South Carolina CoCoRaHS Rain Gauge Gazette

Welcome to the latest edition of the 'South Carolina CoCoRaHS Rain Gauge Gazette.'

This newsletter will discuss some of the top precipitation-related stories during 2024 and highlight the impact of your observations. Whether you have been with us for ten years or ten days, know that your data has been instrumental in monitoring drought and flooding across the Palmetto State.

South Carolina CoCoRaHS is always looking for new observers to help understand where it did or did not rain. If you know someone that enjoys the weather, encourage them to sign up to participate in this worthwhile citizen science project.

Sincerely,
Melissa Griffin
South Carolina CoCoRaHS State Coordinator

If you have any questions, please feel free to contact me at GriffinM@dnr.sc.gov.

Observer Corner

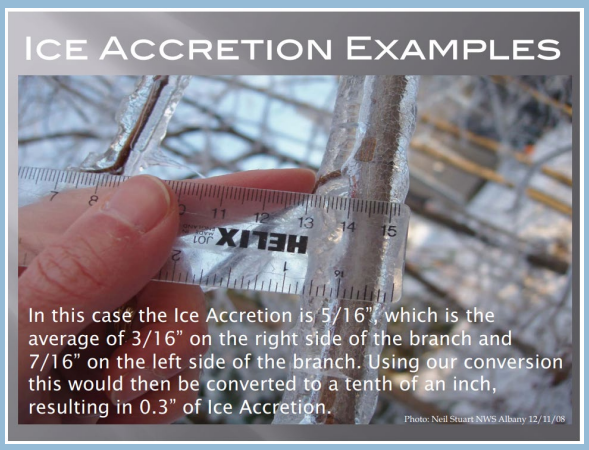
Here's some information on reporting precipitation for all observers, old and new!

Double-check your report before you hit submit. Occasionally, someone at CoCoRaHS HQ may contact you, a regional coordinator, or myself about a flagged rainfall value. Two of the most common mistakes are entering the observation time as the rainfall total and misplacing the decimal.

Report your zeroes. Even when there is nothing in your rain gauge, that 0.00" value is extremely important to many individuals and agencies who are tracking abnormally dry and drought conditions across the state.

Do not report dew or fog. Moisture from dew or frost does not count as precipitation, so if you suspect that amount came from dew, make the total 0.00", and include notes in the comments field of your report.

There is still the potential for winter precipitation, so take a few moments to read the training slideshows or watch the instructional videos on snow measuring, measuring snow water equivalent (SWE), and ice accretion. While I know winter weather is rare in the state, it does happen – just like last month!



Your South Carolina CoCoRaHS Team

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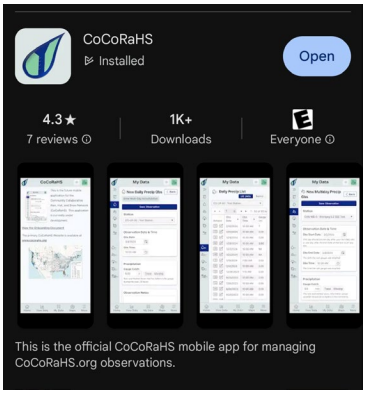
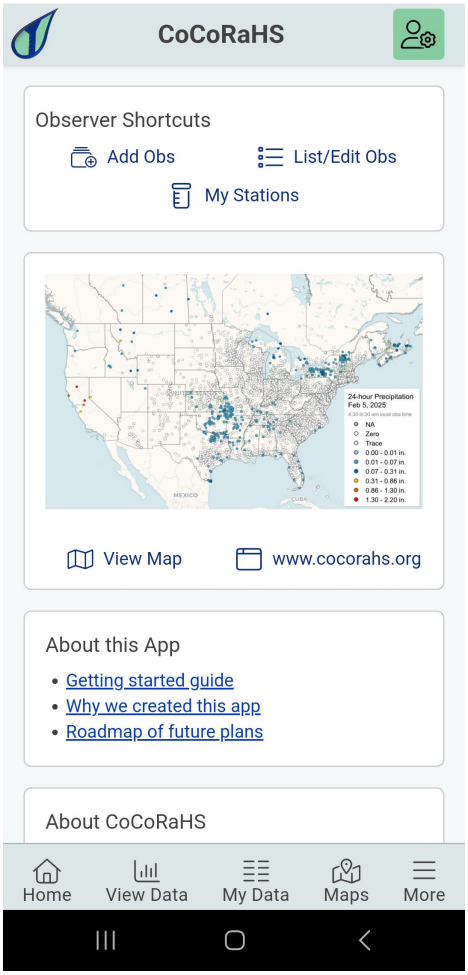
2024 CoCoRaHS Highlights

After years of dedicated service, our "CoCoRaHS Observer" mobile app is being replaced by a new and improved version. While the old app will remain available until it stops functioning, we encourage you to switch and explore the exciting new features. Why the change? The original app, created by a volunteer, was limited in its capabilities, focusing mainly on daily and multiday precipitation reports without support for hail or significant weather monitoring. The new app, developed over the past year with feedback from over 600 volunteers, works on all devices—Android, iOS, tablets, and computers. It features a "dark mode," quick buttons for Trace/NA entries, and a "Monthly Zeros" form that displays your month-to-date total at the top. Although the old app remains functional for now, we recommend making the switch today. Make sure to find the correct CoCoRaHS app in either the Android or Apple store.

