

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

For Time Period:

Saturday (4/1/23) to Friday (4/7/23)

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

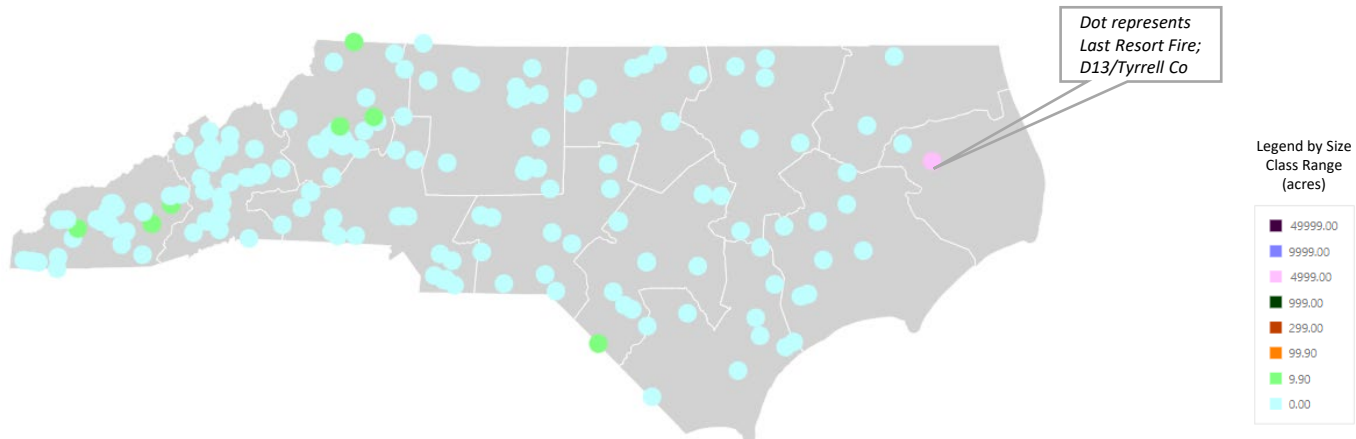
Past Week's Signal 14 Activity

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:	3/24 - 3/30, 2023		
Type	Number	Acres	
Wildfires:	22	524.4	
Prescribed Fires (State & Private Lands):	11	1,767	

fiResponse Incident Location Map (for general context)

Date Range: 3/24 – 3/30, 2023

Report: Business Intelligence Module, Response Trends Map



Current and Forecasted Fire Danger Conditions by FDRA

R1

Regional Comments for this Week – R1

Last Resort Fire - AM IMT Update

- 5,298 acres and 48% Contained
 - IMT3 with approximately 80 staff (State & Federal) assigned
-

Other incident notes:

- Continues to hold hot spots
 - Organics noted burning down 4-8 inches to moisture in spots
 - Lateral spread of groundfire occurring but rain events and lower temps have slowed progression
 - Recent drying with increase in winds leading to increase in visible smokes
 - Flooding operations being setup
- Other Regional Notes
 - IA tempered by post-rain impacts the past few days, especially the South Coast FDRA
 - Wind event Saturday with low RHs Sunday may help increase IA, back towards seasonal levels
 - Pocosin fuels still receptive
 - Leaf-out progressing in hardwoods with leaves developing

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

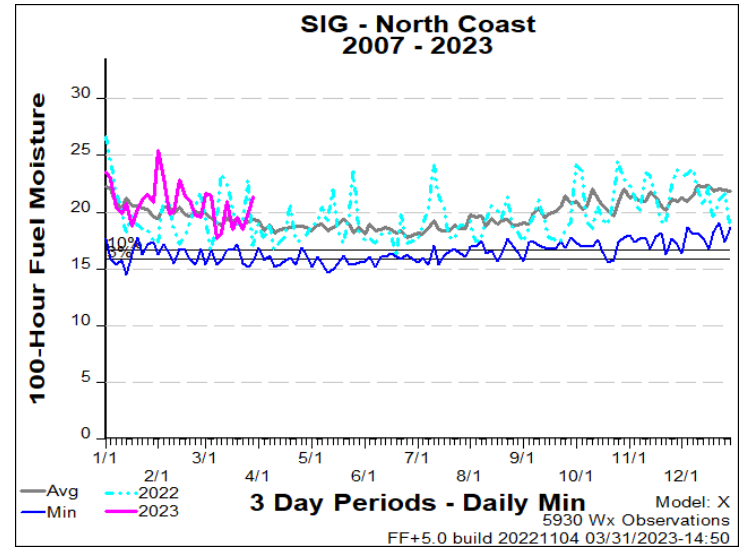
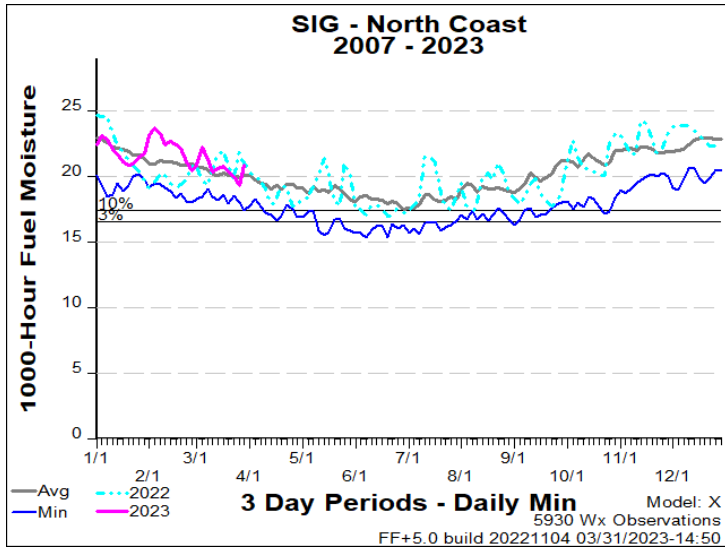
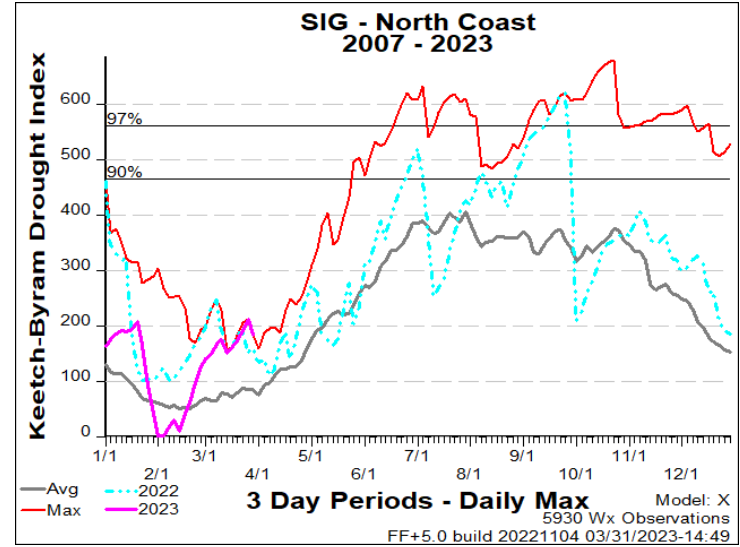
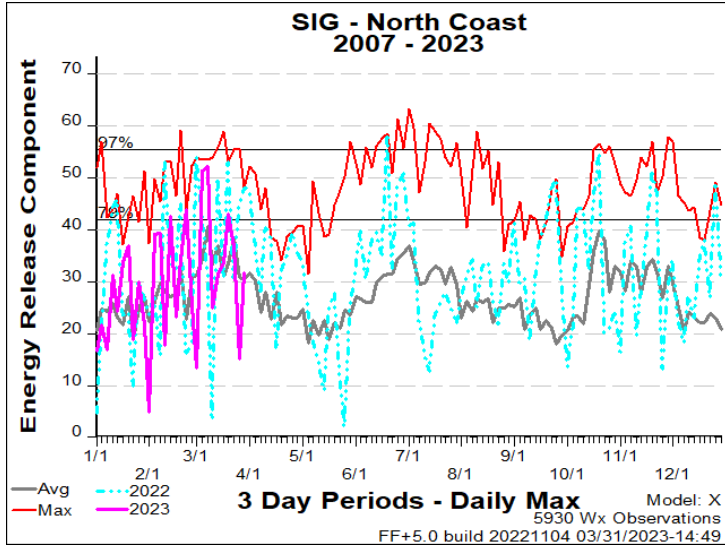
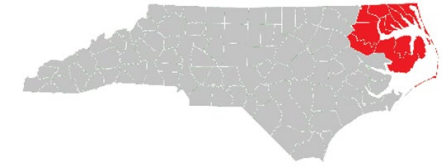
Dead fuel moisture forecast values are grouped into three categories based on historical percentiles, assessed using the FF+ All Days filter through 2021:

- 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 01-Apr	SUN 02-Apr	MON 03-Apr	TUE 04-Apr	WED 05-Apr	THU 06-Apr	FRI 07-Apr
Avg. Max. Temp. (°F)	79	63	71	79	81	79	67
Avg. Min. Humidity (%)	58	33	43	53	58	58	49
Avg. 20' Wind Speed (mph)	20	10	7	7	10	9	10
Avg. Wind Direction*	SW	WNW	SSE	SSW	S	SSW	ENE
Avg. Probability of Precip. (%)	56	0	12	10	18	30	20
Days Since a Wetting Rain**	0.0	1.0	2.0				
Forecast ERC (Fuel Model X)	31.7	39.9	36.7	27.1	19.4	18.7	24.5
Forecast BI (Fuel Model X)	144.9	96.9	83.6	63.5	58.8	50.8	62.1
Forecast IC (Fuel Model X)	12.5	9.9	8.2	5.8	4.6	4.0	5.4
Forecast 100-Hr. FMC	19.0	18.0	17.5	17.1	17.4	17.9	18.0
Forecast 1000-Hr. FMC	22.5	22.5	22.6	22.3	22.1	21.8	21.6
KBDI	186.5						

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.

