

Ashok Kumar

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Degrees, with field, institution and date

Ph.D. in Environmental Fluid Mechanics (ME), University of Waterloo, Ontario (1977)

M.A.Sc. (Master of Applied Science) in Mechanical Engineering, University of Ottawa, Ottawa, Ontario (1972)

B.Sc.Eng. (Hons.) in Mechanical Engineering, Aligarh University, India (1970)

UT appointment record

Assistant Professor of Civil Engineering, 1980

Associate Professor of Civil Engineering, 1983

Professor of Civil Engineering, 1989-present

Chairman of Civil Engineering, 2004-present

Other teaching experience

Part-time faculty member at The University of Alberta, Division of Meteorology (1979)

Teaching Assistant at The University of Waterloo (1974-76), The University of Calgary (1972-73) and The University of Ottawa (1970-72)

Other professional employment

Research Fellow, Argonne National Laboratory, Summer 1987

Environmental Consultant, Toledo Edison Co., Toledo, Ohio,
Summer 1981 and Summer 1982

Atmospheric Physicist (Special Studies), Environmental Affairs, Dept.,
Syncrude Canada Ltd., Edmonton, Alberta,
February 1977 - October 1980

Part-time consultant, Envirodyne Ltd., Waterloo, Ontario,
November 1974 - May 1976

Assistant Analyst, Office of Institutional Research,
The University of Calgary, Calgary, Alberta,
April 1973 - June 1974

Engineer Trainee, at an engineering workshop and at a processing plant, Aligarh, India, Summer 1968, 1969 and 1970

Adjunct Professor, Public Health, Medical University of Ohio,
Toledo 1988-89, 1995-2006

Adjunct Professor, Public Health and Homeland security, University of Toledo Health Science Campus,
2006-07

Other experience

Research Assistant, University of Waterloo, Waterloo, Ontario,
August 1974 - April 1976

Research Assistant, University of Calgary, Calgary, Alberta,
September 1972 - March 1973

Research Assistant, University of Ottawa, Ottawa, Ontario,
September 1970 - April 1972

Scholarly articles

Note: The following papers were published and have been cited in the literature from time to time. All the statistics on citation are not readily available.

1. A. Kumar, S. C. Cheng, and L. G. Birta, "Use of S/360 CSMP Package in Solving an External Boundary Layer Flow Problem", Simulation, pp. 163-167, May 1973.
2. S. C. Cheng, L. G. Birta, and A. Kumar, "Poiseuille Flow with Variable Physical Properties - A Simulation Approach", Simulation, pp. 100-107, September 1972.
3. S. C. Cheng and A. Kumar, "Applications of Variational Technique to Wedge Flow with Variable Properties", AIAA Journal, Vol. 10, No. 12, pp. 1681-1683, December 1972.
4. A. Kumar and T. E. Unny, "Application of Runge-Kutta Methods for the Solution of Non-Linear Partial Differential Equations", Appl. Math Modelling, Vol. I, pp. 199-204, March 1977.
5. A. Kumar, "Air Quality Monitoring Network at the Syncrude Plant", Environmental Science and Technology, Vol. 13, # 6, pp. 650-654, 1979.
6. A. Kumar, "Numerical Modelling of the Development of the Thermal Boundary Layer Near a Synthetic Crude Oil Plant", Journal of the Air Pollution Control Association, Vol. 25, No. 8, pp. 827-832, 1979.
7. A. Kumar, "Air Pollution Control at a Tar Sands Plant", Waste Treatment and Utilization, Vol. 2, chapter 3, pp. 21-37, Pergamon Press, Toronto, 1982. (Invited Paper)
8. A. Kumar and Thomas, S. "A Simplified Method to Compute Ground Level Concentrations at Coastal Sites." Environmental Progress, Vol. 4(2), pp. 85-93, 1985.
9. A. Kumar, Comments on "Effects of the Boussinesq Approximation on Plume Calculations", Journal of Climate and Applied Meteorology, July 1985.
10. W. R. Terry and A. Kumar, "Inferring Causal Models from Operating Data: An Application in Air Quality", Journal of Computers and Industrial Engineering, Vol. 9, Supp. 1, pp. 231-235, 1985.
11. A. Kumar, "The Effects of Cross-wind Shear on Horizontal Dispersion." Journal of Environmental Engineering, ASCE, Vol. 112, No. 1, pp. 1-11, 1986.
12. W. R. Terry, J. B. Lee, and A. Kumar, "Time Series Analysis in Acid Rain Modeling: Evaluation of Filling Missing Values by Linear Interpolation", Atmospheric Environment, Vol. 20, pp. 1941-1945, 1986.
13. A. Kumar and S. T. Thomas, "Personal Computer Experience with Air Quality Models", Journal of Air Pollution Control Association, pp. 1376- 1377, December 1986.
14. A. Kumar, S. T. Thomas, and S. Kong, "Local Sensitivity Analysis of a Long Range Transport Model", Meteorology of Acid Deposition, Vol. 2, APCA Transactions TR-8, Air Pollution Control Association, 1987, pp. 158-168.
15. W. R. Terry, P. K. Chandhok, and A. Kumar, "Modeling Non-linear Time Series: An Application to Acid Rain Data", Meteorology of Acid Deposition, Vol. 2, APCA Transactions TR-8, Air Pollution Control Association, pp. 226-236, 1987.
16. P. R. Hurt and A. Kumar, "ACQUIRE/PROCESS Review", Journal of Air Pollution Control Assoc., pp. 1344, Nov. 1987.
17. H. S. Rao, W. R. Terry, and A. Kumar, "Modeling Non-homogenous Variance Time Series: An Application to Sulfur Dioxide Data", Environmental Monitoring and Assessment, 10-2, pp. 123-131, 1988.
18. A. Kumar and V. V. Gudivaka, PC-SARA: A software for emergency planning and analysis, Environmental Progress, 8(2), M8-M9 , 1989. (Review paper).
19. S. T. Thomas and A. Kumar, "UTLRT: A Statistical Model for Long Range Transport", Env. Software, pp. 179-186, Dec. 1989.
20. A. Kumar, G. F. Bennett, and V. Gudivaka, "Hazardous Chemical Spills Course: Use of the CAMEO Air Dispersion Model to Predict Evacuation Distances", Chemical Engineering Education, ASEE, pp. 216-220, Vol. XXII, November 4, Fall 1989.
21. J. A. Harrell and A. Kumar, "Multivariate Stepwise Regression Analysis of Indoor Radon Data from Ohio, U.S.A.", Vol. 5, pp. 409-420, Journal of Official Statistics, 1989.
22. A. Kumar and S. Agarwal, "WHAZAN: A Software for Chemical Hazard Analysis", Environmental Progress, 8(3), A6-A7, 1989, (Review paper).
23. A. Kumar and H. S. Huang, "HWI: A Software for Hazardous Waste Incinerator Calculation", Environmental Progress, Nov. 1989, (Review paper).

24. V. Gudivaka and A. Kumar, "An Evaluation of Four Box Models for Instantaneous Dense-Gas Releases, Vol. 25, pp. 237-255, Journal of Hazardous Material, 1990.
25. J. A. Harrell, M. E. Belsito, and A. Kumar, "Radon Hazards Associated with the Ohio Shale", Vol. 18, No. 1, pp. 17-26, Environmental Geology and Water Sciences, 1991.
26. A. Kumar, "The Use of TK Solver for Environmental Engineering Problems", Environmental Progress, Vol. 9, No. 2, pp. m9, May 1990, (Review Paper).
27. A. Kumar and A. M. Kothari, "An Indoor Air Quality Model", Environmental Progress, 9(3), pp. A8-A9, 1990, (Review Paper).
28. A. Kumar and H. G. Rao, "Software for Regulatory Compliance of Chemical Hazards", Vol. 9, No. 4, pp. m7-m9, Environmental Progress, Nov. 1990, (Review Paper).
29. A. Kumar and S. Mohan, "Use of Bulletin Board System for Air Quality Modeling", Vol. 10, No. 1, pp. F8-F11, Environmental Progress, Feb. 1991, (Review Paper).
30. A. Kumar and S. Agarwal, "TEST Air: A Program for Air Pollution Reference Testing Methods", Vol. 9, No. 1, pp. F9, Environmental Progress, Feb. 1990, (ReviewPaper).
31. A. Kumar and J. B. Lee, "Software to Study Environmental Effects of Hazardous Waste Sites", Vol. 10, No. 2, pp. M7-M10, Environmental Progress, 1991, (ReviewPaper).
32. A. Heydinger, A. Kumar, and J. Harrell, "An Indoor Radon Information System", 6 (4), pp. 194-201, Env. Software, 1991.
33. A. Kumar and H. G. Rao, "Use of Electronic Bulletin Boards for Environmental Management", Vol. 10, No. 3, Environmental Progress, 1991, (ReviewPaper).
34. J. Harrell, J. P. McKenna, and A. Kumar, "Geological Controls on Indoor Radon in Ohio", Investigation No. 144, Division of Geological Survey, Dept. of Natural Resources, State of Ohio, 36 pp, 1993.
35. A. Kumar, "Screening and Utility Programs for Air Modeling", 10(4), Environmental Progress, 1991.
36. A. Kumar and V. Patel, "A Review of Three Toxic Release Screening Models", Env. Progress, 11(1), F12-14, 1992.
37. A. Kumar and R. Riswadkar, "Environmental Databases", 11(2), pp. M14 - M23, Env. Progress, May 1992.
38. A. Kumar and K. Srinivas, "Sources of Environmental Software", Environmental Progress, 11(3), pp. A10-A14, 1992, (ReviewPaper).
39. A. Kumar, V. Patel and A. Shukla, "PCCHEMEQ: Prediction of the Flue Gas Compositions for Incinerator and Pyrolyzers", Environmental Progress, 11(4), pp. N10-N13, 1992, (Review paper).
40. A. Kumar, J. Luo and G. Bennett, "Statistical Evaluation of Lower Flammability Distance (LFD) using Four Hazardous Release Models", Process Safety Progress, 12(1), pp. 1-11, 1993.
41. A. Kumar, S. Kode, and V. Patel, "A Review of Two Risk Assessment Computer Programs", Env. Progress, 12(1), pp. F12-15, 1993.
42. A. Kumar and S. Sahore, "A Review of Four Software Directories", Env. Progress, 12(2), pp. M9-14, 1993.
43. A. Kumar, S. Sahore, and N Bellam, "Environmental Software from Flyers", Env. Progress, 12(3), pp. A8-13, 1993, (ReviewPaper).
44. A. Kumar and M. Ranganathan, "Software for Preparing Meteorological Data for ISC Models", Env. Progress, 12(4), pp. N9-17, 1993.
45. A. Kumar and S. Sahore, "Public Domain Software for Exposure Assessment Modeling", Env. Progress, 13(1), pp. F14-18, 1994.
46. A. Kumar and A. Manocha, "Env. Resources on the Internet", 13(2), M12-21, Env. Progress, 1994, (ReviewPaper).
47. A. Kumar, A. Manocha, and S. Sahore, "Software for Estimating Air Emissions of Organic Compounds from Wastewater Treatment Plants", Env. Progress, 13(3), A12-16, 1994.
48. R. M. Riswadkar and A. Kumar, "Evaluation of the ISC Short Term Model in a Large-Scale Multiple Source Region for Different Stability Classes", Env. Monitoring and Assessment, 1-14, 1994.
49. A. Kumar, R. Madasu, and A. Manocha, "An Evaluation of Smart Risk and ACE2588 Health Risk Assessment Software", Env. Progress, 13(4), N14-N19, 1994.
50. A. Kumar and A. Manocha, "A Survey of Environmental Bulletin Board Systems", Env. Progress, 14(1), F14-F22, 1995, (ReviewPaper).
51. A. Kumar, R. Madasu, and A. Mahurkar, "A Review of AIRSCAPE Program for the ISC2 Model", Env. Progress, 14 (2), 1995.

