

**Publications/Presentations  
Fiscal Year 1999**

**Environmental Research Division**

**1. Refereed Publications**

Aruguete, D.M., Aldstadt, J.H., and Mueller, G.M., "Accumulation of Several Heavy Metals and Lanthanides in Mushrooms (*Agaricales*) from the Chicago Region," *The Science of the Total Environment* 224:43-56 (1999).

Bogner, J.E., Spokas, K.A., and Burton, E.A., "Temporal Variations in Greenhouse Gas Emissions at a Midlatitude Landfill," *Journal of Environmental Quality* 28(1):278-288 (1999).

Boopathy, R., and Manning, J.F., "Surfactant-Enhanced Bioremediation of Soil Contaminated with 2,4,6-Trinitrotoluene (TNT) in Soil Slurry Reactors," *Water Environment Research* 71(1):119-124 (1999).

Demirgian, J., and Macha, S., "Collection of Quantitative Chemical Release Field Data," *Field Analytical Chemistry and Technology* 3(2):95-104 (1999).

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Elliott, S., Streit, G.E., Gaffney, J.S., Bossert, J.E., Brown, M., Reisner, J., and McNair, L.A., "Pathways for the Oxidation of Sarin in Urban Atmospheres," *Environmental Science and Pollution Research* 6(2):103-105 (1999).

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Ford, R.G., Kemner, K.M., and Bertsch, P.M., "Influence of Sorbate-Sorbent Interactions on the Crystallization Kinetics of Nickel- and Lead-Ferrihydrite Coprecipitates," *Geochimica et Cosmochimica Acta* 63(1):39-48 (1999).

Fuller, M.E., and Manning, J.F., "Evidence for Differential Effects of 2,4,6-Trinitrotoluene (TNT) and Other Munitions Compounds on Specific Subpopulations of Soil Microbial Communities," *Environmental Toxicology and Chemistry* 17(11):2185-2195 (1999).

Gaffney, J.S., Marley, N.A., Martin, R.S., Dixon, R.W., Reyes, L.G., and Popp, C.J., "Response to Comment on 'Potential Air Quality Effects of Using Ethanol-Gasoline Fuel Blends: A Field Study in Albuquerque, New Mexico,'" *Environmental Science and Technology* 32(23):3842-3844 (1998).

Glab, W.L., Child, M.S., and Pratt, S.T., "Rotationally Resolved Photoelectron Spectroscopy of Autoionizing States of Water," *Journal of Chemical Physics* 109(8):3062-3068 (1998).

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Kheshgi, H.S., Jain, A.K., Kotamarthi, V.R., and Wuebbles, D.J., "Future Atmospheric Methane Concentrations in the Context of the Stabilization of Greenhouse Gas Concentrations," *Journal of Geophysical Research* 104:19183-19190 (1999).

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- Michalsky, J., Dutton, E., Rubes, M., Nelson, D., Stoffel, T., Wesely, M., Splitt, M., and Deluise, J., "Optimal Measurement of Surface Shortwave Irradiance Using Current Instrumentation," *Journal of Applied Meteorology* 16(1):55-69 (1999).
- Miller, R.M., Smith, C.I., Jastrow, J.D., and Bever, J.D., "Mycorrhizal Status of the Genus *Carex* (Cyperaceae)," *American Journal of Botany* 86(4):547-553 (1999).
- Schieve, L.A., Davis, F., Roeske, J., Handler, A., Freels, S., Stinchcomb, T., and Keane, A., "Evaluation of Internal Alpha Radiation Exposure and Subsequent Infertility among a Cohort of Women Formerly Employed in the Radium Dial Industry," *Radiation Research* 147(2):236-244 (1997).
- Sedivy, R.A., Shafer, J.M., and Bilbrey, L.C., "Design Screening Tools for Passive Funnel and Gate Systems," pp. 125-133 in *Ground Water Monitoring and Remediation*, winter issue (1999).
- Shannon, J.D., "Regional Trends in Wet Deposition of Sulfate in the United States and SO<sub>2</sub> Emissions from 1980 through 1995," *Atmospheric Environment* 33:807-816 (1999).
- Six, J., Schultz, P.A., Jastrow, J.D., and Merckx, R., "Recycling of Sodium Polytungstate Used in Soil Organic Matter Studies," *Soil Biology and Biochemistry* 31:1193-1196 (1999).
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- Xu, Y., and Carmichael, G.R., "An Assessment of Sulfur Deposition Pathways in Asia," *Atmospheric Environment* 33:3473-3486 (1999).
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- Yan, Y.E., and Schwartz, F.W., "Oxidative Degradation and Kinetics of Chlorinated Ethylenes by Potassium Permanganate," *Journal of Contaminant Hydrology* 37:343-365 (1999).

