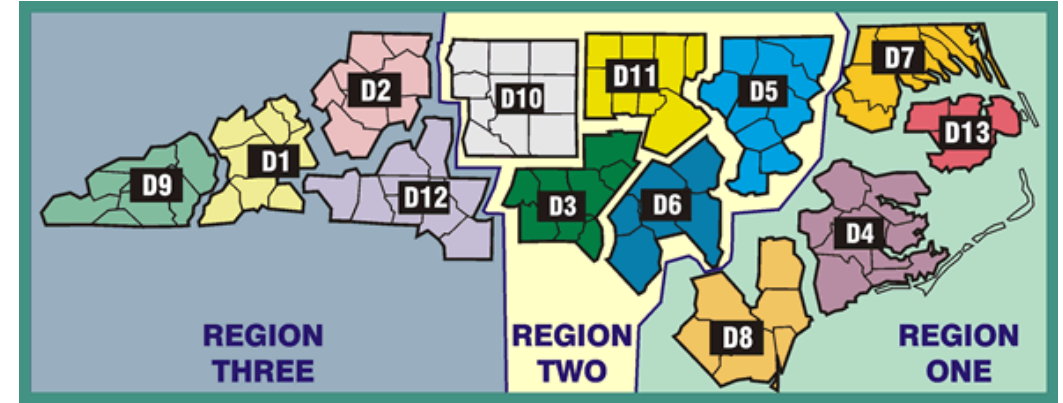


Statewide Seasonal Fire Danger Assessment

– December 2023 Update –



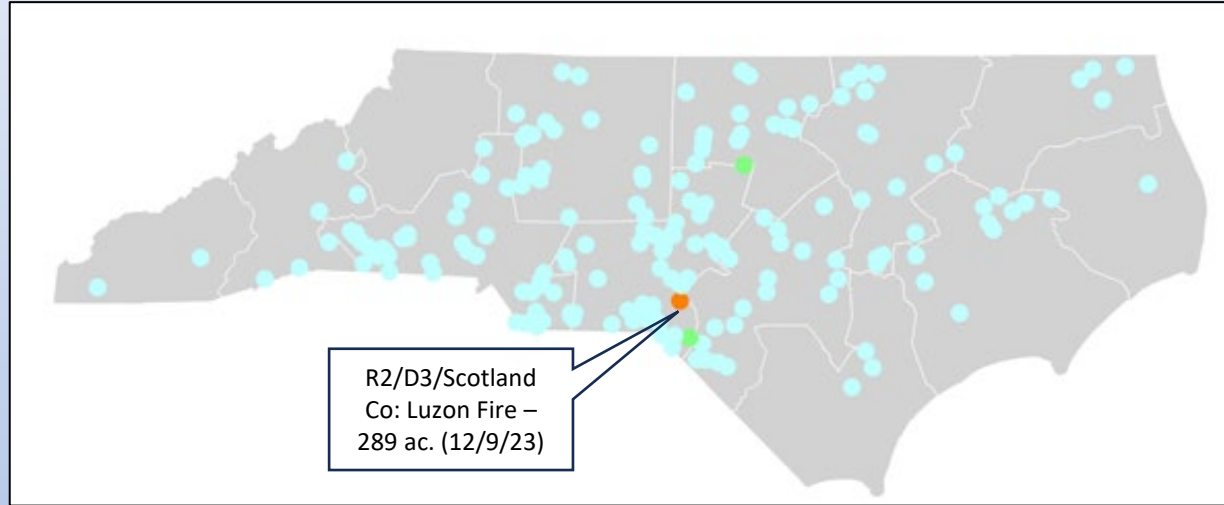
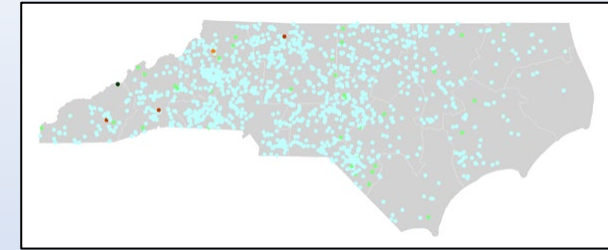
Month to Date Incident Activity

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

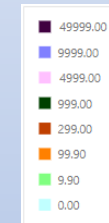
Date Range: 12/1 – 12/12, 2023

Report: Business Intelligence Module, Response Trends Map

11/1 – 11/30

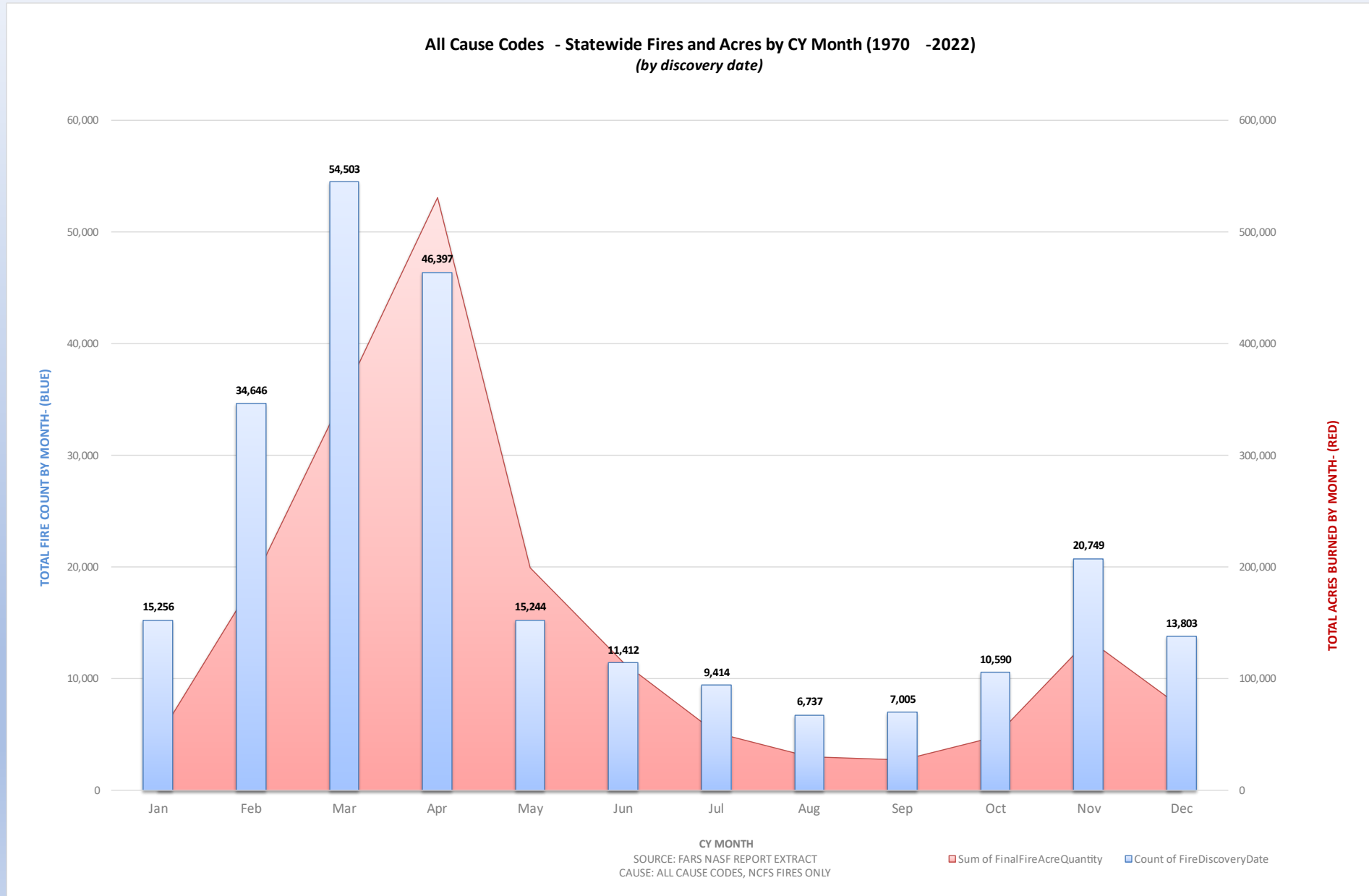


Legend by Size
Class Range
(acres)



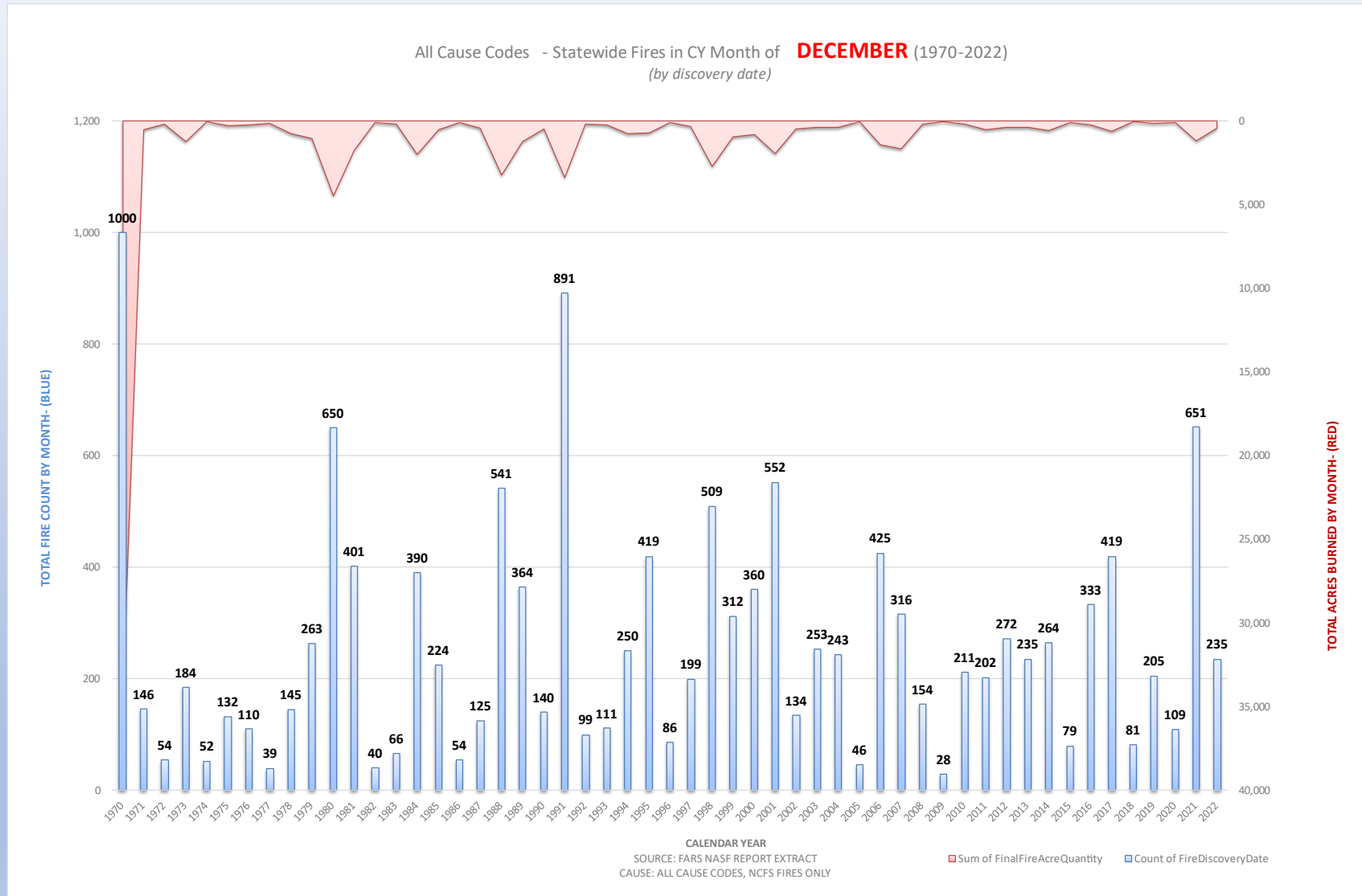
NCFS – By Region				
Monthly <u>Fire</u> Activity (Does Not Include Federal Ownerships)				
Data Source:	Signal 14 Regional Activity Summary Report (Signal 14 is a daily snapshot in time)			
Date Range:	12/1 – 12/11, 2023			
Area	Wildfire Count	Wildfire Acres	RX Count (State & Private)	RX Acres (State & Private)
R1	17	12	0	0
R2	101	522.7	15	770
R3	42	31.5	0	0

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



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

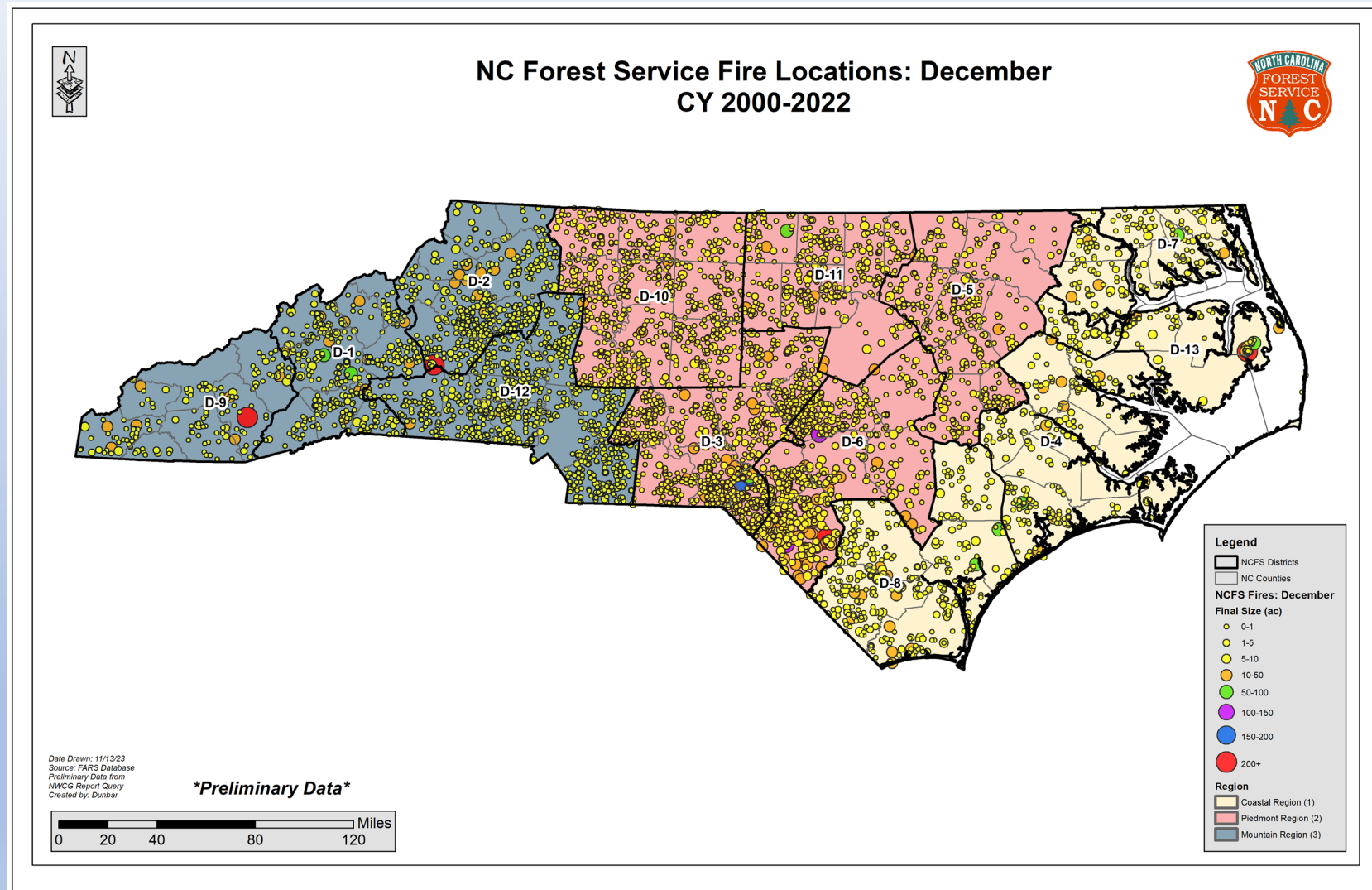
Distribution of **All Fires for month of December** from 1970 - 2022



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

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

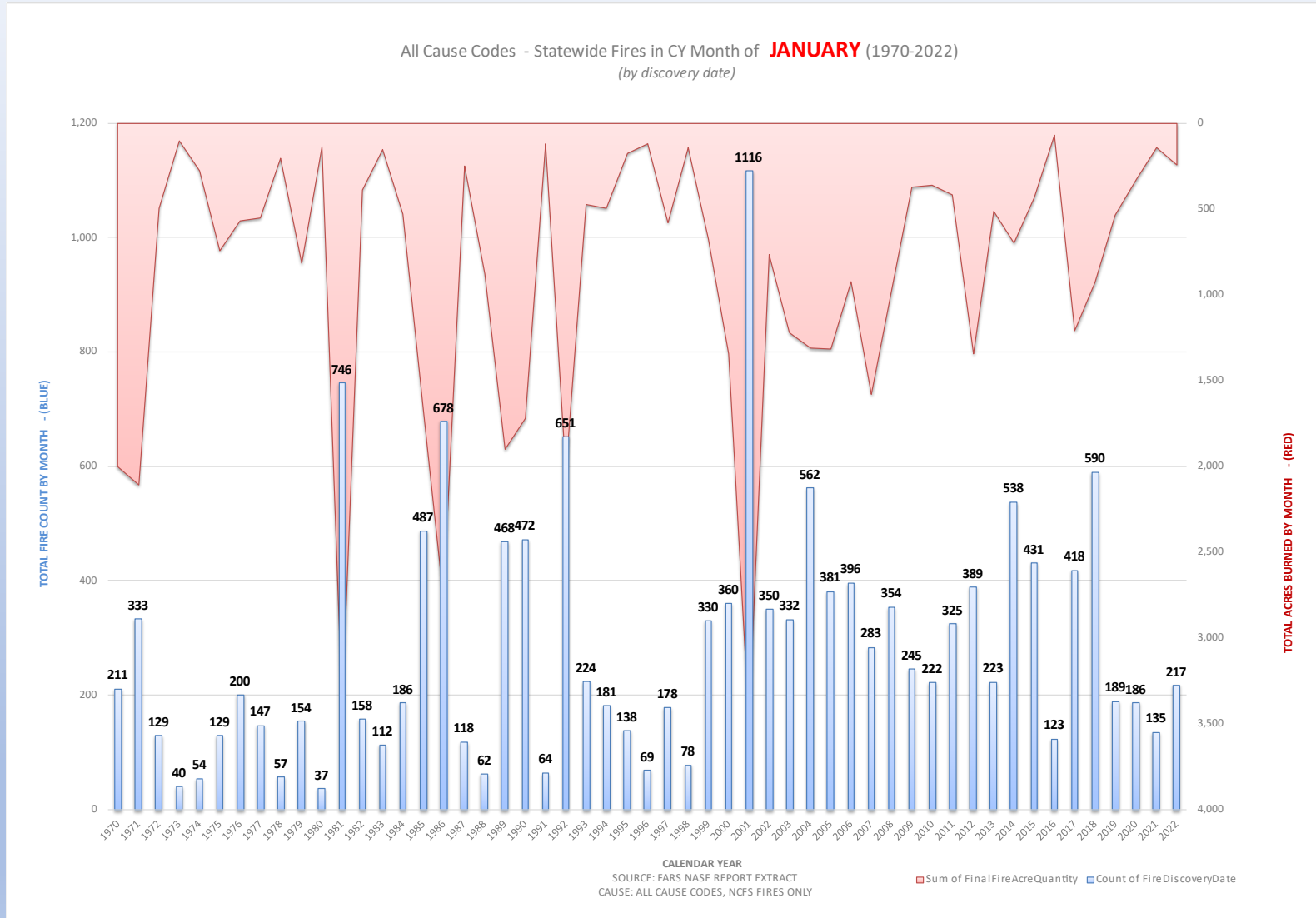
Fire Locations of **All Fires for month of December** from 2000 - 2022



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

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

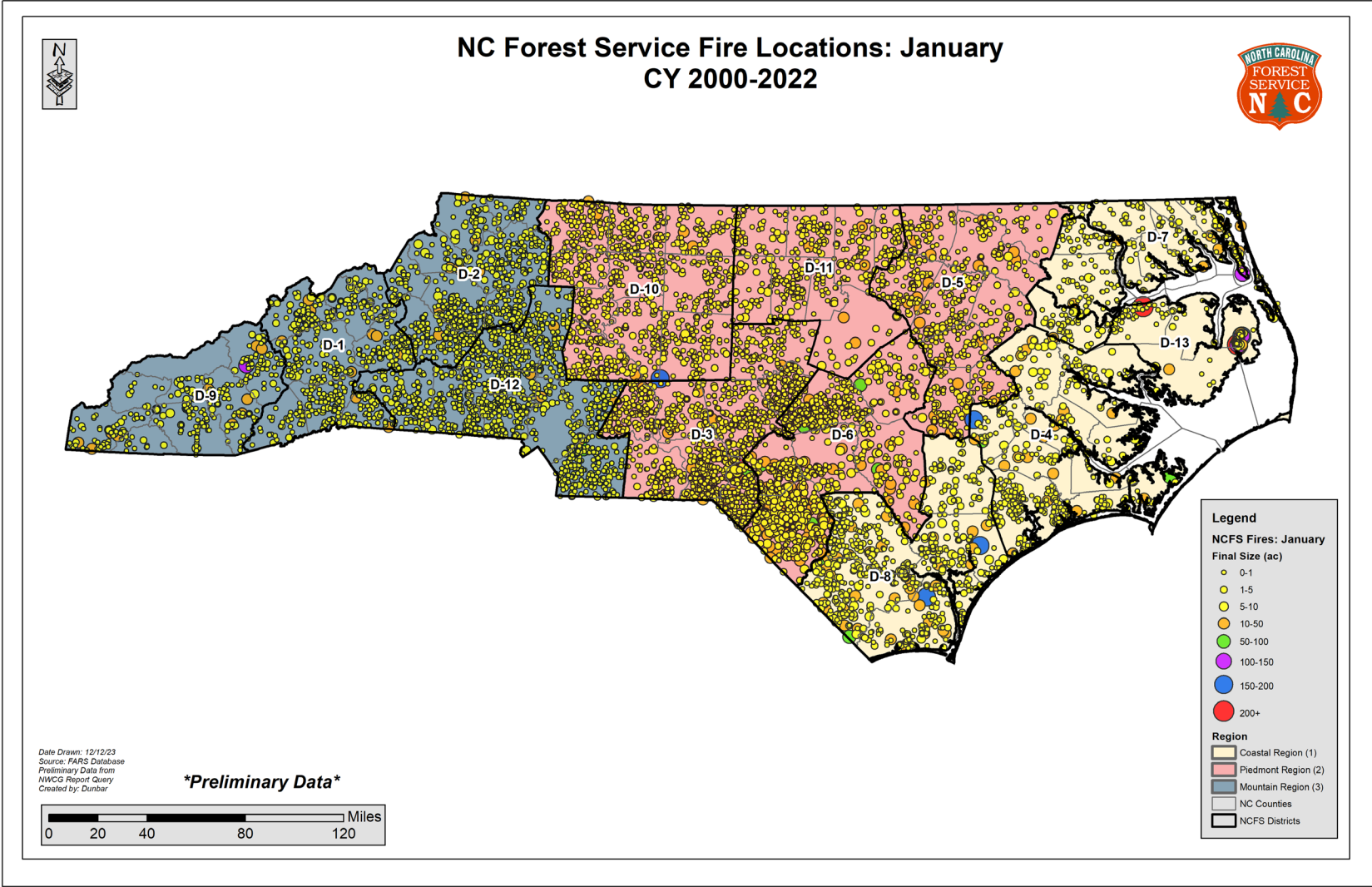
Distribution of **All Fires for month of January** from 1970 - 2022



