

Rio Grande|Bravo

CLIMATE IMPACTS & OUTLOOK February 2017

SUMMARY

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

AT A GLANCE

Rio Grande/Bravo Region

The entire region was uniformly warmer than average from November through January, with temperatures 2-6 °F above average.

Winter Storms in Mexico

From November to January there were 5 winter storms that caused snowfall in Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon and Durango.



Texas/Eastern New Mexico

Above normal fire potential is forecasted for the eastern half of New Mexico and most of Texas for March.

Texas/Tamaulipas Border

Development of drought conditions is predicted by end of May.

REGIONAL CLIMATE OVERVIEW

NOVEMBER | DECEMBER | JANUARY

From November, 2016 through January, 2017, most the Rio Grande/Bravo Basin in New Mexico and Texas experienced precipitation 130-300% of average (Figure 1, left). Small pockets in west and southern Texas along the U.S.-Mexico Border experienced below-average precipitation (25-90% of average). Temperatures during this period were uniformly above average for the region (Figure 1, right).

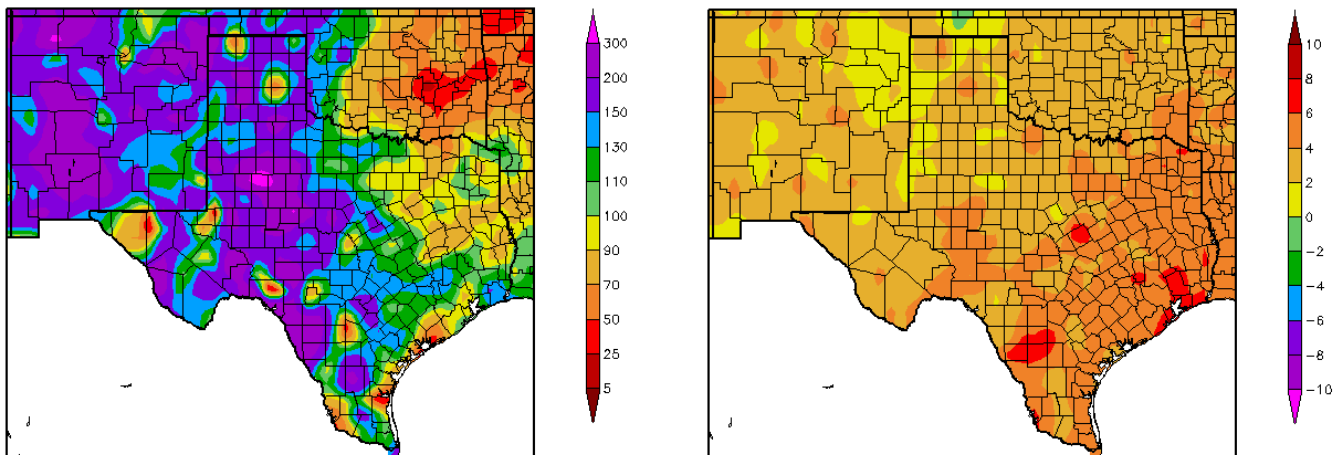


Figure 1 (above): Percent of average precipitation (left) and departure from average temperature in degrees F (right), compared to the 1981-2010 climate average, for 11/1/2016 - 1/31/2017. Maps from [HPRCC](#).

During January (not shown), most of New Mexico experienced precipitation far above average, while most of the Texas-Mexico border experienced precipitation 0-25% of average. The first two weeks of February (not shown) were fairly dry for the region, with precipitation 0-50% of average for almost all of the Rio Grande/Bravo region, except for pockets in New Mexico that experienced precipitation 150-300% of average. These two weeks were also very warm in the region, with temperatures 6-12 °F (3.3-6.7 °C) above average.

Above-average temperatures were observed in North and Northeast Mexico during the November, 2016 to January, 2017 period; except for the Northwest, which experienced cooler than normal temperatures, due mainly to January storms. Anomalies of 3.6-5.4 °F (2-3 °C) above average were observed in southern Chihuahua, central Durango and eastern Coahuila (Figure 2, left). Northern Durango experienced the largest number of freeze days—more than 75 days with minimum temperatures at or below 32 °F (0 °C) (Figure 2, right).

