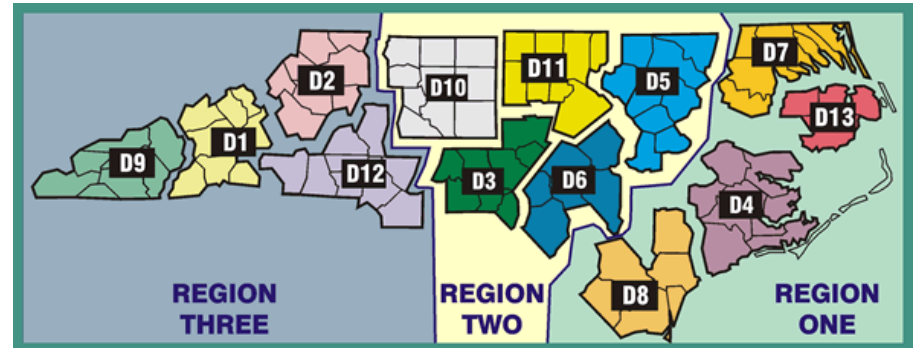


Statewide Seasonal Fire Danger Assessment

– September 2023 Update –



Created by: Jamie Dunbar

Fire Environment Staff Forester

NC Forest Service

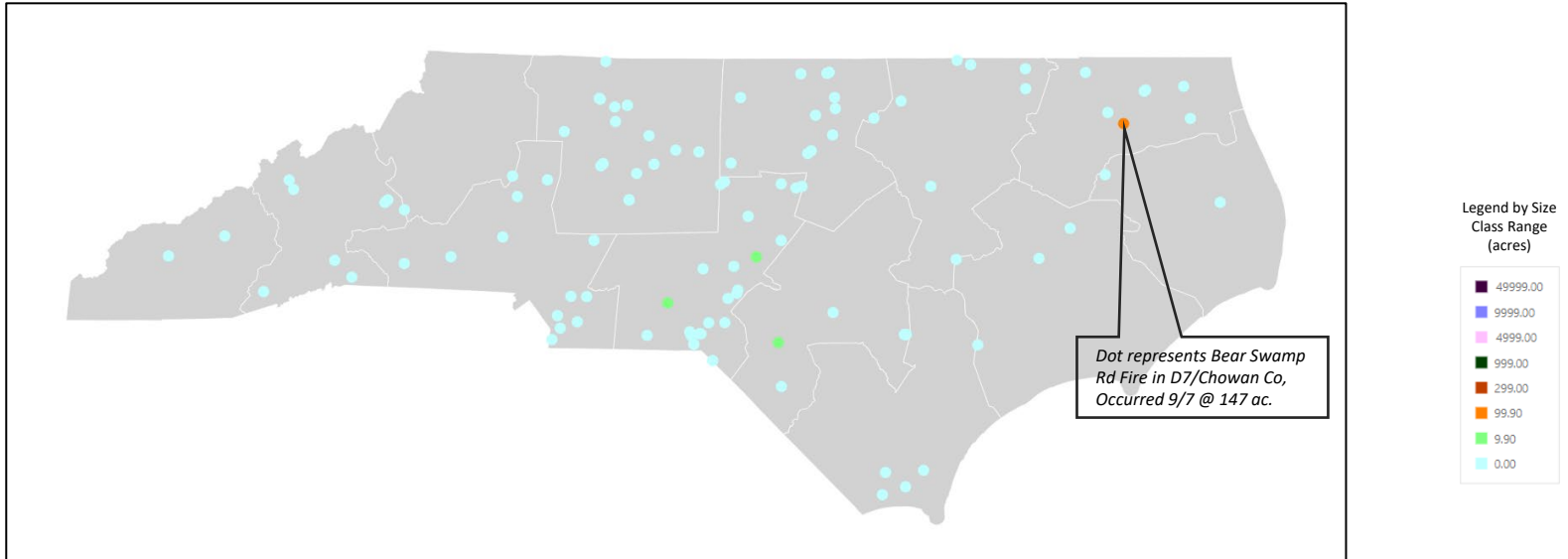
9/14/23

Month to Date Incident Activity

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

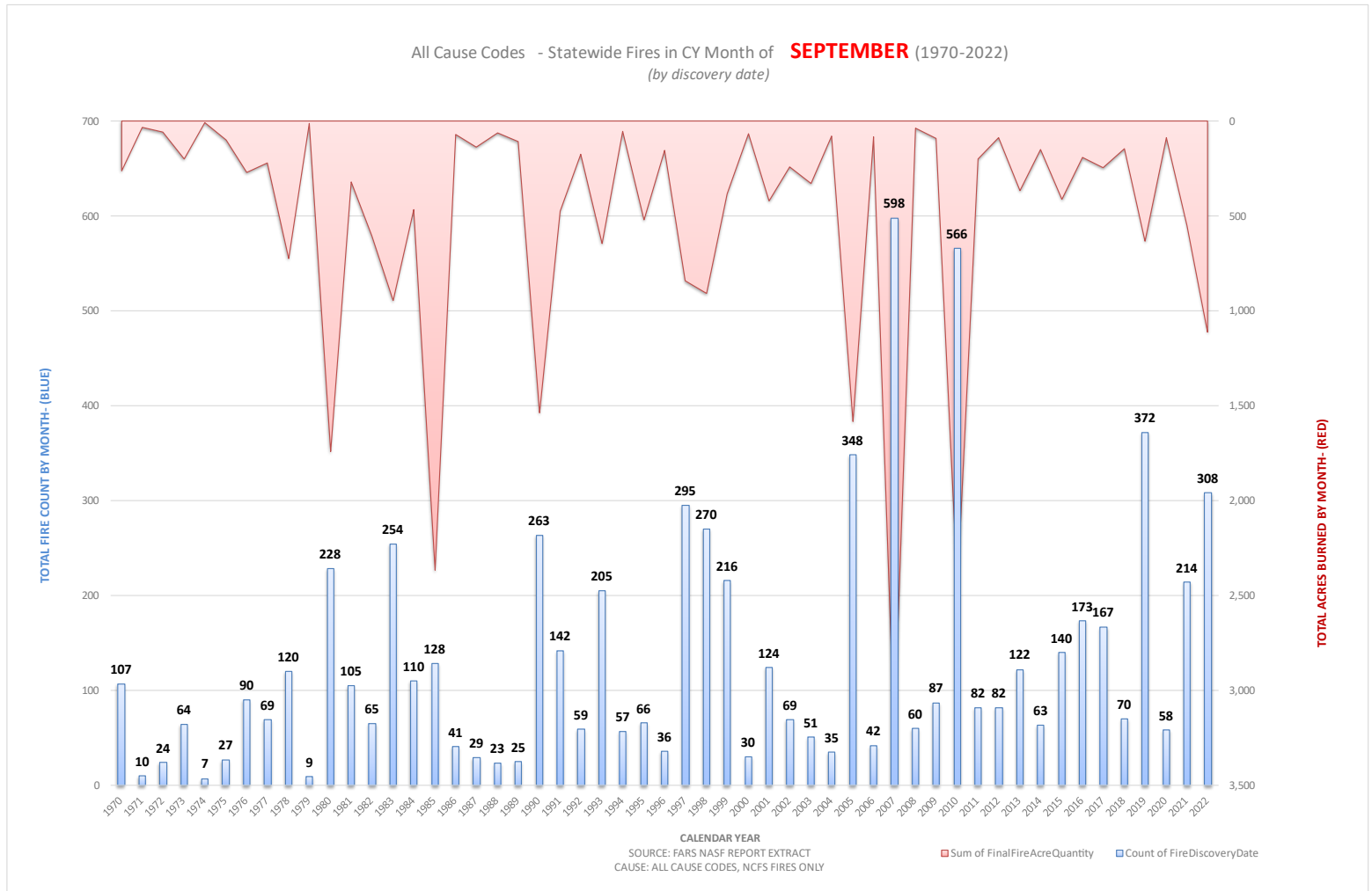
Date Range: 9/1 – 9/13, 2023

Report: Business Intelligence Module, Response Trends Map



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:	9/1 – 9/13, 2023			
Area	Wildfire Count	Wildfire Acres	RX Count (State & Private)	RX Acres (State & Private)
R1	16	101.8	0	0
R2	55	128.5	2	102
R3	10	1.0	0	0

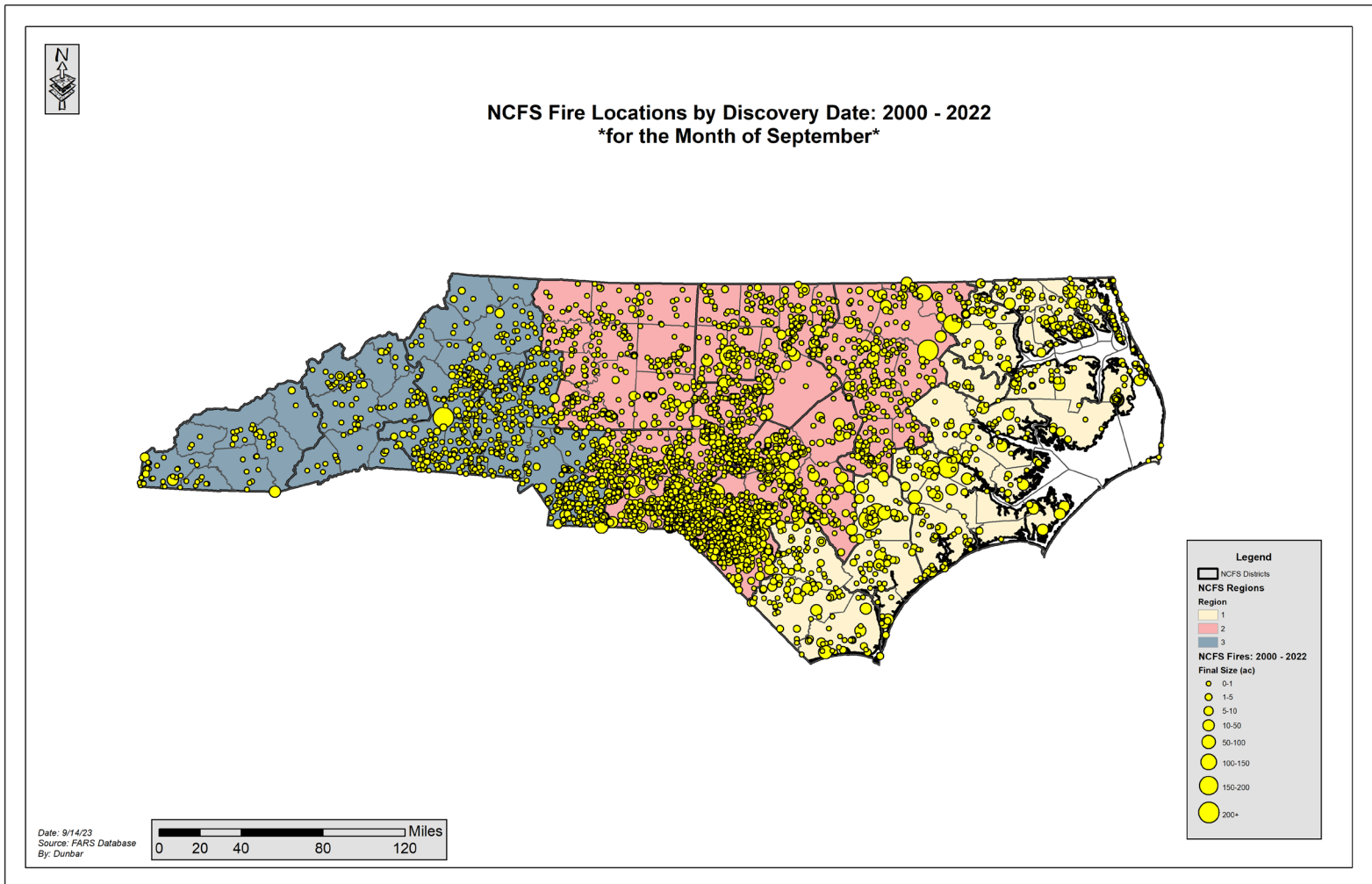
Distribution of **All Fires for month of September** from 1970 - 2022



Cause: All Cause Codes, Statewide, NCF5 Reported Fires Only

10-Yr. Rolling Average for September: ~ 169 Fires for 389 Acres

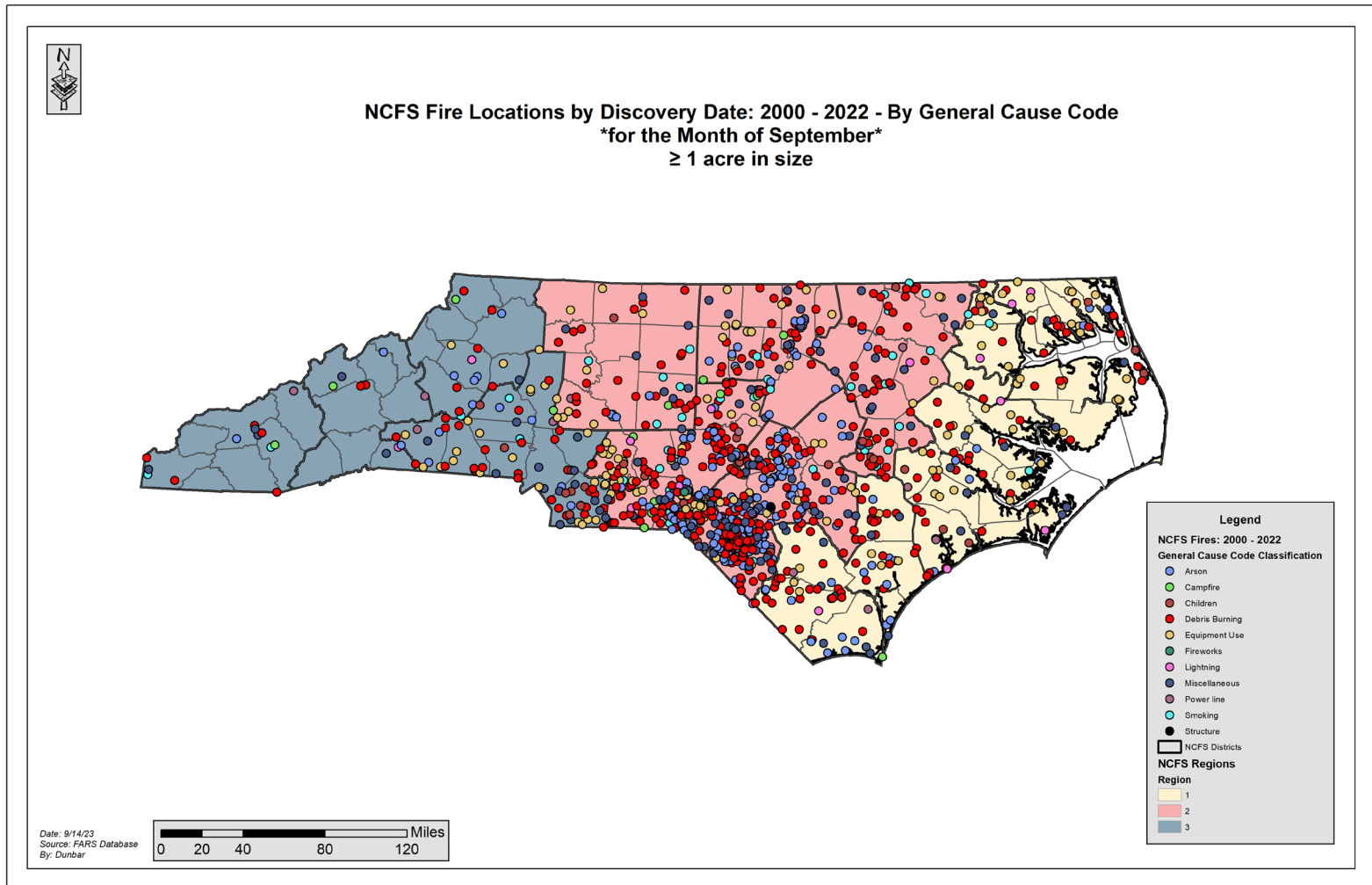
Fire Locations of **All Fires for month of September** from 2000 - 2022



