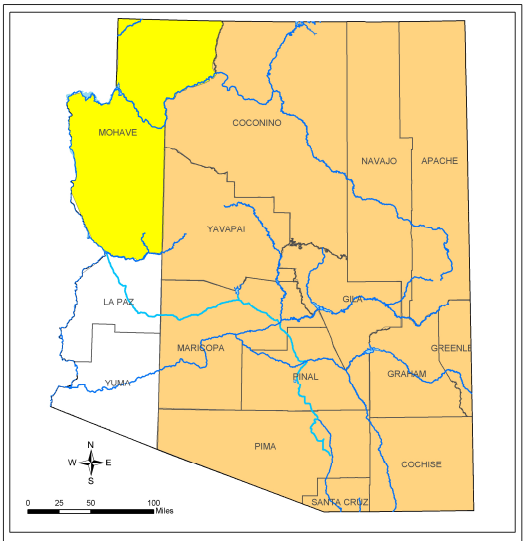
Arizona Department of Water Resources

THE ON DROUGHT

January Drought Monitor Report



January 2006 Short Term Drought Status

Data Through December 31st 2005

Arizona Drought Preparedness Plan Monitoring Technical Committee

Normal
Abnormally Dry
Drought - Moderate
Drought - Severe
Drought - Extreme
Counties
Lakes
Rivers
CAP Aqueduct

Produced by the Monitoring Technical Committee

Mike Crimmins, Extension Agent – U of A Cooperative Extension

Drew Ellis, State Climatologist Arizona State University

Charlie Ester, Salt River Project

Andy Fisher, Arizona Department of Water Resources

Gregg Garfin, University of Arizona – CLIMAS

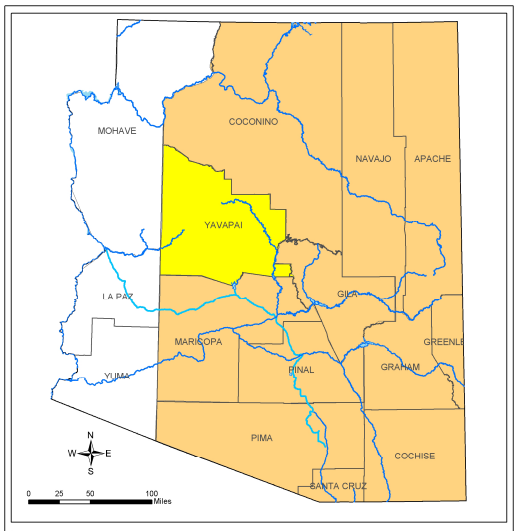
Tony Haffer, National Weather Service

Larry Martinez, Natural Resource Conservation Service

Ron Ridgway, Arizona Division of Emergency Management

Chris Smith, U.S. Geological Survey

Coordinator - Susan Craig, Arizona Department of Water Resources



January 2006 Long Term Drought Status

Data Through December 31st, 2005

Arizona Drought Preparedness Plan Monitoring Technical Committee

Normal
Abnormally Dry
Drought - Moderate
Drought - Severe
Drought - Extreme
Counties
Lakes
Rivers
CAP Aqueduct

