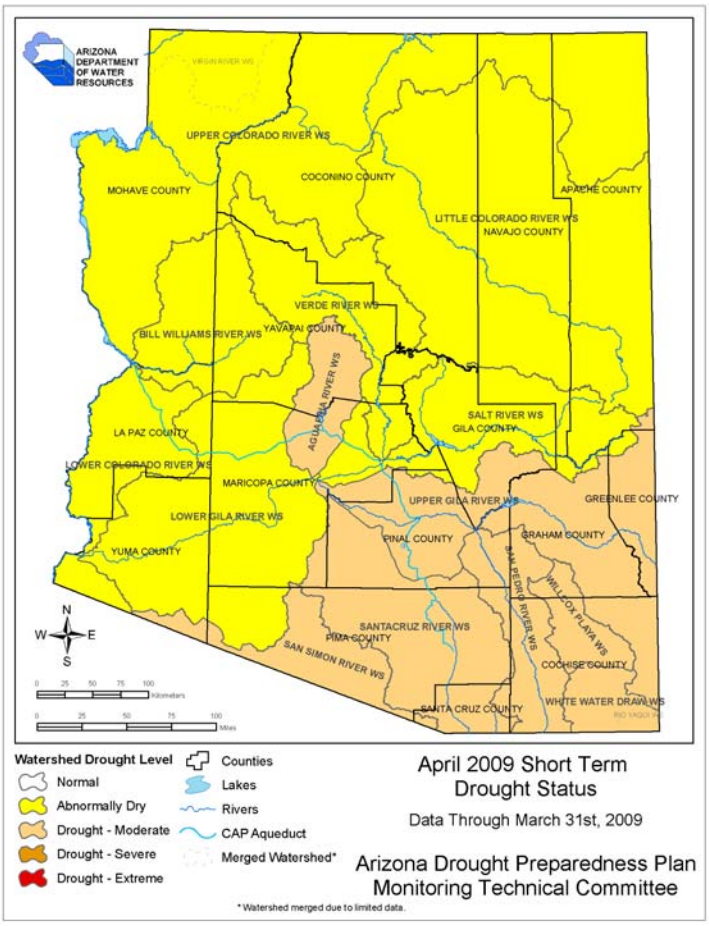
Arizona Drought Monitor Report

April 2009



Short-term drought

The dry conditions that began in mid February have continued through March, worsening conditions from no drought to abnormally dry in four watersheds, and from abnormally dry to moderate drought in four other watersheds (top left). A number of winter storms moved across the state in March, but the lack of moisture led to lower than average snowfall in the mountains and lower than average rainfall. Relatively warm temperatures caused an earlier than normal snowmelt.

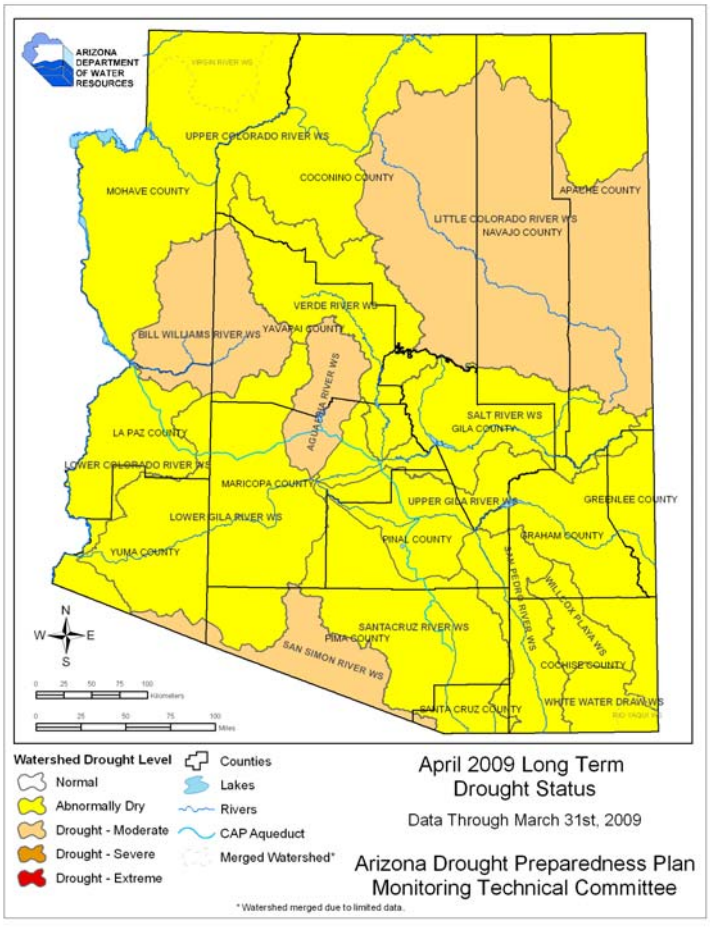
April 2008 short-term drought conditions.

