

Welcome!



In the chat: What weather event was most memorable in 2024 to you?

Our Weather Year in Review: 2024



Dr. Kathie Dello

State Climatologist



Corey Davis

Assistant State
Climatologist

Logistics

- Please mute yourself and turn off video
- Beginning with ~45 minutes of presentation
- Type questions in the chat for a Q&A at the end

Follow along on
social media:

#NCclimate2024

 **@NCSCO**

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 **ncsco.bsky.social**

 **State Climate Office
of North Carolina**

About the State Climate Office

*The State Climate Office of North Carolina is a UNC System **Public Service Center** dedicated to serving the needs of North Carolinians by translating climate information into useful and usable knowledge, and bridging the gap between scientists, decision-makers, and community members.*





2024, By the Numbers



North Carolina in 2024

Our *2nd-warmest* year on record since 1895

- Statewide average temperature of **61.2°F**
- **+2.6°F** vs. the 1991-2020 average

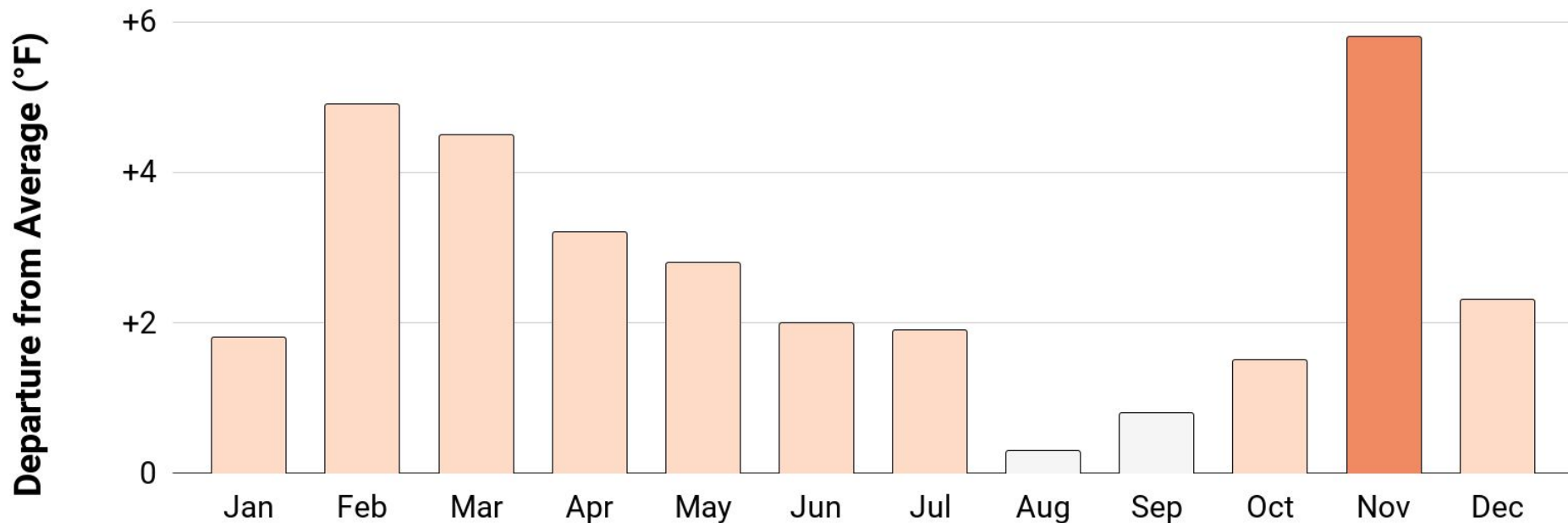


National Centers for
Environmental Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



Sunset in Lincolnton on June 26, by Robin Montgomery via X

Monthly Temperature Departures (vs. 1901-2000)



Record Coldest

Coldest 10%

Coldest 33%

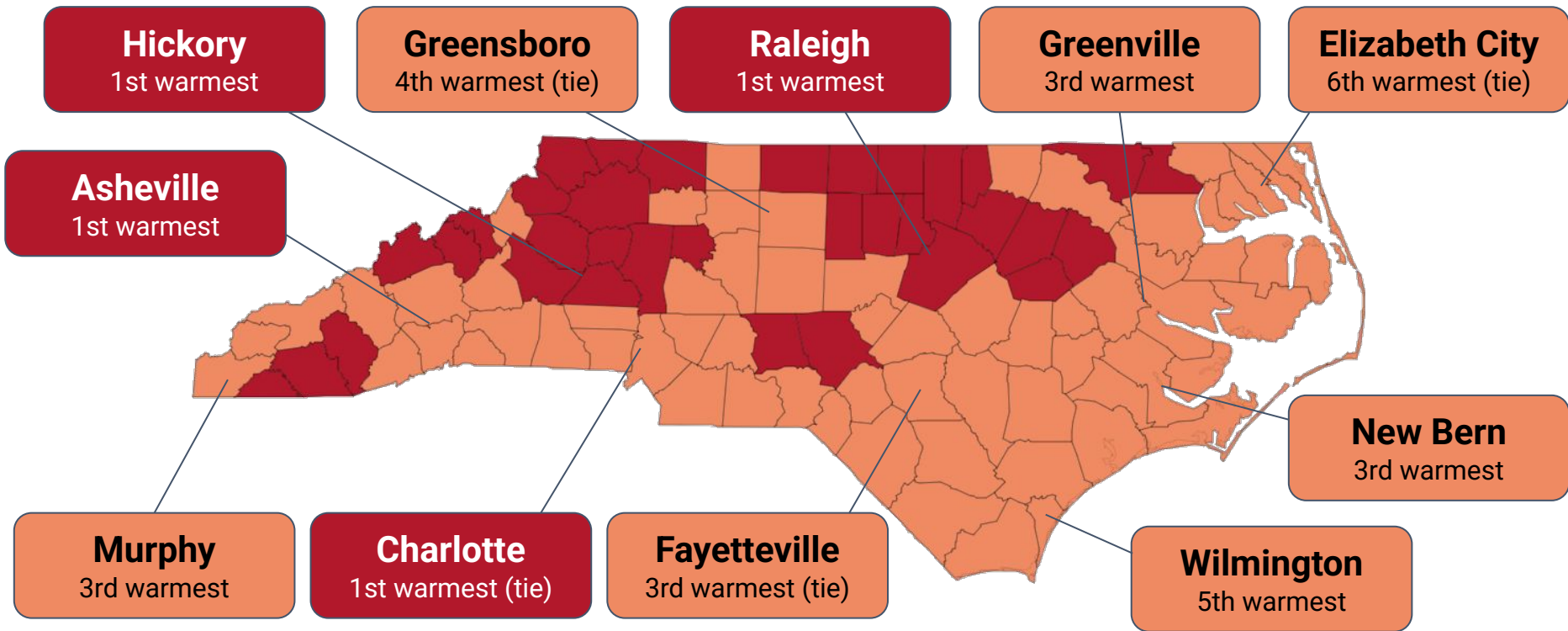
Near-Normal

Warmest 33%

Warmest 10%

Record Warmest

Annual Mean Temperature Rankings



Record Coldest

Coldest 10%

Coldest 33%

Near-Normal

Warmest 33%

Warmest 10%

Record Warmest

North Carolina in 2024



Highway 17 in Brunswick County after PTC8, by NC DOT

Our **31st-wettest** year on record since 1895

- Statewide average precipitation of **53.01"**
- **+3.68"** vs. the 1991-2020 average

