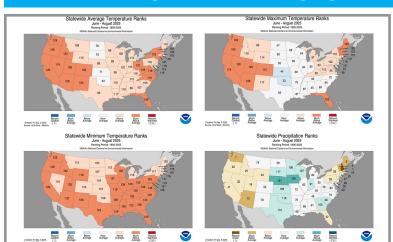
Quarterly Climate Impacts and Outlook

Southeast Region

September 2025

National and Regional Weather Highlights for Summer 2025



Temperatures were **above average** overall in summer but varied by month. July was the <u>warmest on record</u> for the Southeast and <u>2nd warmest all-time</u>. August was unusually cool, except in FL, with SC recording its **coldest average maximum temperature**. Precipitation was above average in GA and SC but below average in FL. June and August were mostly wet, while July was dry, especially in AL (**6th driest**), but very wet in VA (**6th wettest**). Caribbean temperatures were **above average**, while precipitation was variable. Much of the Southeast remained **drought-free** except southern AL and FL. For more information, see <u>NOAA's National Climate Report</u>.

Highlights for the Southeast

Asheville, NC tied its warmest month on record in July (since 1869).

Chapel Hill, NC recorded 8 inches of rain during Tropical Storm Chantal on July 6th, making it the wettest day on record (since 1891).

On July 18th, Raleigh-Durham, NC tied its **all-time highest minimum temperature** of 80 degrees F (since 1887).

Tampa, FL recorded its **first 100 degree F temperature on record** (since 1890) and **highest heat index on record** (since 1937) of 119 degrees F on July 27th.

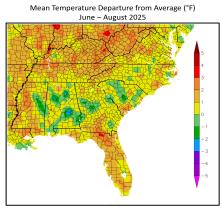
After recording one of their warmest months on record in July, numerous locations recorded **one of their coldest Augusts** on record, and **one of their coldest summer months in over 30 years**.

There were <u>17 surf zone fatalities</u> and <u>five lightning fatalities</u> in the Southeast this summer.

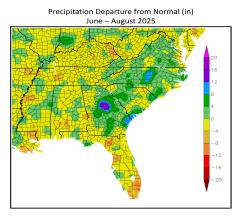
ENSO-neutral persists, and **La Niña** is <u>likely to</u> <u>develop</u> by the end of the year (71% chance) and possibly persist through winter (54% chance).

Regional Weather Overview for Summer 2025

Temperature and Precipitation Anomalies

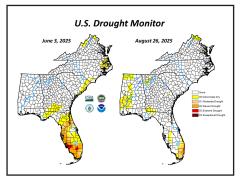


Temperatures were **near average** across much of the interior of the Southeast, with some parts of AL, GA, and the Carolinas running **up to 2 degrees F below average** for the season. In contrast, temperatures were **above average** across the northern and southern ends of the region. Several long-term stations in FL, including Jacksonville, Gainesville, Tampa, and West Palm Beach, recorded <u>one of their top 5 warmest summers on record</u>.



Precipitation was above average across most of the region, particularly across GA, the Carolinas, and VA, where seasonal totals were 5 to 10 inches above average, with some locations running more than 12 inches above average. In contrast, precipitation was below average across eastern portions of GA and VA, and much of AL and FL, where seasonal deficits of 5 to 10 inches, or only about 50% of expected totals, were observed.

Drought



Summer began with severe (D2) to extreme (D3) drought across the FL Peninsula and moderate (D1) drought across the coastal Carolinas. By late June, nearly 90% of the region was free of drought or dryness. Drier conditions in July brought abnormal dryness (D0) from the Gulf Coast to the Carolinas, with moderate (D1) drought returning to parts of AL, GA, and SC. Much of this was erased later in the season as cooler, wetter conditions prevailed. Significant improvements were also observed across the FL Peninsula. Latesummer dryness led to a return of moderate (D1) drought in parts of AL, with abnormal dryness (D0) emerging across northern VA.



