

Stetson University Severe Weather Awareness Guide

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This Severe Weather Awareness handout includes information on a number of hazards and information on how to prepare for them. You may experience some or all of them during your Stetson journey. If you have not thought about a weather application for your phone, tablet or computer, we urge you to get one for purposes of weather alerts and notifications. Most broadcast media stations have them available as well as the Weather Channel and National Weather Service. Consult the Stetson website (www.stetson.edu) under Public Safety for more information on weather related resources. Stetson will provide as much information to you as possible through our website but additional resources may aid in your personal awareness and safety precautions.



Thunderstorms

Thunderstorms are a frequent part of life in Florida. Thunderstorms occur in all seasons of the year, but they are more numerous during the summer. Florida has the greatest number of thunderstorms in the United States, occurring 75 to 105 days each year. Florida experiences more thunderstorms than other states because: (1) Florida is located close to large bodies of water that provide moisture; (2) Florida receives plenty of sunlight, which warms the air near the ground; and (3) Sea breeze boundaries can move onshore and provide a source of lift for the thunderstorms.

Thunderstorms can produce dangerous hazards such as lightning, tornadoes, hail, strong winds and heavy rain that can lead to flooding. A thunderstorm is considered “severe” when it produces winds in excess of 58 mph, hail that is one inch across or larger (the size of a U.S. quarter), or if it produces a tornado.

Lightning

With an average of 1.4 million cloud-to-ground lightning strikes each year, no other state in the country has more lightning than Florida. Because thunderstorm activity peaks in the summer, Florida often has the greatest number of fatalities and injuries from lightning each year in the United States.

Thunder is a Product of Lightning - As lightning moves between the ground and thunderstorm, the air around the flash heats rapidly, to temperatures as high as 50,000° F – hotter than the surface of the sun. This sudden heating creates expansion of the air around the lightning bolt, breaking the sound barrier and resulting in the explosive sound we know as thunder. Because sound travels much slower than light, thunder is heard after a flash of lightning.

Lightning Safety - As a storm approaches, many people may assume lightning is too far away to pose any danger, but it can travel as far as 10 miles from a thunderstorm. If you are close enough to the storm to hear thunder, then you are close enough to be struck by lightning.



A darkening cloud is often the first sign that lightning may strike. As soon as you see lightning or hear thunder, move indoors quickly and stay away from windows, plumbing and electrical devices.

If you are caught outside when lightning occurs, the most dangerous place to be is an open area. When a substantial building is not available and lightning is imminent, get into a hard-topped vehicle, but remember to keep your hands and feet away from the side of the car, as well as the dashboard, steering wheel and windows.

Outdoor water activities such as swimming, boating and fishing are also very dangerous during lightning. Be sure to head back to land as soon as bad weather threatens.

Most people struck by lightning are not killed, but suffer significant injuries. Remember that a lightning victim does not continue to carry an electrical charge and should begin receiving emergency medical care immediately.

Thunderstorms

Nowhere in Florida is lightning more prevalent than along the Interstate 4 corridor from Tampa to Daytona Beach. This area encompasses each of Stetson's four campuses.

The 30-30 Rule

When thunder roars, first go indoors! Then use the 30-30 Rule to determine the threat of lightning in your area before going out again.

- 30 Seconds - Count the seconds between seeing lightning and hearing thunder. If the time is less than 30 seconds, lightning is still a potential threat. Seek shelter immediately.
- 30 Minutes - After hearing the last thunder, wait 30 minutes before leaving shelter. Many lightning deaths occur after the storm passes. Stay in a safe area until you are sure the threat has passed.



Tornados

Tornados develop within very strong thunderstorms when rising air currents in a storm begin to rotate. If the rotation is strong enough and can last for a long enough period of time, a funnel cloud can drop from the clouds and touch ground. Some thunderstorms may produce several tornados. Tornados also can occur near the edge of tropical cyclones, in squalls called rain bands. These tornados often occur more than 100 miles from the center of the tropical cyclone.

