DATAMINR PULSE

Use Geovisualization to Prepare for Severe Weather

How visualizing data can significantly improve organizations' weather preparedness and response efficiency

Extreme weather events are undoubtedly increasing in frequency, severity and unpredictability. According to a recent Gallup survey, one in three U.S. adults report they have been personally affected by a severe weather event in the past two years. The most common events cited were extreme cold, hurricanes, snow, ice storms and blizzards. In 2021 alone, climate disasters caused a combined $145 billion in damages and at least 688 deaths in the U.S., according to NOAA's National Centers for Environmental Information.

At the global level, concerns about worsening extreme weather continue to arise, taking center stage at COP26, the UN Climate Change Conference held in Glasgow in November 2021. Policy makers and organizations were encouraged to consider how climate change will affect their organization in the long term rather than short term.

While climate change disruptions won't happen everywhere at once, no single region is completely immune to them, and the severity of their impact will only intensify over time. As such, it's vital that organizations tap into effective geospatial technologies, those that let them map their people and assets to better understand exactly where risks lie and their potential effects.

Here we address three critical areas that continue to be affected by extreme weather, as well as natural disasters:

- Duty of care
- Supply chain
- Business resilience

Duty of Care

Every organization has a legal and moral obligation to ensure employees' safety, health and welfare while at work. This means ensuring the safety of business travelers and creating a work environment that protects employee health. But with the COVID-19-induced shift to remote and hybrid work models, a large portion of the global workforce now has more flexibility in terms of where they work—whether that's from their home, a co-working space, a coffee shop, etc.

This creates additional challenges in how and when to protect employees. Consider high stress incidents such as cyclones, tornadoes and floods. Ensuring duty of care requires organizations to do what they can to mitigate the effects of exposure to severe weather and other environmental threats that occur near employees' version of the 'workplace'.

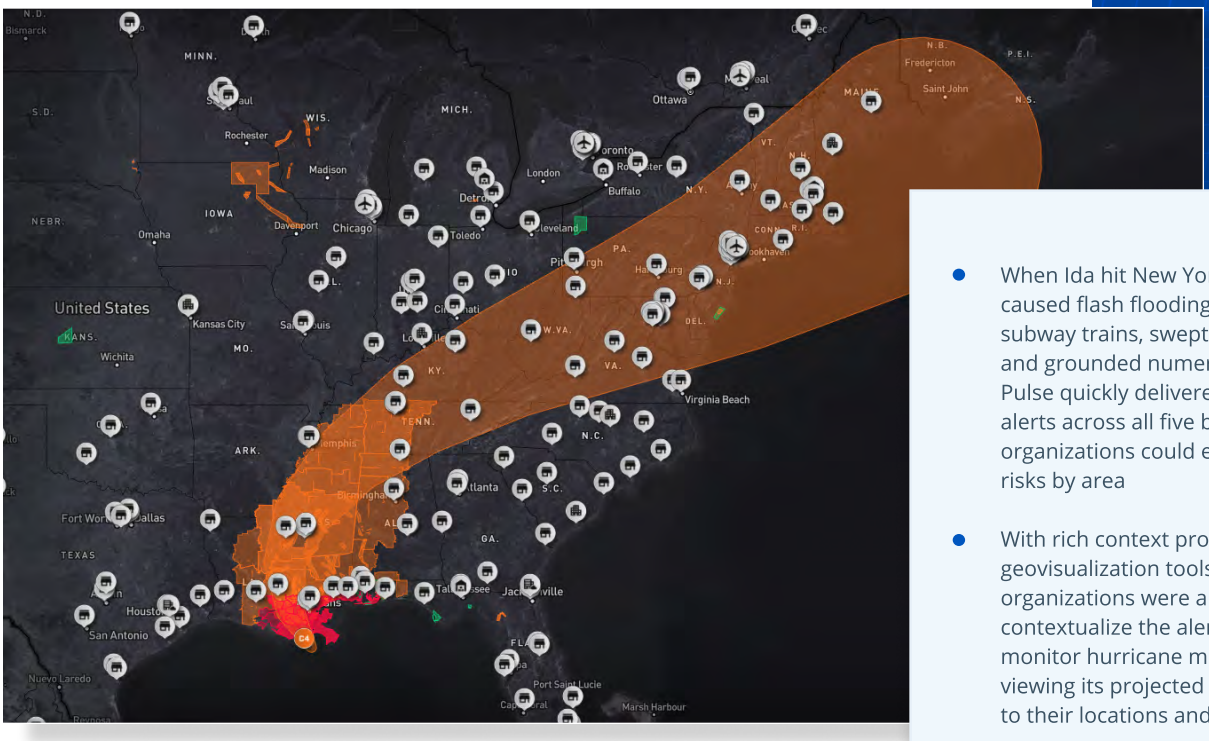
Whether your organization believes duty of care should be extended to wherever your employees are physically working, it's crucial that you know about an extreme weather event as soon as they are detected and have the tools to manage the impact, thus keeping your employees safe.

