



Storm Courier

A Newsletter for Emergency Management, Storm Spotters, Media and Government Agencies in the County Warning Area of the Charleston, SC National Weather Service Forecast Office. The Storm Courier is published three times a year by the staff of the Weather Forecast Office. The current editor is James Brotherton.



Spotter News

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Several Spotter Training Classes have been given across the Lowcountry and southeast Georgia. Here's a list of classes which have already been given:

- 01/22/01- Effingham County (Guyton)
- 02/19/01- Charleston County (Charleston EOC)
- 03/14/01- Allendale County (Allendale)
- 03/15/01- Jasper County (Daufuskie Island)
- 03/16/01- Chatham County (Chatham County PD, Savannah)
- 03/26/01- Dorchester County (Old Fort Fire Department)
- 04/18/01- Charleston Forecast Office (in-house)
- 04/19/01- Hinesville, GA

- 04/20/01- Charleston Forecast Office (in-house Advanced)
- 05/09/01- Charleston Forecast Office (in-house)

Jerry Harrison also represented the NWS at the HAMFEST in North Charleston on 02/03/01.

If you'd like us to conduct a spotter talk for your group or club, contact Jerry Harrison, Warning Coordination Meteorologist, at (843)744-0303, or email jerry.harrison@noaa.gov. You can also contact John Cole, Senior Forecaster. Email John at john.cole@noaa.gov. To be qualified for the advanced spotter training class, you should have taken the basic/intermediate class at least twice before signing up.

We are here for you!

- Crystal clear communication lines are essential between the NWS and our media partners. Let's make these lines better than ever for everyone's protection! Let us know what we can do to improve communications.
- Severe weather season is now upon us. We want our spotters to be ready!
- All spotters are asked to review their severe weather procedures and preparedness.

A great shot of an upper-air balloon launch at sunset, along with the FAA control tower and our AWIPS satellite dish.

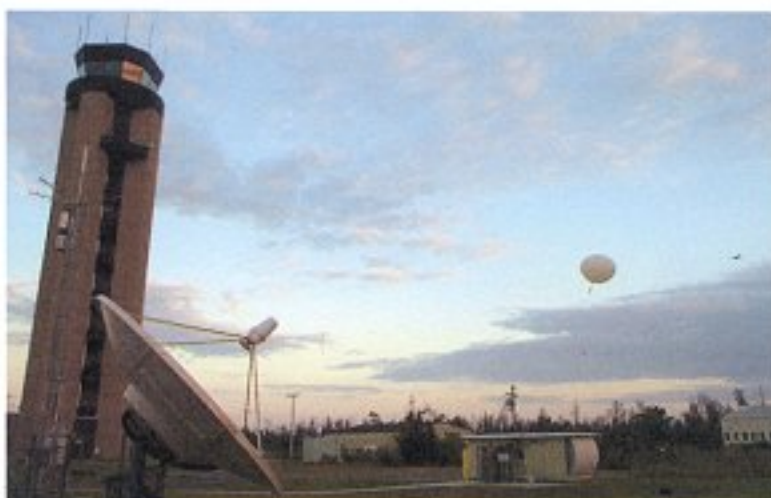


photo by RV Thecker

Thanks again to all the spotters across the Lowcountry and southeast Georgia, and those who attended the recent spotter training talks. You are an extremely valuable resource during severe weather and other extreme weather events. We greatly appreciate all of your efforts!

Winter Climate Summary

WINTER CLIMATE SUMMARY FOR SOUTHERN SOUTH CAROLINA AND SE GEORGIA
by: James Brotherton, Meteorologist Intern

December 2000 turned out to be the coldest December on record for both Charleston and Savannah, in terms of the average temperature. This cold weather was a direct result of the hemispheric long-wave pattern and polar jet-level flow entrenching into the southeastern United States. Reinforcing blasts of cold air from the upper reaches of Canada just wouldn't let up. The cold Canadian air continued to flow south, from the Rocky Mountains eastward. While the climatology was not remarkable in terms of record daily minimum temperatures, the dominating air masses that affected the Lowcountry were quite cold in comparison to a typically mild Lowcountry winter. The cold air remained planted throughout the southeast from early December through early January. The length of the cold spell was abnormal for the area.