Short-term drought conditions are worse this year than they were in 2008 (above), as there has been less precipitation this year from April 1 to March 30 than we received last year.

Long-term drought

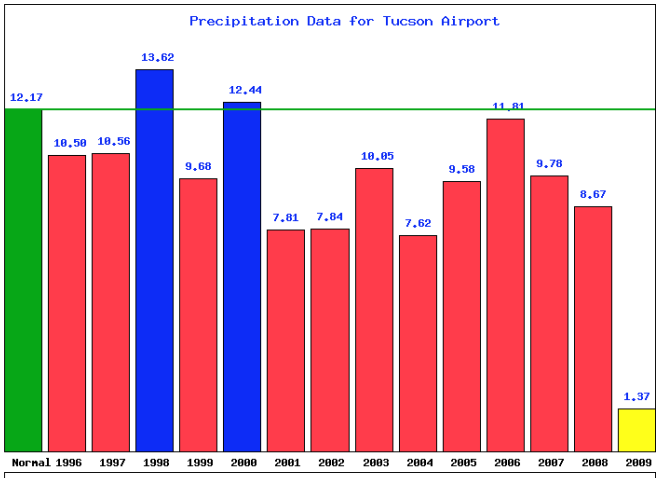
Current long term conditions (bottom left) show improvement from a year ago (right). Much of this improvement since last year is due to the wet monsoon season last year, and to the early winter precipitation in November and December, which brought above average rain and snow. Although winter precipitation looked good at the beginning of the season, the winter of 2008 - 2009 turned out to be drier than average. Since the La Niña conditions that led to the dry winter often lead to wetter than average summers, the Climate Prediction Center is forecasting above-average precipitation for the monsoon season this year.

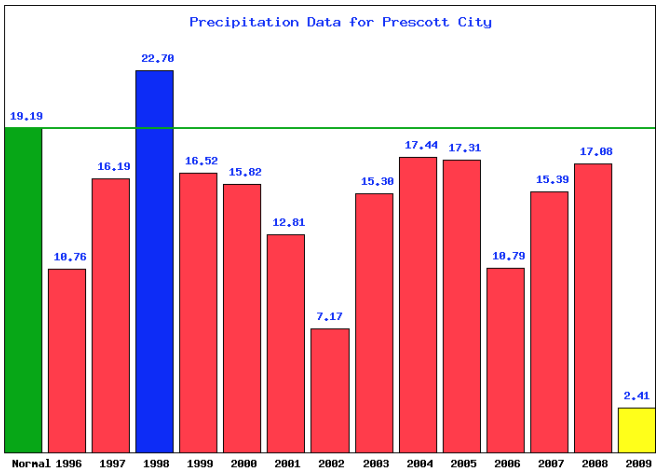
April 2008 long-term drought conditions.

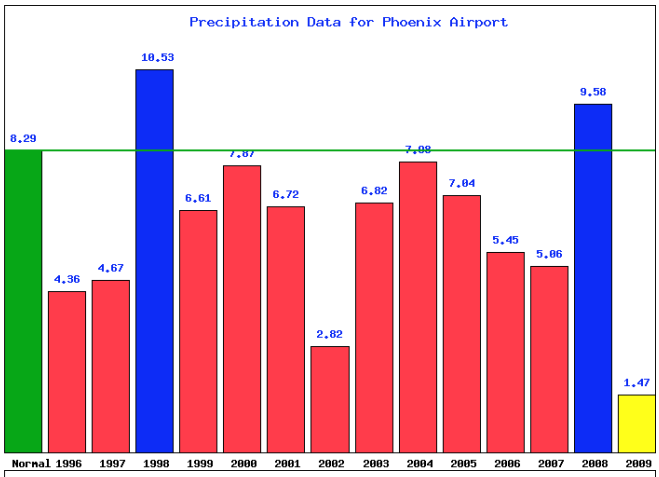


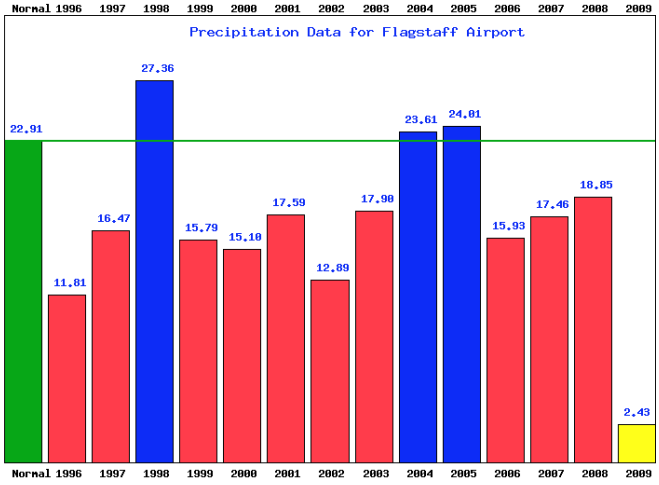
Although the winter started out wet, the progression of drier months (January through March) during our normally wet winter has led to a worsening of short-term drought status back to abnormally dry or moderate drought throughout the state. Long-term drought conditions remain, but have improved in four watersheds.

