

ALABAMA ALL HAZARDS AWARENESS



INSIDE: FEATURE SECTION ON APRIL 27TH



A MESSAGE TO YOU

A MESSAGE TO YOU

When it comes to severe weather, planning ahead can save your life. Think about your home, office, school, church or anywhere else you or your family might be. Do you have a reliable way to receive weather warnings? Do you know where you can take cover? Do you have enough food and emergency supplies to help you endure several days without power? The answers to these and other questions could make a major difference when severe weather strikes.

This booklet examines all types of severe weather and gives you the advice you need before, during, and after the storm. It's not just tornadoes. It's not just hurricanes. Alabama is prone to many different types of severe weather.

Take some time now to understand the threats and plan ahead. The time you invest in preparation now can make all the difference in the future.

Governor
Robert Bentley



On behalf of all four National Weather Service (NWS) offices that serve you in Alabama, thanks for taking time to both educate yourself and develop an action plan NOW, before hazardous weather strikes. We at the NWS take our role of providing life saving information very seriously. However, our best forecasts and warnings mean nothing if YOU don't do something with this information. So, please join us. Learn about the threats. Learn how to receive the hazardous weather information. Finally, develop a plan to protect yourself and others before hazardous weather strikes. The life you save may be your own!

The National Weather Service Offices
of Alabama



Courtesy of FEMA



Courtesy of the Alabama Governor's Office



Courtesy of FEMA

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In recent years, you may recall the Alabama Emergency Management Agency promoting two distinct severe weather seasons, spring and early winter. Today, that is no longer the case. We are now highly encouraging residents to be ready for "all hazards all the time." Our state is unique in a number of ways and that includes its weather pattern. The devastation from the April 2011 storms will forever be etched in our minds; however, the most recent severe weather event in December 2012 is a perfect reminder why we all must always be prepared, regardless of the month or the season. The All-Hazard NOAA Weather Radio is one of the best ways you and your family can be made aware of impending severe weather.

As much as we stress preparedness for what we consider natural hazards (tornadoes, flooding, hurricanes, etc.), having a plan of action for technical hazards is just as important. Technological hazards may include hazardous material spills, nuclear power plant failures or possibly a train derailment. Usually, little or no warning precedes incidents involving technological hazards. For that reason, talking with your county EMA Director regarding their plan will help you better formulate an effective plan for you and your family.



Art Faulkner, Director
Alabama EMA, Clanton



YOUR EMERGENCY MANAGEMENT AGENCY

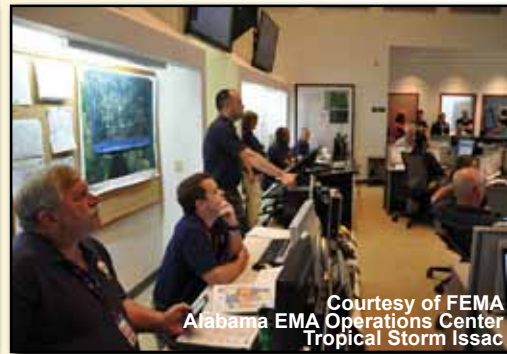
During an emergency, the roles of an Emergency Management Agency (EMA) are clear. Your local EMA is there to provide support to first responders, disseminate information to the public, and when possible acquire and distribute necessary resources.



Courtesy of FEMA
Mobile County, July 18, 2005
Hurricane Dennis



Courtesy of FEMA
Alabama EMA Operations Center
Tropical Storm Issac



Courtesy of FEMA
Alabama EMA Operations Center
Tropical Storm Issac

What exactly does your local EMA do when everything calms down and goes back to “normal?”

The main focus of an EMA is to ensure that first responders and residents of their county are prepared for an emergency. They accomplish this by hosting and coordinating training for first responders and volunteer agencies on a variety of subjects. They are also responsible for coordinating communications between first responder agencies across the county.



Courtesy of FEMA



Courtesy of FEMA
Alabama EMA Operations Center
Clanton, AL



Courtesy of FEMA/Mark Engholm
Hackleburg, AL

Everything that your local EMA does on a daily basis is in preparation for an incident, whether it be large or small. They are responsible for the creation and implementation of the county’s Hazard Mitigation Plan and Emergency Operations Plan. While the Hazard Mitigation Plan is implemented to reduce the effects of an incident when it happens, the Emergency Operations Plan outlines how the EMA, first responders, and volunteer organizations will respond to an event. As the only way to test a plan is through execution, the EMA and partner agencies will conduct and participate in several exercises throughout the year. This not only helps to ensure the plan works properly but also that everyone knows what to do when it matters most.

The National Weather Service offices of Alabama would like to thank Tammy Bain, Calhoun County EMA, for assisting with the development of this page.

PARTNERS IN PROTECTION

Your local Emergency Management Agency is eager to provide you with the knowledge you need to prepare yourself, your family, your pets, and your business. One way of accomplishing this is by offering Community Emergency Response Team (CERT) training to your community or group. If you are interested in CERT training or curious about other volunteer opportunities in your county, contact your local EMA. Knowing what to do is just one step - it is crucial that you monitor conditions in your area. Through reports provided by the National Weather Service, an EMA’s Alert and Notification System and social media outlets provide real-time information on inclement weather in your area. It is important to have multiple ways of receiving notifications and alerts so that if one method fails you will still receive information.



Courtesy of FEMA/Calhoun County EMA



Courtesy of FEMA/Calhoun County EMA



Courtesy of FEMA/Calhoun County EMA

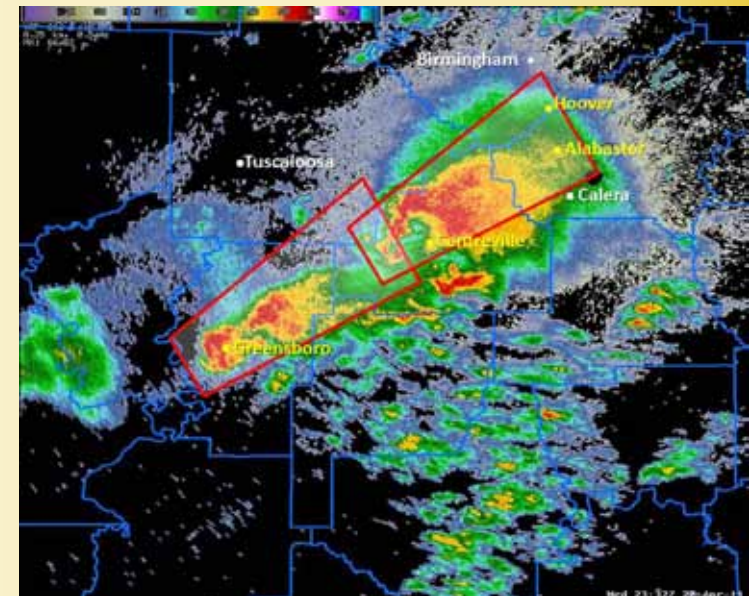
To find out more about volunteering in your community, contact your local Emergency Management Agency. For individual county contact information, contact Alabama Emergency Management Agency at 205-280-2200 or go to the following webpage: <http://www.ema.alabama.gov/county.cfm>.

STORM-BASED WARNINGS

The National Weather Service upgraded warning capabilities on October 1, 2007. Traditionally, the NWS issued county-based warnings, which encompassed the entire county regardless of what portion of the county the storm or threat was located. Under the new storm-based warning system, warning polygons only cover the portion of the county actually threatened by the storm. By focusing on the true threat area, warning polygons improve the accuracy and quality of NWS warnings.

In the image to the right, two separate storms have warnings associated with them, one near Greensboro, AL, and the other just west of Centreville, AL. Tornado warnings are in effect for the following counties: Hale, Bibb, Perry, Tuscaloosa, Jefferson, and Shelby. There are significant portions of those same counties that are NOT covered under the actual storm-based warnings. For example, portions of Tuscaloosa, Jefferson, and Shelby Counties are covered by tornado warnings; however, the cities of Tuscaloosa, Birmingham, and Calera are not in the polygons, and therefore, not under a tornado warning.

NOAA Weather Radio All Hazards will continue to alert the entire county. However, there are several vendors that will alert you only if you are within the storm-based warning.



REMEMBERING APRIL 27, 2011

Hackleburg/Phil Campbell EF-5



WAFF's RADAR in eastern Limestone county took a direct hit. Recognizable pieces of the dome could not be found. A new RADAR was operating by October 2011.

Cullman EF-4



The old Fuller Bros. Ford building in downtown was heavily damaged and has since been replaced by the new All Steak restaurant.

Tuscaloosa EF-4



Heavily damaged businesses along 15th St E. in Tuscaloosa have reopened. One destroyed business (far right in images) continues to rebuild.

Shoal Creek/Ohatchee EF-4



The Webster's Chapel VFD in Wellington was completely destroyed, but today they have a beautiful, new building.

Lake Martin EF-4



Mt Hebron East Baptist Church near Eclectic was wiped clean from its foundation, but has since been rebuilt.

This Moderate-resolution Imaging Spectroradiometer (MODIS) Channel 1 difference image, provided by the NASA SPoRT group in Huntsville, Alabama, shows the most destructive tornadoes' paths from the historic tornado outbreak.

The storms of April 27th, 2011 were historic; it was an event which affected all of Alabama, directly or indirectly. Every life lost was tragic. Even so, the fact that a greater number of lives were not lost reflects upon the awareness and preparedness of many individuals and communities across Alabama. This event also highlighted the importance of an effective relationship between the National Weather Service, Media, and Emergency Management. Then as now, these partners are committed to working together to ensure you are prepared and can make informed decisions when it is time to act.

Although overshadowed by April 27th, there were five other severe weather episodes in April 2011. Even if you were not hit directly by any one of these series of events, the need for awareness and preparedness for all Alabamians was certainly made clear in this month of weather disasters.

As Alabamians continue to heal and rebuild from these storms, the lessons learned will be carried forward. The need to be prepared for disasters, of any type, has never been clearer. Use the information on the following pages to learn how to prepare for disasters and how to remain safe both during and after the storm. It could make the difference the next time disaster strikes!

The photos to the left are only a few examples of the destruction which occurred on April 27th and the rebuilding that has occurred over the last 2 years.

The damage photos were taken as part of National Weather Service Storm Assessment Surveys. Other photos courtesy of Eric Jones, Elmore County EMA; Tammy Bain, Calhoun County EMA; Billy Green, Tuscaloosa County EMA; and Tara Goggins, NWS Birmingham.

AWARENESS AND PREPAREDNESS

Alabama is susceptible to all types of severe weather and natural disasters, such as earthquakes. Disasters can strike quickly and without warning. They can force you to evacuate your community, or be confined to your home. Basic services and utilities could be cut off; emergency personnel and relief workers might not be able to reach you.

Being prepared for such disasters is crucial at home, work, school, and in your community. Before a disaster can strike, you should have an emergency preparedness plan ready. Preparedness plans come in all sizes as dictated by the individual and collective needs of you and your family.

The National Weather Service, Alabama Emergency Management Agency and American Red Cross chapters in Alabama encourage you to take the time to prepare now before the next disaster occurs.



Construct an emergency supply kit with essential supplies for the entire family, including but not limited to the items listed on the next page. The food and bottled water supply should be enough for three days for each person. Ensure your supply kit meets any special requirements for family members. Be aware of neighbors, family and friends who might need help both before and during the event.



Have a thorough knowledge of the safety rules presented in this booklet. Know where the best available protective area is in your home or work place. Make an evacuation plan for the family, including escape routes and a pre-determined meeting place. Include pets in your plan. Learn how to turn off utilities and to use life saving devices such as a fire extinguisher. Practice this plan.



