

# VENUE SAFETY & SECURITY

Protecting Lives. Protecting Assets.

May 2010

**WELL EXECUTED  
Emergency Plan  
PROVIDES  
Lifeline for Survival**

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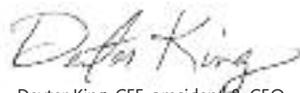
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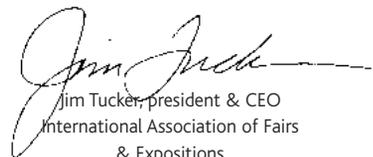


# It's better to be safe than sorry.

**D**id you know that flooding is the most common, costly, and deadly natural disaster in the United States each year. Because of an unusually wet and snowy winter, National Oceanic and Atmospheric Administration (NOAA) is anticipating particularly harsh spring floods for much of the country this year. We are already seeing rivers flooding in the upper Midwest this spring. ▶ The Federal Emergency Management Agency (FEMA) recently supported the NOAA sponsored 2010, National Flood Safety Awareness Week, observed March 15-19 (<http://www.floodsafety.noaa.gov/>). Flooding is a coast to coast threat in the United States and its territories in all months of the year, irrespective of local "flood seasons." According to FEMA Acting Regional Administrator Dennis Hunsinger, flooding is the nation's number one natural disaster. ▶ Public venue and amusement businesses must take precautions for weather related events as you will read in this edition of VS&S e-news, and may even insure for catastrophes in their communities from such an event. Those of us in the outdoor amusement industry know that you do not operate most amusement rides during high winds or electrical storms. Amusement and public venue operators along the U.S. coastline face challenges that are unique to their beachfront location. An increasingly popular strategy today is to build family entertainment and waterparks indoors, a profitable strategy, removing weather from the equation so guests can enjoy themselves any day of the year. ▶ We know that bad weather, natural catastrophes, or terrorist threats can sharply affect industry revenue. The large amusement parks in Florida are prone to hurricanes, and in California, they are prone to earthquakes. In Northern states, even short spells of bad weather, especially a weekend rainout, have a heightened effect on revenue because of the relatively short operating season. ▶ The rainiest city in the United States is not Portland, Ore., or Seattle, Wash., but Mobile, Ala., which averages more than five feet of rain each year. **WeatherBill**, a weather risk management and insurance company, studied 30 years of historical data to calculate the rainiest cities, cities with the most rainy days, and the driest locations in the country. Between June 2003 and April 2007, over 25% of flights in the United States were cancelled or delayed. More than 55% of those disruptions (almost three million) were due to weather. ▶ As author Amy Lemon pointed out in the Summer 2007 VSS article, "**Dealing with Dangerous Weather**," "It's better to be safe than sorry." By having a good hazard plan, drills, and current technology tools, amusement and venue managers can easily stay ahead of bad weather.



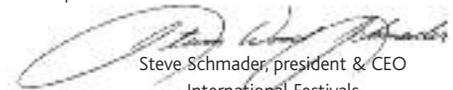
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Founded in 1956, the International Festivals & Events Association (IFEA) today is The Premiere Association Supporting and Enabling Festival & Event Professionals Worldwide. In partnership with global affiliates under the umbrellas of IFEA Africa, IFEA Asia, IFEA Australia, IFEA Europe, IFEA Latin America, IFEA Middle East, and IFEA North America the organization's common vision is for "A Globally United Industry that Touches Lives in a Positive Way through Celebration." With a target audience that includes all those who produce and support quality celebrations for the benefit of their respective "communities," the IFEA's primary focus is identifying and providing access to the professional resources and networks that will, as stated in our mission, inspire and enable those in our industry to realize their dreams, build community and sustain success through celebration. The IFEA exists to serve the needs of our entire industry, all those who share our core values of excellence and

quality; the sharing of experience, knowledge, creativity and best practices; and the importance of "community" building both locally and globally. Our success lies in the success of those we serve through professional education, programming, products and resources, networking and representation.

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The International Association of Assembly Managers is an association whose purpose is to provide leadership, to educate, to inform and to cultivate friendships among individuals involved in the management, operation and support of public assembly facilities. IAAM is the world's largest professional association dedicated to issues relevant to the management of public assembly facilities. Members of the association manage public assembly facilities such as amphitheatres, arenas, auditoriums, convention centers/exhibit halls, performing arts venues, stadiums and university complexes;

or provide products, services or attractions to support the industry. IAAM has more than 3,200 members worldwide.

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The Outdoor Amusement Business Association, organized as a non-profit trade group in 1965, is the largest association representing the mobile amusement industry. Our members include carnivals, circuses, independent ride owners, food/game concessionaires, rental amusements and others associated with

family entertainment. Our members contract with fairs, festivals, community and philanthropic organizations throughout the U.S. and Canada. Its mission is "To encourage the growth and preservation of the outdoor amusement industry through leadership, legislation, education and membership services."

