Weekly Fire Danger Assessment
NCFS - Region ONE

For Time Period:

Saturday (3/18/23) to Friday (3/24/23)

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Fire Environment Staff Forester
NC Forest Service

Past Week's Signal 14 Activity

NCFS - Region 1		
Previous 7-Day Fire Activity (Does Not Include Federal Ownerships)		
Data Source:	Signal 14 Regional Activity Summary Report (Signal 14 is a snapshot in time)	
Date Range:	3/10 - 3/16, 2023	
Type	Number	Acres
Wildfires:	27	121.9
Prescribed Fires:	17	1,218

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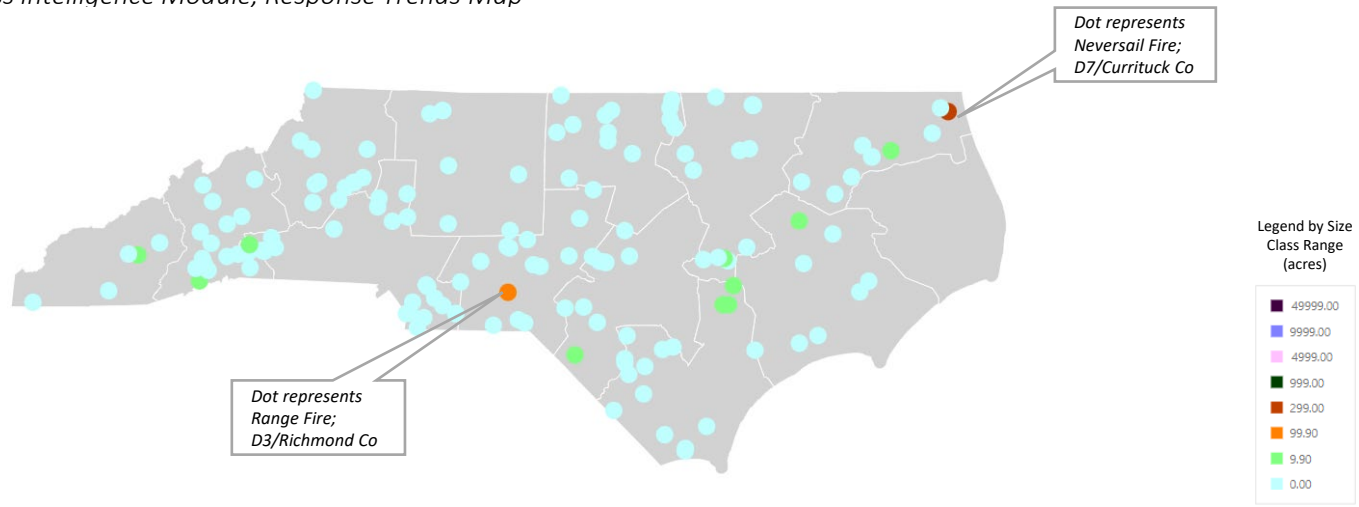
fiResponse Incident Location Map (for general context)
Date Range: 3/10 – 3/16, 2023
Report: Business Intelligence Module, Response Trends Map



Current and Forecasted Fire Danger Conditions by FDRA

R1

Regional Comments for this Week – R1

- Notes from D4/D8 Areas this Week
  - Seeing very good consumption in the fine fuels.
  - Not much green up yet that's slowing down spread.
  - Low RH’s & very low recovery this week were significant.

- Notes from D7/D13 Areas this Week
  - Prescribed fires burning hot.
  - Minimal leaf out so far, although buds are pushing hard.
  - No signs of significant cold damage yet on new leaves or elongating buds.

Important notes for next slide group:

A. Current ERC, 100-Hr & 1000-Hr Graphics:

- These are extracts from FF+ using weekly observation data downloaded from WIMS.

B. Weekly Outlook - FDRA General Fire Danger Forecast Matrix:

- It will be placed on the FWIP early next week within the "Resources for NCFS" page.
- The operation link is: https://products.climate.ncsu.edu/fwip/outlook.php
- The matrix updates daily - please review the tool notes below for more details.

Tool Summary:

The forecast matrix was created using **standard NFDRS and weather forecast data:**

- Weather conditions and NFDRS outputs are forecasted over the next 7 days by NWS for SIG stations in each FDRA.
- Weather variable ranges and breakpoints were defined by FDRA stakeholders and relate to Pocket Card notes.
- Maximum temperatures in the Critical range are color-coded with shades of red to help visually distinguish daily variations. The brightest red color corresponds to temperatures of 100°F or greater.

Fire danger forecast indices and component values are grouped into three categories based on historical percentiles, assessed using the FF+ All Days filter through 2021:

- Low to Moderate (0 to 74th percentile); shown in blue-green
- High (75th to 89th percentile); shown in yellow
- Very High to Extreme (90th+ percentile); shown in red and labeled as Critical

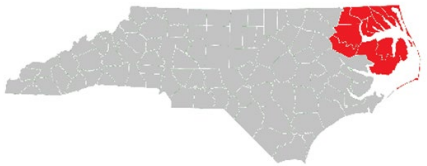
Dead fuel moisture forecast values are grouped into three categories based on historical percentiles, assessed using the FF+ All Days filter through 2021:

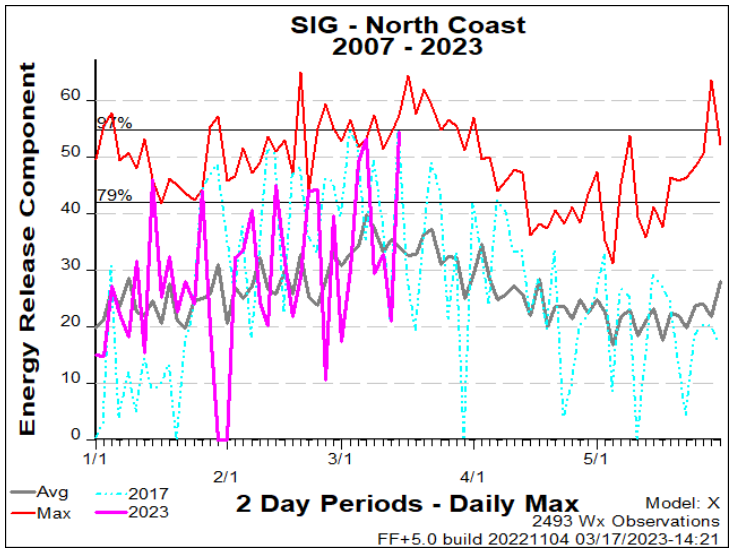
- Low to Moderate (26th to 100th percentile); shown in blue-green
- High (11th to 25th percentile); shown in yellow
- Very High to Extreme (0 to 10th percentile); shown in red and labeled as Critical

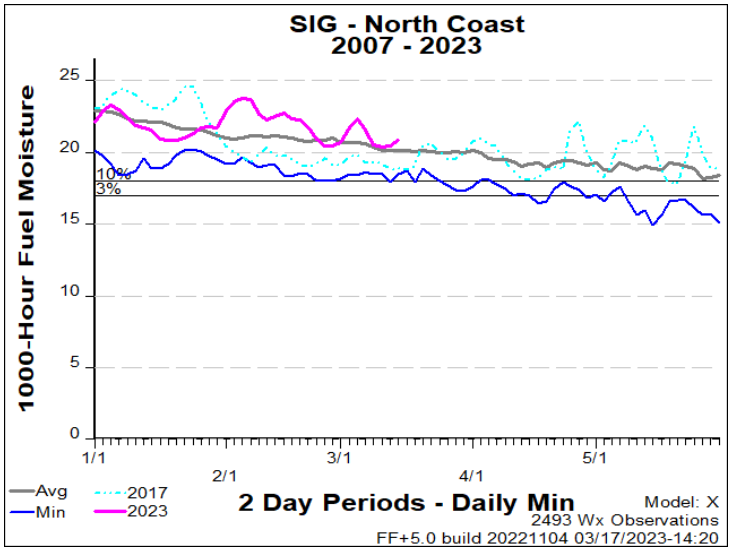
Other Notes:

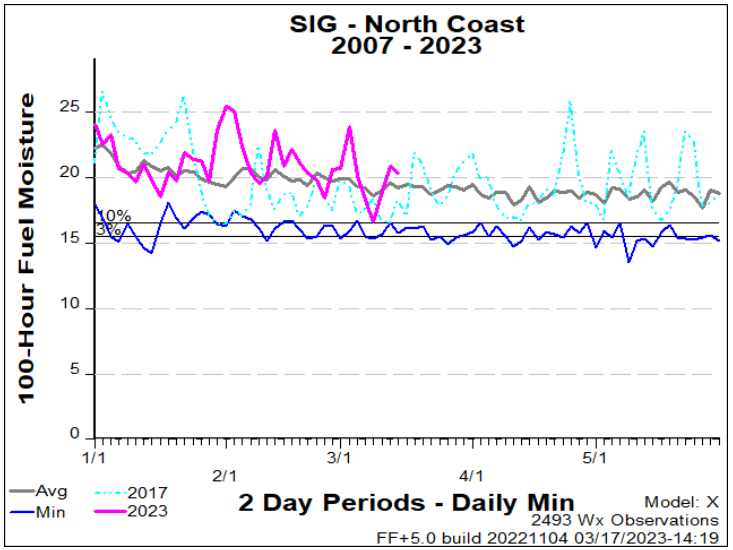
- Read the key and notes for each FDRA, included on the outlook matrix page.
- Forecasts are variable and can change significantly over a forecast cycle and across the landscape.
- This is another tool for gaining better situational awareness, and should be used for general planning purposes only.
- The outlook matrix is refreshed when an FDRA is selected, using the most recent forecast data available at that time. The 7th day may drop off or display partial data prior to the afternoon/evening forecast update.
- Daily updates to NFDRS forecasts occur around **1530** daily, while general weather forecasts are updated around **1730** daily.

