

Rio Grande|Bravo

CLIMATE IMPACTS & OUTLOOK May 2016

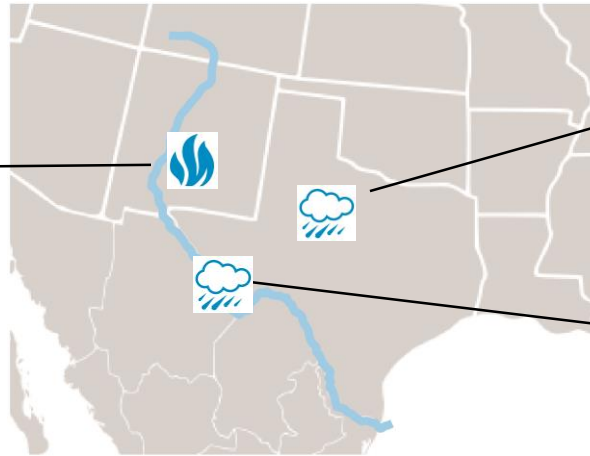
SUMMARY

Forecasts in July favor average to below-average precipitation and above-average temperatures in the Rio Grande/Bravo Basin region.

AT A GLANCE

New Mexico/Texas

Above-normal fire potential forecasted for June in southwestern New Mexico and western Texas due to dry conditions and high temperatures



Texas

Texas received above-average precipitation in April due to a high pressure omega block and moisture from the Gulf of Mexico

Chihuahua/Coahuila

Forecasts favor below-average precipitation in June

REGIONAL CLIMATE OVERVIEW

FEBRUARY | MARCH | APRIL

From February 1st through April 30th the Rio Grande/Bravo Basin received precipitation ranging from 5-200% of average. Most of New Mexico and West Texas experienced precipitation 5-70% of average. However, the lower Texas/Mexico border region received 130-200% of average precipitation, when a mid-April high pressure system kept a low pressure system from advancing eastward—effectively setting up the low as a regional moisture pump (Figure 1). Temperatures were 1-4°F (0.5-2.2°C) above average for almost all of New Mexico and Texas, including the U.S.-Mexico border region. Precipitation from April 25-May 8 was 5-50% of average for almost the entire region, with western and central New Mexico experiencing precipitation 150-300% of average.

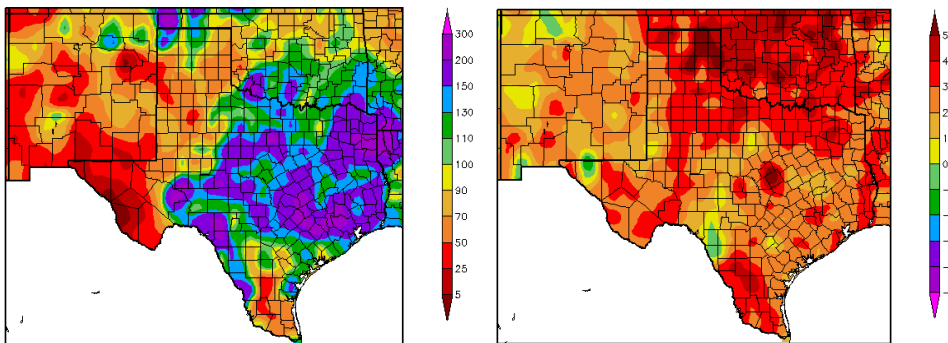


Figure 1: Percent of normal precipitation (left), and departure from normal temperature (right), for 2/1/2016 – 4/30/2016. Maps from HPRCC.

DROUGHT

According to the North American Drought Monitor (NADM), western and central New Mexico and small areas of Chihuahua are experiencing moderate drought conditions (Figure 2). The NADM shows West Texas, central Nuevo León, and a large portion of New Mexico and Chihuahua as experiencing abnormally dry conditions. Drought removal by August in New Mexico is likely, according to NOAA’s Climate Prediction Center ([CPC](#)) (figure not shown). In Chihuahua, moderate drought is expected to remain through July, though forecasts favor removal of abnormally dry areas.

