




Hurricanes and Tropical Storms

SECTION KEY	
	Disaster
	<u>Planning for a Hurricane</u>
	<u>Levels of Activation Checklists</u>

Hurricanes and Tropical Storms are common occurrences in Southeast Texas. Each year the region braces itself as storms develop in the Gulf. A recent event was Hurricane Rita on September 24, 2005. This storm caused widespread damage in Southeast Texas and Southwestern Louisiana. Many parishes and families were significantly affected.



Hurricane Definitions

A **Tropical Depression** is a storm consisting of an organized cluster of thunderclouds over tropical seas with a center of low pressure detectable at the storm's surface. The highest wind speed of a tropical depression is 38 miles per hour.

A **Tropical Storm** is a tropical depression that has developed wind speeds of 39 to 73 miles per hour. When a storm reaches Tropical Storm strength, it is assigned a name. Severe flooding may occur with a tropical storm.

A **Hurricane** is a tropical storm that has developed wind speeds of 74 miles per hour or more. Hurricanes are rated on a scale called the Saffir-Simpson scale. Ratings are based on wind speeds and the expected height of the storm surge.

A **Storm Surge** is a rise in tide caused by a hurricane as it moves over or near the coastline. The rise in tides along with the devastating waves can cause catastrophic damage to entire buildings. Millions of fish are killed by the crash of the storm surge against the coastline and many people drown in the strong current produced by the surge.

A **Hurricane Watch** is issued when hurricane conditions pose a potential threat to an area within 36 hours. Landfall is possible.

A **Hurricane Warning** is issued when a hurricane is expected to strike within 24 hours. Landfall is imminent.

The **Hurricane Belt** is described as the area along the Atlantic Coast from Virginia to Key West Florida and along the Gulf of Mexico from Key West to Texas.

Hurricane Season is the time of year from June 1 – November 30 when ocean temperatures are favorable to the formation of hurricanes. It is possible for hurricanes can form earlier or later than these dates.

Rating Hurricanes

Hurricanes vary in power and speed. The Saffir-Simpson scale breaks them into the following categories according to wind speeds:

- Category 1: 74-95 mph
- Category 2: 96-110 mph
- Category 3: 111-130 mph
- Category 4: 131-155 mph
- Category 5: 156+ mph

Categories 1 & 2 – Minor damage to stable structures, major damage to mobile homes, vegetation and piers. Some coastal flooding.

Category 3 – Structural damage to small residences and utility buildings. Mobile homes are destroyed. Terrain continuously lower than 5 feet above sea level may be flooded inland 8 miles or more.

Categories 4 & 5 – Most deadly and destructive. Can create result in roof failure and building collapse. Massive beach erosion is caused by the storm surge. Flooding occurs in areas 15 feet above sea level and along the coastline, requiring evacuation of residential areas for up to 10 miles inland.

Tornadoes often accompany hurricanes.

Hurricanes spiral counterclockwise around a relatively calm center known as the **eye of the storm**. Hurricane-force winds and torrential rains border this calm. Additional winds, rains, etc. will follow the calming down of the storm (eye of the storm). **Remain indoors** until experts advise that the storm has passed.

Hurricane winds do much damage, but huge waves can raise tides 15 feet or more. These waves often come rapidly and produce flooding and flash floods. **Drowning is the greatest cause of hurricane deaths.**

Vertical evacuation (moving to second or third floor) is not safe. Storm surges can wipe out the foundation and/or the first floor, destroying the upper floors in the process.

Board windows up instead of taping them. Broken windows can allow hurricane winds to enter a building and blow off the roof. Boarding up windows where strong winds are expected is a safer method to protect the roof, the interior, and the overall structure of the property and prevent flying glass.

Officials may advise that all utilities be shut off to homes and other property. **Locate shut off valve(s) in advance and know how to use them safely.** Write down step-by-step instructions and make sure more than one person knows how to use them.

When storm conditions arrive, **secure all outside items** such as lawn furniture, children's toys, etc. so they do not become airborne.

Important records such as tax documents, insurance policies, social security cards, birth certificates, passports, bonds, stocks, wills, and medical information **should be placed in a waterproof container and stored in a safe place.**

If sheltering at home, **stay in the room or area most central to the home,** preferably without windows.

