

KIRK HATFIELD
University of Florida
Department of Civil and Coastal Engineering
P.O. Box 116580
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EDUCATIONAL BACKGROUND

University of Massachusetts, Amherst	Civil Engineering	Ph.D.	1988
University of Iowa	Environmental & Civil Engineering	M.S	1982
University of Iowa	General Science	B.S.	1978

EMPLOYMENT

University of Florida	Director, Engineering School of Sustainable Infrastructure and Environment	2011- Present
University of Florida	Interim Chair, Civil and Coastal Engineering	2008 - 2011
University of Florida	Professor	2007 – Present
University of Florida	Director of the Water Resources Research Center	2004 - Present
University of Florida	Associate Professor (tenured)	1993 – 2007
University of Florida	Assistant Professor (tenure-accruing)	1987 - 1993

UNIVERSITY GOVERNANCE AND SERVICE

University Service

- Director Water Resource Research Center, 2004-present
- Hydrologic Sciences Cluster, 2002-present
- Member of the University Senate 2007-2008
- Selection Committee for Doctoral Dissertation Advisor/Mentoring Award, 2002- 2004
- Commencement Marshall, 2000
- Graduate Council, 2000-2002
- Graduate Council, Chair, 2001-2002
- College on Natural Resources and Environment, Member, 1994-present

College Service

- Co-Chair of the College Strategic Planning Committee on Sustainable Infrastructure and Environment, 2009 – Present
- Member of the COE Faculty Council 2007-2008
- Departmental representative on the College of Engineering Tenure and Promotion Committee 2007-2008
- Sabbatical Review Committee, 2004
- Curriculum Committee, 1999-2003

Department Service

- Acting Chair of Civil and Coastal Engineering, 2008-present
- Chair of the Department's Tenure and Promotion Committee 2007-2008
- Tenure and Promotion Committee, 2005-present
- Chair of Hydrology Faculty Search Committee, 2004-2005
- Member Coastal Faculty Search Committee, 2004-2005
- Curriculum Committee, Chair 1998-2002
- Graduate Coordinator, 1998-2001

COURSES TAUGHT

<i>Undergraduate Courses:</i>	<i>Graduate Courses:</i>
CWR 3202 Hydrodynamics Laboratory	CWR 5127 Groundwater Quality Evaluation
CWR 4111 Engineering Hydrology	CWR 6111 Surface Hydrology
CWR 4202 Hydraulics	CWR 6537 Contaminant Hydrology
CWR 4218 Water Resources Engineering	CGN 6905 Multiphase Fluid Flow
	CGN 6905 Surface Water Quality Models

PhD GRADUATES

- Bidhyananda Yadav, Direct stream hydrograph prediction from digital elevation maps, 2011*
- Aniruddha Guha, Surface energy fluxes in a wetland environment, 2011*
- Ozlem Acar, Groundwater and Contaminant Discharge Interpretations from Fracture Rock Passive Flux Meter Data, 2011
- Kris Shrestha Mixed topographic and shallow bathymetric mapping via multi-stop single photoelectron laser ranging, 2010
- Lily Yu, Modeling reactive transport through karst aquifers, 2010

- Bassel Nemer, Design of a two screen probe to measure in situ horizontal and vertical hydraulic conductivities under saturated and unsaturated conditions, 2008
- Ali Sedighi, Data fusion for watershed delineation and stream network detection, 2008
- Qing Sun, Contaminant and biomass transport in homogeneous and heterogeneous aquifers, 2006
- Ghina Yamout, Applications of single party and multiple party decision making under risk and uncertainty to water resources allocation problems, 2005
- Christopher Brown, Planning decision framework for brackish water aquifer, storage and recovery (ASR) projects, 2005
- Diane Bondehagen^a, Passive flux meter for measuring groundwater and contaminant flux in bioactive environments, 2005
- Xiaosong Chen^a, Innovative remediation techniques for treatments of toxaphene contamination, 2005
- Shirish Bhat, Ecohydrological study of watersheds within the military installation in Fort Benning, Georgia, 2004
- Harald Klammler,** Conceptual models for advance monitoring of subsurface and surface water and contaminant fluxes, 2004
- Jinhua Zhong^a, Two-dimensional analytical and three-dimensional finite-element method modeling of the interactions between wetlands and groundwater, 2004
- Nebiyu Tiruneh^a, Simulation and optimization of seawater intrusion in coastal aquifers due to climate change and sea level rise 2004
- Mostafa Mohamed, METABIOTRANS: a 3-D finite element model for the transport and biotransformation of metals in the subsurface, 2001
- Mark Alan Newman, Inverse characterization of subsurface contaminant mass flux: a three-dimensional physical and numerical modeling study, 2001

* Anticipated date of graduation

** Graduate of Graz University of Technology, Austria

^a Co-chair

CONTRACTS AND GRANTS (LAST 15 YEARS)

- Novel Sensor for Insitu Measurement of Uranium Flux, DoE, PI, 2008, \$1,267,028
- Demonstration and Validation of a Fractured Rock Passive Flux Meter (FRPFM), DoD/ESTCP, PI, 2008, \$762,269
- Williams AFB Source Remediation Performance Assessment, BEM, PI, 2008, \$51,700
- Predicting DNAPL Source Zone and Plume Response Using Site-Measured Characteristics, DoD/SERDP, Co-Invest, 2008, \$1,166,000
- A Collaborative Florida-Brazil Investigation of Subsurface Contaminant Mass

