

# NC COCORAHs

From the mountains to the coast...  
Every Drop Counts!



## Summer 2020

A cool and cloudy June with near-normal precipitation made for a nice start to summer. However, the heat ramped up in July and below normal precipitation created dry conditions across the state. August was also warm but tropical activity and multiple rain events gave North Carolina plenty of moisture.

CoCoRaHS observers captured local impacts of heavy rainfall events, a hurricane, and dry conditions this summer. Whether wet or dry, our observers were committed to submitting precipitation, significant weather, and Condition Monitoring reports.

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# COCORAHS SPOTLIGHT

## NUMBER OF ACTIVE OBSERVERS

1,049

## NUMBER OF NEW OBSERVERS

78

## NUMBER OF REPORTS

64,434

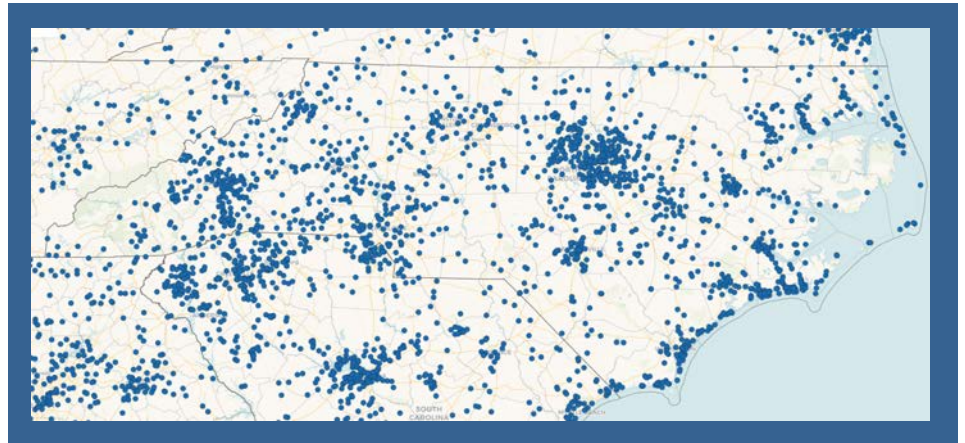
## NUMBER OF CONDITION MONITORING REPORTS

335

## HIGHEST 1-DAY RAINFALL REPORT

10.92"

## ACTIVE STATIONS



Summer 2020 had a mix of both wet and dry conditions, and CoCoRaHS observers collected rainfall and described their local conditions through all of it. This season, **78 new observers** joined the program, bringing the total number of active observers in NC, or those who have reported in the last year, to **1,049**. Throughout the summer, **64,434 reports** were submitted between daily, multi-day, and significant weather categories.

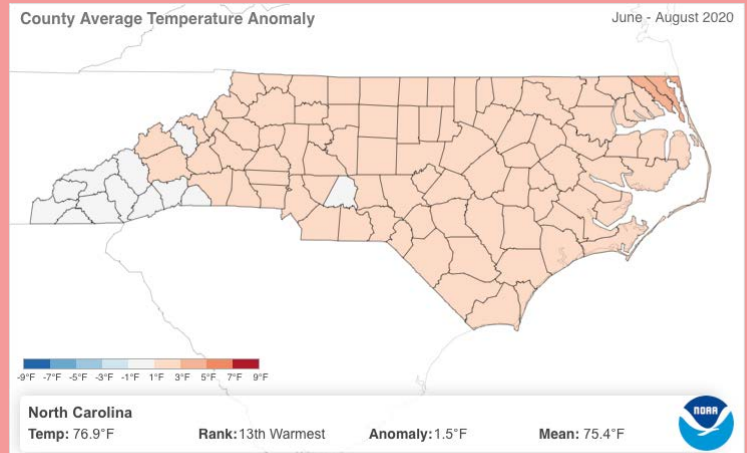
Additionally, **335 Condition Monitoring reports** were submitted, which helped the NC Drought Management Advisory Council to keep track of on-the-ground impacts from the hotter and drier weather in July. On the other hand, observers filled in the gaps between networks during the multiple heavy rainfall events in August. The **highest CoCoRaHS report was 10.92"**, submitted by observer **NC-SM-23** in Sampson County on June 20th. This observer also noted flash flooding and rescue efforts in their area.

