

WELCOME TO THE

World Environmental & Water Resources Congress 2009

May 17-21, 2009

Kansas City Marriott Downtown

Kansas City, Missouri



GREAT RIVERS

*protecting the quality of life
and bio-diversity,
while supporting development
and growth
critically important for
a sustainable future*

Sponsored by the
Environmental & Water Resources Institute
of the American Society of Civil Engineers



ASCE
American Society of Civil Engineers

Co-sponsored by the
American Academy of Water Resources Engineers



OFFICIAL CONGRESS PROGRAM

Welcome to the 2009 World Environmental & Water Resources Congress



We are glad that despite challenging times, you have joined us in Kansas City for the 2009 Congress. The fact that you are here illustrates your conviction that this Congress provides an essential forum for professionals in the environmental and water resource field to convene and focus on the hottest topics of the day. Thanks to the Congress Steering Committee, our 2009 Congress program should prove intellectually and professionally stimulating and valuable. Our agenda includes outstanding

technical presentations to further your professional development, numerous committee meetings and networking social events to bring together old friends and new acquaintances, and a full Exhibit Hall to increase your circle of resources.

This year's technical program focuses on the Great Rivers of the World and the engineering challenges involved in balancing environmental and development issues while achieving a sustainable future. There is no better place to stage such an important Congress than here in Kansas City, along the banks of the Mighty Missouri River and in a city that truly depicts the harmony that can be achieved between the environment and water resource development! There is no better locale for us who work on the front lines – at the environmental/water engineering nexus – to share insights from research and practical experience in the field to generate best solutions for the future on issues such as water resources, river system management, environmental challenges, watershed management and restoration, flood control and drainage, dam safety, hydraulic structures, and so much more!

We hope you will sample the wonders of this energetic city with its many exquisite fountains... and return home fortified by your experiences at the Congress, to face and conquer our common challenges.

Sincerely,

William H. Espey, Jr., Ph.D., P.E., D.WRE, M.ASCE
General Congress Chair

CONTENTS

Program at a Glance... 4	Committee Meetings... 53
Congress Map... 5	Awards... 55
Congress Essentials... 6	Exhibitors... 68
Congress Program... 8	Exhibit Hall / Poster Sessions Maps... 69
Technical Sessions... 16	Sponsors... 70
Poster Sessions... 50	

CONGRESS STEERING COMMITTEE



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 **ETHICS IN ENGINEERING WORKSHOP SERIES!**

- #1: MONDAY, MAY 18 • 9:00 - 11:00 am • Truman A, B
 #2: TUESDAY, MAY 18 • 5:00 - 7:00 pm • Truman A, B
 #3: THURSDAY, MAY 20 • 10:30 am - 12:30 pm • Truman A, B

AAWRE Engineering Ethics Workshop

Engineers face situations daily that have ethical implications. In its three segments, this workshop series, sponsored by the American Academy of Water Resources Engineers (AAWRE), gives a general overview of ethical principles, presents case studies, and offers small group situational discussions. This is an excellent opportunity for engineers to freshen up on engineering ethics and gain perspective on what other engineers consider to be the best solutions to the specific cases presented.

MONDAY, MAY 18 • 11:00 am - 12:30 pm • Andy Kirk A

How to Be An Expert Witness

Facilitator: Kenneth A. Goodwin, Esq.
(Law Office of Kenneth A. Goodwin)

This session will explore the legal basis for allowing expert testimony, the qualifications an expert engineer must possess in order to qualify to render an opinion on any given subject, and what an attorney looks for in an engineer.

MONDAY, MAY 18 • 11:00 am - 12:30 pm • Andy Kirk B

The Great Lakes and Great Rivers – A Sustainable Future

Moderator: Arthur Schmidt, Ph.D., P.E. *(University of Illinois)*

The Great Lakes face competing and often conflicting interests in uses such as industrial, water supply, environmental, navigational, and recreational. Recently, there has also been concern about the introduction of invasive species. This session will offer papers on a broad range of topics followed by a panel discussion.

TUESDAY, MAY 19 • 9:00 - 10:30 am • Andy Kirk A, B

Aging Infrastructures – Critical Issues Facing Our Cities

Moderator: William Espey, Jr. *(Espey Consultants, Inc.)*

Panelists: Michael Marcotte *(Public Works Director, City of Houston); James Mellem (Assistant Director, KCMO Water Services, Kansas City); and two additional city representatives (TBD)*

America's infrastructure – roads, bridges, schools, water/wastewater systems, and other public works, suffering from neglect, lack of modernization, and inadequate maintenance – has been in continued decline for many years. A comprehensive program with priority funding is critical to address the nation's infrastructure conditions to achieve sustainable levels of functionality for future generations.

TUESDAY, MAY 19 • 11:00 am - 12:30 pm • Andy Kirk A, B

Katrina – What Has Been Accomplished Four Years Later?

Presenters: Walter Bauma, Jr., Chief Engineer, USACE, New Orleans District; John Grieshaber, Chief for Execution Support, USACE, Hurricane Protection Office; Maury Chatellier, Engineer Manager, Hurricane Protection Operations, Louisiana DOTD, Office of Coastal Protection and Restoration Authority; Hurricane Surge Restudy – DFIRM – FEMA/USACE – William Espey, Jr., President, Espey Consultants, Inc.; Durund Elzey, Project Manager, USACE, New Orleans District; Gary Zimmerer, Sr. Engineer, FEMA, Mitigation Division, Region VI; West Bank Hurricane Protection – New Orleans and Vicinity – Harvey and Algiers Canals – Proposed Large Pump Station – Cecil Soileau, Sr. Hydraulic Engineer, BCG Engineering; Nancy Powell, Chief, Hydraulics and Hydrologic Branch, USACE, New Orleans District; William Espey, Jr., President, Espey Consultants, Inc.

Since Katrina in 2005, progress is being made to repair and improve the level of hurricane flood protection in the New Orleans area. Improvements encompass a broad range of policy and regulatory issues, facility updates, and coastal wetlands restoration.

MONDAY, MAY 18 • 7:30 - 8:45 am • Count Basie Ballroom

Congress Keynote:

ASCE President D. Wayne Klotz, P.E., D.WRE, F.ASCE will address Aging Infrastructure and the 2009 ASCE Infrastructure Report Card.

MONDAY, MAY 18 • 5:45 - 6:15 pm • Count Basie Ballroom

Congress Plenary Keynote:

LTG Robert L. Van Antwerp Jr., Chief of Engineers and Commanding General, US Army Corps of Engineers (USACE), will discuss USACE's leadership role and challenges in developing and maintaining the nation's waters while protecting the environment.

TUESDAY, MAY 19 • 1:30 - 3:00 pm • Andy Kirk A, B

The Roles of Federal Agencies in Regional Water Planning

Moderators: Timothy Feather, Ph.D. *(CDM)*

Panelists: Fred Carver, P.E. *(Carver and Associates); John Grothaus (USACE, Kansas City District); Mike Beezhold, CMP (City of Lenexa Watershed Program); Earl Lewis, P.E. (Kansas Water Office)*

Sponsored by EWRI's Water Resources & Environmental Planning & Management Committee, this panel is the next installment in a series of EWRI forums on roles of government agencies in regional and statewide planning. This year's panel focuses on specific driving and contributory roles of state and federal agencies, through case studies and general discussion on relevant policy initiatives:

- State and federal regulatory drivers for regional water planning
- Government agencies as stakeholders and facilitators in planning processes driven largely by localized public decision-making as opposed to centralized methodological protocols
- Distribution of decision-making authority in statewide and regional water plans
- Should regional planning be incentivized by the government beyond regulatory constructs?

TUESDAY, MAY 19 • 3:30 - 5:00 pm • Andy Kirk B

Stormwater Utility – Experience a Revenue Stream

Moderator: Charlene Johnston, P.E. *(URS Corporation)*

Panelists: Hector Cyre *(Water Resource Associates, Inc.); Elizabeth Treadway (AMEC Earth & Environmental); John McCarthy (Southeast Metro Stormwater Authority)*

Since 1975, stormwater utilities have provided steady and equitable funding for municipal stormwater programs. In the past, these utilities were established by progressive communities or large local/regional governments with significant flooding problems. Now, regulations and public expectations for water quality and quantity have heightened pressure on municipal stormwater staff everywhere. Today's stormwater programs are expected to meet various demands, including new regulations and land development. A stormwater utility provides a steady, predictable revenue stream. This session discusses successful stormwater utilities. A panel of national experts and local stormwater utility managers describes lessons learned in establishing such a funding stream in local government and shares the key steps and rationale behind the charges.

TUESDAY, MAY 19 • 5:00 - 6:30 pm • Andy Kirk A

Case Studies – The Role of Technology in Water Resources Planning

Moderator: Elizabeth Perez *(Brown & Caldwell)*

Panelists: Scott Knight *(Aurora Water); Bud Viessman (University of Florida); Bill Wenck (USACE); Chuck Shadie (USACE); Pete Loucks (Cornell University)*

In 2006, the EWRI Planning and Management Council approved formation of a Task Committee (TC) to examine technology's role in water resources planning and management. This session provides a final progress report by offering international case studies that the TC has undertaken to document effects of technologies on a challenging variety of water resources issues. The case studies give a comprehensive snapshot of the best technologies employed by water resources professionals throughout the world. The session concludes with a panel discussion by members of the TC and a moderated Q&A session. Input from this session will reflect information in the ASCE publication that documents the TC's findings.

WEDNESDAY, MAY 20 • 9:00 - 10:30 am • Andy Kirk A, B

Student Panel:**History of Large Environmental / Water Firms**

Moderator: Jerry R. Rogers, Ph.D., P.E., D.WRE, Dist.M.ASCE *(Associate Professor, University of Houston)*

Presenters: Burns & McDonnell, HDR, Black & Veatch, HNTB

WEDNESDAY, MAY 20 • 1:30 - 3:00 pm • Andy Kirk A, B

International Sustainable Development: EWB and Water for People: Lessons from the Field

Moderator: David Watkins, M.ASCE *(Michigan Technological University)*

Panelists: Cathy Leslie, P.E. *(Engineers Without Borders); Nina Miller (Water for People); Ned Breslin (Water for People)*

The history of environmental and water resources development in low-income communities is fraught with unintended consequences and apparent "failures." This can be especially frustrating to people new to the field (i.e., students). This panel presents examples of projects that have gone differently than planned and lessons learned that include the importance of working closely with communities and being flexible to reduce unintended consequences and ensure sustainability of projects.

THURSDAY, MAY 21 • 9:00 - 10:30 am • Andy Kirk A

Outstanding Women Engineers in Higher Education – Secrets to Success and Ideas to Foster Greater Diversity

Moderators: John Warwick *(University of Nevada, DRI)*

Panelists: Angela Linder, Ph.D. *(University of Florida); Jeanne VanBriesen, Ph.D. (Carnegie Mellon University); Kathleen Leonard, Ph.D., (University of Alabama - Huntsville)*

The Education Council is sponsoring a number of panel discussions addressing women and diversity in engineering. These sessions will engage students, engineering professors, and professional engineers to discuss:

- Recruitment and retention of women professors and other professors of diverse backgrounds
- Distinguished women in engineering
- Diversity and students in engineering

THURSDAY, MAY 21 • 9:00 - 10:30 am • Andy Kirk B

THURSDAY, MAY 21 • 11:00 am - 12:30 pm • Andy Kirk B

THURSDAY, MAY 21 • 1:30 - 3:00 pm • Andy Kirk B

History of the Great Rivers of the World

Moderators: Jerry R. Rogers, Ph.D., P.E., D.WRE, Dist.M.ASCE *(Associate Professor, University of Houston); Randall Graham; Jeffrey Bradley*

As the keystone of the 2009 EWRI Congress, the Congress' theme focuses on Great Rivers of the World and the engineering challenges of balancing environmental, developmental, and critically important growth issues while achieving a sustainable future. This session presents an historical perspective of our engineering heritage and legacy – both successes and failures – to provide an essential understanding for advancing the profession.

THURSDAY, MAY 21 • 11:00 am - 12:30 pm • Andy Kirk A

Outstanding Women Engineers in Water and the Environment: Following Margaret Petersen's Legacy

Moderator: Cassie Klumpp *(US Bureau of Reclamation)*

Panelists: Karen Flournoy *(USEPA Region 7); Natalae Tillman (USACE Kansas City District); Leslie Voss (URS Group)*

Margaret Petersen, pioneer for women engineers in the federal civil service and in water/hydraulics, worked as a drafter on the Panama Canal Third Locks project during WWII before she earned her BSCE and MSCE from the University of Iowa. Petersen enjoyed a 35-year career with the USACE in Vicksburg, Omaha, Little Rock, and Sacramento, then joined the faculty of the University of Arizona in 1980 until she retired again at the turn of the century. She authored numerous peer-reviewed articles and two hydraulic/planning textbooks. She was active in ASCE's Hydraulics Division, served as Editor of the *Hydraulics Journal* and as Chair of the ASCE Management Group responsible for all technical activities of the Society's water divisions.

SUNDAY, MAY 17, 2009

7:00 AM - 7:00 PM REGISTRATION COUNT BASIE BALLROOM FOYER
 8:00 AM - 5:00 PM SHORT COURSES
 CANCELLED: #1: Curve Number Rainfall-Runoff: Professional Applications
 #2: Principles of Streambank Analysis and Stabilization TRIANON B
 8:00 AM - 3:00 PM SHORT COURSE #3: Treatment of Uncertainty in Water Resource Modeling and Analysis TRIANON C

3:00 - 5:00 PM
 6:00 - 8:00 PM
 6:00 - 8:00 PM

SHORT COURSE #4: The Arc Hydro Groundwater Data Model TRUMAN A
 GRAND OPENING OF THE EXHIBIT HALL IMPERIAL BALLROOM
 CONGRESS ICE BREAKER RECEPTION – SECTION WELCOME – IN EXHIBIT HALL COLONIAL / IMPERIAL BALLROOMS



MONDAY, MAY 18, 2009

7:00 AM - 7:00 PM REGISTRATION COUNT BASIE BALLROOM FOYER
 7:30 - 8:45 AM OPENING KEYNOTE BREAKFAST & LIFETIME ACHIEVEMENT AWARDS PRESENTATION COUNT BASIE BALLROOM

8:30 AM - 4:00 PM EXHIBIT HALL OPEN IMPERIAL BALLROOM
 8:30 - 9:00 AM NETWORKING BREAK COLONIAL / IMPERIAL BALLROOMS

CONCURRENT TECHNICAL SESSIONS I 9:00 - 10:30 AM

JULIA LEE A	JULIA LEE B	BENNIE MOTEN A	JAY MCSHANN A	JAY MCSHANN B	LESTER YOUNG A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	ENVIRONMENTAL	HYDRAULICS AND WATERWAYS	HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE
<p>North American Drinking Water Infrastructure Assessment MODERATOR: Steven Buchberger</p> <p>Drinking Water Infrastructure Assessment: The National Research Council of Canada Perspective Yehuda Kleiner, Balvant Rajani, Rehan Sadiq, National Research Council of Canada, Ottawa, ON</p> <p>National Water Mains Failure Database Neil Grigg, Ph.D., P.E., Colorado State University, Fort Collins, CO</p> <p>Development of a National GIS Database for Municipal Water and Wastewater Pipe Infrastructure System Sunil Sinha, Ph.D., Randy Dymond, Ph.D., Rahul Vermulapally, Thomas Dickerson, Seth Perry, Virginia Tech, Blacksburg, VA</p> <p>Needs and Trends of the Nation's Drinking Water Infrastructure – The Utility Perspective Steven Buchberger Ph.D., University of Cincinnati; Robert Clark, Ph.D., Environmental Engineering and Public Health Consultant; Walter M. Grayman, Ph.D., P.E., M.ASCE, W M Grayman Consulting Engineers, Cincinnati, OH; Zhiwei Li, Ph.D., Matthew McCutcheon, University of Cincinnati; Jeffrey Yang, Ph.D., US Environmental Protection Agency, Cincinnati, OH</p>	<p>6th Urban Watershed Management Symposium – Keynote Session MODERATORS: Scott Struck, Richard Field</p> <p>PRESENTERS: William "Art" Spratlin, EPA, Region 7, Director, Water, Wetlands, and Pesticides Division</p> <p>Councilwoman Jan Marcason, Kansas City, Missouri, 4th District</p> <p>Tom Jacobs, Mid-America Regional Council, Kansas City, MO</p>	<p>Environmental Permitting MODERATOR: Joel Burken</p> <p>Permitting of Confined Animal Feeding Operations: Issues and Challenges William Ritter, Ph.D., P.E., FASCE, University of Delaware, Newark, DE; S. Rao Chitkela, P.E., ERM, Exton, PA</p> <p>Dredging and Upland Confined Disposal Facilities Permitting Sarah Howard, Black & Veatch, Overland Park, KS</p> <p>Drive for Zero Net Carbon Impact Jessica Lamb, Ashlynn Horras, Black & Veatch Interns / University of Kansas Students; Mike Orth, P.E., Black & Veatch</p> <p>Distributed Power Generation at State Facilities: Economic Analysis of Saving and Carbon Credits Joel Burken, Ph.D., A. Curt Elmore, Ph.D., P.E., Mariesa Crow, Ph.D., Will Granich, Missouri University of Science & Technology, Rolla, MO; Trenton Blair, CFM, State of Missouri, Jefferson City, MO</p>	<p>Eco-hydraulics MODERATORS: Christopher Dunne, Michael Gee</p> <p>Fish Passage and Abundance around Grade Control Structures on Incised Streams John Thomas, Hungry Canyons Alliance, Oakland, IA; Thanos Papanicolaou, Ph.D., University of Iowa, Iowa City, IA; Clay Pierce, Ph.D., Iowa State University, Ames, IA; Dimitri Dermisis, University of Iowa, Iowa City, IA; Mary Litvan, Missouri Department of Conservation, Springfield, MO; Chris Larson, Iowa Department of Natural Resources, Lewis, IA</p> <p>Fish Passage Can Be Improved by Introducing Hydraulic Refuge. Can the Effects Be Quantified? Matthew D. Hays, S.M.ASCE, Suzanne K. Monk, S.M.ASCE, Trevor P. Hawkes, S.M.ASCE, Joseph R. Webb, E.I.T., Rollin H. Hotchkiss, Ph.D., P.E., D.WRE, Mark Belk, Ph.D., Russell Rader, Ph.D., Brigham Young University, Provo, UT</p> <p>Hydraulic Model Study of Canoe Chute and Fish Passage for the Chicago River North Branch Dam Jorge Abad, Ph.D., Andy Waratuke, Cristiana Barnas, Marcelo Garcia, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Some Findings on Effective Discharge Determination for Gravel Bed Rivers Carmen Bernedo, P.E., M.ASCE, MWH Americas, Inc., Denver, CO</p>	<p>Modeling Dam Breach MODERATORS: Blair Greimann, Frank Tsai</p> <p>A Depth-averaged 2-D Model of Non-cohesive Dam/Levee Breach Processes Weiming Wu, Ph.D., Zhiguo He, Ph.D., Sam S.Y. Wang, Ph.D., P.E., University of Mississippi, University, MS</p> <p>Comparison of Dam Breach Parameter Estimators Michael Gee, M.ASCE, US Army Corps of Engineers, Davis, CA</p> <p>Representation of Linear Terrain Features in a 2D Flood Model with Regular Cartesian Mesh Mustafa Altinakar, Ph.D., Marcus McGrath, Yavuz Ozeren, University of Mississippi, University, MS; Edie Miglio, Ph.D., Politecnico di Milano, Milano, Italy</p>	<p>Current Irrigation Scheduling Advisory Systems – 1 MODERATORS: Joseph Henggeler, Earl Vories</p> <p>The Next Generation of Irrigation Management Programs Peter Robinson, USDA, Portland, OR</p> <p>Woodruff Irrigation Charts Joseph Henggeler, Ph.D., University of Missouri, Portageville, MO</p> <p>Irrigation Scheduling for Deficit Irrigation Norman Klocke, P.E., Loyd Stone, Dale Bolton, Kansas State University, Manhattan, KS</p> <p>The Arkansas Irrigation Scheduler Earl Vories, Ph.D., P.E., M.ASCE, USDA-ARS, Portageville, MO; Phil Tacker, Steve Hall, University of Arkansas Cooperative Extension Service</p>
					<p>AAWRE Engineering Ethics Workshop #1 9:00 - 11:00 AM TRUMAN A, B PRESENTERS: David Huddleston, Ph.D., P.E. (Professor of Civil Engineering and Interim Dean of Engineering, Tennessee Technological University); Kevin Young, P.E., BCEE, M.ASCE (Senior Vice President, J.R. Wauford & Co Engineering, Inc., and Adjunct Instructor, Tennessee Technological University, Cookeville, TN)</p> <p>Participants may earn up to 2 PDHs for this session. Registration required. No fee.</p>

MONDAY, MAY 18, 2009

CONCURRENT TECHNICAL SESSIONS I 9:00 - 10:30 AM

LESTER YOUNG B	BIG JOE TURNER A	BENNIE MOTEN B	MARY LOU WILLIAMS A	MARY LOU WILLIAMS B
LOCAL ISSUES	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED	WATERSHED
<p>Kansas City Regional Topics MODERATORS: Angela Mason, Sarah Fjell</p> <p>Modeling Impacts of Conventional and Low Impact Stormwater Controls on Receiving Streams Elise Ibendahl, P.E., CH2M HILL, St. Louis, MO; Dan Medina, Ph.D., P.E., D.WRE, CH2M HILL, Silver Spring, MD</p> <p>Potable Water from a Superfund Site? Marc Schlebusch, P.E., CDM, Kansas, MO</p>	<p>G.V. Loganathan Symposium on Reservoir Operation MODERATOR: David Watkins</p> <p>Communicating Drought Severity and Re-evaluating Firm Yield – Cumberland County, Tennessee as a Case Study Lars Hanson, E.I.T., Stuart Stein, P.E., GKY & Associates, Chantilly, VA</p> <p>Development of Sustainable Water Supply Scheme in Reservoir Operation: Case Study Mohammad Karamouz, Ph.D., Sara Nazif, Ph.D. Candidate, Peyman Poorghasemi, University of Tehran, Tehran, Iran; Soulmaz Mohammadi, Amirkabir University (Tehran Polytechnique), Tehran, Iran</p> <p>Multireservoir Simulation Using Multipurpose Constraints and Object-oriented Software Design Marcelo A. Cicogna, Anhanguera Educacional S.A. – AESA, Campinas São Paulo, Brazil; Darrell G. Fontane, Ieda G. Hidalgo, Colorado State University, Fort Collins, CO; João E. G. Lopes, Duke, Consulting Engineer, Campinas, São Paulo, Brazil</p> <p>Probabilistic Balancing Rule Models for Real-time Reservoir Systems Management: A Case Study Emmanuel Nzewi, Ph.D., P.E., Southern University and A&M College, Baton Rouge, LA</p> <p>Probabilistic Streamflow Forecasts Based on Hydrologic Persistence in Central Texas Wenge Wei, Graduate Student, David Watkins, M.ASCE, Michigan Technological University, Houghton, MI</p>	<p>W/WW/SW – Security Enhancements in W&WW Utilities – 1 MODERATORS: Findlay Edwards, Dan Lynch</p> <p>Legal Issues Related to Water Infrastructure Security Wes Strickland, Esq., Aff.M.ASCE, Brownstein Hyatt Farber Schreck, LLP, Santa Barbara, CA</p> <p>Physical Security National Guidelines for Water & Wastewater & Stormwater Utilities – Really? Conrad G. Keyes Jr, Sc.D., P.E./P.S., Dist.M.ASCE, D.WRE, New Mexico State University, Las Cruces, NM</p> <p>Survey of Water and Wastewater Utility Security Standards Dale Gabel, P.E., M.ASCE, CH2M HILL, Englewood, CO; Yakir Hasit, Ph.D., P.E., M.ASCE, CH2M HILL, Philadelphia, PA; Yaron Ben-Ari, The Standards Institute of Israel, Tel Aviv, Israel</p>	<p>Great Rivers of the World MODERATORS: William H. Espey, Jr., Sharon Jean-Baptiste</p> <p>Hydrologic Responses of Climate Change on the Karkheh River Basin Farzad Hosseini, Graduate Student, Ahmad Abrishamchi, Professor, Masoud Tajrishy, Associate Professor, Sharif University of Technology, Tehran, Iran</p> <p>Preliminary Assessment of Planform Change at Low Flows with Vegetation Expansion: Platte River, Nebraska Lisa M. Fotherby, Ph.D., P.E., M.ASCE, US Bureau of Reclamation, Lakewood, CO</p> <p>Sediment Management for Shallow Water Habitat Creation on the Missouri River Michael Gossenauser, P.E., US Army Corps of Engineers, Kansas City District, Kansas City, MO</p> <p>Geochemistry of Yukon and Copper River Tributaries, Alaska Melissa Carney, Andre Ellis, Ph.D., University of Texas at El Paso, El Paso, TX; Thomas Bullen, Ph.D., US Geological Survey, Menlo Park, CA; Jeffery Langman, University of Texas at El Paso, El Paso, TX</p>	<p>NEXRAD Data Application to Hydrologic Modeling MODERATORS: Baxter Vieux, Chandra Pathak</p> <p>Application of NEXRAD for Freshwater Inflow Estimates to Texas Bays and Estuaries Qingguang Lu, P.E., Ruben Solis, Ph.D., P.E., Texas Water Development Board, Austin, TX</p> <p>Distributed Hydrologic Modeling: From Research to Operational Forecasting Michael Smith, Ph.D., Victor Koren, Ph.D., Ziya Zhang, Ph.D., Zhengtao Cui, NOAA/National Weather Service, Silver Spring, MD</p> <p>Flash Flood Forecasting for Ungauged Locations with NEXRAD Precipitation Data, Threshold Frequencies, and a Distributed Hydrologic Model Brian Cosgrove, Seann Reed, Ph.D., Feng Ding, Ph.D., Yu Zhang, Ph.D., Zhengtao Cui, Ziya Zhang, Ph.D., NOAA/National Weather Service, Silver Spring, MD</p> <p>Gauge-based Adjustment of Historical Multi-sensor Quantitative Precipitation Fields and Resulting Effects on Hydrologic Simulations Yu Zhang, Ph.D., Seann Reed, Ph.D., David Kitzmiller, Daniel Brewer, NOAA/National Weather Service, Silver Spring, MD</p>

10:30 - 11:00 AM Networking Break / Colonial / Imperial Ballrooms



Important Panel Discussions & Special Sessions

MONDAY, MAY 18, 2009

CONCURRENT TECHNICAL SESSIONS II 11:00 AM - 12:30 PM

JULIA LEE A	JULIA LEE B	BENNIE MOTEN A	ANDY KIRK B	JAY MCSHANN A	JAY MCSHANN B	
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p>	<p>ENVIRONMENTAL</p>	<p>HISTORY OF THE GREAT RIVERS OF THE WORLD</p>	<p>HYDRAULICS AND WATERWAYS</p>	<p>HYDRAULICS AND WATERWAYS</p>	
<p>Asset Management MODERATOR: Bogumil Ulanicki</p> <p>Bursts Identification in Water Distribution Systems Irina Borovik, MSTU, Moscow, Russia; Bogumil Ulanicki, Ph.D., D.Sc., Piotr Skworcow, Ph.D., De Montfort University, Leicester, UK</p> <p>Damage Detection of Operating Transmission Mains with Measured Boundary Conditions Aaron Zecchin, Martin Lambert, Ph.D., Angus Simpson, Ph.D., University of Adelaide, Adelaide, Australia</p> <p>Evaluating Risk of Multi-segment Pipes to Prioritize Pipe Rehabilitation Matthew Poulton, Ph.D., WTSim, Bordeaux, France; Ingo Kropp, Dipl. Eng., Baur&Kropp, Dresden, Germany; Annie Vanrenterghem Raven, Ph.D., Polytechnic Institute of NYU, New York, NY</p> <p>Water Distribution Systems Corrective Maintenance Supported by Real-time Use of Hydraulic Models Juan Saldarriaga, Oscar Cortés, César Niño, Susana Ochoa, Universidad de los Andes, Bogotá, Colombia</p>	<p>Urban Water Management in Kansas City – 1 MODERATORS: Richard Field, Mike Ports</p> <p>Kansas City, Missouri Overflow Control Plan Overview Terry Leeds, P.E., City of Kansas City, Kansas City, MO</p> <p>Kansas City – Embracing Advanced Drainage Technology through Green Solutions for CSO Control Scott Struck, Ph.D., PWS, A.M.ASCE, Tetra Tech, Inc., Westminster, CO; Robert Pitt, Ph.D., University of Alabama; Deborah O'Bannon, Ph.D., P.E., FASCE, Erich Schmitz, P.E., University of Missouri-Kansas City, Kansas City, MO; Tom Jacobs, M.E.M., Mid-America Regional Council, Lenexa, MO; Ginny Moore, J.D., Mid-America Regional Council, Kansas City, MO; Michael Ports, Ph.D., P.E., D.WRE, Bergmann Associates, Jacksonville, FL; Richard Field, P.E., US Environmental Protection Agency-ORD, Edison, NJ</p> <p>Hypothesis-based Flow Monitoring for Green Solutions Deb O'Bannon, Ph.D., P.E., FASCE, Erich Schmitz, E.I., University of Missouri-Kansas City, Kansas City, MO</p> <p>10,000 Rain Gardens, One Green Region: Green Infrastructure Protection in Kansas City Tom Jacobs, M.E.M., Mid-America Regional Council, Lenexa, MO; Ginevera Moore, J.D., Mid-America Regional Council, Kansas City, MO</p>	<p>Soil and Subsurface Remediation – 1 MODERATOR: Alok Bhandari</p> <p>Wichita's Groundwater Recharge Project Debra Ary, P.E., City of Wichita, Wichita, KS</p> <p>Impact of Wettability on Pore-scale Characteristics of Residual Nonaqueous Phase Liquids Riyadh Al-Raoush, Ph.D., Southern University and A&M College, Baton Rouge, LA</p> <p>Peroxidase-mediated Stabilization of 2,4-Dichlorophenol in a Model Humin-mineral Geomaterial Monica Palomo, Cal Poly Pomona; Alok Bhandari, M.ASCE, Iowa State University, Ames, IA</p>	<p> Great Lakes and Great Rivers – A Sustainable Future MODERATOR: Arthur Schmidt</p> <p>Large River Geomorphology Jim Best, Ph.D., UIUC Geology, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Sediment and Water of the Mekong River Avijit Gupta, Ph.D., University of Leeds, Leeds, UK</p> <p>Characterizing the 2008 Midwestern Floods: A Look at Magnitudes and Frequencies Robert Holmes, Jr., Ph.D., P.E., D.WRE, US Geological Survey, Rolla, MO</p> <p>Great Lakes Virtual Water Ben Ruddel, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Ohio/Cumberland Systems and Mississippi River Flood Control Deborah Lee, USACE, Cincinnati, OH</p> <p>Illinois Diversion at Chicago – Committee History and Findings William H. Espey Jr., Ph.D., P.E., D.WRE, M.A.S.C.E., Espey Consultants, Inc.</p> <p>Chicago River Marcelo Garcia</p>	<p>Computational Hydraulics and Hydrodynamics – 1 MODERATORS: Jerry Webb, S.K. Nanda</p> <p>3D Numerical Modeling of John Day Lock Tainter Valves Allen Hammack, Richard Stockstill, FASCE, US Army Engineer R&D Center, Vicksburg, MS</p> <p>A Three-dimensional Numerical Model for Flow in a Lock Filling System Richard Stockstill, FASCE, Charlie Berger, FASCE, US Army Engineer R&D Center, Vicksburg, MS</p> <p>Challenges on Three-dimensional Simulations of Free Surface Flow Jinwei Qiu, Ph.D., URS Corporation, Dallas, TX; Xing Fang, Ph.D., Auburn University, Auburn, AL</p> <p>Comparison of POM and ROMS Hindcasts in Delaware River and Bay Richard A. Schmalz, Jr., Ph.D., P.E., FASCE, NOAA/National Weather Service, Silver Spring, MD</p>	<p>Eco-hydraulics Modeling MODERATORS: Zia Hosseinipour, Christopher Dunne</p> <p>Expanded Method for Filtering Submerged Objects in Echosounder Data Tim Osting, P.E., Espey Consultants, Inc., Austin, TX</p> <p>Numerical Simulation of Chemical Spills Using CCHE2D Model and Chemical Property Database Xiaobo Chao, Ph.D., Yafei Jia, Ph.D., Munther Hammouri, Graduate Student, University of Mississippi, University, MS</p> <p>One-dimensional Modeling of Water Quality and Aquatic Ecosystems in Streams Podjane Inthasaro, Ph.D. Student, Weiming Wu, Ph.D., Sam S.Y. Wang, Ph.D., P.E., University of Mississippi, University, MS</p> <p>Use of Artificial Neural Networks for Habitat Unit Composition Modeling Jian-Ping Suen, A.M.ASCE, National Cheng Kung University, Tainan, Taiwan</p>	
			<p> 11:00 AM - 12:30 PM ANDY KIRK A</p> <p>How to Be An Expert Witness</p> <p>FACILITATOR: Kenneth A. Goodwin, Esq. (Law Office of Kenneth A. Goodwin)</p>			