Region Specific – North Coast









Weekly Outlook

Northern Coastal FDRA - General Fire Danger Forecast

For planning purposes only; forecast is subject to change

Four or more RED blocks in a day signals the potential for a **Critical Fire Day**

DAY	SAT 18-Mar	SUN 19-Mar	MON 20-Mar	TUE 21-Mar	WED 22-Mar	THU 23-Mar	FRI 24-Mar
Avg. Max. Temp. (°F)	58	50	51	58	64	70	76
Avg. Min. Humidity (%)	52	30	37	38	51	50	54
Avg. 20' Wind Speed (mph)	7	7	5	8	7	6	11
Avg. Wind Direction*	W	WNW	NNE	NNE	ENE	SSW	SSW
Avg. Probability of Precip. (%)	44	2	6	5	7	9	21
Days Since a Wetting Rain**	0.0	1.0	2.0				
Forecast ERC (Fuel Model X)	26.4	43.1	42.3	34.7	29.6	25.2	25.6
Forecast BI (Fuel Model X)	57.2	74.1	76.6	93.1	69.6	59.0	92.9
Forecast IC (Fuel Model X)	4.1	6.7	6.0	6.0	4.5	3.9	7.0
Forecast 100-Hr. FMC	20.1	20.9	20.3	19.3	18.8	18.5	18.4
Forecast 1000-Hr. FMC	22.9	22.8	22.8	22.7	22.6	22.4	22.2
KBDI	162.8						

Data Source:

- Weather forecasts come from the National Weather Service's Digital Forecast Database. The wind speed and direction, and probability of precipitation, are calculated as averages of the 1 am, 7 am, 1 pm, and 7 pm forecasts. The 20-foot wind speed is estimated from the 10-meter forecast using the log wind profile method.
- Days since a wetting rain is calculated using a combination of historical data (to determine the most recent wetting rain event) and forecasted precipitation amounts. These forecasted amounts are only available for the first three days of the forecast period.
- Fire danger forecasts for the next 7 days are issued by National Weather Service through WIMS. KBDI is only available on the first forecast day since the NFDRS Forecast product does not include precipitation amounts, which are used to adjust KBDI from day to day

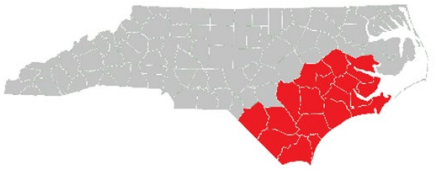
Values in the table above are averages from 4 stations in this FDRA:

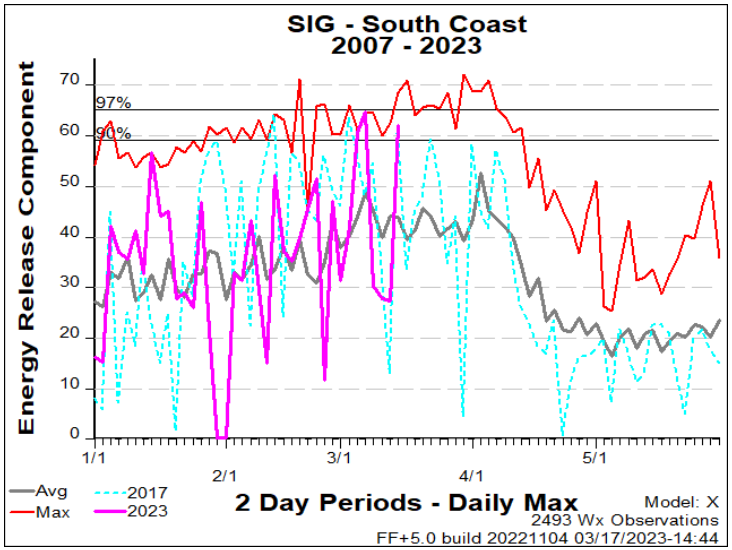
- **Elizabeth City** (311503)
- **Greens Cross** (313001)
- **Pocosin Lakes** (315201)
- **Fairfield** (317901)

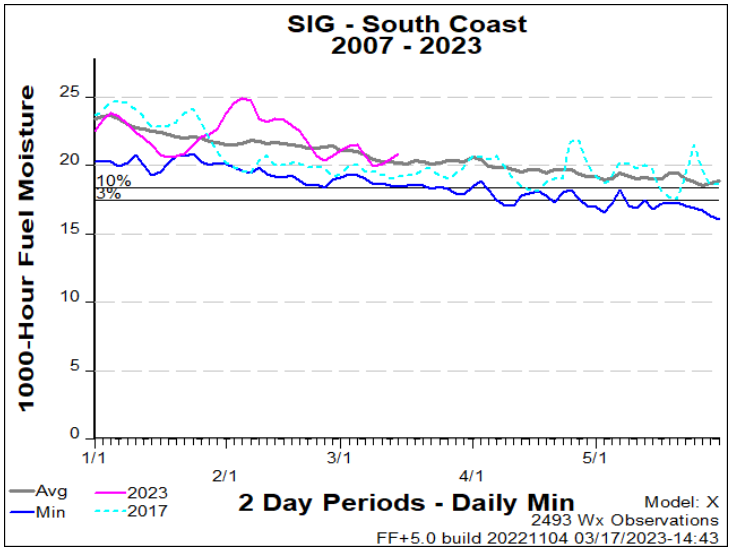
KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critical WATCH OUT!
Avg. Max. Temp.	Less than 45°F	Between 45°F and 55°F	Greater than 55°F
Avg. Min. Humidity	Greater than 40%	Between 35% and 40%	Less than 35%
Avg. 20' Wind Speed	Less than 10 mph	Between 10 mph and 15 mph	Greater than 15 mph
Avg. Wind Direction*	Criticality of wind direction is highly dependent on burn operations and/or structures threatened.		
Days Since a Wetting Rain**	A wetting rain is defined as 0.10" or greater. This is an average of the FDRA stations noted above.		
Energy Release Comp.	Less than 39.3	Between 39.3 and 48	Greater than 48
Burning Index	Less than 78	Between 78 and 96.8	Greater than 96.8
Ignition Component	Less than 9.3	Between 9.3 and 12.8	Greater than 12.8
100-Hour Fuel Moisture	Greater than 17.7%	Between 16.8% and 17.7%	Less than 16.8%
1000-Hour Fuel Moisture	Greater than 18.5%	Between 17.5% and 18.5%	Less than 17.5%
KBDI	Less than 365	Between 365 and 463	Greater than 463

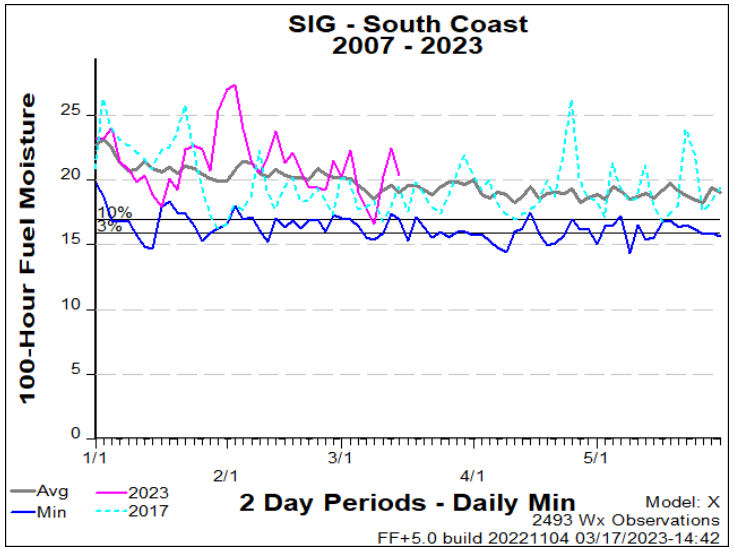
Other factors to consider when determining fire danger: **sky conditions**, **precipitation amount**, **number of days since rain**, and **season**

Region Specific – South Coast









Southern Coastal FDRA - General Fire Danger Forecast

For planning purposes only; forecast is subject to change

Four or more RED blocks in a day signals the potential for a **Critical Fire Day**

