TEXAS SEASONAL OUTLOOK
WINTER/SPRING
2019/2020

Texas A&M Forest Service
Predictive Services

Prepared
December 13th, 2019

TEXAS A&M FOREST SERVICE

A Discussion of Dormant Season Wildland Fire Potential

Dormant Season Fire Potential Considerations

- **Drought Trends**
  - Emerging, Persistent or Improving

- **Fine Fuel Condition**
  - Grass Production or Loading in Grass Dominant Regions

- **Seasonal Temperature and Precipitation Trends**
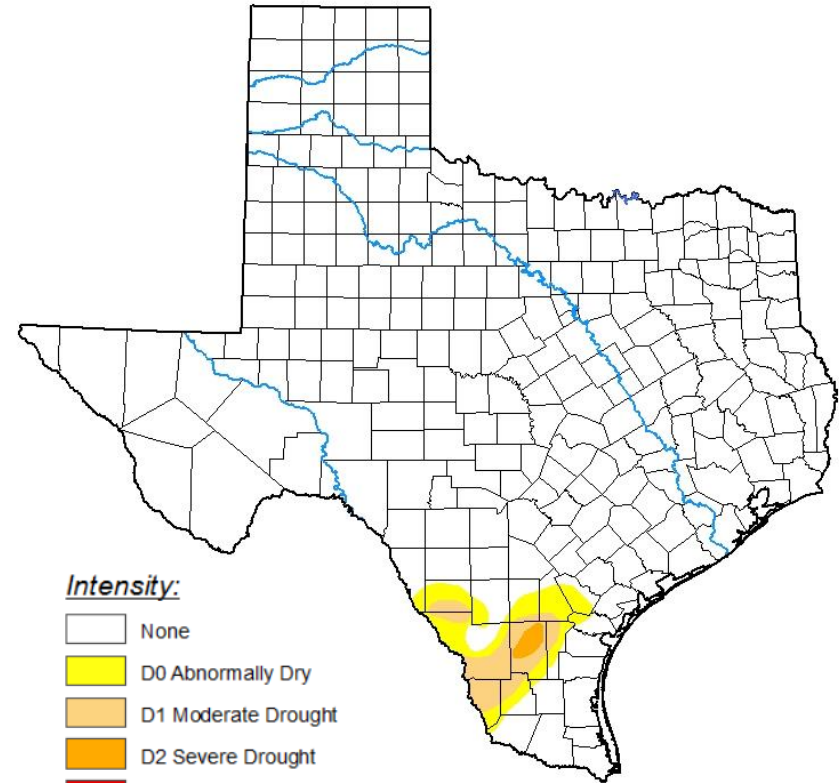 - El Nino Southern Oscillation (ENSO)

After a very wet spring, a Flash Drought emerged during July and August across a large section of the state. Moderate drought persists across central portions of the state as the winter season begins.
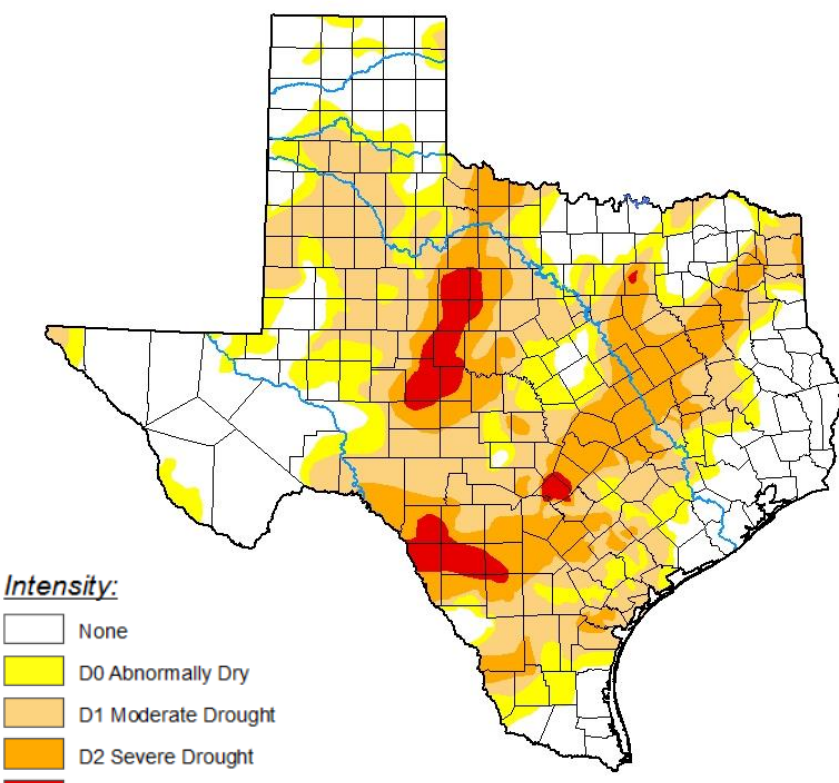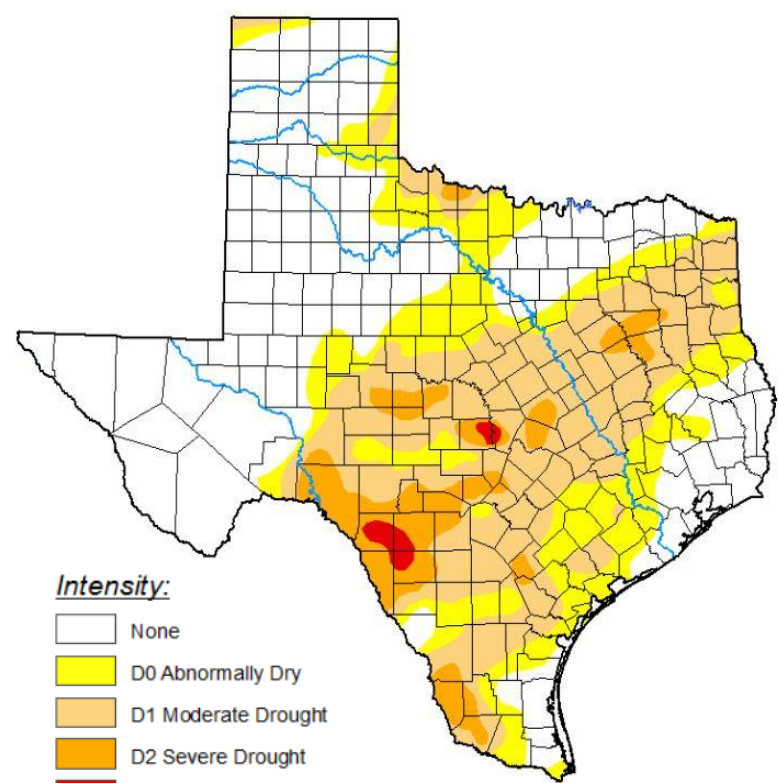
The Drought Monitor seasonal outlook for December through February show drought conditions persisting and expanding
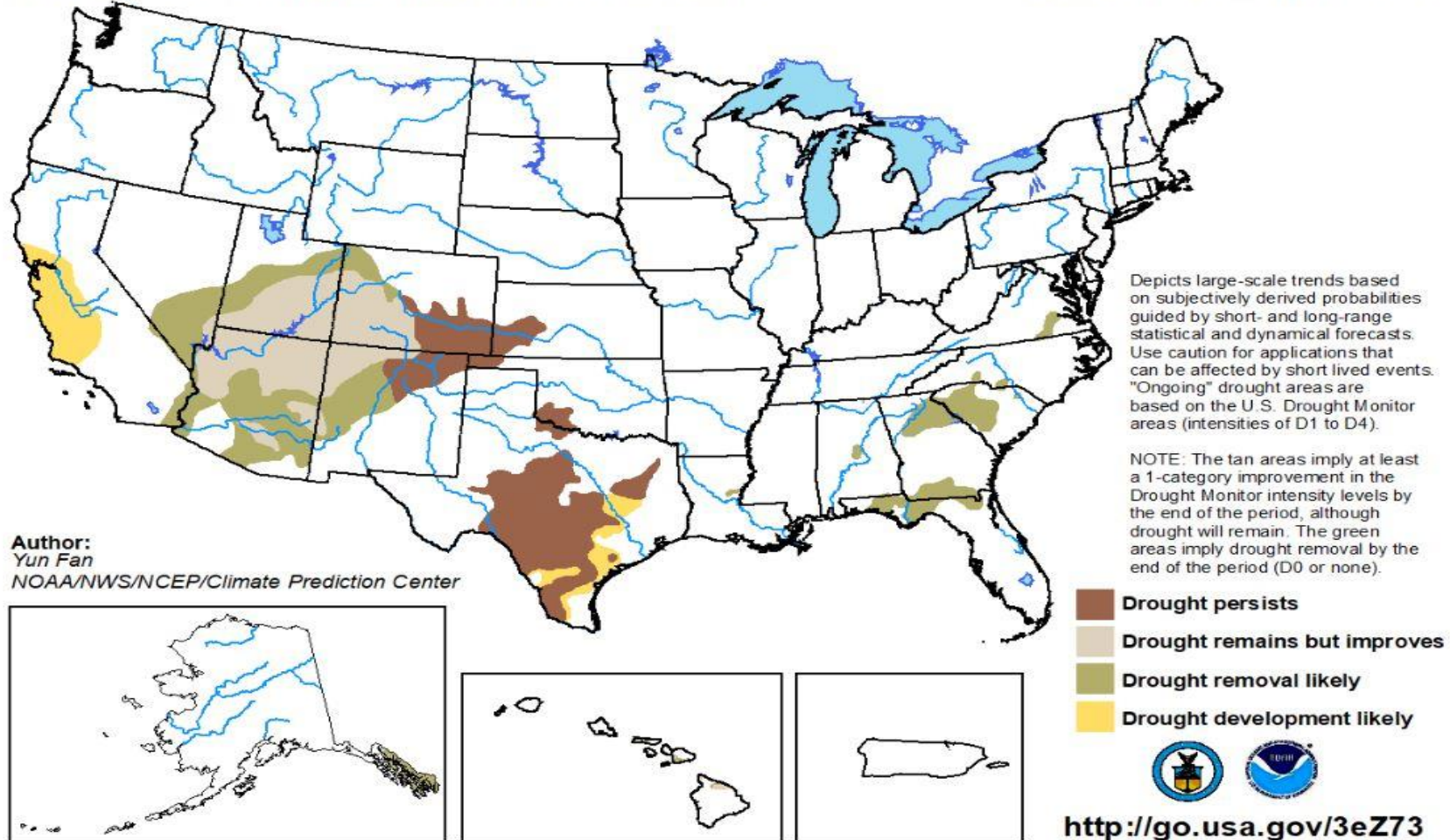
Drought Discussion