MONDAY, MAY 18, 2009

CONCURRENT TECHNICAL SESSIONS II 11:00 AM - 12:30 PM

LESTER YOUNG A	LESTER YOUNG B	BIG JOE TURNER A	BENNIE MOTEN B	MARY LOU WILLIAMS A
IRRIGATION AND DRAINAGE	LOCAL ISSUES	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Current Irrigation Scheduling Advisory Systems – 2</p> <p>MODERATORS: Earl Vories, Joseph Hengeler</p> <p>A Web-based Advisory Service for Optimum Irrigation Management</p> <p>Charles Hillyer, Ph.D. Student, Marshall English, Ph.D., Carole Abourached, Ph.D. Candidate, Chadi Sayde, Ph.D. Candidate, Kent Hutchinson, Graduate Student, Oregon State University, Corvallis, OR; John Busch, Ph.D., P.E., NRCS, Baker City, OR</p> <p>On-line Irrigation Scheduling within the Belle Fourche Irrigation District</p> <p>Jared Oswald, RESPEC Consulting and Services, Inc.; Hal Werner, Professor (Retired), South Dakota State University, Brookings, SD</p> <p>Estimating Crop Coefficients from Fraction of Ground Cover and Height</p> <p>Richard Allen, Ph.D., P.E., University of Idaho, Kimberly, ID; Luis Santos Pereira, Ph.D., Technical University of Lisbon, Lisbon, Portugal</p> <p>Manure Application to Soybean in the Chesapeake Bay Watershed</p> <p>William Ritter, Ph.D., P.E., FASCE, University of Delaware, Newark, DE</p>	<p>Kansas City Regional Topics</p> <p>MODERATORS: Angela Mason, Sarah Fjell</p> <p>Brentwood Stream Restoration Project</p> <p>Anthony Hall, P.E., CDM, Kansas City, MO; Tom Jacobs, P.E., City of Lenexa, Lenexa, KS</p> <p>Impacts of Biota on the Performance of Stormwater Best Management Practices during Establishment in the Midwest</p> <p>Alicia Greene, Graduate Student, Stacy Hutchinson, Associate Professor, Kansas State University, Lawrence, KS; Reid Christianson, Iowa State University, Ames, IA; Trisha Culbertson, Ph.D. Candidate, North Carolina State University, Raleigh, NC</p> <p>Zona Rosa & Rush Creek Conservation Area</p> <p>Jason Dremosa, Applied Ecological Services, Inc., Lawrence, KS; Douglas Mensing, PWS, Applied Ecological Services, Inc., Prior Lake, MN</p> <p>The Impact of Smaller Detention Basins on Flood Hazard Areas in Lenexa, Kansas</p> <p>Elangovan Karuppasamy, P.E, Natalie Postel, P.E, CDM, Kansas City, MO; Christine Pomeroy, Ph.D., P.E., University of Utah, Salt Lake City, UT; Tom Jacobs, P.E, City of Lenexa, Lenexa, KS</p>	<p>Conflict Management and Decision Making – 1</p> <p>MODERATOR: Kelly Brumbelow</p> <p>A Pragmatic Cycle for Ongoing Water Resources Research and Management</p> <p>Stephen Bourne, P.E., PBS&J, Smyrna, GA; Thomas Singleton, PBS&J, Tallahassee, FL; John Hampson, CMS, PBS&J, Tampa, FL</p> <p>Developing Best Practices for Computer Aided Dispute Resolution</p> <p>Stacy Langsdale, Ph.D., P.E., Elizabeth Bourget, Institute for Water Resources, Alexandria, VA; Tim Feather, CDM, Kansas City, MO</p> <p>Does Collaborative Modeling Lead to Better Management of Our Water Resources?</p> <p>Stacy Langsdale, Ph.D., P.E., Institute for Water Resources, Alexandria, VA; William Michaud, P.E., SRA International, Inc., New Hartford, CT</p> <p>Multicriteria Decision Making under Uncertainty in Rainfall-Runoff Calibration; A Fuzzy Compromise Programming Approach</p> <p>Mahyar Shafii, Florimond De Smedt, Ph.D., Vrije Universiteit Brussel, Brussels, Belgium</p> <p>Selection of Sewer Overflow Control Strategies for the Austin Clean Water Program</p> <p>Joseph Smith, P.E., Eric Loucks, P.E., AECOM, Austin, TX</p>	<p>W/WW/SW – Security Enhancements in W&WW Utilities – 2</p> <p>MODERATORS: Dan Lynch, Findlay Edwards</p> <p>Advances in Data Validation, Event Detection, and Communications Structures for a Contamination Warning System: Case Study – Glendale, Arizona</p> <p>Kenneth Thompson, CH2M HILL, Englewood, CO; Rick Scott, City of Glendale, AZ Utilities Department; Raja Kadiyala, Ph.D., CH2M HILL, Oakland, CA; Andreas Weingartner, Scan Messtechnik GmbH, Vienna, Austria; Joep van den Broeke, Ph.D., s:can Measuring Systems LLC, Cincinnati, OH</p> <p>Implementing a Contamination Warning System at a DOD Facility Case Study – Port Hueneme, California</p> <p>Ken Thompson, CH2M HILL, Englewood, CO; Steven Fann, NAVFAC ESC, Port Hueneme, CA; Raja Kadiyala, Ph.D., CH2M HILL, Oakland, CA; Yakir Hasit, Ph.D., P.E., CH2M HILL, Philadelphia, PA; Gary Jacobson, P.E., CH2M HILL, Boston, MA</p> <p>Security and Municipal Facilities: The Challenge in Baghdad</p> <p>Jeffrey Talley, Ph.D., P.E., University of Notre Dame, Notre Dame, IN</p>	<p>NEXRAD Data Analysis</p> <p>MODERATOR: Emad Habib</p> <p>Evaluation of the Radar Rain Z-R Relationship for Real-time Use in South Florida</p> <p>Amy Henschke, Emad Habib, Ph.D., P.E., University of Louisiana at Lafayette; Chandra Pathak, Ph.D., P.E., FASCE, D.WRE, South Florida Water Management District, West Palm Beach, FL</p> <p>Radar Rainfall Analysis for Extreme August Storm in Sacramento, California</p> <p>David Curtis, Ph.D., Carlton Engineering, Shingle Springs, CA</p> <p>Use of Lightning and Storms Life Cycle Information in Radar Rainfall Estimation</p> <p>Emmanouil Anagnostou, Ph.D., University of Connecticut, Storrs, CT; Chandra Pathak, Ph.D., P.E., D.WRE, FASCE, South Florida Water Management District, West Palm Beach, FL; C. Morales, Ph.D., University of Sao Paulo, Brazil</p> <p>Use of NEXRAD Rainfall Data to Develop Climatologically Homogenous Rain Areas</p> <p>Chandra Pathak, Ph.D., P.E., D.WRE, FASCE, South Florida Water Management District, West Palm Beach, FL; Matthew Onderlinde, Henry Fuelberg, Ph.D., Florida State University, Tallahassee, FL</p>

12:30 - 1:30 PM Lunch on Your Own ■ 12:30 PM Committee Meeting (see page 54) ■ 1:30 - 5:00 PM Technical Poster Session I / Colonial Ballroom

 Important Panel Discussions & Special Sessions

MONDAY, MAY 18, 2009

2:00 - 3:30 PM TECHNICAL POSTER SESSION II COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS III 2:00 - 3:30 PM

JULIA LEE A	JULIA LEE B	MARY LOU WILLIAMS A	MARY LOU WILLIAMS B	BENNIE MOTEN A	JAY MCSHANN A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EDUCATION & RESEARCH	ENVIRONMENTAL	HYDRAULICS AND WATERWAYS
<p> Network Security – 1 MODERATOR: Avi Ostfeld</p> <p>A Multi-objective Evolutionary Computation Approach to Hazards Mitigation Design for Water Distribution Systems Luthansa Kanta, S.M.ASCE, Kelly Brumbelow, Ph.D., A.M.ASCE, Emily Zechman, Ph.D., A.M.ASCE, Texas A&M University, College Station, TX</p> <p>Multi-objective Sensor Placements with Improved Water Quality Models in a Network with Multiple Junctions Ryan Austin, Christopher Choi, Ph.D., University of Arizona, Tucson, AZ; Ami Pries, Ph.D., MIT-SMART; Avi Ostfeld, Ph.D., Technion - Israel Institute of Technology, Haifa, Israel; Kevin Lansey, Ph.D., University of Arizona, Tucson, AZ</p> <p>Robust Sensor Placement for Detecting Adversarial Contaminations in Water Distribution Systems Andreas Krause, Ph.D., California Institute of Technology, Pasadena, CA; Carlos Guestrin, Ph.D., Carnegie Mellon University, Pittsburgh, PA</p> <p>Sensor Network Design and Performance in Water Systems Dominated by Multi-story Buildings Robert Janke, Terra Baranowski Haxton, Ph.D., Government, Cincinnati, OH; Walter M. Grayman, Ph.D., P.E., M.ASCE, W M Grayman Consulting Engineers, Cincinnati, OH; Rakesh Bahadur, Ph.D., SAIC Corporation; Regan Murray, Ph.D., Government, Cincinnati, OH; William Samuels, Ph.D., SAIC Corporation</p>	<p>Urban Water Management in Kansas City – 2 MODERATORS: Tom Jacobs, Ginny Moore</p> <p>Nexus Projects in Kansas City's Suburban Watersheds Brian Rast, P.E., CFM, PMP, US Army Corps of Engineers, Kansas City, MO</p> <p>KC-One: Comprehensive City-wide Management Plan Creates Leading Stormwater Management Program Jeff Hanson, P.E., Black & Veatch; Richard Gaskin, P.E., Kansas City, MO</p> <p>From Grey to Green: Strategies and Concepts for Implementing Green CSO and Wet Weather Solutions James Schlaman, Black & Veatch; Bryce Lawrence, PBA; Scott Schulte, PBA</p>	<p>Groundwater Management and Its Uncertainty MODERATORS: Teresa Culver, Gus Williams</p> <p>Evaluation of Alternative Geospatial Models Using Image Ranking and Machine Learning: An Application in Shallow Groundwater Recharge and Discharge Yu-Feng Lin, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL; Peter Bajcsy, Ph.D., Alex Yahja, Ph.D., Chulyun Kim, National Center for Supercomputing Applications, Champaign, IL</p> <p>Minimizing Energy Costs for Groundwater Pumping David Ahlfeld, P.E., Mikaela Martin, Graduate Student, University of Massachusetts</p> <p>Simulation of Subsurface Water Flow by Galerkin Finite Element Method in Dhaka City Aquifer Shikha Rahman, Ph.D., P.E., M.ASCE, California Polytechnic State University, San Luis Obispo, CA; Mohammad Bhuiyan, Ph.D., Bangladesh University of Engineering and Technology, San Luis Obispo, CA</p> <p>Temporal Analysis of Remediation Designs Using a Multiobjective Optimization Model Under Uncertainty Amy Chan-Hilton, Ph.D., Omar Beckford, Florida State University, Tallahassee, FL</p>	<p>Education MODERATOR: TBD</p> <p>Framing the Design Process in an Undergraduate Environmental Engineering Class Deb O'Bannon, Ph.D., P.E., FASCE, University Missouri-Kansas City, Kansas City, MO; Tom Kimes, P.E., HDR Engineering, Inc., Kansas City, MO</p> <p>Integrating Design Heuristics in an Environmental Engineering Course Kathleen Leonard, Ph.D., University of Alabama – Huntsville, Huntsville, AL</p> <p>Non-traditional University Research Partners That Facilitate Service Learning and Graduate Research for Sustainable Development Maya Trotz, Ph.D., Helen Muga, Ph.D., Linda Philips, P.E., Daniel Yeh, Ph.D., Amy Stuart, Ph.D., James Mihelcic, Ph.D., University of South Florida, Tampa, FL</p>	<p>Soil and Subsurface Remediation – 2 MODERATOR: Joel Burken</p> <p>Use of In-planta Solid Phase Sampling Devices to Delineate VOC Plumes Joel Burken, Ph.D., Kendra Waltermire, Graduate Research Assistant, Emily Sheehan, Graduate Research Assistant, Missouri University of Science and Technology, Rolla, MO</p> <p>Addressing Contaminated Groundwater and Promoting Environmental Stewardship in Wichita, Kansas – The Gilbert and Mosley Project Story Paul Anderson, P.E., CDM, Kansas City, MO; Shawn Maloney, P.G., City of Wichita, Wichita, KS; Roger Olsen, Ph.D., CDM, Kansas City, MO</p> <p>Hutchinson, Kansas – 4th and Carey Site Groundwater Remediation and Reverse Osmosis (RO) Water Treatment Facility Project Danita Boettner, P.E., CDM, Albuquerque, NM; Don Koci, P.G., City of Hutchinson, KS; Darren Brown, P.G., CDM, Wichita, KS; Bruce Allman, PEC, Wichita, KS</p> <p>Hutchinson, Kansas – 4th and Carey Site Groundwater and Soil Source Control Measures at Two Grain Elevators Darren Brown, P.G., Danita Boettner, P.E., CDM, Albuquerque, NM; Don Koci, P.G., City of Hutchinson, KS</p>	<p>Computational Hydraulics and Hydrodynamics – 2 MODERATORS: Jia Yafei, Yong Lai</p> <p>A Process-based Unsteady Model for Wave-Current-Morphodynamic Changes in Two Dimensions Soumendra N. Kuiry, Ph.D., Yan Ding, Ph.D., Sam S.Y. Wang, Ph.D., University of Mississippi, University, MS</p> <p>Simulation of Multilayer Shallow Water Fluid Flow Using Lattice Boltzmann Modeling and High Performance Computing Kevin Tubbs, Ph.D. Candidate, Frank Tsai, Ph.D., Louisiana State University, Baton Rouge, LA</p> <p>Two-dimensional Hydraulic Modeling of the Lower Skokomish River Cassie Klumpp, P.E., US Bureau of Reclamation</p> <p>Using Computational Model – ADH to Evaluate Relationship of Water Surface Elevation to Wing Dikes Renjie Xia, Ph.D., US Army Corps of Engineers, Rock Island, IL</p>

MONDAY, MAY 18, 2009

CONCURRENT TECHNICAL SESSIONS III 2:00 - 3:30 PM

JAY MCSHANN B	LESTER YOUNG A	LESTER YOUNG B	BIG JOE TURNER A	BENNIE MOTEN B
HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	LOCAL ISSUES	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER
<p>In-stream Structures for Habitat Restoration MODERATORS: Weiming Wu, Jia Yafei</p> <p>Culvert Retrofit and Fish Passage: An Update Joseph Webb, Graduate Research Assistant, Rollin Hotchkiss, Ph.D., P.E., D.WRE, Brigham Young University, Provo, UT</p> <p>Physical Modeling of River Spanning Rock Structures Kent Collins, US Bureau of Reclamation</p> <p>Numerical Analysis of the Performance of Rock Weirs: Effects of Structure Configuration on Local Hydraulics Chris Holmquist-Johnson, P.E., USGS, Fort Collins, CO</p> <p>Quantitative Evaluation of Rock Weir Field Performance David Varyu, E.I., Kendra Russell, E.I., Elaina Holburn, E.I., US Bureau of Reclamation, Denver, CO</p>	<p>ET in Water Rights and Water Transfers – 1 MODERATORS: Suat Irmak, Richard Allen</p> <p>Overview of Development and Use of Crop ET Estimates with Hydrological Models for Interstate Compacts Dale Book, P.E., Mary Kay Brengosz, P.E., Spronk Water Engineers, Inc., Denver, CO</p> <p>ASCE Standardized Penman-Monteith Alfalfa Reference ET and Crop ET Estimates for Arkansas River Compact Compliance in Colorado Thomas Ley, Ph.D., P.E., Dale Straw, P.E., Colorado Division of Water Resources, Pueblo, CO; Robert Hill, Ph.D., P.E., Utah State University, Logan, UT</p> <p>Interstate Collaboration in the Arkansas River Compact Compliance Process: The “Nuts and Bolts” of Developing PET for Canal Service Areas for Input to the H-I Model Mary Kay Brengosz, P.E., Spronk Water Engineers, Inc., Denver, CO</p> <p>Alfalfa Reference ET from a Weighing Lysimeter and Estimates from the ASCE Standardized Reference ET Equation in the Arkansas Valley of Colorado Allan Andales, Ph.D., Colorado State University, Fort Collins, CO; Dale Straw, P.E., Thomas Ley, Ph.D., P.E., Colorado Division of Water Resources, Pueblo, CO; Abdel Berrada, Ph.D., Colorado State University, Fort Collins, CO</p>	<p>Kansas City Regional Topics MODERATORS: David Silverstein, Jerry Richardson</p> <p>Kansas City, Missouri Wet Weather Solutions Program Erin Ollig, Sheila Shockey, Shockey Consulting Services, Lenexa, KS</p> <p>Water-quality Assessment of the Largely Urban Blue River Basin, Metropolitan Kansas City, USA, 1998 to 2007 Donald Wilkison, Daniel Armstrong, Sarah Hampton, US Geological Survey, Lee's Summit, MO</p> <p>FEMA RVII Map Modernization Challenges Rick Nusz, Ph.D., CFM, Amanda Wilson, P.E., CFM, AECOM, Kansas City, MO</p> <p>Water-quality of Streams in Johnson County, Kansas, 2002-07 Teresa J. Rasmussen, USGS Kansas Water Science Center, Lawrence, KS</p>	<p>Conflict Management and Decision Making – 2 MODERATOR: Saad M. Merayyan</p> <p>A Decentralized Optimization Algorithm for Multi-agent System Based Watershed Management Yi-Chen Yang, Ximing Cai, Ph.D., Dušan Stipanovic, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>A Decision Support System for Water Resources Planning and Management for the North Slope of Alaska Amy Tidwell, Ph.D., University of Alaska-Fairbanks, Fairbanks, AK; Kelly Brumbelow, Ph.D., A.M.ASCE, Texas A&M University, College Station, TX; Stephen Bourne, P.E., PBS&J, College Station, TX</p> <p>Agent-based Models for Simulation of Watersharing in a River Basin Mohan Sankaralingam, Ph.D, Santosh Kumar K., Indian Institute of Technology Madras, Chennai, India</p> <p>Budget Allocation Model of Water Distribution Networks Alaa Salman, Ph.D. Candidate, Tarek Zayed, Ph.D., P.Eng., Osama Moselhi, Ph.D., P.Eng., Concordia University, Montreal, QC</p> <p>Development of a Fuzzy Based Pipe Condition Assessment Model Using Promethee Yi Zhou, Ph.D. Student, UNESCO-IHE; Kala Vairavamoorthy, Professor, University of Birmingham, Birmingham, UK; Frank Grimshaw, Severn Trent Water Limited, UK</p>	<p>W/WW/SW – Concentrate Management in Desalination – 1 MODERATORS: Harold Thomas, Ken Mercer</p> <p>Concentrate Management and Disposal Practices in Australia James Jensen, P.G., Parsons Brinckerhoff Australia, Adelaide, Australia</p> <p>Desalination of Brackish Groundwater and Deep Well Injection of Concentrate in El Paso, Texas William Hutchison, Ph.D., P.E., P.G., El Paso Water Utilities, El Paso, TX</p> <p>EWRI Effort to Establish Concentrate Management Monograph for Desalination Conrad G. Keyes, Jr., Sc.D., PE/PS., Hon.M.ASCE, D.WRE, New Mexico State University, Las Cruces, NM</p> <p>Membrane Treatment of Rio Grande Water for Municipal Water Production During the Non-irrigation Season Michael Fahy, P.E., El Paso Water Utilities, El Paso, TX; Anthony Tarquin, Professor, University of Texas at El Paso, El Paso, TX; John Balliew, P.E., El Paso Water Utilities, El Paso, TX</p> <p>Synopsis of National Research Council's Report on Desalination Sandeep Sethi, Ph.D., P.E., Carollo Engineers, Sarasota, FL</p>

3:30 - 4:00 PM Networking Break / Colonial / Imperial Ballrooms



Important Panel Discussions & Special Sessions

MONDAY, MAY 18, 2009

CONCURRENT TECHNICAL SESSIONS IV 4:00 - 5:30 PM

JULIA LEE A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	BENNIE MOTEN A	JAY MCSHANN A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p>	<p>7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT</p>	<p>EMERGING AND INNOVATIVE TECHNOLOGY</p>	<p>ENVIRONMENTAL</p>	<p>HYDRAULICS AND WATERWAYS</p>
<p>Network Security – 2 MODERATOR: Walter Grayman</p> <p>Comparison of Pressures Simulated Using Transient Analysis with Field Data from a Full-scale Distribution System Gabrielle Ebacher, Marie-Claude Besner, Ph.D., École Polytechnique de Montréal, Montreal, QC; Bong Seog Jung, Ph.D., MWH Soft; Jean Lavoie, Ville de Laval, Laval, QC; Bryan W. Karney, Ph.D., University of Toronto, Toronto, ON; Michèle Prévost, Ph.D., École Polytechnique de Montréal, Montreal, QC</p> <p>Effects of Redesign of Water Systems for Security and Water Quality Factors Walter Grayman, Ph.D., P.E., D.WRE, W M Grayman Consulting Engineer, Cincinnati, OH; Regan Murray, Ph.D., US Environmental Protection Agency, Cincinnati, OH; Dragan Savic, Ph.D., Exeter University, Exeter, UK</p> <p>Modeling Chlorine Response to Microbial Contamination in Drinking Water Distribution Systems Damian Helbling, Ph.D., P.E., Swiss Federal Institute of Aquatic Science and Technology (Eawag), Duebendorf, Switzerland; Jeanne VanBriesen, Ph.D., Carnegie Mellon University, Pittsburgh, PA</p> <p>Seoul (Korea) Online Water Quality Monitoring of Drinking Water Shin, Song, Choi, Park</p>	<p>Low Impact Development – General Applications MODERATORS: Steve Trinkhaus, Michael Clar</p> <p>Cost Estimating Tools for Low-impact Development Best Management Practices Dasch Houdeshel, Christine Pomeroy, Ph.D., P.E., M.ASCE, University of Utah, Salt Lake City, UT; Lisa Hair, P.E., Robert Goo, US Environmental Protection Agency, Salt Lake City, UT</p> <p>The Runoff Reduction Method Greg Hoffmann, P.E., Kelly Collins, E.I.T., M.ASCE, Dave Hirschman, Center for Watershed Protection, Ellicott City, MD</p> <p>Integration of Low-Impact Development into the International Stormwater BMP Database Jane Clary, CPESC, Wright Water Engineers, Inc., Denver, CO; Marcus Quigley, P.E., Geosyntec Consultants, Denver, CO; Andrew Earles, P.E., Wright Water Engineers, Inc., Denver, CO; Marc Leisenring, P.E., Eric Strecker, P.E., Geosyntec Consultants, Denver, CO; Jonathan Jones, P.E., D.WRE, Wright Water Engineers, Inc., Denver, CO</p> <p>Cost, Benefit, and Value of Low-impact Design Kumud Pyakuryal, Ph.D. Student, Tetra Tech, Kansas City, MO</p>	<p>Groundwater Management and its Uncertainty MODERATORS: Gus Williams, Teresa Culver</p> <p>A Critical Realization Identification Method Based on Pareto Dominance Analysis Jinjun Wang, Ph.D. ENVIRON International Corporation, Atlanta, GA; Jiabao Guan, Ph.D., Mustafa Aral, Ph.D. PE, Georgia Institute of Technology, Atlanta, GA</p> <p>Combining Rule-based Fuzzy Model with GIS to Predict Groundwater Vulnerability to Contamination Dhundi Raj Pathak, Ph.D. Student, Akira Hiratsuka, Dr.Eng., Isao Awata, Dr.Eng., Luonan Chen, Ph.D., Osaka Sangyo University, Osaka, Japan</p> <p>Projecting Future Groundwater Availability for Power Generation Plant Licensing Garrett Day, P.G., Bechtel Power Corporation, Frederick, MD; Christopher Krambis, P.G., Schnabel Engineering</p>	<p>Interdisciplinary Education Programs Panel Discussion MODERATOR: Laurel Saito</p> <p>Panelists will provide case study examples of interdisciplinary education at different institutions, leading to discussion of how to effectively promote and sustain interdisciplinary experiences in education and the potential role of EWRI in helping to promote interdisciplinary education.</p> <p>Coordinating and Implementing a Graduate Course on Interdisciplinary Modeling for Water-related Issues Laurel Saito, Ph.D., P.E., University of Nevada – Reno, Reno, NV</p> <p>Multidisciplinary Teaching Experiences Daniel Loucks, Ph.D., Cornell University, Ithaca, NY</p> <p>The Benefits and Challenges of Interdisciplinary Modeling of Environmental Systems Alityson Beall, Washington State University, Pullman, WA</p>	<p> Environmental Sustainability MODERATOR: Alok Bhandari</p> <p>Beyond Compliance and Toward Sustainability: Advantages of Systems Environmental Engineering Oral Saulters, P.E., M.ASCE, Blase Leven, P.G., Larry Erickson, Ph.D., Leslie Jamka, Ryan Green, John Pickrell, DVM, Ph.D., DABT, Kansas State University, Manhattan, KS</p> <p>Environmental Impact of Coffee Processing Effluent on the Ecological Integrity of Rivers Found in Gomma Woreda of Jimma Zone, Ethiopia Yared Kassahun Kebede, Ethiopian Institute of Agricultural Research, Addis Ababa, Ethiopia; Fassil Assefa, Akiliu Amsalu, Addis Ababa University, Addis Ababa, Ethiopia</p> <p>How to Save the Second Aral Sea? Yusup Rysbekov, Scientific-Information Centre, ICWC of Central Asia, Tashkent, Uzbekistan</p> <p>Variations Analysis of Water Quality Indices along the Karoon River with Respect to Development Conditions S. Ali Mojahedi, Ministry of Energy, Tehran, Iran; Jalal Attari, Ph.D., Power & Water University of Technology, Tehran, Iran</p>	<p>Computational Hydraulics and Hydrodynamics – 3 MODERATORS: Yan Ding, Richard Schmalz</p> <p>ADH = Fast & Stable 2D Finite Element Model Thomas Gambucci, P.E., D.WRE, US Army Corps of Engineers, Rock Island, IL</p> <p>Evaluation of Methods to Reduce Backflows from the Chicago Waterway System to Lake Michigan Charles Melching, Ph.D., P.E., Marquette University, Milwaukee, WI; Emre Alp, Ph.D., Middle East Technical University, Ankara, Turkey</p> <p>Modeling the Evolution of Incised Streams in Hammar Mesopotamian Marsh with Emphasis on the Contribution of Tidal Flow in the Filling Requirements Abdulkareem A.H. Alkaabi, Ph.D., A. Ramamurthy, Ph.D., Concordia University, Montreal, QC; Haidar A. Al-Thamiry, Ph.D., Ammar A. Ali, Baghdad University</p> <p>Numerical Simulations of Hydrodynamic and Morphodynamic Responses to Sea Level Rise and Hazardous Storm in an Estuary Using CCHE2D-Coast Model Yan Ding, Ph.D., Moustafa Elgohry, Ph.D. Student, Sam S.Y. Wang, Ph.D., University of Mississippi, University, MS</p>

CONCURRENT TECHNICAL SESSIONS IV 4:00 - 5:30 PM

JAY MCSHANN B	LESTER YOUNG A	LESTER YOUNG B	BIG JOE TURNER A	BENNIE MOTEN B	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	LOCAL ISSUES	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p style="text-align: center;">Eco-hydrology</p> <p>MODERATORS: John Schwartz, David Williams</p> <p>Considering River-scale Ecological Improvements within Flood Management Planning: The Lower Menomonee River Watercourse Status Report Michael Schwar, Ph.D., P.E., D.WRE, HNTB Corporation, Milwaukee, WI; Tom Chapman, P.E., Milwaukee Metropolitan Sewerage District, Milwaukee, WI</p> <p>Developing Linkages Between Biological Impairment and Stream Siltation: A Case Study in the Northern Great Plains Ecoregion John Schwartz, Ph.D., P.E., University of Tennessee, Knoxville, TN; Andrew Simon, Ph.D., Lauren Klimetz, USDA-ARS National Sedimentation Laboratory, Oxford, MS</p> <p>The Effect of Natural Hydrological Disturbances (Defined from HSPF Simulated Hydrographs) on Trout Populations in Ungaged Streams of the Great Smoky Mountain National Park Keil Neff, Joseph Parker, John Schwartz, Ph.D., University of Tennessee, Knoxville, TN; Matt Kulp, Steve Moore, National Park Service, Knoxville, TN; Meijun Cai, University of Tennessee, Knoxville, TN</p> <p>Upper Mississippi River Basin Envirohydrologic Observatory Jeremy Briel, J.V. Loperfido, Craig Just, Ph.D., Nathan Young, Ph.D., University of Iowa, Iowa City, IA</p>	<p style="text-align: center;">ET in Water Rights and Water Transfers – 2</p> <p>MODERATORS: Mary Kay Brengosz, Thomas Ley</p> <p>Adjusting Wind Speed Measured over Variable Height Alfalfa for Use in the ASCE Standardized Penman-Monteith Equation Thomas Ley, Ph.D., P.E., Colorado Division of Water Resources, Pueblo, CO; Richard Allen, Ph.D., University of Idaho, Moscow, ID; Marvin Jensen, (retired), USDA-ARS and Colorado State University, Fort Collins, CO</p> <p>Evapotranspiration and Net Irrigation Water Requirements for Nevada Justin Huntington, Nevada Division of Water Resources, Carson City, NV; Richard Allen, Ph.D., P.E., University of Idaho, Moscow, ID</p> <p>Estimation of Evaporation and Evapotranspiration during Nongrowing Seasons Using a Dual Crop Coefficient Richard Allen, M.ASCE, University of Idaho, Moscow, ID; James Wright, Ph.D., USDA-ARS (ret), Kimberly, ID</p> <p>Integrated Water Management in an Ancestral Water Scheme in a Mountainous Area of Southern Spain Gonzalo Vivas, Instituto de Agricultura Sostenible, CSIC, Cordoba, Argentina; Enrique Gómez-Landesa, USDA-ARS; Luciano Mateos, Instituto de Agricultura Sostenible, CSIC, Cordoba, Argentina; Juan V. Giraldez, Instituto de Agricultura Sostenible, CSIC, and University of Cordoba, Cordoba, Argentina</p>	<p style="text-align: center;"> Kansas City Regional Topics</p> <p>MODERATORS: David Silverstein, Jerry Richardson</p> <p>Golden Eagle – Brown County, Kansas Emergency Streambank Stabilization James Alexander, E.I.T., HNTB Federal, Kansas City, MO</p> <p>Importance of Levees in the Kansas City Area David Renetzky, P.E., HNTB Corporation, Kansas City, MO; John Grothaus, US Army Corps of Engineers, Kansas City District, Kansas City, MO</p> <p>Lake Winnebago Dam Relocation Project Jonathan Polak, P.E., Shannon Tyree, Olsson Associates, Overland Park, KS</p> <p>Riverside-Quindaro Bend Levee (L-385) on the Missouri River: The Essential Role of O&M and Documentation Gary Creason, P.E., M.ASCE, Affinis Corp., Overland Park, KS</p> <p>Rocking Missouri Bridges John Grothaus, US Army Corps of Engineers, Kansas City, MO; Pete Jarchow, P.E., HNTB, Kansas City, MO; Brian Rast, P.E., PMP, US Army Corps of Engineers, Kansas City, MO; John Blancett, P.E., HNTB, Kansas City, MO; Ken Markwell, P.G., Missouri Department of Transportation, Kansas City, MO</p>	<p style="text-align: center;">Flood Hazard Modeling and Mapping</p> <p>MODERATOR: Elizabeth Perez</p> <p>Application of Genetic Algorithms for Estimation of Flood Routing Model Parameters Mohan Sankaralingam, National Institute of Technology (Deemed University), Kurukshetra, Haryana, India;</p> <p>Balancing the Budget – A Limited Detail Approach to Floodplain Studies Andy Bonner, P.E., CFM, AECOM, Kansas City, MO</p> <p>FEMA Flood Map Accuracy David Maidment, Ph.D., University of Texas at Austin, Austin, TX</p> <p>Formulating an Engineering Response to the Effects Global Climate Change for Design of Hydraulic Structures and Flood Protection Works Eric Loucks, P.E., AECOM, Austin, TX</p>	<p style="text-align: center;">W/WW/SW – Concentrate Management in Desalination – 2</p> <p>MODERATORS: Ken Mercer, Harold Thomas</p> <p>Cost Comparison of Membrane Treatment and Concentrate Management Practices at Drinking Water Treatment Plants in Florida Berrin Tansel, Ph.D., P.E., D.WRE, FASCE, Florida International University, Miami, FL; Inna Sosniukhina, Miami Dade Water and Sewer Department, Miami, FL</p> <p>Desalination Concentrate: Bay vs. Ocean Val Frenkel, Ph.D., P.E., Patrick Treanor, P.E., Kennedy/Jenks Consultants, San Francisco, CA</p> <p>Future Water Supply Desalination Technology: Forward Osmosis Co-located with Power Production Tina Coop, University of Kansas, Lawrence, KS; Les Lampe, Black & Veatch, Kansas City, MO</p> <p>New Strategies for Managing Desalination Concentrate with Zero Liquid Discharge, Two WRF Research Projects Rick Bond, Vasu Veerapaneni, Black & Veatch</p>	<p style="text-align: center;">Prediction Tools in Watershed Management</p> <p>MODERATOR: Mohamed Hantush</p> <p>Estimating Probability of Extreme Events David Harris, E.I.T., Gary Brunner, P.E., US Army Corps of Engineers, Davis, CA</p> <p>Prediction of Changes in Soil Moisture Due to Rainfall, Infiltration, and Evapotranspiration Using a Physically-based Model Zhiguo He, Ph.D., Weiming Wu, Ph.D., Sam Wang, Ph.D., University of Mississippi, University, MS</p> <p>Reining in Log-Pearson Type III Flow-frequency Estimates – Applying a Reasonable Bound through the Skew Parameter Ben Tustison, P.E., Joseph Countryman, P.E., MBK Engineers, Plymouth, MN</p> <p>Understanding Water Quality Responses to Long-term Acidic Deposition in a High-elevation Southern Appalachian Watershed: A Focus on Soil Watershed Processes Meijun Cai, Ph.D Student, John S. Schwartz, Ph.D., R. Bruce Robinson, Ph.D., University of Tennessee, Knoxville, TN; Steve Moore, Matt Kulp, Great Smoky Mountains National Park, Knoxville, TN</p>

