

Summer 2001

Volume 5, Issue 2

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. The current editor is James Brotherton.



Inside this issue:

SPOTTER NEWS	COVER
LATEST HURRICANE SEASON OUT-LOOK	2
CLIMATE SUMMARY & DISCUSSION	3
CONT...HURRICANE OUTLOOK... & SHARKS!	4
CONT...CLIMATE...A LITTLE HELP FROM A SPOTTER	5
HURRICANE SEASON PREPARED-NESS TIPS	BACK PAGE

SPOTTER NEWS

Here is a list of the spotter training classes that have been given between June and August across the Lowcountry and southeast Georgia:

- Beaufort County, SC Emergency Management – June 11
- Hinesville, GA, Long County – June 21
- Midway, GA, Long County – July 16
- Bryan County, GA – August 20
- Fort Stewart—September 5 & 6 (two sessions)
- Hinesville Fire Department—September 5
- Hunter Army Airfield—September 5 & 6 (two sessions)

Over 150 Severe Weather Spotters have been trained over the last four months in our County Warning Area. We welcome you all to your first spotter newsletter! The significance of the severe weather spotter is great. At this time we want to thank you all for your time and effort. Your work is above and beyond the call of duty. In an age of Doppler radar and endless meteorological data for interpretation, the value of the severe weather spotter is more significant than ever.

Forecasters at the National Weather Service rely on reports from our severe weather spotters. The reports are used for ground truth data to be compared with our endless Doppler radar data. We greatly appreciate all of your voluntary efforts. You are helping us to protect the lives and property of our fellow citizens from severe weather threats.

We have received more than 100 reports from our severe weather spotters since June 1. Please continue to be proactive when it comes to reporting severe weather. The primary elements that we would like you to report include: tornadoes, funnel clouds, wall clouds, hail of any measurement, wind gusts greater than 50 MPH, any property damage resulting from significant weather, and of course flooding. Remember that flooding is the greatest killer from severe weather!

2001 HURRICANE SEASON OUTLOOK

FORECAST FOR THE 2001 HURRICANE SEASON

By John A. Cole, Senior Meteorologist

Dr. William Gray and his forecast team at Colorado State University stuck to their guns on the early August update and kept the forecast at 12 named storms. They believe seven will reach hurricane strength, 74 mph or greater, and three of those will be intense major hurricanes with winds greater than 110 mph. In any given year, an average of nine or 10 named storms develop across the Atlantic hurricane basin. As of late August, four named tropical systems have occurred in the Atlantic hurricane basin, all were tropical storms with winds from 39 to 73 mph.

One reason for the increase in the forecasted numbers of tropical systems for 2001 is due to neutral instead of El Nino conditions across the Eastern Pacific ocean. A weak to moderate El Nino was expected during the 2001 hurricane season, which would have had an inhibiting effect on tropical cyclone development. Other factors which favor an active hurricane season this year include lower than normal sea level pressures, and warmer sea surface temperatures. Don't let your guard just because only four weak tropical cyclones have occurred thus far. We really haven't even reached the most active part of the season yet. The most active part of the season occurs during the second week in September. The consensus is that both September and October will be quite active.

Hurricane Elena, 1985. Picture from Space Shuttle. Courtesy NASA.



Please see the attached figures. On figure 1, hurricane strikes are arranged by category, from 1900-1996 for Georgia, South Carolina, and North Carolina. It is interesting to note that hurricane strikes increase dramatically going from south to north from Georgia to North Carolina.

MAJOR HURRICANE STRIKES BY CATEGORY 1900-1996

CAT	1	2	3	4	5	ALL	MAJ
GA	1	4	0	0	0	5	0
SC	6	4	2	2	0	14	4
NC	10	4	10	1	0	25	11

figure 1

MAJOR HURRICANE STRIKES BY MONTH 1900-1996

MONTH	JUNE	JULY	AUG	SEPT	OCT	ALL
GA	0	0	0	0	0	0
SC	0	0	0	3	1	4
NC	0	0	2	8	1	11

figure 2

CONTINUED...

