

Southeast Region: (Information provided by the Southeast Regional Climate Center)

- Temperatures across the Southeast were warmer than normal in December 2018, except for small pockets of cooler than normal temperatures in Georgia, Virginia, and Florida. Temperatures were generally 2-4 degrees F (1.1 to 2.2 degrees C) warmer than normal across most of the region, except for the Florida Peninsula, where they were primarily 0-2 degrees F (0 to 1.1 degrees C) warmer than normal. Puerto Rico and the U. S. Virgin Islands were also slightly warmer than normal. Key West, FL (1871-2018; 9<sup>th</sup> warmest) was the only station in the continental Southeast that reached the top ten warmest on record, due to the influence of much warmer than normal ocean temperatures in the surrounding waters. While maximum temperatures were generally only slightly above normal, minimum temperatures throughout the region north of central Florida were 4-6 degrees F (2.2 to 3.3 degrees C) warmer than normal, consistent with general trends seen in the region over time. Sixteen long-term stations (records exceeding 50 years) reported minimum temperatures ranked in the top ten warmest, including Washington D.C. (1871-2018; tied for 9<sup>th</sup> warmest), Key West, FL (1871-2018; 9<sup>th</sup> warmest) and Lumberton, NC (1903-2018; tied for 6<sup>th</sup> warmest). The warmest temperatures of the month generally occurred on December 1-2 in the warm sector ahead of a low pressure system that moved from eastern Kansas northeast through New England. A second period of warm weather occurred at the end of the month in a warm and humid air mass ahead of a strong cold front stretching southward from a powerful low pressure center in Wisconsin and Michigan. During this time period, mean temperatures in northern Florida, most of Alabama, Georgia and the Carolinas were 15-25 degrees F (8.3 to 13.9 degrees C) warmer than the average for the date. Mobile, AL (1871-2018; 1<sup>st</sup> warmest) reported a minimum temperature of 69 degrees F (20.6 degrees C) on the 31<sup>st</sup>, almost 29 degrees F (16 degrees C) higher than the normal value for that date. By comparison, the coldest temperature in the Southeast in December occurred in Burkes Garden VA, which reached -9 degrees F (-23 degrees C) on the morning of the 11<sup>th</sup>. Mount Mitchell, NC reported a low of 7 degrees F (-14 degrees C) on the 6<sup>th</sup> and the Bell, FL reached a low of 21 F (-6.1 degrees C) on the 19<sup>th</sup>. The coldest temperature in Puerto Rico in December was 51 degrees F (10.6 degrees C) on the 19<sup>th</sup>.

- The Southeast was exceptionally wet everywhere in December, except for the southeastern portion of the Florida peninsula and a few small areas of Alabama as well as eastern North Carolina and Virginia. Most of the rest of the region was at least 150 percent wetter than normal, with a large swath of rainfall of more than 300 percent of normal covering most of northern Florida and stretching up the Atlantic Coast to Charleston, SC. The Atlanta, GA metro area also received as much as 300 percent of normal precipitation. Numerous stations reported their wettest December on record, including Pensacola, FL (1879-2018; 16.55 inches or 420 mm), Tallahassee, FL (1896-2018; 15.77 inches or 401 mm), Brunswick, GA (1948-2018; 8.62 inches or 219 mm), Cape Hatteras, NC (1874-2018; 10.92 inches or 277 mm), and Asheville, NC (1869-2018; 10.87 inches or 276 mm). Asheville also reported their wettest single December day on record when 4.17 inches (119 mm) fell on December 9, surpassing their old record of 2.90 inches (73 mm) observed on December 29, 1901. Cape Hatteras, NC also reported their wettest December day on record on December 9, receiving 4.02 inches (102 mm), which surpassed their old record of 3.79 inches (96 mm) from December 6, 1979. In all, 76 long-term stations (more than 50 years of record) reported precipitation amounts ranked in the top three for their sites. The highest monthly rainfall reported in the Southeast was from a CoCoRaHS observer at Gonzales 2.1 E, FL, which received 20.55 inches (522 mm). By comparison, the highest December rainfall in Puerto Rico was 5.21 inches (132 mm) at Palma Sola and in the U. S. Virgin Islands was 2.00 inches (51 mm) at the Christiansted

