Fire Weather Services Operation Plan for Maryland 2018

Table of Contents

Section I

Annual Operating Plan

This Operating Plan serves as the official document governing the interaction and relationships between the National Weather Service, and the federal, state and local natural resource and land management agencies in the state of Maryland.

Explanation of relationship between the AOP and MOU.

This Operating Plan is issued in lieu of a formal Memorandum of Understanding (MOU) between the National Weather Service, federal, state, and other agencies that rely on fire weather support. The plan will outline forecast operations and services available to users. This includes products and formats, dissemination and coordination, and the responsibilities of the partners. This Operating Plan will be the governing document for fire weather procedures and cooperation among the following agencies:

- NOAA National Weather Service
- MD Department of Natural Resources

Section II

NWS Fire Weather Policy & Philosophy

The National Weather Service Forecast Offices (WFO's Sterling, VA, Mount Holly, NJ, Pittsburgh, PA, and Wakefield, VA) will provide fire weather support in accordance with the National Weather Service Fire Weather Policy. This support will consist of daily fire weather forecasts. Spot (non-routine) forecasts, fire weather watches, and red flag warnings will be provided on an as-needed basis at any time throughout the year.

Unless otherwise specified, forecasts are made to reflect the worst probable weather in terms of fire management, within the forecast zone. For instance, the daytime forecast will attempt to depict the hottest, driest, and windiest weather that is likely to be experienced in the wildland environment of a zone from 7AM to 7 PM Eastern Standard Time. On occasion, this may be different from the general public forecast which emphasizes prevailing conditions for the area.

Though the routine forecast attempts to depict a worst case fire weather scenario for a given period, it in no way reflects all the local variations in weather that can have an adverse effect on fire behavior within a zone. Fire control officers should be familiar with typical weather variations across their district or forest such as those associated with land versus sea interaction, changes in elevation, and vegetation. The impact of sea breezes or mountain/valley winds should also be recognized. A spot forecast should be requested whenever local effects are suspected of creating difficult fire management conditions.

Over mountainous terrain, weather conditions vary considerably from site to site within a county. Routine forecasts for mountainous counties will be aimed at lower elevations where the most operations are likely to occur. As a general rule, high elevations sites will have lower temperatures on the order of 5 degrees per 1,000 feet in elevation. Fire officers are urged to obtain spot forecasts whenever terrain causes significant departures from the routine forecast.

Section III

NWS Forecast Areas

WFO Sterling: All of Maryland west of the Chesapeake Bay, except Garrett County.
WFO Pittsburgh: Garrett County.
WFO Mount Holly: Cecil, Kent, Queen Annes, Caroline, Talbot counties
WFO Wakefield: Dorchester, Wicomico, Worcester, Somerset counties.

For NWS Sterling: http://www.weather.gov/lwx/

For NWS Mount Holly: http://www.weather.gov/phi/

For NWS Wakefield: http://www.weather.gov/akq/

For NWS Pittsburgh: http://www.weather.gov/pbz/

National Fire Weather Page: http://www.srh.noaa.gov/ridge2/fire/

WFO STERLING

(Zones/Zone #s)

W Allegany	MDZ501
E & Central Allegany	MDZ502
Anne Arundel	MDZ014
Northern Baltimore	MDZ006
Southern Baltimore	MDZ011
NW Harford	MDZ507
SE Harford	MDZ508
SE Montgomery	MDZ504
NW Montgomery	MDZ503
SE Howard	MDZ506
Prince Georges	MDZ013
St. Mary's	MDZ017
NW Howard	MDZ505
Calvert	MDZ018
Frederick	MDZ004
Charles	MDZ016
Carroll	MDZ005
Washington	MDZ003

WFO Mount Holly

Cecil	MDZ008
Kent	MDZ012
Queen Anne's	MDZ015
Talbot	MDZ019
Caroline	MDZ020

WFO Wakefield		**WFO Pittsburgh**	
Dorchester	MDZ021	Garrett	MDZ001
Wicomico	MDZ022		
Worcester	MDZ024		
Eastern Worcester	MDZ025		
Somerset	MDZ023		

Section IV

The Fire Weather Planning Forecast

(FWF)

The fire weather planning forecast (FWF) will be issued by each Weather Forecast Office for fire weather zone in their forecast area. The forecast will be issued between 4:00 and 6:00 AM each morning and again between 2:00 and 4:00 PM each afternoon.