DAY	SAT 18-Mar	SUN 19-Mar	MON 20-Mar	TUE 21-Mar	WED 22-Mar	THU 23-Mar	FRI 24-Mar
Avg. Max. Temp. (°F)	61	53	54	62	67	74	79
Avg. Min. Humidity (%)	49	30	35	36	47	45	52
Avg. 20' Wind Speed (mph)	8	7	6	8	6	6	11
Avg. Wind Direction*	WNW	NNW	NE	NE	ENE	SSW	SSW
Avg. Probability of Precip. (%)	43	6	8	7	6	6	18
Days Since a Wetting Rain**	0.0	1.0	2.0				
Forecast ERC (Fuel Model X)	28.5	46.3	42.3	36.9	33.4	29.2	29.2
Forecast BI (Fuel Model X)	72.5	88.8	88.5	100.1	74.4	73.5	103.6
Forecast IC (Fuel Model X)	5.4	8.5	6.9	7.1	5.5	5.6	8.8
Forecast 100-Hr. FMC	20.0	20.7	19.8	18.9	18.4	18.1	18.1
Forecast 1000-Hr. FMC	22.8	22.7	22.6	22.5	22.4	22.2	22.0
KBDI	228.0						

Data Source:

- Weather forecasts come from the National Weather Service's Digital Forecast Database. The wind speed and direction, and probability of precipitation, are calculated as averages of the 1 am, 7 am, 1 pm, and 7 pm forecasts. The 20-foot wind speed is estimated from the 10-meter forecast using the log wind profile method.
- Days since a wetting rain is calculated using a combination of historical data (to determine the most recent wetting rain event) and forecasted precipitation amounts. These forecasted amounts are only available for the first three days of the forecast period.
- Fire danger forecasts for the next 7 days are issued by National Weather Service through WIMS. KBDI is only available on the first forecast day since the NFDRS Forecast product does not include precipitation amounts, which are used to adjust KBDI from day to day

Values in the table above are averages from 7 stations in this FDRA:

- **Finch's Station** (317501)
- **Beaufort** (317801)
- **New Bern** (319004)
- **Turnbull Creek** (319302)
- **Hofmann Forest** (319507)
- **Whiteville** (319701)
- **Sunny Point** (319803)

KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critical WATCH OUT!
Avg. Max. Temp.	Less than 50°F	Between 50°F and 65°F	Greater than 65°F
Avg. Min. Humidity	Greater than 40%	Between 35% and 40%	Less than 35%
Avg. 20' Wind Speed	Less than 5 mph	Between 5 mph and 10 mph	Greater than 10 mph
Avg. Wind Direction*	Criticality of wind direction is highly dependent on burn operations and/or structures threatened.		
Days Since a Wetting Rain**	A wetting rain is defined as 0.10" or greater. This is an average of the FDRA stations noted above.		
Energy Release Comp.	Less than 36.4	Between 36.4 and 47.2	Greater than 47.2
Burning Index	Less than 68.3	Between 68.3 and 89.5	Greater than 89.5
Ignition Component	Less than 7.9	Between 7.9 and 12	Greater than 12
100-Hour Fuel Moisture	Greater than 18.2%	Between 17.3% and 18.2%	Less than 17.3%
1000-Hour Fuel Moisture	Greater than 19%	Between 18% and 19%	Less than 18%
KBDI	Less than 385	Between 385 and 486	Greater than 486

Other factors to consider when determining fire danger: **sky conditions, precipitation amount, number of days since rain,** and **season**

Outlook Summary Table – R1

Summary Table by FDRA using count of colored blocks in a day's forecast.

Forecast Subject to Change

Key: 4+ Red Blocks on a Day = "Critical" Day Potential; Red Color
4+ Yellow or Combo of Yellow/Red = "High" Day Potential; Yellow Color
6+ Blue-Green Blocks = "Low to Mod" Potential Day; Blue-green Color

Date	Day of Week	FDRA Matrix Summary - NCFS Region 1	
		North Coast	South Coast
18-Mar	Sat	Low/Mod	Low/Mod
19-Mar	Sun	Low/Mod	High
20-Mar	Mon	Low/Mod	High
21-Mar	Tues	Low/Mod	High
22-Mar	Weds	Low/Mod	Low/Mod
23-Mar	Thurs	Low/Mod	High
24-Mar	Fri	Low/Mod	High

Weather Outlook Discussion

Newport/Morehead City NWS (Area Forecast Discussion):

.LONG TERM /SATURDAY THROUGH THURSDAY/...
As of 250 AM Fri...The latest model run supports the trend of hanging on clouds/light precipitation potential along the coast **Sat** into **Sat** night as the cold **front** moves slowly off of the coast. Mild temps will continue **Sat**. High pressure will build into the area late **Sat** and by Sunday will push the **front** far enough offshore to allow cooler and drier air to invade from the north. The cool/dry weather pattern will prevail through early next week. Low pressure is forecast to develop well off the southeast coast Tue into Wed and could produce spotty/light precipitation mainly along the coast. Cool temperatures are forecast to prevail into Wed, with warmer weather arriving ahead of the next cold **front** Thu and Fri.

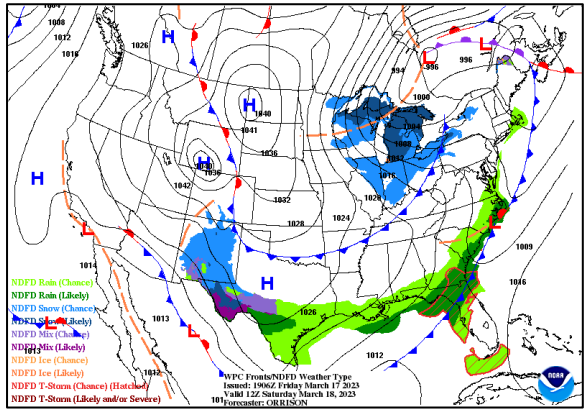
Saturday...As the cold **front** moves off the coast early **Sat** it will be slowed as it encounters stubborn high pressure over the western Atlantic. This will keep **moisture** in the form of clouds and a chance for patchy light rain to persist along the coast into **Sat** night. Mild highs in the 60s are expected.

Sunday and Monday...High **pres** builds over the area by Sun and pushes the cold **front** offshore enough to allow cooler and drier air to overspread the area from the north. This cool/dry weather will continue through Mon. Highs will be in the 50s and lows in the 30s. Another **freeze** will be possible Sunday night, with areas of **frost** possible Mon night.

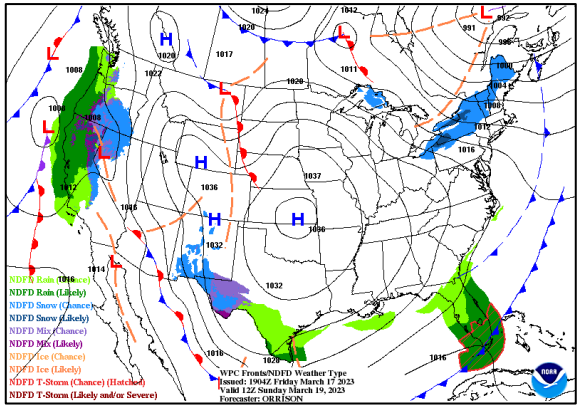
Tuesday through Thursday...Developing low pressure off the southeast coast could produce some light rain along the **NC** coast Tue into Wed. High pressure rebuilds Thu with dry weather. Highs will be in the upper 50s to lower 60s Tue and Wed, warming into the 60s Thu.

