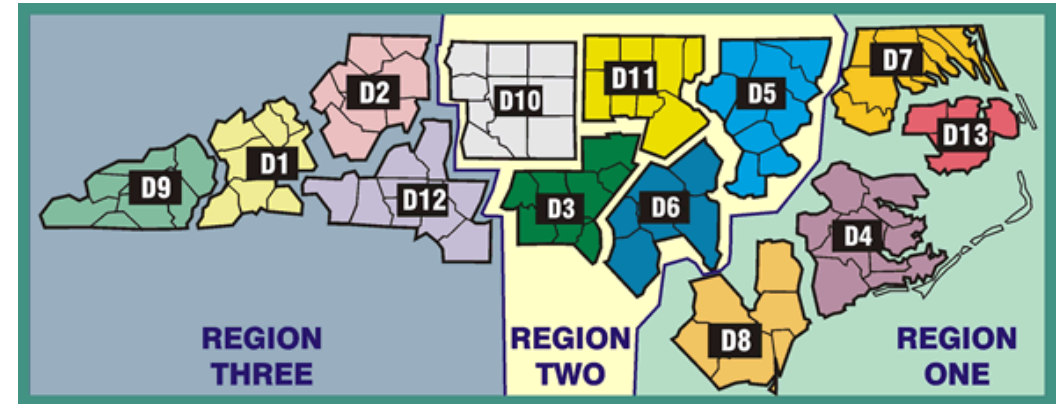


Statewide Seasonal Fire Danger Assessment

– November 2023 Update –



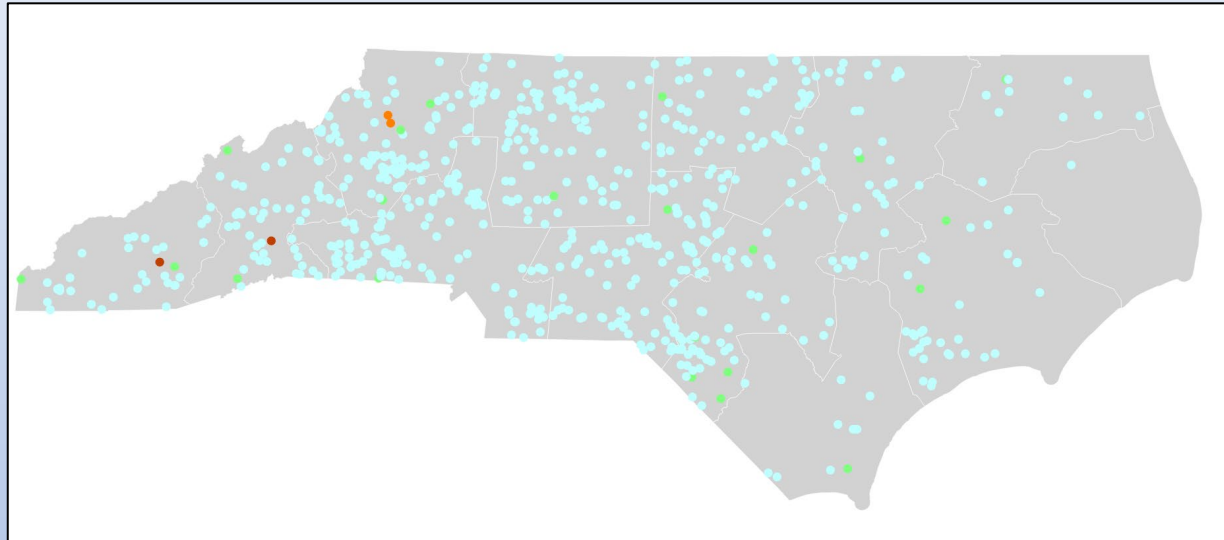
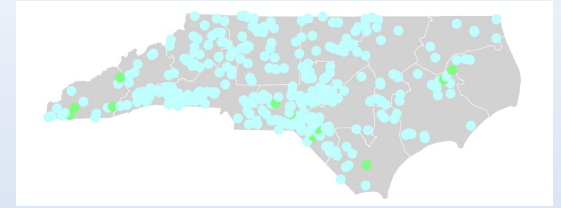
Month to Date Incident Activity

fiResponse Incident Location Map (for general context, preliminary data)

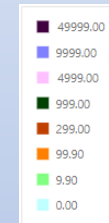
Date Range: 11/1 – 11/14, 2023

Report: Business Intelligence Module, Response Trends Map

10/1 – 10/31

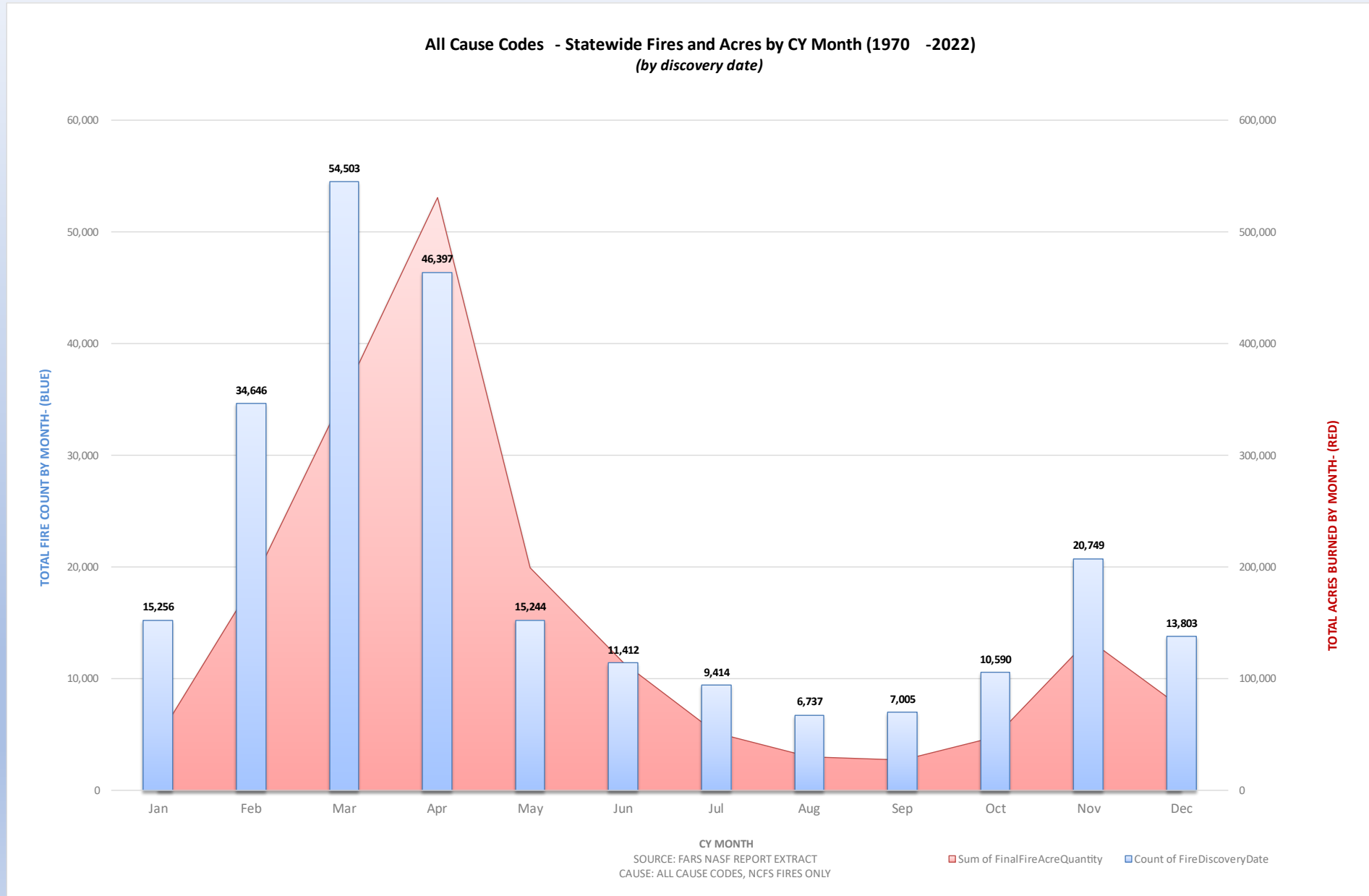


Legend by Size
Class Range
(acres)

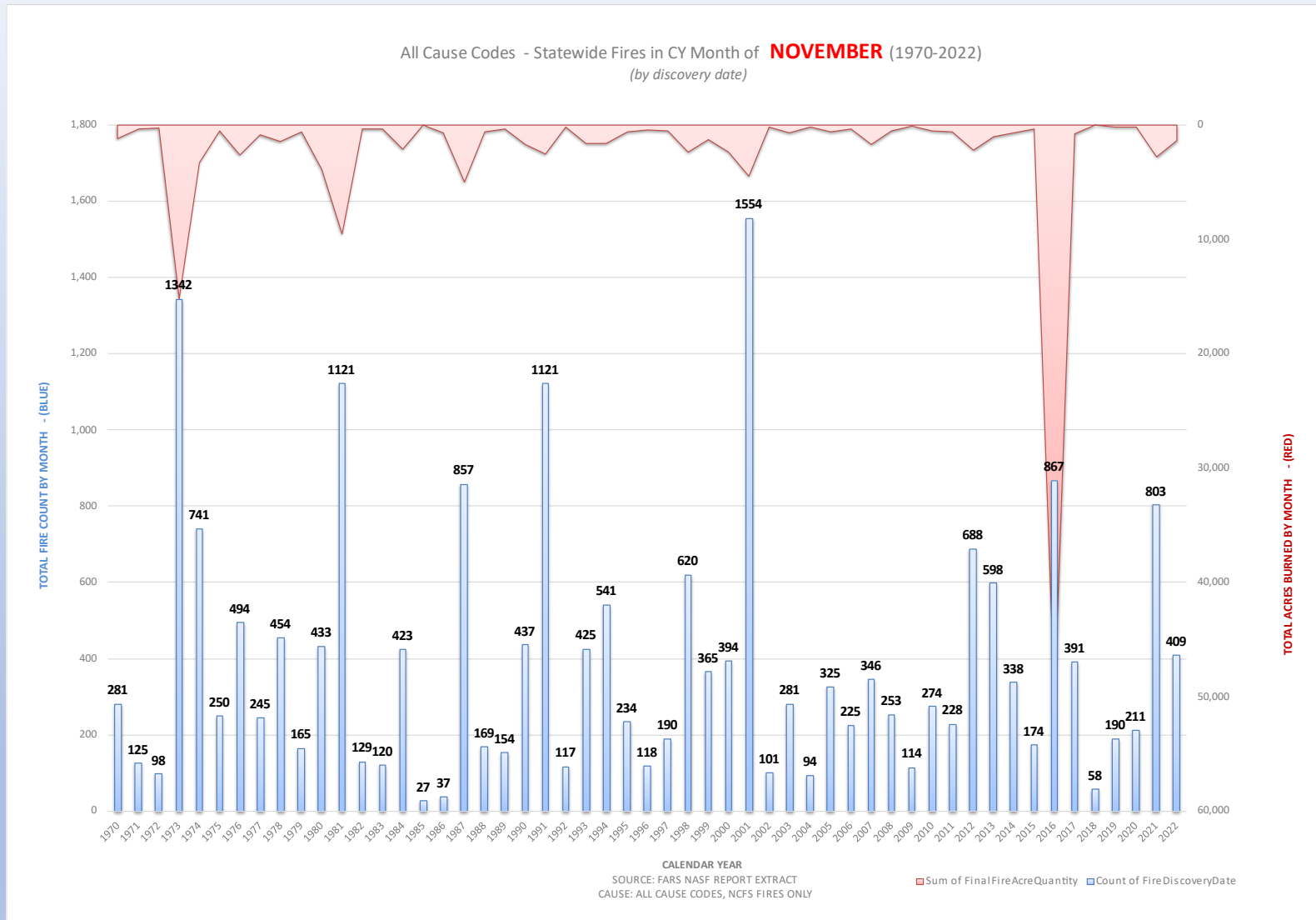


NCFS – By Region				
Monthly <u>Fire</u> Activity (Does Not Include Federal Ownerships)				
Data Source:	Signal 14 Regional Activity Summary Report (Signal 14 is a daily snapshot in time)			
Date Range:	11/1 – 11/13, 2023			
Area	Wildfire Count	Wildfire Acres	RX Count (State & Private)	RX Acres (State & Private)
R1	46	143	0	0
R2	314	481.1	7	251
R3	262	809.5	3	48

Distribution of **All Fires & Acres by Month** from 1970 - 2022



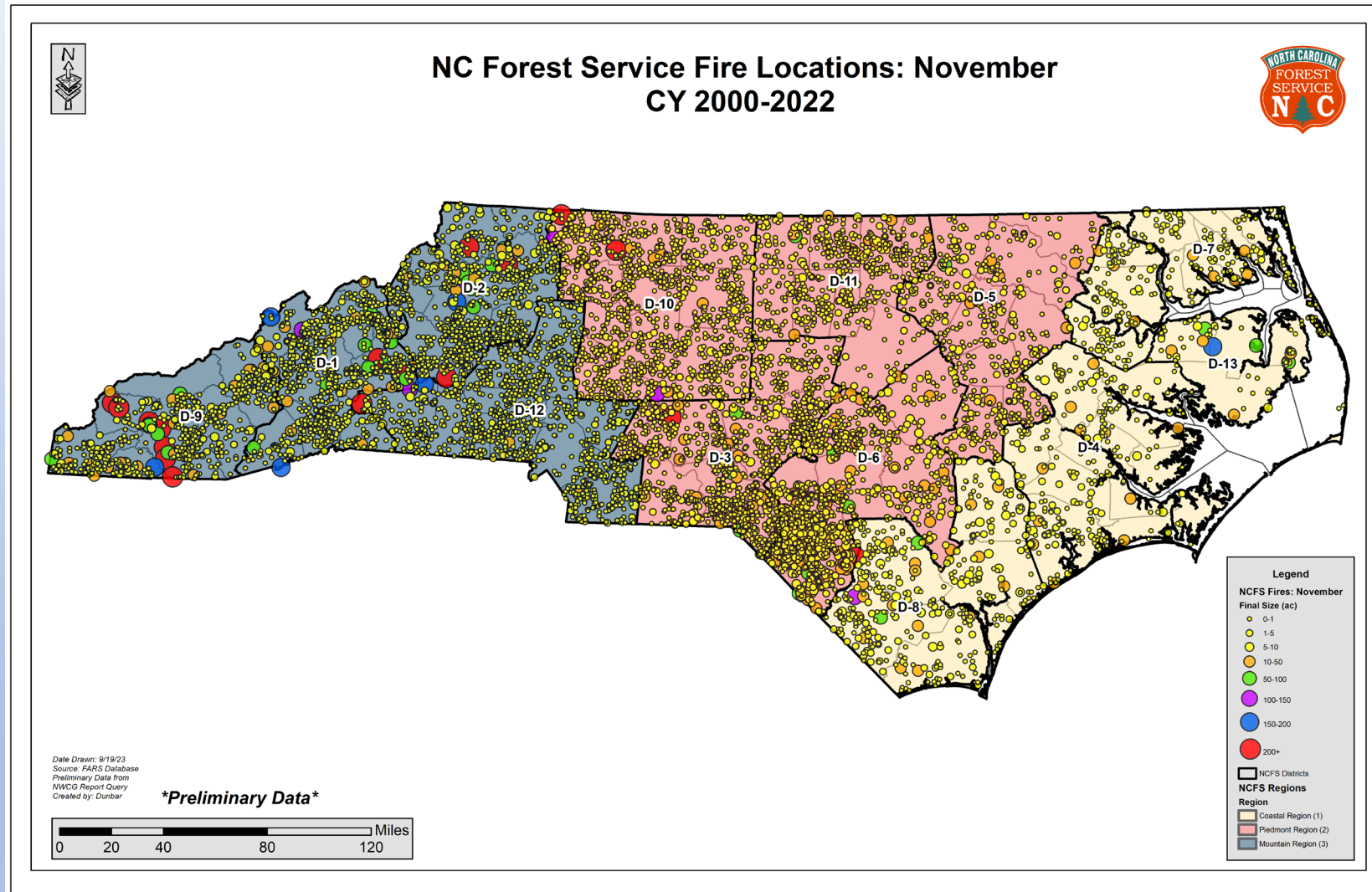
Distribution of **All Fires for month of November** from 1970 - 2022



Cause: All Cause Codes, Statewide, NCFS Reported Fires Only

10-Yr. Rolling Average for November: ~ 404 Fires for 5,763 Acres

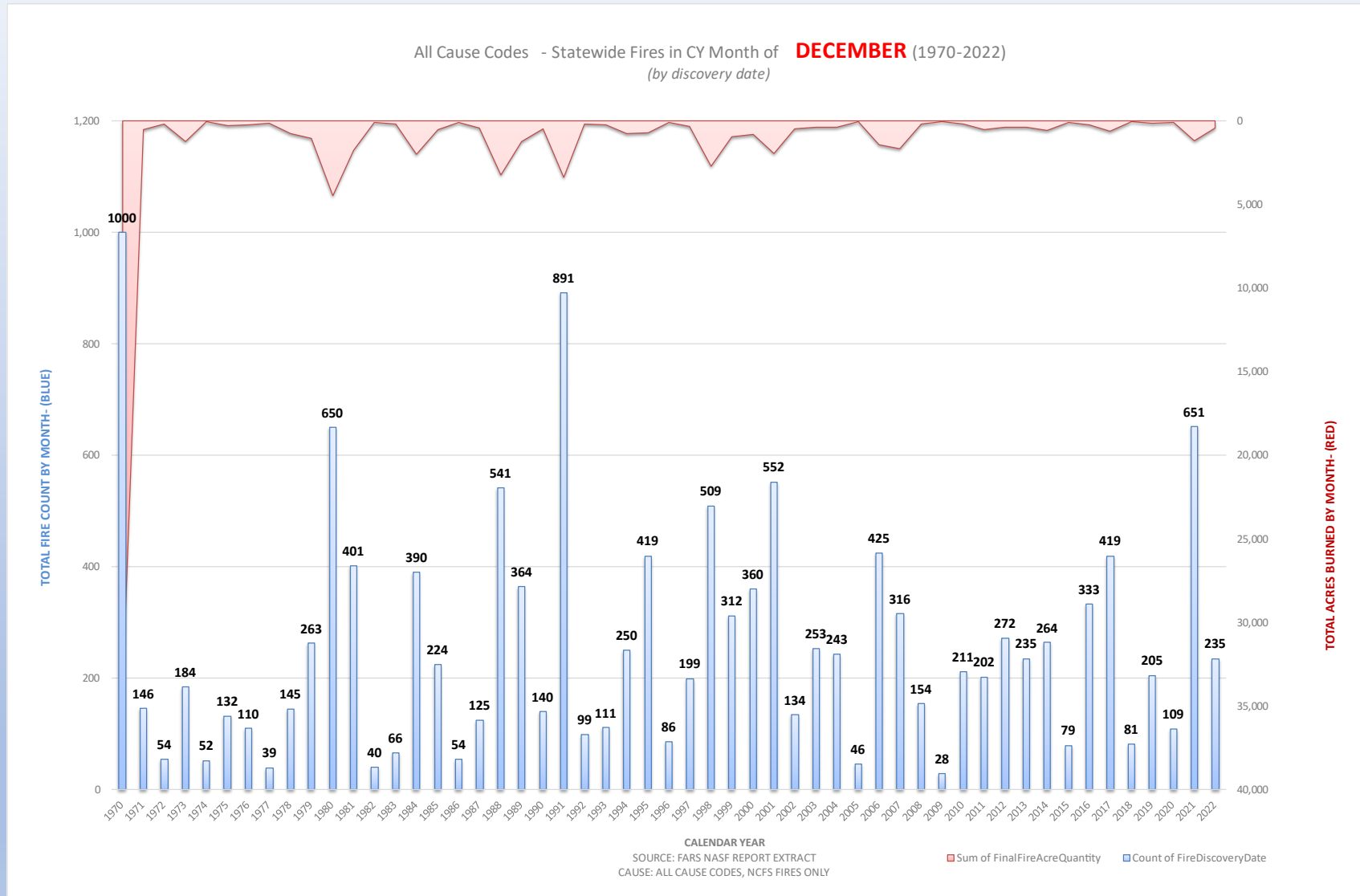
Fire Locations of **All Fires for month of November** from 2000 - 2022



Cause: All Cause Codes, Statewide, NCFS Reported Fires Only

10-Yr. Rolling Average for November: ~ 404 Fires for 5,763 Acres

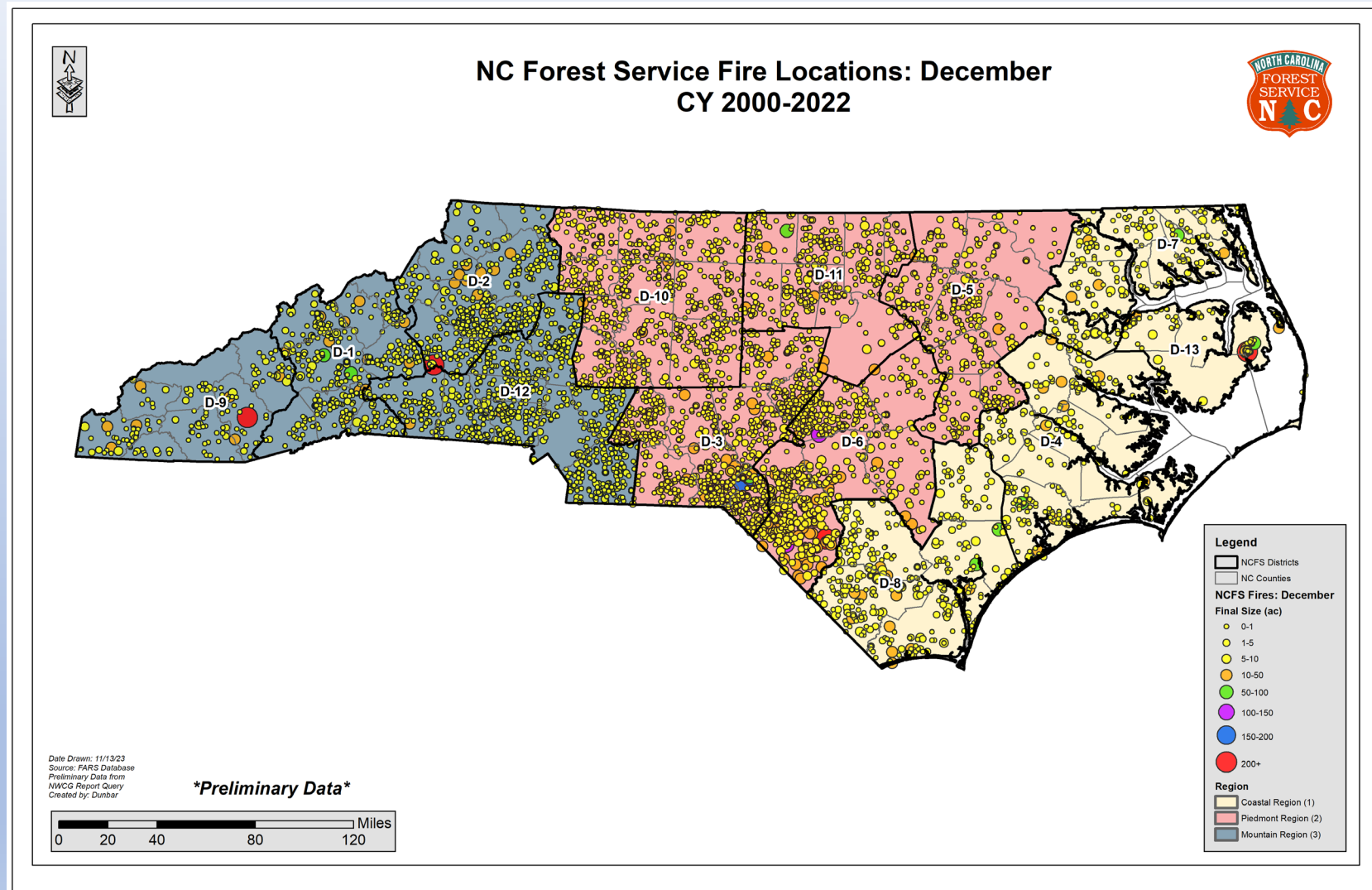
Distribution of **All Fires for month of December** from 1970 - 2022