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

10-Yr. Rolling Average for September: ~ 169 Fires for 389 Acres

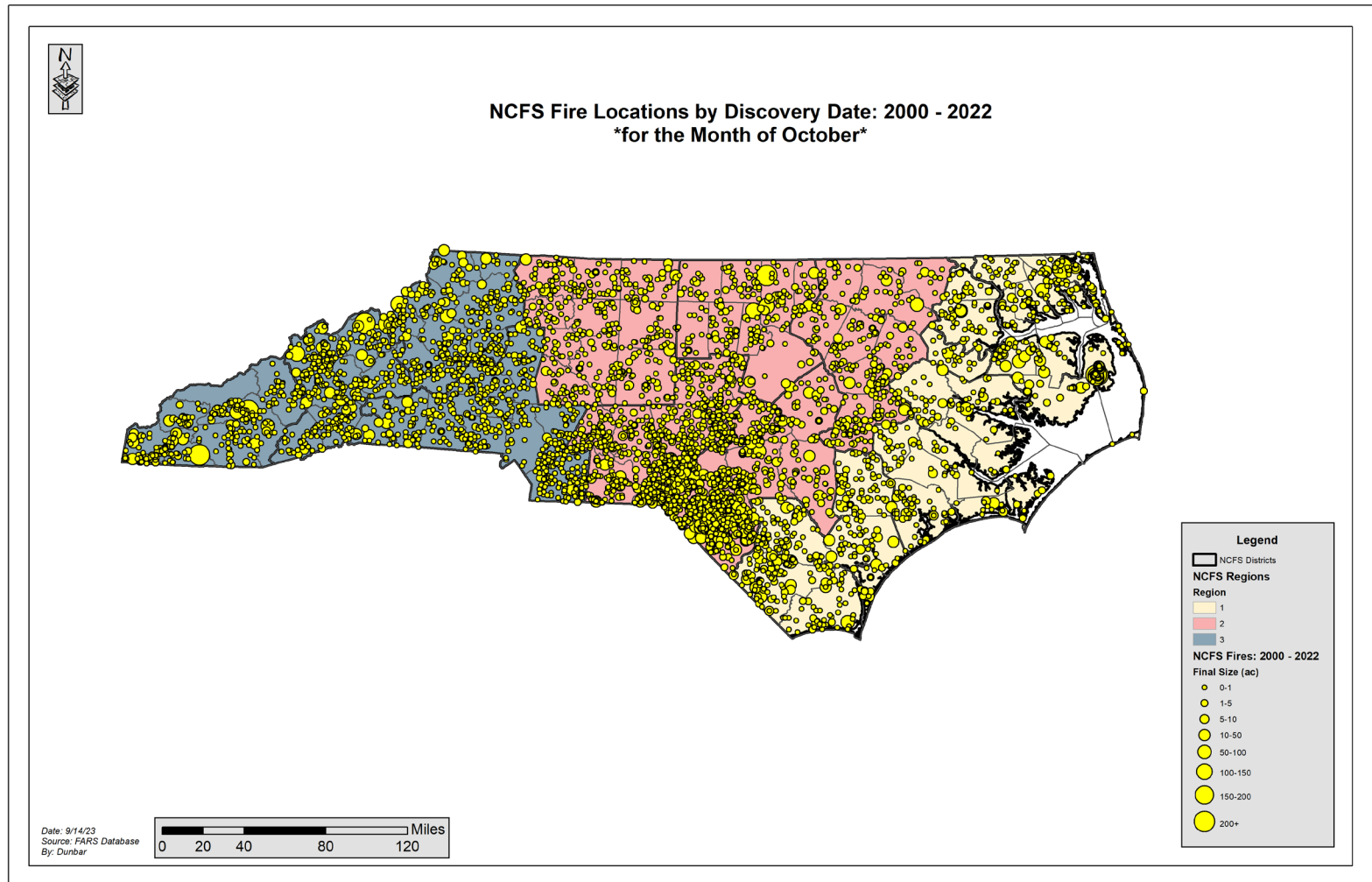
Fire Locations of All Fires for month of September ≥ 1 acre by General Cause Code from 2000 - 2022



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

10-Yr. Rolling Average for September: ~ 169 Fires for 389 Acres

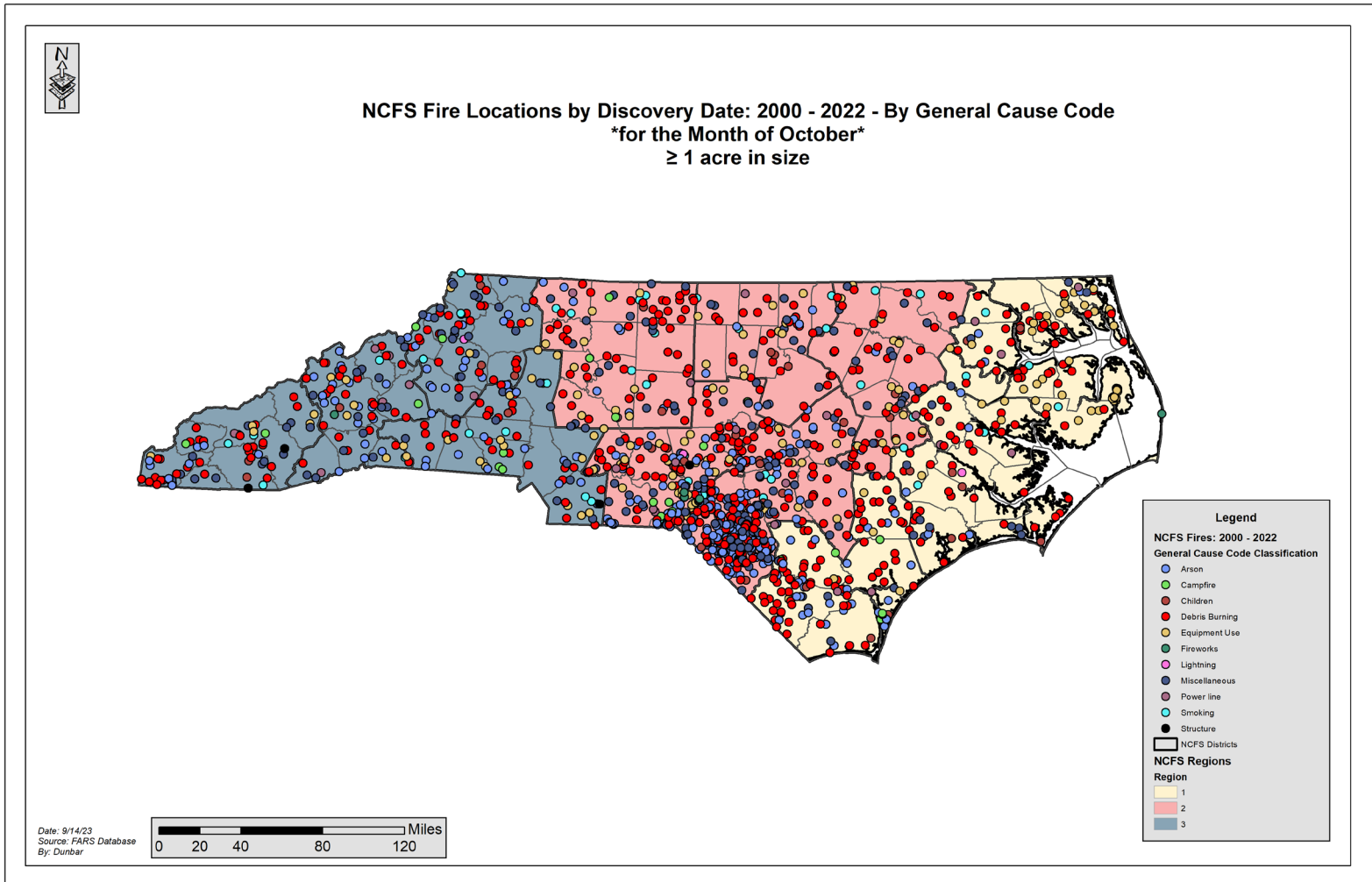
Fire Locations of **All Fires for month of October** from 2000 - 2022



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

10-Yr. Rolling Average for September: ~ 169 Fires for 389 Acres

Fire Locations of All Fires for month of October ≥ 1 acre by General Cause Code from 2000 - 2022



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

10-Yr. Rolling Average for September: ~ 169 Fires for 389 Acres

Fire Environment Slides

Summary at End

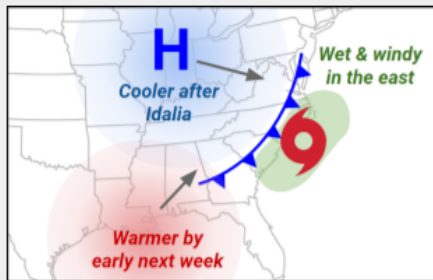
State Climate Office: Short-Range Monthly Outlook for NC

Released **8/31/23** & Location: <https://climate.ncsu.edu/fire/outlooks/>

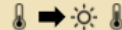
Short-Range Outlook for North Carolina

Week 1:

Aug. 31 to Sep. 6, 2023

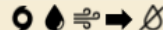


Cooler After Idalia



As a cold front pushes Idalia offshore today, it will usher in a cooler air mass from the north. High temperatures should top out in the low 80s today through Saturday. We'll rebound into the low 90s by Monday and remain warm and sunny next week.

Stormy Today, then Dry



Tropical Storm Idalia will continue to bring rain across eastern NC this morning, with storm totals of up to 10 inches. Wind gusts of up to 40 mph are also possible through this afternoon. After that, a drier pattern will emerge through the middle of next week.

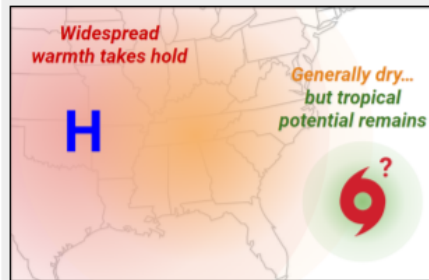
Forecast Confidence



With Idalia on the way out, confidence is high in suggesting dry weather all week with warming temperatures by Sunday.

Week 2:

September 7 to 13, 2023



The Heat Returns



A broad high pressure system across the central US is expected to initiate hot weather from the Rockies to the East Coast. High temperatures reaching into the 90s are possible in North Carolina, although the absolute hottest weather will likely stay to our west.

Another Dry Stretch?



Even on the fringes of this high pressure system, pop-up shower activity would likely be limited, so we can expect mostly dry weather this week. The major wildcard is the tropics, which are expected to remain active as we reach the typical peak of the season.

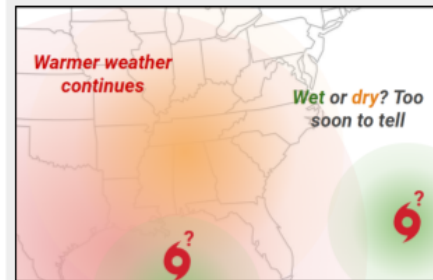
Forecast Confidence



Models show good agreement about a warmer pattern, but uncertainty about the precipitation outlook in the eastern US.

Weeks 3-4:

September 14 to 27, 2023



Staying Warm by Late Month



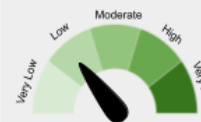
A hot air mass is expected to linger over the Southeast beyond the middle of September, with above-normal temperatures likely in NC. Our normal highs that time of year are in the upper 70s, but we could climb well into the 80s later this month.

More Precipitation Uncertainty



As in Week 2, our late-month precipitation could be a battle between dry days and tropical torments. High pressure in place could continue suppressing our rain chances, but we'll still have the potential for heavy rain from tropical systems or their remnants.

Forecast Confidence



Possible tropical activity reduces the confidence in what would otherwise set up to be a hot, dry end to September for NC.

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



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

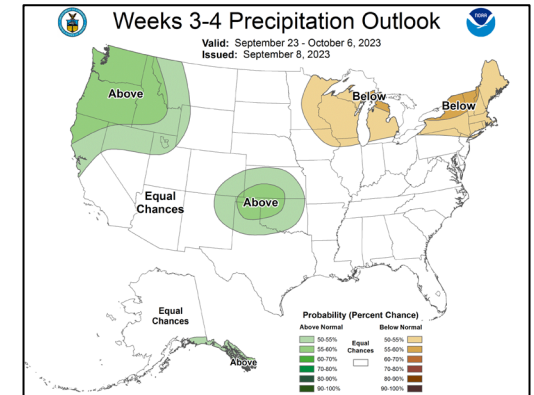
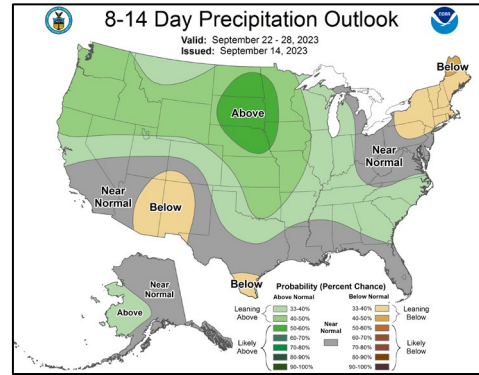
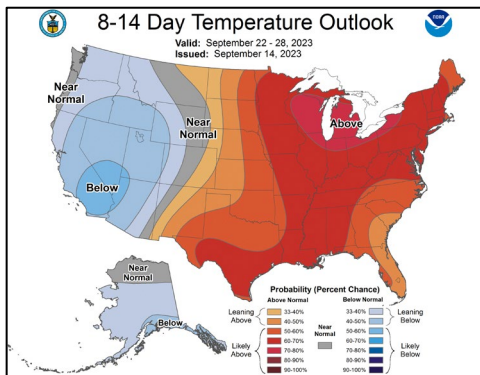
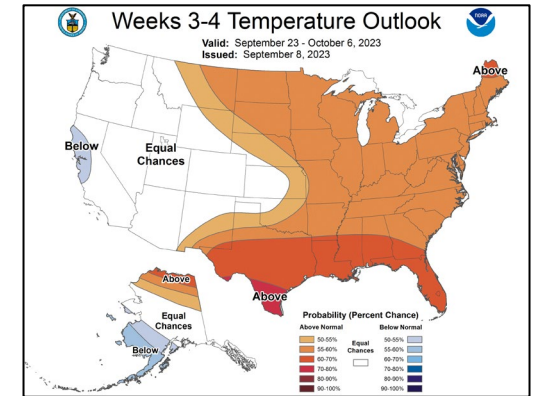
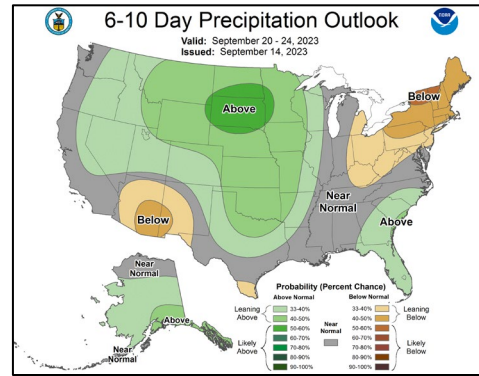
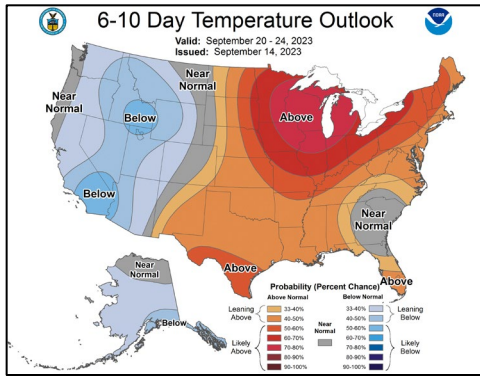