These maps refer to an integrated assessment of moisture status that includes consideration of precipitation, streamflow, vegetation, ecosystem health, rangeland status, and other measures of drought. They are not intended to portray the status of the state's water supplies. For an explanation of how these maps are produced, visit:
www.azwater.gov/azdwr/statewideplanning/drought/droughtstatus.htm









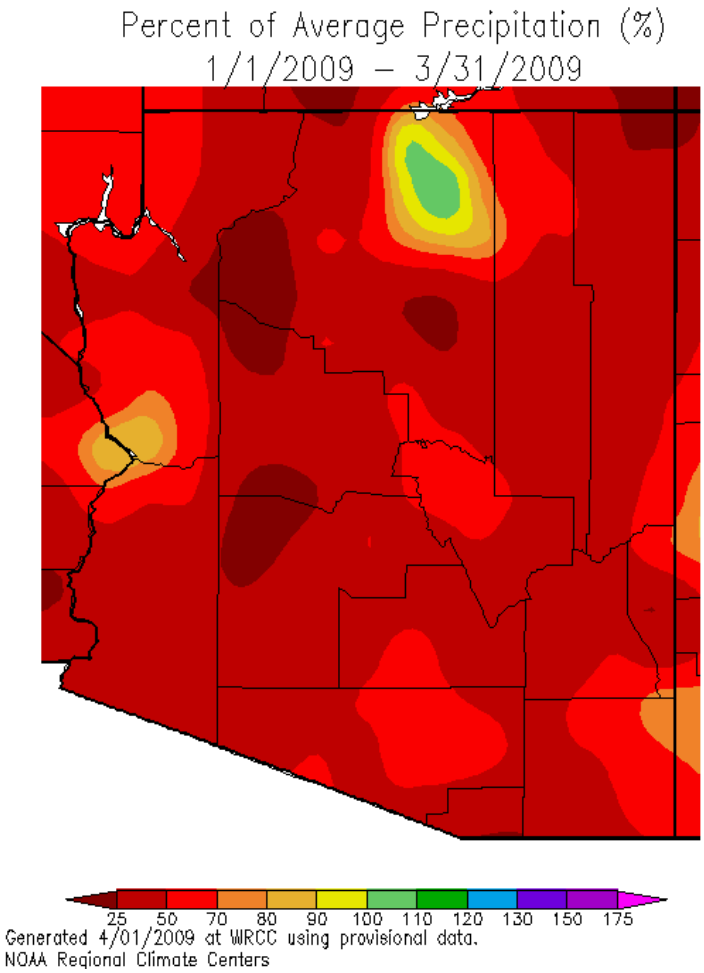
Annual precipitation totals compared to normal (green bar and line) from weather stations in Tucson, Prescott, Phoenix and Flagstaff. 2009 does not reflect a full year.

Precipitation

The graphs of annual precipitation to the left show the wet and dry years over the past 14 years. The 2009 column should be nearly half as high as the average column in green for Prescott, Phoenix and Flagstaff by this point in the year. For Tucson, the 2009 column should be almost a third as high as the green average column

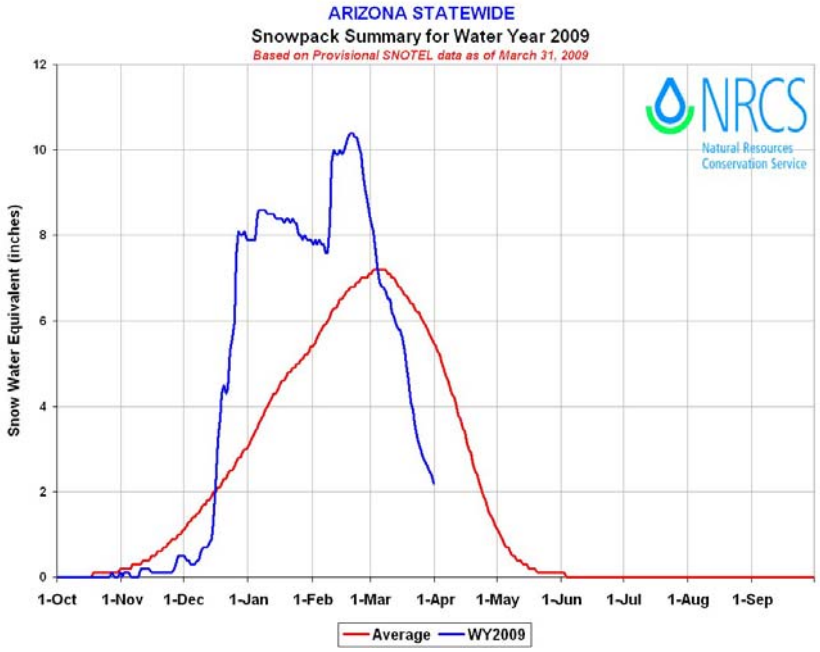
Most of the state has received less than 70% of our average January – March precipitation (see graphic below). These are typically the three wettest months for northern and central Arizona, providing nearly 50% of the annual precipitation for the northern half of the state. In the southern third of the state winter precipitation is nearly 30% of annual precipitation.

