

Understand and Prepare for Extreme Weather Events

Why different extreme weather events require varied preparedness measures for public sector organizations to safeguard affected communities



Worldwide, governments, state and local agencies and NGOs struggle to keep pace with increases in the frequency, volume and impact of extreme weather events. These events rank first on the list of threats forecast to pose a critical risk to the world in 2024 and in the next decade, according to the World Economic Forum's (WEF) 2024 [Global Risks Report](#).

And given that global climate experts deemed 2023 to be [the hottest year on record](#), we can expect this historic heat to continue and to fuel other extreme weather events around the globe, including wildfires, floods and droughts.

Additionally, according to the UN Intergovernmental Panel on Climate Change, [about 3.3 to 3.6 billion people](#) now live in places that are highly vulnerable to climate change: "Climate-driven food and water insecurity is expected to increase with increased [global] warming. When these risks combine with other adverse events, such as pandemics or conflicts, they become even more difficult to manage."

This new reality has placed a spotlight on government organizations and the ways in which they help the communities they serve prepare for, respond to and recover from extreme weather events. Here we'll explore how different types of events have different lead times—long, short and little to none—and how those differences affect preparedness measures and what to consider when mitigating potential effects.

Storms and Hurricanes: Events with long lead times

In the U.S., powerful storms and hurricanes over the past two decades have shown public sector organizations and agencies just how critical it is to identify and plan for the potential risks extreme weather events pose to affected communities, especially vulnerable populations. Most recently, [Hurricane Idalia](#) caused heavy flooding throughout Florida in August 2023 and left nearly a half-million residents without power. Thousands of homes and buildings were destroyed.

The good news is that these types of weather events—including winter storms, blizzards and heat waves—have longer lead times than other disasters, giving government agencies the advance notice needed to mitigate risks for both their organization and the communities they serve.

5 steps to mitigate the impact of hurricanes

1. **Identify risks proactively.** Ensure you have access to real-time breaking news alerts to gain an early line of sight into major storms and respond more quickly and efficiently.
2. **Secure physical assets quickly.** Study historical landfall patterns and integrate a breaking news product into your existing workflows to develop targeted response plans aimed at protecting at-risk buildings and public spaces.
3. **Create an emergency response plan.** Develop resources and protocols, including historical flood maps and evacuation plans, and document them clearly. Where possible, run emergency response drills to ensure the communities you serve know what to do during a storm.
4. **Communicate with key stakeholders early and often.** Establish open lines of communication between partners at the federal, state, and local levels, as well as between and across relevant departments. Maintain them during and after the storm.
5. **Keep your people and your data safe.** Ensure data is backed up and stored in a safe, reliable facility. Empower staff to work remotely by developing a process for securely and seamlessly transitioning to remote work.

Prepare for vulnerabilities

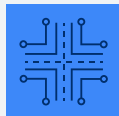
What we now know is that when preparing for extreme weather events with long lead times, agencies must consider how the events intersect with the underlying vulnerabilities of the populations served. This is because such events have disparate impacts on vulnerable populations—both during and after they occur.

As we've learned from hurricanes and typhoons, more fatalities and injuries often occur in the days after a weather event. Much of this is due to after-disaster ripple effects, such as food scarcity and power outages, that begin to propagate and accelerate. Ideally, preparedness for such situations is already a key part of your emergency response plans. But don't assume what you have is sufficient. As soon as the first warnings come in, review your response plans to ensure they can withstand the next extreme weather occurrence.

Two key actions to take:



1. Understand and address your community's underlying vulnerabilities, such as medical conditions or resource accessibility.