WPC Forecasted Surface Fronts & Sea-Level Pressures

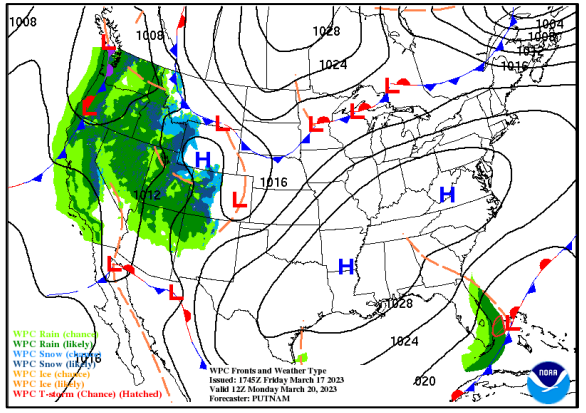
Saturday - 700 am



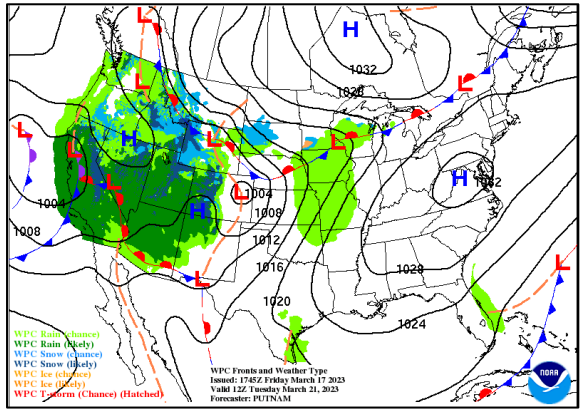
Sunday - 700 am



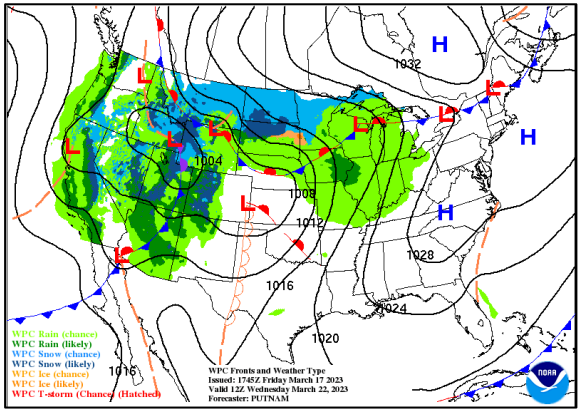
Monday - 700 am



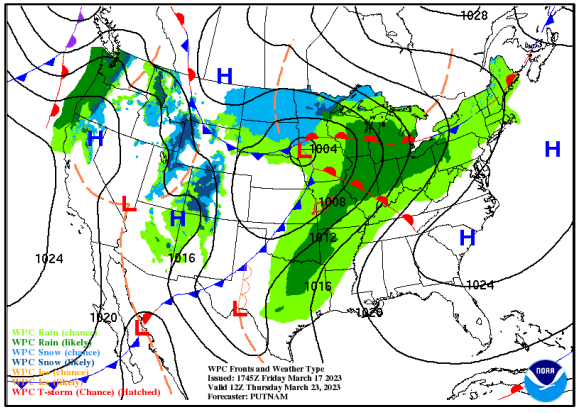
Tuesday - 700 am



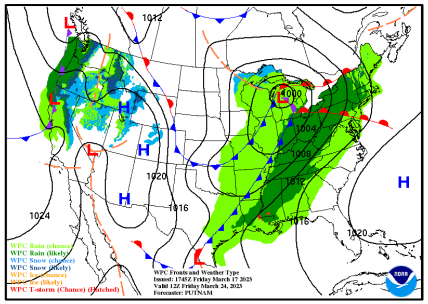
Wednesday - 700 am



Thursday - 700 am



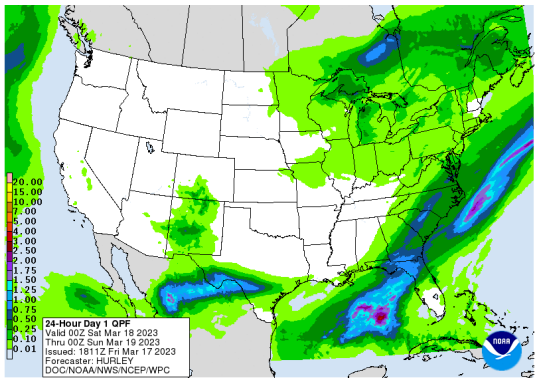
Friday - 700 am



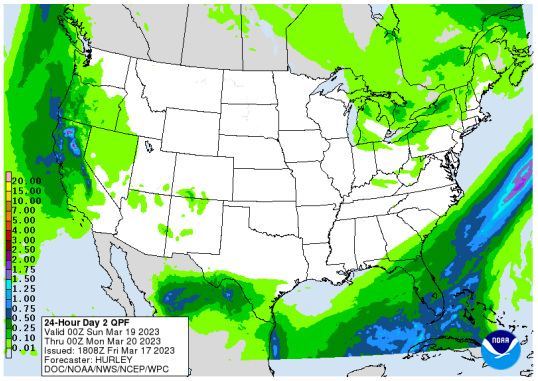
Location: https://www.wpc.ncep.noaa.gov/#

Quantitative Precipitation Forecast, 7-Day

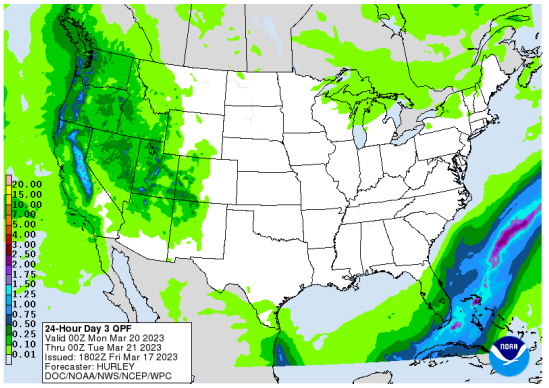
Day - 1



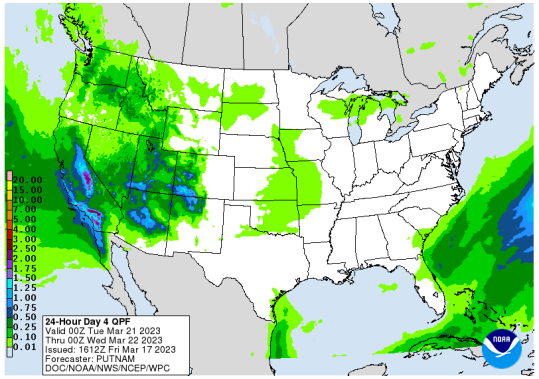
Day - 2



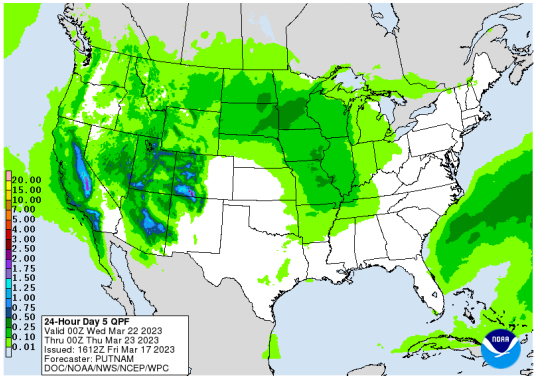
Day - 3



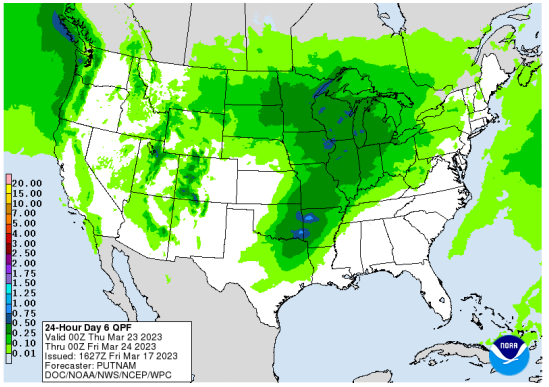
Day - 4



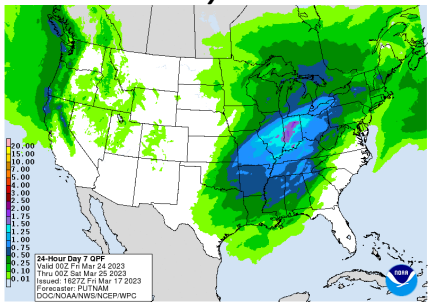
Day - 5



Day - 6

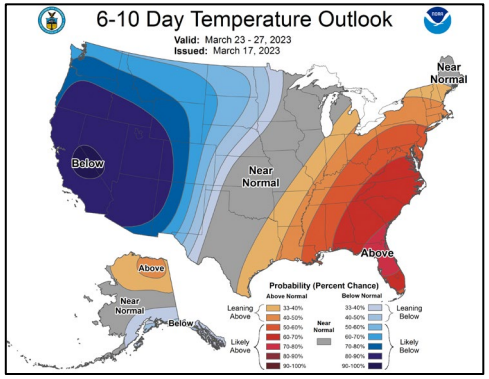


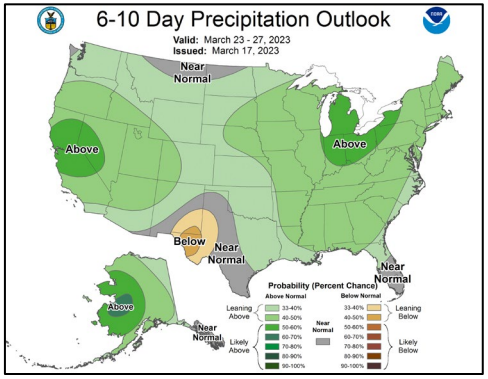
Day - 7

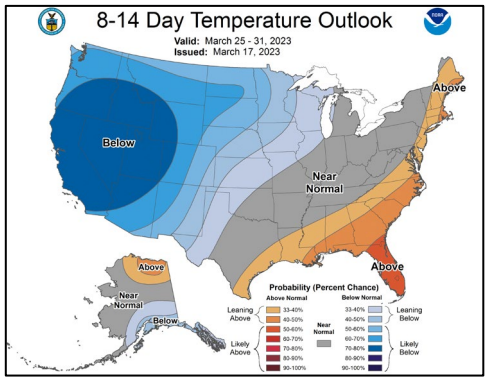


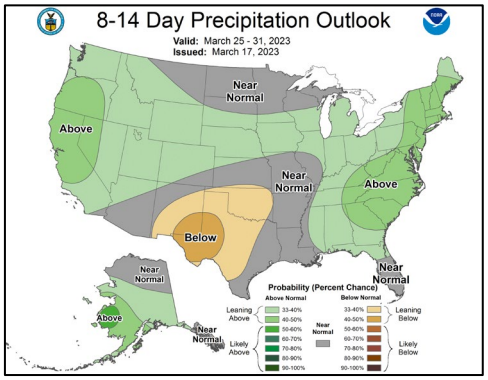
Location: https://www.wpc.ncep.noaa.gov/#

