Fire Weather Annual Operations Plan

(updated January 2026)

Fire weather services for most of Missouri and adjacent counties of Eastern Kansas and Southern Illinois.

NWS Weather Forecast Offices St. Louis, Springfield, Kansas City, and Paducah

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Introduction

This local Operating Plan is within the framework of the National Interagency Fire Weather Annual Operating Plan, detailing national-level services, products and responsibilities for both the Wildland Fire Agencies and the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service (NWS). The general relationship between NWS and the interagency fire management community is set forth in the National Interagency Agreement for Meteorological Services (the National Agreement). References include:

- **National Weather Service Policy Instructions (NWSI) 10-4, 401, 402, 403, 404, 405 and 407**
- **The National Agreement**
- **National Mobilization Guide**

This document contains the local Operating Plan for the fire weather forecast areas for the National Weather Service Offices (WFO) at Springfield (SGF), Pleasant Hill (EAX), and St. Louis (LSX) in Missouri and Paducah (PAH), Kentucky. This plan will be reviewed as needed and will remain in effect until the next revision.

This is an interagency agreement for meteorological services between the above NWS Offices and the following agencies:

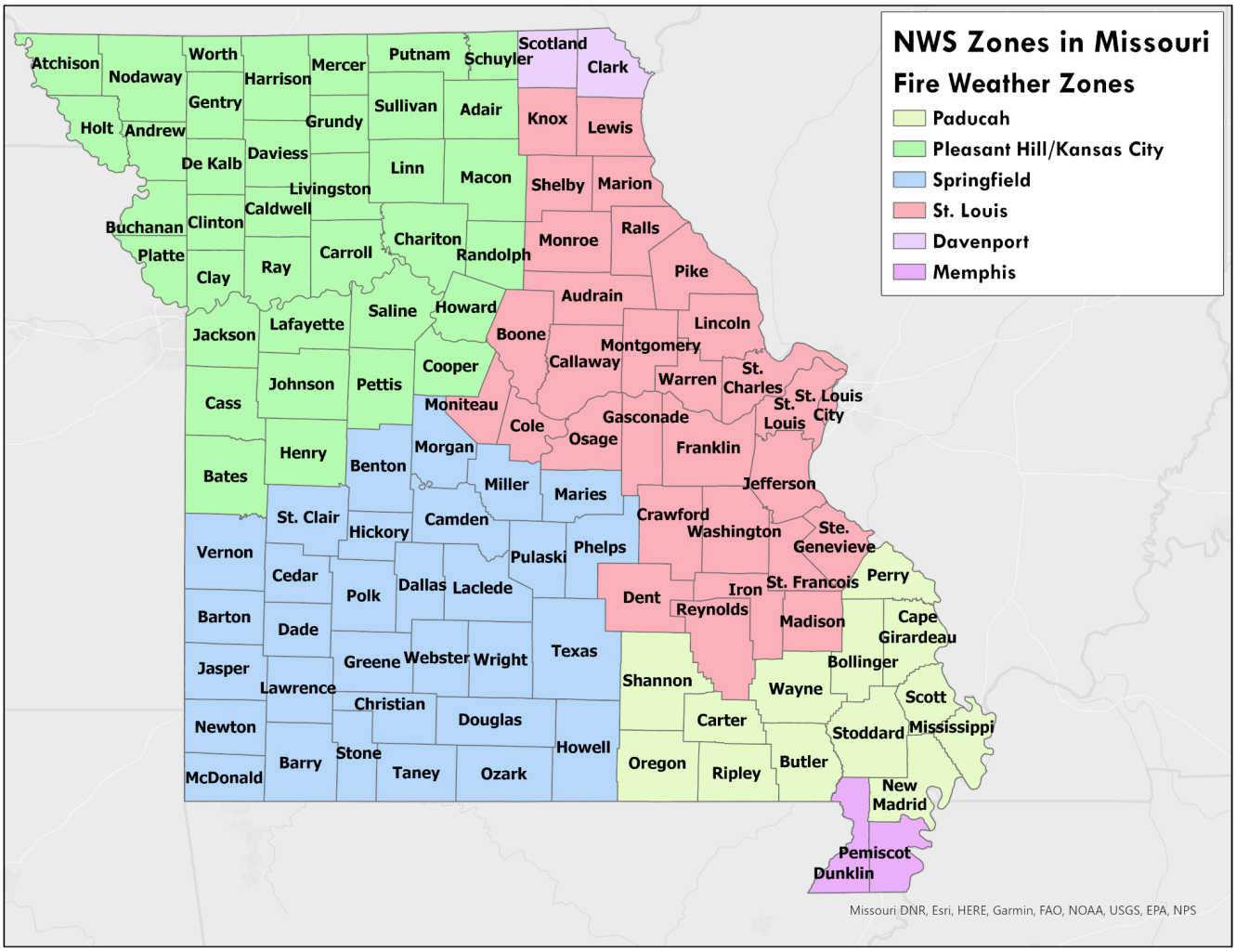
USDA Forest Service	**Mark Twain National Forest (Missouri)** Jim Cornelius, Fire Management Officer 573-341-7403 | james.cornelius@usda.gov	**Shawnee National Forest (Illinois)** Scott Crist, Fire Management Officer 618-253-1032 | scott.w.crist@usda.gov
National Park Service	**Ozark Riverways (Missouri)** Justin Turnbo, Fire Management Officer 808-798-6579 | justin_turnbo@nps.gov	
U.S. Fish and Wildlife Service	**Missouri and Illinois** David Jones, Fire Management Officer 618-997-3344 | david_jones@fws.gov	**Big Muddy Refuge Complex** Sam Vanourney, Fire Management Specialist 660-442-5164 x20 | sam_vanourney@fws.gov
State of Missouri	**Missouri Department of Conservation** Ben Webster, Fire Program Supervisor 573-522-4115, ext. 3113 ben.webster@mdc.mo.gov	**Department of Natural Resources/State Parks** Ronald Colatskie, Natural Resource Ecologist 636-931-5222 ronald.colatskie@dnr.mo.gov

