

Eye On Drought

Produced by the Monitoring Technical Committee

Co-chairs:
 Gregg Garfin, University of Arizona - Institute for the Study of Planet Earth
 Tony Haffer, National Weather Service

Mike Crimmins, Extension Specialist, University of Arizona Cooperative Extension

Charlie Ester, Salt River Project

Larry Martinez, Natural Resources Conservation Service

Ron Ridgway, Arizona Division of Emergency Management

Nancy Selover, Asst. State Climatologist Arizona State University

Chris Smith, U.S. Geological Survey

Coordinator: Susan Craig, Arizona Department of Water Resources

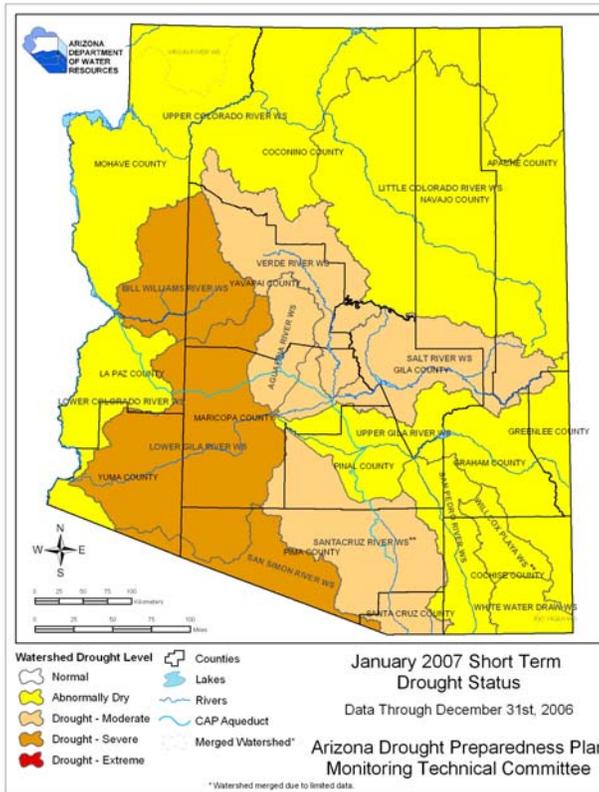
Computer Support: Andy Fisher, Arizona Department of Water Resources



