# Weekly Fire Danger Assessment NCFS - Region III

For Time Period:

Saturday (3/4/23) to Friday (3/10/23)

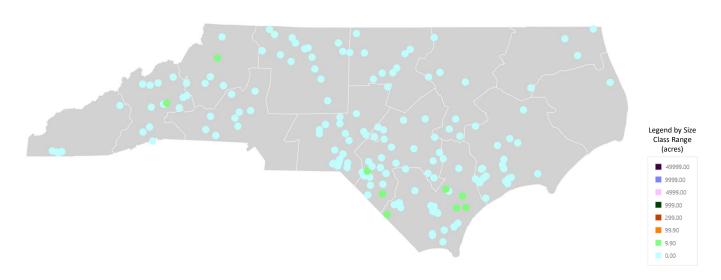
### Past Week's Signal 14 Activity

	NCFS - Region 3					
Previous 7-Day Fire Activity (Does Not Include Federal Ownerships)						
Signal 14 Regio	Signal 14 Regional Activity Summary Report (Signal 14 is a snapshot in time)					
	2/24 - 3/2, 2023					
Туре	Number	Acres				
Wildfires:		27	28.4			
scribed Fires:	:	11	420			
	Signal 14 Regio	Previous 7-Day Fire Activity (Does Not Include Federal Signal 14 Regional Activity Summary Report 2/24 - 3/2, 2023  Type Number  Wildfires:	Previous 7-Day Fire Activity (Does Not Include Federal Ownerships)  Signal 14 Regional Activity Summary Report (Signal 14 is a snapshot in time)  2/24 - 3/2, 2023  Type  Number  Acres  Wildfires:  27			

fiResponse Incident Location Map (for general context)

Date Range: 2/24 – 3/2, 2023

Report: Business Intelligence Module, Response Trends Map



### Weather Outlook Discussion

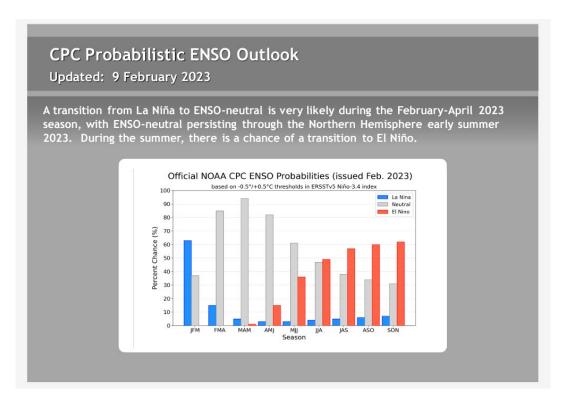
### GSP - NWS Office, Forecast Discussion Notes from 3/3/2023 AM

A strong cold front will cross the region from the west late this afternoon through this evening, bringing the potential for severe thunderstorms to the area. Dry high pressure will arrive over the weekend and linger into the first part of next week. Another cold front will arrive Tuesday, and stall south of the area for the middle of the week.

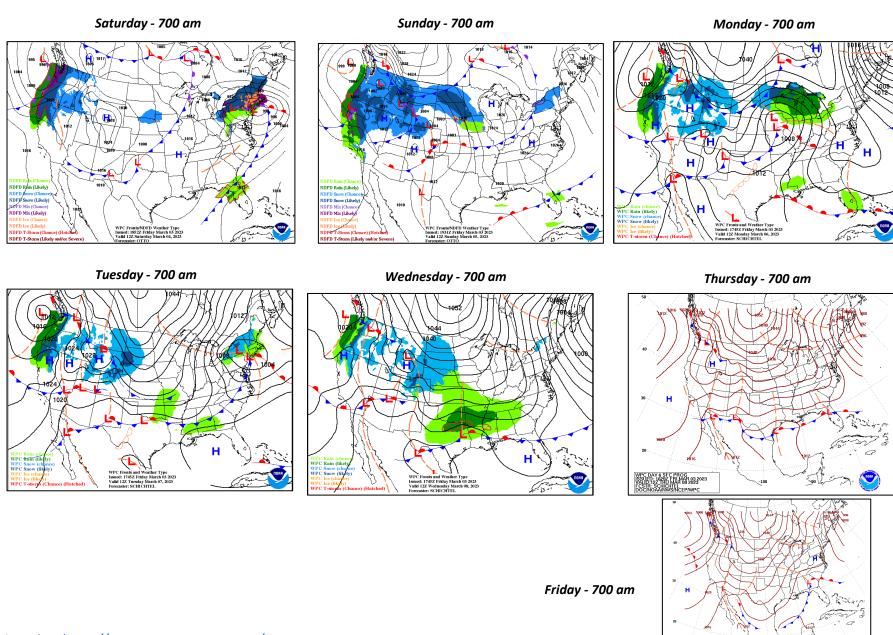
Later in the week, a vigorous upper trough ejects out of the Rockies, and induces cyclogenesis along the stalled front somewhere across the Southern Plains or Southeast. The models disagree on the details, but all have unsettled weather across the forecast area Thursday thru Friday.

### **ENSO Note**

- Weak La Nina conditions still present.
- Still favors transition to ENSO-Neutral and potentially El Nino into the late Summer of 2023.