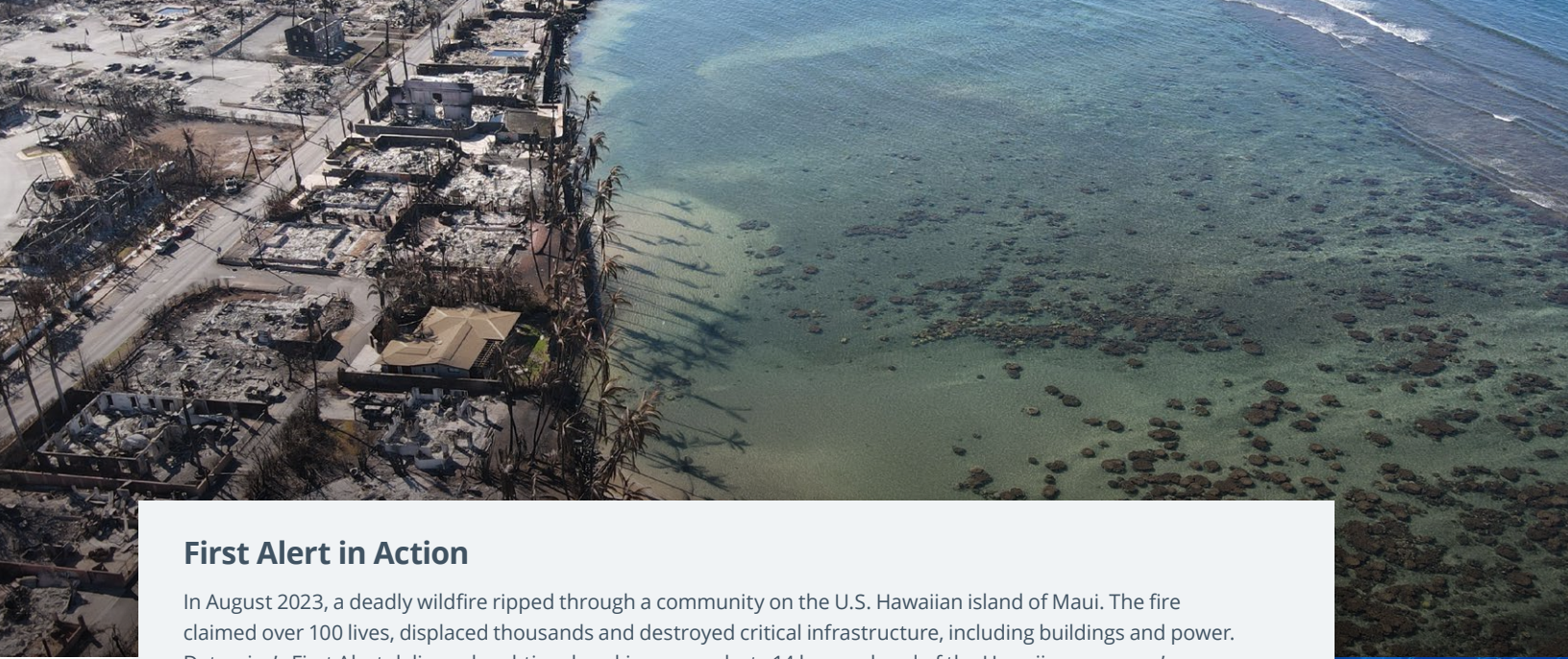
2. Know which healthcare infrastructure can best serve your community and then ensure it is prepared to do so.

Build public-private partnerships

When public and private sector organizations work together on disaster preparedness, they can help communities become more resilient by providing vital services and access to essential resources. The key is to identify the areas in which the private sector's assistance is most needed before and after an extreme weather event.

Will you need help clearing roads quickly? Should pharmacies ready themselves for an influx of people in need of medication? Is there shelter for evacuees? In the state of Texas, the City of Austin Office of Homeland Security and Emergency Management has successfully partnered with a grocery store chain to help ensure access to food in the event of a disaster.

Ideally, those in the private and public sector will have access to the same critical breaking news to avoid any discrepancies or gaps in information. The key is to establish these partnerships ahead of time and be open to new ways of collaborating.



First Alert in Action

In August 2023, a deadly wildfire ripped through a community on the U.S. Hawaiian island of Maui. The fire claimed over 100 lives, displaced thousands and destroyed critical infrastructure, including buildings and power. Dataminr's First Alert delivered real-time breaking news alerts 14 hours ahead of the Hawaiian governor's emergency proclamation and major news coverage—allowing Dataminr customers to stay up to date on the unfolding situation, quickly coordinate emergency responses and effectively mobilize resources.

Floods and Wildfires: Events with short lead times

While floods are a common and often immediate aftereffect of hurricanes and severe thunderstorms, they don't come with as much advance notice. For instance, hurricane forecasts span anywhere from a few days to a week. But warnings for flash floods are typically issued six hours beforehand. This leaves little time for government agencies to prepare.

Another climate hazard with short lead times is wildfires. Exacerbated by extreme heat, wildfires have been recurring with increased scale and impact over the past few years. According to the United Nations, uncontrollable wildfires are projected to [increase globally by 14 percent by 2030](#), 30 percent by 2050 and 50 percent by the end of the century. They can damage and/or significantly disrupt critical public infrastructure, such as transportation and water management facilities.

