
Curriculum Vita - Randall Lee Kolar

Address

School of Civil Engineering and Environmental Science
University of Oklahoma
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Professional Experience

- Associate Professor** *University of Oklahoma, Norman, OK*
6/01 to Present
- Assistant Professor** *University of Oklahoma, Norman, OK*
8/95 to 6/01
- Assistant Professor** *University of New Haven, West Haven, CT*
9/93 to 7/95
- Adjunct Professor** *University of New Haven, West Haven, CT*
9/92 to 8/93
- Visiting Scholar** *University of Notre Dame, Notre Dame, IN*
9/92 to 8/93
Dual appointment while an adjunct at UNH to continue Notre Dame research projects.
- Post Doctoral Appointment** *University of Notre Dame, Notre Dame, IN*
4/92 to 8/92
Research on computational issues and equation formulation of shallow water models.
- Research Assistant** *University of Notre Dame, Notre Dame, IN*
8/87 to 4/92
Research appointment while a graduate student; also served as TA for 3 semesters.
- Visiting Scholar** *RIVM, Dutch Institute for Public Health and Environmental Protection, Bilthoven*
11/90 to 1/91
Compared various transport algorithms for modeling groundwater pollution.
- Instructor** *University of Notre Dame, Notre Dame, IN*
1/90 to 5/90
Taught senior-level numerical methods course while a graduate student.
- Consulting Engineer** *JUB Engineers, Twin Falls, Idaho and Kennewick, Washington*
6/83 to 8/87
Licensed as a Professional Engineer, #6034, State of Idaho.
- Instructor** *University of Idaho, Moscow, ID*
8/81 to 5/82
Taught freshman-level algebra course while an undergraduate student.
- Research Technician** *University of Idaho Agricultural Experiment Station, Kimberly, ID*
5/81 to 8/81
Collected data and wrote computer code for crop yield experiments.
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Education

- Ph. D.** *University of Notre Dame, Notre Dame, IN*
April, 1992
Dissertation: "Environmental Conservation Laws - Equation Formulation, Numerical Solution, and Application." Advisor: Professor William G. Gray. GPA: 4.0
- B.S., Civil Engineering** *University of Idaho, Moscow, ID*
May, 1983
Summa Cum Laude. GPA: 4.0
- B.S., Mathematics** *University of Idaho, Moscow, ID*
May, 1983
Summa Cum Laude. GPA: 4.0
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Professional and Honorary Societies

- American Geophysical Union
- American Society of Civil Engineers
- American Society for Engineering Education
- American Water Resources Association
- Society of Industrial and Applied Mathematics
- Tau Beta Pi

Honors and Awards

Professional

- Nominee, ASEE Chester F. Carson Award (2002)
- Nominee, NAE Bernard M. Gordon Prize (2001)
- ASEE Dow Outstanding New Faculty Award (2000)
- OU's BP/Amoco Good Teaching Award (2000)
- Oklahoma Regent's Williams Faculty Innovator Award (2000)
- Oklahoma Regent's Instructional Technology Excellence Award (1999)
- NSF CAREER Award (1996-2001)
- OU Junior Faculty Research Award (1996)
- Nominee, Brandon Griffith Award, College of Engineering (1996)
- Who's Who in Engineering Education.

Graduate Student (Notre Dame)

- Center for Applied Math Fellowship - Notre Dame (1990-92)
- GAANN Scholar (Graduate Assistantship in Areas of National Need Program) - Center for Bioengineering and Pollution Control, Notre Dame (1990-92)
- National Science Foundation Graduate Fellowship (1987-90)
- Dondanville Award for Outstanding Teaching Assistant - Notre Dame (1989-90)
- Tau Beta Pi Fellowship (1987-88)
- Arthur Schmidt Fellowship (Award for Outstanding Incoming Graduate Students at Notre Dame) (1987-88)

Undergraduate Student (Idaho)

- ASCE Daniel Mead Award, Zone IV (1983)
- Eugene and Osa Taylor Scholarship - Idaho (1982-83)
- J. Lawrence Botsford Scholarship - Idaho (1981-82)
- Marian Lilly Henry Scholarship - Idaho (1981-82)
- Boeing Scholarship - Idaho (1980-82)
- Allan Reeb Memorial Scholarship - Idaho (1980-81)

Research Interests

Research interests center on quantitative solutions to environmental problems, including studies on the following topics:

- volumetric averaging to develop and study conservation laws for surface water hydraulics and flow in porous media
- algorithm development and numerical analysis
- finite elements in water resources
- hydrodynamic modeling of coastal waters - barotropic and baroclinic circulation, with applications ranging from storm surges to larvae transport
- river morphology
- high performance computing
- infiltration modeling
- field and laboratory studies to test infiltration models
- transport in the unsaturated zone
- microscale sorption models

Teaching Experience

Courses taught and evaluation results are as follows.

Undergraduate Courses (# times)

- numerical methods (4)
- fluid mechanics (2)
- water resources engineering (2)
- introductory algebra (2)
- introduction to environmental engineering¹ (10)
- open channel hydraulics (6)
- multimedia technology (faculty mentor) (3)

Graduate Courses (# times)

- groundwater hydrology (3)
- contaminant hydrology (3)
- surface water quality modeling (5)
- surface hydrology (2)
- environmental modeling (5)
- physical oceanography (1)

In addition to these courses, I have the expertise to teach courses in shallow water modeling, finite elements in engineering, computer applications for civil engineers (water resources), unsaturated hydrology, advanced mathematics for engineers, averaging theory in porous media, and hydraulics.

Evaluation Results

University of Oklahoma²

- I/C = 0.85 (arithmetic average of 22 courses to date); range = 0.52 to 1.42
- I/D = 0.94 (arithmetic average of 22 courses to date); range = 0.58 to 1.53

University of New Haven³

- 59.2% - 4, 38.0% - 3, 2.5% - 2, 0.3% - 1
- 95.2% rated course either “Good” or “Excellent” (average of 15 courses)

Graduate Students/REUs

Ph.D. Advisor (4)

- 1) K. M. Dresback, “Algorithmic Improvements, Analyses, and Applications of the Generalized Wave Continuity Equation Based Model, ADCIRC,” May, 2003.
- 2) C. M. Gossard, “Hydrodynamic Modeling: Algorithm Development and Analysis,” May, 2003.
- 3) V. L. Wolfe, “Environmental Literacy in the College Curriculum,” May, 2002 (co-advise with Dr. L. D. Fink).
- 4) M. A. Avard, “Quantification of Chlorophyll in Small Reservoirs Using Airborne

1. In both Fall 1998 and Fall 1999, there were two sections for this course - one “traditional” and one laptop section, the latter structured for students who owned wireless laptops so that the class became a networked computer lab. Each section is counted separately for the number shown in parenthesis. Also, from 1998-2001, the course was co-taught with Dr. David A. Sabatini (both instructors were present in each session).

2. As per departmental policies, evaluation results are reported as the average score of three questions taken from end-of-semester evaluations. The questions address preparation, clarity of presentation, and overall effectiveness. Scores are reported as ratios, that is, the instructor’s score relative to all faculty in the College of Engineering (I/C ratio) and relative to all faculty in the department (I/D ratio). Thus, a ratio = 1 means the instructor received the average evaluation result, a ratio < 1 means the instructor was better than average, and a ratio > 1 means the instructor was worse than average.

3. Reported as the average from all courses. Each course evaluation consisted of sixteen questions with scores ranging from 1 (poor) to 4 (excellent).

Video Imagery,” May, 1998 (co-advise with Dr. L. Canter).

- Ph.D. Committee (11)** J. Gourley, M. Hale, B. Cozemius, G. Chen, A. Noman, F. Hall, C. Wei, A. Thal, J. Feyen (Notre Dame), S. C. Hagen (Notre Dame), J. Atkinson (Notre Dame).
- M.S. Advisor (3)**
- 1) Patricia Quarles (just started in 2003).
 - 2) R. C. Dutnell, “Development of Bankfull Discharge and Channel Geometry Relationships for Natural Channel Design in Oklahoma Using a Fluvial Geomorphic Approach,” January, 2000.
 - 3) K. M. Dresback, “An Alternative Time Marching Algorithm for ADCIRC,” April, 1999.
 - 4) M. M. Hornecker, “Automated Soil Moisture Observations and Infiltration Modeling at the Closed Norman, Oklahoma Landfill,” March, 1999.
- M.S. Committee (6)** J. Flaming, G. Kesavamurthy, M. Gopal, A. Jones, E. LeDimet, S. Maratha, R. Dorairaj.
- M.S. Advisor: Non-Thesis (12)** T. Mensah, S. Wexell, G. Daraskovich, M. Anhalt, P. Potluri, B. Pashupathinath, B. Tedeschi, P. Waigasee, V. Jangyodsuk, M. Yeosok, G. Andrews, V. Penmethshsa.
- Post Docs and Research Asst. (4)** J. H. Atkinson (2002-Present), A. Szpilka (2002-Present), M. M. Hornecker (1999-2000), S. Dagan (2000).
- REU Students (18)** C. Dietrich, L. McSpadden, M. Owen, A. Clements, E. Gilje, C. Gray, E. Chen, E. Spargo, J. Flaming, C. Kester, S. Keenan, S. Smith, J. Pflasterer, C. Gossard, J. Allu, J. Byrd, D. Parsons, D. Eiba.

