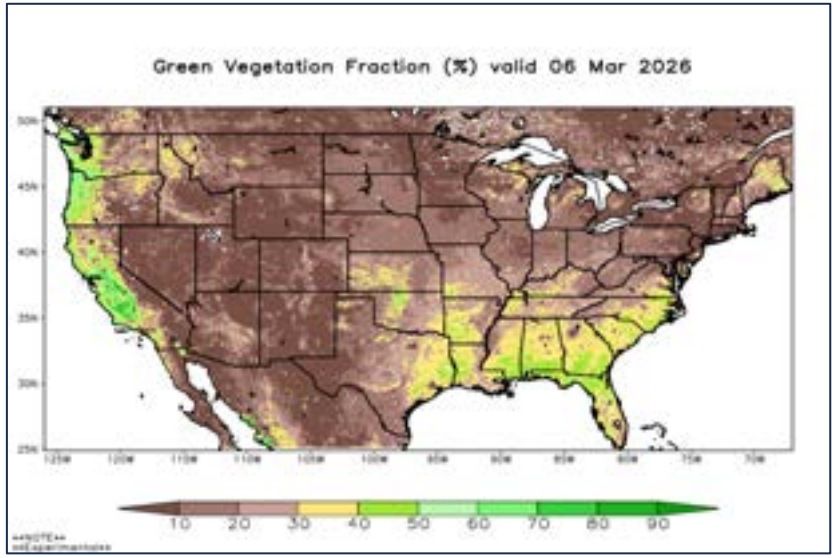
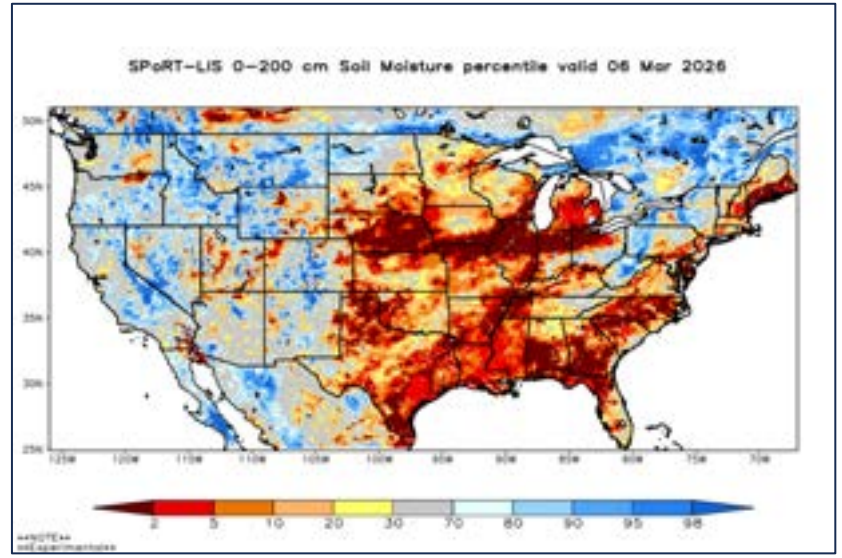
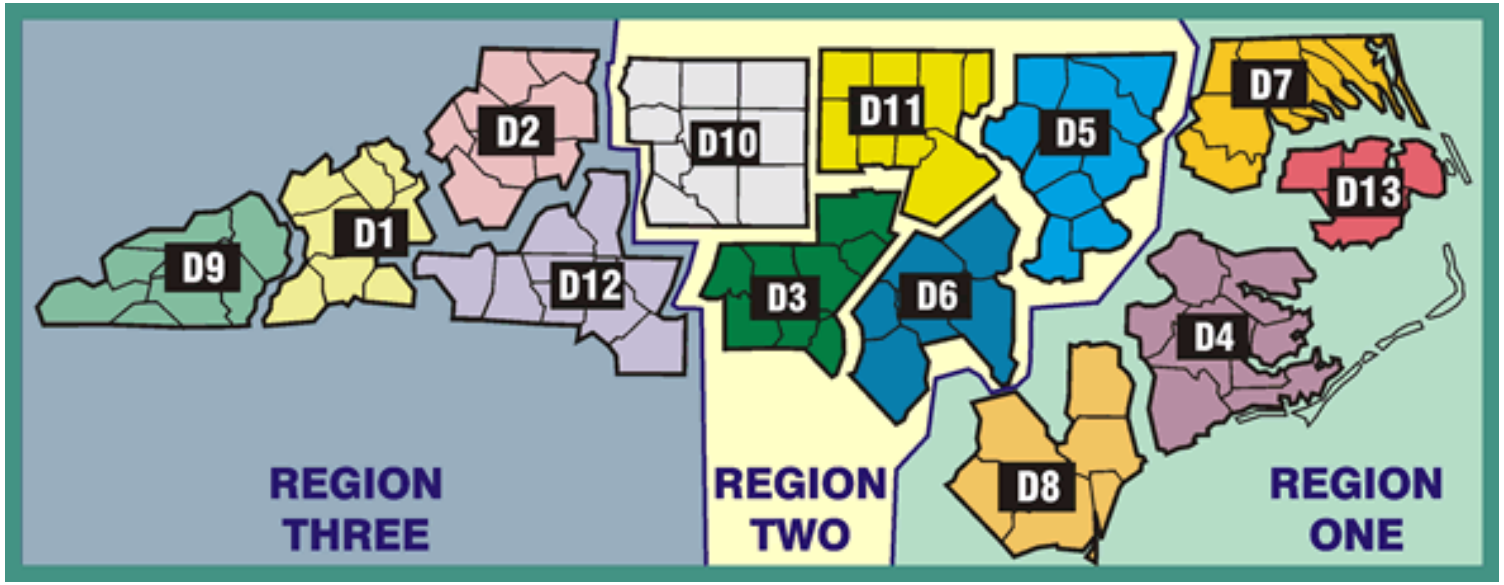
Weekly Fire Danger Assessment
NCFS – All Regions







For Time Period:

Friday (3/6/26) to Thursday (3/12/26)

Created by: Jamie Dunbar
Fire Environment Staff Forester
NC Forest Service
Created: 3/6/26

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

December: 790 incidents for 1,591 acres
January: 1,083 incidents for 1,964 acres
February: 829 incidents for 1,136 acres

7-Day Activity: 172 incidents for 1,468 acres

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

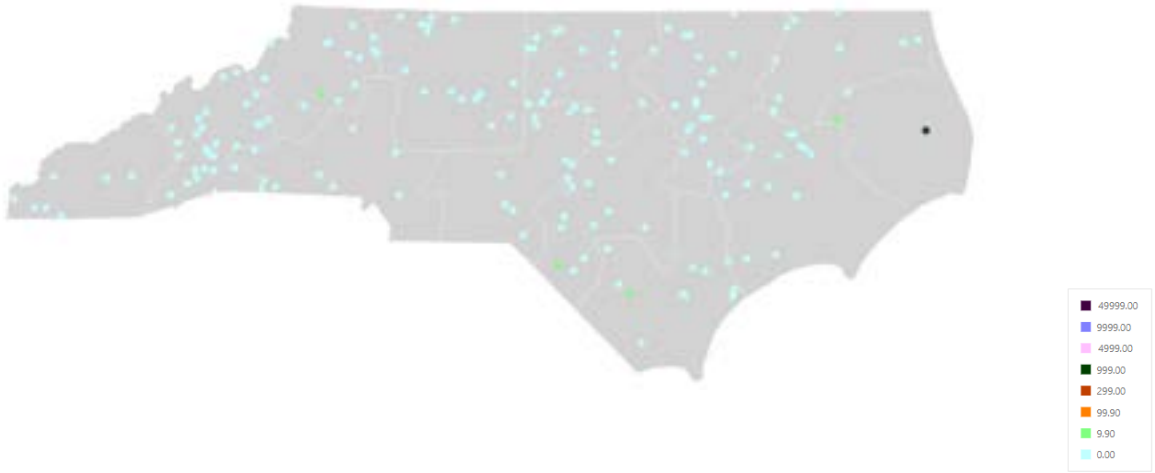
**Largest incidents by discovery date, Last 7-Days:
from fiResponse & preliminary reporting only

Incident Name	Discovery Date	Region	District	County	Acres
East Tower	3/4/2026	Region 1	District 13	Dare County	1200.00
Ruby Rd	3/4/2026	Region 2	District 6	Robeson County	60.00
North Carolina 99	3/4/2026	Region 1	District 13	Washington County	35.00
Mitchell Field Rd	3/4/2026	Region 1	District 8	Columbus County	22.00
Woodrow Place Fire	3/5/2026	Region 3	District 2	Caldwell County	12.00
Lick Log	2/28/2026	Region 3	District 1	Buncombe County	9.01
Hunters	3/4/2026	Region 3	District 1	Henderson County	9.00
VOA	3/4/2026	Region 1	District 4	Pitt County	7.00
Pocosin Road	3/4/2026	Region 1	District 4	Pitt County	6.00
Milburnie Sod	3/4/2026	Region 2	District 11	Wake County	6.00

January 2026

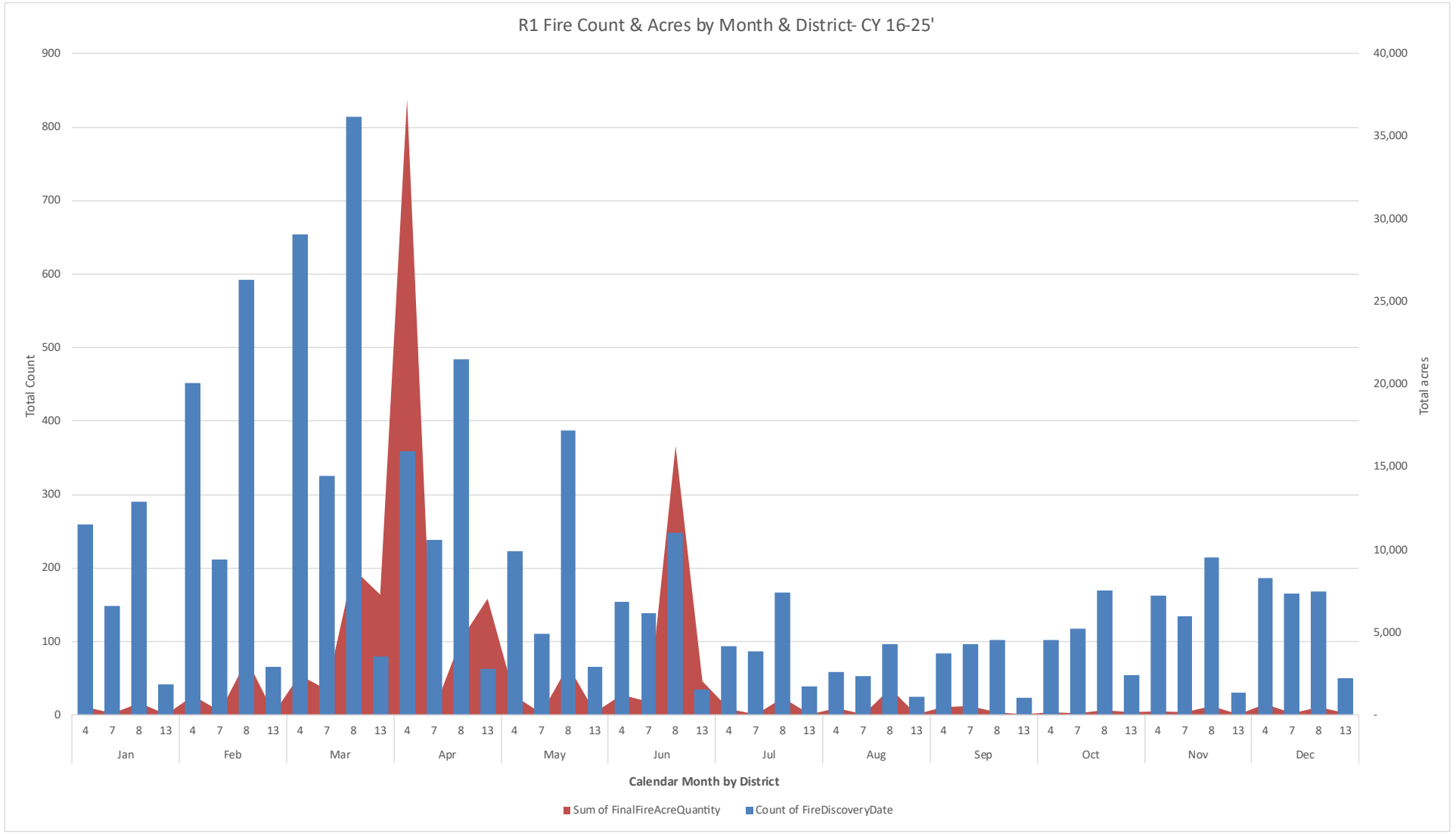
February 2026

Last 7-Days (2/27 – 3/5)



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

Distribution of R1 Fires & Acres by Month from 2016-2025



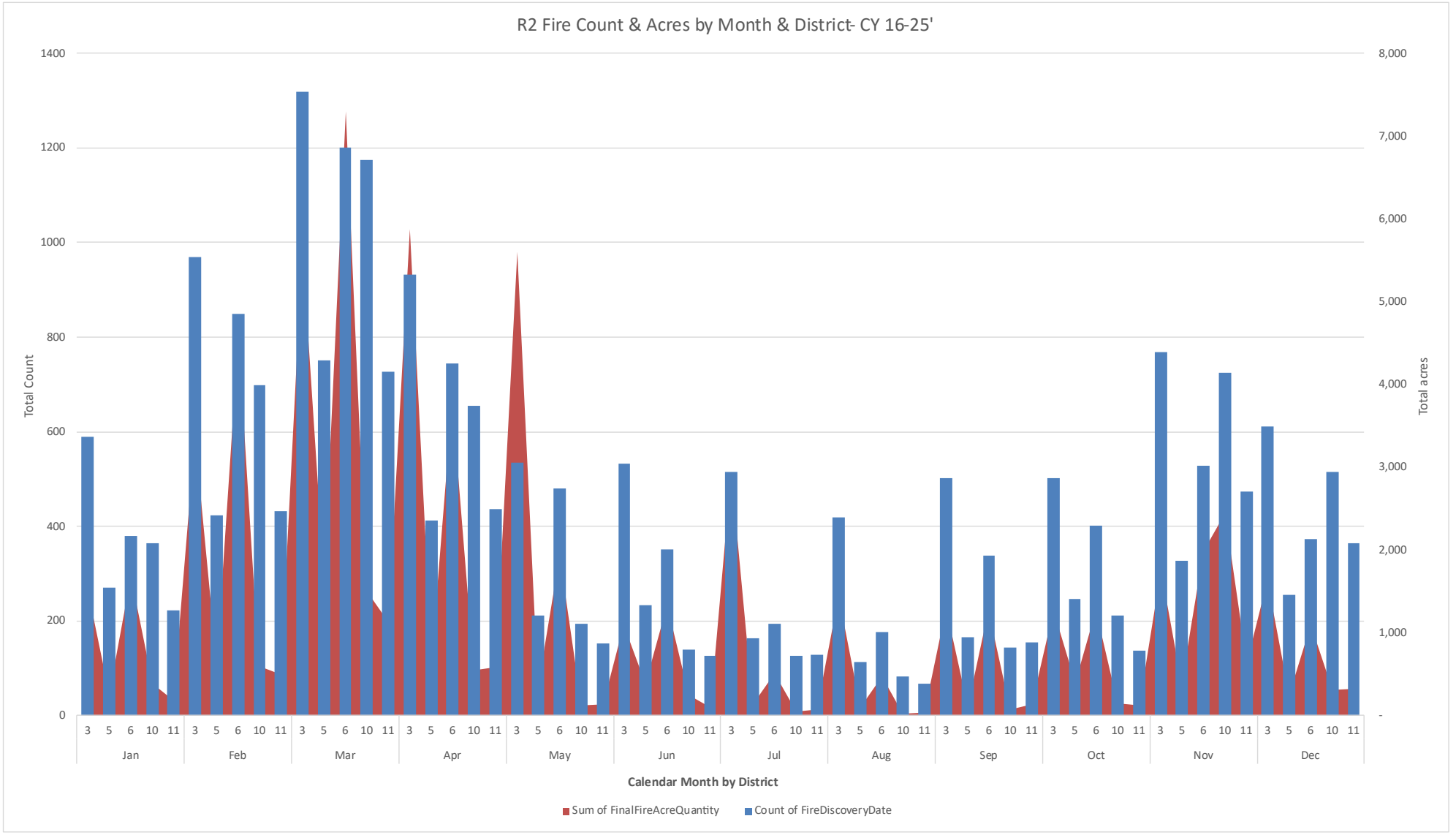
Calendar Year	Fire Count (Discovery Date)	Total Acres (Discovery Date)
2016	558	9,974.5
2017	918	4,185.9
2018	664	2,127.7
2019	939	3,329.0
2020	469	4,057.5
2021	966	3,036.4
2022	1,394	10,088.1
2023	929	57,138.5
2024	865	7,109.3
2025	1,217	6,931.2
Grand Total	**8,919**	**107,978.2**
10yr Avg	892	10,798

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

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

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

Distribution of R2 Fires & Acres by Month from 2016-2025



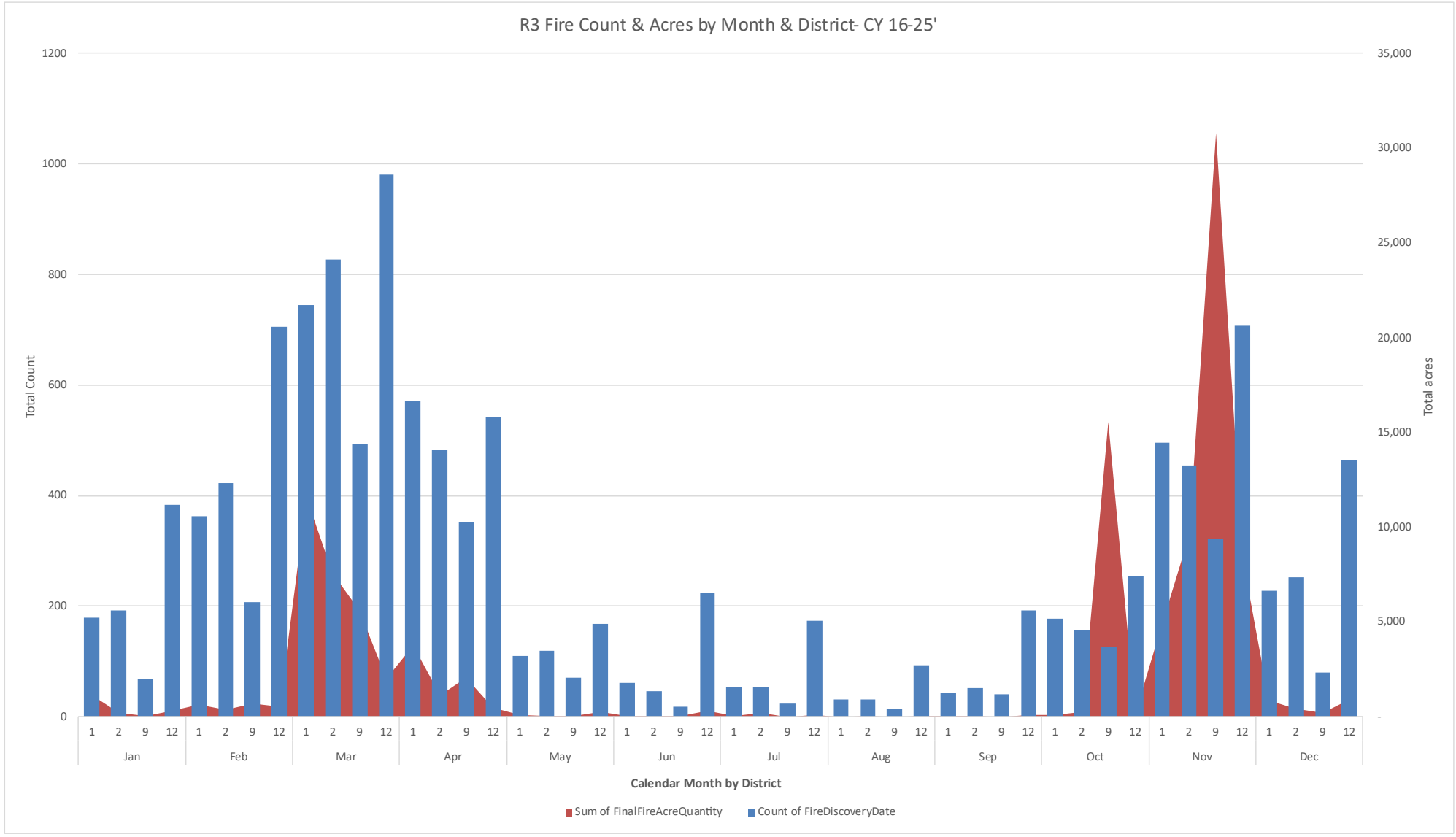
Calendar Year	Fire Count (Discovery Date)	Total Acres (Discovery Date)
2016	1,971	5,081.0
2017	2,895	9,042.8
2018	2,089	7,848.7
2019	2,092	4,708.2
2020	1,162	2,687.4
2021	2,955	9,915.6
2022	3,560	12,206.0
2023	2,926	9,575.9
2024	2,602	5,856.2
2025	3,980	9,372.2
Grand Total	**26,232**	**76,294.1**
10yr Avg	2,623	7,629

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

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

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

Distribution of R3 Fires & Acres by Month from 2016-2025



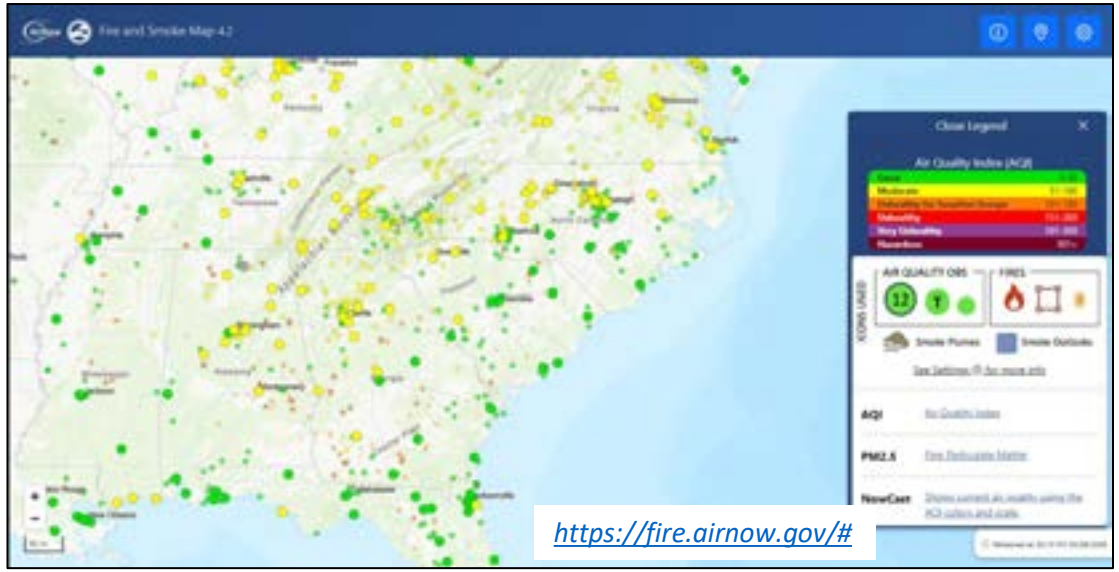
Calendar Year	Fire Count (Discovery Date)	Total Acres (Discovery Date)
2016	1,650	62,650.7
2017	1,286	7,163.0
2018	841	1,016.4
2019	882	755.3
2020	777	943.2
2021	1,169	1,929.2
2022	1,425	3,476.8
2023	1,653	9,517.0
2024	1,356	4,338.7
2025	1,813	19,580.3
Grand Total	**12,852**	**111,370.7**
10yr Avg	1,285	11,137

