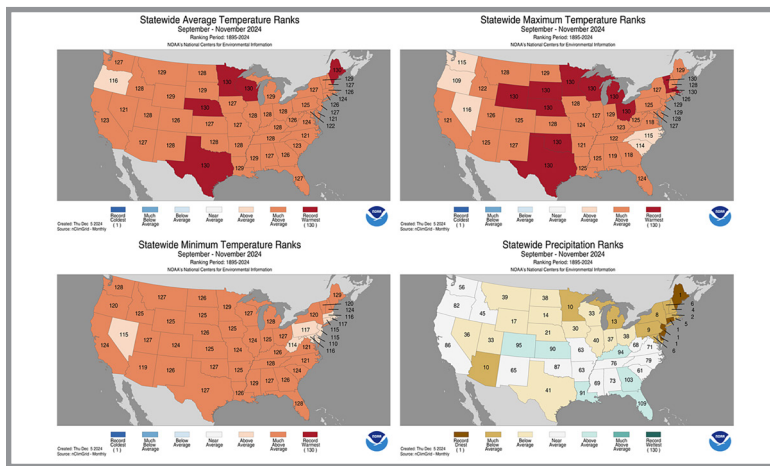




National and Regional Weather Highlights for Autumn 2024



Temperatures were **much above average** across the Southeast. Regionally, it was the **4th warmest autumn on record**. Alabama recorded its warmest November on record. Precipitation was variable. **Hurricane Helene** led to record amounts of precipitation across the Carolinas in September. October was exceptionally dry, with all states recording **one of their top 5 driest Octobers on record**, except FL. November precipitation was closer to average. Temperatures and precipitation were above average across most of the Caribbean. **Drought** persisted across the interior of the region and emerged along the Atlantic coast. For more information, see [NOAA's National Climate Report](#).

Highlights for the Southeast

Potential Tropical Cyclone (PTC) 8 dropped over 20 inches of rain in 12 hours across parts of southeastern NC on September 16th, resulting in major flash flooding.

Hurricane Helene devastated the region in late September with storm surge, high winds, and catastrophic flooding, especially across western NC, resulting in over 200 fatalities.

Atlanta, GA, Augusta, GA, Macon, GA, and Columbia, SC all **tied their driest month on record in October**.

Washington D.C. and Augusta, GA ended their **longest streaks of consecutive dry days on record** with 38 days each.

Raleigh-Durham, NC recorded its **longest freeze-free period on record** of 281 days from February 21st to November 29th.

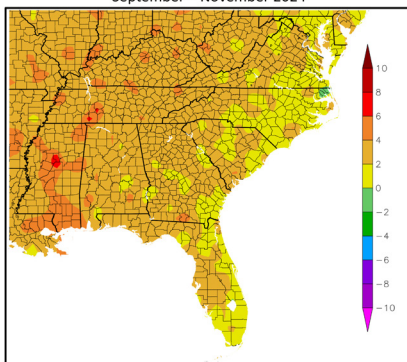
November saw no confirmed tornadoes, marking the **first tornado-free month in the region since March 2015**.

There were [10 rip current fatalities](#) and [one lightning fatality](#) in the region this autumn.

