

Rio Grande|Bravo

CLIMATE IMPACTS & OUTLOOK March 2017

SUMMARY

Forecasts favor a continuation of above-average temperatures in the Rio Grande/Bravo Basin through June.

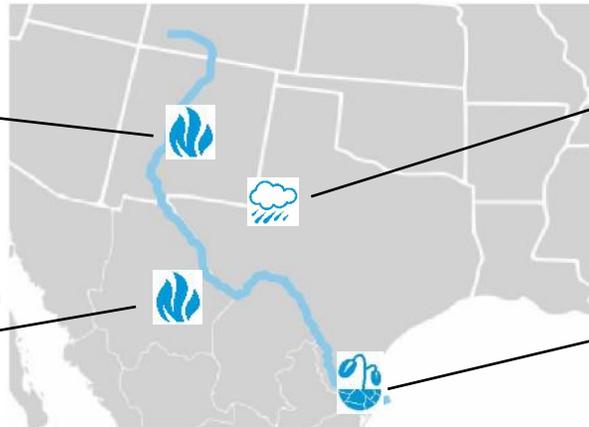
AT A GLANCE

Central New Mexico/West Texas

Above-normal fire potential is forecasted through June.

Nuevo León/Tamaulipas/Chihuahua

In February the SMN detected 115 hot spots within the Rio Bravo Basin.



New Mexico/Texas

Winter precipitation was 100–300% above average over most of New Mexico and Texas from December–February.

Texas/Tamaulipas Border

The region was experiencing abnormally dry to moderate drought conditions at the end of February.

REGIONAL CLIMATE OVERVIEW

DECEMBER | JANUARY | FEBRUARY

Most of the Rio Grande Basin received above-average precipitation from December, 2016 through February, 2017 (Figure 1, left). The western half of New Mexico and southern Texas experienced precipitation 150–300% of average, and the eastern half of New Mexico experienced precipitation 100–130% of average. Exceptions to this were the southern tip of Texas and western parts of the state, and small pockets in Central and Northeast New Mexico, which experienced precipitation 25–90% of average.

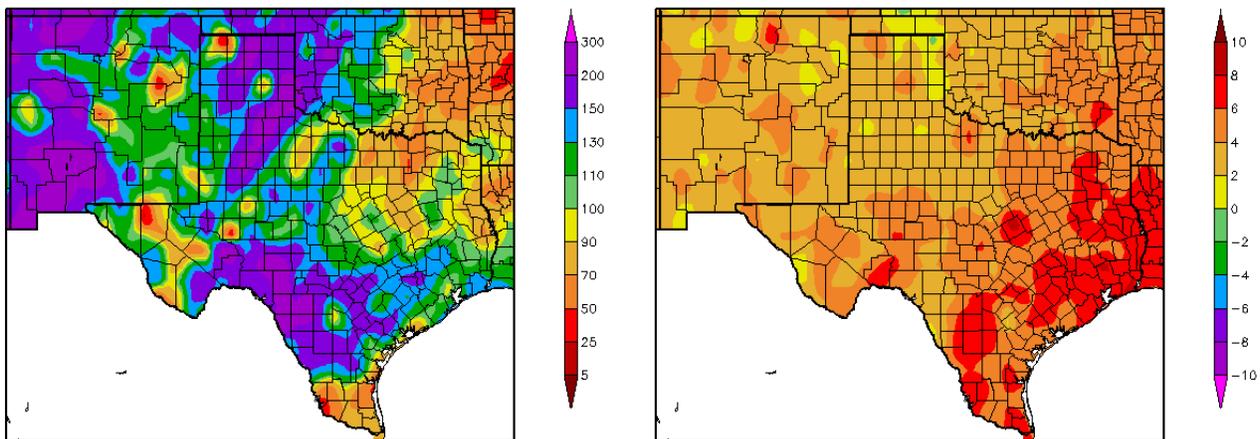


Figure 1 (above): Percent of average precipitation (left) and departure from average temperature in degrees F (right), compared to the 1981-2010 climate average, for 12/1/2016 - 2/28/2017. Maps from [HPRCC](#).

Continuing the trend over previous months, temperatures were 2–6°F above average over almost all of New Mexico and Texas from December–February, with East and South Texas experiencing temperatures 6–8°F above average (Figure 1, right).