If you have not had a chance, download the new app and check out the training resources on the functionality. If you have any questions, please feel free to reach out to Melissa or your regional coordinator.



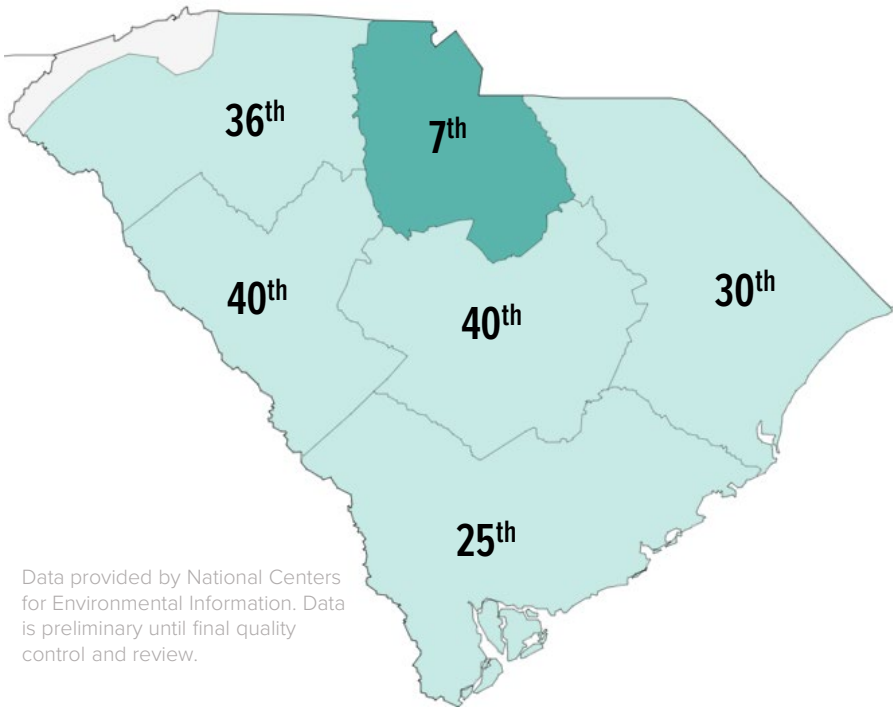


2024 South Carolina Program Highlights

- Citizen Weather Observer Week (March 2024)
- Years of Service Awards
  - 22 Active observers started in 2009 (15 years)
  - 28 Active observers started in 2014 (10 years)
  - 60 Active observers started in 2019 (5 years)

We want to thank the Harry Hampton Wildlife Fund for its continued support of the South Carolina CoCoRaHS program over the last few years. We have provided rain gauges to schools, educational centers, and other observers across the state through their generous donations.

South Carolina Precipitation Summary 2024



Data provided by National Centers for Environmental Information. Data is preliminary until final quality control and review.

The statewide precipitation total for 2023 was 52.69 inches, 4.80 inches above the long-term average of 47.89 inches (1895 – 2023), and the thirtieth wettest year on record; however, precipitation totals varied across the state. The average annual precipitation totals of six of the seven state's climate divisions ranked in the top fortieth wettest years on record. Five months out of the year reported statewide averages that were wetter than normal, and four months were drier than normal; including the second driest October on record.

2024 Statewide Precipitation Totals, Departures and Rankings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total	4.80”	2.79”	6.36”	2.58”	4.68”	2.69”	7.69”	8.52”	6.39”	0.13”	3.07”	2.99”
Depart	1.08”	-1.11”	2.08”	-0.76”	1.10”	-1.99”	2.15”	3.24”	2.15”	-2.86”	0.46”	-0.62”
Rank	29th	37th	18th	--	28th	13th	17th	11th	15th	2nd	--	--

Record Driest | Top 10 Driest | Top 40 Driest | Normal | Top 40 Wettest | Top 10 Wettest | Record Wettest

Drier than Normal

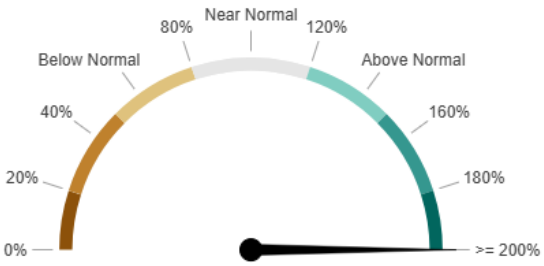
Wetter than Normal

Here are some examples of the 2024 precipitation totals and a climatological perspective from the CoCoRaHS DEX Tool for two CoCoRaHS stations in South Carolina.

