Rice University
Department of Civil and Environmental Engineering
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jdossgollin
James Doss-Gollin

James Doss-Gollin

research interests

Climate risk management and adaptation
Decision-making under uncertainty
Dynamics and spatiotemporal clustering of hydroclimate extremes
Probabilistic modeling and uncertainty quantification

appointments

Rice University
Assistant Professor, Department of Civil & Environmental Engineering, 2021–present.
Adjunct Professor, Department of Civil & Environmental Engineering, 2020.
The Pennsylvania State University
Postdoctoral Scholar, Earth & Environmental Systems Institute, 2020.
adviser: Klaus Keller

education

Columbia University
Ph.D, Earth & Environmental Engineering, 2020.
dissertation: Sequential Adaptation through Prediction of Structured Climate Risk
adviser: Upmanu Lall
M.S., Earth & Environmental Engineering, 2016.
Yale University
B.S., Mechanical Engineering, 2015.

awards

Outstanding Reviewer Award, Earth's Future, 2023.
Nickolas and Liliana Themelis Fellowship, Fu Foundation School of Engineering and Applied Science, Columbia University, 2018.
Graduate Research Fellowship, Climate and Large-Scale Atmospheric Dynamics, National Science Foundation, 2017.
Presidential Distinguished Fellowship, Fu Foundation School of Engineering and Applied Science, Columbia University, 2015.
Distinction in Major, Department of Mechanical Engineering and Materials Science, Yale University, 2015.
Legacy Award, New Haven Promise, 2015.
Larry Coben '79 Fellowship, Yale University, 2014.
Vance-Carter Travel Award, Yale University, 2013.
Thomas C. Barry Travel Award, Yale University, 2012.

grants and contracts

co-PI, "RAISE: Flood resilience in rural Texas communities". National Science Foundation: *Confronting Hazards, Impacts and Risks for a Resilient Planet (CHIRRP)*, $999,986. 2025–2028.
co-PI, "Computing Infrastructure for AI-enhanced Climate Risk and Resilience at Rice". NVIDIA. 2025–2026.
co-PI, "IUCRC Planning Grant Rice University: Center for Climate, Equity and Resilience in Catmodeling (CERCat)". National Science Foundation, $20,000. 2024–2025.
Lead PI, "Cluster: AI for Climate Risk and Resilience". Rice Ken Kennedy Institute, $80,000. 2024–2025.
co-PI, "Evaluating the Past and Future of Mississippi River Hydroclimatology to Constrain Risk via Integrated Climate Modeling, Observations, and Reconstructions". National Science Foundation: *Climate and Large-Scale Dynamics*, $441,342. 2022–2025.

PI, "Developing Future Rainfall Frequency Grids for the State of Texas". Texas Water Development Board. 2022–2024.

PI, "EAGER: Participatory Design for Water Quality Monitoring of Highly Decentralized Water Infrastructure Systems". PI: Alicia Cooperman. National Science Foundation: *Strengthening America's Infrastructure*, $85,046 (total: $300,000). 2022–2023.

Lead PI, "Blending Observations of Extreme Precipitation across Space and Time to Improve Stormwater Management in Houston". Rice University: *Sustainable Futures Fund*, $50,000. 2022–2023.

co-PI, "IFCE-Rice-SENAI Program on Artificial Intelligence for Urban Sustainability and Resilience to Natural Disasters in the Americas". 100,000 Strong in the Americas Innovation Fund, $50,000. 2022–2023.

co-PI, "Synthesis of Texas Electricity Research from Rice University". Energy Foundation, $24,928. 2022–2023.

journal articles

Haider, M. R., Dee, S. G., **Doss-Gollin, J.**, Dunne, K. B. J., and Muñoz, S. E. 2025. "Impact of 21st Century Climate Change on Mississippi River Basin Discharge in CESM2 Large Ensemble Projections". In: *Global and Planetary Change* 249, p. 104742. DOI: 10.1016/j.gloplacha.2025.104742.

Liu, Chunshan, Kowal, Daniel R., **Doss-Gollin, James**, and Vannucci, Marina. 2025. "Bayesian Functional Graphical Models with Change-Point Detection". In: *Computational Statistics & Data Analysis* 206, p. 108122. DOI: 10.1016/j.csda.2024.108122.

Lu, Yuchen, Seiyon Lee, Benjamin, and **Doss-Gollin, James**. 2025. "Bayesian Spatiotemporal Nonstationary Model Quantifies Robust Increases in Daily Extreme Rainfall across the Western Gulf Coast". In: *Environmental Research: Climate* 4.3, p. 035016. DOI: 10.1088/2752-5295/adf56e.

Kazadi, Arnold, **Doss-Gollin, James**, Sebastian, Antonia, and Silva, Arlei. 2024. "FloodGNN-GRU: A Spatio-Temporal Graph Neural Network for Flood Prediction". In: *Environmental Data Science* 3, e21. DOI: 10.1017/eds.2024.19.

