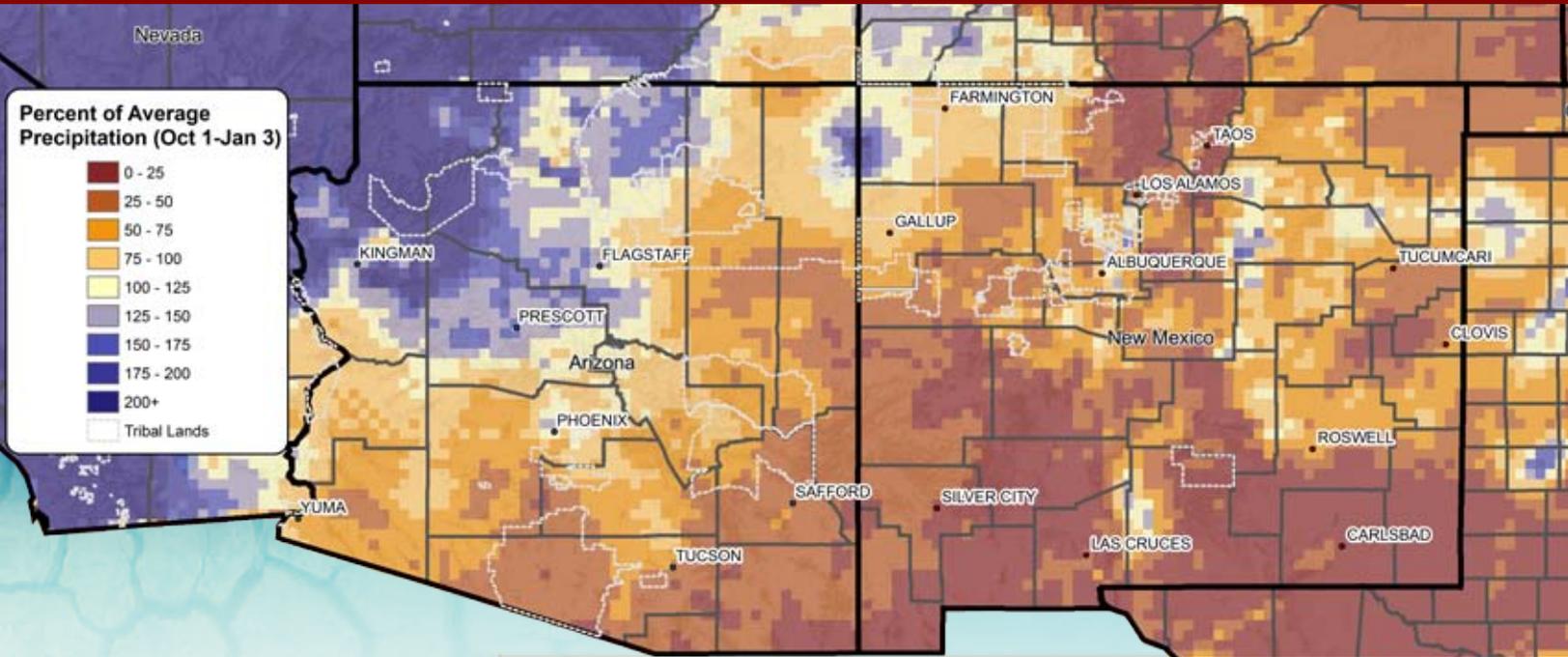


La Niña DROUGHT TRACKER

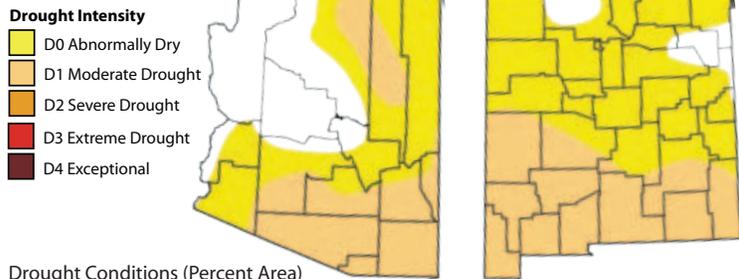
January 2011 / Vol. 1 / Issue 2 / Drought Tracker / A Publication by CLMAS



Source: National Weather Service
Advanced Hydrologic Prediction Service

D·R·O·U·G·H·T CONDITIONS

Figure 2. Arizona and New Mexico drought map based on data through December 28.