Arizona Drought Monitor Report January 2007

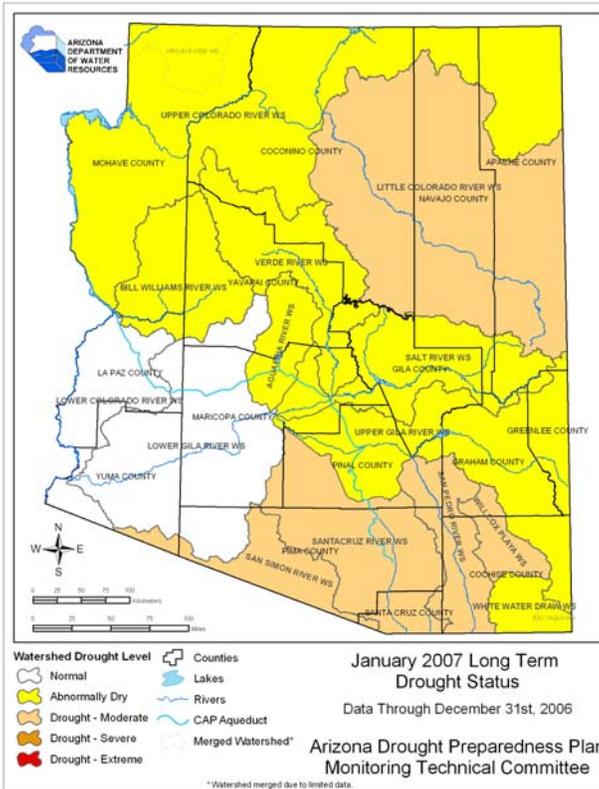
Short-term Drought Status

The dry fall season has degraded the west central watersheds from moderate drought to severe, and the Verde worsened from abnormally dry to moderate. The Santa Cruz watershed has been downgraded to moderate drought. Drought status in the San Simon watershed, based on precipitation during the last 12 months, has worsened from moderate to severe, and in the San Pedro watershed, conditions worsened from normal to abnormally dry. However, drought impacts reports from Cochise County suggest a more moderate drought status in the San Simon and a normal drought status in the San Pedro. The late fall, early winter storm tracks have generally been to the north of Arizona, occasionally bringing precipitation to the Upper Colorado watershed and the northern portions of the Colorado Plateau.



Long-term Drought Status

The long-term drought conditions have not changed significantly for most of the state. The Willcox Playa has improved from severe to moderate, but the south central basins and the Little Colorado watershed continue to be very dry. The extremely wet 2005 winter did not make up for the earlier dry winters of 2003 and 2004. If the current predictions for above average precipitation for February-April hold true, it will result in near-normal precipitation at best, which may prevent the drought from worsening in both the short and long term.



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Reservoir Storage



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Dr. Ken Dewey, High Plains Regional Climate Center

Vegetation Health



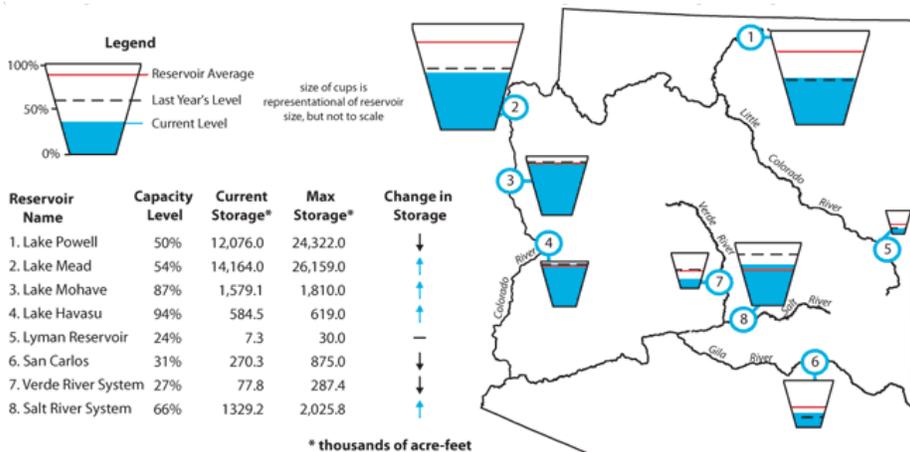
Jeff Sevoss

Arizona Reservoir Status

Arizona reservoir levels changed somewhat relative to last month. Lake Powell, San Carlos, and the Verde River System all declined. The Verde River System experienced the largest relative decline at 7 percent. Lake Mead, Lake Mohave, Lake Havasu, and the Salt River System all increased storage relative to last month with Lake Havasu having the largest increase (3 percent).

Water Year 2007 in the Upper Colorado River Basin started off with an above-average October in terms of precipitation, but November and December precipitation above Lake Powell has been about 65 percent of average, according to the U.S. Bureau of Reclamation. Inflow to Lake Powell was 103 percent and 93 percent of average during November and December, respectively. Snowpack above Lake Powell is currently 84 percent of normal and inflow from April to July is forecast to be 91 percent of average.

Arizona reservoir levels for December 2006 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.



Unlike other natural disasters such as hurricanes and tornados, drought does not cause immediate, visible results. Its effects, however, can be just as devastating. Drought can impact domestic water supplies, ranching and farming production, vegetation, forest health and wildlife populations.

