Months of heavy rain forced the U.S. Army Corp of Engineers to open the spillways at Lake Hartwell, located at the headwaters of the Savannah River along the South Carolina-Georgia border, on July 9, 2013. This was just the third time the spillways have been opened other than for routine testing in over 50 years. (Image source: http://www.youtube.com/watch?v=CSyorWMsy0A)

2013 Annual Climate Summary for the Southeast United States

Preliminary Report Produced by the Southeast Regional Climate Center

Released January 21, 2014
Overview

This report provides a regional perspective on the climate in the Southeast U.S. in 2013. Several variables are placed in historical context so that the climatological significance of 2013 can be assessed. More detailed information on specific events and impacts can be found in our monthly climate reports, which are part of NCDC’s monthly State of the Climate summaries for the U.S. http://www.ncdc.noaa.gov/sotc/national/2013/

The average temperature for the Southeast in 2013 was 62.9°F, matching the 20th century average, and tying 1930, 1942, and 2008 as the 53rd warmest year in the region since 1895. Winter temperatures were above normal, while summer and fall temperatures were slightly below normal and spring temperatures were much below normal. Only Virginia and Florida recorded above average temperatures in 2013. Average annual precipitation across the Southeast was 60.55 inches, more than 10 inches above the 20th century average. This marked the 5th wettest year on record and the first year with above average precipitation since 2009. Most notably, the Southeast recorded its wettest summer on record, breaking the previous record set in 2003 by nearly 2.5 inches. Every state in the region exhibited above average precipitation in 2013, with Georgia recording its wettest year since 1964 and 3rd wettest since 1895. Snowfall totals for the 2012-2013 winter season were above normal across Virginia and western North Carolina, with the greatest departures (>10 inches) found across the higher elevations of the Southern Appalachian Mountains. Two locations, Mount Mitchell and Beech Mountain in western North Carolina, recorded over 100 inches of snow. Snowfall was near normal to below normal across central portions of the Carolinas and northern sections of Georgia and Alabama.

The calendar year 2013 began with approximately 70% of the Southeast experiencing some level of drought according to the U.S. Drought Monitor (Slide 18). By the end of April the area under some level of drought had been reduced to 20% and by mid-July the Southeast was completely drought-free for the first time since 2010. The lack of rainfall in September and October resulted in a re-emergence of mostly abnormally dry (D0) conditions, which by mid-November covered more than 50% of the region. Above normal precipitation in December reduced the area of D0 conditions to less than 10% by the end of the year. Recent trends in the regional Drought Monitor designations are also reflected in the trends in the Palmer Drought Severity Index (Slide 18).
Top Stories and Events in 2013

1. Wettest summer on record in the Southeast; wettest year on record in Asheville, NC and Macon, GA
2. Drought-free in the Southeast for the first time since 2010
3. Deadly derecho races across the Southeast on June 13
4. Deadly 95-car pile-up on I-77 in southwest Virginia due to dense fog on March 31
5. Spring temperature “flip-flop” (record warmth in 2012 followed by near-record cold in 2013)
6. Deadly EF-3 tornado devastates the town of Adairsville, GA on January 30 (first deadly tornado in the U.S. in over 200 days)
7. Severe weather outbreak on March 18 (only billion dollar weather event affecting the Southeast in 2013)
8. Fewest number of tornadoes in the region in over 25 years
9. Lack of major hurricanes; weak tropical season in the Atlantic basin
10. Rare tornado touches down in the Great Smoky Mountains on June 13
Southeast Annual Temperature Trend (1895-2013)

Based on preliminary data, 2013 was the 53rd warmest year in the Southeast since 1895. The regional average annual temperature was 62.9°F, which matched the long-term average.
Southeast Winter Temperature Trend (1895-2013)

The Southeast experienced its 16th warmest winter on record in 2013. The regional average winter temperature was 50.3°F, which was 3.0°F above the long-term average.
Southeast Spring Temperature Trend (1895-2013)

The Southeast experienced its 10th coldest spring on record in 2013. The regional average spring temperature was 60.1°F, which was 2.2°F below the long-term average.
Southeast Summer Temperature Trend (1895-2013)

The Southeast experienced its 38th coldest summer on record in 2013. The regional average summer temperature was 77.5°F, which was 0.4°F below the long-term average.
Southeast Fall Temperature Trend (1895–2013)

The Southeast experienced its 53rd coldest fall on record in 2013. The regional average fall temperature was 64.0°F, which was 0.1°F below the long-term average.
No official weather station in South Carolina or Alabama recorded a temperature of 100°F or greater in 2013, marking the first such occurrence since 1973 and 2003, respectively.