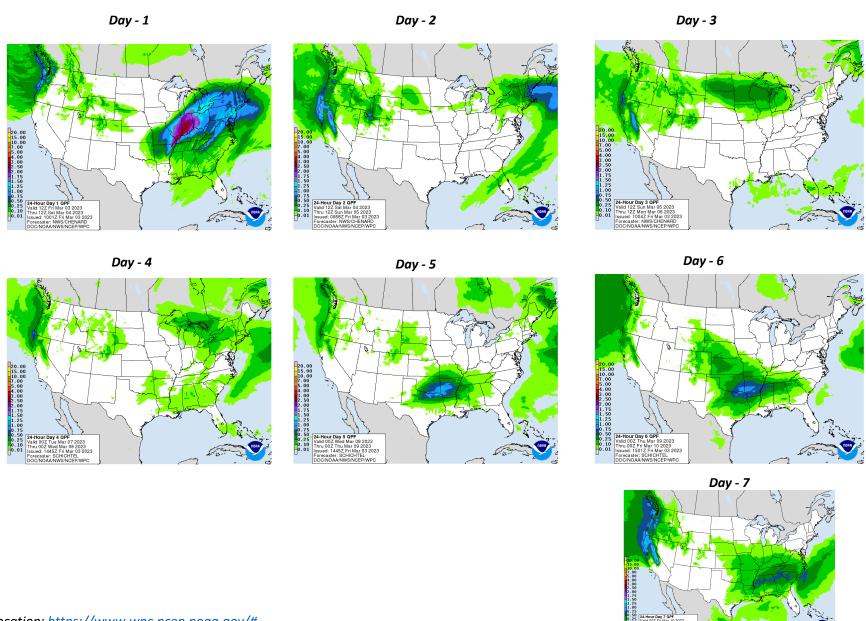


### WPC Forecasted Surface Fronts & Sea-Level Pressures



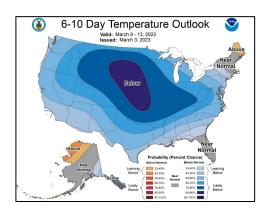
Location: <a href="https://www.wpc.ncep.noaa.gov/#">https://www.wpc.ncep.noaa.gov/#</a>

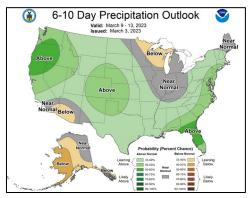
### Quantitative Precipitation Forecast, 7-Day

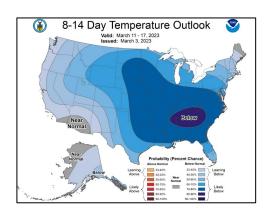


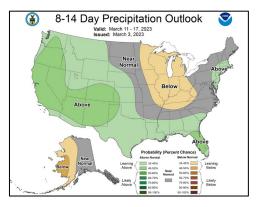
Location: <a href="https://www.wpc.ncep.noaa.gov/#">https://www.wpc.ncep.noaa.gov/#</a>

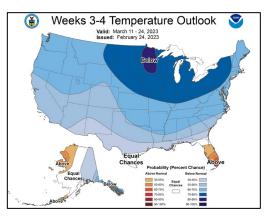
# Temp & Precip Outlook 6-10 Day, 8-14 Day & Week 3-4

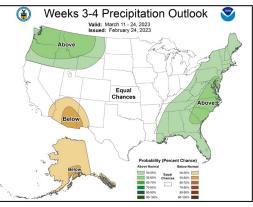






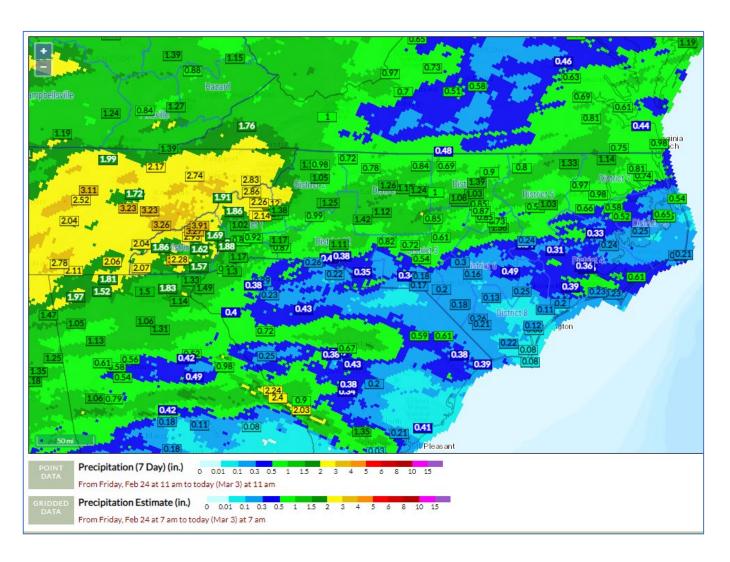






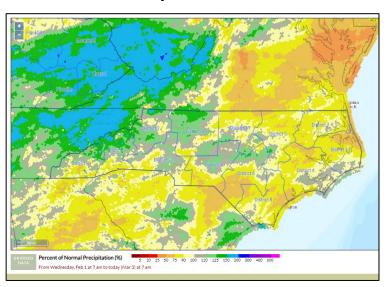
# 7 Day Precipitation Totals

FWIP (Point accumulation ending at 1100 on 3/3, Grid ending 0700 3/3)

