



COLLEGE OF ENGINEERING
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FROM THE DIRECTOR

Dear Friends of IIHR,

One of the great privileges of my role as director of IIHR—Hydroscience & Engineering is the annual opportunity to share the many achievements of our faculty, staff, and students. In this report, you'll find an inclusive list of our completed student research (masters' theses and PhD dissertations), active sponsored research projects, and faculty, staff, and student publications, conference presentations, service, and awards for the period of July 1, 2008, through June 30, 2009.

This was a year perhaps best described as transitional. After the catastrophic flood of 2008, we found ourselves in many ways "rebooting" ourselves and our institute. It was a time for rethinking our approach and our mission. Although IIHR's mission of education, research, and public service in hydraulic engineering and fluids research has not changed, it has subtly shifted into new and fruitful avenues of study.

Just a couple of examples: in the spring of 2009, we worked with state officials to formally establish the Iowa Flood Center (IFC), which was funded by the Iowa legislature with a \$1.3 million appropriation. Focusing on flood-related research was perhaps a natural outgrowth of the 2008 floods, and I believe it is a constructive response to what was in many ways a devastating natural disaster. We are today home to the nation's only academic center devoted solely to the study of floods.

We also began the planning process for the construction of IIHR's new wave basin facility, which allows researchers in ship hydrodynamics to test captive or radio-controlled model-scale navy ships under a variety of real-life conditions, created by the basin's six wavemakers. IIHR's wave basin is the first to include local flow measurement capabilities, which are critical for the continued development of simulation-based design in ship hydrodynamics. This state-of-the-art facility puts IIHR at the cutting edge of research in this area.

I am deeply proud of the efforts of all our faculty, students, and staff at IIHR. We are continuing to build upon the achievements of those who came before us. As I go about my work in the C. Maxwell Stanley Hydraulics Lab on the banks of the Iowa River, I often reflect upon our 90-year heritage. IIHR's history is inextricably linked with this iconic structure, which for many of us has come to represent the magnificent foundation upon which the IIHR of today is built. I believe IIHR's founders and the many others who came before us would be proud, as I am, of the students and researchers of today who carry on their work.

Sincerely,

Larry J. Weber
Director, IIHR—Hydroscience & Engineering





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ABBREVIATIONS

AEC	Alliant Energy Corporation
BG	Biedenharn Group LLC
BSRC	Bi-State Regional Commission
CCT	Roy J. Carver Charitable Trust
CGRER	UI Center for Global and Regional Environmental Research
COCI	City of Coralville, Iowa
CUAHSI	Consortium of Universities for the Advancement of Hydrologic Science Inc.
DAEC	Duane Arnold Energy Center
DCPUD	Douglas County Public Utility District
DHHS	Department of Health and Human Services
DOE	Department of Energy
DOI	Department of the Interior
EGC	Exelon Generation Company LLC
EPA	Environmental Protection Agency
GCPUD	Grant County Public Utility District
GH	Greeley and Hansen LLC
HCA	Hungry Canyons Alliance
HEHGGN	Hall, Estill, Hardwick, Gable, Golden, & Nelson PC
HEI	Health Effects Institute
HMM	Hatch Mott MacDonald I&E LLC
IDNR	Iowa Department of Natural Resources
IDOT	Iowa Department of Transportation
IEC	International Electrotechnical Commission
IPC	Idaho Power Company
ISU	Iowa State University
KICT	Korea Institute of Construction Technology
KRB	K.R. Broome & Associates
LCSA	Leopold Center for Sustainable Agriculture
LLW	Living Lands & Water
MHI	Mead & Hunt Inc.
MWG	Midwest Generation EME LLC
NASA	National Aeronautics and Space Administration
NEI	Nelson Energy Inc.
NHCRP	National Highway Cooperative Research Program
NIH	National Institutes of Health
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
NSWC	Naval Surface Warfare Center
PIE	Pacific International Engineering PLLC
SCI	Stanley Consultants Inc.
SFWMD	South Florida Water Management District
SHE	Shive Hattery Engineers
SK	Sharon Krause
ST-YSI	SonTek/YSI
TTI	Tetra Tech Inc.
SUNY-B	State University of New York-Buffalo
UC-SB	University of California-Santa Barbara
UH	University of Houston
UNC-CH	University of North Carolina-Chapel Hill
USDA	U.S. Department of Agriculture
USDA-NSSC	U.S. Department of Agriculture-National Soil Survey Center
USDD	U.S. Department of Defense
USDD-A	U.S. Department of Defense, Army
USDD-AERDC	U.S. Department of Defense, Army Engineer Research and Development Center
USDD-AF	U.S. Department of Defense, Air Force
USDD-ONR	U.S. Department of Defense-Office of Naval Research
USDOT	U.S. Department of Transportation
UW-M	University of Wisconsin-Madison

ACTIVE SPONSORED RESEARCH PROJECTS

TITLE	SPONSOR	INVESTIGATOR(S)
Basin-Scale Hydrologic Analysis of the Cedar River Basin and Flood Wave Propagation Study for the 2008 Cedar River Flood Event	AEC	Weber, Krajewski, Young, Mantilla
Comparison of Observed and Simulated High-Discharge Water Surface Elevations	BG	Young
Influence of River Training Structures on Flood Stages in the Upper Mississippi River	BG	Young, Weber
Understanding Iowa's Particulate Matter Episodes	BSRC	Stanier, Carmichael
Integration of National Research Initiatives at the Lucille A. Carver Mississippi Riverside Environmental Research Station	CCT	Weber
Observations on the Movement of Bedload Using Motion-Sensing Radio Transmitters	CGRER	Papanicolaou
Development of Prototype Instrumentation for Ultra-High Resolution Measurement of Land Surface Area	CGRER	Eichinger
Feasibility Assessment of Dredging Coralville Reservoir to Increase Flood Storage Capacity	COCI	Weber, Young
NSF Pass-Through Grant Clear Creek Environmental Hydrologic Observatory	CUAHSI	Just, Kruger, Muste
Bathymetric Survey of Cedar River Near Duane Arnold Energy Center	DAEC	Haug, Odgaard
Wells Dam Total Dissolved Gas Simulations Phase III	DCPUD	Politano
TDG Modeling for the Tailrace of Wells Dam	DCPUD	Politano, Weber
Image and Model-Based Analysis of Lung Disease	DHHS	Lin, Hoffman, McLennan, Van Beek, Ross, De Young, Guo, Sonka, Reinhardt, Christensen, Theden
Coupled Microbial, Geochemical, and Mineralogical Controls on Biogenic Fe Speciation and Reactivity	DOE	Scherer
Immobilization of Radionuclides Through Anaerobic Bio-Oxidation of Fe(II)	DOE	Scherer
Great Lakes-Northern Forests Cooperative Ecosystem Studies Unit	DOI	Hornbuckle
Maintenance of Data Acquisition System—University of Iowa Thermal Models at Braidwood, Dresden, LaSalle, and the Quad Cities Stations	EGC	Wilson
Design and Testing of a Point-of-Use Electrolytic Chlorine Generator for Drinking Water Disinfection in Poor Countries	EPA	Just
Exploring Methods and Partnerships for Packaging and Regional Distribution of Inexpensive Handheld Bleach Generator Kits	EPA	Just
Applying Data Assimilation and Adjoint Sensitivity to Epidemiological and Policy Studies of Airborne Particulate Matter	EPA	Stanier, Carmichael, Kumar, Field, Oleson
Fish Passage Concepts for Wanapum Forebay General Model for Grant County PUD	GCPUD	Constantinescu, Weber,



