

Weekly Fire Danger Assessment NCFS - Region **ONE**

For Time Period:

Saturday (3/25/23) to Friday (3/31/23)

*Created by: Jamie Dunbar
Fire Environment Staff Forester
NC Forest Service*

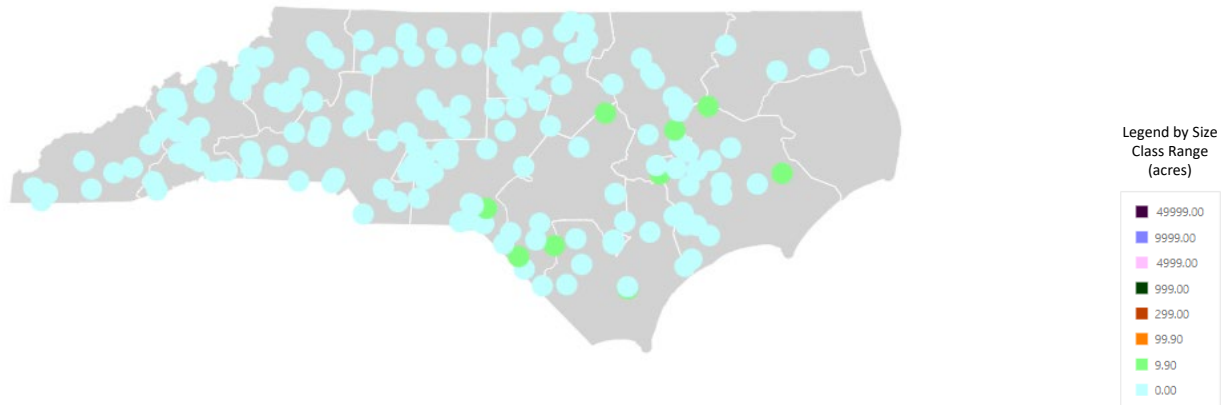
Past Week's Signal 14 Activity

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:	3/17 - 3/23, 2023		
Type	Number	Acres	
Wildfires:	37	684.9	
Prescribed Fires:	12	1,369	

fiResponse Incident Location Map (for general context)

Date Range: 3/17 – 3/23, 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**

- Turf and groundfire is an issue on nearly every fire (D8)
- Fire size is going up (D8)
- Snags were noted to be catching fire and spotting in Pamlico Co (D4)
- 100-hr fuels noted as being available in many areas (D4)
- Pocosin fuels noted as being very volatile with intense burning into late evening (D4)
- Green-up notes:
 - Freezes a week apart have set the grasses back to dormancy and are available again for the first time since mid-January (D8)
 - Maples and oaks are budding with grasses knocked back by the frost/freeze events earlier in the period (D4)

- **Notes from D7/D13 Areas this Week**

- Days since wetting rain continuing to increase, about 12 days for most of D7 since seeing a 0.25" + event (D7)
- Fire activity was somewhat muted by the light rain from the weekend and slightly less conducive fire environment earlier this week (D7)
- No groundfire noted yet (D13)
- Pocosin fuels are very volatile (D13)
- Dry fuels with return of very warm temperatures noted as a concern (D13)
- Green-up notes:
 - Early start in late February for woody vegetation seemed to take a pause until this week with warmer weather
 - Grasses seem to have been reset following repeated freezes/frost going from greening to dormant, now beginning to green again
 - Some herbaceous plants greening up with maples budded and oaks flowering (D13)
- D13 is currently working a large fire in central Tyrrell County at time of report generation (pocosin fuels)

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:

- Available on the FWIP 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

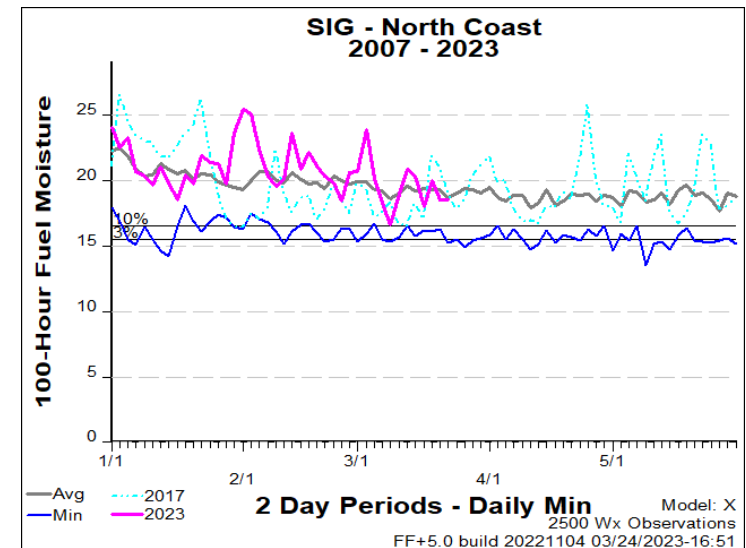
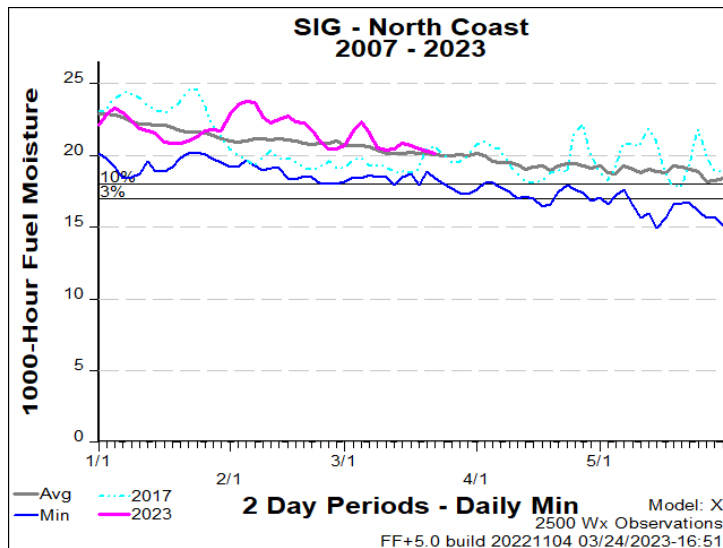
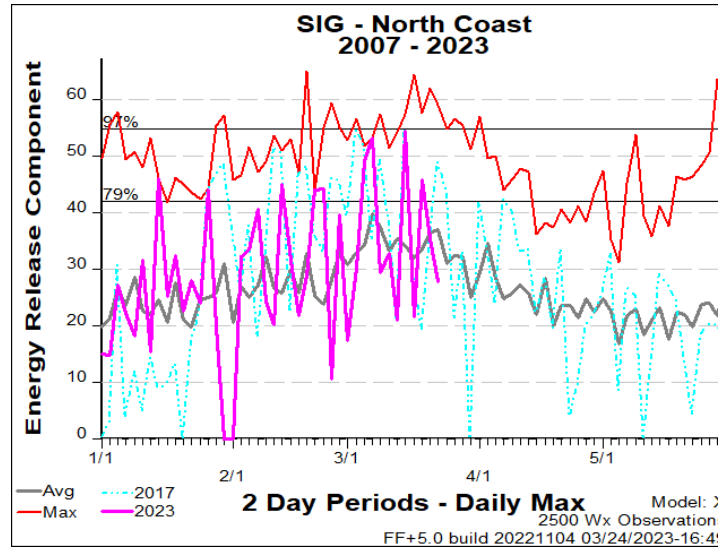
Dead fuel moisture forecast values are grouped into three categories based on historical percentiles, assessed using the FF+ All Days filter through 2021:

- 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 25-Mar	SUN 26-Mar	MON 27-Mar	TUE 28-Mar	WED 29-Mar	THU 30-Mar	FRI 31-Mar
Avg. Max. Temp. (°F)	81	78	69	65	60	65	69
Avg. Min. Humidity (%)	52	44	55	53	34	36	47
Avg. 20' Wind Speed (mph)	11	6	5	7	9	6	7
Avg. Wind Direction*	SSW	SW	ESE	SSW	W	SW	SSE
Avg. Probability of Precip. (%)	22	33	40	32	3	17	34
Days Since a Wetting Rain**	9.5	10.5	4.5				
Forecast ERC (Fuel Model X)	37.2	38.7	33.9	28.3	42.0	41.6	42.3
Forecast BI (Fuel Model X)	129.9	74.4	81.3	74.9	109.6	102.0	75.2
Forecast IC (Fuel Model X)	14.0	8.4	7.3	5.1	10.3	9.7	7.4
Forecast 100-Hr. FMC	18.0	17.7	17.6	17.7	17.9	17.6	17.2
Forecast 1000-Hr. FMC	22.3	22.0	21.7	21.6	21.4	21.4	21.2
KBDI	204.8						

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.

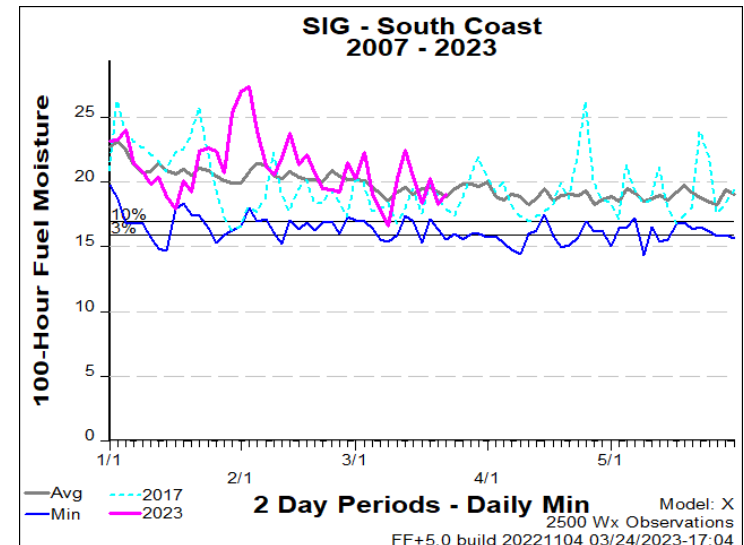
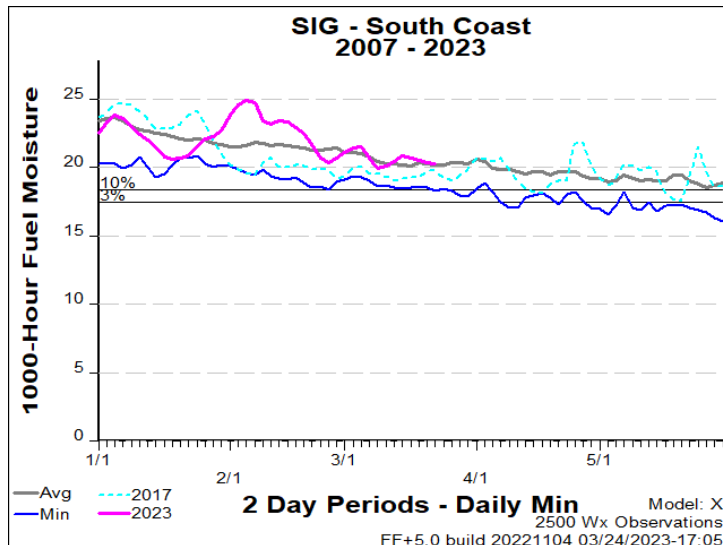
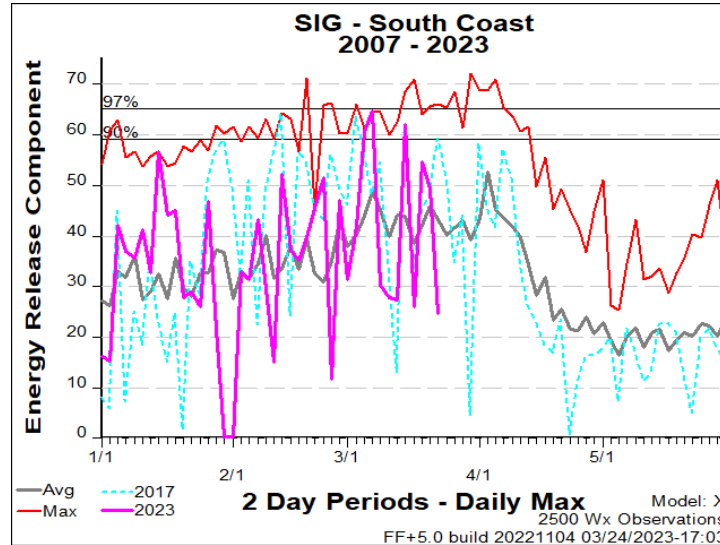
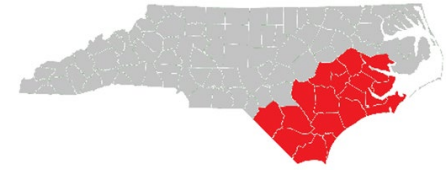
Values in the table above are averages from 4 stations in this FDRA:

- 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



Weekly Outlook

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 25-Mar	SUN 26-Mar	MON 27-Mar	TUE 28-Mar	WED 29-Mar	THU 30-Mar	FRI 31-Mar
Avg. Max. Temp. (°F)	83	81	73	70	65	69	74
Avg. Min. Humidity (%)	53	45	58	53	29	33	47
Avg. 20' Wind Speed (mph)	11	5	6	6	9	6	8
Avg. Wind Direction*	SSW	SW	S	SW	NW	SW	S
Avg. Probability of Precip. (%)	21	53	52	44	1	14	27
Days Since a Wetting Rain**	8.1	9.1	0.0				
Forecast ERC (Fuel Model X)	36.4	33.2	28.7	26.5	47.3	46.1	40.3
Forecast BI (Fuel Model X)	121.9	67.5	82.5	65.2	112.8	101.6	96.8
Forecast IC (Fuel Model X)	13.4	6.0	6.0	4.4	12.2	10.7	10.0
Forecast 100-Hr. FMC	19.0	18.6	18.4	18.6	18.3	17.5	17.3
Forecast 1000-Hr. FMC	22.3	22.1	21.9	21.8	21.7	21.6	21.4
KBDI	261.7						

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
25-Mar	Sat	High	Critical
26-Mar	Sun	Low/Mod	Low/Mod
27-Mar	Mon	Low/Mod	Low/Mod
28-Mar	Tues	Low/Mod	Low/Mod
29-Mar	Weds	High	Critical
30-Mar	Thurs	High	High
31-Mar	Fri	Low/Mod	High

Weather Outlook Discussion

Newport/Morehead City NWS (Area Forecast Discussion):

..SHORT TERM /SATURDAY/...

