

## Mustafa M. ARAL

Ph.D., P.E., P.Hy., F. ASCE

Professor and Director

Multimedia Environmental Simulations Laboratory

School of Civil and Environmental Engineering

Georgia Institute of Technology

Atlanta, Georgia 30332-0355 USA

Phone: (404) 894-2243; Fax Phone: (404) 894-5111;

E-mail: [maral@ce.gatech.edu](mailto:maral@ce.gatech.edu); WWW: <http://mesl.ce.gatech.edu/>

### PERSONAL DATA SUMMARY

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Born : Ankara, Turkey  
Citizenship : U.S.A.  
Home Address : 270 17<sup>th</sup> ST. NW Unit 809, Atlanta, GA. 30363, USA

### PROFESSIONAL REGISTRATION

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Professional Engineer (PE): GA. 15254  
Professional Hydrologist, AIH National Registration (PHy): No.: 649  
Professional Groundwater Hydrologist, NGWA-ASWSE: No.: 115204

### EDUCATIONAL BACKGROUND

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Ph.D. in Environmental Fluid Mechanics with minor in Numerical Analysis and Applied Mathematics, Sept. 1971, School of Civil Eng., Georgia Institute of Technology, USA.  
M.S. in Civil Engineering with major in Environmental and Water Resources Engineering, June 1969, School of Civil Eng., Georgia Institute of Technology, USA.  
B.S. in Civil Engineering, June 1967, Department of Civil Engineering, Middle East Technical University, Turkey.

### PROFESSIONAL EXPERIENCE

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1994-present	Professor	School of Civil and Environmental Engineering, Ga. Tech.
1993-present	Director	Multimedia Environmental Simulations Laboratory (MESL) Ga. Tech
1983-1994	Assoc. Professor	School of Civil and Environmental Engineering, Ga. Tech.
1979-1983	Visiting Professor	School of Civil and Environmental Engineering Ga. Tech. (On sabbatical)
1974-1982	Adjunct Professor	Marine Sciences Dept., Civil Eng. Dept., Eng. Science Dept., Middle East Technical University, Turkey.
1977-1982	Assoc. Professor	Mathematics Dept., Middle East Tech. Univ., Turkey.
1974-1979	Assistant Chairman	Mathematics Dept., Middle East Tech. Univ., Turkey.
1971-1977	Assistant Professor	Mathematics Dept., Middle East Tech. Univ., Turkey.

## HONORS AND AWARDS

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- 1973, NATO, Science Fellowship, September 1973.
- 1976, Best Teacher Award, Middle East Technical Univ., Mathematics Department, May 1976.
- 1976, NATO, Science Fellowship, September 1976.
- 1980, Who is Who in Science, Engineering and Education series since 1980.
- 1984, Award of Appreciation, in acknowledgment of contributions to the organization of the ASCE International Conference held in Atlanta, American Society of Civil Engineers, June 1984.
- 1986, Outstanding Faculty Member, Georgia Institute of Technology, May 1986.
- 1986, Sigma Xi Research Society.
- 1986, Best Teacher Award, Georgia Institute of Technology, June 1986.
- 1995, Award of Recognition, for the Organization of the East-West Advanced Study Institute on Environmental Issues, NATO, Scientific and Environmental Affairs Division, August 1995.
- 1996, Engineering Technical Excellence Award, Public Health Serv., USDHHS 1996 for the technical paper: "Estimating Exposure to VOCs from Municipal Water System Pipelines: Use and Application of a Computational Model, *Archives of Environmental Health*, May 1996 (with co-authors).
- 1997, Research Program Development Award, in Recognition for Developing a Consistent and Comprehensive Research Program in Environmental Health, School of Civil and Environmental Engineering, Georgia Institute of Technology, May 1997.
- 1997, Science Publication Award, ATSDR, US DHHS, for the technical paper: "Use of Computational models to Reconstruct and Predict Trichloroethylene Exposure," in *Toxicology and Industrial Health*, April 1997 (with co-authors).
- 1997, Award of Appreciation, in acknowledgment of contributions to the organization of the International Conference on Geology and Environment (GeoEnv'97), September 1997.
- 1998, Engineering Literary Excellence Award, Public Health Serv., USDHHS for the technical paper: "Exposure Assessment Using Analytical and Numerical Models: A Case Study," in *ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, April 1998 (with co-authors).
- 1998, Honorary Professor of Environmental Sciences, Huazong University of Science and Technology, Wuhan, Peoples Republic of China.
- 2000, Cuming Award 2000, The Society of American Military Engineers award to Dover Township Water Distribution System Modeling Research Team.
- 2000, Best Practice Oriented Paper Award, ASCE Environmental & Water Resources Institute Planning and Management Council, for the technical paper "Using Water-Distribution System Modeling to Assist Epidemiologic Investigations," *ASCE Journal of Water Resources Planning and Management*, Vol. 126, No. 4, 2000 (with co-authors).
- 2003, Excellence in Environmental Engineering Award in Research Category, American Academy of Environmental Engineers (AAEE). *Research Topic: "Enhancing Environmental Engineering Science to Benefit Public Health: Integrating Hydraulic Network Modeling, Spatial Analysis, and Genetic Algorithms with Epidemiologic Studies,"* Awarded to ATSDR – MESL/GT Research Group.
- 2005, Engineering Technical Excellence Award, Public Health Service, USDHHS for the technical paper: "ACTS - A Multimedia Environmental Fate and Transport Analysis System." in *ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, published in 2004 (with co-authors).

- 2006, Excellence in Applied Environmental Health Research, National Center for Environmental Health (NCEH), Centers for Disease Control and Prevention (CDC), for our work in assisting NCEH/CDC in an epidemiological study of childhood leukemia and central nervous system cancers that occurred in the period 1979 through 1996 in Dover Township, New Jersey and Camp Lejeune (Air Force Army Base) at North Carolina.
- 2010, Best Paper Award, ASCE Water Resources Management Council, for the technical paper "Saltwater Intrusion Hydrodynamics in a Tidal Beach," *ASCE Journal of Hydrologic Engineering*, Vol. 13, No. 9: pp. 863-872 (with co-authors).
- 2010, US Public Health Service Engineering Best Paper Award, CDC, DHHS. "Reconstructing Historical Exposures to Volatile Organic Compound-Contaminated Drinking Water at a U.S. Military Base," *Journal of Water Quality, Exposure and Health*, Vol. 1, No. 1, pp. 49-68, (with co-authors).
- 2010, Outstanding Service Award, ASCE EWRI, for Groundwater Hydrology Committee Chair activities under EWRI Groundwater Council.
- 2010, Life Member, ASCE EWRI.
- 2010, Fellow ASCE, ASCE, EWRI.
- 2011, James R. Croes Medal, ASCE EWRI, for the paper: "Optimal Design of Sensor Placement in Water Distribution Systems," *ASCE Journal of Water Resources Planning and Management*, Vol. 136, No. 1, pp.5-18, 2010.
- 2011, Founders Award, American Institute of Hydrology for dedicated contribution to the profession.
- 2011, USPHS Engineering Literary Award, for an outstanding Engineering Management Paper entitled "Stochastic Analysis of Pesticide Transport in the Shallow Groundwater of Oatland Island, Georgia." Published in the *International Journal on Water Quality, Exposure and Health*, Vol. 2, No. 1, pp. 47-64.
- 2013, Sustained Interdisciplinary Research Award, in Recognition for Developing a Consistent, Comprehensive and Integrated Research Program within CEE, Georgia Institute of Technology.

## BOOKS

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- Aral, M. M.**, Ground Water Modeling in Multilayer Aquifers - Steady Flow, *Lewis Publ. Inc.*, 1990.
- Aral, M. M.**, Ground Water Modeling in Multilayer Aquifers - Unsteady Flow, *Lewis Publ. Inc.*, 1990.
- Aral, M. M.** (2011) "Environmental Modeling and Health Risk Analysis," Springer Publishers, Berlin, 487p., ISBN 978-90-481-8607-5.

