



Air Resources Laboratory



Publications – FY 1997

- Aneja, V.P., W.P. Robarge, L.J. Sullivan, T.C. Moore, T.E. Pierce, C. Geron, and B. Gay. Seasonal variations of nitric oxide flux from agricultural soils in the Southeast United States. *Tellus* 48(5):626-640 (1996).
- Alapaty, K., R. Mathur, and D.W. Byun. A modeling study of vertical diffusion of passive and reactive tracers using local- and nonlocal-closure boundary layer schemes. In *Air Pollution Modeling and Its Application XI*. Volume 21. S.-E. Gryning and F.A. Schiermeier (Eds.). Plenum Press, New York, NY, 433-442 (1996).
- Alapaty, K., J.E. Pleim, S. Raman, D.S. Niyogi, and D.W. Byun. Simulation of atmospheric boundary layer processes using local- and nonlocal-closure schemes. *Journal of Applied Meteorology* 36:214-233 (1997).
- Angell, J.K. Stratospheric warming due to Agung, El Chichon, and Pinatubo taking into account the quasi-biennial oscillation. *Journal of Geophysical Research* 102(D8):9479-9485 (1997).
- Angell, J.K. Estimated impact of Agung, El Chichon and Pinatubo volcanic eruptions on global and regional total ozone after adjustment for the QBO. *Geophysical Research Letters* 24(6):647-650 (1997).
- Atkinson, D.G., D.T. Bailey, J.S. Irwin, and J.S. Touma. Improvements to the EPA Industrial Source Complex Dispersion Model. *Journal of Applied Meteorology* 36:1088-1095 (1997).
- Baldocchi, D.D. Book Review of *Amazonian Deforestation and Climate*, by J.H.C. Gash, C.A. Nobre, J.M. Roberts, and R.L. Victoria. John Wiley and Sons, Chichester. Hardbound. ISBN 0-471-96734-3. 1996, 611 pp. *Boundary-Layer Meteorology* 84:173-174 (1997).
- Baldocchi, D.D. Book Review of: *The Climate Near the Ground* by Rudolf Geiger, Robert H. Aron, and Paul Todhunter, Vieweg Publishing, 528 pp. *Climate Change* 37:441-442 (1997).
- Baldocchi, D.D. Flux footprints under forest canopies. *Boundary-Layer Meteorology* 85:273-292 (1997).
- Baldocchi, D.D. Measuring and modeling carbon dioxide and water vapor exchange over a temperate broad-leaved forest during the 1995 summer drought. *Plant, Cell, and Environment* 20:1108-1122 (1997).