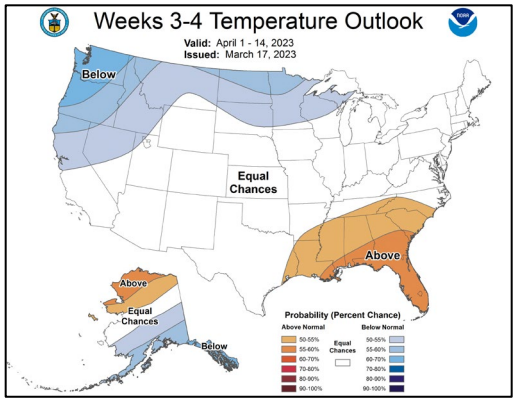
Temp & Precip Outlook
6-10 Day, 8-14 Day & Week 3-4

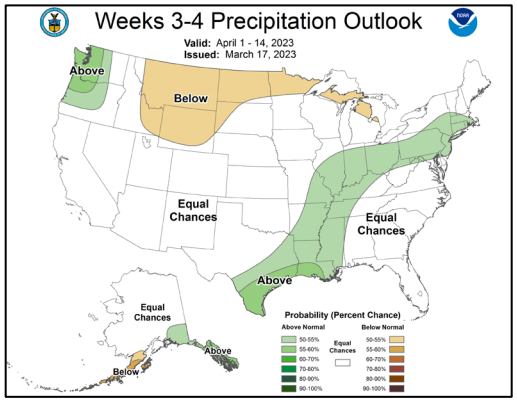








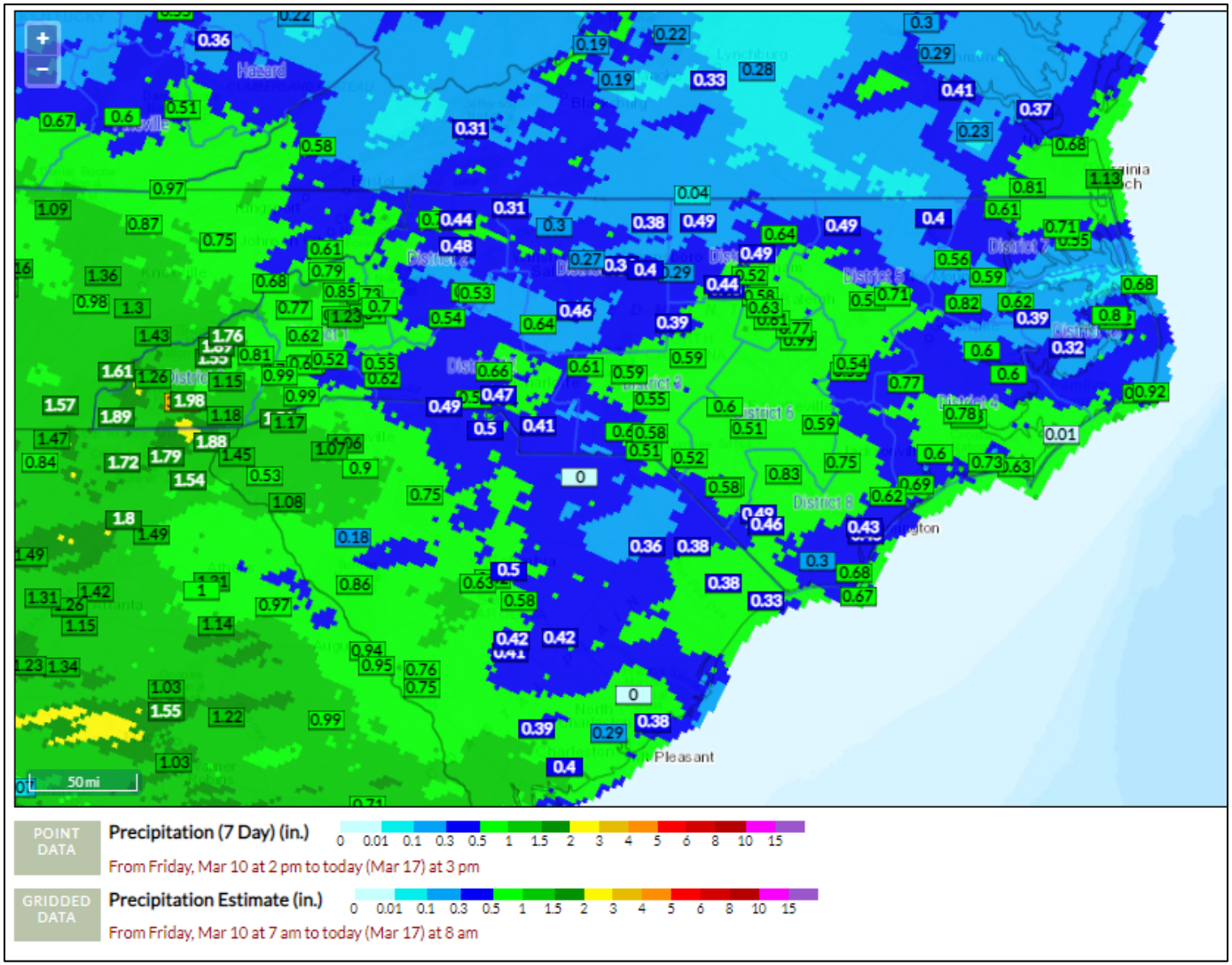




Source: https://www.cpc.ncep.noaa.gov/

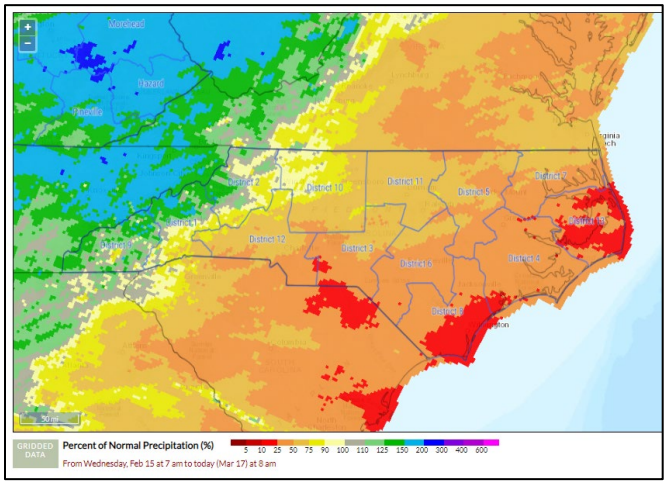
7 Day Precipitation Totals

FWIP *(Point accumulation ending at 1500 on 3/17, Grid ending 0800 3/17)*

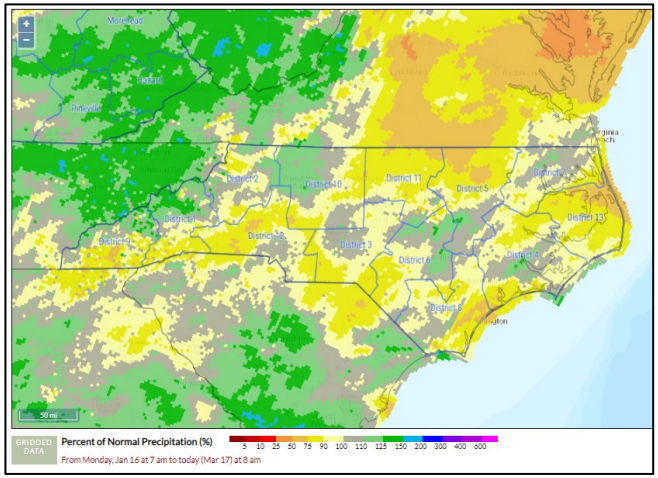


Percent of Normal Precip, *FWIP* *(Ending 0800 3/17)*

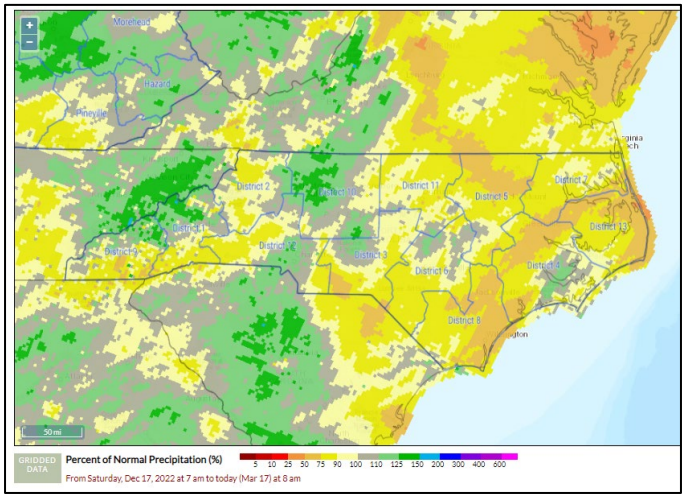
30-Day % of Normal



60-Day % of Normal

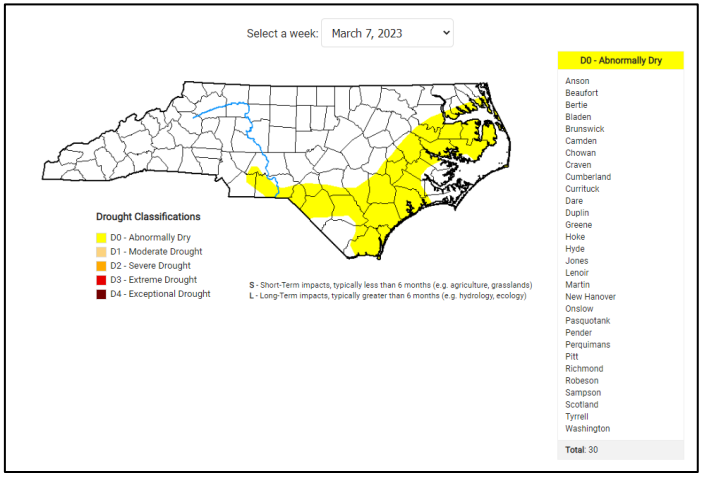