There is a significant amount of drought in Texas that will be carried over from the Fall of 2019 into the 2020 dormant season. The December 12th Drought Monitor lists 35% of the state in at least (D1 moderate drought). Over 50% of the state is at least abnormally dry as defined by the December 12th Drought Monitor.

Drought implies an increased availability of dead and live fuels that will contribute to combustion. Increased fuel loading will increase fire intensity, increase the rate of spread and generally increase a wildfire's resistance to control.

The February through April seasonal precipitation outlook is noting below precipitation for much of the state. It is likely that drought conditions will expand north and west during March and April. This expansion would include some of the grass dominant and grass/brush fuelscapes found in north central Texas and the Rolling Plains.

# 2019 Growing Season Percent of Normal Rainfall
(May-September)
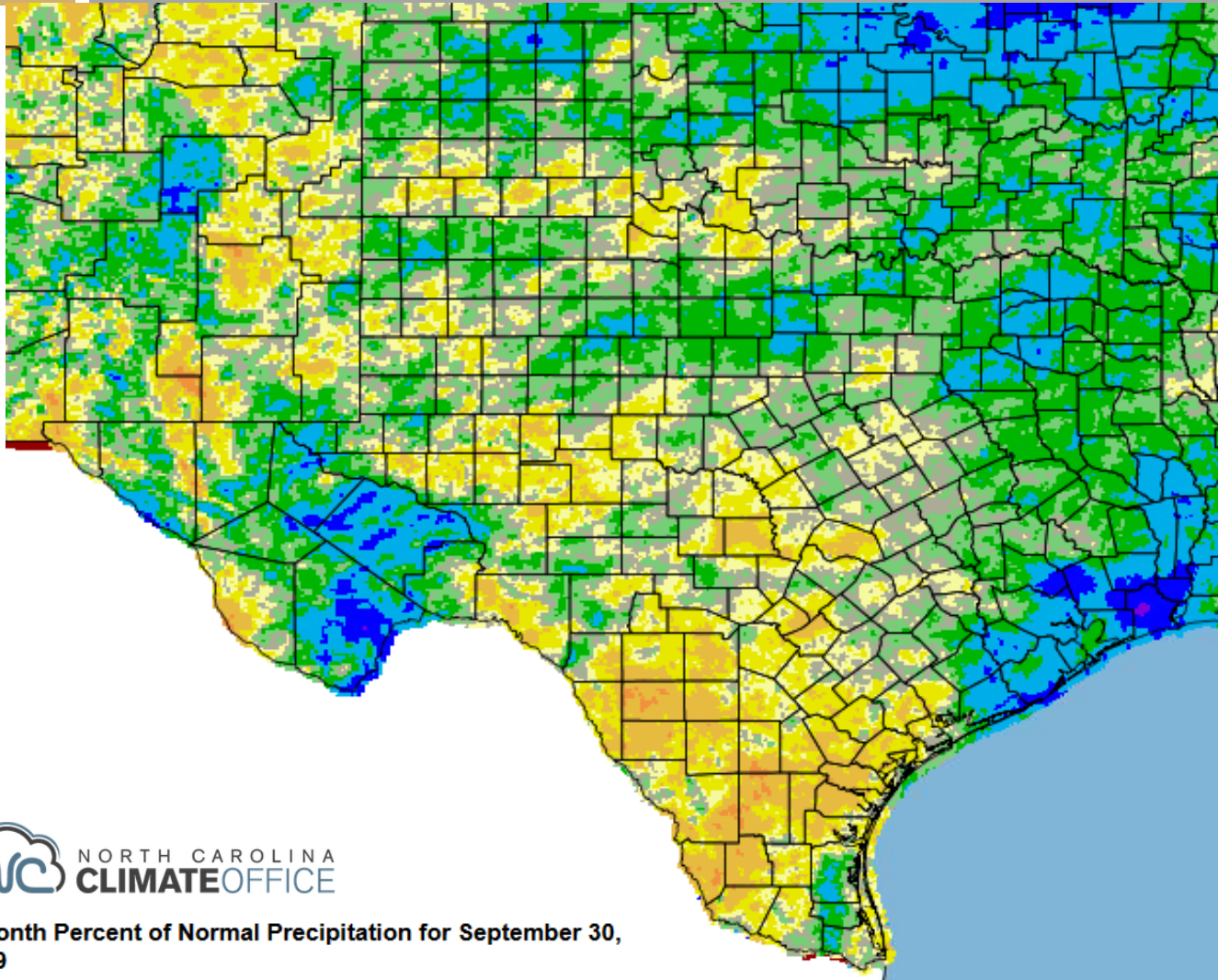
Growing season rainfall provides guidance for grass production for the grass dominant regions in the state. Above normal rainfall can promote above normal grass production. Above normal grass loading provides a continuous, robust grass fuel bed that enhances the ignition and spread of wildfires. 2008, 2011, and 2018 supported widespread above normal grass loading.

