

# RESUME

Jacob H. Dane

## General information:

born March 14, 1943, Rotterdam, The Netherlands

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## Education:

- B.S. Agricultural University, Wageningen, The Netherlands, Agricultural Engineering, 1969
- M.S. New Mexico State University, Las Cruces, NM, Soil Physics, minor in Civil Engineering, 1972
- Ph.D. Colorado State University, Fort Collins, CO, Soil Physics, minor in Mathematics, 1976

## Professional Experience:

- 1969-1972 Graduate Research Assistant, Department of Agronomy, New Mexico State University, Las Cruces, New Mexico
- 1972-1976 Graduate Research Assistant, Department of Agronomy, Colorado State University, Fort Collins, Colorado
- 1976 Research Associate, Department of Agricultural Engineering, Colorado State University, Fort Collins, Colorado
- 1976-1982 Assistant Professor, Department of Agronomy and Soils, Auburn University, AL

- 1982-1987 Associate Professor, Department of Agronomy and Soils, Auburn University, AL
- 1987-2004 Professor, Department of Agronomy and Soils, Auburn University, Auburn, AL
- 1994-1998 Alumni Professor , Department of Agronomy and Soils, Auburn University, Auburn, AL

**Research:**

Project Leader or Co-Project Leader for the following projects:

- Soil water movement in selected Alabama soils (1977-1982)
- Water transport phenomena in the soil-plant system (1977-1982)
- Movement and retention of water and solutes in selected southern region field soils (1977-1983)
- Water and heat movement in soils (1982-1987)
- Spatial and temporal variability of soil characteristics and material fluxes in field soils (1983-1988)
- A university program to study spatial and temporal variability of soil temperature, moisture and surface soil properties as they relate to science issues of global habitability (1984-1986)
- The collection of data on the movement of selected pesticides used in conservation tillage in Decatur soils of the Tennessee Valley of Alabama (1986-1987)
- Spatial and temporal variability of soil temperature, moisture and surface soil properties (1985-1988)
- Multiphase chemical transport in porous media (1988-1991)
- Water flow and chemical transport in Alabama Soils (1987-1992)
- Spatial and temporal variability of soil properties and effects on land use (1988-1993)
- Evaluation of mixing and plume penetration depth at the groundwater table (1989-

1992)

- Physical and numerical model study of the movement and mixing of dense leachate plumes in groundwater in homogeneous and heterogeneous porous media (1991-1993)
- Subsurface transport and mixing of dense leachates near the groundwater table (1992-1994)
- Surfactant enhanced transport of nonaqueous phase liquids in heterogeneous porous media (1993-1995)
- Surfactant effects on multiphase contaminant transport in porous media (1993-1995)
- Laboratory enhancement for multiphase transport and environmental restoration studies (1993-1995)
- Graduate Assistance for multiphase transport and environmental restoration studies (1993-1995)
- Subsurface transport of hydrocarbon fuel additives and a dense chlorinated solvent (1993-1995)
- A classification system to relate water and solute transport to soil physical, chemical and biological characteristics and landscape position (1993-1998)
- Fate and transport of selected hydrazines and their decomposition products in the subsurface (1996-1997)
- Investigation of DNAPL flow across porous media boundaries with contrasting pore sizes (1996)
- Improved predictions of multiphase flow in petroleum reservoirs: Determination of Constitutive Relationships (1997)
- Investigation of the entrapment and surfactant enhanced recovery of nonaqueous phase liquids in heterogeneous sandy (1997-1999)
- Surfactant-enhanced removal of dense non-aqueous phase liquids from porous media (1998-2003)
- Predicting pore size distributions of porous media from air permeability measurement (2004-2007)

## Financial Support

Financial support for the above projects was received from:

- Research Grant-in-Aid Auburn University
- duPont de Nemours & Company
- Cooperative State Research Service (CSRS) of the United States Department of Agriculture (USDA)
- Virginia Polytechnic Institute and University
- Gulf Oil
- Soil Conservation Service (SCS)
- National Aeronautics and Space Administration (NASA)
- Environmental Protection Agency (EPA)
- Electric Power Research Institute (EPRI)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Battelle, Pacific Northwest National Laboratory
- Alabama Agricultural Experiment Station (AAES)
- Alabama Engineering Experiment Station

Total amount of funding: **2.6 million** dollars

## Past and Current Research Collaborators:

- Abriola, Linda, Dept. of Civil and Environmental Engineering, University of Michigan
- Ahuja, L.R., USDA-ARS-GPSR, Fort Collins, CO
- Celia, M.A., Dept. of Civil Engineering and Operations Research, Princeton University)
- Clarke, G.P.Y., Dept. of Statistics and Biometry, University of Natal, Pietermaritzburg, South Africa
- Corey, A.T. (retired), Dept. of Agricultural and Chemical Engineering, Colorado State University
- Güven, O., Civil Engineering Dept., Auburn University
- Hajek, B.F., Agronomy and Soils Dept., Auburn University
- Hill, W.E., Chemistry Department, Auburn University
- Hofstee, C., WAREM, University of Stuttgart, Germany
- Hopmans, J.W., Department of Land, Air and Water Resources, Davis, CA
- Jaffe, P., Dept. of Civil Engineering and Operations Research, Princeton University
- Klute, A. (retired), Department of Agronomy, Colorado State University
- Leij, Feike, United States Salinity Lab, Riverside, CA

- Leijnse, A., Dutch Institute for Environmental Hygiene, Bilthoven, The Netherlands
- Lenhard, R.J., Battelle Pacific Northwest National Laboratory, Richland, WA
- Liu, Hui-Hai, Lawrence Berkely National Laboratory, Palo Alto, CA
- Mathis, F., Dept. of Mathematics, Rice University
- Melville, J.G., Civil Engineering Dept., Auburn University
- Molz, F.J., Civil Engineering Dept., Clemson University
- Oostrom, M., Battelle Pacific Northwest National Laboratory, Richland, WA
- Parker, J., Soil Science Dept., Virginia Polytechnic Institute and University
- Pennell, Kurt, Dept. of Civil and Environmental Engineering, Georgia Institute of Technology
- Peterson, C.M., Dept. of Botany and Microbiology, Auburn University
- Pinder, G.F., College of Engineering and Mathematics, University of Vermont
- Zijlstra, J., Dept. of Mathematics, Middle Tennessee State Univ., Murfreesboro, TN
- Zartl, Angelika, BOKU. Vienna Agricultural University, Austria
- Kammerer, Gerhard, BOKU. Vienna Agricultural University, Austria

#### **Honors, Recognitions, and Awards:**

- Senior Research Fellowship, Agricultural University, Wageningen, The Netherlands, 1983
- Chairman, organizing committee, Symposium on Water Quality in Alabama: Non-Point Source Pollution, Present Status and Future Directions, 1988, Auburn, Alabama
- Invited speaker, International Workshop, Indirect Methods for Estimating the Hydraulic Properties of Unsaturated Soils, Riverside, CA, 1989
- Senior Research Award, Alabama Agricultural Experiment Station, 1990
- Invited participant, Workshop of the Department of Energy's Subsurface Science Program/Intermediate Scale Subsurface Transport of Co-Contaminants Program, Lewes, Delaware, 1990
- Invited speaker, Water Quality Workshop, State of the art in modeling solute transport in soils, University of Mayaguez, Puerto Rico, 1990
- Invited co-author of the U.S. National Report to the International Union of Geodesy and Geophysics, 1990
- Certificate for 5 years of service as Associate Editor, Soil Science Society of America Journal, Soil Physics Division, 1990

