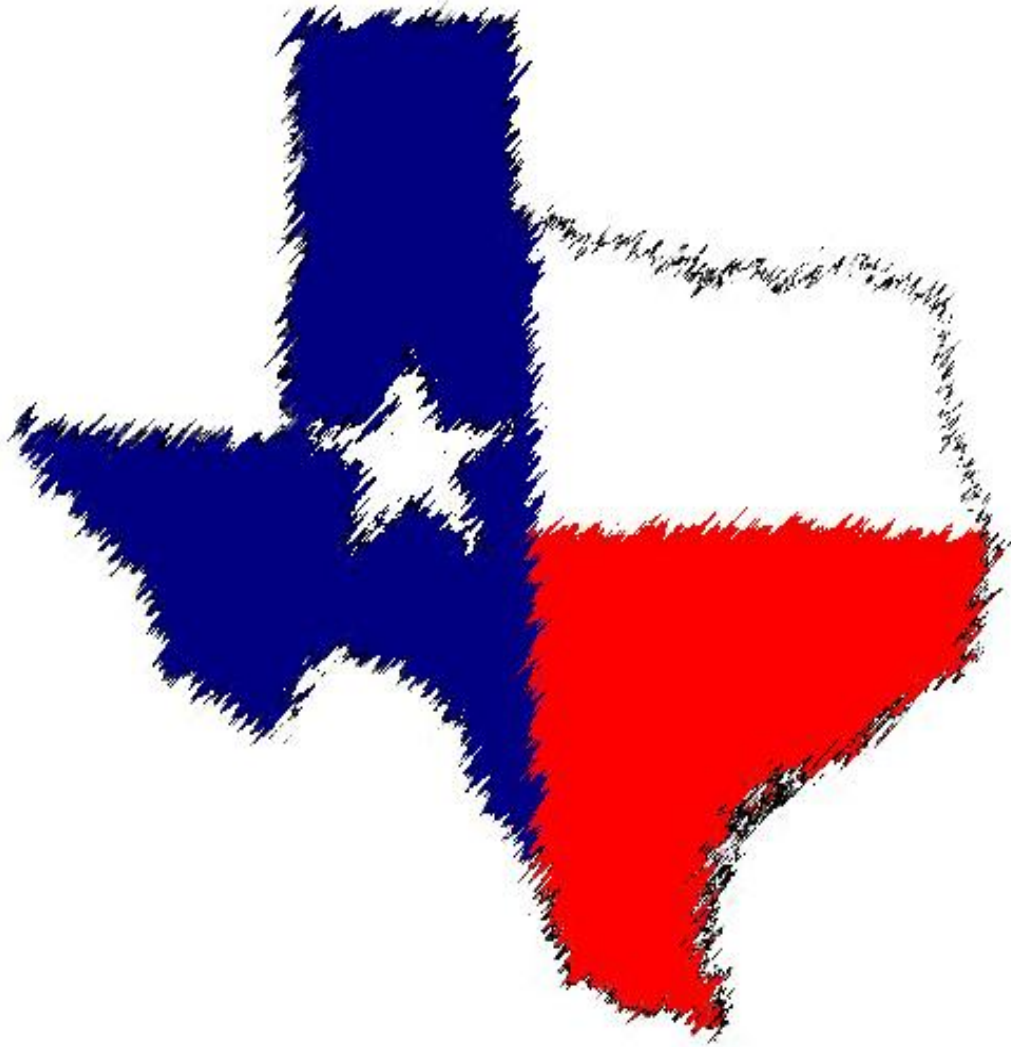


Texas Fire Weather Operating Plan

2007-2008



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Texas Fire Weather Operating Plan 2007-8

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U.S. Dept of Commerce

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TEXAS FIRE WEATHER OPERATING PLAN

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I. INTRODUCTION

This document serves as the Fire Weather Annual Operating Plan (AOP) for the state of Texas. The National Interagency Agreement for Meteorological Services mandates that the National Weather Service (NWS) and the interagency wildland fire management community coordinate and cooperate on developing fire weather policy, standards and guidelines. Each NWS Office is expected to maintain an AOP for its area of responsibility, documenting the local agreements, policies, and procedural information regarding the delivery of meteorological services to the fire management community. The Texas Fire Weather Operating Plan (TX-FWOP) is a consolidated operating plan, summarizing the cumulative meteorological services provided for the state of Texas. This consolidation is necessary in order to improve efficiency between the 13 NWS offices and their respective customer agencies. NWS offices may use this plan to serve as their local AOP; however, offices with responsibilities overlapping into other states, will maintain a separate plan.

A. SIGNATORIES AND DOCUMENT REVISION

In order for the TX-FWOP to represent the interests of a variety of fire weather customers, a list of signatories will be agreed upon each year. Both the NWS and the customer agencies will select signatories representing their respective agencies.

This operating plan will be a living document to reflect changes to NWS policies and references as this information is coordinated with agency signatories through local workshops or other meetings. Routine annual revisions are generally planned and published during minimal wildfire activity which is usually in the spring months for Texas. However, any portion of this document may be altered at any time as needed. In the event this is necessary, affected agencies will be notified, and a brief notation of each revision is included at the end of this introduction section.

NWS Signatories

NWS signatories include [Monte Oaks](#) (Fire Weather Program Leader, NWS Austin/San Antonio) and [Paul Witsaman](#), (Regional Fire Weather Program Leader, NWS Southern Region Headquarters). Questions or concerns regarding this operating plan should be sent to sr-srh.txfwop@noaa.gov.

Customer Agency Signatories

Agency signatories representing the land management customers of fire weather products are listed in *Appendix 6: Agency Signatories*. These signatories will be agreed upon annually. Requested changes to the Texas Fire Weather Operating Plan should be made in cooperation with at least one of these agency signatories. Local NWS office policy and service changes can be requested without coordinating with NWS signatories (additional details in *Section II.B. Interagency Cooperation*); NWS office personnel can submit any relevant policy changes to the NWS Signatories to be included into future operating plan updates. Requests for new signatories or changes to existing signatories should be in cooperation with all agency signatories.

B. RECENT UPDATES

All significant updates will be reviewed by signatories. Draft revisions will need signatory approval before the updates are published. This section will summarize any update necessary for signatory review in the past 12 months.

- *07/12/07 Removal of Glossary from Appendices*
- *07/12/07 Added interagency structure information in Section II.B*
- *07/12/07 Content condensed where possible, increased bullet format*

II. NWS FIRE WEATHER SERVICES

NWS MISSION

"The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community. "

This NWS mission is accomplished through the issuance of warnings and forecasts targeting primarily the general public. However, through an [Interagency Agreement for Meteorological Services](#) established between the NWS and wildland fire agencies, these warnings and forecasts have been extended to support specific land management and fire protection activities.

A. NATIONAL WEATHER SERVICE ORGANIZATION

Based on the interagency agreement, national standards for fire weather forecast products and services are established in the [NWS Directives System \(NDS\)](#). These guidelines are then applied to local agreements set for in local Area Operating Plans such as the TX-FWOP.

NWS offices are staffed continuously by personnel that include one or more professional meteorologists trained in fire weather. Each NWS office has a designated individual with special knowledge and training to serve as the Fire Weather Program Leader (FWPL). FWPLs are responsible for the majority of interagency communication between the NWS and the fire community, providing outreach, training, and other specialized services. Additional responsibilities of the FWPL include local policy implementation of forecast products and services, and local forecaster training.

The NWS also maintains a network of specialists dedicated to providing specialized weather support, usually at a remote location. These on-site weather forecasters are commonly known as Incident Meteorologists (IMETs). IMETs are highly trained,

strategically positioned NWS employees scattered across the United States for regional fire weather and all-hazards support. However, the IMET may be dispatched to support incidents anywhere in the country or even internationally. Details on the IMET and the all-hazards program are provided in *Section II.E* of this document.

B. INTERAGENCY COOPERATION

The [Interagency Agreement for Meteorological Services](#) establishes coordination guidelines between the NWS and participating wildland fire agencies. As indicated in this agreement, interagency wildland fire agency personnel stationed at the [National Interagency Fire Center \(NIFC\)](#), the Geographic Area Coordination Centers (GACCs), and local interagency coordination centers will work together to ensure fire agency decision makers receive consistent and coordinated fire weather products and services. Collectively, these agencies play a significant role in resource procurement, training and policy guidance, and the communication of operational fire weather information.

GACCs supporting the state of Texas include the [Southwest Area Coordination Center \(SWCC\)](#) for areas west of 100° W longitude and the [Southern Area Coordination Center \(SACC\)](#) for areas east of 100° W longitude. The [Texas Interagency Coordination Center \(TICC\)](#) serves as the local coordination center. Participating agencies served within this infrastructure are listed for each NWS office in *Section II.F*.

NWS Forecast Product Availability

Fire weather forecast products from the NWS are transmitted through the Advanced Weather Interactive Processing System (AWIPS). These products are available on the US Forest Service's Weather Information Management System (WIMS) as well as the Internet. While the NWS has responsibility to ensure successful transmission through AWIPS and its communications subsystems to the Telecommunications Gateway (TG), it maintains no control over the operation of WIMS.

Fire weather products are available on the Internet at each local NWS office website, but a backup means of receiving weather products should be made available to wildland fire agencies through facsimile, electronic mail, or other agreed upon methods. NWS products can also be monitored by land management agencies on the National Fire Weather Page provided by NWS Boise, ID at <http://fire.boi.noaa.gov>.

The Red Flag Program

The NWS Red Flag program is designed to alert customer agencies of critical weather patterns that will make the control of fires difficult. This alert is primarily done through the issuance of a Fire Weather Watch or Red Flag Warning product. Details on NWS product specifications are provided in the [NDS 10-401](#) and in *Section II.C* of the TX-FWOP.

The criteria for Red Flag conditions are established by the NWS Fire Weather Program Leader (FWPL) for each NWS Office's forecast area based primarily on the recommendations from the customer agencies. Since fuel dryness is an important component of this program, the NWS depends on customer agencies to make fire danger assessments. Direct consultation with a local fire behavior specialist will ensure the most up to date information on fuel characteristics. When direct consultation is not possible, forecasters are advised to use fire danger assessments from the Forest Service with the categories of "HIGH" and "EXTREME" for providing the validation needed for issuing an RFW product.

NWS Offices should ensure that Red Flag Warnings and Fire Weather Watches (RFW) are received by the Texas Interagency Coordination Center (TICC) for distribution to the customer agencies across Texas. When weather conditions are near or exceeding RFW criteria levels, forecasters should contact TICC to make customer agencies aware of any non-routine updates to fire weather forecast products. Customer agencies performing operations that impact life or property should coordinate their operations with TICC so that any changes to NWS forecast can be communicated to them.