- Flows NSF, PI, 2008, \$19,800
- Karst Aquifer Modeling in North Central Florida, SJRWMD, PI, 2006, \$100,000
 - Water Resources Research institute Annual Base Program, USGS, PI, 2006, \$72,335
 - Flux Monitoring at (Former) Lake Lucina Dry Clears Facility, Golder Associates, Inc., PI, 2006, \$20,000
 - NAPL Area 3 Source Remediation Performance Assessment, DoD, Co-PI, 2005 \$134,220
 - Seasonal Variability of Near Surface Soil Water and Groundwater Tables in Florida - Phase II, FDOT, PI, 2007, \$115,741
 - Flux monitoring at Hill AFB OU2, CH2M Hill, Co-PI, 2005, \$40,000.
 - Passive Flux Meter Deployment at BP sites in Wales, United Kingdom, Attric Group Limited, Co-PI, 2005, \$20,000
 - Flux Meter Installation Jacobs Engineering Group Inc., PI, 2005, \$25,500
 - Passive Flux Meter Deployment at Fort Lewis Army Base and Vandenberg Air Force Base, DoD, Co-PI, 2005, \$80,000
 - EZVI Performance Flux Monitoring at Patrick Air Force Base (OT-30), CORE Engineering & Construction, Inc., Co-PI, 2005, \$24,300
 - Assistance to State Water Resources Research Institutes, USGS, PI 2004, \$158,687
 - Field Testing a Passive Flux Meter for Measuring Water and Multiple Solute Fluxes: A Short- and Long-Term Monitoring Tool for MNA/EPR, DoE, PI 2004, \$101,494
 - Development of Reactive Humic Materials for Prevention of Actinide Migration, NATO, PI, 2004, \$14,425
 - Mass Flux Monitoring at the Naval Weapons Station - Charleston, South Carolina, Solutions Industrial & Environmental Services, Co-PI, 2004, \$7,200
 - Flux Monitoring at LC-15 Cape Canaveral Air Force Station, BEM Systems, Inc., Co-PI, 2004 \$24,000
 - Bench Scale testing of Cyclodextrin Injection at OT-30 Patrick AFB, BEM Systems, Inc., Co-PI, 2004, \$19,976
 - In Situ Quantification of Surface Water and Groundwater Nutrient Fluxes form Agricultural Watersheds, USDA, Co-PI, 2002, \$135,000
 - Seasonable Variability of Near Surface Soil Water and Groundwater Tables in Florida FDOT, PI, 2002, \$250,000
 - Space Biotechnology & Commercial Applications: Development of a New Sensor for Measuring Cumulative Fluid and Solute Fluxes in Biologically Active Environmental Systems, NASA, Co-PI, 2002, \$243,155
 - Northeast Florida Regional Groundwater Flow Model Revision, SJRWMD, PI, 2002, \$99,739
 - Field Demonstration and Validation of a New Device for Measuring Water and Solute Fluxes (Received Project of the Year Award 200,6), DoD/ESTCP, PI,

- 2001, \$637,811
- Water Resources Research Institute, USGS, PI, 2001, \$396,753
- Water 2020 Decision Model technical Support and Enhancement, SJRWMD, PI, 2000, \$82,949
- Development of a Water Supply Operation Management System for the City of Cocoa Water Resource Department, SJRWMD, PI, 2000, \$142,047
- Development of an Integrated Surface Water/Ground Water Model, SJRWMD, PI 1999, \$25,000
- Minority Engineering Faculty Development Initiative, General Electric Foundation, PI, 1999, \$26,514
- IPA Agreement for Kirk Hatfield, US Department of the Air Force, PI, 1999, 01/01/99, \$20,040
- Groundwater Model Development for the Jacksonville Brownfields, SJRWMD, PI, 1998, \$75,000
- Database Development for the Jacksonville Brownfields Groundwater Model, SJRWMD, PI, \$25,000
- An In Situ Tracer Method for Establishing the Presence & Predicting the Activity of Heavy Metal-reducing Microbes, DoE, PI, 1997 \$790,550
- Innovative Tracer Techniques for DNAPL Source Delineation and In Situ Flushing Techniques for Enhanced Source, US Department of the Air Force, Co-Invest, 1997, \$854,000
- Ipa Agreement for Kirk Hatfield, US Department of the Air Force, PI, 1997, \$9,006
- Ipa Agreement for Kirk Hatfield, US Department of the Air Force, PI, 1996, \$25,402
- Lab & Field Evaluation of Single Phase Microemulsions (spme) for Enhanced In-situ Remediation of Contaminated Aquifers, Rice University, Co-PI, 1995, \$650,000
- Decision Modeling for SJRWMD Alternative Water Supply Strategies, SJRWMD, PI, 1995, \$575,973
- Impacts of Spatio-variability of Source Morphology on Field-scale Predictions of Subsurface Contaminant Transport, AFOSR, PI, 1995 \$600,000

INTERNATIONAL ACTIVITIES (LAST 15 YEARS)

1. U.S. Partner 2011-present

CRDF Proposal: "Investigations of organo-mineral interaction critical for carbon sequestration in soil organic matter." Russian Partners: Department of Chemistry of Lomonosov Moscow State University – Prof. Irina V. Perminova, Dr. Ponomarenko, Dr. Kholodov and Dr. Kulikova. US Partnersz: Department of Civil and Coastal Engineering of the University of Florida - Kirk Hatfield, Mark Newman, Harald Klammler, and Amelia Dempere.

2. **Member of the Scientific Committee 2010**
First International Conference on Humics-based Innovative Technologies: Natural and Synthetic Polyfunctional Compounds and Nanomaterials in Medicine and Biomedical Technologies, November 4-8, 2010, Lomonosov Moscow State University, Moscow, Russia.
3. **Principal Investigator 2008-2010**
NATO-CLG project 983197
"In situ humic permeable reactive barriers to prevent actinide migration".
Except for University of Florida, Project includes two other participating teams from Russia: Department of Chemistry of Lomonosov Moscow State University (team lead – Prof. Irina V. Perminova), Main outcome of the project – 4 reviewed journal articles and a joint patent application in preparation for “Method of preparation and use of organosilicon humic derivatives.”
4. **Member of the Scientific Committee 2006-2008**
The 14th Meeting of the International Humic Substances Society, September 14-19, 2008, Lomonosov Moscow State University, Moscow, Russia
5. **U.S. Partner 2006-2009**
Project with Lomonosov Moscow State University, Department of Chemistry: "Development of in situ remediation technology for actinide-contaminated aquifer using specifically tailored humic derivatives". Russian Partners: Department of Chemistry of Lomonosov Moscow State University (team lead – Prof. Irina V. Perminova), Vernadsky Institute of Geochemistry and Analytical Chemistry (team lead – Dr. Stepan N. Kalmykov).
6. **Associate U.S. Partner 2006-2008**
Project Proposal to the European Union - Russia Cooperation in the Field of Biotechnology under the 7th Framework Program: "Upgrading natural organic matter of wood and non-wood origin to value-added "green" chemicals and composites: from molecular mapping to innovative applications" ("GreenNOM"). Project Lead from EU is PD. Dr. Philippe Schmitt-Kopplin (Research Center for Environment and Health, GSF, Neuherberg/Munich, Germany), Project Lead from Russia is Prof. Irina V. Perminova (Lomonosov MSU, Moscow).
7. **U.S. Partner 2006-2007**
Project with the Australian Commonwealth Scientific and Research Organization (CSIRO): "Passive fluxmeter measurements of ammonia and brominated ethanes/ethenes in groundwater." Australian Partners: CSIRO, Perth Australia (Drs. Greg Davis and Robert Woodbury), U.S. Partners: Department of Civil Engineering, Perdue University (team lead – Prof. P.S.C. Rao), University of Florida (Prof. M. Annable and Assoc. Prof. Kirk Hatfield).