As of 230 PM Fri...The stalled boundary over the middle of the forecast area will lift northward early tomorrow, and strong SW winds will redevelop across the area ahead of an approaching stronger front well to our west.

Another very warm day is expected, but the extent to which will depend on how a prefrontal area of showers and clouds holds together as it moves across Eastern NC early tomorrow afternoon. Current thinking is that at least some widely scattered showers will remain and a thick area of clouds will move across the forecast area during peak heating. This will keep us from reaching our potential full sun high temps (which would have been in the mid to upper 80s again), but even a half days worth of sun will allow for temps to reach the low to mid 80s inland, with mid to upper 70s present closer to the coast due to the marine influence.

&&

..LONG TERM /SATURDAY NIGHT THROUGH FRIDAY/...

As of 300 PM Fri...Warming trend until the next cold front pushes through the area this weekend. Cooler high pressure then moves in early to mid next week.

Sunday...The cold front will slowly progress through the area on Sunday, but with limited moisture and forcing locally, it will be a mostly dry passage. Very warm conditions will remain with highs again reaching the upper 70s to lower 80s.

Next week...Cooler highs Monday (upper-60s inland/mid-60s coast) with a chance of rain throughout the day as the next low pressure system positions itself off the NC coast with a stalled frontal boundary to our south. Chance PoPs from this low stick around Tue with drier weather Wed-Thur as high pressure settles in over the eastern US.

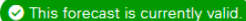
NC DAQ – Statewide Air Quality Forecast Information

Next Three Days

Forecast Discussion


The North Carolina Division of Air Quality issues forecasts for fine particulate matter year-round and ozone from March through October. Forecasts and discussions are updated each afternoon for the next three days, and are sometimes updated in the morning to reflect the latest ambient conditions.

View: The latest forecast discussion The forecast discussion from

This forecast was issued on **Friday, March 24, 2023 at 2:34 pm.**  This forecast is currently valid.

Today's Air Quality Conditions

Current daily average particle pollution levels are in the low-mid Code Yellow range across most of the interior, with upper Code Green concentrations elsewhere. Ozone levels are in the Code Green range statewide 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

A weak cold front will move through the state on Saturday with associated cloud cover keeping ozone formation down in the Code Green range. Precipitation amounts will not be significant enough for a washout but strong transport winds and good mixing should keep fine particulates in the upper Code Green range. Will keep an eye on any influence from local/regional burning and update the forecast if needed tomorrow.







Outlook

Sunday will be warm and sunny, but likely cleaner air out of the west will help keep both ozone and fine particulates in the Code Green range. Monday will be a bit more unsettled, with more chances for rain and increased cloud cover and continued good air quality.

Author: *Kreuser* - NC Division of Air Quality

Extended Air Quality Outlook

The forecast Air Quality Index value for each pollutant represents the highest value expected within each county, so some areas and monitors may see lower values. We use the best information and techniques available to ensure the quality and accuracy of the forecasts we provide to the public. Note that ranges do *not* include the nine-county Triad region, which is covered by the Forsyth County Office of Environmental Assistance and Protection.

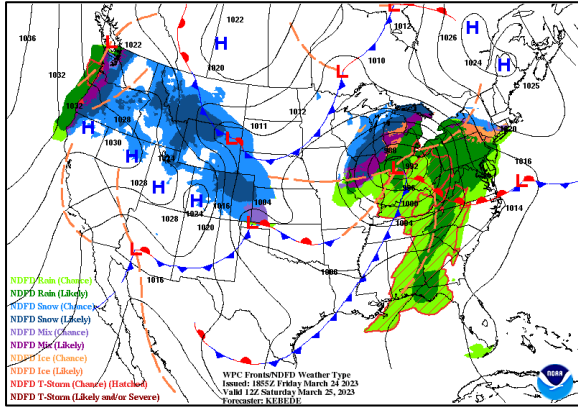
Forecast Day	AQI Range	Category Range
Friday (Mar 24)	45 to 55	 to 
Saturday (Mar 25) 	45	
Sunday (Mar 26)	45 to 47	
Monday (Mar 27)	45	

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

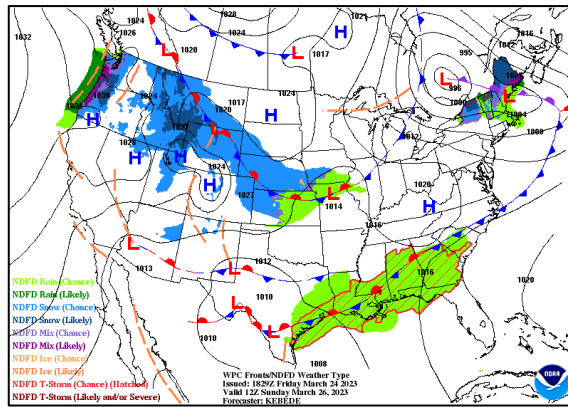
DAQ Air Quality Portal: <https://airquality.climate.ncsu.edu/>