Publications

- Journals (16)**
- 16) K. M. Dresback, R. L. Kolar, J. C. Dietrich, “On the Form of the Momentum Equation for Shallow Water Models Based on the Generalized Wave Continuity Equation: Conservative vs. Non-Conservative,” *Advances in Water Resources*, in review, April, 2003.
 - 15) C. M. Szpilka, R. L. Kolar, “Numerical Analogs of Fourier and Dispersion Analysis: Development, Verification, and Application to the Shallow Water Equations,” *Advances in Water Resources*, accepted, Jan. 2003.
 - 14) K. M. Dresback, R. L. Kolar, J. C. Dietrich, “A 2D Implicit Time-Marching Algorithm for Shallow Water Models Based on the Generalized Wave Continuity Equation,” *International Journal for Numerical Methods in Fluids*, in review, Dec. 2002.
 - 13) R. L. Kolar, D. A. Sabatini, and L. D. Fink, “Laptops in the Classroom: Do They Make a Difference?”, *Journal of Engineering Education*, 91(4), 397-401, Oct. 2002.
 - 12) H. K. Karapanagioti, C. M. Gossard, K. A. Strevett, R. L. Kolar, D. A. Sabatini, Reply (extended) to Comment on: “Model Coupling Intraparticle Diffusion/Sorption, Nonlinear Sorption, and Biodegradation Processes,” *Journal of Contaminant Hydrology*, 57(3-4), 315-321, Aug. 2002.
 - 11) K. M. Dresback and R. L. Kolar, “An Implicit Time Marching Algorithm for Shallow Water Models Based on the Generalized Wave Continuity Equation,” *International Journal for Numerical Methods in Fluids*, 36, 925-945, 2001.
 - 10) H. K. Karapanagioti, C. M. Gossard, K. A. Strevett, R. L. Kolar, D. A. Sabatini, “Model Coupling Intraparticle Diffusion/Sorption, Nonlinear Sorption, and Biodegradation Processes,” *Journal of Contaminant Hydrology*, 48(1-2), 1-21, Feb. 2001.
 - 9) S. C. Hagen, J. J. Westerink, R. L. Kolar, and O. Horstman, “Two-dimensional Unstructured Mesh Generation for Tidal Models,” *International Journal for Numerical Methods in Fluids*, 35(6), 669-686, 2001.

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- 8) M. A. Mooney, C. Bouton, C. Gray, J. Allu, and R. L. Kolar, "The Development of an NGES-Interfaced, Web-Based Geotechnical Site Investigation Instructional Module," *ASCE Geolnstitute Geotechnical Specialty Publication*, No. 93, 336-346, 2000.
 - 7) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, B. E. Vieux, "Sooner City - Design Across the Curriculum," *Journal of Engineering Education*, 89(1), 79-87, 2000.
 - 6) R. L. Kolar and D. A. Sabatini, "Environmental Modeling - A Project-Driven, Team Approach to the Theory and Application," *Journal of Engineering Education*, 89(2), 201-207, April 2000.
 - 5) S. C. Hagen, J. J. Westerink, and R. L. Kolar, "One-Dimensional Finite Element Grids Based on Localized Truncation Error Analysis," *International Journal for Numerical Methods in Fluids*, 32(2), 241-261, 2000.
 - 4) R. L. Kolar, W. G. Gray, and J. J. Westerink, "Boundary Conditions for Shallow Water Models - An Alternative Implementation for Finite Element Codes," *International Journal for Numerical Methods in Fluids*, 22(7), 603-618, 1996.
 - 3) R. L. Kolar, W. G. Gray, J. J. Westerink, and R. A. Luettich, Jr., "Shallow Water Modeling in Spherical Coordinates: Equation Formulation, Numerical Implementation, and Application," *Journal of Hydraulic Research*, 32(1), 3-24, 1994.
 - 2) R. L. Kolar, J. J. Westerink, M. E. Cantekin, and C. A. Blain, "Aspects of Nonlinear Simulations Using Shallow Water Models Based on the Wave Continuity Equation," *Computers and Fluids*, 23(3), 523-538, 1994.
 - 1) J. J. Westerink, R. A. Luettich, J. K. Wu, and R. L. Kolar, "The Influence of Normal Flow Boundary Conditions on Spurious Modes in Finite Element Solutions to the Shallow Water Equations," *International Journal for Numerical Methods in Fluids*, 18, 1021-1060, 1994.

**Books and Book Chapters/
Contributions (2)**

- 2) R. L. Kolar and D. A. Sabatini, "Use of Reflective Writing/Learning Portfolios in a Junior-Level Water Resources Engineering Class," contribution to: *The Learning Portfolio: Reflective Practice for Improving Student Learning*, J. Zubizarreta, Anker Publishing, Bolton, MA, in press, Dec. 2002.
- 1) W. G. Gray, A. Leijnse, R. L. Kolar, and C. A. Blain, *Mathematical Tools for Changing Spatial Scales in the Analysis of Physical Systems*, CRC Press, 232 pp., 1993.

**Conference Proceedings,
Abstracts, and Other Articles (37)**

- 37) C. M. Gossard and R. L. Kolar, "Wave Propagation Characteristics of Continuous and Discontinuous Galerkin Finite Element Algorithms for the Shallow Water Equations," *Developments in Water Science 47: Computational Methods in Water Resources (XIV)*, Vol. 2, Hassanizadeh et al., eds., 1621-1628, Elsevier, 2002.
- 36) K. M. Dresback, R. L. Kolar, J. C. Dietrich, "Impact of the Form of the Momentum Equation on Shallow Water Models Based on the Generalized Wave Continuity Equation," *Developments in Water Science 47: Computational Methods in Water Resources (XIV)*, Vol. 2, Hassanizadeh et al., eds., 1573-1580, Elsevier, 2002.
- 35) K. M. Dresback, C. A. Blain, R. L. Kolar, "Assessment of Methods to Compute the Baroclinic Pressure Gradient in Finite Element Shallow Water Models," *Estuary and Coastal Modeling: Proceedings of the Seventh International Conference*, M. Spaulding, ed., 103-119, ASCE, 2002.
- 34) A. Noman Ahsanuzzaman, R. L. Kolar, "Performance of Green-Ampt Model in Estimating Flow Through the Vadose Zone," *22nd AGU Hydrology Days 2002*, J. Ramirez, ed., 25-30, 2002.
- 33) R. L. Kolar, L. D. Fink, K. Gramoll, R. C. Knox, G. A. Miller, M. A. Mooney, K. K. Muraleetharan, D. A. Sabatini, B. E. Vieux, "Report on the Sooner City Workshop