## EDITED BOOKS

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- Aral, M. M.** (Editor), Recent Advances in Ground-Water Pollution Control and Remediation, NATO Adv. Study Inst., *Kluwer Acad. Publ.*, 609p, January 1996.
- Aral, M. M.**, Brebbia, C, Maslia M and Sinks, T. (Editors) (2005) "Environmental Exposure and Health," Proceedings of the 1<sup>st</sup> International Conference on Environmental Exposure and Health, Atlanta Ga. USA, WIT Press, 502p.
- Aral, M. M.** and Taylor S. (Editors) (2011) "Groundwater Quality and Quantity Management," ASCE, 573p., ISBN-978-0-7844-1176-6.

## CHAPTERS IN BOOKS

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- Aral, M. M.**, C. Shea and F. Al-Khayyal, "Optimization Methods in Ground Water Management," Review Paper in Volume 8, "Applications of Management Science: Network Optimization Applications," *JAI Press Inc.*, pp. 213-246, 1995.
- Aral, M. M.** C. Shea and F. Al-Khayyal, "Optimal Design of Pump-and Treat Well Networks," NATO Adv. Study Inst. on Ground Water Pollution Control and Remediation, *Kluwer Acad. Publ.*, pp. 307-333, January 1996.
- Aral, M. M.**, and Guan, J, "Genetic Algorithms in Search of Groundwater Pollution Sources," NATO Adv. Study Inst. on Ground Water Pollution Control and Remediation, *Kluwer Acad. Publ.*, pp. 347-369, January 1996.
- Aral, M. M.** and Maslia, M. L., Application of Monte Carlo Simulations in Analytical Contaminant Transport Modeling, Chapter 13, pp. 305-315, in ASCE book on "Groundwater Quality Modeling and Management Under Uncertainty," Ed. by Srikan Tamishra, 2003.
- Aral, M. M.**, and Gunduz, O., Scale Effects in Large Scale Watershed Modeling. Chapter 11 in "ADVANCES IN HYDROLOGY" Ed. by V. Singh and R. N. Yadava, 2003.
- Aral, M. M.** and Gunduz, O. Large-Scale Hybrid Watershed Modeling, Section 2 in "WATERSHED MODELS," CRC Press, 2005, Ed. Dr. Vijay Singh, 75-95pp.
- Aral, M. M.** (2010) "Saltwater Intrusion Management in Urban Area Aquifers - A Case Study for Savannah, Georgia," The Effects of Urbanization on Groundwater: An Engineering Case-based Approach for Sustainable Development, Editor, Ni-Bin Chang, ASCE/EWRI publication, pp. 51-89.
- Jang, W. and **Aral, M. M.** (2011) "In-Situ Air Sparging and Thermal Venting in Ground Water Remediation," Chapter 11 in Groundwater Quality and Quantity Management, Editors **Aral, M. M.** and Taylor, S., ASCE, pp. 530-575, ISBN-978-0-7844-1176-6.
- Aral, M. M.** (2011) "Groundwater Management," Chapter 14 in Groundwater Quality and Quantity Management, Editors **Aral, M. M.** and Taylor, S., ASCE, pp. 560-568, ISBN-978-0-7844-1176-6.
- Gunduz, O. and **Aral, M. M.** (2015) "Integrated Watershed Modeling," Handbook of Applied Hydrology, Edited by Vijay Singh. Chapter 56.

## **REFEREED JOURNAL PUBLICATIONS**

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1. Martin, C. S. and **Aral, M. M.** (1971). "Seepage Force on Interfacial Bed Particles." Journal of the Hydraulics Division-ASCE 97(HY7): 1081-1101.
2. **Aral, M. M.** and N. Isilgan (1973). "Seepage Through Earth Dams: A Finite Element Solution." Journal of Pure and Applied Sciences 6(2): 185-194.
3. **Aral, M. M.** and U. Gulcat (1977). "Finite-Element Laplace Transform Solution Technique for Wave-Equation." International Journal for Numerical Methods in Engineering 11(11): 1719-1732.
4. **Aral, M. M.** (1980). "Steady Jet Impingement on Straight and Curved Surfaces." Journal of Pure and Applied Sciences 13(3): 349-368.
5. **Aral, M. M.** (1981). "A One Dimensional Mass-Transport Model for Natural Rivers." Journal of Environmental Systems 11(2): 139-154.
6. **Aral, M. M.** and T. W. Sturm (1982). "Groundwater Pumping from Shallow Axisymmetric Ponds." Journal of the Hydraulics Division-ASCE 108(12): 1469-1485.
7. Maslia, M. L. and **Aral, M. M.** (1982). "Evaluation of a Chimney Drain Design in an Earth-fill Dam." Ground Water 20(1): 22-31.
8. Ozsoy, E., **Aral M. M.**, et al. (1982). "Coastal Amplification of Tsunami Waves in the Eastern Mediterranean." Journal of Physical Oceanography 12: 117-126.
9. **Aral, M. M.** and M. L. Maslia (1983). "Unsteady Seepage Analysis of Wallace Dam." Journal of Hydraulic Engineering-ASCE 109(6): 809-826.
10. **Aral, M. M.** and M. L. Maslia (1984). "Unsteady Seepage Analysis of Wallace Dam - Closure." Journal of Hydraulic Engineering-ASCE 110(5): 671-673.
11. **Aral, M. M.** (1985). "Aquifer Parameter Prediction in Leaky Aquifers." Journal of Hydrology 80(1-2): 19-44.
12. **Aral, M. M.** (1986). "A Regional Multilayered Aquifer Model for Microcomputers." International Journal for Microcomputers in Civil Engineering 1(1): 69-78.
13. **Aral, M. M.** (1987). "An Unsteady Regional Multilayered Aquifer Model for Microcomputers." International Journal for Microcomputers in Civil Engineering 2(3): 197-206.
14. **Aral, M. M.** and Y. Tang (1988). "A Boundary Only Procedure for Time-Dependent Diffusion-Equations." Applied Mathematical Modeling 12(6): 610-618.
15. **Aral, M. M.** and Y. Tang (1988). "A New Boundary Element Formulation for Time-Dependent Confined and Unconfined Aquifer Problems." Water Resources Research 24(6): 831-842.
16. **Aral, M. M.** (1989). "Semianalytic Boundary Element Solution of Groundwater Seepage Problems." Water Resources Research 25(7): 1495-1503.
17. **Aral, M. M.** (1989). "Waste Stabilization in Multilayer Aquifers by Optimal Hydraulic Control." Ground Water 27(4): 517-523.
18. **Aral, M. M.** and T. Yi (1989). "A Boundary-Only Procedure for Transient Transport Problems with or without 1st-Order Chemical-Reaction." Applied Mathematical Modeling 13(3): 130-137.
19. Zakikhani, M. and **Aral, M. M.** (1989). "Direct and Boundary-Only Solutions of Multilayer Aquifer Systems .A. Steady-State Solution." Journal of Hydrology 111(1-4): 49-67.
20. Zakikhani, M. and **Aral, M. M.** (1989). "Direct and Boundary-Only Solutions of Multilayer Aquifer Systems .B. Unsteady-State Solution." Journal of Hydrology 111(1-4): 69-87.
21. **Aral, M. M.** and Y. Tang (1992). "Flow against Dispersion in 2-Dimensional Regions." Journal of Hydrology 140(1-4): 261-277.

