

WENDY D. GRAHAM
CARL S. SWISHER CHAIR IN WATER RESOURCES
DEPARTMENT OF AGRICULTURAL & BIOLOGICAL ENGINEERING
P.O. BOX 116601
UNIVERSITY OF FLORIDA, GAINESVILLE FLORIDA 32611-6601

Education:

B.S.E. Environmental Engineering, University of Florida, 1981

Ph.D. Civil Engineering, Massachusetts Institute of Technology, 1989

Professional Experience:

1981-1984 Engineer, Boyle Engineering Corporation, Orlando FL.

1984-1989 Research Assistant, Civil Engineering Department, Massachusetts Institute of Technology, Cambridge MA.

1989-1994 Assistant Professor of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.

1994-1999 Associate Professor of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.

1999-2003 Professor of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.

2003-2006 Professor and Chair of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.

2006-pres Carl S. Swisher Chair in Water Resources, and Director of the Water Institute, University of Florida, Gainesville, FL.

2015-2016 Program Officer, Hydrologic Sciences Program, Geosciences Division, National Science Foundation, Arlington, VA.

Specialization:

Integrated hydrologic modeling; groundwater resources evaluation and remediation; evaluation of impacts of agricultural production on surface and groundwater quality; evaluation of impacts of climate variability and change on hydrologic systems; stochastic modeling and data assimilation.

Synergistic Activities:

Member, State of Florida Blue-Green Algae Task Force, 2019-2023.

Chair, Independent Scientific Review to Inform Development of the new Lake Okeechobee Regulation Schedule, South Florida Water Management District, 2019-2020.

Member, National Academies Water Science and Technology Board, 2017-2020.

Member, National Research Council's Committee on Independent Scientific Review of Everglades Restoration Progress (CISRERP), 2009-2012; 2017-2018.

National Science Foundation, Program Officer, Hydrologic Sciences Program, Geosciences Division, 2015-2016.

Chair, Technical Review of Options to Move Water from Lake Okeechobee to the Everglades, Florida Senate Committee on Environmental Preservation and Conservation, 2014-2015.

Chair, Lower Santa Fe and Ichetucknee River Minimum Flows and Levels Peer Review Panel, Suwannee River Water Management District, 2013.

Member of National Research Council's Committee on Review of EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida. 2011-2012.

Member, Florida Agricultural Water Policy Advisory Council, 2011-2016.

Member, Georgia Department of Natural Resources State Water Plan Scientific and Engineering Advisory Council, 2009-2010.

Chair, Watershed Assessment Model Peer Review Panel, Florida Department of Agriculture and Consumer Services, 2008-09.

Florida Department of Environmental Regulation BMP Verification Technical Advisory Committee, Member 2005-2007.

Consortium of Universities for the Advancement of Hydrologic Science, Member of the Board of Directors, 2001-2007; Member at large Executive Committee of the Board of Directors, 2003- 2004; Chair of the Board 2004-2006; Past Chair 2007.

Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER) Advisory Board, Member 2005-2007.

American Society of Agricultural and Biological Engineers; Elected Member of the Board of Trustees 2005-2007.

Florida Department of Environmental Regulation TMDL Technical Advisory Committee, Member 2003-2005.

State of Florida Pesticide Review Council, Member 2000-2007.

Courses Taught:

AOM 4643- Principles and Issues in Environmental Hydrology -Basic course in Environmental Hydrology intended for Agricultural and Natural Resource Scientists and Managers. The first half of the course covers scientific principles of the hydrologic cycle including precipitation, evapotranspiration, infiltration, groundwater flow, and surface runoff. The second half of the course examines issues concerning the impacts of agricultural and urban development on both the quantity and quality of water in the hydrologic cycle.

CWR 4111 Engineering Hydrology - Fundamentals of hydrology. Application of hydrology to hydraulic design including evaluation of runoff, design of control structures, detention and retention basins, and flood plain mapping.

CWR 6115 Surface Hydrology - Occurrence and distribution of water by natural processes including atmospheric thermodynamics, precipitation, infiltration, runoff, flood routing and catchment characteristics.

CWR 6536 Contaminant Subsurface Hydrology - Behavior of inorganic and organic contaminants in the vadose zone and aquifers.

CWR 6537 Stochastic Subsurface Hydrology - Analytical tools to systematically account for uncertainty and spatial variability in hydrologic model parameters and to evaluate the effects of uncertainty on hydrologic model predictions.