8. **U.S. Partner 2005-2006**
Project with CRC CARE Pty. Ltd, of University of South Australia, Adelaide, Australian: "Characterization of water and chlorinated solvent fluxes at the Edinburgh Park site." Australian Partners: University of South Australia and CRC CARE Pty. Ltd (Dr. Ravi Naidu, and Dr. Subus Nandy), U.S. Partners: Department of Civil Engineering, Perdue University (Prof. P.S.C. Rao and Dr. Basu), University of Florida (Prof. M. Annable and Assoc. Prof. Kirk Hatfield).
9. **Host to Hungarian Academic Scholar 2005-2006**
Supported an Academic Scholar from the Budapest University of Technology and Economics Research involved laboratory investigations that have led to further developments of a passive surface water fluxmeter.
10. **Member of Conference Organizing Committee 2005-present**
14th International Meeting of International Humic Substances Society (IHSS, <http://www.ihss.gatech.edu>): "From molecular understanding to innovative applications of humic materials". Meeting will take place on June 23-29, 2008 in Moscow / Saint Petersburg (Russia). Organizing Body – CIS chapter of IHSS (<http://www.humus.ru/ihss/eng/>), Regional Coordinator – Prof. Irina V. Perminova. This is a biennale meeting of the society that gathers between 300 and 400 researchers working in the field of basic and applied research on humic materials.
11. **Foreign collaborator 2004-present**
ISTC-KR-964 project "Development of detoxicants of combined action on the basis of humic substances and their derivatives" funded by the International Science and Technology Center (ISTC, headquarter is in Moscow, Russia). Project participants are three institutions from the Former Soviet Union – one from Kyrgyz Republic and two from Russia. Leading institution is Institute of Chemistry and Chemical Technology of NAS of Kyrgyz Republic (leader – Prof., Academician NAS KR Sharipa Jorobekova, submanager – Dr. Kamila Kydralieva), Russian Institutions are: Department of Chemistry of Lomonosov Moscow State University (submanager – Prof. Irina V. Perminova), and Joint Stock Company "Biochimmash" (submanager – Dr. Vladimir S. Muratov). Project is funded as a development of new remediation technology and is now on the pilot plant construction stage.
12. **Principal Investigator 2004-2006**
NATO-CLG project 980508 "Development of reactive humic materials for prevention of actinide migration". Except for University of Florida, Project includes two other participating teams from Russia: Department of Chemistry of Lomonosov Moscow State University (team lead – Prof. Irina V. Perminova), Vernadsky Institute of Geochemistry and Analytical Chemistry (team lead – Dr.

Stepan N. Kalmykov). Main outcome of the project – a reviewed journal article and joint patent application "Humic derivatives: methods of preparation and use". Reg. number of corresponding PCT application is PCT/RU2006/000102. Patent holder worldwide outside of Russia is University of Florida.

13. **Book Co-editor, NATO Science Series, 2003-2004**
Perminova, I.V, K. Hatfield, and N. Hertkorn. 2005. *Use of humic substances to remediate polluted environments: from theory to practice.* NATO Science Series: IV: Earth and Environmental Sciences, Vol. 52. Springer. Dordrecht, The Netherlands. 506 pp
14. **U.S. Partner 1998-2003**
NATO-Science for Peace Program, project 972494 "Improvement of the Biological Degradability of Waste waters Using Natural Zeolites," Project participants University of Florida (Drs. Scot Smith and Kirk Hatfield), Budapest University of Technology and Economics (Dr. D. Kallo) and Living Planet Ltd (Dr. P Princz). Primary outcome, one reviewed book chapter, two papers, and a Hungarian Patent (1788/04, NSZO:C02F1/28), issued 2004.
15. **Member 1995-present**
University Consortium for Field Focused Groundwater Contamination Research (formerly The University Consortium Solvents-in-Groundwater Research Program) is an international university-based research program directed at the behaviour, fate, and remediation of chlorinated solvents and other contaminants in the subsurface. Program Director is Dr. John Cherry of University of Waterloo Ontario. Two meetings are held each year to present recent results of research efforts. Both meetings are attended by consortium members from multiple academic institutions located throughout Canada, Europe, and the US.

PATENTS AND COPYRIGHTS

1. **US/Russia PCT-Application (PCT/RU2006/000102), Humic derivatives, method of preparation and use, 2006 (Pending).** This patent describes an innovative way of generating novel remediation agents based on humic materials that may oxidize, reduce, complex, and adsorb environmental contaminants.
2. **US Patent (US7334486), Device and method for measuring fluid fluxes, solute fluxes and fractured parameters in fractured flow systems, 2008.** This patent describes the first device and method for measuring water and contaminant fluxes in karst and fractured aquifers. A majority of the Earth's groundwater supplies are derived from such aquifers.