Regional Weather Overview for Autumn 2024

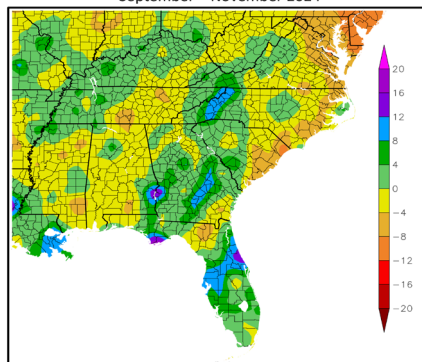
Temperature and Precipitation Anomalies

Mean Temperature Departure from Average (°F)
September – November 2024



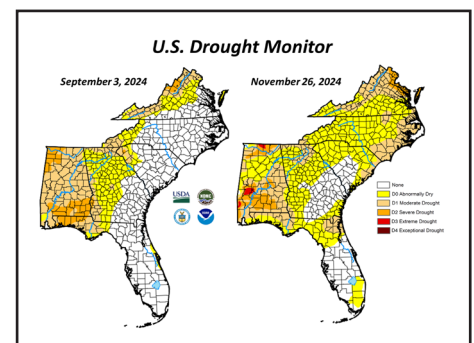
Temperatures were **above average** across the Southeast this autumn. The greatest departures were found along the northern Gulf Coast, extending through the interior of the region to northern VA, where most locations were **3 to 4 degrees F above average**. Several long-term stations, including Mobile, AL, Tallahassee, FL, Huntsville, AL, Atlanta, GA, Raleigh-Durham, NC, and Washington D.C., recorded **one of their warmest autumns on record**.

Precipitation Departure from Normal (in)
September – November 2024



Precipitation was **variable** this autumn. The wettest locations were found across parts of FL, AL, GA, and the Carolinas, where seasonal totals were **5 to 15 inches above average**. Tampa, FL and Asheville, NC recorded their **wettest autumn on record**. The driest locations were found across pockets of AL, north FL, and eastern portions of the Carolinas and VA, where **seasonal deficits of 5 to 10 inches** were observed.

Drought

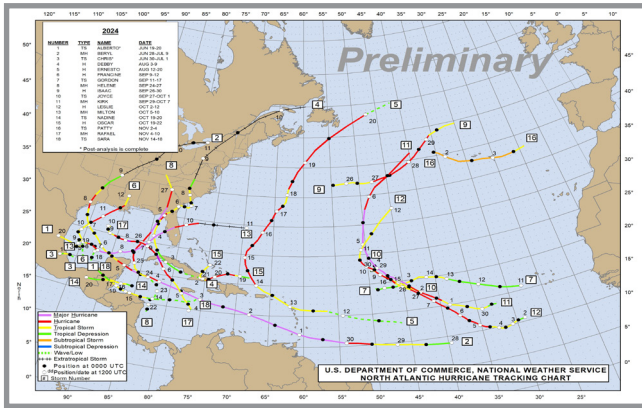


Autumn began with **moderate (D1) drought** across the northern Gulf Coast and interior parts of the region, with **severe (D2) drought** in parts of FL, AL, SC, and VA. Rainfall from tropical systems and fronts **eased drought conditions** by early October, but prolonged dry weather led to **expansion and intensification** later in the month. By mid-November, nearly half of the region was in at least moderate (D1) drought, with **pockets of extreme (D3) drought** in AL. Rainfall later in the month **improved conditions**, particularly across the southern tier, though **nearly a third of the region remained in at least moderate (D1) drought** at the end of the season.



Regional Climate Impacts for Autumn 2024

Atlantic Hurricane Season Summary



2024 Atlantic tropical cyclone tracks (source: NOAA)

The 2024 Atlantic hurricane season saw **18 named storms, 11 of which became hurricanes and five became major hurricanes (Category 3+)**. All these numbers were above their climatological averages. Despite a delay in the development of La Niña, **record warm ocean temperatures tipped the scales towards an active season** with several strong storms, including two Category 5 hurricanes (Beryl and Milton). Five of the 11 hurricanes made landfall along the Gulf Coast, which **ties for the second most landfalls in the region on record**. It was also **one of the deadliest and costliest seasons on record, with over \$200 billion in damages and hundreds of fatalities**, most occurring in the Southeast. Of the 18 named storms, seven affected the Southeast region, including four of the five major hurricanes: **Hurricane Beryl (PR), Hurricane Debby (FL, GA, SC, NC, VA), Hurricane Ernesto (PR, NC), Hurricane Francine (FL, AL, GA), Hurricane Helene (FL, GA, SC, NC, VA), Hurricane Milton (FL), and Hurricane Rafael (FL)**.