22. Maslia, M. L., **Aral, M. M.**, et al. (1992). "Evaluation of Groundwater-Flow Regime at a Landfill with Liner System." Journal of Environmental Science and Health Part a-Environmental Science and Engineering & Toxic and Hazardous Substance Control A27(7): 1793-1816.
23. Ratzlaff, S. A. and **Aral, M. M.** (1992). "Optimal-Design of Groundwater Capture Systems Using Segmental Velocity-Direction Constraints." Ground Water 30(4): 607-612.
24. Tang, Y. and **Aral, M. M.**, (1992). "Contaminant Transport in Layered Porous-Media .1. General-Solution." Water Resources Research 28(5): 1389-1397.
25. Tang, Y. and **Aral, M. M.** (1992). "Contaminant Transport in Layered Porous-Media .2. Applications." Water Resources Research 28(5): 1399-1406.
26. **Aral, M. M.**, M. L. Maslia, et al. (1993). "Groundwater Remediation Using Smart Pump and Treat - Discussion." Ground Water 31(4): 680-681.
27. Maslia, M. L., **Aral, M. M.**, et al. (1994). "Exposure Assessment of Populations Using Environmental Modeling, Demographic-Analysis, and GIS." Water Resources Bulletin 30(6): 1025-1041.
28. **Aral, M. M.**, M. L. Maslia, et al. (1996). "Estimating exposure to volatile organic compounds from municipal water-supply systems: Use of a better computational model." Archives of Environmental Health 51(4): 300-309.
29. **Aral, M. M.** and B. Liao (1996). "Analytical Solutions for Two-Dimensional Transport Equation with Time Dependent Dispersion Coefficients." Journal of Hydrologic Engineering 1(1): 20-32.
30. Maslia, M. L., **Aral, M. M.**, et al. (1996). "Use of computational models to reconstruct and predict trichloroethylene exposure." Toxicology and Industrial Health 12(2):139-152.
31. Maslia, M. L., **Aral, M. M.**, et al. (1997). "Exposure assessment Using Analytical and Numerical Models: A Case Study." Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management-ASCE 1(2): 50-60.
32. **Aral, M. M.**, Y. Zhang, et al. (1998). "Application of relaxation scheme to wave-propagation simulation in open-channel networks." Journal of Hydraulic Engineering-ASCE 124(11): 1125-1133.
33. Guan, J. and **Aral, M. M.** (1999). "Optimal remediation with well locations and pumping rates selected as continuous decision variables." Journal of Hydrology 221(1-2): 20-42.
34. Guan, J. B. and **Aral, M. M.** (1999). "Progressive genetic algorithm for solution of optimization problems with nonlinear equality and inequality constraints." Applied Mathematical Modeling 23(4): 329-343.
35. Liao, B. and **Aral, M. M.** (1999). "Interpretation of LNAPL Thickness Measurements under Fluctuating Groundwater Table Conditions." Journal of Hydrologic Engineering 4(2): 125-134.
36. **Aral, M. M.** and B. S. Liao (2000). "LNAPL thickness interpretation based on bail-down tests." Ground Water 38(5): 696-701.
37. **Aral, M. M.**, Y. Zhang, et al. (2000). "Application of relaxation scheme to wave-propagation simulation in open-channel network - Closure." Journal of Hydraulic Engineering-ASCE 126(1): 91-91.
38. Liao, B. S. and **Aral, M. M.** (2000). "Semi-analytical solution of two-dimensional sharp interface LNAPL transport models." Journal of Contaminant Hydrology 44(3-4): 203-221.
39. Maslia, M. L., Sautner, J. B., **Aral, M. M.**, et al. (2000). "Using water-distribution system modeling to assist epidemiologic investigations." Journal of Water Resources Planning and Management-ASCE 126(4): 180-198.
40. **Aral, M. M.**, J. B. Guan, et al. (2001). "Identification of contaminant source location and

- release history in aquifers." Journal of Hydrologic Engineering 6(3): 225-234.
41. **Aral, M. M.**, J. B. Guan, et al. (2002). "Closure to "Identification of contaminant source location and release history in aquifers" by Mustafa M. Aral, Jiabao Guan, and Morris L. Maslia." Journal of Hydrologic Engineering 7(5): 400-401.
  42. **Aral, M. M.**, J. Guan, et al. (2002). "Optimal reconstruction of hydraulic management of a water distribution system." Epidemiology 13(4): S86-S86.
  43. **Aral, M. M.** and B. Liao (2002). "Effect of groundwater table fluctuations on LNAPL thickness in monitoring wells." Environmental Geology 42(2-3): 151-161.
  44. Maslia, M. L., Sautner, J. B. and **Aral, M. M.** (2002). "Using water-distribution system modeling to assist epidemiologic investigations." Epidemiology 13(4): S86-S86.
  45. Jang, W. Y. and **Aral, M. M.** (2003). "Concentration evolution of gas species within a collapsing bubble in a liquid medium." Env. Fluid Mechanics 3(3): 173-193.
  46. Guan, J. B. and M. M. Aral (2004). "Optimal design of groundwater remediation systems using fuzzy set theory." Water Resources Research 40(1): 1-20.
  47. Maslia, M. L. and **Aral, M. M.** (2004). "ACTS - A Multimedia Environmental Fate and Transport Analysis System." ASCE Practice Periodical of Hazardous, Toxic, and Radioactive waste Management-ASCE 8(3): 181-198.
  48. Park, C. H. and **Aral, M. M.** (2004). "Multi-objective optimization of pumping rates and well placement in coastal aquifers." Journal of Hydrology 290(1-2): 80-99.
  49. Zhang, Y. and **Aral, M. M.** (2004). "Solute Transport in Open-Channel Networks in Unsteady Flow Regime." Environmental Fluid Mechanics 4(3): 225-247.
  50. Kentel, E. and **Aral, M. M.** (2004). "Probabilistic-Fuzzy Health Risk Modeling," International Journal for Stochastic Environmental Research & Risk Assessment (SERRA), 18: 324-338.
  51. **Aral, M. M.**, Guan, J., Liao, B., Maslia, M.L., Sautner, J., Williams, R. and Reyes, J.J. 2004. "Optimal Reconstruction of Historical Water Supply to a Water-Distribution System: A. Methodology", Journal of Water and Health, 2:123-136.
  52. **Aral, M.M.**, Guan, J., Liao, B., Maslia, M.L., Sautner, J., Williams, R. and Reyes, J.J. 2004. "Optimal Reconstruction of Historical Water Supply to a Water-Distribution System: B Applications", Journal of Water and Health, 2:137-156.
  53. Gunduz, O. and **Aral, M. M.** (2005). "River Networks and Groundwater Flow: Simultaneous Solution of a Coupled System," J. of Hydrology 301(1-4): 216-234.
  54. Kentel, E. and **Aral, M. M.** (2005). "2D Monte Carlo versus 2D Fuzzy Monte Carlo Health Risk Assessment," International Journal for Stochastic Environmental Research & Risk Assessment (SERRA), 19: 86-96.
  55. Maslia, ML, Reyes, JJ, Gillig, RE, Sautner, JB, Fagliano, JA and **Aral, M. M.** (2005) "Public Health Partnerships Addressing Childhood Cancer Investigations: Case Study of Toms River, Dover Township, New Jersey, USA," International Journal of Hygiene and Environmental Health, 208: pp. 45-54.
  56. Guan, J. and **Aral, M. M.** (2005) "Remediation System Design with Multiple Uncertain Parameters using Fuzzy Sets and Genetic Algorithm," ASCE Journal of Hydrologic Engineering, 10(5): pp. 386-394.
  57. Gunduz, O. and **Aral, M. M.** (2005) "A Dirac-Delta Function Notation for Source/Sink Terms in Groundwater Flow," ASCE Journal of Hydrologic Engineering, 10(5): pp. 420-427.
  58. Guan, J., **Aral, M. M.**, Maslia, M. L. and Grayman, W. M. (2006) "Identification of Contaminant Sources in Water-Distribution Systems Using Simulation-Optimization Method: A Case Study," ASCE, Journal of Water Resources Planning and Management, July 132(4): pp. 252-262.
  59. Kentel, E. and **Aral, M. M.** (2007) "Fuzzy Multi-Objective Decision Making Approach to

