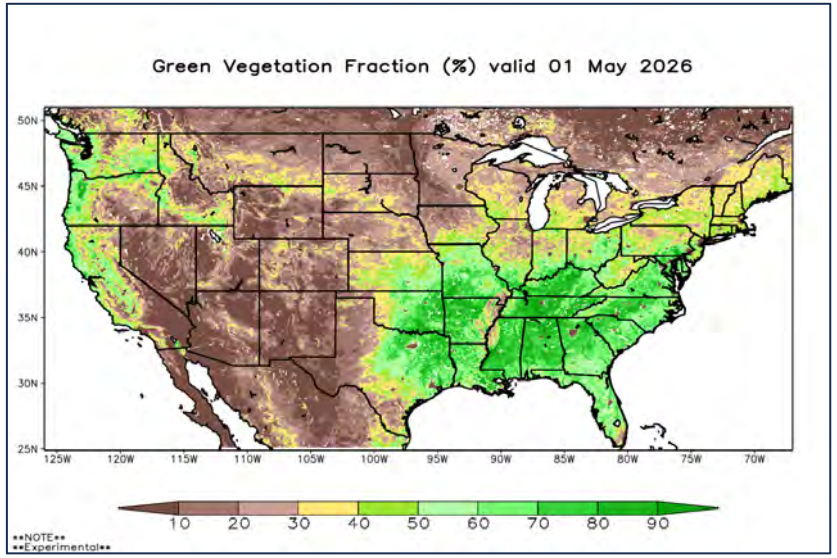
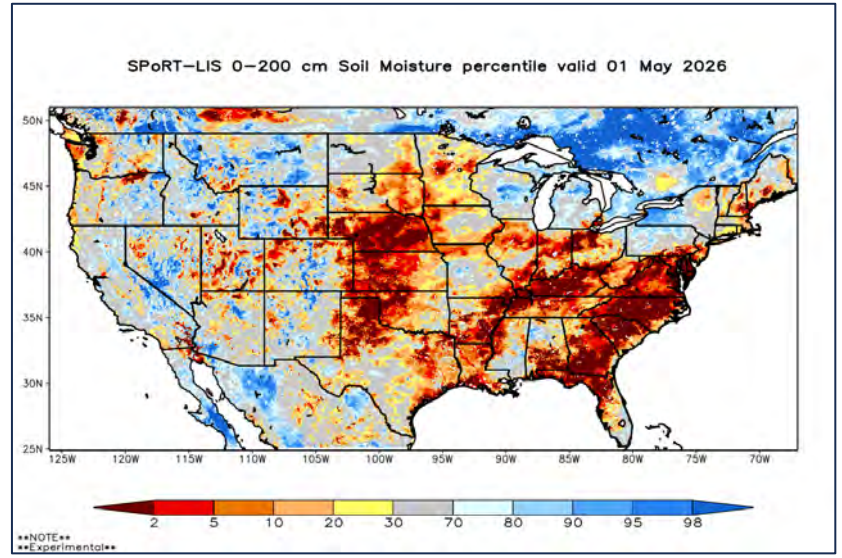
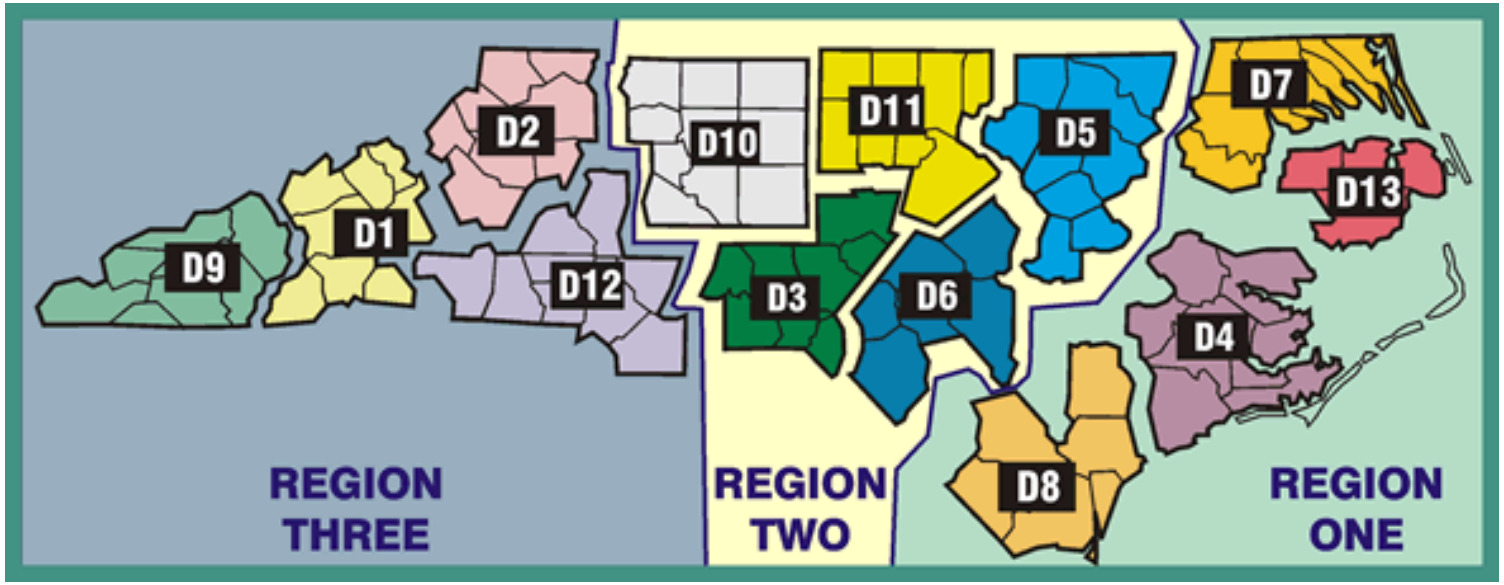
Weekly Fire Danger Assessment
NCFS – All Regions







For Time Period:

Friday (5/1/26) to Thursday (5/7/26)

Created by: Jamie Dunbar
Fire Environment Staff Forester
NC Forest Service
Created: 5/1/26

Statewide Wildfire Context

January: 10-yr avg is 339 fires for 702 acres
February: 10-yr avg is 639 fires for 1,683 acres
March: 10-yr avg is 1,009 fires for 6,401 acres
April: 10-yr avg is 627 fires for 6,803 acres
***May: 10-yr avg is 283 fires for 1,298 acres**
June: 10-yr avg is 231 fires for 2,383 acres
July: 10-yr avg is 182 fires for 551 acres
August: 10-yr avg is 126 fires for 420 acres
September: 10-yr avg is 194 fires for 422 acres
October: 10-yr avg is 265 fires for 1,996 acres
November: 10-yr avg is 534 fires for 6,173 acres
December: 10-yr avg is 372 fires for 733 acres

February: 829 incidents for 1,136 acres
March: 1,418 incidents for 6,289 acres
April: 1,165 incidents for 2,503 acres

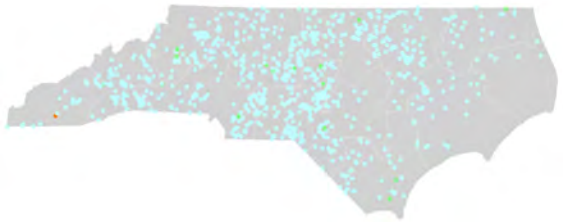
7-Day Activity (ending 5/1 am): 102 incidents for 40 acres

All wildfire activity data is preliminary
Does not include additional federal wildfires/acres
2016-2025 CY Average

**Largest incidents by discovery date, April 2026:
from fiResponse & preliminary reporting only

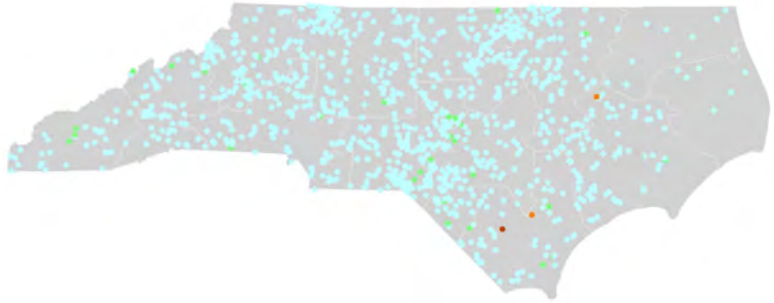
Incident Name	Discovery Date	Region	District	County	Acres
Rosindale Rd	4/8/2026	Region 1	District 8	Bladen County	748.00
Whitehall Plantation	4/3/2026	Region 1	District 8	Pender County	261.00
Roosevelt Spain Road	4/4/2026	Region 1	District 4	Pitt County	158.00
County Line	4/22/2026	Region 3	District 2	Avery County	76.00
W.W. Run	4/13/2026	Region 2	District 6	Harnett County	63.00
Wiggins Creek	4/2/2026	Region 3	District 9	Swain County	58.00
Kannapolis thicket	4/20/2026	Region 2	District 10	Rowan County	50.00
Midas Bolick	4/4/2026	Region 3	District 2	Caldwell County	30.00
Tot Hill	4/13/2026	Region 2	District 10	Randolph County	30.00
Whortonsville Road #2	4/15/2026	Region 1	District 4	Pamlico County	30.00
Vineyard Woods	4/18/2026	Region 2	District 3	Lee County	30.00
Pelham Rd	4/24/2026	Region 1	District 8	Pender County	30.00

February 2026

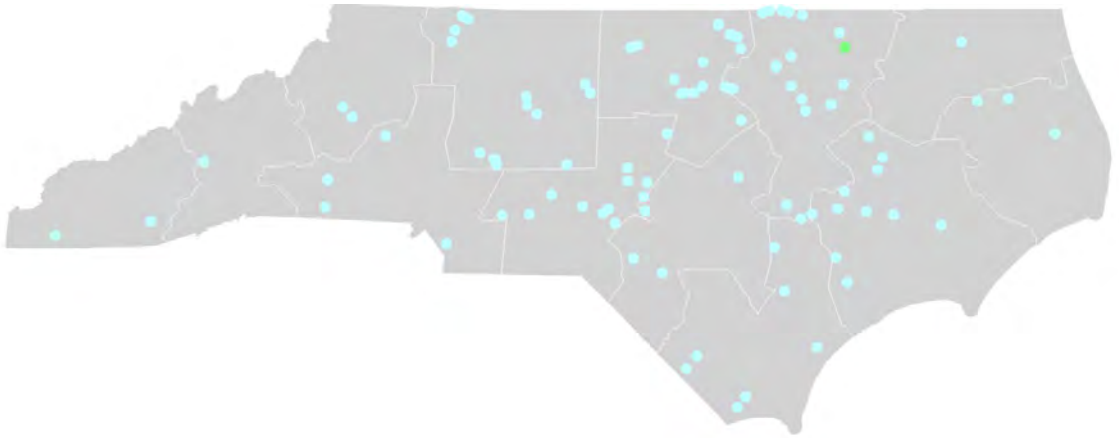


March 2026

April 2026

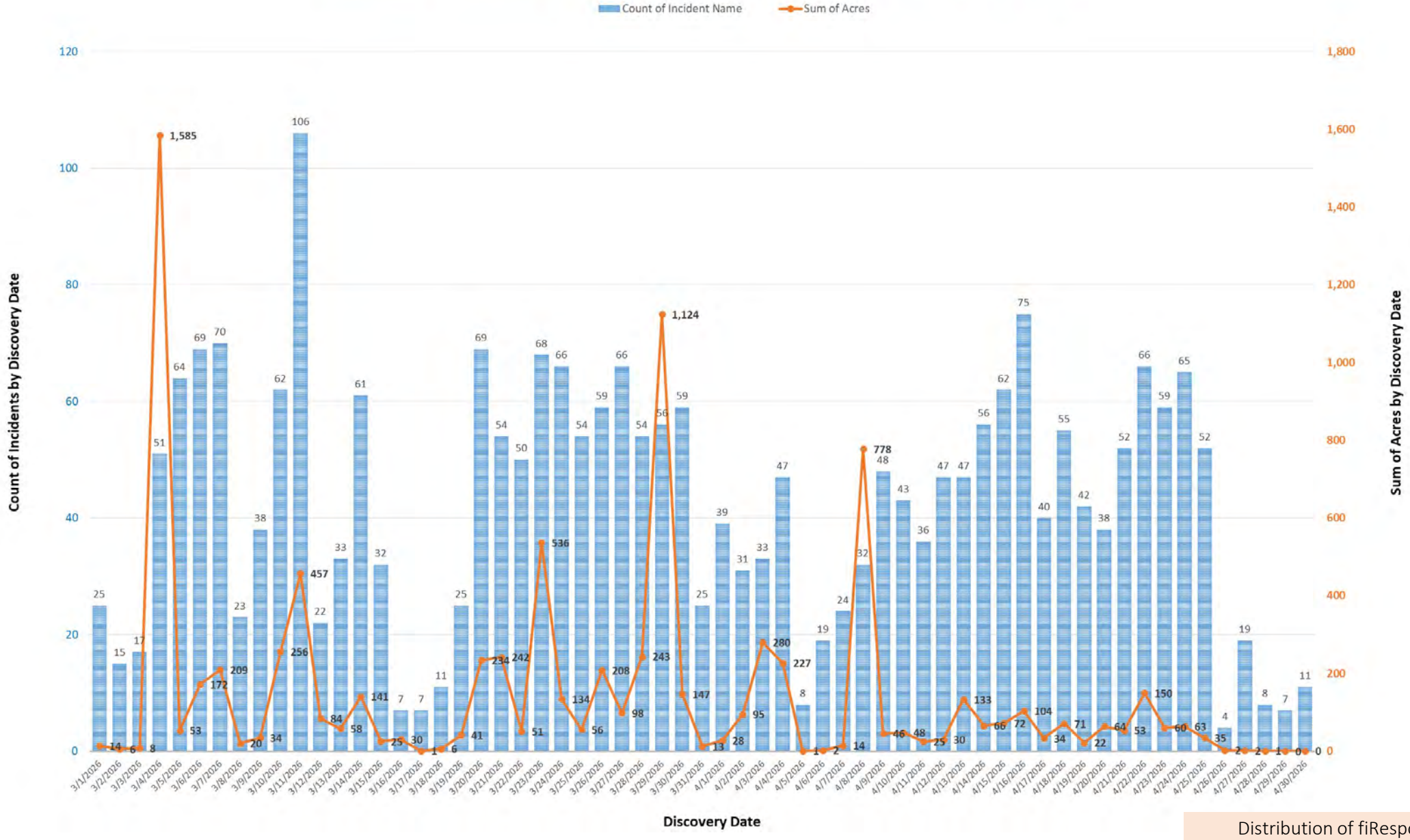


7-Day Activity (ending 5/1 am)



***Note: Dept. of War & other entirely federal ownership wildfires typically not shown on fiResponse, unless NCFS integrated into response.*

STATEWIDE FIRESPONSE INCIDENTS & ACRES BY DISCOVERY DATE (3/1 - 4/30, 2026)

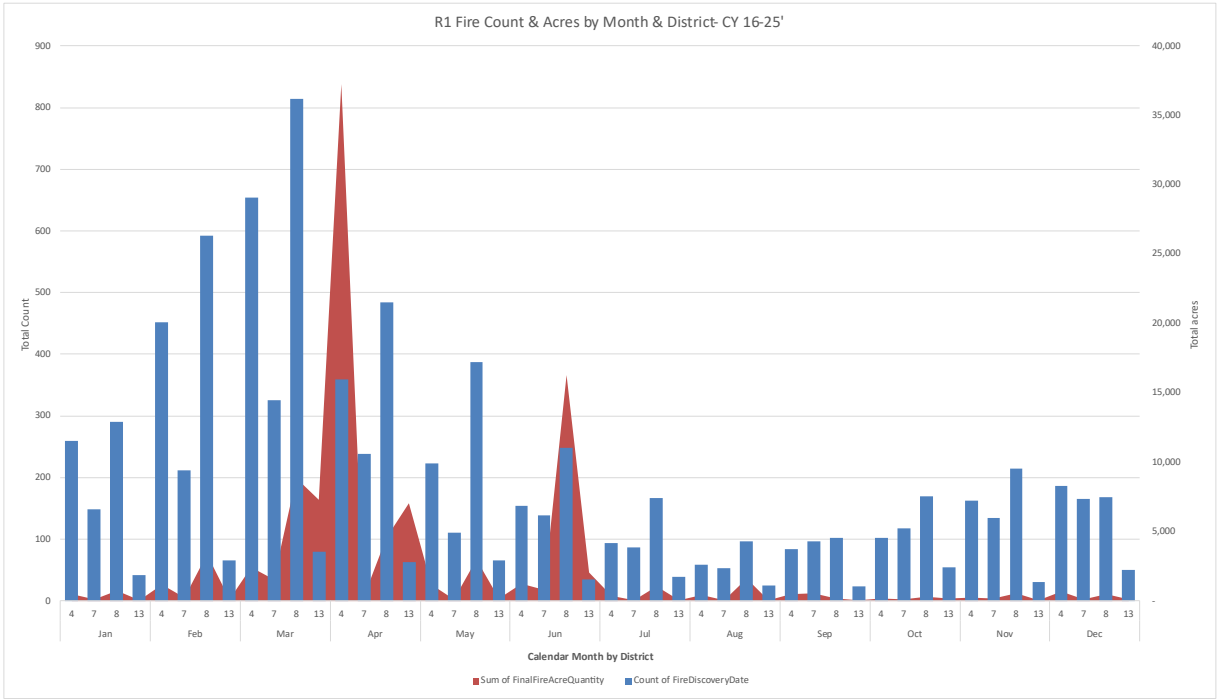


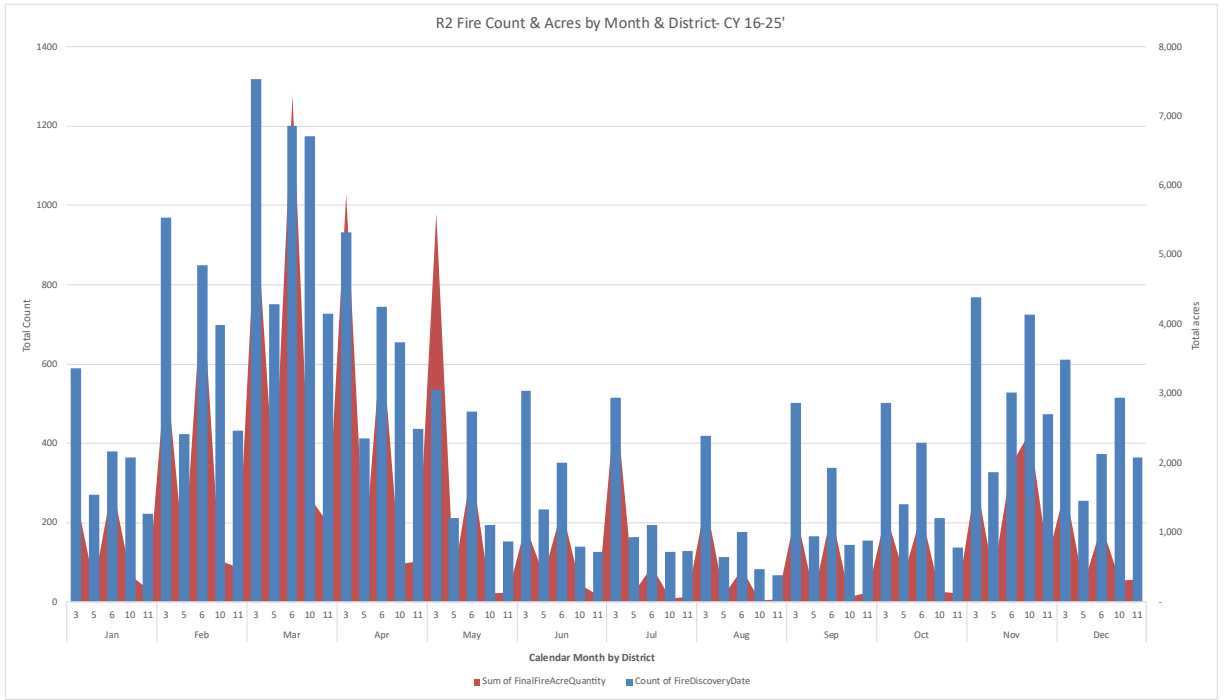
Distribution of fiResponse Incidents & Acres by Discovery Date from 3/1 to 4/30, 2026

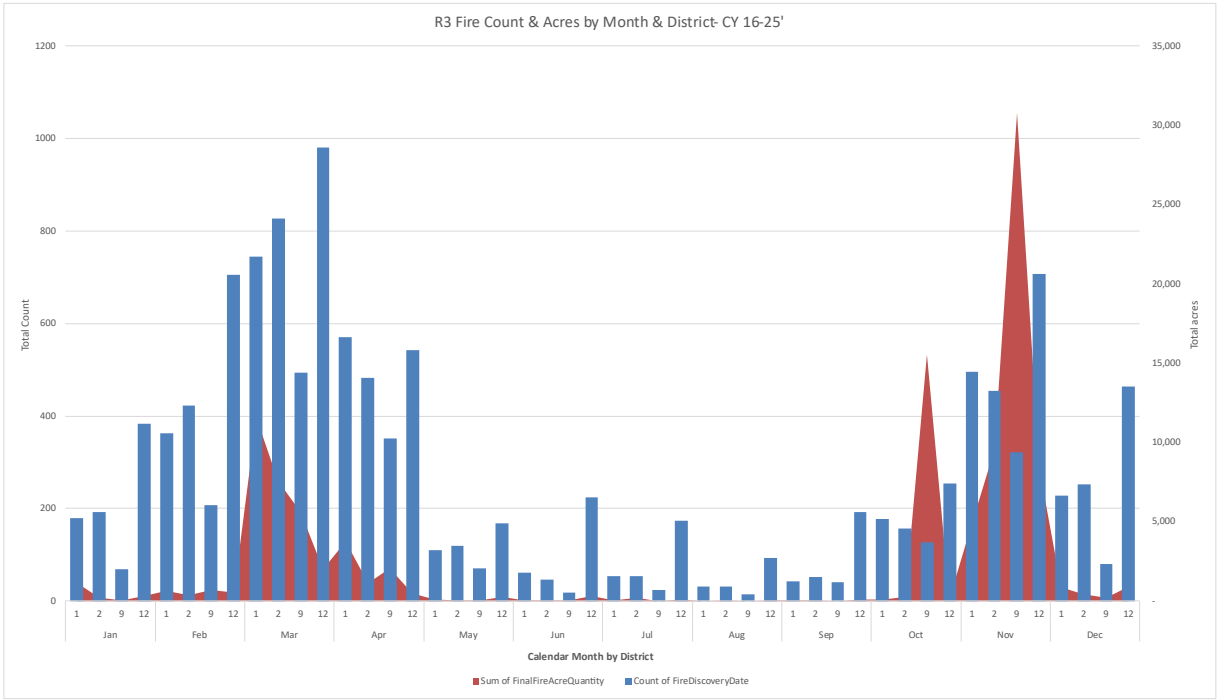
(0 acres due to rounding)

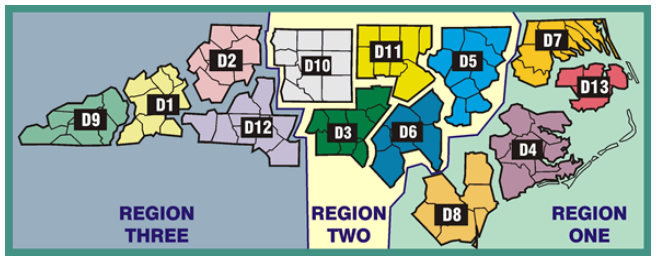
Data is preliminary and subject to change

Seasonal Distribution of Regional Fires & Acres by Month from 2016-2025







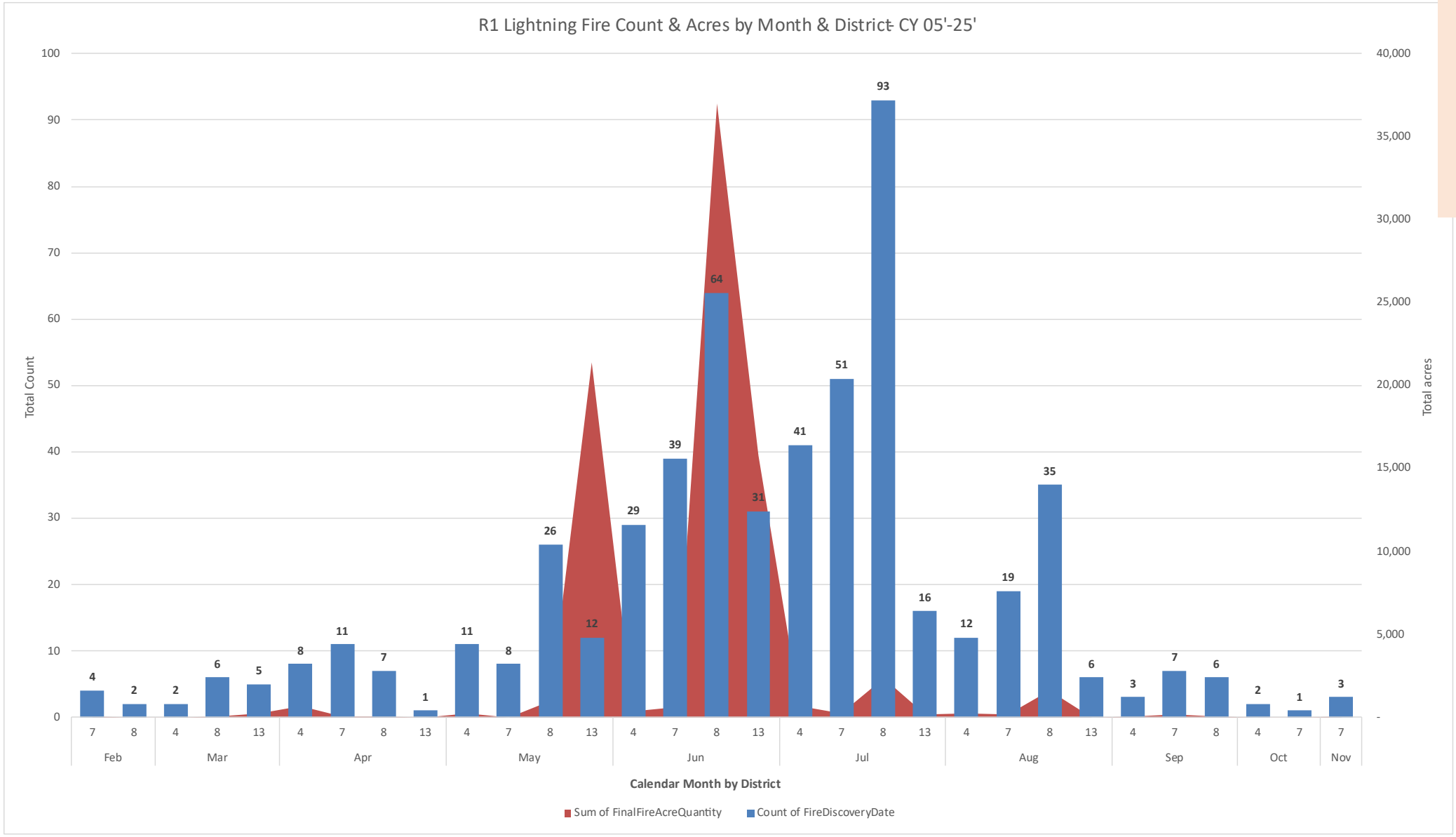


Cause: All Cause Codes, Statewide, NCFS Reported Fires Only.
Preliminary Data from NASF Report Extract

Peak Fire Count vs. Peak Acres (by Discovery Date)

- Fuel Dormancy?
- Live Fuel Volatility?
- Human Factor?
- Drought Influences?