The 2019 growing season saw an exceptionally wet early growing season followed by an exceptionally dry late growing season. Grass production was high through June but stalled out as a flash drought developed in July and August. The absence of late season grass production enhanced grazing impacts and has generally lowered the amount of grass loading that will be carried into the dormant season.

NORTH CAROLINA
CLIMATE OFFICE

5 month Percent of Normal Precipitation for September 30, 2019

| 0 | 5 | 10 | 25 | 50 | 75 | 90 | 100 | 110 | 125 | 150 | 200 | 300 | 400 | 600 | % |

The Standard Precipitation Index is used below to contrast the exceptional wetness from April through June to the severe dryness from July through September.

April through June
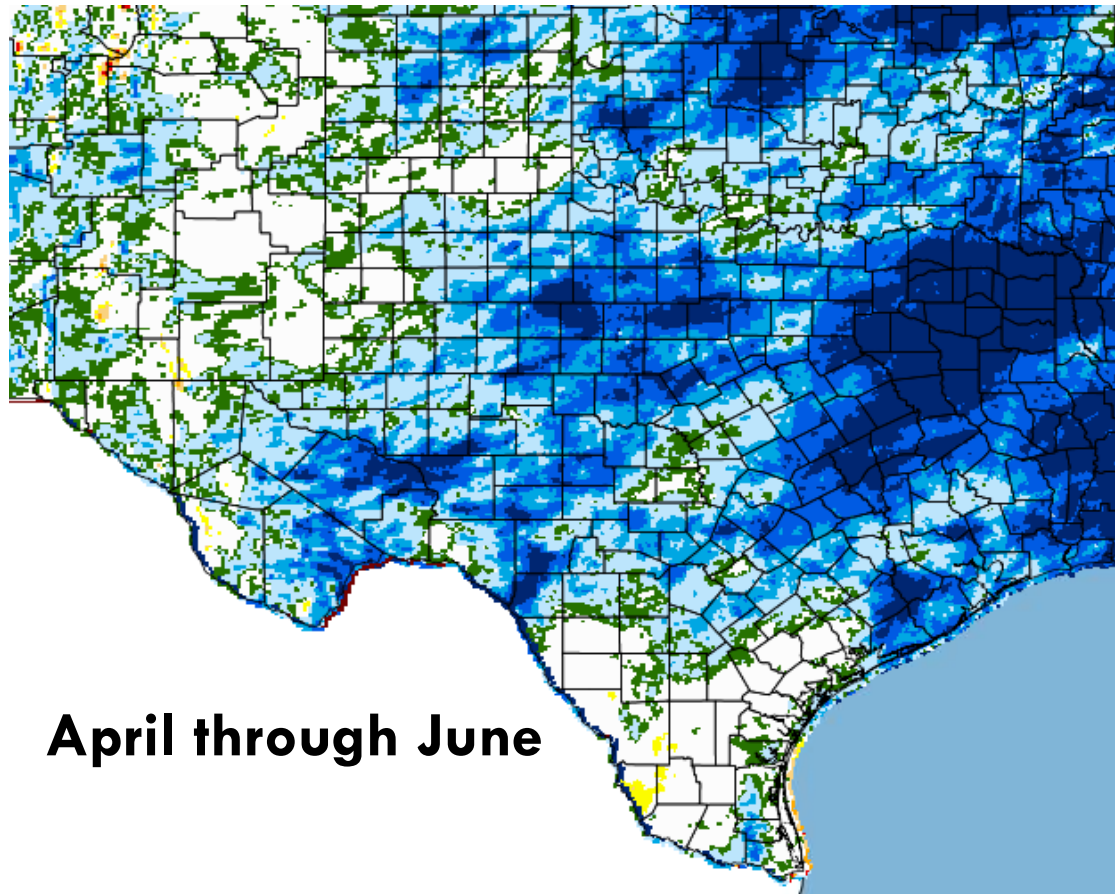
July through September