Changes of Service

NWS Offices making changes to forecast products and procedures should provide notification to the primary contact points of each active customer agencies. NWS policy on notification procedures are provided in the NWS Directives System.

Customer agencies requesting changes in forecast products and services from a particular weather office should submit a formal request to the Meteorologist-in-Charge (MIC) of the respective NWS office. Queries regarding procedural matters, details of the fire weather program or equipment, special operational needs, et cetera, should be addressed to the FWPL or MIC of the appropriate NWS office. Contact information on each FWPL and MIC of the NWS offices serving Texas as well as a description of local products and services are listed for each office in *Section II.F*.

C. BASIC FORECAST PRODUCTS

All National Weather Service offices serving the state of Texas will issue a core suite of fire weather products as indicated in [NDS 10-401](#) consisting of the following:

- 1) Fire Weather Planning Forecasts
- 2) Fire Weather Watches and Red Flag Warnings
- 3) Spot Forecasts
- 4) National Fire Danger Rating System (NFDRS) Forecasts

Section II.C.5. Supplementary Products covers additional fire weather related products, some of which are considered optional or experimental. This includes:

- Hazardous Weather Outlooks and Area Forecast Discussions (all NWS offices)
- Fire Danger Statements (issued locally)
- Fire Weather Point Forecast Matrices (issued locally)

A glossary of basic fire weather parameters is not provided in this document; customer agencies are encouraged to use *Appendix 4* for Internet links containing information on fire weather and NWS forecast terminology. NDS 10-401 covers the basic product format. Product examples from each NWS office are available from Internet links in *Appendix 4*.

1. Fire Weather Planning Forecasts (FWF)

Fire weather planning forecasts are available to anyone with an interest in land management and pre-suppression activities in Texas.

Issuance Times:

- At least once per day—usually in the early morning.
- Routine afternoon updates common to many offices.
- Specific issuance times determined by local agreements.

Content:

Based on NWS Directive System requirements, all FWFs contain:

- A headline to emphasize a red flag warning or a significant change in weather conditions,
- Weather synopsis or map discussion,
- Predictions of sky cover and weather, temperature, humidity, and wind, and thunderstorms and/or precipitation, and
- An outlook or extended forecast through at least 5 days.

Each NWS office determines which optional forecast parameters to include in their forecasts based on customer feedback. Details on forecast parameters can be found in *Section II.D*.

Format:

The [NWS Directives System](#) allows for either a narrative or tabular format.

2. The Red Flag Program (RFW)

The intent of the red flag program is to provide land management agencies with appropriate notification of the likelihood that weather conditions associated with the outbreak of wildfire will occur. Identification of red flag events is a primary responsibility of the forecaster producing the fire weather forecasts. Forecasters will issue a fire weather watch or red flag warning, based on the criteria and timing explained below.

a. Criteria

Red flag criteria are dependent on both weather forecasts provided by NWS offices and the fuel moisture and fire danger assessments provided by land management agencies. The criteria will vary with each NWS office's county warning area based on the vegetation, topography, and distance from the Gulf of

Mexico. Red flag criteria for each NWS office can be found in *Section II.F*. A tabular summary is also provided for printing in *Appendix 1*.

Routine interagency coordination is necessary for the portion of red flag criteria pertaining to fuel dryness. While direct coordination with a fire behavior analyst is ideal, forecasters may use internet based guidance if coordination is not possible. Internet sites containing fuel moisture and fire danger guidance are provided in *Appendix 4*.

i. Fire Weather Watch

Fire weather watches are issued to alert fire and land management agencies to the possibility of red flag conditions beyond the first forecast period (12 hours). The watch is issued generally 12 to 48 hours in advance of the expected conditions, but can be issued up to 72 hours in advance if the forecaster is reasonably confident. The term “fire weather watch” will be headlined in the routine fire weather forecast and/or issued as a special forecast. The watch will remain in effect until it expires, is canceled, or upgraded to a red flag warning.

ii. Red Flag Warning

A red flag warning is used to alert fire and land management agencies that red flag conditions exist or are imminent. A red flag warning will be issued immediately when there is high confidence that red flag criteria will occur within the next 24 hours, or if those criteria are already being met (Due to forecast uncertainty beyond 12 hours, a fire weather watch will be more often used in the 12 to 24 hour time frame.) When a warning is issued, the term “red flag warning” will be headlined in the routine fire weather forecast, and/or sent as a special forecast to inform users of the warning. The warning will be continued on subsequent forecasts until no longer valid. A cancellation statement (using the RFW product) should terminate the warning unless the previous message indicated a termination time.

b. Dissemination and Access

The dissemination of the RFW should reflect local user capabilities to provide the most efficient means of getting watches/warnings to the appropriate fire suppression personnel.

Customers can find the current status of RFW conditions for a given location by viewing any of the following:

- Headline statements of the FWF and FWS
- Summary section of the AFD
- Point-and-click map on local NWS office web page
- The National Fire Weather and GACC (see Appendix 4)
- The [TICC](#) predictive services pages

c. Format and Valid Times

RFW format and valid times must conform to the requirements given in [NWSI 10-401](#) of the NDS.

3. Spot Forecasts (FWS)

Spot forecasts are specially requested site-specific forecasts for wildfires, prescribed burns, HAZMAT incidents, search and rescue operations, aerial spraying, and other functions of the land management community. By being site-specific, these forecasts take into account the effects of topography, vegetation and any nearby bodies of water. Based on the request, spot forecasts can contain site-specific forecast information on sky condition, precipitation and thunderstorm probability, maximum and minimum temperature and humidity, wind speed and direction, and timing of weather changes. Due to limited resources, spot forecast requests are subject to certain restrictions as indicated below.

Who can request a spot forecast?

Under the terms of the Interagency Agreement for Meteorological Services ([NDS: 10-406](#)), the NWS will provide spot forecast services upon request of any federal, state, tribal, or local official who represents a spot forecast for wildfire support. For non-wildfire purposes, resources permitting, WFOs will provide spot forecast services under the following restrictions:

- A. Upon request of any federal official who represents that the spot forecast is required under the terms of the Interagency Agreement.
- B. Upon request of any state, tribal, or local official who represents that the 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.
- C. Upon request of any public safety official who represents the spot forecast is essential to public safety, e.g. due to the proximity of population centers or critical infrastructure. 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.

Although anyone can act as a “public safety official” in the event of a fire or hazardous material related incident, it is best to coordinate a spot request through TICC or other federal, state, or local officials if available. Duplication of requests over the same incident could result in confusion or loss in response time. It is also important that non-federal agencies indicate a wildfire or other related public safety hazard as the reason for their request.

Request and Response Times

Spot forecasts are available upon request 24 hours a day, seven days a week, including holidays. These requests will be given priority over routine operations and should become available within 30 minutes of the time of request. However, protection agencies should be aware that other duties (such as severe weather) may

take higher priority, and short delays may occur. If delays are excessive, please notify the appropriate NWS office. Response times will be minimized if requesting agencies develop the following habits:

- Place a 'heads-up' call before sending the request
- Indicate if the request is for the support of a wildfire or other public safety threat
- Include preliminary observations (either manually or from a nearby station)
- Avoid placing requests within 30 minutes of NWS shift change times; contact local NWS office personnel to learn more about potentially sensitive shift-change times.

Request and Dissemination Methods

Nearly all spot forecasts are processed through an Internet program called NWS Spot. Requesting officials should consult with the appropriate NWS office for instructions on how to use this program. Each NWS office website will reference a NWS Spot tutorial in the "Fire Wx" section of the homepage. Completed spot forecasts requested through NWS Spot (for both wildfire and non-wildfire purposes) are available to everyone with access to the Internet.

Requesting officials without Internet access may also fax a form titled "Fire Weather Special Forecast Request" or otherwise known as "WS Form D-1". However, these requests must be accompanied by a phone call directly to the NWS forecast operations area in order to notify the appropriate office of the incoming fax request. Blank copies of these forms can be retrieved from the Internet at <http://www.srh.weather.gov/srh/cwwd/msd/firewx/images/D1-V2005.pdf> or faxed by request from any NWS Office. Once a faxed spot forecast request is fulfilled, NWS offices are encouraged to send a copy of the completed D-1 form to TICC for documentation purposes.

As a final resort, site-specific weather information can also be requested over the phone from NWS forecasters. This means of communication is inefficient for significant amounts of weather information.

Non-federal requesting officials should coordinate spot forecast requests with TICC using the guidelines given above and in the Interagency Agreement.

Format

Spot forecast formats may vary in order to provide the best possible services to requesting agencies. A common format to support prescribed burns includes a tabular group of weather parameters for selected times of the current day. However, requests supporting wildfires or other public safety threats must conform to the guidelines in [NWSI 10-401](#) of the NDS.

Quality Control

NWS offices are encouraged to develop local verification schemes to monitor forecast accuracy. The NWS asks that each spot forecast request be accompanied

by a preliminary observation (recorded at the time of the request) and a follow-up observation (recorded at the time of maximum or minimum heating depending upon the time that the request was sent) at the burn site, if possible.

Spot forecasts for prescribed burn support should typically be sent within 12 hours of the projected ignition time, and are most effective when sent within 4 hours of the ignition. Beyond 12 hours, accuracy is unlikely to be improved over the Fire Weather Planning Forecast (FWF). If the FWF does not contain the desired forecast information, customers may call the duty forecaster at the appropriate NWS office for additional detail.

4. National Fire Danger Rating System Forecasts (FWM)

The National Fire Danger Rating System is an assessment of wildfire danger, based on fire weather conditions at key points throughout the United States. The NWS role in NFDRS is to make 24-hour weather projections that influence the following day's fire danger indices.

NFDRS observations occur at 1300 LST (1400 LDT). The NWS makes forecasts for these locations at 1300 LST (1400 LDT) the following day. This forecast data is combined with fuel moisture conditions to produce various indices describing fire danger.

Fire weather observations are quality controlled by interagency personnel before being provided to NWS forecasters via the Weather Information Management System (WIMS). Observations failing to reach the NWS through this medium may be noted as missing, and can be eliminated from the NFDRS process.

Format:

The NFDRS (FWM) forecast format is outlined in NWSI 10-4 of the NDS. Required meteorological elements include state of weather, temperature, humidity, wind direction and speed, precipitation duration, and lightning activity level. An NFDRS forecast may be issued as a zone trend (typically where a fire weather zone contains a sufficient amount of observation stations) or as a station specific forecast.

