

Winter 2008 Fire Season Outlook for State of Texas



October 30, 2007

T E X A S
FOREST  **SERVICE**
The Texas A&M University System

Executive Summary

Record rainfall this past summer brought welcome relief to many areas of the state from the drought of 2005-2006. Unfortunately, in some areas it came down hard and fast, causing floods that threatened the property and lives of many people. Even though the remembrance of those days have waned, the vegetative growth that resulted was significant. From the north to the east to the south, to the central and even the western regions of the state, it was green as far as the eye could see. All that green vegetation, especially in the grasses that worked to our advantage over the summer, represents a concern for Texas this winter.

The Climate Prediction Center is forecasting La Niña conditions to strengthen in the Eastern Tropical Pacific through March 2008. As a result, they are forecasting an increased chance of above-normal temperatures and below-normal precipitation for the period January – March 2008 across the state. Historically, this forecast fits with previous La Niña events. The most recent La Niña events during the winters of 1996, 2000, and 2006 saw similar weather patterns. These years also saw increased wildland fire occurrence, with the level of activity exceeding local resources and requiring the activation of state and other resources to help protect the citizens from the wildfire threat.

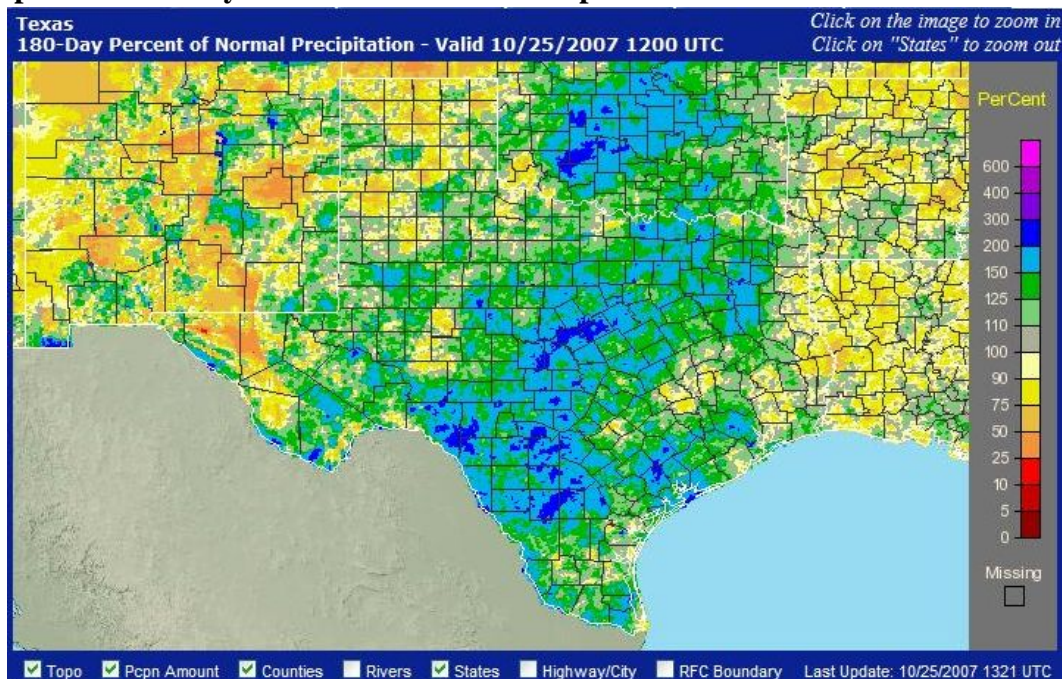
The combination of an abundance of available fuel and possibility of warmer and drier than normal weather increases the concern for the potential of the winter 2008 fire season. When comparing this winter's forecast with similar events in recent years, circumstances are coming together that could produce a very active fire season. In addition, due to the ongoing drought in the Southeastern U.S., State and Federal agency officials anticipate an increased mobilization of firefighting resources through the winter, which could limit the availability of out-of-state resources for use in Texas. In-state coordination between traditional and non-traditional partners should be a high priority.

Monitoring of critical fire danger and fire weather thresholds will be conducted on a continuous basis as we progress into and through this season.

INTRODUCTION

The first half of 2007 saw a dramatic swing away from the drought of 2005-2006 to above-normal precipitation across most of the state. The image below from the National Weather Service's Precipitation Analysis website shows the percent of normal precipitation from March to October 2007. Much of the state through this period was running at 125 to 150 percent of normal precipitation. Unfortunately, some of this precipitation came in a very short period of time, causing localized flooding and creating serious public safety concerns in various communities across the state.

