

James L. Smoot

U.S. Geological Survey, Southeastern Region
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OVERVIEW

- More than 30 years of experience in hydrology and environmental science and engineering (more than 40 projects)
- BS, MS, and PhD degrees in Environmental/Civil Engineering
- Experience includes research, teaching, and practice in the private, public, and academic sectors
- Record of professional publications and presentations and other professional contributions
- Management training and experience
- Record of developing multi-discipline project teams and multi-organizational partnerships
- Record in science leadership and planning
- Registered Professional Engineer
- Experience as a tenured senior faculty member at a major land-grant state university
- Advised/directed the work of numerous graduate students through degree completion (30 MS and 2 PhD)

FORMAL EDUCATION

- **Doctor of Philosophy** – Environmental Engineering (Civil Engineering), 1988, *Virginia Tech (VPI&SU)*, Blacksburg, VA
- **Master of Science in Engineering** – Environmental Engineering, 1977, *University of Central Florida*, Orlando, FL
- **Bachelor of Science in Engineering** – Environmental Engineering, 1975, *University of Central Florida*, Orlando, FL

RECENT PROFESSIONAL DEVELOPMENT

Management Training

- **Leadership for a Democratic Society** (4-week executive training program) *Federal Executive Institute* – 2003
- **Executive Supervisory Skills** (1-week class) *Office of Personnel Management* – 2002
- **Federal Budget Process** (4-day class) *U.S. Geological Survey* – 2004
- **Meeting the Supervisory Challenge** (1-week class) *U.S. Geological Survey* – 2005

Technical Training

- **Hydrological and Ecological Processes Modeling** (4-day workshop) *U.S. Geological Survey* – 2002
- **Mercury in the Environment** (2-day workshop) *U.S. Geological Survey* – 2004
- **Forensic Hydrology** (2-day workshop) *U.S. Geological Survey* – 2004
- **Hydrological Change and Ecological Response** (3-day workshop) *U.S. Geological Survey* – 2005
- **Understanding the Appalachians** (3-day workshop) *U.S. Geological Survey* – 2005
- **Appalachian Region Integrated Science** (5-day workshop) *U.S. Geological Survey* – 2001

REGISTRATION

- **PROFESSIONAL ENGINEER** since 1979 – Tennessee (Active, #022837)

PROFESSIONAL EXPERIENCE

ASSISTANT REGIONAL HYDROLOGIST (GS-15) (2001 to Present)

U.S. Geological Survey (USGS), Southeastern Region, Norcross, GA

- National Water Quality Assessment (NAWQA) Program -- Regional Program Manager and member of the National Leadership Team
- Member of the Regional Management Team, Southeastern Region
- Part-time liaison to U.S. Fish and Wildlife Service, South Florida Ecological Services Unit, Vero Beach, FL (2005)
- Assisted with USGS Regional representation to U.S. DOI for coordination of South Florida Restoration Science activities (2004-5)
- Provided teaching and research services in water resources engineering to University of Central Florida, Orlando, FL through a temporary part-time assignment (soil erosion / sediment control and hydrology courses, and soil erosion research) (2005 - Present)

PROFESSOR – WATER RESOURCES AND ENVIRONMENTAL ENGINEERING (1990 to 2001)

University of Tennessee, Department of Civil and Environmental Engineering, Knoxville, TN

(tenured and promoted to rank of full professor in 1995)

- Research: water quality assessment; stormwater engineering, modeling, and management; stormwater treatment in Karst areas; flood frequency analysis; soil erosion and sediment control; agricultural nonpoint pollution modeling; contaminant transport in groundwater; stream reaeration and mixing; synthetic hydrology; groundwater modeling; hydrologic assessment; and environmental restoration.
- Instruction: Graduate Courses Undergraduate Courses

Groundwater Hydrology
Stormwater Modeling
Urban Hydrology and Stormwater Engineering
Soil Erosion and Sediment Yield
Open Channel Hydraulics
Field Methods in Water Resources Engineering
Environmental Engineering Seminar
Special Topics and Special Problems

Hydrology
Urban Drainage Engineering
Water Resources Planning and Management
Hydraulics (laboratory)
Senior Capstone Design
Review of CE Principles (Hydraulics/Hydrology)

- Service: numerous committees and assignments; professional service including PE and EIT exam proctor and course review instructor; NSF panel member; technical reviewer for journals; co-organized several conferences and meetings; and preparation and delivery of engineering short courses.

