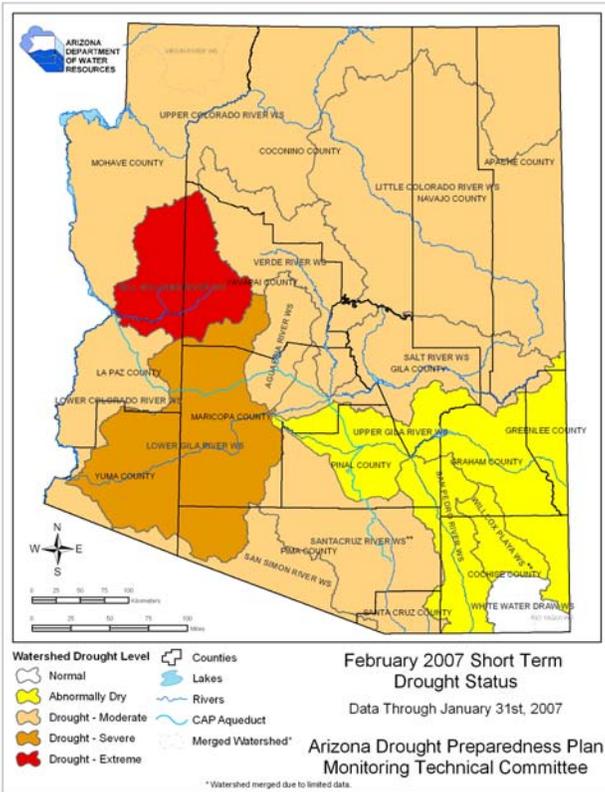
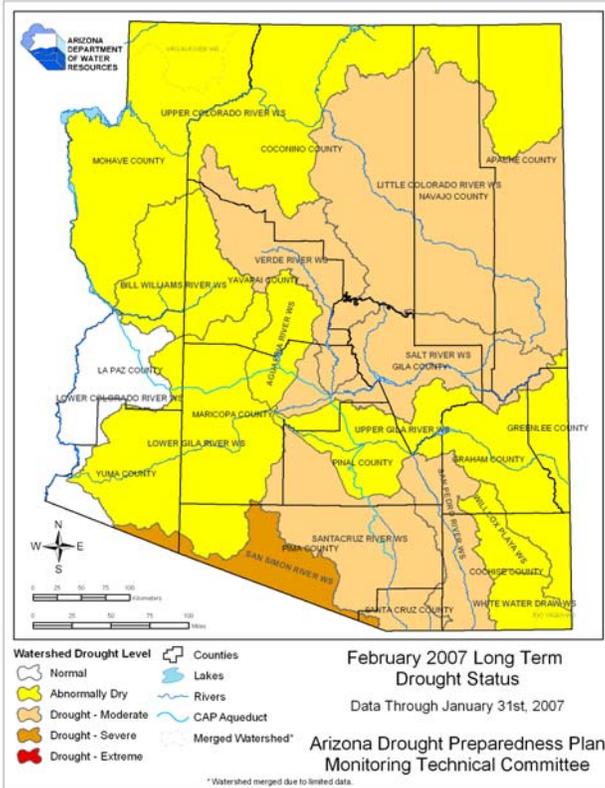


# Arizona Drought Monitor Report February 2007

## Short-term Drought Status



## Long-term Drought Status



### Short-term Update

The moderate El Niño has not brought the anticipated precipitation to the state during the early winter season, deepening the short-term drought in many of Arizona's watersheds. The Bill Williams watershed had an extremely dry fall and early winter, degrading conditions to extreme drought, while the San Simon improved from severe to moderate drought. Due to a southerly storm track pattern for January, White Water Draw in the southeast improved from abnormally dry to no drought, as storms dropped precipitation in southeast Arizona on the way into New Mexico, which has had a very wet winter. El Niño has dissipated in the eastern Pacific as sea surface temperatures have cooled, resulting in a forecast for below normal precipitation for the remainder of the winter, from the Climate Prediction Center.