Have reliable methods of communication to receive and exchange information. Remain informed of up to date information from NOAA Weather Radio All Hazards, local television and radio stations, cell phone/text messages, or local warning systems. Have a point of contact outside the disaster area to relay information between other family and friends. Notify this contact of your evacuation plans.

Follow all instructions from local officials and emergency managers.



Learn more information about disaster training and emergency supply kits at www.birminghamredcross.org or www.redcross.org.

PERSONAL EMERGENCY INFORMATION

Emergency Preparedness Plan

Our protective area is _____

_____ will get the pet(s).

_____ will get the emergency supply kit.

Emergency Supply Kit

- | | |
|---|--|
| <input type="checkbox"/> Flashlight/batteries | <input type="checkbox"/> Portable Radio |
| <input type="checkbox"/> Medicines | <input type="checkbox"/> First Aid Kit |
| <input type="checkbox"/> Blankets | <input type="checkbox"/> Food/Water Supply |
| <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |
| <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |
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| <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |

Our Kit is located _____

Emergency Phone Numbers

Police _____ Fire _____

Electric _____ Gas _____

Sheriff _____ EMA _____

Evacuation Directions

Outside Contact _____

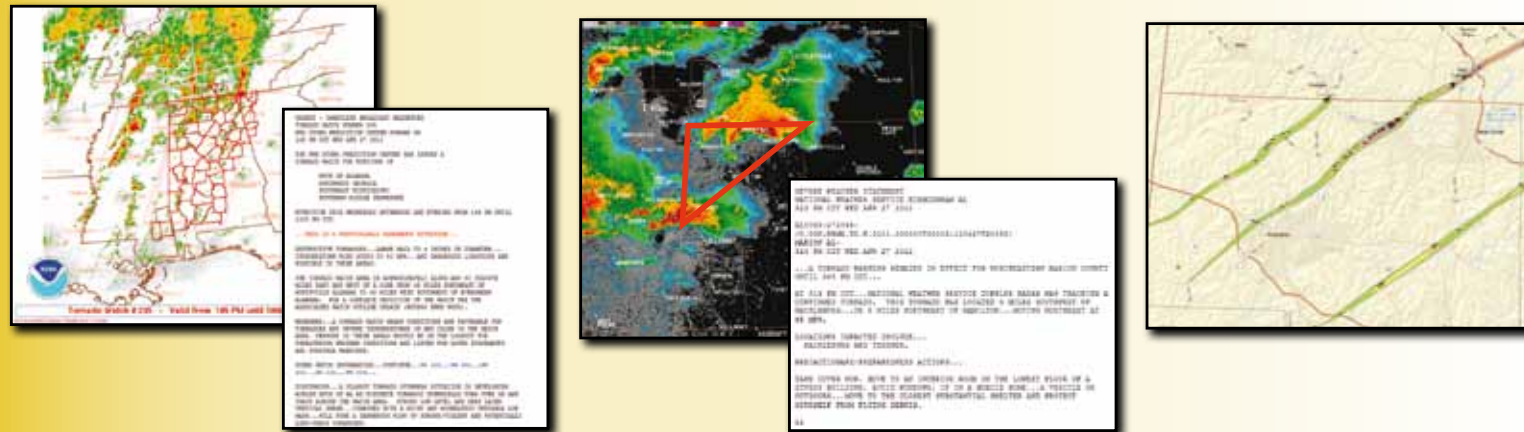
Meeting Place _____

HOW TO GET WEATHER INFORMATION

THE VOICE OF THE NATIONAL WEATHER SERVICE

With today's technology, you can view/receive weather information in a variety of ways. Whether you watch severe weather coverage on television or subscribe to a text messaging service, you have access to severe weather alerts either at home or on the go. One important thing to remember is that you should never have a single point of failure. Please make sure you have multiple ways to receive valuable, and potentially life-saving, weather information. Keep in mind that although sources such as TV and cell phones may be useful during the day, you also need a nighttime source of information. NOAA Weather Radios are especially important during overnight severe weather events. Here is a short list of ways you can receive weather alerts:

- NOAA Weather Radio
- Internet
- Battery/Crank Radio
- Car Radio
- Cell Phone (text messaging services/apps)
- Television
- Social Media (Facebook/Twitter)



NOAA Weather Radio All Hazards (NWR), the voice of the National Weather Service (NWS), provides updated weather information continuously, 24 hours a day, 365 days a year. Watches, warnings, advisories, forecasts, current weather conditions, and climate data are broadcast in three to five minute cycles on NWR stations across the nation.

To listen to NWR broadcasts, a special radio capable of receiving signals in the Very High Frequency (VHF) public service radio band is required. Seven frequencies from 162.400 to 162.550 megahertz (MHz) are used. Weather radios can be purchased at most electronics stores and online. Prices of these radios vary from location to location and depend on the type of radio purchased.



IMPORTANT SEVERE WEATHER DEFINITIONS

HAZARDOUS WEATHER OUTLOOK:

- Anticipated Hazardous Weather over the next 7 days
- Issued 3-4 times per day

TORNADO / SEVERE THUNDERSTORM WATCH:

- Conditions are **favorable** for severe thunderstorms/ tornadoes
- Issued by SPC; typically last 3-6 hours

TORNADO / SEVERE THUNDERSTORM WARNING:

- Conditions are **occurring** or about to occur
- Issued by local NWS office; last 30-60 min



WATCH THE SKY!



TAKE ACTION!!!



The map to the left shows the names and locations of all NOAA Weather Radio transmitters located in the state of Alabama. Transmitters shown in yellow are maintained by NWS Huntsville, those in red by NWS Birmingham, and those in blue by NWS Mobile. The names of each of the 67 counties have been included on the map, as well as the SAME codes for each county.

For SAME codes for the rest of the United States and marine areas visit: www.nws.noaa.gov/nwr/indexnw.htm

NOAA Weather Radio All Hazards is useful anytime, but it becomes more important during severe weather. During threatening weather, normal broadcasts are interrupted, and the focus is shifted to the local severe weather threat. Watches and warnings are given the highest priority and are frequently updated.

NWR is a major part of the Emergency Alert System (EAS) that disseminates critical warning information rapidly through commercial broadcast outlets. In an emergency, each NWR station will transmit a warning alarm tone signal followed by information on the emergency situation. This signal is capable of activating specially designed receivers by increasing the volume or producing a visual and/or audible alarm. Though not all weather band receivers have this capability, all weather radios can receive the emergency broadcasts.

The warning alarm device is normally tested each Wednesday between 11 AM and Noon, weather permitting. Contact your local NWS office for information on additional testing days and times.

WHERE TO FIND THE NWS

The NWS is dedicated to providing the most up-to-date weather information to each and every community using the latest technology. Our local forecast office webpages are valuable sources of real-time weather information, and you will also find...

- Climate Facts (local/regional & national)
- Graphical Forecasts & Maps
- Recaps/stories on significant weather events
- Hydrologic Information (rivers/lakes)
- Real-time Surface Observations
- Radar/Satellite
- Storm Reports
- Interactive Watch/Warning/Advisory Map



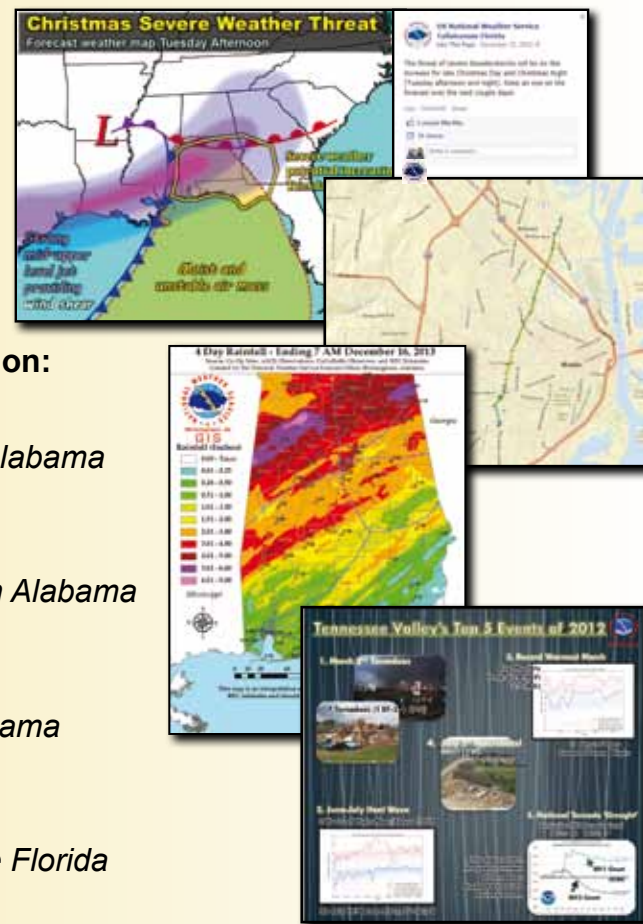
Local Forecast Office Webpage Links:

- NWS Huntsville - www.weather.gov/hun
- NWS Birmingham - www.weather.gov/bmx
- NWS Mobile - www.weather.gov/mob
- NWS Tallahassee - www.weather.gov/tae

FACEBOOK & TWITTER

The NWS has become more involved in the social media arena and utilizes both Facebook and Twitter to pass along important weather notes to large numbers of people. Here are a few examples of what the NWS will post on FB/Twitter:

- Graphical Forecasts
- Post storm information (i.e. storm surveys)
- Weather Safety and Awareness reminders
- Scheduled Outreach events (spotter training classes)
- Trivia questions
- Weather event information (i.e. total rainfall map)



NWS Facebook/Twitter Contact Information:



Huntsville Forecast Office –
 • US National Weather Service Huntsville Alabama
 • @NWSHuntsville

Birmingham Forecast Office –
 • US National Weather Service Birmingham Alabama
 • @NWSBirmingham



Mobile Forecast Office –
 • US National Weather Service Mobile Alabama
 • @NWSMobile

Tallahassee (FL) Forecast Office –
 • US National Weather Service Tallahassee Florida
 • @NWS_Tallahassee

STORM SPOTTERS

Volunteer storm spotters play a vital role in keeping you safe from the storm! Despite the tremendous advancements in technology, reports of what is actually occurring on the ground play a huge role in assessing the threats from each storm. These accurate and timely reports play a vital role in helping the NWS make critical warning decisions!



The image to the right shows NWS Meteorologist Jennifer Schuller teaching a Skywarn spotter class in Moulton, AL



www.alabamaskywarn.org

HOW TO BECOME A STORM SPOTTER

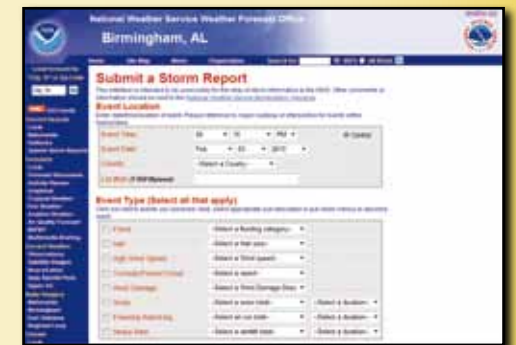
Anyone can become a Skywarn spotter! Training is provided at various times and locations throughout the year, and generally lasts up to 2 hours. Online training is also offered. Contact your local National Weather Service office for information on the next training opportunity near you!

HOW TO REPORT SEVERE WEATHER

There are many ways to report severe weather. Remember, it's important to choose the appropriate method based on the report. For instance, do not post a report of a tornado on Facebook/Twitter. Instead call 911 or your local EMA or NWS office.