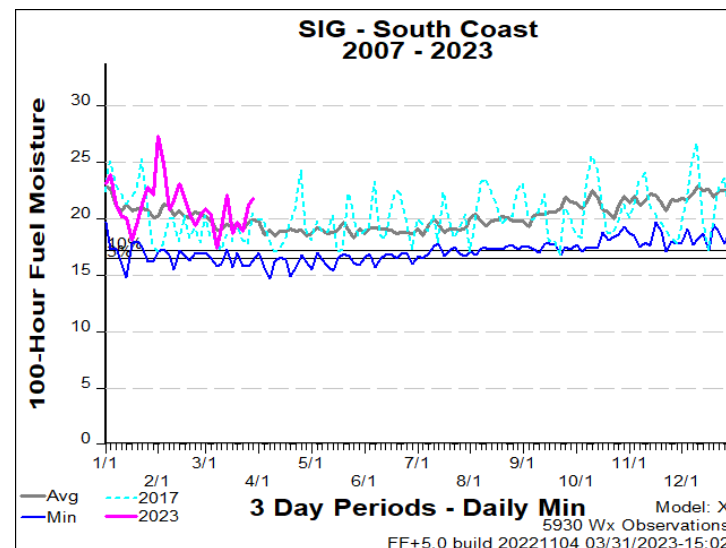
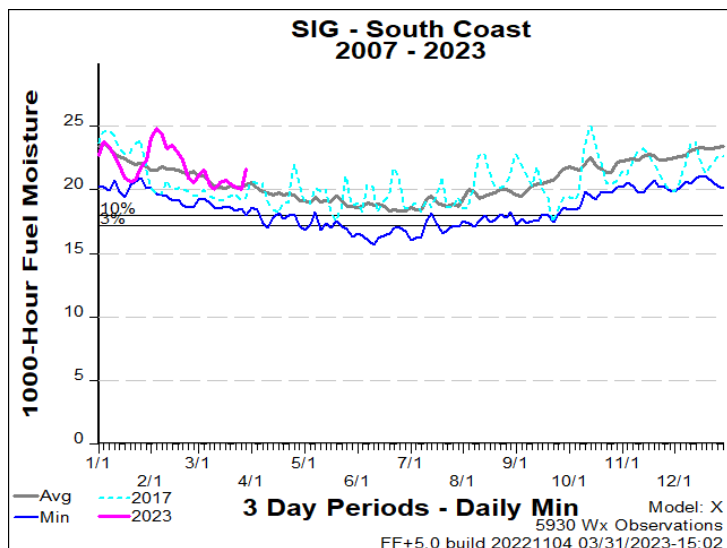
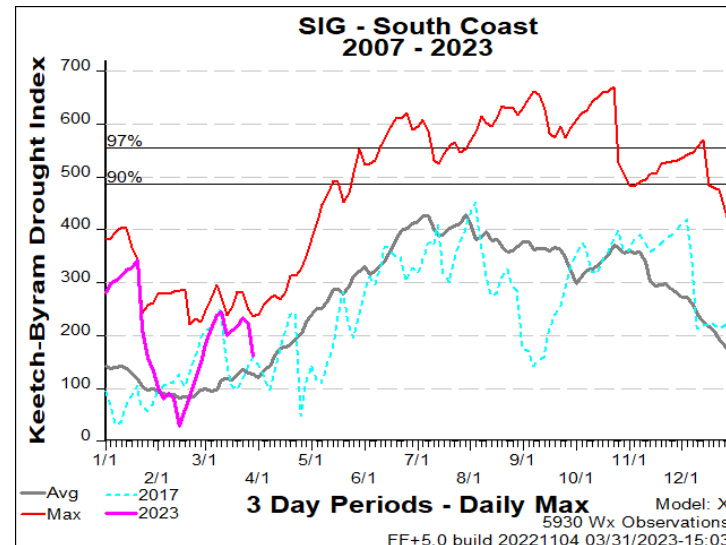
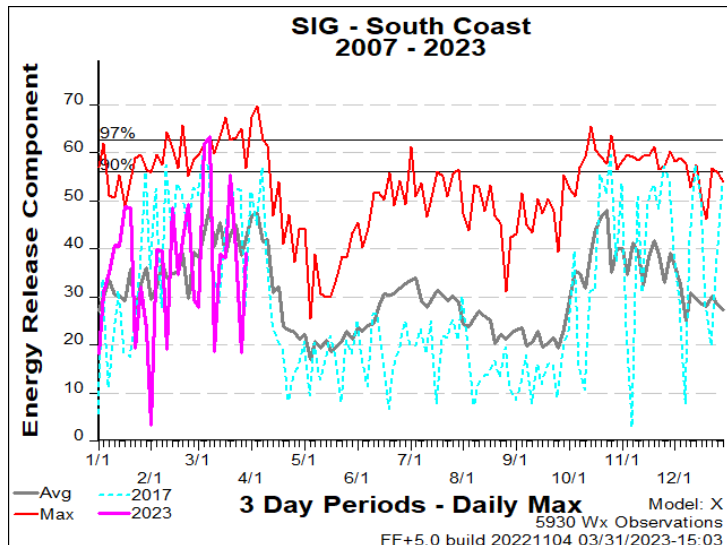
Values in the table above are averages from 4 stations in this FDRA:

- 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 01-Apr	SUN 02-Apr	MON 03-Apr	TUE 04-Apr	WED 05-Apr	THU 06-Apr	FRI 07-Apr
Avg. Max. Temp. (°F)	79	67	72	80	83	81	72
Avg. Min. Humidity (%)	57	34	47	57	59	60	50
Avg. 20' Wind Speed (mph)	18	9	6	7	9	8	9
Avg. Wind Direction*	SW	WNW	SSE	S	S	SSW	E
Avg. Probability of Precip. (%)	50	0	10	14	13	28	23
Days Since a Wetting Rain**	0.7	1.7	2.7				
Forecast ERC (Fuel Model X)	34.4	45.1	39.0	30.1	24.9	21.9	31.2
Forecast BI (Fuel Model X)	157.4	92.4	91.5	76.6	79.9	62.7	87.4
Forecast IC (Fuel Model X)	13.4	10.0	8.9	6.5	6.3	4.7	8.2
Forecast 100-Hr. FMC	19.5	18.4	17.8	17.4	17.9	18.4	18.5
Forecast 1000-Hr. FMC	22.7	22.7	22.7	22.5	22.2	21.9	21.8
KBDI	188.1						

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
1-Apr	Sat	High	Critical
2-Apr	Sun	High	High
3-Apr	Mon	Low/Mod	High
4-Apr	Tues	Low/Mod	High
5-Apr	Weds	Low/Mod	High
6-Apr	Thurs	Low/Mod	Low/Mod
7-Apr	Fri	Low/Mod	High

Weather Outlook Discussion

Newport/Morehead City NWS (Fire Weather Planning Forecast Discussion):

National Weather Service Newport/Morehead City NC
320 PM EDT Fri Mar 31 2023

...STRONG SOUTH TO SOUTHWEST WINDS SATURDAY...

.DISCUSSION...

