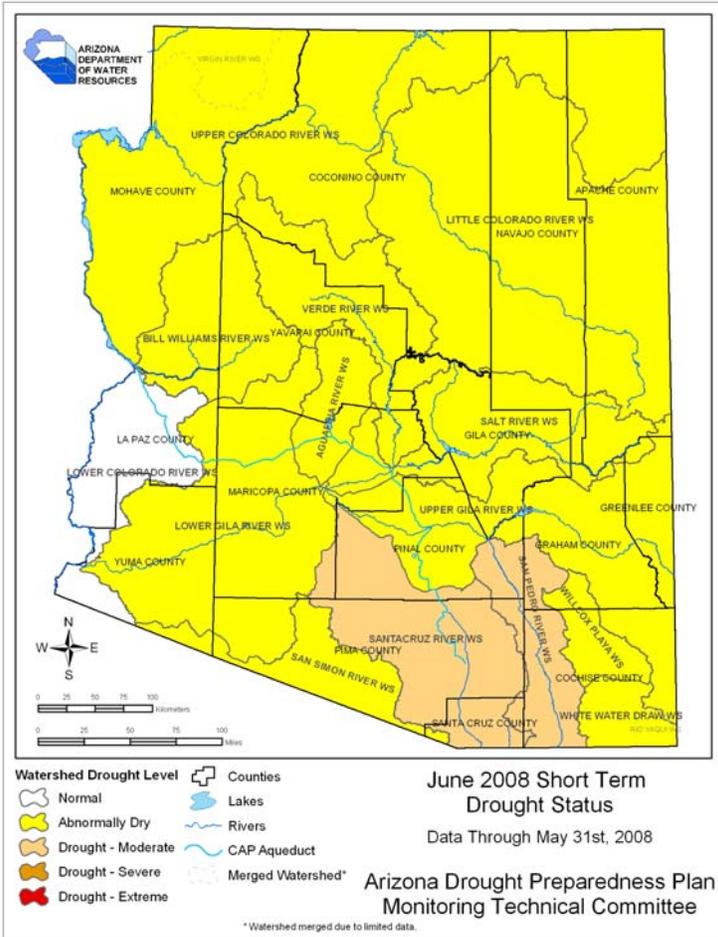
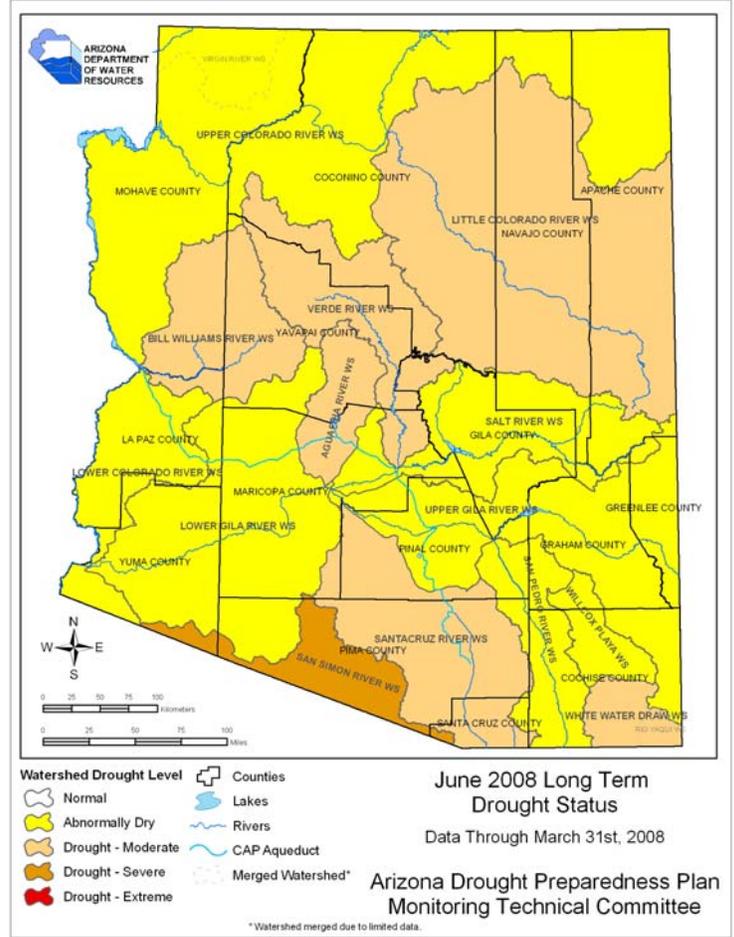