- Call your local Emergency Management Office
- Call local law enforcement/911 service
- Call your local National Weather Service Office
- Facebook/Twitter
- Submit it online via one of the following websites:

- <http://www.srh.noaa.gov/StormReport/SubmitReport.php?site=tae>
- <http://www.srh.noaa.gov/StormReport/SubmitReport.php?site=mob>
- <http://www.srh.noaa.gov/StormReport/SubmitReport.php?site=bmx>
- <http://www.srh.noaa.gov/StormReport/SubmitReport.php?site=hun>



Courtesy of Mallory Steelfox Walker County, Jan 17, 2013

Courtesy of Stephan Frank Sumter County, Apr 27, 2011

WHAT TO REPORT

Please remember to include the time of the event and a detailed location (i.e. address or intersection).

- Tornado/Funnel Cloud
- Wall Cloud (rotating?)
- Flash Flooding
- Damaging Winds (≥ 60 mph)
- Large Hail (≥ 1 inch)
- Heavy Rainfall
- Small Hail (< 1 inch)
- Strong Winds (< 60 mph)
- Ponding of Water
- Snow Depth
- Ice Accumulations
- Damage (trees/structures)

Remember the 3 W's when reporting: **What, When and Where!**

THUNDERSTORMS

Thunderstorms are a common occurrence in Alabama, producing damaging winds, heavy rainfall, hail and tornadoes. Severe thunderstorms are more frequent during the active severe weather months of the spring and fall, but can occur anytime of the year, at any time of day. What exactly makes a thunderstorm "severe"? One of several things: a tornado, winds at or above 58 mph, or quarter-size (one inch diameter) hail or larger. Several different types of thunderstorms exist; all are capable of becoming severe.



Single cell thunderstorms usually occur during the summer months when the air is warm, moist, and unstable, and winds are weak. These thunderstorms, also known as pulse or airmass storms, form as individual cells or unorganized clusters of thunderstorms and have little to no movement. They can produce large hail, flash flooding, and microbursts.



Multicell thunderstorms and squall lines are organized complexes of thunderstorms that cover large areas. These storms are more likely to produce severe weather, particularly damaging winds, since they move rapidly across an area. Tornadoes, hail and flash flooding are also possible.



Supercell thunderstorms are the strongest and most dangerous type of thunderstorms. They can produce long-lived tornadoes, winds in excess of 100 mph, and large hail. Fortunately, these storms are not common and usually cover small areas.

The best defense against thunderstorms is to stay inside a substantial building or shelter that will protect you from lightning, wind, hail, tornadoes, and heavy rain. Fortunately, thunderstorms generally pass within an hour. When thunderstorms are expected, stay tuned to your NOAA Weather Radio All Hazards for up to date information. Postpone outdoor activities. Recall your weather safety plan and be ready to take action!

Courtesy of Bill Wall
Jefferson County, Mar 15, 2009



Courtesy of Bill Wall
Jefferson County, May 15, 2009



Anyone outdoors is particularly vulnerable to lightning. Each person, group or school involved in outdoor activities should have a plan that can be activated quickly when lightning threatens. You should take shelter in a sturdy, enclosed building. Sheds, dugouts, tents and gazebos are not safe. Avoid open spaces, isolated objects, and high ground. Avoid metallic objects such as fences, pipes, power poles, and bikes. Take cover in a hard top automobile, keeping windows up and doors closed. Get out of boats and away from bodies of water.

Once indoors, stay away from windows, doors, and off porches. Avoid contact with any plumbing and electrical items, including TVs and computers. Do not use corded phones, except for emergencies. Do not lie on concrete floors or lean against concrete walls. Remember to bring pets indoors.

Courtesy of Karen Wingo
Shelby County, Mar 18, 2011



Courtesy of Genki Kino
Shelby County, June 16, 2011



Remember, if you can hear thunder, you are close enough to a storm to be struck by lightning. For more information on lightning safety, visit www.lightningsafety.noaa.gov.

**When Thunder Roars,
Go Indoors!**

TORNADOES

Tornadoes are violently rotating columns of air that descend from thunderstorm clouds and make contact with the ground. All thunderstorms can produce tornadoes, but they are most likely to develop within supercells. Tornadoes come in a variety of sizes and shapes, having wind speeds as weak as 65 mph to over 200 mph. They move with the parent thunderstorm, with forward speeds ranging from nearly stationary to 70 mph. In Alabama, tornadoes are often rain-wrapped and hidden or obscured by terrain. This makes them more dangerous.



Tornadoes can occur during any time of the year, at any time of day. Most tornadoes develop during two peak severe weather seasons: the spring months of March, April and May; and the fall months of November and early December. Alabamians are encouraged to be prepared when there is any potential for tornadoes.

TORNADO SAFETY

IN HOMES OR SMALL BUILDINGS:

Go to a pre-determined shelter, such as a basement. Get under something sturdy like a heavy table, if available. Protect yourself from flying debris with pillows, heavy coats, blankets, or quilts. Use bicycle or motorcycle helmets to protect your head.



If an underground shelter is not available, go to a small interior room, such as a closet, bathroom, or interior hallway, on the lowest level. Put as many walls between you and the outside as possible. Stay away from windows and doors.

IN MOBILE HOMES:

Leave well in advance of approaching severe weather and go to a strong building. If there is no shelter nearby, get into the nearest ditch, depression, or underground culvert and lie flat with your hands shielding your head.

IN PUBLIC BUILDINGS:

Go to the best available, designated protective area. Basements are best, but interior locations on the lowest level also offer protection. Stay away from windows and other hazards inherent to the building.

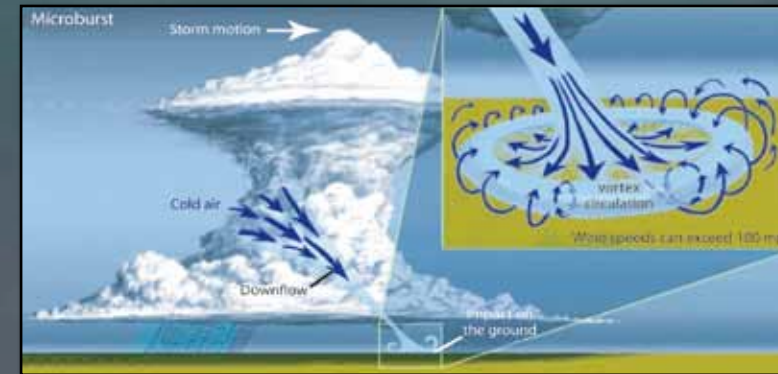
IN A VEHICLE:

If caught in your vehicle during a tornado, you have two options, neither one of them good. The first option is to remain in your car and try to out run the tornado, accurately determining the path and speed of the tornado. You can pull off the road and protect yourself from flying debris and shattering glass, hoping the tornado is not strong enough to pick up your vehicle. The other option, leaving your vehicle and taking shelter in a ditch. Unknown terrain, fencing, and other obstacles could make this difficult. Take cover far enough away from your car, so it and other heavy debris does not wind up on top of you. Remember, do not put yourself in the position to have to choose between these options.



DAMAGING WIND

Each year in Alabama, damaging wind events occur ten to 20 times more often than tornadoes. Often times, initial reports of significant storm damage are erroneously attributed to tornadoes, when strong, straight-line winds are actually responsible. Straight-line winds are damaging winds from a thunderstorm which are not associated with rotation. These winds can reach speeds above 100 mph with a damage path extending many miles. Trees and power lines can be knocked down. Mobile homes over turned. Well-built structures, such as homes and office buildings, damaged.



A downburst is one type of damaging, straight-line wind, which typically occurs during the summer months in single-cell afternoon thunderstorms. Downbursts develop quickly and are very difficult to detect. They can occur with little or no advance notice and can be accompanied by a loud roar. As a result, downbursts are often mistaken as tornadoes. Wind speeds associated with downbursts usually exceed 60 mph and rarely exceed 100 mph. Microbursts, spatially small downbursts, can produce winds stronger than 100 mph.

During any type of severe weather, do not put yourself in a situation where an appropriate shelter is not available. Listen to NOAA Weather Radio All Hazards or another information source for continuous updates. When severe weather is approaching, limit outdoor activities. Remain close to a sturdy shelter.

HAIL

Although hail forms in every thunderstorm, it only reaches the ground if atmospheric conditions are favorable. Hail typically has the best chance of falling to the ground in springtime thunderstorms, when the atmosphere is colder, especially at mid and high levels. Hail may take on many different sizes and shapes, such as a thin flat penny or a baseball.

Large hail can be very dangerous. It can cause damage to objects, such as motor vehicles, structures, and trees. Bodily injuries, or even deaths, can result if people are caught outdoors when large hail occurs.



HURRICANES

Hurricanes and tropical storms form over warm ocean waters, like those found in the Gulf of Mexico during the summer and fall of each year. On average, 11 tropical storms, 6 of which become hurricanes, develop in the Atlantic basin each hurricane season, which runs from June 1st to November 30th. The peak hurricane threat for the Alabama coast is in August and September, but hurricanes can strike the coast during every month of the hurricane season. Everyone in Alabama needs to be prepared for hurricanes and tropical storms. Even inland areas, well away from the coastline, can experience destructive winds, tornadoes and floods from tropical storms and hurricanes.

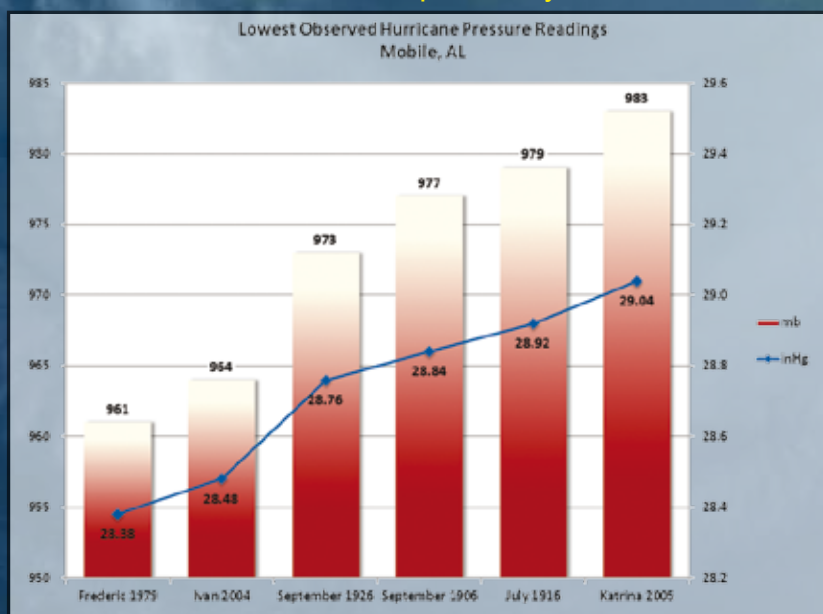
Tropical Cyclone Definitions

- Tropical Depression: An organized system of persistent clouds and thunderstorms with a closed low-level circulation and maximum sustained winds of 38 mph or less.
- Tropical Storm: An organized system of strong thunderstorms with a well defined circulation and maximum sustained winds of 39 to 73 mph.
- Hurricane: An intense tropical weather system with a well defined circulation and maximum sustained winds of 74 mph or greater.
- Hurricane/Tropical Storm Watch: Hurricane or Tropical Storm conditions are possible in the watch area within 48 hours.
- Hurricane/Tropical Storm Warning: Hurricane or Tropical Storm conditions are expected in the warning area within 36 hours.
- Extreme Wind Warning: Short duration warnings issued by the NWS to provide the public with advance notice of the onset of extreme sustained winds of a major hurricane, usually associated with the eyewall of the hurricane.

HISTORICAL HURRICANE INFO

The Atlantic Basin has, on the whole, seen a very active period of tropical cyclone development since 1995. During this recent period of increased activity, the Alabama coast has been impacted by hurricanes a total of 8 times. The hurricane return period for a major Category 3 hurricane on the Alabama coast is approximately 30 years. Keep in mind that just because Alabama has not historically seen a Category 4 or Category 5 hurricane, the premise that Alabama will not see a storm that strong is misleading. Take measures now to be prepared!

