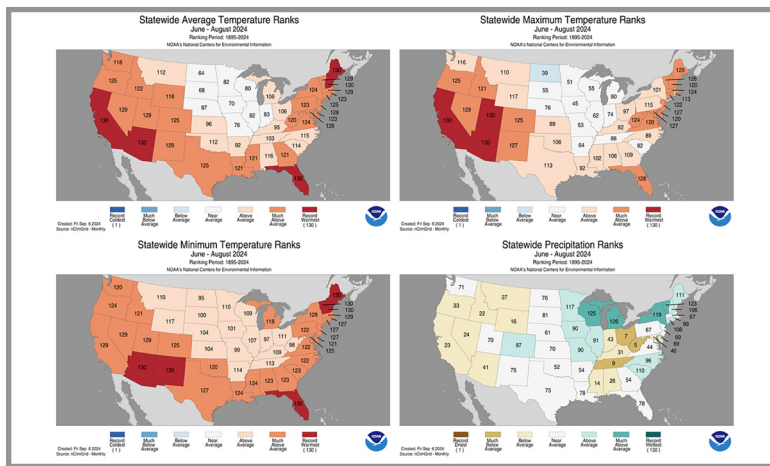




National and Regional Weather Highlights for Summer 2024



Temperatures were **above average** across the Southeast. Regionally, it was the 6th warmest summer on record, with **Florida tying its warmest summer on record**. Precipitation was variable. June was dry, with **Virginia recording its driest June on record**. Precipitation was above average in July, except in Florida. **Hurricane Debby led to above average precipitation in Virginia and the Carolinas in August**, while **Alabama recorded its driest August on record**. Temperatures and precipitation were above average across the Caribbean. Drought was eliminated in South Florida but emerged across the interior of the region. For more information, see [NOAA's National Climate Report](#).

Highlights for the Southeast

On July 5th, Raleigh-Durham, NC recorded its **all-time highest temperature** of 106 degrees F and **all-time highest heat index** of 117 degrees F.

Punta Gorda, FL recorded its **warmest month on record** in July.

Hurricane Debby dropped 22.02 inches of rain in Moncks Corner, SC from August 5th-9th, which ranks as the **2nd highest rainfall total** from a tropical cyclone in the state since 1956.

An **EF-3 tornado** caused extensive damage and killed one person in eastern NC on August 8th. This was only the third EF-3 or greater tornado associated with a tropical cyclone in the state since 1950.

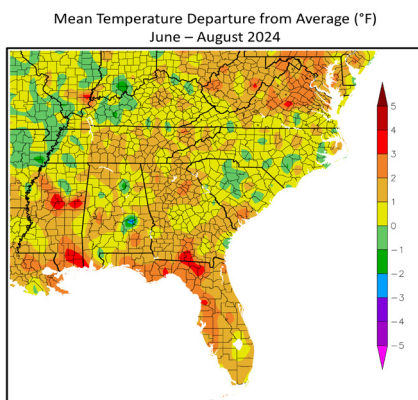
Hurricane Ernesto caused significant damage and led to numerous power and water outages across PR and the USVIs in mid-August.

There were [21 rip current fatalities](#) and [four lightning fatalities](#) in the region this summer.

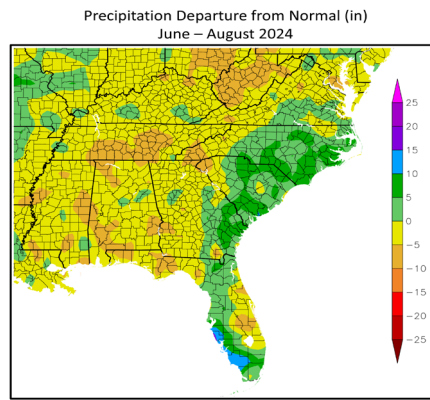
ENSO-neutral conditions are present, and **La Niña** is expected to develop this autumn and persist through the upcoming winter.

Regional Weather Overview for Summer 2024

Temperature and Precipitation Anomalies

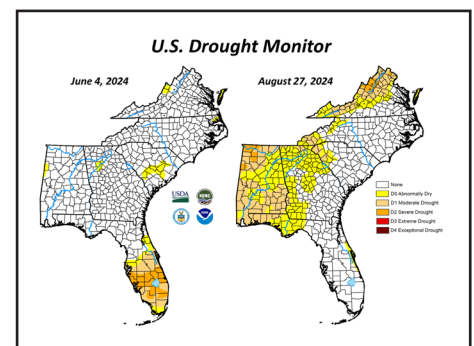


Temperatures were **above average across most of the Southeast**, particularly in parts of VA, FL, and southern GA, where some locations were **more than 3 degrees F above average for the season**. A few long-term stations, including Roanoke, VA, Tallahassee, FL, Punta Gorda, FL, and Fort Lauderdale, FL tied or recorded their **warmest summer on record**. Temperatures were near average across the Carolinas and central parts of AL.



