

#EWRI2022

Final Program



WORLD ENVIRONMENTAL & WATER RESOURCES CONGRESS

June 5-8, 2022 | Atlanta, GA



*Adaptive Planning and Design in
an Age of Risk and Uncertainty*

EWRICongress.org

Welcome to the World Environmental & Water Resources Congress 2022



Hello! On behalf of EWRI and the Congress Organizing Committee, I want to welcome you to Atlanta and the 2022 World Environmental & Water Resources Congress! Atlanta is called the Phoenix City in reference to its rise from the ashes post-Civil War, so it seems fitting to host this 2022 Congress as we rise from two years of virtual programming. We're excited to get everyone together for what is going to be a great week of networking and learning. Our theme for this year is *Adaptive Planning and Design in an Age of Risk and Uncertainty*. As we delve into this topic, we hope you take advantage of all our opportunities to share your concerns on issues affecting the environment and the policies relating to water resources.

Our agenda is packed with features on the latest research, case studies, and evolving best practices in water resources and the environment. You can download the conference app (<https://cdmcd.co/xvBDkp>) to help organize your week.

We are lucky to have NOAA joining us for an Engineering for Climate Resilience Workshop as a pre-conference activity on Saturday.

Sunday kicks off our committee meetings and the first of our Technical Workshops providing training on Best Modeling Practices for CFD Applications, Remote Sensing for Water Quality Applications, Tracking COVID-19 - The Search for Disease through Wastewater Surveillance, Georgia EPD's Use of Modeling and Technical Analysis in Water Permitting and Planning to name a few throughout the week.

As the conference really gets rolling on Monday, choose from one of the 16 topical breakout session rooms where technical presentations will be given on a broad range of water, wastewater, stormwater, and environmental topics. We are also featuring impressive keynote speakers presenting on local, regional, and national water resources issues, including:

- Mike Alexander, AICP Director of Atlanta Regional Commission's Center for Livable Communities,
- Dennis Truax, Ph.D., P.E., DEE, D.WRE, F.NSPE, F.ASCE, 2022 ASCE President
- Ben DeAngelo, Deputy Director, NOAA Climate Program Office, and
- Daniel Blackman, Regional Administrator Environmental Protection Agency (EPA) - Southeast Region (Region 4)

If you want to see a bit of our city, take advantage of our technical tours! We have a variety of options from Chattahoochee River Kayaking for the adventurous to tours of several of our unique water resources projects across the Atlanta area, like The Water Tower Innovation Center, Clayton County Constructed Treatment Wetlands, the Water Supply Project at Westside Park, and the Kendeda Living Building on Georgia Tech's campus – the first living building of its size and scale in the southeastern US.

Finally, make the most of your Congress experience with our networking opportunities and join us at the Sunday night Welcome Reception and the Georgia Chapter of EWRI-sponsored off-site casual meet-up on Tuesday evening.

Please join us - I look forward to meeting you all!

Katherine McLeod Gurd, P.E., CFM, CPESC, F.ASCE
2022 EWRI Congress Chair



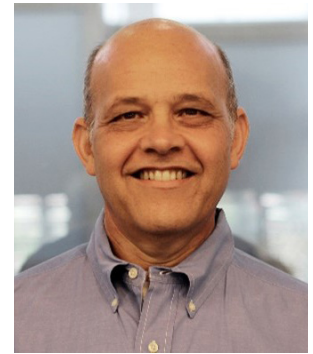
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Gurd, P.E., CFM,
CPESC, F.ASCE



Vice Chair
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*Technical Program
Chair*
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EIT, A.M.ASCE



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How will you customize
**YOUR EWRI Congress
experience?**

Download the 2022 EWRI
Congress mobile app:



Schedule-at-a-Glance

Saturday, June 4

1:00 – 5:00 p.m. Engineering for Climate Resilience Workshop (Hanover F)

Sunday, June 5

8:00 a.m. – 5:00 p.m.

Technical Workshop: Best Modeling Practices for CFD Applications (Piedmont)

9:00 a.m. – 1:00 p.m.

EWRI Governing Board Meeting (Greenbriar)

12:00 – 6:15 p.m.

Registration (Terrace Foyer)

1:00 – 5:00 p.m.

Technical Tour: The Water Tower Innovation Center*



Technical Tour: Chattahoochee River Kayaking Adventure*

1:00 – 5:00 p.m.

Technical Workshop: Remote Sensing for Water Quality Applications (Spring)

Technical Workshop (Presented by AAWRE): So, You've Been Called as an Expert Witness? What to Expect and How to Prepare. (Vinings)

5:00 – 6:30 p.m.

Sustainability and Resiliency in Civil Engineering Practice: A Roundtable Discussion (Courtland)

6:30 – 8:00 p.m.

Welcome Reception* | Poster Hall Opens | ASCE Bookstore Opens (Grand Hall East)

Monday, June 6

7:30 a.m. – 4:00 p.m.

Registration (Terrace Foyer)

8:30 – 10:15 a.m.

Opening Welcome Plenary: Lifetime Achievement Award, Jeffrey B. Bradley Service to the Institute Award and Keynote Lecture with Michael D. Alexander (Centennial Ballroom I&II)

10:15 – 10:30 a.m.

Coffee & Networking Break | Poster Hall Open | ASCE Bookstore Open (Grand Hall East)

10:30 a.m. – 12:00 p.m.

Concurrent Technical Session I (See detailed agenda)

10:30 a.m. – 12:00 p.m.

Hydraulic and Waterways Council Awards | Hunter Rouse Hydraulic Engineering Award and Lecture (Regency V)

10:30 a.m. – 12:00 p.m.

Technical Workshop: Tracking COVID-19: The Search for Disease through Wastewater Surveillance: Applications and Future Considerations (Part I) (Regency VI)

12:00 – 1:30 p.m.

Luncheon* with special presentation by 2022 ASCE President, Dennis Truax (Centennial Ballroom I&II)

1:30 – 3:00 p.m.

Concurrent Technical Session II

1:30 – 3:00 p.m.

Technical Workshop: Tracking COVID-19: The Search for Disease through Wastewater Surveillance: Applications and Future Considerations (Part II) (Regency VI)

3:00 – 3:30 p.m.

Coffee & Networking Break (Grand Hall East)

3:30 – 5:00 p.m.

Concurrent Technical Session III (See detailed agenda)

3:30 – 5:00 p.m.

Environmental Council Awards | Simon W. Freese Environmental Engineering Award and Lecture (Regency V)

5:15 – 7:00 p.m.

Technical Tour: Kendeda Building*

Tuesday, June 7

8:00 – 9:00 a.m.

Coffee and Conversation with the Women-Water Nexus (Dunwoody)

8:30 a.m. – 4:00 p.m.

Registration (Terrace Foyer)

9:15 – 10:15 a.m.

Keynote Lecture with Ben DeAngelo (Centennial Ballroom I&II)

10:15 – 10:30 a.m.

Coffee & Networking Break | Poster Hall Open | ASCE Bookstore Open (Grand Hall East)

10:30 a.m. – 12:00 p.m.

Concurrent Technical Session IV (See detailed agenda)

10:30 a.m. – 12:00 p.m.

Irrigation & Drainage Council Awards | Royce J. Tipton Award and Lecture (Regency VI)

10:30 a.m. – 12:00 p.m.

Watershed Council Awards | Ven Te Chow Award and Lecture (Regency V)

12:00 – 1:30 p.m.

Luncheon* (Centennial Ballroom I&II)

1:30 – 3:00 p.m.

Concurrent Technical Session V (See detailed agenda)

1:30 – 3:00 p.m.

Pioneers in Groundwater Award (Regency V)

1:30 – 3:00 p.m.

Planning & Management Council Awards | Julian Hinds Award and Lecture (Regency VI)

1:30 – 5:00 p.m.

Technical Workshop: Georgia EPD’s Use of Modeling and Technical Analysis in Water Permitting and Planning (Grand Hall East D)

3:00 – 3:30 p.m.

Coffee & Networking Break (Grand Hall East)

3:30 – 5:00 p.m.

Concurrent Technical Session VI (See detailed agenda)

3:30 – 5:00 p.m.

Margaret S. Petersen Award and Lecture (Regency VI)

3:30 – 5:00 p.m.

The ASCE Innovation in Sustainable Engineering Award (Regency VI)

3:30 – 5:00 p.m.

UWRR Council Awards (Regency VI)

3:30 – 8:00 p.m.

Technical Tour: Clayton County Constructed Treatment Wetlands*

5:15 – 6:15 p.m.

AAWRE Diplomate Induction & Awards Ceremony (Virtual Only)

5:30 – 8:30 p.m.

Off-premise meetup hosted by the EWRI Georgia Chapter

Wednesday, June 8

8:30 a.m. – 3:00 p.m.