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

10-Yr. Rolling Average for January: ~ 305 Fires for 511 Acres

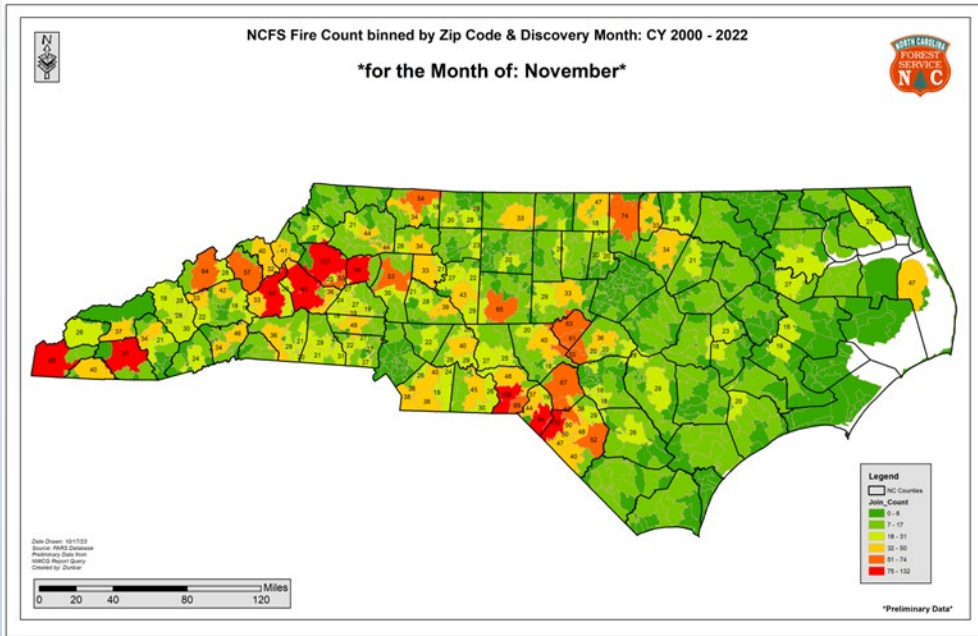
Fire Locations of **All Fires for month of January** from 2000 - 2022



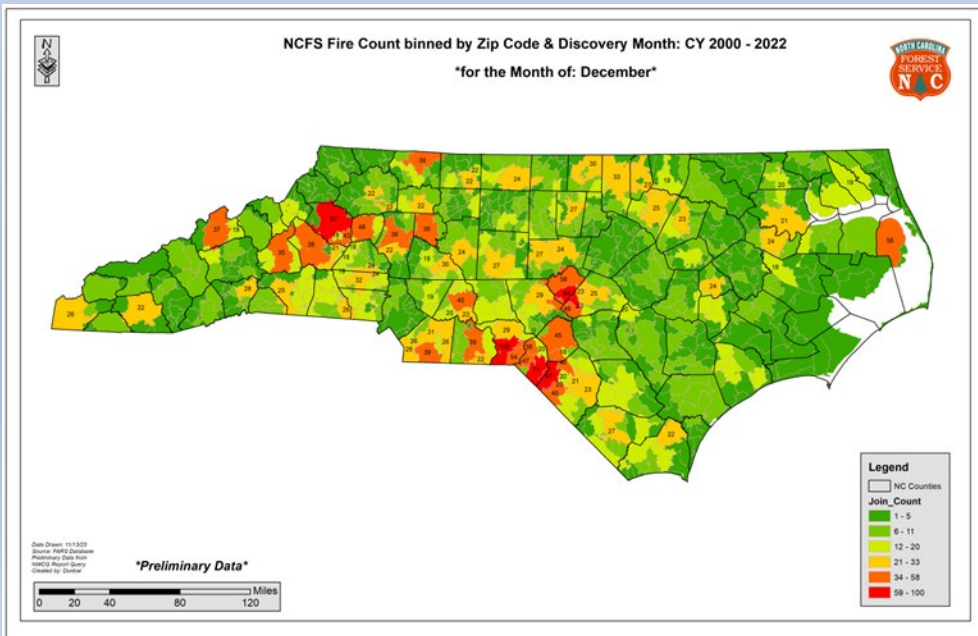
Cause: All Cause Codes, Statewide, NCFS Reported Fires Only

10-Yr. Rolling Average for January: ~ 305 Fires for 511 Acres

November

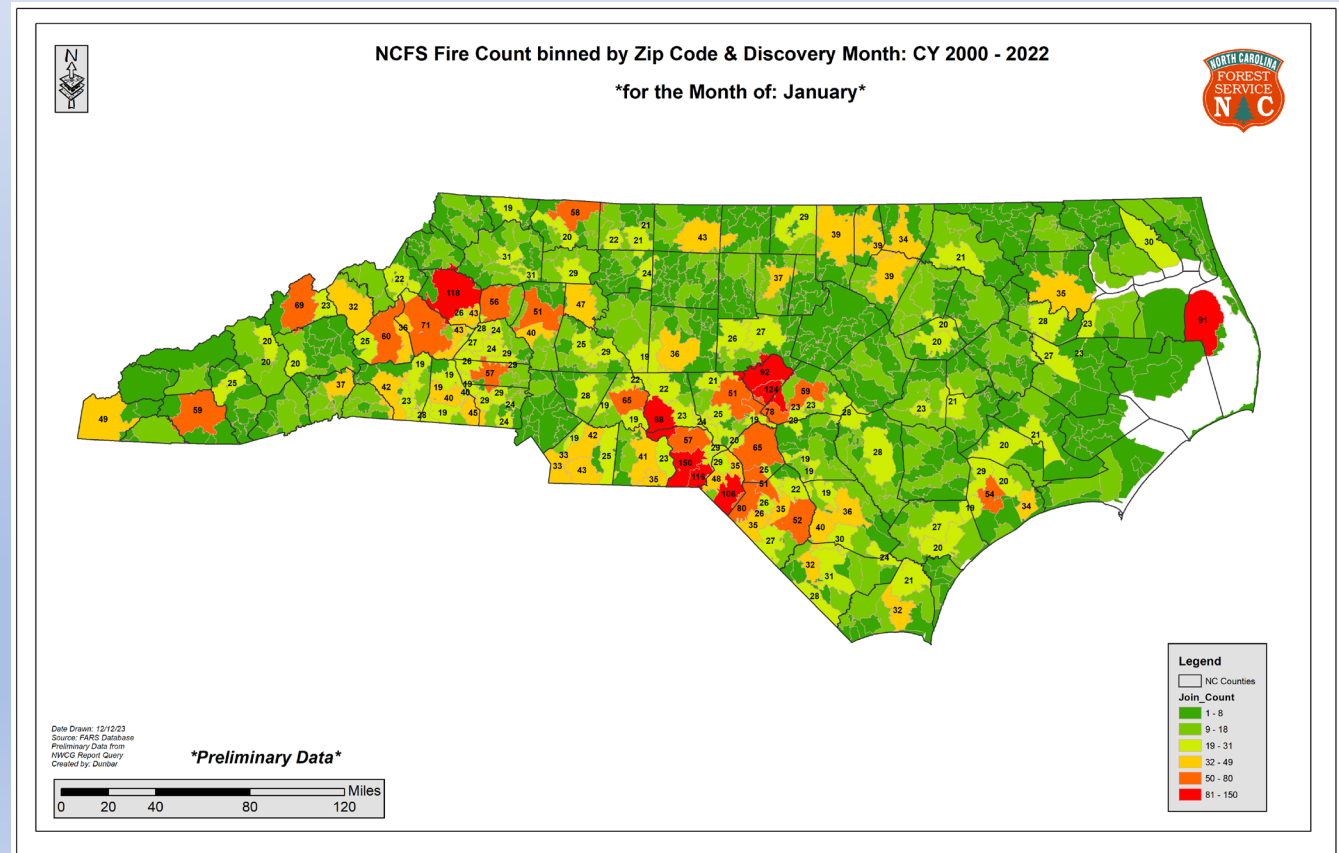


December



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

January



Fire Environment Slides

Summary at End

State Climate Office: Short-Range Monthly Outlook for NC

Released **11/30/23** & Location: <https://climate.ncsu.edu/fire/outlooks/>

Short-Range Outlook for North Carolina

Week 1: Nov. 30 to Dec. 6, 2023	Week 2: December 7 to 13, 2023	Weeks 3-4: December 14 to 27, 2023
<p>Warmer, then Cooler 🌡️ ➡️ 🌡️</p> <p>Temperatures will steadily rise into the low to mid 60s this weekend as a warm front lifts northward across the Carolinas. A cold front moving through on Monday will then drop our temperatures back into the 50s by Tuesday and usher in a drier air mass.</p>	<p>A Brief Chill Coming 🌡️ ➡️ 🌡️</p> <p>A major cool-down is likely early in this week as continental high pressure shifts eastward. High temperatures next Thursday afternoon may struggle to top 50°F. After that, we could see a quick rebound by the weekend as winds shift out of the south.</p>	<p>More Temperature Swings? 🌡️ ➡️ 🌡️?</p> <p>Current forecasts suggest warmer conditions could continue through Week 3 with another potential cool-down coming in Week 4, although model skill is limited that far out. Our normal high temperatures in late December are in the upper 40s to low 50s.</p>
<p>Wet This Weekend ☁️💧 ➡️ ☀️</p> <p>Rain chances will ramp up on Friday as the warm front arrives, with Saturday afternoon likely to be the wettest period before lingering showers taper off by Monday. Total rainfall should range from half an inch in the north to 1.5 inches in the southern Mountains.</p>	<p>Dry to Start, With Rain Later? ☀️ ➡️ 💧</p> <p>High pressure overhead should limit our precipitation chances through next weekend, but a potential frontal passage later in the week could bring a widespread precipitation event across the state by Monday, December 11, or Tuesday, December 12.</p>	<p>Wetter Weather Favored? 💧 ➡️ 💧?</p> <p>Most medium-range forecasts show the typical El Niño signal of wetter conditions across our region by the middle of December. However, a potential late-month shift toward a cooler pattern could limit our precipitation if high pressure is in place over us.</p>
<p>Forecast Confidence</p> <p>Friday's high temperatures could vary widely, from the upper 40s to the upper 60s, depending on how far inland the warm front gets.</p>	<p>Forecast Confidence</p> <p>Some models have shown conflicting signals about the precipitation pattern across the eastern US through this week.</p>	<p>Forecast Confidence</p> <p>Recent forecasts have showed little consistency from one model run to the next, so it's a little too early to plan for this period.</p>

This infographic is based on forecast and outlook guidance from the National Weather Service. For more information, visit www.weather.gov.



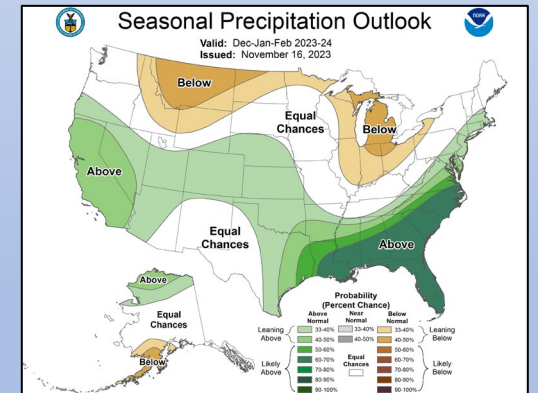
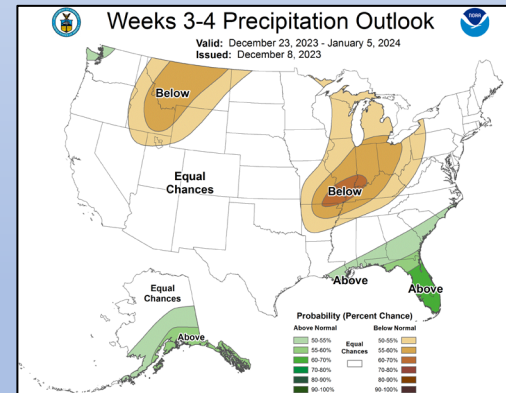
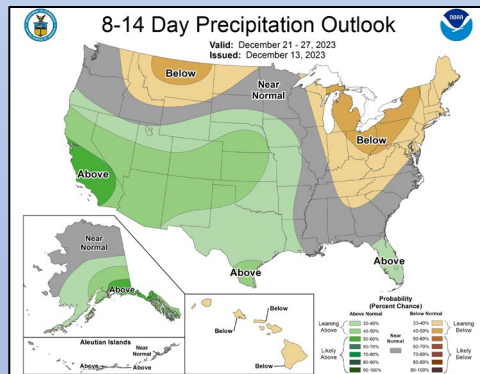
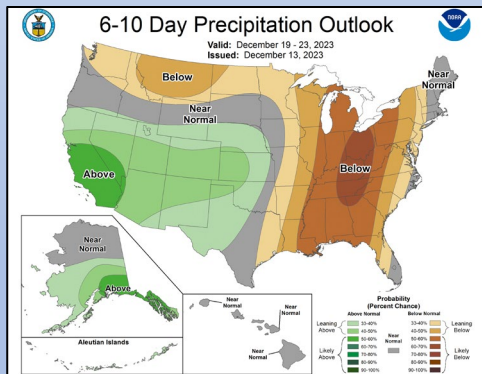
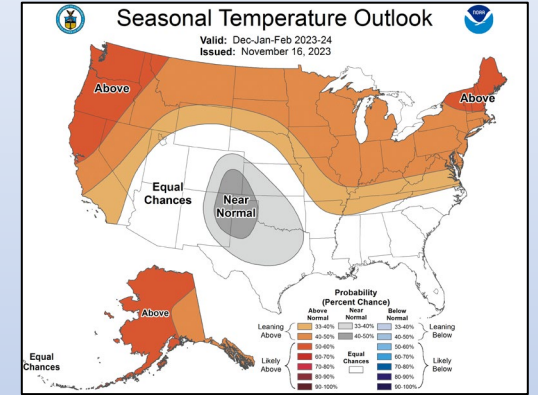
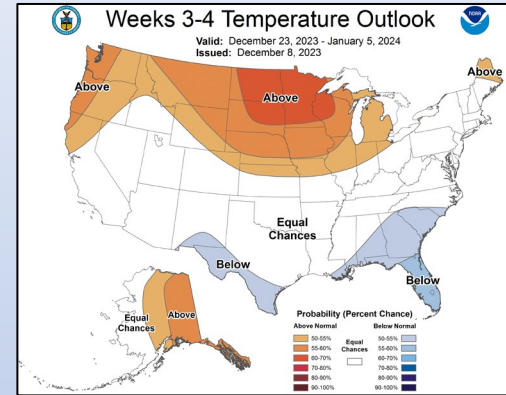
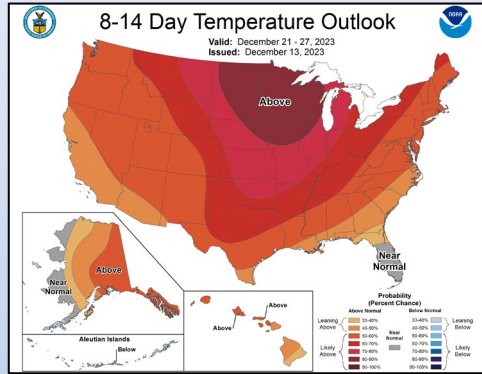
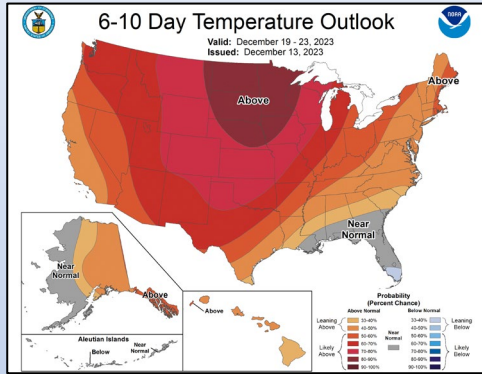
Author: Corey Davis (NCSO)
 cndavis@ncsu.edu



Supported by:

CPC Temp & Precip Outlook

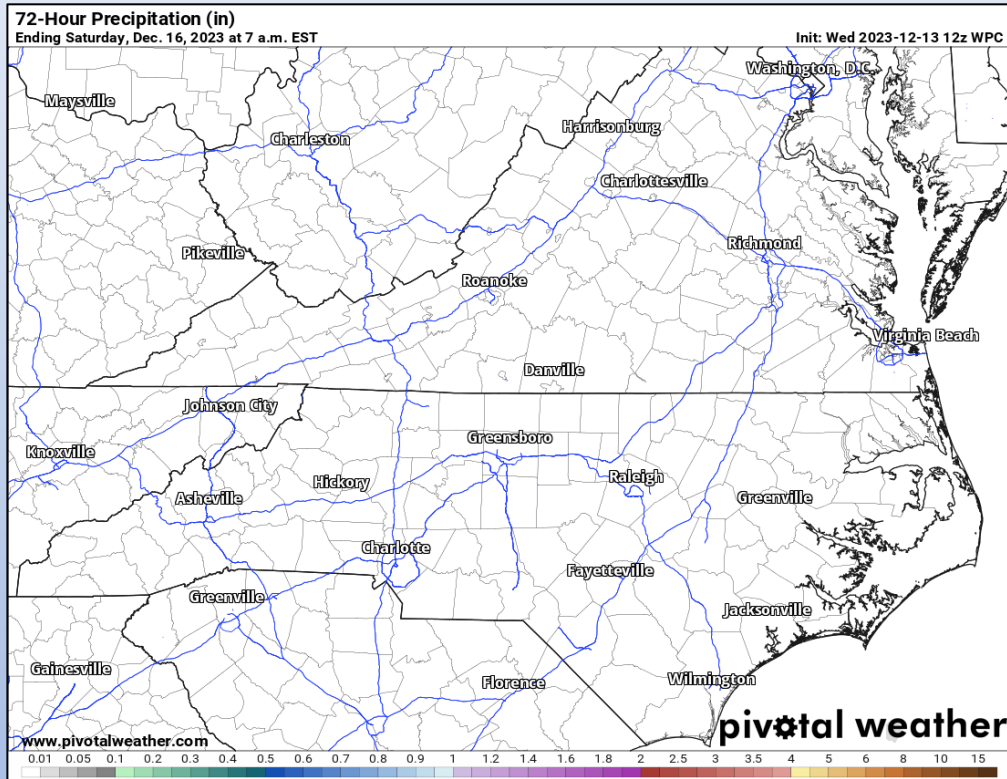
6-10 Day, 8-14 Day, Weeks 3-4, Seasonal



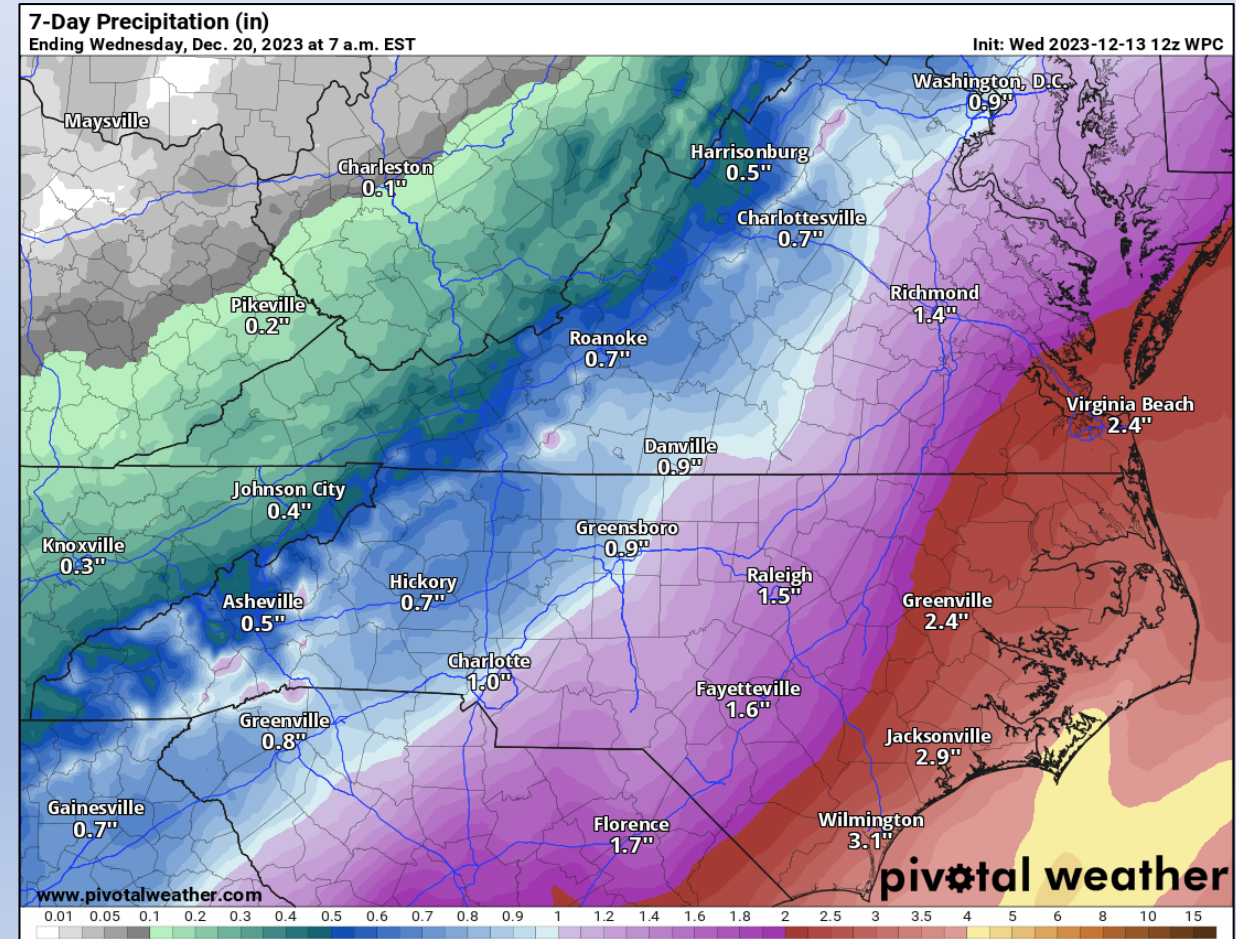
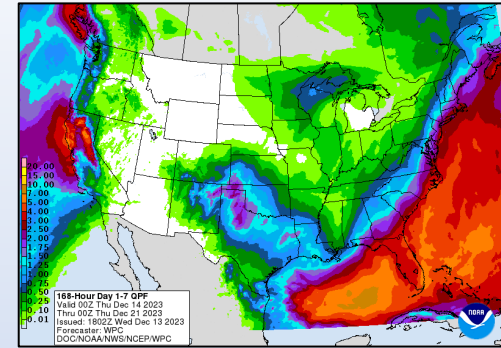
Quantitative Precipitation Forecast, Day 1-7

