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CLIMATE IMPACTS & OUTLOOK

April 2018

Summary

Forecasts favor above-average temperatures and average to below-average precipitation for the Rio Grande/Bravo Basin through July

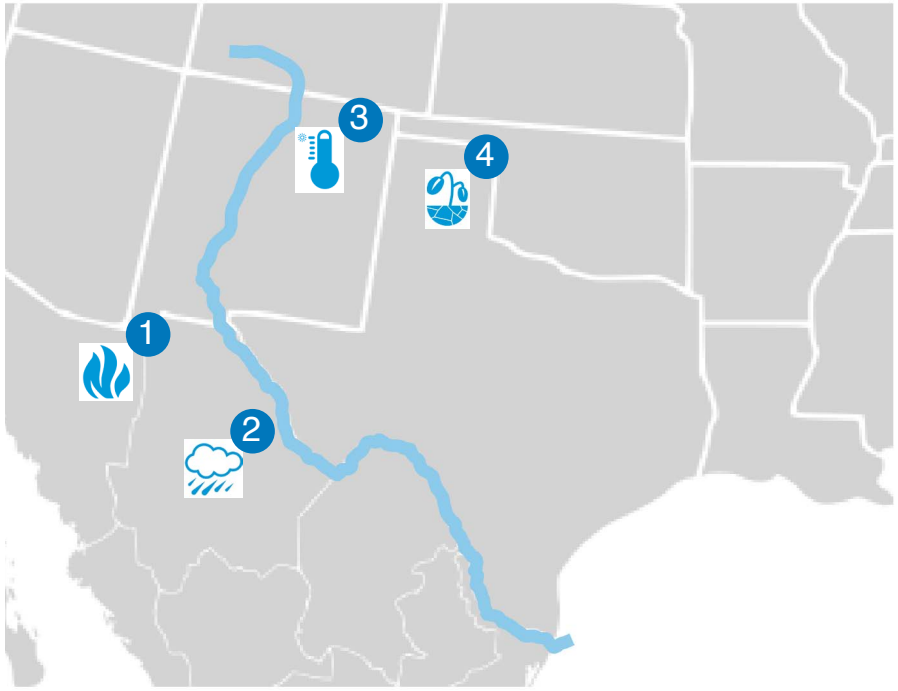
AT A GLANCE

1. **Rio Grande/Bravo Region**
   Warm and dry conditions mean higher wildfire potential in southern New Mexico and southern Arizona

2. **Chihuahua and Coahuila**
   Most of northern Mexico is affected by drought and has received less than 25% of normal precipitation conditions

3. **New Mexico and North Texas**
   Chances for above-average temperatures are expected throughout the remainder of summer in New Mexico and Texas

4. **North New Mexico and Texas**
   Drought conditions have intensified in New Mexico and Texas, including extreme and exceptional drought designations in the northern part of both states



REGIONAL CLIMATE OVERVIEW
JANUARY I FEBRUARYI MARCH

Temperatures over the past three months (January-March) were 0-4 °F (0-2.2 °C) above average for most of New Mexico and parts of southern Texas (Figure 1; left). In parts of central Texas, temperatures over the past three months were 0–2 °F (0–1.1 °C) below average. Over the same time period, precipitation was 0-50% of average for eastern New Mexico and northwestern Texas and 50-90% of average for southern Texas (Figure 1; right).

Temperatures from April 1-11 were 8-10 °F (4.4-5.5 °C) above average in southwestern New Mexico and 2-6 °F (1.1-3.3 °C) above average throughout east New Mexico and west Texas. Throughout central Texas and parts along the southern Rio Grande border, temperatures were 2-4 °F (1.1-2.2 °C) below average (figure not shown). Precipitation over the same time period was 0–5 % below average for all of West Texas and most of New Mexico while 25-70% was below average for East Texas.