Yun, W., Pratt, S.T., Miller, R.M., Cai, Z., Hunter, D.B., Jarstfer, A.G., Kemner, K.M., Lai, B., Lee, H.-R., Legnini, D.G., Rodrigues, W., and Smith, C.I., "X-ray Imaging and Microspectroscopy of Plants and Fungi," *Journal of Synchrotron Radiation* 5:1390-1395 (1998).

## 2. Books (written or edited), Book Chapters (written), and Collections of Conference Proceedings (edited or compiled)

Burton, J.C., and LaFreniere, L.M. (editors), *The Second International Symposium on Integrated Technical Approaches to Site Characterization: Proceedings Volume*, Argonne National Laboratory, Argonne, Illinois, June 7-9, 1999 (1999).

Hunter, D.B., Gates, W.P., Bertsch, P.M., and Kemner, K.M., "Degradation of Tetraphenylboron at Hydrated Smectite Surfaces Studied by Time Resolved IR and X-ray Absorption Spectroscopies," Chapter 14 (pp. 282-300) in *Mineral-Water Interfacial Reactions: Kinetics and Mechanisms*, edited by D.L. Sparks and T.J. Grundl, ACS Symposium Series 715, American Chemical Society, Washington, D.C. (1999).

## 3. Reports

Beasley, T.M., Kelley, J.M., Bond, L.A., Rivera, Jr., W., Davis, L.C., Liszewski, M.J., Orlandini, K.A., and Mann, L.J., *Heavy Element Radionuclides (Pu, Np, U) and Cesium 137 in Soils Collected from the Idaho National Engineering and Environmental Laboratory and Other Sites in Idaho, Montana, and Wyoming*, EML-599, Environmental Measurements Laboratory, U.S. Department of Energy, New York, New York (1998).

Burton, J.C., *Final Phase I Work Plan: QuickSite<sup>SM</sup> Investigation, Bendena, Kansas*, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (1999).

Burton, J.C., *Final Report: Phase I-Phase II QuickSite<sup>SM</sup> Expedited Site Characterization and Phase III Work Plan, Frankfort, Kansas*, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (1999).

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Fenter, P., Schreiber, F., Eberhardt, A., Leung, T.Y.B., Berman, L., Bedzyk, M., Scoles, G., and Eisenberger, P., "Using X-ray 'Vision' to Understand Self-Assembly," research highlight in *1998 National Synchrotron Light Source Annual Report*, Brookhaven National Laboratory, Upton, New York (1999).

Peppler, R.A., Sisterson, D.L., and Lamb, P., *Site Scientific Mission Plan for the Southern Great Plains CART Site, January-June 1999*, ARM-99-001, prepared for the U.S. Department of Energy, Office of Science, Office of Biological and Environmental Research, Environmental Sciences Division (1999).

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#### **4. Published Conference Papers (Unrefereed)**

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Coulter, R.L., "Convergence Estimates Obtained over the ABLE Region during CASES-97 from Radar Wind Profiler and Sodar Data," pp. 508-511 in *Preprint Volume*, 13th Symposium on Boundary Layers and Turbulence, American Meteorological Society, Boston, Massachusetts (1999).

Coulter, R.L., and Holdridge, D.J., "A Procedure for the Automatic Estimation of Mixed Layer Height," pp. 177-180 in *Proceedings of the Eighth Atmospheric Radiation Measurement (ARM) Science Team Meeting*, Tucson, Arizona, March 24-26, 1998 (1998).