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

3-Day QPF Total



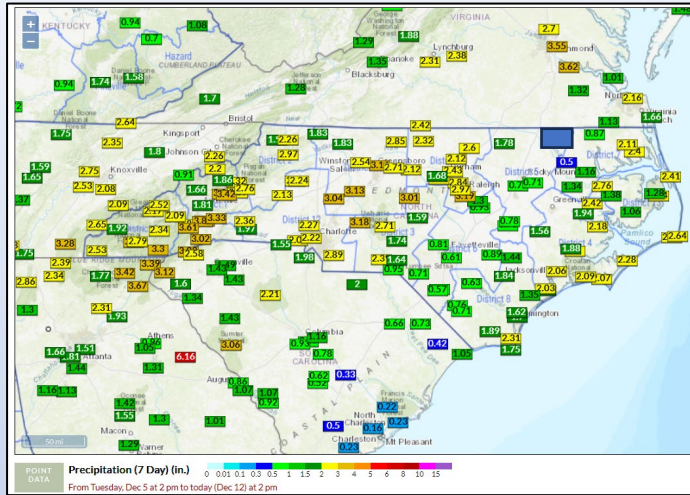
7-Day QPF Total



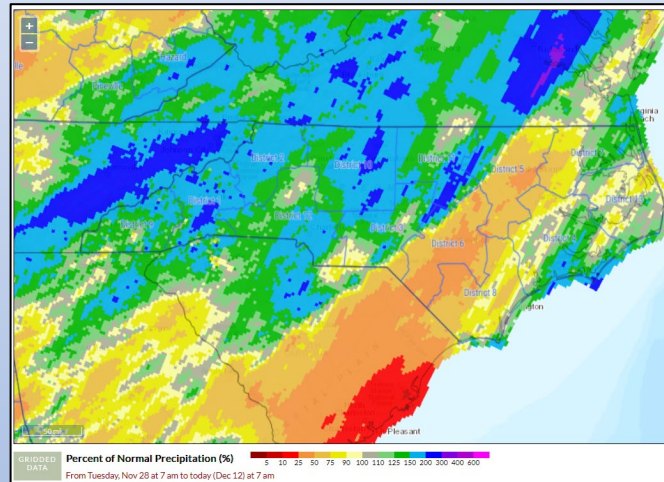
**Still significant forecast uncertainty later in the period concerning possible precip amounts (related to track changes in potential coastal low, etc.)

7 Day Precipitation Totals

FWIP (Point accumulation ending at 1400 on 12/12)

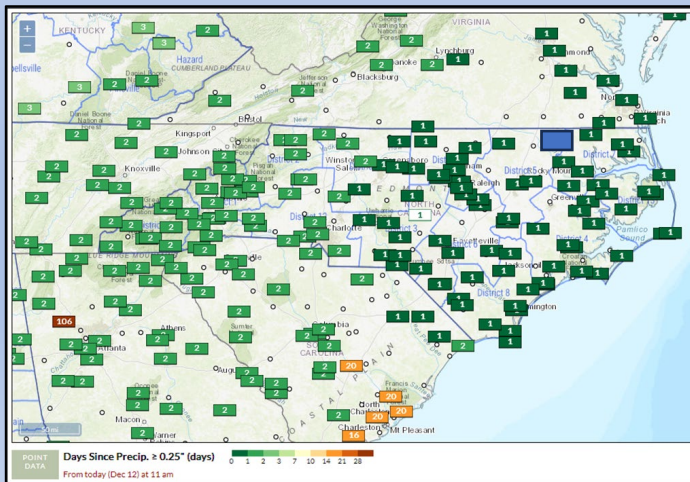


Short-term benefits for much of state, but still well behind at a seasonal scale. Note areas still well behind normal at the 14-day time scale, includes this past weekend's rain (below).



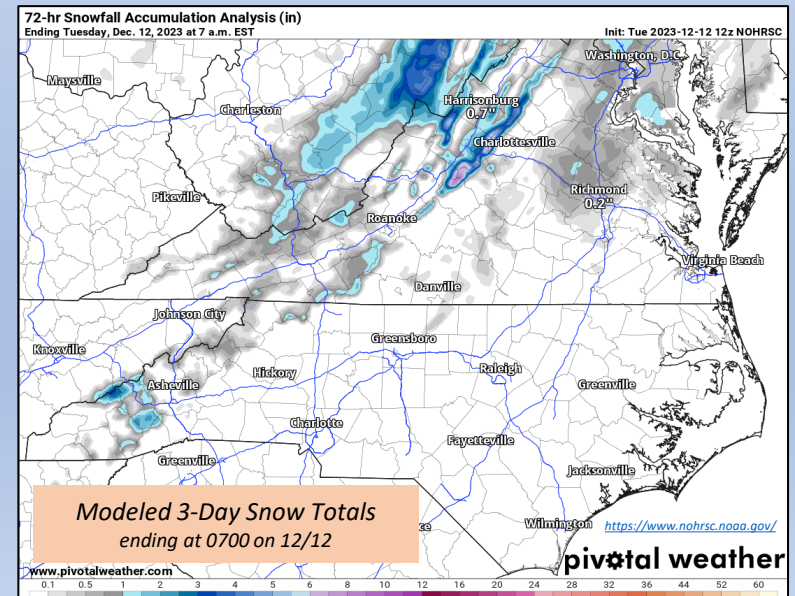
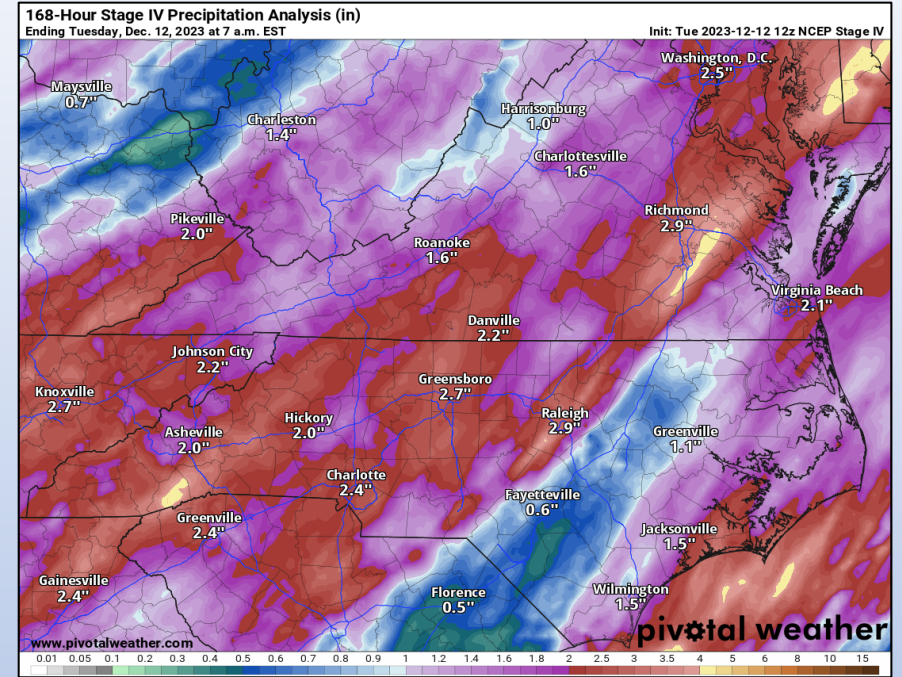
Days Since Wetting Rain Event

FWIP (Point calculation ending at 1100 on 12/12)



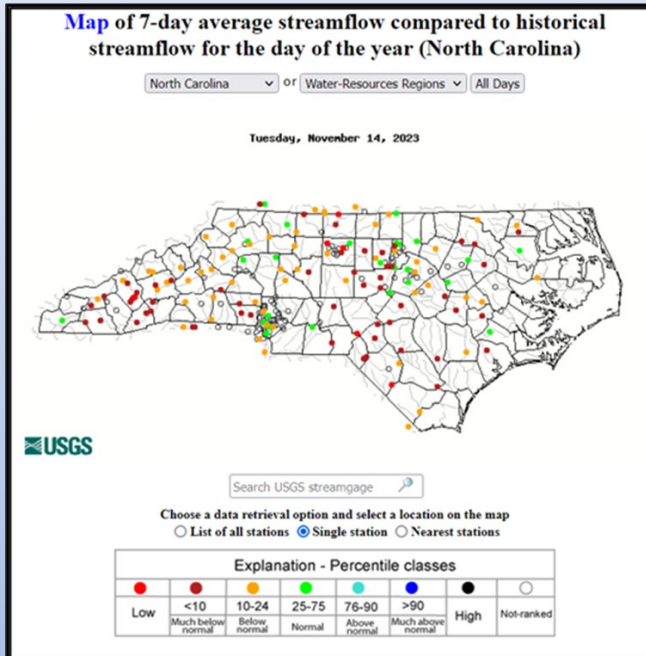
Modeled 7-Day Observed Precip Totals

ending at 0700 on 12/12

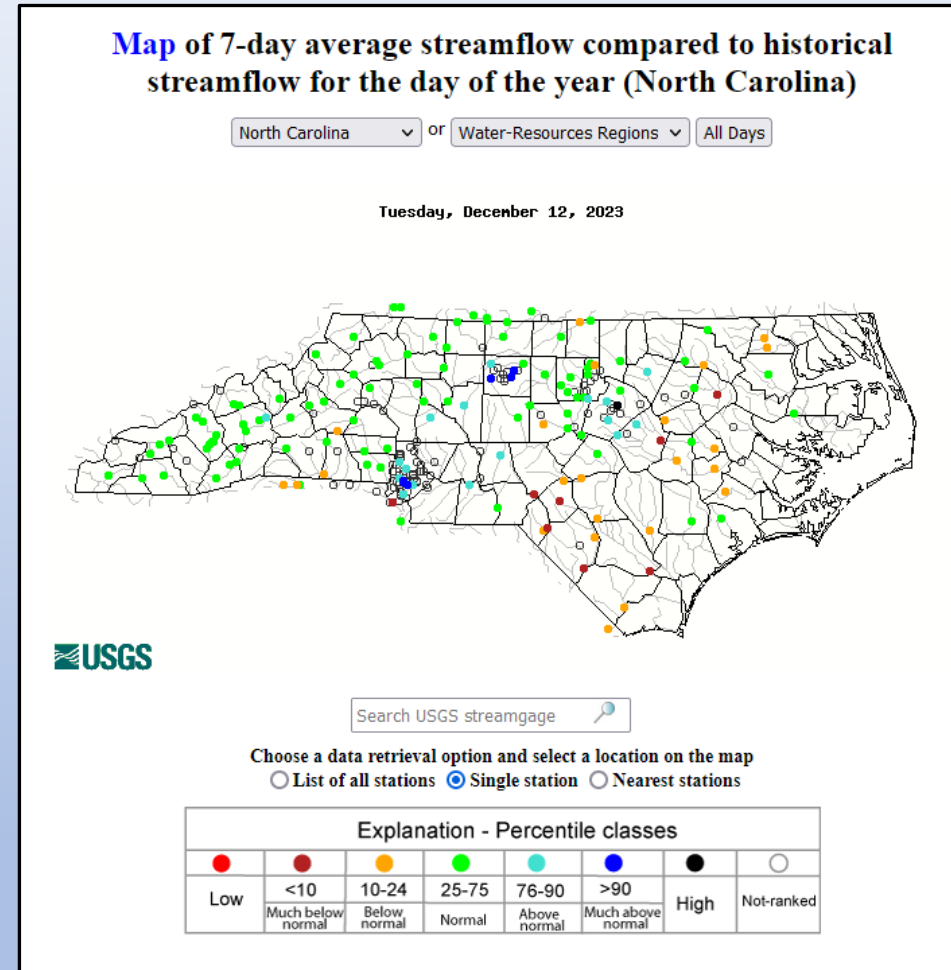


Streamflow:

- Last Month



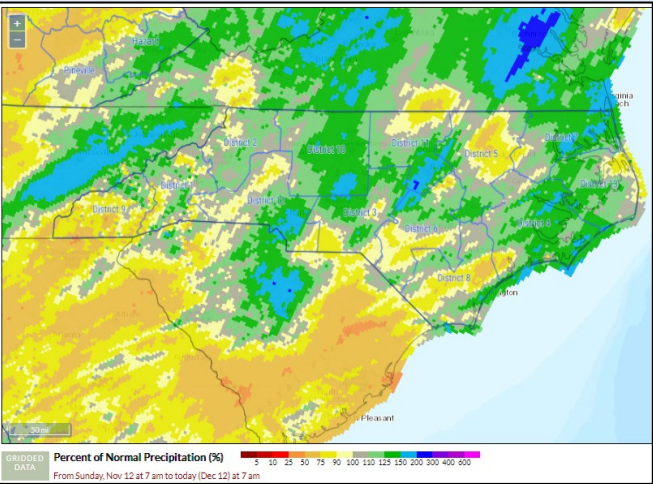
- Current Month



Increase in average streamflow with significant rainfall in many watersheds to the west, but decreasing trend expected again.

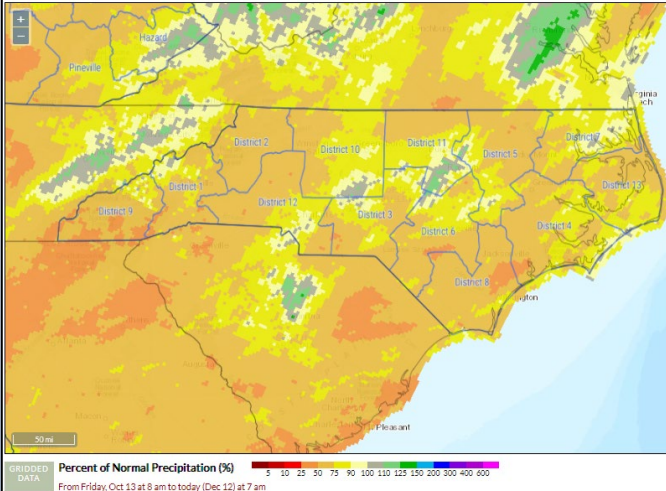
Percent of Normal Precip & SPI, FWIP *(Ending 0700 12/12)*

30-Day % of Normal



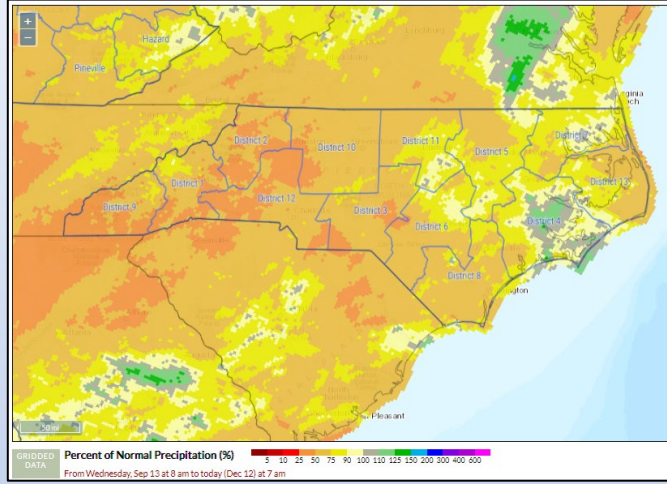
Recent precip shows up at the 1-Month scale.

60-Day % of Normal



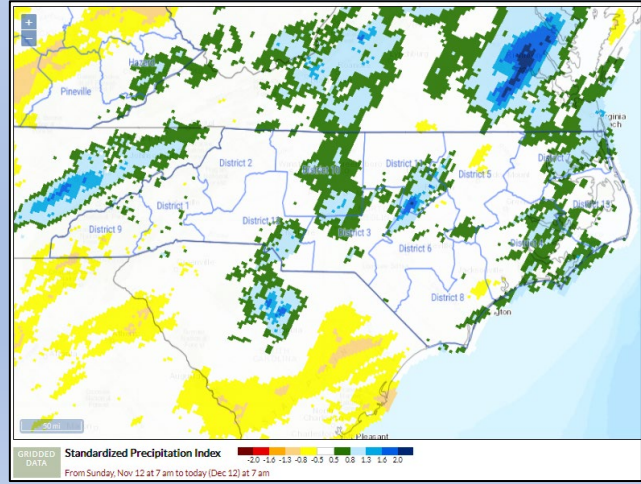
Improvements, but many areas still ≤ 50% of normal at 2-Month scale.

90-Day % of Normal

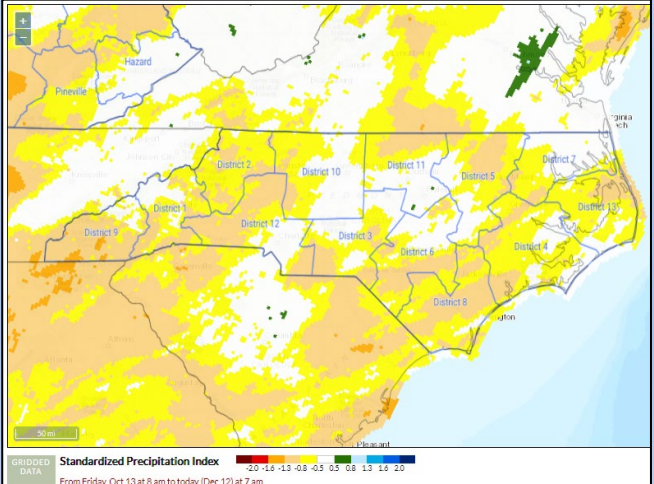


Driest Areas ≤ 45% of normal at 3-Month scales.