The daily minimum temperature in Charleston, from December 18 through January 11, hovered in the 20's every day except for four days. Within that time span, December 31 through January 4 was the most significant, with temperature readings of 20, 22, 22, 21, and 19 degrees Fahrenheit, respectively. The situation was much the same in Savannah toward the end of December and the beginning of January. In addition to the cold temperatures, the wind was quite gusty on several days toward the end of December. With temperatures struggling to get out of the 30's, the wind gusted to 30 mph at both Savannah and Charleston. This was quite possibly the coldest weather ever experienced by many native Charlestonians and other people across the Lowcountry. Wind chill indices hovered from zero to 10 degrees for extended periods of time around the area. [For more on the cold weather in December, please see the article entitled "Record Cold"]

WHAT ABOUT SNOW?

Snowfall was scarce across most of the southeastern U.S. over the past winter season. Across the Lowcountry, only a trace of frozen precipitation was observed

at both Charleston and Savannah. On December 28, the Charleston Airport recorded a trace of frozen precipitation in the form of sleet and ice pellets. This occurred at the end of a rainfall event, as cold air wrapped around a surface low pressure system. How-

January 26, 2000 Snowfall (last year). This shot is from the back of the Charleston office at the airport.



photo by SM Edwards

ever, in both Dorchester and Berkeley counties, there were many reports from our spotter and cooperative networks of snowfall. Accumulations were no more than a dusting. This event turned out to be the only official report of frozen precipitation at Charleston for the entire winter season. In terms of climatology, our winter snowfall total of a trace was actually below average, since the normal seasonal snowfall total for the Charleston airport is one inch!

In Savannah, no frozen precipitation occurred during December. However, on January 9 the Savannah Airport officially recorded a trace of snowfall. Spotter and cooperative observers reported snowfall in Jenkins and Screvens counties in southeast Georgia, and Allendale County in South Carolina (again, minor accumulations on grassy surfaces). For the entire winter season, normal snowfall for the Savannah airport is one-half inch.

The outlook is continued on page 5...

2001 Hurricane Season Forecast

HURRICANE SEASON 2001 FORECAST

by: John Cole, Senior Meteorologist

Dr. William Gray's early season forecast for the upcoming 2001 hurricane season, which starts June 1, calls for a near-average year, with 10 named storms, six of which are expected to become hurricanes (74 mph winds or greater). Two of the five hurricanes are expected to become major (category 3, 4, 5) hurricanes with winds greater than 110 mph.

Dr. Gray and his research team at Colorado State University analyze many meteorological factors in order to forecast the upcoming hurricane season. They believe that Atlantic basin water temperatures will remain above normal, which would favor a more active season. However, negative factors outweigh the positive ones this year. A weak to moderate El Niño is expected to develop during the 2001 hurricane season, which should limit tropical cyclone development. In addition, high-level stratospheric winds are expected to be unfavorable. Lower rainfall amounts are expected across the Western Sahel of Africa, which would also inhibit hurricane activity. The Bermuda High may be a little stronger than normal allowing for stronger trade winds with upwelling of colder water across the hurricane genesis areas.

"Still fresh in our minds is the devastation and loss of life experienced last hurricane season as a result of the tornadoes spawned from the remnants of tropical storms Gordon and Helene."

From 1886 to 1997, ten hurricanes affected the Georgia or South Carolina coasts both in neutral years and La Niña years, and six during El Niño years. Interestingly enough, 3 hurricanes affected our area during weak El Niño years, and three during moderate El Niño years. No major hurricanes affected the area during El Niño years, but two category two storms did have an impact. One struck in late August of 1911, during a moderate El Niño year, and another in early August of 1940, during a weak El Niño year. Both of these storms made landfall on the Georgia and South Carolina border, near or just north of the Savannah River.

Although normal hurricane activity is anticipated for the 2001 season, projections are for a higher probability than normal that a major hurricane will make landfall along the eastern U.S. coastline. Dr. Gray states that coastal residents have been very fortunate that more strikes from major hurricanes have not occurred, given the large number of major hurricanes since 1995. He attributes this in part to a persistent upper level trough which resided across the eastern U.S. This pattern caused the storms to steer away as they approached the continental U.S.