Top Five Costliest U.S. Hurricanes (Affecting Alabama)	
Ivan	2004
Opal	1995
Georges	1998
Frederic	1979
Elena	1985

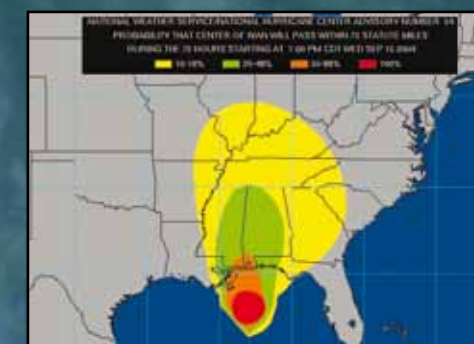


HURRICANE FORECASTS

The National Hurricane Center (NHC) is the official source for tropical cyclone advisories and forecasts, and is responsible for issuing tropical cyclone watches and warnings for the United States.

Some commonly used Tropical Cyclone Products:

- Public Advisories
- Forecast Advisories
- Forecast Discussions
- Wind Speed Probability Forecasts
- Tropical Weather Outlooks
- Hurricane Local Statements
- Tropical Storm/Hurricane Wind Watches/Warnings
- Extreme Wind Warnings



Examples of NHC Graphics for Hurricane Season (from top left)

- Tropical Storm Advisory graphic—Cone of Uncertainty
- Cumulative Wind History (updated with each advisory)
- Wind Speed Probability Forecast
- Extreme Wind Warning done for CAT 3-5 Hurricanes—Immediate Warning



Utilizing and Interpreting NHC's Forecast Advisory

- The white uncertainty cone of the forecast advisory represents the 10-year average error. The center of the tropical cyclone will remain in the white error cone only 67% of the time.
- Remember that hurricane conditions can be felt hundreds of miles away from the center of the storm.
- **DO NOT** focus solely on the exact forecast track!
- **DO NOT** wait for a hurricane watch or warning before implementing your initial preparations, as it may be too late to complete them.



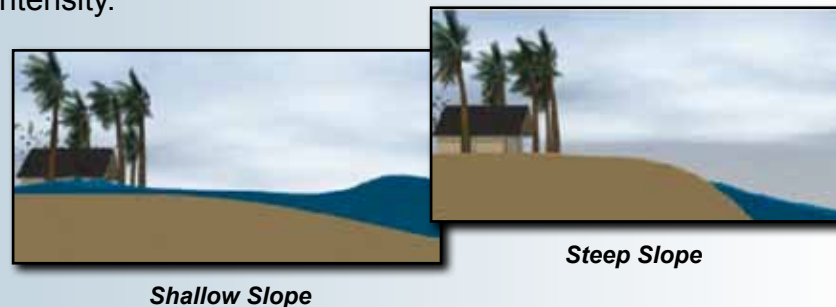
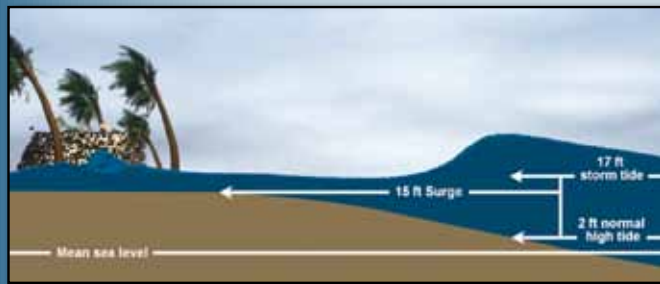
Additional Tropical Weather Information:

National Weather Service, Mobile, AL: www.srh.noaa.gov/mob
 National Weather Service, Tallahassee, FL: www.srh.noaa.gov/tae
 National Hurricane Center: www.nhc.noaa.gov

HURRICANE IMPACTS

Most people associate strong winds with hurricanes. While that is true, there are other impacts which are just as hazardous. Storm surge and coastal flooding, inland flooding, and tornadoes are all possible with a land-falling tropical system.

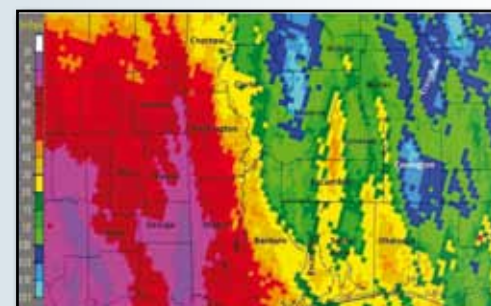
Storm Surge: Storm surge is an abnormal rise of water generated by a storm, over and above the predicted astronomical tides. Storm surge should not be confused with storm tide, which is defined as the water level rise due to the combination of storm surge and the astronomical tide. This rise in water level can cause extreme flooding in coastal areas particularly when storm surge coincides with normal high tide, resulting in storm tides reaching up to 20 feet or more in some cases. There are also other components of a hurricane storm surge, including storm motion, storm speed, and storm intensity.



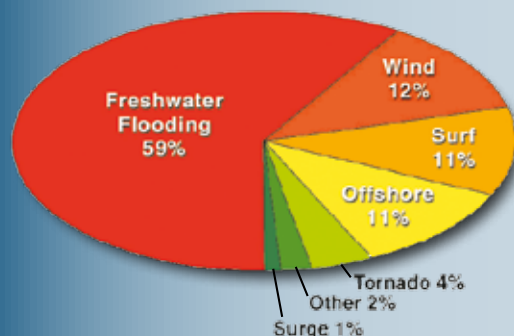
Inland Flooding: In recent decades, inland fresh water flooding has become the most deadly hazard produced by tropical cyclones. Between 1970 and 1999, nearly 60% of the deaths due to floods associated with tropical cyclones occurred inland from the storm's landfall. Of that 60%, almost a fourth (23%) occurred when people drowned while in, or attempting to abandon, their cars.

The radar estimated total rainfall during Hurricane Isaac (Aug 2012) image shown easily illustrates the fact that very large rainfall totals can occur with tropical systems, even well inland away from the coast, that can easily result in flooding.

Hurricane Isaac Total Rainfall - Radar Estimated



Leading Causes of Tropical Cyclone Deaths in the U.S. 1970-1999



Source: Edward Rappaport - Chief, Technical Support Branch, Tropical Prediction Center

NEVER ATTEMPT TO DRIVE ACROSS A FLOODED ROADWAY!

Winds: Hurricane force winds can destroy buildings and mobile homes, down trees and power lines, and transform signs, roofing, and small items into dangerous flying missiles. Winds associated with a hurricane are most intense near the center of the storm. As a storm moves inland, winds rapidly decrease, but hurricane force winds can be felt as far as 150 miles inland. The stronger and faster the storm is moving, the further inland hurricane force winds will be felt.

Tornadoes: Landfalling tropical systems also produce tornadoes, adding to the destructive power of the storm. Tornadoes are most likely to occur in the right front quadrant of the hurricane, in rainbands far away from the center of the storm. However, they are possible near the eyewall. Tornadoes associated with tropical systems are generally less intense than those produced by supercell thunderstorms. When added to the larger area of hurricane-force winds, these tornadoes can still produce substantial damage and be potentially deadly.

HURRICANE PREPARATION

Proper hurricane preparations made ahead of time will not completely protect your property from damage. However, proper planning can reduce the risk of death and injury to you and your family. Careful preparation well ahead of time can reduce stress levels leading up to the hurricane, and following a few simple tips may also greatly reduce the damage to your property.

Before Hurricane Season:

- Prepare an emergency supply kit and create an evacuation plan.
- Know your flood and evacuation zones.
- Check tie-downs on mobile homes.
- Trim back trees and shrubbery near your home.
- Repair broken fences, and replace old or damaged roofing shingles.
- Check and/or install hurricane clips to roof trusses and side walls.
- Clear clogged rain gutters and downspouts.
- Reinforce garage doors and double entry doors.
- Inspect existing or install hurricane tested shutters.
- Have vehicle regularly serviced and in good working order.
- Make preparations for pets.



Immediately Before the Storm:

- Listen frequently to official sources for updates.
- Double check items in your emergency supply kit. Have enough supplies for at least 72 hours.
- Fuel your vehicle, and have plenty of extra cash on hand.
- Store light weight outdoor objects and board up and secure windows.
- Mobile home residents and those living in flood prone areas **MUST** evacuate if told to do so! If told to evacuate, notify a point of contact of your evacuation plan.
- Turn refrigerator to maximum cold and open only when necessary.
- Fill bathtub and large containers with water for sanitary purposes.

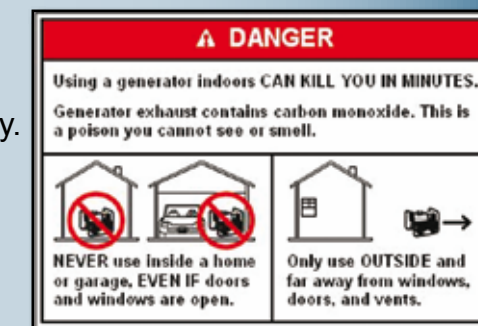


During the Storm:

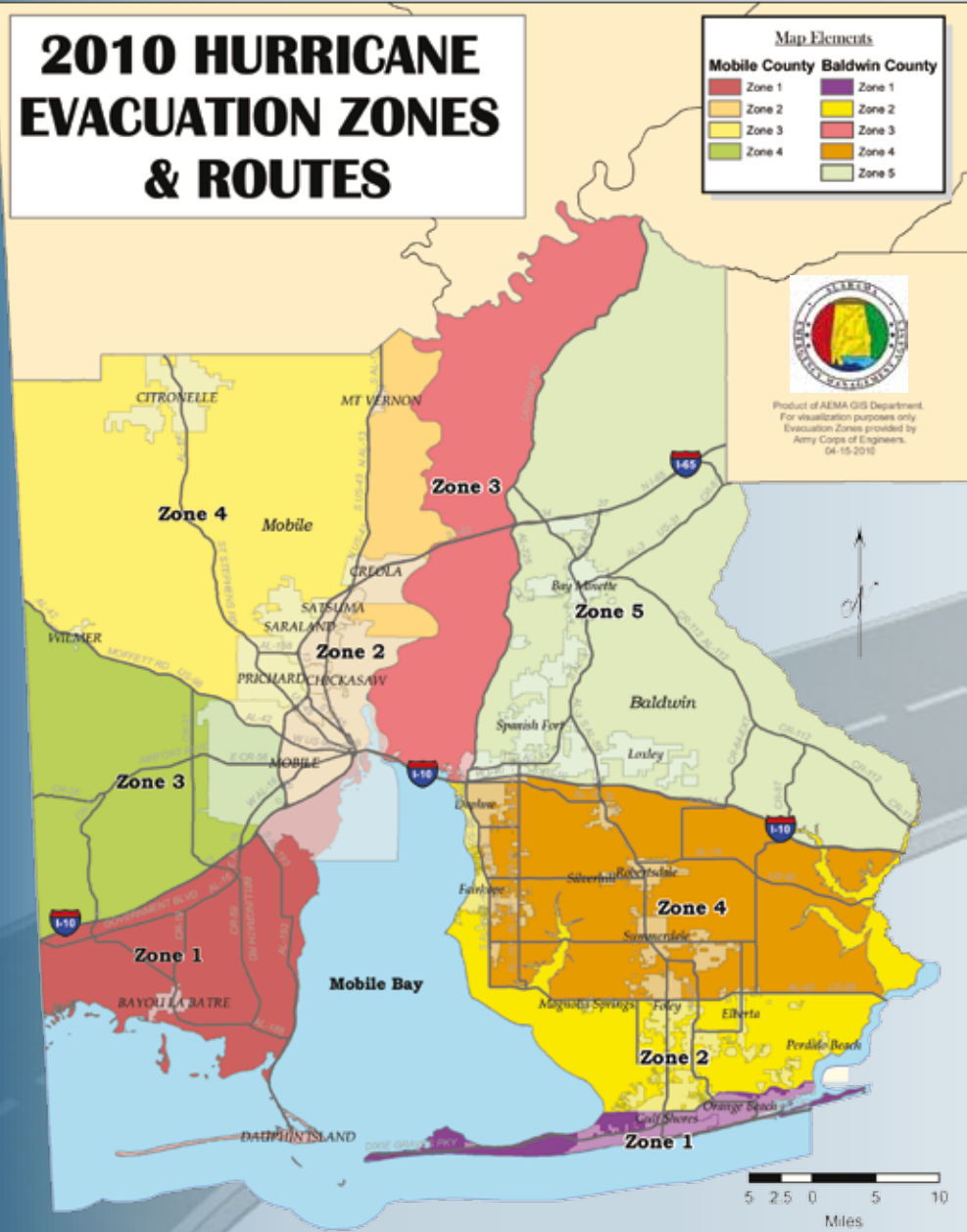
- Remain inside, away from boarded up windows and doors.
- Take refuge in your predetermined safe room.
- Do not venture outside during the eye of the storm. Some of the strongest winds may occur shortly after the eye passes.