- Evaluate Pumping Demands in Coastal Aquifers: A Case Study for Savannah Georgia”, ASCE Journal of Hydrologic Engineering, March 12(2): pp. 206-217.
60. Kentel, E. and **Aral, M. M.** (2007) “Risk Tolerance Measure for Fuzzy Health Risk Assessment,” International Journal for Stochastic Environmental Research & Risk Assessment (SERRA), 21: pp. 405-417.
  61. Park, C-H and **Aral, M. M.** (2007) “Sensitivity of the Solution of Elders Problem to Density, Velocity and other Numerical Perturbations,” Journal of Contaminant Hydrology, 92: pp.33-49.
  62. Jang, W and **Aral, M. M.** (2007) “Density Driven Transport of Volatile Organic Compounds and Its impact on Contaminated Groundwater Plume Evolution,” Journal of Transport in Porous Media, 67(3): pp. 353-374.
  63. Ayvaz, T., Karahan, H. and **Aral, M. M.** (2007). “Aquifer Parameter and Zone Structure Estimation Using Kernel-Based Fuzzy C-Means Clustering and Genetic Algorithm,” Journal of Hydrology, 343 (3-4): pp. 240-253.
  64. Guan, J., Kentel E. and **Aral, M. M.** (2008) “Genetic Algorithm for Constrained Optimization Models and Its Application,” ASCE Journal of Water Resources Planning and Management, 134(1): pp. 64-72.
  65. Jang, W. and **Aral, M. M.** (2008) “Effect of Biotransformation on Multi-species Plume Evolution and Natural Attenuation” International Journal on Transport in Porous Media, 72(2): pp. 207-226.
  66. Kilic, GS and **Aral, M. M.** (2008) “Probabilistic Fugacity Analysis of Lake Pontchartrain Pollution after Hurricane Katrina”, Journal of Environmental Management, 88(3): pp. 448-457.
  67. Park, C-H and **Aral, M. M.** (2008) “Saltwater Intrusion Hydrodynamics in a Tidal Beach,” ASCE Journal of Hydrologic Engineering, 13(9): pp. 863-872.
  68. Jang, W. and **Aral, M. M.** (2008) “Multiphase Flow Fields in In-Situ Air Sparging and It’s Effect on Remediation” International Journal on Transport in Porous Media, 76, pp. 99-119.
  69. Kilic, G. K. and **Aral, M. M.** (2009) “A Fugacity Based Continuous and Dynamic Fate and Transport Model for River Networks and Its Application to Altamaha River,” Journal of Science of the Total Environment, Vol. 407, No.12, pp. 3855-3866.
  70. **Aral, M. M.** (2009) “Water Quality, Exposure and Health: Purpose and Goals,” Journal of Water Quality, Exposure and Health, Vol. 1, No. 1, pp. 1-4.
  71. Maslia, M.L., **Aral, M. M.**, Faye, R.E., Suárez-Soto, R. J., Sautner, J.B., Wang, J., Jang, W., Bove, F. J ., and Ruckart, P.Z.. (2009) "Reconstructing Historical Exposures to Volatile Organic Compound-Contaminated Drinking Water at a U.S. Military Base," Journal of Water Quality, Exposure and Health, Vol. 1, No. 1, pp. 49-68.
  72. Ilker, T. T., Nam, K., Guan, J. and **Aral, M. M.** (2009) “Optimal Water Quality Monitoring Network Design for River Systems,” Journal of Environmental Management, Vol. 90, pp. 2987-2998.
  73. Anderson, B. A., Maslia, M.L., Caparoso, J. L., Ausdemore, D. and **Aral, M. M.** (2010) "Stochastic Analysis of Pesticide Transport in the Shallow Groundwater of Oatland Island, USA," Journal of Water Quality, Exposure and Health, Vol. 2, No. 1, pp. 47-64.
  74. **Aral, M. M.**, Guan, J., Maslia, M.L. (2010) “Optimal Design of Sensor Placement in Water Distribution Systems,” ASCE Journal of Water Resources Planning and Management, Vol. 136, NO.1, pp.5-18.
  75. **Aral, M. M.** (2011) “Editorial: Surgery was Successful but the Patient Died,” ASCE Journal of Hydrologic Engineering, Vol. 16, No. 2, pp. 91-92.



76. Ilker, T. T. and **Aral, M. M.** (2011) "Contaminant Source Location Identification in River Networks Using Water Quality Monitoring Systems for Exposure Analysis," Journal of Water Quality, Exposure and Health, Vol. 2, No. 4, pp. 205-218.
77. Goktas, R. K. and **Aral, M. M.** (2011) "Integrated Dynamic Modeling of Contaminant Fate and Transport within a Soil–Plant System," Vadose Zone Journal, Vol. 10, 1130-1150.
78. Maslia, M. L., **Aral, M. M.** et al.(2011) *Discussion on: "Complexities in Hindcasting Models—When Should We Say Enough Is Enough,"* by T. Prabhakar Clement, Groundwater, v. 49, no. 5: 620–629.
79. **Aral, M. M.**, Guan, J. and Chang, B. (2012) "A Dynamic System Model to Predict Global Sea-Level Rise and Temperature Change," ASCE Journal of Hydrologic Engineering, Vol. 17, No. 2, pp237- 242, doi:10.1061/(ASCE)HE.1943-5584.0000447.
80. **Aral, M. M.**, Guan, J. and Chang, B. (2013) "A Dynamic System Model to Predict Global Sea-Level Rise and Temperature Change," ASCE Journal of Hydrologic Engineering, Closure, Vol. 18, No. 3, pp372-375.
81. Chuljin, P., Telci, I. Kim, S-H and **Aral, M. M.** (2013) "Designing Optimal Water Quality Monitoring Network for River Systems Using Constrained Discrete Optimization via Simulation," Engineering Optimization, DOI:10.1080/0305215X.2012.748049.
82. Dede, O. T., Telci, I. and **Aral, M. M.** (2013) "The Use of Water Quality Index Models for the Evaluation of Surface Water Quality: A case study for Kirmir Basin, Ankara, Turkey," Journal of Water Quality, Exposure and Health, Vol. 5, No. 1, pp. 41-56.
83. **Aral, M. M.** (2013) "Climate Change and Human Population Dynamics," Journal of Water Quality, Exposure and Health: Special Issue on Climate Change, Vol. 5, No. 4, pp. DOI: 10.1007/s12403-013-0091-5.
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- Gunduz, O. and Aral, M.M. "Large Scale Watershed Modeling: An Application to Lower Altamaha River Basin," *Multimedia Environmental Simulations Laboratory, School of Civil and Environmental Engineering, Georgia Institute of Technology, Report No. MESL-01-04*, 210p, March 2004.
- Valenzuela, C. and Aral, M.M. "Application of HSPF and Basins Model to Lower Altamaha River Basin," *Multimedia Environmental Simulations Laboratory, School of Civil and Environmental Engineering, Georgia Institute of Technology, Report No. MESL-02-04*, 75p, March 2004.
- Kentel, E., Gill, H. and Aral, M.M. "Evaluation of Groundwater Resources Potential of Savannah Georgia Region," *Multimedia Environmental Simulations Laboratory, School of Civil and Environmental Engineering, Georgia Institute of Technology, Report No. MESL-01-05*, 104p, August 2005.
- Jang, W. and Aral, M.M. "Three-dimensional Multiphase Flow and Multi-species Transport Model, TechFlowMP," *Multimedia Environmental Simulations Laboratory, School of Civil and Environmental Engineering, Georgia Institute of Technology, Report No. MESL-02-05*, 94p. September 2005.
- Wang, J. and Aral, MM, "Effect of Groundwater Pumping Schedule Variation on Arrival of Tetrachloroethylene (PCE) at Water-Supply Wells and the Water Treatment Plant," *Multimedia Environmental Simulations Laboratory, CEE, Georgia Institute of Technology, Research Report No.: MESL-01-07*; January 2007, 89p.
- Jang, W. and Aral, MM, "Arrival time of Tetrachloroethylene (PCE) and its Degradation byproducts at Water-Supply Wells and the Water Treatment Plant at Camp Lejeune Base," *Multimedia Environmental Simulations Laboratory, CEE, Georgia Institute of Technology, Research Report No.: MESL-02-07*; March 2007, 62p.
- Park, S. H., Wei, S., Huang, C-H., Mizaikoff, B., Aral, M.M. (2007) "A Study of the Effect of Polymers on Potential N-Nitrosodimethylamine (NDMA) Formation at water and Waste water Treatment Plants," *Multimedia Environmental Simulations Laboratory, CEE, Georgia Institute of Technology, Research Report No.: MESL-03-07*; June 2007, 116p.
- Maslia, M. L., Sautner, J. B., Faye, R. E., Suarez-Soto, R., Aral, M. M., Grayman, W. M., Jang, W., Wang, J., Bove, F., Ruckart, P. Z., Valenzuela, C., Green, J. W. and Krueger, A. L. (2007) "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Terrawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present Day Conditions, Summary of Findings," *Technical Report Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, July*, pp. 100 + CD-ROMs.
- Wang, J. and Aral, M. M. (2007) "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Terrawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present Day Conditions, Effect of Groundwater Pumping Schedule Variation on Arrival of Tetrachloroethylene (PCE) at Water Supply Wells," *Technical Report Agency for Toxic*

- Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, July, pp. 65 + CD-ROMs.
- Jang, W. and Aral, M. M. (2007) "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Terrawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present Day Conditions, Simulation of Three Dimensional Multispecies, Multiphase Mass Transport of Tetrachloroethylene (PCE) and Associated Degradation By-Products," Technical Report Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, July, pp. 69 + CD-ROMs.
- Maslia, M. L., Sautner, J. B., Faye, R. E., Suarez-Soto, R., Aral, M. M., Grayman, W. M., Jang, W., Wang, J., Bove, F., Ruckart, P. Z., Valenzuela, C., Green, J. W. and Krueger, A. L. (2007) "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Terrawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present Day Conditions, Supplemental Information," Technical Report Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, July, pp. 55 + CD-ROMs.
- Maslia, M. L., Suarez-Soto, R., Aral, M. M., Wang, J., Sautner J. B. and Valenzuela, C., (2007) "Analysis of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water at Terrawa Terrace and Vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina: Historical Reconstruction and Present Day Conditions, Parameter Sensitivity, Uncertainty, and Variability Associated with Model Simulations of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water," Technical Report Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, July, pp. 100 + CD-ROMs.
- Telci, I. T., J. Sautner, R. Suarez-Soto and M. M. Aral (2010). Historical Well Scheduling for Holcomb Boulevard and Hadnot Point Water Treatment Plants of Camp Lejeune, North Carolina. Atlanta, Georgia Multimedia Environmental Simulations Laboratory, School of Civil and Environmental Engineering, Georgia Institute of Technology.
- Park, C., I. Telci, M. M. Aral and S.-H. Kim (2010). Designing optimal water quality monitoring network for river systems with the optimization via simulation method. Technical Report. Atlanta, Georgia, Georgia Institute of Technology.
- Guan, J. and Aral, M. M. (2012). Deterministic Analysis of Chinese Drywall Emissions and Exposure through Inhalation, Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Atlanta, Georgia, December, pp. 70.
- Maslia ML, Suárez-Soto RJ, Sautner JB, Anderson BA, Jones LE, Faye RE, Aral MM, Guan J, Jang W, Telci IT, Grayman WM, Bove FJ, Ruckart PZ, and Moore, SM. Analyses and Historical Reconstruction of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water Within the Service Areas of the Hadnot Point and Holcomb Boulevard Water Treatment Plants and Vicinities, U.S. Marine Corps Base Camp Lejeune, North Carolina— Chapter A: Summary and Findings. Atlanta, GA: Agency for Toxic Substances and Disease Registry; 2013.
- Jang W, Anderson BA, Suárez-Soto RJ, Aral MM, and Maslia ML. Source Characterization and Simulation of the Migration of Light Nonaqueous Phase Liquids (LNAPLs) in the Vicinity of the Hadnot Point Industrial Area—Supplement 7. In: Maslia ML, Suárez-Soto RJ, Sautner JB, Anderson BA, Jones LE, Faye RE, Aral MM, Guan J, Jang W, Telci IT, Grayman WM, Bove FJ, Ruckart PZ, and Moore SM. Analyses and Historical Reconstruction of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water Within the Service Areas of the Hadnot Point and Holcomb Boulevard Water Treatment Plants and Vicinities,

- U.S. Marine Corps Base Camp Lejeune, North Carolina—Chapter A: Summary and Findings. Atlanta, GA: Agency for Toxic Substances and Disease Registry; 2013.
- Guan J., Anderson BA, Aral MM, and Maslia ML. Theory, Development, and Application of Linear Control Model Methodology to Reconstruct Historical Contaminant Concentrations at Selected Water-Supply Wells—Supplement 5. In: Maslia ML, Suárez-Soto RJ, Sautner JB, Anderson BA, Jones LE, Faye RE, Aral MM, Guan J, Jang W, Telci IT, Grayman WM, Bove FJ, Ruckart PZ, and Moore SM. Analyses and Historical Reconstruction of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water Within the Service Areas of the Hadnot Point and Holcomb Boulevard Water Treatment Plants and Vicinities, U.S. Marine Corps Base Camp Lejeune, North Carolina—Chapter A: Summary and Findings. Atlanta, GA: Agency for Toxic Substances and Disease Registry; 2013.
- Telci IT, Sautner JB, Suárez-Soto RJ, Anderson BA, Maslia ML, and Aral MM. Development and Application of a Methodology to Characterize Present-Day and Historical Water-Supply Well Operations—Supplement 2. In: Maslia ML, Suárez-Soto RJ, Sautner JB, Anderson BA, Jones LE, Faye RE, Aral MM, Guan J, Jang W, Telci IT, Grayman WM, Bove FJ, Ruckart PZ, and Moore SM. Analyses and Historical Reconstruction of Groundwater Flow, Contaminant Fate and Transport, and Distribution of Drinking Water Within the Service Areas of the Hadnot Point and Holcomb Boulevard Water Treatment Plants and Vicinities, U.S. Marine Corps Base Camp Lejeune, North Carolina—Chapter A: Summary and Findings. Atlanta, GA: Agency for Toxic Substances and Disease Registry; 2013.
- Aral, M. M. and Guan J., Phase I Analysis of Chinese Drywall Emissions, A Deterministic Analysis, MESL-01-13, 22p. 2013.
- Aral, M. M. and Guan J., Phase II Analysis of Chinese Drywall Emissions, Uncertainty Analysis, MESL-02-13, 74p. 2013.