Graphic 1 – 180 Day Percent of Normal Precipitation



There were beneficial effects of the rains as well, though. Most notable was the help in keeping the wildland fire risk potential low through our traditional summer fire season. Fire numbers were low through the period, with no significant fires reported. Another benefit was the unusually mild temperatures. Very few places in the state saw triple digit readings, with most seeing only the low 90s for highs. As most of us know, Texas summers are usually hot and dry. Wildland fires are typically a concern in late summer as the vegetation dries due to the heat and dry weather. With milder and moister conditions this summer, the vegetation stayed green and continued to grow. This was good for the summer, but it presents a concern for the winter as it cures with the onset of freezing temperatures.

An additional concern for the winter is the National Oceanic and Atmospheric Administration's (NOAA) Climate Prediction Center's (CPC) forecast for the return and strengthening of La Niña conditions in the eastern Pacific Ocean. Historically, La Niña conditions have generally produced a warmer and drier than normal weather pattern over the state during the winter months. This pattern, combined with the abundance of grass

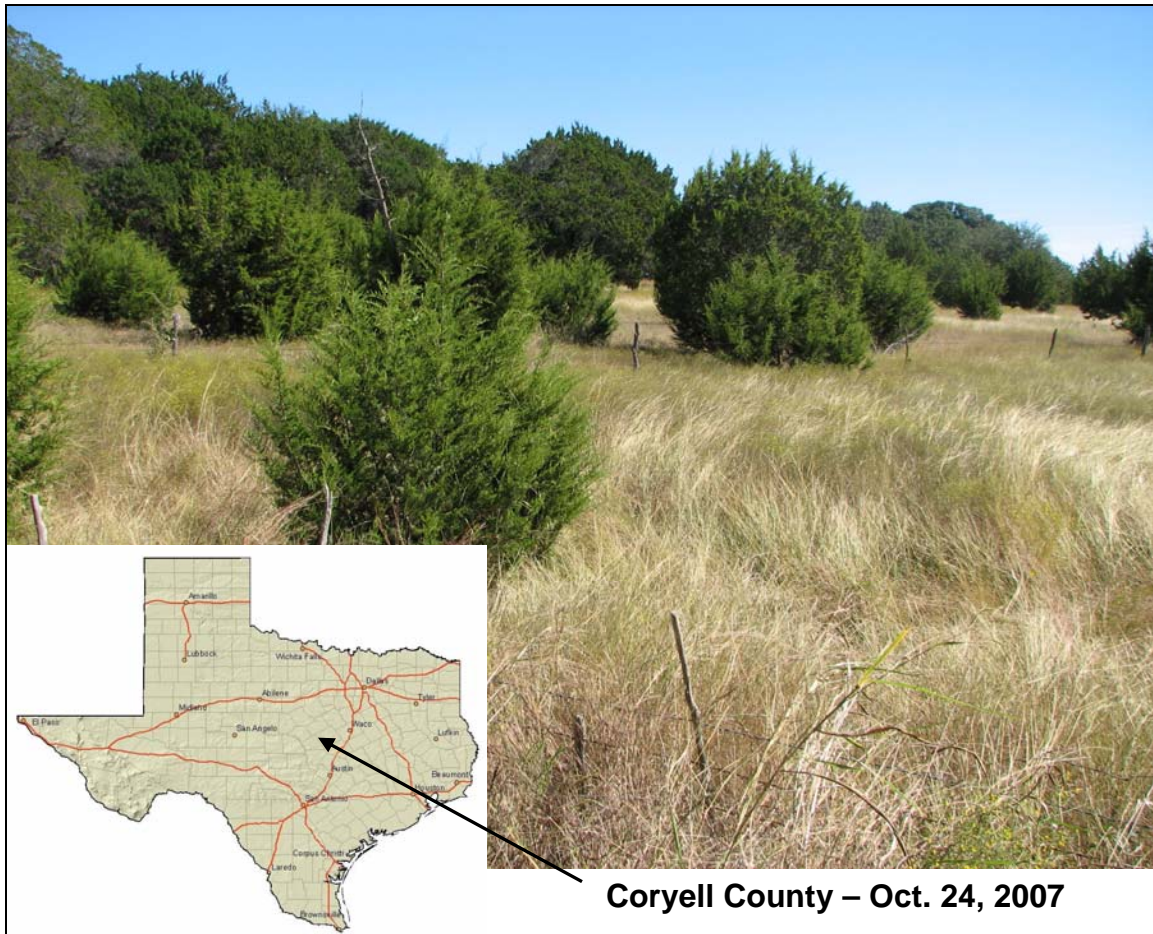
fuels, represents the primary wildland fire risk concerns for the state during the months of December through March.