Tornados usually last only a few minutes, but often cause severe damage. The damage area of a tornado is usually narrow, but in its direct path winds can be as strong as 200 mph.

Florida Tornadoes



Most Florida tornadoes occur in the afternoon and early evening hours during the summer months of June, July and August. These tornadoes tend to be weaker in strength but can still produce damage. Stronger and more devastating tornadoes can occur in Florida mainly in the late winter and spring when strong cold fronts move through the state and provide the necessary conditions for tornadoes to form. Tornadoes have occurred in every month in Florida, even on Christmas Day.

Tornadoes can also strike at any time of day. Most of Florida's tornado-related deaths occur during overnight hours. Since 1950, only three states – Texas, Kansas and Oklahoma – have reported more tornadoes than Florida. Florida also ranks fourth in damage caused by tornadoes. National Weather Service (NWS) meteorologists use Doppler radar to track thunderstorm development, severity, and movement.

“Severe Thunderstorm Warnings” are issued when a thunderstorm in the area is capable of causing damage and is a threat to life and property.

Doppler radar also identifies the rotation inside a thunderstorm, which could be the beginning of a tornado.

However, an actual tornado is typically too small for the Doppler radar to detect. Therefore, meteorologists depend on volunteer storm spotters who report funnel clouds, tornadoes and other severe weather to the National Weather Service.

The National Weather Service will issue a Tornado Warning when a tornado has been either seen by a weather spotter or when Doppler radar indicates strong rotation inside a thunderstorm.

Thunderstorm and Tornado Safety Actions

If a Severe Thunderstorm Warning or Tornado Warning is issued for your area, seek shelter immediately! Find shelter in a small, interior room on the lowest floor of your building and stay away from windows, doors and electrical equipment. Avoid rooms that are near tall structures like trees and power lines. In the classroom, seek shelter in a hallway or closet, or get underneath a desk or table and cover your head with your arms. If caught outdoors or on the road try to get as low as possible, such as in a creek bed or ditch, and cover your head.

Stetson University will alert Faculty, staff and students if a tornado watch or warning is issued. Outdoor extra-curricular activities may possibly be curtailed.

Hurricanes

Hurricanes are perhaps the most distinctive severe weather hazard we face in Florida. During a typical year, several tropical storms and hurricanes will develop and move across the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. It takes only one of these storms to produce widespread impacts across a large area, and even storms that do not make landfall in Florida can bring hazards to the state.

The Atlantic hurricane season officially begins on June 1 and continues through November 30. Although the number of tropical storms and hurricanes typically peaks during August and September, it is important to remember that Florida can be impacted by tropical weather systems at any time during the six-month-long season, and sometimes outside of the official season.

Recent hurricane seasons remind us that impacts can occur well away from the tropical cyclone center in the form of dangerous surf and rip currents. Tropical cyclones that move close to Florida will bring more direct impacts in the form of storm surge and coastal flooding, tornadoes, and freshwater flooding from heavy rain.



The strongest hurricanes can have winds in excess of 155 miles per hour. Though a hurricane's winds typically weaken rapidly following landfall, Florida's flat terrain allows the strongest hurricanes can have winds in excess of 155 mph. Though a hurricane's winds typically weaken rapidly following landfall, Florida's flat terrain allows the stronger winds to survive longer inland than in other parts of the country.

Freshwater flooding from torrential rains can produce a lot of damage, regardless of its intensity. Also, freshwater flooding may occur hundreds of miles away from the cyclone center, meaning that storms which do not make landfall in the state may still bring significant rainfall. All Florida residents and seasonal visitors should determine if they live within a low-lying area at risk to flooding, regardless of their location in the state.

Storm surge is the term used to describe the wall of water that is pushed toward the coast as a hurricane moves onshore. A major hurricane can produce a surge of 10 feet or more above the normal levels. This amount of water easily can flood coastal communities. Worldwide, approximately 90 percent of all deaths in hurricanes are drowning in either storm surge or rainfall flooding.