The morning fire weather forecast will cover specific conditions for a 36 hour period and will consist of three 12 hour periods (today, tonight, and the next day). The afternoon forecast will consist of four 12 hour periods (tonight, tomorrow, tomorrow night, and the next day). On critical weather days a headline may be included at the top of the product. The headline will be mandatory for Red Flag Warnings or Fire Weather Watches. A brief synopsis of the weather as it pertains to the forecast area will precede the forecasts. Following the three/four period forecasts, the product will also contain an extended forecast, and the NWS long range forecast for the area.

A) Data Included in the Short Term Section of the Fire Weather Product will be broken down into several groups. Each forecast zone consists of 12 hour periods. The data included will be:

1) Cloud Amount
2) Precipitation Type
3) Chance of Precipitation
4) Daytime Max Temperatures and Nighttime Minimum Temperatures *(deg F)*
5) Daytime Minimum Relative Humidity and Nighttime Max *(in percent)*
6) Surface Wind Direction & Speed *(using an 8 point compass in MPH)*
7) Precipitation Amount *(in inches)*
8) Precipitation Duration *(in hours)*
9) Precipitation Begin and End Times (*NWS Sterling and Pittsburg only*)
10) Daytime Mixing Height *(in feet*)
11) Daytime Transport Wind Direction
12) Daytime Transport Wind Speed *(in miles per hour)*
13) Daytime Ventilation Index *(transport wind speed* x *mixing height)*
14) Lightning Activity Level

15) Daytime Haines Index for potential fire growth

NWS Wakefield also forecasts for ADI (Lavdas Atmospheric Dispersion Index) and LVORI (Low Visibility Occurrence Risk Index).

- **Surface wind:** This is a 2 minute average of the 10 meter wind (33 feet). NWS Wakefield uses 20 feet as the height for their forecast. Direction is given using an eight point compass (i.e. N, NE, E, SE, S, SW, W, NW). Surface wind speed is in miles per hour. During the daytime periods, wind is broken down into morning and afternoon periods.For those that require 20 foot winds, the difference between 20 and 33 foot wind is typically only 10 % or less in moderate to strong winds.

- **Precipitation Duration:** The total number of hours of precipitation expected during the 12 hour period.

- **Precipitation Begin and End Times:** These are the start and end times of any expected precipitation. It does not necessarily mean that precipitation will occur continuously between these times.

- **Humidity:** The humidity values given are the relative humidity extremes expected. In the two daytime periods, these are the minimum relative humidity forecast. At night, they are the maximum value forecast.

- **Haines Index:** This index refers to the stability and dryness of the lower atmosphere. It was intended to measure the potential for fire growth with existing fires. It is calculated adding two factors. The first compares the atmospheric temperature at 950 Mb versus 850 Mb. The second figures the humidity of the atmosphere at 850 Mb. This is a daytime index. A Haines Index of:

2 or 3	Indicates a very low potential for fire growth
4	Indicates a low potential
5	Indicates a moderate potential
6	Indicates a high potential for large fire growth
***	A value of 5 or 6 indicates that prescribed burns may get out of control.

- **Lightning Activity Level:** The amount of lightning strikes anticipated.

1	No lightning
2	No lightning or a few scattered strikes
3	Scattered strikes
4	More numerous strikes
5	Frequent lightning

- **Mixing Height:** This is defined as the atmospheric limit above which vigorous mixing does not take place. The mixing height gives the potential of the atmosphere to disperse smoke. In general, with a forecast mixing height of 1600 feet (500 meters) or less, the fire control officer should consider moving a

scheduled prescribed burn to a different day. Upper air sounding data is available between 8 and 9 AM Eastern Standard Time. This data can sometimes provide a more accurate mixing height than what is issued earlier in the morning on the daily fire weather forecast. Since vigorous mixing typically occurs during the daylight hours, this value is given during the daytime periods. At night, the value falls to the inversion height.

- **Transport Wind:** Defined as the average wind vector from the surface to the mixing height (more plainly, the direction and speed of the wind that will carry the smoke). Direction of the transport wind (where the wind is blowing from) and speed will be given. This is given in miles per hour. To convert to meters per second, multiply it by 0.45 (roughly divide it in half). Since the mixing height used to compute this is a daytime index, this is given for day periods only.

