

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

- Temperatures were well above average across much of the Southeast during the year, particularly in Florida and along coastal portions of the region. Annual mean temperatures were at least 2 degrees F (1.1 degrees C) above average for approximately 52 percent of the 168 long-term (i.e., period of record equaling or exceeding 50 years) stations across the region. Over 45 percent (77 of 168) of the long-term stations observed annual mean temperatures that were within their five warmest values on record. At least five of these stations were located in every state, including many of the major cities within the region. Sixteen of the long-term stations observed or tied their warmest annual mean temperature on record, including Miami, FL (1895–2020; 79.3 degrees F, 26.3 degrees C), Tampa, FL (1890–2020; 76.3 degrees F, 24.6 degrees C), Savannah, GA (1874–2020; 70.4 degrees F, 21.3 degrees C), Cape Hatteras, NC (1893–2020; 66.8 degrees F, 19.3 degrees C), and Norfolk, VA (1874–2020; 64.0 degrees F, 17.8 degrees C). The extreme departures in annual mean temperatures across the region were driven primarily by exceptionally warm daily minimum temperatures, as a persistent influx of tropical moisture and cloud cover suppressed nighttime cooling during the year. While 25 long-term stations observed average daily maximum temperatures that were ranked within their five warmest values on record, more than four times the number of stations (102) observed average daily minimum temperatures that were ranked within their five warmest values on record. The persistence of nighttime warmth was exceptional for many locations across the region, particularly in Florida. Numerous long-term stations observed their highest or second highest annual count of days with a minimum temperature at or above 70 degrees F (21.1 degrees C), including West Palm Beach, FL (1888–2020; 261 days, 71 percent of the year), Orlando, FL (1892–2020; 177 days, 48 percent of the year), Lumberton, NC (1903–2020; 87 days, 24 percent of the year), and Roanoke, VA (1912–2020; 45 days, 12 percent of the year). In addition, several stations observed their highest or second highest annual count of days with a minimum temperature at or above 75 degrees F (23.9 degrees C), including Fort Lauderdale, FL (1912–2020; 186 days, 51 percent of the year), Sarasota-Bradenton, FL (1911–2020; 132 days, 36 percent of the year), Vero Beach, FL (1942–2020; 98 days, 27 percent of the year), and Albany, GA (1892–2020; 44 days, 12 percent of the year). Average daily maximum temperatures were well above average along coastal portions of the region. In Florida, West Palm Beach, Jacksonville (1871–2020), and Pensacola (1879–2020) observed their highest or second highest annual count of 313, 238, and 208 days with a maximum temperature at or above 80 degrees F (26.7 degrees C). Several notable maximum and minimum temperature records occurred across the region during the year. On June 26th, Tampa, FL tied its warmest daily maximum temperature for any month on record, at 99 degrees F (37.2 degrees C). From July 19th through the 22nd, Norfolk, VA observed its longest streak of 4 consecutive days with a maximum temperature of at least 100 degrees F (37.8 degrees C). On November 11th and 12th, a total of 56 long-term stations across the region observed their highest daily minimum temperature on record for November, including Tampa, FL (78 degrees F, 25.6 degrees C), Savannah, GA (76 degrees F, 24.4 degrees C), Charleston, SC (1938–2020; 74 degrees F, 23.3 degrees C), Charlotte, NC (1878–2020; 70 degrees F), and Charlottesville, VA (1893–2020; 66 degrees F, 18.9

degrees C). Many locations across the region observed their coldest Christmas Day in at least two decades. With a daily maximum temperature of 24 degrees F (-4.4 degrees C), Asheville, NC (1876–2020) recorded its coldest Christmas Day since 1983, while Huntsville, AL (1907–2020) observed its coldest Christmas Day since 1985, with a daily maximum temperature of 32 degrees F (0 degrees C). With a daily maximum temperature of 35 degrees F (1.7 degrees C), Atlanta, GA (1878–2020) recorded its coldest Christmas Day since 1989, while Orlando, FL (1892–2020) observed its coldest Christmas Day since 1995, with a daily maximum temperature of 53 degrees F (11.7 degrees C). Dropping to 16 degrees F (-8.9 degrees C) on December 26th, Greensboro, NC (1903–2020) ended its longest streak of 694 consecutive days with a daily minimum temperature at or above 20 degrees F (-6.7 degrees C), surpassing the previous record by 277 days. The coldest temperature observed during the year was -4 degrees F (-20 degrees C), which was recorded on Mt. Mitchell, NC on December 26th. The warmest temperature observed during the year was 102 degrees F (38.9 degrees C), which was recorded at several locations across the region, including Macon, GA (July 20th), Athens, GA (July 20th), and Norfolk, VA (July 19th, 21st, and 28th).