Registration (Terrace Foyer)

9:15 – 10:15 a.m.

Closing Plenary & Keynote Lecture with Daniel Blackman (Centennial Ballroom I&II)

10:15 – 10:30 a.m.

Coffee & Networking Break | Poster Hall Open | ASCE Bookstore Open (Grand Hall East)

10:30 a.m. – 12:00 p.m.

Concurrent Technical Session VII (See detailed agenda)

10:30 a.m. – 3:00 p.m.

Technical Workshop: HEC-RAS One-Dimensional Riverine Water Quality Modeling (Grand Hall East B)

12:00 – 1:30 p.m.

Luncheon* (Centennial Ballroom I&II)

1:30 – 3:00 p.m.

Concurrent Technical Session VIII (See detailed agenda)

3:00 – 3:30 p.m.

Coffee & Networking Break (Grand Hall East)

3:30 – 5:00 p.m.

Concurrent Technical Session IX (See detailed agenda)

5:30 – 8:00 p.m.

Technical Tour: Atlanta Water Supply Project at Westside Park*

Thursday, June 9

10:30 a.m. – 2:00 p.m.

Technical Tour: The Georgia Aquarium, Behind the Scenes Tour*

* Ticketed event

R2T RIVER TO TAP

R2T, Inc. is a full-service, small business enterprise providing a wide variety of environmental consulting services.

Water/Wastewater

- Process Optimization
- Water Quality Review and Analysis
- Engineering Design
- Permitting and Compliance
- Project Management
- Construction Management
- Treatment Plant Start-up and Operations
- Watershed/Stormwater Management

Water Resources

- Water Resources Planning
- MS4 Compliance
- TMDL Compliance
- Environmental Services
- Site Assessments in compliance with NEPA
- Water Reuse Feasibility

Environmental Services

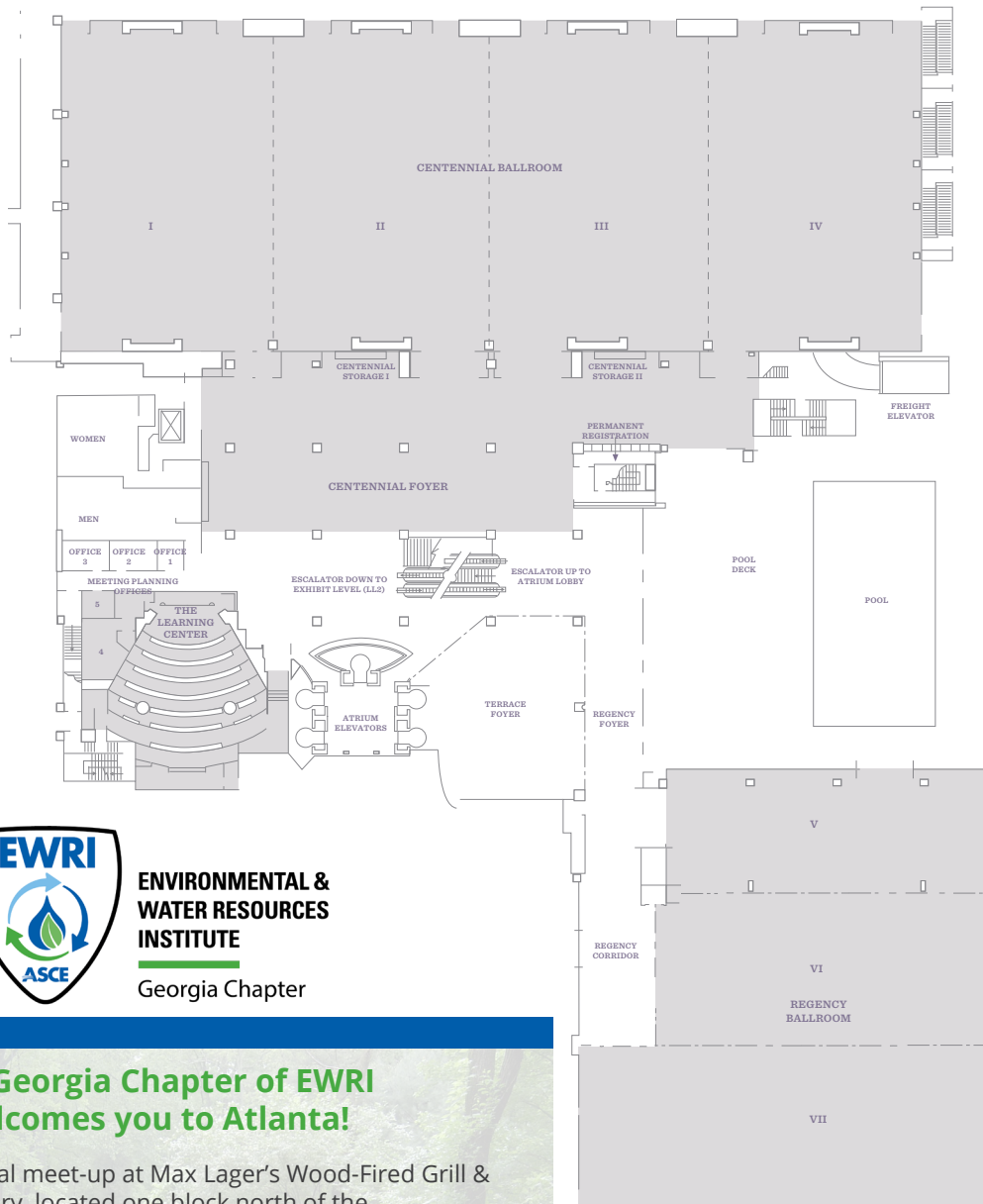
- Environmental Permitting
- NEPA and GEPA Compliance
- Wetland Determinations
- Ecological Evaluations
- Protected Species Surveys
- Air & Noise Studies
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CONTACT

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Hyatt Regency Atlanta Floor Plan

Ballroom Level



ENVIRONMENTAL & WATER RESOURCES INSTITUTE
Georgia Chapter

The Georgia Chapter of EWRI welcomes you to Atlanta!

Join us for a casual meet-up at Max Lager's Wood-Fired Grill & Brewery, located one block north of the Hyatt Regency.

We look forward to meeting you!