“Wildfires are not only a physical event—to some degree a meteorological event—but also a health event. Wildfires have negative effects on access to food and water and displacement, which impacts the shelter system and leads to other health risks that emerge from the [impacted] shelter system.”



Andrew Schroeder,
Direct Relief Vice President
of Research & Analysis

These short lead times are challenging to manage and prepare for. But the challenge is one that must be tackled head on as the intensity and frequency of extreme weather events continue to increase. This requires government agencies to know what's happening in and around the communities they serve—and they need to know as soon as weather events occur.

For example, First Alert, Dataminr's product for the public sector, alerts on breaking news in real time, enabling the fastest response—from deploying first responders to issuing critical public updates. The result is a safer, more informed community.

Maintain real-time visibility into news as it unfolds

While knowing about extreme weather events as soon as they occur is critical, so is the ability to view the progression of such events as they unfold, be it over the course of minutes, days or weeks. That is especially valuable for events that not only have short lead times, but also require continuous visibility, such as wildfires.

Wildfires spread quickly, cause serious damage to surrounding populations and ecosystems, and last longer than they once did. For example, summer wildfires in the U.S. last 40 to 80 days longer than they did 30 years ago. These fires frequently result in harmful air quality and evacuations from homes and businesses.

Being able to communicate with the public and key constituents throughout the duration of the fires is vital.

Reminders for effective communication

Set up lines of communication ahead of time to better service communities.

- Establish a 24-hour warning point and emergency operations center.
- Ensure there is a communications plan in place to keep elected officials informed of your progress.
- Implement different ways—no fewer than two—to both receive weather warnings and alert the public.
- Leverage real-time breaking news alerts to identify and address infrastructure issues and local service disruptions more quickly and strategically.

“ Access to real-time information helps prevent any delayed response or misguided reactions, and enables timely coordinated emergency response so that our crews on the ground can act appropriately and efficiently, such as coordinating with local government partners and surrounding communities during and after a fire.”



Brant Arnold-Smith,
Metro Vancouver Program Manager,
Security & Emergency Management



Tornadoes: Events with little to no lead time

Some types of extreme weather events have very little lead time. Take tornadoes for instance. The U.S. National Weather Service aims to provide warnings that are 13 minutes ahead of when tornadoes hit, but on average, provides nine minutes of lead time. Once a tornado touches, it can last from a few seconds to approximately three hours.

These events pose additional preparedness challenges, such as ensuring the dissemination of accurate and reliable information. Rumors can cause unnecessary panic and instances of misinformation can erode the public's trust in government.

During these times, make it a priority to share updates on new developments via social media channels and news outlets in a timely manner. Combat misinformation by obtaining valid information from official sources and then communicate that information via your official social channels. This helps to ensure affected parties remain informed.

As planning is minimal when there is a sudden onset of an extreme weather event, it's important to prioritize your responses based on the potential impacts the event might have on communities. Emergency responders often face coordination pressures around being able to provide different types of assistance, including water, food, shelter and medicine.

For a more coordinated response:

- Leverage breaking news alerts on weather events to gain a clear and precise picture of relief efforts and distribution of resources
- Understand what the gaps are for those in relief efforts and how quickly they can be filled
- Know how the populations you serve are both digitally connected and not connected
- Look for opportunities to collaborate across your own, as well as other agencies



First Alert in action

In March 2023, a large tornado touched down in Little Rock, Arkansas, leading to one death and injuring dozens more, while causing extensive damage to buildings and vehicles. First Alert customers were alerted to the event in real time, one hour ahead of news coverage and three hours before the governor activated the state's National Guard to respond to the emergency.

The imperative is to immediately send a warning message that a weather incident has or is about to occur and clearly communicate what actions the public should take to protect themselves, their families and property. Just as important is communicating additional actions they need to take to remain safe and recover more quickly.

Extreme weather events can cause enormous damage to the environment, property, wildlife and human health. Management of activities before, during and after an event is a difficult task. By understanding how weather incidents differ in lead times and impact, you can design more effective recovery plans while keeping the communities you serve informed and prepared.

Learn More

[Request a demo](#) for a firsthand look at how public sector organizations use [Dataminr's First Alert product](#) to prepare for and respond to extreme weather events—before, during and after they occur.