- Annual precipitation totals were well above average across the Southeast region, with widespread areas of exceptional wetness occurring in every state and Puerto Rico. Indeed, nearly the entire Southeast region was covered with above-average annual precipitation totals, except for a few small pockets of unusual dryness in southwestern Alabama, the Big Bend region of Florida, Puerto Rico, and the U.S. Virgin Islands. The lowest annual precipitation total for any station (excluding CoCoRaHS) across the region was recorded in East Hill on St. Croix, USVI, which observed only 35.69 inches (907 mm) of precipitation. The wettest locations were found across much of Virginia, the Carolinas, Alabama, northern and central Georgia, the western half of the Florida Panhandle, southeastern Florida, and Puerto Rico. Annual precipitation totals ranged from 12 to more than 20 inches (305 to more than 508 mm) above average in these areas. Approximately 64 percent of the 168 long-term stations across the region observed annual precipitation totals that were at least 12 inches above average. A total of 85 long-term stations across the region, with at least five located in every state, observed annual precipitation totals that were ranked within their five highest values on record. Of these 85 stations, twenty-five observed their wettest year on record, including Highlands, NC (1879–2020; 136.50 inches, 3,467 mm), Fort Lauderdale, FL (1912–2020; 104.00 inches, 2,642 mm), Scottsboro, AL (1891–2020; 86.69 inches, 2,202 mm), and Lynchburg, VA (1893–2020; 69.73 inches, 1,771 mm). All but three of these 25 stations were located in North Carolina and Virginia. The highest annual precipitation total for any station (excluding CoCoRaHS) across the region was recorded in Highlands, which surpassed its previous wettest year on record (2018) by 11.04 inches (280 mm). In addition, Highlands was only 3.44 inches (87 mm) short of exceeding the highest annual precipitation total ever recorded in North Carolina, which occurred just two years ago on Mt. Mitchell (139.94 inches, 3,554 mm). Asheville, NC (1869–2020) observed its highest annual count of 157 days with measurable precipitation, while Miami, FL (1895–2020) tied its highest annual count of 30 days with at least 1 inch (25 mm) of precipitation. Numerous daily precipitation extremes were recorded across the region during the year. On February 6th, a slow-moving low