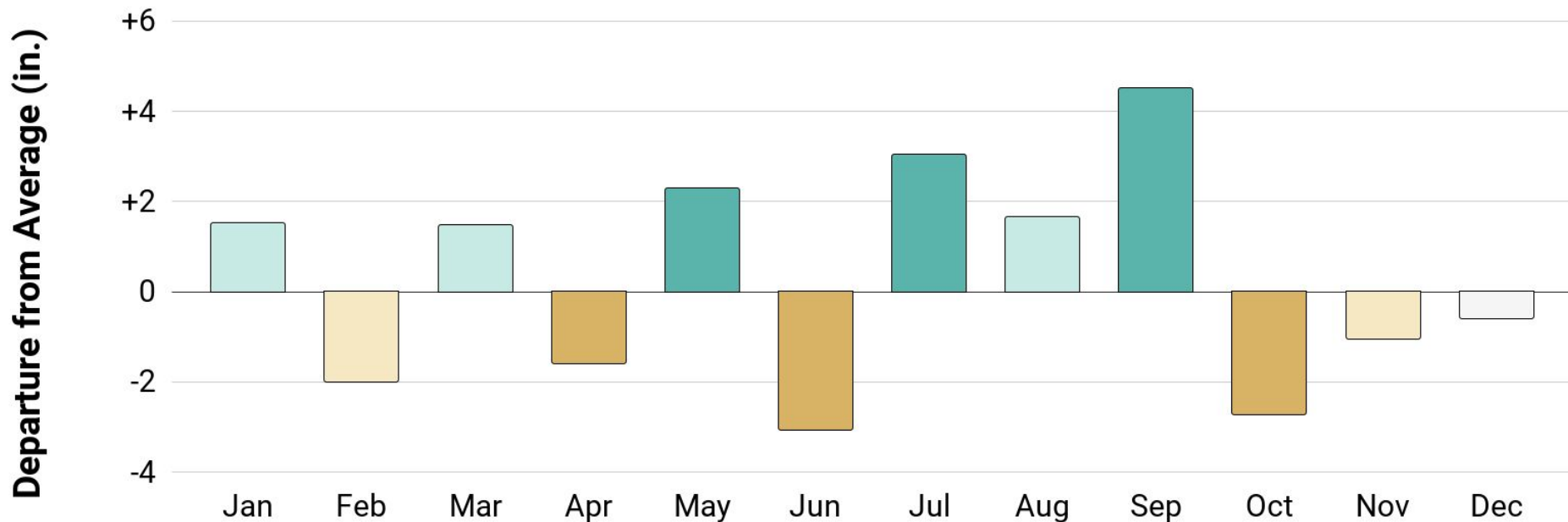


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Monthly Precipitation Departures (vs. 1901-2000)