3. **Canadian Patent (2389112), Device and Method for Measuring Fluid and Solute Fluxes in Flow Systems, 2007.** This patent is an extension of **US Patent (SN 09/430,607)** and it describes the first device and method for measuring water and contaminant fluxes in unconsolidated aquifers, which carry a significant fraction of the Earth's groundwater supplies near streams and rivers.
4. **US Patent (US7284448), Device and method for passively measuring fluid and target chemical mass fluxes in natural and constructed non-porous fluid flow systems, 2007.** This patent describes the first device and method for measuring cumulative water and contaminant fluxes in surface water systems. Protection of surface waters is an environmental priority; hence, the ability to monitor contaminants is critical.
5. **Australian Patent (775154), Device and Method for Measuring Fluid and Solute Fluxes in Flow Systems, 2004** This patent is an extension of **US Patent (SN 09/430,607)** and it describes the first device and method for measuring water and contaminant fluxes in unconsolidated aquifers, which carry a significant fraction of the Earth's groundwater supplies near streams and rivers.
6. **Hungarian Patent (1788/04, NSZO:C02F1/28), Improvement of Biological Degradability of Wastewaters Using Activated Zeolites, 2004.** This patent describes a cost-effective method of increasing the efficacy of existing wastewater treatment systems using modified zeolites.
7. **US Patent (US6401547), Device and Method for Measuring Fluid and Solute Fluxes in Flow Systems, 2002.** This patent describes the first device and method for measuring water and contaminant fluxes in unconsolidated aquifers, which carry a significant fraction of the Earth's groundwater supplies near streams and rivers. This technology is currently being used in US by the USEPA, DoE, and DoD and in Canada, Wales, Brazil, and Australia.
8. **US Patent (SN 08/641,141), Measuring Fluid Interfaces in Flow-Through Systems, 1998.** This patent describes the first method for measuring the interfacial area of heterogeneous porous flow systems. This information is used to characterize groundwater contaminant sources

PUBLICATIONS

Books, Edited

1. Perminova, I.V, K. Hatfield, and N. Hertkorn. 2005. *Use of humic substances to remediate polluted environments: from theory to practice*. NATO Science Series: IV: Earth and Environmental Sciences, Vol. 52. Springer. Dordrecht, The Netherlands. 506 pp.

Books, Contributor of Chapter(s)

1. Klammler, H., K. Hatfield and A. Kacimov. 2010. Capture flows of funnel-and-gate reactive barriers without gravel packs. In: *Advances in Fluid Mechanics*, WITpress, Wessex Institute of Technology, UK, (In Press).
2. Sedighi, A., Klammler, H., Hatfield, K. 2010. Strategies for Surface and groundwater Monitoring to Predict Environmental Risk, *Environmentalica Fennica*, 27:17-24. ISBN 978-952-10-6133-2.
3. Perminova, I.V., A.I. Konstantinov, E.V. Kunenkov, A. Gaspar, P. Schmitt-Kopplin, N. Hertkorn, N. A. kulikova, and K. Hatfield. 2009. Separation Technology as a Powerful Tool for Unfolding Molecular Complexity of Natural Organic Matter and Humic Substances. In: *Biophysico-Chemical Processes: Involving Natural Nonliving Organic Matter in Environmental Systems*, Sensesi, N., Xing, B., and Huang, P.M. (Eds.) Wiley & Sons Inc., Hoboken, New Jersey, pp. 487-538.
4. Klammler, H., K. Hatfield, I.V. Perminova. 2009. "Groundwater and contaminant travel time distributions near permeable reactive barriers". In: *Water Resources Management V. C.A. Brebbia, V. Popov, eds. WIT Transactions on Ecology and the Environment, Vol. 125, ISBN 978-1-84564-199-3, pp. 245-256. doi: 10.2495/WRM090231.*
5. Klammler, H., K. Hatfield. 2008. The Problem of Flow-By-Pass at Permeable Reactive Barriers. In: *Geo-Environmental and Landscape Evolution III*, Mander, U., Brebbia, C.A., and Martin-Duque, J.F. (Eds.), WIT press, Wessex Institute of Technology, UK, pp. 16-24..
6. Perminova, I.V., and K. Hatfield. 2005. Remediation chemistry of humic substances: Theory and implications for technology. In: *Use of humic substances to remediate polluted environments: from theory to practice*. Perminova, I.V., Hatfield K., Hertkorn N. (Eds.), NATO Science Series: IV: Earth and Environmental Sciences, Vol. 52, Springer, Dordrecht, The Netherlands, pp. 3-36.
7. Princz, P., J. Olah, S.E. Smith, K. Hatfield, and M.E. Grable. 2005. Wastewater treatment using modified natural zeolites. In: *Use of humic substances to remediate polluted environments: from theory to practice*. Perminova I.V., Hatfield K., Hertkorn N. (Eds.), NATO Science Series: IV: Earth and Environmental Sciences, Vol. 52, Springer, Dordrecht, The Netherlands, pp. 267-284.
8. Hatfield, K., and B.A. Christensen. 1991. Dimensionless models for basin discharge prediction. In: *New Technologies in Urban Drainage*, Maksimovie, C. (Ed.), Elsevier Applied Science, London & New York, pp. 163-170.

Refereed Journal Articles (italics = student)