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- 2000 on Integrated Design,” *Proc. of 2001 ASEE National Conference*, ASEE, CDROM, Paper #2525, 2001.
- 32) “Sooner City - Virtually There,” *eVolve*, (College of Engineering Alumni magazine), 1(1), 11-12, 2001.
- 31) L. D. Fink, “Learning Portfolios Create Broader Awareness of Educational Achievements,” *Spotlight on Teaching* (OU Instructional Development Program’s newsletter; contributed a piece for the article with D. Sabatini), 21(1), March, 2001.
- 30) L. D. Fink, R. L. Kolar, K. K. Muraleetharan, R. W. Nairn, D. A. Sabatini, R. L. Sack, T. R. Rhoads, and D. L. Shirley, “Reengineering Sooner Civil Engineering Education,” *Proceedings, FIE 2000* (Frontiers in Education), IEEE, CDROM, Paper No. 1350, 2000.
- 29) R. L. Kolar and J. J. Westerink, “A Look Back at 20 Years of GWC-Based Shallow Water Models,” *Computational Methods in Water Resources XIII, Vol. 2*, Bentley et al., eds. 899-906, Balkema, 2000.
- 28) K. M. Dresback and R. L. Kolar, “An Implicit Time-Marching Algorithm for 2D GWC Shallow Water Models,” *Computational Methods in Water Resources XIII, Vol. 2*, Bentley et al., eds. 913-920, Balkema, 2000.
- 27) C. M. Gossard and R. L. Kolar, “Phase Behavior of a Finite Volume Shallow Water Algorithm,” *Computational Methods in Water Resources XIII, Vol. 2*, Bentley et al., eds. 921-928, Balkema, 2000.
- 26) A. A. Aldama, A. Aguilar, R. L. Kolar, J. J. Westerink, “A Mass Conservation Analysis of the GWCE Formulation,” *Computational Methods in Water Resources XIII, Vol. 2*, Bentley et al., eds. 907-912, Balkema, 2000.
- 25) R. C. Dutnell and R. L. Kolar, “Regional Discharge and Channel Geometry Relationships for Natural Channel Design in Oklahoma,” *20th AGU Hydrology Days 2000*, J. A. Ramirez, ed., 63-75, 2000.
- 24) L. D. Fink, “Sooner City: An Experiment in Design Across the Curriculum,” *Spotlight on Teaching* (OU Instructional Development Program’s newsletter devoted the April issue to Sooner City), 20(2), April 2000.
- 23) R. L. Kolar and D. A. Sabatini, “Team Teaching in Undergraduate and Graduate Courses,” *Proc. of ASEE 34th Midwest Section Conference*, CDROM, 1999.
- 22) D. I. Nelson, R. W. Nairn, M. A. Nanny, K. A. Strevett, B. E. Vieux, R. L. Kolar, R. C. Knox, and J. W. Everett, “Research Experience for Undergraduates in Environmental Monitoring and Modeling at the Closed Norman Landfill,” *Proc. of ASEE 34th Midwest Section Conference*, CDROM, 1999.
- 21) M. M. Hornecker-Baldwin and R. L. Kolar, “Extensive Soil Moisture Data Set Observed in the Closed Norman, Oklahoma Landfill Clay Cap,” *19th AGU Hydrology Days 1999*, H. J. Morel-Seytoux, ed., 213-224, 1999.
- 20) D. Siegel, “Technology Creates New Ways of Teaching Design,” *Engineering Times* (Sooner City featured in an article about design that appeared this National Society of Professional Engineers monthly magazine), NSPE, 21(4), April, 1999.
- 19) R. L. Kolar and J. J. Westerink, “A Look Back at 20 Years of Wave Equation Models,” *Final Program and Abstracts for the Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences*, SIAM, 111, 1999.
- 18) J. J. Westerink and R. L. Kolar, “Issues of Mass Conservation Associated with a GWCE Based Finite Element Surface Water Model,” *Final Program and Abstracts for the Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences*, SIAM, 111, 1999.
- 17) R. Bert, “Designing Sooner, Not Later,” *ASEE Prism* (article in the ‘On Campus’

department about Sooner City), 18-19, Dec. 1998.

16) R. L. Kolar, J. P. Looper, J. J. Westerink, and W. G. Gray, "An Improved Time Marching Algorithm for GWC Shallow Water Models," *Computational Methods in Water Resources XII, Vol. 2*, Burganos et al., eds., 379-386, 1998.

15) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, B. E. Vieux, H. Gruenwald, "Integrating Design Throughout the Civil Engineering Curriculum - The Sooner City Project," *Proceedings ASEE National Conference*, Session #1526, CDROM, 1998.

14) D. I. Nelson, J. W. Everett, R. M. Nelson, R. C. Knox, and R. L. Kolar, "A Research Experience for Undergraduates in Environmental Science and Engineering," *Proceedings Air and Waste Management Association 91st Annual Meeting and Exhibition*, Session # 98-A370, 1998.

13) C. M. Gossard, M. Hornecker, R. L. Kolar, "Evapotranspiration Estimates for the Closed Norman, Oklahoma Landfill," *18th AGU Hydrology Days 1998*, H. J. Morel-Seytoux, ed., 111-120, 1998.

12) M. M. Hornecker and R. L. Kolar, "Automated Soil Moisture Observations and Infiltration Modeling at the Closed Norman, Oklahoma Landfill," *18th AGU Hydrology Days 1998*, H. J. Morel-Seytoux (ed.), 141-152, 1998.

11) R. L. Kolar and D. A. Sabatini, "Changing from a Lecture-Based Format to a Team Learning/Project Driven Format: Lessons Learned," *Proceedings, ASEE National Conference*, Session #1675, CDROM, 1997.

10) R. L. Kolar and D. A. Sabatini, "Coupling Team Learning and Computer Technology in Project-Driven Undergraduate Engineering Education," *Proceedings, FIE '96 (Frontiers in Education)*, Iskander et al, eds., IEEE (CDROM), 1996.

9) R. L. Kolar, J. J. Westerink, and S. C. Hagen, "Truncation Error Analysis of Shallow Water Models Based on the Generalized Wave Continuity Equation," *Computational Methods in Water Resources XI. Volume 2: Computational Methods in Surface Flow and Transport Problems*, Aldama et al., eds., Computational Mechanics Publication, Southampton, 215-222, 1996.

8) J. J. Westerink, R. A. Luettich, Jr., and R. L. Kolar, "Advances in Finite Element Modeling of Coastal Ocean Hydrodynamics" (plenary session paper), *Computational Methods in Water Resources XI. Volume 2: Computational Methods in Surface Flow and Transport Problems*, Aldama et al., eds., Computational Mechanics Publication, Southampton, 313-322, 1996.

7) B. E. Vieux, E. E. LeDimet, and R. L. Kolar, "Hydrologic Modeling of the Prairie Pothole Region in North Dakota Using the Full Dynamic Equations Integrated with GIS," *Computational Methods in Water Resources XI. Volume 2: Computational Methods in Surface Flow and Transport Problems*, Aldama et al., eds., Computational Mechanics Publication, Southampton, 155-162, 1996.

6) J. J. Westerink, R. A. Luettich, Jr., and R. L. Kolar, "ADCIRC, An Advanced Finite Element Model for Coastal Ocean Circulation" (invited) *Proceedings, APCOM '96 (Third Asian-Pacific Conference on Computational Mechanics)*, South Korea, 1996.

5) R. L. Kolar, W. G. Gray, and J. J. Westerink, "Normal Flow Boundary Conditions in Shallow Water Models - Influence on Mass Conservation and Accuracy," *Computational Methods in Water Resources X, Volume 2*, Peters et al., eds., Kluwer Academic Publishers, 1081-1088, 1994.

4) R. L. Kolar, W. G. Gray, and J. J. Westerink, "An Analysis of the Mass Conserving Properties of the Generalized Wave Continuity Equation," *Computational Methods in Water Resources IX, Vol. 2: Mathematical Modeling in Water Resources*, Russell et al., eds., Computational Mechanics Publications/Elsevier, 537-544, 1992.

3) R. L. Kolar and W. G. Gray, "A Comparison of Methods to Compute the Velocity

Field for Unsaturated Transport Problems,” *EOS - Transactions of the American Geophysical Union*, 72(44), 191, 1991.

2) R. L. Kolar and W. G. Gray, “Shallow Water Modeling in Small Water Bodies,” *Computational Methods in Surface Hydrology*, Gambolati et al., eds., Computational Mechanics Publications/Springer-Verlag, 149-156, 1990.

1) R. A. Busch, J. E. Parsons, R. P. Schneider, and R. L. Kolar, “Design and Operation of a Trout Broodstock Production Facility with Volitional Trapping from Circular Ponds,” *Proceedings of Fisheries Bioengineering Symposium*, Portland, OR, Oct. 24-27, 1988.

Professional Presentations

(92; *presenter other than RLK)

1) K. M. Dresback*, R. L. Kolar, J. C. Dietrich, “Conservative Form vs. Non-Conservative Form of the Momentum Equation in the ADCIRC Hydrodynamic Code,” SIAM Conference on Mathematical and Computational Issues in the Geosciences, Austin, TX, March 17-20, 2003.

2) J. C. Dietrich*, K. M. Dresback, R. L. Kolar, J. J. Westerink, E. Gilje, H. Neeman, C. Dawson, M. F. Wheeler, V. Parr, “Benchmarking of the Combined Parallel, Predictor-Corrector ADCIRC Model,” SIAM Conference on Mathematical and Computational Issues in the Geosciences, Austin, TX, March 17-20, 2003.