52. A. Kumar, R. Madasu, and A. Manocha, "Refined Health Risk Assessment for Toxic Emissions from a Manufacturing Facility", 42, 211-228, Env. Monitoring and Assessment, 1996.
53. A. Kumar and A. Manocha, "A Review of Environmental Sites on the World Wide Web", Env. Progress, 14 (3), pp. A10-12, 1995, (ReviewPaper).
54. A. Kumar, V. Chigullapalli, and C. Tanna, "A Review of Three Software for Emission Rate Estimation", Env. Progress, 14 (4), pp. N9-N12, 1995.
55. A. Kumar and A. Shrivastava, "An Overview of the U.S. EPA's Technology Transfer Network", Env. Progress, 15 (1), pp. S15-S22, 1996.
56. A. Kumar, F. D'souza and S. Vashisth, "Software for Material Safety Data Sheets", Env. Progress, 15 (2), pp. S17-S23, 1996.
57. A. Kumar, F. D'souza, and S. Vashisth, "Information Datasets on the Information Superhighway", Env. Progress, 15 (3), pp. F13-F16, 1996, (ReviewPaper).
58. A. Kumar, F. D'souza, and S. Vashisth, "Introduction to WWW.Environmental_Health_&_Safety.com", Env. Progress, 15 (4), pp. W13-W16, 1996 (ReviewPaper).
59. V.C. Patel and A. Kumar, "Evaluation of Three Air Dispersion Models: ISCST2, ISCLT2, and SCREEN2 For Mercury Emissions in an Urban Area", Environmental Monitoring and Assessment, 53:259-277, 1998.
60. A. Kumar and S. Vashisth, "Introduction to Environmental Business on the WWW", Env. Progress, 16 (1), pp. S11-15, 1997, (ReviewPaper).
61. A. Kumar, S. Vashisth, and S. Chinmalapati, "A Review of Heating and Ventilation Sites on the Internet", Env. Progress, 16 (2), S11-S14, 1997.
62. R. Kumar and A. Kumar, "Introduction to WWW.ISO14001.COM", Env. Progress, 16 (3), F13-F15, 1997, (ReviewPaper).
63. R. Kumar and A. Kumar, "A Guide to Indoor Air Quality Sites on the World Wide Web", Env. Progress, 16 (4), 1997, (ReviewPaper).
64. R. Kumar and A. Kumar, "A Directory of Environmental, Health, Safety and Management Related Software", Env. Progress, 17(1), pp. S13-S17, 1998, (ReviewPaper).
65. A. Kumar, N. Bellam, and A. Sud, "Performance of Industrial Source Complex model in predicting long-term concentrations in an urban area", Environmental Progress, 18(2), pp. 93-100, 1999.
66. A. Kumar, R. Desai, and Kumar R., "The Environmental Professionals' World Wide Web Non-Technical Directory", Environmental Progress, 17(2), S11-S17, 1998 (ReviewPaper).
67. A. Kumar, A. Sud, and A. Heydinger, "Application of ORACLE 7.3 Database Management System for the development of an Environmental database", Environmental Progress, 17(3), pp. F11-F14, 1998.
68. A. Kumar, P. Pakala, and R. Kumar, "Development of a WWW Site for Indoor Air Quality", Environmental Progress, 17(4), W11-W15, 1998.
69. A. Kumar, S. Vedula, and A. Sud, "Development of an Ozone Forecasting Model for Non-Attainment Areas in the State of Ohio", Environmental Monitoring and Assessment, 62: 91-111, 2000.
70. A. Kumar, S. Vashisth, and A. Sud, "University of Toledo Launches Air Pollution Engineering Course Web Site", EM (Environmental Manager by AWMA), pp. 21-24, Sept. 1998.
71. A. Kumar and A. Kulkarni, "Application of JAVA Applets in Environmental Engineering", Environmental Progress, 18(1), S12-S15, 1999.
72. A. Kumar and T. Shenoy, "Surface Coating", Air Pollution Engineering Manual, Second Edition, Chapter 10, pp. 321-332, Air & Waste Management Association and John Wiley & Sons Publishers, 2000.
73. A. Flowe and A. Kumar, "Analysis of velocity fields and dispersive cavity parameters as a function of building width to building height ratio using a 3-D computer model for squat buildings", Journal of Wind Engineering and Industrial Aerodynamics, 86(2-3), pp. 87-122, 2000.
74. A. Kumar, V. Chigullapalli, K. Venkataraman, S. Sundaresan, B. Simmers, J.F. Gottgens, "Estimation of Concentration of Methylmercury in Fish due to Deposition of Mercury from an Urban Area", Toledo Journal of the Great Lakes' Law, Science and Policy, 2: 43-67, 1999.
75. R. Kumar, B. Ramaswamy, and A. Kumar, "A Review of World Wide Web Sites for Air Pollution Instrumentation", Environmental Progress, 18(2), S10-S16, 1999.
76. R. Kumar, A. Kumar, and K. Venkataraman, "A Review of Internet Sites and Literature on Indoor Mold/Fungi", Environmental Progress, 18(3), F9-F14, 1999.

77. R. Kumar, A. Kumar, and N. Shah, "A Guide to Workplace Environmental Health and Safety: Internet Sites and Databases on CDs", Environmental Progress, 18(4), W7-W12, 1999 (ReviewPaper).
78. K. Venkataraman and A. Kumar, "A Compendum of World Wide Web Sites Related to Mercury in Fish", Environmental Progress, 19(1), S11-S16, 2000 (ReviewPaper).
79. R. Kumar, I. Patel, and A. Kumar, "A Guide to Water/Wastewater Analysis Equipment on World Wide Web", Environmental Progress, 19(3), F8-F15, 2000 (ReviewPaper).
80. I. Patel and A. Kumar, "A Guide to Information on Pollution Prevention on the World Wide Web", Environmental Progress, 19(4), W8-W13, 2000 (ReviewPaper).
81. A. Kumar, J. Harrell, and A. Heydinger, "Ohio Goes Online to Combat Indoor Radon", EM (by A&WMA), pp. 10-12, Feb. 2001.
82. A. Kumar, K. Venkataraman, and S. Ojha, "An Analysis of Mercury Concentration in Fish in the Great Lakes Area", Toledo Journal of the Great Lakes' Law, Science and Policy, 3(2): 125-133, 2001
83. A. Kumar, A. Duvvuru, and I. Patel, Development and Evaluation of a Software for Design of Industrial Ventilation Systems, Environmental Progress, Environmental Progress, 20(1), A6-A10, 2001.
84. A. Flowe, A. Kumar, and S. Ojha, "Choosing and Using Commercial CFD Packages for Modeling Contaminant Dispersion", Environmental Progress, 20(2), J7-J12, 2001.
85. S. Ojha, S.J. Thomas, and A. Kumar, "Experience in Integrating Geographical Information Systems (GIS) to an Indoor Radon Database", Environmental Progress, 20(3), O7-O10, 2001.
86. A. Kumar and R. Kumar, "Household Pollutants", Pollution A to Z (Encyclopedia), R.M. Stapleton (Editor in Chief), pp 266-270, Macmillan Reference USA, 2004
87. A. Kumar and R. Kumar, "Indoor Air Pollution", Pollution A to Z, R.M. Stapleton (Editor in Chief), pp 274-279, Macmillan Reference USA, 2004
88. A. Kumar, N. Shah, and S. Thomas, "Development and Evaluation of a Software for Design of Cyclones, Electrostatic Precipitators and Venturi Scrubbers", Environmental Progress, 20(4), 2001.
89. A. Kumar and S. Ojha, "Tobacco Smoking", Pollution A to Z, R.M. Stapleton (Editor in Chief), pp 244-245, Macmillan Reference USA, 2004
90. V.A. Cinnakonda and A. Kumar, "Development and Evaluation of a Web Screening Interface for Estimation of Aerosol Deposition in Human Respiratory Tract", Environmental Progress, 21(1), 2002.
91. S. Ojha, J. Coutinho, and A. Kumar, "Developing Systems to Forecast Ozone and Particulate Matter Levels", Environmental Progress, 21(2), J5-J10, 2002.
92. A. Kumar and S. Thomas, "A Software Tool For Screening Analysis of Lean Practices", Environmental Progress, 21(3), 2002.
93. I. Patel, A. Kumar, and G. Manne, "Sensitivity Analysis of CAL3QHC Roadway Intersection Model", Transportation Research Record No. 1842: Journal of the Transportation Research Board, pp 109-117, 2003 .
94. A. Joshi, G. K. Manne, and A. Kumar, "Management of Ohio's Radon Data with MS Access/SQL Server 7.0", Environmental Progress, 21(4), D8-D12, 2002.
95. A. Kumar, S. Makkapaty, and G. K. Manne, "Development of a Graphical User Interface for a Vehicle Emission Modeling Software", Environmental Progress, 22(1), A8-A14, 2003.
96. A. Kumar and S. Ghose, "Ohio Air Pollution Research Online Database and Ohio Air Pollution Research Symposium", Environmental Progress, 22(2), A8-A15, 2003.
97. A. Kumar, A. Mahurkar, and A. Joshi, "Study of the Spread of a Cold Instantaneous Heavy Gas Release with Surface Heat Transfer and Variable Entrainment", Vol. B101, pp. 157-177, Journal of Hazardous Material, 2003.
98. A.Kumar and S. Jampana, "Air Pollution", 83-99, Vol. 1, Social Issues in America: An Encyclopedia, Edited by J. Ciment, M.E. Sharpe Inc., 2006.
99. S.E.Kim, and A.Kumar, "Accounting Seasonal nonstationality in Time Series Models for Short-term Ozone Level Forecasts", Stochastic Environmental Research & Risk Assessment, March 2005.
100. A. Kumar, A. Tandale, R.S. Kalapati, and S. Ghose, "Management of Radon Mitigation Data in the State of Ohio", Environmental Progress, 22(3), O5-O10, 2003.
101. A. Kumar, S. Jampana, and H. Rao, Gas Flow Measurement, Chapter no. 41, Environmental Instrumentation and Analysis Handbook, Edited by R.D. Down and J.H. Lehr, pp. 909-942, John Wiley & Sons, Inc., 2005.

