



2025 Mississippi Water & Energy Conference

Concurrent Session Schedule: October 30, 2025

Concurrent Session 1

Student Session A: Agriculture and Irrigation

Dunn Conference Room

9:00-9:25 AM – Multi-Year Evaluation of Irrigation Scheduling Methods and Telemetry Services on Soybean Production in the Mid-Southern USA

Dillon Russell, Drew Gholson

9:25-9:50 AM – Advances in Irrigation in Northeast Mississippi

Sam Theobald, Mary Love Tagert, Himmy Lo, Vitor Souza Martins

9:50-10:15 AM – Genotypic Variation in Transpiration Efficiency and Drought Response in *Populus deltoides*

Muhammad Usama, Heidi Renninger, Esteban Galeano, Zenaida Magbanua, Courtney Seigert

Student Session B: Agriculture and Irrigation

Room 1302

9:00-9:25 AM – Protected Fertility Management Mitigates Greenhouse Gas Emissions with Sustainable Corn Production

Pankaj Prashad Joshi, Oluwadamilare Oloyede, Dave Spencer, Madhav Dhakal

9:25-9:50 AM – Evaluation of the Relationship of Soil Moisture to Iron Deficiency Chlorosis in Soybean

Cooper Little, Mary Love Tagert, Ameer Bumguardner, Nuwan Wijewardane

9:50-10:15 AM – Effect of Tailwater Recirculation on Water and Methane Fluxes in Irrigated Rice Production Systems

Oluwadamilare Oloyede, Dave Spencer, Pankaj Prashad Joshi, L. Jason Krutz, Madhav Dhakal

Student Session C: Emerging Technologies

Room 1303

9:00-9:25 AM – Sustainable QA-CNF/DAC Composite Aerogel for Rapid Adsorption of PFAS from Water

Muhammad Hamza, Islam Elsayed, El Barbary Hassan

9:25-9:50 AM – Affordable Membrane-based Microbial Fuel Cell for Power Generation from Wastewater

Kashif Mushtaq, Hao Wei Huang, Jian Zhao

9:50-10:15 AM – Estimating Water Use Efficiency Traits in Populus Deltoides and its Hybrids Using UAV-Based Hyperspectral Imaging

Bipin Paudel, Heidi Renninger, Krishna Poudel, Jenny Du, Rajeev Bhattarai

General Session A: Water Quality

McDaniel Conference Room

9:00-9:25 AM – A Review of the Laws & Regulations in Safeguarding Operative Water Conservation in Mississippi – Focusing ‘Green Infrastructure & Education’ Projects

Yasmeen Ahmed, Syed Ahmed, G Momin Maan

9:25-9:50 AM – Will Gypsum Addition Aid in Phytoremediation of Pesticides and Nutrients: A Mesocosm Experiment

Matthew Moore, Martin A Locke

9:50-10:15 AM – MSU Extension Service's SipSafe Program

Justin Palmer

Concurrent Session 2

Dunn Conference Room

Student Session D: Agriculture and Irrigation

10:30-10:55 AM – Evaluation of Nitrogen Fertilizer on Nutrient Load Concentrations in Surface Runoff

Lane Galloway, Dave Spencer, Zach Reynolds

10:55-11:20 AM – Determining the Optimal Growth Stage of Irrigation Termination of Soybeans in Mississippi

Jason Arena, Dave Spencer

11:20-11:45 AM – Furrow-Irrigated Rice Productivity, Profitability, and Water Use Responses to Reusing Tailwater

Morgan Hutton, Dave Spencer, Jason Krutz, Zach Reynolds, Drew Gholson

Student Session E: Water Quality

Room 1302

10:30-10:55 AM – Integrating Medium-Resolution Harmonized Satellite Observations and Vision Transformers for Algal Bloom Monitoring in the Gulf of America

Thainara Lima, Vitor Martins

10:55-11:20 AM – SatBuoy: A Satellite-Based Virtual Buoy Network for Real-Time Coastal Water Quality Monitoring in Mississippi Sound

Cassia Caballero, Vitor Martins, Rejane Paulino, Elliott Butler, Eric Sparks

11:20-11:45 AM – Integrating SWAT+ and Drought Index to Assess the Harmful Algal Bloom in the Ohio River Watershed

Marionei Fomaca de Sousa Junior, Prem Parajuli

Student Session F: Miscellaneous

Room 1303

10:30-10:55 AM – Bark Water Properties as a Function of Morphology and Subsequent Impacts on Stemflow Volume in a Mixed Hardwood Stand: An Analysis of 6 Different Southeastern Tree Species

Max Arnold, Courtney Siegert, Adam Polinko, Asia Downtin, Heather Blakely

10:55-11:20 AM – On-farm Efficacy of Cover Crop Treatments on Sediment/ Nutrient Load Transport Abatement and Crop Yields

Jason Hampshire, Dave Spencer, Jason Krutz, Graham Oakley

11:20-11:45 AM – Regional Variability of Curve Number Calibration

Jesus Ortiz Garcia, John Ramirez Avila, Paulo Sanches de Oliveira, Sandra Ortega Achury

General Session B: Environmental Topics

[McDaniel Conference Room](#)

10:30-10:55 AM – Ionic Liquids: From "Green" Everything to Potential Horizon Environmental Contaminants

Amanda Patrick

10:55-11:20 AM – Fractal and Chaos Analysis of US Low-Flow Regimes

Krzysztof Raczyński, Katarzyna Grala, John Cartwright

11:20-11:45 AM – Conservation Management Effects on Nutrient Loads and Environmental Damage Costs