The first three months of the year continued to be warmer than normal in most of northern Mexico, with the exception of some areas in northern Coahuila and southern Chihuahua. The anomalies varied from greater than 9 °F (5.0 °C) between Sinaloa and Durango to lower than -0.9 °F (-0.5 °C) in southern Chihuahua and northern Coahuila (Figure 2, left). Between 50 and 70 days with minimum temperatures less than or equal to 32 °F (0 °C) occurred in Chihuahua and Durango; however, the between 1 and 10 days was extended in most of Durango, Coahuila, Nuevo León, Zacatecas and Tamaulipas (Figure 2, right).

There were at least three areas with accumulated rainfall greater than 100 mm; in northern Sonora, Southwest Chihuahua and northern Tamaulipas. These areas received the greatest amount of rainfall (Figure 3, left). However, wetter than normal areas were located in northern Sonora, most of Zacatecas and parts of Nuevo León and northern Tamaulipas. Most of northern Mexico is affected by drought and has received less than 25% of normal precipitation from January to March (Figure 3, right).

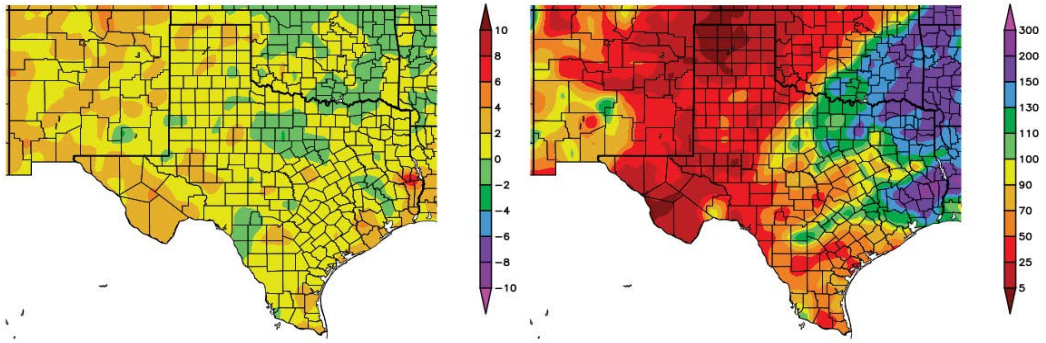


Figure 1 (above): Departure from average temperature in degrees F (left) and percent of average precipitation (right), compared to the 1981–2010 climate average, for 1/1/2018–3/31/2018. Maps from HPRCC.

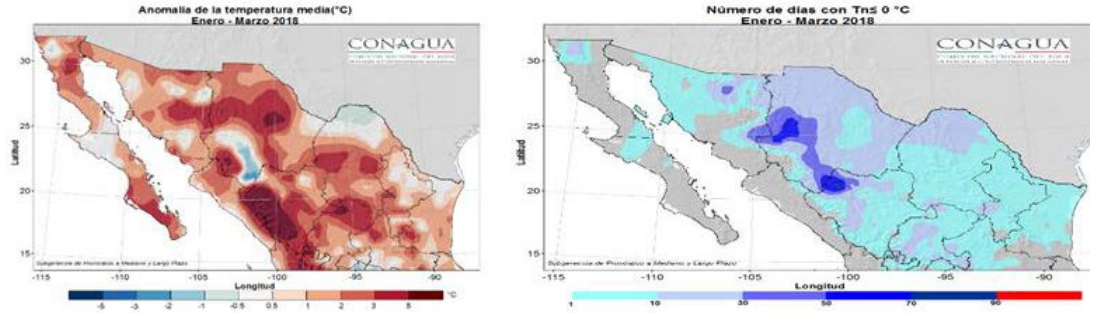


Figure 2 (above): Temperature anomalies in °C (left) and number of days with minimum temperatures at or below 0 °C (32 °F) (right) for January-March. Maps from SMN.