**TUESDAY, JUNE 7,
5:30 to 8:30 P.M.**

Max Lager's Wood-Fired Grill & Brewery

320 Peachtree St NE
Atlanta, GA 30308

ADA accessible

**limited quantities of appetizers and drinks will be provided*

Sponsored by



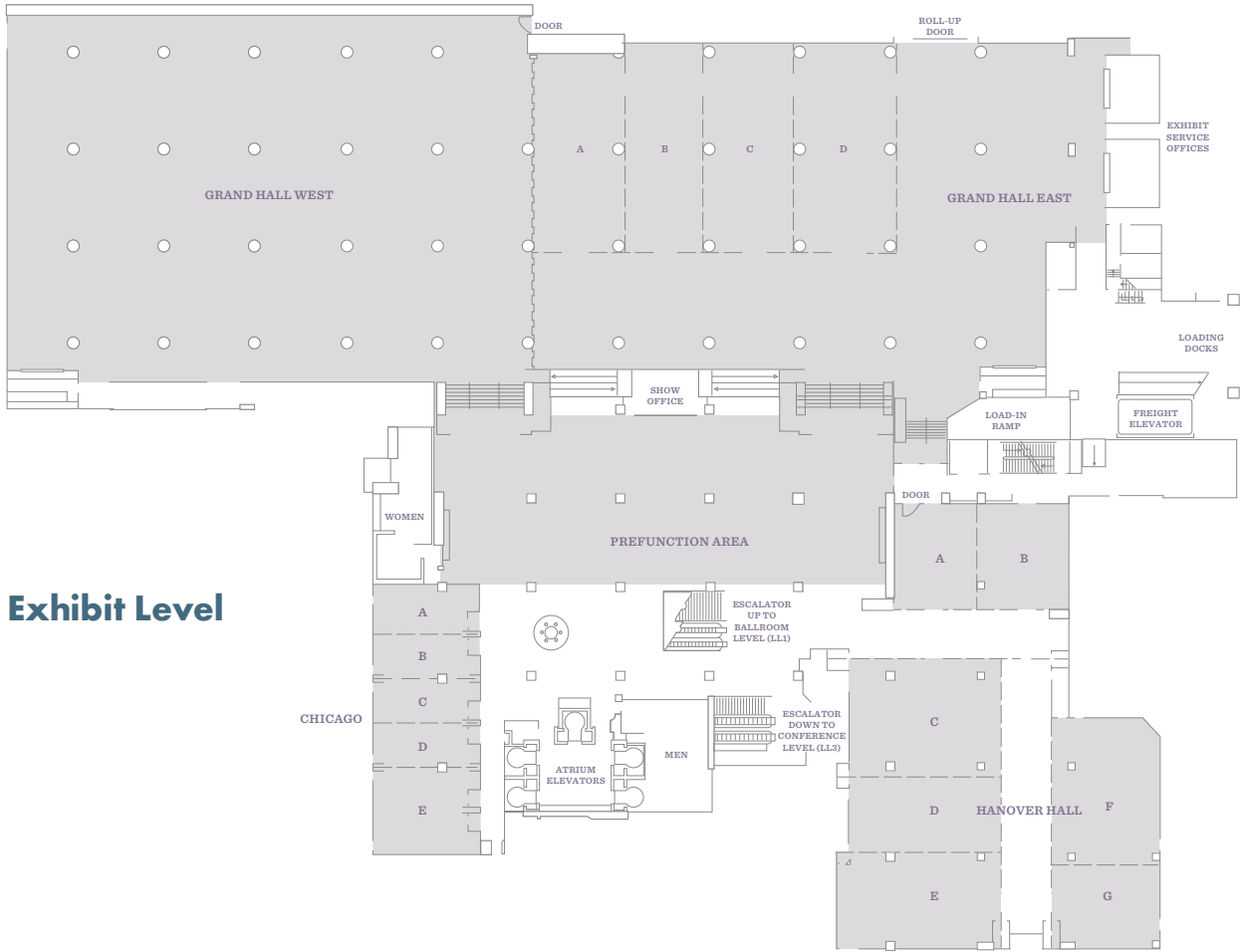


Exhibit Level



Atlanta Conference Level

EWRI Committee Meetings (current as of May 20, 2022)

Meeting Date	Meeting Time	Committee Name	Room Location	
Sunday, June 5	8:00 a.m. - 12:00 p.m.	J. Sustainable Water in the Built Environment	Courtland	
	8:00 a.m. - 12:00 p.m.	Evapotranspiration in Irrigation & Hydrology	Hanover A	
	8:00 a.m. - 12:00 p.m.	Remote Sensing of Evapotranspiration TC	Hanover A	
	8:00 a.m. - 12:00 p.m.	EWRI Governing Board Meeting	Greenbriar	
	10:00 a.m. - 12:00 p.m.	Two-phase Flow in Urban Water Systems TC	Hanover G	
	12:00 - 2:00 p.m.	IDDS (Irrigation Delivery & Drainage Systems)	Edgewood	
	12:00 - 2:00 p.m.	Municipal Water Infrastructure Council	Dunwoody	
	12:00 - 3:00 p.m.	Urban Water Resources Research Council	Hanover F	
	12:00 - 4:00 p.m.	Environmental and Water Resources Systems	Hanover A	
	2:00 - 3:30 p.m.	Urban Drainage Standards Committee	Fairlie	
	3:30 - 5:30 p.m.	Urban Drainage Definitions TC	Fairlie	
	2:00 - 4:00 p.m.	On-Farm Irrigation - Irrigation and Drainage	Edgewood	
	2:00 - 4:00 p.m.	International Participation Committee	Hanover G	
	3:00 - 5:00 p.m.	Manual of Practice No. 77 Update (MOP77)	Hanover F	
	4:00 - 6:00 p.m.	Environmentally Responsible Energy Production	Harris	
	4:00 - 6:00 p.m.	Water Distribution Systems Analysis (WDSA)	Dunwoody	
	4:00 - 6:00 p.m.	Water Supply, Treatment and Distribution Engineering Committee	Hanover G	
	Monday, June 6	5:00 - 6:00 p.m.	J. Sustainable Water in the Built Environment (Office Hours)	Grand Hall East
		5:00 - 6:00 p.m.	Managing Reservoir Sediment: Technical, Economic, & Policy Issues	Regency VI
		5:00 - 7:00 p.m.	Sustainability Committee	Grand Hall East A
5:00 - 7:00 p.m.		Permeable Pavement TC	Regency V	
5:00 - 7:00 p.m.		Water Quality & Drainage	Grand Hall East C	
5:00 - 7:00 p.m.		Groundwater Hydrology Committee	Hanover C	
5:00 - 7:00 p.m.		Water Pollution Engineering	Hanover A	
5:00 - 8:00 p.m.		J. Water Resources Planning & Management Editorial Board	Grand Hall East D	
5:00 - 8:00 p.m.		Sustainable Stormwater Infrastructure Committee	Grand Hall East B	
5:00 - 8:00 p.m.		Computational Hydraulics	Hanover E	
5:00 - 9:00 p.m.		Stormwater Media Filtration	Regency VII	
6:00 - 10:00 p.m.		EWRI Awards Committee	Hanover F	
7:00 - 8:00 p.m.		Use of Recycled Water for Irrigation of Turf & Landscape Plants TC	Grand Hall East C	
7:00 - 9:00 p.m.		Groundwater Symposium Committee	Hanover C	
Tuesday, June 7		2:30 - 3:30 p.m.	J. Sustainable Water in the Built Environment (Office Hours)	Grand Hall East
	5:00 - 7:00 p.m.	Civil Engineering Perspectives on F-E-W Nexus	Grand Hall East C	
	5:00 - 7:00 p.m.	Environmental Permitting Policy & Compliance	Hanover A	
	5:00 - 7:00 p.m.	Emerging & Innovative Technologies Committee	Hanover C	
	5:00 - 7:00 p.m.	Groundwater Management Technical Committee	Hanover B	
	5:00 - 7:00 p.m.	Task Force: Creating a National Inventory of Low-head Dams	Regency VI	
	5:00 - 7:00 p.m.	Stormwater Modeling Committee	Regency VII	
	5:00 - 7:00 p.m.	River Restoration	Hanover E	
	5:00 - 7:00 p.m.	Update of MOP 127 2nd Edition	Grand Hall East A	
	5:00 - 7:00 p.m.	Hydraulic Structures	Regency V	
	5:15 - 8:00 p.m.	River Basin Planning, Policy and Operations	Grand Hall East D	
	5:00 - 9:00 p.m.	Water, Wastewater & Stormwater Council	Grand Hall East B	
	5:00 - 9:00 p.m.	Water, Wastewater & Stormwater Council	Grand Hall East B	
Wednesday, June 8	5:00 - 8:00 p.m.	CAWRA	Harris	

Please visit: www.eventscribe.net/2022/EWRICongress for virtual meetings and/or any unscheduled changes.

Leading with Science[®] to improve people's lives



For the past 18 years *Engineering News-Record* has ranked Tetra Tech #1 in Water. Our team provides full-spectrum stormwater services, including cutting-edge watershed studies, sustainable BMP designs, smart monitoring approaches, and expert regulatory support.

We are proud to be home to leading technical experts in every sector and to use that expertise throughout the project life cycle. Our commitment to safety is ingrained in our culture and at the forefront of every project.

Sunday | June 5

Technical Tour: The Water Tower Innovation Center

(ticketed event)

1:00 - 4:00 p.m.

This brand-new innovation center, in Buford, is dedicated to the water industry. By bringing together the public and private sectors of the water industry, side by side with academia and nonprofits, The Water Tower's mission is to tackle the industry's greatest challenges. What sets The Water Tower apart from existing innovation efforts is the integration of applied research, technology R&D, workforce training and engagement to enhance positive impacts for utilities, researchers, technology providers, trainees, school groups, and the public.



Technical Tour: Chattahoochee River Kayaking Adventure (ticketed event)

1:00 - 5:00 p.m.

Explore the beauty and serenity of the Chattahoochee River with a paddle down the Chattahoochee River in Metro Atlanta. Home to over 240 bird species and an abundance of plant life, the Chattahoochee is an Atlanta treasure. We will enjoy a leisurely kayak trip while learning about the history of the river, the grassroots movement that succeeded in protecting the river and creating the National Recreation Area, and the recently commenced Chattahoochee RiverLands Project.

Sustainability and Resiliency in Civil Engineering Practice: A Roundtable Discussion (Courtland)

5:00 - 6:30 p.m.

Join the ASCE Sustainability Technical Committee during a roundtable discussion designed around the following questions: How are civil engineers using sustainability and resilience in practice? What gaps exist in sustainable and resilient engineering practices? And, what information and data is missing for creating sustainable and resilient design? In this 90-minute event, attendees will have the opportunity to join moderated, small group discussions and influence next steps for civil engineers in creating sustainable and resilient infrastructure. This is open to all EWRI Congress registrants.

Welcome Reception (ticketed event)

6:30 - 8:00 p.m.

Whether it's "welcome back" or "it's a pleasure to meet you," we are thrilled to see everyone in-person again! We hope you can join us for the Welcome Reception and take the opportunity to reunite with old friends or create new memories.