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The International Association of Fairs and Expositions (IAFE) is a voluntary, non-profit corporation, organizing state, provincial, regional, and county agricultural fairs, shows, exhibitions and expositions. Its associate members include state and provincial associations of fairs, non-agricultural expositions and festivals, associations, corporations, and individuals engaged in providing products and services to its members, all of whom are interested in the improvement of fairs, shows, expositions and allied fields. The IAFE began in 1885 with a half dozen fairs. Today, the IAFE represents more than 1,300 fairs around the world, and more than 1,300 members from allied fields. Throughout the years, the IAFE has remained true to its purpose of promot-

ing and encouraging the development and improvement of fairs, shows and expositions. Its mission is "To represent and facilitate the interest of agricultural fairs, exhibitions and show associations."

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The IAAM Foundation is a 501(c)(3) non-profit charity to which donations are fully tax deductible. Our mission is to increase the positive impact and vitality of the public assembly industry by funding research, education and resource development. Our

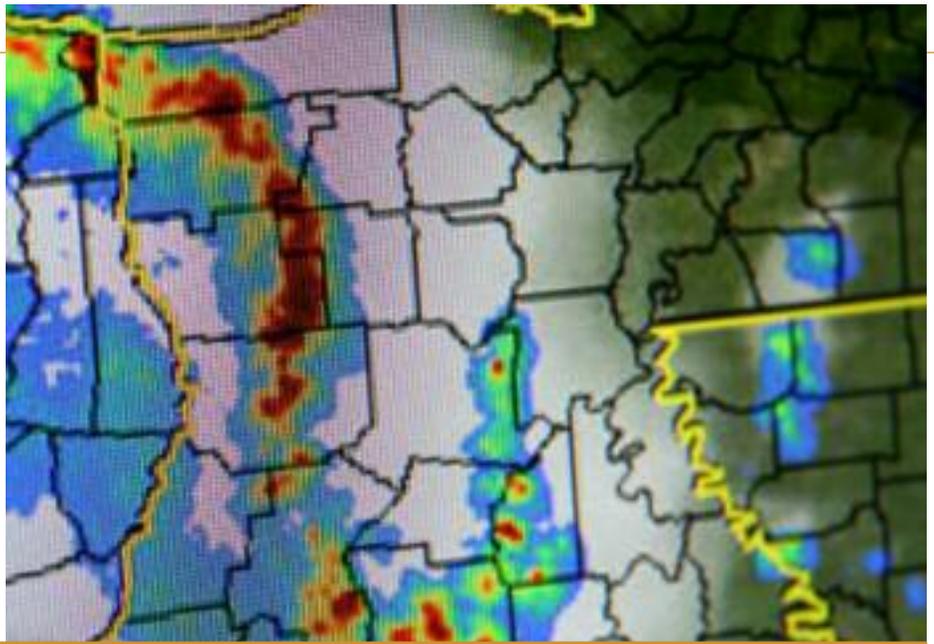
vision: that every public assembly venue throughout the world has a professional workforce, a base of knowledge, and adequate resources to ensure safety and enjoyment of the public, security of assets and business results that contribute to economic development and quality of life.

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Preparedness is key  
to dealing  
with hazardous weather.



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# Are You Really Prepared?

It's 5:30 p.m. on an unusually sultry late spring day. Your parking areas are beginning to fill with fans as the smell of grilled brats and sounds of laughter and music waft through the air. Tonight's game is against your intra-divisional rival and the game is nearly sold out. Inside the stadium, players are beginning their leisurely, but increasingly focused warm-ups, the vending and food service staffs are preparing for the throngs of hungry fans, the groundskeepers have stopped just short of combing every blade of grass in the same direction and your security staff and ushers are helping those spectators early to arrive find their way. The stage is set for your facility to provide another idyllic experience for tens of thousands of fans who came to watch a couple of dozen world class athletes battle it out.

You and your security staff know not all will go smoothly. Some fans will drink too much and get a little too rowdy, a small child may get momentarily separated from her parents, and the local TV weather man said there was a 40% chance of thunderstorms tonight. Incidentally, while you feel the weather could be a minor problem, 40% isn't that big of a deal and your crack grounds crew can take care of the field. All of these things are minor setbacks you've dealt with hundreds of times before. You and your staff are ready.

What you are not aware of is that across town, another group of world class professionals are excitedly watching the latest numerical weather prediction information as well as a variety of local and regional meteorological observations pouring into their computers. They know this will be a big storm system tonight, perhaps even career defining. They know tornadoes will develop, and some will probably be quite devastating. So while yes, the chances of any location actually seeing a storm is around 40%, the places these storms strike could be devastated. The meteorologists at this National Weather Service Forecast Office have been telling all of this to anyone who would listen for the last three days.

## How Is It That You Didn't Know?

During the multitude of depositions that take place in the months following the storm you are asked this same question over and over again by attorneys representing the families of those who were killed by the tornado, which struck your facility. The grounds crew had the field covered and the players were all tucked away safely in their locker rooms, but what about the fans who were warned only minutes before the tornado struck? They certainly didn't have time to evacuate, nor was there adequate shelter available onsite. In reflecting on your actions, you come to realize that the patrons deserved the

same level of care and planning for their safety that the rest of the venue operations received.

Not all that follows that storm is bad. In the months since that terrible storm struck your venue, you have gotten better acquainted with your community's emergency management director and he in turn, introduced you to a meteorologist at the National Weather Service (NWS). You learn there is a program administered by the NWS called StormReady, where meteorologists from the NWS work with your facility and employees, helping you become more weather-savvy and weather-prepared.