WPC Forecasted Surface Fronts & Sea-Level Pressures

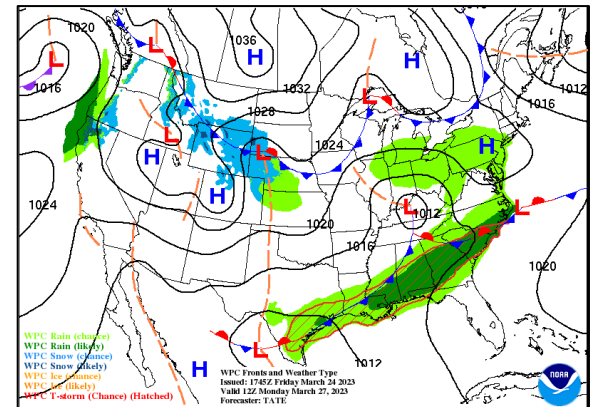
Saturday - 700 am



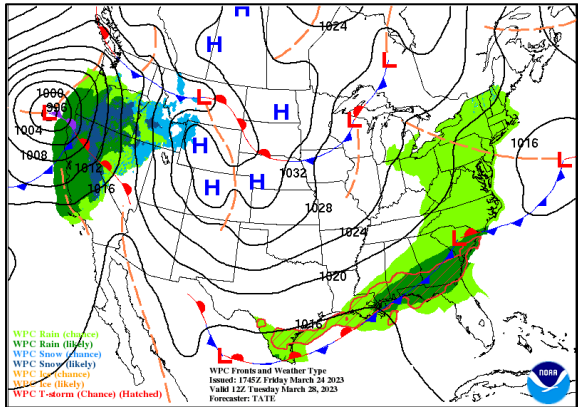
Sunday - 700 am



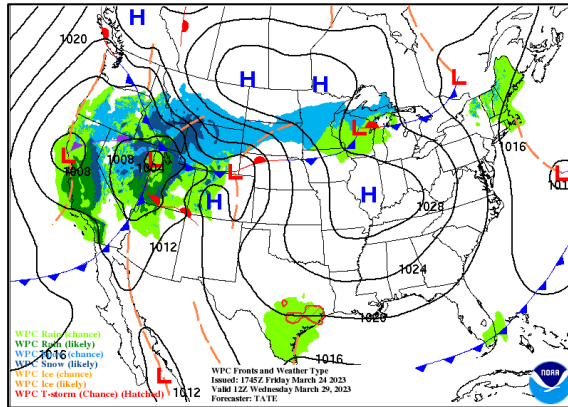
Monday - 700 am



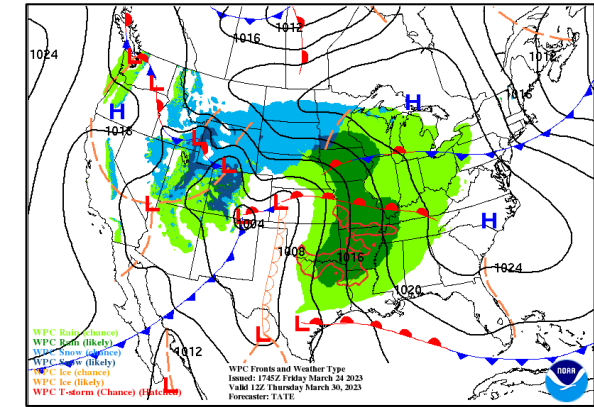
Tuesday - 700 am



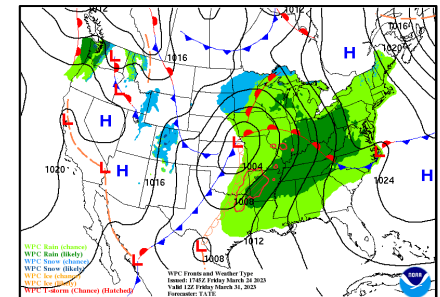
Wednesday - 700 am



Thursday - 700 am

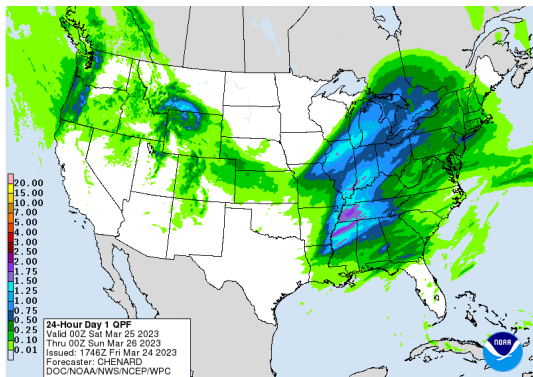


Friday - 700 am

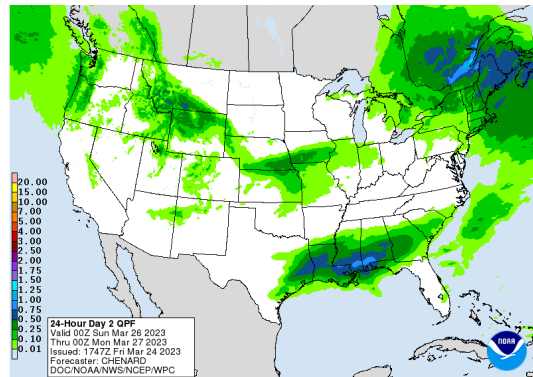


Quantitative Precipitation Forecast, 7-Day

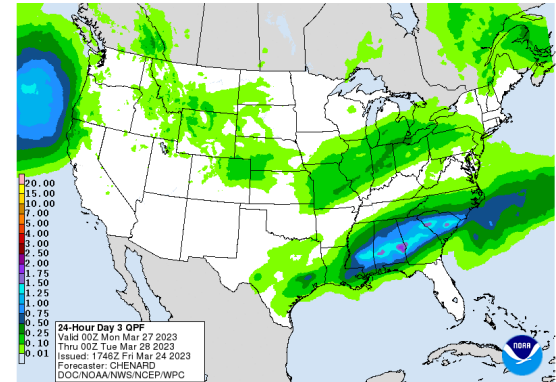
Day - 1



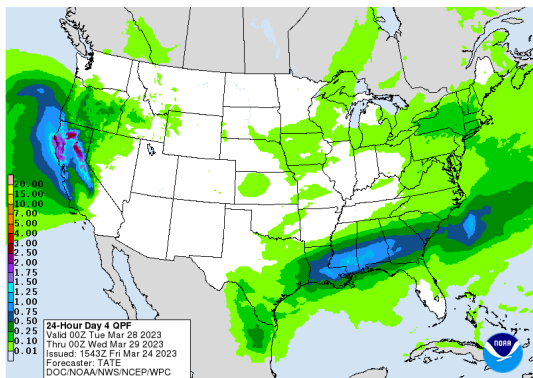
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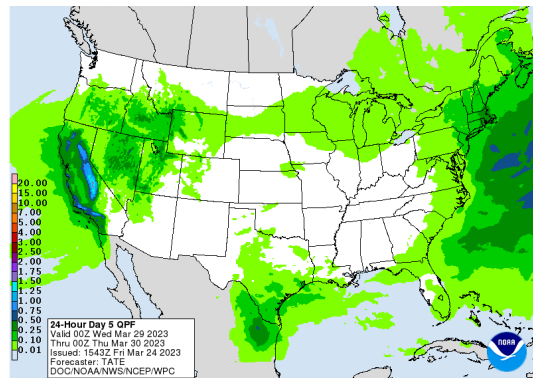
Day - 3



