Turning Disaster Data into Climate Intelligence

Hurricane Melissa and Disaster Risk Reduction

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When Hurricane Melissa struck Jamaica in October 2025, the scale of the disaster created an equally significant need for information: Where was the damage? Which communities were most affected? What did households need? Where should resources be directed? What could the damage tell us about future risk? And how do we respond differently on the next occasion?

These questions demonstrate why disaster risk reduction cannot end when the immediate emergency ends. Information generated during a disaster can become an important foundation for recovery, reconstruction and future resilience.

On 13 October, the world observes the International Day for Disaster Risk Reduction. The 2026 theme, “Resilience Starts at Home,” highlights the importance of making homes and communities better prepared for disaster risk. (UNDRR)The theme also highlights the importance of the role and responsibility of each citizen to develop their own agency with respect to primary preparedness and response.

For Jamaica and the wider Caribbean, Hurricane Melissa provides a powerful example of why data must be part of that resilience.

Hurricane Melissa: Knowing Where the Risk Is

Following Hurricane Melissa, Jamaica undertook a national high-resolution housing damage assessment that analysed more than 428,000 buildings using satellite data and drone verification. The assessment identified approximately 116,000 structures with severe or catastrophic damage, with the findings supporting relief and reconstruction planning. (Office of the Prime Minister)

More than 100,000 household damage assessments were also completed by March 2026. The Jamaica Information Service reported that 101,458 households had been assessed, with field information uploaded into government systems and sent for geospatial verification before assistance was approved. (Jamaica Information Service)

This represents an important evolution in disaster management.

Data collected after a hurricane is not simply a record of destruction. It can help identify where vulnerability is concentrated, support resource allocation and inform decisions about how and where reconstruction should take place. The next challenge is ensuring that this information continues to create value long after the immediate recovery effort.

From Disaster Data to Climate Intelligence

For Caribbean countries, resilience increasingly depends on the ability to connect information from different sources.

Satellite imagery, field assessments, environmental monitoring, weather information, infrastructure data and community-level information can each tell part of the story. When integrated, they can provide a clearer understanding of exposure, vulnerability and changing risk.

This is where climate intelligence becomes important. Climate intelligence is not simply having more data. It is the ability to turn relevant environmental and disaster information into insight that supports decisions. The question after Hurricane Melissa should therefore extend beyond “What was damaged?” It should also be: What can the data tell us about where Jamaica remains vulnerable, what needs to change, and how we reduce the impact of the next event?

MelissaJamaica.org: Applying Technology to Recovery

This is one of the reasons EnviroTek Group developed MelissaJamaica.org, a digital platform focused on Hurricane Melissa and Jamaica's recovery.

The platform forms part of EnviroTek's broader work in disaster recovery, environmental data integration and creating climate intelligence toward achieving climate resilience. EnviroTek reports that its Hurricane Melissa recovery initiative includes AI-powered interactive damage assessment mapping, real-time aid distribution coordination, environmental data monitoring and predictive analytics for resource allocation and recovery planning. (EnviroTek Group)

The purpose is not simply to create another repository of disaster information. Digital tools can help make information easier to access, organise and use when decision-makers, communities, businesses and development partners are dealing with large volumes of information during a complex recovery. The experience demonstrates a broader principle: technology is most valuable when it helps people make better decisions.

Recovery Should Reduce Future Risk

Rebuilding what was lost is necessary. But resilience requires asking whether what is rebuilt will be better able to withstand the next hazard. Jamaica's post-Hurricane Melissa recovery planning has involved the use of geospatial intelligence to understand the scale and location of housing damage, with the government indicating that the resulting data will help shape reconstruction and resilient housing solutions. (Office of the Prime Minister)

Damage patterns can inform infrastructure planning, building practices, land-use decisions, emergency preparedness and climate adaptation. Over time, information from individual disasters can contribute to a deeper understanding of how risk is distributed and how it is changing. For a Caribbean region repeatedly exposed to hurricanes, flooding, drought, extreme heat and other hazards, this institutional memory is essential.

Resilience Starts at Home

The 2026 International Day for Disaster Risk Reduction theme reminds us that resilience begins at the household level. But households are part of larger systems. (UNDRR)

A resilient home depends on where it is located, how it is constructed, the infrastructure connecting it to essential services, the information available to the people who live there, and whether warnings reach them in time.

Governments, businesses, communities, technology providers and development partners all have a role to play. The UN Office for Disaster Risk Reduction identifies risk-informed land-use planning, building standards, access to risk information and household preparedness as important elements of resilient homes. (UNDRR)

Hurricane Melissa showed Jamaica the scale of damage that a major disaster can produce. It also demonstrated the growing importance of geospatial information, digital assessment tools and data-driven recovery. The opportunity now is to turn that experience into lasting climate intelligence.

The next hurricane will generate more data. Our responsibility is to ensure that we are prepared to turn that data into better decisions, stronger infrastructure and reduced risk. Resilience starts at home. But building resilient homes and communities requires the data, technology and decisions that help us understand risk before the next disaster arrives.