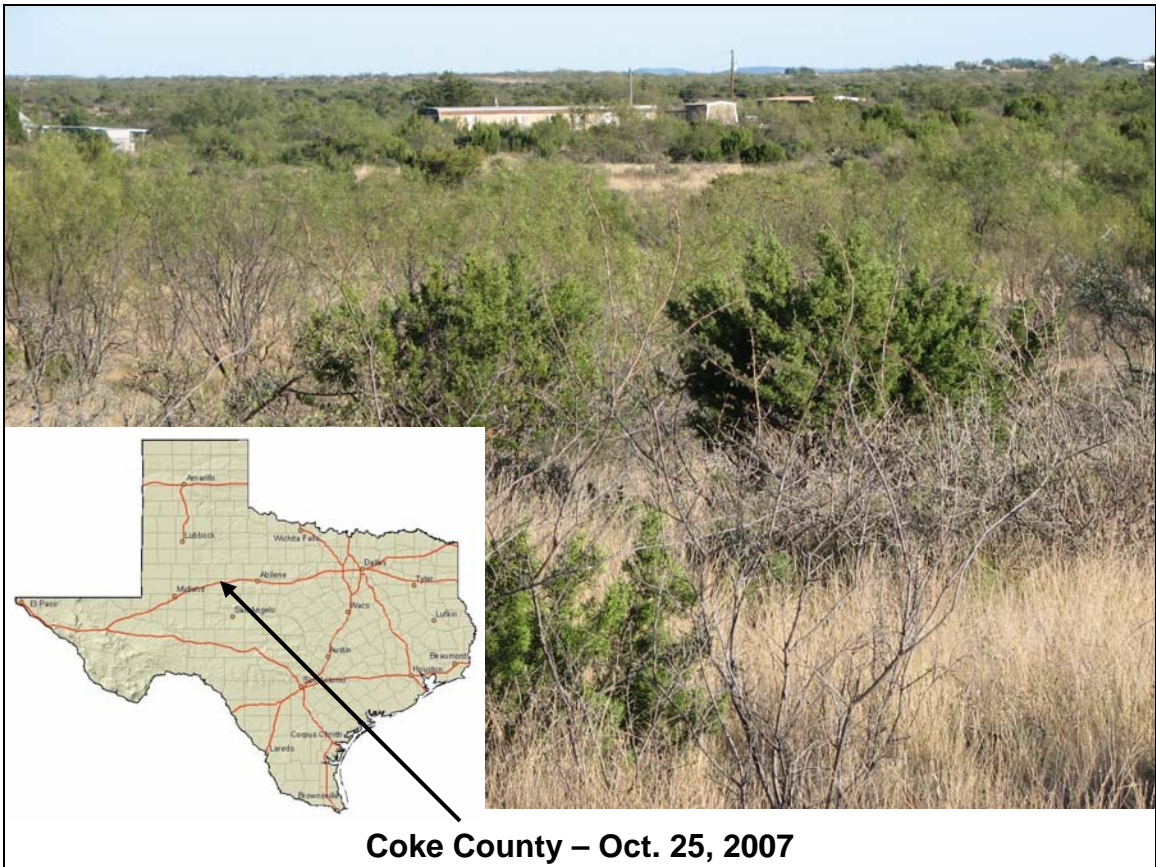
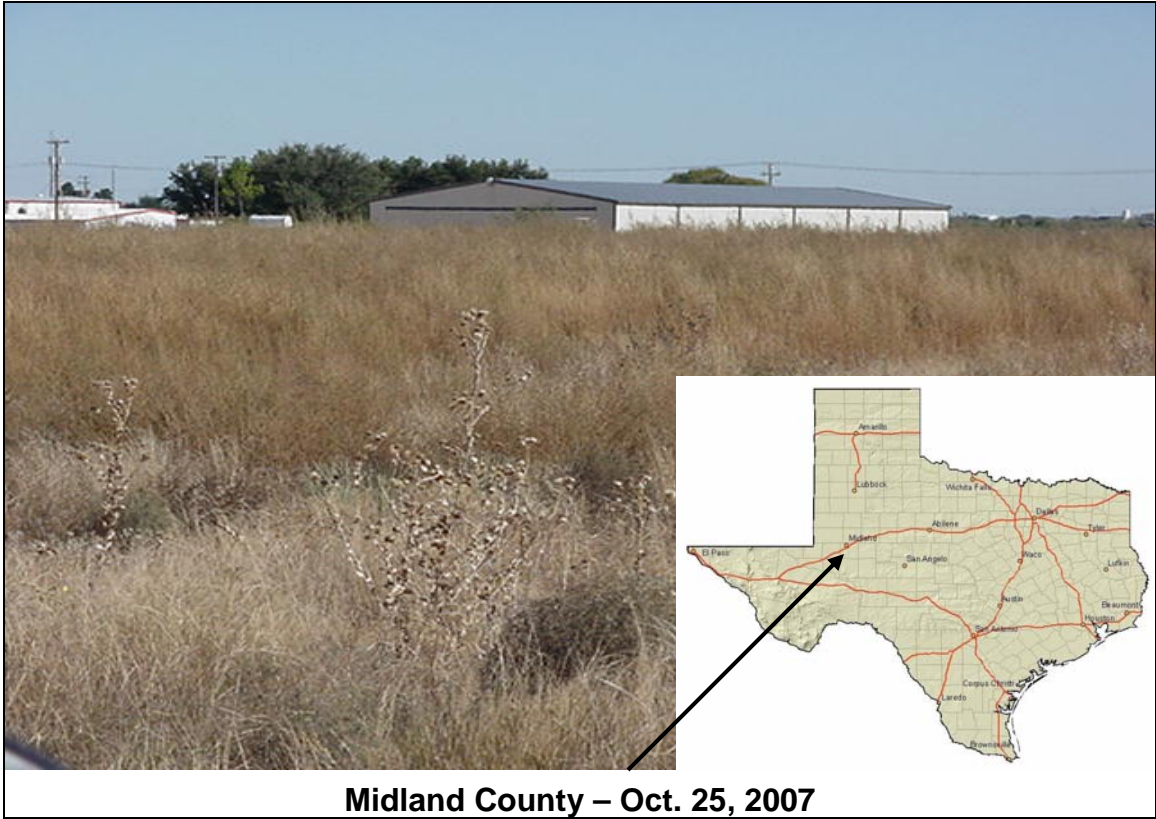
A further review of the fuels situation and weather outlook follow.