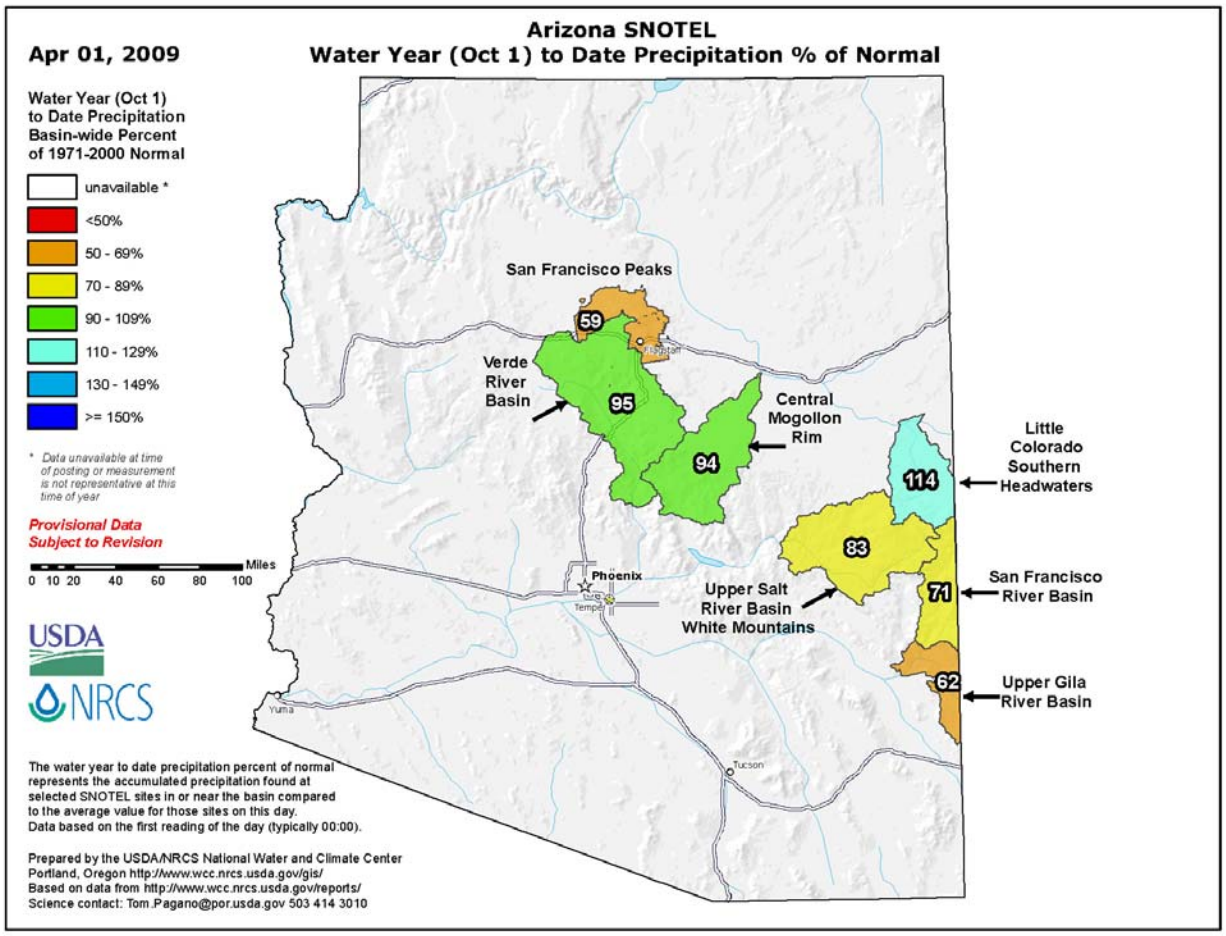
For more climate information, visit the Arizona State Climate Office at http://azclimate.asu.edu/.