Murphy, Kelsey, Dee, Sylvia, **Doss-Gollin, James**, Dunne, Kieran B. J., O'Donnell, Michelle, and Muñoz, Samuel. 2024. "Competing Influences of Land Use and Greenhouse Gas Emissions on Mississippi River Basin Hydroclimate Simulated Over the Last Millennium". In: *Paleoceanography and Paleoclimatology* 39.7, e2024PA004902. DOI: 10.1029/2024PA004902.

Singh, Deepti, Bekris, Yianna S., Rogers, Cassandra D. W., **Doss-Gollin, James**, Coffel, Ethan D., and Kalashnikov, Dmitri A. 2024. "Enhanced Solar and Wind Potential during Widespread Temperature Extremes across the U.S. Interconnected Energy Grids". In: *Environmental Research Letters* 19.4, p. 044018. DOI: 10.1088/1748-9326/ad2e72.

Amonkar, Yash, **Doss-Gollin, James**, Farnham, David J., Modi, Vijay, and Lall, Upmanu. 2023. "Differential Effects of Climate Change on Average and Peak Demand for Heating and Cooling across the Contiguous USA". In: *Communications Earth & Environment* 4.1 (1), pp. 1–9. DOI: 10.1038/s43247-023-01048-1.

Amonkar, Yash, **Doss-Gollin, James**, and Lall, Upmanu. 2023. "Compound Climate Risk: Diagnosing Clustered Regional Flooding at Inter-Annual and Longer Time Scales". In: *Hydrology* 10.3 (3), p. 67. DOI: 10.3390/hydrology10030067.

Doss-Gollin, James, Amonkar, Yash, Schmeltzer, Katlyn, and Cohan, Daniel. 2023. "Improving the Representation of Climate Risks in Long-Term Electricity Systems Planning: A Critical Review". In: *Current Sustainable/Renewable Energy Reports*. DOI: 10.1007/s40518-023-00224-3.

Doss-Gollin, James and Keller, Klaus. 2023. "A Subjective Bayesian Framework for Synthesizing Deep Uncertainties in Climate Risk Management". In: *Earth's Future* 11.1. DOI: 10.1029/2022EF003044.

Garcia, M., Juan, A., **Doss-Gollin, J.**, and Bedient, P. 2023. "Leveraging Mesh Modularization to Lower the Computational Cost of Localized Updates to Regional 2D Hydrodynamic Model Outputs". In: *Engineering Applications of Computational Fluid Mechanics* 17.1, p. 2225584. DOI: 10.1080/19942060.2023.2225584.

Wutich, Amber, Thomson, Patrick, Jepson, Wendy, Stoler, Justin, Cooperman, Alicia D., **Doss-Gollin, James**, Jantrania, Anish, Mayer, Alex, Nelson-Nuñez, Jami, Walker, W. Shane, and Westerhoff, Paul. 2023. "MAD Water: Integrating Modular, Adaptive, and Decentralized Approaches for Water Security in the Climate Change Era". In: *WIREs Water* n/a.n/a, e1680. DOI: 10.1002/wat2.1680.

Zhou, Xiangnan, Duenas-Osorio, Leonardo, **Doss-Gollin, James**, Liu, Lu, Stadler, Lauren, and Li, Qilin. 2023. "Mesoscale Modeling of Distributed Water Systems Enables Policy Search". In: *Water Resources Research* 59.5. DOI: 10.1029/2022WR033758.

Doss-Gollin, James, Farnham, David J., Lall, Upmanu, and Modi, Vijay. 2021. "How Unprecedented Was the February 2021 Texas Cold Snap?" In: *Environmental Research Letters*. DOI: 10.1088/1748-9326/ac0278.

Doss-Gollin, James, Farnham, David J., Ho, Michelle, and Lall, Upmanu. 2020. "Adaptation over Fatalism: Leveraging High-Impact Climate Disasters to Boost Societal Resilience". In: *Journal of Water Resources Planning and Management* 146.4. DOI: 10.1061/(asce)wr.1943-5452.0001190.

Doss-Gollin, James, Farnham, David J., Steinschneider, Scott, and Lall, Upmanu. 2019. "Robust Adaptation to Multiscale Climate Variability". In: *Earth's Future* 7.7, pp. 734–747. DOI: 10.1029/2019ef001154.

Rözer, Viktor, Kreibich, Heidi, Schröter, Kai, Müller, Meike, Sairam, Nivedita, **Doss-Gollin, James**, Lall, Upmanu, and Merz, Bruno. 2019. "Probabilistic Models Significantly Reduce Uncertainty in Hurricane Harvey Pluvial Flood Loss Estimates". In: *Earth's Future* 7.4. DOI: 10.1029/2018ef001074.