Monday | June 6

Welcome & Keynote Session

9:00-10:15 a.m. | Centennial Ballroom I&II



Michael D. Alexander, AICP, Director of the Atlanta Regional Commission's Center for Livable Communities

"Georgia and Metro Atlanta, Demographic Destiny and our Growth Outlook"

Georgia and Metro Atlanta are known as young places, but that is changing. Current

Socioeconomic conditions are also changing. Technology is having an enormous impact on how we think about work and mobility.

At the intersection of these changes, how will Georgia and Metro Atlanta be impacted over the long term? What will it mean for our economy and quality of life?

Monday Luncheon

12:00 - 1:00 p.m. | Centennial Ballroom I&II



Dennis Truax, Ph.D., P.E., BCEE, D.WRE, F.NSPE, F.ASCE, 2022 ASCE President

"Innovating to Provide a Nation's 21st Century Water Resource Security"

We live in a different world, and previous engineering successes will likely result in failure of one kind or another. Climate change, population growth, dwindling resources, and lack of vision by decision makers are both a challenge, and an opportunity, for the environmental and water resource engineering community designing for the 21st Century. Now is the time to engage in rethinking how we assure one of our most precious resources will be adequate to meet the needs for the rest of this century.

Technical Tour: Kendeda Building (ticketed event)

5:15 - 7:00 p.m.

Tour of Georgia Tech's Kendeda Building for Innovative Sustainable Design, which is the first building in Georgia, the first building of its size and scale in the Southeast, and 28th in the world to earn Living Building Challenge certification – the world's most ambitious green building achievement. The Kendeda Building is regenerative. Over the course of a year, it collects and infiltrates into the ground 15 times the amount of water needed for operations. Its solar panels supply over 200% of the building's energy needs. It gives back more than it takes from the environment and focuses on the health and happiness of occupants.

Tuesday | June 7

Coffee and Conversation with the Women-Water Nexus (Dunwoody) 8:00 - 9:00 a.m.

Join the Women Water Nexus (WWN) for a morning networking session to include a discussion on Establishing International Collaboration and Interactions led by Dr. Heidi Gough, Associate Professor of Environmental Engineering at the University of Washington's School of Environmental and Forest Sciences. Light refreshments will be provided. All are welcome!

Keynote Session

9:15-10:15 a.m. | Centennial Ballroom I&II



Ben DeAngelo, Deputy Director of the Climate Program Office in the research arm of the U.S. National Oceanic and Atmospheric Administration (NOAA)

“Utilizing Our Best Available Information for Climate-Ready Infrastructure”

We are observing and projecting into the future climatic changes that pose risks to our lives, welfare, and property. NOAA collects observational data on our changing climate, conducts research to better understand how our climate is changing, and works to improve models in order to better predict future changes in temperature, precipitation, sea levels, and the nature and severity of extreme weather events. NOAA is working with ASCE on a partnership to bring NOAA science and expertise into the next generation of ASCE's codes and standards that factor in a changing--rather than a stationary--climate.

Technical Tour: Clayton County Constructed Treatment Wetlands (ticketed event)

3:30 - 8:00 p.m.

The constructed treatment tours begin at Newman Wetlands Center, which is the focal point of the Clayton County Water Authority's community education efforts. Participants will get a quick history of Clayton County Water Authority (CCWA) water reuse systems. The tour will stop at the Hammock Overlook to get an idea of the size of the wetlands before heading to individual pond. Leaders will discuss the rationale and technical aspects of our wetland cells. They will also introduce guests to the incredible wildlife that lives on the treatment wetlands.

AAWRE Diplomate Induction & Awards Ceremony (Virtual Only)

5:15 - 6:15 p.m.

Join here: www.ewricongress.org/aawre

Wednesday | June 8

Closing Keynote Session

9:15-10:15 a.m. | Centennial Ballroom I&II



Daniel Blackman, Regional Administrator, Environmental Protection Agency (EPA) - Southeast Region (Region 4)

“Tackling the Climate Crisis and Advancing Environmental Justice”

EPA, in our mission to protect human health and the environment, has prioritized our actions to tackle the climate crisis while also

focusing on how to advance environmental justice. EPA's efforts include regulatory updates, investment of the historic bipartisan infrastructure funding including prioritization of underserved communities, and actions to protect those most vulnerable to contaminants.

Technical Tour: Atlanta Water Supply Project at Westside Park (ticketed event)

5:30 - 8:00 p.m.

Join us for a tour of the City of Atlanta's Water Supply Project (WSP) located at Westside Park. Learn about the conversion of the former Bellwood Quarry into a 2.4 billion-gallon raw water storage facility. See the one of the newly constructed pump stations and learn about some of the engineering and construction challenges associated with this project. Not only will the WSP secure the city's water supply for the next 100 years but will also serve as the focal point for the new Westside Park, Atlanta's newest and largest park, and connecting to the Atlanta BeltLine. The \$320 million project extends the City's emergency raw water supply from 3 days to a minimum of 30 days.

Thursday | June 9

Technical Tour: The Georgia Aquarium, Behind the Scenes Tour (ticketed event)

10:30 a.m. - 2:00 p.m.

The Georgia Aquarium is the largest aquarium in the Western Hemisphere and home to hundreds of species and thousands of animals across its seven major galleries, all of which reside in more than 11 million US gallons of fresh and saltwater. The Georgia Aquarium offers exclusive Behind the Seas tours which concentrates on the back of the house operations of the Aquarium. The tour is 45 min. long and about 10 minutes of the tour focuses on Water Treatments, Water Labs and Sustainability. This tour will provide access to the behind-the-scenes tour as well as general admission to the aquarium.

Margaret S. Petersen Award

For an outstanding woman in environmental and water resources.



Roseanna M. Neupauer, Ph.D., P.E., M.ASCE, F.EWRI

ASCE has honored Rosanna M. Neupauer, Ph.D., P.E., M.ASCE, F.EWRI with the 2022 Margaret S. Petersen Award for pioneering development and dissemination of engaging and effective pedagogy, inspiring and dedicated mentorship, impactful research in modeling of groundwater systems, and fireless leadership in the water resources education and engineering communities.

Neupauer has shown outstanding leadership in effective pedagogy, which has had an extraordinary impact in the area of water resources engineering education and beyond. She is the principal author of the popular *H2Oh!: Classroom Demonstrations for Water Concepts*, which includes a sampling of the innovative physical model demonstrations and engaging hands-on activities that exemplify her teaching. She has been workshop director and multiple-times faculty mentor at ASCE ExCEED Teaching workshops, and as a President's Teaching Scholar she serves similar faculty development roles at the University of Colorado. She has tirelessly mentored graduate and undergraduate student researchers, leading an extraordinary number of undergraduate researchers to be co-authors on publications and presenters at conferences.

Neupauer's research focuses on computer simulation of movement of water and contaminants through the subsurface. Her innovative mathematical techniques allow forensic analysis to accurately predict the source of observed contaminations, and she is now applying her method to a wide range of water resource systems, such as pipe networks and streams. She has also developed groundwater remediation approaches that improve cleanup efficiency by enhancing mixing processes.

Her research recognitions include the Walter Huber Research Prize, a National Science Foundation CAREER award, and designation as a fellow of the Geological Society of America. She has served the engineering community tirelessly. She has been an associate editor for leading journals, is vice president of the International Commission on Groundwater, and within ASCE has led the Groundwater Council, Groundwater Management Committee, and the Committee on Faculty Development.

Lifetime Achievement Award

The Lifetime Achievement award is presented to members who are judged to have advanced the profession, exhibited technical competence, and significantly contributed to public service, research, or practice in the environmental and water resources profession.



James P. Heaney, Ph.D., P.E., D.WRE, M.ASCE

Professor James P. Heaney has been selected to receive the 2022 Lifetime Achievement Award of the Environmental and Water Resources Institute of the American Society of Civil Engineers. This award will be given at the World Environmental and Water Resources Congress in Atlanta, Georgia June 5-8, 2022. He received his B.S. Degree in Civil Engineering from Illinois Institute of Technology in 1962 and his M.S. and Ph.D. in Environmental and Water Resources Engineering from Northwestern University in 1964 and 1968, respectively. In Graduate School, he was an early researcher in advanced analytics applied to a variety of environmental and water resources problems with emphasis on optimization methods.

Professor Heaney began his academic career in 1968 at the University of Florida. He was one of the early developers and users of the EPA Stormwater Management Model (SWMM). Professor Heaney's group was an early adopter of using cooperative n-person game theory to find equitable as well as efficient solutions to environmental and water resources problems.

In 1991, Professor Heaney accepted the position as Chair of the Department of Civil, Environmental and Architectural Engineering at the University of Colorado. He returned to the University of Florida in 2003 as Chair of his former department. He continued to work with his graduate students until he retired in 2016. He is grateful for his wonderful students and academic collaborators. His proudest accomplishments are the love of his wife of 59 years, Diane, two children, three grandchildren, and his extended family.