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

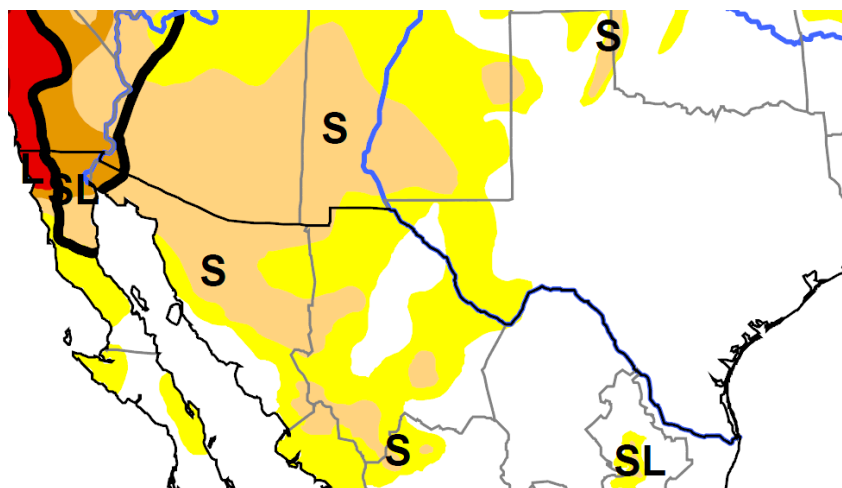


Figure 2 (above): March North American Drought Monitor, released May 11, 2016.

FORECAST

JUNE | JULY | AUGUST

TEMPERATURE

The three-month NOAA temperature outlook favors increased chances of above-average temperatures in New Mexico and Texas (Figure 3). CONAGUA’s Servicio Meteorológico Nacional (SMN) predicts average to below-average maximum temperatures in June for most of the Rio Grande/Bravo region (Figure 4). For July, SMN forecasts above-average maximum temperatures for northern and western Chihuahua, and average to below-average temperatures for northern Coahuila, central Nuevo León and northern Tamaulipas. Differences between these forecasts are mostly based on different methods of prediction, and the differences in time periods covered by each nation’s forecast.

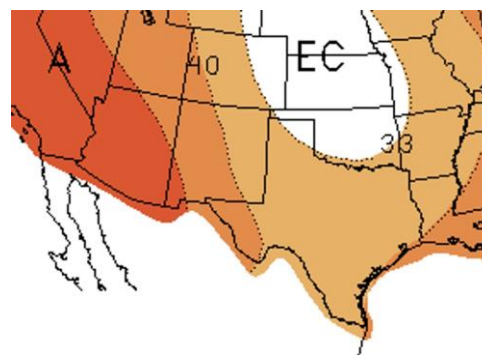


Figure 3 (above): NOAA June through August seasonal temperature outlook. Forecast made on May 19. Forecast from [CPC](#).

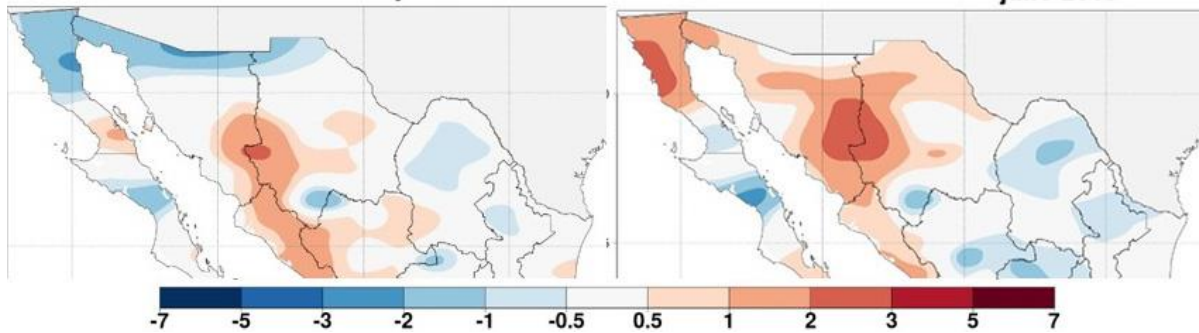


Figure 4 (above): Predicted maximum temperature anomalies for northern Mexico (in °C). June (left) and July (right). Forecast made on May 1, 2016 by [SMN](#).

