



Hurricane Helene: the North Carolina perspective

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- Public Information Statement...CORRECTED
National Weather Service Greenville-Spartanburg SC
159 PM EDT Thu Sep 26 2024

...CATASTROPHIC FLOODING AND LANDSLIDES FOR THE MOUNTAINS
AND
FOOTHILLS FROM HURRICANE HELENE...

**This will be one of the most significant weather events to happen
in the western portions of the area in the modern era.**

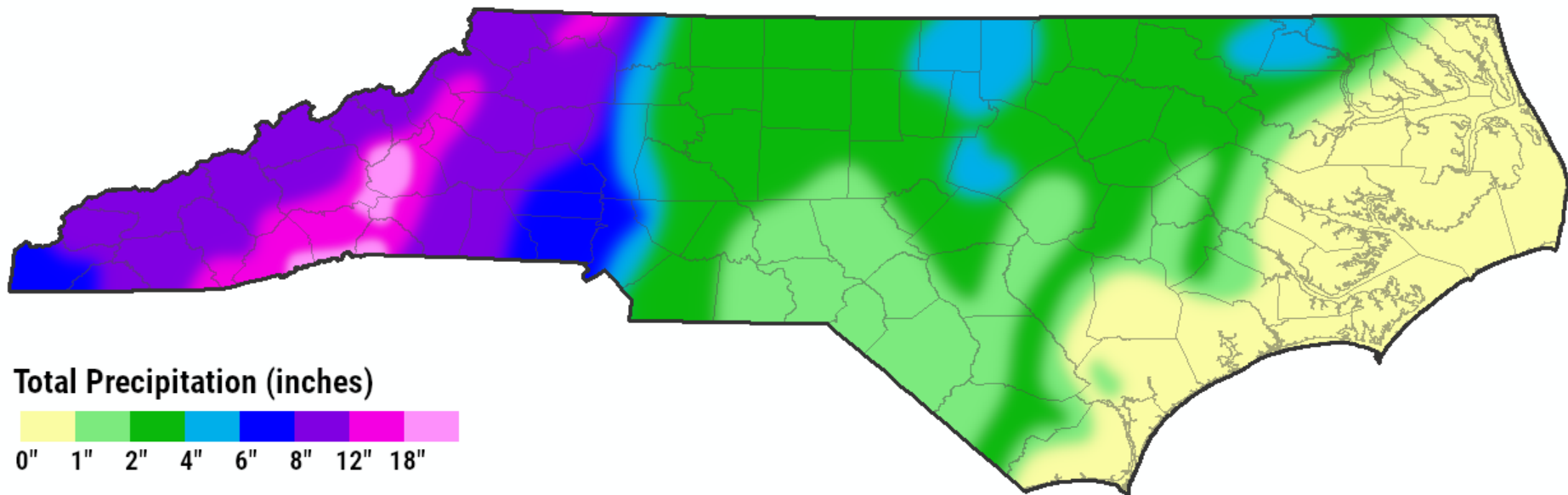
Record flooding is forecasted and has been compared to the floods of 1916 in the Asheville area. The impacts from this event are expected to be greater than Tropical Storm Fred from August 2021, the mountains in 2004 from Frances and Ivan, and in Upstate South Carolina the Saluda River Basin flooding from 1949. We plead with everyone that you take every single weather warning very seriously through the entirety of this event as impacts will be life-threatening and make sure to have multiple ways to receive the alerts. The

Frontal Event + Helene

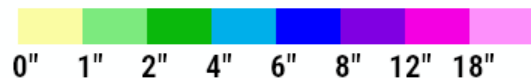
Sep. 25 to 27, 2024



 @NCSCO



Total Precipitation (inches)