102. D. S. Kim, A. Kumar, R. Parab, and M. Palmer, Simulation of Atrazine Discharge in the Auglaize Watershed Using Satellite-Generated Images, Bull. Environ. Contam. Toxicol., 73:319-325, 2004
103. C. Varadarajan and A. Kumar, Emission Tracking Tools For Air Pollution Operating Permits, Environmental Progress, 22(4), D9-14, 2003, (ReviewPaper).
104. S. Jampana, A. Kumar, and C. Varadarajan, Application of the USEPA's AERMOD Model to an Industrial Area, Environmental Progress, 23(1), 12-18, 2004.
105. A. Kumar, H. G. Rao, S. Jampana, and C. Varadarajan, Air Quality Monitoring & Associated Instrumentation, Chapter 2, Environmental Technology Handbook (edited by N.P. Cheremisinoff), *Government Institutes*, Rockville, MD, 99-136, 2005.
106. A. Kumar, J. Lindner, A. Vijayan, and C. Varadarajan, Development of Industrial Ventilation Course Website, Environmental Progress, 23(2), 102-109, 2004.
107. R. Pendse, A. Kumar, and A. Vijayan, Development of a Spreadsheet to Determine Natural Ventilation Cooling Hours for a Commercial Hybrid HVAC System, Environmental Progress, 24(1), 16-23, 2005.
108. A. Vijayan and A. Kumar, A Review of Tools to Assess the Sustainability in Building Construction, Environmental Progress, 24(2), 125-132, 2005.
109. A. Kumar, H.G. Rao, A. Vijayan, and C. Varadarajan, Pollution Prevention, Encyclopedia of Chemical Processing, Sunggyu Lee Ed., Marcel Dekker Inc., New York, pp. 2231 - 2246 , DOI: 10.1081/E-ECHP-120006820, November, 2006
110. A. Vijayan and A. Kumar, Development of a Tool For Analyzing the Sustainability Of Residential Buildings in Ohio, Environmental Progress, 24(3), 2005.
111. A. Kuruvilla and A. Kumar, C. Varadarajan, and A. Vijayan, Development of a Spreadsheet to Model Releases from Continuous Volume Sources, Environmental Progress, 24(4), 349-353, 2005.
112. A. Kumar, S. Dixit, C. Varadarajan, A. Vijayan, A. Masuraha, Evaluation of the AERMOD Dispersion Model as a Function of Atmospheric Stability for an Urban Area, Environmental Progress, 25(2), 141-151, 2006.
113. R. Oshan, A. Kumar, and A. Masuraha, Application of the US EPA's CALPUFF Model to an Urban Area, Environmental Progress, 25(1), 12-17, 2006.
114. N. Raman, A. Vijayan, A. Kumar, Development of a Pollution Prevention Tool For Assessment of Hospital Waste, Environmental Progress, 25(2), 93-98, 2006.
115. C. Varadarajan and A. Kumar, Application of Source-Receptor Models for Air Quality Management, Environmental Progress, 25(3), 180-185, 2006.
116. A. Vijayan, C. Varadarajan, and A. Kumar, Application of Computer-Aided Tools for Achieving Environmental Sustainability, Environmental Progress, 25(4), 279-290, 2006.
117. A. Kumar, C. Varadarajan, A. Vijayan, and S. Pathan, Air Quality Modeling Case Studies, Air Pollution and Health Impacts, Chapter ---, 2007 (under review).
118. P. Meenakshi, S. Khan, and A. Kumar, Review of Environmental Software in Asia, Environmental Progress, 26(1), 15-23, 2007.
119. P. Nimse, A. Vijayan, A. Kumar and C. Varadarajan, A Review of Green Product Databases, Environmental Progress, 26(2), 2007.

Books

1. A. Kumar (Editor), "Environmental Challenges in Energy Utilization during the 1990s", SP-65, Air and Waste Management Association, 1989.
2. A. Kumar and S. Vashisth, "Software for Emission Rate Modeling of Accidental Releases", American Academy of Environmental Engineers, 123pp+ CD-ROM, 1999.
3. A. Kumar, S. Ghose, and G. Manne (Editors), "Proceedings of Ohio Air Pollution Research Symposium (Oct. 2002), Ohio Air Quality Development Authority, 2002.

Conference Proceedings

Prepared 65 papers for conference proceedings. Some examples are:

1. A. Kumar, "Modelling Tools for University Information Needs." Proceedings of Conference 74 DPI/CIPS, Ottawa, Canada, (The Data Processing Institute and the Canadian Information Processing Society), Chapter T23, pp. 371-378, June 10-12, 1974.

2. A. Kumar and S. G. Djurfors, "A Model to Predict Violation of Clean Air Regulations." Proceedings of Fourth Joint Conference on Sensing of Environmental Pollutants.(American Chemical Society), New Orleans, Louisiana, pp. 281-288, November 1977.
4. A. Kumar and S. G. Djurfors, "Maximum and Critical Ground Level Concentrations from a Synthetic Crude Oil Plant", paper #78-48.5. Proceedings of 1978 Annual Meeting of the Air Pollution Control Association, Houston, Texas.
5. A. Kumar, "Estimation of Atmospheric Dispersion Coefficients for Elevated Releases." Preprint Volume, Fourth Symposium on Turbulence, Diffusion, and Air Pollution (A.M.S.), pp. 19-26, (January 1979).
6. A. Kumar, "A Ground Level Concentration Trend Model." Proceedings of Environmetrics 81, SIAM/EPA, Alexandria, Virginia, April 1981.
7. A. Kumar and A. Fedkenbeur, "A Review of Key Issues Related to Air Quality and Reclamation in the Oil Sands Area", paper #81-243. Proceedings of 74th Annual Meeting of Air Pollution Control Association, Philadelphia, June 21-26, 1981.
8. A. Kumar and J. L. Scott-Wasilk, "Data Requirements For a Lake Shore Nuclear Power Plant Dispersion Model", paper #82-29.4, 1982 Annual Meeting of Air Pollution Control Association, New Orleans, Louisiana.
9. J. L. Scott-Wasilk and A. Kumar, "Analysis of Coastal Atmospheric Stability Schemes." Proceedings of 1982 National Environmental Engineering Conference, American Society of Civil Engineers, July 1982.
10. S. Mermal and A. Kumar, "Analysis of Acid Deposition Due to Sulfur Dioxide Emissions from Ohio." 14th International Technical Meeting on Air Pollution Modeling and its Application, Copenhagen, September 27-30, 1983.
11. S. T. Thomas, A. Kumar and J. Lee, "A Study of Plume Penetration Effects on Acid Deposition Results Due To Ohio Valley Sources", Acid Rain Symposium, University of Vermont, September 1983.
12. S. T. Thomas and A. Kumar, "A Simplified Method to Compute Ground Level Concentrations Near a Coastal Plant." Proceedings of Third Conference on Meteorology of the Coastal Zone, Miami, Florida, January 9-13, 1984.
13. S. T. Thomas, A. Kumar and V. N. Ravindran, "The Impact of Plume Penetration Effects on Long Range Transport of Emissions", paper #84-25.8, 77th Annual Meeting of the Air Pollution Control Assoc., June 24-29, 1984.
13. A. Kumar and S. T. Thomas, "A Hybrid Model for Computing Ground Level Concentration Near a Coastal Plant." Proceedings of AMS and APCA Joint Conference, Portland, October 1984.
14. S. T. Thomas, A. Kumar and R. N. Vangipuram, "Sensitivity Analysis of a Statistical Type Long Range Transport Model", Paper #85-5.8, 78th Annual Meeting of Air Pollution Control Association, June 1985.
15. W. R. Terry, A. Kumar and J. Lee, "Time Series Analysis of Acid Rain Data Collected in North-Eastern United States", Paper #85-6 A.3, 78th Annual Meeting of Air Pollution Control Association.
16. Shook, J. R., C. Ardis, L. Lahti and A. Kumar, "An Economical Method of Flue Gas Desulfurization", Paper #85-60.10. Proceedings of 78th Annual Meeting of the Air Pollution Control Association, June 1985.
17. Rao, H. G., A. Kumar and R. N. Vangipuram, "On the Use of a NO_x Chemistry Module in a Statistical Type Long Range Transport Model", Paper #85-23.7. Proceedings of 78th Annual Meeting of the Air Pollution Control Association, June 1985.
18. A. Kumar, S. T. Thomas and S. Kang, "Use of a Personal Computer for Air Pollution Engineering." Proceedings of 1985 ASEE-NCS Conference, October 1985.
19. S. T. Thomas and A. Kumar, "Determination of Long Range Transport Potential of NO_x and SO_x on the North-Eastern United States." Proceedings of 78th Annual Meeting of the Air Pollution Control Association, Paper # 86-48:5, June 1986.
20. H. G. Rao, S. T. Thomas and A. Kumar, "Application of a NO_x Chemistry Module, in Long Range Transport", 7th World Clean Air Congress, Australia, August 1986.
21. A. Kumar, J. Gupta and S. T. Thomas, "Use of a Personal Computer for Transportation Engineering", 1986 Annual Conference Proceedings ASEE, pp. 1211, Cincinnati, 1986.
22. A. Kumar, S. T. Thomas and H. G. Rao, "Determination of Conversion Rates Using Atmospheric Chemistry Modeling." Proceedings of Fifth Joint Conference on Applications of Air Pollution Meteorology, AMS, 1986.

23. D. Anglebeck and A. Kumar, "The Application of Personal Microcomputers for Environmental Engineering Problems." Proceedings of 4th National Conference on Microcomputers in Civil Engineering, Orlando, 1986.
24. A. Kumar, "Experience with Publicly Available Hazardous Release Models", HazTech International '88, Cleveland, Ohio.
25. S. T. Thomas and A. Kumar, "Relative Contribution of three major NO_x Source Regions on Acid Deposition on the North-eastern United States", 1988 APCA Specialty Conference on Environmental Challenges in Energy Utilization, Cleveland, Ohio.
26. H. G. Rao and A. Kumar, "Environmental Consideration in Building Municipal Waste-to-Energy Resource Recovery Facilities", 1988 APCA Specialty Conference on Environmental Challenges in Energy Utilization, Cleveland, Ohio.
27. A. Kumar, H.G. Rao, and M. Elsalahat, " A Comparison of Three Plume Rise Models", Paper# 93-83.11, 1991 Annual Meeting, AWMA.
28. S. Kode, and A. Kumar, " Literature Review of Night time Boundary Layer and Concentration Models Under Calm Conditions ", Paper# 95-W P139, Proceedings of 88th Annual Meeting of AWMA, 1995.
29. S. Ahuja and A. Kumar, "Evaluation of MESOPUFF-II SO_x Transport and Deposition in the Great Lakes Region", AWMA Speciality Conference on Atmospheric Deposition to the Great Lakes, VIP-72, pp. 283-299, Oct. 28-30. 1996.
30. A. Kumar, S. Vashisth, and A. Sud. "Development of a WWW Site for Introduction to Air Pollution Engineering Course", Paper # 98-RA100.03, Proceedings of 1998 Annual Meeting, AWMA.
31. A. Kumar, A. Sud, and K. Mantripragada, "A Dynamic Sensitivity Analysis of the Probit Dose – Response Model Used in the Risk Assessment of a Municipal Solid Waste Incinerator", Paper # 98-TAC.01P, Proceedings of 1998 Annual Meeting, AWMA.
32. A. Kumar, R. Saluja and P. Pakala, "Development of a Numerical Model for Studying Flash fire Dynamics", Paper # 99-79, Proceedings of the 1999 Annual Meeting, AWMA.
33. A. Kumar, C. Tanna and A. Kulkarni, "Assessment of Techniques for Computing Concentrations due to Emissions from Horizontal, Titled and Capped Sources, Paper # 178 , Proceedings of the 1999 Annual Meeting, AWMA.
34. A. Kumar, A. Shrivastava, and A. Kulkarni, "Emission Rate Modeling and Risk Assessment at an Automobile Plant from Paintaing Operations", Paper # 234, Proceedings of the 1999 Annual Meeting, AWMA.
35. A. Kumar, A. Manocha and T. Shenoy, "Sensitivity and Uncertainty Analysis of a Regulatory Risk Model", Paper # 219, Proceedings of the 1999 Annual Meeting, AWMA.
36. A. Kumar, J. Harrell and A. G. Heydinger, "Development of an Ohio Radon Web Site", Proceedings of International Radon Symposium (AARST), Las Vegas, NV, pp. 6.0-6.9, Nov. 1999.
37. A. Kumar, V. Venugopal, T. Shenoy and K. Venkataraman, "Development of an Odor Concentration Model and Software for Modeling Peak Odor Concentration", Paper # 437, CD for Proceedings of the 2000 Conference, AWMA.
38. A. Kumar, S. Sahore and K. Venkataraman, "Development and Evaluation of a Simple Second Order Closure Atmospheric Dispersion Model for an Elevated Release", Paper # 62, CD for Proceedings of the 2000 Conference, AWMA.
39. A. Kulkarni and A. Kumar, "Estimation of Pesticide Concentration using Pharmacokinetic Modeling with Complete Absorption due to Exposure to Varying Atmospheric Concentrations", Paper # 518, CD for Proceedings of the 2000 Conference, AWMA
40. A. Kumar, A. Mahurkar, and A. Joshi, "Sensitivity Analysis of an Instantaneous Box Release Model with Surface Heat Transfer, Paper # 42755, CD for Proceedings of the 2002 Conference, AWMA
41. A. Kumar, S. J Thomas and S. Ojha, "Pollution Prevention Tools For Small And Medium Sized Industries", CD for Proceedings of the 2002 Conference, AWMA
42. S. Ouja and A. Kumar, "Forecasting Models for Predicting Ozone Levels Near Cincinnati, Ohio", Paper # OS-02-04, Proceedings of Ohio Air Pollution Research Symposium, 2002.
43. A. Kumar, G. Manne, and S. Ghose, "Development of an Online and Web-Assisted Dispersion and Risk Modeling Course", Paper # 60, 2002 Teaching Online in Higher Education Conference, sponsored by Indiana University - Purdue University
44. A. Joshi and A. Kumar, "Identification of High Cancer Risk Zip Codes in Ohio", Paper # OS-02-24, Proceedings of Ohio Air Pollution Research Symposium, 2002