Graduate Committee Activities:

M.S. Thesis Committees Supervised

(asterisk indicates co-chair with primary supervisory responsibility)

Claude Tankersley* Civil Engineering, (co-chair), 1991.
Daniel Downey, Agricultural Engineering, (chair), 1992.
George Demmy, Agricultural Engineering, (co-chair), 1993.
Joseph Clark, Agricultural Engineering, (chair), 1994.
Jianguo Wu*, Civil Engineering, (co-chair), 1994.
Eric Hacherl, Soil and Water Science, (co-chair), 1994.
Steven Bryant, Agricultural Engineering, (chair), 1995.
Scott Lamb, Agricultural Engineering, (chair), 1996.
Dale Helms, Civil Engineering, (co-chair), 1997.
Mark Newman, Civil Engineering, (co-chair), 1997.
Catherine Harrison, Agricultural Engineering, 1998.
Michael Albert, Agricultural Engineering & Biological, (chair), 2002.
Erin Bostic, Soil and Water Science, (co-chair), 2003
Gregory Hendricks, Agricultural & Biological Engineering, (co-chair), 2003
Warren McKinnee, Agricultural & Biological Engineering, (chair), 2003.
Sandeep Dabral, Agricultural & Biological Engineering, (chair), 2004.
William Webb, Agricultural Operations Management, (chair), 2006.

Ph. D. Dissertation Committees Supervised

(asterisk indicates co-chair with primary supervisory responsibility)

Yan Zhang, Agricultural Engineering, (chair), 1997.
Liyong Li, Agricultural Engineering (chair), 1998.
Xavier Foussereau*, Soil and Water Science (co-chair), 1998.
George Demmy, Agricultural Engineering (chair), 1999.
James Bonscek, Soil and Water Science (co-chair), 2000.
Assefa Melesse, Agricultural & Biological Engineering (chair) 2002.
Siqing Liu, Agricultural & Biological Engineering (chair), 2003.
Lei Yang, Agricultural & Biological Engineering, (chair), 2006.
SyeWoon Hwang, Agricultural & Biological Engineering (chair), 2011.
Vibhava Srivastava, Agricultural & Biological Engineering (chair), 2013.
Wesley Henson, Agricultural & Biological Engineering (chair), 2016.
Seungwoo Chang, Agricultural & Biological Engineering (chair), 2017.
Sagarika Rath, Agricultural & Biological Engineering (chair), 2021.
Dogil Lee, Agricultural & Biological Engineering (chair), 2023.

Post-Doctoral Fellows Supervised:

Ashie Akpoji, 1994-1998.
Andrew James, 1996-2003.
Rob de Rooij, 2010-2016.
Syewoon Hwang, 2012-2014.
Vibhava Srivastava, 2013-2014.

Jason Chang, 2016-2018.
Nathan Reaver, 2019-present.

Honors and Awards:

Ida M. Green Graduate Student Fellowship, Massachusetts Institute of Technology, 1984.
American Geophysical Union, Editors' Citation for Excellence in Reviewing for Water Resources Research, 1993.
American Association of University Women, Emerging Scholar Award, 1994.
Nominated for the Geological Society of America O.E. Meinzer Award for significant contribution to the field of hydrogeology, 1996.
Florida Section of the American Association of Agricultural Engineers, Young Engineer Award, 1996.
University of Florida Research Foundation Professorship Award, 1997-2000.
Gamma Sigma Delta, Junior Faculty Award of Merit, 1998.
Sigma Xi, Junior Faculty Research Award, 1998.
University of Florida Doctoral Dissertation Advising Award, 2004.
American Association of Agricultural Engineers, Superior Paper Award (Transactions of the ASAE), 2005.
Florida Section of the American Association of Agricultural and Biological Engineers, Distinguished Achievement Award, 2006.
Gamma Sigma Delta, Distinguished Leadership Award of Merit, 2009.
American Society of Agricultural and Biological Engineers, Hancor Soil and Water Engineering Award, 2012.
American Geophysical Union, Editors' Citation for Excellence in Reviewing for Water Resources Research, 2015.

Grants Awarded:

Florida Water Resources Center, "Fate of Pesticides in the Plant Canopy and Upper Root Zone", April 1989 - April 1991, \$41,400, Co-Principal Investigator.
St. Johns River Water Management District, "Statistical Characterization of Groundwater Fluctuations and Hydrogeologic Properties in the Floridan Aquifer", January 1990 - September 1991, \$44,342, Co-Principal Investigator.
U.S. Department of Agriculture Extension Service, "Lake Manatee Demonstration Project - A BMP Demonstration to Reduce Water Quality Degradation by Fertilizers and Pesticides", October 1989 - October 1994, \$625,000, Investigator.
U.S. Department of Agriculture Extension Service, "Jackson County Karst Cropland Hydrologic Unit Area Project", October 1990 - October 1995, \$290,000, Principal Investigator.
St. Johns River Water Management District, "A Stochastic Optimal Control System for Maintaining Minimum Groundwater Levels During Water Shortages", August 1991 - August 1993, \$101,612 Principal Investigator.
St. Johns River Water Management District, "Optimization Modeling for Water Resources Allocation", August 1992 - August 1994, \$92,024 Co-Principal Investigator.
National Science Foundation SUCCEED Coalition, "Modular Design Projects for Jump-Starting Engineering Students", September 1992-September 1997, \$600,000, Investigator.