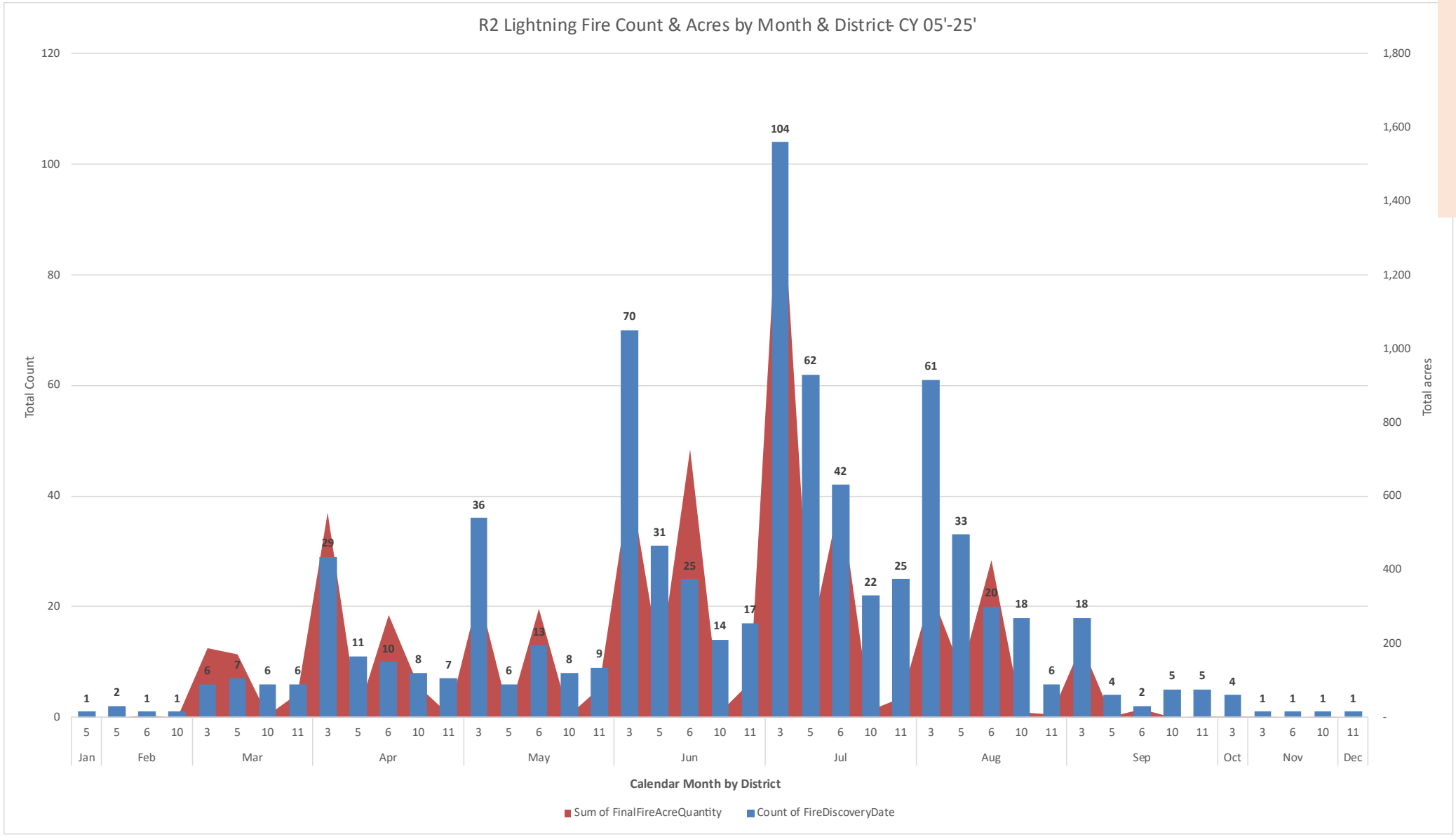
Distribution of Lightning Fires in R1 Fires & Acres by Month (discovery date)from 05’-25’



Note Acreage Scale

Cause: Lightning Cause Code, R1, NCFS Reported Fires Only. Preliminary Data.

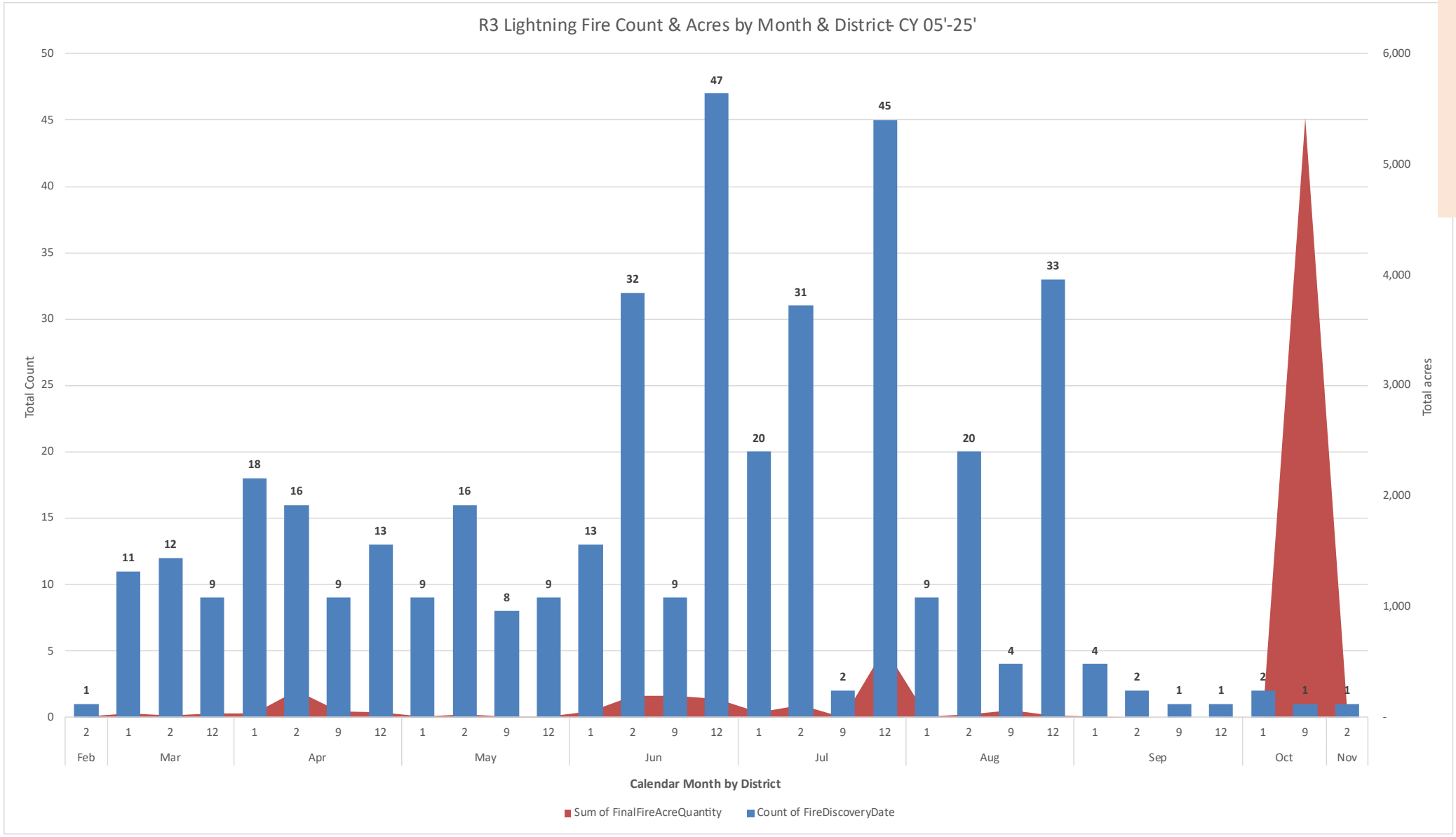
Distribution of Lightning Fires in R2 Fires & Acres by Month (discovery date)from 05'-25'



Note Acreage Scale

Cause: Lightning Cause Code, R2, NCFS Reported Fires Only. Preliminary Data.

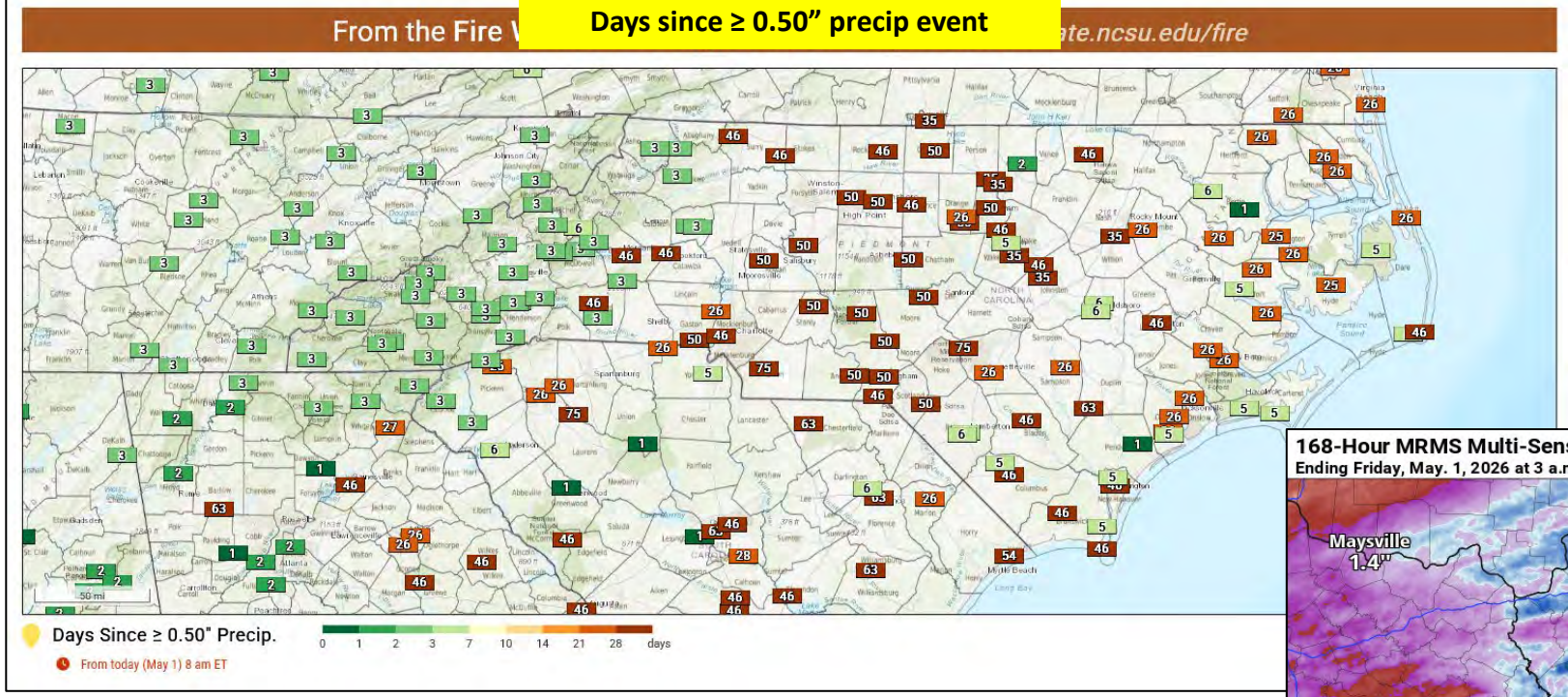
Distribution of Lightning Fires in R3 Fires & Acres by Month (discovery date)from 05’-25’



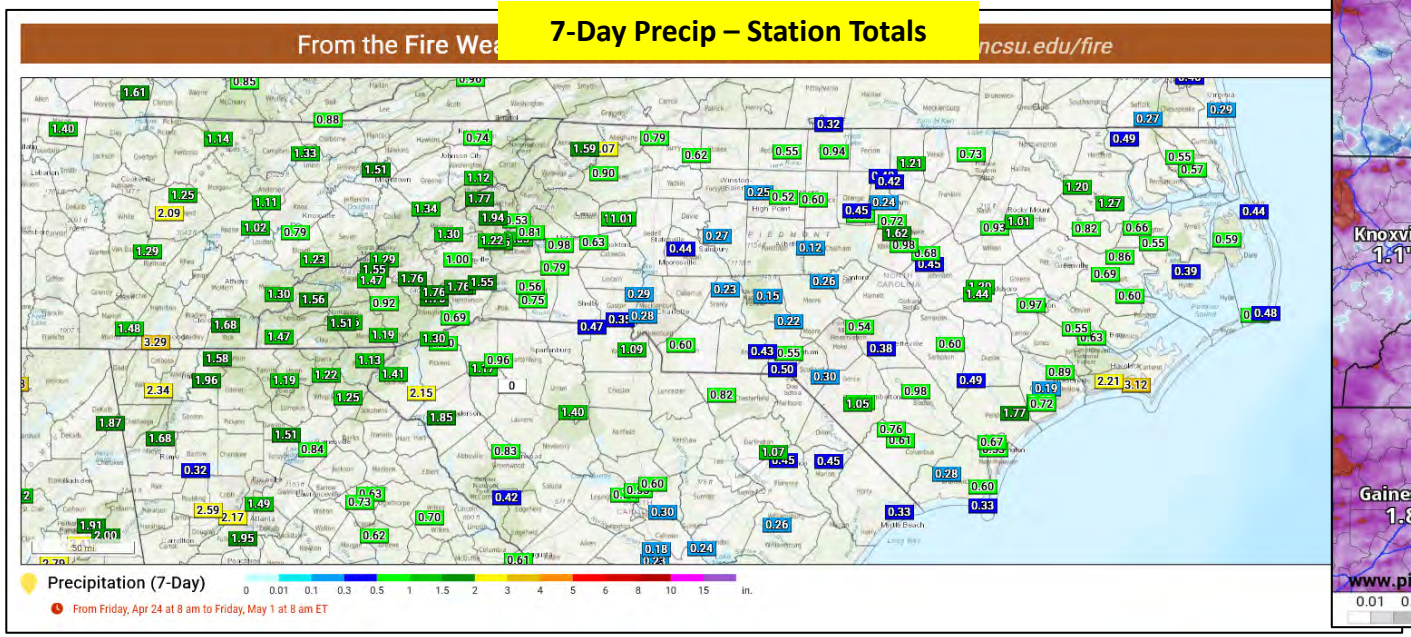
Note Acreage Scale

Cause: Lightning Cause Code, R3, NCFS Reported Fires Only. Preliminary Data.

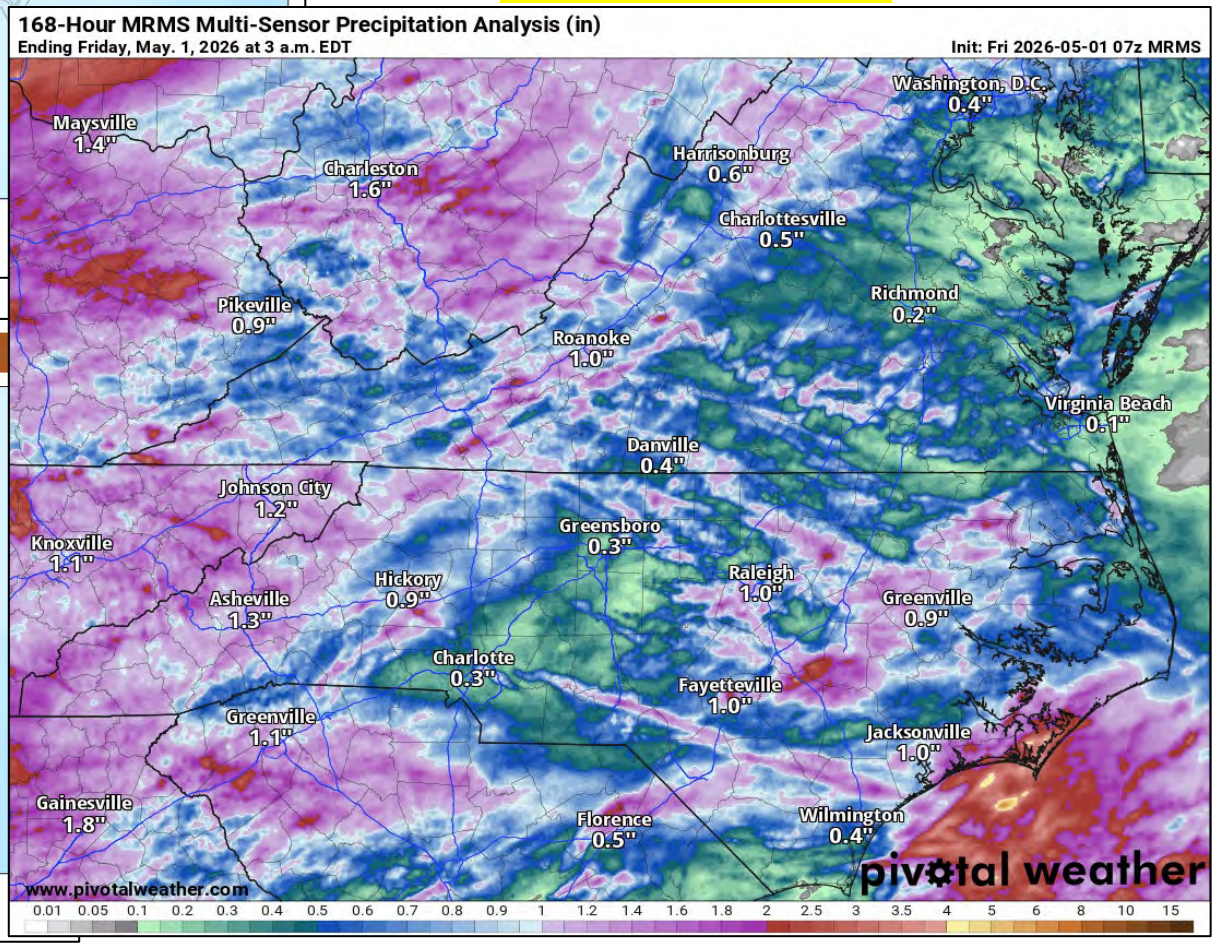
Days since ≥ 0.50” precip event



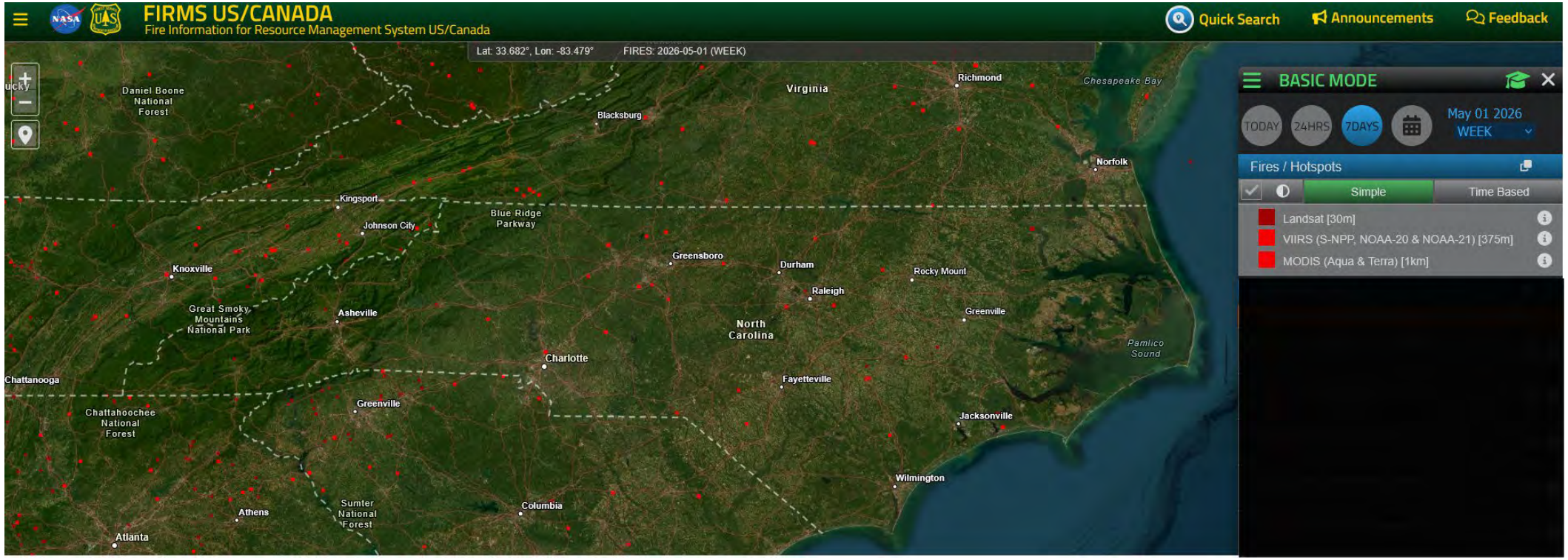
7-Day Precip – Station Totals



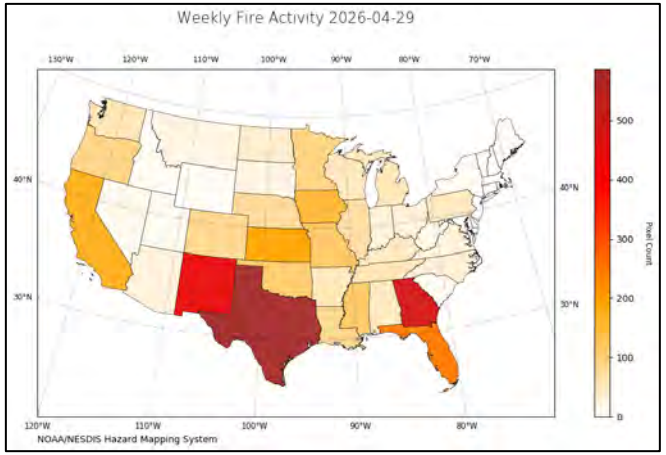
7-Day Precip Estimate

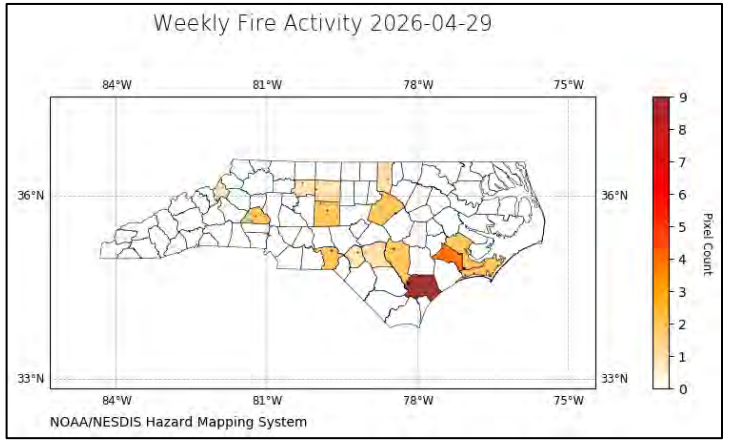


Weekly Heat Detects

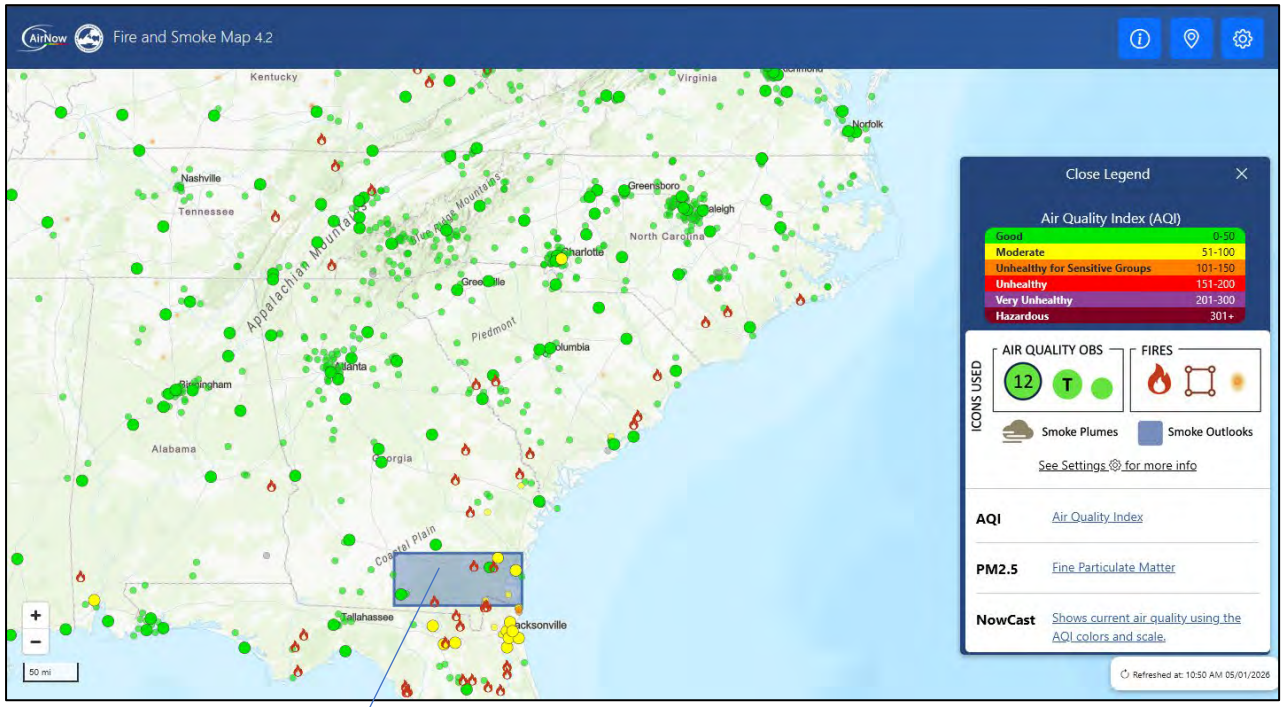


NC Map showing past week satellite detects from same source & bottom right maps display fire pixel counts. Note NC map below is Weekly, ending on 4/29/26) . Note that cloud cover and other factors can limit detections, not all detects may be “forestry related”. Hazard Mapping System link: https://www.ospo.noaa.gov/products/land/hms.html#maps



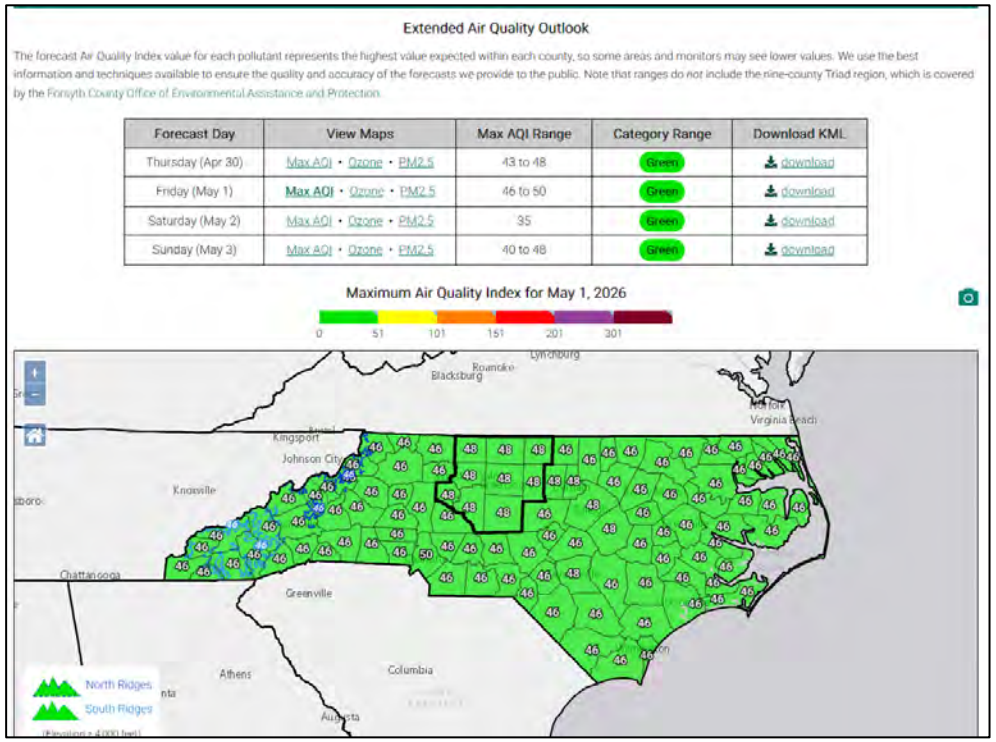


Air Quality Notes



Fire & Smoke Map heat detects from VIIRS (above). *https://fire.airnow.gov/#*

Smoke Outlook Link: https://outlooks.airfire.org/outlook/c51ff4c3



This forecast was issued on **Thursday, April 30, 2026** at **2:38 pm**. This forecast is currently valid.