5. Supplementary Products

The following products below are not necessarily issued as a part of the [Interagency Agreement for Meteorological Services](#) but are issued based on the guidelines from the [NDS](#):

a. Hazardous Weather Outlooks

NWS offices are encouraged to mention Red Flag Warning, Fire Weather Watches, and other wildfire risk information in Hazardous Weather Outlooks. The decision of when to issue this product is left to the discretion of each forecaster

as well local NWS office policies. The phrase “fire danger” should only be used in referencing the assessments provided by the Forest Service.

b. Fire Danger Statements

Fire Danger Statements are issued on an as needed basis, when there is either a very high or extreme fire danger. These conditions are determined and are based on stage of vegetation, expected afternoon high temperature, afternoon minimum relative humidity and daytime wind speed. Also included in the product are any burn bans that may be in effect.

c. Area Forecast Discussions

Area Forecast Discussions are semi-technical products used to explain scientific rationale behind a forecast. Forecasters also use this medium to express forecast confidence levels and to summarize watches, warnings and/or advisories in effect. The format of the product will occasionally contain a special fire weather discussion – mainly when fire weather parameters approach critical values. The bottom portion of these products contain a summary of any RFWs in effect; however, product issuance does not always correspond to changes in RFW status.

D. Forecast Weather Components

This section will detail fire weather forecast parameters used in the fire weather forecast products issued by NWS offices serving Texas.

1. Headline Statement/Weather Synopsis

- Used at the beginning of the FWF, RFW, and FWS products
- Focuses on changes in the weather that will impact fire behavior.
- Headline statements used when significant fire weather events are occurring or expected
- Allows for qualitative discussion on weather trends such as the time of inversion burn-off.

2. Precipitation and Thunderstorms

- Expressed in most NWS forecast products as the percent chance that a given location will receive 0.01 inches of precipitation for a 12 hour period.
- A forecast wetting rain is considered to be 0.10 inches for Texas unless otherwise noted.
- Thunderstorm influences that have a potential to produce critical fire weather conditions are expected to be detailed in the weather synopsis.

3. Sky Condition

- Usually expressed in terms of percent coverage.

- Trends often discussed qualitatively in the synopsis section when changes impact mixing levels.

4. Miscellaneous Weather Phenomena

Smoke, fog, and dust expected to create significant problems for wildfire control efforts should be included in the synopsis of the forecast. Severe weather, winter weather, and flash flood events are unlikely to occur during extreme wildfire events but could still be of interest to the user agencies for wildland planning efforts. Some of these parameters may be used in a tabular description for “weather”.

5. Relative Humidity (RH)

- Expressed in % as the ratio of the amount of water vapor actually in the air compared to the amount the air is capable of holding at its temperature and pressure.
- Critical to fire management activities and are always included in routine and spot forecasts.
- RH values can vary greatly over a small area due to variations in topography, vegetation and location with respect to bodies of water; may be expressed as a range of values.

6. Winds and Mixing

Wind speed and direction are generally indicated for the most hazardous part of the day or at other times specified in the forecast. The NDS requires that users of fire weather forecasts are made aware of the level for which the wind is forecast, i.e., eye-level, 20 feet, free-air, etc. Maximum gusts, erratic winds, and wind shifts should be mentioned when expected. The three most common wind assessments are listed below.

a. 20-foot winds

Winds at 20 feet above the ground or above the average height of vegetation are the most common winds used in the routine fire weather forecast. Since most surface stations used for NWS forecasts measure the wind at 33 feet, a reduction factor is needed to arrive at the 20-foot wind. FTS/RAWS sites, which measure 20 foot wind speed and direction, can be used to compare the 33 foot winds, but are available for only a few NWS offices with responsibilities in Texas.

b. Eye-level winds

Eye-level (or 6-foot) winds are often used for spot forecasts to compliment preliminary reports taken at the burn site. These wind forecasts may also be estimated using a reduction factor to the available surface wind data.

c. Transport winds / ventilation index

Average winds in the mixing layer and the depth of the mixing layer are parameters that are helpful for land management agencies to evaluate the potential for very large fires and also for smoke dispersal. Data computed from

morning atmospheric soundings and model forecast soundings are used to provide ventilation values for periods of maximum heating. The following are terms and definitions necessary to understanding ventilation data and values:

i. Mixing height or mixing depth

The height to which vigorous mixing occurs due to heating. Units are in Feet above ground level (AGL), with ground level being the elevation above mean sea level (MSL) of the upper-air site. It is important that wildland fire managers note the difference in elevation between the burn site and the referenced upper-air site, and modify the provided mixing depths accordingly.

ii. Transport Winds

A measure of the average rate of horizontal transport of air within the mixing layer. Units can be expressed in knots (1 knot = 1.15 mph) or mph. An average wind direction (the direction from which the wind is blowing) is provided. If winds are light and variable, then it may be best to consider local drainage effects when in critical situations.

iii. Ventilation Index

The product of the mixing height and the transport wind speeds. It is a measure of the volume rate of horizontal transport of air within the mixing layer per unit distance normal to the winds. Units are in knot-feet. As a guide, the following categories have been established to describe the ventilation...

| | |
|-----------|--------------------------|
| Excellent | 150,000 kt-ft or greater |
| Very Good | 100,000-149,999 kt-ft |
| Good | 60,000-99,999 kt-ft |
| Fair | 40,000-59,999 kt-ft |
| Poor | less than 40,000 kt-ft |

When ventilation values are less than 40,000 kt-ft along with transport winds below 7.0 knots, dispersion of any pollutants released into the atmosphere will be severely limited.

7. Lightning Activity Level

Smoke, fog Lightning Activity Level (LAL) is a commonly used measure of the amount of lightning activity using values 1 to 6 where:

- **LAL 1** – No thunderstorms.
- **LAL 2** – Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1-5 cloud to ground strikes in a 5 minute period.
- **LAL 3** – Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6-10 cloud to ground strikes in a 5 minute period.
- **LAL 4** – Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11-15 cloud to ground strikes in a 5 minute period.

- **LAL 5** – Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.
- **LAL 6** – Same as LAL 3 except thunderstorms are dry (no rain reaches the ground). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

8. Haines Index

The Haines Index (HI) is a numerical value that indicates the potential for large wildfires to experience extreme fire behavior (i.e. crowning, spotting, and rapid rates of spread). The HI combines both the instability and dryness of the air by examining the lapse rate between two pressure levels in the atmosphere and the dryness at one of the pressure levels. There are three different methods of computing HI depending upon whether the area elevation is considered low, medium or high. Each NWS office determines the elevation which is most suitable for their area of responsibility. For each elevation, Haines Index classifications are assigned to values 2 through 6 as shown below...

| HAINES INDEX | POTENTIAL FOR LARGE FIRE GROWTH |
|--------------|---------------------------------|
| 2 or 3 | Very Low |
| 4 | Low |
| 5 | Moderate |
| 6 | High |

The HI numbers are computed for each elevation using the following parameters...

| HI | = | STABILITY TERM (A) | + | MOISTURE TERM (B) |
|-------------------|---|---|---|---|
| Low Elevation HI | = | 950-850 MB TEMP A=1 when 3°C or less A=2 when 4-7°C A=3 when 8°C or more | + | 850 MB TEMP-DEW POINT B=1 when 5°C or less B=2 when 6-9°C B=3 when 10°C or more |
| Mid Elevation HI | = | 850-700 MB TEMP A=1 when 5°C or less A=2 when 6-10°C or less A=3 when 11°C or more | + | 850 MB TEMP - DEW POINT B=1 when 5°C or less B=2 when 6-12°C or less B=3 when 13°C or more |
| High Elevation HI | = | 700-500 MB TEMP A=1 when 17°C or less A=2 when 18-21°C A=3 when 22°C or more | + | 700 MB TEMP - DEW POINT B=1 when 14°C or less B=2 when 15-20°C B=3 when 21°C or more |

9. Inversion Burn-off

Information on inversion burn-off time and/or temperature is an optional forecast parameter that many user agencies may request. Since eroding inversions are often highly variable over a small area, forecast inversion burn-off times and temperatures

will be most accurate and useful when used in site-specific weather forecasts. However, a qualitative analysis can be useful for synoptic discussions if forecaster confidence is high enough.

E. Specialized Services

Special services are meteorological services provided to customer agencies with unique requirements for fire weather support. These services are usually needed at a location outside the WFO and performed by either a fire weather program leader (FWPL) or an incident meteorologist (IMET). Special services include any on-site meteorological service such as weather observer training, weather station visits, and training requested by other user agencies.

Special services are usually initiated by the requesting agency, and costs such as travel, overtime, and per diem will be reimbursable to the NWS. Costs to be recovered from these agencies are calculated on the basis of expense reports submitted by the Forecast Office to NWS Southern Region Headquarters. Billing of the user agencies is handled by the appropriate NWS administrative division based on the expense report. Bills include a statement of services rendered, as well as the dates and locations of services provided.

1. The IMET Program

The NWS maintains a cadre of roughly 60 highly trained Incident Meteorologists (IMETs) that await dispatch to on-site locations in support of incident response efforts for both wildfire and non-wildfire incidents. Training in microscale forecasting, fire behavior, and fire suppression operations makes these fire weather forecasters key members of the Incident Command System (ICS). An increasing amount of forecasters are also being trained for support of hazardous material incidents.

IMETs use special equipment in preparing critical forecasts used in wildfire suppression and prescribed burning projects. One of these tools is the All-hazard Meteorological Response System (AMRS) which enables forecasters to operate at the incident command post, providing close meteorological support to the suppression efforts. The AMRS can be used throughout the country wherever wildfire, chemical spills, and other catastrophes threatens life, property, or other valuable resources.

These IMETs can deploy rapidly with portable forecast and communications equipment to provide critical fire weather forecasting support. The forecaster sets up a portable unit near the fire lines and provides critical information that helps fire managers decide where to move fire crews, learn about incoming weather, plan tactics, and provide for fire fighter and public safety.