Supported by:

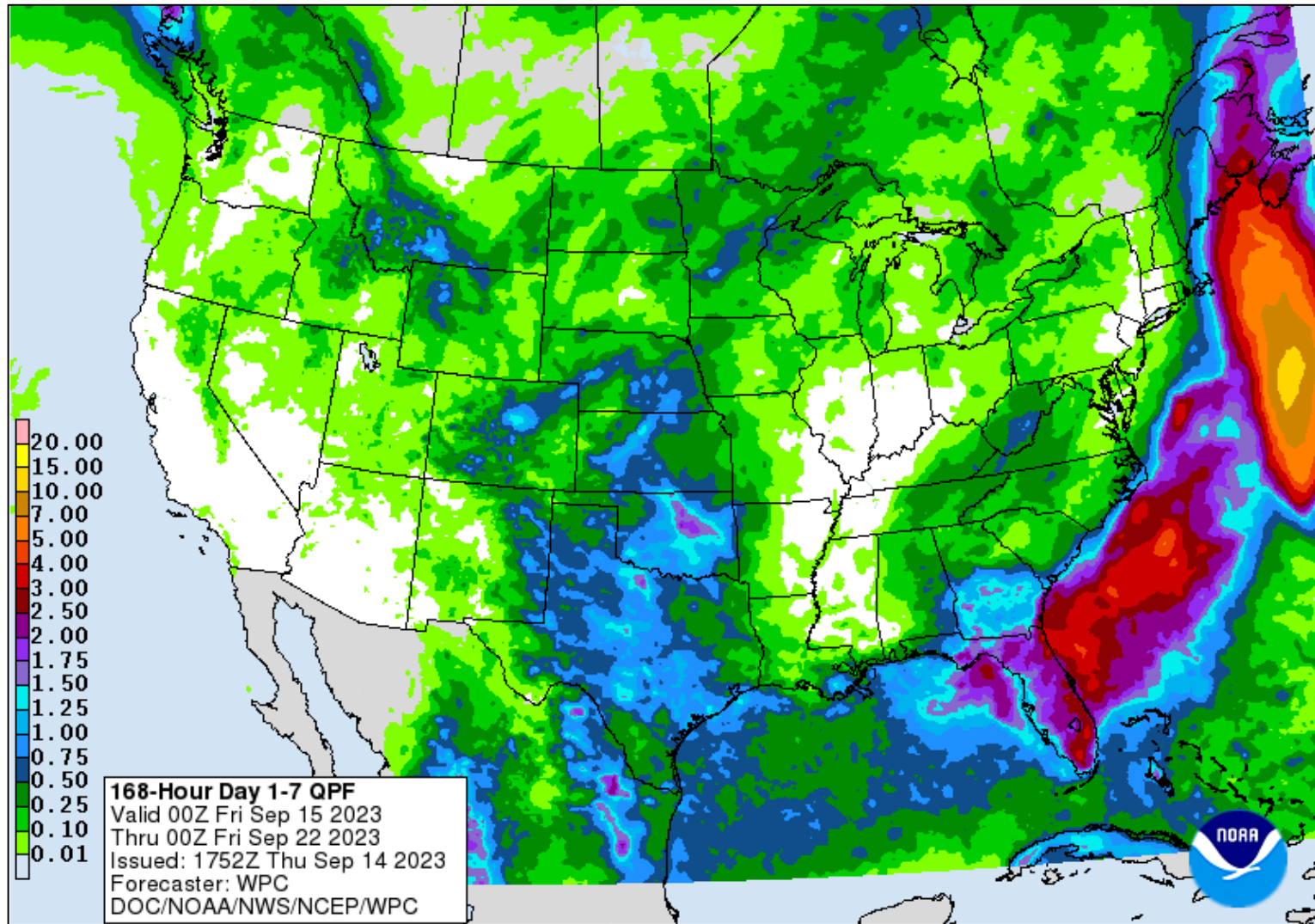


Temp & Precip Outlook

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

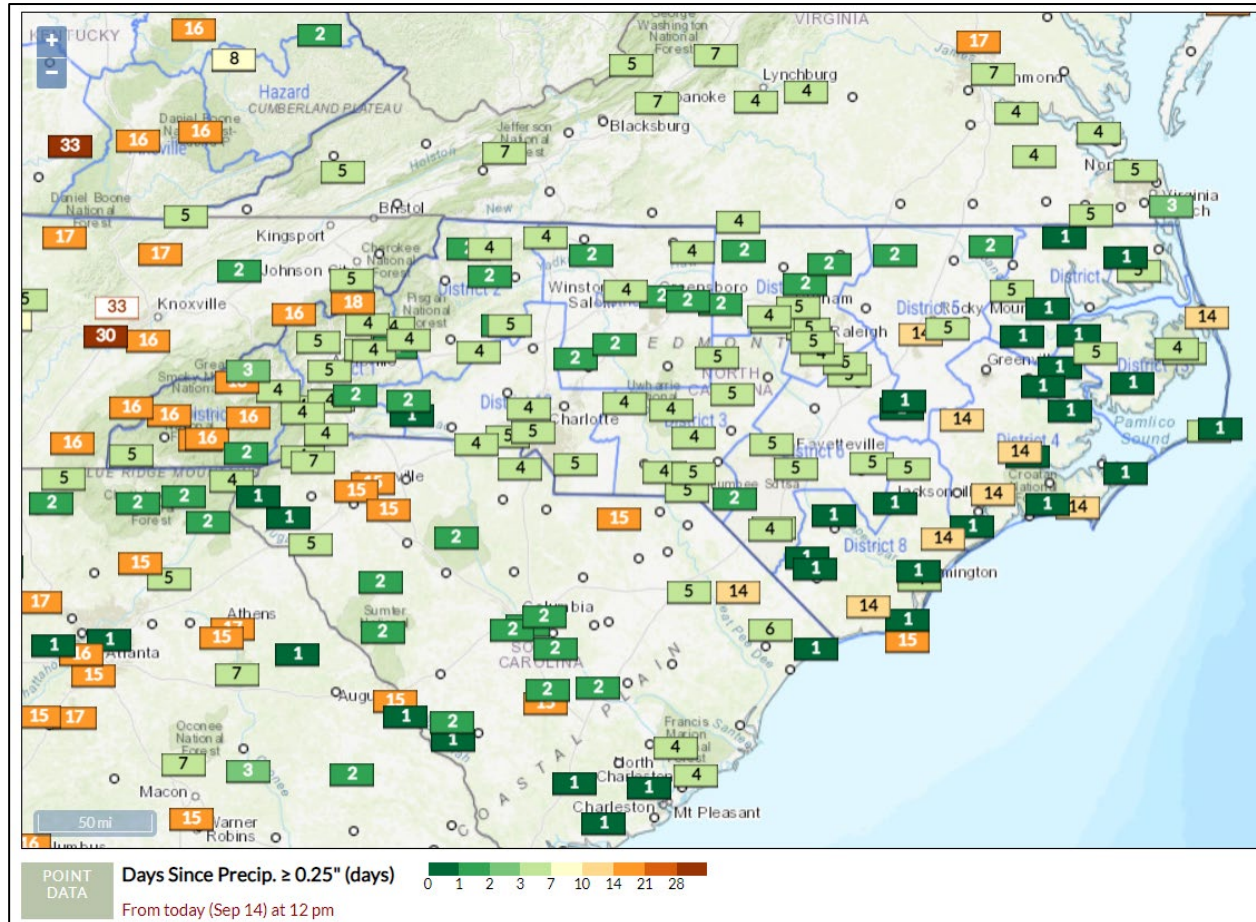


Quantitative Precipitation Forecast, 7-Day



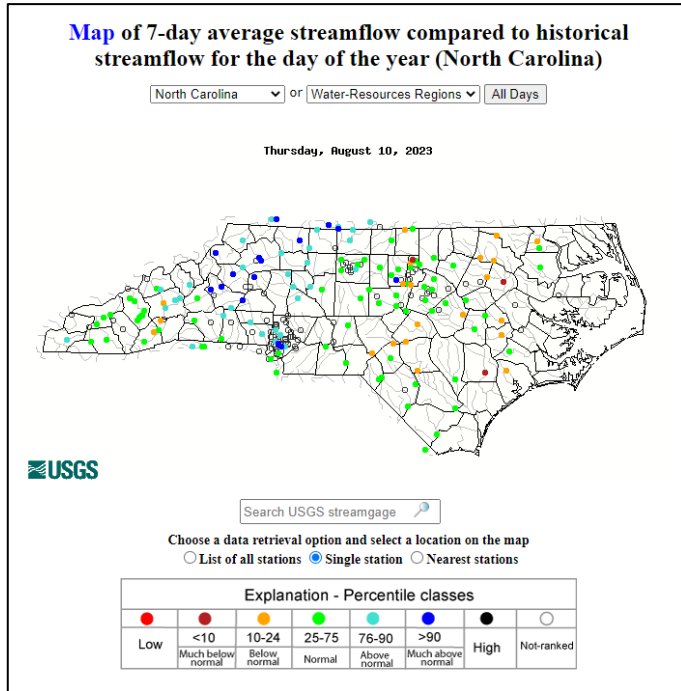
Days Since Wetting Rain ~ Precip ≥ 0.25 "

FWIP (Point calculation ending at 1200 on 9/14)

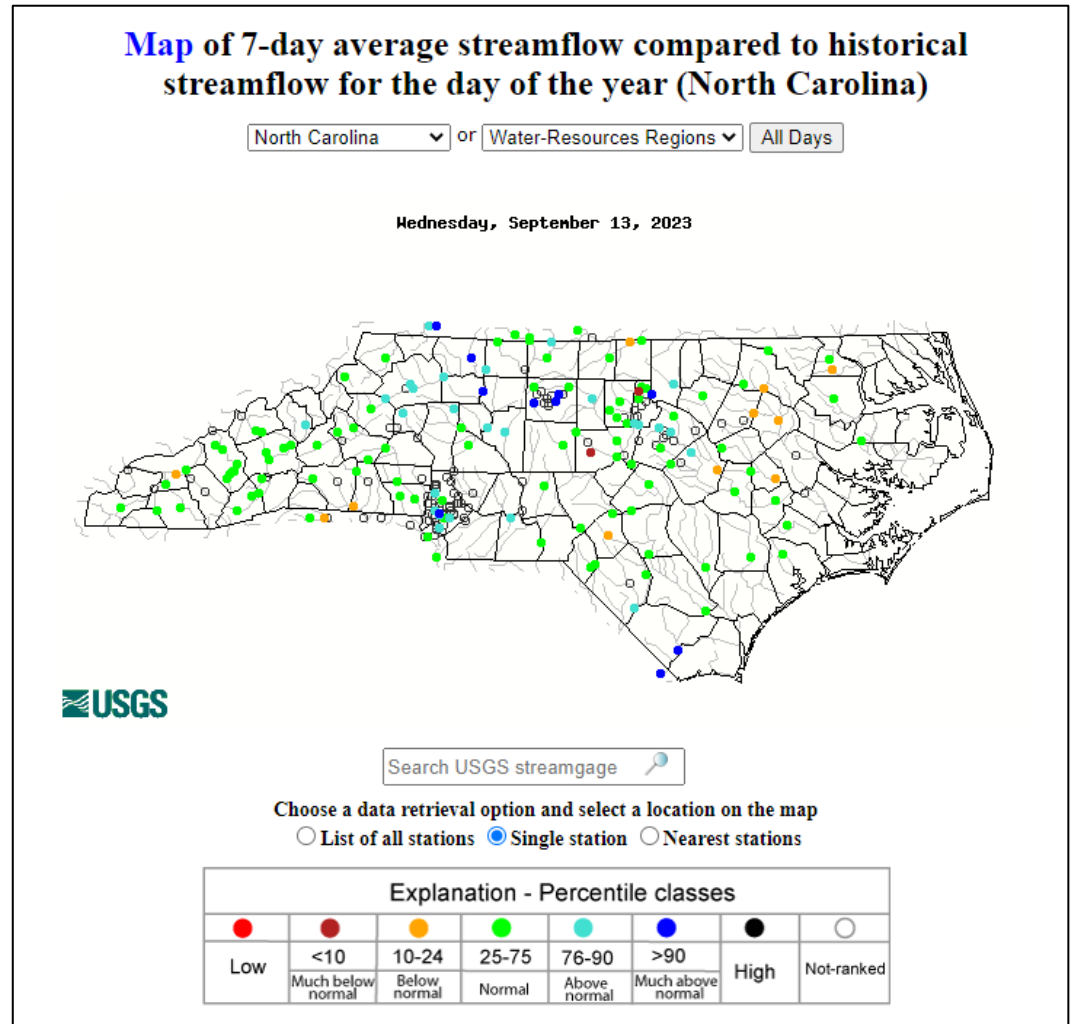


Streamflow:

- Current Month

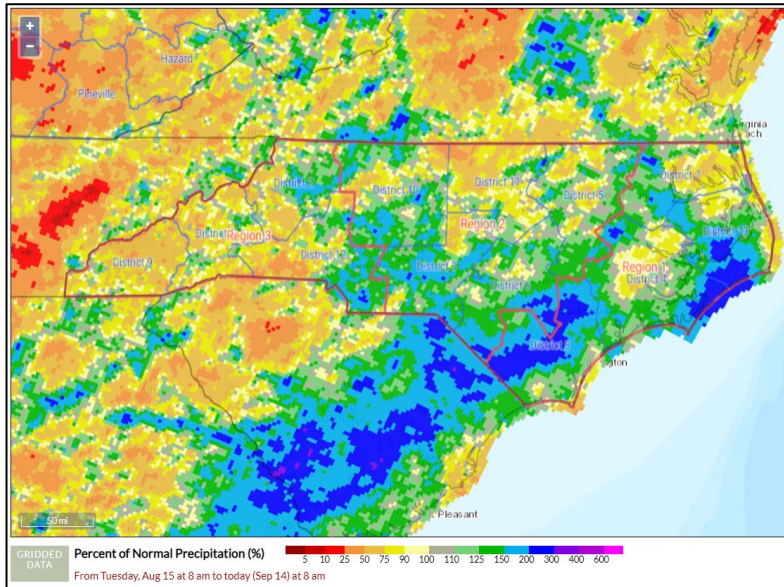


- Last Month (Above)