- Supervisor Ph.D. student (Mart Oostrom) who received the A.L. Smith award for outstanding scholastic achievement in Agronomy and Soils, 1990
- Invited speaker, Spring Meeting, American Geophysical Union, Baltimore, MD, 1991
- Supervisor of one of the top ten Outstanding Graduate Students (Mart Oostrom) at Auburn University, 1991
- Supervisor of Ph.D. student (Mart Oostrom) who received the Harry Merriwether Fellowship for the 1991-1992 academic year
- Invited speaker, Faculty Seminar, Agronomy Dept., University of Georgia, Athens, GA, 1992
- Certificate for 3 years of service as Technical Editor, Soil Science Society of America Journal, Soil Physics Division, 1993
- Visiting Professor Research Fellowship, Colorado State University, Fort Collins, CO, 1993
- Reviewer for Dept. of Energy, Multiphase Fluid Flow Program, Gaithersburg, MD, 1994
- Supervisor of one of the six Graduate Students (H.H. Liu) at Auburn University selected for a poster presentation in the sciences session of the Graduate Research Forum, 1994
- Supervisor Ph.D. student (H.H. Liu) who received the A.L. Smith award for outstanding scholastic achievement in Agronomy and Soils, 1994
- Alumni Professor, 1994-1998
- Supervisor of Outstanding Student (H.H. Liu) in the College of Agriculture
- Fellow, Soil Science Society of America, 1995
- Supervisor of Ph.D. Student (H.H. Liu) receiving the Emil Truog Soil Science Award (best Ph.D. dissertation) of the Soil Science Society of America, 1996
- Supervisor of Ph.D. Student (H.H. Liu) receiving honorable mention for the best Ph.D. dissertation in engineering and the physical sciences by the Universities Council on Water Resources, 1996

- Supervisor Ph.D. student (C. Hofstee) who received the A.L. Smith award for outstanding scholastic achievement in Agronomy and Soils, 1997
- Fellow, American Society of Agronomy, 1997
- Invited speaker, International Workshop, Characterization and Measurement of the Hydraulic Properties of Unsaturated Porous Media, Riverside, CA, 1997
- Invited speaker, International Workshop, International Study Group on Inverse Modeling. Naples, Italy. 1998
- Invited speaker, Lecture Series in Science, Mathematics and Engineering, Auburn Univ., 1999
- Invited speaker, Dept. of Civil Engineering, Univ. of South Carolina, Columbia, 1999
- Supervisor Ph.D. student (M. Jalbert) who received the A.L. Smith award for outstanding scholastic achievement in Agronomy and Soils, 2000
- Guest Professor, Vienna Agricultural Univ., Vienna, Austria, 2000
- Invited speaker, Institute of Soil Physics, Vienna Agricultural Univ., Vienna, Austria, 2000
- Chair, Soil Physics Division of SSSA, 2001-2002
- Co-editor: J.H. Dane and G.C. Topp (ed.). 2002. Methods of Soil Analysis. Part 4. Physical Methods. 1692 pp. SSSA Book Series 5. SSSA, Madison, WI.
- Host of visiting scientist, Angelika Zartl, from Vienna, Austria, 2002
- Host of visiting scientist, Gerhard Kammerer, from Vienna, Austria, 2002
- Invited speaker, Environmental Institute, Auburn University, 2003
- Invited speaker, Physics Department, Auburn University, 2003

**Teaching:**

- Soil Physics (Composition and physical properties of soils; Equilibrium in force fields and theory of potentials; Static equilibria in soil; General concepts of transport processes in soil; Flow of water in soil; Gas transport in soil; Heat transport in soil)

- Advanced Soil Physics (Transport phenomena in porous media, including topics such as simultaneous movement of water vapor, liquid water and heat; multiphase fluid flow; and chemical transport)
- Special Problems (upon request)
- Chairman, Departmental Graduate Program Committee
- Member, Departmental Graduate Program Committee

**University Involvement (past and current):**

Departmental Committees (chairman or member):

- Graduate Program
- Laboratory Space
- Flower and Social
- Irrigation
- Library
- Minicomputer
- Program Review (CSRS)
- Hard- and software main office
- Faculty Search
- Dept. Head Search