- Baldocchi, D.D., C.A. Vogel, and B. Hall. Seasonal variation of energy and water vapor exchange rates above and below a boreal jack pine forest canopy. *Journal of Geophysical Research* 102(D24): 28939-28951 (1997).
- Bird, S.L., D.M. Esterly, and S.G. Perry. Off-target deposition of pesticides from agricultural aerial spray applications. *Journal of Environmental Quality* 25:1095-1104 (1996).
- Brook, J.R., A. Sirois, and J.F. Clarke. Comparison of dry deposition velocities for SO₂, HNO₃, and SO₄²⁻ estimated with two inferential models. *Water, Air, and Soil Pollution* 87:205-218 (1996).
- Brooks, S.B., T.L. Crawford, and W.C. Oechel, 1997: Measurement of carbon dioxide emissions plumes from Prudhoe Bay, Alaska oil fields. *Journal of Atmospheric Chemistry* 27:197-207.
- Brown, M.J., S.P. Arya, and W.H. Snyder. Plume descriptors derived from a non-Gaussian concentration model. *Atmospheric Environment* 31(2):183-189 (1997).
- Bullock, O.R., Jr., W.G. Benjey, and M.H. Keating. Modeling of Regional Scale Atmospheric Mercury Transport and Deposition using RELMAP. In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Waters*. J.E. Baker (ed.). Proceedings from a session at the SETAC 15th Annual Meeting 30 October - 3 November 1994, Denver, Colorado. SETAC Technical Publication Series. Publication sponsored by the Society of Environmental Toxicology and Chemistry (SETAC) and the SETAC Foundation for Environmental Education. SETAC Press, Pensacola, Florida, 323-347 (1997).
- Byun, D.W., D. Dabdub, S. Fine, A.F. Hanna, R. Mathur, M.T. Oman, A. Russell, E.J. Segall, J.H. Seinfeld, P. Steenkiste, and J. Young. Emerging air quality modeling technologies for high performance computing and communication environments. In *Air Pollution Modeling and Its Application XI*. Vol. 21. S.-E. Gryning and F.A. Schiermeier (Eds.). Plenum Press, New York, NY, 491-502 (1996).
- Chestnut, L.G. and R.L. DENNIS. Economic benefits of improvements in visibility: Acid rain provisions of the 1990 clean air act amendments. *Journal of the Air & Waste Management Association* 47:395-402 (1997).
- Ching, J.K.S., F.S. Binkowski, and O.R. Bullock, Jr. Deposition of semivolatile toxic air pollutants to the Great Lakes: A regional modeling approach. In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Waters*. J.E. Baker (ed.). Proceedings from a session at the SETAC 15th Annual Meeting 30 October - 3 November 1994, Denver, Colorado. SETAC Technical Publication Series. Publication sponsored by the Society of Environmental Toxicology

and Chemistry (SETAC) and the SETAC Foundation for Environmental Education. SETAC Press, Pensacola, Florida, 293-304 (1997).

Ching, J.K.S., F.S. Binkowski, and J.E. Pleim. Preliminary results: Modeling fine particulate mass for the eastern United States using the EPA Regional Particulate Model. In *Air Pollution Modeling and Its Application XI*. Vol. 21. S.-E. Gryning and F.A. Schiermeier (Eds.). Plenum Press, New York, NY, 135-142 (1996).

Clarke, J.F., E.S. Edgerton, and B.E. Martin. Dry deposition calculations for the clean air status and trends network. *Atmospheric Environment* 31(21):3667-3678 (1997).

Crawford, T.L., and R.J. Dobosy. Pieces to a puzzle: Air-surface exchange and climate. *GPS World* 8(11):32-39 (1997).

Crescenti, G.H. A look back on two decades of doppler sodar comparison studies. *Bulletin of the American Meteorological Society* 78:651-673 (1997).

Crescenti, G.H. Meteorological measurements during the Lower Rio Grande Valley Environmental Study. *Environmental International* 23:629-642 (1997).

Crescenti, G.H., and B.D. Templeman. Development of an integrated mobile meteorological monitoring system for use in open burning and open detonation activities. Preprints, First Symposium on Integrated Observing Systems, Long Beach, CA, February 2-7, 1997. American Meteorological Society, Boston, MA, 145-149 (1997)

Daum, P.H., L.I. Kleinman, L. Newman, W. Luke, J. Weinstein-Lloyd, C. Berkowitz, and K. Business. Chemical and physical properties of anthropogenic pollutants transported over the North Atlantic during NARE. *Journal of Geophysical Research* 101: 29,029-29,042 (1996).

DeLuisi, J.D. Atmospheric ultraviolet radiation scattering and absorption. In *Solar Ultraviolet Radiation, Modeling, Measurements and Effects*, C.S. Zerefos, and A.F. Bais, (Eds.), 65-84 (1997).

Dennis, R.L. Multi-pollutant modeling and policy: Dressing the emperor and avoiding false paradigms. In *Air Pollution Modeling and Its Application XI*. Volume 21. S.-E. Gryning and F.A. Schiermeier (Eds.). Plenum Press, New York, NY, 3-11 (1996).

