May 1997.

U.S. Environmental Protection Agency, North American Research Strategy for Tropospheric Ozone, science team member, January 1994 to December 1997.

New England Board of Higher Education, Council of Academic Advisors on Environmental Sciences and Engineering, 1993.

American Lung Association of Connecticut, Clean Air Advisory Committee, 1993.

Manuscript, report or proposal reviewer for *American Society for Engineering Education*, *Atmospheric Chemistry and Physics*, *Atmospheric Environment*, *Bulletin of the American Meteorological Society*, *Elementa*, *Electric Power Research Institute*, *Energy Policy*, *Environmental Health Perspectives*, *Environmental Science and Technology*, *Geophysical Research Letters*, *Global Environmental Change*, *Health Effects Institute*, *International Journal of Water, Air and Soil Pollution*, *International Journal of Wildland Fire*, *Journal of the Air & Waste Management Association*, *Journal of Geophysical Research*, *National Aeronautics and Space Administration*, *Nature*, *Risk Analysis*, *Science of the Total Environment*.

Fellowships and Awards

BOLD Faculty Fellow, College of Engineering and Applied Science, University of Colorado at Boulder, 2018 – 2019.

College of Mechanical Engineering, University of Colorado at Boulder, Outstanding Service Award, 2015 – 2016.

Abraham Lincoln High School, Council Bluffs, IA, Hall of Fame Inductee, March 2013.

Mechanical Engineering, University of Colorado at Boulder, Outstanding Graduate Education Award, 2010 - 2011.

Mechanical Engineering, University of Colorado at Boulder, Outstanding Service Award, 2009 - 2010.

Health and Environmental Stewardship Award, presented by the Colorado Air Pollution Control Division, September 2008.

Faculty Leadership Advancement Group, invited participant, College of Engineering and Applied Science, University of Colorado at Boulder, 2006.

Mechanical Engineering, University of Colorado at Boulder, Distinguished Achievement Award, 2004-2005.

Order of the Coif, University of Colorado School of Law, May 2004.

University of Colorado, Emerging Leaders Program, invited participant, 2002-2003.

Max S. Peters Faculty Service Award, College of Engineering and Applied Science, University of Colorado at Boulder, 2001.

Publications

Textbooks

Kutscher, C., Milford, J.B., Kreith, F., *Principles of Sustainable Energy Systems, Third Edition*, CRC Press, 2018, 630 pp.

Ramaswami, A., Milford, J.B., Small, M.S., *Integrated Environmental Modeling: Pollutant Transport, Fate and Risk in the Environment*, John Wiley and Sons, 2005, 678 pp.

Congressional Testimony

Friedman, R.M., Milford, J.B., Rapoport, R.D., testimony before the Subcommittee on Oversight and Investigations of the Energy and Commerce Committee, U.S. House of Representatives, July 17, 1989.

Dissertations

Milford, J.B., *Photochemical Air Pollution Control Strategy Development*, Ph.D. Thesis, Department of Engineering and Public Policy, Carnegie Mellon University, 1988.

Milford, J.B., *The Sizes of Particulate Trace Elements in the Atmosphere*, M.S. Thesis, Department of Civil Engineering, Carnegie Mellon University, 1985.

Published Peer-Reviewed Monographs

National Research Council of the National Academies, *Science for Environmental Protection: the Road Ahead*, The National Academies Press, Washington, DC, 2012, contributor.

National Academy of Engineering, Chinese Academy of Science, and Chinese Academy of Engineering, *The Power of Renewables: Opportunities and Challenges for China and the United States*, The National Academies Press, Washington, DC, 2010, contributor.

National Academy of Engineering and National Research Council in collaboration with the Chinese Academy of Engineering and Chinese Academy of Sciences, *Energy Futures and Urban Air Pollution: Challenges in China and the United States*, The National Academies Press, Washington, DC, September 2007, contributor.

National Research Council of the National Academies, *Air Quality Management in the United States*, The National Academies Press, Washington, DC, January 2004, contributor.

U.S. Congress, Office of Technology Assessment, *Changing by Degrees: Steps to Reduce Greenhouse Gases*, OTA-0-482, Washington, DC, February 1991, contributor.

U.S. Congress, Office of Technology Assessment, *Replacing Gasoline: Alternative Fuels for Light-Duty Vehicles*, OTA-E-364, Washington, DC, September 1990, contributor.