PRIVATE CONSULTANT – ENVIRONMENTAL ENGINEERING AND HYDROLOGY (1990 to 2001)

Knoxville, TN

- Surface- and ground-water hydrology, Karst hydrology, stormwater modeling and management, soil erosion and sediment control -- including technical report preparation, depositions, and court testimony. Clients were primarily located in TN, NC, and FL.
- Short course preparation and instruction for state and local governments and consulting engineering firms.
- Consulting to engineering firms and other organizations

HYDROLOGIST (GS-9 to GS-13) (1978 to 1990)

U.S. Geological Survey

Kentucky District, Hydrologic Investigations Section, Louisville, KY (1984 to 1990)

Florida District, Orlando Sub-District, Hydrologic Investigations Section, Orlando, FL (1978 to 1984)

- Kentucky District Water Quality Specialist and Project Chief for the Kentucky River National Water Quality Assessment Program pilot
- Projects: river water quality assessment; stream reaeration and dispersion; surface water and Karst groundwater dye tracing; lake hydrology; urban hydrology; water-quality effects of urban stormwater detention; hydrologic surveillance; residential water use; groundwater resource evaluation; flood frequency; ground-water contamination by drainage wells.

INSTRUCTOR (1975 to 1983)

University of Central Florida, Orlando, FL – Adjunct Faculty Member (1978 to 1983), Graduate Teaching Assistant (1975 to 1977)

- Part-time course development/instruction (Water Supply Engr, Wastewater Systems Engr, Physical Geography, and Engr Graphics).

WATER RESOURCES AND ENVIRONMENTAL ENGINEER (1975 to 1978)

Dawkins & Associates, Inc. (consulting engineering), Orlando, FL (1977 to 1978)

- Project Manager and Project Engineer and Vice President, Omega Systems Group, Inc. (computer applications subsidiary firm)
- Projects: environmental impact assessment; water distribution system design; water-quality modeling; wastewater treatment and disposal planning and design; solid-waste management and resource recovery; and optimization of treatment plant operation.

HNTB (Howard, Needles, Tammen & Bergendoff) (consulting engineering), Orlando, FL (1975 to 1977)

- Projects: water management; water-quality; water treatment; stormwater; highways; water distribution systems.

RESEARCH ASSISTANT (1973 to 1975)

University of Central Florida, College of Engineering, Orlando, FL

- Asst. Project Director for a NSF-funded study for a multi-modal mass transportation system for the University of Central Florida
- Laboratory and field water-quality research (non-point source pollution; lake restoration; shallow lake ecology)

ENGINEERING COOPERATIVE EDUCATION STUDENT (1971 to 1973)

Campbell, Foxworth, and Pugh (consulting engineering), Orlando, FL

National Aeronautics and Space Administration (NASA), Kennedy Space Center, FL

SELECTED ORGANIZATIONAL AFFILIATIONS AND HONORS

- USGS – STAR Award (2005) – Individual award for contributions in Everglades science coordination and U.S.F.W.S. liaison
- USGS – STAR Award (2001) – Group award for contributions in planning an Appalachian Science workshop and field trip
- USGS – Special Achievement Award (1987)
- Member, American Society of Civil Engineers
- Member, American Water Resources Association (Florida Section)
- Member of Chi Epsilon (National Civil Engineering Honor Society)
- Member of Phi Kappa Phi (National Honor Society)
- Member of Sigma Xi (Scientific Research Honor Society)
- Order of the Engineer

SELECTED PUBLICATIONS (from more than 100)

Robinson, R. Bruce; Wood, Molly S.; Smoot, James L.; and Moore, Stephen E. (2004) *Parametric modeling of water quality and sampling strategy in a high-altitude Appalachian stream*: Paper in *Journal of Hydrology* (ISSN #0022-1694), Volume 287, Number 1-4, pp 62-73.