Dennis, R.L. Using the Regional Acid Deposition Model to determine the nitrogen deposition airshed of the Chesapeake Bay Watershed. In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Waters*. J.E. Baker (Ed.). Proceedings from a session at the SETAC 15th Annual Meeting 30 October - 3 November 1994, Denver, Colorado. SETAC Technical

Publication Series. Publication sponsored by the Society of Environmental Toxicology and Chemistry (SETAC) and the SETAC Foundation for Environmental Education. SETAC Press, Pensacola, Florida, 293-304 (1997).

Dobosy, R.J., T.L. Crawford, J.I. MacPherson, R.L. Desjardins, R.D. Kelly, S.P. Oncley, and D.H. Lenschow. Intercomparison among four flux aircraft at BOREAS in 1994. *Journal of Geophysical Research* 102(D24): 29109-29111 (1997)

Dornbrack, A., and C.J. Nappo. A note on the application of linear wave theory at a critical level. *Boundary-Layer Meteorology* 82:399-416 (1997).

Draxler, R.R. The first US perfluorocarbon experiments: CAPTEX and ANATEX. Proceedings, ETEX Symposium on Long-Range Atmospheric Transport, Model Verification and Emergency Response, 13-16 May, Vienna, Austria. Office for Official Publications of the European Communities, Brussels, Luxembourg, ISBN 92-828-0669-3, 51-54 (1997).

Draxler, R.R., M. Jean, B.B., Hicks, and D. Randerson, 1997: Emergency Preparedness) Regional Specialised Meteorological Centres at Washington and Montréal. Nuclear Technology Publishing. *Radiation Protection Dosimetry* 73(1-4):27-30.

Eder, B.K., and S.K. LeDuc. Can selected RADM simulations be aggregated to estimate annual concentrations of fine particulate matter? Proceedings, International Specialty Conference, Research Triangle Park, NC, May 7-10, 1996, Research Triangle Park, NC. Air & Waste Management Association, Pittsburgh, and U.S. Environmental Protection Agency, Research Triangle Park, NC, 732-739 (1996).

Ferek, R.J., P.A. Covert, and W.T. Luke. Intercomparison of measurements of sulfur dioxide in ambient air by carbonate impregnated filters and TECO pulsed-fluorescence analyzers. *Journal of Geophysical Research* 102:16,267-16,272 (1997).

Gaffen, D.J., E.W. Friday, Jr., K.E. Weston, and D.B. Franklin. The participation of women in meteorology and hydrology in the United States: The U.S. response to a World Meteorological Organization questionnaire. *Bulletin of the American Meteorological Society* 78(10):2241-2245 (1997)

Gaffen, D.J., R.D. Rosen, D.A. Salstein, and J.S. Boyle. Evaluation of tropospheric water vapor simulations from the atmospheric model intercomparison project. *Journal of Climate* 10:1648-1661 (1997).