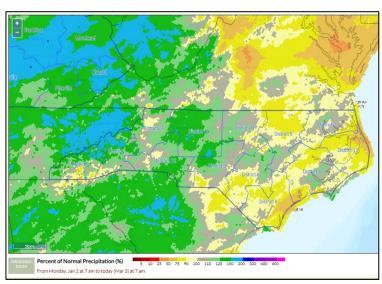


# Departure from Normal Precip, FWIP

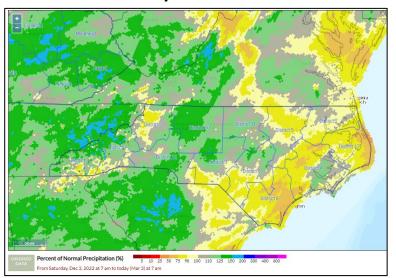
30-Day % of Normal



60-Day % of Normal

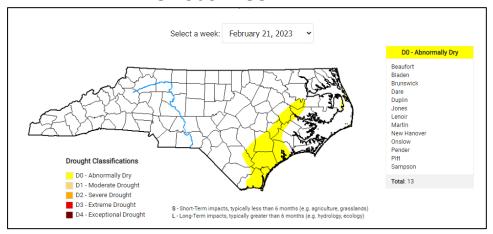


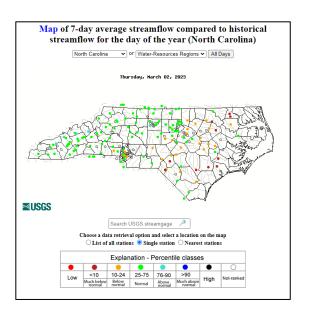
90-Day % of Normal



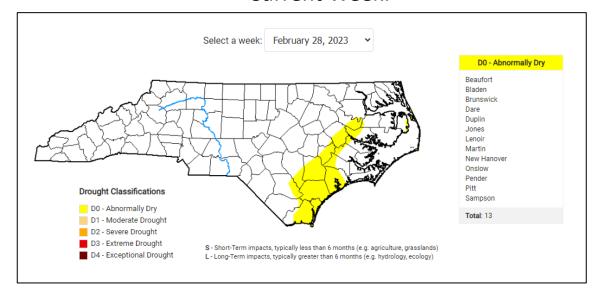
## **Drought Situation**

### **Previous Week:**





### **Current Week:**

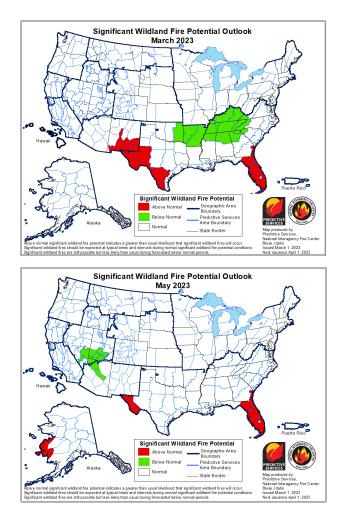


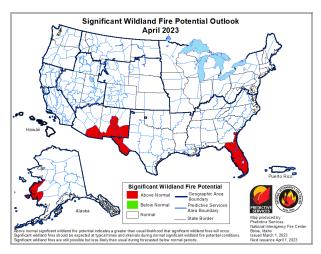
- Favoring Drought Expansion if lack of significant rain continues with green-up (focus East)
- 7-Day Stream flow averages also decreasing East

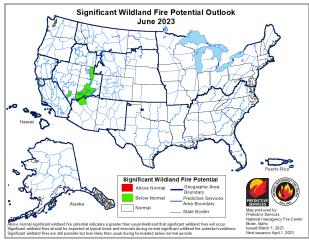
Source: https://www.ncdrought.org/map-archives

### Significant Wildland Fire Potential Outlook:

*Updated 3/1/23* 



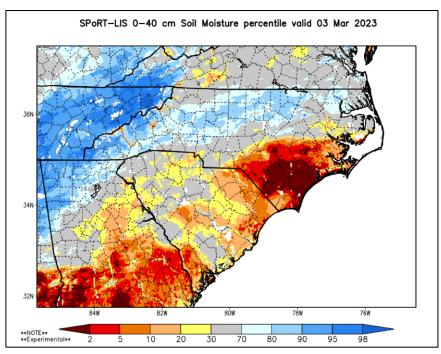




A significant fire is one that requires resources from outside the district (other than aviation). IA potential is based more on shorter term weather factors. Just a few days of dry weather can increase IA activity considerably as we have already seen this year.