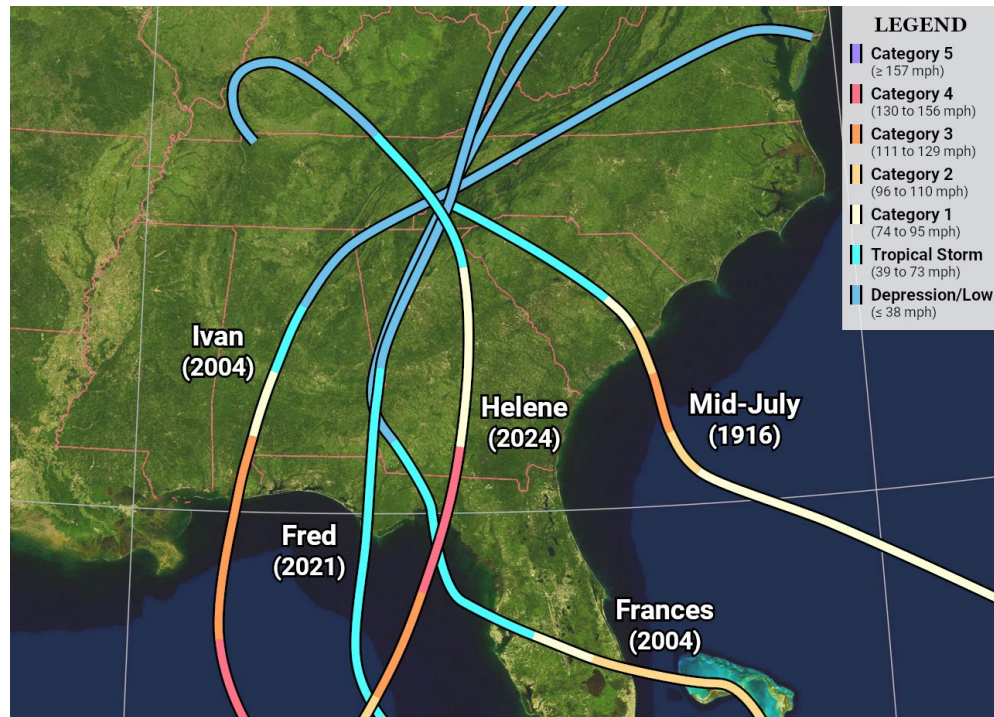


Based on weather station observations, CoCoRaHS reports, and radar-estimated precipitation totals

