

Fire Weather Operations Plan For Weather Forecast Office Jackson Mississippi



**For the County Warning Area of Extreme Southeast Arkansas
Northeast Louisiana and Most of Mississippi**

For 3/2017 to 3/2018

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Introduction

The Weather Forecast Office(WFO) forecast staff will issue a core suite of fire weather products consisting of the following for our fire weather service area:

- a. Fire Weather Planning Forecasts(fire weather zones)
- b. National Fire Danger Rating System Forecasts(NFDRS)
- c. Spot Forecasts
- d. Fire Weather Watches
- e. Red Flag Warnings
- f. Fire Danger Statements
- g. Fire Weather Matrix Forecasts
- h. Hazardous Weather Outlook for Fire Danger Situations
- i. Statewide Fire Danger Graphicast

Meteorologists-in-Charge(MIC) and WFO fire weather program leader will annually reassess the criteria for issuance, frequency of issuance, format, content, dissemination, etc for each fire weather product. The Fire Weather Planning Forecast is a zone-type product used by land management personnel primarily for input in decision-making related to pre-suppression and other planning. The decisions impact firefighter safety, protection of the public and property, and resource allocation. The Fire Weather Forecast is a routine product that will be issued twice on a daily basis. The AOP contains actual issuance criteria and frequency of issuance information based on customer needs. The Fire Weather Forecast is valid from the time of issuance through day seven.

The forests of Mississippi are an important part of the states resources and are managed primarily by the Mississippi Forestry Commission(MFC) and the United States Forest Service (USFS) on public lands. The delta region of Northeast Louisiana and extreme Southeast Arkansas are primarily managed by the Louisiana and Arkansas State Forestry. Primary responsibility for providing meteorological support services resides with the Meteorologist in Charge at the Weather Forecast Office in Jackson, Mississippi. The objective of the fire weather services program is to provide meteorological support to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands. The National Weather Service shall issue fire weather forecasts and warnings as well as meteorological support for the public wildlands in support of the National Agreement for Meteorological Services in support of agencies with land management and fire protection responsibilities. The purpose of this operations plan is to provide guidance for all forestry interests as to the meteorological support that is available from the National Weather Service

Coordination

The Fire Weather Program Leader acts as the coordinator for the exchange of weather information from the National Weather Service to public and private forestry interests. As such, the Fire Weather Program Leader is in regular contact with wildfire and land management agencies, helping them assess their meteorological needs and informing them of the National Weather Service products and services available. Since two or more agencies are being served, strong efforts will continually be made for an agreement on common products, services, and formats to streamline NWS operations and still meet customer requirements. The Fire Weather Program Team works with the Fire Control Directors of the Regional State Forestry Commissions and the Regional Fire Management Officers of the US Forest Service to coordinate the program using the most efficient forecast and communications techniques available. The Fire Weather Program Leader, with the support of the Meteorologist in Charge, will keep the NWS staff forecasters informed and trained in meeting the forestry program objectives.

II. Service Area and Organization Directory

A. Service Area

The area served by WFO Jackson consists of the following parishes and counties in the County Warning Area.

Extreme Southeast Arkansas(Mississippi Delta Region) Ashley...Chicot Counties

There are no national forest units involved in this area. These counties reside in the Southeast State Forestry District number 1 of Arkansas. An illustration is attached in the Appendix Section.

Northeast Louisiana(Mississippi Delta Region) Morehouse...West Carroll...East Carroll...Richland...Tensas...Franklin...Madison... Concordia...Catahoula Parishes.

There are no national forests units involved in this area. These parishes reside in the eastern units of the State Forestry Districts 6 and 8. An illustration is attached in the Appendix Section.

Most of Mississippi...

The southern tier of the Northern Mississippi Counties of :

**Bolivar...Sunflower...Leflore...Grenada...Carroll...Montgomery...Webster...Choctaw.
..Clay..Oktibbeha...Lowndes...Washington...Humphreys...Holmes...Attala...Winston.
..Noxubee.**

These counties include the southern unit of the Tombigbee National Forest. These counties reside in the State Forestry Districts of most of the Northwest Forestry District...extreme southern unit of the Northeast District, and the northern unit of the East Central District. An illustration is attached in the Appendix Section.

The Central Mississippi Counties of :

Issaquena...Sharkey...Yazoo...Madison...Leake...Neshoba...Kemper...Warren...Hinds...Rankin...Scott...Newton...Lauderdale...Claiborne...Copiah...Simpson...Smith...Jasper...Clarke.

These counties include the Delta National Forest, Bienville National Forest, and the northern unit of the Homochitto National Forest. These counties reside in the State Forestry Districts of the southern unit of the Northwest District, the northern unit of the Southwest Ranger District, the northern unit of the South Central District, and the southern unit of the East Central District. An illustration is attached in the Appendix Section.

Portions of Southern Mississippi...which consist of :

Jefferson...Adams...Franklin...Lincoln...Lawrence...Jefferson Davis...Covington...Jones...Marion...Lamar...Forrest.

These counties include the southern unit of the Homochitto National Forest and the northern unit of the Desoto National Forest. These counties reside in the State Forestry Districts of the southern unit of the Southwest District, the southern unit of the South Central Ranger District and the northern unit of the Southeast District. An illustration is attached in the Appendix Section.

C. List of WFO Backup Offices for Forestry:

Primary Backup WFO Huntsville

Secondary Backup WFO Shreveport

III. Forestry Services and Products

Fire Weather Forecasts:

The Fire Weather Forecast is designed to provide land management personnel weather input to be used for decision-making related to fire pre-suppression activities and other planning throughout the year.

Dissemination:

This product is distributed to land management and fire weather agencies over the internet.

WFO Jackson..... <http://www.weather.gov/jan/fireweather>

General Elements:

The following elements will be included in the Fire Weather Forecast products issued.

A. Headlines: A headline is used when Red Flag Warnings and/or Fire Weather Watches are in effect. The headlines will include the warning type, location and effective time period. The location will be described in terms of geographic or other easily identified markers, such as cities, towns , rivers, or highways. The headline for a warning and/or watch will also be included in each appropriate zone grouping.

B. Discussion: The discussion is a brief, clear, non-technical description of weather patterns, like a brief weather summary, that will influence the weather in the County Warning Area. The discussion will focus on the first two days of the forecast period. Any weather that has an impact on forestry operations, such as severe weather, fog, etc shall be included in the remarks section.

C. FIPS UGC Coding and County Description: The FWF format(UGC) is used to identify each specific forecast zone(on a county level) within a Fire Weather Forecast product.

D. Fire Weather Forecast Periods: The fire weather forecast periods will have three 12-hour periods in the morning forecast, and four 12-hour periods in the afternoon forecast. During these periods the standard and locally requested elements are included in each period of the forecast. Both issuances will have a general outlook out to seven days. In the general outlook section, a forecast period is a 24-hour time slot, beginning at midnight and ending at midnight the next day.

E. Standard Elements of Sky...Weather...Chance of Precipitation: These descriptors generally follow the same guidelines as those used in the public zones, which is issued to the general public.

F. Standard Elements of Maximum and Minimum temperatures: Expected highs and lows during each of the 12-hour periods along with 24 hour trends for the first two periods.

G. Standard Elements of Maximum and Minimum relative humidity. Expected maximum value at night and minimum value on days during each of the 12-hour periods along with 24 hour trends for the first two periods.

H. Standard Element of Wind: The general true 16 points of a compass direction and speed of the wind for each period. Maximum and gusty winds should be included...especially high gusty variable winds.

I. Standard Elements in the 3-7 Day Period will include: general sky conditions, chance of precipitation and strong gusty winds(breezy...windy), as well as general maximum and minimum temperatures.

J. Optional Elements: The local optional elements for the WFO Jackson forecast will include:

1. Stag Index
2. Ventilation Index
3. Category Day
4. Stability
5. Wind shifts
6. Precipitation Begins/Ends/Amounts/Duration
7. 500 meter/1700 ft Temperature
8. Afternoon Mixing Height/Transport Direction/Transport Speed in metric and english units
9. Maximum Lvori
10. Dispersion Index
11. SILT/500 MLT(F) which is the Surface Inversion Lifting Temperature/500 Meter Mixing Layer Temperature Degrees.
12. Remarks

The Optional Elements will be explained in Appendix J.

Fire Weather Forecast (product identifier JANFWFJAN; WMO Header FNUS54 KJAN); from the Jackson NWS office are issued twice a day; once by 8 am and again around 2 pm, with additional updates as needed.

If the NWS Gateway to WIMS or the Internet is down...then the update will have to be faxed to all three centers.

Coordination across county warning areas should be done with the following...Memphis for North Mississippi...Little Rock for extreme Southeast Arkansas...Shreveport for Northeast Louisiana, New Orleans, and Mobile for South Mississippi as well as Birmingham for East Mississippi. This will be for Fire Weather Watches, Red Flag Warnings, and Fire Danger Statements using NWS Chat.

The Mississippi Coordination Center can contact the office by NWS chat in the event of large fires that require a large amount of personnel and resources. This has to be done by private chat only. The Center will relay information to the dispatcher and the

dispatcher to the field personnel battling the large fire. The private chat will go back and forth. This will work for the USFS, MFC, NPS and the Fish and Wildlife Service.

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The following primary state and federal agencies will do prescribed burning utilizing our forestry forecasts. There are also private companies that do prescribed burns as well.

1. US Forest Service
2. Regional State Forestry Commissions of Arkansas, Louisiana and Mississippi
3. National Park Service
4. US Department of Interior
5. US Fish and Wildlife
6. County and Local Fire Departments as well as agricultural burning in NE Louisiana

Elements of the Fire Weather Forecast

A Fire Weather Forecast that supplements the public zone forecast is sent into the world wide web of the Internet and WIMS(weather information management system) through AWIPS. The County Warning Area is divided into eight climatological homogenous zones for forestry forecast purposes. The forecast product is derived from the NAM gridded model. The forestry forecasts are adapted by the USFS and the regional state forestry commission of Arkansas, Louisiana, and Mississippi to their own district formats. The normal fire danger season occurs from October through May. Ongoing site preparation and forest management continues throughout the year.

The Fire Weather Program Focal Point is not a full time assignment. The morning fire weather forecast is prepared initially each day by the forecaster using the latest available weather information. The afternoon fire weather forecast is prepared by 2 to 3 pm.

The morning forecast is made up of three periods: Today, Tonight, and Tomorrow. This forecast is followed by an extended period going from day 3 through 7. The afternoon forecast is an update that is prepared with four periods: Tonight...Tomorrow...Tomorrow Night and the following day which is followed by the extended forecast.

Additional sources to determine the fire weather forecast are located in the fire weather section of the Jackson home page. These include:

1. Lower atmospheric stability(Haines Index)...Keetch Byram Index...Fire Danger Index, Maximum Lvorl Index, Vent Index, Silt/500 mlt, and Dispersion Index.
2. Hourly RAWs observations from the internet.
3. Monitor Fire Weather Watches and Redflag Warnings across the South.

The fire weather forecast is issued each day by usually between 5 and 8 am as well as between 2 and 4 pm local time. If there are data collection delays, then the forecast

parameters have to be estimated. The forecast will so state and will be sent into the internet and WIMS through AWIPS no later than 815 am or 415 pm.

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The Arkansas, Louisiana and Mississippi Coordination Centers are open 24 hours a day/7 days a week, including all holidays. We do not give out forestry forecast information by via phone or NOAA Weather Radio. The forecaster can check the internet for the forecast from the forestry section of the Jackson Homepage.

Also any morning updates will be issued based on the following:

1. When bad weather conditions favor a sudden change in stagnation index.
2. When sudden increases and decreases of moisture are staged to move over the region...especially during the very dry high fire danger conditions. In other words big changes on the minimum relative humidity during the 1st period of the fire weather forecast...especially under very dry soil and vegetative conditions.
3. Also especially during very dry periods if heavy rains are on the horizon...in which the current rainfall amounts and duration needs to be changed.
4. If a strong cold front is making up for lost time on its approach with possible gusty winds...which could affect transport wind forecast...mixing heights/temperature...vent index...silt/500 mlt...maximum Ivori index...category day and stability index.

The best way to update the forestry forecast for the first period is to rerun the forecast after the grids have been updated and then send it out with the headline...updated at such time with the following parameters updated and for what zones. All three regional coordination centers needed to be phoned if their areas has been included in the update. Special non-routine forecasts to aid in smoke management, prescribed burning, or ongoing wild fires will be provided by the duty forecaster upon request.

...Content and Form of Morning/Afternoon Forestry Forecast...

The morning/afternoon regional forestry forecast is sent in the following format:

I. It is divided into 8 homogeneous zones with three morning periods: Today, Tonight and

Tomorrow as well as afternoon periods: Tonight, Tomorrow, Tomorrow Night, and Day After . Each of these zones has a listing of the corresponding counties and their Mississippi, Louisiana, and Arkansas zones. The extended forecast will be in fire weather zone. Each of these zones has a listing of the corresponding countries and their Mississippi, Louisiana, and Arkansas zones. The extended forecast will be in fire weather zone.

II. Red flag...This section will cover any rare Red flag Warnings or Fire Weather Watches that are in effect. It will state which part of the region is under the High Fire Danger alert.

III. Synopsis...This section will cover the expected weather that will affect the forestry forecast for the next several days. The emphasis will be on any weather that will increase fire behavior parameters for the region...such as low humidities...dry fronts...gusty winds...thunderstorms...severe weather...etc.