**ACTIVE SPONSORED
RESEARCH PROJECTS, CONT.**

TITLE	SPONSOR	INVESTIGATOR(S)
Task Order No 3: Hydraulic Physical Model Studies for Drop Structures (District of Columbia Water and Sewer Authority: Anacostia River Project CSO Facility Plan)	GH	Lyons, Odgaard
Task Order No 2: Hydraulic Physical Model Studies for Drop Structures (District of Columbia Water and Sewer Authority: Anacostia River Project CSO Facility Plan)	GH	Lyons
Hydraulic Modeling: Hydraulic Physical Model Studies for Drop Structures (District of Columbia Water and Sewer Authority: Anacostia River Project CSO Facility Plan)	GH	Lyons, Odgaard
Development of Stage-Discharge Relations for Ungauged Bridge Waterways in Western Iowa	HCA/IDOT	Papanicolaou
Providing Engineering Services to Plaintiffs Regarding Grand River Dam Authority	HEHGGN	Young
Development and Application of a Personal Exposure Screening Model for Size-Resolved Urban Aerosols	HEI	Stanier
Tunnel System Drop Structure Hydraulics Physical Model for Drop Structures	HMM	Odgaard
Monitoring Subsurface Water Quality via the Use of Infiltrometer Sensor Technology	IDNR	Muste, Papanicolaou
Bathymetric Mapping for Polk County, Des Moines River Bridge	IDOT	Schnoebelen, Young
The Effects of Headcut and Knickpoint Propagation on Bridges in Iowa	IDOT	Papanicolaou
Extension of Project Development of Stage-Discharge Relations for Ungauged Bridge Waterways	IDOT	Papanicolaou, C. Wilson, Elhakeem
Development of Stage-Discharge Relations for Ungauged Bridge Waterways in Western Iowa	IDOT	Papanicolaou
Quantitative Mapping of Waterway Characteristics at Bridge Sites	IDOT	Muste, Nakato, Haug
Autonomous Measurements of Bridge Pier and Abutment Scour Using Motion-Sensing Radio Transmitters	IDOT	Papanicolaou
Insights into the Origin and Characteristics of the Sedimentation Process at Multi-Barrel Culverts in Iowa	IDOT	Muste
Focusing Engineering Students on Practical Design and Alternative Energy with Electric-Assisted Bicycles and “Solarized” Bicycle Designs	IEC	Just
Hydrodynamic and Dispersion Modeling—Middle Snake River	IPC	Weber
Hells Canyon 3-D Model, Phase I and II	IPC	Politano
A Prototype Remote-Sensing Validation Site: Toward a Multi-Variable Approach to Validating and Scaling Remotely-Sensed Observations of the Water Cycle	ISU	Krajewski, Kruger
Development of Acoustic Doppler Current Profilers Processing Software	ISU	Muste





TITLE	SPONSOR	INVESTIGATOR(S)
Assessment of the Performance of Flow Measurement Instruments and Techniques (Second Year)	KICT	Muste
CFD Analysis of an Undershot Impulse-Jet Waterwheel	KRB	Weber, Garvin
Impacts to the Land-Water-Human System of Rural Iowa from High-Intensity Continuous Maize Production	LCSA	Papanicolaou
New Boston Bay Area of the Mississippi River Near New Boston, Ill.	LLW	Schnoebelen, Weber
Numerical Model Study of Alliant Energy's Prairie du Sac Hydroelectric Project: Phase 2 and Field Survey to Collect Bathymetry and Velocity Data	MHI	Weber, Politano
Thermal Model Data Acquisition System Service and Maintenance for Joliet Station	MWG	Bradley, M. Wilson
Maintenance of Data Acquisition System for Joliet Station	MWG	Wilson
Propagation of Uncertainty in Rainfall Estimates from Remote Sensors in Spatio-Temporal Hydrologic Models	NASA	Krajewski
New Paradigm for Statistical Validation of Satellite Precipitation Estimates for Hydrologic Applications	NASA	Ciach, Krajewski, Kruger
Iowa Space Grant Consortium	NASA	Stanier
Aquatic Resource Study for the Red Rock Hydroelectric Project	NEI	Weber
Prediction of Scour at Bridge Abutments	NHCRP	Ettema, Muste
Fluid-Structure Simulation for Prosthetic Heart Valves	NIH	Chandran, Udaykumar, Lu
MSM Simulation of Gas Flow Distribution in Human Lung	NIH	Lin
Semi-Volatile PCBs: Sources, Exposures, Toxicities (Analytical Core)	NIH	Hornbuckle
Semi-Volatile PCBs: Sources, Exposures, Toxicities (Community Engagement Core)	NIH	Just
Semi-Volatile PCBs: Sources, Exposures, Toxicities (Project 4)	NIH	Hornbuckle
Semi-Volatile PCBs: Sources, Exposures, Toxicities (Project 5)	NIH	Schnoor
Large-Scale Computing and Visualization for Cardiopulmonary Imaging	NIH	Lin, Hoffman
Sampling Support and Data Analysis of NOAA Tall Tower and Aircraft Measurements in Iowa	NOAA	Stanier
Collaborative Research: Refinement of Techniques for Estimating Evapotranspiration from Narrow Riparian Zones—Water Balance and Atmospheric Measurements	NSF	Eichinger, Kruger
Collaborative Research: Data Assimilation of Dual Doppler LiDAR Observations of the Urban Boundary Layer	NSF	Lin
SEI (EAR) Collaborative Research: Adaptive Fusion of Stochastic Information for Imaging Fractured Vadose Zones	NSF	Illman, Kruger
ITR: Collaborative Research: (ASE+ECS)-(dmc+sim): A Comprehensive Framework for Use of NEXRAD Data in Hydrometeorology and Hydrology	NSF	Bradley, Krajewski, Kruger





**ACTIVE SPONSORED
RESEARCH PROJECTS, CONT.**

TITLE	SPONSOR	INVESTIGATOR(S)
NIRT: Nanoparticle Fe as a Reactive Constituent in Air, Water, and Soil	NSF	Scherer, Grassian
Elastic LiDAR Measurements in MIRAGE-Mex	NSF	Eichinger
Clear Creek Environmental Hydrologic Observatory: From Vision Toward Reality	NSF	Just, Kruger, Muste
Waters and Environmental Research Systems Network (WATers)	NSF	Schnoor
MRI: Acquisition of Mobile Facility for Providing High-Resolution Input to Hydrologic Observatories	NSF	Krajewski, Kruger
U.S.-Egypt Workshop: Broadening the Role of Cyberinfrastructure in Water Resources Management: Coping with the Challenges of Large River Basins, Cairo, December 2008	NSF	Muste, Elhakeem
SGER: Transport of Sediments and Pollutants into the Terrestrial Regions of a Small Urban-Industrial City: The June 2008 Flood of Cedar Rapids, Iowa	NSF	Hornbuckle, Papanicolaou
SGER: Theoretical Design of a Flood Warning System for Eastern Iowa	NSF	Krajewski, Mantilla
Collaborative Research: SGER: Contribution of the 2008 Midwestern Flood to Gulf Hypoxia	NSF	Schnoor, Just
CAREER: Strengthening the Predictive Ability for New Particle Formation: A Combined Field, Data Analysis, and Modeling Approach	NSF	Stanier
CDI-Type II: Understanding Water-Human Dynamics with Intelligent Digital Watersheds	NSF	Schnoor, Muste, Kusiak, Bennett
SGER: Evaluation of the Rating Curve Hysteresis Due to Unsteady Channel Flows Using Non-Intrusive Measurements Acquired during the Iowa 2008 Flood	NSF	Muste
SGER: The Impact of Extreme Flooding on Mussel and Microbial Nutrient Dynamics at the Water-Sediment Interface	NSF	Just, Young, Parkin, T. Newton
SGER: Anatomy of the 2008 Iowa Flood: Exploring the Interplay Between Successive Storms and Basin Drainage Topology	NSF	Krajewski, Mantilla
Collaborative Research: Forecast Generation and Dissemination for the Record-Setting 2009 Red River Flood	NSF	Bradley
Enhancing Hydro-NEXRAD: Community Resource for Use of Radar-Rainfall Data	NSF	Krajewski, Kruger
Development of a Streamlined Version of CFDShip-Iowa	NSWC	Stern
High-Speed Catamaran Hull Optimization	PIE	Carrica, Stern
SGI Altix 450 HPC Cluster for High-Speed Catamaran Hull Optimization	PIE	Stern, Carrica
Gene Parkin and Stanley Consultants Project	SCI	Parkin
CFD Modeling for the Flow at S65E Spillway and Surroundings at the Kissimmee River	SFWMD	Constantinescu, Weber
Application of Large-Scale Particle Image Velocimetry at District Sites	SFWMD	Muste