90 day SPEI (beta) for June 30, 2019

90 day SPEI (beta) for September 30, 2019
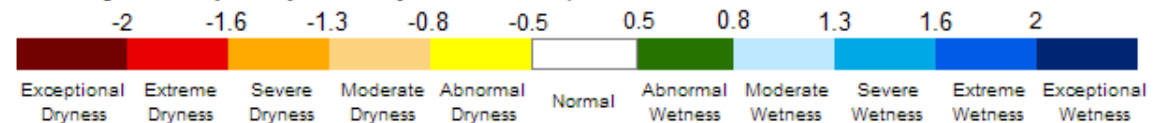
Normal to below normal grass loading is prevalent on the grass dominant Plains this year. Grazing impacts are more prominent due to the absence of late summer grass production.
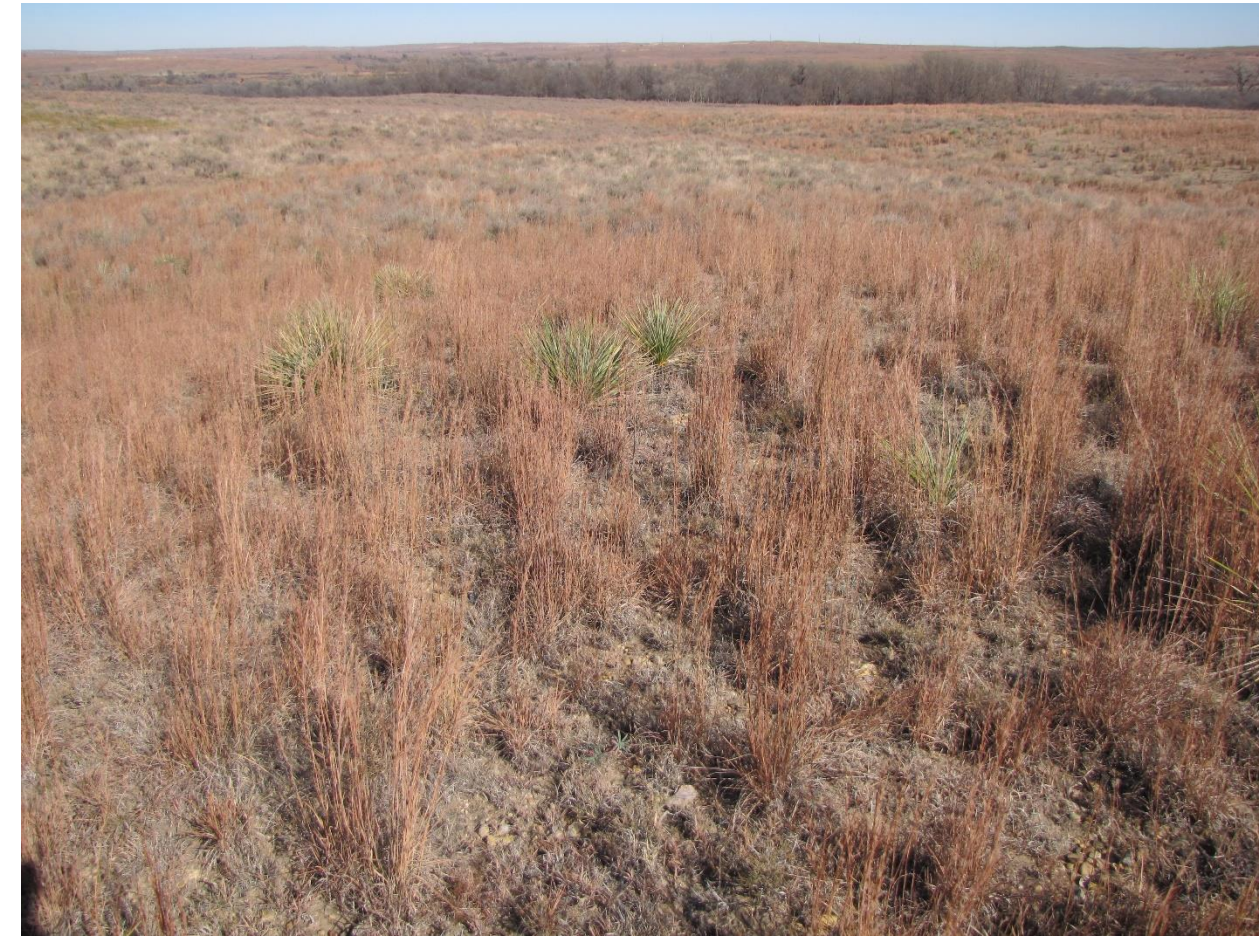
Moderate grazing has produced normal grass loading east of Lefores (Gray Co.)
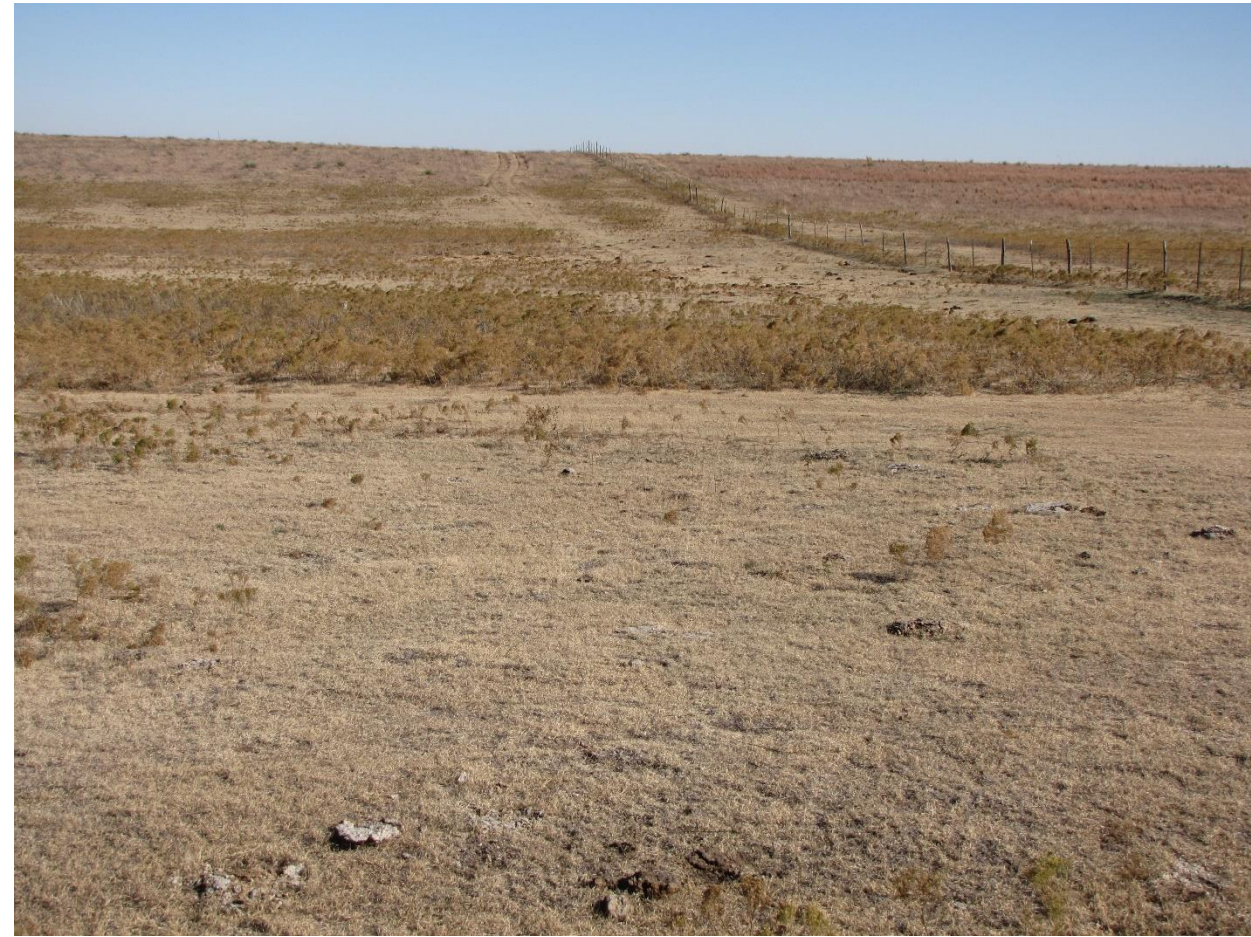
Intensive grazing has produced below normal grass loading north of Pampa (Roberts Co)

Localized above normal grass loading is still present where grazing has been excluded.