Take pictures of your home and property before a storm hits. If your property is damaged, take more photos after the storm. Develop 2 sets and give one set to your insurance company. Keep one set and the negatives in a safe location. Do not begin clean up until an insurance agent has inspected the damage.

When flooding accompanies a hurricane, snakes and rodents can become a hazard. Stray dogs and cats can cause problems also. Pets can become hostile once they have endured the effects of a serious storm.

Disruption of garbage and trash pickup can pose a problem. Food that cannot be used or saved after a storm should be buried rather than left outside to attract animals.

To **avoid accidents** in the home after a storm, clean up a room where small children can stay safely.

Looting can also be a problem after a storm. Work with your neighbors and friends and consider taking turns standing watch if looting becomes a problem.

Check with local civil defense or emergency management authorities before using any water after a flood. **Water sources may have been contaminated.**

Planning For A Hurricane

This section provides guidelines for the disaster planning committee and DPC staff to enable them to carry out pre-determined roles and responsibilities for preparing for a hurricane landfall. This section outlines the step-by-step approach staff can take to simplify disaster preparedness. This plan takes into consideration that people may be using the DPC as a shelter during a disaster or that staff have to be present during the disaster at a center such as a women's shelter or a nursing home.

For the purposes of this exercise, the step-by-step approach is referred to as "Levels of Activation". The Levels of Activation refer to or correspond with the various stages of weather alerts issued as a Tropical Storm or Hurricane approaches. In conjunction with the Levels of Activation, this section also provides timelines for disaster decision-making.

Levels of Activation

Level I

Consists of non-threat period in which normal disaster planning takes place. Make sure to keep informed of developing tropical systems.

Level II

A Tropical Storm/Hurricane Watch has been issued for the area. Normally a strike is predicted within 36-48 hours.

Level III

A Tropical Storm/Hurricane Warning has been issued for the area. A strike is predicted within 24-36 hours.

Level IV

Landfall is imminent with impact to the surrounding area within 12-24 hours.

Level V

Recovery period after the storm's passage and winds have diminished.

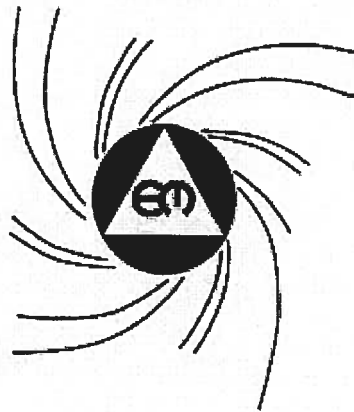
Obtaining Official Storm Notification

When a hurricane threat is imminent, notification of tropical storms and/or hurricanes can be received through the news media and the National Oceanic and Atmospheric Administration (NOAA) Radio.

Media usually gets their reports through NOAA. However, it would be best to confirm the threat by going to the National Weather Service Forecast Office for Southeast Texas (<http://www.srh.noaa.gov/lch>).

A Levels of Activation Checklist is provided below.

Jefferson County, Texas Hurricane Information



Jefferson County Emergency Management Office
John Cascio, Director
(409) 722-4371



Levels of Activation Checklists

HURRICANE

Level 1

Consists of non-threat period in which normal disaster planning takes place. Be sure to keep informed of developing tropical systems.

- _____ Review the Routine Maintenance Checklist

- _____ Conduct meeting to review Hurricane Plan with key staff members. Schedule drill of plan prior to Hurricane Season.

- _____ Review staff rosters and telephone trees to ensure accuracy.

Level II

A Tropical Storm/Hurricane Watch has been issued for the area. Normally a strike is predicted within 36-48 hours.

_____ Initiate staff phone tree to inform staff and volunteers that an evacuation is possible.

_____ Track and Monitor Location of the Storm.

_____ Conduct briefing of staff and volunteers to review hurricane procedures and provide update on the storm.

_____ Designate a contact to communicate with the Diocesan Office if a closure is imminent.

_____ Obtain boxes/cartons to pack the Blessed Sacrament, Census Data, Sacramental Records, food, and supplies should evacuation be necessary. If the Blessed Sacrament is unable to be moved it must be consumed.

_____ Review Staff List/ Assign 24 hour staffing if necessary.

_____ Ensure that all office/service locations have prepared a pre-recorded message on answering machines and voicemail that can be activated if offices close in the future.