AAES and College of Agriculture Committees (chairman or member):

- Library
- Environmental Studies Service Research Center
- Annual Staff Conference
- Self Study
- Environmental Quality Research Thrust
- Endowed Environmental Chair
- Water Quality Proposals
- Env./Water Quality Development

University Committees (chairman or member):

- Radiological Safety (2x)
- Senate (2x)
- General Faculty Nominating
- Water Resources Council
- Graduate Program

- Academic Standard (2x)
- Phi Kappa Phi Fellowship
- Phi Kappa Phi Ad Hoc
- Sigma Xi Faculty Award
- Foreign Graduate Student
- Appeals Board Traffic and Parking
- Provost and Academic Vice-President Search
- Cultural Diversity
- Rules
- Ad Hoc Committee on non tenure track research professors
- Sabbatical Leave Committee

### **Faculty Improvement:**

Workshop, 1982, Fundamental concepts in modeling fluid flow and solute transport in porous media, Civil Engineering Department, Princeton University, Princeton, NJ.

Workshop, 1982, Spatial Variability, Auburn University.

Faculty improvement leave, 1983, Soil Science Department, Agricultural University, Wageningen, The Netherlands.

Workshop, 1984, Soil Spatial Variability, International Soil Science Society and American Soil Science Society, Las Vegas, Nevada.

Course, 1985, Computational methods in subsurface flow, Civil Engineering Department, Auburn University, Visiting Professor Dr. Peter S. Huykorn.

International Symposium on Groundwater Quality, 1988, Logan, Utah.

International workshop, 1989, Indirect methods for estimating the hydraulic properties of unsaturated soils, Riverside, California.

Short courses at Auburn: Typing for beginners, 1986; WordPerfect, 1987; Telecommunications (bitnet), 1988; WordPerfect (equations), 1990; Fixed disc management, 1990; System administrator for SUN computers, 1990; Open Windows for SUN computers, 1992; Lotus 1-2-3, 1993.

Faculty improvement leave, 1993, USDA-ARS, Great Plains System Research Unit, Fort Collins, Colorado (through Colorado State University).

Workshop on air permeability measurement in porous media, 1998, Fort Collins, Colorado

International workshop on inverse modeling, 1998, Naples, Italy.

Faculty improvement leave, 2000, Institute of Soil Physics (BOKU). Vienna Agricultural University, Vienna, Austria.

Excel short courses: Introduction, Intermediate, Advanced, 2002

### **Scientific, Professional, and Honorary Societies:**

American Society of Agronomy  
Soil Science Society of America  
International Soil Science Society  
Soil Science  
American Geophysical Union - Hydrology Section  
Sigma Xi - Scientific Honorary  
Gamma Sigma Delta - Agricultural Honorary  
Phi Kappa Phi

### **Professional Services:**

Secretary, Vice-Chairman, Chairman, 1981 - 1983, S-124 Regional Technical Committee, Movement and retention of water and solutes in selected southern region field soils.

Session chairman at the National Soil Science Society of America meetings, Div. S-1 (Soil Physics): 1978, 1979 (2x), 1983, 1984, 1992 (special session on multiphase flow).

Associate Editor, Soil Science Society of America Journal, 1986-1990 (5 years).

Technical Editor, Soil Science Society of America Journal, 1991-1993 (3 years).

Member, Soil Science Research Award of the Soil Sci. Soc. Amer., 1995-1996.

Member, Bouyoucos Conferences - Soil Science Society of America Standing Committee (S773), 1997 - 1999.

Member, Glossary of Soil Science Terms Committee, Soil Sci. Soc. Amer., 1997-2000.

Co-Editor (1997-2002). J.H. Dane and G.C. Topp (ed.) Methods of Soil Analysis. Part 4. Physical Methods. 1692 pp. SSSA Book Series 5. SSSA, Madison, WI.

Chair-elect, Soil Sci. Soc. Amer., Soil Physics division, 2000-2001.