Record Driest

Driest 10%

Driest 33%

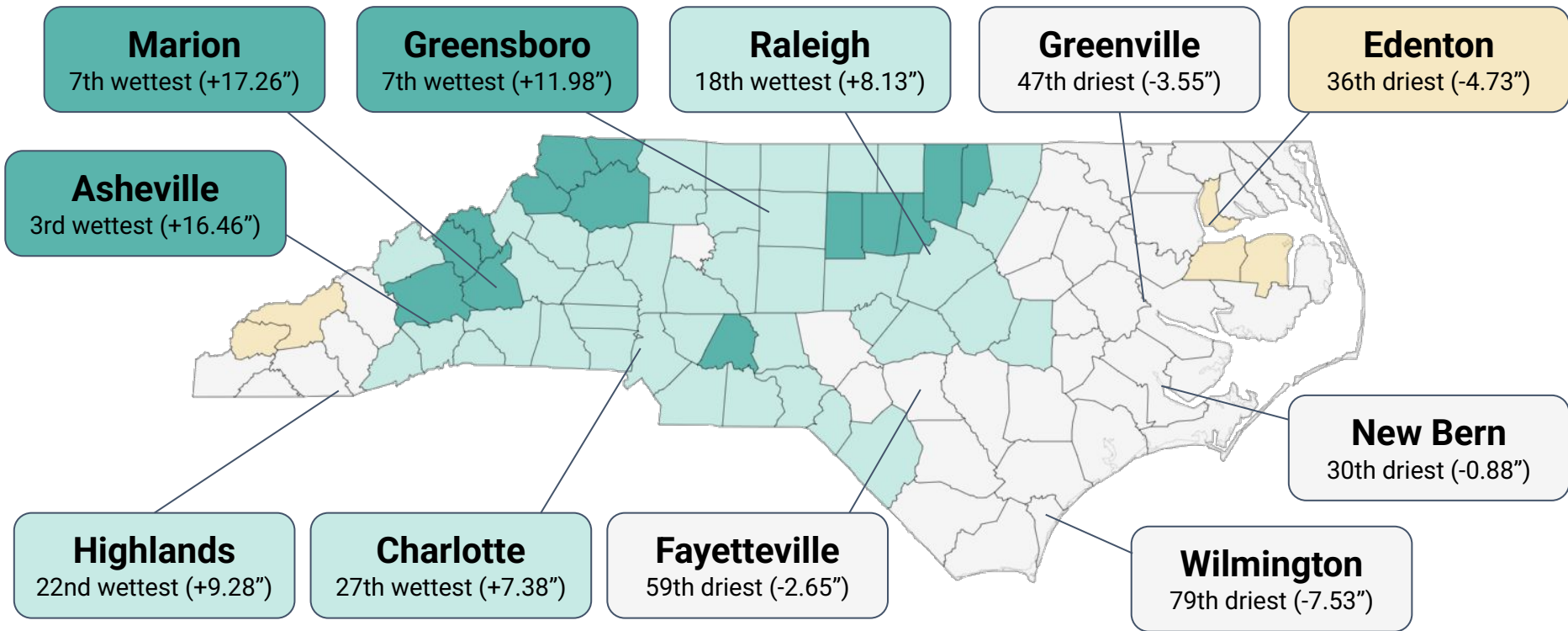
Near-Normal

Wettest 33%

Wettest 10%

Record Wettest

Annual Precipitation Rankings



Record Driest

Driest 10%

Driest 33%

Near-Normal

Wettest 33%

Wettest 10%

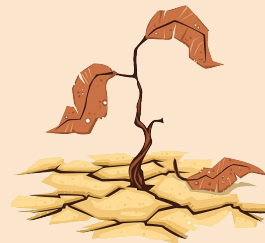
Record Wettest

Major Weather Stories of 2024

Prevailing Warmth



Multiple Droughts



Heavy Rain & Storms



Weather Whiplash





Prevailing Warmth

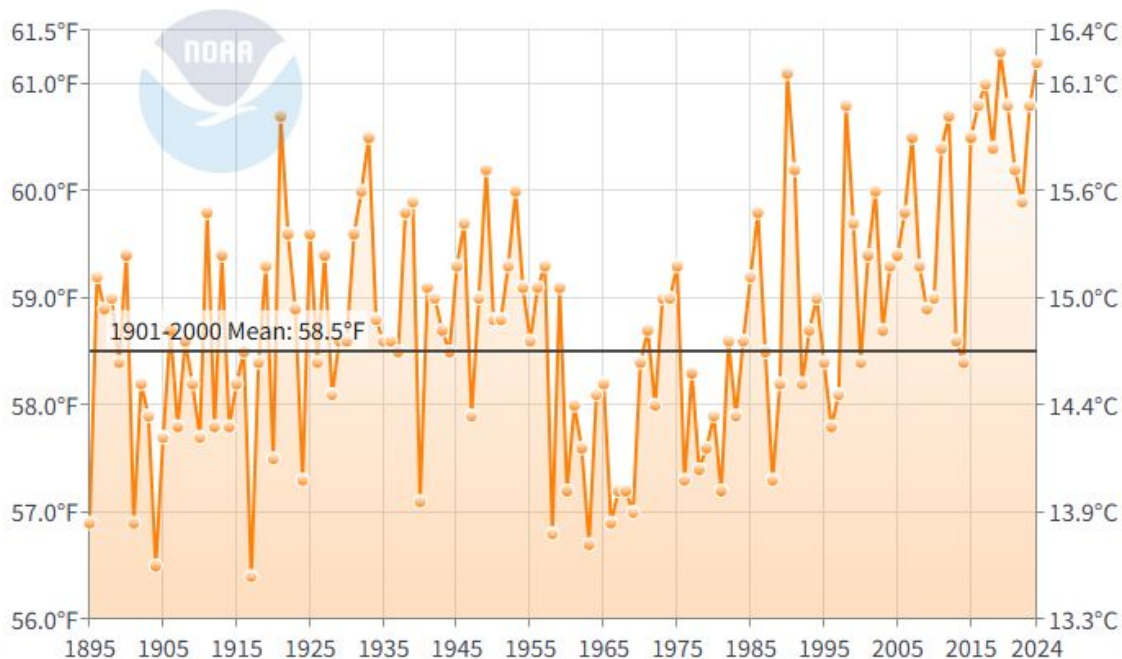


North Carolina's Warmest Years

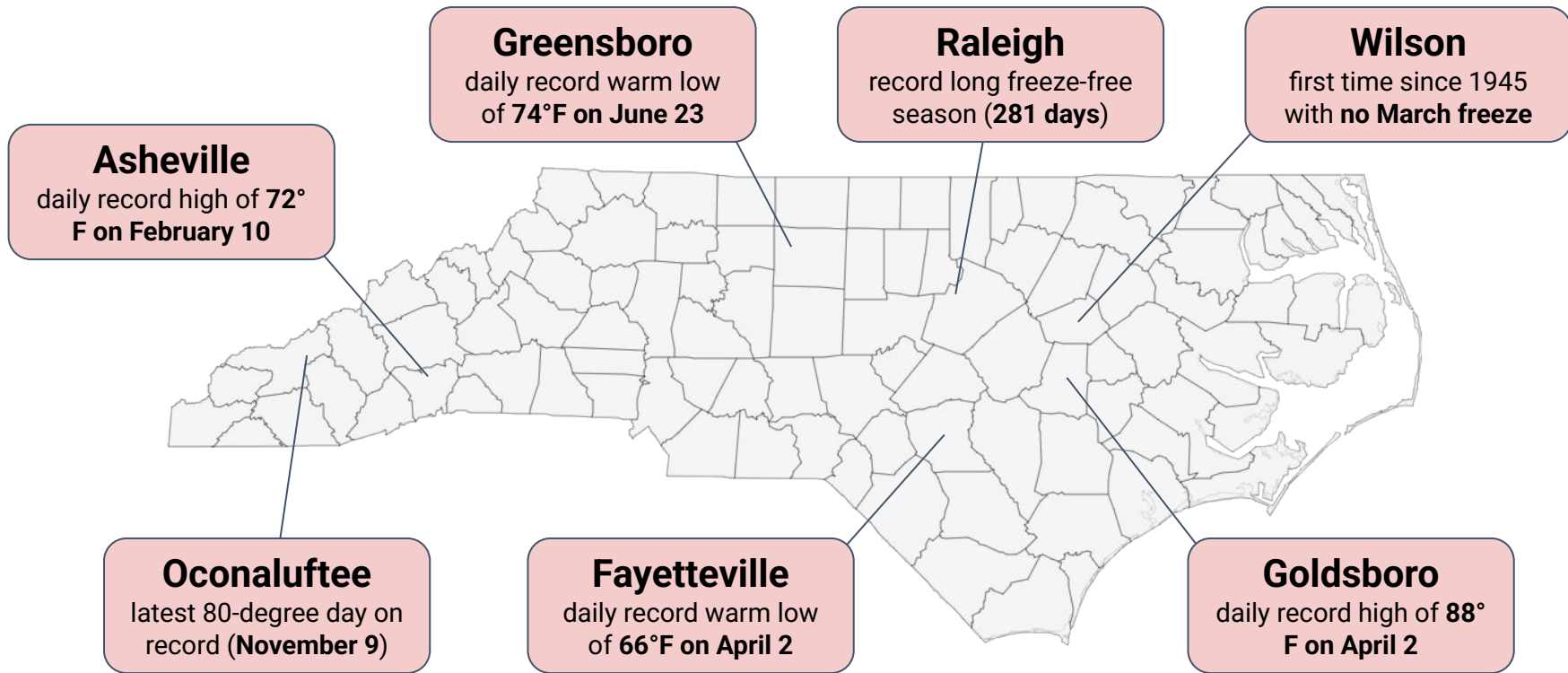
| Rank | Year | Avg. Temp. |
|------|-------------|---------------|
| 1 | 2019 | 61.3°F |
| 2 | 2024 | 61.2°F |
| 3 | 1990 | 61.1°F |
| 4 | 2017 | 61.0°F |
| 5 | 2016 | 60.8°F |
| 6 | 2020 | 60.8°F |
| = | 1998 | 60.8°F |
| 8 | 2023 | 60.8°F |
| 9 | 1921 | 60.7°F |
| 10 | 2012 | 60.7°F |
| 11 | 2015 | 60.5°F |
| 12 | 2007 | 60.5°F |
| 13 | 1933 | 60.5°F |
| 14 | 2018 | 60.4°F |
| 15 | 2011 | 60.4°F |