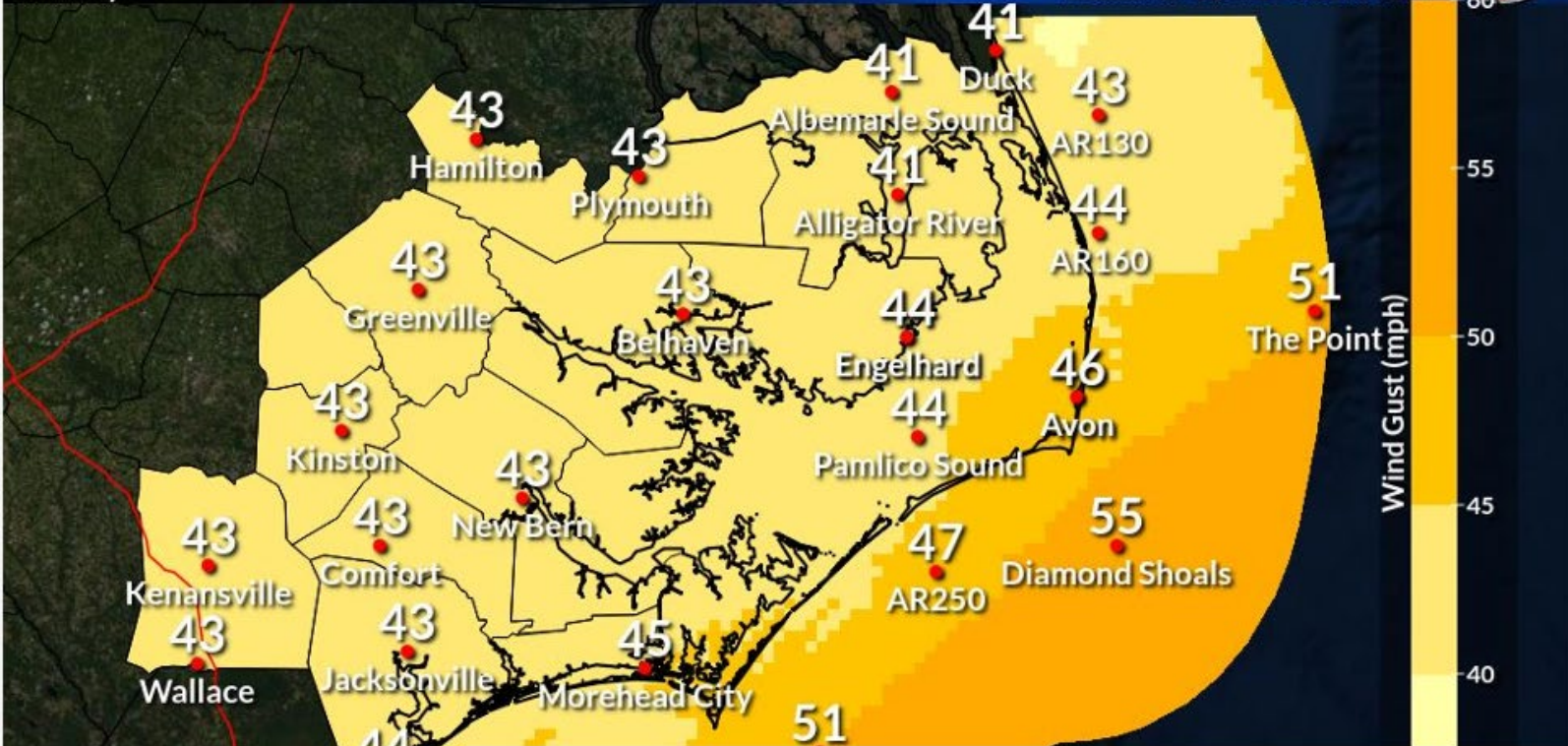
A strong cold front will approach the area through Saturday and cross the area Saturday night. Southerly winds will gust to around 25-30 mph through tonight, then peak on Saturday with widespread 40+ mph gusts expected. Occasional gusts to near 50 mph will be possible, especially if scattered showers and thunderstorms develop. Winds become northwest behind the front Saturday night and will gradually diminish through the day Sunday. A much dryer airmass builds in Sunday with minimum humidity around 30 to 35 percent. High pressure builds in through the middle of next week before the next potential front nears the area late in the week.

Maximum Wind Gusts

Saturday

Weather Forecast Office
Newport/Morehead City, NC

Issued Mar 31, 2023 5:21 AM EDT



Impacts

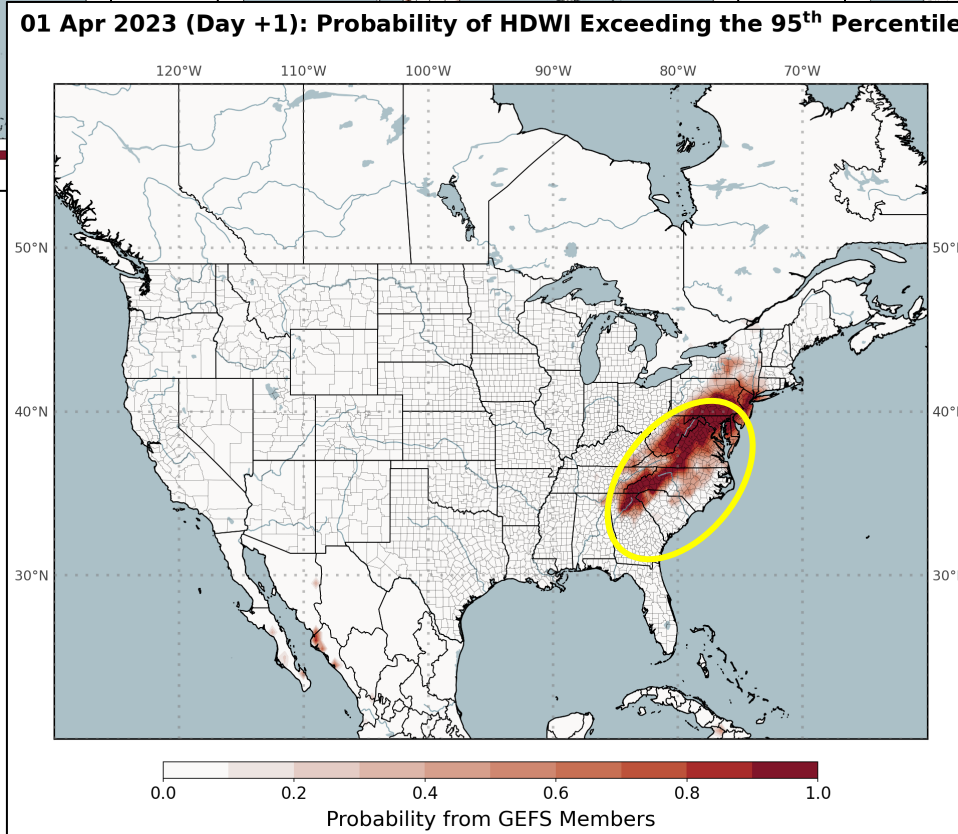
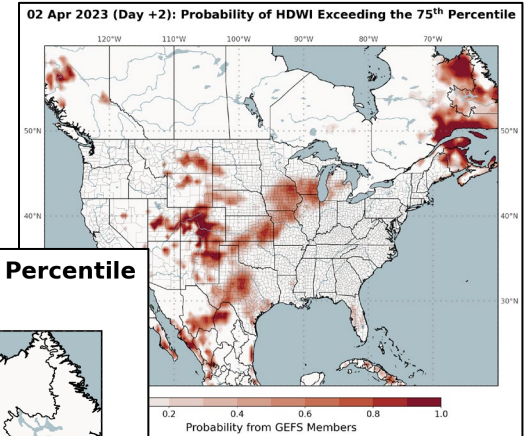
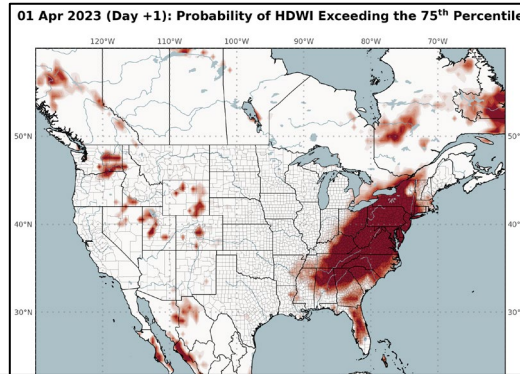
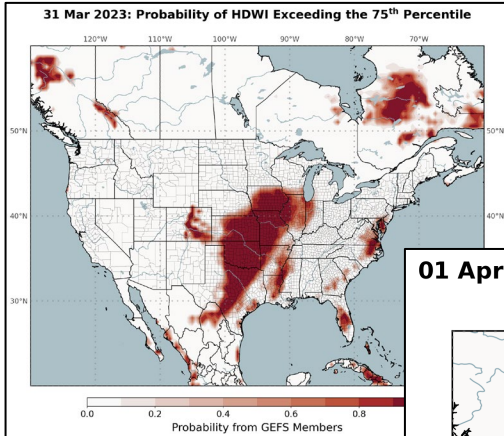
- Blowing around of unsecured objects and some tree damage. A few power outages may result.
- Scattered showers and storms could bring locally damaging wind gusts Saturday late morning through late afternoon.

Hot-Dry-Windy Index (HDW)

Saturday > 75th Percentile

Friday > 75th Percentile

Sunday > 75th Percentile



- Another visualization tool to pick up on broader predicted atmospheric conditions.
- Output comes from a multiplication of the maximum wind speed and maximum vapor pressure deficit (VPD) in the lowest 50 or so millibars in the atmosphere.
- Coarse Resolution - 0.5 Degree Grid
- **No** Account of Local Fuel Conditions and Topo.

Saturday > 95th Percentile

NC DAQ Air Quality Forecast - *Next Three Days*


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 31, 2023 at 2:17 pm.** ✔ This forecast is currently valid.