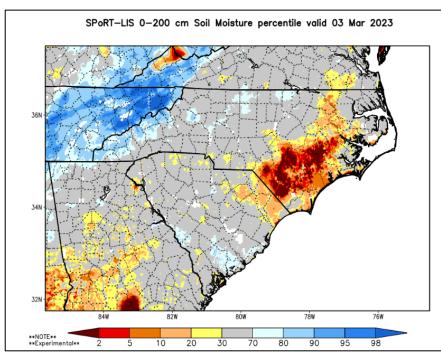
### SPoRT Relative Soil Dryness

### 0-40 cm Depth (Shallow Dryness)



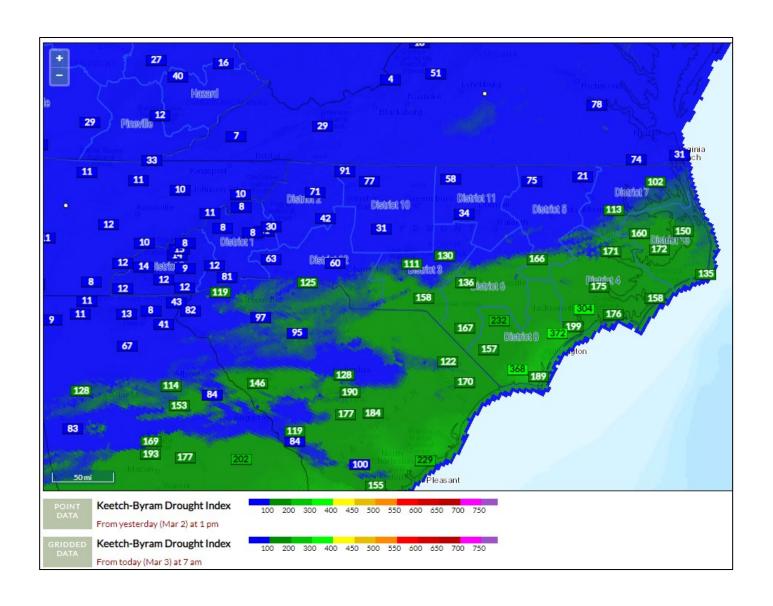
 Drying Trend 0-2 Meter Depth, especially to the East & South

### 0-200 cm Depth



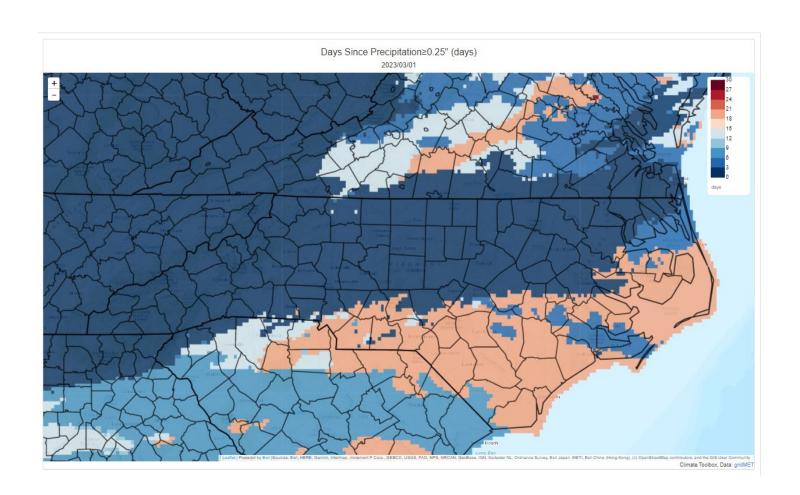
Source: <a href="https://weather.msfc.nasa.gov/sport/case">https://weather.msfc.nasa.gov/sport/case</a> studies/lis NC.html

### KBDI - Gridded & Station Points (FWIP)

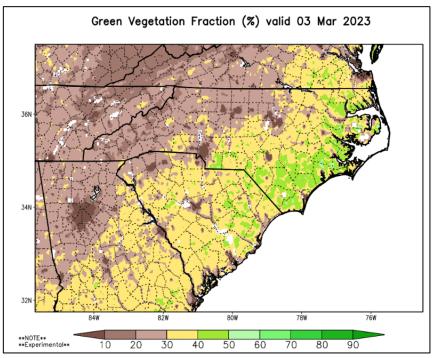


# Days Since Daily Precip ≥ 0.25"

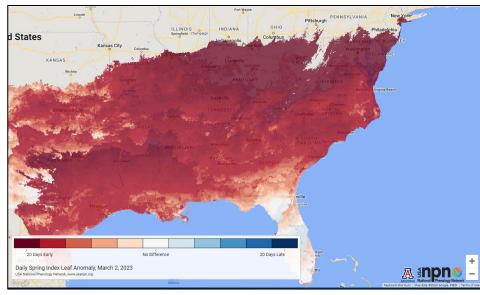
• Note – Latest product run was on 3/1/23 not considering rainfall after that point.



### Green Fraction & Green-Up Anomaly



- Generally, 2-3 Weeks Ahead of 30-Yr Avg
- Risk of Frost/Freeze Concerns Later in March



Link: https://weather.msfc.nasa.gov/cgi-bin/basicLooper.pl?category=lis NC&initialize=first&regex=gvf 20230228

# Current and Forecasted Fire Danger Conditions by FDRA



# Regional Comments

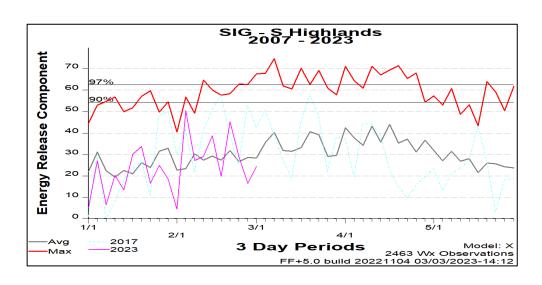
Normal Fire Season Activity noted

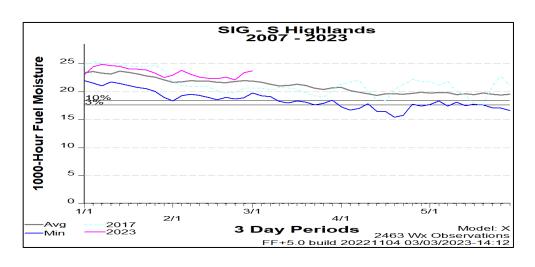
### Important notes for next slide group:

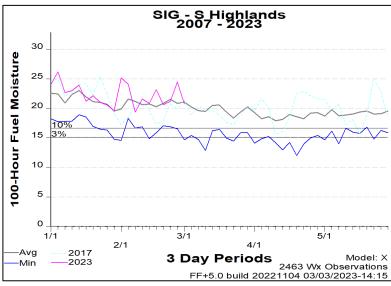
- A. Current ERC, 100-Hr & 1000-Hr values are extracts from FF+ using observation data downloaded from WIMS.
- B. Weekly Outlook FDRA General Fire Danger Forecast Matrix:
  - 1. The matrix is an adaption of the existing Weekly NCFS Region-3 Fire Danger Assessment Matrix Process.
    - Matrix exposes existing available data in the same fashion, but on all 9 FDRAs.
    - Uses Fire Danger Adjective Rating Concept Grouped into three bins (see notes on 3 & 4 below).
    - Weather variable ranges were defined by FDRA stakeholders and relate to Pocket Card notes.
    - Is in development, with goal being to have this as another tool on FWIP with daily automated updates.
  - 2. The forecast matrix was created from standard NFDRS Forecast Outputs.
    - 7-Day Forecast Cycle from NWS using NFDRS Observations & Outputs generated from SIG Stations in FDRA
  - 3. Fire Danger Forecast Indices/Component Values are grouped into three categories:
    - Low to Moderate (0-74th Percentile); shown in Blue-Green
    - High (75<sup>th</sup>-89<sup>th</sup> Percentile) shown in Yellow
    - VH to Extreme (90<sup>th</sup>+ Percentile) shown in Red, called Critical
  - 4. Dead Fuel Moisture Forecast Values are grouped into three categories:
    - Low to Moderate ( 26th-100th Percentile); shown in Blue-Green
    - High (11<sup>th</sup>-25<sup>th</sup> Percentile); shown in Yellow
    - VH to Extreme (0-10<sup>th</sup> Percentile) shown in Red, called Critical
  - 5. Other Notes:
    - \*\*Read the Key and Notes associated with each FDRA (included with matrix image). \*\*
    - Forecasts are variable and can change.
    - Is another tool for gaining better situational awareness by exposing the data in an easier to digest format.
    - Feedback is appreciated.

# Region Specific – Southern Highlands









### 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	SAT 04-Mar	SUN 05-Mar	MON 06-Mar	TUE 07-Mar	WED 08-Mar	THU 09-Mar	FRI 10-Mar
Avg. Max. Temp. (°F)	57	61	64	64	55	51	45
Avg. Min. Humidity (%)	37	39	50	49	60	60	49
Avg. 20' Wind Speed (mph)	10	5	7	9	7	8	11
Avg. Wind Direction*	NW	SE	S	WNW	WSW	SSE	W
Avg. Probability of Precip. (%)	2	0	27	25	50	50	45
Days Since a Wetting Rain**	1.0	2.0	3.0				
Forecast ERC (Fuel Model X)	15.5	29.6	25.4	14.1	19.5	16.4	9.8
Forecast BI (Fuel Model X)	45.2	74.8	78.7	47.8	47.7	40.5	33.7
Forecast IC (Fuel Model X)	3.0	6.6	6.7	3.7	3.7	2.3	0.8
Forecast 100-Hr. FMC	25.2	25.0	22.8	22.0	21.4	20.7	20.5
Forecast 1000-Hr. FMC	25.6	25.5	25.5	25.5	25.6	25.6	25.4
KBDI	3.7						

#### Data Source:

- Weather forecasts come from the National Weather Service's <u>Digital Forecast Database</u>. 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 <u>NFDRS Forecast</u> product does not include precipitation amounts,
  which are used to adjust KBDI from day to day

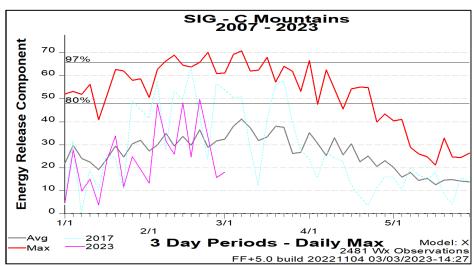
Values in the table above are averages from 3 stations in this FDRA:

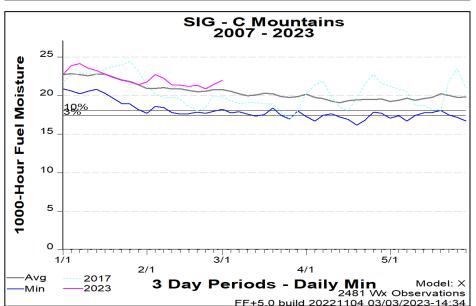
- Tusquitee (315602)
- Locust Gap (315802)
- Highlands (315803)