Summary of Changes Effective January 2027

- Made various changes to NWS personnel.
- Removed Fire Weather Matrix information and updated NFDRS information.
- Added mention of HWO decommissioning from NWS St. Louis.

NWS Fire Weather Responsibility Areas/Contact Information

National Weather Service Forecast Offices are staffed 24 hours a day 365 days a year. Service areas and contact information for each forecast office is depicted below.



Fire weather forecast areas. Counties served by NWS Memphis and NWS Davenport are not included in this AOP. Please refer to those offices for fire weather policies and services.

NWS Weather Forecast Office (WFO) Contact Information

WFO St. Louis, MO	weather.gov/lsx
Address	12 Missouri Research Park Dr St. Charles, MO 63304
Phone/Operations Email	(636) 447-1887 / nws.stlouis@noaa.gov
Meteorologist-in-Charge	Brian Haines – brian.haines@noaa.gov
Fire Weather Program Leader	Matt Beitscher – matthew.beitscher@noaa.gov
Fuels Liaison	Brad Charboneau – brad.charboneau@noaa.gov
WFO Springfield, MO	weather.gov/sgf
Address	5805 West Highway EE Springfield, MO 65802
Phone/Operations Email	(800) 762-4363 / contact.sgf@noaa.gov
Meteorologist-in-Charge	VACANT – VACANT
Fire Weather Program Leaders	Jordan Didio - jordan.didio@noaa.gov
	Gene Hatch – gene.hatch@noaa.gov
WFO Paducah, KY	weather.gov/pah
Address	8250 Kentucky Highway 3520 West Paducah, KY 42086
Phone/Operations Email	(800) 533-7186 / nws.paducah@noaa.gov
Meteorologist-in-Charge	Jerald Meadows – jerald.meadows@noaa.gov
Fire Weather Program Leaders	Dan Spaeth – daniel.spaeth@noaa.gov
	Keith Cooley – keith.cooley@noaa.gov
WFO Kansas City, MO	weather.gov/eax
Address	1803 N 7 Highway Pleasant Hill, MO 64080
Phone/Operations Email	(800) 438-0596 / nws.kansascity@noaa.gov
Meteorologist-in-Charge	Melissa Kreller – melissa.kreller@noaa.gov
Fire Weather Program Leader	Brett Williams – brett.williams@noaa.gov

Geographic Area Coordination Center (GACC) Information

Eastern Area Coordination Center	
111 East Kellogg Blvd, Suite 105 St Paul, MN 55101 414-944-3811 | http://gacc.nifc.gov/eacc/	Center Manager: Jennifer Parrish 414-391-6090 | jennifer.parrish@usda.gov
Rocky Mountain Area Coordination Center	
2850 Youngfield Ave Lakewood, CO 80215 303-445-4300 / 1-800-494-2073 | http://gacc.nifc.gov/rmcc/	

Mutual Aid:

In certain rare situations, services for a certain area may be provided by an office other than the one indicated on the map above. In these situations, the header of the forecast product will state which office has issued the forecast. It is possible that a forecast may be issued by an office not included in this AOP. Contact information for such offices that are most likely to be providing mutual aid services are listed below.

WFO Central Illinois: 217-732-3089
WFO Louisville: 502-968-6329
WFO Omaha: 402-359-5166
WFO Paducah: 800-533-7189
WFO Pleasant Hill: 800-438-0596
WFO Springfield: 800-762-4363
WFO St. Louis: 636-447-1876
WFO Topeka: 785-232-1494

Basic Services

Fire Weather Planning Forecast

Fire Weather Planning Forecasts are issued twice daily. Forecast amendments will be issued any time as needed. Examples of the Fire Weather Planning Forecast are in Appendix B.

Fire Weather Planning Forecasts will be updated when a Fire Weather Watch or Red Flag Warning is issued or canceled or when forecast elements are deemed unrepresentative.

