

Inaugural Symposium: Making Communities More Resilient to Extreme Flooding

Wednesday, October 30 – Thursday, October 31
USRA Headquarters
7178 Columbia Gateway Drive, Columbia, Maryland

Preliminary Agenda

[Printable PDF](#) 

Day 1: Wednesday, October 30

8:00 AM **Registration – Continental Breakfast**

8:30 AM **EfSI Opening Ceremony and Welcome**

Opening Remarks:

Senator Chris Van Hollen, *U.S. Senate (D-MD)*

Dr. Jeffrey Isaacson, *President and CEO, USRA*

Dr. Miguel Román, *Founding Director, USRA/EfSI*

9:15 AM **Session 1 (Plenary)**

Building Resiliency in the State of Maryland: Catalyzing Community-Based Flood Mitigation and Adaptation Programs

Moderator:

Dr. Calvin Ball, *County Executive, Howard County*

In Maryland, several recent flood events have raised public awareness of the costs and threats posed by coastal and flash flooding. Achieving community-level resilience requires coordinated flood-preparedness activities at the local, county, and state levels. Panelists will share diverse perspectives on the topics of flood disaster risk management, and delve into the innovative policies and programs being pioneered to ensure safe communities and thriving local economies for years to come.

10:15 AM **Break**



Senator Chris Van Hollen

U.S. Senator for Maryland
Keynote Speaker



Dr. Jeffrey Isaacson

President and CEO
Universities Space Research Association



Dr. Miguel Román

Founding Director
Earth from Space Institute

10:30 AM

Session 2 (Plenary)**Monitoring Flood Dynamics Using Next Generation Satellite Data**

Moderator:

Dr. Chris Aubrecht, *European Space Agency*

Advances in remote sensing technologies—including shorter satellite repeat cycles, increased spatial resolution, and new instrument capabilities—are expected to transform how agencies utilize satellite data for disaster response and mitigation. However, with terabytes of new data being produced each day, data availability does not always equal accessibility. This session will focus on the challenges and opportunities that data providers and risk managers face when exploiting these richly complex datasets. Session panelists will also address current research, infrastructure, and knowledge gaps in satellite-based flood monitoring.

11:30 AM

Break

11:40 AM

Plenary Speaker 1**State-of-the-Art in Flood Prediction****Professor Rick Luettich**, *University of North Carolina*

12:30 PM

Lunch at USRA Headquarters

1:45 PM

Session 3 (Plenary)**Compound Flooding: Use Cases, Methods, and Challenges**

Moderator:

Ms. Jen Schwartz, *Scientific American*

Multiple flood mechanisms can often occur simultaneously or in quick succession, resulting in a phenomenon known as compound flooding. The combined effects of fluvial (riverine), coastal (tidal or storm surge), and pluvial (rainfall triggered) mechanisms can dramatically exacerbate flood impacts, yet approaches that delineate these interactive and multiplicative effects are only partially complete. As a result, no comprehensive nationwide estimate of household-level exposure resulting from compounding flood drivers currently exists. Session panelists will discuss current monitoring and statistical frameworks that seek to explore the evolving risks of compound flooding, with an emphasis on how they can be incorporated into national flood insurance and mitigation efforts.

2:45 PM

Break**Prof. Rick Luettich**Professor of Marine Sciences
and Environmental Engineering**University of North Carolina**

3:00 PM

Breakout Session 4 (Plenary Room)

Geospatial Data Analytics: Helping Bridge Flood Insurance, Building Codes and Flood Zoning

Moderator:

Ms. Catherine Bohn, *Dewberry*

Geospatial data analytics have become a critical resource for providing rapid damage assessments to FEMA and other decision-makers following major flood disasters. Such analyses help decision-makers understand where the greatest concentration of damage is and expedite Federal declarations for funding, leading to more efficient distribution of resources. Geospatial analyses also help to mitigate risk prior to a disaster by helping communities define more realistic flood zoning and by informing flood insurance and building codes. A panel of experts in geospatial data analytics and the insurance industry will discuss the growing value of geospatial data in the context of flood insurance and pre- and post-disaster scenarios.