Today's Air Quality Conditions

Low Code Yellow ozone concentrations are being observed in the southern ridgetops today, with Code Green elsewhere. Daily average fine particulate concentrations in the upper Code Green to low Code Yellow range are being observed in areas of the Mountains and Piedmont, with lower Code Green conditions elsewhere.

 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

On Saturday, a strong closed low pressure system will traverse eastward over the Great Lakes/NE region of the US. The attendant cold front will sweep across NC over the course of the day and the prefrontal showers, very strong winds and mixing will hold ozone and fine particulates in the Code Green range.

Outlook

Expect continued Code Green air quality on Sunday as a cooler, cleaner airmass from the north settles in behind the fropa. Both ozone and fine particulate concentrations may build into Monday as winds shift more south-southwesterly but values should remain Code Green.

Author: *Kreuser*- NC Division of Air Quality

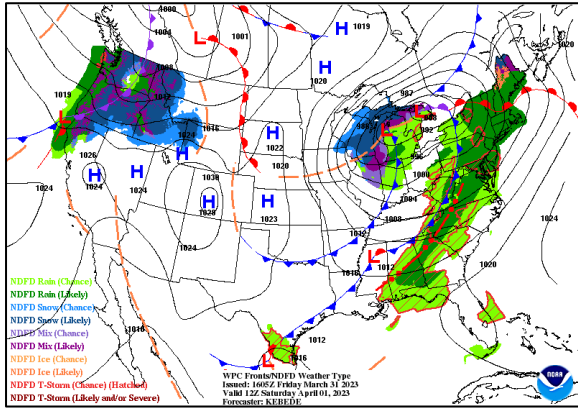
Extended Air Quality Outlook

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.

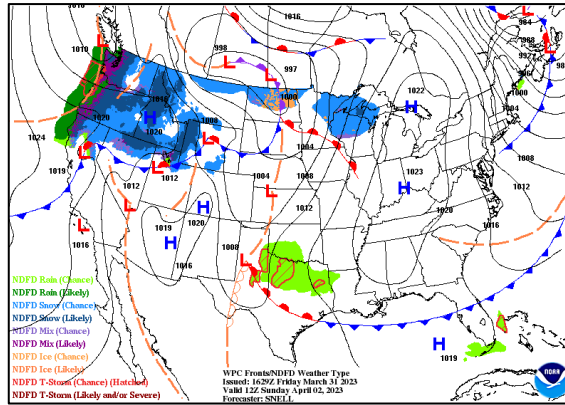
Forecast Day	AQI Range	Category Range
Friday (Mar 31)	50 to 85	Green to Yellow
Saturday (Apr 1) 🌧️	35	Green
Sunday (Apr 2)	40	Green
Monday (Apr 3)	45	Green