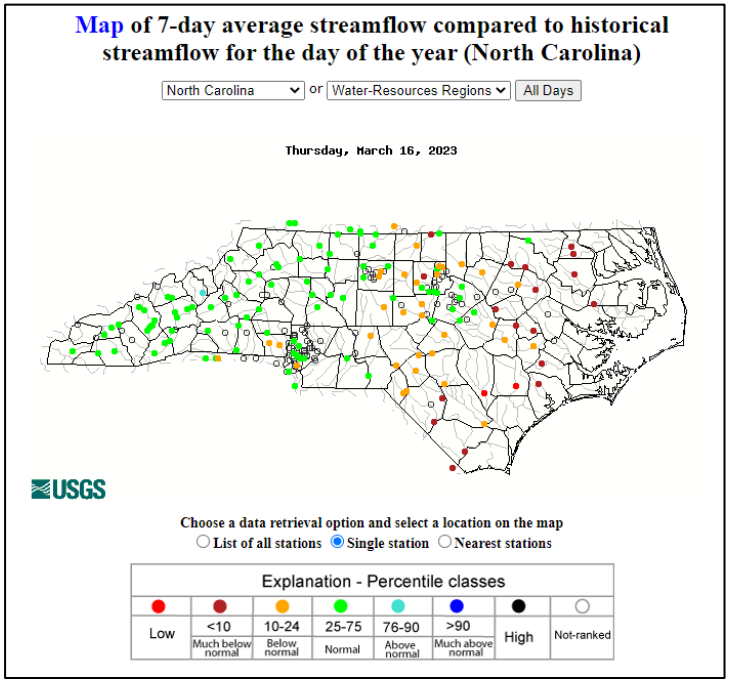
90-Day % of Normal



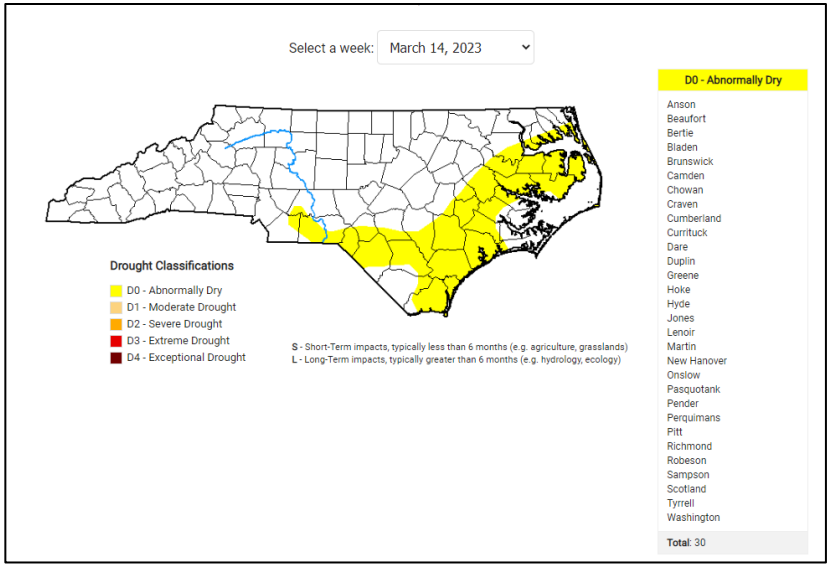
Drought Situation

Previous Week:





Current Week:

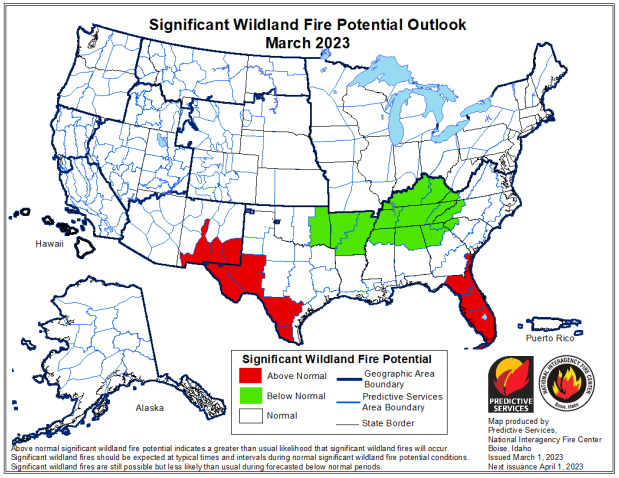


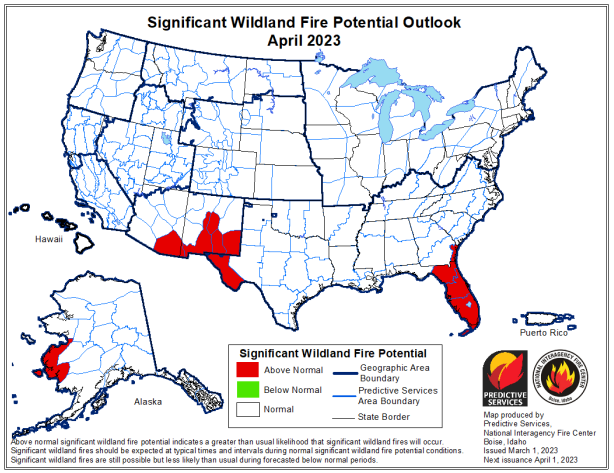
- D-0 Abnormally Dry Conditions within 30 Counties (~26% of State)
- 7-Day Stream flow averages continue to decline, creeping west.

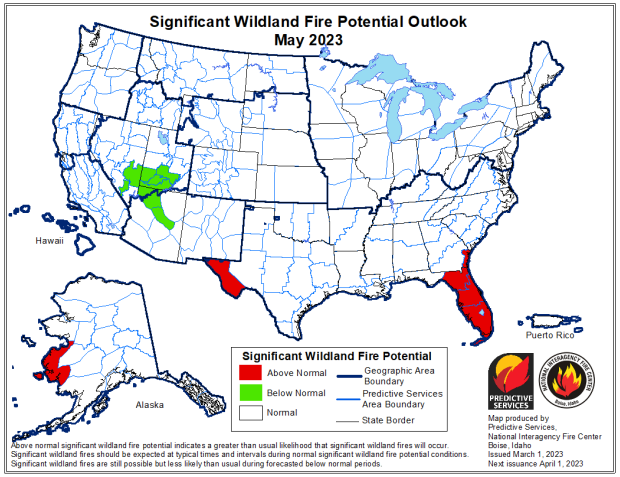
Sources: https://www.ncdrought.org/map-archives , https://waterwatch.usgs.gov/index.php?m=pa07d&r=nc&w=map

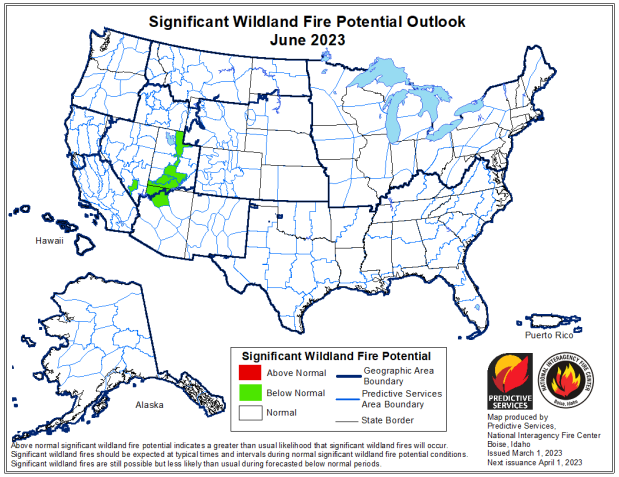
Significant Wildland Fire Potential Outlook:

Updated 3/1/23 – Next Update on 4/1/23





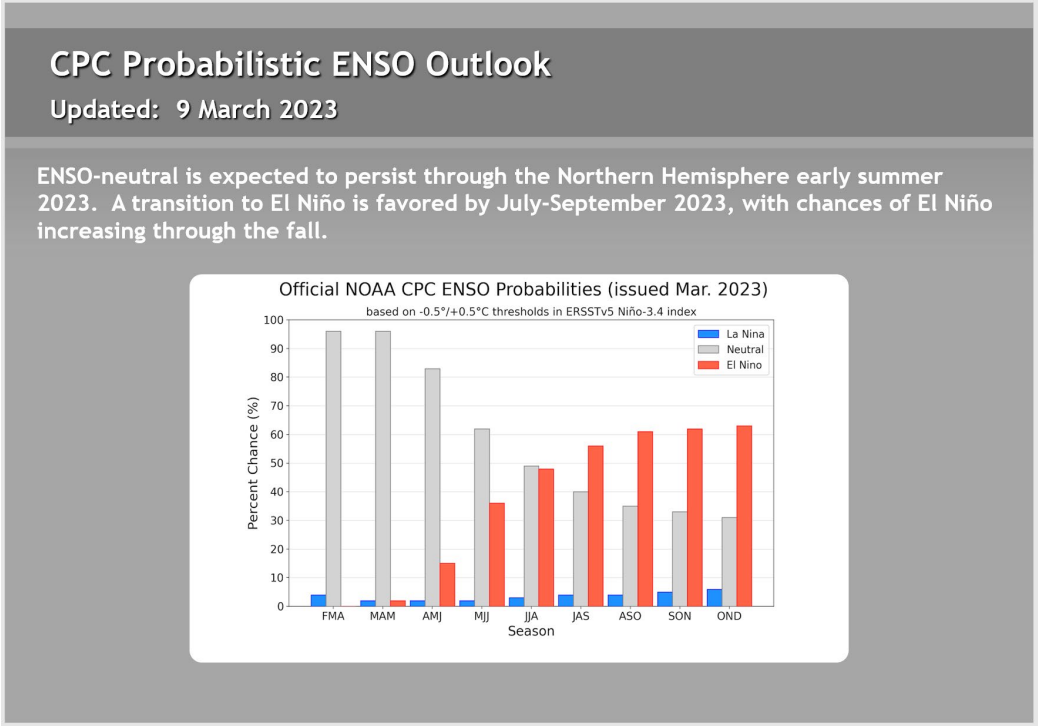




A significant fire is one that requires resources from outside the district (other than aviation). IA potential is based more on shorter term weather factors. Just a few days of dry weather can increase IA activity considerably as we have already seen this year.

ENSO Note

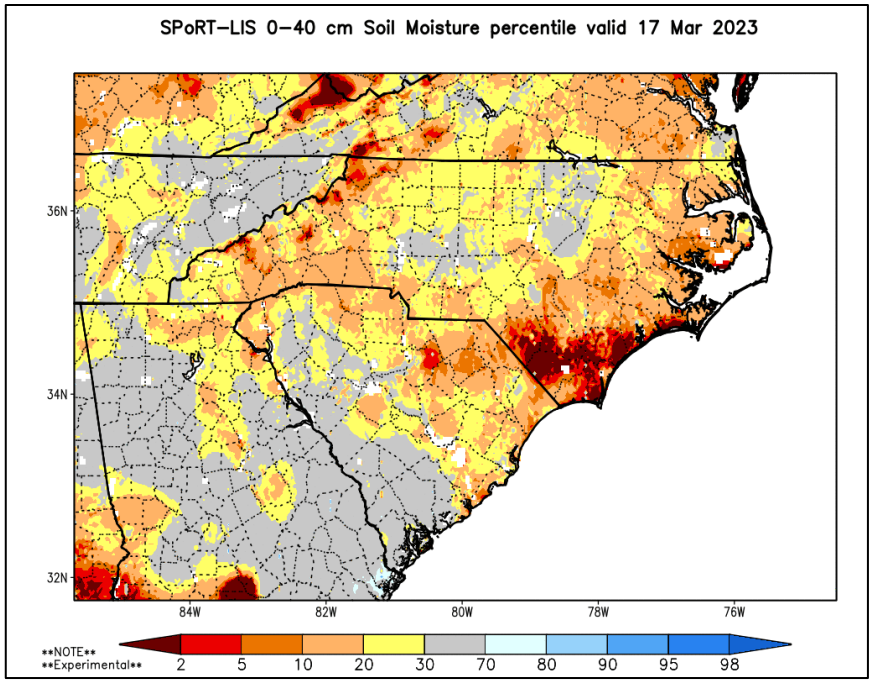
- 3/9/23 Update - La Nina has officially ended.
- ENSO-Neutral conditions expected to continue through spring and early summer of 2023. Signs point to El Nino development in late summer.