- **Ventilation Rate:** This is a combination of the Transport Wind (mph) and the Mixing Height (ft). It is computed by multiplying the two values. It measures volume of smoke moved by dispersion. Since the mixing height used to compute this is a daytime index, ventilation rate is also given for the daytime periods only.

B) The Extended Forecast

At the end of the daily fire weather forecast, the extended forecasts are given. For the mid range, these will include cloud cover, precipitation, and temperatures. For the long range, this will include deviations from normal for temperatures and precipitation.

Section V

Spot (Non-Routine) Forecasts

Site Specific Forecasts (Spot Forecasts)

Criteria

Spot forecasts are special, non-routine forecasts prepared upon request of any federal agency, or state agency when there is some aspect of federal resources involved and/or interagency protection agreements currently exist. Site specific weather forecasts are for: 1) controlling the spread of wildfire; 2) planning and managing prescribed fires; or 3) other specialized forest management activities. In the event of an emergency which threatens life and/or property, spot forecasts can also be provided to any federal, state, or local agency. Spot forecast requests for wildfires and hazardous material emergencies are considered high priority, and can be obtained at any time. Spot forecasts may be obtained for prescribed burns; however, the response may be delayed due to higher priority responsibilities of the forecaster on duty.

Procedures for Requesting a Spot Forecast

Spot forecasts will be prepared when requested by a user agency. Federal, state and local agencies may request spot forecasts in support of wildfire suppression or other emergencies

where lives and/or property may be threatened. Due to the detailed and specific nature of this forecast product, it is imperative that the user provide the forecaster with necessary and sufficient information so that a reliable forecast can be prepared.
Requests for spot forecasts should be made using the web based spot forecast request form. This form, along with instructions on how to use it, is available on the local NWS fire weather web pages. The web based spot forecast request form should be filled out as completely as possible (required parameters are listed in red) by the user agency prior to submitting the request.

Use Latitude/Longitude for your location, and this should be entered in either decimal degrees, or degrees/minutes/seconds. If you are using decimal degrees enter as standard (e.g. 38.46, -78.65). If degrees/minutes/seconds, use a second decimal (e.g. 37.27.36, 78.39.00), or leave a space between each number (e.g. 37 27 36, 78 39 00).
Requests for and retrieval of completed Spot Forecast Request web page found at http://weather.gov/spot.

In times when internet access is hindered or not possible, spot forecasts may be requested and disseminated via fax or phone. If faxing a request, users should use the Fire Weather Special Forecast Request Form, WS Form D-1. A printable version of this form is located here https://www.weather.gov/media/bmx/fire/Spotform.pdf. Section I of WS Form D-1 should be filled out as completely as possible by the user agency prior to submitting the request by the fax to the forecast office. If the request is made by phone, all information in Section I should be provided to the forecast office.
While there is no dedicated fire weather forecaster, the forecast office will give a high priority to spot forecasts in the absence of weather phenomena in the CWA that pose a threat to life and property. To ensure that the request for a spot forecast is handled properly and appropriately, users should adhere to the following guide.

Allow adequate time for the forecaster to prepare the forecast. This will normally be about 30 minutes. On particularly busy fire weather days, spot forecasts will be handled on a first-come, first-serve basis, with wildfires or other life threatening events taking the highest priority.

Provide as much on-site or near-site weather information as possible. At a minimum, the user should provide at least one observation within an hour of the request. This observation must contain the following: location of the observation; elevation at the observation site; time of the observation; wind direction, speed, and level (eye or 20 foot); dry and wet bulb temperatures; any remarks about the state of the weather, particularly anything that may affect fire behavior. If possible, include some observations from the previous day that might give the forecaster an indication of daily trends.

As much as possible, specify the time period for which the forecast is needed.

As much as possible, specify the weather elements of most importance for which a forecast is needed, and/or critical values of these elements.

Provide a contact point name and phone number where the forecaster can call back, if necessary. (Also include a fax number for returning completed forecasts if the web based spot forecast form is not used).

In order to receive prompt attention for a fax request, please phone the office to let the forecaster know the request is on the way.

7) Natural resource agency personnel should contact the NWS forecast office for a spot update if the forecast conditions appear unrepresentative of the actual weather conditions. Whenever possible, users should provide feedback, positive or negative, to the NWS forecast office concerning the performance of the spot forecast during or shortly after an event. This will assist forecasters in subsequent forecasts for the same or similar conditions.