3) C. M. Szpilka* and R. L. Kolar, “Accuracy and Phase Behavior of Coupled Continuous and Discontinuous Galerkin Algorithms for the Shallow Water Equations,” SIAM Conference on Mathematical and Computational Issues in the Geosciences, Austin, TX, March 17-20, 2003.

4) K. M. Dresback*, R. L. Kolar, C. A. Blain, “Algorithmic and Resolution Influences on the Baroclinic Pressure Gradient in Hydrodynamic Models,” SIAM Conference on Mathematical and Computational Issues in the Geosciences, Austin, TX, March 17-20, 2003.

5) K. M. Dresback*, R. L. Kolar, J. C. Dietrich, “Update on the Benchmarking of the Combined Parallel, Predictor/Corrector Algorithm for 2DDI ADCIRC,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

6) K. M. Dresback*, R. L. Kolar, J. C. Dietrich, “Update on the Conservative vs. Non-Conservative Form of the Momentum Equations for 2DDI ADCIRC,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

7) C. M. Szpilka* and R. L. Kolar, “Propagation Behavior of Coupled Continuous/Discontinuous Galerkin FE Approximations to the Shallow Water Equations,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

8) R. L. Kolar and P. Quarles, “Grid Database - Is this the Direction We Want To Take?” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

9) R. L. Kolar and E. Gilje, “I/O with NetCDF - A First Look,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

10) K. M. Dresback*, C. A. Blain, R. L. Kolar, “Diagnostic Baroclinic Simulations in the Persian Gulf,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 26-27, 2003.

11) J. H. Atkinson*, K. M. Dresback, C. A. Blain, R. L. Kolar, “Towards a Full 3D Prognostic Baroclinic Code - A Medley of Results and Questions,” 7th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS,

Feb. 26-27, 2003.

12) R. L. Kolar, "Hydrodynamic Modeling," invited plenary at OU Mathematics Day (state high school competition), Nov. 16, 2002.

13) D. A. Sabatini* and R. L. Kolar, "Integrating Design Across the Curriculum - The Sooner City Experience," ASCE 2002 Annual Conference (invited), Washington, D. C., Nov. 3-7, 2002.

14) K. M. Dresback, R. L. Kolar, J. C. Dietrich*, E. P. Gilje, H. Neeman, J. J. Westerink, M. F. Wheeler, C. N. Dawson, V. Parr, "Benchmarking Studies of the Combined Predictor-Corrector, Parallel ADCIRC Code," (poster) OU Supercomputing Symposium 2002, Norman, OK, Sept. 12-13, 2002.

15) R. L. Kolar, D. A. Sabatini, L. D. Fink, "Reflective Writing as a Complementary Assessment Tool," ASEE 37th Midwest Section Conference, Norman, OK, Sept. 11-13, 2002.

16) C. Ahern*, L. D. Fink, K. K. Muraleetharan, R. L. Kolar, K. Gramoll, R. C. Knox, G. A. Miller, M. A. Mooney, B. E. Vieux, "Sooner City at Six Years," ASEE 37th Midwest Section Conference, Norman, OK, Sept. 11-13, 2002.

17) R. L. Kolar, J. J. Westerink, R. L. Luettich, "ADCIRC. Overview of an Advanced 3D Hydrodynamic Model: Model Development and Application," invited talk at SIAM 50th Anniversary Annual Meeting, Philadelphia, PA, July 8-12, 2002.

18) C. M. Gossard* and R. L. Kolar, "Wave Propagation Characteristics of Continuous and Discontinuous Galerkin Finite Element Algorithms for the Shallow Water Equations," XIV International Conference on Computational Methods in Water Resources, Delft, The Netherlands, June 23-28, 2002.

19) K. M. Dresback*, R. L. Kolar, J. C. Dietrich, "Impact of the Form of the Momentum Equation on Shallow Water Models Based on the Generalized Wave Continuity Equation," XIV International Conference on Computational Methods in Water Resources, Delft, The Netherlands, June 23-28, 2002.

20) K. M. Dresback, R. L. Kolar, J. C. Dietrich*, J. J. Westerink, M. F. Wheeler, C. N. Dawson, V. Parr, "Benchmarking Studies of the Combined Predictor-Corrector, Parallel ADCIRC Code," XIV International Conference on Computational Methods in Water Resources, Delft, The Netherlands, June 23-28, 2002.

21) R. L. Kolar, "Coastal Flood Modeling. Storm Surge Computations with the ADCIRC Hydrodynamic Model. Part 1: Model Background," invited talk at Mitigating Severe Weather Impacts in Urban Areas: National Symposium," Houston, TX, April 15-17, 2002.

22) A. Noman Ahsanuzzaman*, R. L. Kolar, "Performance of Green-Ampt Model in Estimating Flow Through the Vadose Zone," 22nd AGU Hydrology Days 2002, Fort Collins, CO, April 1-4, 2002.

23) K. M. Dresback*, R. L. Kolar, C. A. Blain, "Baroclinic Pressure Gradients: A Preliminary Comparison of Z, Sigma, and Hybrid Methods," 6th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 27-28, 2002.

24) K. M. Dresback*, R. L. Kolar, J. C. Dietrich, "A Look at the Momentum Equation in ADCIRC: A Comparison of the Non-Conservative vs. Conservative Form," 6th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 27-28, 2002.

25) C. M. Gossard* and R. L. Kolar, "DG (Discontinuous Galerkin) for Dummies: Background and a Step-by-Step Recipe," 6th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 27-28, 2002.

26) C. M. Gossard* and R. L. Kolar, "Wave Propagation Characteristics of Continuous

and Discontinuous Galerkin Finite Element Algorithms for the Shallow Water Equations,” 6th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 27-28, 2002.

27) K. M. Dresback*, C. A. Blain, R. L. Kolar, “Assessment of Methods to Compute the Baroclinic Pressure Gradient in Finite Element Shallow Water Models,” 7th International Conference on Estuary and Coastal Modeling, St. Pete Beach, FL, Nov. 5-7, 2001.

28) R. L. Kolar, L. D. Fink, K. Gramoll, R. C. Knox, G. A. Miller, M. A. Mooney, K. K. Muraleetharan, D. A. Sabatini, B. E. Vieux, “Report on the Sooner City Workshop 2000 on Integrated Design,” ASEE National Conference, Session #2525, Albuquerque, NM, June 24-27, 2001.

29) R. L. Kolar and D. A. Sabatini, “Laptop Computers in the Classroom - Do They Make a Difference?”, ASEE National Conference, Session #3430, Albuquerque, NM, June 24-27, 2001.

30) R. L. Kolar, L. D. Fink, K. Gramoll, R. C. Knox, G. A. Miller, M. A. Mooney, K. K. Muraleetharan, D. A. Sabatini, B. E. Vieux, “The Sooner City Project,” ASEE National Conference, Session #2515 (session sponsored by CE division on Sooner City), Albuquerque, NM, June 24-27, 2001.

31) K. M. Dresback, C. M. Gossard, R. L. Kolar, and D. A. Sabatini, “RATs: A Student/Instructor Perspective,” ASEE 36th Midwest Section Conference, Manhattan, KS, March 7-9, 2001.

32) R. L. Kolar and D. A. Sabatini, “Laptop Computers in the Classroom - Do They Make a Difference?”, ASEE 36th Midwest Section Conference, Manhattan, KS, March 7-9, 2001.

33) R. L. Kolar, L. D. Fink, K. Gramoll, R. C. Knox, G. A. Miller, M. A. Mooney, K. K. Muraleetharan, D. A. Sabatini, B. E. Vieux, “Report on the Sooner City Workshop on Integrated Design,” ASEE 36th Midwest Section Conference, Manhattan, KS, March 7-9, 2001.

34) C. M. Gossard* and R. L. Kolar, “Numerical Analogue of Fourier Analysis with Application to the Shallow Water Equations,” 5th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 20-21, 2001.

35) J. C. Dietrich*, K. M. Dresback* and R. L. Kolar, “Update on the ADCIRC Implicit Time Marching Algorithm,” 5th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 20-21, 2001.

36) K. M. Dresback*, J. C. Dietrich*, and R. L. Kolar, “On the Form of the Momentum Equation in the ADCIRC Model,” 5th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 20-21, 2001.

37) R. L. Kolar and D. A. Sabatini, “Report on the College of Engineering’s SEEC (Sooner Engineering Education Center) Initiative,” High Achieving Schools and Communities - Winter Institute, Center for Educational and Community Renewal, Norman, OK, Feb. 2, 2001.