4:00 PM

Break

4:15 PM

Breakout Session 6 (Plenary Room)

Flood Risk Communications: What Information Do Users Need?

Moderator:

Ms. Ada Monzón, *EcoExploratorio*

Floods are complex and dynamic threats that require rapid dissemination of information to various users (e.g., local governments, policymakers, and the public). Communicating flood risk has thus become an increasingly central part of strengthening resilience. Efforts to improve national risk communication have not resulted in a corresponding increase in public awareness, enhanced perception, or improved responses to floods and their associated uncertainties. There is an urgent national need to develop community engagement programs designed to increase flood literacy, and to serve as a catalyst for conversation around sustainable development solutions. Session panelists will discuss how agencies and stakeholder groups tasked with communicating flood risks are streamlining current approaches by targeting frontline communities suffering from chronic flooding.

5:30 PM

Adjourn | Reception at USRA Headquarters

Breakout Session 5 (Board Room)

Understanding the Relationship Between Extreme Precipitation and Flood Risk

Moderator:

Professor Ana Barros, *Duke University*

The long-term costs of inland flooding have risen in recent years, impacting communities existing well outside coastal zones. As flood hazards increase, so does the need for the data and analytical tools required to monitor intense precipitation. Effective flood modeling must begin with accurate rain and snowfall estimates, as river gauge-based modeling isn't equipped to handle extreme peaks in precipitation intensity. Session panelists will reflect on recent flooding events across the U.S. Midwest (where in some areas, a large proportion of affected homes and businesses were nowhere near a river or floodplain). Special emphasis will be placed on effective monitoring and prediction strategies to ensure that potential flood losses are well understood and managed appropriately.

Breakout Session 7 (Board Room)

Flood Forecasting from Local to National Scales

Moderator:

Professor Dapeng Yu, *Loughborough University*

Early warning systems are one of the most effective risk management strategies to minimize the negative impacts of major floods. Recent advances in high-resolution nowcasting have enabled longer lead times for flood warnings. However, the capacity of governments—from local to national levels—to monitor and assess flood scenarios at near-real time scales varies, and gaps in forecasting and storm warning services remain. This session will cover the state-of-the-art in flood forecasting and early warning systems at scales at which risk management decisions are made. Session panelists will discuss current status and gaps in flood forecasting and early warning systems and present strategies to foster institutional coordination and information exchange.

Day 2: Thursday, October 31

8:00 AM

Continental Breakfast

8:30 AM

Morning Debrief (Plenary)

Recap Wednesday's Action Items, Reports from Session Rapporteurs, and Plans for Thursday

9:00 AM

Plenary Speaker 2

U.S. Army Corps of Engineers' Coastal Risk Reduction and Resilience Activities: Lessons Learned and the Path Forward

Mr. José E. Sánchez, *U.S. Army Corps of Engineers*

10:00 AM

Break

10:15 AM

Breakout Session 8 (Plenary Room)

Visualizing Flood Risk & Uncertainty

Moderator:

Professor Gerik Scheuermann, *University of Leipzig*

Through the exploration and dissemination of flood risk information (e.g., online maps, videos, and interactive content), mitigation plans can be developed to impact outcomes. This session will explore the topic of data visualization to effectively convey information on flood risk and uncertainty. A multidisciplinary group of panelists, from decision-makers to scientific visualization experts, will discuss and share the latest advances in flood-risk visualization and risk mapping capabilities.

11:15 AM

Break



Mr. José E. Sánchez

Deputy Director of Research
and Development

U.S. Army Corps of Engineers

Breakout Session 9 (Board Room)

Coastal Risk Reduction and Resilience

Moderator:

Dr. Julie Rosati, *U.S. Army Corps of Engineers*

Coastal communities are particularly vulnerable to flood hazards. Efforts to reduce vulnerability to these hazards are complicated by the deep uncertainties in future sea level, storm surge, and coastal storm intensity projections. As such, many communities are turning to integrated flood management plans to improve resilience to uncertain futures. These integrated approaches often contain a suite of projects, including natural or nature-based features (e.g., wetlands and dunes), nonstructural interventions (e.g., new policies, updated building codes, or emergency response systems like early warning and evacuation plans), and structural interventions (e.g., seawalls and breakwaters). Implementing an integrated approach to coastal flood mitigation requires a collaborative, shared responsibility framework between the public and federal, state, and local agencies. Panelists will discuss strategies for designing integrated flood risk management plans that improve community resilience and reduce vulnerability, as well as the challenges inherent when implementing them.