CLIMATE SUMMARY AND DISCUSSION

By James Brotherton, Meteorologist Intern

SPRING CLIMATE SUMMARY (MARCH – MAY)

From a winter of below normal precipitation and below normal temperatures, spring just brought more of the same. Rainfall was again down during the spring, although rainfall deficits were not as harsh as over the winter season. Temperatures were still below normal, although not nearly as much as during the winter season.

The rainfall total for the spring months at Charleston was 8.6 inches, which is 2.42 inches below normal. At Savannah, the seasonal total was only 7.63 inches, which is 3.27 inches below normal.

In terms of temperatures, the average temperature for the season at Charleston was 64.7 degrees F. This is 0.6 degrees below normal. At Savannah, the average temperature for the season was 65.2 degrees F, which is 1.1 degrees below normal.

SUMMER CLIMATE SUMMARY (JUNE–AUGUST)

For the summer months, rainfall totals were on the rebound and total deficits shrunk. Precipitation shifted from below normal to near normal in many areas of South Carolina, while southeast Georgia continued to experience significant rainfall deficits. Temperatures for the summer months were generally near normal across the Lowcountry.

The rainfall total for the summer months at Charleston was 20.22 inches, which is 0.27 inches below normal. At Savannah, the seasonal total was 15.91 inches, which is 3.59 inches below normal.

Temperature wise, the average temperature for the entire season at Charleston was 79.9 degrees, which is 0.2 degrees below normal. At Savannah, the average temperature was 80.3 degrees, which is 0.3 degrees below normal.

ENSO (EL NIÑO/SOUTHERN OSCILLATION) DISCUSSION

We continue to be under the influence of a neutral ENSO cycle, and the lingering effects from the strong La Niña have dissipated. Equatorial region sea surface temperature (SST) anomalies are on the rise right now, and are expected to continue to rise into early 2002 (please see the attached figure that displays the Pacific Ocean SST anomalies for the week of August 28).

CONTINUED...

2001 HURRICANE SEASON OUTLOOK...CONTINUED

It certainly doesn't help that the North Carolina Coast juts out into the Atlantic Ocean at the latitude where many storms re-curve around the Bermuda high. There have been twice as many major hurricane strikes in North Carolina compared to South Carolina. No major hurricanes have struck the Georgia coast since 1900.

On figure 2, the number of major hurricane strikes are arranged by month, from 1900 to 1996. No major hurricanes struck the Georgia, South Carolina, or North Carolina coastlines before August. The majority of major hurricanes struck the Carolinas in September.

Dr. Gray and his team have assigned a 50% probability that at least one major hurricane will make landfall on the east coast of the U.S., including peninsular Florida. Remember that even weaker tropical systems can have devastating effects from heavy rainfall and tornadoes. Loss of life and significant property damage have resulted from tropical systems making landfall on the Gulf of Mexico coast. These systems have produced flooding and tornadoes across southeast Georgia and the Lowcountry of South Carolina.

"JAWS" OF 2001

The Truth Behind the "JAWS" of 2001

By David Beachler, Hydrometeorological Technician

With the summer nearing the end, this year has seen the heightened awareness of the shark. Although professionals insist that the number of attacks on humans has been significantly lower than previous years, many media sources have continued to push this topic to the front of the line.

Sharks attack 50 to 75 people on average, with nearly a dozen becoming fatal. The most typical species of shark to attack swimmers, divers, surfers, and boats are the Great White, Tiger, and Bull Sharks.

So how can one remain safe in the warm tropical like waters off the coastal United States? Be cautious near dusk and dawn, sharks prey on their food at these times and generally can be found along the mouths of rivers and along the shore line. Always swim in groups, this tends to disturb the waters and prevent preying sharks. Stay away from brown or cloudy waters.

So be safe and remember to respect this ancient animal.