IV. Pollution Data...The air pollution information is used as a guide for prescribed burning and for issuing burning permits. Each day the data released will be as follows:

- a. Silt/500m mlt...which is the surface inversion lifting temperature and 500m mixing layer temperature. This is defined as the minimum ambient air temperature in which the heating of the earth's surface should allow smoke particles to rise into the atmosphere.
- b. Afternoon mixing height and transport wind speed and direction in both english and metric units.
- c. Afternoon vent index (product of mixing height and transport wind speed) in english and metric units.
- d. Category Day...which depends on the vent index...runs from 1 (poor dispersion) to 5 (good dispersion)
- e. Stability Index...which relates to the stability of the lower part of the atmosphere. It runs from F(stable) to A(very unstable). Helps to determine smoke plume dispersion.
- f. Maximum Lvori Index...which relates to the maximum value for low visibilities...such as fog. The pollution data is calculated from the forecast models...which was derived from the previous evening for the morning forecast and during the day for the afternoon forecast.. The forecaster modifies the model data along with the other parameters to meet the needs of our fire weather customers. The weather model calculates these values from a standard plot of the vertical temperature, moisture, and wind profiles. The mixing height is defined as the height above the ground level to which a parcel of air will rise using dry adiabatic thermal bouyancy. The transport wind is the average direction and speed through the mixing layer.

The MS Forestry Commission for the region will only issue burning permits when the mixing height is at least 500 meters or 1700 feet and the transport wind is 3 to 3.5 meters per second or 6 to 8 mph... It will vary slightly with Arkansas and Louisiana .

V. Stag Index...is a number from 0 to 3 computed from forecast variables that are produced from the NWS gridded models of the National Weather Service. The index is used by fire managers as a guide to smoke management. Forest Managers are cognizant of the need to occasionally restrict open burning in order to reduce atmospheric contaminants. Therefore, managers use the index as part of the overall

picture as input to issuing burning permits. A higher index correlates to greater stagnation...while a lower index of 0 or 1 correlates to greater dispersion of the smoke plume.

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Daytime Scale of 0: Burning permitted from sunrise to sunset.

Scale of 1: Burning permitted from 1 hour after sunrise until sunset.

Scale of 2: Burning permitted from 2 hours after sunrise until sunset.

Scale of 3: Burning permitted from 2 hours after sunrise until 1 hour before sunset.

Nighttime Scale of 0: Burning permitted from sunset to sunrise.

Scale of 1: Burning permitted until 4 hours after sunset.

Scale of 2: Burning permitted until 2 hours after sunset.

Scale of 3: No Burning permitted.

VI. Sky Conditions

The routine morning forestry forecast prepared each day includes the weather parameters below. If two or more sky elements co-exist within one parameter, the dominating one will be forecasted. Sky Conditions Forestry Forecasted Sky Conditions

0/10 to 1/10 opaque clouds

Sunny(day) Clear(night)

Less than 4/ 10 opaque clouds.

Most additional clouds are thin are blocking the sun out.
Mostly Sunny or Mostly Clear (Mosunny or Moclear)

(3/10 to 5/10 of sky covered by clouds

Partly Cloudy or Partly Sunny(day) (Ptcldy/Ptsunny)

6/10 to 8/10 of sky covered by clouds

Mostly Cloudy(mocldy)

9/10 or greater of sky covered by clouds

Cloudy

Clouds increasing in coverage

Increasing Clouds(incrg clouds)

Clouds decreasing in coverage clouds)

Decreasing Clouds(decrg)

VII. Temperatures

Routine temperatures forecasts will be estimated to a single value for each period for the forestry zones. The maximum temperatures are forecasted for daytime periods and the minimum for nighttime periods. The minimum temperature usually occurs around sunrise. When fronts are forecast to cross the region, conditions could vary considerably. Actual conditions in the zones may vary even more due to terrain characteristics, especially in clear sky and light wind situations at night.

VIII. Relative Humidity

Relative humidity is that ratio in percent of the amount of moisture in the air at a given temperature compared to the amount of moisture that air could hold if saturated(100%). The daytime humidity will be the minimum expected during the 12 hour period. The nighttime forecast will be the maximum during the 12 hour period. Usually, the minimum

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humidity occurs at the time of maximum temperature. Maximum humidity occurs at the time of minimum temperature. The forecast will be estimated at a single worst case scenario value that is expected in the zone. Values can change dramatically in a zone due to frontal passages, vegetation, topography, and weather conditions. It should be understood that forecast humidity accuracy often depends on accurate temperature forecasts. For example, if the maximum temperature is under forecast (too low), the relative humidity will be too high and vice versa.

IX. Wind Direction and Speed(AM and PM Winds)

Wind direction applies to the direction from which the wind will blow and the most likely condition to prevail over the zone using the standard 8 points of a compass. The wind speed is that speed in miles per hour, most likely to occur throughout the zone measured at standard 20- foot level above grassland or forest area. Speeds pertain to one-minute average while gusts pertain to maximum instantaneous values expected. The NAM gridded model calculates the morning and afternoon winds as well as the evening winds.

XI. Precipitation Probability

1. None - No precipitation expected
2. Isolated or Slight Chance(isold,slgt chc)- Precipitation Chance 20 % or less.
3. Chance (chc)- Precipitation Chance 30 to 50%
4. Likely(lkly)-Precipitation chance 60 to 70%
5. Categorical-Precipitation chance 80 to 100%

The forestry forecast will have an estimated value for each period.

XI. Precipitation Probability

1. None - No precipitation expected
2. Isolated or Slight Chance(isold,slgt chc)- Precipitation Chance 20 % or less.
3. Chance (chc)- Precipitation Chance 30 to 50%
4. Likely(lkly)-Precipitation chance 60 to 70%
5. Categorical-Precipitation chance 80 to 100%

The forestry forecast will have an estimated value for each period.

XII. Precipitation Duration/Begins and Ends

Duration will be in hours for each period of the forecast. It will usually be in the following ranges. 1 hour or less...1-2 hours...1-3 hours...2-4 hours...3-5 hours, 4-6 hours, over 6 hours. Rainfall times will be estimated if a significant area of rain is expected to cross the region. Otherwise timing will not be filled in for scattered or isolated activity.

XIII. Precipitation Amounts:

Forecasts will pertain to average basin precipitation liquid volume expected over the zone...while precipitation tends to be more uniform over a square area of the size of a forecast zone. The following amounts will be used for wetting rains for 12 hour forecast

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periods: Less than .10 inch; .10 inch to less than .25 inch; .25 inch to less than .50 inch; .50 inch to less than one inch; one inch or greater. (If greater amounts indicated...explain in the remarks section of the forecast.)

XIV. Windshifts:

Windshifts is defined in a significant change in wind direction of greater than 45 degrees. This will be the case in cold fronts, warm fronts, sea breeze fronts, and prefrontal troughs, or a weak surface trough. Outflow boundaries from thunderstorms or MCSs will not count as a windshift, since they are difficult to predict. (An explanation of the wind shift...should be mentioned in the remarks section, if significant weather is expected...like with a strong cold front).

XV. Maximum Fire Danger Index

The meteorological calculation of the minimum humidity and wind speed over a daily 12 hour period. It is the measure of the maximum fire danger, 0 is none, 1 is little, 2 is low, 3 is moderate, 4 is high and 5 is extreme.

XVI. Extended Forecast

This is a forecast that covers day 3 through 7 of the forecast period. It will be similar to the general public zone forecast product. The extended will be in each fire weather zone.

It will contain the following parameters

1. Generalized Sky Conditions/Weather
2. High and Low Temperatures
3. Surface Winds...including breezy or windy
4. The extended will be a copy of the public zones extended.

Fire Managers who need more specific information may place a call to the Weather

Forecast Office in Jackson or may wish to make suggestions writing to :

Weather Forecast Office Jackson

234 Weather Service Drive

Jackson, Mississippi 39232

Or call 601-936-2189

iv. Spot Forecasts

There may be times when a forest fire or prescribed burn is taking place so that a spot forecast may be necessary. We can also do a spot forecast for a state agency when they are working with a Federal Agency or a wildfire is taking place.

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It is imperative that as many observations as possible be received from the area that requires a spot forecast. This feature will greatly help to improve the accuracy of the forecast. A spot forecast would require the forecaster to estimate mixing heights, transport wind direction, temperature, wind, humidity, cloud cover, and possibly rainfall amounts. Other items that could be helpful for a spot forecast for 2-3 hour increments are.

1. Satellite for tracking cloud cover...storm systems and approaching cold front...etc.
2. Model soundings to estimate mixing heights and transport winds.
3. Weather data from the site that requested a spot forecast.
4. Using AWIPS, for the location...checking 1 to 3 hourly humidity fields, 1 to 3 hourly surface wind fields from the GFE Grids. 1 or 3 hourly vertical motions that could aid in fire spread rate. Also rainfall amounts.
5. Model soundings in AWIPS that affect the site fire can be very beneficial in determining the presence of an inversion, the low level winds, as well as low level moisture.
6. RUC and VAD Winds can be useful in tracking low level winds and upper level systems in vicinity of the fire.
7. Local and National HiRes models

The spot forecast will be filled out under AWIPS header JANFWSJAN. This will be for Prescribed Burns and Wild Fires. Based on the Web Based Spot Forecast concept. The FireWeather Customer will do the following:(Assuming the Southern Region Server is properly functioning)

1. Go to the fire weather section of the website and make a Spot Forecast Request.
2. The customer would fill out the necessary Spot Forecast Form provided...giving information on the location of the prescribed burn or wildfire in progress.
3. The request would be alarmed on AWIPS under JANSTQJAN and the Spot Forecast would be created on AWIPS product formatter or on a PC in the operations area.
4. The requested form would be filled out at the PC...using the web browser at the Spot Forecast section of the home page. and sent back to the web.

5. The fire weather section of the website will update...informing the customer that the product is ready..where our forestry customer would retrieve the product.

6. There will be a map showing the location of the Spot Forecast and the Status of the product(whether it be pending...or completed).

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Depending on customer needs for the Wild Fire situation. We will use the Prescribe Burn spot format or the Nationalized Wild Fire Format...which is not as detailed.

If the Southern Region Server is down then the faxed form for the old method would be done.

The Spot Forecast will be filled out on D-1.

- 1.)Name of the fire or other prescribed burn project
- 2.)Control Agency making the request
- 3.)Time and date of the said request
- 4.)Size of the fire or project in acres as well as elevation
- 5.)Type of vegetation that is being burned
- 6.)Exposure of fire(whether its on a hill or incline)
- 7.)Whether it is a ground fire or crown fire(tree top to tree top)
- 8.)Weather conditions at the fire from a nearby station such as:
 - A. 20 foot wind direction and speed
 - B. Dry/wet bulb temperatures
 - C. Relative humidity and dewpoint
 - D. Any close showers or storms

The forecast section will need to be filled in with the following information:

- 1) Weather Synopsis/Extended Outlook.
- 2.) Forecast material 3 periods at 2-3 hour intervals...for today...tonight...with a general outlook for the daytime tomorrow.
- 3.)Temperatures
- 4.)Relative Humidity
- 5.)Chance of Wetting Rains
- 6.)Mixing Heights/Transport Winds
- 7.)Sky Conditions
- 8.)Surface Winds

9.) Stagnation Index...if requested...(from AM forestry)

The forecast would be faxed to the requesting agency. Once again the only times that we would do it for the State Forestry Agencies in the region.

- a. A wild fire in progress
- b. State and Federal Agencies were working together on a project.

General Spot Information

There are two types of Spot Forecast Products (commonly referred to as Spots). The first one is issued to support land management personnel for activities associated with

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Prescribed Burns. The other is issued to support fire suppression activities of on-going wildfires. The main difference between the two is that the format and content of a Spot Forecast for a wildfire is standardized nationally, while the format for the Spot Forecast for a prescribed burn is determined by the local users and will vary from office to office.

Before any Spot Forecast is issued the requesting agency should provide information about the location, topography, fuel type(s), elevation(s), size, ignition time, and a contact name(s) and telephone/fax numbers of the responsible land management personnel. Also, representative observations at or near, the site of the planned prescribed burn or wildfire should be available to the responsible WFO prior to the issuance of the Spot Forecast by the web. In case of a wild fire or a prolonged burn, updated observations and information should be provided to the NWS during the course of the event. Spots should be updated whenever they become, or expected to become unrepresentative of the current forecast.

The general policy of providing spot forecasts is established by the local NWS offices and the local customers. The specific contents, issuance frequency, means of communication, and other details of distribution will be determined by local customers and NWS personnel at the time of the customer's request for spot service. Spot forecasts will include specific weather information giving into account the various parameters to the incident area. Critical weather element thresholds for the Spot Forecast will be determined by fire behavior analyst or other fuels/fire behavior expert who will define the range of wind, relative humidity, and any other factors which may cause significant changes to fire behavior. In the case of a prescribed burn, these thresholds are often defined in the Burn Plan, which is normally developed and approved well before a Spot forecast is requested.. In most cases, such information can be obtained directly from the on-site requester

Spot forecasts may be sent to the requester through the mutually-agreed upon distribution method. Requesters may communicate via a cell phone. In some cases, spot forecasts can be requested through a local Fire or Emergency Dispatch system. In other cases the fax may be the method to transmit...if the Southern Region Internet Server is

down. Standardized Spot Forecast for Wildfires(also for HAZMAT and Search and Rescue)

FNUS 74 KJAN DDHHMM

FWSJAN

SPOT FORECAST FOR (location of name of wildfire and requesting customer...ie USFS)

ISSUED BY THE NATIONAL WEATHER SERVICE JACKSON,MS

TIME-DATE(OCT 12, 2016)

VALID UNTIL <24 HOURS AFTER ISSUANCE>

IF CONDITIONS BECOME UNREPRESENTATIVE CONTACT YOUR NATIONAL WEATHER SERVICE

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.HEADLINE...(if a Redflag Warning/Fire Weather Watch(JANRFWJAN) a headline is Mandatory. Otherwise a headline should be added at every issuance.