Doss-Gollin, James, Muñoz, Ángel G, Mason, Simon J, and Pastén, Max. 2018. "Heavy Rainfall in Paraguay during the 2015-2016 Austral Summer: Causes and Sub-Seasonal-to-Seasonal Predictive Skill". In: *Journal of Climate* 31.17, pp. 6669–6685. DOI: 10.1175/jcli-d-17-0805.1.

Farnham, David J, **Doss-Gollin, James**, and Lall, Upmanu. 2018. "Regional Extreme Precipitation Events: Robust Inference from Credibly Simulated GCM Variables". In: *Water Resources Research* 54.6. DOI: 10.1002/2017wr021318.

Doss-Gollin, James, de Souza Filho, Francisco de Assis, and da Silva, Francisco Osny Enéas. 2015. "Analytic Modeling of Rainwater Harvesting in the Brazilian Semiarid Northeast". In: *Journal of the American Water Resources Association* 52.1, pp. 129–137. DOI: 10.1111/1752-1688.12376.

preprints

Baer, Jack, Sebastian, Antonia, Grimley, Lauren Elise, **Doss-Gollin, James**, Wright, Daniel B., and Hussain, Mohammad Ashar. 2024. *Neglecting Spatiotemporal Rainfall Variability Underestimates Flood Hazard and Risk*. Pre-published.

Geldner, Nathan, Johnson, David R., **Doss-Gollin, James**, and Keller, Klaus. 2023. *Efficient Flood Risk Mitigation and Intersectional Equity Implications: A Case Study in New Orleans*. DOI: 10.21203/rs.3.rs-3098000/v1. Pre-published.

Hancock, Christopher L, Dee, Sylvia G., Haider, Muhammad Rezaul, **Doss-Gollin, James**, Lehner, Flavio, Murphy, Kelsey, and Munoz, Samuel E. 2025. *Robust 21st Century Hydrological Trends in the Mississippi River Basin from CMIP6: West-Gets-Drier, East-Gets-Wetter*. Pre-published.

Liu, Yuhao, **Doss-Gollin, James**, Dai, Qiushi, Balakrishnan, Guha, and Veeraraghavan, Ashok. 2025. *Downscaling Extreme Precipitation with Wasserstein Regularized Diffusion*. Version 1. DOI: 10.48550/ARXIV.2410.00381. URL: https://arxiv.org/abs/2410.00381 (visited on 10/04/2024). Pre-published.

O'Donnell, Michelle, Murphy, Kelsey, **Doss-Gollin, James**, Dee, Sylvia, and Munoz, Samuel. 2024. *Evaluation of Hydroclimatic Biases in the Community Earth System Model (CESM1) within the Mississippi River Basin*. DOI: 10.5194/hess-2024-153. URL: https://hess.copernicus.org/preprints/hess-2024-153/ (visited on 06/10/2024). Pre-published.

Pollack, Adam, Auermuller, Lisa, Burleyson, Casey, Campbell, Jentry E., Condon, Madison, Cooper, Courtney, Coronese, Matteo, Dangendorf, Sonke, **Doss-Gollin, James**, Hegde, Prabhat, Helgeson, Casey, Kopp, Robert, Kwakkel, Jan, Leaf, Andrew, Lesk,

Corey, Mankin, Justin, Nicholas, Robert E., Rice, Jennie S., Roth, Samantha, Scheeler, Moira, Srikrishnan, Vivek, Tuana, Nancy, Vernon, Chris, Zhao, Mengqi, and Keller, Klaus. 2024. *Unlocking the Benefits of Transparent and Reusable Science for Climate-Risk Management*. DOI: 10.31219/osf.io/29nhv. URL: https://osf.io/29nhv (visited on 10/31/2024). Pre-published.

Pollack, Adam, **Doss-Gollin, James**, Srikrishnan, Vivek, and Keller, Klaus. 2024. *UNSAFE: An UNcertain Structure And Fragility Ensemble Framework for Property-Level Flood Risk Estimation*. DOI: 10.31219/osf.io/jb9ta. URL: https://osf.io/jb9ta (visited on 05/20/2024). Pre-published.

invited talks

"**Advancing Urban Flood Risk Management through Physics-informed, Data-Driven Hazard Assessment**", Earth, Marine, and Environmental Science Seminar, *University of North Carolina*. Chapel Hill, NC, 2024-03-27.

"**Quantifying and characterizing uncertain climate hazards to enable adaptive resilience**", Atmospheric Sciences Seminar, *Texas A&M University*. College Station, TX, 2022-11-16.

"**Unprecedented impacts don't require unprecedented weather**", Post-Harvey Climate & Flood Impacts on the Built Environment, *Severe Storm Prediction, Education, & Evacuation from Disasters Center*. Houston, TX, 2022-04-29.