Coulter, R.L., Gao, W., and Lesht, B.M., "An Iterative Procedure for Estimating Areally Averaged Heat Flux Using Planetary Boundary Layer Mixed Layer Height and Locally Measured Heat Flux," pp. 63-65 in *Proceedings of the Seventh Atmospheric Radiation Measurement (ARM) Science Team Meeting*, San Antonio, Texas, March 2-6, 1997 (1998).

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Gaffney, J.S., Marley, N.A., and Drayton, P.J., "Regional-Scale Influences on Urban Air Quality: A Field Study in Phoenix, Arizona," pp. 26-31 in *Preprint Volume*, Symposium on Interdisciplinary Issues in Atmospheric Chemistry, American Meteorological Society, Boston, Massachusetts (1999).

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Song, J., Wesely, M.L., Coulter, R.L., Lesht, B.M., Cuenca, R.H., Oncley, S.P., and Brandes, E.A., "Inference of Extractable Soil Moisture in the Plant Root Zone at the Walnut River Watershed," pp. 539-541 in *Preprint Volume*, 13th Symposium on Boundary Layers and Turbulence, American Meteorological Society, Boston, Massachusetts (1999).

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Wilkie, J.A., and Hering, J.G., "Site Characterization of Hydrothermally Influenced Surface Waters in the Eastern Sierra: Processes Governing Arsenic Concentration and Redox Speciation," pp. 217-230 in *The Second International Symposium on Integrated Technical Approaches to Site Characterization: Proceedings Volume*, Argonne National Laboratory, Argonne, Illinois, June 7-9, 1999 (1999).

Xu, Y., and Wesely, M.L., "Modeling of Dry Deposition over Regional Scales with Use of Satellite Data," pp. 58-61 in *Preprint Volume*, Symposium on Interdisciplinary Issues in Atmospheric Chemistry, American Meteorological Society, Boston, Massachusetts (1999).

Zak, B.D., Church, H., Ivey, M., Yellowhorse, L., Zirzow, J., Widener, K.B., Rhodes, P., Turney, C., Koontz, A., Stamnes, K., Storvold, R., Eide, H.A., Utley, P., Eagan, R., Cook, D., Hart, D., and Wesely, M., "The North Slope of Alaska and Adjacent Arctic Ocean (NSA/AAO) Cart Site Begins Operation: Collaboration with SHEBA and FIRE," pp. 831-835 in *Proceedings of the Eighth Atmospheric Radiation Measurement (ARM) Science Team Meeting*, Tucson, Arizona, March 23-27, 1998 (1998).

## 5. Published Abstracts, Notes, Reviews, Comments, and Letters

Coulter, R.L., "Aggregation of Surface Fluxes Using the PASS model and AVHRR," p. 29 in *Book of Abstracts* for the Atmospheric Radiation Measurement Science Team Meeting, San Antonio, Texas, March 22-26, 1999 (1999).

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Aldstadt, J.H., Kemner, K.M., Dwyer, K.W., and Szostek, B., "Study of Organoarsenicals in the Environment of XAFS Spectroscopy and Mass Spectrometry," Ninth Users Meeting for the Advanced Photon Source, Argonne, Illinois, October 1998.

Alvarado, J.S., Spokas, K., and Taylor, J.D., "Analytical Methods for the Determination of Carbon Tetrachloride in Soils," The Second International Symposium on Integrated Technical Approaches to Site Characterization, Argonne National Laboratory, Argonne, Illinois, June 8, 1999.

Berkowitz, C.M., Chapman, E.G., Cowin, J.P., Disselkamp, R.S., Gaffney, J.S., Laulainen, N.S., Marley, N.A., Plastridge, R., Spicer, C.W., and Zaveri, R.A., "Nighttime Chemistry: Possible Evidence of Heterogeneous Loss Processes," Annual Science Meeting of DOE's Atmospheric Chemistry Program, U.S. Department of Energy, Vienna, Virginia, February 24, 1999.