Over the next few months, your local NWS representatives meet with you and your staff several times, providing you with instruction to help you better understand how dangerous weather events develop and how well forecast they are, how you can easily build your day-to-day weather situational awareness, how Doppler radar works, and even how to visually identify potentially dangerous weather.

Additionally, you learn of the IAAM AVSS Severe Weather Preparedness Course and send a few key employees. When they get back from the course, they have found numerous ways to better incorporate hazardous weather into your existing emergency operations plan. Using the AVSS Severe/Hazardous Weather Preparedness Plan and Guideline, plans are starting to come together. Your preparedness is far ahead of where it was just a short time ago.

The previous several months have been extraordinarily trying on you and your organization, but you have learned from the tragedy. You have made marked improvements on how you understand and deal with potentially dangerous weather. The next time storms strike, you and your facility will truly be ready.

## StormReady Overview

The StormReady program was originally developed to help counties and communities become better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness. No community is storm proof, but StormReady has definitely helped communities save lives.

After the initial success of the county and community StormReady programs, many other entities asked if they could work to become

StormReady as well. As a result, the StormReady Supporter program was created. Potential StormReady Supporters include businesses, schools, shopping malls, power plants, and yes, venues.

The requirements to become a StormReady Supporter vary from state to state. To be designated as StormReady in Missouri, a venue must have:

- Multiple ways to receive NWS forecast and warning information, including NOAA Weather Radio
- A designated weather watcher-someone who maintains situational awareness for the facility
- Multiple ways to monitor weather conditions
- Multiple ways to alert people in attendance as to the forecast weather conditions
- An Emergency Operations Plan that is robust with respect to weather
- Shelter areas designated and clearly marked

Currently, the United States has several venues which have become storm ready. These include: Talladega Speedway, Talladega, Ala.

Florida Aquarium, Tampa, Fla.

Sea World, Orlando, Fla.

Indianapolis Motor Speedway, Indianapolis, Ind.

Six Flags Kentucky, Louisville, Ky.

Busch Stadium, St. Louis, Mo.

Buffalo Bills at Ralph Wilson Stadium,

Orchard Park, N.Y.

Cincinnati Reds, Great American Ballpark,

Cincinnati, Ohio

Green Bay Packers, Green Bay, Wis.

Disneyland, Anaheim, Calif.

Disney World, Orlando, Fla.

Six Flags New England, Agawam, Mass.

Six Flags Great Adventure, Cream Ridge, N.J.

Six Flags over Texas, Arlington, Texas

Hershey Entertainment Complex, Derry

Township, Pa.

This is an excellent start. The preceding venues are to be commended. But, think about the hundreds, even thousands of outdoor public assembly venues that need to be StormReady. Is your venue one that needs to be StormReady? Have you just been lucky? Severe and hazardous weather prepared is a key responsibility of all venue managers. So, if your ballpark, fair grounds, attraction, stadium, race track, etc. is not StormReady, does not have a severe weather plan, what are you waiting for?

To pursue a StormReady designation, your first step should be to contact your local National Weather Service Forecast Office and ask to speak with their Warning Coordination Meteorologist, or WCM for short. (Each of the 122 local NWS forecast offices across the country has a WCM.) This person will likely be your main point of contact with the NWS and is in charge of all of the severe storm training and outreach programs for the office. They will be able to tell you what the requirements are, as well as map out a plan to assist you in achieving this designation.

While the designation is the goal, it's the real journey that matters. The training provided to you and your staff will go a long ways towards positioning your venue to successfully handle hazardous weather situations. Take some time, reach out to your local National Weather Service office, and begin the process to improve your hazardous weather preparedness. And register now for the AVSS Severe Weather Preparedness specialized course. **VSS**

Andy Bailey has been a meteorologist with the National Weather Service for 17 years and is currently the Warning Coordination Meteorologist (WCM) at the NWS office in Kansas City, Mo. In this position he serves as the principle NWS liaison with the emergency management and media communities and is responsible for all of his office's public education and outreach activities in northwest Missouri and far eastern Kansas. Essentially his activities are aimed at making the office's forecast and warning programs more effective. Additionally, he is an instructor at the International Association of Assembly Manager's Academy for Venue Safety and Security where he instructs venue managers on hazardous weather threats specific to large event venues. Andy has twice received his agencies highest award, the Department of Commerce Gold Medal, for Distinguished Achievement in the Federal Service. Prior to this position, he served as WCM at the NWS in Las Vegas, Nev., General and Senior Forecaster at the NWS in Rapid City, S.D., and Intern at the NWS in Des Moines, Iowa. Prior to joining the National Weather Service Andy was employed with a private meteorological firm in Madison Wis., and an ABC affiliate in Iowa.

# SEVERE WEATHER WEBINAR

*Why do I need to worry?*

May 13, 2010

10:30 a.m. Central Time, 11:30 a.m. Eastern, 9:30 a.m. Mountain, 8:30 a.m. Pacific

## Get Prepared for Spring Storms — and Beyond

Mid-April signals another spring storm season. When you hear severe weather reports, warnings and alerts, do you know that your venue, guests and employees will be well-protected because of your current severe/hazardous weather preparedness planning? Is it the right plan — and does everyone know what to do when damaging rain, high winds, and other serious conditions hit your area?