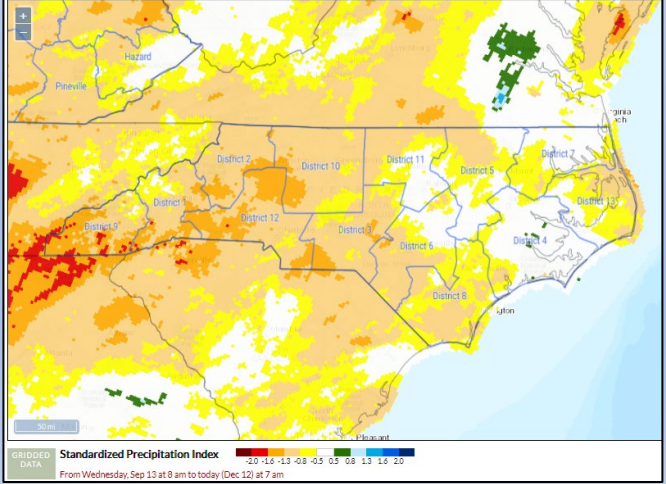
30-Day SPI



60-Day SPI

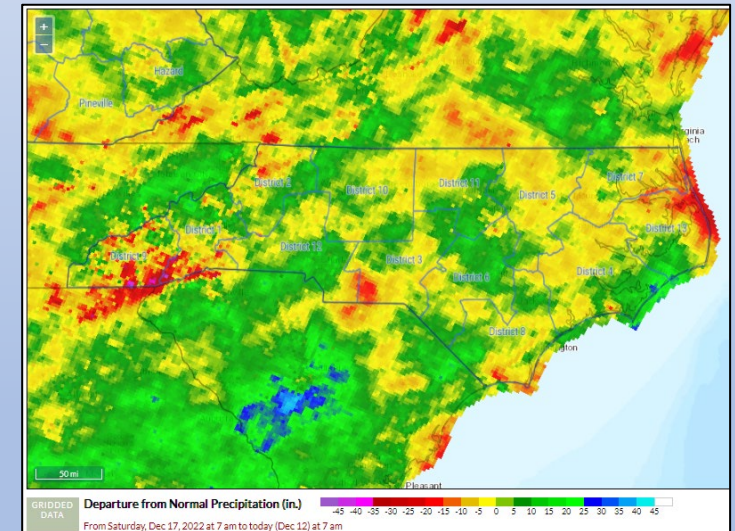
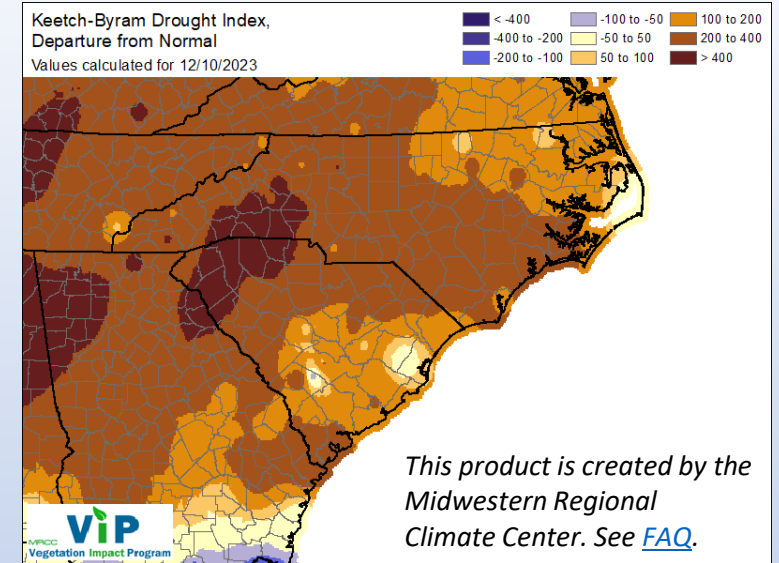
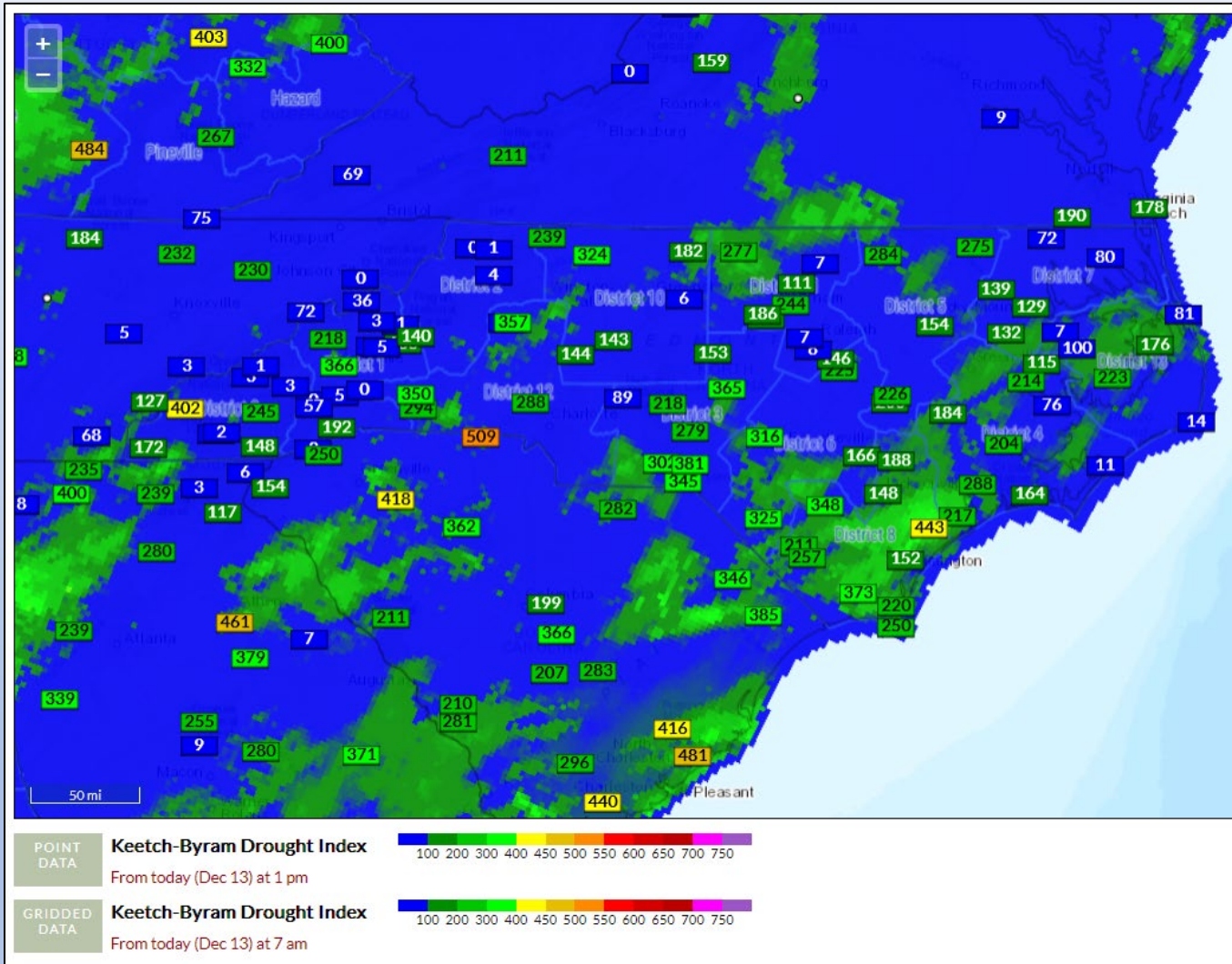


90-Day SPI



KBDI - Gridded & Station Points

FWIP (Point calculation from WIMS @ 1300 on 12/13/23, SCO created Grid ending 0700 12/13/23)



12-Mo departures of 6 -12 inches in many locations – still around 15% + of annual precip. Compounded by different timescales of onset.

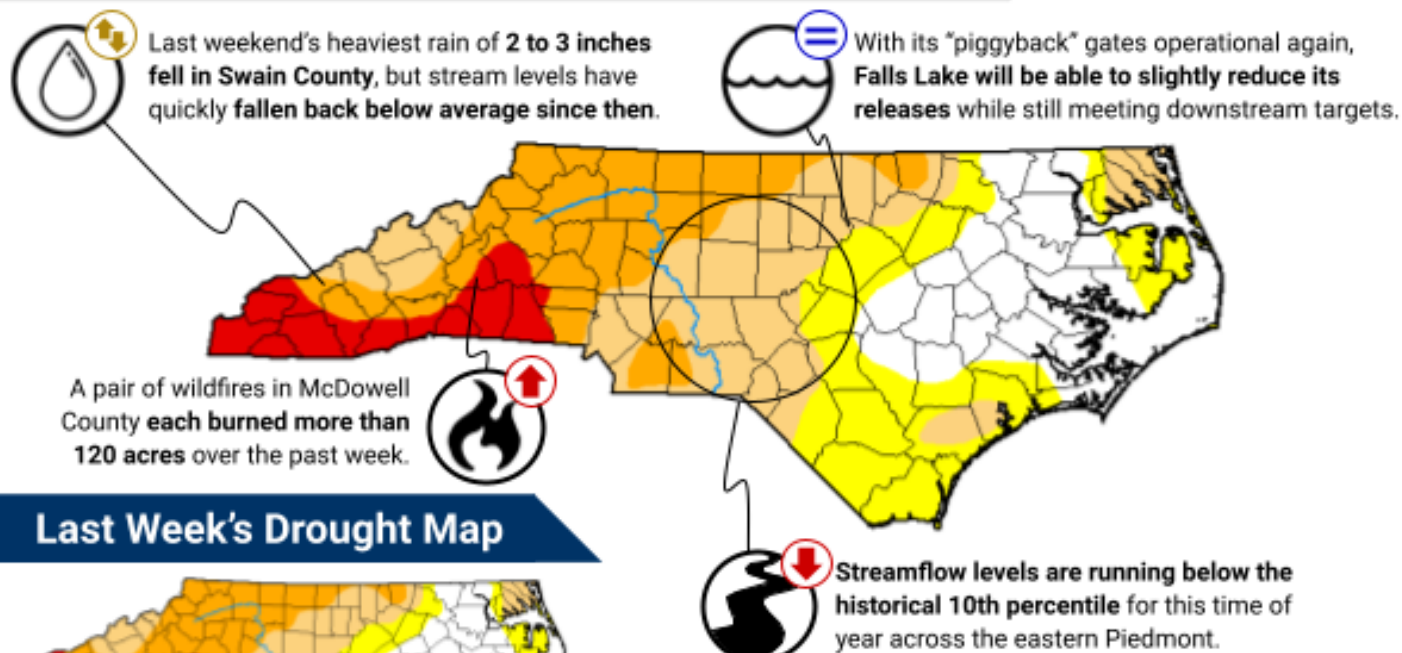
Past two rain events are helping but will take a significant amount over longer duration to recharge the system (shallow soil horizon saturation and runoff, deeper duff recharge, larger fuel recharge, etc.)

North Carolina Drought Update

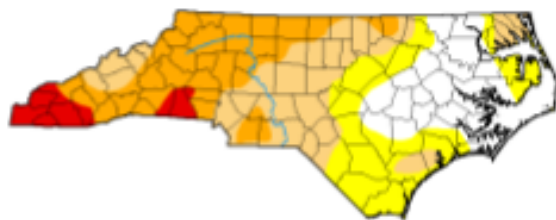
For the assessment period ending December 5, 2023

This Week's Drought Monitor of North Carolina Map

From the US Drought Monitor, authored by David Simeral (Western Regional Climate Center) with input from the North Carolina Drought Management Advisory Council (ncdrought.org)



Last Week's Drought Map



This infographic was created by



NORTH CAROLINA
CLIMATE OFFICE



Statewide Condition Summary

What's Changed? Extreme Drought (D3) has expanded back along the South Carolina border in the Mountains.

What's New? This week's drought expansion is a sign that the moisture from our pre-Thanksgiving rain event is mostly gone. Even after almost 2 inches of rain then, surface water conditions have quickly dried out over the past two weeks. Last weekend saw light rain across most of the state, which for now has prevented further degradation, but also didn't bring any improvements.

What's Next? A strong cold front will move through on Sunday, with rainfall totals of up to 2 inches possible in the Mountains and half an inch to an inch elsewhere.

Statewide Coverage By Category

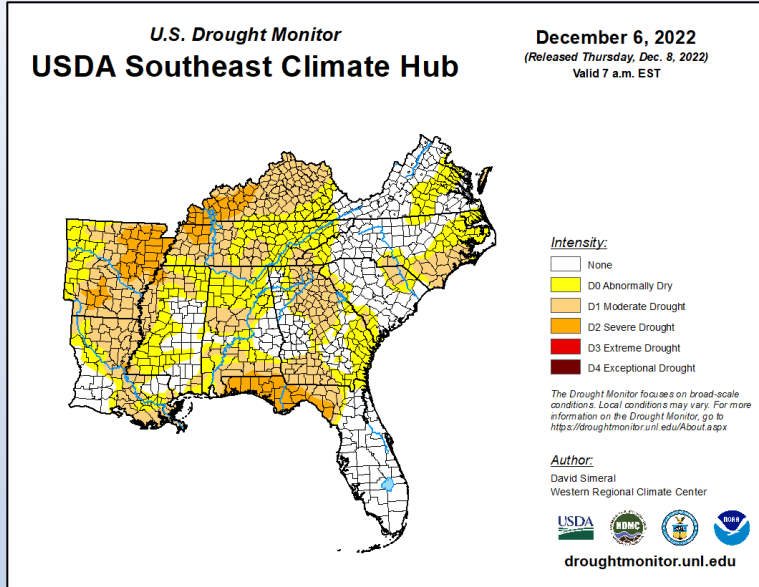
Category	Coverage This Week	Change Since Last Week
D0: Abnormally Dry	21.99%	-0.06%
D1: Moderate Drought	26.85%	+0.32%
D2: Severe Drought	22.27%	-3.49%
D3: Extreme Drought	8.84%	+3.22%
D4: Exceptional Drought	0.00%	0.00%

Next Update on 12/14/23

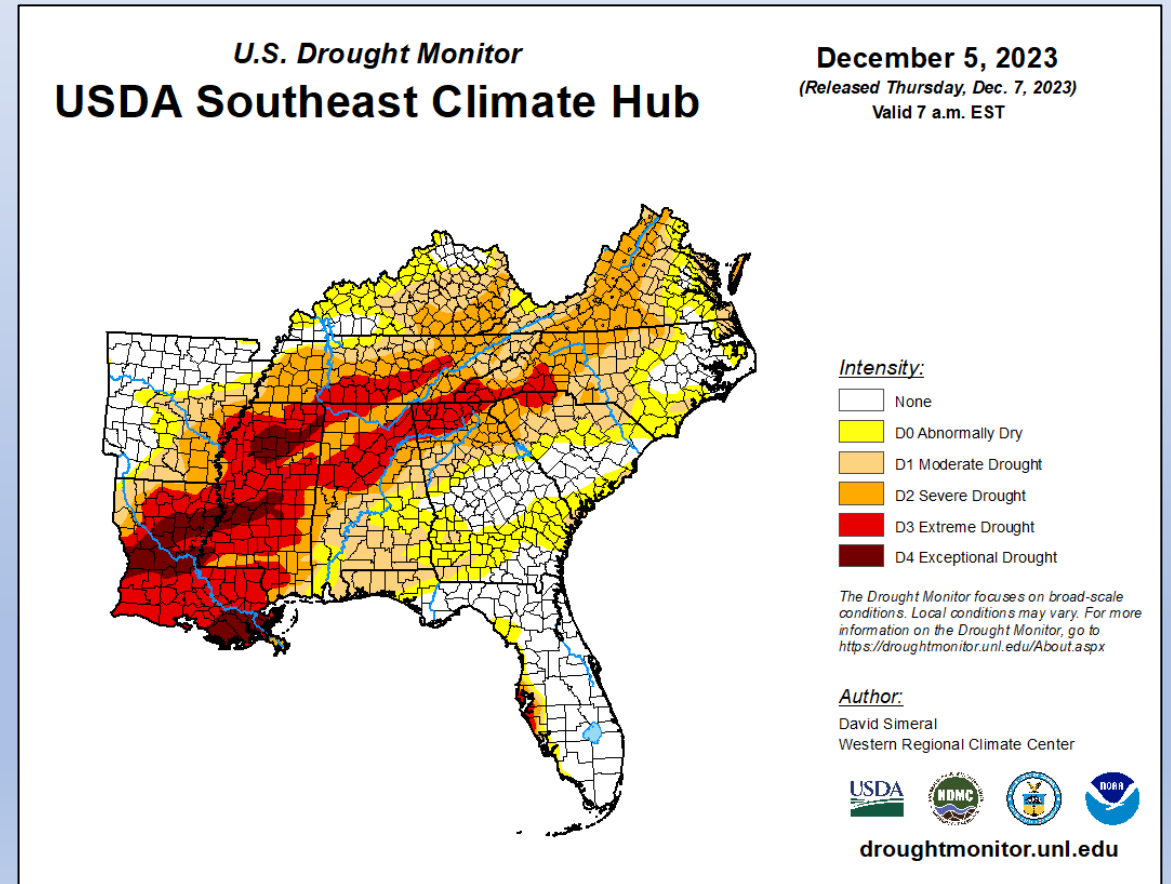
Drought Monitor (USDM)

- “D0” Abnormally Dry Designation now for ~22% of State
- “D1” Moderate Drought Designation now ~27% of State
- “D2” Severe Drought Designation now ~22% of State
- “D3” Extreme Drought Designation now ~9% of state
- *The USDM map is released every Thursday morning, with data valid through Tuesday at 7am Eastern.*

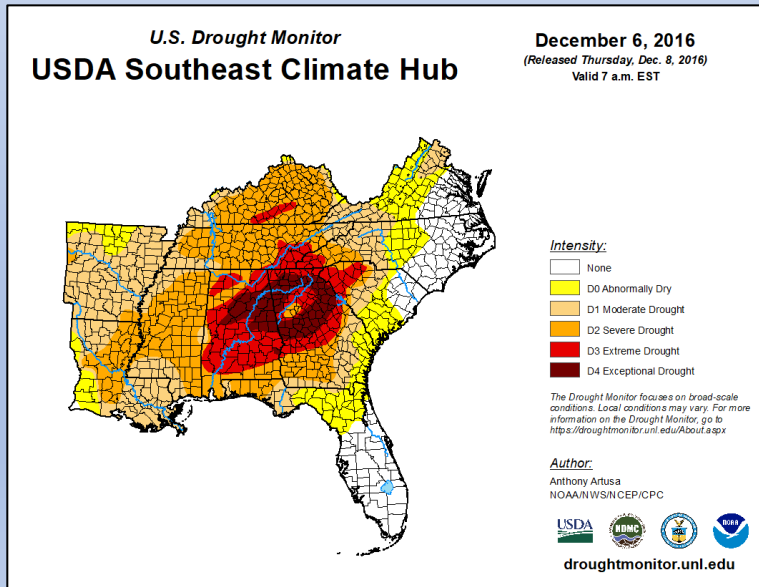
Dec - 2022:



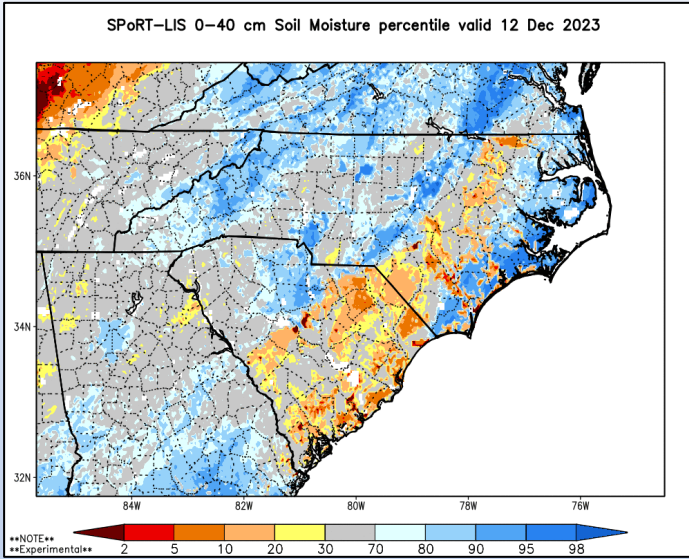
Current Week:



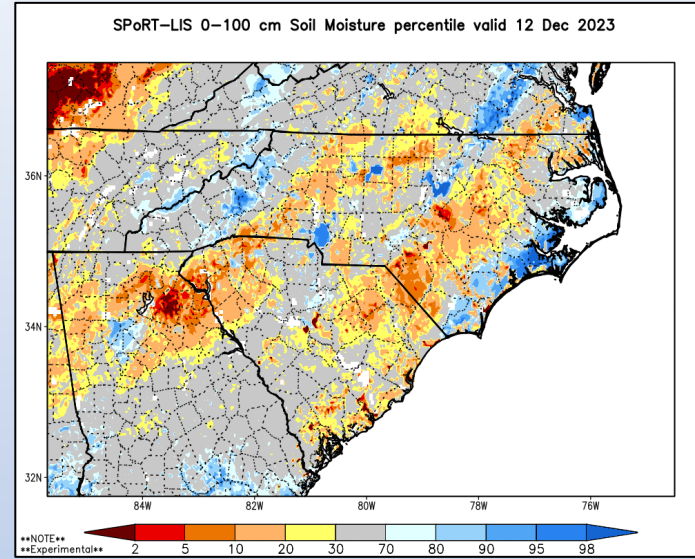
Dec - 2016:



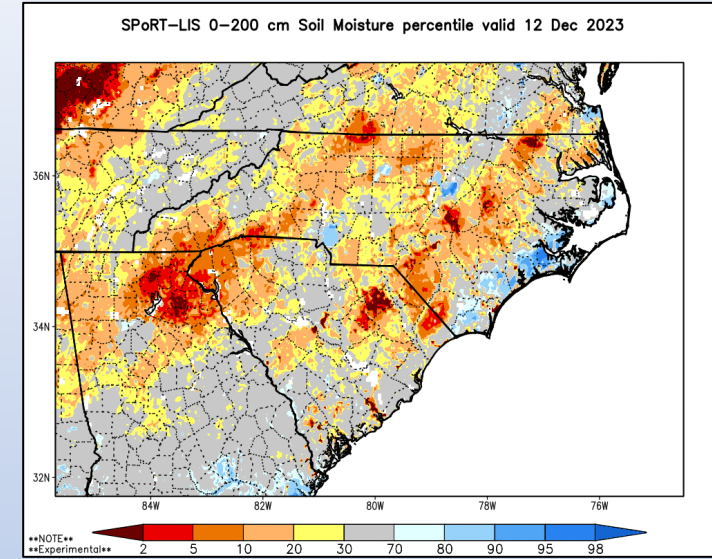
0-40cm Percentile



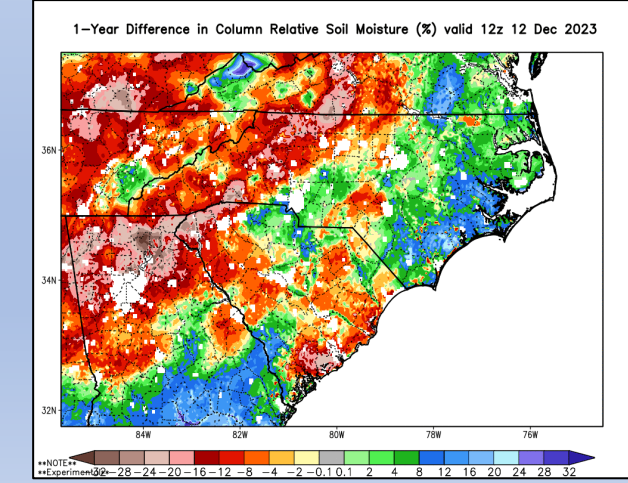
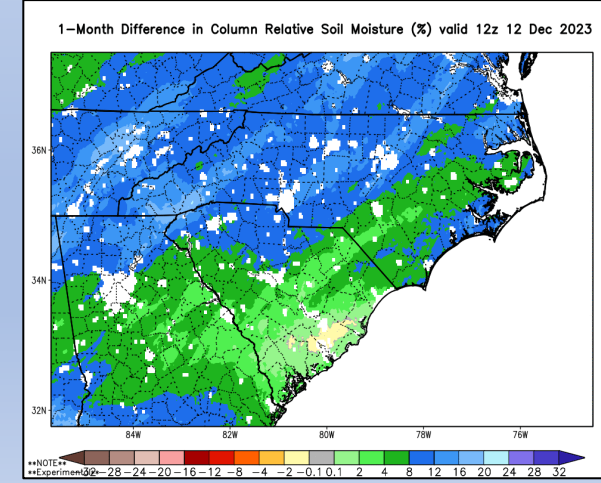
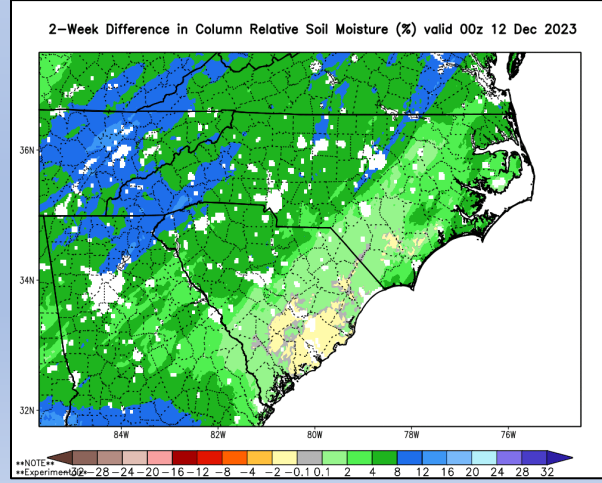
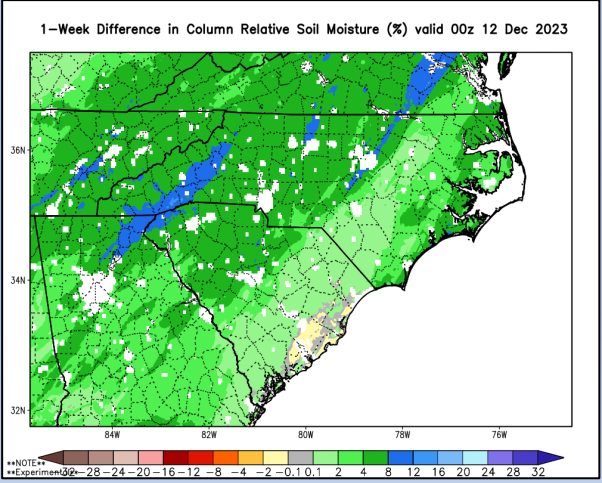
0-100cm Percentile