During the first two weeks of March (3/1/2017–3/12/2017), almost all of New Mexico and North and West Texas received very little precipitation (figure not shown). However, South Texas experienced precipitation over 800% of average, mostly due to a storm on March 10th that dumped up to 6 inches of rain in two hours in some places. Temperatures during the same period were 2–8°F above average.

Warmer than average temperatures continued in northern and northeast Mexico for the December 2016–February 2017 period. Anomalies of 3.6–5.4°F (2–3°C) (Figure 2, left) above average covered most of Chihuahua, Durango, Coahuila and Tamaulipas. The convective activity in the northwest kept this part of northern Mexico colder than normal. The largest number of freeze days was located in northern Durango, with more than 75 days with minimum temperatures at or below 32°F (0°C) (Figure 2, right).

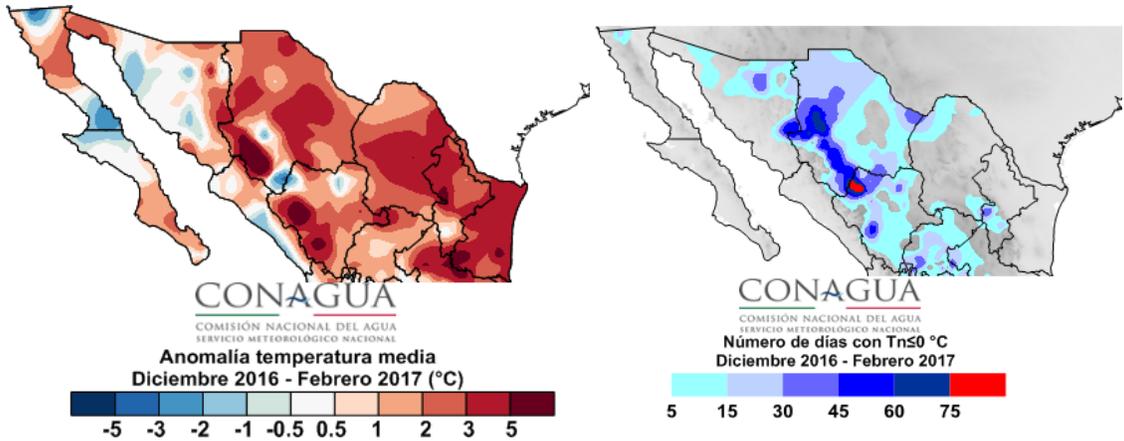


Figure 2: Temperature anomalies in degrees C (left) and number of days with minimum temperatures at or below 0 °C (32 °F) (right) for December–February. Maps from [SMN](#).

DROUGHT

According to the [North American Drought Monitor](#) (NADM), by the end of February Northeast New Mexico was experiencing abnormally dry to moderate drought conditions, and the Texas/Tamaulipas border region was experiencing abnormally dry to moderate drought conditions (Figure 3). The majority of Tamaulipas was experiencing at least abnormally dry conditions by the end of February. Drought development is likely in the Texas panhandle and eastern New Mexico through June, according to the [U.S. Seasonal Drought Outlook](#) (figure not shown).

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)

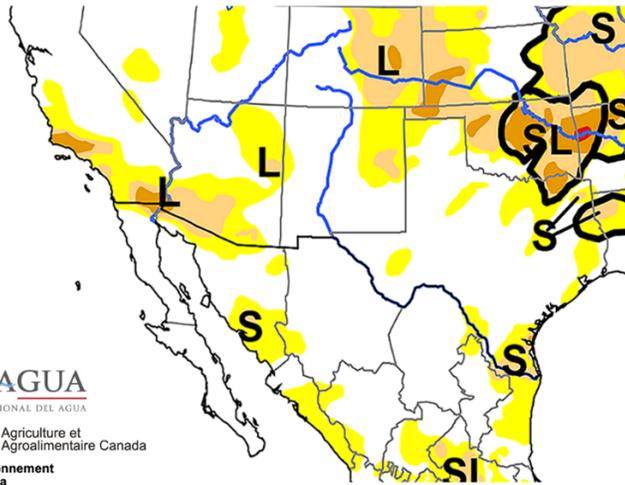


Figure 3 (left): North American Drought Monitor, released March 16, 2017.