North Carolina Avg Temp

January-December



Local Signs of Warmth





Multiple Droughts

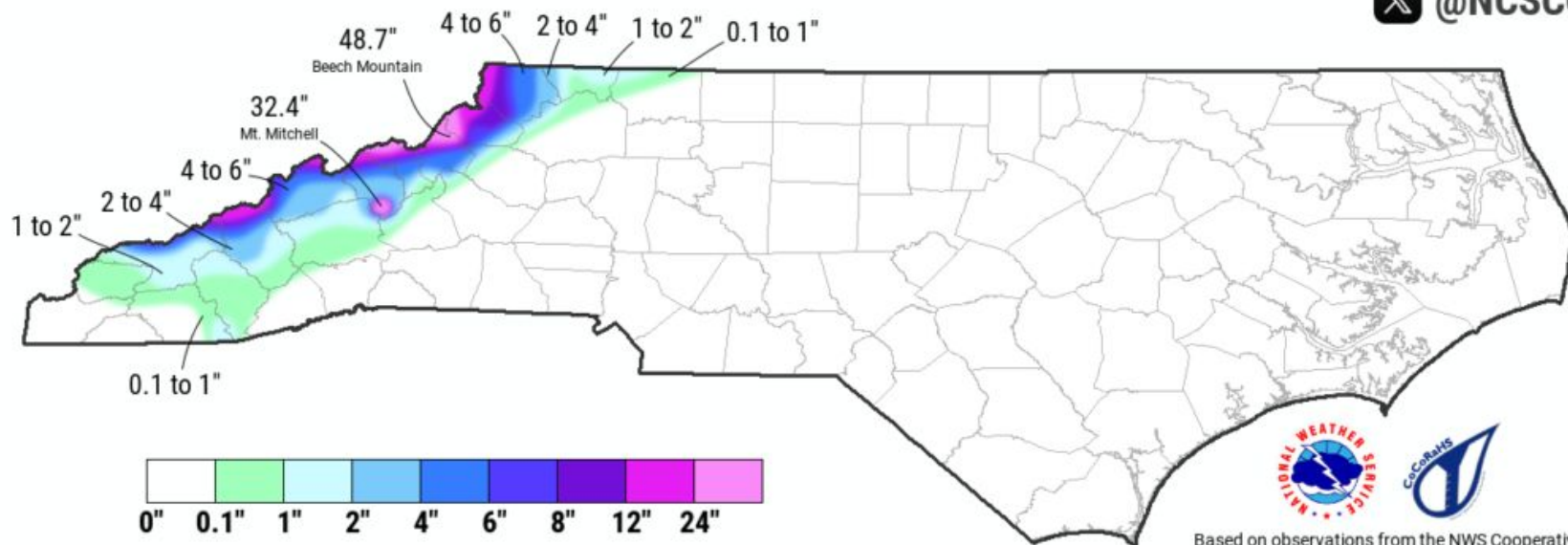
Another Snowless Winter

Total Snowfall

Nov. 2023 to Mar. 2024



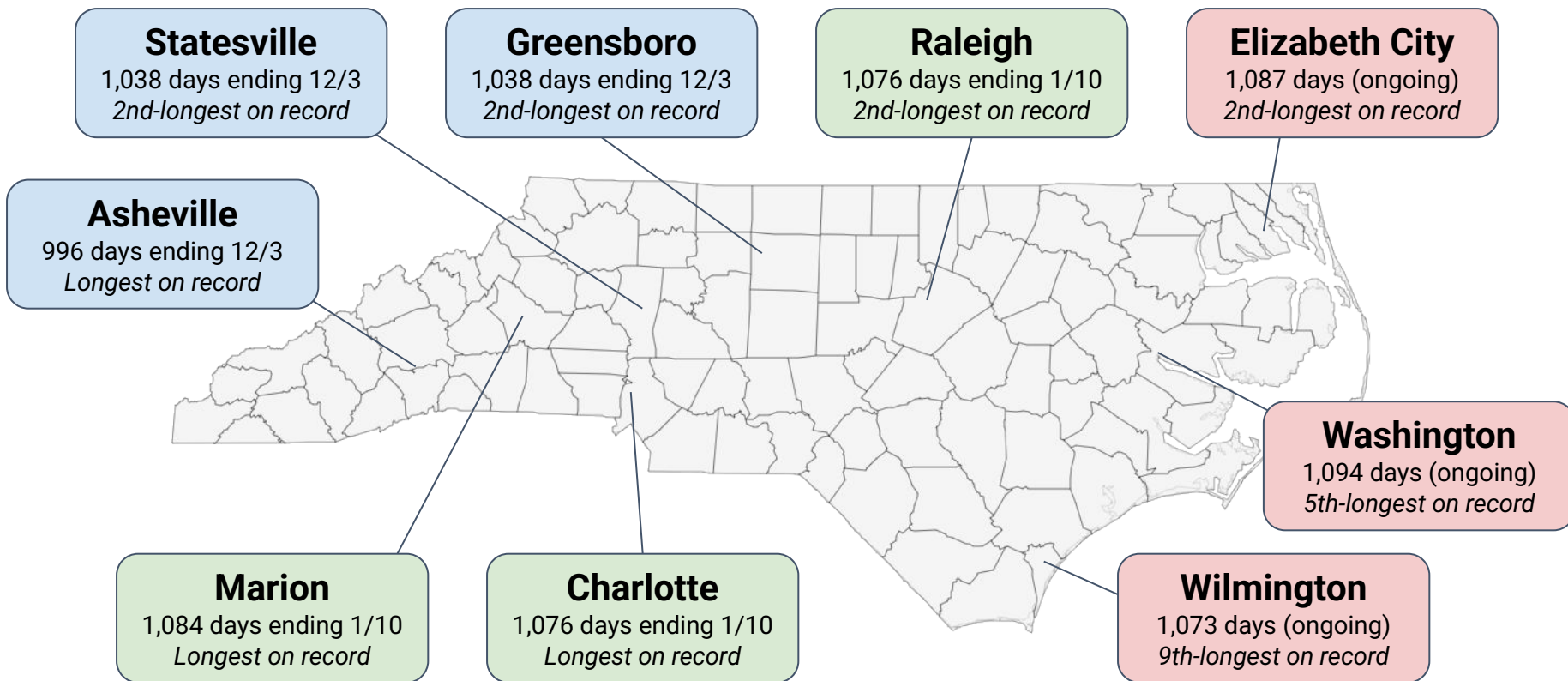
@NCSCO



Based on observations from the NWS Cooperative Observer network and CoCoRaHS

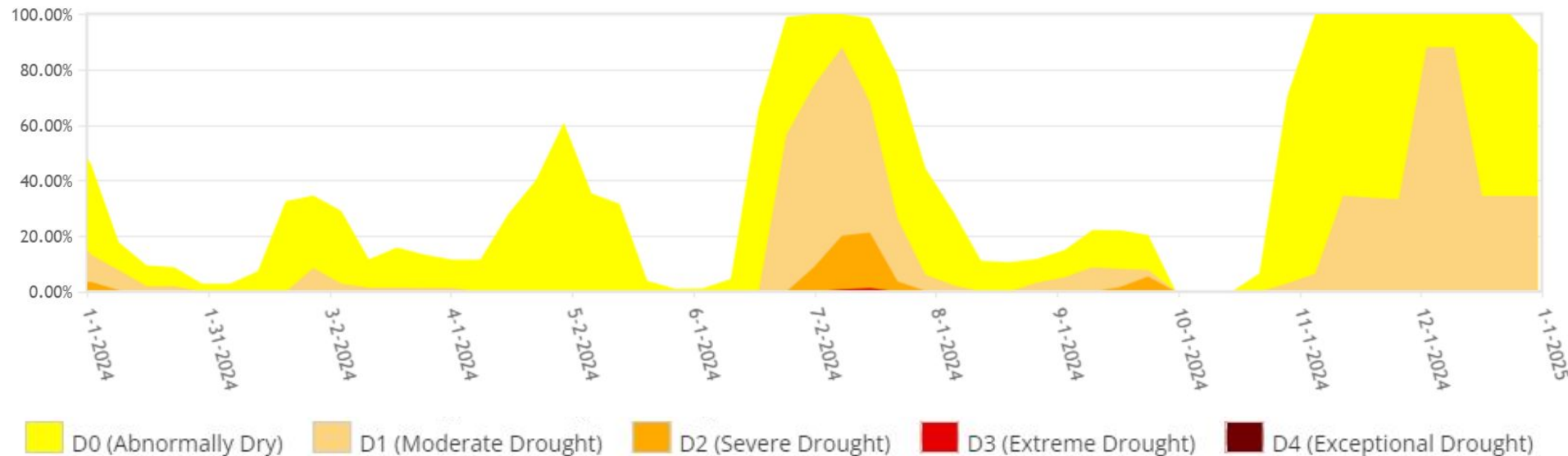


Lengthy Measurable Snow Droughts

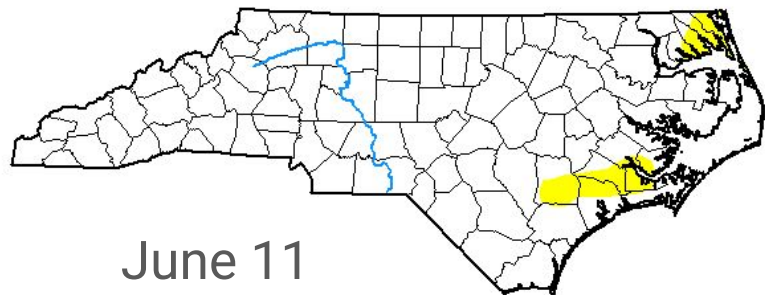


Drought Occurrence in 2024

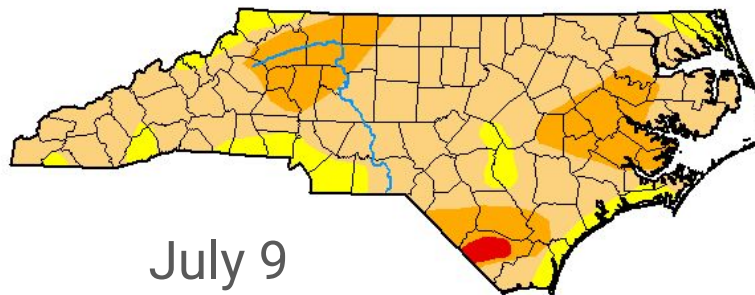
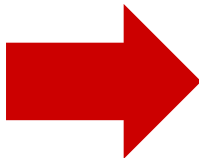
North Carolina Percent Area in U.S. Drought Monitor Categories



Summer Flash Drought



June 11



July 9

U.S. Drought Monitor
North Carolina

Intensity:

-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought

-  D3 Extreme Drought
-  D4 Exceptional Drought



<http://droughtmonitor.unl.edu/>

Drought Impacts



Crop Damage/Loss
especially to corn



By Carolina Public Press



Water Conservation
for eastern locales



By The East Group



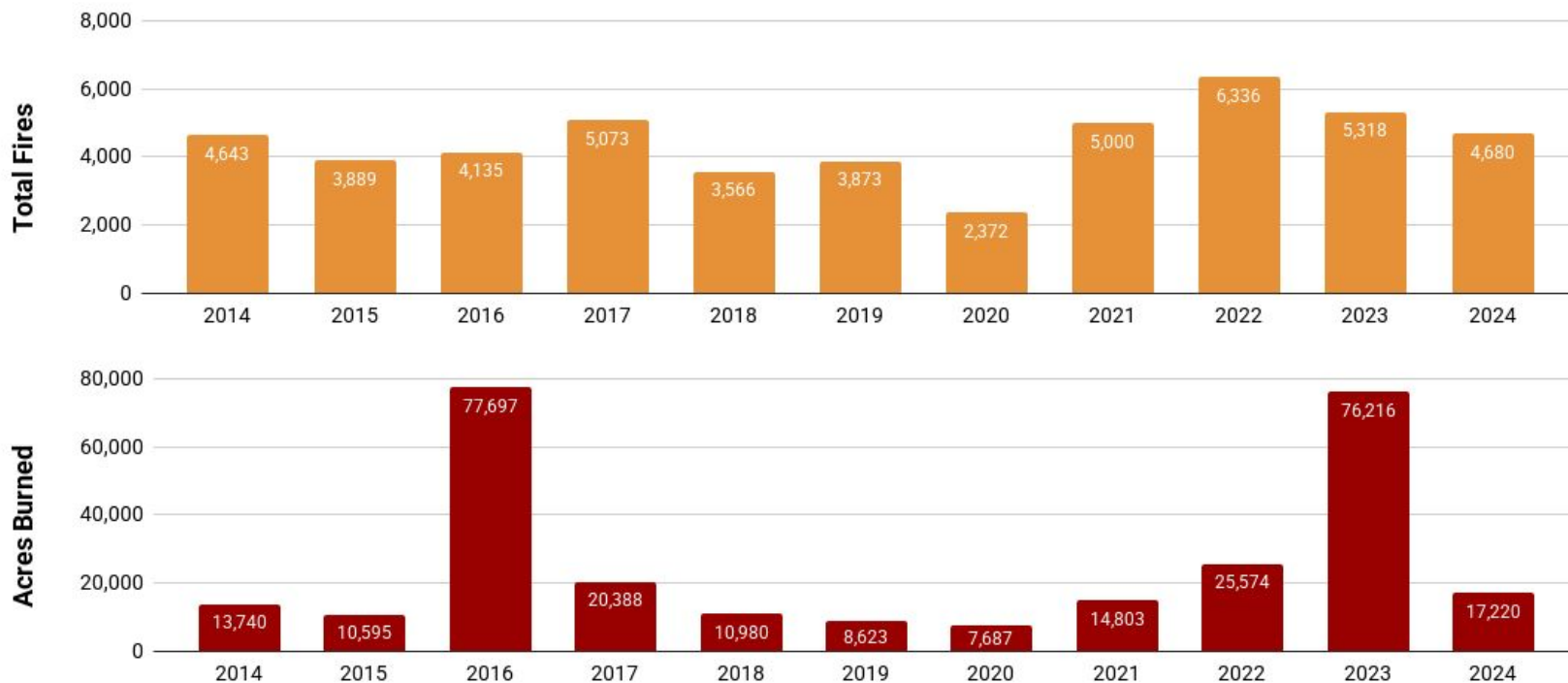
Wildfire Activity
in summer and fall



By US Forest Service

Wildfire Activity

*Preliminary data for 2024;
for state and private lands*









Heavy Rain & Storms

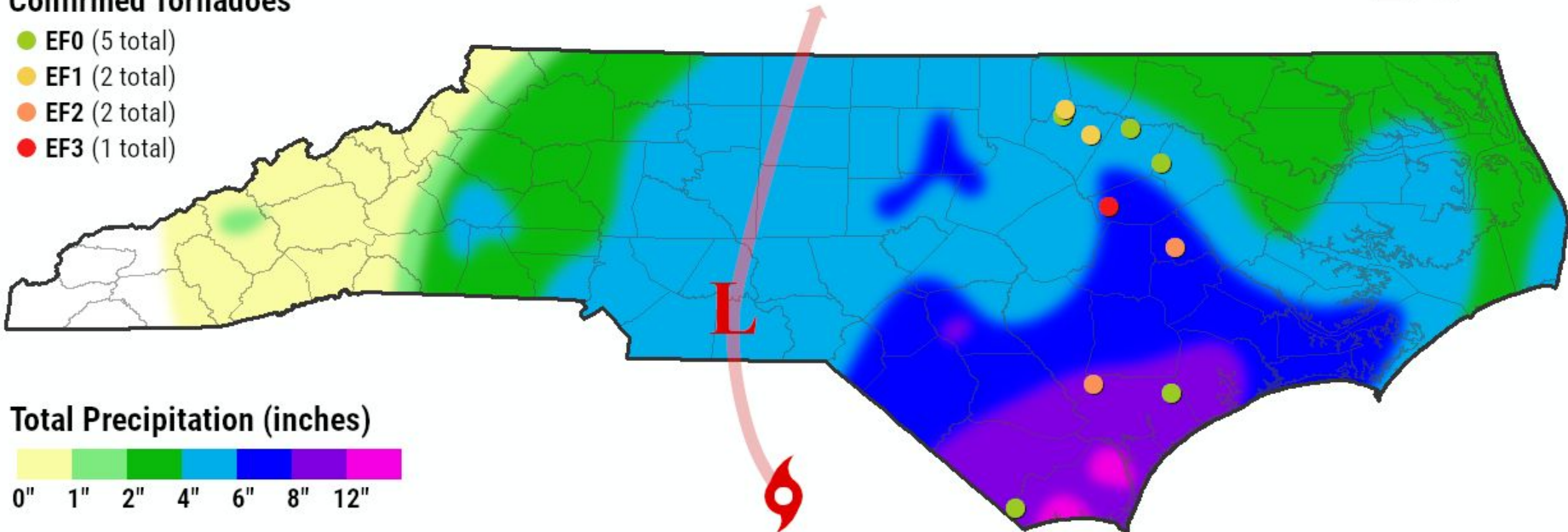


Tropical Storm Debby

August 6 to 9, 2024

Confirmed Tornadoes

-  EF0 (5 total)
-  EF1 (2 total)
-  EF2 (2 total)
-  EF3 (1 total)



Total Precipitation (inches)



Based on observations from weather stations
and CoCoRaHS observers across the state