Associate Editor, Vadose Zone Journal, 2001-2003.

Chair, Soil Sci. Soc. Amer., Soil Physics division, 2001-2002.

Member, Program Organizing Committee, Soil Sci. Soc. Amer., 2002-2003

Member, nominating committee for President of the Soil Sci. Soc. Amer., 2001-2002.

Past-Chair, Soil Sci. Soc. Amer., Soil Physics division, 2002-2003.

Member, Early Career Award Committee, S-1, Soil Sci. Soc. Amer., 2002-2003

Reviewer for:

- Soil Science Society of America Journal
- Soil Science
- Agronomy Journal
- Journal of Environmental Quality
- Water Resources Research
- Journal of Hydrology
- Journal of Contaminant Hydrology
- American Society of Agricultural Engineers
- Environmental and Experimental Botany
- Small Business Innovation Research
- Department of Defense
- Department of Energy
- United States - Israel Binational Agric. Research and Development Fund
- National Science Foundation
- Journal of Natural Resources and Life Sciences Education
- Environmental Science & Technology
- Advances in Water Resources
- Groundwater
- Transport in Porous Media
- CRC
- Dutch Government

Product evaluator for the Alabama Department of Agriculture and Industries.

Publications in scientific journals (\* indicates former graduate student)

1. Dane, J.H. and P.J. Wierenga. 1975. Effect of hysteresis on the prediction of infiltration, redistribution and drainage of water in a layered soil. J. Hydrology 25:229-242.

2. Dane, J.H. and A. Klute. 1977. Salt effects on the hydraulic conductivity of a swelling soil. *Soil Sci. Soc. Am. J.* 41:1043-1049.
3. Dane, J.H. 1978. Calculation of hydraulic conductivity decreases in the presence of mixed NaCl-CaCl<sub>2</sub> solutions. *Can. J. Soil Sci.* 58:145-152.
4. Molz, F.J., D.V. Kerns, Jr., C.M. Peterson and J.H. Dane. 1979. A circuit analog model for studying quantitative water relations in plant tissues. *Plant Physiol.* 64:712-716.
5. Weatherly\*, A.B. and J.H. Dane. 1979. Effect of tillage on soil water movement during corn growth. *Soil Sci. Soc. Am. J.* 44:228-232.
6. Dane, J.H. 1980. Comparison of field and laboratory determined hydraulic conductivity values. *Soil Sci. Soc. Am. J.* 44:228-231.
7. Puckett\*, W.E. and J.H. Dane. 1981. Testing tensiometers by a vacuum method. *Soil Sci.* 132:444-445.
8. Dane, J.H. and F.H. Mathis. 1981. An adaptive finite difference scheme for the one-dimensional water flow equation. *Soil Sci. Soc. Am. J.* 45:1048-1054.
9. Dane, J.H. and S. Hruska. 1983. In-situ determination of soil hydraulic properties during drainage. *Soil Sci. Soc. Am. J.* 47:619-624.
10. Dane, J.H. and F.H. Mathis. 1983. Reply to "Comments on an adaptive finite difference scheme for the one-dimensional water flow equation." *Soil Sci. Soc. Am. J.* 47:617.
11. Pinyerd, C.A., J.W. Odom, F.L. Long and J.H. Dane. 1984. Boron movement in a Norfolk loamy sand. *Soil Sci.* 137:428-433.
12. Hopmans\*, J.W. and J.H. Dane. 1985. Effect of temperature-dependent hydraulic properties on soil-water movement. *Soil Sci. Soc. Am. J.* 49:51-58.
13. Puckett\*, W.E., J.H. Dane and B.F. Hajek. 1985. Physical and mineralogical data to determine soil hydraulic properties. 1985. *Soil Sci. Soc. Am. J.* 49:831-836.
14. Hopmans\*, J.W. and J.H. Dane. 1986. Temperature dependence of soil hydraulic properties. *Soil Sci. Soc. Am. J.* 50:4-9.
15. Hopmans\*, J.W. and J.H. Dane. 1986. Combined effect of hysteresis and temperature on soil water movement. *J. Hydrology* 83:161-171.
16. Dane, J.H., R.B. Reed and J.W. Hopmans. 1986. Estimating soil parameters and sample size by bootstrapping. *Soil Sci. Soc. Am. J.* 50:283-287.