### Long-term Update

The Salt and Verde watersheds in central Arizona have been downgraded from abnormally dry to moderate drought in the long-term, as both streamflow and precipitation remain below normal. The Lower Gila has also been downgraded from normal to abnormally dry, as any short-term boost in streamflow from the monsoon has dissipated with the dry fall and winter. The San Simon has also been downgraded from moderate to severe drought. The Willcox playa has been upgraded from moderate drought to abnormally dry due to greater than normal precipitation over the past 2 to 4 years, as well as the streamflow recharge effects of the wet monsoon in that basin. Due to the dry conditions forecast for the state for the rest of the year, we anticipate worsening of the drought conditions for most of the state, and a potential for a long, busy fire season.

### Impact Reporter

Ranchers in the **Bill Williams** watershed report feeding supplement blocks to herds earlier in the year than ever before, and at a rate that exceeds any of the past years. They are also for the first time strongly considering reducing production herd numbers. In the **Verde** watershed in northeast Yavapai County, drought monitors report that although last summer's monsoon rains produced forage in many areas, they were spotty and some areas did not receive sufficient runoff to fill stock tanks. This winter's rains have not provided much supply, either. As a result, some areas are deficient in water, necessitating a shift in planned grazing schedules and/or water hauling so that available forage can be used. These impact reports suggest that drought status in the Verde may be worse than the "moderate" status indicated on the maps to the left (based on precipitation and streamflow data only).

# Reservoir Storage



USDA NRCS Dr. Ken Dewey, High Plains Regional Climate Center

# Vegetation Health



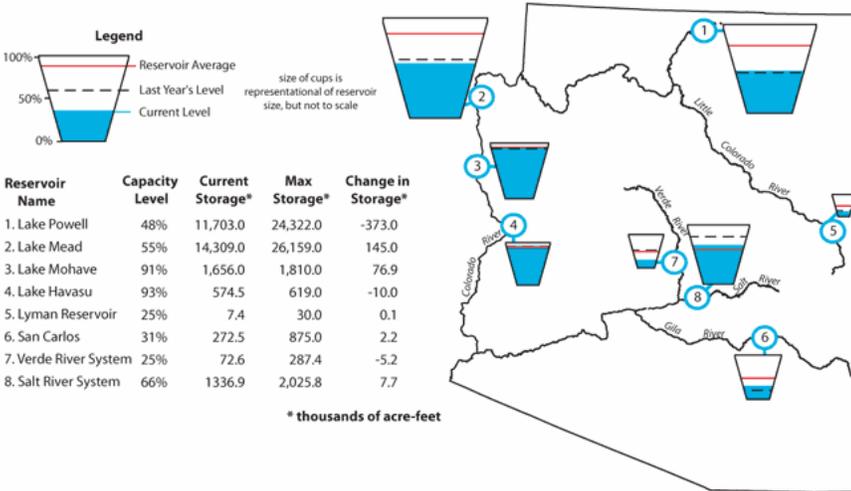
Jeff Severson

## Arizona Reservoir Status

Arizona reservoir levels remained relatively unchanged in comparison to last month (see figure below). Lake Mohave had the largest relative gain (4.9 percent, 76.9 thousand acre feet) while Verde River System's levels dropped by 6.7 percent (5.2 thousand acre feet). Lake Mead, Lyman Reservoir, San Carlos, and the Salt River System also had modest increases while Lake Powell and Lake Havasu experienced moderate declines.

According to the U.S. Bureau of Reclamation, precipitation in the Upper Colorado River Basin was less than 50 percent of normal during January and basin-wide snowpack above Lake Powell is currently 75 percent of average. Unregulated inflow to Lake Powell for April–July is forecast to be 5.9 million acre-feet, or 74 percent of average.

Arizona reservoir levels for January 2007 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.



Drought is a recurring natural hazard almost everywhere in the world. However, Arizona is especially sensitive to drought. Water is scarce here even during average years, and population growth continues to increase our demand for water.