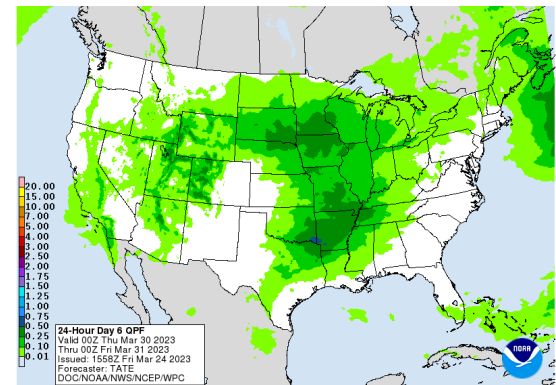
Day - 4



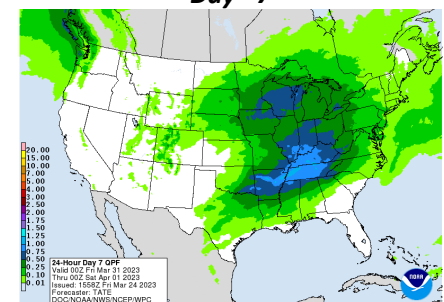
Day - 5



Day - 6

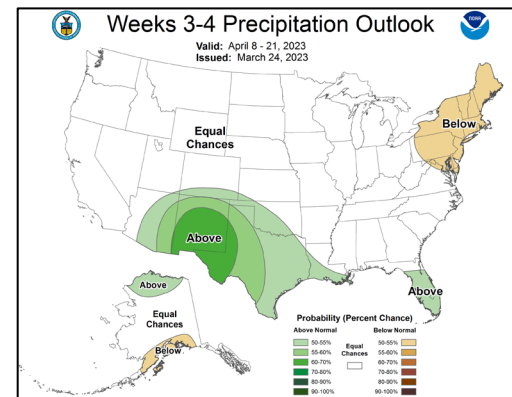
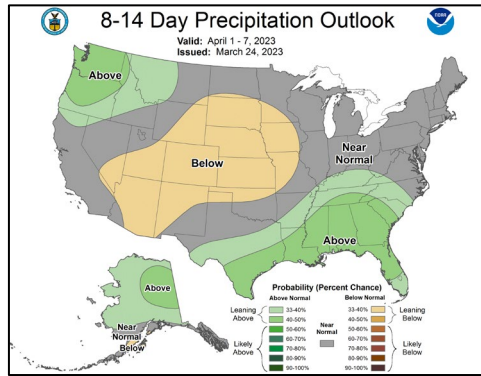
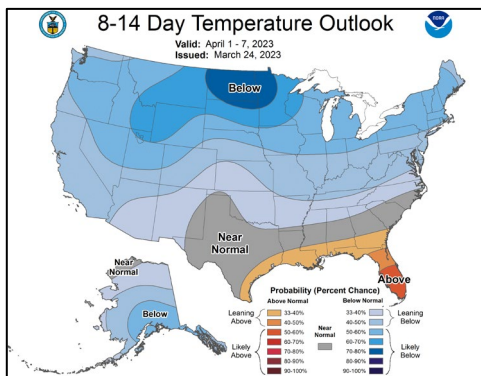
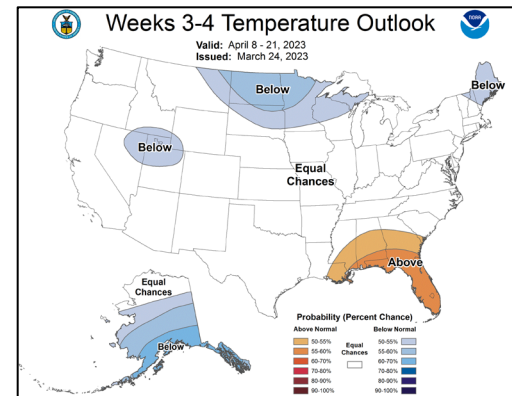
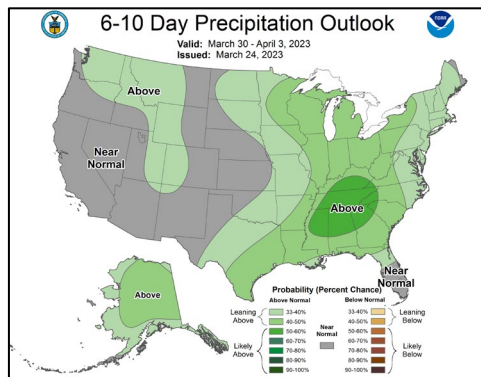
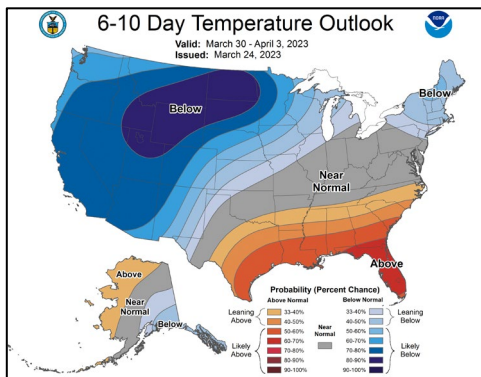


Day - 7



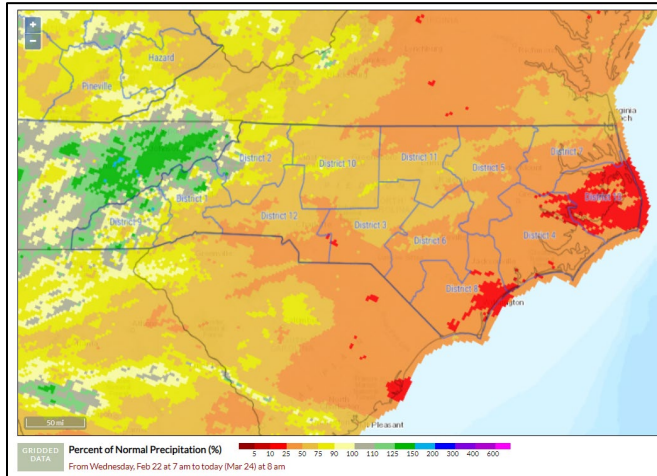
Temp & Precip Outlook

6-10 Day, 8-14 Day & Week 3-4

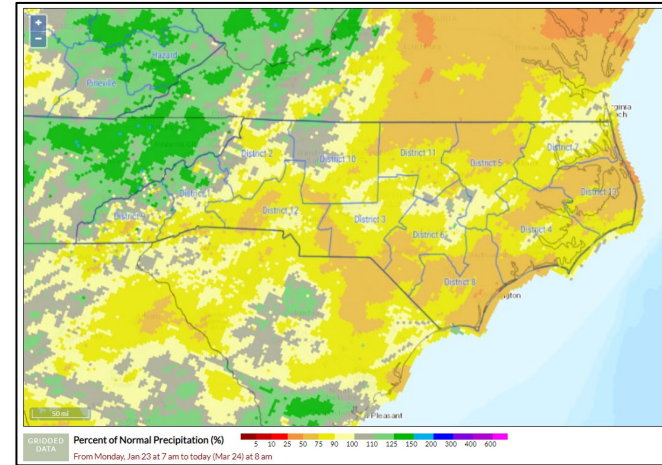


Percent of Normal Precip, FWIP (Ending 0800 3/24)