# Arizona Drought Monitor Report June 2008

## Short-term Drought Status



## Long-term Drought Status



### Short-term Update

May is normally Arizona's driest month, and this May was very dry in most watersheds. The lower Colorado had enough rain in May to move up one drought category to no drought. Further east, the Willcox Playa and Whitewater Draw watersheds both improved from moderate drought to abnormally dry. The rainfall was not evenly distributed across southern Arizona, as it missed the Santa Cruz watershed, which worsened from abnormally dry to moderate drought. The upper Colorado also dropped one category from no drought to abnormally dry as the May storms generally missed the northern half of the state.

### Long-term Update

While the long-term drought condition will not be changed until the July update, using data through June, the dryness in spring and late winter should have an impact on the long term situation. The 36- and 48-month precipitation is still well below average and the summer monsoon is not expected to be wet enough to make up for the relatively dry winter. However, the driest areas of the state are in the southeast, where the monsoon normally brings the most precipitation.



# Reservoir Storage



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

# Vegetation Health



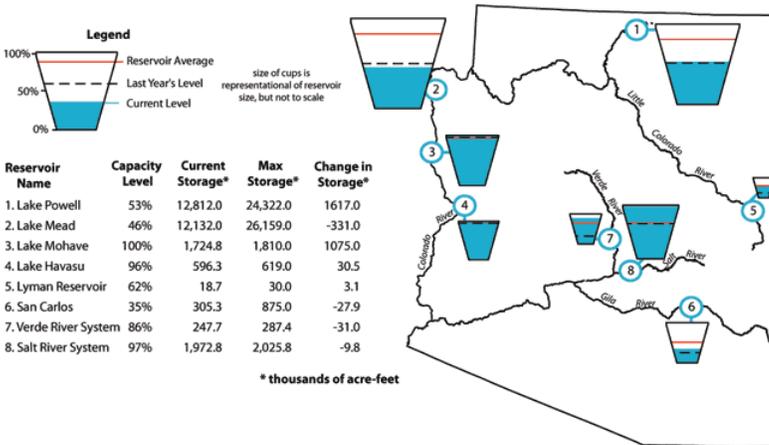
Jeff Sevoss

## Arizona Reservoir Status

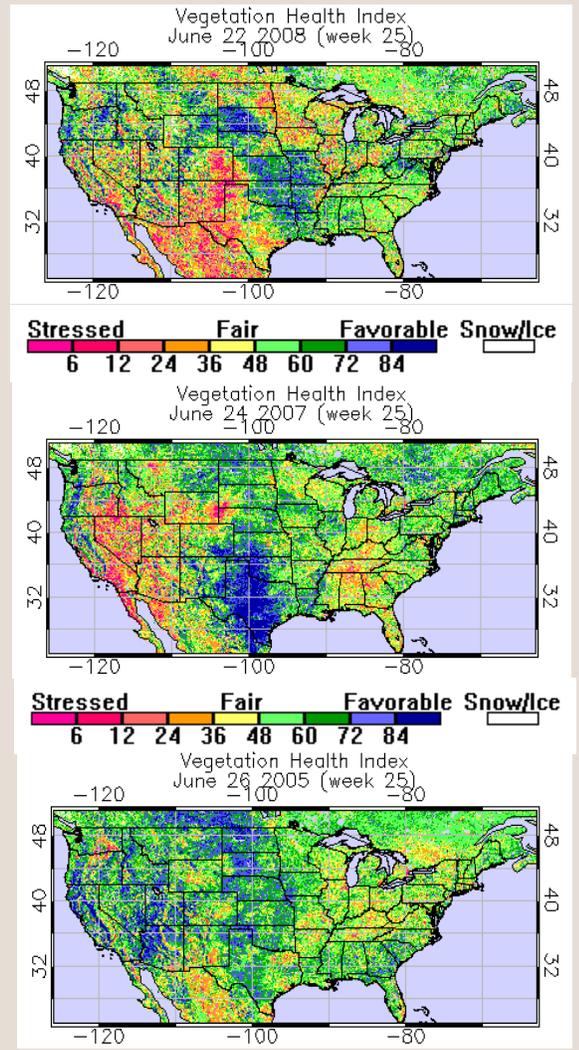
Reservoir storage in Lake Powell increased by more than 1.6 million acre-feet during the last month (see figure below). The June 9 elevation of Lake Powell was 3,619.18 feet above sea level. Combined storage in Lakes Powell and Mead is expected to increase by the end of the water year. Since last month, storage in the Salt and Verde River watersheds declined slightly.