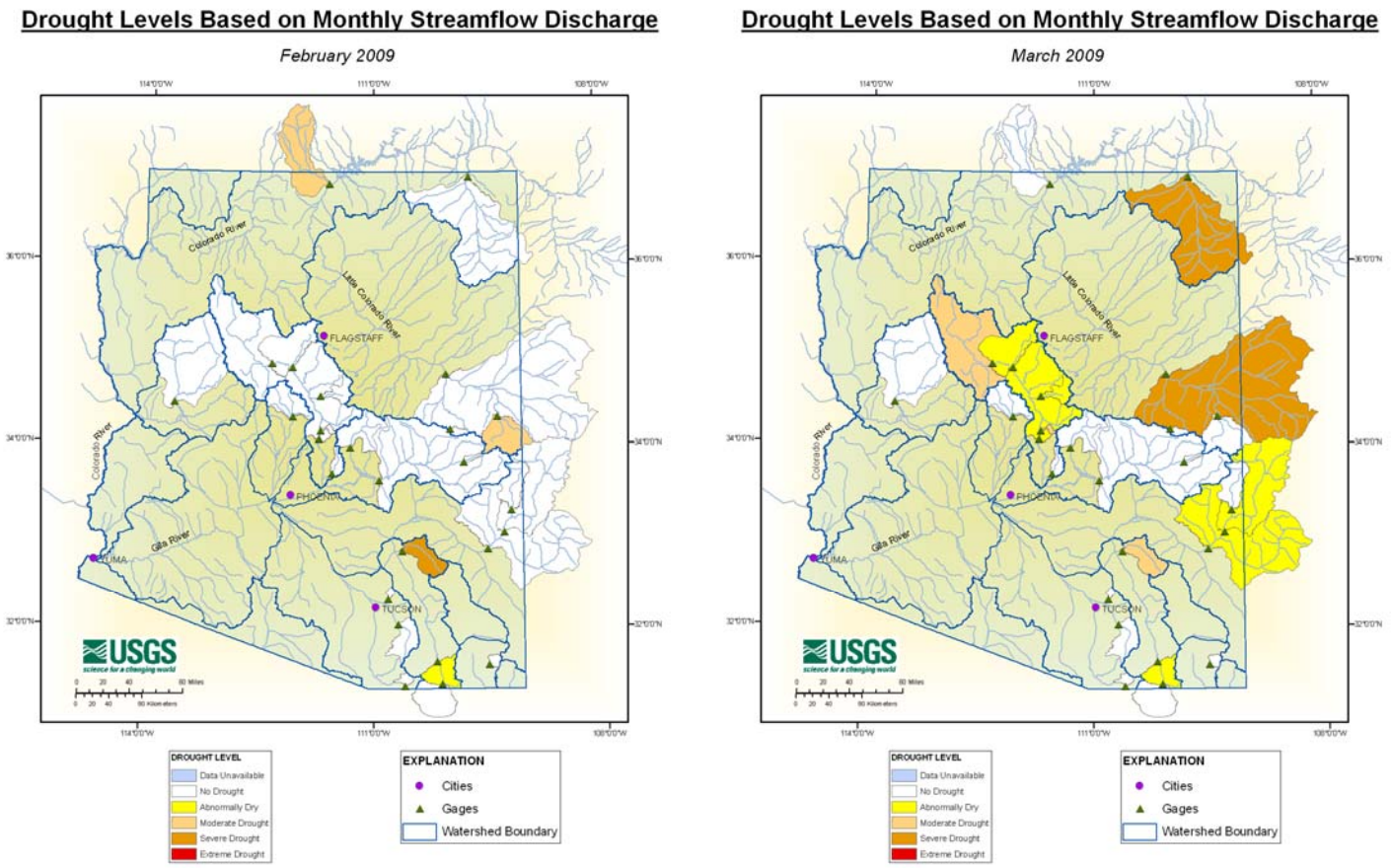
Mountain Precipitation

The winter of 2008-2009 saw two major storm systems enter the state, one in late December, and another in mid-February. These storms produced well-above-average snowpacks throughout the mountains of Arizona. The month of March, however, was extremely dry with above-normal temperatures, resulting in a rapid decline of snowpack levels (see graphic at right).





Based on data from mountain monitoring sites, cumulative precipitation for the 2009 water year through March (October 1, 2008 – March 31, 2009) is average for the Little Colorado River Basin, slightly below average for the Salt and Verde Basins, and well below average for the San Francisco-Upper Gila River Basin (see graphic above).



Comparison of February and March drought levels based on streamflow data from USGS gaging stations.