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

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

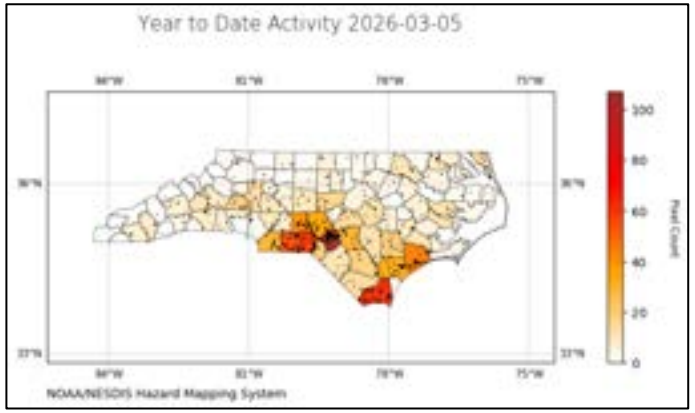
Cause: All Cause Codes, Statewide, NCFS Reported Fires Only. **Preliminary Data from NASF Report Extract**

Air Quality Notes

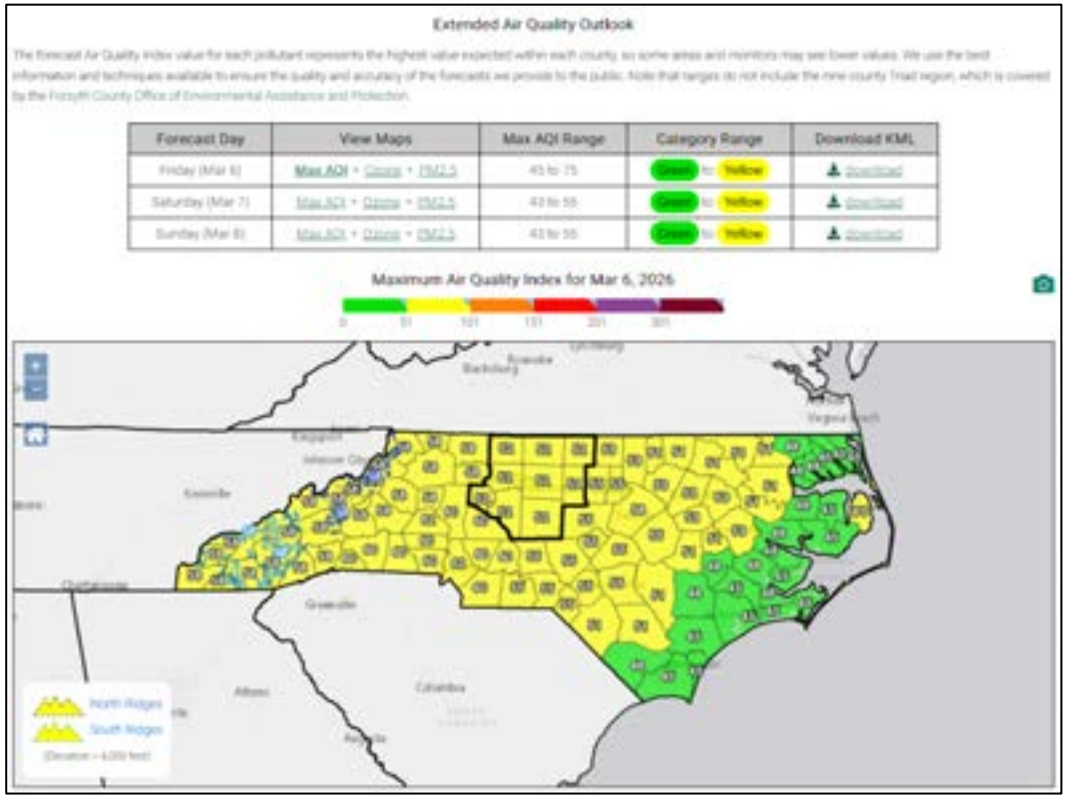


https://fire.airnow.gov/#

Fire & Smoke Map heat detects from VIIRS (above). RX burning evident in the Southeast. NC Map showing past week satellite detects from same source & bottom maps display fire pixel counts. Note NC map is by CY-Year (YTD context ending on 3/5/26) . Note that cloud cover and other factors can limit detections, not all detects may be "forestry related". Hazard Mapping System link below, center.

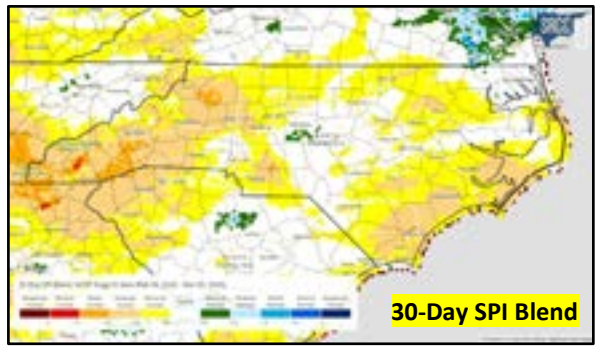


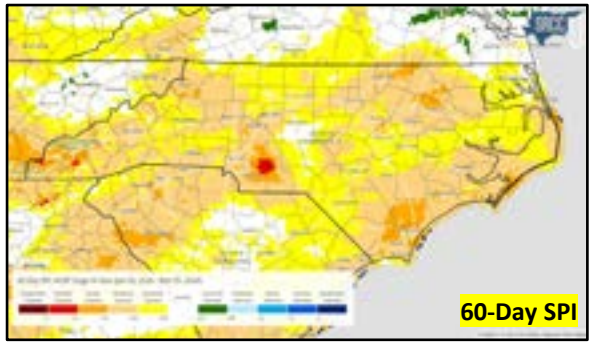
https://www.ospo.noaa.gov/products/land/hms.html#maps

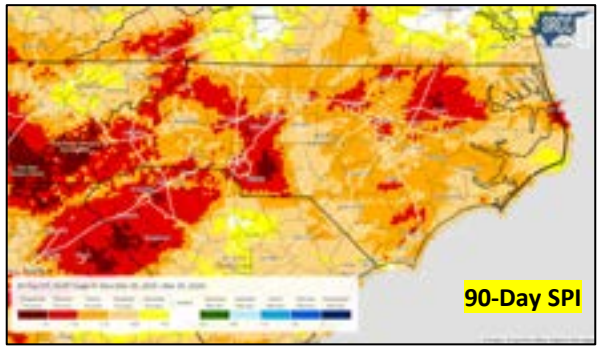


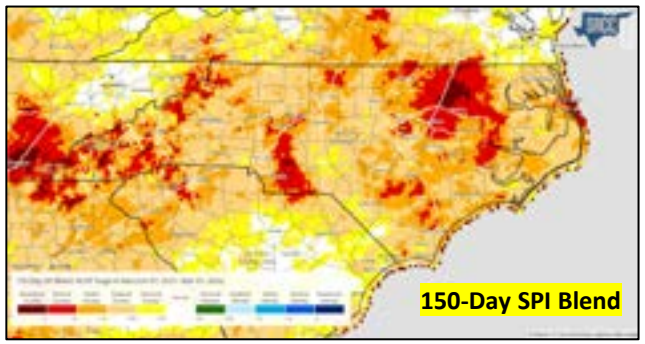
https://airquality.climate.ncsu.edu/discussion/?view=latest

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

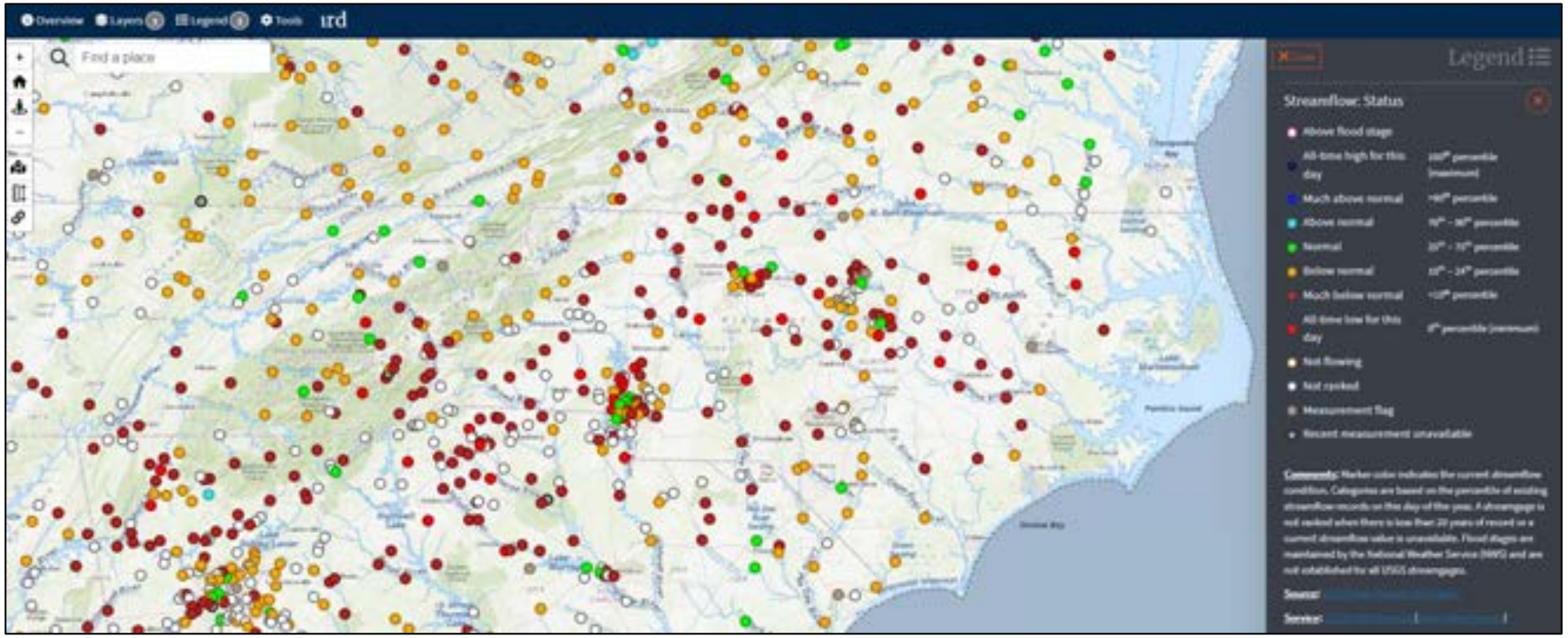








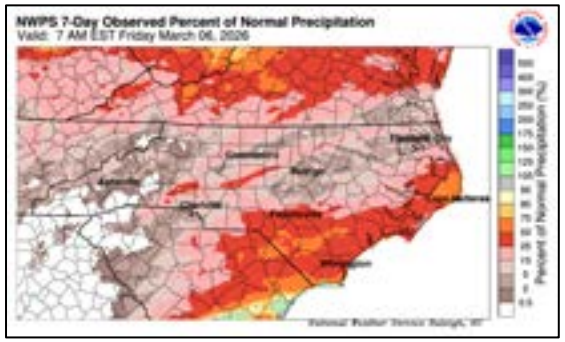
New USGS Streamflow Map: Real-time



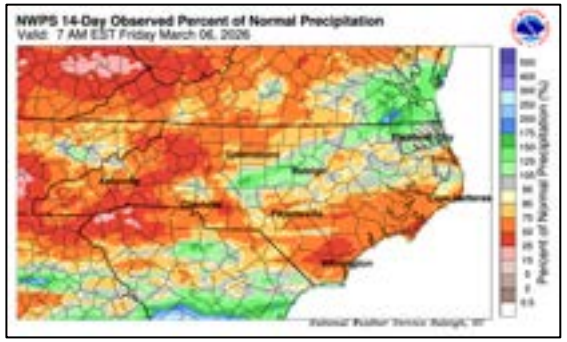
Lack of truly significant wetting rain events continue for much of the state. Longer time scale SPI products indicate either entrenched or worsening conditions. Reduction in shorter-term SPI, but remember we are still in dormant season.

Real-time streamflow from 3/6/26 show well below normal flow conditions for most gauges in the SE US. There is a short-term bump in flow from the recent rain events (see 7-day PNP map). This low-flow trend continues to be very significant as we move towards the growing season/spring. Many swamps & larger canal networks remain very low compared to "normal" as a visual indicator.

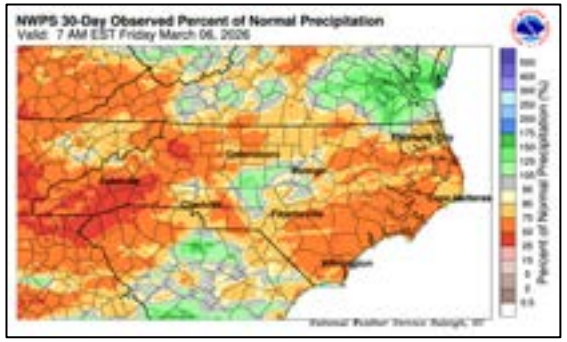
7-Day PNP



14-Day PNP

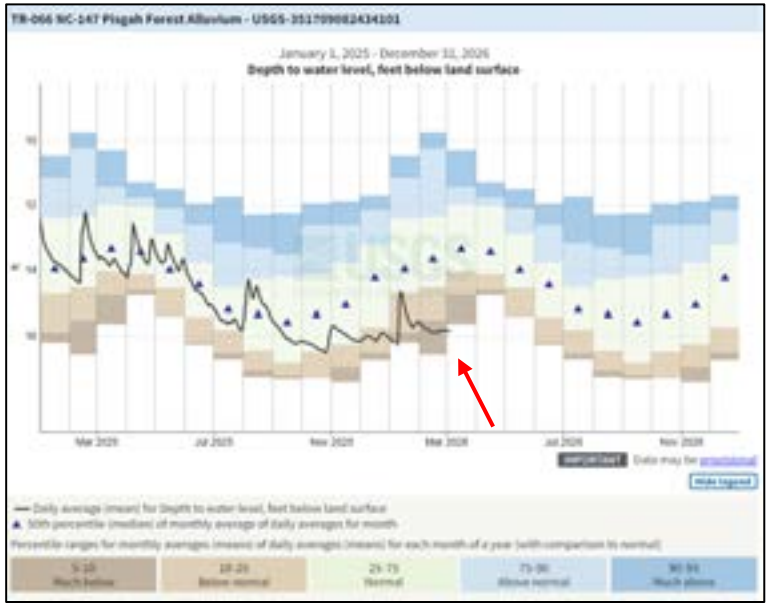


30-Day PNP

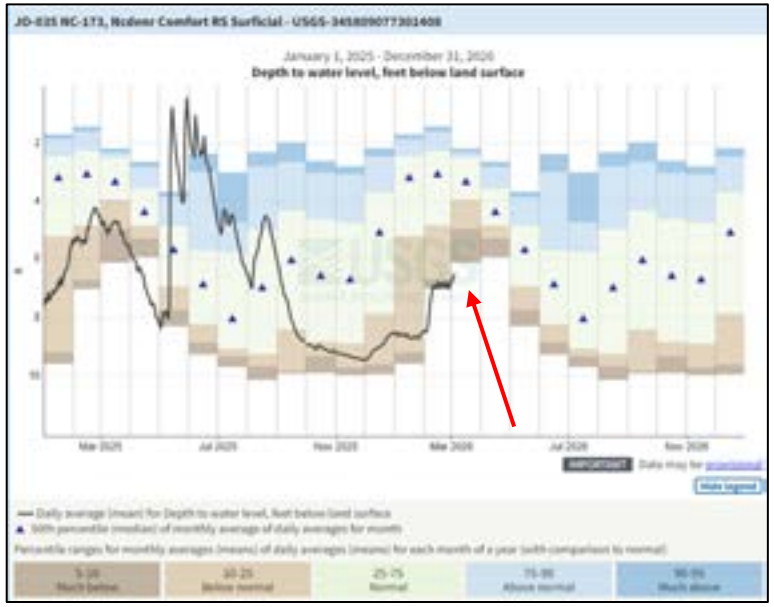


USGS Monitoring Wells - https://waterdata.usgs.gov/state/North%20Carolina/#dataTypes=72019

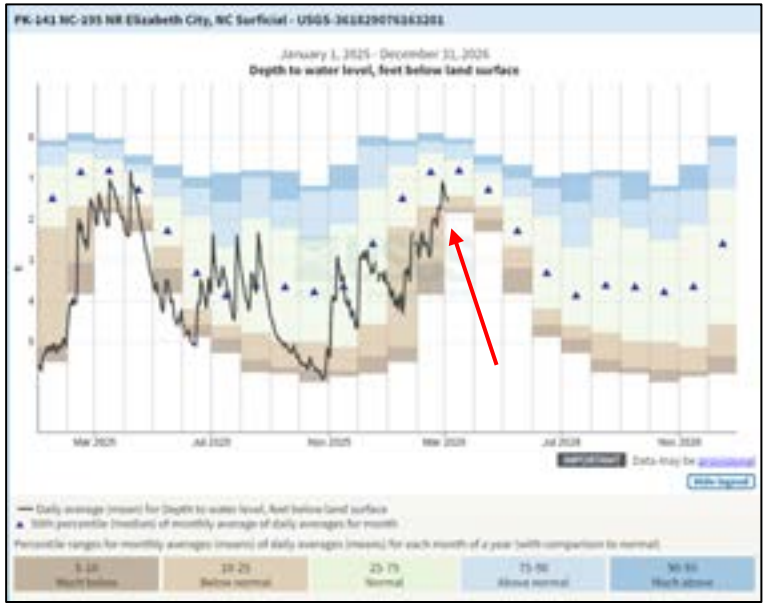
Pisgah Forest Alluvium – Transylvania Co.



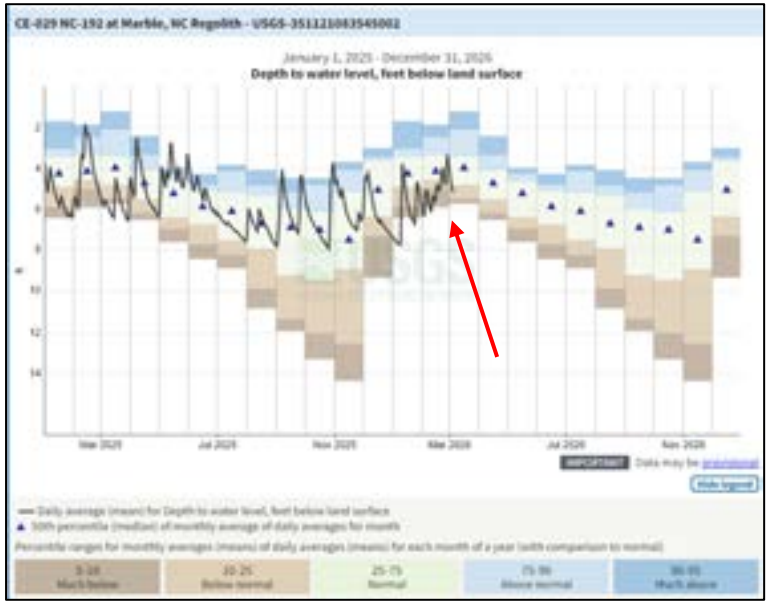
Comfort RS Surficial Well – Jones Co.



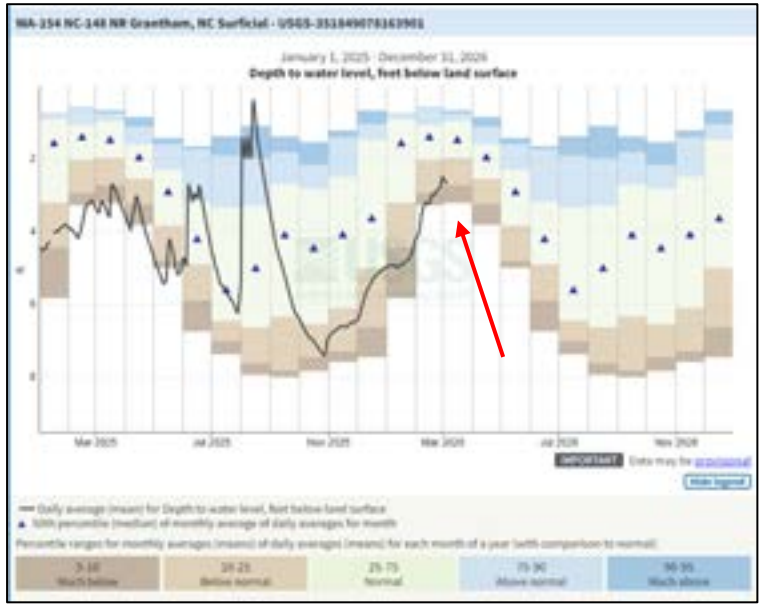
Elizabeth City Surficial Well – Pasquotank Co.



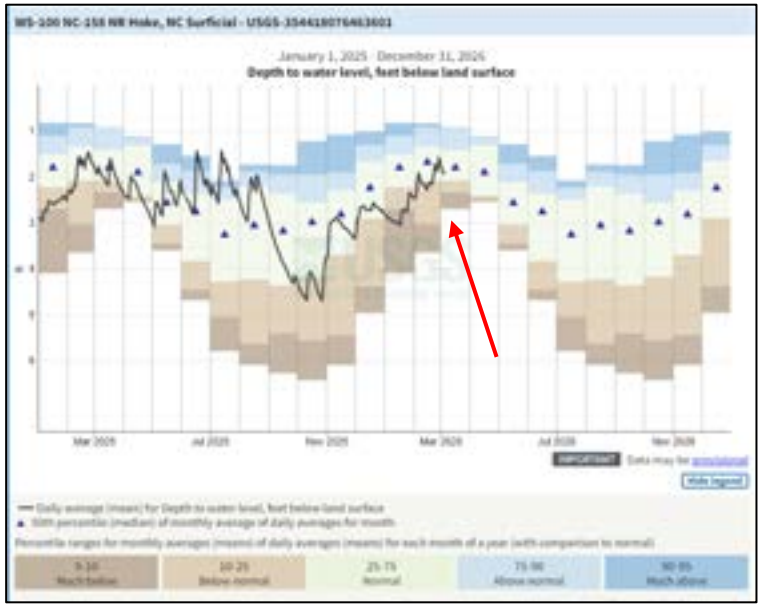
Marble Regolith – Cherokee Co.