Regional Climate Impacts for Summer 2025

Chantal and Erin Impact the Southeast



Waves from Erin batter the Outer Banks (source: NC SCO)

The 2025 Atlantic hurricane season had a relatively quiet start, but Tropical Storm Chantal in July and Hurricane Erin in August brought significant impacts to the region. Chantal made landfall just south of Myrtle Beach, SC on July 6th. Rainfall amounts up to 12 inches were recorded in central NC. Flash flooding inundated roads, bridges, businesses, and homes. Several rivers shattered records, including the Eno River, which crested over 23 feet. Six flood-related fatalities were confirmed, and overall damages exceeded \$50 million. On August 16th, Hurricane Erin underwent the 3rd largest 24-hour pressure drop on record in the Atlantic. Its outer bands brought heavy rain, tropical storm-force winds, and heavy surf over 10 feet to parts of PR and the USVIs. Nearly 150,000 customers lost power. As it tracked north, Erin generated 15 to 20 foot waves along the Outer Banks, resulting in dune breaches and major overwash across Highway 12. Over 70 rip current rescues

Severe Weather

There were **2,009** reports of severe weather this past summer, which is above the median frequency between 2000 and 2024 (116 percent of normal). There were **14** confirmed tornadoes (2 EF-Us, 4 EF-0s, 8 EF-1s), which is about half of the median summer frequency. At least five of these occurred in association with Tropical Storm Chantal in early July. For the season, there were **1,902** reports of high winds, which is above the median summer frequency. Wind gusts over **90** mph were recorded from a line of thunderstorms that moved across northern portions of AL, GA, and SC on June 7th. Dozens of homes were severely damaged, numerous vehicles were destroyed, and at least one person was killed. There were also **93** hail reports, which is about half of the median summer frequency. The largest hailstones were **1.75** inches, or golf ball-sized, in parts of AL and SC on June 25th.

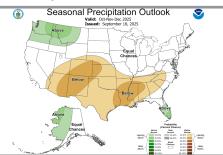
Agriculture and Livestock

Agricultural conditions were marked by rapid crop development, variable moisture availability, and heightened disease pressure. June brought mostly favorable growing conditions, with cotton, peanuts, and wheat advancing ahead of schedule, though excessive rainfall in some areas caused stand issues and fungal outbreaks. Frequent rain and heat spurred early crop growth in July, but also worsened disease and insect damage, with Tropical Storm Chantal resulting in major losses in central NC. Dry conditions in parts of GA and SC stressed peanuts, soybeans, and pastures, while periods of extreme heat depleted farm ponds and reduced hay yields. A shift to cooler, wetter conditions in August eased drought stress and supported pastures, but persistently high humidity promoted foliar diseases in soybeans, cotton, and pecans.

Regional Climate Outlook for Autumn 2025

Temperature and Precipitation





NOAA's Climate Prediction Center (CPC) is forecasting above average temperatures across the Southeast from October to December. Probabilities are highest in South FL (50-60%). Below average precipitation is expected across the interior of the region, while much of the FL Peninsula is leaning above average.

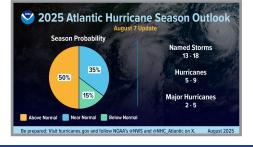
Atlantic Hurricane Season

The mid-season outlook issued on August 7th continued to predict above-normal activity, with as many as 18 named storms (there have been seven as of September 18th). Five to nine of these could become hurricanes (there has been one so far, Hurricane Erin), and two to five could become major hurricanes (Erin was also a major hurricane). The updated outlook continued to reflect mostly favorable conditions, including above average ocean temperatures and less wind shear, though some of these have waned recently. Combined with drier air and Saharan dust, this has led to a lack of storms during the peak of the Atlantic hurricane season.