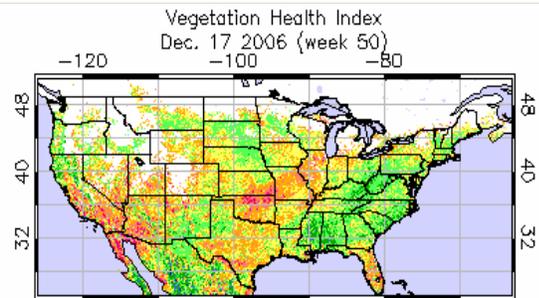
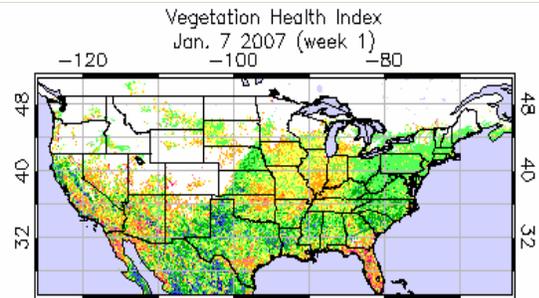
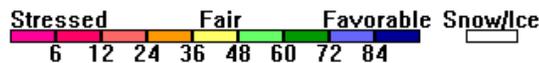
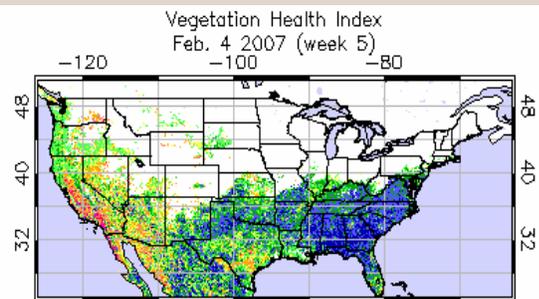


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USDA NRCS

Vegetation conditions have improved slightly over the past month in northwestern, northcentral, and southeastern Arizona due to recent winter precipitation. Chances for above normal precipitation are forecast through early spring which could lead to further improvements.

Satellite-derived images from the NOAA National Environmental Satellite, Data and Information Service (NESDIS) were taken February 4, 2007 (top figure), January 7, 2007 (middle) and December 17, 2006.

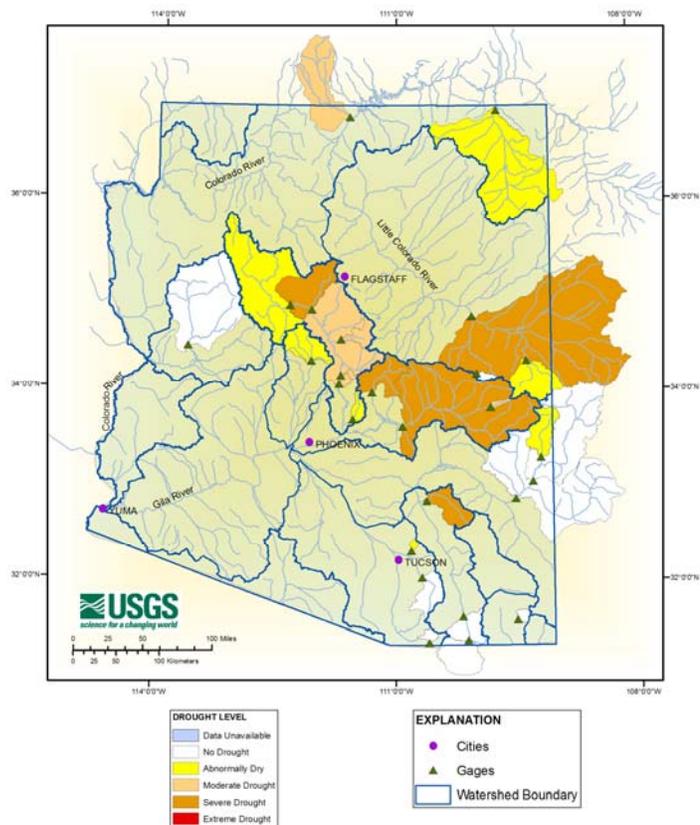


Mountain Streamflow and Precipitation



Drought Levels Based on Monthly Streamflow Discharge

December 2006



December Streamflow

December was a very dry month. As a result, flows declined to below median levels in key Arizona streams. Run-off for December is represented in the table shown below.