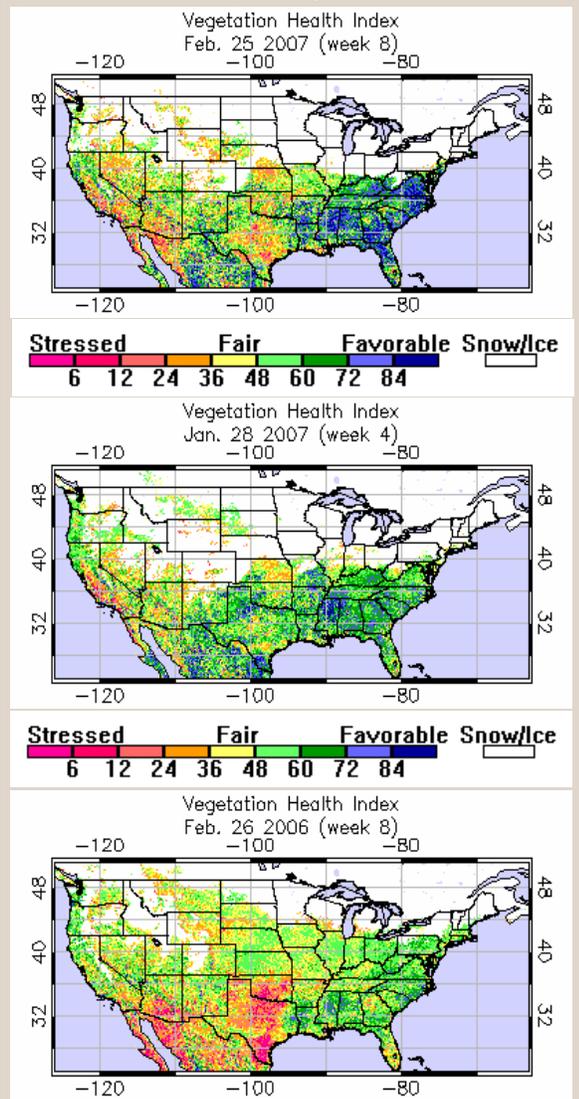


USDA NRCS

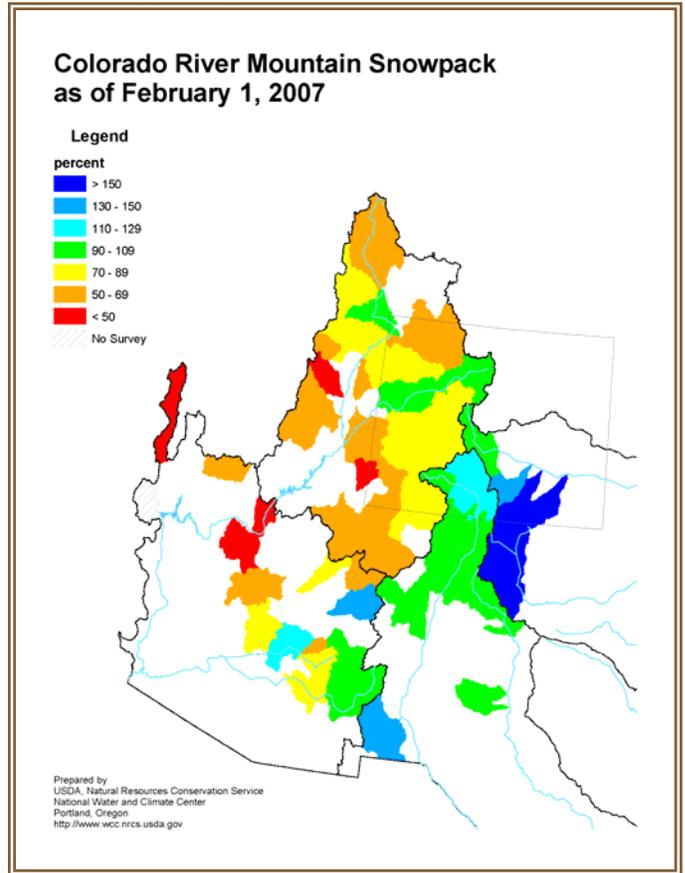
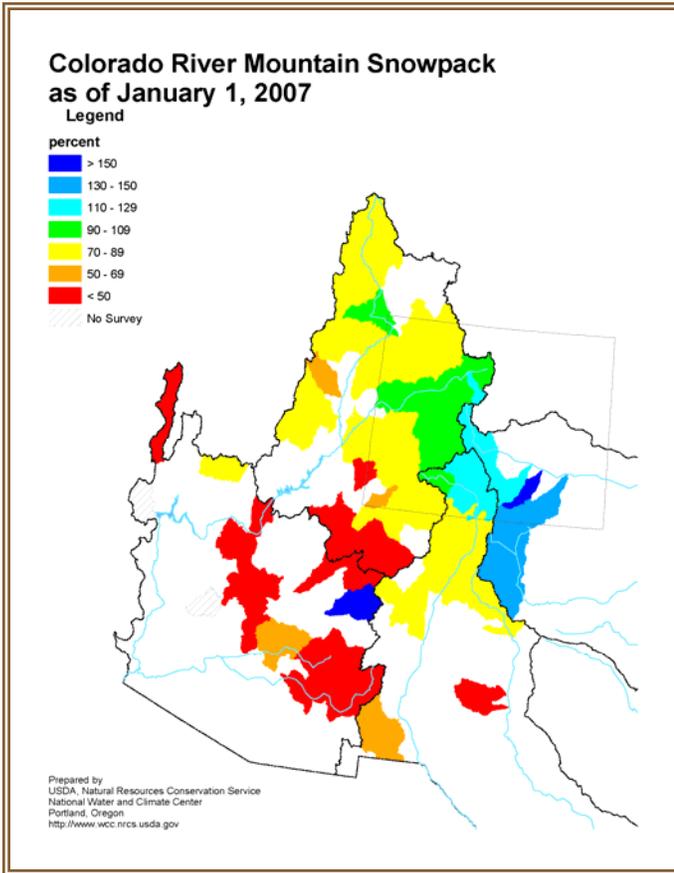
USDA NRCS