17. Hopmans\*, J.W. and J.H. Dane. 1986. Temperature dependence of soil water retention curves. *Soil Sci. Soc. Am. J.* 50:562-567
18. Hopmans\*, J.W. and J.H. Dane. 1986. Calibration of a dual-energy gamma radiation system for multiple point measurements in a soil. *Water Resour. Res.* 22:1109-1114.
19. Hopmans\*, J.W. and J.H. Dane. 1986. Thermal conductivity of two porous media as a function of water content, temperature and density. *Soil Sci.* 142:187-195.
20. Lenhard, R.J., J.H. Dane, J.C. Parker and J.J. Kaluarachchi. 1988. Measurement and simulation of one-dimensional transient three-phase flow for monotonic liquid drainage. *Water Resour. Res.* 24: 853-863.
21. Leij\*, F.J. and J.H. Dane. 1990. Analytical solutions of the one-dimensional advection and two- or three-dimensional dispersion equation. *Water Resour. Res.* 26: 1475-1482.
22. Leij\*, F.J. and J.H. Dane. 1990. Determination of exchange isotherms for modeling cation transport in soils. *Soil Sci.* 150: 816-826.
23. Leij\*, F.J. and J.H. Dane. 1991. The effect of transverse dispersion on solute transport. *J. Hydr.* 122: 407-422.
24. Dane, J.H. and F.J. Molz. 1991. Physical measurements in subsurface hydrology. *Reviews of Geophysics, U.S. National Report to International Union of Geodesy and Geophysics 1987-1990: 270-279.*
25. Hayworth, J.S., M. Oostrom\*, O. Güven, J.H. Dane, and J.G. Melville. 1991. Visualization studies of dense leachate plumes in porous media. p. 281-286. In: *Proceedings of the International Symposium on Groundwater.* G.P. Lennon, Ed. American Society of Civil Engineers, New York, NY.
26. Oostrom\*, M., J.H. Dane, O. Güven, J.S. Hayworth, and W.E. Hill. 1991. Concentration measurements in dense leachate plumes using a gamma radiation system. p. 287-292. In: *Proceedings of the International Symposium on Groundwater.* G.P. Lennon, Ed. American Society of Civil Engineers, New York, NY.
27. Leij\*, F.J., J.H. Dane, and M.Th. van Genuchten. 1991. Mathematical analysis of one-dimensional solute transport in a layered soil profile. *Soil Sci. Soc. Am. J.* 55: 944-953
28. Leij\*, F.J. and J.H. Dane. 1991. Solute transport in a two-layer medium investigated with time moments. *Soil Sci. Soc. Am. J.* 55: 1529-1535.
29. Guarnaccia, J.F., P.T. Imhoff, B.C. Missildine, M. Oostrom, M.A. Celia, J.H. Dane, P.R. Gaff, and G.F. Pinder. 1992. Multiphase chemical transport in porous media. EPA Environmental Research Brief: EPA/600/S-92/002. 19 p.