_____ Notify Archdiocese of Diocesan status.

Level III

A Tropical Storm/Hurricane Warning has been issued for the area. A strike is predicted within 24-36 hours.

- _____ Set up and move to a central location for disaster planning. This will be the "Emergency Operations Center" for the DPC.
- _____ Track and Monitor Location of the Storm (storm tracking form provided).
- _____ Call key staff together to discuss whether or not Evacuation Plan should be implemented.
- _____ Decide if Diocesan offices are closing.
- _____ If office is closing during non-working hours, initiate phone tree. Inform staff who will be needed to help secure the building.
- _____ If decision is made to close parish during working hours, send all non-essential staff home.
- _____ Notify callers of plans to close office.
- _____ Review DPC Evacuation Procedures.
- _____ Review emergency and disaster supplies, making sure they are all accessible.

_____ Disconnect all electrical appliances and equipment.

_____ Establish damage assessment teams from staff volunteers.

_____ Secure all items that cannot be brought inside. Fill all available storage containers with water.

_____ Secure at least six, 3-5 gallon buckets, which can be filled with water and used to flush toilets.

_____ Change message on answering machine.

_____ Review Level IV Checklist

Level IV

Landfall is imminent with impact to the surrounding area within 12-24 hours.

- _____ Clean and store all cooking and eating utensils.
Start eating perishable food.
- _____ Fill ice chests with ice.
- _____ Fill gallon buckets with water that can later be used
for flushing toilets.
- _____ If staff, volunteers, and family are using the DPC as
shelter, make sure all stay indoors until winds have
diminished below Tropical Storm Force Level.
- _____ Monitor TV stations for the latest storm updates.
- _____ Drive special needs parishioners to emergency
shelters.
- _____ Start using disposable serving and eating containers
and utensils.
- _____ Box all dry and canned goods.
- _____ Box all needed cooking utensils, disposable plates,
silverware, and cups in case of evacuation.
- _____ Follow the National Weather Service Office or the
County Emergency Operations Center to determine
when you are to anticipate the first hurricane force
winds, top winds expected, the duration of the
hurricane force winds, and the expected amount of
rainfall.
- _____ Move everyone possible into the interior of the
facility at least 30 minutes prior to the expected
arrival of tropical storm force winds.
- _____ Turn off circuit breaker for all electricity except lights
in the rooms where people are housed and
refrigeration.
- _____ If power goes off, turn off main breaker.
- _____ Review Level V Checklist.

Level V

Recovery Period after the storm's passage and winds have diminished.

_____ Call key staff and discuss preliminary needs and damage assessment. Damage needs assessment to be complete within the first 24 hours.

_____ If the facility has sustained substantial damage, implement evacuation procedures, and move to an alternate location (See Evacuation Procedure).

_____ Contact the County Operations Center and obtain information on road closures and flooding. This will enable the committee to inform staff wishing to survey their homes what roads are dangerous.

_____ Remove plywood from all windows and doors.

_____ Inspect all rooms for damage and/or water leaks. Call 911 if lines are downed or if there is the smell of fire, gas, or smoke.

_____ Inspect exterior of building for damage.

_____ Check cable TV and antennae TV to determine if operational.

_____ Disconnect all electrical equipment if there is any power fluctuation.

_____ Assign family member and/or volunteers to monitor portable radio(s) to determine which stations are operational.

_____ Take detailed documentation (photos, video) for claim support.

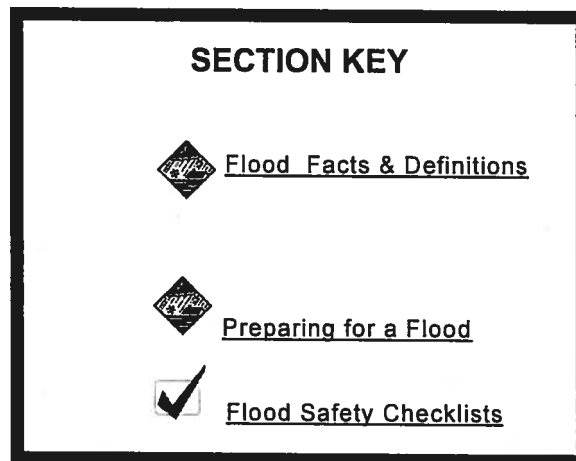
_____ Prepare list of initial needs as well as damage assessment and give to the Vicar General or his designee.

