

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

- Temperatures were near average to above average across the Southeast region (including Puerto Rico and the U.S. Virgin Islands) during July, with extreme warmth occurring at several locations. At least 20 long-term (i.e., period of record equaling or exceeding 50 years) stations across the region, with 13 located in Florida, observed July mean temperatures that were ranked within their five warmest values on record. A few of these stations included Miami, FL (1896–2017; warmest on record), Williamsburg 2 N, VA (1951–2017; warmest on record), Plant City, FL (1893–2017; 2nd warmest), Guayama 2 E, PR (1914–2017; second warmest), and Pensacola, FL (1880–2017; third warmest). A much greater number of long-term stations (38) observed average minimum temperatures that were ranked within their five warmest values on record, compared to only 6 stations for average maximum temperatures. Pensacola, FL observed its highest count of 31 days during July with a minimum temperature at or above 75 degrees F (23.9 degrees C). From the 10th through the 25th, Roanoke, VA (1912–2017) recorded 16 consecutive days with a maximum temperature at or above 90 degrees F (32.2 degrees C), which is its longest July streak and ties its fourth longest streak all time. Miami, FL and Raleigh, NC (1887–2017) observed and tied their highest count of July days with a maximum temperature of at least 90 degrees F, at 30 and 25 days, respectively. Miami was exceptionally warm during July, as the city observed its warmest mean temperature for any month on record (85.7 degrees F; 29.8 degrees C). On four days during the month (1st, 3rd, 6th, and 14th), Miami tied its warmest minimum temperature for July and third warmest minimum temperature for any month on record, at 83 degrees F (28.3 degrees C). In addition, Miami observed its greatest monthly count of 19 days with a minimum temperature at or above 80 degrees F (26.7 degrees C), surpassing the previous record (August 2005) by 3 days. With the heat index (i.e., a measure of how hot it feels due to the combined effects of temperature and humidity) reaching a maximum around 110 degrees F (43.3 degrees C), Miami Beach Ocean Rescue reported 10 to 15 heat-related illnesses on the 25th. The warmest weather of the month across the Southeast occurred during two periods of excessive heat from the 13th through the 14th and the 20th through the 23rd. Daily maximum temperatures exceeded 90 degrees F across much of the region, with a few stations in the Carolinas and Virginia recording 100 degrees F (37.8 degrees C) or higher. On several days, the heat index reached a maximum of 105 to 115 degrees F (40.6 to 46.1 degrees C) across central and eastern portions of the Carolinas, as well as Tidewater Virginia. On the 14th, several stations tied their highest daily minimum temperature on record for July, including Melbourne, FL (1938–2017; 83 degrees F), Vero Beach, FL (1943–2017; 81 degrees F, 27.2 degrees C), Wilson 3 SW, NC (1917–2017; 80 degrees F), and Dunn 4 NW, NC (1963–2017; 78 degrees F, 25.6 degrees C). In contrast, the coolest weather of the month occurred on the 31st, as a continental high pressure system ushered in unseasonably cool, dry air from the north. Daily minimum temperatures fell below 65 degrees F (18.3 degrees C) as far south as southern Georgia, while much of Virginia and North Carolina recorded minimum temperatures ranging from the middle 40s F to the upper 50s F (5 to 17 degrees C).