Requests for the on-site meteorological services should be made through the National Incident Management System (NIMS), of which the [Southwest Area](#)

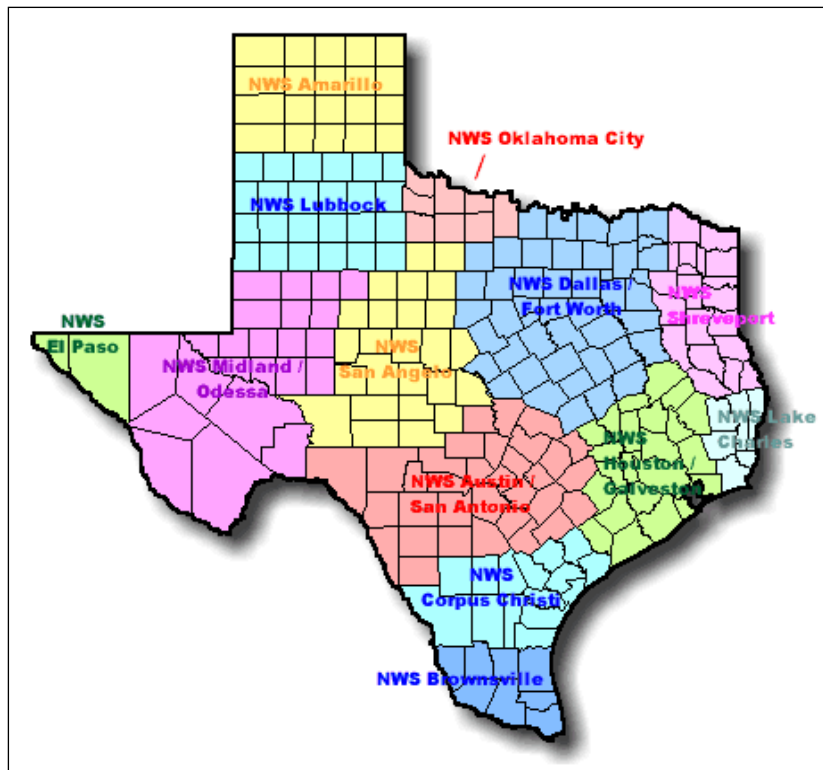
[Coordination Center](#) in Albuquerque, NM serves portions of Texas west of the 100 W^o longitude and the [Southern Area Coordination Center](#) in Atlanta, GA serves portions of Texas east of 100 W^o longitude. In some localized incidents, the FWPL or the MIC of a nearby NWS office will receive requests for IMET services in their County Warning and Forecast Area (CWFA). Typically, the IMET nearest the incident will be deployed. TICC has the authority to request these special services as long as the IMET is located within the jurisdiction of TICC's dispatch zone. TICC managers will enter the availability of the requested IMET in the Resource Ordering and Status System (ROSS). IMETs that have been dispatched locally need to coordinate their unavailability with the National IMET Program Leader, Larry Van Bussum and the Regional Fire Weather Program Manager, Paul Witsaman.

Not every NWS office has a certified IMET. USDA Forest Service Regions should keep an updated list of available IMETs.

F. NWS Weather Forecast Offices

Each NWS Weather Forecast Office providing fire weather services to the state of Texas is staffed with meteorologists trained in fire weather forecasting 24 hours a day, 7 days a week, including holidays.

This section discusses the geographical service area of each NWS Office as well as the variety of services each office provides. Links to recently issued forecast products from each NWS office are provided in *Appendix 4*.



Customer feedback on local policies

Questions or concerns regarding the policies outlined in this section should be directed to the fire weather program leader (FWPL) and/or the MIC of the respective NWS office(s) or contact...

[Paul Witsaman](#), Regional Fire Weather Program Manager
NWS Southern Region Headquarters
819 Taylor Street, Room 10E09
Fort worth, Texas 76102
Ph: 817.978.1100 x116

1. NWS Amarillo

1900 English Road
Amarillo, TX 79108
Phone: 806-335-1421

Fire Weather Program Leader:
Ken Schneider

Meteorologist-In-Charge:
Jose Garcia

Federal Land Management Agencies Served:

- National Park Service (Alibates Flint Quarries National Monument and Lake Meredith National Recreation Area)
- U.S. Fish and Wildlife Service (Buffalo Lake National Wildlife Refuge)
- U.S. Forest Service (Black Kettle National Grassland, McClellan Creek National Grassland and Rita Blanca National Grassland)

| | | | | |
|------------|---------|------------|-----------|---------------|
| Dallam | Sherman | Hansford | Ochiltree | Lipscomb |
| Hartley | Moore | Hutchinson | Roberts | Hemphill |
| Oldham | Potter | Carson | Gray | Wheeler |
| Deaf Smith | Randall | Armstrong | Donley | Collingsworth |



Red Flag Criteria for the Texas panhandle:

RFW criteria for the Amarillo NWS office must conform to the following requirements from the [Southwest Area Fire Weather Operating Plan...](#)

- 20 foot wind speeds of 20 mph or greater
- Relative Humidity of 15 percent or less
- NFDRS rating of HIGH or greater

Additional local criteria

- Dry lightning potential

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, Spot Forecasts and Fire Weather Point Forecast Matrices

[Fire Weather Planning Forecast](#)

- Product ID: LBBFWFAMA
- WMO Header: FNUS54 KAMA
- Issuance Time: Routinely twice a day at 7 AM and 330 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, precipitation amount, LAL, mid level Haines Index, maximum height of the mixing layer

(feet and meters AGL), mean transport wind speed (knots and m/s) and direction in the mixing layer, and ventilation rate

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: LBBRFWAMA
- WMO Header: WWUS84 KAMA
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

[Fire Danger Statement](#)

- Product ID: LBBRFDAMA
- WMO Header: FNUS64 KAMA
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support high fire behavior and can be issued when there are ongoing wildfires anywhere in the Oklahoma and Texas panhandles

[NFDRS Forecasts](#)

- Product ID: LBBFWMAMA
- WMO Header: FNUS84 KAMA
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|-------------|------------|------------|
| CEDAR | 418701 | Hutchinson |
| BOOTLEG | 418801 | Deaf Smith |

[Fire Weather Point Forecast Matrices](#)

- Product ID: LBBPFWAMA
- WMO Header: FOUS54 KAMA
- Issuance Time: Twice a day at no later than 8 AM and 4 PM
- Product Content: Various forecasted weather parameters every three hours for certain predefined points. The predefined points in Texas are:

| COMMON NAME | TX COUNTY |
|--------------|------------|
| AMARILLO | Potter |
| BOOTLEG RAWS | Deaf Smith |
| BORGER | Hutchinson |
| CEDAR RAWS | Hutchinson |
| DALHART | Hartley |

2. NWS Austin/San Antonio

2090 Airport Road
New Braunfels, TX 78130
Phone: 830-606-3617

Fire Weather Program Leader:

[Monte Oaks](#)

Meteorologist-In-Charge:

Joe Arellano

Federal Land Management Agencies Served:

- U.S. Fish and Wildlife Service (Balcones Canyonlands National Wildlife Refuge)
- National Park Service (Amistad National Recreation Area and Lyndon B. Johnson and San Antonio Missions National Historical Parks)
- The Austin/San Antonio NWS Office also serves as the state liaison office for interagency coordination.



Red Flag Criteria for South Central Texas:

- 20-ft wind speeds of 15 mph or greater combined with either daytime minimum RH below 25% or nighttime maximum RH below 60%
- Presence of dry lightning (LAL=6)
- Expected dry wind shifts and/or extremely low humidity
- Presence of ongoing wildfires in South Central TX

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: SATFWFEWX
- WMO Header: FNUS54 KEWX
- Issuance Time: Routinely twice a day at 7 AM and 330 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum height of the mixing layer (feet AGL), mean transport wind speed (knots) and direction in the mixing layer, chance of wetting rain, LAL and low level Haines Index

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: SATRFWEWX

- WMO Header: WWUS84 KEWX
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: SATFWMEWX
- WMO Header: FNUS84 KEWX
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|----------------------|------------|-----------|
| BASTROP | 415501 | Bastrop |
| LAGRANGE | 415602 | Fayette |
| BIRD | 417901 | Gillespie |
| BALCONES CANYONLANDS | 417902 | Travis |
| GUADALUPE RIVER SP | 418101 | Comal |
| KICKAPOO CAVERNS SP | 418001 | Kinney |
| PEARSALL | 418102 | Frio |

Fire Weather Point Forecast Matrices

- Product ID: SATPFWEWX
- WMO Header: FOUS54 KEWX
- Issuance Time: Twice a day at no later than 7 AM and 4 PM
- Product Content: Various forecasted weather parameters every three hours for certain predefined points. The predefined points are:

| COMMON NAME | TX COUNTY |
|----------------------|-----------|
| BASTROP | Bastrop |
| LAGRANGE | Fayette |
| BIRD | Gillespie |
| BALCONES CANYONLANDS | Travis |
| GUADALUPE RIVER SP | Comal |

3. NWS Brownsville

20 South Vermillion
Brownsville, TX 78521-5798
Phone: 956-504-1432

Fire Weather Program Leader:
Jason Straub

Meteorologist-In-Charge:
Nezette Rydell

Federal Land Management Agencies Served:

- National Park Service (Padre Island National Seashore and Palo Alto Battlefield National Historical Site)
- U.S. Fish and Wildlife Service (Laguna Atascosa, Lower Rio Grande Valley, and Santa Ana National Wildlife Refuges)



Red Flag Criteria for Deep South Texas:

- Sustained 20 ft wind speeds of 25 mph or greater and RH at or below 35% for two hours or more
- If the USFWS notifies WFO BRO that the fuels have cured, then the RH criterion is removed

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: SATFWFBRO
- WMO Header: FNUS54 KBRO
- Issuance Time: Routinely once a day at 7 AM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, RH trends for the first 24 hours and maximum height of the mixing layer (feet AGL)

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: SATRFWBRO
- WMO Header: WWUS84 KBRO
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: SATFWMBRO
- WMO Header: FNUS84 KBRO
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|-----------------|------------|-----------|
| SANTA ANA NWR | 418602 | Hidalgo |
| LAGUNA ATASCOSA | 418603 | Cameron |
| FALCON LAKE | 418604 | Starr |
| LINN-SAN MANUAL | 418605 | Hidalgo |

4. NWS Corpus Christi

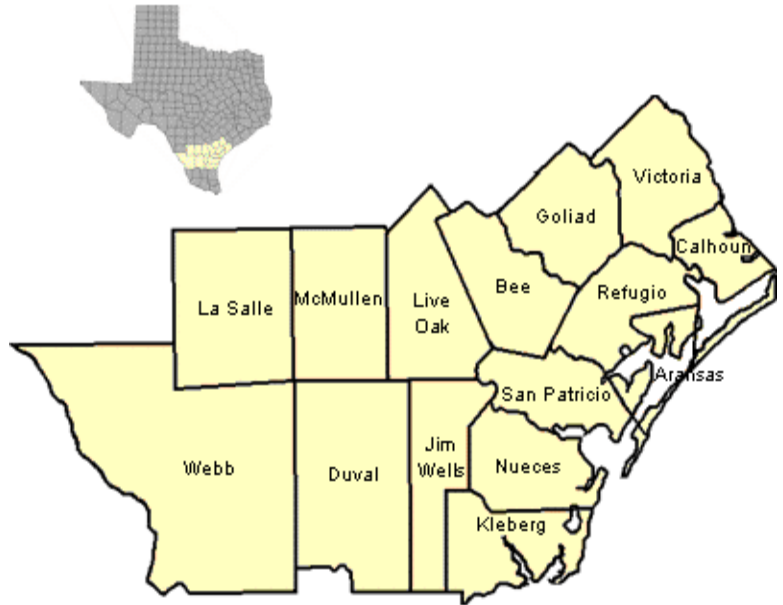
300 Pinson Drive
Corpus Christi, TX 78406-1803
Phone: 361-289-0959