5:45 - 6:15 PM Congress Plenary Keynote by LTG Robert L. Van Antwerp / Count Basie Ballroom

6:30 - 7:00 PM AAWRE 5th Annual Diplomate Induction Ceremony / Tea Room

7:00 - 8:00 PM AAWRE Diplomate & Visiting International Fellows Reception / Barney Allis Lobby

6:00 - 10:00 PM Committee Meetings (see page 54) 6:00 - 10:00 PM Chinese American Water Resources Association / Truman A, B

Important Panel Discussions & Special Sessions



TUESDAY, MAY 19, 2009

7:00 AM - 6:00 PM REGISTRATION OPEN COUNT BASIE BALLROOM FOYER
 7:30 - 8:45 AM ENVIRONMENTAL COUNCIL BREAKFAST, AWARDS, AND LECTURE COUNT BASIE BALLROOM A
 7:30 - 8:45 AM HYDRAULICS & WATERWAYS AND GROUNDWATER COUNCILS BREAKFAST, AWARD AND LECTURE COUNT BASIE BALLROOM C
 8:30 AM - 4:00 AM EXHIBIT HALL OPEN IMPERIAL BALLROOM
 8:30 - 9:00 AM NETWORKING BREAK COLONIAL / IMPERIAL BALLROOMS
 9:00 - 10:30 AM TECHNICAL POSTER SESSION III COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS V 9:00 - 10:30 AM

JULIA LEE A	JULIA LEE B	MARY LOU WILLIAMS A	BENNIE MOTEN A	JAY MCSHANN A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p> <p>Network Security – 3 MODERATOR: Robert Janke</p> <p>A Markov Chain Monte Carlo Implementation of Bayesian Contaminant Source Characterization in Water Distribution Systems under Stochastic Demands Kenneth Harrison, Ph.D., Earth System Science Interdisciplinary Center, Raleigh, NC; Hui Wang, North Carolina State University, Raleigh, NC</p> <p>Conditioned Backward Probability Modeling to Identify Contamination Sources in a Water Distribution System Roseanna Neupauer, Ph.D., Michael Records, S.M.ASCE, University of Colorado, Boulder, CO</p> <p>Real-time Implementation of Contamination Source Identification Method for Water Distribution Systems Annamaria Ether De Sanctis, Sam Hatchett, James Uber, Ph.D., Dominic Boccelli, Feng Shang, University of Cincinnati, Cincinnati, OH</p> <p>Threat Perceptions and Risk Management in Urban Water Supply Schemes Mitthan Kansal, Ph.D., Indian Institute of Technology, Roorkee, India; Aditya Tyagi, CH2M HILL</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Wet Weather Flow State of the Science and Panel Discussion MODERATOR: Len Wright, Sri Rangarajan</p> <p>EPA Aging Water Infrastructure Research Program: State of the Technology for the Condition Assessment and Rehabilitation of Wastewater Collection Systems Daniel Murray, P.E., M.ASCE, US EPA, Cincinnati, OH</p> <p>State of the Practice of Wet Weather Flow Analysis Mitchell Heineman, P.E., M.ASCE, D.WRE, BCEE, CDM, Cambridge, MA</p> <p>PANELISTS: Daniel Murray, P.E., M.ASCE, EPA ORD, Cincinnati, OH David Sample, Ph.D., P.E., D.WRE, Virginia Tech, Manassas, VA Robert Carr, Water Resources Modeling, Milwaukee, WI Mitchell Heineman, P.E., M.ASCE, D.WRE, BCEE, CDM, Cambridge, MA Srinivasan Rangarajan, HydroQual, Mahwah, NJ</p>	<p>7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT</p> <p>Groundwater Characterization & Monitoring MODERATORS: Gus Williams, Amy Chan-Hilton</p> <p>A Novel Approach to Groundwater Model Development Thomas Krom, Ph.D., Touch Water Ltd., Christchurch, New Zealand; Richard Lane, Ph.D., Applied Research New Zealand, Christchurch, New Zealand</p> <p>Groundwater Mixing Using Pulsed Dipole Injection/ Extraction Wells Cristyn R. Radabaugh, P.E., M. ASCE, David C. Mays, Ph.D., P.E., M.ASCE, University of Colorado - Denver, Denver, CO; Roseanna M. Neupauer, Ph.D., P.E., M.ASCE, University of Colorado at Boulder, Denver, CO</p> <p>Investigation and Classification of Groundwater Redox Conditions in the Vicinity of Yucca Mountain Omar Al-Qudah, Ph.D. Student, John Walton, Professor, University of Texas at El Paso, El Paso, TX</p> <p>Subsurface Characterization Using Electrical Resistivity Tomography Frank Tsai, Ph.D., Madhava Pillala, Graduate Student, Louisiana State University, Baton Rouge, LA</p>	<p>ENVIRONMENTAL</p> <p>Soil and Subsurface Remediation – 3 MODERATOR: Tian Zhang</p> <p>Application of Biopile System for the Remediation of Petroleum-hydrocarbon Contaminated Soils C.M. Kao, Ph.D., National Sun Yat-Sen University, Kaohsiung, Taiwan</p> <p>Associations of PAHs with Size Fractionated Sediment Particles Jejal Reddy Bathi, Ph.D., Geosyntec Consultants, Tuscaloosa, AL; Robert Pitt, Ph.D., P.E., University of Alabama, Tuscaloosa, AL; Shirley Clark, Ph.D., Penn State Harrisburg, Middletown, PA</p> <p>Sorption and Desorption of Testosterone in Agricultural Soils Rui Ma, E.I., Tian Zhang, Ph.D., P.E., University of Nebraska - Omaha, Omaha, NE</p> <p>Stochastic Analysis of a Mass Balance One Dimensional Mass Transport Model Ben Johnson, E.I., Andrew Elmore, Ph.D., P.E., Jeffrey Cawfield, Ph.D., P.E., Missouri University of Science & Technology, Rolla, MO</p>	<p>HYDRAULICS AND WATERWAYS</p> <p>Computational Hydraulics and Hydrodynamics – 4 MODERATORS: Sam S.Y. Wang, Weiming Wu</p> <p>Comparison of HEC-RAS and InfoWorks RS, A Case Study in Grand Prairie, Texas Tom Mountz, P.E., D.WRE, CFM, Joshua Crowley, P.E., D.WRE, CFM, CPESC, Espey Consultants, Inc., Austin, TX</p> <p>Diversion of S-4 Drainage from Lake Okeechobee: Hydraulic Modeling of Alternatives Using HEC-RAS Stephanie Otis, Ph.D., P.E., Gene Foster, P.E., Burns & McDonnell Eng. Co., Kansas City, MO</p> <p>New Floodplain Delineation Capabilities in HEC-RAS Cameron Ackerman, P.E., D.WRE, Mark Jensen, Gary Brunner, P.E., US Army Corps of Engineers Hydrologic Engineering Center, Davis, CA</p> <p>Transitioning NWS Operational Hydraulics Models from FLDWAV to HEC-RAS Fekadu Moreda, Ph.D., Angelica Gutierrez, Ph.D., Seann Reed, Ph.D., Cecile Aschwanden, NOAA/National Weather Service, Silver Spring, MD</p>
<p>9:00 - 10:30 AM ANDY KIRK A, B</p> <p>Aging Infrastructures – Critical Issues Facing Our Cities MODERATOR: William H. Espey, Jr., Espey Consultants, Inc.</p> <p>PANELISTS: Michael Marcotte (Public Works Director, City of Houston); James Mellem (Assistant Director, KCMO Water Services, Kansas City); two additional city representatives (TBD)</p>				

TUESDAY, MAY 19, 2009

CONCURRENT TECHNICAL SESSIONS V 9:00 - 10:30 AM

JAY MCSHANN B	LESTER YOUNG B	LESTER YOUNG A	BENNIE MOTEN B	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	INTERNATIONAL	IRRIGATION AND DRAINAGE	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Larger River Restoration</p> <p>MODERATORS: F. Shields, Jr., Blair P. Greinmann</p> <p>Environmental Aspects of Dredging: What About Air Quality? Mark Anderson, US Army Corps of Engineers; Brian Barkedoll, Ph.D., P.E., FASCE, D.WRE, Michigan Tech University, Houghton, MI</p> <p>Integrating Fluvial Geomorphology and Two-dimensional Hydraulic and Sediment Transport Modeling to Support Sustainable Design of Large River and Floodplain Improvements: The Trinity River Corridor Project, Dallas, Texas Mark Tompkins, Ph.D., P.E., CH2M HILL, Oakland, CA; Greg Ajemian, P.E., City of Dallas, Dallas, TX; Gregory Welch, P.E., Anthony Falzone, Kyle Winslow, Ph.D., P.E., Paul Frank, E.I.T., Beatriz Dongelli, E.I.T., Denny Mengel, Ph.D., CH2M HILL, Oakland, CA</p> <p>USACE River Ecosystem Restoration Planning: Lessons Learned From the Illinois River Study Michael Schwarz, Ph.D., P.E., D.WRE, HNTB Corporation, Milwaukee, WI</p>	<p>Transboundary Water Issues</p> <p>MODERATORS: Mohammad Karamouz, David Watkins</p> <p>A Framework for Improving Water Security in the Middle East John Kliem, P.E., US Department of Defense, Fairfax Station, VA; Jonah Lee, HDR Inc., Irvine, CA</p> <p>Water Resources in Jordan: Challenges and Accomplishments Saad Merayyan, Ph.D., California State University, Sacramento, CA; Salwa Mrayyan, Ph.D., Al-Balqa Applied University, Al Salt, Jordan; Mutaz Mihyar, California Department of Water Resources, Sacramento, CA</p> <p>Evaluation of Uncertainties in the Simulation of Watershed Nutrient Load: A Case Study Mohammad Karamouz, Ph.D., Massoud Taheriyoun, Ph.D. Candidate, Mohammad Reza Seyedabadi, Sadegh Behboodan, University of Tehran, Tehran, Iran</p> <p>Economic Sustainability Evaluation of an Inter-basin Water Transfer Project Using GWP* Statement Mohammad Karamouz, Ph.D., University of Tehran, Iran; Ali Mojahedi, Ministry of Energy, Tehran, Iran; Asghar Elyasi, Vahid Askarinejad, University of Tehran, Iran</p>	<p> ET Measurement and Calculation</p> <p>MODERATORS: Michael Dukes, Jeppe Kjaersgaard</p> <p>Mid-summer Deficit Irrigation of Alfalfa as a Strategy for Saving Water Blaine Hanson, Ph.D., University of California – Davis, Davis, CA; Khaled Bali, Ph.D., Steve Orloff, Harry Carlson, Ph.D., Blake Sanden, University of California Cooperative Extension, Davis, CA; Dan Putnam, Ph.D., University of California – Davis, Davis, CA</p> <p>Comparison of Sensible Heat Flux Measurements by a Large Aperture Scintillometer and Eddy Correlation Methods Xinhua Jia, Ph.D., Xiaodong Zhang, Ph.D., Dean Steele, Ph.D., North Dakota State University, Fargo, ND</p> <p>Recursive and Explicit Combination Methods for Calculating Reference Evapotranspiration Christopher Hay, Ph.D., P.E., Suat Irmak, Ph.D., University of Nebraska - Lincoln, Lincoln, NE</p> <p>Some Results of Evapotranspiration Measured by Three Weighing Lysimeters in La Mancha, Spain Ramon Urrea-Lopez, Amelia Montoro, Prudencio Lopez-Fuster, Instituto Técnico Agronómico Provincial, Spain; Francisco Martín de Santa Olalla, University of Castilla-La Mancha, Spain</p>	<p>Retrofitting Stormwater BMPs</p> <p>MODERATORS: Bridget Wadzuk, Charlene Johnston</p> <p>Developing Green Streets Prototypes to Reduce Combined Sewer Overflows for Cincinnati, Ohio Brian Marengo, P.E., Thomas Cahill, P.E., Daniel Wible, P.E., LEED, Courtney Marm, CH2M HILL; Ralph Johnstone, City of Cincinnati, Cincinnati, OH</p> <p>Implementation of Stormwater Best Management Practice Retrofits in Wilmington, North Carolina Jason Wright, William Hunt, Ph.D., P.E., Christy Perrin, North Carolina State University, Raleigh, NC</p> <p>Modeling Stormwater Basins for Potential Retrofit Designs Ryan Headley, Josh Wyrick, Ph.D., Rowan University, Glassboro, NJ</p> <p>Stormwater Infiltration Retrofits – Experience Gained through Long-term Monitoring Robert Traver, Ph.D., P.E., D.WRE, M.ASCE, Villanova University, Villanova, PA</p>	<p>Hydrologic Monitoring Network</p> <p>MODERATORS: Ramesh Teegavarapu, Chandra Pathak</p> <p>Design of Solar Radiation Sensor Network Using Geostatistical Methods Chandra Pathak, Ph.D., P.E., D.WRE, FASCE, South Florida Water Management District, West Palm Beach, FL; John Mecikalski, Ph.D., University of Alabama in Huntsville, AL; Ramesh Teegavarapu, Ph.D., P.E., Florida Atlantic University, Jayanthi Srikishen, University of Alabama in Huntsville</p> <p>EPM Approach for Erosion Modeling by Using RS and GIS Fazel Amiri, Tayebeh Tabatabaie, Ali Ariapour, Islamic Azad University, Bushehr, Iran</p> <p>Evaluation of Improvised Spatial Interpolation Methods for Infilling Missing Precipitation Records Alaa Aly, Ph.D., P.E., Intera, Inc, Boca Raton, FL; Chandra Pathak, Ph.D., P.E., D.AWRE, FASCE, South Florida Water Management District, West Palm Beach, FL; Ramesh Teegavarapu, Ph.D., P.E., P.Eng., Florida Atlantic University; Henry Fuelberg, Ph.D., Jon Ahlquist, Ph.D., Florida State University, Tallahassee, FL</p> <p>Quantifying Uncertainty in Discharge Measurements: A New Approach Julie Kiang, Timothy Cohn, Robert Mason, Jr., US Geological Survey</p> <p>Impacts of Different Rainfall Estimates on Hydrological Simulation Tadesse Meskele, Hamid Moradkhani, Ph.D., P.E., M.ASCE, Portland State University, Portland, OR</p>

10:30 - 11:00 AM Networking Break / Colonial / Imperial Ballrooms



Important Panel Discussions & Special Sessions

TUESDAY, MAY 19, 2009

11:00 AM - 12:30 PM TECHNICAL POSTER SESSION IV COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS VI 11:00 AM - 12:30 PM

JULIA LEE A	JULIA LEE B	LESTER YOUNG B	MARY LOU WILLIAMS B	BIG JOE TURNER B	BENNIE MOTEN A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY	ENVIRONMENTAL
<p>Network Security – 4 MODERATOR: Regan Murray</p> <p>Getting More from Your Investment. Using Water Security Monitoring Technology for Everyday Operations Dan Kroll, Hach, Loveland, CO</p> <p>Modeling a Hydraulic Response to a Contamination Event Terra Baranowski Haxton, Ph.D., US Environmental Protection Agency, Cincinnati, OH; Thomas Walski, Ph.D., P.E., D.WRE, Bentley Systems, Incorporated, Cincinnati, OH</p> <p>Novel, Rapid Molecular-based Technique for Detecting Contamination in Drinking Water Distribution Systems Stacia Thompson, Jeanne VanBriesen, Ph.D., Carnegie Mellon University, Pittsburgh, PA</p> <p>Trajectory Clustering Approach for Reducing Water Quality Event False Alarms Eric Vugrin, Ph.D., Sean McKenna, Ph.D., David Hart, Sandia National Laboratories, Albuquerque, NM</p>	<p>CSO and Wet Weather Flow Issues MODERATORS: Robert Carr, Richard Field</p> <p>Evolutionary Optimization of Combined Sewer Overflow Control Andrea Zimmer, David Hill, Ph.D., Barbara Minsker, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL; Avi Ostfeld, Ph.D., Technion - Israel Institute of Technology, Haifa, Israel; Arthur Schmidt, Ph.D., P.E., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>A Simplified Model of Combined Sewer Overflows to Estimate Event Driven Enteric Pathogen Concentrations in Drinking Water Sources Rishab Mahajan, James Uber, Ph.D., Joseph Eisenberg, Ph.D., University of Cincinnati, Cincinnati, OH</p> <p>Impact of Wet-weather Peak Flow Blending on Disinfection Performance Mary Stinson, Richard Field, US Environmental Protection Agency, Edison, NJ; R. Boris Rukovets, Interstate Environmental Commission, Edison, NJ</p> <p>An Integrated Modeling Framework to Support Flood Mitigation Studies in Urban Environments Srinivasan Rangarajan, Ph.D., P.E., D.WRE, Bill Leo, P.E., HydroQual, Inc., Mahwah, NJ</p>	<p>Urban Hydrologic Modeling – 1 MODERATORS: Wayne Huber, Ted Cleveland</p> <p>An Integrated Modeling Framework to Support Flood Mitigation Studies in Urban Environments Srinivasan Rangarajan, Ph.D., P.E., D.WRE, Bill Leo, P.E., HydroQual, Inc., Mahwah, NJ</p> <p>Development of Watershed Management Modeling System: The Los Angeles County Flood Control District's Watershed Based Approach for Urban Runoff and Stormwater Quality Youn Sim, Ph.D., P.E., Los Angeles County Flood Control District, Alhambra, CA</p> <p>Clark County Regional Flood Control District Arc Hydro (CCRFCD Arc Hydro): Toward On-going Stormwater Master Planning Stephen Bourne, P.E., PBS&J, Smyrna, GA; Kevin Eubanks, P.E., CFM, Clark County Regional Flood Control District, Smyrna, GA; Harshal Desai, P.E., CFM, Brian Rowley, E.I., CFM, PBS&J, Smyrna, GA</p> <p>An Innovative Approach for Modelling Large Urban Hydrologic Systems Joshua Cantone, Arthur Schmidt, Ph.D., P.E., University of Illinois at Urbana-Champaign, Urbana, IL</p>	<p>Probabilistic Methods for Aquifer Parameter Estimation and Groundwater Modeling, and Inverse Modeling MODERATORS: Frank Tsai, Zhuping Sheng</p> <p>A Heuristic Algorithm for Optimal Alignment and Matching of Borehole Stratigraphy Gustavious Williams, M.ASCE, Norman Jones, M.ASCE, Jeffery Handy, Brigham Young University, Provo, UT</p> <p>Groundwater Management and Uncertainty Analysis Using Bayesian Model Averaging Frank Tsai, Ph.D., Asheka Rahman, Ph.D., Xiaobao Li, Ph.D., Louisiana State University, Baton Rouge, LA</p> <p>Wavelet Analysis of Characteristic Length Scales of Permeability in Stationary and Non-stationary Porous Media Xing Qi, Ph.D., Roseanna Neupauer, Ph.D., University of Colorado, Boulder, CO</p> <p>Composite Analysis of Test-well and Observation-well Data during Constant-head Test Yen-Ju Chen, Hund-Der Yeh, National Chiao Tung University, Hsinchu, Taiwan</p>	<p> Water Resources and Environmental Vision 2050 MODERATOR: Walter Grayman</p> <p>Environmental and Developmental Risks and Stressors Impacting a 2050 Vision Walter Grayman, Ph.D., P.E., D.WRE, W M Grayman Consulting Engineer, Cincinnati, OH</p> <p>Water and Wastewater Management in 2050 Glen Daigger, Ph.D., P.E., BCEE, NAE, CH2M HILL, Englewood, CO</p> <p>Environment and Water Resources in 2050: The Challenge for Engineering Education Jeff Wright, Ph.D., University of California – Merced, Merced, CA</p> <p>Flood Risk Management circa 2050 Gerald Galloway, Ph.D., P.E., Dist.M.ASCE, University of Maryland, College Park, MD</p> <p>Urban Stormwater Management in 2050 James Heaney, John Sansalone, University of Florida, Gainesville, FL</p>	<p>Wetland Mitigation and Water Management MODERATOR: Kathleen Trauth</p> <p>GIS-based Landscape Parameters for Wetland Evaluation Related to Amphibian Health Miriam Romero, P.E., Kathleen M. Trauth, Ph.D., P.E., M.ASCE, Yingkui Li, Ph.D., Raymond Semlitsch, Ph.D., University of Missouri, Columbia, MO; Christopher Shulze, Missouri Department of Transportation, Columbia, MO</p> <p>Development of an Amphibian Biotic Index to Evaluate Wetland Health in Northern Missouri Christopher Shulze, Ph.D. Candidate, Raymond Semlitsch, Ph.D., Kathleen Trauth, Ph.D., P.E., M.ASCE, University of Missouri, Columbia, MO</p> <p>Rush Creek Detention Facility William Yord, P.E., Wilson & Company, Inc., Kansas City, MO</p> <p>A Study of Water Quality and Flow Characteristics in Tidal Area of Urban Rivers Masato Okabe, Takashi Kawamura, Takuma Kato, Tadashi Yamada, Chuo University, Tokyo, Japan</p>
<p> 11:00 AM - 12:30 PM ANDY KIRK A, B</p> <p>Katrina – What Has Been Accomplished Four Years Later?</p> <p>PRESENTERS: Walter Baumy, Jr., Chief Engineer, USACE, New Orleans District; John Grieshaber, Chief for Execution Support, USACE, Hurricane Protection Office; Maury Chatellier, Engineer Manager, Hurricane Protection Operations, Louisiana DOTD, Office of Coastal Protection and Restoration Authority; Hurricane Surge Restudy – DFIRM – FEMA/USACE – William H. Espey, Jr., President, Espey Consultants, Inc.; Durund Elzey, Project Manager, USACE, New Orleans District; Gary Zimmerman, Sr. Engineer, FEMA, Mitigation Division, Region VI; West Bank Hurricane Protection – New Orleans and Vicinity – Harvey and Algiers Canals – Proposed Large Pump Station – Cecil Soileau, Sr. Hydraulic Engineer, BCG Engineering; Nancy Powell, Chief, Hydraulics and Hydrologic Branch, USACE, New Orleans District; William H. Espey, Jr., President, Espey Consultants, Inc.</p>					

TUESDAY, MAY 19, 2009

CONCURRENT TECHNICAL SESSIONS VI 11:00 AM - 12:30 PM

JAY MCSHANN A	JAY MCSHANN B	LESTER YOUNG A	BIG JOE TURNER A	BENNIE MOTEN B	MARY LOU WILLIAMS A
HYDRAULICS AND WATERWAYS	HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Computational Hydraulics and Hydrodynamics – 5</p> <p>MODERATORS: Larry Weber, George Constantinescu</p> <p>Numerical Simulation of Dissolved Oxygen Concentration</p> <p>Cheng Xiangju, Zhongshan University, Guangzhou, China</p> <p>On a Two-dimensional Temperature Model: Development and Verification</p> <p>Yong Lai, Ph.D., David Mooney, Ph.D., US Bureau of Reclamation, Denver, CO</p> <p>Simulations of Aquaculture Dissolved Waste Transport and Mixing in Near-coastal Waters</p> <p>Subhas Venayagamoorthy, Ph.D., Oliver Fringer, Ph.D., Jeffrey Koseff, Ph.D., Rosamond Naylor, Ph.D., Colorado State University, Fort Collins, CO</p> <p>The Importance of In-stream Hydraulics in River Water Quality Models: Lessons from the Blackstone River</p> <p>Jeffrey D. Walker, CDM, Cambridge, MA; Paula Sturdevant Rees, Ph.D. University of Massachusetts - Amherst, Amherst, MA; Thomas K. Walsh, Upper Blackstone Water Pollution Abatement District, Cambridge, MA</p>	<p>Large River Habitats</p> <p>MODERATORS: R.H. Hotchkiss, Brian Barkdoll</p> <p>A Digital Floc Camera for Noninvasive Measurement of Floc Parameters</p> <p>Remya Kumar, Graduate Student, Kyle Strom, Ph.D., Ariel Ruiz, Ph.D., University of Houston, Houston, TX</p> <p>Multi-criteria Assessment of Pallid Sturgeon Habitat Restoration for the Missouri River</p> <p>John Stansbury, Ph.D., P.E., Jennifer Gitt, E.I., Istvan Bogardi, Ph.D., University of Nebraska-Lincoln, Lincoln, NE</p> <p>River Bottom Typing and Habitat Mapping Using ADCP</p> <p>F. Douglas Shields, Jr., Ph.D., P.E., D.WRE, M.ASCE, USDA-ARS National Sedimentation Laboratory, Oxford, MS</p>	<p>Remote Sensing of ET – 1</p> <p>MODERATORS: Ayse Irmak, Jeppe Kjaersgaard</p> <p>Performance Evaluation of Soil Heat Flux Models in Great Plains</p> <p>Ramesh Singh, Ayse Irmak, Elizabeth Walter-Shea, Ph.D, Shashi Verma, Ph.D, University of Nebraska - Lincoln, Lincoln, NE</p> <p>Comparison of Evapotranspiration Estimates from Remote Sensing (SEBAL), Water Balance, and Crop Coefficient Approaches</p> <p>Bryan Thoreson, Ph.D., P.E., M.ASCE, Byron Clark, P.E., M.ASCE, Davids Engineering Inc./SEBAL North America, Inc., Davis, CA; Richard Soppe, Ph.D., WaterWatch, Davis, CA; Andrew Keller, Ph.D., P.E., M.ASCE, Keller-Bliesner Engineering, LLC, Davis, CA; Wirm Bastiaanssen, Ph.D., WaterWatch, Davis, CA; John Eckhardt, Ph.D., P.E., M.ASCE, Imperial Irrigation District, Davis, CA</p> <p>Independent Comparisons among Calibration and Output of Energy Balance Components Estimated by the METRIC Procedure</p> <p>Jeppe Kjaersgaard, Ph.D., University of Idaho, Moscow, ID; Prasanna Gowda, Ph.D., USDA-ARS Conservation and Production Research Laboratory, Kimberly, ID; Richard Allen, Ph.D., P.E., University of Idaho, Moscow, ID; Terry Howell, Ph.D., P.E., USDA-ARS Conservation and Production Research Laboratory, Kimberly, ID</p> <p>Use of Satellite Imagery to Determine Fractional Ground Cover for Estimation of Crop Water Use</p> <p>Tom Trout, USDA-ARS, Fort Collins, CO; Lee Johnson, NASA-Ames Research Center, Moffett Field, CO, Dong Wang, USDA-ARS, Parlier, CA</p>	<p>Evolutionary Computations</p> <p>MODERATOR: John Nicklow</p> <p>Application of Multiobjective Differential Evolution Algorithm (MDEA) to Irrigation Planning</p> <p>Josiah Adeyemo, Registered Engineer, Fred Otieno, Tshwane University of Technology, Pretoria, South Africa</p> <p>MOPSO in Multipurpose Operation of Single-reservoir System</p> <p>E. Fallah-Mehdipour, Ph.D. Student, O. Bozorg Haddad, Ph.D., Tehran University, Tehran, Iran; M.A. Marino, Ph.D., University of California</p> <p>Multiobjective Differential Evolution and Differential Evolution for Irrigation Planning</p> <p>Piyush Gupta, Vasan Arunachalam, Ph.D., Srinivasa Raju Komaragiri, Ph.D., Birla Institute of Technology and Science, Pilani, India</p> <p>Solving Large-scale Spatial Optimization Problems in Water Resources Management through Spatial Evolutionary Algorithms</p> <p>Jihua Wang, Ximing Cai, Albert Valocchi, University of Illinois at Urbana-Champaign, Urbana, IL</p>	<p>Stormwater Research – 1</p> <p>MODERATORS: Charlene Johnston, Robert Traver</p> <p>A Tool for Determining Effectiveness and Whole Life Cycle Costs of BMPs</p> <p>Christopher Olson, E.I.T., Larry Roesner, Ph.D., P.E., Colorado State University, Fort Collins, CO; Ben Urbanos, P.E., D.WRE, Urban Watersheds Research Institute, Fort Collins, CO</p> <p>Testing of a Newly Developed Upflow Filtration Device</p> <p>Noboru Togawa, Ph.D., Robert Pitt, University of Alabama, Tuscaloosa, AL</p> <p>The Observed Effects of Stormwater Infiltration on Groundwater</p> <p>Matthew Machusick, Science Applications International; Robert Traver, Ph.D., P.E., D.WRE, M.ASCE, Villanova University, Villanova, PA</p> <p>Water Quality Associated with Benthic Macro Invertebrates: A New Method for Assessing BMPs</p> <p>Jacquelyn K. McNett, E.I., Graduate Student, William F. Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC</p>	<p>NEXRAD Data Analysis and Application</p> <p>MODERATORS: Chandra Pathak, Ramesh Teegavarapu</p> <p>Evaluation of Spatial Weighting Methods for Transformation of Multi-Sensor Precipitation Estimates</p> <p>Ramesh Teegavarapu, Ph.D., P.E., Florida Atlantic University, Chandra Pathak, Ph.D., P.E., SFWMD, West Palm Beach, Tadesse Meskele, Portland State University</p> <p>Flood Inundation Prediction and Performance during Hurricane Ike</p> <p>Zheng Fang, Ph.D., Philip Bedient, Ph.D., P.E., Rice University, Houston, TX</p> <p>Distributed Water Resources Estimation. Using Gauge-Corrected Radar Rainfall and Continuous Simulation</p> <p>Baxter Vieux, Ph.D., Maria Moreno, University of Oklahoma, Norman, OK</p>

12:30 - 1:30 PM Lunch on Your Own



Important Panel Discussions & Special Sessions

TUESDAY, MAY 19, 2009

1:30 - 3:00 PM TECHNICAL POSTER SESSION V COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS VII 1:30 - 3:00 PM