U.S. Congress, Office of Technology Assessment, *Catching Our Breath: Next Steps for Reducing Urban Ozone*, OTA-0-412, Washington, DC, July 1989, coauthor.

Law Review Articles

Milford, J.B. "Out in Front? State and Federal Regulation of Air Pollution Emissions from Oil and Gas Production Activities in the Western United States," *Natural Resources Journal*, **55**:1-45, 2014.

Milford, J.B., "Tribal Authority Under the Clean Air Act: How Is It Working?," *Natural Resources Journal*, **44**:213-242, 2004.

Peer-Reviewed Scientific Journal Articles

Lyu, C., Capps, S.L., Kurashima, K., Henze, D.K., Pierce, G., Hakami, A., Zhao, S., Resler, J., Carmichael, G.R., Sandu, A., Russell, A.G., Chai, T., Milford, J.B., "Evaluating Oil and Gas Contributions to Ambient Nonmethane Hydrocarbon Mixing Ratios in the Colorado Front Range," *Atmospheric Environment*, doi.org/10.1016/j.atmosenv.2020.118113, 2020.

Brown, K.E., Henze, D.K., Milford, J.B., "Comparing Health Benefit Calculations for Alternative Energy Futures," *Air Quality, Atmosphere and Health*, doi.org/10.1007/s11869-020-00840-8, 2020.

Nsanzineza, R., Capps, S., Milford, J.B., "Modeling Emissions and Ozone Air Quality Impacts of Future Scenarios for Energy and Power Production in the Rocky Mountain States," *Environmental Science and Technology*, **53**:7893-7902, DOI:10.1021/acs.est.9b00356, 2019.

Collier-Oxandale, A.M., Thorson, J., Halliday, H., Milford, J., Hannigan, M., "Understanding the Ability of Low-Cost MOx Sensors to Quantify Ambient VOCs," *Atmospheric Measurement Techniques*, **12**:1441-1460, doi.org/10.5194/amt-12-1441-2019, 2019.

- Keshavarzmohammadian, A., Cook, S.M., Milford, J.B., “Cradle-to-gate Environmental Impacts of Sulfur-based Solid-state Lithium Batteries for Electric Vehicle Applications,” *Journal of Cleaner Production*, **202**:770-778, 2018.
- Nsanzineza, R., O’Connell, M., Brinkman, G., Milford, J.B., “Emissions Implications of Downscaled Electricity Generation Scenarios for the Western United States,” *Energy Policy*, **109**:601-608, 2017.
- Keshavarzmohammadian, A., Henze, D., Milford, J.B., “Emission Impacts of Electric Vehicles in the US Transportation Sector Following Optimistic Cost and Efficiency Projections,” *Environmental Science and Technology*, **51**:6665-6673, DOI:10.1021/acs.est6b04801, 2017.
- Brown, K.E., Henze, D., Milford, J.B. “How Accounting for Climate and Health Impacts of Emissions Could Change the US Energy System,” *Energy Policy*, **102**:396-405, DOI 10.1016/j.enpol.2016.12.052, 2017.
- Milford, J.B., Knight, D., “Increasing the Use of Earth Science Models and Data in Air Quality Management,” *Journal of the Air & Waste Management Association*, **67**(4):431-444, 2017.
- Capps, S.L., Driscoll, C.T., Fakhraei, H., Templer, P.H., Craig, K.J., Milford, J.B., Lambert, K., “Estimating Potential Productivity Co-benefits for Crops and Trees from Reduced Ozone with U.S. Coal Power Plant Carbon Standards,” *J. Geophysical Research*, **121**(24):14,679-14,690, 2016.
- Clements, N., Hannigan, M.P., Miller, S.L., Peel, J.L., Milford, J.B., “Comparisons of Urban and Rural PM_{10-2.5} and PM_{2.5} Mass Concentrations and Semi-Volatile Fractions in Northeastern Colorado,” *Atmospheric Chemistry and Physics*, **16**, 7469–7484, doi:10.5194/acp-16-7469-2016.
- Dilling, L., Kelsey, K.C., Fernandez, D.P., Huang, Y.D., Milford, J.B., Neff, J.C., “Where Carbon Management Hits the Road: the Intersection of Decision Context and Scientific Information on Public Lands in Southwestern Colorado,” *Environmental Management*, DOI 10.1007/s00267-016-0714-2, 2016.
- Wu, K., Paranjothi, G., Milford, J.B., Kreith, F., “Transition to Sustainability with Natural Gas from Fracking,” *Sustainable Technologies and Assessments*, **14**:26-34, 2016.
- Lapina, K., Henze, D., Milford, J.B., Travis, K. "Impacts of Foreign, Domestic and State-Level Emissions on Ozone-Induced Vegetation Loss in the U.S." *Environmental Science and Technology*, DOI 10.1021/acs.est.5b04887, 2015.
- Kim, S-Y, Dutton, S.J., Sheppard, L., Hannigan, M.P., Miller, S.L., Milford, J.B., Peel, J., Vedal, S., “The Short-Term Association of Selected Components of Fine Particulate Matter and Mortality in the Denver Aerosol Sources and Health (DASH) Study,” *Environmental Health*, **14**:49, DOI 10.1186/s12940-015-0037-4, 2015.
- Lapina, K., Henze, D.K., Milford, J.B., Cuvelier, C., Seltzer, M., “Implications of RCP Emissions for Future Changes in Vegetative Exposure to Ozone in the Western U.S.,” *Geophysical Research Letters*, DOI 10.1002/2015GL063529, 2015.
- McLeod, J., Brinkman, G., Milford, J.B., “Emissions Implications of Future Natural Gas Production and Use in the U.S. and in the Rocky Mountain Region,” *Environ. Sci. Technol.*, **48**:13036-13044, 2014.
- Clements, N., Eav, J., Xie, M., Hannigan, M., Miller, S.L., Navidi, W., Peel, J., Schauer, J.J., Shafer, M., Milford, J.B., “Concentrations and Source Insights for Trace Elements in Fine and Coarse Particulate Matter,” *Atmospheric Environment*, **89**:373-381, 2014.
- Archie, K., Dilling, L., Milford, J., Pampel, F., “Unpacking the 'Information Barrier': Comparing