WPC Forecasted Surface Fronts & Sea-Level Pressures

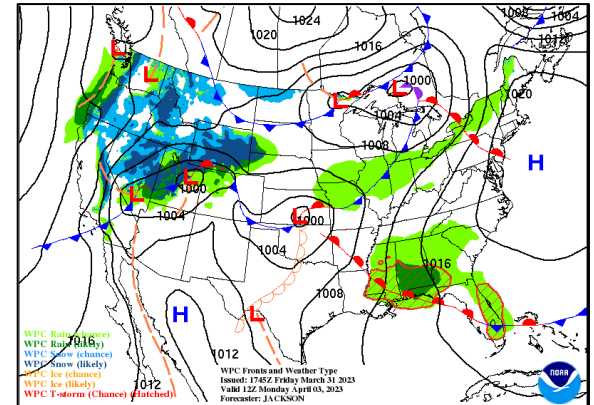
Saturday – 800 am



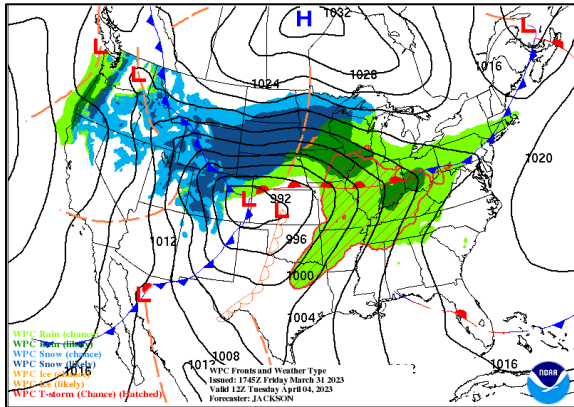
Sunday - 800 am



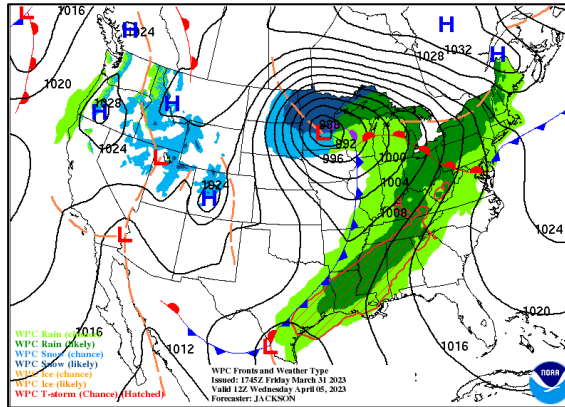
Monday - 800 am



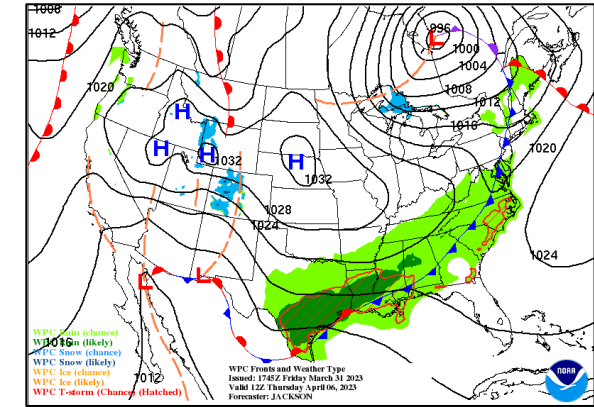
Tuesday - 800 am



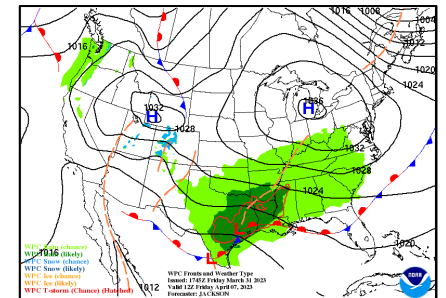
Wednesday - 800 am



Thursday - 800 am

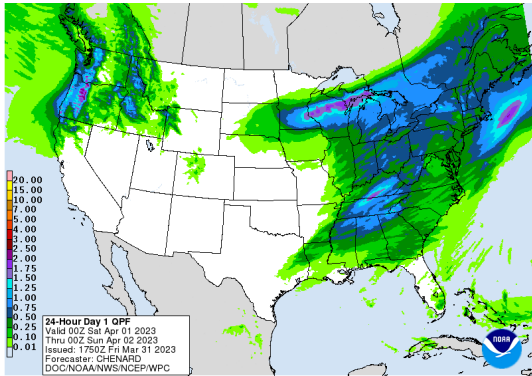


Friday - 800 am

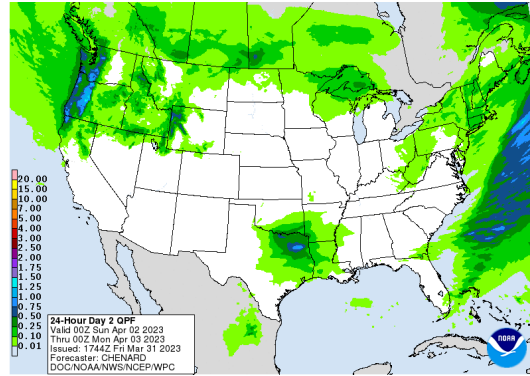


Quantitative Precipitation Forecast, 7-Day

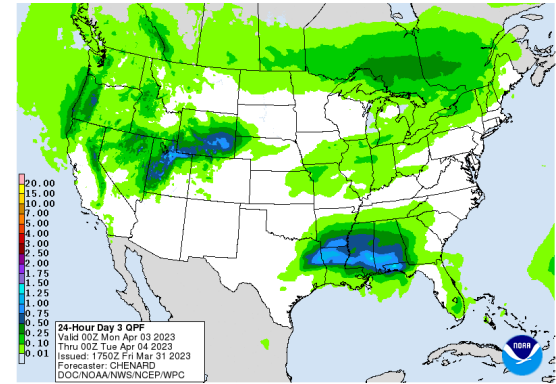
Day - 1



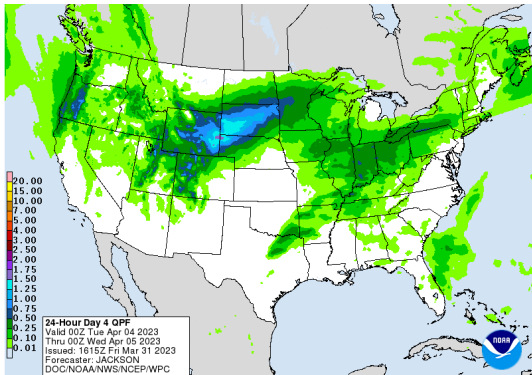
Day - 2



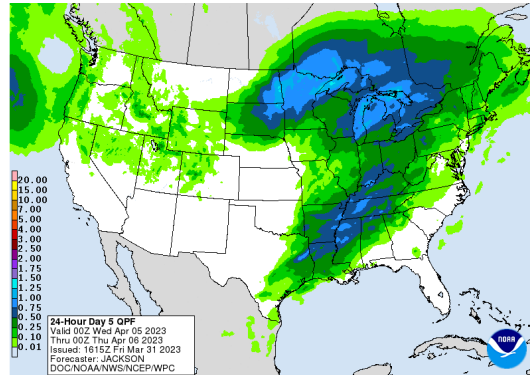
Day - 3



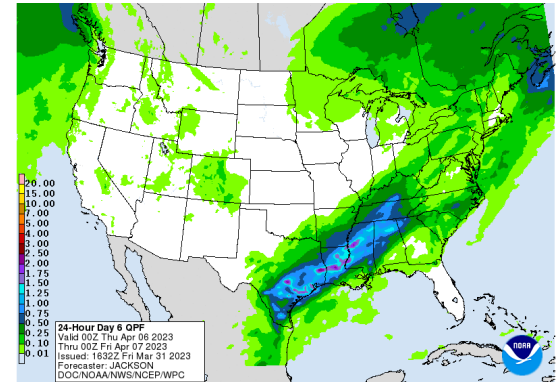
Day - 4



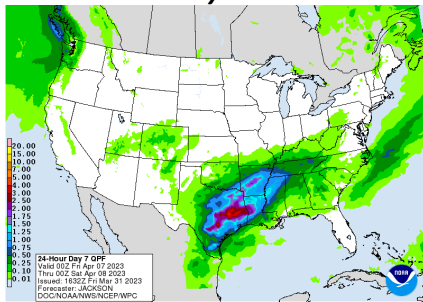
Day - 5



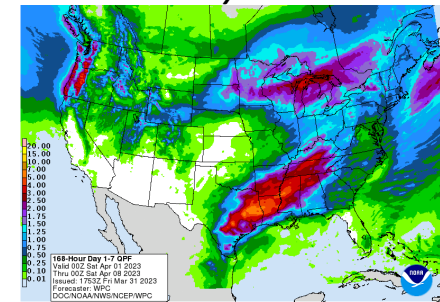
Day - 6



Day - 7



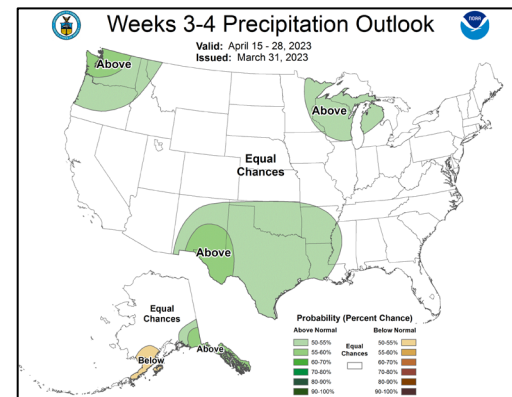
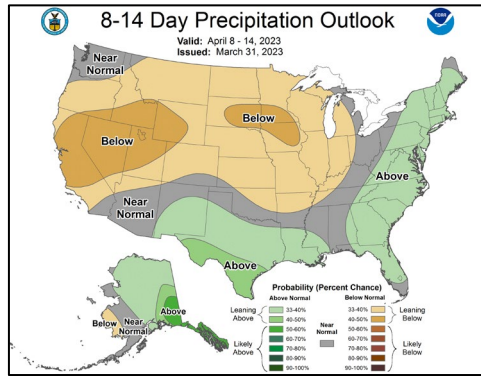
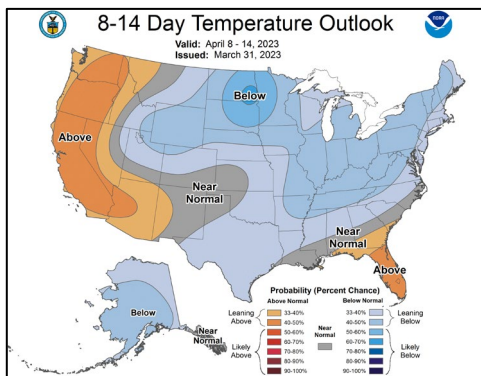
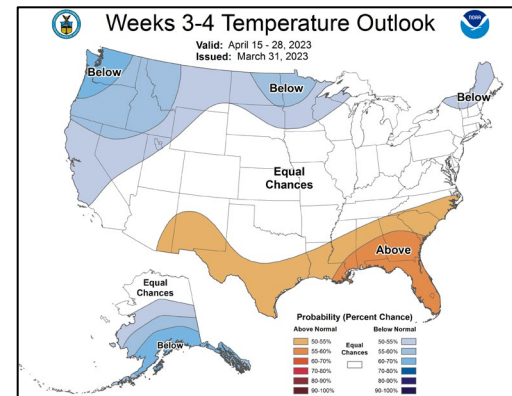
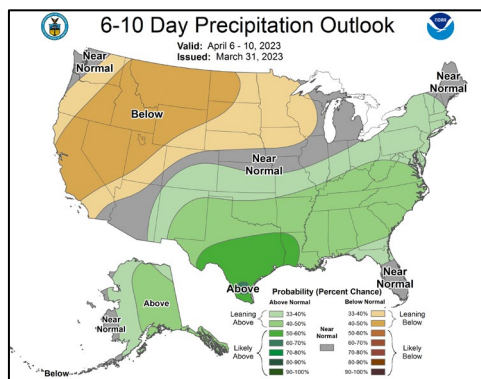
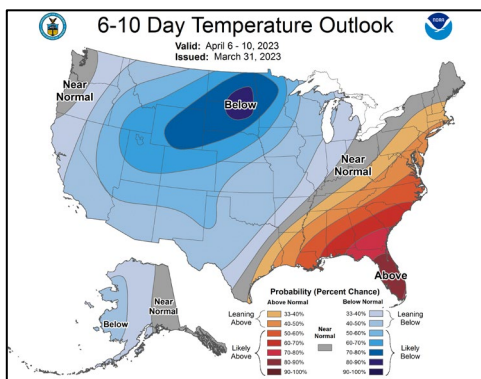
Days 1 - 7