45. S. J. Thomas, A. Kumar, and R. Pendse, "Development of a Hybrid Ventilation System using Natural Night Time Ventilation for Cleveland, Ohio", Paper # OS-02-25, Proceedings of Ohio Air Pollution Research Symposium, 2002
46. R. Parab, A. Heydinger, A. Kumar, and M. A. Abraham, "A Pilot Study to Estimate Application of Atrazine on Areas near Auglaize River using AERMOD/BASINS", Paper # OS-02-26, Proceedings of Ohio Air Pollution Research Symposium, 2002
47. J. Coutinho and A. Kumar, "Development of Forecasting Models for Predicting Maximum Daily PM10 Concentration near Cincinnati, OH, Paper # 69498, CD for Proceedings of the 2003 Conference, AWMA
48. S. Ghose, A. Kumar, and C. Varadarajan, "Application of Pollution Prevention Tools in Energy Efficiency Assessments", Paper # 69805, CD for Proceedings of the 2003 Conference, AWMA
49. S. Ghose and A. Kumar, "Forecasting Models for Determining the Maximum Ozone Concentration in Columbus, Ohio, Paper # OS-03-09, Proceedings of Ohio Air Pollution Research Symposium, 2003.
50. S. E. Kim and A. Kumar, "Threshold Model for Ozone Level Prediction in Cincinnati, Paper # OS-03-04, Proceedings of Ohio Air Pollution Research Symposium, 2003.
51. A. Kumar, A. Tandale, R. Kalapati, Forecasting Models for Daily Maximum Ozone Concentrations for Cleveland and Akron Areas, Paper # 162, Proceedings of 2004 AWMA conference, 2004.
52. A. Kumar, S. Dixit, C. Varadarajan, A. Vijayan, A. Masuraha, Evaluation of the AERMOD Dispersion Model as a Function of Atmospheric Stability for an Urban Area, Paper # 991, Proceedings of 2005 AWMA conference, 2005.
53. A. Kumar and C. Varadarajan, "Development of Ohio Radon Information System", Proceedings of Environmental Data Analysis - Assessing Health and Environmental Impacts, Developing Policy, and Achieving Regulatory Compliance Conference, Air & Waste Management Association, October 4-5, 2005, Oak Brook, IL.
54. R. Kalapati and A. Kumar, "Evaluation of Forecasting Models for Predicting Hourly Ozone Concentrations and Exceedances for Dayton, OH", Proceedings of Environmental Data Analysis - Assessing Health and Environmental Impacts, Developing Policy, and Achieving Regulatory Compliance Conference, Air & Waste Management Association, October 4-5, 2005, Oak Brook, IL.
55. P. Sharma, A. Masuraha, and A. Kumar, Development and Evaluation of Forecasting Models for Daily Maximum Ozone Concentrations for Detroit, Michigan, Proceedings of Environmental Data Analysis - Assessing Health and Environmental Impacts, Developing Policy, and Achieving Regulatory Compliance Conference, Air & Waste Management Association, October 4-5, 2005, Oak Brook, IL.
56. Kanwar Bhardwaj, Ashok Kumar, and Charanya Varadarajan, Examination of Sensitivity of Land Use Parameters and Population on the Performance of the AERMOD Model for an Urban Area, Paper # 500, Proceedings of 2006, AWMA conference, 2006.
57. A. Vijayan, A. Kumar, and M. A. Abraham, Characterization of Particulate Matter Behavior Inside Public Transport Buses, Paper 528, Proceedings of A&WMA Annual Conference, Pittsburgh, PA, 2007.
58. C. Varadarajan and A. Kumar, Establishing the Trend and Identifying the Explanatory Meteorological Variables for Fine Particulates in Three Cities in Ohio, Paper 484, Proceedings of A&WMA Annual Conference, Pittsburgh, PA, 2007.

Conference presentations

Presented 12 papers at local and regional conferences.

Selected Reports

Prepared 100+ reports for research and consulting activities. Some examples are:

1. Kumar, A., "Space Planning Model: Space Requirements 1972-73", OIR Report 77i, Office of Institutional Research, University of Calgary, Calgary Canada, October 1973, pp. 7.
2. Kenyon, D. T., and A. Kumar, "Evaluation of Criteria Used in Computation of Space Needs", OIR Report 78i, Office of Institutional Research, University of Calgary, Calgary, Canada, October, 1973, pp. 19.
3. Kenyon, D. T., and A. Kumar, "Evaluation of Criteria Used in Computation of Space Needs", OIR Report 79i, Office of Institutional Research, University of Calgary, Calgary, Canada, November, 1973, pp. 14.

4. Kumar, A., "Non-Space Factors Analysis", OIR Report 83i, Office of Institutional Research, University of Calgary, Calgary, Canada, November, 1973, pp. 22.
5. Kumar, A., "Space Planning Models Guide", OIR Report 85i, Office of Institutional Research, University of Calgary, Calgary, Canada, December, 1973, pp. 57.
6. Kenyon, D. T. and A. Kumar, "Summary of Review of Space Planning Methods", OIR Report 93i, Office of Institutional Research, University of Calgary, Calgary, Canada, March, 1974, pp. 64.
7. Kumar, A., "Space Planning Models Guide", OIR CD007, Office of Institutional Research, University of Calgary, Calgary, Canada, October, 1973, pp. 57.
8. Kumar, A., and A. Tebbutt, "Break-Up Reports from Space Information System", Part 2, OIR CD009, Office of Institutional Research, University of Calgary, Calgary, Canada, March, 1974, pp. 33.
9. Kumar, A., and P. R. Slawson, "Wet Plume Program Guide", Appendix-A, pp. 25-101 of Vapor Plume Theory by P. R. Slawson. Prepared for Tennessee Valley Authority (Air Quality Branch), January 1976.
10. Slawson, P. R. and A. Kumar, "Cooling Tower Drift Deposition Guide." Prepared for Tennessee Valley Authority (Air Quality Branch), April 1976, pp. 68.
11. Kumar, A., and S. G. Djurfors, "General Expressions for Maximum and Critical Ground Level Concentrations", E. A. Professional Paper 1977-6, Syncrude Canada Ltd., pp. 17.
12. Kumar, A., "Evaluation of a Simple Net Radiation Model for the Tar Sands Area", E. A. Professional Paper 1978-3, Syncrude Canada Ltd., pp. 28.
13. Kumar, A., "Air Quality Monitoring" and "Low Temperature Water Fogs and Ice Fogs: Effects of Operations Upon the Environment." Prepared for Environmental Impact Assessment report (Sections 5.7.3 and 5.7.4) of Syncrude Canada Ltd (Submitted to Alberta Government, October 1978).
14. Kumar, A., "Analysis of 1978 Net Radiation Data", Syncrude Canada Ltd., May, 1979, pp. 18.
15. Schwabe, P. and A. Kumar, "Thermal Boundary Layer Calculations for the the Tar Sands Area (April and June, 1979)", Syncrude Canada Ltd., July 1979, pp. 24.
16. Kumar, A., "Evaluation of Inter-Facial Mixing Constant for a Boundary Layer Evolution Model", Syncrude Canada Ltd., August 1979, pp. 25 (EA Professional Paper 1980-4).
17. Kumar, A., "Analysis of 1977 and 1978 Incoming Radiation Data", Syncrude Canada Ltd., March 1980, pp. 20.
18. MacKay, C. and A. Kumar, "Resignations from APEGGA." Prepared for 1979-80 Members' Liaison Committee of Association of Professional Engineers of Alberta, April 1980, pp. 5.
19. Kumar, A., "Air Quality Standards for Sulfur Dioxide and Particulate Matter in Canada." Prepared for Task Committee on Air Pollution, American Society of Civil Engineers, September 1980, pp. 7.
20. Kumar, A., "Some Observations of Plume Penetration in the Athabasca Tar Sands Area", Syncrude Canada Ltd., October 1980, pp. 13.
21. Kumar, A., "Meteorological Data Requirements for a Simple Thermal Internal Boundary Layer Model." Prepared for Toledo Edison, July 1981, pp. 30.
22. Kumar, A., "Siting of a Backup Meteorological Tower for Emergency Planning", September 1981 Prepared for Toledo Edison.
23. Kumar, A. and S. Thomas, "Prediction of Pollutant Levels From an Elevated Source in a Coastal Environment." Final for Faculty Research Grant, University of Toledo, Ohio, April 1982, pp. 28.
24. Kumar, A. "Analysis of "Bad" Data Obtained from the D-B Primary Meteorological System during May and June 1982." Prepared for Toledo Edison, August 1982, pp. 13.
25. Kumar, A. and S. Thomas, "Class A Model Program Guide." Prepared for Toledo Edison, August 1982, pp. 104.
26. Kumar, A. and S. Thomas, "Long Range Transport of Emissions from the Bay Shore Plant for January 1978." Prepared for Toledo Edison, September 1982, pp. 35.
27. Kumar, A., "A Radio-nuclide Atmospheric Dispersion Model for Emergency Planning." Prepared for Toledo Edison, October 1982, 200 pp.
28. Kumar, A., "Design of a Proposed Field Study for Determination of Plume Direction During Emergency Situations." Prepared for Toledo Edison, April 1983.
29. Kumar, A., "Estimation of Ground Level Concentration at Collins Park Monitoring Station due to Bayshore Emissions on Jan. 31, 1982." Prepared for Toledo Edison; May 1983, 32 pp.
30. Kumar, A., "Reanalysis of Lake Breeze Data for 1981 at Davis-Besse Nuclear Power Plant." Prepared for Toledo Edison; August 1983, 16 pp.