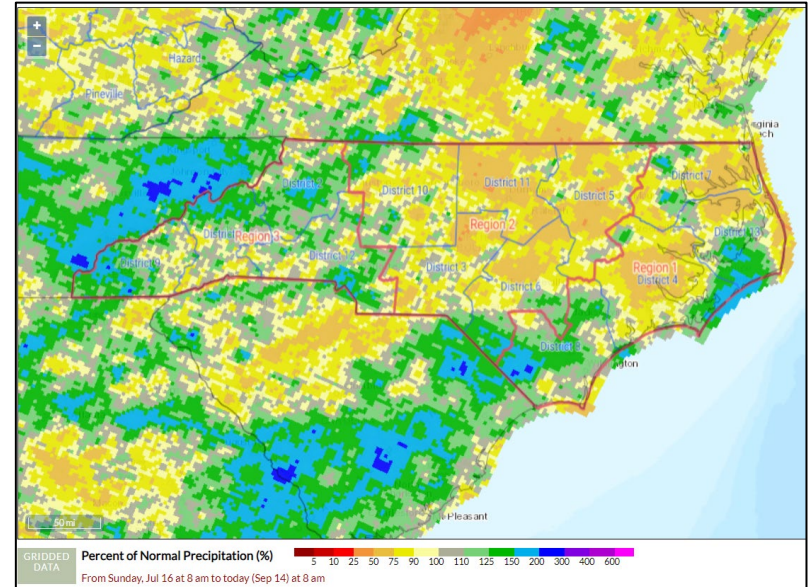


Percent of Normal Precip, FWIP (Ending 0800 9/14)

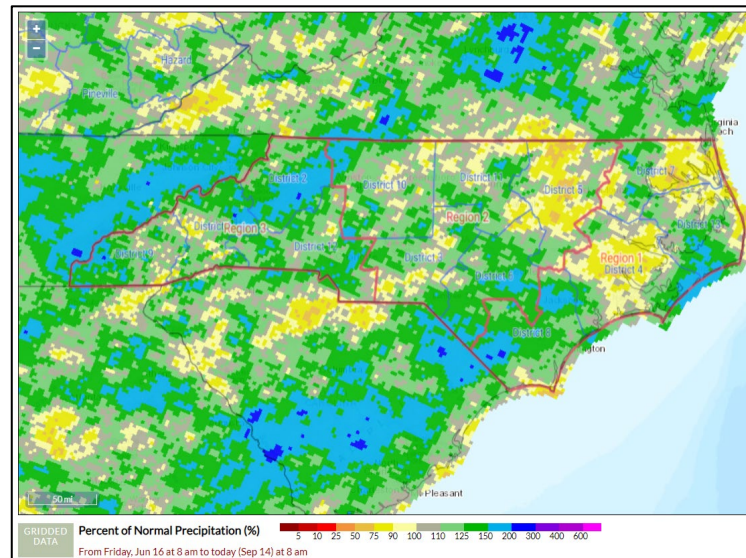
30-Day % of Normal



60-Day % of Normal



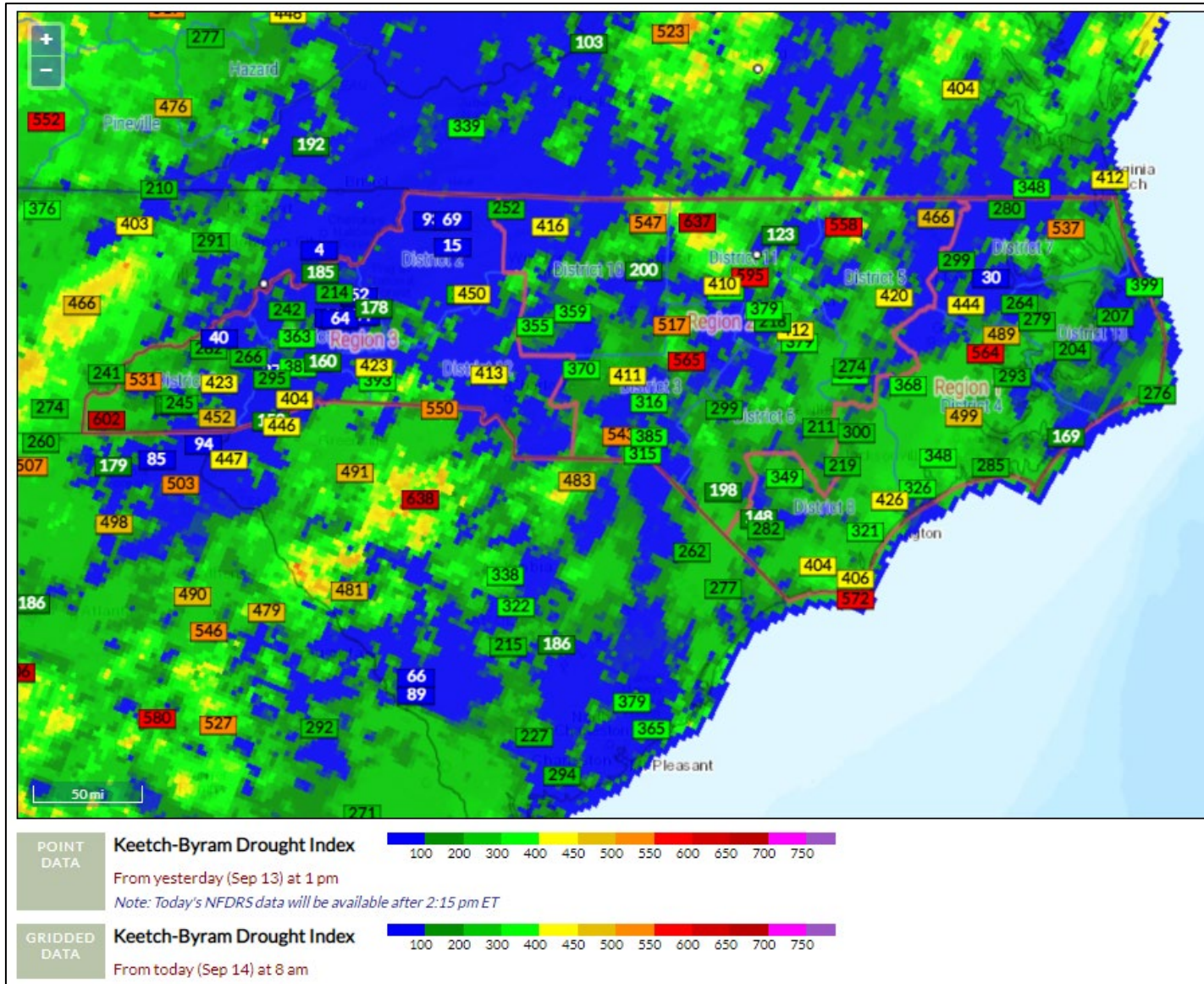
90-Day % of Normal



- Dry conditions seen at variable time scales – nature of past rain events.
- Most pronounced at the 1-Month scale.
- Still $\geq \sim 65\%$ of Normal category at the 3-Month scale in the drier areas.
- Typical of hit & miss tstorm & tropical driven precip events.

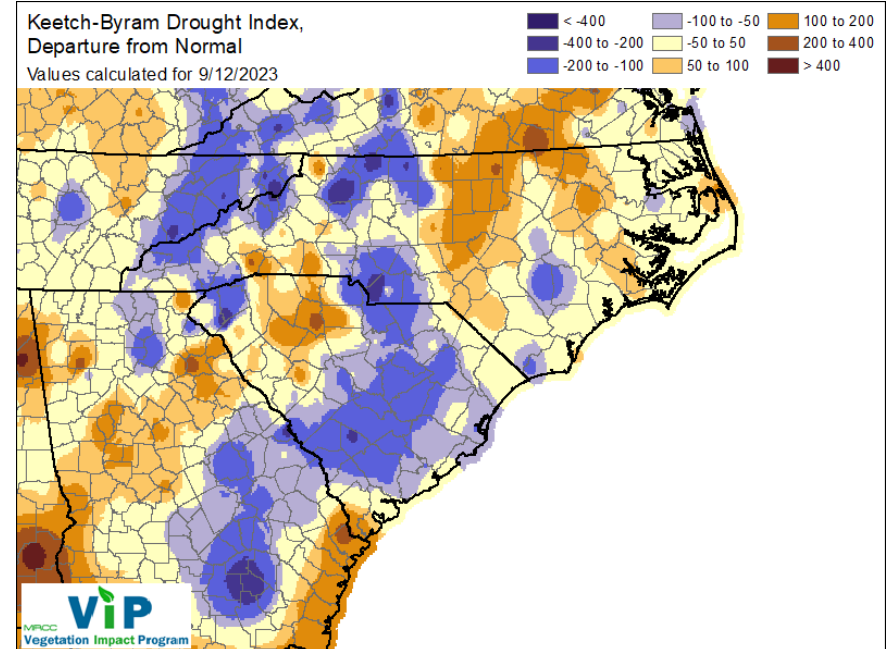
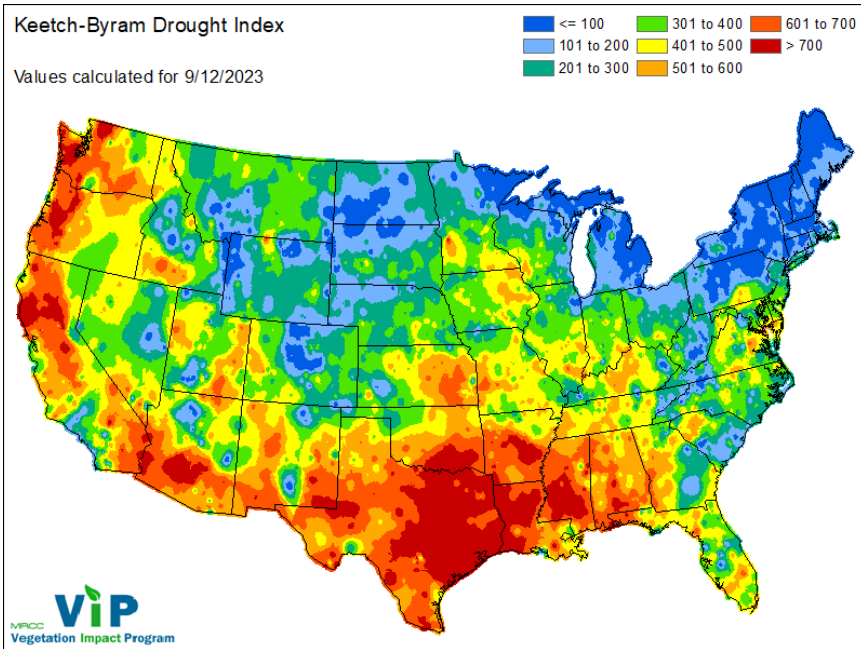
KBDI - Gridded & Station Points

FWIP (Point calculation from WIMS @ 1300 on 9/13/23, SCO created Grid ending 0800 9/14/23)



KBDI – Calculated Values & Estimated Departures from Normal

- *This product is created by the Midwestern Regional Climate Center. See [FAQ](#).*



North Carolina Drought Update

For the assessment period ending September 12, 2023

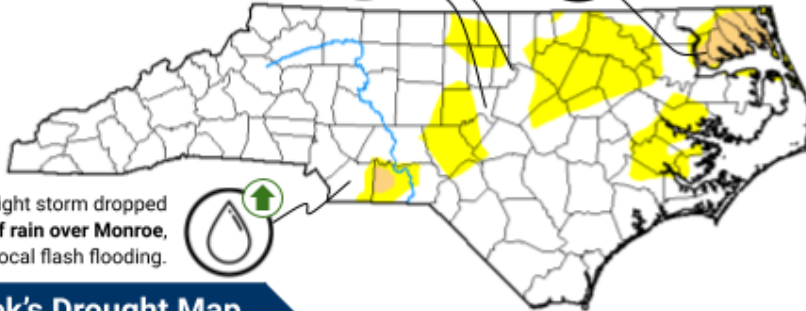
This Week's Drought Monitor of North Carolina Map

From the US Drought Monitor, authored by Brad Pugh (NOAA/NWS/NCEP/CPC) with input from the North Carolina Drought Management Advisory Council (ncdrought.org)

More than 2 inches of rain fell just downstream of Falls and Jordan Lake last weekend, but both remain slightly below their target levels.



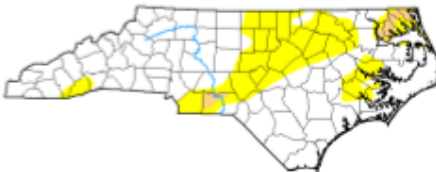
A lightning-caused wildfire burned 147 acres on a timber plantation in Chowan County and is 48% contained.



A Saturday night storm dropped 4.68 inches of rain over Monroe, which caused local flash flooding.



Last Week's Drought Map



Crop progress is generally on pace with the five-year average, including for tobacco, of which 72% was rated in good condition on this week's USDA/NASS report.

This infographic was created by



Statewide Condition Summary

What's Changed? Locally heavy rainfall improved some Abnormally Dry (D0) areas, including the Triangle, but Moderate Drought (D1) expanded in the northeast.

What's New? Last weekend's showers brought an inch of rain or more to many Piedmont and Mountain locations, with some areas seeing up to 5 inches. In the east, it was a drier week in the wake of Tropical Storm Idalia, which was good for farmers to get in the fields but not so great for the dry soils and groundwater wells in the northeast.

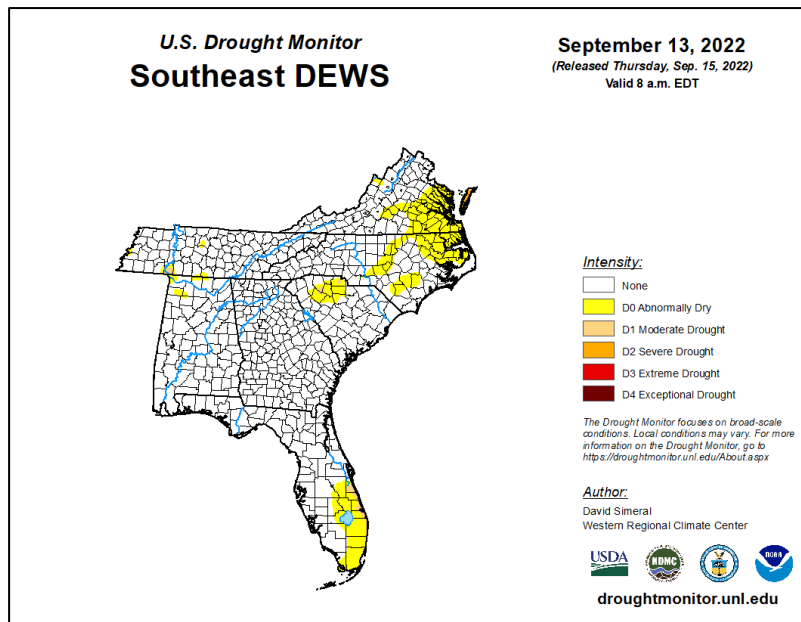
What's Next? High pressure to our north will bring cooler and less humid weather this weekend, but rainfall over the next week will be limited to light showers on Sunday.