Fire Weather Program Leader:
Jason Runyen

Meteorologist-In-Charge:
Scott Cordero

Federal Land Management Agencies Served:

- National Park Service (Padre Island National Seashore)
- U.S. Fish and Wildlife Service (Aransas National Wildlife Refuge)
- United States Department of Agriculture (Natural Resources Conservation Service)



Red Flag Criteria for the Coastal Bend and Rio Grande Plains:

- 20-Foot winds sustained or frequently gusting at or above 25 mph AND:

| Coastal Counties | Inland Counties |
|--------------------|--------------------|
| RH at or below 40% | RH at or below 30% |

- A Red Flag Warning may also be issued for any weather change that will increase fire danger, start new fires or present control problems to ongoing fires

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: SATFWFCRP
- WMO Header: FNUS54 KCRP
- Issuance Time: Routinely once a day by 8 AM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum height of the mixing layer (feet AGL), mean transport wind speed (knots) and direction in the mixing layer and LAL

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: SATRFWCRP
- WMO Header: WWUS84 KCRP

- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: SATFWMCRP
- WMO Header: FNUS84 KCRP
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|------------------|------------|-----------|
| GEORGE WEST | 418201 | Live Oak |
| MATAGORDA ISLAND | 418503 | Aransas |
| VICTORIA | 418202 | Victoria |
| ARANSAS NWR | 418502 | Aransas |

5. NWS El Paso

7955 Airport Road
Santa Teresa, NM 88008
Phone: 505-589-3972/3982

Fire Weather Program Leader:

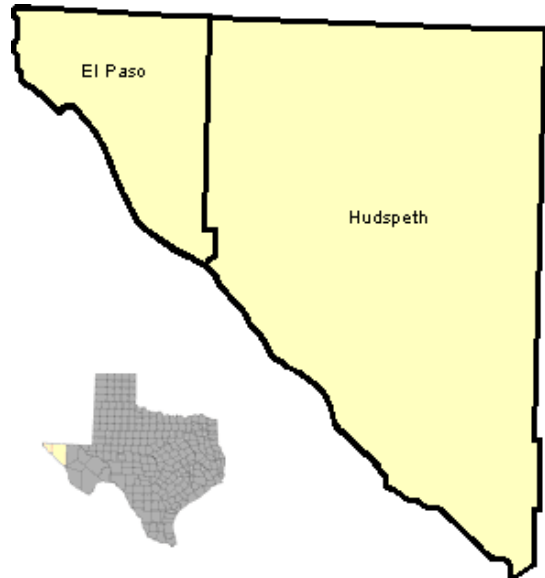
Tom Bird

Meteorologist-In-Charge:

Bill Alexander

Land Management Agencies Served:

- National Park Service (Chamizal National Memorial Park)
- Texas Forest Service
- The El Paso NWS Office also supports the State of Texas with a fully trained IMET



Red Flag Criteria for Far West Texas:

RFW criteria for the El Paso NWS office must conform to the following requirements from the [Southwest Area Fire Weather Operating Plan](#):

- 20 foot wind speeds of 20 mph or greater
- Relative Humidity of 15 percent or less
- NFDRS rating of HIGH or greater

Note: The Silver City and Alamogorda Zone Dispatch Centers will be notified of RFW Issuances.

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, Spot Forecasts and Fire Weather Point Forecast Matrices

Fire Weather Planning Forecast

- Product ID: LBBFWFEPZ
- WMO Header: FNUS54 KEPZ
- Issuance Time: See Below
- Product Content: See Below

| FWFEPZ In season (approximately May 1st - Oct 31st) | FWFEPZ Off Season (approximately Nov. 1st - Mar 31st) |
|---|---|
| Issued routinely twice a day, first issued around 930 am and again at around 230 pm. | Issued once daily around 930 am. |
| Content includes a discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, LAL, high-level Haines Index, and 10000 foot winds (knots) | The off-season format discontinues LAL and Haines Index. Maximum height of the mixing layer (feet AGL), and mixing layer transport winds are added to aide in smoke dispersal decisions |

Fire Weather Watch/Red Flag Warning

- Product ID: LBBRFWEPZ
- WMO Header: WWUS84 KEPZ
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts:

Currently there are no NFDRS sites in the Texas portion of the ELP CWFA.

Fire Weather Point Forecast Matrices

Currently there are no matrices issued in the Texas portion of the ELP CWFA

6. NWS Fort Worth/Dallas

3401 Northern Cross Blvd.
Fort Worth, Texas 76137-3610
Phone: 817-429-2631

Fire Weather Program Leader:

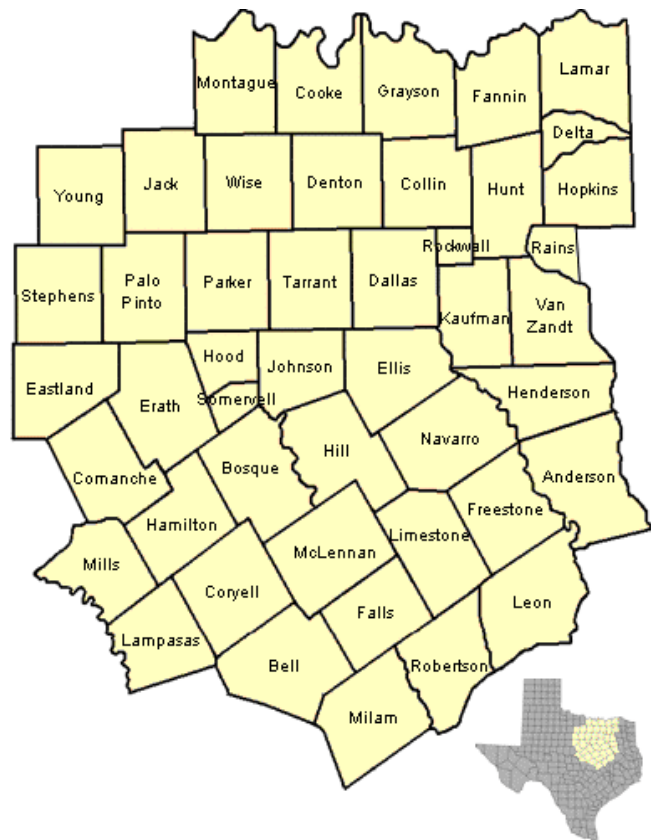
Joe Harris

Meteorologist-In-Charge:

Bill Bunting

Federal Land Management Agencies Served:

- U.S. Fish and Wildlife Service (Hagerman National Wildlife Refuge)
- U.S. Forest Service (Caddo and Lyndon B. Johnson National Grasslands)



Red Flag Criteria for North Central Texas:

- 20 foot winds 20 mph or higher with minimum RH of 30% or less
- Dry thunderstorms
- Ongoing large wildfires.

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, North Texas Grass Fire Danger Statements, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: FTWFWFFWD
- WMO Header: FNUS54 KFWD
- Issuance Time: Routinely twice a day by 8 AM and 4 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum height of the mixing layer (feet AGL/MSL-blended and meters AGL), transport wind speed (m/s) and direction in the mixing layer, sunshine hours and RH trends for the first 24 hours

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: FTWRFWFWD
- WMO Header: WWUS84 KFWD

- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

North Texas Grass Fire Danger Statement

- Product ID: FTWRFDFWD
- WMO Header: FNUS64 KFWD
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support a very high or extreme fire danger. These conditions are determined and are based on stage of vegetation, expected afternoon high temperature, afternoon minimum relative humidity and daytime wind speed. Also included in the product are any burn bans that may be currently in effect.

NFDRS Forecasts

- Product ID: FTWFWMFWD
- WMO Header: FNUS84 KFWD
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|-------------------|------------|------------|
| CADDO | 410202 | Fannin |
| ATHENS | 412101 | Henderson |
| PALESTINE | 412601 | Anderson |
| ROUND PRAIRIE | 413101 | Robertson |
| POSSUM KINGDOM SP | 419402 | Palo Pinto |
| COMANCHE | 419403 | Comanche |
| LBJ | 419601 | Wise |
| GREENVILLE | 419602 | Hunt |
| CEDAR HILL SP | 419701 | Dallas |
| GRANBURY | 419702 | Hood |
| TEMPLE | 419801 | Bell |
| MCGREGOR | 419802 | McLennan |

7. NWS Houston/Galveston

1353 FM 646, Suite 202
Dickinson, TX 77539
Phone: 281-337-5074

Fire Weather Program Leader:
Kent Prochazka

Meteorologist-In-Charge:
Bill Read

Federal Land Management Agencies Served:

- National Park Service (Big Thicket National Preserve)
- U.S. Fish and Wildlife Service (Anahuac National Wildlife Refuge, Attwater Prairie Chicken National Wildlife Refuge and Big Boggy/Brazoria/San Bernard National Wildlife Refuges)
- U.S. Forest Service (Davy Crockett and Sam Houston National Forests)



Red Flag Criteria for Southeast Texas:

- RH 20-25% or less combined with winds 15 to 25 mph sustained or higher, and fuel moistures are low.

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: SATFWFHGX
- WMO Header: FNUS54 KHGX
- Issuance Time: Routinely twice a day around 730 AM and 330 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, hours of sunshine, ventilation rate (meters squared/second), category day, height of the mixing layer (both feet and meters AGL), maximum height of the mixing layer (feet AGL and meters AGL), mean transport wind speed (both knots and meters/second) and direction in the mixing layer, LAL and RH trends for the first 24 hours

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: SATRFWHGX
- WMO Header: WWUS84 KHGX

- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: SATFWMHGX
- WMO Header: FNUS84 KHGX
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|--------------------------------------|------------|-------------|
| RATCLIFF (NECHES/RATCLIFF in ASCADS) | 413302 | Houston |
| HUNTSVILLE | 414102 | Walker |
| COLDSPRINGS | 414201 | San Jacinto |
| CONROE | 415109 | Montgomery |
| DAYTON | 415201 | Liberty |
| ANAHUAC PORTABLE | 416099 | Chambers |
| ATWATERS | 416601 | Colorado |
| BRAZORIA | 418301 | Brazoria |
| SAN BERNARD | 418302 | Brazoria |

8. NWS Lake Charles

500 Airport Blvd., #115
Lake Charles, LA 70607-0668
Phone: 337-477-5285

Fire Weather Program Leader:
Kent G. Kuyper

Meteorologist-In-Charge:
Andy Patrick

Federal Land Management Agencies Served:

- National Park Service (Big Thicket National Preserve)
- U.S. Fish and Wildlife Service (McFaddin and Texas Point National Wildlife Refuges)



Red Flag Criteria for Extreme Southeast

- In general, Fire Weather Watches and Red Flag Warnings will be issued when sustained winds of 20 to 25 mph or greater are expected while the region is at Preparedness Level 2 or greater. Preparedness Level 2 or higher in the Gulf Coast Area means that fuels are sufficiently dry and RH values are usually low enough (>30 to 35%) or strong winds to cause erratic and extreme fire behavior.