31. Kumar, A. and S. T. Thomas, "Estimation of Concentrations Due to Long Range Transport of SO₂ Emissions from Bay Shore Power Station." Prepared for Toledo Edison, September 1983.
32. Kumar, A., "Thermal Internal Boundary Layer Development Near The Enrico Fermi Nuclear Power Plant During June and August 1983." Prepared for Engineering Research, The Detroit Edison Co., January 1984.
33. Kumar, A., "Estimation of Ground Level Concentrations (due to downwash) at Collins Park Monitoring Station Due to Bayshore Station SO₂ Emissions for Selected Days." Prepared for Toledo Edison, January 1984.
34. Kumar, A., "Application of a Thermal Internal Boundary Layer Model and a Radionuclide Dispersion Model Near the Fermi Nuclear Power Plant." Prepared for The Detroit Edison Company, April 1984.
35. Kumar, A., "Modeling of ten different flow situations near the Davis-Besse Nuclear Power Station for quality assurance." Prepared for Toledo Edison, October 1984.
36. A. Kumar and S. T. Thomas, "Impact of New Stack Height Regulations on Toledo Edison Company." Prepared for Toledo Edison Company, July 1985.
37. A. Kumar, S. T. Thomas and H. G. Rao, "Acid Deposition Due to NO_x Emissions from Ohio." Prepared for Ohio Air Quality Development Authority, August 1985.
38. A. Kumar, "A Personal Computer Guide for Acid Rain Models", prepared for Ohio EPA/OAQDA, April 1987.
39. Kumar, A., "A Preliminary Analysis of Effect of Plume Penetration on Ground Level Concentration under Convective Conditions at Lambton Thermal Generating Station", prepared for Ontario Hydro, August 1988.
40. Kumar, A. and Bennett, G., "Computation of IDLH Distances for Hazardous Releases from Storage Tanks under Worst Case Accidental Situations", prepared for General Electric Superabrasives, 1989.
41. Kumar, A., "Impact of Sun Toledo Refinery SRU Shutdown on the NAAQS", prepared for Sun Company, Inc., 1992.
42. A. Kumar and S. Sahore, "Air Quality Impact Analyses of Lead Emissions Using ISC2 Dispersion Model", Prepared for Fuller and Henry, 1993.
43. A. Kumar, R. Madasu, "Data Collection for Title V Permit Application for Rockwell Automotive Plant at Kenton", prepared for Rockwell Automotive, 1995.
44. A. Kumar, et.al., "A Tutorial for Introduction to Air Pollution", Prepared under a grant from UT Center for Teaching Excellence, 1995.
45. A. Kumar, S. Vashisth, F.D'souza, "Analysis of PTE for FESOP Application for Rockwell Automotive, Kenton (Ohio) Facility", prepared for Rockwell Automotive, 1996.
46. A.Kumar and R. Desai, "Development of an Environmental Management System based on ISO 14001", prepared for Meritor Heavy Vehicle LLC, Kenton, OH, 1998
47. A. Kumar, S.J. Thomas, S. Ouja and NIST Centers, "Pollution Prevention Activities in Ohio under PPIS Grant", Submitted to the U.S. EPA, Oct. 2001, Nov. 2002 (with Somik Ghose), Nov. 2003, Nov. 2004, April 2005, Nov. 2005, April 2006, and Sept. 2006, March 2007.
48. A. Kumar, G. Manne and S. Ghose, "Development of a Web Site for Ohio Air Pollution Researchers and an Annual Air Pollution Research Symposium", Submitted to OAQDA, Dec. 2002

Reviews

Reviewed 77+ papers for Journal of Hazardous Materials, Env. Progress, Journal of Great Lakes Research, ASEE Journal, Journal of Climate and Applied Meteorology, Env. Software, Journal of Environmental Management, Risk Analysis, Atmospheric Environment, Journal of A&WMA, Journal of Environmental Quality, Environmental International, EM, Canadian Journal of Chemical Engineering, and Particulate Science and Technology, Chemosphere: 1984 - to present

Reviewed a paper for the book "Waste Treatment and Utilization", 1980.

Reviewed 95 papers and 130 abstracts for APCA/A&WMA meetings, 1981-82, 1986, 1994, 1996, 1998 to 2007.

Reviewed approximately thirty reports referred by Alberta Environment, Environment Canada and Toledo Edison, 1978-82

Reviewed Meteorology and Air Transport Sections of initial environmental evaluation for Petro-Canada/NOVA Oil Sands Joint Venture, 1981

Reviewed air quality portion of new superfund guidelines for the U.S. EPA, 1987
 Reviewed proposed air quality modeling regulations in Ontario for Ontario Hydro, 1988.
 Reviewed air quality portion of Superfund Exposure Assessment Manual for the U.S. EPA, 1988
 Reviewed sixteen books on emergency planning, hazardous releases, fire, explosion and radon for Journal of Hazardous Materials and Environmental Progress, 1988 - to present (written reviews published in journals)
 Reviewed Environmental Resources Guides K-12 Teachers, AWMA 1991, 1995, 1996.
 Reviewed courses for A&WMA Continuing Education Program, 1990,1991, 2001.
 Reviewed a book on "Composition, Chemistry and Climate" for VanNostrand Reinhold, 1994
 Reviewed a video tape on waste for A&WMA and U.S. Aid Fund, 1994
 Judge, Student Poster Session, A&WMA Annual meetings, 1994 to 2006.
 Reviewed a book on Air Pollution for Addison Wesley Longman, 1996.
 Reviewed an International Speciality Conference on Emerging Air Issues, ASPB-CPANS-APEGGA, 1997.
 Reviewed a proposal for ISTC (Moscow) and PNNL (US), 2000.
 Reviewed research proposals for NIH in Oct. 2006 on Environmental Health Research and Training.
 Participation in the review process for the ACS Petroleum Research Fund, 2006.
 Reviewed the proposed book on Air Quality for Blackwell Publishing Ltd.,UK, 2006
 Reviewed a proposal to establish an engineering college at Alzaytoonah University of Jordan, May 2007

Courses taught

Taught over 2,892 students in the following class room and online courses during 1979 to 2003.

1. 460:465/565 - Air Pollution: Causes and Effects
2. 424:362 - Int. to Air Pollution (and Solid Waste)
3. * 460:569/769 - Air Quality Prediction Systems - Theory & Practice
4. 460:466/566 - Air Pollution Control
5. * 460:568/768 - Air Pollution Meteorology
6. 424:467/567 - Industrial Ventilation
7. * 460:661/861 - Dispersion and Risk Modelling
8. 460: - Air Pollution Instrumentation
9. * 460:407 - Air Pollution Instrument Laboratory
10. 424:466/566 - Industrial Hygiene
11. * 460:407/507 - Air Pollution Colloquium
12. * 460:507 - Environmental Impact Assessment
13. 424:283 - Engineering Mechanics Laboratory
14. * 424:260 - Fluid Mechanics for Civil Engineers
15. * 460:461/561 - Indoor Air Quality
16. * 460:407/507 - Toxic Pollution
17. ES 384 - Dynamics
18. - CE Seminar

Note: Four of the above courses have been taught as online courses (DRM, IAQ, IV, and IAP).

University of Alberta -

- Dynamical Meteorology, 1979

Continuing education

- One-day seminar on "How to Develop Your Own Air Quality Models." University of Toledo, November 1981
- One-day seminar on "Introduction to Radio-nuclide Dispersion Modeling", Davis-Besse Nuclear Power Plant, Jan. 1983.
- A refresher course on "Introduction of Time Series to Air Pollution", Air Pollution Control Association Annual Meeting, June 1985, (with Dr. Terry).
- One-day course on "Time Series Analysis for Environmental Engineering problems", Continuing Education Center, The University of Toledo, May 1986, (with Dr. Terry).

- One-day seminar on "Introduction to Dispersion Modeling of Volatile Chemical Spills", at Continuing Education, The University of Toledo, October 1987, (with Dr. G. Bennett).
- Two-hour workshop on "Introduction to Dispersion Modeling of Hazardous Releases" at Superfund '87, Hazardous Materials Control Research Institute (November 1987).
- One-hour seminar on "Variables Affecting Radon Concentration and Their Incorporation in New Construction", during 1 day training course on radon by Toledo Department of Health, Feb. 1988.
- A refresher course on "Introduction of Dispersion Modeling of Hazardous Releases", Air and Waste Management Association Annual Meeting, June, 1988.
- SARA Title III Workshop: Methods and Calculations for estimating toxic chemical releases, June 1988 (for Ohio Society of Hazardous Material) (with Dr. G. Bennett)
- Two workshops on "Radon in Ohio Black Shale Area", during Radon in Ohio Conference, April 89 (with J. Harrell)
- A two-hour workshop on "Radon Update: Exposure in the Home and Workplace", Toledo-Lucas County Safety Council, July 1989
- One-day course on "Dispersion Modeling of Hazardous Materials", HMCRI, Sept. 1990
- One-day course on "Dispersion Modeling of Hazardous Releases", at Continuing Education Center (University of Toledo), Finnish Meteorological Institute (Finland), A&WMA annual meeting (Vancouver) and IIT, New Delhi (India), 1991
- One day course on "How to Conduct Indoor Air Quality Assessment" by R. Kumar and A. Kumar, A&WMA annual meeting (San Diego), 1998
- One hour presentation during "Green Science and Engineering Workshop" at EISC Inc., Sept. 2002
- A three-hour workshop on "Understanding Air Quality Modeling", ISTEP, India, Jan. 6, 2006

Grants and other funded projects

**Attracted over \$3,000,000 for the following projects from the sources outside and inside the university.

1. "Boundary Layer Study", University of Toledo, Faculty Research Committee, 1981.
2. "Upgrading of Davis-Besse Meteorological System", and "Boundary Layer Study for Davis-Besse Plant", "Development and Assessment of the Class A Model", "Analysis of Meteorological Data 1981", "Updates to Davis-Besse Class A Model", "Calculations for Quality Assurance of D-B Class A Model", and "Examination of Fumigation Calculations of D-B Class A Model", Toledo Edison, 1981 –85.
3. "Long Range Transport of Pollutants", and "Analysis for LRT Models", Toledo Edison, 1981-1983.
4. "Emergency Planning Modeling for Atmospheric Releases", University of Toledo, Faculty Research Committee, 1983.
5. "Collection of Meteorological Data During a CO-hotspot Study", Southeast Michigan Council of Governments, 1983.
6. "Analysis for Bay Shore SIP Revision", Toledo Edison, 1983.
7. "Assessment of Boundary Layer Development Near Fermi II Nuclear Power Plant", Detroit Edison Co., 1983-84.
8. "Ohio's Role of NO_x in Acid Deposition", Ohio Air Quality Development Authority/Ohio EPA, 1984-85.
9. "Air Modeling to Assess the Impact of the Stack Height Regulations on Toledo Edison's Bayshore Station", Toledo Edison Company, 1985.
10. "Use of a Personal Computer for Acid Rain Modeling", Ohio Air Quality Development Authority/Ohio EPA, 1986-87.
11. "Modeling of a Fabric Filter for Simultaneous Removal of SO₂/NO_x", Argonne National Laboratory, 1987.
12. "An Economical Method of Flue Gas Desulfurization", Ohio Technology Development Office, 1984 (with Dr. C. V. Ardis and Dr. L. Lahti).
13. "Radon Hazards Associated with Outcrops of the Devonian Ohio Shale", Ohio Air Quality Development Authority/Ohio Dept. of Health/Ohio EPA (with Dr. J. Harrell), 1987.
14. "Determination of Formaldehyde Release Rates in Building Materials", Trinova Corp., (with Dr. G. Bennett).
15. "Development of a comprehensive radon data base for Ohio: the Indoor Radon Information System (IRIS)", (with Dr. Heydinger and Dr. Harrell), ODH, 1989.