pressure system produced over 5 inches (127 mm) of rainfall across portions of western North Carolina and Upstate South Carolina. Greenville-Spartanburg, SC (1884–2020) and Hickory, NC (1949–2020) observed their wettest February day on record, with 5.36 and 5.31 inches (136 and 135 mm) of precipitation, respectively. From April 19th through the 20th, a line of thunderstorms produced heavy rainfall across central portions of Alabama and Georgia, with 24-hour precipitation totals exceeding 5 inches and numerous reports of localized flooding. On the 20th, Clanton, AL (1893–2020) reported 8.40 inches (213 mm) of rainfall, which ranked as its second wettest April day on record. In addition, Columbus, GA (1891–2020) and Macon, GA (1892–2020) observed their wettest and second wettest April day on record, with 5.92 and 4.41 inches (150 and 112 mm) of rainfall, respectively. From May 19th through the 21st, a slow-moving upper-level low ushered in a deep stream of moisture across the western Carolinas and southwestern Virginia, with 72-hour precipitation totals exceeding 8 inches (203 mm) and numerous reports of localized flooding. Roanoke, VA (1912–2020) reported 8.32 inches (211 mm) of rainfall during this event, which is its fourth wettest 3-day rainfall total for any month on record. Roanoke also observed its longest streak of 3 consecutive days with at least 2 inches (51 mm) of precipitation. The Roanoke River crested almost 6 feet (1.8 meters) above flood stage on May 21st, sending water rushing onto some roadways and making them impassable. On August 31st, a line of slow-moving thunderstorms brought over 5 inches of rainfall to Johnston County, NC, where a 5-year-old girl and her 4-year-old brother were swept away in floodwater. Annual snowfall accumulations were below average across much of the Southeast region, particularly in the higher elevations of North Carolina and Virginia. Washington, D.C. (1884–2020), Blacksburg, VA (1893–2020), and Mt. Mitchell, NC (1925–2020) recorded 0.2, 10.2, and 64.2 inches (5, 259, and 1,631 mm) of snowfall during the year, which is 17.9, 12.5, and 13.2 inches (455, 318, and 335 mm) below their long-term averages, respectively. Washington, D.C. observed its lowest annual snowfall total since records began in 1884, while Washington Dulles International Airport, VA observed its third lowest annual snowfall total (4.7 inches, 119 mm) since records began in 1962. On January 31st, Charlotte, NC continued its record of reporting at least a trace of snow in every winter season since 1878. On December 16th, a winter storm produced freezing rain, sleet, and snow across portions of North Carolina, Virginia, and Washington, D.C. Freezing rain accumulations of 0.05 to as much as half of an inch (1 to as much as 13 mm) occurred in central and western portions of North Carolina, as well as southwestern, central, and northern parts of Virginia. Snowfall totals of 2 to more than 8 inches were found across portions of northern Virginia, with the greatest accumulation of 11.5 inches (292 mm) measured in Bayse, VA. About 200 vehicle crashes and 125 disabled vehicles were reported by the Virginia State Police along I-81 and across northern Virginia. In addition, about 36,000 homes and businesses in Virginia were without power following the height of the storm. Early on December 25th, snow flurries were reported as far south as Charleston International Airport, SC, which is only its second trace of snowfall on Christmas Day since 1938. In addition, Augusta, GA (1871–2020) observed only its second trace of snowfall on Christmas Day since records began 149 years ago. With 1.1 inches (28 mm) of snow on the 25th, Asheville, NC (1869–2020) observed its fifth highest snowfall on Christmas Day since records began 151 years ago.

- Thirteen tropical cyclones (Tropical Storm Arthur, Tropical Storm Bertha, Tropical Storm Cristobal, Tropical Storm Fay, Hurricane Isaias, Tropical Storm Kyle, Hurricane Laura, Hurricane Marco, Hurricane Sally, Tropical Storm Beta, Hurricane Delta, Hurricane Zeta, and Tropical Storm Eta) brought high winds, heavy rainfall, inland flooding, storm surge, and tornadoes to widespread portions of the Southeast region, including Puerto Rico and the U.S. Virgin Islands. The precursor disturbance to Tropical Storm Bertha caused a significant multi-day rainfall event across southern Florida, with accumulations of more than 8 inches in several locations. On May 26th, Miami, FL observed a 24-hour rainfall total of 7.40 inches (188 mm), which is its third wettest May day on record. From July 29th through the 30th, Tropical Storm Isaias impacted parts of Puerto Rico, with over 9 inches (229 mm) of rainfall recorded in Juncos. On the 30th, San Juan (1898–2020) observed its second wettest July day on record, with 4.46 inches (113 mm) of precipitation. Numerous fallen trees, mudslides, and river flooding were reported in southwestern Puerto Rico, according to local emergency management officials. Strengthening to a hurricane, Isaias made landfall near Ocean Isle Beach, NC on August 3rd, with peak sustained winds of 85 mph (38 m/s) and a maximum wind gust of 99 mph (44 m/s) in Federal Point, NC. The 8.5–9.5 feet (2.6–2.9 meters) of storm surge destroyed many sand dunes and sea turtle nests in Oak Island, NC. A total of 22 tornadoes were spawned by Isaias, including a rare EF-3 tornado that caused 2 fatalities and 14 injuries in Bertie County, NC on August 4th. Hurricane Sally made landfall near Gulf Shores, AL on September 16th, with peak sustained winds of 105 mph (47 m/s) and a maximum wind gust of 121 mph (54 m/s) reported at Fort Morgan, AL. However, from the 12th through the 16th, Sally impacted parts of Florida with numerous reports of localized flooding, resulting in several road closures, stalled vehicles, and water entering multiple residences and businesses. Key West, FL (1871–2020) received 9.37 inches (238 mm) of rainfall from the storm on the 12th, which is its fifth wettest day for any month on record. Of this 24-hour precipitation total, Key West observed 3.95 inches (100 mm) in a single hour, which is its second highest hourly rain rate ever recorded. On the 16th, Pensacola, FL observed its fourth wettest day for any month on record, with 11.85 inches (301 mm) of rainfall. In addition, storm surge flooding reached 5.6 feet (1.7 meters) in Pensacola, which is the third highest storm surge ever recorded in the city. There were 8 fatalities attributed to Hurricane Sally, including a 45-year-old female kayaker who had gone missing at the height of the storm. After making landfall near Creole, LA on October 9th, the remnants of Hurricane Delta impacted parts of the Southeast with heavy rain and flooding. Atlanta, GA (1878–2020) received 4.55 inches (116 mm) of rainfall from Delta on the 10th, making it the second wettest October day on record. A total of 13 tornadoes were spawned by Delta, including an EF-1 tornado that injured 2 people at a homeless shelter in Newton County, GA on October 10th. Hurricane Zeta made landfall near Cocodrie, LA on October 28th, with a wind gust of 91 mph (41 m/s) reported in Mobile, AL. Farther inland, winds gusted over 50 mph (22 m/s) in northern Georgia, Upstate South Carolina, and North Carolina, resulting in widespread downed trees and power outages. There were 8 fatalities from Hurricane Zeta, including in Acworth, GA where a large oak tree was uprooted and fell onto a mobile home, killing a man. From November 8th through the 12th, Tropical Storm Eta produced 5 to more than 10 inches (127 to more than 254