Ex. SPOT FORECAST FOR (NAME OF WILDFIRE)

.DISCUSSION...Brief Weather Summary like a Red flag Warning affecting Fire Operations

.FIRST PERIOD

SKY COVER

WEATHER COVERAGE/TYPE

TEMPERATURE

HUMIDITY

WIND...(20 foot level)

OPTIONAL ELEMENTS...(as required by our Area/Visiting Customers in fire suppression or an IMET...Both may be from another part of the country)

.SECOND PERIOD

SKY COVER

WEATHER COVERAGE/TYPE

TEMPERATURE

HUMIDITY

WIND...(20 foot level)

OPTIONAL ELEMENTS...(as required by our Area/Visiting Customers in fire suppression or an IMET...Both may be from another part of the country.)

.THIRD PERIOD

SKY COVER

WEATHER COVERAGE/TYPE

TEMPERATURE

HUMIDITY

WIND...(20 foot level)

OPTIONAL ELEMENTS...(as required by our Area/Visiting Customers in fire suppression or an IMET...Both may be from another part of the country.)

Spot Forecasts Products Issued for Prescribed Burns

Spot forecasts will be prepared in a format requested by the local customer which can be in graphical or tabular form. In our forecast area we use the tabular format, which may contain any of the following elements as requested by our customers brief weather discussions, forecast , weather, surface winds,(including wind shifts), maximum/minimum temperatures and humidity. Upon customer request, other weather elements such as transport winds, mixing heights, stag index, chance of wetting rains, extended 18-24 hour outlook , etc. may be provided. Since spots are generally for small geographical areas. Areal weather descriptors(such as scattered showers, isolated showers, etc.) should not be used. The timing of significant events is important and in the case of wind shifts, extremely critical. Wind forecasts should clearly indicate the level of the wind forecast(i.e. eye level, 20-ft level).An example of a Spot Forecast Form for a Prescribe Burn:

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EXAMPLES OF THE 2 TYPES OF WEB BASED SPOT FORECASTS

Example of a Prescribe Burn Spot.

SPOT FORECAST FOR FREEDOM FEST...MERIDIAN NAVAL AIR STATION
NATIONAL WEATHER SERVICE JACKSON MS
1030 AM CDT THU JUN 23 2016

FORECAST IS BASED ON IGNITION TIME OF 1500 CDT ON JUNE 24.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...TEMPERATURES WILL CLIMB INTO THE LOWER 90S TODAY AND MID 90S FRIDAY. AFTERNOON HEAT INDEX VALUES FROM 1400-1800 WILL RANGE FROM 100 TO 105 DEGREES ON FRIDAY. TEMPERATURES WILL SLOWLY DECREASE THROUGH THE EVENING...BUT WILL LIKELY REMAIN NEAR 90 THROUGH 2000.

.TODAY...

TIME (CDT)	6 AM	10 AM	2 PM
SKY COVER.....	MCLDY	PCLDY	PCLDY
WEATHER COV.....		ISOLTD	ISOLTD
WEATHER TYPE....	NONE	RNSHWR	RNSHWR
TEMP.....	74	83	93

RH.....74 63 38

.TONIGHT...

TIME (CDT)	6 PM	10 PM	2 AM
SKY COVER.....	PCLDY	MCLEAR	MCLEAR
WEATHER COV.....	ISOLTD		
WEATHER TYPE....	RNSHWR	NONE	NONE
TEMP.....	92	80	76
RH.....	41	72	76

.FRIDAY...

TIME (CDT)	6 AM	8 AM	10 AM	NOON	2 PM	4 PM
------------	------	------	-------	------	------	------

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SKY COVER.....	MCLEAR	PCLDY	PCLDY	PCLDY	PCLDY	PCLDY
WEATHER COV.....						
WEATHER TYPE....	NONE	NONE	NONE	NONE	NONE	NONE
TEMP.....	73	79	88	93	96	96
RH.....	87	77	59	49	42	42

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FORECASTER...MAXIE

REQUESTED BY...BRYON GARRISON

TYPE OF REQUEST...PRESCRIBED

.TAG 20160624.FREED.01/JAN

.Example of a Wildfire Spot.

SPOT FORECAST FOR CHERRY CREEK FIRE...U.S. FOREST SERVICE

NATIONAL WEATHER SERVICE JACKSON MS

114 PM CDT WED OCT 12 2016

FORECAST IS BASED ON REQUEST TIME OF 1400 CDT ON OCTOBER 12.

IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER SERVICE.

.DISCUSSION...DANGEROUS FIRE DANGER CONDITIONS WILL CONTINUE FOR TODAY.

FIRE DANGER CONDITIONS WILL CONTINUE FOR THURSDAY WITH A LITTLE HIGHER

HUMIDITY ABOVE CRITICAL THRESHOLDS OF BELOW 30 PERCENT. WINDS WILL BE

GENERALLY LESS THAN 10 MPH THROUGH TOMORROW.

.REST OF TODAY...

TIME (CDT)	2 PM	4 PM
SKY COVER.....	CLEAR	CLEAR
WEATHER COV.....		
WEATHER TYPE....	NONE	NONE
TEMP.....	84	85
RH.....	30	28
20 FT WIND DIR..S		SE

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20 FT WIND SPD..3	3
20 FT WIND GUST.5	5

.TONIGHT...

TIME (CDT)	6 PM	8 PM	10 PM	MIDNGT	2 AM	4 AM
SKY COVER.....	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
WEATHER COV.....						
WEATHER TYPE....	NONE	NONE	NONE	NONE	NONE	NONE
TEMP.....	78	69	61	60	58	57
RH.....	39	57	78	84	90	93
20 FT WIND DIR..SE	SE	SE	SE	S	SE	SE
20 FT WIND SPD..3	2	1	1	1	1	1
20 FT WIND GUST.						

.THURSDAY...

TIME (CDT)	6 AM	9 AM	NOON	3 PM
SKY COVER.....	MCLEAR	MCLEAR	PCLDY	MCLEAR
WEATHER COV.....				
WEATHER TYPE....	NONE	NONE	NONE	NONE
TEMP.....	57	68	80	85
RH.....	90	76	51	39
20 FT WIND DIR..S		SW	NW	NE
20 FT WIND SPD..1		2	3	3

20 FT WIND GUST. 5 5

\$\$

FORECASTER...NWS JAN

REQUESTED BY...REGGIE NELSON

TYPE OF REQUEST...WILDFIRE

.TAG 1601422.0/JAN

V. NFDRS Single Station Forecasts

This product measures wildfire danger at RAW Sites. NFDRS observations are taken once per day. NFDRS forecasts are not intended to be site specific...but an overview of

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the general fire danger. Effective fire suppression planning depends heavily on NFDRS because it is an objective tool for predicting the difficulty of suppression a wild fire. The NWS role in NFDRS is forecasting weather input which, combined with customer input, allows NFDRS software to predict the next day's fire danger indices. Daily weather observations entered into NFDRS by the fire agencies form the basis of the forecast input by the NWS. Each NFDRS site is located at a spot which is representative of the terrain and fuel types dominant in that area.

NFDSRS Forecast Example 3/2/17

FNUS84 KJAN 022041
FWMJAN

FCST,223701,170303,13,0,60,27,1,1,NNE,06,,60,34,75,26,0,0,N
FCST,226102,170303,13,0,66,26,1,1,ENE,08,,66,37,75,19,0,0,N
FCST,225502,170303,13,0,65,28,1,1,NE,05,,65,36,79,21,0,0,N
FCST,227202,170303,13,0,67,26,1,1,NE,08,,67,37,75,18,0,0,N
FCST,225101,170303,13,0,64,26,1,1,NNE,06,,65,34,82,20,0,0,N
FCST,224101,170303,13,0,61,27,1,1,NNE,06,,61,33,82,27,0,0,N
FCST,226502,170303,13,0,67,26,1,1,NE,08,,67,36,72,23,0,0,N
FCST,223501,170303,13,0,61,31,1,1,NE,05,,61,35,85,28,0,0,N
FCST,225301,170303,13,0,64,25,1,1,NNE,06,,64,34,82,24,0,0,N
FCST,224601,170303,13,0,62,26,1,1,NNE,06,,63,34,78,24,0,0,N
FCST,227401,170303,13,0,68,25,1,1,NE,08,,68,36,79,19,0,0,N

\$\$

...STATION LOCATIONS...

223701 - TOMBIGBEE RAWS NEAR ACKERMAN/CHOCTAW CO
226102 - BUDE RAWS/FRANKLIN CO
225502 - COPIAH RAWS NEAR CRYSTAL SPRINGS/COPIAH CO
227202 - MARION RAWS NEAR FOXWORTH/MARION CO
225101 - BIENVILLE NF RAWS NEAR FOREST/SCOTT CO
224101 - NOXUBEE RAWS NEAR BLUFF LAKE/NOXUBEE CO
226502 - COVINGTON RAWS NEAR HOT COFFEE/COVINGTON CO

223501 - HOLMES RAWS NEAR TCHULA/HOLMES CO
225301 - LAUDERDALE RAWS NEAR ALAMUCHA/LAUDERDALE CO
224601 - NESHOPA RAWS IN PHILADEPHIA/NESHOPA CO
227401 - RAGLAND HILLS RAWS NEAR HATTIESBURG/FORREST CO

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Format for NFDRS

forecast...FCST,226102,030514,13,2,83,65,1,3,S,11,M,83,68,100,65,0,0,N

1. FCST...Forecast Point
2. 226102...NFDRS Station ID(22...State 61...County 02 Station ID)
3. 030516...Tomorrow's Forecast Date
4. 13...Local LST for Tomorrow's Forecast (always 1300)
5. 2...Weather valid at 1300 LST Tomorrow...0 (Clear) 1 (Scattered Clouds) 2 (Broken Clouds) 3 (Overcast Clouds) 4 (Foggy) 5 (Drizzle) 6 (Raining) 7 (Snowing) 8 (Showers at or near Station) 9 Thunderstorms
6. 83...Current Temp at 1300
7. 65...Current Relative Humidity at 1300
8. 1...LAL1 Lightning Activity Level from 1400 to 2300 LST
9. 3...LAL2 Lightning Activity Level from 2300 to 2300 LST (1 none...2 isolated...3 few...4 scattered...5 numerous...6 which is high based storms out west...which we will not deal with in the south.)
10. S,11...Wind...Windspeed valid at 1300 LST
11. M...Missing 10 hr Time lag fuel moisture(always missing)
12. 83...Maximum Temperature for Tomorrow
13. 68...Minimum Temperature for Tomorrow
14. 100...Maximum Humidity for Tomorrow
15. 65...Minimum Humidity for Tomorrow
16. 0...Precipitation Average Duration from 1400 to 0500 LST
17. 0...Precipitation Average Duration from 2300 to 2300 LST
18. N...Y or N...This indicates whether liquid water will be on the fuels at 1300 LST. Use with CAUTION- a Y will reset all the indices to zero. We will keep the value at N in our product for all stations.

VI. Red Flag Program

The purpose of the Fire Weather Watch and Red Flag Warning is to alert the public and land management agencies of developing weather conditions that, when combined with critically dry wildland fuels, could lead to dangerous wildfires...which will be issued using GHG and will be distributed under AWIPS Pil JANRFWJAN. Also will be headlined in the Forestry Forecast. Fire Weather Watch...will be issued 12 to 48 hours of the expected onset of Redflag Warning Criteria.

Red Flag Warning...will be issued when warning criteria is 12 to 24 hours or less. A warning will have its own section in the AFD. Instead of Fire Weather it will be(.Red Flag Warning...) along with a brief synopsis of the event.

Criteria for Red Flag Events for the ArkLaMiss:

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Fire Weather Watches/Red Flag Warnings are issued when the combination of dry fuels and weather conditions are such that extreme fire behavior or ignition is occurring or is expected to occur. Forecasters will coordinate local fire and land managers(Forestry Commissions /Coordination Centers/USFS to discuss the issuance of a issuance of a Fire Weather Watch or Red Flag Warning. In addition, issuing offices should coordinate with adjacent weather offices.

Below are some of the criteria to consider when evaluating Fire Weather Watch/Red Flag Warning.

Conditions: for Mississippi as of May 2008

1. Humidity less or equal to 25%.
2. 20 foot wind speed of greater or equal to 15 mph

For Louisiana Fire Weather Watch/Red Flag Conditions:

1. Relative Humidity less than 25%
2. 20 foot wind speed greater than or equal to 14 mph.
3. Considering 10 hour fuel moisture less than 10 percent

For Arkansas Fire Weather Watch/Red Flag Conditions

1. Relative Humidity less than 25%
2. 20 foot wind speed of greater than or equal to 14 mph.
3. Fuels critically dry, 10 hour fuels less than 10 percent

Fire Danger Statements

The office will also issue Fire Danger Statements. This product is issued under rare

circumstances of extremely dry or drought conditions for the entire or part of the region (AWIPS header JANSPSJAN). Distribution will be over NOAA Weather Radio, and Internet.

The statement will have the following items.

1) Highlight one of these statements

...FIRE DANGER INCREASING IN (Area to be Named)

...HIGH FIRE DANGER CONTINUES in (Area to be Named)

We will not use the term extreme.

2) Elaborate on the situation with a direct quote of the appropriate Fire Control Agency(State or Federal). The source of the quote will be clearly identified in the statement.

3) Indicate any changes(or no changes) in the weather situation expected over the next few days relative to the fire danger situation. We will leave fire behavior as far as rate of fire spread to the fire agencies.

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4) Request for individual cooperation. The state or federal agency request that caution be exercise to help prevent forest and grass fires.