- Gillette, D.A. Soil derived dust as a source of silica: Aerosol properties, emissions, deposition, and transport. *Journal of Exposure Analysis and Environmental Epidemiology* 7:303-311 (1997).
- Gordon, B.B., K.J. Davis, D.D. Baldocchi, D. Fitzjarrald, and H. Neuman. Comparison of the NCAR LSM1 land surface model with BOREAS aspen and jack pine tower fluxes. *Journal of Geophysical Research* 102(D24):29065-29075 (1997).
- Gryning, S.-E., and F.A. Schiermeier (Eds.) *Air Pollution Modeling and Its Application XI*. Volume 21. Proceedings, Twenty-first NATO/CCMS International Technical Meeting on Air Pollution Modeling and Its Application, November 6-10, 1995, Baltimore, Maryland. Plenum Press, New York, 709 pp. (1996).
- Hess, G.D., and R.R. Draxler. ETEX simulations using HYSPLIT_4. ATMES-II — Evaluation of Long-range Dispersion Models using the first ETEX release data, Vol. II - Models description. Draft report prepared for ETEX Symposium on Long-range Atmospheric Transport, Model Verification and Emergency Response, Vienna, 13-16 May, 6 pp. (1997).
- Hess, G.D., G.A. Mills, and R.R. Draxler. Comparison of HYSPLIT_4 model simulations of the ETEX data, using meteorological input data of differing spatial and temporal resolution. Proceedings, ETEX Symposium on Long-Range Atmospheric Transport, Model Verification and Emergency Response, 13-16 May, Vienna, Austria. Office for Official Publications of the European Communities, Brussels, Luxembourg, ISBN 92-828-0669-3, 231-234 (1997).
- Hicks, B.B., J.J. DeLuisi, and D.R. Matt, 1996: The NOAA Integrated Surface Irradiance Study (ISIS) -- A new surface radiation monitoring program. *Bulletin of American Meteorological Society* 77(12):2857-2864.
- Holcombe, T.L., T. Ley, and D.A. Gillette. Effects of prior precipitation and source area characteristics on threshold wind velocities for blowing dust episodes, Sonoran Desert 1948-78. *Journal of Applied Meteorology* 36:1160-1175 (1997).
- Hwang, D., D.W. Byun, and M.T. Odman. An automatic differentiation technique for sensitivity analysis of numerical advection schemes in air quality models. *Atmospheric Environment* 31:879-888 (1997).
- Kamada, R.F., G. E. Start, R.P. Hosker, J.T. Knudtson, and H.I. Lundblad. 1995-96 MVP SF₆ variable altitude (1 to 1200 MO) plum/puff tracer dispersion study at Cape Canaveral, Florida. Preprints, American Nuclear Society 6th Topical Meeting on Emergency Preparedness and Response, San Francisco, CA, April 22-25 (1997).

- Katul, G.G., P.L. Finkelstein, J.F. Clarke, and T.G. Ellestad. An investigation of the conditional sampling method used to estimate fluxes of active, reactive, and passive scalars. *Journal of Applied Meteorology* 35:1835-1845 (1996).
- Koch, S.E., A. Aksakal, and J.T. McQueen. The influence of mesoscale humidity and evapotranspiration fields on a model forecast of a cold-frontal squall line. *Monthly Weather Review* 125:384-409 (1997).
- Lansari, A., J.J. Streicher, A.H. Huber, G.H. Crescenti, R.B. Zweidinger, J.W. Duncan, C.P. Weisel, and R.M. Burton. Dispersion of automotive alternative fuel vapors within a residence and its attached garage. *Indoor Air* 6:118-126 (1996).
- Law, P.L., P.J. Lioy, M.P. Zelenka, A.H. Huber, and T.R. McCurdy. Evaluation of a probabilistic exposure model applied to carbon monoxide (pNEM/CO) using Denver personal exposure monitoring data. *Journal of the Air & Waste Management Association* 47:491-500 (1997).
- Luke, W.T. Evaluation of a commercial pulsed fluorescence detector for the measurement of low-level SO₂ concentrations during GASIE. *Journal of Geophysical Research* 102:16,255-16,265 (1997).
- Luke, W.T., and R.A. Valigura. Methodologies to estimate the air-surface exchange of atmospheric nitrogen compounds. In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Waters*, J.E. Baker, ed., SETAC Press, Pensacola, Florida (1997).
- McQueen, J.T., R.R. Draxler, B.J.B. Stunder, and G.D. Rolph. Applications of the Regional Atmospheric Modeling System (RAMS) at the NOAA Air Resources Laboratory. NOAA Technical Memorandum ERL ARL-220, 50 pp. (1997).
- Mills, G.A., G.D. Hess, and R.R. Draxler. Routine prediction of smoke transport from fuel reduction burns in southwest Western Australia. Proceedings, ETEX Symposium on Long-Range Atmospheric Transport, Model Verification and Emergency Response, 13-16 May, Vienna, Austria. Office for Official Publications of the European Communities, Brussels, Luxembourg, ISBN 92-828-0669-3, 171-173 (1997).
- Nappo, C.J., and W.D. Bach, Jr. Summary Report on the ARO/ARL Workshop on Turbulence and Diffusion in the Stable Planetary Boundary Layer. Bulletin of the American Meteorological Society 78(3):493-498 (1997).
- Pendergrass, W.R., C.J. Nappo, K.S. Rao, and R.M. Eckman. Technical review of the Vlstrack Dispersion Model. NOAA Technical Memorandum ERL ARL-218, Air Resources Laboratory, Silver Spring, MD 39 pp. (1996).

