Ms. Melissa Roberts
Founder and Executive Director, the American Flood Coalition

Hearing titled Innovation in Disaster Prevention: Advancing Technology for Prediction and Response
Before the Committee on Science, Space and Technology
United States House of Representatives

September 15, 2026

Introduction

Chairman Babin, Ranking Member Lofgren, and distinguished members of the Committee, thank you for the opportunity to testify today.

My name is Melissa Roberts and I am the Founder and Executive Director of the American Flood Coalition (AFC). AFC is the only national resilience organization that connects local, state, and federal leaders to drive transformational solutions to flooding and adaptation. Our coalition has more than 530 members from over 20 states, including local and state elected officials, cities and towns, as well as civic, business, and military groups. We've also recognized 60 bipartisan Federal Champions in Congress. We bring deep, on-the-ground expertise from communities across the country to bear in our work.

As a fully philanthropically-funded nonprofit, AFC operates as an honest broker interested in connecting local leaders with objective solutions. We provide support that communities need without a fee or charging dues, and we do not pursue or receive government contracts.

While we are the "flood" coalition, our work extends far beyond flooding as community responses to floods and other natural hazards must be holistic. I've talked with countless elected officials at every level of government who are grappling with more extreme weather and more destructive disasters.

No matter if they live in rural or urban areas or on the coast, along rivers and streams, or high in the mountains, leaders tell me their communities are facing compounding threats in rapid succession: drought, extreme heat, wildfires and the erosion, landslides, and debris flows that follow, then heavy rainfall and major flooding.

The challenge is immense. Between FY15 and FY25, we spent at least $580.5 billion in taxpayer dollars on federal disaster recovery, and states and communities are still losing ground. This is partly due to the fact that our current disaster system is incredibly complex. To better understand it, our team decided to map the system and found over 130 programs touching disaster recovery and resilience, spread across 20 different federal entities.

This fractured landscape makes it especially hard to harness the technological advances that are critical to improving how we handle disasters. Today, however, I want to focus on how we can use new improvements in technology to strengthen disaster mitigation and recovery, as well as challenges to fully leveraging those tools, including data management and federal procurement policy.

Opportunity: Strengthening disaster mitigation

Let's start with disaster mitigation. Reducing risk from disasters requires directing funding and resources toward the most strategic projects to protect lives, property, and communities.

However, decisionmakers face several challenges in identifying and implementing these measures, including:

- **Planning is too local for regional problems.** Hazards such as wildfire, flooding, drought, and heat move through watersheds and firesheds, not adhering to municipal boundaries. Localized, municipal-level planning often overlooks opportunities to address risk at the scale at which it occurs.
- **Hazards are planned for in isolation.** Disasters amplify each other; wildfires increase flood and landslide risk, floods can lead to landslides or fires, and both can create toxic exposure. Current planning and funding processes address individual hazards in isolation, and traditional modeling methods are too slow and expensive to effectively tackle multiple hazards simultaneously at scale.
- **Multi-benefit projects are undervalued.** Multi-benefit projects, including harnessing the power of nature,can address multiple hazards simultaneously, but without tools to model and quantify their combined benefits, they are rarely prioritized despite their resource efficiency.
- **Current planning processes are slow, expensive, and consider limited options.** Current models and engineering processes are time- and cost-prohibitive and too limited in scope. Because of the cost and effort involved, communities can typically evaluate only a small set of project or design options, thereby missing the opportunity to test a broader range of multi-hazard scenarios. This constrains their ability to assess tradeoffs across upfront costs, long-term maintenance, and comprehensive risk reduction benefits.

While these challenges present significant barriers to disaster mitigation, the good news is that improvements in computational power, geospatial AI, and disaster modeling offer an opportunity to solve them.

However, to fully leverage these new tools we need to build a federal home for this work, a center for disaster resilience research that can identify the right projects at the right time.

Such a center could sit at the National Institute of Standards and Technology (NIST), be a new Advanced Research Project Agency, or serve as a special project within a national lab. It should have the authority to bring together partner agencies and outside organizations to build smart, region-wide approaches to tackling multiple types of hazards at once, figuring out where a well-placed project could make the biggest difference for disaster preparation.

The first step would be pulling together existing data and models that look at hazards, infrastructure, the environment, and community factors. From there, advanced analytics could help to pinpoint the best projects in areas where action would further in reducing risk at the source. This could help identify the highest return on investment interventions to stretch taxpayer dollars.

By modeling how hazards interact dynamically across regions with an overlay of civil infrastructure, this approach moves us beyond static hazard maps. It can show, for example, how wildfire in one season increases flood and landslide risk in the next, or how floods can set the stage for future fire and toxic contamination. It also allows us to identify the best places to intervene across an entire region while accounting for community vulnerability, economic impact, and the long-term resilience of both natural and built systems.

Challenge: Federal disaster data management

In order for any of these technologies to actually help us improve disaster mitigation we need good data. The federal government has a wide selection of data related to hazards, but much of it is outdated, siloed by hazard, fragmented across agencies and not AI-ready. These are issues that we must fix if we want to unlock new technology to increase disaster resilience, and the Committee is well positioned to lead on them.

Siloed data isn't just inconvenient, it's also a barrier to understanding risk and deploying technology to address it. When drought data lives on one system, wildfire data on another, and flood data on a third, we can't see how these hazards interact. This structure also doesn't reflect reality, where droughts can lead to wildfires and wildfires can lead to floods. We need to break down these silos in order to address disasters as compounding events, rather than isolated incidents.