FORECAST

APRIL | MAY | JUNE

TEMPERATURE

Both the one-month (April; not shown) and three-month (April–June) NOAA forecasts favor increased chances for above-average temperatures in the region (Figure 4). As the spring progresses, the likelihood for above-average temperatures increases, according to the NOAA forecasts. Forecasts from CONAGUA’s Servicio Meteorológico Nacional (SMN) indicate above-average temperatures on the Mexico side of the border through April and May (Figure 5).

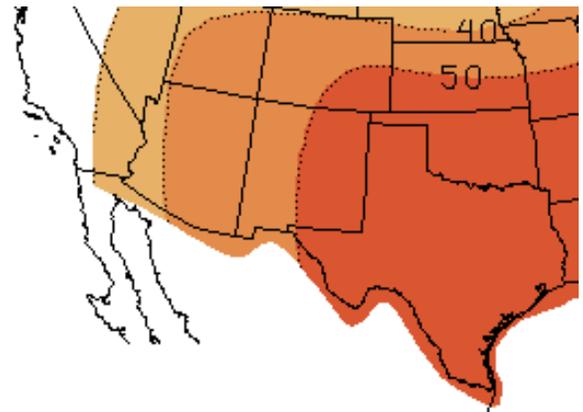


Figure 4 (above): NOAA three-month temperature outlook (April–June). Forecast made on March 16, 2017 by [CPC](#).

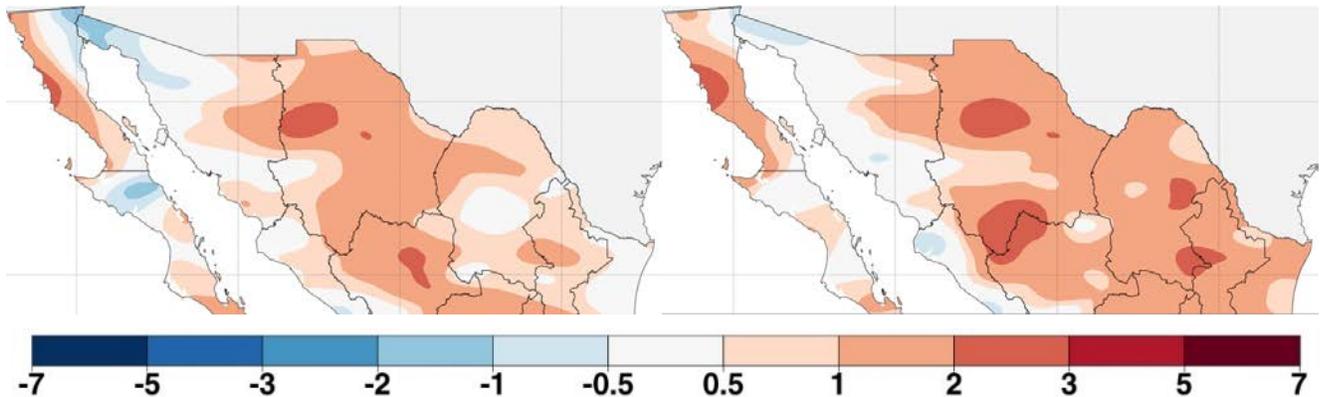
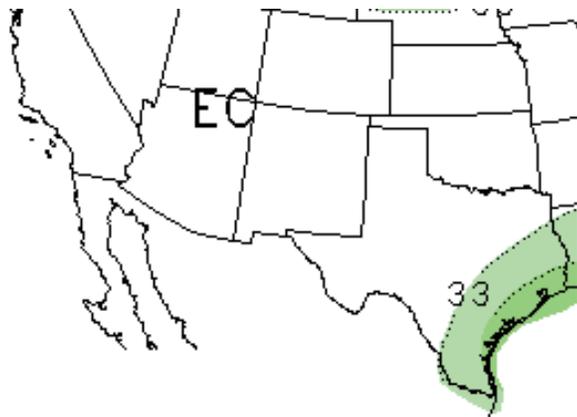


Figure 5 (above): Predicted minimum temperature anomalies for northern Mexico (in °C); April (left) and May (right). Forecast made on March 1, 2017 by [SMN](#).