Get the latest and best information to develop — or update — your severe weather preparedness by participating in this special Academy of Venue Safety & Security training session.

This 90-minute webinar will help you:

- Recognize severe weather threats and understand what advisories, watches and warning mean.
- Determine when you do need to worry.
- Learn about comprehensive severe weather planning: monitoring, resources and plan elements.

AVSS also will release a new Severe/Hazardous Weather Preparedness Plan and Guideline on May 1. Watch for announcements and ordering information.

### **Webinar pricing:**

- Alliance members: \$49
- Non-members: \$69

**Register today:** [http://www.iaam.org/webinar/webinar\\_series.htm](http://www.iaam.org/webinar/webinar_series.htm)

Webinar faculty members include Andy Bailey, National Weather Service, Overland Park, KS; Les Lemon, National Weather Center, Norman, OK; Bob C. Mayer, CFE, IAAM Associate Director of Education; AVSS Dean Frank Poe; and Harold Hansen, CFE, IAAM Director of Life Safety and Security.

For more information, contact Harold Hansen, IAAM Director of Life Safety & Security, at 773.973.2049; or e-mail [harold-hansen@sbcglobal.net](mailto:harold-hansen@sbcglobal.net).

Developing a disaster plan  
can be challenging,  
but is necessary  
to keep visitors safe.

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# Well Executed Emergency Plan Provides Lifeline for Survival

By Linda Eck

“Review, Refresh and Prepare.” These words of advice are offered quickly to other venue managers by Kevin Duvall, Chief Operating Officer of the Georgia World Congress Center Authority, after recovering from a March 2008 tornado that ripped through its facilities leaving \$65-\$70 million in damages.

“Thankfully, there was no loss of life,” said Duvall noting that after two years, the GWCCA recently signed off on final paperwork for repairs at the authority’s three facilities — the Georgia World Congress Center, the Georgia Dome and Centennial Olympic Park. The Georgia Dome was hosting the Southeastern Conference Basketball Tournament when the F2 tornado took its toll on the facility, bringing to a halt overtime play between Mississippi State and Alabama. Completion of the game’s final few minutes was delayed for just over an hour and the remaining tournament games had to be moved to Georgia Tech. The GWCC and Centennial Olympic Park were also damaged and events had to be canceled.

No one knows when a disaster will strike, but emergency planning or a lack thereof has every opportunity to make or break an event and its facility — physically, financially, and emotionally. A properly designed and well-maintained emergency preparedness plan is important in that it provides immediate response at the most critical point in time. It serves as a lifeline to guests, staff members and even the community in providing support and protection that will not only increase the chances of human survival, but survival of the event and/or its facility.

“We began hosting events 10-12 days later,” said Duvall of the GWCCA’s recovery timeline, noting that after 45 days all parts of the GWCC were fully open and after 20 months, everything was physically repaired.

## Develop a Plan

Although each venue and weather or natural disaster event is different, a carefully designed crisis management plan will make survival and recovery easier to achieve. Once caught in an emergency situation, the damage is hard to deflect; but by meeting a crisis head on with a well prepared plan and a trained staff, managers can see their guests, an event and their facility through and into recovery in an orderly and less complicated manner.

The GWCCA has its own public safety department, which is responsible for the development and administration of emergency and disaster preparedness plans for the three facilities. With over 450 full time employees, nearly 100 are employed by the public safety department in the form of security officers, police officers and management. The department recently attained full certification, designating the GWCCA as the only convention center in the United States with a fully certified public safety department.

“The public safety department maintains daily contact with outside police and safety organizations in Atlanta,” said Duvall. “Since 2008 we have developed a better relationship with the National Weather Service and have installed additional equip-

ment.” Duvall noted the facility monitors NWS information as well as local weather stations and subscribes to a mobile text feed for up-to-date weather information. A lightning prediction system has also been installed.

“We have a greater respect for Mother Nature since the March 2008 tornado,” said Duvall. “You can’t underestimate the amount of training that is needed. When a tornado hits you have to know where the shut-off valves are to gas, water and other utilities.” Duvall noted it is important to have someone on staff that has extra training and understands the weather and emergency situations. Since the Georgia Dome is an NFL stadium, employees regularly attend the NFL’s Best Practices Stadium Safety & Security Programs. They also take advantage of IAAM programs such as the Academy of Venue Safety & Security. “It’s important to review, refresh and prepare,” he concluded.

Whether developing a basic, self designed plan or hiring a professional safety and security design firm, the plan is only as good as the time and effort spent in training and preparing for an emergency. Safety practices should be a routine part of staff meetings and training sessions, and deemed as important as a facility’s schedule of events.

## Keep Everyone Safe

Unexpected wind gusts took their toll just last month at the Florida State Fair, where over 30,000 visitors were taking advantage of Hillsborough County’s day-off from school so children could attend the fair. In minutes, typical Florida rain showers with 10-15 mph winds turned into 60 mph

## Ready, Set, PLAN!

Developing a disaster plan can be challenging, but there is a wealth of helpful programs and information available through the National Weather Service (NWS) and the Federal Emergency Management Agency (FEMA) to help venues, businesses, communities, and families be prepared in an emergency situation.