December Streamflow Observed (compiled by NRCS from USGS data)

Water body	December Runoff in Acre Feet	% of Median
Salt River near Roosevelt	11,226	60%
Tonto Creek	717	37%
Verde River at Horseshoe Dam	16,290	90%
Combined Inflow to Salt River Project (SRP) reservoir system	29,448	78%
Little Colorado River above Lyman Lake	292	73%
Gila River to San Carlos Reservoir	10,550	72%
Colorado River inflow to Lake Powell	501,600	114% the 30-yr. avg.

Mountain Precipitation

December Precipitation -

Data from high elevation SNOTEL sites show that precipitation for December was 34 percent of average over the Salt River basin, 31 percent of average over the Verde River basin, and 35 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 47 percent of average precipitation in December.



Water Year Precipitation -

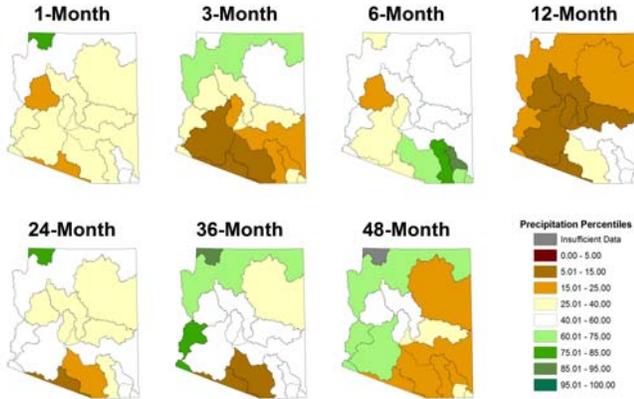
For the water year, SNOTEL data show that mountain precipitation is well below average in all Arizona basins ranging from 47 to 65 percent of average (below).

Watershed	Percent (%) of 30-Yr. Average Water Year Precipitation October 1 - December 31
Salt River Basin	57%
Verde River Basin	47%
Little Colorado River Basin	58%
San Francisco-Upper Gila River Basin	65%
Central Mogollon Rim	57%
Upper Colorado River Basin	108%