Puerto Rico and the U.S. Virgin Islands: Average annual temperatures in Puerto Rico ranged from 2°F below normal across the eastern interior to 2°F above normal across the northern coast, with the remainder of the island between 0.5-1°F above normal. Average annual temperatures on the U.S Virgin Islands ranged from near normal to 0.5°F below normal.
Southeast Annual Precipitation Trend (1895-2013)

The Southeast experienced its 5th wettest year on record in 2013. The regional average annual precipitation was 60.55”, which was 10.31” above the long-term average.
Southeast Winter Precipitation Trend (1895-2013)

The Southeast experienced its 18th wettest winter on record in 2013. The regional average winter precipitation was 14.57”, which was 2.96” above the long-term average.
The Southeast experienced its 51st wettest spring on record in 2013. The regional average spring precipitation was 12.19”, which was 0.13” above the long-term average.
The Southeast experienced its wettest summer on record in 2013. The regional average summer precipitation was 24.27”, which was 8.31” above the long-term average and 2.47” above the previous record set back in 2003.
Southeast Fall Precipitation Trend (1895-2013)

The Southeast experienced its 26th driest fall on record in 2013. The regional average fall precipitation was 8.30”, which was 2.33” below the long-term average.
*Georgia* recorded its wettest February on record with a statewide average precipitation total of 9.92 inches, breaking the previous record of 8.73 inches set in 1939. *Florida* recorded its wettest July on record with a statewide average precipitation total of 12.38 inches, breaking the previous record of 11.26 inches set in 1909.

*Georgia* recorded its third wettest year on record in 2013 with a statewide average precipitation total of 65.02 inches, falling short of the record set in 1964 with 70.66 inches. Three other southeastern states (*Virginia*, *South Carolina*, *North Carolina*) recorded one of their 10 wettest years on record.

Puerto Rico and the U.S. Virgin Islands: Annual precipitation was variable across Puerto Rico, with above normal precipitation along the northern and southeastern coasts and below normal precipitation along the southern interior of the island. Annual precipitation was above normal across the U.S. Virgin Islands.

<table>
<thead>
<tr>
<th>State</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tr>
<td>Virginia</td>
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<td>2.99</td>
<td>2.37</td>
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<td>-0.01</td>
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<td>-0.01</td>
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<td>0.56</td>
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<td>10</td>
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</table>

1 = wettest, 119 = driest

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2013: Wettest year on record

Accumulated Precipitation – Asheville Area, NC
Click and drag to zoom to a shorter time interval. Green/black diamonds represent subsequent/missing values

Accumulated Precipitation – Macon Area, GA
Click and drag to zoom to a shorter time interval. Green/black diamonds represent subsequent/missing values

2013: Wettest year on record
2013: 4th Wettest year on record

2013: 5th Wettest year on record
Drought Summary

Source: U.S. Drought Monitor
The Southeast recorded a preliminary total of 2,553 high wind reports, which was slightly below the 14-year average. Only 384 hail reports were recorded, the fewest over the 14-year period of record.

Based on storm surveys conducted by the National Weather Service, the Southeast experienced 83 tornadoes in 2013, the fewest since 1987.

All 2013 data presented here are preliminary
The 2013 Atlantic hurricane season saw 13 named storms and one depression (see image to the left; Source: NOAA/NHC). While the total number of named storms was near the long-term average, the lack of major hurricanes was noteworthy, as 2013 marked the first time in over 40 years that no storms reached category 2 strength and the first time in nearly a decade that no storms reached category 3 strength. Only two storms reached hurricane (category 1) strength, the fewest in over 30 years.

In all, four of the 13 storms affected the Southeast U.S. Tropical Storm Andrea made landfall in the Big Bend region of Florida on June 6 (see satellite image below; Source: NOAA/NHC) and spawned eight tornadoes across the Florida Peninsula. Tropical Storm Chantal produced damaging winds across Puerto Rico and contributed to heavy surf from July 9-10. Tropical Storm Gabrielle dropped heavy rain across Puerto Rico and the U.S. Virgin Islands from September 4-5, including over 8 inches in St. Thomas. The remnants of Tropical Storm Karen contributed to heavy rain and flooding across much of the Southeast, especially eastern sections of North Carolina and Virginia, from October 6-12.

More information on the impacts of these storms across the Southeast can be found in our monthly state of the climate reports: www.ncdc.noaa.gov/sotc/national/2013/
For more information, please contact the Southeast Regional Climate Center

www.sercc.com

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