Blazer, C.A., Marley, N.A., Drayton, P.J., and Gaffney, J.S., "Real-Time Olefin Monitor Based upon Ozone Chemiluminescent Reactions," National American Chemical Society Meeting, Undergraduate Research Session, New Orleans, Louisiana, August 23, 1999.

Burton, J.C., "Introduction and Welcome; Overview to Argonne's Integrated Site Characterization Program," The Second International Symposium on Integrated Technical Approaches to Site Characterization, Argonne National Laboratory, Argonne, Illinois, June 7, 1999.

Coulter, R.L., "Aggregation of Surface Fluxes Using the PASS model and AVHRR," Atmospheric Radiation Measurement Science Team Meeting, San Antonio, Texas, March 23, 1999.

Coulter, R.L., "Atmospheric Boundary Layer Experiments (ABLE)/EMP," Global Change Education Program SURE Orientation and Short Courses Workshop, U.S. Department of Energy, Davis, California, June 23, 1999.

Coulter, R.L., "Convergence Estimates over the ABLE Region during CASES-97 Obtained from Radar Wind Profiler and Sodar Data," 13th Symposium on Boundary Layers and Turbulence, 79th Annual Meeting of the American Meteorological Society, Dallas, Texas, January 14, 1999.

Coulter, R.L., "Objectives for Argonne Studies at VTMX in 2000," Organization Meeting, Vertical Transport and Mixing Program, U.S. Department of Energy, Salt Lake City, Utah, September 14, 1999.

Demirgian, J., "FTIR Continuous Stack and Process Monitoring: Current Technology and Future Potential," Eastern Analytical Symposium and Exposition, Somerset, New Jersey, November 15-20, 1998.

Demirgian, J.C., and Carney, K.P., "Preliminary Measurements of Volatile Organic Compounds in Bone-Holes Using FTIR Spectroscopy," Pittsburgh Conference, Orlando, Florida, March 7-12, 1999.

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Donnelly, M.I., Chatterjee, R., Millard, C.S., Champion, K.M., and Clark, D.P., "A Mutation in *Escherichia coli* That Allows Fermentation of Glucose to Succinic Acid, Acetic Acid, and Ethanol," 50th Anniversary Annual Meeting of the Society for Industrial Microbiology, Arlington, Virginia, August 2, 1999.

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Doskey, P.V., "Air-Surface Exchange of Nonmethane Organic Compounds," Atmospheric Sciences Seminar, University of Illinois, Champaign, Illinois, May 5, 1999.

Doskey, P.V., "Atmospheric Chemistry of Nonmethane Organic Compounds in Urban Air," Global Change Education Program 1999 Final Workshop, U.S. Department of Energy and Oak Ridge Institute for Science and Education, Argonne National Laboratory, August 27, 1999.

Doskey, P.V., "Measurements of Nonmethane Hydrocarbons in Phoenix," Annual Science Meeting of DOE's Atmospheric Chemistry Program, U.S. Department of Energy, Vienna, Virginia, February 24, 1999.

Fenter, P., "Crystal Truncation and Water Adsorption at the Calcite-Water Interface Using X-ray Reflectivity," American Chemical Society National Meeting, Anaheim, California, March 1999.

Fenter, P., "Calcite-Fluid Interface Structures Probed by *In Situ* X-ray Reflectivity," Sixth International Conference on the Structure of Surfaces, Vancouver, British Columbia, Canada, July 27, 1999.

Fenter, P., "Calcite-Fluid Interface Structures Probed by *In Situ* X-ray Reflectivity," Environmental Molecular Sciences Symposia and First Users Meeting, Pacific Northwest National Laboratory, Richland, Washington, July 24, 1999.

Fenter, P., "Direct Measurements of Structure and Growth in Self-Assembly," James Franck Institute, The University of Chicago, Chicago, Illinois, May 17, 1999.

Fenter, P., "The Buried S-Au Interface Structure in Self-Assembled Monolayers Measured with Back-Reflection X-ray Standing Waves," National Synchrotron Light Source Annual Users Meeting, May 24, 1999.

Fenter, P., "X-ray Scattering Tutorial," Synchrotron Environmental Science I, Argonne National Laboratory, Argonne, Illinois, April 19, 1999.