_____ Department Heads submit Incident Report to Diocesan Dept. of Financial Services.

Level V (continued)

- _____ Work with Staff to determine if there are any injuries or personnel requiring medical attention.
 - _____ Conduct a head count to ensure that all staff and visitor are accounted for.
 - _____ Ensure that all archival records are safe.
 - _____ Inspect supplies for damage.
 - _____ Call Diocesan staff if office is to remain closed.
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Floods and Flash Floods



Floods are among the most frequent and costly natural disasters in terms of human hardship and economic loss. As much as 90 percent of the damage related to all natural disasters (excluding drought) is caused by floods and associated debris flows. Flooding occurs in known floodplains with prolonged rainfall over several days, intense rainfall over a short period of time, or an ice or debris jam that causes a river or stream to overflow and flood the surrounding area. Severe thunderstorms can bring heavy rain in the spring and summer or tropical storms can bring intense rainfall to the coastal and inland states in the summer and fall.

Other localized flooding or minor flooding occurs at a regular basis in the region. The reasons the region is prone to flooding include the following: 1) the proximity to the warm, moist air of the Gulf of Mexico, 2) the nearly flat terrain that slows runoff, 3) the spider web of bayous, streams, and rivers, and 4) the risk from tropical cyclones in the summer and stalled or slow-moving extra-tropical systems from Fall through Spring.



Flood Facts and Definitions

Flash floods occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Flash floods can roll boulders, tear out trees, destroy buildings and bridges, and scour out new channels. Rapidly rising water can reach heights of 30 feet or more. Flash flood-producing rains can also trigger catastrophic mudslides. You will not always have a warning that these deadly, sudden floods are coming. **Most flood deaths are due to flash floods.**

Floods claim an average of 263 lives every year. Flood waters only one foot deep can sweep you off your feet and a depth of 2 feet will float your car. Never try to walk, swim, or drive through such swift water. **If you come upon floodwaters, stop! Turn around and go another way.**

Officials will forecast flood(s) when the rainfall is heavy enough to cause rivers to overflow their banks.

Do not stack sandbags directly against the outside walls of a building. Pressure against the foundation can cause severe damage. Stack sandbags away from building walls to prevent floodwaters from reaching your home or business.

To avoid structural damage to the foundation of your home if you have a basement, some experts recommend permitting floodwaters to flow into the basement or to flood the basement yourself if you are sure it will be flooded anyway. This equalizes the water pressure on the outside of the walls. Basements should be pumped out gradually (about one-third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.

Be careful of electrical and gas utilities. Have experts inspect and reconnect utilities after a flood.

Water sources may have been contaminated. Check with local civil defense or emergency management authorities before using any water after a flood.

Hidden Dangers of Areas Flooded by Storm

Do not walk through flowing water - Drowning is a major cause of flood deaths. Use a pole or stick to make sure the ground continues in front of you.

Do not drive through a flooded area - If you come upon a road barrier, turn around and go the other way; the road or bridge may be washed out.

Stay away from power lines and electrical wires - Electrocuting is also a major killer in floods. Electrical current can travel through water. Report downed power lines.

Turn off your electricity when you return home - Some appliances, such as TV sets, can shock you even after they have been unplugged. Don't use appliances or motors that have gotten wet unless they have been taken apart, cleaned and dried by a professional.

Watch for animals – especially snakes - Small animals that have been flooded out of their homes may seek shelter in yours. Use a stick to poke and turn items over and scare away small animals.

Look before you step - After a flood, the ground and floors are covered with debris, including broken bottles and nails, and may be slippery.

Be alert for gas leaks - Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames unless you are sure that the gas has been turned off and the area aired out.

Carbon monoxide exhaust kills - Use generators, gas powered machines, and camping stoves outdoors. Cook with charcoal outdoors only.

Clean everything that got wet - Floodwaters have picked up sewage and chemicals from roads, farms, factories and storage buildings. Spoiled food and flooded cosmetics and medicine are health hazards. When in doubt, throw them out.

FLOOD DEFINITIONS

A **Flash Flood** is defined as a flood that occurs within six hours of a rain event, or after a dam or levee failure, or following a sudden release of water held by ice or debris jams. Flash flooding is a common occurrence in our region. Motorists routinely are stranded on the area's highway system due to roadways flooding from rain.