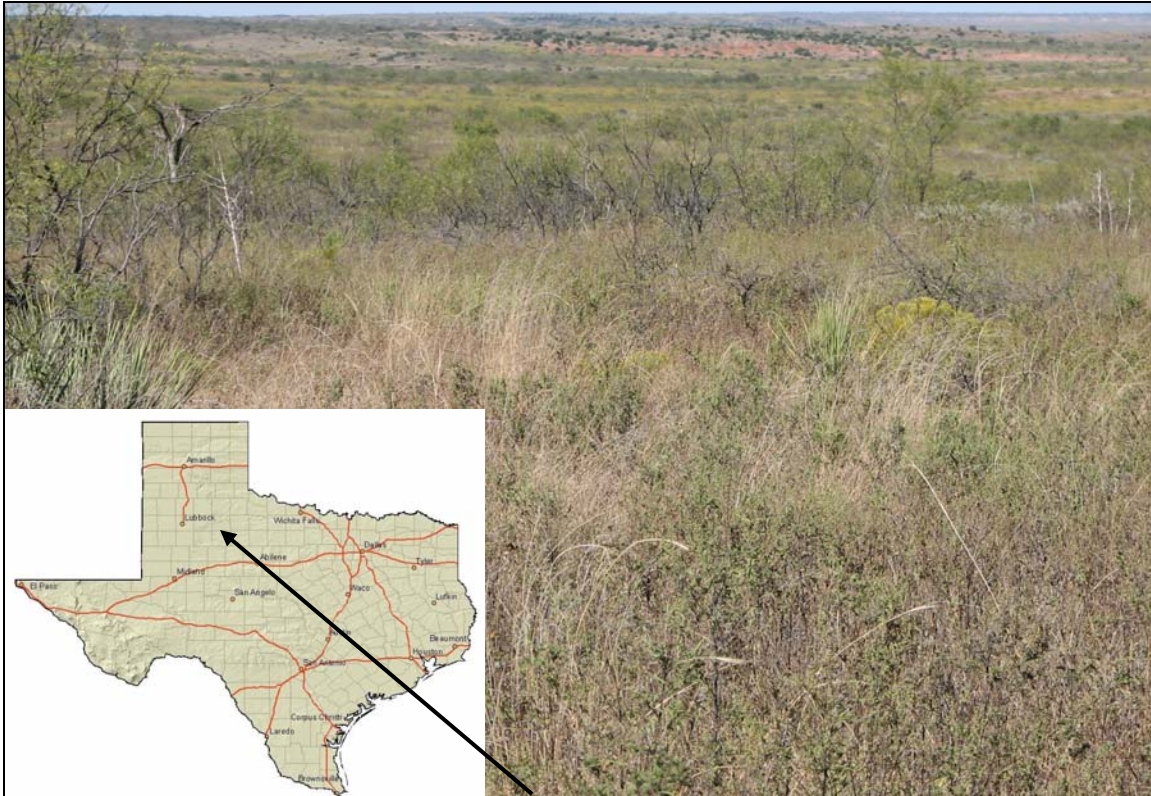
FUELS SITUATION

It has not been unusual this year to hear reports from West Texas of “We’ve never seen this much grass out here.” Or, “We have grass growing in places we’ve never seen before.” This would not be a cause for concern if all that grass did not represent potential fuel for a wildland fire. But grasses do cure out during the winter, and they do become fuel for wildland fires. The difference this year is the amount of grass present. There is a direct correlation between fuel loading (the amount of fuel available to burn) and fire intensity. Increased fire intensities resulting from increased fuel loading produce wildland fires with higher difficulties of control. These higher difficulties of control then pose an increased threat to the local firefighting resources and the property on which they burn.

The following images provide some perspective on the current fuel loading situation in various regions of the State.







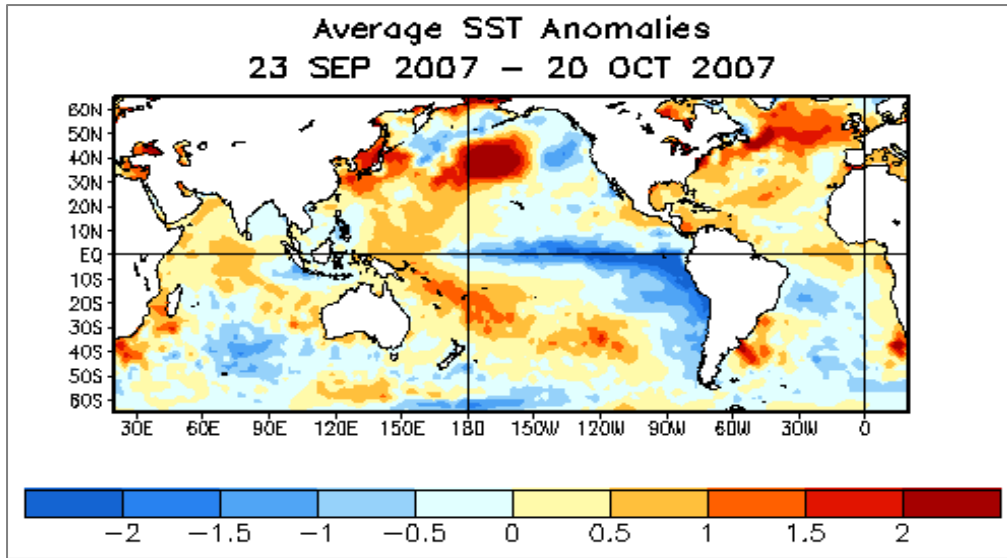
Garza County – Oct. 25, 2007

These images are a representative sample showing the abundance of grass present across the western regions of the state. Some, as is the case in the Garza County image from the Rolling Plains Region, are already beginning to cure.