In water news, the free swimming larvae of invasive quagga mussels have been detected in the Central Arizona Project Canal, Phoenix, and Tucson (New York Times, June 17). The mussels, detected in Lakes Mead and Pleasant, have also wreaked havoc on Great Lakes ecology during the last decade. Perhaps most alarming is that the mussels, which filter and concentrate toxins, are associated with avian botulism and huge bird die-offs as birds eat the tainted mussels. Around Lake Mead, bald eagles may be threatened.

Arizona reservoir levels for May 2008 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.



Recent vegetation health index (VHI) data from the NOAA Center for Satellite Applications and Research (top figure) shows most of Arizona in fair-to-favorable conditions. In contrast to one year ago (middle figure), vegetation conditions have improved across central and western Arizona. Of particular concern are parts of southern and north-central Arizona, where VHI data suggest high vegetation stress. In contrast, vegetation health was far more favorable across much of the state in late June, 2005, due to abundant precipitation that winter (bottom figure). Southeastern Arizona has suffered the majority of the state's large fires this season; most large fires ignited in June. In 2008, Arizona has thus far logged lower than average acres burned. The Southwest Coordination Center's July fire potential outlook suggests above normal significant fire potential across northwestern Arizona, until mid-month.



## AZ DroughtWatch Arizona's Drought Impact Reporting System

### Get Involved with Arizona DroughtWatch

AZ DroughtWatch is an internet reporting tool designed to collect and display timely observations of drought impacts across Arizona. Local drought impact group members, agency field experts, and local volunteers can contribute impact information through the survey on a monthly basis. These observations are invaluable in properly monitoring and characterizing drought across Arizona's complex landscape. Information collected through AZ DroughtWatch will be used by:

- Local communities to monitor conditions in support of drought mitigation plans and to guide longer-term risk assessment
- State Drought Monitoring Technical Committee in the production of monthly drought status maps
- National Drought Mitigation Center in the development of the weekly National Drought Monitor

AZ DroughtWatch is currently in its beta-testing release and is able to accept data. If you are interested in learning more or would like to contribute impact reports go to <http://azdroughtwatch.org>.

# Mountain Streamflow



## May Streamflow

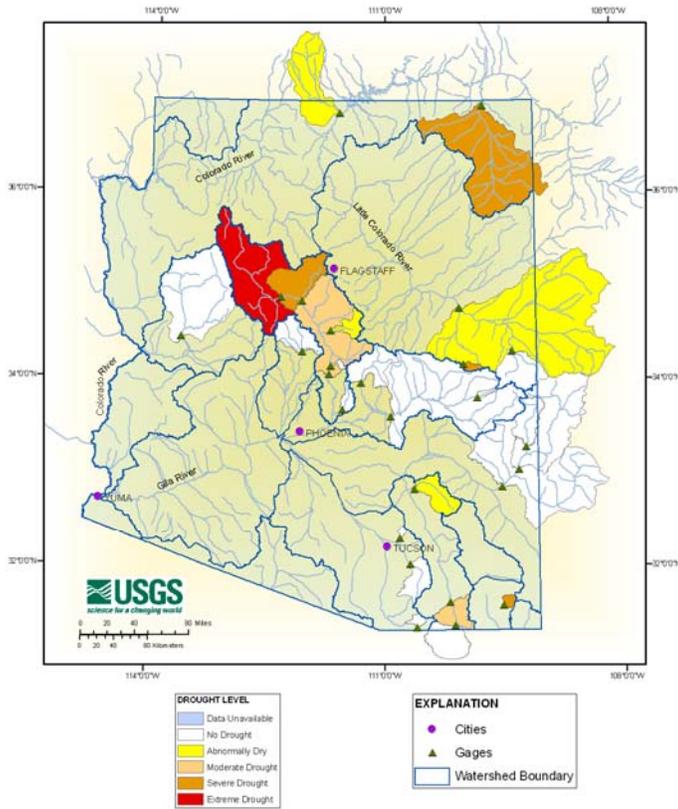
At the end of May, low pressure systems brought precipitation that resulted in brief but elevated streamflow in many watersheds throughout Arizona. Although streamflow was significant following these storms they did little to increase average monthly discharge. Therefore the drought condition for each watershed (left) was primarily dependent on baseflow conditions and not runoff events.