0-200cm Percentile



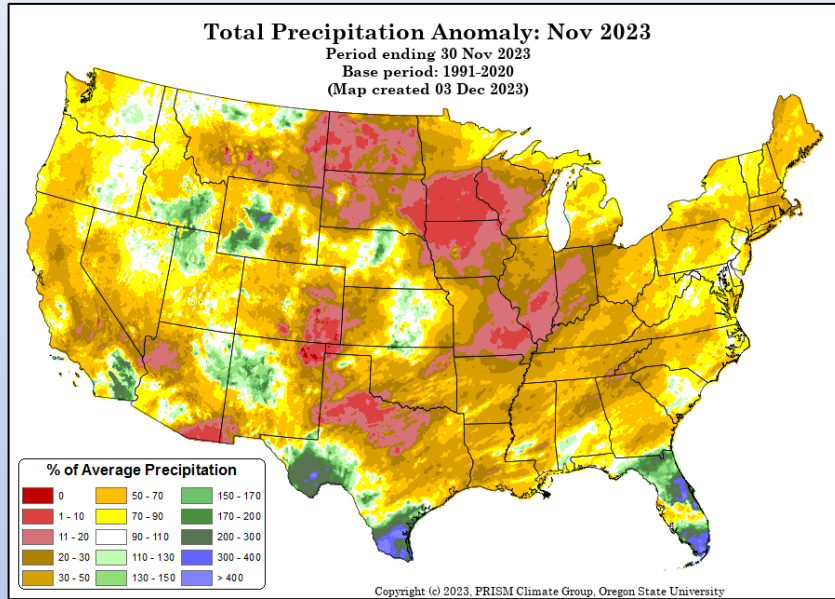
**Most significant modeled improvement at shallower soil depths with generalized improvement overall for much of state.
– Still significant rainfall deficits to overcome –*



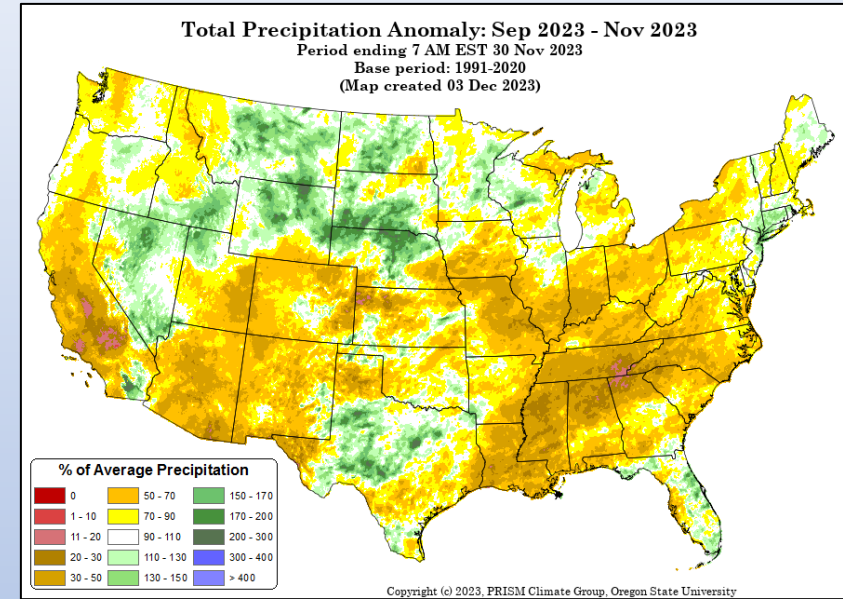
Precip and Temp Anomalies – US Context

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

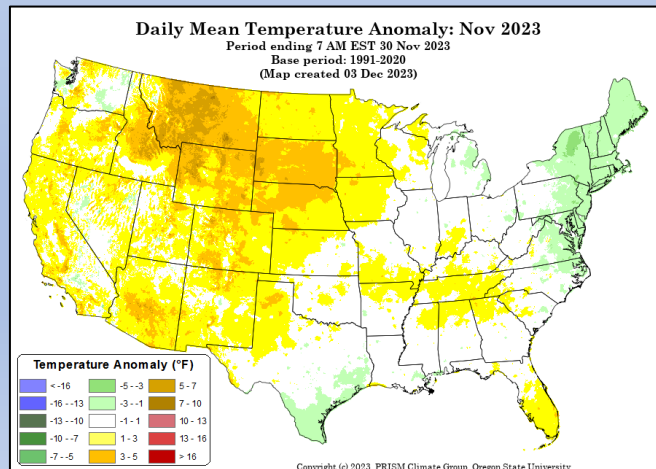
1-Month Comparison (Nov 23')



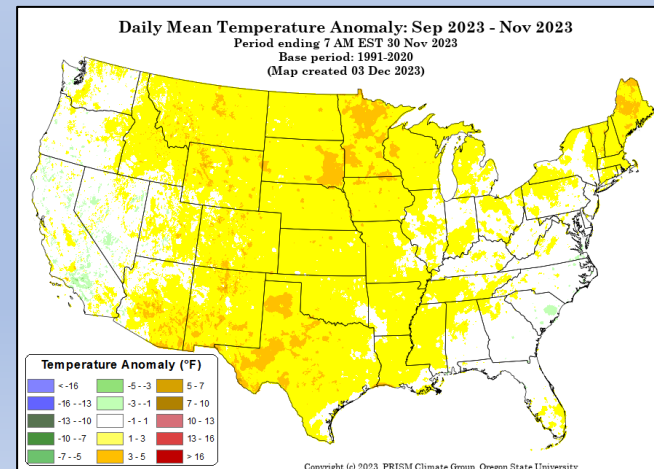
3-Month Comparison (Sep-Nov 23')



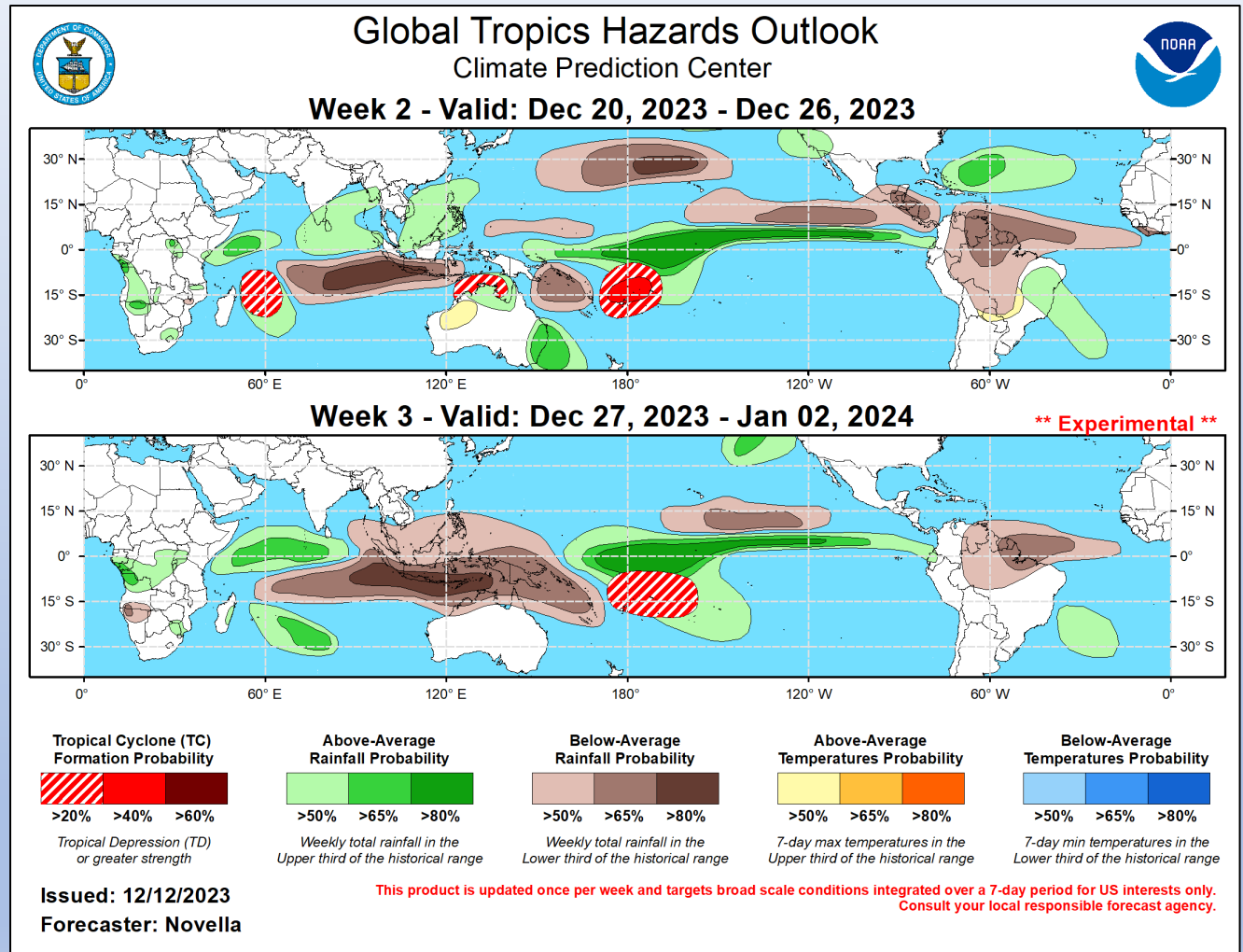
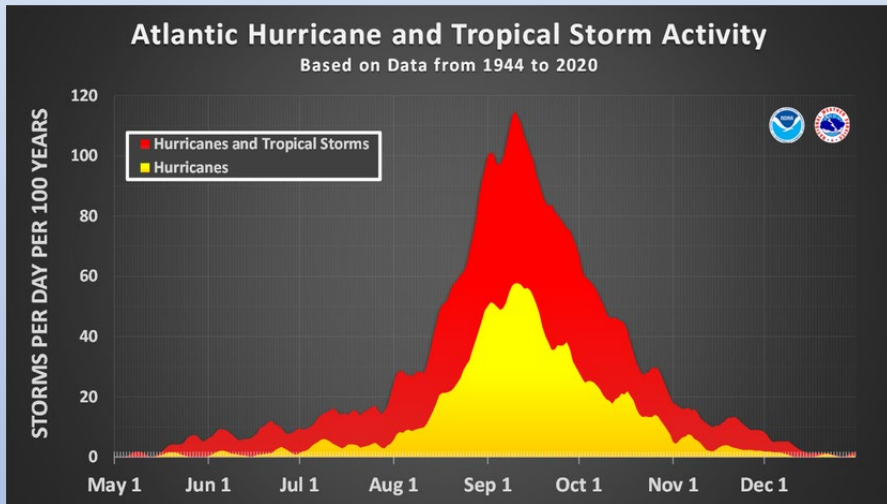
Daily Mean Temperature Anomaly: Nov 2023



Daily Mean Temperature Anomaly: Sep 2023 - Nov 2023



Tropical Hazards Outlook



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

ENSO Notes from the CPC (12/11/23 Update)

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

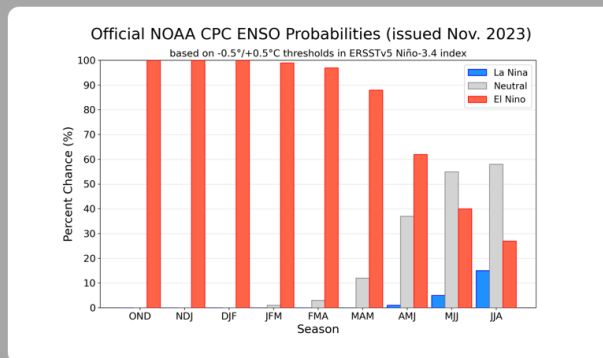
El Niño is anticipated to continue through the Northern Hemisphere spring (with a 62% chance during April-June 2024)

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

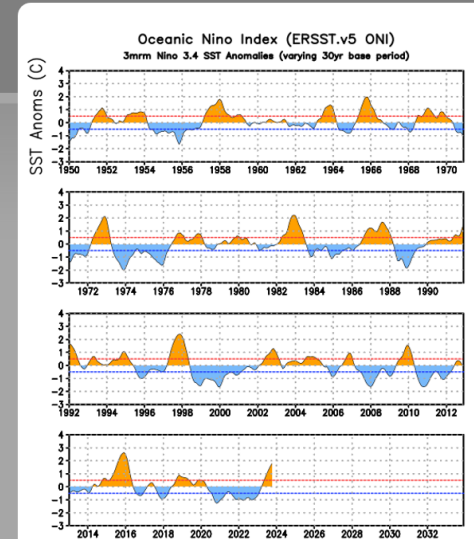
Updated: 9 November 2023

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 anticipated in May-July 2024.



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

The most recent ONI value (September - November 2023) is 1.8°C .



El Niño ↑
Neutral
La Niña ↓

From the most recent CPC Diagnostic Discussion (the next [ENSO Diagnostics Discussion](#) is scheduled for 14 December 2023):

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

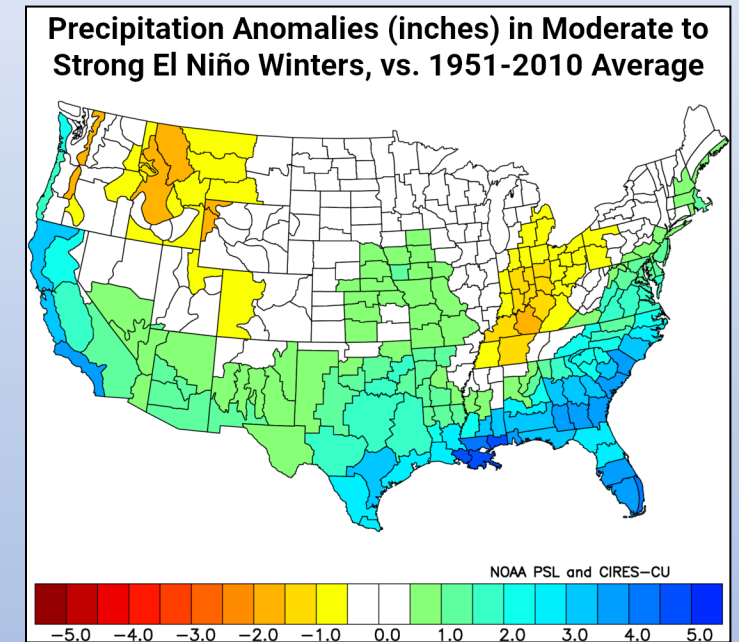
NC State Climate Office Discussion (From **November** Outlook Release):

- 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 Februarys 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 & Drought:

<https://climate.ncsu.edu/blog/2023/11/winter-outlook-2023-24-awaiting-wetter-weather-with-el-ninos-return/>

<https://climate.ncsu.edu/blog/2023/12/a-dry-start-to-november-lets-drought-deepen/>



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 12/12/23

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	2023-12-12	104.77 87.7%	48.33 91.2%	6.73 81.7%	46.97 82.8%	106.00	12.91 42.1%	17.55 50.6%	24.27 90.7%	22.55 87.0%	30.00	50.00	46.0°F	38.3%	WSW 3.3 mph	0.01 in.	0.3
Central Mountains	3	2023-12-12	83.53 79.6%	40.77 83.3%	3.80 63.0%	33.83 75.3%	91.33	14.65 60.1%	18.14 51.4%	23.25 88.6%	21.98 83.1%	30.00	50.00	49.3°F	31.3%	SE 2.7 mph	0.00 in.	0.0
Northern Highlands	2	2023-12-12	79.15 76.7%	28.35 74.5%	4.30 67.1%	43.20 79.2%	2.00	14.56 53.8%	18.89 56.7%	22.74 88.7%	21.87 80.1%	50.00	80.00	46.5°F	28.5%	SW 4.5 mph	0.00 in.	0.0
Blue Ridge Escarpment	3	2023-12-12	103.43 81.9%	55.70 92.7%	10.97 83.1%	41.17 75.9%	162.33	11.01 37.1%	15.48 31.1%	24.97 92.2%	20.74 66.0%	30.00	56.67	50.7°F	31.0%	W 3.0 mph	0.00 in.	0.0
Western Piedmont	3	2023-12-12	59.73 62.8%	35.77 68.4%	2.63 32.4%	18.97 59.9%	203.67	15.66 76.2%	18.39 65.2%	21.74 87.4%	21.86 87.4%	30.00	50.00	50.0°F	42.3%	W 2.0 mph	0.00 in.	0.3
Sandhills	3	2023-12-12	37.13 51.9%	32.67 37.1%	3.30 24.1%	8.37 80.2%	323.33	13.78 69.8%	18.99 68.3%	23.09 90.4%	22.10 86.8%	36.67	63.33	50.7°F	36.7%	SE 2.0 mph	0.00 in.	0.3
Eastern Piedmont	4	2023-12-12	73.00 39.9%	41.33 51.1%	4.28 30.6%	24.83 35.2%	76.75	13.39 59.9%	18.37 61.5%	23.06 90.9%	22.14 89.0%	30.00	60.00	48.8°F	42.5%	WSW 2.8 mph	0.00 in.	0.0
Southern Coastal	7	2023-12-12	56.29 46.4%	29.54 46.6%	3.37 29.1%	20.69 47.1%	248.71	14.06 63.2%	19.71 71.6%	24.35 92.4%	24.50 98.8%	50.00	90.00	52.7°F	42.6%	NE 3.3 mph	0.00 in.	0.0
Northern Coastal	4	2023-12-12	41.63 30.1%	28.83 42.1%	2.53 29.2%	10.60 23.3%	130.50	13.89 64.4%	19.07 68.8%	23.86 93.2%	24.59 98.9%	50.00	90.00	52.0°F	46.0%	SSE 2.5 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

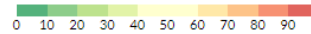
Daily Forecast for 12/13/23 (issued on 12/12/23)

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	2023-12-13	102.10 86.5%	51.97 93.8%	6.10 78.2%	41.13 78.4%	106.00	13.10 42.1%	13.32 7.7%	23.06 86.1%	22.65 87.0%	30.00	50.00	52.0°F	36.3%	NNW 2.3 mph	0.0	0.0
Central Mountains	3	2023-12-13	121.93 94.6%	52.10 92.4%	7.53 84.5%	60.70 93.8%	91.33	13.02 46.9%	13.52 12.6%	22.43 82.3%	22.05 83.1%	30.00	50.00	51.7°F	34.0%	NNW 6.0 mph	0.0	0.0
Northern Highlands	2	2023-12-13	89.65 80.5%	35.95 80.3%	5.25 73.3%	44.55 80.4%	2.00	13.73 46.6%	14.98 23.3%	22.65 88.7%	21.89 80.1%	50.00	80.00	48.0°F	36.0%	N 4.5 mph	0.0	0.0
Blue Ridge Escarpment	3	2023-12-13	84.03 75.0%	46.70 84.9%	4.37 46.1%	30.37 70.0%	162.33	13.84 61.1%	13.79 22.6%	21.31 67.4%	20.95 66.0%	30.00	56.67	53.7°F	34.0%	SE 1.7 mph	0.0	0.0
Western Piedmont	3	2023-12-13	94.60 79.4%	43.80 76.8%	4.20 41.0%	41.53 81.2%	203.67	14.83 73.2%	15.45 39.5%	21.63 87.4%	21.87 87.4%	30.00	50.00	55.0°F	41.0%	SW 5.3 mph	0.0	0.0
Sandhills	3	2023-12-13	49.67 85.4%	33.23 37.1%	3.60 28.7%	15.67 98.9%	323.33	14.85 74.0%	16.59 54.1%	23.16 90.4%	22.12 86.8%	36.67	63.33	56.0°F	39.7%	WSW 5.3 mph	0.0	0.0
Eastern Piedmont	4	2023-12-13	77.73 44.5%	34.85 41.8%	3.03 25.6%	33.85 52.4%	76.75	15.41 71.5%	16.37 44.2%	23.30 90.9%	22.16 89.0%	30.00	60.00	53.5°F	48.8%	N 5.0 mph	0.0	0.0
Southern Coastal	7	2023-12-13	62.89 51.8%	29.67 46.6%	3.27 29.1%	25.23 54.2%	248.71	14.77 68.4%	16.66 49.3%	23.24 87.3%	24.48 95.3%	50.00	90.00	56.3°F	40.7%	NW 4.6 mph	0.0	0.0
Northern Coastal	4	2023-12-13	49.20 35.2%	24.85 36.2%	2.28 23.8%	17.70 35.6%	130.50	15.31 69.0%	16.99 56.1%	23.48 88.8%	24.54 98.9%	50.00	90.00	53.3°F	46.8%	W 4.5 mph	0.0	0.0

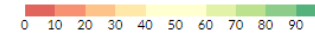
BI/ERC/IC/SC
Percentiles (%)

(based on all days through 2021)



Fuel Moisture
Percentiles (%)

(based on all days through 2021)



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.
- For the 9 FDRAs in North Carolina

Western Five FDRAs Shown: 12/12/23 AM Run

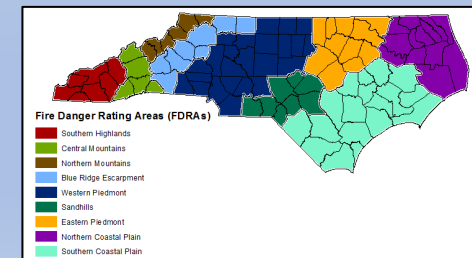
Weekly Outlook								
Southern Highlands FDRA - General Fire Danger Forecast								
For planning purposes only; forecast is subject to change								
Four or more RED blocks in a day signals the potential for a Critical Fire Day								
DAY	WED 13-Dec	THU 14-Dec	FRI 15-Dec	SAT 16-Dec	SUN 17-Dec	MON 18-Dec	TUE 19-Dec	
Avg. Max. Temp. (°F)	53	52	53	52	49	48	49	
Avg. Min. Humidity (%)	36	43	37	46	81	69	49	
Avg. 20' Wind Speed (mph)	4	3	3	6	10	15	11	
Avg. Wind Direction*	SE	E	E	E	ESE	NNW	NNW	
Avg. Probability of Precip. (%)	0	0	0	38	53	33	8	
Days Since a Wetting Rain**	4.0	5.0	6.0					
Forecast ERC (Fuel Model X)	52.0	50.1	50.7	54.7	35.0	18.3	39.2	
Forecast BI (Fuel Model X)	102.1	104.3	111.0	136.0	130.3	90.7	130.0	
Forecast IC (Fuel Model X)	6.1	5.7	6.2	9.3	4.5	1.9	5.5	
Forecast 100-Hr. FMC	23.1	21.6	20.5	19.4	18.8	18.9	18.9	
Forecast 1000-Hr. FMC	22.7	22.6	22.7	22.6	22.7	22.7	22.8	
KBDI	106.0							