Severe Weather

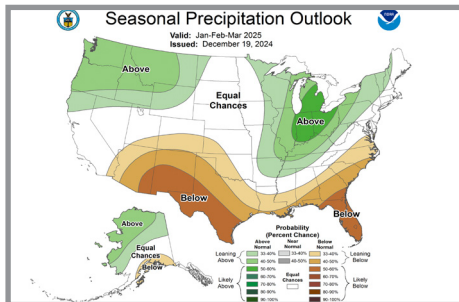
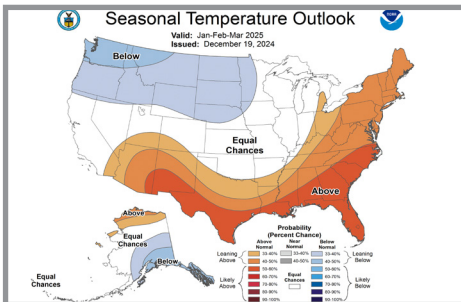
There were **249 reports of severe weather** this past autumn, which is above the median frequency observed between 2000 and 2023 (136 percent of normal). There were **89 confirmed tornadoes** (6 EF-U, 33 EF-0, 39 EF-1, 7 EF-2, 4 EF-3), which is 2.5 times higher than the median autumn frequency. More than half of these occurred in association with **Hurricane Milton** in early October, making it **one of the largest outbreaks on record in FL and one of the largest spawned by a tropical cyclone in the last 50 years**. Six fatalities and 10 injuries were confirmed. For the season, there were **159 reports of high winds**, which is above the median autumn frequency (118 percent of normal). There were also eight hail reports, which is below the median autumn frequency (57 percent of normal). The **largest hailstones were 1.75 inches (golf ball-sized)** in central and western portions of VA on the 21st and 24th of September.

Agriculture and Livestock

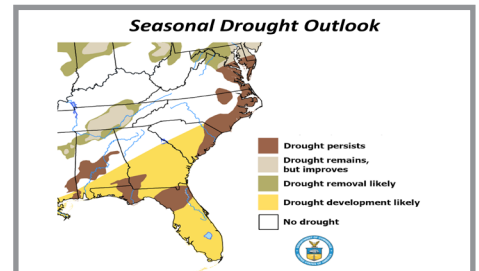
Agricultural operations faced many challenges due to alternating dry spells, extreme heat, and hurricanes. **Periods of drought** stressed crops like corn, soybeans, and peanuts, reduced hay production, and delayed winter crop planting. Pastures deteriorated, forcing livestock producers to feed hay early or sell herds. **Hurricanes Helene and Milton** caused flooding, wind damage, and crop losses exceeding \$10 billion across multiple states. Georgia's poultry farms and maturing crops were particularly hard-hit, while FL suffered significant damage to citrus, vegetables, and aquaculture. By November, **mild weather and periods of rainfall improved conditions** for some winter crops and pastures, but extreme dryness persisted, particularly in parts of AL. Ongoing hay shortages and delayed planting raised concerns about sustaining livestock through winter.

Regional Climate Outlook for Winter 2025

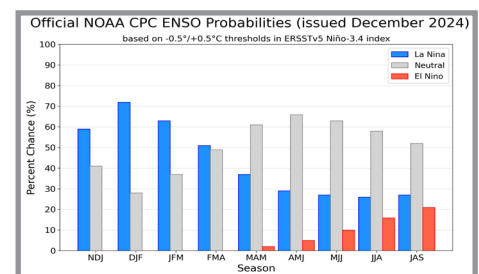
Temperature and Precipitation



Drought



Drought is expected to **persist** across southern and eastern portions of the region, with **new development** expected across FL, southern portions of AL and GA, and much of SC. **Improvements** are expected across northern portions of AL and VA.