Cause: All Cause Codes, Statewide, NCFS Reported Fires Only

10-Yr. Rolling Average for December: ~ 261 Fires for 375 Acres

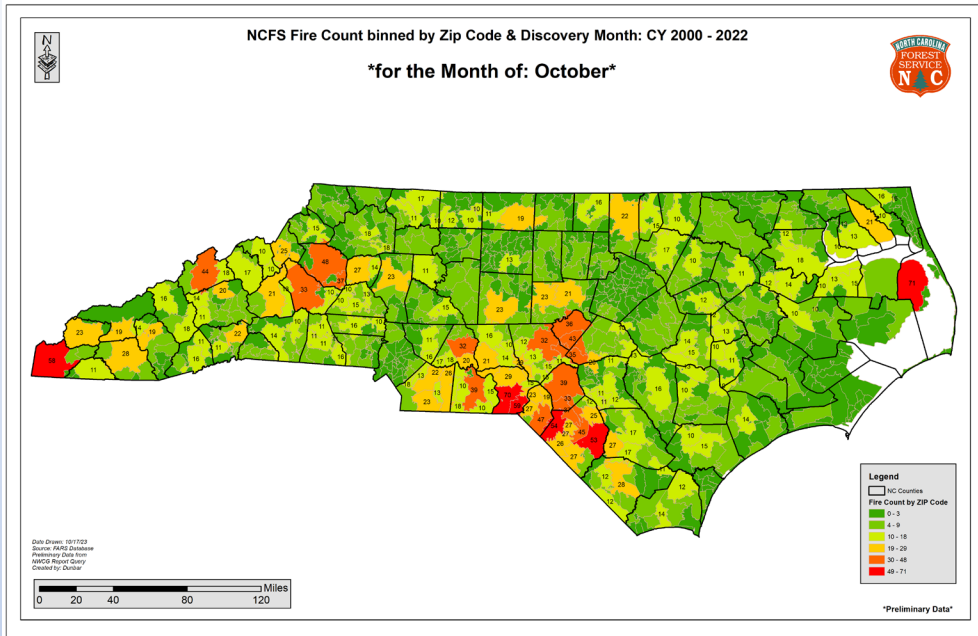
Fire Locations of **All Fires for month of December** from 2000 - 2022



Cause: All Cause Codes, Statewide, NCFS Reported Fires Only

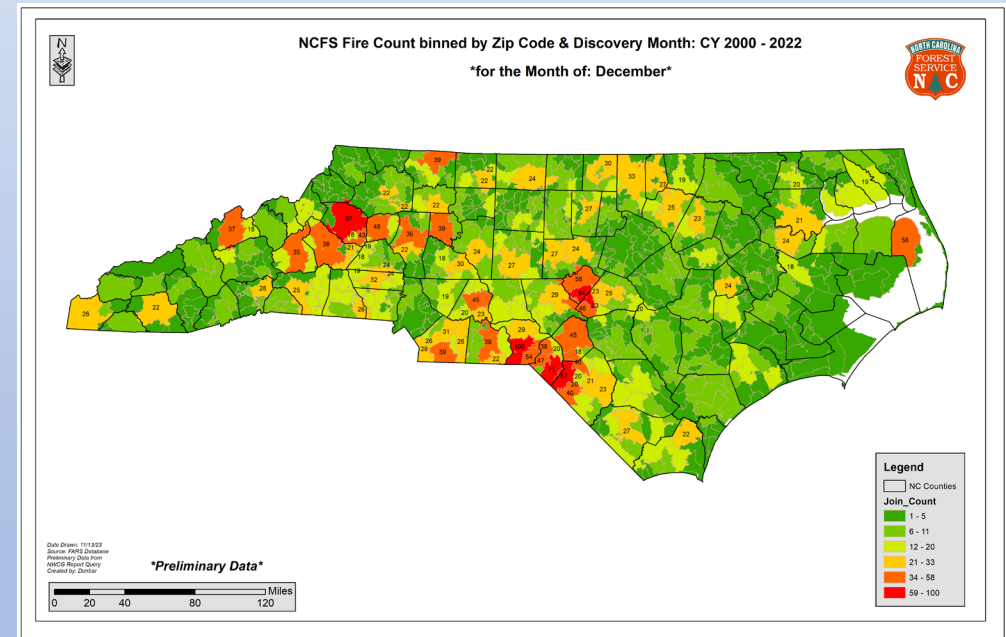
10-Yr. Rolling Average for December: ~ 261 Fires for 375 Acres

October

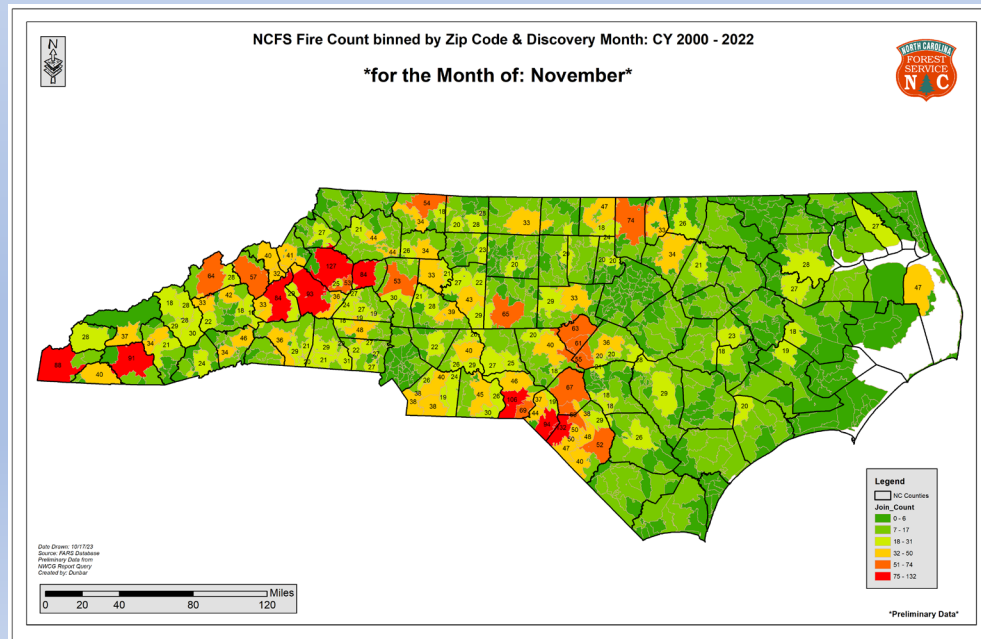


Fire Count Binned by Zip Code & Discovery Month CY 2000-2022

December



November

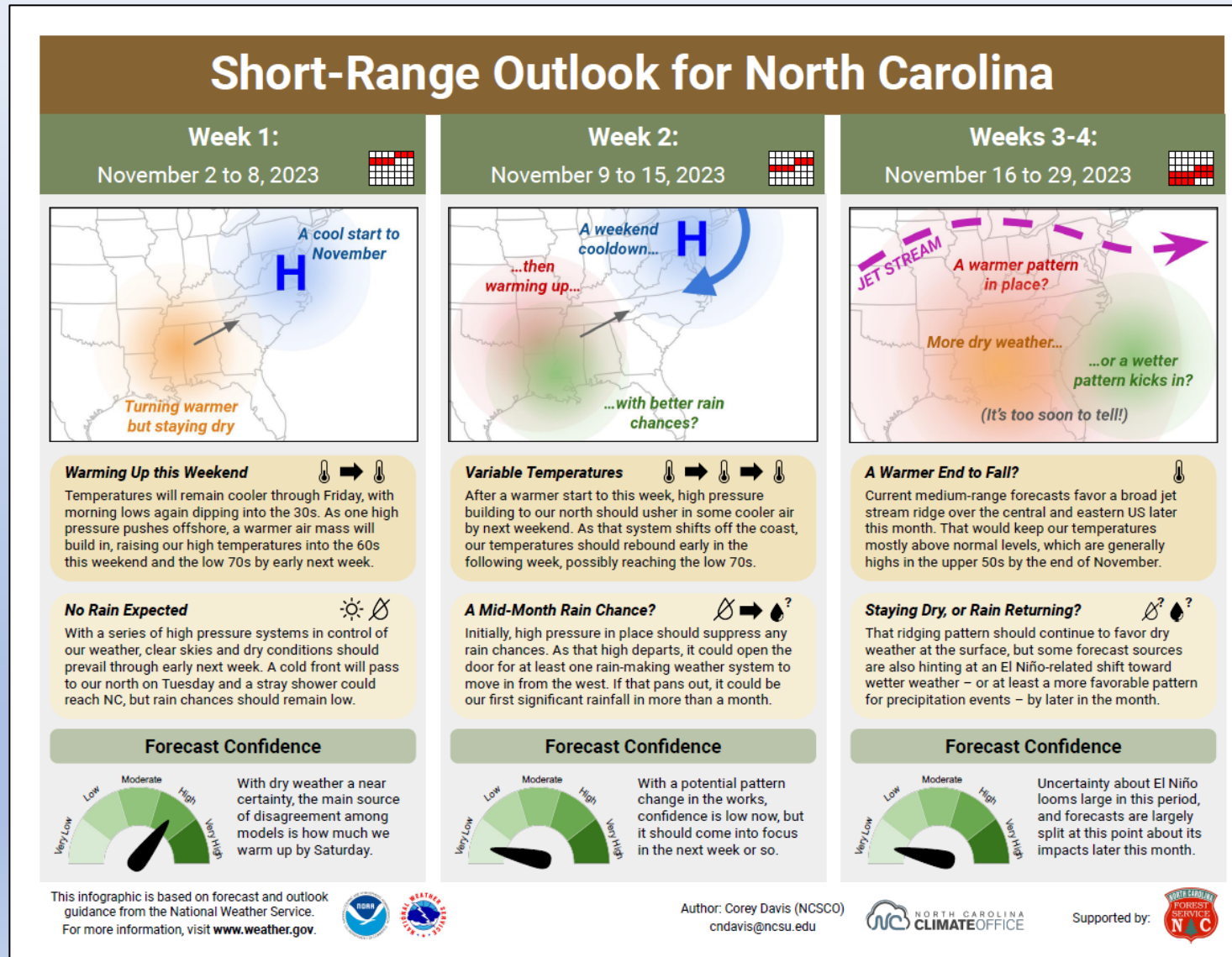


Fire Environment Slides

Summary at End

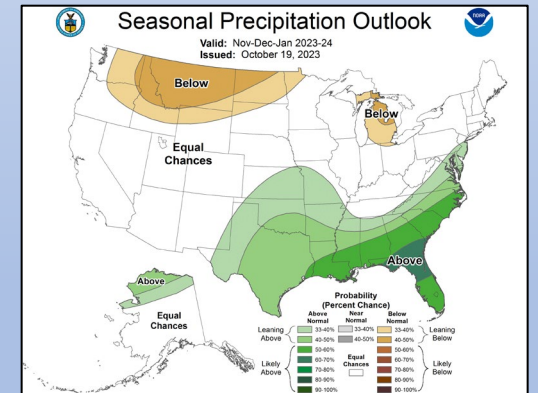
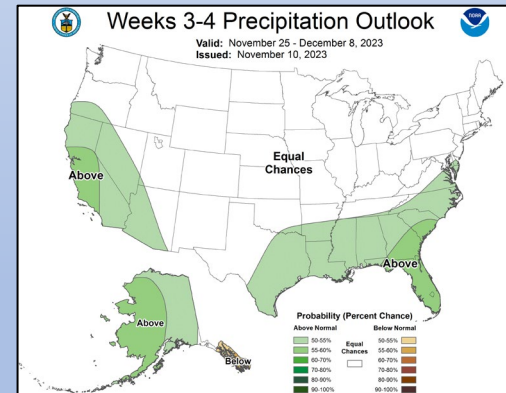
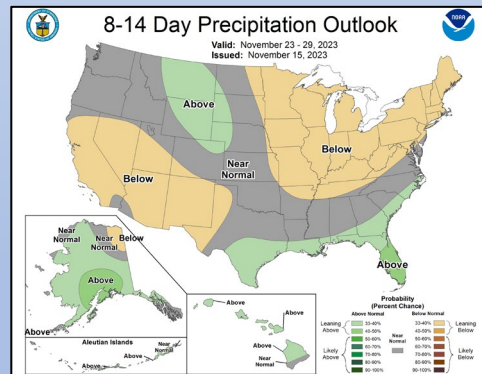
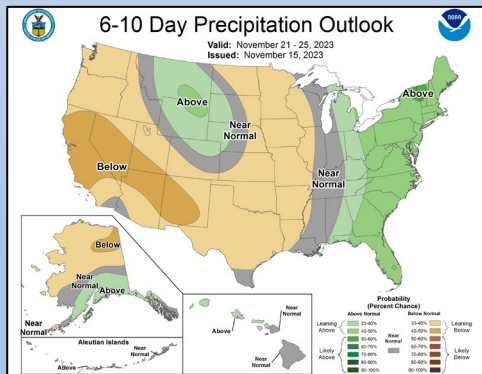
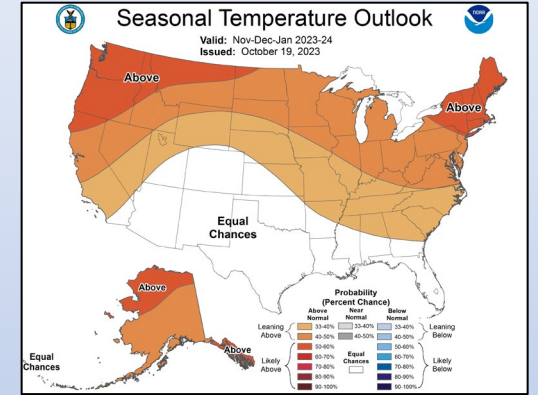
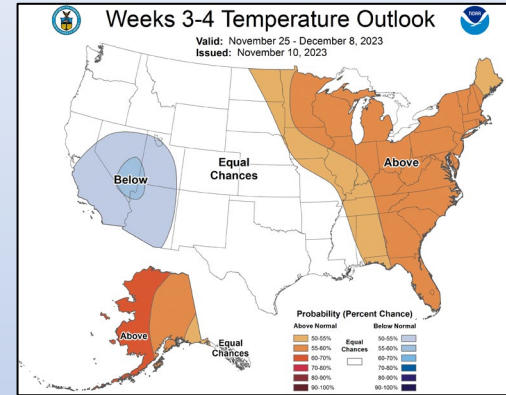
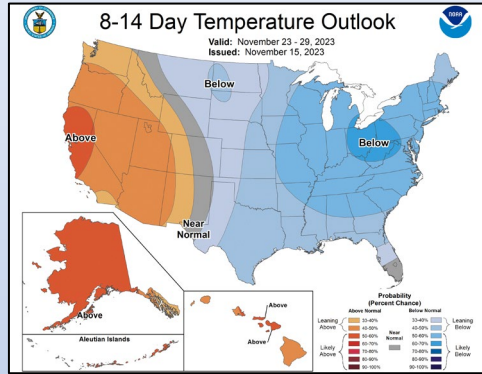
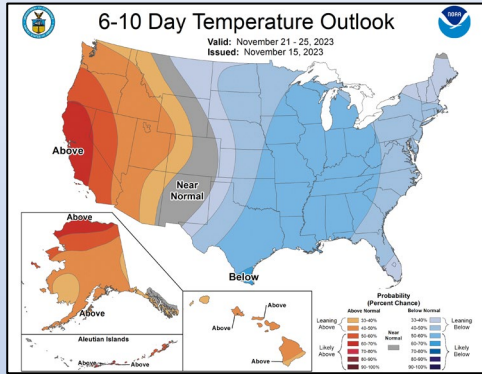
State Climate Office: Short-Range Monthly Outlook for NC

Released **11/2/23** & Location: <https://climate.ncsu.edu/fire/outlooks/>



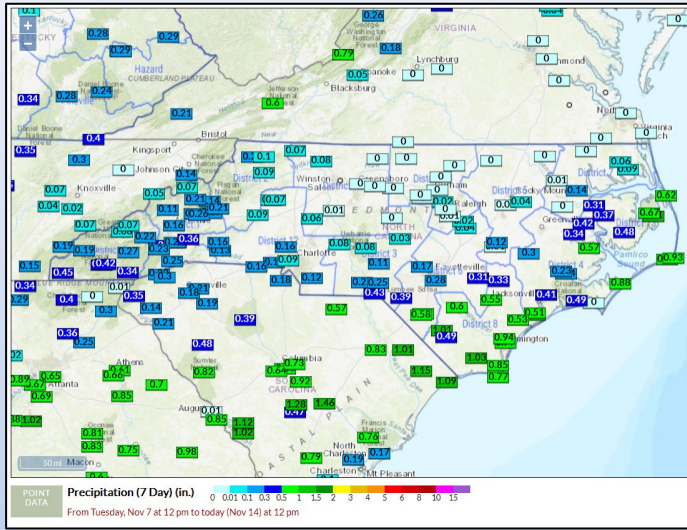
CPC Temp & Precip Outlook

6-10 Day, 8-14 Day, Weeks 3-4, Seasonal



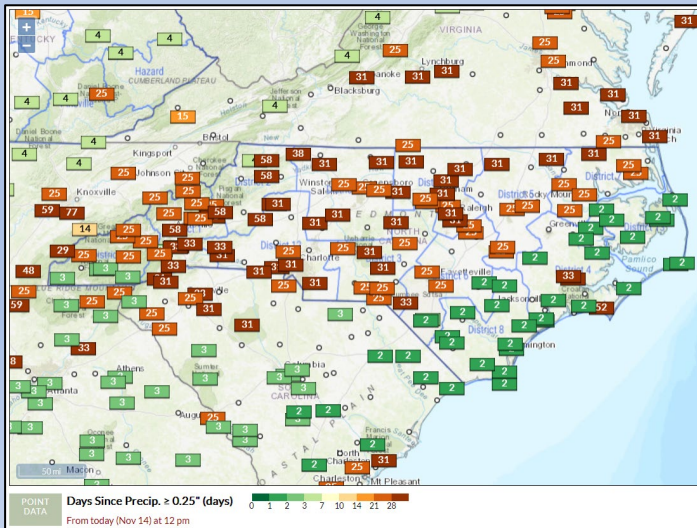
7 Day Precipitation Totals

FWIP (Point accumulation ending at 1200 on 11/14)



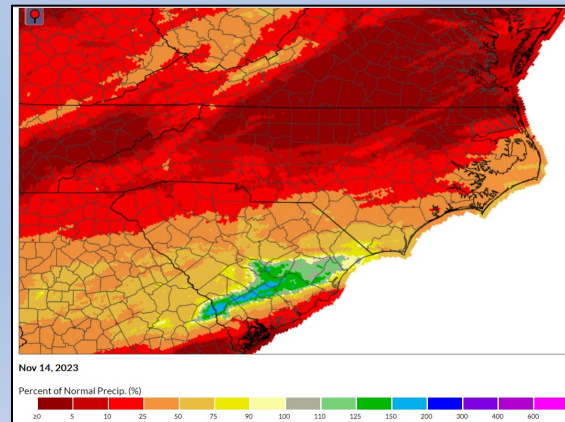
Days Since Wetting Rain Event

FWIP (Point calculation ending at 1200 on 11/14)



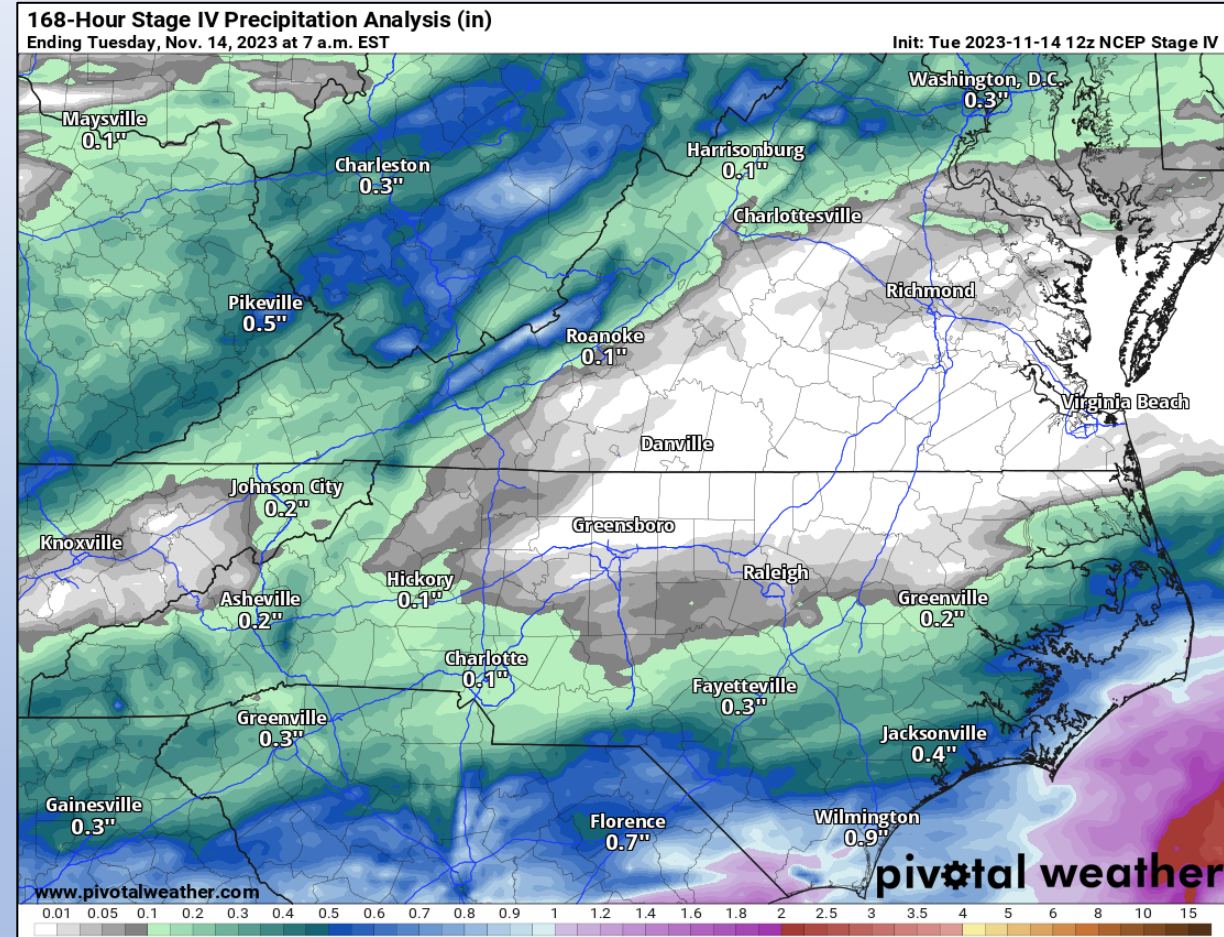
Short-term benefits, but well behind in weekly, monthly and seasonal scale.

