Rio Grande|Bravo

CLIMATE IMPACTS & OUTLOOK July 2016

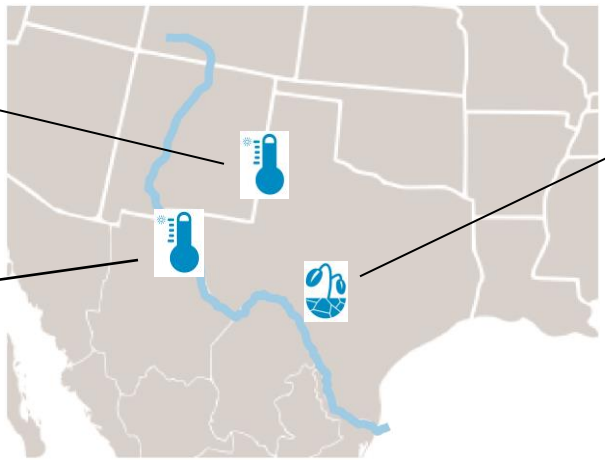
SUMMARY

Forecasts through August favor above-average temperatures in the Rio Grande/Bravo Basin.

AT A GLANCE

New Mexico/Texas
Forecasts favor above-average temperatures in the U.S. Southwest through September

El Paso, Texas
On June 18, the city experienced a high of 108°F, tying the maximum recorded high for the date



Southern Texas
Drought development is forecasted for southern Texas by October

REGIONAL CLIMATE OVERVIEW APRIL| MAY | JUNE

From April 1st through June 30th the Rio Grande/Bravo Basin received precipitation ranging from 50-200% of average. Central and western New Mexico and most of Texas experienced precipitation well above average, while eastern New Mexico and the lower Texas/Mexico border region received average to below-average precipitation (Figure 1, left). Temperatures were close to average for almost all of New Mexico and Texas (Figure 1, right). Below-average precipitation (5-50% of average) was recorded, between late June through mid-July, for most of New Mexico and the lower Texas/Mexico border region. Temperatures during the same period were 2- 5°F (1.1 -2.7°C) above average.

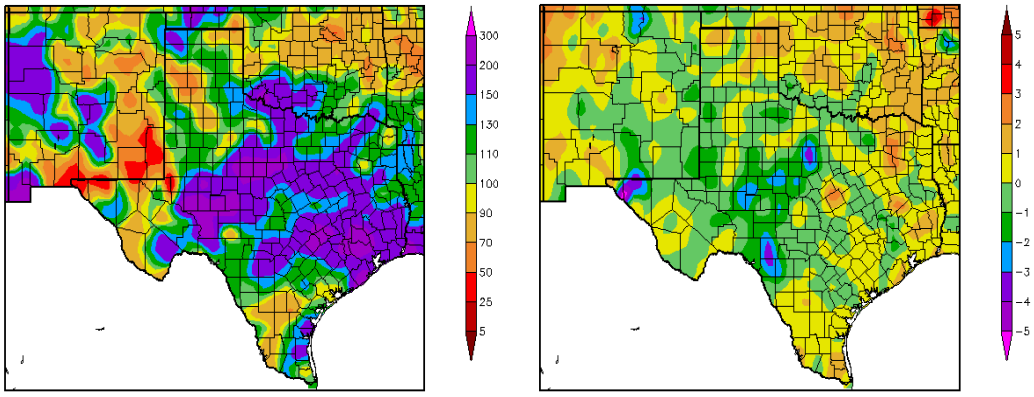


Figure 1: Percent of normal precipitation (left), and departure from normal temperature (right), for 4/1/2016 – 6/30/2016. Maps from HPRCC.

DROUGHT

According to the North American Drought Monitor (NADM), western New Mexico and isolated areas in southern Chihuahua are experiencing moderate drought conditions as of June 30, 2016 (Figure 2). The NADM shows central and eastern New Mexico, southern Coahuila, and both eastern and western Chihuahua as experiencing abnormally dry conditions. Drought removal by September in New Mexico is likely, due to expected summer monsoon precipitation; however, NOAA's Climate Prediction Center (CPC) forecasts favor drought development in southern Texas, due to below-average precipitation (figure not shown).