# A GLANCE AT SUMMER

## TEMPERATURE

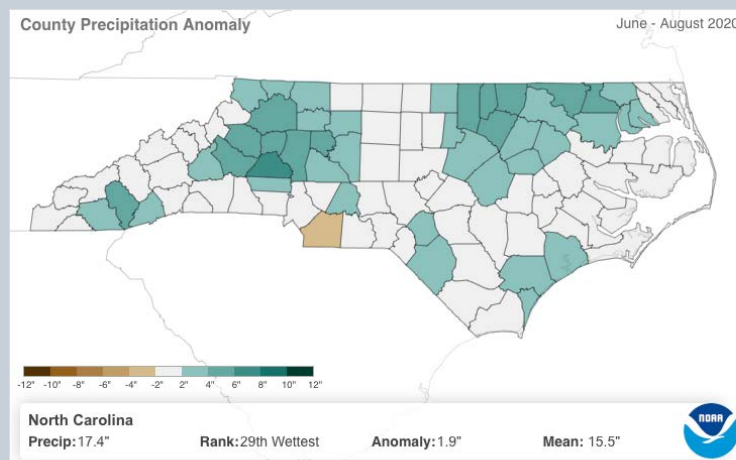
This summer, the average temperature was **76.9°F** (1.5°F warmer than the 1901-2000 average). It was the **13th warmest summer** on record (since 1895), and **minimum temperatures were the 3rd warmest**. Camden and Currituck Counties experienced their 3rd warmest summer on record as well.

While summer was overall warmer than normal across most of the state, there was monthly variability. Summer began cooler, with June ranked as the **49th coolest** on record. However, the heat ramped up in July, which was the **6th warmest** on record for NC. 9 counties, including Halifax to Currituck County, broke their record for warmest July on record. August was also warmer than average and ranked **16th warmest** statewide.



## PRECIPITATION

The statewide average precipitation this summer was **17.4"** (1.9" above the 1901-2000 average). Many counties were near their typical summer rain totals, but several heavy rainfall events brought **wetter than average** conditions to several counties across the state,



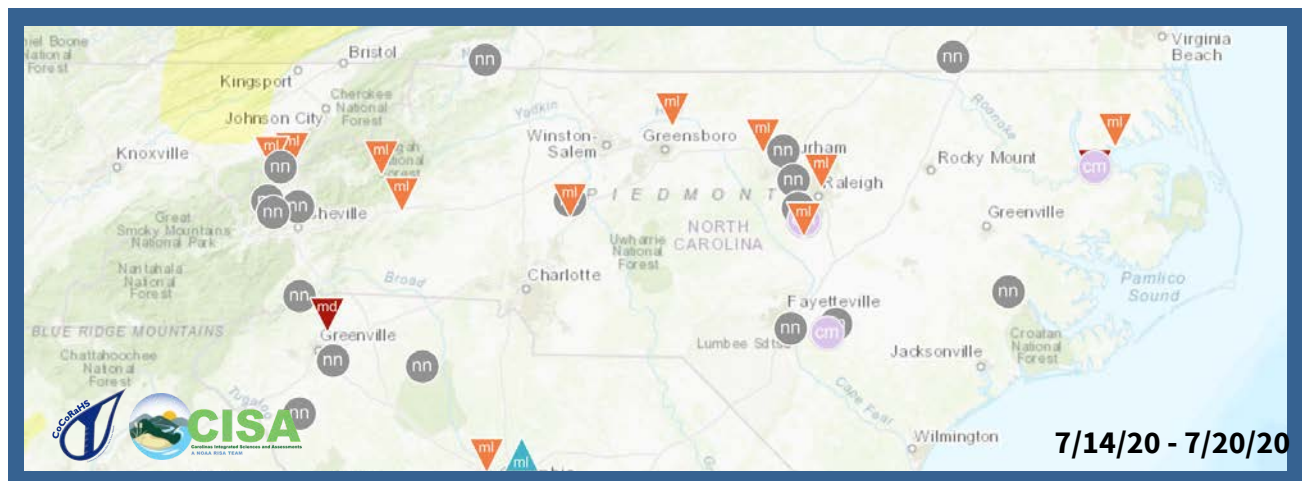
making this the **29th wettest summer** on record (since 1895). Monthly variability was also seen, as June was **near-normal** while July was the **32nd driest** on record and August was the **11th wettest**. The swing between dry and wet conditions was especially evident along the NC-VA border. Halifax and Northampton Counties experienced their **5th driest July** on record, then switched to their **11th and 8th wettest August**, respectively. At summer's end, a hurricane, low pressure systems, and pop-up thunderstorms left no drought concerns in NC.