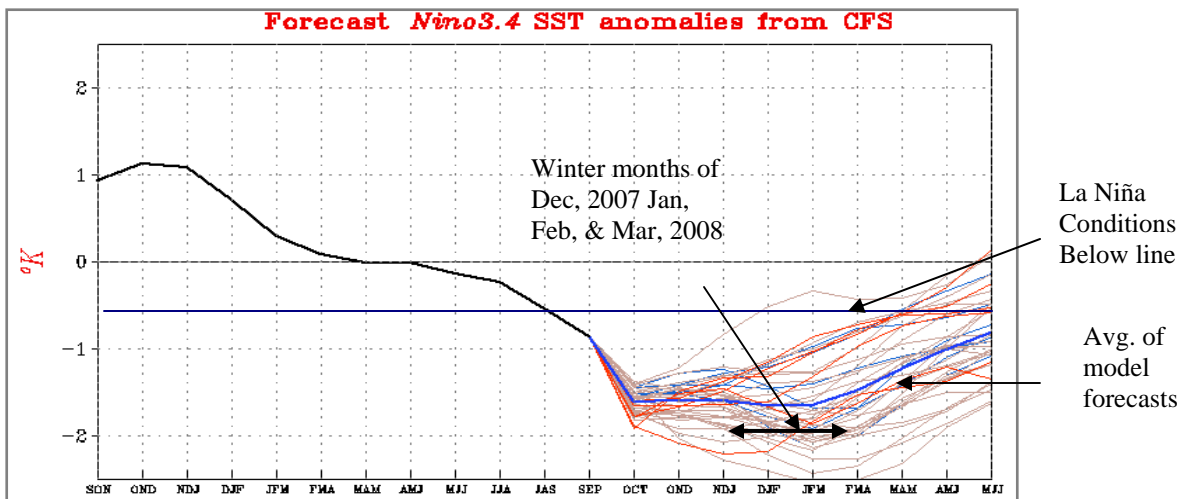
WEATHER OUTLOOK

According to NOAA’s Climate Prediction Center, La Niña conditions in the Eastern Pacific Ocean continue to strengthen. The image displayed in Graphic 2 at the top of the next page shows the Sea Surface Temperature Anomalies for the month ending on October 20, 2007. The shades of blue represent cooler than normal temperatures. The pooling of cooler than normal water off the west coast of South America indicates the presence of La Niña conditions. The following image in Graphic 3 shows computer models indicating La Niña conditions are expected to continue through the winter and into the spring of 2008. The significance of this is shown on the third image in Graphic 4; historically La Niña conditions produce a warm and dry weather pattern across the state (area shaded in yellow). This is evident then in their extended forecast for the winter, shown in the following two images in Graphic 5, indicating a drier and warmer than normal weather pattern for the state through the winter months.

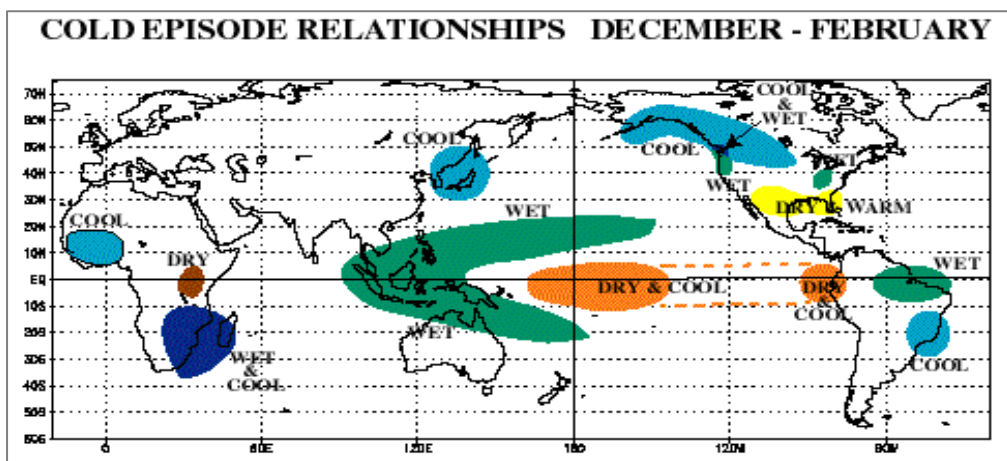
Graphic 2 – Current Sea Surface Temperature (SST) Anomaly



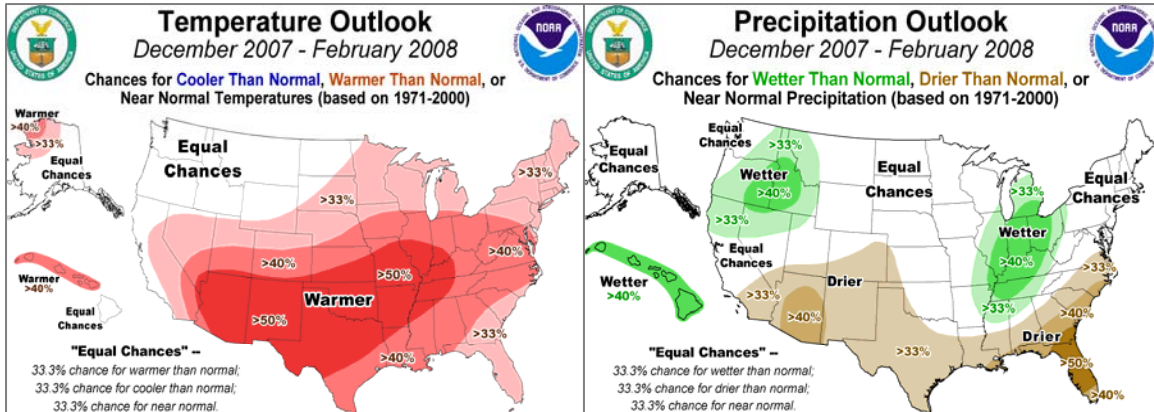
Graphic 3 – Eastern Pacific Sea Surface Temperature Computer Model Forecast