Archer County south of Wichita Falls
No Grazing Observed

Andrews County east of Andrews
No Grazing Observed

Grass Production and Grass Loading Discussion

The widespread above normal grass loading that was present across the western Plains in early July has been reduced due to the effects of grazing. The lack of late summer grass production due to the July and August Flash Drought has amplified the effects of grazing. There are still localized areas of above normal grass loading on the western Plains on ownerships that have excluded grazing. But the general rule this year is that most of the grass dominant fuelscape is supporting normal to below normal grass loading. Normal grass loading can be found where grazing intensity is moderate.

North Central Texas mostly escaped the flash drought as this region observed periodic rain events in July and August. Grazing impacts in this region do not appear to have had the same impact as noted for the western Plains. Whether from reduced grazing or increased late summer grass production, the North Central Texas region is supporting more widespread above normal grass loading.

South Texas did not observe the early growing season above normal rainfall. Grass production in this region was below normal for the 2019 growing season.

ENSO conditions are currently neutral
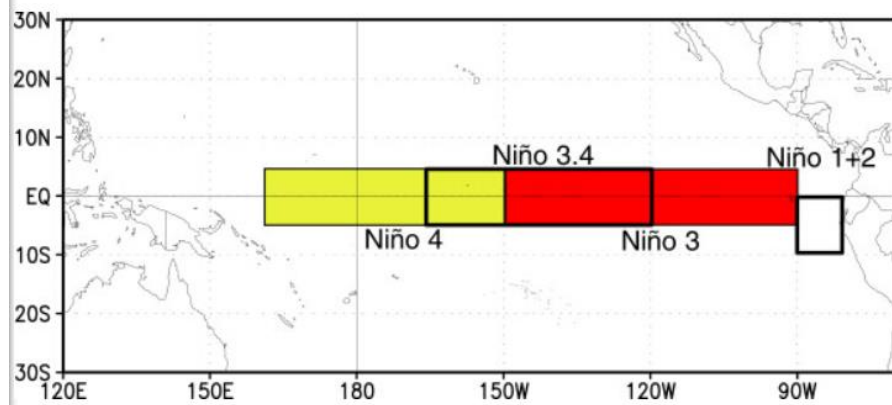
Observed Oceanic Nino Index (Region 3.4)
Sea Surface Temps compared to Average

El Niño Regions

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2007	0.7	0.3	0.0	-0.2	-0.3	-0.4	-0.5	-0.8	-1.1	-1.4	-1.5	-1.6
2008	-1.6	-1.4	-1.2	-0.9	-0.8	-0.5	-0.4	-0.3	-0.3	-0.4	-0.6	-0.7
2009	-0.8	-0.7	-0.5	-0.2	0.1	0.4	0.5	0.5	0.7	1.0	1.3	1.6
2010	1.5	1.3	0.9	0.4	-0.1	-0.6	-1.0	-1.4	-1.6	-1.7	-1.7	-1.6
2011	-1.4	-1.1	-0.8	-0.6	-0.5	-0.4	-0.5	-0.7	-0.9	-1.1	-1.1	-1.0
2012	-0.8	-0.6	-0.5	-0.4	-0.2	0.1	0.3	0.3	0.3	0.2	0.0	-0.2
2013	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.4	-0.2	0.1	0.3	0.2	0.1	0.0	0.2	0.4	0.6	0.7
2015	0.6	0.6	0.6	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.5	2.6
2016	2.5	2.2	1.7	1.0	0.5	0.0	-0.3	-0.6	-0.7	-0.7	-0.7	-0.6
2017	-0.3	-0.1	0.1	0.3	0.4	0.4	0.2	-0.1	-0.4	-0.7	-0.9	-1.0
2018	-0.9	-0.8	-0.6	-0.4	-0.1	0.1	0.1	0.2	0.4	0.7	0.9	0.8
2019	0.8	0.8	0.8	0.8	0.6	0.5	0.3	0.1	0.1	0.3		

NOAA Operational Definitions for El Niño and La Niña

El Niño: characterized by a positive Oceanic Nino Index (Region 3.4) average sea surface temps greater than or equal to +0.5ºC.
La Niña: characterized by a negative Oceanic Nino Index (Region 3.4) average sea surface temps less than or equal to -0.5ºC.

By historical standards, to be classified as a full-fledged El Niño or La Niña episode, these thresholds must be exceeded for a period of at least 5 consecutive overlapping 3-month seasons.

National Weather Service
Climate Prediction Center

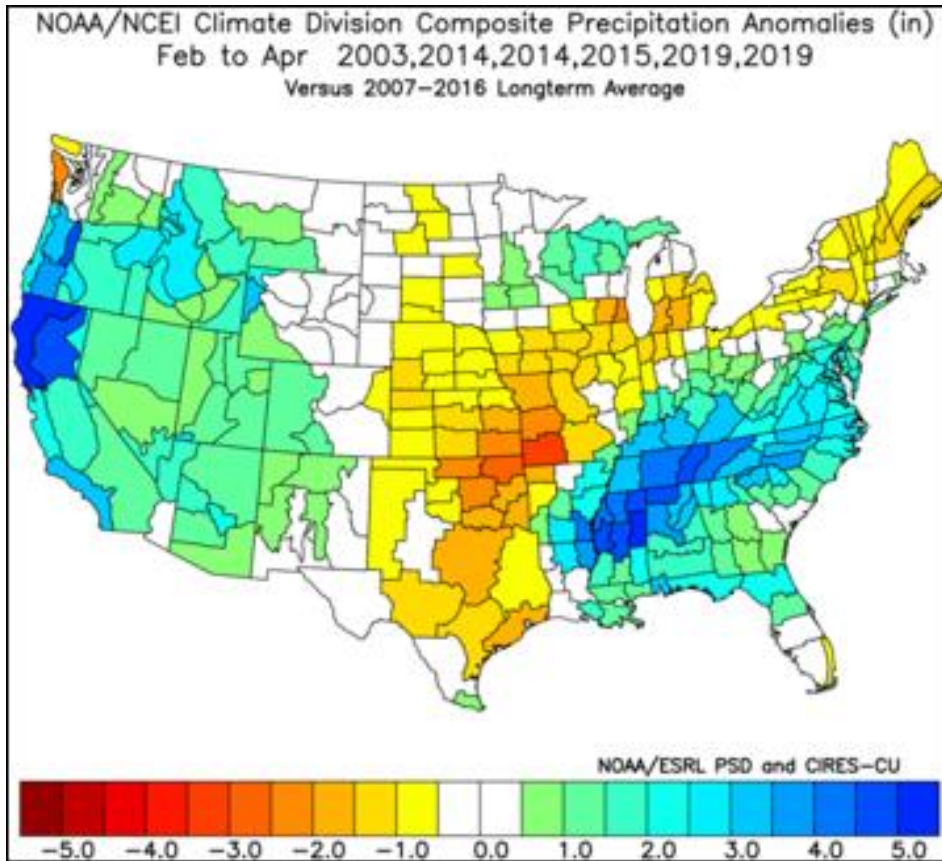# There is a 60-70% probability ENSO-Neutral conditions will persist through April.