StormReady, a program offered by the NWS, is aimed at preparing communities for weather disasters, but can easily be adapted to work in almost any environment. After experiencing damage from the 2008 Atlanta tornado, The Georgia World Congress Center Authority did the training and completed the application process to earn the designation of StormReady. For additional information about the program, visit [www.stormready.noaa.gov](http://www.stormready.noaa.gov).

Ready.gov is a website supported by FEMA to assist businesses and individuals in preparing for emergency situations and provides questions and answers, guides and emergency planning information that will help venues determine their needs and develop a plan accordingly. It addresses needs extending past weather-related disasters and includes information regarding fire safety, medical emergencies, and even an influenza pandemic. For complete details, visit [www.ready.gov](http://www.ready.gov).

wind gusts that ripped down a large food concession tent, knocking over tables and equipment and causing injury to 13 fair-goers.

“Our emergency preparedness plan has evolved over the 106 years the Florida State Fair has been here,” said Charles Pesano, executive director of the Florida State Fair Authority, noting that in addition to an extensive emergency preparedness plan, the Authority maintains a close working relationship with the Hillsborough County Sheriff’s Department and local Emergency Medical Services.

Pesano and other staff members had been monitoring the weather and when a television alert indicated the possibility of circular rotation in a storm cell four or five miles from the fairgrounds, emergency plans were immediately put into action. Although many patrons had already moved inside due to the rain, public address announcements were begun to those remaining outside directing them into permanent structures. Sheriff’s officers were immediately redistributed into buildings and key locations to maintain calm among the patrons and emergency medical personnel went on quick standby and were able to respond to the wind damaged area within 45 seconds.

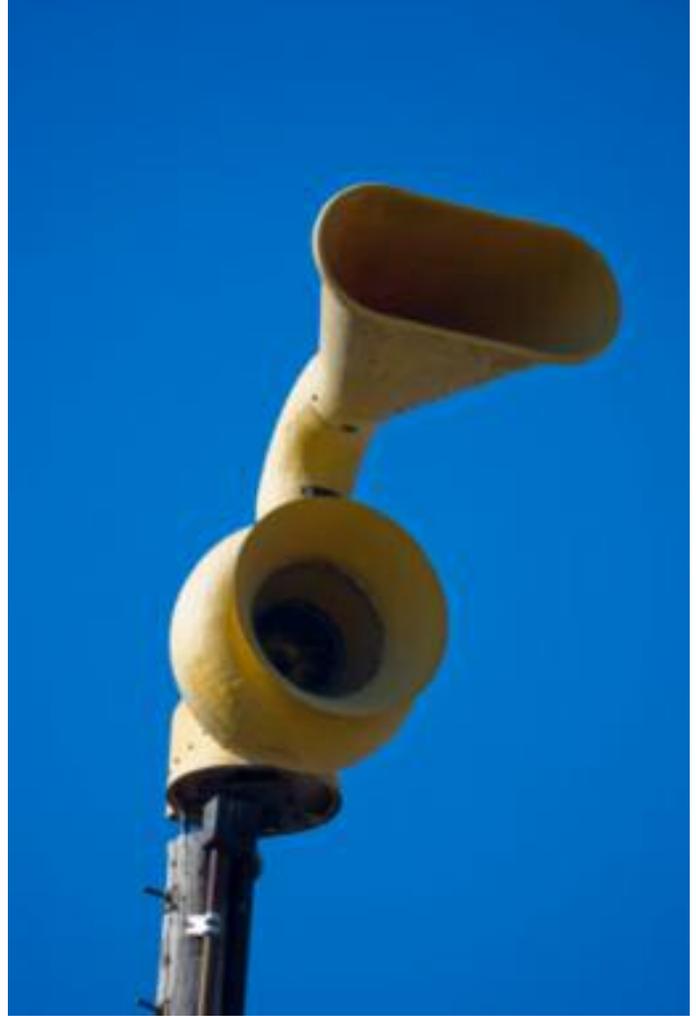
“By the time I was made aware of the damage and arrived at the scene, a dozen sheriff’s officers and emergency medical staff were at the scene preparing those injured for transport to a local hospital,” said Pesano. There were two persons seriously injured and an additional 11 with minor injuries.

“An emergency preparation checklist is a primary planning tool for any venue,” said Pesano. “There should also be a set of understood policies and procedures to protect patrons, staff, and vendors . . . to keep everyone safe.”

## Communication Is Vital

Communication with guests, communication between staff, and communication with outside emergency personnel is vital. Make staff assignments, so communication remains calm and appropriate. Physical communication is also important. In Georgia, the tornado that hit the GWCCA also destroyed the radio antennas. Plan an alternate means of communication.

“We meet several times with Hillsborough County’s management team, once in December and then twice in January,” said Pesano of the fair’s preparation for emergency situations. “The day before the fair we meet one more time.” Pesano also noted a daily operations meeting during the fair with staff directors, onsite security, EMS, and sheriff personnel to discuss any specific problems or concerns and keep everyone abreast of situations and



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activity within the various departments. “We discuss the day and the next day and note any unusual circumstances or needs,” said Pesano.