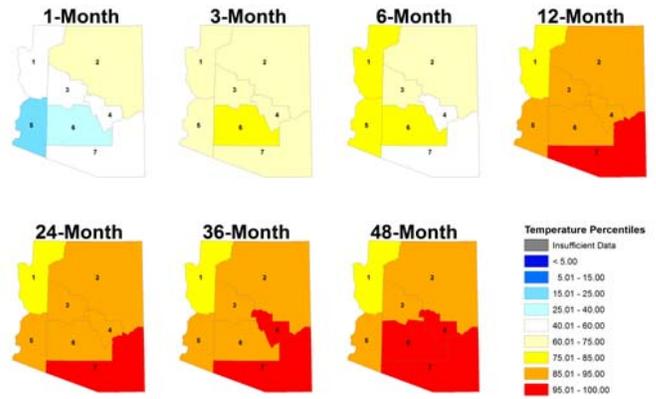
Temperature and Precipitation



Precipitation Percentiles by Watershed

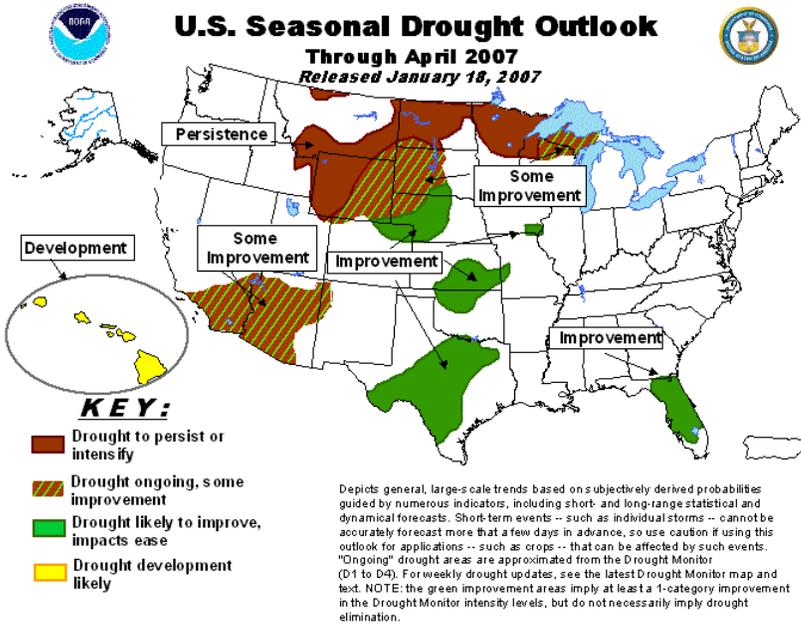


Temperature Percentiles by Climate Division



Time period	Precipitation	Temperature
1-month period	December was not as dry as November. Most watersheds had below average precipitation, except the northernmost watersheds. Storm tracks have been well north of the state so far this winter.	Temperatures were near average in the northwest and southeast, slightly above average on the Colorado Plateau, and below average in Maricopa and Pinal counties and the Lower Colorado River.
3-month period	October through December was much drier than average, especially across the southern half of the state.	Temperatures were slightly above average for most of the state, and above the 75 th percentile in Maricopa and Pinal counties.
6-month period	July through December, which includes the wet monsoon, is still above average for the eastern half of the state, and near or below average for the western half of the state. The extreme monsoon moisture in the San Pedro and Willcox basins pushed them up above the 79 th percentile for this period.	Temperatures were above average everywhere in the state for the past six months and above the 75 th percentile for the far western and central climate divisions.
12-month period	Precipitation is well below average across most of the state, except for the southeast watersheds which benefited from an extremely wet monsoon.	The southeast-south central division is still the hottest, above the 96 th percentile, and the rest of the state remains above the 77 th percentile.
2-year period	Only the Upper and Lower Colorado and Virgin River watersheds are still above the 50 th percentile. The Santa Cruz and San Simon watersheds in the south central part of the state are extremely dry, below the 20 th percentile.	For temperature, the southeast climate division remained above the 99 th percentile and most of the state was above the 87 th percentile, while the northwest was the cool spot, in the 75 th percentile.
3-year period	Precipitation is well above average in the northern and western watersheds and below average in the south central watersheds and the Colorado Plateau. The rest of the state is near or above average. The Santa Cruz and San Simon watersheds continue to be the driest.	Gila County moved up above the 95 th percentile for temperature, and the coolest area is still the northwest in the 76 th percentile.
4-year period	Precipitation is still split across the state, with the eastern half drier than average and the western half wetter than average. The central watersheds remain near normal.	Temperatures are above the 97 th percentile for most of the southern half of the state. The Lower Colorado River divisions are slightly cooler than the central or eastern divisions, but all divisions remain above the 77 th percentile.