- Perspectives on Information as a Barrier to Climate Change Adaptation in the Interior Mountain West,” *Journal of Environmental Management*, **133**:397-410, 2014.
- Lapina, K., Henze, D.K., Milford, J.B., Huang, M., Lin, M., Fiore, A.M., Carmichael, G., Pfister, G., Bowman, K., “Assessment of Source Contributions to Seasonal Vegetative Exposure to Ozone in the U.S.,” *Journal of Geophysical Research - Atmospheres*, 119, doi:10.1002/2013JD020905, 2014.
- Clements, N., Milford, J.B., Miller, S.L., Navidi, W., Peel, J.L., Hannigan, M.P. “Errors in Coarse Particulate Matter (PM_{10-2.5}) Mass Concentrations and Spatiotemporal Characteristics when Using Subtraction Estimation Methods,” *Journal of the Air and Waste Management Association*, **63**(12):1386-1398, 2013.
- Helmig D., Daly R.W., Milford J., and Guenther A. “Seasonal trends in biogenic terpene emissions,” *Chemosphere*, **93**:35-46, 2013.
- Brown, K., Henze, D., Milford, J.B. "Accounting for Climate and Air Quality Damages in Future US Electricity Generation Scenarios," *Environmental Science and Technology*, **47**:3065-3072, 2013.
- Xie, M., Piedrahita, R., Dutton, S., Milford, J., Hemann, J., Peel, J., Miller, S., Kim, S-Y, Vedal, S., Sheppard, L., Hannigan, M. “Positive Matrix Factorization of a 32-month Series of Daily PM_{2.5} Speciation Data with Incorporation of Temperature Stratification,” *Atmospheric Environment*, **65**:11-20, 2013.
- Xie, M., Hannigan, M., Dutton, S., Milford, J., Hemann, J., Miller, S., Schauer, J., Peel, J., Vedal, S., “Positive Matrix Factorization of PM_{2.5} – Comparison and Implications of Using Different Speciation Data Sets,” *Environmental Science and Technology*, **46**(21):11962-11970, 2012.
- Archie, K., Dilling, L., Milford, J.B., Pampel, F., “Climate Change and Western Public Lands: A Survey of U.S. Federal Land Managers on the Status of Adaptation Efforts,” *Ecology and Society*, **17**(4): article 20, 2012.
- Xie, M., Coons, T.L., Hemann, J., Dutton, S., Peel, J., Milford, J.B., Miller, S.L., Kim, S-Y, Vedal, S., Hannigan, M.P., “Intra-urban Spatial Variability and Uncertainty Assessment of PM_{2.5} Sources Based on Carbonaceous Species,” *Atmospheric Environment*, **60**:305-315, 2012.
- Xie, M., Coons, T.L., Dutton, S.J., Milford, J.B., Miller, S.L., Peel, J.L., Vedal, S., Hannigan, M.P., “Intra-urban Spatial Variability of PM_{2.5}-Bound Carbonaceous Components,” *Atmospheric Environment*, **60**:486-494, 2012.
- Ellenwood, M., Dilling, L., Milford, J.B. “Managing U.S. Public Lands in Response to Climate Change: A View From the Ground Up,” *Environmental Management*, **49**(5):954-967, 2012.
- Clements, N., Piedrahita, R., Ortega, J., Peel, J., Hannigan, M., Miller, S.L., Milford, J.B., “Characterization and Nonparametric Regression of Rural and Coarse Particulate Matter Mass Concentrations in Northeastern Colorado,” *Aerosol Science and Technology*, **46**(1):108-123, 2012.
- Brinkman, G.L., Denholm, P., Hannigan, M.P., Milford, J.B., “Effects of Plug-in Hybrid Electric Vehicles on Ozone Concentrations in Colorado,” *Environmental Science and Technology*, **44**:6256-6262, 2010.
- Dutton, S.J., Vedal, S., Piedrahita, R., Milford, J.B., Miller, S.L., Hannigan, M.P., “Source Apportionment Using Positive Matrix Factorization on Daily Measurements of Inorganic and Organic Speciated PM_{2.5},” *Atmospheric Environment*, **44**:2731-2741, 2010.