11:30 AM

Session 10 (Plenary Room)

What Does Resilience Mean in the Flood Policy Context?

Moderator:

Professor Rick Luetlich, *University of North Carolina*

Resilience is an important concept in natural hazards planning, that seeks to limit the impacts of hazard events on human and natural systems and lessen the time and effort required to recover following their occurrence. In many cases US flood policy, largely effected via the National Flood Insurance Program, has increased risk and made society less resilient by offering a false sense of security for residents living in potentially flood prone areas. This session will explore flood policy options that increase resilience and therefore enable better choices regarding living with water.

12:20 PM

Lunch at USRA Headquarters

1:30 PM

Breakout Session 11 (Plenary Room)

The Role of Newsrooms and Data Journalism in Improving Perceptions of Flood Risk

Moderator:

Ms. Helen-Nicole Kostis, *GESTAR*

News stories can reach audiences through many diverse channels (e.g., digital distribution, media outlets, and social media), and play an enormous role in shaping perceptions on flood risk. In order to better educate the public and combat misinformation, it is critical that stories focusing on flooding come from trusted sources and are supported by scientifically accurate information. A large part of these efforts include the gathering, filtering, and visualizing of data to produce compelling narratives about complex phenomena. Flood events are increasingly striking areas with little or no flood history and are impacting communities in unprecedented ways. This session will bring together experts from newsrooms and media outlets to share their efforts and illuminate gaps in improving flood risk perception, before, during and after such events.



Breakout Session 12 (Board Room)

Nature-Based Solutions as a Component of Flood Risk Management

Moderator:

Dr. Raha Hakimdavar, *U.S. Department of Agriculture*

Recent reports have emphasized the need for significant investments in floodplain risk management and planning. Doing so will ensure that inhabited regions can adapt to both the gradual and extreme consequences of future flood events. Floodplain risk management plans commonly rely on "hard" infrastructure systems like levees, channels, drainage systems, or seawalls. While these conventional engineering approaches provide protection from some flood hazards, they are often costly to implement, have long-term effects on the surrounding environment, and in some cases do not address the root causes of flood risks. "Nature-based solutions," which utilize natural processes and ecosystem services, have been advocated as a more sustainable alternative—or complement—to traditional infrastructure protection. Session participants will discuss how solutions like reforestation, coastal wetlands, reefs, or urban green spaces can contribute to a more comprehensive floodplain risk management plan.



2:30 PM

Break

2:45 PM

Breakout Session 13 (Plenary Room)**Flood Resiliency in Practice: How Corporate Responsibility and Charity Can Pivot to Sustainable Disaster Philanthropy**

Moderator:

Ms. Katie Taylor, *Pan American Development Foundation*

In the immediate aftermath of a disaster event, many foundations and individuals respond enthusiastically to provide financial relief to impacted communities. As the intensity of flood-related disasters continues to rise—as well as the corresponding cost—some philanthropists are thinking more strategically about their disaster-related investments. Charitable funds may go farther, for example, when used on communities that take an integrated approach to mitigating future flood events. Such approaches could include the USACE risk reduction measures discussed earlier in the symposium, or implementing more realistic flood zoning and corresponding revisions to flood insurance and building codes also discussed earlier. Panelists will discuss the most recent state of disaster philanthropy, and how individual donors and philanthropic organizations can work with communities to make them more resilient to future flood events.

