

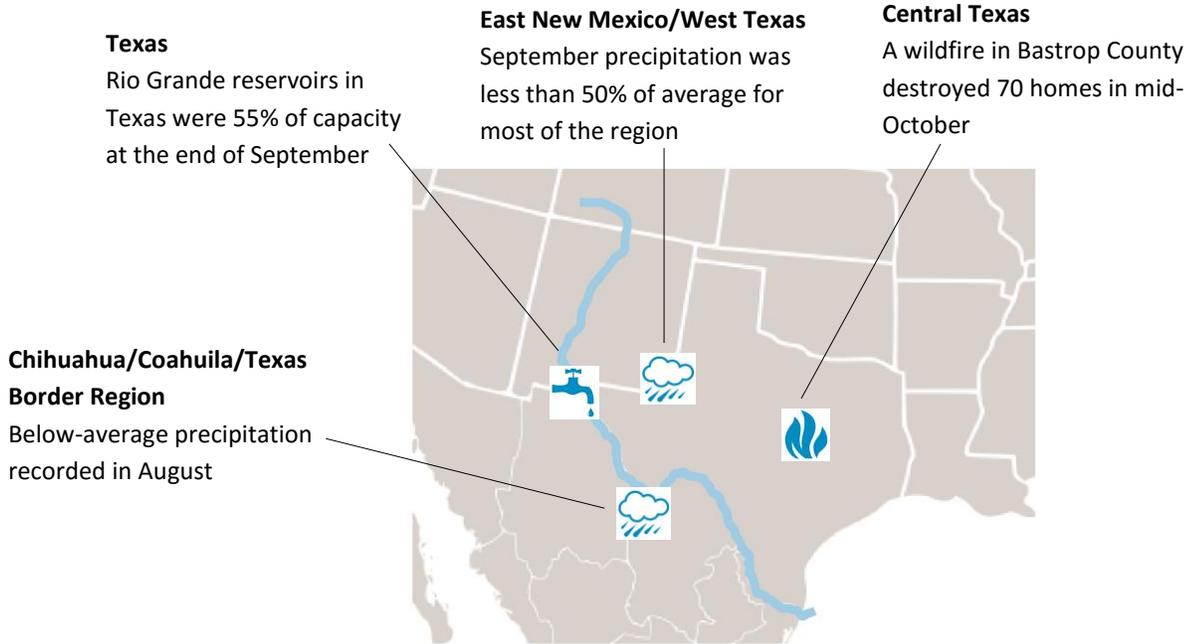
Rio Grande|Bravo

CLIMATE IMPACTS & OUTLOOK November 2015

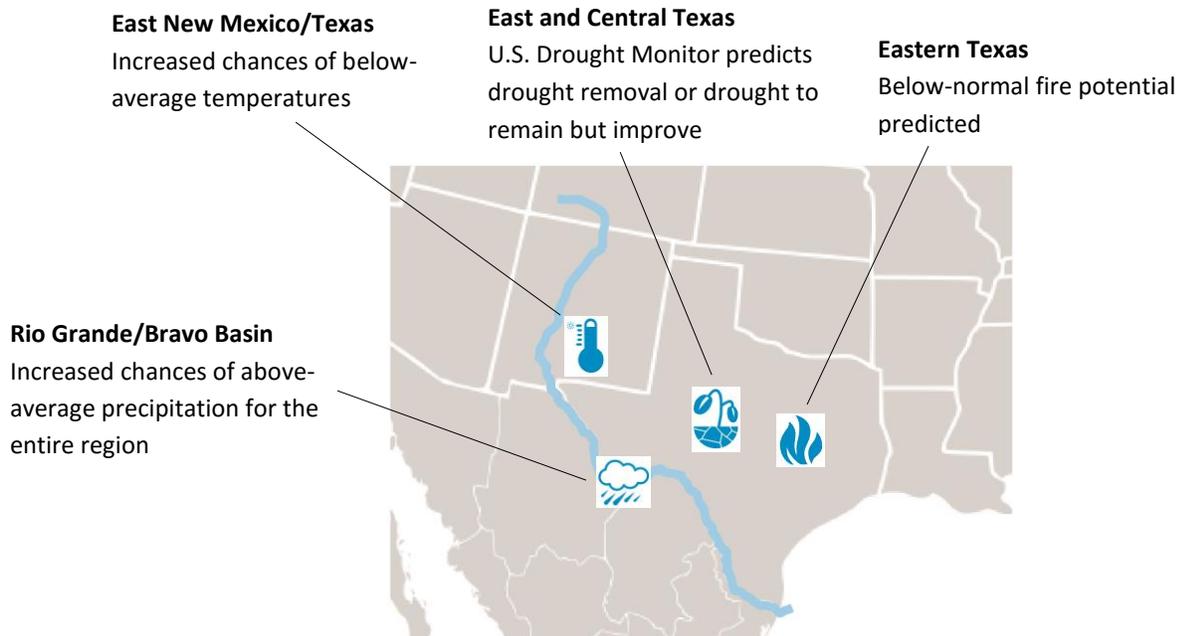
SUMMARY

Forecasts call for increased chances of below-average temperatures and above-average precipitation for much of the region through January 2016, due to El Niño.

RECAP AUGUST | SEPTEMBER | OCTOBER



FORECAST | NOVEMBER | DECEMBER | JANUARY



Late summer and early fall 2015 was warm across most of the Rio Grande/Bravo Basin. Temperatures from August thru October were 2-5°F (1.1- 2.6°C) warmer than the 1981-2010 average in southeastern New Mexico and west Texas, and precipitation ranged from 100-200% of average for most of the same region, with some small areas receiving below-average rainfall.

The Rio Grande Basin experienced extremely low precipitation in September, with the majority of the region receiving below 50% of average levels. Temperatures in September were 2-8°F (1.1-4.4°C) above average. In most areas, October temperatures continued to be about 2-4°F (1.1-2.2°C) above average. In October, the majority of the New Mexico/Texas border region received 150-300+% of average precipitation ([High Plains Regional Climate Center](#)).

In July and August, the Texas/Chihuahua/Coahuila border region received below-average precipitation, ranging from 25-85% of average. The same region experienced below-average maximum temperatures in July and August, ranging from 1.8 - 9.5°F (1-5°C) below average. In August, the majority of both Mexican states, outside of the border region, recorded above-average maximum temperatures.