SC-RC-127: Columbia 2.1 NNW

Year: 2024: 89.78" 2024

Jan 1 to Dec 31, 2024 (363 of 366 days covered by obs)



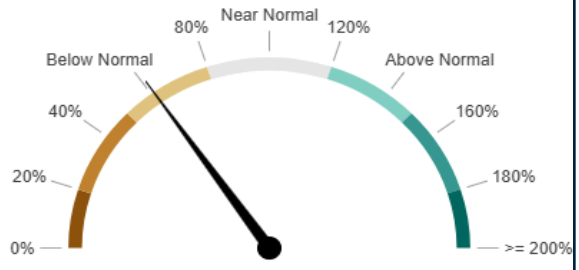
NOAA Normal 44.79"

Departure from Normal ↑ 44.99" : 200% of Normal

SC-HR-39 : Surfside Beach 1.0 NE

Year: 2024: 31.81" 2024

Jan 1 to Dec 31, 2024 (366 of 366 days covered by obs)



NOAA Normal 52.09"

Departure from Normal ↓ -20.28" : 61% of Normal

Lack Of Winter Precipitation

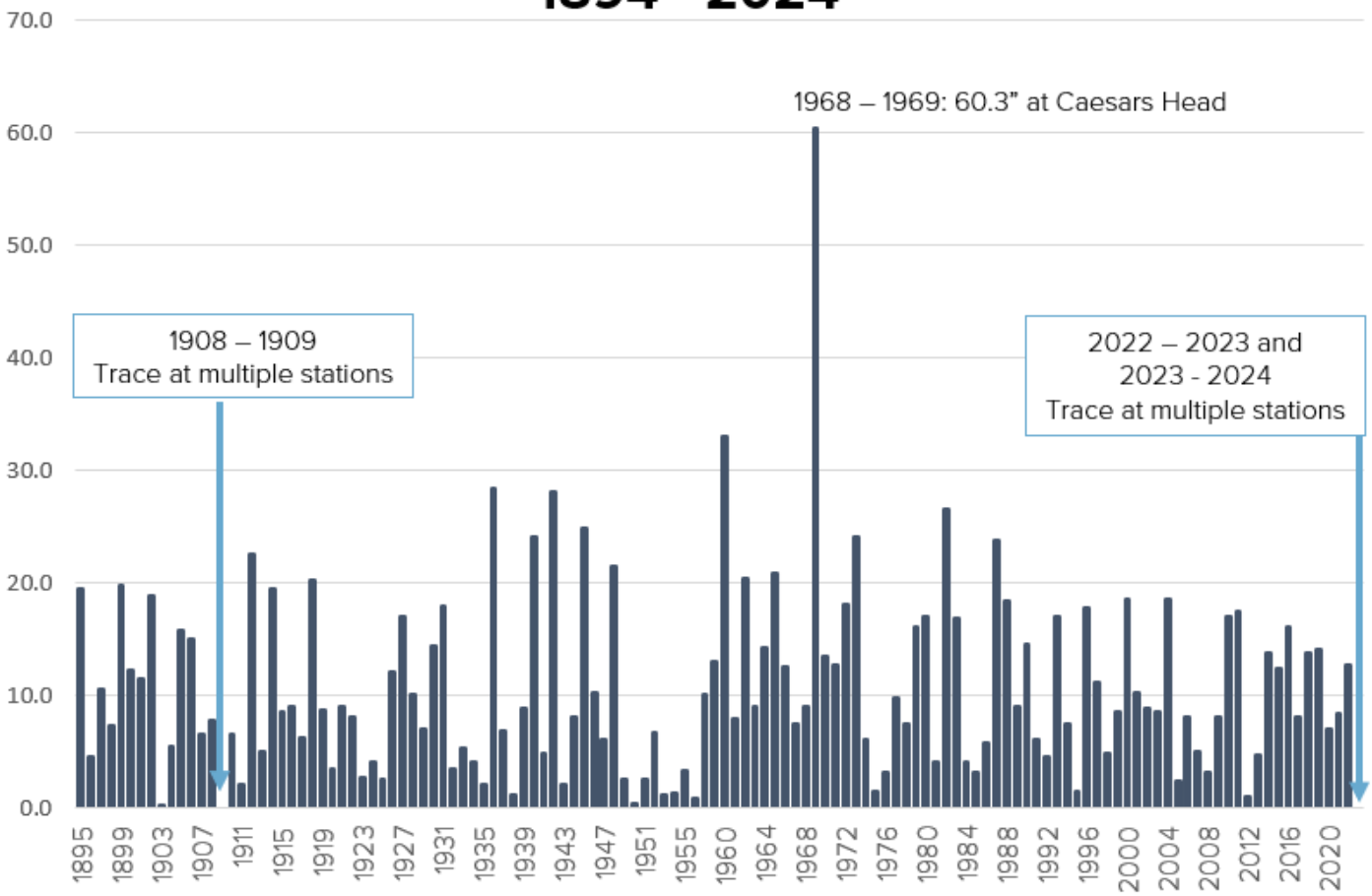
For the second winter in a row, no measurable snow was reported in the state, making it the only time on record since 1894 with back-to-back winters without more than 0.1” of snow. Multiple stations only recorded a Trace of snowfall for the entire season.

Even if the Lowcountry, Midlands, and Pee Dee miss out on winter weather events, the Upstate, especially the mountain locations, typically has two to three winter storms with measurable snow (>=0.1”) or ice accumulations.