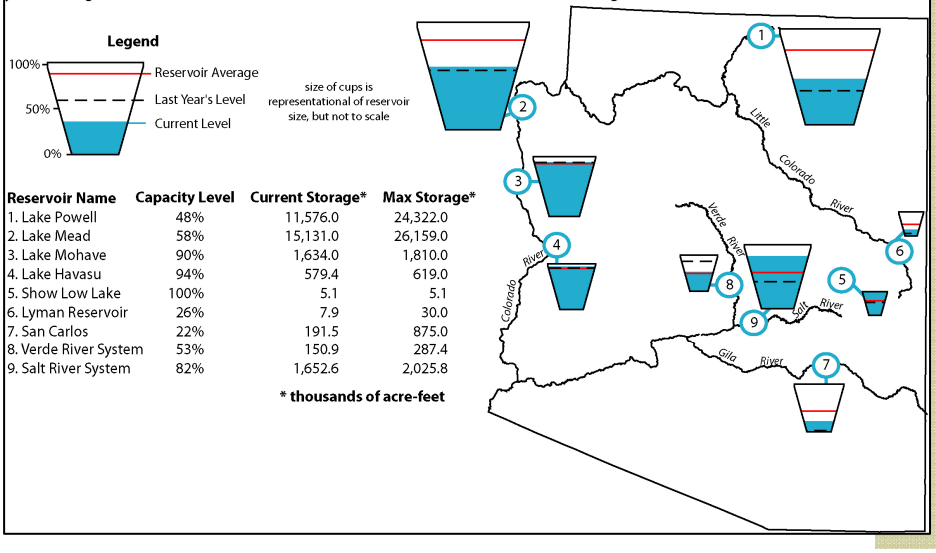
Arizona's short-term drought status is moderate in the majority of the state. Abnormally dry conditions exist in the northwest. The southwestern region of the state is normal.

Drought Decision Triggers
www.azwater.gov

Arizona's long-term drought status is moderate in the northeast, east- and south-central and southeast regions of the state. Abnormally dry conditions exist in the west-central areas and normal conditions in north– and south-west regions.

Reservoir Storage Assessment

Figure 5. Arizona reservoir levels for December 2005 as a percent of capacity. The map also depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.



Reservoir Name	Capacity Level	Current Storage*	Max Storage*
1. Lake Powell	48%	11,576.0	24,322.0
2. Lake Mead	58%	15,131.0	26,159.0
3. Lake Mohave	90%	1,634.0	1,810.0
4. Lake Havasu	94%	579.4	619.0
5. Show Low Lake	100%	5.1	5.1
6. Lyman Reservoir	26%	7.9	30.0
7. San Carlos	22%	191.5	875.0
8. Verde River System	53%	150.9	287.4
9. Salt River System	82%	1,652.6	2,025.8

*** thousands of acre-feet**

In December, reservoir storage decreased in several Arizona reservoirs. The combined storage in Lake Powell and Lake Mead decreased by approximately 166,000 acre-feet between the end of November and the end of December. According to Tom Ryan of the U.S. Bureau of Reclamation, water year 2006 (which began on October 1, 2005) inflow to Lake Powell has been close to average. Lake Powell elevation is expected to decrease until late March or early April, when snowmelt runoff is expected to increase surface water elevation. As of January 1, 2006, Lake Powell elevation was 3,598 ft.; elevation is projected to decrease to 3,592 ft. by April 1. San Carlos reservoir decreased by 19,300 acre-feet. Storage remained approximately steady in the Verde and Salt River Systems, Lyman Reservoir, and Show Low Lake.