Routine forecast content/format will vary somewhat from office to office. Fire Weather Planning Forecasts will include the following general components:

- **Discussion:** The discussion should be concise but describe the main weather features to adequately explain why the forecast weather will occur. The discussion should also highlight significant changes that will affect the fire environment. Typically the discussion will cover the next two days; however, significant changes in any forecast period should be discussed. A headline will be included for Fire Weather Watches, Red Flag Warnings, and other significant weather deemed appropriate by the fire weather meteorologist.
- **Cloud Cover:** This element describes the sky condition for the forecast period.
- **Precipitation (Precip) Type :** This is a general descriptor of the precipitation type (rain, sleet, snow, showers, thunderstorms, etc).
- **Chance of Precipitation (Chance Precip %):** The probability of precipitation expresses the chance that measurable rainfall will occur at any given point within a county zone group. Measurable rainfall is 0.01 inches or greater. Probability is expressed in percent.
- **Chance of Wetting Rain (CWR):** The chance of wetting rain expresses the chance that 0.10 inches of rainfall will occur at any given point within a county zone group. Probability is expressed in percent.
- **Maximum (Max)/Minimum (Min) Temperature:** Temperatures will be encoded in degrees Fahrenheit (°F). The maximum temperature will be forecast for the day period, and minimum at night.
- **Maximum (Max)/Minimum (Min) Humidity**: Relative humidity is expressed in percent. The minimum or lowest humidity will be forecast for the day period, and highest humidity at night.
- **20 Foot Wind**: The forecast wind speed for the fire weather forecasts will reflect the 10 minute average wind that is commonly measured at fire weather sites. The wind direction will be forecast to the sixteen cardinal points of the compass and expressed in miles per hour (mph). Wind direction will indicate the direction the wind is blowing from (i.e. SSW 15 mph). Since most surface observation stations used for National Weather Service forecasts measure wind speed/direction at 10 meters (roughly 33 feet) with a two minute average, a reduction factor is used to arrive at the 20-ft wind forecast.
- **Wind Shift**: If a shift in wind direction associated with a frontal passage is expected during the period, the new direction and wind speed will be forecast. Because a front may take several hours to move through a zone/area, the approximate time or time period (i.e. afternoon/morning/evening/overnight) of the wind shift will be encoded. Significant wind shifts may also be encoded in the remarks section of the forecast.
- **Precipitation Amount**: The expected average rainfall for a county zone group will be expressed in decimal notation in inches (i.e. 0.10 to 0.50 inches, 1.00 to 1.50 inches).
- **Duration:** This is the average duration in whole hours that precipitation will occur in the county zone group.
- **Mixing Height:** Mixing height is the extent or depth to which smoke will be dispersed by means of turbulence and diffusion. The forecast of mixing height is expressed in feet above ground level (AGL) and is the maximum mixing height expected (generally during the afternoon).
- **Transport Wind:** Transport wind is the average wind speed in meters/second in the mixing depth above the surface. These winds are good indications of the horizontal dispersion of suspended particles. The transport wind is the forecast wind at the time of maximum mixing of

the atmosphere, normally during the mid afternoon. A transport wind of less than 4 meters/second may restrict some agencies from conducting prescribed burn operations.

- **1700 foot (500 meter) Mixing Height Temperature:** This is the surface temperature that must be reached in order for the mixing depth to reach 1700 feet. Once the forecast temperature is reached at the burn site, it can be assumed that the mixing height above the burn site is at least 1700 feet or 500 meters.
    - Note: One consequence of the Clean Air Act is that land managers must practice principles of careful smoke management. This is done by combining favorable meteorological conditions with a variety of prescribed fire techniques so that smoke will be readily dispersed. The 1700 foot/500 meter mixed layer is a commonly suggested minimum mixing layer depth for prescribed burning to limit the concentration of particulate matter near the ground and to limit the aerial coverage of limited visibility due to smoke. Local regulations or practices may differ.
- **Ventilation Rate/Dispersion Index:** Ventilation Rate is a measure of the ability of the atmosphere to disperse smoke or other pollutants. Ventilation Rate/Index can be defined as the product of the mixing height of the atmosphere multiplied by the wind speed. Higher ventilation rates result in greater transport of smoke away from the source, lower ventilation indices result in reduced transport away and therefore a greater near-ground impact. It depends on two components: The depth of the mixed layer (or unstable layer) above the ground and the average wind speed or transport wind within that mixed layer. The chart below relates qualitative values with calculated values.

Ventilation Rate = Mixing Height x Transport Winds			
	kt-ft	**m/s-m**	**mph-ft**
Excellent	>= 150,000	>= 23,445	>= 172,086
Very Good	100,000-149,000	15,630-23,444	114,724-172,085
Good	60,000-99,999	9,378-15,629	68,835-114,723
Fair	40,000-59,999	6,252-9,377	45,890-68,834
Poor	< 40,000	< 6,252	< 45,890

- **Davis Stability Index (DSI) (WFO Paducah only):** The Davis Stability Index is a common fire stability index parameter utilized primarily in the southeast United States. The formula for the Davis Stability Index is as follows:
    - Davis Stability Index (DSI) = Max Temp (°C) - 850mb Temp (°C)
        - If the difference is less than 10°C, it is considered a Category 1 (stable).
        - If the difference is 10°C to 14°C, it is considered a Category 2 (conditionally unstable).
        - If the difference is 15°C to 17°C, it is considered a Category 3 (unstable).
        - If the difference is greater than 17°C, it is considered a Category 4 (absolutely unstable).
- **Extended Forecast**: A general extended forecast will be included in the Fire Weather Planning Forecast text. This will include expected general weather conditions, high and low temperatures and 20-ft winds. The extended forecast will cover a period out to seven days and should be considered for general planning purposes only.
- **Remarks:** This section is for appropriate remarks to add value to the forecast or mark significant weather changes.

Fire Weather Watches and Red Flag Warnings

Fire Weather Watches and Red Flag Warnings (**RFW**) will be issued when the combination of dry fuels and weather conditions support an extreme fire danger. These conditions alert land management agencies to the potential for widespread fire control problems.