Satellite-derived images from the NOAA National Environmental Satellite, Data and Information Service were taken February 25, 2007 (top figure) and January 28, 2007 (middle figure). Vegetation conditions have deteriorated slightly over the past month in south-central and southwestern Arizona due to recent dry conditions. In northern Arizona in Coconino and Navajo Counties conditions have improved somewhat due to recent precipitation.

Though precipitation has been below average for most of the state this winter, it is far above what was received last winter. As a result, current vegetation health is much better than February 2006 (bottom figure). Short-term improvements in vegetation health are uncertain as climate forecasts call for equal chances of below, average, or above-average precipitation in the upcoming months.



# Mountain Precipitation



Storms in January helped improve moisture conditions in the river basins. Data from high elevation SNOTEL sites show that precipitation for January was 100 percent of average over the Salt River basin, 49 percent of average over the Verde River basin, and 122 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 93 percent of average precipitation in January. Snowpack levels, however, are still below average in all areas. As a result, water supplies are expected to be below median this season.

## Mountain Snowpack

Watershed	Snowpack Levels (% of 30-yr. average)	
	Jan. 1	Feb. 1
Salt River Basin	38%	86%
Verde River Basin	40%	69%
Little Colorado River Basin	41%	73%
San Francisco-Upper Gila River Basin	40%	97%
<b>Other Points of Interest</b>		
Chuska Mountains	41%	56%
Central Mogollon Rim	52%	78%
Grand Canyon	33%	28%
San Francisco Peaks	32%	60%
Arizona Statewide	38%	71%

## Water Year Precipitation

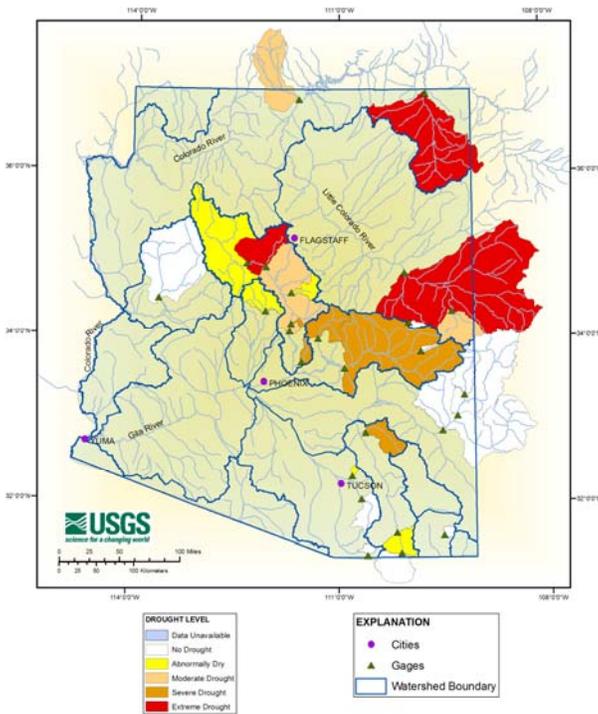
Watershed	Precipitation Oct 1-Jan 31 (% of 30-yr. average)
Salt River Basin	70%
Verde River Basin	48%
Little Colorado River Basin	69%
San Francisco-Upper Gila River Basin	80%
<b>Other Points of Interest</b>	
Chuska Mountains	--
Central Mogollon Rim	68%
Grand Canyon	58%
San Francisco Peaks	59%
Arizona Statewide	--