- Precipitation was highly variable across the Southeast region during July, with a few wet and dry extremes recorded. The driest locations were found across broad portions of Upstate South Carolina, central North Carolina, and central Virginia, where monthly precipitation totals were 50 to less than 25 percent of normal. Siler City, NC (1916–2017) and Greensboro, NC (1903–2017) observed their driest and second driest July on record, with only 0.69 and 1.04 inches (17.5 and 26.4 mm) of precipitation, respectively. In contrast, the wettest locations were found across portions of the Florida Peninsula, northern Alabama, southeastern Georgia, central and coastal South Carolina, western and northeastern North Carolina, northern Virginia, and the District of Columbia. Monthly precipitation totals ranged from 150 to nearly 300 percent of normal in these areas. Lakeland Regional Airport, FL (1948–2017), Gainesville, FL (1890–2017), and Washington Dulles International Airport, VA (1962–2017) observed their wettest July on record, with 20.07, 16.70, and 8.80 inches (510, 424, and 224 mm) of precipitation, respectively. This was also the third wettest month on record for Gainesville, trailing only September 1894 (19.91 inches, 506 mm) and June 2017 (16.86 inches, 428 mm). Numerous heavy rainfall and flash flooding events occurred across the region during the month. On the 1st, the AWOS station at Robins Air Force Base, GA recorded 5.40 inches (137 mm) of rainfall in one hour, which corresponds to an average recurrence interval of approximately 1,000 years at this location. A few roads in the city of Warner Robins were closed due to flash flooding, with several reports of stalled vehicles. On the 6th and 12th, Mt. Weather, VA (1915–2017) and Miami, FL (1896–2017) observed their wettest July day on record, with 4.04 and 5.49 inches (103 and 139 mm) of precipitation, respectively. From the 14th through the 16th, heavy rainfall from a series of slow-moving thunderstorms caused flooding across southern portions of the Birmingham, AL metropolitan area. A few of the highest 3-day precipitation totals included 7.52 and 7.09 inches (191 and 180 mm) at CoCoRaHS stations in Bessemer and Pelham, respectively. Several homes were flooded in Hueytown, while a water rescue was performed for two submerged vehicles near the Birmingham Fairgrounds. On the 26th, another significant flooding event occurred south of Birmingham in the suburbs of Vestavia Hills and Hoover, as floodwater from heavy rainfall caused property damage and swept several vehicles into a raging creek. A personal weather station in Hoover recorded 3.31 inches (84.1 mm) of precipitation in approximately one hour, which only has a 2 percent probability of occurring in any given year at this location. From the 23rd through the 24th, two rounds of slow-moving thunderstorms produced heavy rainfall and flash flooding in Columbia, SC. On the 23rd, a mesonet station located at Dr. Martin Luther King Jr. Park in downtown Columbia recorded exceptional rainfall amounts of 2.99 inches (75.9 mm) in 30 minutes and 3.82 inches (97.0 mm) in 60 minutes, which correspond to an average recurrence interval of approximately 100 to 200 years at this location. Nearby, the USGS streamflow gage for Rocky Branch at Whaley Street reached its third highest crest of 12.15 feet since records began in 2007, with an increase of more than 11 feet occurring in only one hour. The streamflow crest nearly surpassed the gage height of 12.28 feet that was measured by this USGS station during the historic flood of October 2015. Capturing both rainfall events from 5:00 PM EDT on the 23rd through 5:00 PM EDT on the 24th, the University of

South Carolina COOP station (1955–2017) observed its third wettest July day and seventh wettest day for any month on record, with 4.57 inches (116 mm) of precipitation. From the 28th through the 29th, heavy rainfall from a developing low pressure system caused flooding in portions of northern Virginia and Washington, D.C., with numerous reports of road closures. A CoCoRaHS station in Falls Church, VA recorded 7.72 inches (196 mm) of rainfall in the 24-hour period ending at 6:45 AM EDT on the 29th. In addition, the National Arboretum (1949–2017) in Washington, D.C. observed its wettest July day and eighth wettest day for any month on record, with 4.80 inches (122 mm) of precipitation. At approximately 8:00 AM EDT on the 31st, Tropical Storm Emily formed off the coast of Tampa Bay, FL and made landfall less than 3 hours later on Anna Maria Island, located just west of Bradenton. Plant City, FL (1895–2017) and Lakeland Regional Airport, FL observed their second wettest July day on record, with 5.36 and 4.91 inches (136 and 125 mm) of precipitation, respectively. Precipitation was above-average across much of the northern half of Puerto Rico, while below-normal amounts were found in southern portions of Puerto Rico and St. Croix in the U.S. Virgin Islands. On St. Croix, Christiansted Airport (1951–2017) observed its fifth driest July on record, with only 1.08 inches (27.4 mm) of precipitation.