Today's Air Quality Conditions

Air quality is in the Code Green range across the state thus far today.

For a display of the most recent Air Quality Index (AQI) conditions throughout the day, visit the Ambient Information Reporter (AIR) tool.

General Forecast Discussion

With weak high pressure and a broad pressure gradient overhead on Friday in the wake of Thursday's front, both ozone and PM2.5 levels will slightly increase but should hold in the Green range.

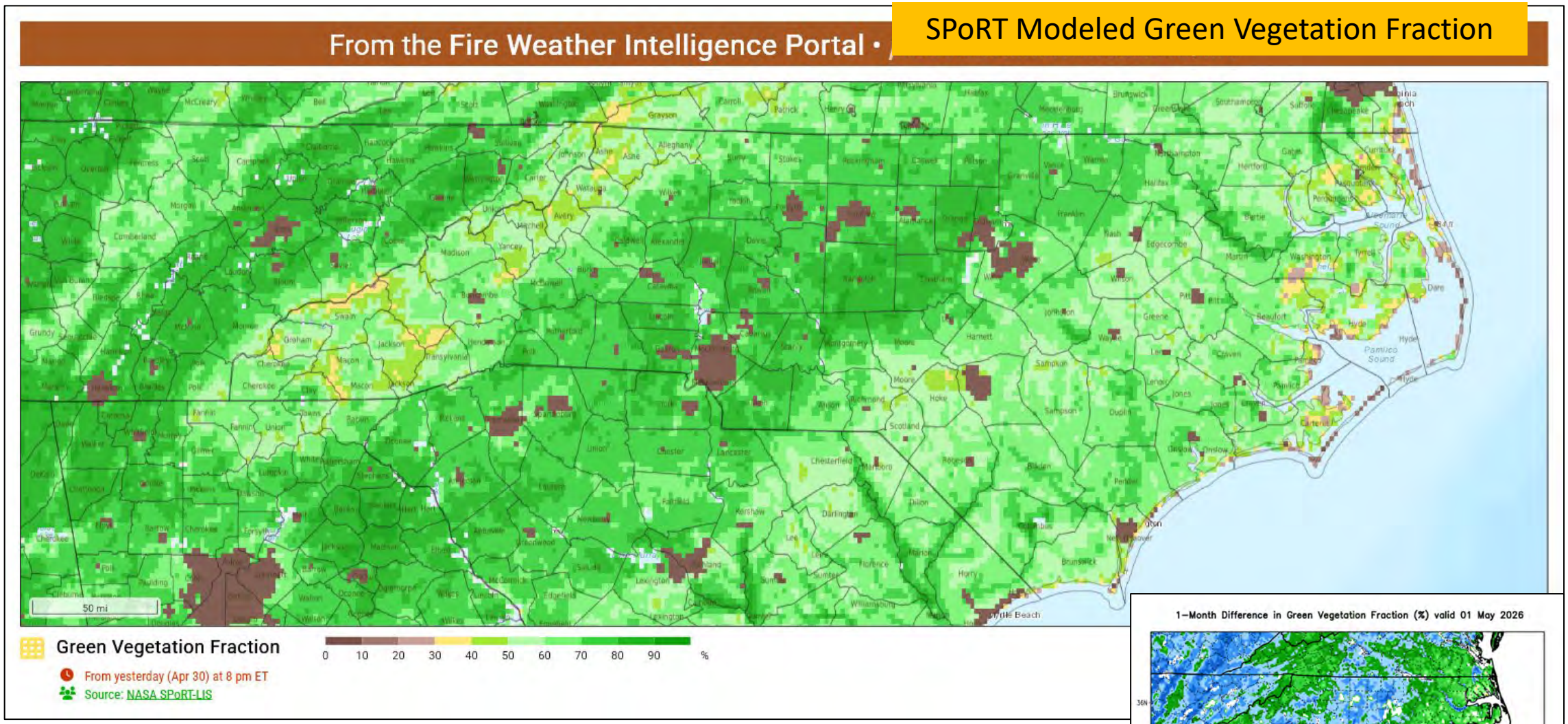
Outlook

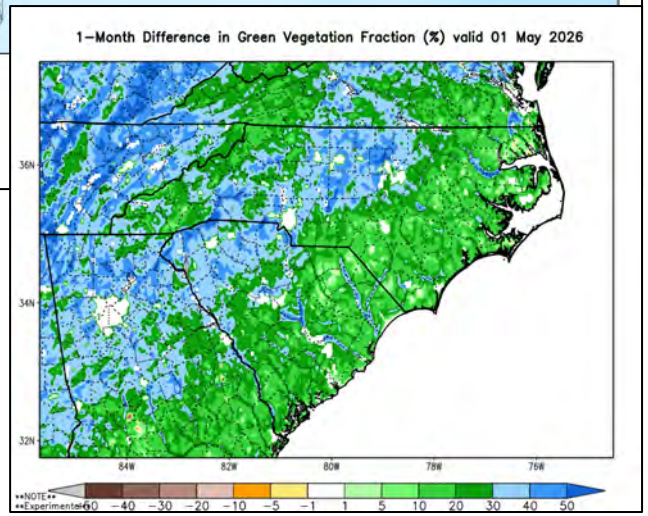
On Saturday, a coastal low will develop and strengthen along a stalled frontal boundary draped from the Gulf along the southeastern US coast. With that system we'll see widespread stratiform rain. Air quality will hold well within the Code Green range statewide. Cool high pressure will start to edge in from the west on Sunday, with clear skies and light winds returning; Code Green ozone and PM2.5 levels should continue.

Author: *Sara Kreuser (sara.kreuser@deq.nc.gov) - NC Division of Air Quality*

https://airquality.climate.ncsu.edu/discussion/?view=latest

SPoRT Modeled Green Vegetation Fraction

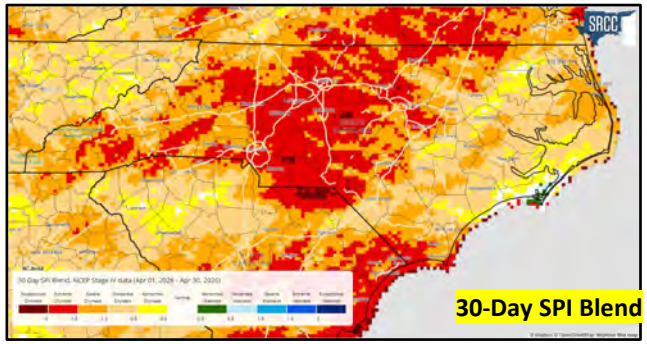


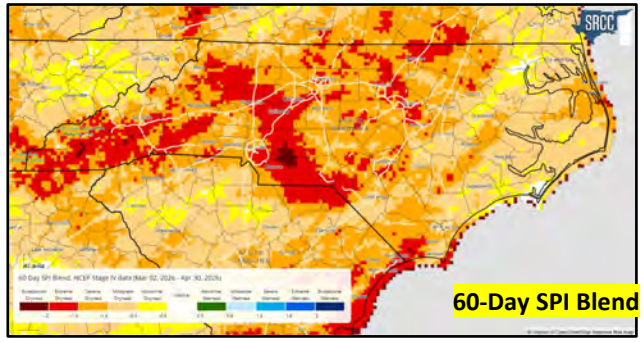


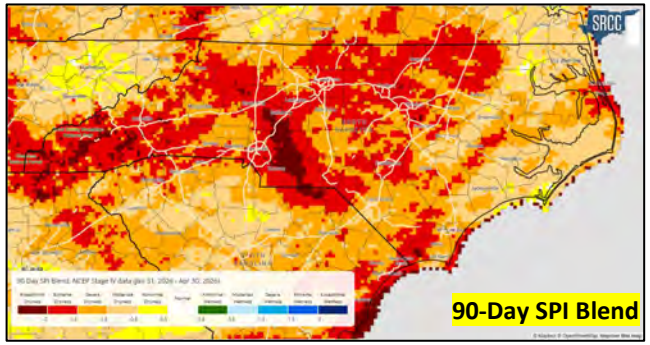
The daily GVF graphic show an increase in overall greenness across the state (top left), including higher elevations. The 1-month difference graphic illustrates hardwood progression. Actual greenness depends on species, aspect, freeze/frost/drought impacts; progressing from south to north & lower to upper elevation.

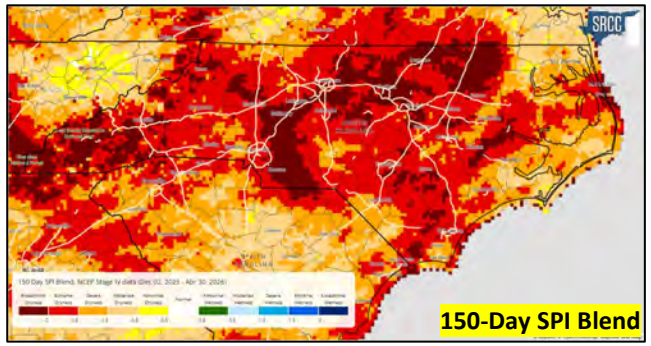
Drought impacts are/will lead to herbaceous & woody shrub live fuel moisture declines & much less resistant/contribute to spread in heaviest impacted areas. Higher GVF values **should not** be interpreted as meaning "effective green" and lower forest volatility at this point in seasonal progression & drought. **This is especially the case for coastal/sandhill plant communities with deep duff, conifer & waxy shrub species.**

https://srcc.tamu.edu/water_portal/

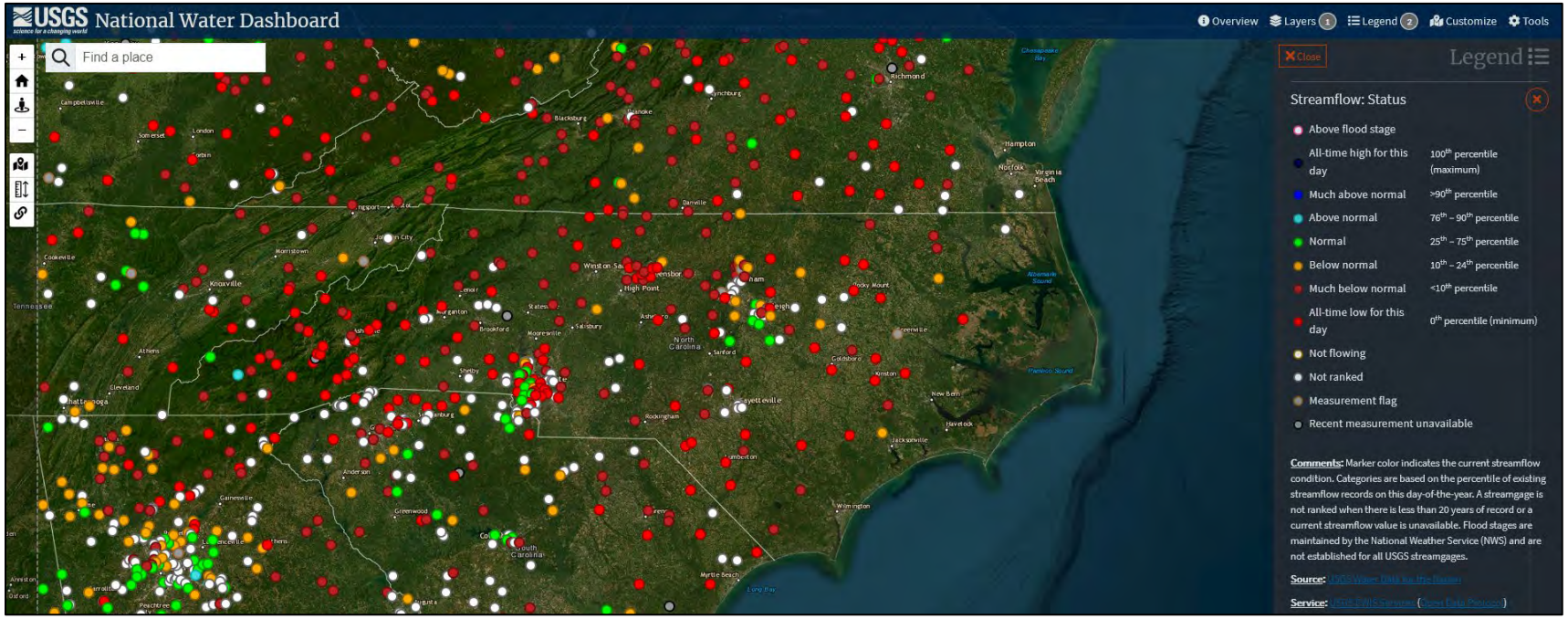








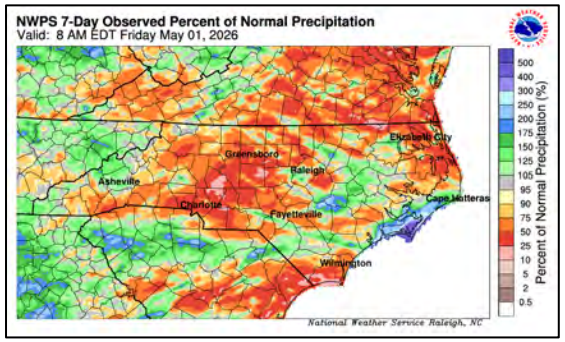
New USGS Streamflow Map: Real-time



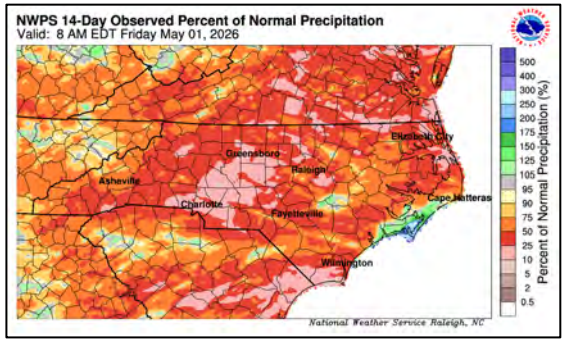
Some slight improvements over the past 7-days shows a minor response on the 30-day SPI map. Longer time scale SPI products continue to indicate entrenched conditions. As growing season advances – expect further decreases in streamflow and lower duff/soil moisture.

Real-time streamflow from 5/1/26 shows return of “much below” to “all time” low flow conditions for most gauges in NC. This low-flow (especially in context of baseflow) trend continues to be very significant as we move into the growing season. Many swamps & larger canal networks are seeing further decreases in water levels as green-up progresses. Very high evaporative demands with warm temps and low rh’s.

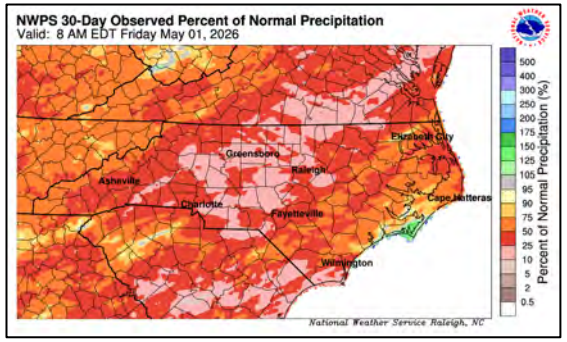
7-Day PNP

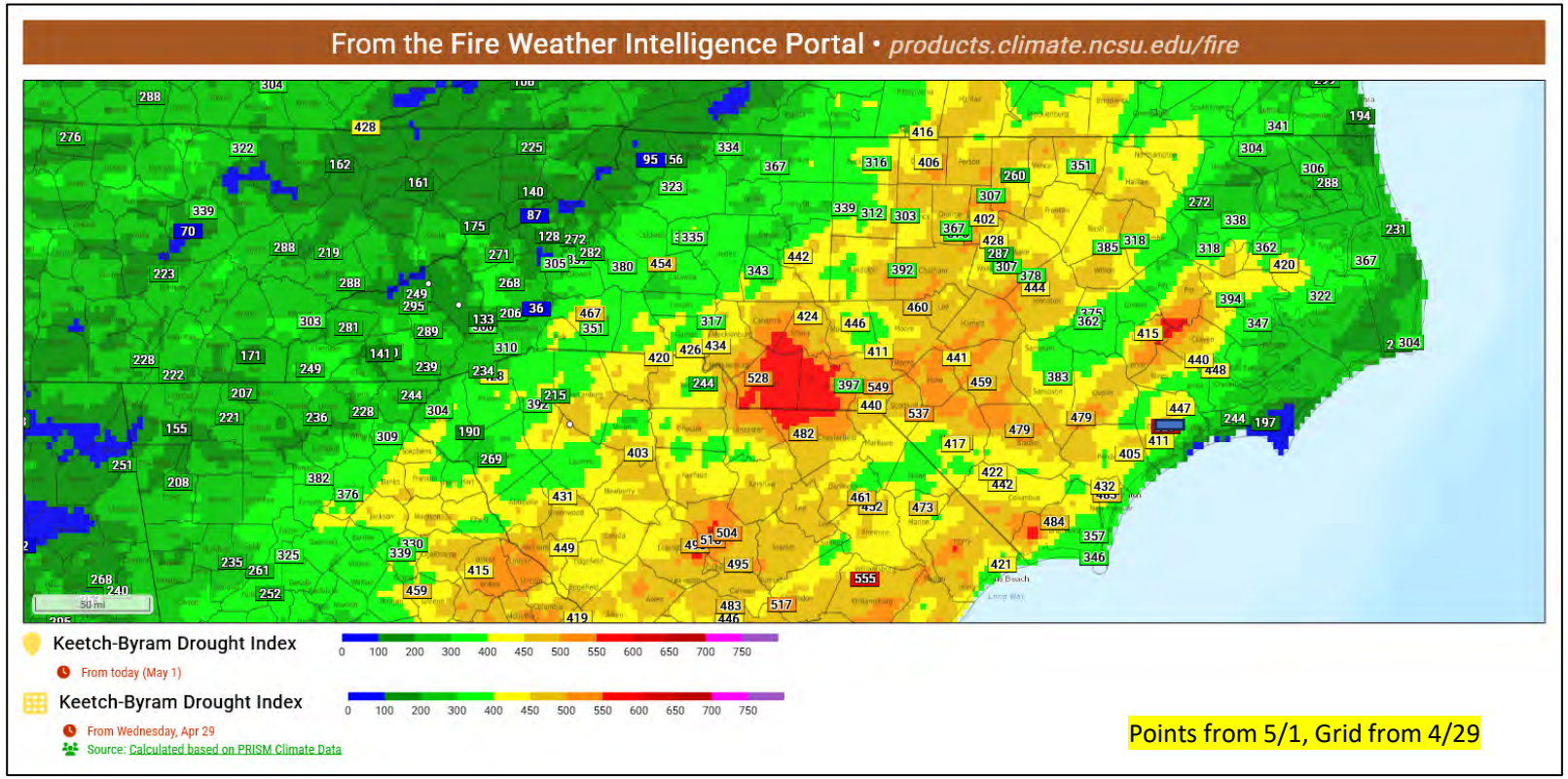


14-Day PNP

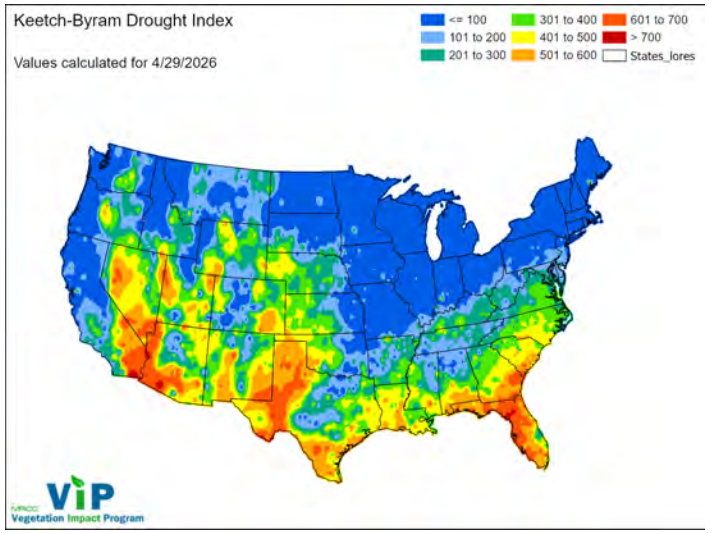


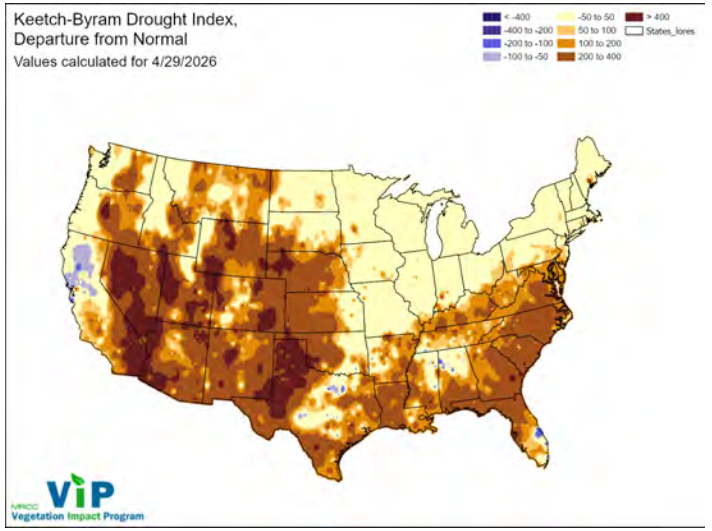
30-Day PNP





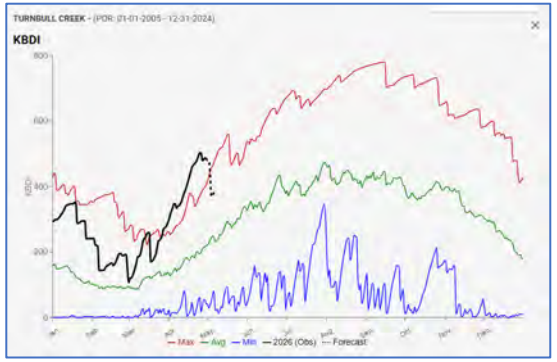
Points from 5/1, Grid from 4/29

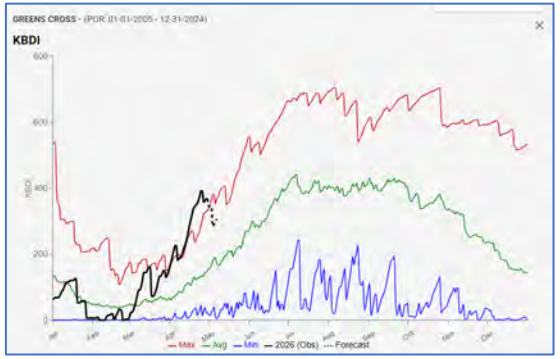




- KBDI is much less representative of the fire problem in the cold season, while max temperatures are low. A moderate rainfall can seemingly "erase" higher KBDI values, as the daily climb after the rain event is minimal (while true drought hasn't been erased). This metric is much more useful in the growing season. The map shows the impact of continued overall warm weather in daily expansion of KBDI values. Expect more rapid daily climbs as we move forward with warmer temps and lack of wetting rainfall. Fires across multiple landscape positions have been noted with above average consumption and related difficulty of control (duff, large dead fuels, etc.).