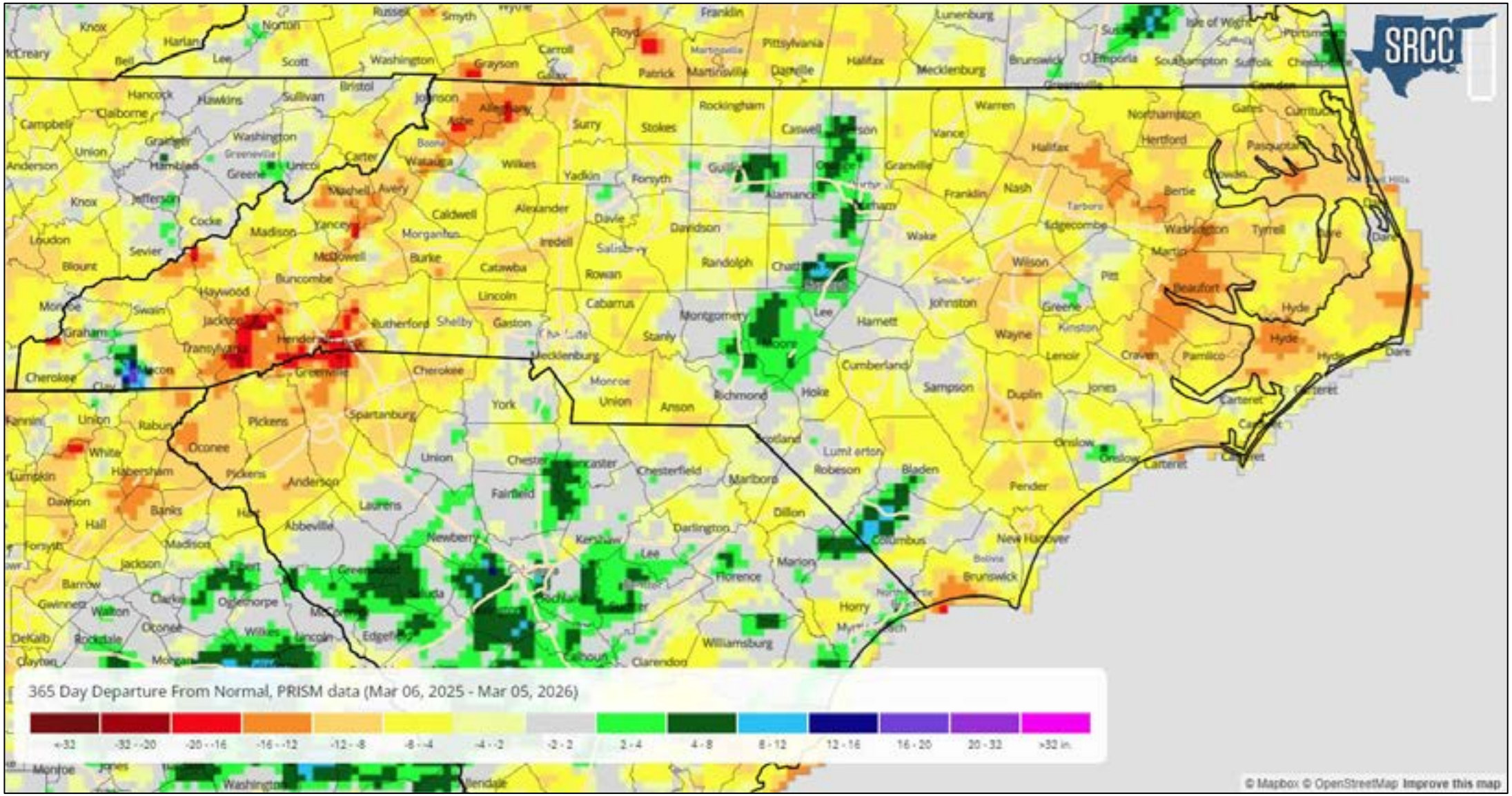
Grantham Surficial Well – Wayne Co.



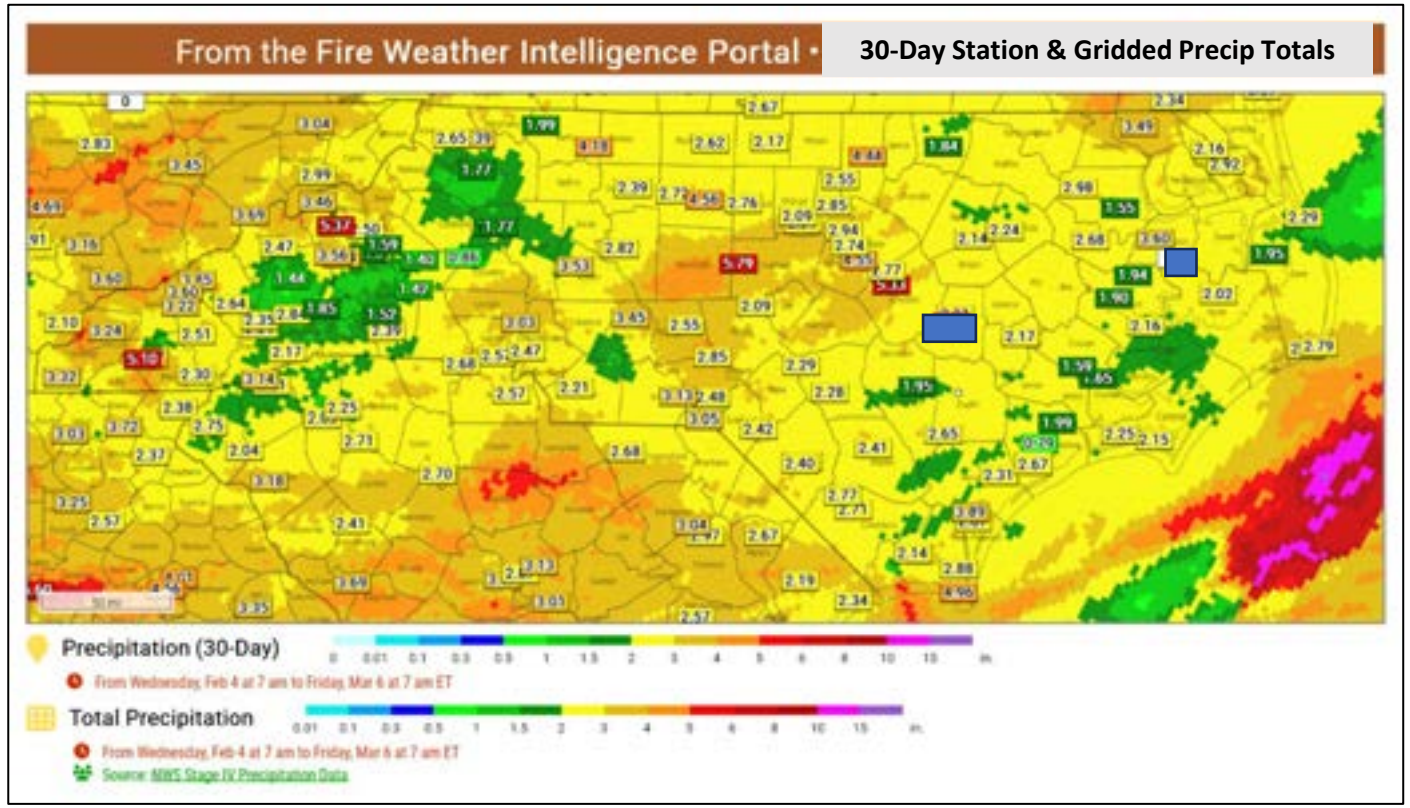
Hoke Surficial Well – Washington Co.



1-Yr Departure from Normal (in.)



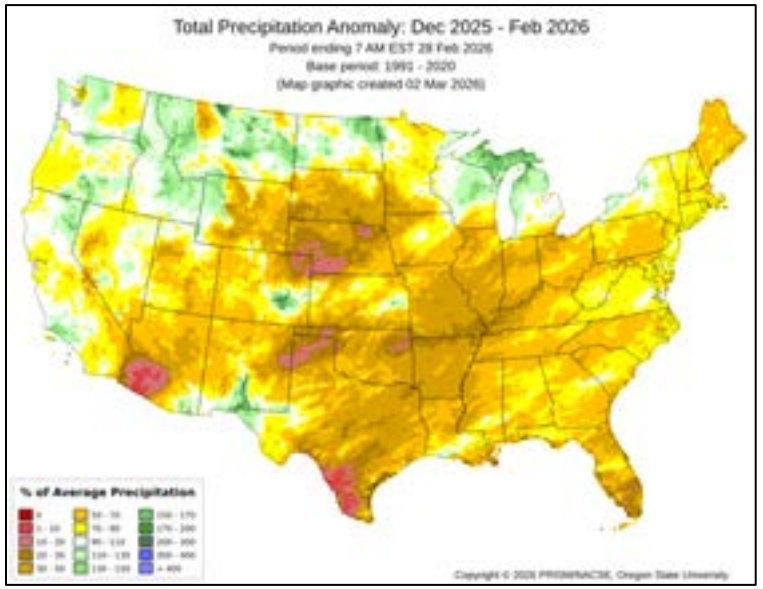
Note darker orange shading is 12-16” behind at 12-mo time scale.



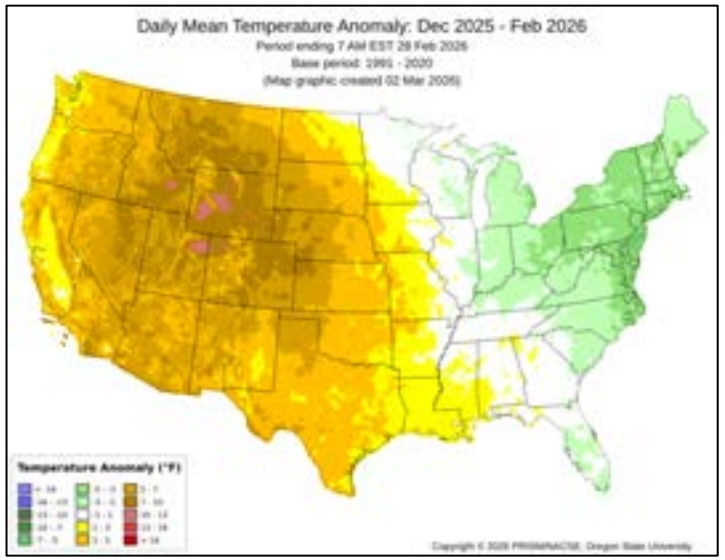
Station totals are from ASOS, RAWS, ECONet and other networks. When viewing the gridded data in conjunction with station totals, you can get a better idea of drier pockets.

Much colder than average temps in recent weeks have helped offset some of the drought impacts to the overall fire environment, manifesting in late December through much of February. This has changed moving into March – now a return to normal/above normal temps.

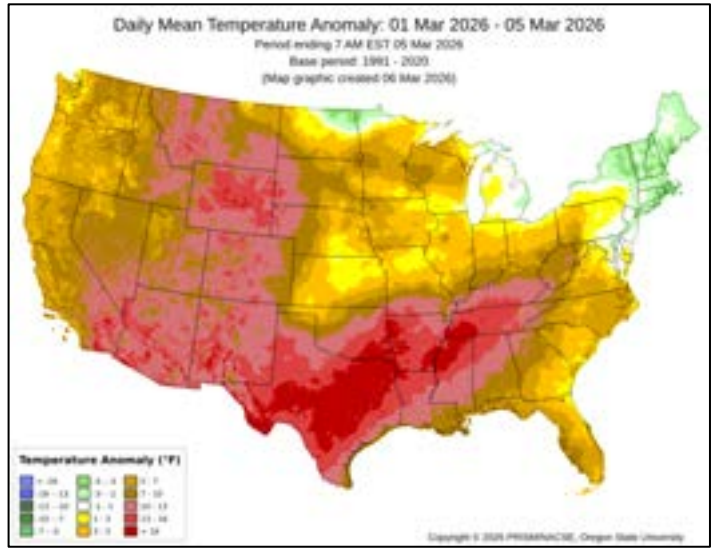
Quarterly Precip Anomaly



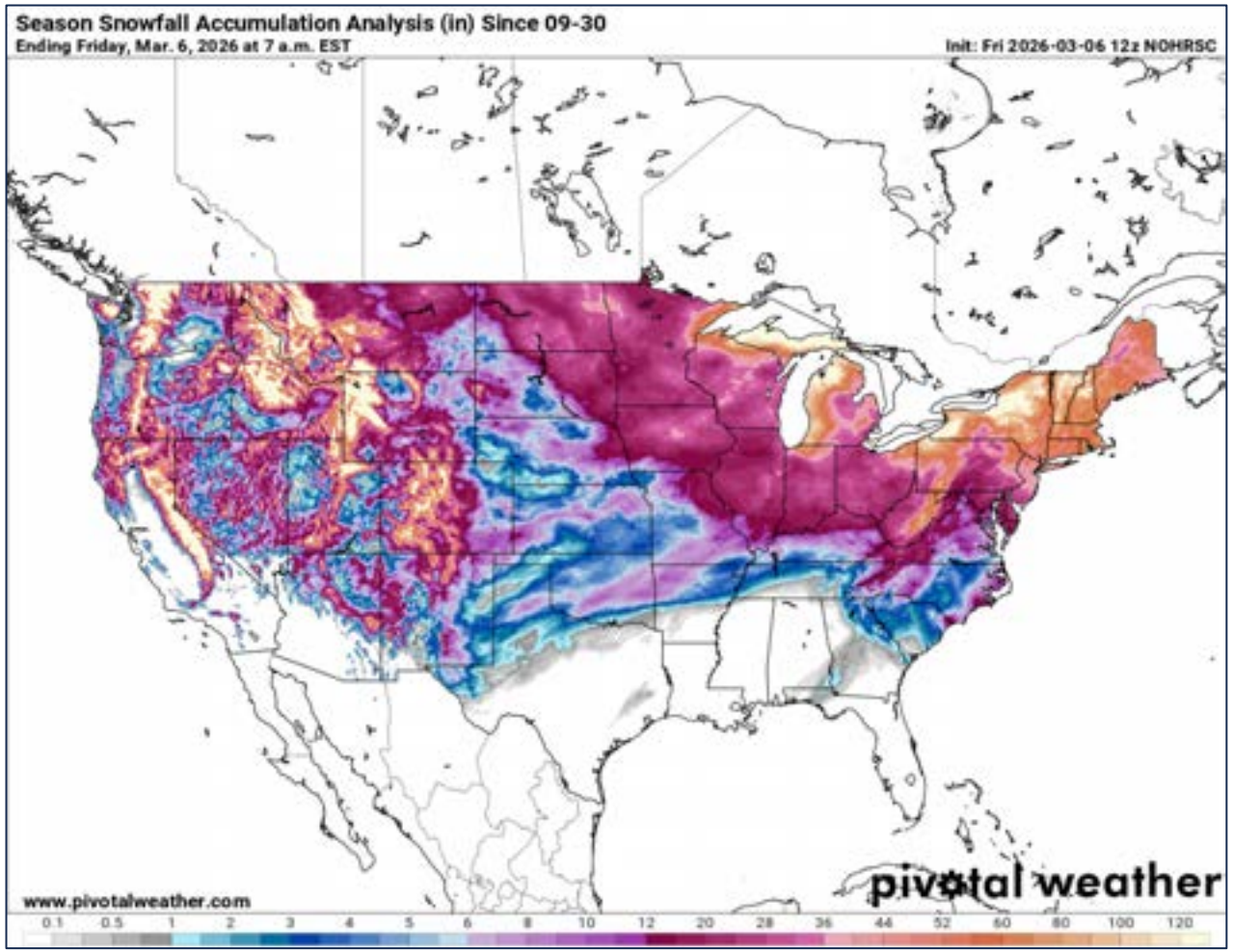
Quarterly Mean Temp Anomaly



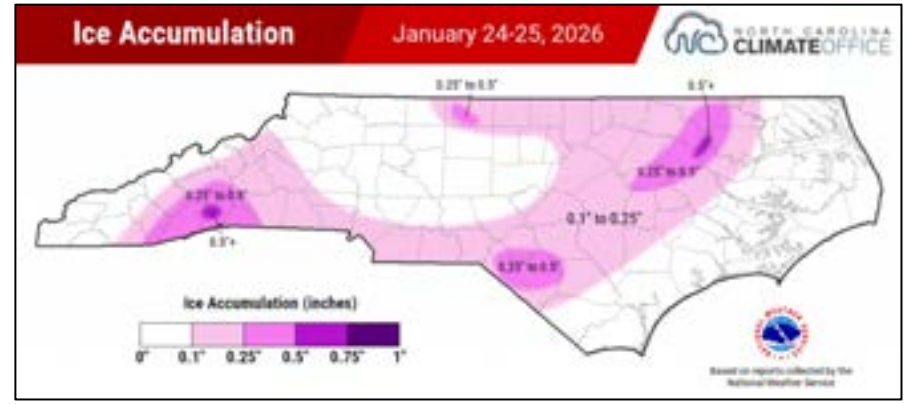
MTD Mean Temp Anomaly

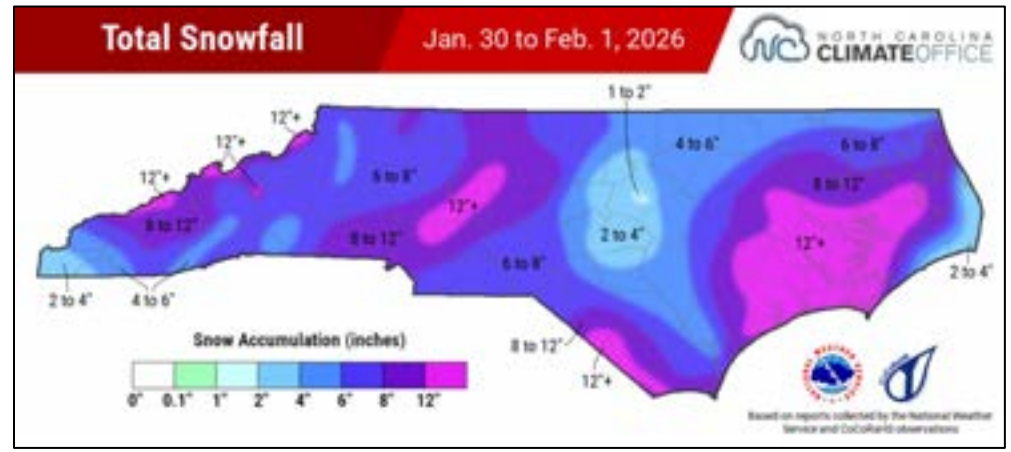


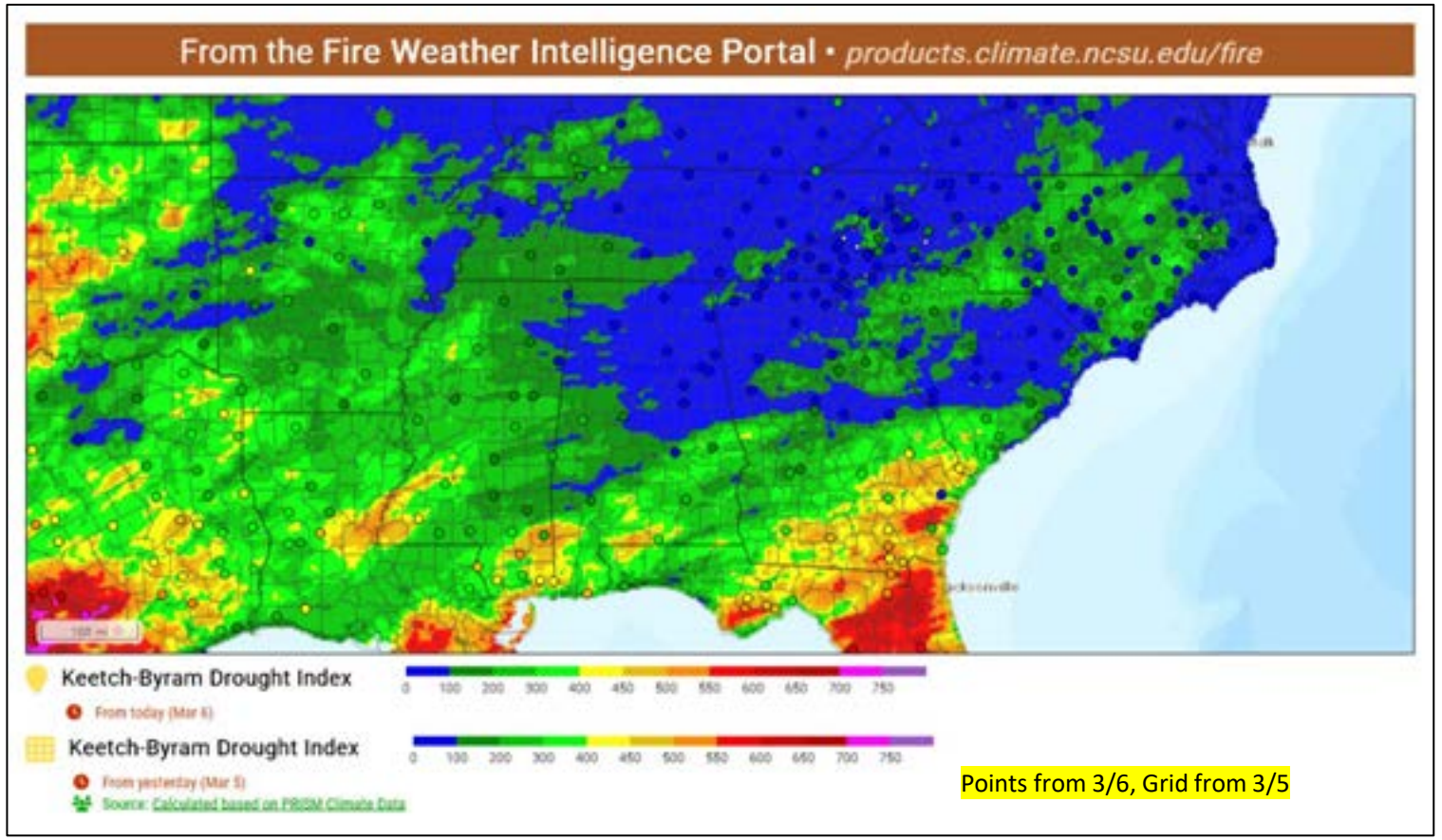
Season Total Snowfall Accumulation



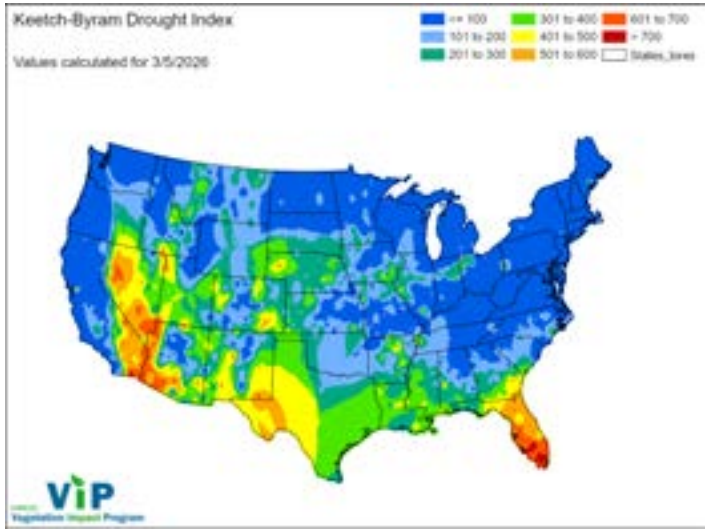
Recent Events:

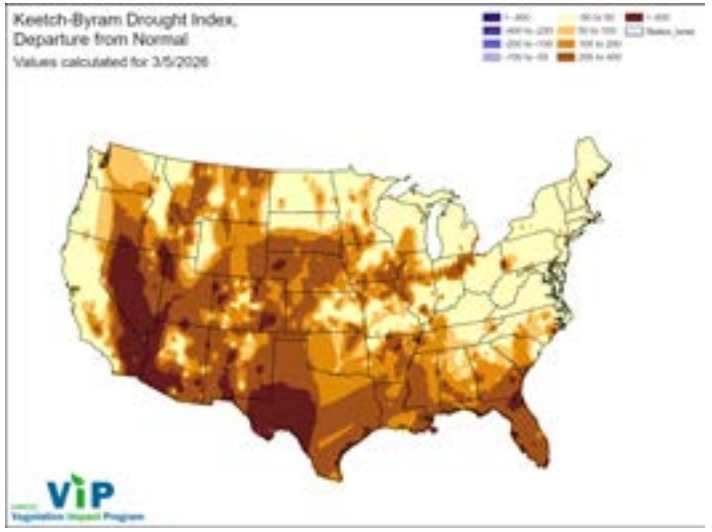






Points from 3/6, Grid from 3/5





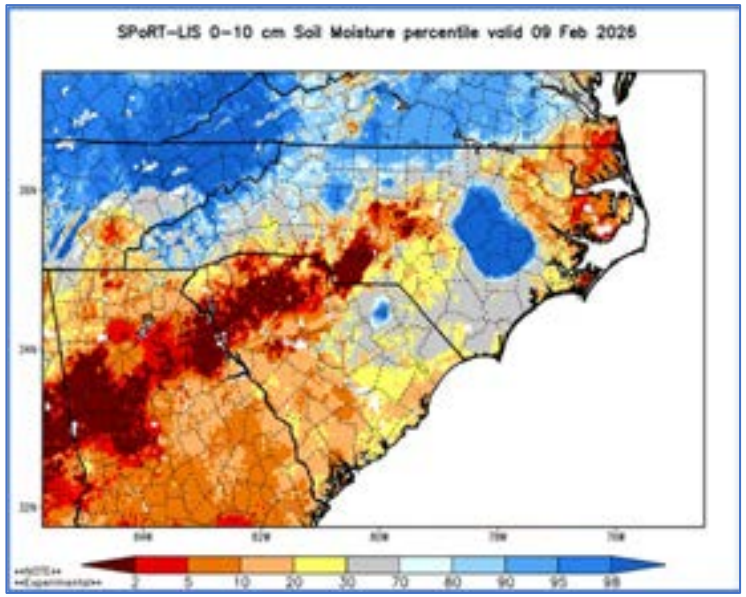
https://mrcc.purdue.edu/VIP/indexKBDI2

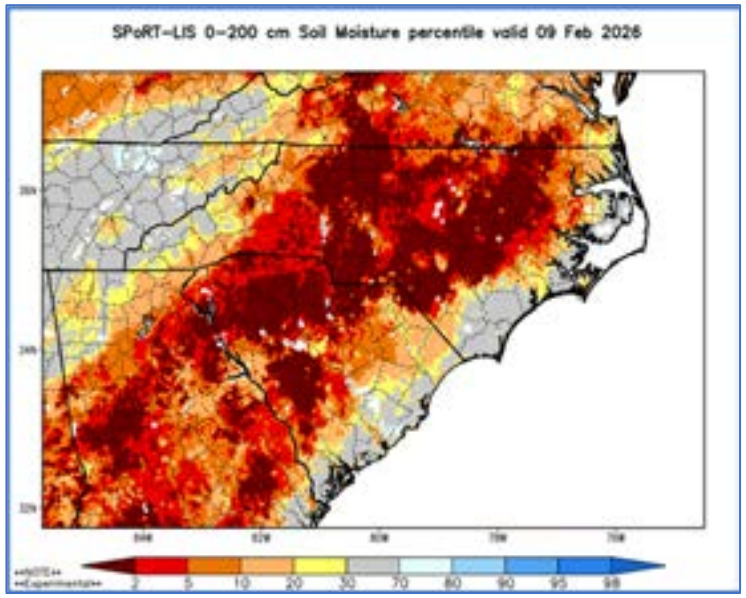
- KBDI is much less representative of the fire problem in the cold season, while max temperatures are low. A moderate rainfall can seemingly "erase" higher KBDI values, as the daily climb after the rain event is minimal (while true drought hasn't been erased). This metric is much more useful in the growing season. Expect more rapid daily climbs with daily max temps likely to be in the 70's and 80's.

- Intense surface fire can still occur even with low KBDI values in the dormant season. Additionally, there are multiple areas still showing values in the 300's + on the gridded map above. The national maps to the right are calculated by MRCC, but paint a similar picture in a broader context.

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

2/9/26

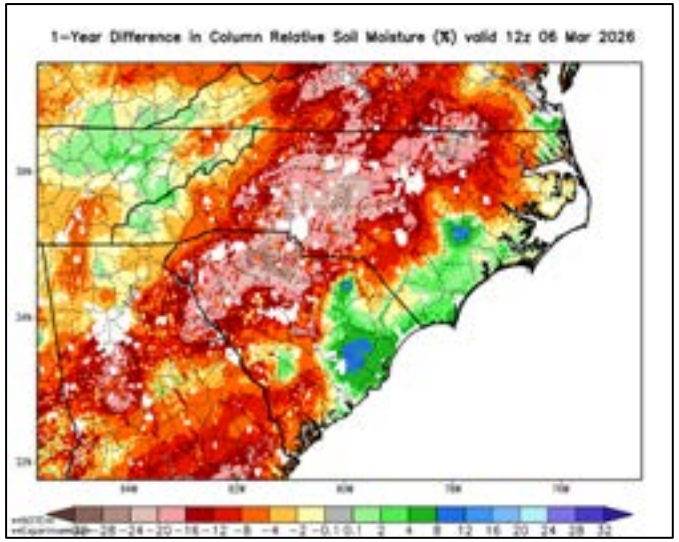




~ 30-days ago Left, today on Right.
Just a model.

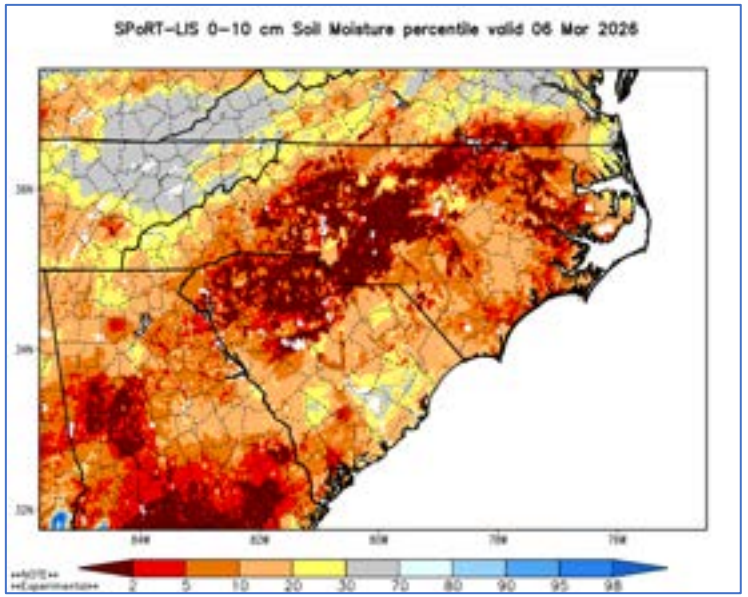
Modeled decline for most of the state, at shallow and full profile depth as compared to last month.

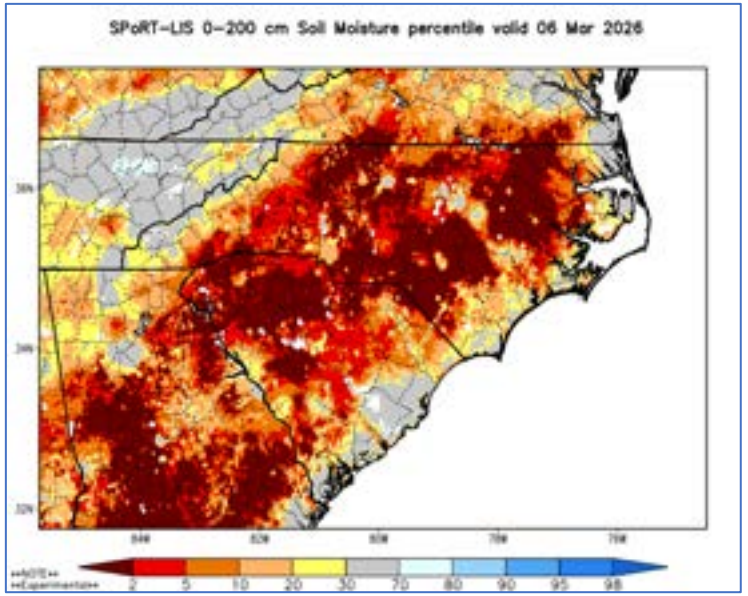
Note 1-year difference graphic below.



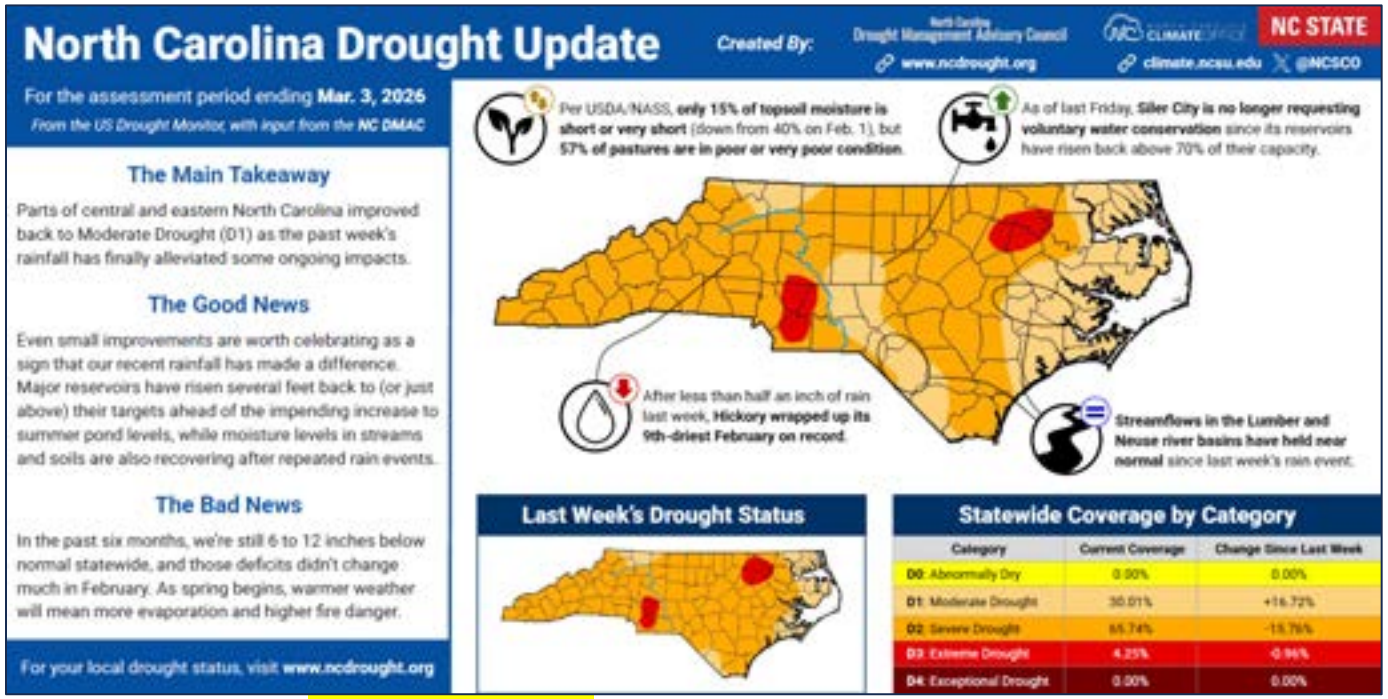
https://weather.ndc.nasa.gov/sport/case_studies/lis_NC.html

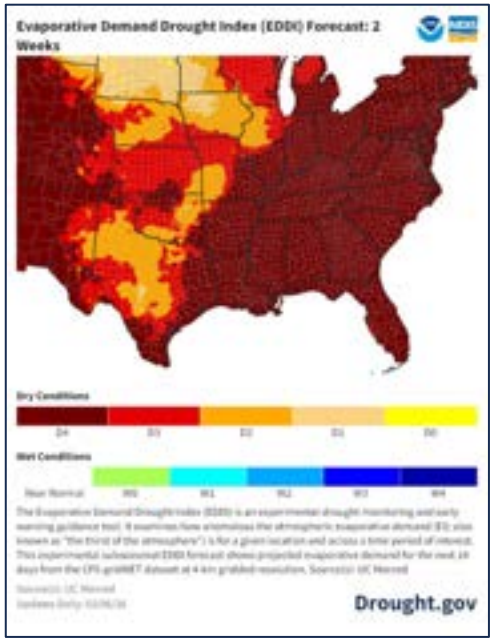
3/6/26

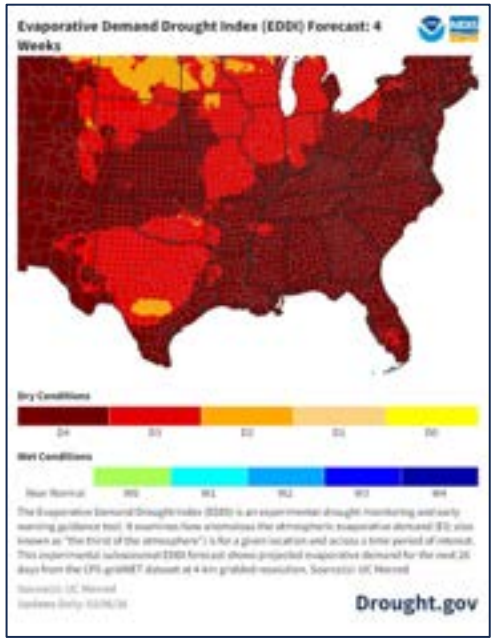




https://www.drought.gov/data-maps-tools/evaporative-demand-drought-index-eddi-subseasonal-forecasts





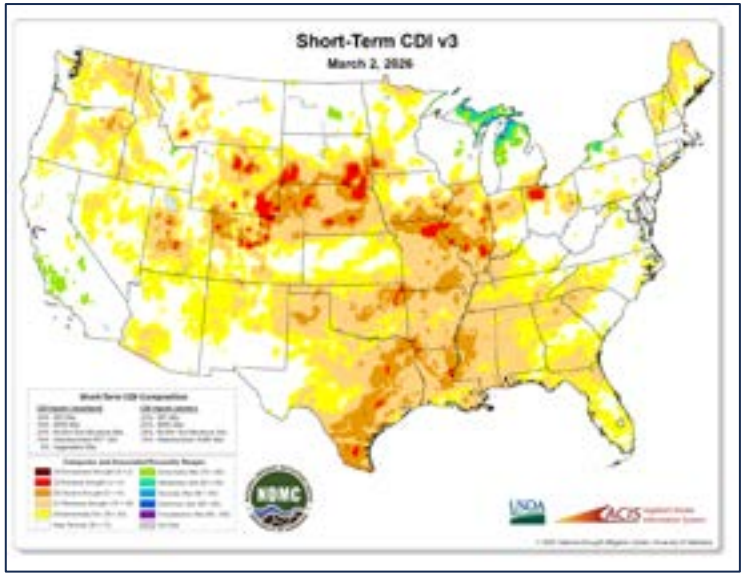


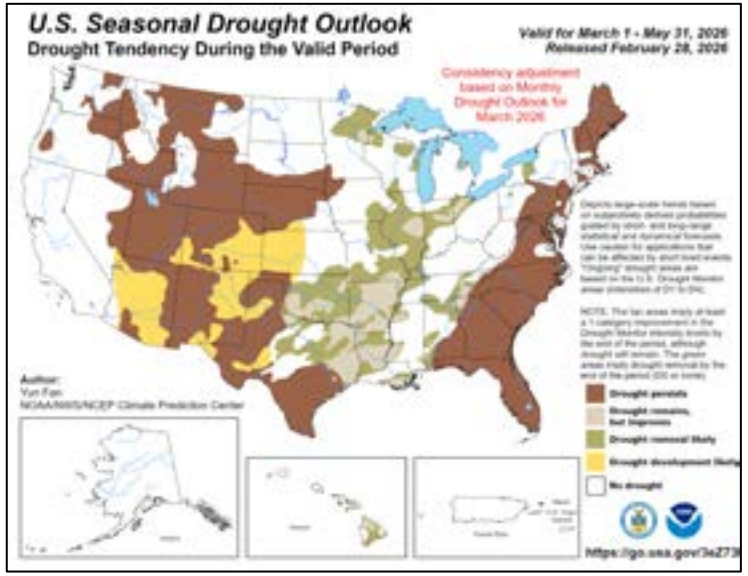
EDDI & Drought

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

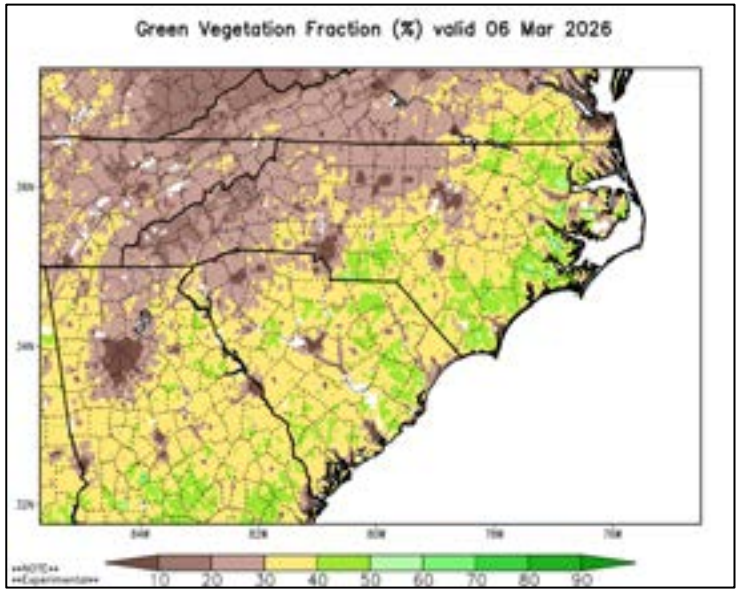
US Drought Monitor – Most recent USDM map release above (3/3/26). Model spread is significant with La Nina related winter pattern impacting the SE. Rapid drought intensification continues to be possible as we move into the growing season, should rainfall deficits remain significant.