There are many simple, common sense practices that can be implemented to prepare for an emergency situation. The important thing is to develop a plan and communicate that plan with everyone — staff, volunteers and emergency personnel within the community. Additionally, strong staff policies will help guide intuitive responses in emergency situations. **VSS**

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Linda Eck is an agricultural journalist and photographer from Sarcoxie, Mo., where she owns Red Barn Expressions and specializes in freelance writing, web content, e-mail marketing, and newsletters.

# SAFETY

By Joni Mae Makuakane-Jarrell and Mark Santoki

# Amid LIVE Volcanoes

Hawai'i park safety record  
is impressive  
despite potential dangers.

Spectators at Hawaii Volcanoes National Park watch lava from Kilauea Volcano explode as it pours into the Pacific Ocean.  
**Photo by Brade Lewis.**

# H

awai'i Volcanoes National Park includes some of the most environmentally hostile terrain on Earth.

Visitors who venture out onto lava flows face risks. They can perish from hyperthermia, trip into deep crevices, or fall into the boiling sea. In some places, the ground they walk on (lava rock is almost 50 percent silica) and the air they breathe (sulfur gas can develop into sulfuric acid in the lungs), can be life-threatening. Even common safety concerns like dehydration, are a potential threat in a place where temperatures can reach over 100°F.

When Kilauea or Mauna Loa erupts, thousands of spectators rush to the scene rather than away from it.

The mission of Hawai'i Volcanoes National Park is to "protect, conserve, and study the volcanic landscapes and associated natural and cultural resources and processes in the park, and to facilitate safe public access to active volcanism, diverse geographic settings, and wilderness for public education and enjoyment."

Despite the many natural dangers within its 333,086 acres, studies have shown that most serious injuries occur on the park's roadways. There were five traffic-related deaths in 2007 and there have not been any traffic fatalities since. About 500 injuries occur each year, most of them minor abrasions sustained by visitors at the main lava viewing areas.

The park's safety record is impressive when you consider that it is one of the most popular attractions in the State of Hawai'i with about 1.5 million visitors annually. It is hardly surprising, however, once you understand how well the park has responded to its current crisis. On March 11, 2008, Kilauea's summit crater, Halema'uma'u, began emitting high levels of poisonous sulfur dioxide (SO<sub>2</sub>) gas into the atmosphere at about 1,500 tons per day, ten times its normal level.

## Case Study: SO<sub>2</sub> Vigilance

Preparations for incidents of elevated SO<sub>2</sub> started many years ago. In 2001, the United States Geological Survey at the Hawaiian Volcano Observatory began to continuously monitor SO<sub>2</sub> levels. A crisis plan was developed to take specific actions when SO<sub>2</sub> emissions reached progressively higher levels. The levels were color-coded, somewhat like a traffic light, from green to purple. During poor air quality periods, the park posts information signs at entrance stations and visitor centers, reschedules or relocates hikes, and under extreme conditions closes portions of the park to visitors.

In 2005, a public website was launched so that out-of-state visitors and local residents could track the VOG in real-time.

For eight years, federal, state and local authorities practiced and improved their SO<sub>2</sub> emergency plan. When SO<sub>2</sub> emissions from Halema'uma'u dangerously spiked on March 11, 2008, the park response was calculated and controlled.

"The SO<sub>2</sub> preparations turned out to be very critical and a useful instrument for us in developing what was going on," said Hawai'i Volcanoes' Chief Ranger Talmadge Magno. "As SO<sub>2</sub> activity increased in 2008, with those monitors, we were able to track what levels we were at and then take

the appropriate action based upon the different color codes which directly relate to levels of SO<sub>2</sub>. We had an action and communications plan that we relayed to visitors and employees."

The concentration of noxious gas caused by lack of tradewinds forced the closure of the entire park on two occasions in April 2008. In each case, within about two hours, park staff evacuated about 2,000 visitors from the Kilauea Visitor Center, Jaggar Museum, Volcano House Hotel, Kilauea Military Camp, as well as remote wilderness areas. An evacuation advisory was also issued for about 2,200 Hawai'i Island residents living in nearby communities.

"If it went any better, it would have been perfect," said Magno. "We shared information and developed a signboard that had all the current information that was posted in an area where the incident management team was working and most of the staff was going through. We developed hotlines for both partners and different businesses that work in the park like concessionaires, and worked with our Public Information Officer and the media to get the information out to the public."

## How Does Hawai'i Volcanoes National Park Keep Visitors Safe?

An analysis of safety operations revealed several key factors and best practices in the park's safety program.



Hundreds of signs at the park like this one warn visitors of nearby hazards. **National Park Service photo by JM Jarrell**

## A Century of Safety Experience

Safety incidents at Kilauea Volcano were documented by its first Western visitors. In 1823, Dr. G.P. Judd was collecting volcanic specimens and nearly became the volcano's first documented casualty when the ground shook beneath him and a 45-foot fountain of molten lava cut off his escape. He was rescued and escaped with severe burns. In 1922, in one of his first acts in office, the park's first superintendent, Thomas Boles, improved park safety by personally installing a substantial number of directional and warning signs.

Today, Hawai'i Volcanoes has a full-time safety officer and nine park rangers who are trained as emergency responders. The park staff is complemented by a full-time crew of Hawai'i County firefighters and paramedics based in the park.