# Mountain Streamflow



## Drought Levels Based on Monthly Streamflow Discharge

January 2007



## January Streamflow

January runoff volumes were below median.

Water body	January Runoff in Acre Feet	% of Median
Salt River near Roosevelt	12,088	54%
Tonto Creek	837	23%
Verde River at Horseshoe Dam	15,662	68%
Combined Inflow to Salt River Project (SRP) reservoir system	28,587	55%
Little Colorado River above Lyman Lake	241	48%
Gila River to San Carlos Reservoir	10,970	77%

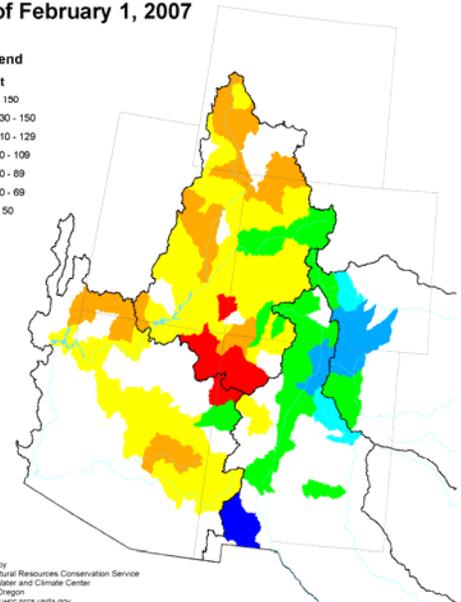
## Streamflow Forecasts

January-May runoff volume forecasts call for below-median conditions as the result of low precipitation in the watersheds.

Water body	Forecasted Runoff (January-May unless noted) in Acre Feet	% of Median
Salt River near Roosevelt	225,000	58%
Tonto Creek	35,000	63%
Verde River at Horseshoe Dam	175,000	80%
San Francisco River at Clifton	35,000	50%
Gila River near Soloman	77,000	47%
San Carlos reservoir inflow	46,000	48%
Little Colorado River above Lyman Lake	Jan-June – 4,300	58%
Little Colorado River at Woodruff	2,200	61%
Colorado River inflow to Lake Powell	Apr-July – 7.2 million	91% of 30-yr. avg.
Virgin River at Littlefield	Apr-July – 52,000	70% of 30-yr. avg.

## Arkansas, Colorado and Rio Grande Spring and Summer Streamflow Forecasts as of February 1, 2007

### Legend

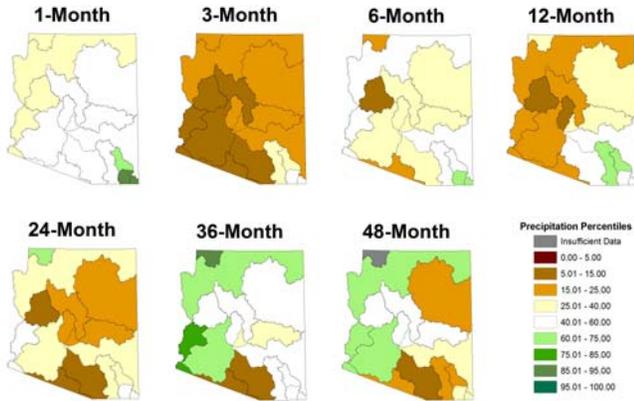


Prepared by  
USDA, Natural Resources Conservation Service  
National Water and Climate Center  
Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>