NOAA's Climate Prediction Center (CPC) is forecasting **above average temperatures** across the Southeast from January-March. Probabilities are 50-60%, except across interior and northern portions of the region, where the probability is lower (40-50%). **Below average precipitation** is expected across much of the region, especially FL, with **equal chances** across the interior and northern portions of the region.

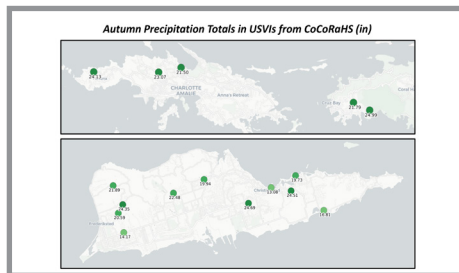
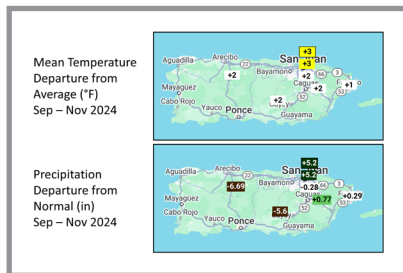
ENSO Forecast

According to the **latest ENSO update** issued by the CPC on December 12th, **ENSO-neutral conditions are present**. There is a 59% chance of **La Niña conditions developing** by January 2025, though it is expected to be a **weak and short-lived event**. As such, there is a **lower chance of seeing typical La Niña impacts** this winter. Following this event, there is a 61% chance of a **transition back to ENSO-neutral** during the March to May 2025 period.



Caribbean Climate Overview and Impacts for Autumn 2024

Temperature and Precipitation Anomalies

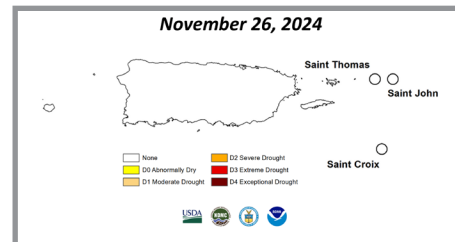
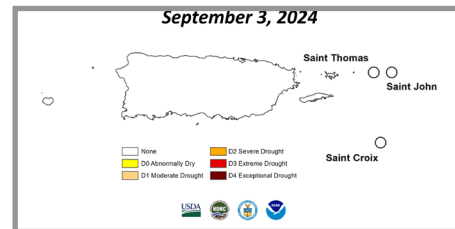


Temperatures were **above average** across PR and the USVIs. After recording its warmest summer on record, **San Juan, PR observed its warmest autumn on record** (since 1898). Several other locations experienced **one of their warmest autumns on record**. Through mid-December, San Juan has recorded **over 3,100 hours with a heat index of at least 93 degrees F**, which shatters the all-time annual record of 2,352 hours set last year (since 1973). In addition, San Juan has experienced **182 days with a temperature of at least 90 degrees F**, which breaks the previous record of 172 days set in 1983. Precipitation was **above average** across eastern portions of PR and the USVIs, where some locations recorded **twice their expected amounts**. Seasonal **deficits of 5 to 7 inches** were observed across western portions of PR.

Notable Weather

Parts of northeast PR recorded 3 to 6 inches of rain between October 29th and November 1st which resulted in **flooded roads and stranded cars**. The most significant rainfall event occurred on November 16th as a cold front passed through the region. Rainfall amounts of over 3 inches were again recorded across the eastern portion of PR, much of which fell in just a few hours. The **greatest impacts were found in Humacao**, where **numerous businesses in the city core were flooded**, and **vehicles were washed away**. Several **homes were also flooded** in nearby neighborhoods. A **large sinkhole** forced dozens of families to evacuate the Cataño neighborhood of Humacao. Further south, one person **drowned in their vehicle** while attempting to cross a flooded bridge in Yabucoa. Multiple **landslides and mud slides** were also reported further inland across the higher terrain.