5) The statement will also mention burning bans that could be in force for a series of counties over portions of the state or a special statewide burning ban that is imposed by the governor.

6) Fire Danger Statements shall be issued only at the request of the forestry services...especially the state forestry agencies...since they cover the public lands of the state. We are responsible for issuing Fire Weather Watches and Red Flag Warnings.

7) The Fire Danger product if so requested by the state and federal agency should be issued only from 10 am to 6 pm with a 15 minute interval on NOAA Weather Radio daily until sufficient rains can lower Fire Danger Potential.

VII. Fire Weather Training

National Weather Service fire weather meteorologists are available to assist fire control agencies with training at fire behavior school and other related courses. Requests for assistance should be forwarded to the Meteorologist-In-Charge(MIC) at the respective NWS office(s) by written letter. It is the responsibility of the Fire Weather Focal Point to keep the office trained and updated on fire weather forecasting and issues. National Weather Service fire weather meteorologists are available to assist fire control agencies with training at fire behavior school and other related courses. Requests for assistance should be forwarded to the Meteorologist-In-Charge(MIC) at the respective NWS office(s) by written letter.

Appendix A

Definitions:

When the following terms are used in this Agreement or in an operating plan, such terms will have the meanings stated below.

1. Fire Weather Office Operating Plan

A procedural guide which describes the services provided within the area of a fire weather offices responsibility.

2. Basic Meteorological Services

Basic, meteorological services are those state-of-the-science meteorological forecasts, warnings, observations, and statements produced in a designated NWS Fire Weather Office during normal working hours.

3. Fire Weather Zone or District

A fire weather zone or district is the area of routine responsibility as defined by NWS. This area is usually defined by climatological factors, but may be modified somewhat to the administrative boundaries of the Customer Agencies.

4. Normal Working Hours

Normal working hours are defined in the Operating Plan, but usually cover 8-hour workdays Monday through Friday...except during a fire season. In our County Warning Area the fire season is generally all year around and provide services on workdays Monday through Sunday.

5. Prescribe Fire

Prescribe fire is a fire burning in wildland fuels according to a planned prescription and confined within planned boundaries for the purpose of achieving specific objectives of resource management. (Prescribe burning is the practice of prescribed fire use.)

6. Red Flag

Red Flag is a program which highlights the onset of critical weather conditions to

extensive Wildfire Occurrences.

7. Special Meteorological Services

Meteorological services uniquely required by Customer Agencies which can not be provided at a designated NWS fire weather office during normal working hours.

8. Spot Forecasts

Spot forecasts are site-specific weather forecasts. They are issued upon request of Customer Agencies for wildfire, prescribed burns, or special projects.

9. On-site

That special service which dedicates a fire weather forecaster to a wildfire, prescribed fire, or special projects such that the fire weather forecaster is removed from providing basic services at his/her assigned weather office.

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Appendix E Fire Weather Observations Sites

Station	Stn#	County	State	Elev(Ft)	Lat.	Long.
Ragland Hills		Forrest	MS	285	31 12'	89 10'
Bienville	225101	Scott	MS	485	32 18'	89 28'
Bude	226102	Franklin	MS	447	31 24'	90 50'
Marion	227202	Marion	MS	380	31 12'	89 55'
Copiah	225502	Copiah	MS	150	31 56'	90 22'
Covington	226502	Covington	MS	290	31 44'	89 30'
Holmes	223501	Holmes	MS	220	33 13'	90 11'
Lauderdale	225301	Lauderdale	MS	221	32 22'	88 27'
Noxubee	224101	Noxubee	MS	350	33 16'	88 47'
Neshoba	224601	Neshoba	MS	554	32 43'	89 05'
Tombigbee	223701	Choctaw	MS	550	33 16'	89 08'

Appendix F Fire Weather Glossary

Active Crown Fire: A fire in which a solid flame develops in the crowns of trees.

Aerial Fuels: Standing and supported live and dead combustibles not in direct contact with the ground and consisting of mainly foliage, twigs, branches, stems, cones, bark, and vines.

Air Transportable Modular Unit (ASOS): The computer system which produces most of the National Weather Service surface observations.

Aspect: Direction toward which a slope faces. Available fuel: That portion of the total fuel that would actually burn under various environmental conditions.

Advance Weather Interactive Process (AWIPS): The main computer system that the National Weather Service uses to compose and transmit its forecasts and warnings.

Backfire: A fire set along the inner edge of a fire line to consume the fuel in the path of a wildfire and/or change the direction of a force of the fire's convective column.

Backing Wind: Wind that changes direction in counter clockwise motion.

Blowup: A sudden increase in fire line intensity or rate of spread of a fire sufficient to preclude direct control or to upset existing suppression plans. This is often accompanied by violent convection.

Burning Index: An estimate of the potential difficulty of a fire containment as it relates to the flame length at the head of the fire.

Burn-off temperature at 500 meters: The forecast temperature at the time in which the

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mixing height is expected to reach 500 meters.

Carrier Fuels: The fuels that support the flaming front of the moving fire.

Chain: A unit of measure equal to 66 feet(20 meters).

County Warning and Forecast Area(CWFA): The area in which a NWS office is responsible for issuing forecasts and warnings.

Compactness: Spacing between fuel particles.

Creeping Fire: A fire burning with a low flame and spreading slowly.

Crown Fire: A fire that advances from top to top of trees or shrubs more or less independent of surface fire.

Dead Fuels: Fuels with no living tissue in which moisture content is governed entirely by absorption or evaporation of atmospheric moisture.

Dispersion Index: The dispersion in concentration of air pollutants as they spread throughout an increasing volume of atmosphere.

Drainage Wind: Normal nighttime airflow directed downslope or down valley, caused by cooling of the air near the earth's surface. Air sinking toward lower elevations is usually quite gentle(light) in nature.

Dry Lightning: A thunderstorm in which little if any precipitation occurs at the ground.

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Effective Windspeed: The midflame windspeed adjusted for the effect of slope on fire spread. **Equilibrium Moisture Content:** Moisture content that a fuel particle will attain if exposed for an infinite period in an environment of specified constant temperature and humidity.

Extreme Fire Behavior: Fire behavior characterized by one or more of the following...high rate of spread...profile crowning and/or spotting...presence of fire whirls...strong convection column.

Eye-level(six foot) Wind: Wind measured at eye level by a hand-held wind meter. These winds are affected by vegetation and terrain and are often used as mid-flame wind.

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Fine Fuel Moisture: The moisture content of fuels such as grass, leaves, ferns, tree moss, pine needles, and small twigs.

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast: A prediction of probable fire behavior, usually prepared by a fire behavior analyst in support of fire suppression or prescribed burning operations.

Fire Behavior Prediction System(FBPS): A system that uses a set of mathematical equations to predict certain aspects of fire behavior in wildland fuels when provided with data on fuel and environment.

Fire Behavior Analyst: Person responsible to the planning section chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuel, weather, and topography.

Firebrand: Any source of heat, natural or human made, capable of igniting wildland fuels. **Fire Danger:** A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do danger, also the degree of control difficulty to be expected.

Fire Danger Rating: A fire management system that integrates the effects of selected fire danger factors into one or more qualitative or numerical indices of current protection needs.

Fire Front: The part of a fire within which continuous flaming combustion is taking place.

Fire Season: Period(s) of the year during which wildland fire are likely to occur, spread, and affect resources to warrant organized fire management activities.

Fire Season: Violent convection caused by a large continuous area of intense fire.

Fire Weather Service Area: A geographical area of responsibility for which the local National Weather Service office provides fire weather products.

Fire Weather Watch: A NWS product used to alert fire fighting officials to a potential critical fire weather situation.

Fire Whirl: Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris, and flame.

Flame Depth: The depth of the fire front.

Flame Height: The average maximum vertical extension of flames at the leading edge of the fire front.

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Flare-up: Any sudden acceleration in rate of spread or intensification of the fire.

Flash Fuels: Fuels such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash which ignite readily and are consumed rapidly when dry.

Forecast Period...Today.....Sunrise to sunset
This Afternoon.,,.....Noon to 6 pm
Tonight.....Sunset to sunrise
Tomorrow.....6 am to 6 pm of the following day

Free-Air Wind: The wind above the ground level and not influenced by terrain, vegetation, etc.

Fuel: Combustible material.

Fuel Class: A group of fuels possessing common characteristics.

Fuel Group: An identifiable association of fuel elements of distinctive species, form, size arrangement, or other characteristics.

Fuel Moisture: The amount of water in a fuel, expressed as a percentage of the oven dry weight of the fuel.

Fuel Moisture Indicator Stick: A specially prepared stick of known dry weight continuously exposed to the weather and periodically weighed to determine changes in moisture content as an indication of moisture changes in wildland fuels.

General Fire Weather Forecast(FWF): A forecast, issued daily during the fire season, that is intended for planning purposes by land management agencies. Also called routine fire weather forecast or simply fire weather forecasts.

Ground Fire: Fire that consumes the organic material beneath the surface litter on the ground.

Gust: A sudden, brief increase in the speed of the wind.

Haines Index(HI): An atmosphere index used to indicate the potential for wildfire growth by measuring the stability and dryness of the wind.

Holdover Fire: A fire that remains dormant for a considerable time.

Hot Spot: A particular active part of a fire.

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Humidity Recovery: The change in humidity over a given period of time generally between late evening and sunrise.

Head fire: A fire spreading or set to spread with the wind.

Heavy Fuels: Fuels of large diameter, such as logs which ignite and are consumed more slowly than flash fuels.

Ignition Probability: The chance that a firebrand will cause an ignition when it lands on receptive fuels.

Incident Meteorologist(IMET): A specially trained meteorologist who provides site specific weather forecasts and information to fire fighting field personnel.

Independent Crown Fire: A fire that advances in the tree crowns alone, not requiring any energy from the surface fire to sustain combustion or movement.

Inversion: An increase of temperature with height in the atmosphere.

Keetch-Byram Drought Index(KBDI): A drought index specifically for the fire management applications. It has a numerical range from 0(no moisture deficiency to 800(maximum drought). Light fuels: See fine fuels.

Lightning Activity Level(LAL): A number, on a scale from 1 to 6, which reflects frequency and character of cloud-to-ground lightning. The scale from 1 to 5 deals with wet thunderstorms where 5 represents numerous thunderstorms with frequent lightning. 6 represents dry lightning.

Litter: The top layer of forest floor, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles.

Live Fuels: Living plants, such as trees, grasses and shrubs.

Long-Range Spotting: Large glowing firebrands are carried high into the convective column and then fall out downwind beyond the main fire starting new fires.

Maximum Lvari: which relates to the maximum value for low visibilities...such as fog. Values range from 0(lower chance of low visibilities) to 10(highest chance of low visibilities).

Micro-Remote Environmental Monitoring System(MICRO-REMS): A mobile weather monitoring station.

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Mid-Flame Wind: The wind that acts directly on the flaming fire front at a level one-half the flame height.

Mixing Height: The depth measured from the surface in which vigorous atmospheric mixing occurs. The mixing height is found at the base of an inversion.

Moisture of Extinction: The fuel moisture content at which the fire will not spread.

National Fire Danger Rating System(NFDRS): A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Interagency Fire Center(NIFC): A facility located in Boise, ID, jointly operated by several federal agencies, dedicated to coordination, logistical support, and improved weather services in support of fire management operations throughout the United States.

Offshore flow: Wind blowing from land to water.

One-Hour Fuel Moisture: Moisture content of fine fuels.

One-Hundred Hour Fuel Moisture: The moisture content of dead fuels which have diameters between 1 and 3 inches.

One-Thousand Hour Fuel Moisture: The moisture content of dead fuels which have diameters between 3 and 8 inches.

Onshore Flow: Wind blowing from water to land.

Outflow Boundary: A surface boundary that is produced by thunderstorm winds.

Palmer Index: A long-term drought index which measures the moisture supply. The index is used primarily for agricultural and hydrologic concerns since it deals with evapotranspiration, soil recharge, runoff, and moisture loss from the surface layer. +4 or high means extreme wet, while -4 or less means extreme drought.

Passive Crown Fires: A fire in the crowns of trees in which trees or groups of trees torch, ignited by the pass front of the front.

Plume-Dominated Wildfire: A wildland fire whose activity is determined by the convective column.

Prescribed Burn: Controlled application of fire to wildland fuels in either their natural or modified state, under specific environmental condition, which allows the fire to be confined to a predetermined area, and produce fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

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Presuppression: Activities in advance of fire occurrence to ensure effective suppression action. These activities include planning the organization, recruiting, and training, procuring equipment and supplies, maintaining fire equipment, and fire control improvements and negotiating cooperative and/or mutual aid agreements.

Probability of Ignition: The chance that a fire brand will cause an ignition when it lands on receptive fuels.

Probability of Precipitation (POP): The likelihood of a precipitation event occurring at any given point in the forecast area. A precipitation event is the occurrence of a measurable amount (0.01 inch or greater) of liquid moisture falling during a specific period in the forecast area. As a guidance an expression of uncertainty and areal qualifying terms would have the following relationship to POP values:

POP Statement Value Expression of Uncertainty Area Qualifier

< or equal 20% Slight Chance Few, Isolated

30-40% Chance Scattered

50% Good Chance Scattered

60-70% Likely Numerous

80-100% No Remark

Rate of Spread(ROS): The relative activity of a fire in extending its horizontal dimensions.

Red Flag Warning: A National Weather Service product that is issued when Red Flag conditions(i.e. a critical fire weather situation) are expected.

Relative Humidity: The ratio of the amount of moisture in the air to the maximum amount of moisture that air would contain if it were saturated.

Remote Automatic Weather Station(RAWS): An apparatus that automatically acquires, processes, and stores local weather data for subsequent transmission to the GOES satellite.