## Teach Safety at Every Opportunity

The park's most effective and efficient safety tool is visitor education. By recognizing the park's natural hazards and taking proper safety precautions, visitors are empowered to protect themselves. Statistics show that the park and its community partners are so good at educating visitors that they are less likely to be seriously injured at the park than local residents.

Safety education begins well before the visitors arrive at the park. Much of the information is available online, not only on the park website, but also on a number of other government and travel industry websites.



Hawai'i Volcanoes National Park has been at a heightened state-of-alert since February 2008 when Halema'uma'u began emitting dangerous levels of poisonous sulfur dioxide (SO<sub>2</sub>) gas into the atmosphere.

**National Park Service photo by JM Jarrell**



On March 26, 2008, Hawai'i Volcanoes' Chief Ranger Talmadge Magno (behind lectern) discussed the SO<sub>2</sub> crisis at a media briefing.

**National Park Service photo**

From their hotel rooms, visitors can learn about volcanic hazards by watching a short safety program on the island's visitor television station. As they approach the park in their cars on Highway-11 they are informed of current safety issues via the park's dedicated AM radio broadcast. Large electronic road signs provide air quality warnings and the park rangers at the entrance station and Kilauea Visitor Center reinforce safety messages with additional information and written materials.

During their stay in the park, visitors encounter numerous safety signs for both drivers and pedestrians. At both the Kilauea Visitor Center and Jaggar Museum, for example, signs are placed within a few yards of each other and are supplemented by rope barriers.

"We use signs and barriers in combination. Going under or over a barrier shows what the visitor's intentions are," explained Magno. "There is going to be a small percentage of people who have their mind made up and are going to do what they want. The only thing that is going to stop them is

the presence of some authority. So we try to give everybody as much information possible so they can make an educational, reasonable, and logical decision. If they disregard our signs and barriers and something happens, so far litigation has proved in our favor."

The park staff also pre-positions emergency warning and closure signs out in the field so they can be immediately displayed when a crisis occurs.

## Park Safety Can Be Costly

Providing medical airlift, safety training for personnel, and replacing hundreds of signs in the corrosive SO<sub>2</sub> environment all cost money. Fortunately, the park and its partners are able to pool their safety resources. Federal, state, and local government and travel industry leaders recognize that funding safety programs at the park is money well invested.

In April 2009, the USGS received \$15 million from the Federal government to improve and modernize its volcano monitoring equipment and to build a 4,400 square foot Visitor Emergency Operations Center to be home base



By frequently consulting with geologists and strategically using signs, barriers and park personnel, park rangers allow visitors to view active volcanism as close as safely possible. **United States Geological Survey, Hawaiian Volcano Observatory photo**

for nearly 25 park staff, firefighters, EMS personnel and dispatchers of the 24-hour Pacific Area Communications Center.

“Hawai‘i knows how critically important volcanic monitoring is,” said U.S. Senators Daniel Inouye and Daniel Akaka in a joint statement. “It was just 25 years ago this month that a Mauna Loa eruption ended after sending lava within four miles of Hilo. This funding is important because we need to know what our volcanoes are doing to prepare for lava, vog, earthquakes and other disasters, to help save lives and protect public and private property.”

Mauna Loa is the world’s largest volcano (its 19,000 cubic miles is 564 times larger than Mt. Rainier) and covers 51 percent of the surface area of the entire island. An eruption from Mauna Loa could be significantly more devastating than from Kilauea. Lava flows from Mauna Loa can move faster than a person can run and the consequences in lives and property would be catastrophic if it reached the city of Hilo, where the USGS estimates it would do more than \$1.2 billion in property damage.

“The idea is to educate people about the volcano because the young puny volcano we’re currently on is getting all the attention,” said USGS scientist Frank Trusdell at a March 30 community forum held at the Kilauea Visitor Center. “The one that is actually life-threatening is the one you can see on this screen (Mauna Loa) if you don’t take heed.”

## You Can’t Provide Safety Alone

In responding to the high SO<sub>2</sub> threat, the park works closely with 20 government, scientific and travel industry agencies. The crisis team held daily meetings and briefings.

“We have formal agreements in place so that we can work with each other seamlessly. We know each other’s operations and trust each other because we have worked with each other already. From the beginning of this incident we knew what our responsibilities were and how everybody could offer assistance,” said Magno. “On a daily basis, our organizational partnerships allow park visitors to view the most active volcanic events in a safe manner.”

## The Science of Safety

All of the park’s safety plans and operations incorporate best safety industry models and practices, including Operational Risk Management Guidelines (ORM)

formulated by the U.S. Coast Guard and Severity, Probability, Exposure (SPE) and Green, Amber, Red (GAR) safety-based risk management tools.

“We have so many types of disasters that could impact us including tsunamis, earthquakes, hurricanes, and bomb threats, in addition to volcanic eruptions. We have to put these plans together and then update and review them every year,” said Magno.

During a crisis, the park activates its Incident Command System (ICS) which facilitates communication and collaboration through the use of common terminology and a standardized organizational reporting structure.

The park also keeps detailed information on every visitor safety incident (using NPS Form 10-343) to identify emerging safety hazards.

## Preparation Avoids Panic

The best-laid safety plans will not work without practice. Every park employee has a defined role during a crisis to secure the park and protect visitors. Regular drills and exercises are held and evaluated. Plans are then improved to reflect the most recent developments.