Graphic 4 – La Nina Impacts During Winter Months



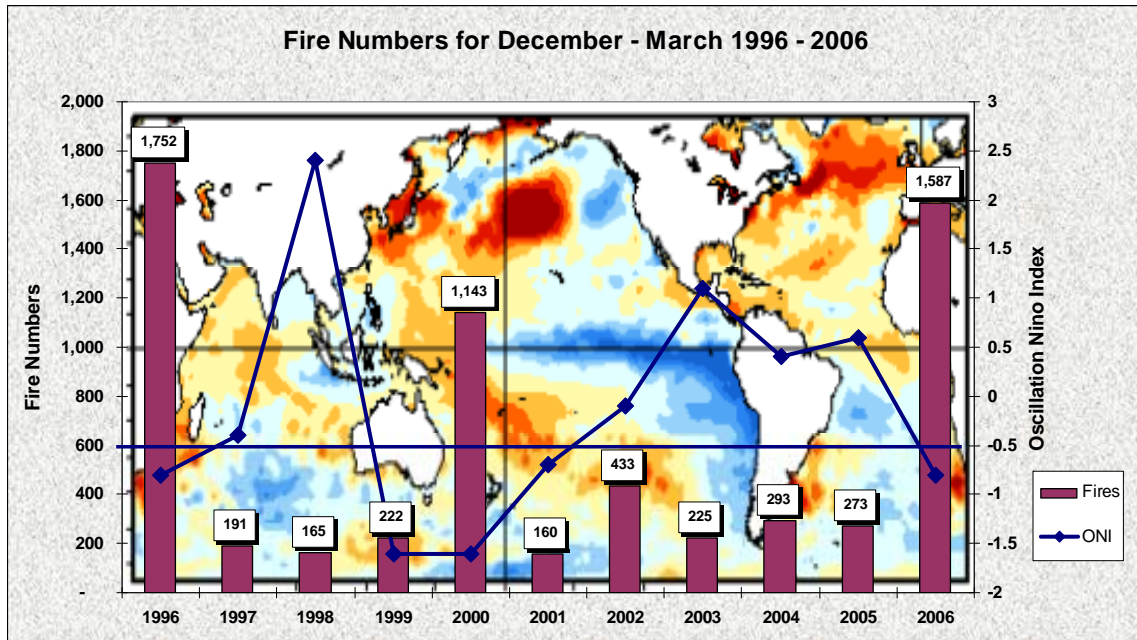
Graphic 5 – Temperature & Precipitation Forecast for Winter 2008



EFFECTS OF LA NIÑA ON WINTER FIRE SEASON

Since 1996, there have been five (5) winters in which La Niña conditions were present: 1996, 1999, 2000, 2001, and 2006. In three of them, Texas has experienced severe fire seasons; 1996, 2000, and 2006. In 1999 and 2001, there were extenuating circumstances. In 1999 Texas was coming out of a wet fall in 1998, and La Niña conditions were just developing. In 2001, Texas again experienced above-normal moisture in the fall of 2000 going into the winter, and La Niña conditions were on their way out. For 1996, 2000, and 2006, La Niña was already in place and either continued or strengthened through the winter months. The following chart shows the fire activity Texas experienced during the winter of each year since 1996 compared to the presence of La Niña. La Niña is defined as an Oscillation Nino Index (ONI) of -0.5 or less.

