

A Guide to the Texas Fire Potential Update

★ Luke Kanclerz
Wildland Fire Analyst
Henderson, TX
903-918-9073
lkancierz@tfs.tamu.edu

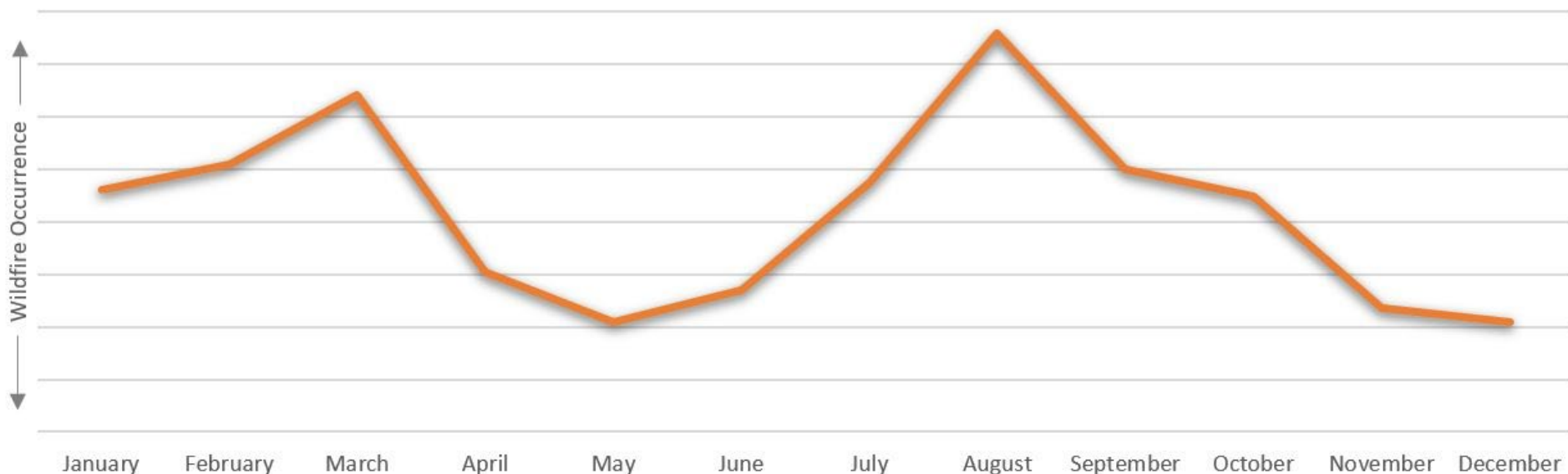




Annual Fire Occurrence Trends

2

Normal Texas Wildfire Occurrence Trend



East Texas has two distinct fire seasons...Dormant and Growing Fires Seasons



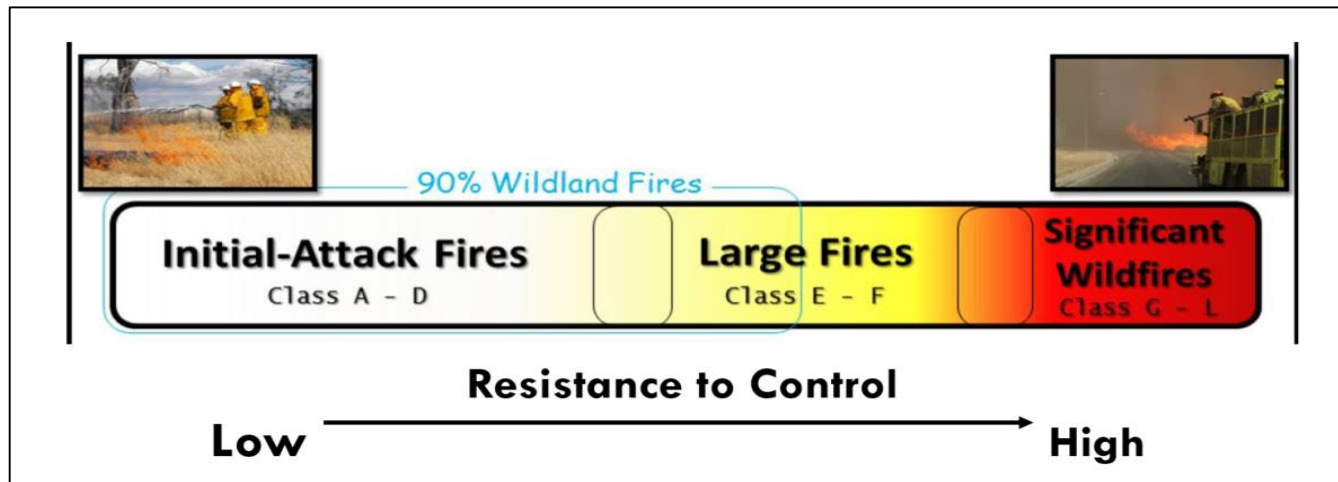
Texas A&M Forest Service Predictive Services