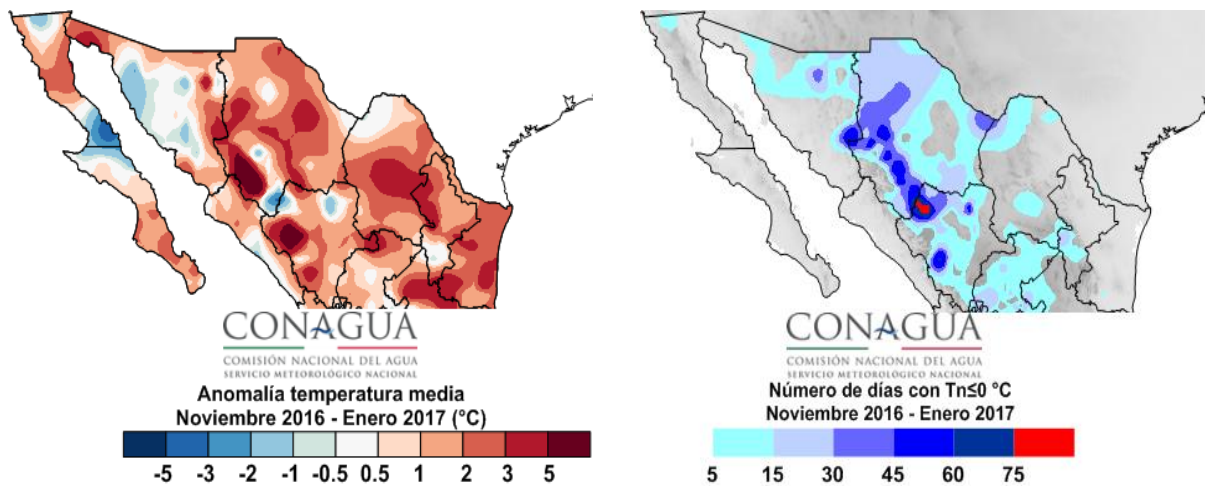


Figure 2 (above): Temperature anomalies in degrees C (left) and number of days with minimum temperatures at or below 0 °C (32 °F) (right) in November-January. Maps from [SMN](#).

DROUGHT

According to the U.S. Drought Monitor, by February 14th most of the U.S. portion of the region was drought-free. A small area in eastern New Mexico was abnormally dry, and the southern tip of Texas was experiencing moderate drought conditions (Figure 3). These conditions are forecasted to persist through at least May, according to the [U.S. Seasonal Drought Outlook](#) (figure not shown). The Mexico Drought Monitor shows abnormally dry conditions were present in northern Nuevo León and northern and central Tamaulipas, through February 15 (Figure 4). The northern portion of Tamaulipas, along the U.S.-Mexico border, was also experiencing moderate drought conditions.

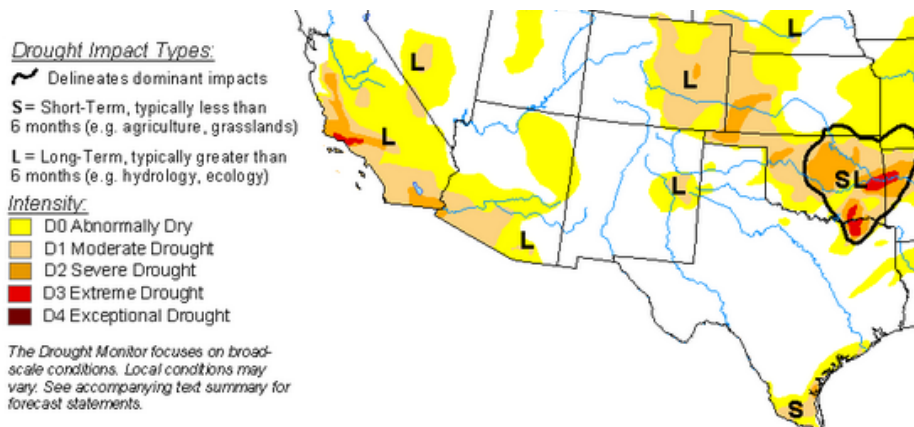


Figure 3 (left): [U.S. Drought Monitor](#), released February 16, 2017.