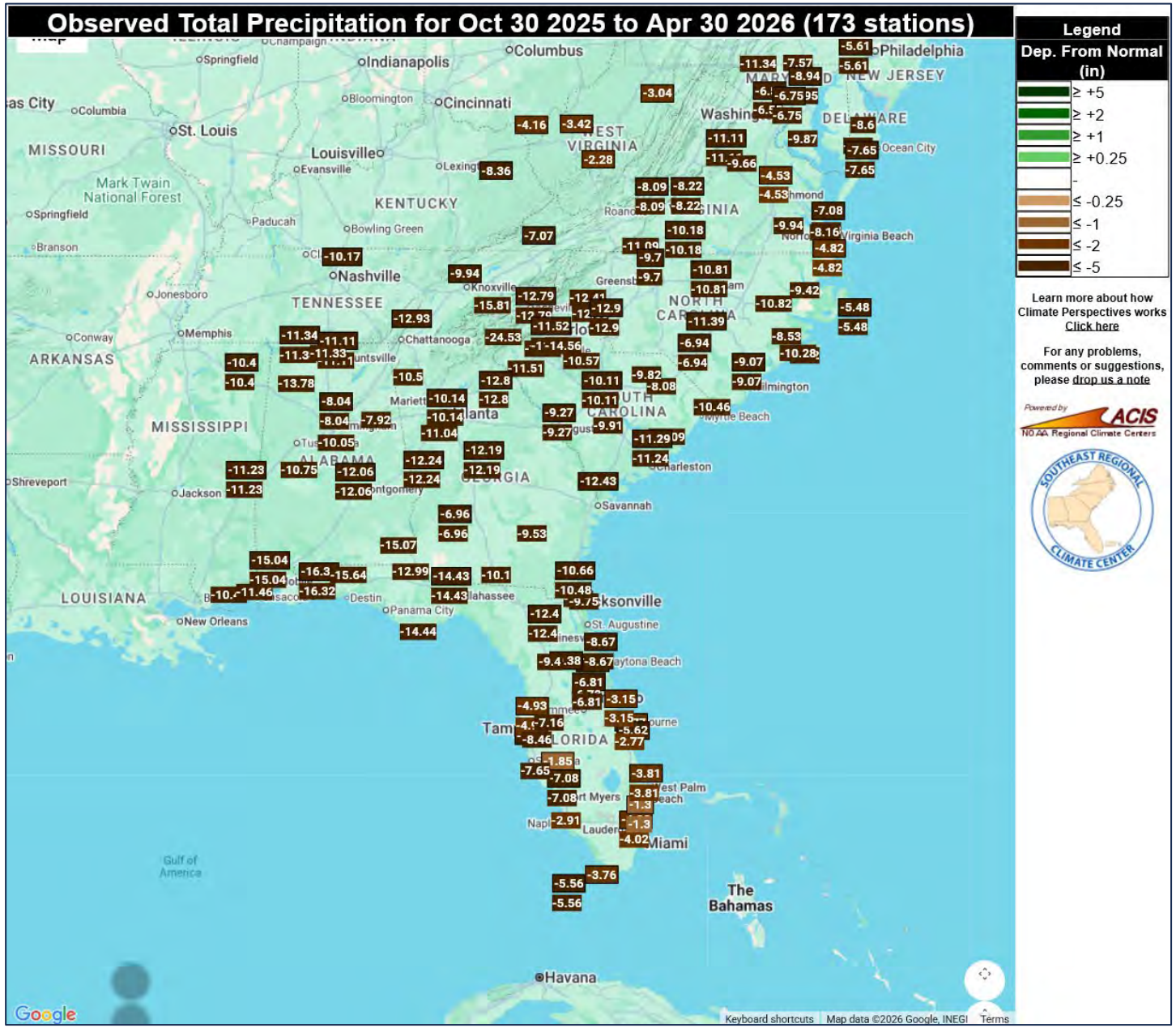
FEMS Examples from Turnbull Creek & Greens Cross RAWS. KBDI Max/Min/Avg + 2026





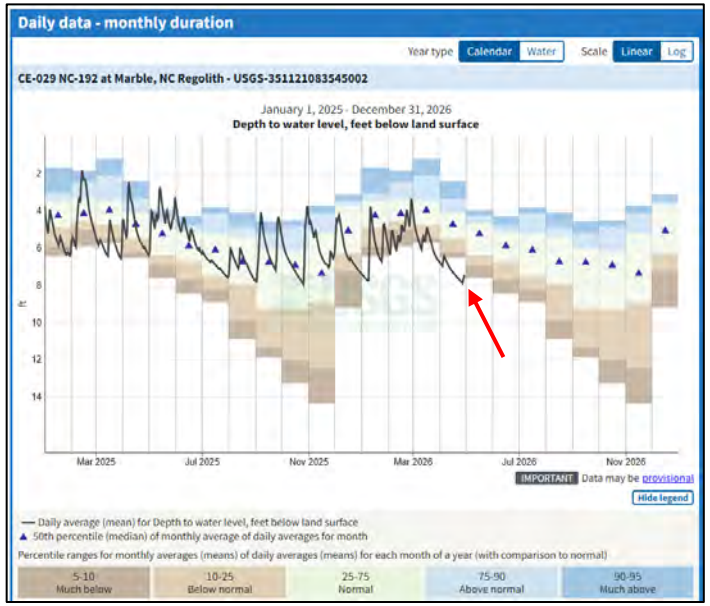
https://mrcc.purdue.edu/VIP/indexKBDI2

6-Month Station Departures from Normal (10/30/25 - 4/30/26)

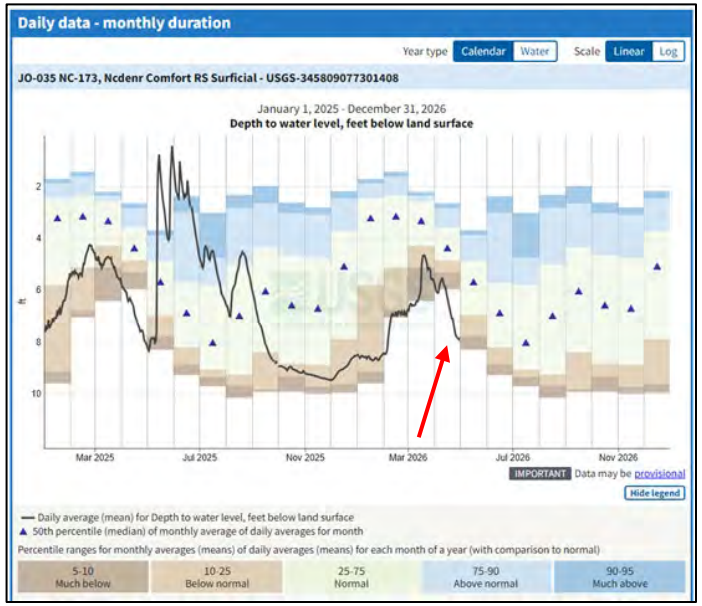


USGS Monitoring Wells - https://waterdata.usgs.gov/state/North%20Carolina/#dataTypes=72019

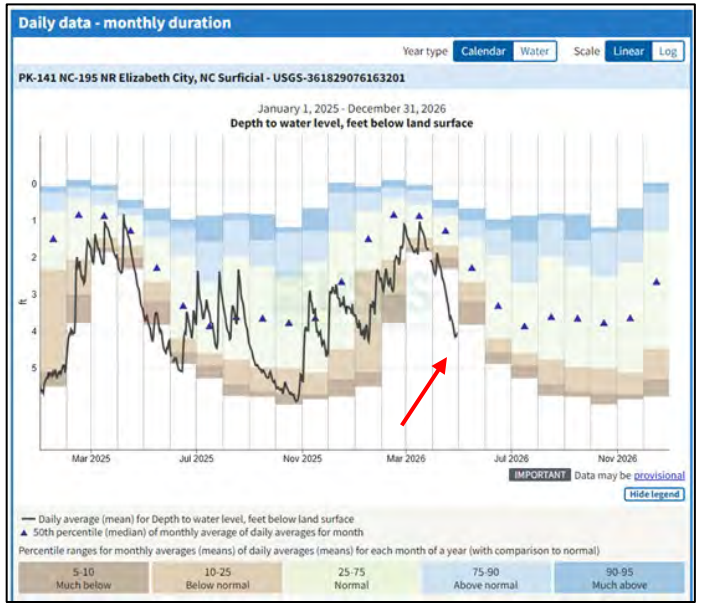
Marble Regolith – Cherokee Co.



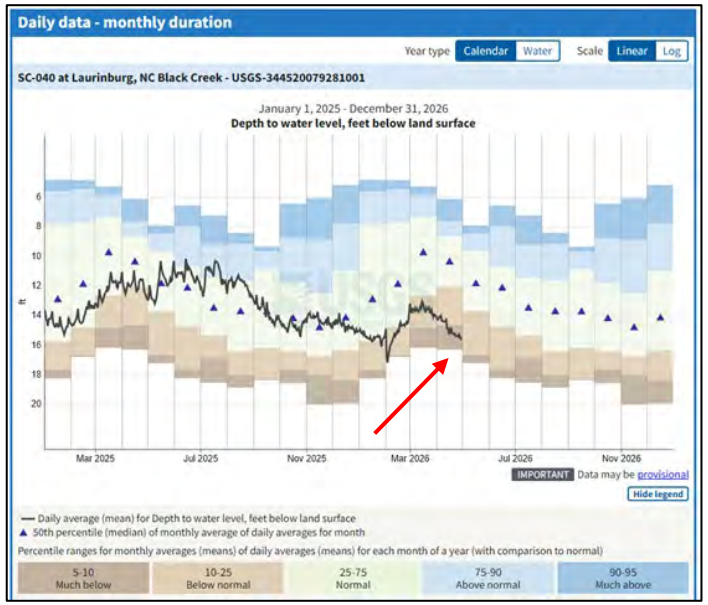
Comfort RS Surficial Well – Jones Co.



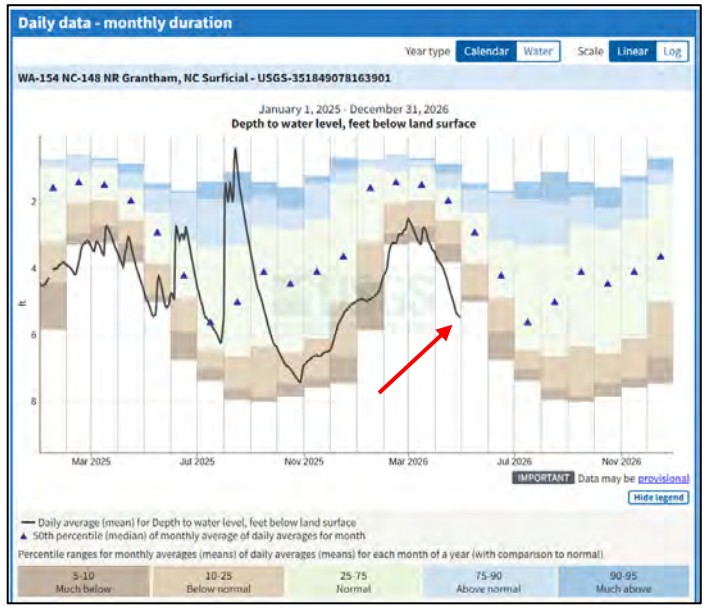
Elizabeth City Surficial Well – Pasquotank Co.



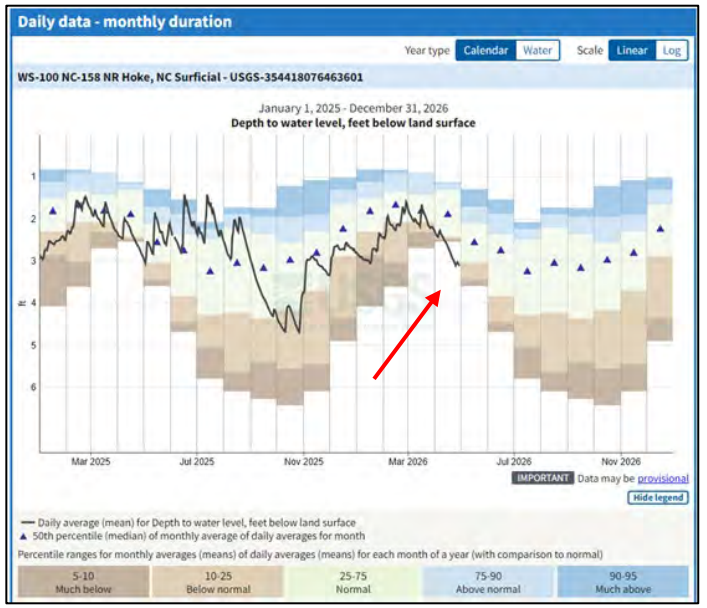
Black Creek – Scotland Co.



Grantham Surficial Well – Wayne Co.

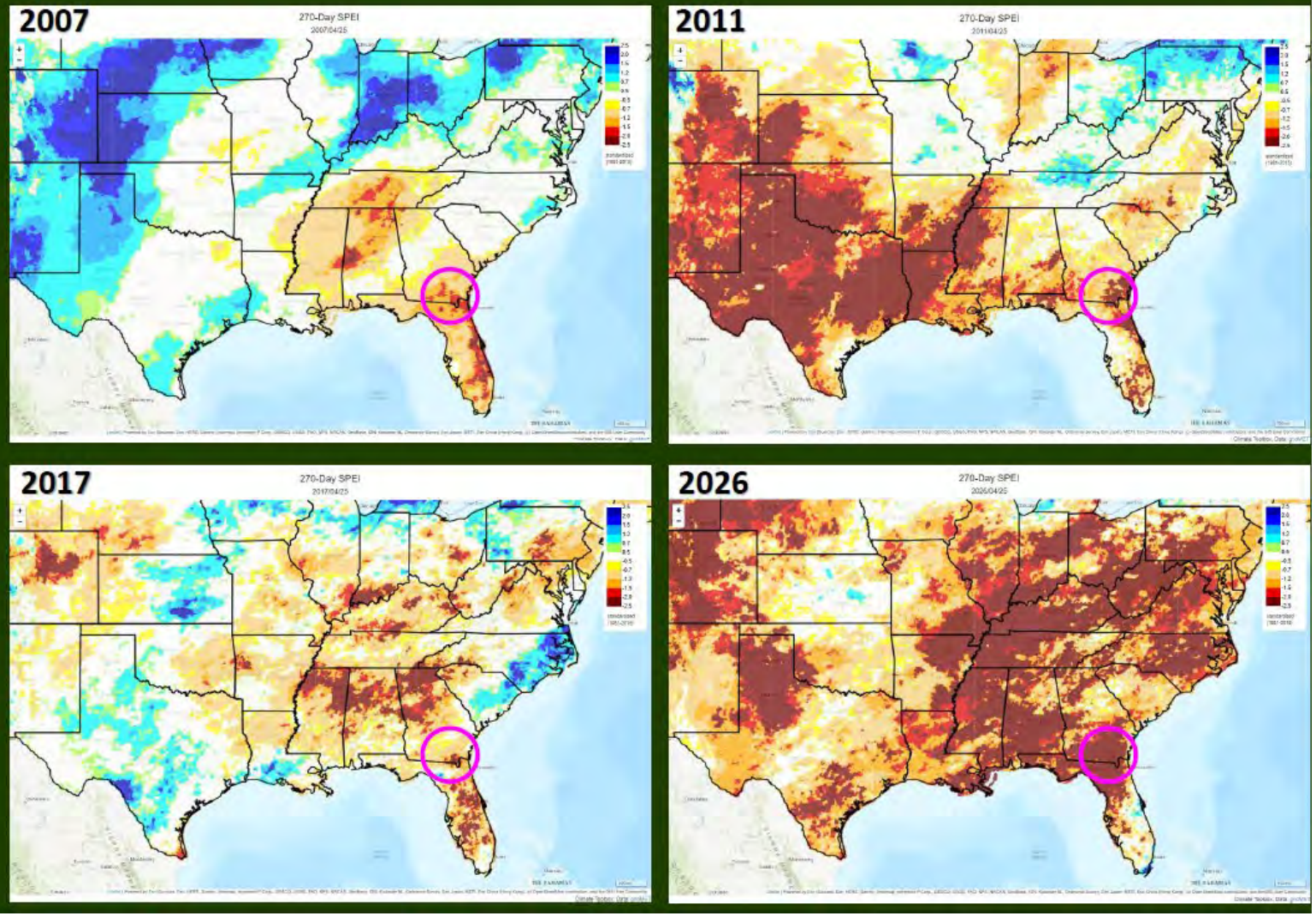


Hoke Surficial Well – Washington Co.



Standardized Precipitation-Evapotranspiration Index

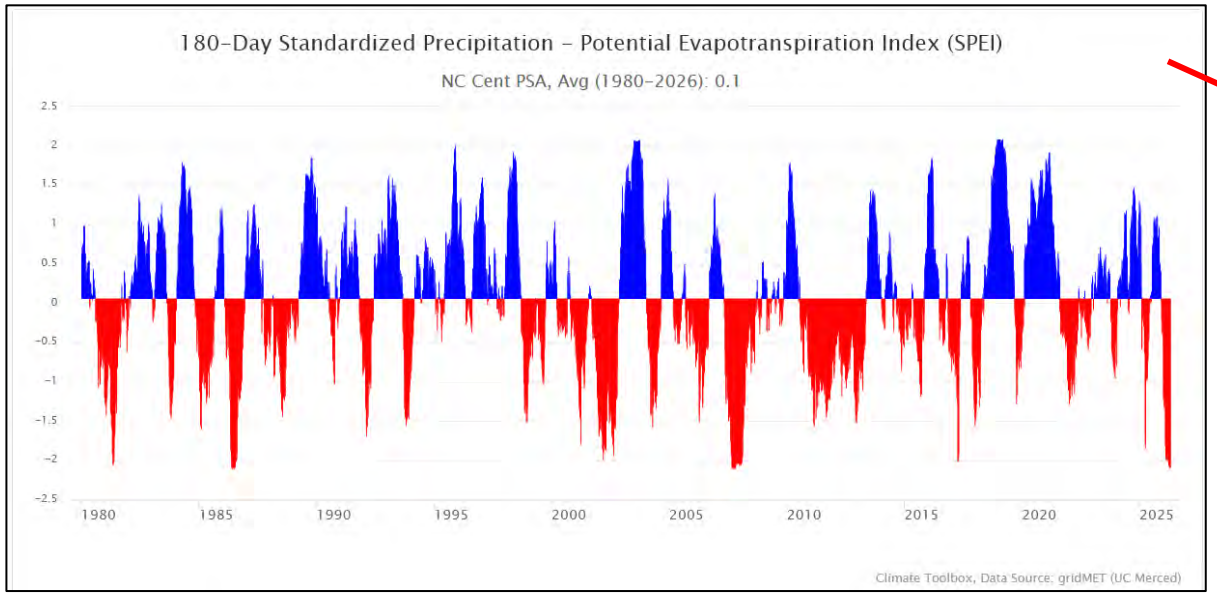
- SPEI is a measure of drought or wetness based on precipitation and temperatures
  - Similar to KBDI but more nuanced
- 9-month SPEIs depicted in 2007, 2011, 2017 and 2026, ending April 25th
- All of the recent big fire years in north Florida and south Georgia had SPEI <1.5 standard deviations from the norm

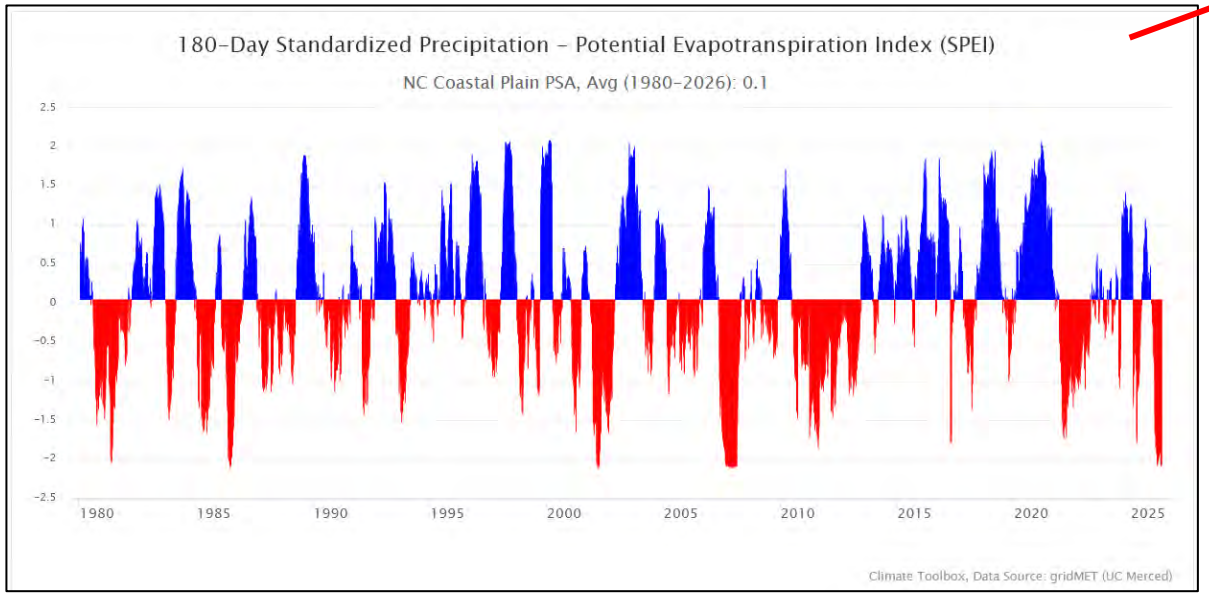


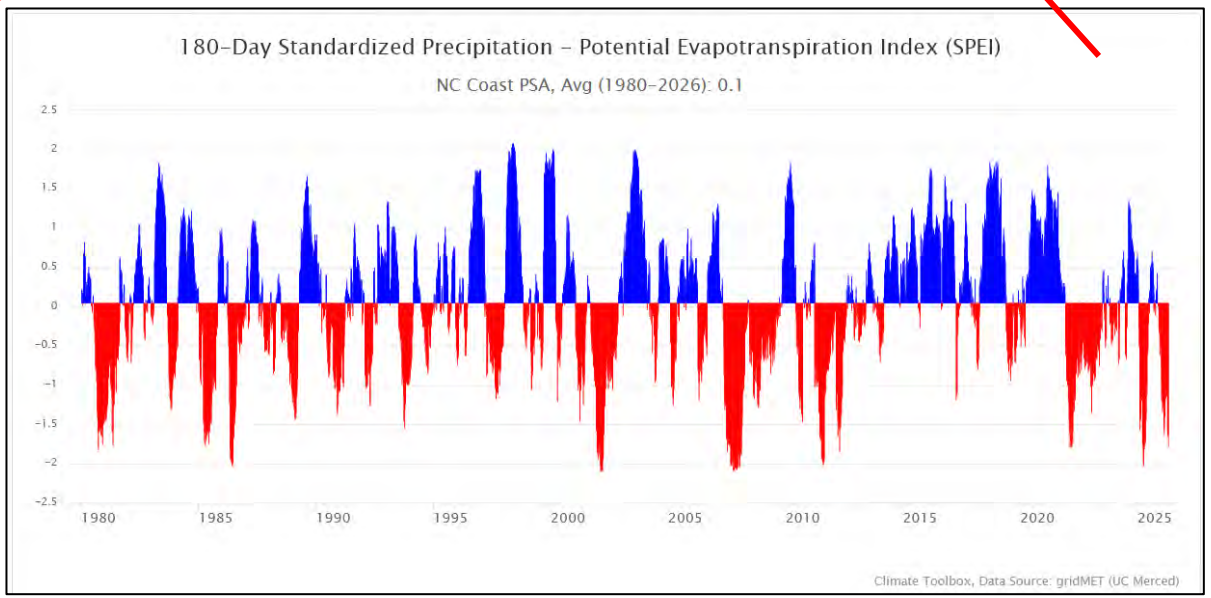
From SA Fire Environment Briefing 5/1/26

Comparison of SPEI at 180-Day Scale by PSA in North Carolina

North Carolina Predictive Service Areas – Comparison from 1980 to 2026. Red bars indicative of enhanced water demand/drier/worse conditions, more bars grouped represent longer period.
https://climatetoolbox.org/tool/historical-climate-tracker

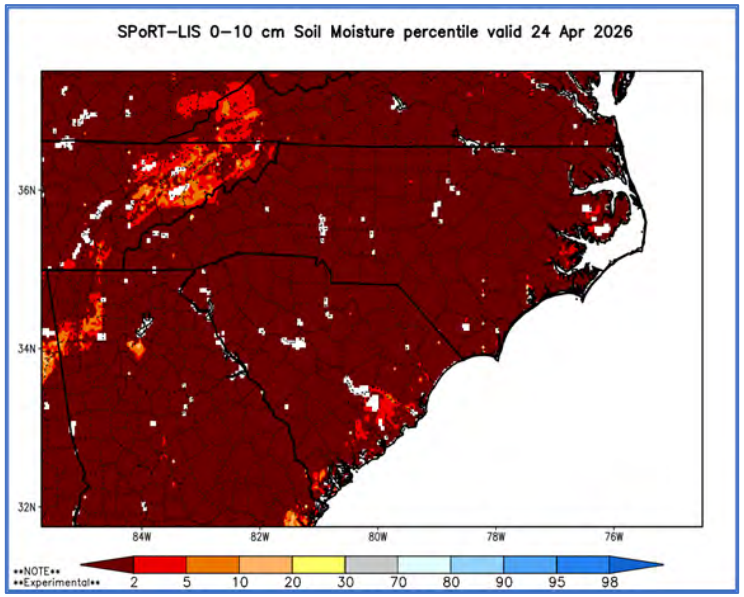


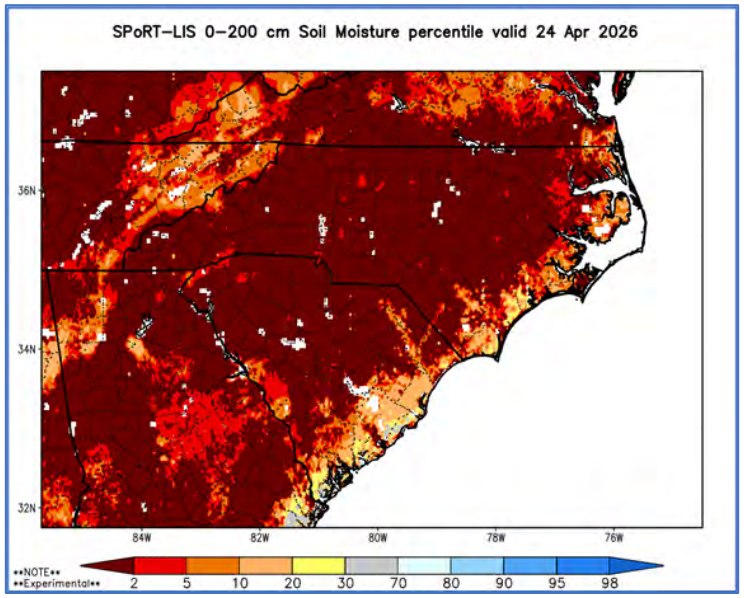




SPoRT Modeled Soil Moisture Percentiles for ~4” and ~72” profile.

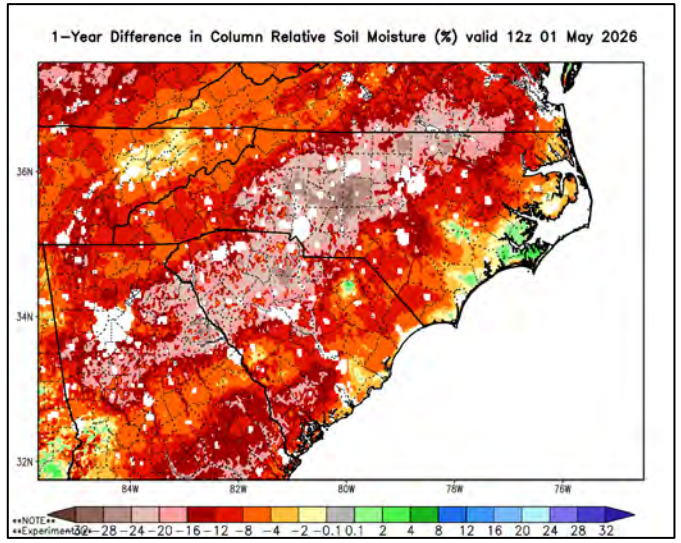
4/24/26





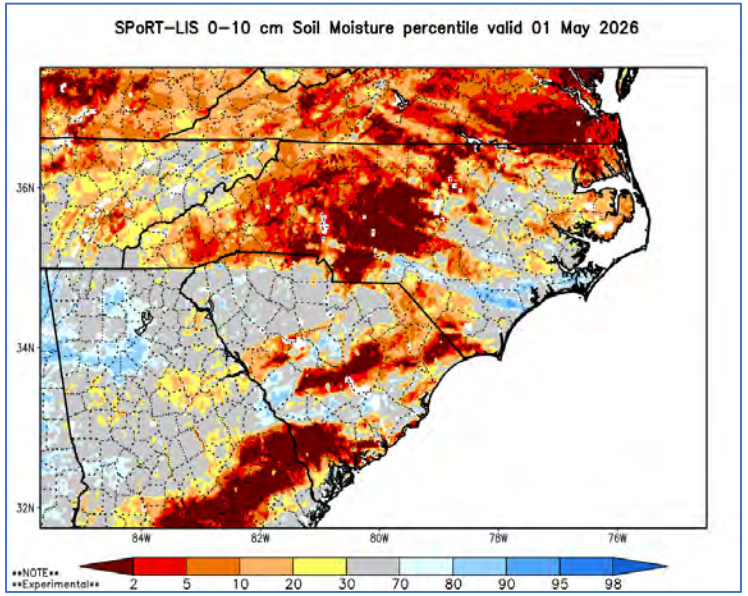
~ 1-Week ago Left, today on Right.