JULIA LEE A	LESTER YOUNG B	JULIA LEE B	BIG JOE TURNER A	MARY LOU WILLIAMS A	BIG JOE TURNER B
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY
<p>Hydraulic Transients and Biofilms MODERATOR: Martin Lambert</p> <p>Air/Vacuum Valve Breakage Caused by Pressure Surges – Analysis and Solution Guohua Li, Ph.D., Christopher Baggett, P.E., Roberto Rosario, E.I., Jones Edmunds, Gainesville, FL</p> <p>Biofilm Development and the Effect on Pipe Roughness Martin Lambert, Ph.D., P.E., Ryan Edwards, Sean Howie, Ben Degillo, Shane Quinn, University of Adelaide, Adelaide, Australia</p> <p>In-line Partially Closed Valves: How to Detect by Transient Tests Silvia Meniconi, Bruno Brunone, Ph.D., Marco Ferrante, University of Perugia, Perugia, Italy</p> <p>Simple Model of Attachment and Detachment of Pathogens in Water Distribution System Biofilms Ines Schrottenbaum, James Uber, Ph.D., University of Cincinnati, Cincinnati, OH; Nick Ashbolt, Ph.D., Regan Murray, Ph.D., Robert Janke, Jeffrey Szabo, Ph.D., US Environmental Protection Agency, Cincinnati, OH; Dominic Boccelli, Ph.D., University of Cincinnati, Cincinnati, OH</p>	<p>Network Water Quality Analysis – 1 MODERATOR: Zoran Kapelan</p> <p>Real-Time Valve Operation for Water Quality Improvement in Water Distribution Systems Doo Sun Kang, Ph.D. Student, Kevin Lansley, Professor, University of Arizona, Tucson, AZ</p> <p>Simulation of Particle Transport in Drinking Water Distribution Systems Klaus Rippl, Graduate Engineer, Wolfgang Uhl, Professor, Technische Universitaet Dresden, Dresden, Germany</p> <p>WDS Water Quality Parameter Estimation and Uncertainty M.D. Fayzul Pasha, Ph.D., Tetra Tech Inc.; Kevin Lansley, Ph.D., University of Arizona, Tucson, AZ</p> <p>Comparing Single- and Multi-Species Water Quality Modeling Approaches for Assessing Contamination Exposure in Drinking Water Distribution Systems Sam Hatchett, Stephen Klosterman, James Uber, Regan Murray, University of Cincinnati, US Environmental Protection Agency</p>	<p>Urban Hydrologic Modeling – 2 MODERATORS: Charles Rowney, Marcus Quigley</p> <p>Use of the Basin Development Factor to Evaluate Urban Watershed Response Theodore Cleveland, Ph.D, P.E., Texas Tech University, Lubbock, TX; Shiva Sunder, Graduate Student, University of Houston, Houston, TX; David Thompson, Ph.D., P.E., R.O. Anderson, Lubbock, TX</p> <p>Harris County Flood Control District Model and Map Management System: Management of a Complex and Evolving Floodplain Karl McArthur, P.E., Steve Bourne, P.E., Yu-Chun Su, Ph.D., P.E., PBS&J, Austin, TX; Jacob Spenn, P.E., Harris County Flood Control District, Austin, TX</p> <p>Land Use and Runoff Uncertainty Celina Bochis, Ph.D. Candidate, Robert Pitt, Ph.D., P.E., DEE, University of Alabama, Tuscaloosa, AL</p> <p>Implementing Green Solutions – An Engineering Paradigm Shift Andy Sauer, P.E., CDM, Kansas City, MO</p> <p>Synthetic Urban Watershed Data for Hydrologic Model Evaluation Arthur R. Schmidt, Ph.D., P.E., University of Illinois Urbana –Champaign, Urbana, IL</p>	<p>Low Impact Development – Bioretention – 1 MODERATOR: Bill Hunt, Dave Sample</p> <p>Construction and Performance of Bioretention Cells Glenn Brown, P.E., D.WRE, M.ASCE, Rebecca Chavez, E.I.T., Dan Storm, Professor, Michael Smolen, Professor, Oklahoma State University, Stillwater, OK</p> <p>Design of Integrated Bioinfiltration-detention Systems for Urban Retrofits with Continuous Simulation William Lucas, Ph.D. Candidate, Griffith University, Brisbane, Australia</p> <p>Long-term Effectiveness of a Bioretention System Treating Road Runoff in Northeastern Kansas Edward Peltier, Ph.D., Xiaolu Chen, Kelly Kindscher, Ph.D., Bryan Young, Ph.D., P.E., University of Kansas, Lawrence, KS</p> <p>Bioretention/Bioinfiltration Performance in the Mid-Atlantic Robert Brown, E.I., William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC; Allen Davis, Ph.D., P.E., University of Maryland, College Park, MD; Robert Traver, Ph.D., P.E., Villanova University, Villanova, PA; Jennifer Olszewski, University of Maryland, College Park, PA</p>	<p>Impacts of Urbanization on Groundwater Quality and Quantity MODERATORS: Chin Man Mok, Ni-Bin Chang</p> <p>Comparative Study of Two Standard Septic Tank Drainfields Using Different Sand with Recirculation for Nutrient Removal Ni-Bin Chang, Ph.D., P.E., BCEE, D.WRE, M.ASCE, Marty Wanielista, Ph.D., P.E., Fahim Hossain, Graduate Student, Zheming Xuan, Graduate Student, Ammarin Daranpob, Ph.D., A.M.ASCE, University of Central Florida, Orlando, FL</p> <p>Environmental Impacts on Surface Water and Groundwater for Expanding Urban Water Supply Capacity Using Stone Quarries Xing Fang, Ph.D., Ni-Bin Chang, Ph.D., P.E., BCEE, D.WRE, M.ASCE, Ming-Kuo Lee, Ph.D., Lorraine Wolf, Ph.D., University of Central Florida, Orlando, FL</p> <p>Investigating the Temperature Effects on Nutrient Removal in Green Sorption Media Ni-Bin Chang, Ph.D., P.E., BCEE, D.WRE, M.ASCE, Martin Wanielista, Ph.D., PE, Devan Henderson, Graduate Student, Ammarin Makkeasorn, Ph.D., University of Central Florida, Orlando, FL</p> <p>Nutrient and Pathogen Removal with an Innovative Passive Underground Drainfield for On-site Wastewater Treatment Ni-Bin Chang, Ph.D., P.E., BCEE, D.WRE, M.ASCE, Marty Wanielista, Ph.D., P.E., Ammarin Makkeasorn, Ph.D., A.M.ASCE, Fahim Hossain, Graduate Student, Zheming Xuan, Graduate Student, University of Central Florida, Orlando, FL</p>	<p>Innovative and Green Technologies for Water Resources Development in Developing Regions – 1 MODERATOR: Emmanuel Nzewi</p> <p>A Decision Support System for Beneficial Use of National Dam Water Resources Jonathan Matondo, University of Swaziland, Manzini, Swaziland; Kenneth Mslibi, Ministry of Natural Resources and Energy, Manzini, Swaziland</p> <p>Innovative Design at Lake Lenexa Scott Brand, P.E., Black & Veatch, Kansas City, MO; Tom Jacobs, P.E., City of Lenexa, Lenexa, KS</p> <p>Production of Drinking Water from Lake Water Sources with a Nanofilter Membrane to Prevent the Formation of Disinfection Byproducts Rajib Sinha, P.E., Shaw Environmental, Cincinnati, OH; Anita Anderson, P.E., Minnesota Department of Health; Craig Patterson, P.E., US Environmental Protection Agency, Cincinnati, OH; David Pearson, ITT Corporation, Cincinnati, OH</p>
<p>The Roles of Federal Agencies in Regional Water Planning MODERATOR: Timothy Feather, Ph.D. (CDM)</p> <p>PANELISTS: Fred Caver, P.E. (Caver and Associates); John Grothaus (US Army Corps of Engineers, Kansas City District); Mike Beezhoid, CMP (City of Lenexa Watershed Program); Earl Lewis, P.E., (Kansas Water Office)</p>					

TUESDAY, MAY 19, 2009

CONCURRENT TECHNICAL SESSIONS VII 1:30 - 3:00 PM

BENNIE MOTEN A	JAY MCSHANN A	JAY MCSHANN B	LESTER YOUNG A	BENNIE MOTEN B	MARY LOU WILLIAMS B
ENVIRONMENTAL	HYDRAULICS AND WATERWAYS	HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Landfills and Waste Treatment</p> <p>MODERATOR: Baoliin Deng</p> <p>Time Series Analysis of Performance Data from Closed Landfills Banu Sizirici, Ph.D. Student, Berrin Tansel, Ph.D., P.E., D.WRE, FASCE, Florida International University, Miami, FL</p> <p>The Affect of Municipal Landfill Leachate on the Characterization of Fluid Flow through Clay Saad Merayyan, Ph.D., California State University, Sacramento, Sacramento, CA; Aaron Hope, RMC Water and Environment, Sacramento, CA</p> <p>Enzymatic Treatment of a Modified Food Processing Wastewater Anastasia Chirnside, Ph.D., University of Delaware, Newark, DE</p> <p>Transport of Sediments and Pollutants into the Terrestrial Regions of a Small Urban-Industrial City: The June 2008 Flood of Cedar Rapids, Iowa Kevin Denn, E.I.T., S.M.ASCE, Athanasios (Thanos) Papanicolaou, Associate Professor, Christopher Wilson, Ph.D., University of Iowa, Iowa City, IA</p>	<p>Session: River Stabilization</p> <p>MODERATORS: Andrew Simon, Michael Schwar</p> <p>Redesign and Rehabilitation of Railroad Bridges with Advanced Adverse Lateral Migration William Yord, P.E., Wilson & Company, Inc., Kansas City, MO; Jerry Richardson, Ph.D., D.WRE, University of Missouri Kansas City, Kansas City, MO; Vincent Zink, Wilson & Company, Inc., Kansas City, MO</p> <p>Adverse Affects of Flood Flow at Skewed Railroad Crossings William Yord, P.E., Jerry Richardson, Ph.D., D.WRE, Wilson & Company, Inc., Kansas City, MO</p> <p>"Local" – Kansas River Bank Stabilization and Post-project Conditions John Blancett, P.E., Peter Jarchow, P.E., HNTB, Lees Summit, MO</p> <p>Field Evaluation of Engineered Large Woody Debris for Structure Performance and Habitat Value Kendra Russell, Elaina Holburn, US Bureau of Reclamation</p>	<p> Computational Hydraulics and Hydrodynamics – 6</p> <p>MODERATORS: George Constantinescu, Victor Huang</p> <p>Inundation Mapping Using Hydraulic Models and GIS: Case Studies of Steady and Unsteady Models on the Tar River, North Carolina Cecile Aschwanden, Seann Reed, Ph.D., Keren Cepero, NOAA/National Weather Service, Silver Spring, MD</p> <p>Performance Evaluation of Articulated Concrete Matting (ACM) Spillway at Lake Odessa, Iowa Thomas Gambucci, P.E., D.WRE, US Army Corps of Engineers, Rock Island, IL</p> <p>The Development of a Neural-based Biomarker Forecasting Tool for Classifying Recreational Water Quality Srinivas Motamarri, Ph.D. Candidate, Dominic L. Boccelli, Ph.D., University of Cincinnati, Cincinnati, OH</p> <p>Use of Hydraulic Modeling to Develop a Small Dam for the Geum River Reach in Sejong City Sangman Jeong, Ph.D, Christabel Jane Rubio, Graduate Student, Jooheon Lee, Ph.D, Leehyung Kim, Ph.D, Kwangseob Shin, Graduate Student, Kongju National University, Cheonan, Chungnam, Republic of Korea</p>	<p>Remote Sensing of ET – 2</p> <p>MODERATORS: Tom Trout, Jeppe Kjaersgaard</p> <p>Automatic Selection of Anchor Pixels for Landsat-based Evapotranspiration Estimation Jeppe Kjaersgaard, Ph.D., Richard Allen, Ph.D., P.E., Magali Garcia, Ph.D., University of Idaho, Moscow, ID; William Kramber, Idaho Department of Water Resources, Kimberly, ID; Ricardo Trezza, Ph.D., University of Idaho, Moscow, ID</p> <p>Mapping ET at High Resolution in an Advective Semi-arid Environment with Airborne Multispectral Imagery José L. Chávez, Colorado State University, Fort Collins, CO; Prasanna H. Gowda, Terry A. Howell, USDA-ARS Conservation and Production Research Laboratory, Fort Collins, CO; Luis A. Garcia, Colorado State University, Fort Collins, CO; Karen S. Copeland, USDA-ARS Conservation and Production Research Laboratory, Fort Collins, CO</p> <p>Application of Remote Sensing Based Tillage Mapping Technique to Evaluate Water Quality Impacts of Tillage Management Decisions in Upper White River Basin Shashank Singh, Ph.D. Student, Indajeet Chaubey, Associate Professor, Purdue University, West Lafayette, IN; Passana Gowda, USDA-ARS</p> <p>Measuring Soil Moisture in Heterogeneous Fields Chadi Sayde, Ph.D. Student, John Selker, Professor, Marshall English, Professor, Oregon State University, Corvallis, OR</p>	<p>Stormwater Research – 2</p> <p>MODERATORS: Charlene Johnston</p> <p>A Robust and Fast Model for Simulating Street Flooding Arturo Leon, Ph.D., Leonardo Nania-Escobar, Ph.D., Arthur Schmidt, Ph.D., P.E., Marcelo Garcia, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Evaluating the Mixing Mechanism of Outfall Discharges from Municipal Separate Storm Sewer Systems Michael Woo, Ph.D., The Citadel, Charleston, SC</p> <p>Physical Processes Resulting in Geyser Formation in Rapidly Filling Stormwater Tunnels Steven Wright, Ph.D., P.E., James Lewis, Jose Vasconcelos, Ph.D., University of Michigan, Ann Arbor, MI</p> <p>The "Silver Bullet:" Proprietary BMPS and Metropolitan St. Louis Sewer District's Stormwater Program Jay Hoskins, Michael Buechter, Metropolitan St. Louis Sewer District, St. Louis, MO</p>	<p>Watershed Modeling</p> <p>MODERATOR: Martin Teal</p> <p>Experimental Analyses of Sedimentation in the Silt Dam Reservoir Ehsan Bahram, Islamic Azad University, Tehran, Iran; Mohammad Banihabib, Tehran University, Tehran, Iran</p> <p>Spatially Distributed Modeling of Soil Erosion and Sediment Transport at Watershed Scale Hossein Zeinivand, Ph.D. Student, Vrije Universiteit Brussel (VUB), Brussels, Belgium & Lorestan University, Iran, Florimond De Smedt, Ph.D., Vrije Universiteit Brussel (VUB), Brussels, Belgium</p> <p>Modeling Framework for Establishing Water Quality Trading Units near Pacific, Missouri Yee-Sook Shin, Ph.D., Candidate, Kathleen M. Trauth, Ph.D., P.E., University of Missouri-Columbia, Columbia, MO</p> <p>A Comparison of a SWAT Model for the Cannonville Watershed With and Without Variable Source Area Hydrology Josh Woodbury, Graduate Student, Christine Shoemaker, Cornell University, Ithaca, NY</p>

3:00 - 3:30 PM Networking Break / Colonial / Imperial Ballrooms

 Important Panel Discussions & Special Sessions

TUESDAY, MAY 19, 2009

3:30 - 5:00 PM STUDENT POSTERS/PAPERS COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS VIII 3:30 - 5:00 PM				
JULIA LEE A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	BENNIE MOTEN A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p> <p>Network Water Quality Analysis – 2 MODERATOR: Dominic Boccelli</p> <p>A Hybrid Heuristic Search for Contaminant Source Characterization Li Liu, E. Downey Brill, Ph.D., G. (Kumar) Mahinthakumar, Ph.D., S. Ranji Ranjithan, Ph.D., North Carolina State University, Raleigh, NC</p> <p>Analysis of Model Sensitivity and Uncertainty for Chlorine Transport and Decay in a Water Distribution System Wesley Dawsey, Ph.D. Candidate, Barbara Minsker, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL; Avi Ostfeld, Ph.D., Technion – Israel Institute of Technology, Haifa, Israel</p> <p>Characterizing Reactive Contaminant Sources in a Water Distribution System Jitendra Kumar, E. Downey Brill, Ph.D., G. Mahinthakumar, Ph.D., Ranji Ranjithan, Ph.D., North Carolina State University, Raleigh, NC</p> <p>Low Pressure Propagation at Service Lines Juneseok Lee, Assistant Professor, San Jose State University, San Jose, CA; Vinod Lohani, Ph.D., Andrea Dietrich, Ph.D., Virginia Tech, Blacksburg, VA</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Sediment Measurement and Control MODERATORS: Shirley Clark, Bill Barfield</p> <p>A New Methodology to Evaluate Pollutant Removal of Gross Solids Separation Devices Daniel Smith, Ph.D., P.E., DEE, AET, Applied Environmental Technology, Garrett Park, MD</p> <p>Sediment Monitoring Bias by Autosampler in Comparison with Whole Volume Samples for Transportation Runoff George Fowler, Graduate Research Assistant, Robert Roseen, Ph.D., A.M.ASCE, Thomas Ballesterio, Ph.D., P.E., P.H., C.G.W.P., P.G., University of New Hampshire, Durham, NH; Qizhong Guo, Ph.D., Rutgers University; James Houle, University of New Hampshire, Durham, NH</p> <p>Engineered Waste Materials as Amendments to Prevent Erosion and to Stabilize Contaminated Sites Sai Kakuturu, Ph.D., University of Central Florida, Orlando, FL</p> <p>Controlling Erosion Using Compost Blankets Sai Kakuturu, Ph.D., Lakshmi Reddi, Ph.D., P.E., University of Central Florida, Orlando, FL</p>	<p>7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT</p> <p>Impacts of Urbanization on Groundwater Quality and Quantity MODERATORS: Ni-Bin Chang, Chin Man Mok</p> <p>Groundwater Baseflow Sourced from Miocene Rocks Carries Elevated Selenium into Southern California Streams Barry Hibbs, Ph.D., Mercedes Merino, Rachel Andrus, Wynnee Hu, California State University - Los Angeles, Los Angeles, CA; Anna Doro-on, Ph.D, EPD Consultants Inc., Los Angeles, CA</p> <p>Model Simulations to Characterize Nutrient Transport Resulting from Subsurface Wastewater Effluent Discharges Paul Mathisen, Ph.D., Worcester Polytechnic Institute, Worcester, MA</p> <p>Selection and Prioritization of Best Management Practices for Potential Sources of Contamination in a Wellhead Protection Area Tina Petersen, Ph.D., Camille Sowell, P.E., BCCE, Gordon McCurry, Ph.D., P.G., Alexandra Doody, CDM, Houston, TX; Sean Ables, P.G., TCEQ, Houston, TX</p> <p>Urban and Industrial Groundwater Quantity and Quality Challenges in Pakistan Hamza Gabriel, Charles Sturt University, Wagga Wagga, Australia; Shahbaz Khan, Ph.D., UNESCO, Wagga Wagga, Australia</p>	<p>EMERGING AND INNOVATIVE TECHNOLOGY</p> <p>Innovative and Green Technologies for Water Resources Development in Developing Regions – 2 MODERATOR: Emmanuel Nzewi</p> <p>Designing Effective Rainfall Harvesting Systems in Developing Areas of Sub-Saharan Africa Emmanuel Nzewi, Ph.D., P.E., Southern University and A&M College, Baton Rouge, LA</p> <p>Rainwater Harvesting Experiences In the Humid Southeast USA Matthew Jones, Ph.D, William Hunt, Ph.D., P.E., Jason Wright, North Carolina State University, Raleigh, NC</p> <p>Water Resources in Sudan: Enhancing Rainfall Harvesting Methods for Water Supply Stephanie Luster-Teasley, Ph.D., Sara Mohamed-Ali, North Carolina A&T State University, Greensboro, NC; Emmanuel Nzewi, Ph.D., P.E., Southern University and A&M College, Baton Rouge, LA</p>	<p>ENVIRONMENTAL</p> <p>Nutrients Topics and Significance of Nonpoint Source Abatement MODERATOR: Zhiqiang Hu</p> <p>Wastewater Utilities: Are You Ready for Kansas' Nutrient Removal Policy? Heather Phillips, P.E., Katie Funderburk, P.E., Black & Veatch, Kansas City, MO</p> <p>The Economic and Environmental Significance of Nonpoint Source Abatement in Large Watersheds Jamie Lefkowitz, Kirk Westphal, P.E., Jeffery Walker, Gary Mercer, P.E., CDM</p> <p>A Statistical Method for Nitrogen Sources and Exports Chengwei Han, Shiguo Xu, EWRI, Institute of Environmental and Water Resources Research, Dalian, Liaoning, China</p> <p>Impact on Nitrifying Bacterial Growth by Titanium Dioxide Nanoparticles Under UV Exposure Okkyoung Choi, Ph.D. Candidate, Zhiqiang Hu, P.E., University of Missouri, Columbia, MO</p>
<div style="border: 1px solid black; padding: 10px; text-align: center;">  <p>3:30 - 5:00 PM ANDY KIRK B</p> <p>Stormwater Utility – Experience a Revenue Stream</p> <p>MODERATOR: Charlene Johnston, P.E. (URS)</p> <p>PANELISTS: Hector Cyre (Water Resource Associates, Inc.); Elizabeth Treadway (AMEC Earth & Environmental); John McCarthy (Southeast Metro Stormwater Authority)</p> </div>				

TUESDAY, MAY 19, 2009

CONCURRENT TECHNICAL SESSIONS VIII

3:30 - 5:00 PM

JAY MCSHANN A	JAY MCSHANN B	LESTER YOUNG A	BIG JOE TURNER A	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	PLANNING AND MANAGEMENT	WATERSHED
<p>Computational Hydraulics and Hydrodynamics – 7</p> <p>MODERATORS: R.H. Hotchkiss, Christopher Dunne</p> <p>An Efficient Solution for Water Supply Networks Engin Mendi, University of Alabama - Little Rock, Little Rock, AR</p> <p>Comparison of Mean Flow and Turbulence around Experimental Spur Dike Jennifer Duan, Ph.D., P.E., University of Arizona, Tucson, AZ; Li He, Ph.D., Tsinghua University, Beijing, China</p> <p>Measuring Discharge with ADCPs: Inferences from Synthetic Velocity Profiles Chris Rehmann, Ph.D., Iowa State University, Ames, IA; David Mueller, Kevin Oberg, US Geological Survey</p> <p>Statistical Analysis of Water Distribution Networks Design Using Harmony Search Daniel Mora, Researcher, Pedro L. Iglesias, Ph.D., Vicente S. Fuentes, Ph.D., F. Javier Martinez, Ph.D., Polytechnic University of Valencia, Valencia, Spain</p>	<p> Stream Restoration – 1</p> <p>MODERATORS: Cassie Klumpp, Ted Yang</p> <p>A Monitoring and Assessment Framework to Evaluate Stream Restoration Needs in Urbanizing Watersheds John Schwartz, Ph.D., P.E., University of Tennessee, Knoxville, TN; Sue Niezgoda, Ph.D., Rose-Hulman Institute of Technology, Terre Haute, IN; Louise O. Slate, P.E., MACTEC Engineering & Consulting, Inc.; Donald Carpenter, Ph.D., P.E., Lawrence Technological University, Southfield, MI; William Annable, Ph.D., University of Waterloo, Waterloo, ON; Tess Wynn, Ph.D., Virginia Tech, Blacksburg, VA; Christine Pomeroy, Ph.D., University of Utah, Salt Lake City, UT; Munsell McPhillips, Ph.D., Intuition & Logic, GP, Knoxville, TN</p> <p>Post-project Appraisal of Riparian, Wetland, and Aquatic Habitat Restoration at Best Slough, Beale Air Force Base, Marysville, CA Mark Tompkins, P.E., Denny Mengel, Ph.D., Tim Hamaker, CFB, CH2M HILL, Oakland, CA</p> <p>Predicting Streambank Seepage Flows: Sensitivity to Soil Properties and Layering Derek Heeren, Ph.D. Candidate, Garey Fox, Ph.D., P.E., Maria Chu-Agor, Ph.D. Student, Oklahoma State University, Stillwater, OK; Glenn Wilson, Ph.D., USDA-ARS National Sedimentation Laboratory, Stillwater, OK</p> <p>Seepage Erosion Sediment Transport Function and Geometric Headcut Relationships for Predicting Streambank Seepage Undercutting Maria Chu-Agor, Ph.D. Student, Garey Fox, Ph.D., P.E., Oklahoma State University, Stillwater, OK; Glenn Wilson, Ph.D., USDA-ARS National Sedimentation Laboratory, Stillwater, OK</p>	<p>Irrigation and Drainage Issues</p> <p>MODERATORS: Thomas Ley, Christopher Hay</p> <p>Evaluation of Magnetic Meters for Turnout Measurement Stuart Styles, D. Engr., Bryan Busch, P.E., Cal Poly San Luis Obispo, San Luis Obispo, CA</p> <p>Neighborhood Channel is Redefined with Boulder Armoring Ted Niemann, D.WRE, Elizabeth Niemann & Associates, Inc., Louisville, KY; John Loechle, E.I.T., Louisville and Jefferson County MSD, Louisville, KY</p> <p>Application of SIRM0D to Evaluate Potential Tailwater Reduction from Improved Irrigation Management Byron Clark, P.E., M.ASCE, Lindsay Hall, E.I.T., A.M.ASCE, Grant Davids, P.E., M.ASCE, Davids Engineering, Inc., Davis, CA; Wynn Walker, Ph.D., P.E., D.WRE, F.ASCE, Utah State University, Logan, UT; John Eckhardt, Ph.D., P.E., D.WRE, M.ASCE, Imperial Irrigation District</p> <p>Increasing Field Work Productivity in Irrigation Evaluation Processes through the Use of Combined Irrigation Models Sergio Lecina, Ph.D., Christopher Neale, Ph.D., Gary Merkley, Ph.D., Utah State University, Logan UT; Carlos dos Santos, Ph.D., Student, Federal University of Campina Grande, Campina Grande, PB, Brazil</p>	<p>Climate Change – Impact Assessment – 1</p> <p>MODERATOR: Tim Feather</p> <p>A Framework for Determining the Possible Impacts of a Changing Climate on Water Supply Mark Summerton, Umgeni Water, Pietermaritzburg, South Africa; Roland Schulze, Professor, University of KwaZulu-Natal, Pietermaritzburg, South Africa</p> <p>Developing Artificial Neural Networks to Represent Salinity Intrusion from Sea Level Rise Sanjaya Seneviratne, P.E, Francis Chung, Ph.D., P.E., California Department of Water Resources, Sacramento, CA</p> <p>Examining the Flow Regime Alteration and Its Potential Impacts to Freshwater Ecosystems under Changing Climate Conditions Jian-Ping Suen, A.M.ASCE, National Cheng Kung University, Tainan, Taiwan</p> <p>Evaluation of Climate Change Impacts to Water Supply and Demand in the Puget Sound Region Richard Palmer, Ph.D., P.E., University of Washington, Seattle, WA</p>	<p>Land Use/Cover Changes and Water Quality/Quantity: Observations & Modeling</p> <p>MODERATORS: Latif Kalin, Pravi Shrestha</p> <p>Change in Surface Hydrology Due to Land Use Change in a Midwestern Watershed Anthony Spencer, Colorado State University, Fort Collins, CO; Brian Walker, Purdue University, West Lafayette, IN; Mazdak Arabi, Ph.D., Colorado State University, Fort Collins, CO; Jane Frankenberger, Ph.D., Rao Govindaraju, Professor, Purdue University, West Lafayette, IN</p> <p>Investigation of Trends in Baseflow and Flood Flows in New Jersey and Their Correlation with Imperviousness Kirk Barrett, Ph.D., P.E., PWS, Joshua Galster, Ph.D., Seth Xeflide, Montclair State University, Montclair, NJ</p> <p>Long-term Effect of a Stream Restoration Plan on Water Quality Yuan Cheng, Ph.D., P.E., Century Engineering, Inc., New Cumberland, PA</p> <p>Analysis of Water Quality Trends and Pollutant Loading for Cypress Creek Watershed Aarin Teague, E.I.T., Hilary Robinson, E.I.T. in progress, Philip Bedient, Ph.D., Rice University, Houston, TX</p>



Important Panel Discussions & Special Sessions

TUESDAY, MAY 19, 2009

5:00 - 6:30 PM TECHNICAL POSTER SESSION VI COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS IX

5:00 - 6:30 PM

JULIA LEE A	JULIA LEE B	MARY LOU WILLIAMS A	BENNIE MOTEN A	LESTER YOUNG A	BIG JOE TURNER A	BENNIE MOTEN B
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p> <p>Network Modeling – 1 MODERATOR: Kobus van-Zyl</p> <p>Integrated Hydraulic Analysis and Data Management Tool for Water Supply Systems in Developing Countries Philipp Klingel, Dipl.-Ing., Nicolai Guth, Student, University of Karlsruhe, Karlsruhe, Germany</p> <p>Operational Perspective of the Impact of Failures in Water Distribution Systems Josef Bicik, Zoran Kapelan, Ph.D., Dragan Savic, Professor, University of Exeter, Exeter, UK</p> <p>The Impacts of Demand Variability on Distribution System Hydraulics and Transport Xueyao Yang, Graduate Student, Dominic L. Boccelli, Ph.D., University of Cincinnati, Cincinnati, OH</p> <p>Hydraulic Analysis of Water Distribution Network Using Harmony Search Zong Woo Geem, Johns Hopkins University, Baltimore, MD</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Low Impact Development – Bioretention – 2 MODERATORS: Dan Medina, Robert Roseen</p> <p>Enhancing Rain Garden Design to Promote Nitrate Removal Emilie Stander, Ph.D., Michael Borst, Thomas O'Connor, Amy Rowe, Ph.D., US Environmental Protection Agency, Edison, NJ</p> <p>Improved Media for Long-Term Phosphorus Retention in Bioretention Systems William Lucas, Ph.D. Candidate, Griffith University, Brisbane, Australia</p> <p>Effects of Media Depth on Bioretention Performance in the Upper Coastal Plain of North Carolina and Bioretention Construction Impacts Study Robert Brown, E.I., William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC</p> <p>South Lake Park Bioretention Gardens Jason Dremsa, Applied Ecological Services, Inc., Lawrence, KS; Ted Hartsig, Olsson Associates, Overland Park, KS</p>	<p>7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT</p> <p>Groundwater Quality and Human Health MODERATORS: Morris L. Maslia, Roseanna Neupauer</p> <p>A Methodology to Reconstruct Groundwater Contamination History with Limited Field Data Jiabao Guan, Ph.D., Georgia Institute of Technology, Atlanta, GA; Morris L. Maslia, P.E., Agency for Toxic Substances and Diseases Registry, Atlanta, GA; Mustafa M. Aral, Ph.D., Georgia Institute of Technology, Atlanta, GA</p> <p>A Tale of Two Cities – Source Water Protection Case Studies for Systems in Rural Settings Tina Petersen, Ph.D., Camile Sowell, P.E., BCEE, Gordon McCurry, Ph.D., Alexandra Doodly, Claudia Krug, CDM, Houston, TX; Sean Ables, P.G., TCEQ, Houston, TX</p> <p>Quantifying the Spread of Arsenic Contamination in Groundwater of the Brahmaputra Floodplains, Assam, India: A Threat to Public Health of the Region Chandan Mahanta, Associate Professor, Indian Institute of Technology Guwahati, India; Nayanjyoti Pathak, Graduate Student, University of Wisconsin - Madison, Madison, WI</p> <p>Vadose Zone Transport of Nitrate in the Sierra Pelona Groundwater Basin, Agua Dulce, California Claudia Krug, E.I.T., Camp Dresser and McKee Inc., Austin, TX; Zbigniew Kabala, Ph.D., Duke University, Durham, NC</p>	<p>ENVIRONMENTAL</p> <p>Environmental Modeling MODERATOR: Kathleen Trauth</p> <p>Characterization of a Perchlorate Contaminated Site Sam Mryyan, Ph.D., REM Adjutant General's Department, Topeka, KS; Yacoub Najjar, Ph.D., Kansas State University, Manhattan, KS</p> <p>Simulation of Tehran Air Pollution Using Artificial Neural Networks Ali Yazdanpanahrostami, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran; Kabir Rasouli, Graduate Student, University of British Columbia, Vancouver, BC</p> <p>Numerical Modeling of Ozonation of Organic Chemicals in Surface Water Tingting Zhu, Ph.D., A.M.ASCE, Yafei Jia, Ph.D., Ajit Sadana, Ph.D., Sam Wang, Ph.D., F.ASCE, University of Mississippi, University, MS</p> <p>Assessing Pollutant Loads and Evaluation of Treatment Systems to Achieve Water Quality Goals for Land Development Projects Steven Trinkaus, P.E., Trinkaus Engineering, LLC, Southbury, CT</p>	<p>IRRIGATION AND DRAINAGE</p> <p>Drainage Infrastructure and Nonpoint Sources MODERATORS: Christopher Hay, Jose Chavez</p> <p>Agricultural Drainage Management Systems Task Force (ADMSTF) James Fouss, Supervisory Agricultural Engineer, USDA-ARS, Baton Rouge, LA; Michael Sullivan, Coordinator, USDA-NRCS, Little Rock, AR</p> <p>Drainage Main Rehabilitation in Iowa Matthew Helmers, Ph.D., Iowa State University, Ames, IA; Dean Lemke, P.E., Iowa Department of Agriculture and Land Stewardship, Ames, IA; Stewart Melvin, Ph.D., P.E., Iowa State University, Ames, IA</p> <p>Denitrifying Bioreactors for Treatment of Tile Drainage Laura Christians, Alok Bhandari, M.ASCE, Matthew Helmers, Iowa State University, Ames, IA; Martin St. Clair, Coe College, Cedar Rapids, IA</p> <p>Macropore Flow and Subsurface Drain Interconnectivity: E. coli Transport Experiments Jorge Guzman, Ph.D. Student, Garey Fox, Ph.D., P.E., Oklahoma State University, Stillwater, OK</p>	<p>PLANNING AND MANAGEMENT</p> <p>Technology, Policy, and Fiscal Issues in Infrastructure Planning MODERATOR: Kristin White</p> <p>A GIS-based Decision-making Methodology for Evaluation of Environmental Justice Impacts of Community Infrastructure Projects James Cole, M.ASCE, Kathleen Trauth, Ph.D., P.E., M.ASCE, Yingkui Li, Ph.D., University of Missouri, Columbia, MO</p> <p>Analysis on Effect to EVW from Policy Intervention Chun-ling Zhang, Ph.D., China Institute of Water Resources and Hydropower Research, Beijing, China</p> <p>Hardening a Great and Growing City's Water Supply Scott Knight, E.I.T., A.M.ASCE, City of Aurora, Aurora, CO</p> <p>Restoring California's Second Largest River Jeffrey Payne, P.E., MWH Americas Inc., Sacramento, CA; David Mooney, Ph.D., US Bureau of Reclamation, Sacramento, CA</p> <p>Study on the Water Value Conversion between Economy and Ecology and Countermeasures of Water Resources Distribution for Coordinated Development of Economy and Ecology Hongzhen Ni, Yicheng Fu, Huatao Zhao, China Institute of Water Resources and Hydropower Research, Beijing, China</p>	<p>WATERSHED</p> <p>Watershed Modeling – 1 MODERATOR: Zia Hosseinipour</p> <p>Application of Northeast Regional Climate Center Research Results for the Purpose of Evaluating and Updating Intensity-Duration-Frequency (IDF) Curves Scott Wolcott, P.E., Matthew Mroz, Student, Rochester Institute of Technology, Rochester, NY; Jim Basile, P.E., Bergmann Associates</p> <p>Assessment of Flood Risk Due to Storm Surge in Coastal Bays Using Dynamic Hydraulic Modeling Tyler Ray, Zheng Fang, Ph.D., Philip Bedient, Ph.D., Rice University, Houston, TX</p> <p>Delineation of Watershed Using Geomatics Girdhar Mittapalli, Assistant Professor, J N T University, Hyderabad, India</p> <p>Effects of Freezing and Thawing Processes on Bank Stability Fabienne Bertrand, Graduate Student, Athanasios (Thanos) Papanicolaou, Associate Professor, University of Iowa, Iowa City, IA</p> <p>Integrated Watershed Modeling Gour-Tsyh (George) Yeh, Ph.D., University of Central Florida, Orlando, FL; Guobiao Huang, Ph.D., Sutron Corp, West Palm Beach, FL; Hsin-Chi (Jerry) Lin, Ph.D., US Army Corps of Engineer, ERDC, Vicksburg, MS</p>
<p>Case Studies – The Role of Technology in Water Resources Planning MODERATOR: Elizabeth Perez (Brown & Caldwell)</p> <p>PRESENTERS: Scott Knight (Aurora Water); Bud Viessman (University of Florida); Bill Wenick (USACE); Chuck Shadie (USACE); Pete Loucks (Cornell University)</p>				<p>AAWRE Engineering Ethics Workshop #2 PRESENTER: Ted Cleveland, Ph.D., P.E. (Professor of Civil Engineering, Texas Tech University, Lubbock, TX)</p> <p>Participants may earn up to 2 PDHs for this session. Registration required. No fee.</p>		