16. "A comparison of three plume rise models", UT Research Grant, 1991.
17. "Impact of SO₂ emissions during shutdown", Sun Oil, 1991, 1992 and 1993.
18. "Refined Risk Modeling for a California Plant", LOF 1991.
19. "U.S.-India Exchange Program", National Science Foundation, 1991.
20. "Numerical Modeling Using k-eTheory", UT Research grant, 1993.
21. "Lead Modeling", Fuller & Henry, 1993-94.
22. "Air Quality Analysis for Risk Assessment", LOF, 1994.
23. "Develop a Workbook for Intro to Air Pollution Course", CTE Teaching Enhancement Program, 1994.
24. "Student Internship for Title V Compliance", OCF, 1995.
25. "Summer Fellowship on Hg Modeling", LEC, 1995.
26. "Student Internship for Two Quarters for Air Pollution Tutorial Development", Office of Vice President for Administrative Services, The University of Toledo, 1995.
27. "Compliance Analysis for Title V, CAA", Rockwell International, 1995-96.
28. "Development of Input Data into STARShip Program", "An Examination of Emission Calculations", General Mills Inc., Toledo, Ohio, 1996 and 1997.
29. "Development of Web Pages for the Air Pollution Courses", Lake Erie Research Center, Office of Dean of Engineering, Office of Associate Dean of Engineering, and Division of Distance Learning, The University of Toledo, 1996, 1999, 2002, and 2003.
30. "Full 3-D Dispersion Model Used to Develop Smaller Algorithms For Applied Usage", Ohio Supercomputing Center, 109 Units, 1995-96.
31. "Updating the Indoor Radon Database for Ohio and Preparation of a Monograph on Indoor Radon", "Further Studies of Indoor Radon in Ohio", "Update of ORIS", Ohio Department of Health/USEPA (with Dr. Heydinger, and Dr. Harrell), 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 (AK), 2005-06, 2006-07 (AK) (over \$280,000).
32. "Development of an EMS based on ISO 14000 for a Manufacturing Facility", Meritor Automotive Inc., 1998.
33. "Research Incentive RA for Graduate Students", University of Toledo, 1997-98 and 1998-99.
34. "GUI for EPA's PART5 Model", Federal Highway Administration, 2000.
35. "Pollution Prevention Grant", USEPA, 2000-2007 (\$ 609,564 from EPA and \$ 300,000 + from industry).
36. "To Develop a WWW site for Ohio Environmental Researchers and to hold an Air Quality Research Symposium", OAQDA, 2001-2002, 2003.
37. "Modeling the Maumee River Watershed for Sustainable Development", UT Research Office, 2001-2002. (Co-investigator with 6 other faculty members).
38. "Evaluation of Chemicals in Solar Panels", FirstSolar LLC, 2003.
39. "Bio-Diesel Study", TARTA/USDOT, (Co-Investigator with 3 other faculty members), 2005-2008 (\$ 765,605 from TARTA).
40. "Integrating Environmental and Public Health of Urban Ecosystems", (Co-Investigator with 10 other faculty members), UT Program for Academic Excellence Grant, \$ 15,000, 2007-2008.
41. "Monitoring Agriculture Sewage Sludge: Modeling of Emissions", OSU/USDA, \$ 845,017 (Role: Investigator on the project with 10 other investigators), 2007-2008.

Other research and instruction contributions

Guest lectures on concentration calculations, risk, and sustainability for chemical engineering courses on air pollution control and green engineering (1981 to present).

Revised four existing courses and developed four Web assisted courses

Introduced nine laboratory experiments in Air Pollution Instrumentation and Industrial Ventilation during 80's
Prepared specifications for the purchase of a weather station, air quality instruments, personal computers and software.

Operated resource center for EPA courses on individual basis during 80's

Developed air quality modeling and indoor air components of air pollution laboratory

Support for students and student travel from A&WMA chapters 1993, 1995, 1996, 1998 to 2006

InKind support for student research in the form of software, data, and reports from outside sources (~ \$ 4 -5 million in market value at the time of support).

Air Pollution Software Shareware Program - Shared software developed at UT with other scientists around the world for a low price. Attracted over \$3000.00 for CE department, 1986-90.

Student project supervision

Note: The students are encouraged to present their work in poster sessions at the COE competitions and local, regional, and national conferences. Many students have received prizes at these events.

Doctorates

1. Development of Improved Gaussian Dispersion Models for Cases of Downwash Past Wide Buildings Using Three-Dimensional Fluid Modelling, Anita Flowe, Ph.D. (1997)
2. Source-Receptor Relationships for Monitored Particulate Data in Cleveland Area, Charanya Varadarajan (in progress)
3. Characterization of IAQ and Emission Rate in Buses due to Alternative Fuels, Abhilash Vijayan (in progress)
4. Analysis of Air Quality and Health Data in Ohio, S. Khan (in progress)

Masters-Thesis

1. Application of an event model for LRT work, S. Mermall, 1983
2. Evaluation of a technique to fill missing data, J. Lee, 1985
3. Sensitivity analysis of four air quality models, W. Kang, 1985
4. Indoor radon measurements for houses associated with outcrops of the Ohio Black Shale, J. Akkari, 1988.
5. Development and validation of a hazardous release model, G. Venkata, 1989.
6. A comparison of plume rise models, M. M. El Salahat, 1990.
7. Indoor radon and risk in Ohio, S. Agarwal, 1991.
8. Evaluation of four hazardous release models, J. Luo, 1992.
9. Evaluation of ISCST model, R., Riswadker, 1992.
10. Identification of indoor air quality factors relative to characteristics of residential dwellings, D.A. Isley (with MCO), 1994.
11. Evaluation of ISC2 models for mercury emissions, V. Patel (1995).
12. Development and evaluation of a plume rise model for heavy gases, K. Srinivas (1995).
13. Evaluation of a k-e concentration model by S. Sahore (1997).
14. Development of an analytical dispersion model for a volume source, Ravindranath Madasu (1995).
15. Sensitivity and Uncertainty Analysis of Health Risk, A. Manocha (1995).
16. Determination of Acid Deposition in the Great Lakes Area, S.Ahuja (1996).
17. Evaluation of ISCST3 model and ISCLT3 model for Lucas County, N. Bellam (1996).
18. Estimation of Emission Rates and Risk due to Paint Spray Booths, A. Shrivastava (1997).
19. Evaluation of six dispersion models for complex terrain dispersion modeling, Kandi (1996).
20. Analysis and Evaluation of Techniques for Computing Concentrations due to Emissions from Horizontal, Tilted, and Capped Sources, C. Tanna (1997).
21. Incorporation of Surface Heat Transfer in an Instantaneous Heavy Gas Release Model: Development and Solution, A. Mahurkar (1997).
22. Numerical Solution of Flash Fire Plume Dynamics Under Cross Wind Conditions, R. Saluja (1997).
23. Development of a Forecasting Model for Non-Attainment Ozone Areas in Ohio, Surya V. (1997).
24. Evaluation, Sensitivity, and Uncertainty Analysis of Viscreen Model, Madhumita Bhor (1997).
25. A Dynamic Sensitivity Analysis of Probit Dose - Response Model used in Risk Assessment of a Municipal Solid Waste Incinerator, Francis D'souza (1997).
26. Development of a Software to Model VOC Emissions from Point and Area Sources, Arvind P (1997).
27. Development of a Peak Concentration Model for Odor, Vanitha Venugopal (1997).
28. Measurement of σ_z using Remote Sensing Techniques, Gopal T. (1997, with Dr. MacDonald).

29. Performance of a Simple Higher Order Closure Model for Atmospheric Dispersion of Heavy Gases, M. Ranganthan, (1997).
30. Evaluation of Complex Terrain Algorithm in ISC3 Model for a Rural Area, by P. Mungara (1997)
31. Evaluation of Flare Length and Flare Angle Using Remote Sensing Techniques, A. Khan (1997, with Dr. McDonald).
32. Development of a Software to Calculate Emission Rates for Toxic Releases, Sumant Vashisth (1997).
33. Mercury Modeling, S. Sundaresan (1997).
34. Application of a Screen Climate Model to CO₂ emissions from Electric Utilities in the State of Ohio, S. Chimalapati, (1998).
35. Uncertainty Analysis in Predicting Concentrations in Downwash Conditions for Passive and Heavy Gases, Kumar Mantripragada, (1998).
36. Software Development for Estimation of Blast Effects due to Vapor Cloud Emissions, Rajesh Anand, (1998).
37. Update and Analysis of Residential Radon Data for the State of Ohio, A. Sud (1998).
38. Development of an Internet Based EMS to Meet ISO 14000 requirements, R. Desai (1999).
39. Analysis of Truncation Error in Numerical Air Quality Models, P.K. Pakala (1999).
40. Development of a Software for Clean Room Design, Balaji (1999).
41. A Pharmo-kinetic Model for Toxic Gas Concentrations Inside the Body, A. Kulkarni (1999).
42. Development and Evaluation of Software for Industrial Accidents Involving Toxic Air Pollutants, S. Sharma (1999).
43. Estimation of Concentrations within the Human Body due to Exposure to Fluctuating Atmospheric Pollutant Concentrations, T. Shenoy (1999).
44. Development of Analytical Models for Vulnerability Zone Analysis for Toxic Releases from a Point Source, Neeraj Verma (1999).
45. An Examination of Mercury Data in the Great Lakes Area, K. Venketaraman (2000).
46. Sensitivity, Evaluation and GUI for CAL3HCQ Model, I. Patel (2001)
47. Development of a GUI and Sensitivity Analysis of the PART5 Emission Rate Model, D. Thakare (2001)
48. Development of a Transient Aerosol Dynamics Model, N. Aachi (2000)
49. Uncertainty Analysis of Fires and Explosion Models and Calculation of Flammable Mass for Heavy Gas Releases in Downwash Conditions, V. Bhat (2001)
50. Determination of Cooling Periods for an Energy Efficient Hybrid HVAC System, S. Thomas (2002)
51. A pilot study to develop forecasting models for predicting hourly ozone concentration near Cincinnati, Ohio, S. Ojua (2002)
52. Analysis of High Risk Zipcodes in Ohio, A. Joshi (2002)
53. Development of forecasting models for predicting maximum daily PM₁₀ concentration near Cincinnati, Ohio, J. Coutinho (2002)
54. Development of Daily Maximum CO Forecasting Models for Cincinnati, Ohio, G. Manne (2002)
55. Forecasting Ozone Concentrations for Columbus, OH, S. Ghose (2003)
56. Evaluation of AERMOD for Lucas County, S. Jampana (2004)
57. Development of Daily Maximum Ozone Forecasting Models for Cleveland and Akron, Ohio, A. Tandale (2004)
58. Development of Hourly Ozone Forecasting Models for Dayton, Ohio, R. Kalapati (2004)
59. Determination of Natural Cooling Times for Human Comfort using Hybrid Ventilation System, R. Pandse (2004)
60. Analysis of PM₁₀ Data for Cleveland Area, C. Varadarjan (2004)
61. Application of Multi-pollutant Risk Analysis Technique for Establishing Health Monitoring Network in Lucas County, S. Pathan (2004)
62. Evaluation of AERMOD model with Atmospheric Stability and Wind Speed, S. Dixit (2004)
63. Modeling of Sulfur Gas, Rajani Oshan(2005)
64. Evaluation of Volume Source Model in AERMOD using Field Data, A. Kurriville (2005)
65. Development of Sustainability Index for a residential home, A. Vijayan, (2004)
66. Analysis of Ozone Data for Detroit Area, P. Sharma (2005)