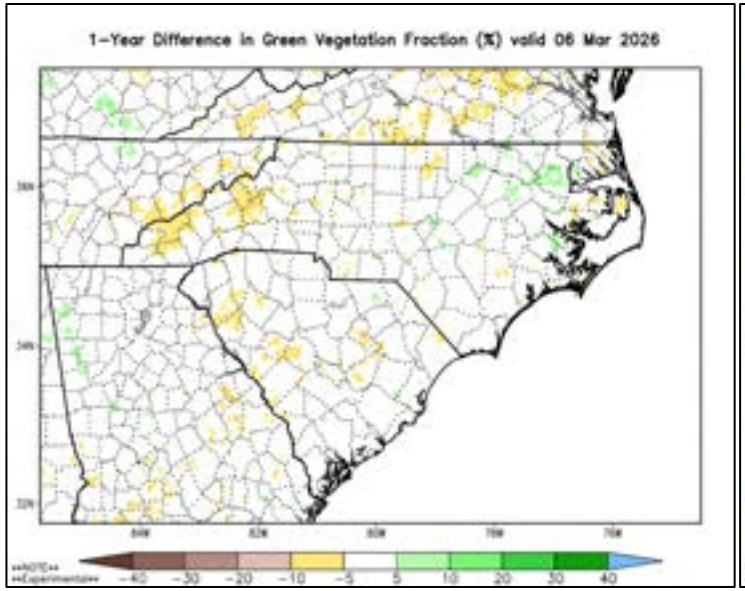
Short-Term Composite Drought Indicator Map & Seasonal Drought Outlook - shown at right. See detailed state/regional discussions here. Conditions have moderated slightly in the short-term, but are still favoring dryness as we move towards spring. *All of this is dependent upon any future storm tracks and seasonal variability we see moving through Winter.*

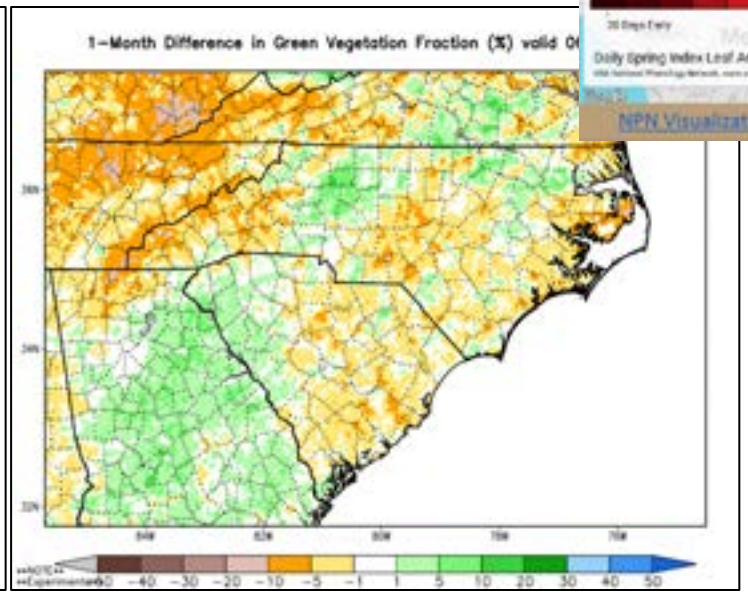


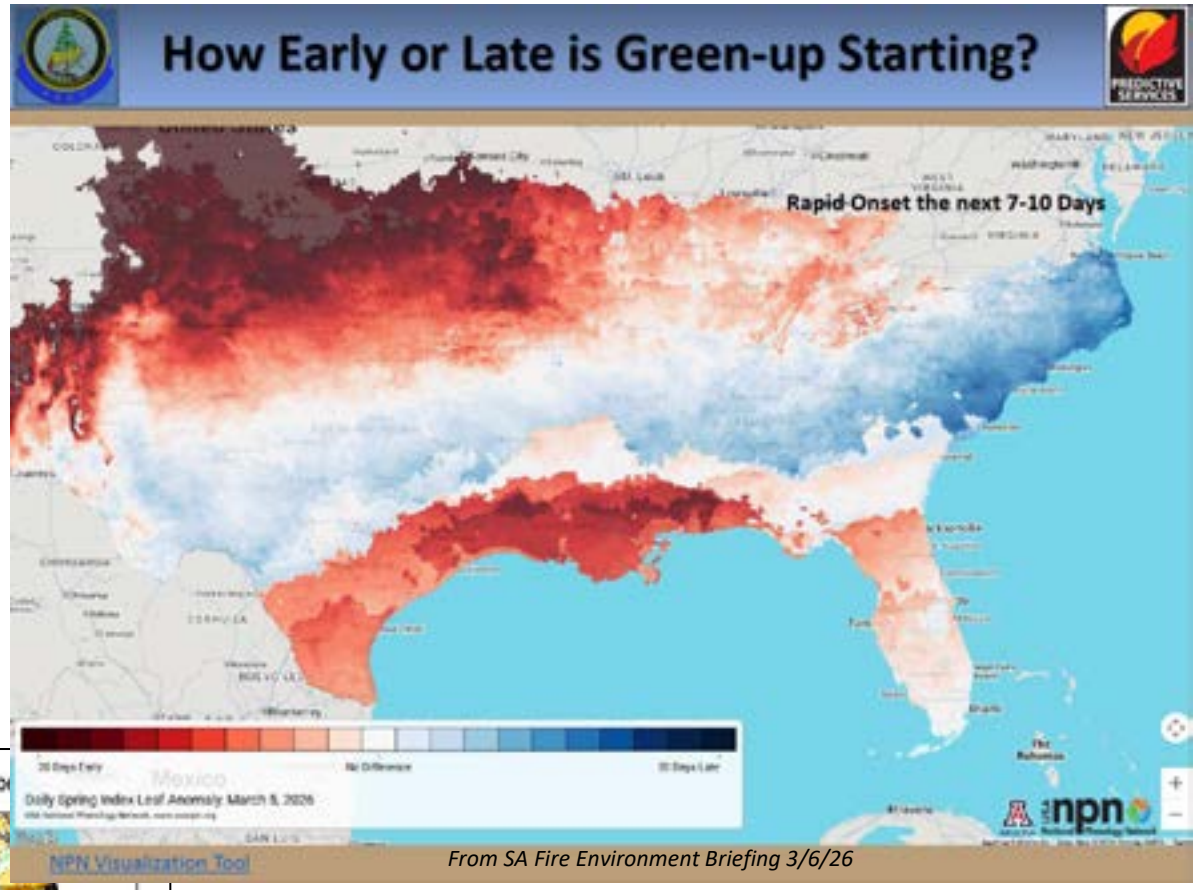


SPoRT Modeled Green Vegetation Fraction









From SA Fire Environment Briefing 3/6/26

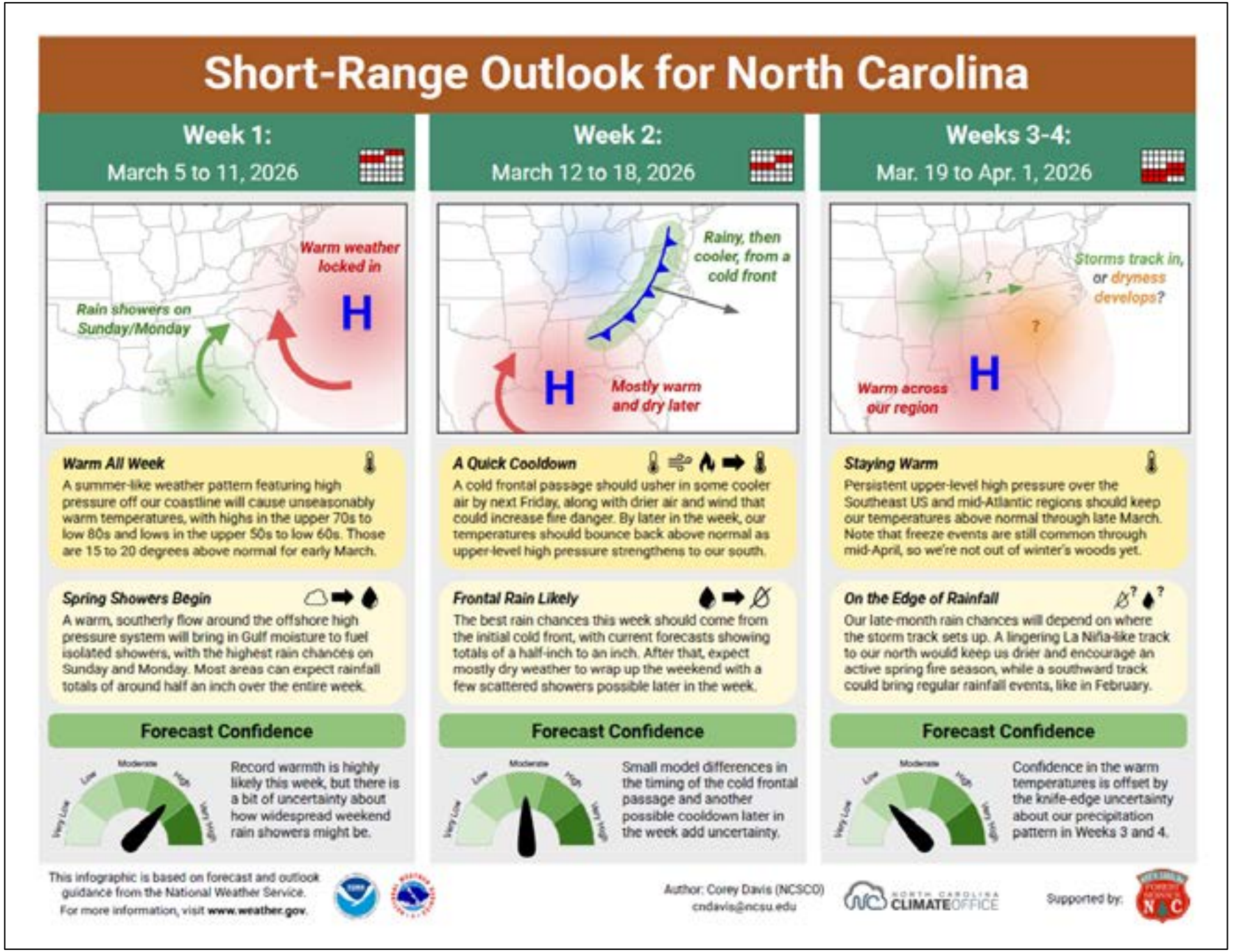
Note areas of both increase and decrease in overall greenness.

Some of this may be attributed to impacts of snow/ice cover on reflectance, however it is also likely the extremely cold average temperatures over the past few weeks have come into play.

NPN map (above) shows parts of Western NC slightly above, while much of the East is 1-2 weeks behind “normal” on the Spring Index Leaf Anomaly viewer.

State Climate Office: Short-Range Monthly Outlook for NC

Released ***3/5/26***
Location: https://climate.ncsu.edu/fire/outlooks/

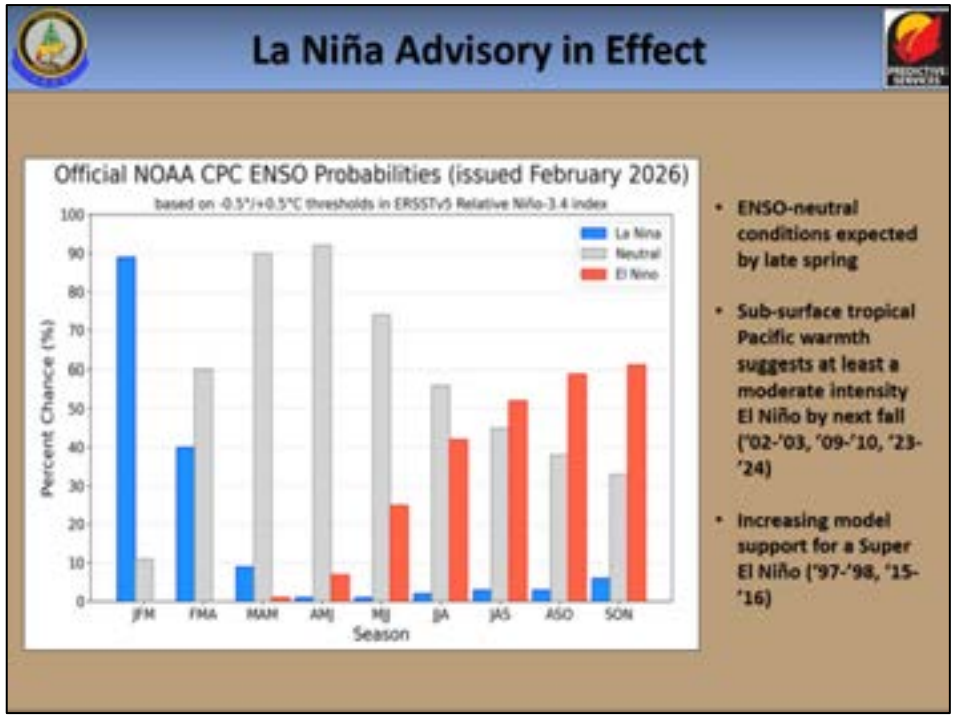


ENSO Notes from the CPC (2/12/26 Update)

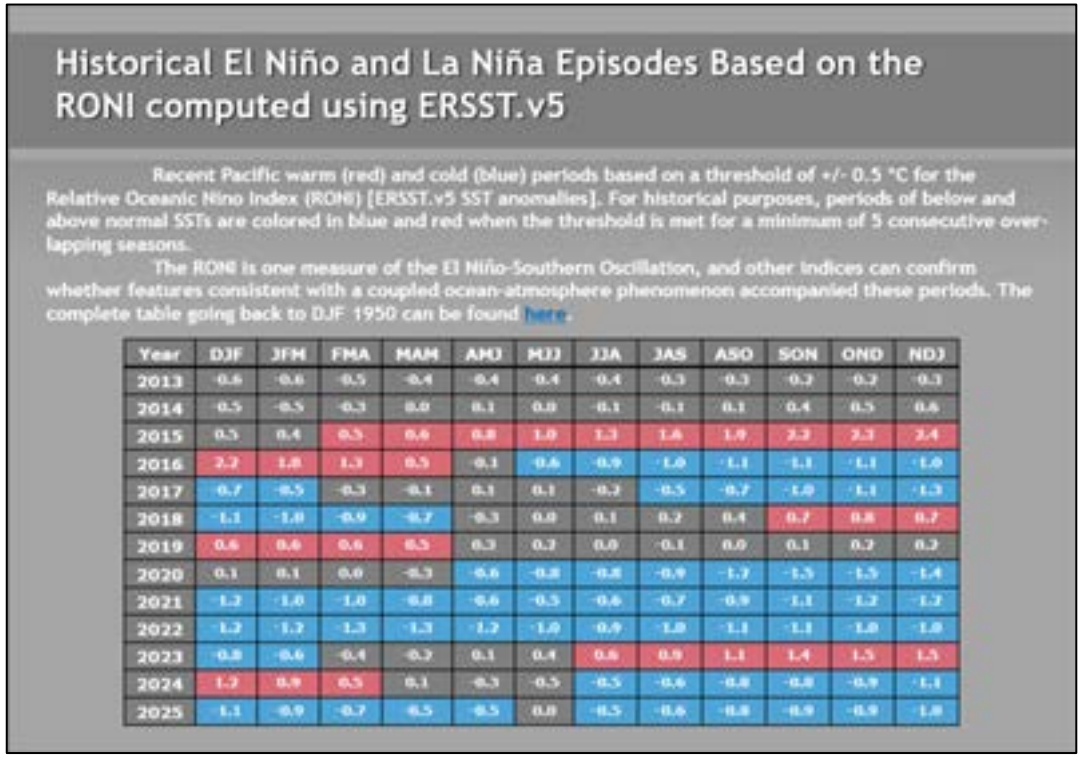
ENSO Alert System Status: [La Niña Advisory]

A transition from La Niña to ENSO-neutral is expected in February-April 2026 (60% chance), with ENSO-neutral likely persisting through the Northern Hemisphere summer (56% chance in June-August 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. In order to declare a La Nina, the departure from average SST must be at least -0.5^{o} C (line shown in green) for 3 consecutive months. For El Nino, the departure must be at least 0.5^{o} C above average for 3 consecutive months.



From SA Fire Environment Briefing 3/6/26



Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2013	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3
2014	-0.5	-0.5	-0.3	0.0	0.1	0.0	-0.1	-0.1	0.1	0.4	0.5	0.6
2015	0.5	0.4	0.5	0.6	0.8	1.0	1.3	1.6	1.9	2.2	2.2	2.4
2016	2.2	1.8	1.3	0.5	-0.1	-0.6	-0.9	-1.0	-1.1	-1.1	-1.1	-1.0
2017	-0.7	-0.5	-0.3	-0.1	0.1	0.1	-0.2	-0.5	-0.7	-1.0	-1.1	-1.3
2018	-1.1	-1.0	-0.9	-0.7	-0.3	0.0	0.1	0.2	0.4	0.7	0.8	0.7
2019	0.6	0.6	0.6	0.5	0.3	0.2	0.0	-0.1	0.0	0.1	0.2	0.2
2020	0.1	0.1	0.0	-0.3	-0.6	-0.8	-0.8	-0.9	-1.2	-1.5	-1.5	-1.4
2021	-1.2	-1.0	-1.0	-0.8	-0.6	-0.5	-0.6	-0.7	-0.9	-1.1	-1.2	-1.2
2022	-1.2	-1.2	-1.3	-1.3	-1.2	-1.0	-0.9	-1.0	-1.1	-1.1	-1.0	-1.0
2023	-0.8	-0.6	-0.4	-0.2	0.1	0.4	0.6	0.9	1.1	1.4	1.5	1.5
2024	1.2	0.9	0.5	0.1	-0.3	-0.5	-0.5	-0.6	-0.8	-0.8	-0.9	-1.1
2025	-1.1	-0.9	-0.7	-0.5	-0.5	-0.8	-0.5	-0.6	-0.8	-0.9	-0.9	-1.0

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

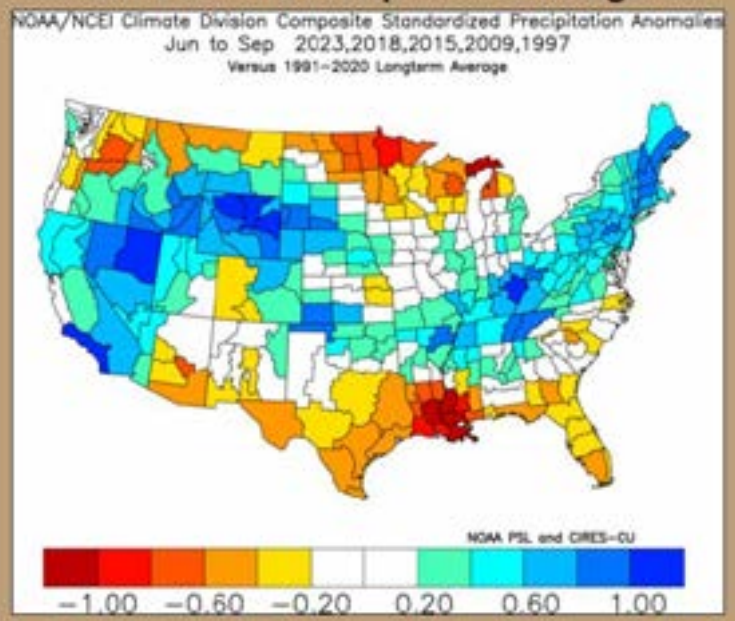
The North American Multi-Model Ensemble (NMME) average, including the NCEP CFSv2 [Fig. 6], favor the onset of ENSO-neutral in February-April 2026. The team consensus also reflects this outcome, with ENSO-neutral persisting through the Northern Hemisphere summer 2026. For the late summer and beyond, there is a 50-60% chance of El Niño forming, though model uncertainty remains considerable and forecasts made this time of year tend to have lower accuracy. In summary, a transition from La Niña to ENSO-neutral is expected in February-April 2026 (60% chance), with ENSO-neutral likely persisting through the Northern Hemisphere summer (56% chance in June-August 2026; [Fig. 7]).

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

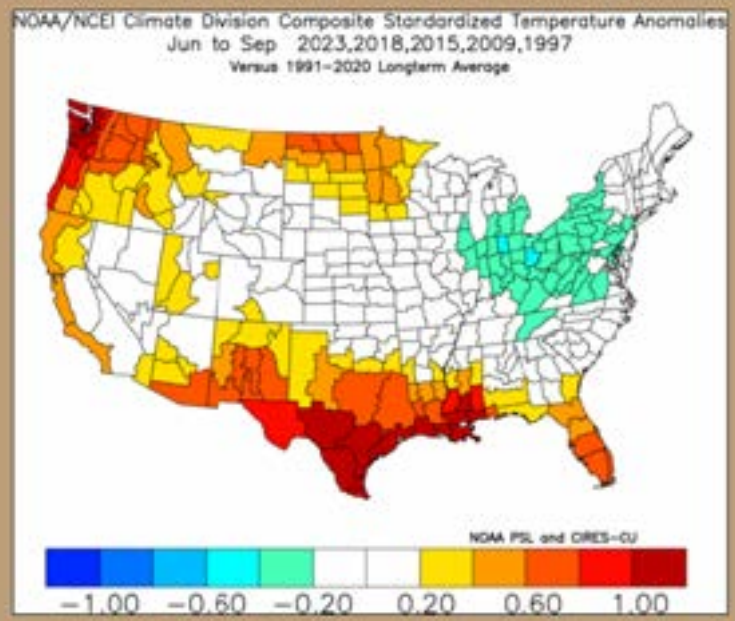
From SA Fire Environment Briefing 3/6/26

Quick Thoughts on Summer

Niña to Niño Precipitation Analogs



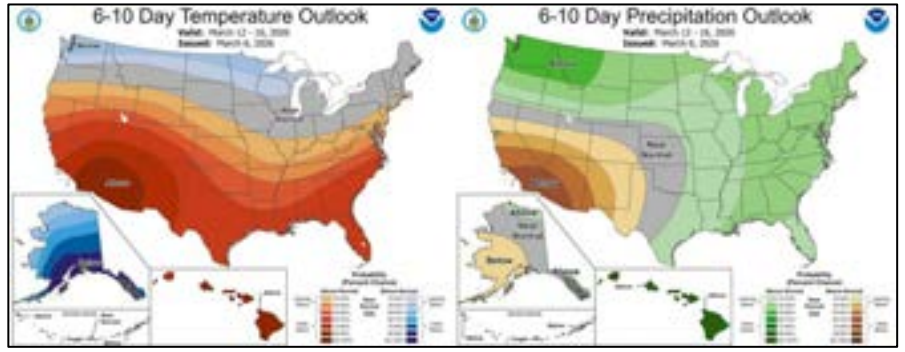
Niña to Niño Temperature Analogs

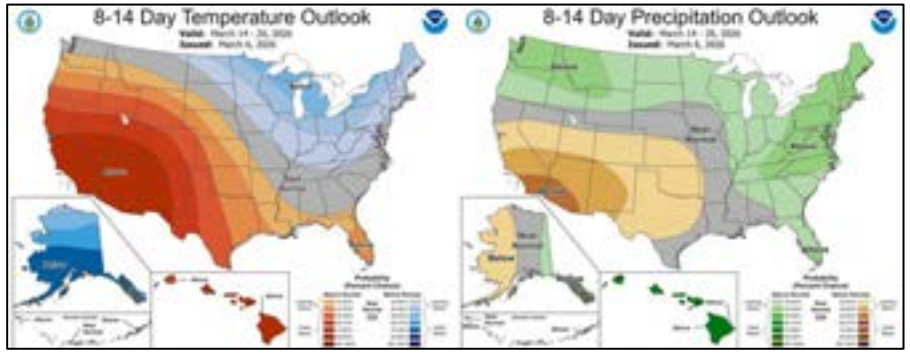


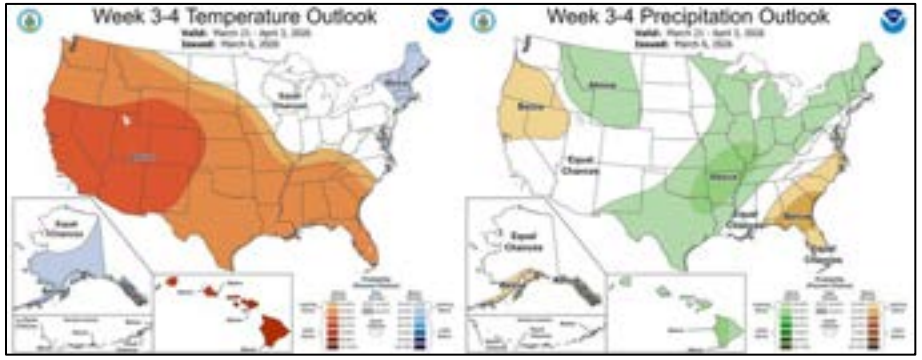
- **Analogs for June to September, based on quick ENSO transitions from La Niña to El Niño**
- **Strong signal for hot and dry conditions resulting in flash drought for the Gulf states**
- **Potentially wetter and milder across the northern tier**
- **El Niño usually increases shear over the Atlantic basin, but as in 2023, if Atlantic waters are also unusually warm, it could be a busier hurricane season**

Temp & Precip Outlook

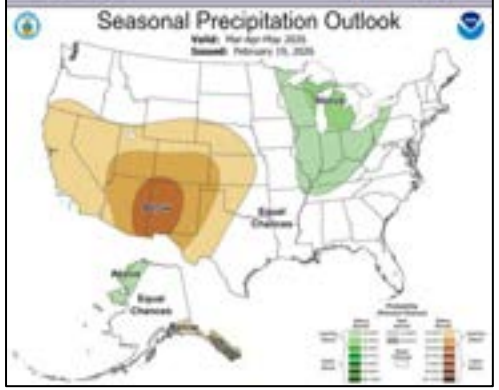
6-10 Day, 8-14 Day, Weeks 3-4, Seasonal (M/A/M, A/M/J, M/J/J)