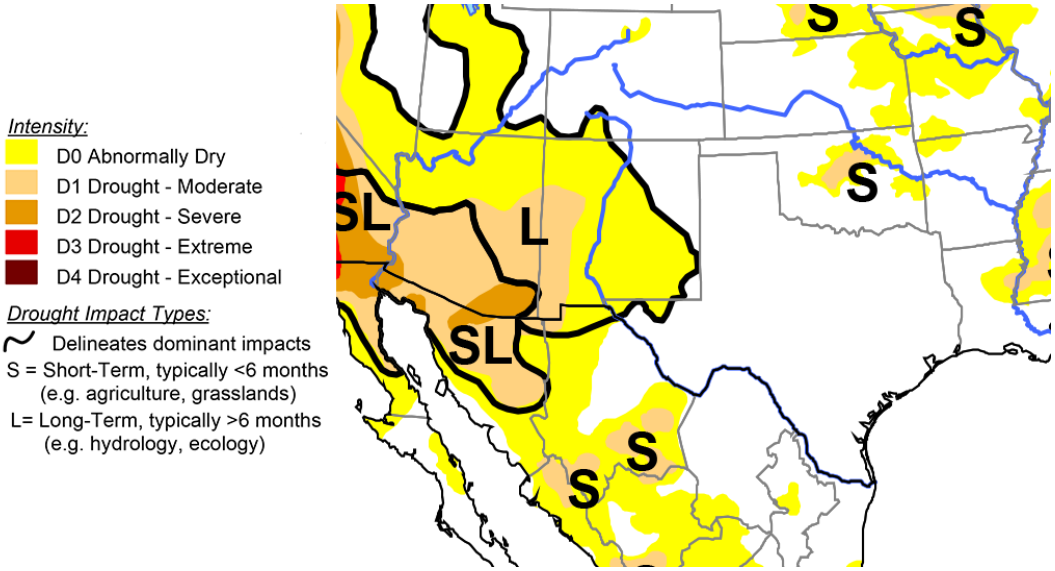


Figure 2 (above): North American Drought Monitor, released July 15, 2016.

FORECAST JULY | AUGUST|SEPTEMBER

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 above-average maximum temperatures in August and September for the upper portion of the Rio Grande/Bravo region, and average to slightly below-average maximum temperatures for the lower border region (Figure 4).

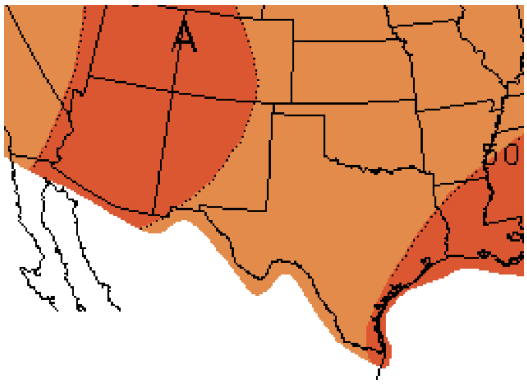


Figure 3 (above right): NOAA August seasonal temperature outlook. Forecast made on July 21, 2016 by CPC.

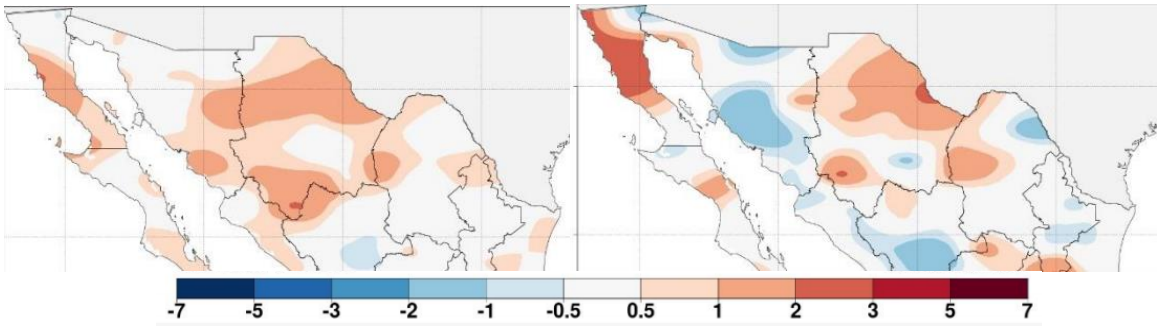
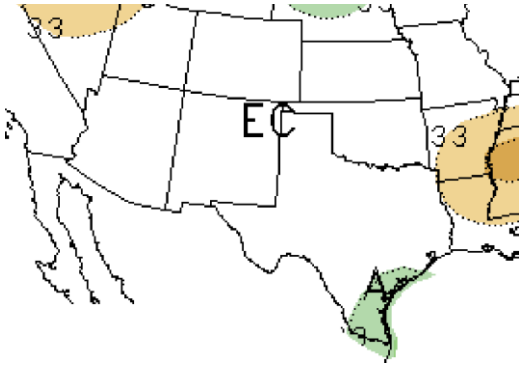


Figure 4 (above): Predicted maximum temperature anomalies for northern Mexico (in °C). August (left) and September (right). Forecast made on May 31, 2016 by SMN.