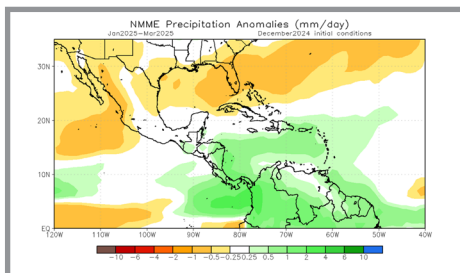
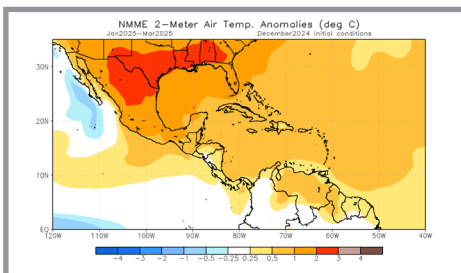
Drought



Continuing a trend that began earlier in the year, **the Caribbean remained free of drought this autumn**, marking one of the longest such stretches in over six years. **Small pockets of abnormal dryness (D0) emerged** along the southern and northern coastal regions of PR in October but were eliminated by the beginning of November. **Abnormal dryness (D0) also briefly returned** to Saint Thomas at the end of October but was eliminated the following week.

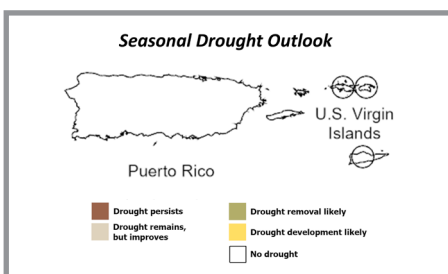
Caribbean Climate Outlook for Winter 2025

Temperature and Precipitation



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

Drought



According to the CPC, **no new drought development is expected** across PR and the USVIs through winter and into early spring. However, the **Caribbean Climate Outlook Forum** noted that recent dryness ahead of the climatological dry season could lead to **short-term moisture deficits and impacts** in the region.

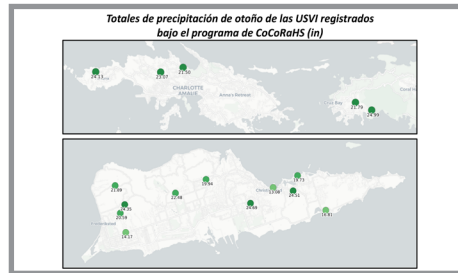
Southeast Region Partners

- [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](#)



Perspectiva general del clima e impactos en el Caribe durante el otoño de 2024

Anomalías de temperatura y precipitación

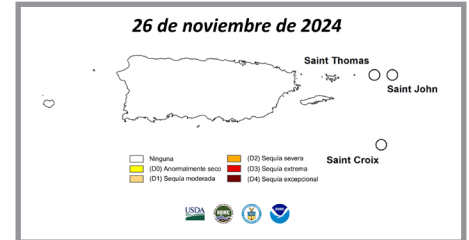
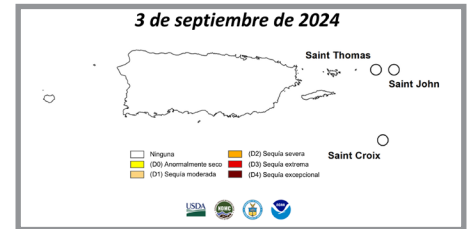


Las temperaturas estuvieron por encima del promedio en Puerto Rico (PR) y las Islas Vírgenes Americanas (USVI, por sus siglas en inglés) durante el otoño de 2024. Luego de registrar su verano más cálido desde que existen registros, San Juan, PR también observó su otoño más cálido en registros (desde 1898). A su vez, **varios otros lugares experimentaron uno de sus otoños más cálidos**. Hasta mediados de diciembre, San Juan había registrado más de **3,100 horas con un índice de calor de al menos 93 grados F**, lo que rompe el récord anual de 2,352 horas que fue establecido el año pasado (registros desde 1973). Además, San Juan ha tenido 182 días con temperaturas de por lo menos 90 grados F, lo que rompe el récord anterior de 172 días establecido en 1983. La precipitación fue superior al promedio en las porciones del este de PR y las USVI, donde algunas localidades registraron el doble de las cantidades esperadas. Sin embargo, se observaron déficits estacionales de entre 5 a 7 pulgadas en la porción oeste de PR.