The same fragmentation extends across various federal agencies, each of which collect data using their own systems. Additionally, data quality remains an issue for many federal datasets. But, AI systems are only as good as the information that goes into them. They need data that is structured, standardized, and interoperable and the governance structure to implement this just isn't there. However, the *AI-Ready Federal Data Guidelines Act (H.R. 9341)*, which directs NIST to establish guidance for data formatting and structure, metadata, and data maintenance, is an excellent step forward.

The backwards-looking nature of much of our hazard data also hampers our ability to prepare for disasters. Across the country, transportation and stormwater infrastructure agencies have built and continue to build critical infrastructure to design standards that are based on historical data. This has resulted in infrastructure that is increasingly undersized for the floods that communities are experiencing, which means that eventually, these bridges will need to be raised and the pipes will need to be widened. That's millions of dollars in taxpayer money being spent on upsizing projects that could have been avoided if they were designed with better data from the start.

NOAA Atlas 15, the new, authoritative source of current and future rainfall data for the country, is an example of why forward-looking data is so important. Atlas 15 leverages advanced scientific computing methods including computational hydrology, geostatistics, statistical

modeling, remote sensing, and geospatial analysis. Once complete, it will provide the first comprehensive, nationwide precipitation estimates that include forward-looking projections, a significant improvement over its predecessor. Given these precipitation estimates get baked into local and state codes and planning, Atlas 15 will better help us to rightsize our infrastructure for the future and avoid costly retrofits moving forward.

However, while Atlas 15 is a major achievement, it is only one piece of the puzzle and there are many other datasets important to risk assessment that need updating to include forward-looking projections.

Opportunity: Expediting disaster recovery

Turning to disaster recovery, the United States leads the world in technological innovation but, when it comes to how government agencies operate on the ground, particularly in the aftermath of disasters, we're stuck in the past. This disconnect is costing disaster survivors valuable time, taxpayers money, and communities critical moments in their recovery efforts.

I'd like to take a moment here to talk about FEMA, which I know is outside the Committee's jurisdiction. However, the outdated processes and technology used by the Agency are worth discussing today, given that the agencies within the Committee's jurisdiction could assist with technical solutions that address these challenges.

FEMA's damage assessment and disaster aid processes are still largely manual. Field staff physically visit individual homes to document destruction, and communities are forced to navigate poorly designed, fractured systems to get approval and payment for necessary recovery projects. This approach is not only inefficient, it's unfair.

Those with time, technology, and know-how to persist through red tape often fare better than their more vulnerable neighbors. But, having the upper-hand often means paying for external contractors and experts, which many communities simply cannot afford.

For example, in the wake of a major flood in South Carolina, a local mayor told me, "It took 4 years and 2 approvals to get reimbursements from FEMA Public Assistance (PA). We had to submit the latitude and longitude to 6 decimal places of the fallen trees, with before and after photos of every tree."

Meanwhile, private sector companies routinely use AI to assess insurance claims, route deliveries, and analyze vast datasets in real time. There is a gap between what's possible and what's being used in federal disaster response.
The amount of time it took this mayor's town to receive reimbursement through the FEMA PA process isn't unusual. A National Association of Counties survey found that 28% of counties report PA processing times of over 6 years for their longest open claim.

Another process slowing things down is how we verify disaster damages. The process relies heavily on what are called “windshield assessments,” where emergency responders drive through disaster-impacted areas to visually observe the damage from their moving vehicles. They can take a significant amount of time, especially if there are disaster impacts to road infrastructure. They also limit evaluations to what is visible from roads and can lead to underestimations of impacts. Methods and data collected can be inconsistent within and across jurisdictions, which makes data difficult to aggregate. Accurate and timely data is essential for making informed decisions, and these protocols are outdated in comparison to remote sensing technologies.

When we have rapid advancements in AI, satellite imagery that can detect a manhole cover from space, and drone footage that can deliver insights in real-time, there’s a better way. This isn’t about replacing human judgement. It’s about using technology to support FEMA staff, increase consistency across cases, and make better decisions faster.

While outside this Committee's jurisdiction, I encourage members to support the bipartisan *Fixing Emergency Management for Americans (FEMA) Act of 2025 (H.R. 4669)*, which takes steps to address some of the issues some I've outlined, including provisions to unlock technological innovation to expedite damage assessments.

Challenge: Federal procurement policy

In order to unlock any of the opportunities offered by technology that I’ve just discussed, as well as those related to disaster mitigation, Congress must reform federal procurement processes.

Our current technology acquisition processes are slow, rigid, and risk-averse. They are based on multi-year RFP processes that lock in technology and vendors for five to ten years. With technology evolving quickly, we need a more nimble process that can adjust to the latest updates.

Congress should allow for new dynamic procurement processes that create competition and allow for rapid piloting and identification of promising technology. This could include creating low-risk, controlled environments to test emerging technology and “bake off” procurement processes that are stage-gated with clear benchmarks that are focused on identifying the right solution rather than finding the lowest cost for a specific technology or function.

Through a bake-off process, agencies would have an opportunity to set clear benchmarks to meet their mission needs and competing companies would have the opportunity to be creative in meeting those benchmarks. Operating within the controlled environment, competitors would be winnowed down through the benchmark challenges, cutting through red tape while

maintaining transparency and competition. Approaches like bake-offs would encourage innovative technologies like AI-driven damage analysis and document automation, with the goal of full-scale deployment in future disasters.

Much of the technology is ready. What's needed now is the will to reform the system.

Conclusion

Chairman Babin, Ranking Member Lofgren, and distinguished members of the Committee, thank you again for the opportunity to testify. I look forward to answering your questions.