With geovisualization capabilities, like those offered by real-time alerting solution Dataminr Pulse, organizations can better ensure duty of care and minimize the risks of severe weather for their employees, enabling them to:

- Visualize locations where employees work, be it an office building, warehouse, retail location, key supplier, etc., alongside real-time risk data on a single mapping display
- Receive real-time alerts on security threats in specific locations, allowing for faster responses
- Ensure communications are sent to employees before and as an adverse weather event occurs, helping them better prepare and giving those impacted the support to protect themselves and minimize operational disruption

Dataminr Pulse customers across the globe have relied on its geovisualization capabilities to secure their people against destructive weather events, such as Hurricane Ida.

When Hurricane Ida—the most costly disaster in the U.S. in 2021—struck the state of Louisiana, it disrupted critical infrastructure such as wireless networks, a power grid and an oil port responsible for 18% of the U.S. oil supply, cutting off nearly 13% of the country's refinery capacity.



Visualizing Hurricane Ida in the U.S. in 2021

Figure 1. Hurricane Ida's journey across the U.S.

- When Ida hit New York City, it caused flash flooding, submerged subway trains, swept away cars and grounded numerous flights. Pulse quickly delivered geo-located alerts across all five boroughs so organizations could easily prioritize risks by area
- With rich context provided by geovisualization tools, organizations were able to contextualize the alerts and monitor hurricane movement by viewing its projected path relative to their locations and assets
- As a result, customers obtained real-time situational awareness of the threats and took appropriate action to protect their employees

Supply Chain

The COVID-19 pandemic has caused significant supply chain disruptions to the global market, due to staffing shortages and manufacturing shutdowns. Cargo demand also surged and ports across the globe became congested. Add to this the increase in frequency and unpredictability of extreme weather events, which exacerbates supply chain issues, especially during tropical storm and wildfire seasons. The impacts are felt worldwide by multiple industries, including manufacturing, construction, retail trade and more.

Some examples of such events from the past few years include:

- Wildfires in California and British Columbia, Canada shut down rail lines and trucking routes, affecting the ability to transport products to market. These fires also posed great challenges for lumber production.
- A severe drought in Europe that caused record-low levels on the Rhine River, severely inhibiting shipping traffic in Germany and France
- Tornadoes in the U.S. Midwest destroyed an Amazon logistics hub and hit various agricultural suppliers
- Typhoons and other catastrophic weather events that crippled manufacturing and shipping in East Asia and the Northern Indian Ocean