Section VI

National Fire Danger Rating System (NDFRS) Forecasts

NFDRS forecasts will be issued for any predetermined site from which an NFDRS observation is received, provided the observation is received on time, complete, and deemed accurate. The natural resource agencies will determine which observation sites (normally RAWS sites) will be NFDRS sites. Initiation of NFDRS forecasts for a new site will be coordinated with the NWS and the agency requesting new NFDRS service will provide the NWS with information about the site location. Forecasts will not be provided for sites with bad data. The NWS will notify the owner agency when bad data is received from a RAWS station.

MARYLAND NFDRS RAWS

WIMS ID	NAME	COUNTY	ELEV.	LAT.	LONG.	OWNER	WFO
180201	Green Ridge	Allegany	1,090	39.69	78.42	MFS	Sterling
180302	Catoctin Mt	Frederick	1,485	39.65	77.49	NPS	Sterling
180303	Antietam NB	Washington	460	39.49	77.75	NPS	Sterling
180701	Susquehanna	Harford	300	39.61	76.16	MFS	Sterling
181510	Cedarville	Prince Geo.	200	38.65	76.81	MFS	Sterling
182101	Tuckahoe	Caroline	50	38.94	75.94	MFS	Mt. Holly
182002	Blackwater	Dorchester	8	38.44	76.09	FWS	Wakefield
182201	Powellville	Wicomico	16	38.36	75.43	MFS	Wakefield
180335	Assateague	Worcester	12	38.08	75.20	NPS	Wakefield

Section VII

Fire Weather Watches/Red Flag Warnings/Special Weather Statements

(WBCRFWLWX)(WBCSPSLWX)

Three specific conditions must be met (or expected to be met) concurrently for a Red Flag Warning (or Fire Weather Watch) to be issued. These conditions are as follows:

- ✓ Ten hour fuels must be less than or equal to 8%
- ✓ Sustained surface winds 20 MPH or greater
- ✓ Relative Humidity below 30%

NWS offices Sterling, Wakefield, Pittsburgh, and Mount Holly will contact the Maryland Department of Natural Resources Forest Service to obtain information about fuel moisture before issuing any headlines. Monte Mitchell will be the lead contact, but the WFO's will use the Maryland Forest Service Wildfire Schedule to contact the State Duty Officer assigned daily. Each WFO will receive the schedule of contact information for the State Duty Officer on a monthly basis.

If WFO's determine that the relative humidity/wind criteria will be met, AND after coordination it is determined that the Fuel Moisture criteria will be met, WFO's will issue a FIRE WEATHER WATCH or RED FLAG WARNING. A SPECIAL WEATHER STATEMENT may be issued when it is determined that all elements (wind speed, relative humidity, and fuel moisture) will be close to criteria for Red Flag Conditions. Special Weather Statements will also be coordinated with the Maryland Department of Natural Resources before being issued.

If a FIRE WEATHER WATCH or RED FLAG WARNING is issued, WFO's will include a HEADLINE in the daily fire weather forecast as well as any spot forecasts that are issued during the event. Also a separate product called an RFW will be issued. This separate product will more specifically state the risks and what weather conditions are producing them.

A **"FIRE WEATHER WATCH"** is issued to alert the users to the possible development of a Red Flag event (as defined by the 3 criteria above) in the near future. This is typically issued within 12 to 48 hours in advance of the onset of possible warning conditions. .

A **"RED FLAG WARNING"** is issued to warn the users of an impending or on-going Red Flag event (as defined by the 3 criteria above). A Red Flag Warning will typically be issued within 12 hours of the onset of expected warning conditions. However, when confidence is high a Red Flag Warning may be issued up to 24 hours before the onset of expected warning conditions.

A "**SPECIAL WEATHER STATEMENT"** is issued during situations where near critical (EX: Wind, RH, and Fuel Moisture are near RFW Criteria) Fire Weather Conditions are expected. A Special Weather Statement may be issued. All Special Weather Statements will be coordinated with the Maryland DNR.