- Trenbath, K., Hannigan, M.P., Milford, J.B. "Evaluation of Retrofit Crankcase Ventilation Controls and Diesel Oxidation Catalysts for Reducing Air Pollution in School Buses," *Atmospheric Environment*, **43**:5916-5922, 2009.
- Milford, J.B., Pienciak, A. "After the Clean Air Mercury Rule: Prospects for Reducing Mercury Emissions from Coal-Fired Power Plants," *Environmental Science and Technology*, **43**:2669-2673, 2009.
- Brinkman, G., Milford, J.B., Schauer, J.J., Shafer, M.M., Hannigan, M.P. "Source Identification of Personal Exposure to Fine Particulate Matter Using Organic Tracers," *Atmospheric Environment*, **43**:1972-1981, 2009.
- Vedal, S., Hannigan, M.P., Dutton, S.J., Miller, S.L., Milford, J.B., Rabinovitch, N., Kim, S.-Y., Sheppard, L. "The Denver Aerosol Sources and Health (DASH) Study: Overview and Early Findings," *Atmospheric Environment*, **43**:1666-1673, 2009.
- Hemann, J.G., Brinkman, G.L., Dutton, S.J., Hannigan, M.P., Milford, J.B., Miller, S.L., "Assessing Positive Matrix Factorization Model Fit: A New Method to Estimate Uncertainty and Bias in Factor Contributions at the Measurement Time Scale," *Atmospheric Chemistry and Physics*, **9**, 497-513, 2009.
- Sakulyanontvittaya, T., Guenther, A., Helmig, D., Milford, J., Wiedinmyer, C. "Secondary Organic Aerosol from Sesquiterpene and Monoterpene Emissions in the United States," *Environmental Science and Technology*, **42**:8784-8790, doi: 10.1021/es800817r, 2008.
- Sakulyanontvittaya, T., Duhl, T., Wiedinmyer, C., Helmig, D., Matsunaga, S., Potosnak, M., Milford, J.B., Guenther, A., "Monoterpene and Sesquiterpene Emission Estimates for the United States," *Environmental Science and Technology*, **42**:1623-1629, doi 10.1021/es702274e, 2008.
- Helmig, D., Ortega, J., Duhl, T., Tanner, D., Guenther, A., Harley, P., Wiedinmyer, C., Milford, J., Sakulyanontvittaya, T., "Sesquiterpene Emissions from Pine Trees – Identifications, Emission Rates and Flux Estimates for the Contiguous United States," *Environmental Science and Technology*, **41**:1545-1553, 2007.
- Brinkman, G., Vance, G., Hannigan, M., Milford, J.B., "Use of Synthetic Data to Evaluate Positive Matrix Factorization as a Source Apportionment Tool for PM_{2.5} Exposure Data," *Environmental Science and Technology*, **40**:1892-1901, 2006.
- Henderson, D., Milford, J.B., Miller, S.L., "Prescribed Burns and Wildfires in Colorado: Impacts of Mitigation Measures on Indoor Air Particulate Matter," *J. Air & Waste Management Association*, **55**:1516-1526, 2005.
- Hakami, A., Harley, R.A., Milford, J.B., Odman, M.T., Russell, A.G., "Regional, Three-Dimensional Assessment of the Ozone Formation Potential of Organic Compounds" *Atmospheric Environment*, **38** (1):121-134, 2004.
- Martien, P.T., Harley, R.A., Milford, J.B., Russell, A.G., "Evaluation of Incremental Reactivity and Its Uncertainty in the South Coast Air Basin," *Environmental Science and Technology*, **37**:1598-1608, 2003.
- Miller, S.L., Anderson, M.J., Daly, E.P., Milford, J.B., "Source Apportionment of Exposures to Volatile Organic Compounds, I. Evaluation of Receptor Models Using Simulated Exposure Data," *Atmospheric Environment*, **36**:3629-3641, 2002.
- Anderson, M.J., Daly, E.P., Miller, S.L., Milford, J.B. "Source Apportionment of Exposures to Volatile Organic Compounds, II. Application of Receptor Models to TEAM Study Data," *Atmospheric Environment*, **36**:3643-3658, 2002.