Stay tuned as the forecast for the 2001 hurricane season will be updated again on June 8, and finally on August 3. Remember, regardless of the number of predicted hurricanes, if a hurricane strikes close to home, it's a big season! Also, beware of the secondary effects from storms, like tornadoes or flooding. It doesn't necessarily take a direct hit from a major hurricane to have a significant impact. Still fresh in our minds is the devastation and loss of life experienced last hurricane season as a result of the tornadoes spawned from the remnants of tropical storms Gordon and Helene. We should be aware that even tropical storms with winds less than 74 mph can produce significant flooding with the potential for loss of life. Having a plan of action already in place in case a storm makes an impact this year is the key to limiting personal property losses, and perhaps even survival.

For further details and information on the upcoming hurricane season, check out
<http://typhoon.atmos.colostate.edu/forecasts/index.html>

Record Cold

RECORD COLD

by: Eleanor Vallier-Talbot, Senior Meteorologist

The frigid winter weather was a big topic of conversation across the Lowcountry and the Coastal Empire during December. This cold weather regime was due to north to northwest winds that blew across the entire Eastern Seaboard. The upper level jet stream winds brought a persistent supply of cold air from central and northern Canada for nearly the entire month. Thanks to this prolonged weather pattern, all time monthly temperature records were set in both Charleston and Savannah.

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December 2000 goes down in the record books as the coldest December at Charleston International Airport. The average temperature for the month was 42.6 degrees, which was 8.6 degrees below normal. This broke the previous record of 43.2 degrees, set in December 1989. This average also ties February 1985 for the sixth coldest month on record. The coldest month recorded at Charleston International Airport was 38.7 degrees, in January 1977. Records began at the Charleston Airport in 1930.

There were 18 days when the low temperature was at or below the freezing mark in Charleston during December. This is over half of the 34 day total in the year of 2000.

Also, there were 12 days that didn't reach 50 degrees for the high temperature, and one day that the temperature didn't reach 40 degrees in December (37 degrees on the 30th). The average high was only 52.8 degrees, or 8.8 degrees below normal. The average low was a chilly 32.4 degrees, which is 8.3 degrees below normal. One of the few record cold temperatures was set on the morning of New Years Eve, where the low temperature fell to 20 degrees, setting a record for December 31. The previous record was 21 degrees set in 1961. This 20 degree reading was also the coldest low for the entire year of 2000, eclipsing the 21 degree low on January 27.

The average temperature for December at Savannah International Airport was 43.7 degrees, which is 8 degrees below normal. This average ties the record for the coldest December in Savannah with the Decembers of 1963 and 1989. These three Decembers tie for the seventh coldest month on record in Savannah. The coldest month in Savannah was 39.9 degrees set in January 1977. Also, there were 20 days that the low temperature fell to 32 degrees or lower. Only one record low temperature was set during December. The temperature fell to 21 degrees on December 5, setting a record for that date. The previous record was 25 degrees set in 1969. The average high temperature was 54.7 degrees, which was 7.6 degrees below normal, while the average low for the month was 32.6 degrees, or 8.4 degrees below normal.

Winter Record Temperatures

City	Month	Record Lows	Record Highs
Charleston	December	20F on 31 st	82F on 15 th
	January	22F on 1 st 19F on 4 th	
Savannah	December	21F on 5 th	
	January	18F on 3 rd 19F on 4 th	
	February		

Winter Climate Table

City	Month	Average Temp	Departure from Normal	Total Precipitation	Departure from Normal
Charleston	December	42.6	-8.6	2.65	-0.5
	January	46.4	-1.4	1.07	-2.38
	February	54.6	4.1	2.31	-0.99
Savannah	December	43.7	-8.0	2.81	-0.15
	January	46.8	-2.1	1.53	-2.06
	February	56.0	4.2	0.78	-2.44

Dry Dry Dry

DRY DRY DRY!

by: Eleanor Vallier-Talbot, Senior Meteorologist

After experiencing the second wettest month of 2000 in September with 8.88 inches in Charleston, October turned into the driest month on record at both Charleston and Savannah. During this period, high pressure was persistent and the general storm track was well north of the region, and thus no measurable rain fell during the entire month.