3

- Established in 1998 with a full time staff dedicated to assessing wildland fire potential across the state.
- We wanted to be proactive toward preparation with fire response rather than reactive.
- Establish and maintain a robust network of fire weather stations that include RAWS, ASOS, and WTM Mesonet platforms.
- Communicate wildland fire potential using fire weather and fire danger products = Decision Support!

Spectrum of Wildfires

4



Fire Environment conditions determine where a fire will land on this spectrum. The different combinations of fuel dryness and weather will determine if a fire is routine and takes little effort to control or if the fire is highly resistant to control and requires more suppression resources and time to contain.



What is the Wildland Fire Environment?

5



- The ingredients of the fire environment are all linked.
- Variable fuel types **and** increasing or decreasing fuel moisture content.
- Daily changes in the weather can increase or decrease wildfire potential. Small changes in the weather can have a big impact on resultant fire occurrence or fire behavior.

Timber Dominate Fuel

6

Angelina/Polk County Line October 2015



Timber litter on the forest floor is the primary carrier of fire. The drier the timber litter, the more likely wildfire ignitions can occur. Dry timber litter can produce higher surface fire intensities.



If surface fire intensities are higher, surface fire can transition to the canopy of the forest, increasing resistant to control of firefighter efforts. Live fuel moisture content in canopy is an important component to consider.



Dormant Grasses and Timber Dominant Fuels

7



Dormant grasses due to drought or freezing temperatures, provide a receptive fuel bed for wildfire ignitions and spread of wildfire.

Statewide Fire Weather Station Network

8

Remote Automated Weather Stations (RAWS)

-79 Stations

Automated Surface Observing System (ASOS)

-20 Stations

West Texas Mesonet (Planned)

-40+ stations

Daily, 24 hour observations (1300-1300) are used to calculate observed fire danger products based off the National Fire Danger Rating System (NFDRS).

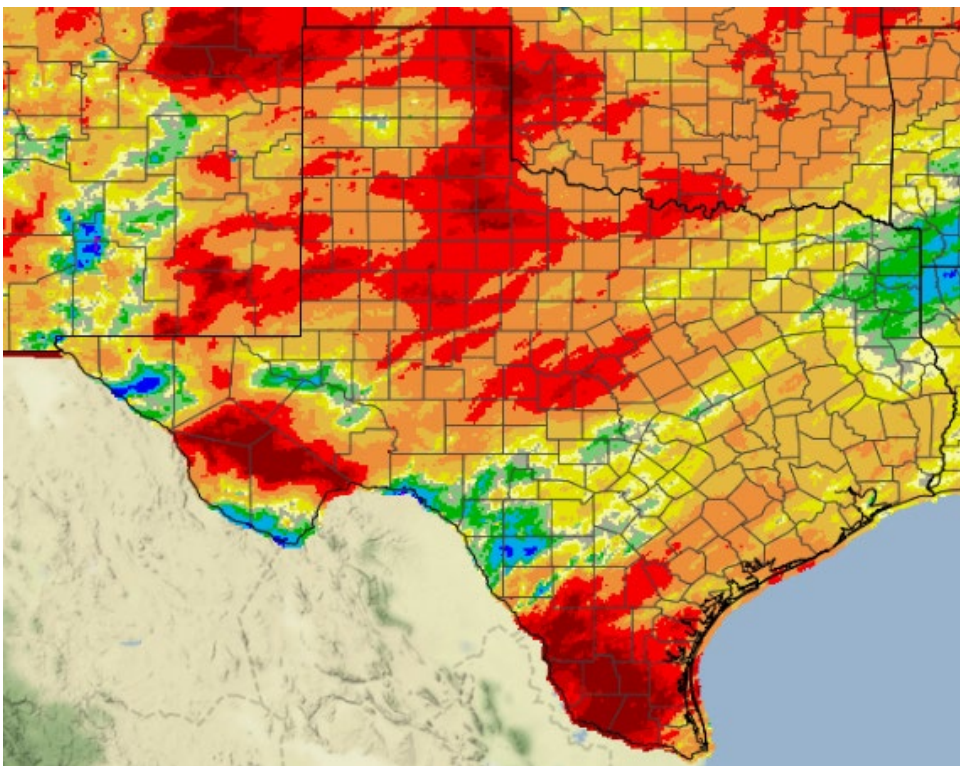
National Weather Service provides forecast weather data into NFDRS to produce forecast fire danger products. Quality of forecast weather data is important to produce accurate forecast fire danger maps.