U.S. Environmental Protection Agency/Florida Department of Agriculture and Consumer Services, "Evaluation of the Impacts of Alternative Citrus Production Practices on Groundwater Quality", \$234,323, January 1993-January 2001, Principal Investigator.

Southwest Florida Water Management District "Evaluation of the Impacts of Alternative Citrus Production Practices on Groundwater Quality", \$10,000, January 1994-January 1995, Principal Investigator.

U.S. Department of Agriculture Cooperative State Research Service, "Integration of Spatio-Temporal Variability for Field-Scale Predictions of Groundwater Contamination", \$145,350, August 1993-August 1997, Principal Investigator.

U.S. Department of Agriculture Cooperative State Research Service, "National Needs Fellowships in Water Science", \$108,000, September 1993- August 1998, Co-Principal Investigator.

U.S. Department of Agriculture Soil Conservation Service, "Characterization and Analysis of Surface Water Quality Data in the Indian River Lagoon Basin", \$18,150, August 1993 - September 1994, Principal Investigator.

U.S. Environmental Protection Agency, "Field Evaluation of Cosolvent-Enhanced In-Situ Remediation", \$451,427, October 1993 - September 1995, Investigator.

Florida Department of Environmental Protection, "Evaluation of the Effectiveness of Horizontal Wells at Recycling Nutrients under Ferneries", \$30,075, September 1994 - March 1997, Co-Principal Investigator.

Air Force Office of Scientific Research, "Impacts of Spatiovariability of Source Morphology on Field-Scale Predictions of Subsurface Contaminant Transport", \$628,974, March 1995 - February 1998, Co-Principal Investigator.

Advanced Applied Technology Demonstration Facility (AATDF) Rice University Energy and Environmental Systems Institute, "Lab and Field Evaluation of Single Phase Microemulsion (SPME) for Enhanced In-situ Remediation of Contaminant Source Areas", \$418,260, September 1995-August 1997, Investigator.

Florida Department of Agricultural and Consumer Services, "Spatial and Temporal Distribution of Groundwater Nitrate in relation to Land Use", \$117,600, April 1997-March 1999, Co-Principal Investigator.

U.S. Air Force Armstrong Laboratory, "Innovative Tracer Techniques for DNAPL Source Delineation and In-Situ Flushing for Enhanced Source Removal: Pilot Scale Demonstrations at the GRFL Dover AFB", \$854,000, July 1997- June 2000, Co-Principal Investigator.

U. S. Department of Energy, "An In-Situ Tracer Method for Establishing the Presence and Predicting the Activity of Heavy Metal -Reducing Microbes in the Subsurface", \$850,000, June 1997-June 2000, Investigator.

U. S. Army Corps of Engineers CERL, SERDP Determination of Indicators of Ecological Change, \$2,013,454, June 1999-June 2005, Co-Principal Investigator

U.S. Environmental Protection Agency, " Biogeochemical Indicators of Watershed Integrity and Wetland Eutrophication", \$638, 410, October 1999- September 2002, Co-Principal Investigator.

U.S. Department of Agriculture National Needs Fellowships in Water Sciences, \$207,000, December 1999-December 2004, Principal Investigator.

U.S. Environmental Protection Agency 319 Program, "Evaluating the Effectiveness of BMPs for Reducing Nutrient inputs to Groundwater in the Suwannee River Basin", \$597,193, Jan 2000-July 2007, Co-Principal Investigator

Florida Water Resources Center, "Development of a Multiple Scale, Multiple Process Hydrologic Model", \$77,540, March 2000-Feb 2003, Co-Principal Investigator.

U.S. Environmental Protection Agency 319 Program, "Demonstration of Water Quality Best Management Practices for Beef Cattle Ranching in the Lake Okeechobee Basin", \$1,349,785.00, Sept 2002-Jun 2007, Principal Investigator.

National Science Foundation, "Improved Estimation of Evapotranspiration and Recharge from a Dynamic SVAT through Assimilation of Microwave Brightness", \$400,000, Jan 2004- Jan 2008, Co-Principal Investigator.

Progress Energy Corporation, "Water Institute Planning Fund", \$50,000, January 1, 2004- January 1 2005, Principal Investigator.

South Florida Water Management District/Florida Water Resources Center, Cooperative Research Assistantship Program, \$240,000, April 2006-May 2010, Principal Investigator.