"The driest year ever in Charleston, using records which date back to 1837 for the Customs House station in downtown Charleston, was in 1850 with a total of 23.69 inches".

In Charleston, only a trace of rainfall was recorded for the entire month. Normal October rainfall is 2.90 inches. Trace amounts occurred on three days, the 4th, 6th and the 8th. This trace amount sets a record

for the driest October on record at the Charleston International Airport. The previous record was 0.01 inches in 1942. This also sets a record for the all-time driest month. The previous record was 0.01 inches, in both October 1942 and April 1972. On top of this, no measurable rain fell in Charleston from September 24 to November 3, for a total of 41 dry days. This is the second longest stretch of dry days for the Charleston Airport. The record consecutive number of days without measurable rainfall occurred from October 6 to November 16, 1942, for a total of 42 dry days.

For the year 2000, the Charleston Airport received 45.94 inches of rainfall, which was 5.59 inches below normal. This was the 22nd driest year recorded at the airport in the 71 years of weather records (1930-2000). The driest year ever in Charleston, using records which date back to 1837 for the Customs House station in downtown Charleston, was in 1850 with a total of 23.69 inches. The driest year at the Charleston Airport occurred in 1931 with 28.80 inches, while the average annual rainfall for the Charleston Airport is 51.53 inches.

At the Savannah International Airport, September 2000 was the wettest month so far this year with 7.45 inches. Once again though, October was very dry, with only a trace of rainfall recorded. Normal rainfall for October in Savannah is 2.39 inches. The trace amounts occurred on three days, the 4th, 6th and the 20th. This sets the October record for the driest month. The previous record was 0.02 inches set in October 1963. This also ties an all-time dry month in Savannah. Previously, a trace of rain fell in December of 1889. No measurable rain fell between September 25 and November 4, for a total of 41 dry days. For the year 2000, Savannah International Airport received only 37.53 inches, which was 11.59 inches below normal. The driest year in Savannah occurred in 1931 with a total of only 22 inches. Average annual rainfall is 49.22 inches.

...continued from page 2

WATER LEVELS AND OUTLOOK

While December turned out to be very cold with below normal temperatures and near normal rainfall, January and February trended back toward near or above normal temperatures, with rainfall much below normal. Even with the generous rainfall we experienced in December and then again in March, long-term water table deficits continue. The latest outlook from the National Weather Service's Climate Prediction Center shows that the current cold-episode La Niña event of the last 2 years will continue to weaken, with a neutral ENSO (El Niño/Southern Oscillation) episode expected for the upcoming summer and autumn. A neutral event means neither El Niño or La Niña conditions will prevail. The summer season outlook shows near-normal temperatures with below-normal rainfall conditions for southern South Carolina and southeast Georgia.

National Weather Service
Charleston, South Carolina



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<http://wchs.csc.noaa.gov>

Severe Weather Preparedness

The transition from cold to warm temperatures during spring brings about a clash in the air masses and the onset of severe weather across the Lowcountry and southeast Georgia. Although the primary weather months are March, April, and May across the southeastern states, severe weather can occur during any month of the year.

Severe thunderstorms pose a variety of hazards to the public, including: large hail of 3/4 inch diameter or larger, damaging winds of 50 knots (58 mph) or higher, tornadoes, lightning, and flash flood-producing heavy rain. Knowing what to do and having a plan of action in place can save your life during a severe weather event.

TORNADO SAFETY RULES:

Develop a plan of action for you and your family. During a tornado, go to the basement or an interior room on the lowest floor. Avoid windows. Get out of automobiles. If caught outside lie flat in a nearby ditch or

culvert that is not subject to flooding. Mobile homes should be abandoned during a tornado.

FLASH FLOOD SAFETY RULES:

Flash floods are responsible for causing more deaths across the US than any of the other severe weather threats. It only takes 18 inches of water to float a vehicle away. Don't cross a flooded area of unknown depth, and be especially cautious at night when it's impossible to determine the depth of the water. Move to higher ground when flooding is occurring.

HAIL AND DOWNBURST SAFETY RULES:

Seek safe shelter when large hail or high winds are occurring. A vehicle will provide protection from hail up to about golf ball size. Keep a firm grip on the wheel when encountering high winds, and be aware of visibility restrictions due to heavy rain or blowing dust.