## FUNDED RESEARCH

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1. Principal investigator of the project titled, *Finite Element Analysis in Continuum Mechanics: FEMAC Computer Program*, (Funded by Middle East Technical Univ. Research funds - \$18,000), 1972-73.
2. Principal investigator of the project titled, *An Analysis of Convective Diffusion Equation and Its Finite Element Solution*, (Funded by Turkish Sci. and Tech. Research Inst.- \$ 12,000), 1976-77.
3. Principal investigator of the project titled, *Analytical and Numerical Study of Jet Deflection from Curved Boundaries*, (Funded by Middle East Technical Univ. Research funds - \$ 19,000), 1976-77.
4. Principal investigator of the project titled, *Tsunami Study: Akkuyu Nuclear Power Plant*, (Funded by Turkish Electric Authority, Nuclear Energy Division - \$ 75,000), 1977-79.
5. Principal investigator of the project titled, *Analysis of the Development of Shallow Ground Water Supplies by Pumping from Ponds*, (Funded by the Department of the Interior, Office of Water Resources Research and Technology - \$ 48,000), 1979-80.
6. Principal investigator of the project titled, *Mathematical Modeling of Aquatic Dispersion of Effluents in Natural Rivers*, (Funded by the Health and Safety Division of the Oak Ridge National Laboratories, Oak Ridge Tennessee - \$ 52,000), 1979-80.
7. Principal investigator of the project titled, *Aquifer Parameter Prediction by Numerical Modeling*, (Funded by the Department of the Interior, Office of Water Research and Technology - \$ 56,000), 1981-82.
8. Principal investigator of the proposal titled, *An Analysis of Rimming Condensate Flow*, (Funded by Beloit corporation, Beloit, Wisconsin - \$ 68,000), 1981-83.
9. Principal investigator of the project titled, *Parameter Identification in Layered Aquifer Systems*, (Funded by the Department of the Interior, Office of Water Policy - \$ 44,000), 1983-84.
10. Principal investigator of the project titled, *A Simplified Approach to Regional Multilayered Aquifer Analysis*, (Funded by the Department of the Interior, U.S. Geological Survey - \$25,000), 1986-88.
11. Principal investigator of the project titled, *Modeling Transient Ground Water Flow in Multilayered Aquifer Systems*, (Funded by the Department of the Interior, USGS - \$ 29,000), 1988-89.
12. Principal investigator of the project titled, *Multilayered Aquifer Modeling in a Landfill Site*, (Funded by the Waste Management, Inc., Geosyntec, Inc. - \$ 42,000), 1990-91.
13. Principal investigator of the Research Program titled, *Exposure-Dose Reconstruction at Graton Massachusetts*, (Funded by: U.S. DHHS - \$ 44,000), 1992 (first phase).
14. Director, NATO Advanced Study Institute, *Recent Advances in Groundwater Pollution Control and Remediation*, (NATO - Directorate of Environmental Programs \$ 111,000), 1994.
15. National Science Foundation, *Water, Sustaining A Critical Resource*, Joint Proposal with Dr. A. Zoporozec, University of Wisconsin, \$ 30,000 1995.
16. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC - \$ 180,400), 1993-1994 (1<sup>st</sup> year of second phase).
17. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 310,697), 1994-1995 (2<sup>nd</sup> year of second phase).

18. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 331,642), 1995-1996 (3<sup>rd</sup> year of second phase).
19. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 338,658), 1996-1997 (4<sup>th</sup> year of second phase).
20. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 345,000), 1997-1998 (5<sup>th</sup> year of second phase).
21. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 2,500,000), 1998-2003 (third phase. Initiated in September 1998).
22. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 365,000), 1998-1999 (1<sup>st</sup> year of third phase).
23. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 370,000), 1999-2000 (2<sup>nd</sup> year of third phase).
24. Principal investigator of the Research Program titled, *Analysis of Coastal Georgia Ecosystem Stressors Using GIS Integrated Remotely Sensed Imagery and Modeling: A Pilot Study for the Lower Altamaha River Basin*, (Funded by: Sea Grant Program - \$ 288,000), 2000-2003.
25. Principal investigator of the Research Program titled, *GIS Integrated Environmental Systems Modeling*, (Funded by: CDC - GT Bioengineering Center \$ 30,000), 2000-2001.
26. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 345,000), 2000-2001 (3<sup>rd</sup> year of third phase).
27. Principal investigator of the Research Program titled, *GIS Integrated Environmental Systems Modeling*, (Funded by: CDC - GT Bioengineering Center \$ 30,000), 2001-2002.
28. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 405,000), 2001-2002 (4<sup>th</sup> year of third phase).
29. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 305,000), 2002-2003 (5<sup>th</sup> year of third phase).
30. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 2,500,000), 2003-2008 (fourth phase. Initiated in September 2003).
31. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 399,000), 2003-2004 (1<sup>st</sup> year of fourth phase).
32. Principal investigator (joint proposal with Prof. Ching-Hua Huang) of the research Program titled "*Potential n-Nitrosodimethylamine (NDMA) Formation at Water and Waste water Treatment Plants and Exposure Pathway Analysis*," (Funded by: SNF FLOERGER, France, program period: 2004-2006. \$ 550,432)
33. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 415,000), 2004-2005 (2<sup>nd</sup> year of fourth phase).

34. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 565,000), 2005-2006 (3<sup>rd</sup> year of fourth phase).
35. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 655,000), 2006-2007 (4<sup>th</sup> year of fourth phase).
36. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 535,000), 2007-2008 (5<sup>th</sup> year of fourth phase).
37. Principal investigator (co-investigator Prof. Ching-Hua Huang) of the research Program titled "*Potential n-Nitrosodimethylamine (NDMA) Formation at Water and Waste water Treatment Plants and Exposure Pathway Analysis*," (Second Phase Funded by: SNF FLOERGER, France, program period: 2007-2009. \$ 308, 821).
38. Principal investigator of the Research Program titled, *Research Program on Exposure-Dose Reconstruction*, (Funded by: ATSDR/CDC- \$ 2,500,000), 2008-2013.
39. Principal investigator of the Research Program titled, *Chinese Drywall Emission and Exposure through Inhalation*, (Funded by: ATSDR/CDC- \$ 500,000), 2012-2014.

**Note:** *Funded projects listed above include only the projects for which Dr. Aral is the Principal Investigator. Projects, in which Dr. Aral is the Co-Principal Investigator or contributor, are not included to this list. Total funding received and managed by Dr. Aral at Georgia Tech as principal and co-principal investigator is \$29M.*

## **PROFESSIONAL ACTIVITIES**

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### **National (USA):**

1. **Member**, American Society of Civil Engineers, (ASCE). (1969 – present)
2. **Member**, Sigma Xi Research Society, (U.S.A.). (1971- present)
3. **Member**, American Geophysical Union, (U.S.A.) (1978-present).
4. **Member**, National Water Well Association, (U.S.A.) (1978 – present).
5. **Member**, American Water Resources Association, (U.S.A.) (1978 – 1989).
6. **Member, Task Committee on Ground Water Strategy**, ASCE Hydraulics Division, 1983-85.
7. Listed in the directory of experts in Ground Water and Ground Water Contamination, Prepared by Edison Electric Institute and by Dames & Moore Consultants, Co.,1984
8. Listed in the directory in Who is Who in Science and Engineering.
9. **Member** of the organizing committee of the conference, *The Water Resources of Georgia and Adjacent Areas*, Sponsored by Ga. TECH and Georgia Geologic Survey, October 1983.
10. **Session Chairman**, ASCE. Spring Convention, Atlanta, 1984.
11. **Session Co-Chairman**, Engineering Mechanics Society, Blacksburg, 1984.
12. **Member**, American Water Resources Association, Publications Committee and Conference Organization Committee, 1987 – 1989.
13. **Member** of the Organizing Committee of the conference and Session Chairman, *Key Problems in Hydrology, Hazardous Waste*, Sponsored by American Institute of Hydrology, 1987.
14. **Member**, American Institute of Hydrology (1978-present).
15. **Session Chairman**, International Conference on Computational Eng. Sci., Atlanta, April 10-14, 1988.
16. **Chairman, Multidisciplinary Geohydrology Program**, Georgia Institute of Technology, College of Engineering, 1988-present (founding member).
17. **Invited Speaker - Board of Scientific Counselors**, Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, 1990 - 1992.
18. **Member, Scientific Review Board**, Waste Policy Institute, U.S. Department of Energy, 1991 – present
19. **Director, Multimedia Environmental Simulations Laboratory**, CEE, Ga. Tech., 1994-present.
20. **Member, Scientific Review Panel on program Analytical and Monitoring Methods in Subsurface Remediation**, USEPA, 1995 – 2001.
21. **Member, Scientific Review Panel on program STAR Program**, USEPA, 1995-present.
22. **Member, Scientific Review Panel on Eastern Research Group**, 1997-present.
23. **Member, International Society of Exposure Analysis**, 2002 – present.
24. **Member, International Association of Hydrogeology**, 2002 – present.
25. **Organizing Committee Member**, Achieving Sustainable Water Resources in Areas Experiencing Rapid Population Growth, 2003 AIH International Conf., Atlanta, GA.
26. **Vice President for International Affairs, American Institute of Hydrology**, 2004 – 2006.
27. **Elected to the Board of Directors of the Buried Asset Management Institute – International (BAMI-I)**, (2004 – 2007).
28. **Chair** of the ASCE Groundwater Hydrology Technical Committee (2007 – 2009).
29. **Member** of the ASCE Groundwater Hydrology Technical Committee (2007 – present).