Graphic 6 – Fire Occurrence In Relation to La Nina During Winter Months

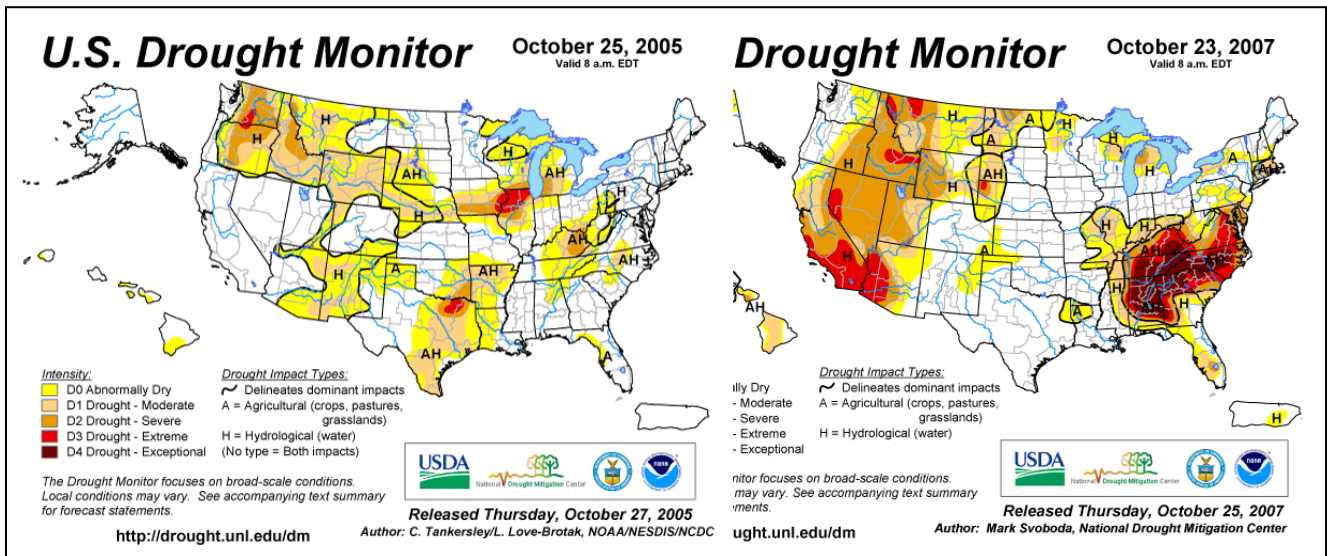


From this chart it appears that if La Niña conditions are already in place in the Pacific going into the winter, chances are greater for the state to experience an active fire season than if La Niña is not present, or if there are extenuating circumstances mitigating the effect of La Niña. At the end of September this year, the ONI was -0.8, with the models (Graphic 3) indicating it could go to -1.5 by the end of October and continue there through February 2008.

WINTER 2008 FIRE SEASON OUTLOOK

First some good news, because of the spring and summer rains we are not carrying as much drought into this winter as in 2005. The images below show the drought picture is much improved this year compared to the same time in 2005.

Graphic 7 – US Drought Monitor Comparison



As a result, the timber fuels are not as dry now as they were going into the winter of 2005-2006. Since both timber fuels and soils tend to hold moisture better during the winter months, neither is expected to reach critically dry levels. This will help keep fire intensities down in fires burning in the post oak and eastern pine fuel types.

The primary concerns for the Winter Fire Season of 2008 are the combination of an abundance of grass mixed with the onset of La Niña conditions in the Eastern Tropical Pacific. The forecasted warmer and drier weather associated with La Niña, on top of an increased grass fuel loading, pose a significant wildland fire threat. This threat is highest in the areas of the state where grass is the predominant cover type, such as the High Plains, Rolling Plains, Southern Plains, and portions of North Central, Central, and Hill Country Regions of the state. If the forecast holds, there is a high potential for fire occurrence to exceed local resources capabilities within these regions, requiring state or other resource assistance. This increased potential is expected to carry through the end of March 2008.

In addition other regions, especially the eastern and coastal regions of the state, can expect to see an active fire season as a result of the weather forecast. The timber fuels and fragmentation of the landscape within these regions are expected to help keep activity within local resources capability.

Due to the ongoing drought in the Southeast (see Graphic 7), State and Federal agency officials anticipate an increased mobilization of firefighting resources through the winter, which could limit the availability of out-of-state resources for use in Texas. In-state coordination between traditional and non-traditional partners should be a high priority.

An ongoing assessment of weather and fuel conditions will continue through the end of the season to monitor fire risk potential across the state.

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BACKGROUND MATERIAL & REFERENCES

El Nino/Southern Oscillation (ENSO) Diagnostic Discussion; NOAA's Climate Prediction Center/NCEP/NWS 11 October 2007. Web Address:
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

Graphic 1; Graphic from National Weather Service Precipitation Analysis site. Web address: http://www.srh.noaa.gov/rfcshare/precip_analysis_new.php

Graphic 2; Graphic of Monthly Average Sea Surface Temperature Anomalies from NOAA's Climate Prediction Centers Weekly ENSO Evolution, Status, and Prediction Presentation. Website:
<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>

Graphic 3; Graphic showing Eastern Pacific Sea Surface Temperature Forecast from NOAA's Climate Prediction Centers Weekly ENSO Evolution, Status, and Prediction Presentation. Website:

<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>

Graphic 4; Graphic showing La Niña impacts during the winter months, from NOAA's Climate Prediction Centers El Nino/La Nina site, website;

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/cold_impacts.shtml

Graphic 5; Graphic showing the Climate Prediction Centers temperature and precipitation forecast for Winter 2008. Website;

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead03/off_index.html

Graphic 6; Graphic shows fire occurrence for the months of December – March for the years 1996 – 2006 (from Texas Forest Service fire database), with the Oscillation Nino Index (ONI) during the same months for each year. ONI is available at the following website;

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml

Graphic 7; Graphic comparing drought conditions for the same period in October of 2005 and October 2007. Graphic can be found on The National Drought Monitor website at;

<http://www.drought.unl.edu/dm/monitor.html>