1. Klammler H., K. Hatfield, J.A.G. Luz, M.D. Annable, M. Newman, J. Cho, A. Peacock, V. Stucker, J. Ranville, S. Cabaniss, and P. S. Rao. 2012. Contaminant Discharge and Uncertainty Estimates from Passive Flux Meter Measurements, *Water Resour. Res.* doi:10.1029/2011WR010535. (In Press).
2. Karpiouk, L.A., S.A. Ponomarenko, A.I. Konstatinov, N. Hertkorn, A.M. Muzafarov, K. Hatfield, I.V. Perminova. 2012. Controlling Aqueous Sorption of Humic Substances on Silica Gel by Directed Alkoxysilyl-Derivatization of Their Functionalities, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, (In Press).
3. Karpiouk, L.A., S.A. Ponomarenko, A. Mourran, D. Bochkariov, A. M. Muzafarov, K. Hatfield and I.V. Perminova. 2012. Self-assembly of alkoxysilanized humic substances into multidomain adlayers at the water-solid interface: linking surface morphology to molecular structures of adsorbate, *Soft Matter*, 8 (8), 2452 – 2459. DOI: 10.1039/C2SM06582G.
4. Inglett, K.S., H.S. Bae, H.C. Aldrich, K. Hatfield, A.V. Ogram. 2011. Clostridium chromiireducens sp. nov., isolated from Cr(VI)-contaminated soil, *International journal of systematic and evolutionary microbiology*, 61 (11), 2626-31. DOI: 10.1099/ij.s.0.024554-0.
5. Klammler, H., K. Hatfield, M. McVay, and J. A. G. da Luz. 2011. Approximate up-scaling of geo-spatial variables applied to deep foundation design, *Georisk*, 5 (3-4), 163-172.
6. Stucker, V., J. Ranville, M. Newman, A. Peacock, J.Cho, and K. Hatfield. 2011. Evaluation and application of anion exchange resins to measure groundwater uranium flux at a former uranium mill site, *Water Research*, doi:10.1016/j.watres.2011.06.030.
7. Klammler, H., K. Hatfield, B. Nemer, and S.A. Mathias. 2011. A Trigonometric Interpolation Approach to Mixed Type Boundary Problems Associated with Permeameter Shape Factors, *Water Resour. Res.*, 47, W03510.
8. Kacimov, A., H. Klammler, N. Ilyinsky, and K. Hatfield. 2011. Constructal design of permeable reactive barriers: A groundwater hydraulics criteria, *J. Engineering Mathematics*, DOI 10.1007/s10665-011-9457-5.
9. Mohamed M.M. and K. Hatfield. 2011. Dimensionless monod parameters to summarize the influence of microbial growth kinetics and inhibition on the attenuation of groundwater contaminants, *Biodegradation*, 22 (5), 877-896, DOI 10.1007/s10532-010-9445-x.
10. Mohamed M.M., K. Hatfield, A. Hassan, and H. Klammler. 2010. Stochastic

evaluation of subsurface contaminant discharge under physical, chemical, and biological heterogeneities, *Advances in Water Resources.*, 33 (7), 801-812.

11. Klammler, H., K. Hatfield, and A. Kacimov. 2010. Analytical solutions for flow fields near drain and gate reactive barriers, *Ground Water*, 48 (3), 427–437.
12. Bhat, S., J. Jacobs, K. Hatfield, and W. Graham. 2010. A comparison of storm-based and annual-based indices of hydrologic variability: A case study in Fort Benning, Georgia. *Environmental Monitoring and Assessment*, 167, (1-4), 297-307. DOI: 10.1007/s10661-009-1050-2; 1-11.
13. Padowski, J.C., E.A. Rothfus, J.W. Jawitz, H. Klammler, K. Hatfield, and M.D. Annable. 2009. Effect of Passive Surface Water Flux Meter Design on Water and Solute Mass Flux Estimates, ASCE, *Journal of Hydrologic Engineering*, 14(12), 1334-1342.
14. Basu, N.B., P.S.C. Rao, I.C. Poyer, S. Nandy, M. Mallavarapu, R. Naidu, G.B. Davis, Bradley M. Patterson, M.D. Annable and K. Hatfield. 2009. Integration of traditional and innovative characterization techniques for flux-based assessment of dense non-aqueous phase liquid (DNAPL) sites. *Contaminant Hydrology*, 105(3-4), 161-172.
15. Klammler, H., and K. Hatfield. 2009. Analytical Solutions for the Flow Fields near Funnel-and-Gate Reactive Barriers with Hydraulic Losses. *Water Resources Res.*, 25, W02423.
16. Klammler, H., and K. Hatfield. 2008. Analytical Solutions for the Flow Fields near Continuous Wall Reactive Barriers. *Journal of Contaminant Hydrology*, 98(1-2), 1-14.
17. Basu, N., P.S.C. Rao, R.W. Falta, M.D. Annable, J.W. Jawitz, and K. Hatfield, 2008. Temporal Evolution of DNAPL Source and Contaminant Flux Distribution: Impacts of Source Mass Depletion. *Journal of Contaminant Hydrology*, 95(3-4), 93-109.
18. Brooks, M.C., A. L. Wood, M. D. Annable, K. Hatfield, J. Cho, C. Holbert, P. S. C. Rao, C. G. Enfield, K. Lynch, and R. E. Smith. 2008. Changes in Contaminant Mass Discharge from DNAPL Source Mass Depletion: Evaluation at Two Field Sites, *Journal of Contaminant Hydrology*, 102 (1-2), 140-153.
19. Cho, J., M.D. Annable, J.W. Jawitz, and K. Hatfield. 2007. Passive fluxmeter measurement of water and nutrient flux in porous media: Bench-scale laboratory tests, *Journal of Environmental Quality*, 36(5): 1266-1272.
20. Bhat, S. K. K. Hatfield, J.M. Jacobs, R. Lowrance, and R. Williams. 2007. Surface runoff contributions of nitrogen during storm events in a forested watershed. *Biogeochemistry*, 85:253-262.