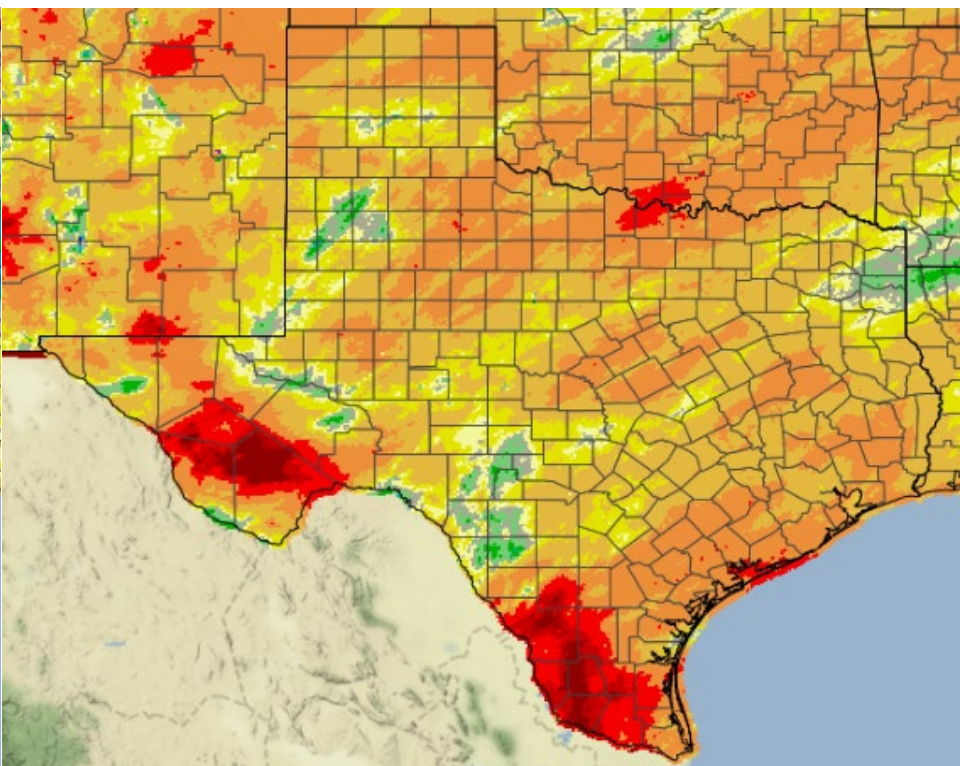
Underlying Dryness

9

30 Day Percent of normal provides guidance toward **Emerging Dryness**

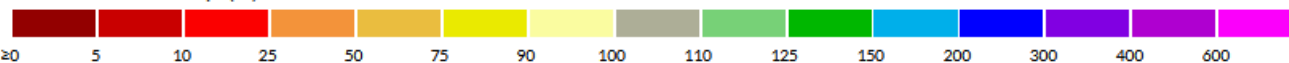


60 Day Percent of normal provides guidance toward **Persistent Dryness**



Mar 8, 2021

Percent of Normal Precip. (%)