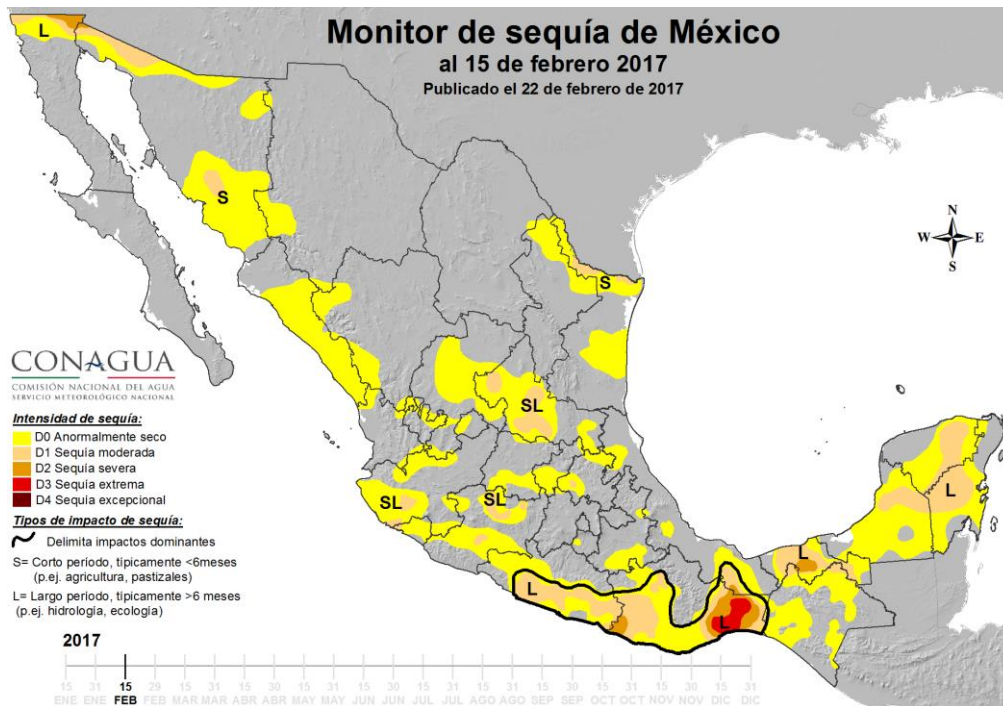


Figure 4 (left): Mexico Drought Monitor, released February 19, 2017, from [SMN](#).

TEMPERATURE

Both the one-month (March; not shown) and three-month (March – May) NOAA forecasts favor increased chances for above-average temperatures in the region (Figure 5). As the winter progresses into spring, the likelihood for above-average temperatures increases, according to the NOAA forecasts. This is also seen in forecasts from CONAGUA’s Servicio Meteorológico Nacional (SMN), which forecasts above-average temperatures on the Mexico side of the border through March and April (Figure 6).

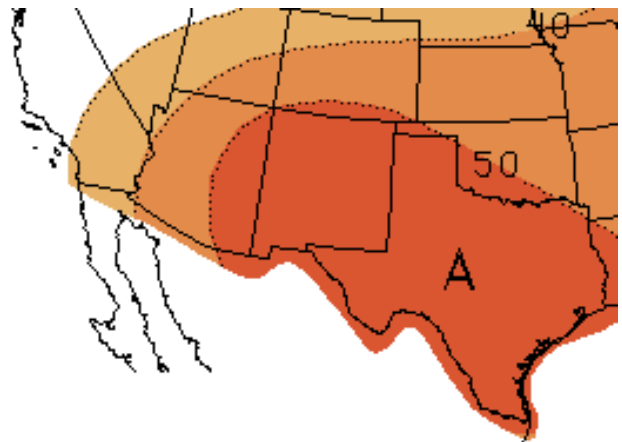


Figure 5 (above): NOAA three-month temperature outlook (March – May). Forecast made on February 16, 2017 by [CPC](#).