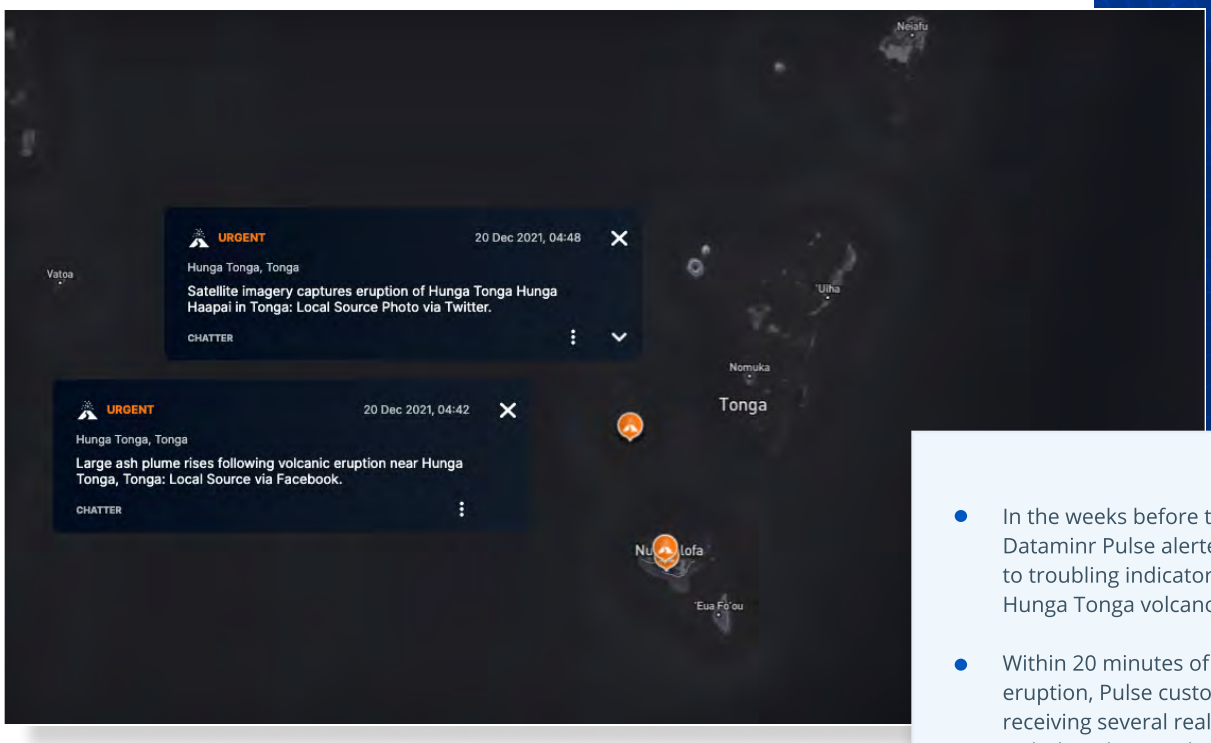
To counter these risks, it's a business imperative that security and supply chain leaders deploy effective technology, such as geovisualization, to minimize potential disruptions and costs.

Dataminr Pulse's real-time alerts inform customers of unfolding situations that might impact their supply chain, including incidents that could lead to delays or cause long-term disruption. Customers also rely on our geovisualization capabilities to eliminate risk blind spots and make better informed decisions—such as preparing for supplier delays and securing assets—based on the most accurate and up-to-date information.

Take the Hunga Tonga-Hunga Ha'apai volcano eruption in January 2022 for example. Global businesses with supply chains traversing the Pacific Ocean were faced with a complex and fast-evolving set of risks following the devastating volcano eruption off the coast of Tonga. Volcanologists determined it was Earth's most powerful eruption in 30 years.

Security operations teams that use geovisualization can improve their extreme weather preparedness and response by allowing them to:

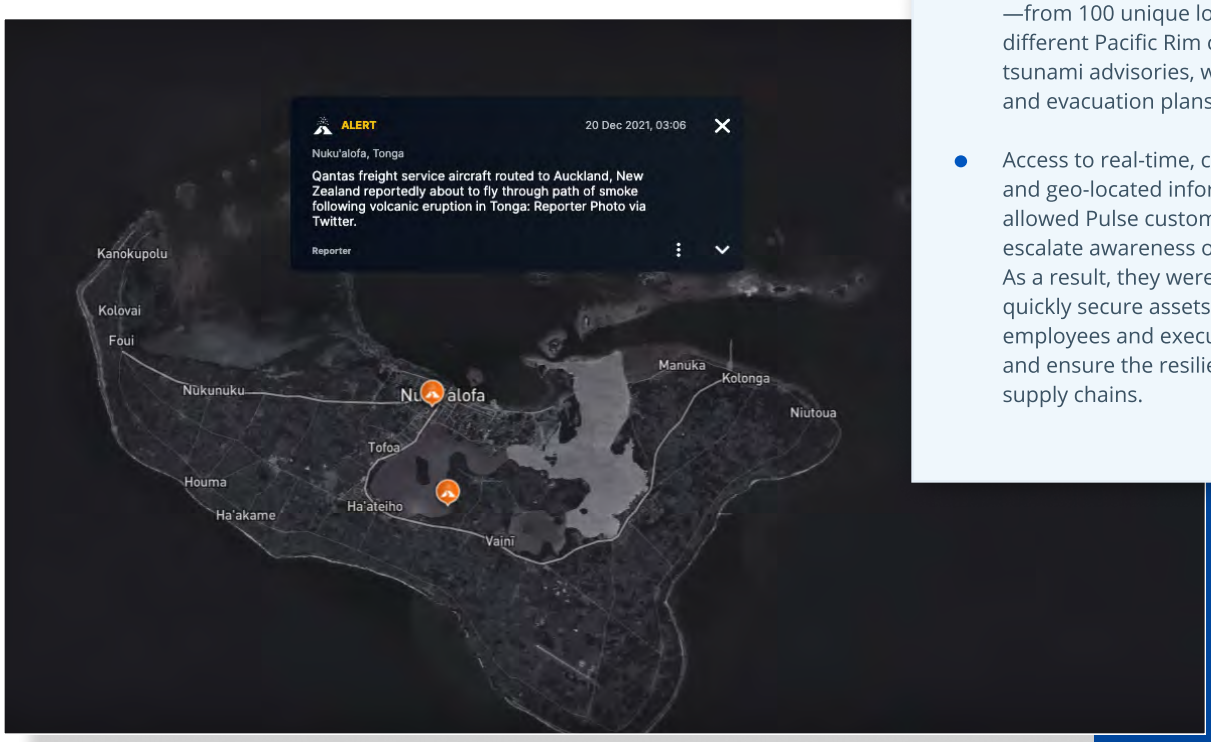
- Organize their assets by locations and alert topics to receive the most relevant alerts
- Identify assets that are in close proximity to risk events and view the impact area
- Gain more context on the movement of events, e.g., storms, tornadoes or wildfires
- Enable additional weather layers to visualize rain density (radar) and storm intensity (thermal)



Visualizing Hunga Tonga-Hunga Ha'apai Volcano Eruption in December 2021 - January 2022

Figure 2. Alerts of the onset of the eruption visualized on a map, helping users see exactly where risks lie

- In the weeks before the event, Dataminr Pulse alerted customers to troubling indicators for the Hunga Tonga volcano.
- Within 20 minutes of the initial eruption, Pulse customers began receiving several real-time alerts, including data on the first supply chain impacts—namely cargo flight diversions.
- In the 24 hours following the eruption, Pulse sent over 250 alerts —from 100 unique locations in 16 different Pacific Rim countries—on tsunami advisories, wave impacts and evacuation plans.
- Access to real-time, corroborated and geo-located information allowed Pulse customers to escalate awareness of the disaster. As a result, they were able to quickly secure assets, move employees and executives to safety and ensure the resiliency of their supply chains.



Visualizing Hunga Tonga-Hunga Ha'apai Volcano Eruption in December 2021 - January 2022

Figure 3. Alert of one of the first supply chain impacts—freight service aircraft diversion shortly after the eruption

Business Resilience

In the 2022 Horizon Scan Report, published by the Business Continuity Institute, 424 business continuity and resilience professionals from 65 countries ranked climate-related risks, such as extreme weather, natural resources shortages, and natural disasters, as one of their top three concerns in the next five to 10 years.

Companies in all industries therefore need to plan for the unexpected, strengthen their response capabilities in advance, and accelerate their climate risk assessment, mitigation and adaptation strategies. When extreme weather events do occur, security and business leaders need timely and accurate data, along with rich visual context to facilitate faster decision-making and mitigate negative effects sooner.