Jonathan E. Jones, P.E., P.H., D.WRE

Jon is the Chief Executive Officer and Chief Financial Officer of WWE, where he has worked since 1981 on water resources engineering assignments throughout the United States. He is a licensed Professional Engineer in 21 states and an invited member of the American Academy of Water Resources Engineers. During his tenure at WWE, he has managed many of the firm's largest assignments for public and private sector clients around the United States.

Mr. Jones was the chairman of a committee of over 100 engineers who prepared the widely disseminated 1992 reference published by the American Society of Civil Engineers (ASCE) and Water Environment Federation (WEF), *Design and Construction of Urban Stormwater Management Systems* and served as editor-in-chief of the ASCE

publication *Great Works in Urban Water Resources* (1962–2001). Along with Eric Strecker, P.E., and Ben Urbonas, P.E., he is co-developer of the widely cited International Stormwater BMP Database (www.bmpdatabase.org). He chaired the Blue Ribbon Panel that reviewed the WEF/ASCE Manual of Practice, *Design of Urban Stormwater Controls* and coauthored the ASCE publication *Public Safety Guidance for Urban Stormwater Facilities*.



G. Wayne Clough, Ph.D., P.E., Hon.D.GE, Hon.M.ASCE

Wayne Clough served as the 10th President of the Georgia Institute of Technology from 1994 to 2008 — the first alumnus to do so — and as the 12th Secretary of the Smithsonian Institution from 2008 to 2014. During Clough's tenure as president, Georgia Tech's national rankings rose into the top 10 among public universities. The student population increased from 13,000 to 19,000, and funding for external research more than doubled. The G. Wayne Clough Georgia Tech Promise Scholarship was created, allowing financially disadvantaged students to graduate without accruing debt, and over 900 students have been supported to date. Clough also oversaw the preparations for the 1996 Centennial Olympics and the doubling of the building capacity of the campus. This included the

construction of Technology Square, an extension of the campus into a formerly slum ridden area, and the creation of the biotechnology and molecular science complex, which allowed the formation of the Emory-Georgia Tech Biomedical program.

As secretary of the Smithsonian, Clough led the development of a new form of strategic plan that brought focus to the diverse activities of the world's largest research and museum complex, establishing a path forward for the 21st century. His tenure was marked by a number of firsts, including a national fundraising campaign, a national branding initiative, an institution-wide commitment to sustainability, and laying the framework for the Digital Smithsonian. During his tenure, more than \$1 billion in philanthropic gifts were raised, creating endowed positions for museum curators, scholarships and fellowships, and providing funding for new buildings and exhibitions. As secretary, he also presided over more than a billion dollars in renovations and new construction, including the new National Museum of African American History and Culture. Clough, a native of Douglas, Georgia, received bachelor's and master's degrees from Georgia Tech in civil engineering and a Ph.D. in civil engineering from the University of California, Berkeley. Clough taught at Duke University, Stanford University and Virginia Tech, where he served as Chair of the Department of Civil and Environmental Engineering and Dean of the College of Engineering. He also served as Provost and Vice President of the University of Washington.

Clough was elected to the National Academy of Engineering in 1990 and was awarded its Arthur M. Beuche Medal in 2008 for national service in public policy. He received nine awards from the American Society of Civil Engineers (ASCE), including two Norman Medals and the OPAL Award for lifetime achievement. He was elected to the American Academy of Arts and Sciences in 2010. In 2014, he received the President's Medal from Emory University and the Silver Order of the de Fleury Medal of the Army Corps of Engineers. In 2016 he was elected to the National Academy of Construction. In 2020 he was named Conservationist of the Year by the Satilla Riverkeepers, awarded the Lifetime Achievement Award for Contributions to Higher Education from the University System of Georgia, and received the Lifetime Achievement Award from the Georgia Society of Professional Engineers. Clough has received 12 Honorary Doctorates from universities and colleges.

He has written over 150 technical publications and four books, *The Best of Both Worlds: The Digital Future of Museums, Libraries and Archives* (2013), *Seeing the Universe from Here: Field Notes from the Smithsonian*, (2016), *Things New and Strange: A Southerners Journey of Discovery Through the Smithsonian Collections*, (2019), and *Reimagining the Technological University* (2021). He received the 2020 Best Author Award for History from the Georgia Writers Association for his third book. Clough remains active as a proponent of access to higher education for financially disadvantaged students and addressing issues related to climate change.

Jeffrey B. Bradley Service to the Institute Award

The Jeffrey B. Bradley Service to the Institute Award is given in recognition of extensive and outstanding service to the Institute.



William F. Ritter, Ph.D., P.E., D.WRE, F.ASCE, M.ASABE

Dr. Ritter, P.E., is professor emeritus at the University of Delaware. He retired from the University of Delaware in 2016 after 44 years on the faculty. He had appointments in Bioresources Engineering, Civil and Environmental Engineering and the Center for Energy and Environmental Policy and was involved in research, teaching and extension. He served as department chair of the Bioresource Engineering Department for 15 years. He conducted research in groundwater and surface water quality, irrigation and drainage, wastewater treatment, renewable energy, and livestock waste management and taught courses in water resources and environmental engineering.

He has been an invited speaker at international, national, and regional conferences and has made over 200 presentations at conferences. He has over 350 journal, book chapters, conference proceedings, and technical reports publications. He has served as a consultant to industry, government, and nonprofit organizations over the years. He is a fellow and life member of both the American Society of Civil Engineers and the American Society of Agriculture and Biological Engineers and a life member of the Water Environment Federation and the American Water Works Association. He has been active in both ASCE and ASABE for many years and has received a number of awards from both ASCE and ASABE. He served as editor of the Journal of Irrigation and Drainage Engineering from 2001 to 2016.

Visiting International Fellows

This fellowship is granted annually to increase the participation of water resources and environmental professionals from developing countries in EWRI conferences, and to promote sustained professional and cultural exchange.



**Rahime Iclal
Birtek, Turkey**



**Zarif Khero,
Pakistan**



**Pranab Kumar
Mohapatra,
India**

EWRI Fellows

EWRI Fellowship is granted to those who have been a member of EWRI for 10 or more years and have demonstrated accomplishments that have contributed significantly to the advancement or application of water resources or environmental engineering, science, and technology.

Please join us in congratulating the 2022 Class of EWRI Fellows:

Claudia Gunsch, Ph.D., M.ASCE, F.EWRI

Faisal Hossain, Ph.D., PH, M.ASCE, F.EWRI

Juneseok Lee, Ph.D., P.E., D.WRE, M.ASCE, F.EWRI

Nicholas Albergo, P.E., DEE, D.WRE, F.ASCE, F.EWRI

Roseanna Neupauer, Ph.D., P.E., M.ASCE, F.EWRI

Royce J. Tipton Award

The Royce J. Tipton Award recognizes outstanding contributions to the advancement of water and soil aspects of irrigation by software development, promoting application of new technologies and through public and professional service.



Christopher Michael Usher Neale, Ph.D., M.ASCE

ASCE has honored Christopher Michael Usher Neale, Ph.D., M.ASCE, with the 2022 Royce J. Tipton Award for significant contributions on the use of remote sensing for estimating evapotranspiration of agricultural crops, irrigation water management and hydrology, and the education of irrigation engineers.

During his decades-long career, Neale has established himself as a world-renowned authority on applications and advancement of irrigation and drainage engineering through exemplary accomplishments. His service to irrigation engineering in the U.S. started in 1984, when he evaluated the performance of automated surface irrigation systems in the Grand Valley of Colorado. In the 36 years since then, Neale has led numerous national and international partnerships and projects to foster and improve irrigation management in the U.S., Middle East and North Africa, India, Brazil, and Kazakhstan.

Neale has had an outstanding performance in every position he has held during his career, including establishing the Remote Sensing Services Laboratory at Utah State University. He is currently serving as director of research at the Daugherty Water for Food Global Institute at University of Nebraska, Lincoln. He is a founding partner and executive committee member of the Irrigation Innovation Consortium. He has authored or co-authored 196 peer-reviewed publications, and they have been cited more than 5,700 times. He has served as the major advisor to 23 master's students and 21 doctoral students. The success of these individuals serving as irrigation engineers, researchers, extension specialists, managers, and even policymakers, advancing the science and policy of agricultural water management in the U.S. and abroad, is a strong testament to Neale's impact and accomplishments.

Journal of Irrigation and Drainage Engineering

Best Reviewer

Tony L. Wahl, M.S., P.E.