- Wang, L., Milford, J.B., Carter, W.P.L. "Analysis of Chamber-Derived Incremental Reactivity Estimates for N-Butyl Acetate and 2-Butoxy Ethanol," *Atmospheric Environment*, **36**:115-135, 2002.
- Anderson, M., Miller, S.L., Milford, J.B., "Source Apportionment of Exposure to Toxic Volatile Organic Compounds Using Positive Matrix Factorization," *International Journal of Exposure Analysis and Environmental Epidemiology*, **11**:295-307, 2001.
- Wang, L., Milford, J.B., "Reliability of Optimal Control Strategies for Photochemical Air Pollution," *Environmental Science and Technology*, **35**:1173-1180, 2001.
- Wang, L., Milford, J.B., Carter, W.P.L. "Reactivity Estimates for Aromatic Compounds: 1. Uncertainty in Chamber-Derived Parameters," *Atmospheric Environment*, **34**:4337-4348, 2000.
- Wang, L., Milford, J.B., Carter, W.P.L. "Reactivity Estimates for Aromatic Compounds: 2. Uncertainty in Incremental Reactivities", *Atmospheric Environment*, **34**:4349-4360, 2000.
- Bergin, M.S., Milford, J.B. "Application of Bayesian Monte Carlo Analysis to a Lagrangian Photochemical Air Quality Model," *Atmospheric Environment*, **34**:781-792, 2000.
- Bergin, M.S., Noblet, G.S., Petrini, K., Dhieux, J.R., Milford, J.B., Harley, R.A. "Formal Uncertainty Analysis of a Lagrangian Photochemical Air Pollution Model," *Environmental Science and Technology*, **33**:1116-1126, 1999.
- Das, M., Milford, J.B. "Factors Influencing Ozone Chemistry in Subsonic Aircraft Plumes," *Atmospheric Environment*, **33**:869-880, 1999.
- Bergin, M.S., Russell, A.G., Milford, J.B., "Effects of Chemical Mechanism Uncertainties on the Reactivity Quantification of Volatile Organic Compounds Using a Three-Dimensional Air Quality Model," *Environmental Science and Technology*, **32**:694-703, 1998.
- Kuhn, M., Builtjes, P.J.H., Poppe, D., Simpson, D., Stockwell, W.R., Andersson-Skoeld, Y., Baart, A., Das, M., Fiedler, F., Hov, O., Kirchner, F., Makar, P.A., Milford, J.B., Roemer, M.G.M., Ruhnke, R., Strand, A., Vogel, B., Vogel, H. "Intercomparison of the Gas-Phase Chemistry in Several Chemistry and Transport Models," *Atmospheric Environment*, **32**:693-709, 1998.
- Harley, R.A., Sawyer, R.F., Milford, J.B. "Updated Photochemical Modeling for California's South Coast Air Basin: Comparison of Chemical Mechanisms and Motor Vehicle Emission Inventories," *Environmental Science and Technology*, **31**:2829-2839, 1997.
- Gao, D., Stockwell, W.R., Milford, J.B. "Global Uncertainty Analysis of a Regional Scale Gas-Phase Chemical Mechanism," *J. Geophysical Research*, **101**:9107-9119, 1996.
- Yang, Y-J, Stockwell, W.R., Milford, J.B., "Effect of Chemical Product Yield Uncertainties on Reactivities of VOCs and Emissions from Reformulated Gasolines and Methanol Fuels," *Environmental Science and Technology*, **30**:1392-1397, 1996.
- Yang, Y-J, Milford, J.B., "Quantification of Uncertainty in Reactivity Adjustment Factors from Reformulated Gasolines and Methanol Fuels," *Environmental Science and Technology*, **30**:196-203, 1996.
- Bergin, M.S., Russell, A.G., Milford, J.B., "Quantification of Individual VOC Reactivity Using a Chemically Detailed, Three-Dimensional Photochemical Model," *Environmental Science and Technology*, **29**:3029-3037, 1995.