Debby's Impacts



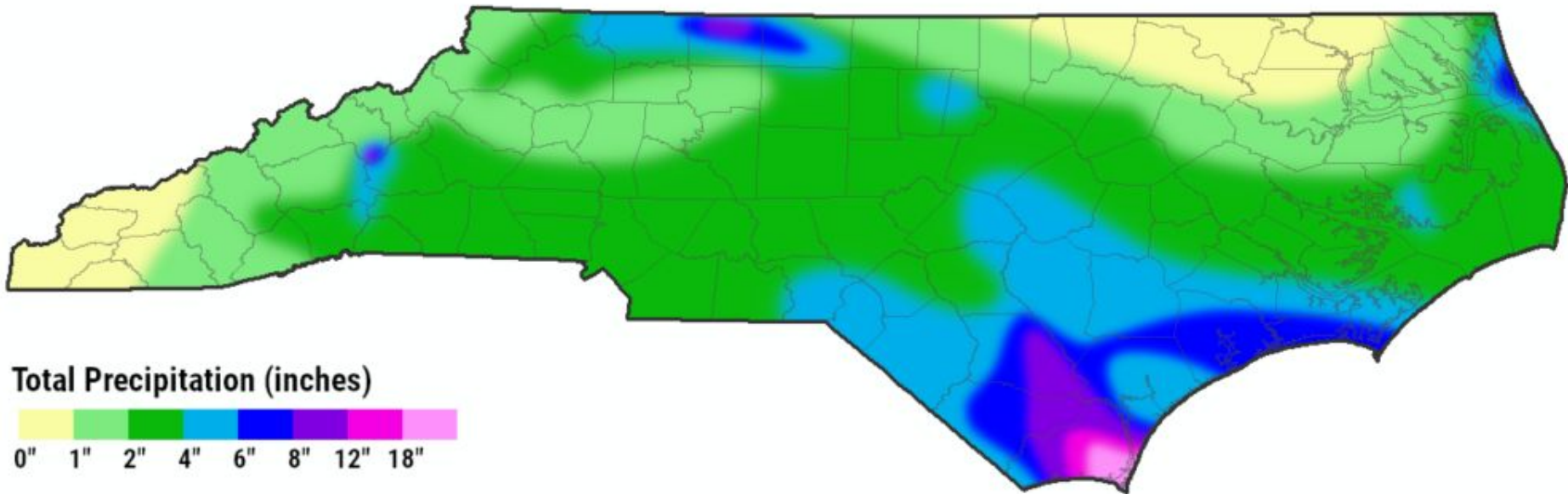
Sugar Creek Greenway in Charlotte (Corey Calloway)



Siple Avenue dam in Fayetteville (Andrew Craft/Fay. Observer)

Pot. Tropical Cyclone Eight

Sep. 14 to 17, 2024



Total Precipitation (inches)



Based on weather station observations, CoCoRaHS reports, and radar-estimated precipitation totals

PTC8 at the Coast



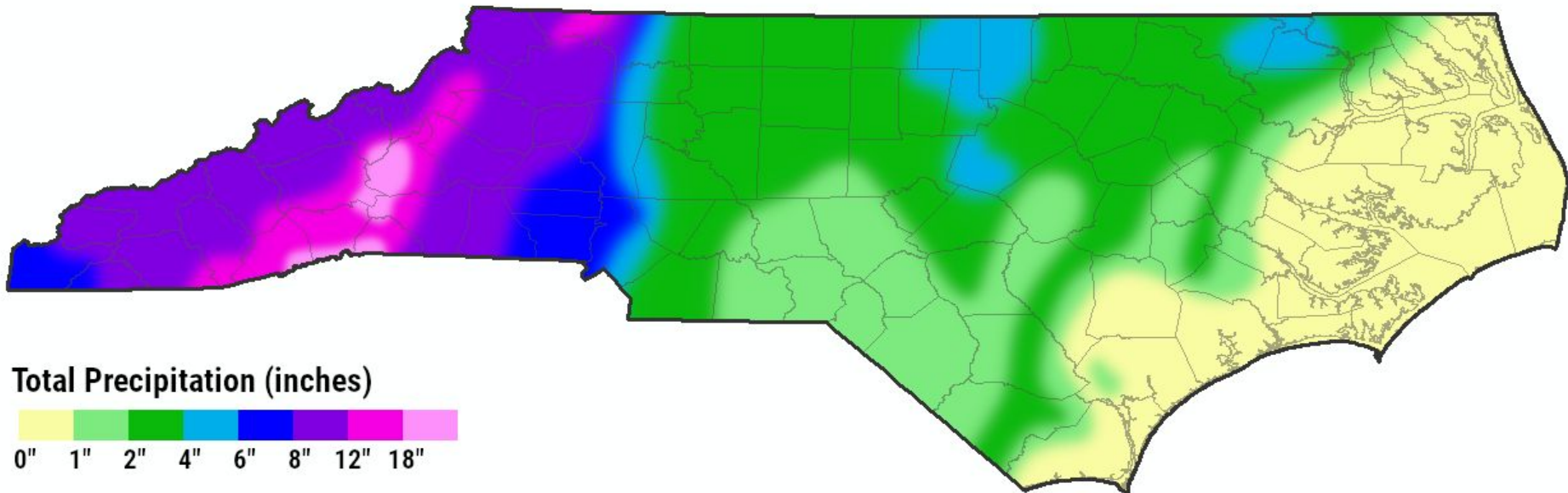
High-water vehicle at Carolina Beach (Wilmington Fire Dept.)



East Moore Street washed out (Southport Police Dept.)

Frontal Event + Helene

Sep. 25 to 27, 2024



Total Precipitation (inches)



Based on weather station observations, CoCoRaHS reports, and radar-estimated precipitation totals

Helene's Flooding



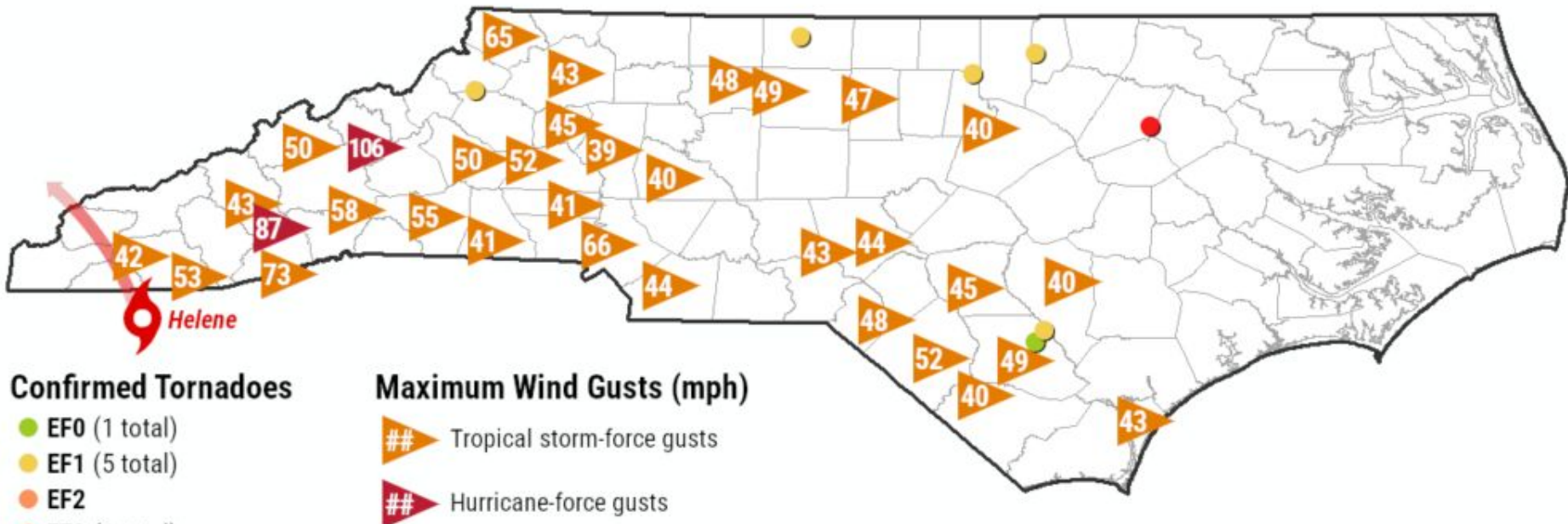
Flooding in downtown Marshall (Old Marshall Jail Hotel)



Flooding and damage in Chimney Rock (Vernon Turner)