Flood warnings or forecasts of impending floods will include a description of the potential body of water affected, the severity of the expected flooding, and when and where the flooding may begin.

A **flash flood watch** is issued when heavy rains that may cause sudden flash flooding in specified areas are occurring or expected to occur. A flash flood often occurs without any visible sign of rainfall in your area.

A **flash flood warning** means flash flooding is occurring or is imminent along certain streams and designated areas. Move to high ground immediately.



Preparing for a Flood

Floods are among the most potentially dangerous disasters of all. The force behind the water can move trees, buildings, and even roads. Typically, flooding will be a relatively slow process with adequate warning. Progressive situation reports will be available from the National Weather Service or other governmental agencies.

Storm Surge

One of the best ways to determine if the parish is susceptible to flooding is to examine the DPC's susceptibility to storm surge.

Using the storm surge maps, determine if the parish's vulnerability to a storm surge. Please refer to Section I, Chapter II, page 56 for details on how to determine if the DPC is vulnerable to a storm surge.

The following questions are designed to assist you in assessing how flood proof your property is.

IF THE DPC PROPERTY FLOODED, WHICH BUILDINGS WOULD BE THE MOST VULNERABLE?

ARE THE DPC RECORDS AND VALUABLE PAPERS STORED IN AN AREA THAT WOULD BE SAFE FROM AT LEAST SIX FEET OF FLOOD WATER? IS THERE WATER TIGHT STORAGE AVAILABLE FOR VALUABLES?

Obtaining Official Storm Notification

When conditions are favorable for severe thunderstorm or flood warnings, notification of severe storms, tornado warnings and watches can be obtained from the news media and the National Oceanic and Atmospheric Administration (NOAA) Radio.

Media usually get their reports through NOAA. However, it is best to confirm the threat by going to the National Weather Service Forecast Office for Lake Charles website (<http://www.srh.noaa.gov/lch>).

Flood Related Warnings and Cautions

- Do not walk or drive through flowing water! Floods claim an average of 263 lives every year. Do not try to cross a stream or other water-filled area unless the area is determined to be safe. Floodwaters only one foot deep can sweep someone off their feet and a depth of 2 feet will float a car. If you come across floodwaters – stop and turn around the other way – you do not know the depth of the water, how fast it is moving, or what is underneath.
- Watch for fallen trees and live wires. Electrocutation also is a major killer in floods. Electrical current can travel through water. Report downed power lines to authorities. Never use a power saw around trees entangled with power lines. A spark could cause the gasoline engine of a power saw to explode.
- Watch out for washed out roads, broken water lines, etc.
- Snakes and rodents are often swept through or swimming in the water. Fire ants may be in the water on leaves and branches.
- Look before you step. After a flood, the ground and floors are often slippery and covered with debris, including broken bottles and nails.
- Watch for animals – especially snakes. Small animals that have been flooded out of their homes may seek shelter in buildings, garages, or even in vehicles - wherever they are able to hide. Use a stick to poke and turn items over and scare away small animals. Never move brush or trash without wearing work gloves.
- Use a generator or any gas powered machine and camping stoves outdoors. Cook with charcoal outdoors only.



Flood Safety Checklists

Flood/Flash Flood Watch Issued

Conditions are favorable for flooding or flash flooding. Often flood and flash flood watches are issued during severe thunderstorms. This does not mean that flooding will occur, only that it is possible.

- _____ Review the Beyond Routine Maintenance Checklist
- _____ During the time of the flood watch, keep tuned to the local radio or television station for further information.
- _____ Inform clients, staff, and visitors of severe conditions and the potential to limit activities.
- _____ Ensure that flashlights, weather-band radios and extra batteries are available.
- _____ Ensure that all staff that has cellular telephones are inside the facility.
- _____ Continue any type of indoor activity.
- _____ Check all emergency food supplies and procure more water if necessary.

Flood Warning Issued

A forecast of impending floods will include a description of the potential body of water affected, the severity of the expected flooding, and when and where the flooding may begin.

_____ Report Flood warning upgrade to all Diocesan Staff

_____ Inform all visitors and staff that a flood warning has been issued and prepare for transfer to a safe area (if located in the floodplain).