PRECIPITATION



NOAA predicts equal chances of below-, average, or above-average precipitation for all of New Mexico and most of Texas through June (Figure 6). Forecasts also indicate increased chances for above-average precipitation along the Gulf Coast, in Southeast Texas. The one-month NOAA forecast (not shown) predicts the same precipitation pattern for April.

Figure 6 (left) : NOAA three-month precipitation outlook (April–June). Forecast made on March 16, 2017 by [CPC](#).

For Mexico in April and May, SMN forecasts below-average precipitation in most of the Rio Bravo Basin. SMN also forecasts conditions near average for the state of Nuevo León and Tamaulipas for May (Figure 7). Differences between the NOAA and SMN forecasts could be due to several factors: (1) NOAA forecasts are based on a combination of statistical and dynamic models, whereas SMN forecasts use statistical models, analogue years and the output of climate global models and (2) NOAA predicts shifts in the probability of precipitation, whereas SMN predicts precipitation amounts.

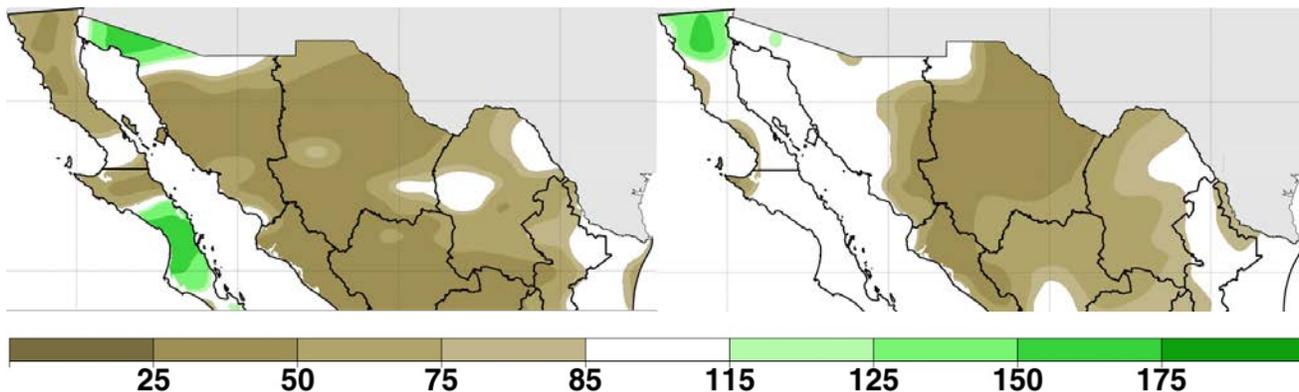


Figure 7 (above): Percent of average precipitation for northern Mexico; April (left) and May (right). Forecast made on March 1, 2017 by [SMN](#).

FIRE

During the month of February SMN detected 115 hot spots within the Rio Bravo Basin, concentrated mainly in the states of Nuevo León, Tamaulipas and Chihuahua, with 37, 36 and 26 hot spots, respectively. One hot spot was found in Natural Protected Areas in the state of Tamaulipas (Figure 8).

The National Interagency Fire Center (NIFC) forecasts, made on March 1st, favor above-normal fire potential for Central New Mexico and the western tip of Texas through June (Figure 9). The main concern is dry and windy conditions, which contribute to grassland fire risks. Earlier forecasts, made in February, predict near-normal fire potential through April for the Rio Bravo Basin region in Mexico, due to forecasts for average to above-average precipitation through April (figure not shown).

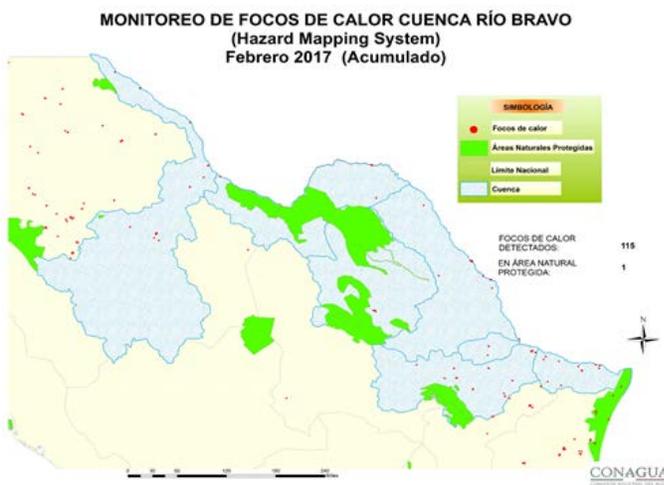


Figure 8 (above): Hostspots detected in the Rio Bravo Basin in March 2017 from [SMN](#).