Tropical systems have caused flooding in WNC



A Shot Above Aerial Photography



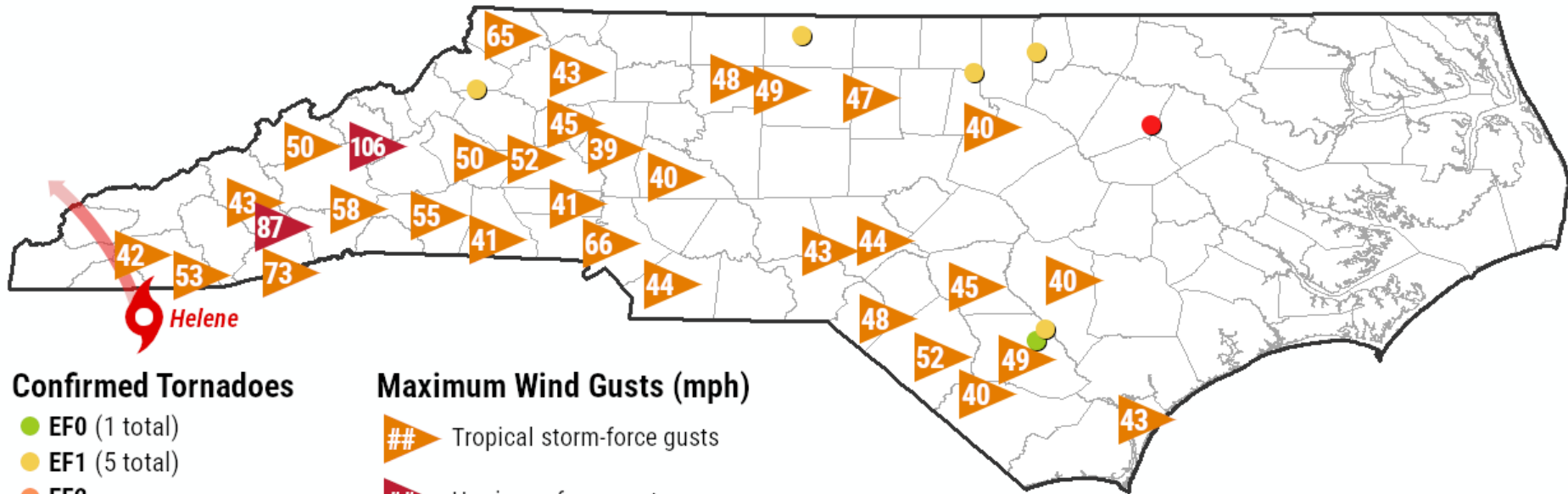
Corey Davis, NCSCO

Frontal Event + Helene

Sep. 25 to 27, 2024



X @NCSCO



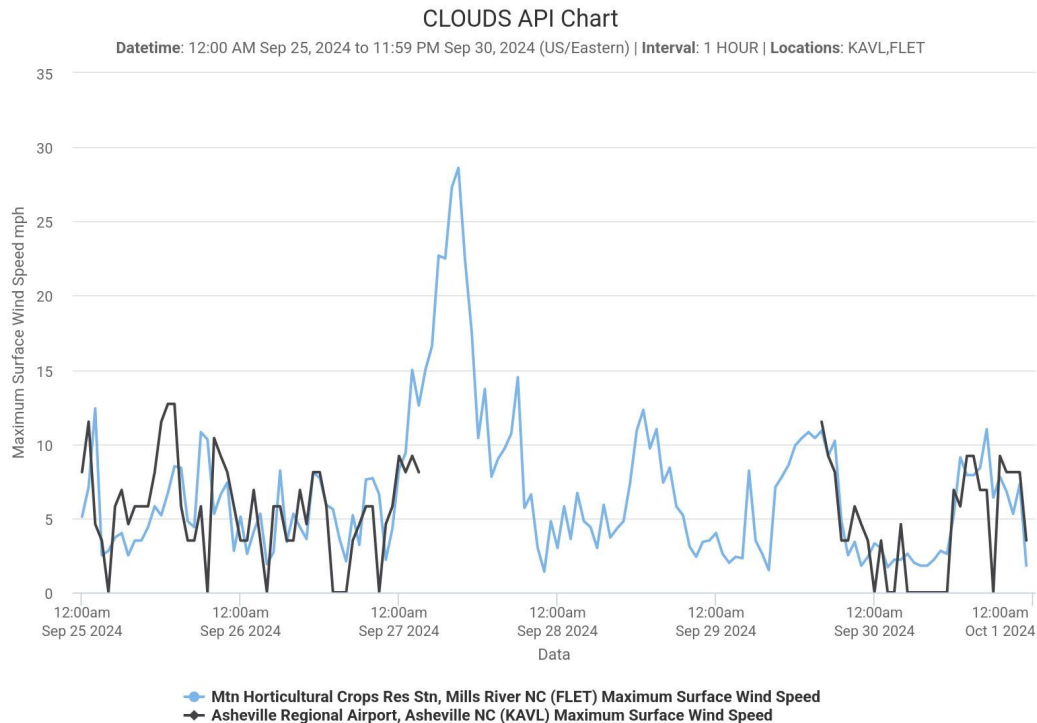
Confirmed Tornadoes

- EF0 (1 total)
- EF1 (5 total)
- EF2
- EF3 (1 total)
- EF4

Maximum Wind Gusts (mph)

- ## Tropical storm-force gusts
- ## Hurricane-force gusts

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



Data from NC Climate Office | Generated in 3.457 sec on 1:01 PM Mar 11, 2025

Highcharts.com

In real-time, watching the ECONet data along with other sensors helps to calibrate and verify the radar data in order to provide accurate and timely Flash Flood Warnings, which especially in an unprecedented event such as Helene, can truly be the difference between life and death for residents in the area.