6:00 - 10:00 PM Committee Meetings (see page 54)



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WEDNESDAY, MAY 20, 2009

"STUDENT DAY"

7:00 AM - 7:00 PM REGISTRATION OPEN COUNT BASIE BALLROOM FOYER
 7:30 - 8:45 AM PLANNING & MANAGEMENT COUNCIL BREAKFAST, AWARDS, AND LECTURE
 COUNT BASIE BALLROOM A
 7:30 - 8:45 AM IRRIGATION & DRAINAGE COUNCIL BREAKFAST, AWARDS, AND LECTURE
 COUNT BASIE BALLROOM C
 8:30 AM - 4:00 PM EXHIBIT HALL OPEN IMPERIAL BALLROOM
 8:30 - 9:00 AM NETWORKING BREAK COLONIAL / IMPERIAL BALLROOMS

9:00 - 10:30 AM
 9:00 - 10:30 AM

TECHNICAL POSTER SESSION VII COLONIAL BALLROOM
 THE OKLAHOMA STATE UNIVERSITY – WOOLPERT
 SCHOLARS SESSION ON URBAN STORMWATER
 MANAGEMENT (See Student and New Professionals Track,
 below) LESTER YOUNG B

CONCURRENT TECHNICAL SESSIONS X 9:00 - 10:30 AM

JULIA LEE A	BENNIE MOTEN A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	JAY MCSHANN A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY	HYDRAULICS AND WATERWAYS
<p>Network Modeling – 2 MODERATOR: Kevin Lansey</p> <p>Augmented Gradient Method for Head Dependent Modelling of Water Distribution Networks Calvin Siew, Ph.D. Student, Tiku Tanyimboh, Senior Lecturer, University of Strathclyde, Glasgow, Scotland</p> <p>Enhanced Global Gradient Algorithm: A General Formulation Luigi Berardi, Orazio Giustolisi, Technical University of Bari, Taranto, Italy; Ezio Todini, Professor, University of Bologna, Taranto, Italy</p> <p>Enhanced WDN Analysis: Representation of Actual Pipe Connections Orazio Giustolisi, Technical University of Bari, Taranto, Italy</p> <p>Identification of the Hydraulic Model from Operational Measurements for Supervisory Pressure Control Ping Li, Ph.D., Ian Postlethwaite, Professor, Emmanuel Prempain, Ph.D., University of Leicester, Leicester, UK; Bogumil Ulanicki, Professor, De Montfort University, Leicester, UK; Ridwan Patel, Yorkshire Water Services, Leicester, UK</p>	<p>Manufactured Treatment Devices – Certification – 1 MODERATORS: George Guo, Charlene Johnston</p> <p>Development of Certification Guidelines for Stormwater Manufactured Treatment Devices Qizhong Guo, P.E., Rutgers University, Piscataway, NJ</p> <p>Laboratory Testing Guidelines for Certification of Manufactured Stormwater BMPs Omid Mohseni, Research Associate, University of Minnesota; Roger Bannerman, Ph.D., WDNR; Hans deBruijn, Terre Hill Stormwater Systems; Shohreh Karimipour, P.E., NYSDEC; Masoud Kayhanian, Ph.D., University of California – Davis, Davis, CA; Jim Mailloux, Alden Laboratory; Jon McDonald, Kristar Enterprises, Inc.; Mark Miller, P.G., AquaShield, Inc.; Kwabena Osei, Hydro International; Scott Perry, CPSWQ, Imbrium Systems Corporation</p> <p>Field Testing Guidelines for Certification of Manufactured Stormwater BMPs: Part II John Sansalone, Ph.D., University of Florida, Gainesville, FL</p> <p>Data Reporting Guidelines for Certification of Manufactured Stormwater BMPs: Part II Robert Rosen, Ph.D., A.M.ASCE, University of New Hampshire, Durham, NH; Ernie Carrasco, Rinker Materials, Durham, NH; Yuan Cheng, Benatec Assoc, Durham, NH; William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC; Charlene Johnston, URS, Gaithersburg, MD; Jim Mailloux, Alden Labs, Durham, NH; Walt Stein, Contech, Durham, NH; Tim Williams, Foley Products Company, Durham, NH</p> <p>Assessing Hydrodynamic Separators under High Water Flow Conditions David Sadoris, Omid Mohseni, P.E., M.ASCE, John S. Gulliver, Ph.D., P.E., F.ASCE, University of Minnesota, Minneapolis, MN</p>	<p>Urban Streams MODERATOR: John Schwartz</p> <p>The Effect of Urban Stormwater BMPs on Runoff Temperature in Trout Sensitive Regions Matthew Jones, E.I., William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC</p> <p>Analyzing the Impacts of a Retrofit Detention Basin Flow Control Strategy on Biodiversity in an Urban Stream System Natalie Postel, P.E., CDM, Kansas City, MO; Christine Pomeroy, Ph.D. P.E., University of Utah, Provo, UT; Tom Jacobs, P.E., City of Lenexa, Lenexa, KS; Elangovan Karuppasamy, P.E., CDM, Kansas City, MO</p> <p>Codorus Creek Restoration – A Case Study for the Chesapeake Bay Matthew Hoch, Ph.D., Lamar University, Beaumont, TX; Christina Siu, Shirley Clark, Ph.D. P.E., D.WRE, Katherine Baker, Ph.D., Pennsylvania State Harrisburg, Middletown, PA</p> <p>Linking BMP Systems Performance to Receiving Water Protection: Overview of the WERF BMP Screening Tool Christine Pomeroy, Ph.D., M.ASCE, P.E., University of Utah, Salt Lake City, UT; Charles Rowney, Ph.D., P.E., D.WRE, M.ASCE, ACR, LLC, Longwood, FL</p> <p>Kansas City, Missouri's Stream Setback Ordinance: A Case Study on the Benefits of Stream Buffers in Urban Areas Laurie Brown, Scott Schulte, Bryce Lawrence, Patti Banks Associates, Kansas City, MO</p>	<p>Interaction of Stream and Groundwater & Integrated Management – 1 MODERATORS: Amy Chan-Hilton, Roseanna Neupauer</p> <p>Controlling Salt-Water Intrusion to Environmental Sensitive Areas Due to the Construction of the Rio Anton Ruiz Flood Control Project David Weston, P.E., D.WRE, US Army Corps of Engineers, Jacksonville, FL</p> <p>Estimating Groundwater Seepages to St. Lucie Estuary Gour-Tsyh (George) Yeh, Ph.D., Jae-Young Lee, Ph.D., University of Central Florida, Orlando, FL; Gordon Hu, Ph.D., Detong Sun, Ph.D., South Florida Water Management District</p> <p>Simulation of Surface Water and Groundwater Interaction Using RiverWare Groundwater Objects Sue Tillery, Ph.D., Université Montpellier, Montpellier, France; Zhuping Sheng, Ph.D., P.E., P.G., Texas A&M University, El Paso, TX; James Phillip King, Ph.D., P.E., New Mexico State University, Las Cruces, NM; Estrella Herrera, Texas A&M University, El Paso, TX</p> <p>The Relevance of Small Scale Variability in Stream-aquifer Interaction to Successful Riparian Restoration Alyson McDonald, Zhuping Sheng, Ph.D., P.E., Nicole Kyger, Texas AgriLife Research, Fort Stockton, TX</p>	<p>Environmental Cyber-sensing and Modeling – 1 MODERATOR: Barbara Minsker</p> <p>ARC Population and Employment Allocation Disaggregator – A Simple GIS-based Tool for Parcel-scale Population Projection Stephen Bourne, P.E., PBS&J, Smyrna, GA; Mike Alexander, Wei Wang, Atlanta Regional Commission, Atlanta, GA</p> <p>How to Build a Broadly Useable GIS Toolset for Estuary Analysis Stephen Bourne, P.E., PBS&J, Smyrna, GA; Sandra Fox, Palmer Kinser, Ph.D., St. Johns River Water Management District</p> <p>Predicting CSOs for Real-time Decision Support David Hill, Ph.D., Barbara Minsker, Ph.D., Arthur Schmidt, Ph.D., P.E., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Protocol Considerations to Improve the Reliability of Data Collection in a Radio Telemetry System Daniel Lasorso, Graduate Student, Patrick Garrett, Ph.D., P.E., University of Cincinnati, Cincinnati, OH; Craig Patterson, P.E., US Environmental Protection Agency, Cincinnati, OH</p> <p>Visualizing Hydrologic Drought Information on the Web Using State-of-the-art Geospatial Mapping Technology Jae Ryu, P.E., Mark Svoboda, Jane Okalebo, University of Nebraska - Lincoln, Lincoln, NE</p>	<p>Sediment Transport Modeling – 1 MODERATOR: Jennifer Duan</p> <p>Direct Method to Determine the Optimal Riprap Size for Erosion Protection in Rivers Yongliang Jin, Brian Barkdoll, Ph.D., P.E., D.WRE, F.ASCE, Michigan Tech University, Houghton, MI</p> <p>Modeling of Sediment Particle Deposition and Resuspension Processes Using a Stochastic Jump Diffusion Particle Tracking Model Jungsun Oh, Ph.D. Student, Christina Tsai, Ph.D., State University of New York at Buffalo, Buffalo, NY</p> <p>Numerical Model of Channel Meandering in the Middle Sacramento River Jianchun Huang, Ph.D., P.E., David Varyu, Blair Greimann, Ph.D., P.E., US Bureau of Reclamation, Denver, CO</p> <p>One- and Two-dimensional Modeling of Deep Gravel Mining in the Rio Salado Dong Chen, Ph.D. P.E., Desert Research Institute, Las Vegas, NV; Mingfa Liu, University of Nevada – Las Vegas, Las Vegas, NV</p>

WEDNESDAY, MAY 20, 2009

CONCURRENT TECHNICAL SESSIONS X 9:00 - 10:30 AM

CONCURRENT TECHNICAL SESSIONS X 9:00 - 10:30 AM					
JAY MCSHANN B	BIG JOE TURNER A	LESTER YOUNG B	ANDY KIRK A, B	BENNIE MOTEN B	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	STOCHASTIC AND PROBABILISTIC METHODS IN WRPM	STUDENT AND NEW PROFESSIONALS	STUDENT AND NEW PROFESSIONALS/HISTORY	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p style="text-align: center;">Bridge Scour</p> <p>MODERATORS: Brian Barkdoll, Yong Lai</p> <p>General Hydraulic Characteristics of an Open Channel with Narrow Path Maritess Quiampo, Ph.D. Student, Tadashi Yamada, Professor, Chuo University, Tokyo, Japan</p> <p>Predicting Rock Scour in an Alluvial River with a One-Dimensional Model Blair Greimann, Ph.D., Yong Lai, Ph.D., US Bureau of Reclamation, Denver, CO</p> <p>Predicting Rock Scour on an Alluvial River with a Two-dimensional Model Yong Lai, Ph.D., Blair Greimann, Ph.D., US Bureau of Reclamation, Denver, CO; Kuowei Wu, Ph.D., Water Resources Agency of Taiwan</p>	<p style="text-align: center;">Influence of Land Cover/Climate Variables on Water Resources</p> <p>MODERATOR: Veronica Griffis</p> <p>Paleo Pacific Ocean Sea Surface Temperature Variability and Upper Colorado River Basin Streamflow Oubeid Aziz, Glenn Tootle, Ph.D., P.E., University of Tennessee, Knoxville, TN</p> <p>A Spatio-temporal Drought Analysis for the Midwestern US Shih-Chieh Kao, Ph.D., Oak Ridge National Laboratory, Oak Ridge, TN; Rao S. Govindaraju, Ph.D., Dev Niyogi, Ph.D., Purdue University, West Lafayette, IN</p> <p>Water Resources Planning under Non-stationary Hydroclimate in a Snow Dominant Watershed Francis Chung, Ph.D., Tariq Kadir, Jeff Galef, California Department of Water Resources, Sacramento, CA</p> <p>A Bayesian Framework for Cost Effective Management of Sediment Reduction in the Minnesota River Basin Sarah Jacobi, Ph.D., Pearl Zheng, Benjamin Hobbs, Ph.D., Peter Wilcock, Ph.D., Johns Hopkins University, Baltimore, MD</p>	<p style="text-align: center;">The Oklahoma State University – Woolpert Scholars Session on Urban Stormwater Management</p> <p>MODERATOR: Bill Barfield</p> <p>An OSU – Woolpert partnership has increased opportunities for engineering students to work on real world problems. Students in Biosystems Engineering, focused on urban water resources issues, were selected from a list of applicants by a joint OSU-Woolpert committee. Students developed a final report, presented to OSU colleagues, and traveled to this national professional meeting under Woolpert funding to present their results.</p> <p>Influence of Detention Basin Releases on Downstream Channel Erosion and Bank Stability Rachel Carson, OSU Woolpert Scholar, Garey A. Fox, Ph.D., Oklahoma State University, Stillwater, OK; Patricia Malinowski, P.E., Woolpert, Inc., Charlotte, SC</p> <p>Low Dose Alum Injection to Improve Wetland P Assimilation on the Illinois River Kevin B. Stunkel, Woolpert Scholar, Daniel E. Storm, Ph.D., Chad J. Penn, Ph.D., Oklahoma State University, Stillwater, OK; Sahoo Debabrata, Ph.D., Woolpert, Inc., Columbia, SC</p> <p>Retention of Nitrate in Runoff Water Using Sulfur Modified Iron Taber L. Midgley, Woolpert Scholar, Glenn O. Brown, Ph.D., Oklahoma State University, Stillwater, OK; John P. Raiford, Ph.D., Woolpert, Inc., Charlotte, NC</p>	<div style="text-align: center;"></div> <p style="text-align: center;">Students Panel: History of Large Environmental/ Water Firms</p> <p>Moderator: Jerry R. Rogers</p> <p>Burns and McDonnell History – Need for Clean Water Launched Burns & McDonnell Debra Wray, Roger Dick, Pete Zanoni, Burns & McDonnell, Kansas City, MO</p> <p>HDR History Donald Lindeman, Jennifer Jacka, HDR, Kansas City, MO</p> <p>Black and Veatch History Jim Lewis, Black & Veatch, Overland Park, KS</p> <p>HNTB History David Renezky, HNTB Corporation, Kansas City, MO</p> <div style="text-align: center;"></div>	<p style="text-align: center;">Water Distribution and Management – 1</p> <p>MODERATOR: Arnie Strasser</p> <p>Boundary Conditions for Simulating Complex Storm-sewer Systems in Free Surface, Pressurized, and Mixed Flow Conditions Arturo Leon, Ph.D., Xiaofeng Liu, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL; Mohamed Ghidaoui, Professor, The Hong Kong University of Science and Technology, Hong Kong, China; Arthur Schmidt, Ph.D., P.E., Marcelo Garcia, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Comparison of EPANET and Experimental Tests for Water Quality Modeling of Pipe Networks with Transient Storage Malynnda Cappelle, Karen Kajder, Student Intern, Clifford Ho, Ph.D., Amy Sun, Ph.D., Sandia National Laboratories</p> <p>Hydraulic Modeling and Engineering Evaluation of Fort Myers Beach's Water Distribution System Jinsheng Huo, Ph.D., P.E., BCEE, AECOM Technology Corporation, Fort Myers, FL</p> <p>Multi-objective Design of Transient Network Models Bong Seog Jung, Ph.D., MWH Soft, Arcadia, CA; Misgana Muleta, Ph.D., California Polytechnic State University, San Luis Obispo, CA; Paul Boulos, Ph.D., MWH Soft, Arcadia, CA</p>	<p style="text-align: center;">Modeling Hydroclimate-Statistical Approaches</p> <p>MODERATORS: Rao S. Govindaraju, Levent Kavvas</p> <p>Changes in Short Time Increment Malaysian Rainfall Rao Ramachandra, Emeritus Professor, Purdue University, West Lafayette, IN; Mohamed Azli, Student, University of Malaya, Kuala Lumpur, Malaysia</p> <p>Modeling the Kinematic Wave Parameters with Regression Methods Ismail Haltas, Ph.D., Northwest Hydraulic Consultants, Sacramento, CA</p> <p>On the Use of Data Uncertainty in Hydro-climatic Modeling: A Bayesian Approach Shivam Tripathi, S.M.ASCE, Rao S. Govindaraju, M.ASCE, Purdue University, West Lafayette, IN</p>

10:30 - 11:00 AM Networking Break / Colonial / Imperial Ballrooms



Important Panel Discussions & Special Sessions



Student Activity

WEDNESDAY, MAY 20, 2009

11:00 AM - 12:30 PM TECHNICAL POSTER SESSION VIII COLONIAL BALLROOM
 11:00 AM - 12:30 PM PB STUDENT DESIGN COMPETITION (See Student and New Professionals Track, below) LESTER YOUNG B

CONCURRENT TECHNICAL SESSIONS XI 11:00 AM - 12:30 PM

JULIA LEE A	BENNIE MOTEN A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	JAY MCSHANN B
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY	HYDRAULICS AND WATERWAYS
<p>Network Modeling – 3 MODERATOR: Tom Walski</p> <p>An Operative Approach to Water Distribution System Rehabilitation Luigi Berardi, Orazio Giustolisi, Technical University of Bari, Taranto, Italy; Dragan Savic, Professor, University of Exeter, Exeter, UK</p> <p>Calibration of Water Distribution Network Models as a Tool for Detecting Missing and Erroneous Cadastral and Hydraulic Information Juan Saldarriaga, Susana Ochoa, César Jurado, Daniel Rodríguez, Universidad de los Andes, Bogotá, Colombia</p> <p>Integrated Planning for Dual Distribution Systems Nabin Khanal, Vanessa Speight, Ph.D., Radhakrishnan Venkataraman, Timothy Francis, Laurel Passantino, Malcolm Pirnie Inc., Phoenix, AZ; Jim Swanson, City of Surprise, Surprise, AZ</p> <p>Reliability Analysis of Water Distribution Systems Using Graph Decomposition Jochen Deuerlein, Dr.-Ing., Andreas Wolters, Dr.-Ing., 3S Consult GmbH, Garbsen, Germany; Dietmar Roetsch, Dr.-Ing., Energietechnik & Ingenieurssoftware, Garbsen, Germany; Angus Simpson, Ph.D., University of Adelaide, Adelaide, Australia</p>	<p>Manufactured Treatment Devices – Certification – 2 MODERATORS: George Guo, Charlene Johnston</p> <p>Potential Data Analysis Methodology to Evaluate the Performance of Manufactured BMPs Masoud Kayhanian, Ph.D., M.ASCE, University of California – Davis, Davis, CA; Robert Roseen, Ph.D., M.ASCE, University of New Hampshire, Durham, NH; Jim Lenhart, P.E., CONTECH Stormwater Solution Inc., Davis, CA; Greg Williams, P.E., Monteco Research & Development Centre, Toronto, ON</p> <p>Water Quality Design Storms for Stormwater Hydrodynamic Separators Victoria Fernandez-Martinez, Qizhong Guo, Ph.D., P.E., Rutgers University, Piscataway, NJ</p> <p>Proposed Scaling for Manufactured Stormwater BMP Performance John Gulliver, Professor, University of Minnesota, Minneapolis, MN; John Sansalone, Ph.D., University of Florida, Gainesville, FL; Qizhong Guo, Ph.D., Rutgers University, Piscataway, NJ; Gregory Williams, MonteCo, Minneapolis, MN</p> <p>A Tool for the Performance Assessment of Hydrodynamic Separators Omid Mohseni, Janna Kieffer, Jennifer Koehler, Barr Engineering Company</p>	<p>Low Impact Development – Vegetated Treatment MODERATORS: Alan Davis, Bridget Wadzuk</p> <p>Monitoring the Hydrologic Effects of an Extensive Green Roof Nathaniel Hanna Holloway, Charles J. Werth, Ph.D., Arthur R. Schmidt, Ph.D., P.E., University of Illinois Urbana – Champaign, Urbana, IL</p> <p>The Lawrence Technological University Greenroof Performance Evaluation Project Donald Carpenter, A.M.ASCE, Preethi Kaluvakolanu, Lawrence Technological University, Southfield, MI</p> <p>An Evaluation of Stormwater Wetlands in Series Jon Hathaway, E.I., William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC</p> <p>A Level Spreader – Vegetated Buffer System for Urban Stormwater Management Ryan Winston, E.I., S.M.ASCE, William Hunt, Ph.D., P.E., North Carolina State University, Raleigh, NC</p>	<p>Interaction of Stream and Groundwater & Integrated Management – 2 MODERATORS: Roseanna Neupauer, Zhuping Sheng</p> <p>Analytical-numerical Solution for Seepage along an Earth Canal Disconnected from the Shallow Aquifer Yi Liu, Ph.D., Zhuping Sheng, Ph.D., P.E., Texas A&M System, El Paso, TX</p> <p>City of North Bend Groundwater Supply and Water Rights Nicole DeNovio, Ph.D., Robert Anderson, L.Hg., Alyssa Neir, Golder Associates</p> <p>Hydrogeologic Investigation for New Water Supply for Water District No. 1 of Johnson County, Kansas Jeffrey Henson, P.E., Black & Veatch; Tom Schremp, P.E., Water District No. 1 of Johnson County, KS; Mike Horsley, P.E., Kris Hahn, P.E., Black & Veatch</p> <p>Use of Geophysical Techniques to Map Subsurface Preferential Flow Paths in Riparian Floodplains Ron Miller, Ph.D. Student, Derek Heeren, Ph.D. Student, Garey Fox, Ph.D., P.E., Daniel Storm, Professor, Todd Hallihan, Associate Professor, Oklahoma State University, Stillwater, OK</p>	<p>Environmental Cyber-sensing and Modeling – 2 MODERATOR: David J. Hill</p> <p>“Let it Rain” – Gauge-Adjusted Radar Rainfall (GARR) Data for Peachtree Creek Sewer Basin Modeling Alberto Bechara, P.E., Georgia Institute of Technology, Atlanta, GA; Vahe Kokorian, P.E., Florida International University; Rasheed Ahmad, Ph.D., Georgia Institute of Technology, Atlanta, GA; Jim Moffitt, University of Colorado, Boulder, CO</p> <p>Adaptive Long-term Monitoring at BP Environmental Restoration Sites Matthew Zavislak, John Dustman, Summit Envirosolutions, Inc., St. Paul, MN; Dennis Beckmann, P.E., BP Corp., North America, St. Paul, MN</p> <p>Application of Radio Frequency Tracers to Individual and Group Particle Displacement Within a Laboratory Flume Timothy Lauth, Graduate Student, Thanos Papanicolaou, Ph.D., University of Iowa, Iowa City, IA</p> <p>Cost-effective, Automated Water Quality Monitoring Systems Providing High Resolution Data in Near Real-time Rob Ellison, Mike Cook, Ph.D., YSI, Jamaica Plain, MA</p> <p>South Florida Water Control System Tracker: Real-time Water Budgeting for Pragmatic Water Control Operations Leslie Gowdich, Ph.D., Stephen Bourne, P.E., PBSJ; Lakin Flowers, Ken Stewart, Ph.D., South Florida Water Management District; Jack Hampson, CFM, CMS, PBSJ</p>	<p> Dam Operation, Management, and Safety – 1 MODERATORS: Mustafa Altınakar, Larry Weber</p> <p>Alternatives Study of Willwood Diversion Dam Siltation Removal in Wyoming, USA Hui-Ming Shih, Ph.D., CFM, Martin/Martin Inc., Denver, CO; Chih Ted Yang, Ph.D., P.E., Colorado State University, Fort Collins, CO; Patrick F. Horn, P.E., Martin/Martin Inc., Denver, CO; Lynn C. Stutzman, P.E., Engineering Associates, Denver, CO</p> <p>Managing Reservoir Discharge through Accurate Flow Measurement Bryan Heiner, Research Assistant, Steven Barfuss, P.E., Utah State University, Logan, UT</p> <p>Simulation Study for Minimizing Diurnal Variation of Flow in a Hydroelectric Project to Reduce Downstream Impact Maya R. Ray, Research Scholar, Arup Kr. Sarma, Ph.D., Indian Institute of Technology Guwahati, Guwahati, India</p>

WEDNESDAY, MAY 20, 2009

CONCURRENT TECHNICAL SESSIONS XI 11:00 AM - 12:30 PM

CONCURRENT TECHNICAL SESSIONS XI 11:00 AM - 12:30 PM					
JAY MCSHANN A	LESTER YOUNG A	BIG JOE TURNER A	LESTER YOUNG B	BENNIE MOTEN B	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	IRRIGATION AND DRAINAGE	STOCHASTIC AND PROBABILISTIC METHODS IN WRPM	STUDENT AND NEW PROFESSIONALS	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Sediment Transport Modeling – 2 MODERATORS: Thanos Pappicolaou, Michael Gee</p> <p>Effects of Gas Ebullition on Cohesive Sediment Resuspension and Cap Stability Pinar Cakir Kavcar, Ph.D., Bechtel Corporation, Houston, TX; Steven J. Wright, Professor, University of Michigan, Ann Arbor, MI</p> <p>Empirical Equation for Abrasion of Stilling Basin Caused by Impact of Sediment Masih Elahi, Mohammad Banihabib, Ph.D., Tehran University, Tehran, Iran</p> <p>Investigation of Land-use Change and Hydrologic Forcing Upon Streambank Erosion and In-stream Sediment Processes Using a Watershed Model and Sediment Tracers Joseph Russo, Graduate Assistant, James Fox, Assistant Professor, Darren Martin, Graduate Assistant, University of Kentucky, Lexington, KY</p> <p>Retrofitting Stormwater BMPs in a Supercritical Flow Regime – A Hydraulic Perspective Ivan Tye, P.E., CH2M HILL, Chatswood, New South Wales, Australia</p>	<p>Crop Production and Water Balance MODERATORS: Blaine Hanson, Byron Clark</p> <p>Water Use and Evapotranspiration Coefficients for Camelina Sativa Douglas Hunsaker, Ph.D., Andrew French, Ph.D., Thomas Clarke, USDA-ARS, Maricopa, AZ; Diaa El-Shikha, Ph.D., University of Arizona, Tucson, AZ</p> <p>Water Production Functions for High Plains Crops Thomas Trout, M.ASCE, Walter Bausch, Ph.D., USDA-ARS, Fort Collins, CO</p> <p>Physiological and Yield Response of Green Bell Pepper to Soil Moisture Sensor Controlled Drip Irrigation Lincoln Zotarelli, Michael D. Dukes, University of Florida, Gainesville, FL</p> <p>Water Retention and Hydraulic Conductivity of Different Media Used for Containerized Agriculture Systems Vivek Kumar, Florida International University, Miami, FL; Reza Savabi, Ph.D., USDA-ARS; Felipe Guerrero, Berrin Tansel, Ph.D., Florida International University, Miami, FL</p>	<p>Regional Analysis of Hydrologic Variables with Limited Data MODERATOR: Jerry Stedinger</p> <p>Providing a Physical Basis for Statistical Homogeneity in Regional Frequency Analyses Fredline Ilorme, Graduate Student, Veronica Griffiths, Ph.D., Michigan Technological University, Houghton, MI</p> <p>Development of Regression Models to Estimate Flow Duration Statistics for Ungauged Streams in Oklahoma Using a Regional Approach Rachel Esralew, US Geological Survey, Oklahoma City, OK</p> <p>Copula Approach for Reducing Uncertainty in Design Flood Estimates in Insufficient Data Situations Hemant Chowdhary, Louisiana State University, Baton Rouge, LA; Vijay Singh, Ph.D., Texas A&M University, College Station, TX</p> <p>Reducing Uncertainty of Continuous Streamflow Predictions in Ungauged Basins Using Regional Constraints Thorsten Wagener, Ph.D., Pennsylvania State University, University Park, PA</p>	<p>PB Student Design Competition MODERATOR: Bijay Panigrahi</p> <p>PB and EWRI team up to present the Environmental and Water Resources Student Design Competition. As all universities' civil and environmental engineering programs require the experience of undergraduate team design, this competition provides an exciting and constructive platform to demonstrate students' hard work. From among several applicants, two teams have been chosen to present their projects. The winning team will be determined in this session by a panel of judges.</p> <p>Black Point Water Treatment Facility CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA, CA Ailyn Renteria, Mike Olsen, Brian Powell, Dustin Marshman, Chad Nelson, Trevor Millican</p> <p>Environmental Aspects of an Upgrade Engineering Design Study of the SIUE Heating and Refrigeration Plant SOUTHERN ILLINOIS UNIVERSITY, EDWARDSVILLE, IL Sara Andert, Amanda Dioneda, Dustin Hill, Stephen Linenfelser, Adam Rhein, Troy Turner, Trisha Youngquist</p> <p>Wind-2-H₂O: Converting Wind Energy to Mechanical Energy for Reverse Osmosis Water Treatment UNIVERSITY OF ALABAMA, HUNTSVILLE, AL Taylor Bryan, Jeremy Cheek, Katie Cunningham, Lee Ellenburg, Hernando Gauto, Brian Roberson</p>	<p>Innovative Wastewater Technologies and Management MODERATOR: Victor Cook</p> <p>Adding Value to Sanitary Sewers – An Important Asset of Municipalities V. Firat Sever, Ph.D., P.E., BOYLE AECOM, Fort Myers, FL; Barton Bradshaw, City of Marco Island, Marco Island, FL</p> <p>Application of Enhanced Methods of Phosphorus and Nitrogen Removal from Waste Water Mohammad Fallahpour, Graduate Student, Mojtaba Fazeli, Professor, Power and Water University of Technology, Tehran, Iran; Seyed Ahmad Mirbagheri, Environmental Engineering Post-Doctorate, Khajeh-Nasir Tousi University of Technology, Tehran, Iran</p> <p>Biological Nutrient Removal for On-site Wastewater Treatment Systems Using a Membrane Aerated Bioreactor Zhiqiang Hu, Ph.D., Zhihua Liang, Student, University of Missouri, Columbia, MO</p> <p>Understanding and Controlling Fouling in Membrane Bioreactors Roger W. Babcock, Jr., Ph.D., P.E., M.ASCE, University of Hawaii at Manoa, Honolulu, HI</p>	<p>Modeling Hydroclimate MODERATORS: Levent Kavvas, Rao S. Govindaraju</p> <p>Evaluation of Hydrologic Impacts of River Restorations Using Coupled Hydroclimate Model ZhiQiang Chen, Ph.D., M.ASCE, M. Levent Kavvas, Professor, Noriaki Ohara, Ph.D., University of California – Davis, Woodland, CA</p> <p>Historical Reconstruction of Hydroclimatic Data Based on the Control Runs of GCMs over Sabah and Sarawak, Malaysia Noriaki Ohara, Ph.D., M. Levent Kavvas, Professor, ZhiQiang Chen, Ph.D., M.ASCE, University of California – Davis, Davis, CA; Ahmad Jamalluddin bin Shaaban, Ph.D., National Hydraulic Research Institute of Malaysia, Selangor Darul Ehsan, Malaysia</p> <p>Incorporating Hydroclimate Information into Hydrologic Design Michael Anderson, Ph.D., P.E., California Department of Water Resources, Sacramento, CA</p> <p>Statistical Characteristics of Land Surface Properties for the Regional Hydroclimate Model Shuichi Kure, Ph.D., Su-Hyung Jang, Ph.D., Noriaki Ohara, Ph.D., M. Levent Kavvas, Professor, University of California – Davis, Davis, CA</p>