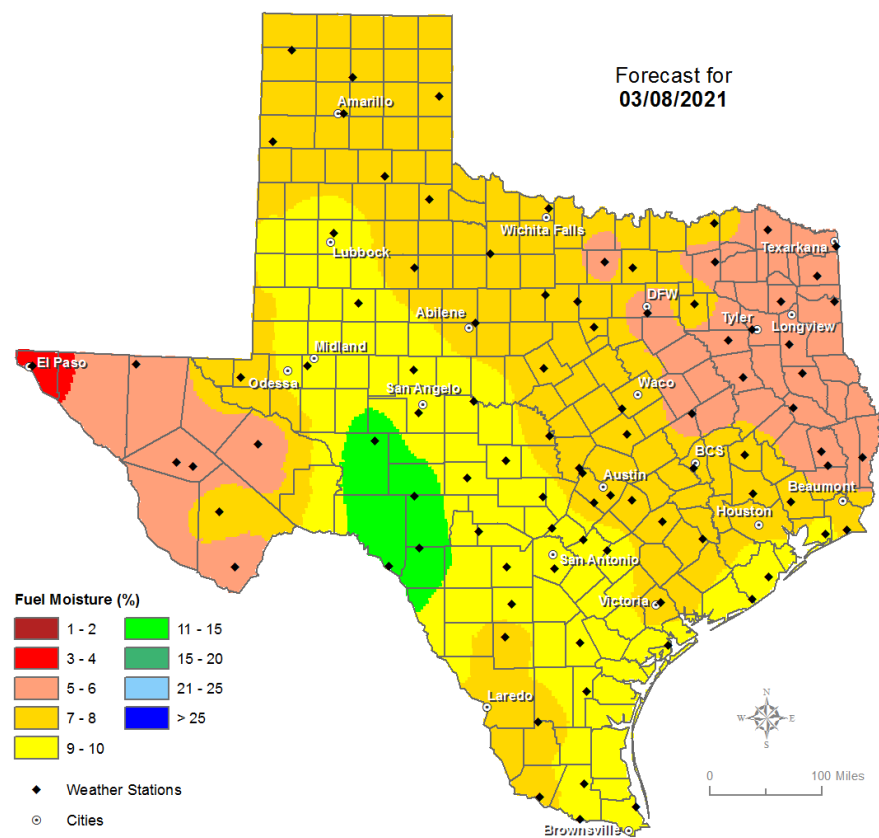
Dead Fuel Moisture Products

10

1-Hr fuel moisture relates to dead fuel of $<1/4$ in. diameter

Dormant Grass, Pine Needles

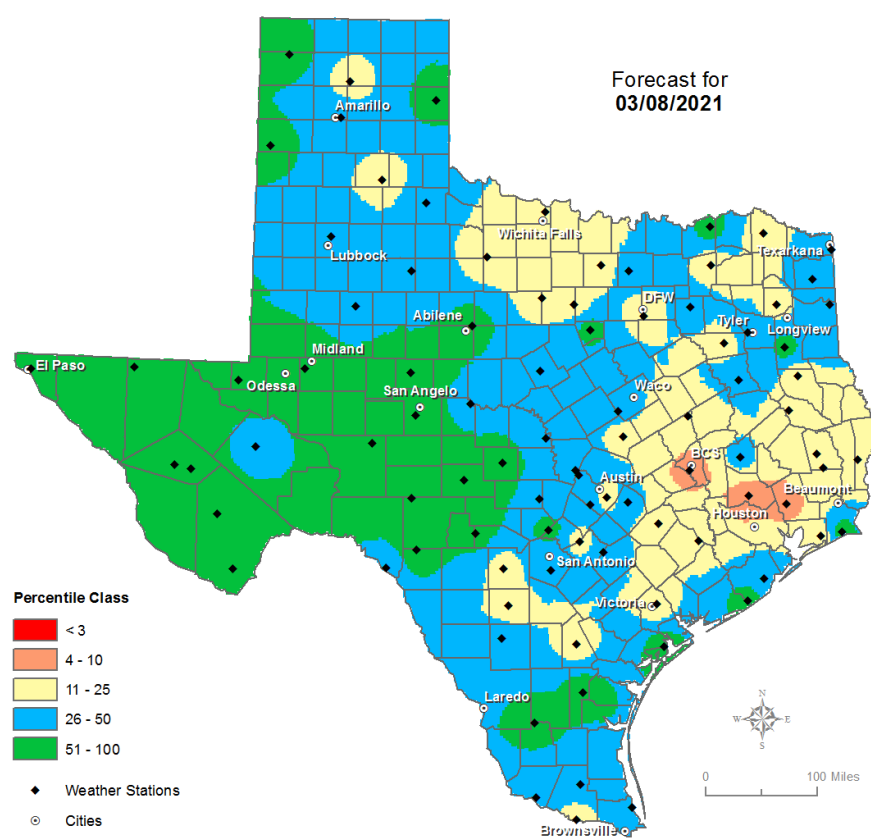
Forecast 1 Hour Fuel Moisture



100-Hr fuel moisture relates to dead fuel of 1-3 in. diameter

Small twigs and branches