Routine Fire Weather Forecast(FWF): A forecast, issued daily during the fire season, that is intended for planning purposes by land management agencies. Also called general Fire Forecast Weather Forecast or simply Fire Weather Forecast.

Running Fire: Behavior of a fire spreading rapidly with a well defined head.

Sea Breeze Boundary: A surface boundary produced by the push of marine air into the land areas.

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Short-Range Spotting: Firebrands, flaming sparks, or embers carried by surface winds which start new fires beyond the zone of direct ignition by the main fire.

Silt/500 M MLT: (Surface Inversion Lifting Temperature/500 meter Mixing Layer Temperature.) The minimum ambient air temperature in which the heating of the earth's surface should allow smoke particles to rise into the atmosphere.

Six-Foot Wind: See eye-level wind.

Sky Cover: Clear.....Zero to 1/10 opaque cloud cover.
Mostly Sunny.....1/10 to 2/10 opaque cloud cover. The prevailing condition, but some clouds may be present either over a portion of the area or for a short time over the entire area.
Mostly Clear.....Less than 4/10 opaque cloud cover. No precipitation. No extremes in weather,visibility, temperature, or wind.
Partly Cloudy/Partly Sunny.....3/10 to 6/10 cloud cover
Mostly Cloudy/Considerable Cloudiness...7/10 to 8/10 opaque cloud cover. Cloudiness will be subject to variability in amount or location.
Cloudy.....9/10 or greater opaque cloud cover. The sky is essentially covered throughout the forecast period.

Slash: Debris resulting from such natural events as wind, fire, or such human activities as logging, pruning, or brush cutting.

Slope Percent: The ratio between the amount of vertical rise of a slope and horizontal distance as expressed in a percent.

Snag: A standing dead tree or part of a dead tree from which at least the leaves and smaller branches have fallen.

Spot Fire: Fire ignited outside the perimeter of the main fire by a firebrand.

Spot Forecast: A specific weather forecast issued for a particular fire at a specific location.

Spotting: Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

Squall Line: A narrow band or line of thunderstorms producing gusty winds.

Stagnation Index: is a number from 0 to 3 computed from forecast variables that are produced from the NWS gridded models of the National Weather Service. The index is used by fire managers as a guide to smoke management. Forest Managers are cognizant

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of the need to occasionally restrict open burning in order to reduce atmospheric contaminants. Therefore, managers use the index as part of the overall picture as input to issuing burning permits. A higher index correlates to greater stagnation...while a lower index of 0 or 1 correlates to greater dispersion of the smoke plume.

Daytime Scale of 0: Burning permitted from sunrise to sunset.

Scale of 1: Burning permitted from 1 hour after sunrise until sunset.

Scale of 2: Burning permitted from 2 hours after sunrise until sunset.

Scale of 3: Burning permitted from 2 hours after sunrise until 1 hour before sunset.

Nighttime Scale of 0: Burning permitted from sunset to sunrise.

Scale of 1: Burning permitted until 4 hours after sunset.

Scale of 2: Burning permitted until 2 hours after sunset.

Scale of 3: No Burning permitted.

Suppression: All the work of extinguishing or confining a fire beginning with its discovery.

Surface Trough: A narrow area of low atmospheric pressure located at the surface.

Sustained Attack: Continuing fire suppression action until the fire is under control.
Ten-Hour Fuel Moisture: The moisture content of dead fuels which have diameters between 1/4 and 1 inch.

Timelag: Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content.

Torching: The burning of the foilage of a single tree or a small group of trees from the bottom up.

Total Fuel: All plant material both living and dead that can burn in a worst case situation.

Transport Winds: The mean wind speed and direction of all winds between the surface and the mixing height.

Transport Winds at 500 meters: The forecast transport winds at the time in which mixing height is expected to reach 500 meters.

Tropical Wave: An area of disorganized convection in the tropics.

Twenty-Foot Wind: Wind observed at regular RAW/FTS observation stations, typically forecast by meteorologists, and influenced by vegetation and terrain. These winds are evaluated at either 20 feet above the surface or 20 feet above a solid layer of vegetation.

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Uniform Fuels: Fuels distributed continuously, thereby providing a continuous path for fire to spread.

User(Customer) Agency: Any agency that relies on fire weather forecast products from the National Weather Service.

Vent Index: It is the product of the mixing height and transport winds. The higher the vent index the better the dispersion of smoke particles.

Weather Information and Management Sytem(WIMS): An interactive computer system designed to accommodate the weather information needs of federal and state national resource agencies.

Wetting Rain: A widespread rain that over an extended period of time significantly reduces fire danger, Usually greater than 0.10 inches.

Wildfire: An unplanned wildland fire requiring suppression action or other action according to agency policy.

Wildland: An area in which development is essentially non-existent.

Wind-Driven Wildland Fire: A wildland fire that is controlled by a strong consistent wind.

Appendix G High Fire Danger Forecast Examples:

Below is an example of a RED FLAG WARNING

MESSAGE(JANRFWJAN into AWIPS)

RFWJAN

URGENT - FIRE WEATHER MESSAGE

NATIONAL WEATHER SERVICE JACKSON MS

307 PM CDT SUN OCT 9 2016

...DRY AND BREEZY CONDITIONS WILL CONTINUE OVER PORTIONS OF THE REGION THROUGH THIS AFTERNOON...

.LOW RELATIVE HUMIDITIES AND OCCASIONALLY GUSTY WINDS WILL CONTINUE

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THROUGH THE REMAINDER OF THIS AFTERNOON. THESE CONDITIONS WILL COMBINE WITH PARCHED VEGETATION PRESENT ACROSS THE REGION TO INCREASE FIRE WEATHER DANGER...ESPECIALLY ALONG AND NORTH OF THE INTERSTATE TWENTY CORRIDOR.

ARZ074-075-LAZ007>009-015-016-MSZ018-019-025>052-100000-

/O.CON.KJAN.FW.W.0002.000000T0000Z-161010T0000Z/

ASHLEY-CHICOT-MOREHOUSE-WEST CARROLL-EAST CARROLL-RICHLAND-

MADISON LA-BOLIVAR-SUNFLOWER-LEFLORE-GRENADA-CARROLL-MONTGOMERY-

WEBSTER-CLAY-LOWNDES-CHOCTAW-OKTIBBEHA-WASHINGTON-HUMPHREYS-

HOLMES-ATTALA-WINSTON-NOXUBEE-ISSAQUENA-SHARKEY-YAZOO-MADISON MS-

LEAKE-NESHOBA-KEMPER-WARREN-HINDS-RANKIN-SCOTT-NEWTON-LAUDERDALE-

307 PM CDT SUN OCT 9 2016

...RED FLAG WARNING REMAINS IN EFFECT UNTIL 7 PM CDT THIS EVENING

FOR PORTIONS OF CENTRAL MISSISSIPPI...SOUTHEAST ARKANSAS...AND
NORTHEASTERN LOUISIANA...

* AFFECTED AREA...PORTIONS OF CENTRAL MISSISSIPPI...SOUTHEASTERN
ARKANSAS AND NORTHEASTERN LOUISIANA GENERALLY ALONG AND NORTH OF
THE INTERSTATE TWENTY CORRIDOR.

* WIND...10 TO 15 MPH FROM THE NORTHEAST WITH HIGHER GUSTS

* HUMIDITY...AS LOW AS 15 TO 25%

* THUNDERSTORMS...NONE

* IMPACTS...ANY FIRES THAT DEVELOP WILL LIKELY SPREAD RAPIDLY.
OUTDOOR BURNING IS NOT RECOMMENDED.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

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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.

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Below is an example of a Red Flag Warning and a Fire Weather Watch

RFWJAN

URGENT - FIRE WEATHER MESSAGE
NATIONAL WEATHER SERVICE JACKSON MS
432 AM CDT SUN OCT 9 2016

...DRY AND BREEZY CONDITIONS WILL CONTINUE OVER PORTIONS OF THE

REGION THROUGH THE REMAINDER OF THE WEEKEND...

.LOW RELATIVE HUMIDITIES AND OCCASIONALLY GUSTY WINDS WILL AGAIN BE PRESENT THIS AFTERNOON. THESE CONDITIONS WILL COMBINE WITH PARCHED VEGETATION PRESENT ACROSS THE REGION TO INCREASE FIRE WEATHER DANGER...ESPECIALLY ALONG AND NORTH OF THE INTERSTATE TWENTY CORRIDOR.

LAZ007>009-015-016-MSZ040>052-091745-

/O.NEW.KJAN.FW.A.0002.161009T1500Z-161010T0000Z/

MOREHOUSE-WEST CARROLL-EAST CARROLL-RICHLAND-MADISON LA-ISSAQUENA-SHARKEY-YAZOO-MADISON MS-LEAKE-NESHOBA-KEMPER-WARREN-HINDS-RANKIN-SCOTT-NEWTON-LAUDERDALE-

432 AM CDT SUN OCT 9 2016

...FIRE WEATHER WATCH IN EFFECT FROM 10 AM CDT THIS MORNING THROUGH THIS EVENING FOR PORTIONS OF NORTHEAST LOUISIANA AND CENTRAL MISSISSIPPI GENERALLY ALONG AND NORTH OF INTERSTATE TWENTY...

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THE NATIONAL WEATHER SERVICE IN JACKSON HAS ISSUED A FIRE WEATHER WATCH...WHICH IS IN EFFECT FROM 10 AM CDT THIS MORNING THROUGH THIS EVENING.

* AFFECTED AREA...PORTIONS OF NORTHEAST LOUISIANA AND CENTRAL MISSISSIPPI ALONG AND NORTH OF THE INTERSTATE 20 CORRIDOR

* WIND...10 TO 15 MPH WITH HIGHER GUSTS

* HUMIDITY...AS LOW AS 15 TO 25%

* THUNDERSTORMS...NONE

* IMPACTS...ANY FIRES THAT DEVELOP WILL LIKELY SPREAD RAPIDLY. OUTDOOR BURNING IS NOT RECOMMENDED.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

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

Below is an example of a FIRE DANGER STATEMENT MESSAGE(JANSPSJAN)
(From the Fall Season Drought of 2016)

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE JACKSON MS
253 PM CDT SAT OCT 29 2016

...LOCAL FIRE WEATHER CONCERNS PERSIST THROUGH THE WEEKEND...

THE PROLONGED PERIOD OF DRYNESS THE AREA IS OBSERVING HAS LED TO PARCHED VEGETATION AND AN INCREASED FIRE WEATHER THREAT. ACCORDING TO AREA FORESTRY COMMISSIONS AND THE UNITED STATES FOREST SERVICE... THESE CONDITIONS HAVE MADE OUTDOOR BURNING INCREASINGLY HAZARDOUS.

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THE COMBINATION OF DRY VEGETATION AND DAYTIME MINIMUM RELATIVE HUMIDITY VALUES CONSISTENTLY BELOW 40 PERCENT WILL RESULT IN AN INCREASED THREAT FOR HAZARDOUS FIRE WEATHER CONDITIONS CONTINUING AT LEAST THROUGH THE WEEKEND AND PROBABLY WELL INTO NEXT WEEK.

CONDITIONS ARE SUCH THAT A SPARK FROM EQUIPMENT...THE HEAT FROM A CATALYTIC CONVERTER...OR ANY DIRECT HEAT SOURCE COULD START A GRASS OR BRUSH FIRE. DO NOT THROW LIT CIGARETTES ON THE GROUND. PLEASE EXTINGUISH AND DISPOSE OF THEM PROPERLY. WHEN BARBECUING...TAKE THE UTMOST CARE. DO NOT DUMP ASHES UNLESS YOU ARE CERTAIN THEY ARE COMPLETELY OUT. LIVE COALS CAN BURN FOR AS LONG AS TWO DAYS AFTER BEING USED. PLEASE CONTINUE TO HEED ALL LOCAL BURN BANS.

REMEMBER...WILDFIRES PLACE AREA FORESTRY COMMISSIONS...FIRE DEPARTMENTS...AND OTHER FIRE CONTROL AGENCIES IN LIFE THREATENING SITUATIONS AND CAN ENDANGER COMMUNITIES. PLEASE USE CAUTION AND HELP

PREVENT FOREST AND GRASS FIRES.

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Appendix H Fire Weather Forecasts:

FWFJAN

FIRE WEATHER PLANNING FORECAST FOR EXTREME SOUTHEAST ARKANSAS...
NORTHEAST LOUISIANA...AND CENTRAL MISSISSIPPI
NATIONAL WEATHER SERVICE JACKSON MS
320 AM CDT SUN OCT 30 2016

.DISCUSSION...WARM AND DRY WEATHER WILL CONTINUE INTO EARLY NEXT WEEK.
MINIMUM RELATIVE HUMIDITY WILL BE IN THE 25 TO 35 PERCENT RANGE OVER
THE NEXT FEW DAYS. NO GUSTY WINDS ARE ANTICIPATED BUT LOW HUMIDITY
AND DRY FUELS WILL LEAD TO ELEVATED FIRE CONCERNS THROUGH EARLY NEXT

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WEEK. LIGHT WINDS AND CLEAR SKIES WILL ALLOW SOME PATCHY FOG
WILL DEVELOP ACROSS THE CENTRAL AND SOUTH EARLY THIS MORNING.
USE THE FOLLOWING LINK FOR A GRAPHICAL FORECAST OF LVORI INDICES:
[HTTP://WWW.WEATHER.GOV/JAN/FIRE_WEATHER_LVORI](http://www.weather.gov/jan/fire_weather_lvori)

PLEASE CONVERT ALL WEB ADDRESSES TO LOWER CASE BEFORE ENTERING!

