Virginia Crossroads: Flood Resilience across the Commonwealth

Friday, March 27, 2026
Charlottesville, VA

PARTICIPANT BIOS

Al Grasso, Virginia Academy of Science, Engineering, and Medicine

Al Grasso is President of the Virginia Academy of Science, Engineering, and Medicine (VASEM), where he leads efforts to strengthen the role of science, engineering, and medicine in informing public policy and advancing the Commonwealth's future. He brings decades of leadership experience at the intersection of research, technology, and national security, including serving as CEO of MITRE.As President, Grasso is committed to building on the strong foundation established by his predecessor, Jim Aylor, whose transformative leadership expanded VASEM's reach and impact. Under Grasso's leadership, the Academy continues to elevate its voice through initiatives such as the Annual Summits and the COVES Policy Fellows Program, while addressing critical issues including energy resilience, sustainable infrastructure, and emerging technologies. Grasso's career reflects a deep belief in evidence-based decision-making and interdisciplinary collaboration. He is dedicated to working with VASEM's members, partners, and leadership to advance innovative solutions that serve the public good and support Virginia in navigating its most pressing challenges.

Jon Goodall, University of Virginia

Jon Goodall is a Professor in the Department of Civil and Environmental Engineering at the University of Virginia (UVA) and Director of the UVA Engineering Link Lab. He is a water resources engineer working to advance the field of hydroinformatics where data and computational sciences are used to improve the understanding, forecasting, and management of hydrologic systems.

Amanda Purcell, National Academies of Sciences, Engineering, and Medicine

Amanda Purcell is Associate Director of Climate Crossroads at the National Academies of Sciences, Engineering, and Medicine, where she helps advance cross-sector climate initiatives and turn complex ideas into actionable programs. She began her career at the National Academies in 2008 and has grown through roles spanning project management, budgeting and grant development, proposal strategy, and science communications and engagement. Amanda holds an M.A. in mathematical logic from American University (2013).

Julia Davis, University of Virginia
Julia Davis (COVES Fellow, Office of Senator Creigh Deeds) is a PhD candidate at the University of Virginia, where she is studying environmental engineering with a focus on policy- and decision-making under climate uncertainty. Her current research explores the impacts of climate-related events and infrastructure on human populations, specifically through analyzing demographic makeup near carbon dioxide pipelines and investigating decision-making thresholds for relocation due to climate stressors like flooding. Julia has previously earned her B.S. in civil and environmental engineering and her master's degree in public policy at UVA, allowing her to bring an interdisciplinary approach to studying human-environment systems. Through systems-based research, Julia aims to inform sustainable policies that address the complex challenges of climate change.

Nat Draper, Virginia Academy of Science, Engineering, and Medicine
Nathaniel (Nat) Draper assumed the role of Executive Director at the Virginia Academy of Science, Engineering, and Medicine (VASEM) in July 2024. He holds a bachelor's degree in Environmental Science from Randolph-Macon College and a master's degree in Education from Virginia Commonwealth University. Prior to joining VASEM, Nat dedicated sixteen years to teaching Advanced Placement Environmental Science and Earth Science at public high schools in Henrico County. Through his leadership VASEM has continued to grow their reach and work toward the mission of Informing, Advocating and Serving the Commonwealth of Virginia.

PANEL 1

Marcus Aguilar, City of Roanoke
Dr. Marcus Aguilar is a Senior Stormwater Engineer in the Department of Public Works for the City of Roanoke. His expertise is in improving the interaction between humans, our built infrastructure, and the natural ecosystem in urban watersheds using innovative engineering, technology, economic, and policy solutions.

Dan Medina, City of Alexandria
Daniel Medina, PhD, PE, is a Senior Water Resources Engineer specializing in water resource systems planning, climate change, and resilience. He serves as the Stormwater Program Manager for the City of Alexandria, Virginia. He earned his Civil Engineering degree from Universidad de los Andes in Bogotá, Colombia and his PhD from the School of Civil and Environmental Engineering at Cornell University. With more than 35 years of experience in urban water resources, Dr. Medina has led projects across North America, Latin America, the Caribbean, Europe, and the Middle East. He has

served as a consultant for the World Bank and the Inter-American Development Bank and previously taught civil engineering at Northeastern University in Boston, Massachusetts.

Brian Batten, Dewberry
Dr. Brian Batten, CFM, is an Associate Vice President, Project Manager, and Senior Scientist with Dewberry, a privately held professional services firm, in its Richmond, Virginia, office. His passion is establishing and implementing programmatic approaches and processes to recognize climate-driven risks, socialize results with stakeholders, and leverage interdisciplinary teams and engagement to develop actionable flood resiliency plans and projects. With over 25 years of experience, he has provided subject-matter expert leadership for federal and state programs and projects on diverse coastal issues, including sea level rise mapping and integrated planning support to advance flood resiliency. Dr. Batten has also led many community, infrastructure, and facility adaptation planning and engineering studies on the east and gulf coast addressing sea level rise, increased rainfall, and other climate change issues.