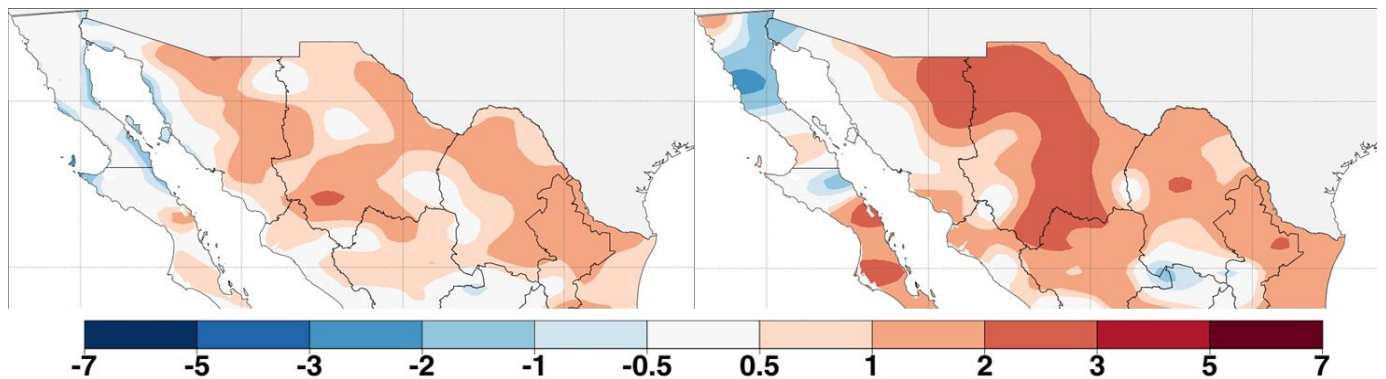
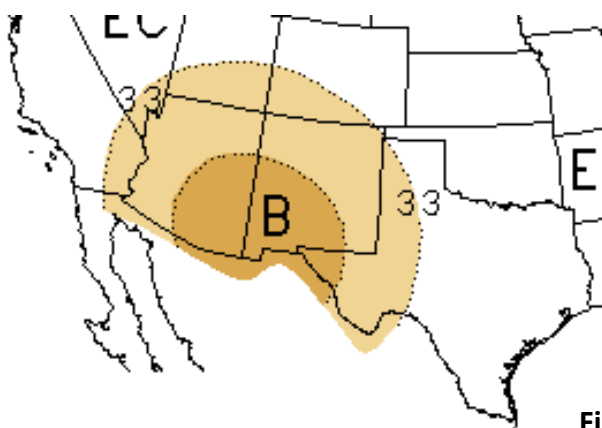


Figure 6 (above): Predicted minimum temperature anomalies for northern Mexico (in °C); March (left) and April (right). Forecast made on February 1, 2017 by [SMN](#).

PRECIPITATION



NOAA predicts increased chances of below-average precipitation for New Mexico and the northwestern and central portions of Texas in March (figure not shown). Chances of below-average precipitation decrease further into the spring, but are still favored for New Mexico and West Texas through May (Figure 7). Equal chances of below-, average, or above-average precipitation is forecasted for the lower Rio Grande in Texas.

Figure 7 (left) : NOAA three-month precipitation outlook (March – May). Forecast made on February 16, 2017 by [CPC](#).

For Mexico, in March SMN forecasts below-average precipitation in most of the Basin. In April, SMN forecasts below-average precipitation in the northern part of Chihuahua and above-average precipitation in eastern Chihuahua and in the states of Coahuila and Nuevo León (Figure 8). 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.