# CONDITION MONITORING

CoCoRaHS Condition Monitoring (CM) reports provide an additional value to precipitation measurements by showcasing on-the-ground impacts of rainfall, or lack thereof, to observers' local landscapes. During times of drought, the reports are used to track progress or degradation of the observer's descriptions of soils, vegetation, streamflows, and other local conditions. During heavy precipitation events, the reports can give information about the severity of flooding and how it affects the observer's area. In other cases, they are useful for giving a baseline of what is considered to be normal to an observer.

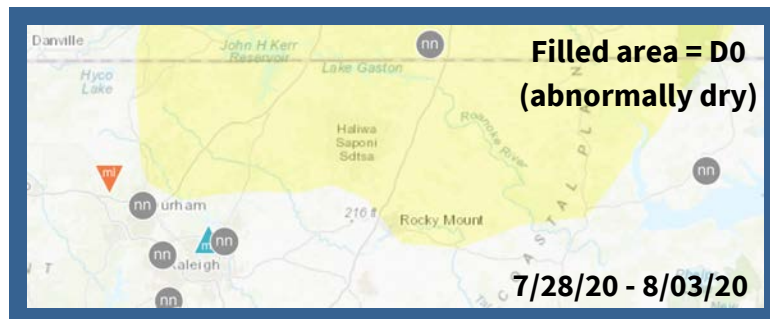
## TRACKING A WARM AND DRY JULY



July was **warmer and drier than average** across NC, and this was reflected in numerous **mildly dry** CM reports by mid-July (above image). At this time, precipitation had been less than **75% of normal** for the past 30 days across much of the state. In Raleigh (Wake County), an observer noted that "**soils are drying out and stream flows [are] decreasing.**" An observer in Hertford (Pasquotank County) reported that "**ditches are dry. Corn fields are tall with silk turning brown.**" In Hillsborough (Orange County), the "**Eno River [was] very low, rocks exposed...**" Reports like these were tracked to determine if drought conditions had emerged. By the end of July, an **abnormally dry** designation was briefly introduced to the U.S. Drought Monitor along the NC-VA border. However, rainfall from **Hurricane Isaias quickly alleviated this area of dryness** and reports transitioned to near normal or mildly to moderately wet in eastern NC.

## CONDITION MONITORING, CONTINUED





Unfortunately, the area of abnormal dryness (right image) was also an area that lacked CM reports. This D0 designation was based on several indicators, but CM reports would have been beneficial for local impacts



information. **To submit a CM report, click Condition Monitoring under Resources on the CoCoRaHS homepage.** If you've never submitted a CM report, a useful resource is below. Amanda Farris, Program Manager of the Carolinas Integrated Sciences and Assessments (CISA), said, "The CISA team developed this **'Helpful Reporting Hints for CoCoRaHS Observers'** based on feedback we received from CoCoRaHS data users about how they use the information in these different types of CoCoRaHS reports. The guidance was designed to help CoCoRaHS volunteers know which type of report to submit for different kinds of weather events and the most useful information to include in each type of report."