TITLE	SPONSOR	INVESTIGATOR(S)
RSM Water-Quality Module Peer Review and Suggestion of Future Work	SFWMD	Constantinescu
Scour Study of Bridge Piers at the IMU Footbridge	SHE	Young
Scour Study of Bridge Piers at the Hancher Footbridge	SHE	Young
Scour Study of Bridge Piers at the IMU and Hancher Footbridges	SHE	Young
Design Procedures and Numerical Modeling of a Combination of Submerged Barbs, Riprap Lining, and "Iowa Vanes" Used for Streambank Protection of the Raccoon River, Iowa, Near the Krause Family Property	SK	Papanicolaou, Elhakeem
Consulting Services for YSI	ST-YSI	Kim
Computational Fluid Dynamics Modeling to Predict Hydrodynamics and TDG in the Tailrace of Little Goose Dam; Task Order No. #00	TTI	Weber, Politano
Computational Fluid Dynamics Construction to Evaluate Total Dissolved Gas Within the Tailrace at McNary Dam	TTI	Weber
Molecular Biological Analyses of RDX-Contaminated Offsite Groundwater	TTI	Mattes
Design, Fabrication, and Installation of a Towing Tank Basin for the University at Buffalo	SUNY-B	Haug
Phase II WATERS Network Project Office	UC-SB	Schnoor
Design Tilting Flume for the University of Houston	UH	Haug
Design, Fabrication, and Installation of a Modular Wave Basin for the University of North Carolina	UNC-CH	Haug
A New Approach to Emissions from Animal Husbandry Facilities	USDA	Eichinger
Determination of Sediment Sources in ARS CEAP Benchmark Watersheds	USDA	Papanicolaou
Hydropedological Investigations and Training on a Benchmark Catena: Performance of Semi-Automated Measurements of KSAT via Different Sensors and Under Different Hydrologic and Land Management Conditions	USDA-NSSC	Papanicolaou
Field and Laboratory Investigation of Infiltration on Different Geomorphic Surfaces in a Watershed and Under Different Land Uses	USDA-NSSC	Papanicolaou
Computational Fluid Dynamics Modeling to Support Development of Surface Passage Alternatives at McNary Dam	USDD-A	Weber, Politano
Flow Measurement Expert for the Sixth Technical Committee for Review of Diversion Flow Measurements and Accounting Procedures	USDD-A	Muste
Support for the UMRS Navigation and Ecosystem Sustainability Program	USDD-A	Weber
Design of Fish Research Flume for the Engineering Research and Design Center	USDD-AERDC	Weber
Development of Efficient Sharp Interface Fixed Grid Techniques for 3-D Multimaterial Interaction Problems	USDD-AF	Udaykumar
High-Accuracy, Efficient Eulerian Methodology for 3-D High-Speed Material Response	USDD-AF	Udaykumar



**ACTIVE SPONSORED
RESEARCH PROJECTS, CONT.**

TITLE	SPONSOR	INVESTIGATOR(S)
Multiscale Modeling and Simulation of Compressible Multimaterial Flow	USDD-AF	Udaykumar
Rainfield Characterization Study	USDD-AF	Kruger
6DOF Viscous Ship Hydrodynamics	USDD-ONR	Stern, Carrica, Longo, Yang, Xing, R. Wilson
High-Performance, Multi-Criteria, CFD-Based Optimization for Ship Design	USDD-ONR	Stern
Wind Towing Tank Experiment for Validation of Two-Phase CFD Codes	USDD-ONR	Stern, Longo
Integration of Structural Loads Capabilities into CFDShip-Iowa	USDD-ONR	Carrica
URANS/DES Code Development for Ship Hydrodynamics Simulation-Based Design: CFDShip-IOWA	USDD-ONR	Stern, Carrica, Xing, Longo, Yang
Local Flow Measurement System and Experiments for CFD Validation for Free Model Tests with Waves	USDD-ONR	Stern, Longo
Wavemakers for IIHR Wave Basin for Free Model Trajectories and Capsize Tests for CFD Validation Including Local Flow Measurements	USDD-ONR	Stern, Longo
High-Performance Computing, CFD-Based Variable-Physics Global Optimization for High-Speed Waterjet Ship Design	USDD-ONR	Stern, Kandasamy
Two-Phase URANS/DES Simulations of Large-Scale/RE Air Layer Drag Reduction	USDD-ONR	Stern, Wang, Xing
Multiphase Flow Tools for Marine Applications	USDD-ONR	Carrica
Measurement of Air Void Fraction, Bubble Velocity, and Size on the Hull of R/V Athena	USDD-ONR	Carrica
CFD and Systems-Based Methods for Capsize Prediction	USDD-ONR	Stern
Validation of HPC/CFD-Based Variable-Physics Global Optimization for Waterjet-Propelled High-Speed Delft-Monohull	USDD-ONR	Stern, Kandasamy
Evaluation of Bridge Scour Research: Pier Scour Processes and Predictions	USDOT	Constantinescu, Ettema, Muste
A High-Gradient Sediment Recirculating Flume Design, Fabrication, and Installation	UW-M	Haug

JOURNAL ARTICLES

Basu, N.B., Fure, A.D., and Jawitz, J.W., "Predicting Dense Nonaqueous Phase Liquid Dissolution Using a Simplified Source Depletion Model Parameterized with Partitioning Tracers," *Water Resources Research*, 44, W07414, doi:10.1029/2007WR006008, July 25, 2008.

Basu, N.B., Rao, P.S.C., Poyer, I.C., Nandy, S., Mallavarapu, M., Naidu, R., Patterson, B.M., Davis, G.B., Annable, M.D., and Hatfield, K., "Integration of Traditional and Innovative Characterization Techniques for Flux-Based Assessment at a TCE-Contaminated Site in Australia," *Journal of Contaminant Hydrology*, 105, pp. 161–172, April 1, 2009.

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Chen, B. and Schnoor, J.L., "Role of Suberin, Suberan, and Hemicellulose in Phenanthrene Sorption by Root Tissue Fractions of Switchgrass (*Panicum virgatum*) Seedlings," *Environmental Science and Technology*, 43, 11, pp. 4130–4136, June 1, 2009 (Reprint 2281).

Dusanter, S., Vimal, D., Stevens, P.S., Volkamer, R., Molina, L.T., Baker, A., Meinardi, S., Blake, D.R., Sheehy, P., Merten, A., Zhang, R., Zheng, J., Fortner, E.C., Junkermann, W., Dubey, M.K., Rahn, T., **Eichinger, W.E.**, **Lewandowski, P.A.**, Prueger, J., and Holder, H., "Measurements of OH and HO₂ Concentrations during the MCMA-2005 Field Campaign – Part 2: Model Comparison and Radical Budget," *Atmospheric Chemistry and Physics Discussions*, 9, 2, pp. 9823–9877, April 17, 2009 (Reprint 2279).

Ettema, R., **Kirkil, G.**, and Daly, S.F., "Frazil Ice Concerns for Channels, Pump-Lines, Penstocks, Siphons, and Tunnels in Mountainous Regions," *Cold Regions Science and Technology*, 55, 2, pp. 202–211, February 2009 (Reprint 2259).

Ferrari, G.E., **Politano, M.S.**, and **Weber, L.J.**, "A Multiphase Model of Free Surface Flows on a Fish Bypass," *Computers and Fluids*, 38, 5, pp. 997–1002, May 2009 (Reprint 2244).

Fox, J.F. and **Papanicolaou, A.N.**, "Application of the Spatial Distribution of Nitrogen Stable Isotopes for Sediment Tracing at the Watershed Scale," *Journal of Hydrology*, 358, 1–2, pp. 46–55, Aug. 30, 2008 (Reprint 2168).

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Kim, Y., **Muste, M.**, Hauet, A., **Krajewski, W.F.**, **Kruger, A.**, and **Bradley, A.A.**, "Stream Discharge using Mobile Large-Scale Particle Image Velocimetry: A Proof of Concept," *AGU Water Resources Research*, 44, W09502/1–6, Sept. 20, 2008 (Reprint 2198).

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Ciach, G.J. and **Krajewski, W.F.**, "Validation of Satellite Remote-Sensing Precipitation: A Hydrologic Perspective," EGU General Assembly 2009, *Geophysical Research Abstracts*, Vol. 11, EGU2009-13919, Vienna, Austria, April 19–24, 2009 (Abstract).

Cunha, L.K., **Mantilla, R.**, and **Krajewski, W.F.**, "Effect of Space-Time Rainfall Resolution on the Prediction of Floods—A Simulation Case Study," AGU Fall Meeting 2008, Abstract #H13D-0958, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Cura Hochbaum, A., **Stern, F.**, Agdrup, K., Broglia, R., Perdon, P., Kim, S-Y., Quadvlieg, F., Yasukawa, H., and Zou, Z-J., "Forces and Moment Uncertainty Analysis Example for PMM Test," 25th ITTC, *ITTC Quality Manual*, 7.5-02-06-04, Fukuoka, Japan, Sept. 14–20, 2008.

Cura Hochbaum, A., **Stern, F.**, Agdrup, K., Broglia, R., Perdon, P., Kim, S-Y., Quadvlieg, F., Yasukawa, H., and Zou, Z-J., "Maneuvering Committee Report," Proceedings 25th ITTC, Fukuoka, Japan, Sept. 14–20, 2008.

Davies, J.L., **Niemeier, J.J.**, **Kruger, A.**, **Mantilla, R.G.**, and **Ceynar, D.L.**, "Drifters for New Measurements Along River Networks," *Eos Transactions, AGU* 89(53), Fall Meeting Supplement, Abstract H51H-0969, Dec. 15–19, 2008 (Poster).

Dermisis, D. and **Papanicolaou, A.N.**, "River Morphology Investigating the Role of the Clasts in the Deposition of Sediment Over and Within Gravel Beds," International Conference on Fluvial Hydraulics, River Flow 2008, Izmir, Turkey, Sept. 3–5, 2008.