3:45 PM

Break

4:00 PM

Plenary Speaker 3**Hurricane Maria: Two Years Later****Ms. Ada Monzón**, *EcoExploratorio*

5:00 PM

Symposium Wrap-up

5:30 PM

Adjourn | Reception at USRA Headquarters**Breakout Session 14 (Board Room)****Flood Risk Management in Rapidly Urbanized Areas**

Moderator:

Dr. Fabio Cian, *The World Bank*

Rapid urbanization and outward expansion are higher in lower-income cities that have weak systems of land governance and less mature financial markets. In the face of these challenges, decision-makers have focused on resilience thinking as a way to mitigate flood risks while providing co-benefits like improved water quality and socio-economic returns to communities. This session will provide an overview of current strategies for urban flood hazard prediction, exposure, and vulnerability analysis. Panelists will explore how flood impacts might spread across the global system of cities, and discuss the mechanisms required to mitigate risks to ensure more equitable and productive communities.

**Ms. Ada Monzón**

Founder and President

**EcoExploratorio: Science
Museum of Puerto Rico**

Current Attendees

(Updated October 24, 2019)

Ana Barros *Duke University*

Rick Bissell *University of Maryland Baltimore County*

Peter Boucher *University of Massachusetts Boston*

Anthony Campbell *Yale University*

Arthur Elmes *University of Massachusetts Boston*

Celso Ferreira *George Mason University*

Namrah Habib *University of Arizona*

Charles Ichoku *Howard University*

Carolyn Kousky *University of Pennsylvania, Wharton*

Andrew Kruczkiewicz *Columbia University IRI*

Rick Luettich *University of North Carolina*

Elodie Macorps *University of South Florida*

Lace Padilla *University of California Merced*

Christina Parsons *Syracuse University*

Ana Prados *University of Maryland Baltimore County*

Maryam Rahnemoonfar *University of Maryland Baltimore County*

Meredith Reba *Yale University*

Allison Reilly *University of Maryland*

Tirthankar Roy *University of Nebraska-Lincoln*

Gerik Scheuermann *University of Leipzig*

Karen Seto *Yale University*

Wanyun Shao *University of Alabama*

Eleanor Stokes *University of Maryland*

Donglian Sun *George Mason University*

Sara Via *University of Maryland*

Thomas Wahl *University of Central Florida*

Zhuosen Wang *University of Maryland*

Matthew Wilson *Geospatial Research Institute Toi Hangarau*

Dapeng Yu *Loughborough University*

Academic
Institutions

Not-for-Profit
Organizations

Wendy Alberg	HoLLIE
Giriraj Amarnath	International Water Management Institute
Jennifer Brady	Climate Central
Se Jong Cho	World Resources Institute
Fabio Cian	World Bank Group
Jim Cimaglio	HoLLIE
María Concepción	Oxfam America
Shannon Cunniff	Environmental Defense Fund
Bekah Curtis-Heald	Clinton Global Initiative
Kimberlee Drake	HoLLIE
Alex Hatoum	Inifinitum Humanitarian Systems (IHS)
Cathy Hudson	HoLLIE
MinJeong Jo	Universities Space Research Association GESTAR
Lynn Knight	The Institute for Sustainable Development
Helen-Nicole Kostis	Universities Space Research Association GESTAR
Tim Lattimer	Columbia Association Climate Change and Sustainability Advisory Committee
Lance Leverenz	Pan American Development Foundation
Laura Lightbody	Pew Charitable Trusts
Terry Matthews	HoLLIE
Ada Monzón	EcoExploratorio
Perry Oddo	Universities Space Research Association GESTAR
Suzanne Ozment	World Resources Institute
Hogeun Park	World Bank Group
Cecile Rousseaux	Universities Space Research Association GESTAR
Barbara Schmeckpeper	HoLLIE
Brendan Shane	Trust of Public Land
Hilary Stevens	Restore America's Estuaries
Katie Taylor	Pan American Development Foundation
Aaron Van Alstine	Pan American Development Foundation

Journalists/
Press

Thomas Frank	<i>E&E News</i>
Rebecca Hersher	<i>NPR</i>
Miri Marshall	<i>CBS WUSA9 Weather</i>
Joseph Martínez	<i>Telemundo DC</i>
Jason Samenow	<i>Washington Post</i>
Jen Schwartz	<i>Scientific American</i>