12:30 - 1:30 PM Lunch on Your Own ■ 12:30 - 1:30 PM Student & New Professional Activities Council Luncheon and Awards / Count Basie Ballroom



Important Panel Discussions & Special Sessions



Student Activity



WEDNESDAY, MAY 20, 2009

1:30 - 3:00 PM STUDENT TECHNICAL PAPER COMPETITION (See Student & New Professionals Track, below) LESTER YOUNG B

CONCURRENT TECHNICAL SESSIONS XII 1:30 - 3:00 PM

JULIA LEE A	BENNIE MOTEN A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	JAY MCSHANN A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p>	<p>7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT</p>	<p>EMERGING AND INNOVATIVE TECHNOLOGY</p>	<p>HYDRAULICS AND WATERWAYS</p>
<p>Network Modeling – 4 MODERATOR: Angus Simpson</p> <p>A Framework for Alternative Formulations of the Pipe Network Equations Angus Simpson, Ph.D., Sylvan Elhay, Ph.D., University of Adelaide, Adelaide, Australia</p> <p>Effect of Tank Water Levels on Energy Usage in Municipal Water Distribution Systems Santosh Ghimire, Ph.D., Brian Barkdoll, Ph.D., P.E., D.WRE, F.ASCE, Michigan Tech University, Houghton, MI</p> <p>Getting the Most Mileage from SCADA Data for Hydraulic Modeling Rajan Ray, Patrick Moore, P.E., Kristine Sierra, IDModeling</p> <p>Inexpensive Modeling of Intermittent Service Water Distribution Networks Jose-Antonio Cabrera-Bejar, National Autonomous University of Mexico, Jiutepec, Morelos, Mexico; Velitchko Tzatchkov, Ph.D., Mexican Institute of Water Technology, Jiutepec, Morelos, Mexico</p>	<p>Low Impact Development and Infiltration Issues MODERATORS: Linda Pechacek, Jon Hathaway</p> <p>Analysis of Bioretention Media Specifications and Relationships to Overall Performance Allen Davis, F.ASCE, Sen O'Neill, University of Maryland, College Park, MD</p> <p>Pollutant Transport within the Vadose Zone: Interactions of Soil Horizon Chemistry on Water Quality Daniel Treese, Shirley Clark, Ph.D., P.E., D.WRE, Penn State Harrisburg, Middletown, PA</p> <p>Infiltration in a Constructed Stormwater Wetland: Preliminary Analysis of the Impact on Groundwater Quality Gerrad Jones, Graduate Student, Kristen Mogavero, Graduate Student, Bridget Wadzuk, Ph.D., Villanova University, Villanova, PA</p> <p>Low Impact Development Stormwater Management Practices as a Means of Resilience to Climate Change and Its Effects on Groundwater Recharge Iulia Barbu, E.I.T., Thomas Ballestero, Ph.D., P.E., P.G., P.H., C.G.W.P., Robert Roseen, Ph.D, P.E., University of New Hampshire, Durham, NH</p>	<p>Decision Analysis in Watershed Management MODERATORS: Jane Clary, Jim Lenhart</p> <p>Breaking Down the Barriers to Low Impact Development in Colorado Andrew Earles, Ph.D., P.E., D.WRE, CPESC, Derek Rapp, P.E., CPESC, Jane Clary, CPESC, Wright Water Engineers, Inc., Denver, CO; Janice Lopitz, KICP, Keep it Clean Partnership, Denver, CO</p> <p>Linking Environmental Assessments and Solutions Leila Gosselink, Roger Glick, Ph.D., P.E., Chris Herrington, E.I.T., City of Austin, Austin, TX</p> <p>The Application of Environmental Site Design Processes to Design a Residential Subdivision Steven Trinkaus, P.E., Trinkaus Engineering, LLC, Southbury, CT</p> <p>The Road to LID Plan Approval in North Carolina Hunter Freeman, P.E., Withers & Ravenel, Cary, NC</p> <p>Water Sustainability Index: Application of CWSI for Ahwaz County Jalal Attari, Ph.D., Power & Water University of Technology, Tehran, Iran; S. Ali Mojahedi, Ministry of Energy, Tehran, Iran</p>	<p>Groundwater Quality Modeling – Solute Transport and Reactive Transport MODERATORS: Stewart Taylor, Nicole DeNovio</p> <p>An Analytical Solute Transport Model for In-situ Estimation of Retardation Gustavious Williams, M.ASCE, Brigham Young University, Provo, UT; David Tomasko, Argonne National Laboratory, Provo, UT</p> <p>Assessing Postulated Accidental Releases of Radioactive Liquid Effluents from Nuclear Power Plants Stewart Taylor, Ph.D., P.E., Garrett Day, Angelos Findikakis, Ph.D., Gerald McLane, Lawrence Young, Bechtel Power Corporation, Frederick, MD</p> <p>Modeling of Chlorinated VOCs Transport under Dual Bioreactions Wonyong Jang, Ph.D., Mustafa M. Aral, Ph.D., Georgia Institute of Technology, Atlanta, GA</p> <p>Reaction Rates in a Transport System with Both Kinetic and Equilibrium Reactions Gour-Tsyh (George) Yeh, Ph.D., University of Central Florida, Orlando, FL; Yilin Fang, Ph.D., Pacific Northwest National Laboratory</p>	<p>Emerging and Innovative Technology in Water Treatment MODERATORS: Lindell Ormsbee, Craig Paterson</p> <p>Development of a Community Water Security Filtration System Using Composite Cartridges Nur Muhammad, Ph.D., P.E., Rajib Sinha, P.E., E. Radha Krishnan, P.E., Shaw Environmental & Infrastructure, Inc., Cincinnati, OH; Craig Patterson, P.E., Roy Haught, US Environmental Protection Agency, Cincinnati, OH; Harold Harms, Rick Seville, Harmsco Filtration Products, Cincinnati, OH</p> <p>Evaluation of a UV/Ozone Treatment Process for Removal of MTBE in Groundwater Supplies in New Mexico Craig Patterson, P.E., US Environmental Protection Agency, Cincinnati, OH; Fernando Cadena, Ph.D., P.E., New Mexico State University, Las Cruces, NM; Rajib Sinha, P.E., E. Radha Krishnan, P.E., Shaw Environmental & Infrastructure, Inc., Cincinnati, OH; Dzung Kim Ngo-Kidd, US Environmental Protection Agency, Cincinnati, OH; Abbas Ghassemi, Ph.D., New Mexico State University, Las Cruces, NM</p> <p>Removal of Waterborne Particles by Electrofiltration John Murphy, P.E., Ying Li, Ph.D., Ray Ehrhard, P.E., BCEE, Washington University, St. Louis, MO; Keith Carns, P.E., BCEE, Global Energy Partners; Craig Patterson, P.E., US Environmental Protection Agency, Cincinnati, OH; E. Radha Krishnan, P.E., Rajib Sinha, P.E., Shaw Environmental & Infrastructure, Inc., Cincinnati, OH</p> <p>Water Distribution Optimization: Taking SCADA One Step Forward Chuck Weber, P.E., WaterOne; Simon Bunn, P.E., Derceto Ltd.</p>	<p>Risk Uncertainty MODERATOR: Christina Tsai</p> <p>Flood Risk Assessment of Complex Riverine Systems Christopher Dunn, P.E., US Army Corps of Engineers, Hydrologic Engineering Center, Davis, CA, Michael Deering, P.E., D.WRE, US Army Corps of Engineers, IWR, Davis, CA</p> <p>Monte Carlo Simulation Analysis for Prediction of Superelevation in Open Channel Bends Gholamreza Shams Ghahtarokhi, Ph.D. Student, Pieter Van Gelder, Assistant Professor, Han Vrijling, Professor, Delft University of Technology, Delft, The Netherlands</p> <p>Optimal Design of Water Diversion System: A Case Study Mohammad Karamouz, Ph.D., University of Tehran, Iran; Siyamak Doroudi, Islamic Azad University, Tehran, Iran; Azadeh Ahmadi, Ph.D. Candidate, University of Tehran, Iran; Ali Moridi, Ph.D., Amirkabir University, Tehran, Iran</p>

WEDNESDAY, MAY 20, 2009

CONCURRENT TECHNICAL SESSIONS XII 1:30 - 3:00 PM

JAY MCSHANN B	ANDY KIRK A, B	LESTER YOUNG A	BIG JOE TURNER A	LESTER YOUNG B	BENNIE MOTEN B
HYDRAULICS AND WATERWAYS	INTERNATIONAL SUSTAINABLE DEVELOPMENT	IRRIGATION AND DRAINAGE	STOCHASTIC AND PROBABILISTIC METHODS IN WRPM	STUDENT AND NEW PROFESSIONALS	WATER, WASTEWATER, AND STORMWATER
<p>Sedimentation – 1</p> <p>MODERATORS: Martin Teal, Cassie Klumpp</p> <p>Numerical Simulation of Sediment Transport and Morphological Change of Jiji Weir Reservoir Yaoxin Zhang, Ph.D., Yafei Jia, Ph.D., University of Mississippi, University, MS; Keh-Chia Yeh, M.ASCE, Chung-Ta Liao, National Chiao Tung University, Hsinchu, Taiwan; Sam S.Y. Wang, Ph.D., University of Mississippi, University, MS</p> <p>One-dimensional Modeling of Sedimentation Processes on the Puyallup River, Washington Brian Wardman, P.E., Brad Hall, Northwest Hydraulic Consultants; Casey Kramer, P.E., Washington State Department of Transportation</p> <p>Physical Experimentation and CFD Modeling to Evaluate Sediment Scour in Catchbasin Sumps Humberto Avila, Universidad del Norte, Barranquilla, Columbia; Robert Pitt, University of Alabama</p> <p>Sedimentation Characteristics of the Lower Nakdong River Upstream of the Nakdong River Estuary Barrage Sangkil Park, Ph.D, Busan National University, Busan, Republic of Korea; Un Ji, Ph.D, Myongji University, Seoul, Republic of Korea; Byungdal Kim, Ph.D, Dohoon Kim, Korea Water Resources Corporation, Yongin, Republic of Korea</p>	 <p>EWB and Water for People: Lessons from the Field MODERATOR: David Watkins</p> <p>International Sustainable Development: Lessons from the Field Cathy Leslie, P.E., Engineers Without Borders; Nina Miller, Ned Breslin, Water for People</p>	<p>Landscape Irrigation Scheduling and Water Management MODERATORS: Douglas Hunsaker, Charles Hillier</p> <p>Preliminary Results for Bench Testing of Evapotranspiration-based Irrigation Controllers In Florida Stacia Davis, E.I.T., Michael D. Dukes, Ph.D., P.E., University of Florida, Gainesville, FL</p> <p>Irrigation Rain Sensors Accuracy Bernard Cardenas-Lailhacar, Michael D. Dukes, Ph.D., P.E., Leah Meeks, Graduate Student, University of Florida, Gainesville, FL</p> <p>The Use of Soil-water Sensors in Turf Irrigation Control: How Effective Are They? Gary Grabow, Ph.D., North Carolina State University, Raleigh, NC; Michael D. Dukes, Ph.D., P.E., University of Florida, Gainesville, FL; Bir Thapa, Ph.D., North Carolina State University, Raleigh, NC</p> <p>Evaluation of Irrigation Scheduling Efficiency and Adequacy by Various Control Technologies Compared to Theoretical Irrigation Requirement Mary McCready, Ph.D., Michael D. Dukes, Ph.D., P.E., University of Florida, Gainesville, FL</p>	<p>Generation/Forecasting of Hydrologic Time Series MODERATOR: Stacy Archfield</p> <p>Nonlinear Dependence in Hydrologic Time Series Hung Soo Kim, Associate Professor, Inha University, Incheon, Republic of Korea; Bellie Sivakumar, Research Scientist, University of California – Davis, Davis, CA; EunTae Lee, Professor, Kyunghee University, Seoul, Republic of Korea</p> <p>Developments on Stochastic Analysis, Modeling, and Simulation J.D. Salas, Professor, Colorado State University, Fort Collins, CO; O. Sveinsson, Electric Power Company, Lakewood, CO; T.S. Lee, Ph.D. Candidate, Colorado State University, Fort Collins, CO; W. Lane, Consulting Engineer, Lakewood, CO; D.K. Frevert, US Bureau of Reclamation, Denver, CO</p> <p>Long-lead Forecasting of Monthly Rainfall Using Large Scale Climate Signals and Statistical Disaggregation Models Azadeh Ahmadi, Ph.D. Candidate, Mohammad Karamouz, Ph.D., Sara Nazif, Ph.D. Candidate, Navideh Noori, University of Tehran, Tehran, Iran</p> <p>Water Demand Forecasting for the City of the Future Against the Uncertainties and the Global Change Pressures: Case of Birmingham, UK Krishna Khatri, Kala Vairavamoorthy, Ph.D., University of Birmingham, Birmingham, UK</p>	<p>Student Technical Paper Competition Winners MODERATOR: Kathleen M. Leonard</p> <p>Winners of the 2009 ASCE/EWRI Environmental & Water Resources Engineering Student Technical Paper Competition will present on environmental/water resource topics at this session, which is sponsored by the EWRI Student and New Professionals Activities Council. In addition to being published in the Congress Proceedings, the six graduate and undergraduate winners receive travel reimbursements and cash awards. Papers were judged by members of the EWRI Student and New Professionals Activities Council and engineers from industry.</p> <p>UNDERGRADUATE DIVISION</p> <p>FIRST PLACE: Study of Low Dosage Pre-Ozonation on Sand Filtration Efficiency Walter Lee Ellenburg, University of Alabama in Huntsville, Huntsville, AL</p> <p>SECOND PLACE: The Dubai Palms: Construction and Environmental Consequences Ethan Poole, University of Tennessee - Knoxville, Knoxville, TN</p> <p>THIRD PLACE: Does Polymer Have an Effect on Bacterial Regrowth in Anaerobically Digested Biosolids? Jean M. Ryan, Pennsylvania State University - Harrisburg, Middletown, PA</p> <p>GRADUATE DIVISION</p> <p>FIRST PLACE: Sensitivity Analysis of HEC-HMS Hydrologic Model to the Number of Sub-Basins: Case Study Osama Z. Al-Hamdan, University of Alabama in Huntsville, Huntsville, AL</p> <p>SECOND PLACE: Effect of Acid Mine Drainage on Aluminum Release from Clay Minerals Oscar Vazquez, University of Pittsburgh, Pittsburgh, PA</p> <p>THIRD PLACE: Current Water Management Practices and the Effects of Climate Change on the Colorado River Basin J. Brandon Klenzendorf, University of Texas at Austin, Austin, TX</p> 	<p>Green Approaches MODERATOR: Helene Hilger</p> <p>An Ecosystems Services Approach to Public Facility Planning Anita Yap, AICP, City of Damascus; Gretchen Honan-Matos, Dave Green, P.E., Mary Jo Kealy, Ph.D., CH2M HILL</p> <p>Construction of a Low-flow Channel in Barber Creek: Case Study in the Powder River Basin, Wyoming Robert Thoman, P.E., J.J. Brown, Lowham Engineering LLC, Lander, WY</p> <p>Extension of an LA-QUAL Model for Evaluating a Proposed Wastewater Discharge to Realistic Receiving Water Temperature and Flow Conditions Chris Herrington, P.E., Roger Glick, Ph.D., P.E., Leila Gosselink, P.E., City of Austin, Austin, TX</p> <p>Green Alternatives in Channel Stabilization Richard Besancon, P.E., Burns & McDonnell Engineering, Kansas City, MO</p>

3:00 - 3:30 PM Networking Break / Colonial / Imperial Ballrooms

 Important Panel Discussions & Special Sessions

 Student Activity

WEDNESDAY, MAY 20, 2009

3:30 - 5:00 PM TECHNICAL TOUR: RAINGARDEN BARBECUE MEADOWLAKE PARK IN PRAIRIE VILLAGE

3:30 - 5:00 PM CAREER OPPORTUNITIES AFTER COLLEGE PANEL DISCUSSION (See Student and New Professionals track, below) LESTER YOUNG B ■ 3:30 - 5:00 PM TECHNICAL POSTER SESSION IX COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS XIII 3:30 - 5:00 PM

JULIA LEE A	BENNIE MOTEN A	JULIA LEE B	MARY LOU WILLIAMS A	BIG JOE TURNER B	JAY MCSHANN A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY	HYDRAULICS AND WATERWAYS
<p>Network Optimization – 1 MODERATOR: Ami Preis</p> <p>An Approach for Integrated Optimisation of Wastewater, Recycled and Potable Water Networks Graeme Dandy, Ph.D., M.ASCE, University of Adelaide, Adelaide, Australia; Alana Duncker, Joel Wilson, Optimatics Pty. Ltd., Adelaide, Australia; Xavier Pedoux, Yarra Valley Water, Adelaide, Australia</p> <p>Application of Optimization Technology to Water Distribution System Master Planning Chris Rogers, P.Eng., Delcan Corporation, Ottawa, ON; Mark Randall-Smith, Mouchel; Ed Keedwell, Ph.D., University of Exeter, Exeter, UK; Roman Diduch, City of Ottawa, Ottawa, ON</p> <p>Assessing the Impact of Climate Change on Drinking Water Treatment Plant Design and Operation Zhiwei Li, Ph.D., Robert M. Clark, Ph.D., Steven G. Buchberger, Ph.D., University of Cincinnati, Cincinnati, OH; Y. Jeffrey Yang, Ph.D., US Environmental Protection Agency, Cincinnati, OH</p> <p>Optimal Pump Scheduling by Linear Programming M. Fayzul Pasha, Ph.D., Tetra Tech; Kevin Lansey, Ph.D., University of Arizona, Tucson, AZ</p>	<p>Low Impact Development – Pervious Surfaces and Other Considerations MODERATORS: Robert Roseen, Bill Lord</p> <p>Water Quality and Hydraulic Properties of the Permeable Friction Course (PFC) Michael Barrett, Ph.D., P.E., D.WRE, A.M.ASCE, Brandon Klenzendorf, Brad Eck, Randall Charbeneau, Ph.D., P.E., D.WRE, University of Texas, Austin, TX</p> <p>Pervious Pavement System Evaluation Amy Rowe, Ph.D., Oak Ridge Institute of Science and Education, Oak Ridge, TN; Michael Borst, Thomas O'Connor, Emilie Stander, Ph.D., US Environmental Protection Agency, Edison, NJ</p> <p>Examinations of Pervious Concrete and Porous Asphalt Pavements Performance for Stormwater Management in Northern Climates Kristopher Houle, Graduate Research Assistant, Robert Roseen, Ph.D., A.M.ASCE, Thomas Ballester, Ph.D., P.E., P.H., C.G.W.P., P.G., Joshua Briggs, Post-Graduate Research Assistant, James Houle, CPSWQ, University of New Hampshire, Durham, NH</p> <p>Simplified Solution for Groundwater Mounding under Round Stormwater Infiltration Facilities Kaveh Zomorodi, Ph.D., P.E., CFM, Dewberry, Fairfax, VA</p>	<p>Contaminant Sources and TMDLs MODERATORS: Joong Lee, Anthony Tafuri</p> <p>Multiple Watershed Scales Approach for Placement of BMPs in SUSTAIN Fu-hsiung Lai, Ph.D., P.E., US Environmental Protection Agency, Edison, NJ; Zhen Jenny, Ph.D., P.E., John Riverson, Ph.D., Khalid Alvi, P.E., Leslie Shoemaker, Ph.D., Tetra Tech, Edison, NJ</p> <p>Challenges in Attaining Recreational Stream Standards for Bacteria: Setting Realistic Expectations for Management Policies and BMPs Jane Clary, M.S., CPESC, Jonathan Jones, P.E., D.WRE, Wright Water Engineers, Inc., Denver, CO; Ben Urbonas, P.E., D.WRE, Urban Watersheds Research Institute, Denver, CO</p> <p>Non-point Source Nutrient Loading in an Urban Watershed Eric Gurr, Ph.D. Student, Fidelia Nnadi, Ph.D., University of Central Florida, Orlando, FL</p> <p>Bayesian Load Duration Curves for Bacterial Total Maximum Daily Loads: Urban Case Study Mary Schoen, Ph.D., US EPA, Mitchell Small, Ph.D., Jeanne VanBriesen, Ph.D., Carnegie Mellon University, Pittsburgh, PA</p> <p>Linking Site-specific Source Controls within a Larger Watershed Model David Sample, Ph.D., P.E., D.WRE, Virginia Tech, Manassas, VA</p>	<p>Groundwater Quality Modeling – Solute Transport and Reactive Transport MODERATORS: Nicole DeNovio, Gus Williams</p> <p>Solute Flux Rate Uncertainty Estimation at Monitored Boundaries David Langseth, Sc.D., P.E., D.WRE, Gradient Corporation, Cambridge, MA</p> <p>Transport Modelling Optimization Using Radial Basis Functions (RBF) Methods Amandeep Singh, Student, Christine Shoemaker, Professor, Cornell University, Ithaca, NY</p> <p>Exploring the Applicability of using Nonlinear and Nonequilibrium Alcohol Partitioning for Assessment of DNAPL Source Zone Architecture Rhiannon Ervin, Andrew Ramsburg, Ph.D., Tufts University, Medford, MA</p>	<p>Emerging and Innovative Technology in Wastewater Treatment MODERATORS: Craig Patterson, Lindell Ormsbee</p> <p>Deployable Decentralized Biofilm System to Degrade Organic Carbon, Nutrient, and Benzene from Wastewater Dong Chen, Ph.D., P.E., Che-Jen Lin, Ph.D., P.E., Lamar University, Beaumont, TX; Gavin Jones, Rachelle Smith, Sam Houston State University, Huntsville, TX; Sehul Patel, Student, Lamar University, Beaumont, TX; Sabin Holland, Sam Houston State University, Huntsville, TX; Micheal Radi, Student, Lamar University, Beaumont, TX</p> <p>Development of Slow-release Chemical Oxidation Methods for Environmental Remediation Stephanie Luster-Teasley, Ph.D., Patrick Onoche, North Carolina A&T State University, Greensboro, NC</p> <p>Peracetic Acid as an Alternative Disinfection Technology for Wet Weather Sewer Overflows Elizabeth Coyle, P.E., Lindell Ormsbee, Ph.D., P.E., P.H., D.WRE, FASCE, University of Kentucky, Lexington, KY</p> <p>Recycling of Municipal Waste Streams for Transportation Fuel Production Via Algae Cultivation at Wastewater Treatment Plants Patrick Dunlap, E.I.T., North Dakota State University; Andrew Shaw, P.E., Black & Veatch, Kansas City, MO</p>	<p>Hydraulic Structure MODERATORS: Richard Stockstill, Charlie Berger</p> <p>A Comparison of Formed Suction Inlets for Flood Control Applications David Werth, P.E., Clemson Engineering Hydraulics, Anderson, SC; Mark Allen, P.E., Brent Nicholas, P.E., CDM, Anderson, SC</p> <p>Experimental Investigation of Hydraulics of Flow in Bottom Intake Structures an Alternative for Intake during the Dry Seasons Amirabbas Kamanbedast, Ph.D.</p> <p>Impact of Varying Mitered Suction Elbow Design on Large Wastewater Pumps David Werth, P.E., Clemson Engineering Hydraulics, Anderson, SC; Ted Stolinski, P.E., Black & Veatch, Anderson, SC</p>

WEDNESDAY, MAY 20, 2009

CONCURRENT TECHNICAL SESSIONS XIII 3:30 - 5:00 PM

JAY MCSHANN B	BENNIE MOTEN B	LESTER YOUNG A	BIG JOE TURNER A	LESTER YOUNG B	MARY LOU WILLIAMS B
HYDRAULICS AND WATERWAYS	HYDRAULICS AND WATERWAYS	INTERNATIONAL	STOCHASTIC AND PROBABILISTIC METHODS IN WRPM	STUDENT AND NEW PROFESSIONALS	WATERSHED
<p>Dam Operation, Management, and Safety – 2 MODERATORS: S.K. Nanda, Jerry Webb</p> <p>Analysis of the Failure of the Dam Curtain “El Batán” in Querétaro, México Ana Julita Cuenca Castro, Comisión Nacional del Agua, Chilpancingo, Guerrero, Mexico; Guillermo Cardoso Landa, Ph.D., Instituto Tecnológico de Chilpancingo, Chilpancingo, Guerrero, Mexico</p> <p>Optimal Design and Operation of Fesugates Considering Water Loss Due to Gates Tilting Abbas Afshar, Professor, Zeinab Takbiri, Research Assistant, Iran University of Science and Technology, Tehran, Iran</p> <p>The Affect of Step Height on Energy Dissipation in Stepped Spillways Sherry Hunt, Ph.D., E.I.T., M.ASCE, Kem Kadavy, P.E., USDA-ARS Hydraulic Engineering Research Unit, Stillwater, OK</p> <p>The Geneva, Illinois Dam Hydraulic Roller Problem Yu-Chun Su, Ph.D., P.E., CPESC, CPSWQ, CFM, Loren Wobig, P.E., Brad Winters, P.E., CFM, Xin He, Ph.D., David Williams, Ph.D., P.E., D.WRE, P.H., CPESC, FASCE, PBS&J, Houston, TX</p>	<p>Sedimentation – 2 MODERATORS: Ted Yang, Victor Huang</p> <p>Experimental Results on the Stability of Non-Cohesive Sediment Beds Subject to Vertical Pore Water Flux Pinar Cakir Kavcar, Ph.D., Bechtel Corporation, Houston, TX; Steven J. Wright, Professor, University of Michigan, Ann Arbor, MI</p> <p>Suspended Sediment Concentration of Muddy Sediments with an ADV Mehrdad Salehi, Kyle Strom, Ph.D., University of Houston, Houston, TX</p> <p>The Connectivity of Upland and Instream Processes Athanasios (Thanos) Papanicolaou, Associate Professor, Philip Ellis, Graduate Student, University of Iowa, Iowa City, IA</p> <p>Upstream Intrusion Effect of CSO Event in Bubbly Creek, Illinois Xiaofeng Liu, Ph.D., Sumit Sinha, Davide Motta, Marcelo Garcia, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p>	<p>Water Quality and Aquatic Ecosystems in Developing Countries MODERATOR: Laurel Saito</p> <p>Impacts of Mining in the Upper Zambezi River Basin: an Overview of the Zambian Copperbelt Imasiku Nyambe, Ph.D, University of Zambia, Lusaka, Zambia</p> <p>Improving the Water Quality of One of the World’s Great Lakes, Tai Lake: Case Study of Environmental Responsibility in the Developing World David Albers, P.E., Ecology and Environment</p> <p>Investigating Aquatic Ecosystems of Small Lakes in Khorezm, Uzbekistan Laurel Saito, Ph.D., P.E., Julian Scott, University of Nevada – Reno, Reno, NV; Michael Rosen, Ph.D., US Geological Survey; Bakhriddin Nishonov, Ph.D., Hydrometeorological Research Institute; Sudeep Chandra, Ph.D., University of Nevada – Reno, Reno, NV; John Lamers, Ph.D., ZEF-UNESCO Project (University of Bonn); Dilorom Fayzieva, Ph.D., Institute for Water Problems, Uzbekistan Academy of Sciences; Margaret Shanafield, University of Nevada – Reno, Reno, NV</p> <p>Prediction of Thermal Stratification in Proposed Bakhtyari Reservoir with CE-QUAL-W2 Mehrdad Nazariha, Erfan Danaei, University of Tehran, Tehran, Iran; Seyyed Hosein Hashemi, Shahid Beheshti University, Tehran, Iran; Amir Hosein Izad Doustdar, Iran Water and Power Resources Development, Tehran, Iran</p>	<p>Uncertainty Analysis in Water Resources Management MODERATOR: Glenn Tootle</p> <p>Uncertainty Analysis: You Need to Know What You Don’t Know David Williams, Ph.D., P.E., CFM, PH., FASCE, PBS&J, Fort Collins, CO; Joseph Countryman, P.E., D.WRE, MBK Engineers, Fort Collins, CO</p> <p>Uncertainty and Sensitivity Analysis for Models with Calibrated Parameters Seunguk Lee, Professor, Jery Stedinger, Professor, Cornell University, Ithaca, NY</p> <p>The Implications of Discretizing Continuous Random Variables: An Example Using the US Geological Survey Reporting Standards for Streamflow Data Stacey Archfield, Richard Vogel, Ph.D., Tufts University, Northborough, MA</p> <p>High Resolution Radar Precipitation Evaluation Dennis Miller, Shaorong Wu, David Kitzmiller, Feng Ding, Ph.D., NOAA/National Weather Service, Arlington, VA</p>	<p>Career Opportunities After College Panel MODERATOR: Karen Kabbes</p> <p>Panel discussion on career opportunities for new graduates. Panel members represent the consulting industry, government, teaching establishments, and private employers. Attendees will get diverse viewpoints and the pros and cons of working in particular areas.</p> <p>PANELISTS: Bob Stokes, Ph.D., Kansas State University, ASCE Board of Direction Travis Heier, P.E., HDR Consulting Sam Mryyan, Ph.D., REM Adjutant General’s Department, Topeka, KS</p> <div style="text-align: center;"></div>	<p>Modeling Hydroclimate and Climate Change MODERATORS: Michael Anderson, Levent Kavvas</p> <p>A Global Hydrology Model for Climate Change Impact Assessment Tingju Zhu, Ph.D., Claudia Ringler, Ph.D., Mark Rosegrant, Ph.D., International Food Policy Research Institute, Washington, DC</p> <p>Impact of Climate Change on Steamflow in Northeastern Watersheds in New Jersey Asghar Hasan, M.ASCE, (Retired) Supervising Environmental Engineer; Paul Schorr, P.E., New Jersey Department of Environmental Protection</p> <p>The Potential Impact of Climate Change on Groundwater Recharge Frederick Bloetscher, Ph.D., P.E., Florida Atlantic University, Boca Raton, FL</p>