_____ Transfer the Blessed Sacrament to a safe area.

_____ If time permits, gather emergency supplies (bottled water, batteries, flashlights, weather band radios, cellular telephones, and first aid kit) together in a safe area, preferably as high and as off the floor as possible.

_____ Prepare emergency medical supplies for removal to safe areas.

_____ Unplug all unnecessary electrical equipment (radios, TV sets, clocks, etc.).

_____ Cover all computers with plastic sheeting and elevate computer towers off the ground.

_____ Prepare Diocesan records for immediate removal.

_____ Office personnel should continue to monitor telephones.

_____ If evacuation is ordered, unplug all electrical office equipment.

_____ Follow all instructions issued by local authorities. In Texas, a mandatory evacuation can be ordered. If authorities recommend evacuation, follow their advice.

Flood Warning Issued (continued)

_____ If Diocese has an emergency generator, make sure it is operable and that an adequate supply of fuel is available.

_____ Store all outside moveable objects in designated areas. Items left out can cause additional damage due to the high velocity generated by floodwaters. Propane tanks are a great hazard and have been known to start fires from bumping into buildings.

Evacuation Necessary

_____ If evacuation is necessary, evacuate staff as quickly as possible to a pre-assigned location

_____ Once the evacuation has occurred, perform a head-count to ensure that all personnel are accounted for.

_____ Should any person be missing, report such person to the Vicar General or Disaster Coordinator immediately.

_____ Do not return to look for the missing person. Special search teams have been developed for this purpose.

After the Flood

_____ Call key staff and discuss preliminary needs and damage assessment. Damage assessment needs to be complete within the first 24 hours.

_____ Inspect all rooms for damage and/or water leaks. Call 911 if lines are downed and if there is the smell of fire, gas, or smoke. Use flashlights to inspect building. Do not use open flame. There could be gas leakage from broken pipes. Do not talk on a telephone in an area where a gas leak is expected. Do not use candles, lanterns, or open flames unless you are sure that the gas has been turned off and the area aired out.

_____ Inspect exterior of building for damage. Report broken utility lines or other service interruptions to the proper authorities.

_____ Check cable TV and antenna TV to determine if operational.

_____ Disconnect all electrical equipment if there is any power fluctuation. Do not handle live electrical equipment in wet areas; electrical equipment should be dried and checked before using.

_____ Turn on the utilities only after advised it is safe to do so and turn on one a time to ensure proper working condition.

_____ Take detailed documentation (photos, video) for claim support.

_____ Prepare reports outlining needs and damage assessment. Fax the Incident Report form to the Diocesan Department of Financial Services.

_____ *Prepare list of initial needs as well as damage assessment and give to the Vicar General or his designee.*

After the Flood (continued)

_____ Insure that all archival records are safe.

_____ Until local authorities proclaim water supply safe, boil water vigorously for five minutes before using for drinking.

_____ Monitor the radio/television for recommendations regarding drinking water, utility outage, road conditions, etc.

_____ Clean everything that got wet. Floodwaters have picked up sewage and chemicals from roads, farms, factories and storage buildings. Throw out all food, medicine, or cosmetics that have come in contact with flood water. These are health hazards. When in doubt, throw it OUT.

_____ Dry rugs and carpet as quickly as possible to prevent further damage.




_____ Shovel out mud while it is still moist.

_____ Call Diocesan staff if office is to remain closed (*if this disaster occurs after-hours*).

_____ If DPC is to remain closed, activate alternative site for pastoral and liturgical services.

_____ Begin organizing volunteers to help community after the disaster.

Tornadoes

SECTION KEY	
	<u>Tornado Definitions</u>
	<u>Preparing for Tornadoes</u>
	<u>Tornado Checklists</u>

One-third of all U.S. tornadoes ravage just three states: Texas, Oklahoma, and Kansas.

Tornadoes often accompany hurricanes, and while they can strike any time of the year, they occur most frequently during April, May, and June. In an average year, 800 tornadoes are reported nationwide, resulting in 80 deaths and over 1,500 injuries. Tornadoes can have wind speeds of 250 miles per hour or more and have the potential to cause damage paths in excess of one mile wide and 50 miles long. Most tornadoes, however, are only a few dozen yards wide and only briefly touch down.

Tornadoes develop in warm, moist air in advance of eastward-moving cold fronts and often produce large hail and strong winds. They occasionally accompany tropical storms and hurricanes that move over land.