PRECIPITATION

The NOAA precipitation forecast favors equal chances of above-average, average, and below-average precipitation for the entire U.S. Rio Grande Basin through August (Figure 5). In June, SMN forecasts below-average precipitation in most of Chihuahua and central Coahuila, and average to above-average precipitation in northern Coahuila, Tamaulipas, and Nuevo Leon. SMN forecasts for July favor average to above-average precipitation in eastern Chihuahua, Coahuila and Nuevo León, and below-average precipitation in northern and western Chihuahua and Tamaulipas (Figure 6).

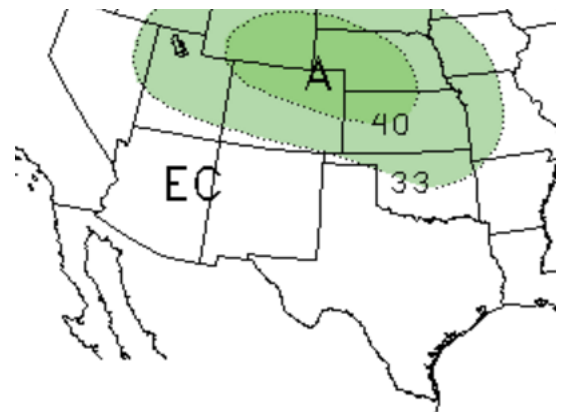


Figure 5 (above right): NOAA June through August seasonal precipitation outlook. Forecast made on May 19, 2016. Forecast from [CPC](#).

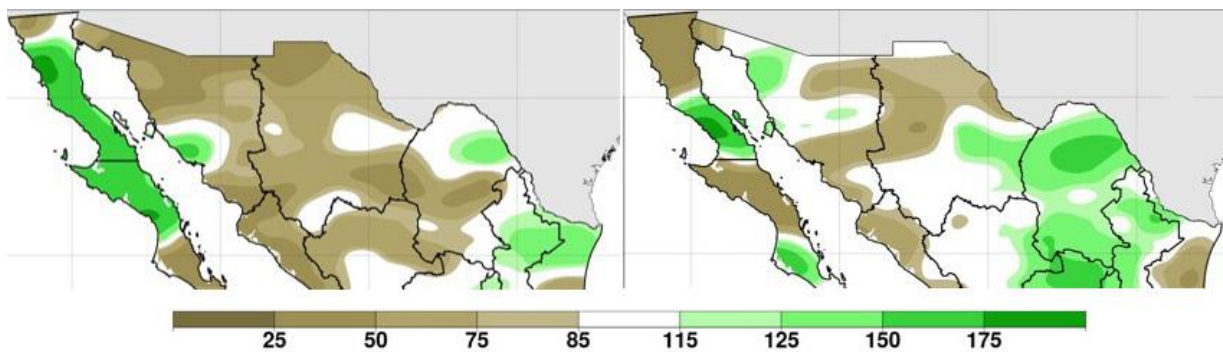


Figure 6 (above): Percent of average precipitation for northern Mexico. June (left) and July (right). Forecast made on May 1, 2016 by [SMN](#) using 1983, 1987, 1992, 1993, and 2003 as analogue years.

FIRE

The National Interagency Fire Center (NIFC) forecasts above-normal fire potential for southwestern New Mexico, western Chihuahua, and a small area of western Texas in June due to dry conditions and high temperatures (NIFC). NIFC forecasts normal fire potential for the Rio Grande Basin in July (Figure 7). In April, there were 615 hotspots detected in Mexico, with 183 detected over natural protected areas (Figure 8).