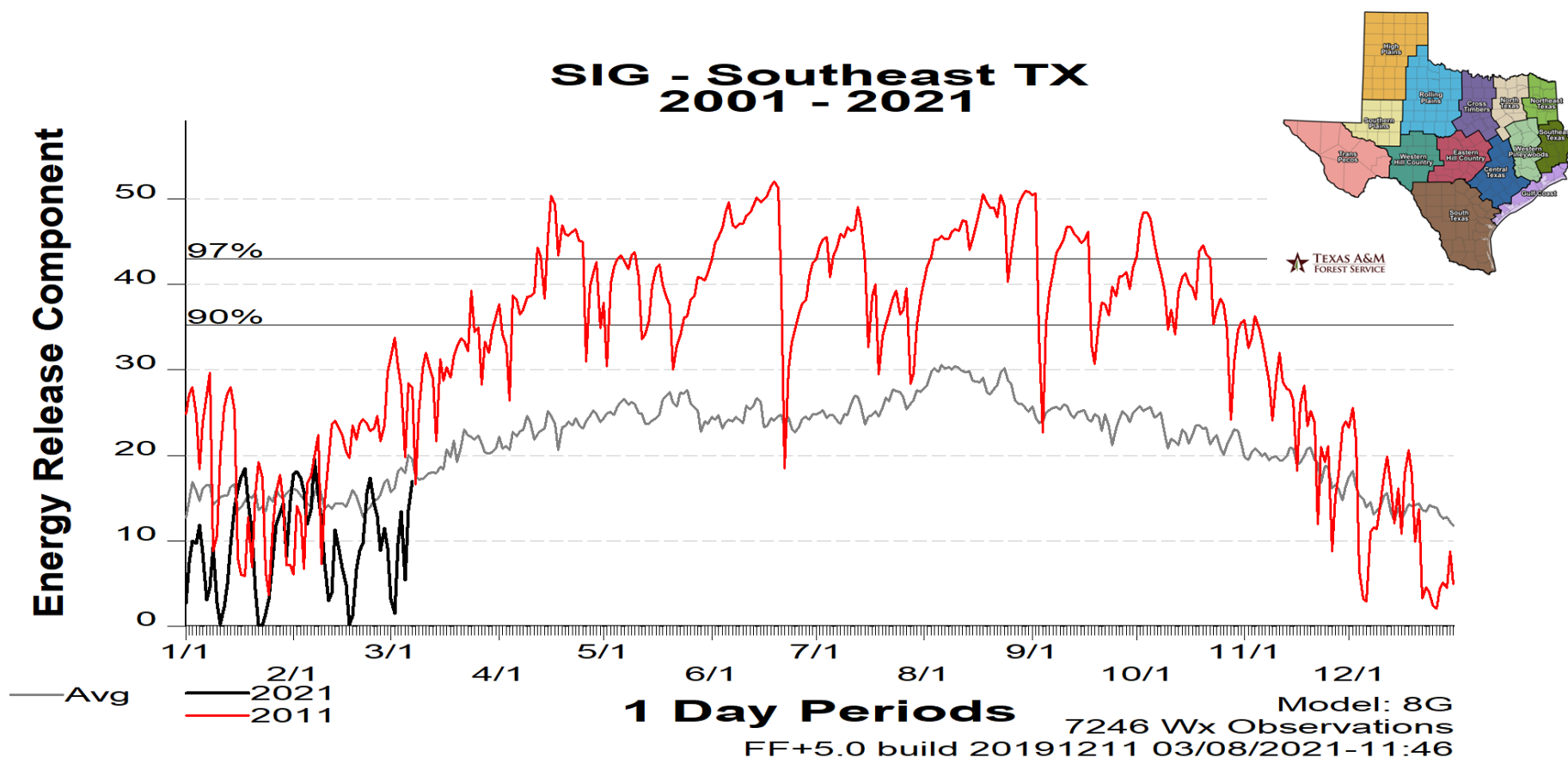
Forecast 100 Hour Fuel Moisture Percentile





Energy Release Component

11



ERC is a composite fuel moisture index and can relate to the amount of energy released at the front of a fire. ERC calculations use observations from the past 7 days and is a great tool for showing fuel moisture trends.