mm) of rainfall across portions of west-central and southern Florida. On the 9th, Fort Lauderdale, FL observed its third wettest November day on record, with 7.30 inches (185 mm) of precipitation. On the 11th, Sarasota-Bradenton, FL (1911–2020) observed its wettest November day on record, with 6.41 inches (163 mm) of rainfall. Numerous roads in the urbanized corridor of southeastern Florida became impassable due to flooding, with many reports of stalled or submerged vehicles. In Pinellas County, FL, sheriff deputies rescued 33 people from flooded homes and stalled vehicles. A man in Bradenton Beach, FL was electrocuted when he touched an appliance while standing in floodwater. On November 11th and 12th, the interaction of moisture surging northward from Tropical Storm Eta and an approaching cold front produced 3 to more than 8 inches (76 to more than 203 mm) of rainfall across much of the Carolinas and Virginia. A pocket of extreme rainfall occurred in the Rocky Mount-Wilson area of eastern North Carolina, with a 2-day total of 9.84 inches (250 mm) recorded at Rocky Mount-Wilson Regional Airport. On the 11th, Rocky Mount-Wilson Regional Airport, NC (2000–2020) observed its second wettest day for any month on record, with 6.02 inches (153 mm) of precipitation. On the 12th, Appomattox, VA (1937–2020) and Concord 4 SSW, VA (1950–2020) observed their second and third wettest day for any month on record, with 7.28 and 6.85 inches (185 and 174 mm) of precipitation, respectively. Hundreds of roads were flooded across these states, including the closure of I-95 near Wilson, NC. Dozens of swift water rescues were performed by emergency personnel, with five flood-related fatalities reported at a campground in Alexander County, NC. Several landslides occurred along the foothills of western North Carolina and southwestern Virginia.