21. Perminova, I.V., L.A. Karpiouk, N.S. Shcherbina, S.A. Ponomarenko, St.N. Kalmykov, and K. Hatfield. 2007. Synthesis and use of humic derivatives covalently bound to silica gel for Np(V) sequestration. *Journal of Alloys and Compounds*, 444-445, 512-517.
22. Yamout, G., K. Hatfield, and E. Romeijn. 2007. Comparison of new conditional value-at-risk-based management models for optimal allocation of uncertain water supplies. *Water Resources Res.*, 43, W07430, doi: 10.1029/2006WR005210.
23. Mohamed, M.M.A., K. Hatfield, and I.V. Perminova. 2007. Evaluation of Monod kinetic parameters in the subsurface using moment analysis: theory and numerical testing. *Advances in Water Resources.*, 30, 2034-2050.
24. Lee, J., P.S.C. Rao, I.C. Poyer, R.M. Toole, M.D. Annable, and K. Hatfield. 2007. Oxyanion flux characterization using passive flux meters: Development of field testing of surfactant-modified sorbents. *Journal of Contaminant Hydrology*, 92, 208-229.
25. Klammler, H., K. Hatfield, M. D. Annable, E. Agyei, B. Parker, J. Cherry, and P.S.C. Rao. 2007. General analytical treatment of the flow field relevant to the interpretation of passive fluxmeter measurements. *Water Resources Research*, 43, W04407, doi:10.1029/2005WR004718.
26. Bhat, S., K. Hatfield, J. M. Jacobs, and W. D. Graham. 2007. Relationships between military land use and storm-based indices of hydrologic variability. *Ecological Indicators*, 7 (3), 553-564.
27. Klammler, H., K. Hatfield, and M. Annable. 2007. Concepts for measuring horizontal groundwater flow directions using the passive flux meters. *Advances in Water Resources*, 30 (4), 984-997.
28. Klammler, H., M. Newman, E. Szilagyi, J. Padowski, K. Hatfield, J. Jawitz, and M. Annable. 2007. The passive surface water fluxmeter to measure cumulative water and solute fluxes. *Environmental Science and Technology*, 41 (7), 2485 -2490.
29. Campbell, T. J., K. Hatfield, H. Klammler, M. D. Annable, and P.S.C. Rao. 2006. Magnitude and directional measures of water and Cr(VI) fluxes by passive flux meter. *Environmental Science and Technology* 40(20), 6392-6397. **(Designated the Best Technology Paper published in ES&T, 2006)**
30. Newman, M., K. Hatfield, J. Hayworth, P.S.C. Rao, and T. Stauffer. 2006. Inverse characterization of NAPL source zones. *Environmental Science and Technology*, 40(19), 6044-6050.
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51. Heyse, E., M. Holland, and K. Hatfield. 1993. Modeling the source term for

- petroleum contamination at the water table. In: *ASCE Florida Section Annual Meeting*, Haines City, Florida, September 11, 1993, pp. 23.
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 53. Coates, K., and K. Hatfield. 1992. Stochastic model for well field optimization. *ASCE Florida Section Annual Meeting*, Cocoa Beach, Florida, September 25, 1992, pp. 7.
 54. Hatfield, K., and B. A. Christensen. 1992. An analytical evaluation of linear modeling of nonlinear rainfall-runoff phenomenon. *Eos. Trans. AGU*, 73(14), pp. 113.
 55. Stauffer, T. B., and K. Hatfield. 1992. Semi-analytical modeling of one and three-dimensional nonequilibrium transport experiments. *Eos. Trans. AGU*, 73(14), pp. 126.
 56. Hanson, M. A., K. Hatfield, and M. Hoit. 1989. A pond analysis program for stormwater control. *American Society of Civil Engineers Florida Section Annual Meeting*, Ocala, Florida, September 22, 1989, pp. 25.

Research Monographs and Reports

1. Hatfield, K., M.D. Annable, and P.S.C. Rao, 2005. Field Demonstration and Validation of a New Device for Measuring Water and Solute Fluxes. *Technical Report on ESTCP project CU-0114*. November 2005, 530 pp.
2. Campbell, T.J., K. Hatfield, M.D. Annable. 2004. Simultaneous measurement of specific discharge and Cr(VI) mass flux in porous media using permeable adsorbent device. *Final Technical Report A229324*, 32 pp.
3. Smith, S.E., P. Princz, J. Olah, and K. Hatfield. 2004. Improvement of the biological degradability of waste waters using natural zeolites. *Final Report on Project Number: SfP-972494*, 122 pp.
4. Clark, C.J., T. Chirenje, M.D. Annable, K. Hatfield, and L.Q. Ma. 2004. Developing retention indices and modeling transport of CCA in Florida soils and unlined landfills. In: *Florida Center for Solid and Hazardous Waste Management*, 32 pages.
5. James, A., K. Hatfield, and W. Graham 2003. Review of integrated surface water/groundwater computer models. In: *St. Johns River Water Management District Technical Reports*. SJ2000-SP8, 199 pp.

6. Demas, C., K. Hatfield, and D. Hearn. 2003. Decision modeling for alternative water supply strategies. In: *St. Johns River Water Management District Technical Reports*. SJ2000-SP9, 281 pp.
7. Hatfield, K. 2002. An in situ tracer method for establishing the presence and predicting the activity of heavy metal-reducing microbes in the subsurface, *Final Report on DoE (NABIR) grant DE-FG02-97ER62471*, 15 pp.
8. Hatfield, K., W. Graham, M.D. Annable, and P.S.C. Rao, 1998. Impacts of spatio-variability of source morphology on field-scale predictions of subsurface contaminant transport. *Final Report on Grant F49620-95-1-0321 of Air Force Office of Scientific Research*, Air Force Material Command, U.S. Air Force, A375673, 44 pp.
9. Demas, C., K. Hatfield, and D. Hearn, 1998. Decision modeling for alternative water supply strategies. In: *Center for Applied Optimization*, University of Florida, Gainesville, Florida.
10. Hatfield, K. 1997. Funnel and Gate Design Method, U.S. Air Force, A821653, 90 pp.
11. Burger, P.C., M. E. Holland, K. Hatfield, W. Hearn, and W. Graham, and, 1995. Water resource allocation and quality optimization modeling. *Final Report*, Saint Johns River Water Management District, Palatka, Florida., 237 pp.
12. Baker, J., D. Bosch, P. Bukaveckas, S. Deets, K. Hatfield, P. Heglund, A. Kazakevicius, K. Lohman, A. Mitchell, E. Petroviskis, I. Runge, and A.V. Zale. 1995. Young Investigators Program on Agricultural Impacts of Water Quality in Latvia and Lithuania: *Summary Report*, National Research Council, 69 pp.
13. Tankersley, C., W. Graham, and K. Hatfield. 1993. Development of univariate and transfer function models of piezometric head fluctuations in the Floridan aquifer. *Final Report*, St. Johns River Water Management District, (Contract #90D124), Palatka, Florida, UF Project #4910-4504-305-12, University of Florida, Gainesville, Florida, 58 pp.
14. Coats, K. E., and K. Hatfield. 1993. A groundwater management model for the water E. Murphree well field. *Final Report on UF Project 4910450438212*, Gainesville, Regional Utilities (Agency I.D. #33932), Gainesville, Florida, University of Florida, Gainesville, Florida, 132 pp.
15. Tankersley, C., W. Graham, and K. Hatfield. 1991. Statistical characterization of groundwater fluctuations and hydrogeologic properties in the Floridan aquifer. *Final Report*. St. Johns River Water Management District, (Contract #90D124), Palatka, Florida, UF Project #4910-4504-305-12, University of Florida, Gainesville, Florida, 299 pp.
16. Hatfield, K., and J. Ziegler. 1991. Laboratory investigations of subsurface contaminant sorption systems. *Final Report*. Air Force Office of Scientific