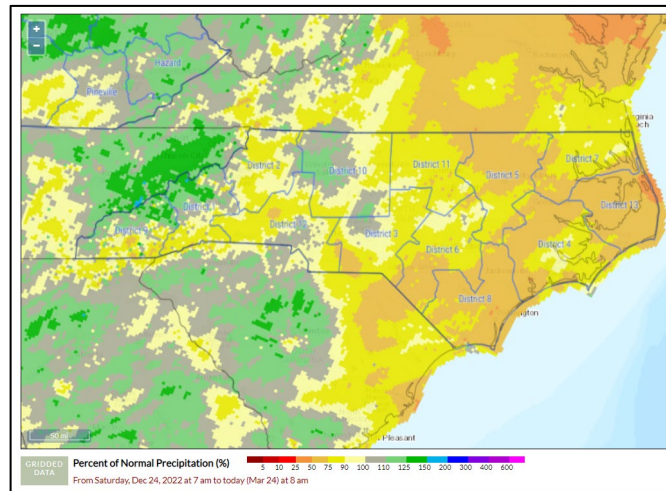
30-Day % of Normal



60-Day % of Normal

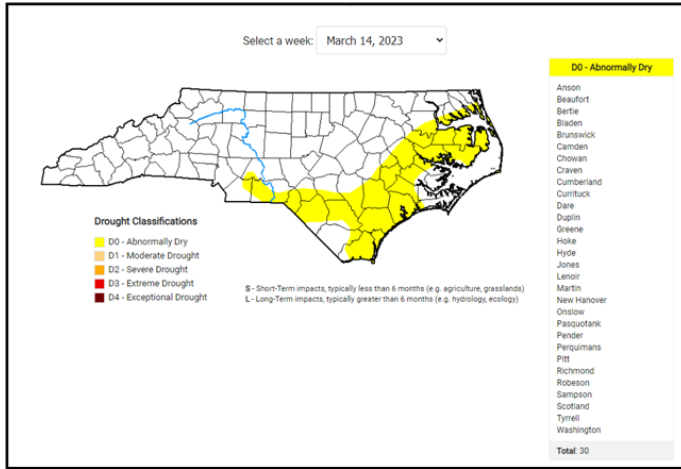


90-Day % of Normal

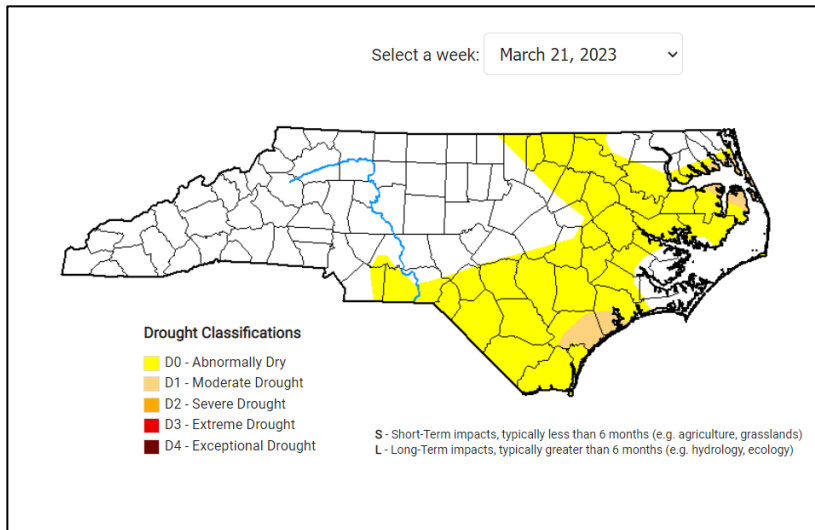


Drought Situation

Previous Week:



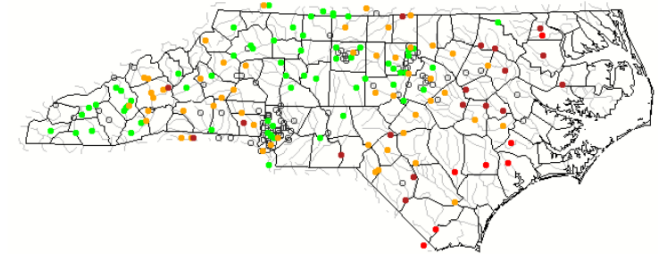
Current Week:



Map of 7-day average streamflow compared to historical streamflow for the day of the year (North Carolina)

North Carolina or Water-Resources Regions All Days

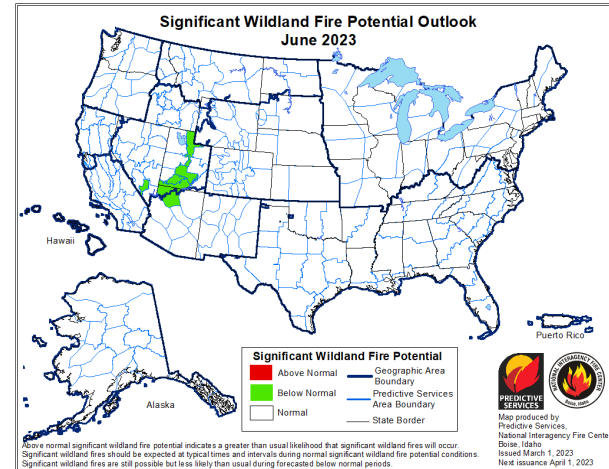
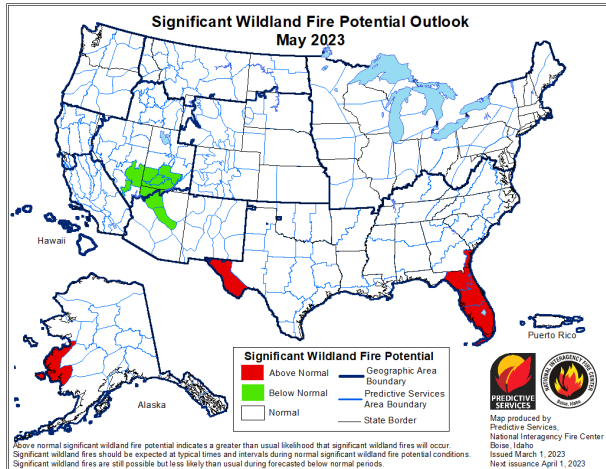
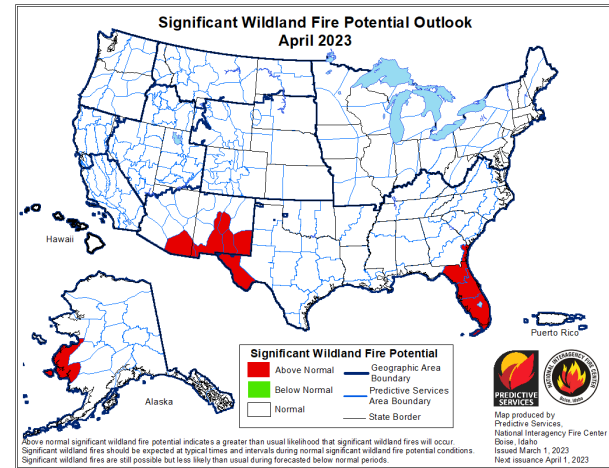
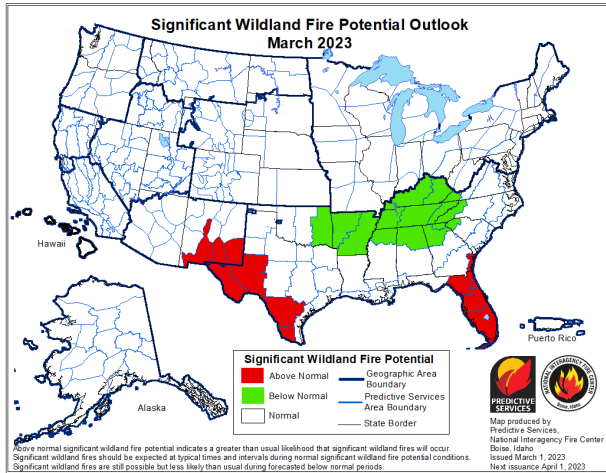
Thursday, March 23, 2023



- D-0 Abnormally Dry Conditions within 39 Counties (~38% of State)
- D-1 Moderate Drought has begun to develop in several counties. (~2% of State)
- 7-Day Stream flow averages continue to decline, intensifying east & advancing west.