Domaszczyński, P. and **Krajewski, W.F.**, "Polarimetric X-Band Radar Network Simulator to Analyze Attenuation Correction Algorithms," AGU Fall Meeting 2008, Abstract #H23E-1029, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Frasson, R. and **Krajewski, W.F.**, "Constructing a 3-D Model of Corn to be Used in Hydrological Studies," AGU Fall Meeting 2008, Abstract #B43A-0416, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Gonzalez-Juez, E., Meiburg, E., and **Constantinescu, S.G.**, "Three-Dimensional Dynamics of a Gravity Current Flow Past a Submerged Cylinder," 61st Meeting of the American Physical Society, Division of Fluid Dynamics, Minneapolis, Minn., November 2008 (Abstract).

Hu, D., **Martinez, A.**, Kumar, N., Wang, K., and **Hornbuckle, K.C.**, "Measurement of Atmospheric PCBs in the Urban and Industrial Complex of Chicago," Society of Environmental Toxicology and Chemistry, Tampa Bay, Fla., Nov. 16–20, 2008 (Poster).

**PAPERS PRESENTED AT CONFERENCES —
NO PROCEEDINGS (CONT.)**

Hunt, K.P., Kruger, A., and Cunha, L.K., "An Investigation of Effects of Vegetation on Radio Signal Propagation through a Cornfield," *Eos Transactions AGU* 89, 53, Fall Meeting Supplement, Abstract H11A-0714, Dec. 15–19, 2008 (Poster).

Jin, Y.O., Coleman, N.V., and **Mattes, T.E.,** "Investigating Vinyl Chloride Adaptation Mechanisms in Mycobacterium sp. strain JS623," 109th General Meeting of the American Society for Microbiology, Philadelphia, Pa., May 17–21, 2009.

Krajewski, W., Kruger, A., and Domaszczynski, P., "Network of Polarimetric X-Band Radars: A New Paradigm for Monitoring Rainfall for Hydrologic Research," EGU General Assembly 2009, *Geophysical Research Abstracts*, Vol. 11, EGU2009-10255, Vienna, Austria, April 19–24, 2009 (Abstract).

Krajewski, W.F., Mandapaka, P.V., and Mantilla, R., "Spatial Downscaling of Rainfall: Does it Matter for Flood Forecasting?" AGU Fall Meeting 2008, Abstract #NG42B-01, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Krajewski, W.F. and Mantilla, R., "Exploring the Interplay Between Successive Storms and Basin Drainage Topology During the 2008 Extreme Flooding Conditions in Eastern Iowa," AGU Fall Meeting 2008, Abstract #H13D-0966, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Krajewski, W.F. and Seo, B.C., "Scale Dependence of Radar-Rainfall Uncertainty Based on the New Super-Resolution Data of NEXRAD," EGU General Assembly, *Geophysical Research Abstracts*, Vol. 11, EGU2009-10878, Vienna, Austria, April 19–24, 2009 (Abstract).

Kruger, A., Daniels, J.J., Yeh, T.J., Zhu, J., Niemeier, J.J., Mansheim, T.J., Hart, T.R., Shaelek, K.S., Illman, W.A., and Craig, A.J., "Remote-Controlled Electrical Resistivity Tomography and Concurrent Ground-Penetrating Radar Laboratory," *Eos Transactions, AGU*, 89, 53, Fall Meeting Supplement, Abstract H51G-0921, Dec. 15–19, 2008 (Poster).

Kruger, A., Krajewski, W.F., Goska, R., Domaszczynski, P., Gunyon, C., Smith, J.A., and Baeck, M.L., "Hydro-NEXRAD Radar Database: A Community Resource for Rainfall Studies," EGU General Assembly, EGU2009-13923, Vienna, Austria, April 19–24, 2009 (Abstract).

Kumar, H., Lin, C.-L., Tawhai, M.H., and Hoffman, E.A. "Computations of Transport and Mixing Honeycomb-Like Models of the Human Acinus—a Multistage Approach," International Summit on the Future of Quantitative and Functional Lung Imaging, Iowa City, Iowa, Oct. 2–4, 2008.

Lewandowski, P.A., Eichinger, W.E., and Holder, H.L., "LiDAR Measurements during Cloud Land Surface Interaction Campaign (CLASIC 2007)," AGU Fall Meeting 2008, Abstract #A41A-0083, Dec. 15–19, 2008.

Liang, Y., Chuang A.S., and Mattes, T.E., "Potential for Polychlorinated Biphenyl Biodegradation in Contaminated Sediments from Indiana Harbor, Ind.," 109th General Meeting, American Society for Microbiology, Philadelphia, Pa., May 17–21, 2009.

Lin, C-L., "Air Flow Simulation in CT-Based Lung Models," First Symposium on Natural and Artificial Respiration, Keynote Lecture, Aachen, Germany, July 17–18, 2008.

Mandapaka, P., Krajewski, W.F., and Mantilla, R., "Effects of Radar-Rainfall Uncertainties on Statistical Structure of Floods," EGU General Assembly, *Geophysical Research Abstracts*, Vol. 11, EGU2009-10964, Vienna, Austria, April 19–24, 2009 (Abstract).

Mandapaka, P.V., Krajewski, W.F., Mantilla, R., and Gupta, V.K., "Simulation-Based Investigation of the Effects of Radar-Rainfall Uncertainties on Scaling of Floods in the Whitewater Basin, Kansas," AGU Spring Meeting 2008, Abstract #H43C-06, Toronto, Canada, May 24–27, 2009 (Abstract).

Mandapaka, P., Mantilla, R., and Krajewski, W.F., "Exploring the Feasibility of Recovering Statistical Properties of Runoff from the Scaling Statistics of Peak Flows," EGU General Assembly, *Geophysical Research Abstracts*, Vol. 11, EGU2009-11806, Vienna, Austria, April 19–24, 2009 (Abstract).

Mansheim, T.J., Niemeier, J.J., and Kruger, A., "A Robust Microwave Rain Gauge," *Eos Transactions, AGU*, 89, 53, Fall Meeting Supplement, Abstract H51H-0964, Dec. 15–19, 2008 (Poster).

Mantilla, R., Gupta, V.K., Troutman, B.M., and Krajewski, W., "Self-Similarity in Channel Network Topology as a Necessary Condition for the Existence of Power Laws in Flood Magnitudes," AGU Fall Meeting 2008, Abstract #H31G-0975, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).



Mantilla, R., Krajewski, W.F., Goska, R., Seo, B., and Cunha, L., "June 2008 Extreme Flooding in Eastern Iowa: Precipitation Analyses," EGU General Assembly 2009, EGU2009-13920, Vienna, Austria, April 19–24, 2009 (Abstract).

Martinez, A. and Hornbuckle, K.C., "PCB Fluxes from Sediment/Water and Water/Air in Indiana Harbor and Ship Canal," Society of Environmental Toxicology and Chemistry, Tampa Bay, Fla., Nov. 16–20, 2008 (Poster).

Martinez, A., Norström, K., Wang, K., and Hornbuckle, K.C., "Polychlorinated Biphenyls in the Surficial Sediment of Indiana Harbor and Ship Canal, Lake Michigan," Society of Environmental Toxicology and Chemistry, Tampa Bay, Fla., Nov. 16–20, 2008 (Poster).

Mattes, T.E. and Chuang, A.S., "Proteomic Analysis of Vinyl Chloride Biodegradation in Pure Microbial Cultures and Environmental Samples," Fifth Society of Environmental Toxicology and Chemistry World Congress, Sydney, Australia, August 3–7, 2008.

Muste, M., Arnold, N., and Kim, D., "Implementation of CUAHSI-HIS Community Project Components in a Local Observatory," AGU Fall Meeting 2008, Abstract #IN31B-1134, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Niemeier, J.J., Davies, J.L., and Kruger, A., "Subsurface Wireless Sensor Networks," *Eos Transactions, AGU*, 89, 53, Fall Meeting Supplement, Abstract H51H-0976, 2008, Dec. 15–19, 2008 (Poster).

Ntekos, A.A., Smith, J.A., Krajewski, W.F., and Foote, M., "The Potential for Hail and Intense Rainfall Enhancement Over Urban Areas: Improving Urban Extreme Weather Risk Assessment," EGU General Assembly 2009, *Geophysical Research Abstracts*, Vol. 11, EGU2009-5467, Vienna, Austria, April 19–24, 2009 (Abstract).

O'Loughlin, E.J., Gorski, C.A., Cook, R.E., Latta, D.E., Kemner, K.M., and Scherer, M.M., "Fe(II)-Bearing Secondary Mineral Formation Following the Bioreduction of Synthetic and Natural Fe(III) Oxides and Oxyhydroxides," 236th American Chemical Society National Meeting, Philadelphia, Pa., August 17–21, 2008.

Paik, K., Choi, H., Maki, K., Vlahopoulos, N., Carrica, P.M., and Troesch, A., "CFD-Based Method for Structural Loads on Surface Ships," 27th Symposium on Naval Hydrodynamics, Seoul, South Korea, Oct. 5–10, 2008.