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 13-Dec	THU 14-Dec	FRI 15-Dec	SAT 16-Dec	SUN 17-Dec	MON 18-Dec	TUE 19-Dec	
Avg. Max. Temp. (°F)	53	51	54	54	49	48	49	
Avg. Min. Humidity (%)	33	36	34	38	72	62	45	
Avg. 20' Wind Speed (mph)	7	4	3	6	10	17	14	
Avg. Wind Direction*	NNW	SSW	S	S	ENE	NNW	NNW	
Avg. Probability of Precip. (%)	0	0	0	33	52	37	9	
Days Since a Wetting Rain**	3.0	4.0	5.0					
Forecast ERC (Fuel Model X)	52.1	46.7	50.5	54.3	36.0	17.8	39.5	
Forecast BI (Fuel Model X)	121.9	97.9	105.2	125.0	127.8	88.1	133.3	
Forecast IC (Fuel Model X)	7.5	4.4	5.9	8.4	4.5	1.9	5.1	
Forecast 100-Hr. FMC	22.4	21.2	20.1	19.1	18.3	18.6	18.5	
Forecast 1000-Hr. FMC	22.1	22.0	22.1	22.1	22.1	22.1	22.1	
KBDI	91.3							

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 13-Dec	THU 14-Dec	FRI 15-Dec	SAT 16-Dec	SUN 17-Dec	MON 18-Dec	TUE 19-Dec	
Avg. Max. Temp. (°F)	48	45	51	49	44	45	45	
Avg. Min. Humidity (%)	33	32	32	37	76	69	48	
Avg. 20' Wind Speed (mph)	7	5	4	6	11	17	16	
Avg. Wind Direction*	NW	S	WSW	SW	ENE	WSW	NW	
Avg. Probability of Precip. (%)	0	0	0	32	52	48	15	
Days Since a Wetting Rain**	2.0	3.0	4.0					
Forecast ERC (Fuel Model X)	36.0	43.0	44.0	44.0	27.4	11.2	27.2	
Forecast BI (Fuel Model X)	89.7	90.8	94.4	102.5	95.3	48.3	96.1	
Forecast IC (Fuel Model X)	5.3	6.5	7.0	7.6	3.7	1.2	4.4	
Forecast 100-Hr. FMC	22.7	22.0	20.8	19.7	18.9	18.7	18.4	
Forecast 1000-Hr. FMC	21.9	21.9	21.9	21.9	21.9	21.9	21.9	
KBDI	2.0							

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 13-Dec	THU 14-Dec	FRI 15-Dec	SAT 16-Dec	SUN 17-Dec	MON 18-Dec	TUE 19-Dec	
Avg. Max. Temp. (°F)	54	48	53	53	48	50	50	
Avg. Min. Humidity (%)	32	33	34	37	73	60	44	
Avg. 20' Wind Speed (mph)	5	4	3	4	11	17	13	
Avg. Wind Direction*	W	SE	WSW	SSW	NE	WSW	NNW	
Avg. Probability of Precip. (%)	0	0	0	29	52	44	11	
Days Since a Wetting Rain**	4.0	5.0	6.0					
Forecast ERC (Fuel Model X)	46.7	51.7	52.6	52.4	41.4	26.3	45.2	
Forecast BI (Fuel Model X)	84.0	96.3	96.8	105.6	129.5	112.6	131.1	
Forecast IC (Fuel Model X)	4.4	6.0	6.5	7.2	5.9	3.2	7.1	
Forecast 100-Hr. FMC	21.3	19.5	18.1	16.9	16.3	16.4	16.7	
Forecast 1000-Hr. FMC	21.0	21.2	20.9	20.7	20.2	19.7	19.4	
KBDI	162.3							

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 13-Dec	THU 14-Dec	FRI 15-Dec	SAT 16-Dec	SUN 17-Dec	MON 18-Dec	TUE 19-Dec	
Avg. Max. Temp. (°F)	57	49	55	57	52	54	54	
Avg. Min. Humidity (%)	34	38	40	44	79	67	52	
Avg. 20' Wind Speed (mph)	3	4	2	5	13	19	15	
Avg. Wind Direction*	S	ENE	WSW	SE	NE	S	NNW	
Avg. Probability of Precip. (%)	1	0	0	21	64	51	20	
Days Since a Wetting Rain**	3.0	4.0	5.0					
Forecast ERC (Fuel Model X)	43.8	51.2	46.8	46.4	41.1	21.5	41.6	
Forecast BI (Fuel Model X)	94.6	103.4	84.1	97.4	138.1	109.3	141.4	
Forecast IC (Fuel Model X)	4.2	5.6	3.6	4.4	5.6	2.6	6.2	
Forecast 100-Hr. FMC	21.6	20.5	19.6	18.7	18.1	18.3	18.5	
Forecast 1000-Hr. FMC	21.9	21.8	21.8	21.8	21.7	21.7	21.7	
KBDI	203.7							



Southern Area Daily Outlook Page:

SACC Daily Outlook

Wednesday, December 13, 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 low pressure system over TX should bring rain and a few thunderstorms to areas west of the Mississippi
- A stalled front just to the south of FL will keep the forecast for a chance of showers and storms in the forecast

Today's Thunderstorm Outlook

- Thunderstorms are possible for portions of TX and S FL
- Some of the storms may bring isolated dry lightning

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

SACC Daily Outlook

Wednesday, December 13, 2023

Predictive Services Significant Fire Potential Today

- **HIGH RISK (H):** None.
- **Moderate Risk:** None.
- **LOW RISK (L):** SC coastal plain, North and Central MS, E TX, E OK, AR, and most of LA due to dry conditions

Predictive Services Significant Fire Potential Thursday

- **HIGH RISK (H):** None.
- **Moderate Risk:** NE TX and N LA due to low minimum RH and above normal ERCs
- **LOW RISK (L):** E TX, E OK, AR, S LA, Central and N MS, W TN, Central /Coastal plains of NC and SC for dry conditions.

Predictive Services Significant Fire Potential Friday

- **HIGH RISK (H):** None.
- **Moderate Risk:** None.
- **LOW RISK (L):** Most of LA and MS, W TN, Central and N AL, Central GA, Coastal Plains of NC and SC, Central SC.

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

SACC Daily Outlook

Wednesday, December 13, 2023

Fire Weather Intelligence Portal (ncsu.edu)

Forecast Precipitation for the next 7 Days

- Most of the Geographic Area is forecast to see significant rain as several low pressure systems move through the area. However, the central portion of the area looks to miss out on most of the rain, although some areas may still see wetting rains.

KBDI as of Today December 13, 2023

- KBDIs are generally low across the southern areas. A few exceptions are the W TX MTs, the TX Panhandle, N LA, and N MS.

WPC Excessive Rain Forecasts for Saturday December 16th, 2023

- S FL has a slight potential for Excessive rain, with urban flooding possible, for the next couple of days.
- By Saturday, a stronger low pressure system is forecast to bring a slight risk of excessive rain and possible flooding to the entire FL Peninsula, and portions of N FL

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, December 13, 2023 at 2:38 pm.** ✔ This forecast is currently valid.

Today's Air Quality Conditions

Current daily average fine particulate concentrations are in the low Code Yellow range in portions of the Piedmont, with Code Green conditions elsewhere today.

[🔗](#) For a display of the most recent Air Quality Index (AQI) conditions throughout the day, visit the *Ambient Information Reporter (AIR)* tool.

General Forecast Discussion

On Thursday a weak, dry cold frontal passage in the early morning will do little to cleanse the air mass of accumulating particle pollution. Low Code Yellow conditions will likely expand over more of the interior of the state on Thursday.

Outlook

High pressure will remain entrenched over the eastern U.S. through Saturday. Low Code Yellow conditions will continue to build on Friday in response to strong overnight inversions and light daytime winds. On Saturday afternoon, cleaner maritime winds out of the east-northeast may help to disperse some of the amassed particle pollution in the eastern half of the state, but we do not expect any major changes to our air quality until Sunday into Monday next week.

Author: *Kreuser - NC Division of Air Quality*

Extended Air Quality Outlook

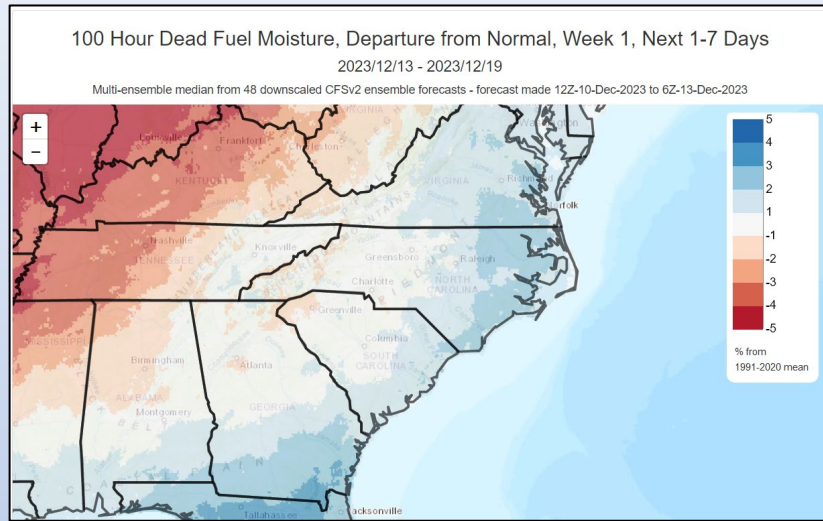
The forecast Air Quality Index value for each pollutant represents the highest value expected within each county, so some areas and monitors may see lower values. We use the best information and techniques available to ensure the quality and accuracy of the forecasts we provide to the public. Note that 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	Download KML
Wednesday (Dec 13)	40 to 55	Green to Yellow	📄 download
Thursday (Dec 14) 🌧️	45 to 55	Green to Yellow	📄 download
Friday (Dec 15)	50 to 65	Green to Yellow	📄 download
Saturday (Dec 16)	45 to 68	Green to Yellow	📄 download

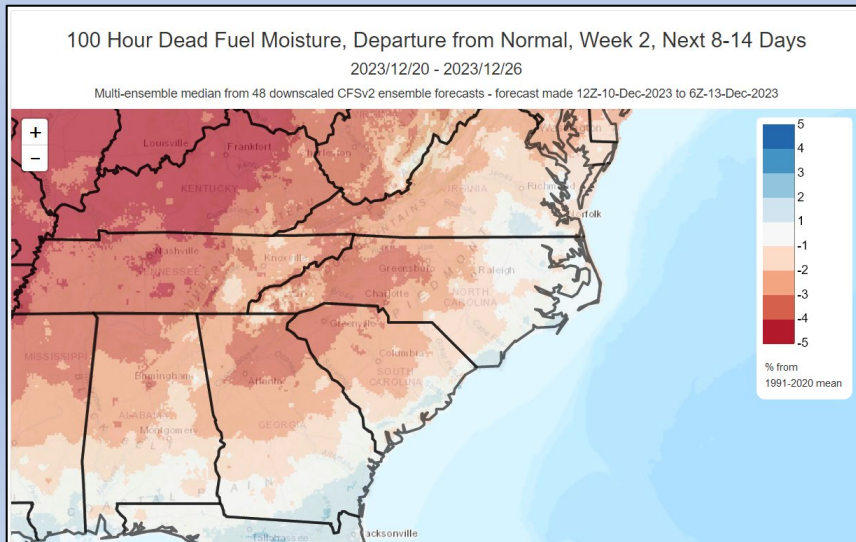
Modeled Departure from Normal by Week: 100-hr Fuels

Output relies on experimental forecast outputs and is subject to change

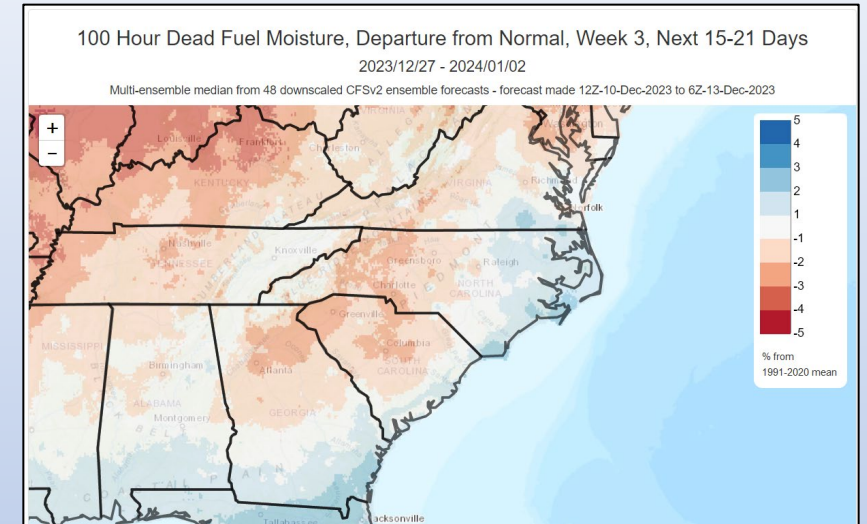
Week-1



Week-2



Week-3

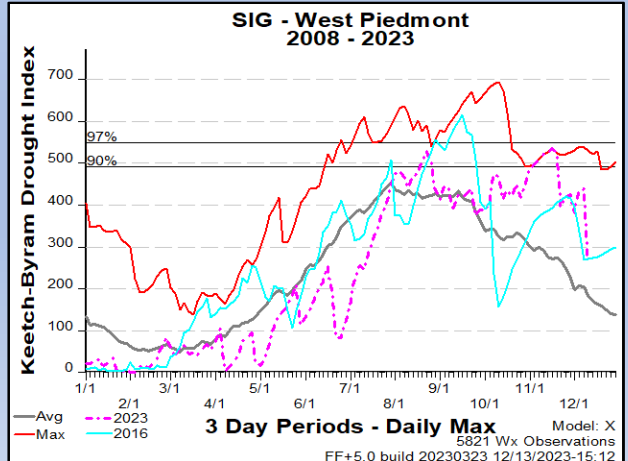
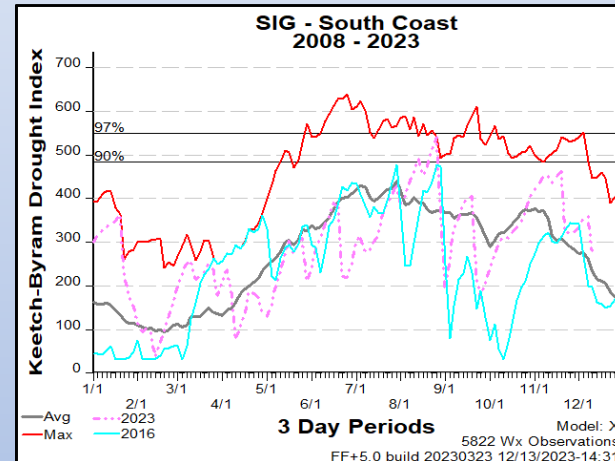
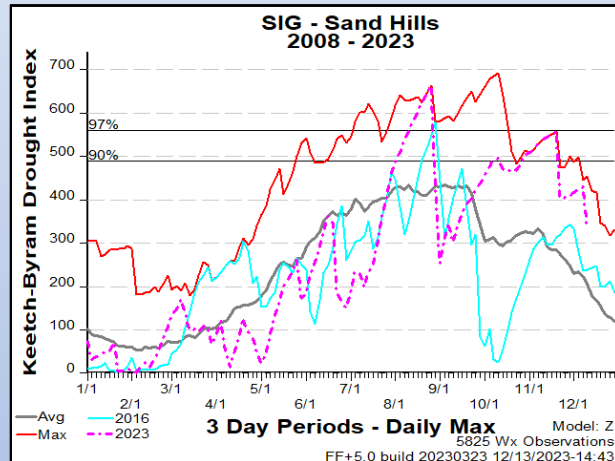
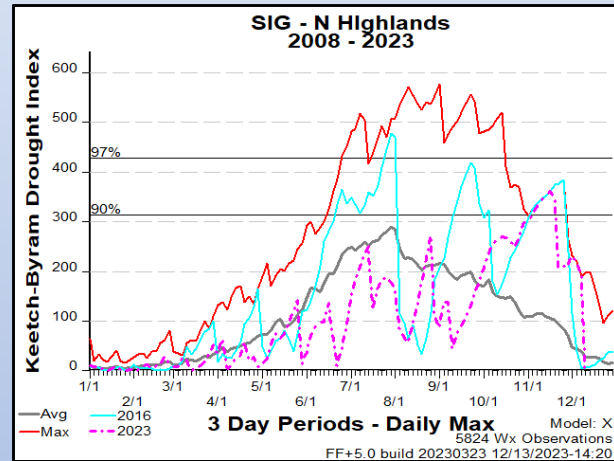
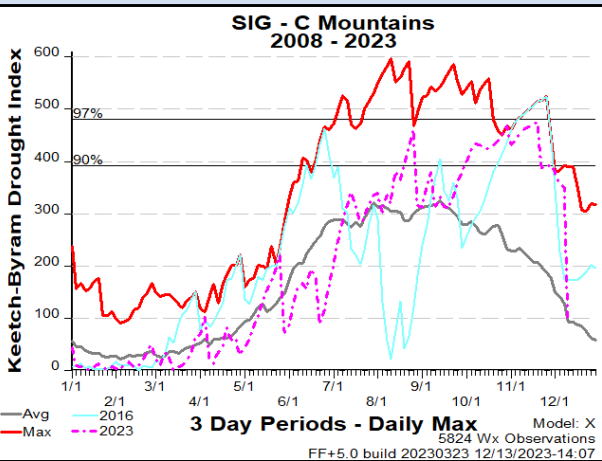
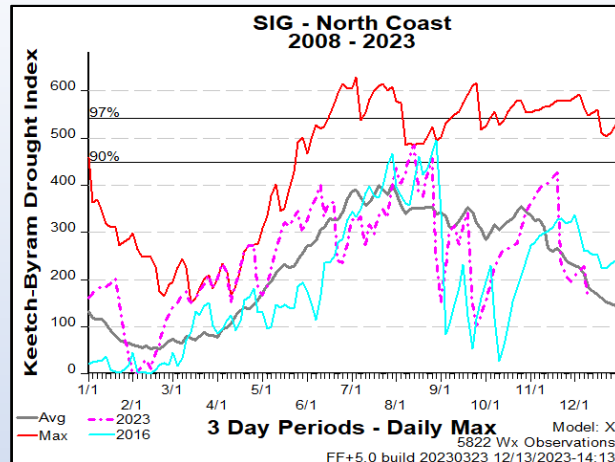
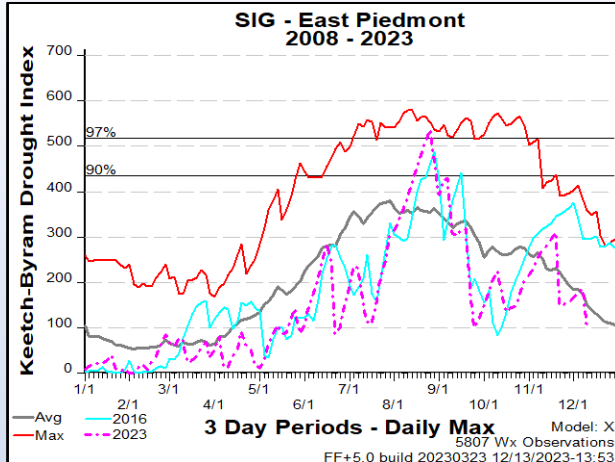
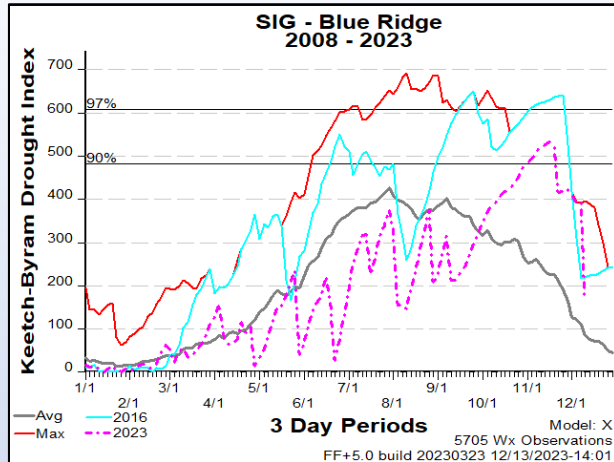
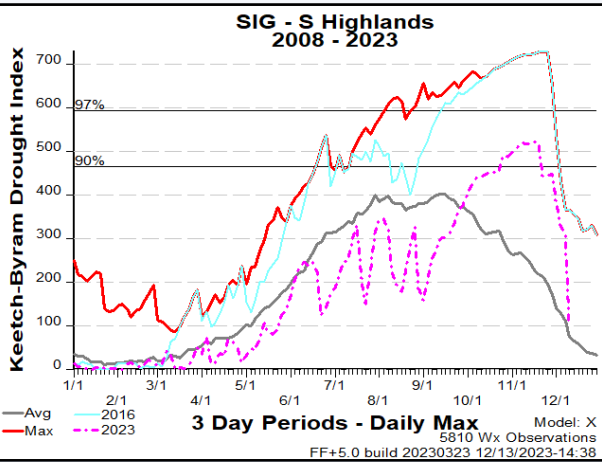


This output can provide insight into general drying trends.

Note near normal to modest departure from normal (increase in fuel dryness) in Week-1. Week 2 & 3 show potential for more significant drying in the western part of the state.

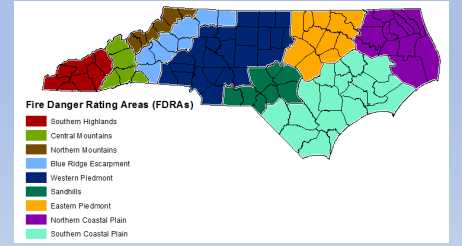
Relates to interactions of warmer/colder temps, moist/dry air masses, precip amt/duration and overnight RH recovery trends.