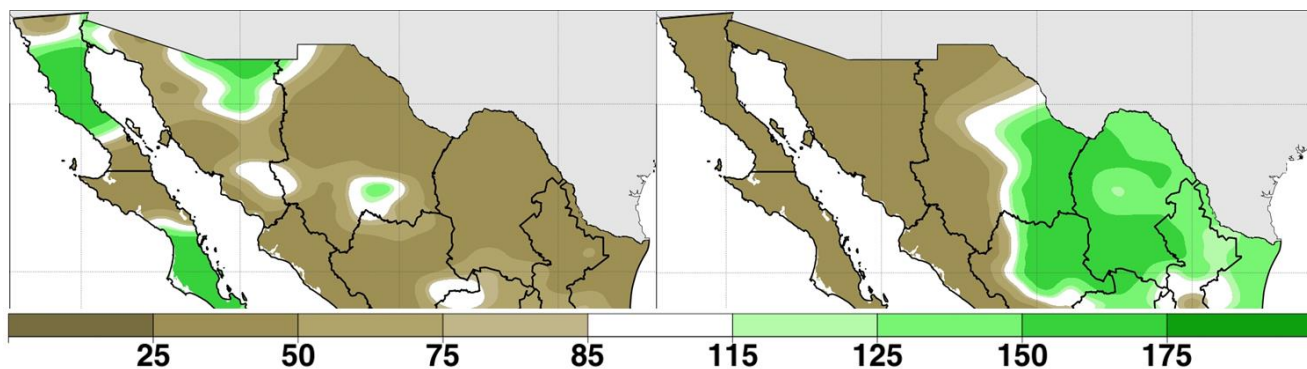


Figure 8 (above): Percent of average precipitation for northern Mexico; March (left) and April (right). Forecast made on february 1, 2017 by [SMN](#).

FIRE

During the month of January, SMN noted 236 hotspots in the Rio Bravo Basin, mainly concentrated in the states of Tamaulipas, Coahuila and Nuevo León, with 101, 75 and 60 hotspots respectively. Any hotspots occurred in Natural Protected Areas (Figure 9).

The National Interagency Fire Center (NIFC) forecasts, made on February 1st, favor above-normal fire potential for most of Texas and eastern New Mexico through March, and southern New Mexico and West Texas through May (Figure 10). The main concern is dry and windy conditions, which contribute to grassland fire risks. Normal fire potential is forecasted for Mexican states through April (figure not shown).

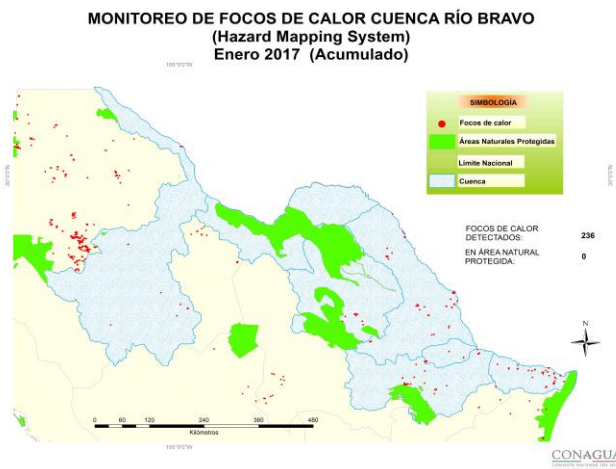


Figure 9 (above): Hotspots detected in the Rio Bravo Basin in January 2017 from [SMN](#).