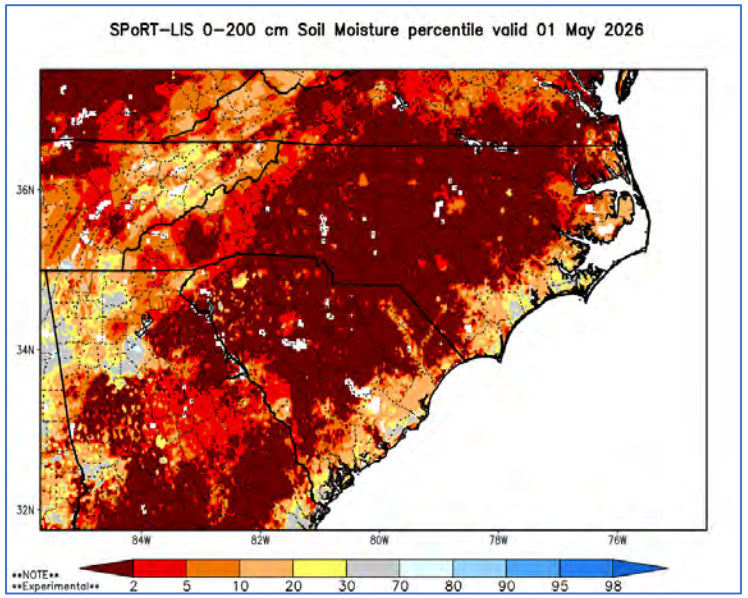
Some shallow improvements but will be short-term.
No significant improvements in deeper soil context.



https://weather.ndc.nasa.gov/sport/case_studies/lis_NC.html

5/1/26





North Carolina Drought Update

Created By: North Carolina Drought Management Advisory Council — www.ncdrought.org | NC CLIMATE OFFICE — climate.ncsu.edu | NC STATE — @NCSCO

For the assessment period ending **Apr. 28, 2026**

From the US Drought Monitor, with input from the NC DMAC

The Main Takeaway

After limited rain fell across the Piedmont again this week, Extreme Drought (D3) has expanded in the region and an area of Exceptional Drought (D4) has emerged.

This Week's Summary

While Saturday's showers brought a half-inch of rain or more in the Coastal Plain and Tuesday morning saw up to an inch fall in the Mountains, the Piedmont was stuck in the middle with minimal totals this week. The hope is that at least signals a pattern change that will eventually bring more widespread rainfall statewide.

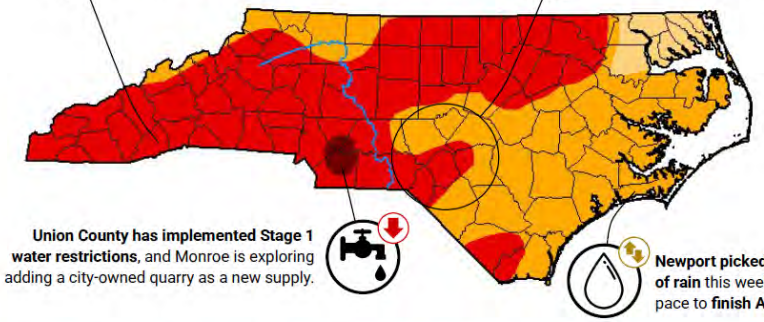
About D4 Emergence

With areas like Monroe seeing record low precipitation over the past six months and water restrictions now in effect, part of the southern Piedmont is in Exceptional Drought (D4) for the first time since March 4, 2008.

For your local drought status, visit **www.ncdrought.org**

Even after this week's light rain, the Pisgah Forest groundwater well saw no improvement and **remains at record low monthly levels**.

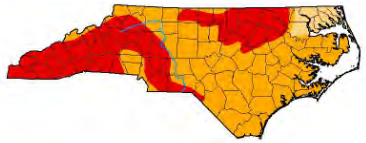
Streamflows in the Sandhills are now at daily record lows, with that region going more than 45 days since their last half-inch rainfall event.



Union County has implemented Stage 1 water restrictions, and Monroe is exploring adding a city-owned quarry as a new supply.

Newport picked up almost two inches of rain this weekend, but is still on pace to **finish April drier than normal**.

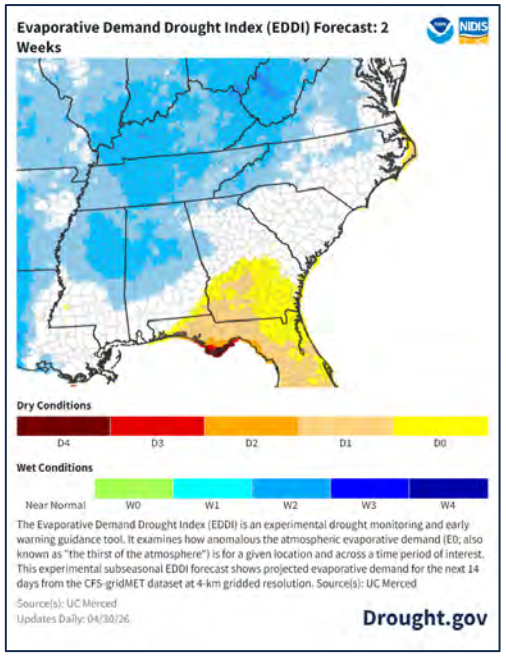
Last Week's Drought Status

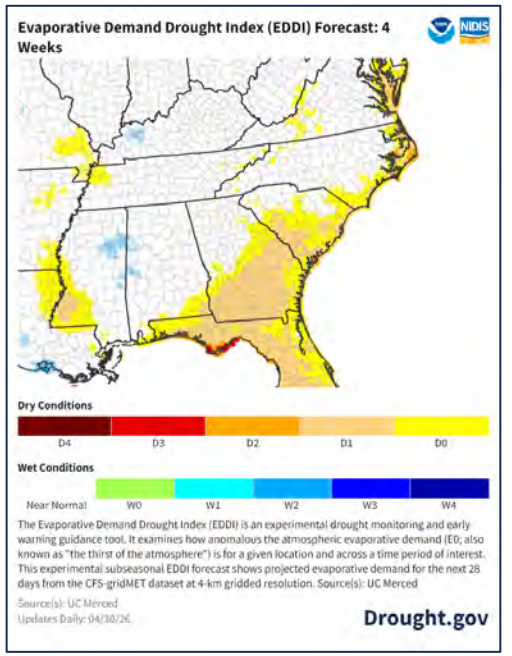


Statewide Coverage by Category

Category	Current Coverage	Change Since Last Week
D0: Abnormally Dry	0.00%	0.00%
D1: Moderate Drought	4.46%	0.00%
D2: Severe Drought	40.67%	-16.76%
D3: Extreme Drought	53.83%	+15.72%
D4: Exceptional Drought	1.04%	+1.04%

https://www.drought.gov/data-maps-tools/evaporative-demand-drought-index-eddi-subseasonal-forecasts



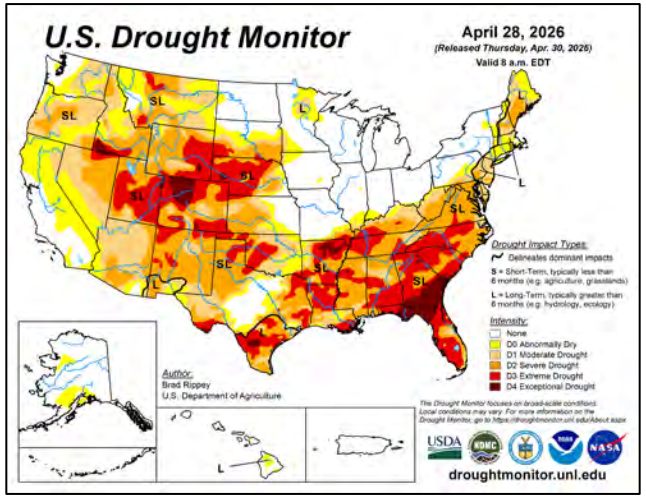


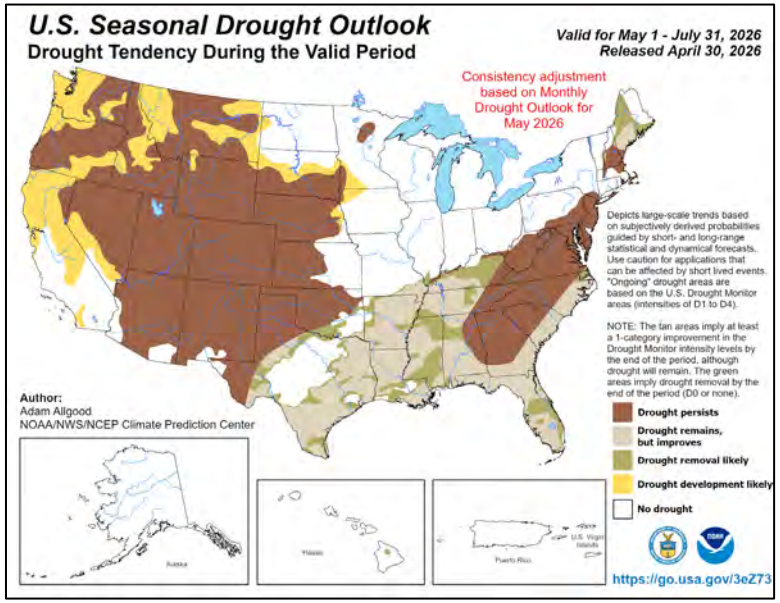
EDDI & Drought

EDDI Maps - The EDDI maps at the top right illustrate modeled evaporative demand at the two-week and four-week avg level. They are beginning to trend near normal for parts of NC in the 2 & 4-week time scale. Warmth, lack of precip and dry air accelerates this index.

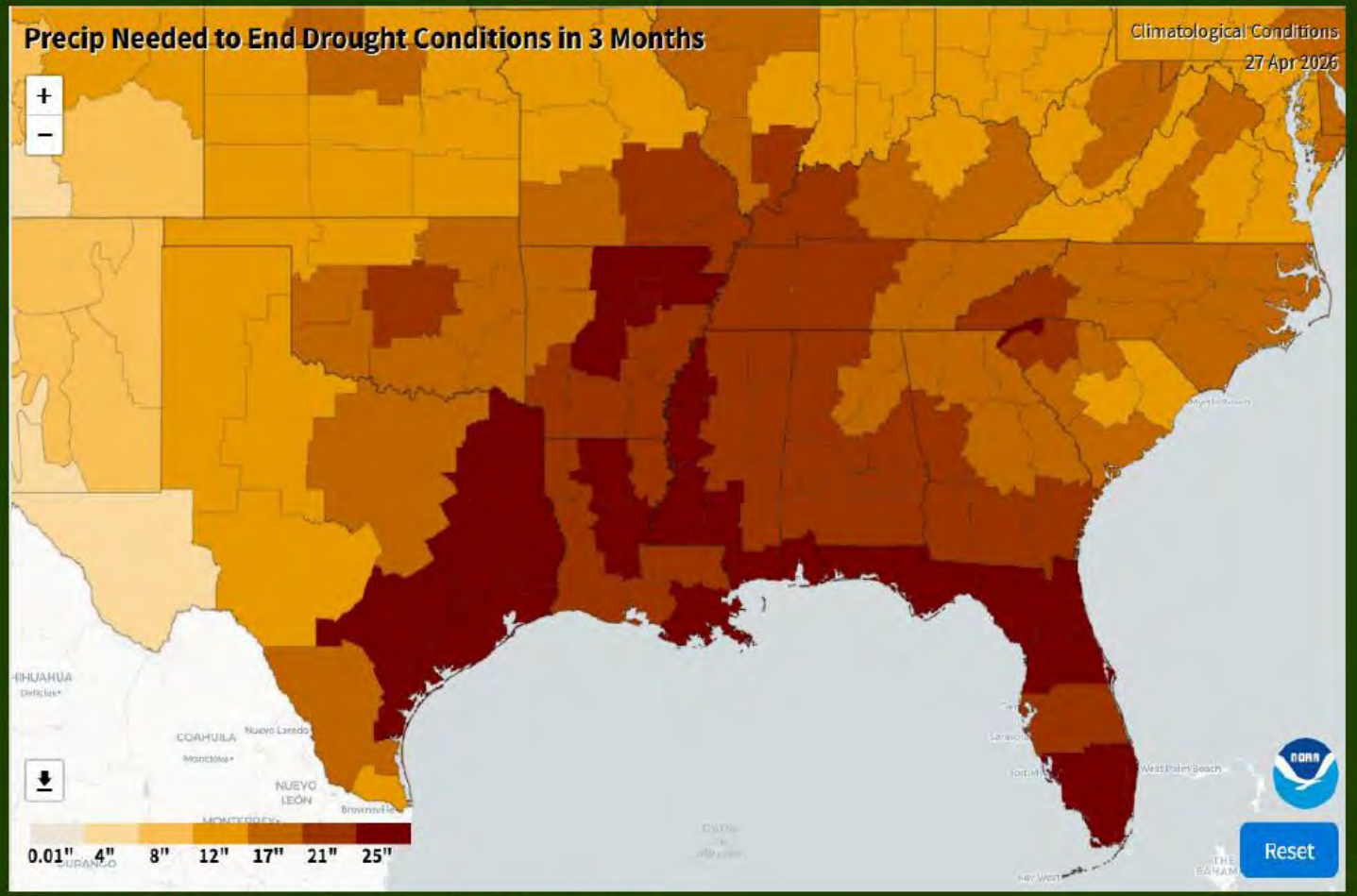
US Drought Monitor – Most recent USDM map release above (4/28/26). Drought intensification continues to be probable as we move into the growing season, should rainfall deficits continue.

Seasonal Drought Outlook - See detailed state/regional discussions here.





What Will It Take To Get Out Of This?



Drought Termination and Amelioration | Drought.gov

- Rain needed to end hydrological drought over the next three months is as high as 20-30” in the Mississippi Valley, southern Appalachians and Gulf Coast
- Long-term soil moisture deficits are a product of the recent multi-year La Niña and may extend back to the 2023 drought along the Gulf Coast
- Short-term drought relief is likely in many areas, but this underlying dryness will have implications again at some point

https://www.ncei.noaa.gov/access/monitoring/drought-recovery/current/wmp/end-rain/3

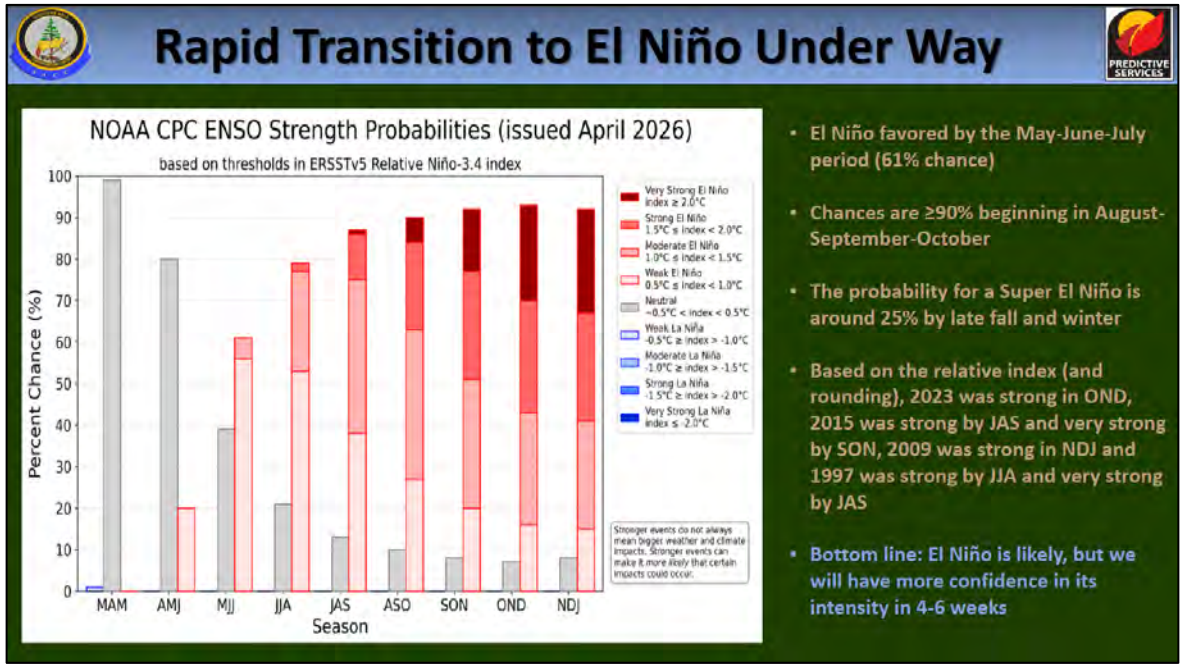
From SA Fire Environment Briefing 5/1/26

ENSO Notes from the CPC (4/9/26 Update)

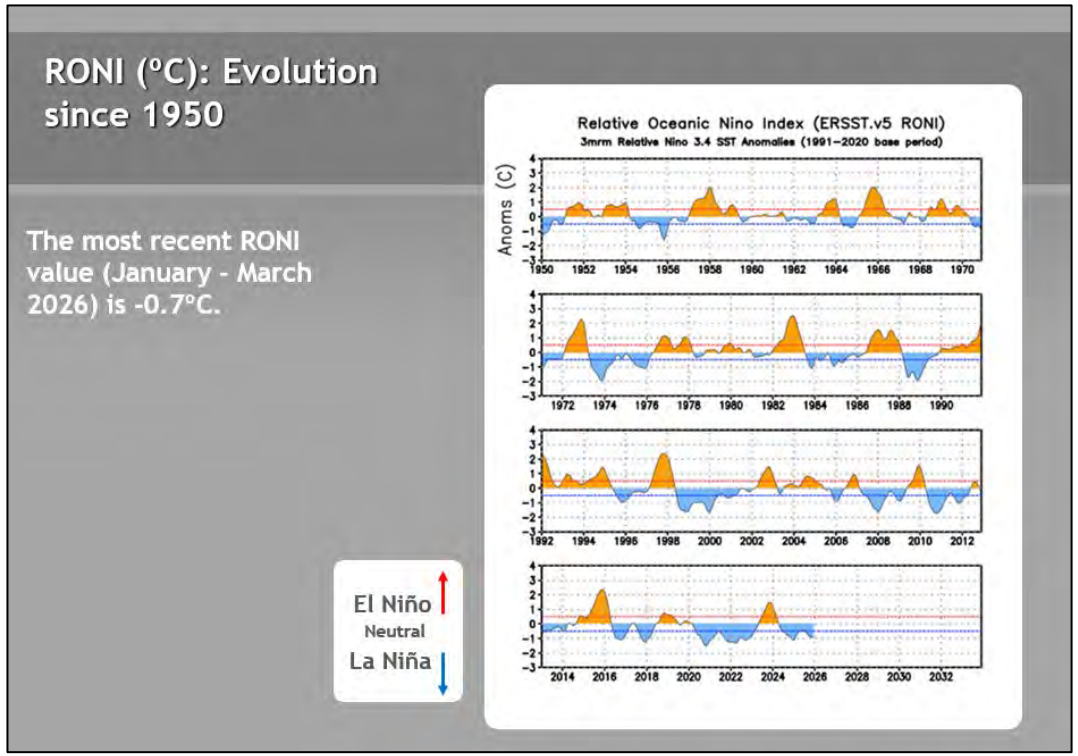
ENSO Alert System Status: **Final La Niña Advisory / El Niño Watch**

ENSO-neutral conditions are present and are favored through April-June 2026 (80% chance). In May-July 2026, El Niño is likely to emerge (61% chance) and persist through at least the end of 2026.

ENSO, or El Nino Southern Oscillation, is a fluctuation in the sea surface temperature (SST) in the equatorial Pacific Ocean. Research has shown that even slight changes in the SST, particularly in area 3.4, can influence weather in North America. Generally, when SSTs are lower than normal, known as La Nina, NC has drier than normal conditions and can have more fire occurrence. However, La Nina also can lead to more tropical activity. El Nino, on the other hand, usually means wetter weather for NC, but less opportunity for tropical landfalls due to increased wind shear. Recent changes in defining either ENSO state can be found here.



From SA Fire Environment Briefing 5/1/26



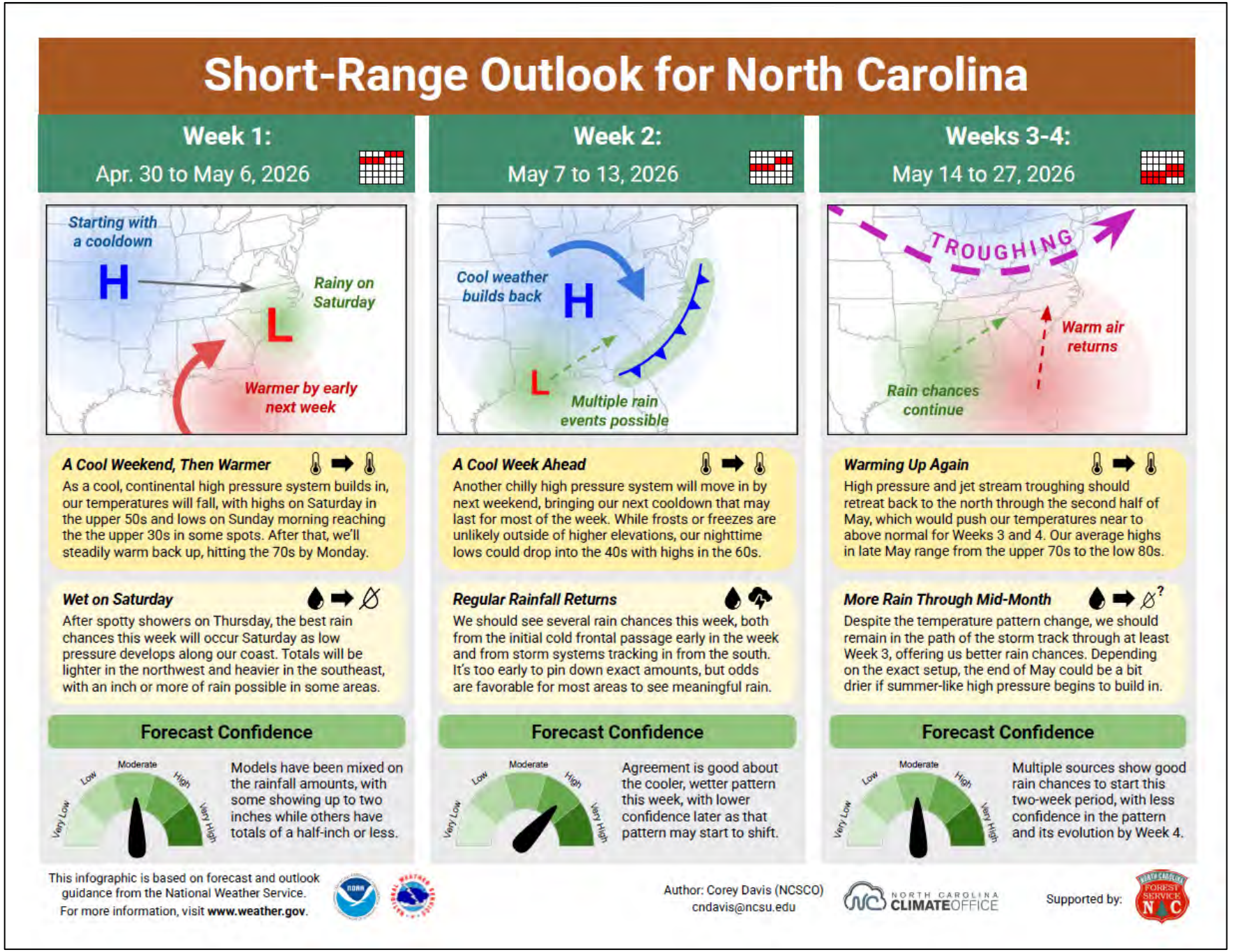
From the most recent CPC Diagnostic Discussion (ENSO Diagnostics Discussion):

The North American Multi-Model Ensemble (NMME) average, including the NCEP CFSv2 [Fig. 6], favors ENSO-neutral through April-June 2026, with a transition to El Niño thereafter. El Niño is likely because of increasing subsurface temperature anomalies and recent westerly wind anomalies over the western Pacific Ocean. However, the possible outcomes range from ENSO-neutral to a very strong El Niño during the upcoming Northern Hemisphere winter [Figs. 7 & 8]. The possibility of a very strong El Niño (1 in 4 chance of Niño-3.4 ≥ +2.0°C) largely depends on the continuation of westerly wind anomalies across the equatorial Pacific throughout the Northern Hemisphere summer months, which is not assured. In summary, ENSO-neutral conditions are present and are favored through April-June 2026 (80% chance). In May-July 2026, El Niño is likely to emerge (61% chance) and persist through at least the end of 2026.