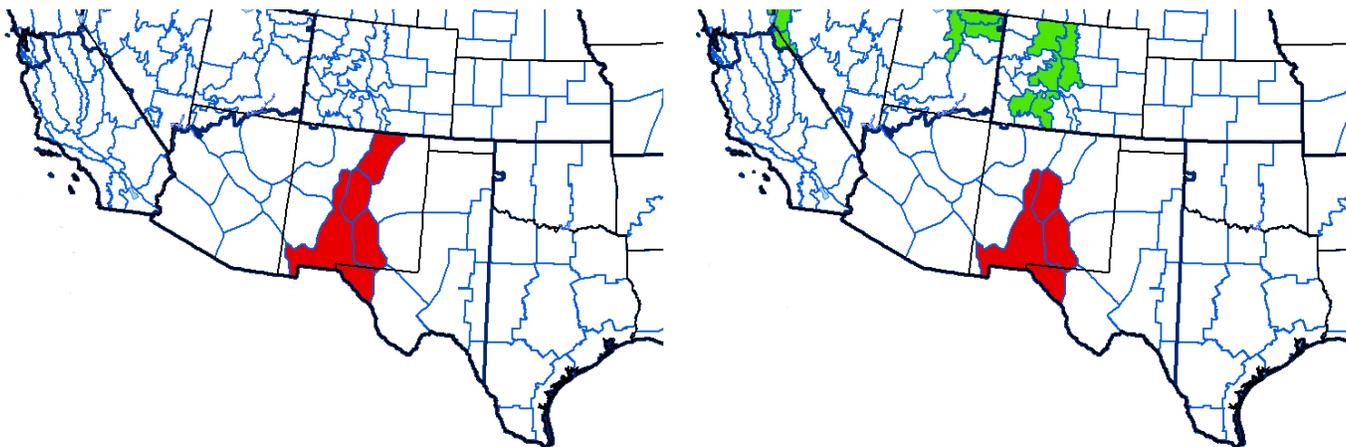


Figure 9 (above): Significant wildfire potential outlook for April (left) and May/June (right). Red shading indicates conditions that favor above-normal fire activity. Forecast made on March 1, 2017 from [NIFC](#).

EL NIÑO-SOUTHERN OSCILLATION (ENSO)

As of early March, sea surface temperatures (SSTs) and atmospheric conditions in the tropical Pacific Ocean are indicative of ENSO-neutral conditions. Nonetheless, warmer-than-average SSTs were observed in the eastern tropical Pacific, while atmospheric conditions (cloudiness and rainfall) in the central and western tropical Pacific continued to indicate weak La Niña conditions (IRI; NOAA). Forecast models typically exhibit lower skill during this time of year; therefore, predictions show an approximately 75% chance of neutral conditions through at least spring 2017, even though some models favor a transition to El Niño conditions as early as April. The majority of ENSO forecast models favor increasing odds for a transition to El Niño conditions during the second half of 2017 (Figure 10; NOAA).