Early–November 2019 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: −0.5 °C to 0.5 °C
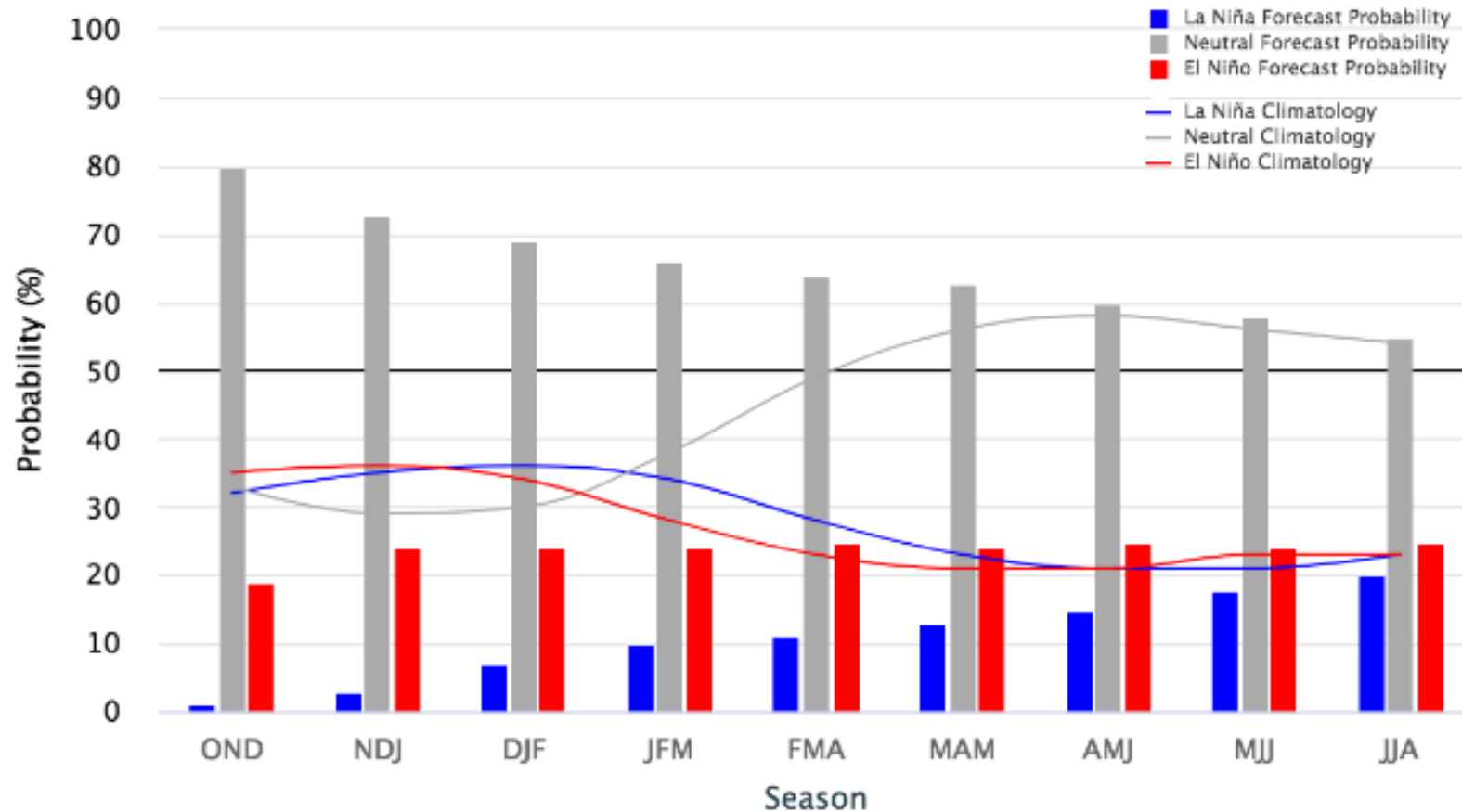
Below normal temperatures and below normal precipitation have been the trend in Texas for past analog ENSO Neutral years.
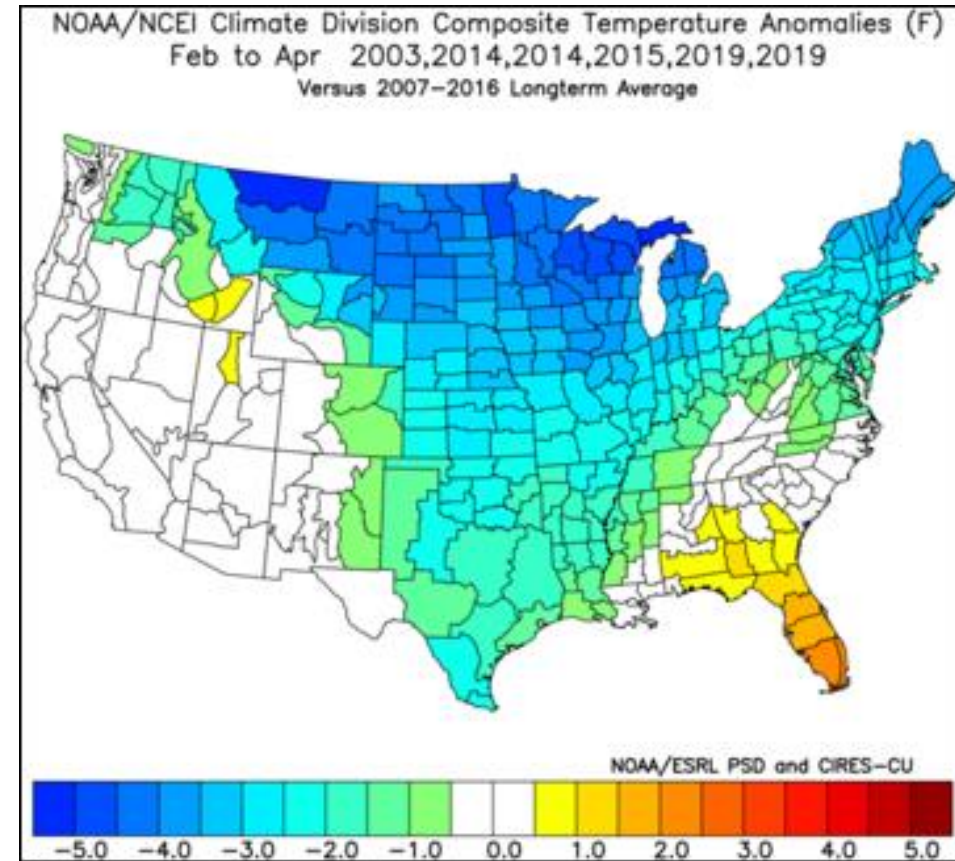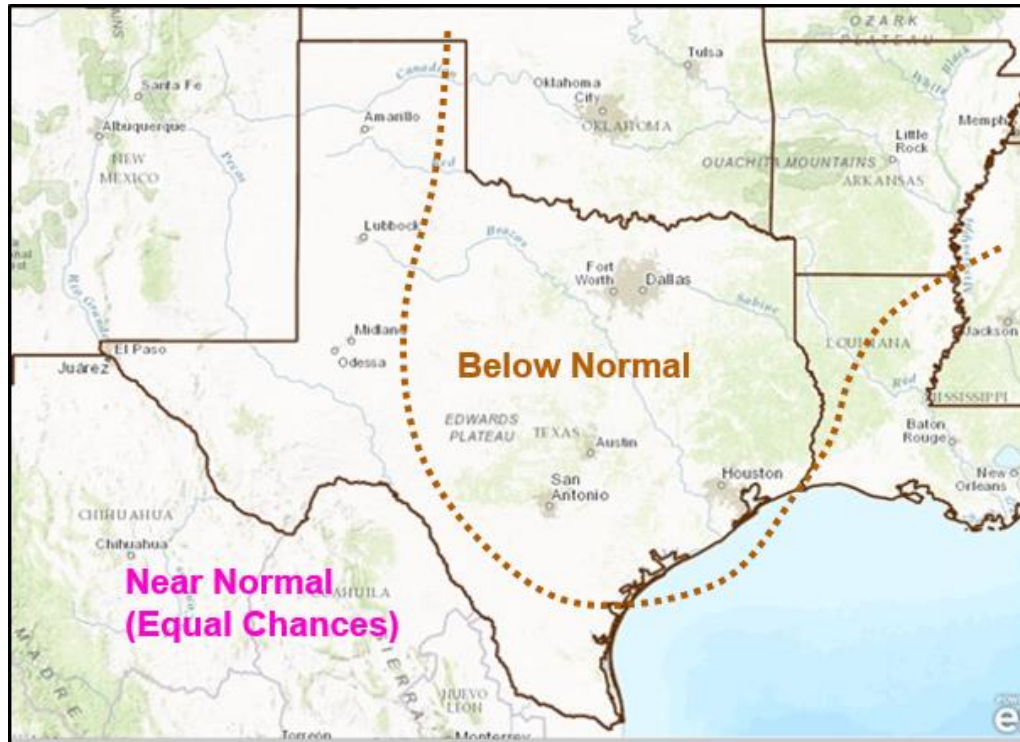