Frontal Event + Helene

Sep. 25 to 27, 2024

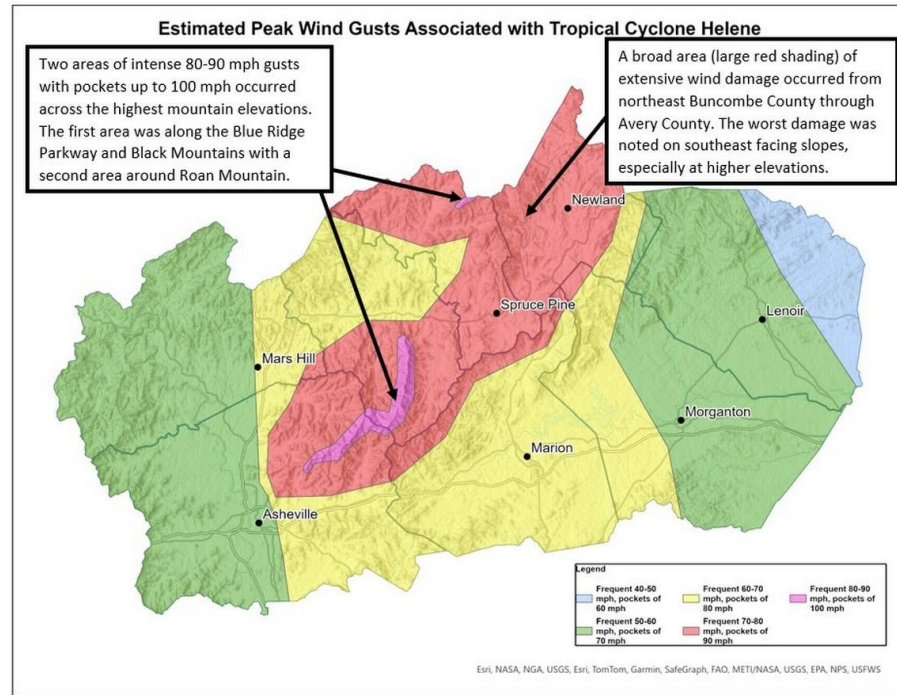


From the NC ECONet and observations collected by the National Weather Service

Helene's Wind Damage



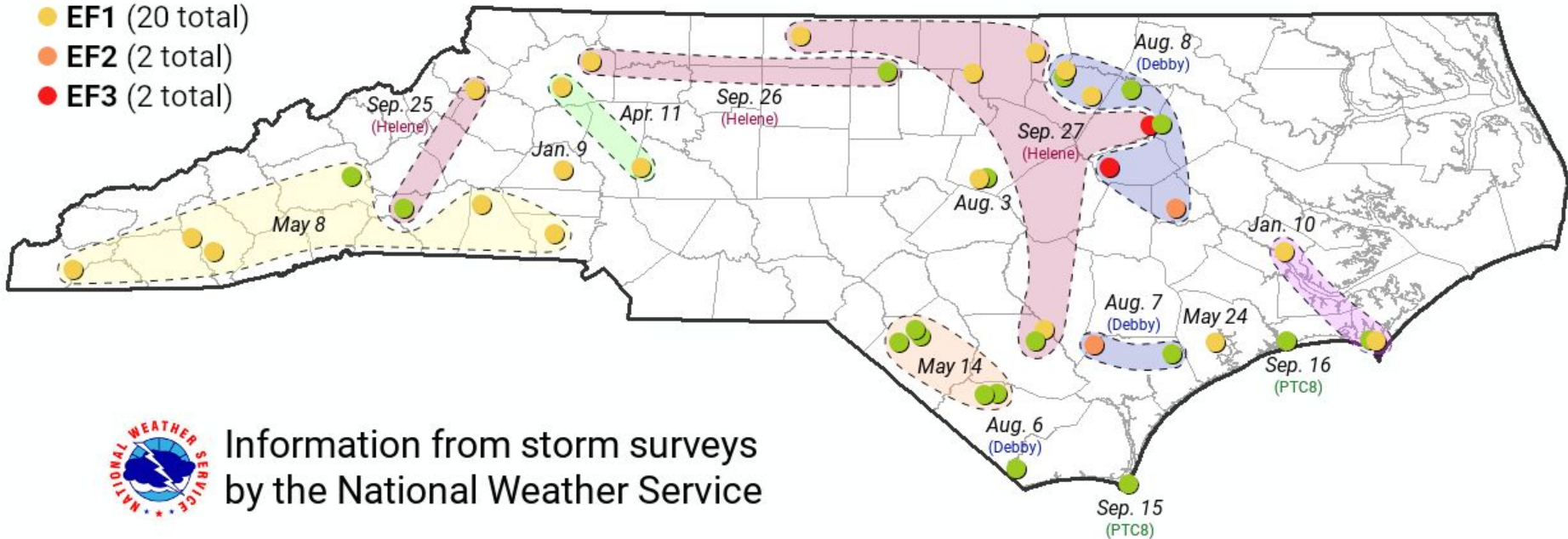
Tree damage in western North Carolina (NC Forest Service)



Confirmed Tornadoes

In 2024

- EF0 (18 total)
- EF1 (20 total)
- EF2 (2 total)
- EF3 (2 total)



Information from storm surveys
by the National Weather Service



Weather Whiplash



Spring Impacts for Agriculture

June 4, Wake County:

Tobacco looks good after rain in the last 2 weeks of May.

March 5, Hyde County:

It's too wet for farmers to get in the fields this week.

April 30, Randolph County:

Planting has slowed due to the recent dry weather.

April 2, Johnston County:

Field conditions are dry enough for planting.

County reports from



A Local Example



June



Photo by Les High/Border Belt Independent

August



Photo by Columbus County Sheriff's Office

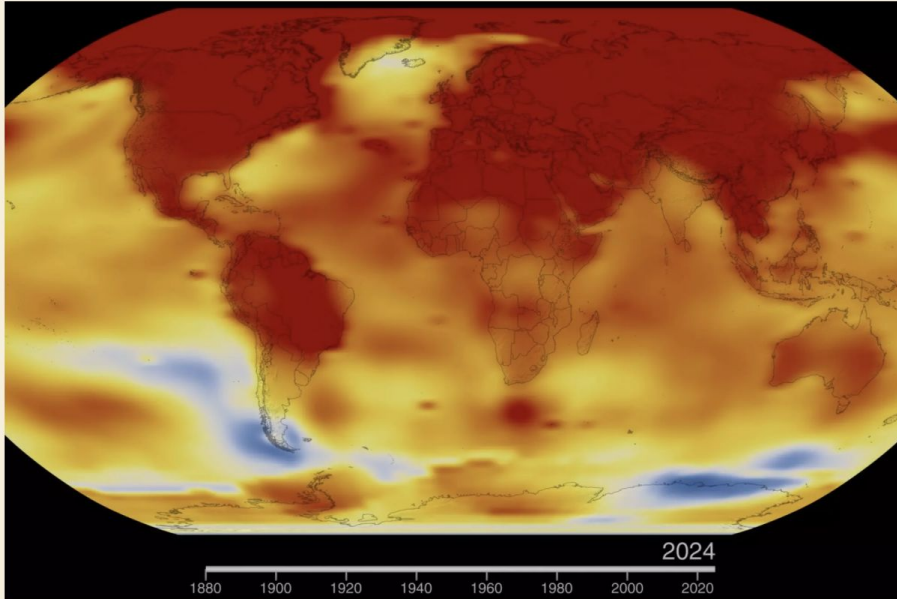


2024 in Perspective



CLIMATE & ENVIRONMENT

2024 was the hottest year on record, NASA and NOAA confirm



This map of Earth in 2024 shows how much warmer or cooler each region of the planet was compared with the average from 1951 to 1980, higher-than-normal temperatures are shown in red and orange, and lower-than-normal temperatures in blue. (Gina Ferazzi / Los Angeles Times)