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: NEWFWLCH
- WMO Header: FNUS54 KLCH
- Issuance Time: Routinely twice a day around 6 AM and 3 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, precipitation amount, precipitation timing and duration, LAL, maximum and minimum mixing heights (feet AGL/MSL-blended and m AGL/MSL-blended), mean transport wind speed (miles/hour and m/s) and direction in the mixing layer, dispersion index, ventilation rate (meters squared/second), category day, and Keetch-Byram Index

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: NEWRFLCH
- WMO Header: WWUS84 KLCH

- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: NEWFWMLCH
- WMO Header: FNUS84 KLCH
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|----------------|------------|-----------|
| WOODVILLE | 414402 | Tyler |
| KIRBYVILLE | 414501 | Jasper |
| SOUTHERN ROUGH | 416101 | Tyler |
| MCFADDIN | 419901 | Jefferson |

9. NWS Lubbock

Address:

2579 South Loop 289, Suite 100
Lubbock, TX 79423-1400
Phone: 806-745-4260

Fire Weather Program Leader:

Jose Valdez

Meteorologist-In-Charge:

Justin Weaver

Federal Land Management Agency

Served:

- U.S. Fish and Wildlife Service
(Muleshoe National Wildlife Refuge)

| | | | | | |
|---------|---------|---------|--------|---------|-----------|
| Palmer | Castro | Swisher | Brisco | Hall | Childress |
| Bailey | Lamb | Hale | Floyd | Motley | Cottle |
| Cochran | Hockley | Lubbock | Crosby | Dickens | King |
| Yoakum | Terry | Lynn | Garza | Kent | Stonewall |



Red Flag Criteria for the South Plains of Northwest Texas:

RFW criteria for the Lubbock NWS office must conform to the following requirements from the [Southwest Area Fire Weather Operating Plan](#):

- 20 foot wind speeds of 20 mph or greater
- Relative Humidity of 15 percent or less
- NFDRS rating of HIGH or greater

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, Spot Forecasts and Fire Weather Point Forecast Matrices

[Fire Weather Planning Forecast](#)

- Product ID: LBBFWFLUB
- WMO Header: FNUS54 KLUB
- Issuance Time: Routinely twice a day around 6 AM and 3 PM
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum height of the mixing layer (feet AGL), transport winds (knots), Haines Index and RH trends through 24 hours

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: LBBRFLUB
- WMO Header: WWUS84 KLUB
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: LBBFWMLUB
- WMO Header: FNUS84 KLUB
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|-------------|------------|-----------|
| CAPPROCK | 418901 | Briscoe |
| MATADOR WMA | 418902 | Motley |

Fire Weather Point Forecast Matrices

- Product ID: LBBPFWLUB
- WMO Header: FOUS54 KLUB
- Issuance Time: Twice a day at no later than 7 AM and 4 PM
- Product Content: Various forecasted weather parameters every three hours for certain predefined points. The predefined points are:

| COMMON NAME | TX COUNTY |
|---------------|-----------|
| CAPPROCK RAWS | Briscoe |
| CHILDRESS | Childress |
| LUBBOCK | Lubbock |
| MATADOR RAWS | Motley |
| PLAINVIEW | Hale |

10. NWS Midland/Odessa

2500 Challenger Drive
Midland, TX 79706
Phone: 432-563-5006

Fire Weather Program Leader:
Gregory Murdoch

Meteorologist-In-Charge:
Raymond Fagen

Federal Land Management Agency Served:

- National Park Service (Big Bend National Park, Fort Davis National Historic Site and Guadalupe Mountains National Park)
- The Midland NWS Office also supports the State of Texas with a fully trained IMET



Red Flag Criteria for the Trans-Pecos Region:

RFW criteria for the Midland/Odessa NWS office must conform to the following requirements from the [Southwest Area Fire Weather Operating Plan...](#)

- 20 foot wind speeds of 20 mph or greater and/or gusts to 35 mph or higher,
- Relative Humidity of 15 percent or less, and
- NFDRS adjective rating of HIGH or greater

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, Spot Forecasts and Fire Weather Point Forecast Matrices.

[Fire Weather Planning Forecast](#)

- Product ID: LBBFWFMAF
- WMO Header: FNUS54 KMAF
- Issuance Time: During fire weather season (Mar 1 – Nov 1): Routinely twice a day no later than 930 AM and 330 PM. During off season: Routinely once a day no later than 930 AM.
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum height of the mixing layer (feet AGL), transport winds (knots), Haines Index (mix of mid and high levels), LAL, 10,000 foot winds (mph), ventilation data and RH trends through 24 hours.

Fire Weather Watch/Red Flag Warning

- Product ID: LBBRFWMAF
- WMO Header: WWUS84 KMAF
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

NWS Midland/Odessa is responsible for NFDRS zone 350 in southeast New Mexico and the Texas portion of zone 364, which includes the Guadalupe Mountains NP. In order for the forecaster to issue a forecast, an observation must be received. Individual station trends forecast are issued in zone 364 so there is no conflict with the zone trend forecast for 364 issued by El Paso and zone trends are provided for zone 350. Additional site forecasts are listed in the table below. Additional information on NFDRS forecasts will be provided in the LAOP for the Midland/Odessa office.

- Product ID: LBBFWMLUB
- WMO Header: FNUS84 KLUB
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|------------------|------------|------------|
| PINERY | 417101 | Culberson |
| THE BOWL | 417103 | Culberson |
| FORT DAVIS | 417201 | Jeff Davis |
| DAVIS | 417201 | Jeff Davis |
| PANTHER JUNCTION | 417401 | Brewster |
| CHISOS | 417403 | Brewster |
| MIDLAND | 419202 | Midland |

Fire Weather Point Forecast Matrices

- Product ID: LBBPFWMAF
- WMO Header: FOUS54 KMAF
- Issuance Time: Twice a day at no later than 8 AM and 4 PM
- Product Content: Various forecasted weather parameters every three hours for certain predefined points. The predefined points are:

| COMMON NAME | TX COUNTY |
|-----------------------|------------|
| MIDLAND RAWS | Midland |
| FORT DAVIS RAWS | Jeff Davis |
| MARFA AWOS | Presidio |
| CHISOS RAWS | Brewster |
| PANTHER JUNCTION RAWS | Brewster |

| | |
|---------------|-----------|
| PINERY RAWS | Culberson |
| THE BOWL RAWS | Culberson |

11. NWS Oklahoma City

120 David L. Boren Blvd.
Suite 2400
Norman, OK 73072
Phone: 405-325-3816

Fire Weather Program Leader:
Scott Curl

Meteorologist-In-Charge:
Mike Foster

Federal Land Management Agency Served:
None

Red Flag Criteria:

- RH less than or equal to 20% combined with 20-foot winds of 20 mph or higher.
- Availability of fuel during the growing season is also considered.

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, Fire Danger Statements, NFDRS Forecasts, and Spot Forecasts

Fire Weather Planning Forecast

- Product ID: OKCFWFOUN
- WMO Header: FNUS54 KOUN
- Issuance Time: Routinely twice a day no later than 445 AM and 415 PM.
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, precipitation amount, maximum and minimum height of the mixing layer (feet AGL and m AGL), transport winds (mph and m/s), ventilation rate (meters squared/second) and category day

Fire Weather Watch/Red Flag Warning

- Product ID: OKCRFWOUN
- WMO Header: WWUS84 KOUN
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior



Fire Danger Statement

- Product ID: OKCRFDOUN
- WMO Header: FNUS64 KOUN
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support a very high or extreme fire danger. These conditions are determined and are based on stage of vegetation, expected afternoon high temperature, afternoon minimum relative humidity and daytime wind speed. Also included in the product are any burn bans that may be currently in effect.

NFDRS Forecasts

- Product ID: OKCFWMOUN
- WMO Header: FNUS84 KOUN
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|--------------|------------|-----------|
| MILLER CREEK | 419301 | Baylor |

12. NWS San Angelo

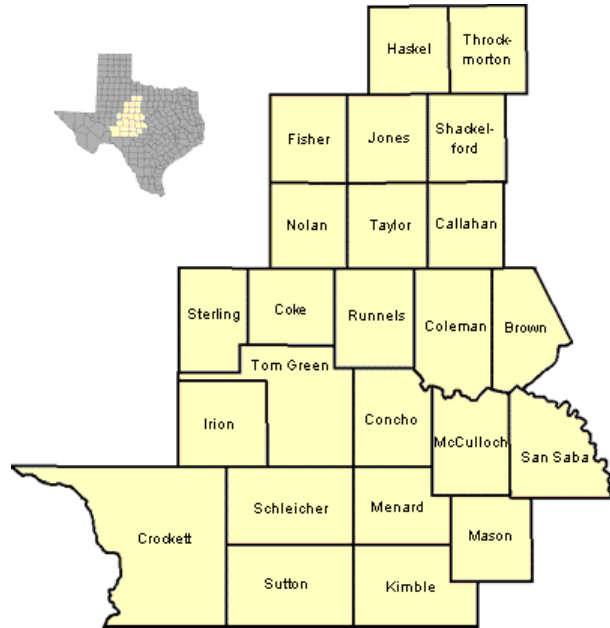
7654 Knickerbocker Road
San Angelo, TX 76904-7892
Phone: 325-944-9445

Fire Weather Program Leader:
Mark Cunningham

Meteorologist-In-Charge:
Buddy Mcintyre

Federal Land Management Agency Served:

- United States Department of Agriculture (Natural Resources Conservation Service)
- The San Angelo NWS Office also also supports the State of Texas with a fully trained IMET



Red Flag Criteria for West Central Texas:

- Minimum afternoon RH 20% and 20 foot winds of 20 mph.
- High Fire Danger

Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, Spot Forecasts and Fire Weather Point Forecast Matrices.