Best Discussion

Seyed M. Hajimirzaie, Ph.D., P.E., M.ASCE

Juan A. Gonzalez-Castro, Ph.D., P.E., M.ASCE

Discussion of "Experimental Modeling of Submerged Pivot Weir" by M. Bijankhan and V. Ferro, Journal of Irrigation and Drainage Engineering, Volume 147, Issue 1, January 2021

Honorable Mention Paper Awards

Raouf E. Baddour, M.ASCE

"Skimming Properties of Sharp-Crested Weirs," Journal of Irrigation and Drainage Engineering, Volume 146, Issue 9, September 2020

Best Paper Award

Daniela Saitta, Ph.D.

Juan Miguel Ramirez-Cuesta, Ph.D.

Filippo Ferlito, Ph.D.

Daniela Vanella, Ph.D.

Giuseppe Longo-Minnolo

Simona Consoli, Ph.D.

"Comparison of Orange Orchard Evapotranspiration by Eddy Covariance, Sap Flow and FAO 56 Methods under Different Irrigation Strategies," Journal of Irrigation and Drainage Engineering, Volume 146, Issue 7, July 2020

Hunter Rouse Hydraulic Engineering Award and Lecture

The Hunter Rouse Hydraulic Engineering Award is presented, upon recommendation of the Executive Committee of the Environmental & Water Resources Institute Hydraulics & Waterways Council, to a distinguished person in the field of hydraulic engineering.



Philip J.W. Roberts, Ph.D., P.E., F.ASCE

ASCE has honored Philip J.W. Roberts, Ph.D., P.E., F.ASCE, with the 2022 Hunter Rouse Hydraulic Engineering Award for excellence in hydraulics, particularly the engineering aspects of ocean outfalls and water intakes, and density-stratified flows in lakes, estuaries, and coastal waters. This expertise includes mathematical modeling of such flows, field studies, and laboratory studies of turbulent mixing.

Roberts has made exceptionally significant contributions to modern hydraulic engineering through over 44 years of teaching and research. He obtained his doctoral degree from California Institute of Technology, and started a faculty position in Georgia Tech in 1978. His research focuses on environmental fluid mechanics and hydraulic engineering, especially in marine outfall design. He played a major role in ASCE Manual 97, *Hydraulic Modeling: Concepts and Practice* (2000).

Throughout his career, Roberts has conducted intensive laboratory experimental investigation of turbulent mixing, ocean outfalls, analysis of complex field studies, and mathematical modeling of turbulent dispersion and transport. His innovative research on diffuser mixing process won ASCE's Collingwood Prize in 1980. He was one of the only two Distinguished Scholars in NOAA's Oceans and Human Health Initiative, in which he conducted research on the hydrodynamics of pathogen transport in coastal waters. He was also the UPS Foundation Visiting Professor at Stanford University from 1993 to 1994. EPA has adopted Dr. Roberts' mathematical models and methods for marine outfall design.

He is currently the co-chair of IAHR/IWA Committee on Marine Outfall Systems. Roberts retired from Georgia Tech four years ago, and now consults on various projects relating to water quality in marine environment, for example, the design of desalination facilities. He is a fellow of ASCE and has served as associate editor for the *Journal of Hydraulic Engineering* (1987-1992).

Karl Emil Hilgard Hydraulic Prize

The Karl Emil Hilgard Hydraulic Prize is presented to the author or authors of the paper that is judged to be of superior merit in dealing with a problem of flowing water, either in theory or in practice.

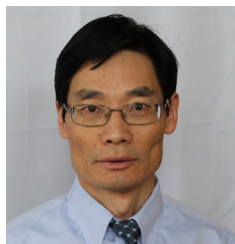
Jane Alexander, Ph.D.
Mark Davidson, Ph.D.
Huan-Feng Duan, Ph.D.

Zhao Li, Ph.D.
Pedro Lee, Ph.D.

"Experimental Investigation of the Effects of Air Pocket Configuration on Fluid Transients in a Pipeline," *Journal of Hydraulic Engineering*, Volume 146, Issue 12, December, 2020

Hydraulic Structures Medal

The Hydraulic Structures Medal is awarded to an individual or individuals for significant contributions to the advancement of the art and science of hydraulic engineering as applied to hydraulic structures.



David Zhiwei Zhu, Ph.D., P.Eng, FCAE, M.ASCE

ASCE has honored David Zhiwei Zhu, Ph.D., P.Eng, M.ASCE, with the 2022 Hydraulic Structures Medal for contributions in design, operation, and retrofitting of fish passages and hydropower dams for mitigating ecological impact, and urban sewer systems for preventing storm geysers, sedimentation, and sewer odor/corrosion controls.

Zhu is a professor of hydraulic engineering at the University of Alberta, in Canada. He has published over 200 papers and supervised over 80 graduate students. His research has two major contributions: one is hydraulic structures for urban water management, including sewer retrofitting methods for reducing sewer air pressure by recirculation, and the other is hydropower dams and the design of fishways. He and his team received ASCE's 2017 Samuel Arnold Greeley

Award for their research in sewer odor and air flow movement in urban sewer drop structures. Zhu was elected as the Industrial Research Chair in Urban Drainage of Canadian National Sciences and Engineering Research Council. He also received the Canadian Academy of Engineering, Canadian Society for Civil Engineering (CSCE) Camille A Dagenais Award for outstanding contributions by a civil engineer to the development and practice of hydrotechnical engineering in Canada.

Zhu has studied the risk of fish entrainment due to intake-induced flow for reducing fish mortality from dam operations. He also experimented and modeled various fish pathways using natural rocks and boulders. Zhu is a fellow of Canadian Academy of Engineering.

Hans Albert Einstein Award

The Hans Albert Einstein Award acknowledges significant contribution to the engineering profession in the areas of erosion control, sedimentation, and/or waterway development either in teaching, research, planning, design, or management.



Subhasish Dey, Ph.D., M.ASCE

Subhasish Dey is a hydraulician and educator. He is known for his research on the hydrodynamics throughout the world and acclaimed for his contributions to develop theories and solution methodologies of various problems on applied hydrodynamics, turbulence, shallow fluid flows and sediment transport.

He is currently a Professor of the Department of Civil Engineering, Indian Institute of Technology (IIT) Kharagpur, where he teaches free surface flow, hydraulics of sediment transport and turbulent fluid flow in post-graduate level.

He served as the Head of the Department of Civil Engineering during 2013–15 and held the position of Distinguished Visiting Professor of Tsinghua University, Tsinghua University, Beijing, China (2016–19), Adjunct Professor of Indian Statistical Institute Kolkata (2014–19) and Brahmputra Chair Professor, IIT Kharagpur during 2009–14 and 2015.

He has offered courses on turbulent flow and sediment transport in different universities, such as the University of Hong Kong, Università di Pisa, Università della Calabria, Politecnico di Milano, University of Florence, University of Oulu, Instituto Superior Tecnico Lisbon, National Chung Hsing University etc. He has also coordinated several ISWT, GIAN short courses at IIT Kharagpur.

Presently, he is engaged in studying turbulence characteristics over smooth and rough boundaries and other turbulence related problems. His general areas of research interests encompass analytical hydrodynamics, submerged jet flows, offset jet flows, sediment transport, scour, free surface flow, coherent motion in turbulent flow, turbulent boundary-layer and time-space averaging flow characteristics over macro-rough walls, etc. He is an author of a textbook titled *Fluvial Hydrodynamics* published by Springer, Germany. He has published 202 research papers in refereed journals.

He is an associate editor of the *Journal of Geophysical Research – Earth Surface (AGU)*, *Journal of Hydraulic Engineering (ASCE)*, *Journal of Hydraulic Research (IAHR)*, *Sedimentology*, *Acta Geophysica*, *Journal of Hydro-Environment Research*, *International Journal of Sediment Research* and *Journal of Numerical Mathematics and Stochastics*. He is also an editorial board member of several journals including the *Proceedings A of the Royal Society of London: Mathematical, Physical and Engineering Sciences*.

He is a Vice-President of the Council of the World Association for Sedimentation and Erosion Research (WASER), Beijing (2019–22). He is also a council member of IAHR (2015–19), member of IAHR Fluvial Hydraulics Committee (2014–), a past-council member of the World Association for Sedimentation and Erosion Research (WASER), Beijing (2010–13) and a Foreign Expert in China (2016–18). He is a fellow of the Indian National Science Academy (FNA), Indian Academy of Sciences (FASc), the National Academy of Sciences India (FNASc) and Indian National Academy of Engineering (FNAE). He has received the JC Bose Fellowship award in 2018.

Journal of Hydraulic Engineering

Best Paper Award

Please refer to the Karl Emil Hilgard Hydraulic Prize on page 16

Best Technical Note

David Z. Zhu, M.ASCE

Yiyi Ma, A.M.ASCE.