By Corinne Purfill and Karen Kaplan

Jan. 10, 2025 6:56 PM PT

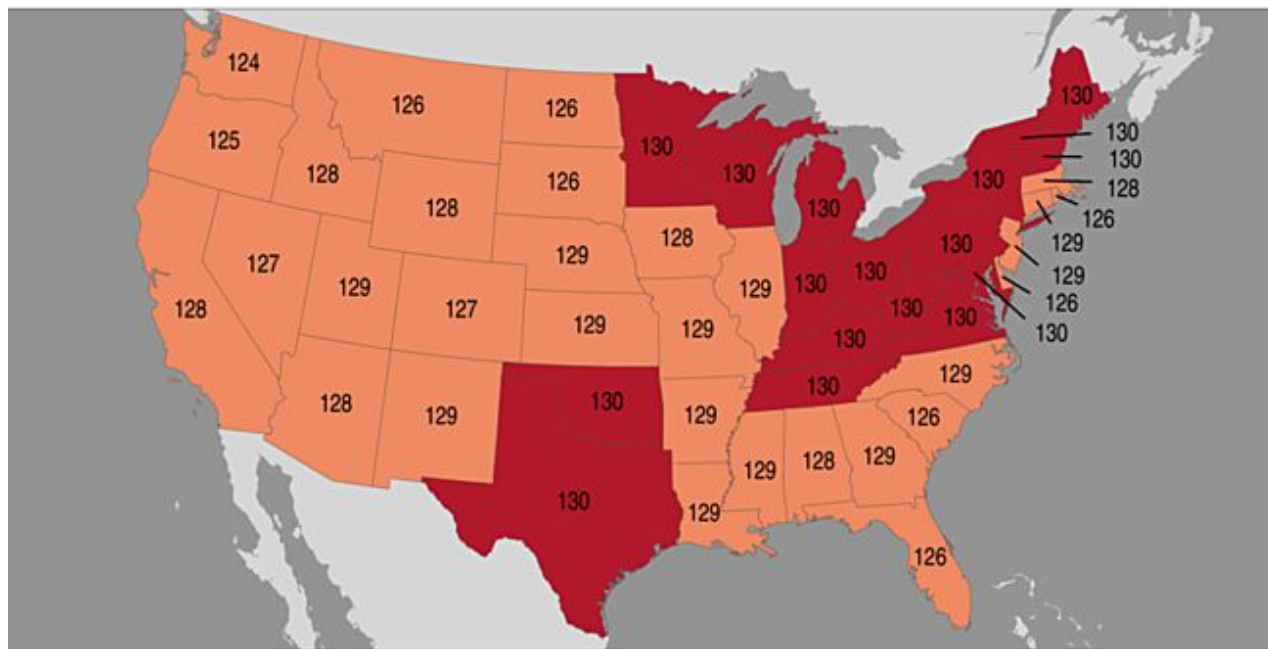
- 2015-2024 are 10 warmest years on record
- 15 consecutive months of records (June 2023-Aug 2024)

Statewide Average Temperature Ranks

January - December 2024

Ranking Period: 1895-2024

NOAA's National Centers for Environmental Information



Created: Tue Jan 7 2025
Source: nClimGrid - Monthly

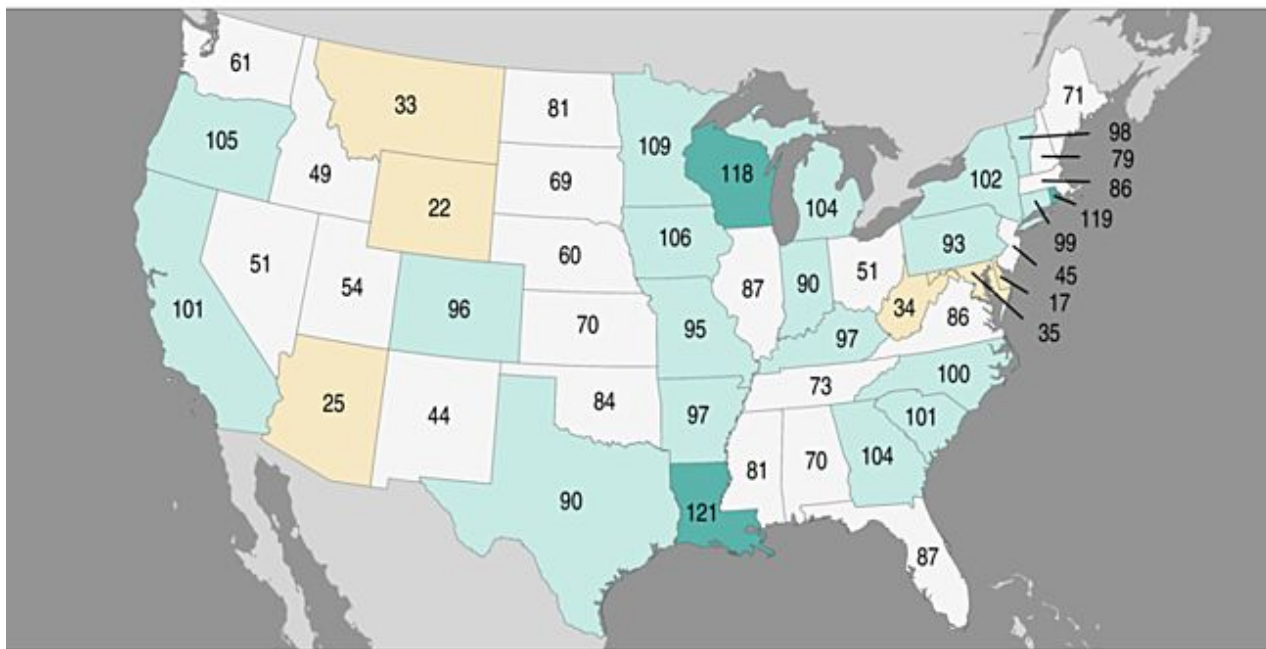


Statewide Precipitation Ranks

January - December 2024

Ranking Period: 1895-2024

NOAA's National Centers for Environmental Information



Created: Tue Jan 7 2025
Source: nClimGrid - Monthly



Events With 18"+ of Rain in NC

| Event | Year | Max. Precip. |
|--------------------|------|-------------------------|
| July 1916 Storm | 1916 | 23.22" (Altopass) |
| August 1940 Storm | 1940 | 20.65" (Idlewild) |
| Hurricane Dennis | 1999 | 19.91" (Ocracoke) |
| Hurricane Floyd | 1999 | 24.06" (Southport) |
| Hurricane Frances | 2004 | 23.57" (Mount Mitchell) |
| Coastal Front | 2005 | 22.54" (Wilmington) |
| Upper-Level Low | 2010 | 18.23" (Longwood) |
| Hurricane Matthew | 2016 | 18.95" (Evergreen) |
| Hurricane Florence | 2018 | 35.93" (Elizabethtown) |
| Potential TC Eight | 2024 | 20.81" (Carolina Beach) |
| Hurricane Helene | 2024 | 31.33" (Busick) |

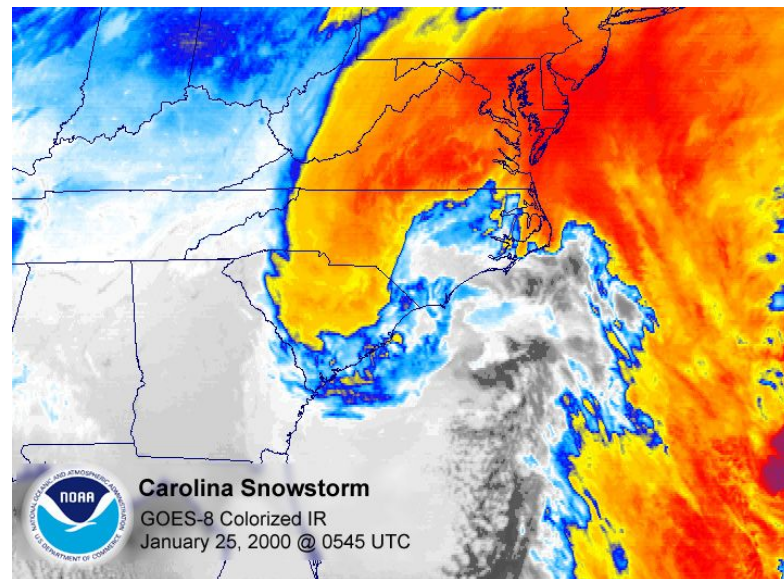


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Publishing this Friday:



Thank you!

- Post questions in the chat
- Climate Blog summary published at noon
- Recording will be posted on <https://www.youtube.com/ncsco>