- There were 795 severe weather reports across the Southeast during July, which is about 115 percent of the median monthly frequency of 687 reports during 2000–2016. At least one severe weather report was recorded on all 31 days during the month, but only five of these days (5th, 6th, 8th, 15th, and 23rd) had 50 or more reports. Strong thunderstorm winds accounted for nearly 95 percent (747 of 795) of the severe weather reports during July. Indeed, a combination of frequent thunderstorm activity and wet soils produced many downed trees across the region, with at least 48 reports of home damage. Downed trees were also responsible for 6 injuries during the month, including 5 that occurred in vehicles. Several thunderstorm wind gusts exceeding 50 mph were recorded across the region, including 66 mph at Robins Air Force Base, GA, 64 mph at Savannah-Hilton Head International Airport, GA, 63 mph at Anniston Regional Airport, AL, 58 mph at Albert Whitted Airport in St. Petersburg, FL, and 56 mph at Richmond International Airport, VA. On the 31st, wind gusts of 30 to nearly 60 mph from Tropical Storm Emily caused roof damage to a few structures across southwestern Florida and required a temporary closure of the Sunshine Skyway Bridge over Tampa Bay. Only 6 EF-0 tornadoes (4 in Florida and 2 in North Carolina) were confirmed across the region during the month, which is slightly more than half the median frequency of 10 tornadoes observed during July. On the 19th, a waterspout moved onshore at Surf City, NC and caused minor roof damage to several homes as an EF-0 tornado. On the 31st, an EF-0 tornado spawned by Tropical Storm Emily destroyed two barns and multiple greenhouses west of Bradenton, FL. Six fatalities and 21 injuries were caused by lightning strikes across the region, with 2 fatalities occurring in Alabama, Florida, and North Carolina. On the 11th, a 23-year-old Marine was struck and later killed by lightning while working on an aircraft at the New River Marine Air Corps Station in Jacksonville, NC. Another Marine was injured by the lightning strike but recovered at Camp Lejeune Naval Hospital. On the 26th, a 16-year-old boy in

Dothan, AL was killed in the enclosed porch of his home, when lightning struck two nearby trees and then jumped through his body. Lightning strikes damaged at least 23 residential structures across the region, including 18 fires reported during the month.

- With the removal of a localized area of moderate (D1) drought in northeastern Georgia at the beginning of July, drought conditions (D1 and greater) were not observed across the mainland portion of the region during the remainder of the month. However, below-average precipitation caused abnormally dry (D0) conditions to develop across broad portions of North Carolina and Virginia, with below-normal streamflows also recorded in these areas. A narrow strip of moderate (D1) drought developed across the southern coast of Puerto Rico at the end of the month. Dryland crops and pastures thrived from timely rainfall and few days of extreme heat across much of the region, but detrimental impacts were reported in some areas. A persistence of heavy rainfall, especially during the first half of July, continued to delay winter wheat harvesting, hay cutting, and soybean planting across portions of Alabama and Georgia. Several wheat fields in northern Georgia were lost due to the excessive wetness, which could also prevent a subsequent planting of soybeans in those fields. High humidity and abundant rainfall resulted in fungal disease issues for several crops across the region, particularly fruit and vegetable products in Georgia and South Carolina, tobacco in parts of North Carolina and Georgia, and cotton in multiple states. Some farmers in Alabama, Georgia, and Florida were unable to spray fungicides and remove weeds in their saturated fields. A period of hot, dry weather during mid-to-late July stunted the growth of crops, hay fields, and pastures across portions of North Carolina and Virginia. Wilting of corn and soybean plants was prevalent in these areas, and some livestock fatalities in central Virginia were attributed to the unusual dryness. Plentiful rainfall and near-average temperatures during the month contributed to a bumper crop of watermelons in South Carolina, with some farmers reporting double their normal yields.