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Fowle, D.A., Fein, J.B., Kemner, K.M., Bunker, B.A., Kelly, S.D., and Boyanov, M., "Copper Biomineralization: Towards Quantifying the Effects of Bacteria on Precipitation," Goldschmidt Conference of the Geochemical Society, Cambridge, Massachusetts, August 23-27, 1999.

Gaffney, J.S., "Atmospheric Chemistry Capabilities at Argonne: PM-2.5 and Air Quality Issues," Fossil Energy Technology Program Meeting, DOE Fossil Energy Technology Center, Pittsburgh, Pennsylvania, March 26, 1999.

Gaffney, J.S., "Chemistry and Environment Issues in 2025: A National Lab Scientist Perspective," NSF-DOE Molecular Energy and Environmental Science Workshop, Rosemont, Illinois, May 26, 1999.

Gaffney, J.S., "Global Change Topics: The Global Change Education Program and Mexico City Air Pollution Studies," Lawrence Berkeley National Laboratory, Berkeley, California, November 12, 1998.

Gaffney, J.S., "Measurements of Air Pollutants in Mexico City and an Update on the DOE Global Change Education Program," Atmospheric Sciences Seminar, The University of Chicago, Department of Geophysical Sciences, Chicago, Illinois, December 3, 1998.

Gaffney, J.S., “Overview of Past Atmospheric and Aqueous Geochemistry Research: Aerosols and Colloids — Areas for Potential Advanced Photon Source Applications,” Synchrotron Environmental Science I, Argonne National Laboratory, Argonne, Illinois, April 20, 1999.

Gaffney, J.S., “Oxygenated Fuels: Some Problems,” Global Change Education Program 1999 Final Workshop, U.S. Department of Energy and Oak Ridge Institute for Science and Education, Argonne National Laboratory, Argonne, Illinois, August 27, 1999.

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Gaffney, J.S., “The APS: An Overview of Environmental Research Opportunity,” Global Change Education Program 1999 Final Workshop, U.S. Department of Energy and Oak Ridge Institute for Science and Education, Argonne National Laboratory, Argonne, Illinois, August 26, 1999.

Gaffney, J.S., “The DOE Atmospheric Chemistry Program,” 1999 Atmospheric Chemistry Colloquium for Emerging Senior Scientists, U.S. Department of Energy, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, and National Science Foundation, June 11, 1999, Newport, Rhode Island.

Gaffney, J.S., “The DOE-OBBER Global Change Education Program: An Update,” Brookhaven National Laboratory, Upton, New York, October 1, 1998.

Gaffney, J.S., “The Road to Gaia,” Global Change Education Program Orientation, Davis, California, July 1, 1999.

Gaffney, J.S., “Urban Air Chemistry: Mexico City Field Measurements,” Chemistry Department Fall Symposium, New Mexico Institute of Mining and Technology, Socorro, New Mexico, October 16, 1998.

Gaffney, J.S., “Urban Air Quality and Global Change Issues,” Physics Summer Student Special Seminar Series, Argonne National Laboratory, Argonne, Illinois, July 14, 1999.

Gaffney, J.S., and Marley, N.A., “Atmospheric Chemistry of Organic Oxidants: Phoenix, Arizona,” Annual Science Meeting of DOE’s Atmospheric Chemistry Program, U.S. Department of Energy, Vienna, Virginia, February 24, 1999.

Gaffney, J.S., and Marley, N.A., “Career Opportunities in Environmental Research at the National Laboratories and Elsewhere,” Inauguration of the American Chemical Society Student Chapter, Universidad de Sagrado Corazon, San Juan, Puerto Rico, November 17, 1998.

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Jastrow, J.D., "Panel Discussion: Having a Science Career and Having a Life," Science Careers in Search of Women, Argonne National Laboratory, Argonne, Illinois, May 7, 1999.

Jastrow, J.D., "Soil Organic Matter Formation and Soil Carbon Storage," DOE-BER Global Change Science Team Meeting, Indianapolis, Indiana, June 3, 1999.