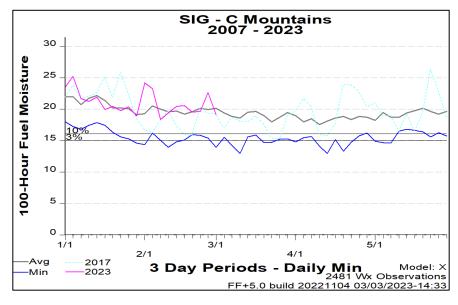
KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critica WATCH OUT!
Avg. Max. Temp.	Less than 50°F	Between 50°F and 55°F	Greater than 55°F
Avg. Min. Humidity	Greater than 35%	Between 30% and 35%	Less than 30%
Avg. 20' Wind Speed	Less than 5 mph	Between 5 mph and 7 mph	Greater than 7 mph
Avg. Wind Direction*	Criticality of wind dir	ection is highly dependent on burn ope	erations and/or structures threatened.
Days Since a Wetting Rain**	A wetting rain is defi	ned as 0.10" or greater. This is an avera	ge of the FDRA stations noted above.
Energy Release Comp.	Less than 40	Between 40 and 52	Greater than 52
Burning Index	Less than 95	Between 95 and 118	Greater than 118
Ignition Component	Less than 9	Between 9 and 14	Greater than 14
100-Hour Fuel Moisture	Greater than 18%	Between 17% and 18%	Less than 17%
1000-Hour Fuel Moisture	Greater than 19%	Between 18% and 19%	Less than 18%
KBDI	Less than 345	Between 345 and 479	Greater than 479
Other factors to consider wh	en determining fire dan	ger: sky conditions, precipitation an	nount, number of days since rain,

# Region Specific – Central Mountains









### 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	SAT 04-Mar	SUN 05-Mar	MON 06-Mar	TUE 07-Mar	WED 08-Mar	THU 09-Mar	FRI 10-Mar
Avg. Max. Temp. (°F)	56	62	67	66	57	54	47
Avg. Min. Humidity (%)	37	33	41	44	53	51	40
Avg. 20' Wind Speed (mph)	14	6	7	9	7	10	13
Avg. Wind Direction*	NNW	SSW	SSW	WNW	WSW	WSW	NW
Avg. Probability of Precip. (%)	4	0	20	23	48	48	42
Days Since a Wetting Rain**	1.0	2.0	3.0				
Forecast ERC (Fuel Model X)	14.0	27.5	25.0	16.3	20.8	19.6	13.5
Forecast BI (Fuel Model X)	47.1	57.4	67.2	49.6	44.1	39.5	37.8
Forecast IC (Fuel Model X)	3.2	5.3	6.3	4.4	3.7	2.6	1.3
Forecast 100-Hr. FMC	23.7	24.0	22.0	21.1	20.4	19.6	19.0
Forecast 1000-Hr. FMC	23.6	23.7	23.6	23.7	23.7	23.7	23.7
KBDI	3.3						

#### Data Source:

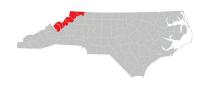
- Weather forecasts come from the National Weather Service's <u>Digital Forecast Database</u>. The wind speed and direction, and probability of precipitation, are calculated as averages of the 1 am, 7 am, 1 pm, and 7 pm forecasts. The 20-foot wind speed is estimated from the 10-meter forecast using the 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 <u>NFDRS Forecast</u> product does not include precipitation amounts,
  which are used to adjust KBDI from day to day

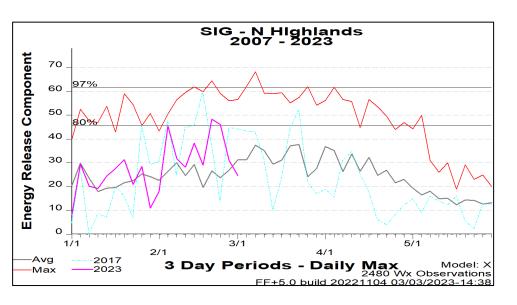
Values in the table above are averages from 4 stations in this FDRA:

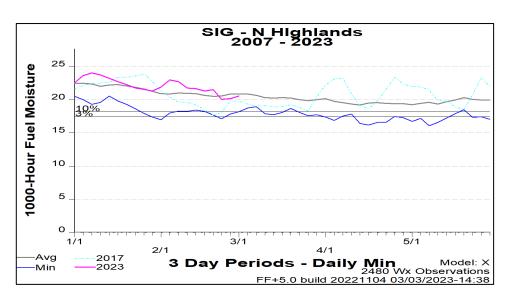
- 7 Mile Ridge (313302)
- Asheville Regional Airport (314140)
- Davidson River (316001)
- Mtn Horticultural Crops Res Stn (316141)

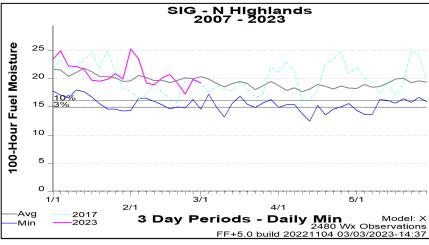
KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critica WATCH OUT!
Avg. Max. Temp.	Less than 50°F	Between 50°F and 60°F	Greater than 60°F
Avg. Min. Humidity	Greater than 35%	Between 30% and 35%	Less than 30%
Avg. 20' Wind Speed	Less than 5 mph	Between 5 mph and 10 mph	Greater than 10 mph
Avg. Wind Direction*	Criticality of wind dir	ection is highly dependent on burn ope	erations and/or structures threatened.
Days Since a Wetting Rain**	A wetting rain is defi	ned as 0.10" or greater. This is an avera	ge of the FDRA stations noted above.
Energy Release Comp.	Less than 33	Between 33 and 50	Greater than 50
Burning Index	Less than 78	Between 78 and 106	Greater than 106
Ignition Component	Less than 6	Between 6 and 11	Greater than 11
100-Hour Fuel Moisture	Greater than 19%	Between 17% and 19%	Less than 17%
1000-Hour Fuel Moisture	Greater than 20%	Between 19% and 20%	Less than 19%
KBDI	Less than 319	Between 319 and 417	Greater than 417