- There were 3,843 severe weather reports across the Southeast region during the year, which is over 130 percent of the median annual frequency of 2,936 reports during 2000–2019. About 30 percent (1,154 of 3,843) of these reports were observed during April. The fewest number of reports occurred in South Carolina (510; 13 percent of total), while the greatest number was recorded in Georgia (873; 23 percent of total). Strong thunderstorm winds accounted for about 85 percent (3,256 of 3,843) of the severe weather reports and caused at least 10 fatalities and 34 injuries across the region. On January 11th, a thunderstorm wind gust of 75 mph (34 m/s) in Greene County, AL blew a very large tree down onto the water main in Forkland, and many thousands of gallons of water spilled out of the water tower. On January 13th, a microburst damaged a school in Sampson County, NC. Damage in the form of snapped and uprooted trees occurred to the west of the school, along with the more significant roof uplift and partial outer wall collapse of the school's gymnasium. The maximum wind speed was estimated at 85 mph, and three injuries were associated with the microburst. On May 5th, damaging straight-line winds and an associated gustnado were observed in Lancaster County, SC, with the highest estimated gust of 105 mph. On December 24th and 25th, an extensive squall line associated with a vigorous cold frontal passage produced convective wind gusts exceeding 45 mph (20 m/s) along coastal portions of the region, including 49 mph (22 m/s) at Charleston International Airport, SC, 59 mph (26 m/s) at Brunswick Golden Isles Airport, GA and Tampa International Airport, FL, 61 mph (27 m/s) at Newport News/Williamsburg International Airport, VA, and 64 mph (29 m/s) at Billy Mitchell Airport on Cape

Hatteras, NC. In addition, a 55-mph (25-m/s) wind gust reported at Gainesville Regional Airport, FL was the highest gust observed during the month of December since records began in 1973, breaking the old record of 46 mph (21 m/s) set on December 24, 2014. The highest thunderstorm wind gust recorded during the year was 84 mph (38 m/s), which was measured near Mountain Lake, VA as a squall line moved through southwestern Virginia on April 8th. The largest hailstones observed during the year were teacup-sized (i.e., 3-inch or 76-mm diameter), which were reported in Vernon, AL on March 29th, Darlington County, SC on May 5th, and Lake Mary, FL on May 21st. A total of 299 tornadoes (8 unrated, 123 EF-0s, 125 EF-1s, 31 EF-2s, 11 EF-3s, 1 EF-4) were confirmed across the Southeast during the year, which is the sixth highest annual tornado count for the region since modern records began in 1950. Twenty-five fatalities and at least 166 injuries were caused by tornadoes during the year. Nearly half (138 of 299) of the tornadoes occurred during April, which had the third highest monthly count of tornadoes across the region behind April 2011 (226) and September 2004 (247). Sixty-one tornadoes were confirmed in South Carolina, which is the state's second highest annual count behind the 86 tornadoes observed during 2004. On April 13th, the strongest tornado of the year across the Southeast region occurred in Hampton County, SC. This EF-4 tornado, with a path length of more than 24 miles (39 km) and a maximum path width of 1,300 yards (1,189 meters), damaged and destroyed many residences, including mobile and single-family homes. The damage pattern suggested that this tornado may have had multiple vortices, which can occur with the strongest tornadoes. There were five fatalities and 65 injuries associated with this tornado, many of which occurred in the hardest hit areas just south of Estill, SC. This was the first EF-4 tornado in South Carolina since 1995, and it was the second of 12 tornadoes in a tornado family that traveled over 150 miles (241 km) from Middleground, GA to Murrells Inlet, SC. Of the 17 lightning fatalities across the United States during the year, seven occurred within the Southeast region, which is below the median annual frequency of 11 fatalities from 2000–2019. On August 5th, a 42-year-old man and a 77-year-old man were struck and killed while cleaning up debris from Hurricane Isaias in Wilmington, NC.

- Drought was largely absent across the Southeast region due to extensive periods of above-average precipitation during the year, but an episode of moderate-to-severe (D1–D2) drought did impact much of Florida and coastal Alabama from spring through early summer. From the beginning of January through mid-March, a pocket of moderate-to-severe drought persisted along the eastern half of the Florida Panhandle. Drought conditions expanded in coverage and intensified rapidly over the next month, with moderate-to-severe drought covering 83 percent of Florida by mid-April. By the middle of May, the coverage in drought was significantly reduced across Florida, but areas of severe drought remained in southwestern Florida and coastal Alabama. The area of drought in southwestern Florida persisted until early June, while the area of drought in coastal Alabama lasted until late June. Through the end of summer, most of the Southeast region remained drought-free, except for a few short-lived pockets of moderate drought in portions of northern and coastal Virginia, Georgia, southeastern Alabama, and west-central Florida. From late August through the end of the year, the mainland portion of the Southeast region remained completely drought-free for the