Least Snow Recorded in South Carolina (1894 – 2024)

Season	Snowfall Totals (Nov 1 – Apr 30)	Location
1908 – 1909	Trace	Multiple Stations
2022 – 2023	Trace	Multiple Stations
2023 - 2024	Trace	Multiple Stations
1902 – 1903	0.2”	Newberry
1949 – 1950	0.4”	Pelzer
1956 – 1957	0.9”	Caesars Head

South Carolina Maximum Winter Snowfall Totals 1894 - 2024

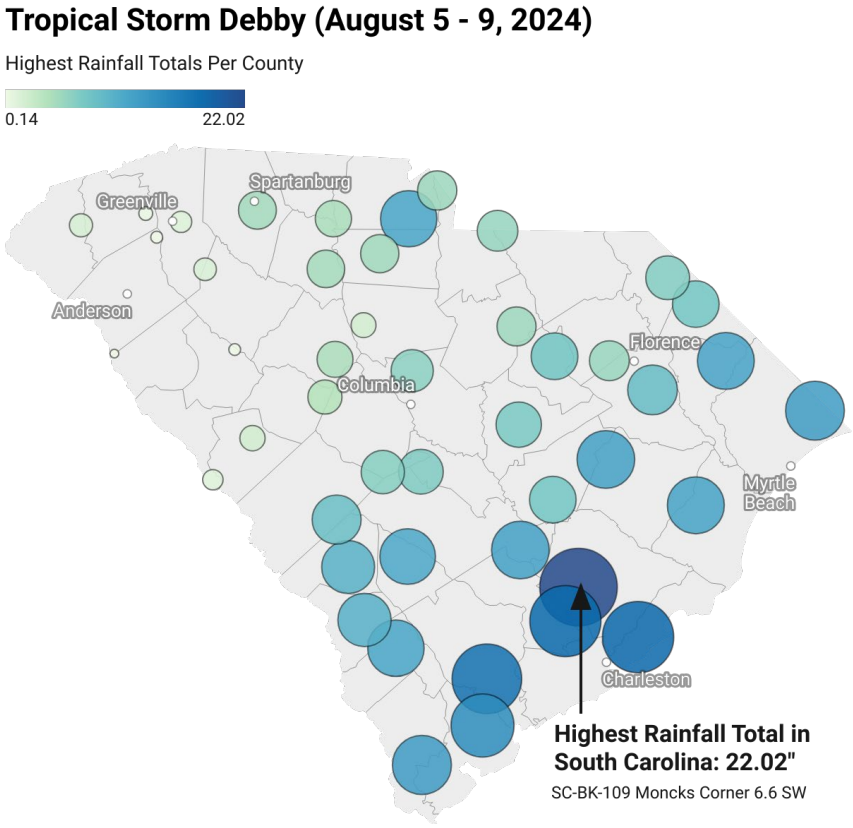


Tropical Storm Debby – Rainfall Totals

Tropical Storm Debby strengthened over the eastern Gulf of Mexico on August 5, becoming a Category 1 hurricane before making landfall near Steinhatchee, Florida. It moved through Florida and Georgia, slowing down off the Georgia coast on August 6, then made a second landfall near Bulls Bay, South Carolina, on August 8.

Debby produced eight tornadoes, including four EF1 and four EF0, with damage reported in Edisto Beach and Moncks Corner. The storm produced high wind gusts over 50 mph along the coast, with the highest wind gust of 63 mph reported at the South End of Folly Beach. Debby produced heavy rainfall, particularly in the Coastal Plain and Pee Dee regions. Totals over five inches were measured mainly east of the Interstate 20 corridor, and totals in much of the area east of Interstate 95 were reported to be more than ten inches, with some values over fifteen inches. A CoCoRaHS observer in Moncks Corner reported a total of 22.02 inches from August 5 to the morning of August 9.

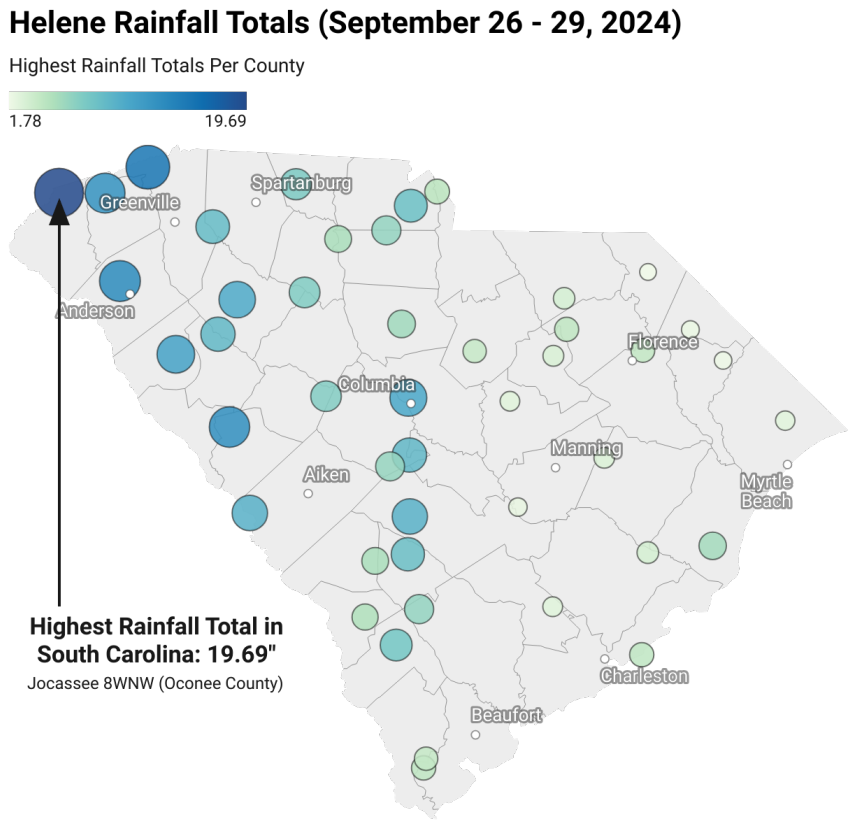
More details about Tropical Storm Debby's impacts are available via our Open-File Report.