Water body	May Runoff in Acre Feet	% of Median
Salt River near Roosevelt	44,701	76%
Tonto Creek above Gun Creek near Roosevelt	1,599	63%
Verde River at Horseshoe Dam	7,993	61%
Combined Inflow to Salt River Project (SRP) reservoir system	54,293	71%
Little Colorado River above Lyman Lake	1,107	185%
Gila River to San Carlos Reservoir	4,120	62%

*Streamflow Observed at USGS Gauging Stations*

### Drought Levels Based on Monthly Streamflow Discharge

May 2008



## Mountain Precipitation

As of June 1, the snowpack is completely melted out. Monitoring stations show significant precipitation occurring in the mountains of Arizona during May, ranging from 103% of average in the Verde River Basin to 290% of average in the Salt River Basin. Cumulative precipitation for the water year (Oct. 1 to May 30) remains at or above average in all basins.

Watershed	Percent of 30-Year Average		
	Snowpack Levels as of		Precipitation Oct 1-May 30
	May 1	June 1	
Salt River Basin	—	—	126%
Verde River Basin	—	—	117%
Little Colorado River Basin	—	—	134%
San Francisco-Upper Gila River Basin	—	—	97%
<b>Other Points of Interest</b>			
Chuska Mountains	—	—	—
Central Mogollon Rim	—	—	131%
Grand Canyon	—	—	59%
San Francisco Peaks	141%	—	78%
Arizona Statewide	61%	—	—

# Temperature and Precipitation



May is normally very dry statewide, but this year it was exceptionally wet in many locations, as three wet low pressure systems moved across the state. Some of the higher elevations even had snow. Precipitation was above the 52<sup>nd</sup> percentile for all watersheds except the Virgin in NW Arizona. As a result of the storm systems, all climate divisions except the NW had temperatures near or below average for the month.

The 3-month period of March through May was drier than average, since both March and April were very dry across the state. The lower Colorado and lower Gila watersheds were the only watersheds above the 21<sup>st</sup> percentile for precipitation. Central and southeastern Arizona were especially dry, below the 15<sup>th</sup> percentile. Temperatures were near or slightly above average.

The 6-month period precipitation, from December through May, was near average in the southeast and above average in the rest of the state, due to the wet months of December through February. Temperatures were near average in the southern and western parts of the state, and cooler than average on the Colorado Plateau.

The 12-month period had near- or below-average precipitation in five watersheds in west central and southeastern Arizona, and above-average precipitation on the Colorado Plateau and in southwestern Arizona on the lower Gila River watershed. The cooler temperatures in May brought the twelve month temperature average

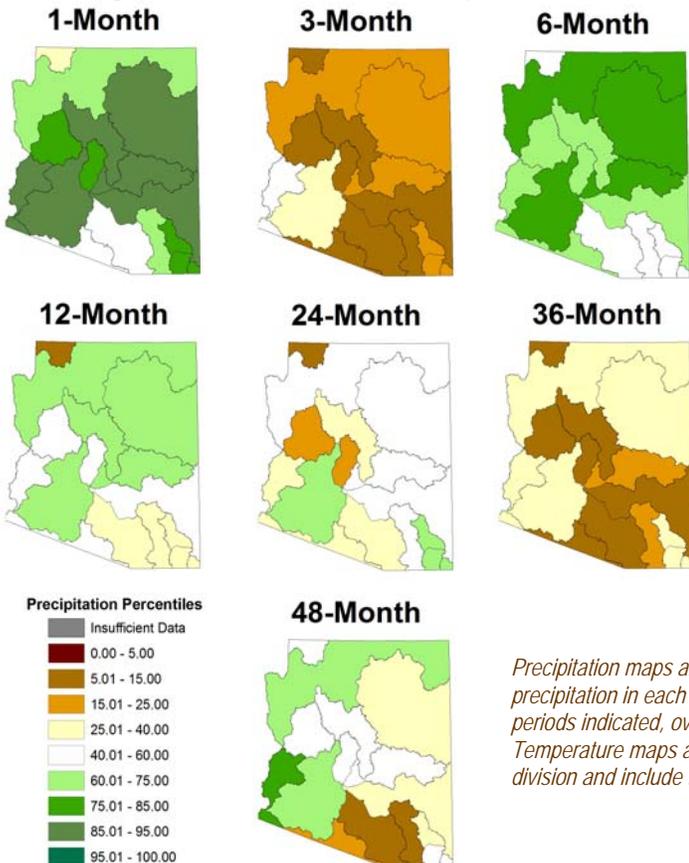
down slightly on the Colorado Plateau, and in west central and southwestern Arizona. However, temperatures are still high, with all climate divisions above the 70<sup>th</sup> percentile.