Section VIII

NOAA Weather Radio

NOAA Weather Radio continuously broadcasts weather information on a special broadcast band. NOAA Weather Radio transmitters that cover areas within Maryland area as follows:

Following are NWS Sterling's NOAA Weather Radios and their assigned frequencies:

Location	Station	Frequency
Pikesville, MD	KEC-83	162.400 MHz
Hagerstown, MD	WXM-42	162.475 MHz
Frostburg, MD	WXM-43	162.425 MHz
Washington DC	WNG-736	162.450 MHz
Manassas	KHB-36	162.55 MHz

NWS Wakefield

Location	Station	Frequency
Salisbury, MD	KEC-92	162.475 MHz
Heathsville, VA	WXM-57	162.400 MHz
Accomack, VA	KJY-99	162.525 MHz

NWS Mt Holly

Location	Station	Frequency
Sudlersville, MD,	WXK97	162.500 MHz

Section IX

Specialized Fire Weather Services &

On-Site Meteorological Support

Onsite Support

National Weather Service Sterling is offering onsite meteorological support for enhanced fire threats depending on resource availability. Support must be requested by the agencies with as much advanced notice as possible. If Sterling cannot provide onsite support due to resource issues, then offsite support will be provided (via phone). Support from the Sterling office will only be for counties located within the Sterling Offices County Warning Area. For counties outside Sterling's County Warning Area, any support must be coordinated with the appropriate office (Pittsburgh, Wakefield, or Mount Holly).

Fire Weather Training

NWS Fire Weather Meteorologists are available to assist in fire control agencies with training at fire behavior school and other weather related courses. Requests for assistance should be forwarded to the Fire Weather Focal Point or MIC of the WFO.

Other Specialized Services

Other services include weather station visitations requested by user agencies, weather observer training and course development work. These activities would typically be conducted at user agency facilities.

Information for Incident Meteorologists can be found at the following link:

http://www.fs.fed.us/fire/ibp/master_ia_wildland_fire_mgt.pdf

APPENDIX A

NWS OFFICES and Contacts

Sterling NWS:
Luis Rosa: *Fire Weather Program Leader* (FWPL)
luis.rosa@noaa.gov
James Lee *Meteorologist in Charge* (MIC)
Christopher Strong: *Warning Coordination Meteorologist* (WCM)
43858 Weather Service Road
Sterling, VA 20166
(703) 996-2201

Wakefield NWS:
Jon McGee: *Fire Weather Program Leader* (FWPL)
Jonathan.Mcgee@noaa.gov
Jeff Orrock: *Meteorologist in Charge* (MIC)
Bill Sammler: *Warning Coordination Meteorologist* (WCM)
10009 General Mahone Hwy.
Wakefield, VA 23888-2742
(757) 899-4200

Pittsburgh NWS:
Timothy Axford: *Fire Weather Program Leader* (FWPL)
Timothy.Axford@noaa.gov
Tony Hall, Meteorologist in Charge (MIC)
Fred McMullen: *Warning Coordination Meteorologist* (WCM)
192 Shafer Rd.
Moon Township, PA 15108
(412) 262-1591

Mt. Holly NWS:
Lee Robertson: *Fire Weather Program Leader* (FWPL)
Lee.Robertson@noaa.gov
Joe Miketta: *Warning Coordination Meteorologist* (WCM)
732 Woodlane Rd.
Mt. Holly, NJ 08060
(609) 261-6600

Eastern Region HQ:
Noelle Runyan: *Fire Weather Program Manager*
Noelle.Runyan@noaa.gov
Airport Corporate Center
630 Johnson Ave.
Bohemia, NY 11716
(631) 244-0122

NWS Leader:
Heath Hockenberry, *Program Leader*

Heath.Hockenberry@noaa.gov
National Interagency Fire Center
3833 S. Development Ave.
Boise, ID 83705
(208) 334-9862 (office) (208) 869-2994 (cell)

APPENDIX B

USER CONTACTS

MARYLAND

See Maryland Forest Service Wildfire Schedule for daily assigned State Duty Officer Contact. Schedule is issued on a monthly basis and sent to WFO.

DNR Forest Service
HEADQUARTERS

Monte Mitchell: *State Fire Supervisor*
monte.mitchell@maryland.gov
Maryland DNR Forest Service
580 Taylor Ave E-1
Annapolis, MD 21401
(410) 260-8503 Office
(410) 533-8747 Cell

DNR Forest Service
WESTERN

David Robbins: *Wildfire Mitigation Specialist*
David.Robbins1@maryland.gov
Maryland DNR Forest Service
6620 Zittlestown Road
Middletown, MD 21769
(301) 791-4010 Office
(301) 331-6432 Cell