Tornadoes associated with tropical systems can develop suddenly and strike a community even though the center of the hurricane may be more than 100 miles away.

Preparing for a hurricane

All Florida residents and visitors should prepare each year for the possibility of tropical storm or hurricane impacts, understand the potential hazards posed by them, and have a plan.

For more information on hurricane preparation, please consult Stetson University's Hurricane Planning Guide. It will provide you with information on notifications, personal preparedness, university preparedness measures, vehicles, shelters and evacuations if necessary.

Flooding

Florida is vulnerable to flooding at any time of the year. Mostly surrounded by water, the abundant supply of moisture feeds the development of thunderstorms, which may produce heavy rains over a short period of time. When those heavy rains occur, the ground may not be able to absorb all of the rainwater and flooding may result. Due to the flat ground in portions of the state, floodwaters may sometimes remain in an area for days, weeks or even months.



Not all floods are alike. Some floods develop slowly, taking anywhere from a few hours to a few days to have an impact. On the other hand, flash floods happen quickly, sometimes in a matter of minutes.



Flooding Facts

- Six inches of water will reach the bottom of most passenger cars, causing loss of control and possible stalling.
- Two feet of rushing water can carry away most vehicles, including sport utility vehicles (SUVs) and pick-ups.
- Urban and small-stream flash floods can occur in under one hour.

Meteorologists at the National Hurricane Center, the Southeast River Forecast Center, and local Florida National Weather Service offices all watch thunderstorms and tropical systems very closely to forecast how much rainfall it may produce and how much flooding may occur. The National Weather Service will issue coastal flood advisories, watches and warnings similar to inland flood statements.

Flash Flood

Flash floods can occur within a few minutes or hours of heavy rainfall or from a dam or levee failure. These floods can destroy structures, down trees, roll boulders, and create new waterways. Rapidly rising water can reach heights of 30 feet or more! Furthermore, flash flood producing rains can also trigger catastrophic mudslides. You may not always have a warning of these sudden and potentially deadly floods.



Urban Flood

Floods can be magnified in urban areas. As land is converted from fields and woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff two to six times over what would occur on natural terrain. During periods of urban flooding, streets can become swift moving rivers, while basements can become death traps as they fill with water.

River Flood

Low lying areas near rivers, streams, lakes and reservoirs are susceptible to river floods. Some river floods occur seasonally when winter or spring rains fill river basins with too much water too quickly. Other floods can occur from slow-moving low pressure systems. Torrential rains from decaying hurricanes or tropical systems can also produce river floods.

Area Flood

Area floods are long-lived, though not usually life-threatening. Standing water in low-lying areas, such as an open field, is an example of an area flood. Significant agricultural losses and displaced livestock can occur with these floods. In addition, stagnant water from this type of flooding can serve as a breeding ground for insects and diseases.

Temperature Extremes

Florida can experience a wide range of temperatures, from dangerously hot to dangerously cold, and it is important for everyone to stay safe during periods of temperature extremes.

When Florida's high humidity combines with warm temperatures, it may feel hotter outside than it really is. This is called the heat index. High heat index values limit the body's ability to cool through sweating. When the heat index exceeds 105° F, conditions can become dangerous for people and animals. Sunstroke, heat cramps, heat exhaustion and heat stroke are all risks associated with high heat indices. The National Weather Service will issue heat advisories and warnings when the heat index is forecast to reach dangerous levels.



>130° - Dangerously Fatal Heat

105° - 130 °F – Heat cramps and exhaustion is likely

90° - 105°F – Heat cramps and exhaustion is possible

80° - 90°F – Fatigue is possible

Hot Weather Safety

- Wear lightweight, light-colored clothing to help reflect heat and sunlight, and help your body maintain its normal temperature.
- Drink plenty of water, even if you don't feel thirsty. People can become dehydrated without realizing it. Stay away from highly sugared or carbonated drinks.
- Protect your skin with sunscreen; also wear sunglasses and a hat, or carry an umbrella to provide shade.
- Slow down and limit outdoor activities. Avoid outdoor events during the hottest part of the day (11 am–5 pm).
- Remain in air-conditioned places to reduce your exposure to the heat.
- Check on elders, persons with disabilities, children and animals during periods of prolonged heat.