After the Storm:

- If you evacuated, wait for an all clear from public officials before attempting to return to your home. Be prepared to show proof of residence upon return..
- Be cautious of structural damage and downed trees and power lines. Do not attempt to move structural supports or large pieces of debris.
- Restrict your driving to emergency use only.
- Do not use open flames indoors.
- Listen for instructions regarding use and safety of public water supply.
- Check for gas leaks. If you smell and hear gas leaking, leave immediately.
- Report visible damage of electrical lines to the power company.
- DO NOT run power generators indoors. Inhalation of carbon monoxide from the generator exhaust can cause death.



HURRICANE EVACUATIONS



LISTEN TO LOCAL:
OFFICIALS
RADIO
TELEVISION
FOR IMPORTANT INFORMATION

KNOW YOUR EVACUATION ZONE!

KNOW WHICH EVACUATION ROUTE TO TAKE!



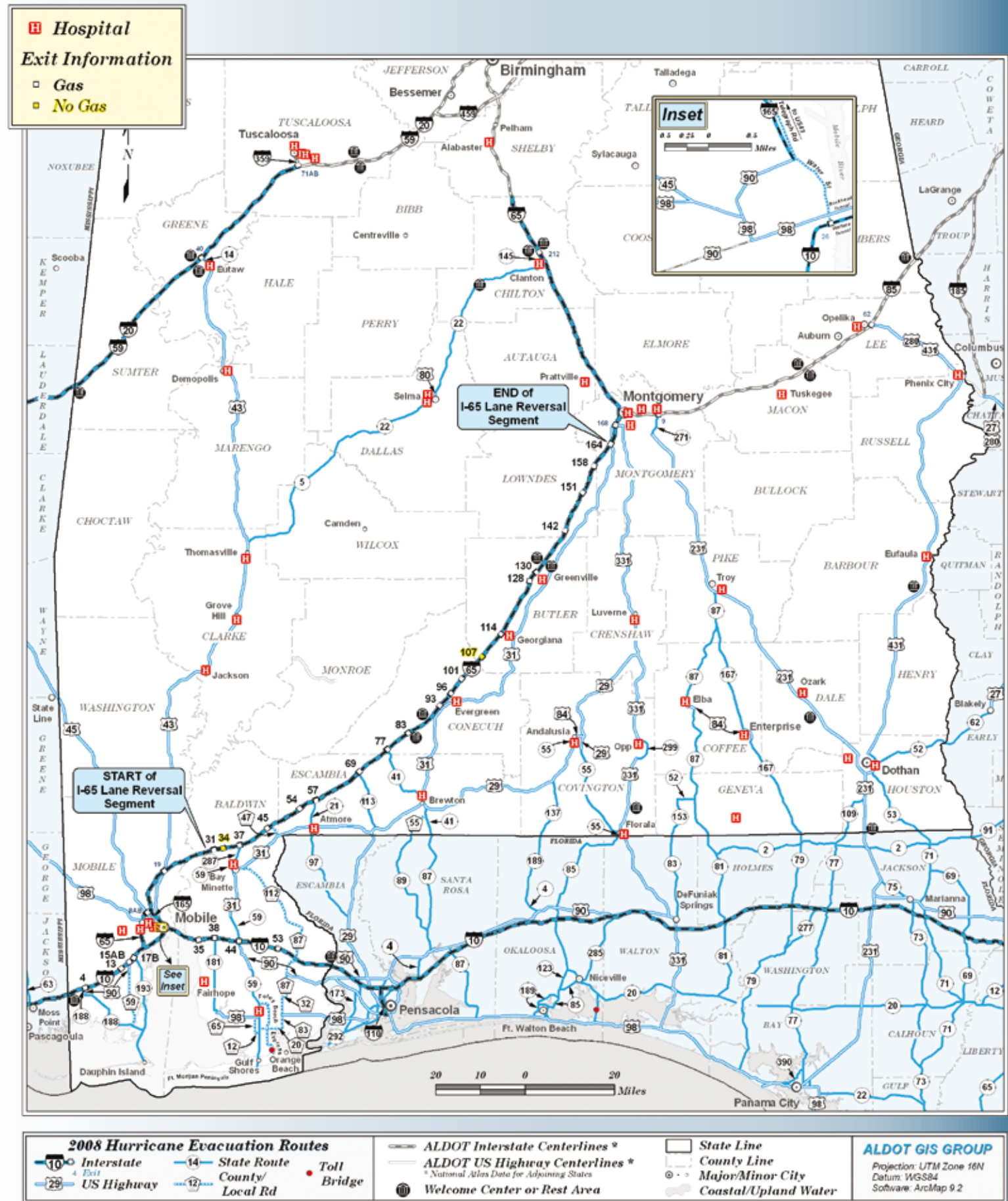
VOLUNTARY EVACUATION

A call for voluntary coordinated evacuation by local emergency management agencies. The purpose of a Voluntary Evacuation is to encourage and assist in evacuating all tourists (non-residents), all residents in potential impacted areas, and those needing special care.

MANDATORY EVACUATION

Issued by the Governor of the State of Alabama, the Mandatory Evacuation is a call for everyone to evacuate in the potential impacted areas as specified in the evacuation orders. Keep in mind, during these situations, emergency responders will likely not be dispatched during (or even for several hours after) the storm to help individuals who ignore the evacuation orders and decide to stay. If you ignore the mandatory evacuation orders issued for your area, you are truly on your own to face the worst of the storm's impacts.

HURRICANE EVACUATIONS



CONTRAFLOW

RIP CURRENTS

To provide additional roadway capacity during hurricane evacuations from the Gulf Coast, a portion of I-65 may operate entirely in the northbound direction, meaning both southbound lanes of I-65 would be converted into northbound lanes. These lanes are called contraflow lanes.



I-65 NORTHBOUND— Contraflow begins in Baldwin County just south of Exit 31 (State Road 225). A paved crossover at that location allows motorists traveling in the normal Northbound lanes to transition (crossover) to the contraflow lanes.

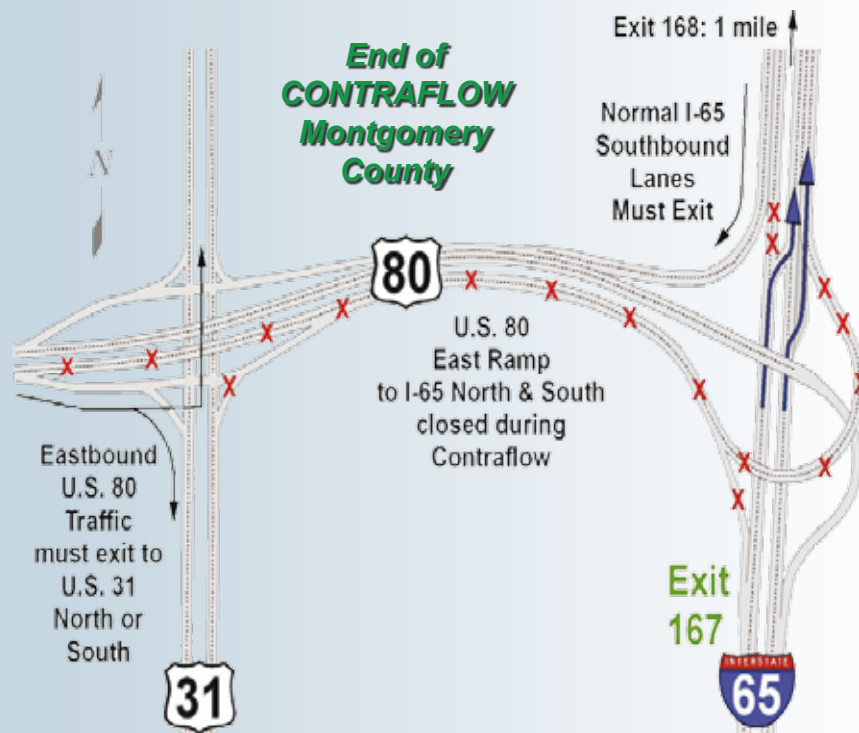
Contraflow ends in Montgomery just north of Exit 167 (U.S. 80). Motorists in the contraflow lanes will crossover into the two left lanes of the normal northbound lanes. Motorists travelling in the normal northbound lanes will merge into the two right lanes and continue north and onward to their destinations.

I-65 SOUTHBOUND – During contraflow, southbound traffic travelling on I-65 through Montgomery will be directed to exit the interstate at Exit 167 at U.S. 80 and then onto U.S. 31 South. From Montgomery southward, all southbound I-65 traffic is detoured to U.S. 31. Eastbound traffic on U.S. 80 cannot enter I-65 at Exit 167 and will be directed to U.S. 31.

Southbound traffic cannot use I-65 between Montgomery and Mobile during contraflow.

I-65 Contraflow Facts

- An I-65 lane reversal is not automatic in every hurricane.
- ALDOT and law enforcement personnel are posted along each exit of the contraflow portion of I-65.
- Travelers exiting I-65 will be directed by onsite personnel for re-entry onto the interstate.
- Rest Areas on the normal I-65 northbound lanes, located at mile marker 84 near Evergreen and mile marker 133 near Greenville, will remain open if possible.
- Electronic message signs display travel information along I-65 and northern portions of U.S. 31.
- Evacuations may result in heavier traffic and longer driving times. Slow down and drive with caution.



Tune into the Highway Advisory Radio System (HARS) for updated information. Look for advisory signs in these areas.

Mobile area – 1630 AM • Montgomery area – 1690 AM

The beauty of the Gulf Coast, attracts thousands every year. However, that beauty can disguise danger! Rip Currents are likely to be present in the high winds and rough seas that accompany a tropical storm or hurricane, so people should stay out of the water when a storm is approaching their area.

What is a rip current?

A strong current or channel of rapidly flowing water moving AWAY from the shore that develops when excess water is piled against the shore during certain weather patterns. Rip Currents are dangerous because they can pull unprepared swimmers away from shore and into deeper waters. A rip current can become deadly when swimmers panic and struggle against the current while being pulled farther and farther away from the beach.

What are some signs of a rip current?