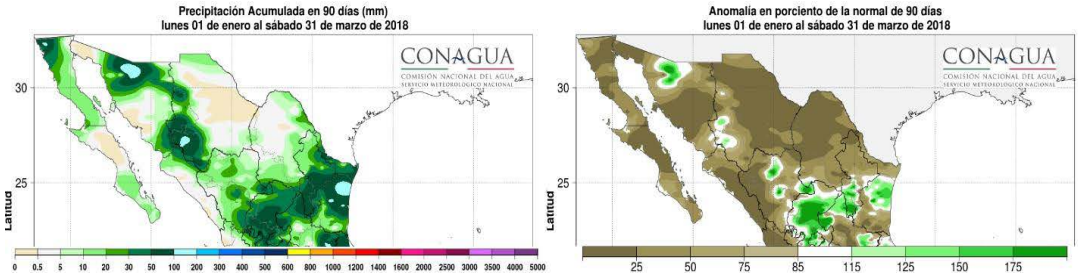


Figure 3 (above): Accumulated precipitation in mm (left) and percent of normal (right) forJanuary-March. Maps from SMN.

DROUGHT

Drought conditions continue to worsen in New Mexico and Texas as dry conditions have persisted in the past months, according to the North American Drought Monitor (NADM) (Figure 4). Severe drought conditions have intensified throughout northern New Mexico and Texas and exceptional drought conditions (D4) are now present in parts of northern Texas and New Mexico. Moderate to severe drought conditions remain in most of New Mexico and southwestern Texas. Severe drought conditions have developed along the Rio Grande Border of Texas and Coahuila while abnormally dry conditions increased in the bordering Mexican states of the Rio Bravo. Conditions are predicted to persist through July in West New Mexico, and improve in northern Texas and East New Mexico, with drought removal likely in cities in Texas along the Chihuahuan border, according to the U.S. Seasonal Drought Outlook.

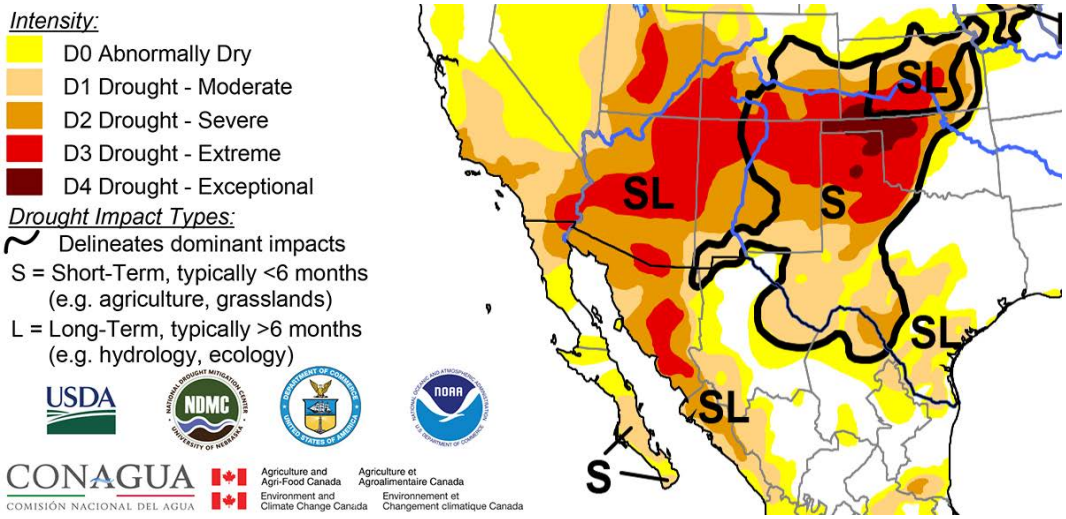


Figure 4 (above): North American Drought Monitor, released April 10, 2018.

FORECAST
MAY I JUNE IJULY

TEMPERATURE

The one-month NOAA temperature outlook (May; Figure 5) favors chances for above-average temperatures in New Mexico and most of Texas through May. According to the three-month NOAA temperature outlook, chances for above-average temperatures are expected throughout the remainder of summer (June-July; figure not shown).