Tom Allen, Old Dominion University
Dr. Tom Allen is a Professor and Chair of the Department of Political Science and Geography at Old Dominion University. His research interests include coastal and marine geography, coastal resources and hazards, sea level rise, and applications of Geographic Information Systems and remote sensing. He also serves as Program Head for Climate Science and Sea Level for ODU's Institute for Coastal Adaptation and Resilience.

J. Derek Loftis, Virginia Institute of Marine Science
Derek Loftis serves as a Research Assistant Professor with the Center for Coastal Resources Management and the Virginia Commonwealth Center for Recurrent Flooding Resiliency at the Virginia Institute of Marine Science (VIMS). Dr. Loftis' research centers on advancing hydrodynamic modeling to better understand and mitigate flood risk in vulnerable coastal regions through enhanced forecasting and flood monitoring via sensors, drones, and community science.

PANEL 2

Tanya Denckla Cobb, University of Virginia
Tanya Denckla Cobb is Director of the University of Virginia Institute for Engagement & Negotiation at the Weldon Cooper Center for Public Service. She is an environmental public policy mediator who has worked on a broad range of issues that support resilient communities and a healthy environment in the context of social equity. Her work involves community-based research, innovative and robust community engagement, collaborative problem solving, consensus building, and strategic planning.

Maria Mutuc, Virginia Department of Transportation
Maria Mutuc, PE is the Resilience Program Manager for the Virginia Department of Transportation (VDOT). Maria joined VDOT in 2021 and was instrumental in the development of the VDOT Resilience Plan. She is a registered Professional Engineer in Virginia and has over 20 years of environmental and water resources engineering experience. She has worked for environmental consulting and transportation design firms with a focus on environmental compliance, assessment and documentation, sustainability, transportation stormwater management and drainage design. Maria has a B.S Chemical Engineering degree from the University of the Philippines and a M.S. Environmental Engineering degree from Virginia Tech.

Chris Bell, Damascus Town Manager
Chris Bell is Town Manager for the Town of Damascus and combines a strong technical background with a dedication to community service and business leadership. He graduated from the University of Hartford with an Acoustic Engineering degree in 1993 and began a career in the A/V industry. In 1998, he established his own company in Atlanta, GA providing audio-visual integration services to corporations, universities, and government entities for the next 25 years. In 2024, Chris retired from the industry relocating to southwest Virginia, embarking on a new role as Town Manager just two months before Hurricane Helene struck. This unexpected challenge has undoubtedly been a "baptism by flood", testing his leadership and resilience while showcasing his commitment to the town's recovery.

Majid Shafiee-Jood, University of Virginia
Majid Shafiee-Jood is a Research Assistant Professor in the Department of Civil and Environmental Engineering at the University of Virginia. Shafiee-Jood conducts interdisciplinary research at the intersection of climate risk management, water management, decision making, and policy.

Patricia Nylander, VA Department of Forestry
Patti Nylander has worked for the Department of Forestry for 25 years in various roles including an Area Forester, Senior Area Forester, and Watershed Stewardship Specialist. In July 2025, she began working as the Watershed Program Coordinator for DOF, where she continues to promote sustainable management of Virginia's forest resources to provide clean water. One of Patti's favorite things about forests are the many benefits they provide to people and society. In addition to providing habitat for a variety of wildlife species, trees provide clean air, clean water, materials for buildings, medicines, and places of refuge from the hustle and bustle of everyday life. She enjoys hiking

and backpacking when she has time, crocheting fun critters, and lives in the Shenandoah Valley with her husband Erik, and two children, Jake and Emma.

PANEL 3

Jessica Whitehead, Old Dominion University
Jessica Whitehead is the Joan P. Brock Endowed Executive Director of the Institute for Coastal Adaptation and Resilience at Old Dominion University. A nationally recognized expert in climate adaptation and using climate information for resilience policy and adaptation action, Whitehead was the first state Chief Resilience Officer for North Carolina, based in the North Carolina Office of Recovery and Resiliency. Prior to that appointment, she worked in the Carolinas for 11 years as the first coastal climate extension specialist with NC Sea Grant, the South Carolina Sea Grant Consortium, and the Carolinas Integrated Sciences and Assessments (CISA) Program.

Jay Bernas, Hampton Roads Sanitation District
Jay Bernas is General Manager and Chief Executive Officer for Hampton Roads Sanitation District (HRSD), the regional wastewater utility serving the 1.9 million residents in eastern Virginia. He previously served as the Chief Financial Officer and Chief of Planning and Analysis. Mr. Bernas graduated from Old Dominion University in 1995 with a Bachelor's degree in Civil Engineering and earned his MBA from the College of William and Mary in 2013. In 2018, he was elected to the $3.0 billion Virginia Investment Pool Board of Trustees. Appointed by the Virginia Beach City Council to serve on the Planning Commission from 2006-2013, Mr. Bernas was its Chair for the last two years of his tenure.