Weather Outlook



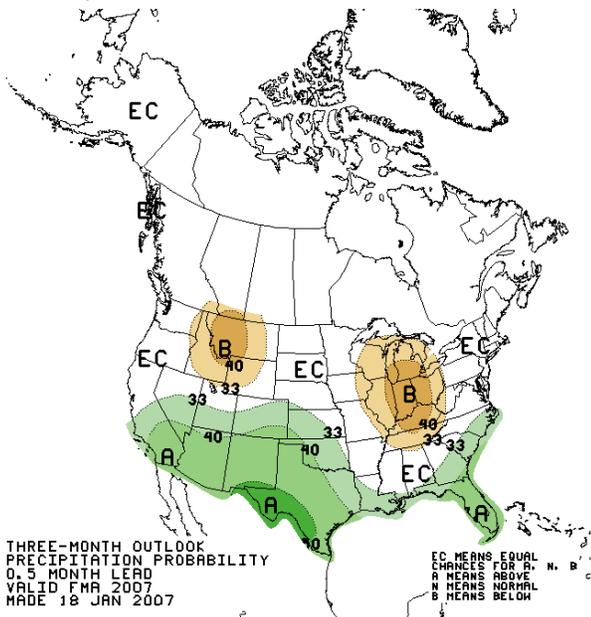
Drought Outlook

The Climate Prediction Center's Seasonal Drought Outlook indicates virtually all of the state will see lessening of drought impacts through April 2007. The ongoing moderate El Niño episode in the equatorial Pacific appears to be near its peak and will lessen in intensity during the next several months. Despite its downward trend in the Pacific, El Niño impacts are expected to increase over North America during the next few months. Having said this, it is important to consider that precipitation has been below normal thus far in Water Year 2007, and even with above normal precipitation during the next few months, it is reasonable to expect that this winter's *total* precipitation will probably turn out to be near average at best for most areas of the state.

Also see the most current **Southwest Climate Outlook** - www.ispe.arizona.edu/climas/forecasts/swoutlook.html

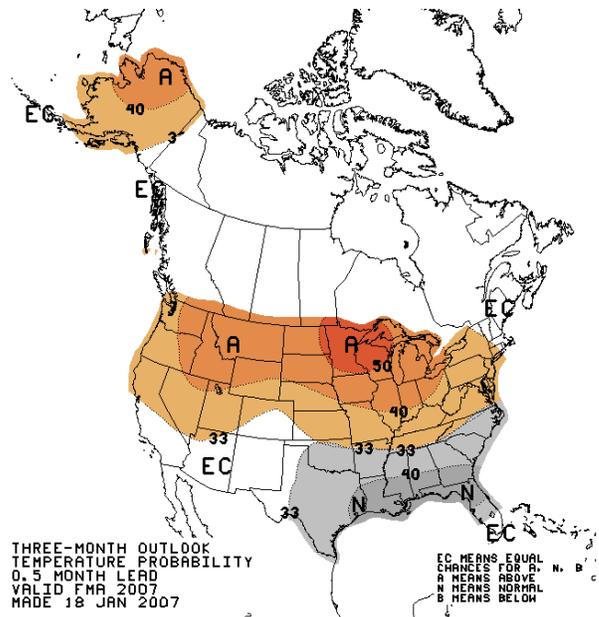
For additional weather information from the Office of the State Climatologist for Arizona - <http://geography.asu.edu/azclimate>

January to March Weather Outlooks



Precipitation

Modest confidence precipitation will be above average



Temperature

Equal chances for above average, average, and below-average temperatures across the state

NOAA's CPC Outlooks are 3-category forecasts. As a starting point, the 1971–2000 climate record is divided into 3 categories, each with a 33.3 percent chance of occurring (i.e., equal chances, EC). The forecast indicates the likelihood of one of the extremes—above-average (A) or below-average (B)—with a corresponding adjustment to the other extreme category: the "average" category is preserved at 33.3 likelihood, unless the forecast is very strong. Thus, using the NOAA-CPC temperature (precipitation) outlooks, areas with light brown (green) shading display a 33.3–39.9 percent chance of above-average, a 33.3 percent chance of average, and a 26.7–33.3 percent chance of below-average temperature (precipitation). A shade darker indicates a higher than 40.0 percent chance of above-average, a 33.3 percent chance of average, and a further reduced chance of below-average temperature (precipitation), and so on. Equal Chances (EC) indicates areas with an equal likelihood of above-average, average, or below-average conditions; it is used by forecasters when the forecast tools do not indicate a strong "signal" that conditions during a given period will be in any one of the three categories.