National Science Foundation, "Design and Demonstration of a Distributed Sensor Array for predicting water flow and nitrate flux in the Santa Fe Basin", \$360,000, December 2006-December-2008, Principal Investigator.

US. Department of Agriculture-Agricultural Knowledge Initiative "Sustainable Water Resource Management: U.S - India Collaborative Research and Education", \$88,905, August 2006-July 2009, Principal Investigator.

Tampa Bay Water, Use of Seasonal Climate Forecasts to Reduce Risk in Regional Public Water Supply Management, \$374,800, April 2007- December 2017.

Water Institute Distinguished Scholar Seminar Series, Smallwood Foundation, \$67K, April 2007-April 2009, Principal Investigator

Florida Department of Agriculture and Consumer Services, Peer Review of the Watershed Assessment Model, \$100,000 July 2008-April 2009, Principal Investigator.

Florida Department of Agriculture and Consumer Services, Evaluation of Cow-Calf BMPs with regards to nutrient discharges in the Lake Okeechobee Basin, \$140K, July 2008-June 2009, Co-Principal Investigator

St. Johns River Water Management District, Technical Symposium Coordination, \$40,000, September 2008, Principal Investigator.

National Atmospheric and Oceanographic Administration Sectoral Applications Research Program (SARP), Use of Intra-seasonal and Seasonal Forecasts to Reduce Risk in Regional Public Water Supply Management, \$300K, October 2008-October 2010, Co-Principal Investigator

St. Johns River Water Management District, Evaluation of Hydrologic Data within the Upper Suwannee River and Santa Fe River Basins, \$40K, March 2009-September 2009, Co-Principal Investigator,

St. Johns River Water Management District, Peer Review of Water Conservation Program Plan, \$17K, March 2009-September 2010, Principal Investigator.

St. Johns River Water Management District, Technical Symposium Workshop: 2nd Annual St. Johns River Water Supply Impact Study, \$45K, April 2009-September 2009, Principal Investigator.

St. Johns River Water Management District, Review of Groundwater Models for North Florida Planning Area, \$100K, July 2009-December 2010, Principal Investigator.

National Science Foundation, Collaborative Research: Controls on Delivery and Fate of Water, Nitrogen and Calcium in a Spring-Fed Karst River, \$325K, Mar 2009- Mar 2013, Principal Investigator

National Science Foundation, Collaborative Research: High Resolution Sensor Networks for Quantifying and Predicting Surface Water/Groundwater Mixing and Nutrient Delivery in the Santa Fe River, \$457K, Aug 2009- Aug 2012 , Principal Investigator.

US Geological Survey 104(b) Florida Water Resources Center, Watershed Management in the Face of EPA's Numeric Nutrient Criteria, \$73.6K, March 2011-Feb 2016, Principal Investigator.

National Science Foundation, U.S.-Costa Rican Workshop: Interdisciplinary workgroup on water sustainability in the Tempisque Basin; Palo Verde NP, Costa Rica, \$58K, October 2011-October 2013 , Co-Principal Investigator.

National Atmospheric and Oceanographic Administration Climate and Societal Interactions (CSI), Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning, \$300K, August 2011-August 2014, Principal Investigator.

Florida Department of Agriculture and Consumer Services, TriCounty Agricultural Area Water Quality Data Review and Information Sharing Program, \$58K, October 2011-June 2012, Co-Principal Investigator.

National Atmospheric and Oceanographic Administration, Use of seasonal climate forecasts to minimize short-term operational risks for water supply and ecosystem restoration, \$150K, October 2012-October 2014, Principal Investigator.

Suwannee River Water Management District, Peer review of the Lower Santa Fe and Ichetucknee rivers Minimum Flows and Levels data, assumptions, methodologies and conclusions, \$45K, July 2013-December 2013, Principal Investigator.

Gainesville Regional Utilities, Kanapaha Water Reclamation Facility Denitrification Study, \$28K, August 2013-August 2014, Co-Principal Investigator.

Florida Department of Agriculture and Consumer Services, Literature Review of Agricultural Water Quality BMPs, \$20,000, August 2013-July 2014, Co-Principal Investigator.

St Johns River Water Management District, Springs Protection Initiative: Collaborative Research of Sustainability and Protection of Springs, \$2,170,468, April 2014-September 2017, Co-Principal Investigator.

Florida Senate Committee on Environmental Preservation and Conservation, Technical Review of Options to Move Water from Lake Okeechobee to the Everglades, \$250K, September 2014-March 2015, Principal Investigator.

Florida Department of Agriculture and Consumer Services, Evaluation of Water Use, Water Quality and Crop Yield Impacts of Corn and Peanut Irrigation and Nutrient BMPs in the Springsheds of the Suwannee River Water Management District, \$432,888, January 2015-December 2017, co-Principal Investigator.