"**Revisiting our design criteria: What hazards should we design for in a changing climate?**", Hydrologic Sciences and Water Resources Engineering Seminar, *University of Colorado Boulder*. Remote Presentation, 2022-04-13.

"**Adapting Engineering Design Criteria to a Changing Climate: Insights from House Elevation** ", Technical Webinar, *ASCE Central New Jersey Branch*. Remote Presentation, 2022-04-12.

"**Panelist**", Extreme Weather: How To Report on a World That's Warmer, Colder, Wetter, Drier and Weirder, *31st Annual Conference of the Society of Environmental Journalists*. Houston, TX, 2022-04-02.

"**Extreme Impacts Don't Require Extreme Weather: Lessons from the February 2021 Texas Blackouts**", Outreach Event: Science is for Everyone, *American Meteorlogical Society*. Remote Presentation, 2022-01-25.

"**Extreme Impacts Don't Require Extreme Weather: Lessons from the February 2021 Texas Blackouts**", Compound Events Working Group, *Risk KAN (Knowledge Action Networks)*. Remote Presentation, 2021-12-09.

"**Panelist**", Tail events: Prediction, Planning, and Performance, *Harvard Electricity Policy Group*. Remote Presentation, 2021-09-28.

"**Towards Adaptive Resilience: Managing Flood Risks in a Changing World**", Technical Webinar, *ASCE Central New Jersey Branch*. Remote Presentation, 2021-04-28.

"**Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**", Center for Climate Risk Management CLIMA Seminar, *the Pennsylvania State University*. State College, PA, 2020-01-29.

"**Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**", Department of Civil and Environmental Engineering Seminar, *Rice University*. Houston, TX, 2020-01-27.

"**Prediction and Implications of Structured Climate Risk for Sequential Adaptation under Deep Uncertainty**", Complex Systems Simulation and Optimization Group, *National Renewable Energy Laboratory*. Golden, CO, 2020-01-07.

"**Drivers of Extreme Rainfall: Atmospheric Circulation Patterns and Regional Intense Rainfall in the Ohio River**", European Flood Awareness System Group, *European Centre for Medium Range Weather Forecasting*. Reading, England, 2016-09-02.

"**Understanding the Physical Drivers of Extreme Rainfall for Flood Prediction**", Oxford Water Network, *Oxford University*. Oxford, England, 2016-08-26.

teaching

Columbia University

Environmental Data Analysis and Modeling. Teaching Assistant. Spring 2018.

Rice University

Climate Risk Management. Instructor. Spring 2024.
Fundamentals of Civil and Environmental Engineering. Instructor. Fall 2024.
Climate Risk Management. Instructor. Spring 2023.
Data Science Methods for Climate Hazard Assessment. Instructor. Fall 2023.
Environmental Data Science. Instructor. Spring 2022.
Fundamentals of Civil and Environmental Engineering. Instructor. Fall 2021.

primary advisor

Current Dongwook Kim, *Ph.D. in Civil and Environmental Engineering*, Rice University.
Current Yuchen Lu, *Ph.D. in Civil and Environmental Engineering*, Rice University.
Current Jonah Schaechter, *Ph.D. in Civil and Environmental Engineering*, Rice University.

committee member

Current True Furrh, *Ph.D. in Civil and Environmental Engineering*, Rice University.
Current Madison Guerinot, *Ph.D. in Civil and Environmental Engineering*, Rice University.
Current Catherine Jackson, *Ph.D. in Civil and Environmental Engineering*, Rice University.
Current Kelsey Murphy, *Ph.D. in Earth, Environmental, and Planetary Sciences*, Rice University.
Current Kyle Ostlind, *M.S. in Civil and Environmental Engineering*, Rice University.
Current Valeriia Sobolevskaia, *Ph.D. in Earth, Environmental, and Planetary Sciences*, Rice University.
2024 Kendall Capshaw, *Ph.D. in Civil and Environmental Engineering*, Rice University. Thesis: "Modeling Coastal Petrochemical Infrastructure Risk, Resilience, and Cascading Community Consequences."
2024 Anibal Tafur Gutierrez, *Ph.D. in Civil and Environmental Engineering*, Rice University. Thesis: "Methods and Tools for Risk-informed Resilience Enhancement of Coastal Intermodal Freight Networks."
2023 Matthew Garcia, *Ph.D. in Civil and Environmental Engineering*, Rice University. Thesis: "Novel Urban Floodplain Modeling Methods for Applications in Coupling Surrogate Machine Learning Methods."
2023 Xiangnan Zhou, *Ph.D. in Civil and Environmental Engineering*, Rice University. Thesis: "Resilience Planning for Water Distribution Systems."
2023 Mia Peeples, *M.S. in Civil and Environmental Engineering*, Rice University. Thesis: "Modeling Flood Reduction of Nature-Based Channel Modifications in Houston, TX."
2022 Chunshan Liu, *Ph.D. in Statistics*, Rice University. Thesis: "Bayesian Graphical Models for Multivariate Time Series."
2022 Raychel Bahnick, *M.S. in Civil and Environmental Engineering*, Rice University. Thesis: "Assessing Land Use Change and Subsidence Impact on Inland Flooding."
2022 Alyssa Graham, *M.S. in Civil and Environmental Engineering*, Rice University. Thesis: "Water Supply Vulnerability Testing and Robust Planning Analysis with Exploratory Modeling under Deep Uncertainty."
2022 Elizabeth Hoffmann, *M.S. in Civil and Environmental Engineering*, Rice University. Thesis: "Mapping Dynamic Watershed Response Under Increasing Development Using HEC-RAS 2D: A Case Study of the Big Creek Watershed in Fort Bend County."
2021 Toby Li, *M.S. in Civil and Environmental Engineering*, Rice University. Thesis: "Evaluating the Effects of Project Brays Mitigation Using Unsteady HEC-RAS Hydraulic Modeling: Application to Meyerland in Houston, TX."