DNR Forest Service
EASTERN

Chris Robertson: *Fire Manager*
chris.robertson@maryland.gov
Maryland DNR Forest Service
4329 Golden Hill Road
Church Creek, MD 21622
(410) 228-1871 Office
(410) 534-6884 Cell

Appendix C (SAMPLE PRODUCTS)

FIRE WEATHER PLANNING FORECAST

MDZ004>007-242115-
FREDERICK MD-CARROLL-NORTHERN BALTIMORE-HARFORD-
INCLUDING THE CITIES OF...FREDERICK...WESTMINSTER
551 AM EST TUE FEB 24 2017

	TODAY	TONIGHT	WED
CLOUD COVER	MCLEAR	MCLEAR	PCLDY
PRECIP TYPE	NONE	NONE	NONE
CHANCE PRECIP (%)	0	0	0
MX/MN TEMP(24H TREND)	40 (+3)	17 (-2)	49
MX/MN RH% (24H TREND)	24 (-6)	59 (+2)	27
AM WIND (MPH)	NW 12		LGT/VAR
PM WIND (MPH)	NW 9	LGT/VAR	S 9
PRECIP AMOUNT	0.00	0.00	0.00
PRECIP DURATION			
PRECIP BEGIN			
PRECIP END			
MIXING HGT(FT-AGL)	4290		3990
TRANSPORT WND (MPH)	NW 14		S 12
VENT RATE (KT-FT)	51860		38500
LAL	1	1	1
HAINES INDEX	4	4	4

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 7...
.THURSDAY...MOSTLY CLOUDY. LOWS IN THE LOWER 30S. HIGHS IN THE UPPER 50S. SOUTH WINDS 10 TO 15 MPH.
.FRIDAY...CLOUDY WITH A CHANCE OF RAIN SHOWERS. LOWS AROUND 40. HIGHS IN THE MID 50S. WEST WINDS 15 TO 20 MPH.
.SATURDAY...MOSTLY CLOUDY. LOWS IN THE LOWER 30S. HIGHS IN THE MID 40S. NORTH WINDS 15 TO 20 MPH.
.SUNDAY...MOSTLY CLOUDY. LOWS IN THE MID 20S. HIGHS IN THE LOWER 40S. NORTHWEST WINDS 10 TO 15 MPH.
.MONDAY...PARTLY CLOUDY. LOWS IN THE LOWER 20S. HIGHS IN THE MID 40S. WEST WINDS 10 TO 15 MPH.

.OUTLOOK 8 TO 14 DAYS...
TEMPERATURES NEAR NORMAL. PRECIPITATION ABOVE NORMAL.

NFDRS Forecast (FWM)

WBCFWMLWX
TTAA00 KWBC DDHHMM
FCST,180201,101113,13,2,62,45,1,2,SW,18,,71,55,90,40,3,1,N

Specifically, here is what's in the product WBCFWMWBC:

Maryland Fire Plan 2018

1) FCST = Tells the NFDRS the following is a forecast.
2) xxxxxx = Six digit station number. Initially, WBC will issue forecasts only for these sites:

- *180201 – Green Ridge, MD (Allegany County)*

3) Tomorrow's date (e.g., 101113 is November 13th, 2010)
4) Time of forecast (e.g., 13 = 1300 Local Time = 1 PM)
5) A one digit code for weather forecast at time of observation 1300 LOCAL (1PM) tomorrow. The following are valid codes:

0 = clear
1 = scattered clouds
2 = broken clouds
3 = overcast
4 = fog
5 = drizzle
6 = rain
7 = snow, sleet, freezing rain
8 = showers over or in sight of station
9 = thunderstorms

6) Temperature forecast at 1pm tomorrow (degrees F)
7) Humidity forecast at 1pm tomorrow (0-100 percent)
8) Lightning activity from 1pm today through midnight tonight. See following note.
9) Lightning activity from midnight tonight to midnight the upcoming (next) day. See following note.