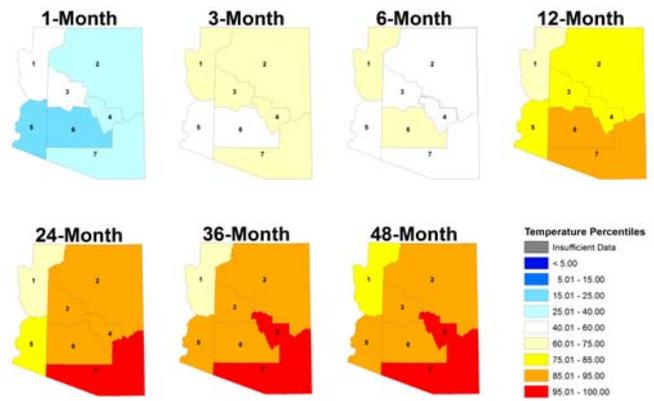
# Temperature and Precipitation



## Precipitation Percentiles by Watershed



## Temperature Percentiles by Climate Division



Time period	Precipitation	Temperature
1-month period	Precipitation was below average in the northern and western watersheds and near average over most of the state. The Willcox and White Water Draw watersheds had above average precipitation as the January storm tracks came across Mexico and moved northward into New Mexico.	Temperatures were near average in the northwest and below average across the eastern and southern portions of the state, with Maricopa and Pinal counties and the Lower Colorado River below the 36 <sup>th</sup> percentile for temperature.
3-month period	November through January was much drier than average, below the 25 <sup>th</sup> percentile everywhere except the southeast corner, where the southerly storm tracks in January dropped precipitation on their way into New Mexico.	Temperatures over the 3-month period were slightly above average for most of the state, due in part to the extremely warm November. The coolest temperatures were in Maricopa and Pinal counties, which had very cold temperatures in both December and January.
6-month period	August through January, which represents a fairly dry fall and early winter season, is below average for the most of the state, and near average for the southeast and Colorado River watersheds. Only White Water Draw remains well above average at the 62 <sup>nd</sup> percentile.	Temperatures were near or slightly above average everywhere in the state for the past six months ranging from the 40 <sup>th</sup> to the 65 <sup>th</sup> percentile.
12-month period	Precipitation for the 12-month period is still well below average across most of the state, except for the southeast watersheds which benefited from an extremely wet monsoon, and from the southern storm tracks in January.	The southeast and south central climate divisions are still the hottest, but all divisions are below the 95 <sup>th</sup> percentile.
2-year period	Only the Lower Colorado, Virgin River and White Water Draw watersheds are above the 42 <sup>nd</sup> percentile for precipitation. The rest of the state is below the 38 <sup>th</sup> percentile, as the 24-month period no longer includes the wet December 2004 or January 2005. Last month only two watersheds were below the 25 <sup>th</sup> percentile, and now seven of the 15 watersheds are below the 25 <sup>th</sup> percentile. This demonstrates just how inconsistent our winter precipitation can be.	For temperature, only the northwest climate division is below the 75 <sup>th</sup> percentile. The southeast climate division remains the hot spot at the 99 <sup>th</sup> percentile.
3-year period	Precipitation remains well above average in the northern and western watersheds, below average in the south central watersheds and near average elsewhere in the state. The Santa Cruz and San Simon watersheds continue to be the driest.	Gila County and the southeast climate division remain above the 95 <sup>th</sup> percentile for temperature, and the coolest area is still the northwest in the 74 <sup>th</sup> percentile.
4-year period	The dry El Niño has produced very little change in the 48-month precipitation patterns. The state is still split with the eastern half drier than average and the western half wetter than average. The central watersheds remain near normal.	Temperatures are above the 75 <sup>th</sup> percentile everywhere in the state, with the hot spots in Gila County and the southeast climate division above the 96 <sup>th</sup> percentile.