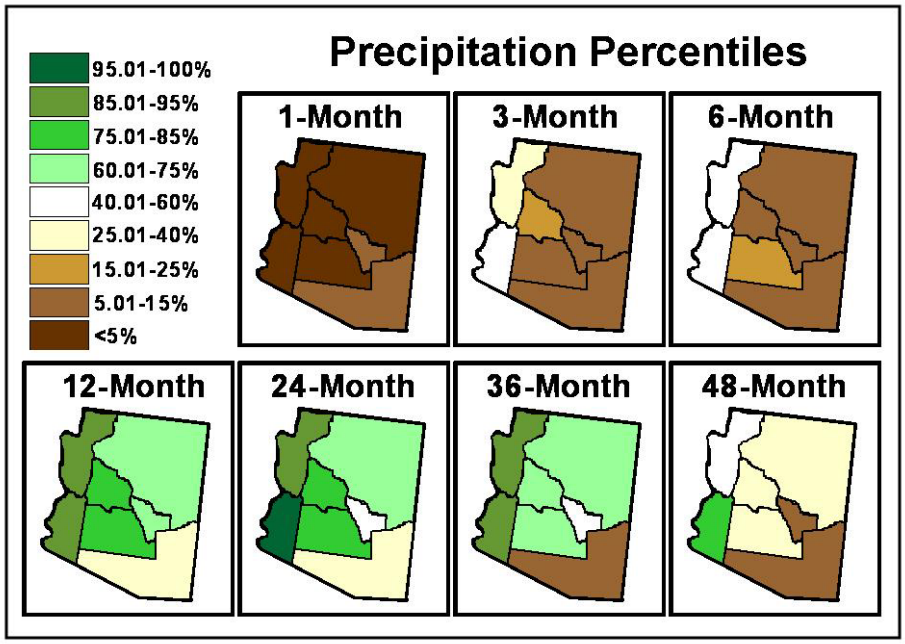
Climate Assessment

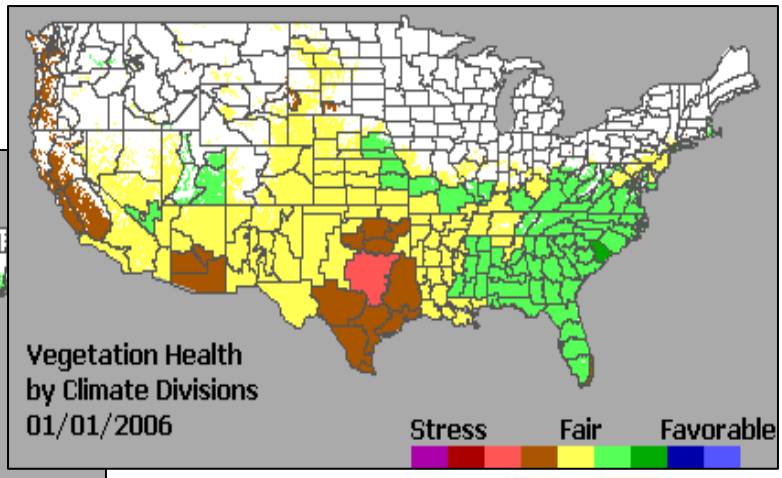
Temperature & Precipitation

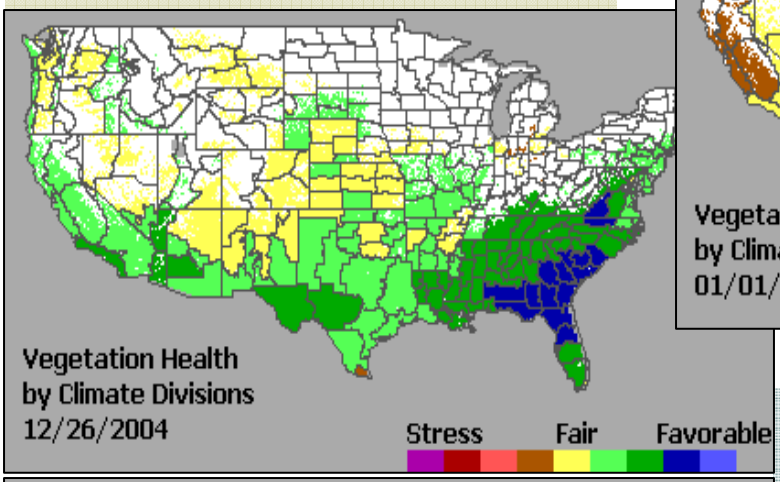
December 2005 was characterized by warmth and extreme dryness across the entire state, including the driest December on record for northeastern, west-central, southwestern, and south-central Arizona. On the longer term, there exists little or no evidence of drought across Arizona over the past 12-to-24 months, with generally much greater than normal precipitation during the period. However, long-term drought is clearly evident on the 36-month time frame across southeastern Arizona, and dryness and drought across east-central and southeastern Arizona is obvious on the 48-month time frame.