Papanicolaou, A.N., "Sediment Transport Mechanics: The Role of Water Content and Sediment Properties on Cohesive Sediment Strength," International Conference on Fluvial Hydraulics, River Flow 2008, Izmir, Turkey, Sept. 3–5, 2008.

Persoon, C., Kumar, N., Peters, T., and Hornbuckle, K.C., "PCB Concentrations and Distributions Between Chicago, Ill., and Cleveland, Ohio," Presentation at the annual meeting of the Society of Environmental Toxicology and Chemistry, Tampa Bay, Fla., Nov. 16–20, 2008.

Pettibone, A.J., Eichinger, W.E., Schoenfelder, J., and Stanier, C., "Relating Ground-Based Aerosol Size Distributions and Vertical Mixing: Mexico City and Other Case Studies," AGU Fall Meeting 2008, Abstract #A13C-0269, Dec. 15–19, 2008.

Rao, P.C., Basu, N.B., Zanardo, S., Botter, G., and Rinaldo, A., "Nutrient Cycling in Streams: Hydrologic and Biogeochemical Controls on Intra-Annual Temporal Fluctuations," AGU Spring Meeting, Abstract #H31D-04, Toronto, Canada, May 24–27, 2009 (Invited).

Seo, B. and Krajewski, W.F., "Early Evaluation of NEXRAD Super-Resolution Precipitation Estimates for Hydrologic Applications," AGU Fall Meeting 2008, Abstract #H23E-1020, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Seo, B. and Krajewski, W.F., "Investigating Rainfall Concurrence Based on Radar Measurements for the Eastern Iowa Flood of 2008," AGU Spring Meeting 2009, Abstract #H11A-01, Toronto, Canada, May 24–27, 2009 (Abstract).

Serinaldi, F., Villarini, G., Smith, J.A., and Krajewski, W.F., "Change-Point and Trend Analysis on Annual Maximum Discharge in Continental United States," AGU Fall Meeting, #H21A-0803, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Tawhai, M.H., Lin, C.-L., and Hoffman, E.A., "Studying Structure-Function Relationships in the Lung Using Subject-Specific Computational Models of Ventilation and Tissue Mechanics," International Summit on the Future of Quantitative and Functional Lung Imaging, Iowa City, Iowa, Oct. 2–4, 2008.

Vigmostad, S.C., Udaykumar, H.S., and Chandran, K.B., "A Fluid-Structure Interaction Model for Bioprosthetic Heart Valves," 16th International Conference on Mechanics in Medicine and Biology, Pittsburgh, Pa., July 23–25, 2008.



**PAPERS PRESENTED AT CONFERENCES —
NO PROCEEDINGS (CONT.)**

Villarini, G., Smith, J.A., Baeck, M.L., Sturdevant-Rees, P., and **Krajewski, W.F.**, "Radar Analyses of Space-Time Variability of Extreme Flood-Producing Rainfall in Urban Drainage Basins," EGU General Assembly 2009, *Geophysical Research Abstracts*, Vol. 11, EGU2009-5679, Vienna, Austria, April 19–24, 2009 (Abstract).

Villarini, G., Smith, J.A., Baeck, M., Sturdevant Rees, P.L., and **Krajewski, W.F.**, "Radar Analyses of Space-Time Variability of Rainfall for Extreme Flood-Producing Storms in an Urban Environment," AGU Fall Meeting 2008, Abstract #H23E-1013, San Francisco, Calif., Dec. 15–19, 2008 (Abstract).

Villarini, G., Smith, J.A., **Serinaldi, F.**, and **Krajewski, W.F.**, "Extreme Floods in the Continental U.S.: Analyses of Long Streamflow Records," EGU General Assembly 2009, *Geophysical Research Abstracts*, Vol. 11, EGU2009-5775, Vienna, Austria, April 19–24, 2009 (Abstract).

Xia, G., Tawhai, M.H., Hoffman, E.A., and **Lin, C.-L.**, "3D Numerical Simulation of Respiratory Flow and Fluid Structure Interaction in a CT-Based Human Lung Airway Bifurcation," International Summit on the Future of Quantitative and Functional Lung Imaging, Iowa City, Iowa, Oct. 2–4, 2008.

Yin, Y., **Lin, C.-L.**, and Hoffman, E.A., "Surface Smoothing of Respiratory Airways using Moving Least Squares," International Summit on the Future of Quantitative and Functional Lung Imaging, Iowa City, Iowa, Oct. 2–4, 2008.

OTHER PRESENTATIONS

Illman, W.A., Lorenzetti, K., Berg, S.J., Alexander, M., Jim Yeh, T.-C., Zhu, J., and **Craig, A.**, "DNAPL Source Zone Characterization by the Fusion of Hydraulic and Tracer Tomography Tests," SERDP & ESTCP—Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., Dec. 2–4, 2008 (poster).

Lin, C.-L., "Multiscale Simulation of Gas Flow in Subject-Specific Models of the Human Lung," University of Iowa Electrical and Computer Engineering Graduate Seminar, May 7, 2009.

Lin, C.-L., "Airflow and Particle Deposition in the CT-based Lung Models," ICTS Pilot Grant Meeting, University of Iowa, April 7, 2009.

Mattes, T.E., "Genomic and Proteomic Investigations of the Vinyl Chloride Biodegradation Pathway and its Evolution in Microorganisms," School of Molecular & Microbial Biosciences, University of Sydney, Australia, August 7, 2008.

Mutel, C., Keynote presentations on Midwestern landscape alteration and ecological restoration, based on her book *The Emerald Horizon* (2008), at annual meetings of: 1000 Friends of Iowa (10/08); State Historical Preservation Society (9/08); Integrated Roadside Vegetation Management (9/08); Loess Hills Day (9/08); Iowa Environmental Council (10/08); and Iowa Conservation Education Council (1/09), as well as four dozen additional talks across Iowa on related subjects.

Papanicolaou, T., Instructor for Master Class, Rehabilitation of Rivers, 2008 River Flow Conference, Sept. 3–5, 2008 (invited).

Scherer, M., "Stable Isotope Investigation of Fe Redox Cycling," University of Illinois Department of Civil and Environmental Engineering, April 30, 2009.

Scherer, M., "Still Oxides Run Deep: Results from an Fe Isotope Tracer Experiment," Institute of Biogeochemistry and Pollutant Dynamics at ETH, Zurich, Switzerland, Oct., 24, 2008; and Notre Dame, Department of Civil Engineering and Geological Sciences, Oct. 30, 2008.

Scherer, M., "Atom Exchange Between Aqueous Fe(II) and Goethite: An Isotope Tracer Experiment," Washington University, Department of Energy, Environmental, and Chemical Engineering, Oct. 10, 2008.

TECHNICAL REPORTS

Bradley, A.A., Wehmeyer, L.L., and Chen, L.-C., "Evaluation of Design Flood Frequency Methods for Iowa Streams," Iowa Highway Research Board Report, IHRB Project TR-533, IIHR Technical Report No. 473, June 1, 2009.

Eichinger, W.E., Cooper, D.I., Prueger, J.H., Bowser, S., **Lewandowski, P.**, and Hipps, L.E., "Open Water/Wet Soil Evaporation from the Rio Grande River," IIHR Technical Report No. 467, November 2008.

Gonzalez-Juez, E., Meiburg, E., and **Constantinescu, G.**, "Gravity Currents Impinging on Bottom-Mounted Square Cylinders: Flow Fields and Associated Forces," *Journal of Fluid Mechanics* (2009), Vol. 631, pp. 65–102, IIHR Technical Report 467, Feb. 9, 2009.

Nixon, W.A., "Field Testing of Abrasive Delivery Systems in Winter Maintenance: Final Report of Project TR 458," IIHR Technical Report No. 471, May 2009.

Nixon, W.A. and **Xiong, J.**, "Investigation of Materials for the Reduction and Prevention of Corrosion on Highway Maintenance Equipment: Final Report of Project TR 472," IIHR Technical Report No. 472, May 2009.

Qiu, L. and **Nixon, W.A.**, "Performance Measurement for Highway Winter Maintenance Operations: Final Report of Project TR 491," IIHR Technical Report No. 474, June 2009.

Xing, T. and **Stern, F.**, "Factors of Safety for Richardson Extrapolation for Industrial Applications," IIHR Technical Report No. 469, March 2009.

LIMITED DISTRIBUTION REPORTS

Craig, A.J., Lyons, T.C., and Odgaard, A.J., "Hydraulic Model Studies for Associated Electric Cooperative Incorporated's Thomas Hill Power Plant Pump Stations," IIHR Limited Distribution Report No. 359, The University of Iowa, Iowa City, Iowa, May 2009.