— Trisha Palmer, NWS
Greenville-Spartanburg

Rural, remote Appalachia

- 55% of the population experiencing housing cost burden
- 500K+ adults living with disabilities
- 1.4M enrolled in Medicaid
- 12% without health insurance
- 12% below the poverty line
- 18% of the population above 65



Numbers: NC OSBM, Photo: NC Division of Tourism

The nature of the damage and the affected region have created complexities in assessing Helene's full impact



Impaired access



Difficulty of communication



Disparate nature of communities

Helene's impacts are severe and long-lasting, and recovery is likely to be costly

Widespread home losses

- **158K households** applying for federal assistance within two weeks of disaster declaration
- **92.5% of homes** with FEMA-verified flood damage did not have flood insurance

Catastrophic disruption to lifeline infrastructure

- **Electric infrastructure serving 2M households** impacted
- Losses to **163 water and sewer systems** and **400 hazardous waste facilities**
- At least **6,000 miles of roads** and **1,000+ bridges and culverts** damaged

Recovery challenges

- **Significantly higher construction costs** since COVID-19, exacerbated by competition for labor and materials for disaster recovery across the Southeast
- **Loss of income** from truncated peak tourist season and multi-year damage to economic assets

We assessed damage and needs in nine categories; five account for 94% of the estimated total



Economy

Communities affected have 115K business establishments and 384K “mom and pop” businesses



Housing

Fast-moving floodwaters, landslides, wind, and tornadoes damaged an estimated 126,000 homes



Utilities & Natural Resources

Damage to multiple water and sewer systems; facilities of 28 electric utilities; cellular networks, with 1,000+ cellular site outages at peak; and the Lake Lure Dam



Transportation

Damaged the critical I-40 corridor, 5K miles of state roads, and 1K+ bridges and culverts, and 1K+ miles of private roads – many unpaved and more vulnerable to heavy rainfall



Agriculture

Devastated nursery and vegetable operations, many located in low-lying areas that suffered the worst flooding and swift water; initial estimates of over 80% of plant nurseries destroyed