Slide Source: *https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt*

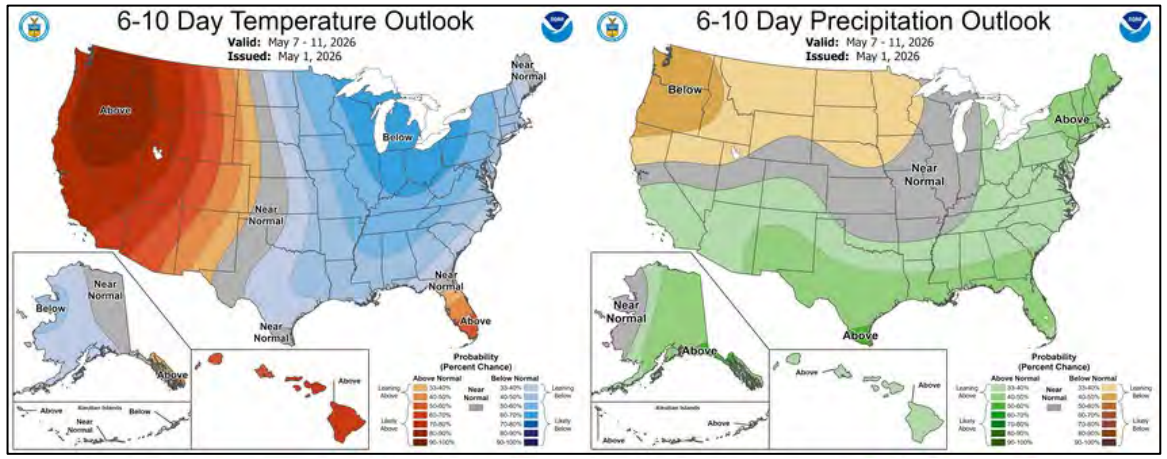
State Climate Office: Short-Range Monthly Outlook for NC

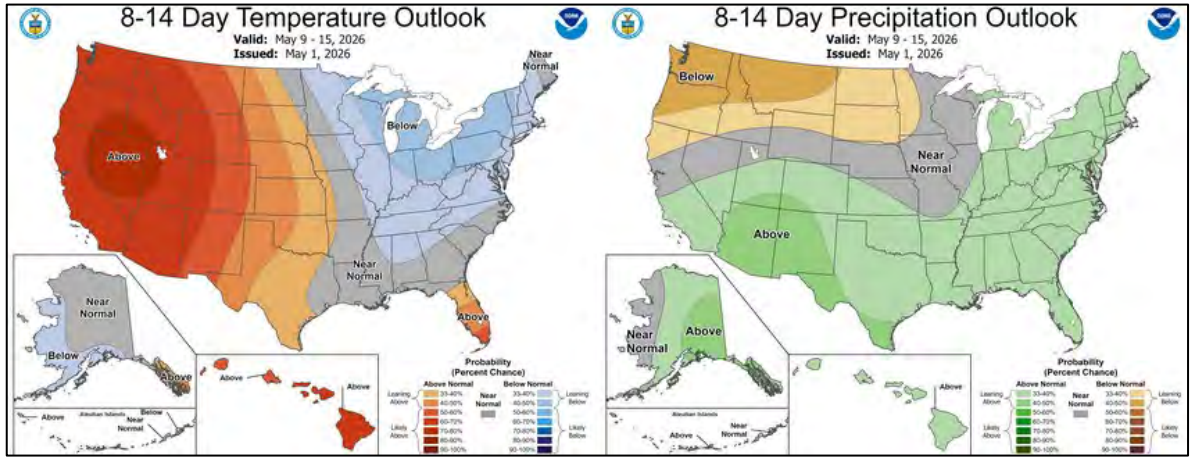
Released ***4/30/26***
Location: https://climate.ncsu.edu/fire/outlooks/



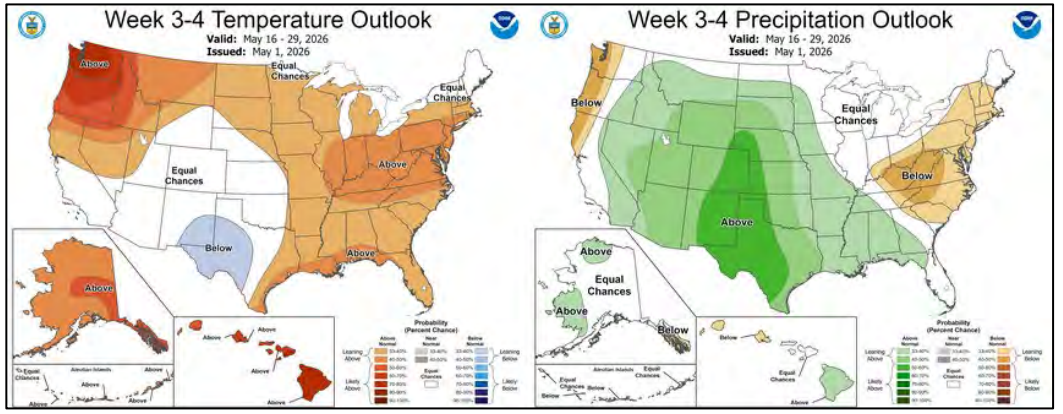
Temp & Precip Outlook

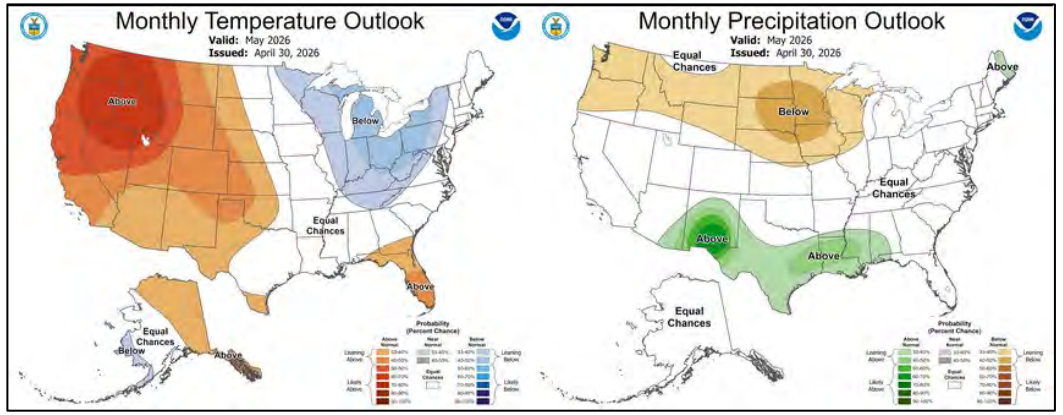
6-10 Day, 8-14 Day, Weeks 3-4, May (released 4/30)





Source: https://www.cpc.ncep.noaa.gov/



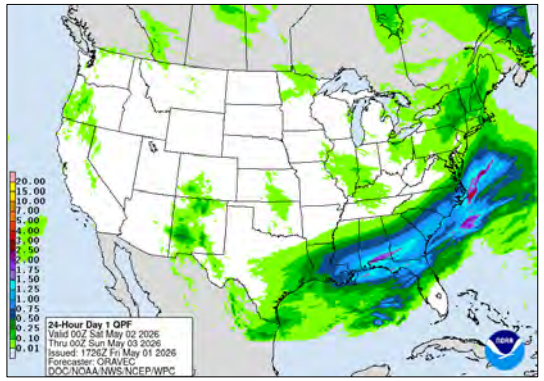


Keep the current deficits in mind at the 1 to 12 month+ time scale.
Trend remains promising, but long way to go & forecast uncertainty.

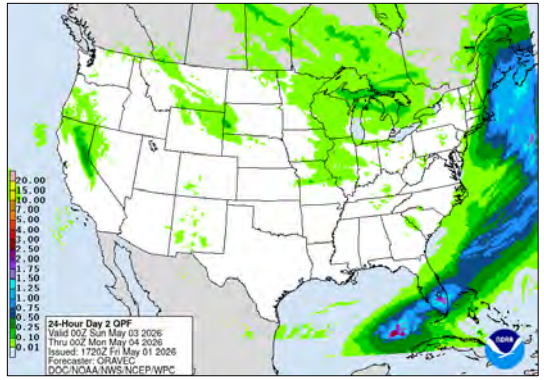
Quantitative Precipitation Forecast, 7-Day

Location: https://www.wpc.ncep.noaa.gov/#

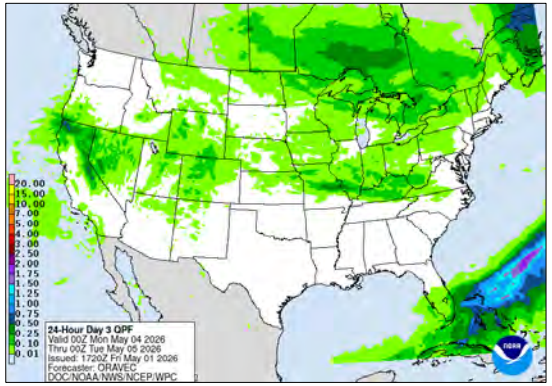
Day – 1 (8pm – 8pm)



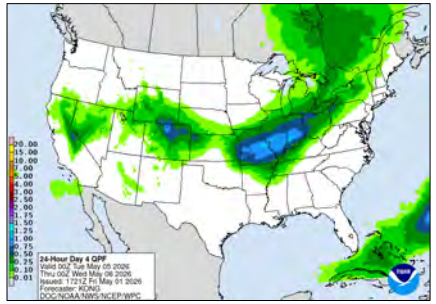
Day - 2



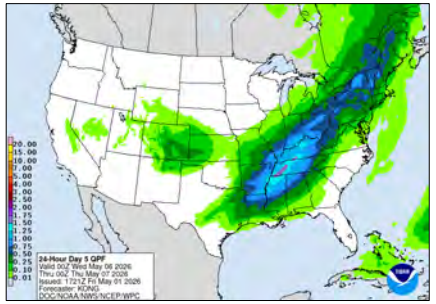
Day - 3



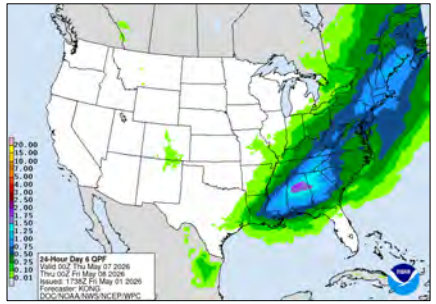
Day - 4



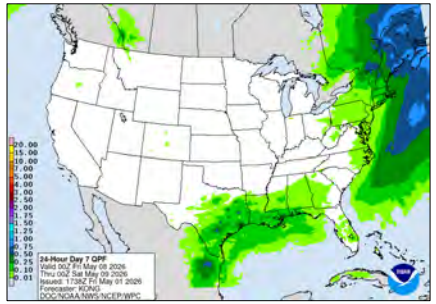
Day - 5



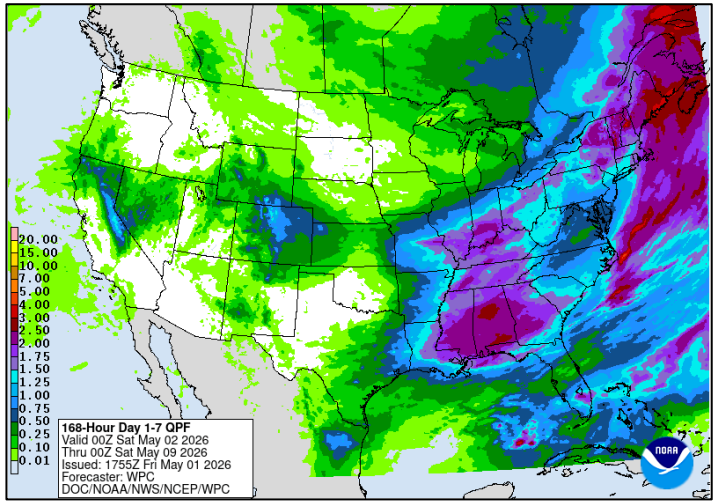
Day - 6



Day - 7



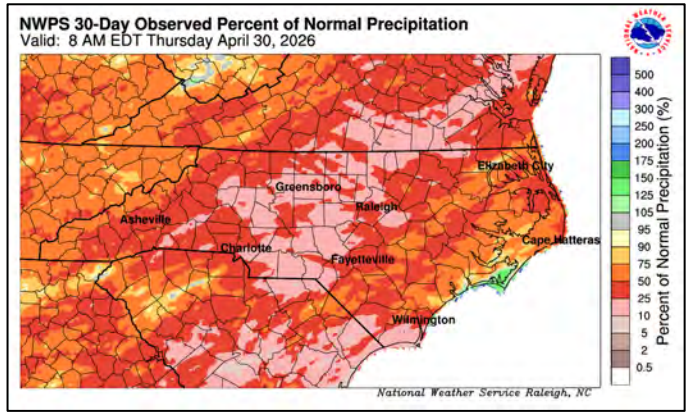
Days 1 – 7 QPF



Zoom - Days 1 – 7 QPF

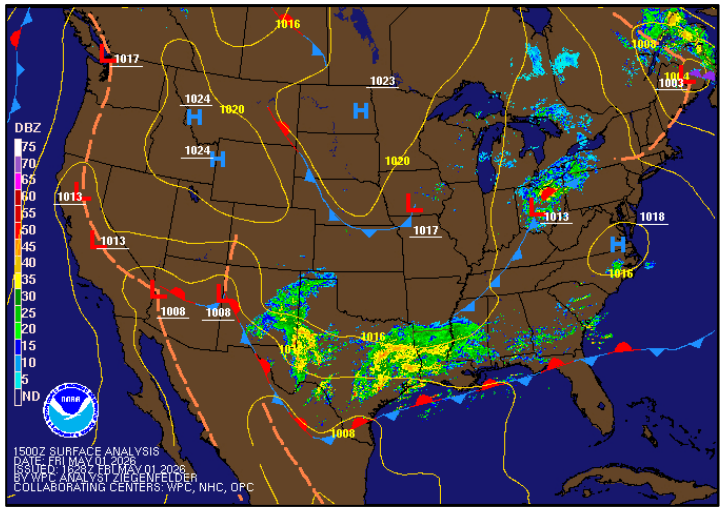
Unsettled weather over the upcoming week. Lightning Concerns & Uncertainty in storm tracks, favoring Gulf States.

30-Day Observed PNP from Thursday 8am

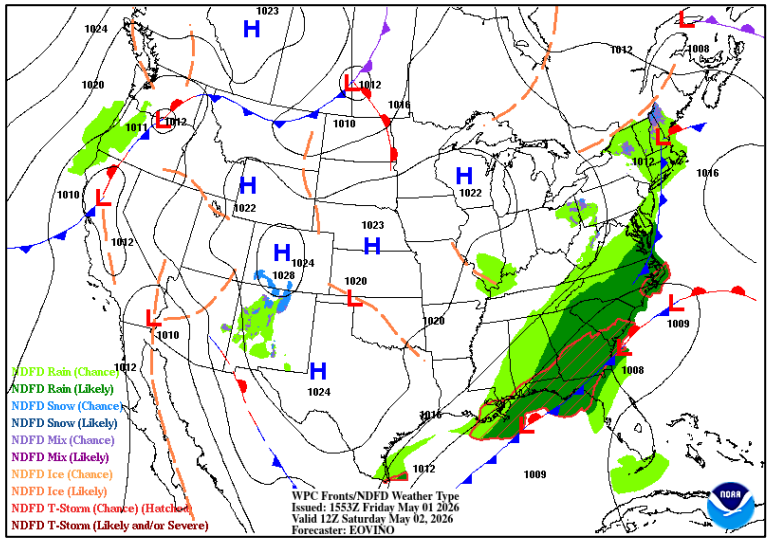


WPC Forecasted Surface Fronts & Sea-Level Pressures

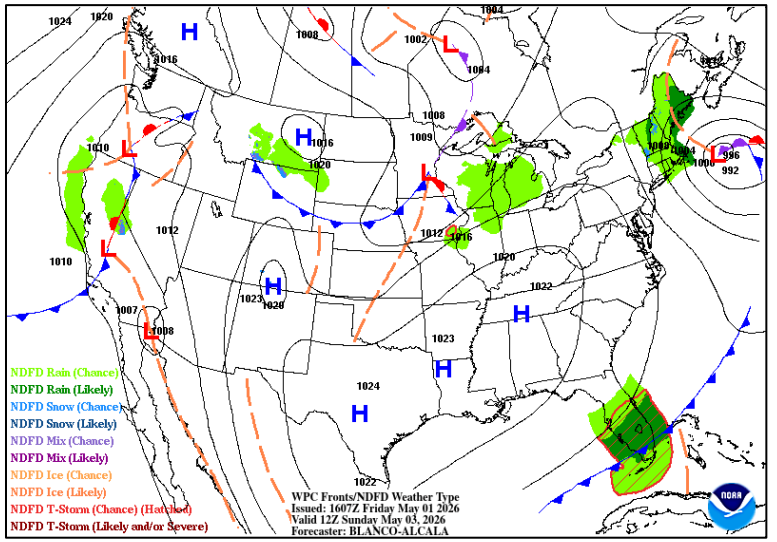
Day-1 @ 15Z Surface Analysis



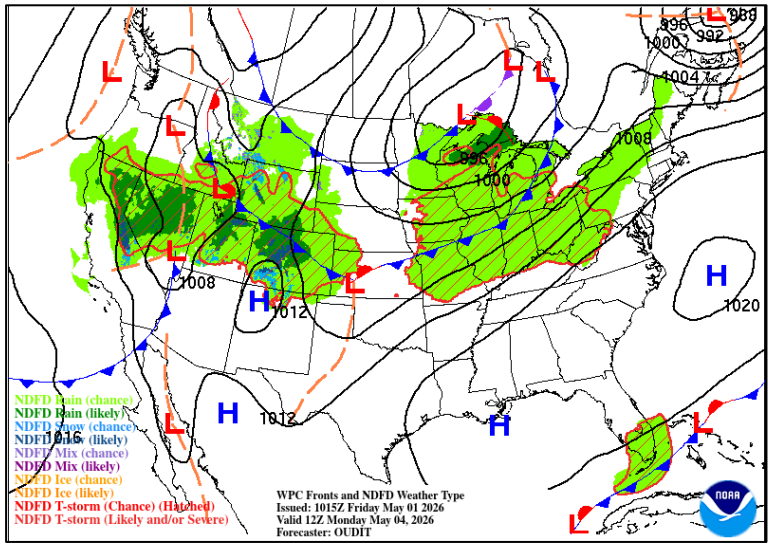
Day 2 - @ 12Z (0800 EDT)



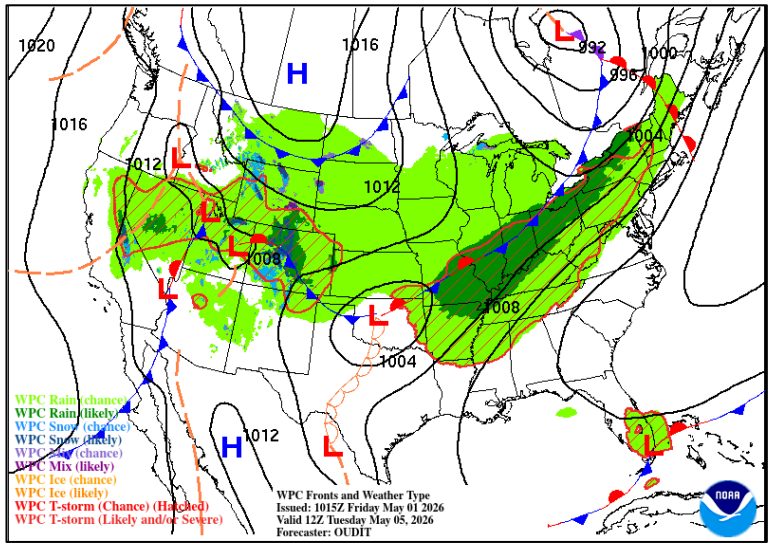
Day 3 @ 12Z (0800 EDT)



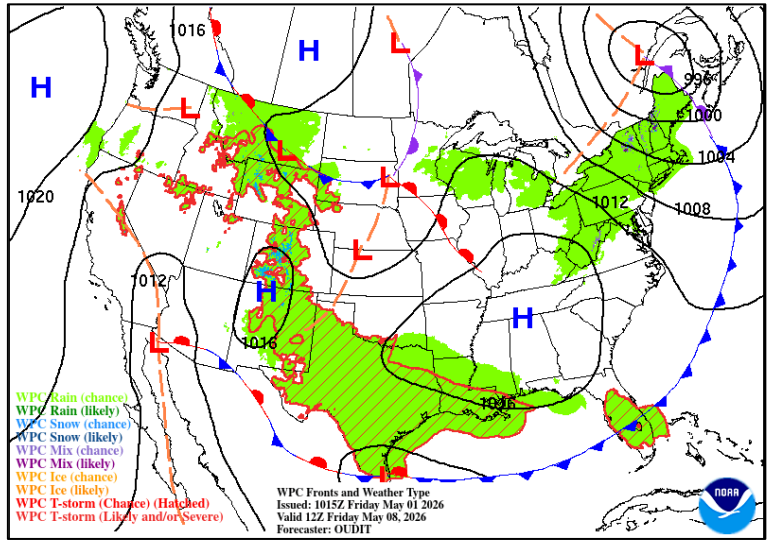
Day 4 @ 12Z (0800 EDT)



Day 5 @ 12Z (0800 EDT)



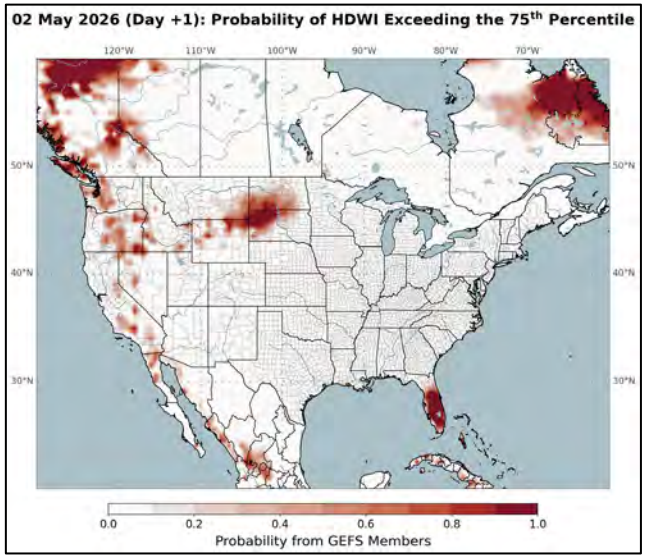
Day 6 @ 12Z (0800 EDT)



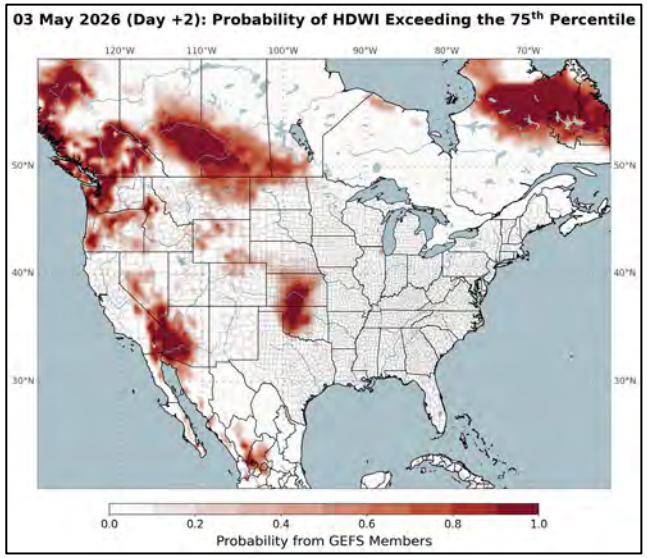
Location: https://www.wpc.ncep.noaa.gov/#

Hot-Dry-Windy Index (HDW)

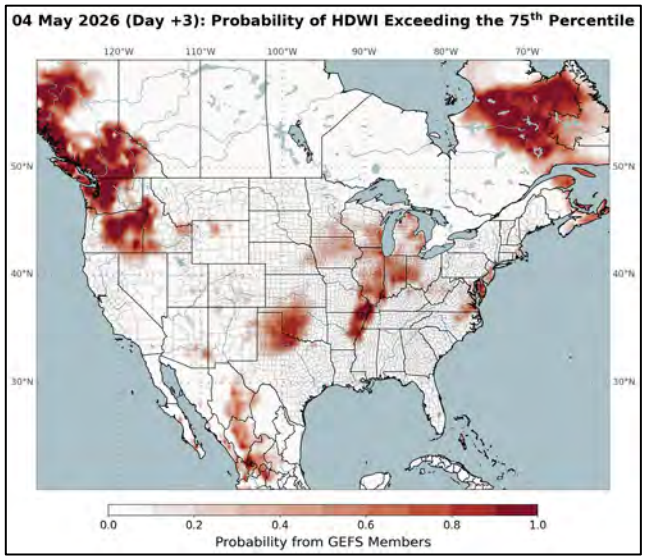
Saturday > 75th Percentile



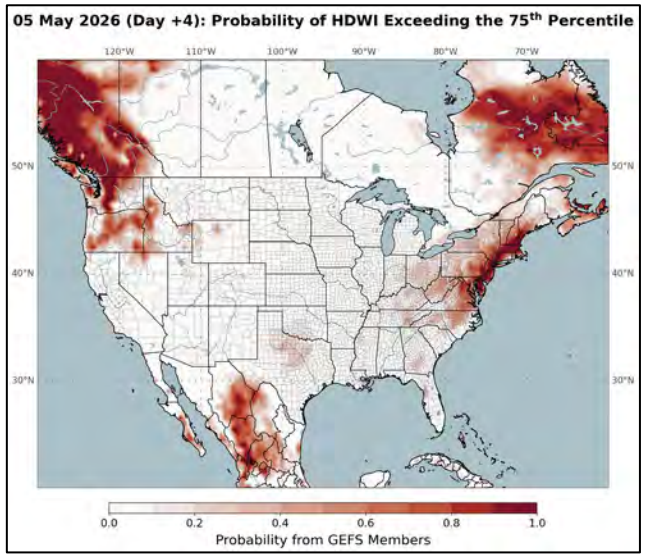
Sunday > 75th Percentile



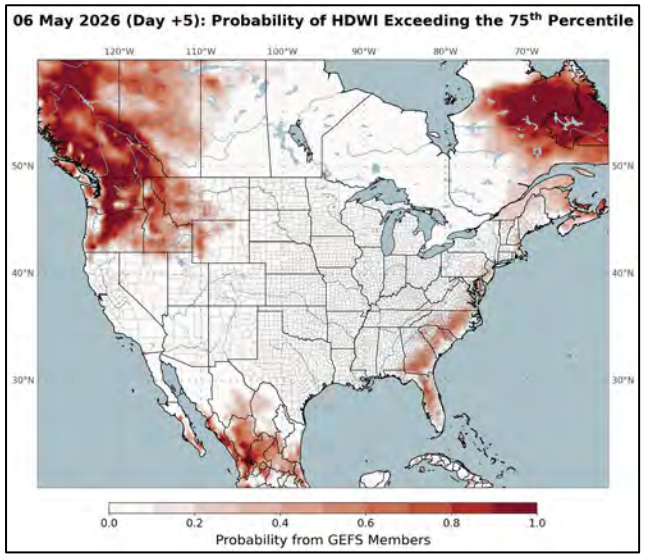
Monday > 75th Percentile



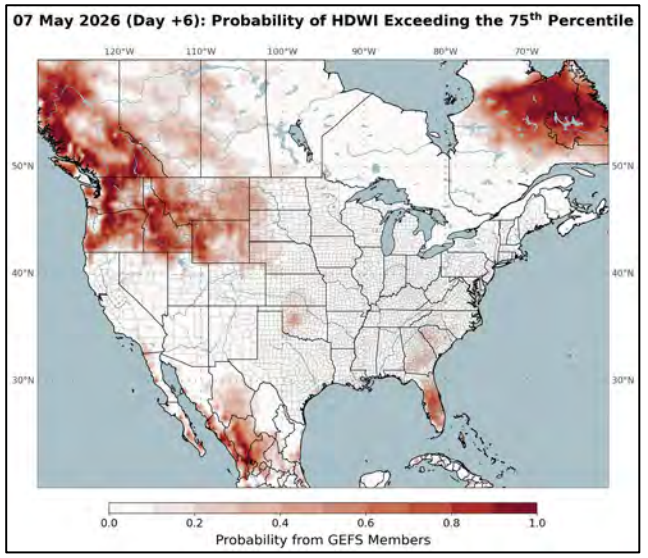
Tuesday > 75th Percentile



Wednesday > 75th Percentile



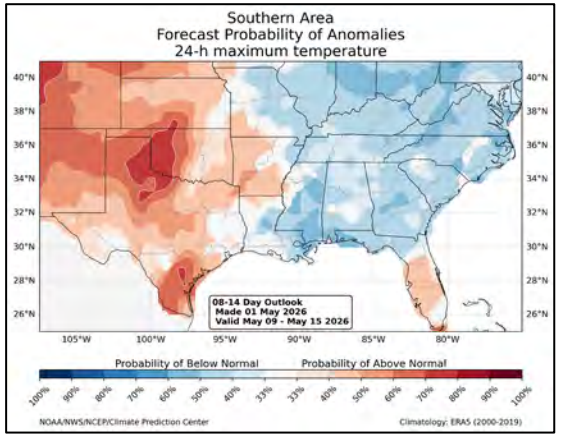
Thursday > 75th Percentile

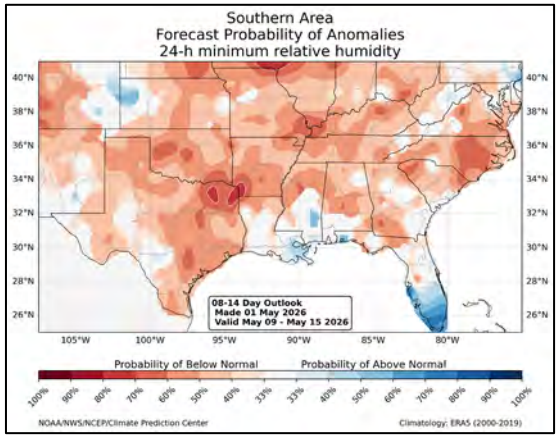


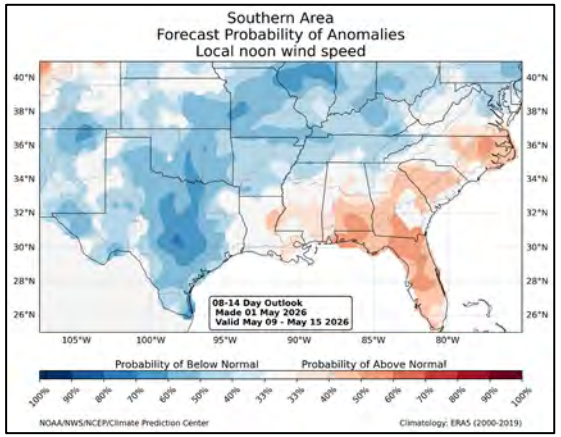
- Another visualization tool to pick up on broader weather, but with *limitations
- Only uses Max VPD (atmospheric moisture & temp) & Max Wind Speed to generate outputs
- Coarse Resolution - 0.5 Degree Grid
- No Account of Local Fuel Conditions and Topo