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.

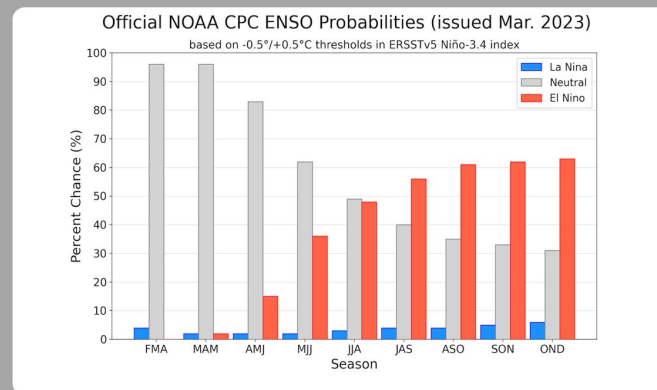
ENSO Note

- 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.

CPC Probabilistic ENSO Outlook

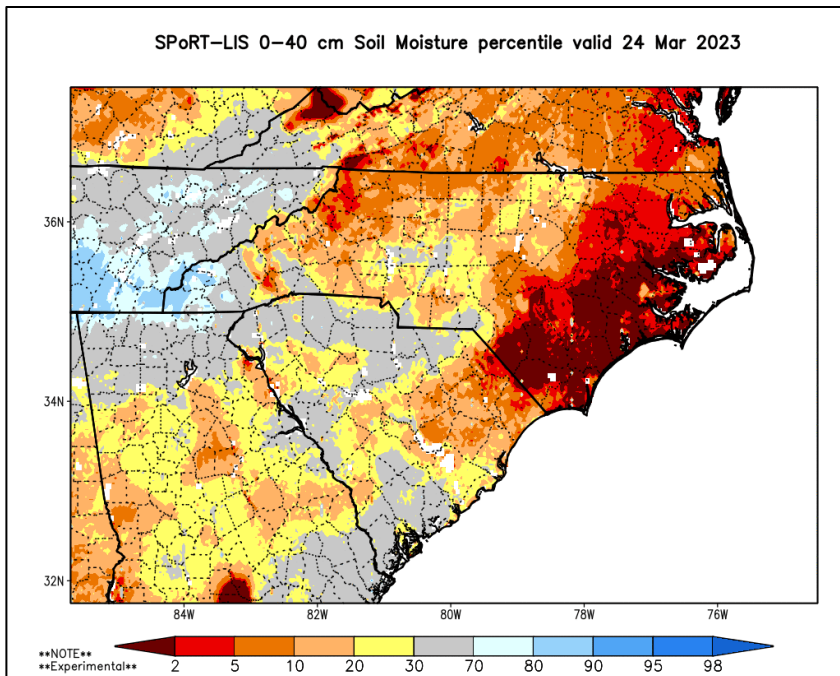
Updated: 9 March 2023

ENSO-neutral is expected to persist through the Northern Hemisphere early summer 2023. A transition to El Niño is favored by July-September 2023, with chances of El Niño increasing through the fall.