Temperature Extremes

Cold weather outbreaks occur in Florida at least once a year, caused by strong cold fronts that move through the state and producing below freezing temperatures and strong winds. When strong winds combine with cold temperatures, heat loss from a person's skin can be accelerated. Wind Chill can make the outside temperature feel much colder than it really is. In addition, freezing temperatures can kill crops, plants and even fish. The National Weather Service will issue wind chill advisories/warnings, along with freeze advisories/warnings, when cold weather threatens an area.



Cold Weather Safety

When cold weather is in the forecast, it is important to remember the “5 P’s of Cold Weather Safety.”

- **Protect People:** dress in layers and wear a hat and gloves. Stay out of the wind and stay dry. Remember to check on young children and elders who are the most sensitive to cold weather.
- **Protect Pets:** Be sure to bring outdoor pets inside or give them a warm shelter.
- **Protect Plants:** Cover cold-sensitive plants to protect them from the dangerous temperatures.
- **Protect Pipes:** Cover pipes and allow outdoor faucets to slowly drip to prevent them from freezing and breaking.
- **Practice Fire Safety:** At Stetson University space heaters and open flames are not permitted in any residential building.



Wildfires

While wildfires can start at any time of the year, the state sees a peak of activity during the early, colder part of the year – beginning in January and continuing until early to mid-June.



A typical year in Florida will see over 4,600 fires burn nearly 110,000 acres of land. Since 2002, more than two million acres of forest land have been burned by wildfires. While there are natural ways a wildfire can be ignited, most wildfires are started by humans.

The most common causes of human-started fires are arson and yard waste burns that get out of control. Fires can also be caused by discarding a cigarette that has not been fully extinguished. Other causes of wildfires include campfires and bonfires not properly extinguished or windy conditions that may take hot embers from the fire to another location. The stronger the wind and the drier the ground, the faster fires will spread. Fire Weather Watches and Red Flag Warnings are issued by the National Weather Service to alert people to hazardous weather conditions that may add to the wildfire danger.

Wildfires can cause major environmental, social and economic damages. Prescribed fires are good fires that reduce the hazardous accumulations of brush to lower the risk of loss to homes, businesses, recreation areas and forests when wildfires occur. Prescribed fire also controls forest tree diseases and recycles nutrients in the soil.

Wildfires often begin unnoticed. They spread quickly, igniting grasses, trees and homes. Reduce your risk by preparing now - before wildfire strikes. Meet with your family to decide what to do and where to go if wildfires threaten your area. Find out how you can promote and practice wildfire safety by going to www.Firewise.com and www.floridaforestservice.com/wildfire/information.html.



Resources

Much of the information in this handout is generic and provided to Florida residents and visitors by The Florida Division of Emergency Management for their safety. For more specific information please visit:

- The National Hurricane Center - <https://www.nhc.noaa.gov/>
- Stetson University DeLand Public Safety - <http://www.stetson.edu/administration/public-safety/>
- Stetson University Gulfport Public Safety - <http://www.stetson.edu/law/offices/safety>
- Florida Division of Emergency Management - <https://www.floridadisaster.org/> and <https://archive.floridadisaster.org/getaplan/>
- The Hillsborough County, Pinellas County, Osceola County and Volusia County offices of Emergency Management.
- Though our campuses are spread over a large geographic area, we are one Stetson University and your safety is paramount in all we do.
- We trust that this information will prompt you to be informed and well prepared for the duration of your educational experience with us.



DeLand Campus



Celebration



College of Law Gulfport



College of Law Tampa