Haug, P.E. and **Odgaard, A.J.**, "Bathymetric and Topographic Survey near Duane Arnold Energy Center," August 2008 Survey, IIHR Limited Distribution Report No. 357, The University of Iowa, Iowa City, Iowa, November 2008.

BOOKS

Odgaard, A.J., *River Training and Sediment Management with Submerged Vanes*, ASCE Press, Washington, D.C., April 2009.

OTHER PUBLICATIONS

Bradley, A. A. and **Mutel, C. F.**, "2008 Iowa Floods," *Soil and Water*, Iowa State University Extension, pp. 5–6, Ames, Iowa.

Constantinescu, S.G., Book review: "Computational River Dynamics, by Weiming Wu," *IAHR Journal Hydraulic Research*, Vol. 46, 6, 854–855, Nov. 6, 2008.

Dzombak, D., Cheng, H., Craig, R., Doering, O., Luneberg, W., Mehan, G.T., Park, J., Rabalais, N., **Schnoor, J.L.**, Soballe, D., Thackston, E., Trimble, S., and Vicory, A., "Mississippi River Water Quality and the Clean Water Act," National Research Council Report, 2008, 239 pp., 2008.

Florman, J.C., **Just, C.**, Naka T., Peterson, J., and Seaba, H.H., "Bridging the Distance: Service Learning in International Perspective," *New Directions for Teaching and Learning*, 118, pp. 71–84, June 2009 (Reprint 2272).

Odgaard, A.J. and Abad, J.D., "River Meandering and Channel Stability," *Sedimentation Engineering, ASCE Manuals and Reports on Engineering Practice No. 110*, Chapter 8, pp. 439–458, 2008 (Reprint 2182).

Schnoor, J.L. (chair), Doering, O., Entekhabi, D., Hiler, E., Hullar, T., and Tilman, G.D., "Water Implications of Biofuels Production in the United States," National Research Council Report, 76 pp., 2008.



PHD DISSERTATIONS ACCEPTED

Abraham, David, "A New Method for the Measurement of Bedload Transport Using Time Sequenced Bathymetric Data," Advisor: A. Jacob Odgaard, May 2009.

Chesnutt, Jennifer, "Discrete-Element Model of Red Blood Cell Aggregation in Blood Flow," Advisor: Jeffrey Marshall, May 2009.

Daraio, Joseph, "Coupling Computational Fluid Dynamics and Ecological Models: Juvenile Mussel Dispersal in the Upper Mississippi River," Advisor: Larry J. Weber, May 2009.

Kim, Dongsu, "ARC River—Geotemporal River Hydrodynamic Data Model," Advisors: Marian Muste and Larry J. Weber, August 2008.

Kirkil, Gokhan, "Numerical Study of the Flow Field at Cylindrical Piers in an Alluvial Bed," Advisors: Robert Ettema and George Constantinescu, August 2008.

Qiu, Lin, "Performance Measurement for Highway Winter Maintenance Operations," Advisor: Wilfrid A. Nixon, August 2008.

Sakamoto, Nobuaki, "URANS and DES Simulations of Static and Dynamic Maneuvering for Surface Combatant," Advisors: Fred Stern and Pablo Carrica, May 2009.

Villarini, Gabriele, "Empirically-Based Modeling of Radar-Rainfall Uncertainties," Advisor: Witold Krajewski, August 2008.

MS THESES ACCEPTED

Asman, Ryan, "Review and Assessment of ADCP Capabilities to Characterize River Hydrodynamics," Advisor: Larry J. Weber, August 2008.

Clark, Ben, "Observations of Saturated Hydraulic Conductivity under Different Land Use Management Practices," Advisor: Thanos Papanicolaou, December 2008.

Reins, George, "Experimental Study of an Impulsive Plunging Breaker Downstream of a Bump in a Shallow Water Open Channel Flume," Advisor: Fred Stern, August 2008.

Strain, Adrian, "Hydrodynamic Study of Prairie du Sac Dam Forebay and Fish Bypass System," Advisors: Larry J. Weber and Marcela Politano, December 2008.



AWARDS, ACTIVITIES, AND APPOINTMENTS

INTERNATIONAL AND NATIONAL

STUDENTS

LUCIANA KINDL DA CUNHA

- Selected to participate in the Young Scientists Summer Program at the International Institute for Applied Systems Analysis in Austria, 2009

PIOTR DOMASZCZYNSKI

- Awarded Outstanding Student Paper Award from the American Geophysical Union, 2008

MOHAMED HABIB

- Selected by the Advanced Study Program (ASP) at the National Center for Atmospheric Research (NCAR) to participate in the ASP summer colloquium at the NCAR Foothills Lab in Boulder, Colo., "Exploring the Atmosphere: Observational Instruments and Techniques," May–June 2009
- Awarded travel funds of \$2,500 from the National Science Foundation to attend the Hydrologic Ensemble Prediction Experiment Workshop on Post-Processing and Downscaling of Atmospheric Ensemble Forecasts for Hydrologic Applications in Toulouse, France, June 2009

MICHAEL SCHAEFER

- Awarded an NSF Graduate Research Fellowship with an annual award of \$40,500 for his project, "Impact of Geological CO₂ Storage on Groundwater Quality," 2009

RESEARCH STAFF

NANDITA BASU

- Session chair, American Geophysical Union Spring Meeting, 2009

GEORGE CONSTANTINESCU

- Associate editor, *IAHR Journal of Hydraulics Research*, 2007–present
- Chair, ASCE-EWRI Eco-Hydraulics Technical Committee, 2007–present
- Chair, ASCE-EWRI "Dam/Levee Break Fluvial Processes" Task Committee, 2007–present

KERI HORNBUCKLE

- Board member, Association of Environmental Engineering and Science Professors, 2006–09

MARIAN MUSTE

- Awarded a Fulbright Senior Specialists Grant hosted by the Technical University of Civil Engineering, Bucharest, Romania, 2009

WILFRID NIXON

- Chair, Transportation Research Board AH010 (T) Task Force on Surface Weather Transportation, 2005–08
- Chair, Transportation Research Board AH010 Committee on Surface Weather Transportation, 2008
- Awarded the Freshwater Society's Environmental Leadership Award, 2009

THANOS PAPANICOLAOU

- Associate editor, *Journal of Hydraulic Engineering*, ASCE, 2003–present
- Co-editor, *ASCE Monograph on Dam Removal*, 2005–09
- Associate editor, *Journal of Hydrologic Engineering*, ASCE, 2007–present
- Director of graduate studies, Hydraulics and Water Resources Group, 2007–present
- Associate editor, *International Journal for Sediment Research*, 2007–present
- Chair, ASCE Hydraulics and Waterways Council, 2008–present
- Vice-chair, ASCE Hydraulics and Water Resources Council, 2008
- Associate editor, *Journal of Soil and Water Conservation*, 2009

AWARDS, ACTIVITIES, AND APPOINTMENTS (CONT.)

MICHELLE SCHERER

- Associate editor, *Environmental Science & Technology*, 2008

JERALD SCHNOOR

- Editor-in-chief, *Environmental Science & Technology*, 2003–present
- Co-director, National Science Foundation CLEANER/WATERS Network Project Office, 2005–08
- Member, Science Advisory Board, U.S. Environmental Protection Agency, 2007–present
- National advisor, National Institute of Environment Health Sciences, 2008–present
- Presented Charles and Mary O'Melia Inaugural Lecture in Environmental Science, Johns Hopkins University, October 2008

CHARLES STANIER

- Awarded the National Science Foundation's Faculty Early Career Development (CAREER) Awards, worth \$400,000 over five years, 2008–09

FRED STERN

- Invited lecturer, 25th ITTC Group Discussion on CFD in the ITTC, September 2008
- Invited lecturer, 25th ITTC Group Discussion on Image-Based Measurements around Ship Hulls, September 2008
- Session chair, 27th ONR Symposium on Naval Hydrodynamics, Seoul, Korea, 2008
- Invited lecturer, University of Calabria, Italy, January 2009

STATE AND LOCAL

STUDENTS

KEVIN DENN

- Awarded a \$7,000 NASA scholarship from the Iowa Space Grant Consortium (ISGC), 2009

DIMITRIOS DERMISIS

- Received the University of Iowa Sandra Barkan Outstanding Mentor Award, 2009
- Received a \$24,000 Strategic Initiative Fund Award from the UI Graduate College, 2009

JESS SMITH

- Awarded a summer fellowship of \$2,500 by the Iowa Center for Research by Undergraduates, 2009

RESEARCH STAFF

KERI C. HORNBUCKLE

- Awarded UI Distinguished Achievement Award at "A Celebration of Excellence and Achievement Among Women," 2009

CRAIG JUST

- Awarded the UI College of Engineering's Staff Research Award, 2008–09
- Awarded UI College of Engineering Faculty Excellence Award for Research, 2009
- Appointed coordinator of sustainability programs for the UI College of Engineering, 2009