Precipitation was **variable** this summer. The wettest locations extended from South FL to eastern VA, where seasonal totals were **5 to 10 inches above average**, with parts of southwest FL **more than 15 inches above average**. Sarasota and Fort Myers recorded their **wettest summer on record**. The driest locations were found across the interior and western portions of the region, where **seasonal deficits of over 10 inches** were observed. Some locations recorded [one of their top 5 driest summers on record](#).

Drought

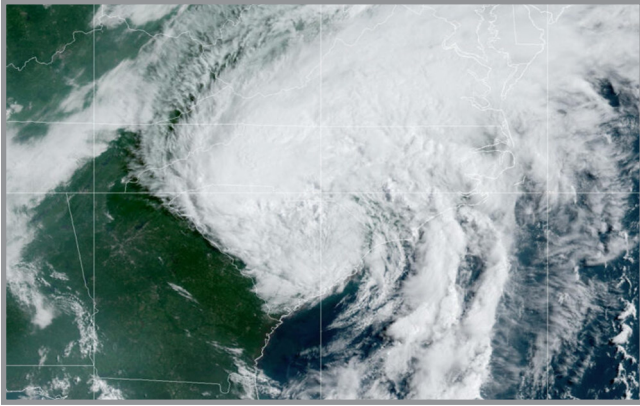


Summer began with **moderate (D1) and severe (D2) drought** across South FL and small pockets of abnormal dryness (D0) scattered across the rest of the region. Drought rapidly developed and intensified during the first part of summer, with **more than 50% of the region in at least moderate (D1) drought by early July**. Areas of **extreme (D3) drought** emerged across northern portions of AL and VA, and eastern portions of the Carolinas. Above average precipitation later in the summer, highlighted by Hurricane Debby, **eliminated drought** in the eastern half of the region, while **moderate (D1) and severe (D2) drought persisted** across the interior of the region.



Regional Climate Impacts for Summer 2024

Hurricane Debby Strikes the Southeast



Debby over the Carolinas on August 8th (source: [NC SCO](#))

On the morning of August 5th, **Hurricane Debby** made landfall in the Big Bend region of FL with winds of 80 mph. **Storm surge** of over 2 feet was measured across western portions of the Peninsula. Significant **beach erosion** was reported, and **numerous roads were closed**. After moving inland, Debby weakened to a tropical storm, then moved into the Atlantic Ocean. Debby made a **second landfall** near Bulls Bay, SC on August 8th. Tropical storm force winds were recorded from southwest FL through central NC, leaving **more than 300,000 customers without power**. Heavy rain resulted in **catastrophic flash flooding** that inundated homes and roadways and forced **numerous evacuations and water rescues**. Several rivers across the Carolinas remained in **flood stage** up to two weeks after the storm. Debby produced **21 tornadoes**, including three strong tornadoes, one of which was fatal. There have been **10 confirmed fatalities** from Debby, with damage estimates around **\$2 billion**.

Severe Weather

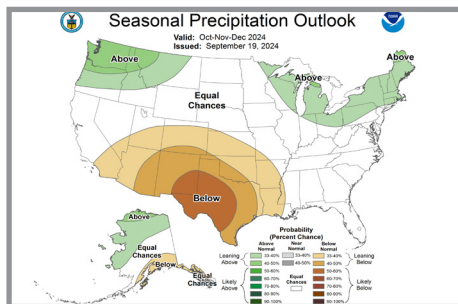
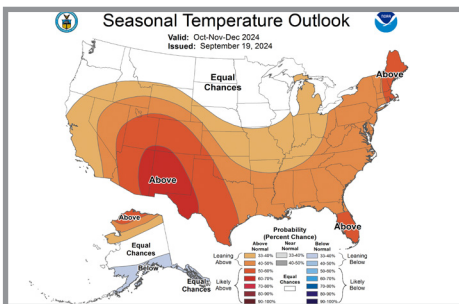
There were **1,538 reports of severe weather** this past summer, which is just below the median summer frequency observed between 2000 and 2023. There were **32 confirmed tornadoes** (11 EF-0s, 18 EF-1s, 2 EF-2s, 1 EF-3), which is just above the median summer frequency. Many of these occurred in association with **Hurricane Debby** in early August. For the season, there were **1,453 reports of high winds**, which is just below the median summer frequency. Wind gusts up to **95 mph** caused significant damage to a campground in northern AL on August 2nd. There were also **53 hail reports**, which is below the median summer frequency. The **largest hailstones were 2.5 inches** (tennis ball-sized) in Glennville, GA on June 10th and in Sterling, VA on August 29th.