Private/
Commercial
Entities

Catherine Bohn	<i>Dewberry</i>
Damon Coppola	<i>Shoreline Risk</i>
Marangelly Cordero-Fuentes	<i>Science Systems and Applications, Inc.</i>
Winfield Decker	<i>Science Systems and Applications, Inc.</i>
Corey Froese	<i>BCG Engineering Inc.</i>
Patrick Grover	<i>BGC Engineering Inc.</i>
Alexis Hoffman	<i>Jupiter Intelligence</i>
Dave Jones	<i>StormCenter Communications, Inc.</i>
Sandra Knight	<i>WaterWonks, LLC</i>
Peter Kokopeli	<i>Climate Decision, LLC</i>
Andrew Lauland	<i>RAND Corp</i>
Dag Lohmann	<i>KatRisk, LLC</i>
Frank Losada	<i>DHL</i>
Necolle Maccherone	<i>Michael Baker International</i>
Marion McFadden	<i>Enterprise Community Partners</i>
Ryan Miller	<i>Critical Functions, LLC</i>
Richard Murnane	<i>Kinetic Analysis Corporation</i>
Kumar Navulur	<i>Maxar</i>
Ron Peters	<i>Peters Bodyshop</i>
Phetmano Phannavong	<i>Atkins Global</i>
Susanna Pho	<i>Forerunner</i>
Dan Pilone	<i>Element 84</i>
Mary Roman	<i>AECOM</i>
Baris Sal	<i>DHL</i>
Guy Seeley	<i>Atmospheric and Environmental Research</i>
Edil Sepulveda Carlo	<i>Science Systems and Applications, Inc.</i>
Ranjay Shrestha	<i>Science Systems and Applications, Inc.</i>
Rebecca Starosta	<i>AECOM</i>
Katrina Tavanlar	<i>Booz Allen Hamilton</i>
Michael Taylor	<i>DHL</i>
Andrew Ulmer	<i>Capella Space</i>
Lutz Venhofen	<i>DHL</i>
Mark Vessely	<i>BCG Engineering Inc.</i>

Government
Entities

David Alexander *Department of Homeland Security*

Christoph Aubrecht *European Space Agency*

Calvin Ball *Howard County Executive*

Louis Barbier *NASA Headquarters*

Ovidio Bartolomei *National Geospatial-Intelligence Agency*

John Bolten *NASA Goddard Space Flight Center*

Edward Clark *National Weather Service*

Brian Cleary *Howard County Government*

Michael Cosh *U.S. Department of Agriculture*

Mark Deluca *Howard County Government*

Chas Eby *Maryland Emergency Management Agency*

Fernando Echavarria *U.S. State Department*

Antonia Gambacorta *NOAA*

Thomas Graziano *National Weather Service*

Jason Haga *AIST Japan*

Raha Hakimdavar *U.S. Forest Service*

Shaina Hernandez *Howard County Government*

Mike Hinson *Howard County Office of Emergency Management*

James Irons *NASA Goddard Space Flight Center*

Jim Irvin *Howard County Government*

Virginia Kalb *NASA Goddard Space Flight Center*

Bandana Kar *Oak Ridge National Laboratory*

Jason Kessler *EarthRise Alliance*

Dalia Kirschbaum *NASA Goddard Space Flight Center*

Sarah Mazur *U.S. Environmental Protection Agency*

Will McNamara *Cybersecurity and Infrastructure Security Agency*

Mark Miller *Howard County Government*

David Novak *National Weather Service*

Julia O'Brien *FEMA Region 2*

Batu Osmanoglu *NASA Goddard Space Flight Center*

Christa Peters-Lidard *NASA Goddard Space Flight Center*

Scott Peterson *Howard County Government*

Julie Rosati *U.S. Army Corps of Engineers*

José Sánchez *U.S. Army Corps of Engineers*

Lori Schultz *NASA*

Brian Sheavly *Howard County Economic Development Authority*

Jane Smith *U.S. Army Corps of Engineers*

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William Sweet *NOAA National Ocean Service*
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Vernon Thompson *Howard County Economic Development Authority*
Larry Twele *Howard County Economic Development Authority*
Stephanie Uz *NASA Goddard Space Flight Center*
Chris Van Hollen *U.S. Senate*
Pat Varga *Carroll County Government*
Chris Vaughan *FEMA*
Kevin Wagner *University of Arizona*
Xiwu Zhan *NESDIS/STAR*