- Buchanan, J.R.; Yoder, D.C.; Denton, H.P.; and **Smoot, J.L.** (2002) ***Wood chips as a soil cover for construction sites with steep slopes***: Paper in Journal of Applied Engineering in Agriculture (ISSN #0883-3542), American Society of Agricultural Engineers, Volume 17, Number 6, pp 20-24.
- VanMiegroet, H.; Creed, I.F.; Nicholas, N.S.; Tarboton, D.G.; Webster, K.L.; Shubzda, J.; Robinson, B.; **Smoot, J.**; Johnson, D.W.; Lindberg, S.E.; Lovett, G.; Nodvin, S.; and Moore, S. (2001) ***Is there synchronicity in nitrogen input and output fluxes at the Noland Divide Watershed, a small N-saturated forested catchment in the Great Smoky Mountains National Park?***: Paper in The Scientific World Journal (ISSN #1537-744X), Volume 1, Number S2, pp 480-492.
- Smoot, J.**; Thomason, K.; Tschantz, B.; Gangaware, T.; and Wilks, L. (1999) ***Stormwater quantity and quality management – a primer for local government officials***: University of Tennessee and TN Nonpoint Source Program, TN Dept. of Agriculture, 61 p.
- McCann, Molly S. and **Smoot, James L.** (1999) ***A review of stormwater best management practices for Karst areas***: In Hydrogeology and Engineering Geology of Sinkholes and Karst, (ISBN #9058090469) (Barry F. Beck, editor), A.A. Balkema Publishers, Rotterdam, Netherlands, pp 395-398.
- Smoot, James L.** and Smith, Russell D. (1999) ***Soil Erosion Prevention and Sediment Control***: University of Tennessee, 187 p. (currently served on University of Central Florida website as: <http://www.stormwater.ucf.edu/Staff/Soil%20Erosion/index.html>)
- Yoder, R.E.; Ammons, J.T.; Essington, M.E.; Freeland, R.S.; Mueller, T.C.; Roy, R.K.; **Smoot, J.L.**; Smith, P.D.; and Yoder, D.C. (1997) ***Field-scale vadose zone water movement in watersheds***: Paper in Proceedings of the 52nd Annual Meeting of the Soil and Water Conservation Society, July 23-26, 1997, Toronto, Ontario, Canada, Soil and Water Conservation Journal, Volume 52, Number 4, pp 293.
- Reese, James B.; **Smoot, James L.**; and Tschantz, Bruce A. (1997) ***Determining a 100-year peak flow and associated errors from simulated streamflow***: Paper in Proceedings of the Seventh Tennessee Water Resources Symposium, Tennessee Section of the American Water Resources Association, Nashville, TN, February 24-26, 1997, pp 136-138.
- Smoot, J.L.**; Cox, C; and Turpin, A.M. (1997) ***Laboratory testing of a system to treat highway stormwater in Karst areas***: In The Engineering Geology and Hydrogeology of Karst Terranes, (ISBN #9054108673) (Barry F. Beck, editor), A.A. Balkema Publishers, Rotterdam, Netherlands, pp 183-188.
- Smoot, J.L.**; Liebermann, T.D.; Evaldi, R.D.; and White, K.D. (1995) ***Surface water-quality assessment of the Kentucky River basin, Kentucky – analysis of available water-quality data through 1986***: Water Supply Paper # 2351-B, U.S. Geological Survey, Reston, VA, 194 p.
- Blackwelder, Larry S., and **Smoot, James L.** (1995) ***Gaussian modeling of contaminant plumes***: Paper in Proceedings of the First International Water Resources Conference, American Society of Civil Engineers, San Antonio, TX, August 14-18, 1995.
- Kooner, Zorawar S.; Cox, Chris D.; and **Smoot, James L.** (1995) ***Prediction of adsorption of divalent heavy metals at the goethite/water interface by surface complexation modeling***: Paper in Journal of Environmental Toxicology and Chemistry, Volume 14, Number 12, pp 2077-2083.
- Blackwelder, L.S. and **Smoot, J.L.** (1994) ***Comparative evaluation of kriging for spatial description of groundwater contaminant plumes***: Paper in Proceedings of the AWRA National Symposium on Responses to Changing Multiple-Use Demands: New Directions for Water Resources Planning and Management, Nashville, TN, April 17-20, 1994.
- Grabow, G.L.; Mote, C.R.; Sanders, W.L.; **Smoot, J.L.**; and Yoder, D.C. (1993) ***Groundwater monitoring network design using minimum well density***: Paper in Water Science and Technology Journal, Volume 28, Number 3-5, pp 327-335.
- Coe, Robert H.C., III and **Smoot, James L.** (1993) ***Comparison of slug test methods for estimating hydraulic conductivity in unconfined aquifers***: Technical report submitted to University of Tennessee, Institute of Agriculture (Ames Plantation Water Quality Study), May 1993, 115 p.
- Thompson, G. Kevin; **Smoot, James L.**; and Robinson, R. Bruce (1993) ***Evaluation of prediction equations for determining reaeration coefficients for low-slope stream reaches***: Paper in Proceedings of the Joint CSCE-ASCE National Conference on Environmental Engineering, Montreal, Quebec, Canada, July 12-14, 1993, pp 621-628.
- Martin, G.R.; **Smoot, J.L.**; and White, K.D. (1992) ***A comparison of surface-grab and cross sectionally integrated stream-water-quality sampling methods***: Paper in the Water Environment Research Journal, Volume 64, Number 7, pp 866-876.
- Smoot, J.L.**; Moore, T.D.; Deatherage, J.H.; and Tschantz, B.A. (1992) ***Reducing nonpoint source water pollution by preventing soil erosion and controlling sediment on construction sites***: Technical Report #R01-2512-39-001-92, Transportation Center, University of Tennessee, Knoxville, TN, 173 p.
- Smoot, J.L.**; Mull, D.S.; and Liebermann, T.D. (1989) ***Quantitative dye-tracing of karst ground-water flow***: Paper in Proceedings of the 1989 Specialty Conference on Environmental Engineering, American Society of Civil Engineers, New York, NY, pp 677-684.