US Geological Survey 104(b) Florida Water Resources Center, Agricultural Water Security Through Sustainable Use of the Floridan Aquifer: An Integrated Assessment of Economic and Environmental Impacts, \$64K, March 2016-June 2020, Co-Principal Investigator.

US Department of Agricultural National Institute of Food and Agriculture, Agricultural Water Security through Sustainable Use of the Floridan Aquifer: An Integrated Assessment of Economic and Environmental Impacts, \$4,918,926, July 2017-June 2022, Principal Investigator.

Tampa Bay Water, Comparison of dynamic versus statistical downscaling of the CCSM4 Global Circulation Model predictions for simulating hydrologic response in the Tampa Bay region, \$65,400, October 2017- December 2018, Principal Investigator.

Tampa Bay Water, Support services for collaborative stakeholder-scientist partnership: Florida Water and Climate Alliance, \$37,500, June 2017-December 2019, Principal Investigator.

North Carolina State University, Department of the Interior Southeast Climate Science Center consortium membership, \$81,162, August 2017- July 2022, Principal Investigator.

South Florida Water Management District, Independent Scientific Review to Inform Development of the new Lake Okeechobee Regulation Schedule, \$ 306,303, January-December 2019, Principal Investigator.

National Science Foundation, Carbonate Critical Zone Research Coordination Network, \$ 499,121, June 2019-June 2024, Co- Principal Investigator.

Tampa Bay Water, Evaluating potential risks of climate change on surface water quality in the Hillsborough and Alafia River watersheds, \$78,859, October 2019-October 2021, Principal Investigator.

Refereed Publications:

Graham, W.D. and D.B. McLaughlin. Stochastic Analysis of Non-Stationary Subsurface Solute Transport, 1. Unconditional Moments, *Water Resources Research*, 25(2):215-232, 1989.

Graham, W.D. and D.B. McLaughlin. Stochastic Analysis of Non-Stationary Subsurface Solute Transport, 2. Conditional Moments, *Water Resources Research*, 25(11):2331-2355, 1989.

D.B. McLaughlin and W.D. Graham. Reply to Comment on "Stochastic Analysis of Non-Stationary Subsurface Solute Transport, 1. Unconditional Moments", *Water Resources Research*, 26(8):1851-1853, 1990.

Graham, W.D. Review of "Flow and Transport in Porous Formations" by Gedeon Dagan, Published in: *Journal of Contaminant Hydrology*, 6(1), 103-104, 1990.

Graham, W. D. and D.B. McLaughlin. A Stochastic Model of Solute Transport in Groundwater: Application to the Borden Ontario Tracer Test, *Water Resources Research*, 27(6):1345-1360, 1991.

Graham, W.D. and D. Downey. A Comparison of Water Quality Information Obtained from Depth-Specific versus Depth-Integrated Groundwater Monitoring Devices, *Soil Crop Sci. Soc. Florida Proc.* 51:58-63, 1992.

Tankersley, C.D., W.D. Graham, and K. Hatfield. Comparison of Univariate and Transfer Function Models of Groundwater Fluctuations, *Water Resources Research*, 29(10), 3517-3533, 1993.

Graham, W.D. and C.D. Tankersley. Forecasting Piezometric Head Levels in the Floridan Aquifer: A Kalman Filtering Approach. *Water Resources Research*, 29(11), 3791-3800, 1993.

Downey, D., W.D. Graham, and G.A. Clark. An Inexpensive System to Measure Water Level Rise During the Bouwer and Rice Slug Test. *Applied Engineering in Agriculture*, 10(2), 247-253, 1994.

Graham, W.D., and C.D. Tankersley. Optimal Estimation of Spatially Variable Recharge and Transmissivity Fields Under Steady State Groundwater Flow: 1 Theory. *Journal of Hydrology*, Vol. 157, 247-266, 1994.