ARZ074-075-LAZ007>009-302215-
ASHLEY-CHICOT-MOREHOUSE-WEST CARROLL-EAST CARROLL-
INCLUDING THE CITIES OF...CROSSETT...NORTH CROSSETT...HAMBURG...
WEST CROSSETT...DERMOTT...LAKE VILLAGE...EUDORA...BASTROP...
OAK GROVE...EPPS...LAKE PROVIDENCE
320 AM CDT SUN OCT 30 2016

	TODAY	TONIGHT	MON
CLOUD COVER	MCLEAR	CLEAR	CLEAR

PRECIP TYPE	NONE	NONE	NONE
CHANCE PRECIP (%)	0	0	0
TEMP (24H TREND)	88 (+2)	55 (0)	89
RH % (24H TREND)	32 (+1)	93 (+1)	28
20FTWND-AM(MPH)	LGT/VAR		LGT/VAR
20FTWND-PM(MPH)	SW 5	LGT/VAR	LGT/VAR
RAIN DURATN(HRS)			
RAIN AMOUNT(INS)	0.00	0.00	0.00
SILT/500M MLT (F)	77		79
MIXING HGT(M AGL)	2123		2158
MIXING HGT(FT AGL)	6964		7080
TRANSPORT WND (M/S)	W 5		SW 4
TRANSPORT WND (MPH)	W 10		SW 8
VENT INDEX (METRIC)	10615		8632
VENT INDEX (ENGLISH)	69640		56640
STAG INDEX	3	3	3
CATEGORY DAY	4		4

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STABILITY	C	F	B
WIND SHIFTS			
PRECIP BEGIN			
PRECIP END			
MAXIMUM LVORI		6	
DISPERSION INDEX	66	0	56

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 7...

.TUESDAY...MOSTLY CLEAR. LOWS IN THE MID 50S. HIGHS IN THE UPPER 80S. SOUTH WINDS AROUND 5 MPH.

.WEDNESDAY...PARTLY CLOUDY. LOWS AROUND 60. HIGHS IN THE MID 80S. SOUTHEAST WINDS AROUND 5 MPH.

.THURSDAY...MOSTLY CLOUDY. LOWS IN THE LOWER 60S. HIGHS IN THE LOWER 80S. NORTHWEST WINDS UP TO 5 MPH.

.FRIDAY...PARTLY CLOUDY. LOWS IN THE UPPER 50S. HIGHS IN THE

UPPER 70S. NORTH WINDS 5 TO 10 MPH.

.SATURDAY...MOSTLY CLEAR. LOWS IN THE MID 50S. HIGHS IN THE UPPER 70S. NORTHEAST WINDS AROUND 5 MPH.

FWFJAN

FIRE WEATHER PLANNING FORECAST FOR EXTREME SOUTHEAST ARKANSAS...

NORTHEAST LOUISIANA...AND CENTRAL MISSISSIPPI

NATIONAL WEATHER SERVICE JACKSON MS

348 PM CDT SUN OCT 30 2016

.DISCUSSION...WARM AND DRY WEATHER WILL CONTINUE INTO EARLY THIS WEEK.

MINIMUM RELATIVE HUMIDITY WILL BE IN THE 25 TO 35 PERCENT RANGE OVER

THE NEXT FEW DAYS. NO GUSTY WINDS ARE ANTICIPATED BUT LOW HUMIDITY

AND DRY FUELS WILL LEAD TO ELEVATED FIRE CONCERNS THROUGH EARLY THIS

WEEK. LIGHT WINDS AND CLEAR SKIES WILL ALLOW SOME PATCHY FOG TO

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DEVELOP EARLY MONDAY MORNING...MAINLY SOUTH OF THE HIGHWAY 84

CORRIDOR./NF/

USE THE FOLLOWING LINK FOR A GRAPHICAL FORECAST OF LVORI INDICES:

[HTTP://WWW.WEATHER.GOV/JAN/FIRE_WEATHER_LVORI](http://www.weather.gov/jan/fire_weather_lvori)

PLEASE CONVERT ALL WEB ADDRESSES TO LOWER CASE BEFORE ENTERING!

ARZ074-075-LAZ007>009-311030-

ASHLEY-CHICOT-MOREHOUSE-WEST CARROLL-EAST CARROLL-

INCLUDING THE CITIES OF...CROSSETT...NORTH CROSSETT...HAMBURG...

WEST CROSSETT...DERMOTT...LAKE VILLAGE...EUDORA...BASTROP...

OAK GROVE...EPPS...LAKE PROVIDENCE

348 PM CDT SUN OCT 30 2016

TONIGHT MON MON NIGHT TUE

CLOUD COVER	CLEAR	CLEAR	CLEAR	MCLEAR
PRECIP TYPE	NONE	NONE	NONE	NONE
CHANCE PRECIP (%)	0	0	0	0
TEMP (24H TREND)	53 (-2)	88 (+2)	55	87
RH % (24H TREND)	98 (+4)	28 (-3)	93	29
20FTWND-AM(MPH)		LGT/VAR		LGT/VAR
20FTWND-PM(MPH)	LGT/VAR	SW 5	LGT/VAR	S 7
RAIN DURATN(HRS)				
RAIN AMOUNT(INS)	0.00	0.00	0.00	0.00
SILT/500M MLT (F)		79		77
MIXING HGT(M AGL)		2094		2220
MIXING HGT(FT AGL)		6871		7284
TRANSPORT WND (M/S)		SW 4		S 7
TRANSPORT WND (MPH)		SW 9		S 16
VENT INDEX (METRIC)		8376		15540

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VENT INDEX (ENGLISH)		61839		116544
STAG INDEX	3	3	3	3
CATEGORY DAY		4		4
STABILITY	F	B	F	C
WIND SHIFTS				
PRECIP BEGIN				
PRECIP END				
MAXIMUM LVORI	9		7	
DISPERSION INDEX	0	59	2	93

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 7...

.WEDNESDAY...MOSTLY CLOUDY. LOWS AROUND 60. HIGHS IN THE MID 80S.
SOUTH WINDS AROUND 5 MPH.

.THURSDAY...MOSTLY CLOUDY. LOWS IN THE LOWER 60S. HIGHS IN THE LOWER 80S. NORTHWEST WINDS UP TO 5 MPH.

.FRIDAY...PARTLY CLOUDY. LOWS IN THE UPPER 50S. HIGHS IN THE UPPER 70S. NORTH WINDS UP TO 10 MPH.

.SATURDAY...MOSTLY CLEAR. LOWS IN THE LOWER 50S. HIGHS IN THE MID 70S. NORTHEAST WINDS UP TO 5 MPH.

.SUNDAY...PARTLY CLOUDY. LOWS IN THE UPPER 40S. HIGHS IN THE UPPER 70S. SOUTHEAST WINDS UP TO 5 MPH.

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Appendix I National Fire Danger Rating System(NFDRS) Forecast:

The National Fire Danger Rating System measures wildfire danger at observation sites throughout the United States. A Fire Danger Rating in NFDRS parlance means a daily evaluation of the potential for wildfire ignition, growth, and intensity over a broad sampling

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area. NFDRS takes into account many different vegetation types throughout the United States, their annual growth cycles, seasonal climate trends, local topography and the effect of daily weather changes. NFDRS observations are taken once per day. NFDRS forecasts are not intended to be site specific like the Fire Behavior Prediction System but rather a general overview of fire danger. Effective fire suppression planning depends heavily on NFDRS because it is an objective tool for predicting the difficulty of suppressing a wildfire. The National Weather Service role in NFDRS is forecasting weather input which, combined with customer input, allow the NFDRS software to predict the next days fire danger indices. Daily weather observations entered into NFDRS by the fire agencies form the basis of the forecast input by the NWS. Each NFDRS reporting site is located at a spot which is considered to be representative of the terrain and fuel types and dominant in that area. Many NFDRS reporting sites are also RAWS stations. If required in the future, NFDRS forecast will be issued once a day, but updated if necessary. NFDRS Forecast Structure Format of the NFDRS Product. The NFDRS Forecast should follow the format specified. The forecast is based upon mid-afternoon values, normally 1300 LST, and not necessarily maximum or minimum readings. Ideally, the NFDRS is supposed to model the a worst case fire conditions possible during the day. A list of fire weather observations will be transmitted through AWIPS using the FWO product ID. This product contains weather observations entered into NFDRS by the fire agencies and should have a header above the data which states, Listing of Observations. Zone average forecasts will be applied to all NFDRS sites within the fire weather zone. It is also possible to do an individual station forecast apply only to one

specific site in any fire weather zone. In either case, this forecast is valid at observation time tomorrow.

- a. YYMMDD Date(should be valid tomorrow)
- b. 13 Always 1300 LST
- c. WX Weather valid at 1300 LST tomorrow

Forecast Elements

Format for NFDRS

forecast...FCST,226102,030514,13,2,83,65,1,3,S,11,M,83,68,100,65,0,0,N

- 1. FCST...Forecast Point
- 2. 226102...NFDRS Station ID(22...State 61...County 02 Station ID)
- 3. 030516...Tomorrow's Forecast Date
- 4. 13...Local LST for Tomorrow's Forecast (always 1300)
- 5. 2...Weather valid at 1300 LST Tomorrow...0 (Clear) 1 (Scattered Clouds) 2 (Broken Clouds) 3 (Overcast Clouds) 4 (Foggy) 5 (Drizzle) 6 (Raining) 7 (Snowing) 8 (Showers at or near Station) 9 Thunderstorms
- 6. 83...Current Temp at 1300
- 7. 65...Current Relative Humidity at 1300
- 8. 1...LAL1 Lightning Activity Level from 1400 to 2300 LST
- 9. 3...LAL2 Lightning Activity Level from 2300 to 2300 LST (1 none...2 isolated...3 few...4 scattered...5 numerous...6 which is high based storms out west...which we will not deal with in the south.)

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- 10. S,11...Wind...Windspeed valid at 1300 LST
- 11. M...Missing 10 hr Time lag fuel moisture(always missing)
- 12. 83...Maximum Temperature for Tomorrow
- 13. 68...Minimum Temperature for Tomorrow
- 14. 100...Maximum Humidity for Tomorrow
- 15. 65...Minimum Humidity for Tomorrow
- 16. 0....Precipitation Average Duration from 1400 to 0500 LST
- 17. 0....Precipitation Average Duration from 2300 to 2300 LST
- 18. N...Y or N...This indicates whether liquid water will be on the fuels at 1300 LST. Use with CAUTION- a Y will reset all the indices to zero. We will keep the value at N in our product for all stations.

Each forecast element must be separated by a comma without a space. Non-forecasted elements are represented by a coma. Below in an example of a NFDRS forecast formatted for transmission in AWIPS.

Example of NFDRS Single Station Forecast

FNUS84 KJAN 022041

FWMJAN

FCST,223701,170303,13,0,60,27,1,1,NNE,06,,60,34,75,26,0,0,N
FCST,226102,170303,13,0,66,26,1,1,ENE,08,,66,37,75,19,0,0,N
FCST,225502,170303,13,0,65,28,1,1,NE,05,,65,36,79,21,0,0,N
FCST,227202,170303,13,0,67,26,1,1,NE,08,,67,37,75,18,0,0,N
FCST,225101,170303,13,0,64,26,1,1,NNE,06,,65,34,82,20,0,0,N
FCST,224101,170303,13,0,61,27,1,1,NNE,06,,61,33,82,27,0,0,N
FCST,226502,170303,13,0,67,26,1,1,NE,08,,67,36,72,23,0,0,N
FCST,223501,170303,13,0,61,31,1,1,NE,05,,61,35,85,28,0,0,N
FCST,225301,170303,13,0,64,25,1,1,NNE,06,,64,34,82,24,0,0,N
FCST,224601,170303,13,0,62,26,1,1,NNE,06,,63,34,78,24,0,0,N
FCST,227401,170303,13,0,68,25,1,1,NE,08,,68,36,79,19,0,0,N

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...STATION LOCATIONS...

223701 - TOMBIGBEE RAWS NEAR ACKERMAN/CHOCTAW CO

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226102 - BUDE RAWS/FRANKLIN CO

225502 - COPIAH RAWS NEAR CRYSTAL SPRINGS/COPIAH CO

227202 - MARION RAWS NEAR FOXWORTH/MARION CO

225101 - BIENVILLE NF RAWS NEAR FOREST/SCOTT CO

224101 - NOXUBEE RAWS NEAR BLUFF LAKE/NOXUBEE CO

226502 - COVINGTON RAWS NEAR HOT COFFEE/COVINGTON CO

223501 - HOLMES RAWS NEAR TCHULA/HOLMES CO

225301 - LAUDERDALE RAWS NEAR ALAMUCHA/LAUDERDALE CO

224601 - NESHOPA RAWS IN PHILADEPHIA/NESHOPA CO

227401 - RAGLAND HILLS RAWS NEAR HATTIESBURG/FORREST CO

NFDRS Forecast Output

When the NWS NFDRS Forecast is sent to the WIMS, the product is automatically combined with the information that is entered by land management personnel to provide the NFDRS fire index forecast. At roughly 1500 LST the AWIPS product NMCFWOXXX should be available if the forecasted values were accepted into the NFDRS System. The product will look almost exactly like the observed value reported an hour earlier, but the

header should read:Listing of Forecasted Observations. If the page is blank, some formatting error prevented the forecast values from being accepted.

Appendix J Fire Matrix Forecast

Fire Weather Matrix Forecast (product identifier JANAFWJAN; WMO Header FNUS54 KJAN): NFDRS forecasts from the Jackson NWS office are issued twice a day, early in the morning by 8 am and in the afternoon by 4 pm. The product gives two hourly forecast for the following items through 36 hours for all over our Central Mississippi Counties, Northeast Louisiana parishes and two Southeast Arkansas counties.