Above-average precipitation events in May and July, partially attributed to El Niño, alleviated short-term drought conditions in the region. However, a “flash” drought—rapid onset with immediate impacts— emerged in eastern and central Texas in late September, with more than 47% of the state in some form of drought. A series of recent storms in October in the region have led to drought improvement, though small areas of abnormally dry conditions remain in central Texas and eastern New Mexico. The U.S. Drought Outlook forecasts drought becoming less severe over the next few months, with the elimination of drought likely in some areas of central and eastern Texas, due to the expected regional effects of El Niño, which includes above-average regional rainfall, during the winter and spring.

Western New Mexico continued to experience abnormally dry conditions through September, while eastern New Mexico and western Texas remained mostly drought free. Conditions in New Mexico and western Texas are predicted to remain unchanged through January 2016.

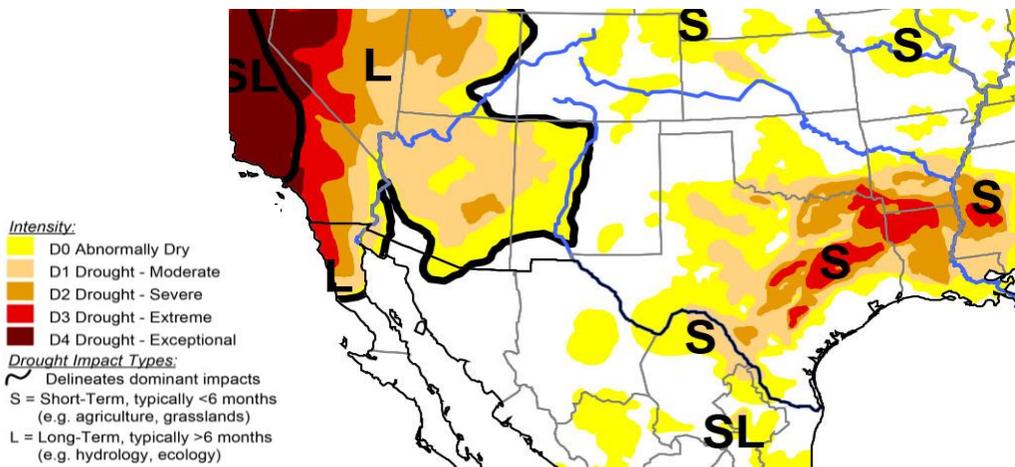


Figure 1. North American Drought Monitor, September 30, 2015.
http://droughtmonitor.unl.edu/data/pdfs/20151103/20151103_usdm.pdf

TEMPERATURE

NOAA climate forecasts call for increased chances for below-average temperatures in most of New Mexico and all of Texas through January 2016, mostly in response to developing El Niño conditions in the tropical Pacific (Figure 2). The SMN predicts average to below-average minimum temperatures in December and January in northern Chihuahua and Coahuila, ranging from 0.9-3.6°F (0.5-2°C) below average.