media coverage

Historic Texas Flooding, **KEYE-AUS (CBS)**, 2025-07-25.
Houston's Morning Show, **Fox26 Houston**, 2025-07-10. *live video interview*.
Breaking down the force of water in the Texas floods, *Michael Phillis*, **AP News**, 2025-07-10. *print*.
Here are some things you can do to be better prepared for major flooding, *Caleigh Wells*, **Associated Press**, 2025-07-10. *print*.
ABC13-Luke Jones speaks with James Doss-Gollin, an assistant professor of Civil and Environmental Engineering at Rice University, about the key differences between flood-

ing in Houston and central Texas., *Luke Jones*, **ABC13**, 2025-07-09. *recorded video interview*.

After deadly flooding in Central Texas, state lawmakers look to prevent similar tragedies, *Daniel Perreault*, **KVUE**, 2025-07-09. *recorded video interview*.

New Flood Warning System Greenlit Shortly Before Deadly Texas Disaster, *Joseph De Avila*, **The Wall Street Journal**, 2025-07-09. *print*.

Questions arise on how emergency warning systems work after Central Texas flood, *Tom Abrahams*, **ABC13**, 2025-07-08. *print*.

Bajo la Amenaza del Golfo (Under the Threat of the Gulf), **Telemundo Houston**, 2025-05-30. *recorded video interview*.

Will Texas become too hot for humans?, *Sarah Griffiths*, **BBC Future**, 2023-06-30. *print*.

Climate change has sent temperatures soaring in Texas, *Erin Douglas, Yuriko Schumacher and Alex Ford*, **The Texas Tribune**, 2023-06-27. *print*.

Texas could have foreseen 2021 cold-wave disaster, new study concludes, *Bob Henson*, **Texas Climate News**, 2022-05-21. *print*.

The False Comfort of Higher Seawalls, *Paola Rosa-Aquino*, **The New Republic**, 2019-10-29. *print*.

New Study Shows Promise for Long-Term Weather Forecasts in South America, *Elisabeth Gawthrop*, **State of the Planet**, 2018-08-06. *print*.

opinion

Opinion: The risks of climate change are great - so are the rewards of solving it, *Andrew Dessler, James Doss-Gollin, and Katherine Hayhoe*, **Houston Chronicle**, 2021-09-01.

sessions organized

Primary Convener, *H31G - Integrating Social, Scientific, and Engineering Approaches to Identify and Address Gaps in Water Infrastructure and Household Water Security*, American Geophysical Union Fall Meeting, San Francisco, CA. 2023-12-13.

Convener, *NH41C - Hybrid Modeling and Digital Twin Systems for Flood Hazard Prediction and Risk Assessment at Different Spatial Scales*, American Geophysical Union Fall Meeting, Washington, DC. 2023-12-11.

Chair, *H44G – Water and Society: Interdisciplinary Perspectives on Hydroclimatic Forecasting for Water Resources Decision Making*, American Geophysical Union Fall Meeting, New Orleans, LA. 2021-12-16.

Primary Convenor, *NH53 – Emerging Needs and Approaches for Climate Services: Understanding and Developing Innovative Approaches to User-Oriented Climate Services*, American Geophysical Union Fall Meeting, San Francisco, CA. 2019-12-23.

Student Organizer, *Earth and Environmental Engineering Student Research Symposium*, Columbia University, New York, NY. 2018-10-12.

Student Organizer, *Earth and Environmental Engineering Student Research Symposium*, Columbia University, New York, NY. 2017-10-27.

conference papers

Baule, William J., Nielsen-Gammon, John W., **Doss-Gollin, James**, and Niraula, Rewati. 2024. "TxRAIN-Future Projections: Non-stationary Projections of Extreme Precipitation for Texas". In: AGU24. AGU.