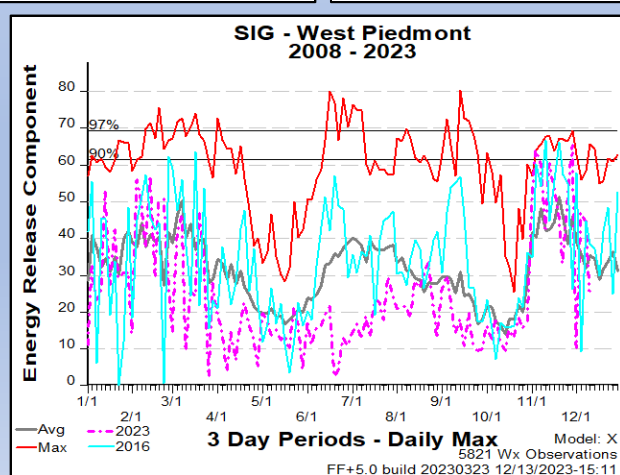
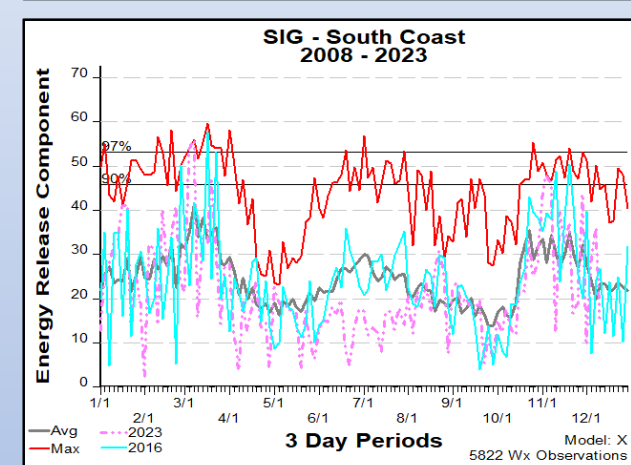
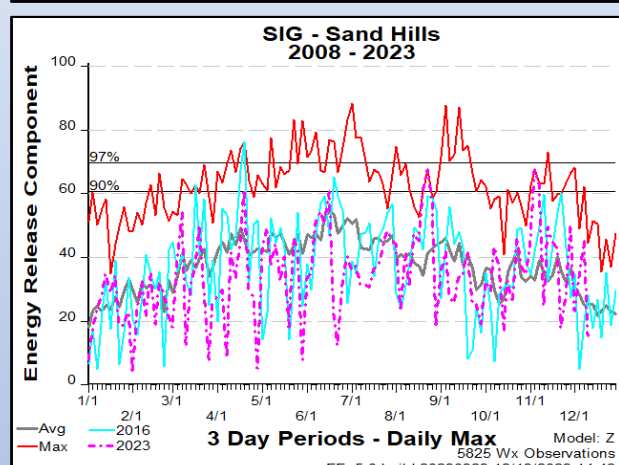
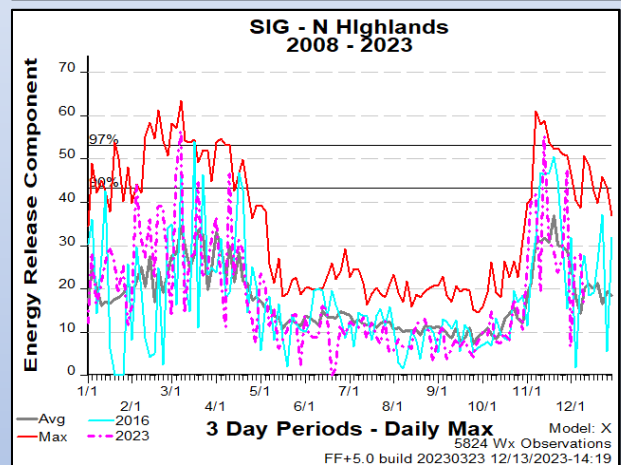
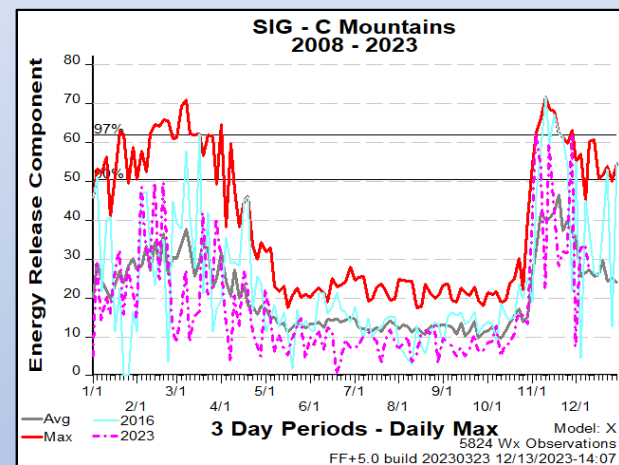
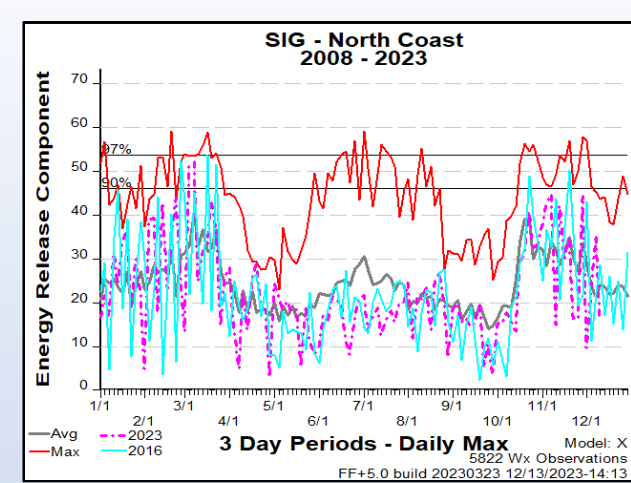
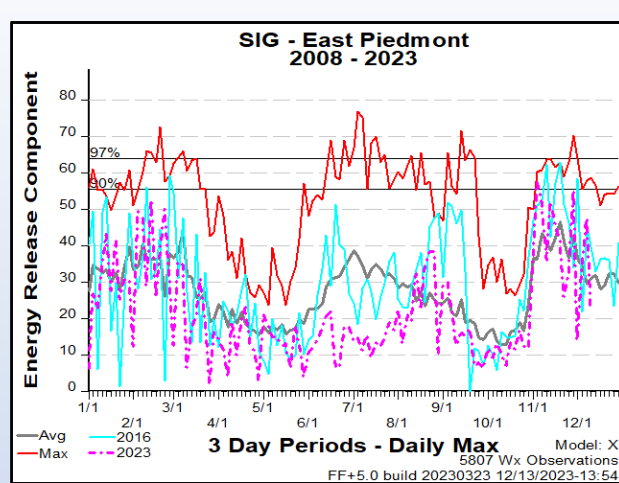
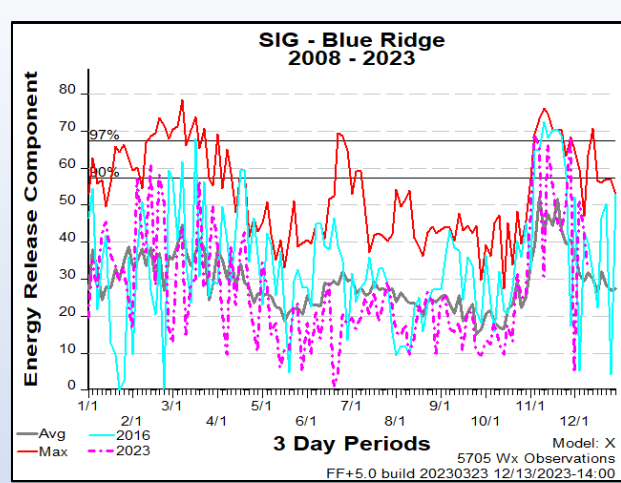
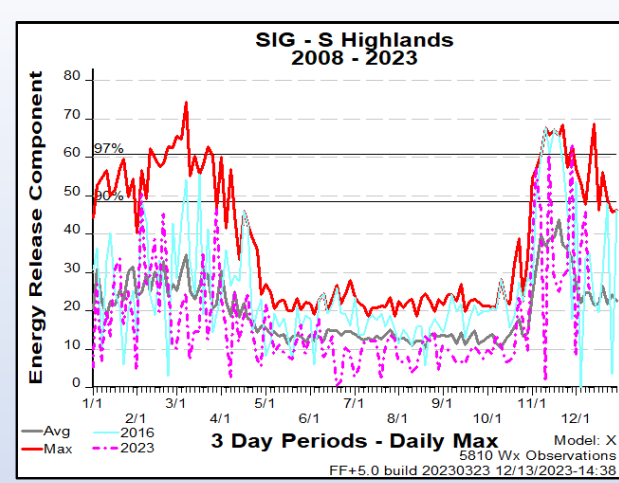
Important to note that there is significant forecast uncertainty as you go further out in time, especially in an El Niño Transition Year.



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

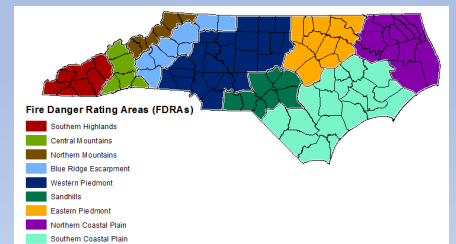
(2008-2023 Data, ending 12/13/23)

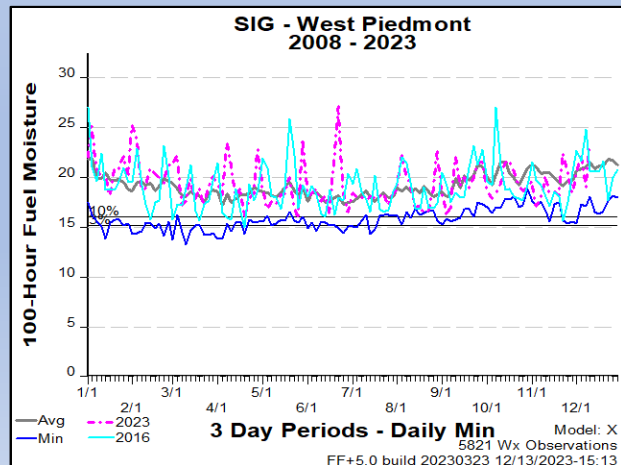
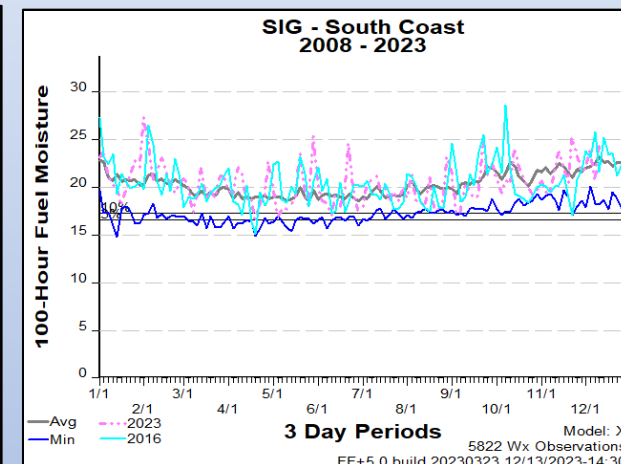
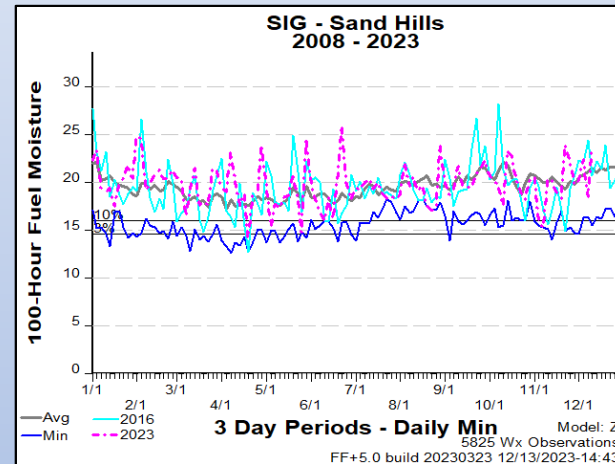
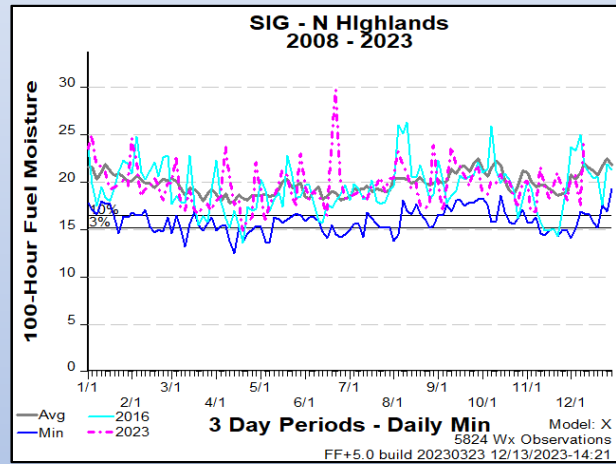
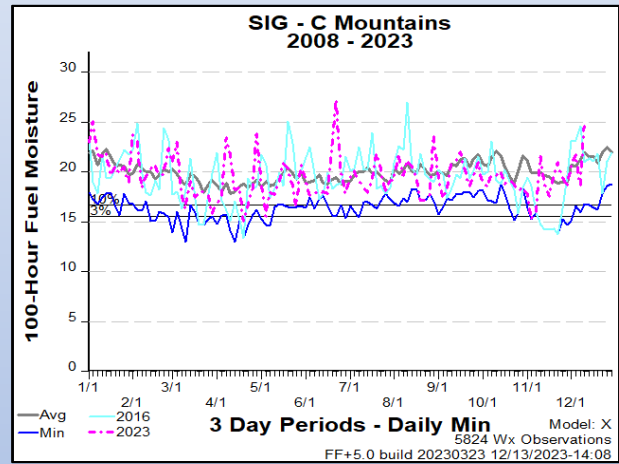
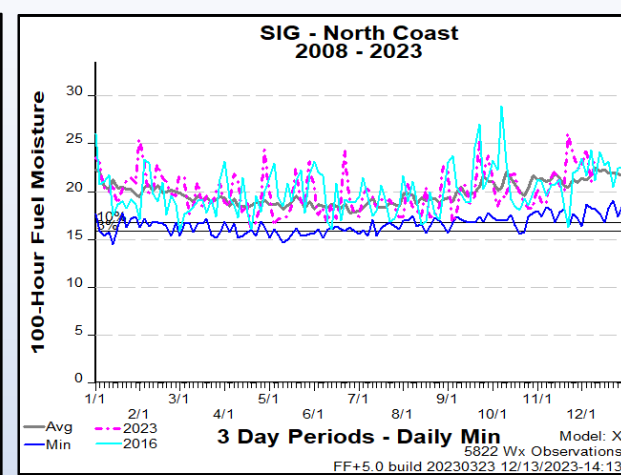
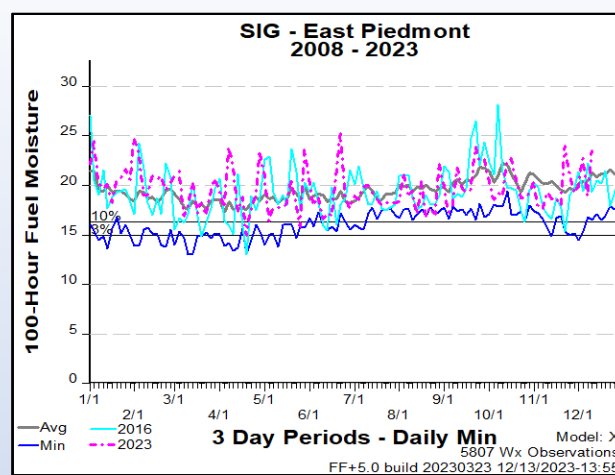
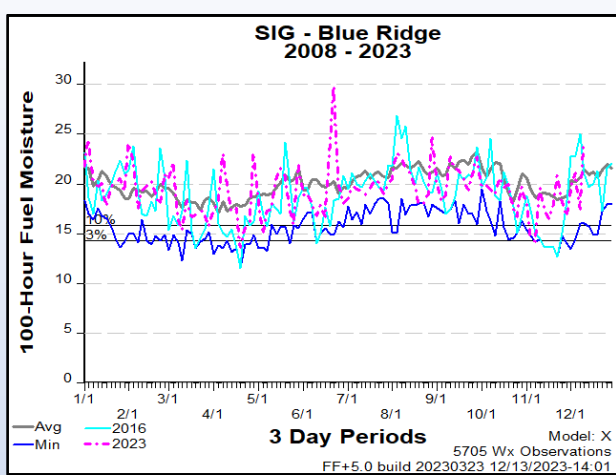
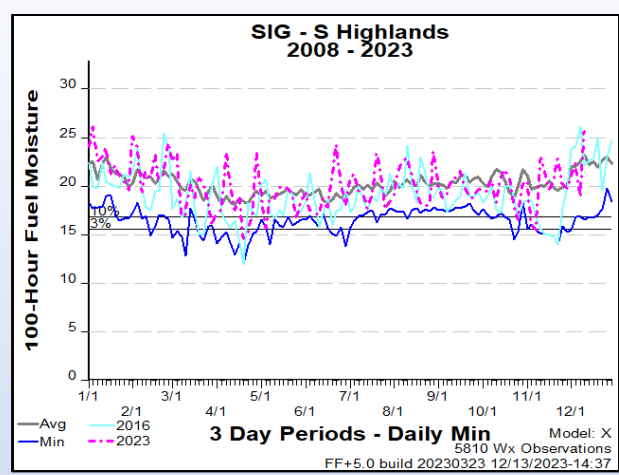




FDRA Outputs from FF+ Run: **ERC**

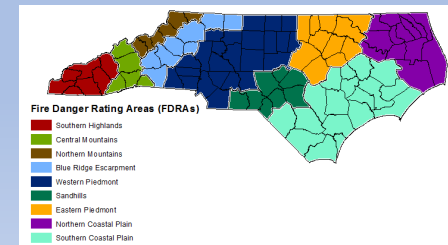
(2008-2023 Data, ending 12/13/23)

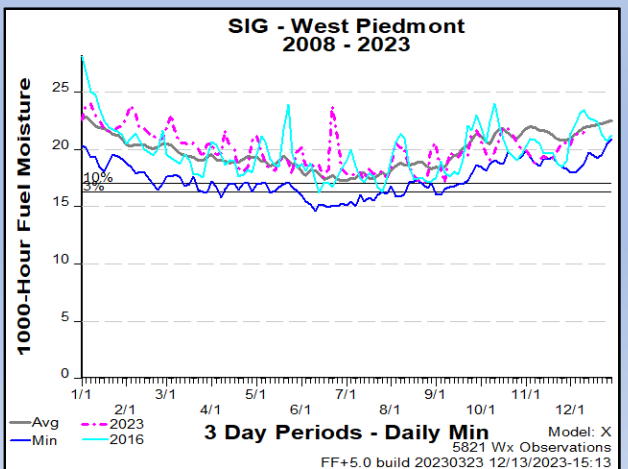
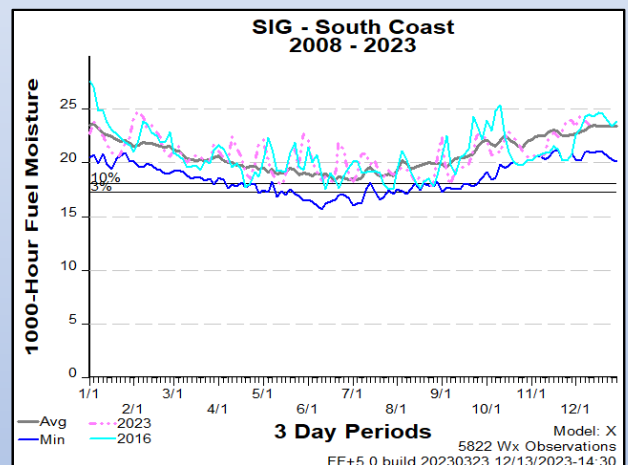
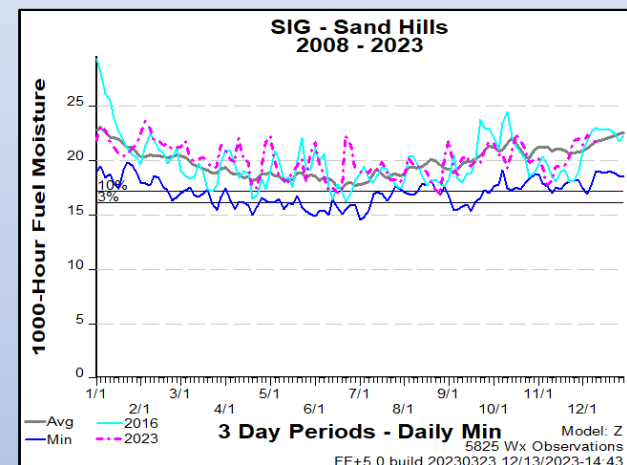
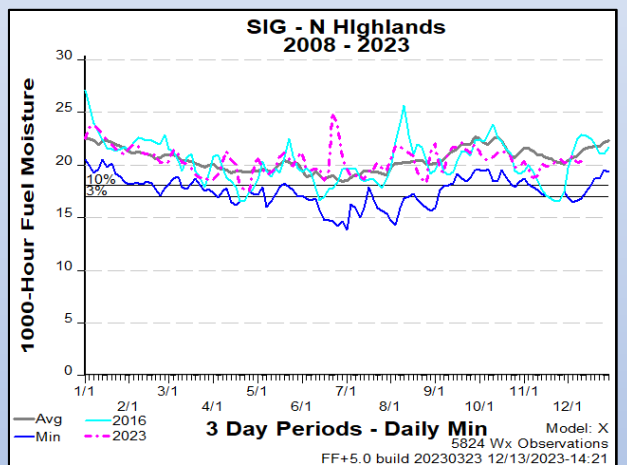
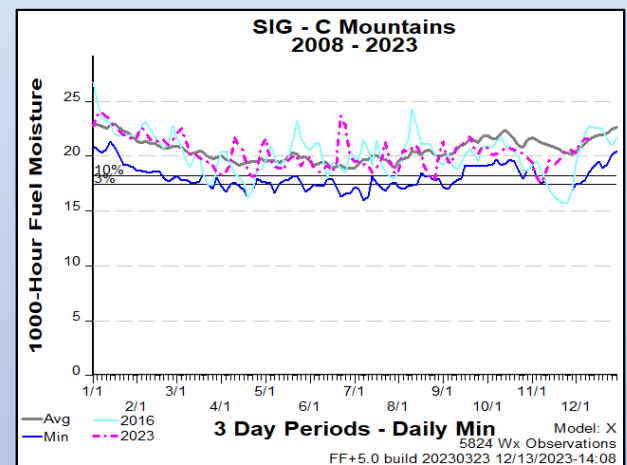
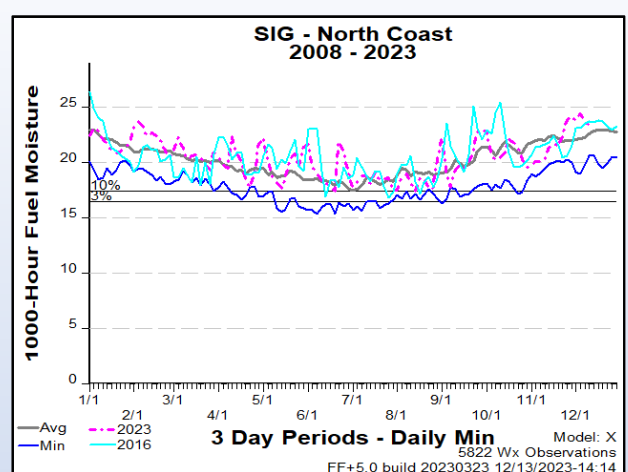
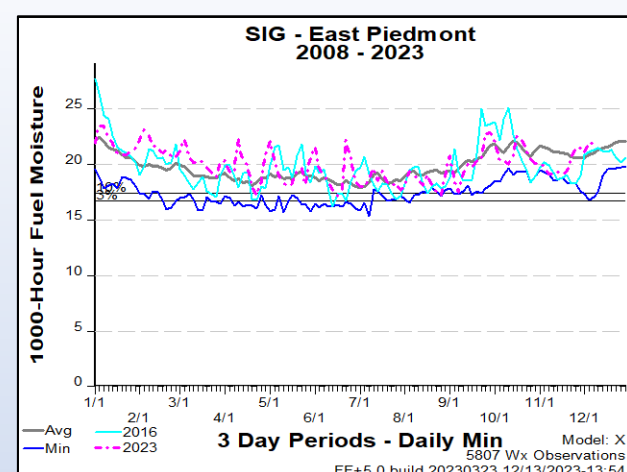
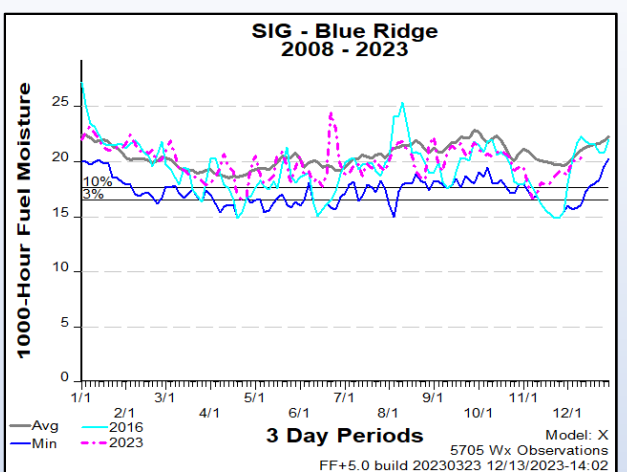
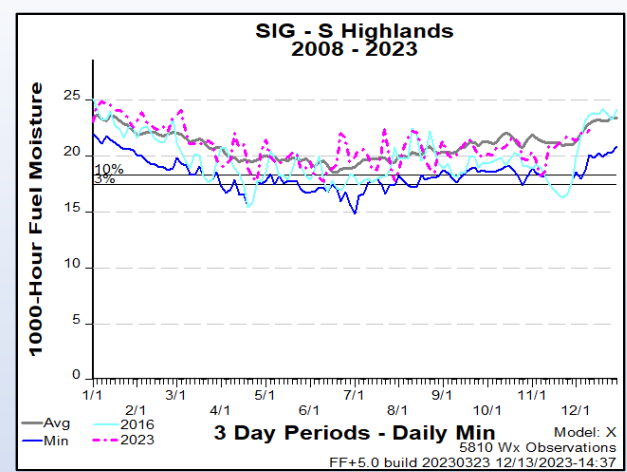