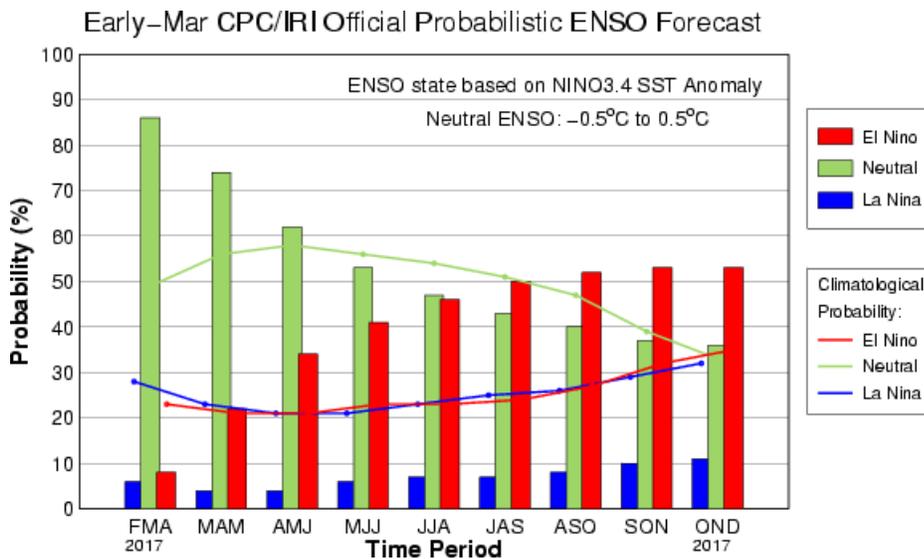


Figure 10 (left): ENSO probabilistic forecast from IRI.

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>

INVITATION TO SUBMIT CHAPTERS

CONACyT Mexico, the Mexican Institute of Water Technology and the Autonomous University of Chapingo are inviting submission of chapters to be published in a book on the socio-environmental impacts of climate change in the Usumacinta River Basin. Chapter submission, in accordance with editorial standards, is continued until March 30, 2017. More information can be found [here](#).

NATIONAL ADAPTATION FORUM

The next meeting of the [National Adaptation Forum](#) will be on May 9-11, 2017 in Saint Paul, Minnesota. The call for proposals is now closed, but registration is still open to attend the forum. The National Adaptation Forum, which brings together members of the adaptation community that are focused on moving beyond awareness to adaptation action, will foster knowledge exchange among these members and will provide other opportunities for professional development through formal trainings and presentations by practitioners.

5TH GLOBAL PLATFORM FOR DISASTER RISK REDUCTION

Mexico will host the [5th Global Platform for Disaster Risk Reduction](#) in Cancún, Mexico on May 22–26, 2017. The global conference is the most important multilateral forum of its kind, aiming to “reduce loss of life and economic losses from disaster caused by man-made and natural hazards.”

23RD CONFERENCE ON APPLIED CLIMATOLOGY

Sponsored by the American Meteorological Society, the [23rd Conference on Applied Climatology](#) will be held in Asheville, North Carolina on June 26-28, 2017. The committee is still accepting abstracts through February 27th and registration begins in late March.

98TH ANNUAL MEETING OF THE AMERICAN METEOROLOGICAL SOCIETY

The next meeting of the [American Meteorological Society](#) (AMS) is scheduled for January 7–11, 2018 in Austin, Texas. The meeting is “the world’s largest yearly gathering for the weather, water, and climate community.”

NEWS HEADLINES

EBID to set water allotment in late March, March 8, 2017: <http://www.lcsun-news.com/story/news/local/agriculture/2017/03/08/ebid-set-water-allotment-later/98909770/>

How water swaps help the West manage a precious resource, March 8, 2017: <http://www.csmonitor.com/Environment/Inhabit/2017/0308/How-water-swaps-help-the-West-manage-a-precious-resource>

Trump's budget spells end for some Texas environmental projects, March 16, 2017: <http://www.mystatesman.com/news/trump-budget-spells-end-for-some-texas-environmental-projects/AyEsolwi1dpYEbCwJAv6kl/>

ACKNOWLEDGEMENTS

United States

Victor Murphy

Climate Focal Point
NOAA-National Weather Service
Southern Region

Gregg Garfin

Climatologist
Climate Assessment for the Southwest
(CLIMAS)

Sarah LeRoy

Research Assistant
Climate Assessment for the Southwest
(CLIMAS)

Mark Shafer

Director of Climate Services
Southern Climate Impacts Planning Program

Meredith Muth

International Program Manager
Climate Program Office
(NOAA)

Mexico

Martín Ibarra | Óscar García | Martín Guillén

Seasonal Forecasts
Mexico National Meteorological Services
(SMN)

Reynaldo Pascual | Adelina Albanil

Drought
Mexico National Meteorological Services
(SMN)

Juan Carlos Ramos

Wildfire
Mexico National Meteorological Services
(SMN)

Juan Saldaña Colín

Climate Services
Mexico National Meteorological Services
(SMN)