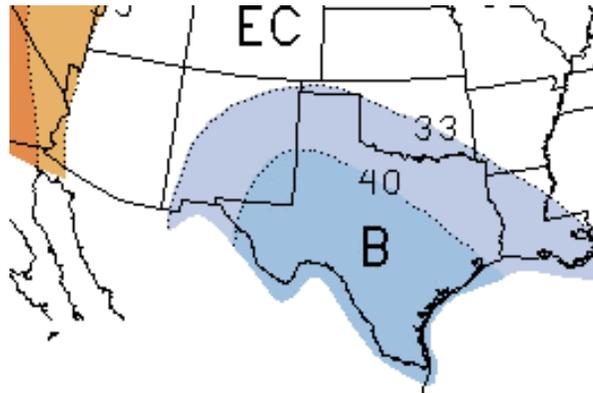


Figure 2 (above right). NOAA November through January seasonal temperature outlook. Forecast made on October 15, 2015: http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off01_temp.gif.

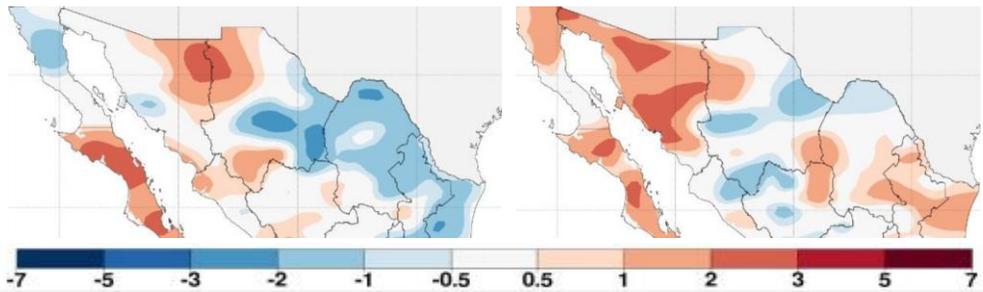


Figure 3. Predicted minimum temperature anomalies for northern Mexico (°C). December (Left) and January (Right). <http://smn.cna.gob.mx/climatologia/pronostico/prontemps.pdf>

PRECIPITATION

Due to the continuing development of El Niño conditions, NOAA forecasts increased chances of above-average precipitation for the entire U.S. Southwest region during the next three months, with the highest chances centered in southern New Mexico and Texas (Figure 4), and very low chances of below-average precipitation. SMN predicts average precipitation in the majority of northern Mexico in November, with a small band in Chihuahua expected to receive below-average precipitation (50-85% of normal). November predictions also call for slightly above-average precipitation in central Coahuila. December and January precipitation in northern Mexico is predicted to be 100-150% of average, again, related to El Niño (Figure 5).

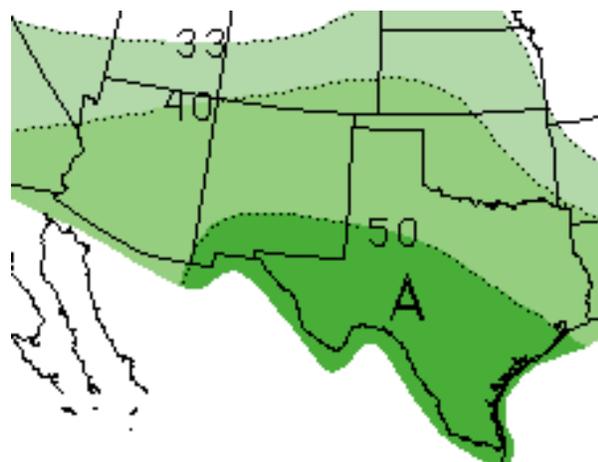


Figure 4 (above right). NOAA November through January seasonal outlook. Forecast made on October 15, 2015: http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off01_prpc.gif.