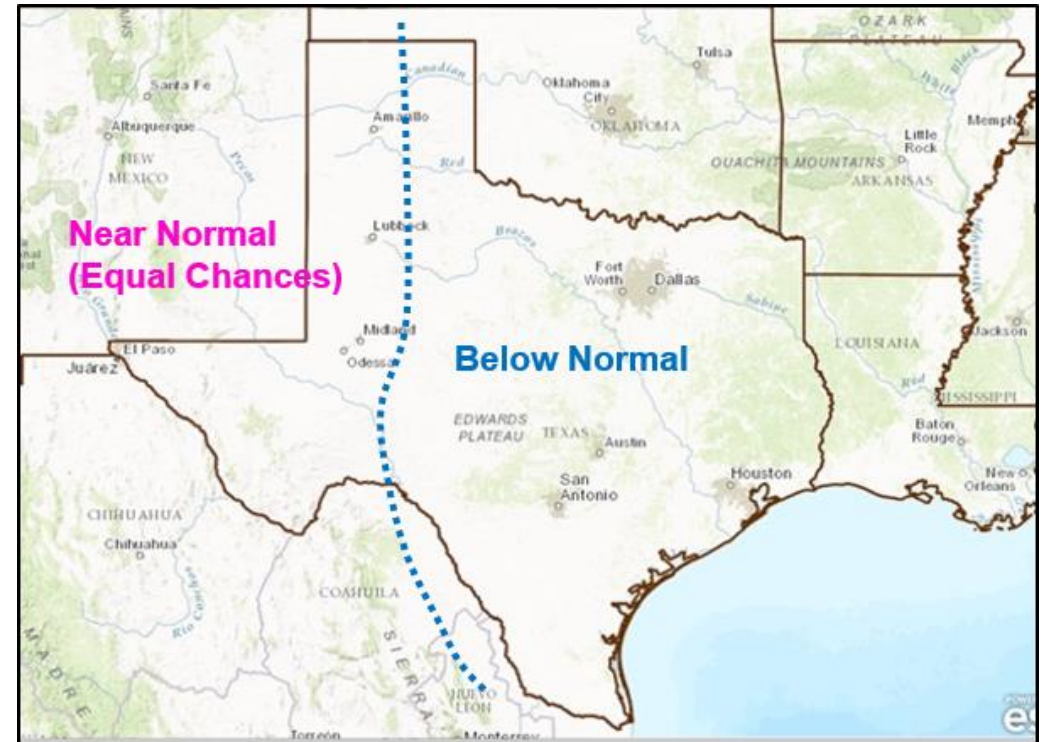**Composite February through April precipitation and temperature anomalies**

Seasonal Temperature and Precipitation Outlooks
for Texas from February through April

Precipitation

Temperature

Seasonal Temperature and Precipitation Discussion

ENSO neutral winter/spring seasons from past years can provide guidance for seasonal temperature and precipitation trends for the current ENSO neutral year. The Climate Prediction Center notes a 60-70% probability that ENSO neutral conditions will be present through April 2020.

A composite analysis of four previous ENSO Neutral years signals that temperature and precipitation trends from February through April 2020 will trend cooler than normal and drier than normal. The composite precipitation analysis shows the driest anomaly in the North Central Texas region.

Drier than normal conditions will aid drought development and drought intensification.

Cooler than normal temperatures could delay the onset of herbaceous green up in the spring.