Research (Project #F49620-88-C-0053/Sb5881-0378), Washington, D.C., UF Project #4910-4504-302-12, University of Florida, Gainesville, Florida, 53 pp.

17. Motz, L.,H., P. A. Chadik, B. L. Koopman, K. Hatfield, R. H. Hutton, G. A. Tootle, and R. W. Watts. 1990. Reducing nitrate concentrations in groundwater. *Final Report*. Florida Department of Environmental Regulation (Contract #WM290), Tallahassee, Florida, UF Project #4910-4504-278-12 and #4910-4504-243-12, University of Florida, Gainesville, Florida, 391 pp. and 4 appendices.
18. Hatfield, K. 1989. Contaminant flux reduction through in situ solubility modification. *Final Report*, Air Force Office Scientific Research, 1989 USAF-UES Summer Faculty Research Program (Project #F49620-88-C-0053), Washington, D.C., 20 pp.
19. Hatfield, K., and R. Noss. 1988. Nonpoint source pollution management models for regional ground water quality control: with Western Cape Cod Case Study. *Environmental Engineering Technical Report No. 97-87-5*, Department of Civil Engineering, University of Massachusetts/Amherst, 220 pp.
20. Noss, R., and K. Hatfield. 1983. Evaluation of the visibility criterion of the Massachusetts sanitary code for swimming in natural Waters. *Publication No. 146*, Water Resources Research Center, University of Massachusetts/Amherst, 35 pp.

LECTURES, SPEECHES OR POSTERS PRESENTED AT PROFESSIONAL CONFERENCES/MEETINGS.

Invited Presentations (International)

1. Hatfield, K. 2010. Advances in Development of the Fractured Rock Flow and Contaminant Flux Meter. University Consortium for Field-Focused Groundwater Contamination Research, Guelph, Canada, May 19-21, 2010.
2. Hatfield, K. 2009. Strategies for Surface and Ground Water Monitoring to Predict Environmental Risk. USA – Iran – Finland Environmental Workshop. Haikko, Finland September 14-15, 2009.
3. Hatfield, K. 2008. Flux Measurement for TRIAD Applications, CH2M-Hill Webinar, June 16, 2008.
4. Hatfield, K. 2008. Reactions in the Hyporhic Zone. *University Consortium Solvents-in-Groundwater Research Program*, Hockley Valley Resort, Ontario, May 4, 2008.
5. Hatfield, K. 2007. Performance Monitoring of Contaminant Remediation and Stabilization Flux Considerations, Dupont Webinar, September 19, 2007.

6. Hatfield, K. 2006. Flux sampling of monitored natural attenuation, *Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, California, May 22-25, 2006.
7. Hatfield, K. 2005. Status of site application Florida Fluxmeter. *University Consortium Solvents-in-Groundwater Research Program*, Hockley Valley Resort, Ontario, May 24, 2005.
8. Hatfield, K. 2003. New approach to quantifying remediation. *12th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region*, Antalya, Turkey, October 4-8, 2003.
9. Hatfield, K. 2003. A new method for quantifying remediation. *II Moscow International Congress, Biotechnology: State of the Art and Prospects of Development*, Moscow, Russia, November 10-14, 2003.
10. Hatfield, K. 2002. Innovations in measuring contaminant fluxes in the subsurface. *NATO Advanced Research Workshop, Use of Humates to Remediate Polluted Environments: From Theory to Practice*, Zvenigorod, Russia, September 23-29, 2002.
11. Hatfield, K. 1997. Inverse modeling of chlorinated solvent fluxes. *University Consortium Solvents-in-Groundwater Research Program*, Toronto, Ontario, September 30 - October 1, 1997.
12. Hatfield, K. 1996. Applications of partitioning and interfacial tracers at University of Florida, *University Consortium Solvents in Groundwater Research Program*, Toronto, Ontario, October 9-10, 1996.

Invited Presentations (National)

1. Hatfield, K. Demonstration and Validation of a Fractured Rock Passive Flux Meter. Federal Remediation Round Table. Washington, D.C., November 9, 2010.
2. Hatfield, K. Advances in Development of the Fractured Rock Flow and Contaminant Flux Meter. University Consortium for Field-Focused Groundwater Contamination Research, May 20, 2010.
3. Hatfield, K. Performance Monitoring of Contaminant Remediation and Stabilization Flux Considerations, Dupont Webinar, September 19, 2007.
4. Hatfield, K. Passive Methods for Monitoring Contaminant Discharges in Subsurface, Surface, and Contiguous Hyporeheic Systems, AEG, Los Angeles, September 27, 2007.
5. Hatfield, K. Estimation of Contaminant Mass Discharge in Unconsolidated Granular and Fractured Rock Aquifers, SERDP/ESTCP Partners in Environmental Technology Technical Symposium. Washington, D.C., December 1, 2007.