PRECIPITATION



The NOAA precipitation forecast favors equal chances of above-average, average, and below-average precipitation for New Mexico and most of Texas (Figure 5). A narrow band of increased odds of above-average precipitation in southeast Texas corresponds to high soil moisture content and the potential influence of developing La Niña conditions in the equatorial Pacific Ocean, tilting the odds slightly in favor of above-average precipitation along the Gulf of Mexico coast in late summer. SMN forecasts below-average precipitation in Coahuila, central Chihuahua, and northern Nuevo Leon in August (Figure 6). In September, SMN forecasts favor average precipitation in Chihuahua and above-average precipitation in Coahuila, Nuevo Leon, and Tamaulipas (Figure 6), which accords well with the NOAA forecast.

Figure 5 (above): NOAA August through October seasonal precipitation outlook. Forecast made on July 21, 2016 by CPC.

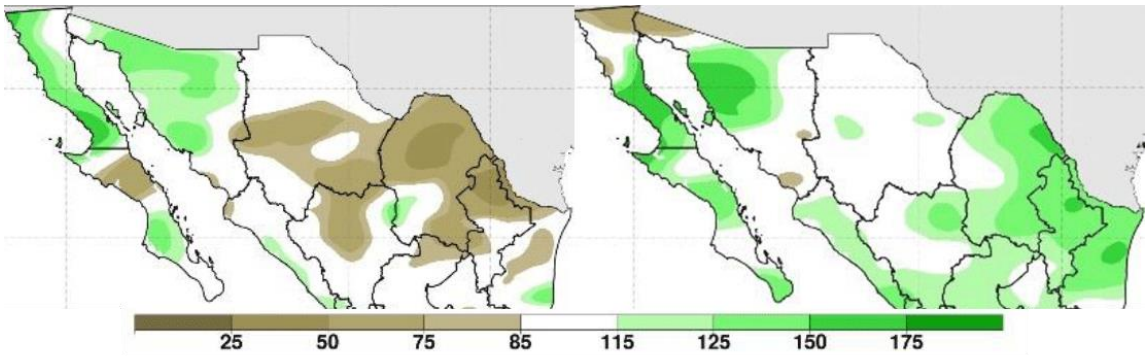


Figure 6 (above): Percent of average precipitation for northern Mexico, August (left) and September (right). Forecast made on July 1, 2016 by SMN using 1983, 1992, 1993, 2004, and 2005 as analogue years.

FIRE

The National Interagency Fire Center (NIFC) forecasts normal fire potential for all of the Rio Grande/Bravo region through September (Figure 7).

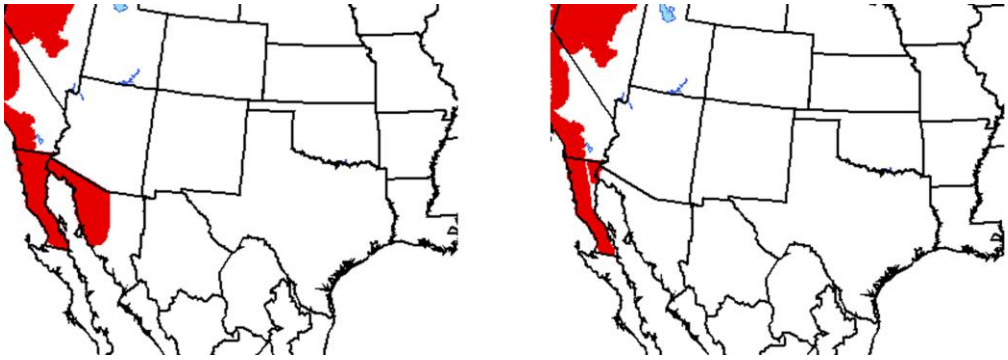
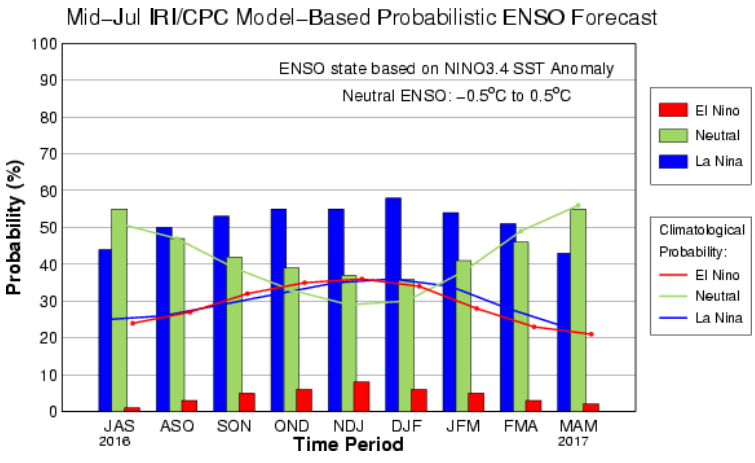


Figure 7 (above): Significant wildfire potential outlook for August (left) and September (right). Red shading indicates conditions that favor above-normal fire activity. Forecast made on July 11, 2016 from NIFC.