# Region Specific – Northern Highlands









#### 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	SAT 04-Mar	SUN 05-Mar	MON 06-Mar	TUE 07-Mar	WED 08-Mar	THU 09-Mar	FRI 10-Mar
Avg. Max. Temp. (°F)	51	57	61	60	51	47	39
Avg. Min. Humidity (%)	33	35	47	42	45	48	55
Avg. 20' Wind Speed (mph)	20	7	8	13	10	10	12
Avg. Wind Direction*	NW	WSW	SSW	WNW	NW	NW	WSW
Avg. Probability of Precip. (%)	4	0	24	19	31	48	49
Days Since a Wetting Rain**	1.0	2.0	3.0				
Forecast ERC (Fuel Model X)	15.6	40.0	38.4	24.1	33.0	29.9	19.8
Forecast BI (Fuel Model X)	74.2	92.1	110.9	93.8	89.2	82.1	58.2
Forecast IC (Fuel Model X)	3.8	7.7	9.0	6.7	6.8	5.1	2.2
Forecast 100-Hr. FMC	23.4	23.7	22.3	21.0	20.3	19.4	18.6
Forecast 1000-Hr. FMC	22.7	22.7	22.7	22.7	22.7	22.7	22.7
KBDI	3.0						

#### Data Source:

- Weather forecasts come from the National Weather Service's <u>Digital Forecast Database</u>. 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 <u>NFDRS Forecast</u> product does not include precipitation amounts,
  which are used to adjust KBDI from day to day

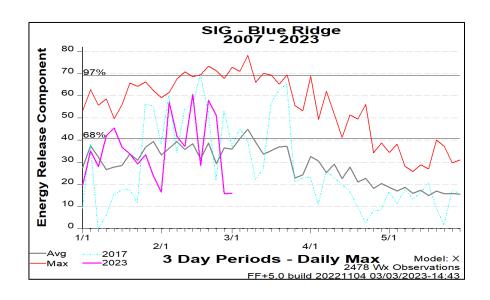
Values in the table above are averages from 3 stations in this FDRA:

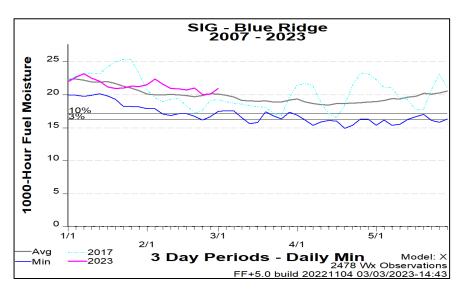
- Laurel Springs (310101)
- Upper Mountain Research Stn (310141)
- Busick (313402)

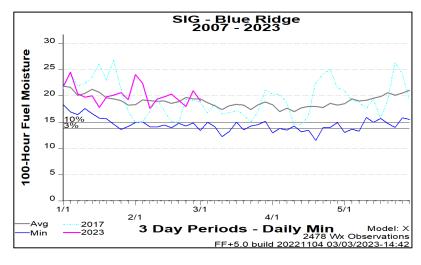
KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critica WATCH OUT!			
Avg. Max. Temp.	Less than 50°F	Between 50°F and 58°F	Greater than 58°F			
Avg. Min. Humidity	Greater than 35%	Between 30% and 35%	Less than 30%			
Avg. 20' Wind Speed	Less than 2 mph	Between 2 mph and 5 mph	Greater than 5 mph			
Avg. Wind Direction*	Criticality of wind dir	ection is highly dependent on burn ope	rations 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 26	Between 26 and 46	Greater than 46			
Burning Index	Less than 67	Between 67 and 108	Greater than 108			
Ignition Component	Less than 5	Between 5 and 9	Greater than 9			
100-Hour Fuel Moisture	Greater than 18%	Between 17% and 18%	Less than 17%			
1000-Hour Fuel Moisture	Greater than 20%	Between 19% and 20%	Less than 19%			
KBDI	Less than 192	Between 192 and 330	Greater than 330			

# Region Specific – Blue Ridge Escarpment









### 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	SAT 04-Mar	SUN 05-Mar	MON 06-Mar	TUE 07-Mar	WED 08-Mar	THU 09-Mar	FRI 10-Mar
Avg. Max. Temp. (°F)	58	61	65	66	57	52	44
Avg. Min. Humidity (%)	34	35	46	40	46	48	42
Avg. 20' Wind Speed (mph)	12	5	6	10	7	8	10
Avg. Wind Direction*	NW	SW	SW	WNW	WSW	W	WSW
Avg. Probability of Precip. (%)	2	0	15	17	36	45	43
Days Since a Wetting Rain**	1.0	2.0	3.0				
Forecast ERC (Fuel Model X)	20.2	36.2	32.2	25.8	32.6	27.2	18.8
Forecast BI (Fuel Model X)	57.7	69.8	87.8	80.1	65.6	52.7	45.6
Forecast IC (Fuel Model X)	3.4	6.4	8.4	7.8	6.5	4.0	2.3
Forecast 100-Hr. FMC	26.1	24.4	21.2	19.8	18.7	17.5	17.1
Forecast 1000-Hr. FMC	21.6	22.0	22.3	22.1	21.6	21.1	20.6
KBDI	24.3						

#### Data Source:

- Weather forecasts come from the National Weather Service's <u>Digital Forecast Database</u>. 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 <u>NFDRS Forecast</u> product does not include precipitation amounts,
  which are used to adjust KBDI from day to day