Drought



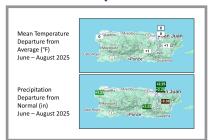
Drought is expected to **persist** across the Gulf Coast, as well as eastern portions of the Carolinas and much of VA, while **new development** is expected across western portions of GA and much of AL. Drought **removal** is expected across South FL.

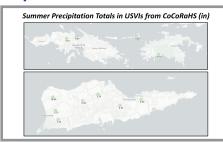




Caribbean Climate Overview and Impacts for Summer 2025

Temperature and Precipitation Anomalies





Temperatures were mostly **above average** across PR and the USVIs. Aibonito, PR (1906-2025) tied its **5th warmest summer**, while Coloso (1899-2025) recorded one of its **top 10 warmest summers**. Precipitation was **variable**, with generally below average totals in June and July and above average totals in August. **Hurricane Erin** dropped 4 to 7 inches across much of the region, with some locally higher amounts. The wettest locations were in western PR, where some places recorded **over 25 inches for the season**. In contrast, **dry conditions** prevailed across the eastern interior, with some locations recording just half of their expected seasonal totals. Juncos, PR (1931-2025) recorded its **2nd driest summer** with 10.14 inches. Precipitation was **above average** on Saint Thomas and Saint John but **below average** across much of Saint Croix.

Agriculture and Water Resources

Rainfall from Hurricane Erin brought relief to parts of PR, improving soil conditions and easing crop stress across the interior and western regions. However, intense downpours also triggered flash flooding and landslides. In contrast, drier conditions were observed in the central and eastern interior, where many crops showed signs of heat stress. Despite the dryness, reservoir levels remained adequate. The southeast also stayed dry, with groundwater below optimal levels. Northern areas saw improved soil moisture and new crop growth. The southwest saw replenished soil moisture that helped pastures recover. The west, which received the heaviest rain, faced flooding, as well as weed, pest, and fungal concerns in many crops. On Saint Thomas and Saint John, farm ponds were full, vegetation and crops were improving, and livestock was healthy. Saint Croix remained mostly dry, missing out on the rain from Erin.

Drought

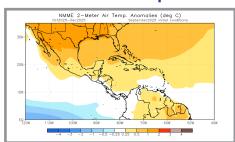


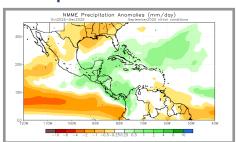


Dry conditions in June led to abnormal dryness (D0) in PR for the first time since November. These conditions persisted along the northwest and southern coasts through mid-summer, with dryness emerging in the eastern interior. Moderate (D1) drought returned in August for the first time in over six years but was eliminated by the end of the season. In the USVIs, abnormal dryness (D0) re-emerged in July, with moderate (D1) drought developing on Saint Thomas and Saint Croix for the first time in over a year. By the end of the season, drought and dryness were eliminated on Saint Thomas and Saint John but persisted on Saint Croix.

Caribbean Climate Outlook for Autumn 2025

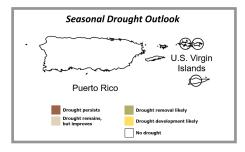
Temperature and Precipitation





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

Drought



According to the CPC and <u>Caribbean</u> <u>Climate Outlook Forum</u>, PR and the USVIs are expected to <u>remain drought-free</u> through autumn and into early winter. Factors include the expectation of above average precipitation, the seasonal transition period, and potential for above-normal tropical activity.