### HELPFUL REPORTING HINTS FOR COCORAHHS OBSERVERS IN THE CAROLINAS

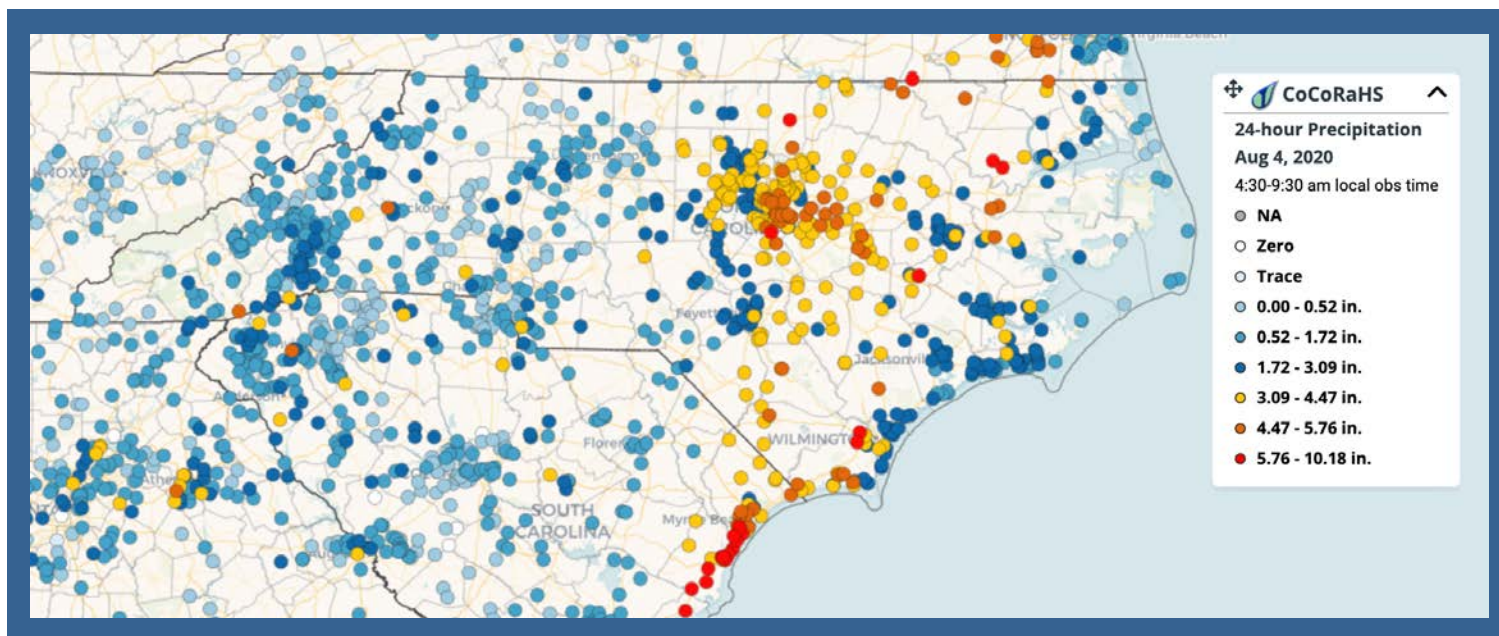
There are many ways you can provide information about your local weather and environment. Each report type tells a slightly different story about what is happening in your local area. All are important for meteorologists and scientists who monitor specific weather events and how conditions are changing over time. We encourage you to give them a try!