PRELIMINARY Data from CoCoRaHS and National Weather Service networks

Station Name	County	Provider	Rainfall (Inches)
Moncks Corner 6.6 SW	Berkeley	CoCoRaHS	22.02
Ridgeville 3.2 WSW	Dorchester	CoCoRaHS	18.86
Mount Pleasant 8.1 NE	Charleston	CoCoRaHS	18.47
Green Pond 1.3 S	Colleton	CoCoRaHS	17.57
Beaufort 5.7 NW	Beaufort	CoCoRaHS	14.30
Andrews	Georgetown	NWS COOP	13.10
Hardeeville 6.7 ENE	Jasper	CoCoRaHS	12.45
Longs 1.3 NW	Horry	CoCoRaHS	12.35
Kingstree 7.9 NW	Williamsburg	CoCoRaHS	11.85
Holly Hill 1 SW	Orangeburg	NWS COOP	11.84
Mullins	Marion	NWS COOP	11.51
Hampton 0.8 SW	Hampton	CoCoRaHS	11.32
Rock Hill 4.8 SSW	York	CoCoRaHS	11.30

Hurricane Helene – Rainfall Totals



PRELIMINARY Data from CoCoRaHS and National Weather Service networks

Station Name	County	Provider	Rainfall (Inches)
Jocassee 8 WNW	Oconee	NWS COOP	19.69
Sassafras Mountain	Pickens	NC ECONET	15.79
Sunset 0.5 NW	Pickens	CoCoRaHS	12.75
Liberty 4.3 SSE	Pickens	CoCoRaHS	12.29
Walhalla	Oconee	NWS COOP	11.86
Sandy Springs 2 NE	Anderson	NWS COOP	11.44
Belton 4.7 W	Anderson	CoCoRaHS	11.35
Iva 6.4 SSW	Abbeville	CoCoRaHS	11.24
Travelers Rest 8.9 N	Greenville	CoCoRaHS	10.90
North Saluda Reservoir	Greenville	NWS COOP	10.83
Laurens 1.1 SSW	Laurens	CoCoRaHS	10.49

More details about Hurricane Helene's impacts are available via our Open-File Report.

On September 23, Potential Tropical Cyclone Helene formed in the western Caribbean Sea and became a hurricane by September 25. It strengthened to a Category 4 hurricane with 140 mph winds before making landfall near Perry, Florida, just before midnight. Helene then moved through southern Georgia, weakening to a strong tropical storm near Franklin, Tennessee, by Friday morning. The storm's wind field extended over 200 miles, with reported gusts of up to 75 mph in South Carolina, although there were estimated wind gusts of over 100 mph near the Augusta, Georgia, area. While no notable storm surge was recorded, tidal levels reached 8.02 feet in Charleston Harbor, causing flooding. Twenty-one confirmed tornadoes occurred across the state. Rainfall from Helene ranged from six to eighteen inches, especially north and west of Interstates 20 and 77, with an event total of 19.69 inches reported near Jocassee and high rainfall amounts recorded in parts of the Upstate and Central Savannah River Area.

Tropical Cyclone Record Rainfall Totals

Helene's preliminary peak rainfall in South Carolina of 19.69 inches near Jocassee in Oconee County ranks third among rainfall from tropical cyclones in South Carolina's history. This total ranks behind the 22.02 inches of rain recorded in Moncks Corner (Berkeley County) in August 2024, from Tropical Storm Debby. There is only one other year with two tropical cyclone maximum rainfall totals, which rank in the top ten highest totals: Hermine (September 2016) and Matthew (October 2016).