“Developing scenarios, bringing in the experts to help you pre-plan, following through with the preparation, acquiring the instruments and equipment that you will need, making sure that your staff is trained to the levels that they need to operate on your plans... Putting all of that together, and making sure that you involve and communicate with everyone is a lot of work but it will help things run smoother when events actually do happen. Panic is part of stress. If you put more stress into your pre-planning, and preparations that will cause you less stress during the actual event. You will be ready for any surprises, you have layers of support and backup so even if you get a ‘surprise’ you will be ready for anything,” said Magno. **VSS**



Serious accidents can occur when park visitors disregard signs, warnings, and safety precautions and enter closed areas.

**National Park Service photo by Jay Robinson**

**Readers:** We're reprinting the following review about a current book that's pertinent for all of us in the public assembly industry, called: *The Unthinkable: Who Survives When Disaster Strikes*, by Amanda Ripley (Crown, 288 pp., \$24.95). We recommend reading the book for valuable and compelling perspectives on disaster survival skills, crowd behavior, and more.

# Surviving a Disaster Often Depends On Self-Control

Book looks at what separates survivors from those who perish in a disaster.

By John Robb

I'm living, breathing proof that you can survive a disaster. I've lived through two airplane crashes ("catastrophic mishaps" in Air Force jargon), one at the start and one near the end of my Air Force piloting career, as well as a countless number of close calls in between. Unfortunately, I've never been able to understand fully why I was so successful at navigating disaster and others in similar circumstances weren't. There hasn't been a source of solid thinking on the subject until now. Amanda Ripley's new book, *The Unthinkable*, is a riveting exploration of the factors that dictate whether you will live through or perish in a disaster—if you're ever unlucky enough to confront one.

Based on my experience, the top objective in all catastrophes is to move to a safe zone and take as many people with you as you can. While this goal may seem simple, achieving it during the onrush of chaos isn't. Thinking clearly during a crisis is tough, for reasons more complex than we realize. Ripley shows us what stands in our way as we navigate what she calls the "survival arc," which consists of two phases: denial and deliberation.

Denial keeps you from realizing that you are in danger. It's rooted in bad risk assessment, overconfidence, and a lack of relevant experience. Bouts with denial can delay your response, as Ripley illustrates through the testimony of Elia Zedeno, who relates her painfully slow escape from the 73rd floor of Tower One on September 11. Once you realize the extent of the peril, though, fear might take over. Deliberation requires overcoming fear to regain the ability to think clearly.

Ripley tells the story of U.S. Ambassador Diego Asencio, taken hostage by armed assault on the Dominican Republic's embassy in Bogota, Colombia. His experience put him through Ripley's survival arc, and it was only through a period of "self-talk" — in which he realized that he was more worried about dishonorable conduct than death — that he overcame his mind-numbing fear. Asencio's initial passivity is also common among groups. Contrary to popular understanding, group behavior during disasters is rarely panic-driven, but more often extremely docile and overly polite. Getting a group to respond and act effectively often requires aggressive behavior, like barking orders.

The book's best parts are Ripley's explorations of the roots of fear and how to overcome it. Fear is a deep evolutionary response that changes our biology so that we can respond to danger. It's regulated by a part of the brain called the amygdala and catalyzed by the hormones cortisol and adrenaline. Unfortunately, as the amygdala takes control, it deprives us of our higher mental functions and can induce everything from tunnel vision to time compression to extreme

dissociation (out-of-body experiences). In short, in complex disasters, the biological-fear response can slow thinking so severely that it can kill you.

We can counter fear, however. The best method, FBI trainers say, is to get control of your breathing. "Combat breathing" is a simple variant on Lamaze or yoga training — breathe in four counts, hold four counts, exhale four counts, and repeat. It works because breathing is a combination of the somatic (which we control) and the autonomic (which we can't easily control) nervous systems. Regulation of the autonomic system deescalates the biological-fear response and returns our higher-level brain functions to full capacity. So one of the best ways you can prepare yourself to overcome fear in a crisis is as simple as a meditation, Lamaze, or yoga class.

Fortunately, in many disasters, someone is often biologically and psychologically well-suited for dealing with the chaos. Such people typically are the most likely to survive or to shepherd a docile group of survivors out of a disaster zone. What makes them different? Some have a natural psychological buffer that allows them to bounce back from extreme stress. Examination of people who always perform well in extreme circumstances has shown high levels in the blood of "neuropeptide Y" — a compound that allows one to stay mentally focused under stress. It's so closely correlated with success in pressure situations that it is almost a biological marker for selection into elite groups for military special operations.

If you're lucky enough to have someone like this in your group during a disaster, your chances of survival are much better. But even those of us not so disposed can, through training and experience, manufacture a workable degree of self-confidence.

This discussion only scratches the surface of Ripley's fascinating book. For those curious about how and why people react to stressful situations in the ways they do, or are looking for pointers on how to survive a disaster, *The Unthinkable* is the place to start. **VSS**

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John Robb is a writer, entrepreneur, and former USAF pilot in special operations. He is the author of *Brave New War* (Wiley) and runs the blog *Global Guerrillas*. He was named one of *Esquire's* Best and Brightest for 2007. This review is reprinted with permission from *The City Journal*, June 2008.

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