38) R. L. Kolar, “The Sooner City Project at the University of Oklahoma,” invited seminar, UNLV College of Engineering Seminar Series, Las Vegas, NV, Nov. 20, 2000.

39) L. D. Fink, R. L. Kolar, K. K. Muraleetharan, R. W. Nairn, D. A. Sabatini, R. L. Sack, T. R. Rhoads*, and D. L. Shirley, “Reengineering Sooner Civil Engineering Education,” FIE 2000 (Frontiers in Education), Kansas City, MO, Oct. 18-21, 2000.

40) R. L. Kolar and J. J. Westerink, “A Look Back at 20 Years of GWC-Based Shallow Water Models,” XIII International Conference on Computational Methods in Water Resources, Calgary, Canada, June 25-29, 2000.

41) K. M. Dresback* and R. L. Kolar, “An Implicit Time-Marching Algorithm for 2D

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- GWC Shallow Water Models,” XIII International Conference on Computational Methods in Water Resources, Calgary, Canada, June 25-29,2000.
- 42) C. M. Gossard* and R. L. Kolar, “Phase Behavior of a Finite Volume Shallow Water Algorithm,” XIII International Conference on Computational Methods in Water Resources, Calgary, Canada, June 25-29,2000.
- 43) A. A. Aldama*, A. Aguilar, R. L. Kolar, J. J. Westerink, “A Mass Conservation Analysis of the GWCE Formulation,” XIII International Conference on Computational Methods in Water Resources, Calgary, Canada, June 25-29,2000.
- 44) R. L. Kolar and D. A. Sabatini, “Wireless Laptops in the Classroom - Do They Make a Difference?,” ASEE National Conference, Multi-Media Session #2793 (poster + oral), St. Louis, MO, June 18-21, 2000.
- 45) K. K. Muraleetharan, L. D. Fink, R. L. Kolar, S. Meyers, A. Mattson, “Sooner City Project: Assessment Plan and Some Results,” ASEE National Conference, Multi-Media Session #2793 (poster + oral), St. Louis, MO, June 18-21, 2000.
- 46) R. L. Kolar, “Sooner City: Design Across the Curriculum,” ASEE National Conference, Session #1526 (poster), St. Louis, MO, June 18-21, 2000.
- 47) M. M. Hornecker*, R. L. Kolar, “Soil Moisture Monitoring and Modeling at the Norman Landfill,” USGS Norman Landfill Site Meeting (the landfill is part of the USGS’s Toxic Substances Hydrology Program), Norman, OK, May 15, 2000.
- 48) M. A. Mooney, C. Bouton, C. Gray, J. Allu, R. L. Kolar, “The Development of an NGES-Interfaced, Web-Based Geotechnical Site Investigation Instructional Module,” Amherst 2K: ASCE Geo-Institute Specialty Conference, Amherst, MA, April 9-12, 2000.
- 49) R. C. Dutnell* and R. L. Kolar, “Regional Discharge and Channel Geometry Relationships for Natural Channel Design in Oklahoma,” 20th AGU Hydrology Days 2000, Fort Collins, CO, April 3-6, 2000.
- 50) R. L. Kolar and J. J. Westerink, “Perspective on 20 Years of GWC-Based Modeling,” 4th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 2-4, 2000.
- 51) K. M. Dresback* and R. L. Kolar, “Algorithmic Improvements: Implicit Time Marching,” 4th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 2-4, 2000.
- 52) C. M. Gossard* and R. L. Kolar, “Phase Behavior of the Finite Volume Method,” 4th Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, Feb. 2-4, 2000.
- 53) M. M. Hornecker-Baldwin* and R. L. Kolar, “Extensive Soil Moisture Data Set Observed in the Closed Norman, Oklahoma Landfill Clay Cap,” 19th AGU Hydrology Days 1999, Fort Collins, CO, August 16-20, 1999.
- 54) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, A. R. Kukreti, K. Gramoll, D. A. Sabatini, T. D. Bush, and G. A. Miller, “Sooner City - Design Across the Curriculum,” invited presentation for the NSF Project Showcase at the ASEE National Conference, Charlotte, NC, June 20-23, 1999.
- 55) R. L. Kolar and D. A. Sabatini, “Do Laptops Improve Learning?” OU College of Engineering Seminar, Norman, OK, April 30, 1999.
- 56) R. L. Kolar and D. A. Sabatini, “Team Teaching in Undergraduate and Graduate Courses,” ASEE 34th Midwest Section Conference, Stillwater, OK, April 14-16, 1999.
- 57) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, A. R. Kukreti, K. Gramoll, D. A. Sabatini, T. D. Bush, and G. A. Miller, “Sooner City - Design Across the Curriculum,” ASEE 34th Midwest Section Conference, Stillwater, OK, April 14-16, 1999.

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- 58) D. I. Nelson*, R. W. Nairn, M. A. Nanny, K. A. Strevett, B. E. Vieux, R. L. Kolar, R. C. Knox, and J. W. Everett, "Research Experience for Undergraduates in Environmental Monitoring and Modeling at the Closed Norman Landfill," ASEE 34th Midwest Section Conference, Stillwater, OK, April 14-16, 1999.
- 59) R. L. Kolar, J. J. Westerink, and K. M. Dresback, "A Look Back at 20 Years of Wave Continuity Modeling," Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences, San Antonio, TX, March 24-27, 1999.
- 60) J. J. Westerink* and R. L. Kolar, "Issues of Mass Conservation Associated with GWCE Based Finite Element Surface Water Models," Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences, San Antonio, TX, March 24-27, 1999.
- 61) R. L. Kolar and K. M. Dresback, "An Alternative Time-Marching Algorithm for ADCIRC," 3rd Army-Navy ADCIRC Model Workshop, Naval Research Laboratory, Stennis Space Center, MS, January 5-6, 1999.
- 62) R. L. Kolar, "Sooner City - Design Across the Curriculum," invited presentation to attendees of the NSF CAREER workshop sponsored by the CMS division, Washington D. C., Nov. 8-10, 1998.
- 63) R. L. Kolar, "Integrating Design Throughout the Civil Engineering Curriculum: The Sooner City Project," invited presentation at ASCE Annual Convention, Boston, MA, October 18-21, 1998.
- 64) M. A. Mooney and R. L. Kolar, "Sooner City and Civil Engineering," Sooner Saturday (high school recruiting), U. of Oklahoma, Norman, OK, Oct. 17, 1998.
- 65) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, B. E. Vieux, H. Gruenwald, "Sooner City," invited presentation for the NSF Project Showcase at the ASEE National Conference, Seattle, WA, June 28-July 1, 1998.
- 66) R. L. Kolar, K. K. Muraleetharan, M. A. Mooney, B. E. Vieux, H. Gruenwald, "Integrating Design Throughout the Civil Engineering Curriculum - The Sooner City Project," ASEE National Conference, Session #1526 (poster), Seattle, WA, June 28-July 1, 1998.
- 67) D. I. Nelson, J. W. Everett, R. M. Nelson, R. C. Knox, R. C., and R. L. Kolar, "A Research Experience for Undergraduates in Environmental Science and Engineering," invited presentation, ASEE National Conference, Seattle, WA, June 28-July 1, 1998.
- 68) D. I. Nelson*, J. W. Everett, R. M. Nelson, R. C. Knox, R. C., and R. L. Kolar, "A Research Experience for Undergraduates in Environmental Science and Engineering," Air and Waste Management Association 91st Annual Meeting and Exhibition, Session # 98-A370, San Diego, CA, June 18, 1998.
- 69) R. L. Kolar, J. P. Looper, J. J. Westerink, and W. G. Gray, "An Improved Time Marching Algorithm for GWC Shallow Water Models," XII International Conference on Computational Methods in Water Resources, Crete, Greece, June 15-19, 1998.
- 70) C. M. Gossard*, M. Hornecker, R. L. Kolar, "Evapotranspiration Estimates for the Closed Norman, Oklahoma Landfill," 18th AGU Hydrology Days 1998, Fort Collins, CO, March 30-April 2, 1998.
- 71) M. M. Hornecker and R. L. Kolar, "Automated Soil Moisture Observations and Infiltration Modeling at the Closed Norman, Oklahoma Landfill," 18th AGU Hydrology Days 1998, Fort Collins, CO, March 30-April 2, 1998.
- 72) R. L. Kolar, "Sooner City," poster presentation on the use of technology in the classroom, Oklahoma Regents Technology Conference, Norman, OK, Nov. 6, 1997.
- 73) R. L. Kolar, W. G. Gray, and J. J. Westerink, "An Improved Time Stepping Algorithm for GWCE Shallow Water Models," Fourth SIAM Conference on Mathematical and Computational Issues in the Geosciences, Albuquerque, NM, June 16-18, 1997.