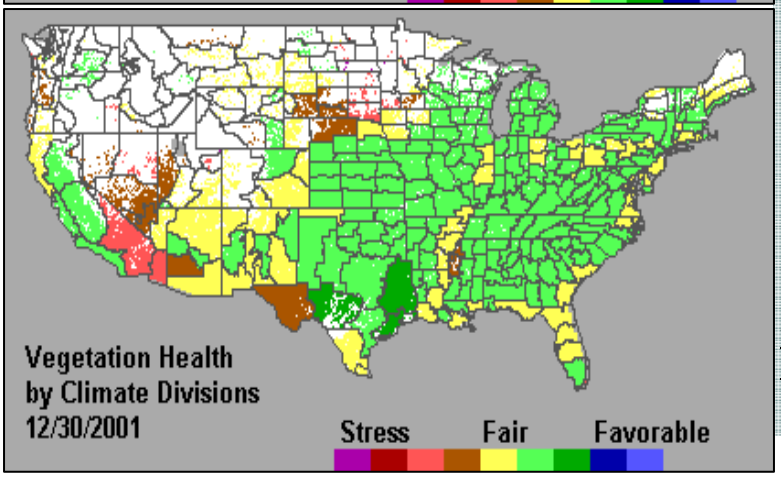
Overall, the southeastern and east-central regions of Arizona continue to struggle with long-term precipitation totals suggestive of drought, and recent precipitation totals indicate re-emerging dry conditions across much of the state.

For full assessment, see State Climate Update for Arizona – Conditions through November 2005 www.public.asu.edu/~dellis/update.htm.









Vegetation Status

As of the beginning of 2006 (top image), satellite-measured vegetation health is fair or poorer, with the lowest vegetation health index values in southern Arizona. Note the marked difference between current vegetation health and that of approximately 1 year ago (December 26, 2004), with the exception of northeastern Arizona. Vegetation health index values for this time of year in late 2001 (bottom image) provide further contrast to current conditions. www.orbit.nesdis.noaa.gov/smcd/emb/vci/usavhcd.html.

Streamflow & Runoff

Mountain Precipitation

Data from high elevation SNOTEL sites show that precipitation totals for the month of December 2005 were well below average for the Salt, Verde, San Francisco, Gila, and Little Colorado River Basins. Additionally, river basin precipitation since October 1 is nearly one-third the amount for this time of year; while snow measurements conducted January 1 show that winter snowpacks have yet to materialize in the mountain watersheds of northern Arizona due to the mild winter weather.

Watershed	As of January 1, 2006 Percent of 30-Yr. Average	
	Snowpack Level	Water Year Precipitation
Salt River Basin	0%	30%
Verde River Basin	0%	29%
Little Colorado River Basin	0%	27%
San Francisco-Upper Gila River Basin	7%	39%
Central Mogollon Rim	0%	21%
Grand Canyon	0%	66%
Arizona Statewide	7%	--
Upper Colorado River Basin	105%	112%