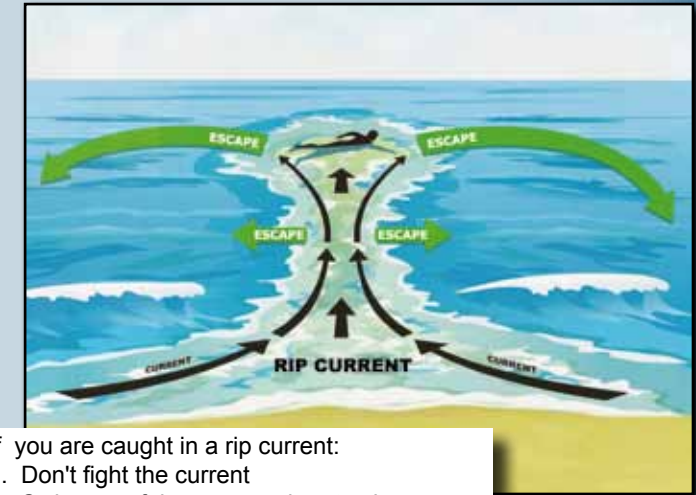
A channel of churning, choppy water; a narrow channel of discolored or murky water; a line of seaward moving foam are all signs of possible rip currents.

What do you need to know before heading to the beach?

Swim at beaches with life guards, if possible. Ask local life guards or officials about the current rip current risk. Understand the flag system for the beach you are at! If you see a red flag, stay out of the water!

What should you do if caught in a rip current?

Stay Calm and **DO NOT** fight the current. Even strong swimmers cannot swim against these currents. Escape the current by swimming in a direction *parallel* to or along the shore line. When you are free of the current, swim **AT AN ANGLE** to the shore. If you are not able to escape, float or tread water until the current weakens then swim at an angle to the shore.



- If you are caught in a rip current:
1. Don't fight the current
 2. Swim out of the current, then to shore
 3. If you can't escape, float, or tread water
 4. If you need help, call or wave for assistance



5 Flag System

	Water Closed to Public
	High Hazard High Surf and/or Strong Currents
	Medium Hazard Moderate Surf and/or Strong Currents
	Low Hazard Calm Conditions, Exercise Caution
	Dangerous Marine Life

BEACH WARNING FLAGS

Alabama's public beaches in Baldwin County use the five flag system to alert beachgoers of surf conditions. Flags are posted at all public beach areas within Orange Beach, Gulf Shores and Gulf State Park, where surf conditions are monitored each day. When red flags are flying, conditions are life threatening to anyone entering the surf. Please remember, however, that the absence of red flags does not assure safe conditions. No flag warning system is used in Mobile County along the beaches of Dauphin Island, but dangerous surf hazards can still occasionally exist. Beach warning flag systems will vary in other locations, so please be aware of the differences before planning your trip to the beach.

Please note: On some public beaches, it is **ILLEGAL** to swim under a red flag!

Be Safe! • Know how to swim • Never swim alone • If in doubt, don't go out

FLOODING

FLOOD SAFETY

Alabama is susceptible to flooding year-round due to its proximity to the Gulf of Mexico and the nearly unlimited supply of moisture it provides. When storm systems move into the area and combine with this moisture, resulting heavy rainfall can produce flooding. This can occur from large storm systems, decaying tropical systems or slow-moving, summertime thunderstorms, which produce large amounts of rainfall in a short amount of time.

Flash floods often occur within minutes or hours of heavy rainfall or a dam failure. The rapidly rising water can destroy structures and bridges, down trees, create new waterways and trigger catastrophic mudslides. Areas most prone to flash floods are urban areas, small streams and rivers, culverts, and storm drains. Urbanization increases water runoff two to six times over what would occur in natural terrain. This causes streets and parking lots to become swift moving rivers, and basements and building ground floors to quickly fill with water.



Escambia County, Dec 14, 2009



Courtesy of Shawn Gilpen & Dana Burleson
Marion County, Apr 15, 2011

Flooding can also occur when the water level of a river, stream, or lake increases. This can happen when spring or winter rains fill the basin with too much water too quickly. Other events occur from slow moving storm systems or decaying tropical systems. Water overflows the river banks into low lying areas and can last for several days or weeks.



Before and after pictures of Walnut Creek in Chilton County. Waters quickly rise above bank full and spread into nearby fields during flood events. Note the roadway in the before picture is now completely under water. Photos provided by John Sirmon.

Flooding is the most damaging, costly, and deadly severe weather-related phenomena, costing the United States over \$5 billion in property damage annually. On average, flooding is responsible for more deaths each year than lightning or tornadoes. How are you going to be ready?

Know what to listen for.

A Flash Flood or Flood Watch means conditions are favorable for sudden short-term (less than 6 hours) flooding or long duration (longer than 6 hours) flooding, respectively. A Flash Flood or Flood Warning means flooding conditions are imminent and you should take action immediately. A River Flood Warning is issued when river, stream or lake levels are expected to rise above bankfull.



Dallas County, Sep 1, 2012



Talladega County, Mar 9, 2011

Move to higher ground away from low-lying areas, storm drains, and stream beds. Do not return to flooded areas.

Flood waters carry debris that could cause serious injury or death. Water could be moving very quickly just below the surface. Only 6 inches of fast-moving water can knock an adult over. Children should not be allowed to play or walk near flowing water.

Never drive across flooded roadways or around barricades.

Flood waters can rise very quickly, covering your vehicle or sweeping it downstream. Just two feet of water can move most vehicles, including trucks and large SUVs. Road surfaces could be washed away or large debris might be located below the surface. If your vehicle is caught in rising water, abandon it immediately and seek higher ground.



Shelby County, July 18, 2012

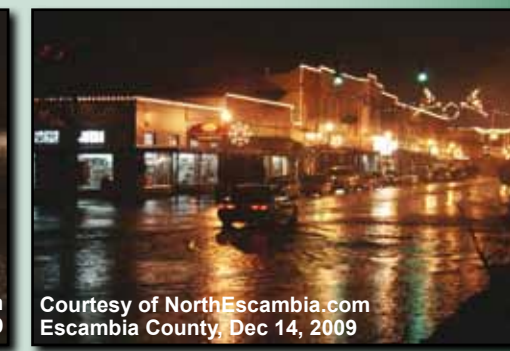


Courtesy of NorthEscambia.com
Escambia County, Dec 14, 2009

Be especially cautious at night, when it is harder to recognize flood dangers.



Courtesy of NorthEscambia.com
Escambia County, Dec 14, 2009



Courtesy of NorthEscambia.com
Escambia County, Dec 14, 2009

WINTER WEATHER

While the frequency of extreme winter weather events is relatively small in Alabama, winter weather can cause death, injury, and property damage. With the start of each new season, **preparation** is the key to lessening the dangers and hazards associated with winter weather.

ALABAMA TEMPERATURE AND SNOWFALL EXTREMES:

Lowest Recorded Temperatures

City	Temp (°F)	Date
Huntsville	-11	01/30/1966, 01/21/1985
Muscle Shoals	-13	02/14/1905
Birmingham	-10	02/13/1899
Montgomery	-5	02/13/1899
Mobile	-1	02/13/1899



Most Snow in 24 Hours

City	Amount (in)	Date
Huntsville	17.1	12/31-01/01, 1964
Muscle Shoals	12	02/11-12, 1910
Birmingham	13	03/12-13, 1993
Montgomery	11	12/05-06, 1886
Mobile	6	02/14-15, 1895



WINTER TERMINOLOGY

Winter Storm/Ice Storm Warning: Issued when a combination of significant accumulations of snow, freezing rain, or sleet is expected. Winter Storm Warnings are usually issued within 24 hours before the event is expected.

Winter Storm Watch: Alerts the public to the potential for winter storm conditions within the next 12 to 36 hours.

Winter Weather Advisory: Issued when accumulations of snow, freezing rain/drizzle, or sleet are expected to cause hazardous driving conditions.

Freezing Rain Advisory: Issued when accumulations of ice from freezing rain are expected to cause hazardous driving conditions.

Sleet: Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists and pedestrians.

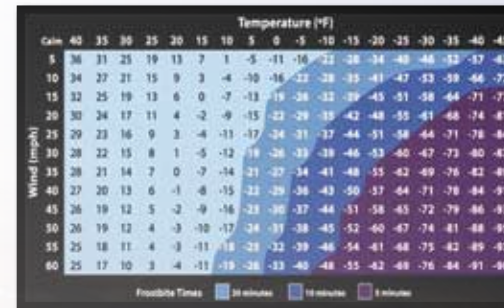
Freezing Rain: Rain that falls onto a surface with a temperature below freezing (32°F). This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

WINTER SAFETY

WHAT IS FROSTBITE AND HYPOTHERMIA?

Frostbite - injury or destruction of skin and underlying tissue, most often that of the nose, ears, fingers or toes, resulting from prolonged exposure to freezing or subfreezing temperatures.

Hypothermia - an abnormally low body temperature, often caused by prolonged exposure to cold.



WIND CHILL

As wind speeds increase during the winter months, they can make the temperature outside feel even colder than it actually reads on a thermometer. This cooling factor is given a name—the wind chill effect.

SAFETY TIPS

Keep ahead of winter weather by listening to the latest weather warnings and bulletins on NOAA Weather Radio, local radio or television. Be alert to changing conditions and avoid unnecessary travel.

In your home...

- Check battery powered equipment, and stock extra batteries for flashlights and a portable television or radio. Also, check emergency cooking facilities.
- Check your food/water supply and stock extra if needed. Your supplies should include food that requires no cooking or refrigeration in case of power failures. Consider high energy foods such as dried fruit or candy. Don't forget prescription medicines, first aid supplies, and other specialty items.
- Check your supply of heating fuel, but prevent fire hazards due to overheated coal or oil-burning stoves, fireplaces, heaters, or furnaces. Emergency responders can be hampered by extreme weather conditions and may not be able to respond quickly—arrange for emergency heat in case of an extended power failure.
- Stay indoors during storms and cold snaps. Elderly persons, children, and those in bad health may be especially susceptible to cold weather. Avoid overexertion, especially if shoveling snow.
- Dress to fit the season. Loose, layered clothing will keep your body warm, and a hat and mittens will protect your extremities.
- Don't forget your pets or livestock. Move animals to sheltered areas. For pets, bring them indoors or provide some form of heat. Provide fresh water since many pets die from dehydration in winter storms.

In your vehicle...

- Be sure your vehicle is winterized by the end of November. Check oil, belts, tires and battery to ensure good working condition.
- Carry a winter storm car kit, especially if you anticipate travel in north Alabama. Items to consider include blankets/sleeping bags, flashlights and batteries, first aid kit, non-perishable foods, extra clothing, ice scraper, water, road maps, small shovel, rope, kitty litter or sand for traction and a cell phone car charger.
- If the storm exceeds or even tests your driving limitations, seek available shelter immediately. Plan your travel and select primary and alternate routes. Check the latest weather information before departing, and drive carefully and defensively. Avoid traveling alone, and be sure someone knows your travel plans and route of travel.

WINTER PRECIPITATION

There are several different types of precipitation that can be observed during the winter months. These include sleet, snow and freezing rain. A phenomenon known as freezing fog may also be reported when there is sufficient moisture near the ground and the temperature is at or below 32°F. Each of these wintry precipitation types present different hazards, from deteriorated road conditions to prolonged power outages.

WHAT IS THE DIFFERENCE BETWEEN SNOW, SLEET AND FREEZING RAIN?



PHOTO EXAMPLES:



EXTREME HEAT

Temperature extremes can affect Alabama during both the summer and winter. Understanding the dangers of such extremes is vital. Heat is the number one weather-related killer in the United States. More deaths are attributed to heat each year than floods, tornadoes, lightning, and hurricanes combined.