14-Day Percent of Normal Rainfall (below) including this rain event.



Modeled 7-Day Observed Precip Totals

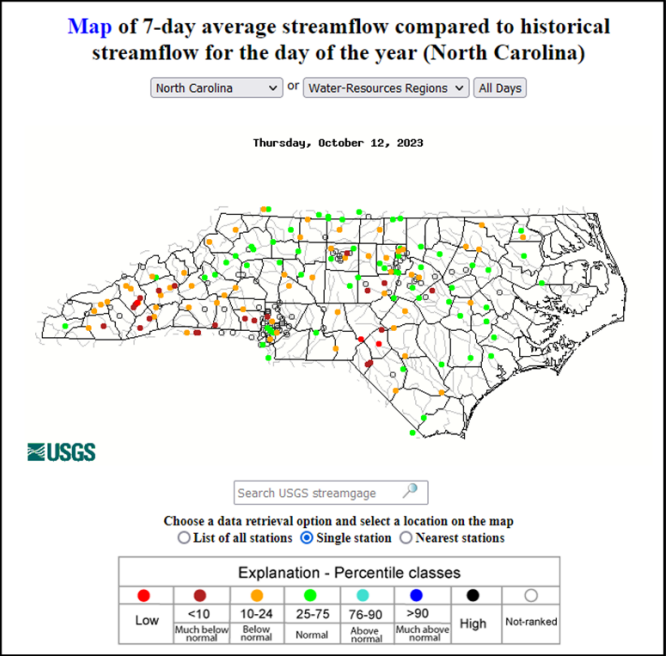
ending at 0700 on 11/14



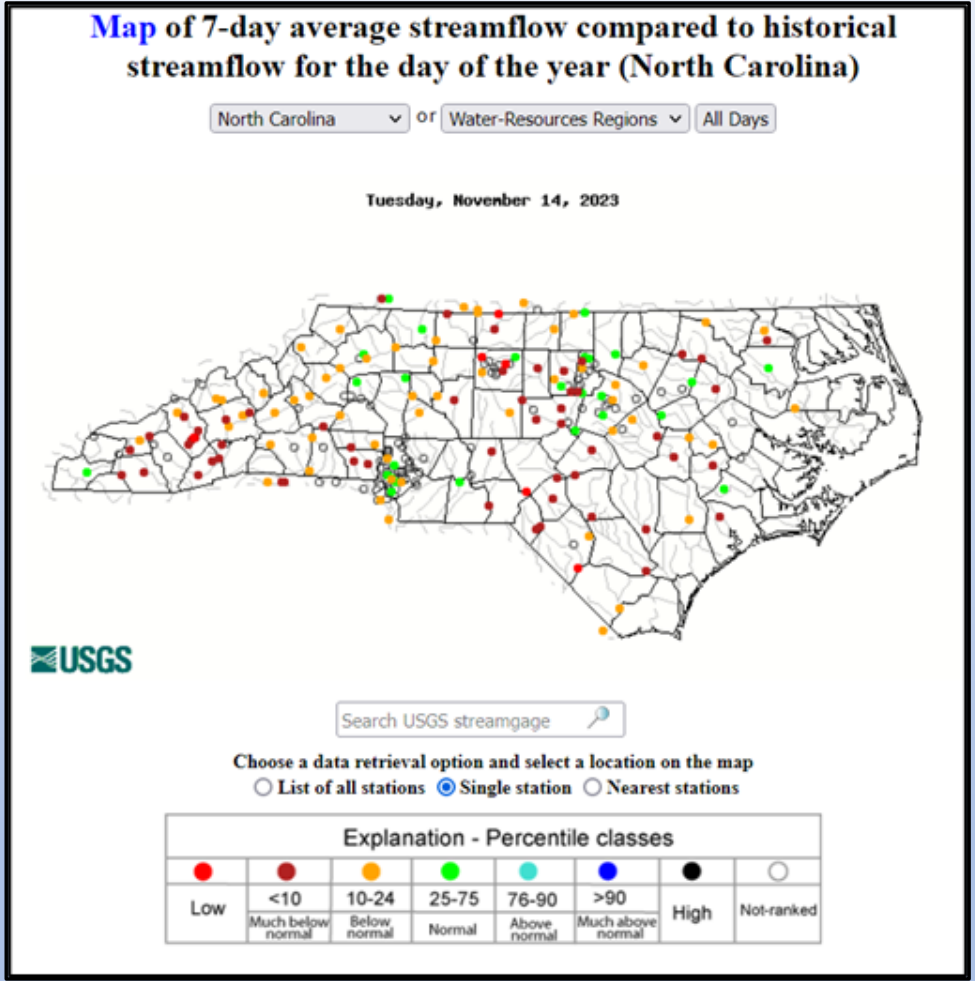
pivotal weather

Streamflow:

- Last Month



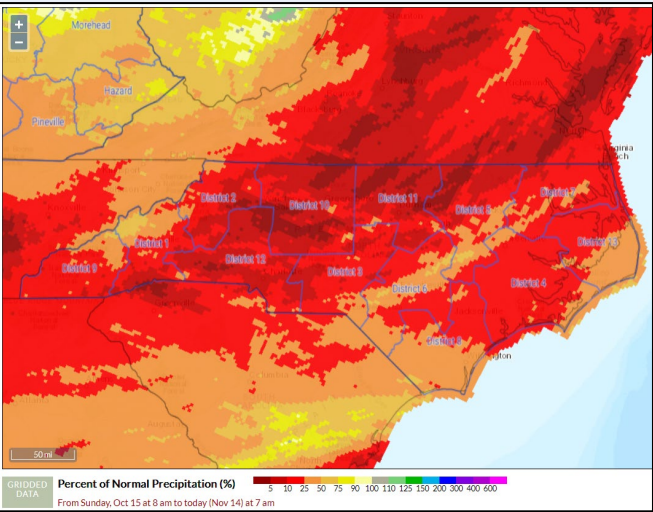
- Current Month



General decrease in 7-Day Average Flows continue.

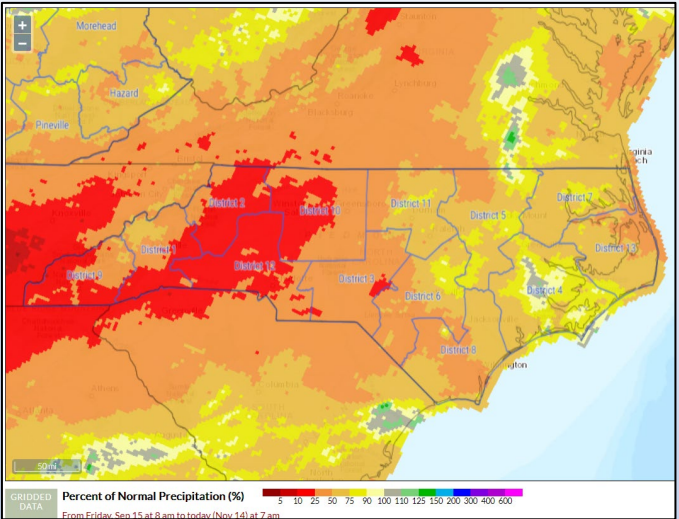
Percent of Normal Precip & SPI, FWIP (Ending 0800 11/14)

30-Day % of Normal



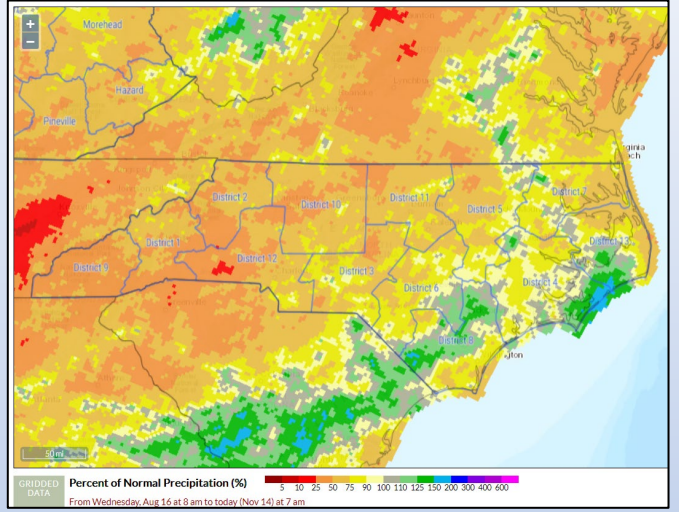
Most pronounced at the 1-Month scale with driest areas ~5% of Normal.

60-Day % of Normal



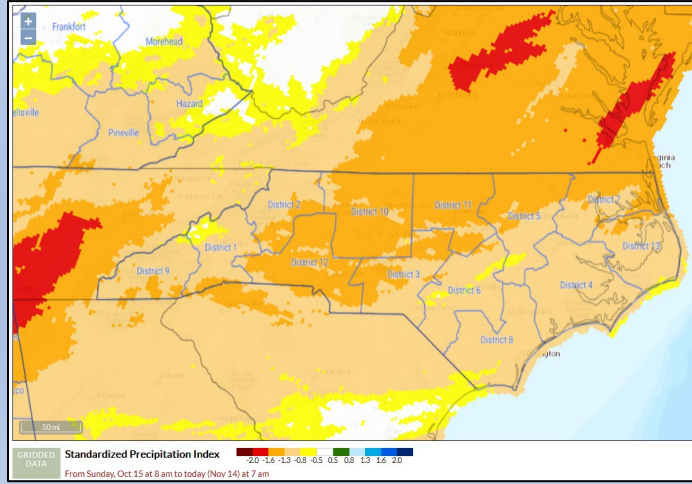
Many Areas ≤ 40% of normal at 2-Month scale.

90-Day % of Normal

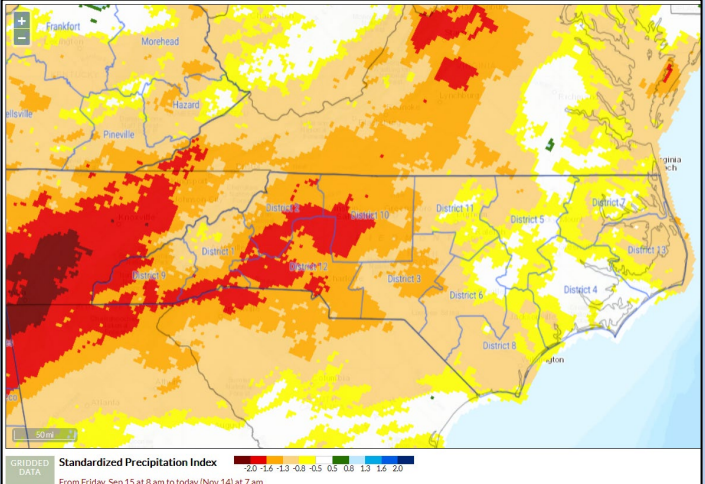


Many Areas ≤ 45% of normal at 3-Month scales.

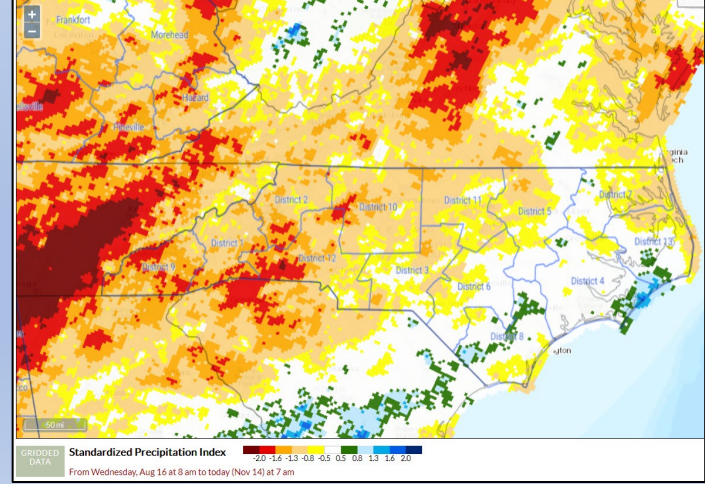
30-Day SPI



60-Day SPI

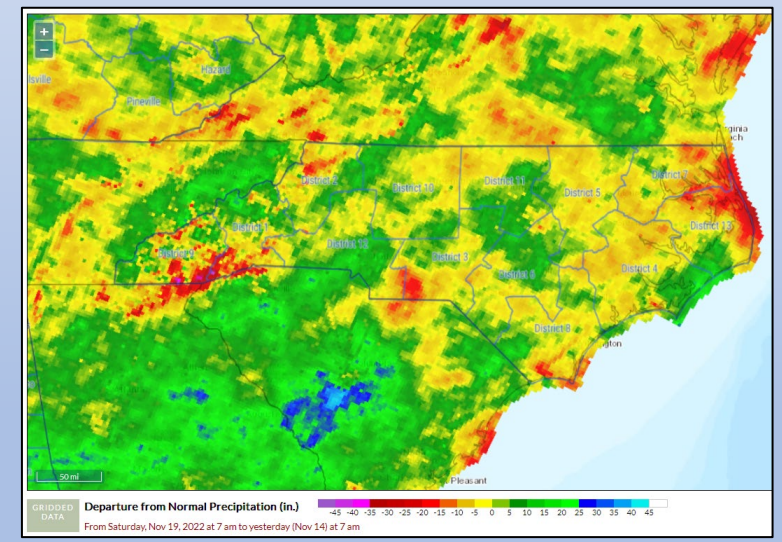
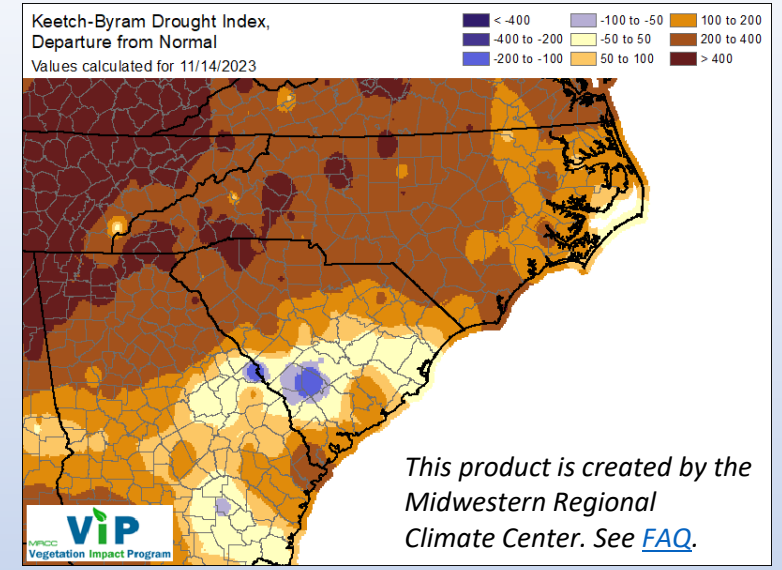
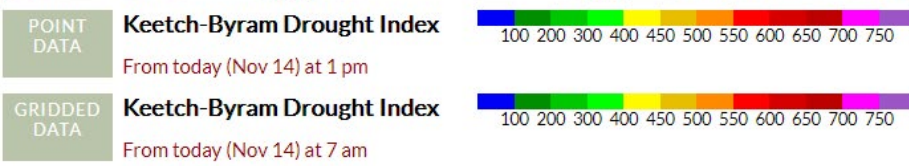
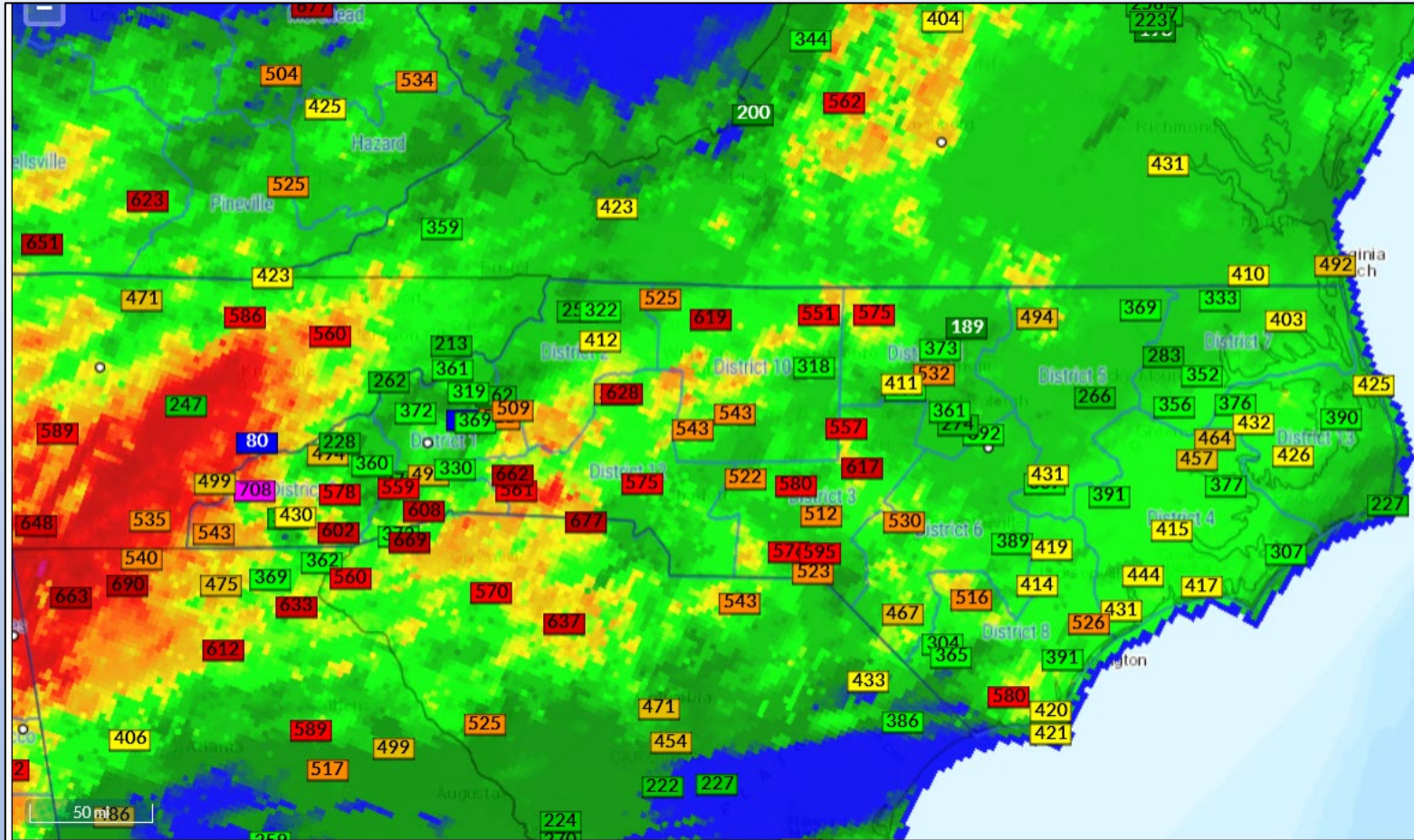


90-Day SPI



KBDI - Gridded & Station Points

FWIP (Point calculation from WIMS @ 1300 on 11/14/23, SCO created Grid ending 0800 11/14/23)



12-Mo departures of 10-15 inches in many locations – or 20% + of annual precip. Compounded by different timescales of onset.

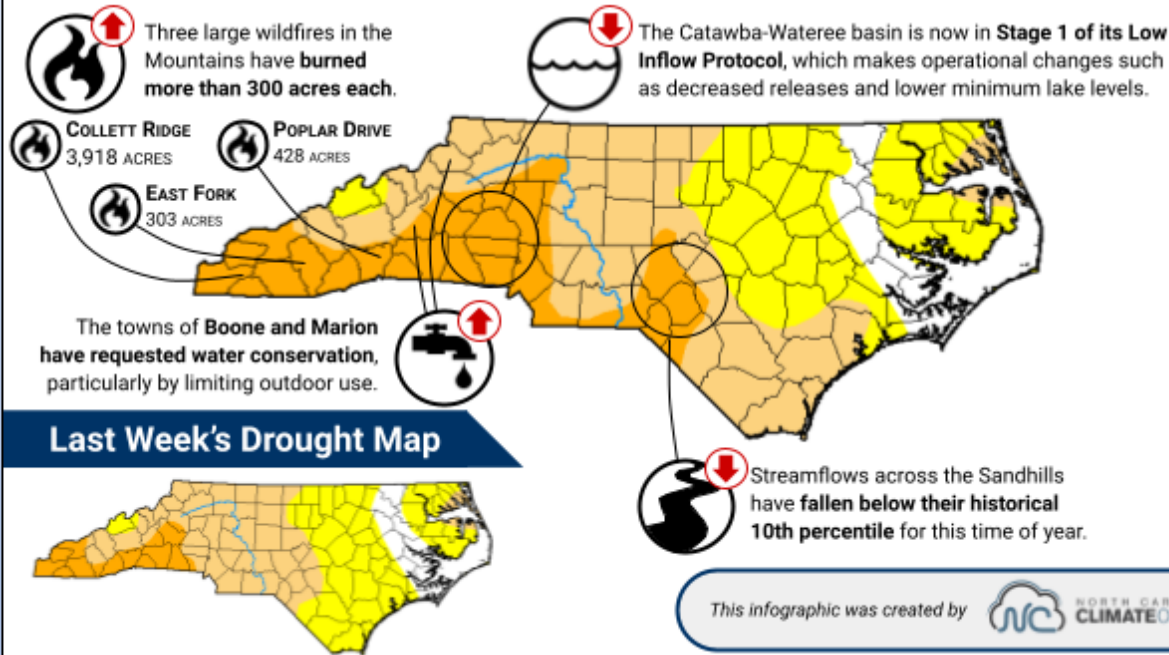
Any rainfall will help but will take a significant amount over longer duration to recharge the system.

North Carolina Drought Update

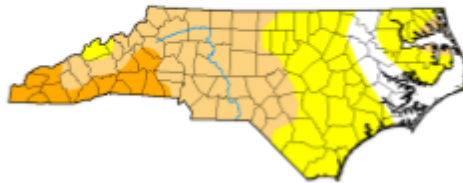
For the assessment period ending November 7, 2023

This Week's Drought Monitor of North Carolina Map

From the US Drought Monitor, authored by Lindsay Johnson (National Drought Mitigation Center) with input from the North Carolina Drought Management Advisory Council (ncdrought.org)



Last Week's Drought Map



Statewide Condition Summary

What's Changed? Moderate Drought (D1) has expanded into the southern Coastal Plain while Severe Drought (D2) now covers more of the southern and western Piedmont.

What's New? Last week saw essentially no measurable rainfall across the state, along with warmer temperatures and lower humidity levels that accelerated the drying of soils and fuels. Together with the leaf drop, that led to nearly 400 wildfires igniting on state and private lands.

What's Next? A cold front will move in on Friday, then stall to our south this weekend. That should result in periods of showers mainly on Saturday night and Sunday, with totals generally limited to a quarter to half inch.