30. Leij\*, F.J. and J.H. Dane. 1992. Moment method applied to solute transport with binary and ternary exchange. *Soil Sci. Soc. Am. J.* 56: 667-674.
31. Oostrom\*, M., J.S. Hayworth, J.H. Dane and O. Güven. 1992. Behavior of dense aqueous phase leachate plumes in homogeneous porous media. *Water Resources Research* 28: 2123-2134.
32. Oostrom\*, M., J.H. Dane, O. Güven and J.S. Hayworth. 1992. Experimental investigation of dense solute plumes in an unconfined aquifer model. *Water Resources Research* 28:2315-2326.
33. Dane, J.H., M. Oostrom and B.C. Missildine. 1992. An improved method for the determination of capillary pressure-saturation curves involving TCE, water, and air. *J. Contaminant Hydrology* 11: 69-81.
34. Oostrom\*, M., J.H. Dane and O. Güven. 1992. A comparison of dispersivity values determined from in situ and effluent breakthrough curves. *Soil Sci. Soc. Am. J.* 56: 1754-1758.
35. Dane, J.H. and W.E. Puckett. 1992. Field soil hydraulic properties based on physical and mineralogical information. *In* M.Th. van Genuchten and F.J. Leij (eds.), *Proceedings of an International Workshop, Indirect Methods for Estimating the Hydraulic Properties of Unsaturated Soils*. University of California at Riverside Printing Office.
36. Salverda\*, A.P. and J.H. Dane. 1993. An examination of the Guelph permeameter method for measuring the soil's hydraulic properties. *Geoderma*: 57:405-421.
37. Liu\*, Hui-Hai and J.H. Dane. 1993. Reconciliation between measured and theoretical temperature effects on soil water retention curves. *Soil Sci. Soc. Am. J.* 57:1202-1207.
38. Dane, J.H., O. Güven, M. Oostrom, J.S. Hayworth, and A. Leijnse. 1994. Dense aqueous phase contaminant plume behavior in porous media near the groundwater table. *Future Groundwater Resources at Risk*. IAHS Publ. no. 222: 333-340.
39. Johnson, K.E., H.H. Liu\*, J.H. Dane, L.R. Ahuja, and S.R. Workman. 1995. Simulating fluctuating water tables and tile drainage with a modified root zone water quality model and a new model WAFLOWM. *Transactions of the ASAE* 38:75-83.
40. Liu\*, H.H., J.H. Dane, and O. Güven. 1995. Adaptive modified method of characteristics to solve the one-dimensional solute transport equation. *Soil Sci. Soc. Am. J.* 59:677-683.
41. Oostrom, M., J.H. Dane, B.C. Missildine, and R.J. Lenhard. 1995. Error analysis of dual-energy gamma radiation measurements. *Soil Sci.* 160:28-42.
42. Liu\*, H.H. and J.H. Dane. 1995. Improved computational procedure for retention relations

- of immiscible fluids using pressure cells. *Soil Sci. Soc. Am. J.* 59:1520-1524.
43. Yoo, K.H., J.H. Dane, and B.C. Missildine. 1995. Soil-water content changes under three tillage systems used for cotton. *J. Sustainable Agric.* 7:53-61.
  44. Liu\*, H.H. and J.H. Dane. 1996. Two approaches to modeling unstable flow and mixing of variably density fluids in porous media. *Transport in Porous Media* 23:219-236.
  45. Liu\*, H.H. and J.H. Dane. 1996. An extended transfer function model of field-scale solute transport: Model development. *Soil Sci. Soc. Am. J.* 60:986-991.
  46. Zijlstra\*, J. and J.H. Dane. 1996. Identification of hydraulic parameters in layered soils based on a quasi-Newton method. *J. Hydr.* 181:233-250.
  47. Liu\*, H.H. and J.H. Dane. 1996. A criterion of gravitational instability in miscible dense plumes. *J. Cont. Hydr.* 23:233-243.
  48. Ostrom, M., C. Hofstee, J.H. Dane, and M.D. White. 1996. Simulation of a quantitative multi-fluid flow experiment. In: *Proceedings of the XI International Conference on Computational Methods in Water Resources*. A.A. Aldema et al. (eds.), pp. 449-456. Kluwer Academic Publications. London.
  49. Liu\*, H.H. and J.H. Dane. 1996. An interpolation corrected modified method of characteristics to solve advective-dispersion equations. *Advances in Water Resour.* 19:359-368.
  50. Liu\*, H.H. and J.H. Dane. 1997. A numerical study on gravitational instabilities of dense aqueous phase plumes in three-dimensional porous media. *J. Hydr.* 194:126-142.
  51. Hofstee\*, C., J.H. Dane, and W.E. Hill. 1997. Three-fluid retention in porous media involving water, PCE and air. *J. Cont. Hydr.* 25:235-246.
  52. Ostrom, M., C. Hofstee, and J.H. Dane. 1997. Light nonaqueous-phase liquid movement in a variably saturated sand. *Soil Sci. Soc. Am. J.* 61:1547-1554.
  53. Hill, W.E., J.Szechi, C. Hofstee, and J.H. Dane. 1997. Fate of a highly strained hydrocarbon in aqueous soil environment. *Environm. Sci. Technol.* 31:651-655.
  54. Ostrom, M., C. Hofstee, R.J. Lenhard, R.C. Walker, J.H. Dane, and M.D. White. 1997. Physical modeling of multifluid behavior in porous media. *Proceedings of the Seventeenth Annual American Geophysical Union Hydrology Days*, Fort Collins, Colorado, p241-254.
  55. Mansell, R.S., J.H. Dane, Dilip Shinde and H.H. Liu. 1997. Density-coupled water flow and contaminant transport in porous media: An overview. In: H.M. Selim and L. Ma (eds.). *Physical Nonequilibrium in Soils: Modeling and Application*. Ann Arbor Press.