Mull, D.S.; Liebermann, T.D.; Smoot, J.L.; and Woosley, L.H. (1988) **Application of dye-tracing techniques for determining solute-transport characteristics of ground water in karst terranes**: Technical Report # EPA 904/6-88-001, U.S. Environmental Protection Agency, Atlanta, GA, 103 p.

Mull, D.S.; Smoot, J.L.; and Liebermann, T.D. (1988) **Dye tracing techniques used to determine ground-water flow in a carbonate aquifer system near Elizabethtown, Kentucky**: Water-Resources Investigations Report # 87-4174, U.S. Geological Survey, Louisville, KY, 102 p.

Smoot, J.L. (1987) **Effect of streamflow conditions on gas-transfer coefficients**: Paper in Proceedings of the 1987 National Conference on Hydraulic Engineering (R.M. Ragan, editor), American Society of Civil Engineers, New York, NY, pp 980-985.

Ruhl, K.J. and Smoot, J.L. (1987) **Mean velocity, longitudinal dispersion, and reaeration characteristics of selected streams in the Kentucky River basin**: Water-Resources Investigations Report #87- 4179, U.S. Geological Survey, Louisville, KY, 61 p.

Smoot, J.L.; Mull, D.S.; and Liebermann, T.D. (1987) **Quantitative dye tracing techniques for describing the solute transport characteristics of ground-water flow in karst terrace**: Paper in Karst Hydrogeology – Engineering and Environmental Applications (Barry F. Beck, editor), A.A. Balkema Publishers, Rotterdam, Netherlands, pp 269-275.

Martin, E.H. and Smoot, J.L. (1986) **Constituent-load changes in urban stormwater runoff routed through a detention pond-wetlands system in central Florida**: Water-Resources Investigations Report #85-4310, U.S. Geological Survey, Orlando, FL, 74 p.

Smoot, J.L. and Schiffer, D.M. (1985) **Hydrology of Lake Butler, Orange County, Florida**: Water-Resources Investigations Report #84-4163, U.S. Geological Survey, Orlando, FL.

Smoot, J.L. (1981) **A comparison of domestic water consumption rates in selected areas in the St. Johns River basin, Florida**: Administrative Report (unnumbered), U.S. Geological Survey, Orlando, FL, 38 p.

Miller, R.A.; Anderson, W.; Navoy, A.S.; Smoot, J.L.; and Belles, R.G. (1981) **Water-resources information for the Withlacoochee River region, west-central Florida**: Water-Resources Investigations Report #81-11, U.S. Geological Survey, Orlando, FL, 130 p.

SELECTED RECENT PRESENTATIONS

“Effects of Urbanization on Stream Ecosystems”

– Presentation at 1st Annual Stormwater Management Research Symposium, Orlando, FL, October 12-13, 2004.

“Studying the Transport of Contaminants to Supply Wells as a Part of the USGS’ National Water Quality Assessment Program”

– Presentation at the University of Central Florida, Orlando, FL, February 26, 2003.

“Water Availability in the Southeast – A Matter of Quantity and Quality”

– Presentation at “When the Water Runs Dry” Symposium, Gulf Restoration Network, New Orleans, LA, September 9-10, 2002.

“Water Resources Issues and Priorities in the Southeast”

– Presentation at the Alabama Water Resources Conference, Orange Beach, AL, September 4-6, 2002.

“New Technologies in Sediment Control”

– Presentation at the 2001 Tennessee Mining Conference, Gatlinburg, TN, March 5-6, 2001.

“Florida’s Water Resources – Issues and Challenges”

– Presentation at the Department of Civil and Environmental Engineering, University of Central Florida, Orlando, FL, December 29, 1999.