Drought Conditions (Percent Area)		None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	AZ	31.4	68.6	32.5	0.0	0.0	0.0
	NM	6.2	93.8	40.4	0.0	0.0	0.0
One Month Ago	AZ	50.5	49.5	6.8	0.0	0.0	0.0
	NM	68.7	31.3	0.6	0.0	0.0	0.0
Oct. 1 start of water year	AZ	40.0	60.0	18.6	3.2	0.0	0.0
	NM	76.7	23.3	0.0	0.0	0.0	0.0

Source: U.S. Drought Monitor

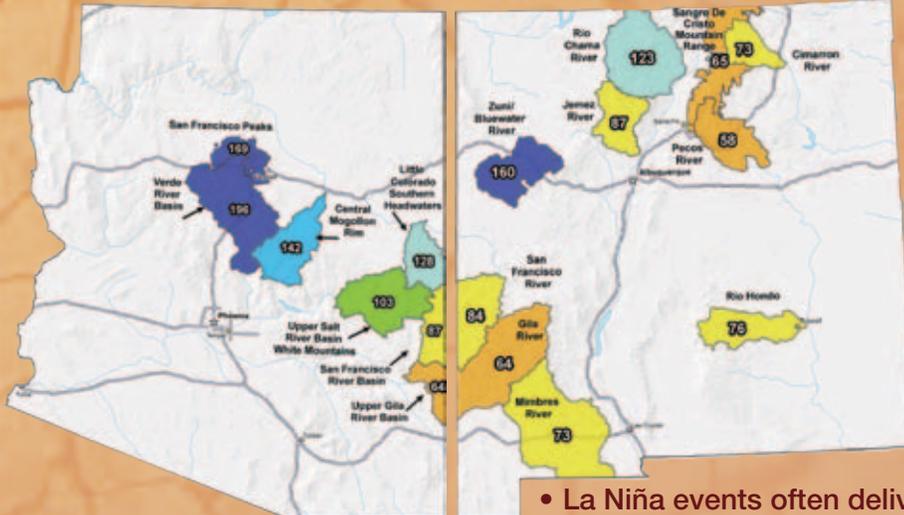
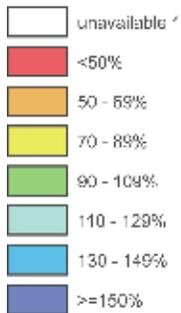
Strong winter storms at the end of December delivered widespread and heavy rain and snow to Arizona and New Mexico and helped end nearly two months of zero precipitation, particularly in southern regions. The storms are a good reminder that even during La Niña events when probabilities increase for drier-than-average weather, storms will drench portions of the Southwest. However, even with the recent rain and snow only northwest Arizona has experienced above-average precipitation since the water year began on October 1 (Top Figure). Southeast Arizona and southern New Mexico have been the driest, with deficits measuring between two and four inches below average. The La Niña precipitation pattern, which historically has the strongest signal in the southern tier of both states, is holding up in spite of recent weather. The wet conditions, however, will likely improve short-term drought conditions depicted in the most recent U.S. Drought

Monitor (Figure 2). As of December 28, about 69 percent of Arizona was classified as “abnormally dry” or worse—an expansion of about 19 percent from one month ago—and about 32 percent as “moderate drought”. Conditions in New Mexico are drier; about 94 percent of the state is abnormally dry or worse and about 40 percent is classified with moderate drought, an increase of about 34 and 21 percent from one month ago, respectively.