Fire Weather Watches will be issued when there is a high potential for a Red Flag event. The watch will be issued between 12 to 96 hours before the onset of warning conditions. The watch can be issued for all or select portions of the region.

Fire Weather Watches should not be issued, or continued, to indicate that low confidence or borderline warning conditions will take place. In these situations, forecasters should describe the expected conditions and state the reasons for forecast uncertainty in the discussion portion of the routine planning forecast.

A Red Flag Warning (RFW) is used to warn of an impending, or occurring, Red Flag event. Its issuance denotes a high degree of confidence that weather and fuel conditions consistent with local Red Flag criteria will occur within 24 hours or less. Forecasters can issue the warning for all or part of their fire weather forecast area.

National Weather Service offices and user agencies are strongly encouraged to establish local general criteria for the issuances of watches and warnings. See Appendix C for the general Red Flag criteria established by each forecast office. These criteria are general parameters and they should be considered with the whole fire weather environment in mind.

Because of the restriction of user programs brought on by a Red Flag Warning, it is imperative that the warning be promptly canceled when the conditions cease to exist or if the conditions are no longer expected. The cancellation will be issued under the RFW product header.

NFDRS Fire Weather Point Forecasts

The NFDRS is a quantitative means for evaluating the fire danger across a large area such as a forest. This complex model processes daily weather observations, fuel moisture, and forecasts as inputs. The resulting output and indices suggest the severity of fire danger over a large area for the next 7 days. The following are NFDRS/RAWS sites covered by this Annual Operating Plan.

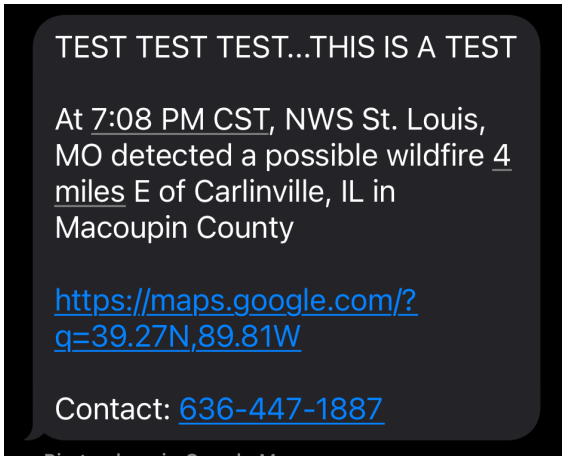
Site	County	State	Station ID	WFO
Ava	Taney	MO	238502	SGF
Camdenton	Camden	MO	235202	SGF
Cassville	Barry	MO	238201	SGF
Wah Kon Tah	Cedar	MO	235901	SGF
Mt. Vernon	Lawrence	MO	236902	SGF
Mountain Grove	Wright	MO	237201	SGF
Mountain View	Howell	MO	238802	SGF
Roby	Texas	MO	237301	SGF
Chillicothe	Livingston	MO	231301	EAX
Atlanta	Macon	MO	231501	EAX
Clinton	Henry	MO	233701	EAX
State Line	Linn	KS	145801	EAX
Farmington	St. Francois	MO	236601	LSX
Sinkin	Dent	MO	236403	LSX
Sullivan	Franklin	MO	234502	LSX
Ashland	Boone	MO	232401	LSX
Council Bluff	Iron	MO	236501	LSX
MBOT	St. Louis City	MO	234801	LSX
Big Spring	Carter	MO	239004	PAH
Doniphan	Ripley	MO	239102	PAH
Piedmont	Wayne	MO	239204	PAH
Crab Orchard NWR	Williamson	IL	119001	PAH
Dixon Springs	Pope	IL	119501	PAH
Bean Ridge	Alexander	IL	119701	PAH

NFDRS weather forecast input will now be pulled directly from the NWS Digital Forecast Database (NDFD). This input will be applied to the RAWS sites to develop the NFDRS forecast each day. Given this new input method, the Fire Weather Matrix product from the NWS was discontinued in late 2025.

Hotspot Short Message Service (SMS) Notifications

The offices within this AOP will alert participating local, state, and federal partners to a potential satellite-detected wildfire using the internal Hotspot Notification Tool. A notification will only be sent if one or more of the following circumstances:

- If elevated or critical fire danger is ongoing.
- If a hotspot is detected via satellite and is persistent.
- If a prescribed fire is not known to be occurring in this area.



An example of the text notification is shown to the right.

Please note that, in certain circumstances, a wildfire may be reported to authorities before it is detected by satellites. This is especially true if it occurs near a populated area. If it occurs in a rural area, it is possible that the notification will arrive before a member of the public reports it. **There is no guarantee that all wildfires will be detected using this technology.** To enroll in this service, contact the office serving your area of responsibility.

Spot Forecasts

Site specific (spot) forecasts are non-routine products issued at the request of the user. NWS offices will provide spot forecast service upon request of any federal, state, or local official required to support wildfire suppression operations.