What is **Heat Index**? It is a measure of how hot it really feels outside when the moisture content of the airmass is considered along with the air temperature (or when relative humidity is added to the air temperature). Heat Index values are calculated for shady, light wind conditions. Full exposure to sun can increase values by 15°F or more. Strong winds, especially in a very dry airmass, are also extremely dangerous, because they add more heat to your body.

		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	118	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	130					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131										
95	86	93	100	108	117	127											
100	87	95	103	112	121	132											

Heat Index Values

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

■ Caution
 ■ Extreme Caution
 ■ Danger
 ■ Extreme Danger

HEAT DISORDERS

Sunburn - a burn to living tissue, such as skin, which is produced by overexposure to ultraviolet (UV) radiation, commonly the sun's rays.

Heat Cramps - muscle spasms that result from loss of large amount of salt and water through exercise.

Heat Exhaustion - can be a precursor to heat stroke; symptoms include heavy sweating, rapid breathing and a fast, weak pulse.

Heat Stroke - a body temperature of greater than 105.1°F (40.6°C) due to environmental heat exposure with lack of thermoregulation.

SAFETY TIPS

- Dress in lightweight, light-colored clothing that reflects heat and sunlight.
- Reduce or eliminate strenuous activities in the hottest part of the day. Reschedule activities to a cooler time.
- Drink plenty of water, even if you do not feel thirsty. Water keeps your body cool.
- Avoid alcoholic beverages.
- Avoid too much sun exposure. Sunburns make the process of heat dissipation from your body more difficult.
- Make sure seating surfaces and equipment such as safety buckles are not too hot.
- Never leave a child or pet unattended in a vehicle, even with the windows down. Leaving windows open slightly does not significantly decrease the heating rate in a parked car.
- Always lock car doors and trunks, even at home, to prevent a child from locking themselves inside accidentally.
- Ensure all child passengers have left the car when you reach your destination.

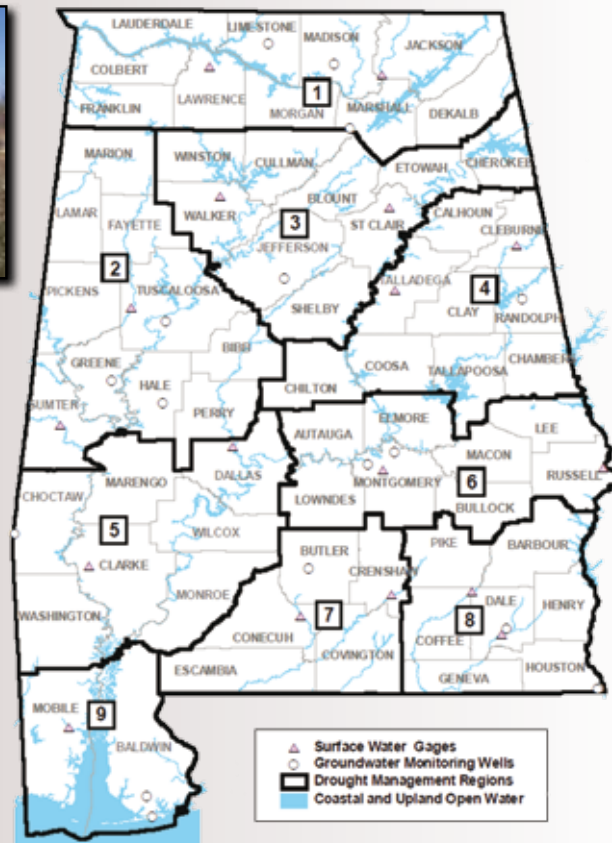
DROUGHT



Drought is an extended period when an area has a persistent and abnormal deficiency in its water supply. In Alabama, this usually occurs because both moisture and rain-producing weather systems are blocked from entering the area. Once a drought develops, it may “feed” on itself because of very dry soil conditions, etc., and intensify with time.

Drought can occur anywhere, and can persist for months or even years. However, even a short, intense drought can have severe effects. Drought can impact many things, such as agriculture, water supply and quality, energy production and wild fires. Its onset and end are often difficult to discern, making it difficult to monitor its progress or quantify its impact.

Drought can be classified as agricultural (short-term) or hydrological (long-term). An agricultural drought normally occurs due to a deficit of rainfall over a relatively short period of time, and has short-term effects such as crop losses, damaged lawns and shrubbery, etc. A hydrological drought is one that has persisted for a longer period of time, generally many months or even years. This type of drought has long-term effects, such as major drops in reservoir levels, ground water levels and deeper wells, affecting such things as public water supplies.

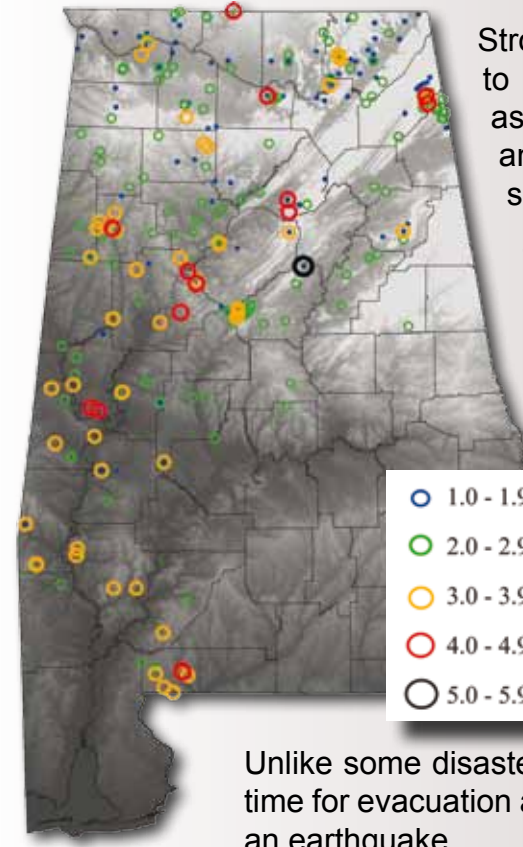


The map above shows the various Drought Management Regions and Monitoring locations throughout the state. This map is courtesy of the Alabama Department of Economic and Community Affairs, Office of Water Resources

Examples of drought impacts include things such as diminished crop growths or yields, reduced electricity generation by hydro-electric dams, or shortages of water for both industrial use and public consumption. Livestock might be severely impacted due to a shortage of feed, or the public might be prohibited from watering lawns and shrubbery. Even recreational activities can be affected, such as reservoirs becoming too low to support boat traffic. Increases in the number of wildfires can also be a result of drought conditions as soils become too dry and therefore more prone to catching fire.

Drought planning and management is accomplished through short-term reductions in vulnerability (called Mitigation) and through long-term structural changes (called Adaptation). Examples of mitigation or short-term reduction are more prudent watering of plants and not washing automobiles. Examples of a long-term change or adaptation might be as simple as planting more drought resistant plants, or developing irrigation systems in areas prone to drought.

EARTHQUAKES



Strong magnitude earthquakes are possible in Alabama due to its proximity to several active seismic zones. The majority of the earthquakes are associated with the Southern Appalachian Seismic Zone (SASZ in northern and central Alabama) and the Bahamas Fracture Seismic Zone (BFSZ in southern Alabama).

The effects of an earthquake can be felt in Alabama even if the epicenter is in another state. For example, a 4.9 magnitude earthquake on April 29, 2003, centered near Fort Payne, Alabama was felt in 13 states.



Unlike some disasters, earthquakes are nearly impossible to forecast. Normally, there is no time for evacuation and you must shelter-in-place. Planning ahead is key to being safe during an earthquake.

BEFORE A QUAKE

- Have potential hazards in your home and/or workplace fixed.
- Create an emergency preparedness plan and supply kit, remembering to include your pets.
- Assist those with disabilities or special needs to make a preparedness plan.

DURING A QUAKE

- Take cover under a sturdy piece of furniture, holding on and moving with it until the shaking stops.
- Crouch in an interior corner of the building, protecting your head and neck with your arms. Avoid anything that could fall, such as light fixtures or furniture.
- If outdoors, move far away from trees, signs, buildings, and utility wires. Remain in the open area until the shaking stops.
- If driving, safely stop the car in an open area, away from poles, bridges, and buildings. If a power line falls on the vehicle, remain inside until a trained person removes the hazard.

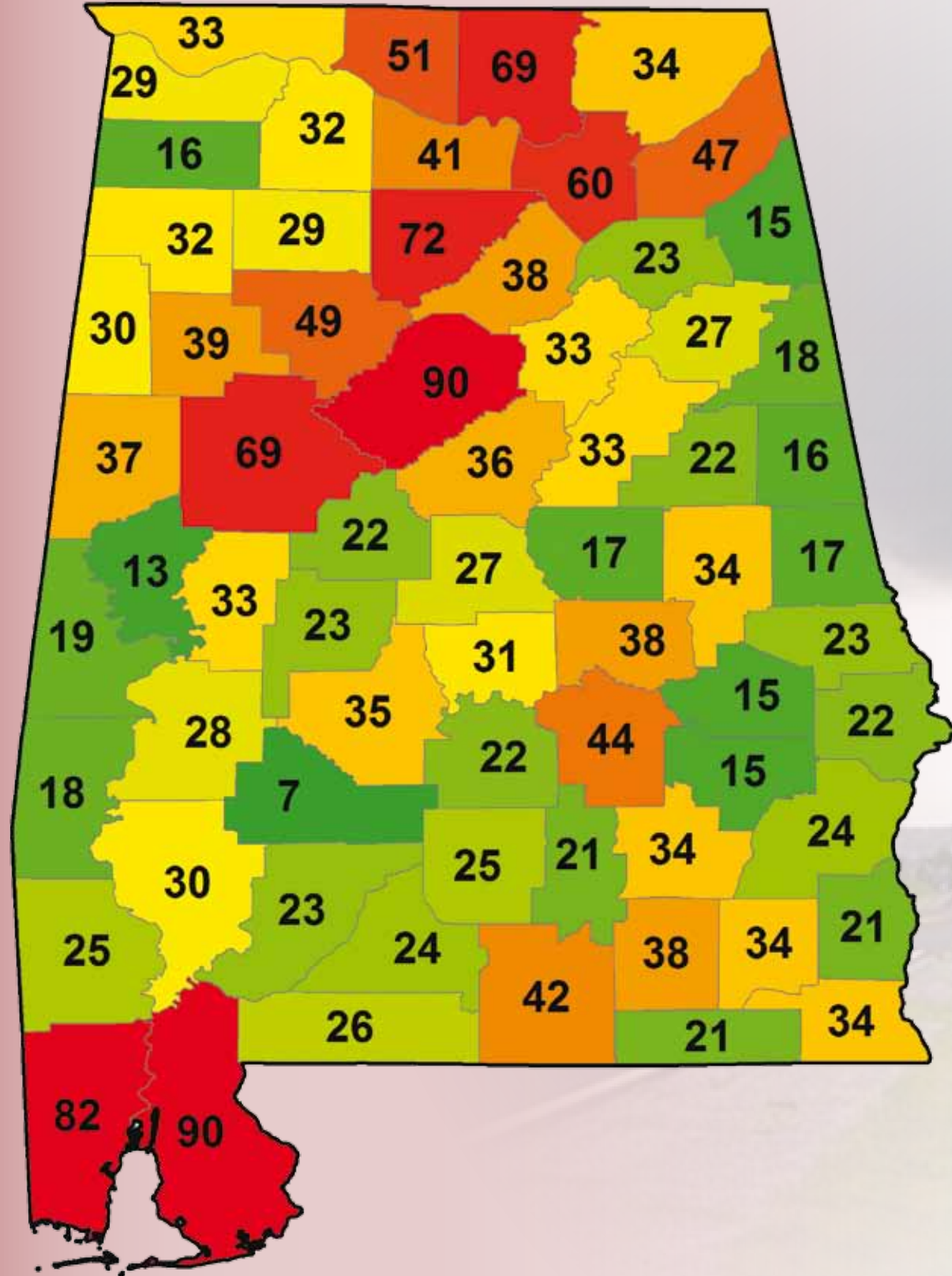
AFTER A QUAKE

- If trapped, cover your mouth and tap on a pipe or wall. Shouting is a last resort.
- Check for injuries, giving first aid when possible. Do not move seriously injured persons unless they are in immediate danger.
- Check for damage and inspect utilities. Clean up spilled medicine, bleach, gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals.
- Continue to follow your emergency preparedness plan.