Statewide Coverage By Category

Category	Coverage This Week	Change Since Last Week
D0: Abnormally Dry	18.39%	-9.04%
D1: Moderate Drought	2.31%	+0.34%
D2: Severe Drought	0.00%	0.00%
D3: Extreme Drought	0.00%	0.00%
D4: Exceptional Drought	0.00%	0.00%

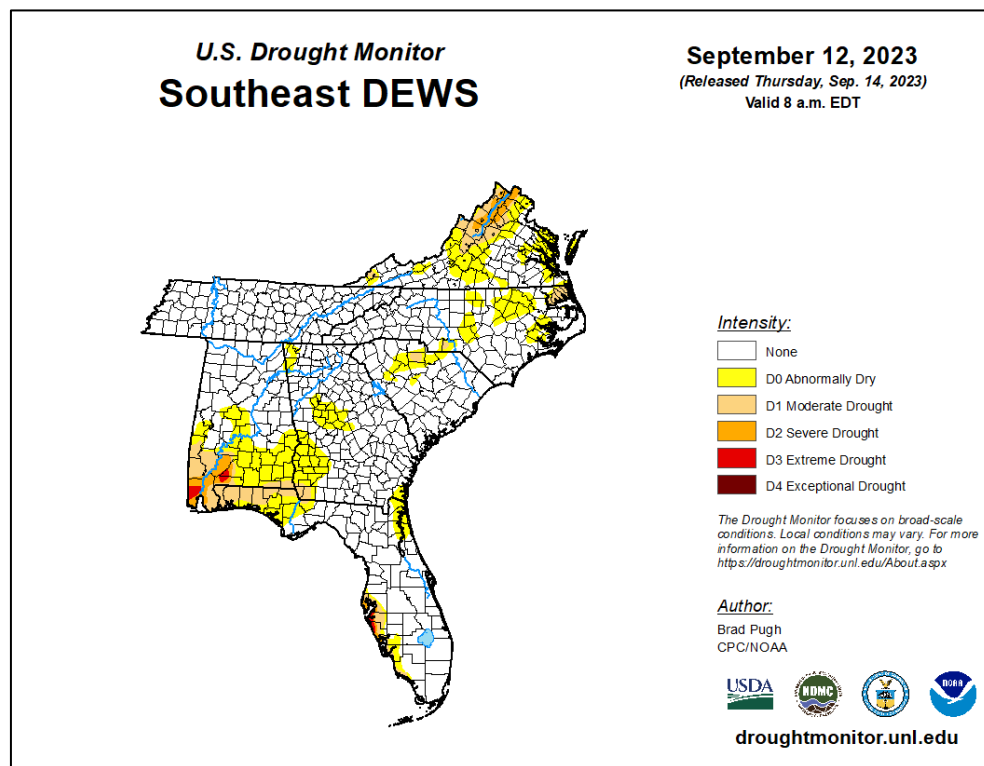
Drought Monitor (USDM)

One Year Ago:



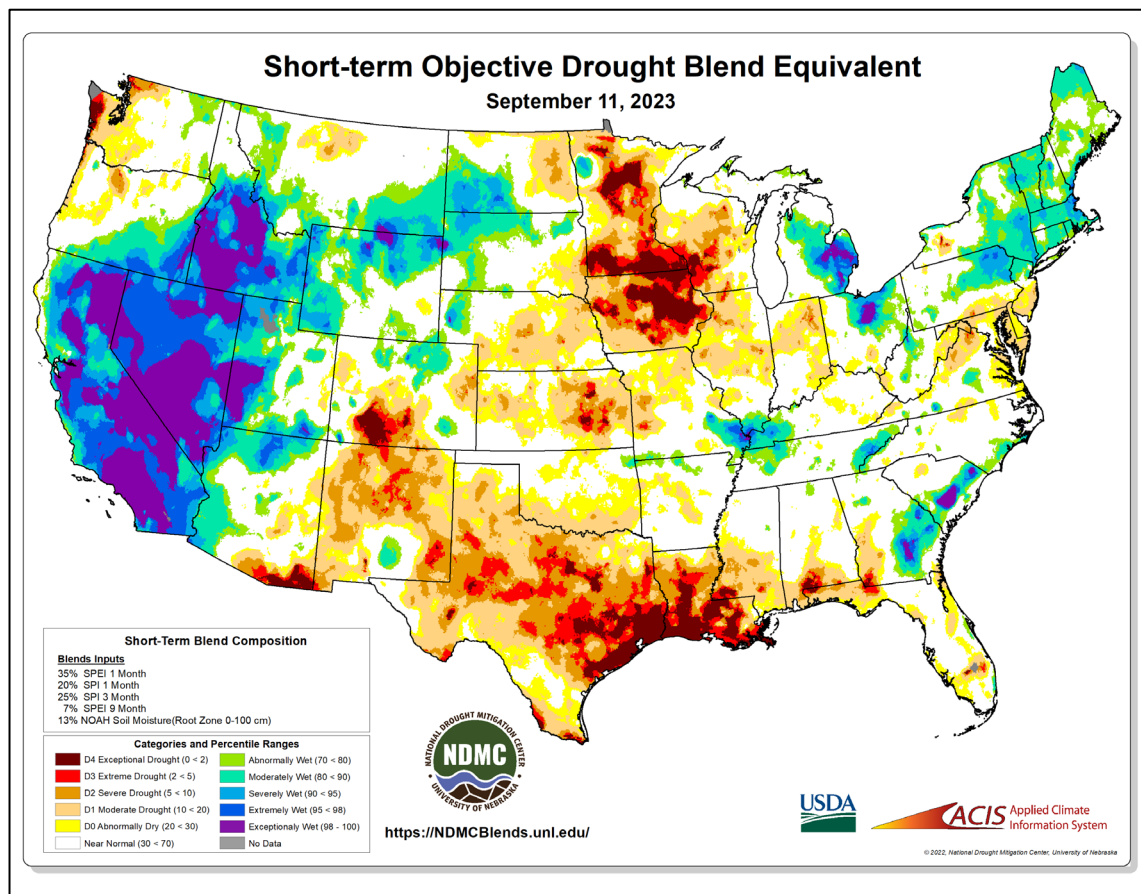
- “D0” Abnormally Dry Designation now for ~18% of State (9% decrease from last week)
- “D1” Moderate Drought Designation now ~2% of State (0.3% increase from last week)
- *The USDM map is released every Thursday morning, with data valid through Tuesday at 7am Eastern.*

Current Week:



Modeled Relative Soil Dryness

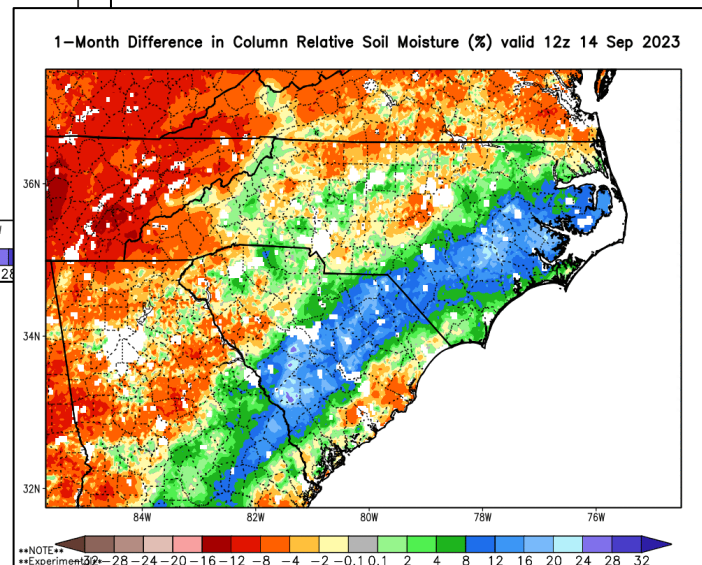
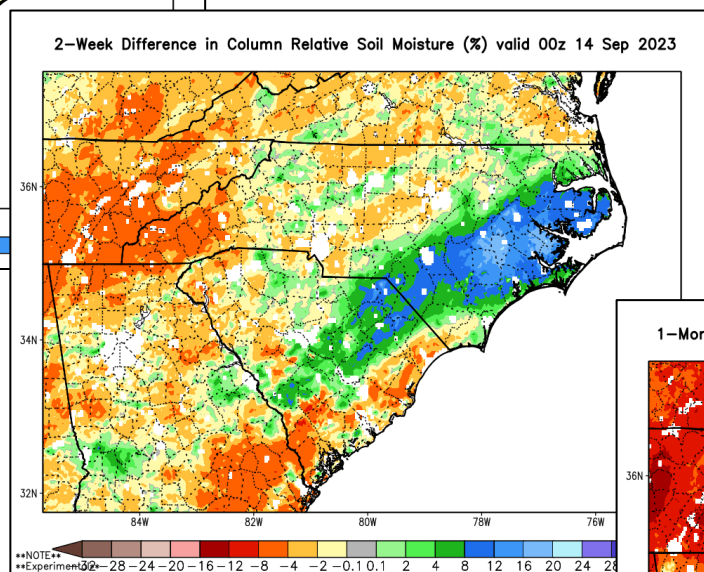
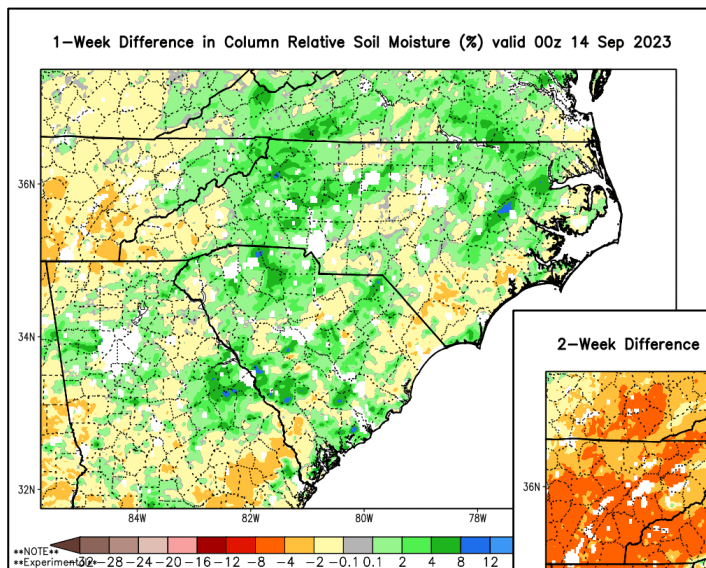
NDMC Short-term Drought Blend (9/11/23)



Modeled Relative Soil Dryness

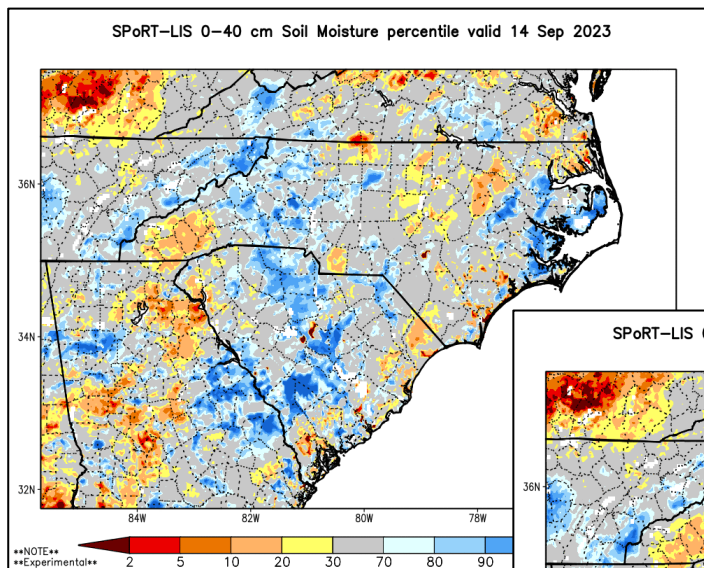
SPoRT Products: 9/14/23

- Relative Change over Time (note tropical rains)

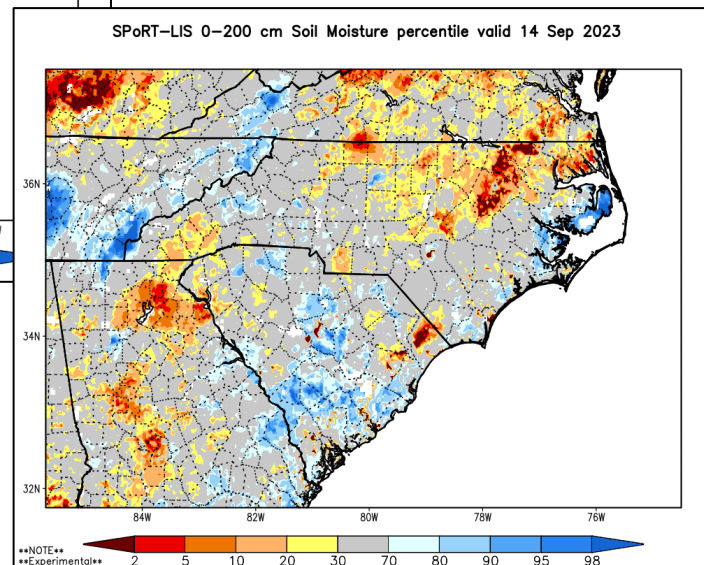
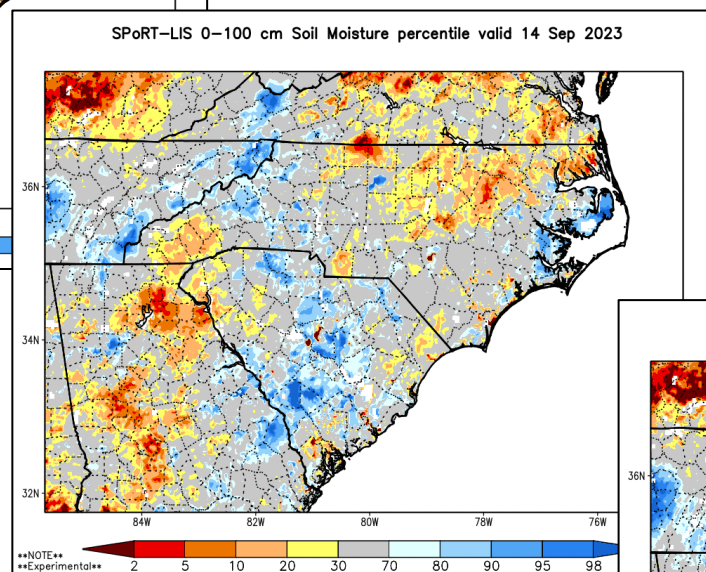


Modeled Relative Soil Dryness

SPoRT Products: 9/14/23



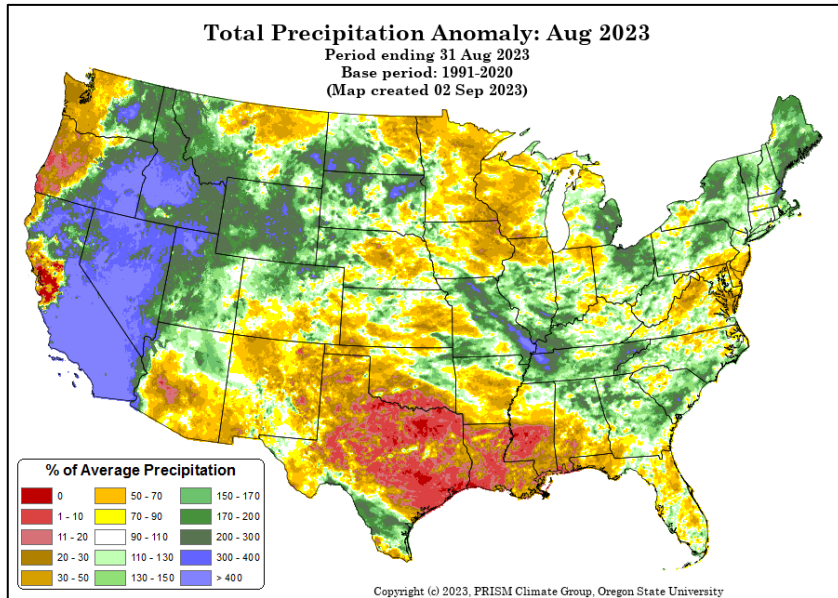
- Recent rainfall inputs seen on the 0-40 cm while longer term dryness visible on the 0-200 cm image.
- Note larger areas of dryness in D5 and D7 Areas.