Cooperman, Alicia, Fuerte, Manuela Muñoz, **Doss-Gollin, James**, and Mayer, Alex S. 2024. "Before and After Piped Water Expansion: Water Use Patterns and Trust in Water and Political Institutions". In: AGU24. AGU.

Doss-Gollin, James, Amonkar, Yash Vijay, and Duenas-Osorio, Leonardo. 2024. "Assessing and Managing Climate Risks to Electricity Systems in an Era of Climate Change and Energy Transition". In: AGU24. AGU.

Doss-Gollin, James, Silva, Arlei, Sebastian, Antonia, Vergopolan, Noemi, and Nayak, Adam. 2024. "Advancing Urban Flood Hazard Characterization through Machine Learning: Challenges and Opportunities". In: AGU.

Kazadi, Arnold, **Doss-Gollin, James**, and Silva, Arlei. 2024. "Pluvial Flood Emulation with Hydraulics-Informed Message Passing". In: *Forty-First International Conference on Machine Learning*.

Lu, Yuchen, Lee, Benjamin Seiyon, **Doss-Gollin, James**, Nielsen-Gammon, John W., and Niraula, Rewati. 2024. "TxRAIN-Observational: A Hierarchical Bayesian Spatial Framework to Assess Nonstationary Rainfall Intensity, Frequency, and Duration in Texas". In: AGU24. AGU.

Murphy, Kelsey, Dee, Sylvia, Wallace, Elizabeth Jane, Pitchon, Emilia, **Doss-Gollin, James**, and Munoz, Samuel E. 2024. "Last Millennium Changes in Mississippi River Basin Hydroclimate Driven by Anthropogenic Forcing and Atmospheric Dynamics". In: AGU24. AGU.

Nielsen-Gammon, John W., Lu, Yuchen, and **Doss-Gollin, James**. 2024. "Cross-Network Intercomparison of 5-Minute and 15-Minute Gauge-Measured Precipitation Extremes in the South-Central United States". In: AGU24. AGU.

O'Donnell, Michelle, Dee, Sylvia, **Doss-Gollin, James**, and Munoz, Samuel E. 2024. "Mechanisms of Hydroclimate Whiplash Over the Mississippi River Basin". In: AGU24. AGU.

Cooperman, Alicia, Fuerte, Manuela Muñoz, **Doss-Gollin, James**, Mayer, Alex S., and Walker, W. Shane. 2023. "H33P-1999: Before and After Piped Water Expansion: Water Use Patterns and Trust in Water and Political Institutions". In: AGU23. AGU.

Doss-Gollin, James, Lu, Yuchen, Nielsen-Gammon, John W., Niraula, Rewati, and Lee, Benjamin Seiyon. 2023. "NH14B-07: Linking Robust Trends in Observations and Models to Develop Nonstationary Rainfall Frequency Grids for the State of Texas". In: AGU23. AGU.

Lu, Yuchen, Lee, Benjamin Seiyon, and **Doss-Gollin, James**. 2023. "H21T-1602: Spatially Varying Covariate Model: A Hierarchical Bayesian Framework for Precipitation Frequency Analysis in the Gulf Coast". In: AGU23. AGU.

Murphy, Kelsey, Dee, Sylvia, Munoz, Samuel E., Pitchon, Emilia, Wallace, Elizabeth Jane, O'Donnell, Michelle, and **Doss-Gollin, James**. 2023. "PP33E-1563: Last Millennium Changes in Mississippi River Basin Hydrology Driven by the Bermuda High and Great Plains Low Level Jet". In: AGU23. AGU.

Amonkar, Yash Vijay, **Doss-Gollin, James**, Farnham, David J., Modi, Vijay, and Lall, Upmanu. 2022. "GC42N-0889: Changing Climate, Peak Demand and Load Factors across the Contiguous United States". In: Fall Meeting 2022. AGU.

Dee, Sylvia, Dunne, Kieran, Munoz, Samuel E., Luo, Xinyue, Murphy, Kelsey, and **Doss-Gollin, James**. 2022. "PP32B-04: Past, Present, and Future Hydroclimate across the Mississippi River Basin and Its Tributaries: Insights from Integrated Paleoclimate Data Analysis". In: Fall Meeting 2022. AGU.

Doss-Gollin, James, Lamontagne, Jonathan, and Lall, Upmanu. 2022. "H35F-07: Near-term Predictability Lowers Long-Term Adaptation Costs". In: Fall Meeting 2022. AGU.

Kazadi, Arnold N., **Doss-Gollin, James**, Sebastian, Antonia, and Silva, Arlei. 2022. "Flood Prediction with Graph Neural Networks". In: *Climate Change AI*. NeurIPS 2022 Workshop on Tackling Climate Change with Machine Learning. Climate Change AI.