Normal (_N) Monthly TFS Fires Compared to 2014 (_14)
Actual Monthly TFS Fire Response

PSA	Jan_N	Jan_14	Feb_N	Feb_14	Mar_N	Mar_14	Apr_N	Apr_14	May_N	May_14
Central	2	1	2	0	1	0	1	1	1	0
Cross Timbers	1	0	3	0	2	2	1	0	1	0
Eastern Hill Country	1	1	4	3	2	0	1	1	1	1
Gulf Coast	1	3	1	0	2	0	1	2	0	1
High Plains	2	0	2	0	4	4	2	2	0	3
North	6	5	5	5	6	6	1	2	1	0
Northeast	36	40	36	24	45	36	20	12	12	21
Rolling Plains	3	0	6	2	4	1	1	7	1	8
South	2	1	2	0	2	0	1	2	0	1
Southeast	21	39	22	7	39	17	20	16	15	22
Southern Plains	0	0	0	0	1	0	1	2	0	0
Trans Pecos	0	1	0	0	1	1	1	0	2	1
Western Hill Country	1	0	1	2	1	0	0	1	1	1
Western Pineywoods	15	12	16	6	18	15	10	12	7	8
Monthy Total	92	103	102	49	128	82	61	60	42	67

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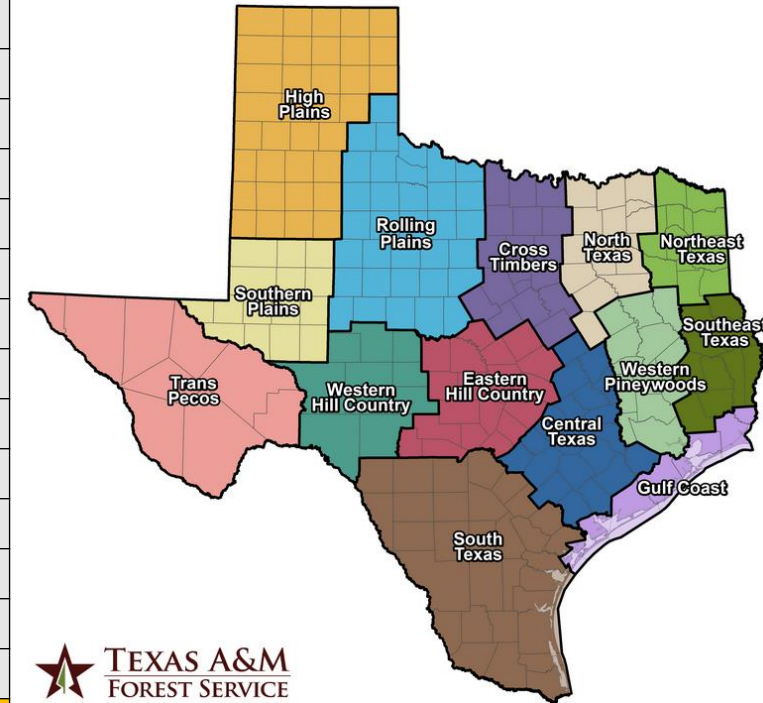
2014 (ENSO Neutral Analog Year) observed Extreme to Exceptional Drought development by late April and May with increased fire activity across the High Plains, Rolling Plains and Hill Country.

2019/2020 Dormant Season Fire Potential Summary

The normal to below normal grass loading on the western Plains has been given more weighting than the drier than normal outlook to favor **normal fire potential for the western Plains.** Significant windspeed and critical fire weather will be needed to overcome the sparser grass loading and increase a fire's resistance to control.

ENSO Neutral years are not known for high impact fire events or southern Plains wildfire outbreaks. A wildfire outbreak in an ENSO Neutral year would be a rare event.
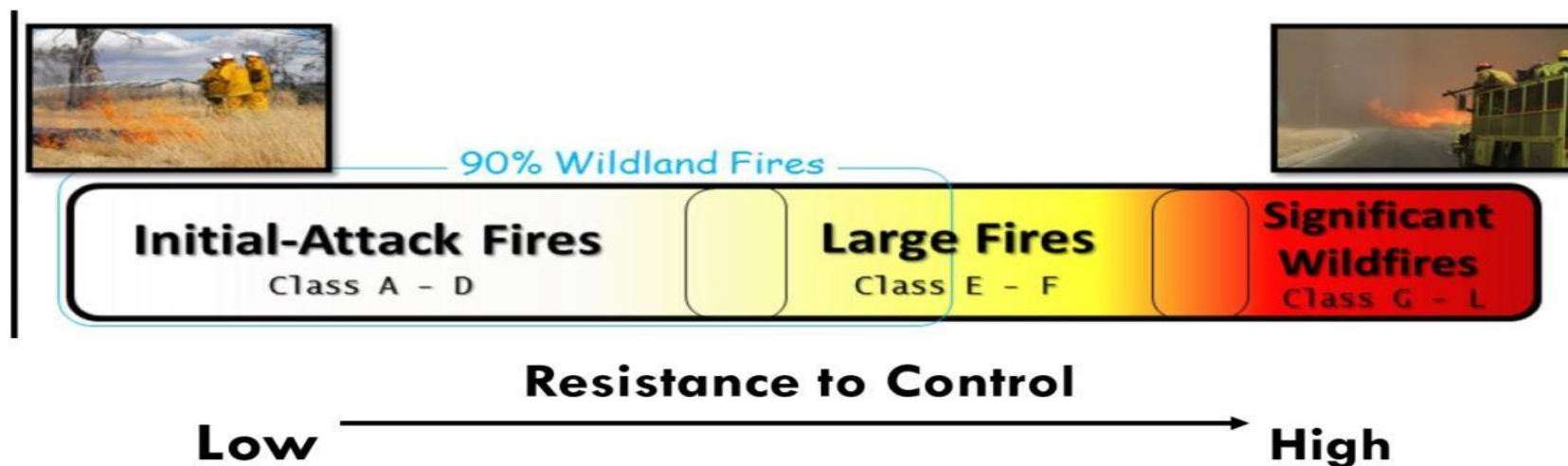
Significant windspeed and critical fire weather are possible in a strong prefrontal environment. This weather combined with ERC percentiles above the 75th percentile can produce a significant fire in rangeland with normal grass loading.

The best alignment of above normal grass loading and drier than normal anomalies are found in North Central Texas. **Above normal fire potential is likely in North Central Texas.**

Persistence, expansion or intensification of drought into portions of East Texas could produce normal to above normal fire activity in the timber litter fuels that dominate the region. Significant fires are not likely. Fire activity will include initial attack fires and an occasional large fire occurring in a post frontal environment. An above normal fire season will be due to fire numbers and not fire complexity.

90% Wildland Fires

Initial-Attack Fires Class A – D
Large Fires Class E – F
Significant Wildfires Class G – L

Resistance to Control

Low → High

Where a fire lands on this spectrum after ignition is determined by the condition of the fire environment