30. **Vice-Chair** of the ASCE, GWH Technical Report Committee on Exposure-Dose Reconstruction (2007 – 2009).
31. **Member** of the ASCE, EWRI Ground Water Council (2007 – 2009).
32. **Vice President for Int. Affairs, American Institute of Hydrology**, (2009 – 2011).
33. **Member** of the ASCE, EWRI World Water Council, (2010 – present).
34. **Member of the ASCE EWRI International Council (2010 – Present)**.
35. **Control Group Member, ASCE EWRI World Water Council (2012 – Present)**.
36. **Member** of the ASCE, EWRI Environmental Health and Water Quality Committee, (2008 – present).
37. **FELLOW ASCE/EWRI**, elected by the ASCE Board of Directors to the rank of ASCE Fellow, 2010.
38. **Co-Chair of the organizing committee**, ASCE EWRI IPWE 2013 Conference Izmir, Turkey.
39. Short Course on **“Environmental Modeling and Health Risk Analysis,”** ATSDR/CDC Atlanta, GA (2010, 2011, 2012) and Izmir, Turkey (2012).
40. Invited Speaker ORLOB INTERNATIONAL SYMPOSIUM ON THEORETICAL HYDROLOGY. Presentation Title: “Climate Change and Spatial Variability of Sea Level Rise,” University of California (Davis), August 4, 2013.
41. **PRESIDENT ELECT, 2013-2015 and PRESIDENT 2015 - 2017. American Institute of Hydrology (AIH)**. Elected by the AIH membership.

#### **International:**

1. **Member**, Association for the Advancement of Mathematical Sciences. (1971 – 1978)
2. **Member**, Marine Sciences Research Institute, (Turkey, founding member). (1971 – 1978)
3. **Member**, Computer Sciences Research Institute, (Turkey, founding member). (1971 – 1978)
4. **Member**, International Engineering Analysts, Southampton, England.
5. **Member**, International Association for Computational Mechanics (1987 – 1990).
6. **Director, NATO Advanced Study Institute**, "Recent Advances in Ground Water Pollution Control and Remediation." June 1995.
7. **Session Chairman and Member** of the Organizing Committee of the conference, *International Conference on Geology and Environment*, Sponsored by Academy of Sciences of Turkey and other International Organizations, 1997.
8. **European Community FP6 – FP7 – FP8 proposal review panel member**. (2005 – present)
9. **Fulbright Senior Scientist**. (2005 – 2011).
10. **Short Course on ACTS/RISK** (December, 2011) Dokuz Eylul University, Izmir Turkey.
11. **Organization Committee Member**, ASCE/EWRI IPWE International Conference on Perspectives on Water Resources and Environment, Izmir, Turkey, 2013.
12. **Organizing Committee member, HydroEnv. Ist-2017**. International Association for Hydro-Environment Engineering and Research (IAHR).
13. **European Community Horizon 2020 panel member**. (2013 – present).

#### **EDITORIAL AND REVIEWER WORK**

##### **Reviewer:**

***Journal of Pure and Applied Sciences***, 1976 – 1985.

***Environmental Protection Agency*** (review of proposals), 1980 – present.

***U.S. Dept. of Int., Geological Survey*** (review of reports and proposals), 1980 – present.

***TUBITAK Research Council, Turkey*** (review of reports and proposals), 1980 – present.

**ASCE Committee on Computational Hydraulics**, 1981 – 1995.  
**ASCE Journal of Engineering Mechanics Division**, 1982 – 1995.  
**Journal of American Water Works Association**, 1985 – 1995.  
**Water Resources Bulletin**, American Water Resources Association, 1985 – 1995.  
**Journal of Hydrology**, 1986 – present.  
**Journal of Computational Mechanics**, 1986 – 1995.  
**Water Resources Research**, 1985 – present.  
**ASCE, Water Resources Planning and Management Journal**, 1998 – present.  
**Saudi Geologic Survey for Scientific Research**, 2000 – present.  
**Turkish Scientific Research Council**, 2000 – present.  
**Netherlands Organization for Scientific Research**, 1999 – present.  
**Danish Organization for Scientific Research**, 2000 – present.  
**NSF/NIH, Engineering Centers of Excellence review committee member**. 2003 – 2004.  
**Advances in Water Resources**, 2005 – present.  
**Water Resources Research**, 1990 – present.  
**Journal of Contaminant Hydrology**, 2004 – present.  
**European Community, F6, F7, F8 committee member**. 2005 – present.  
**Journal of Transport in Porous Media**, 2005 – present.  
**NSF, SBIR review committee member**. 2005 – present.  
**USEPA, SBIR review committee member**. 2005 – present.  
**Journal of Environmental Management**, 2007 – present.  
**Journal of Water Quality, Exposure and Health**, 2009 – present.  
**Journal of Environmental Monitoring and Assessment**, 2007 – present.  
**Journal of Water Resources Management**, 2007 – present.  
**Journal of Neural Networks**, 2007 – present.  
**Environmental Science and Technology**, 2008 – present.  
**Journal of Risk Assessment**, 2008 – present.  
**Journal on Neural Networks**, 2008 – present.  
**Journal on Water, Air and Soil Pollution**, 2009 – present.  
**Journal of Environmental Modeling and Software**, 2009 – present.  
**Journal of Environmental Engineering**, 2010 – present.  
**USEPA, STAR Fellowship review committee member**. 2013 – 2014.

**Associate Editor:**

**Journal of Environmental Science and Health, Am. Chem. Society**, 1989 – 99.  
**ASCE, Journal of Hydrologic Engineering**, Associate Editor, 1985 – 1995.  
**ASCE, Journal of Hydrologic Engineering**, International Associate Editor, 1995 – present.  
**International Journal of Hydroelectric Energy**, International Editor, 1998 – present.  
**ISI Journal of Hydraulic Engineering, Taylor & Francis**, 2011 – present.  
**Journal of Engineering Sciences, (Turkey)**, 2011 – present.  
**Journal of Engineering and Environmental Sciences, (Turkey)**, 2013 – present.