The forecast from CONAGUA´s National Meteorological Service (SMN) for May, predicts above-average maximum temperatures in Baja California, Sonora, Chihuahua, northern Coahuila, Nuevo León and western Tamaulipas. In contrast, below-average anomalies are expected in western Coahuila. For June, SMN predicts above-average anomalies in Tamaulipas, Nuevo León, Coahuila, northern Chihuahua, northern Sonora and Baja California, while below-average anomalies are expected in southern Chihuahua (Figure 6).

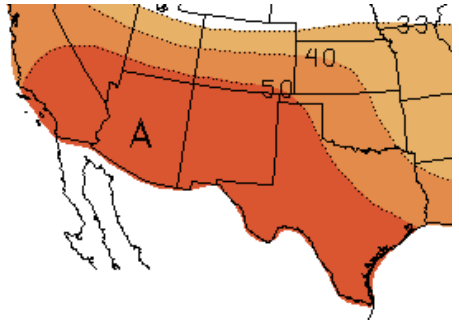


Figure 5 (left): NOAA one-month temperature outlook (May). Forecast made on April 19, 2018 by CPC.

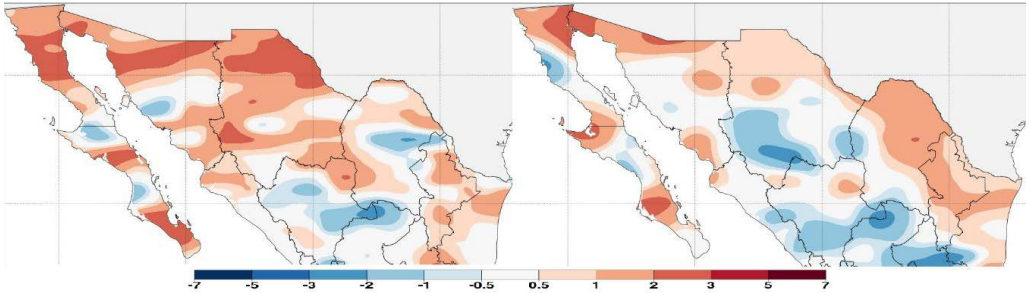


Figure 6 (below): Predicted minimum temperature anomalies for northern of Mexico in (°C), May 2018 (left) and June 2018 (right). Forecast made on April 1, 2018 by SMN.

PRECIPITATION

The NOAA one-month precipitation outlook predicts increased chances for below-average precipitation for most of New Mexico and Northwest Texas (April; Figure 7). Chances for near-normal precipitation is predicted for both New Mexico and Texas going further into spring and summer, according to the three-month NOAA temperature outlook (May-July; figure not shown).

For May, the SMN precipitation outlook predicts above-average conditions in western Chihuahua. In contrast, SMN predicts below-average precipitation in Tamaulipas, Nevo León, Coahuila, Chihuahua, Sonora and the Baja California Peninsula. The precipitation forecast for June shows above-average conditions in Southwest Sonora, while below-average conditions are predicted in Tamaulipas, Nuevo León, Coahuila, northern Chihuahua, northern Sonora and Baja California (Figure 8).

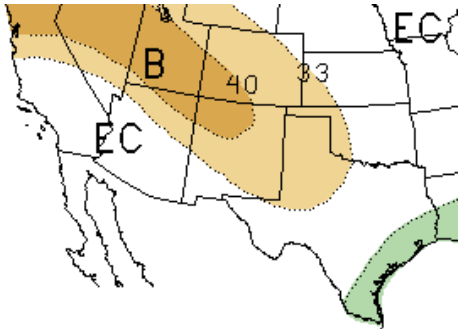


Figure 7 (left): NOAA one-month precipitation outlook (May). Forecast made on April 19, 2018 by CPC.