67. Examination of Maximum and HSH Concentration Calculations in AERMOD due to Land Use Parameter, K. Sadhart (2005)
68. Variation of Concentration Calculations for Regulaory Use from Industrial Sources, A. Masuraha (2006)
69. Reevaluation of AERMOD under Different Wind Conditions, Farzana (2006)
70. Evaluation of Visibility Impact on Class I Areas Due to a Source Region using CALPUFF, P. Nimse (in progress)
71. Development of a Model for Computing Maximum GLC under Convective Conditions, V. Raman (in progress)
72. Evaluation of Five GIS based Interpolation Techniques for Estimating the Radon Concentration for Unmeasured Zip Codes in the State of Ohio, S. Maraju (2007)
73. Sensitivity Analysis of Concentrations due to Special Source Configuration in the AERMOD, S. Samuel (in progress)
74. Dispersion and Risk Analysis of emissions from Class B Bio-solids, A. Bhat (in progress)
75. Mass Balance IAQ Model for ULSD and Bio-Diesel Buses, A. Kadilya (in progress)
76. Emission Analysis for ULSD and Bio-Diesel Buses and Grabage Trucks, R. Garimella (in Progress)
77. Examination of Sensitivity due to Population on GLC from the AERMOD, V. Poosarala (in progress)

Masters-Project

1. A Comparison of Dispersion Models for Ground Level Releases by D. Shroder, 1985.
2. Evaluation of Four Plume Rise Models under Wind Shear Condition by J. P. Liebrecht, 1992, (with Dr. G. Bennett).
3. Development of a Software for Dispersion of Mercury Emissions by V. Chigullapalli (1997).
4. Development of a Database of Emission Factors for Indoor Sources by V. Nagia (2000).
5. Development of a VB Software/Spreadsheet for Design of IV Systems by A. Duvvuru (2000).
6. Development of a VB GUI for Air Pollution Control Equipment Design by N. Shah (2001).
7. Development of a Training GUI for AERMOD by Srisha Nelapatla (2001)
8. Development of VB software for a Two Compartment Model by N. Vempati (2001)
9. Development of a Web Screening Interface for Estimation of Aerosol Deposition in Human Respiratory Tract by V.A. Cinnakonda (2001)
10. Development of a VB GUI for a MOBILE 5.0, S. Makkapaty (2002)
11. Development of Applets for IV Design, J. Lindner (2003)
12. Development of a Search Engine for Air Pollution Laws related to Toxic Substances, Srinivasan Prasanna (in progrsss)

Research Associates

- Ms. S. Thomas, 1982-86
- Dr. H. Rao, 1984

Undergraduates

- (i) Supervised four student projects during 1977-1980 for Co-op program between Syncrude Canada Ltd. and University of Waterloo, University of Newfoundland, and University of Alberta.
 - Analysis of Heat Flux Data (Waterloo)
 - Cost Analysis of a Mini-sonde System (Waterloo)
 - Mixing Height Data Analysis (Alberta)
 - Air Pollution Control in Tar Sands Area (Newfoundland)
- (ii) Supervised two student projects during 1981-82 for Co-op program between Toledo Edison and Bowling Green State University:
 - TIBL data analysis
 - Precipitation study
- (iii) Supervised two high school students under Research Apprenticeships in Science at UT
- (iv) Undergraduate Projects (Univ. of Toledo)
 1. Long range transport of emissions by M. Filppi (Engineering Science), 1982-83
 2. Use of MESO-DIFF Model by B. Kauffman, 1982

3. Assessment of Refinery Emissions by M. Cravens, 1992 (Univ. College)
- (V) Four students worked on research projects during 2004, 2005, 2006, 2007 under Federal Work Study Program

Professional societies

Attained a leadership position within the environmental profession. Some of the activities include Chairman of Education Council of Air and Waste Management Association (A & WMA), ex-officio member of the A & WMA Board, member of Editorial Board of Journal of Hazardous Materials, and reviewer for Professional Engineering Examination (NCEES). Apart from helping the profession, professional activities assist in identifying changing trends in the profession, job opportunities for students and networking for future funding.

Registered Professional Engineer in the Province of Alberta
Member, American Meteorological Society (upto 19xx)
Member, Air and Waste Management Association
Member, Sigma Xi
Member, Liaison Committee, Association of Professional Engineers of Alberta, 1979-80
Ad-hoc member, Air Resources Management Team, Syncrude Canada Ltd., 1980
Member, Energy Environmental Interactions Technical Committee (TT-6), 1981-89, Acid Rain Technical Committee, University Education Committee, and Meteorology Committee, AWMA.
Member, Task Committee on Air Pollution, American Society of Civil Engineers (1980-82)
Secretary, Energy Environmental Interactions Committee, 1982-85
Co-chairman, Energy - Environment Interaction session, APCA conference, 1981
Chairman, Energy-Environment Interaction session, APCA conference, 1982, 1983, 1986
Proctored examination for AMS (Weather Forecasting Seal)
Member, The Air Quality Monitoring and Modeling Task Force, Southeast Michigan Council of Governments, Detroit, Michigan, 1982-83, 1983-84
Member, APCA Committee on Lab Manual Preparation, 1984-85
Chairman, Energy-Environment Interaction Committee, 1985, 1986, 1987, 1988
Vice President (Administration), Tiffin Toastmasters Club, 1987
Chairman, Poster Session, ASEE-NOC Section 1987
Member, Planning Committee, APCA Northern Ohio Chapter 1987-89
Member, Indoor Radon Scientific Advisory Panel for Ohio, 1987-88.
Chairman, University Education Committee, APCA, 1988-92
Secretary, Radon Interest Group, APCA, 1988-89
Software section editor, Environmental Progress (AIChE Journal) 1989 - to present
Diplomate American Academy of Environmental Engineers, 1989-cont.
Member, Conference Organizing Committee on "The Impact of Free Trade and Environmental Issues", UT Business College and the Canadian Consulate, Sept. 1989.
Academic Representative on East Central Section Board, AWMA, 1990 to date.
Founder, Student Chapter, AWMA at University of Toledo, 1991
Vice Chairman, Higher Education Division, AWMA 1991-1993.
Guest Editor, Special issue on "Modeling Studies on Hazardous Releases", Journal of Hazardous Material, 1992.
Member, Editorial Board, JHM (April 1992 to Dec. 2006)
Member, Air Quality Task Force, TMACOG, 1992-1999.
Vice Chairman, Accidental Release Committee, AWMA, 1993, 1994
Chairman, Higher Education Division, AWMA, 1993-1995.
Represented AWMA (Luncheon Speech) at Title V conference in Toledo, 1994.
AWMA Representative on North-Central PETE, 1995 - 2002.
Chairman, session on Accidental Releases, (1995), and Co-Chairman of two technical sessions on New Developments in AQM (1996), A&WMA Annual Meeting
Vice Chairman, Educational Council, A&WMA 1996-1998.
Moderator, Session on Mercury Distribution in the Great Lakes, Environmental Protection in the Great Lakes Conference, 1998.

Co-Chairman, two sessions on Recent Developments in Air Quality Modeling (1997), Chairman/Co-Chairman for four sessions on Env. Mentoring, Quality Assurance and Environmental Audits (1998), and Chairmain/Co-chairman for 13 sessions (1999 to 2006) on technical topics and education at A&WMA Annual Meetings.

Chairman, Education Council, A&WMA, 1998- 2001(Prepared three reports on activities that were published in EM, fund raising).

Member, Search Committee for Executive Director of A&WMA, 1998.

Member, East Central Section Planning Committee, 1999, 2000.

Member, Finance Committee, A&WMA, 2000-2001.

Member, Publications Committee, A&WMA, 2000-2006.

Member, Executive Committee, Education Council, 2002 to 2004.

Chairman, Web Publishing Sub-Committee, A&WMA, 2001-2006.

Chairman, Task Force on Online Library, A&WMA Board, 2002 (Prepared business plan and Presented business plan on the development of Online Library to Technical Council).

Member, Committee on FE examination (EE) for PE, 2002-2003

Chairman, Task Group on Membership and Retention, A&WMA Board, Nov. 2002 to June 2003.

Member, Nomination Committee, AWMA Board, June 2003 to June 2004.

Member, Scholarship Campaign Committee, AWMA, June 2003- 2005.

Member, Program Committee, GLRPPR Conference, 2004.

Member, Symposium Committee, 2004 Ohio Air Quality & Coal Research Symposium, Athens, OH

Member, EM Editorial Advisory Committee (EAC), Air and Waste Management Association. 2005-2008:
Reviewed over 25 papers and participated in the management issues.

Session co-chair, Dispersion Modeling, ISTEP 2006, India.

Special issue of International Journal of Automation and Control edited by Dr. Meenakashi and Dr. A.Kumar (in preparation).

Service on Committees at University

Chem-Bio Transport Doctoral Committee, 1980-1994

Materials, Electronics & Energy Doctoral Committee, 1980-87

CE Environmental Engineering Curriculum Committee 1980-95, 2003

Director, CE Air Pollution Program 1980-1999

Member, Faculty Search Committee, 1985, 1993, 2004

Member, Human Subjects Research Review Committee, 1987-90

Member, CE Promotion and Tenure Review Committee, 1989-92

Member, CE Advisory Committee, 1990-1991

Member, College Teaching Load Review Committee, 1990

Chairman, CE Public Relations and Scholarship Committee, 1991-93

Chairman, CE Research (enhancement) Committee, 1993

Member, UT Safety Committee, 1993-97

Chairman, Dept. Personnel Committee, 1994, 1997-98, 2001-02

Member, University Grievance Hearing Committee, 1995, 1996

- Co-authored a 60 page legal report for the President

Member, Department Personnel Committee, 1997-1998, 1999-2001

Member, CE Undergraduate Committee, 1999-2001

Member, College Web-Assisted Instruction and Distance Learning Committee, 1999-2000

Focus Leader, CE Environmental Group, 1999-2005

Member, Committee on part-time MSE program, 2002-2003

Member, Academic Regulations Committee, 2002-2004

Judge for graduate student poster session for COE, 2005, 2006

Prepared policies related to graduate program in Civil Engineering (1982) and evaluation of faculty research activities (1985)

Reviewed over 500 applications for new graduate students as a faculty member

Prepared a report on "English Language for Foreign Engineering Students", with Dr. Fu and Dr. Ghandakly for Dean of Engineering (198x)

Developed an outline for Air Pollution Program and upgrading of environmental systems laboratory (1981-83)
Member, Thesis Committee for 6 Ph.D. students and 26 M.S. students, 1981 to 2003.