NOTE ON LIGHTNING ACTIVITY ENTRIES 8 and 9:
The codes really have more to do with areal coverage than anything. Here is basically the breakdown:

- *1) No lightning forecast.*
- *2) Isolated thunderstorms (10 percent areal coverage).*
- *3) Widely scattered thunderstorms (10-20 percent coverage).*
- *4) Scattered thunderstorms (30-40 percent areal coverage).*
- *5) Numerous thunderstorms (>50 percent coverage). Frequent lightning potential.*
- *6) Frequent lightning from "dry" thunderstorms (we will likely never use this here at WBC).*

10) Wind direction forecast for 1pm tomorrow (2 letter XX format, use ordinal compass points, e.g., S, SW, NE).
11) Wind speed (mph) forecast for 1pm tomorrow.
12) MISSING ELEMENT for fuel moisture - LEAVE BLANK (fire officials compute this).
13) High temperature forecast (deg F) next 24 hours (occurring either today or tomorrow).
14) Low temperature forecast (deg F) next 24 hours (occurring either today or tomorrow).
15) Humidity maximum (%) over next 24 hours (1pm today-1pm tomorrow).
16) Humidity minimum (%) over next 24 hours (1pm today-1pm tomorrow).
17) Precipitation duration (in hours) through 5am the next morning.
18) Precipitation duration (in hours) 5am to 1pm the next day.
19) Y or N - to indicate a snow pack or soaked ground.

Spot Forecast

```
.DISCUSSION...

HIGH PRESSURE LOCATED OFF THE SOUTHEAST U.S. COAST WILL STRENGTHEN
```

THROUGH THE WEEKEND...LEADING TO WELL ABOVE NORMAL TEMPERATURES.
THERE WILL BE LOW CLOUDS AND FOG POSSIBLE DURING THE OVERNIGHT AND
MORNING HOURS EACH DAY. A COLD FRONT WILL PASS THROUGH MONDAY
BRINGING THE LIKELIHOOD OF SHOWERS. HIGH PRESSURE WILL RETURN FOR
THE MIDDLE PORTION OF NEXT WEEK.

.TODAY...

SKY/WEATHER.....MOSTLY SUNNY (35-45 PERCENT).
MAX TEMPERATURE.....AROUND 64.
MIN HUMIDITY.....52 PERCENT.
WIND (20 FT).....SOUTHWEST WINDS 7 TO 9 MPH. GUSTS UP TO 20 MPH
EARLY IN THE AFTERNOON.
MIXING HEIGHT.....200-1500 FT AGL...INCREASING TO 1800-3200 FT
AGL IN THE AFTERNOON.
TRANSPORT WINDS.....WEST 6 TO 15 MPH...BECOMING SOUTHWEST 14 TO 20
MPH LATE IN THE MORNING.
SMOKE DISPERSAL.....POOR TO GOOD (800-46500 KNOT-FT)...INCREASING
TO FAIR TO GOOD (22400-51600 KNOT-FT) EARLY IN
THE AFTERNOON.

TIME (EST)	11 AM	1 PM	3 PM	5 PM
SKY (%)	50	47	42	41
WEATHER COV				
WEATHER TYPE	NONE	NONE	NONE	NONE
TEMP	59	63	64	60
RH	60	54	52	60
20 FT WIND	W 7	SW 6	SW 6	SW 6
20 FT WIND GUST	11	11	11	11
VRATE KT-FT/1000	22	47	49	22

.TONIGHT...

SMOKE DISPERSAL.....POOR TO POOR (400-8000 KNOT-FT).

TIME (EST)	6 PM	8 PM	10 PM	MIDNGT	2 AM	4 AM
VRATE KT-FT/1000	8	0	1	1	1	1

.SATURDAY...

SMOKE DISPERSAL.....POOR TO FAIR (600-22800 KNOT-FT).

TIME (EST)	6 AM	8 AM	10 AM	NOON	2 PM	4 PM
VRATE KT-FT/1000	1	1	1	14	23	12

FIRE WEATHER WATCH (Example)

…FIRE WEATHER WATCH IN EFFECT FROM MONDAY MORNING THROUGH MONDAY AFTERNOON…

- **WIND**…WEST 20 TO 25 MPH
- **RELATIVE HUMIDITY**…MINIMUM RELATIVE HUMIDITY WILL BE BETWEEN 15 AND 20 PERCENT.
- **FUEL MOISTURE**…BETWEEN 5 AND 6 PERCENT.

A FIRE WEATHER WATCH MEANS THAT CRITICAL FIRE WEATHER CONDITIONS ARE FORECAST TO OCCUR. LISTEN FOR LATER FORECASTS AND POSSIBLE RED FLAG WARNINGS.

RED FLAG WARNING (Example)

…RED FLAG WARNING IN EFFECT UNTIL 6 PM EDT MONDAY…

- **WINDS**…WEST 20 TO 25 MPH
- **RELATIVE HUMIDITY**…MINIMUM RELATIVE HUMIDITY WILL BE BETWEEN 15 AND 20 PERCENT.
- **FUEL MOISTURE**…BETWEEN 5 AND 6 PERCENT.