Agriculture and Livestock

Periods of **hot and dry weather** severely affected agriculture in the region. Moisture deficits during critical pollination stages led to **poor corn yields**. The heat and lack of moisture also **hindered the growth of soybeans, sorghum, tobacco, cotton, and peanuts**, and caused significant declines in egg production. Army worm **infestations** damaged hayfields and pastures. Dry weather **delayed the maturity of hay**, with many farmers completing only one cutting. Pastures in many places had little grass, forcing producers to use **supplemental feed** while also worrying about **heat stress on livestock**. Increased precipitation later in summer improved conditions in places, but also introduced new pressures, including **pests and diseases**. The rain from **Hurricane Debby** led to flooding, soil erosion, and crop damage, but also benefited some crops in parts of eastern NC and central VA.

Regional Climate Outlook for Autumn 2024

Temperature and Precipitation

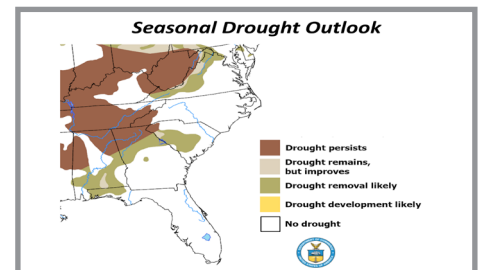


[NOAA's Climate Prediction Center \(CPC\)](#) is forecasting **above average temperatures** across the Southeast from October-December. Probabilities are 40-50% across the region, except in Florida, where the probability is higher (50-60%). There are **equal chances of above or below average precipitation** across the region this autumn.

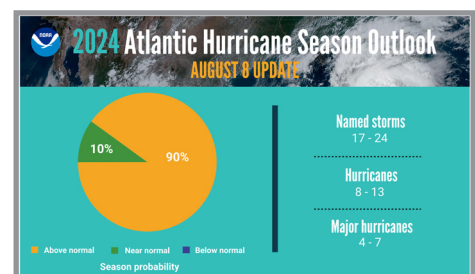
Atlantic Hurricane Season

The [mid-season outlook](#) issued on August 8th predicted an **extremely active season**, with as many as 24 named storms (there have been seven as of September 19th). Eight to 13 of these could become hurricanes (there have been four so far), and four to seven could become major hurricanes (there has been one so far). The updated outlook continued to reflect a **combination of favorable conditions**, including very warm ocean temperatures in the Atlantic Basin, reduced wind shear, weaker trade winds, and a strong west African Monsoon. The **dry Saharan air** that limited development earlier in the season is expected to subside.

Drought

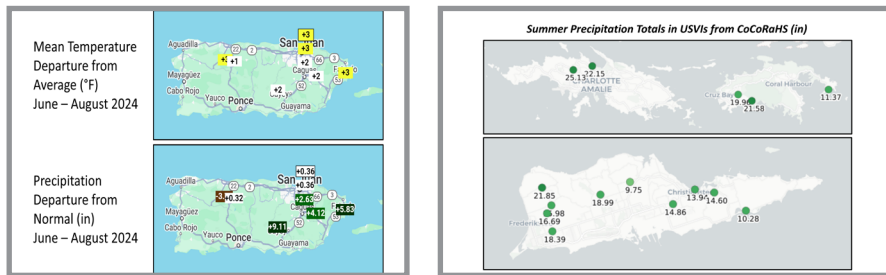


Drought is **expected to persist** across northern portions of AL and GA, and extreme western portions of the Carolinas and VA. **Improvements are expected** from northwest FL through central portions of AL and GA, and western portions of VA.