[Fire Weather Planning Forecast](#)

- Product ID: LBBFWSJT
- WMO Header: FNUS54 KSJT
- Issuance Time: Routinely twice a day around 5 AM and 2 PM.
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, maximum and minimum height of the mixing layer (feet AGL) and transport winds (mph)

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: LBBRFWSJT
- WMO Header: WWUS84 KSJT
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: LBBFWMSJT
- WMO Header: FNUS84 KSJT
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|-----------------------|------------|-----------|
| BARNHART | 417701 | Crockett |
| MASON | 417801 | Mason |
| BARNHART (historical) | 419201 | Irion |
| HAMBY | 419401 | Callahan |
| COLORADO BEND SP | 419501 | San Saba |
| COLEMAN | 419502 | Coleman |

Fire Weather Point Forecast Matrices

- Product ID: LBBPFWSJT
- WMO Header: FOUS54 KSJT
- Issuance Time: Twice a day at no later than 8 AM and 4 PM
- Product Content: Various forecasted weather parameters every three hours for certain predefined points. The predefined points are:

| COMMON NAME | TX COUNTY |
|--------------------|-----------|
| BARNHART RAWS | Crockett |
| MASON RAWS | Mason |
| PAINT CREEK RAWS | Coke |
| HAMBY RAWS | Callahan |
| COLORADO BEND RAWS | San Saba |
| COLEMAN RAWS | Coleman |

13. NWS Shreveport

5655 Hollywood Ave.
Shreveport, LA 71109-7750
Phone: 318-631-3669

Fire Weather Program Leader:
Bill Adams

Meteorologist-In-Charge:
Armando Garza

Federal Land Management Agency Served:

- U.S. Forest Service (Angelina and Sabine National Forests)
- U.S. Fish and Wildlife Service (Caddo Lake Wildlife Refuge)

Red Flag Criteria:

- Strong wind (generally 25 mph or higher [20 mph RAWs]) with low RH (25% or less)
- Fire danger in the high or extreme categories.



Fire Weather Products Issued: Fire Weather Planning Forecasts, Red Flag Warnings, Fire Weather Watches, NFDRS Forecasts, and Spot Forecasts

[Fire Weather Planning Forecast](#)

- Product ID: NEWFWSHV
- WMO Header: FNUS54 KSHV
- Issuance Time: Routinely twice a day around 7 AM and 3 PM.
- Product Content: Discussion, information on any fire weather watches and red flag warnings in effect, NWSI 10-401 required elements, precipitation amount, precipitation duration, 500 m/1700 ft mixing height temperatures, maximum mixing heights (meters and feet MSL), mean transport wind speed (meters/second and miles/hour) and direction in the mixing layer, ventilation rate (meters squared/second), and category day and stability class

[Fire Weather Watch/Red Flag Warning](#)

- Product ID: NEWRFWSHV
- WMO Header: WWUS84 KSHV
- Issuance Time: Event Driven
- Product Content: Discussion elaborating on the weather conditions that support extreme fire behavior

NFDRS Forecasts

- Product ID: NEWFWMSHV
- WMO Header: FNUS84 KSHV
- Issuance Time: Each afternoon after NWS forecasters receive the FWO collective that includes the following stations:

| COMMON NAME | STATION ID | TX COUNTY |
|--------------|------------|-----------|
| CLARKSVILLE | 410401 | Red River |
| TEXARKANA | 410501 | Bowie |
| LINDEN | 411102 | Cass |
| GILMER | 411401 | Upshur |
| CADDO LAKE | 411901 | Harrison |
| HENDERSON | 412202 | Rusk |
| SABINE NORTH | 412901 | Shelby |
| ZAVALLA | 413503 | Angelina |
| LUFKIN | 413509 | Angelina |
| SABINE SOUTH | 413701 | Sabine |

III. APPENDICES

Appendix 1: RFW Criteria for Texas NWS Offices

Appendix 2: NFDRS Stations

Appendix 3: List of Abbreviations and Acronyms

Appendix 4: Internet Links

Appendix 5: Texas IMET List

Appendix 6: Agency Signatories

Appendix 1: RFW RH / Wind Criteria Summary for Texas

Summary Disclaimer: For complete Red Flag criteria listings for each NWS Office, including the use of fuels assessments, fire danger classifications, and dry lightning criteria, please see *Section II.F*

| NWS OFFICE | RH CRITERIA (Percentages expressed as “at or below minimums” or “at or above maximums” unless otherwise noted) | WIND CRITERIA (Wind heights and speeds indicated as 20 FT and in MPH unless otherwise noted) |
|---------------------------|--|--|
| AMARILLO | 15 | 20 |
| AUSTIN/SAN ANTONIO | 25 (Minimum) 60 (Maximum) | 15 |
| BROWNSVILLE | 35 | 25 |
| CORPUS CHRISTI | 30 (Inland) 40 (Coastal) | 25 |
| EL PASO | 15 | 20 |
| FORT WORTH/DALLAS | 30 | 25 (33 FT level: Actual values bases on 20-30 MPH wind advisory criteria) |
| HOUSTON/GALVESTON | 20 (with moderate fuel moisture) 25 (with low fuel moisture) | 25 (with moderate fuel moisture) 15 (with low fuel moisture) |
| LAKE CHARLES, LA | 30 (with moderate fuel moisture) 35 (with low fuel moisture) | 25 (with moderate fuel moisture) 20 (with low fuel moisture) |
| LUBBOCK | 15 | 20 |
| MIDLAND/ODESSA | 15 | 20 |
| NORMAN, OK | 20 | 20 |
| SAN ANGELO | 20 | 20 |
| SHREVEPORT, LA | 25 | 25 |

Appendix 2: NFDRS Stations

| COMMON NAME | GOES ID | NWS OFFICE | NWS ID | TX COUNTY |
|---|---------|----------------|--------|-------------|
| CEDAR | 418701 | Amarillo | AMA | Hutchinson |
| BOOTLEG | 418801 | Amarillo | AMA | Deaf Smith |
| SANTA ANA NWR | 418602 | Brownsville | BRO | Hidalgo |
| LAGUNA ATASCOSA | 418603 | Brownsville | BRO | Cameron |
| FALCON LAKE | 418604 | Brownsville | BRO | Starr |
| LINN-SAN MANUAL | 418605 | Brownsville | BRO | Hidalgo |
| GEORGE WEST | 418201 | Corpus Christi | CRP | Live Oak |
| VICTORIA | 418202 | Corpus Christi | CRP | Victoria |
| PADRE | 418501 | Corpus Christi | CRP | Kleberg |
| ARANSAS NWR | 418502 | Corpus Christi | CRP | Aransas |
| MATAGORDA ISLAND | 418503 | Corpus Christi | CRP | Aransas |
| CADDO | 410202 | Ft. Worth | FWD | Fannin |
| ATHENS | 412101 | Ft. Worth | FWD | Henderson |
| PALESTINE | 412601 | Ft. Worth | FWD | Anderson |
| ROUND PRARIE | 413101 | Ft. Worth | FWD | Robertson |
| POSSUM KINGDOM SP | 419402 | Ft. Worth | FWD | Palo Pinto |
| COMMANCHE | 419403 | Ft. Worth | FWD | Commanche |
| LBJ | 419601 | Ft. Worth | FWD | Wise |
| GREENVILLE | 419602 | Ft. Worth | FWD | Hunt |
| CEDAR HILL SP | 419701 | Ft. Worth | FWD | Dallas |
| GRANBURY | 419702 | Ft. Worth | FWD | Hood |
| TEMPLE | 419801 | Ft. Worth | FWD | Bell |
| MCGREGOR | 419802 | Ft. Worth | FWD | McLennan |
| RATCLIFF (NECHES/RATCLIFF in ASCADS) | 413302 | Houston | HGX | Houston |
| HUNTSVILLE | 414102 | Houston | HGX | Walker |
| COLDSPRINGS | 414201 | Houston | HGX | San Jacinto |
| CONROE | 415109 | Houston | HGX | Montgomery |
| DAYTON | 415201 | Houston | HGX | Liberty |
| ANAHUAC PORTABLE | 416099 | Houston | HGX | Chambers |
| ATWATERS | 416601 | Houston | HGX | Colorado |
| BRAZORIA | 418301 | Houston | HGX | Brazoria |
| SAN BERNARD | 418302 | Houston | HGX | Brazoria |
| WOODVILLE | 414402 | Lake Charles | LCH | Tyler |
| KIRBYVILLE | 414501 | Lake Charles | LCH | Jasper |
| SOUTHERN ROUGH | 416101 | Lake Charles | LCH | Tyler |
| MCFADDIN | 419901 | Lake Charles | LCH | Jefferson |
| CAPPROCK | 418901 | Lubbock | LUB | Briscoe |
| MATADOR WMA | 418902 | Lubbock | LUB | Motley |
| PINERY | 417101 | Midland | MAF | Culberson |

| COMMON NAME | GOES ID | NWS OFFICE | NWS ID | TX COUNTY |
|-----------------------|---------|---------------|--------|------------|
| DOG CANYON | 417102 | Midland | MAF | Culberson |
| THE BOWL | 417103 | Midland | MAF | Culberson |
| MCKITTRICK CANYON | 417104 | Midland | MAF | Culberson |
| PX WELL | 417105 | Midland | MAF | Culberson |
| FORT DAVIS | 417201 | Midland | MAF | Jeff Davis |
| DAVIS | 417201 | Midland | MAF | Jeff Davis |
| PANTHER JUNCTION | 417401 | Midland | MAF | Brewster |
| CHISOS | 417403 | Midland | MAF | Brewster |
| MIDLAND | 419202 | Midland | MAF | Midland |
| BASTROP | 415501 | New Braunfels | EWX | Bastrop |
| LAGRANGE | 415602 | New Braunfels | EWX | Fayette |
| BIRD | 417901 | New Braunfels | EWX | Gillespie |
| BALCONES CANYONLANDS | 417902 | New Braunfels | EWX | Travis |
| GAUDALUPE RIVER SP | 418101 | New Braunfels | EWX | Comal |
| LAGO VISTA | 419983 | New Braunfels | EWX | Atascosa |
| MILLER CREEK | 419301 | Norman | OUN | Baylor |
| BARNHART | 417701 | San Angelo | SJT | Crockett |
| MASON | 417801 | San Angelo | SJT | Mason |
| BARNHART (historical) | 419201 | San Angelo | SJT | Irion |
| HAMBY | 419401 | San Angelo | SJT | Callahan |
| COLORADO BEND SP | 419501 | San Angelo | SJT | San Saba |
| COLEMAN | 419502 | San Angelo | SJT | Coleman |
| CLARKSVILLE | 410401 | Shreveport | SHV | Red River |
| TEXARKANA | 410501 | Shreveport | SHV | Bowie |
| LINDEN | 411102 | Shreveport | SHV | Cass |
| GILMER | 411401 | Shreveport | SHV | Upshur |
| CADDO LAKE | 411901 | Shreveport | SHV | Harrison |
| HENDERSON | 412202 | Shreveport | SHV | Rusk |
| SABINE NORTH | 412901 | Shreveport | SHV | Shelby |
| ZAVALLA | 413503 | Shreveport | SHV | Angelina |
| LUFKIN | 413509 | Shreveport | SHV | Angelina |
| SABINE SOUTH | 413701 | Shreveport | SHV | Sabine |