Hamilton Airport. December also brought the first major snowstorm of the year to the Southeast. A low pressure system skirted the Gulf and Atlantic coasts on December 8-10, as a high pressure to the north provided a source of cold air. Liquid precipitation totals ranged from 1.5 to 3 inches (38 mm to 76 mm), with 4.16 inches (106 mm) reported at Cape Hatteras. In the mountains and foothills of North Carolina and Virginia, most of the precipitation fell as snow, yielding widespread accumulations of more than 10 inches. Mount Mitchell, NC reported 32 inches (812 mm), Jefferson, NC received 20 inches (508 mm), and Boone, NC recorded 15 inches (381 mm) of snow. Roanoke, VA reported 15.2 inches (386 mm), most of which fell on the 9<sup>th</sup>. Many sites receive more than a foot of snow, which is close to the annual average snowfall for those locations. The snow caused power outages that affected nearly 300,000 customers, snarled traffic, and led to the cancellation of hundreds of flights in the region. For the month as a whole, Mount Mitchell, NC reported 52.0 inches (1320 mm) of snow for December, and in other states the highest monthly total snowfalls were 27.7 inches (704 mm) at Elk Creek, VA, 14.0 inches (356 mm) at Caesars Head, SC, 6.0 inches (152 mm) at Mountain City, GA, and 0.1 inch (3 mm) at Russellville, AL.

- There were 70 severe weather reports across the Southeast during December, which is 159 percent of the median number of 44 reports from 2001-2016. Fourteen tornadoes were confirmed during the month. On December 1, an EF-0 tornado was reported in Alabama and an EF-1 tornado was also confirmed in Georgia. Minor damage was reported from the tornadoes, and additional wind damage was also noted. On the next two days, six tornadoes were reported in southern Georgia, Alabama, and northern Florida in the warm sector ahead of a developing low pressure system. An EF-3 tornado on that date caused four injuries at Kings Bay Naval Base in Camden County, GA along the coast. A docked Coast Guard vessel reported a wind gust of 144 mph from the storm, as it passed near the coast. On December 9, an EF-1 tornado caused minor damage in Florida north of the Tampa Bay region as a Gulf low pressure system traversed northern Florida. On December 20, three small tornadoes were reported just east of Tampa, FL, including one at Crooked Lake Park in Polk County, which caused roof damage that produced one injury to a resident. An EF-0 tornado was also reported along the coast of North Carolina near Masonboro in New Hanover County. These storms were associated with the circulation around a vigorous low pressure system that moved through the region on December 20-21, with pressure values that set new records for December in northern Florida, eastern Alabama, most of Georgia and South Carolina, and western North Carolina and Virginia. The lowest measured sea level (MSL) pressure observed in the storm was 986.6 mb in Asheville, NC on the 21<sup>st</sup>. Wind gusts associated with the low pressure system reached 58 mph in Fort Myers, FL on the 21<sup>st</sup> as well as at an automated weather station on Jekyll Island, GA. On December 27, nickel- to quarter-sized hail was reported near the University of West Alabama in Sumter County. Thunderstorms produced scattered wind damage on December 28 in the Carolinas along the boundary between a wedge of cold air on the east side of the Southern Appalachians and warm, humid air near the Atlantic Coast. The heavy precipitation in December was exceptionally persistent, as there were fourteen days with at least one report of flooding or heavy rain during the month.

- The rainy conditions in December eliminated moderate drought (D1) from eastern Georgia and southeastern South Carolina by the second week of the month. However, the lack of rain along the southeastern coast of the Florida peninsula led to the expansion of moderate drought (D1) from Cape Canaveral to Miami and west of Lake Okeechobee by mid-month. The dry conditions caused some problems for pastures in the driest regions. In Puerto Rico, drier than normal conditions led to the

expansion of abnormally dry conditions (D0) from 26% to over 50% of the island by the end of December, although no drought was identified there. The wet conditions across most of the Southeast north of Florida continued to impact the harvest of cotton, soybeans, and other crops, and also hindered the planting of winter grains, pastures and onions. The yield for South Carolina peanuts was expected to be down about 10% from average due to the wet conditions from Hurricane Florence and recent rain. Forage that was planted earlier in the fall had trouble establishing itself due to the soggy soil, and livestock producers continued to feed hay while they waited for the pastures to fill out. Across the area impacted by Hurricane Michael, farmers continued to work on recovery and rebuilding efforts while waiting for relief funds to become available. Production of Florida citrus was projected to be 71 percent more than last year's production (which was impacted severely by Hurricane Irma and citrus greening) but fruit size was projected to be smaller than average and fruit drop higher than average, based on the last nine seasons (excluding last year). The maturation of Florida strawberries was slowed somewhat by weather-related planting delays, but early varieties were starting to harvest by the end of December, and other varieties should be close to normal harvest time.