Highest Rainfall Totals in South Carolina From Tropical Cyclones and their Remnants (1956 – 2024)

Rainfall Total	Tropical Cyclone	Dates	Location
23.68"	Florence	Sep 15 – 18, 2018	**Loris 2.9 WSW**
22.02"	Debby	Aug 5 – 9, 2024	**Moncks Corner 6.6 SW**
19.69"	Helene	Sep 26 – 29, 2024	Jocassee 8 WNW
17.45"	Beryl	Aug 13 – 18, 1994	Jocassee 8 WNW
16.92"	Matthew	Oct 7 – 8, 2016	Edisto Island Middleton
16.80"	Floyd	Sep 15 – 16, 1999	Myrtle Beach
15.21"	Dorian	Sep 5 – 6, 2019	**Pawleys Island 5.6 NNE**
15.13"	Jerry	Aug 23 – 28, 1995	Hilton Head
14.17"	Hermine	Sep 1 – 3, 2016	**Georgetown 6.0 S**
14.11"	TD #8	Aug 15 – 18, 1971	Sullivans Island
13.96"	Marco/Klaus	Oct 10 – 13, 1990	Pageland

Stations operated by the National Weather Service or **CoCoRaHS**

Rainfall from the October 2015 rainfall and flooding event, while enhanced by the proximity of Hurricane Joaquin, is not considered to be solely caused by a tropical cyclone. Therefore, this event is not included in the historical records for South Carolina's tropical cyclone rainfall events. For comparison, the peak rainfall from October 1-5, 2015, was 27.19 inches near Mount Pleasant.

*All data is considered **PRELIMINARY,** and rainfall totals may be adjusted after final quality control has been completed.*

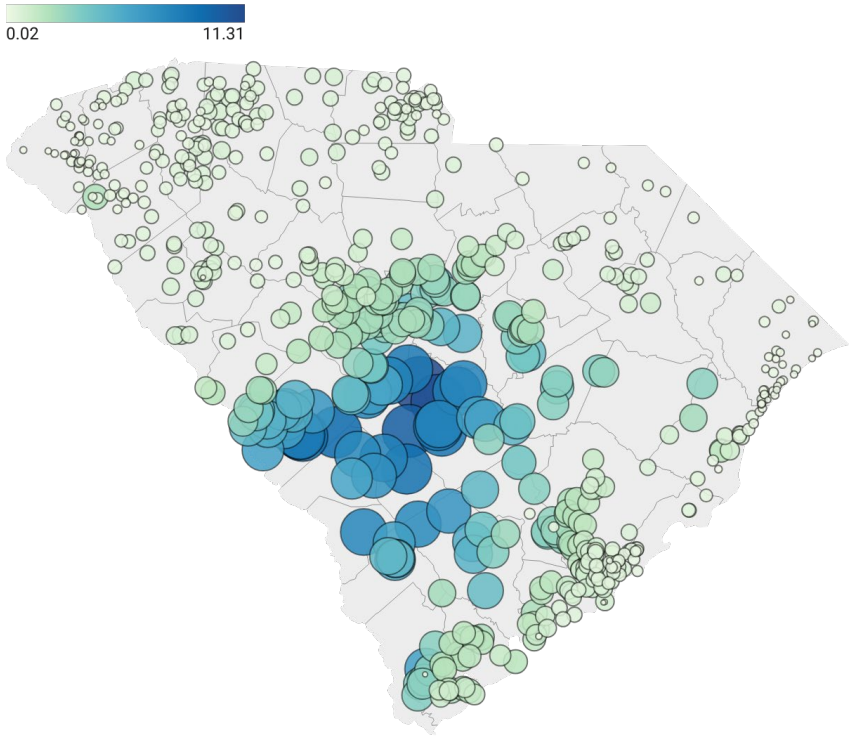
November 2024 Heavy Rain Event

Heavy rain started across portions of Orangeburg, Aiken, Lexington, Calhoun, Bamberg, Dorchester, and Colleton counties on the afternoon of Wednesday, November 6, due to interactions between a stalled front across the southeast U.S. and deep tropical moisture from the Caribbean and tropical Atlantic, leading to training cells along a line from Barnwell County through lower Richland/western Sumter counties.

Station Name	County	Provider	Rainfall (Inches)
North 8.6 ENE	Calhoun	CoCoRaHS	11.31
Orangeburg 7.6 N	Orangeburg	CoCoRaHS	10.87
Neeses 7.0 SE	Orangeburg	CoCoRaHS	10.00
Williston 4.3 NNW	Aiken	CoCoRaHS	9.34
Aiken 8.6 SE	Aiken	CoCoRaHS	9.01
Bamberg	Bamberg	NWS COOP	8.92
Orangeburg Mun. AP.	Orangeburg	NWS WBAN	8.65
Orangeburg 2	Orangeburg	NWS COOP	8.49
Swansea 3.5 NE	Lexington	CoCoRaHS	7.87
St. Matthews 3.2 ENE	Calhoun	CoCoRaHS	7.66
Allendale 1.7 SE	Allendale	CoCoRaHS	7.59
Blackville 3 W	Orangeburg	NWS WBAN	7.46
Lodge 3.4 SW	Colleton	CoCoRaHS	7.45