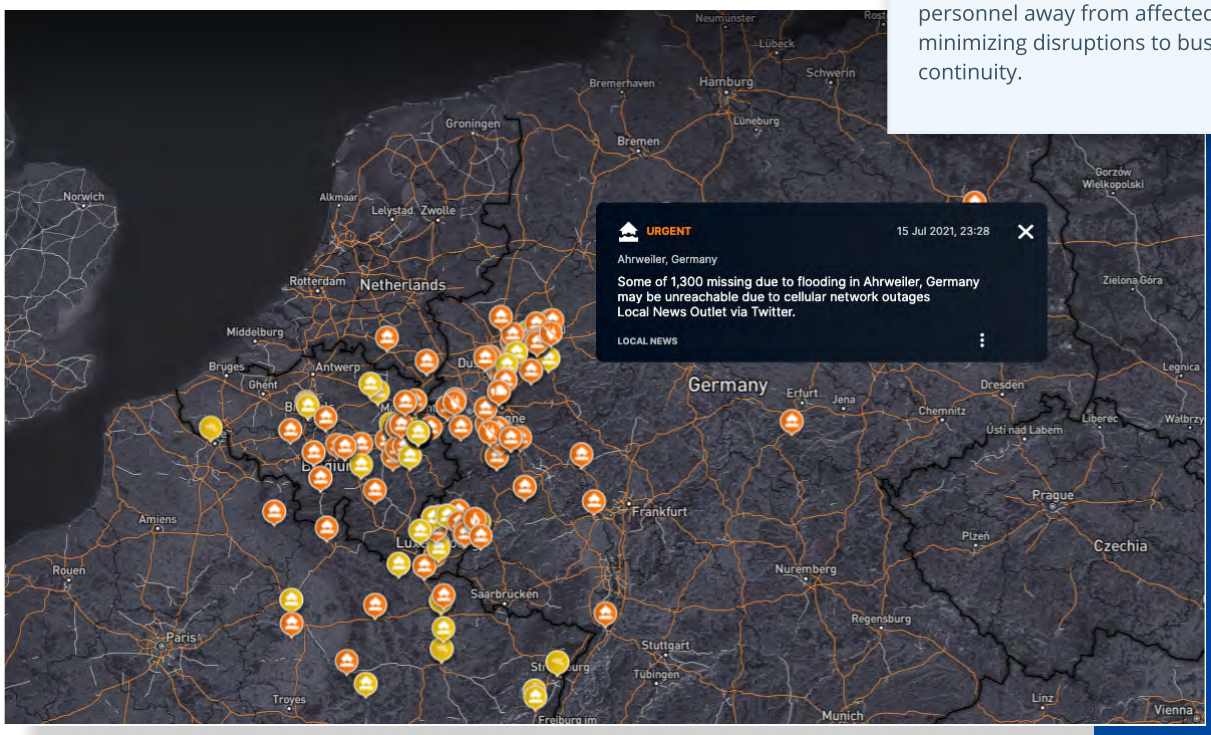
One of the major climate risks to businesses is catastrophic flooding, which can destroy physical assets and infrastructure. This includes inventory damage, transportation disruptions, revenue loss and power surges. At the same time, employees, as well as coastal and river communities, are at risk.

The deadly flooding in Western Europe—which occurred between July 12 and 15, 2021—is one example. Record rainfall, triggered heavy floods, killed more than 200 people in Germany and Belgium, wiped out tens of thousands of buildings and caused widespread power outages.

