

## BIOGRAPHICAL SKETCH - RANDALL LEE KOLAR

School of Civil Engineering and Environmental Science  
University of Oklahoma, Norman, OK 73019  
Phone: (405) 325-4267 Fax: (405) 325-4217 E-mail: kolar@ou.edu

### Professional Preparation

University of Idaho, B.S.C.E., 1983, Summa Cum Laude (4.0 GPA).  
University of Idaho, B.S. (Mathematics), 1983, Summa Cum Laude (4.0 GPA).  
University of Notre Dame, Ph.D. (Civil Engineering), 1992 (4.0 GPA).  
University of Notre Dame, Postdoctoral appointment, April-August, 1992.

### Appointments

7/08 - Present	Austin Presidential Professor, University of Oklahoma
7/07 - 6/08	Professor, University of Oklahoma
7/01 - 6/07	Associate Professor, University of Oklahoma
8/95 - 6/01	Assistant Professor, University of Oklahoma
9/93 - 8/95	Assistant Professor, University of New Haven
9/92 - 8/93	Adjunct Professor, University of New Haven
9/87 - 4/92	Graduate Student, University of Notre Dame
11/90 - 1/91	Visiting Scholar, RIVM (Dutch Inst. for Public Health and Env. Protection)
6/83 - 5/87	JUB Engineers, Twin Falls, ID and Kennewick, WA (Registered PE)

### Ten Publications

R. L. Kolar et al., "Process-Oriented Tests for Validation of Baroclinic Shallow Water Models: The Lock-Exchange Problem," *Ocean Modeling*, 28 (1-3), 137-152, 2009.

J. C. Dietrich, R. L. Kolar, K. M. Dresback, "Mass Residuals as a Criterion for Mesh Refinement" *Journal of Hydraulic Engineering*, 134(5), 520-532, 2008.

FEMA, *Flood Insurance Study: SE Parishes, LA, Intermediate Submission 2: Offshore Water Levels and Waves*, FEMA and US ACE, 901 pp., 2008.

J. C. Dietrich, R. L. Kolar, J. J. Westerink, "Improvements to ADCIRC's Wetting and Drying Algorithm," *Estuarine and Coastal Modeling*, M. Spaulding, ed., 637-656, ASCE, 2006.

K. M. Dresback, R. L. Kolar, J. C. Dietrich, "On the Form of the Momentum Equation for GWCE Models: Conservative vs. Non-Conservative," *Adv. in Water Res.*, 28, 345-358, 2005.

K. M. Dresback, C. A. Blain, R. L. Kolar, "Resolution and Algorithmic Influences on the Baroclinic Pressure Gradient in Finite Element Based Hydrodynamic Models," *Computational Methods in Water Resources (XV)*, Miller et al., eds., 1755-1766, Elsevier, 2004.

C. M. Szpilka, R. L. Kolar, "Numerical Analogs to Fourier and Dispersion Analysis: Development, Verification, and Application to the Shallow Water Equations," *Adv. in Water Res.*, 26, 649-662, 2003.

S. C. Hagen, J. J. Westerink, R. L. Kolar, and O. Horstman, "Two-dimensional Unstructured Mesh Generation for Tidal Models," *Int. J. for Num. Meth. Fluids*, 35(6), 669-686, 2001.

R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, B. E. Vieux, "Sooner City - Design Across the Curriculum," *J. of Engineering Education*, 89(1), 79-87, January 2000.

R. L. Kolar, W. G. Gray, J. J. Westerink, and R. A. Luetlich, Jr., "Shallow Water Modeling in Spherical Coordinates: Equation Formulation, Numerical Implementation, and Application," *J. of Hydraulic Research*, 32(1), 3-24, 1994.

## **Synergistic Activities**

Recipient of 1996 NSF CAREER Award: Technical research centered around algorithm development and applications of barotropic shallow water models in a parallel computing environment; Educational activities led to the Sooner City project (described below); Outreach activity (“Engineering Futures”) had college students collaborating with secondary math and science faculty to introduce engineering to high school students. Subsequent research projects have supported shallow water model development in the area of three-dimensional baroclinic flows, with applications ranging from hurricane storm surge computations to Naval operations.

Co-founder and Associate Director of the WaTER (Water Technologies for Emerging Regions) Center at OU, whose focus is on sustainable technologies for water and sanitation in small communities. The Center hosts the bi-annual WaTER Conference and WaTER Prize, conferred upon an international leader in the field, as chosen by a jury of peers.

PI for the Sooner City project (NSF Action Agenda), which integrates a common infrastructure design project (civil infrastructure) across the curriculum, starting in the freshman year. Each class is devoted to a different task, e.g., water supply and distribution in water resources engineering, a set-up that fits in the existing curriculum and gives individual faculty flexibility in their course structure (promotes faculty buy-in). Also, served as Director of the CEES’s GAANN program for ten years (DoEd); a unique aspect is its formal, four-year educational program that parallels the technical research.

Member of the major professional societies (American Geophysical Union, American Society of Civil Engineers, American Society of Engineering Education, American Water Resources Association, Society of Industrial and Applied Mathematics) including organizing and chairing conference sessions for SIAM and ASEE, among other conferences. Editorial board, *Advances in Water Resources* and *Computational Geosciences*. Also serve as Associate Director for the Environmental Modeling/GIS Lab and Natural Hazards and Disaster Research Center at OU.

For research and educational initiatives, received the Austin Presidential Professorship (2008), the OK Regent’s Award for Superior Teaching (2006), the College of Engineering’s Teaching Scholar Award (2005), ASEE’s Dow Outstanding New Faculty Member Award (2000), OU’s BP/Amoco Good Teaching Award (2000), OK Regents’ Williams Faculty Innovator Award (2000), and the OK Regents’ Instructional Technology Excellence Award (1999).

## **Collaborators over the Last 4 Years (alphabetical)**

J. Antonio (OU), C. A. Blain (NRL), C. Dawson (U. of Texas), J. Everett (Rowan U.), L. D. Fink (OU), J. Gourley (NSSL), K. Gramoll (OU), W. Gray (UNC), S. Hagen (Central Florida), Y. Hong (OU), K. Johnson (OU), K. Kelleher (NSSL), R. Knox (OU), A. Kukreti (Cincinnati), S. Lakshmi-varahan (OU), P. Lamb (OU), R. Luetlich (UNC), G. Miller (OU), M. Mooney (Colo. School Mines), J. Muccino (Arizona State U.), K. Muraleetharan (OU), R. Nairn (OU), M. Nanny (OU), D. Sabatini (OU), R. Sack (Wash. State U), K. Strevett (OU), D. Townsend (GRDA), S. van Cooten (NSSL), B. Vieux (OU), J. Westerink (U. of Notre Dame), M. Wheeler (U. of Texas), M. Zaman (OU).

## **Advisors**

Ph.D. Advisor: W. G. Gray (U. of N. Carolina); Postdoc Advisor: J. J. Westerink (U. of Notre Dame).

## **Advisees (Current Appointments)**

M.S. Thesis (6): M. Baldwin (ACOG), K. Dresback (OU), R. Dutnell (Ph.D student), J. Dietrich (Ph.D. student), P. Chawla (NA), I. Toohey (Garver).

Ph.D. Dissertation (6): M. Avard (SE Ok. State U.), C. Szpilka (Postdoc), K. Dresback (Research Professor at OU), V. Wolfe (West Virginia State U.), E. Tromble, R. Dutnell (in progress).

Postdocs (4): K. Dresback (Research Professor at OU), J. Atkinson (Arcadis Consulting), A. Szpilka (Carroll College), C. Szpilka (current)