Frank Johnson, Richard Lizotte, Lindsey Witthaus, Benjamin Webster, Jason Taylor

Concurrent Session 3

General Session C: Environmental Topics

[Dunn Conference Room](#)

1:00-1:25 PM – Wetland Trees in Standing Water Grow Faster When It Rains: Response of Bald Cypress (*Taxodium distichum*) to Precipitation and Other Hydrologic/ Environmental Variables

Gregg Davidson, Joshua Granger, Lance Yarbrough, Ronald Counts (Dunn)

1:25-1:50 PM – Online Geophysical Information for Water and Energy

Andrew Newcomb, Paul Parrish

1:50-2:15 PM – Assessing Impacts of Afforestation on Sediment Load into the Northern Gulf of America

Ying Ouyang

General Session D: Environmental Topics

Room 1302

1:00-1:25 PM – Mississippi Water Stewards: Community science contributions to monitoring and protecting Mississippi's waterways

Mark Hill, Beth Baker

1:25-1:50 PM – Geomorphic Assessment of Streams within the Catalpa Creek Watershed

John Ramirez Avila, Moises Roldan, Sandra Ortega Achury, Joby Czarnecki, Timothy Schauwecker

1:50-2:15 PM – Control of Aquatic Plants to Conserve Aquatic and Wetland Habitats

Gray Turnage

General Session E: Agriculture and Irrigation

Room 1303

1:00-1:25 PM – Cover Cropping Effects on Runoff from a Silty Clay Soil in Mississippi

Daniel Fleming, Dave Spencer

1:25-1:50 PM – Discovering Challenges in Modeling Irrigation Water Use with Agro-hydrologic Models

Amanda Nelson, Drew Gholson, Chris Delhom

1:50-2:15 PM – Impact of Evapotranspiration Data Sources on Watershed Modeling for Improved Runoff Predictions

Ishret Shuchana, Luc Rébillout, Nuttita Pophet, Mohammad Al-Hamdan, Ronald Bingner

General Session F: Water Quality

McDaniel Conference Room

1:00-1:25 PM – Stormwater and Pond Resilience under Future Rainfall Scenarios: A Montana Case Study

Javier F. Mendez-Monroy, Jonathan Tilenis, Howard Ray, Darryl Ray, Aaron McCullough

1:25-1:50 PM – Exploring Relationships among Water Quality Parameters in the Western Mississippi Sound

Varun Paul, Christiana Eziashi, Padmanava Dash, Ankita Katkar, Gray Turnage

1:50-2:15 PM – Nitrogen Removal Rapidly Reverses Eutrophication in Shallow Phosphorus-rich Lakes

Jason Taylor, Isabelle Andersen, Patrick Kelly, Thad Scott

Concurrent Session 4

General Session G: Environmental Topics

Dunn Conference Room

2:30-2:55 PM – Discrepancies in Curve Number Calibration Using Runoff and Flow Discharge Datasets

Diego Galindo Cruz, John Ramirez Avila, Sandra Ortega Achry

2:55-3:20 PM – Poultry Litter Enhances Soybean Yield by Improving Leaf Phosphorus and Potassium Nutrition and Plant Physiological Traits

Sainfort Vital, Gary Feng, Haile Tewolde, Mark Shankle, John Brooks

3:20-3:45 PM – Numerical Study of Sediment Transport with Flow Hydrographs of Varying Length in a Laboratory Flume

Yaixin Zhang, Daniel Wren, Mohammad Al-Hamdan, Xiaobo Chao

General Session H: Emerging Technologies

Room 1302

2:30-2:55 PM – Data Analysis for Agronomy Using Python

Jadwin Manuel

2:55-3:20 PM – Microplastics Research at the University of Mississippi: Chemical Imaging Studies and Field Testing of Biochar and Woodchips for Tire Wear Particle Removal from Urban Stormwater

Bolowatife Olubusoye, James Cizdziel, Kendall Wontor, Ruojia Li, Rachel Hambuchen

3:20-3:45 PM – Estimating Hydraulic Geometry Using Artificial Neural Networks Integrated with HYDROSWOT and NHDPlus Data

Ahmet Sahin, Hakan Yasarer, Yavuz Ozeren, Eddy Langendoen, Mohammad Al-Hamdan

General Session I: Water Quality

Room 1303

2:30-2:55 PM – 3D Numerical Modeling of Flow Hydrodynamics and Cohesive Sediment Transport in Ross Barnett Reservoir

Xiaobo Chao, Yaoxin Zhang, Ishret Shuchana, Nuttita Pophet, Mohammad Al-Hamdan

2:55-3:20 PM – Mississippi Sound Estuary Program's Water Quality Needs and Action Plan

Kim Cressman, Sara Martin, Carley Zapfe, Evelyn McQueen, Eric Sparks

3:20-3:45 PM – Integration of Regenerative Management Practices for Improved Soil Health, Water Quality, and Water Use Efficiency in Cotton and Sorghum Cropping Systems

Madhav Dhakal, Martin Locke, Krishna Reddy, Matthew Moore, Wade Steinriede

General Session J: Miscellaneous

McDaniel Conference Room

2:30-2:55 PM – Precipitation Levels in Jackson, Mississippi since 2000

George Ford, Saeed Rokooei

2:55-3:20 PM – Surface Runoff Responses on Quantity and Quality to Cover Crops and Conservation Tillage in Cotton Production Systems

William Pilgram, Drew Gholson, Amanda Nelson

3:20-3:45 PM – Pipes, Pressure, and a Precious Resource: The Engineering Challenge of Aging Water Infrastructure

Eric Williams