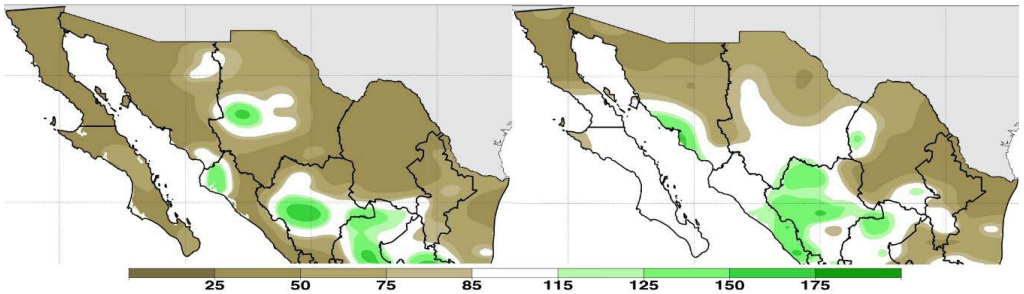


Figure 8 (below): Predicted precipitation anomalies for northern of Mexico (in %), May 2018 (left) and June 2018 (right). Forecast made on April 1, 2018 by SMN.

FIRE

According to the North American Seasonal Fire Assessment and Outlook, elevated fire potential will continue in the southern and central Plains, although retreating more toward the high plains of Colorado, West Texas, and eastern New Mexico. As summer conditions increase, higher potential expands across southern New Mexico and southern Arizona (Figure 9). In Mexico, fire potential will remain elevated across the western and eastern mountain chains with some elevated potential in the central states, and will continue to worsen due to increasing hot and dry conditions in northern and Central Mexico. Fire potential will also increase in the Yucatan, Chiapas, and Oaxaca due to above-average temperatures and below-average precipitation.

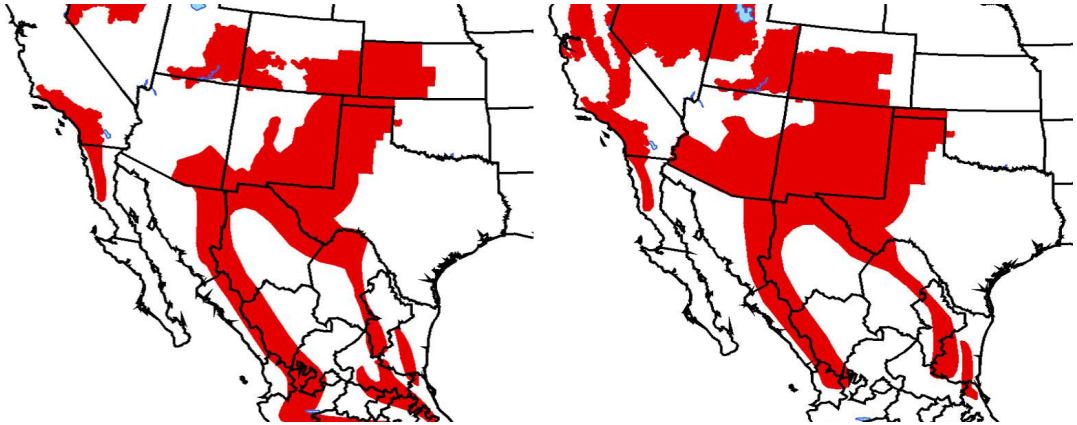


Figure 9 (above): Fire outlook for May (left) and June (right). Red shading indicates conditions that favor increased fire potential. Green shading indicates conditions that favor decreased fire potential. Forecast made on April 13, 2018 from **NIFC** and **SMN**.

EL NIÑO-SOUTHERN OSCILLATION (ENSO)

Tropical Pacific sea-surface temperatures during March were still slightly below average and overall conditions were consistent with a rapidly weakening La Niña event (IRI; NOAA). Forecasts favor the transition from La Niña to ENSO-neutral conditions in Spring with a continuation of ENSO-neutral conditions during summer (Figure 10).