6. Hatfield, K. 2006. Demonstration of Passive Fluxmeters in monitored natural attenuation. *Monitored Natural Attenuation/Enhanced Attenuation Workshop*. DoE, Atlanta, GA, May 18-19, 2006.
7. Hatfield, K. 2005. Performance monitoring of contaminant remediation and stabilization. *Performance Monitoring Workshop*. DoE, Fairmont Hot Springs, MT, June 21-23, 2005.
8. Hatfield, K. 2004. Flux sampling configurations for monitored natural and enhanced contaminant attenuation. *Interstate Regulatory Commission Diffusion Sampler Workgroup*, San Antonio, Texas.
9. Hatfield, K, J. Cho, D. Bondehagen, M. D. Annable, L. Wood, and C. Enfield. 2004. Passive flux meters for remedial performance. *Remediation of Chlorinated and Recalcitrant Compounds, Fourth International Conference*, Monterey, California, May 24-27, 2004.
10. Hatfield, K. 2003. A method for quantifying contaminant flux at hazardous waste sites. *Interstate Regulatory Commission Diffusion Sampler Workgroup*, Monterey, California, September 30, 2003.
11. Hatfield, K. 1997. Innovative applications of partitioning tracers. *Third Tracer Workshop*, University of Texas, Austin, Texas, May 21-22, 1997.

HONORS

- Best Technology Paper published in ES&T, 2006
- ESTCP/SERDP, Project of the Year Award, 2006
- Theta Tau Professional Engineering, Professor and Advisor Recognition, 2005, 2006
- Winner of the ASEE Research Paper Competition, 1998
- National Academy of Sciences (NAS) Young Investigator, 1994-1995
- Winner of the ASEE Research Paper Competition, 1994
- Dedicated Service Award, Gainesville Branch of ASCE, 1994
- Tau Beta Pi, Engineering honor society (inducted as honorary member), 1990
- Recipient of U.S. Air Force Summer Faculty Research Fellowship, 1989

EDITOR OF A SCHOLARLY JOURNAL, SERVICE ON AN EDITORIAL ADVISORY BOARD OR REVIEWER FOR A SCHOLARLY JOURNAL

Editorial Board for *Advances in Civil Engineering*, 2008-present
Managing Editor for *American Institute of Hydrology Bulletin*, 1993-2004.

Reviewer of technical Journal Articles (1996-present)

10 – Journal of Contaminant Hydrology
10 - Water Resources Research
12 - Environmental Science and Technology
5 - Journal of Environmental Engineering
4 - Chemosphere

Proposal Reviewer (1996-present)

20 - Department of Energy
2 – College of Natural Resources and Environment
15 – USGS proposals
2 - NSF proposals
2 – Austria Science Foundation
1 - Proposal to Sino Software Research Center (SSRC)
1 – Arab Science & Technology Foundation/CRDF/NATO

MEMBERSHIP AND ACTIVITIES IN THE PROFESSION (1987 to present)

Scientific and Professional Societies

National Institutes of Water Resources (NIWR), Board Member and Southeast Region Representative, 2007-present
University Council on Water Resources (UCOWR), Council Delegate, 2004-present
Member, American Geophysical Union, 1992-present
Member, American Society of Civil Engineers, 1987-97, 2011-present
Member, International Humic Substances Society, 2011-present
Member, American Society for Engineering Education, 1992-97
Member, Association of Ground Water Scientists and Engineers, 1989-95
Member, American Water Work Association, 1989-94
Member, American Water Resources Association 1989-93
Member, International Association for Hydraulic Research, 1988-95
Member, International Water Resources Association, 1988-95

Participation as author in over 100 technical conferences (see above conference abstracts, presentations, and proceedings)

Panel Member, NIWR/USGS National Research Competition, 2006 and 2010

Selected proposals to be funded under National Institutes for Water Resources (NIWR) and US Geological Survey (USGS) Competitive Grants Program

Panel Member, US DoE Subsurface Biogeochemical Research Review, 2008 and 2010

Selected proposals to be funded under DoE Subsurface Biogeochemical Research

Program

Discussion Panel Member 2006

Discussion topic: “Advances in Monitored Natural Attenuation for Chlorinated Solvents,” at the Battelle-Remediation of Chlorinated and Recalcitrant Compounds Conference, Monterey, CA, May 2006.

Annual NIWR Conference, 2004-present

Attend annual meeting of the National Institutes for Water Resources (NIWR)

Lead Discussant on IFRA Scientific Advisory Panel, 2001-2003

Assigned to attend public meetings and lead discussions on issues of concern under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Session Chair Fall 2001

Poster Session H22C “Innovative Technologies for Measuring Subsurface Water and Contaminant Fluxes I,” American Geophysical Union Fall Meeting 2001

Session Chair Fall 2001

Platform Session H22C “Innovative Technologies for Measuring Subsurface Water and Contaminant Fluxes II,” American Geophysical Union Fall Meeting 2001

Office Positions held in a Professional Society

NWIR, Board Member and Southeast Region Representative, 2007-present

UCOWR, Council Delegate, 2004-present

ASEE, Southeaster Section, Technical Advisory Board, 1994-95

ASCE, Florida Selection Board of Directors, 1992-93

ASCE, Gainesville Branch, President, 1992-93

ASCE, Gainesville Branch, Vice President, 1991-92

ASCE, Gainesville Branch, Secretary, 1990-91

ASCE, Gainesville Branch, Treasurer, 1989-90

HONORS

ESTCP/SERDP, Project of the Year Award, 2006

Theta Tau Professional Engineering, Professor and Advisor Recognition, 2005 and 2006

Winner of the ASEE Research Paper Competition, 1998

National Academy of Sciences (NAS) Young Investigator, 1994-1995

Winner of the ASEE Research Paper Competition, 1994

Dedicated Service Award, Gainesville Branch of ASCE, 1994

University of Florida College of Engineering Nominee for ASEE Research Paper Competition, 1993

President of Gainesville Branch of ASCE, 1992-93

Tau Beta Pi, Engineering honor society (inducted as honorary member), 1990
Recipient of U.S. Air Force Summer Faculty Research Fellowship, 1989

CONSULTATIONS OUTSIDE THE UNIVERSITY

- St John River Water Management District, Review of District Water Resource Optimization Modeling, 2002-2005.
- Southwest Florida Water Management District, Review of Optimum Regional Operations Plan for Tampa Bay Water, 1999-2002.

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