- Pleim, J.E., J.F. Clarke, P.L. Finkelstein, E.J. Cooter, T.G. Ellestad, A. Xiu, and W.M. Angevine. Comparison of measured and modeled surface fluxes of heat, moisture, and chemical dry deposition. In *Air Pollution Modeling and Its Application XI*. Vol. 21. S.-E. Gryning and F.A. Schiermeier (Eds.). Plenum Press, New York, NY, 613-620 (1996).
- Poole-Kober, E.M., and H.J. Viebrock (Ed.). Fiscal year 1996 summary report of the NOAA Atmospheric Sciences Modeling Division to the U.S. Environmental Protection Agency, NOAA Technical Memorandum ERL ARL-223, 85 pp. (1997).
- Randerson, D. Analysis of extreme precipitation events in southern Nevada. NOAA Technical Memorandum ERL ARL-221, 94 pp. (1997).
- Randerson, D. Emergency response planning at the Nevada Test Site. *Radiation Protection Dosimetry* 73(1-4):247-251 (1997).
- Rao, K.S. Performance, uncertainty, and predictability in atmospheric transport and dispersion modeling. Proceedings, ANS Sixth Topical Meeting on Emergency Preparedness and Response, Session 1-5, Advances in Dispersion Modeling I, 23 April, 1997, San Francisco, CA 625-628 (1997).
- Rao, K.S. The contribution of the Kansas Experiment to ABL Modeling. Preprint Volume, 12th Symposium on Boundary Layers and Turbulence, July 28 - August 1, 1997, Vancouver, BC, Canada. American Meteorological Society, Boston, MA (1997).
- Rolph, G.D., J.T. McQueen, J.B. Sanders, and D.A. Soule. The use of NWS Summer Olympic Games resources in NOAA's Environmental Emergency Response Program. Reprints, 13th International Conference on IIPS for Meteorology, Oceanography, and Hydrology, 2-7 February 1997, Long Beach, CA, American Meteorological Society, 76-79 (1997).
- Roselle, S.J., J.E. Pleim, and K.L. Schere. Development and testing of an improved photolysis rate model for regional photochemical modeling. In Proceedings, Air & Waste Management Association's 90th Annual Meeting, June 8-13, 1997, Toronto, Ontario, Canada (CD-ROM). Air & Waste Management Association, Pittsburgh, 97-RP94B.01(1997).
- Ross, R.J. Estimating mean weighted temperature of the atmosphere for Global Positioning System applications. *Journal of Geophysical Research* 102(D18):21719-21730 (1997).
- Ross, R.J., and W.P. Elliott. Tropospheric precipitable water: A radiosonde-based climatology. NOAA Technical Memorandum ERL ARL-219, 132 pp. (1996).