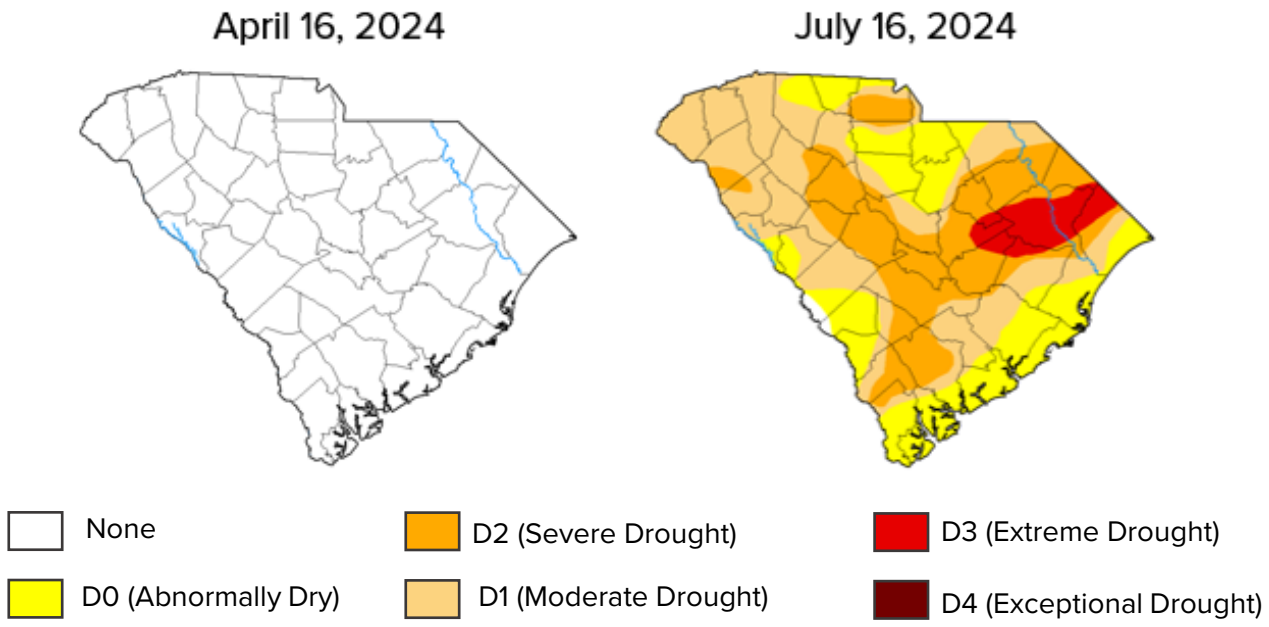
By Thursday morning, over a foot of rain fell across portions of Orangeburg County, an uncommon event, especially for November, which is typically one of the drier months. The excessive rainfall caused multiple road closures, breaching dams, and water rescues were required in the impacted areas. In response to the locally observed heavy rain, river height gauges rapidly rose into the moderate and major flood stage. The North Fork of the Edisto River at Orangeburg reported a preliminary crest of 15.34 feet, higher than the record crest of 15.30 feet set in February 1925. The South Fork Edisto River near Bamberg crested at 15.30 ft, surpassing the previous record of 13.71 feet set in May 1998.

Rainfall Totals for November 6 - 7, 2024

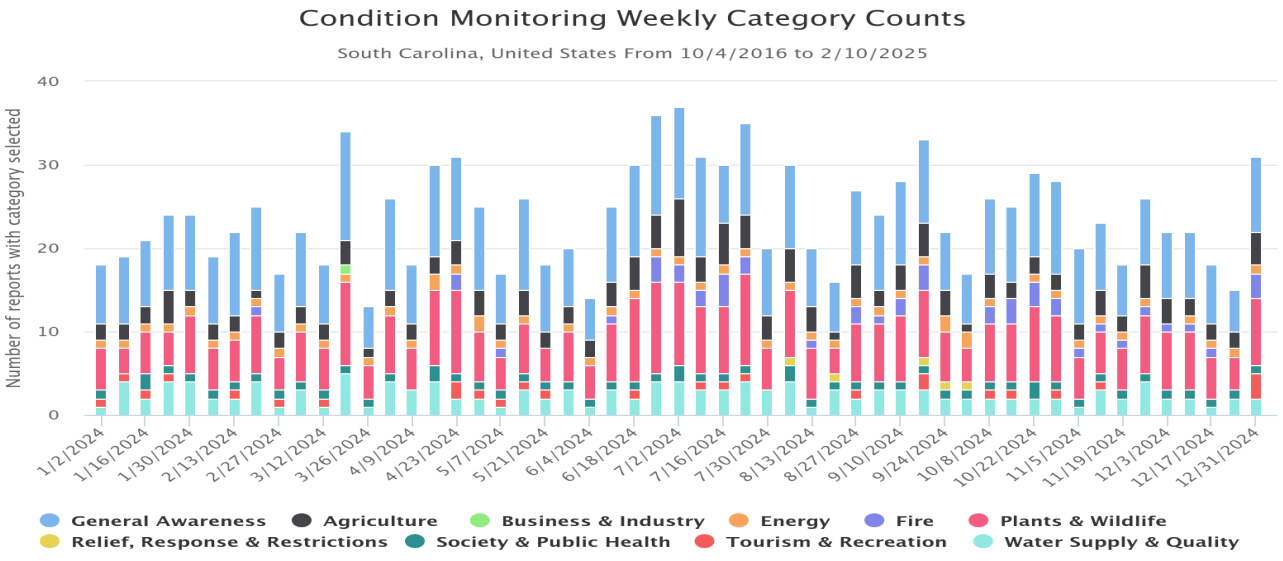


Statewide Drought Conditions in 2024

The dry conditions peaked on the United States Drought Monitor (USDM) on July 16, where 72.73% of the state was in at least moderate drought (D1) conditions. 35.59% of the state had at least severe drought (D2) conditions, and 6.13% of the state had extreme drought (D3) conditions. These conditions led to reduced yields in early season row crops and producers used winter hay reserves to feed livestock. There were more than 200 wildfires from June 1 to July 7, burning more than 1,200 acres.