Water body	March Runoff in Acre Feet	% of Median
Salt River near Roosevelt	1,550	73%
Tonto Creek above Gun Creek near Roosevelt	91	33%
Verde River at Horseshoe Dam	355	44%
Combined Inflow to Salt River Project (SRP) reservoir system	1,996	62%
Little Colorado River above Lyman Lake	59	209%
Gila River to San Carlos Reservoir	52	11%

Streamflow Observed at USGS Streamflow-Gaging Stations

Streamflow

Streamflow basins within Arizona began the year with very little to no drought due to above average precipitation, especially in the form of snow. February also showed little evidence of drought in the basins monitored (see graphic above left). However, above average temperatures in early spring resulted in rapidly decreasing snowpack. After the spring runoff, the month of March had a distinctive increase in drought levels throughout the state. Decreasing streamflow worsened drought conditions by least one level in nine basins (see graphic above right).

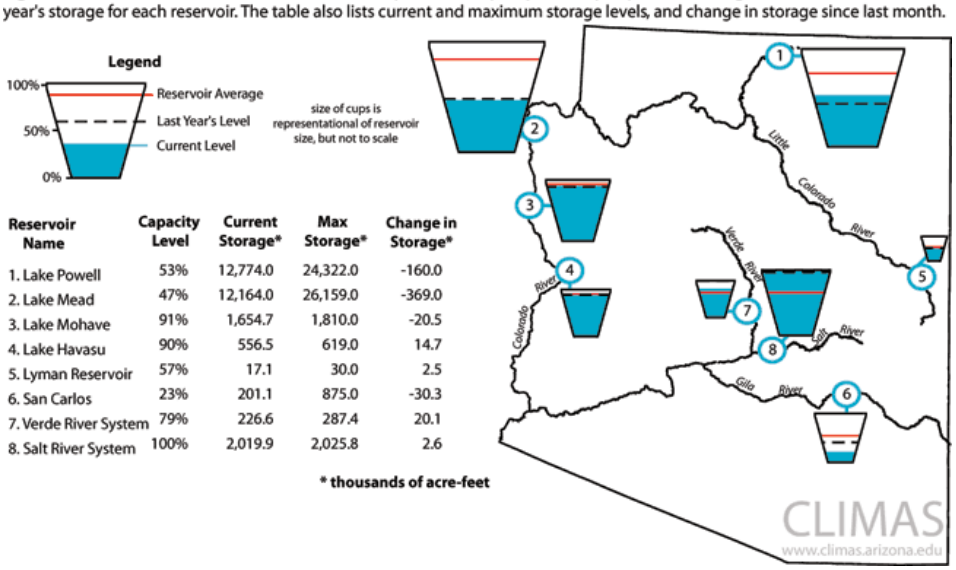
Basins providing streamflow to reservoirs show a similar trend over the last three months. The percent of median during the months of January and February for the Salt River Project reservoir system remained above 100%. In March this percentage was down to 62% (see table at left). The Gila River site began the year at 95% of median and decreased to 11% by March. An exception to increasing drought conditions is the Little Colorado River site, which supplies Lyman Lake. In January it was at 39% of median and increased to 209% by March.

Reservoir Status

Combined reservoir storage in Lakes Powell and Mead declined by 529,000 acre-feet during March (right), dropping below 50 percent of the combined capacity of the two massive reservoirs. Nevertheless, their combined storage is about 1.2 million acre-feet greater than it was the same time last year. During March, storage in the Salt River watershed remained at 100 percent of capacity. The combined storage in the Salt-Verde reservoir system increased by 22,700 acre-feet.

The elevation by May of water in Lake Mead is projected to drop below 1,100 feet for the first time since 1965 (Las Vegas Review-Journal, April 14). Without substantial late spring precipitation, Lake Mead is likely to drop even further by July, the end of the snowmelt runoff season.

Figure 6. Arizona reservoir levels for March 2009 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir. The table also lists current and maximum storage levels, and change in storage since last month.