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

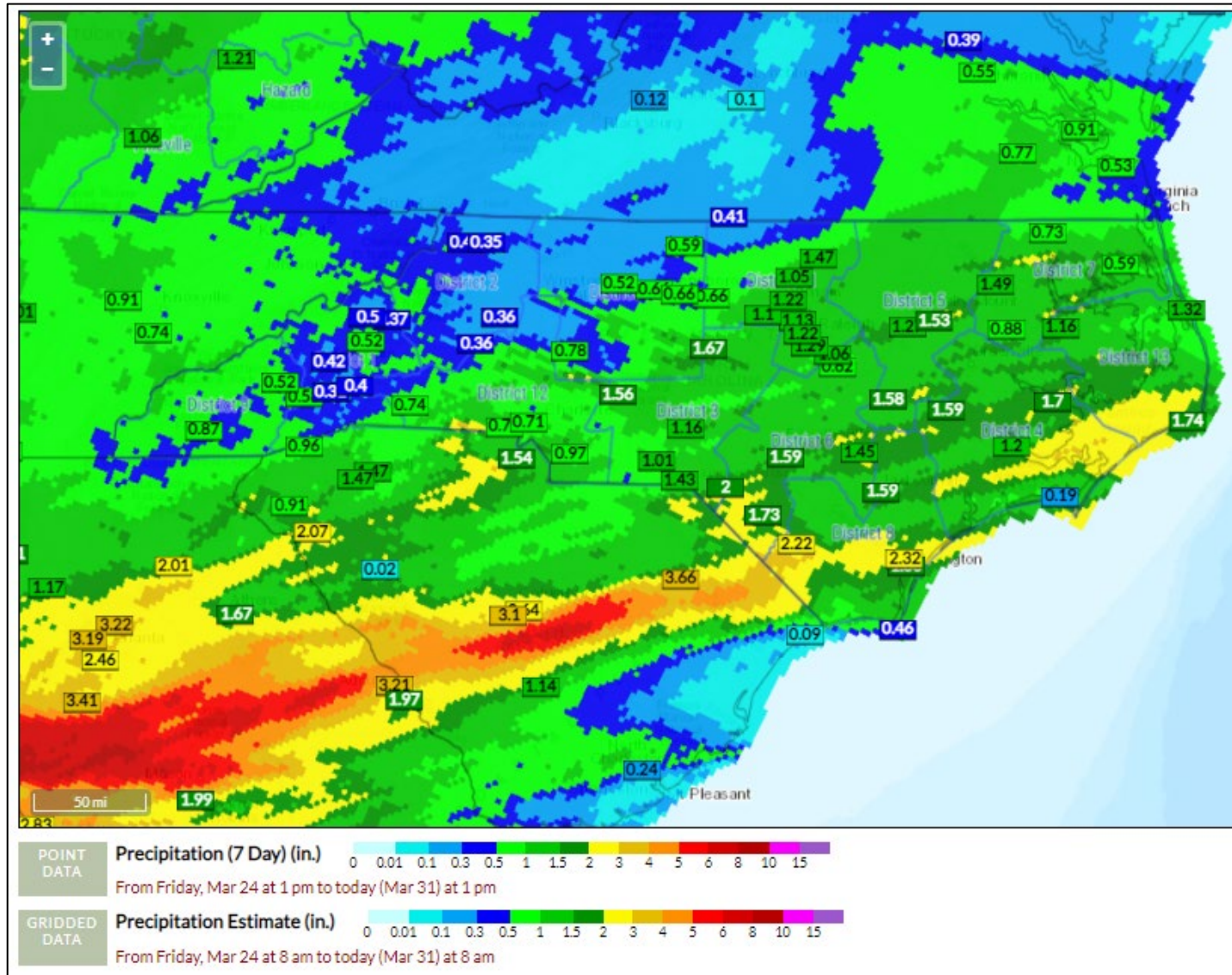
Temp & Precip Outlook

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



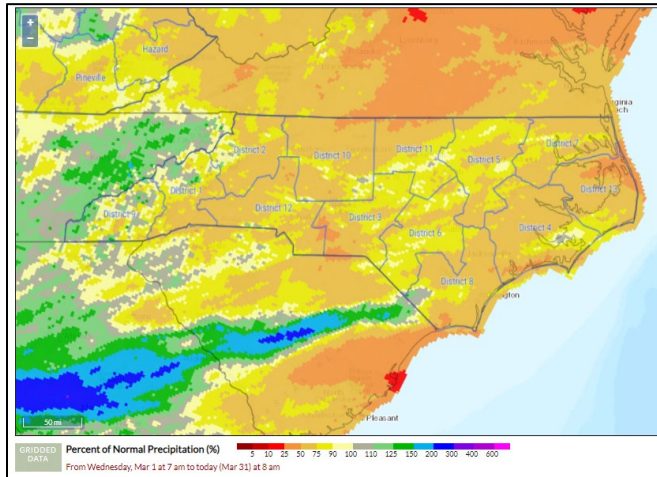
7 Day Precipitation Totals

FWIP (Point accumulation ending at 1300 on 3/31, Grid ending 0800 3/31)

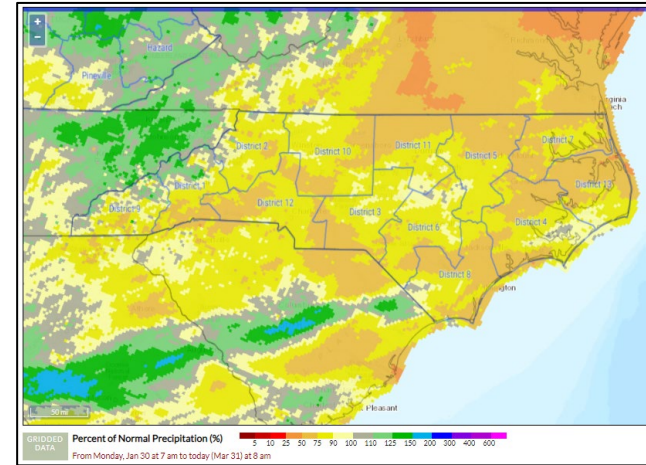


Percent of Normal Precip, *FWIP* (Ending 0800 3/31)

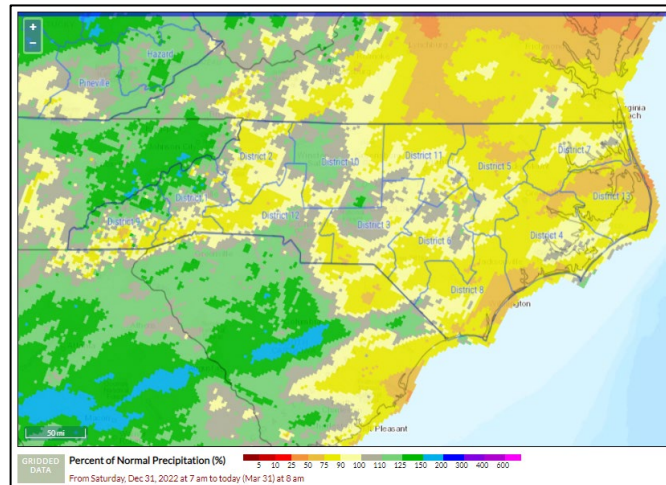
30-Day % of Normal



60-Day % of Normal

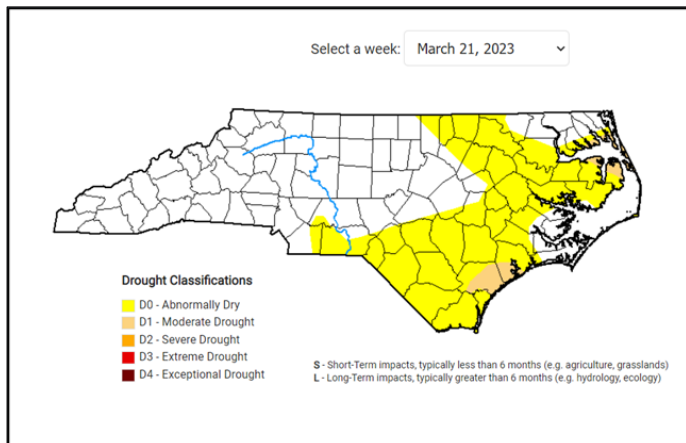


90-Day % of Normal

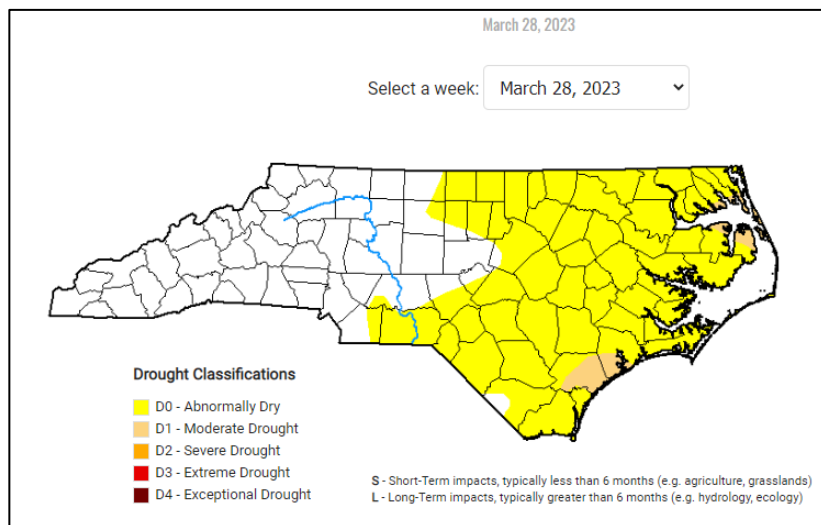


Drought Situation

Previous Week:



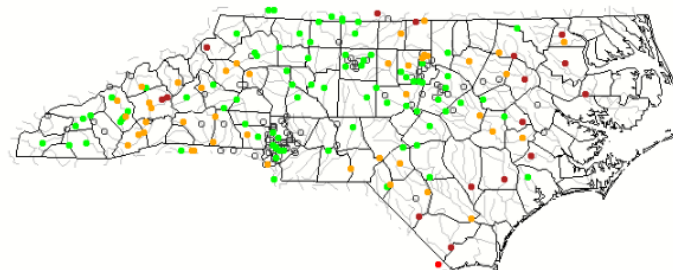
Current Week:



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

North Carolina | Water-Resources Regions | All Days

Thursday, March 30, 2023



Choose a data retrieval option and select a location on the map

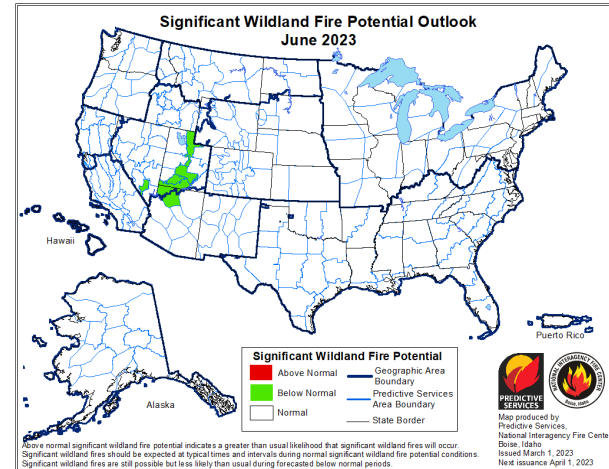
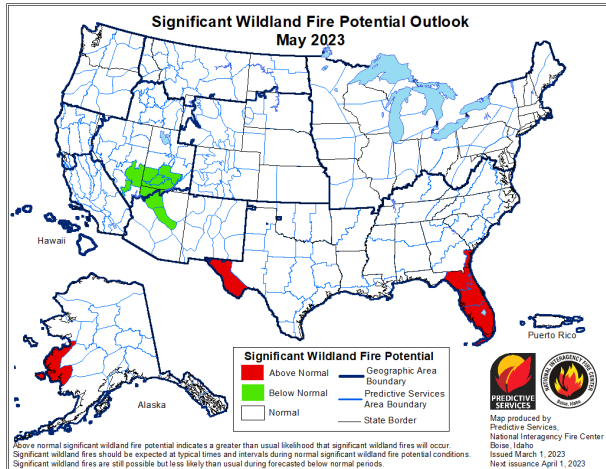
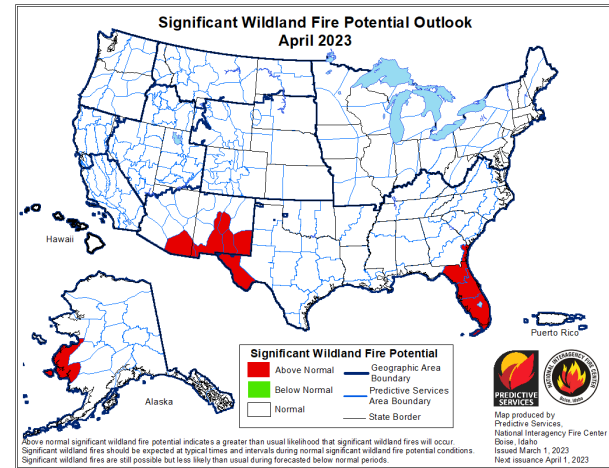
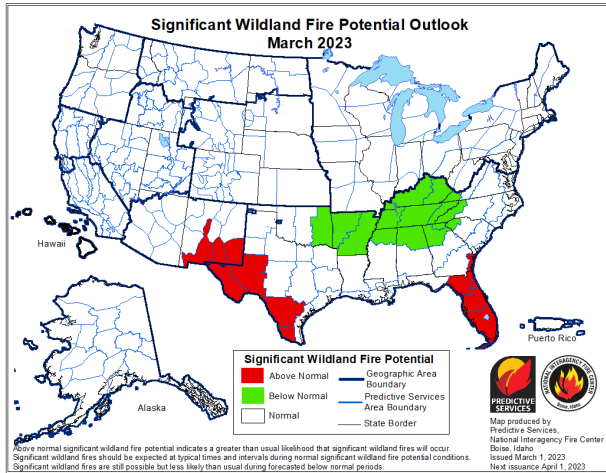
List of all stations Single station Nearest stations

Explanation - Percentile classes						
●	●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	Not-ranked

- D-0 Abnormally Dry Conditions Expansion (~56% of State)
- D-1 Moderate Drought in Several Counties. (~2% of State)
- 7-Day Stream flow averages continue to decline, note decline in both East and West.

Significant Wildland Fire Potential Outlook:

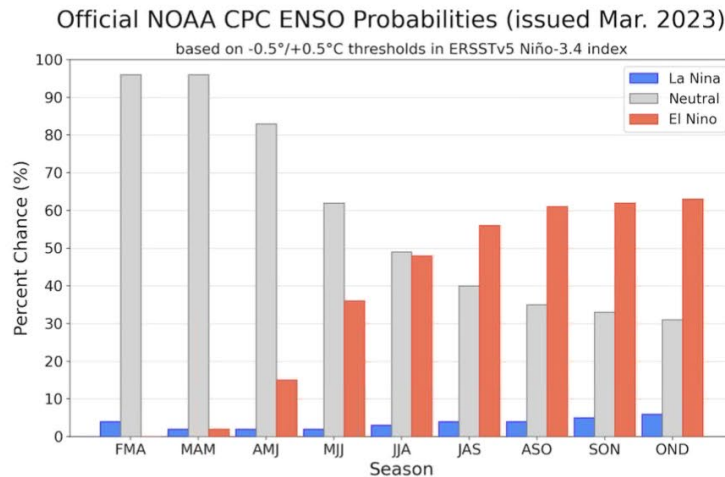
Updated 3/1/23 – **Next Update on 4/1/23**



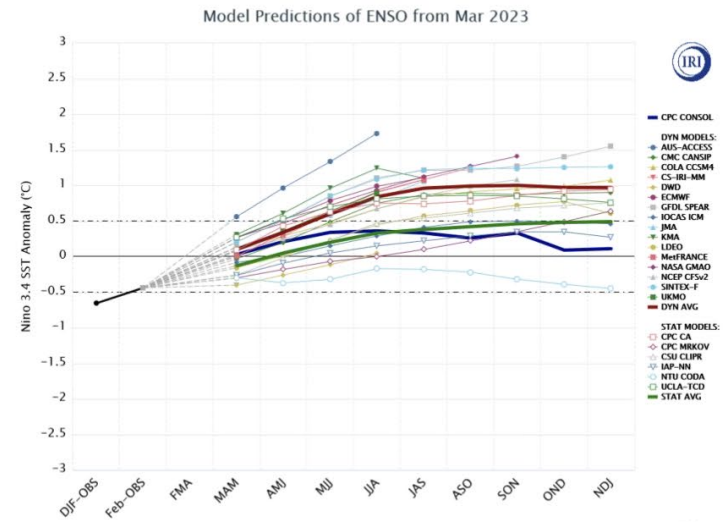
A significant fire is one that requires resources from outside the district (other than aviation). IA potential is based more on shorter term weather factors. Just a few days of dry weather can increase IA activity considerably as we have already seen this year.

ENSO Note

ENSO (El Niño-Southern Oscillation)



La Niña has ended, and ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring and early summer 2023. There is a chance of El Niño forming during the summer, with at least a 60% chance by the August-October period.