- Graham, W.D., and C.R. Neff. Optimal Estimation of Spatially Variable Recharge and Transmissivity Fields Under Steady State Groundwater Flow: 2 Case Study. *Journal of Hydrology*, Vol. 157, 267-285, 1994.
- Tankersley, C.D., and W.D. Graham, Development of an Optimal Control System for Maintaining Minimum Groundwater Levels, *Water Resources Research*, 30(11), 3171-3182, 1994.
- McNeal, B.L., C.D. Stanley, W.D. Graham, P.R. Gilreath, D. Downey and J.D. Creighton, Nutrient-Loss Trends for Vegetables and Citrus in West-Central Florida. Nitrate, *Journal of Environmental Quality*, Vol. 24, 95-100, 1995.
- Stanley, C.D., P.R. Gilreath, J.D. Creighton, B.L. McNeal, W.D. Graham, and G. Alverio, Nutrient-Loss Trends for Vegetables and Citrus in West-Central Florida. Phosphate, *Journal of Environmental Quality*, Vol. 24, 101-106, 1995.
- Destouni, G. and W. D. Graham, Solute Transport Through an Integrated Heterogeneous Soil-Groundwater system, *Water Resources Research*, 31(8), 1935-1944, 1995.
- Destouni, G. and W. D. Graham, The influence of observation method on local concentration statistics in the subsurface, *Water Resources Research*, 33(4), 663-676, 1997.
- James, A.I. Graham, W.D., Hatfield, K., Rao, P.S.C., and Annable, M.D., Optimal estimation of residual NAPL saturations using partitioning tracer concentration data, *Water Resources Research*, 33(12), 2621-2636, 1997.
- Rao, P.S.C., M.D. Annable, R.K. Sillan, D. Dai, K. Hatfield, W.D. Graham, A.L. Wood, and C.G. Enfield, Field-Scale Evaluation of In-Situ Cosolvent Flushing for Remediation of an Unconfined Aquifer Contaminated with a Complex LNAPL, *Water Resources Research*, 33(12), 2673-2686, 1997.
- Foussereau, X., and W.D. Graham, Field-scale subsurface transport of a surface-applied tracer in a Southwest Florida citrus grove, *Soil Crop Sci. Soc. Florida Proc.*, 56, 71-79, 1997.
- Graham, W.D., G. Destouni, G.G. Demmy, and X. Foussereau, Prediction of Local Concentration Statistics in variably saturated soils: Influence of Observation Scale and Comparison with Field Data, *Journal of Contaminant Hydrology*, 32(1-2), 177-199, 1998.
- Li, L. and W.D. Graham, Stochastic analysis of solute transport in heterogeneous aquifers subject to spatially random recharge, *Journal of Hydrology*, 206, 16-38, 1998.
- Annable, M.D., P.S.C. Rao, W.D. Graham, K. Hatfield, and A.L. Wood, Use of Partitioning Tracers for Measuring Residual NAPL: Results from a Field-Scale Test. *Journal of Environmental Engineering*, Vol. 124, No. 6, 498-503, 1998.
- Sillan, R.K.; Annable, M.D.; Rao, P.S.C.; Dai, D.; Hatfield, K.; Graham, W.D.; Wood, A.L., Enfield, C.G., Evaluation of in situ cosolvent flushing dynamics using a network of spatially distributed multilevel samplers, *Water Resources Research*, 34(9), 2191-2201, 1998.
- Alva, A.K., S. Paramasivam, and W.D. Graham, Impact of Different Nitrogen Management Practices on Leaf Nutritional Status and Yield of Valencia Orange Trees, and Groundwater Nitrate in a Sandy Entisol, *Journal of Environmental Quality*, 27(4), 904-910, 1998.
- Li, L. and W.D. Graham, Stochastic analysis of solute transport in heterogeneous aquifers subject to spatiotemporal random recharge, *Water Resources Research*, 35(4), 935-971, 1999.
- Paramasivam, S., Alva, A.K., and W.D. Graham, Transport of bromide in an entisol and its dissipation in surficial aquifer, *Journal of Environmental Science and Health, Part A*, 34(3): 585-604, 1999.