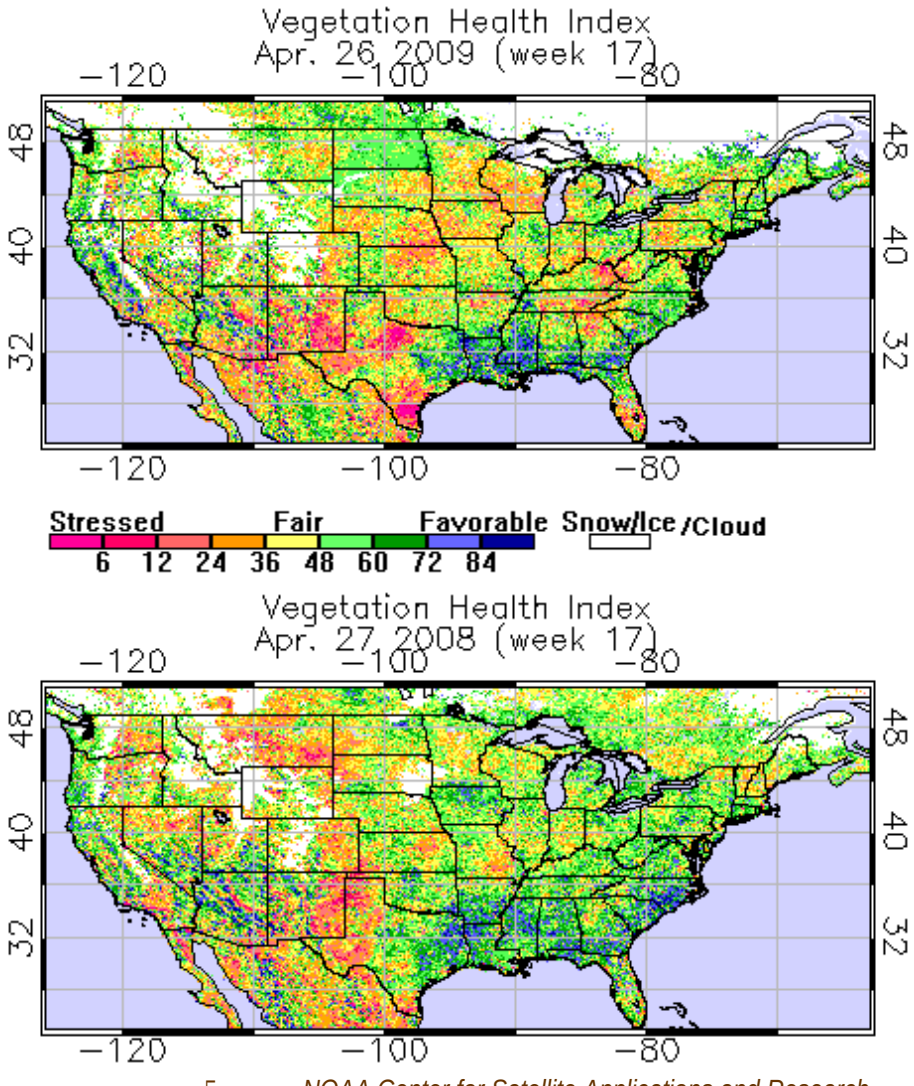


Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage*
1. Lake Powell	53%	12,774.0	24,322.0	-160.0
2. Lake Mead	47%	12,164.0	26,159.0	-369.0
3. Lake Mohave	91%	1,654.7	1,810.0	-20.5
4. Lake Havasu	90%	556.5	619.0	14.7
5. Lyman Reservoir	57%	17.1	30.0	2.5
6. San Carlos	23%	201.1	875.0	-30.3
7. Verde River System	79%	226.6	287.4	20.1
8. Salt River System	100%	2,019.9	2,025.8	2.6

* thousands of acre-feet

Vegetation Health

Arizona is now in the pre-monsoon dry period, and most of the green-up of vegetation, particularly in southern Arizona, has already occurred. Across most of the state, vegetation stress is greater than one year ago (right). Of note are expanded areas of fair-to-stressed vegetation across northeastern Arizona, the northern Mexico highlands, and an expanded region of stressed vegetation along the border with New Mexico. This satellite imagery accords well with fire potential outlooks from the Southwest Coordination Center (SWCC). The SWCC predicts a high potential for extra fire-fighting resources to help deal with pre-monsoon fires in the southeastern quarter of Arizona. For more information on SWCC outlooks, see http://gacc.nifc.gov/swcc/predictive/outlooks/outlooks.htm.



Arizona Drought Monitor Report - Produced by the Arizona State Drought Monitoring Technical Committee

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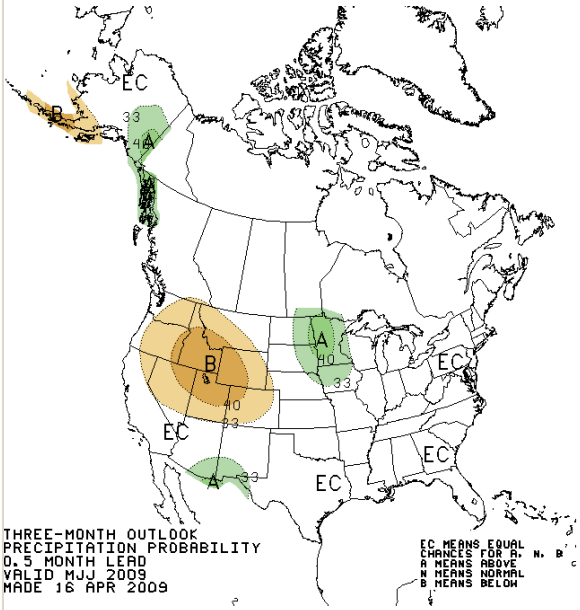
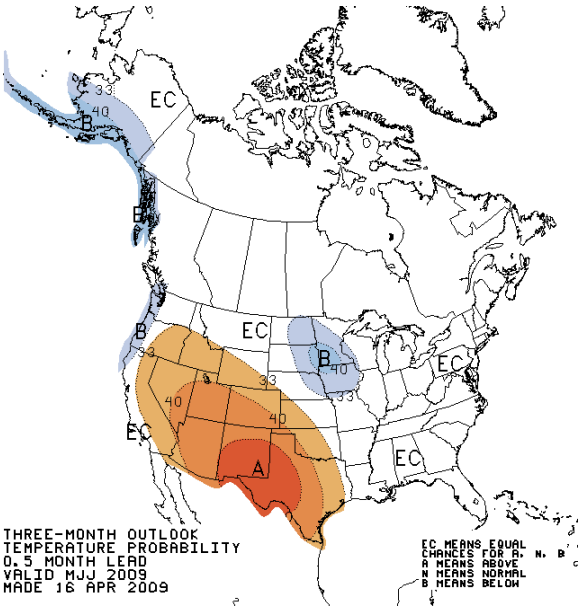
For more information visit http://www.azwater.gov/azdwr/statewideplanning/drought/droughtstatus.htm