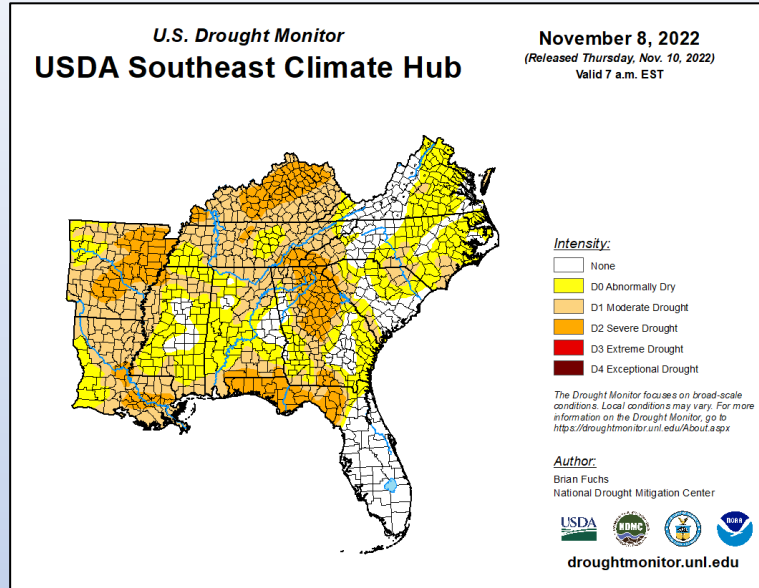
Statewide Coverage By Category

Category	Coverage This Week	Change Since Last Week
D0: Abnormally Dry	30.46%	-10.35%
D1: Moderate Drought	39.88%	-0.32%
D2: Severe Drought	23.27%	+12.89%
D3: Extreme Drought	0.00%	0.00%
D4: Exceptional Drought	0.00%	0.00%

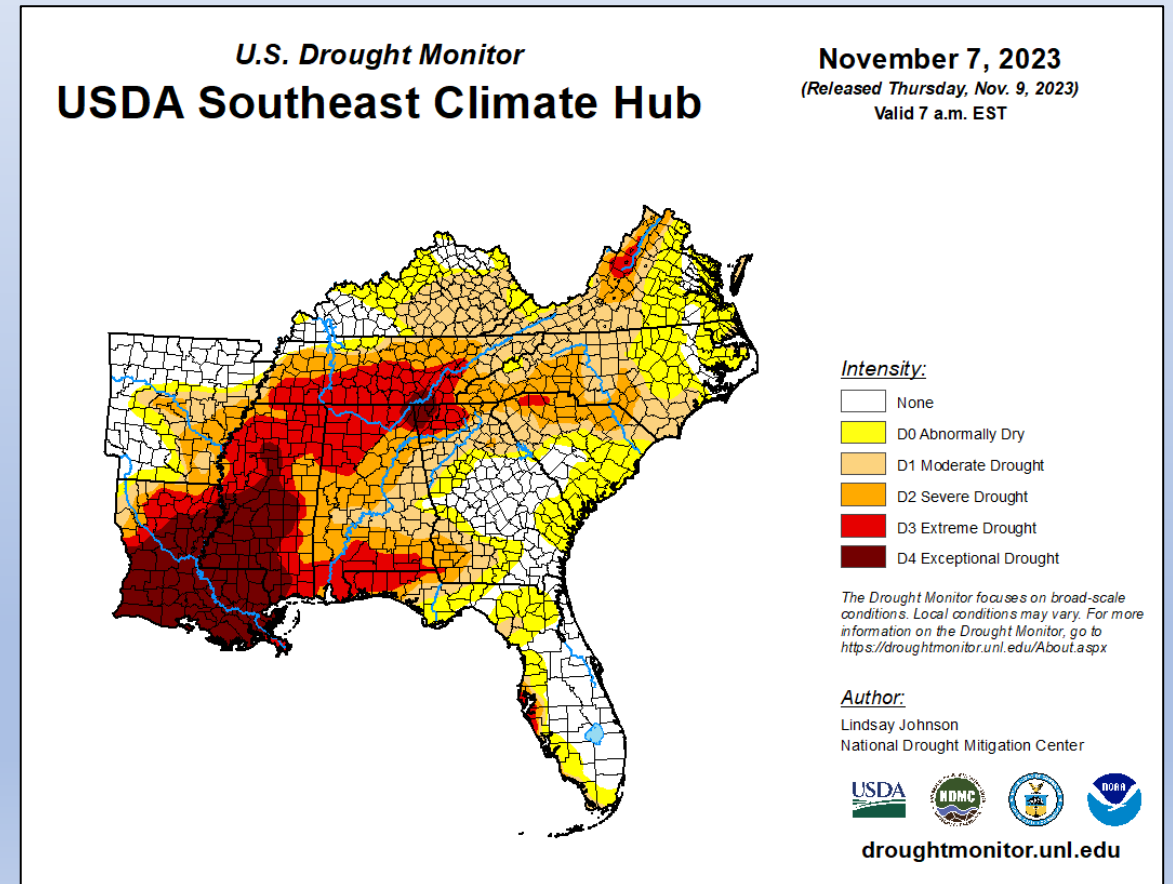
Drought Monitor (USDM)

- “D0” Abnormally Dry Designation now for ~31% of State
- “D1” Moderate Drought Designation now ~40% of State
- “D2” Severe Drought Designation now ~23% of State
- *The USDM map is released every Thursday morning, with data valid through Tuesday at 7am Eastern.*

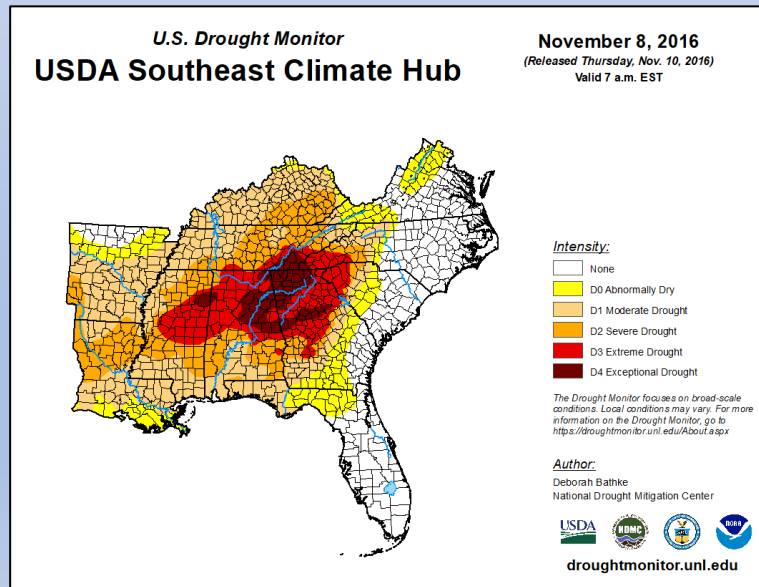
Nov - 2022:



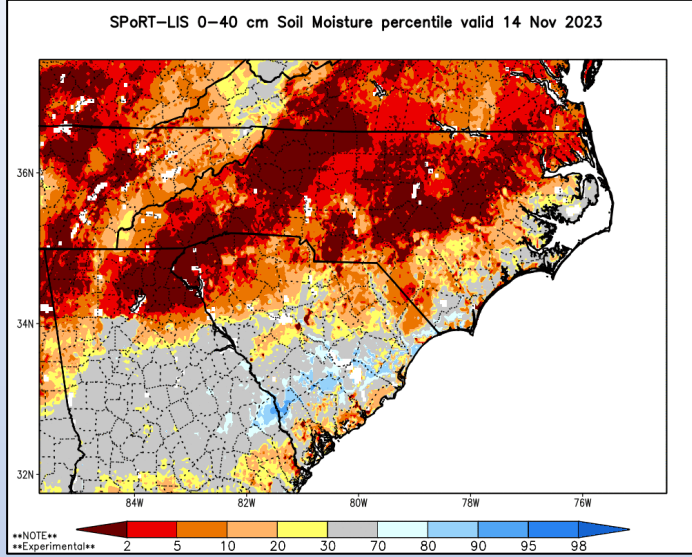
Current Week:



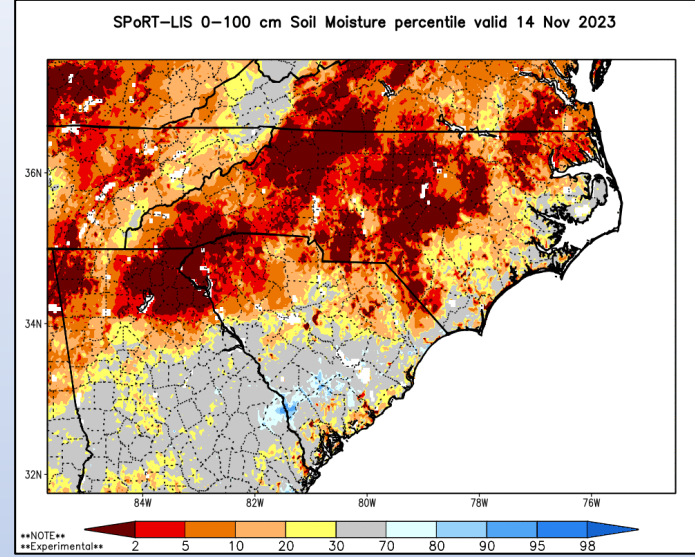
Nov - 2016:



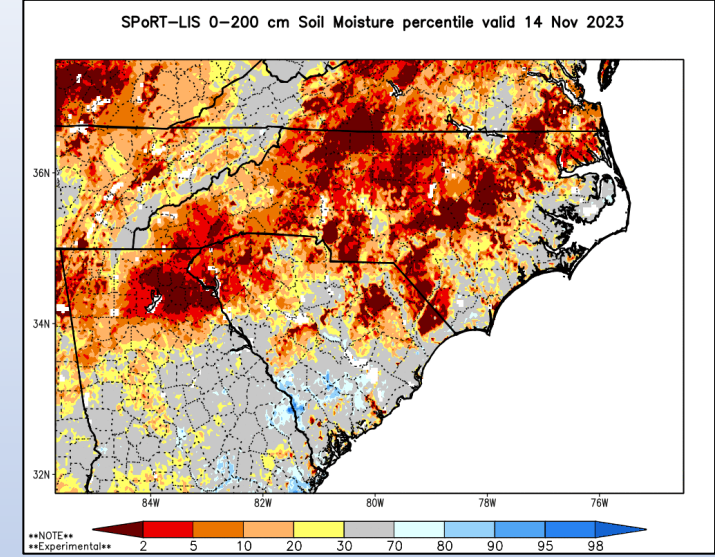
0-40cm Percentile



0-100cm Percentile

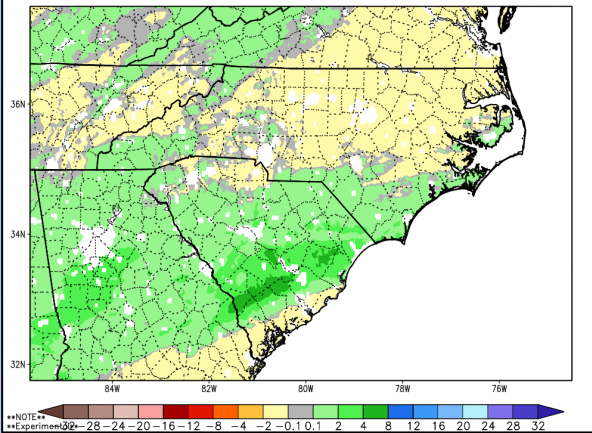


0-200cm Percentile

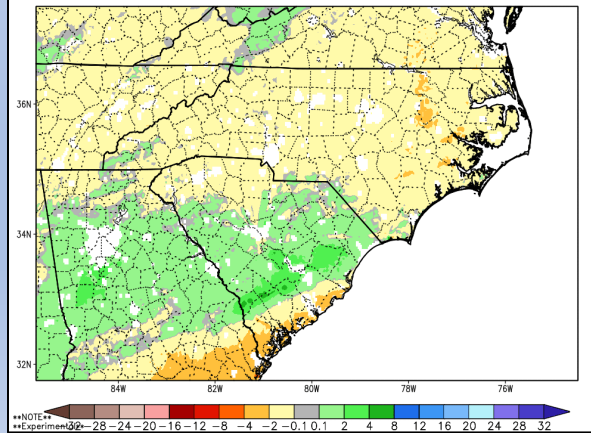


**Modeled dryness continuing to expand, at all depths.*

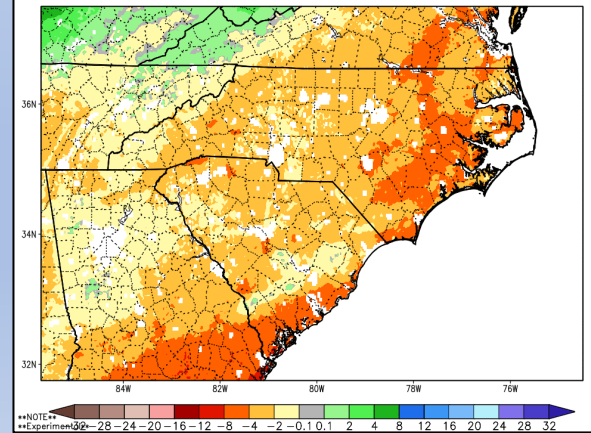
1-Week Difference in Column Relative Soil Moisture (%) valid 00z 14 Nov 2023



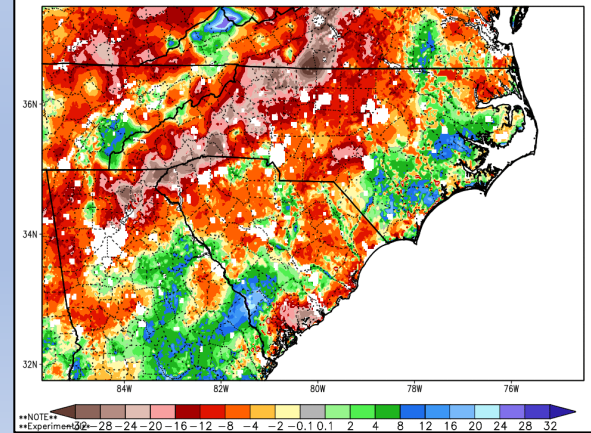
2-Week Difference in Column Relative Soil Moisture (%) valid 00z 14 Nov 2023



1-Month Difference in Column Relative Soil Moisture (%) valid 12z 14 Nov 2023



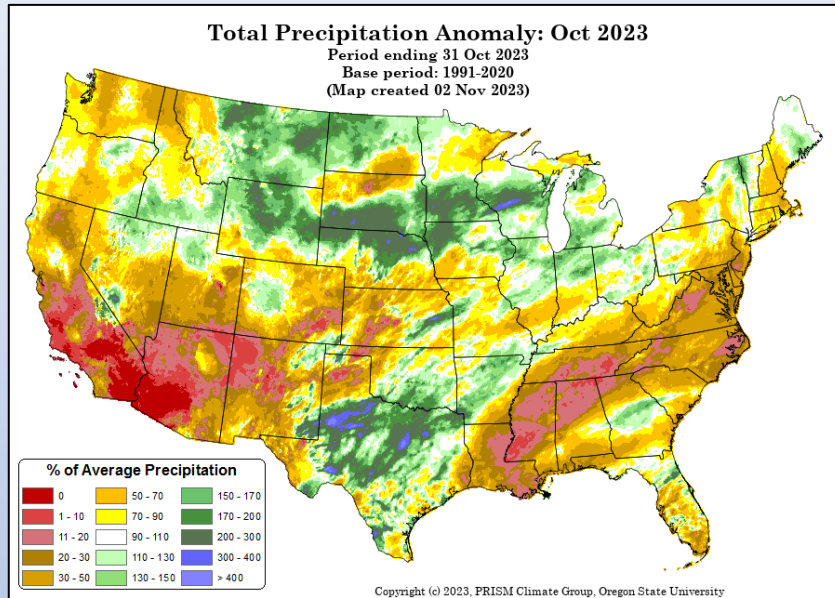
1-Year Difference in Column Relative Soil Moisture (%) valid 12z 14 Nov 2023



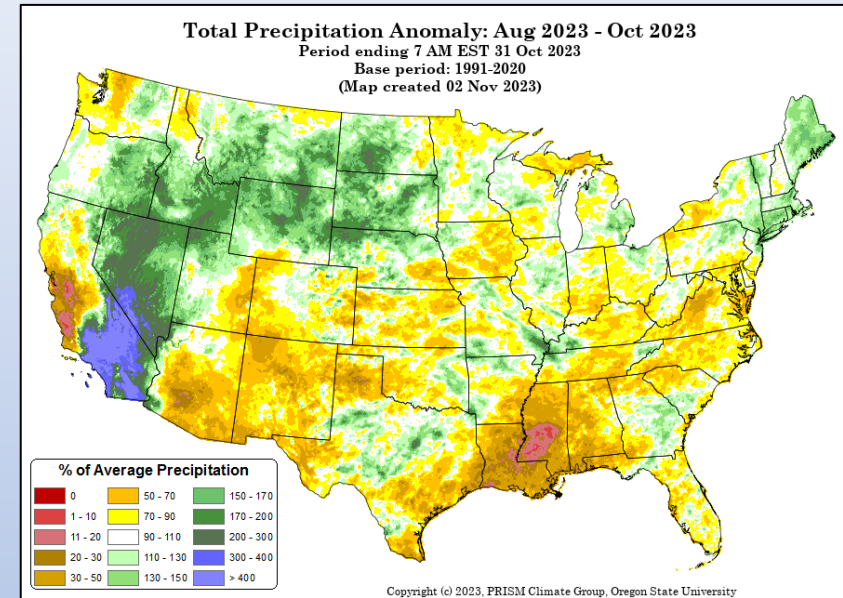
Precip and Temp Anomalies – US Context

Source: <https://prism.oregonstate.edu/mtd/>

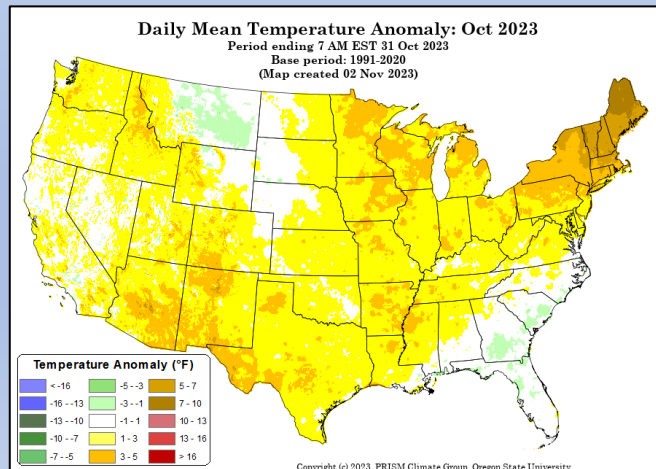
1-Month Comparison (Oct 23')



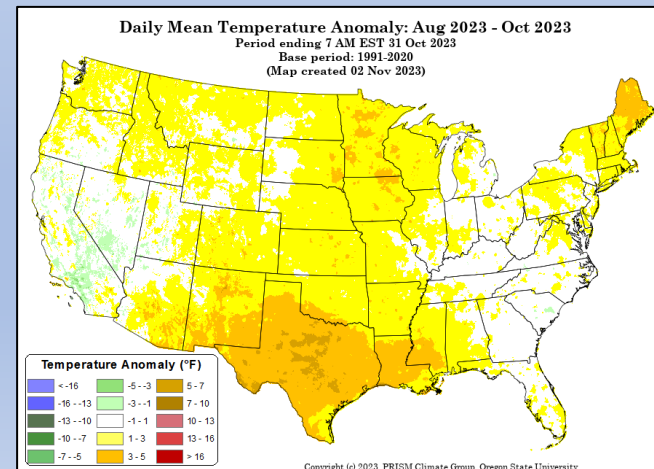
3-Month Comparison (Aug-Oct 23')



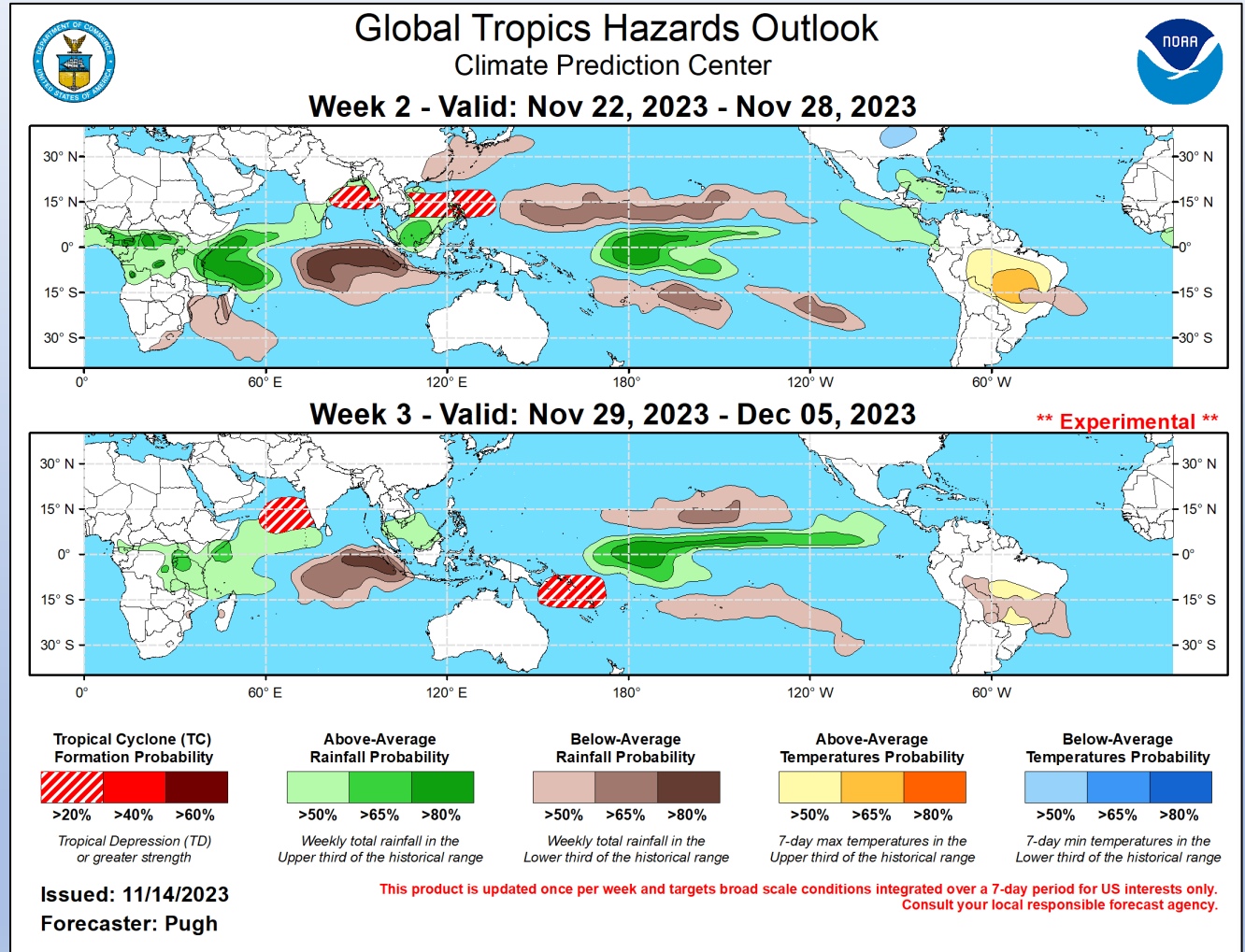
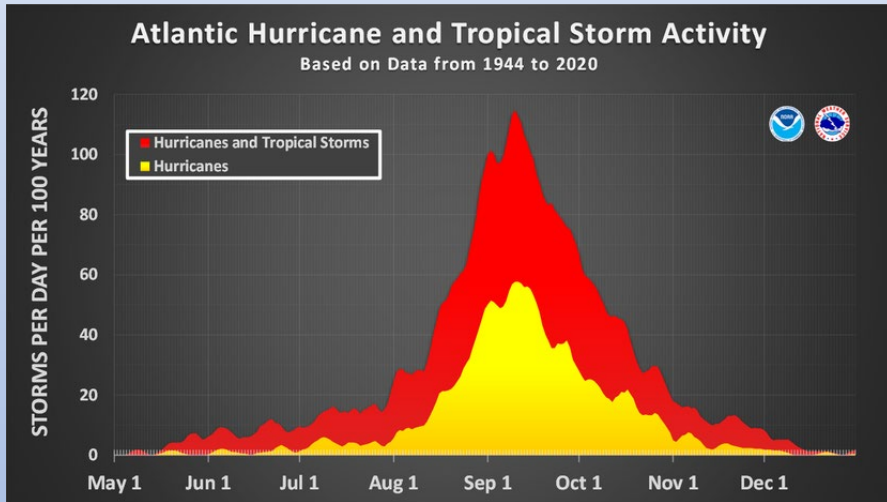
Daily Mean Temperature Anomaly: Oct 2023



Daily Mean Temperature Anomaly: Aug 2023 - Oct 2023



Tropical Hazards Outlook



<https://www.cpc.ncep.noaa.gov/products/precip/CWlink/qhaz/index.php>

ENSO Notes from the CPC (11/13/23 Update)

ENSO Alert System Status: **El Niño Advisory**

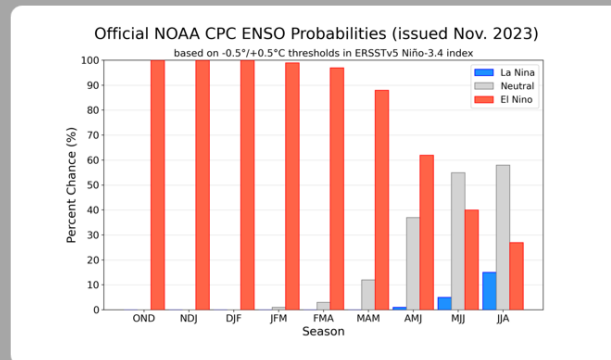
El Niño is anticipated to continue through the Northern Hemisphere spring (with a 62% chance during April-June 2024)

ENSO, or El Niño 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 Niña, NC has drier than normal conditions and can have more fire occurrence. However, La Niña also can lead to more tropical activity. El Niño, 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 Niña, the departure from average SST must be at least -0.5°C (line shown in green) for 3 consecutive months. For El Niño, the departure must be at least 0.5°C above average for 3 consecutive months.