"Axis Switching of Free-Falling Elliptical Water Jets," Journal of Hydraulic Engineering, Volume 146, Issue 7, July 2020

Best Discussion

Please refer to the J.C Stevens Award below on page 18

Outstanding Reviewer

Michele Palermo

Outstanding Associate Editor

Jose G. Vasconcelos

J.C. Stevens Award - Best Discussion

Lu Wang, Ph.D.

Dawei Guan, Ph.D.

Discussion of "New Approach to Predicting Local Scour Downstream of Grade-control Structure" by M. Ben Meftah and M. Mossa," Journal of Hydraulic Engineering, Volume 147, Issue 6, February 2020

Simon W. Freese Environmental Engineering Award and Keynote Speaker

The Simon W. Freese Environmental Engineering Award and lecture is awarded to a distinguished person in the field of environmental engineering.



Pratim Biswas, Ph.D., F.AAAR, F.AEESP, N.A.E.

Dr. Biswas is one of the world's foremost experts in applying aerosol science to energy and environmental nanotechnology, solar energy use, air pollution control, medicine, and other areas. Dr. Biswas was elected as a fellow of the Academy of Science, St. Louis, in 2003 and a fellow of the American Association for Aerosol Research in 2009. In 2014, he was selected as a fellow of the International Aerosol Research Assembly, and in 2017 he was elected fellow of the Association of Environmental Engineering Science Professors. He has won numerous awards—including the Fuchs Award in 2018 given to a leading aerosol scientist across the globe for their sustained contributions and accomplishments in the field of aerosol science and engineering. In 2019, he was elected to the

National Academy of Engineering.

Recently selected as the incoming Dean at the University of Miami College of Engineering, Dr. Biswas arrived at Washington University 20 years ago to rebuild an environmental engineering science program that had been dismantled 30 years prior. Six years later, he created the Department of Energy, Environmental and Chemical Engineering, the first program of its kind nationally—which currently has 146 undergraduates, 30 master's-degree students, and 110 Ph.D. students; 24 tenured, tenure-track, teaching, and research faculty members; and \$8 million in annual research expenditures. Dr. Biswas is proud of his more than 55 doctoral graduates of the Aerosol and Air Quality Research Laboratory, and he has published more than 425 peer-reviewed journal papers with them.

Rudolph Hering Medal

The Rudolph Hering Medal recognizes outstanding papers that contribute to the advancement of the environmental branch of the engineering profession.

Richard G. Luthy, M.ASCE
Jonathan Bradshaw

Jordyn M. Wolfand

"Urban Water Revolution: Sustainable Water Futures for California Cities," Journal of Environmental Engineering, Volume 146, Issue 7, July 2020

Wesley W. Horner Award

The Wesley W. Horner Award recognizes papers that have contributed to the areas of hydrology, urban drainage, or sewerage.

Anna Mehrotra
Irene Xagoraki, M.ASCE
Xavier Fonoll

Brijen Miyani
John Norton, M.ASCE

"SARS-CoV-2 in Detroit Wastewater," Journal of Environmental Engineering, Volume 146, Issue 11, November 2020

Samuel Arnold Greeley Award

The Samuel Arnold Greeley Award is presented for excellence in papers on the design, construction, operation, or financing of water supply pollution control, storm drainage, or refuse disposal projects.

Charles E. Schaefer
Dung Nguyen
Jennifer A. Field

Christopher P. Higgins
Emerson Christie
Stefanie Shea

"Desorption of Poly- and Perfluoroalkyl Substances from Soil Historically Impacted with Aqueous Film-Forming Foam," Journal of Environmental Engineering, Volume 147, Issue 2, February 2021

Journal of Hazardous, Toxic and Radioactive Waste***Best Theoretical Oriented Paper***

Eric Goforth
Wael El-Dakhkhni, F.ASCE
Moataz Mohamed

Mohamed Ezzeldin, A.M.ASCE
Lydell Wiebe, M.ASCE

"Network-of-Networks Framework for Multimodal Hazmat Transportation Risk Mitigation: Application to Used Nuclear Fuel in Canada," Journal of Hazardous, Toxic and Radioactive Waste, Volume 24, Issue 3, July 2020

Best Practice Oriented Paper

Shray Pathak, Ph.D.
C.S.P. Ojha, F.ASCE

Shefali Gupta

"Assessment of Groundwater Vulnerability to Contamination with ASSIGN Index: A Case Study in Haridwar, Uttarakhand, India," *Journal of Hazardous, Toxic and Radioactive Waste*, Volume 25, Issue 2, April 2021

Journal of Sustainable Water in the Built Environment

Best Case Study

Frieder Hamann
Richard M. Ashley, Ph.D.

Godecke-Tobias Blecken, Ph.D.
Maria Vikalander, Ph.D.

"Valuing the Multiple Benefits of Blue-Green Infrastructure for a Swedish Case Study: Contrasting the Economic Assessment Tools B&ST and TEEB," *Journal of Sustainable Water in the Built Environment*, Volume 6, Issue 4, November 2020

Best Paper

Laura M. Wehrmann, D.Sc
Roy E. Price, Ph.D.
Harold W. Walker, Ph.D., M.ASCE

Jeanette A. Lee
George Heufelder
Christopher J. Gobler, Ph.D.

"Biogeochemical Sequestration of Phosphorus in a Two-Layer Lignocellulose-Based Soil Treatment System," *Journal of Sustainable Water in the Built Environment*, Volume 6, Issue 2, May 2020

Urban Water Resources Research Council Outstanding Service Award

Scott Struck, Ph.D., ENV SP

Innovation in Sustainable Engineering Award

The Innovation in Sustainable Engineering Award may be made annually to a civil engineering project in recognition of creativity in the form of innovative sustainability.



Aaron Lee Wiener, PLA

Innovating new ways to provide equitable access to quality parks and green spaces in Atlanta is my true passion. Building life-changing parks in underserved communities is my calling and working with teams to do this work accomplishes my career. At the City of Atlanta's Department of Parks and Recreation, I have the unique privilege to do all the above. As a project manager, I oversee and manage capital improvements at a variety of scales throughout our park's system. Some of the highlights of my career are the development of Rodney Cook, Sr Park in Historical Vine City, Westside Park, Lake Charlotte Nature Preserve, and The Doctors Memorial Park.

Urban Water Resources Research Council Founders' Award

The UWRRC Founders' Award may be made annually to an individual for notable contributions that have served to advance engineering and science in the field of urban water resources research. This award was established to honor the Founders of EWRI's Urban Water Resources Research Council, pioneers in the fields of urban water management and stormwater research

The award may be made annually to an individual for notable contributions that have served to advance engineering and science in the field of urban water resources research.



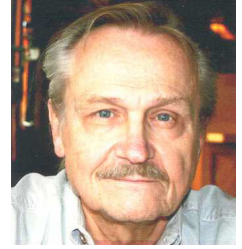
**Michael Blanchard
Cook**
(awarded
posthumously)



**Jonathan Jones,
P.E., P.H., D.WRE**



**Eric Strecker, P.E.,
BCEE**



**Ben Urbonas, P.E.,
D.WRE**

"For over 30 years for notable contributions that have served to advance engineering and science in the field of urban water resources research. An example of your collaborative contribution is the International BMP database, which is a foundational product. The members of the UWRRC express our gratitude for your example to the profession."

Ven Te Chow Award & Keynote Speaker

The Ven Te Chow Award recognizes lifetime achievement in the field of hydrologic engineering.



Gary Brunner, P.E., D.WRE, M.ASCE

ASCE has honored Gary W. Brunner, P.E., D.WRE, M.ASCE, with the 2022 Ven Te Chow Award for exemplary contributions to the field of hydraulics and hydrology and for leading the development of the most commonly used hydraulic modeling software, providing engineers around the globe with tools to address the challenges of flood risk, water supply, and changing environment.

Brunner is best known as the main developer of River Analyst System HEC-RAS, having had the leading role in its development. HEC-RAS is globally the most widely used model in this field; it is downloaded on average 100,000 times a year by practitioners and academicians. Brunner also wrote the user and technical manuals for HEC-RAS and worked on the development of two other well-known tools: HEC-1 Flood Hydrograph Package and HEC-2 River Hydraulics Package.

He was not only the lead developer of HEC-RAS but also provided support to thousands of practitioners, which was a weighty factor in his being named the recipient of the 2016 AAWRE Outstanding Practitioner in Water Resources Engineering Award.

Arid Lands Hydraulic Engineering Award

The Arid Lands Hydraulic Engineering Award recognizes original contributions in hydraulics, hydrology, planning, irrigation and drainage, hydroelectric power development, navigation applicable to arid or semi-arid climates, or contributions to the understanding and development of new technology in river basins.