https://hdwindex.fs2c.usda.gov/probs.html

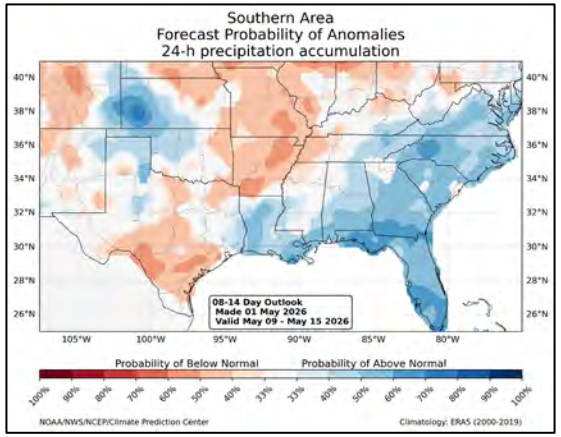
Week Two Forecast Anomalies: 5/9 – 5/15

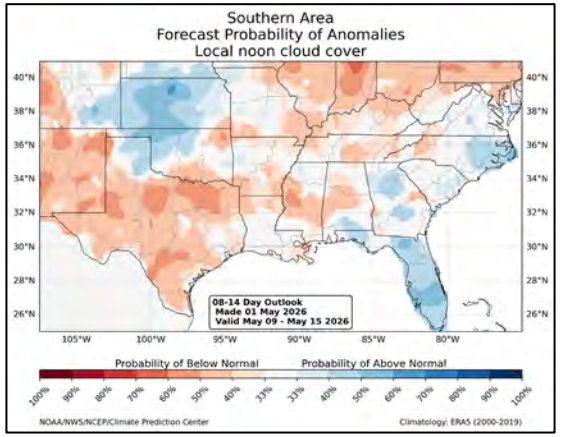






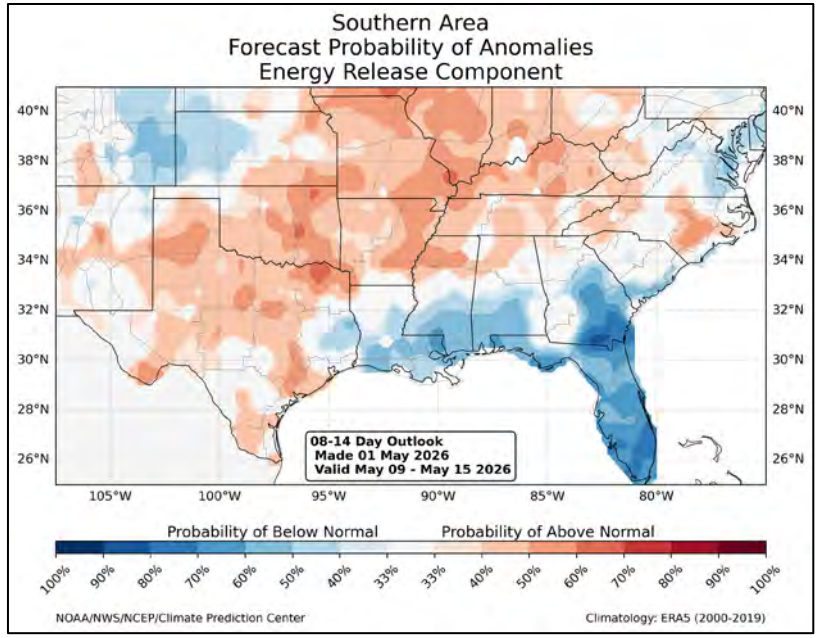
https://www.cpc.ncep.noaa.gov/products/extremes/fire-weather/cpc_wk2fw_index.html

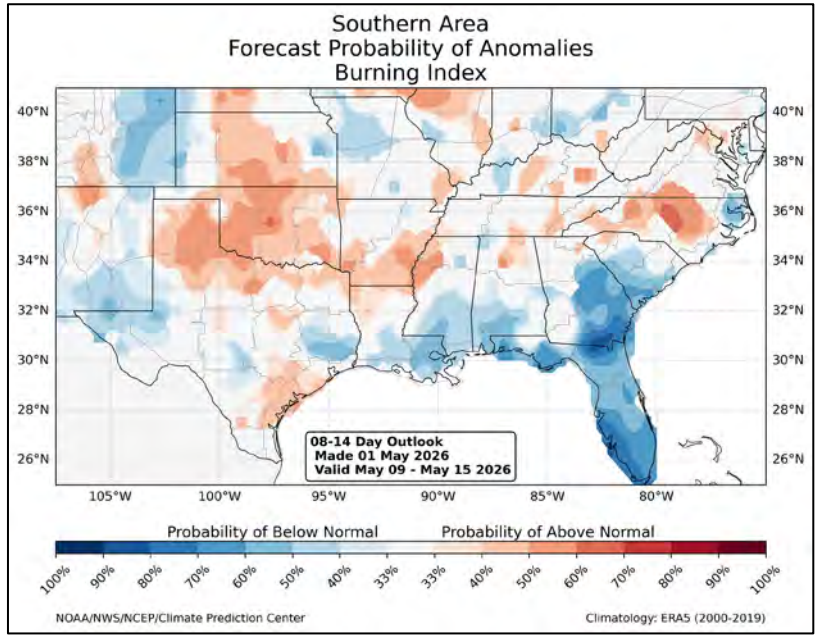




Important to note that there is significant forecast uncertainty as you go further out in time.

Models favoring cooler than normal temps/drier air, and near normal precipitation. Forecast then applies those weather variables to show potential for above normal BI & ERC at week two for much of NC. Remember to apply this in seasonal context.

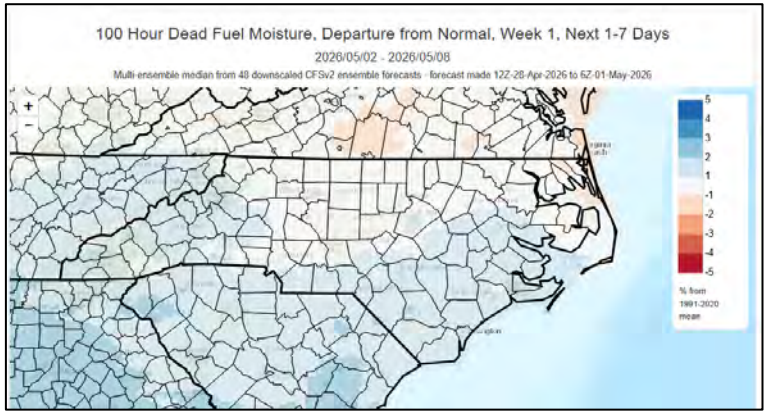




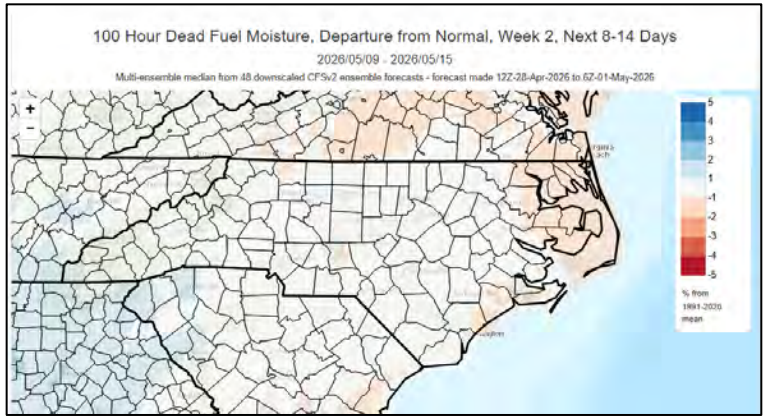
Modeled Departure from Normal by Week: 100-hr Fuels

Output relies on experimental forecast outputs and is subject to change

Week-1



Week-2

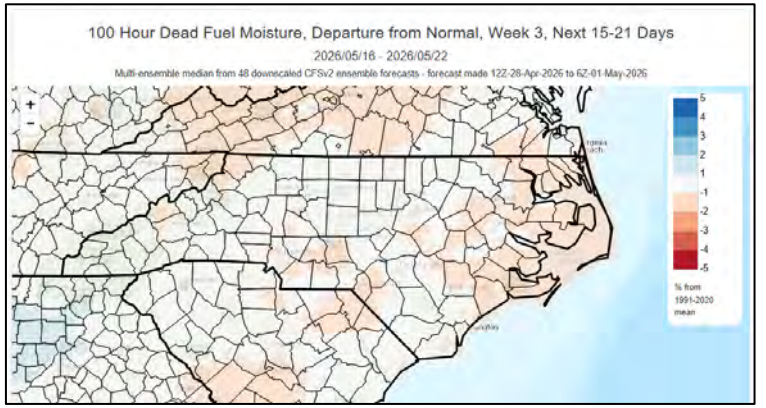


This output can provide insight into general drying trends and potential impacts to overall fire danger, especially prior to full green-up or in drought conditions. Outputs relate to interactions of warmer/colder temps, moist/dry air masses, precip amt/duration, wind and overnight RH recovery trends.

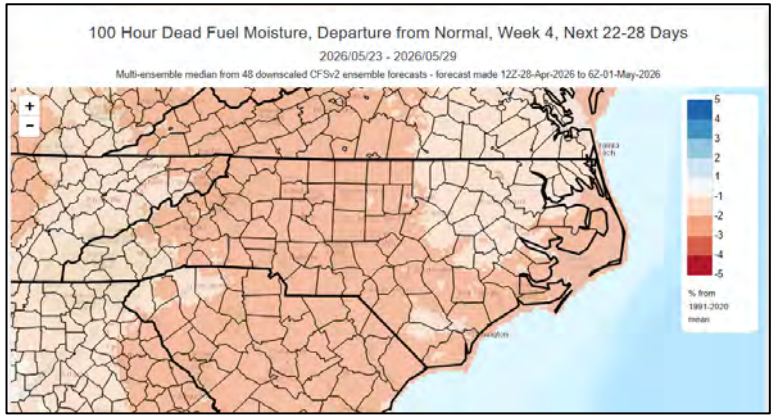
Note that <u>modeled</u> impacts of warmer/drier conditions (lower % mc or "worse") are forecast to be most significant in Weeks 3-4.

Important to note that there is significant forecast uncertainty as you go further out in time, especially relating to any potential storm tracks.

Week-3



Week-4



From: https://climatetoolbox.org/tool/Climate-Mapper

Significant Wildland Fire Potential Outlook: *Updated 5/1/26*

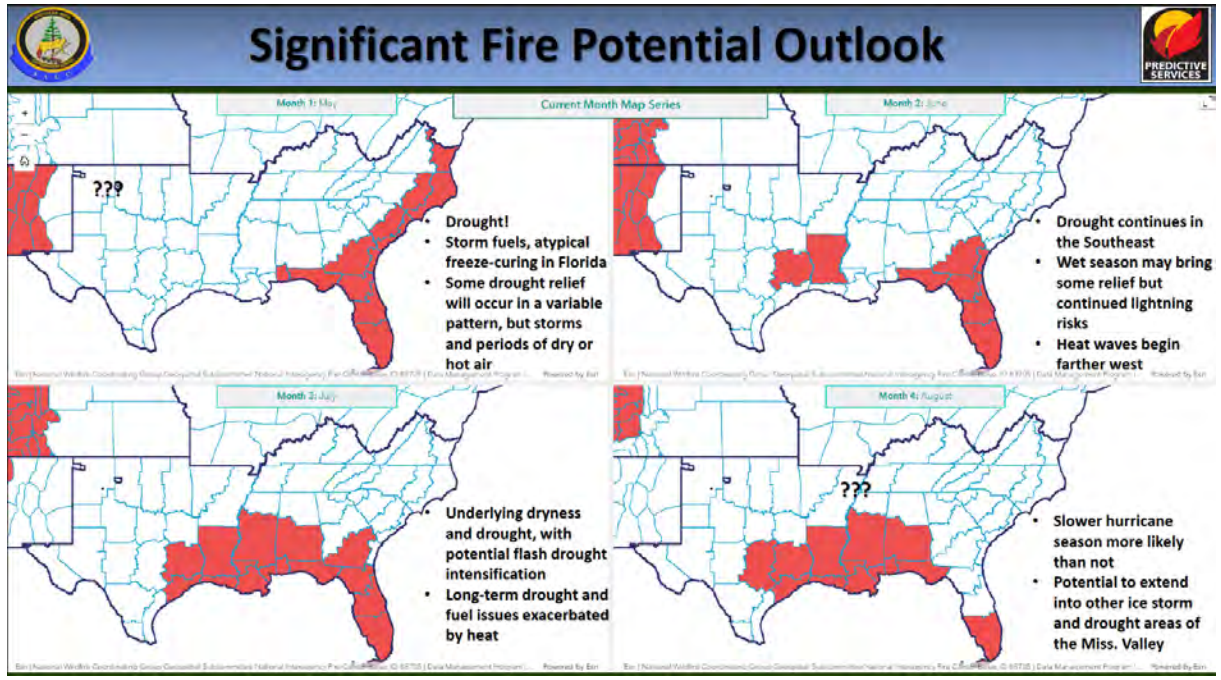
https://www.nifc.gov/nicc-files/predictive/outlooks/monthly_seasonal_outlook.pdf

May

June

July

August



From SA Fire Environment Briefing 5/1/26

**A significant fire is one that requires resources from outside the district (other than aviation). IA potential is based more on shorter term weather factors. Just a few days of dry weather can increase IA activity considerably as we have consistently seen from year to year.*

FEMS & NFDRS Notes:

- Mesonet Stations lost on 10/1/25, added back to FEMS on 1/29/26 (no prior period of record), added back to our SIGS on 3/12/26 after models better aligned.
- **Live Fuel Moisture Model remains at national catalog settings** – does not match local conditions as we move through greenup. FM-Z and FM-Y include only dead fuels.
- Data & modeling updates will occur soon – will redownload/process FF+ data when FEMS data is corrected.
- Testing current GSI derived herbaceous fuel moisture to help temper Adj & Hazard Ratings in Growing Season, will adjust further when regional catalogs become available.
- Period of Record (Fires + Weather) now: **2010-2024**
- Period of Record for new analysis: **2011-2025**
- FDOP edits to be completed when we get the new data, process it and coordinate with cooperators.
- FM-Z has behaved reasonably well during the dormant season (Fall/Winter/Early Spring).

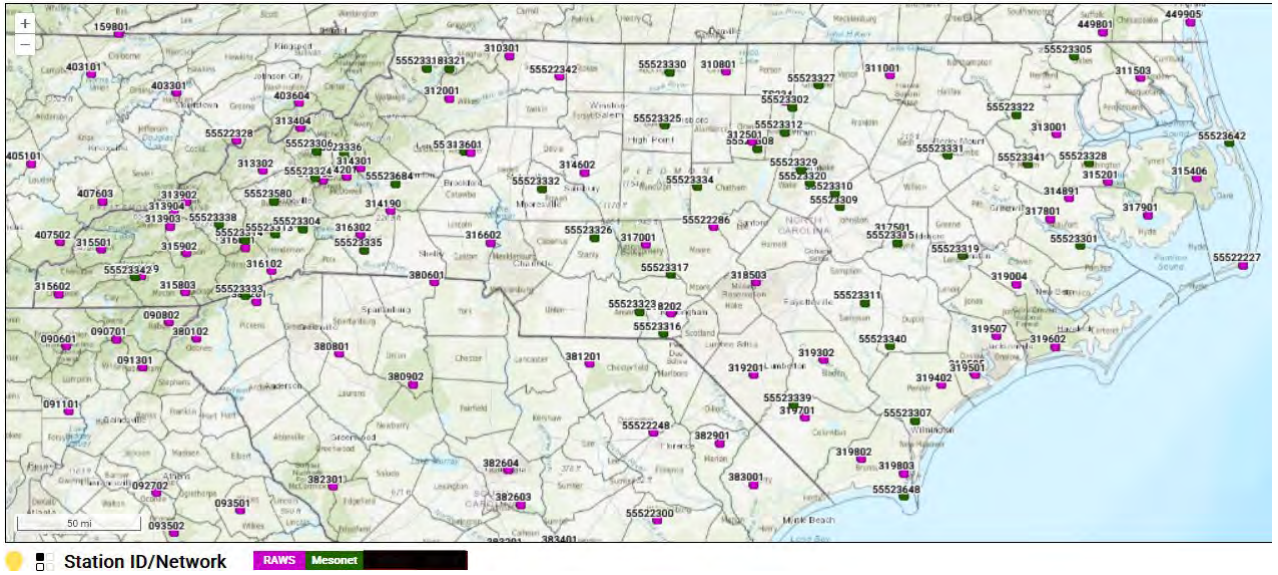
Fuel Model Z does not include live fuels

Fuel Load by Fuel Model

NFDRS Fuel Model	Fuel Loading (tons ac^{-1})						
	1-hr	10-hr	100-hr	1000-hr	Herbaceous	Woody	Drought
V	0.1	0	0	0	1	0	0
W	0.5	0.5	0	0	0.6	1	1
X	4.5	2.45	0	0	1.55	7	2.5
Y	2.5	2.2	3.6	10.16	0	0	5
Z	4.5	4.25	4	4	0	0	7

Note 1: *Drought fuel load is currently turned off in FEMS and is not added to the calculations.*

Note 2: *Herbaceous fuel transfers between live and dead herbaceous fuel classes. Dead herbaceous fuel takes on the fuel moisture of the 1-h fuel.*



FDRA	Special Interest Group Stations (SIG Stations)	Missing SIG Stations
Northern Coastal Plain	Dare Bomb Range, Elizabeth City, Fairfield, Greens Cross, Pocosin Lakes NWR	0
Southern Coastal Plain	Beaufort, CL1 Sandy Run, New Bern, Turnbull Creek, Hofmann, Whiteville, Sunny Point, Finch's Station	0
Eastern Piedmont	Central Crops RS**, Lake Wheeler**, Oxford Tob RS**, Upper Coastal RS**, Warrenton	0
Sand Hills	Fort Bragg, Horseshoe House, Rockingham, Sandhills RS**	0
Western Piedmont	Caswell Game Land, Duke Forest, Lexington, Mt Island Lake	0
Blue Ridge Escarpment	North Cove Pinnacle, Raven Knob, Redezvous Mtn, Rutherford Co Hq, Taylorsville (Lenior)	0
Central Mountains	Davidson River, Guion Farms, Mtn Hort RS**, Seven Mile Ridge	0
Northern Highlands	Busick, Jessen Station, Upper Mtn RS**	0
Southern Highlands	Highlands, Jackson County, Locust Gap, Tusquitee	0

Analysis Settings				Matrix Combinations	
FDRA	Time Range	Daily Extremes	FM	Staffing/Hazard Level	Adjective Rating
Northern Coastal Plain	2010-2024	Y	Z	ERC/BI	ERC
Southern Coastal Plain	2010-2024	Y	Z	ERC/BI	ERC
Eastern Piedmont	2010-2024	Y	Z	ERC/BI	ERC
Sand Hills	2010-2024	Y	Z	ERC/BI	ERC
Western Piedmont	2010-2024	Y	Z	ERC/BI	ERC
Blue Ridge Escarpment	2010-2024	Y	Z	ERC/IC	ERC
Central Mountains	2010-2024	Y	Z	ERC/IC	ERC
Northern Highlands	2010-2024	Y	Z	ERC/BI	ERC
Southern Highlands	2010-2024	Y	Z	ERC/IC	ERC

Reminder of why the Adjective Rating and Hazard Level outputs are not reflecting Spring Green-Up's expected impact on fire danger?

Spring green-up is not being fully reflected in current fire danger outputs due to limitations within the NFDRS V4 fuel model being used (FM-Z). The selected fuel model (FM-Z), while statistically strong and effective during the dormant & shoulder seasons, does not incorporate live fuel moisture. At the same time, the nationally standardized Growing Season Index (GSI) settings introduced with FEMS in October 2025 are interim and not yet regionally calibrated, limiting their ability to accurately represent local growth progression. Future plans include using better calibrated GSI applied in a matrix to moderate conditions during the growing season, this has not been completed due to various delays in national program rollout processes.

As a result, fire danger outputs are being driven by dead fuel conditions modeled within FM-Z. With above-normal temperatures, limited wetting rainfall, and poor overall recovery, all size classes of dead fuels have been drying, causing Energy Release Component (ERC – think "how hot") values to rise. As we attain complete canopy closure and shading, particularly in hardwood forest areas, dead fuel moisture models will overstate overall fire danger—where shading, reduced wind/heating, and higher in-canopy relative humidities would otherwise moderate conditions.

Adjective Rating (ERC) and **Hazard Level** (derived from ERC in combination with Burning Index (BI – think "how difficult") or Ignition Component (IC – think "how receptive"), are therefore reflecting critically dry dead fuel conditions without potential muting effects of "green".

At present, leaf-out and increasing live fuel moisture will reduce overall fire potential in most ecosystems, but fire activity interacting with seasonally volatile live fuels demonstrates that a combination of dry dead fuels, drought impact to live fuels, incomplete green-up, and species-specific volatility can still support rapid fire spread, spotting, and enhanced difficulty of control.

Testing continues relating to application of a "greenness factor" to temper the Adjective Rating & Hazard Level, based on modeled live herbaceous fuel moisture.

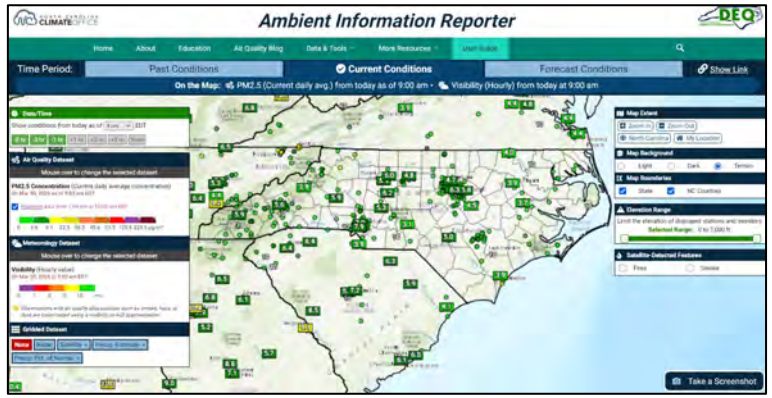
Fire Weather Intelligence Portal – Current Links & Notes

The interim breakpoints and percentiles based on FEMS implementation have been applied to the FWIP for North Carolina FDRAs. Content continues to be added and tools updated. Updated versions of the Hazard Assessment Tool, Adjective Fire Danger Rating Tool, and Daily Forecast/Observed Indices by Station have been implemented effective 3/12/26. The new versions automatically replaced the older versions. Additional features will be added (data analysis).

- Public Facing Fire Danger Page & Fire Danger Digest Table
  (NC ratings based on ERC-Z analysis)
- Station Viewer Portal
  (Past, Current, Forecast Conditions Tab)
  *HOURLY Station Fire Danger Observations have been added on the PAST and CURRENT Conditions Tabs, as of 3/6/26
- Hazard Assessment Tool
  (based on ERC-Z/BI-Z or ERC-Z/IC-Z depending on FDRA)
- FEMS Forecast NFDRS Indices by Station
- FEMS Observed NFDRS Indices by Station
- Quality Control Viewer Tool
- Summary Site – Supplemental Tools

The Weekly Outlook Tool is still offline – being revised to conform to new analysis/FEMS integration.