Snowpack Conditions and Water Year Precipitation *(Source USDA-NRCS)*

Runoff

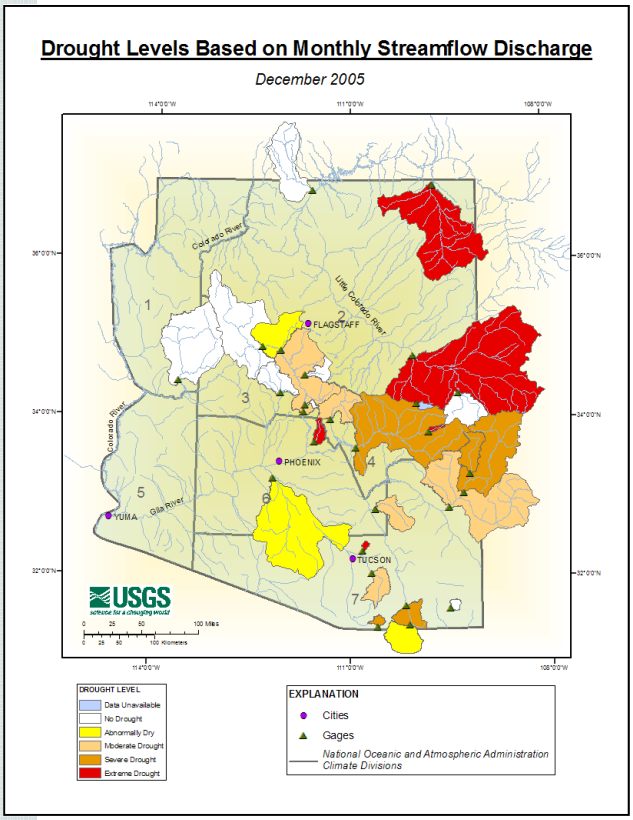
Salt River runoff during December 2005 was 9,630 acre-feet (a-f), which is 54 percent of median. At Tonto Creek, December runoff was recorded at 780 a-f, which is 40 percent of median. Verde River runoff during December was 15,200 a-f, which is 84 percent of median. Total runoff into the Salt River Project (SRP) reservoir system for December was 25,620 a-f, which is 68 percent of median.

On January 1, 2006, the Salt River reservoir system was at 82 percent of capacity, with 1,652, 638 a-f in storage, which is 142 percent of median and 772,000 a-f more than a year ago. The Verde River reservoir system was 53 percent of capacity on January 1, with 150,891 a-f in storage, which is 141percent of median. The combined SRP reservoir system is 78 percent of capacity, with 1,803,529 a-f in storage, which is 140 percent of median and 684,000 a-f more than a year ago.

In the Little Colorado River, observed runoff above Lyman Lake was recorded at 900 a-f for December, 225 percent of median. At Lyman Lake, end of December reservoir storage was recorded at 7,900 a-f, 26 percent of capacity and 5,300 a-f more than a year ago.

Gila River observed flow for December at the gauging station at Calva, Arizona, located near the head of San Carlos reservoir, recorded runoff at 1,200 a-f, 8 percent of median. At San Carlos, end of December reservoir storage was recorded at 191,500 a-f, 22 percent of capacity and 167,400 a-f more than a year ago.

In the Colorado River Basin, inflow to Lake Powell for December was recorded at 435,600 a-f, 99 percent of the long-term average. At Lake Powell, end of December reservoir storage was recorded at 11,576,000 a-f, 48 percent of capacity and 2,912,000 a-f more than a year ago.



For more information, visit az.water.usgs.gov/droughtmaps/droughtmaps.htm.