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

<u>Carolinas Integrated Sciences and Assessments</u>

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



Perspectiva General del Clima e Impactos en el Caribe Durante el Verano de 2025

Anomalías de Temperatura y Precipitación





Las temperaturas estuvieron mayormente **por encima** del promedio en Puerto Rico (PR) y las Islas Vírgenes Americanas (USVI, por sus siglas en inglés) durante el verano de 2025. Aibonito, PR empató con su **5to verano más cálido** en récord (1906-2025), mientras que Coloso registró uno de sus **10 veranos más cálidos** (1899-2025). La precipitación fue **variable**, con totales de lluvia generalmente por debajo del promedio en junio y julio, y totales por encima del promedio en agosto. El **huracán Erin** dejó entre 4 a 7 pulgadas de lluvia a través de gran parte de la región, con algunas cantidades localmente más altas. Las zonas más húmedas se ubicaron en el oeste de PR, donde en algunos lugares se registraron **más de 25 pulgadas de lluvia durante la temporada**. En contraste, prevalecieron **condiciones secas** a través del interior este de la isla, donde en algunos lugares se registraron solo la mitad de los totales estacionales esperados. Juncos, PR registró su **2do verano** más seco con 10.14 pulgadas de lluvia. La precipitación estuvo **por encima** del promedio en St. Thomas y St. John, pero **por debajo** del promedio a través de gran parte de St. Croix.

Agricultura y Recursos de Agua

Las lluvias del huracán Erin brindaron un alivio en algunas partes de PR, mejorando las condiciones del suelo y bajando el estrés sobre los cultivos en las regiones del interior y oeste de la isla. Sin embargo, las intensas lluvias también provocaron inundaciones repentinas y deslizamientos de terreno. En contraste, se observaron condiciones más secas en el interior central y este de la isla, donde muchos cultivos mostraron signos de estrés térmico. A pesar de la sequía, los niveles de los embalses se mantuvieron adecuados. El sureste también permaneció seco, con aguas subterráneas por debajo de niveles óptimos. Las zonas del norte experimentaron mejoras en la humedad del suelo y crecimiento de nuevos cultivos. El suroeste vio la humedad del suelo repuesta lo cual ayudó en la recuperación de los pastizales. El oeste, que recibió las lluvias más intensas, se enfrentó a inundaciones, así como a problemas de malezas, plagas y hongos en muchos de los cultivos. En St. Thomas y St. John, las reservas agrícolas estuvieron llenas, la vegetación y los cultivos estuvieron mejorando, y el ganado se mantuvo sano. St. Croix permaneció mayormente seco, tras no recibir la lluvia de Erin.

Sequía

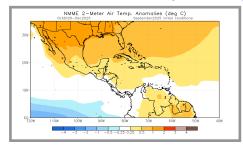


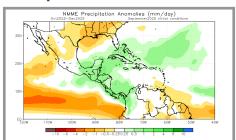


Las condiciones secas en junio condujeron a sequedad anómala (D0) en PR por primera vez desde noviembre. Estas condiciones persistieron a lo largo de la costa noroeste y sur de la isla hasta mediados del verano, con sequedad emergente en el interior este. La sequía moderada (D1) regresó en agosto, por primera vez en más de seis años, pero fue eliminada para el final de la temporada. En las USVI, la sequedad anómala (D0) re-emergió en julio, con seguía moderada (D1) en desarrollo en St. Thomas y St. Croix por primera vez en más de un año. Para el final de la temporada, la sequía y sequedad anómala se eliminaron en St. Thomas y St. John, pero persistieron en St. Croix.

Perspectiva del Clima en el Caribe para el Otoño de 2025

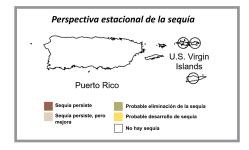
Temperatura y Precipitación





Según el Conjunto <u>Multi-Modelo Norteamericano</u> (NMME, por sus siglas en inglés), se esperan **temperaturas y precipitación por encima del promedio** a través del Caribe durante el periodo de octubre a diciembre.

Sequía



Según el Centro de Predicciones Climáticas (CPC, por sus siglas en inglés) y el <u>Foro de Perspectiva del Clima en el Caribe</u>, se espera que PR y las USVI se mantengan libres de sequía durante el otoño y hasta principios del invierno. Los factores incluyen la expectativa de precipitación por encima del promedio, el periodo de transición estacional y el potencial de actividad ciclónica por encima de lo normal.

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

<u>Carolinas Integrated Sciences and</u> 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