Lu, Yuchen, Lee, Benjamin Seiyon, and **Doss-Gollin, James**. 2022. "H42E-1333: Nonstationary GEV with Hierarchical Spatial Pooling: A Spatiotemporal Bayesian Framework for Nonstationary Extreme Precipitation Frequency Analysis in the Gulf Coast". In: Fall Meeting 2022. AGU. DOI: 10.22541/essoar.168167364.47159647/v1.

Murphy, Kelsey, Dee, Sylvia, Munoz, Samuel E., Dunne, Kieran, O'Donnell, Michelle, and **Doss-Gollin, James**. 2022. "PP45D-1187: The Mississippi River's Hydrologic Response to Natural vs. Anthropogenic Forcing from the Last Millennium through the 21st Century". In: Fall Meeting 2022. AGU.

O'Donnell, Michelle, **Doss-Gollin, James**, Dee, Sylvia, and Munoz, Samuel E. 2022. "H42E-1351: Validation of Community Earth System Model Hydrologic Variables Over the Mississippi River System To Understand Long Term Hydrometerologic Changes". In: Fall Meeting 2022. AGU.

Doss-Gollin, James, Farnham, David J., Lall, Upmanu, and Modi, Vijay. 2021. "A14H-03: How Unprecedented Was the February 2021 Texas Cold Snap?" In: AGU Fall Meeting 2021. AGU.

Doss-Gollin, James and Keller, Klaus. 2021. "H25U-1265: Operationalizing Bayesian Model Checking for Robust Decision Making: Insights from House Elevation". In: Fall Meeting 2021. AGU.

Geldner, Nathan, **Doss-Gollin, James**, Keller, Klaus, and Johnson, David R. 2021. "Characterization of the Equity-Efficiency Tradeoff in Targeted Residential Coastal Protection Projects". In: *2021 Annual Meeting of the Society for Risk Analysis*. Virtual.

Lall, Upmanu, Amonkar, Yash Vijay, Farnham, David J, Modi, Vijay, and **Doss-Gollin, James**. 2021. "GC42C-08: The Risks of Energy Shortfalls Considering Temperature Extremes, Wind and Solar Energy for the Texas Energy Grid Using a Novel Space-Time Simulation Model". In: Fall Meeting 2021. New Orleans, LA: AGU.

Zhou, Xiangnan, Duenas-Osorio, Leonardo, Liu, Lu, Stadler, Lauren, **Doss-Gollin, James**, Getachew, Bezawit, and Li, Qilin. 2021. "H32J-04: Distributed Water and Wastewater Infrastructure System for Climate Change Adaption: A Case Study in the City of Lumberton, NC". In: Fall Meeting 2021. AGU.

Lall, Upmanu, Arumugam, Sankar, Cioffi, Francesco, Devineni, Naresh, **Doss-Gollin, James**, Kwon, Hyun-Han, and Rajagopalan, Balaji. 2020. "H161-01: America's Water: Multiscale Forecasting and Innovation in Infrastructure Design & Management Instruments Is Critical for Climate Adaptation". In: Fall Meeting 2020. AGU.

Amonkar, Yash Vijay, **Doss-Gollin, James**, and Lall, Upmanu. 2019. "H13T-2050: Preserving Long-Term Variability in Simulation of Multisite Streamflow Extremes". In: Fall Meeting 2019. AGU. DOI: 10.6084/m9.figshare.11444238.v1.

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Rözer, Viktor, Kreibich, Heidi, Schröter, Kai, **Doss-Gollin, James**, Lall, Upmanu, and Merz, Bruno. 2017. "NH41E-08: BN-FLEMOps Pluvial - A Probabilistic Multi-Variable Loss Estimation Model for Pluvial Floods". In: 2017 Fall Meeting. AGU.

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Araújo Júnior, Luiz Martins, de Souza Filho, Francisco de Assis, da Silva Silveira, Cleiton, Aragão Dias, Tyhago, and **Doss-Gollin, James**. 2014. "Análise dos eventos de seca no Nordeste Setentrional Brasileiro com base no índice de precipitação normalizada". In:

XII Simpósio de Recursos Hídricos Do Nordeste. Natal, Rio Grande do Norte, Brasil: Associação Brasileira de Recursos Hídricos (ABRH). DOI: 10.13140/rg.2.1.4610.7685.

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workshop presentations

"**Robust Trends in Extreme Rainfall Probabilities in Texas**", 2025 Texas Climate Conference, *Rice University and Texas A&M University*. Houston, TX. 2025-04-10.

"**Use-inspired tools for climate hazard assessment**", Nature-Based Solutions for a Resilient Gulf Coast Workshop, *Rice University*. Houston, TX. 2025-03-04.