Paul Robinson, RISE Resilience Innovations
Paul Robinson is the founder and Executive Director of RISE, a Norfolk-based nonprofit committed to driving innovation and business growth for the most challenging environmental resilience problems faced by communities. In addition, Dr. Robinson is the founder and CEO of AeroTech Research, a company specializing in weather hazard detection for aircraft, and holds 8 patents in this area. He has served as a Senior Advisor to Focus Investment Bank in the areas of Government, Aerospace, and Defense, and was a member of a local angel investment group, 757 Angels.

Julie Shortridge, Virginia Tech

Julie Shortridge is an associate professor and extension specialist in the Department of Biological Systems Engineering at Virginia Tech. Her research and outreach aims to build climate resilience in agricultural and water systems, as well as the communities that depend on them. She is especially experienced in interdisciplinary team science and the integration of computational models, machine learning, and quantitative analyses into broader efforts to build sustainability and resilience. As a Specialist with Virginia Cooperative Extension, she translates cutting edge research into practical information and support for agricultural producers, water managers, and communities across the Commonwealth.

Debbie Messmer, Virginia Department of Emergency Management

Debbie Messmer has worked for the Virginia Department of Emergency Management for 21 years as a Grants Administrator/Project Coordinator, the State Hazard Mitigation Officer, and now as the Deputy Director of Grant Management and Recovery. She has managed over $350 million in mitigation grants across the Commonwealth ranging from acquisition and elevation of private residential properties to large-scale stormwater management projects to small educational opportunities. Currently as the Deputy Director of Grant Management and Recovery, Debbie oversees the management of all Recovery, Mitigation, Preparedness, and NG911 grants administered in Virginia. Debbie received her B.A. from St. Andrews University and managed mitigation grants in North Carolina following Hurricanes Fran and Floyd. Her free time is spent playing tennis and watching her four children play sports.

STUDENT FLASH TALKS

Thiago Augusto Neiva de Lima, George Mason University

Thiago is a Graduate Student at George Mason University's Civil, Environmental, and Infrastructure Engineering program since Spring 2025, concentration area in Water Resources Engineering. Research Interests: Flood hazards, the use of numerical modeling on monitoring and projecting hazard events. Nature-based solutions such as barriers of protection on flood events. Application of Geospatial analysis combined with Storm Water Management Model on a better comprehension of how these climate variables Interact and impact spatially and temporally.

Amirhossein Chegini, George Mason University

Amirhossein is a PhD student in Civil, Environmental and Infrastructural Engineering at George Mason University, working under the supervision of Dr. Catalina Gonzalez-Duenas. His research focuses on coastal resilience, with an emphasis on computational modeling of wave–vegetation–structure interactions during extreme coastal hazards such as hurricanes. He develops physics-based numerical models using

computational fluid dynamics (CFD) and integrates them with machine learning techniques to enable scalable prediction of coastal flood hazards and infrastructure risk. His work aims to improve the understanding of nature-based coastal protection and support risk-informed decision-making for resilient coastal communities.

Victor Ariel Leal Sobral, University of Virginia
Victor is a postdoctoral researcher at the University of Virginia specializing in Internet of Things (IoT) applications for smart cities. He earned his Ph.D. in Computer Engineering from UVA in 2024. His work focuses on sensor design, LoRaWAN network applications, and cloud infrastructure for scalable, reliable IoT systems. At UVA, he helped expand LoRaWAN coverage and deploy flood-monitoring sensors to support early warning and community resilience. His current interests include IoT data management for collaborative research groups and climate resilience applications.

MD Fayaz Bin Hossen, **Old Dominion University**
MD Fayaz Bin Hossen is a Ph.D. student in Electrical and Computer Engineering at Old Dominion University and a member of the Vision Lab, where he works under the supervision of Dr. Khan M. Iftekharuddin. His research focuses on synthetic flood data generation guided by physical laws, including the modeling of flood depth and dynamic flood behavior using the Shallow Water Equations (SWE). His work integrates computer vision, artificial intelligence, and physics-based modeling to support realistic flood simulation and urban resilience research.

Kwame Ampofo, Old Dominion University
Kwame Ampofo is a Ph.D. candidate in Electrical and Computer Engineering in the Vision Lab at Old Dominion University. His research focuses on image processing, computer vision, artificial intelligence, and sensing systems for smart city and infrastructure applications. He works under the supervision of Dr. Khan M. Iftekharuddin. His work includes developing AI-driven approaches for urban flood monitoring and resilient infrastructure using imaging and camera-based sensing systems. His research has contributed to NSF-funded projects focused on vision-based flood monitoring for public safety and infrastructure resilience.