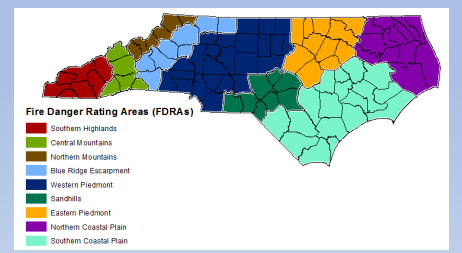
FDRA Outputs from FF+ Run: 100-Hr

(2008-2023 Data, ending 12/13/23)



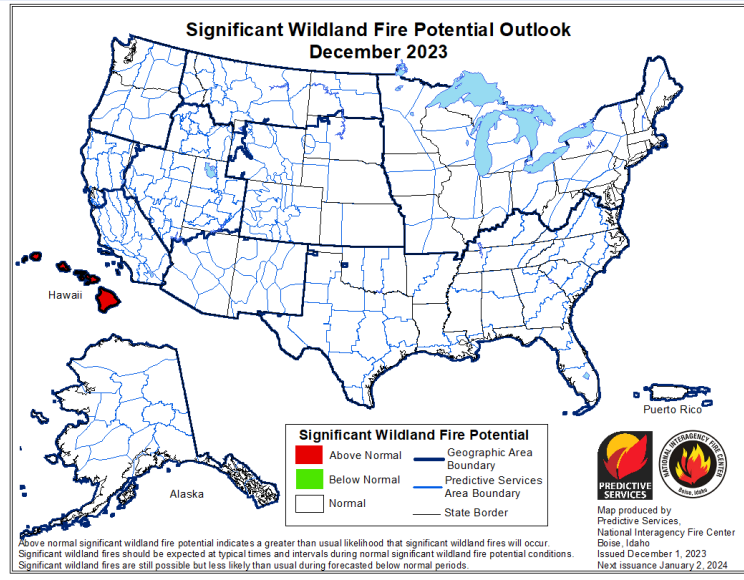


FDRA Outputs from FF+ Run: **1000-Hr**
(2008-2023 Data, ending 12/13/23)

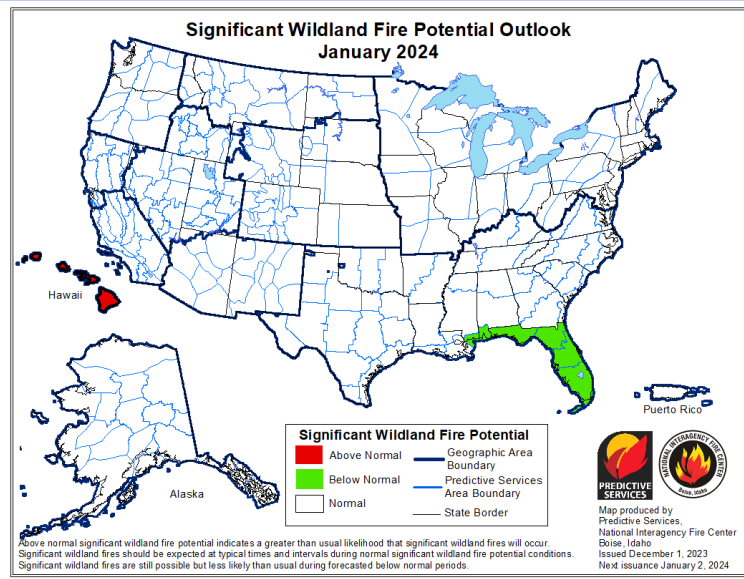
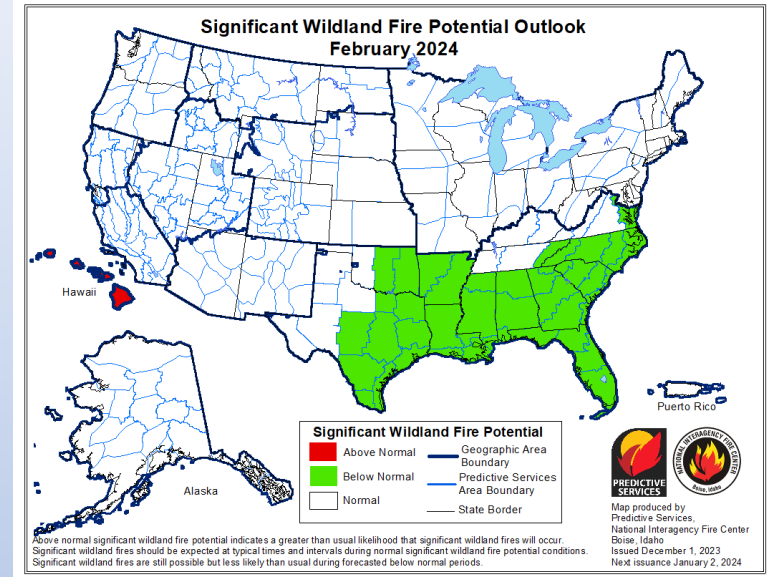


Significant Wildland Fire Potential Outlook:

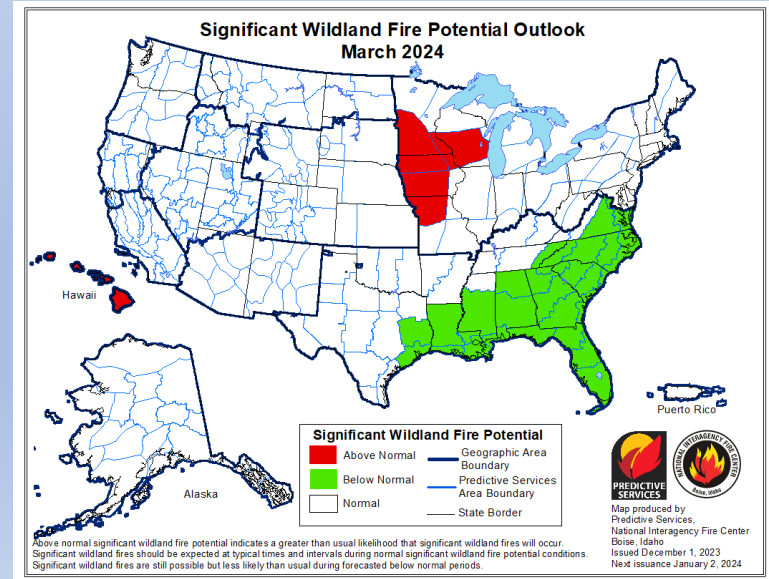
Updated 12/1/23 – Next Update on 1/2/24



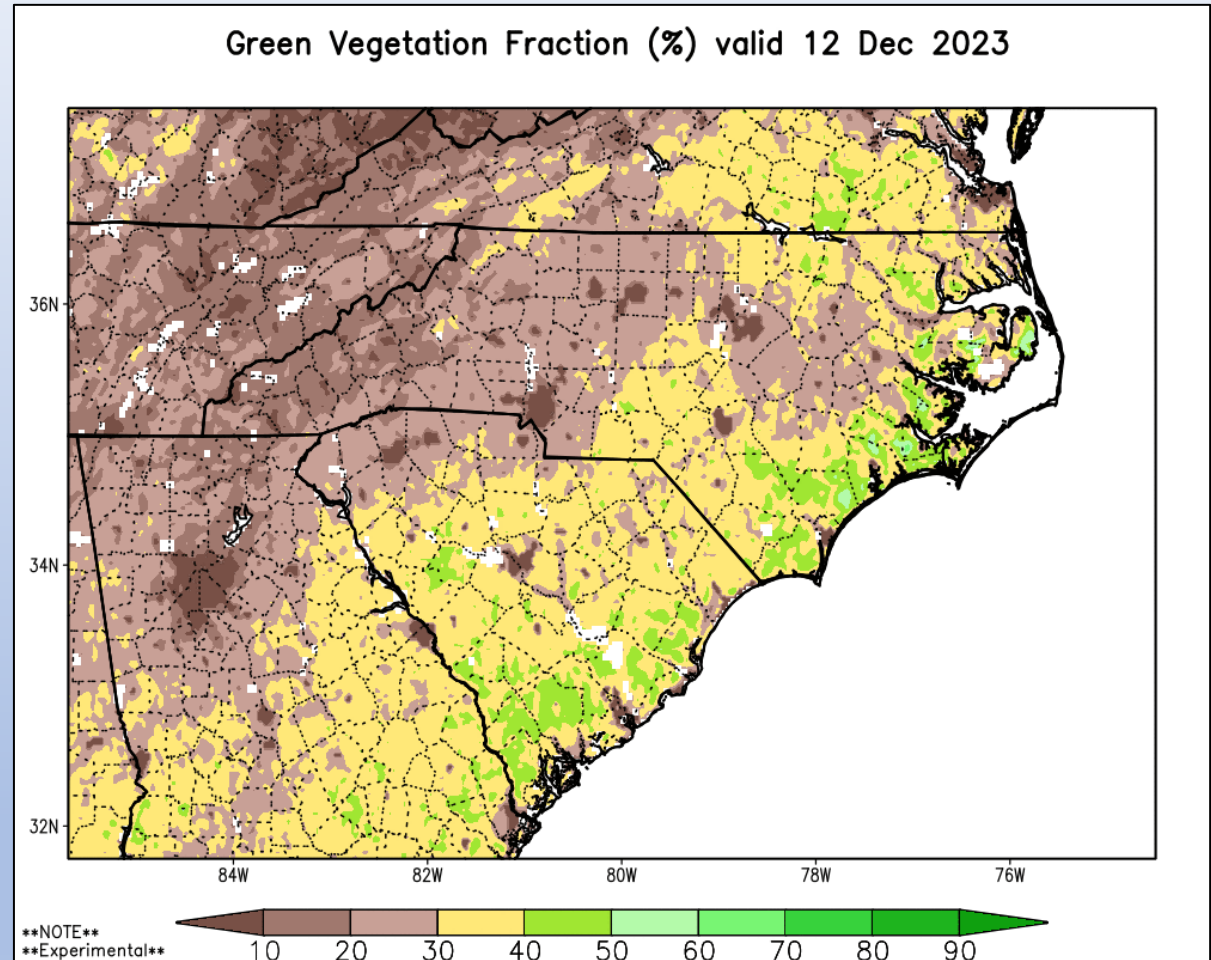
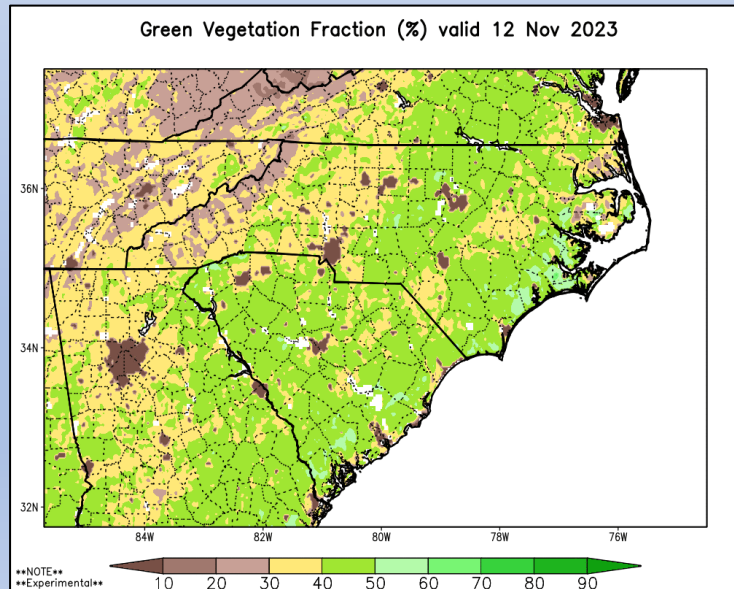
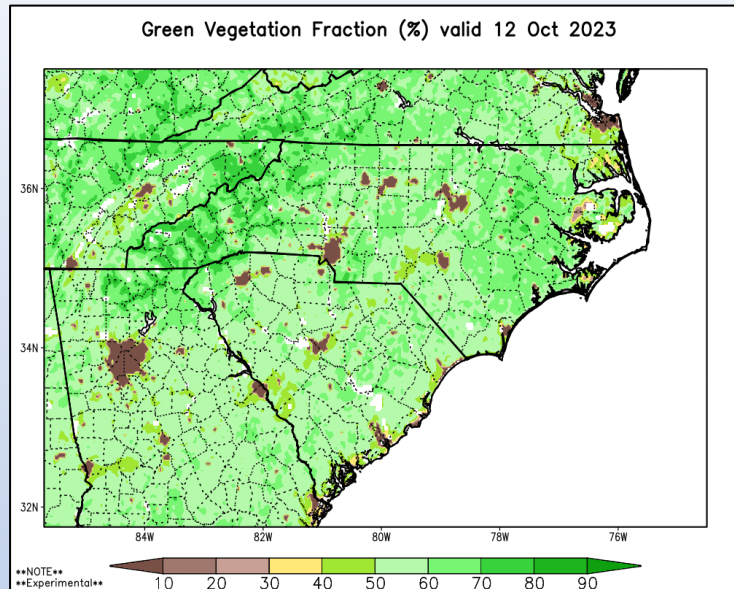
***Forecast uncertainty could lead to an expansion of “Normal” or “Above Normal” Fire Potential if abnormally dry conditions continue or worsen going into Spring.**



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.



Green Veg Fraction – 3 Month Modeled Changes



Fuels and Fire Behavior Discussion by NCFS Region:

R3 - Mountain Region Comments:

- Energy Release Components have been trending slightly above average for this time of year in all FDRA's.
- 100-hr and 1000-hr fuel moistures in all FDRA's are near or average or slightly below average for this time of year.
- Initial attack activity has been light to moderate in the region over the past week.
 - More on the moderate side in the Western Piedmont FDRA where less precipitation has fallen.
- Clear Creek and Locust Cove Fire (McDowell County) – Last week, firefighters noted areas where heavy fuels and duff were still burning even after receiving good precipitation on the fire. Large burned-out stump holes had been observed indicating deep burning conditions in the ground fuels.
- We are receiving precipitation, but right now we are not receiving enough to make up for the deficit we are currently in and to sufficiently recharge the ground moisture.

Fuels and Fire Behavior Discussion by NCFS Region:

R2 - Piedmont Region Comments:

- Recent rain events have normalized fuel moistures in Western Piedmont and Blue Ridge Escarpment Counties within Region 2.
- Rain events have helped the sandhills FDRA fuel moistures, but this area has received the least amount of rain in the state.
- The Harnett County Ranger, who completed burns last week, reported 100 hours fuels are still consuming, hardwood bottoms are still carrying fire, streams are still very low on water, and each burn required more mop-up than expected for a typical December.

Fuels and Fire Behavior Discussion by NCFS Region:

R1 – Coastal Plain Region Comments:

- Average overall conditions have been noted regarding recent IA activity.
- Recent rainfall, good night-time recovery and shorter days/cooler temps have helped maintain shallow soil/duff moisture for many areas.
- There are pockets of more significant dryness as seen on the percent of normal and SPI maps at various time scales. These pockets could easily see “groundfire” or enhanced duff consumption in the right conditions, especially when aligned with artificial drainage influences.
- Significantly lower stream levels & monitoring well levels are indicative of the drought’s continuing impacts in a seasonal context.

General Fire Activity Discussion:

- For November - IA Activity had 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 led to a rapid escalation of fire activity, mop-up needs, and overall acres burned (IA and Extended Attack). Out-of-area resources were mobilized for multiple fires within the most impacted FDRAs. Burn bans for 30 western counties were in place through 11/22 along with a Southern Area Fuels & Fire Behavior Advisory covering much of the western piedmont and mtns. "Signal-14" totals for November included approximately 1,119 fires for 2,117 acres (note that the Signal-14 is only a snapshot in time for each daily reporting period).
- December fire activity has been tempered by several widespread rain events, but with IA picking back up as fuels dry out. A very dry air mass returned to the state late last week (prior to weekend rains), more significantly impacting the western & central portions of the state. Minimum RH's bottomed out in the single digits for several higher elevation weather stations and low/mid teens for some western piedmont stations, along with corresponding poor overnight fuel moisture recoveries.
- MTD "209" Criteria Fires:
 - Sauratown Mountain Fire; Stokes Co – 805 ac at 100% Containment on 12/5/23
 - Luzon Fire; Scotland Co – 289 ac at 100% Containment on 12/9/23
 - Clear Creek Fire; McDowell Co - 124 ac at 100% Containment on 12/11/23 (Unified Command)
 - Locust Cove #2 Fire; McDowell Co - 189 ac at 95% Containment on 12/12/23 (Unified Command)
 - Black Bear Fire; Haywood Co - 2008 ac at 90% Containment on 12/12/23 (USFS)
- Predictive Services Significant WF Potential Outlook:
 - A return to Normal Activity is generally favored statewide for December & January, transitioning to Below-Normal for February & March (assuming normal El Nino pattern of wetness develops).
 - 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 still have yearly deficits of 8"-14" 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. Fire activity generally builds again as we progress through January.
 - General trends are subject to local factors (time and space) including drought, fire problem, abnormal weather events, etc.

Broader Fuels/Indices Discussion:

- Growing Season ending frosts/freezes have occurred for nearly all the state, except for the typical coastal/waterbody buffered areas. Above-normal temps are again trending for the 6-10/8-14 Day CPC Outlooks.
- Relative greenness maps are indicating the general end of leaf-drop.
- Uncompacted leaves/litter will continue to impact fires.
 - Significant rain will also be needed to compact fallen leaves and alter their ability to contribute to the fuel bed and blow.
- Drought conditions rapidly deteriorated throughout much of November:
 - The NC State Climate Office’s preliminary analysis of NCEI data shows that November 2023 was the 39th driest on record since 1895, in a statewide context (link is [here](#)).
 - Moderate to Extreme drought conditions continued to expand in much of the state over the past month (see Slide #17).
 - Many locations surpassed 50+ days without significant wetting rain, prior to recent rain events (see Slide #13).
 - Those areas that have received wetting rains are still far from being in normal conditions (see Slide #14, #15).
 - KBDI values have been reduced significantly for most areas due to the past couple rain events – but a note of caution:
 - Dry surface horizons and duff can quickly reach a saturated state – leading to significant runoff/low absorption, especially in areas with slope. This condition can easily leave the lower duff, litter and soil horizons significantly unchanged. Models can have a hard time representing this, when it occurs. Repeated soaking rains will be necessary.
 - 100-hr & 1000-hr fuels have begun to trend more towards seasonal normal, with recent rains and better overnight recoveries (see FDRA Fuel Slides).
 - Duff/Organic consumption and smoldering will remain a concern for any fires occurring in drought impacted areas.
 - Reburn will also remain a concern following additional needle cast or 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 well above historical values for the time of year, until recent rain events.
- 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.

*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.



Image of a portion of Jordan Lake Reservoir, Chatham Co, taken Friday 12/8/23 by NC-DWR Staff