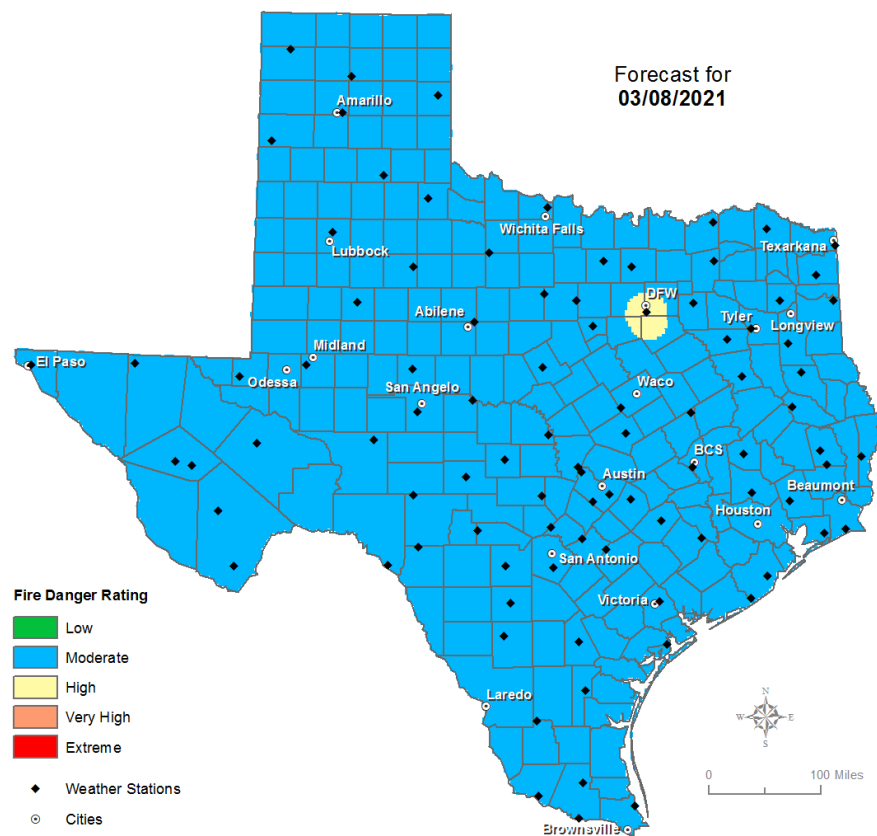
Daily Fire Danger Products

12

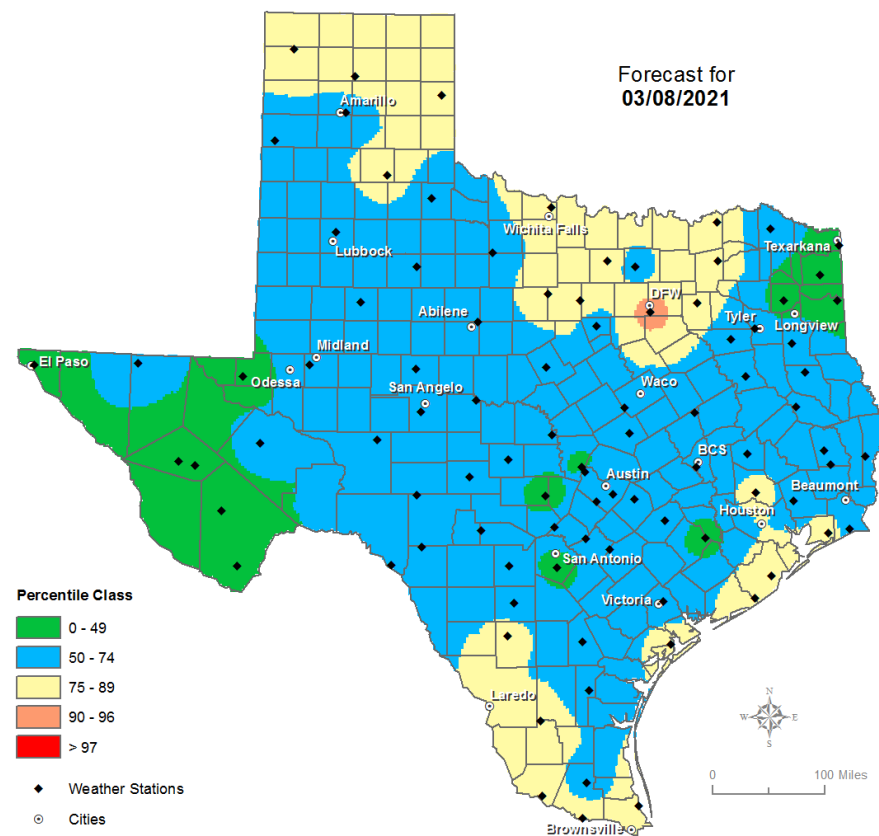
Adjective Fire Danger Rating is the description for the fire environment that a fire will ignite and require suppression action

Burning Index quantifies the strength of the fire weather for that day and the potential difficulty toward suppression

Forecast Fire Danger



Forecast BI Percentile



Fire Weather Elements to consider

13

- Temperature (Above Normal)
- Humidity (Daytime Minimum and Nighttime Maximum)
- Windspeed and Direction
- Rainfall (Amounts and Duration)
- Important to stay up to date with local fire weather forecast from National Weather Service

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs



[REQUEST A SPOT FORECAST](#) [SPOT FORECAST MONITOR](#)

Home Latest Fire Weather Forecasts Latest Fire Watches, Warnings, Statements Parameter Definitions Latest KSHV Sounding Observations

Weather Activity Planner

[Click here to access the Weather Activity Planner.](#) This is an experimental planning tool that provides specific weather forecast information based on the official National Weather Service forecast. Users will select from a list of weather elements, input a criteria range for the selected element (i.e., temperature between 65 degrees F and 80 degrees F), and then select a location on the map. A graph will appear illustrating at what time(s) the weather element criteria is met for the selected location. Users may select up to six different elements at a time. *This tool is not intended to replace a spot forecast.*