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- 74) R. L. Kolar and D. A. Sabatini, "Changing from a Lecture-Based Format to a Team Learning/Project Driven Format: Lessons Learned," ASEE National Conference, Milwaukee, WI, June 15-18, 1997.
- 75) R. L. Kolar and D. A. Sabatini, "Coupling Team Learning and Computer Technology in Project-Driven Undergraduate Engineering Education," FIE '96, (Frontiers in Education), Salt Lake City, Utah, Nov. 6-9, 1996.
- 76) R. L. Kolar, J. J. Westerink, and S. C. Hagen, "Truncation Error Analysis of Shallow Water Models Based on the Generalized Wave Continuity Equation," XI International Conference on Computational Methods in Water Resources, Cancun, Mexico, July 22-26, 1996.
- 77) J. J. Westerink*, R. A. Luettich, Jr., and R. L. Kolar, "Advances in Finite Element Modeling of Coastal Ocean Hydrodynamics," Plenary Session at the XI International Conference on Computational Methods in Water Resources, Cancun, Mexico, July 22-26, 1996.
- 78) B. E. Vieux*, E. E. LeDimet, and R. L. Kolar, "Hydrologic Modeling of the Prairie Pothole Region in North Dakota Using the Full Dynamic Equations Integrated with GIS," XI International Conference on Computational Methods in Water Resources, Cancun, Mexico, July 22-26, 1996.
- 79) J. J. Westerink*, R. A. Luettich, and R. L. Kolar, "ADCIRC, An Advanced Finite Element Model for Coastal Ocean Circulation," APCOM '96, Third Asian-Pacific Conference on Computational Mechanics, Seoul, Korea, Sept. 16-18, 1996.
- 80) R. L. Kolar, "Aspects of Finite Element Shallow Water Models," (invited), US Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, May, 1996.
- 81) J. J. Westerink* and R. L. Kolar, "Analysis of Boundary Conditions for Shallow Water Equation Models," (invited) Coastal 95, 2nd International Conference of Computer Modeling of Seas and Coastal Regions, Cancun, Mexico, Sept. 6-8, 1995.
- 82) S. Chippada*, C. N. Dawson, B. Ramaswamy, M. F. Wheeler, R. L. Kolar, "Parallel Computing for Finite Element Models of Surface Water Flow," 3rd SIAM Conference on Mathematical and Computational Issues in the Geosciences, Feb. 8-10, 1995.
- 83) R. L. Kolar, W. G. Gray, and J. J. Westerink, "Normal Flow Boundary Conditions in Shallow Water Models - Influence on Mass Conservation and Accuracy," X International Conference on Computational Methods in Water Resources, Heidelberg, Germany, July 19-22, 1994.
- 84) R. L. Kolar, "Mathematica - The Paradigm for a Second Generation of Easy-to-Use Hydrologic Simulation Tools," (poster) 30th Annual American Water Resources Conference, Chicago, IL, November, 1994.
- 85) R. L. Kolar, W. G. Gray, J. J. Westerink, "Continuity Considerations in Shallow Water Models," SIAM (Society of Industrial and Applied Mathematics) Conference on Mathematical and Computational Issues in the Geosciences, Houston, TX, April 19-21, 1993.
- 86) R. L. Kolar, "Aspects of Unsaturated Transport Modeling," (poster) Hazardous Waste Conference, University of Notre Dame, Notre Dame, IN, August 31 - September 4, 1992.
- 87) R. L. Kolar, W. G. Gray, J. J. Westerink, "An Analysis of the Mass Conserving Properties of the Generalized Wave Continuity Equation," IX International Conference on Computational Methods in Water Resources, Denver, CO, June 9-12, 1992.
- 88) R. L. Kolar and W. G. Gray, "A Comparison of Methods to Compute the Velocity Field for Unsaturated Transport Problems," Fall Meeting of the American Geophysical Union, San Francisco, CA, December 9-13, 1991.
- 89) R. L. Kolar, "Continuity Considerations in Shallow Water Wave Equation

Models,” (invited) Texas Water Development Board, Austin, Texas, April 9, 1991.

90) R. L. Kolar, “Darcy’s Law?”, seminar on experiments conducted to test recent advances in the theory of infiltration, presented to visitors at Notre Dame from the USSR Academy of Sciences, Notre Dame, IN, March 18, 1991.

91) R. L. Kolar, “A Comparison of Algorithms for Solution of the Linear Advection Equation,” (invited) RIVM - the Dutch Institute for Public Health and Environmental Protection, Bilthoven, The Netherlands, January 8, 1991.

92) R. L. Kolar and W. G. Gray, “Shallow Water Modeling in Small Water Bodies,” VIII International Conference on Computational Methods in Water Resources, Venice, Italy, June 11-15, 1990.

Service

- External**
- 1) Editorial Board, *Advances in Water Resources* (Elsevier), 2000 - Present.
 - 2) Co-organizer, ASEE Midwest Regional Conference, Norman, OK, Sept. 2002.
 - 3) Treasurer, ASEE Midwest Section, 2001 - 2002.
 - 4) Co-organizer, special educational section at the XIV International Conference on Computational Methods in Water Resources, June 2002.
 - 5) Organized Sooner City workshop on integrated design (24 participants from across the country plus invited speakers Karl Smith, Rafael Bras, Donna Shirley, Ron Sack, Bruce Kramer), held at the University of Oklahoma, July 31-August 2, 2000.
 - 6) Proposal reviews: NSF CCD Panel (1997), NSF AIRE Panel (1998), NSF REU Panel (2001), NSF ITR (2001), NSF Ocean Sciences (2002), Alaska EPSCoR (2003).
 - 7) Review articles for the following journals: *Water Resources Research*, *SIAM Journal of Computational Science*, *Groundwater*, *Journal of Hydraulics*, *Journal of Geophysical Research*, *Advances in Water Resources*, *Water Resources Bulletin*, *Computers and Fluids*, *Numerical Methods for Partial Differential Equations*, *Journal of Computing in Civil Engineering*, *Journal of Engineering Education*, *Estuary and Coastal Modeling*, *SIAM Journal of Scientific Computing*. 9/90 - Present.
 - 8) Help editor to coordinate reviews for *Advances in Water Resources*, 1998 - 2000.
 - 9) Delegate for the Universities Council on Water Resources, 1997 - Present.
 - 10) Organized “Engineering Futures,” a high school outreach program, 1996 - 1998.
 - 11) Member of the panel to judge best papers (Ph.D. category) at AGU’s 1999 Hydrology Days conference, August, 1999.
 - 12) Co-chair, session on “Tricks of the Trade Inside the Classroom,” ASEE National Conference, Charlotte, NC, 1999.
 - 13) Co-chair, shallow water modeling session at the Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences, San Antonio, TX, March 24-27, 1999.
 - 14) Reviewer for Wen Chow’s text, *Fluid Mechanics*, PWS Publishers, 3/98.
 - 15) Reviewer/beta tester for ASCE’s Multimedia Fluid Mechanics Text, 9/95 - 12/97.
- University of Oklahoma**
- 1) CEES Committee A member and Head of the Environmental Engineering/Science group in CEES, 2002 - Present.
 - 2) Organized two-day Sun training workshop for parallel computing, Jan. 2002.
 - 3) Coordinator of Sooner City, a comprehensive design project that will be threaded throughout the civil engineering curriculum, 1997 - Present.