Daniel Cardona, George Mason University
Daniel is a graduate student in George Mason University's Civil, Environmental, and Infrastructure Engineering program, concentrating in Water Resources Engineering. He is a research assistant at Mason's Flood Hazards Research Lab and works full-time at Arlington County Government in the Department of Environmental Services. His research focuses on natural and nature-based features for flood protection, with particular interest in evaluating their effectiveness through hydrodynamic modeling and assessing community-level impacts using flood risk models.

Yirong Ding, Virginia Tech
Yirong Ding is a Ph.D. student in the Myers-Lawson School of Construction at Virginia Tech, co-advised by Dr. Lu Zhang and Dr. Yang Zhang. Her research centers on disaster resilience and disaster modeling, with a focus on how hazards such as hurricanes and floods affect communities, infrastructure systems, and post-disaster recovery. She applies data-driven, spatial, and computational methods to better understand disaster impacts, resilience patterns, and disparities. Through this work, she aims to support more effective risk assessment, decision-making, and resilience planning.

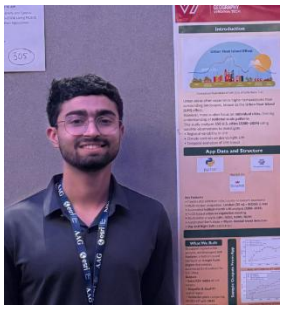
Mahta Zamanizadeh, Old Dominion University
Mahta Zamanizadeh is a Ph.D. candidate in Civil Engineering (Transportation) at Old Dominion University. Her research focuses on transportation network resilience and the use of artificial intelligence and computer vision for flood monitoring on urban roadways. Her work develops scalable methods that use surveillance camera imagery and LiDAR data to estimate roadway flood depth and support real-time transportation operations. Her research aims to improve mobility, safety, and decision-making in flood-prone transportation systems.

Savannah Lynn, University of Virginia
Savannah Lynn is a PhD candidate in the Department of Engineering Systems and Environment at the University of Virginia, advised by Dr. Jonathan Goodall. Her research centers on coastwide resilience, integrating urban watershed modeling, geospatial data analytics, and decision-support systems to help agencies and communities prepare for and respond to coastal flooding hazards.

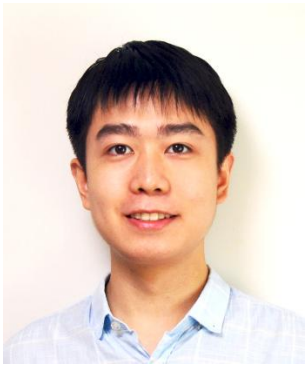
Atefeh (Ati) Alipour, Virginia Tech
Ati Alipour is a PhD candidate in Civil and Environmental Engineering at Virginia Tech, advised by Dr. Jennifer Iirsh. Her research focuses on storm surge dynamics, hurricane impacts, and barrier island morphodynamics, with an emphasis on data analysis and numerical modeling to better understand coastal hazards and improve coastal resilience.

Zanko Zandsalimi, University of Virginia
Zanko Zandsalimi is a PhD candidate in the Department of Civil and Environmental Engineering at the University of Virginia, advised by Dr. Negin Alemazkoor and Dr. Majid Shafiee-Jood. His research focuses on developing deep learning and graph-based modeling frameworks for flood prediction, stormwater system analysis, and topographic data improvement. He develops graph neural network (GNN) surrogates for efficient flood forecasting and applies network-based learning approaches to model the behavior and performance of stormwater systems. His work integrates hydrology, machine learning, and infrastructure resilience to improve flood forecasting, risk assessment, and decision-making.

Suyog Gautam, Virginia Tech



Suyog Gautam is a second-year M.S. student in the Department of Geography at Virginia Tech, graduating in May 2026. His primary research focuses on urban heat island (UHI) analysis using remote sensing, geospatial modeling, and long-term satellite data. He frequently collaborates with Dr. Kevin Kochersberger on projects involving flood mapping, simulation, GIS-based analysis, and UAV-based imagery processing for disaster assessment.



Yidi Wang, University of Virginia

Yidi is a PhD candidate in the Department of Civil and Environmental Engineering at the University of Virginia, advised by Dr. Jon Goodall. His research focuses on developing Artificial Intelligence (AI) to advance flood resilience for coastal urban communities. He leverages deep learning (DL) to build camera-based real-time flood monitoring systems and fast spatiotemporal flood inundation forecasting models that support informed flood risk management and emergency response. In addition, he integrates data-driven approaches with physics-based modeling to better understand the impacts of compound flooding on transportation and residential communities in coastal Virginia.