The La Niña event remained moderate to strong during the last month and there is a greater than 80 percent chance that the event will persist into spring. Since all previous La Niña events have delivered dry winter conditions to the Southwest as a whole, and the strongest La Niña signal is in the January–April period, drought conditions are expected to expand (Supplemental Figure 1).

S·N·O·W P·A·C·K

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1971-2000 Normal

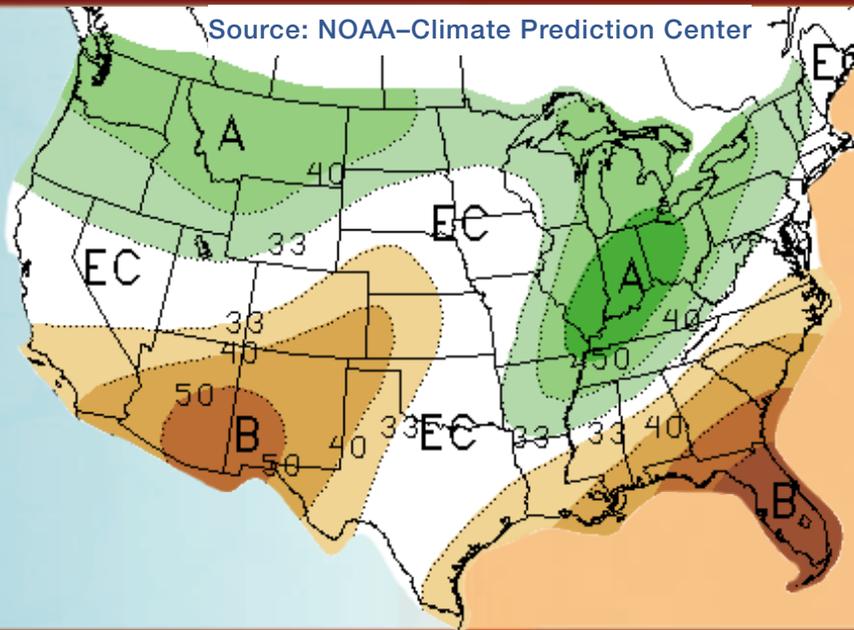


- Late December storms covered many mountains in snow. Most snow water content (SWC) in Arizona is near or above average; in New Mexico, however, snowpack is mostly below average (Left Figures).
- Most SNOTEL stations in the Colorado River Basin in Colorado and Utah (not shown) measure above-average SWC; the upper Rio Grande basin has slightly above-average SWC.

• La Niña events often deliver above-average snow to northern Colorado between December and April, which bodes well for spring Colorado River flows (Suppl. Figures 2–4).

A·L·O·O·K AHEAD

- The Climate Prediction Center outlook suggests a high likelihood of drier-than-average conditions for January–March, particularly in southern areas where the La Niña influence is strongest (Right Figure).
- Dry conditions are also forecasted for the February–April period, with the highest chances for dry conditions projected for the southern half of Arizona.
- Temperatures are also expected to be warmer than average during rest of the winter season, but this forecast is mostly based on recent warming trends and is less influenced by La Niña, which does not have a strong influence on temperature in the Southwest.



F·I·N·A·L WORD

- The La Niña event is currently classified as moderate to strong; it has maintained its strength over the past month and is one of the strongest events in the last 60 years.
- Total winter precipitation in the Southwest during all past La Niña events has been near to or drier than average; the strongest La Niña precipitation signal in the Southwest occurs from January to April (Supplemental Figures 5–7).
- Widespread precipitation in late December punctuated a very dry two-month period during which many regions received no rain or snow (Supplemental Figures 8–12).
- Areas in southern Arizona and New Mexico are drier than average despite recent storms.
- Recent storms demonstrate that during La Niña events, precipitation can vary both in time and space, with greater variability in northern regions.
- Early winter snowpack in Colorado and Utah, from which a large portion of Colorado River and Rio Grande runoff originates, is above average.
- Precipitation forecasts call for dry conditions in the Southwest for the rest of the winter.