The Northeast Louisiana parishes covered by WFO Jackson Fire Matrix forecast include Morehouse, West Carrol, East Carrol, Richland, Madison, Franklin, Tensas, Catahoula and Concordia.

The two Southeast Arkansas counties covered by WFO Jackson Fire Matrix forecast are Ashley and Chicot counties.

The Central Mississippi counties covered by WFO JAN Fire Matrix Forecast include: Adams, Attala, Bolivar, Carroll, Choctaw, Claiborne, Clay, Copiah, Covington, Franklin, Forrest Grenada, Hinds, Holmes, Humphreys, Issaquena, Jasper, Jefferson, Jefferson Davis Jones, Kemper, Lamar, Lauderdale, Lawrence, Leake, Leflore, Lowndes, Madison, Marion, Neshoba, Newton, Oktibbeha, Rankin, Scott, Simpson, Sharkey, Sunflower, Warren, Washington, Webster, and Winston

The product has the following parameters: the routine fire matrix forecast offers additional parameters, including precipitation amount, precipitation timing and duration, mixing height

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and transport winds in both english and meters, with expanded parameters of vlori maximum and fwdi(fire weather danger index). Fire Weather Danger Index(fwdi) goes from 1 low to 5 extreme. It is the potential for fire starts and the amount of suppression required.

FOUS54 KJAN 302043

AFWJAN

ZONE FIRE WEATHER MATRIX

NATIONAL WEATHER SERVICE JACKSON MS

343 PM CDT SUN OCT 30 2016

MSZ060-311145-

ADAMS-

DATE	10/30/16										MON 10/31/16										TUE	
CDT 2HRLY	16	18	20	22	00	02	04	06	08	10	12	14	16	18	20	22	00	02	04			
SKY	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL			
WEATHER COV	CL	CL	CL	CL	CL	CL	PT	PT	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL			
WEATHER TYPE	CL	CL	CL	CL	CL	CL	FG	FG	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL			
TEMP	86	80	71	64	61	59	58	56	62	75	83	85	86	80	71	67	64	62	60			
RH	35	42	58	72	80	83	87	91	75	54	42	37	34	42	60	74	78	81	89			
20FT DIR	W	W	S	S	S	SE	S	SE	SE	S	S	S	S	S	S	S	S	S	S			
20FT SPD	5	4	2	4	2	2	2	1	1	1	5	6	6	5	2	5	5	5	2			
20FT GUST	6	4	2	4	2	2	2	1	1	1	7	9	9	7	4	7	7	6	4			
MIX HGT (HFT)	57	24	2	3	3	2	2	2	3	16	42	61	59	25	4	4	3	3	2			
MIX HGT (HM)	17	7	0	1	0	0	0	0	1	4	12	18	18	7	1	1	1	1	0			
TRAN DIR	SW	SW	SW	S	S	S	S	SE	S	SW	S	S	S	S	S	SE	S	S	S			
TRAN SP (MPH)	3	3	3	3	4	3	3	3	3	2	5	6	5	4	4	6	6	5	5			
TRAN SP (M/S)	1	1	1	1	2	1	1	1	1	1	2	3	2	2	2	3	3	2	2			
LVORI	2	2	2	3	4	5	6	7	6	2	1	1	2	2	2	3	4	5	6			
FWDI	2	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0			

Appendix K Hazardous Weather Outlook

In times when wildfire activity or potential fire danger from dry conditions is expected to threaten lives or property, NWS offices are encouraged to issue Special Weather Statements under the heading of Hazardous Weather Outlook. The decision of when to issue this product is left to the discretion of each forecaster as well as local NWS office policies. When significant or extreme threat is assessed, a Statewide Fire Danger Graphicast needs to be made.

The Hazardous Weather Outlook (product identifier JANHWOJAN; WMO Header FLUS44 KJAN): are issued several times a day.

WFO Jackson uses a four level color coded system for showing potential threat of fire danger due to prolonged dry conditions...esp with a Fire Weather Watch or Red Flag Warning in effect. The wording below can be adjusted to any particular fire weather conditions.

- A. **Extreme**...Conditions well in excess of Red Flag Warning criteria with strong wind gusts greater than 40 mph. Fires will spread quickly and wildfires are common. Fire control is very difficult, even for experience firefighters.
- B. **High**...Conditions meet minimum Red Flag Warnings criteria. Open burning should not be attempted as fires can quickly escape and become very difficult to control, even for experience firefighters.
- C. **Elevated**...Any open burning is discouraged due to increased wind and lower Humidity, and recent dry conditions, except by experience fire personnel. Fires escape more easily and containment is difficult for inexperienced fire personnel.
- C. **Limited**...Extra caution is advised for open burning due to increased wind and lower humidity. Burning without proper containers should not be attempted by inexperienced fire personnel.

Fire Weather HWO Philosophy for days 1-3:

1. Our fire weather products, including the FWF and HWO graphics, should be dictated by current and forecasted Wind and RH forecasts, and fuel moisture(incorporating dry/drought conditions).
2. Governance on the issuance of statements, watches, warnings, and state graphic(including fire danger statements, fire weather watches, and red flag warnings) should be given to forestry agencies/commissions/services whenever possible
3. To help avoid confusion, the phrase “heed all local burn bans” or something similar should be included on all fire weather graphics.

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Decision Tree:

1. Prior to making the outlook, review fuel moisture at:
<https://www.wfas.net/index.php/dead-fuel-moisture-moisture--drought-38>
2. Depending on your fuel moisture situation, base your threat decisions on the following criteria:

LIMITED –

FOR DRY FUELS:

1. Drought is increasing and fuel moisture is low ($\leq 10\%$)

2. Red flag criteria are only being met by one weather element (RH or Wind) (Fire Danger Index generally <3)

FOR WET FUELS:

1. Red flag criteria is being met (Fire Danger Index generally ≥ 4)
2. There has been recent significant rainfall and fuel moisture (grasses and trees) is relatively high ($>10\%$)

After consulting with the area coordination centers, it is determined not to issue a Red Flag Warning or Fire Weather Watch, but we would coordinate with them to highlight areas for a limited threat (if coordination centers available).

ELEVATED –

FOR DRY FUELS ONLY:

1. Fuel moisture is low $\leq 10\%$ from lack of recent rainfall
2. Weather conditions are meeting or exceeding red flag criteria (Fire Danger Index ≥ 3)

After consulting with the coordination centers, it is determined not to issue a Red Flag Warning or Fire Weather Watch, but we should coordinate with them on Fire Danger Statements and highlighted threat areas (if coordination centers available).

-48-

SIGNIFICANT-

1. A Red Flag Warning or Fire Weather Watch is in effect.
2. Weather conditions exceed Red Flag criteria (Fire Danger Index ≥ 4)
3. There is no wind advisory in effect.

Extreme-

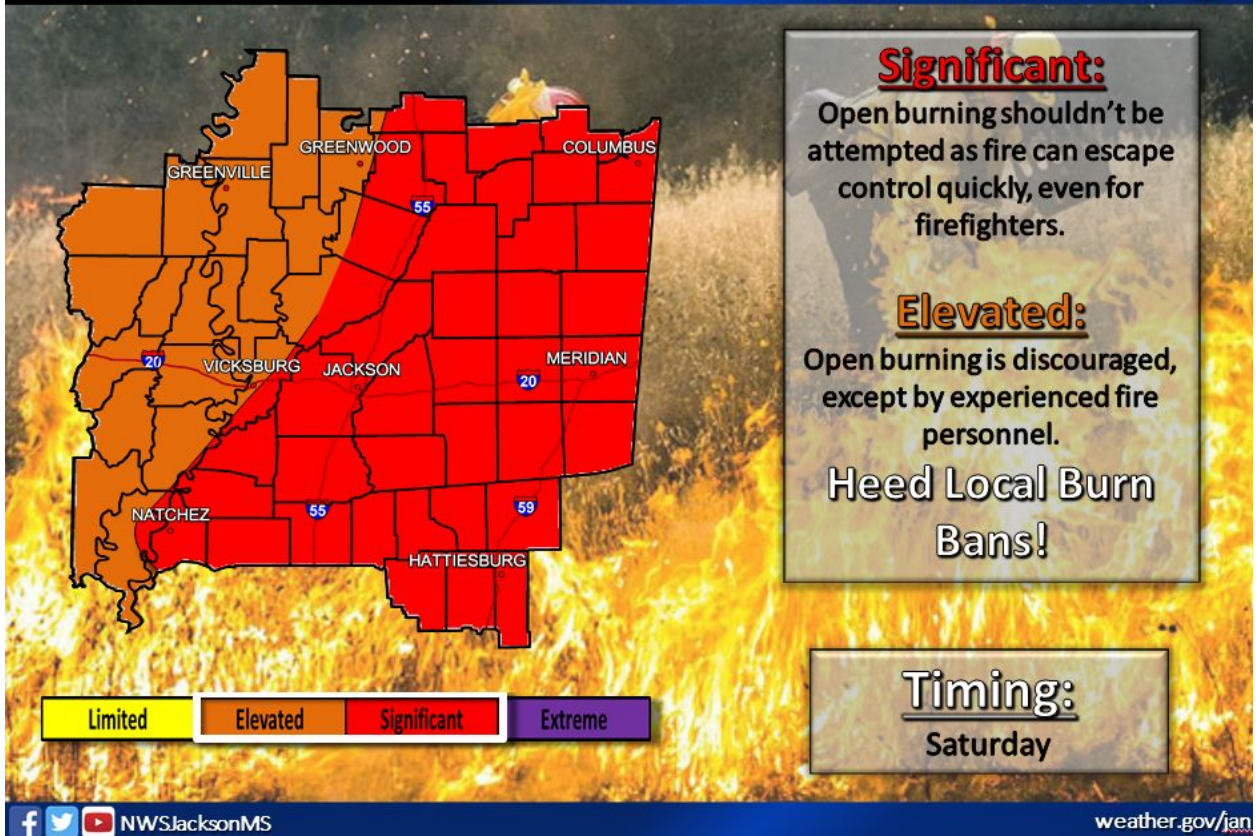
1. A Red Flag Warning or Fire Weather Watch is in effect.
2. Weather conditions greatly exceed Red Flag criteria (Fire Danger Index $= 5$)
3. There is a wind advisory in effect.

Fire Weather HWO Example:

Fire Conditions/Red Flag Warning

Noon – 6PM

Weather Forecast Office
Jackson, MS
Issued November 24, 2016 7:21 PM CDT



-49-

HWO example:

FLUS44 KJAN 212020

HWOJAN

HAZARDOUS WEATHER OUTLOOK

NATIONAL WEATHER SERVICE JACKSON MS

320 PM CDT FRI OCT 21 2016

ARZ074-075-LAZ007>009-015-016-023>026-MSZ018-019-025>050-052>054-

059>062-222030-

ASHLEY-CHICOT-MOREHOUSE-WEST CARROLL-EAST CARROLL-RICHLAND-

MADISON LA-FRANKLIN LA-CATAHOULA-TENSAS-CONCORDIA-BOLIVAR-

SUNFLOWER-LEFLORE-GRENADA-CARROLL-MONTGOMERY-WEBSTER-CLAY-LOWNDES-
CHOCTAW-OKTIBBEHA-WASHINGTON-HUMPHREYS-HOLMES-ATTALA-WINSTON-
NOXUBEE-ISSAQUENA-SHARKEY-YAZOO-MADISON MS-LEAKE-NESHOPA-KEMPER-
WARREN-HINDS-RANKIN-SCOTT-LAUDERDALE-CLAIBORNE-COPIAH-JEFFERSON-
ADAMS-FRANKLIN MS-LINCOLN-
320 PM CDT FRI OCT 21 2016

THIS HAZARDOUS WEATHER OUTLOOK IS FOR PORTIONS OF SOUTHEAST
ARKANSAS...NORTHEAST LOUISIANA...CENTRAL MISSISSIPPI...NORTH
CENTRAL MISSISSIPPI...SOUTH CENTRAL MISSISSIPPI...AND SOUTHWEST
MISSISSIPPI.

.DAY ONE...TONIGHT AND SATURDAY

FIRE WEATHER

THREAT...LIMITED

TIMING...THIS AFTERNOON AND AGAIN SATURDAY

DRY CONDITIONS COMBINED WITH GUSTY WINDS WILL RESULT IN INCREASED

-50-

FIRE DANGER DURING THE DAYTIME. HEED ALL LOCAL BURN BANS, AND USE
EXTREME CAUTION WHEN CONDUCTING OUTDOOR BURNING.

(WWW.WEATHER.GOV/IMAGES/JAN/GRAPHICAST/IMAGE1.PNG)

.DAYS TWO THROUGH SEVEN...SATURDAY NIGHT THROUGH THURSDAY

RATHER DRY CONDITIONS WILL CONTINUE OVER THE WEEKEND RESULTING IN
INCREASED FIRE DANGER DURING THE DAYTIME SATURDAY AND SUNDAY. HEED
ALL LOCAL BURN BANS, AND USE EXTREME CAUTION WHEN CONDUCTING OUTDOOR
BURNING.

(WWW.WEATHER.GOV/IMAGES/JAN/GRAPHICAST/IMAGE2.PNG)

.SPOTTER CALL TO ACTION STATEMENT...

THE ACTIVATION OF STORM SPOTTERS...HAM RADIO OPERATORS...AND
EMERGENCY MANAGEMENT PERSONNEL IN SUPPORT OF SEVERE WEATHER
OPERATIONS IS NOT EXPECTED THROUGH NEXT THURSDAY.