p371-387.

56. Hofstee\*, C., R.C. Walker, and J.H. Dane. 1998. Infiltration and redistribution of perchloroethylene in stratified water-saturated porous media. *Soil Sci. Soc. Am. J.* 62:13-22.
57. Hofstee\*, C., R.C. Walker, and J.H. Dane. 1998. Infiltration and redistribution of perchloroethylene in partially saturated, stratified porous media. *J. Contam. Hydrol.* 34:293-313.
58. Walker\*, R.C., C. Hofstee, J.H. Dane, and W.E. Hill. 1998. Surfactant enhanced removal of PCE in a nominally two-dimensional, saturated, stratified porous medium. *J. Contam. Hydrol.* 34:17-30.
59. Walker\*, R.C., C. Hofstee, J.H. Dane, and W.E. Hill. 1998. Surfactant-enhanced removal of PCE in a partially saturated, stratified porous medium. *J. Contam. Hydrol.* 34:31-46.
60. Oostrom, M., C. Hofstee, J.H. Dane and R.J. Lenhard. 1998. Single-source gamma radiation procedures for improved calibration and measurements in porous medium systems. *Soil Sci.* 163:646-656.
61. Dane, J.H., C. Hofstee, and A.T. Corey. 1998. Simultaneous measurement of capillary pressure, saturation, and effective permeability of immiscible liquids in porous media. *Water Resour. Res.* 34:3687-3692.
62. Oostrom, M.C., C. Hofstee, R.C. Walker, and J.H. Dane. 1999. Movement and remediation of trichloroethylene in a saturated heterogeneous porous medium. 1. Spill behavior and initial dissolution. *J. Contam. Hydrol.* 37:159-178.
63. Oostrom, M.C., C. Hofstee, R.C. Walker, and J.H. Dane. 1999. Movement and remediation of trichloroethylene in a saturated heterogeneous porous medium. 2. Pump-and-treat and surfactant flushing. *J. Contam. Hydrol.* 37:179-197.
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65. Jalbert, M., Jacob H. Dane, Linda A. Abriola, and Kurt D. Pennell. 1999. A nondimensional evaluation of tracer sensitivity to density effects. *Ground Water.* 38:226-233.
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Other pertinent information

Invited speaker, Administrative Council, Auburn Public School System, New Ideas in Education, 1991.

Invited speaker and panelist, Auburn League of Women Voters, Groundwater pollution, 1991.

Invited speaker at the LEADERS Study Institute of Alabama, 1993.

Faculty advisor for the student chapter of the Sierra Club, 2003 until present.