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

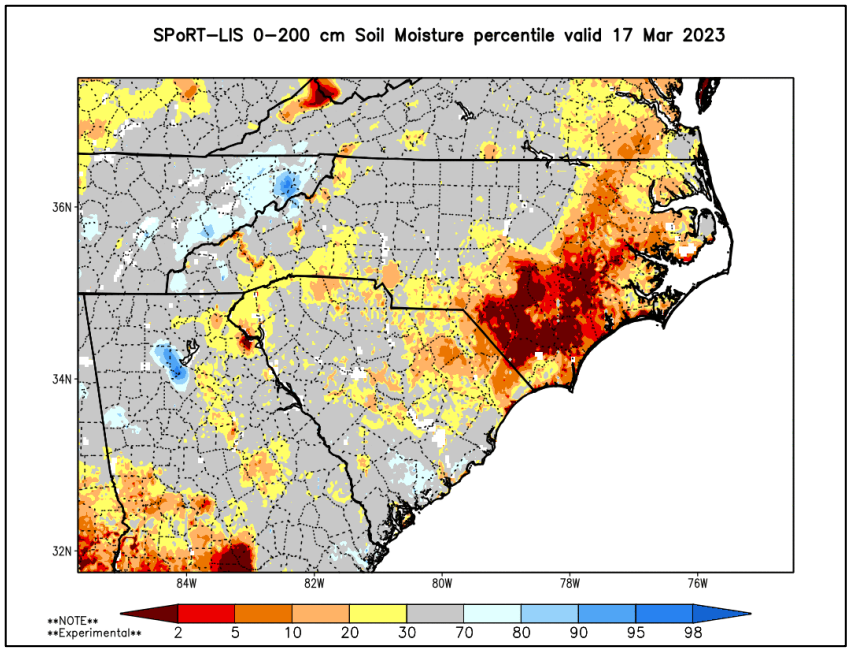
SPoRT Relative Soil Dryness

0-40 cm Depth



- Modeled Drying Trend Continues
- Deeper levels of dryness to the East & South

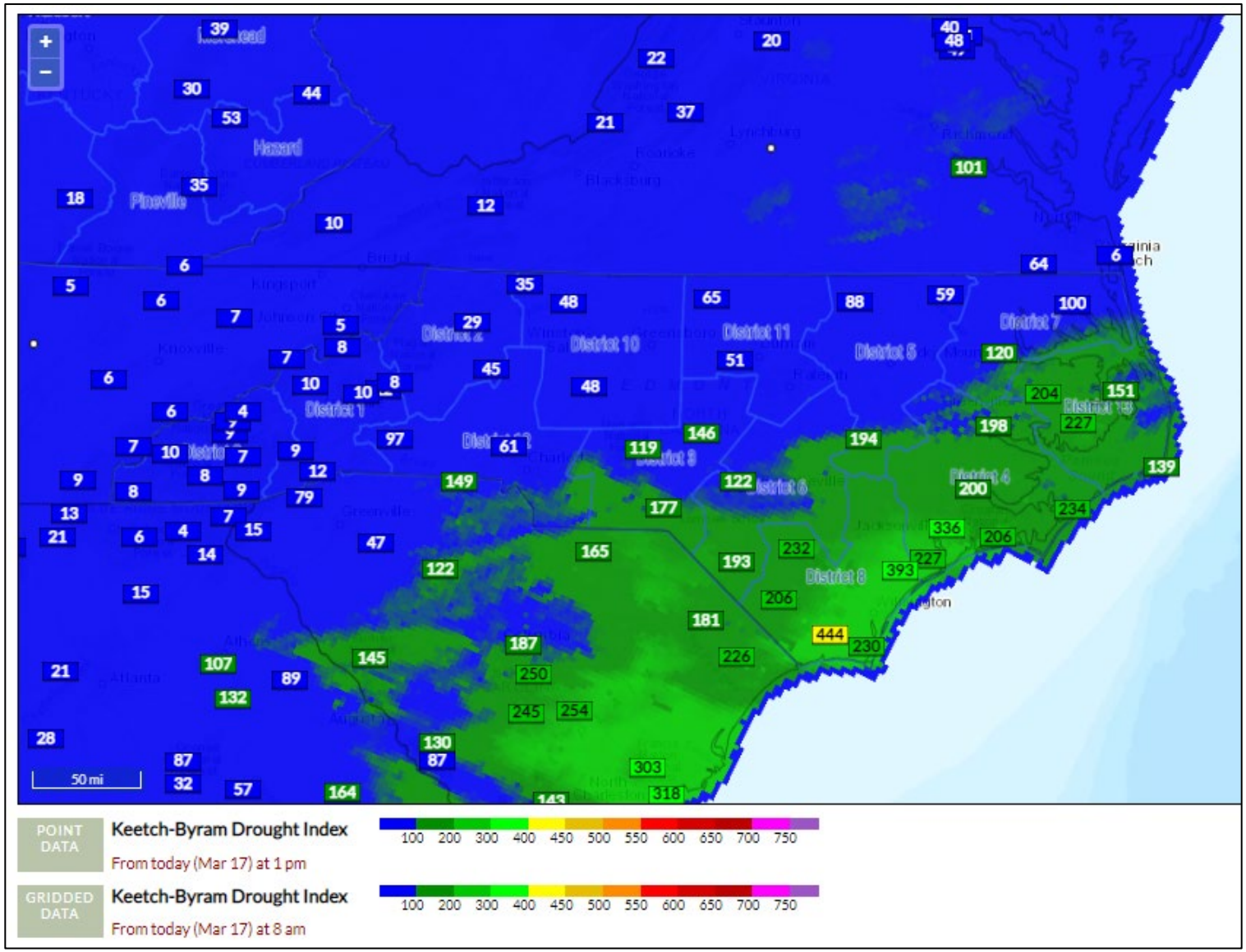
0-200 cm Depth



Source: https://weather.msfc.nasa.gov/sport/case_studies/lis_NC.html

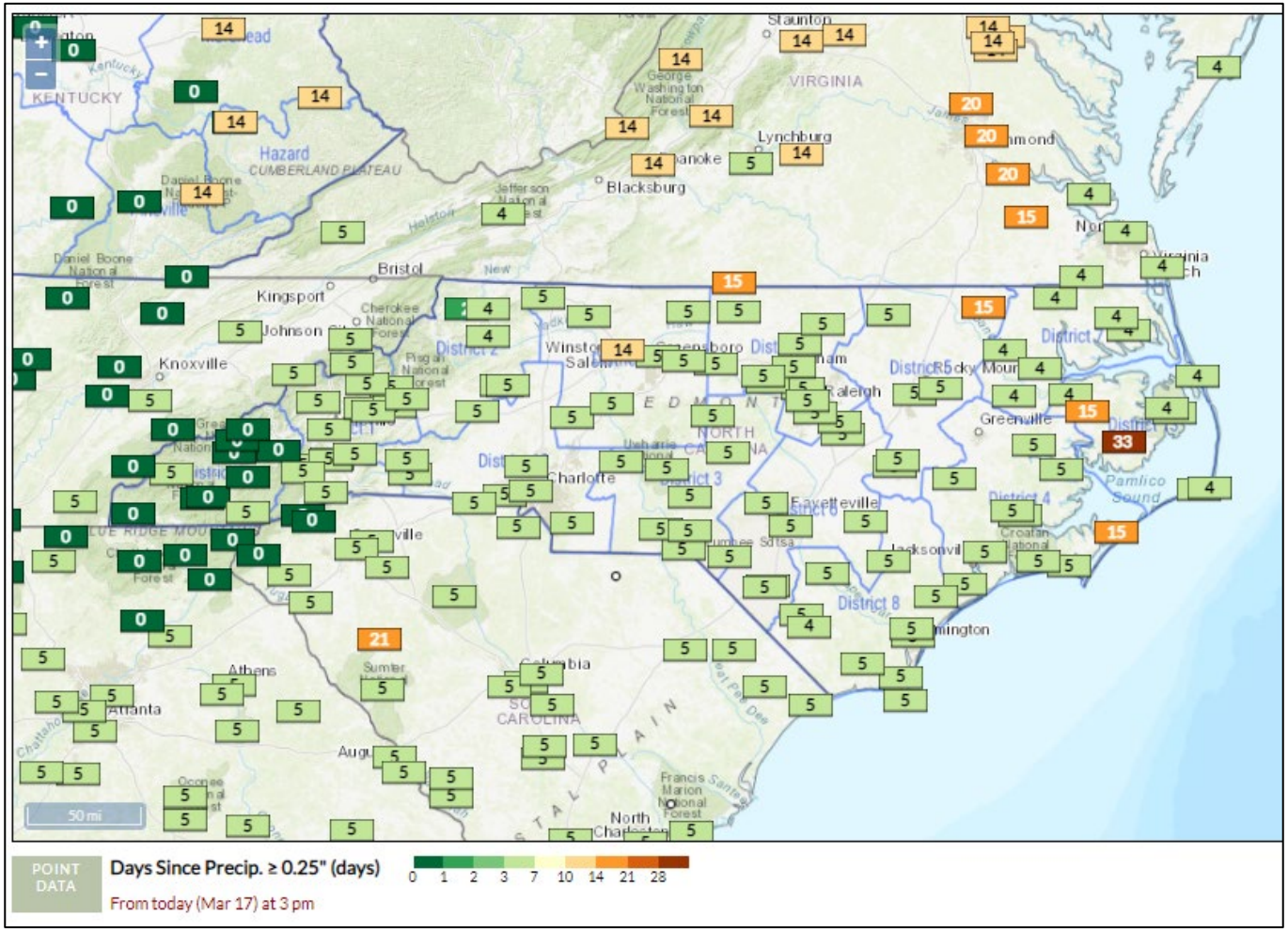
KBDI - Gridded & Station Points

FWIP (Point calculation from 1300 on 3/17, Grid ending 0800 3/17)



Days Since Daily Precip ≥ 0.25”

Note – Latest product run was on 3/17/23 at 1500. Does not consider rainfall after that point.

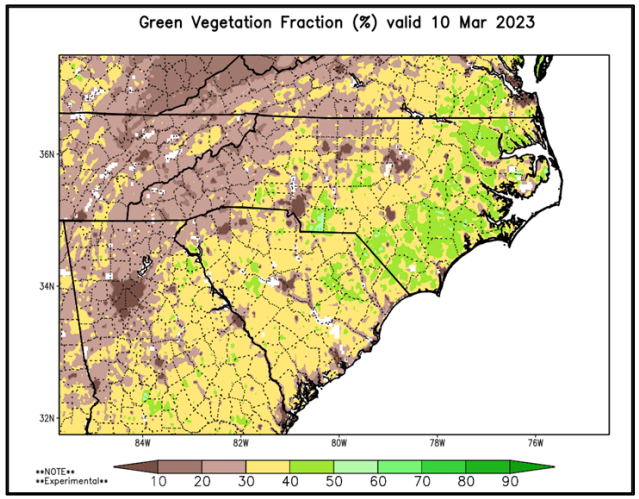


From: Fire Weather Intelligence Portal

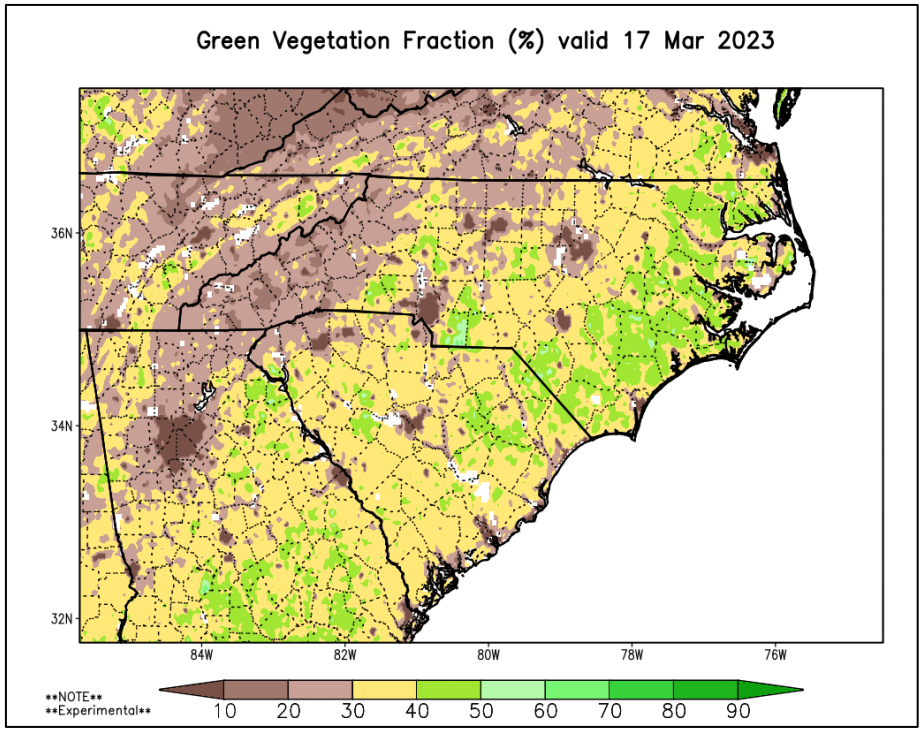
Green Fraction & Green-Up Anomaly

- Generally, 2-3 Weeks Ahead of 30-Yr Avg
- Frost/Freeze Concerns Again for Early Next Week

Last Week



Current



Link: https://weather.msfc.nasa.gov/cgi-bin/basicLooper.pl?category=lis_NC&initialize=first&regex=gvf_20230228