Spot Forecasts Requests via the NWS Spot Forecast Program

Spot forecasts via the Internet can be accessed from https://spot.weather.gov. For non-wildfire purposes, resources permitting, NWS offices will provide spot forecast service under the following circumstances and conditions:

1. Upon request of any federal official who indicates that spot forecast support is required under the terms of the Interagency Agreement for Meteorological Services (NWS Instruction 10-401).
2. Upon request of any state, local, or tribal official who indicates that a spot forecast is required to carry out their wildland fire management responsibilities in coordination with any federal land management agency participating in the Interagency Agreement for Meteorological Services (NWS Instruction 10-401).
3. Upon request of any public safety official who indicates that a spot forecast is essential to public safety. A “public safety official” is an employee or contract agent of a government agency at any level (federal, state, local, tribal, etc.) charged with protecting the public from hazards including wildland fires of whatever origin and/or other hazards influenced by weather conditions such as hazardous material releases.
4. In support of Homeland Security Presidential Directive #5 (HSPD 5).

NWS offices will not provide spot forecasts to private citizens or commercial entities not acting as an agent of a government agency.

Requests for a spot forecast will be made via the Spot Forecast Request Page or telephone.

Spot forecasts for active fires should be updated when the forecast becomes unrepresentative of the ongoing weather conditions that may have an impact on fire suppression or controlled burning operations and/or safety of personnel. Updates should occur to the representative Spot forecast or at least via telephone/verbal update. Land management personnel should contact the WFO if forecast conditions become unrepresentative of the observed weather. See Appendix E for best practices.

Unless otherwise stated by the requesting agency, the forecast parameters of sky condition, weather,

temperature, relative humidity, 20-ft wind, significant/sudden changes in wind speed or direction, along with mixing heights, transport winds, and stability, if available, shall be provided.

Spot forecasts for ongoing wildfires are crucial to fighting fires and personnel safety. Of paramount importance are forecasts of wind speed and humidity. For an ongoing wildfire, attempts should be made to provide a current observation at the time a forecast is requested. The observation will aid the forecaster in preparing a more accurate Spot forecast.

Spot Forecasts Requests via Telephone

Spot requests via telephone should be reserved for occasions where a quick forecast update is needed and time restraints and/or available resources prohibit the use of the Internet. Both the requesting agency and the WFO are highly encouraged to document as thoroughly as possible any information communicated during a phone/verbal Spot forecast briefing.

Grassland Fire Danger Index (Experimental) - NWS Springfield and Kansas City/Pleasant Hill Only

The Grassland Fire Danger Index (GFDI) values correspond to the likelihood that grassland fires will become uncontrolled. The index was developed in Australia and adapted for use in the United States. The GFDI forecast is used as a fire weather planning aid for predictive service meteorologists, land management personnel, and can potentially be used by emergency management and county fire personnel to decide when to issue burn permits. The index values for days 2 through 6 are intended to be used as a planning guideline.