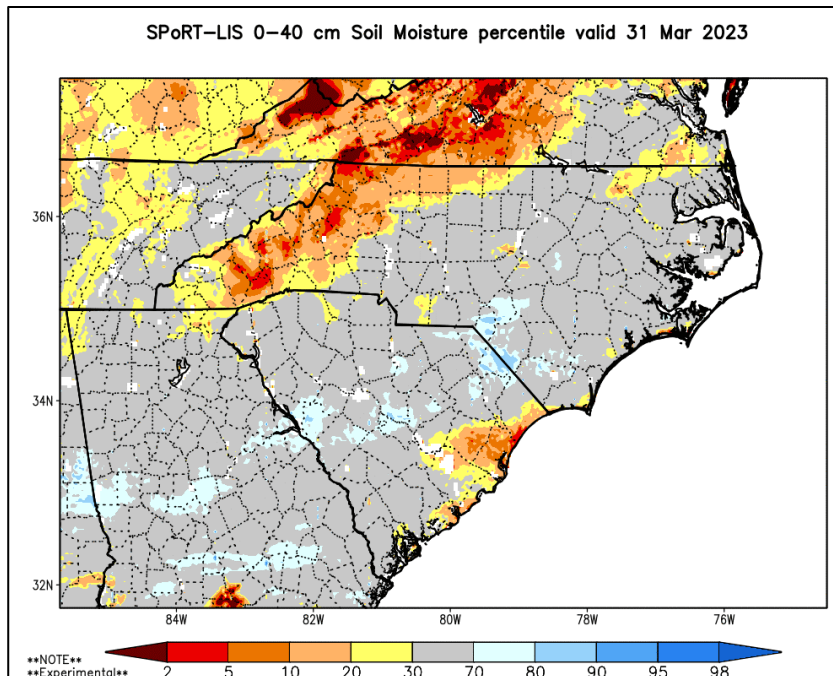


https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-sst_table

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

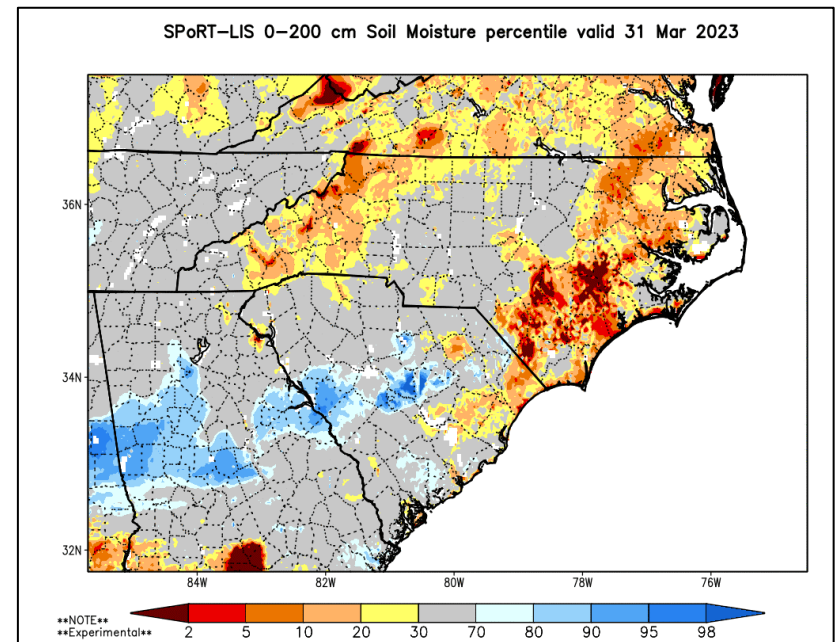
SPoRT Relative Soil Dryness

0-40 cm Depth



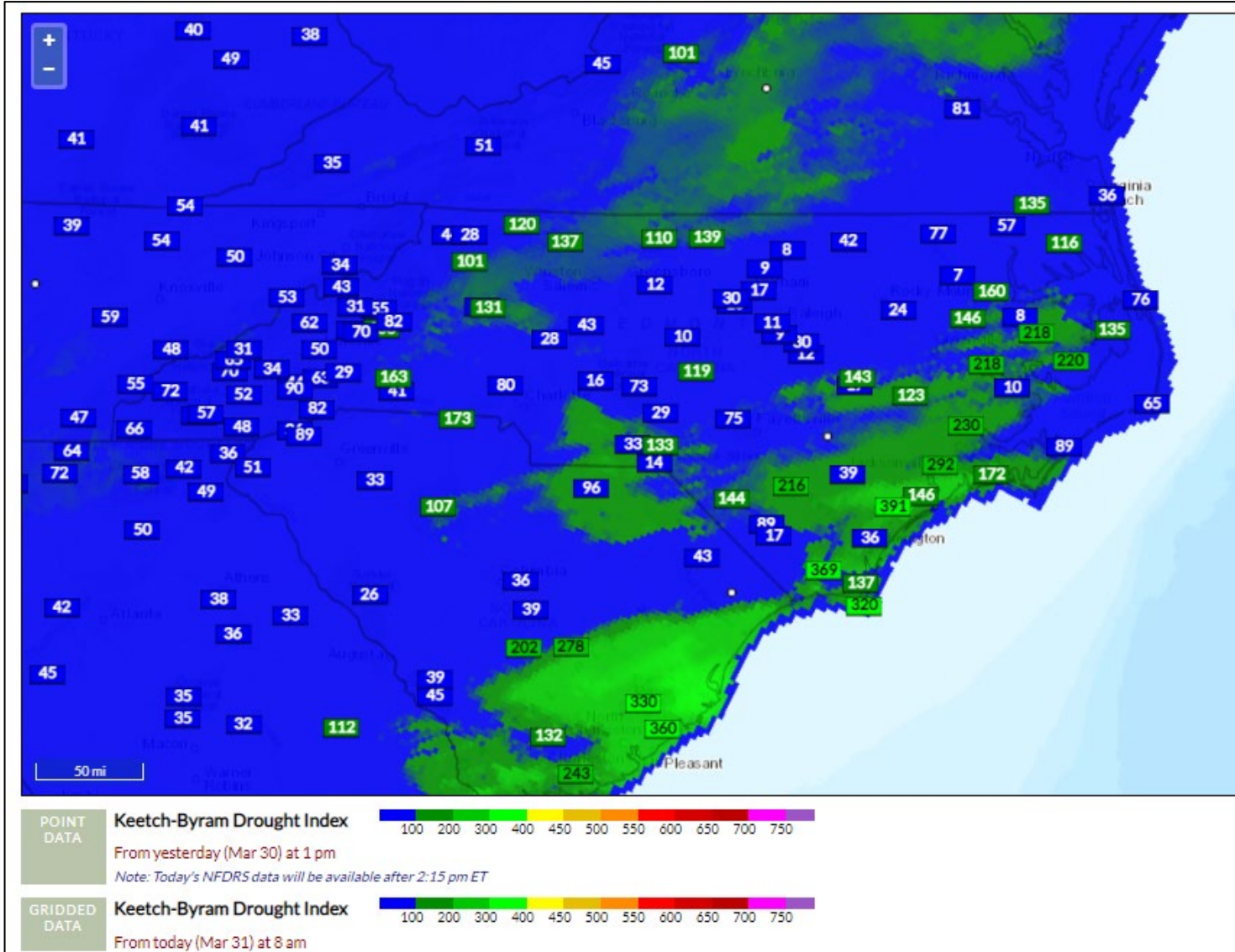
- Overall Modeled Drying Trend Continues
- Recent Rains have benefited areas to the east, note short-term reduction in shallow dryness.

0-200 cm Depth



KBDI - Gridded & Station Points

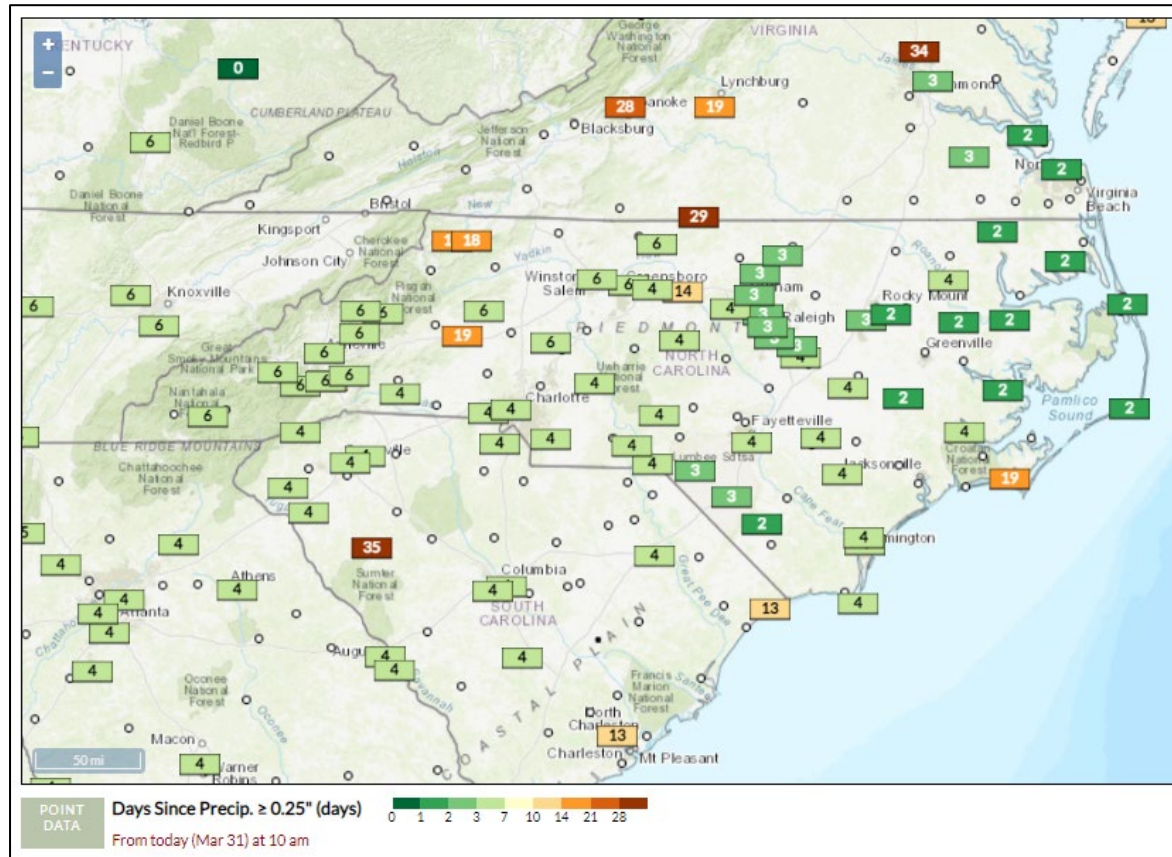
FWIP (Point calculation from 1300 on 3/30, Grid ending 0800 3/31)



Days Since Daily Precip $\geq 0.25''$

Note – Latest product run was on 3/31/23 at 1000.
Does not consider rainfall after that point.

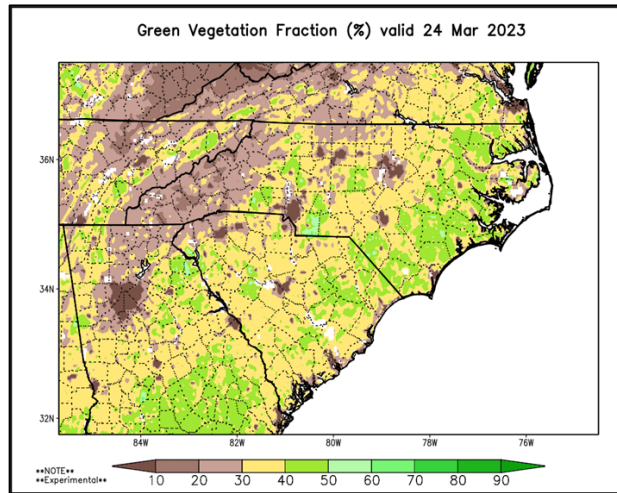
*Displaying ECONet, ASOS and AWOS Sites Only



Green Fraction & Green-Up Anomaly

- Green-Up Continues

Last Week



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

Current