Current Burn Bans

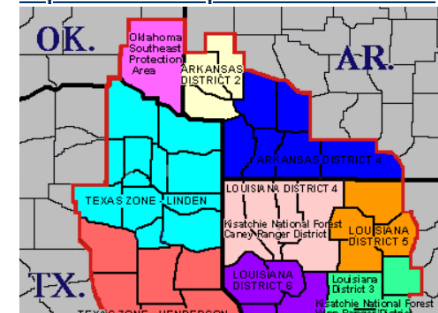
[Arkansas Burn Bans](#)



[Louisiana Burn Bans](#)



Map of NWS Shreveport Fire Weather Zones



Texas Fire Potential Update

14

- Weekly or Bi-Weekly product produced by TFS Predictive Services Department.
- Provides discussion on current and forecast trends of the fire environment and the resultant fire potential for the outlook period.
- Posted on the Texas Interagency Coordination Center Webpage.



TEXAS INTERAGENCY
COORDINATION CENTER

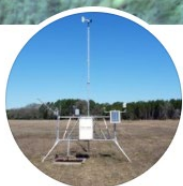


Staying Current With Wildfire Potential

<https://ticc.tamu.edu/PredictiveServices/>



predictive services - texas a&m fo



**Predictive Services - Texas
A&M Forest Service**

@predictiveservices · Government Organization

TEXAS FIRE POTENTIAL UPDATE
FEBRUARY 8TH – FEBRUARY 14TH 2021
PREDICTIVE SERVICES DEPARTMENT



**TEXAS A&M
FOREST SERVICE**

[Link to Fire Danger Products](#)

To subscribe to this group and get notified when the TX Fire Potential product has been updated, send an email to

tx-fire-potential+subscribe@lists.tamu.edu

You will get a confirmation email that will require a reply to complete the subscription.