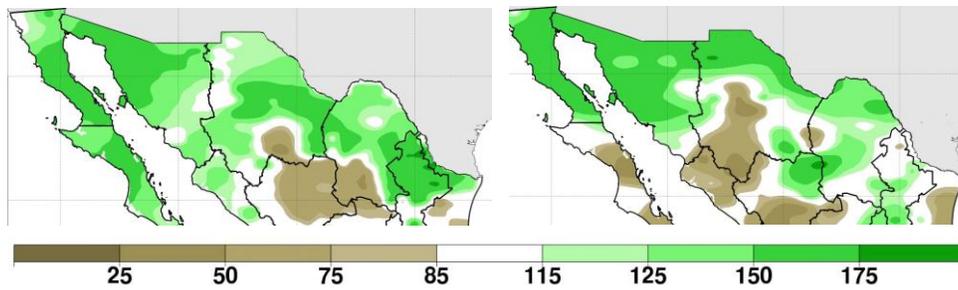


Figure 5. Predicted percent of normal monthly precipitation for northern Mexico. December (Left) and January (Right). http://smn.cna.gob.mx/index.php?option=com_content&view=article&id=119:pronostico-climatologico-estacional&catid=9&Itemid=52

FIRE

In late October, a series of wildfires occurred in central Texas. One fire in Bastrop County ignited on October 13 and burned seven square miles before being fully contained on October 24. Nearly 70 homes were destroyed in the fire. The impacts of the fire were far-reaching; schools in Travis County, 40 miles from the fire, closed or postponed all outdoor activities because of reduced air quality.

Most of the Rio Grande/Bravo Basin is predicted to have normal fire potential through the end of this year and beginning of 2016. In November, December, and January, the eastern half of Texas is forecasted to have below-normal fire potential.

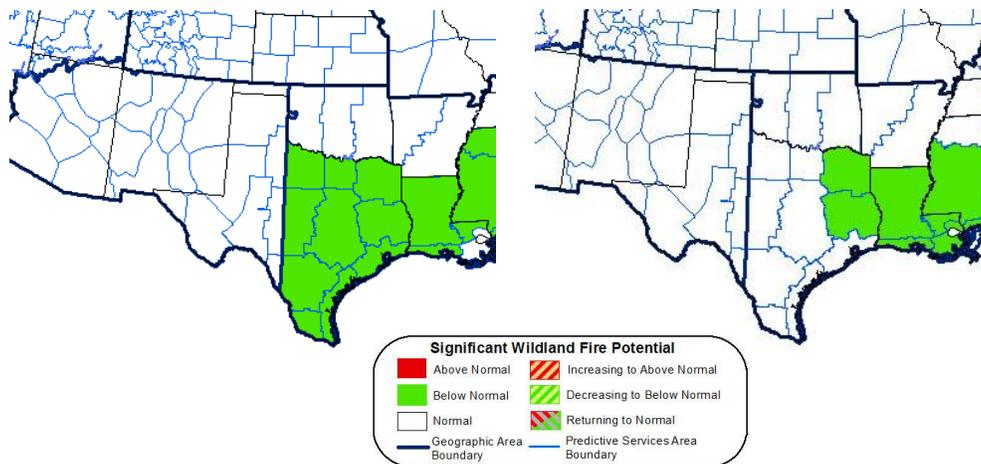


Figure 6. Significant wildland fire potential outlook for November (left) and December/January (right). <http://www.predictiveservices.nifc.gov/outlooks/outlooks.htm>

ENSO DISCUSSION

The El Niño-Southern Oscillation (ENSO) is a natural climate phenomenon that originates in the equatorial Pacific Ocean and affects weather around the world. During a La Niña event, the Southwest U.S. and northern Mexico typically experience dry conditions. During an El Niño event, the region typically experiences above-average precipitation. This increase in precipitation typically occurs in the late fall and winter months.

El Niño conditions have intensified in the tropical Pacific since the beginning of 2015, and models now predict El Niño to continue through spring 2016, with an approximately 95% chance of conditions continuing through this winter. Predictions are based on anomalous sea surface temperatures in the central and eastern tropical Pacific Ocean (figure 7), weakened trade winds, and other ENSO indicators.

In the past, some very strong El Niño episodes, such as 1982-1983 and 1997-1998, have led to dramatically increased precipitation and severe flooding in some areas of the U.S.-Mexico border region. Forecasters are predicting that the strength of the 2015-16 El Niño episode may match previous very strong episodes, increasing the potential for a wet winter, with the caveat that not all El Niño episodes result in above-average precipitation.