The 24-month period was slightly wetter than last month, with three watersheds now above average for the 24-month period. The lower Gila, Willcox Playa and Whitewater Draw have moved up to the 61<sup>st</sup> percentile. The rest of the state is near or slightly below average, with the Bill Williams and Agua Fria the driest, below the 25<sup>th</sup> percentile. Temperatures for the 24-month period cooled slightly so that all climate divisions are below the 93<sup>rd</sup> percentile.

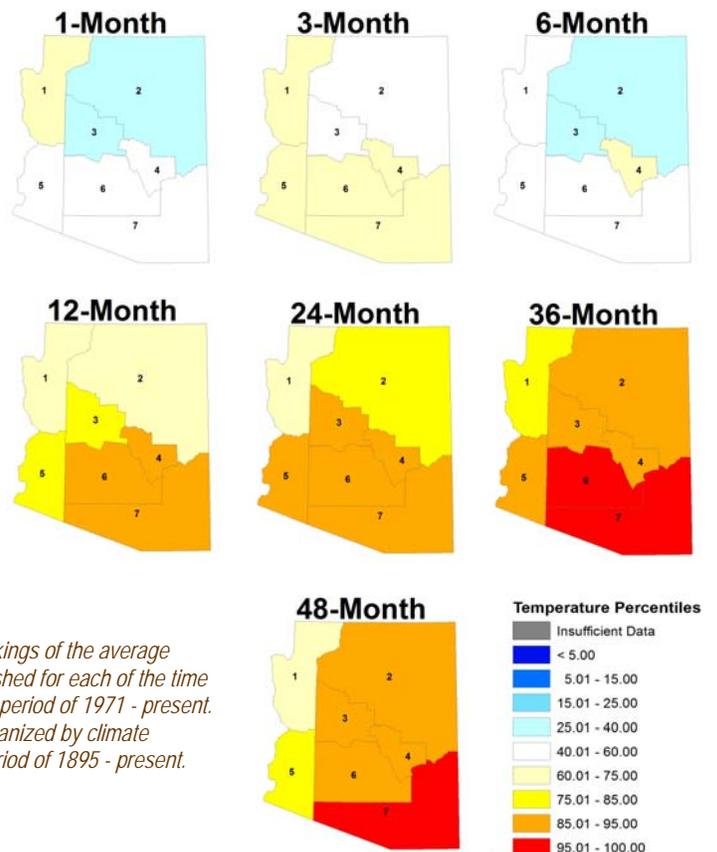
The 36-month period is the driest long-term period, with most of the southeast and central watersheds at or below the 20<sup>th</sup> percentile. All watersheds remain below the 32<sup>nd</sup> percentile, and seven watersheds are below the 15<sup>th</sup> percentile. For temperature, the southeast climate divisions remain above the 95<sup>th</sup> percentile and even the coolest climate division, in the northwest, is still above the 75<sup>th</sup> percentile.

The 48-month period had dry conditions in the southeast, and near average conditions in central Arizona, and wet conditions in central and western Arizona. All climate divisions are above the 74<sup>th</sup> percentile for temperature, but the southwest climate division has dropped below the 85<sup>th</sup> percentile.