EL NIÑO-SOUTHERN OSCILLATION (ENSO)

El Niño conditions have dissipated, and conditions have shifted to ENSO-neutral (NOAA). Dynamic models indicate that La Niña development is likely in the Northern Hemisphere as early as summer 2016, with an approximately 55-60% chance for La Niña conditions to develop by fall 2016 and early winter 2017 (Figure 8). Models also indicate a 35-40% chance that ENSO neutral conditions will persist through the winter. Models currently predict weak La Niña intensity. La Niña winters tend to be warm and dry in the Southwest U.S. and northern Mexico, which could amplify drought conditions and impact water supply in the region (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

Figure 8 (above): ENSO probabilistic forecast from IRI.

THE NORTH AMERICAN MONSOON

A large portion of the Rio Grande basin region experiences the North American Monsoon during the summer, which accounts for approximately half of total annual precipitation in most areas (CPC). As a result of unequal rates of warming over land and water, wind patterns over northern Mexico and the U.S. Southwest reverse, pulling moisture from the Gulf of Mexico, Gulf of California and the eastern Pacific Ocean. Monsoon season typically begins in mid to late June in northwest Mexico (Sonora, Chihuahua, Sinaloa, and Durango) and early July in the U.S. Southwest (New Mexico and Arizona).

The Southwest experienced a strong start to the Monsoon season in late June, with above-average precipitation in the Rio Grande basin region. However July has seen a "break" from the monsoon, with below-average precipitation for most of the region. Such variability is characteristic of the early monsoon season (CLIMAS).

FORUMS

CLIMATE SERVICES, DROUGHT, AND FIRE WORKSHOP

On July 21-23, 2016, the North American Climate Services Partnership (NACSP) joined with the biennial North American Drought Monitor (NADM) Forum and annual North American Fire Forecasting Workshop to convene in Fort Worth, Texas, to assess science and services related to drought, wildfire and climate variations across North America. Nearly 50 participants from the U.S., Canada, Mexico and the Caribbean discussed existing monitoring, assessment, and outlook tools and products, and explored opportunities for enhanced collaboration and partnerships. Among the many recommendations from workshop participants are the following: improve North American fire forecasting through improved information on antecedent conditions and model input; develop tailored drought monitoring products for different stakeholder needs; and develop an experimental North American Drought Outlook (forecast). Participants recommended the establishment of La Niña demonstration projects tailored to advance climate science and services during the next year. The Rio Grande/Rio Bravo (U.S.-Mexico) and the Pacific Northwest (U.S.-Canada) were identified as potential demonstration regions, because of their sensitivity to impacts of La Niña and their connections to regional early warning systems associated with the National Integrated Drought Information System.

HEAT-HEALTH WORKSHOP

On July 13, 2016, in El Paso, Texas, the North American Climate Services Partnership Rio Grande-Rio Bravo Pilot Project, in collaboration with multiple partners, convened a workshop, entitled "Developing an Integrated Heat-Health Information System for Long-Term Resilience to Climate and Weather Extremes in the El Paso-Juárez-Las Cruces Region." The workshop brought together professionals and researchers in public health, emergency management, climatology, meteorology, and other disciplines,

in order to discuss the prospects for improving preparedness and response related to episodes of extreme heat in the region. The workshop kicked off a demonstration project for the National Integrated Heat Health Information System, a new effort by NOAA and the U.S. Centers for Disease Control and Prevention. Workshop participants focused on climate and public health research needs, communication and outreach, building capacity for improved preparedness, and prospects for conveying seasonal forecasts more clearly and efficiently. Immediate next steps for this initiative include developing an inventory of existing regional heat and health initiatives, actions, research, and potential sources of funding. A workshop report will be released by September 1, 2016. For more information, to view presentations given at the workshop, or to express interest in participating in this initiative, see the workshop website.

NEWS HEADLINES

Managing an Endangered River Across the US-Mexico Border, July 18, 2016: http://phys.org/news/2016-07-endangered-river-us-mexico-border.html

Supreme Court Could Move Forward with Water Rights Lawsuit, July 15, 2016: http://southwestfarmpress.com/water-shortage/supreme-court-could-move-forward-water-rights-lawsuit

Dona Ana County water use could see big impacts from draft rulings, July 16, 2016: http://www.lcsun-news.com/story/news/local/water/2016/07/16/do-ana-county-water-use-could-see-big-impacts-draft-rulings/87087058/

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