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- 4) Member, Structural Engineering Faculty Search Committee, 2001-2003.
 - 5) Assistant Director, EGWI (Environmental and Groundwater Institute), 2001 - Present.
 - 6) Assistant Director, Environmental Modeling and GIS Laboratory, 1995 - Present.
 - 7) Chair, CEES computing committee, 2000 - Present.
 - 8) Faculty Advisor, Tau Beta Pi Engineering Honor Society, 1997 - Present.
 - 9) CEES Undergraduate Curriculum Committee, responsible for coordinating and implementing curriculum reform efforts, which center on introducing design and laptop computers throughout the curriculum; Chair, 2001 - Present; Member, 1995 - Present.
 - 10) CEES scholarship committee, responsible for selecting scholarship recipients, 1996 - Present.
 - 11) CEES environmental graduate recruiting committee, 1996 - Present.
 - 12) Co-coordinator, GAANN (Grants in Areas of National Need Program, Dept. of Education) Fellowship program, including recruiting activities.
 - 13) UROP Advisor (OU's undergraduate research program that culminates with a presentation at the Undergraduate Research Day held each spring), 1997 - 2001.
 - 14) Member, search committee for new CEES Director, Fall 2000.
 - 15) Co-coordinator, REU Site program in Geo-Environmental Systems, Summer 2000, 2001.
 - 16) Coordinator, REU Site program in Environmental Monitoring and Modeling, Summer 1999.
 - 17) Member, CEES committee charged with preparing for the department's ABET 2000 Accreditation visit, 1999.
 - 18) Conduct hydrology/hydraulics review session for the Fundamentals in Engineering licensing exam, 1999 - Present.
 - 19) Member, Dean's committee on new Multidisciplinary Engineering Program, 1999.
 - 20) Steering committee, ECAS (Environmental Computing Application Systems), 8/95 - 12/99.
 - 21) Session chair, OU Undergraduate Research Day, Spring, 1996, 1997.
 - 22) Teach Test Participant (language proficiency exam), 1998, 2001.

Workshops, Seminars, and Specialized Courses¹

- 1) "Workshops on Teaching," Three part session as part of the ASEE Midwest Regional Conference: improving traditional modes of delivery, integrated course design, and team learning, Sept. 12, 2002.
- 2) OU Instructional Development Program seminars: "New Faculty Forum," Fall 1995, "Teaching Critical Thinking," Spring 1996, "Varied Agenda," Spring 1997, "Observing Outstanding Teachers," Fall 1997, Spring 1998, "Documenting Your Teaching," Spring 1998, "Changing Nature of Higher Education," Spring 1999.
- 3) Sixth International Conference on Estuarine and Coastal Modeling, New Orleans, LA, Nov. 3-5, 1999.
- 4) Research seminar on the ADCIRC hydrodynamic model, U. of Notre Dame, Notre

1. Does not list conferences and workshops at which formal presentations were made or proceedings submitted; rather, these are listed in the Proceedings or Presentations sections.

Dame, IN, Sept. 30 - Oct. 1, 1999.

5) Effective Teaching Workshop, conducted by R. Felder and R. Brent, attended one morning session of 1.5 day workshop, Norman, OK, Sept. 12, 1997.

6) "Collaborative Team Learning Experiences," School of Industrial Engineering, University of Oklahoma, Norman, OK, Oct. 15, 1996.

7) "Cooperative Learning," National Technological University, Norman, OK, (satellite broadcast), Sept. 12, 1995.

8) Audit Professor C. Rose's class on Environmental Law, Yale Law School, New Haven, CT, Spring, 1995.

9) "Assessment, Control, and Remediation of LNAPL Contaminated Sites," EPA Workshop presented by J. C. Parker of Environmental Systems and Technologies, Inc., Boston, MA, October 21, 1994.

10) "Mathematica Days", 1-day symposium on use of Mathematica in engineering education and research, Boston, MA, September 18, 1993.

11) "Undergraduate Teaching Methods in Water Resources," 2-week course sponsored by the NSF and the USGS at which experts presented material and methods for use in undergraduate water resource courses, Denver, CO, July 12-23, 1993.

12) "Vadose Zone Monitoring," 3-day workshop sponsored by the National Water Well Association, Portland, OR, February 13-15, 1989.

13) "NCSA Summer Institute," 2-week course on use of the Cray X-MP and Cray 2 at the National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign, June 19-30, 1989.

14) "Supercomputing on the IBM 3090," 1-week workshop on use of the IBM 3090 for large scale simulations, IBM Scientific Computing Center, Palo Alto, CA, December 14-18, 1988.

Research Funding

Summary (External + Internal)

<i>Funded Proposals</i>	Number: 24. Total Project: \$6,467,718. Individual Credit: \$1,693,675.
<i>Pending Proposals</i>	Number: 2. Total Project: \$1,878,229. Individual Credit: \$470,808.
<i>Unfunded Proposals</i>	Number: 32. Total Project: \$46,980,148. Individual Credit: \$8,527,787.

Funded Proposals

<i>External (20)</i>	1) "A Parallel, Baroclinic 3D Shallow Water Model," DoD-DEPSCoR, PI (75% credit), \$449,964 (\$311,976 DoD + \$137,988 cost share), 6/1/02 - 5/31/05.
	2) "A Parallel, Baroclinic 3D Shallow Water Model," OK Regents (DEPSCoR match), PI (75% credit), \$113,446 (\$77,970 DoD + \$35,476 cost share), 6/1/02 - 5/31/05
	3) "Planning Grant for a Courseless Curriculum," NSF, Co-PI (25% credit), \$104,402 (\$100,002 NSF + \$4,400 cost share), 1/1/03 - 12/31/03.
	4) "Research Experience for Undergraduates in Geo-Environmental Systems," NSF REU Site Award, PI (22.5% credit), \$542,318 (\$418,112 NSF + \$124,206 cost share), 3/1/00 - 2/28/05.
	5) "REU Supplement to NSF CAREER Award," NSF, PI (100% credit), \$19,570 (\$16,053 NSF + \$3517 cost share), 2/20/01 - 5/31/02.
	6) "Acquisition and Development of Equipment for Unsaturated Soil Research," NSF MRI Award, Co-PI (5% credit), \$535,265 (\$368,778 NSF + \$166,487 cost share), 7/1/

00 - 6/30/02.

7) "Server/Workstation Upgrade for EM/GIS Laboratory," Sun Microsystems Mindprint Grant¹, PI (100% credit), \$22,714 (\$22,714 Sun + \$0 cost share), 6/16/00 - 6/30/00.

8) "Server Upgrade for EM/GIS Laboratory," NSF Equipment Supplement, PI (100% credit), \$50,000 (\$25,000 NSF + \$25,000 cost share), 2/1/99 - 11/31/00.

9) "Development of a Research Database of Norman Landfill Data & Analysis/Modeling Studies," NSF EPSCoR Phase III (years 1-3), Co-PI (33% credit), \$130,595 (\$95,065 NSF + \$35,530 cost share), 6/1/98 - 1/30/00.

10) "Sooner City - Design Across the Curriculum," NSF Action Agenda, PI (25% credit), \$864,319 (\$750,000 NSF + \$114,319 cost share), 9/1/98 - 8/31/01.

11) "Sooner City - Design Across the Curriculum," Dept. of Education FIPSE, Co-PI¹ (17% credit), \$0².

12) "Chemicals in the Environment - Doctoral Fellowships in Environmental Engineering and Science," US Dept. of Ed. GAANN Program, Co-PI³ (30% credit), \$822,861 (\$601,224 DoEd + \$221,637 cost share), 8/15/98 - 8/14/01.

13) "REU Supplement to NSF CCD Award," PI (100% credit), \$15,000, (\$15,000 NSF) 2/10/98 - 8/31/99.

14) "TLC Design: Integrating Team Learning, Computing, and Design in Undergraduate Engineering Education (aka Sooner City)," NSF CCD Award, PI (20% credit), \$125,612 (\$100,000 NSF + \$25,612 cost share), 3/15/97 - 2/29/00.

15) "Simulation of Surface Water Flow and Transport in a Parallel Computing Environment," NSF CAREER Award, PI (100% credit), \$260,284 (\$200,000 NSF + \$60,284 cost share), 6/1/96 - 11/30/01.

16) "Research Experience for Undergraduates in Environmental Monitoring and Modeling," NSF REU Site Award, Co-PI (12% credit), \$220,609 (\$175,421 NSF + \$45,188 cost share), 2/1/97 - 1/31/00.

17) "REU Supplement to NSF CAREER Award," PI (100% credit), \$6250, (\$6250 NSF) 5/15/97 - 8/15/97.

18) "REU Supplement to NSF CCD Award," PI (100% credit), \$6000, (\$6000 NSF) 5/15/97 - 8/15/97.

19) "Research Opportunity Award," NSF EPSCoR, PI (100% credit), \$38,401 (\$24,500 NSF + \$13,901 cost share), 8/1/96 - 7/31/98.

20) "Automation and Characterization of Environmental Research Facility," NSF EPSCoR, Co-PI (12.5% credit), \$548,884 (\$274,442 NSF + \$274,442 cost share), 7/1/95-6/31/98.

Internal (4)

1) "SEEC - Sooner Engineering Education Center," CoE Dean's Strategic Initiative, Co-PI (10% credit), \$250,000 (\$250,000 CoE), 12/00-8/03.