GFDI numeric output is based on expected relative humidity, temperature, 20-ft wind speed, and a grassland “curing index” from direct field observations. It does not account for precipitation that occurs within the hour preceding any given forecast hour or any snow on the ground at the forecast hour and appropriate adjustments in fuel condition. GFDI adjectives and numeric values are summarized below.

```
KSZ073-220415-
BOURBON-
INCLUDING THE CITY OF...FORT SCOTT
405 AM CST MON DEC 21 2009

                                (ALL TIME REFERENCES ARE IN CST)

DAY/DATE      24HR INDEX    *  MID  3AM  6AM  9AM NOON  3PM  6PM  9PM
MON DEC 21  MODERATE     4  *   L    L    L    L    L    M    M    L
TUE DEC 22  LOW          2  *   L    L    L    L    L    L    L    L
WED DEC 23  MODERATE     4  *   L    L    L    L    L    M    M    M
THU DEC 24  HIGH        15  *   M    M    M    M    H    H    H    H
FRI DEC 25  HIGH         9  *   M    M    M    M    H    M    M    M
SAT DEC 26  MODERATE     5  *   M    M    M    M    M    M    M    L
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Fire Danger Adjective	GFDI Value
Low (L)	0 to 2
Moderate (M)	3 to 7
High (H)	8 to 19
Very High (V)	20 to 49
Extreme (E)	50+

GFDI values are calculated on a county basis as depicted above. Daily 24 hour index values are based on hourly data. Three hourly data is calculated for each day.

Hazardous Weather Outlooks (HWO)

Hazardous Weather Outlooks are issued by weather forecast offices to alert the general public to potentially dangerous weather situations. When a combination of meteorological conditions lead to an increased fire danger, but falls short of Fire Weather Watch or Red Flag Warning criteria, a statement is issued in the HWO to make the public aware of a heightened fire danger and to discourage open burning and careless use of smoking materials.NWS St. Louis discontinued issuance of the HWO in mid-2026.

Special Services

Special meteorological services meet the needs of agencies that often have unique requirements for weather support, and may best be performed by the fire weather meteorologist away from the home forecast office. These services usually must be initiated by the requesting agency, and costs such as travel and per diem will be charged to a reimbursable task number assigned for the project.

Special services may include fire weather station visits, familiarization trips to the forest, observer training sessions, and S-290, S-390, S-490, and other courses. The fire weather meteorologist may be asked to attend a prescribed burn when available. If the trip involves an overnight stay, the letter should state that the requesting agency will pay travel expenses. A one day trip will not incur any costs to the requesting agency. When the land management agency wishes for a fire weather forecaster to attend a course, the same procedure for requesting a forecaster to a station visitation should be followed, except that specific dates should be given in the letter. The letter will be forwarded to NWS Central Region Headquarters so that a reimbursable task code can be assigned for the trip.

1. **Fire Weather Stations**

Supplies, equipment, and maintenance of the fire weather station are the responsibility of the land management agency (station owner). If a new station is being established, or an old station is moved to another location, a station number will be assigned by the fire weather program leader for the National Weather Service Central Region Headquarters located in Kansas City. The land management agency should provide the latitude and longitude of the new station, and the elevation when requesting a station number.

2. **Fire Weather Services – On-Site Support**

On-site forecast service is a non-routine service available from National Weather Service Offices with designated Incident Meteorologists (IMETs). The NWS will provide IMET services upon request of federal, state, tribal, or local government fire agencies in support of **wildfires**. This support typically includes dispatches to Incident Command Posts, but may also include dispatches to land management coordination and dispatch centers, and Area Commands.

IMET support will also be considered for non-wildfire situations if resources permit. Such uses will be limited to requests of federal fire agencies participating in the Interagency Agreement, and requests by a public safety official who represents such support as essential to public safety. Procedures to request the services of an IMET are detailed in NWS Instruction 10-402.

Land Management Agency Services and Responsibilities

Operational Support and Predictive Services - The Eastern Area Fire Weather Program Manager/Meteorologist, working remotely for the Eastern Area Coordination Center (EACC) in St. Paul, Minnesota, combines forecast information from NWS offices and other sources into area-wide summaries and briefings. This meteorologist, along with Fire Intelligence, forms the Predictive Services group which produces fire weather/fire danger assessments for Iowa. These value added products enhance short and long range forecasts issued by the NWS to assist land managers in allocating fire-fighting resources. Products issued by the EACC are available here.

Agency Computer Systems - The communication system used to link the NWS with its users is the Weather Information and Management System (WIMS). The NWS receives user agency observations entered into WIMS via its AWIPS computer system. The principal method of dissemination of the observations and forecasts is through WIMS. Observations that are entered into WIMS at the Kansas City Computer Center are transmitted to the NWS Telecommunications Gateway Facility in Washington D.C. The observations are collected in bulletins that are transmitted to the National Weather Service Forecast Offices where they are compiled into various fire weather products and then transmitted via the NWS Telecommunications Gateway Facility to WIMS. NFDRS forecasts and narrative forecasts are also sent to WIMS via this system. Observations and forecasts are exchanged between WIMS and AWIPS in the USFS Kansas City Computer Center.

Fire Weather Observations - Station inspection, instrument maintenance, and quality control of fire weather observation systems are the responsibility of land management agencies. NWS forecasters may monitor data quality from observation sites.