	SIGNIFICANT WEATHER REAL-TIME	DAILY COMMENTS SHORT-TERM	CONDITION MONITORING LONG-TERM
 <b>WHEN TO REPORT</b>	<ul style="list-style-type: none"> <li>During intense rain, hail, or snow events</li> <li>Submit reports as conditions change to convey what is happening in real time</li> </ul>	<ul style="list-style-type: none"> <li>Each morning in your daily precipitation report, under "Observation Notes"</li> </ul>	<ul style="list-style-type: none"> <li>Weekly, if possible, to document how precipitation received has affected your local environment</li> <li>Consistent reporting helps document change over time</li> </ul>
 <b>WHAT TO REPORT</b>	<ul style="list-style-type: none"> <li>Rain, hail, snow, or ice measurements</li> <li>When the event occurred and how long it lasted</li> <li>Impact observations from flooding, wind damage, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Brief observations about what happened in the last 24 hrs to give context to your report</li> <li>Include high/low temperatures and timing and duration of weather events</li> </ul>	<ul style="list-style-type: none"> <li>Precipitation amounts for the time period or weather event on which you are reporting</li> <li>Specific locations that you regularly observe (ex. lakes, streams, or other local areas)</li> <li>Descriptions of how wet or dry periods or seasonal changes have affected your area</li> </ul>
 <b>WHO USES YOUR REPORT</b>	<ul style="list-style-type: none"> <li>Reports go immediately to your National Weather Service Office</li> <li>Reports are used to create and verify severe weather statements and warnings</li> </ul>	<ul style="list-style-type: none"> <li>Organizations and agencies such as the National Weather Service use the reports to verify precipitation data and other weather observations daily</li> </ul>	<ul style="list-style-type: none"> <li>The following agencies use these reports to monitor on-the-ground wet and dry conditions:               <ul style="list-style-type: none"> <li>National Weather Service Offices</li> <li>State Climate Offices</li> <li>Local drought committees</li> </ul> </li> </ul>
 <b>REPORT EXAMPLE</b>	"Thunderstorms started at 4:26am, hvy winds and driving rain. Standing water in yards. Rain ended 6:30am with fast-moving clouds and overcast skies." [4/13/20, SC-RC-88]	"Steady rain yesterday, ended overnight. Accumulation at 4:00pm was 0.92 inches." [1.03", 10/14/19, NC-GS-8]	"All grass in the fields is dead, dirt areas covered with a few inches of fine powder. Trees are dying, most dropped their leaves a few weeks early. Since August 23, only .66" of rain." [11/8/16, NC-PK-1]



# HEAVY RAINFALL EVENTS

## HURRICANE ISAIAS



Hurricane Isaias made landfall as a **Category-1 hurricane** near Ocean Isle Beach, NC around 11pm the night of **August 3rd, 2020** with max sustained winds of **86 mph**. Isaias brought high winds, heavy rainfall, and storm surge as it quickly moved from south to north across the Piedmont and Coastal Plain. NC received **widespread rainfall totals of 2-4"**, with locally heavier amounts.

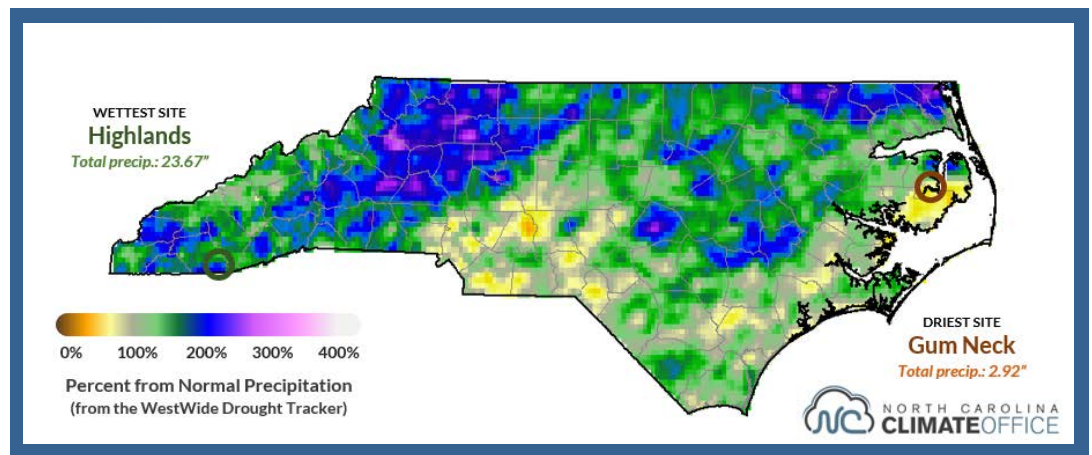
There were **803 CoCoRaHS daily precipitation reports** submitted on August 4th and the **highest report was 6.0"** taken by observer **NC-BT-35** in Bertie County. This was the highest report from any network, again exemplifying the value of CoCoRaHS. The highest daily total from other networks was **4.71"** from a COOP station and **4.72"** from an ECoNet station, both in Oxford (Granville County). This coincided with the **2nd highest CoCoRaHS report** from Isaias of **5.06"** in this area as well, submitted by observer **NC-GV-10**.

Many locations in western NC received up to 2" of rain during this period as well, although this was not due to Isaias but a stalled frontal boundary.