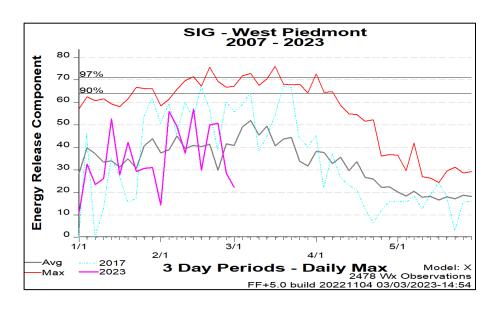
Values in the table above are averages from 3 stations in this FDRA:

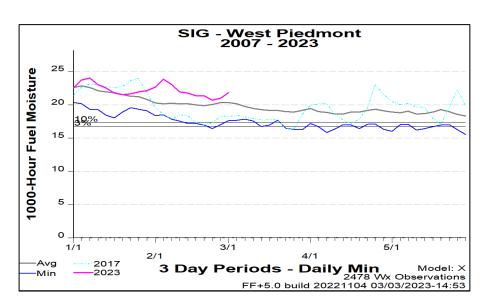
- Rendezvous Mtn. (312001)
- North Cove Pinnacle (fr1) (314301)
- Rutherford County (316302)

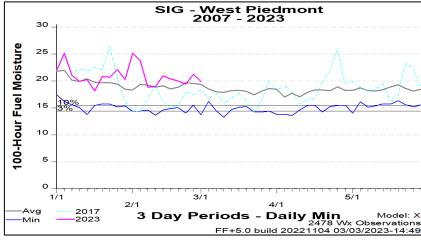
KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critica WATCH OUT!
Avg. Max. Temp.	Less than 40°F	Between 40°F and 50°F	Greater than 50°F
Avg. Min. Humidity	Greater than 35%	Between 30% and 35%	Less than 30%
Avg. 20' Wind Speed	Less than 2 mph	Between 2 mph and 4 mph	Greater than 4 mph
Avg. Wind Direction*	Criticality of wind dir	ection is highly dependent on burn ope	erations and/or structures threatened.
Days Since a Wetting Rain**	A wetting rain is defin	ned as 0.10" or greater. This is an avera	ge of the FDRA stations noted above.
Energy Release Comp.	Less than 52	Between 52 and 62	Greater than 62
Burning Index	Less than 116	Between 116 and 136	Greater than 136
Ignition Component	Less than 14	Between 14 and 20	Greater than 20
100-Hour Fuel Moisture	Greater than 18%	Between 16% and 18%	Less than 16%
1000-Hour Fuel Moisture	Greater than 19%	Between 18% and 19%	Less than 18%
KBDI	Less than 351	Between 351 and 508	Greater than 508

# Region Specific – Western Piedmont









### 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	SAT 04-Mar	SUN 05-Mar	MON 06-Mar	TUE 07-Mar	WED 08-Mar	THU 09-Mar	FRI 10-Mar
Avg. Max. Temp. (°F)	65	67	70	73	59	57	49
Avg. Min. Humidity (%)	33	29	38	32	33	38	56
Avg. 20' Wind Speed (mph)	10	4	8	12	9	7	8
Avg. Wind Direction*	WNW	SSE	SSW	W	SSW	S	SE
Avg. Probability of Precip. (%)	0	0	9	9	21	30	41
Days Since a Wetting Rain**	1.7	2.7	3.7				
Forecast ERC (Fuel Model X)	39.8	45.5	41.5	34.2	44.7	39.1	28.8
Forecast BI (Fuel Model X)	115.8	83.7	119.2	122.0	103.9	86.6	80.5
Forecast IC (Fuel Model X)	8.9	6.9	10.7	12.4	10.9	6.7	4.4
Forecast 100-Hr. FMC	23.8	22.7	20.9	20.2	19.2	18.3	17.7
Forecast 1000-Hr. FMC	23.4	23.4	23.4	23.4	23.5	23.5	23.4
KBDI	37.7						

#### Data Source:

- Weather forecasts come from the National Weather Service's <u>Digital Forecast Database</u>. 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 <u>NFDRS Forecast</u> product does not include precipitation amounts,
  which are used to adjust KBDI from day to day

Values in the table above are averages from 3 stations in this FDRA:

- Duke Forest (312501)
- Lexington (314602)
- Mt. Island Lake (316602)

KEY	Low to Moderate Burning Conditions	Burning Conditions Can be High CAUTION	Burning Conditions Can be Critical WATCH OUT!			
Avg. Max. Temp.	Less than 40°F	Between 40°F and 50°F	Greater than 50°F			
Avg. Min. Humidity	Greater than 35%	Between 30% and 35%	Less than 30%			
Avg. 20' Wind Speed	Less than 2 mph	Between 2 mph and 4 mph	Greater than 4 mph			
Avg. Wind Direction*	Criticality of wind dir	ection is highly dependent on burn ope	erations 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 40	Between 40 and 52	Greater than 52			
Burning Index	Less than 95	Between 95 and 120	Greater than 120			
Ignition Component	Less than 9	Between 9 and 14	Greater than 14			
100-Hour Fuel Moisture	Greater than 18%	Between 17% and 18%	Less than 17%			
1000-Hour Fuel Moisture	Greater than 19%	Between 18% and 19%	Less than 18%			
KBDI	Less than 344	Between 344 and 479	Greater than 479			