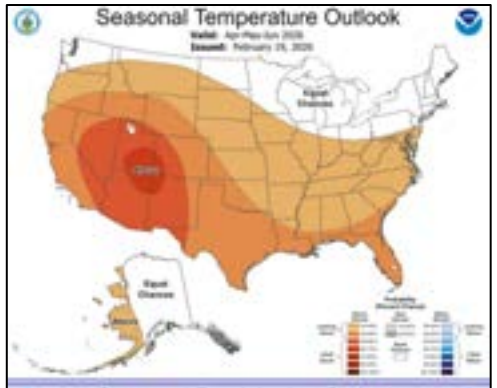


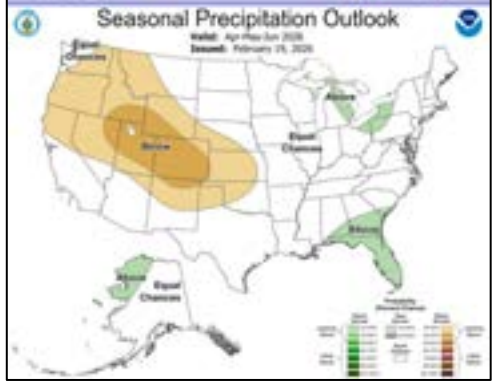


Mar-May

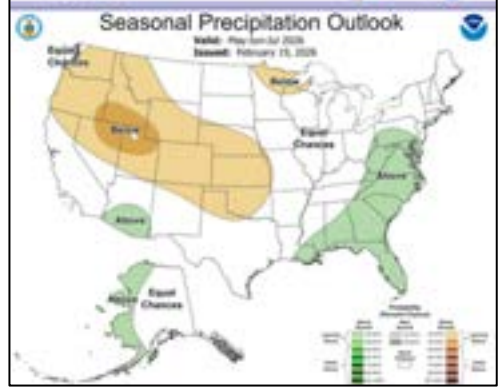


Apr-June





May-July



Last Updated by CPC on February 19th

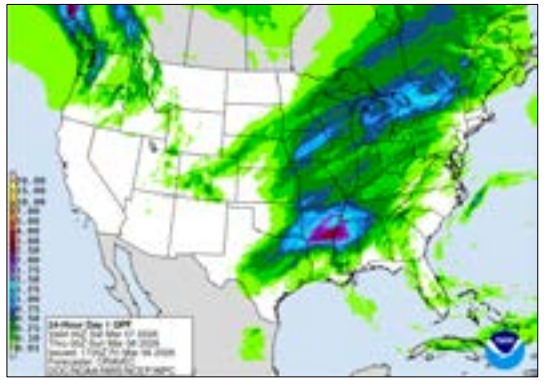
Source: https://www.cpc.ncep.noaa.gov/

https://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus05.html

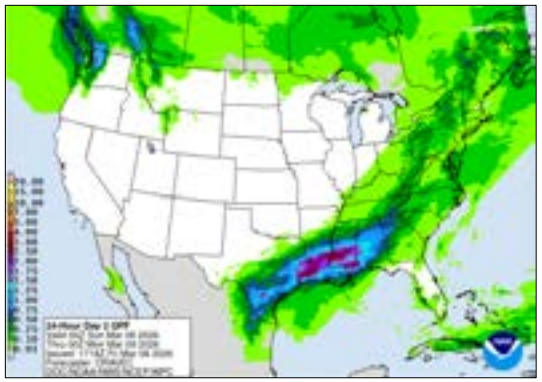
Quantitative Precipitation Forecast, 7-Day

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

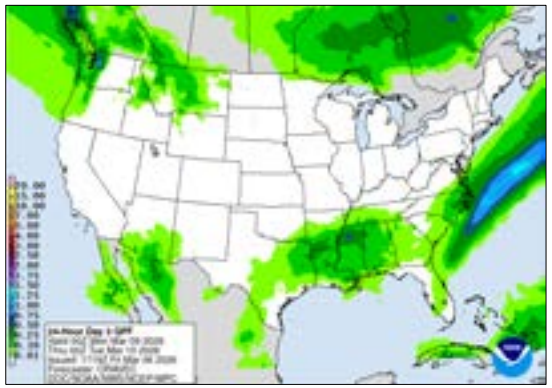
Day – 1



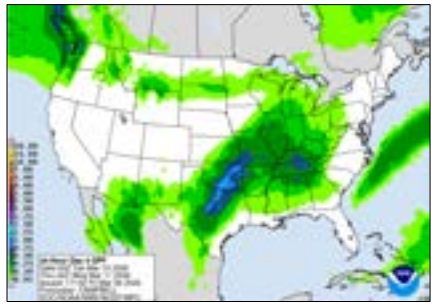
Day - 2



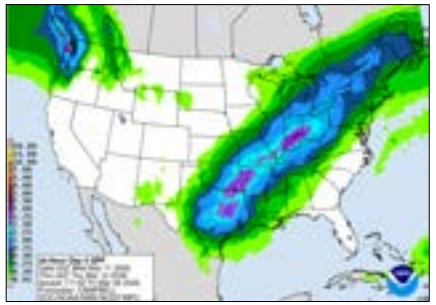
Day - 3



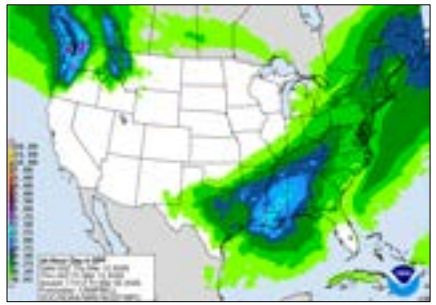
Day - 4



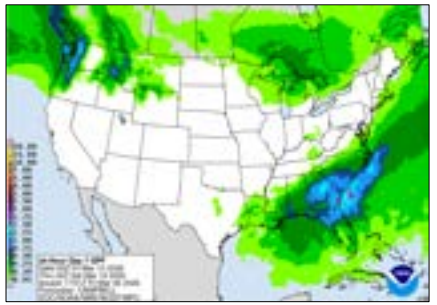
Day - 5



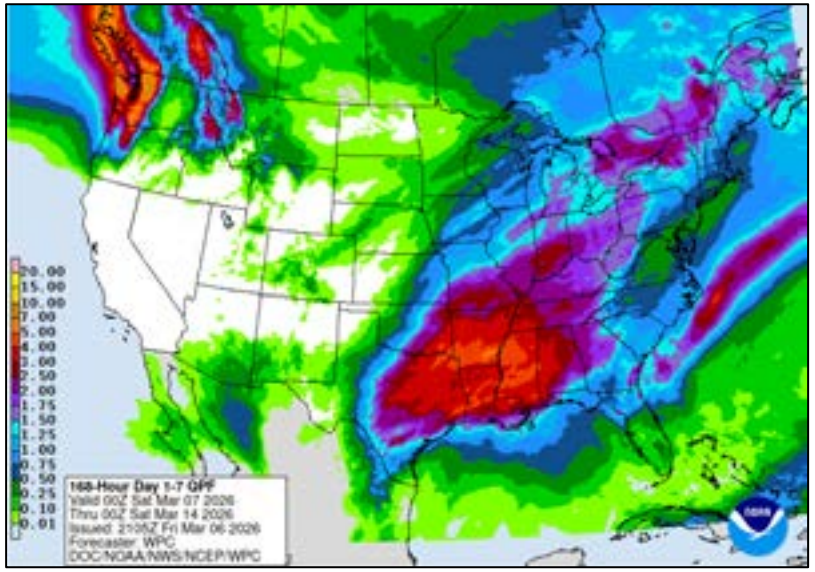
Day - 6



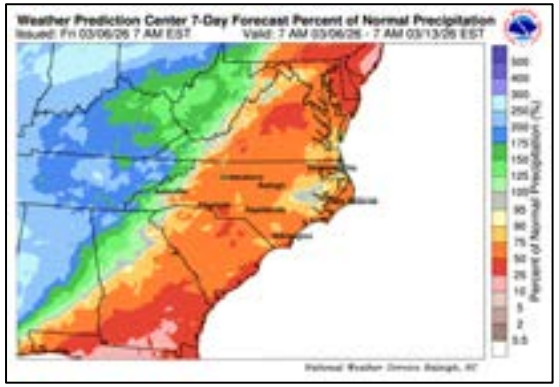
Day - 7



Days 1 – 7 QPF



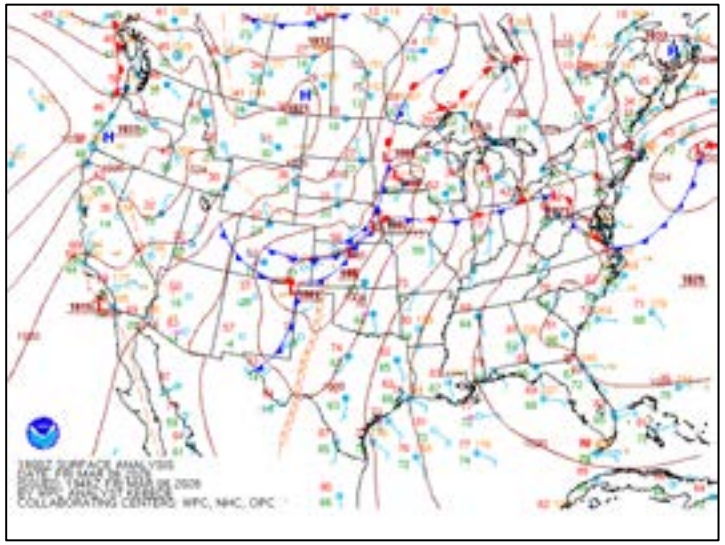
Zoom - Days 1 – 7 QPF



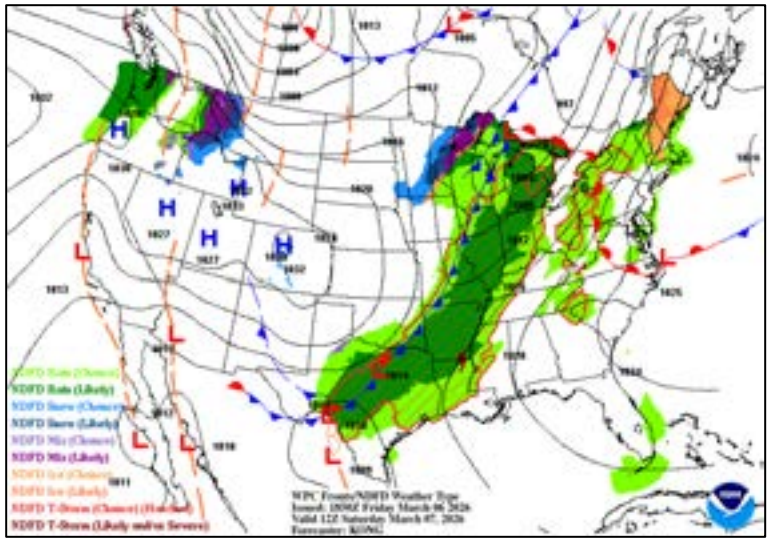
Precip amounts later in period are much more uncertain, likely to shift or trend lower for NC.
Note flooding rain & severe storm potential for portions of the Southern Area.

WPC Forecasted Surface Fronts & Sea-Level Pressures

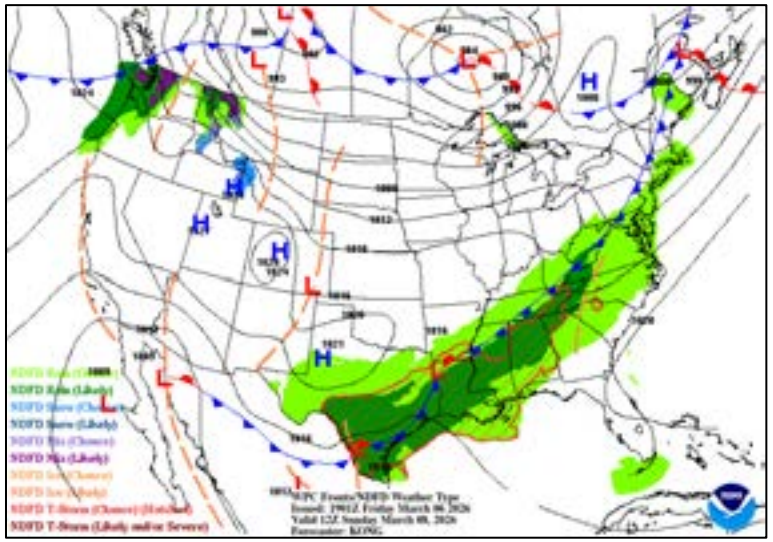
Day-1 @ 18Z Surface Analysis



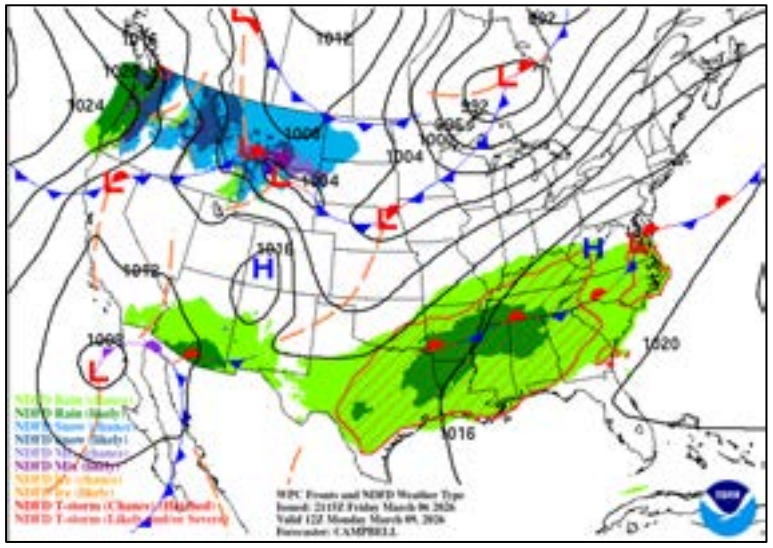
Day 2 - @ 12Z (0700 EST)



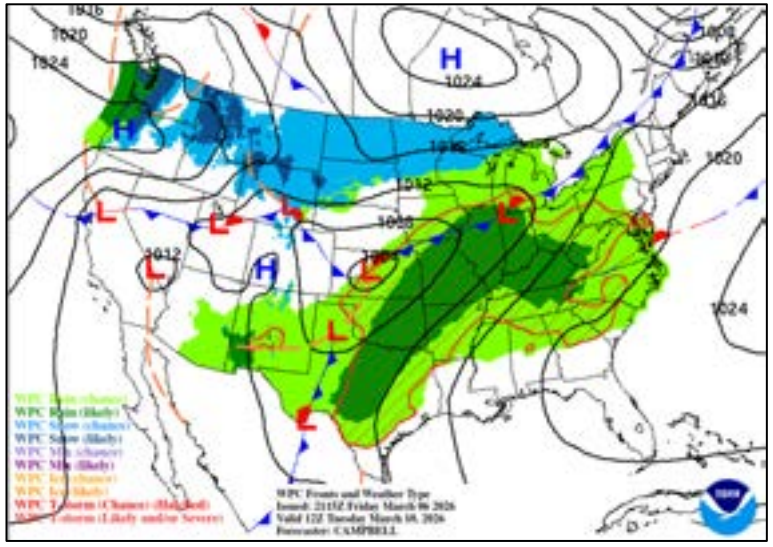
Day 3 @ 12Z (0700 EST)



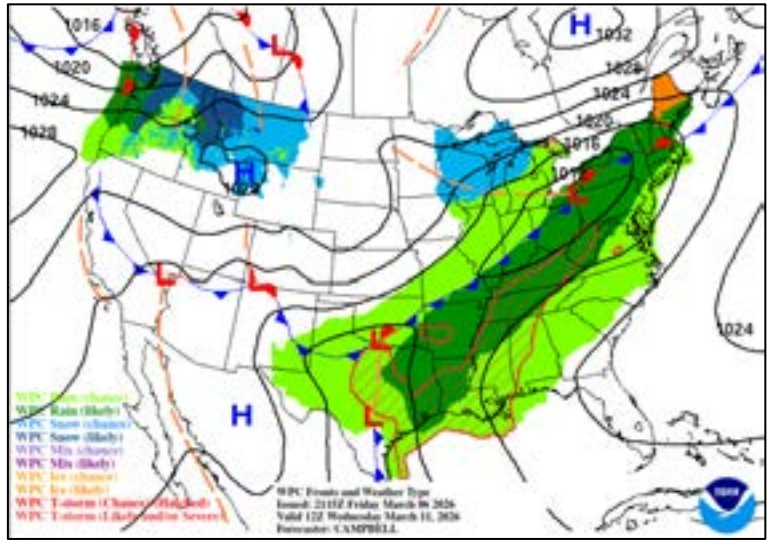
Day 4 @ 12Z (0700 EST)



Day 5 @ 12Z (0700 EST)



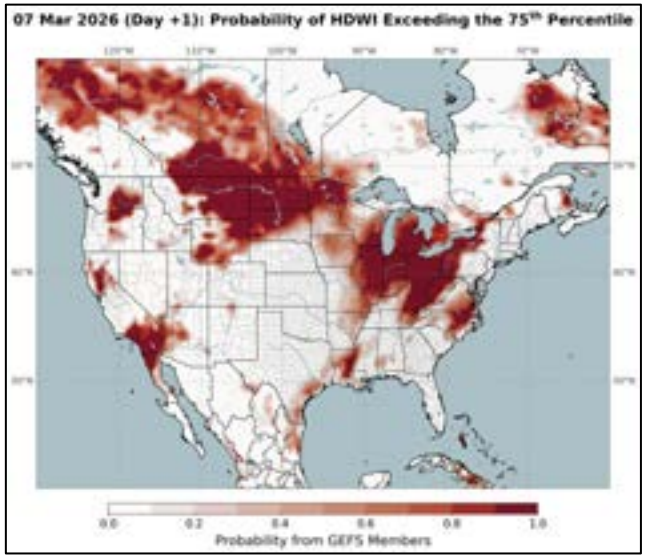
Day 6 @ 12Z (0700 EST)



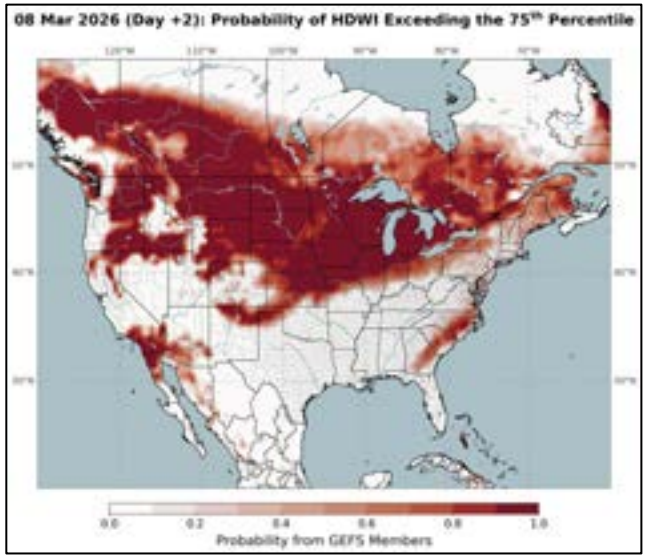
Location: https://www.wpc.ncep.noaa.gov/#

Hot-Dry-Windy Index (HDW)