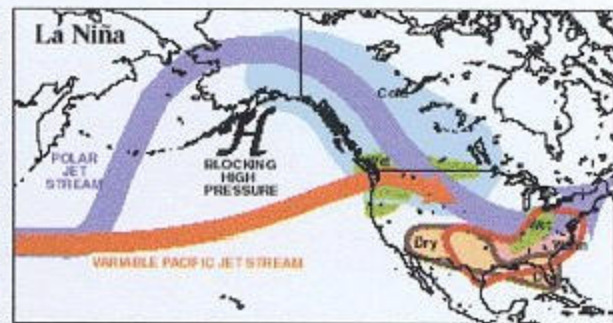
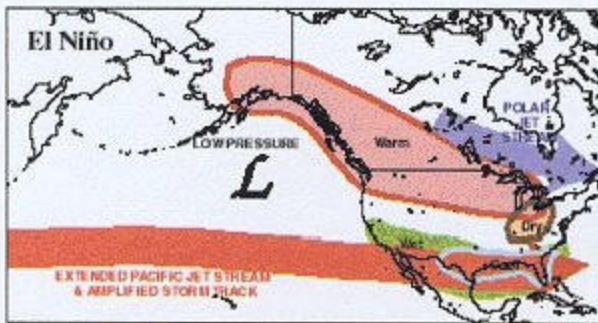
CLIMATE SUMMARY AND DISCUSSION...CONTINUED

IN TERMS OF THE CURRENT HURRICANE SEASON...

NOAA's Climate Prediction Center is forecasting a transition into El Niño conditions. However, this is likely to hold off until after the peak of hurricane season (September 9), and the effects of the El Niño will have little or no impact on the current hurricane season. The greatest limiting factor right now in terms of tropical cyclone development (as of September 1) is unfavorable upper-level wind shear. However, above normal SST's continue over the primary tropical storm development areas of the eastern Atlantic Ocean. This continues to point to heightened tropical activity for the rest of our hurricane season. Please see the "2001 Hurricane Season Outlook" for more details.

At any rate, an El Niño cycle is a good bet for the upcoming winter season here in the Lowcountry and coastal empire of southeast Georgia.

You may remember what the result of an El Niño is for winter and spring in the southeast U.S. and the Lowcountry. Typically during an El Niño winter



in the southeast, the Pacific jet stream is more zonal, or flattened out from west to east, and is also considerably further south than is typical. The Polar jet stream is much weaker and has a less significant impact on the Midwest's weather. This position of the jetstream will result in a stormier winter season in the Lowcountry, with colder and wetter than normal conditions. Towards late spring and summer (the height of our severe weather season), the El Niño cycle is likely to increase the frequency of severe weather, simply because we have a greater influence from the upper level jetstream. The figure to the left demonstrates a typical winter weather pattern during an El Niño. Notice that the Pacific jetstream (heavy red/dark stripe) is more zonal and has a large impact on our weather.

SEVERE WEATHER EVENT, SAVANNAH, AUGUST 24

This severe weather was caused from a large scale bow echo that occurred during the evening hours. Many of the counties in our County Warning Area were affected by damaging straight line winds. Many reports were received of trees and power lines down across the area. In this picture, structural damage, caused by a microburst, occurred at a local church.



This picture was sent in by our youngest severe weather spotter, Jason Castine of Savannah.

NATIONAL WEATHER SERVICE

Charleston Weather Forecast Office
5777 S. Aviation Ave.
Charleston, SC 29406



Weatherline: (843)744-0303
Spotter Reports (toll-free): (800)897-0823

HURRICANE SEASON FACTS

- **Storm surge** is the greatest potential threat to life and property associated with hurricanes. It is a large dome of water, 50 to 100 miles wide, that sweeps across the coastline near where a hurricane makes landfall. It can be more than 15 feet deep at its peak.
- Typically, the more intense the storm (in terms of the Saffir-Simpson Hurricane Scale), the more **wind damage** a community will sustain, particularly if it does not have an effective mitigation program and has not prepared in advance for the storm.
- Hurricanes (and some tropical storms) typically produce widespread rainfall of 6 to 12 inches or more, often resulting in **severe flooding**. Inland flooding has been the primary cause of tropical cyclone-related fatalities over the past 30 years.
- **Tornadoes** are most likely to occur in the right-front quadrant of the hurricane. However, they are also often found elsewhere in the rainbands. Typically, the more intense a hurricane is, the greater the tornado threat.

facts courtesy NOAA