Other Resources:



- https://airquality.climate.ncsu.edu/air/
- https://fire.airnow.gov/

Fuels and Fire Management Considerations for Hurricane Helene Damaged Areas

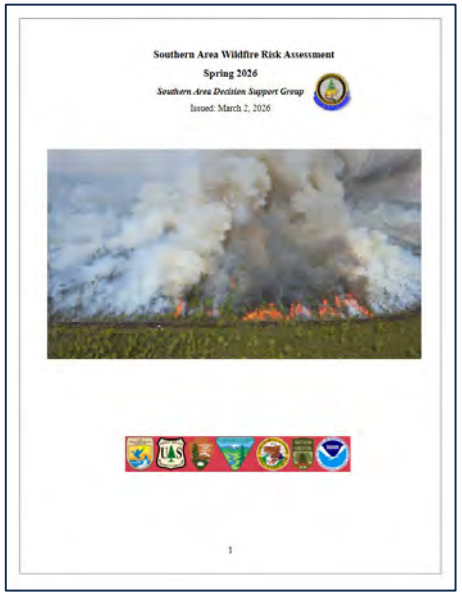
Executive Summary

Hurricane Helene has caused significant disruption to forested landscapes, resulting in widespread debris accumulation and altered fuel structure across the southeast particularly in the Southern Appalachians of southwest Virginia, western North Carolina, northeast Tennessee, northeast Georgia as well as the Piedmont of South Carolina, central Georgia and north Florida. The storm's high winds broke or toppled trees, and created extensive blowdown zones, transitioning fuel conditions from lighter models, such as grass and leaf litter, to heavy slash and debris typical of Fuel Models 12, 13, SB2, and SB3. This shift in fuel types presents substantial challenges for wildfire suppression efforts. The increased resistance to control, difficult access, and elevated potential for extreme fire behavior necessitates strategic adaptation of suppression tactics. The storm's aftermath has also introduced the need to reconcile older fire line production rates with the Scott and Burgan 40 fuel models used for modern fire behavior predictions, as the line production data for these newer models remains undeveloped. This report explores these challenges, provides practical insights for resource deployment, and outlines strategies for managing this complex landscape. The effects of Helene will be felt for some time. In a 2005 risk assessment for Hurricane Katrina, it was reported by the Mississippi Forestry Commission that debris from Hurricane Camille which struck in 1969 was still preventing access to certain areas.

This document provides fuel loading and modeling guidance, fire behavior expectations, and fire management considerations for both wildfire response and prescribed fire implementation for each of the hurricane damage severity categories described below:

Damage Severity	% of overstory altered/damaged
Catastrophic	>50%
Severe	34-50%
Moderate	16-33%
Light	~25%

"Fuels and Fire Management Considerations for Hurricane Damaged Areas"



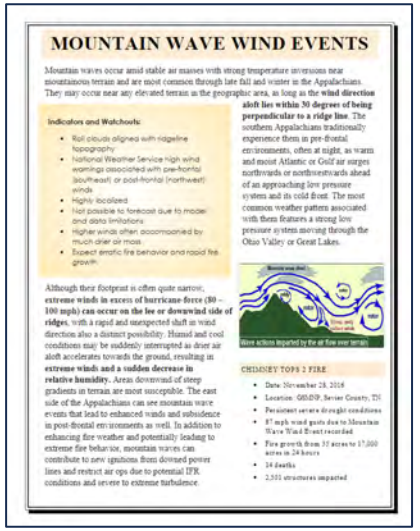
Southern Area Wildfire Risk Assessment

Spring 2026

Southern Area Decision Support Group

Issued: March 2, 2026

https://gacc.nifc.gov/sacc/resources/predictive/SASpringRiskAssessment_2026_final.pdf



MOUNTAIN WAVE WIND EVENTS

Mountain waves occur amid stable air masses with strong temperature inversions near mountainous terrain and are most common through late fall and winter in the Appalachians. They may occur near any elevated terrain in the geographic area, as long as the **wind direction aloft lies within 30 degrees of being perpendicular to a ridge line**. The southern Appalachians traditionally experience them in pre-frontal environments, often at night, as warm and moist Atlantic or Gulf air surges northwards or northwestwards ahead of an approaching low pressure system and its cold front. The most common weather pattern associated with them features a strong low pressure system moving through the Ohio Valley or Great Lakes.

Indicators and Watchouts:

- Roll clouds aligned with ridgeline topography
- National Weather Service high wind warnings associated with pre-frontal (southwest) or post-frontal (northwest) winds
- Highly localized
- Not possible to forecast due to model and data limitations
- Higher winds often accompanied by much drier air mass
- Expect erratic fire behavior and rapid fire growth

Although their footprint is often quite narrow, **extreme winds in excess of hurricane-force (80 – 100 mph) can occur on the lee or downwind side of ridges**, with a rapid and unexpected shift in wind direction also a distinct possibility. Humid and cool conditions may be suddenly interrupted as drier air aloft accelerates towards the ground, resulting in **extreme winds and a sudden decrease in relative humidity.** Areas downwind of steep gradients in terrain are most susceptible. The east side of the Appalachians can see mountain wave events that lead to enhanced winds and subsidence in post-frontal environments as well. In addition to enhancing fire weather and potentially leading to extreme fire behavior, mountain waves can contribute to new ignitions from downed power lines and restrict air ops due to potential IFR conditions and severe to extreme turbulence.

CHIMNEY TOPS 2 FIRE

- Date: November 28, 2016
- Location: GSMNP, Sevier County, TN
- Persistent severe drought conditions
- 87 mph wind gusts due to Mountain Wave Event recorded
- Fire growth from 35 acres to 17,000 acres in 24 hours
- 14 deaths
- 2,591 structures impacted

https://gacc.nifc.gov/sacc/predictive/outlooks/MountainWavesFactSheet.pdf

SOUTHERN Fire Exchange

Superfog: State of the Science

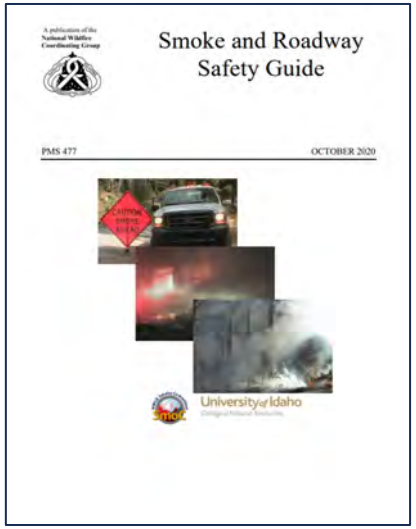
Alan Long, Joshua Weiss, Marko Princevac, and Christian Bartolome

INTRODUCTION

WHAT CAUSES SUPERFOG?

SMOKE DISPERSION MATRIX

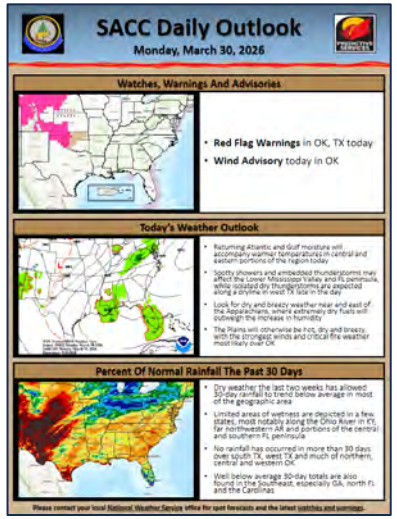
- Southern Fire Exchange Superfog Publication
- NWCG - Smoke and Roadway Safety Pocket Card
- NWCG – Smoke and Roadway Safety Guide



Smoke and Roadway Safety Guide

PMS 477 OCTOBER 2020

University of Idaho



SACC Daily Outlook

Monday, March 30, 2026

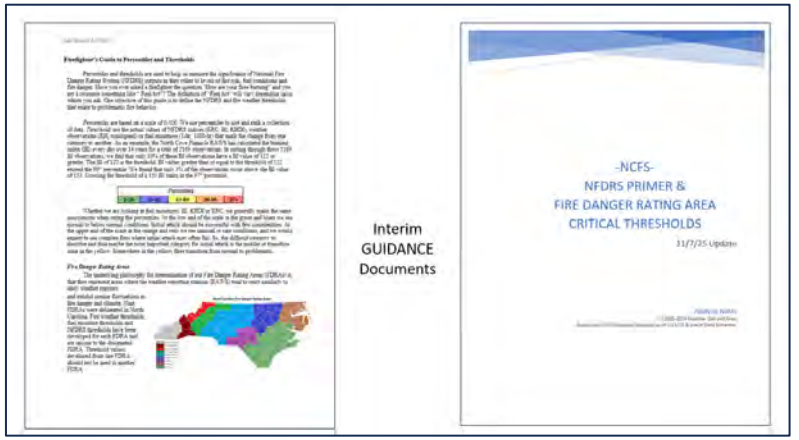
Watches, Warnings And Advisories

- **Red Flag Warnings** in OK, TX today
- **Wind Advisory** today in OK

Today's Weather Outlook

Percent Of Normal Rainfall The Past 30 Days

https://gacc.nifc.gov/sacc/resources/predictive/sacc-daily-outlook.pdf



Interim GUIDANCE Documents

-NCFS-

NFDRS PRIMER & FIRE DANGER RATING AREA CRITICAL THRESHOLDS

11/7/25 Update

Fuels and Fire Behavior Advisory (updated 4/30)

LINK: https://www.nifc.gov/nicc/predictive-services/fuels-fire-danger

Fuels and Fire Behavior Advisory

Southeastern United States

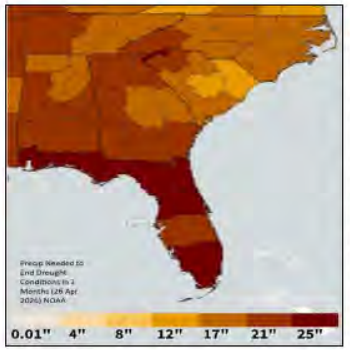
Date Advisory Effective – April 30, 2026

Subject: Persistent drought conditions have led to unusually dry fuels and very low water levels, resulting in extreme fire behavior, impactful extended attack fires and a continued high risk of initial attack.

Summary:

- Drought has reduced moisture levels in soil and organic layers, causing vegetation stress and lowering live fuel moistures.
- Ground fuels are burning for extended periods, increasing control challenges and reburn potential.
- Low water levels are exposing additional fuels and reducing natural barriers that normally slow or stop fire spread.
- Conditions are producing active fire behavior with abnormally high rates of spread.
- Fires have higher resistance to control and require more resources and longer timeframes.

Discussion: Drought has continued to intensify the last few weeks, cementing conditions in the fire environment that are increasingly impactful. Hardwood leaf-out is progressing along normal timelines, but green-up of grasses and forbs has slowed where rainfall has been insufficient during this critical time of year. Extremely low soil moisture, dry surface fuels, low water levels in coastal areas and persistent low humidity have all contributed to unusual fire activity this spring. A changeable weather pattern will take shape in May, with periodic thunderstorm chances followed by dry and cooler stretches. The fire environment will briefly moderate where soaking rainfall occurs, but new lightning ignitions will likely occur, and extended attack fires may re-emerge where dry weather prevails.



Differences from Normal Conditions: Long-term rainfall deficits across the advisory area will require at least one to two feet of rain over the next few months to end drought conditions in the Southeast. This underlying dryness has resulted in historically low stream flow and water levels for this time of year, in addition to extreme fire behavior and increased resistance to control. There are widespread reports of holdover fires re-emerging or smoldering several weeks to as long as 45 days after being contained. Extended attack fires in south Georgia and north Florida erupted during a period of historically high fire danger, which has eased slightly due to periods of higher humidity and scattered rainfall. Farther south in Florida, some of the coldest winter temperatures in decades resulted in freeze kill of sensitive vegetation that is now burning readily. Fire activity will remain dominated by drought-stressed fuels until significant relief occurs.

Fuels and Fire Behavior Advisory

Southeastern United States

Date Advisory Effective – April 30, 2026

Concerns to Firefighters and the Public:

- Critical fire weather may occur with hot, dry & breezy days, dry frontal passages, sea breezes, thunderstorms, and high dispersion indices.
- Typical fire weather thresholds may not apply where drought, record high fire danger and heat align – critical conditions may occur with RH 5-10% above and winds 5-10 mph below regional thresholds.
- Vegetative stress has reduced live fuel moisture in many areas that may lead to more active fire behavior than normally seen.
- Resinous fuels in coastal plain areas may be more volatile during the green-up period – especially in droughty conditions where shrubs do not have adequate water to complete the green-up process. These fuels should be treated with caution.
- Expect most snags and heavy dead and down fuel to readily ignite, potentially consuming entirely.
- Helene and other storm-damaged fuels are much more available now than last spring or fall.
- Ground and/or duff fire will likely be a long-term issue that can hinder fire control efforts and lead to poor visibility in smoke or super fog.

A plume-dominated day on the Hwy 82 Fire in southeast Georgia was interrupted by a sudden wind shift with a sea breeze on Saturday, April 25th.

Unusually dry swamps after a recent fire on the Osceola National Forest are experiencing needle cast that may contribute to reburn in the coming weeks.

- Recent fuel-driven fires in coastal plain areas have produced explosive fire behavior that may outpace control efforts, even with little or no wind - swamps or drainages may not provide reliable containment.
- Fires have significant reburn potential given longer residual burn time and needle cast from scorched canopies. This has caused fires to escape containment weeks and months after fire spread was thought to be complete.
- Careful consideration should be given to any planned prescribed fires during this time.
- Members of the public should stay informed of fire activity near their location and should heed evacuation notices immediately!
- Do not fly drones near areas of fire suppression activity!

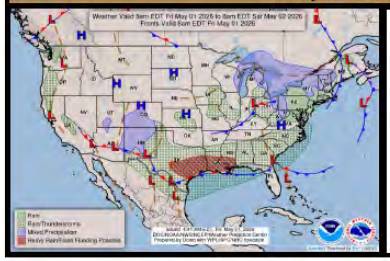
Issued by: Southern Area Decision Support with state and federal partners

From SACC Daily Outlook – Friday (5-1-26)

SACC Daily Outlook

Friday, May 1, 2026

Today's Weather Outlook

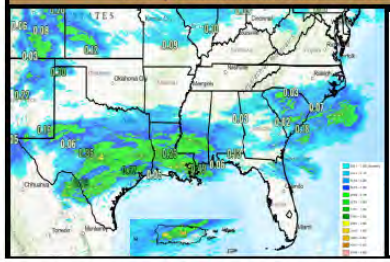


- An upper level disturbance over the Eastern United States will work with several surface low pressure systems to bring a potential for showers and storms to most of the Southern Area today.
- The best chances for rain and thunderstorms is forecast to be over TX, LA, and southern MS.
- A cold front, stretching from South TX, across the northern Gulf coast, and North FL, then into the Atlantic, acts as a diving line between a semi-moist air mass to the south and a cooler and much drier air mass to the north and will slowly push south over the weekend.

Watches, Warnings and Advisories as of 8AM EDT This Morning

- There are Flood Watches in effect for a large Swatch of Texas, stretching across the Central third of the state, then into Central LA through this evening.
- There are Flood Advisories in Central TX and East TX South through this morning.
- There is a Flash Flood Warning in effect for the San Antonio area of TX.

Precipitation from 7AM EDT Thursday Through 7AM EDT Friday



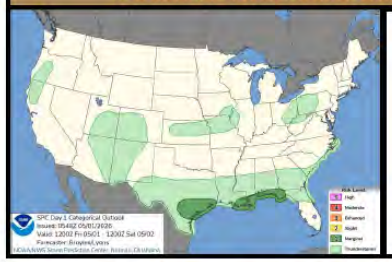
- Widespread showers occurred across TX, LA, Southern MS, SC, and PR/VI.
- Widespread rainfall amounts of 1 to 2 inches have been reported in Central/East TX, LA, southern MS and PR/VI, with localized amounts of 2 to 3 inches also were reported.
- North FL, GA, AL, southern NC, and the TX/OK Panhandles also saw showers, but accumulations were generally light, although some isolated wetting rain occurred as well.

Please contact your local National Weather Service office for spot forecasts and the latest watches and warnings.

SACC Daily Outlook

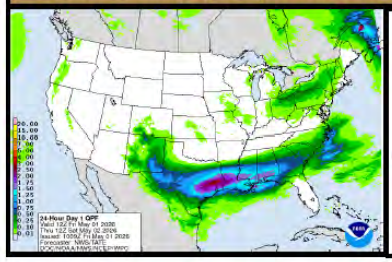
Friday, May 1, 2026

Potential for Severe Thunderstorms Through Tomorrow Morning



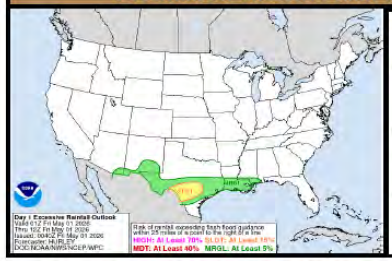
- The Storm Prediction Center is forecasting a Marginal potential for severe thunderstorms for south Central TX, the NE TX coast, the LA Toe, AL/MS coasts, and the NW FL Panhandle today.
- The main hazards are large hail, damaging wind, and a low potential for a tornado.

Potential Rainfall/Liquid Equivalents Amounts Through 7AM EDT Saturday Morning



- Precipitation amounts over the next 24 hours are forecast to be significant with up to 3 inches possible for West/Central/East TX, LA, Southern MS, Southern AL, SW GA, the NW FL Panhandle, and PR/VI.
- South TX, the Trans-Pecos, the western portion of the TX/OK Panhandles, Northern MS, GA, SC, NC, and eastern half of the FL Panhandle may see light showers.

Potential for Excessive Rain Through Tomorrow Morning



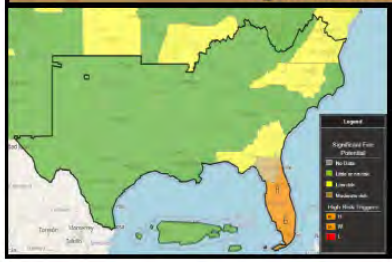
- The Weather Prediction Center is forecasting a Slight potential for Excessive Rain for parts of Central Texas today.
- There is also a Marginal potential of Excessive Rain for Central/West/East TX south, southern LA, and the MS coast.
- Flash flooding will be possible in these areas.

Please contact your local National Weather Service office for spot forecasts and the latest watches and warnings.

SACC Daily Outlook

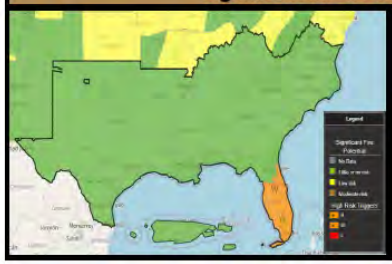
Friday, May 1, 2026

Significant Potential for Today



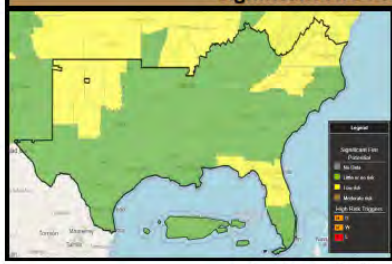
- **High Risk:** The FL Peninsula for the burning environment with low RH, very dry fuels, and warm temperatures.
- **Moderate Risk:** NE FL dure to low RH and very dry fuels.
- **Low Risk:** NW FL, South GA, the GA coast, NC (except the coast), and Central/coastal VA for low RH and dry fuels.

Significant Fire Potential for Tomorrow



- **High Risk:** Central and South Florida for low RH, dry fuel, and gusty conditions.
- **Moderate Risk:** None.
- **Low Risk:** None.

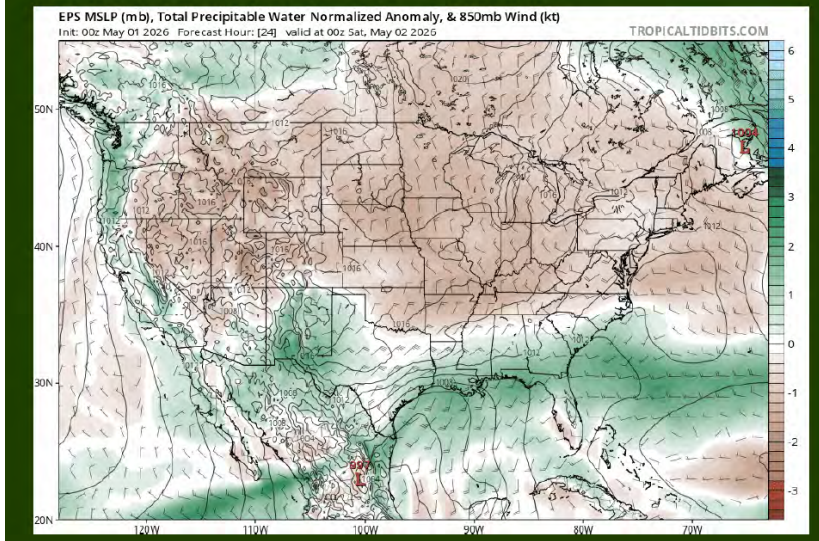
Significant Fire Potential for Sunday



- **High Risk:** None.
- **Moderate Risk:** None.
- **Low Risk:** The TX/OK Panhandles, West/Central OK, NW TX, North/Central FL, the VA/NC Mts, Central/coastal VA, and Central NC for low RH and dry fuels.

National 7-Day Significant Fire Potential Outlook

Changeable Weather



- High risk significant fire potential for the Florida peninsula today and Saturday
- Beneficial rain spreads east across the Gulf Coast and impacts the Georgia and north Florida fires, lower confidence in the coastal Carolinas
- Very dry air returning with colder temperatures – quick drying of fuels
- Pattern repeats into mid-May

General trends as we move into mid-May.

From SA Fire Environment Briefing 5/1/26

Overall Notes

- We've seen several highly scattered soaking rain events, but most areas have trended much less than originally forecast, with monitoring wells and streamflows still near/at record lows. Freeze/Frost Possible at higher elevations this week.

- Cooler conditions continue with several rounds of unsettled weather likely, trend for heaviest precip remains focused along Gulf Coast, over the next couple weeks. Will certainly help in the short-term, but will see drier air accompany the cooler conditions.

- 1000's have been slowly recovering due to better overnight recoveries, cloud cover, etc. - impacts FM-Y and FM-Z.

- Hardwood Leaf Out & Spring Green-up continues advance and is generally + impacting fire danger & fire behavior as we move further into Spring 2026. The full benefit of green conditions continue to be modified **at the local level** by drought, storm damage (Helene), and impact to both live and dead fuel availability.

- Due to continued complications with the FEMS rollout, a regionally adjusted GSI doesn't yet exist to then apply in matrix to temper FM-Z outputs. **FM-Z does not include live fuels, so can't model impacts of live fuel status.** Testing of interim greenness factor continues (applying modeled herbaceous live fuel moisture).

- **Statewide** – We have lacked typical primary ignition sources in areas of receptive fuels (most debris burning & lightning). Where fires do establish, continue to expect enhanced difficulty of control & significant mop-up issues. Reburn risk remains on any smoldering fire footprints once browning and leaf-drop/needle cast occurs, especially in drought impacted areas.

- CPC outlooks continue to favor near normal/slightly wetter than normal for the next couple weeks, however emphasis remains west & south of NC. Warmer and drier conditions are favored by the latest CPC outlook for Weeks 3-4. It will take many inches of precip to turn around longer-term drought impacts as we move into and through the growing season.

- If drought continues to intensify in coastal/sandhill forest ecosystems, lightning holdover fires will become much more of a concern. Actionable lightning fire starts (acres/count) in R1 traditionally become most likely in May – June as drought + heat builds. Larger examples can easily exhibit plume-dominated fire activity, relying less on large-scale wind event triggers such as frontal passages in early spring. A recent example of this behavior (further along in growing season + drought) in South Georgia being the Highway 82 Fire, near Brunswick. The SA Spring Risk Assessment Appendix B provides useful context.

Please review the Southern Area Fuels & Fire Behavior Advisory, which includes a portion of NC, updated on 4/30.

Daily Adjective Rating Outputs for each FDRA (ERC from FM-Z)
(Observed on Left, Forecast on Right)

Low | Moderate | High | Very High | Extreme

FDRA	Recent Data (Calculated from hourly estimates)							Forecast Data (Calculated using hourly forecasts)						
	FRI APR 24	SAT APR 25	SUN APR 26	MON APR 27	TUE APR 28	WED APR 29	THU APR 30	FRI MAY 1	SAT MAY 2	SUN MAY 3	MON MAY 4	TUE MAY 5	WED MAY 6	THU MAY 7
Southern Highlands	E	H	H	H	M	M	H	M	M	M	M	M	M	L
Central Mountains	V	M	H	M	M	H	H	H	M	M	M	M	M	L
Northern Highlands	E	H	H	H	M	M	H	H	M	M	M	M	M	L
Blue Ridge	E	V	M	H	M	M	H	M	M	M	M	M	M	L
Western Piedmont	E	E	M	H	M	L	M	M	M	M	M	M	M	L
Sandhills	E	E	M	H	M	M	M	M	M	M	M	M	M	M
Eastern Piedmont	E	E	L	H	M	M	M	M	M	M	M	H	M	L
Southern Coast	E	E	L	M	M	M	M	M	L	M	M	M	M	L
Northern Coast	E	E	L	M	H	M	M	M	L	M	M	H	M	L

*Changes in actual precipitation amounts, min/max rh's and other weather variables have significant impact on the model as you go further out in forecast period.

Observed Averages by FDRAs for Thursday 4/30

Summary by Region — Permalink | Download Data | Screenshot

Note: FDRA averages include **only the SIG stations** in each region with data available today

Region Details			Fire Danger and Fuel Moisture Averages									Weather Averages			
FDRA	NUM STN	MOD	MAX BI	MAX ERC	MAX IC	MAX SC	KBDI	MIN 1HR	MIN 10HR	MIN 100HR	MIN 1000H	MAX TEMP	MIN RHUM	MAX GUST	TOTAL PRCP
Southern Highlands	4	Z	43.6 81%	50.4 75%	15.7 84%	7.6 82%	237 +170	8.4% 16%	12.1% 33%	18.9% 64%	18.3% 20%	68°F	33%	16 MPH	0.01 IN.
Central Mountains	4	Z	47.0 92%	51.9 79%	15.1 84%	8.4 92%	273 +211	9.0% 28%	11.8% 33%	17.9% 53%	18.5% 21%	69°F	38%	18 MPH	0.00 IN.
Northern Highlands	3	Z	47.8 95%	49.9 82%	15.6 91%	10.0 98%	183 +145	9.0% 19%	12.5% 37%	18.9% 57%	18.0% 15%	64°F	37%	16 MPH	0.00 IN.
Blue Ridge Escarpment	5	Z	49.8 88%	56.2 77%	22.4 91%	8.6 87%	348 +270	7.2% 14%	10.8% 29%	19.1% 73%	17.5% 34%	73°F	27%	20 MPH	0.00 IN.
Western Piedmont	4	Z	39.7 54%	49.8 60%	15.5 66%	6.1 54%	383 +288	8.5% 46%	12.6% 59%	19.2% 72%	18.5% 35%	75°F	34%	15 MPH	0.01 IN.
Sandhills	4	Z	33.7 32%	45.4 47%	9.7 39%	5.8 49%	465 +320	10.0% 62%	14.5% 75%	19.0% 71%	17.1% 19%	76°F	42%	14 MPH	0.11 IN.
Eastern Piedmont	5	Z	37.5 37%	44.6 51%	10.6 49%	6.5 52%	323 +244	10.2% 53%	13.8% 67%	19.2% 73%	17.6% 31%	74°F	34%	14 MPH	0.01 IN.
Southern Coast	8	Z	24.8 18%	32.3 30%	4.9 24%	3.6 21%	418 +264	13.2% 75%	17.8% 84%	18.6% 63%	18.8% 35%	73°F	55%	15 MPH	0.19 IN.
Northern Coast	5	Z	27.5 18%	36.3 39%	4.4 21%	4.4 12%	351 +251	13.2% 72%	16.3% 74%	18.1% 51%	18.6% 38%	70°F	55%	16 MPH	0.14 IN.