CPC Probabilistic ENSO Outlook

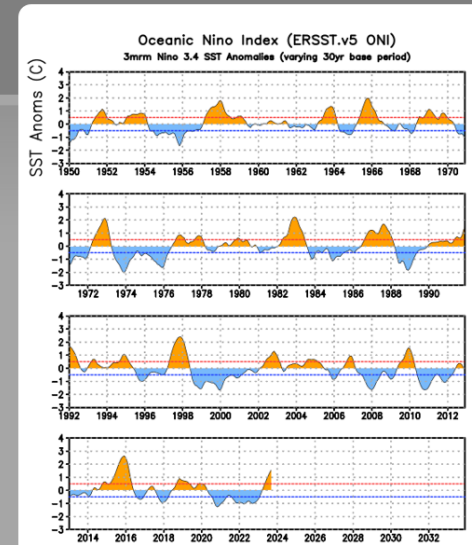
Updated: 9 November 2023

El Niño is favored through Northern Hemisphere spring 2024, with chances gradually decreasing from the winter through the spring. A transition to ENSO-neutral is favored in May-July 2024.



ONI ($^{\circ}\text{C}$): Evolution since 1950

The most recent ONI value (August - October 2023) is 1.5°C .



From the most recent CPC Diagnostic Discussion:

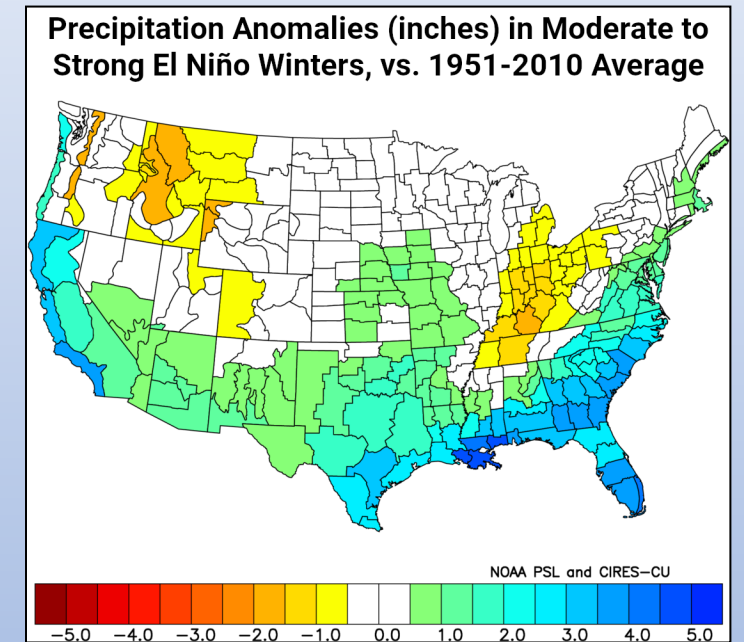
Based on latest forecasts, there is a greater than 55% chance of at least a “strong” El Niño ($\geq 1.5^{\circ}\text{C}$ in Niño-3.4 for a seasonal average) persisting through January-March 2024. There is a 35% chance of this event becoming “historically strong” ($\geq 2.0^{\circ}\text{C}$) for the November-January season.

El Niño Discussion

NC State Climate Office Discussion:

- The El Niño pattern is fairly well established in the Pacific at the moment, but we haven't yet seen its typical impacts -- mainly, strengthening the jet stream to our south -- take shape over North America just yet. It may take another month or so for that to happen, but we do expect that sort of pattern to set up at some point this winter.
- Historically, 9 out of 12 El Niño winters with a similar strength as this year's event were wetter than normal in North Carolina. That's why we have such high confidence in a wetter winter during an El Niño event. February is our most common wet month during El Niño winters, with 10 of 12 Februaries being wetter than normal during past similar El Niño events.
- Our temperatures and snowfall vary based on the strength of the El Niño (with stronger events favoring warmer temperatures and less snow), and also other atmospheric patterns that could come into play later this winter. Our best chances of cooler weather and snow are generally later in the winter, and it's rare to go through an entire El Niño like this without any measurable snowfall. (That has only happened once in most areas, back in 1991-92.)
- Our fall weather and the El Niño pattern entering the winter are similar to 1965-66. In that case, we had a fall drought centered over western NC, and it took until January before heavier precipitation arrived. That winter finished about a half-inch below our long-term average precipitation (and was one of our few dry El Niño winters) but we still came out of the winter with net drought improvements.
- Given the current precipitation deficits of 5 to 10 inches, we probably won't fully eliminate those this winter, but we could similarly chip away at them and enter the spring in a less dire drought and fire danger situation.

More details on their Winter Outlook: <https://climate.ncsu.edu/blog/2023/11/winter-outlook-2023-24-awaiting-wetter-weather-with-el-ninos-return/>



Precipitation anomalies by climate division during moderate to strong El Niño winters, as compared with the 1951 to 2010 average. (Map from [NOAA PSL](#)) The winters included in this average are: 1957-58, 1963-64, 1965-66, 1968-69, 1972-73, 1982-83, 1986-87, 1991-92, 1994-95, 1997-98, 2009-10, 2015-16.

Fire Danger Related Materials

including Self-Briefing & Situational Awareness Links

Daily WIMS Observations and NFDRS Estimates

Averaged by FDRA SIG Group

This is available on the FWIP at: <https://products.climate.ncsu.edu/fwip/nfdrs.php?data=ob&state=NC>

- The averaged values are derived from the SIG Station Outputs for a particular FDRA
(SIG station names shown in bold on the live link above)
- You can toggle the percentiles on/off, displaying below the actual calculated values
these percentiles are based on analysis of "All Days" for entire calendar year range through 2021 for these stations

Daily Observations for 11/15/23

Averages by FDRA																		
FDRA	STATION_COUNT	NFDR_DATE	BI	ERC	IC	SC	KBDI	1HR	10HR	100HR	1000HR	HRB	WOODY	TEMP	RH	WIND	PRECIP	DUR
Southern Highlands	3	2023-11-15	148.90 99.3%	79.60 100.0%	20.80 99.2%	60.93 92.8%	527.67	8.38 2.0%	11.04 1.4%	20.47 59.7%	21.49 63.0%	30.00	50.00	53.3°F	26.7%	SSE 3.3 mph	0.00 in.	0.0
Central Mountains	3	2023-11-15	105.60 89.0%	65.23 99.0%	9.47 87.1%	35.47 76.4%	476.33	11.06 24.4%	13.23 8.1%	18.55 49.8%	21.45 68.1%	30.00	50.00	54.3°F	29.3%	ENE 1.0 mph	0.00 in.	0.0
Northern Highlands	2	2023-11-15	125.95 92.7%	56.80 96.3%	14.45 94.4%	62.25 89.4%	349.00	10.11 10.2%	13.98 15.6%	19.54 63.1%	21.69 80.1%	50.00	80.00	53.0°F	25.5%	ESE 5.0 mph	0.00 in.	0.0
Blue Ridge Escarpment	3	2023-11-15	126.27 91.7%	71.47 99.3%	13.83 89.8%	48.83 82.0%	529.67	9.88 24.9%	11.16 5.2%	16.36 15.0%	18.25 20.5%	30.00	56.67	54.7°F	34.7%	ESE 3.3 mph	0.00 in.	0.0
Western Piedmont	3	2023-11-15	94.03 78.9%	58.87 92.9%	6.97 64.2%	31.37 71.7%	512.00	12.03 55.3%	15.81 50.3%	18.59 62.7%	20.89 76.6%	30.00	50.00	58.7°F	39.3%	SE 3.0 mph	0.00 in.	0.0
Sandhills	3	2023-11-15	62.77 97.4%	50.33 71.5%	5.97 39.4%	21.27 99.9%	547.67	12.75 64.7%	13.98 23.9%	19.51 68.3%	20.48 64.0%	36.67	63.33	58.7°F	42.3%	ENE 4.0 mph	0.00 in.	0.0
Eastern Piedmont	4	2023-11-15	75.80 42.7%	45.28 57.7%	4.28 30.6%	25.13 35.2%	283.75	13.65 66.7%	16.03 44.2%	18.64 55.5%	21.05 78.3%	30.00	60.00	56.8°F	50.3%	E 3.3 mph	0.00 in.	0.0
Southern Coastal	7	2023-11-15	58.67 48.5%	26.93 41.7%	3.11 29.1%	24.80 54.2%	438.29	15.07 68.4%	20.92 76.0%	22.84 87.3%	22.56 88.7%	50.00	90.00	61.9°F	59.9%	NE 4.3 mph	0.00 in.	0.0
Northern Coastal	4	2023-11-15	48.13 34.4%	30.55 45.1%	2.80 29.2%	15.48 30.2%	406.00	14.46 64.4%	19.63 73.4%	21.63 82.7%	22.06 81.5%	50.00	90.00	61.5°F	57.5%	NE 3.0 mph	0.00 in.	0.0



Daily WIMS Forecast Observations and NFDRS Estimates

Averaged by FDRA SIG Group

This is available on the FWIP at: <https://products.climate.ncsu.edu/fwip/nfdrs.php?data=fc>

- The averaged values are derived from the SIG Station Outputs for a particular FDRA
(SIG station names shown in bold on the live link above)
- You can toggle the percentiles on/off, displaying below the actual calculated values
these percentiles are based on analysis of "All Days" for entire calendar year range through 2021 for these stations

Daily Forecast for 11/16/23 (issued on 11/15/23)

Averages by FDRA																		
FDRA	STATION_COUNT	NFDR_DATE	BI	ERC	IC	SC	KBDI	1HR	10HR	100HR	1000HR	HRB	WOODY	TEMP	RH	WIND	DUR1	DUR2
Southern Highlands	3	2023-11-16	142.47 98.6%	48.73 91.9%	8.20 84.8%	90.33 99.2%	527.67	13.92 50.9%	18.32 50.6%	19.23 46.0%	21.52 76.3%	30.00	50.00	61.3°F	66.0%	SE 8.0 mph	0.3	0.0
Central Mountains	3	2023-11-16	130.60 96.9%	51.47 91.5%	8.13 84.5%	71.23 96.8%	476.33	13.60 54.7%	16.42 31.2%	17.79 34.3%	21.42 68.1%	30.00	50.00	62.7°F	60.0%	SSE 6.7 mph	0.0	0.0
Northern Highlands	2	2023-11-16	114.70 88.9%	52.15 92.8%	10.30 88.8%	53.25 85.0%	347.50	11.62 28.5%	12.70 9.2%	18.56 50.6%	21.67 80.1%	50.00	80.00	58.0°F	49.5%	SSE 5.0 mph	0.0	0.0
Blue Ridge Escarpment	3	2023-11-16	120.97 89.9%	64.20 97.3%	10.73 83.1%	47.90 81.2%	528.67	11.25 37.1%	12.39 9.7%	15.21 8.3%	17.93 20.5%	30.00	56.67	62.7°F	48.0%	SE 3.7 mph	0.0	0.0
Western Piedmont	3	2023-11-16	103.17 83.1%	55.63 90.1%	7.20 64.2%	39.67 79.8%	512.00	12.81 63.5%	16.04 50.3%	17.81 49.4%	20.82 76.6%	30.00	50.00	68.0°F	50.3%	ESE 4.3 mph	0.0	0.0
Sandhills	3	2023-11-16	60.30 96.2%	40.03 50.3%	6.03 39.4%	20.27 99.9%	547.67	13.73 69.8%	19.69 73.4%	18.90 55.6%	20.50 64.0%	36.67	63.33	69.7°F	53.3%	E 6.0 mph	0.0	0.0
Eastern Piedmont	4	2023-11-16	71.58 39.1%	38.60 47.9%	4.08 30.6%	25.50 37.1%	283.75	14.30 66.7%	19.76 72.9%	18.33 39.7%	20.98 78.3%	30.00	60.00	68.0°F	53.5%	ESE 3.3 mph	0.0	0.0
Southern Coastal	7	2023-11-16	61.54 51.0%	22.39 32.1%	3.37 29.1%	32.36 67.3%	438.29	15.67 73.2%	22.59 83.2%	22.35 80.7%	22.69 88.7%	50.00	90.00	70.6°F	59.4%	E 6.3 mph	0.0	0.0
Northern Coastal	4	2023-11-16	53.25 38.1%	25.00 36.2%	2.83 29.2%	20.88 41.2%	406.00	15.34 69.0%	21.16 77.4%	21.09 75.2%	22.16 81.5%	50.00	90.00	67.5°F	57.8%	ESE 4.8 mph	0.0	0.0



Weekly Outlook - FDRA General Fire Danger Forecast Matrix:

- Available on the FWIP within the [“Resources for NCF5”](#) 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.
- For the 9 FDRAs in North Carolina

Western Five FDRAs Shown: 11/15/23 AM Run

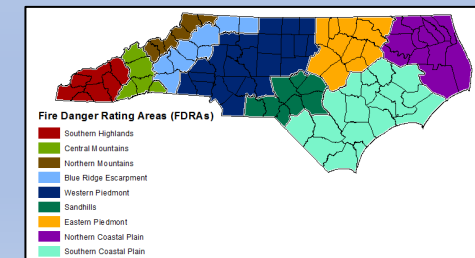
Weekly Outlook								
Southern Highlands FDRA - General Fire Danger Forecast								
For planning purposes only; forecast is subject to change								
Four or more RED blocks in a day signals the potential for a Critical Fire Day								
DAY	WED 15-Nov	THU 16-Nov	FRI 17-Nov	SAT 18-Nov	SUN 19-Nov	MON 20-Nov	TUE 21-Nov	
Avg. Max. Temp. (°F)	55	60	61	57	57	54	50	
Avg. Min. Humidity (%)	32	69	85	59	44	63	88	
Avg. 20' Wind Speed (mph)	8	7	6	8	5	8	12	
Avg. Wind Direction*	ESE	ESE	SE	NNW	SSW	ESE	SSE	
Avg. Probability of Precip. (%)	15	30	66	4	11	68	69	
Days Since a Wetting Rain**	5.0	6.0	4.7					
Forecast ERC (Fuel Model X)	72.0	51.0	25.9	33.5	51.7	53.2	31.6	
Forecast BI (Fuel Model X)	153.1	150.8	85.4	120.4	137.2	148.7	126.3	
Forecast IC (Fuel Model X)	15.9	9.5	2.3	4.1	7.6	7.9	3.3	
Forecast 100-Hr. FMC	19.5	18.6	18.6	19.3	19.7	19.0	18.8	
Forecast 1000-Hr. FMC	21.5	21.5	21.7	21.8	21.7	21.7	21.7	
KBDI	525.0							

Weekly Outlook								
Central Mountains 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	WED 15-Nov	THU 16-Nov	FRI 17-Nov	SAT 18-Nov	SUN 19-Nov	MON 20-Nov	TUE 21-Nov	
Avg. Max. Temp. (°F)	55	61	61	56	57	54	52	
Avg. Min. Humidity (%)	29	60	77	56	38	53	78	
Avg. 20' Wind Speed (mph)	5	5	5	9	5	7	10	
Avg. Wind Direction*	SE	SSE	SSE	NNW	SSW	SE	SSE	
Avg. Probability of Precip. (%)	8	32	66	4	6	64	66	
Days Since a Wetting Rain**	4.0	5.0	3.7					
Forecast ERC (Fuel Model X)	71.6	54.6	28.3	32.1	51.2	52.5	36.5	
Forecast BI (Fuel Model X)	145.2	135.4	83.5	120.3	136.0	144.7	128.7	
Forecast IC (Fuel Model X)	15.6	8.9	2.5	3.9	7.7	7.9	3.9	
Forecast 100-Hr. FMC	17.4	16.6	16.9	18.1	18.6	18.6	18.3	
Forecast 1000-Hr. FMC	21.4	21.4	21.3	21.2	21.1	21.0	21.0	
KBDI	473.7							


Weekly Outlook								
Northern Highlands 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	WED 15-Nov	THU 16-Nov	FRI 17-Nov	SAT 18-Nov	SUN 19-Nov	MON 20-Nov	TUE 21-Nov	
Avg. Max. Temp. (°F)	51	57	54	50	50	47	47	
Avg. Min. Humidity (%)	28	50	86	54	36	53	88	
Avg. 20' Wind Speed (mph)	5	5	5	11	7	6	10	
Avg. Wind Direction*	SSE	SSE	SSE	NW	WNW	SE	SSE	
Avg. Probability of Precip. (%)	4	32	65	11	2	62	69	
Days Since a Wetting Rain**	2.7	3.7	0.0					
Forecast ERC (Fuel Model X)	58.2	53.1	19.0	21.9	46.7	46.3	30.9	
Forecast BI (Fuel Model X)	113.2	113.0	60.3	88.5	120.7	117.1	96.6	
Forecast IC (Fuel Model X)	12.1	10.6	2.0	3.4	9.4	7.9	3.5	
Forecast 100-Hr. FMC	18.9	17.9	18.1	18.1	18.4	18.3	17.9	
Forecast 1000-Hr. FMC	21.7	21.7	21.7	21.5	21.4	21.3	21.4	
KBDI	344.0							

Weekly Outlook								
Blue Ridge Escarpment 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	WED 15-Nov	THU 16-Nov	FRI 17-Nov	SAT 18-Nov	SUN 19-Nov	MON 20-Nov	TUE 21-Nov	
Avg. Max. Temp. (°F)	55	62	59	59	56	52	51	
Avg. Min. Humidity (%)	31	50	82	47	33	48	83	
Avg. 20' Wind Speed (mph)	3	3	3	9	5	5	7	
Avg. Wind Direction*	E	E	ESE	NW	W	ESE	SE	
Avg. Probability of Precip. (%)	5	29	56	7	3	59	63	
Days Since a Wetting Rain**	12.7	13.7	9.7					
Forecast ERC (Fuel Model X)	68.1	62.3	32.6	36.5	57.5	56.2	41.1	
Forecast BI (Fuel Model X)	115.6	119.5	81.0	117.2	129.5	124.3	103.9	
Forecast IC (Fuel Model X)	11.6	10.1	2.7	5.1	9.6	8.0	3.7	
Forecast 100-Hr. FMC	15.4	14.7	15.5	17.5	18.2	17.1	16.8	
Forecast 1000-Hr. FMC	18.0	17.6	17.8	17.6	17.6	17.6	17.7	
KBDI	526.7							

Weekly Outlook								
Western Piedmont 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	WED 15-Nov	THU 16-Nov	FRI 17-Nov	SAT 18-Nov	SUN 19-Nov	MON 20-Nov	TUE 21-Nov	
Avg. Max. Temp. (°F)	60	68	68	67	60	56	58	
Avg. Min. Humidity (%)	31	53	76	47	34	46	77	
Avg. 20' Wind Speed (mph)	3	3	4	8	4	5	8	
Avg. Wind Direction*	ENE	NE	ENE	NW	SSE	NE	ESE	
Avg. Probability of Precip. (%)	3	22	34	7	1	43	52	
Days Since a Wetting Rain**	29.0	30.0	21.3					
Forecast ERC (Fuel Model X)	64.4	52.1	33.0	38.9	58.3	56.5	49.2	
Forecast BI (Fuel Model X)	102.9	102.5	78.9	127.6	124.9	125.3	120.9	
Forecast IC (Fuel Model X)	9.0	6.4	2.6	5.8	9.1	7.6	5.7	
Forecast 100-Hr. FMC	18.0	17.4	17.5	18.4	18.8	18.1	17.5	
Forecast 1000-Hr. FMC	20.9	20.8	20.7	20.8	20.7	20.6	20.6	
KBDI	509.7							




Southern Area Daily Outlook Page:




SACC Daily Outlook

Wednesday, November 15, 2023

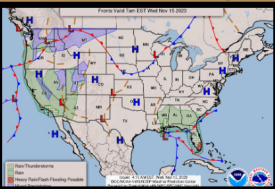


Watches and Warnings as of 0800 EDT



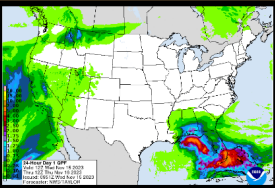
- **Red Flag Warnings:** None.
- **Fire Weather Watches:** None
- **Excessive Heat Watch/Warnings:** None
- **Heat Watches/Advisories:** None.

Today's Weather Outlook




- A developing low pressure system in the northern Gulf, is forecast to bring rain and possibly some thunderstorms to most of MS, AL, GA, and FL.
- S FL may see some flooding with a moderate chance of excessive rain.
- The low is forecast to slowly sink to the south, with a cold front approaching on Friday, helping to spread rain further north.

Today's Rainfall Outlook




- Dry conditions are forecast across much of the Southern Area.
- The exceptions are AL, GA, MS, with higher amounts towards the Gulf coast. FL should also see significant rain, with the highest amounts across S FL, where accumulations may be over 4 inches today.