## HEAVY RAINFALL EVENTS, CONTINUED

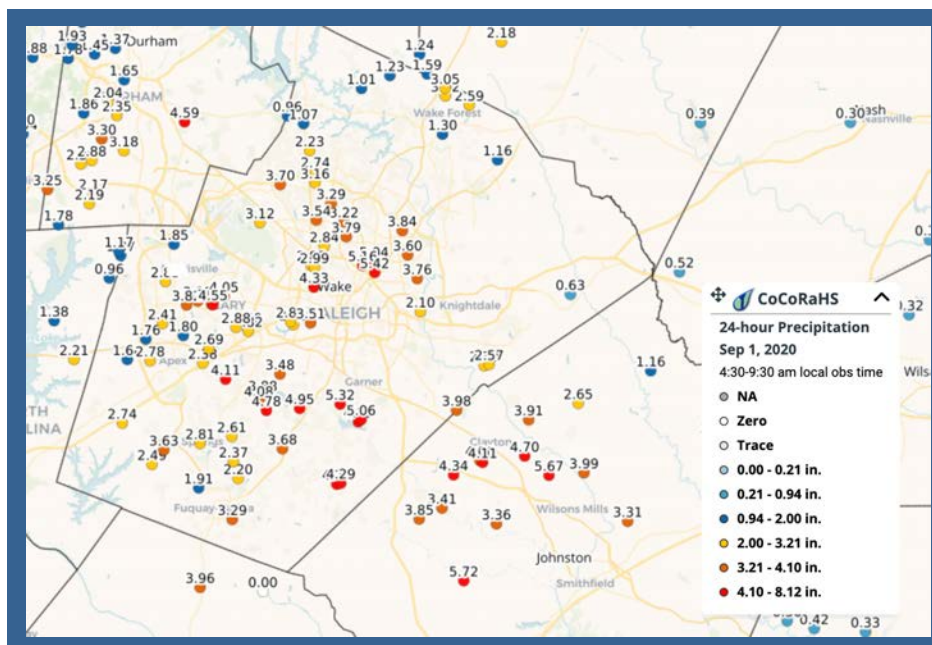
### AUGUST 2020 PERCENT FROM NORMAL PRECIPITATION

**13TH  
WETTEST  
AUGUST ON  
RECORD**



Several rainfall events led to NC's **13th wettest August on record** (since 1895) and the wettest since 1992. At the beginning of the month, **Hurricane Isaias** brought widespread **2-4"** of rain to the Piedmont and Coastal Plain. During the same time frame, western NC received up to **2"** of rain from a **stalled frontal system**. A few days later, from August 5th-9th, another **stalled frontal system** in western NC brought additional rainfall. Observer **NC-FR-35** in Forsyth County reported **5.61"** on August 7th due to **thunderstorms** the previous evening.

On August 15th, a **low pressure system** brought multiple lines of thunderstorms across all regions of NC. In the Piedmont, observers recorded up to **4.77"** of rain and another area in the NE Coastal Plain received up to **5.05"**. Another notable event occurred on August 31st in



Johnston and Wake Counties. The **slow-moving thunderstorms** caused flash flooding and the Neuse River in Smithfield reached moderate flood stage. CoCoRaHS observers captured this event very well (left image) and **21 observers reported over 4"** of rain. The highest total of **5.72"** was submitted by observer **NC-JH-65** in Johnston County.



## WRAP UP

### THANK YOU!

Thank you to all of our observers for your diligent work this summer! This newsletter is to highlight *your* work and show how much we appreciate you. If you're a new observer, we're excited to welcome you aboard! Interested in joining? Sign up at [cocorahs.org](http://cocorahs.org).

If you're reading this and thinking to yourself, "hmm...I haven't made a report in a while," no worries. You can dust off the cobwebs of your rain gauge at any time and come back to join the fun. Let us know if you'd like to become active again!

### NEED HELP OR HAVE QUESTIONS?

Do you ever run into a question or need help?  
That's what your CoCoRaHS coordinators are here for! For a complete list of local NC coordinators, go to [https://www.cocorahs.org/Content.aspx?page=coord\\_nc](https://www.cocorahs.org/Content.aspx?page=coord_nc).

#### State Coordinators:

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