- Gao, D., Stockwell, W.R., Milford, J.B. "First Order Sensitivity and Uncertainty Analysis for a Regional-Scale Gas-Phase Chemical Mechanism," *J. Geophysical Research*, **100**:23153-23166, 1995.
- Russell, A.G., Milford, J.B., Bergin, M.S., McBride, S., McNair, L., Yang, Y-J, Stockwell, W.R., Croes, B. "Urban Ozone Control and Atmospheric Reactivity of Organic Gases," *Science*, **269**: 491-495, 1995.
- Stockwell, W.R., Milford, J.B., Gao, D., Yang, Y-J, "The Effect of Acetyl Peroxy - Peroxy Radical Reactions on Peroxyacetyl Nitrate and Ozone Concentrations," *Atmospheric Environment*, **29**:1591-1599, 1995.
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- Lin, C., Milford, J.B., "Decay-Adjusted Chemical Mass Balance Receptor Modeling for Volatile Organic Compounds," *Atmospheric Environment*, **28**:3261-3276, 1994.
- Milford, J.B., Gao, D., Zafirakou, A., Pierce, T.E., "Ozone Precursor Levels and Responses to Emissions Reductions: Analysis of Regional Oxidant Model Results," *Atmospheric Environment*, **28**:2093-2104, 1994.
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- Milford, J.B., Gao, D., Russell, A.G., McRae, G.J., "Comparing the Sensitivities of Condensed Chemical Mechanisms for Photochemical Air Pollution," *Environmental Science and Technology*, **26**:1179-1189, 1992.
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- McRae, G.J., Milford, J.B., Slompak, B.J., "Changing Roles for Supercomputing in Chemical Engineering," *International J. Supercomputing Applications*, **2**:16-40, 1988.
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- Hahn, R.W., McRae, G.J., Milford, J.B., "Coping with Complexity in the Design of Environmental Policy," *J. Environmental Management*, **27**:109-125, 1988.
- Milford, J.B., Davidson, C.I., "The Sizes of Particulate Sulfate and Nitrate in the Atmosphere: A Review," *J. Air Pollution Control Association*, **37**:125-134, 1987.
- Milford, J.B., Davidson, C.I., "The Sizes of Particulate Trace Elements in the Atmosphere: A Review," *J. Air Pollution Control Association*, **35**:1249-1260, 1985.
- Peer-Reviewed Book Chapters and Encyclopedia Articles*
- Russell, A.G., Milford, J.B., "Air Quality Modeling," in *Encyclopedia of Energy Technology and the Environment*, John Wiley and Sons, 1995.
- Russell, A.G., Milford, J.B., "Atmospheric Modeling," *Encyclopedia of Chemical Technology*, **3**, John Wiley and Sons, 1992.

Nriagu, J.O., Pacyna, J.M., Milford, J.B., Davidson, C.I., "Distribution and Characteristic Features of Chromium in the Atmosphere," in Nriagu, J.O., and Nieboer, E., eds., *Chromium in the Natural and Human Environments*, John Wiley and Sons, 1988.

Other Book Chapters

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