Jastrow, J.D., "Soil Structure and Carbon Sequestration," Global Change Education Program 1999 Final Workshop, Argonne National Laboratory, Argonne, Illinois, August 26, 1999.

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Kemner, K.M., "A Summary of SES-I and the ANSWER," Sustainable Partners Committee Meeting, Argonne National Laboratory, Argonne, Illinois, April 26, 1999.

Kemner, K.M., "A Tutorial on the Use of X-ray Absorption Spectroscopy in Environmental Research," Synchrotron Environmental Science I, Argonne National Laboratory, Argonne, Illinois, April 19, 1999.

Kemner, K.M., "The Use of Synchrotron Radiation for Astrobiology and Environmental Research: What Can X-rays Do for Me?" Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, July 12, 1999.

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Kolpa, R.L., "Environmental Compliance Assessment Training," Robins Air Force Base Internal Assessment, Warner-Robins, Georgia, April 30, 1999.

Kolpa, R.L., Smith, A.E., and Ryckman, Jr., S.J., "Air Compliance through Pollution Prevention at Air Force Materiel Command Facilities," Air and Waste Management Association National Conference, St. Louis, Missouri, June 20-24, 1999.

Kotamarthi, V.R., "Atmospheric Chemistry Modeling," Global Change Education Program SURE Orientation and Short Courses Workshop, U.S. Department of Energy, Davis, California, June 23 and 29, 1999.

Kotamarthi, V.R., "Tropospheric Oxidants: Models and Measurements," Department of Atmospheric Sciences, University of Illinois, Urbana-Champaign, Illinois, April 7, 1999.

Kotamarthi, V.R., Gaffney, J.S., Marley, N.A., and Doskey, P.V., "NO<sub>x</sub> Chemistry in the Polluted PBL," Annual Science Meeting of DOE's Atmospheric Chemistry Program, U.S. Department of Energy, Vienna, Virginia, February 24, 1999.

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Rosignolo, C.L., "Women in the Environmental Research Division," First Friday Forum, Women in Science and Technology Program, Argonne National Laboratory, Argonne, Illinois, November 6, 1998.

Sisterson, D.L., "ARM Program SGP CART Site," Argonne presentations to the Office of Science Facilities of the Office of Management and Budget, Argonne National Laboratory, Argonne, Illinois, August 19, 1999.

Sisterson, D.L., “Can Science Really Be Fun?” Laidlaw Science Club, Laidlaw School, Western Springs, Illinois, December 15, 1998.

Sisterson, D.L., “Global Climate Change,” SALTS Meeting, First Congregational Church of Western Springs, Western Springs, Illinois, November 18, 1998.

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Sisterson, D.L., “Research Meteorology,” Career Day Presentations, Butler Junior High School, Oak Brook, Illinois, April 23, 1999.

Sisterson, D.L., “Research Meteorology,” Career Day, We Care Role Model Program, Chicago Police Department and Chicago Public Schools, Burke Elementary School, Chicago, Illinois, April 27, 1999.

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Sisterson, D.L., “Severe Weather Events,” Global Change Education Program SURE Orientation and Short Courses Workshop, U.S. Department of Energy, Davis, California, June 21, 1999.

Sisterson, D.L., “Severe Weather,” Parent Teacher Association, Jerling Junior High School, Orland Park, Illinois, April 28, 1999.

Sisterson, D.L., “Severe Weather,” Senior Men’s Club, Lombard, Illinois, July 6, 1999.

Sisterson, D.L., “SGP CART Site Operations Report,” Atmospheric Radiation Measurement Program Management Team Meeting, U.S. Department of Energy, Alexandria, Virginia, February 8, 1999.

Sisterson, D.L., “The Climate Siblings: El Niño and La Niña,” Lombard Senior Men’s Club, Lombard, Illinois, November 17, 1998.

Sisterson, D.L., “The Department of Energy’s Atmospheric Radiation Measurement Program’s Southern Great Plains Facility,” Programmatic Division Directors’ Luncheon, Argonne National Laboratory, Argonne, Illinois, January 12, 1999.