# Weather Outlook



Arizona Drought Monitor Report -  
Produced by the Arizona State Drought  
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 Emer-  
gency Management

Nancy Selover, Asst. State Climatologist  
Arizona State University

Chris Smith, U.S. Geological Survey

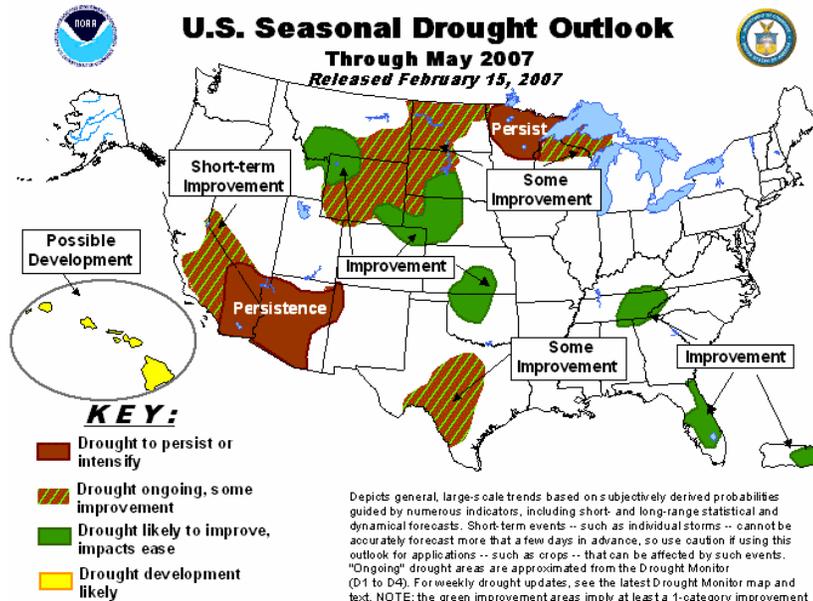
Coordinator: Susan Craig, Arizona  
Department of Water Resources

Computer Support: Andy Fisher, Arizona  
Department of Water Resources



## Drought Outlook

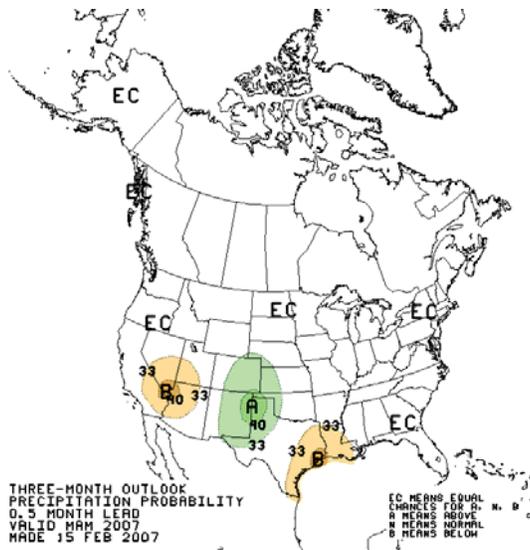
The CPC Seasonal Drought Outlook indicates virtually all of the state will see drought conditions persist through May 2007.



Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance, so use caution if using this outlook for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

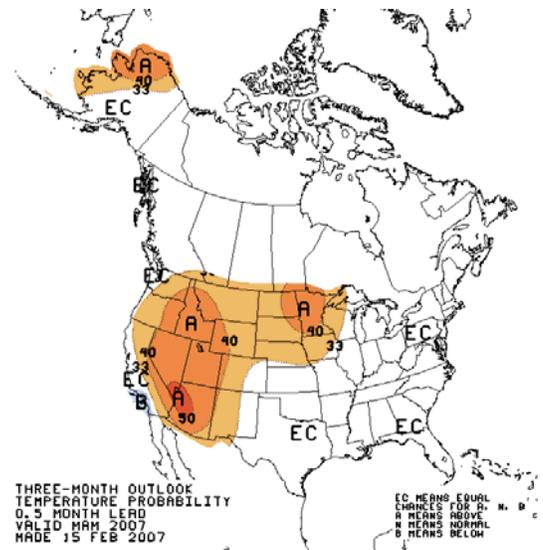
Also see the most current Southwest Climate Outlook - [www.ispe.arizona.edu/climas/forecasts/swoutlook.html](http://www.ispe.arizona.edu/climas/forecasts/swoutlook.html)  
For additional weather information from the Office of the State Climatologist for Arizona - <http://geography.asu.edu/azclimate>

## March to May Weather Outlooks



### Precipitation

High level of confidence precipitation will be near to below average



### Temperature

Considerable confidence temperatures will be above average