Important Panel Discussions & Special Sessions



Student Activity

WEDNESDAY, MAY 20, 2009

5:00- 6:30 PM TECHNICAL POSTER SESSION X COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS XIV 5:00 - 6:30 PM						
JULIA LEE A	MARY LOU WILLIAMS A	BIG JOE TURNER B	BIG JOE TURNER A	BENNIE MOTEN B	JULIA LEE B	MARY LOU WILLIAMS B
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	7TH SYMPOSIUM ON GROUNDWATER HYDROLOGY, QUALITY, AND MANAGEMENT	EMERGING AND INNOVATIVE TECHNOLOGY	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATER, WASTEWATER, AND STORMWATER	WATERSHED
<p>Network Optimization – 2 MODERATOR: Morris Masia</p> <p>An Integrated Approach for Distribution System Hydraulic Criticality and Emergency Response Laura Jacobsen, P.E., Sri Kamojjala, P.E., Brian Bowler, P.E., Las Vegas Valley Water District, Las Vegas, NV</p> <p>Decision Making Under Information Constraints Jianhua Xu, Ph.D., Jeanne VanBriesen, Ph.D., Mitchell Small, Ph.D., Paul Fischbeck, Ph.D., Carnegie Mellon University, Pittsburgh, PA</p> <p>Optimal Location of Pressure Measurement Points in Water Distribution Networks Hui Zhang, Student, Ting-lin Huang, Professor, Xi'an University of Architecture & Technology, Xi'an, China</p> <p>Portable Parallel Computing and Application to Pump Scheduling Optimization Zheng Wu, Ph.D., Bentley Systems, Watertown, CT; Qi Zhu, University of Connecticut, Storrs, CT</p>	<p>Aquifer Characterization and Protection MODERATORS: Zhuping Sheng, Frank Tsai</p> <p>Implementing Source Water Protection Programs in Texas Camille Sowell, P.E., BCEE, Tina Petersen, Ph.D., Camp Dresser & McKee Inc., Houston, TX; Sean Ables, P.G., TCEO, Houston, TX</p> <p>Lithostratigraphy of Nigeria: An Overview Kazeem Shitta, Geotech Nigeria Limited, Ibadan, Nigeria; Olajide Akindele, Slabmark Nigeria Limited, Ibadan, Nigeria</p> <p>Practical Solutions for Partially Penetrating Wells in Confined Aquifers Ahmad Wagdy, Ph.D., Sherif El-Didy, Ph.D., Hany Radwan, Cairo University, Cairo, Egypt</p> <p>Tool for Estimation of Additional Drawdown Due to Partially Penetrating Wells in Confined and Semi-confined Aquifers Ahmad Wagdy, Ph.D., Sherif El-Didy, Ph.D., Hany Radwan, Cairo University, Cairo, Egypt</p>	<p>Water Resources Disasters Waiting to Happen MODERATOR: Walter Grayman</p> <p>Characterization of Water Resources and Environmental Disasters Walter Grayman, Ph.D., P.E., D.WRE, W M Grayman Consulting Engineer, Cincinnati, OH</p> <p>Challenges of Managing California's Sacramento-San Joaquin Delta Jay Lund, Ph.D., University of California – Davis, Davis, CA</p> <p>How Reliable is NYC's Water Supply? Daniel Loucks, Ph.D., Cornell University, Ithaca, NY</p>	<p>Integrated Groundwater and Surface Water Management MODERATOR: Eric Loucks</p> <p>Collaborative Groundwater Model Development David Barfield, P.E., M. ASCE, State of Kansas, Topeka, KS</p> <p>Generating Different Scenarios of BMP Designs in a Watershed Scale by Combining NSGA-II with SWAT Prakash Kaini, Kimberley Artita, John Nicklow, Ph.D., Southern Illinois University – Carbondale, Carbondale, IL</p> <p>Integrated Management of a Finite Water Supply in the Desert Daniel Wendell, P.H., Steve Shultz, P.H., Aditya Tyagi, P.E., CH2M HILL, Oakland, CA</p> <p>Managing Salinity in the Upper Santa Clara River System of California Nathan Brown, P.G., CHG, CH2M HILL; Brian Louie, P.E., Francisco Guerrero, P.E., Sanitation Districts of Los Angeles County; Terry Foreman, P.G., CH2M HILL; Sorab Parday, Ph.D., AMEC Geomatrix Consultants; Vivek Bedekar, P.E., S.S. Papadopoulos & Associates; Jagjit Kaur, P.E., CH2M HILL</p> <p>Modeling Techniques to Incorporate Low Impact Development Features into Detention Analyses Kristin White, P.E., CFM, LEED AP, Jennifer Walker, P.E., CFM, Dodson & Associates, Houston, TX</p>	<p>Emerging Technologies MODERATORS: Richard Tsang, Jerry Anderson</p> <p>City of St. Louis Permeable Pavement Alley Pilot Study Dave Yates, P.E., CH2M HILL, St. Louis, MO; Marjorie Melfon, P.E., City of St. Louis, St. Louis, MO</p> <p>Engineering Natural Filtration Systems to Remove Selenium, Nitrate, and Bacteria from Impaired Surface Waters – Foundational Studies Ken Susilo, P.E., D.WRE, CPSWQ, M.ASCE, Eric Strecker, P.E., Geosyntec Consultants, Los Angeles, CA; Randy Sundberg, P.E., Irvine Ranch Water District, Irvine, CA</p> <p>Research and Application of Activated Sludge Models Jinsheng Huo, Ph.D., P.E., AECOM Technology Corporation, Fort Myers, FL</p>	<p>Endocrine Disruptors MODERATOR: Regina Guyer</p> <p>Competing Risks and the Development of Adaptive Management Plans for Water Resources Gregory Linder, Ph.D., Edward E. Linder, Ph.D., USGS, Columbia Environmental Research Center, Brooks, OR</p> <p>Risk Assessment to the Environment Due to Anionic Surfactants in Treated Sewages and Dried Sludges Arvind Mungray, Ph.D., S.V. National Institute of Technology, Surat, India; Pradeep Kumar, Ph.D., Indian Institute of Technology Roorkee, Roorkee, India</p> <p>Sustainable Practices and Microconstituents – Seeking the Balance Regina Guyer, P.E., Ph.D. Student, University of North Carolina, Charlotte, NC</p>	<p>Land Use/ Cover Changes and Water Quality/Quantity MODERATOR: Latif Kalin</p> <p>Assessment of Lumped, Quasi-distributed and Distributed Hydrologic Models of the US Army Corps of Engineers Murari Paudel, Graduate Student, Jim Nelson, Ph.D., Brigham Young University, Provo, UT; Charles Downer, Ph.D., US Army Corps of Engineers, Provo, UT</p> <p>Do Upland Soil Conservation Practices Reduce Watershed Sediment Yield? Jurgen Garbrecht, Patrick Starks, Ph.D., USDA, El Reno, OK</p> <p>Human Impact on the Mobilization of a Naturally-occurring Source of Selenium in an Urbanizing Catchment Rachel Andrus, Barry Hibbs, Ph.D., California State University - Los Angeles, Los Angeles, CA; Andre Ellis, Ph.D., University of Texas - El Paso, El Paso, TX</p> <p>Studying the Impact of Land Use/ Cover Changes on the Water Quality of Weeks Bay, Alabama: Model vs. Regression Harsh Singh, Graduate Student, Latif Kalin, M.ASCE, Graeme Lockaby, Professor, Auburn University, Auburn, AL</p>

6:00 - 9:00 PM OFFSITE EVENT: BBQ FEAST AT FAULKNER'S RANCH

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The Steering Committee, Environmental & Water Resources Institute (EWRI),
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to visit Chennai, with temperatures ranging from 68°F to 87°F and mean daily temperatures in
the mid 70s.

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ANNOUNCEMENT & CALL FOR ABSTRACTS



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Don Phelps, P.E., D.WRE
General Congress Chair

Richard Palmer, Ph.D., P.E., D.WRE
Technical Program Chair

IMPORTANT DATES

Session Proposals Due: June 26, 2009

Abstracts Due: September 17, 2009

Author Notification: October 30, 2009

Final Papers Due: January 20, 2010

World Environmental & Water Resources Congress 2010
CHALLENGES of CHANGE
PROVIDENCE, RHODE ISLAND / MAY 16-20



THURSDAY, MAY 21, 2009

7:00 AM - 12:30 PM REGISTRATION OPEN COUNT BASIE BALLROOM FOYER
 7:30 AM - 8:45 AM WATERSHED COUNCILS BREAKFAST, AWARDS, AND LECTURE COUNT BASIE BALLROOM A
 7:30 AM - 8:45 AM WATER DISTRIBUTION SYSTEM ANALYSIS SYMPOSIUM BREAKFAST COUNT BASIE BALLROOM C
 8:30 AM - 3:30 PM EXHIBIT HALL OPEN IMPERIAL BALLROOM
 8:30 - 9:00 AM NETWORKING BREAK COLONIAL / IMPERIAL BALLROOMS
 9:00 - 10:30 AM TECHNICAL POSTER SESSION XI COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS XV 9:00 AM - 10:30 AM

JULIA LEE A	JULIA LEE B	BENNIE MOTEN A	ANDY KIRK B	JAY MCSHANN A	LESTER YOUNG A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p> <p>Network Monitoring and Sampling MODERATOR: Jim Uber</p> <p>New Concepts for Meter Placement in Water Distribution Systems for Demand Estimation Doo Sun Kang, Ph.D. Student, Kevin Lansley, Professor, University of Arizona, Tucson, AZ</p> <p>On-line Hydraulic State Prediction for Water Distribution Systems Ami Preis, Ph.D., Technion – Israel Institute of Technology, Haifa, Israel, & Center for Environmental Sensing and Modeling, MIT-SMART; Andrew Whittle, Professor, MIT, Cambridge, MA; Avi Ostfeld, Technion – Israel Institute of Technology, Haifa, Israel</p> <p>Sampling of Residential Water Use for Leak Control Via Water Budgets Claudio Arena, Università degli Studi di Palermo, Palermo, Italy; Antonio Criminisi, AMAP S.p.A, Palermo, Italy; Antonino Fortunato, Student, Mario Rosario Mazzola, Professor, Università degli Studi di Palermo, Palermo, Italy</p> <p>Smart Pipe – Nanosensors for Monitoring Water Quantity and Quality in Public Water Systems Yu-Feng Lin, Ph.D., University of Illinois at Urbana-Champaign, Champaign, IL; Chang Liu, Ph.D., Northwestern University, Evanston, IL</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Modeling of BMP Performances MODERATORS: Bill Lucas, Jason Wright</p> <p>Redesigning Constructed Stormwater Wetlands: An Integrated Modeling Approach to Optimize Form and Function Gerrad Jones, Graduate Student, Kristen Mogavero, Graduate Student, Bridget Wadzuk, Ph.D., Villanova University, Villanova, PA</p> <p>Unit Process Modeling of Stormwater Flow and Pollutant Sorption in a Bioretention Cell Allen Davis, FASCE, Zhuangxiang He, University of Maryland, College Park, MD</p> <p>Evaluation and Optimization of Distributed Stormwater Controls in Spreadsheet Joong Lee, Scott Struck, Ph.D., PWS, A.M.ASCE, Tetra Tech, Inc., Golden, CO</p> <p>Modeling Performances of Total Suspended Solid in Detention Basins with Uncertainty Analysis Daeryong Park, Ph.D. Student, Larry Roesner, Professor, Colorado State University, Fort Collins, CO</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Sustainable Water Management – 1 MODERATORS: Scott Struck, Helene Hilger</p> <p>Generalized Storage-Reliability-Yield Equations for Rainwater Harvesting Systems Lars Hanson, E.I.T., GKY & Associates, Chantilly, VA; Richard Vogel, Ph.D., M.ASCE, Paul Kirshen, Ph.D., M.ASCE, Tufts University, Medford, MA; Peter Shanahan, Ph.D., Massachusetts Institute of Technology, Cambridge, MA</p> <p>Hydrologic Footprint Residence: A New Metric to Assess Hydrological Alteration Due to Urbanization Marcio Giacomoni, Emily Zechman, Ph.D., Texas A&M, College Station, TX</p> <p>Graywater Irrigation as a Viable Means to Meet Water Demand in Arid Regions Sybil Sharvelle, Ph.D., Masoud N. Azar, Ph.D. Candidate, Mary Stromberger, Ph.D., Larry Roesner, Ph.D., P.E., Colorado State University, Fort Collins, CO</p> <p>Rainwater Harvesting for Non-potable Reuse in Gardens: A Comparison of Runoff Water Quality From Green Roofs Versus Traditional Roofs Natasha Nicholson, Graduate Student, Shirley Clark, Ph.D., P.E., D.WRE, Penn State University – Harrisburg, Middletown, PA; Brett Long, GTS Technologies; Julia Spicher, E.I.T., Greeley and Hansen, Inc.; Kelly Steele, Davwood, Inc.</p>	<p>HISTORY OF THE GREAT RIVERS OF THE WORLD</p> <p>History of Great Midwestern Rivers MODERATOR: Randall Graham</p> <p>How to Wrestle a Mighty River: The Missouri River Channel Project John R. Ferrell, BDY, Kansas City, MO</p> <p>Constructing a Big Dam after the 1951 Missouri River Flood: Tuttle Creek Reservoir, Kansas John R. Ferrell, BDY, Kansas City, MO; Erica Plath, ChatterBoxArt, Los Angeles, CA</p> <p>Upper Mississippi River History S.K. Nanda, Rock Island District, US Army Corps of Engineers, Rock Island, IL</p>	<p>HYDRAULICS AND WATERWAYS</p> <p>Stream Restoration – 2 MODERATORS: John Ruhl, Andrew Simon</p> <p>A Simple Analytical Design Method for Small Alluvial Streams Bruce M. McEnroe, Ph.D., P.E., John E. Shelley, E.I.T., C. Bryan Young, Ph.D., P.E., University of Kansas, Lawrence, KS</p> <p>Bankfull Discharge for Kansas Natural Alluvial Channel Design John Shelley, E.I.T., C. Bryan Young, Ph.D. P.E., Bruce McEnroe, Ph.D. P.E., University of Kansas, Lawrence, KS</p> <p>Sediment Load Based Single Thread Alluvial Channel Classification Gregory Wilkerson, Ph.D. P.E., Southern Illinois University - Carbondale, Carbondale, IL; Gary Parker, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Using Watershed Scale Geomorphic Assessment to Improve Urban Stream Restoration Design Sue Niezgoda, Ph.D., P.E., Aff.M.ASCE, Rose-Hulman Institute of Technology, Terre Haute, IN</p>	<p>INTERNATIONAL</p> <p>Rural Water Supply Systems in Developing Countries MODERATORS: David Watkins, Ed Breslin</p> <p>Feasibility Study for Implementing Renewable Energy to Power a Groundwater Pump in Rural Guatemala Will Granich, Engineering Intern, Curt Elmore, P.E., Missouri University of Science and Technology, Rolla, MO</p> <p>Field Analyses for the Detection and Enumeration of Coliform Bacteria in Drinking Water in Rural Guatemala Jenna Tune, Graduate Student, Curt Elmore, Ph.D., Missouri University of Science and Technology, Rolla, MO</p> <p>Sustainability of Rural Water Supply Projects in Nicaragua Jairo Hernandez Alvarado, Fondo de Inversion Social de Emergencia (FISE), Managua, Nicaragua</p> <p>Environmental & Water Resources Developing Countries Priyanand Agale, Nilesh Wankhede, Ph.D., Prashant Bhawe, Ph.D., Sumedh Mhaske, Ph.D.Scholar, V.J.T.I., Matunga, Mumbai, Maharashtra, India</p>
<p>9:00 - 10:30 AM ANDY KIRK A</p> <p>Outstanding Women Engineers in Higher Education – Secrets to Success and Ideas to Foster Greater Diversity MODERATOR: John Warwick (University of Nevada, DRI)</p> <p>PANELISTS: Angela Linder, Ph.D., (University of Florida); Jeanne VanBriessen, Ph.D., (Carnegie Mellon University); Kathleen Leonard, Ph.D., (University of Alabama - Huntsville)</p>					

THURSDAY, MAY 21, 2009

CONCURRENT TECHNICAL SESSIONS XV

9:00 AM - 10:30 AM

BIG JOE TURNER A	BIG JOE TURNER B	BENNIE MOTEN B	LESTER YOUNG B	MARY LOU WILLIAMS B	MARY LOU WILLIAMS A
PLANNING AND MANAGEMENT	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED	WATERSHED	WATERSHED
<p> Climate Change – Modeling to Predict Impacts MODERATOR: Susan Butler</p> <p>Analysis of Hydrologic Variability over the Colorado River Basin under Changing Climate Conditions William Paul Miller, Thomas Piechota, Ph.D., University of Nevada – Las Vegas, Las Vegas, NV</p> <p>Detection of Streamflow Trends and Variability in Karun River, Iran as Parts of Climate Change and Climate Variability Alireza Farrokhi, Graduate Student, Ahmad Abrishamchi, Professor, Sharif University of Technology, Tehran, Iran</p> <p>Hydrologic Modeling for Assessing Climate Change Impacts on the Water Resources of the Rio Conchos Basin Eusebio Ingol-Blanco, Daene McKinney, Ph.D., P.E., D.WRE, M.ASCE, University of Texas at Austin, Austin, TX</p>	<p>Systems Analysis for Watershed Management – 1 MODERATOR: Ximing Cai</p> <p>Climate Flow Forecast Model for the Brazilian Hydropower System Mario Barros, Professor, Renato Zambon, Ph.D., João Lopes, Ph.D., Alberto Francato, Professor, Paulo Barbosa, Professor, University of Sao Paulo, Sao Paulo, Brazil; Fabio Zanfelice, CPFL, Sao Paulo, Brazil</p> <p>Computer-aided System for Managing, Controlling, and Analyzing Data from Hydroelectric Plants Ieda G. Hidalgo, Darrell G. Fontane, Colorado State University, Fort Collins, CO; Secundino Soares Filho, UNICAMP, State University of Campinas, Sao Paulo, Brazil; Marcelo A. Cicogna, AESA, Anhanguera Educacional, Valinhos, Brazil</p> <p>Deriving Rule Curve for Hydropower Reservoirs: Seymareh Experience Farid Sharifi, Ph.D. Candidate, Iran University of Science & Technology, Tehran, Iran; Mohammad Reza Jalali, Ph.D., Raheleh Afzali, Mahab Ghodss Consulting Engineers, Tehran, Iran</p> <p>Impacts of the Upstream Storage Reservoirs on ITAIPU Hydropower Plant Operation Mario Barros, Professor, Renato Zambon, Ph.D., João Lopes, Ph.D., Alberto Francato, Professor, Paulo Barbosa, Professor, University of Sao Paulo, Sao Paulo, Brazil; William Yeh, Professor, University of California</p> <p>Water Supply and Energy Generation Les Lampe, P.E., Laura Adams, E.I.T., Black & Veatch, Kansas City, MO; Dustin Jensen, Metropolitan Energy Center, Kansas City, MO</p>	<p>Sustainable Design for Wastewater MODERATOR: Helene Hilger</p> <p>Decentralized Anaerobic Treatment of Blackwater: A Sustainable Development Technology Concept for Urban Water Management Neal Gallagher, Graduate Student, Sybil Sharvelle, Ph.D., Colorado State University</p> <p>Removal of Selenium and Nitrate from Surface Waters Using a Subsurface Microbial Filter Scott Lynch, P.E., Stephen Lyon, Ph.D., Imad Feghali, P.E., CH2M HILL, Santa Ana, CA; Randy Sundberg, Irvine Ranch Water District</p> <p>Sustainable Design and Construction of Earthen-dam Reservoirs for Water Produced in Association with Coalbed Natural Gas in the Powder River Basin, Wyoming J.J. Brown, Robert Thoman, P.E., Lowham Engineering LLC, Lander, WY</p> <p>Using Media Filters in a Distributed Wastewater System Serving an Ecotourism-oriented Development Kevin Sherman, Ph.D., P.E., D.WRE, Quantics, Inc., Campbellsburg, KY</p>	<p> Mississippi River Basin – 1 MODERATOR: Nani Bhowmik</p> <p>The Mississippi River: A National Resource Nani Bhowmik, Ph.D., P.E., D.WRE, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>The Nature Conservancy's Mississippi River Program, Sustainable Conservation of a Working River That Works C. Stephen Haase, Ph.D., K. Douglas Blodgett, The Nature Conservancy</p> <p>US Army Corps of Engineers' Restoration Efforts on the Upper Mississippi River System Kenneth A. Barr, Rockland District, US Army Corps of Engineers, Rock Island, IL</p>	<p>Probabilistic Approaches for Watershed Processes – 1 MODERATOR: Christina Tsai</p> <p>Estimation of TMDLs and Margin of Safety under Conditions of Uncertainty Mohamed Hantush, Ph.D., US Environmental Protection Agency, Cincinnati, OH</p> <p>Probable Maximum Precipitation for 24-hour Duration over Four Central Provinces in Iran Mahyar Naseri Moghaddam, Graduate Student, Sadegh Ghazanfari Moghaddam, Ph.D Student, Bijan Ghahraman, Ph.D, Kamran Davari, Ph.D, Ferdowsi University of Mashhad, Mashhad, Iran</p> <p>Stochastic Non-equilibrium Bedload Transport Model Ken Zheng Kuai, Ph.D. Student, Christina Tsai, Ph.D., State University of New York at Buffalo, Buffalo, NY</p> <p>Evaluation of Uncertainties in the Simulation of Watershed Nutrient Load: A Case Study Mohammad Karamouz, Ph.D., Massoud Teheriyoun, Ph.D., Candidate, Mohammad Reza Seyedabadi, Sadegh Behboodian, University of Tehran, Iran</p>	<p>Watershed Management – 1 MODERATOR: John Ruhl</p> <p>Estimating Groundwater Pumping and Return Flow Based on Hydrologic Recession Analysis Dingbao Wang, Ximing Cai, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Spatial Variation of Sediment Oxygen Demand in Atabasca River: Factors Influencing the Variation Kusumakar Sharma, Ph.D. Candidate, University of Alberta, Edmonton, AB; Preston McEachern, Ph.D., Alberta Environment, Edmonton, AB; Mark Spafford, ALPAC, Edmonton, AB; David Zhu, Ph.D., Tong Yu, Ph.D., University of Alberta, Edmonton, AB</p> <p>Statistical Evaluation of BMP Effectiveness in Reducing Nutrient Impairment in Mermentau and Vermilion-Teche River Basins Zhi-Qiang Deng, Ph.D., Hemant Chowdhary, Louisiana State University, Baton Rouge, LA</p> <p>Using "Big Data" to Optimally Model Hydrology and Water Quality across Expansive Regions John Cook, Edwin Roehl, Jr., Advanced Data Mining International; Paul Conrads, USGS Water Resources</p>
				<p> 10:30 AM - 12:30 PM TRUMAN A, B</p> <p>AAWRE Engineering Ethics Workshop #3</p> <p>PRESENTERS: Deb O'Bannon, Ph.D., P.E., F.ASCE (Professor of Civil Engineering, University of Missouri, Kansas City, MO); Lawrence Lennon, P.E., D.WRE (President, Lennon, Smith, Souleret Engineering, Inc., Coraopolis, PA)</p> <p>Participants may earn up to 2 PDHs for this session. Registration required. No fee.</p>	

10:30 AM - 11:00 AM Networking Break / Colonial / Imperial Ballrooms

 Important Panel Discussions & Special Sessions

THURSDAY, MAY 21, 2009

CONCURRENT TECHNICAL SESSIONS XVI

11:00 AM - 12:30 PM

JULIA LEE A	BENNIE MOTEN A	JULIA LEE B	ANDY KIRK B	JAY MCSHANN A	LESTER YOUNG A
11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM	HISTORY OF THE GREAT RIVERS OF THE WORLD	HYDRAULICS AND WATERWAYS	INTERNATIONAL
<p>Field Work Moderator: Graeme Dandy</p> <p>Axial Dispersion Coefficients for Laminar Flows in Water Distribution Systems Pedro Romero-Gomez, University of Arizona, Tucson, AZ; Zhiwei Li, Ph.D., University of Cincinnati, Cincinnati, OH; Christopher Choi, Ph.D., University of Arizona, Tucson, AZ; Steven Buchberger, Ph.D., University of Cincinnati, Cincinnati, OH</p> <p>Case Study: Homeowner's Preference Trade-offs Towards Plumbing Systems in Pipe Failure Prone Area Juneseok Lee, Assistant Professor, San Jose State University, San Jose, CA; Darrell Bosch, Ph.D., Virginia Tech, Blacksburg, VA; Ewa Kelczyk, Ph.D., TargetRX, San Jose, CA; Eftilia Tanellari, Ph.D. Candidate, Andrea Dietrich, Ph.D., Vinod Lohani, Ph.D., Virginia Tech, Blacksburg, VA</p> <p>Field-Scale Assessment of a Multispecies Water Quality System: A Chloramination Study Matthew T. Alexander, Graduate Student, Dominic L. Boccelli, Ph.D., Margaret J. Kupferle, Ph.D., University of Cincinnati, Cincinnati, OH</p> <p>Pressure versus Flow Relationship for Pipe Leaks Tom Walski, Ph.D., P.E., Bentley Systems; Brian Whitman, Ph.D., Wilkes University, Nanticoke, PA</p>	<p>Stormwater Management Practices Operation, Maintenance, and Performance – 1 Moderator: Andy Sauer, Andrew Earles</p> <p>Field Evaluation of Indicator Bacteria Removal by Stormwater BMPs in North Carolina Jon Hathaway, E.I., William Hunt, Ph.D., P.E., Jason Wright, North Carolina State University, Raleigh, NC; Steve Jadlocki, City of Charlotte Storm Water Services, Charlotte, NC</p> <p>Considerations, Opportunities, and Strategies for Infiltration Stormwater BMPs Ken Susilo, P.E., D.WRE, CPSWQ, M.ASCE, Geosyntec Consultants, Los Angeles, CA; Neven Matasovic, Ph.D., P.E., G.E., Geosyntec Consultants, Huntington Beach, CA; Ron Johnson, P.E., G.E., Geosyntec Consultants, San Diego, CA</p> <p>Assessment and Recommendations for Operation of Standard Sumps as Best Management Practices for Stormwater Treatment Adam Howard, E.I.T., Omid Mohseni, Ph.D., P.E., John S. Gulliver, Ph.D., P.E., Heinz Stefan, Ph.D., University of Minnesota, Minneapolis, MN</p> <p>Maintenance of Stormwater BMPs Andrew J. Erickson, Peter T. Weiss, Ph.D., John S. Gulliver, Ph.D., P.E., FASCE, St. Anthony Falls Laboratory, University of Minnesota, Minneapolis, MN; Joo-Hyon Kang, Ph.D., Gwangju Institute of Science and Technology, Republic of Korea; C. Bruce Wilson, Minnesota Pollution Control Agency, St. Paul, MN</p>	<p>Sustainable Water Management – 2 Moderator: Bill Lucas, Charlene Johnston</p> <p>Selecting Optimal Water Supply Options – A Regional Water Supply Case Study in the Upper Kissimmee Basin, Florida Aditya Tyagi, Ph.D., P.E., D.WRE, Mitch Griffin, Ph.D., P.E., CH2M HILL, Austin, TX; Richard Nevulis, P.E., Chris Sweazy, P.E., South Florida Water Management District (SFWMD), Orlando, FL</p> <p>Looking Upstream and Into the Watershed for the Big Picture of Stream Health Christina Siu, Shirley Clark, Ph.D., P.E., D.WRE, Ruth Sittler, Katherine Baker, Ph.D., Penn State Harrisburg, Middletown, PA</p> <p>Improving Hydrologic Sustainability of Texas A&M University Campus Prakash Khedun, Chandana Damodaram, Marcio Giacomoni, Andrea Ryan, E.I.T., Hillary Holmes, E.I.T., Ross Klein, William Saour, E.I.T., Michelle Hollingsworth, Troy Berthold, Meg Davis, E.I.T., Phillip Bullock, E.I.T., Neetha Ravikumar, Emily Zechman, Ph.D., Georgianne Moore, Ph.D., Bryan Boulanger, Ph.D., Radu Stoleru, Ph.D., Texas A&M University, College Station, TX</p> <p>A Student-led Effort to Assess the Effect of Urban Runoff on Potter Lake England Porter, John Kenny, Edward Peltier, Ph.D., Bryan Young, Ph.D., P.E., University of Kansas, Lawrence, KS</p>	<p>Great Northwestern Rivers and Civil Engineering Projects MODERATOR: Jerry R. Rogers</p> <p>The Riddle of the River: How David Thompson Explored and Mapped the Middle and Upper Columbia River David Gilbert, Sequim, WA; Randolph R. Sleight, P.E., P.L.S., FASCE, Snohomish County Department of Planning and Development Services, Everett, WA</p> <p>Gateway to Greatness: A Profile of James B. Eads John L. Weiland, CDM, St. Louis, MO; Michael T. Buechter, St. Louis Sanitary District, St. Louis, MO</p> <p>Major US Dam Failures: Their Cause, Resultant Losses, and Impact on Dam Safety Programs and Engineering Practice Wayne Graham, U.S. Bureau of Reclamation, Denver, CO</p>	<p> Stream Restoration – 3 MODERATORS: Blair P. Greinmann, F. Shields, Jr.</p> <p>Habitat Restoration on the Middle Fork John Day River Elaina Holburn, P.E., Toni Turner, P.E., Lucy Piety, Ralph Klinger, Ph.D., US Bureau of Reclamation, Denver, CO</p> <p>Hungry Canyons Alliance: Streambed Stabilization in Western Iowa John Thomas, Hungry Canyons Alliance, Oakland, IA</p> <p>Rehabilitation of Mine Impaired Stream in Idaho Brian Murphy, P.E., Moosub Eom, Ph.D., P.E., CDM, Denver, CO; Bill Adams, US Environmental Protection Agency, Jeff Johnson, USDA Forest Service, Denver, CO</p> <p>The Value of Protecting Ozark Streams Eric Dove, P.E., CFM, Kasi Rodgers, EI, CFM, Olsson Associates, Springfield, MO; Matt Keener, Watershed Committee of the Ozarks, Springfield, MO</p>	<p>International Water Resources Planning and Management MODERATORS: Daene McKinney, Mark Killgore</p> <p>Characteristics of Integrated Water Resource Management in the Zambezi River and Great Lakes Basins: A Comparison of Two Approaches Jonathan Bulkley, Ph.D., P.E., FASCE, University of Michigan, Ann Arbor, MI; Imasiku Nyambe, Ph.D., University of Zambia, Lusaka, Zambia; Christine Kirchoff, Ph.D. Candidate, University of Michigan, Ann Arbor, MI</p> <p>The Memorandum of Understanding between the Universities of Michigan and Zambia Jonathan Bulkley, Ph.D., P.E., FASCE, University of Michigan, Ann Arbor, MI; Imasiku Nyambe, Ph.D., University of Zambia, Lusaka, Zambia; Christine Kirchoff, Ph.D. Candidate, University of Michigan, Ann Arbor, MI</p> <p>Determining the Causes of Declining Upper Great Lakes Levels – Phase I of the International Upper Great Lakes Study by the St. Clair River Task Team Anthony Eberhardt, Ph.D., P.E., D.WRE, US Army Corps of Engineers, Alexandria, VA; Syed Moin, Ph.D., P.Eng., International Joint Commission, Alexandria, VA</p> <p>Recent Developments in Water Policy in the Americas Mark Killgore, P.E., D.WRE, M.ASCE, Puget Sound Energy, Bellevue, WA</p>
<p> 11:00 AM - 12:30 PM ANDY KIRK A</p> <p>Outstanding Women Engineers in Water and the Environment: Following Margaret Petersen's Legacy MODERATOR: Cassie Klumpp, US Bureau of Reclamation, Denver</p> <p>PANELISTS: Karen Flourmoy (USEPA Region 7, Kansas City, KS); Natalae Tillman (USACE Kansas City District); Leslie Voss (URS Group, Overland Park, KS)</p>					