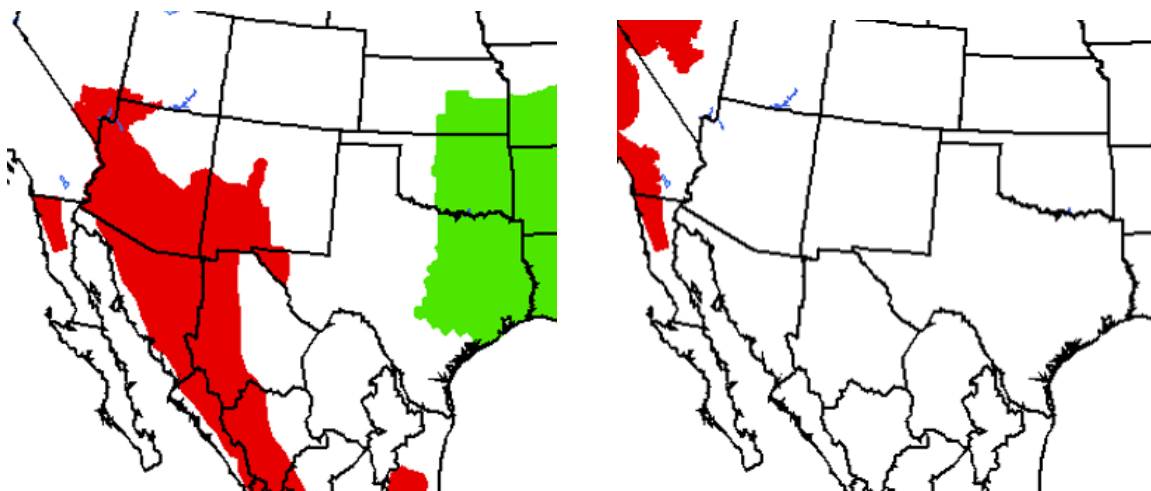


Figure 7 (above): Significant wildfire potential outlook for June (left) and July (right). Red shading indicates conditions that favor above-normal fire activity. Green shading indicates conditions that favor below-normal fire activity. Forecast made on May 11, 2016 from [NIFC](#).

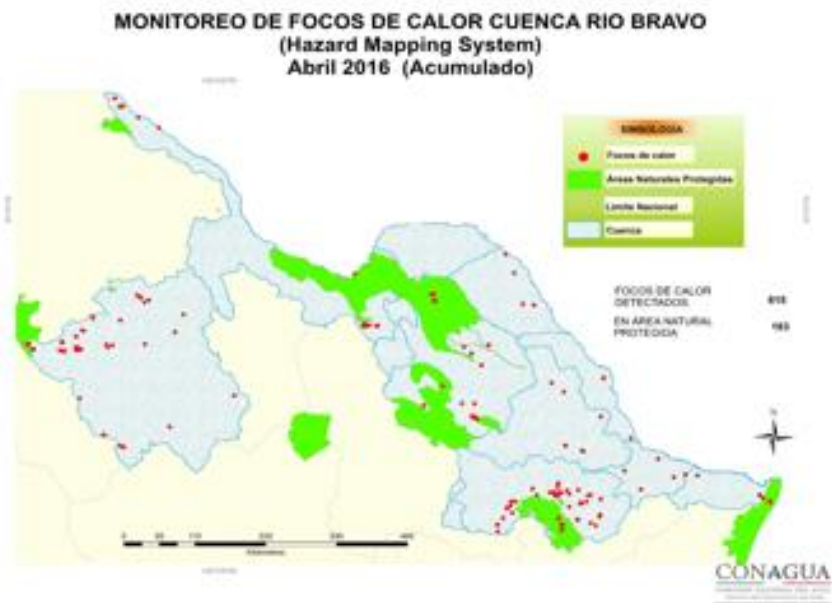


Figure 8 (left): Hotspots detected in the Rio Grande/Bravo Basin in April. Forecast made on May 1, 2016 from [SMN](#).

EL NIÑO

The El Niño-Southern Oscillation (ENSO) is a natural climate phenomenon that originates in the equatorial Pacific Ocean and affects weather around the world. El Niño conditions, although still present in the tropical Pacific Ocean, weakened appreciably in April, as indicated by decreasing sea surface temperature (SST) anomalies (Figure 9, right). Forecasts suggest a transition to ENSO-neutral conditions in spring or early summer ([CPC](#)).

While recent NOAA forecasts have favored increased precipitation in the U.S. Southwest, precipitation has fallen below average for most of the region thus far in 2016. As both NOAA and CLIMAS acknowledge, ENSO is not the sole climatological event impacting precipitation regimes. Following the early January rainstorms in the region, a high-pressure ridge above the Southwest limited the influx of moisture to the region, decreasing the probability of heavy precipitation ([CLIMAS](#)). The Pacific Jet stream remained powerful during this El Niño season, but was shifted further north than in past El Niño events, leading to increased precipitation in northern California and the Pacific Northwest and decreased rainfall in the Southwest ([NOAA](#)). The interaction of these, and additional climatological events, have all contributed to below-average precipitation in the region.