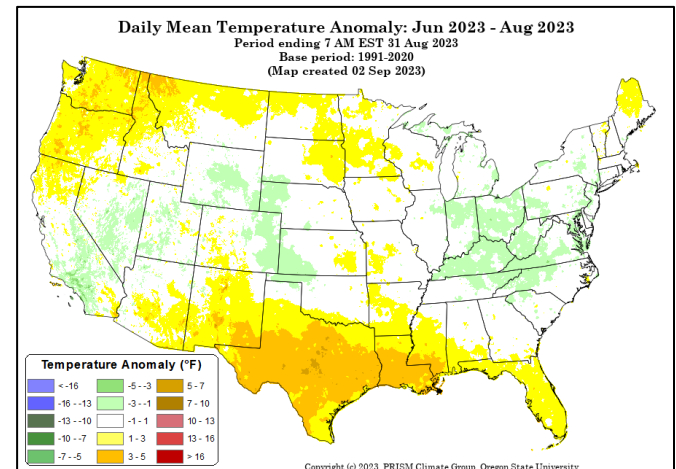
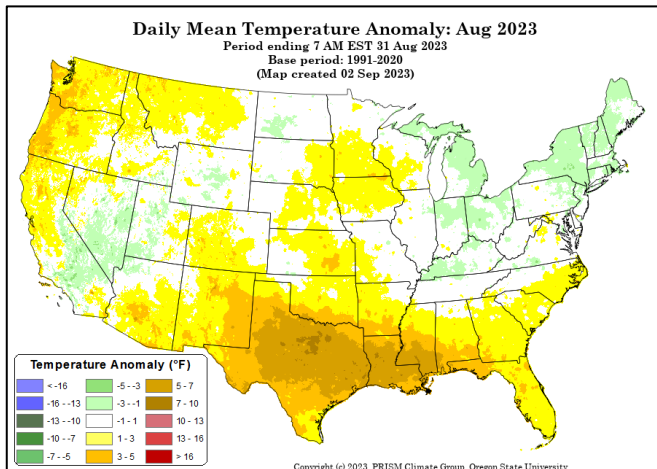
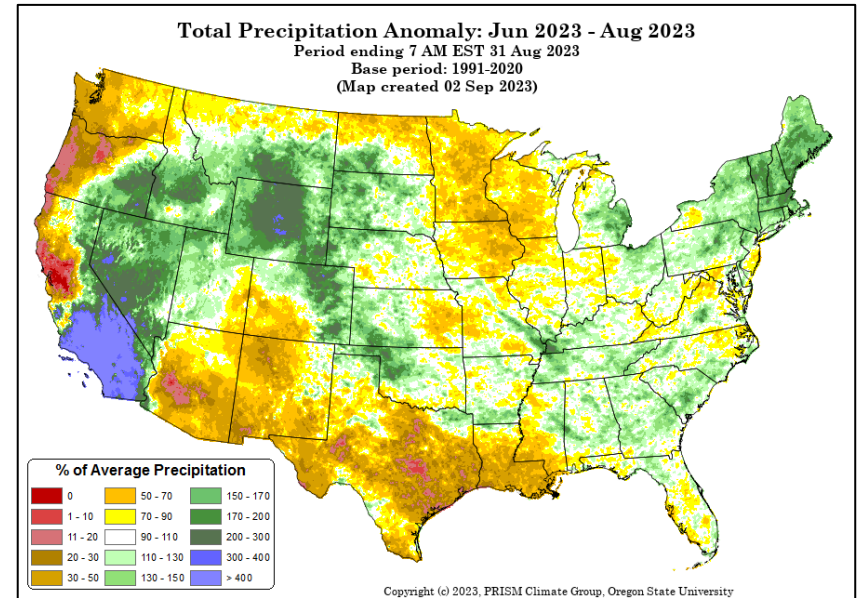
Precip and Temp Anomalies – US Context

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

1-Month Comparison (Aug 23')



3-Month Comparison (June-Aug 23')



ENSO Notes from the CPC (9/14/23 Update)

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

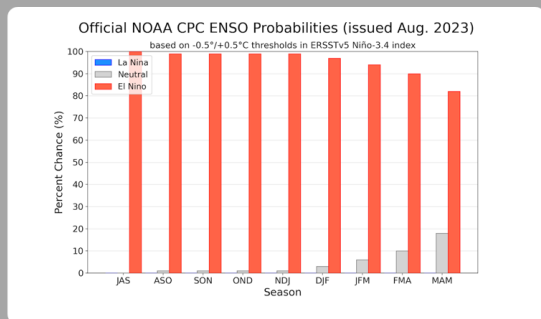
El Niño is anticipated to continue through the Northern Hemisphere winter (with greater than 95% chance through January - March 2024).

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

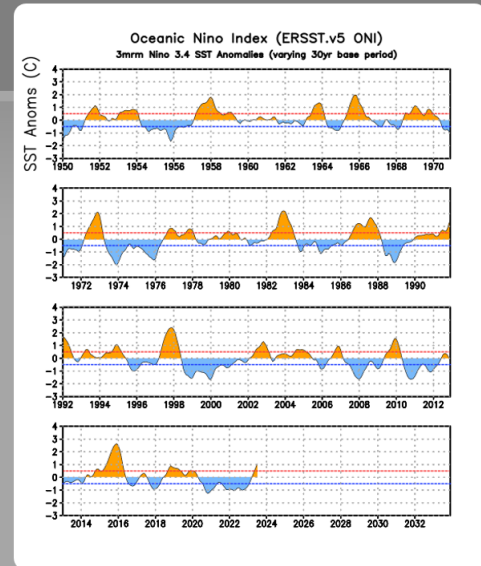
Updated: 10 August 2023

El Niño is favored through Northern Hemisphere winter 2023-24, with chances exceeding 95% through December-February 2023-24.



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

The most recent ONI value (June - August 2023) is 1.1°C .



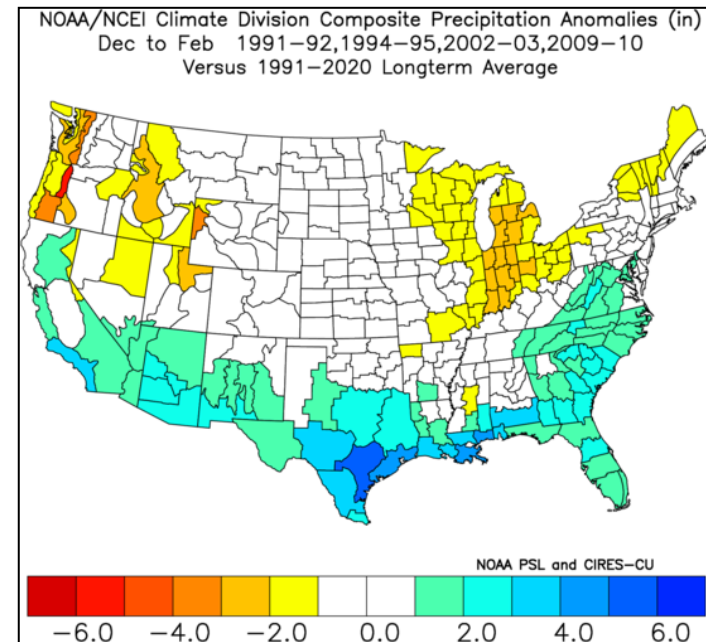
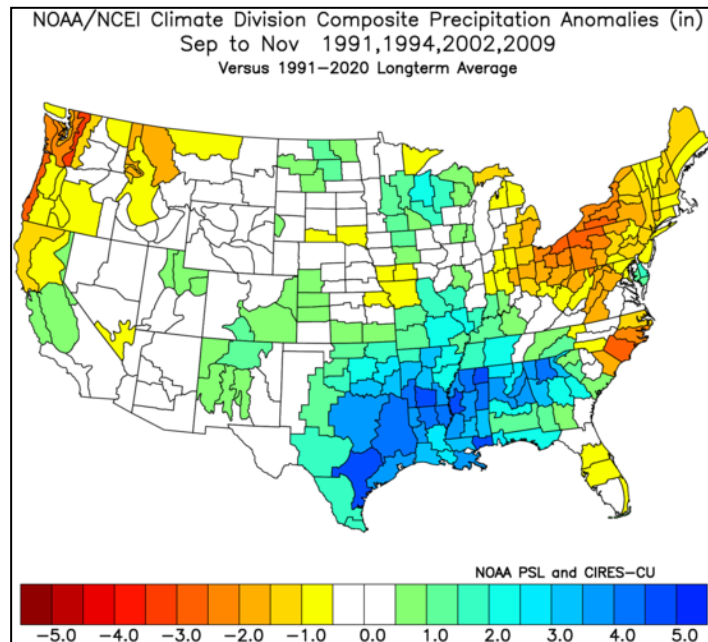
Diagnostic Discussion:

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

Misc. El Niño Discussion

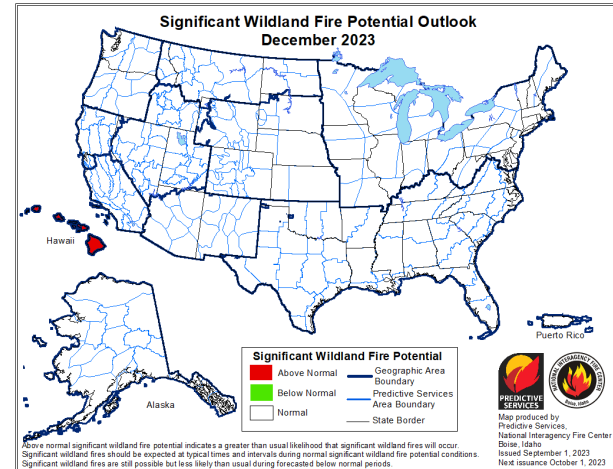
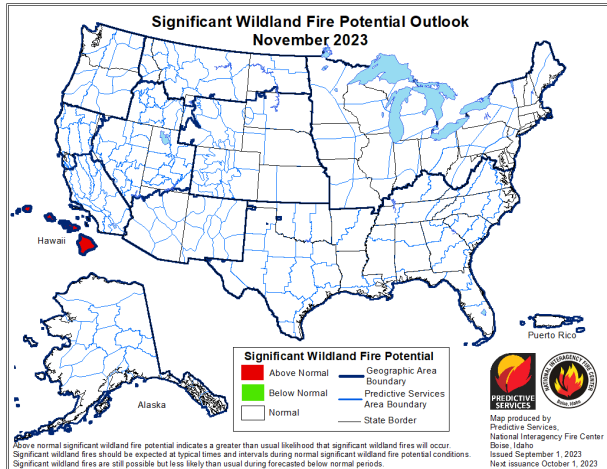
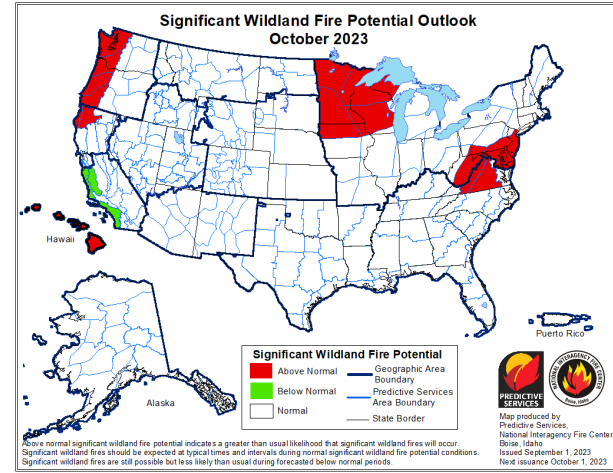
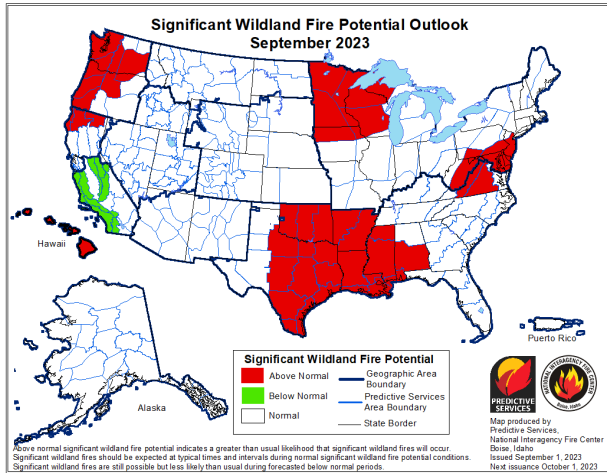
- Influence from an El Niño event generally becomes more pronounced into the winter and has fewer direct impacts in the summer of development.
- We often see warmer & drier conditions develop especially in the eastern half of the state from summer into fall before the typical transition to a “wet” winter.
- There are no close analogs at this point for NC & the strength of the developing event and exact timing of any potential pattern change is not clear or certain.
- NC SCO provided some insights/examples looking at [El Niño events](#) in the +1 to +2°C range within the past ~30 years: 1991-92, 1994-95, 2002-03, and 2009-10.

(The graphics show the fall and winter climate division-based precipitation anomalies look like for those four events.)