Albert Clemmens, Ph.D., P.E., M.ASCE

ASCE has honored Albert Clemmens, Ph.D., P.E., D.WRE, M.ASCE, with the 2022 Arid Lands Hydraulic Engineering Award for the development of technology for improving irrigation water management that includes low-head flow measurements, canal operations and automation, irrigation project performance metrics, and hydrologic water balances.

Clemmens has had a career spanning more than 40 years that is marked by original contributions in irrigation and drainage that are recognized nationally and internationally. For most of his career, he worked at the Arid Land Agricultural Research Center, serving as director for many years. He developed technology for improving water management, including low-head flow measurement methods, canal operations, canal automation, hydrologic water balances, and irrigation project performance metrics. In his role as director, he oversaw research on irrigation management, remote sensing, wastewater reuse, crop response to global climate change, breeding of cotton and new industrial crops, plant physiology, and integrated pest management.

He has developed many software packages to help engineers measure flow rates and design surface irrigation systems. His open-channel flow measurement software, WinFlume, is used worldwide. He has written several books on flow measurement in open channels. He developed the Energy-Momentum Method for calibration of radial and sluice gates, as well as the corresponding software, WinGate. His WinSRFR software is used worldwide for improving surface irrigation systems. He also oversaw the development of the SacMan software, which is used to automatically control open-channel irrigation canals.

Clemmens is an internationally known expert in canal automation, which helps irrigation districts and farmers conserve water in arid environments. He wrote several chapters for the ASCE Manual of Practice: Canal Automation for Irrigation Systems. Clemmens is very worthy of the Arid Lands Award for his many career accomplishments and for advancing the science and engineering of irrigation.

Pioneers in Groundwater Award

The Pioneers in Groundwater Award recognizes and honors an individual with pioneering contributions in the teaching, research, and/or practice of groundwater science and engineering.



J. Jaime Gómez-Hernández, Ph.D.

J. Jaime Gómez-Hernández (Requena, Spain, 1960) graduated as Civil Engineer in 1983 from the Technical University of Valencia in Spain and continued his graduate studies at Stanford University, where he received an Ms.Sc. in Applied Hydrogeology (1987) and a Ph.D. in Geostatistics Applied to Natural Resources Characterization (1990). He is currently professor of Hydrogeology at the Technical University of Valencia, where he heads the Group of Hydrogeology of the Institute for Water and Environmental Engineering. His research has focused on the development of models that would allow a better understanding of how groundwater behaves; a subject on which he has published more than 100 papers. He has been distinguished as Centennial Teaching

Assistant by Stanford University in 1990; he has received the Prize for Research and Technology in Wastes by the Regional Government of Valencia in 1999, the 2020 Krumbein Medal by the International Association of Mathematical Geosciences (IAMG) —the highest distinction of the IAMG, given biennially—, he has been appointed the 2021 Distinguished Lecturer of the IAMG, he has received the UPV Social Council Prize for Knowledge Improvement in 2020, he has received the 2020 Prince Sultan bin Abdulaziz International Prize for Water in the Groundwater section —possibly the highest award for its prestige and financial endowment in water research, given biennially—, and he was included in the 2021 Forbes list of 50 most internationally awarded Spaniards. Currently, he is the President of geoENVia and Vice-President of the Spanish Chapter of the International Association of Hydrogeologists.

Journal of Hydrologic Engineering

Best Case Study

Ala Aldahan, Ph.D.
Peng Chen, Ph.D.
Chengwei Wan, Ph.D.
Xuegao Chen, Ph.D.
Zhongbo Yu, Ph.D.

Qinghan Huang
Xiaonan Shi
Ling Xiong, Ph.D.
Peng Yi, Ph.D.

“Evaluating the Water Level Variation of a High-Altitude Lake in Response to Environmental Changes on the Southern Tibetan Plateau,” *Journal of Hydrologic Engineering*, Volume 25, Issue 5, May, 2021

Best Discussion

Saran Aadhar, Ph.D., S.M.ASCE

Vimal Mishra, Ph.D.

Discussion of “Multivariate Modeling of Projected Drought Frequency and Hazard over India” by Vivek Gupta, Manoj Kumar Jain, and Vijay P. Singh, *Journal of Hydrologic Engineering*, Volume 26, Issue 2, February 2021

Best Technical Note

Wenhao Shi, Ph.D.
Shibo Yu, Ph.D.

Tianhong Yang, Ph.D.

“Experimental Investigation on Non-Darcy Flow Behavior of Granular Limestone with Different Porosity,” *Journal of Hydrologic Engineering*, Volume 25, Issue 8, August 2020.

Best Associate Editor

Christina W. Tsai, Ph.D.

Best Technical Paper

Subhasis Mitra, Ph.D.

Puneet Srivastava, Ph.D.

"Comprehensive Drought Assessment Tool for Coastal Areas, Bays, and Estuaries: Development of a Coastal Drought Index,"
Journal of Hydrologic Engineering, Volume 26, Issue 1, January 2021

Julian Hinds Award and Keynote Speaker

The Julian Hinds Award recognizes the author or authors of a paper that is judged to make the most meritorious contribution to the field of water resources development. The award may also be made to an individual for notable performance, long years of distinguished service, or specific actions that advanced engineering in the field of planning, development, and management of water resources.



Mohammad Karamouz, Ph.D., P.E., D.WRE, F.ASCE

Dr. Karamouz pursued steps that New York City should undertake in the face of hurricane Irene and infrastructure vulnerabilities that became apparent during the 2012 super-storm Sandy. He has two new text books: Groundwater Hydrology (2020), and Water Systems Analysis, Design, and Planning: Urban Infrastructure (2022) published by CRC Press. Dr. Karamouz is the recipient of the 2013 *ASCE Service to the Profession, 2018 *ASCE Arid Land Hydraulic Engineering, and 2020 *ASCE Journal of WRPM seminal paper awards. He has over 6,700 citations with remarkable H index of 45 according to Google Scholar.

Service to the Profession

This award recognizes and honors a person for outstanding leadership, activities, and achievement in service to the profession in the field of water resources planning through the institute, councils, local sections, or other organizational units of the society.



George McMahon, Ph.D., P.E., D.WRE, PH, ENV SP, F.ASCE

Dr. McMahon has accumulated more than 50 years of water resources planning, engineering, design, construction, operations, and management experience throughout the U.S. and worldwide. Areas of practice include hydrology and hydraulic analysis and design; hydropower engineering and design; comprehensive river basin planning; institutional capacity development for water management; reservoir and river systems analysis; modeling and model integration; statistical hydrology; planning and real-time water control decision support; dam safety and emergency actions planning; coastal and waterways engineering; peer review and expert testimony. He has authored one book and more than 60 peer-reviewed journal papers, conference proceedings papers, and technical reports on technical, economic and policy aspects of water resources planning and management.

He has been an active member of ASCE and has served on several standing and task committees since 1979. He is a founding member of the EWRI River Basin Planning, Policy, and Operations Committee, and since 2010 has served as an Associate Editor of the Journal of Water Resources Planning and Management.



Journal of Water Resources Planning and Management

Best Research Oriented Paper

Jessica Bohorquez
Martin F. Lambert, M.ASCE

Angus R. Simpson, M.ASCE
Bradley Alexander

"Merging Fluid Transient Waves and Artificial Neural Networks for Burst Detection and Identification in Pipelines," Journal of Water Resources Planning and Management, Volume 147, Issue 1, January 2021

Quentin Martin Best Practice Oriented Paper

Suzanne Dallman, Ph.D.
Misgana K. Muleta, Ph.D., P.E.

Anita M. Chaudhry, Ph.D.
Juneseok Lee, Ph.D., P.E.

"Is Rainwater Harvesting Worthwhile? A Benefit–Cost Analysis," Journal of Water Resources Planning and Management, Volume 147, Issue 4, April 2021

Best Policy Oriented Paper

Brendan Purcell
Joseph R. Kasprzyk, Ph.D., A.M.ASCE

Zachary A. Barkjohn, A.M.ASCE
Ashlynn S. Stillwell, Ph.D., A.M.ASCE

"Linking Reclaimed Water Consumption with Quantitative Downstream Flow Impacts," Journal of Water Resources Planning and Management, Volume 147, Issue 5, May 2021

Seminal Paper Award

Gerald Day, Ph.D.

"Extended Streamflow Forecasting Using NWSRFS," Journal of Water Resources Planning and Management, Volume 111, Issue 2, 1985

Best Associate Editor

Marco Franchini, Ph.D.

Best Reviewer

Steven Buchberger, Ph.D.

Andrew Hamilton

State-of-the-Art in Civil Engineering Award

Jose D. Salas, Dist.M.ASCE
Simon M. Papalexiou

Michael L. Anderson, M.ASCE
Felix Frances

Walter L. Huber Civil Engineering Research Prize

Megan Konar, Ph.D.

Outstanding Institute Chapter

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Contact
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