Conditions are predicted to gradually shift to ENSO-neutral conditions by late spring or early summer, as indicated by a probabilistic ENSO forecast (Figure 9, left) produced by The National Weather Service's Climate Prediction Center (CPC) and the International Research Institute for Climate and Society (IRI). Preliminary forecasts also show approximately a 50-60% chance for La Niña development in the fall, indicating the possibility of a dry 2016/2017 winter for the region.

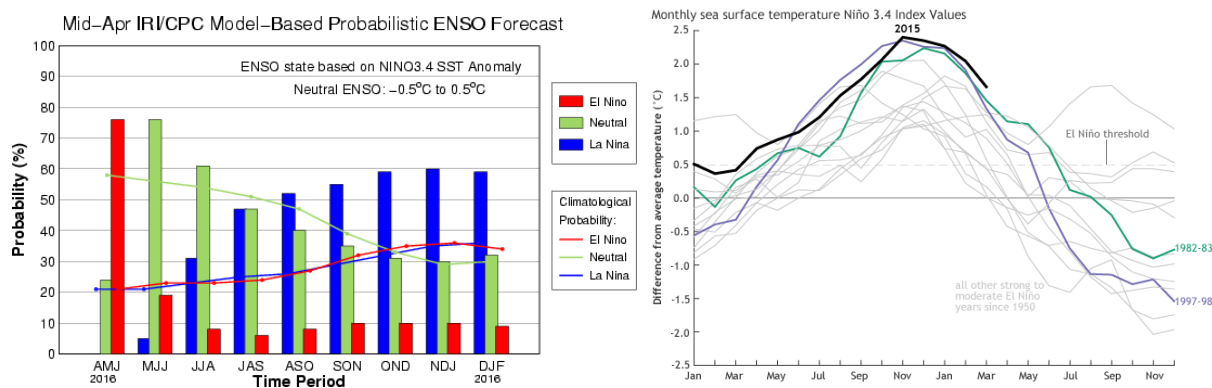


Figure 9 (above): ENSO probabilistic forecast from [IRI](#) (left) and monthly SSTs in the Niño 3.4 region from [NOAA](#) (right). In the SST figure on the right, the black line shows current SSTs for the 2015/2016 season, the purple line shows SSTs for the 1997/1998 El Niño event, and the turquoise line shows SSTs in 1982/1983. Gray lines are other strong to moderate El Niño episodes since 1950.

For 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>

UPCOMING FORUMS

The **VI Meeting of Climate Services** and **XXX (30th) Regional Climate Outlook Forum** will be held in Jiutepec, Morelos, Mexico from June 8-10. For more information visit:

<http://smn.cna.gob.mx/es/climatologia/foros-de-prediccion-climatica>.

The **2016 North American Drought (NADM) Forum**, titled “2016 North American Drought, Wildfire, and Climate Services Forum,” will be held June 21-23 in Fort Worth, Texas. The NADM Forum is held every other year, and the location of the forum shifts between Mexico, the U.S., and Canada. The NADM Forum focuses on activities that foster and support the operation and improvement of the NADM and the partnership between the three countries. The 2016 agenda includes the NADM Forum, a North American Fire Monitoring and Forecasting Workshop, and a North American Climate Services Partnership (NACSP) workshop, with the NACSP Rio Grande/Bravo pilot serving as a theme that bridges the foci on drought and fire monitoring and forecasting.

NEWS HEADLINES

Water: The Other U.S.-Mexico Border Issue, May 13, 2016:

<https://www.stratfor.com/analysis/water-other-us-mexico-border-issue>

Texas Crop and Weather Report- April 26, April 26, 2016:

<http://today.agrilife.org/2016/04/26/texas-crop-and-weather-report-april-26/>

Drainage Canal Leaks Contaminants into Rio Grande, April 25, 2016:

<http://www.krgv.com/story/31814034/drainage-canal-leaks-contaminants-into-río-grande>

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