"**Leveraging Machine Learning to Advance Urban Flood Hazard Assessment: Challenges and Opportunities**", Data-driven and physics-based machine learning methods for forecasting and knowledge discovery of surface hydrology, *Conference on Computational Methods in Water Resources*. Tucson, AZ. Oral Presentation. 2024-10-01.

"**A Bayesian Spatial Hierarchical Framework for Process-Informed Nonstationary Analysis of Precipitation Frequencies**", 13th International Workshop on Statistical Hydrology, *International Association of Hydrological Sciences*. Boston, MA. Oral Presentation. 2023-11-10.

"**Valuing Flexibility and Soft Instruments for Sequential Decision Problems**", 2020 Annual Meeting, *Society for Decision Making under Deep Uncertainty*. . Remote Presentation. 2020-11-11.

"**Adaptive Resilience through Real Options and Deep Reinforecement Learning**", Doctoral Consortium on Computational Sustainability, *Carnegie Mellon University*. Pittsburgh, PA. Oral Presentation. 2019-10-19.

"**Evaluating Staged Investments in Critical Infrastructure for Climate Adaptation**", 2019 Interdisciplinary Ph.D. Workshop in Sustainable Development, *Columbia University*. New York, NY. Oral Presentation. 2019-04-12.

"**Robust Adaptation to Multi-Scale Climate Variability**", The Nexus of Climate Data, Insurance, and Adaptive Capacity, . Asheville, NC. Poster Presentation. 2018-11-08.

"**Extreme Rainfall in Paraguay during the 2015-16 Austral Summer: Causes and Predictive Skill**", North East Graduate Student Water Symposium, *University of Massachusetts Amherst*. Amherst, MA. Oral Presentation. 2017-09-10.

"**Regional Intense Precipitation: Inferences From GCM Atmospheric Circulation Fields**", Modeling Research in the Cloud, *National Center for Atmospheric Research*. Boulder, CO. Poster Presentation. 2017-05-31.

"**Statistical-Dynamical Analysis of Climate Projections for Flood Infrastructure Design**", Interdisciplinary Ph.D. Workshop in Sustainable Development 2017, *Columbia University*. New York, NY. Oral Presentation. 2017-04-21.

"**Causes and Model Skill of the Persistent Intense Rainfall and Flooding in Paraguay during the Austral Summer 2015-2016**", Workshop on Subseasonal to Seasonal Predictability of Extreme Weather and Climate, *Columbia University*. New York, NY. Poster Presentation. 2016-12-06.

peer review

AGU Advances
Climate Risk Management
Climatic Change
Communications Earth and Environment
Earth's Future
Energy Technology
Environmental Data Science
Environmental Research Letters
Geophysical Research Letters
Hydrology and Earth System Sciences
Joule

Journal of Applied Meteorology and Climatology
Journal of Hydrology
Journal of Water Resources Management and Planning
Oxford Journal of Development Studies
Water Resources Research
Water Security
Weather, Climate, and Society

grant review

Department of Energy (BER)
National Science Foundation

external review

Electric Power Research Institute (EPRI)
Texas Water Development Board (TWDB)

additional experience

Social and Behavioral Research - Basic/Refresher, CITI program. 2022–2025. Record #46214890.

Social and Behavioral Responsible Conduct of Research, CITI program. 2022. Record #46214894.

Panel Fellow, NSF CMMI's Game Changer Academies for Advancing Research Innovation. 2021.

Visiting Graduate Researcher, Lamontagne Research Group, Department of Civil and Environmental Engineering, Tufts University, Medford, MA. 2019–2020.

Graduate Research Fellow, Columbia Water Center, Department of Earth and Environmental Engineering, Columbia University, New York, NY. 2015–2020.

Summer School Participant, Fluid Dynamics of Sustainability and the Environment, Cambridge University, Cambridge, England. 2016.

Education Policy Intern, Elm City Communities / New Haven Housing Authority, New Haven, CT. 2015.

President (2014), Design Lead (2013), Member (2012, 2015), Engineers Without Borders, Yale Student Chapter, New Haven, CT. 2012–2015.

Undergraduate Research Assistant, Lab of Jaehong Kim, Department of Chemical and Environmental Engineering, Yale University, New Haven, CT. 2014–2015.

Visiting Undergraduate Researcher, Water and Climate Risk Lab, Department of Hydraulic and Environmental Engineering, Universidade Federal do Ceará, Fortaleza, Brazil. 2014.

Mechanical Design Intern, Slingshot Team, DEKA Research & Development, Manchester, NH. 2013.

Undergraduate Research Assistant, Lab of Jan Schroers, Department of Mechanical Engineering and Materials Science, Yale University, New Haven, CT. 2012.

Ikatú Agua Intern, Fundación Paraguaya, Asunción, Paraguay. 2012.