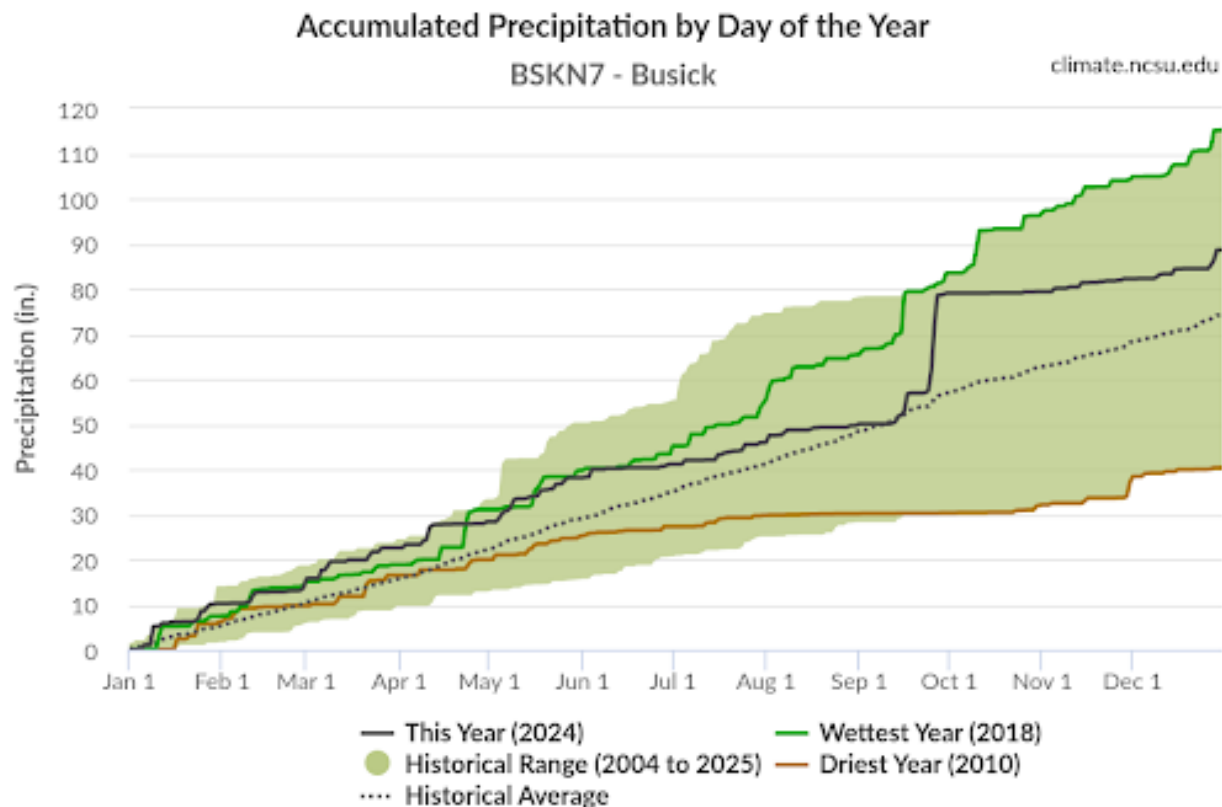


Helene caused damage in four additional categories:

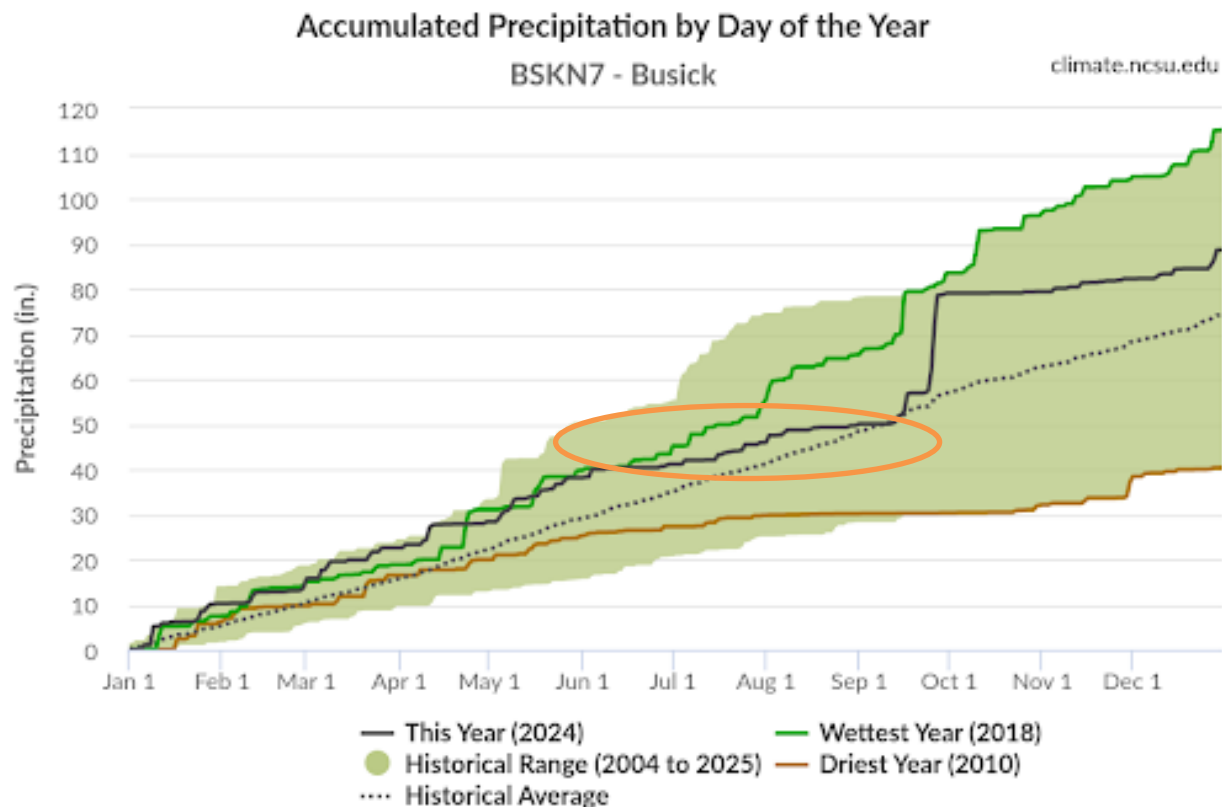
Government, Education, Health and Human Services, and Tribal and Federal Lands