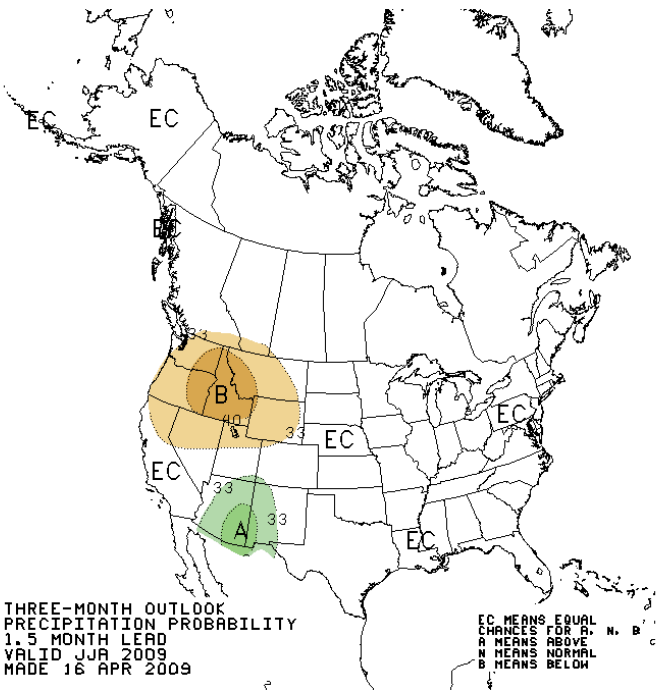
Three-month Precipitation and Temperature Outlook

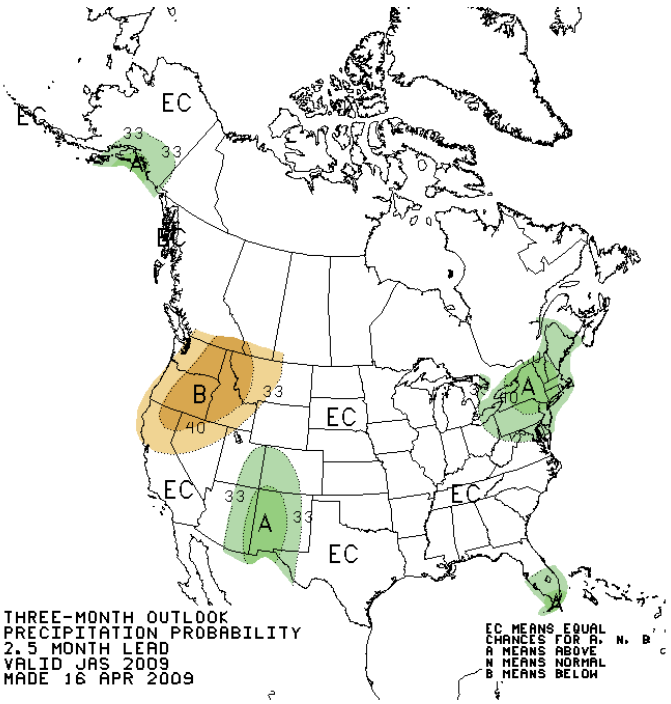




The CPC Temperature Outlook for May through July 2009 indicates moderately high confidence that temperatures will be above-average across the state during the 90-day period. The CPC Precipitation Outlook for May through July 2009 indicates there are equal changes for below-average, average, and above-average precipitation across the state during the 90-day period.

Monsoon Precipitation Outlook





The CPC Precipitation Outlook for June through August, *and* for July through September 2009 indicates modest confidence precipitation will be above average for most of Arizona.