Thank you to our observers who sent in Condition Monitoring Reports, which helped local, state, and federal agencies track emerging and improving drought conditions in 2024. If you want to learn how to submit a condition monitoring report, you can look at the training PDF or watch the training video.



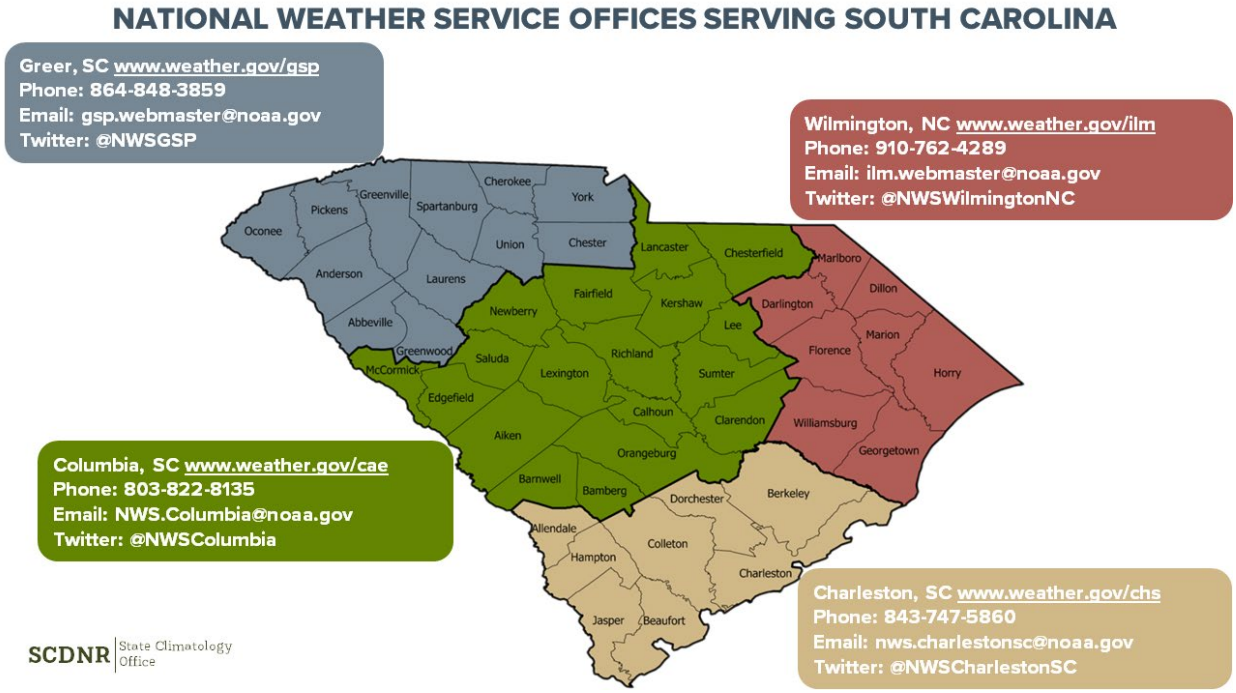
Severe Weather Reporting

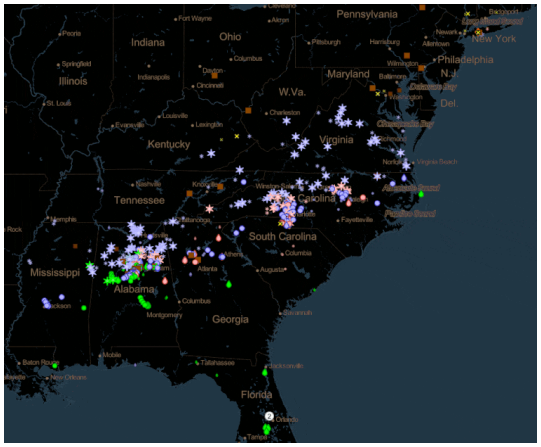
As you share your pictures of precipitation or severe weather via social media, make sure to include the following information:

- Weather or Precipitation Type (rain, snow, sleet, or ice)
- Location
- Time and Duration
- Amount
- Impacts

Tag your local National Weather Service Office. These reports provide valuable data to meteorologists and emergency managers during these events.

Twitter: **@NWSGSP @NWSColumbia @NWSCharlestonSC @NWSWilmingtonNC**





In addition to noting if you see rain, sleet, or snow in the comments box with your observation, I highly recommend downloading the mPING App on your phone. This easy-to-use tool provides vital information on the type of precipitation falling at your location.

For more information:
https://mping.nssl.noaa.gov/