THURSDAY, MAY 21, 2009

CONCURRENT TECHNICAL SESSIONS XVI

11:00 AM - 12:30 PM



BIG JOE TURNER A	BIG JOE TURNER B	BENNIE MOTEN B	LESTER YOUNG B	MARY LOU WILLIAMS B	MARY LOU WILLIAMS A
PLANNING AND MANAGEMENT	PLANNING AND MANAGEMENT	WATER, WASTEWATER, AND STORMWATER	WATERSHED	WATERSHED	WATERSHED
<p> Climate Change – Impact Assessment – 2 MODERATOR: Brian Roberts</p> <p>Assessing Potential Implications of Climate Change for Long-term Water Resources Planning in the Lower Colorado River Basin Susan Butler, AICP, Armin Munevar, P.E., CH2M HILL; Joseph Rippole, P.E., San Antonio Water System; Ron Anderson, P.E., Lower Colorado River Authority</p> <p>Looking for a Solution – Joint Front Range Climate Change Vulnerability Study Daniel Rodriguez, P.E., Aurora Water, Aurora, CO; Laura Kaatz, EIT, Denver Water, Denver, CO</p> <p>Planning for Climate Change John Kliem, P.E., Joint Staff, Fairfax Station, VA</p> <p>Risk-based Planning and Management of Urban Drainage Systems under a Changing Climate Kenneth Strzepek, M.ASCE, University of Colorado - Boulder, Boulder, CO; Paul Kirshen, Ph.D., Battelle Memorial Institute</p> <p>Vulnerability of the Hydraulic Resources of the San Juan-Brave River Basin with the Global Climatic Change José Luis Rodríguez García, Guillermo Cardoso Landa, Ph.D., Instituto Tecnológico de Chilpancingo, Chilpancingo, Guerrero, Mexico</p>	<p>Systems Analysis for Watershed Management – 2 MODERATOR: Daene McKinney</p> <p>Effectiveness of Flow Augmentation for Dissolved Oxygen Improvement in the Chicago Waterway System Emre Alp, Middle East Technical University, Ankara, Turkey; Charles S. Melching, Marquette University, Milwaukee, WI; Richard Lanyon, Metropolitan Water Reclamation District of Greater Chicago, Chicago, IL</p> <p>Hydrological Feasibility of Environmental Flows in the Rio Grande/Bravo Basin Samuel Sandoval-Solis, Daene McKinney, Ph.D., P.E., D.WRE, M.ASCE, University of Texas - Austin, Austin, TX</p> <p>Using Historical and Real-time Data to Improve Optimization Models for Water Resources Systems Analysis Ximing Cai, Mohammad Hejazi, Ethan Young, Dingbao Wang, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Water Quality and the Waller Creek Tunnel Project in Austin, Texas Brian Reis, P.E., CFM, Espey Consultants, Manhattan, KS; Joseph Pantalion, P.E., City of Austin, Austin, TX</p> <p>Water Quality Effects of Varying Crop, Fertilizer, and Carbon Prices Tze Ling Ng, Graduate Student, J. Wayland Eheart, Professor, Ximing Cai, Assistant Professor, University of Illinois at Urbana-Champaign, Urbana, IL</p>	<p>Water, Wastewater Recycling and Reuse MODERATOR: Victor Cook</p> <p>An Evaluation of Graywater Reuse Utilizing a Constructed Wetland Treatment System Adam Jakerst, S.M.ASCE, Larry Roesner, Ph.D., P.E., F.ASCE, Sybil Sharvelle, Ph.D., M.ASCE, Colorado State University, Fort Collins, CO</p> <p>Graywater and Treated Effluent Reuse Steven Roznowski, Graduate Student, Kristofer Bruun, Graduate Student, Larry Roesner, Ph.D., P.E., F.ASCE, Colorado State University, Fort Collins, CO</p> <p>Innovative Strategies Alleviate Water Stress in South East Queensland, Australia Hua Jiang, Ph.D., P.E., Scott Freeman, Jonathan Bates, Black & Veatch, Kansas City, MO</p> <p>Municipal Water Systems in the Columbia River Basin: A Portfolio Management Approach for Multiple Benefits Mark Anderson, P.E., CH2M HILL, Portland, OR</p>	<p> Mississippi River Basin – 2 MODERATOR: Nani Bhowmik</p> <p>Modeling the Hydrology and Hydraulics of a Constructed Wetland System Misganaw Demissie, Ph.D., P.E., D.WRE, F.ASCE, Laura Keefer, Yanqing Lian, Ph.D., Feng Yue, Bekele Elias, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Streamflow and Flooding Trends in the Upper Mississippi River Basin H. Vernon Knapp, Illinois State Water Survey, University of Illinois, Champaign, IL</p> <p>Ecological Health of the Upper Mississippi and Yangtze Rivers: Concept and Progress K.S. Lubinski, Yao Yin, US Geological Survey, Upper Midwest Environmental Services Center, LaCrosse, WI</p>	<p>Probabilistic Approaches for Watershed Processes – 2 MODERATOR: Christina Tsai</p> <p>Bootstrap Uncertainty Analysis of Hydrologic Parameters Hamid Moradkhani, Ph.D., Portland State University, Portland, OR; Mohammad Ebtehaj, S.M.ASCE, University of Minnesota, Minneapolis, MN</p> <p>Optimization of Regional Stormwater Systems Using Genetic Algorithms Pradeep Behara, Ph.D., P.E., D.WRE, University of the District of Columbia, Washington, DC; Ramesh Teegavarapu, Ph.D., P.E., P.Eng., M.ASCE, Florida Atlantic University, Boca Raton, FL</p> <p>Regional Regression Analysis and the Rational Method Bryan Young, Ph.D., P.E., Bruce McEnroe, Ph.D., P.E., University of Kansas, Lawrence, Kansas; Anthony Rome, Wilson & Company, Inc.</p> <p>Understanding Uncertainties in Water Budget for Large Constructed Wetlands Scott Huebner, Ph.D., P.E., Chandra Pathak, Ph.D., P.E., D.WRE, F.ASCE, South Florida Water Management District, West Palm Beach, FL; Ramesh Teegavarapu, Ph.D., P.E., Florida Atlantic University</p>	<p>Watershed Management – 2 MODERATOR: Sharon Jean-Baptiste</p> <p>Historical Changes in the Streamflow in Kansas Streams: Variation, Causes, and Implications Jonathan Aguilar, Graduate Student, James Koelliker, Professor, Marie Nicole Dick, Kansas State University, Manhattan, KS</p> <p>Modeling Water Quality Impacts In Delaware's Coastal Bays with AGNPS William Ritter, Ph.D., P.E., F.ASCE, University of Delaware, Newark, DE</p> <p>Parameterization of Seasonal Freshets for the Study of Effects of Freshwater Inflows on Galveston Bay Tony L. Smith, P.E., M.ASCE, Espey Consultants, Inc.; George H. Ward Jr., Ph.D., University of Texas - Austin, Austin, TX; William H. Espey Jr., Ph.D., P.E., M.ASCE, Espey Consultants, Inc.; Richard Browning, Ph.D., Trinity River Authority</p> <p>Runoffs of the Xiangride and Qaidam Rivers in the Arid Qaidam Basin, Northwest China Shaofeng Jia, Beijing, China; Shijun Lin, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China; Zhuping Sheng, Texas A&M System, El Paso, TX; Runjie Li, Institute of Water Resources and Hydropower of Qinghai Province; Huayun Yan, Water Resources Bureau of Qinghai Province; Dejun Liu, Institute of Water Resources and Hydropower of Qinghai Province</p>

12:30 - 1:30 PM Lunch on Your Own

 Important Panel Discussions & Special Sessions

THURSDAY, MAY 21, 2009

1:30 - 3:00 PM TECHNICAL POSTER SESSION XII COLONIAL BALLROOM

CONCURRENT TECHNICAL SESSIONS XVII 1:30 - 3:00 PM				
JULIA LEE A	JULIA LEE B	ANDY KIRK B	JAY MCSHANN A	LESTER YOUNG A
<p>11TH WATER DISTRIBUTION SYSTEMS ANALYSIS SYMPOSIUM (WDSA09)</p> <p>Water Usage MODERATOR: Yehuda Kleiner</p> <p>Combined Energy and Pressure Management in Water Distribution Systems Piotr Skworcow, Hossam AbdelMeguid, Bogumil Ulanicki, Peter Bounds, De Montfort University, Leicester, UK; Ridwan Patel, Yorkshire Water Services, Leicester, UK</p> <p>Design of Dual Water Supply Systems Ronson Chea, Graduate Student, Doo Sun Kang, Ph.D. Student, Kevin Lansey, Professor, Christopher Choi, Professor, University of Arizona, Tucson, AZ</p> <p>Modeling Water Demand on a Suburb Level Jakobus van Zyl, P.Eng., Marietje Griffioen, University of Johannesburg, Johannesburg, South Africa</p> <p>Preliminary Spatial-temporal Statistical Analysis of Hourly Water Demand at Household Level Ernesto Arandia-Perez, James G. Uber, Ph.D., Feng Shang, Ph.D., Dominic L. Boccelli, Ph.D., University of Cincinnati, Cincinnati, OH; Robert Janke, Ph.D., US Environmental Protection Agency, Cincinnati, OH; David Hartman, Yeongho Lee, Ph.D., Greater Cincinnati Water Works, Cincinnati, OH</p>	<p>6TH URBAN WATERSHED MANAGEMENT SYMPOSIUM</p> <p>Stormwater Management Practices, Operation, Maintenance, and Performance – 2 MODERATORS: Linda Pechacek, Allen Davis</p> <p>Research of Hydrologic and Water Quality Performance of 4 Linear Wetlands in Eastern North Carolina Jason Wright, William Hunt, Ph.D., P.E., Jon Hathaway, North Carolina State University, Raleigh, NC</p> <p>Design Optimization of Hydrodynamic Separators James Lenhart, P.E., D.WRE, Joanna Ogintz, P.E., Scott de Ridder, Contech Construction Products, Inc., Portland, OR</p> <p>Combining GIS, BMP Performance, and Strategic Planning to Support Water Quality Implementation Planning Ken Susilo, P.E., D.WRE, CPSWQ, M.ASCE, Geosyntec Consultants, Los Angeles, CA; Marc Leisenring, P.E., Eric Strecker, P.E., Geosyntec Consultants, Portland, OR</p> <p>Opportunity-Loss Considerations in Whole Life-Cycle Cost Estimating of Stormwater Control Measures John Doerfer, M.ASCE, CONTECH Stormwater Solutions, Kalamazoo, MI</p>	<p>HISTORY OF THE GREAT RIVERS OF THE WORLD</p> <p> Water and Wastewater Civil Engineering History MODERATORS: Jerry R. Rogers, Jeffrey Bradley</p> <p>Verification of Darcy's Law P.J.E. Coffey, Jeffrey B. Connor, Senior CEE Student, Virginia Tech, Blacksburg, VA</p> <p>Texas Section Leaders – A Time of Reflection for Section Anniversary Planning John N. Furlong, Half Associates, Richardson, TX, Melinda Luna, TWDB, Austin, TX, Mark Assad, ANA Consultants, Ft. Worth, TX</p> <p>Sizing of Highway Culverts: A Historical Review of Methods and Criteria Bruce McEnroe, University of Kansas, Lawrence, KS</p> <p>The Waste Water Network: An Underground View of Paris Georges Comair, University of Houston, Houston, TX</p>	<p>HYDRAULICS AND WATERWAYS</p> <p>Stream Restoration – 4 MODERATORS: Kevin Landwehr, R.H. Hotchkiss</p> <p>Developing Probability of Failure Estimates for Stream Restoration Design Components Timothy Sliwinski, S.M.ASCE, Sue Niezgoda, Ph.D., P.E., Aff.M.ASCE, Michael DeVasher, Ph.D., Rose-Hulman Institute of Technology, Terre Haute, IN</p> <p>Development of 2D Stream Sediment Model for Stream Restoration Design Applications in Urbanizing Watersheds William Cantrell, Graduate Student, John Schwartz, Ph.D., P.E., University of Tennessee – Knoxville, Knoxville, KY; Ken Barry, P.E., D.WRE, S&ME, Inc.</p> <p>Two-dimensional BOD and DO Water Quality Model for Engineering Applications: The Case of Bubbly Creek in Chicago, Illinois Davide Motta, Graduate Research Assistant, Jorge D. Abad, Postdoctoral Research Associate, Xiaofeng Liu, Postdoctoral Research Associate, Marcelo H. Garcia, Professor, University of Illinois at Urbana-Champaign, Urbana, IL</p> <p>Using HEC-RAS Hydraulic Design Functions for Geomorphic Channel Design and Analysis John Shelley, E.I.T., David Parr, Ph.D., University of Kansas, Lawrence, KS</p>	<p>INTERNATIONAL</p> <p> Improving Hydrologic Prediction in Developing Countries MODERATOR: David Watkins</p> <p>A Blueprint for Advancing Hydrologic Predictability in Developing Countries: A Case Study for the Nile River Basin Mekonnen Gebremichael, Ph.D., University of Connecticut, Storrs, CT</p> <p>Distributed Hydrologic Model for Flood Prevention in the Yuna River Watershed, Dominican Republic Hilary Robinson, Nick Fang, Ph.D., Philip B. Bedient, Ph.D., Rice University, Houston, TX</p> <p>Evaluation of Land Use Land Cover Changes in Palleru (K-11) Sub Basin of River Krishna Using GIS and NDVI M.V.S.S. Giridhar, Ph.D., G.K. Viswanadh, Ph.D., Institute of Science and Technology, J N T University, Hyderabad, India</p> <p>On the Local-scale Spatial Variability of Daily Rainfall in the Highlands of the Blue Nile: Observational Evidence Menberu Bitew, Ph.D. Student, Menberu Bitew, Ph.D. Student, Mekonnen Gebremichael, Ph.D., Feyera Aga, Ph.D. Student, University of Connecticut, Willimantic, CT; Yonas Michael, Ph.D., Addis Ababa University, Addis Ababa, Ethiopia; Yilma Sileshi, Ph.D., University of Connecticut, Willimantic, CT; Yonas Girma, M.Sc, Agricultural Research Center</p>

THURSDAY, MAY 21, 2009

CONCURRENT TECHNICAL SESSIONS XVII 1:30 - 3:00 PM

BENNIE MOTEN B

LESTER YOUNG B

MARY LOU WILLIAMS B

MARY LOU WILLIAMS A

WATER, WASTEWATER, AND STORMWATER

Water Supply and Treatment Processes for Developing Nations

MODERATOR: Helene Hilger

A Mobile Emergency Drinking Water System Powered by Renewable Energy

Matthew Vitello, Graduate Student, Curt Elmore, Ph.D., P.E., M. ASCE, Mariesa Crow, Ph.D., P.E., Missouri University of Science and Technology, Rolla, MO

Riverbank Filtration for Water Supply: Indian Experience

Pradeep Kumar, Ph.D., Indu Mehrotra, Ph.D., Indian Institute of Technology Roorkee, Roorkee, India

Sustainable Development of Agriculture: Urban Waste Water a Viable Mean for Irrigation

Chhedi Lal Verma, Ph.D., Vaibhav Gupta, Undergraduate Student, G.B. Pant University of Agriculture and Technology, Pantnagar, India

Treatment Performance of Wastewater Lagoons in South Yungas Province of Bolivia

Helen Muga, Ph.D., James Mihelcic, Ph.D., University of South Florida, Tampa, FL; Nathan Reents, P.E., ACDI/VOCA; Santiago Morales, Professor, Gabriela Gemio, Student, Universidad Tecnológica Boliviana, La Paz, Bolivia; Meredith Ballard, Student, Valerie Fuchs, Student, Cara Hanson, Student, Esther Johnson, Student, Michigan Technological University, Houghton, MI; Alison Hoyt, Student, Yale University, New Haven, CT

WATER, WASTEWATER, AND STORMWATER

Water Distribution and Management – 2

MODERATORS: Jerry L. Anderson, David Dee

Application of the 6-Sigma Methodology to Promote Water Saving Effect in Campus

Wen-Pei Sung, Ph.D., Kuen-Suan Chen, Ph.D., Chen-Yi Sun, Ph.D., National Chin-Yi University of Technology Taiping City, Taiwan

Reliability-based Design of Water Distribution Network (WDN) Considering the Reliability of Nodal Pressures

Navid Ghajarnia, Omid Bozorg Haddad, Ph.D., University of Tehran, Karaj, Tehran; M.A. Marino, Professor, University of California – Davis, Davis, CA

Water Treatment Industry Course Correction Required

John Kilem, P.E., Joint Staff, Fairfax Station, VA

WATERSHED

Watershed Modeling – 2

MODERATORS: Zia Hosseinpour, Sharon Jean-Baptiste

Integrated Surface Water and Groundwater Modeling of Orange River Basin for Flood Control and Water Supply Augmentation

Zia Hosseinpour, Ventura County, Ventura, CA

The Role of Clast Layer in Desert Pavement in Rainfall-runoff Process

Li Chen, Ph.D., Desert Research Institute; Jun Yin, Ph.D., Oregon State University, Corvallis, OR; Julie Miller, P.E., Michael Young, Ph.D., Desert Research Institute

Watershed Models for Storm Water Management: Comparing Hydrologic and Hydraulic Procedures

Deva Borah, Ph.D., P.E., M.ASCE, Jamie Weist, P.E., Jack Wall, P.E., David Powell, Ph.D., Woolpert, Inc., Portsmouth, VA

Watershed Subdivision for Modeling

Theodore Cleveland, Ph.D., P.E., Texas Tech University, Lubbock, TX; Thuy Luong, P.E., Texas Department of Transportation; David Thompson, Ph.D., P.E., RO Anderson, Inc.

WATERSHED

Watershed Management – 3

MODERATOR: Hamid Morakkhani

Design and Implementation of Optimized Hydrologic Unit Watersheds for Rainfall-runoff Modeling

Ivan Rivas, Larry Roesner, Ph.D., P.E., Colorado State University, Fort Collins, CO

Effects of Rainfall-runoff on Soil Surface Roughness and Erosion Processes

Dimitrios Dermisis, Ph.D. Student, Athanasios (Thanos) Papanicolaou, Associate Professor, University of Iowa, Iowa City, IA

Hydrologic Modeling and Flood Frequency Analysis of the Sonora River Watershed in Sonora, Northwest Mexico

Maureen Habarth, Limnotech; Brian Barkdoll, Ph.D., P.E., D.WRE, FASCE, Michigan Tech University, Houghton, MI

Integrated Watershed Protection Plan and Management Strategy for the Calleguas Creek Watershed in Ventura County

Kathleen Higgins, P.E., Jeff Friesen, P.E., CH2M HILL; Sergio Vargas, P.E., Zia Hosseinpour, P.E., Ventura County Watershed Protection District

3:00 - 3:30 PM Networking Break / Colonial / Imperial Ballrooms



Important Panel Discussions & Special Sessions

POSTER SESSIONS

KANSAS CITY MARRIOTT DOWNTOWN • COLONIAL BALLROOM

Participants should plan to set up their posters 15-20 minutes before the session begins and remove their posters 15-20 minutes after the session ends.

MONDAY, MAY 18

TECHNICAL POSTER SESSION I

1:30 to 5:00 pm • Colonial Ballroom

6th Urban Watershed Management Symposium

6th Urban Watershed Management Symposium

Moderator: Scott Struck

Accurate Sampling of Suspended Solids

Gregory DeGroot, Graduate Student, John Gulliver, Ph.D., P.E., Omid Mohseni, Ph.D., P.E., P.H., University of Minnesota, Minneapolis, MN

Developing a Water Budget for a Constructed Stormwater

Kristen Mogavero, Graduate Student, Gerrad Jones, Graduate Student, Bridget Wadzuk, Ph.D., Villanova University, Villanova PA

Planning for Sustainable Growth and Water Resources in the Chesapeake Bay Watershed

Thomas Dumm, P.E., O'Brien & Gere, Landover, MD

Use of Wireless Sensor Nodes to Provide Continuous Data for Pollutant Studies and TDM Compliance

Rhonda Copley, President, PraxSoft, Orlando, FL; Kevin McCann, City of Orlando, FL

Emerging and Innovative Technology

Emerging and Innovative Technology

Moderator: Lily Baldwin

Assessment of Combined Hydroseeding and Coconet Reinforcement to Control Soil Erosion

Mervin Cereno, Mapua Institute of Technology, Manila, The Philippines

Protocol Considerations to Improve the Reliability of Data Collection in a Radio Telemetry System

Daniel Lasorso, Graduate Student, University of Cincinnati, Cincinnati, OH

Environmental

Environmental

Moderator: Zhiqiang Hu

Airborne Heavy Metal Contamination to River Ganga (India)

Kumar Shubhashish, Senior Research Fellow, Jitendra Pandey, Reader, Richa Pandey, Research Scholar, Banaras Hindu University, Varanasi, India

Characterization of Legacy Labile Organic Carbon Reserves Using a Sediment Bioassay and Modeling Approach

Philip A. DePetro, Graduate Student, Martin T. Auer, M.ASCE, Michigan Technological University, Houghton, MI

Determination of Methylmercury Flux from Lake Sediments Using Flow-through Reactors

G. Albert Galicinao, Graduate Student, Martin T. Auer, M.ASCE, Michigan Technological University, Houghton, MI

Response of Ficus Nitida Plants to Some Treatments for Decreasing the Harmful Effect of Lead Pollution

Abdullah Tahish, Ph.D., Sanaa University, Sanaa, Republic of Yemen

The Effect of Sewage Pollutant of Bandar Imam Petrochemical Company on Benthic Macrofauna Community Using Biodiversity Indices and Bioindicators

Tayebeh Tabatabaie, Islamic Azad University, Ahvaz, Iran; Fazel Amiri, Faculty Member, Islamic Azad University, Bushehr, Iran; Mohamad Bagher Nabavi, Assistant Professor, Mohamad Shrif Fazeli, Assistant Professor, Mehran Afkhami, Assistant Professor, Islamic Azad University, Ahvaz, Iran

Turbulence Mediation of Induced Oxygen and Nitrate Demand in Lakes

Brandon J. Ellefson, Graduate Student, Martin T. Auer, M.ASCE, Michigan Technological University, Houghton, MI

Irrigation and Drainage

Irrigation and Drainage

Moderator: Richard Allen

Application of SVMs Algorithms for Prediction of Evaporation in Reservoirs

Arun Goel, Ph.D., National Institute of Technology - Kurukshehra, Haryana, India

Controlled Drainage Effects on Crop Yield and Water Use Efficiency Under Semi-arid Condition of Iran

Negar Sharifi Mood, Graduate Student, Masoud Parsinejad, Professor, Farhad Mirzaei, Professor, Tehran University, Karaj, Tehran

Estimation of Regional Reference Evapotranspiration from Land Surface Temperature and Co-kiging Method at Tehran Province of Iran

Mahdi Shahabifar, Ph.D., Soil & Water Research Institute (SWRI); Maryam Chaichi, Graduate Student, Mahdi Kouchakzadeh, Ph.D., Tarbiat Modares University, Tehran, Iran

Planning and Management

Planning and Management

Moderator: Eric Loucks

A Decision Support System for Optimizing Reservoir Operations Using Ensemble Streamflow Predictions (ESP)

Richard Palmer, Ph.D., P.E., University of Massachusetts, Amherst, MA; Austin Polebitski, Ph.D. Candidate, University of Washington, Seattle, WA

Asymptotic Variance of Regional Growth Curve for Generalized Logistic Distribution

Hongjoon Shin, Ph.D. Candidate, Woosung Nam, Ph.D. Candidate, Younghun Jung, Ph.D. Candidate, Jun-Haeng Heo, Ph.D., Yonsei University, Seoul, Republic of Korea

Inflow Forecasting for Real-time Reservoir Operation Using Artificial Neural Network

Taesoon Kim, Ph.D., Gian Choi, Graduate Student, Jun-Haeng Heo, Ph.D., Yonsei University, Seoul, Republic of Korea

Water Resources Management and Stochastic Hydrology for the Truckee River System

J.D. Salas, Professor, Colorado State University, Fort Collins, CO; Donald Frevert, US Bureau of Reclamation, Lakewood, CO; C. Fu, Ph.D. Candidate, T.S. Lee, Ph.D. Candidate, Colorado State University, Fort Collins, CO

Watershed Management in the Indian Himalayan Region: Issues and Challenges

Vaibhav Gupta, Student, Samagra Rana, Student, G.B. Pant University of Agriculture and Technology, Pantnagar, India

Whatever It Takes – From Water Availability Model to Cost of Water

Daniel Rodriguez, P.E., Aurora Water, Aurora, CO

Using a Regional Flow Duration Curve Model to Assess Possible Climate Change Impacts to Streamflow in the Northeast United States

Neil Fennessey, University of Massachusetts, Amherst, MA

TECHNICAL POSTER SESSION II

2:00 – 3:30 pm • Colonial Ballroom

Education and Research

Education

Moderator: Cassie Klumpp

Framing the Design Process in an Undergraduate Environmental Engineering Class

Deb O'Bannon, Ph.D., P.E., F.ASCE, University of Missouri - Kansas City, Kansas City, MO; Tom Kimes, P.E., HDR Engineering, Inc., Kansas City, MO

Integrating Design Heuristics in an Environmental Engineering Course

Kathleen Leonard, Ph.D., University of Alabama - Huntsville, Huntsville, AL

Non-traditional University Research Partners Who Facilitate Service Learning and Graduate Research for Sustainable Development

Maya A. Trotz, Ph.D., Helen Muga, Ph.D., Linda Philips, P.E., Daniel Yeh, Ph.D., Amy Stuart, Ph.D., James Mihelcic, Ph.D., University of South Florida, Tampa, FL

Environmental

Soil and Subsurface Remediation – 2

Moderator: Joel Burken

Hutchinson, Kansas – 4th & Carey Groundwater Remediation and Reverse Osmosis (RO) Water Treatment Facility Project

Danita Boettner, P.E., CDM, Albuquerque, NM; Don Koci, P.G., City of Hutchinson, Hutchinson, KS; Darren Brown, P.G., CDM, Wichita, KS; Bruce Allman, P.E., PEC, Wichita, KS

Sorption and Desorption of Testosterone in Agricultural Soils

Eric Marui, Tian Zhang, Ph.D., P.E., University of Nebraska – Lincoln at Omaha, Omaha, NE

TUESDAY, MAY 19

TECHNICAL POSTER SESSION III

9:00 - 10:30 am • Colonial Ballroom

Hydraulics and Waterways

Larger River Restoration

Moderators: F. Shields, Jr., Blair P. Greinmann

Analysis of the Failure of the Dam Curtain “El Batán” in Querétaro, México

Guillermo Cardoso Landa, Ph.D., Instituto Tecnológico de Chilpancingo, Chilpancingo, Guerrero, Mexico; Ana Julita Cuenca Castro, Comisión Nacional del Agua, Mexico

Bridge Scour: General Hydraulic Characteristics of an Open Channel with Narrow Path

Maritess Quimpo, Ph.D. Student, Tadashi Yamada, Chuo University, Tokyo, Japan

Optimal Design and Operation of Fusegates Considering Water Loss due to Gates Tilting

Abbas Afshar, Professor, Zeinab Takbiri, Research Assistant, Iran University of Science and Technology, Iran

Physical Experimentation and CFD Modeling to Evaluate Sediment Scour in Catchbasin Sumps

Humberto Avila, Universidad del Norte, Barranquilla, Colombia; Robert E. Pitt, Ph.D., P.E., D.WRE, University of Alabama, Tuscaloosa, AL

Rehabilitation of the Middle Rio Grande Near Bernalillo, New Mexico

Drew C. Baird, Ph.D., P.E., D.WRE, US Bureau of Reclamation, Denver, CO; Carolyn Donnelly, E.I.T., US Bureau of Reclamation, Albuquerque, NM

Sediment Load-based Single Thread Alluvial Channel Classification

Gregory Wilkerson, Ph.D., P.E., Southern Illinois University, Carbondale, IL; Gary Parker, Ph.D., University of Illinois at Urbana-Champaign, Urbana, IL

TECHNICAL POSTER SESSION IV

11:00 am – 12:30 pm • Colonial Ballroom

7th Symposium on Groundwater Hydrology, Quality, and Management

Groundwater Council and Its Committees Update

Amy Chan-Hilton, Mustafa M. Aral, John McCray

TECHNICAL POSTER SESSION V

1:30 – 3:00 pm • Colonial Ballroom

Hydraulics and Waterways

River Stabilization

Moderators: Andrew Simon, Micheal Schwar

Adverse Affects of Flood Flow at Skewed Railroad Crossings

William Yord, P.E., Wilson & Company, Inc., Kansas City, MO; Jerry Richardson, Ph.D., D.WRE, University of Missouri - Kansas City, Kansas City, MO; Vincent Zink, S.M.ASCE, Wilson & Company, Inc., Kansas City, MO

Redesign and Rehabilitation of Railroad Bridges with Advanced Adverse Lateral Migration

William Yord, P.E., Wilson & Company, Inc., Kansas City, MO; Jerry Richardson, Ph.D., D.WRE, University of Missouri - Kansas City, Kansas City, MO; Vincent Zink, S.M.ASCE, Wilson & Company, Inc., Kansas City, MO

STUDENT POSTERS/PAPERS



3:30 – 5:00 pm • Colonial Ballroom

Irrigation and Drainage

Irrigation and Drainage Issues

Moderators: Thomas Ley, Christopher Hay

Increasing Field Work Productivity in Irrigation Evaluation Processes through the Use of Combined Irrigation Models

Sergio Lecina, Ph.D., Christopher Neale, Professor, Gary Merkley, Professor, Utah State University, Logan, UT; Carlos dos Santos, Ph.D. Student, Federal University of Campina Grande, Campina Grande, Brazil

Planning and Management

Climate Change – Impact Assessment I

Moderator: Eric Loucks

Evaluation of Climate Change Impacts to Water Supply and Demand in the Puget Sound Region

Richard Palmer, Ph.D., P.E., University of Massachusetts, Amherst, MA; Austin Polebitski, Ph.D. Candidate, University of Washington, Seattle, WA

Watershed

Land Use/Cover Changes and Water Quality/Quantity

Moderator: Sharon Jean-Baptiste

Measurement of Velocity and Discharge of a Stream Using a New Floating Rod Equipped with a GPS Receiver

Won Kim, Ph.D., Chanjoo Lee, Korea Institute of Construction Technology, Seoul, Republic of Korea

Prediction of Nitrate Concentration in Stream Water Based on Watershed Land Use and Stream Flow Rate

Jingjie Teng, Patrick Gurian, Ph.D, Mira Olson, Ph.D, Drexel University, Philadelphia, PA; Anna Sofranko, Student, Janet Herman, Professor, Aaron Mills, Professor, University of Virginia, Charlottesville, VA

TECHNICAL POSTER SESSION VI

5:00 - 6:30 pm • Colonial Ballroom

Irrigation and Drainage

Drainage Infrastructure and Nonpoint Sources

Moderators: Christopher Hay, Jose Chavez

Macropore Flow and Subsurface Drain Interconnectivity: E. coli Transport Experiments

Jorge Guzman, Ph.D. Student, Garey Fox, Ph.D., P.E., Oklahoma State University, Stillwater, OK

WEDNESDAY, MAY 20

TECHNICAL POSTER SESSION VII

9:00 – 10:30 am • Colonial Ballroom

Hydraulics and Waterways

Bridge Scour

Moderators: Brain Barkdoll, Yong Lai

Mathematical Modeling of Bed – Topography Changes at Bridge Abutments

Omer Kose, Assistant Professor, Aksaray University, Aksaray, Turkey; Melih Yanmaz, Ph.D., Middle East Technical University, Ankara, Turkey

TECHNICAL POSTER SESSION VIII

11:00 am – 12:30 pm • Colonial Ballroom

Hydraulics and Waterways

Dam Operation, Management, and Safety – 1

Moderators: Mustafa Altinakar, Larry Weber

Numerical Modeling of Flushing Process in Dez Dam Reservoir by HR Wallingford Method

Ali Khosronejad, Ph.D, Afshin Ashrafzadeh, Ph.D, Majid Vazifiedoust, Ph.D, University of Guilan, Rasht, Iran

TECHNICAL POSTER SESSION IX

3:30 am – 5:00 pm • Colonial Ballroom

7th Symposium on Groundwater Hydrology, Quality, and Management

Groundwater Council and Its Committees Update

Amy Chan-Hilton, Mustafa M. Aral, John McCray

TECHNICAL POSTER SESSION X

5:00 – 6:30 pm • Colonial Ballroom

Water, Wastewater, and Stormwater

Emerging Technologies

Moderator: Richard Tsang

Bench-scale Ozonation of Raw Industrial and Municipal Wastewater

Richard Mines, Professor, Mercer University, Macon, GA; Cary Oglesby, Cary Oglesby, Pangean-CMD Associates, Woodstock, GA

Water, Wastewater, and Stormwater

Water Distribution and Management

Moderator: Sharon Jean-Baptiste

Application of 6-Sigma Methodology to Promote Water-saving Effect in Campus

Wen-Pei Sung, Kuen-Suan Chen, Chen-Yi Sun, National Chin-Yi University of Technology, Taiwan

THURSDAY, MAY 21

TECHNICAL POSTER SESSION XI

9:00 – 10:30 am • Colonial Ballroom

EWRI 2009 History Symposium

History of the Great Rivers of the World

Moderator: Jerry R. Rogers

ASCE National Historic Civil Engineering Landmarks of Western Washington State

Seattle Section ASCE History & Heritage Committee and David Gilbert, Sequim, WA

Five-Year History of Water Resources Specialty Certification and Value Slogans

Jerry R. Rogers, Michael A. Ports, Jeffrey B. Bradley, M. Frank Kim, John J. Segna, Linda Bayer, Stan Caldwell

History of the Texas Section ASCE

John N. Furlong, Halff Associates, Inc., Richardson, TX; Melinda Luna, TWBD, Austin, TX; Cindy Engelhardt, Halff, Associates, Inc., Austin, TX

International

Rural Water Supply Systems in Developing Countries

Moderators: David Watkins, Ned Breslin

Environmental & Water Resources in Developing Countries

Priyanand Agale, Nilesh Wankhede, Ph.D., Prashant Bhawe, Ph.D., Sumedh Mhaske, Ph.D., Geotech, VJTI, Mumbai, India

Watershed

Watershed Management – 1

Moderator: Sharon Jean-Baptiste

Assessment of the Capability of Hydrologic and Artificial Neural Network Models for Flood Warning System in Land Use Change Condition

Mohammad Ebrahim Banihabib, Ph.D., Azar Arabi, Tehran University, Tehran, Iran

Watershed

Watershed Management – 2

Moderator: TBD

CUAHSI Hydrologic Information System

David Maidment, Ph.D., University of Texas - Austin, Austin, TX

McCormick Place West Hall Conference Center Stormwater Reclamation Tunnel and “Green Roof” Helps Advance Chicago’s Clean Water Agenda

William Weaver, P.E., D.WRE, AECOM, Vernon Hills, IL

Watershed

Watershed Management – 3

Moderator: Sharon Jean-Baptiste

Effective Management of Natural Resources under Dry Land Farming through Watershed Basis

Murukannappa Mariyanna, University of Agricultural Sciences - Bangalore, Bangalore, India

TECHNICAL POSTER SESSION XII

1:30 – 3:00 pm • Colonial Ballroom

6th Urban Watershed Management Symposium

Probabilistic Approaches for Watershed Processes – 2

Moderator: Christina Tsai

Statistical Seasonal Streamflow Forecasting: An Intercomparison and Evaluation of Current Forecasting Procedures

Matthew Meier, Graduate Student, Hamid Moradkhani, Ph.D., P.E., M. ASCE, Portland State University, Portland, OR