\$\$

MSZ051-055>058-063>066-072>074-222030-

NEWTON-SIMPSON-SMITH-JASPER-CLARKE-LAWRENCE-JEFFERSON DAVIS-

COVINGTON-JONES-MARION-LAMAR-FORREST-

320 PM CDT FRI OCT 21 2016

THIS HAZARDOUS WEATHER OUTLOOK IS FOR PORTIONS OF CENTRAL
MISSISSIPPI...EAST CENTRAL MISSISSIPPI...SOUTH CENTRAL
MISSISSIPPI...AND SOUTHEAST MISSISSIPPI.

.DAY ONE...TONIGHT AND SATURDAY

FIRE WEATHER

-51-

THREAT...ELEVATED

TIMING...SATURDAY

RATHER DRY CONDITIONS WILL CONTINUE OVER THE WEEKEND RESULTING IN
INCREASED FIRE DANGER DURING THE DAYTIME SATURDAY AND SUNDAY. AN
ELEVATED THREAT EXISTS AS RELATIVE HUMIDITIES WILL FALL TO THE LOWER
20 PERCENT RANGE. HEED ALL LOCAL BURN BANS AND OPEN BURNING BY NON-
EXPERIENCED FIRE PERSONNEL IS DISCOURAGED.

(WWW.WEATHER.GOV/IMAGES/JAN/GRAPHICAST/IMAGE1.PNG)

.DAYS TWO THROUGH SEVEN...SATURDAY NIGHT THROUGH THURSDAY

RATHER DRY CONDITIONS WILL CONTINUE OVER THE WEEKEND RESULTING IN INCREASED FIRE DANGER DURING THE DAYTIME SATURDAY AND SUNDAY. HEED ALL LOCAL BURN BANS, AND USE EXTREME CAUTION WHEN CONDUCTING OUTDOOR BURNING.

(WWW.WEATHER.GOV/IMAGES/JAN/GRAPHICAST/IMAGE2.PNG)

.SPOTTER CALL TO ACTION STATEMENT...

THE ACTIVATION OF STORM SPOTTERS...HAM RADIO OPERATORS...AND EMERGENCY MANAGEMENT PERSONNEL IN SUPPORT OF SEVERE WEATHER OPERATIONS IS NOT EXPECTED THROUGH NEXT THURSDAY.

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Dangerous Fire Weather Conditions

Weather Forecast Office

Jackson, MS

Issued November 24, 2016 7:20 PM CDT



Today

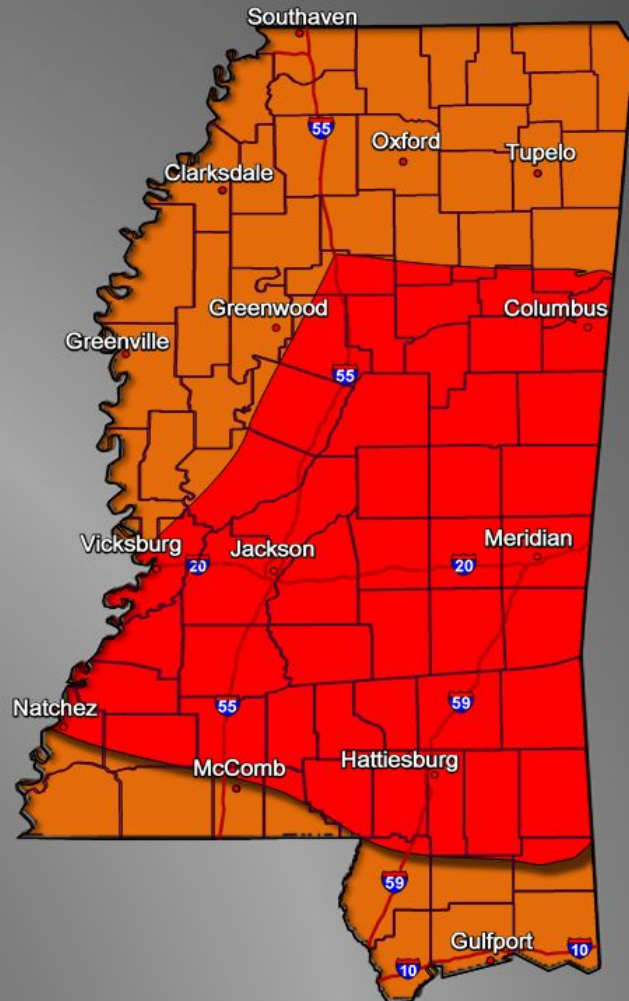
Threat Categories

- **Significant:** Open burning shouldn't be attempted as fire can escape control quickly, even for firefighters.
- **Elevated:** Open burning is discouraged, except by experienced fire personnel.

Timing

Mainly during this afternoon

Heed all local burn bans!



Appendix L

Fire Weather Internet Sites

WFO Memphis, TN.....<http://www.weather.gov/meg/fireweather>

WFO Jackson, MS.....<http://www.weather.gov/jan/fireweather>

WFO New Orleans, LA.....http://www.weather.gov/lix/fire_wx

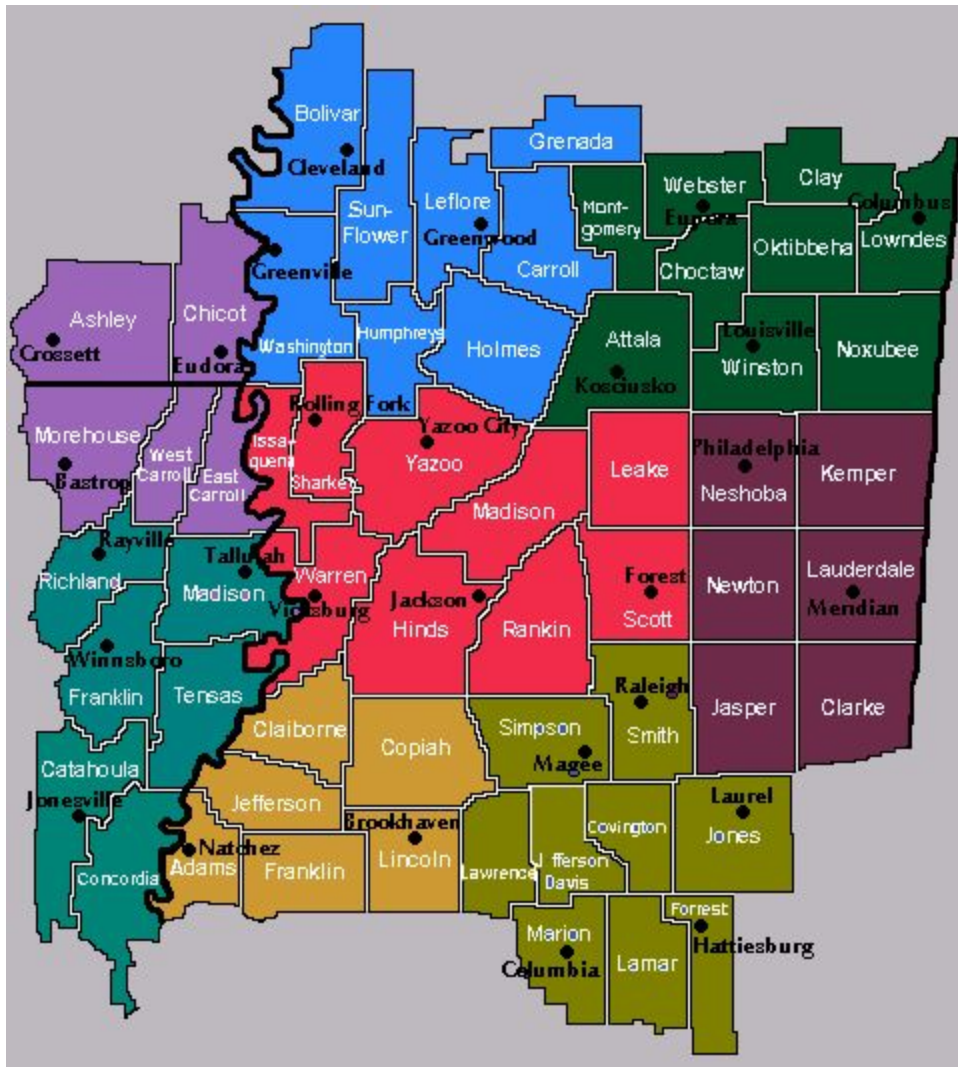
WFO Mobile, AL.....<http://www.weather.gov/mob/fire>

Southern Region Fire Weather..... <http://www.srh.noaa.gov/ridge2/fire/>

National Fire Weather Guidance <http://www.spc.noaa.gov/fire/>

Mississippi Forestry Commission <http://www.mfc.state.ms.us>
 Louisiana Forestry Commission <http://www.lfaf.state.la.us>
 Arkansas Forestry Commission <http://www.forestry.state.ar.us>
 National Park Service <http://www.nps.gov>
 Fish and Wildlife Service <http://www.fws.gov>
 Natchez Trace Parkway <http://www.nps.gov/natr>
 US Forest Service <http://www.fs.fed.us>

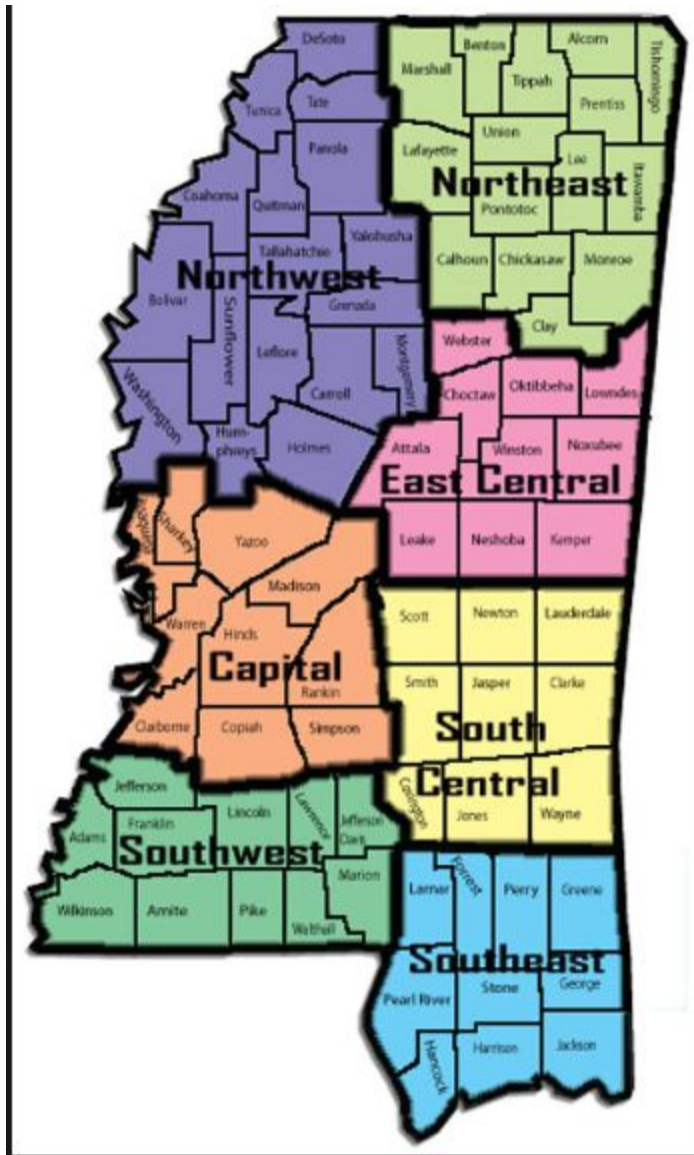
Appendix M
Map of the Fire Weather Zones



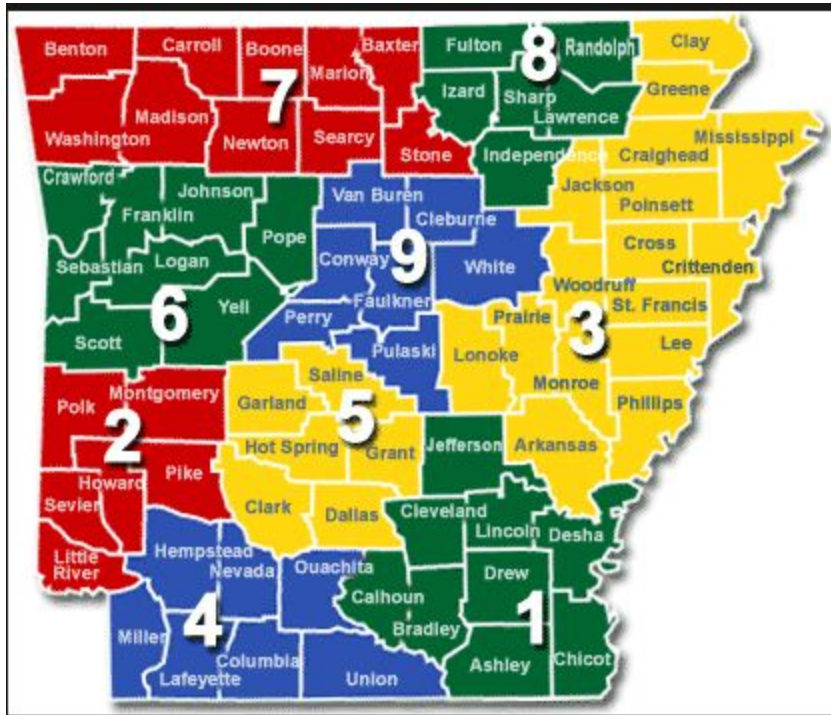
If any kind of weather is going on that will hinder Fire Operations or any kind of outdoor burning...a brief synopsis should be mentioned under .FIRE WEATHER in the AFD.

Appendix O State Forestry Districts for the ArkLaMiss

For Mississippi



For Arkansas



For Louisiana