Appendices

Appendix A - Product Identification List

Product WMO Header	Typical Issuance Times	AWIPS PIL WFO Paducah	AWIPS PIL WFO Pleasant Hill	AWIPS PIL WFO Springfield	AWIPS PIL WFO St. Louis
Fire Weather Forecast FNUS53	At least twice daily and as needed	FWFPAH	FWFEAX	FWFSGF	FWFLSX
Fire Weather Watch/ Red Flag Warning WWUS83	As needed	RFWPAH	RFWEAX	RFWSGF	RFWLSX
Spot Forecast Requests BMBB91	As needed	STQPAH	STQEAX	STQSGF	STQLSX
Spot Forecasts FNUS73	As needed	FWSPAH	FWSEAX	FWSSGF	FWSLSX
Hazardous Weather Outlook FLUS43	Varies by office	HWOPAH	HWOEAX	HWOSGF	N/A
Grassland Fire Danger Index (GFDI) FNUS63	At least twice daily 4am/4pm	N/A	RFDEAX	RFDSGF	N/A

Appendix B - Fire Weather Product Examples

Fire Weather Planning Forecast

FIRE WEATHER PLANNING FORECAST
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 300 PM EST TUE JAN 1 2024)

...HEADLINE... (REQUIRED for Red Flag Warnings and Fire Weather Watches...significant fire weather feature(s) at other times recommended…does not include public warnings/advisories)

.DISCUSSION...(concise, clear, non-technical explanation of the current/forecasted fire weather)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)
GEOGRAPHIC DESCRIPTORS (such as land management units, political boundaries, geographic features, and/or fire weather zones) TIME-DATE (repeated)

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate zone grouping) ...

PARAMETER TONIGHT TOMORROW TOMORROW FOLLOWING NIGHT
CLOUD COVER (CLOUDY, MCLDY, PCLDY, CLEAR)
CHANCE PRECIP (%) (Percent chance precip 0-100 or areal coverage)
PRECIP TYPE (NONE, DRIZL, FRZ RAIN, SNOW/RAIN, RAIN, TSHWR)
TEMP (24H TREND) (Max/min temps as zone avg or extremes, trend not included in 3rd or 4th period PM forecasts) RH % (24H TREND) (Max/min relative humidity as zone avg or extremes, trend not included in 3rd or 4th period PM forecasts)
20FT WND MPH(VALLEY/AM)(8 pt compass or upslope/downslope and MPH w gusts, can be VALLEY or AM wind)
20FT WND MPH(RIDGE/PM) (8 pt compass and MPH w/gusts, can be PM or ridge top winds)
PRECIP DURATION (Hours of precip in period)
PRECIP BEGIN (Onset of precip probability)
PRECIP END (Cessation of precip probability)
PRECIP AMOUNT (Zone avg QPF inches)
MIXING HGT (AGL/MSL) (Feet or meters)
TRANSPORT WIND(KTS) (8 pt compass)
VENT RATE (KT-FT) (Mixing height times transport wind)
DISPERSION (Locally defined category, e.g. GOOD)
OTHER LCL OPTIONS

REMARKS...APPROPRIATE REMARKS TO ADD VALUE AND MARK SIGNIFICANT WEATHER CHANGES.

(.FORECAST DAYS 3 THROUGH 7 may optionally be provided for each zone segment)

$$

[forecast for next geographical descriptor and fire weather zone group]

$$

.FORECAST FOR DAYS 3 THROUGH 7... (wind required days 3-5, days 6 and 7 if appropriate; other elements per locally-established policy; days 3-7 may be grouped in any combination; may be in each zone segment versus this location)

Fire Weather Watch/Red Flag Warning

URGENT – FIRE WEATHER MESSAGE

NATIONAL WEATHER SERVICE SPRINGFIELD MO

1100 AM CDT TUE APR 1 2014

...FIRE WEATHER WATCH IN EFFECT FROM WEDNESDAY AFTERNOON THROUGH EARLY WEDNESDAY EVENING FOR STRONG SOUTHWEST WINDS AND LOW RELATIVE HUMIDITY FOR EXTREME SOUTHEAST KANSAS AND PARTS OF WEST CENTRAL AND SOUTHWEST MISSOURI…

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS ISSUED A FIRE WEATHER WATCH. FOR HIGH AND LOW RELATIVE HUMIDITY…WHICH IS IN EFFECT FROM WEDNESDAY AFTERNOON THROUGH 8PM WEDNESDAY EVENING.

* AFFECTED AREA…THIS WATCH INCLUDES COUNTIES ALONG AND WEST OF A LINE FROM NEVADA TO ANDERSON.

* TIMING…STRONG SOUTHWEST WINDS ARE EXPECTED TO DEVELOP BEFORE NOON WEDNESDAY. CRITICALLY DRY HUMIDITY LEVELS ARE EXPECTED BY NOON.

* WINDS…SOUTHWEST WINDS OF 20 TO 25 MPH WITH GUSTS TO 40 MPH.

* RELATIVE HUMIDITY…HUMIDITIES BETWEEN 20 TO 25 PERCENT.

* IMPACTS…STRONG WINDS AND LOW HUMIDITY ON WEDNESDAY WILL COMBINE TO RESULT IN SEVERE FIRE WEATHER CONDITIONS IN AREAS WHERE FUELS ARE DRY…ESPECIALLY IN WIND EXPOSED GRASSLAND AREAS AND DRIER SOUTH AND WEST FACING SLOPES.
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.

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Hazardous Weather Outlook

Hazardous Weather Outlook
National Weather Service St Louis MO
340 AM CDT Mon Oct 14 2024

This Hazardous Weather Outlook is for portions of eastern and central Missouri as well as west central and southwest Illinois.

.DAY ONE...Today and tonight.

No hazardous weather is expected at this time.

.DAYS TWO THROUGH SEVEN...Tuesday through Sunday.

No hazardous weather is expected at this time.

.SPOTTER INFORMATION STATEMENT…

Spotter activation is not expected at this time.

Spot Forecast (parameters vary depending upon information requested)

Spot Forecast for [PROJECT NAME) Prescribed Fire…[SUBMITTING AGENCY]
National Weather Service Kansas City/Pleasant Hill MO
713 AM CST Thu Feb 2 2023

Forecast is based on ignition time of 0800 CST on February 02.
If conditions become unrepresentative...contact the National Weather Service.

Please contact our office at 1-800-438-0596, if you have questions or concerns with this forecast.

.DISCUSSION...

Winds at the time of ignition will be out of the WSW around 10 mph with a relative humidity around 70 percent and temperatures in the lower 20s. By late morning, a cold front will move through the area and winds will shift to the west while remaining around 10 mph. This afternoon relative humidity values will fall to around 40 percent and winds will shift to the northwest and increase to 15 mph with gusts to 25 mph. Temperatures will rise into the low to mid 40s this afternoon.

.REST OF TODAY...

Sky/weather.....Sunny (0-10 percent).
CWR.....0 percent.
Max temperature.....Around 44.
Min humidity.....41 percent.
Wind (20 ft).....
Slope/valley.....West winds 10 to 13 mph shifting to the north late in the afternoon.
Mixing height.....2700 ft AGL.
Transport winds.....West 10 to 13 mph shifting to the north 13 to 15 mph late in the afternoon.

TIME (CST)	8AM	9AM	10A	11A	12P	1PM	2PM	3PM	4PM	5PM
Sky (%)	6	1	5	6	5	4	4	3	10	12
Weather cov.										
Weather type										
Tstm cov.										
CWR	0	0	0	0	0	0	0	0	0	0
Temp	23	27	31	36	40	43	44	42	37	32
RH	71	64	57	47	41	38	37	40	46	53
20 FT wind dir	W	W	W	W	W	NW	NW	N	N	N