Condiciones meteorológicas a destacar

Partes del noreste de PR registraron entre 3 a 6 pulgadas de lluvia entre el 29 de octubre y el 1ero de noviembre, lo cual resultó en carreteras inundadas y automóviles varados. El fenómeno de lluvia más significativo ocurrió el 16 de noviembre cuando un frente frío atravesó la región. Se registraron nuevamente cantidades de lluvia de más de 3 pulgadas en la parte este de la isla, gran parte de las cuales cayeron en solo unas horas. [Los mayores impactos se registraron en Humacao](#), donde numerosos negocios en el centro del pueblo se inundaron y los vehículos fueron arrastrados. Varias casas también quedaron inundadas en vecindarios aledaños. [Mientras que un gran sumidero obligó](#) a docenas de familias a desalojar el barrio Cataño de Humacao. Más al sur, [una persona murió ahogada en su vehículo](#) mientras intentaba cruzar un puente inundado en Yabucoa. [También se reportaron múltiples deslizamientos de terreno y lodo más](#) hacia el interior de la isla a través de terreno elevado.

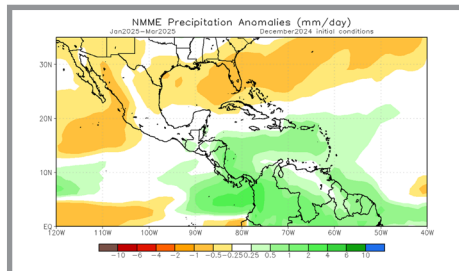
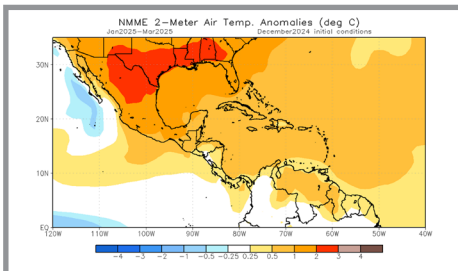
Sequía



Continuando con una tendencia que comenzó a principios del año, el Caribe se mantuvo libre de sequías este otoño, marcando uno de los períodos más largos de este tipo en más de seis años. Emergieron pequeños focos de sequedad anómala (D0) a lo largo de las regiones costeras del sur y norte de PR en octubre, pero fueron eliminados a principios de noviembre. La sequedad anómala (D0) también regresó brevemente a St. Thomas a finales de octubre, pero quedó eliminada a la semana siguiente.

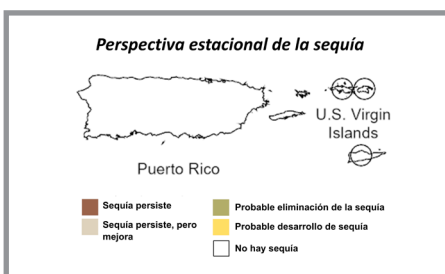
Perspectiva del clima en el Caribe para el invierno de 2025

Temperatura y precipitación



Según el conjunto [multi-modelo norteamericano](#) (NMME, por sus siglas en inglés), se esperan temperaturas y precipitación por encima del promedio a través del Caribe durante el período de enero a marzo.

Sequía



Según el Centro de Predicciones Climáticas (CPC, por sus siglas en inglés), no se espera que se desarrollen condiciones de sequía en PR y las USVI durante el invierno y principios de la primavera. Sin embargo, [el Foro de Perspectiva del Clima en el Caribe](#) destacó que la sequedad reciente antes de la temporada climatológica “seca” podría conducir a déficits de humedad e impactos a corto plazo en la región.

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