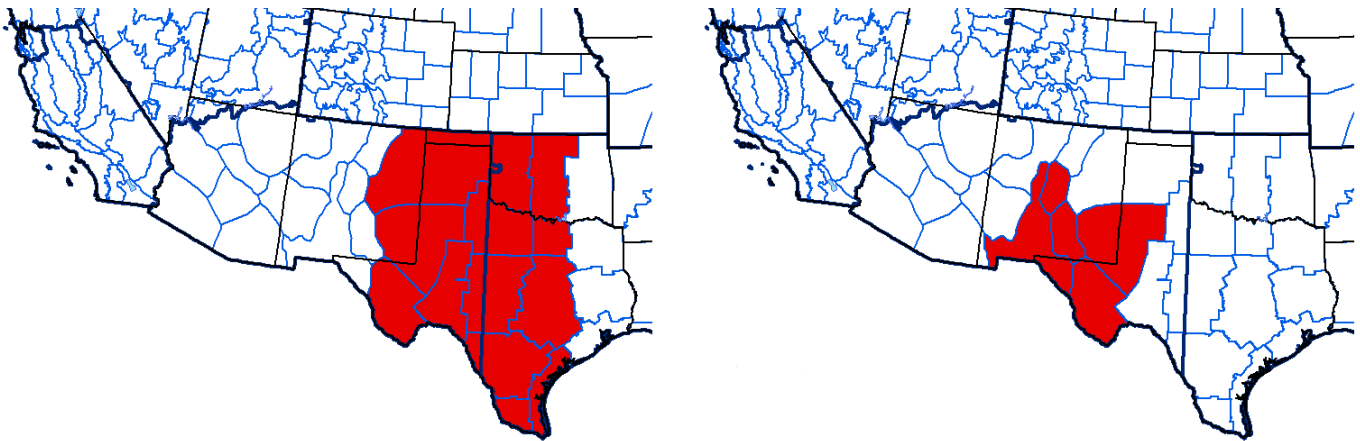
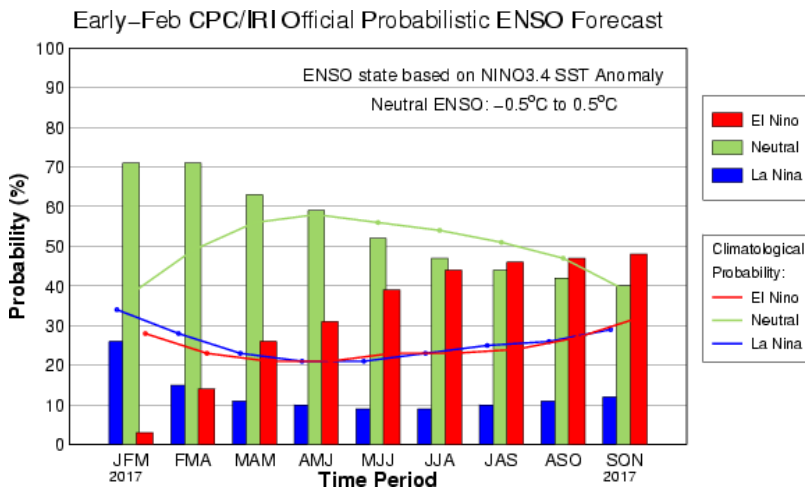


Figure 10 (above): Significant wildfire potential outlook for March (left) and April/May (right). Red shading indicates conditions that favor above-normal fire activity. Forecast made on February 1, 2017 from [NIFC](#).

EL NIÑO-SOUTHERN OSCILLATION (ENSO)

La Niña conditions are no longer present in the equatorial Pacific Ocean, and ENSO-neutral conditions have officially returned. Neutral conditions are predicted to remain through at least Spring 2017, with increasing odds for a transition to El Niño conditions thereafter (Figure 11; [NOAA](#)).



For more ENSO information:

English: <http://iri.columbia.edu/our-expertise/climate/ens/ens-essentials/> and <http://www.ncdc.noaa.gov/teleconnections/ens/>.

Spanish:

<http://www.smn.gov.ar/?mod=biblioteca&id=67> and <http://www.smn.gov.ar/?mod=biblioteca&id=68>

Figure 11 (above): ENSO probabilistic forecast from [IRI](#).

UPCOMING FORUMS AND FEATURES

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. More information can be found [here](#).

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. More information about the conference can be found [here](#).

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](#).

COMMENTARY: THE REGIONAL WATER PLANNING PROCESS: A TEXAS SUCCESS STORY

The author of a recent commentary, published in the [Texas Water Journal](#), discusses achievements and successes in the regional water planning process, which began in Texas in 1997 after a statewide drought.

NEWS HEADLINES

Doña Ana County may see best water year since 2010, February 12, 2017: <http://www.lcsun-news.com/story/news/local/agriculture/2017/02/12/do-ana-county-may-see-best-water-year-since-2010/97661296/>

Drought identified as key to severity of West Nile virus epidemics, February 7, 2017: <https://phys.org/news/2017-02-drought-key-severity-west-nile.html>

Deep groundwater aquifers respond rapidly to climate variability, February 8, 2017: <http://news.psu.edu/story/449807/2017/02/08/deep-groundwater-aquifers-respond-rapidly-climate-variability>

Supreme Court agent rules against NM in water fight, February 9, 2017: <http://www.lcsun-news.com/story/news/local/las-cruces/2017/02/09/supreme-court-agent-rules-against-nm-water-fight/97712700/>

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