

La Niña's Return May Spell Doom for Drought Relief

By Gary McManus

Climatologist

Oklahoma Climatological Survey

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The drought began in the fall and lasted through the following spring, decimating the state's winter wheat crop. The loss of forage for cattle necessitated mass sell-offs which depressed prices. Losses to the agricultural industry alone were well over one billion dollars. Farm bankruptcies soared. Wildfires ran rampant, burning more than 633,000 acres – nearly 1,000 square miles – prompting a FEMA disaster declaration. Hopes were dashed as the spring rains stayed away. Instead, the state was met with blowing dust and summer-like heat. Some meteorologists blamed the intensity of the drought that year on La Niña, the periodic cooling of the equatorial Pacific waters. The year was 1996, and the similarities to 2006 are frightening.

Previous data have shown a tendency for warmer and drier conditions in Oklahoma during La Niña events, and experts at the Climate Prediction Center (CPC) are once again predicting a visit by El Niño's less famous sister, La Niña:

“However, current conditions (stronger-than-average easterly winds over the central equatorial Pacific) and recent cooling trends in observed oceanic conditions support continuation of La Niña conditions in the tropical Pacific during the next 3-6 months.”

It is important to note that while the La Niña of 1995-96 was considered very strong, the forecast for the 2006 La Niña is relatively much weaker. Given the existing drought conditions the state currently faces, however, any tendency towards drier weather is significant.

2006 vs. 1996

The 1996 La Niña event occurred in the midst of an existing drought, just as the current La Niña event. Statistically, Oklahoma is entering this spring season in worse condition than during the 1996 drought. From October 1995 through January 1996, the statewide-averaged precipitation total was 4.38 inches, over 5 inches below normal and the 10th driest October-January on record. For the same period in 2005-06, the statewide-averaged precipitation was only 3.31 inches, the 5th driest on record at more than 6 inches below normal. The wheat belt, the area in Oklahoma where the majority of the winter wheat crop is grown, runs from southwestern through north central Oklahoma. Within that belt, the rainfall statistics are very similar during the two time periods with deficits of nearly 5 inches.

Statewide-averaged Oct.-Jan. precipitation

	Precipitation	Departure	Rank since 1895
2005-06	3.31 in.	-6.36 in.	5th Driest
1995-96	4.38 in.	-5.29 in.	10th Driest

There was some relief for the southeast corner of the state during the 1996 event. That is encouraging news, since that area is currently in the throes of what the National Drought Mitigation Center terms an “exceptional drought,” the worst designation they prescribe. The latest Seasonal Drought Outlook released by CPC predicts some improvement for southeastern Oklahoma, but also notes that “with 12-month rainfall deficits exceeding 20 inches in the northeast Texas-southeast Oklahoma region, drought-ending rains are unlikely anytime soon.” The drought outlook predicts persistence or intensification of the dry weather in most of the state, with drought development being likely in the northwest. Unfortunately, the drought is expected to persist or intensify in the wheat belt region, enhancing the risk for economic damages to Oklahoma’s agricultural industry.

There is some residual soil moisture remaining in the soil in both north central and southeastern Oklahoma. Once the weather begins to warm up, however, moisture demand by plants will increase dramatically, especially by the winter wheat crop.

La Niña

The weather patterns associated with La Niña favor warm and dry weather for Oklahoma due to a shift in the jet stream farther to the north, which helps to create a large blocking ridge of high pressure in the desert southwest. This diverts storm systems from the Pacific farther to the north, increasing rainfall in the Pacific Northwest and decreasing rainfall in the southwestern U.S. The sinking air and the lack of precipitation can contribute to the above-normal temperatures for Oklahoma. However, it must be noted that the effects of La Niña are described in broad-based weather patterns. So while the dry and warm conditions might generally affect the southern half of the U.S., local impacts might be quite different than the large-scale patterns.

Figures:

Spring_rainfall_outlook.jpg
Spring_temperature_outlook.jpg
Seasonal_drought_outlook.jpg
Soil_moisture_25cm.jpg
Drought_monitor.jpg

Media Contact:

Cerry Leffler
Oklahoma Climatological Survey
100 E. Boyd, Suite 1210
Norman, OK 73019-1012
405-325-2451
405-325-2550 (fax)
cerry@ou.edu

For Additional Information:

Gary McManus
Climatologist
100 E. Boyd, Suite 1210
Norman, OK 73019-1012
405-325-2541
405-325-2550 (fax)
gmcmamus@ou.edu