Sisterson, D.L., “The Scientific Method: Everyday Classroom Use of Problem Solving Skills,” Plugging in the Future, Illinois Science Teachers Association, Chicago, Illinois, October 17, 1998.

Sisterson, D.L., “Weather and Climate,” Radio Panel Discussion on “Odyssey,” National Public Radio Station WBEZ, 91.5 FM, Chicago, Illinois, October 21, 1998.

Sisterson, D.L., "Weather Science," Churchville Middle School Science Class, Elmhurst, Illinois, January 28, 1999.

Sisterson, D.L., "Weather," Argonne Child Care Center, Argonne National Laboratory, Argonne, Illinois, August 18, 1999.

Sisterson, D.L., (1) "ARM Program Overview — Objectives, Goals, and Approach"; (2) "Southern Great Plains CART Site," Global Change Education Program SURE Orientation and Short Courses Workshop, U.S. Department of Energy, Davis, California, June 22, 1999.

Sisterson, D.L., (1) "Science Made Interesting: Visual Aids for Students and Teachers" and (2) "The Scientific Method: Everyday Use of Problem Solving Skills," Mid-Level Science Teachers' Network: Science Is as Science Shares, DuPage County Regional Office of Education, Lombard, Illinois, February 26, 1999.

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Song, J., Wesely, M.L., Coulter, R.L., Lesht, B.M., Cuenca, R.H., Oncley, S.P., and Brandes, E.A., "Inference of Extractable Soil Moisture in the Plant Root Zone at the Walnut River Watershed," 13th Symposium on Boundary Layers and Turbulence, 79th Annual Meeting of the American Meteorological Society, Dallas, Texas, January 14, 1999.

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Sturchio, N.C., "Mineral-Fluid Interactions: Experimental Determination of Atomic-Scale Processes at the Advanced Photon Source," BES-Geosciences Symposium on Interface Processes, Pacific Northwest National Laboratory, Richland, Washington, February 2, 1999.

Sturchio, N.C., "Mineral-Fluid Interactions: Synchrotron X-ray Scattering and Standing Wave Studies," Seminar, Universite Blaise Pascal, Department of Earth Sciences, Clermont-Ferrand, France, November 20, 1998.

Sturchio, N.C., "Structure and Growth of Stearate Monolayers on the Calcite(104) Surface: First Results of an *In Situ* X-ray Reflectivity Study," American Chemical Society National Meeting, Anaheim, California, March 1999.

Sturchio, N.C., Heraty, L., Holt, B., Huang, L., and Abrajano, T., "Stable Isotope Investigations of the Chlorinated Aliphatic Hydrocarbons," 9th V.M. Goldschmidt Conference, Cambridge, Massachusetts, August 26, 1999.

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Wesely, M.L., "Atmospheric Research," Energy and Environmental Science and Technology Strategic Planning Retreat, Argonne National Laboratory, Starved Rock Lodge and Conference Center, Utica, Illinois, November 18, 1998.

Wesely, M.L., "Flux Measurements of Net Ecosystem Exchange," First Planning Meeting of the Environmental Carbon Observatory, U.S. Department of Energy, Chicago, Illinois, January 21, 1999.

Wesely, M.L., "Instrumentation Issues," Atmospheric Radiation Measurement Program Management Team Meeting, U.S. Department of Energy, Herndon, Virginia, November 9, 1998.

Wesely, M.L., "Overview of Atmospheric Science Programs (ACP/EMP)," Global Change Education Program SURE Orientation and Short Courses Workshop, U.S. Department of Energy, Davis, California, June 23, 1999.

Wesely, M.L., "Progress at the ABLE Site," AmeriFlux Fall Annual Meeting, U.S. Department of Energy, Harvard Forest, Petersham, Massachusetts, October 27, 1998.

Wesely, M.L., "Report of Working Group on the Planetary Boundary Layer," Meeting on Bridging the Climate Information Gap, Argonne National Laboratory, Argonne, Illinois, September 29, 1999.

Wesely, M.L., "The Role of Air-Surface Exchange in the Environment," Colloquium Series, Department of Geography, Northern Illinois University, DeKalb, Illinois, February 5, 1999.

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