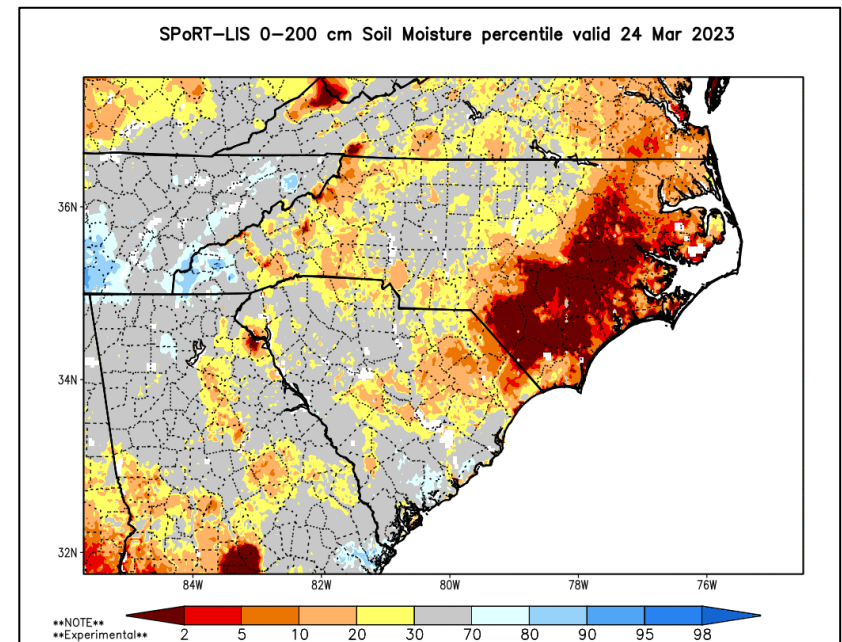
SPoRT Relative Soil Dryness

0-40 cm Depth



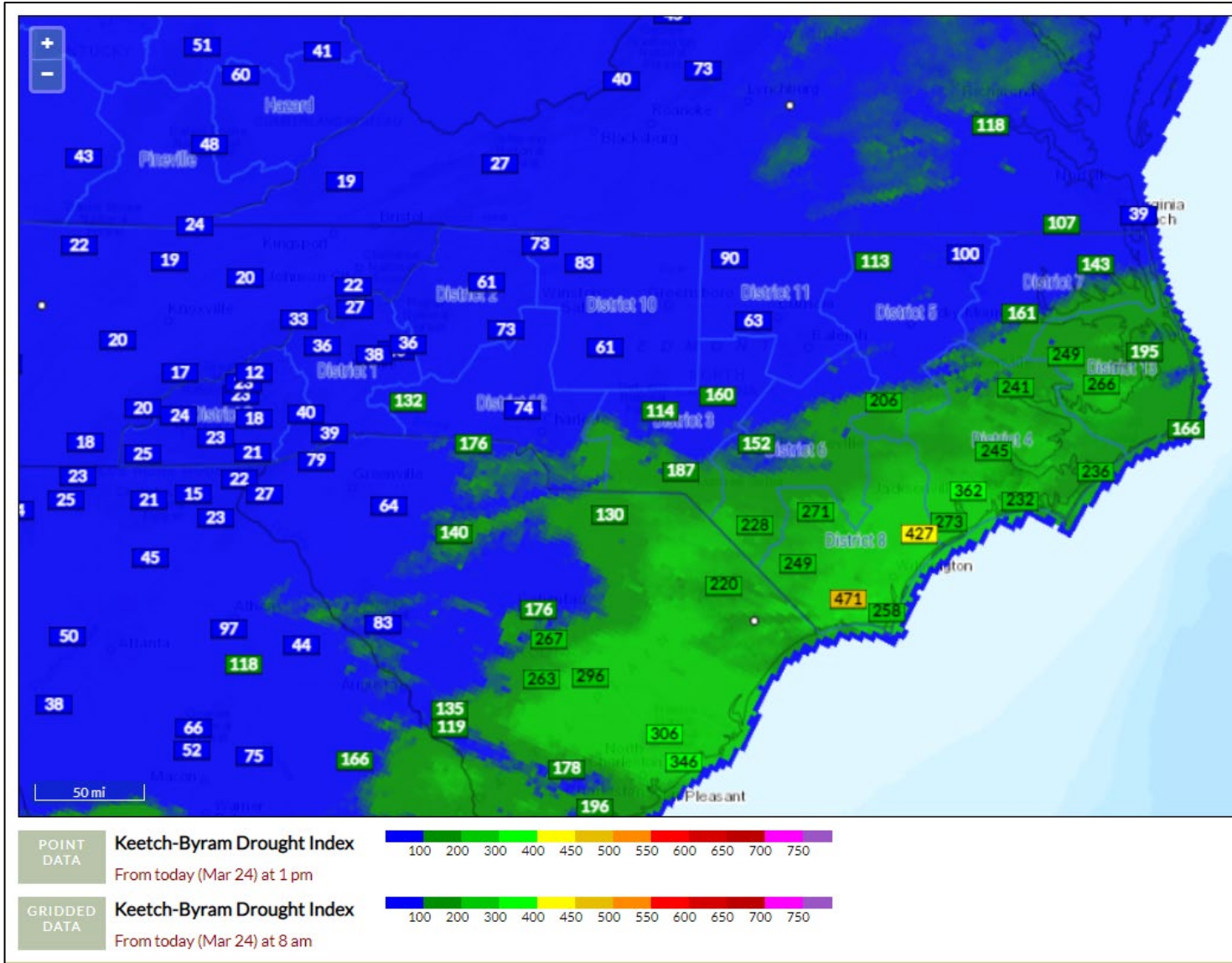
- Modeled Drying Trend Continues
- Deeper levels of dryness still focused to the East & South

0-200 cm Depth



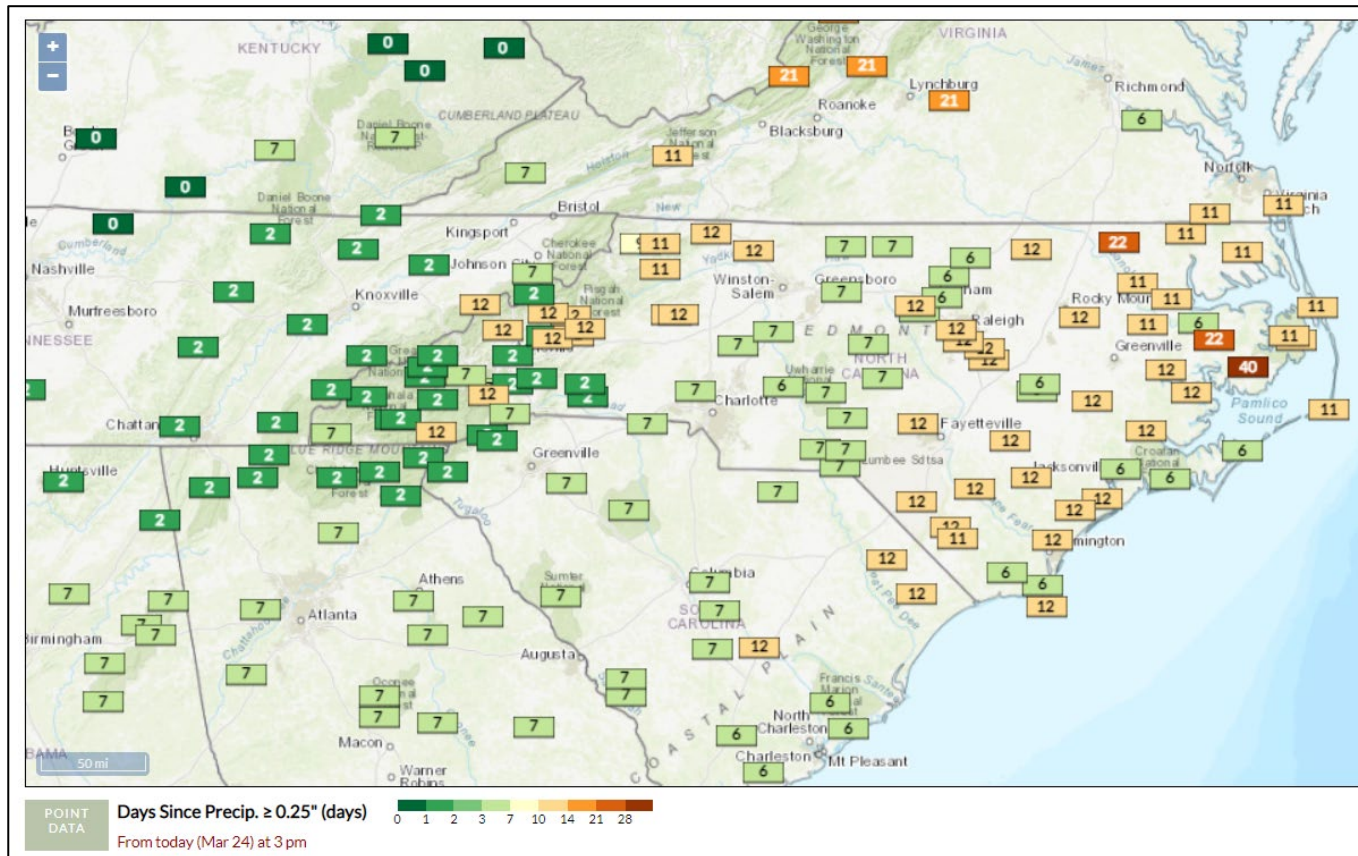
KBDI - Gridded & Station Points

FWIP (Point calculation from 1300 on 3/24, Grid ending 0800 3/24)



Days Since Daily Precip $\geq 0.25''$

Note – Latest product run was on 3/24/23 at 1500.
Does not consider rainfall after that point.



Green Fraction & Green-Up Anomaly

- Generally, 2-3 Weeks Ahead of 30-Yr Avg
- Comments that multiple frosts/freezes setback grasses and slowed larger species, warmer weather now encouraging growth again.

(Some areas previously shown with green color followed later by brown color in coastal areas likely due to larger scale agricultural activities.)

Last Week

Current