- James A.I., and W.D. Graham, Numerical Approximation of Head and Flux Covariances in Three Dimensions using Mixed Finite Elements, *Advances in Water Resources*, 22(7),711-728, 1999.
- Demmy, G.G., S. Berglund, and W.D. Graham, Injection Mode Implications for Nonreactive Solute Transport in Porous Media: Analysis in a Stochastic Lagrangian Framework, *Water Resources Research*, 35(7),1965-1974, 1999.
- Lamb S.T. ,W.D. Graham, and C.B. Harrison, Evaluating the Impact of Alternative Nitrogen Management Practices on Groundwater beneath Central Florida Citrus Groves, 1.Field Investigation, *Transactions of the ASAE* , 42(6),1653-1668, 2000.
- Harrison, C.B., W.D. Graham, and Lamb S.T., Evaluating the Impact of Alternative Nitrogen Management Practices on Groundwater beneath Central Florida Citrus Groves, 2. Computer Modeling , *Transactions of the ASAE* , 42(6),1669-1678, 2000.
- Foussereau, X., W. D. Graham, and P.S.C. Rao, Stochastic analysis of Transient Flow in Unsaturated Heterogeneous Soils, *Water Resources Research*, 26(4), 891-910, 2000.
- Foussereau, X., W. D. Graham, G.A. Akpoji, G. Destouni, and P.S.C. Rao, Stochastic Analysis of Transport in Unsaturated Heterogeneous Soils under Transient Flow Regimes, *Water Resources Research* , 26(4),911-922, 2000.
- James, A.I., W.D. Graham, K. Hatfield, P.S.C. Rao and M.D. Annable, Estimation of Spatially Variable Residual Non-Aqueous Phase Liquid (NAPL) Saturations in Non-Uniform Flow Fields Using Partitioning Tracer Data, *Water Resources Research*, 26(4),999-1012, 2000.
- Foussereau, Xavier, Graham, Wendy D., Akpoji, G.Ashie , Destouni, Georgia , Rao, P.S.C . Solute transport through a heterogeneous coupled vadose-saturated zone system with temporally random rainfall. *Water Resources Research*. 37(6), 1577-1588, 2001
- Zhang, Yan , Graham, Wendy D. ,Partitioning tracer transport in a hydrogeochemically heterogeneous aquifer, *Water Resources Research*, 37(8),2037-2048, 2001.
- Zhang, Yan, Graham, Wendy D., Spatial characterization of a hydrogeochemically heterogeneous aquifer using partitioning tracers: Optimal estimation of aquifer parameters. *Water Resources Research*, 37(8), 2049-2063, 2001.
- Destouni, Georgia, Simic, Eva, Graham, Wendy D. On the applicability of analytical methods for estimating solute travel time statistics in non-uniform groundwater flow, *Water Resources Research*, 37(9), 2303-2308, 2001.
- Graham, Wendy D., Estimation and Prediction of Hydrogeochemical Parameters using Extended Kalman Filtering, Chapter in: *Stochastic Methods in Subsurface Hydrology*, Editor: Govindaraju, G. S., American Society of Civil Engineers Press, 2002.
- Alva, A.K., Paramasivam, S., Graham, W.D., and T.A. Wheaton, Best Nitrogen and Irrigation Management Practices for Citrus Production in Sandy Soils, *Water, Air and Soil Pollution*, 143:139-154, 2003.
- Melesse, A. M. Graham W.D. and J. D. Jordan, Spatially Distributed Watershed Mapping And Modeling: Thermal Maps And Vegetation Indices To Enhance Land Cover And Surface Microclimate Mapping (Part 1), *Journal of Spatial Hydrology*, Vol. 3 No. 2, 29 p, 2003.
- Melesse, A. M. Graham W.D. and J. D. Jordan, Spatially Distributed Watershed Mapping and Modeling: GIS-Based Travel Time Concept For Stream Flow Prediction (Part 2), *Journal of Spatial Hydrology*, Vol. 3 No. 2, 28 p, 2003.

- Jones, J.W., Graham, W.D, Wallach, D. , Bostick, M. and J. Koo, Estimating Soil Carbon Levels using an Ensemble Kalman Filter, *Transactions of the ASAE*, 47(1):331-339, 2004.
- Melesse, A., and W.D. Graham, Storm runoff prediction based on spatially distributed travel time method utilizing remote sensing and GIS, *Journal of the American Water Resources Association*, 40(4), 863-879, 2004.
- Liu, S., Graham W.D., and J. M. Jacobs, Daily potential evapotranspiration and diurnal climate forcings: influence on the numerical modeling of soil water dynamics and evapotranspiration, *Journal of Hydrology*, 309:39-52, 2005.
- Cohen, M.J., Dabral, S., Graham, W.D., Prenger, J.P., and W.F. DeBusk, Evaluating Ecological Condition Using Soil Biogeochemical Parameters and Near Infrared Reflectance Spectra, *Environmental Monitoring and Assessment*, 116:427-457, 2006.
- Mackowski, D., Guerif, M., Jones, J.W., and W. D. Graham. Data assimilation with crop models, Chapter 6 (p. 151-172), in *Working with Dynamic Crop Models: Evaluation, Analysis, Parameterization and Applications*, edited by Wallach, D., Makowski, D., and J.W. Jones,. Elsevier, Amsterdam, Elsevier, Amsterdam, 2006.
- Jones, J.W., and W.D. Graham. Application of extended and ensemble Kalman filters to soil carbon estimation. Chapter 18 (p. 399-408), in *Working with Dynamic Crop Models: Evaluation, Analysis, Parameterization and Applications*, edited by Wallach, D., Makowski, D., and J.W. Jones,. Elsevier, Amsterdam, Elsevier, Amsterdam, 2006.
- Ferreira, R.A., Jones, J.W., and W.D. Graham, Parameterizing Spatial Crop Models with Inverse Modeling: Sources of Error and Unexpected Results, *Transactions of the ASABE*, Vol. 49(5): 1547–1561, 2006.
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Professional Service:

Member, State of Florida Blue-Green Algae Task Force, 2019-2023.