During the incident, Pulse helped organizations track hyper-local risks to their employees and assets over the lifecycle of the catastrophic flooding. Pulse also enabled security operations to quickly understand the scope and likelihood of impacts to regional infrastructure and employees by:

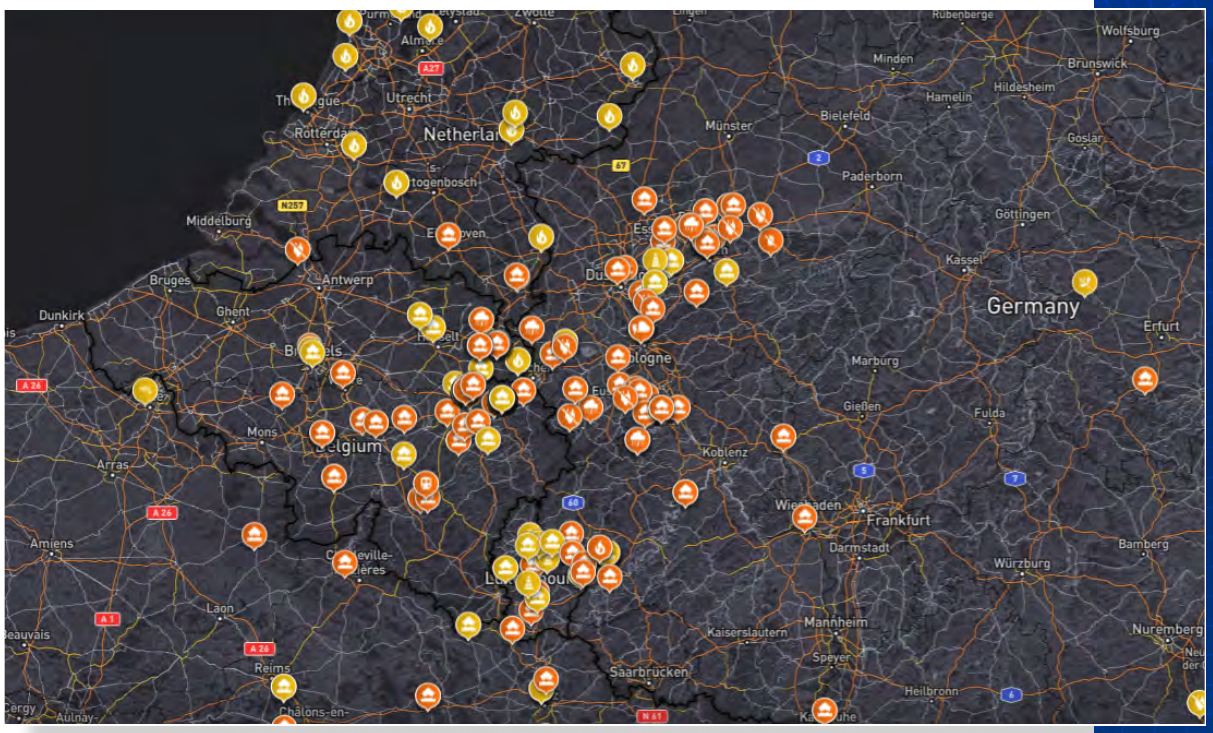
- Sending over 125 real-time and geo-located alerts from more than 70 unique locations, within the first 48 hours of severe flooding in Western Germany and Belgium
- Delivering photos and images that illustrated the severity of the event, aiding risk and security leaders in gaining full contextual awareness

As a result, businesses had actionable insights to safely route assets and personnel away from affected areas, minimizing disruptions to business continuity.



Visualizing the 2021 deadly flooding in Western Europe

Figure 4. Alerts of impacts and missing individuals across western Germany visualized on a map, showing the most heavily affected areas



Visualizing the 2021 deadly flooding in Western Europe

Figure 5. Additional impacts of the flooding in Belgium and Luxembourg, as illustrated by the alert concentrations in those countries

It is undeniable that greater frequency and severity of climate hazards pose significant challenges for all organizations, but even more so for businesses with smaller security operations. They often don't have the capacity and/or resources to identify emerging risks from the ever-increasing pool of publicly available information.

By leveraging Dataminr Pulse's real-time alerts and geovisualization capabilities, security leaders and teams of all sizes can gain the earliest visibility into critical incidents as they emerge—and have access to the rich visual data needed to determine where risks are occurring in relation to their global footprint. As a result, organizations are better able to protect not just their assets, but what's most important: their people.

Learn More

Request a demo today to see how Dataminr Pulse's geovisualization capabilities can help you effectively navigate the increasing risks posed by extreme weather events and natural disasters.

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