More ENSO information:

- English: <http://iri.columbia.edu/our-expertise/climate/enso/enso-essentials/> and <http://www.ncdc.noaa.gov/teleconnections/enso/>
- Spanish: <http://www.smn.gov.ar/?mod=biblioteca&id=67> and <http://www.smn.gov.ar/?mod=biblioteca&id=68>

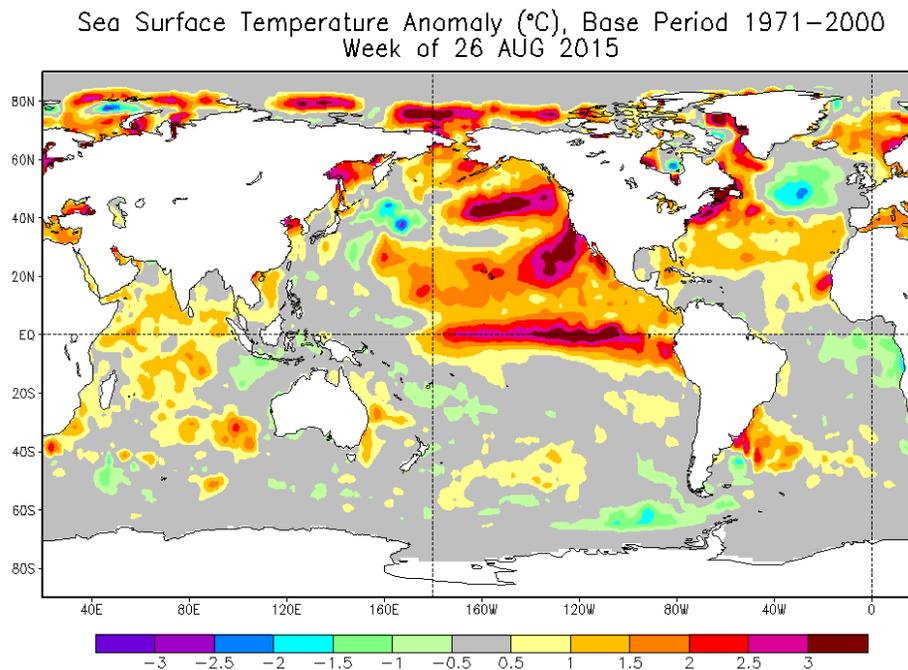


Figure 7. <http://www.ncdc.noaa.gov/teleconnections/enso/indicators/sea-temp-anom.php>

LATIN AMERICAN AND CARIBBEAN FLOOD AND DROUGHT MONITOR

A recently developed web-interface tool provides information for South America, Mexico, and the Caribbean on current meteorological conditions, drought and flooding indicators such as streamflow rates and soil moisture indices, and forecasts. The Latin American and Caribbean Flood and Drought Monitor (LAFDM) was developed in 2014 by the Terrestrial Hydrology Research Group at Princeton University, with the support of the International Center for Integrated Water Resources Management and the Water Centre for Arid Zones in Latin America and the Caribbean.

The interactive interface makes it easy to animate spatial data, allowing visualization of variables such as precipitation, maximum and minimum temperature, percent soil moisture, evaporation, surface runoff, streamflow, and drought indices. The tool contains both historical data and forecast capabilities, on daily and monthly timescales, depending on the variable.

In addition to the ability to animate data, the tool allows for visualization of point data—“time series data plots that can be viewed for individual grid cells”—and gives the user the ability to download spatial data in different formats. There is a user-friendly tutorial, walking through the tool and explaining how to use it, step-by-step. The groups that developed this tool have made it easy to use, and it is a great resource for anyone needing meteorological and forecast data in the Latin American and Caribbean region.

Latin American Flood and Drought Monitor: <http://stream.princeton.edu/LAFDM/WEBPAGE/>

NEWS HEADLINES

Forum: Climate Perspectives in Mexico, November 10-13, 2015

<http://smn.cna.gob.mx/climatologia/foros/foroXXIX/foroXXIX.pdf>

Heavy Rain Caused Flooding in Texas and Along Gulf Coast, October 26, 2015:

<http://www.weather.com/forecast/regional/news/patricia-gulf-coast-lower-mississippi-valley-flooding>

Texas Drought is Exceptional Again after Record Spring Floods, October 15, 2015:

<http://www.wunderground.com/news/texas-drought-returns-louisiana-arkansas-oklahoma-oct2015>

Stand By for an Abrupt Shift in New Mexico's Weather

<http://www.abqjournal.com/658940/news/stand-by-for-an-abrupt-change-in-the-weather.html>

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