WITOLD KRAJEWSKI

- Appointed director of the University of Iowa's new Iowa Flood Center, 2009

JACOB ODGAARD

- Awarded UI College of Engineering Faculty Excellence Award for Service, 2009

JERALD SCHNOOR

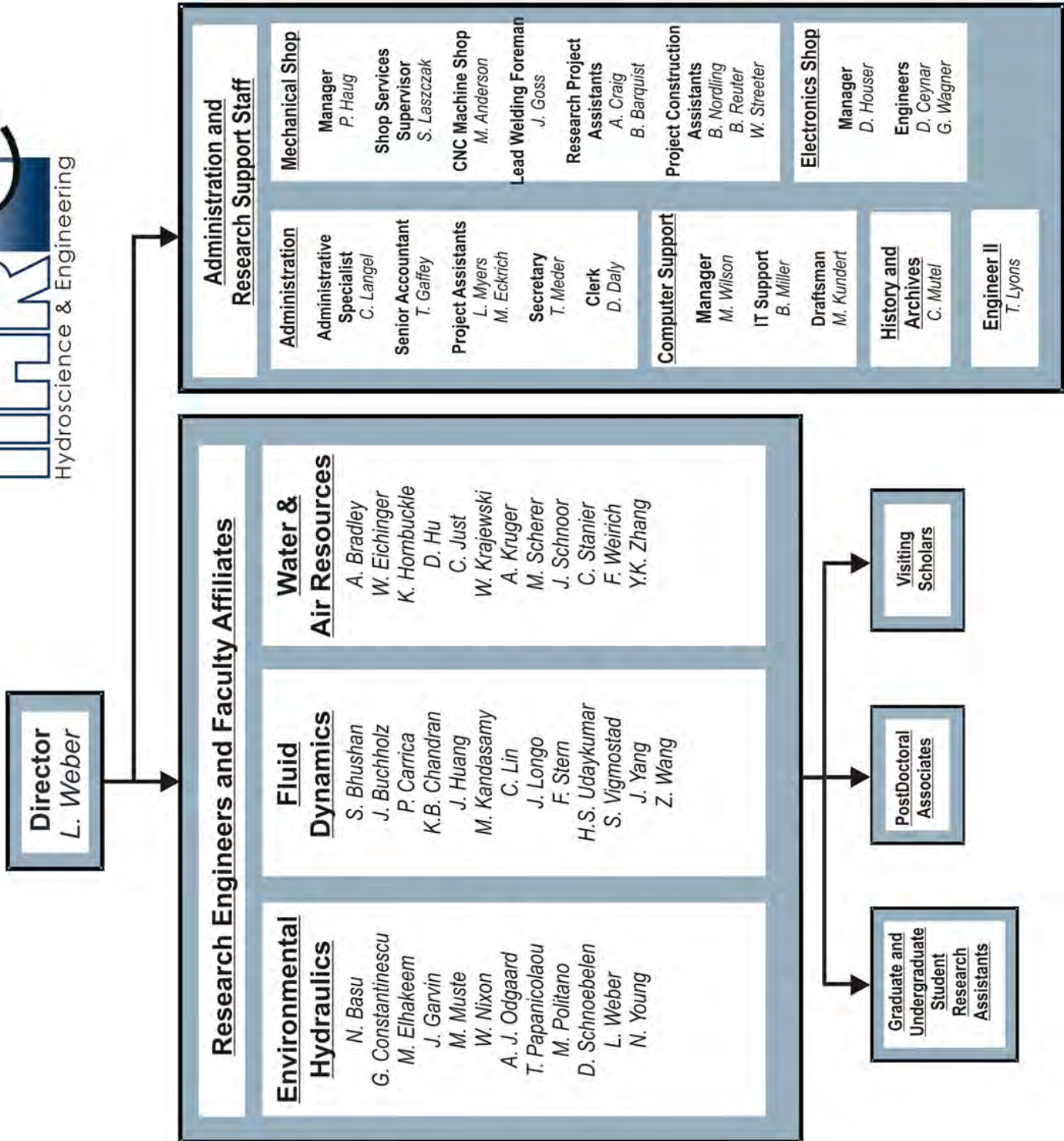
- Chair, Iowa Climate Change Advisory Council, 2007–09

SEMINARS

DATE	PRESENTER/AFFILIATION	SEMINAR TITLE
Oct. 10, 2008	Noah Knowles , Research Hydrologist, USGS	"Cascading Effects of Climate Change"
Nov. 7, 2008	Blair Greimann , Hydraulic Engineer, Bureau of Reclamation	"Dam Removal in the West—Current Practice and Research Needs"
March 6, 2009	Nandita Basu , Assistant Professor, Civil & Environmental Engineering, and Assistant Research Engineer, IIHR—Hydroscience & Engineering	"Structural Heterogeneity vs. Functional Homogeneity: Toward a Conceptual Model for predicting 'Tile-to-Tide' Hydrologic and Biogeochemical Responses" (<i>jointly presented with the EES graduate seminar series</i>)
March 13, 2009	Yong Liu , Senior Research Scientist, National Center for Supercomputing Applications, University of Illinois-Urbana Champaign	"Collaborative Computing for Virtual Sensors in a Web 2.0 Digital Watershed"
April 10, 2009	Craig Just , Associate Research Scientist, IIHR—Hydroscience & Engineering	"To Hell With Good Intentions: Reflections on Trying to 'Save the World'"
April 17, 2009	Fabian A. Bombardelli , Assistant Professor, Department of Civil and Environmental Engineering, University of California-Davis	"Two-Phase Models of Environmental Importance: From Bubble Plumes to the Transport of Suspended Sediment in Open Channels"
April 24, 2009	James Buchholz , Assistant Research Engineer, IIHR—Hydroscience & Engineering	"Insights into the Hydrodynamics of Fish Swimming: Some Fundamental Experiments"
May 1, 2009	Anthony Margevicius , Principal Project Manager, Hatch Mott MacDonald	"An Overview of the Hydraulics of Water Tunnels and Drop Structures"



ORGANIZATIONAL CHART



Last Update: August 21, 2009
OrgChart8-4-09.cdr

RESEARCH ENGINEERS, SCIENTISTS, AND FACULTY AFFILIATES

FACULTY MEMBER	DEPARTMENTAL APPOINTMENT	IIHR APPOINTMENT
* Basu, Nandita	Assistant Professor, C.E.E	Assistant Research Engineer
** Below, Paul		Contracts Administrator
Bhushan, Shanti.....		Assistant Research Scientist
Bradley, A. Allen.....	Associate Professor, C.E.E.....	Associate Research Engineer
* Buchholz, James.....	Assistant Professor, M.E.....	Assistant Research Engineer
Carrica, Pablo.....	Associate Professor, M.E.	Associate Research Engineer
Chandran, K.B.....	Professor, BioMed.	Research Engineer
** Ciach, Grzegorz.....		Associate Research Engineer
Constantinescu, George	Associate Professor, C.E.E.....	Assistant Research Engineer
Eichinger, William.....	Professor, C.E.E.	Research Engineer
Elhakeem, Mohamed		Assistant Research Scientist
* Garvin, Justin	Adjunct Assistant Professor, M.E.	Assistant Research Engineer
Holly, Forrest M. Jr.....	Professor Emeritus	Research Engineer Emeritus
Hornbuckle, Keri.....	Professor, Chair, C.E.E.....	Research Engineer
Hu, Dingfei.....		Assistant Research Scientist
Huang, Juntao		Assistant Research Scientist
Jain, Subhash C.....	Professor Emeritus	Research Engineer Emeritus
Just, Craig.....	Adjunct Associate Professor, C.E.E.	Associate Research Scientist
** Kader, Khalid	Assistant Professor, BioMed.	Assistant Research Engineer
* Kandasamy, Manivannan		Assistant Research Scientist
Krajewski, Witold.....	Professor, C.E.E.	Research Engineer
Kruger, Anton.....	Associate Professor, C.E.	Associate Research Engineer
Lin, Ching-Long.....	Professor, M.E.	Research Engineer
Longo, Joe.....		Associate Research Engineer
Macagno, Enzo O.....	Professor Emeritus	Research Engineer Emeritus
Macagno, Matilde.....		Scientist Emeritus
Muste, Marian	Adjunct Professor, C.E.E.	Research Engineer
Nakato, Tatsuaki.....		Research Engineer Emeritus
Nixon, Wilfrid A.	Professor, C.E.E.	Research Engineer
Odgaard, A. Jacob	Professor, C.E.E.	Research Engineer
Papanicolaou, Thanos.....	Associate Professor, C.E.E.....	Associate Research Engineer
Patel, Virendra C.....		Research Engineer Emeritus
Politano, Marcela.....	Adjunct Associate Professor, C.E.E.	Associate Research Engineer
Scherer, Michelle.....	Associate Professor, C.E.E.....	Associate Research Engineer
Schnoebelen, Douglas		Research Scientist
Schnoor, Jerald.....	Professor, C.E.E.	Research Engineer
Stanier, Charles.....	Assistant Professor, C.B.E.	Assistant Research Engineer
Stern, Fred.....	Professor, M.E.	Research Engineer
Udaykumar, H.S.	Professor, M.E.	Research Engineer
* Vigmostad, Sarah C.....	Assistant Professor, BioMed.	Assistant Research Engineer
* Wang, Zhaoyuan		Assistant Research Scientist
Weber, Larry	Professor, C.E.E.	Research Engineer, Director of IIHR
Weirich, Frank.....	Associate Professor, G.S.	Associate Research Engineer
** Xing, Tao.....	Adjunct Assistant Professor, M.E.	Assistant Research Scientist
Yang, Jianming	Adjunct Associate Professor, M.E.	Associate Research Engineer
* Young, Nate C.....	Associate Adjunct Professor, C.E.E.	Associate Research Engineer
Zhang, You-Kuan.....	Professor, G.S.	Research Engineer