Weather Outlook

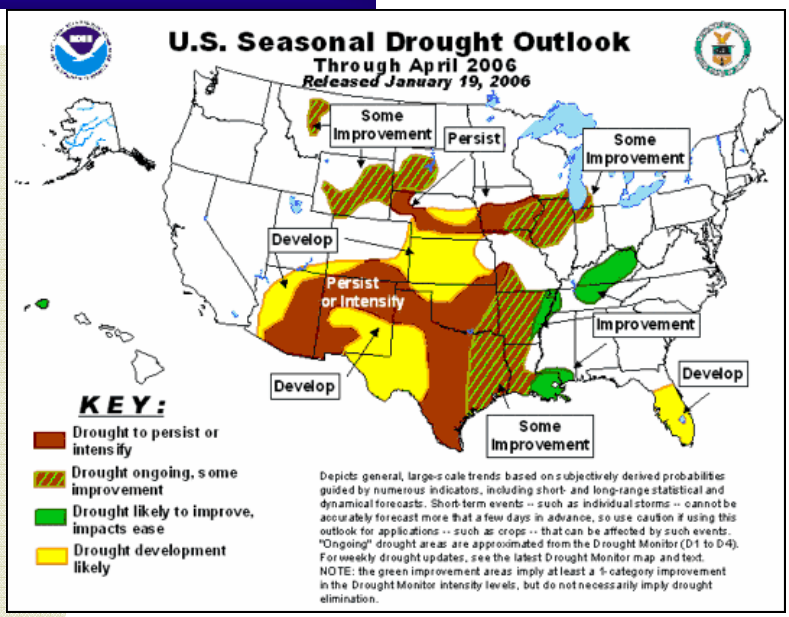
Climate & Drought Outlooks

The NOAA Climate Prediction Center (CPC) precipitation outlook for Arizona during February indicates some confidence precipitation will be below average for the month. The CPC temperature outlook for February indicates modest confidence for above average temperatures statewide.

The CPC Seasonal Drought Outlook (below) indicates drought conditions in roughly the southeast half of Arizona will persist or intensify through April 2006, and drought conditions are expected to develop in much of the northwest half of the state. The CPC Outlook indicates modest confidence for below average precipitation in Arizona, for the 90-day period from February through April 2006. The CPC Outlook also indicates significant confidence temperatures will be above average statewide during this period.

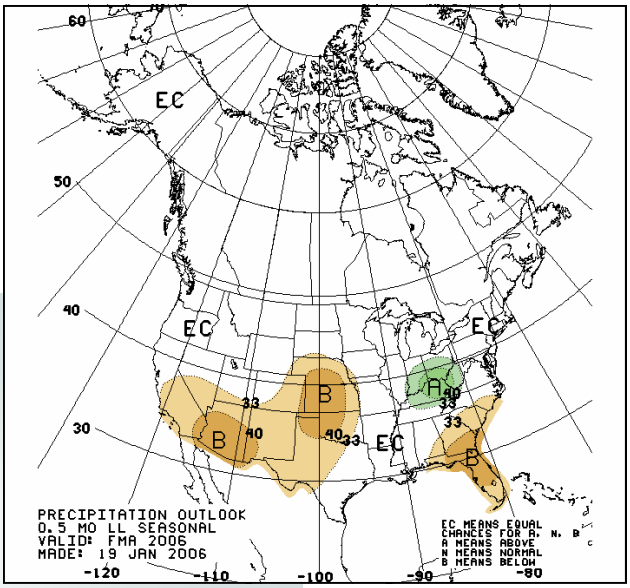
Also see Southwest Climate Outlook - November 2005 www.ispe.arizona.edu/climas/forecasts/archive/nov2005/swconditions.html.

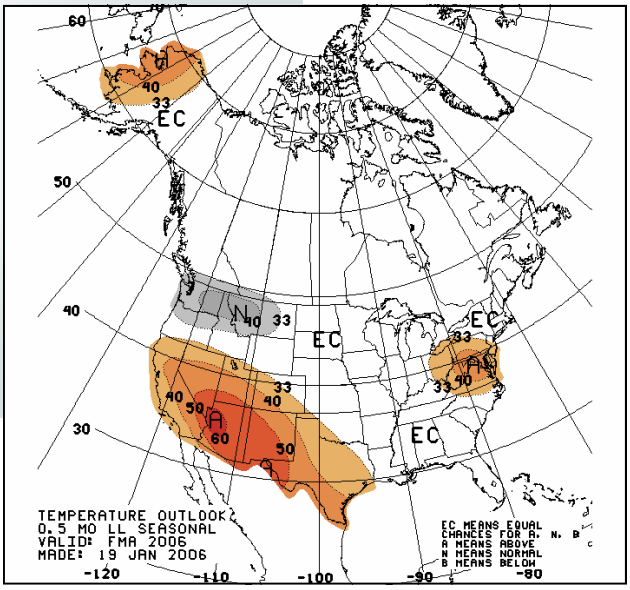
For additional weather information from the Office of the State Climatologist for Arizona - www.public.asu.edu/~dellis/azscweather.html.



Precipitation & Temperature Outlooks

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, 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" conditions during a given period will be in any one of the three categories.





This report was based on the data and information through December 31, 2005. It does not reflect current conditions.