Management Projects as Chair of Civil Engineering

Conducted SWOT analysis (2004) and Balridge analysis (2006)
Development of Undergraduate Laboratory Plan and Upgrade proposal, 2005: Preparation of documents related to OBOR funding and lab. fees, directed laboratory upgrades
Development of Strategic Plan, 2005
Preparation of Program Assessment report for Higher Learning Commission (HLC) - North Central Association of Colleges and Schools (NCA), April 25 and 26, 2005 and for internal assessments (Nov. 2006)
Preparation of ABET Self-Study, 2005

- Complete analysis of PEOs
- Program Evaluation by ABET Objectives
- Conducted and analyzed Alumni Survey
- Formation of Industrial Advisory Board

Response to ABET questions on Lab Safety, 2007
Restructuring of Graduate Program in 2005 and 2006
Management of Graduate Program, 2005, 2006, 2007
Management of budget (approx. \$ 2.5 million/year), budget cuts, and resource allocation
Hiring of staff and part-time instructors including performance review
Mentoring faculty members, as needed
Prepared CE Program changes for the university catalog, 2005
Review nominations for student and faculty awards
Presentations (6-12 per year) to potential donors, engineering/medical deans, corporations, alumni, UT Provost, on the state of the department
Presentations to attract future students on graduate education at three engineering schools in India, 2006
Development of MOU with CIT, 2005-06
Welcome speeches at Open Houses, Design Projects and conferences
Provide support for different college events and meet potential candidates for chair's position in the college
Participation in brainstorming sessions for the COE budget and branding initiatives
Attracting funding for scholarships by influencing businesses

Participation in specific programs to improve teaching and professional competence

Member of Toastmasters International, 1980-1992; 1998-01.
Attended Nuclear Regulatory Workshop on Emergency Preparedness, A&WMA Conferences, Clean Coal Technology Conference, Indoor Air Quality Conference, UN-WMO Conference on Boundary Layers, UT Modelling Group, AMS Conferences and Workshops by Regulatory groups in U.S.A., Canada and Europe.
Completed four self-study EPA courses.
Attended a micro-computer course, (1984), an industrial ventilation design course (1986), an asbestos control course (1986), a computer design course (1989) and a parliamentary procedure workshop (1990), Total Quality Management seminar (1992), Air Pollution Permits(1994), Advanced Windows (1999), WebCT (1999, 2000), HTML (2000), MS ACCESS (2001), HVAC (2002), Air Permits and Air Quality Problems (2004), Energy Management (2005), Faculty Contracts (2006), Ethics (2006), Web based Graduate Student Recruiting (2006), Sustainable Construction (2006), Information Security (2007).
Presented invited seminars for UT modeling group (1981, 1983), ASM local chapter (1987), IIT, New Delhi (1989), and State Radon Group (1998 to 2007).
Organized a Panel Discussion on Online Training with another professor at 2002 Annual AWMA Conference.
Presented invited seminar on "Issues with the AERMOD Modeling" at IIT Bombay, India, Jan. 2006.
Organized Panel Discussions on Outreach and Environmental Education with another member at 2006 and 2007 Annual AWMA Conferences.

Invited Papers

- Kumar, A. "Considerations of the Effects of Cross-Wind Shear, Surface Roughness, Release Height and PBL/TBL Height for Plume Sigmas." Presented at meeting of experts on "Systematization of Plume Sigmas for Canada", December 4-5, 1979, A.E.S. (Environment Canada).
- Kumar, A., "Air Quality Studies in the Tar Sands Development Area", paper # 80-59.1, 1980 Annual Meeting of the Air Pollution Control Association, Montreal.
- Kumar, A., "The New Clean Air Act and Its Impact in the United States", Limits, Control and Monitoring of Industrial Air Emissions, Hameenlina, Finland, May 1991.
- Kumar, A., "Environmental Engineering Education in the United States: Present and Future", Annual Conference of TOOL, Hameenlina, Finland, May 1991.
- Kumar, A., "Environmental Post-Graduate Education in the United States and its Impact on University Planning", Symposium on Requests and Prospects for Science and Engineering Education, Nessling Foundation, Helsinki, Finland, May 1991.
- Kumar, A., "The Use of Air modeling Programs to predict Atmospheric Dispersion of Hazardous Materials", Inland Spill Conference, Cleveland, OH, 1991.
- Kumar, A., "Ohio Radon Web Site", AARST Midwest Regional Radon Conference, June 1999.
- Kumar, A., "Teaching Risk to Engineering Students", Panel Presentation, A&WMA Annual Conference, 2000.
- Kumar, A., "Experience with Online and Web-Assisted Air Pollution Engineering Courses", Panel Presentation, A&WMA Annual Conference, 2002.
- Kumar, A., "A Database for Information on Testing and Radon Mitigation", Regional Meeting for USEPA Region V, April 23-25, Columbus, OH, 2003.
- Kumar, A. et al., "Examination of Input Data Issues with Air Quality Models", Plenary Lecture at the International Conference on Sustainable Technologies for Environmental Protection, Coimbatore, India, Jan. 2006.
- Kumar, A., Panelist on Future Issues in Environmental Engineering, International Conference on Sustainable Technologies for Environmental Protection, Coimbatore, India, Jan. 2006.
- Kumar, A., "Air Pollution in Asia and Globalization", Environmental Panel session at Oberlin College's Asian/Pacific American Conference entitled "Refocusing Our Lenses: Confronting Contemporary Issues of Globalization and Transnationalism" on Feb. 18, 2006.
- Kumar, A., "Analysis of Student Learning during a Distance Learning Course on Air Pollution Engineering", Panel on "Issues and Challenges Facing Environmental Education and Outreach", AWMA Conference, June 2006.
- Kumar, A., A. Vijayan, and C. Varadarajan, Development Of a Statewide Approach for Pollution Prevention Assessments for Small and Medium Size Industries In Ohio, 23rd ASEI National Convention, Sept. 8-9, Cerritos, Calif, 2006.
- Kumar, A., Energy Research Challenges in the 21st Century, Panel on Energy, AWMA Conference, 2007.

Honors and Awards

- Best student of the Year, 1969-70, President Shield
- University Gold Medal for Standing First, 1970
- Dean's Scholarship, University of Waterloo, 1976-77
- Invited as an expert by AES, Environment Canada for "Systematization of Plume Sigmas for Canada", 1980
- Competent toastmaster, Toastmasters International, 1984
- Passed certification examination for asbestos abatement work, 1986
- Able Toastmaster, Toastmasters International, 1988
- Fellow Member, Air and Waste Management Association, 1996
- The Civil Engineering Teacher of the Year, ASCE Student Chapter and CE Dept., 2001
- Outstanding Researcher Award, College of Engineering, Univ. of Toledo, May 2002
- L. A. Ripperton Award for distinguished achievement as an educator in the field of air pollution control, Air and Waste Management Association, June 2003

Media Exposure

- 4 press interviews to local newspapers on Toastmasters Club and radon research in 1987.
- 3 press interviews on radon research in 1988.

Appeared on PBS program "Viewpoint" on Radon (TV time 12 min. approx.).
 Appeared on local TV station in Campus profile on radon research.
 Local TV interviews in February 1989 to explain radon problems (covered by three channels)
 6 minute speech to press on Radon in Ohio, Columbus, April 1989
 Toledo Blade interview on Radon problem, 1989
 Radio interview on Clean Air Act (April 1990) and Indoor Radon (Oct. 1990)
 Local TV interview on oil fire in the Middle East (March 1991)
 Press Conference and a radio interview in Hameelinna, Finland on environmental education, Clean Air Act and radionuclide emissions, 1991
 Local newspaper interview on air emissions from a hazardous waste incineration facility, Riihimaki, Finland 1991.
 Presentation and question and answer period on Radon at public meeting (including press) in the city of Avon Lake, April 1995.
 Appeared in news items by local TV stations as a part of Professor's hearing, 1995.
 Appeared in newspaper articles entitled "Professor Helps Environment", 1996.
 Appeared on a local TV station (Channel 13) for discussing indoor air problems due to dish washers, 1999.
 Appeared in Toledo Blade article on Radon (Dec. 26, 1999) and UT Times article on Radon (Jan. 31, 2000).
 Appeared on a local TV station to discuss the effectiveness of smoke cleaning device with Dr. Abraham (Feb. 2001)
 The Columbus Dispatch interview for July 6, 2001 article on 'Ozone Drift' clouds smog-fighting effort.
 Appeared in Toledo Blade article on Ohio Air Pollution Research Web Site, Dec. 2001.
 Appeared in Toledo Blade article on Ohio Air Pollution Research Symposium, Oct. 26, 2002.
 Interview to Cleveland paper on radon (summer 2005).
 Press Conference at Coimbatore Press Club, India on the international conference. The story on the conference appeared in the local editions of major newspapers in India. Jan. 6, 2006.
 Interview with Toledo Free Press reporter Ms. Cox on Methyle Bromide, March 31, 2006.

Conference and Workshop Organization

Technical Program Chairman, 1988 International Specialty Conference on Environmental Challenges in Energy Utilization, Oct. 10-12, Air and Waste Management Association, (Developed the conference).
 Technical Program Chair, 1-day conference on "Waste Minimization and Pollution Prevention", Oct. 1990, NOC, AWMA.
 Technical Chair, PBT Workshop, March 2002, EWI, Inc., Columbus, (Developed the workshop).
 Program Chair, Green Science and Engineering Workshop, Sept. 2002, EISC Inc., Toledo, (Developed the workshop).
 Program Chair, Ohio Air Quality Research Symposium, Oct. 2002 and 2003, SeaGate Center, Toledo, (Developed the symposium).
 Technical Program Chair, Environmental Data Analysis, A&WMA Specialty Conference, Oct. 2005, (Co-developed the conference).
 Convenor, International Conference on Sustainable Technologies for Environmental Protection, India, Jan. 2006, (Co-developed the conference).
 Assisted in the development and execution of the A.H. Samborn Distinguished Lecture 2006 on Ethics by HalTaback, March 30, 2006.
 Arranged and developed one day trip of AWMA President to the University of Toledo including public seminar, Dec. 7, 2006.

Internet Development (during last ten years)

- Air Pollution Research Group Web Site : <http://homepages.utoledo.edu/aprg/>
- Four Air Pollution Courses : <http://homepages.utoledo.edu/aprg/courses/courses.htm>
- Radon Web Page : <http://radon.utoledo.edu>
- Pollution Prevention Tools : <http://P2Tools.utoledo.edu>
- Ohio Air Pollution Researchers' Database : <http://www.eng.utoledo.edu/~akumar/OAODA/Home.htm>

Consulting

NOVA/PETRO Canada, Toledo Edison, Detroit Edison, General Electric, Ontario Hydro, Technical Advisory Services, Libbey-Owens-Ford, Illinois Pollution Control Board, Sun Oil, OI-NEG, PNA.