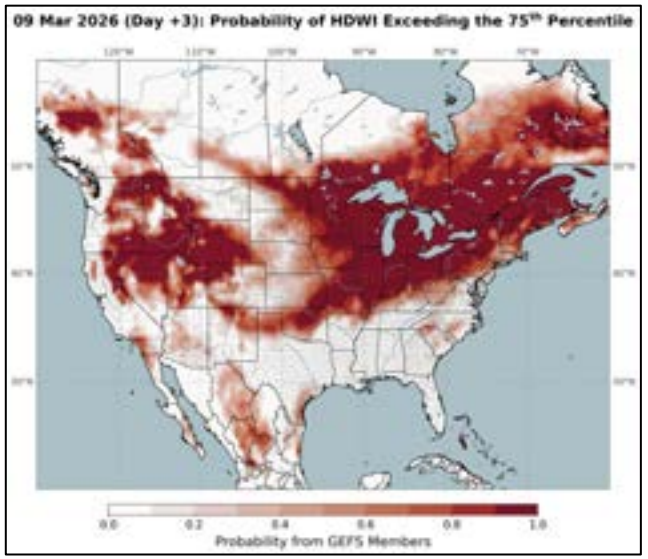
Saturday > 75th Percentile



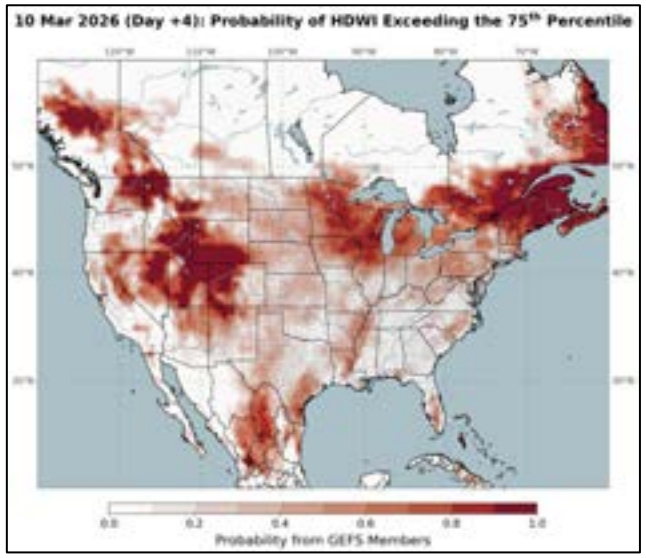
Sunday > 75th Percentile



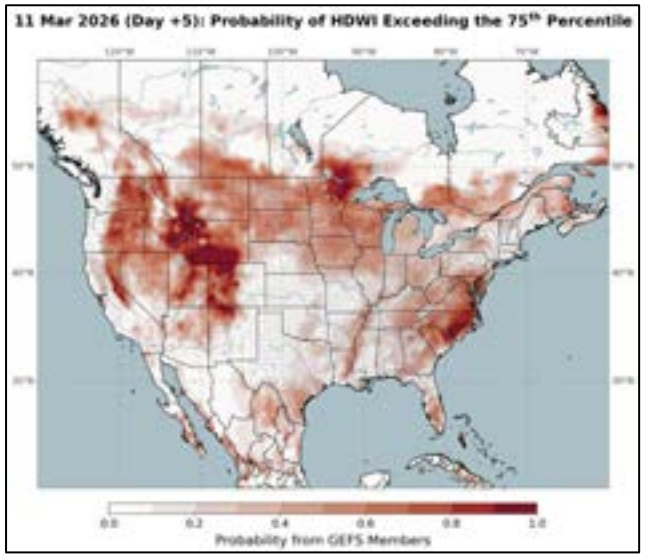
Monday > 75th Percentile



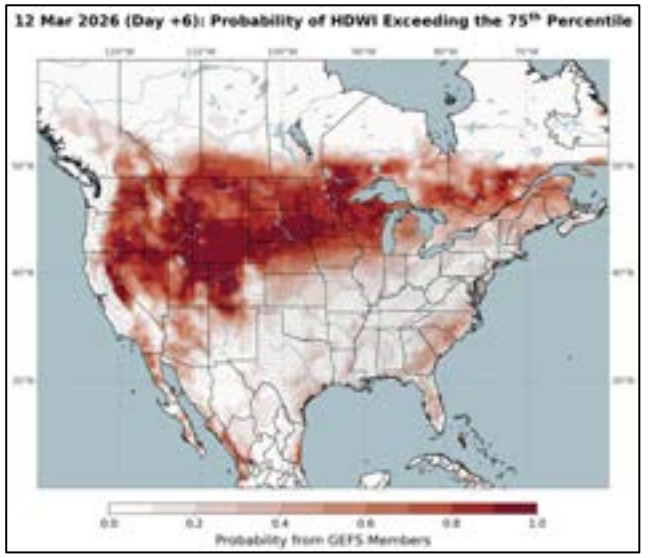
Tuesday > 75th Percentile



Wednesday > 75th Percentile



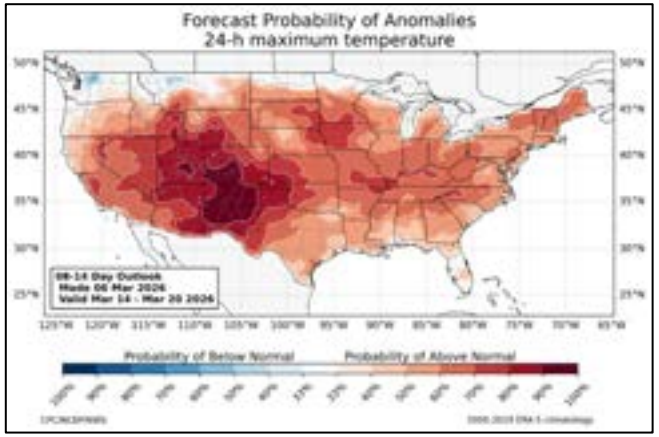
Thursday > 75th Percentile

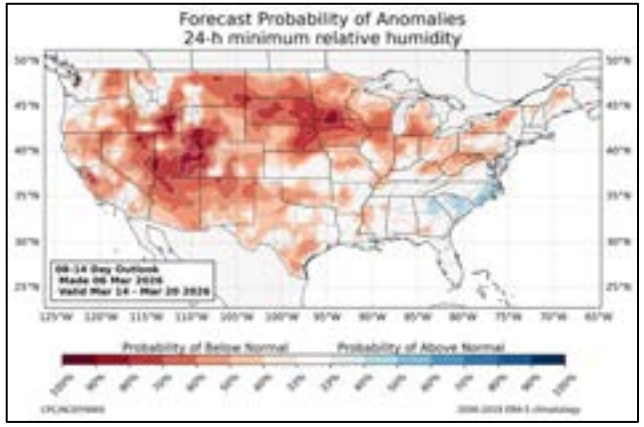


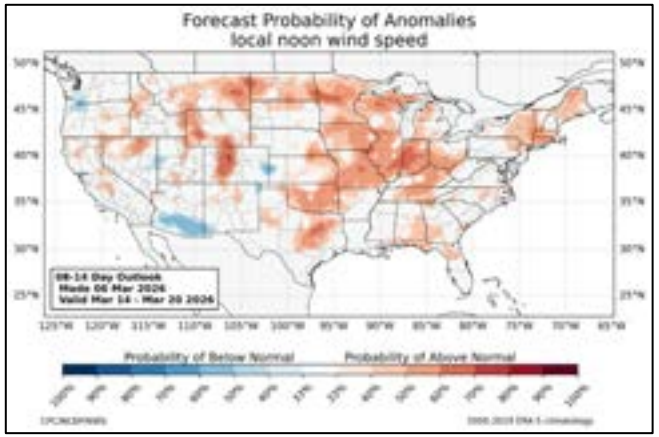
- Another visualization tool to pick up on broader weather, but with *limitations
- Only uses Max VPD (atmospheric moisture & temp) & Max Wind Speed to generate outputs
- Coarse Resolution - 0.5 Degree Grid
- No Account of Local Fuel Conditions and Topo

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

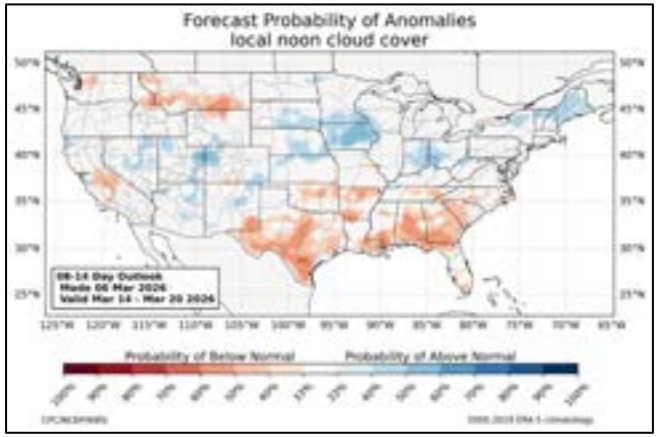
Week Two Forecast Anomalies: 3/14 - 3/20

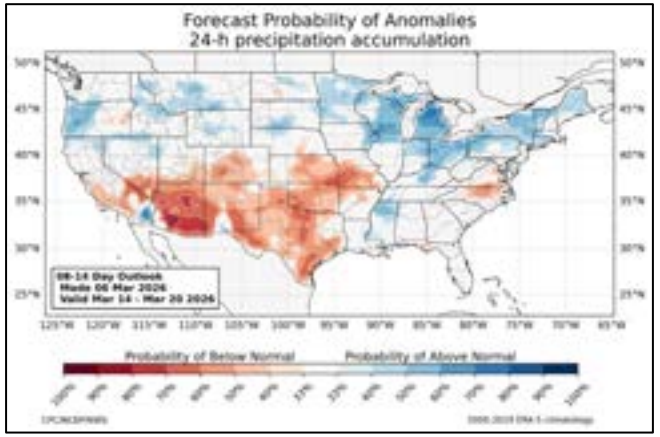






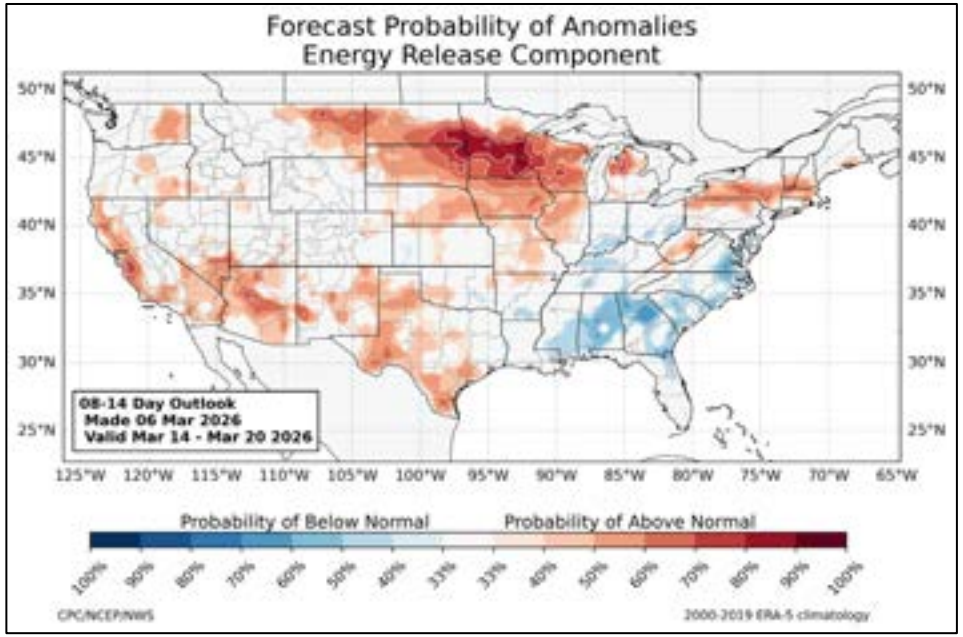
https://www.cpc.ncep.noaa.gov/products/extremes/fire-weather/cpc_wk2fw_index.html

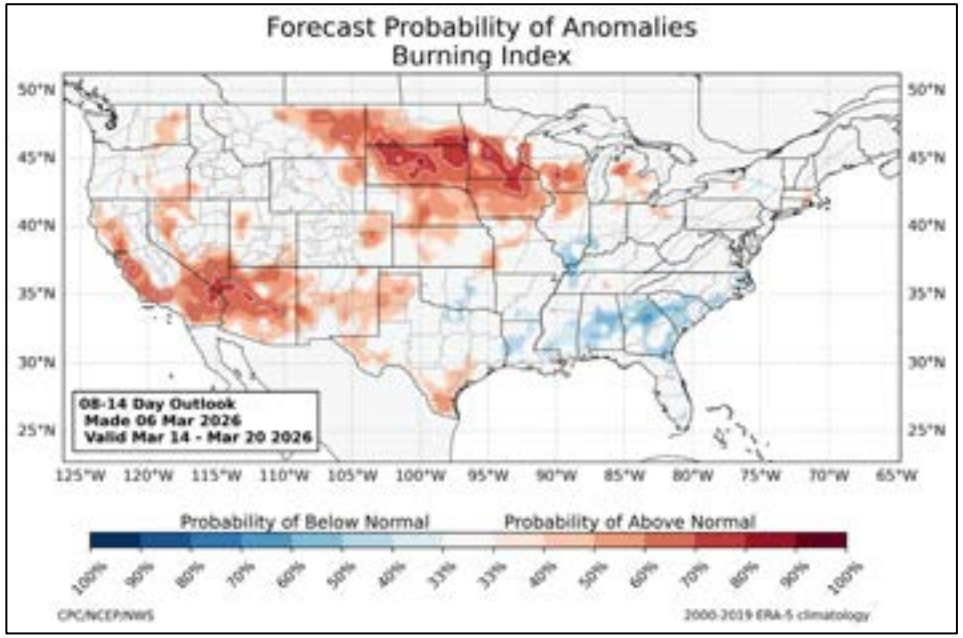




Important to note that there is significant forecast uncertainty as you go further out in time.

Favoring warmer than normal temps, somewhat less precip. Model then applies those weather variables to show potential for near normal BI & ERC at week two for much of state. Remember to apply this in seasonal context.

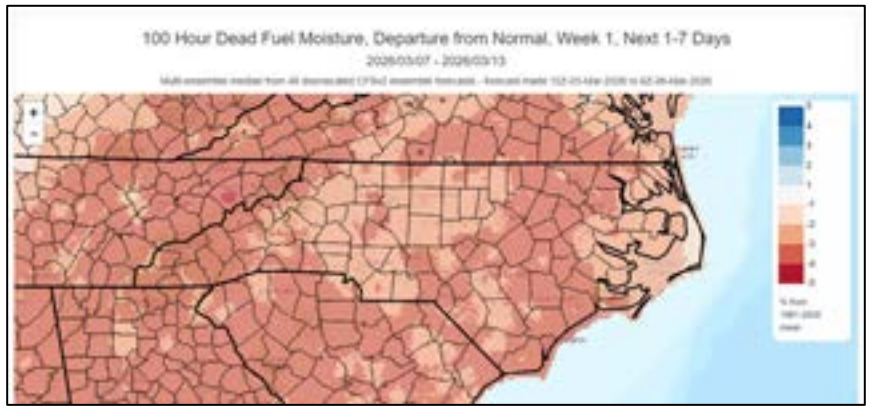




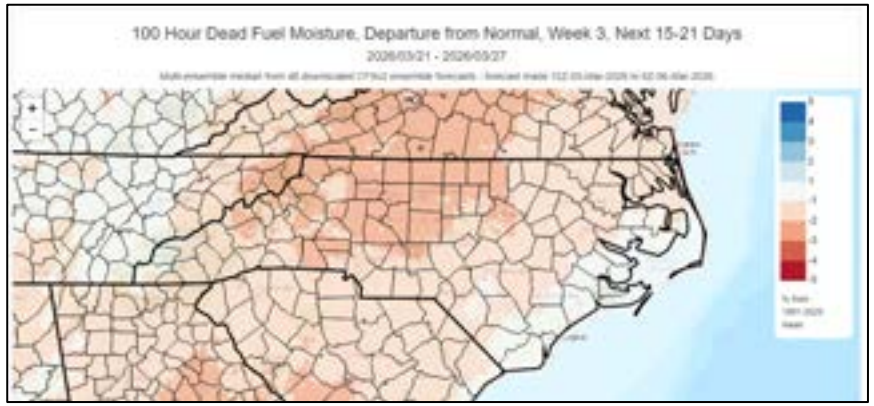
Modeled Departure from Normal by Week: 100-hr Fuels

Output relies on experimental forecast outputs and is subject to change

Week-1

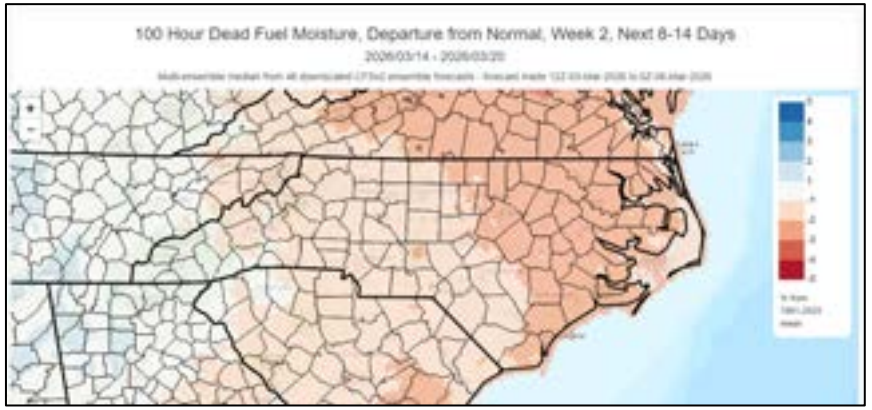


Week-3



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.

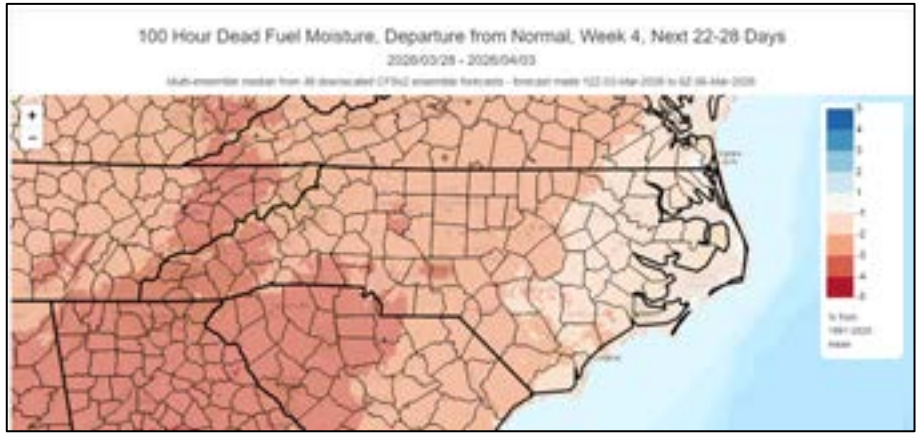
Week-2



Note that <u>modeled</u> impacts of warmer/drier conditions (lower % mc or "worse") are focused most intensely on Weeks1 & 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-4



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

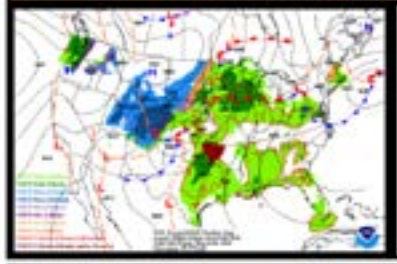
SACC Daily Outlook, Selected Snips from Friday – 3/6

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

SACC Daily Outlook

Friday, March 6, 2026

Today's Weather Outlook at 1pm EST



- High pressure off the Atlantic coast is causing a southerly flow across much of the Southern Area ahead of a cold front moving into TX and OK today and a backdoor cold front moving into VA.
- Showers and perhaps a few isolated thunderstorms will be possible for much of the area east of the Mississippi River today.
- Showers and thunderstorms will have a better potential, especially in the TX/OK Panhandles and West/Central OK where severe thunderstorms are possible.
- Strong wind gusts are possible for TX and OK, and possibly AR today, with the strongest gusts over the TX/OK Panhandles of up to 60 mph are possible.

Watches, Warnings and Advisories as of 9 am EST This Morning

- There are Red flag Warnings in effect for the TX/OK Panhandles and portions of West TX through this evening.
- There is a wind advisory in effect for the TX/OK Panhandles.
- Dense Fog Advisories that are currently in effect for portions of the Southern Area are set to expire this morning.

Precipitation from 7am est Thursday Through 7am est Friday

- Scattered showers occurred in various locations around the Southern Area over the last 24 hours.
- Wetting rains were seen in FL, S GA, SE AL, KY, N VA, OK, and isolated locations in TX and AR.
- Scattered amounts of up to 2 inches with isolated amounts of up to 3 inches have been reported, with most of the higher amounts in FL.
- Light rain occurred in many other locations as well.

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

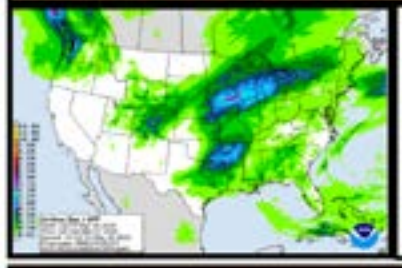
SACC Daily Outlook

Friday, March 6, 2026

Potential for Severe Thunderstorms Through Tomorrow Morning

- The Storm Prediction Center is forecasting a Moderate potential of severe thunderstorms for East OK, NW AR, and the northern portion of East TX north.
- There is a Slight Potential for Central OK, North TX, East TX, north, north Central TX, Central OK, and Central AR.
- There is a Marginal potential for the Cnetral TX, West OK, East AR, East TX, and the NW corner of LA.
- The main threats are tornadoes, large hail, and damaging wind.

Potential Rainfall/Liquid Equivalents Amounts Through 7am Saturday Morning



- Precipitation over the next 24 hours are forecast to be significant for SE OK, East TX north, and AR, mainly late today and overnight.
- Most of the remainder of the Southern Area may see light accumulations over the next 24 hours.

Potential for Excessive Rain Through Tomorrow Morning

- The Weather Prediction Center is forecasting a Slight potential for Excessive Rain for SE OK, East TX north, and much of AR today and tonight.
- There is a Marginal risk of Excessive Rain for East TX, east Central TX, Central OK, portions of AR, and the NW corner of LA.

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

SACC Daily Outlook

Friday, March 6, 2026

Significant Potential for Today

- **High Risk:** The TX and OK Panhandles for low RH, strong gusty wind, and dry fuels.
- **Moderate Risk:** West TX, the Trans-Pecos, NW TX, and West OK for low RH, gusty wind, and dry fuels.
- **Low Risk:** West Central TX, the Rio Grande Plain north, Central VA, Central/Coastal Plain NC, South GA, and FL for low RH and dry fuels.

Significant Fire Potential for Tomorrow

- **High Risk:** None.
- **Moderate Risk:** The Trans-Pecos in TX for low RH, breezy conditions, and dry fuels.
- **Low Risk:** The TX/OK Panhandles, West TX, South AL, TN Mts, the VA Mts SW, Central/Coastal Plain of NC/SC, Central/South GA, NE FL, and Central/South FL for low RH and dry fuels.

Significant Fire Potential for Sunday

- **High Risk:** None.
- **Moderate Risk:** The TX/OK Panhandles for low RH, breezy conditions, and dry fuels.
- **Low Risk:** TX Panhandle south, NW TX, West OK, South GA, NE FL, and Central/South FL for low rh and dry fuels.