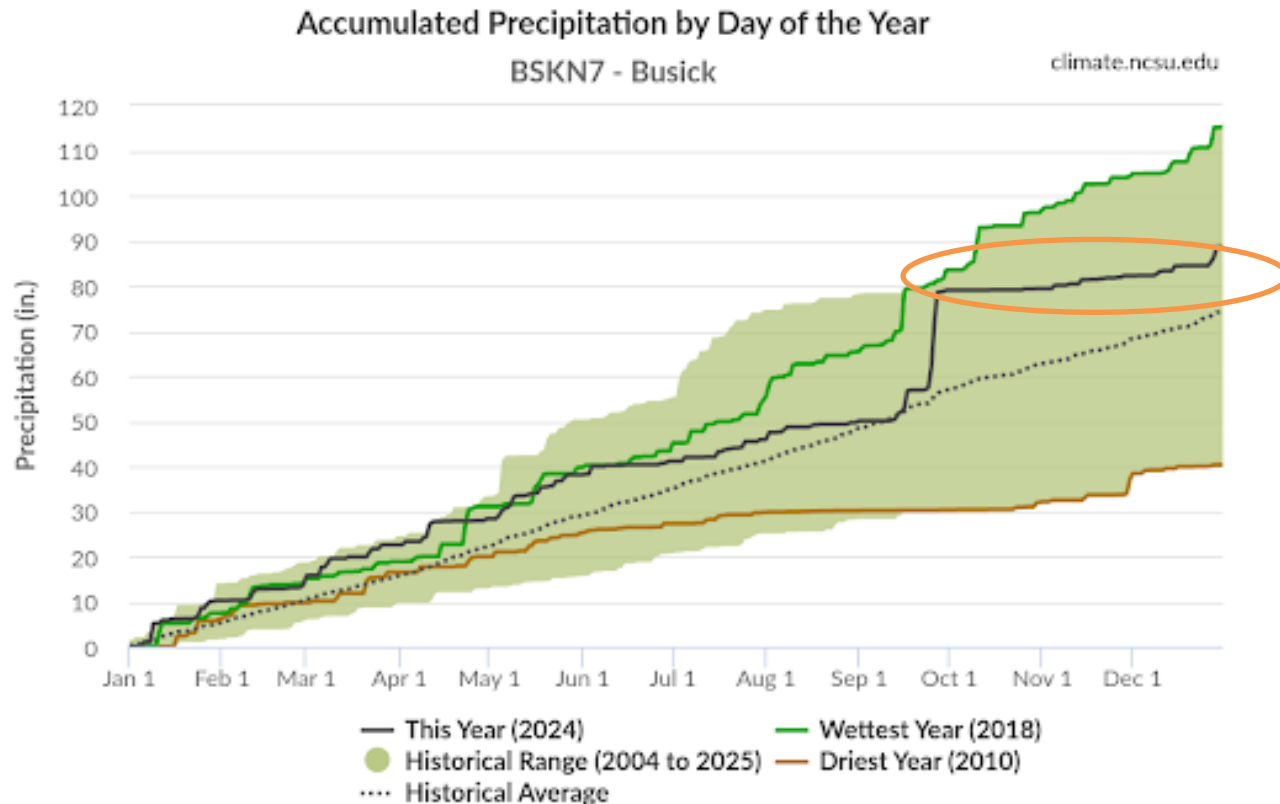
Swinging between wet and dry



Swinging between wet and dry



Swinging between wet and dry





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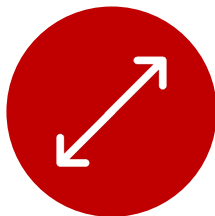
U.S. NEWS

First rain and then fire chase people from their homes in North and South Carolina



1 of 19 | Firefighter John Ward lights a backburn to control the Black Cove Fire Wednesday, March 26, 2025, in Saluda, N.C.. (AP Photo/Allison Joyce)

In summary



Destruction was the result of physical and social factors, a 1-in-1000 year event in some locations



Forecast was excellent, but communication is a challenge



Observations and good old fashioned data are important and we need more of it.



Compounding hazards (flood, drought, fire) creates additional challenges for community recovery and resiliency

Thank you

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<http://climate.ncsu.edu>