Please contact your local [National Weather Service](#) office for spot forecasts and the latest [watches and warnings](#).

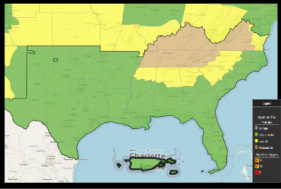


SACC Daily Outlook

Wednesday, November 15, 2023

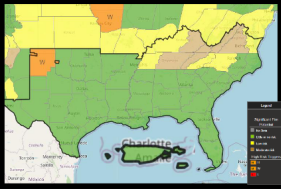


Predictive Services Significant Fire Potential Today




- **HIGH RISK (H):** None.
- **Moderate Risk:** TN, KY, the NC mountains, and most of VA, do to continued dry conditions. Higher elevations of the Appalachian mountains may see some localized gusty conditions.
- **LOW RISK (L):** N MS, N AL, N GA, W SC, Central NC, and Coastal VA due to warm and dry conditions

Predictive Services Significant Fire Potential Thursday




- **HIGH RISK (H):** TX/OK Panhandles due to dry and gusty conditions.
- **Moderate Risk:** Central TN as well as the TN MTs, KY MTs, VA MTs, as well as Central VA for dry conditions.
- **LOW RISK (L):** W TN, W KY, NC MTs, Central NC, and coastal VA for dry conditions.

Predictive Services Significant Fire Potential Friday




- **HIGH RISK (H):** None.
- **Moderate Risk:** None.
- **LOW RISK (L):** TN MTs, VA MTs and Central VA dry conditions.

Please contact your local [National Weather Service](#) office for spot forecasts and the latest [watches and warnings](#).

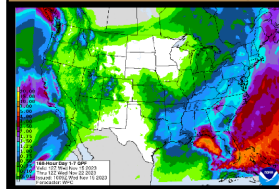


SACC Daily Outlook

Wednesday, November 15, 2023

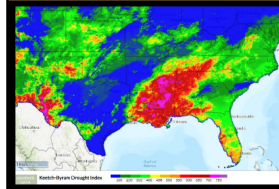


Forecast Precipitation for the next 7 Days



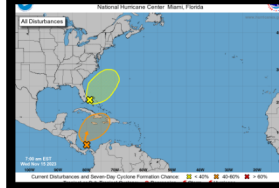
- Significant rain is forecast for most of the Southern Area, with the exception of TX and W OK.
- East Texas may also see significant rain during the next seven days.

KBDI as of Today November 15, 2023



- KBDIs are increasing over portions of TX and OK, as well as some locations east of the Mississippi River. However, current rain is not accounted for yet, and some KBDIs, especially near the GULF coast, may start to decrease over the next few days..

7 Day Tropical Outlook



- There are 2 areas of possible development of tropical systems.
- Impacts to the US are still unsure at this time.

Please contact your local [National Weather Service](#) office for spot forecasts and the latest [watches and warnings](#).

NC DAQ Air Quality Forecast - *Three Day Outlook*

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 **Wednesday, November 15, 2023 at 2:38 pm.** ✔ This forecast is currently valid.

Today's Air Quality Conditions

Current daily average particle pollution levels are in the Code Green range across the state.

[↗](#) 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

As the surface high builds remains overhead, particle pollution levels will begin to elevate. Expect the usual highest spots in the western Piedmont to have elevated values overnight, with hourly values tapering off during the afternoon. The daily averages will likely net out near the Code Green/Yellow Thursday and Friday across the western Piedmont, with lower values elsewhere across the state.

Outlook

Strong cyclogenesis along the Gulf Stream and western Atlantic will occur on Thursday into Friday, but precipitation will remain offshore. With little change in air mass, particle pollution levels may remain elevated due to increasing cloud coverage / reduced mixing. On Saturday, a cold front will cross the state and usher in a renewed shot of dry and clean air that should lower particle pollution levels back into the Code Green range across the state.

Author: *McLamb* - 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	Download KML
Wednesday (Nov 15)	40 to 51	Green to Yellow	↓ download
Thursday (Nov 16) 📶	40 to 50	Green	↓ download
Friday (Nov 17)	40 to 55	Green to Yellow	↓ download
Saturday (Nov 18)	35	Green	↓ download

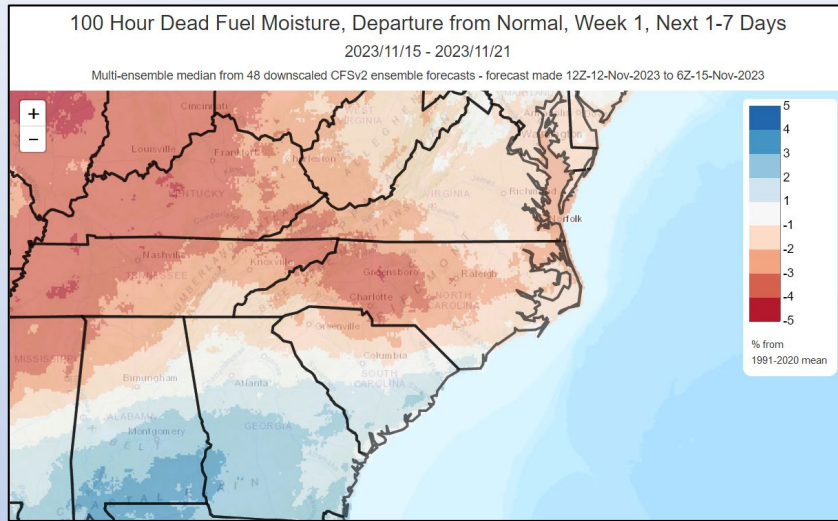
From: <https://airquality.climate.ncsu.edu/discussion/?view=latest>

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

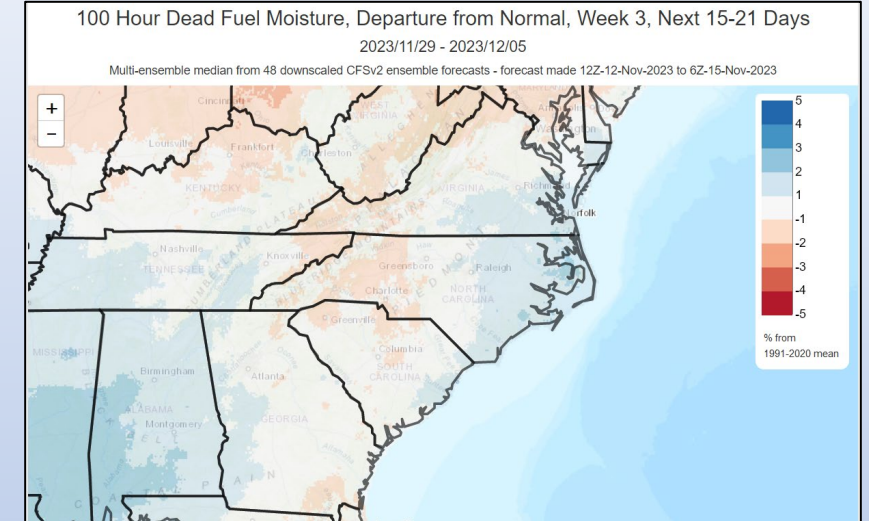
Modeled Departure from Normal by Week: 100-hr Fuels

Output relies on experimental forecast outputs and is subject to change

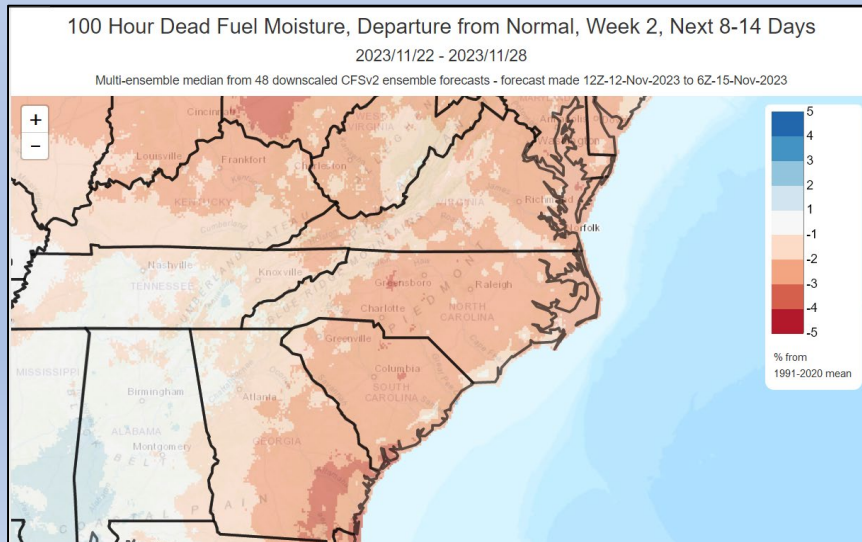
Week-1



Week-3



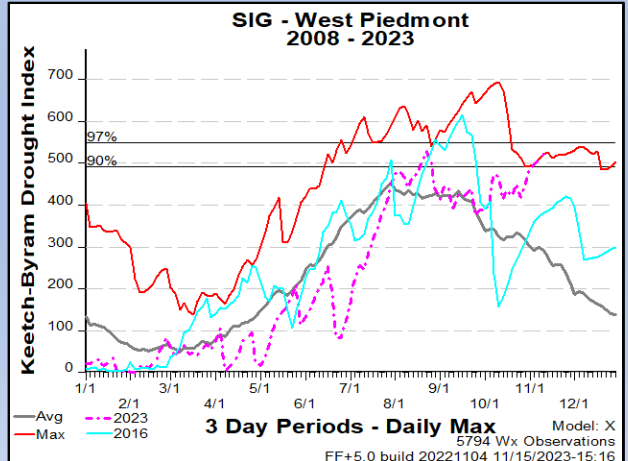
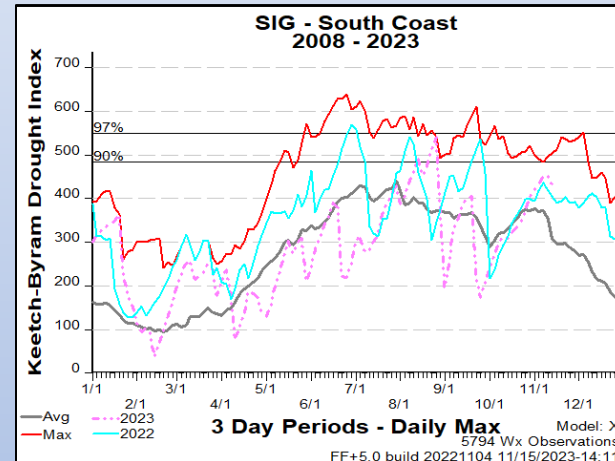
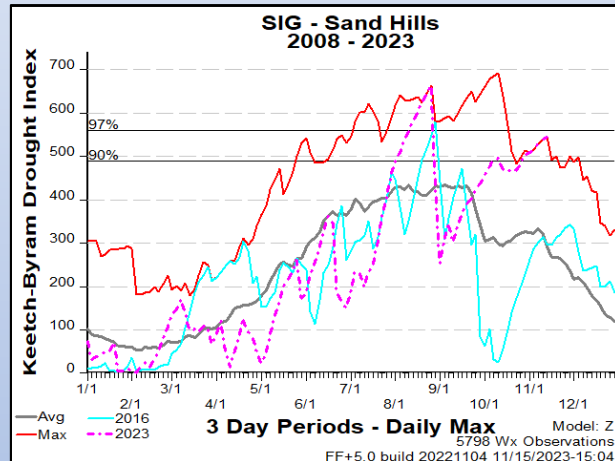
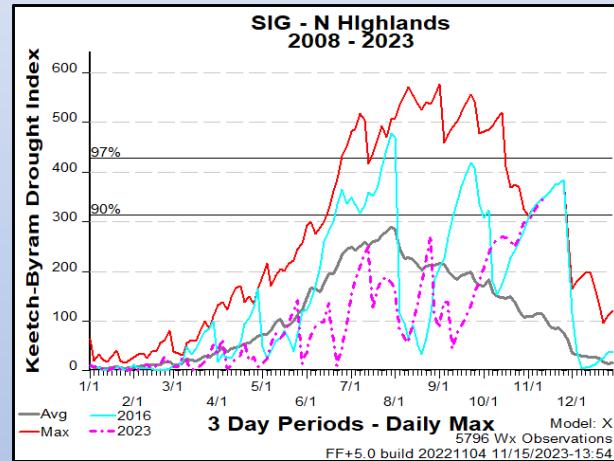
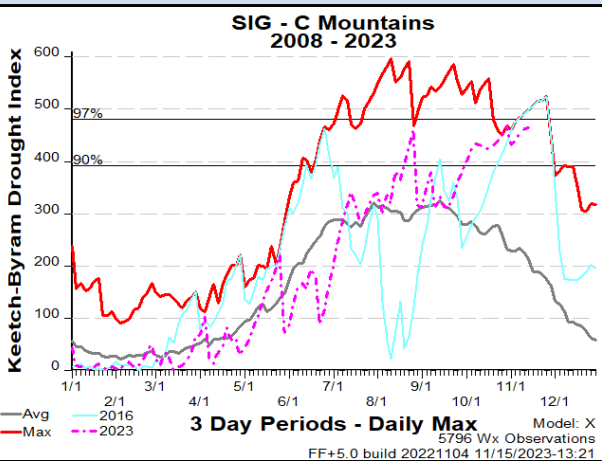
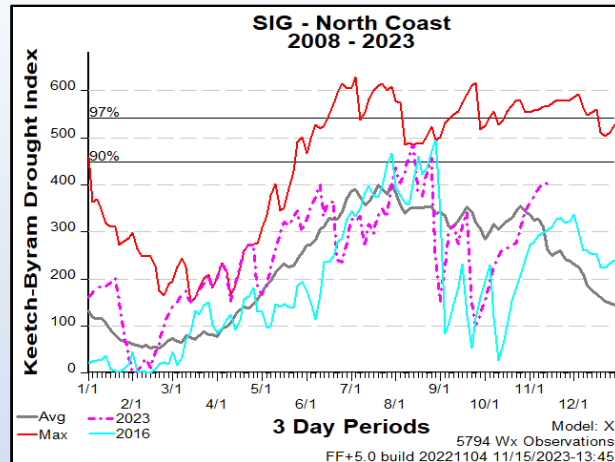
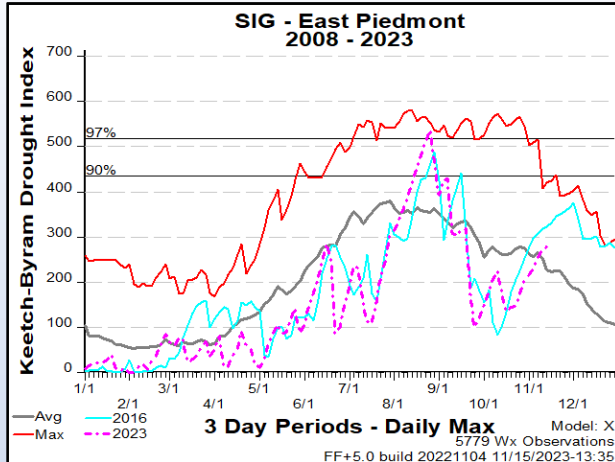
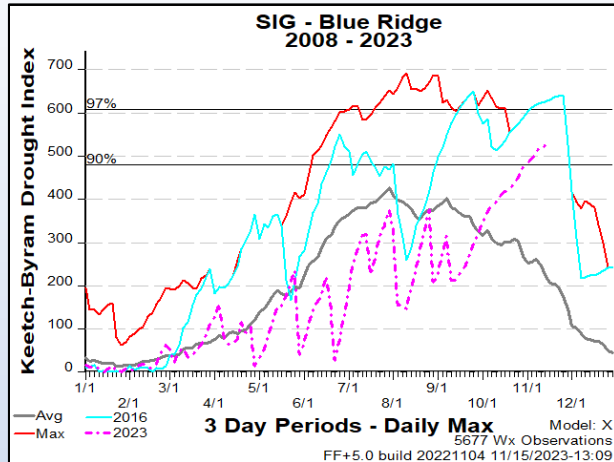
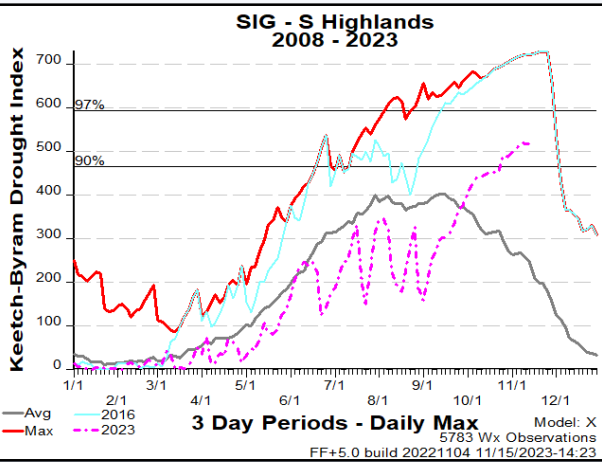
Week-2



This output can provide insight into general drying trends.

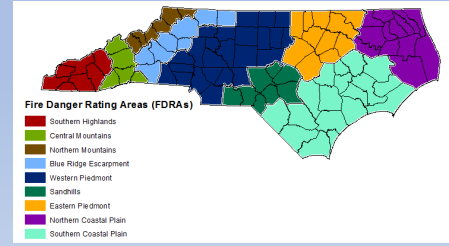
Note modeled significant departure from normal (increase in fuel dryness) in Week-1 & 2 with near normal forecast for Week-3, likely an interaction of possible cooler predicted temps, precip influences and better overnight RH recovery.

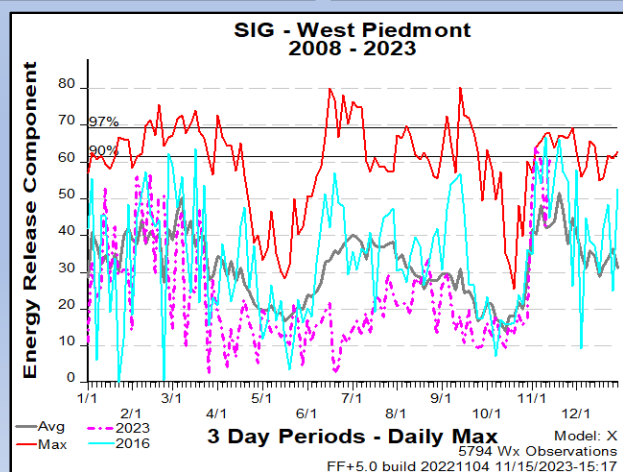
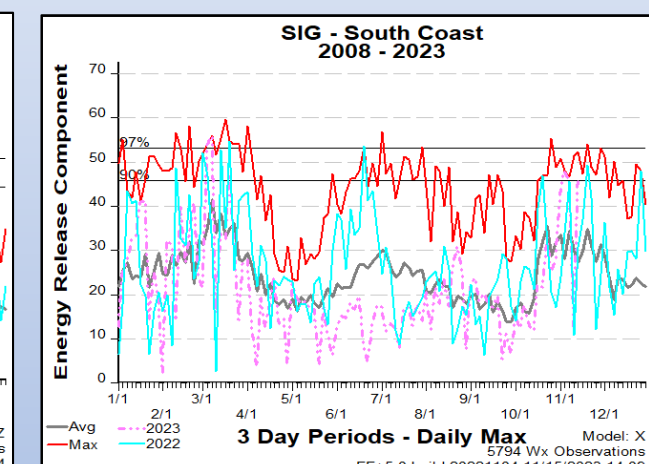
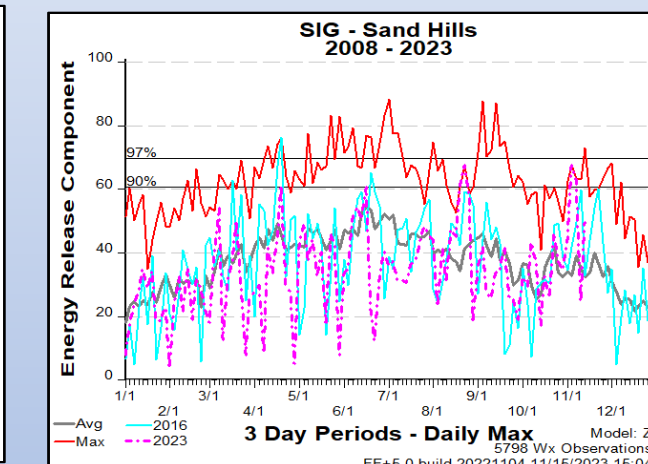
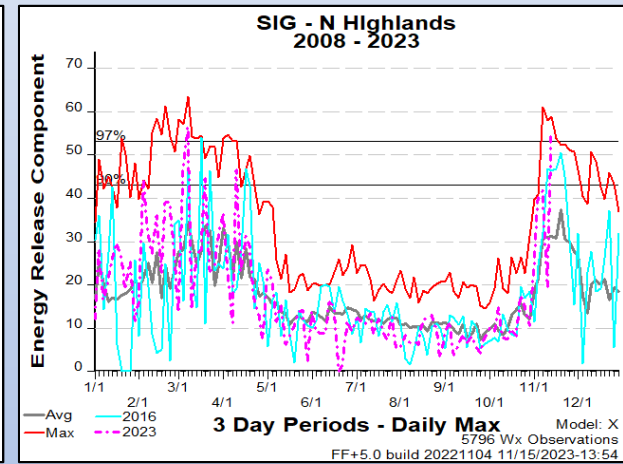
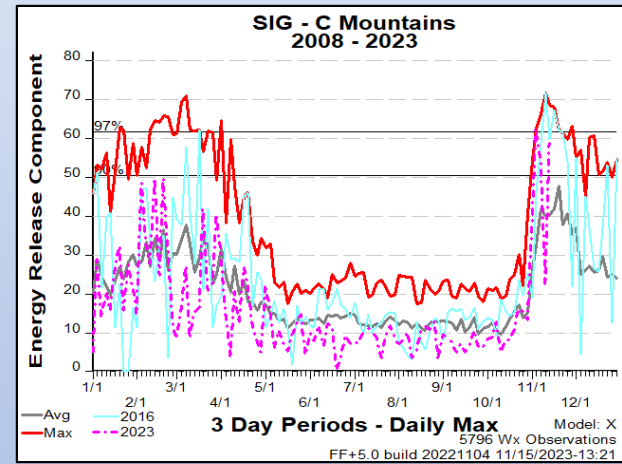
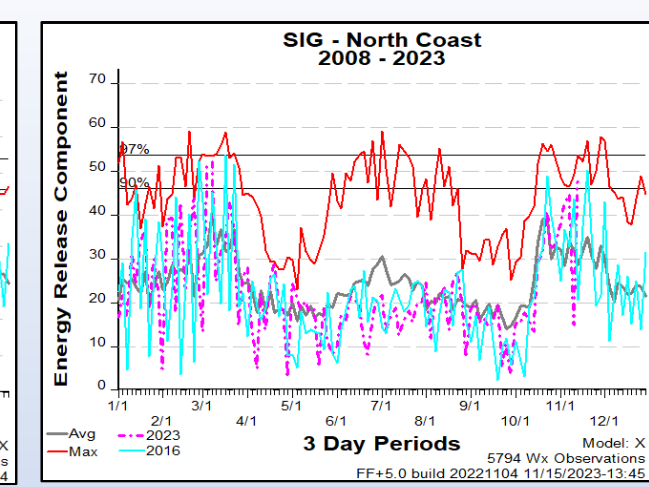
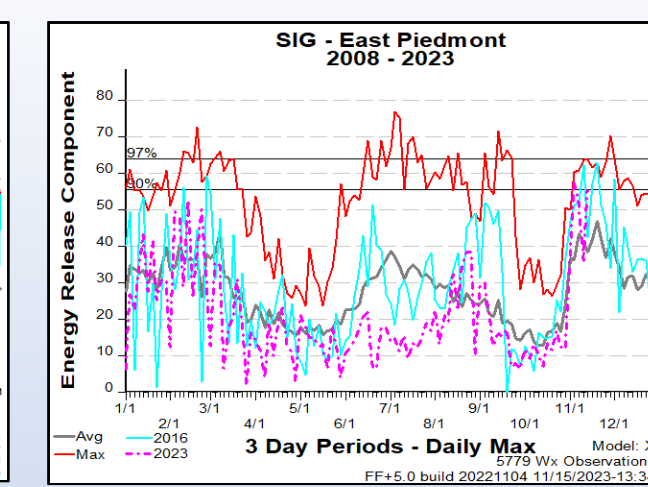
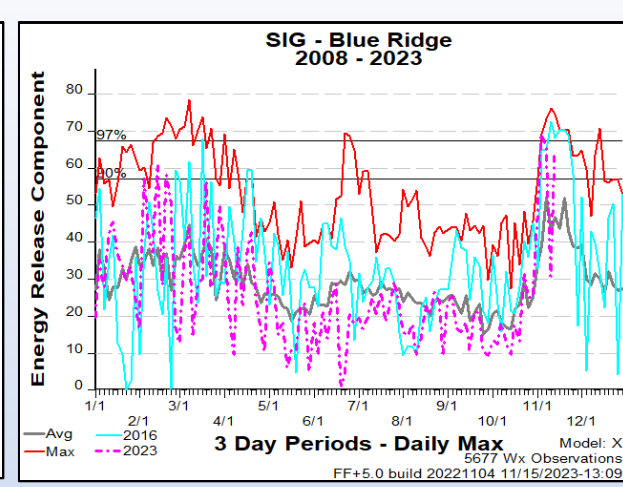
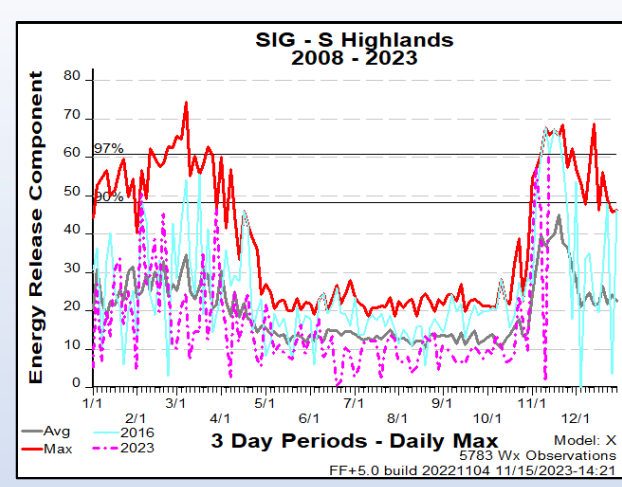
Important to note that there is significant forecast uncertainty as you go further out in time, especially in Fall of an El Niño Transition Year.