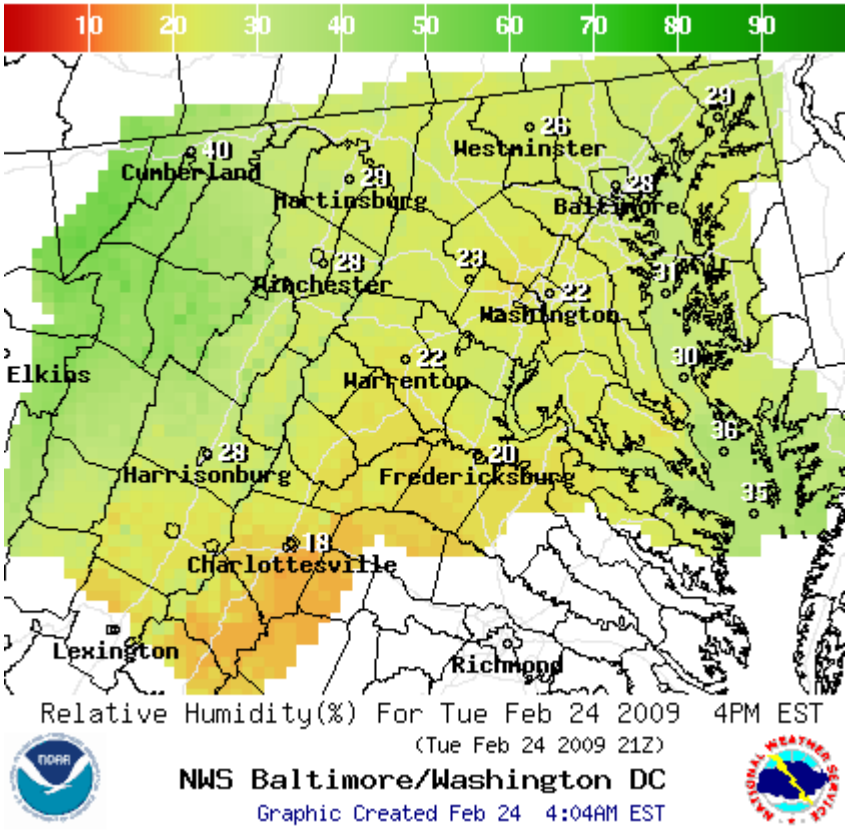
A RED FLAG WARNING MEANS THAT CRITICAL FIRE WEATHER CONDITIONS ARE EITHER OCCURRING NOW...OR WILL SHORTLY. A COMBINATION OF STRONG WINDS...LOW RELATIVE HUMIDITY...AND WARM TEMPERATURES WILL CREATE EXPLOSIVE FIRE GROWTH POTENTIAL.

SPECIAL WEATHER STATEMENT (Example)

...ENHANCED FIRE THREAT THIS AFTERNOON AND EARLY EVENING...

NORTHWESTERLY WINDS OF AROUND 15 MPH WITH GUSTS OF 25 TO 30 MPH WILL DEVELOP THIS MORNING ACROSS THE REGION AND WILL BE ACCOMPANIED BY A DRY LOW-LEVEL AIRMASS. WITH DEAD FUEL MOISTURE REMAINING AT 7 TO 8 PERCENT TODAY AND MINIMUM AFTERNOON RELATIVE HUMIDITIES OF 30 TO 35 PERCENT EXPECTED...THERE IS AN ENHANCED THREAT FOR THE SPREAD OF FIRES THIS AFTERNOON. OPEN BURNING IS STRONGLY DISCOURAGED TODAY.

GRAPHICAL FIRE WEATHER FORECAST


10 20 30 40 50 60 70 80 90
Cumberland
40
Hartinsburg
29
Westminster
26
29
28
Baltimore
28
28
Winchester
28
22
Washington
Elkins
22
Warrenton
30
36
Harrisonburg
29
Fredericksburg
20
35
Charlottesville
18
Lexington
Richmond
Relative Humidity(%) For Tue Feb 24 2009 4PM EST
(Tue Feb 24 2009 21Z)
NWS Baltimore/Washington DC
Graphic Created Feb 24 4:04AM EST