National 7 Day Significant Fire Potential Outlook

Significant Wildland Fire Potential Outlook: *Updated 3/2/26*

March

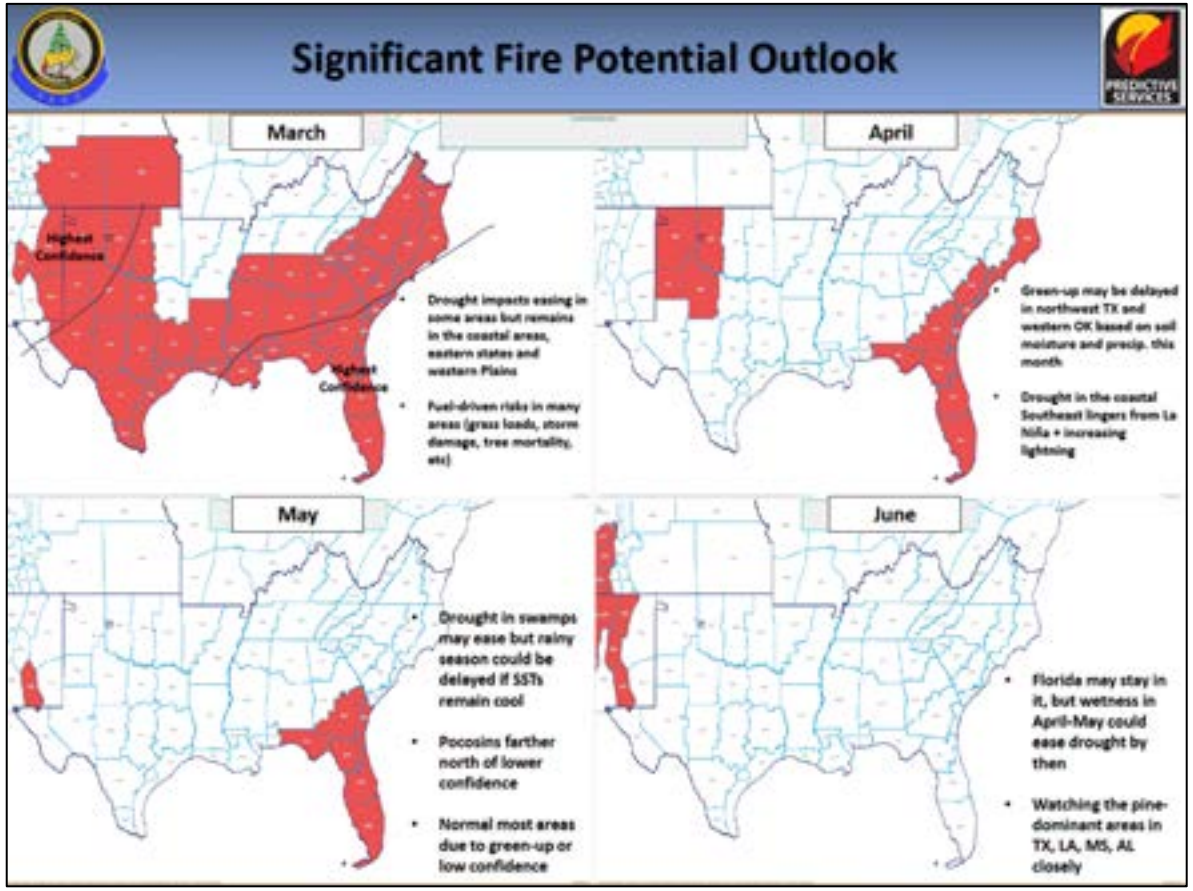
April

May

June

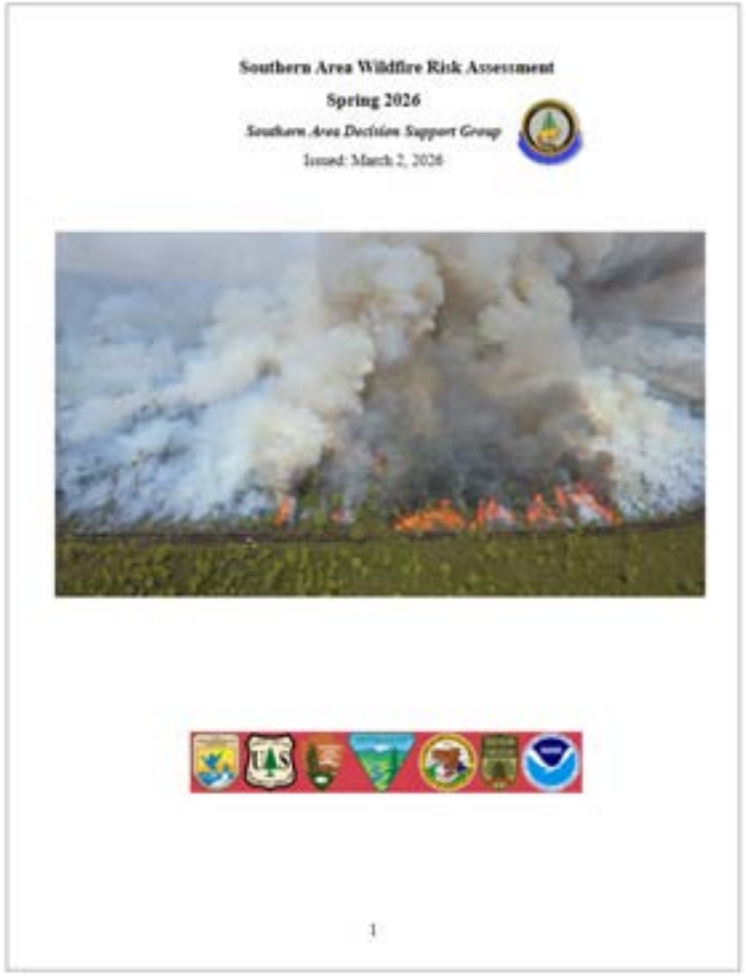
https://www.nifc.gov/nicc-files/predictive/outlooks/monthly_seasonal_outlook.pdf

From SA Fire Environment Briefing 3/6/26



**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.*

Southern Area – Spring 2026 Wildfire Risk Assessment



Southern Area Wildfire Risk Assessment

Spring 2026

Southern Area Decision Support Group

Issued: March 2, 2026

1

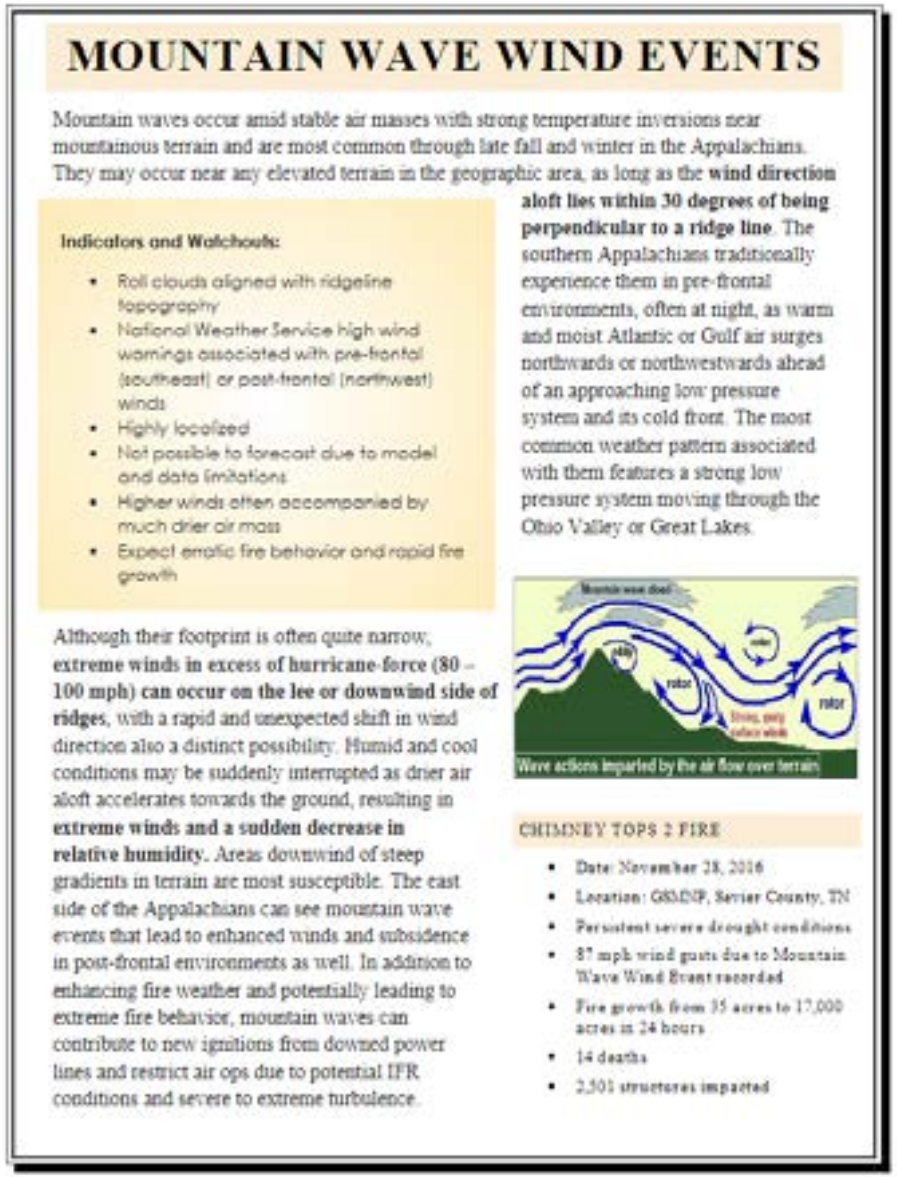
https://gacc.nifc.gov/sacc/resources/predictive/SASpringRiskAssessment_2026_final.pdf

Please review the SA Wildfire Risk Assessment for Spring 2026 – it discusses overall regional concerns as well as fire effective weather patterns.

Take special note of "Appendix B – Critical Fire Weather and Environmental Conditions" starting on page 27. This is useful for anytime of year.

Spring Assessment released 3/2/26

Southern Area – Mountain Wave Wind Event Note



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 (southeast) 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.

Wave actions imparted by the air flow over terrain

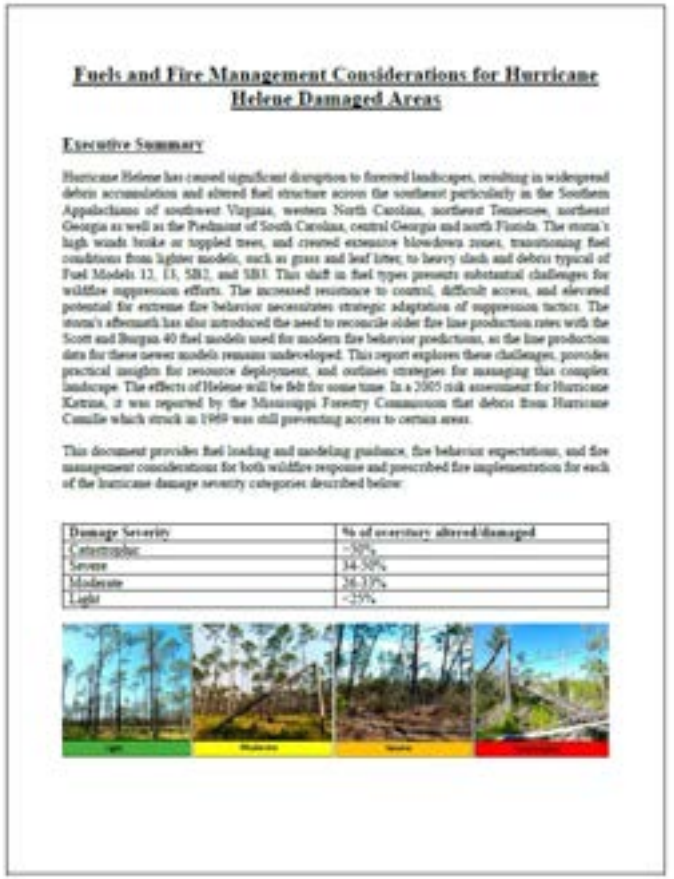
CHIMNEY TOPS 2 FIRE

- Date: November 28, 2016
- Location: GSMNP, Sevier County, TN
- Persistent severe drought conditions
- 87 mph wind gusts due to Mountain Wave Wind Event recorded
- Fire growth from 35 acres to 17,000 acres in 24 hours
- 14 deaths
- 2,501 structures impacted

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

Helene Fuels Note:

- Remember the “Fuels and Fire Management Considerations for Hurricane Damaged Areas” document is available as a potential aid.



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	~70%
Severe	34-50%
Moderate	26-33%
Light	~25%

Fog Risk

- Current weather conditions have been favoring development of dense fog in many locations. These conditions can also enhance risk of smoke induced fog.

- Potential for “Smoke Induced Fog” or “Superfog” should be considered, along with mitigation measures, during both wildfire and prescribed fire incidents as we move towards Spring Greenup and soil moisture drawdown. Especially those areas with heavy duff, organic soils, and atypical amounts of heavy down & dead materials.

- Refer to the following links:
  - Southern Fire Exchange Superfog Publication
  - NWCG - Smoke and Roadway Safety Pocket Card
  - NWCG – Smoke and Roadway Safety Guide

“Superfog” in area of Long Ridge Fire on 9/19/25 (R1/D4/Beaufort Co.)

FEMS Reminders

Weather Stations

•State Mesonet Stations (e.g., NC ECONet) have been added as of 1/29/26, but lack a historical period of record.
    Several North Carolina FDRAs rely on stations from our SCO mesonet (ECONet).
    The model will take at least 45 days to stabilize for the newly added stations, not including KBDI calculations, so expect initial differences between RAWS and ECONet Stations.
    Fire danger outputs for these stations will be added to the main FWIP map viewer once they stabilize.
•ASOS and AWOS stations are also utilized in FEMS; however, these stations (e.g., RDU Airport) also have no prior period of record & tend to be somewhat windier than missing ECONet Stations (example Asheville Regional Airport and RDU ASOS).

Live Fuel Moisture (LFM) Model

•Currently set to a national preliminary standard in FEMS.
•Four main drivers are used: Day Length, Minimum Temperature, Vapor Pressure Deficit, and Running Total Precipitation.
•The GSI-derived LFM Model standard settings create fundamental limitations that directly affect FM-V, FM-W, and FM-X.
•National standard settings do not allow regional adjustments for local growing conditions. This will evolve over time as bugs are addressed, stations are added, and further analysis is completed. Not an issue as we are still in dormancy, values default to minimum until Spring – will be addressed as soon as regional adjustments go online.

Data and Modeling Updates

•FF+ Databases have been recalculated to align with new FEMS standards (see earlier documentation).
•For this interim update of the NC FDOP's data, Fuel Model - Z has been used, due to the known LFM limitations in the initial FEMS rollout.
•A reevaluation will be necessary as additional alternate gateway station types are integrated & regional GSI calibrations are carried out.

FDOP Revision Status

•NC FDOP updates were started but then paused to allow time for FEMS development through early summer 2025.
•This pause has been recommended nationwide to ensure consistency as development progresses.
•Interim breakpoints and model combinations have been established, with a complete revision needed once FEMS is adjusted further (earlier topics).

Overall

•Weather and fire occurrence data (**2010–2024**) have been processed to establish initial working breakpoints for FEMS/V4 outputs for North Carolina.
•Interim analysis has been completed – now driving fire danger products (e.g., adjective ratings and hazard levels) utilizing FM-Z and the 2010-2024 period of record.
•Remember to discontinue use of old NC Forest Service generated Pocket Cards from prior to the FEMS transition on 10/1/25.
•Replacement guidance material has been previously released (11/13/25).

Work at the national, regional, state, and FDRA levels will continue as FEMS is updated following rollout. **FEMS link**

Last Revised: 12/7/2023

Firefighter's Guide to Percentiles and Thresholds

Percentiles and thresholds are used to help us measure the significance of National Fire Danger Rating System (NFDRS) outputs as they relate to levels of fire risk, fuel conditions and fire danger. Have you ever asked a firefighter the question "How are your fires burning" and you get a response something like " Real hot"? The definition of "Real hot" will vary depending upon whom you ask. One objective of this guide is to define the NFDRS and fire weather thresholds that relate to problematic fire behavior.

Percentiles are based on a scale of 0-100. We use percentiles to sort and rank a collection of data. *Thresholds* are the actual values of NFDRS indices (ERC, BI, KBDI), weather observations (RH, windspeed) or fuel moistures (1-hr, 1000-hr) that mark the change from one category to another. As an example, the North Cove Pinnacle RAWS has calculated the burning index (BI) every day over 14 years for a total of 5169 observations. In sorting through these 5169 BI observations, we find that only 10% of these BI observations have a BI value of 122 or greater. The BI of 122 is the threshold. BI values greater than or equal to the threshold of 122 exceed the 90th percentile. We found that only 3% of the observations occur above the BI value of 153. Crossing the threshold of a 153 BI ranks in the 97th percentile.

Percentiles				
0-30	31-60	61-89	90-96	97+

Whether we are looking at fuel moistures, BI, KBDI or ERC, we generally make the same associations when rating the percentiles. At the low end of the scale in the green and blues we see normal to below normal conditions. Initial attack should be successful with few complexities. At the upper end of the scale in the orange and reds we see unusual or rare conditions, and we would expect to see complex fires where initial attack may often fail. So, the difficult category to describe and thus maybe the most important category for initial attack is the middle or transition zone in the yellow. Somewhere in the yellow, fires transition from normal to problematic.

Fire Danger Rating Areas

The underlying philosophy for determination of our Fire Danger Rating Areas (FDRAs) is that they represent areas where the weather reporting stations (RAWS) tend to react similarly to daily weather regimes and exhibit similar fluctuations in fire danger and climate. Nine FDRAs were delineated in North Carolina. Fire weather thresholds, fuel moisture thresholds and NFDRS thresholds have been developed for each FDRA and are unique to the designated FDRA. Threshold values developed from one FDRA should not be used in another FDRA.

Interim GUIDANCE Documents

-NCFS-

NFDRS PRIMER &

FIRE DANGER RATING AREA

CRITICAL THRESHOLDS

11/7/25 Update

Analysis Notes

CY 2010-2024 Weather Obs and Fires.

Based upon FEMS National Standards as of 10/1/25 & Use of Daily Extremes.

FEMS - Fire Danger Rating Area Summaries:

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

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, ASOS RDU AP, ASOS RM-Wilson AP	4
Sand Hills	Fort Bragg, Horseshoe House, Rockingham, Sandhills RS**, ASOS Laurinburg-Maxton AP	1
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, ASOS Asheville Regional AP	1
Northern Highlands	Busick, Jessen Station, Upper Mtn RS**, Laurel Springs*	2
Southern Highlands	Highlands, Jackson County, Locust Gap, Tusquitee	0

- Period of Record Issues, ASOS Airport Stations added as a stop-gap.
- **ECONet Stations have been added to FEMS but lack period of record for analysis & are still catching up related to some indices.**
- Red Colored Stations = Added Satellite RAWS, Blue Colored Stations = ASOS Stations, ** Denoted Stations = ECONet Stations omitted from SIG, * Denoted Station = Historical/Inactive Station

Fire Weather Intelligence Portal – Current Links

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 are coming soon. The new versions will automatically replace the older versions, with no need for updating URLs.

- Public Facing Fire Danger Page
  (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
  (displays values for hour of forecasted max/min extreme of calendar day, switches to the next day's forecast after ~1500, reminder that ECONet stations are still not available)
- FEMS Observed NFDRS Indices by Station
  (displays values for hour of observed max/min extreme as it is hit during the current calendar day, reminder that ECONet stations are still not available)
- Station Status Tool
- Quality Control Viewer Tool

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

Recent Example of Seasonal Volatility & Dormant Surface Fuels

The East Tower Fire occurred on the afternoon of 3/4/26, located in the fire scar of Pains Bay Fire (discovery date 5/5/11). Ownership is a mixture of Dept. of War & USFWS.

Fuels in the fire area are low pocosin – a volatile combination of shrub/grass & fire activity was active and running during alignment with peak burning period/afternoon weather. The forward spread (about 2 miles) shown on the SWIR image of the fires occurred during the afternoon of 3/4. Weather readings at 1200 pm observation at DBR RAWS: 77* Air Temp, Dew Point 58*, RH 52%, winds S10G23. (FEMS outage currently impacting display of additional observations later that day)

Remember to review the "Critical Fire Weather and Environmental Conditions" information included on the Spring Wildfire Risk Assessment (starting on page 27).

R1/D13/Dare County – East Tower Fire (NC-ALR-260076); ~1,200 acres at time of this report

Overall Trends & Notes

- The past several weeks have trended significantly colder than normal, with multiple unsettled weather events. This pattern temporarily suppressed conditions experienced during portion of December - February, which included heavier IA, increased mop-up activity, and more prescribed fire escape responses across the state.

- We have seen significant IA during alignment of warmth, dry surface fuels and fire effective weather. This will become more commonplace as we move through March & April.

- We are gaining ~1-2 minutes a day of extra daylight, increasing sun angle and additional heating/drying potential as we move towards Summer. Extra warmth will aid in better atmospheric mixing, preheating & drying of dead fuels, initiation of greenup, extend burn periods, etc. (in context of typical Spring Fire Season timing).

- Although dormancy is beginning to break in the typical early species, we are still many weeks away from effective canopy closure/wind interception/temperature moderation. Early road shoulder greening will be helpful, but benefit could quickly end if soil moisture can't keep up with evaporative demand.

- The trend later in March appears to favor much drier air, northwest flow, and rounds of possible dry/mostly dry frontal passages - potentially resembling some of the Spring 2025 weather events experienced.

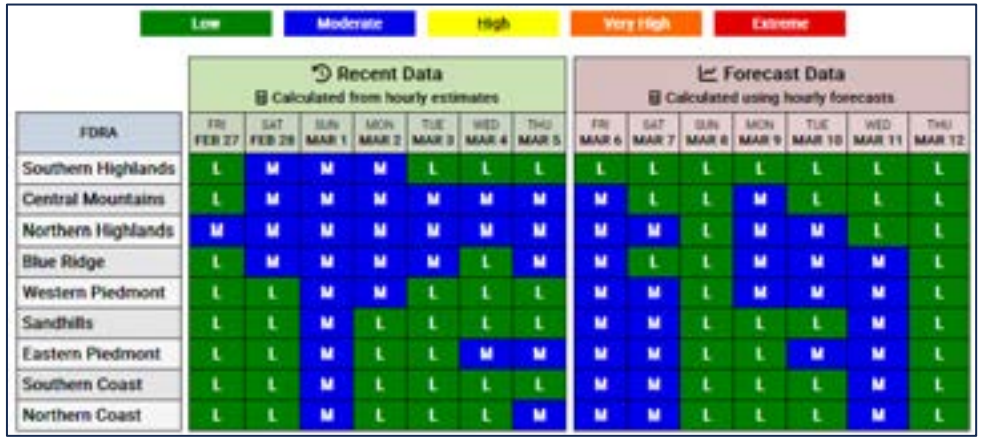
- Recent snow and rainfall have been beneficial for shallow duff moisture. However, even if a statewide one-inch or greater precipitation event occurs within the Day 5–6 forecast period, the state remains several inches below normal from a hydrologic perspective. Many swamps, bays, and pocosin drainage systems are showing signs of low overall water levels, which aligns with declining streamflow observations and shallow well monitoring data.

- As previously noted, the Keetch-Byram Drought Index (KBDI) is less reflective of actual fuel and moisture conditions during the cold season due to model limitations. This can create a perception of reduced concern following modest Fall/Winter rain events.

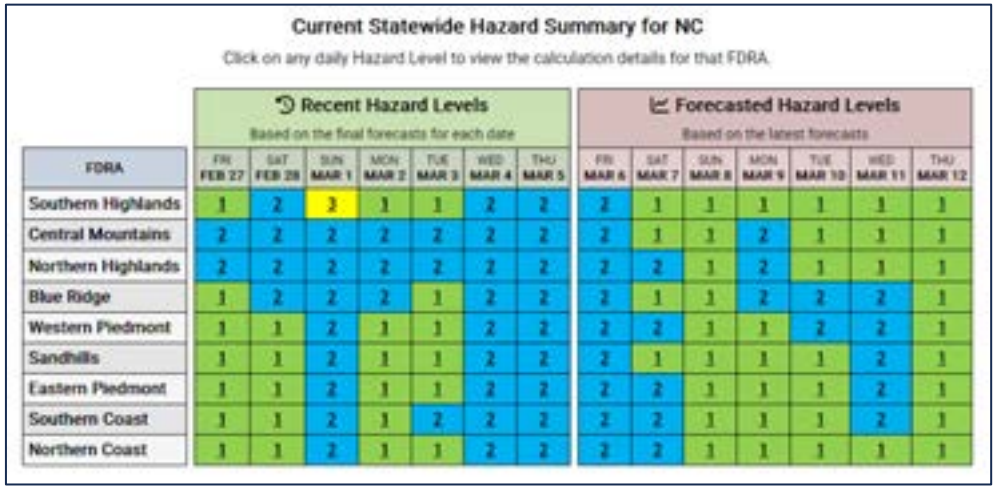
- Careful monitoring of post-burn prescribed fire units and wildfire footprints overlapping areas of abnormal dryness and low soil moisture will be critical as we move through the dormant burn season, particularly if drying conditions reinvigorate fire behavior when aligned with favorable fire weather.

- Recent compression of burn windows due to snow, moisture, and cold weather may increase the risk of air quality impacts across the Southeast and may also result in more intense prescribed fires.

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



Hazard Matrix Outputs for each FDRA (FM-Z)



Reminder of intermittent issues with FEMS data processing since 2/21. Data gaps exist – this is being worked on at national level & a recalculation of fire danger outputs will be conducted soon. The FWIP will then redownload NFDRS data for historical accuracy. Expect that the recalculation will impact observations and forecast indices to some degree.