**Editor-in-Chief:**

**International Journal on Water Quality, Exposure and Health**, Springer Publishers. 2008 – 2014.

## **ENGINEERING CONSULTING**

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1. Allied Gulf Nuclear Services, (1978-80).
2. NATO, United Nations Development Program, (1979-present).
3. The Coca Cola Company, Corporate Engineering Department, (1983).
4. Georgia Geologic Survey, Department of Natural Resources, State of Georgia, (1983-85).
5. Dames and Moore (1987), Numerical study of flow through earth embankments, Sarasota reservoir.
6. Atlantic Richfield Co. (ARCO) (1990-92), Performance analysis of a cleanup operation in a vadose zone, numerical modeling of saturated-unsaturated flow pump-and-treat operation, Opa Locka, Florida and Numerical modeling of ground water flow and contaminant transport control in a multilayer aquifer with a slurry wall design at a Super Fund Site.
7. CHEVRON Products Co. USA (1992-2002), Numerical modeling of transport of NAPL contamination, Cleves, Ohio and CHEVRON Chemical Products Co., USA (1996-1997), Investigation of Agricultural Pesticides pollution, Ortho-CHEM plant, Missouri.
8. Expert Testimony: Atlanta Gas Light -vs.- various Environmental Insurance Underwriters (1993), Numerical modeling of transport of petroleum products in aquifers, Georgia.
9. L&L Landfill Co. (1994), Transport of leachate through L&L landfill, Chicago, Illinois.
10. DOD, Massachusetts Military Reservation, EDB plume modeling and exposure risk analysis, (1997-1998).
11. GeoSyntec Consultants, Consultant (1994 - 2001) (subsurface resources and contaminant transport modeling support and expert testimony).
12. Globex Engineering & Development, Consultant (1998 - 1999) (subsurface resources and contaminant transport modeling support, risk analysis and expert testimony).
13. DOE, Waste Isolation Pilot Plant Project (WIPP), New Mexico (1998 - 1999) (Technical support for expert testimony).
14. Texas Education Board, State Proposal Reviews, (1999-2000).
15. Eastern Research Group, Subsurface Resources and Environmental Health related analysis and exposure assessment, (1998-2013).
16. Hydraulic Fracturing and shale gas extraction, Washington Law Group, (2010 – Present).

## SPECIALIZATION AREAS

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Research, teaching and engineering experience in the following specific areas:

- Groundwater flow and contaminant transport modeling in aquifers, aquifer remediation.
- Groundwater resources evaluation and management.
- Multimedia (air-surface water- groundwater) environmental simulations, risk based environmental modeling.
- Exposure analysis, exposure-dose reconstruction.
- Environmental health.
- Climate Change, Water Resources and Environmental Health.
- Analytical, numerical studies in surface water, groundwater and air pollution.
- Evaluation of groundwater and surface water monitoring data, site assessment.
- Site characterization and surface water groundwater interaction.
- Saturated and unsaturated groundwater flow analysis.
- Miscible and immiscible groundwater flow analysis.
- Computational methods in environmental fluid mechanics.
- GIS applications in environmental systems.
- Optimization methods in environmental systems.
- Hydraulics and water resources engineering.
- Hydraulic Fracturing and shale gas extraction.

## SUMMARY OF COURSES TAUGHT AT CEE, GA. TECH.:

Fluid Mechanics I	(3-0-3) Undergraduate Course
Fluid Mechanics II	(3-3-4) Undergraduate Course
Applied Hydraulics	(3-0-3) Undergraduate Course
Fluid Mechanics Laboratory	(0-3-1) Undergraduate Course
Groundwater Hydrology	(3-0-3) Undergraduate Course
Computational Modeling	(3-0-3) Undergraduate Course
Hazardous Substance Management	(3-0-3) Undergraduate Course
Flow through Porous Media I	(3-0-3) Graduate Course
(Topics covered: Groundwater Flow and Contaminant Transport analysis)	
Flow through Porous Media II	(3-0-3) Graduate Course
(Topics covered: Modeling, Processes and Aquifer Remediation)	
Environmental Modeling and Health Risk Analysis	(3-0-3) Undergraduate Course
Advanced Topics in Env. Geohydrology	(3-0-3) Graduate Course
Comp. Methods in Groundwater Modeling	(3-0-3) Graduate Course
Graduate seminar in subsurface hydrology	(1-0-1) Graduate Course

## CURRICULUM DEVELOPMENT AND DEPARTMENTAL ACTIVITIES:

- Flow through Porous Media II** (CE 6272). New course on groundwater analysis.
- Flow Through Porous Media I** (CE 6271). Substantially revised the contents of the course.
- Computational Methods in Groundwater Modeling** (CE 8071). New course.
- Environmental Modeling and Health Risk Analysis. New course.**
- Applied Hydraulics** (CE 4054). Substantially revised the contents of the course.

- vi. **Fluid Mechanics I and II** Substantially revised the contents of the course.
- vii. **Chair, Multi-disciplinary Certificate Program in Geohydrology.** Proposed and acted as the Committee chairman for the Multi-disciplinary certificate program in Geohydrology within College of Engineering. Schools and groups involved in this certificate program are: Environmental Eng. Gr., Geotechnical Eng. Gr. and Hydrosystems Gr., from School of Civil Engineering, School of Earth and Atmospheric Sciences, Nuclear Engineering and Environmental Resources Center. At the present acting as the Chairman of the Multi-disciplinary Certificate Program.
- viii. **CEE Department promotion and tenure committee member** (1993, 1996, 1998, 2000, 2006, 2007, 2008, 2009, 2010, 2011)
- ix. **Undergraduate program committee member** (1979, 1983, 1989, 1992)
- x. **Graduate program committee member** (1980, 1986, 1988, 1990, 1993, 2008, 2010, 2013, 2014)
- xi. **Environmental engineering ABET review committee member** (2001-2003)
- xii. **CEE information systems committee member** (2000 – 2004)
- xiii. **CEE ENVE, Facilities Com., PhD Comp. Exam Com., Undergrad. Com. (2000 – present)**
- xiv. **Chair, CEE faculty search committee.** (2000, 2003)
- xv. **College of Engineering promotion and tenure committee.** (2003-2004), (2012- 2014)

**Ph.D. STUDENTS SUPERVISED:**

- |              |   |
|--------------|---|
| D. Gurses    | Thesis Title: “Micro Plastic Strain Energy Criterion Applied to Reversed Notched Fatigue.” (1974).                      |
| M. Zakikhani | Thesis Title: “Solution of Flow and Mass Transport in Multilayer Aquifers using Boundary Integral Method.” (1997).      |
| Y. Tang      | Thesis Title: “Multilayer Multi-species ground-water and Contaminant Transport Analysis.” (1998).                       |
| Y. Zhang     | Thesis Title: “Contaminant Transport in Multiply Connected Open Channels.” (2000).                                      |
| J. Guan      | Thesis Title: “Application of Genetic Algorithms in Optimal Groundwater Management.” (2001)                             |
| B. Liao      | Thesis Title: “Dense and Light Two Phase Contaminant Migration in subsurface Environment.” (2002).                      |
| O. Gunduz    | Thesis Title: “Evaluation of Environmental Stressors via Satellite Imagery and Modeling.” (2004).                       |
| C. Park      | Thesis Title: “Global Climate Change and its Effect on Saltwater Intrusion in Coastal Regions.” (2004).                 |
| E. Kentel    | Thesis Title: “Environmental Health Risk Analysis Using Fuzzy Logic and Statistical Methods.” (2005).                   |
| W. Jang      | Thesis Title: “Reactive Multi-Phase Immiscible Flow and Transport Processes.” (2005).                                   |
| S. Gokgoz    | Thesis Title: “Continuous Fugacity analysis in water pathways and engineered systems and health risk analysis.” (2006). |
| K. Nam       | Thesis Title: “Risk Based Environmental Modeling in Costal Georgia.” (2006).  |
| J. Wang      | Thesis Title: “Optimization Methods under Uncertainty.” (2007).   |
| S. Rogers    | Thesis Title: “Optimal Sensor Placement in Water Distribution Systems.” (2008).   |
| R. Goktas    | Thesis Title: “Ecological Models for Large Watersheds.” (2010).   |

- I. Telci Thesis Title: "Optimal Monitoring Station Placement in Large Watersheds"  
(2012)
- A. Zhang Thesis Title: "Effect of Non Darcy Flow regimes in deep aquifer injection."  
(2013).
- B. Chang Thesis Title: "Climate Change and Sea-Level Rise." (2013)
- W. Morgan Thesis Title: "Hydraulic Fracturing Mechanism and Computational Analysis."  
(2014)

**Note:** *MS CEE and Undergraduate advisement activities of Dr. Aral are not included to this list.*