20 FT wind spd	10	12	12	12	13	13	13	14	15	15
20 FT wind gust	16	20	20	18	21	21	21	21	23	24
Mix hgt (kft)	0.4	0.6	1.0	1.2	1.7	2.1	2.4	2.7	2.3	1.1
Transp wind dir	W	W	W	W	W	NW	NW	NW	N	N
Transp wind spd	12	13	12	12	10	12	13	15	15	14

Appendix C - Elevated Fire Danger/Red Flag Warning Criteria

Elevated Fire Danger

Elevated fire danger is generally described as conditions that approach Red Flag Warning criteria, where members of the public should heed caution with open flames. These conditions may still be conducive for prescribed burning, but only when sufficient infrastructure exists to control the fire. This criteria is not tied to an official “product” such as a Red Flag Warning, but is used as a messaging tactic. In order to provide consistent service across the state of Missouri, a common definition for elevated fire danger will be followed by the NWS offices that comprise this AOP. The criteria is a matrix based on 20-ft sustained wind speed (mph) and 2-m relative humidity (%). The matrix also assumes 10-hr dead fuel moisture content is less than 10%. Deviation from this matrix is allowed in extreme circumstances after consultation with affected neighboring offices. Elevated fire danger is not messaged during the growing season, except on rare occasions when the NWS and land management partners conclude that fuels are so stressed that they are prone to combustion, which can occur during periods of drought. **NWS offices will collaborate elevated fire danger messaging internally to ensure consistent service to core partners and the public.**

Assuming 10-hr dead fuel moisture is less than 10%		**2-m Relative Humidity**				
		< 20	20-24%	25-34%	35-44%	> 44%
10-m Sustained Wind	5-9kts	**Elevated**	None	None	None	None
	10-14kts	**Elevated**	**Elevated**	**Elevated**	None	None
	15-19kts	**Generally Critical (Red Flag Warning detailed below)**		**Elevated**	None	None
	20-24kts			**Elevated**	**Elevated**	None
	> 24kts			**Elevated**	**Elevated**	None

Fire Weather Watch and Red Flag Warning

Conditions that warrant a Fire Weather Watch or Red Flag Warning do not vary drastically across the state of Missouri. The only difference is the minimum sustained 20-ft wind speed, with lower criteria across the eastern half of the state. There is no criterion for duration of these conditions; as long as they are forecast for at least one hour and the wildland environment is vulnerable to fire, a Fire Weather Watch or Red Flag Warning will be issued. Offices will refrain from issuing these products too soon after snowfall or a wetting rain, as fuels will likely not be easily combustible. These products are not issued during the growing season except on rare occasions when the NWS and wildland fire partners coordinate to conclude that fuels are sufficiently stressed and prone to combustion.

Borderline/Collaborative Criteria: WFOs may take into account other factors, such as recent fire behavior and weather conditions and areas of exposed 1-hr fuels (grassland areas) which are very wind/humidity sensitive in generating Red Flag Warnings. These parameters may include conditions such as periods of high winds (> 30 mph) and moderate (borderline) humidity (25-35%) that can lead to an extreme fire danger. In such cases, WFOs **must** coordinate with surrounding WFOs and affected Fire Weather partners.

Red Flag Criteria	**WFO Springfield**	**WFO Pleasant Hill**	**WFO Paducah**	**WFO St. Louis**
20-ft sustained wind speed	**20 mph or stronger**		**15 mph or stronger**	
2-m RH	**25% or lower**			
10-hr fuel	**Lower than 9%**			

Appendix D - Spot Forecast Best Practices

Spot Forecasts (**FWS**) are issued for prescribed burns, wildfires, spray projects, or any number of land management activities within our forecast area. As we produce the requested Spot Forecast, keep in mind some things beyond the standard info i.e. Event Name, Location, Ignition time, Weather Forecast, etc.

In the **Discussion…** section of the Spot Forecast (FWS), consider the following:

1. Avoid summarizing the forecast. For the most part, the users understand the information that is in the FWS. Instead, consider discussing things that could impact the forecast i.e. Wind shift periods, potential for RH's changes and reasoning, precipitation timing, etc.
2. Take a moment to look at where the burn is occurring, what impacts can the local Topography have on the micrometeorology of the Wildfire or Rx and include this in the discussion.
    a. Use the Spot Forecast page to look at where the fire is occurring while writing the discussion.
        i. Local topography can have subtle but important impacts on a wildfire or Rx. Slope aspect can cause slight increases to upslope/downslope winds in conjunction with ridge/valley orientation and wind speeds and directions.
        ii. Think about what previous, antecedent weather conditions can impact a wildfire or Rx.
            1. ex. (Recent rainfall or drought conditions can have an impact on a burn), The top of leaf litter might be dry but rain in the preceding 7 days allowed the leaf litter about an inch down to remain moist limiting fire consumption of ground litter. .
3. When a Spot is requested, consider providing information through the requested days, not just the first period of the request.
    a. EX: A burn only occurs on Thursday, but the partner will utilize Friday's forecast that strong winds will occur, leading them to make sure the site is thoroughly cleaned up with no leftover embers to avoid any wildfire activity on Friday. Including any expectation or uncertainties in the Friday period may help with burn decisions.

Calling the Spot requester:

If there's an ongoing Wildfire or Rx Burn and you notice weather conditions dropping/changing significantly compared to what's in the spot forecast, call the Burn Boss! They will appreciate the call. Then update the Spot Forecast with the new/latest information.

Consider calling the person who requested the Spot and ensure they have no special needs that can't be or were not included in the request. This not only lets the requester know that you are working on the Spot but that you are considering local impacts and gives them a chance to ask additional questions. This can also be done after issuing a Spot for the same reason and to ensure the Spot was received.