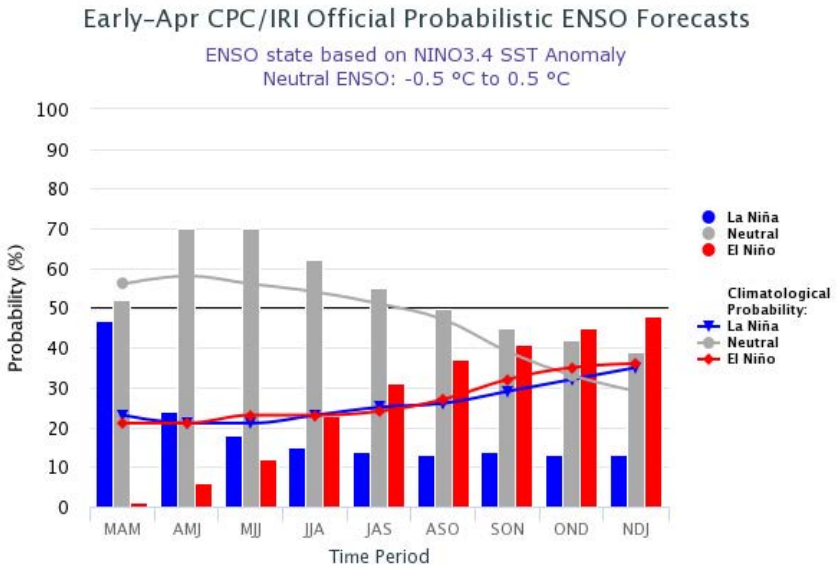


Figure10 (above): Probabilistic ENSO Forecast from IRI.

For more ENSO information:

English: http://iri.columbia.edu/our-expertise/climate/enso/enso-essentials/ y http://www.ncdc.noaa.gov/teleconnections/enso/.

Spanish: http://smn.cna.gob.mx/es/climatologia/diagnostico-climatico/enos y http://www.smn.gov.ar/?mod=biblioteca&id=68

ANNOUNCEMENTS

ADVANCING SUSTAINABILITY OF US-MEXICO TRANSBOUNDARY DRYLANDS

A committee of experts from the U.S. and Mexico will plan and conduct a binational workshop on May 2-4 in San Luis Potosi, Mexico, aimed at advancing sustainability science in the shared drylands region. The workshop will highlight existing sustainability research in the region and identify opportunities to address gaps in research through use-inspired research initiatives. This project is a collaboration between the US National Academy of Sciences and the Mexican Academy of Sciences, Academy of Engineering, and National Academy of Medicine. The sponsors of the workshop will bring together academics, policymakers and practitioners in the region for an interactive discussion to explore several topics.

2018 WATER CONFERENCE

This conference takes place on May 17 and will feature presentations on water & environmental challenges facing the state of New Mexico by former senior state and federal managers. Speakers will address important water developments in the state including new administration at the City of Albuquerque, major shifts in federal policies & implementation, evolution of legal issues, especially interstate lawsuits, and financial challenges for the States' agencies and programs.

ANNUAL CONFERENCE & EXPOSITION: INNOVATING THE FUTURE OF WATER

ACE18 is connecting the water sector with innovative solutions and new insights to help solve the global water challenges. Taking place on June 11-14 in Las Vegas, the AWWA will be co-partnering with the California/Nevada Section to produce a conference where hundreds of water industry thought leaders will provide guidance on the future of water in the region.

NEWS

Dry conditions will likely cost cattle ranchers, Association VP says, March 26, 2018
In 20 years, wildfires will be six times larger, March 22, 2018
Water restrictions now in effect for Las Cruces residents, April 2, 2018
Haran padron de los invasores del Bravo, April 5, 2018
Drought will mean tough decisions for New Mexico water managers, April 12, 2018