## Precipitation Percentiles by Watershed



## Temperature Percentiles by Climate Division



*Precipitation maps are rankings of the average precipitation in each watershed for each of the time periods indicated, over the period of 1971 - present. Temperature maps are organized by climate division and include the period of 1895 - present.*

# 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  
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Dino DeSimone, Natural Resources  
Conservation Service

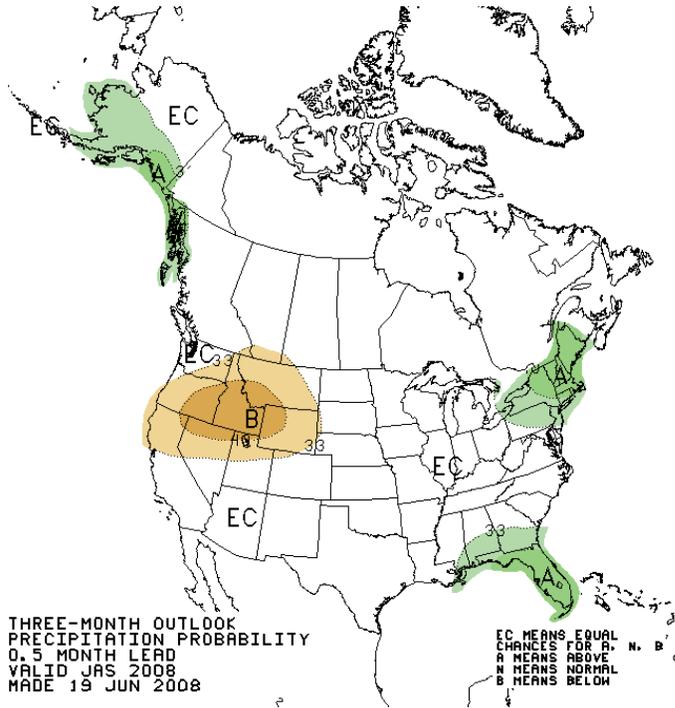
Charlie Ester, Salt River Project

Ron Ridgway, Arizona Division of Emer-  
gency Management

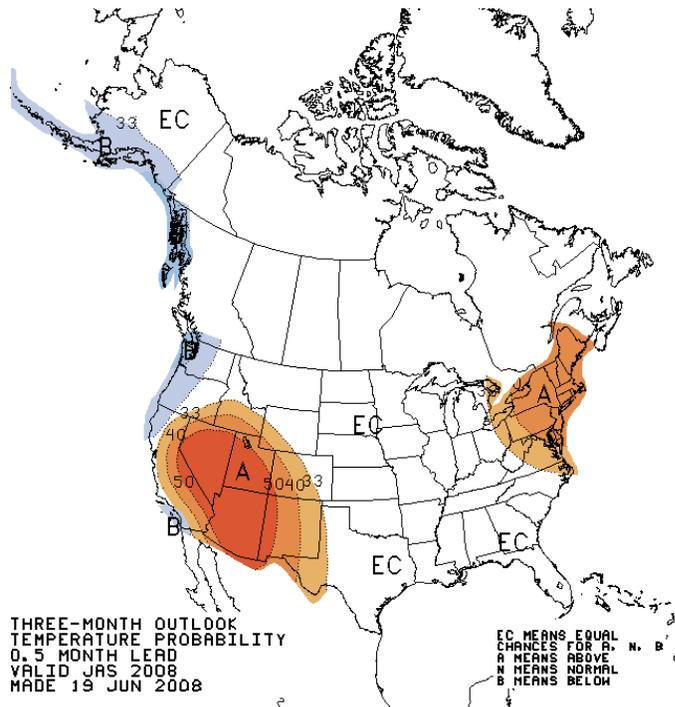
Nancy Selover, State Climatologist  
Arizona State University

Chris Smith, U.S. Geological Survey

Coordinator: Susan Craig, Arizona  
Department of Water Resources  
Computer Support: Andy Fisher, Arizona  
Department of Water Resources



*There is an equal likelihood of above-average, average, or below-average precipitation across the state during the 90-day period (July through September). Precipitation during this period is of a showery nature, so it is common for the amount of rain during the period to vary considerably even across relatively small regions of the state.*



*The temperature outlook indicates a high level of confidence temperatures will be above average across the entire state for the 90-day period (July through September).*