* NEW TO IIHR (OR THIS POSITION) THIS YEAR

** LAST YEAR WITH IIHR

STAFF

STAFF MEMBER	IIHR TITLE
Anderson, Mike	CNC Machine Shop
Barquist, Brandon.....	Research Project Assistant
Below, Paul	Contracts Administrator II
Ceynar, Dan	Engineer II
Craig, Andy.....	Research Project Assistant
Daly, Dan	Clerk III/Librarian, Information Resource Center
Eckrich, Melissa.....	Project Assistant
Gaffey, Teresa.....	Senior Accountant
Goss, Jim	Lead Welding Foreman
Haug, Pete	Engineer IV, Mechanical Shop Manager
Houser, Doug	Engineer II, Electronics Shop Manager
Kundert, Mike.....	Draftsman
Langel, Carmen	Administrative Specialist II
Laszczak, Steve.....	Supervisor of Shops Services
Lyons, Troy	Engineer II
Meder, Twila.....	Secretary III
Miller, Brian	Information Technology Service and Support
Mutel, Connie.....	Archivist and Historian
Myers, Laura	Project Assistant
Nordling, Brad	Project Construction Assistant
Reuter, Brad	Project Construction Assistant
Streeter, W.....	Project Construction Assistant
Wagner, Greg.....	Engineer II
Wilson, Mark.....	Data Systems Coordinator

GRADUATE STUDENTS

Abaci, Ozan.....	C.E.E.	Lewandowski, Piotr.....	C.E.E.
Arenas Amado, Antonio.....	C.E.E.	Li, Mingyang.....	M.I.E.
Arnold, Nicholas.....	C.S.	Li, Wenyang.....	M.I.E.
Barnhart, Bradley.....	Physics	Liang, Yi.....	C.E.E.
Beebe, Alexandra.....	C.E.E.	Livermore, Joshua.....	C.E.E.
Bril, Jeremy.....	C.E.E.	Loperfido, John.....	C.E.E.
Brown, Angela.....	C.E.E.	Lu, Christopher.....	M.I.E.
Bruce, Derek.....	C.E.E.	Luellen, Llynnann.....	C.E.E.
Carbone, Michael.....	M.I.E.	Mandapaka Venkata, Pradeep.....	C.E.E.
Castro, Alejandro.....	M.I.E.	Marek, Rachel.....	C.E.E.
Chen, Bo.....	C.E.E.	Marquardt, Matthew.....	M.I.E.
Choi, Jiwoong.....	M.I.E.	Martinez Araneda, Andres.....	C.E.E.
Christiansen, Daniel.....	G.S.	Meggo, Richard.....	C.E.E.
Cunha, Luciana Kindl Da.....	C.E.E.	Meland, Brian.....	Physics
Daraio, Joseph.....	C.E.E.	Mishra, Sudipta.....	C.E.E.
Denn, Kevin.....	C.E.E.	Miyawaki, Shinjiro.....	C.E.E.
Dermisis, Dimitrios.....	C.E.E.	Moore, Matthew.....	C.E.E.
Dillard, Seth.....	M.I.E.	Mousaviraad, Sayyed Maysam.....	M.I.E.
Domaszczyński, Piotr.....	C.E.E.	Mousel, John.....	M.I.E.
Eastling, Paul.....	C.E.E.	Neumann, William John III.....	G.S.
Ellis, Philip.....	C.E.E.	Niemeier, James.....	C.E.E.
Elmzoudi, Abdelkebir.....	E.C.E.	Nissen, Nathan.....	C.E.E.
Fernandez-Baca, Cristina.....	C.E.E.	Paik, Kwang Jun.....	M.I.E.
Field, Daniel.....	GEO	Pasakarnis, Timothy.....	C.E.E.
Frasson, Renato Prata De Moraes.....	C.E.E.	Persoon, Carolyn.....	C.E.E.
Gorski, Christopher.....	C.E.E.	Pettibone, Alicia.....	C.B.E.
Govindarajan, Vijay.....	M.I.E.	Piotrowski, Jesse.....	C.E.E.
Grieb, Neal.....	M.I.E.	Pump, Cody.....	C.E.E.
Habib, Mohamed.....	C.E.E.	Putney, Maclaine.....	C.E.E.
Hajimirzaie, Seyed Mohammad.....	C.E.E.	Quarderer, Nathan.....	C.E.E.
Hanaoka, Akira.....	M.I.E.	Ramirez, Diane.....	C.E.E.
Handler, Robert.....	C.E.E.	Sadat Hosseini, Seyed Hamid.....	M.I.E.
Hannon, Justin.....	C.E.E.	Sakamoto, Nobuaki.....	M.I.E.
Ho, Hao-Che.....	C.E.E.	Sambasivan, Shiv Kumar.....	M.I.E.
Hutchinson, Kasey.....	C.E.E.	Schaefer, Michael.....	C.E.E.
Jarr, Karoline.....	E.M.S	Schubert, Michael.....	C.E.E.
Jermihov, Paul.....	B.M.E.	Seo, Bong Chul.....	C.E.E.
Johansen, James.....	M.I.E.	Shrestha, Liza.....	B.M.E.
Kanade, Gaurav.....	C.S.	Smith, Thomas.....	C.E.E.
Kapahi, Anil.....	M.I.E.	Sousan, Sinan Dhia Jameel.....	C.B.E.
Karch, Adam.....	G.S.	Strain, Adrian.....	C.E.E.
Kilgore, Susan.....	G.S.	Stroope, Timothy.....	G.S.
Koo, Bon Guk.....	M.I.E.	Takai, Tomohiro.....	M.I.E.
Krahe, Catherine.....	C.E.E.	Tokyay, Talia.....	C.E.E.
Kumar, Haribalan.....	M.I.E.	Tsakiris, Achilleas.....	C.E.E.
Kureksiz, Ozge.....	C.E.E.	Wacha, Kenneth.....	C.E.E.
Lambert, Andrew.....	M.I.E.	Wang, Yushi.....	C.E.E.
Lauth, Timothy.....	C.E.E.	Wei, Xiupeng.....	M.I.E.
Lee, John.....	C.E.E.	Yin, Youbing.....	M.I.E.
Lee, Kyutae.....	C.E.E.	Yoon, Hyun Se.....	E.C.E.

B.M.E.	Biomedical Engineering
C.E.E.	Civil and Environmental Engineering
C.S.	Computer Science
C.B.E.	Chemical and Biochemical Engineering
E.C.E.	Electrical and Computer Engineering
E.M.S.	Educational Measurement and Science
G.S.	Geoscience
M.I.E.	Mechanical and Industrial Engineering



ADVISORY BOARD

DR. MATAHEL ANSAR (2007–11)

Deputy Department Director, Operations and Hydro Data
Management
South Florida Water Management District

DR. PATRICK L. BREZONIK (2007–11)

Professor Emeritus of Civil Engineering
Department of Civil Engineering, University of Minnesota

DR. PATRICK N. DELIMAN (2007–11)

Technical Director—Environmental Modeling &
Ecosystem Restoration
U.S. Army Corps of Engineers

MR. JON DUYVEJONCK

Upper Mississippi River Conservation Committee
Coordinator
U.S. Fish and Wildlife Service

MR. JOHN ENGEL (2007–11)

Water Resources Engineer
HDR Engineering

DR. TERESA J. NEWTON (2006–09)

Fishery Biologist
U.S. Geological Survey, Upper Midwest Environmental
Sciences Center

DR. M. SECIL UZUNER (2007–11)

Founder, Owner
Uzka Construction Industry & Trade

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Director, IIHR—Hydroscience and Engineering
The University of Iowa

CARMEN LANGEL

Administrative Specialist II, IIHR—Hydroscience &
Engineering
The University of Iowa