FDR outputs from FF+ Run: **KBDI**

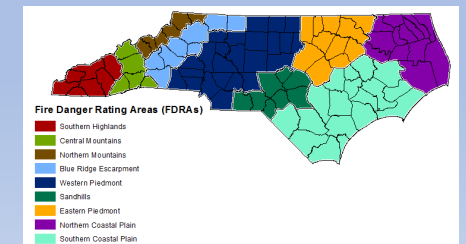
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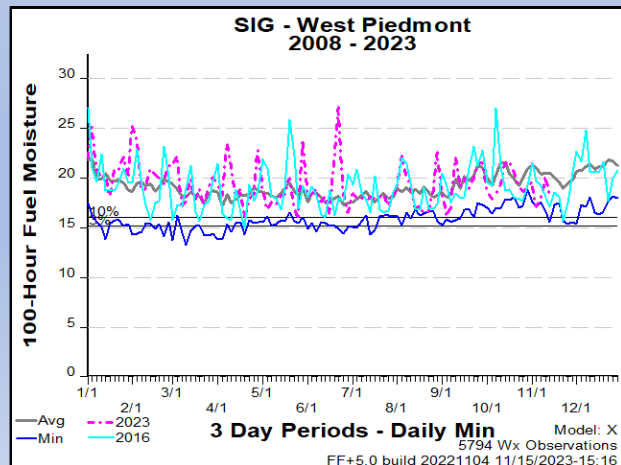
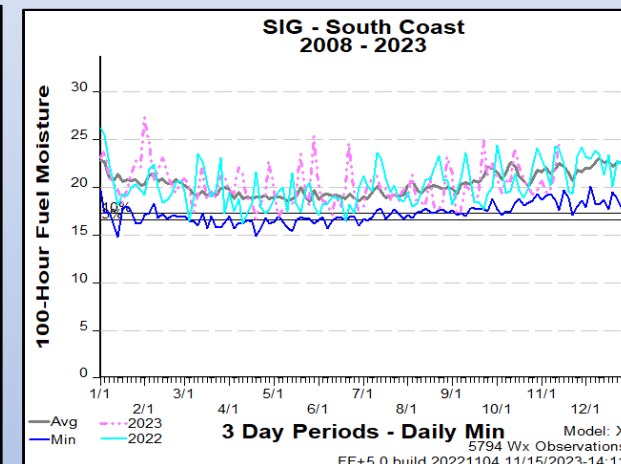
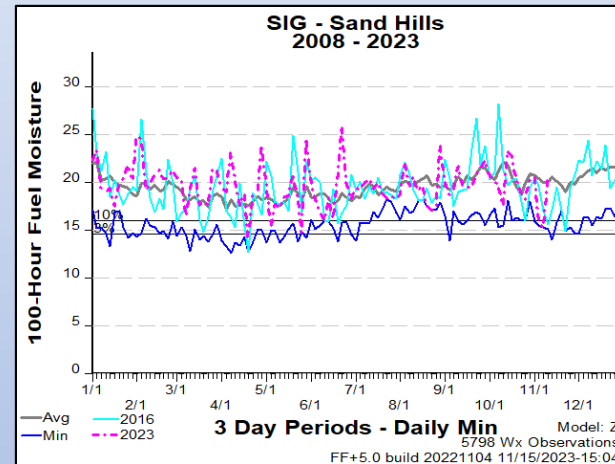
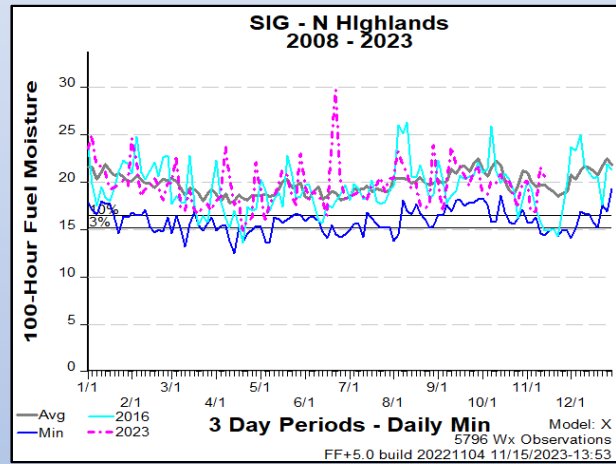
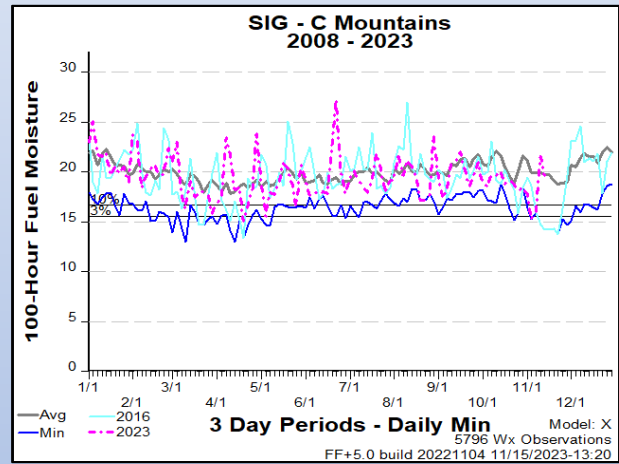
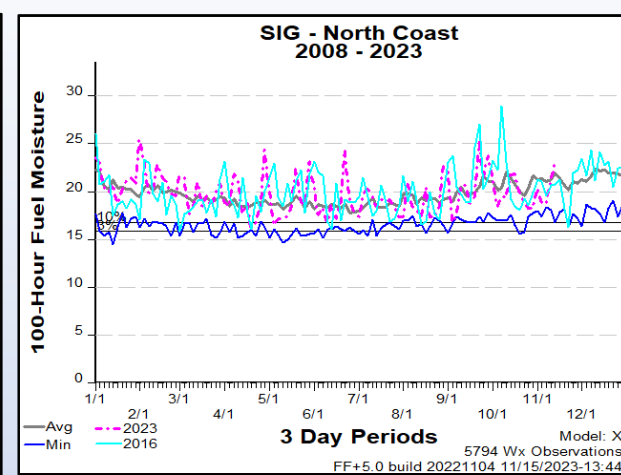
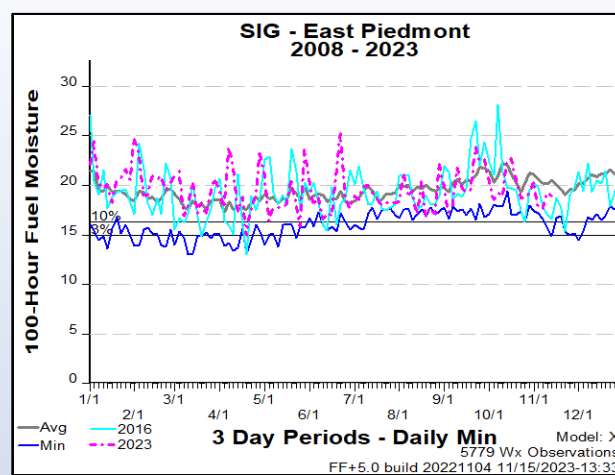
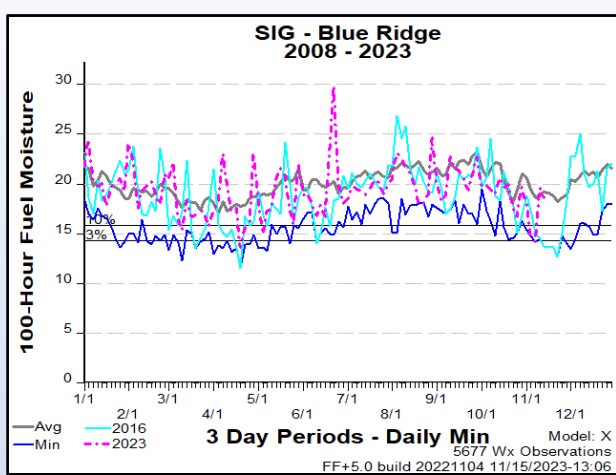
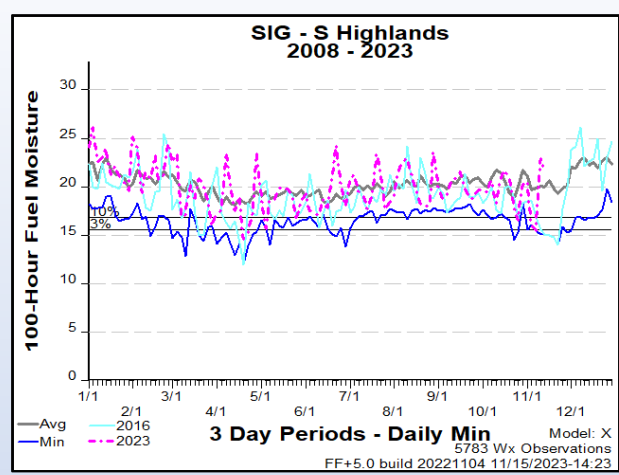




FDRA Outputs from FF+ Run: **ERC**

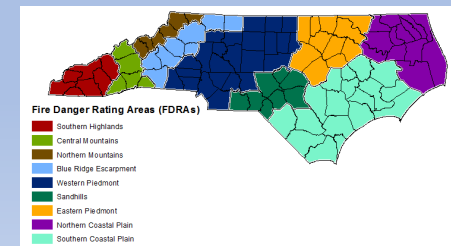
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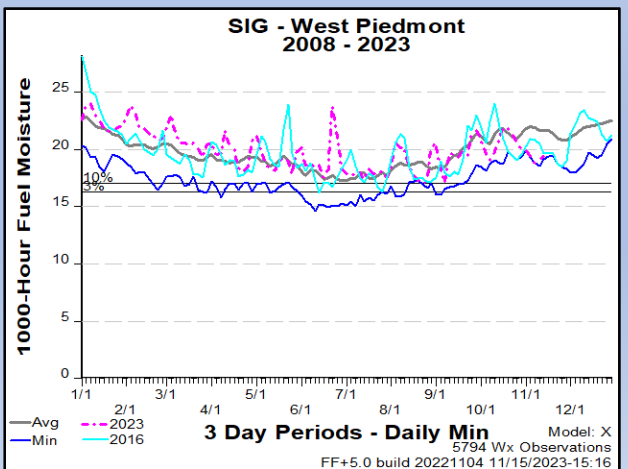
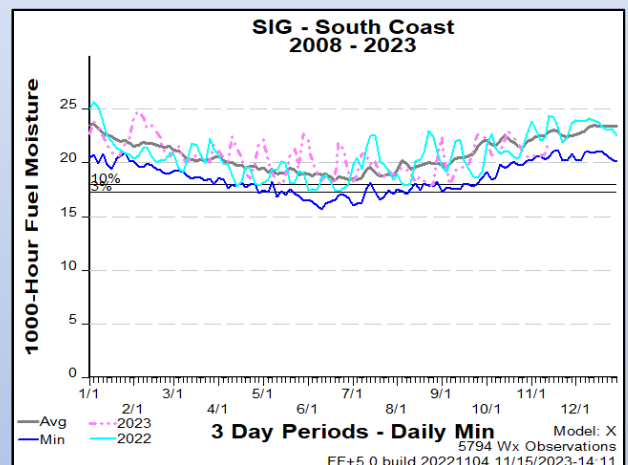
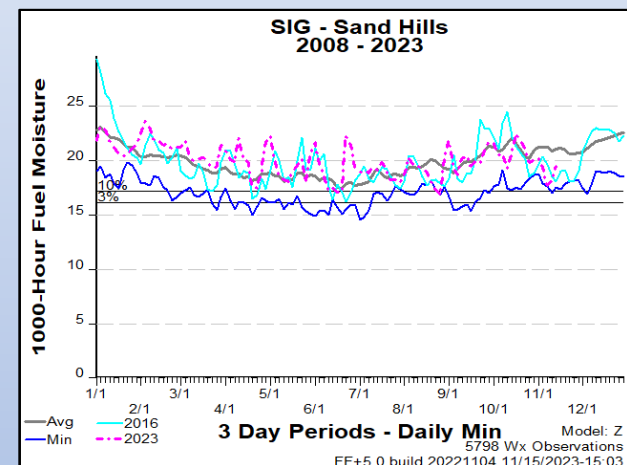
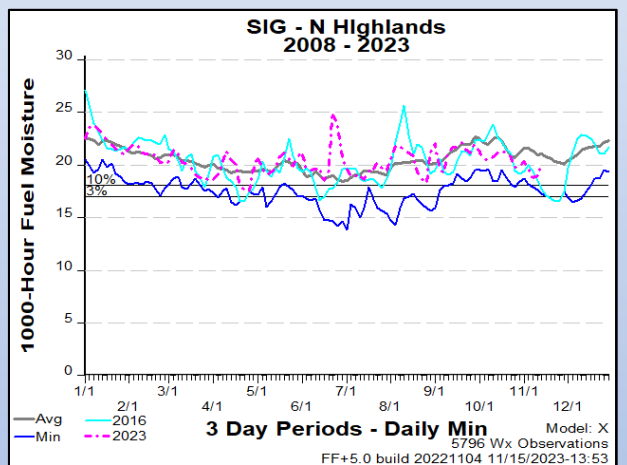
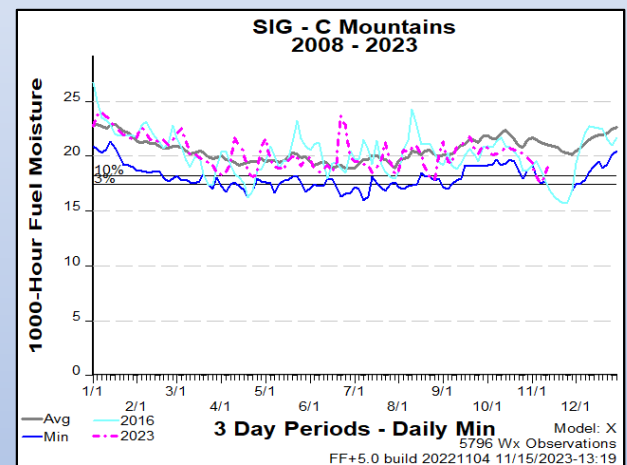
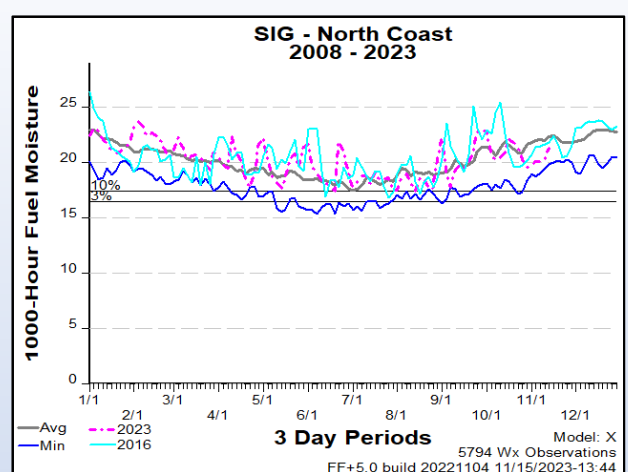
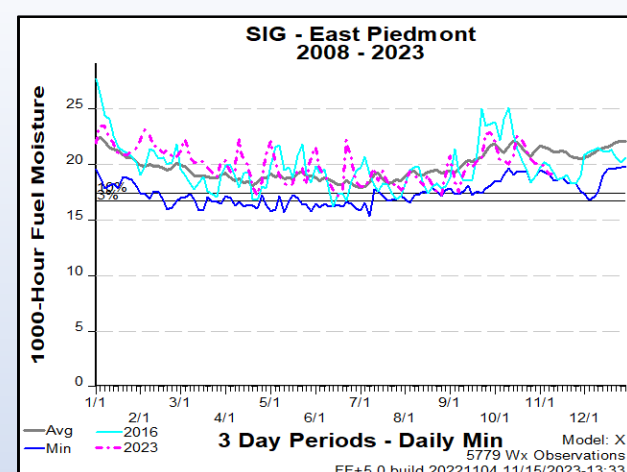
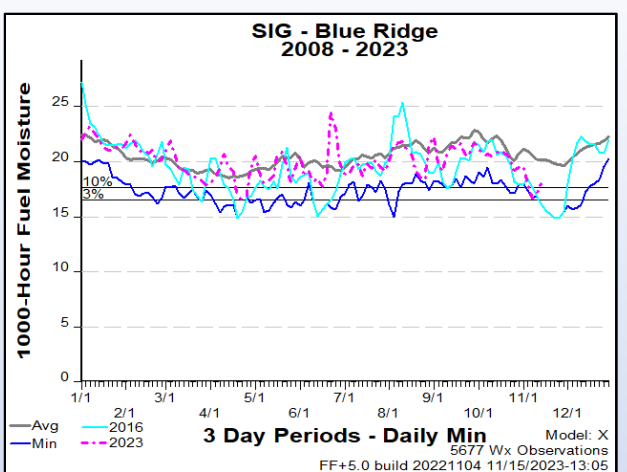
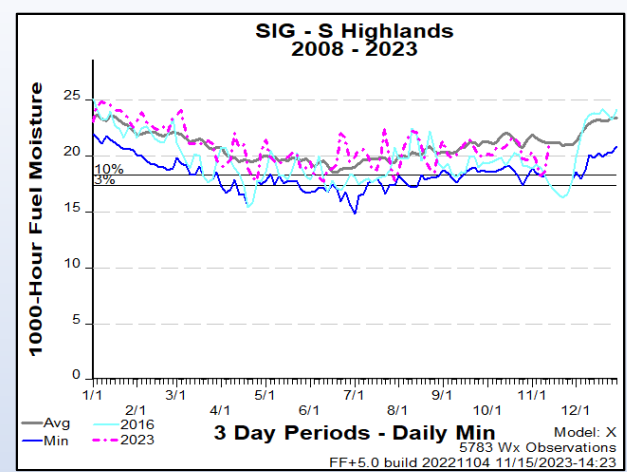




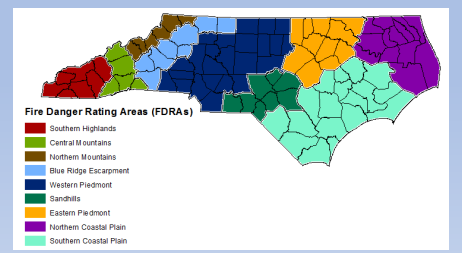
FDRA Outputs from FF+ Run: 100-Hr

(2008-2023 Data, ending 11/15/23)





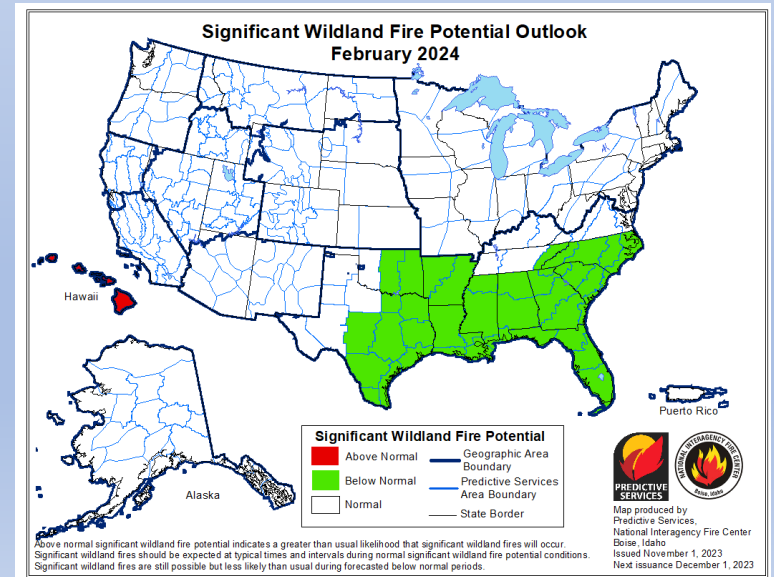
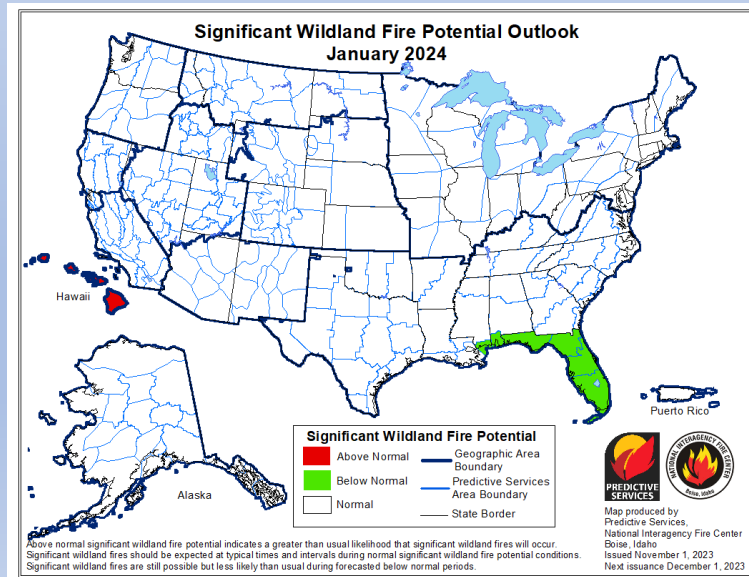
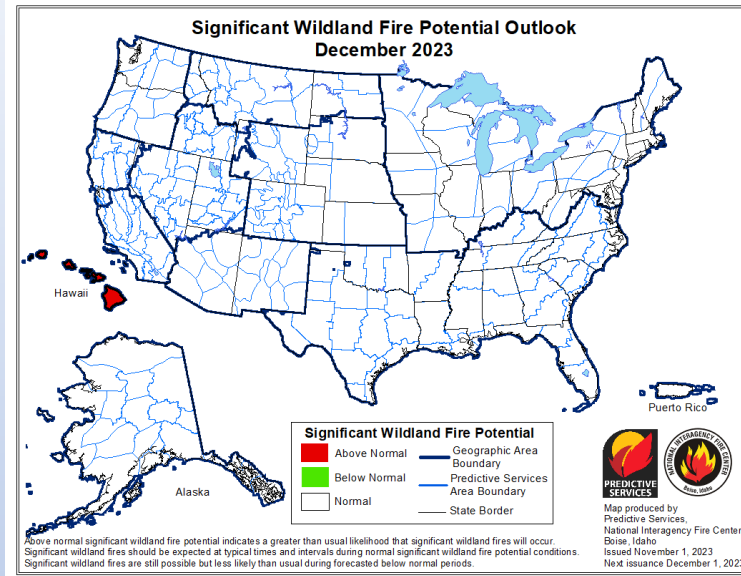
FDRA Outputs from FF+ Run: **1000-Hr**
(2008-2023 Data, ending 11/15/23)



Significant Wildland Fire Potential Outlook:

Updated 11/1/23 – Next Update on 12/1/23

***Forecast uncertainty could lead to an expansion of “Above Normal” Fire Potential if abnormally dry conditions continue into December.**



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 seen this year.