first time since 2004. In Puerto Rico, moderate drought developed in mid-May and continued to intensify and expand in coverage through the early summer. Peaking in intensity in early July, moderate-to-severe drought conditions covered over half of the island. However, the drought was rapidly eliminated by beneficial rainfall from Tropical Storm Isaias at the end of July. A few small pockets of moderate drought developed in north-central Puerto Rico during late December. While agricultural and livestock production was satisfactory across much of the Southeast during the year, exceptional wetness and numerous landfalling tropical cyclones did produce some significant impacts. During January and February, many cattle producers were forced to rely on supplemental feedings of hay due to excessively wet pastures. Livestock producers in Georgia had to travel far to buy hay since supplies were short from the drought conditions in autumn 2019. Strawberry growers in Florida reported higher-than-normal fungal disease pressure and pest pressure due to unusual warmth in January and February. During the spring, wet conditions across portions of the Southeast disrupted the application of herbicides, fertilizers, and nutrients to fields. In Georgia, the blueberry crop was badly damaged by severe weather in April. Prolonged dryness in April and May led to an outbreak of numerous wildfires across Florida. One of the largest fires burned over 8,600 acres in Collier County and forced a portion of I-75 to close. Multiple residences were destroyed by this fire, and many residents were told to evacuate the area. During the summer, a persistent influx of tropical moisture and high humidity across much of the Southeast increased disease pressure on crops, with white mold and fungus reported on peanuts in Georgia and Florida. Excessive rainfall, paired with high humidity, in Georgia slowed the drying down of corn, with many farmers battling whiteflies and boll rot in cotton. In September, many farmers in the Florida Panhandle and southern Alabama reported a loss of cotton, peanuts, and pecans due to the passage of Hurricane Sally. Peanuts in the Florida Panhandle were unable to be dug due to rainfall from Sally, and farmers noted that fungal disease and rotting would affect the quality of the harvest. In many fields in southern Alabama, Hurricane Sally blew down the cotton crop when bolls had yet to open. Nearly 40 percent of the cotton crop in Alabama contained seed coat fragments, which is a sprouting or deterioration of the seed that occurs under extended wet conditions, reducing the quality of the cotton fiber. Pecan production was substantially impacted for this year's crop, as many immature nuts were blown to the ground. In addition, hundreds of pecan trees were uprooted across southern Alabama, with some of the losses occurring in 90-year-old orchards. In October, Hurricane Zeta caused additional cotton losses in Georgia and the Florida Panhandle, as heavy rainfall led to an increase in boll rot. In Alabama, greenhouses and plastic bedding on vegetables were significantly damaged by Zeta's high winds. Following the passage of Tropical Storm Eta in November, vegetable crops in southern Florida were severely damaged, with estimated costs ranging from \$85 to as much as \$320 million. The timing was particularly bad for farmers that were in the midst of harvesting a variety of vegetable crops bound for holiday tables, including sweet corn, green beans, lettuce, cabbage, and radishes. In parts of North Carolina, the soybean harvest was delayed due to heavy rainfall and flooding from Eta, while newly seeded livestock pastures sustained damage. During the fall, some Florida citrus growers reported extremely heavy fruit drop within their groves, which was partially attributed to premature blooming during the winter 2019–2020 season as well as a

persistence of heavy rainfall throughout the year. Heavy rainfall during early December saturated vegetable fields in southern Florida, resulting in crop losses, increased disease pressure on lettuce and beans, and bloom dropping in pepper and tomato plants. Vegetable and citrus growers in southern Florida had to pump excess water out of their fields due to the persistent rainfall. While cotton producers in the Florida Panhandle continued their harvest, some noted that cotton yields were particularly poor this year from excessively wet weather. In central and eastern portions of South Carolina, heavy rainfall delayed the harvesting of row crops and the planting of small grains and cover crops. Prolonged saturated soil caused some farmers to abandon portions of their soybean and cotton fields. Wet weather continued to delay field work across North Carolina, with reports of negative impacts on the wheat crop due to waterlogged soils. Several nights of frost and freezing temperatures during the month caused some grass damage in pastures across northern and central Florida, while low-lying areas of pastures in southern Florida sustained flooding. Persistent rainfall in the Pee Dee region of South Carolina caused some health issues in livestock, including coccidia, pneumonia, and salmonella.