Member, National Academy of Sciences Water Science and Technology Board 2017-2020.

Program Officer, National Science Foundation Hydrologic Sciences Program, 2015-2017.

National Research Council's Committee on Independent Scientific Review of Everglades Restoration Progress (CISRERP), member, 2009-2012, 2017-2018.

National Research Council's Committee on Review of EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida, member 2011-2012.

Member, Florida Agricultural Water Policy Advisory Council, 2011-2016.

National Research Council-National Academy of Sciences, Commission on Geosciences, Environment and Resources, Committee on "Seeing into the Earth: Non-Invasive Characterization of the Shallow Subsurface for Environmental and Engineering Applications Non-Invasive Shallow Subsurface Characterization, member, 1996.

Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), Member of the Board of Directors, 2001-2007; Member at large Executive Committee of the Board of Directors, 2003- 2004; Chairman of the Board 2004-2007.

Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER) Advisory Board, Member 2005-2007.

Member of WATER and Environmental Research Systems Network (WATERS Network) Design Team, 2006-2008.

Invited Panelist, Army Corps of Engineers Waterways Experiment Station Environmental Lab Peer Review Panel, May 2008.

American Society of Agricultural and Biological Engineers, Member P-204 & P-210 National Committees 2003-present; Elected Member of the Board of Trustees 2005-2008.

American Geophysical Union, Secretary of the Hydrology Section, 2000-2002; Member of the Water Resources Research Status Review and Editor Search and Screen Committee, 2004; Member of the Langbien Lecturer Selection Committee, 2004-2008; Horton Medal Selection Committee, 2013-2015.

Reviewer of National Agency Grant Proposals (U.S.D.A, U.S.E.P.A., A.F.O.S.R., N.S.F), approximately 5 proposals per year.

Member, Peer Review Panel, National Science Foundation, Hydrologic Sciences Program, October 2014.

Member, Peer Review Panel, National Oceanic and Atmospheric Administration, Climate Program Office Sectoral Applications Research Program, March 2014.

Member, Peer Review Panel, National Science Foundation, Cyber-enabled Discovery and Innovation Program, February 2009.

Member, University of Arizona Hydrology and Water Resources Program, Academic Program Review Team, April 2013.

Member, Pennsylvania State University, External Water Program Review Team, April 2013.

Member, North Carolina State University, Biological and Agricultural Engineering, Academic Program Review Team, March 2015.

Member, Site Visit Review Team for the NSF National Center for Hydrologic Synthesis Competition, 2004.

Member, Peer Review Panel, U.S. Department of Agriculture, National Research Initiative Competitive Grants Program, 2002.

Member, Peer Review Panel, U.S. Department of Agriculture, Water Quality Initiative Special Grants Program, 1993.

Moderator and Member, Peer Research Review Panel, U.S. Dept. of Energy/Office of Energy Research Subsurface Science Program, Colloids Subprogram, 1994.

Reviewer for Scholarly Journals (Water Resources Research, Journal of Hydrology, Advances in Water Resources, Earth Interactions, Journal of Contaminant Hydrology, Water Resources Bulletin, Environmental Science and Technology, Transactions of American Society of Agricultural and Biological Engineers), approximately 12 papers per year.

Associate Editor, Water Resources Research, Published by American Geophysical Union, 1994-2000.

Associate Editor, Advances in Water Resources, Published by Elsevier Scientific Publishers, 1998-2002.

Associate Editor, Journal of Contaminant Hydrology, Published by Elsevier Scientific Publishers, 1993-1998.

Associate Editor, Soil and Crop Science Society Proceedings of Florida, Published by the Soil and Crop Science Society of Florida, 1998-2001.

Member, Georgia Department of Natural Resources State Water Plan Scientific and Engineering Advisory Council, 2009-2010.

Invited Delegate to the Century Commission Florida Water Congress, September 2008.

State of Florida, Pesticide Review Council, Member 2001-2007.

Florida Department of Environmental Regulation BMP Verification Technical Advisory Committee, Member 2005-2007.

Florida Department of Environmental Regulation TMDL Technical Advisory Committee, Member 2003-2005.

Florida International Volunteer Corps, Volunteer, Barbuda Water Resources Assessment, 2000.

International Life Sciences Institute, Working Group on the Estimation of Pesticide Concentrations in Drinking Water for Aggregate Exposure Assessment, Chair of the Modeling Subcommittee, 1997-1999.

American Society of Civil Engineers, Task Committee on Stochastic Methods in Subsurface Contaminant Hydrology, Member, 1997-2002.

Peer Review Monitor, Gordon Research Conference on Flow in Permeable Media, 1994.

American Society of Agricultural Engineers Leadership Conference "Vision 2007", one of 100 national professionals invited to participate, 1993.