- Rothert, J., V. Bowersox, and R. Artz. The NADP Atmospheric Integrated Research Monitoring Network - Wet (NADP/AIRMoN-Wet) Site Operator's Manual. NOAA Technical Memorandum ERL ARL-222, 39 pp. (1997).
- Saugier, B., A. Granier, J.Y. Pontailler, E. Dufrene, and D.D. Baldocchi. Transpiration of a boreal pine forest, measured by branch bags, sap flow, and micrometeorological methods. *Tree Physiology* 17:511-520 (1997).
- Schwede, D.G., and J.O. Paumier. Sensitivity of the Industrial Sources Complex model to input parameters. *Journal of Applied Meteorology* 36:1096-1106 (1997).
- Sharkey, T.D., F. Loreto, D. Baldocchi, and A. Guenther. The BEMA Project - A North American Perspective. *Atmospheric Environment* 31 (SI):251-255 (1997).
- Stecher III, H.A., G.W. Luther III, D. MacTaggart, S. Farwell, D. Crosley, W. Dorko, P. Goldan, N. Beltz, U. Krischke, W.T. Luke, A.R. Bandy, D.R. Thornton, R.W. Talbot, E.M. Scheuer, B.L. Lefer, R. Benner, G. Wu, E. Saltzman, M. Gallagher, and R.J. Ferek. Results of the GAS-phase Sulfur Intercomparison Experiment (GASIE): Overview of experimental set-up, results, and general conclusions. *Journal of Geophysical Research* 102:16,219-16,236 (1997).
- Streicher, J.J. Air concentrations and inhalation exposure to pesticides in the agricultural health pilot study. EPA-600/R-97/059, Office of Research and Development, U.S. Environmental Protection Agency, Research Triangle Park, NC, 90 pp. (1997).
- Streicher, J.J., and W.F. Barnard. Recent measurements of total column ozone at six U.S. locations: US EPA's Brewer Spectrophotometer Network and SBUV/2 Satellite Data. In *International Ozone Commission, XVII Quadrennial Ozone Symposium Abstracts*, L'Aquila, Italy, September 12-21, 1997. University of L'Aquila and Scientific and Technology Park of Abruzzo, 508 pp. (1996).
- Stunder, B.J.B., R.R. Draxler, and D. Hess. ETEX simulations using HYSPLIT_3. ATMES-II — Evaluation of Long-range Dispersion Models using the first ETEX release data, Vol. II - Models description. Draft Report, ETEX Symposium on Long-range Atmospheric Transport, Model Verification and Emergency Response, Vienna, 13-16 May, 6 pp. (1997).
- Talbot, R.W., E.M. Scheuer, B.L. Lefer, and W.T. Luke. Measurements of sulfur dioxide during GASIE with the mist chamber technique. *Journal of Geophysical Research* 102: 16,273-16,278 (1997).
- Taylor, A.D. Conformal map transformations for meteorological modelers. *Computers & Geosciences* 23(1):63-75 (1997).

- Valigura, R.A., W.T. Luke, R.S. Artz, and B.B. Hicks. Atmospheric Nutrient Input to Coastal Areas-Reducing the uncertainties. NOAA Coastal Ocean Program Decision Analysis Series No. 9. NOAA Coastal Ocean Office, Silver Spring, MD. 24 pp. + 4 (1996).
- Weatherhead, E.C., G. Tiao, G. Reinsel, J. Frederick, J. DeLuisi, D. Choi, and W. Tam. Analysis of long-term behavior of ultraviolet radiation measured by Robertson-Berger meters at 14 sites in the United States. *Journal of Geophysical Research* 102(D7):8737-8754 (1997).
- Weatherhead, E.C., and A.R. Webb. International response to the challenge of measuring solar ultraviolet radiation. *Radiation Protection Dosimetry* 72(3-4):223-229 (1997).
- Wellman, D.L., S.W. Wilkison, W.T. Luke, R.T. McMillen, D.L. Auble, R.L. Gunter, and T.B. Watson. 1995 Summary Report Southern Oxidants Study: Technical support for airborne measurements of eddy fluxes with chemical and meteorological variables. NOAA Technical Memorandum ERL ARL-217, 56 pp. (1996).
- Zelenka, M.P. An analysis of the meteorological parameters affecting ambient concentrations of acid aerosols in Uniontown, Pennsylvania. *Atmospheric Environment* 31(6):869-878 (1997).