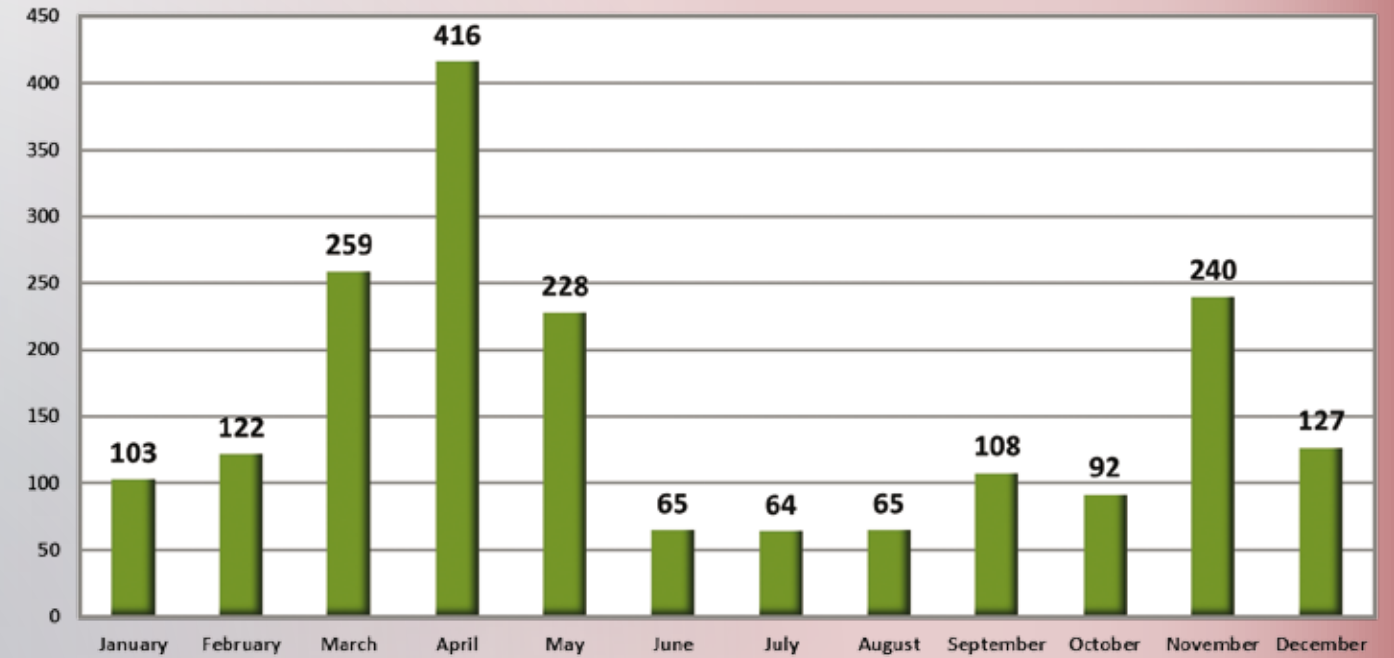
You should discuss your emergency preparedness plan with family members, in the event it needs to be put into action. For information on how to create an emergency preparedness plan and supply kit specific to the threat of earthquakes, contact the Alabama Emergency Management Agency.

TORNADOES BY COUNTY

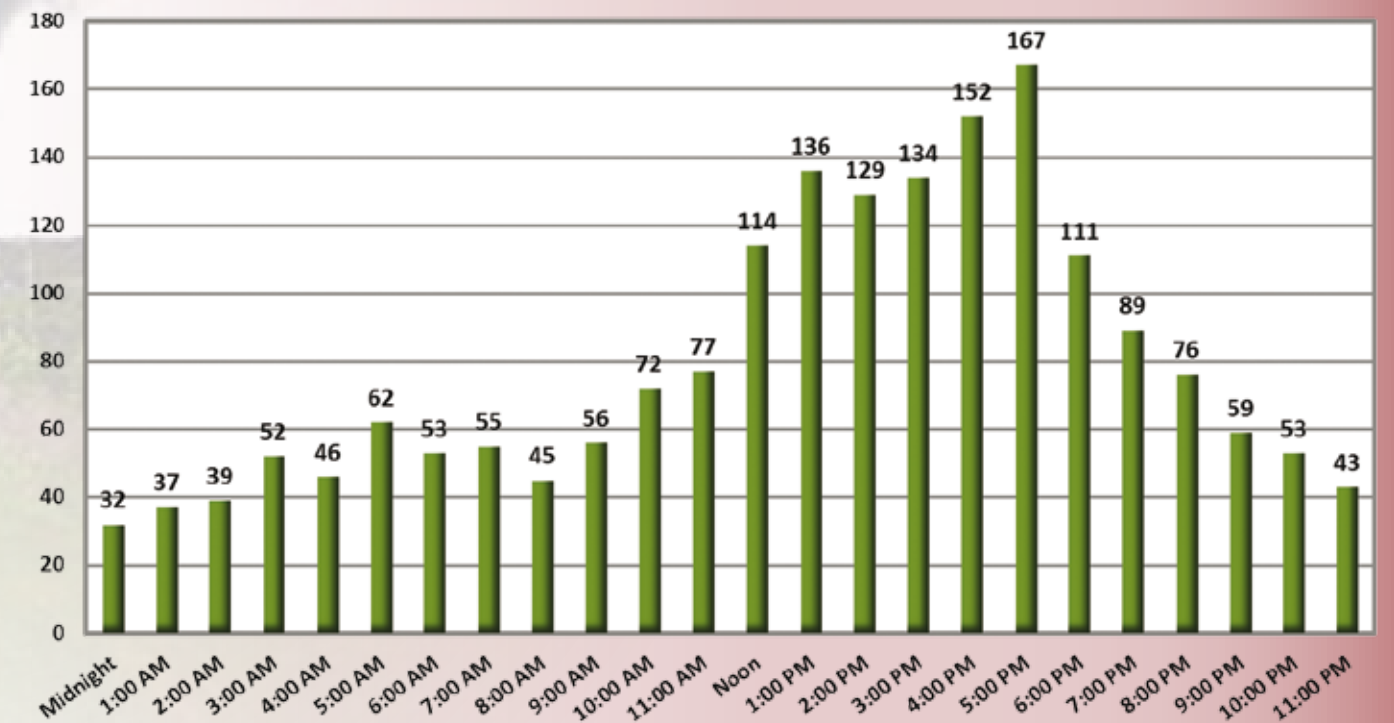
TORNADO GRAPHS



Alabama Tornadoes by Month
1950-2012



Alabama Tornadoes by Hour
1950-2012



The Alabama Tornado Database contains information about all known tornadoes that have impacted the state dating all the way back to 1819. For more details about specific tornadoes, please visit the Alabama Tornado database website at www.srh.noaa.gov/bmx/?n=tornadodb_main.

SAFETY AFTER THE STORM

Safety does not stop after the storm has passed. Everyone should be aware of the many dangers that might exist after bad weather has moved out of the area.



Tuscaloosa County, Sep 5, 2011



Walker County, Apr 27, 2011



Mobile County, Dec 25, 2012



Cullman County, Dec 13, 2010



Madison County, Mar 2, 2012



Courtesy Baldwin EMA After Hurricane Ivan

- If needed, locate your emergency supply kit. Promptly treat any injuries you or your family suffered during the event. Check neighbors for injuries. Call for medical assistance. Do not move seriously injured people, unless they are in immediate danger of further injury.
- Be cautious of downed or weakened trees and structural damage. Do not attempt to move structural supports or large pieces of debris.
- Be cautious of downed power lines or objects in contact with downed power lines. Report electrical hazards to the police and utility company.
- Wear sturdy shoes or boots, long sleeves, and gloves when inspecting your home or business for damage or when handling small debris. Be aware of exposed nails and broken glass.
- Do not use open flames or run generators indoors. If there is damage to your home or business, any of these actions could ignite fires. Use a flashlight or battery powered lantern. Do not connect generators to your home's electrical circuits.
- If there is frayed wiring or sparks, an odor of something burning, or wires were exposed to water, turn off the electrical system at the main circuit breaker.
- If you smell gas or suspect a leak, turn off the main gas valve, open all windows, and leave immediately. Do not do anything that could cause a spark, like using the phone or turning on the lights. Notify the gas company and the police. Do not return to the house until you are told it is safe to do so.
- If you suspect water or sewage lines are damaged, do not use your plumbing.
- Clean up or rope off dangerous areas.
- Remember to care for pets after a disaster has occurred.
- If you evacuated, wait for the all clear from local officials before returning to your home. Be prepared to show proof of residence.

CONTACTS FOR MORE INFORMATION

ALABAMA NATIONAL WEATHER SERVICE OFFICES

North Alabama

Huntsville Weather Forecast Office
David Nadler or Chris Darden
256-890-8503
320 Sparkman Drive
Huntsville, AL 35805
WWW.SRH.NOAA.GOV/HUN



Central Alabama

Birmingham Weather Forecast Office
John De Block or Jim Stefkovich
205-664-3010
465 Weathervane Rd
Calera, AL 35040
WWW.SRH.NOAA.GOV/BMX

Coastal and Southwest Alabama

Mobile Weather Forecast Office
Jeff Garmon
251-633-6443
8400 Airport Blvd, Bldg 11
Mobile, AL 36608
WWW.SRH.NOAA.GOV/MOB

Southeast Alabama

Tallahassee Weather Forecast Office
Jeff Evans or Jane Hollingsworth
850-942-8833
Love Bldg, Florida State University
Tallahassee, FL 32306
WWW.SRH.NOAA.GOV/TAE

For the **Alabama Emergency Management Agency**, contact Yasamie August in Clanton at 205-280-2275.
For the **American Red Cross**, contact your local chapter or Tim Turner in Birmingham at 205-458-8263.
For the **Alabama Department of Education**, contact the Information & Communication Office in Montgomery at 334-242-9950.

PHOTO CREDITS

Front Cover: April 27, 2011 Cullman, AL, Tornado, photo courtesy of Nick Lee.
January 17, 2013 Snowfall in Jefferson County, photo courtesy of Brian Allen.
May 2003 Flood, photo courtesy of Dekalb County EMA.
July 2011 lightning in Shelby County, photo courtesy of Genki Kino.
August 2012, Hurricane Isaac, Orange Beach, AL, photo courtesy of Blake Michaleski.

Background Photos:

Page 14, 15 - Lightning over Gulf Shores, AL, June 16, 2007, courtesy of Christopher R. Hudson.
Page 16, 17 - Wall cloud over Florence, AL, April 7, 2006, courtesy of WHNT-TV 19 in Huntsville, AL.
Page 18, 19 - Hurricane Katrina, August 29, 2005, Visible satellite image.
Page 20, 21 - Hurricane Ernesto, August 2006, U.S. Geological Survey, Department of the Interior/USGS, U.S. Geological Survey/photo by Susan Caplan.
Page 28, 29 - Blountsville, AL, Snowfall, January 17, 2013, photo courtesy of Sara Price.
Page 34, 35 - Cullman, AL, Tornado, April 27, 2011, photo courtesy of Nick Lee.

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