Appendix 3: List of Abbreviations and Acronyms

AOP – Annual Operating Plan
AMRS – All-hazard Meteorological Response System
ASOS – Automated Surface Observation System
ATMU – Advanced Technology Meteorological Unit
AWIPS – Advanced Weather Information Processing System
BLM - Bureau of Land Management
COB – Close of Business
CWFA – Country Warning and Forecast Area
FBPS – Fire Behavior Prediction System
FWF – Fire Weather Planning Forecast
FWPL – Fire Weather Program Leader
FWS – Fish and Wildlife Service
GACC – Geographic Area Coordination Center
HAZMAT – Hazardous Materials
IMET – Incident Meteorologist
LDT – Local Daylight Time
LST – Local Standard Time
NDS – NWS Directives System
NFDRS – National Fire Danger Ratings System
NIFC – National Interagency Coordination Center
NPS – National Park Service
NWCG – National Wildland Coordinating Group
NWS – National Weather Service
NWSI – National Weather Service Instruction
RAWS – Remote Automated Weather System
RFW – Red Flag Warning.
SACC – Southern Area Coordination Center
SWACC – Southwest Area Coordination Center
TG – Telecommunications Gateway
TICC – Texas Interagency Coordination Center
USDA FS – United States Department of Agriculture Forest Service
WIMS – Weather Information Management System

Appendix 4: Internet Links

NWS Directives System:

| | |
|---|---|
| 10-401 Fire Weather Services Product Specification | http://www.nws.noaa.gov/directives/sym/pd01004001curr.pdf |
| 10-402 Fire Weather Services On-Site Support | http://www.nws.noaa.gov/directives/sym/pd01004002curr.pdf |
| 10-403 Fire Weather Services Coordination and Outreach | http://www.nws.noaa.gov/directives/sym/pd01004003curr.pdf |
| 10-404 Fire Weather Services Annual Operating Plan and Report | http://www.nws.noaa.gov/directives/sym/pd01004004curr.pdf |
| 10-405 Fire Weather Services Training and Professional Development | http://www.nws.noaa.gov/directives/sym/pd01004005curr.pdf |
| 10-406 Interagency Agreement for Meteorological Services Among the Bureau of Land Management, Bureau of Indian Affairs, US Fish and Wildlife Service, and National Park Service of the US Dept. of Interior; the Forest Service of the US Dept. of Agriculture; and the National Weather Service of the US Dept. of Commerce (Recertified 03/05/07) | http://www.nws.noaa.gov/directives/sym/pd01004006curr.pdf |
| 10-407 Fire Weather Services Zone Change Process | http://www.nws.noaa.gov/directives/sym/pd01004007curr.pdf |

NWS Forecast Office Links:

| NWS Office | Homepage / Fire Weather Page |
|--------------------|--|
| Amarillo | http://www.srh.noaa.gov/ama http://www.srh.noaa.gov/ama/fire_weather |
| Austin/San Antonio | http://www.srh.noaa.gov/ewx/ http://www.srh.noaa.gov/ewx/html/firewx.htm |
| Brownsville | http://www.srh.noaa.gov/bro http://www.srh.noaa.gov/bro/fire.php |
| Corpus Christi | http://www.srh.weather.gov/crp http://www.srh.noaa.gov/crp/fire/default.html |
| El Paso | http://www.srh.noaa.gov/elp http://www.srh.noaa.gov/epz/misc/firewx.php |
| Fort Worth/Dallas | http://www.srh.noaa.gov/fwd http://www.srh.noaa.gov/fwd/firewx.html |
| Houston/Galveston | http://www.srh.noaa.gov/hgx http://www.srh.noaa.gov/hgx/fire.htm |
| Lake Charles | http://www.srh.noaa.gov/lch http://www.srh.noaa.gov/lch/cgi-bin/fire.php |
| Lubbock | http://www.srh.noaa.gov/lub http://www.srh.noaa.gov/lub/fire/index.html |
| Midland/Odessa | http://www.srh.noaa.gov/maf http://www.srh.noaa.gov/maf/Fire/index.php |
| Oklahoma City | http://www.srh.noaa.gov/oun http://www.srh.noaa.gov/oun/firewx |
| San Angelo | http://www.srh.noaa.gov/sjt http://www.srh.noaa.gov/sjt/html/firewx/firewx.html |
| Shreveport | http://www.srh.noaa.gov/shv http://www.srh.noaa.gov/shv/firewx.htm |

Fire Weather Planning Forecasts by Office:

| NWS Office | Internet Address |
|-------------------|---|
| AMA | http://www.srh.noaa.gov/productview.php?pil=FWFAMA&max=61 |
| EWX | http://www.srh.noaa.gov/productview.php?pil=FWFEWX&max=61 |
| BRO | http://www.srh.noaa.gov/productview.php?pil=FWFBRO&max=61 |
| CRP | http://www.srh.noaa.gov/productview.php?pil=FWFCRP&max=61 |
| ELP | http://www.srh.noaa.gov/productview.php?pil=FWFELP&max=61 |
| FWD | http://www.srh.noaa.gov/productview.php?pil=FWFFWD&max=61 |
| HGX | http://www.srh.noaa.gov/productview.php?pil=FWFHGX&max=61 |
| LCH | http://www.srh.noaa.gov/productview.php?pil=FWFLCH&max=61 |
| LUB | http://www.srh.noaa.gov/productview.php?pil=FWFLUB&max=61 |
| MAF | http://www.srh.noaa.gov/productview.php?pil=FWFMAF&max=61 |
| OUN | http://www.srh.noaa.gov/productview.php?pil=FWFOUN&max=61 |
| SJT | http://www.srh.noaa.gov/productview.php?pil=FWFSJT&max=61 |
| SHV | http://www.srh.noaa.gov/productview.php?pil=FWFSHV&max=61 |

Fire Weather Watches/Red Flag Warnings by Office (only recent products are available)

| NWS Office | Internet Address |
|-------------------|---|
| AMA | http://www.srh.noaa.gov/productview.php?pil=RFWAMA&max=61 |
| EWX | http://www.srh.noaa.gov/productview.php?pil=RFWEWX&max=61 |
| BRO | http://www.srh.noaa.gov/productview.php?pil=RFWBRO&max=61 |
| CRP | http://www.srh.noaa.gov/productview.php?pil=RFWCRP&max=61 |
| ELP | http://www.srh.noaa.gov/productview.php?pil=RFWELP&max=61 |
| FWD | http://www.srh.noaa.gov/productview.php?pil=RFWFWD&max=61 |
| HGX | http://www.srh.noaa.gov/productview.php?pil=RFWHGX&max=61 |
| LCH | http://www.srh.noaa.gov/productview.php?pil=RFWLCH&max=61 |
| LUB | http://www.srh.noaa.gov/productview.php?pil=RFWLUB&max=61 |
| MAF | http://www.srh.noaa.gov/productview.php?pil=RFWMAF&max=61 |
| OUN | http://www.srh.noaa.gov/productview.php?pil=RFWOUN&max=61 |
| SJT | http://www.srh.noaa.gov/productview.php?pil=RFWSJT&max=61 |
| SHV | http://www.srh.noaa.gov/productview.php?pil=RFWSHV&max=61 |

Spot Forecast Request and Monitor Pages by Office

| NWS Office | Internet Address |
|-------------------|---|
| AMA | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=ama |
| EWX | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=ewx |
| BRO | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=bro |
| CRP | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=crp |
| ELP | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=elp |
| FWD | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=fwd |
| HGX | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=hgx |
| LCH | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=lch |
| LUB | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=lub |
| MAF | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=maf |
| OUN | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=oun |
| SJT | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=sjt |
| SHV | http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=shv |

National Fire Weather Page / RFW Status Page: <http://fire.boi.noaa.gov/>
 Storm Prediction Center – Fire Weather Outlooks: <http://www.spc.noaa.gov/fire/>
 Southern Region Fire Weather Page: <http://www.srh.noaa.gov/srh/cwwd/msd/firewx/index.htm>
 Climate Prediction Center - Medium and Long Range WX Outlooks:
<http://www.cpc.noaa.gov/products/predictions/>

Partner Agency Links:

[Texas Interagency Coordination Center](http://www.tamu.edu/ticc) - <http://www.tamu.edu/ticc>
[Texas Forest Service](http://txforests.tamu.edu) - <http://txforests.tamu.edu>
[TICC Predictive Services](http://www.tamu.edu/ticc/predictiveservices.htm) - <http://www.tamu.edu/ticc/predictiveservices.htm>
[National Interagency Fire Center](http://www.nifc.gov) - <http://www.nifc.gov>
[Southwest Area Coordination Center](http://gacc.nifc.gov/swcc) - <http://gacc.nifc.gov/swcc>
[Southern Area Coordination Center](http://gacc.nifc.gov/sacc) - <http://gacc.nifc.gov/sacc>
[USDA Forest Service Fire Site](http://www.fs.fed.us/fire) - <http://www.fs.fed.us/fire>
[National Park Service Fire Site](http://www.nps.gov) - <http://www.nps.gov>
[U.S. Fish & Wildlife Service Fire Site](http://www.fws.gov/fire) - <http://www.fws.gov/fire>
[USDA Wildland Fire Assessment System](http://www.wfas.net) - <http://www.wfas.net>

Appendix 5: Texas IMET List

Valid 06/05/07

| Active IMETs | NWS Office | IMET Trainees | NWS Office |
|--------------|------------|-------------------|------------|
| Tom Bird | ELP | Ken Schneider | AMA |
| Greg Murdock | MAF | Jason Runyen | CRP |
| Seth Nagle | SJT | Cory Peiper | ELP |
| | | Monte Oaks | EWX |
| | | Joe Harris | FWD |
| | | Kent Prochazka | HGX |
| | | Todd Lindley | LBB |
| | | Kent Kuyper | LCH |
| | | Bill Adams | SHV |
| | | Mark Cunningham | SJT |
| | | Kurt Vanspeybroek | SMG |
| | | Paul Witsaman | SRH |

Appendix 6: Agency Signatories

NWS Signatories:

Monte Oaks

Paul Witsaman

Austin/San Antonio NWS Office

NWS Southern Region Headquarters

NWS Signatories can be reached at: sr-srh.txfwop@noaa.gov

Customer Agency Signatories:

Forest Service:

Ron Bertsch

Tom Spencer

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