Significant Wildland Fire Potential Outlook:

Updated 9/1/23 – Next Update on 10/1/23

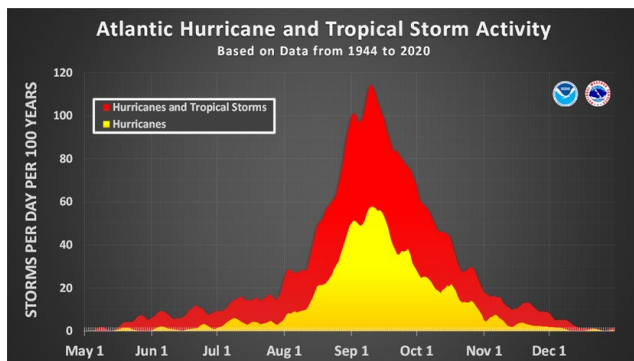
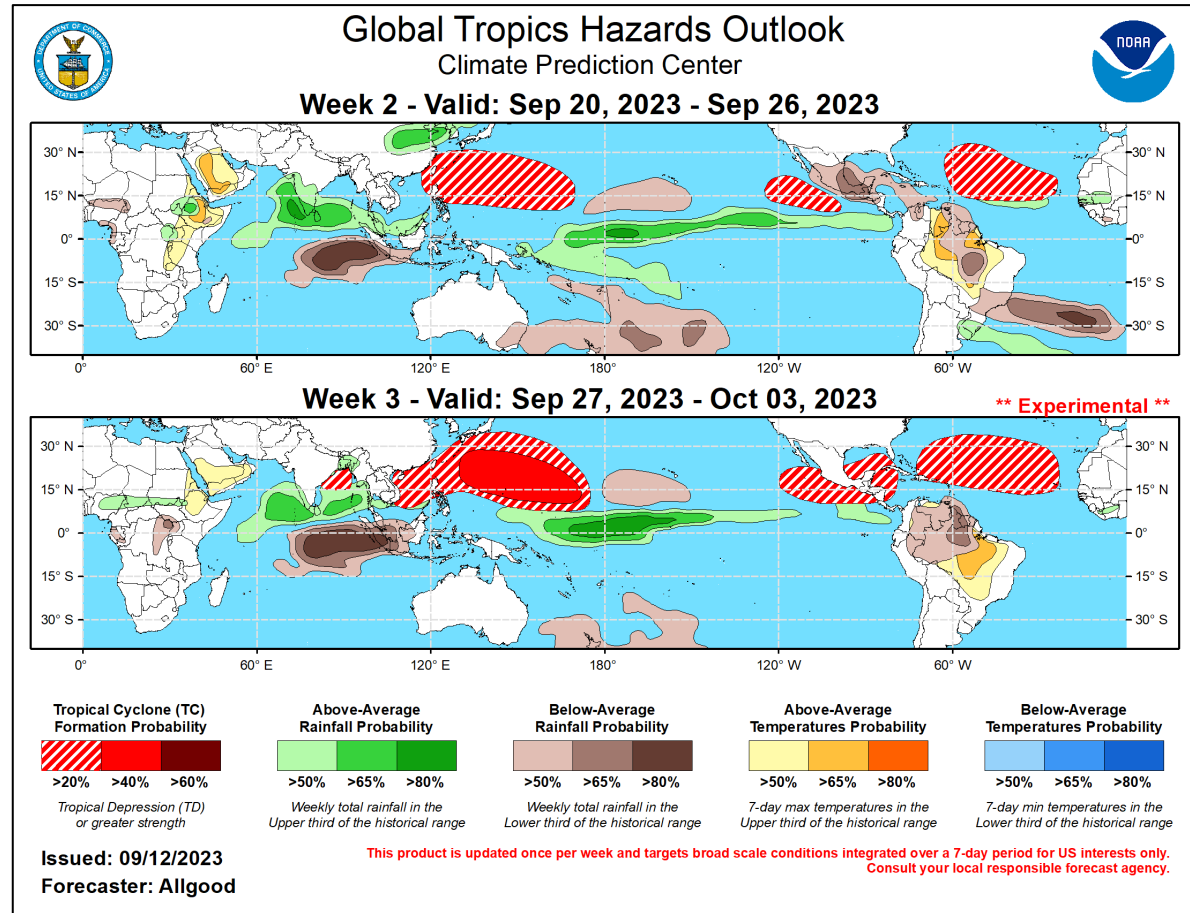


A significant fire is one that requires resources from outside the district (other than aviation). IA potential is based more on shorter term weather factors. Just a few days of dry weather can increase IA activity considerably as we have seen this year.

Tropical Hazards Outlook

General conditions look to stay favorable for tropical development going into October.

However, this doesn't tell us where to expect or how strong any impacts could be.



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

Useful Daily Self-Briefing & Situational Awareness Links

Useful Daily Links:

Daily WIMS Observations and NFDRS Estimates

Averaged by FDRA SIG Group

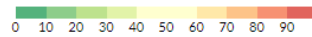
This is available on the FWIP at: <https://products.climate.ncsu.edu/fwip/nfdrs.php?data=ob&state=NC>

- 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

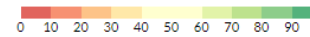
Daily Observations for 9/14/23

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	2023-09-14	24.13 32.9%	11.67 33.9%	1.53 38.7%	7.97 45.1%	440.33	16.15 63.0%	21.71 73.8%	20.84 69.9%	22.09 76.3%	195.87	163.67	74.3°F	68.3%	SSW 2.3 mph	0.00 in.	0.0
Central Mountains	3	2023-09-14	11.13 16.1%	7.17 19.9%	0.90 26.3%	2.90 16.0%	315.33	17.37 67.5%	24.60 87.4%	20.79 73.1%	21.70 83.1%	250.00	200.00	74.3°F	66.0%	ESE 1.7 mph	0.08 in.	1.0
Northern Highlands	2	2023-09-14	18.25 29.9%	8.50 31.6%	1.30 34.2%	5.90 38.6%	77.00	16.01 59.3%	21.44 68.3%	22.18 82.1%	22.71 91.2%	250.00	200.00	70.0°F	64.5%	E 3.0 mph	0.00 in.	0.0
Blue Ridge Escarpment	3	2023-09-14	39.47 55.8%	24.07 59.7%	3.97 46.1%	11.97 54.4%	217.67	13.33 55.0%	19.96 65.0%	21.88 75.6%	21.63 78.2%	175.07	149.00	75.3°F	62.0%	SSE 2.7 mph	0.00 in.	0.3
Western Piedmont	3	2023-09-14	47.33 56.6%	27.20 56.2%	4.77 49.6%	15.30 55.5%	402.00	12.58 63.5%	18.34 65.2%	19.18 62.7%	20.30 64.0%	147.17	130.00	81.0°F	53.0%	NE 4.3 mph	0.00 in.	0.0
Sandhills	3	2023-09-14	29.67 33.6%	25.17 25.1%	4.57 33.6%	7.03 71.8%	344.33	14.00 69.8%	20.73 77.7%	19.78 68.3%	21.21 77.5%	164.83	145.00	85.0°F	51.7%	ENE 6.3 mph	0.01 in.	0.7
Eastern Piedmont	4	2023-09-14	34.78 18.8%	15.73 20.1%	3.45 25.6%	13.13 17.8%	301.00	14.13 66.7%	19.50 72.9%	20.58 78.5%	20.43 62.9%	150.85	138.25	80.3°F	59.0%	NNE 7.0 mph	0.07 in.	0.8
Southern Coastal	7	2023-09-14	25.71 19.5%	12.40 17.2%	2.56 29.1%	9.63 26.3%	383.57	15.00 68.4%	22.20 80.1%	19.71 60.0%	20.83 64.1%	207.69	161.43	85.4°F	57.0%	NE 6.0 mph	0.36 in.	2.7
Northern Coastal	4	2023-09-14	27.05 19.3%	15.63 23.2%	3.38 29.2%	8.20 17.9%	274.50	13.16 58.4%	20.38 73.4%	20.81 75.2%	20.85 70.2%	193.25	161.00	84.3°F	50.8%	NNE 7.5 mph	0.04 in.	1.8

BI/ERC/IC/SC
Percentiles (%)
(based on all days through 2021)



Fuel Moisture
Percentiles (%)
(based on all days through 2021)



Useful Daily Links:

Daily WIMS Forecast Observations and NFDRS Estimates

Averaged by FDRA SIG Group

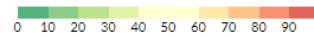
This is available on the FWIP at: <https://products.climate.ncsu.edu/fwip/nfdrs.php?data=fc>

- 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

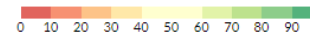
Daily Forecast for 9/15/23 (issued on 9/14/23)

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	2023-09-15	23.47 30.6%	10.60 31.3%	1.33 27.6%	8.27 45.1%	440.33	16.52 66.3%	22.24 73.8%	20.52 69.9%	22.10 76.3%	202.50	168.00	72.0°F	65.3%	SSE 3.7 mph	0.3	0.0
Central Mountains	3	2023-09-15	19.03 27.1%	10.17 26.5%	1.63 38.8%	5.60 41.3%	315.33	15.16 60.1%	22.73 79.2%	20.91 73.1%	21.76 83.1%	250.00	200.00	74.0°F	53.3%	SSE 4.0 mph	0.0	0.0
Northern Highlands	2	2023-09-15	18.45 29.9%	9.55 34.0%	1.65 47.0%	5.40 31.2%	77.00	14.82 53.8%	21.48 68.3%	21.52 82.1%	22.87 91.2%	250.00	200.00	67.0°F	57.0%	SSE 3.0 mph	0.0	0.0
Blue Ridge Escarpment	3	2023-09-15	35.17 51.0%	20.53 52.7%	2.80 38.3%	10.93 52.0%	217.67	13.81 61.1%	19.24 59.8%	20.50 58.2%	21.36 66.0%	179.07	152.00	71.7°F	53.0%	SE 1.7 mph	0.0	0.0
Western Piedmont	3	2023-09-15	49.00 57.8%	27.73 57.9%	5.70 57.2%	16.57 57.8%	402.00	11.81 46.1%	18.27 65.2%	18.57 55.6%	20.32 77.5%	161.17	138.67	76.3°F	42.3%	SE 5.3 mph	0.0	0.0
Sandhills	3	2023-09-15	40.23 60.2%	34.43 38.9%	10.37 60.2%	8.43 80.2%	344.33	11.03 46.1%	17.95 61.7%	18.89 55.6%	21.20 77.5%	177.90	152.00	79.0°F	38.0%	SE 7.0 mph	0.0	0.0
Eastern Piedmont	4	2023-09-15	49.13 24.8%	24.85 29.0%	7.50 53.7%	17.80 23.5%	301.00	11.02 39.1%	16.30 44.2%	19.25 55.5%	20.59 78.3%	158.90	140.25	76.5°F	36.0%	N 8.0 mph	0.0	0.0
Southern Coastal	7	2023-09-15	46.03 38.5%	22.60 34.2%	6.91 59.9%	17.46 39.9%	383.57	11.28 35.5%	18.50 65.2%	19.86 60.0%	20.84 64.1%	210.79	165.14	78.4°F	40.1%	N 8.4 mph	0.0	0.0
Northern Coastal	4	2023-09-15	40.00 28.7%	18.83 26.8%	6.03 48.0%	14.83 30.2%	274.50	11.70 48.6%	18.37 63.0%	20.39 64.9%	20.94 70.2%	196.65	162.75	77.3°F	44.5%	N 11.0 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)



Useful Daily Links:

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

Weekly Outlook						
Eastern 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	FRI 15-Sep	SAT 16-Sep	SUN 17-Sep	MON 18-Sep	TUE 19-Sep	WED 20-Sep
Avg. Max. Temp. (°F)	82	82	83	81		
Avg. Min. Humidity (%)	40	54	49	48	52	
Avg. 20' Wind Speed (mph)	8	6	6	9		
Avg. Wind Direction*	SW	SSW	NE	ENE		
Avg. Probability of Precip. (%)	8	25	8	6	12	
Days Since a Wetting Rain**						
Forecast ERC (Fuel Model X)	24.0	19.6	17.9	14.6	16.2	15.3
Forecast BI (Fuel Model X)	50.0	38.3	38.4	28.1	33.2	37.9
Forecast I C (Fuel Model X)	7.9	5.5	5.3	2.8	4.1	4.1
Forecast 100-Hr. FMC	19.5	18.6	18.1	18.3	18.5	18.6
Forecast 1000-Hr. FMC	20.7	20.8	20.8	20.8	20.8	20.7
KBDI						

Source:

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

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

- Oxford Tobacco Research Stn (310941)
- Upper Coastal Plain Res Stn (312940)
- Lake Wheeler Rd Field Lab (314941)
- Central Crops Research Station (317441)

KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critical WATCH OUT!
g. Max. Temp.	Less than 50°F	Between 50°F and 60°F	Greater than 60°F
g. Min. Humidity	Greater than 40%	Between 35% and 40%	Less than 35%
g. 20' Wind Speed	Less than 10 mph	Between 10 mph and 15 mph	Greater than 15 mph
g. Wind Direction*	Criticality of wind direction is highly dependent on burn operations and/or structures threatened.		
Days Since a Wetting Rain**	A wetting rain is defined as 0.10" or greater. This is an average of the FDRA stations noted above.		
Energy Release Comp.	Less than 54.2	Between 54.2 and 61.7	Greater than 61.7
Fire Index	Less than 109.3	Between 109.3 and 130.5	Greater than 130.5
Ignition Component	Less than 12.7	Between 12.7 and 16.8	Greater than 16.8
10-Hour Fuel Moisture	Greater than 17.6%	Between 16.4% and 17.6%	Less than 16.4%
100-Hour Fuel Moisture	Greater than 18.3%	Between 17.5% and 18.3%	Less than 17.5%
KBDI	Less than 337	Between 337 and 460	Greater than 460

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

East Piedmont: 9/14/23 Run

Tool Summary:

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

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

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

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

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

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

Other Notes:

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



Useful Daily Links:

Southern Area Daily Outlook Page:


<https://gacc.nifc.gov/sacc/resources/predictive/sacc-daily-outlook.pdf>

SACC Daily Outlook

Thursday, September 14, 2023

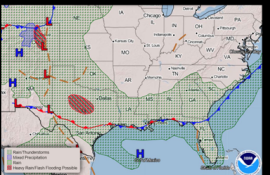


Watches and Warnings as of 0800 EDT



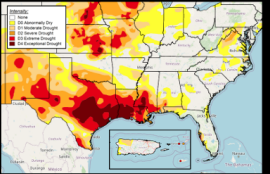
- Red Flag Warnings: none
- Fire Weather Watches: none
- Coastal Flood Warnings and Advisories for portions of NC
- Excessive Heat Warnings for PR; Heat Advisories for portions of south TX, PR, USVI

Today's Weather Outlook



- Showers and embedded thunderstorms are ongoing this morning across the Plains and Lower Mississippi Valley
- This activity will become more concentrated near and north of a frontal boundary over TX later in the day, resulting in a risk for flash flooding in parts of the state
- Showers and storms will be more isolated with eastward extent along the Gulf Coast, but scattered to numerous thunderstorms are in store for parts of south GA through the FL peninsula
- Post-frontal drying will overspread north-central and northeastern parts of the region
- Look for increasing winds in eastern VA and NC, with tropical-storm force gusts possible across the Outer Banks by this evening into overnight