Caribbean Climate Overview and Impacts for Summer 2024

Temperature and Precipitation Anomalies

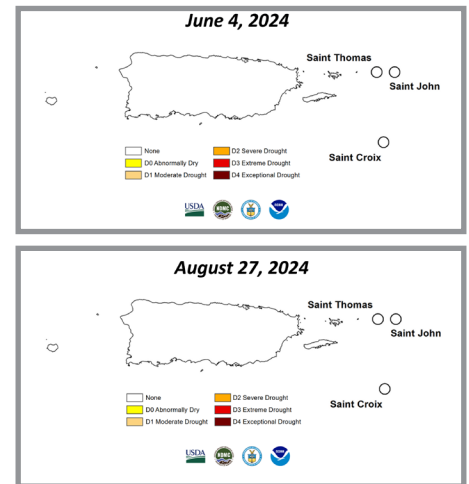


Temperatures were **above average** across PR and the USVIs. San Juan, PR recorded its **warmest summer on record** (since 1898). Several other locations recorded **one of their warmest summers on record**. **Excessive heat warnings** were issued on **more than a third of the days**, with heat indices reaching 120 degrees F in parts of PR. Through mid-September, San Juan has recorded over 2,300 hours with a heat index of at least 93 degrees F, which is less than 50 hours shy of the all-time annual record set just last year (since 1973). Precipitation was **above average** across much of the Caribbean. **Hurricane Ernesto** dropped over 10 inches of rain across the region in mid-August. Most CoCoRaHS gauges in the USVIs recorded 10-20 inches for the season, which is **2 to 3 times the average seasonal totals** based on data from long-term stations in the region.

Agriculture and Water Resources

Streamflows were **normal to above normal** across PR and the USVIs this summer. Most reservoirs, ponds, and wells were at **optimal levels**, some at their highest levels in over three years. Much of the vegetation that was impacted during last year's drought has **recovered**. However, some areas received **too much precipitation**, particularly from Hurricane Ernesto, resulting in **flooded fields and soil erosion**. Many crops, including fruit trees, were **damaged or washed away**. The saturated soil combined with heat and humidity contributed to **mold, fungus, weeds, and pests**, particularly among specialty crops. **Flooded roads and landslides** also prevented farmers from accessing their fields. In places that missed out on the precipitation, such as southern portions of PR, grasses and pastures dried up, leading to **forage shortages for livestock**.

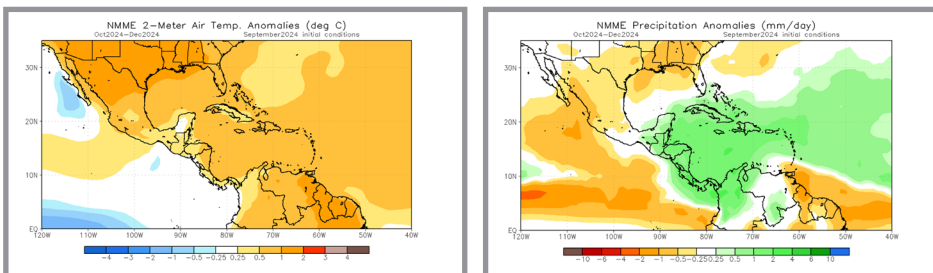
Drought



The Caribbean remained **free of drought and abnormal dryness** this summer, continuing a trend that began in PR in late April and in the USVIs in late February. For PR, this is the **longest such stretch since May 2018**. For the USVIs, this is the **longest such stretch since the U.S. Drought Monitor was introduced there in 2019**. A series of tropical disturbances, as well as the passage of Hurricane Ernesto, contributed to **a wet pattern across the Caribbean** over the past several months.

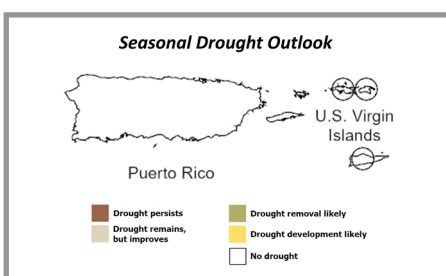
Caribbean Climate Outlook for Autumn 2024

Temperature and Precipitation



According to the **North American Multi-Model Ensemble (NMME)**, **above-average temperatures and precipitation** are expected across the Caribbean during the October-December period.

Drought



According to the CPC and **Caribbean Climate Outlook Forum**, there is high confidence that the PR and the USVIs will **remain drought-free through autumn and into early winter**. Factors include above average precipitation over the past several months and the expectation of above average precipitation this autumn.

Southeast Region Partners

- [National Oceanic and Atmospheric Administration](#)
- [National Centers for Environmental Information](#)
- [National Weather Service Eastern Region](#)
- [National Weather Service Southern Region](#)
- [Climate Prediction Center](#)
- [National Hurricane Center](#)
- [National Integrated Drought Information System](#)
- [Carolinas Integrated Sciences and Assessments](#)
- [National Sea Grant Office](#)
- [Southeast and Caribbean Regional Collaboration Team](#)
- [State Climatologists](#)
- [Southeast Regional Climate Hub](#)
- [Southeast Climate Science Center](#)
- [Community Collaborative Rain Hail and Snow Network](#)