2) "OU Alumni Doctoral Fellowships," Co-PI (30% credit), \$60,000, 8/15/98-8/14/02.

3) "Multimedia Courseware for Design-Oriented Engineering Education," OU Technology for Learning Improvement, Co-PI (20% credit), \$13,867, 8/15/96 - 5/15/97.

4) "Monitoring and Modeling Surface Water/Groundwater Interactions at an Aban-

1. This is an actual equipment grant in addition to the regular educational discounting.

2. The Sooner City proposal was submitted simultaneously to NSF and the Dept. of Education; both were recommended for funding based on merit review. However, DoEd decided at the last minute not to co-fund with NSF, hence the zero dollar amount.

3. I was principal author for this proposal. However, I am not serving as PI because our department felt that the project should be administered by a senior faculty member.

doned Landfill,” OU Junior Faculty Research Program, PI (100% credit), \$6000, 5/31/96 - 7/31/96.

Pending Proposals

- External (2)*
- 1) “Assessment as Learning: New Tools for Assessing and Promoting Student Learning in Undergraduate Science and Engineering,” NSF-ASA, Co-PI (16% credit), \$661,865 (\$498,289 NSF + \$163,576 cost share), submitted 9/4/02.
 - 2) “Doctoral Fellowships in Sustainable Technologies for Civil and Environmental Systems,” US Dept. of Ed. GAANN Program, PI (30% credit), \$1,216,364 (\$793,344 DoEd + \$423,020 cost share), submitted 11/25/02.

Internal (0)

Unfunded Proposals

- External (26)*
- 1) “SEEC - Sooner Engineering Education Center,” NSF-CLT, Co-PI (10% credit), \$12,564,806 (\$10,000,000 NSF + \$2,564,806 cost share), denied 7/2002.
 - 2) “A Parallel, Baroclinic 3D Shallow Water Model,” NSF-ACR, PI (75% credit), \$525,804 (\$478,296 NSF + \$47,508 cost share), denied 3/2002.
 - 3) “Assessment as Learning: New Tools for Assessing and Promoting Student Learning in Undergraduate Science and Engineering,” NSF-ASA, Co-PI (16% credit), \$628,254 (\$464,678 NSF + \$163,576 cost share), denied 5/2002.
 - 4) “Development of a Decision Making Tool for Assessing the Impacts of DNAPL Source Zone Removal,” DoD - SERDP, Co-PI (20% credit), \$1,183,402 (\$889,441 DoD + \$293,961 cost share), denied 8/2001.
 - 5) “ITR/AP: STORM - A Dynamically Coupled Coastal Flooding Model,” NSF ITR Group, PI (50% credit), \$3,998,056 (\$3,823,056 NSF + \$175,000 cost share), denied 3/01.
 - 6) “Coupled Sorption and Biodegradation Kinetics of Common Contaminants in Oklahoma Aquifers: Laboratory Investigation and Model Development,” USDA, Co-PI (33% credit), \$477,062 (\$390,200 USDA + \$86,862 cost share), denied 7/00.
 - 7) “EPA Hazardous Substances Research and Remediation Technology Implementation Center,” EPA, Co-PI, (6% credit), \$5,507,997 (\$5,000,000 EPA + \$507,997 cost share), denied 8/00.
 - 8) “Coupled Sorption and Biodegradation Kinetics for Common Contaminants in Oklahoma Aquifers: Laboratory and Modeling Experiments,” USGS, Co-PI (33% credit), \$499,370 (\$248,765 USGS + \$250,605 cost share), denied 8/00.
 - 9) “SEEC: Sooner Engineering Education Center,” Dept. of Ed., Co-PI (9% credit), \$1,343,522 (\$1,005,277 DoEd + \$338,245 cost share), denied 7/00.
 - 10) “Center for Natural Hazards Mitigation,” NSF EPSCoR, Co-PI (6% credit), \$4,100,000, (\$3,450,000 NSF + \$650,000 cost share), denied 4/00.
 - 11) “Coupled Sorption and Biodegradation Kinetics for Natural Soils: Laboratory and Modeling Experiments,” USGS, Co-PI (33% credit), \$499,370 (\$248,765 USGS + \$250,605 cost share), denied 9/99.
 - 12) “Engineering Research Center - Center for Natural Hazards and Disaster Research,” NSF-ERC, Co-PI (5% credit), \$2,422,942 (\$2,349,442 NSF + \$73,500 cost share), denied 4/99.
 - 13) “Environmental Professionals for the 21st Century,” NSF - IGERT, Co-PI (22% credit), \$2,185,076 (\$2,085,076 + \$100,000 cost share), denied 10/98.
 - 14) “Environmental Modeling - A Project Driven, Team Approach to Theory and Application,” NSF Combined Research and Curriculum Development, PI (34%

credit), \$454,350 (\$363,465 NSF + \$90,885 cost share), denied 10/98.

15) “Sooner City - Design Across the Curriculum,” OU Board of Regents, Co-PI (17% credit), \$718,161 (\$429,339 Regents + \$288,822 cost share), denied 9/98.

16) “Establishing a Center for Disaster Research on Flood and Drought Mitigation,” State of Oklahoma, Co-PI (25% credit), \$2,453,948 (\$1,655,339 OK + \$798,609 cost share), denied 6/98.

17) “GAANN: Promoting Versatility in Doctoral Engineering Education,” US Dept. of Education GAANN Program, Co-PI (14% credit), \$1,387,079 (\$901,386 DoEd + \$485,243 cost share), denied 4/98.

18) “Environmental Professionals for the 21st Century,” NSF - IGERT, Co-PI (22% credit), \$2,185,076 (\$2,085,076 + \$100,000 cost share), denied 12/97.

19) “GAANN: Promoting Versatility in Doctoral Engineering Education,” US Dept. of Education GAANN Program, Co-PI (10% credit), \$1,351,610 (\$878,148 DoEd + \$473,462 cost share), denied 4/97.

20) “Chemicals in the Environment - Doctoral Fellowships in Environmental Engineering and Science,” US Dept. of Education GAANN Program, Co-PI (25% credit), \$1,134,555 (\$585,432 DoEd + \$549,123 cost share), denied 4/97.

21) “Environmental Modeling - A Project Driven, Team Approach to Theory and Application,” NSF Combined Research and Curriculum Development, PI (34% credit), \$423,606 (\$306,680 NSF + \$116,926 cost share), denied 3/97.

22) “Hydrodynamic Modeling of Coastal and Oceanic Regions Using Finite Element Shallow Water Codes,” Hitachi Corporation, PI (50% credit) \$213,000, denied 12/97.

23) “Hydraulic Simulation and Design of Broken Back Culverts,” Oklahoma Department of Transportation, Co-PI (50% credit), \$251,451, denied 10/97.

24) “Hydraulic Simulation and Design of Broken Back Culverts,” Oklahoma Department of Transportation, Co-PI (50% credit), \$251,451, denied 10/96.

25) “Monitoring and Modeling Surface Water/Groundwater Interactions at an Abandoned Landfill,” Oak Ridge Associated Universities Junior Faculty Enhancement Award, PI (100% credit), \$14,600 (\$5000 Oak Ridge + \$9,600 cost share), denied 5/96.

26) “Advanced Scientific Computing for Environmental Modeling,” CEES Board of Visitors, PI (100% credit), \$100,000, denied 10/95.

Internal (6)

1) “Interdisciplinary Project for ENGR 1112,” CoE/MDE, Co-PI (25% credit), \$25,000 (\$25,000 CoE), denied, 3/01.

2) “Research-Based, Module-Assisted Engineering Education: Learning the MDE Way,” CoE/MDE Committee, Co-PI, (50% credit), \$23,500 (\$18,400 CoE + \$5100 cost share), denied, 9/00.

3) “Using Technology for the Improvement of Learning,” OU Provost’s Office, Co-PI (50% credit), \$12,850 (\$12,850 Provost), denied 3/99.

4) “EM/GIS Laboratory - Strategic Dataset Storage,” Research/Creative Activity Equipment/Facilities Funds, OU Vice President for Research, Co-PI (50% credit), \$13,635 (\$11,000 OVPR + \$2635 cost share), denied 11/97.

5) “Environmental Modeling and GIS Laboratory Server Upgrade,” Research/Creative Activity Equipment/Facilities Funds, OU Vice President for Research, Co-PI (50% credit), \$37,904 (\$23,304 OVPR + \$14,600 cost share), denied 10/96.

6) President’s International Travel Fellowship, PI (100% credit), \$2119, denied 3/96.