Fuels and Fire Behavior Advisory: *Issued 11/13/23*

Fuels and Fire Behavior Advisory Southern Appalachian Mountains and Piedmont Effective November 13, 2023

Subject: Increased fire danger in the hardwood-dominant Southern Appalachians due to ongoing drought

Discussion: Severe to exceptional drought has expanded across the Southern Appalachians and portions of the Piedmont in recent weeks, while seasonal leaf off continues to progress down from the higher elevations. The availability of fresh leaf litter and extremely dry duff layers on the surface are both contributing to difficulties controlling and containing ongoing wildfires. Recent light rain has only temporarily reduced fire danger. Long-term rainfall deficits combined with another period of abnormally dry air and poor overnight recoveries will result in critically low dead fuel moisture and a sharp increase in risk. Conditions within and adjacent to the advisory may degrade further if soaking rainfall does not return in the next one to two weeks, but confidence in weather conditions is lower than normal beyond the 5-day period.

Difference from normal conditions: Fire danger indices across the advisory area have increased to levels that are locally on par with conditions in the fall of 2016. Owing to 30-, 60- and 90-day rainfall deficits well below 25% of normal, 100- and 1000-hour fuels are critically dry, resulting in extensive mop-up operations. Additionally, multiple fires have remained active through the overnight hours as a result of the drought-impacted duff layer burning readily and holding heat. The energy release component (ERC) in several Predictive Service Areas (PSAs) recently surpassed historic levels observed in the fall of 2016, while KBDIs are tracking near the climatological maximum in portions of the area (as shown below). Fuels that normally burn during the spring fire season, such as Mountain Laurel and Rhododendron, are actively burning and contributing to fire spread. Active torching in young pine has also been observed under moderate burning conditions.

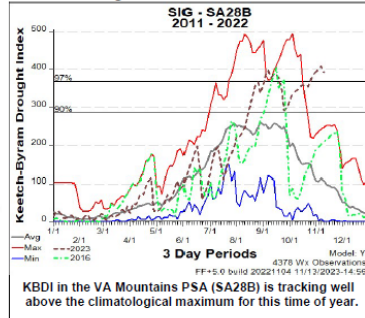
Concerns to Firefighters and the Public: Any fire in this area may be resistant to control efforts. Expect:

- a high probability for ignitions and spotting in *extremely* dry down and dead fuels;
 - elevated or higher fire line intensity during both initial attack and extended attack;
 - holding issues on handlines and the need for extended mop-up - freshly fallen leaves may need to be blown off containment lines regularly where leaf off has not reached completion;
 - higher than normal fire intensities in areas of complex terrain, which may preclude direct attack of fires;
 - the risk for fires to encroach on the wildland-urban interface, which has grown substantially since 2016;
 - extreme fire behavior and rates of spread if terrain-enhanced wind events, extended periods of low RH or other critical fire weather patterns materialize.
- See the Southern Area Fall [Risk Assessment](#) for an overview of critical fire weather patterns in the region, which may include dry cold fronts, distant tropical cyclones and [mountain waves](#).

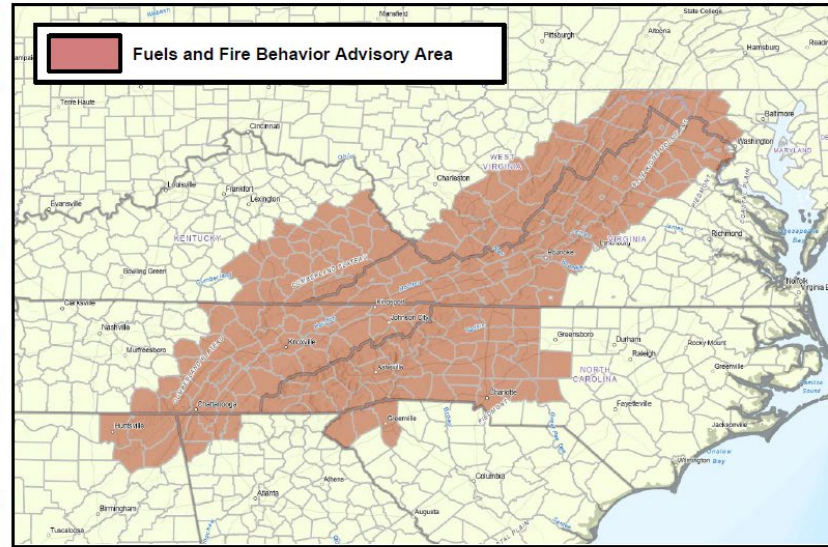
Mitigation Measures:

- Do not expect any fire to be routine.
- Fire managers should be prepared to support periods of increasing fire occurrence, as well as complex, potentially long-duration incidents.
- Utilize indirect tactics and plan for extended mop-up, with periodic patrolling of control lines.
- Utilize aerial supervision to help direct crews and keep them informed on fire behavior.
- Ensure adequate daily briefings for initial attack resources, especially if critical fire weather is forecast.
- Make sure that LCES is in place before engaging on any fire. Remember to STOP, THINK and TALK before you ACT.

Issued By: Southern and Eastern Area Predictive Services in coordination with state and federal partners.

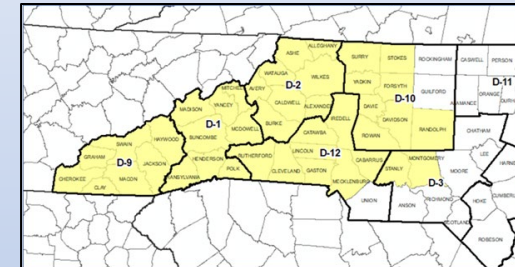


Fuels and Fire Behavior Advisory Southern Appalachian Mountains and Piedmont Effective November 13, 2023



Fresh leaf litter is contributing to fire spread under Rhododendron on the Collett Ridge Fire in North Carolina (left, National Forests of NC). Fires have been actively burning throughout the overnight hours in portions of the Appalachians (right, VA Department of Forestry).

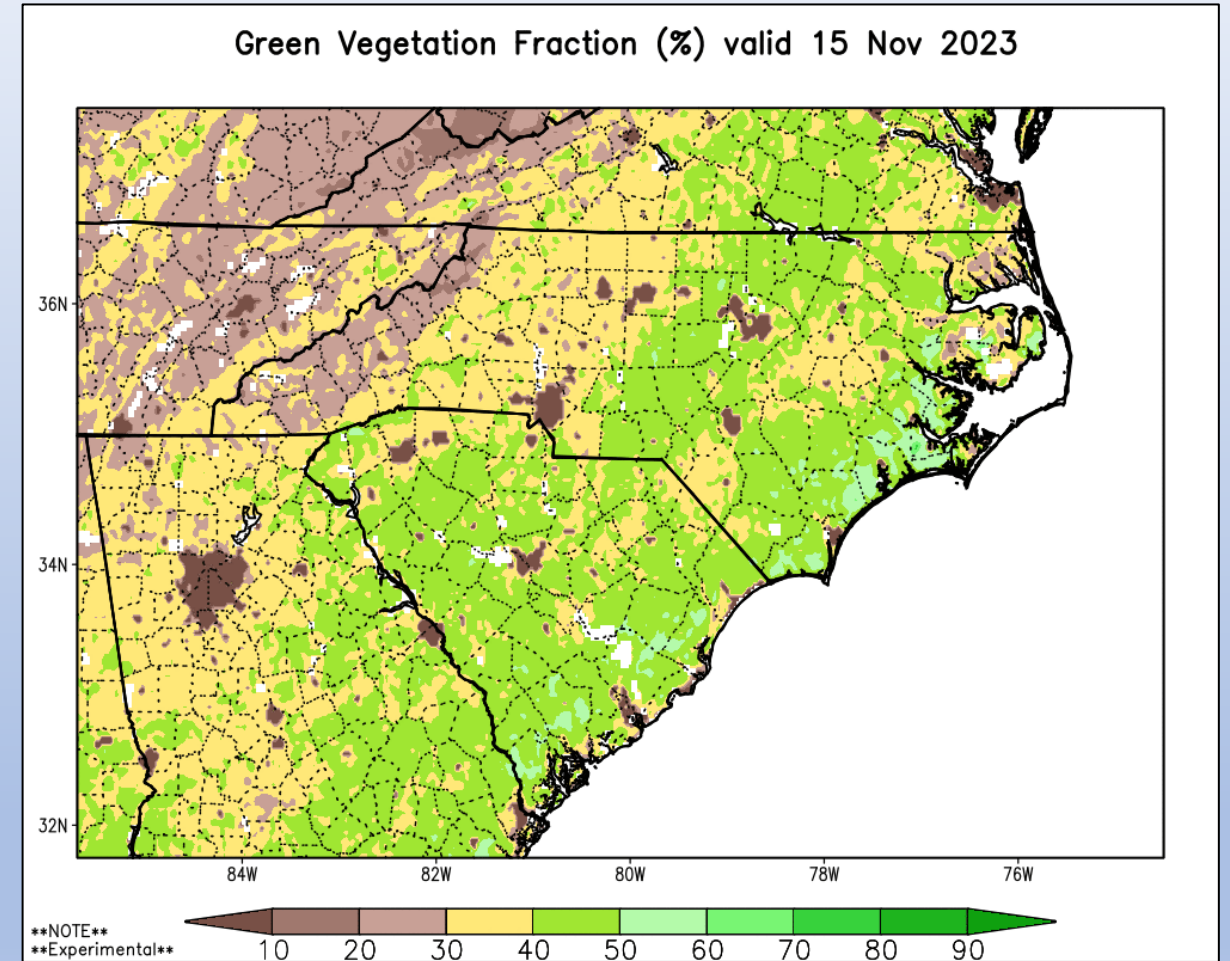
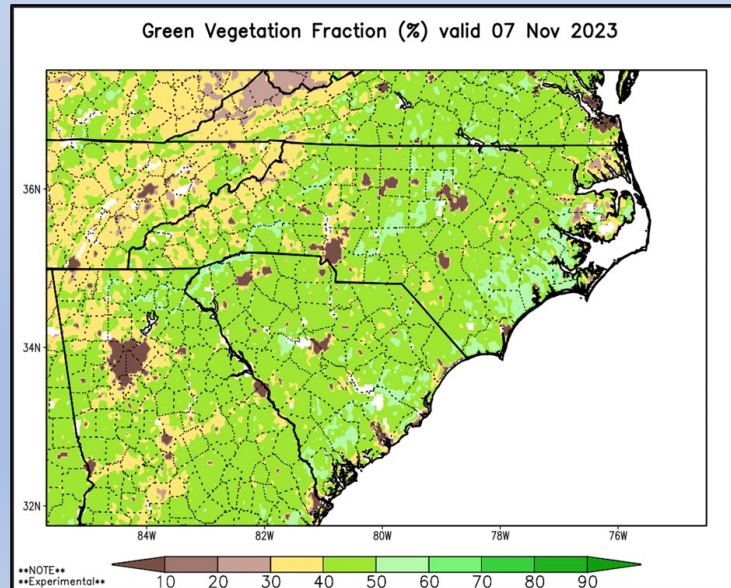
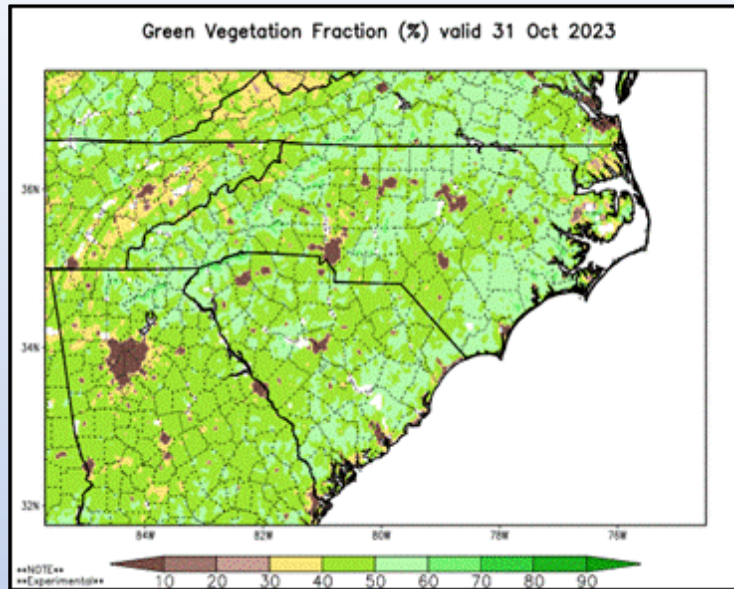
Current NC County extent shown with NCFs District Boundaries: (11/13/23)



The Fuels & Fire Behavior Advisory link is [here](#).

Mountain Waves Factsheet link is [here](#).

Green Veg Fraction – 3 Week Modeled Changes



Fuels and Fire Behavior Discussion by NCFS Region:

R3 - Mountain Region Comments:

- Energy Release Components in all FDRA's have been near or setting new historical maximums
- 100-hr and 1000-hr fuel moistures in all FDRA's except the Northern Highlands have been at or near historic lows
 - These 100-hr fuels have been completely consuming, contributing to fire intensity, control issues and mop-up
- Snags have been burning easily, this can pose safety hazards for firefighters
- Probability of ignition has been high due to very receptive fuels
 - Short range spotting, and slop overs can be expected during initial attack or firing operations
- Fireline intensities have been such that direct attack with handlines have been ineffective and have become unsafe
- Mop up is intense. Even small fires are taking many shifts to completely secure.
 - Dry mop up tactics are becoming ineffective
- Critically dry fuels have been extending burn periods later than usual for this time of year
- As leaf fall continues to occur, reburn potential will remain high and fire lines will need to be continually monitored and blown out
- Overall, leaf off is about 75-80% +, More in the higher elevations, less in the areas east of the escarpment

Fuels and Fire Behavior Discussion by NCFS Region:

R2 - Piedmont Region Comments:

- Drought has spread to all Region 2 Districts. Localized areas may be worse than monitor indicates.
- Fire activity has steadily picked up across the Region.
 - D10 working on two large logging debris/chip fires
- 100-hr and 1000-hr fuels are burning and adding to fire intensity and mop up problem.
- KBDI is very high in Sandhills, Western Piedmont and Blue Ridge Escarpment Counties.
- Mopup is critical. Any hot spots can reignite new leaf fall and burn across lines. Any available duff is burning and adding to the mopup/containment problem.
- Fuel Moistures have been at historic lows for many weather stations.
- ERC values are running at or near 90th percentile values.
- Leaf fall is around 50-60% for most of Region 2.
 - Northern D10 60-70%+

Montgomery County 11/6 total fuel and duff consumption



Fuels and Fire Behavior Discussion by NCFS Region:

R1 – Coastal Plain Region Comments:

D8:

The rain impacted our fuels significantly. Duration and amount was enough to moisten the large fuels and the upper surface.

D4:

Initial attack has been light due to the rainfall amounts that came over the weekend. Decent coverage of the district that is enough to keep new starts to a minimum. Leaf fall around 30%. At least one light frost but no heavy ones yet, especially on the south end of the district.

D13:

Leaf fall is going strong in maples, poplar gums, etc. Oaks are still hanging on. Pine straw is falling pretty heavily. We have had at least one heavy frost so far.

Fire activity has been minimal. Received more rain than expected over the weekend. Generally got anywhere from .4 to .75. Slow drizzle over a full day.

D7:

Our Buildup (district tracked) is over 60. Over 50 is usually our watch out... historically D7 has gotten REALLY busy when over 80. We are on track to be at 80 next week if no precip. We are almost fully cured. Had several killing frost on west side of district and a few on the east. Leaf fall picked up significantly this past weekend.

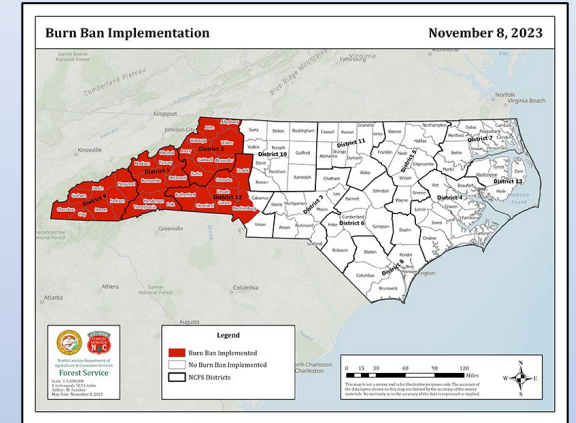
For D7, activity has been certainly higher than average for this time of year. Occurrence is up but the fire behavior hasn't been significant.

Bear Swamp Fire is still smoldering.

Fort Island is still smoldering.

General Fire Activity Discussion:

- October fire activity quickly transitioned to above normal in state-wide context - well above the 10-yr avg in number of fires, but below average acres.
- For November - IA Activity has consistently increased with alignment of normal seasonal changes (leaf-drop & live fuel dormancy) + interaction with significantly drought impacted fuels and very dry air masses. This interaction has led to a rapid escalation of fire activity, mop-up needs, and overall acres burned (IA and Extended Attack) as noted in the regional comments. Out-of-area resources have been mobilized for multiple fires within the most impacted FDRAs. Burn bans for 30 western counties are in place at the time of this report.
- MTD “209” Criteria Fires:
 - Collette Ridge (Cherokee)
 - Poplar Drive (Henderson)
 - East Fork (Jackson)
 - Winchester Road (Caldwell)
 - Potter Road (Avery)
 - Elk Creek (Watauga)
 - Tripplett (Wilkes)
 - Hwy 43S (Pitt)
 - Baux Mountain Road (Forsyth)
- Predictive Services Significant WF Potential Outlook:
 - Transition to Normal Activity generally favored statewide for December/January, transitioning to Below-Normal for February.
 - There is still significant forecast uncertainty more than 7-10 days out in storm system track and potential rainfall amounts.
 - Drought impacts to the state are significant, with some locations having yearly deficits of 10”-15” or more, also adding to longer-term uncertainty.
 - Reminder that Significant WF Potential is not a predictor of “IA Fire” activity for a particular location but suggests larger geographic areas likely requiring larger incident mobilization/out of area support.
- See slides 3-8 for general trends in fire occurrence and acres in a monthly context.
 - We will continue to see daylength decrease by around 2-minutes/day through December 22nd.
 - Shorter daylengths, generally cooler temps and less solar heating of fuels are part of the seasonal inputs traditionally leading to a decrease in fire activity as we progress into the winter months.
 - General trends are subject to local factors (time and space) including drought, fire problem, abnormal weather events, etc.



Broader Fuels/Indices Discussion:

- Many areas have seen several rounds of frosts/freezes with more substantial freeze events coming.
Below normal temps are again trending for the 6-10/8-14 Day CPC Outlooks.
- Relative greenness maps are indicating the general progression of leaf-drop from West to East (and lower elevation).
- Leaf-drop will continue to impact fires.
Especially those with substantial smoldering duff and heavy fuels (drought impacted) with risk of reburn/escape.
Significant rain will also be needed to compact fallen leaves and alter their ability to contribute to the fuel bed.
- The live fuel model used in NFDRS has transitioned the live woody and herbaceous “green” fuels to dormancy in NC’s FDRAs based upon interaction of declining sunlight and minimum temperatures (see FDRA-ERC Output Slide).
- Drought conditions rapidly deteriorated over the past month:
 - The NC State Climate Office’s preliminary analysis of NCEI data shows that October 2023 was the 10th driest on record since 1895 and the driest since 2000, in a state-wide context (link is [here](#)).
 - Moderate to Severe drought conditions have continued to expand (see Slide #17).
 - Some locations are nearing 60 days without significant wetting rain (see Slide #13).
Those areas that have received recent wetting rains are still far from being in normal conditions (see Slide #15).
 - KBDI values are over the 90th percentile for the year for western FDRAs (see FDRA-KBDI Output Slide).
 - 100-hr & 1000-hr fuels have trended well below normal (drier) due to lack of significant rain & dry air events (see FDRA Fuel Slides).
 - Duff/Organic consumption and smoldering will remain a concern for any fires occurring in these areas.
 - Reburn will remain a concern following needle cast/leaf-drop on both wildfires and prescribed burns.
- Refer to the FDRA Indices and FM slides & Regional Comments for FDRA Specific Seasonal Trends.
 - Many outputs have trended near/above historical values for the time of year.
- A rapid change from a short-duration weather event aligning with on-going drought impacted fuels can lead to significant enhancement of area-wide fire danger and local fire behavior.
- Refer to the Fuels and Fire Behavior Advisory issued on 11/13/23 (see Slide #36).

*It will take a significant amount of precipitation over a long duration to substantially impact the current drought influenced fuel conditions and bring those conditions back to what is considered “normal” in a seasonal context. Carryover impacts are likely to be seen in the Spring if plant-available groundwater levels don’t sufficiently recharge over the winter.