Drought Monitor Update



- Drought worsened in much of east, central and north TX into portions of OK, though improvement was noted in northwest OK and the TX panhandle - this does not get across for rainfall since Tuesday, and some significant improvement can be expected next week once this week's precipitation is accounted for
- Drought expansion and degradation was noted in parts of AR, northern LA, MS, AL and FL, while abnormal dryness also expanded into GA; south-central LA saw a small area of improving conditions
- Another round of improvement occurred in central NC and SC into southern VA, while increasing dryness is noted in central and northern VA, though the footprint of moderate to severe drought is generally unchanged
- Northeast FL saw abnormal dryness develop, while some modest improvement occurred across the western FL peninsula
- PR/USVI saw no change this week

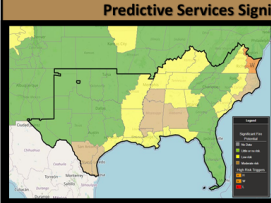
SACC Daily Outlook

Thursday, September 14, 2023



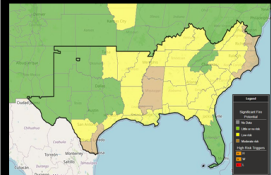
National 7-Day Significant Fire Potential (mwca.gov)

Predictive Services Significant Fire Potential Today



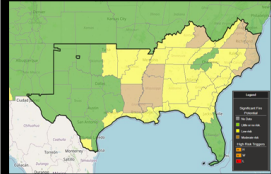
- **HIGH RISK:** drier post-frontal air and increasing winds will impact an ongoing active fire in James City County, VA; look for RH as low as 30-40% this afternoon, with N/E winds from 10-15 mph, gusting as high as 20-30 mph; RH will improve through the overnight hours; RH recovery tonight will be poor as winds start up and a very dry air mass aloft moves across the region
- The rest of central and eastern VA into eastern NC and SC will see enhanced winds, which will gust as high as 35-50 mph late in the day into tonight for the Outer Banks, lower elsewhere
- South TX will see another very hot and dry day, with RH as low as 15-35% (lowest near the Rio Grande, highest at the coast); sea breezes will bring a wind shift and gusts as high as 25-30 mph later in the day
- Clouds may limit risks somewhat across MS, LA and AL, but fuels remain dry in these areas otherwise; lightning ignitions and emerging holdovers are possible for the Gulf Coast, while post-frontal dry air will impact AR, far northern MS, TN and KY

Predictive Services Significant Fire Potential Friday



- Coastal VA and NC will see a critical fire weather pattern associated with enhanced winds and subsidence between Great Lakes high pressure and Hurricane Lee passing by well offshore; both of these PSAs may be upgraded to a **HIGH RISK** depending on actively today and trends in fuel dryness; RH will be as low as 25-35%, with N winds gusting as high as 25-45 mph (highest for the Outer Banks and Delmarva Peninsula in the morning and midday hours)
- Look for post-frontal drying throughout much of the rest of the Mid-Miss., Tenn. and Ohio Valleys into parts of the Southeast, which will result in increasingly dry fuels; RH may be as low as 15-25% in parts of VA and NC
- Conditions should begin to moderate somewhat in south TX, though inland areas will remain very hot, while sea breezes and spotty thunderstorms will enhance winds later in the day



Predictive Services Significant Fire Potential Saturday



- Winds will gradually ease across VA and NC Saturday, but they will turn from the northwest and west as Lee moves towards New England; this will result in warmer and much drier conditions for coastal areas, with RH expected to be as low as 20% across VA, higher farther south; winds for the VA coast will gust as high as 20-35 mph, highest across the Delmarva Peninsula
- RH as low as 25-35% will affect areas from KY into the Mississippi Valley, while N winds generally remain at or below 10 mph
- Some PSAs from TX along the Gulf Coast into north FL, GA and AL may be removed from risks depending on rainfall and RH trends the next couple of days

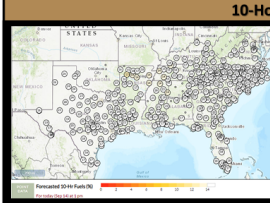
SACC Daily Outlook

Thursday, September 14, 2023



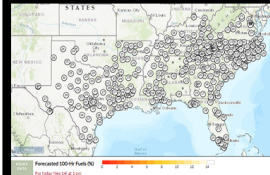
Fire Weather Intelligence Portal (ncsu.edu)

10-Hour Fuels



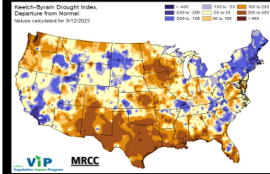
- 10-hour dead fuel moisture will trend drier in the Mississippi Valley, except near the Gulf Coast the next few days - those areas will also see drying this weekend and early next week as enhanced post-frontal drying moves in
- Look for a sharp drying trend in the rest of the northern and eastern geographic area, although the southern portions of the Southeast and FL will see wet weather off and on into next week
- Above normal 10-hour dead fuel moisture over most of TX and OK will continue, though a day or two of drying is possible early next week before the next storm system moves into the Plains

100-Hour Fuels



- 100-hour dead fuel moisture will see a gradual drying trend across the northern and northeastern geographic area heading into next week, while the Miss. Valley will dry out from north to south the next few days, with enhanced drying as hot and dry weather resumes
- Look for continued improvement in most of TX and OK, although small areas in eastern OK and east/south/west TX may not see much change

Keetch-Byram Drought Index (KBDI) Anomalies



- KBDI anomalies continue to show widespread anomalously high values in the southern and western geographic area, with areas of significant dryness in NC and VA, as well
- Continued improvement is likely for much of TX and adjacent portions of central and western OK, but any improvement for south and southeast TX into LA, AR, MS and AL will be very localized and modest
- KBDIs should increase further over the Miss. Valley into AL and the Appalachian states

Product is generally updated weekdays (three snips from 9/14 Outlook shown)

NC DAQ Air Quality Forecast - *Next Three Days*


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

View: The latest forecast discussion The forecast discussion from

This forecast was issued on **Wednesday, September 13, 2023 at 2:44 pm.** ✔ This forecast is currently valid.

Today's Air Quality Conditions

Air quality levels are predominantly in the Code Green range statewide this afternoon.

 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

Tomorrow through Saturday, high pressure building in behind the departing upper level system will propel a fall cold front through the region. This should deliver a true taste of fall, with dew points lowering possibly into the 40s, although the real taste of fall with the lowest dewpoints looks to be delayed until Friday now. This clean air mass should hold air quality levels down, and will project Code Green conditions for now and continue to monitor air quality trends.





Outlook

A seasonably cool, clean and dry air mass should hold air quality levels primarily in the Code Green range through the period as fall-like conditions take hold through the period.

Author: *McLamb* - NC Division of Air Quality

Extended Air Quality Outlook

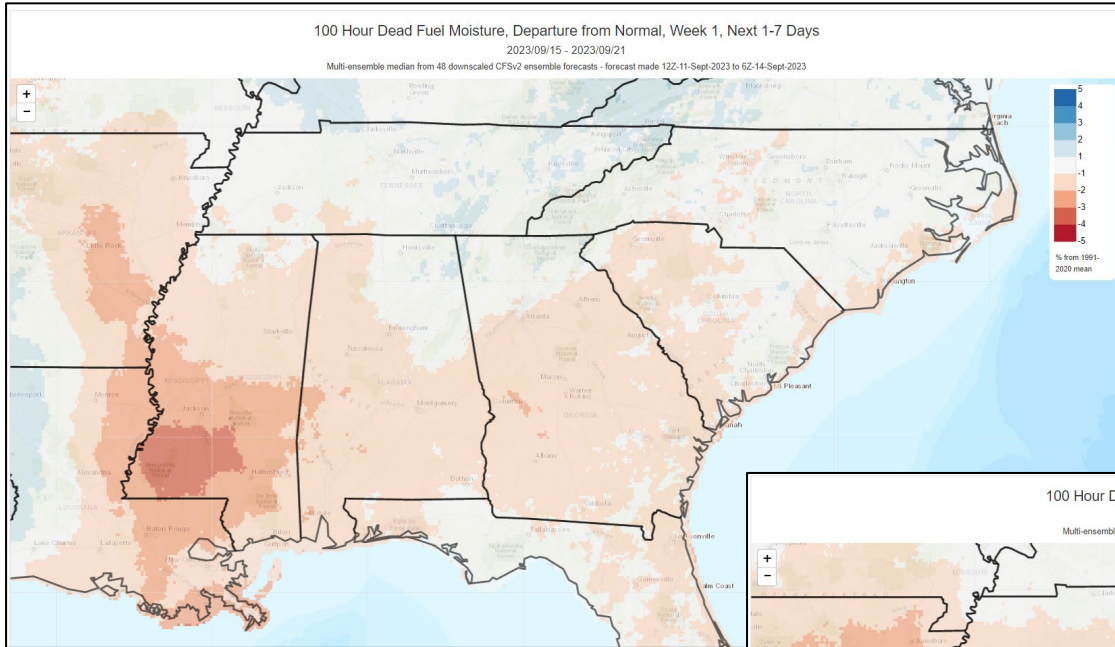
The forecast Air Quality Index value for each pollutant represents the highest value expected within each county, so some areas and monitors may see lower values. We use the best information and techniques available to ensure the quality and accuracy of the forecasts we provide to the public. Note that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

Modeled Departure from Normal by Week: 100-hr Fuels

Output relies on experimental forecast outputs and is subject to change

Week-1

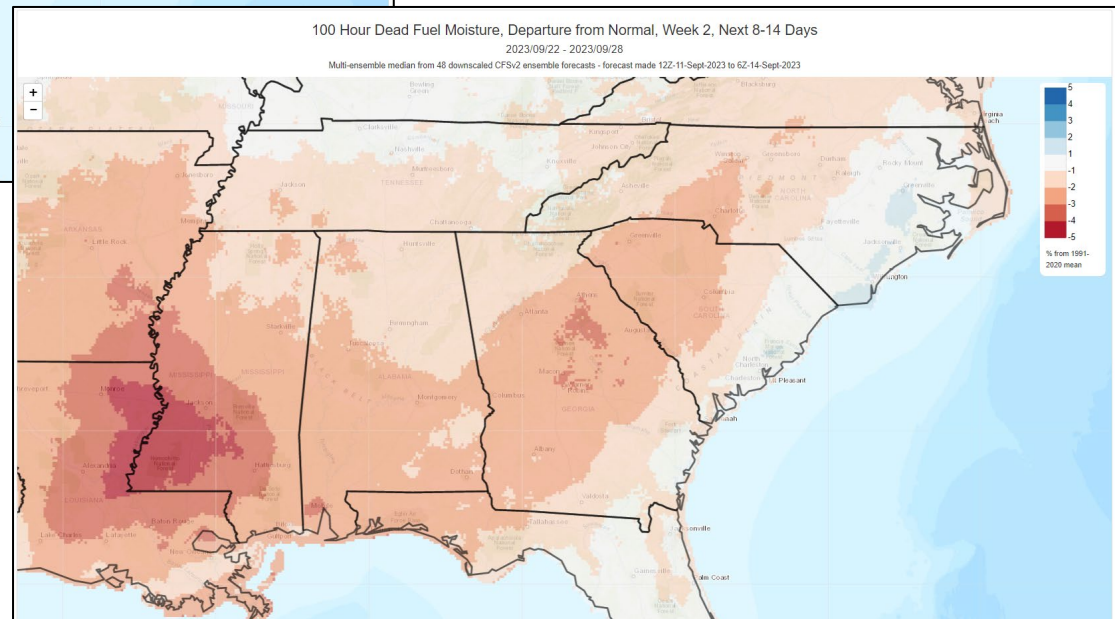


This output can provide insight into general drying trends.

Note modeled departure from normal (increase in fuel dryness) in Week-2.

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

Week-2



Statewide Summary Notes

Fire Activity Discussion:

- August saw an increase in overall activity, about double the 10-yr avg in acres and incidents for the month. IA Activity has increased during periods of lower RH's, higher temps/winds aligning with decline in moisture of live fuels, especially in already noted dry areas.
- September "209" Fires:
 - Bear Swamp Fire in D7/Chowan – Discovery Date 9/7/23; Cause Lightning; 147 acres and 85% contained in pine plantation; Mop-Up Continues.
- Four Month Outlook (see Significant WF Potential Outlook Slide):
 - Normal Activity favored statewide for September, October, November, December.
 - However, there is significant forecast uncertainty more than 7-10 days out – especially with any tropical development.
- Texas and Oklahoma has seen a slight improvement in conditions over the past few days.
 - Warming/Drying trend is expected to return to the Southeast US (see CPC Outlooks).

Climate Discussion:

- The Climate Prediction Center forecasts a building El Niño this fall/winter.
 - Influence from an El Niño event generally becomes more pronounced into the winter and has fewer direct impacts in the summer of development.
 - We often see warmer & drier conditions develop, especially in the eastern half of the state from summer into fall before the typical transition to a "wet" winter.
 - There are still no close analogs at this point for NC & the strength of the developing event and exact timing of any potential pattern change is not clear or certain.
- For the September-October-November Period from the CPC 3-Month Outlook:
 - Above normal temperatures continue to be favored.
 - Slightly above normal precipitation continues to be weakly favored.
- Still much uncertainty this far out in time.

Fuels/Indices Discussion:

- Relative greenness & scattered soaking rain events continue to hold most of state in normal seasonal pattern of fire activity and fuel conditions.
- Dry conditions do exist, larger areas being in the D4/D5/D7 area (see previous slides)
 - Duff/Organic consumption of 4-6 inches noted in many spots on the Bear Swamp Fire.
- Our heaviest rain events this time of year are generally tropical in nature, especially for the coastal districts. We are about halfway through the normal “hurricane season” – any tropical rain events could have significant impacts to our fuel conditions.
- We have been experiencing seasonal higher daily minimum rh’s & good night-time recovery.
 - Drier air typical of Fall is around the corner, but with shorter day lengths (about 2 minutes less per day through November).
- Dead Fuels Moistures and Indices (**FM-X**) have continued to trend slightly “hotter” than or near seasonal averages (see [FWIP](#)).

Drought/Weather Discussion:

- KBDI values have trended above the 90th percentile for some FDRAs, before the most recent rain events ([FWIP Percentile Map](#)).
 - *Remember that these values are based upon point data averaging for “SIG” RAWs Stations in a particular FDRA & rainfall is variable over the landscape.*
- Lightning ignition risk continues, especially on areas of drying organic soils or deep organic duff.
- Reburn is a concern following needle cast/leaf-drop in areas of smoldering fuels on both wildfires and prescribed burns.
- Subsidence impacts (abnormally gusty winds, low RH, etc.) from passing tropical systems should also be considered this time of year.
- ~18% of State in “D0” Abnormally Dry and ~2% of State in “D1” Moderate Drought Conditions as of last USDM update.
- The [US Monthly Drought Outlook](#) released on August 31st for August continues to favor larger-scale drought free conditions for NC.
- If drought conditions were to significantly expand/intensify in combination with seasonal leaf-drop and dormancy of live vegetation, overall initial attack activity and mop-up demands would be expected to increase for those areas.

Bear Swamp Fire Images (D7/Chowan): Holding & Mop-Up (Pine Plantations/Southern Rough Fuels with Mineral and Organic Soils)

